

Supplementary information

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Control of morphogenesis, protease secretion and gene expression in *Candida albicans* by the preferred nitrogen source ammonium

Figure S1

Table S1

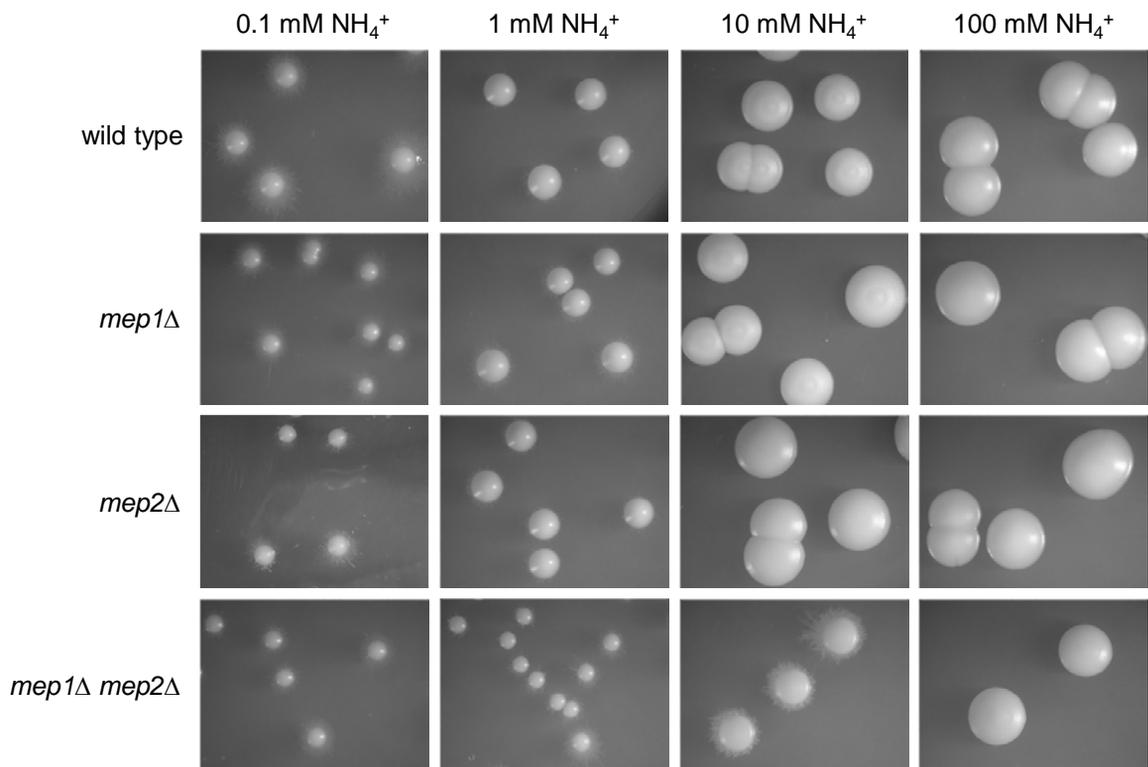


Fig. S1. Filamentous growth of *C. albicans* strains on SD agar plates containing 100 μM arginine and the indicated concentrations of ammonium. Colonies were photographed after 7 days of incubation at 37°C. The following strains were used: SC5314 (wild type), SCMEP1M4A and -B (*mep1*Δ), SCMEP2M4A and -B (*mep2*Δ), SCMEP12M4A and -B (*mep1*Δ *mep2*Δ). The two independently constructed series of mutants behaved identically and only one of them is shown. In contrast to the wild type and the *mep1*Δ and *mep2*Δ single mutants, the *mep1*Δ *mep2*Δ double mutants still filament in the presence of 10 mM ammonium, but filamentation is inhibited at high (100 mM) ammonium concentrations, at which the ammonium permeases are no longer required.

Table S1. Differential gene expression in response to nitrogen limitation.

The *C. albicans mep2Δ* mutants MEP2M5A and B and the complemented strains MEP2MK1A and B were grown to log-phase in SD medium containing low (50 μM) or high (38 mM) concentrations of ammonium sulfate. Total RNA was isolated and a genome wide transcriptional analysis performed as described in *Materials and Methods*. The average fold upregulation (+) or downregulation (-) under limiting ammonium conditions is given for each gene probe on the arrays. Upregulations are marked by red and yellow, downregulations by blue and light blue; high reproducibility is shown by dark (red and blue), medium reproducibility by light colours (yellow and light blue). Not reliable is tagged white.

orf19 no.	Gene name ¹	Fold up- or downregulation in 100 μ M vs. 76 mM NH ₄ ⁺		Description
		complemented strains (MEP2MK1A and -B)	mep2 Δ mutants (MEP2MSA and -B)	
orf19.1691		34.88	38.91	Plasma-membrane-localized protein; filament induced; Hog1, ketoconazole, fluconazole and hypoxia-induced; regulated by Nrg1, Tup1, Upc2; induced by prostaglandins; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.2220		33.15	24.77	Protein of unknown function; Hap43-repressed gene; by Rgt1; repressed in Spider biofilms by Bcr1, Tect1, Brg1, Rob1 and induced by Efg1, Ndt80; Spider biofilm induced
orf19.2517		32.24	21.62	Predicted membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS)
orf19.2114		17.29	14.89	Predicted uricase; ortholog of <i>S. pombe</i> SPCC1223.09; Spider biofilm induced
orf19.2023	HGT7	14.89	12.14	Putative MFS glucose transporter; glucose, fluconazole, Snf3 induced, expressed at high glucose; 20 member C. albicans glucose transporter family; 12 TM regions predicted; flow model biofilm induced; Spider biofilm repressed
orf19.1097	ALS2	12.68	14.36	ALS family protein; role in adhesion, biofilm formation, germ tube induction; expressed at infection of human buccal epithelial cells; putative GPI-anchor; induced by ketoconazole, low iron and at cell wall regeneration; regulated by Stu1p
orf19.5917	STP1	11.76	8.48	Transcription factor; regulates SAP2, OPT1 expression and thereby protein catabolism for nitrogen source; activated via amino-acid-induced proteolytic processing; macrophage/pseudohyphal-repressed; Spider biofilm repressed
orf19.258		11.04	14.57	Protein of unknown function; Spider biofilm induced
orf19.5454	DAL1	10.89	8.86	Putative allantoinase; transcript regulated by Nrg1 and Mig1; macrophage/pseudohyphal-repressed
orf19.5784	AMO1	10.61	10.21	Putative peroxisomal copper amine oxidase
orf19.420		9.71	10.24	Protein of unknown function
orf19.1363		9.63	8.07	Putative protein of unknown function; Plc1-regulated; transcript induced by Mln1 under weak acid stress; flow model, rat catheter, Spider biofilm induced
orf19.2020	HGT6	9.43	8.43	Putative high-affinity MFS glucose transporter; 20 family members; induced in core stress response; fluconazole, oralpharyngeal candidiasis induced; flow model biofilm induced; Spider biofilm induced
orf19.3803	MNN22	8.9	9.23	Alpha-1,2-mannosyltransferase; required for normal cell wall mannan; regulated by Tsa1, Tsa1B at 37 deg; repressed in core stress response; NO, Hog1 induced; confers sensitivity to cell wall perturbing agents; Spider biofilm repressed
orf19.5672	MEP2	8.58	0.5	Ammonium permease and regulator of nitrogen starvation-induced filamentation; 11 predicted transmembrane regions; in low nitrogen cytoplasmic C-terminus activates Ras/cAMP and MAPK signal transduction pathways to induce filamentation
orf19.7196		8.35	6.94	Putative vacuolar protease; upregulated in the presence of human neutrophils; Spider biofilm induced
orf19.5741	ALS1	8.31	9.89	Cell-surface adhesin; adhesion, virulence, immunoprotective roles; band at hyphal base; Rgt1, Ssk1, Spider biofilm induced; flow model biofilm repressed; CAI-4 strain background effects; promoter bound Bcr1, Tect1, Efg1, Ndt80, and Brg1
orf19.6925	HTB1	8.27	7.12	Histone H2B; induced by adherence to polystyrene; amphotericin B, caspofungin repressed; flucytosine, fluconazole induced; Efg1 regulated; slow growth, increased white-to opaque switch in ectopic expression strains; Spider biofilm repressed
orf19.5169		8.02	7.39	Ortholog(s) have cytosol, nucleus localization
orf19.781	DUR3	7.97	10.14	High affinity spermidine transporter; expression is induced by urea; fungal-specific (no human or murine homolog); not required for virulence in a mouse intravenous model
orf19.6073	HMX1	7.96	5.46	Heme oxygenase; utilization of hemin iron; transcript induced by heat, low iron, or hemin; repressed by Efg1; induced by low iron; upregulated by Rim101 at pH 8; Hap43-induced; Spider and flow model biofilm induced
orf19.3713		7.77	8.01	Protein of unknown function; flow model biofilm induced; Spider biofilm induced; induced by Mln1 under weak acid stress; transcript detected in high-resolution tiling arrays
orf19.1097	ALS2	7.76	5.69	ALS family protein; role in adhesion, biofilm formation, germ tube induction; expressed at infection of human buccal epithelial cells; putative GPI-anchor; induced by ketoconazole, low iron and at cell wall regeneration; regulated by Stu1p
orf19.2847.1		6.8	4.48	Pseudogene; formerly an ORF Predicted by Annotation Working Group that was subsequently removed from Assembly 20
orf19.2121		6.75	3.93	#NV
orf19.7002		6.68	11.78	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_806990, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_122709, <i>Debaryomyces hansenii</i> CBS767 : DEHA2E00110g and <i>Pichia stipitis</i> Pigna1 : PICST_30109
orf19.3038	TPS2	6.54	7.84	Trehalose-6-phosphate (Tre6P) phosphatase; mutant heat sensitive, accumulates Tre6P, decreased mouse virulence; possible drug target; 2 conserved phosphohydrolase motifs; no mammalian homolog; Hap43-repressed; flow model biofilm induced
orf19.1357	FCY21	6.49	7.89	High affinity, high capacity, hypoxanthine-adenine-guanine-cytosine/H+ symporter; similar to <i>S. cerevisiae</i> Fcy2; mutation confers resistance to 5-fluorocytosine (5-FC); flow model biofilm induced
orf19.1854	HMF22	6.44	4.44	Putative histone H4; regulated by Efg1; flucytosine, fluconazole-induced; amphotericin B, caspofungin repressed; colony morphology-related gene regulation by Ssn6; Hap43-induced; rat catheter and Spider biofilm repressed
orf19.413		6.37	6.22	Protein of unknown function; induced by Stu1; Spider biofilm induced
orf19.419		6.13	5.16	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.4773	AOX2	6.12	9.98	Alternative oxidase; cyanide-resistant respiration; induced by antimycin A, oxidants; growth; Hap43, chlamydo spore formation repressed; rat catheter, Spider biofilm induced; regulated in Spider biofilms by Bcr1, Tect1, Ndt80, Brg1
orf19.1052		6.11	4.56	Predicted histone H2B; Hap43-induced gene; Spider biofilm repressed
orf19.4215	FET34	6.07	6.41	Multicopper ferroxidase; induced by low iron, ciclopirox olamine, ketoconazole, hypoxia; alkaline induced by Rim101; repressed in fluconazole-resistant isolate; Stu1, Hog1 repressed; complements <i>S. cerevisiae</i> fet3; Spider biofilm induced
orf19.3475		6.03	5.2	Described as a Gag-related protein; hyphal induced; downregulation correlates with clinical development of fluconazole resistance; repressed by nitric oxide, 17-beta-estradiol, ethynyl estradiol
orf19.5451		5.97	6.5	Ortholog of <i>Candida guilliermondii</i> ATCC 6260 : PGUG_05321, <i>Candida lusitanae</i> ATCC 42720 : CLUG_00887 and <i>Candida albicans</i> WO-1 : CAWG_02354
orf19.1461		5.87	6.77	<i>S. pombe</i> ortholog SPCC576.01c is a predicted sulfonate dioxygenase; possibly transcriptionally regulated upon hyphal formation; Spider biofilm induced
orf19.3749	OPT3	5.79	4.98	Oligopeptide transporter; transcript induced by macrophage phagocytosis, BSA or peptides; fluconazole-induced; induced by Rim101 at pH 8; virulence-group-correlated expression; Hap43-repressed; Spider biofilm induced
orf19.1280	SUI1	5.78	6.36	Putative translation initiation factor; flucytosine induced; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.610	EFG1	5.72	6.42	bHLH transcription factor; required for white-phase cell type, RPM1 and Spider biofilm formation, hyphal growth, cell-wall gene regulation; roles in adhesion, virulence; Cph1 and Efg1 have role in host cytokine response; binds E-box
orf19.4873		5.7	5.09	Protein of unknown function; transcript regulated by white-opaque switch; flow model biofilm induced; Spider biofilm induced
orf19.3746	OPT2	5.57	5.92	Oligopeptide transporter; induced upon phagocytosis by macrophage; macrophage/pseudohyphal-repressed after 16h; fluconazole-induced; virulence-group-correlated expression; Hap43-repressed
orf19.7053	GAC1	5.36	4.45	Putative regulatory subunit of ser/thr phosphoprotein phosphatase 1; fluconazole-induced; caspofungin repressed; transcript induced by Mln1 under weak acid stress; regulated by Nrg1, Tup1; Spider and flow model biofilm induced
orf19.1723		5.29	5.82	Ortholog(s) have role in response to purine-containing compound and cytoplasm, nucleus localization
orf19.1509	ROD1	5.26	6.23	Protein similar to <i>S. cerevisiae</i> Rod1; a membrane protein with a role in drug tolerance; repressed by Rgt1; mutant is viable
orf19.2308		5.06	4.77	Putative 6-phosphofructo-2-kinase; catalyzes synthesis of fructose-2,6-bisphosphate; Hap43-repressed; flow model, rat catheter and Spider biofilm induced
orf19.900	NSP1	5	6.47	Essential component of the nuclear pore complex; sumoylation target; stationary phase enriched protein; rat catheter biofilm repressed
orf19.2021	HGT8	4.99	4.71	High-affinity glucose transporter of the major facilitator superfamily; 20 members in the <i>C. albicans</i> glucose transporter family; 12 probable membrane-spanning segments; gene has intron; expressed in rich medium; flow model biofilm induced
orf19.4540	UBC8	4.98	4.6	Predicted ubiquitin-conjugating enzyme that negatively regulates gluconeogenesis by mediating the glucose-induced ubiquitination of fructose-1,6-bisphosphatase; induced by alpha pheromone in SpiderM medium
orf19.781	DUR3	4.97	7.97	High affinity spermidine transporter; expression is induced by urea; fungal-specific (no human or murine homolog); not required for virulence in a mouse intravenous model
orf19.1378	SUP35	4.96	5.43	Translation factor eRF3; shows prion-like aggregation in some, not all, studies; partially complements <i>S. cerevisiae</i> sup35 mutant translation defect; species barrier with <i>S. cerevisiae</i> Sup35p prion; gene not regulated by yeast-hyphal switch
orf19.5612	BMT4	4.87	5.07	Beta-mannosyltransferase; for elongation of beta-mannose chains on the acid-labile fraction of cell wall phosphopeptidomannan; 9-gene family member; regulated by Tsa1, Tsa1B; flow model biofilm induced; rat catheter biofilm repressed
orf19.6924	HTA1	4.82	4.08	Histone H2A; repressed in fkh2 mutant; amphotericin B repressed; farnesol regulated; RNA abundance regulated by tyrosol and cell density; Hap43-induced gene; Spider biofilm repressed

orf19.86		4,77	5,74	Putative glutathione peroxidase; induced by peroxide, exposure to neutrophils and macrophage blood fractions; repressed during infection of macrophages; Spider biofilm induced; flow model biofilm repressed
orf19.1853	HHT2	4,7	3,92	Putative histone H3; farnesol regulated; Hap43-induced; rat catheter and Spider biofilm repressed
orf19.5818	SUR2	4,68	5,09	Putative ceramide hydroxylase; predicted enzyme of sphingolipid biosynthesis; regulated by Tsa1, Tsa1B under H2O2 stress conditions; Spider and flow model biofilm induced
orf19.3475		4,66	3,94	Described as a Gag-related protein; hyphal induced; downregulation correlates with clinical development of fluconazole resistance; repressed by nitric oxide, 17-beta-estradiol, ethynyl estradiol
orf19.691	GPD2	4,52	7,14	Surface protein similar to glycerol 3-P dehydrogenase; binds host Factor H, FHL-1, plasminogen; regulated by Ssn6, Nrg1, Efg1; induced by cell wall regeneration, macrophage/pseudohyphal growth, core stress response; Spider biofilm induced
orf19.5622	GLC3	4,49	4,92	Putative 1,4-glucan branching enzyme; fluconazole-induced; colony morphology-related gene regulation by Ssn6; stationary phase enriched protein
orf19.789	PYC2	4,46	6,41	Putative pyruvate carboxylase; binds biotin cofactor; repressed by Ssk1 response regulator, by benomyl treatment, or in an azole-resistant strain overexpressing MDR1; stationary phase enriched protein; flow model biofilm repressed
orf19.6350		4,46	3,62	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11890 and <i>Candida albicans</i> WQ-1 : CAWG_00170
orf19.6000	CDR1	4,46	5,76	Multidrug transporter of ABC superfamily; transports phospholipids in an in-to-out direction; induced by beta-estradiol, progesterone, corticosteroid, or cholesterol; Spider biofilm induced
orf19.3554	AAT1	4,43	3,71	Aspartate aminotransferase; soluble protein in hyphae; macrophage-induced protein; alkaline upregulated; amphotericin B repressed; gene used for strain identification by multilocus sequence typing; farnesol-, Hap43p-induced; GlcNAc-induced
orf19.3105		4,4	4,36	Putative cytochrome P450 protein; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4690		4,39	3,58	NRAMP metal ion transporter domain-containing protein; induced by nitric oxide independent of Yhb1; flow model biofilm induced; rat catheter biofilm repressed
orf19.4540	UBC8	4,33	3,25	Predicted ubiquitin-conjugating enzyme that negatively regulates gluconeogenesis by mediating the glucose-induced ubiquitination of fructose-1,6-bisphosphatase; induced by alpha pheromone in SpiderM medium
orf19.5392	NGT1	4,3	5,34	N-acetylglucosamine (GlcNAc)-specific transporter; role in GlcNAc (but not serum) induced hyphal growth; localizes to plasma membrane; induced by GlcNAc, macrophage engulfment; 12 transmembrane, major facilitator superfamily
orf19.2990	XOG1	4,27	3,59	Exo-1,3-beta-glucanase; 5 glycosyl hydrolase family member; affects sensitivity to chitin and glucan synthesis inhibitors; not required for yeast-to-hypha transition or for virulence in mice; Hap43-induced; Spider biofilm induced
orf19.54	RHD1	4,21	5,59	Putative beta-mannosyltransferase required for the addition of beta-mannose to the acid-labile fraction of cell wall phosphopeptidomannan; 9-gene family member; regulated on yeast-hypha and white-opaque switches; Spider biofilm repressed
orf19.3302		4,2	3,69	Putative type-1 protein phosphatase targeting subunit; transcript repressed by yeast-hyphal switch; transcript induced by Mnl1p under weak acid stress; flow model biofilm induced
orf19.3618	YWP1	4,19	4,54	Secreted yeast wall protein; possible role in dispersal in host; mutation increases adhesion and biofilm formation; propeptide; growth phase, phosphate, Ssk1/Ssn6/Efg1/Efh1/Hap43 regulated; mRNA binds She3; flow and Spider biofilm repressed
orf19.4212	FET99	4,19	4,57	Multicopper oxidase family protein; similar to <i>S. cerevisiae</i> Fet3; does not complement <i>S. cerevisiae</i> fet3 mutant growth under low-iron; iron-repressed; regulated by Tup1, Rim101; flow model biofilm induced; Spider biofilm repressed
orf19.851		4,1	3,36	Protein of unknown function; repressed by Rim101; negatively modulates intracellular ATP levels during the development of azole resistance; induced by Ca(2+) in a calcineurin-dependent manner; Spider biofilm induced
orf19.3712		4,1	4,67	Protein of unknown function; induced by Mnl1 under weak acid stress; flow model biofilm induced; Spider biofilm induced
orf19.3363	VTC4	4,07	4,4	Putative polyphosphate synthetase; decreased expression in hyphae compared to yeast-form cells; fungal-specific (no human or murine homolog); virulence-group-correlated expression
orf19.5623	ARP4	4,01	4,08	Subunit of the NuA4 histone acetyltransferase complex
orf19.385	GCV2	3,98	3,73	Glycine decarboxylase P subunit; protein of glycine catabolism; repressed by Efg1; Hog1-induced; induced by Rim101 at acid pH; transcript induced in elevated CO2; stationary phase enriched protein
orf19.4527	HGT1	3,96	2,64	High-affinity MFS glucose transporter; induced by progesterone, chloramphenicol, benomyl; likely essential for growth; protein newly produced during adaptation to the serum; rat catheter and Spider biofilm induced
orf19.3369	MOH1	3,94	3,94	Ortholog of <i>S. cerevisiae</i> Moh1, essential for stationary phase growth; induced by alpha pheromone in SpiderM medium and by Mnl1 under weak acid stress; possibly essential (UAU1 method); flow model biofilm induced; Spider biofilm induced
orf19.5622	GLC3	3,94	4,08	Putative 1,4-glucan branching enzyme; fluconazole-induced; colony morphology-related gene regulation by Ssn6; stationary phase enriched protein
orf19.1344		3,93	2,9	Protein of unknown function; fluconazole-induced; Spider biofilm induced
orf19.847	YIM1	3,9	4,24	Protein similar to protease of mitochondrial inner membrane; increased transcription is observed upon benomyl treatment; macrophage-downregulated gene
orf19.1658		3,89	3,86	Ortholog(s) have cell cortex, cellular bud neck, cellular bud tip, mating projection tip localization
orf19.2242	PRB1	3,88	3,07	Endoprotease B; regulated by heat, carbon source (GlcNAc-induced), Nitrogen, macrophage response, human neutrophils; similar to (does not replace) <i>S. cerevisiae</i> vacuolar B protease Prb1p; flow model biofilm induced; Spider biofilm induced
orf19.1641		3,87	4,77	Ortholog(s) have cytosol, nucleus localization
orf19.3278	GSY1	3,85	4,25	UDP glucose/starch glucosyltransferase; transcript repressed by yeast-hyphal switch, Efg1-regulated; strong oxidative stress induced; colony morphology-related regulation by Ssn6; stationary phase enriched; flow model biofilm induced
orf19.1189		3,84	3,32	Protein of unknown function; regulated by yeast-hypha switch; induced by Mnl1 in weak acid stress; 5' UTR intron; repressed by chlamyospore formation in <i>C. albicans</i> and <i>C. dubliniensis</i> ; rat catheter, Spider and flow model biofilm induced
orf19.411		3,83	3,84	Protein similar to GTPase regulators; induced in low iron; transcript activated by Mnl1 under weak acid stress; Hap43-, Stu1- and Sef1-regulated; flow model biofilm induced; Spider biofilm induced
orf19.4887	ECM21	3,79	3,28	Predicted regulator of endocytosis of plasma membrane proteins; fluconazole induced, alkaline induced by Rim101; repressed by caspofungin and in azole-resistant strain overexpressing MDR1; flow model, rat catheter and Spider biofilm induced
orf19.4456	GAP4	3,79	4,57	Putative amino acid permease; hyphal induced; regulated by Hap43, Gcn2 and Gcn4; colony morphology-related gene regulation by Ssn6; detected at plasma membrane of yeast and germ tube by mass spec; Spider biofilm induced
orf19.7445		3,78	5,58	Ortholog of <i>S. c.</i> Vid24; a peripheral membrane protein located at Vid (vacuole import and degradation) vesicles; regulated by Sef1, Stu1, and Hap43; Spider biofilm induced
orf19.3642	SUN41	3,75	4,18	Cell wall glycosidase; role in biofilm formation and cell separation; possibly secreted; hypoxia, hyphal induced; caspofungin repressed; Efg1, Cph1 regulated; O-glycosylated, possible Kex2 substrate; 5'-UTR intron; Spider biofilm induced
orf19.6556		3,73	3,65	Protein of unknown function; rat catheter, flow model and Spider biofilm induced
orf19.6492		3,72	4,28	Predicted protein serine/threonine kinase and/or protein tyrosine kinase; Spider biofilm induced
orf19.2929	GSC1	3,72	4,85	Essential beta-1,3-glucan synthase subunit; gsc1 allele determines resistance/sensitivity to echinocandins; 16 predicted membrane-spanning regions; mRNA abundance declines after yeast-to-hypha transition; Spider biofilm induced
orf19.1287		3,72	3,37	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.4309	GRP2	3,69	3,98	Methylglyoxal reductase; regulation associated with azole resistance; induced in core stress response or by oxidative stress via Cap1, fluphenazine, benomyl, by Hap43 or with long term fluconazole treatment; Spider biofilm induced
orf19.4257	INT1	3,69	3,87	Protein structurally similar to alpha-subunit of human leukocyte integrin; role in morphogenesis, adhesion, and mouse cecal colonization and systemic virulence; similar to <i>S. cerevisiae</i> Bud4; Hap43-induced gene
orf19.3667		3,68	4,5	Has domain(s) with predicted ATP binding, microtubule binding, microtubule motor activity, role in microtubule-based movement and microtubule associated complex localization
orf19.1764		3,67	3,52	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.5911	CMK1	3,67	3,87	Putative calcium/calmodulin-dependent protein kinase II; expression regulated upon white-opaque switching; biochemically purified Ca2+/CaM-dependent kinase is soluble, cytosolic, monomeric, and serine-autophosphorylated; Hap43p-repressed
orf19.1208		3,66	3,32	Predicted ORF in the Major Repeat Sequence on chromosome 4; member of a family encoded by FGR6-related genes in the RB2 repeat sequence
orf19.7436	AAF1	3,66	3,69	Possible regulatory protein; possible adhesin-like; Glu-rich domain; production in <i>S. cerevisiae</i> increases endothelial cell adherence and flocculence; flow model biofilm, alkaline or caspofungin induced
orf19.4372		3,6	3,22	Predicted transmembrane transporter; rat catheter and Spider biofilm induced
orf19.1234	FGR6-10	3,6	3,51	Protein lacking an ortholog in <i>S. cerevisiae</i> ; member of a family encoded by FGR6-related genes in the RB2 repeat sequence; transposon mutation affects filamentous growth
orf19.7033		3,6	3,09	Putative dual specificity protein phosphatase, similar to <i>S. cerevisiae</i> Pps1p
orf19.2397		3,58	4,12	Predicted membrane transporter, member of the anion:cation symporter (ACS) family, major facilitator superfamily (MFS); amphotericin B, caspofungin repressed; Hap43p-repressed
orf19.4960		3,57	3,49	Ortholog(s) have spermine synthase activity, role in pantothenate biosynthetic process, spermine biosynthetic process and cytoplasm localization

orf19.4698	<i>PTC8</i>	3.56	4.06	Predicted type 2C protein phosphatase, ser/thr-specific; required for hyphal growth; transcript induced by stress; flow model biofilm induced; Spider biofilm induced
orf19.5292	<i>AXL2</i>	3.56	2.96	Ortholog of <i>S. cerevisiae</i> <i>Axl2</i> ; a plasma membrane protein involved in determination of budding pattern; O-glycosylated by <i>Pmt4</i> ; mutant is viable
orf19.79		3.55	4.47	#NV
orf19.4531		3.55	4.07	Putative PDR-subfamily ABC transporter; Spider biofilm induced
orf19.4970		3.54	4.31	Protein of unknown function; Spider biofilm induced
orf19.7028		3.54	3.58	#NV
orf19.97	<i>CAN1</i>	3.53	4.63	Basic amino acid permease; complements lysine transport mutation; 10 predicted transmembrane regions, 3 predicted N-glycosylation sites; phagocytosis by macrophages induces transcript; rat catheter, Spider and flow model biofilm induced
orf19.1051	<i>HTA2</i>	3.5	3.38	Putative histone H2A; farnesol regulated; rat catheter biofilm repressed; Spider biofilm repressed; Hap43-induced
orf19.1232	<i>VRG4</i>	3.49	3.78	GDP-mannose transporter; essential; required for glycosylation, hyphal growth; functional homolog of <i>S. cerevisiae</i> <i>Vrg4p</i> , which imports GDP-mannose from cytoplasm to Golgi for protein and lipid mannosylation; no mammalian homolog
orf19.1999		3.49	3.33	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.2842	<i>GZF3</i>	3.48	4.03	GATA-type transcription factor; oxidative stress-induced via <i>Cap1</i> ; mutant has abnormal colony morphology and altered sensitivity to fluconazole, LiCl, and copper; Spider biofilm induced
orf19.7049	<i>CYB5</i>	3.47	2.89	Cytochrome b(5); ortholog of <i>S. cerevisiae</i> <i>Cyb5</i> ; induced in high iron; fluconazole-induced; shows colony morphology-related gene regulation by <i>Ssn6</i> ; mutants are viable
orf19.7645		3.47	3.04	Biotin protein ligase; catalyzes covalent attachment of biotin to biotin-dependent enzymes including acetyl CoA carboxylase and pyruvate carboxylase
orf19.1055	<i>CDC3</i>	3.46	3.66	Septin; essential for viability; functional homolog of <i>S. cerevisiae</i> <i>Cdc3p</i> ; down-regulation associated with azole resistance; macrophage/pseudohyphal-repressed; virulence-group-correlated expression; gene has intron
orf19.5826		3.46	2.84	Predicted amino acid transmembrane transporter; rat catheter biofilm repressed
orf19.5437	<i>RHR2</i>	3.44	5.21	Glycerol 3-phosphatase; roles in osmotic tolerance, glycerol accumulation in response to salt; Spider/flow model biofilm induced; regulated by macrophage, stress, yeast-hyphal switch, pheromone, <i>Gcn4</i> , <i>Hog1</i> , <i>Nrg1</i> , <i>Tup1</i>
orf19.3144		3.43	3.23	#NV
orf19.6034	<i>TUB2</i>	3.43	3.86	Beta-tubulin; functional homolog of <i>ScTub2</i> ; overproduction makes <i>S. cerevisiae</i> inviable; has two introns; <i>GlcNAc</i> , hypha fluconazole-induced; slow growth, ectopic expression increases white-to opaque switch; rat catheter biofilm repressed
orf19.797	<i>BAT21</i>	3.42	2.49	Putative branched chain amino acid aminotransferase; regulated by <i>Gcn4</i> , <i>Gcn2</i> ; induced in response to amino acid starvation (3-aminotriazole treatment); early-stage flow model biofilm formation
orf19.5758	<i>SAL6</i>	3.39	3.22	Putative protein phosphatase of the Type 1 family; serine/threonine-specific; similar to <i>S. cerevisiae</i> <i>Ppq1</i> ; mutant has virulence defect; Spider biofilm induced
orf19.5293		3.39	4.07	Ortholog of <i>C. dubliniensis</i> <i>CD36</i> : <i>Cd36_43710</i> , <i>C. parapsilosis</i> <i>CDC317</i> : <i>CPAR2_402940</i> , <i>Candida tenuis</i> <i>NRRL Y-1498</i> : <i>CANTEDRAFT_114940</i> and <i>Debaryomyces hansenii</i> <i>CBS767</i> : <i>DEHA2C09196g</i>
orf19.2734		3.39	3.44	Protein with a glucose/ribitol dehydrogenase family domain; mutants are viable
orf19.7106	<i>VPS70</i>	3.37	4.92	Ortholog(s) have role in protein targeting to vacuole and endoplasmic reticulum localization
orf19.3351		3.36	3.83	Protein of unknown function; Hap43-induced; Spider biofilm induced
orf19.1206		3.35	3.3	#NV
orf19.6692	<i>MNN26</i>	3.34	3.36	Putative alpha-1,2-mannosyltransferase; mutant sensitive to calcofluor, SDS and growth at 42 deg; present in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation and transmembrane helix
orf19.1526	<i>SNF2</i>	3.33	2.56	Protein involved in transcriptional regulation; ortholog of <i>S. cerevisiae</i> <i>Snf2p</i> , which is the catalytic subunit of the SWI/SNF chromatin remodeling complex; interacts with <i>Swi1p</i> ; SWI/SNF complex is essential for hyphal growth and virulence
orf19.6983		3.33	3.85	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide; Spider biofilm induced
orf19.4772	<i>SSU81</i>	3.31	2.74	Predicted adaptor protein involved in activation of MAP kinase-dependent signaling pathways; links response to oxidative stress to morphogenesis and cell wall biosynthesis; caspofungin repressed
orf19.2769		3.31	2.61	Putative protease B inhibitor; hyphal-induced expression; <i>Cvr1p</i> - and <i>Ras1p</i> -repressed
orf19.3004		3.3	4.63	Ortholog(s) have fungal-type vacuole localization
orf19.4342		3.29	3.1	<i>Zn2Cys6</i> transcription factor involved in sterol uptake; flow model biofilm induced; Spider biofilm repressed
orf19.4716	<i>GDH3</i>	3.27	2.64	NADP-glutamate dehydrogenase; <i>Nrg1</i> , <i>Plc1</i> regulated; hypha, hypoxia, <i>Efg1</i> -repressed; <i>Rim101</i> -induced at pH 8; <i>GlcNAc</i> , ciclopirox, ketoconazole induced; exp and stationary phase protein; Spider biofilm repressed; rat catheter biofilm induced
orf19.2709	<i>ZUO1</i>	3.24	3.81	Ortholog of <i>S. cerevisiae</i> <i>Zuo1</i> ; a cytosolic ribosome-associated chaperone; likely to be essential for growth, based on an insertional mutagenesis strategy; Spider biofilm repressed
orf19.1415	<i>FRE10</i>	3.24	4.22	Major cell-surface ferric reductase under low-iron conditions; 7 transmembrane regions and a secretion signal predicted; <i>Tup1</i> , <i>Rim101</i> , <i>Ssn6</i> , <i>Hog1</i> , caspofungin repressed; ciclopirox olamine induced; rat catheter biofilm induced
orf19.2876	<i>CBF1</i>	3.22	2.85	Transcription factor; binds ribosomal protein gene promoters and rDNA locus with <i>Tbf1</i> ; regulates sulfur starvation-response, respiratory, glycolytic genes; does not bind to centromeres as does <i>S. cerevisiae</i> <i>Cbf1</i> ; Spider biofilm repressed
orf19.1681		3.2	2.87	Ortholog of <i>C. dubliniensis</i> <i>CD36</i> : <i>Cd36_81530</i> , <i>C. parapsilosis</i> <i>CDC317</i> : <i>CPAR2_503590</i> , <i>Candida tenuis</i> <i>NRRL Y-1498</i> : <i>CANTEDRAFT_115755</i> and <i>Debaryomyces hansenii</i> <i>CBS767</i> : <i>DEHA2D15334g</i>
orf19.4952		3.18	3.19	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.6202	<i>RB74</i>	3.18	3.51	Pry family protein; required for virulence in mouse systemic/rabbit corneal infections; not filamentation; mRNA binds <i>She3</i> , is localized to hyphal tips; Hap43-induced; in both yeast and hyphal culture supernatants; Spider biofilm induced
orf19.7561	<i>DEF1</i>	3.18	3.31	RNA polymerase II regulator; role in filamentation, epithelial cell escape, dissemination in RHE media; induced by fluconazole, high cell density; <i>Efg1</i> /hyphal regulated; role in adhesion, hyphal growth on solid media; Spider biofilm induced
orf19.4843		3.17	3.16	Putative iron/copper reductase; involved in iron homeostasis; rat catheter and Spider biofilm induced
orf19.2356	<i>CRZ2</i>	3.14	3.66	C2H2 transcription factor; <i>crz1</i> not <i>crz2</i> null mutation suppresses fluconazole resistance of homozygous <i>cka2</i> null; <i>Rim101</i> -repressed at pH 8; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.2021	<i>HGT8</i>	3.13	2.69	High-affinity glucose transporter of the major facilitator superfamily; 20 members in the <i>C. albicans</i> glucose transporter family; 12 probable membrane-spanning segments; gene has intron; expressed in rich medium; flow model biofilm induced
orf19.699		3.13	3.42	Protein of unknown function; flow model, rat catheter, Spider biofilm induced
orf19.7308	<i>TUB1</i>	3.13	2.58	#NV
orf19.3325		3.12	3.06	Putative glycogen synthesis initiator; regulated by <i>Efg1</i> and <i>Efh1</i> ; <i>Hog1</i> -repressed; colony morphology-related gene regulation by <i>Ssn6</i> ; induced by prostaglandins; flow model biofilm induced
orf19.4697	<i>MDN1</i>	3.1	2.56	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.3145		3.09	2.71	#NV
orf19.2538	<i>PTC2</i>	3.09	3.16	Protein phosphatase of the Type 2C-related family (serine/threonine-specific) with a potential role in DNA damage checkpoint control; localizes to both cytoplasm and mitochondria; mutant shows virulence defect
orf19.3765	<i>RAX2</i>	3.08	3.17	Plasma membrane protein involved in establishment of bud sites and linear direction of hyphal growth; filament induced, repressed by <i>Rim101</i> , <i>Tup1</i> ; Hap43-induced; Spider biofilm induced
orf19.111	<i>CAN2</i>	3.06	2.57	Basic amino acid permease; arginine metabolism; regulated by <i>Nrg1</i> / <i>Tup1</i> ; caspofungin, flucytosine induced; colony morphology-related regulation by <i>Ssn6</i> ; Hap43-repressed; rat catheter and Spider biofilm induced; promoter bound by <i>Efg1</i>
orf19.5551	<i>MIF2</i>	3.06	2.94	Centromere-associated protein; similar to CENP-C proteins; <i>Cse4p</i> and <i>Mif2p</i> colocalize at <i>C. albicans</i> centromeres
orf19.5626		3.06	3.23	Protein of unknown function; <i>Plc1</i> -regulated; induced by <i>Mnl1</i> under weak acid stress; flow model biofilm induced
orf19.4212	<i>FET99</i>	3.06	4.25	Multicopper oxidase family protein; similar to <i>S. cerevisiae</i> <i>Fet3</i> ; does not complement <i>S. cerevisiae</i> <i>fet3</i> mutant growth under low-iron; iron-repressed; regulated by <i>Tup1</i> , <i>Rim101</i> ; flow model biofilm induced; Spider biofilm repressed
orf19.6791	<i>HHT1</i>	3.06	3.11	Putative histone H3; reduced mRNA abundance in <i>fkh2</i> mutant; farnesol regulated; Spider biofilm induced; rat catheter biofilm repressed
orf19.802	<i>UGA1</i>	3.05	2.52	Putative GABA transaminase; transcription regulated by <i>Mig1</i> and <i>Tup1</i> ; stationary phase enriched protein; rat catheter and Spider biofilm induced
orf19.542	<i>HXX2</i>	3.05	1.93	Hexokinase II; antigenic in humans; repressed by human neutrophils; <i>Efg1</i> -regulated; fluconazole-induced; gene regulation by <i>Ssn6</i> ; present in exponential and stationary growth phase; flow model biofilm induced; Spider biofilm repressed
orf19.3214		3.04	3.36	Alpha/beta-HydrolaseE superfamily protein; membrane-localized
orf19.1690	<i>TOS1</i>	3.04	2.82	Protein similar to alpha agglutinin anchor subunit; secreted; exogenously expressed protein is a substrate for <i>Kex2</i> processing in vitro; fluconazole-induced; induced by alpha pheromone in SpiderM medium; Hap43-induced
orf19.2609	<i>CET1</i>	3.04	2.54	mRNA 5'-triphosphatase; large subunit of mRNA capping enzyme; positively regulates <i>Ceg1</i> activity; functional homolog of <i>S. cerevisiae</i> <i>Cet1</i> ; <i>Cet1</i> and <i>Cqt1</i> form a 2:1 complex; flow model biofilm induced
orf19.6701		3.04	3.88	Protein with similarity to amino acid-tRNA ligase; stationary phase enriched protein; <i>GlcNAc</i> -induced protein
orf19.3133	<i>GUT2</i>	3.03	3.89	Glycerol-3-phosphate dehydrogenase; <i>Plc1p</i> -regulated; rat catheter biofilm induced; Spider biofilm induced
orf19.4697	<i>MDN1</i>	3.02	2.43	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process

orf19.3962	HAS1	3.02	3.11	Functional homolog of <i>S. cerevisiae</i> Has1p, which is a nucleolar protein of the DEAD-box ATP-dependent RNA helicase family that is involved in biogenesis of the ribosome, particularly the small (40S) subunit; caspofungin-downregulated
orf19.1229		3.01	3.17	Ortholog(s) have importin-alpha export receptor activity, role in cell division, protein export from nucleus and nuclear membrane localization
orf19.4795		2.99	3.02	Protein of unknown function; Sef1-, Sfu1-, and Hap43 regulated; Spider biofilm induced
orf19.5820	UGA6	2.99	3.64	Putative GABA-specific permease; decreased transcription is observed upon benomyl treatment or in an azole-resistant strain that overexpresses MDR1
orf19.4867	SWE1	2.99	2.69	Putative protein kinase with a role in control of growth and morphogenesis, required for full virulence; mutant cells are small, rounded, and sometimes binucleate; not required for filamentous growth; mutant is hypersensitive to caspofungin
orf19.3618	YWP1	2.98	4.2	Secreted yeast wall protein; possible role in dispersal in host; mutation increases adhesion and biofilm formation; propeptide; growth phase, phosphate, Ssk1/Ssn6/Efg1/Efh1/Hap43 regulated; mRNA binds She3; flow and Spider biofilm repressed
orf19.508	QDR1	2.98	2.51	Putative antibiotic resistance transporter; regulated by white-opaque switch, Nrg1, Tup1; Hap43, caspofungin repressed; repressed during chlamydospore formation; flow model biofilm induced; Spider biofilm repressed
orf19.5995	MCA1	2.97	2.87	Putative cysteine protease with similarity to <i>S. cerevisiae</i> Mca1p; has a role in apoptotic cell death upon H2O2 treatment; fungal-specific (no human or murine homolog); farnesol-induced
orf19.1949	VPS1	2.97	3.07	Dynamin-family GTPase-related protein; induced upon adherence to polystyrene; regulated by Gcn2p and Gcn4p
orf19.1797		2.96	3.08	D-arabinose 5-phosphate isomerase; has GutQ domain which is associated with phosphosugar binding; other biofilm induced; rat catheter and Spider biofilm induced; F-12/CO2 early biofilm induced
orf19.4282	IFH1	2.94	3.15	Transcription factor; forms a heterodimer with Fh11 that is tethered to promoters by Tbf1; positively regulates rRNA and ribosomal protein gene transcription; Spider biofilm induced
orf19.3670	GAL1	2.94	3.55	Galactokinase; galactose, Mig1, Tup1, Hap43 regulated; fluconazole, ketoconazole-induced; stationary phase enriched protein; GlcNAc-induced protein; farnesol, hypoxia-repressed in biofilm; rat catheter and Spider biofilm induced
orf19.510		2.94	2.35	Protein of unknown function; Spider biofilm induced
orf19.4593	RGA2	2.94	3.05	Putative GTPase-activating protein (GAP) for Rho-type GTPase Cdc42; involved in cell signaling pathways controlling cell polarity; induced by low-level peroxide stress; flow model biofilm induced
orf19.2398		2.93	2.34	Protein of unknown function; Hap43-repressed; transcript increased in azole-resistant strain overexpressing CDR1 and CDR2; possibly regulated by Tac1; induced by Mln1 in weak acid stress; flow model biofilm induced; Spider biofilm induced
orf19.4347		2.93	2.54	Putative serine/threonine protein kinase; Hoq1p-induced
orf19.4438	RME1	2.93	3.28	Zinc finger protein; controls meiosis in <i>S. cerevisiae</i> ; white-specific transcript; upregulation correlates with clinical development of fluconazole resistance; Upc2-regulated in hypoxia; flow model biofilm induced; Spider biofilm repressed
orf19.4736		2.92	2.52	Ortholog(s) have alkaline phosphatase activity, nucleotide phosphatase activity and role in cellular response to cadmium ion, detoxification of cadmium ion, nicotinamide nucleotide metabolic process, protein dephosphorylation
orf19.1649	RNA1	2.92	3.2	Putative GTPase-activating protein; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.7484	ADE1	2.91	3.24	Phosphoribosylaminoimidazole succinocarboxamide synthetase, enzyme of adenine biosynthesis; not induced in GCN response, unlike the <i>S. cerevisiae</i> ortholog; fungal-specific (no human or murine homolog); levels decrease in stationary phase
orf19.2242	PRB1	2.9	2.69	Endoprotease B; regulated by heat, carbon source (GlcNAc-induced), nitrogen, macrophage response, human neutrophils; similar to (does not replace) <i>S. cerevisiae</i> vacuolar B protease Prb1p; flow model biofilm induced; Spider biofilm induced
orf19.6881	YTH1	2.9	2.24	Putative mRNA cleavage and polyadenylation specificity factor; transcription is regulated upon yeast-hyphal switch; decreased expression in hyphae compared to yeast-form cells; fluconazole or flucytosine induced
orf19.6257	GLT1	2.89	2.37	Putative glutamate synthase; regulated by Sef1, Sfu1, and Hap43; rat catheter biofilm repressed
orf19.2288	CCT5	2.89	2.48	T-complex protein 1, epsilon subunit; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.2598	VMA4	2.88	2.74	H ⁺ -transporting ATPase E chain; transcript regulated by Mig1; caspofungin repressed; protein level decreases in stationary phase cultures; rat catheter biofilm repressed
orf19.6645	HMO1	2.88	2.83	HMG-box transcription factor; binds upstream of hexose and ergosterol metabolism and cell cycle genes; activates pseudohyphal growth when expressed in <i>S. cerevisiae</i> ; repressed in hyphae; Spider biofilm repressed
orf19.548	CDC10	2.88	2.3	Septin, required for wild-type cell, hyphal, or chlamydospore morphology; role in virulence and kidney tissue invasion in mouse infection; forms ring at sites of cell division and filaments in mature chlamydospore; Spider biofilm repressed
orf19.4550		2.87	2.81	Predicted MFS membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family; flow model biofilm induced
orf19.7488		2.87	2.65	Component of the SSU processome; predicted role in pre-18S rRNA processing; Spider biofilm induced
orf19.6003		2.87	2.66	Protein of unknown function; role in intracellular signal transduction; Spider biofilm induced
orf19.6993	GAP2	2.86	2.4	General amino acid permease; ketoconazole, flucytosine repressed; Ssy1-dependent histidine induction; regulated by Nrg1, Tup1; colony morphology-related gene regulation by Ssn6; Spider and flow model biofilm induced
orf19.4262		2.85	2.59	Ortholog(s) have mRNA binding activity and role in cellular protein complex localization, establishment of mitochondrion localization, nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay
orf19.3414	SUR7	2.85	3	Protein required for normal cell wall, plasma membrane, cytoskeletal organization, endocytosis; localizes to eisosome subdomains of plasma membrane; four transmembrane motifs; mutant shows ectopic, chitin-rich cell wall; fluconazole-induced
orf19.84	CAN3	2.83	2.74	Predicted amino acid transmembrane transporter; transcript regulated by white-opaque switch; Hap43-repressed gene
orf19.727		2.82	3.02	Predicted ORF overlapping the Major Repeat Sequence on chromosome R; member of a family encoded by FGR6-related genes in the RB2 repeat sequence
orf19.1099		2.82	2.13	#NV
orf19.1607	ALR1	2.81	2.81	Putative transporter of divalent cations; hyphal-induced expression; rat catheter biofilm induced
orf19.3496	CHC1	2.81	2.57	Clathrin heavy chain; subunit of the major coat protein; role in intracellular protein transport and endocytosis; flow model and rat catheter biofilm repressed
orf19.7459		2.8	3.15	Putative mitochondrial protein with a predicted role in respiratory growth; fluconazole-induced; ketoconazole-repressed; mutants display a strong defect in flow model biofilm formation; Spider biofilm induced
orf19.2138	ILS1	2.79	3.21	Putative isoleucyl-tRNA synthetase, the target of drugs including the cyclic beta-amino acid icofungipen/PLD-118/BAY-10888 and mupirocin; protein present in exponential and stationary growth phase yeast cultures
orf19.4546	HOL4	2.79	2.36	Putative ion transporter; alkaline induced by Rim101; Plc1-regulated; caspofungin repressed; rat catheter and Spider biofilm induced
orf19.388	CAF16	2.77	2.51	ABC family protein, predicted not to be a transporter; Hap43, caspofungin repressed; rat catheter and Spider biofilm repressed
orf19.3331	ABC1	2.76	2.98	Putative ubiquinol-cytochrome-c reductase; induced upon adherence to polystyrene; flow model biofilm induced; Spider biofilm induced
orf19.3153	MSS4	2.75	2.56	Phosphatidylinositol-4-phosphate 5-kinase; activity induced by phosphatidic acid (Pld1 product); macrophage/pseudohyphal-repressed; mRNA binds to She3, localized to yeast cell buds and hyphal tips; Hap43-induced; Spider biofilm induced
orf19.1121		2.75	2.94	Has domain(s) with predicted hydrolase activity
orf19.422	SPT20	2.74	2.57	Putative transcription factor; downregulated upon adherence to polystyrene; flucytosine repressed
orf19.3628	RSP5	2.73	2.62	Putative NEDD4 family E3 ubiquitin ligase; induced during infection of murine kidney, compared to growth in vitro; has murine homolog; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5241	SNT1	2.73	2.56	Ortholog of <i>S. cerevisiae</i> Snt1; an NAD-independent histone deacetylase; heterozygous transposon mutation affects filamentous growth; null mutants are viable
orf19.1785		2.72	2.34	Protein with a PI3 proteasome regulator domain; Hap43-repressed; flow model biofilm induced
orf19.2758	PGA38	2.72	2.71	Putative adhesin-like GPI-anchored protein; repressed during cell wall regeneration; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm repressed
orf19.6960		2.72	2.82	#NV
orf19.2444	CHS7	2.71	2.71	Protein required for wild-type chitin synthase III activity; similar to (but not functional homolog of) <i>S. cerevisiae</i> Chs7p, which effects ER export of Chs3p; induced cyr1 mutant hyphae and ras1 yeast-form cells; Spider biofilm induced
orf19.1258		2.71	3.58	Adhesin-like protein; regulated by Tsa1, Tsa1B in minimal media at 37 deg; clade-associated gene expression; induced by alpha pheromone in SpiderM medium; Hap43-induced; Spider biofilm repressed
orf19.6798	SSN6	2.71	2.31	Functional homolog of <i>S. cerevisiae</i> Cyc8/Ssn6; hyphal growth regulator; repressed during hyphal growth; Ssn6 and Tup1 regulate distinct sets of genes; overexpression or mutation causes avirulence in mouse IV infection; TPR motifs
orf19.6285	GLC7	2.7	2.65	Putative catalytic subunit of type 1 serine/threonine protein phosphatase; regulated by Shp1; induced in high iron; alternatively spliced intron in 5' UTR
orf19.2758	PGA38	2.69	2.32	Putative adhesin-like GPI-anchored protein; repressed during cell wall regeneration; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm repressed
orf19.7374	CTA4	2.69	2.92	Zn(II)Cys6 transcription factor; induced by nitric oxide; induced by Mln1 under weak acid stress; repressed upon adherence to polystyrene; Hap43-repressed; Spider biofilm induced
orf19.2163		2.67	2.68	Ortholog(s) have cytosol localization

orf19.797	BAT21	2.67	3.16	Putative branched chain amino acid aminotransferase; regulated by Gcn4, Gcn2; induced in response to amino acid starvation (3-aminotriazole treatment); early-stage flow model biofilm formation
orf19.7062	RPA135	2.67	3.35	Putative RNA polymerase I subunit A135; repressed by prostaglandins
orf19.2942	DIP5	2.66	2.5	Dicarboxylic amino acid permease; mutation confers hypersensitivity to toxic ergosterol analog; induced upon phagocytosis by macrophage; Gcn4-regulated; upregulated by Rim101 at pH 8; rat catheter and Spider biofilm induced
orf19.448	CUE5	2.65	2.32	Predicted ubiquitin-binding protein; rat catheter biofilm repressed
orf19.6960		2.65	2.63	#NV
orf19.173		2.64	2.13	C2H2 transcription factor; induced by Mnl1 under weak acid stress
orf19.4145	ZCF20	2.64	2.17	Zn(II)Cys6 transcription factor orthologous to S. cerevisiae Hap1; regulated by Sef1, Sfu1; Hap43-induced; Spider biofilm induced
orf19.1638		2.63	2.89	Has domain(s) with predicted zinc ion binding activity, role in ER to Golgi vesicle-mediated transport, intracellular protein transport and COPII vesicle coat localization
orf19.5227		2.62	2.87	Chaperone component; involved in assembly of alpha subunits into the 20S proteasome; flow model biofilm induced
orf19.661	KRR1	2.62	2.76	Putative nucleolar protein; repressed benomyl treatment or in an azole-resistant strain that overexpresses MDR1; F-12/CO2 early biofilm induced
orf19.6171	NUP159	2.62	2.78	FG-nucleoporin component of central core of the nuclear pore complex (NPC); contributes to nucleocytoplasmic transport; rat catheter biofilm repressed
orf19.2792	IST2	2.61	2.57	Ortholog(s) have lipid binding activity, role in endoplasmic reticulum membrane organization, regulation of phosphatidylinositol dephosphorylation and cellular bud membrane, cortical endoplasmic reticulum localization
orf19.6937	PTR22	2.61	3.41	Oligopeptide transporter involved in uptake of di-/tripeptides; regulated by Stp2 and Stp3; transcript induced upon phagocytosis by macrophage; repressed by Rim101 at pH 8; flow model biofilm induced
orf19.4622		2.61	3.06	Ortholog(s) have role in telomere maintenance, transcription-coupled nucleotide-excision repair, ubiquitin-dependent protein catabolic process and nucleus localization
orf19.254		2.6	2.14	Protein of unknown function; Hog1p-repressed; Spider biofilm induced
orf19.6601		2.6	2.92	Protein of unknown function; rat catheter and flow model biofilm induced
orf19.2075	DFG5	2.6	2.36	N-linked mannoprotein of cell wall and membrane; possible signal transducer; role in hyphal growth and HWP1 induction in alkaline pH; GPI modification predicted; dfg5 dow1 double mutant is inviable; caspofungin-induced, fungal-specific
orf19.7510	KIN2	2.6	3.23	Protein with similarity to S. cerevisiae Kin2p; transcription is positively regulated by Tbf1
orf19.1693	CAS4	2.59	2.63	RAM cell wall integrity signaling network protein; cell separation, azole sensitivity; needed for hyphal growth; insertion mutation near 3' end of gene increases caspofungin sensitivity; pheromone/hyphal induced; flow biofilm repressed
orf19.6514	CUP9	2.59	2.39	Transcription factor; upregulated in clinical strains from HIV patients with oral candidiasis; yeast-hypha switch repressed; ketoconazole-induced; Plc1-regulated; colony morphology-related Ssn6 regulation; Spider, flow model biofilm induced
orf19.5544	SAC6	2.58	2.51	Fimbrin; actin filament bundling protein; transcript regulated by Nrg1 and Mig1; protein level decreases in stationary phase
orf19.5045	PTP2	2.58	3.11	Predicted protein tyrosine phosphatase; involved in regulation of MAP kinase Hog1 activity; induced by Mnl1 under weak acid stress; rat catheter and Spider biofilm induced
orf19.5691	CDC11	2.58	2.3	Septin; cell and hyphal morphology, agar-invasive growth, full virulence and kidney tissue invasion in mouse, but not kidney colonization, immunogenicity; hyphal and cell-cycle-regulated phosphorylation; rat catheter biofilm repressed
orf19.7385		2.58	3.5	CCCH zinc finger protein; Spider biofilm induced
orf19.1277		2.57	2.52	Protein of unknown function; Rgt1, Hap43-repressed; flow model biofilm induced; Spider biofilm induced
orf19.2848		2.57	2.57	Predicted regulatory subunit of the Atg1 signaling complex; required for vesicle formation during autophagy and the cytoplasm-to-vacuole targeting (Cvt) pathway; Spider biofilm induced
orf19.542	HXK2	2.57	1.94	Hexokinase II; antigenic in humans; repressed by human neutrophils; Elg1-regulated; fluconazole-induced; gene regulation by Ssn6; present in exponential and stationary growth phase; flow model biofilm induced; Spider biofilm repressed
orf19.391	UPC2	2.57	2.08	Zn2-Cys6 transcript factor; regulator of ergosterol biosynthetic genes and sterol uptake; binds ERG2 promoter; induced by ergosterol depletion, by azoles, anaerobicity; macrophage/pseudohyphal-repressed; flow model biofilm induced
orf19.3378		2.56	2.1	Protein of unknown function; regulated by Tsa1, Tsa1B in minimal media at 37 degrees C
orf19.5294	PDB1	2.56	2.47	Putative pyruvate dehydrogenase; fluconazole-induced; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.5732	NOG2	2.56	2.84	Putative nucleolar GTPase; repressed by prostaglandins; Hap43-induced, rat catheter and Spider biofilm induced
orf19.768	SYG1	2.56	2.37	Ortholog(s) have role in signal transduction and Golgi apparatus, endoplasmic reticulum, mitochondrion, plasma membrane localization
orf19.7044	RIM15	2.56	3.06	Ortholog(s) have protein kinase activity, role in age-dependent response to oxidative stress involved in chronological cell aging, protein phosphorylation, regulation of meiosis and cytosol, nucleus localization
orf19.5069		2.56	1.92	Ortholog of S. cerevisiae Sae3; meiosis specific protein involved in DMC1-dependent meiotic recombination in S. cerevisiae; Spider biofilm induced
orf19.922	ERG11	2.56	2.06	Lanosterol 14-alpha-demethylase; cytochrome P450 family; role in ergosterol biosynthesis; target of azole antifungals; may contribute to drug resistance; azole or flow model biofilm induced; drug treated biofilm induced; hypoxia regulated
orf19.2353		2.55	2.54	#NV
orf19.7384	NOG1	2.55	2.86	Putative GTPase; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); repressed by prostaglandins; Hap43-induced
orf19.581		2.54	3.3	Putative RNA-binding protein; transcript is upregulated in an RHE model of oral candidiasis
orf19.3752	RAD51	2.53	2.64	Protein involved in homologous recombination and DNA repair; flucytosine induced; slow growth and increased white-to-opaque switching frequency in null mutant
orf19.6759		2.53	3.06	#NV
orf19.3607		2.52	2.54	Ortholog of C. dubliniensis CD36 : Cd36_22860, C. parapsilosis CDC317 : CPAR2_806540, Candida tenuis NRRL Y-1498 : CANTEDRAFT_108823 and Debaryomyces hansenii CBS767 : DEHA2B13596q
orf19.2529		2.52	1.93	Ortholog of S. cerevisiae Gpa15; involved in the synthesis of glycosylphosphatidylinositol (GPI) anchors; shuman Pig-H, which is also involved in GPI assembly; Spider biofilm induced
orf19.137		2.52	2.03	Putative transferase involved in phospholipid biosynthesis; induced by alpha pheromone in SpiderM medium
orf19.3035		2.52	2.53	Ortholog(s) have ATP-dependent DNA helicase activity, chromatin DNA binding, methylated histone residue binding, rDNA binding activity
orf19.7502		2.52	2.7	Protein of unknown function; Hap43-induced gene; upregulated in a cvr1 null mutant; Spider biofilm induced
orf19.1084	CDC39	2.51	2.29	Protein similar to S. cerevisiae Cdc39p, which is part of the CCR4-NOT transcription regulatory complex; transposon mutation affects filamentous growth
orf19.2823	RFG1	2.51	2.87	HMG domain transcriptional repressor of filamentous growth and hyphal genes; in Tup1-dependent and -independent pathways; binds DNA; transcript not regulated by oxygen or serum; not responsible for hypoxic repression; Spider biofilm induced
orf19.4337		2.51	2.46	Predicted membrane transporter; monocarboxylate porter (MCP) family, major facilitator superfamily (MFS); Spider biofilm induced; rat catheter biofilm repressed
orf19.5867	WSC1	2.51	2.55	Putative cell wall component; transcript upregulated in cyr1 mutant (yeast or hyphae); Spider and flow model biofilm induced
orf19.1614	MEP1	2.5	2.65	Ammonium permease; Mep1 more efficient permease than Mep2, Mep2 has additional regulatory role; 11 predicted transmembrane regions; low mRNA abundance; hyphal downregulated; flow model biofilm induced
orf19.3599	TIF4631	2.5	2.73	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.745	VAC8	2.5	2.91	Protein involved in vacuolar inheritance; required for hyphal growth; contains armadillo repeats
orf19.6874		2.5	2.39	Putative helix-loop-helix (HLH) transcription factor with a role in filamentous growth
orf19.3759		2.49	2.14	Putative elongator complex subunit; for modification of wobble nucleosides in tRNA; Spider biofilm induced
orf19.1729		2.49	2.13	Putative transcription factor with zinc finger DNA-binding motif
orf19.7081	SPL1	2.49	2.51	Protein similar to S. cerevisiae Spl1p, which is involved in tRNA splicing; member of pyridoxal-phosphate-dependent aminotransferase protein family; predicted to be essential
orf19.7434	GLG2	2.49	2.7	Putative self-glucosylating initiator of glycogen synthesis; expression regulated upon white-to-opaque switch; hypha-induced; Spider biofilm induced
orf19.2887		2.48	2.36	Ortholog in S. cerevisiae is localized to the bud, mating projection tip, and associates with ribosomes; Spider biofilm induced
orf19.7224		2.48	2.69	Ortholog(s) have ubiquitin-protein ligase activity and role in histone catabolic process, histone ubiquitination
orf19.2017		2.47	1.94	Ortholog(s) have RNA polymerase I activity and role in regulation of cell size, transcription elongation from RNA polymerase I promoter, transcription of nuclear large rRNA transcript from RNA polymerase I promoter
orf19.5170	ENA21	2.47	3.44	Predicted P-type ATPase sodium pump; Gcn4p-regulated; flucytosine, amphotericin B, or ketoconazole-induced; osmotic stress-induced; overlaps orf19.5170.1, which is annotated as a blocked reading frame; Spider biofilm induced
orf19.2480.1	AUT7	2.46	2.23	Putative autophagosome protein; macrophage/pseudohyphal-repressed; alternatively spliced intron in 5' UTR; Spider biofilm induced
orf19.2850		2.46	3.17	Protein of unknown function; induced by nitric oxide independent of Yhb1p
orf19.5589		2.46	2.71	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.1060		2.46	2.37	Ortholog of Candida albicans WO-1 : CAWG_00968

orf19.5543		2.45	2.38	Ortholog(s) have cell division site, cytosol localization
orf19.3353		2.45	2.13	Protein similar to a mitochondrial complex I intermediate-associated protein; fluconazole-repressed; Spider biofilm induced; rat catheter biofilm repressed
orf19.3599	TIF4631	2.45	2.35	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.2680		2.45	2.18	Ortholog(s) have phospholipid-translocating ATPase activity, role in intracellular protein transport, phospholipid translocation and trans-Golgi network transport vesicle localization
orf19.3877		2.45	3.34	Protein of unknown function; previously merged with orf19.3878; unmerged from orf19.3878 in a revision of Assembly 21
orf19.6763	SLK19	2.45	2.61	Alkaline-induced protein of plasma membrane; affects cell aggregation, cell wall; similar to <i>S. cerevisiae</i> Slk19p (a kinetochore protein with roles in mitosis, meiosis); required for wild-type virulence in mouse; macrophage-downregulated
orf19.85	GPX2	2.44	1.87	Similar to glutathione peroxidase; induced in high iron; alkaline induced by Rim101; induced by alpha factor or interaction with macrophage; regulated by Efg1; caspofungin repressed; Spider biofilm induced
orf19.4051	HTS1	2.44	2.34	Putative tRNA-His synthetase; downregulated upon phagocytosis by murine macrophage; stationary phase enriched protein; Spider biofilm repressed
orf19.2839	CIRT4B	2.43	2.17	Cirt family transposase; transcript repressed in an azole-resistant strain that overexpresses CDR1 and CDR2; Hap43-repressed; flow model biofilm induced
orf19.4282	IFH1	2.43	2.81	Transcription factor; forms a heterodimer with Fh11 that is tethered to promoters by Tbf1; positively regulates rRNA and ribosomal protein gene transcription; Spider biofilm induced
orf19.4772	SSU81	2.43	2.51	Predicted adaptor protein involved in activation of MAP kinase-dependent signaling pathways; links response to oxidative stress to morphogenesis and cell wall biosynthesis; caspofungin repressed
orf19.5741	ALS1	2.42	2.01	Cell-surface adhesin; adhesion, virulence, immunoprotective roles; band at hyphal base; Rfg1, Ssk1, Spider biofilm induced; flow model biofilm repressed; CAI-4 strain background effects; promoter bound Bcr1, Tec1, Efg1, Ndt80, and Br1
orf19.1087		2.42	2.03	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_601130, <i>C. dubliniensis</i> CD36 : Cd36_64620, <i>Loederomyces elongisporus</i> NRLL YB-4239 : LELG_04885 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0F02130
orf19.7022		2.42	2.42	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_70850, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00183, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F22462q and <i>Pichia stipitis</i> Pignal : PICST_60416
orf19.7574		2.42	2.81	Ortholog(s) have ubiquitin ligase complex localization
orf19.4771		2.41	2.89	Protein of unknown function; Spider biofilm induced
orf19.6160		2.41	2.18	Ortholog(s) have role in eisosome assembly and eisosome, membrane raft, mitochondrion, plasma membrane localization
orf19.668	TOS4	2.41	2.21	Putative fork-head transcription factor; rat catheter and Spider biofilm repressed
orf19.4539		2.41	1.92	Protein with a Rho GDP-dissociation inhibitor domain; Hap43-repressed gene; Spider biofilm induced
orf19.2622	YPT31	2.4	2.53	Protein required for resistance to toxic ergosterol analog
orf19.772	LYS21	2.4	2.2	Homocitrate synthase; lysine biosynthesis; expression increased in a fluconazole-resistant isolate; colony morphology-related gene regulation by Ssn6; ketoconazole-repressed; regulated by Gcn2, Gcn4, Hap43
orf19.2246		2.4	2.84	Ortholog(s) have cytosol, nucleus localization
orf19.3555	BUD14	2.4	1.8	Putative SH3-domain-containing protein; predicted role in bud-site selection; Spider biofilm induced
orf19.4952		2.39	2.52	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.3685	PSY2	2.39	2.83	Putative protein phosphatase PP4 complex subunit; macrophage-induced gene
orf19.4956	RPN1	2.39	2.13	Putative 19S regulatory particle of the 26S proteasome; regulated by Gcn2p and Gcn4p
orf19.2179	SIT1	2.39	3.46	Transporter of ferrichrome siderophores, not ferrioxamine B; required for human epithelial cell invasion in vitro, not for mouse systemic infection; regulated by iron, Sfu1, Rfg1, Tup1, Hap43; rat catheter and Spider biofilm induced
orf19.7247	RIM101	2.39	2.35	Transcription factor; alkaline pH response; required for alkaline-induced hyphal growth; role in virulence in mice; activated by C-terminal proteolytic cleavage; mediates both positive and negative regulation; Spider biofilm induced
orf19.2629	USO1	2.38	1.99	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, Golgi vesicle docking, SNARE complex assembly and ER to Golgi transport vesicle membrane, Golgi membrane localization
orf19.2919	MPH1	2.38	2.04	Protein similar to <i>S. cerevisiae</i> Mph1p, which is a DNA helicase involved in DNA repair; induced under hydroxyurea treatment
orf19.4933	FAD3	2.38	2.43	Omega-3 fatty acid desaturase; production of alpha-linolenic acid, a major component of membranes; caspofungin induced; Plc1-regulated; colony morphology-related gene regulation by Ssn6; Spider biofilm induced, flow model biofilm repressed
orf19.2765	PGA62	2.38	2.73	Adhesin-like cell wall protein; putative GPI-anchor; fluconazole-induced; induced in high iron; induced during cell wall regeneration; Cvr1 or Ras1 repressed; Tbf1 induced
orf19.3623	SMC2	2.37	2.39	Protein similar to <i>S. cerevisiae</i> Smc2p, which is a component of the condensin complex involved in mitotic chromosome condensation; induced under hydroxyurea treatment
orf19.1275	GAT1	2.37	2.73	GATA-type transcription factor; regulator of nitrogen utilization; required for nitrogen catabolite repression and utilization of isoleucine, tyrosine and tryptophan N sources; required for virulence in a mouse systemic infection model
orf19.4191	RLP24	2.37	2.43	Putative ribosomal protein; Hap43-induced; essential gene; heterozygous mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); Spider biofilm induced
orf19.4906		2.37	3.06	Putative adhesin-like protein; positively regulated by Tbf1; Spider biofilm induced
orf19.1266		2.36	1.96	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.6470	AHP2	2.36	1.84	Putative thiol-specific peroxidoredoxin; macrophage-downregulated gene
orf19.3352		2.36	1.93	Has domain(s) with predicted oxidoreductase activity and role in metabolic process
orf19.6588	NBP2	2.36	2.62	Protein containing an SH3 domain; involved in vacuolar fusion in hyphae; mutants form multiple germ tubes; Spider biofilm induced
orf19.5000	CYB2	2.36	2.31	Putative cytochrome b2 precursor; induced in high iron; alkaline repressed; colony morphology-related gene regulation by Ssn6; Hap43-repressed; spider biofilm induced
orf19.5408	HRK1	2.36	2.57	Putative serine/threonine kinase; predicted role in cellular ion homeostasis; Spider biofilm repressed
orf19.2623	ECM22	2.35	2.19	Zn(II)2Cys6 transcription factor; rat catheter and Spider biofilm induced
orf19.461		2.35	2.49	#NV
orf19.4377	KRE1	2.35	3.09	Cell wall glycoprotein; beta glucan synthesis; increases glucan content in <i>S. cerevisiae</i> kre1, complements killer toxin sensitivity; caspofungin induced; Spider/rat catheter/flow model biofilm induced; Bcr1-repressed in RPM1 a/a biofilms
orf19.607		2.35	2.3	Protein involved in transcription-coupled nucleotide excision repair of UV-induced DNA lesions; Spider biofilm induced
orf19.2770		2.35	2.27	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_42220, <i>C. parapsilosis</i> CDC317 : CPAR2_500340, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G17754q and <i>Pichia stipitis</i> Pignal : PICST_31424
orf19.2958		2.35	2.52	Planktonic growth-induced gene
orf19.1658		2.35	2.6	Ortholog(s) have cell cortex, cellular bud neck, cellular bud tip, mating projection tip localization
orf19.3100		2.34	2.18	Protein with t-SNARE domains and a microtubule associated domain; Hap43-induced gene; repressed by alpha pheromone in SpiderM medium
orf19.5912	MAK21	2.34	2.82	Putative 66S pre-ribosomal particle subunit; mutation confers hypersensitivity to tubercidin (7-deazaadenosine)
orf19.5518		2.33	2	Protein of unknown function; Spider biofilm induced
orf19.6812	PMT2	2.33	2.45	Protein mannosyltransferase (PMT) with roles in hyphal growth and drug sensitivity; member of the PMT family which includes Pmt1p, Pmt2p, Pmt4p, Pmt5p, and Pmt6p; induced during cell wall regeneration; essential
orf19.1971	TRY3	2.32	2.42	RING-finger transcription factor; regulator of yeast form adherence; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.3586		2.32	2.27	Ortholog(s) have role in fungal-type cell wall organization, vesicle-mediated transport and integral to endoplasmic reticulum membrane localization
orf19.5552		2.32	2.07	Putative transcriptional regulator of ribonucleotide reductase genes; Spider biofilm induced
orf19.1067	GPM2	2.32	2.58	Putative phosphoglycerate mutase; repressed in hyphae; macrophage/pseudohyphal-repressed; induced by high levels of peroxide stress, farnesol; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.1631	ERG6	2.32	2.24	Delta(24)-sterol C-methyltransferase, converts zymosterol to fecosterol, ergosterol biosynthesis; mutation confers nystatin resistance; Hap43, GlcNAc-, fluconazole-induced; upregulated in azole-resistant strain; Spider biofilm repressed
orf19.5813		2.32	2.66	Putative adhesin-like protein; upregulated during growth in the mouse cecum; flow model, rat catheter and Spider biofilm induced
orf19.3607		2.31	2.23	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22860, <i>C. parapsilosis</i> CDC317 : CPAR2_806540, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_108823 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B13596q
orf19.2204		2.31	2.65	Predicted membrane protein of unknown function; Spider biofilm induced
orf19.3555	BUD14	2.31	2.18	Putative SH3-domain-containing protein; predicted role in bud-site selection; Spider biofilm induced
orf19.5732	NOG2	2.31	2.59	Putative nuclear GTPase; repressed by prostaglandins; Hap43-induced, rat catheter and Spider biofilm induced
orf19.6202	RB74	2.31	2.57	Pry family protein; required for virulence in mouse systemic/rabbit corneal infections; not filamentation; mRNA binds She3, is localized to hyphal tips; Hap43-induced; in both yeast and hyphal culture supernatants; Spider biofilm induced
orf19.7581		2.31	2.3	Protein with a predicted role in assembly of U2 snRNP into the spliceosome; Spider biofilm induced
orf19.3714		2.3	2.66	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33530, <i>C. parapsilosis</i> CDC317 : CPAR2_201980, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_134293 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A10164q
orf19.6852		2.3	2.29	Ortholog of Rmd6 involved in <i>S. cerevisiae</i> sporulation; flow model biofilm induced

orf19.6896		2,3	2,6	Predicted ORF overlapping the Major Repeat Sequence on chromosome 7; member of a family encoded by FGR6-related genes in the RB2 repeat sequence
orf19.7419	<i>HNT2</i>	2,3	2,23	Putative dinucleoside triphosphate hydrolase; induced upon low-level peroxide stress
orf19.6831	<i>PRP5</i>	2,3	2,63	Putative pre-mRNA processing RNA-helicase; induced upon adherence to polystyrene; rat catheter and Spider biofilm induced
orf19.5110	<i>OPY2</i>	2,29	2,71	Predicted transmembrane protein; role in cell wall biogenesis; required for Cek1 phosphorylation; Spider biofilm induced
orf19.3260		2,29	2,43	Ortholog(s) have phosphopantothencysteine decarboxylase activity, role in coenzyme A biosynthetic process, response to salt stress and phosphopantothencysteine decarboxylase complex localization
orf19.7296		2,29	2,73	Putative cation conductance protein; similar to stomatin mechanoreception protein; plasma-membrane localized; induced by Rgt1; rat catheter and Spider biofilm induced
orf19.3635		2,28	2,34	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22580, <i>C. parapsilosis</i> CDC317 : CPAR2_406960, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_113677 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D03608g
orf19.2392		2,28	1,78	Protein of unknown function; mutants are viable
orf19.4755	<i>KEX2</i>	2,28	1,97	Subtilisin-like protease (proprotein convertase); processes aspartyl proteinase Sap2; required for hyphal growth and wild-type virulence in mice; functional homolog of <i>S. cerevisiae</i> Kex2, which processes alpha-factor; Tup1-repressed
orf19.3419	<i>MAE1</i>	2,28	2,06	Malic enzyme, mitochondrial; transcription regulated by Mig1, Tup1; colony morphology-related gene regulation by Sn6; Hap43-repressed; Spider biofilm repressed
orf19.2767	<i>PGA59</i>	2,28	1,91	Adhesin-like cell wall protein; putative GPI-anchor; colony morphology-related gene regulation by Sn6; Hap43-induced; Spider biofilm repressed
orf19.6843		2,28	1,74	Ortholog(s) have role in CENP-A containing nucleosome assembly at centromere, chromatin silencing at centromere, mitotic sister chromatid segregation and nucleoplasm localization
orf19.7025	<i>MCM1</i>	2,28	1,98	Transcription factor; regulator of hyphal growth; may act with Wor1p; canonical and non-canonical binding sites; MADS domain DNA-binding motif; similar to <i>S. cerevisiae</i> Mcm1p; greater expression in white than opaque cells; intron in 5'-UTR
orf19.7060		2,28	2,2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_70070, <i>C. parapsilosis</i> CDC317 : CPAR2_301080, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F22946g and <i>Pichia stipitis</i> Pignal : PICST_46820
orf19.449		2,27	2,07	Putative phosphatidyl synthase; stationary phase enriched protein; transcript repressed by yeast-hypha switch; Hap43-repressed; rat catheter, Spider and flow model biofilm induced
orf19.6464		2,27	1,97	Protein of unknown function; induced upon adherence to polystyrene; oxidative stress-induced via Cap1
orf19.1693	<i>CAS4</i>	2,27	1,94	RAM cell wall integrity signaling network protein; cell separation, azole sensitivity; needed for hyphal growth; insertion mutation near 3' end of gene increases caspofungin sensitivity; pheromone/hyphal induced; flow biofilm repressed
orf19.5504		2,27	1,75	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73400, <i>C. parapsilosis</i> CDC317 : CPAR2_703180, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_104803 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A04466g
orf19.1193	<i>GNP1</i>	2,27	2,68	Similar to asparagine and glutamine permease; fluconazole, caspofungin induced; regulated by Nrg1, Mig1, Tup1, Gcn2, Gcn4, and alkaline regulated by Rim101; repressed during chlamydospore formation; rat catheter, flow model biofilm induced
orf19.5282		2,27	1,87	Protein of unknown function; Hap43-repressed gene; mRNA binds to She3; repressed in hyphae; Efg1 and Efh1 regulated; 5'-UTR intron; induced by Mnl1 under weak acid stress; rat catheter biofilm induced
orf19.7176	<i>NPT1</i>	2,27	2,23	Putative nicotinate phosphoribosyltransferase, involved in NAD salvage pathway; fungal-specific (no human or murine homolog)
orf19.6260		2,26	2,34	Ubiquitin-specific protease; cleaves ubiquitin from ubiquitinated proteins; Spider biofilm induced
orf19.1345	<i>LIP8</i>	2,26	2,11	Secreted lipase, member of a differentially expressed lipase gene family with possible roles in nutrition and/or in creating an acidic microenvironment; LIP5 and LIP8 are expressed at all stages of both mucosal and systemic infection
orf19.4280		2,26	2,19	Protein of unknown function; Spider biofilm induced; rat catheter biofilm repressed
orf19.2843	<i>RHO1</i>	2,26	2,01	Small GTPase of Rho family; regulates beta-1,3-glucan synthesis activity and binds Gsc1p; essential; expected to be geranylgeranylated by geranylgeranyltransferase type I; plasma membrane-localized
orf19.6856		2,26	2,35	#NV
orf19.1208		2,25	2,8	Predicted ORF in the Major Repeat Sequence on chromosome 4; member of a family encoded by FGR6-related genes in the RB2 repeat sequence
orf19.367	<i>CNH1</i>	2,25	1,87	Na ⁺ /H ⁺ antiporter; required for wild-type growth, cell morphology, and virulence in a mouse model of systemic infection; not transcriptionally regulated by NaCl; fungal-specific (no human or murine homolog)
orf19.4318	<i>MIG1</i>	2,25	2,11	C2H2 transcription factor; repressor; regulates genes for carbon source utilization; Tup1-dependent and independent functions; hyphal, Hap43 and caspofungin repressed; Spider and flow model biofilm induced
orf19.147	<i>YAK1</i>	2,25	1,82	Predicted serine-threonine protein kinase; involved in hyphal growth regulation and biofilm formation; flow model biofilm induced; induced in core caspofungin response
orf19.5651		2,25	2,45	Ortholog(s) have histone demethylase activity (H3-trimethyl-K4 specific), histone demethylase activity (H3-trimethyl-K4 specific) activity
orf19.891		2,25	2,31	Putative AMP deaminase; possibly an essential gene; disruptants not obtained by UAU1 method
orf19.7438	<i>UBA1</i>	2,25	2,39	Ubiquitin-activating enzyme; protein level decreases in stationary phase cultures
orf19.333	<i>FCY2</i>	2,24	1,86	Purine-cytosine permease of pyrimidine salvage; mutation associated with resistance to flucytosine in clinical isolates; transposon mutation affects filamentation; farnesol-upregulated in biofilm
orf19.2736	<i>HFL2</i>	2,24	1,92	HAP5-like; ortholog of <i>S. cerevisiae</i> Bur6, a heterodimeric NC2 transcription regulator complex subunit; flucytosine induced
orf19.1313	<i>CDR3</i>	2,24	2,07	Transporter of the Pdr/Cdr family of the ATP-binding cassette superfamily; transports phospholipids out-to-in; expressed in opaque-phase cells; induced by macrophage interaction; fluconazole-repressed; Spider biofilm induced
orf19.1460		2,24	2,28	Putative glutamine-dependent NAD synthetase, involved in NAD salvage pathway
orf19.7499		2,24	2,22	Putative nicotinic acid mononucleotide adenylyltransferase, involved in NAD salvage pathway; Spider biofilm repressed
orf19.4706		2,23	2,44	Protein of unknown function; induced in <i>cyr1</i> or <i>ras1</i> mutant; induced by fluconazole, by alpha pheromone in SpiderM medium and during oropharyngeal candidiasis; Spider biofilm induced
orf19.2270	<i>SMF12</i>	2,23	2,16	Ortholog of <i>S. cerevisiae</i> Smf1; manganese transporter; Gcn4-regulated; Hap43, alkaline induced; caspofungin repressed; mutants are viable
orf19.254		2,23	2,03	Protein of unknown function; Hog1p-repressed; Spider biofilm induced
orf19.2098	<i>ARO8</i>	2,23	2,09	Aromatic transaminase of the Ehrlich fusel oil pathway of aromatic alcohol biosynthesis; Rim101 independent alkaline induction; protein abundance affected by URA3 expression in CAI-4 strain; Gcn4-regulated; stationary phase enriched
orf19.1960	<i>CLN3</i>	2,22	2,15	G1 cyclin; depletion abolishes budding and causes hyphal growth defects; farnesol regulated, functional in <i>S. cerevisiae</i> ; possibly essential (UAU1 method); other biofilm induced; Spider biofilm induced
orf19.166	<i>ASG1</i>	2,22	1,81	Gal4p family zinc-finger transcription factor with similarity to <i>S. cerevisiae</i> Asg1p
orf19.3884	<i>FGR50</i>	2,22	1,96	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; Spider biofilm repressed
orf19.1945	<i>AUR1</i>	2,21	2,05	Inositolphosphorylceramide (IPC) synthase; catalyzes the key step in sphingolipid biosynthesis; antifungal drug target; flow model biofilm induced; Spider biofilm induced
orf19.1199	<i>NOP5</i>	2,21	2,08	Ortholog of <i>S. cerevisiae</i> Nop58; involved in pre-rRNA process; Tn mutation affects filamentous growth; macrophage/pseudohyphal-induced; physically interacts with TAP-tagged Nop1; Spider biofilm repressed
orf19.4953		2,21	1,97	Putative ATPase; predicted role in ER-associated protein catabolism; induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i> ; rat catheter biofilm repressed
orf19.2903	<i>AGO1</i>	2,21	2,34	Putative Argonaute protein involved in RNA silencing; hyphal-induced expression; regulated by Cyr1, Ras1, Efg1, Nrg1, Tup1; rat catheter biofilm repressed
orf19.7433		2,21	2,92	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.7670		2,21	2,44	Putative Ca2+/H ⁺ antiporter; oral infection upregulated gene; mutants have reduced capacity to damage oral epithelial cells
orf19.1172		2,2	2,15	#NV
orf19.2751		2,2	2,09	Predicted membrane transporter; member of the monocarboxylate porter (MCP) family, major facilitator superfamily; Hap43-induced gene; alkaline upregulated by Rim101; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2014	<i>BCY1</i>	2,2	1,9	Protein kinase A regulatory subunit; required for nuclear localization of Tpk1; physically interacts with Tpk1; essential; apoptosis-regulated; <i>bcy1</i> heterozygous or <i>bcy1 tpk2</i> mutant has filamentous growth defect
orf19.1750	<i>SLR1</i>	2,19	1,75	Protein similar to mammalian SR-like RNA splicing factor; involved in filamentous growth and virulence; gene has intron; Spider biofilm repressed
orf19.4056	<i>BRG1</i>	2,19	1,84	Transcription factor; recruits Hda1 to hypha-specific promoters; Tn mutation affects filamentation; Hap43-repressed; Spider and flow model biofilm induced; required for Spider biofilm formation; Bcr1-repressed in RPM1 a/a biofilms
orf19.5506	<i>PLC1</i>	2,19	2,5	Phosphoinositide-specific phospholipase C (PI-PLC), delta-form; essential; roles in stress resistance, hyphal growth; upregulated in biofilm; predicted N-linked glycosylation; lacks conserved EF-hand domain
orf19.6973		2,19	2,09	ATP-dependent LON protease family member; Hap43-repressed gene; regulated by Gcn2 and Gcn4; Spider biofilm induced
orf19.4997	<i>KIS2</i>	2,19	2,45	Scaffold protein of Snf1p complex; similar to <i>S. cerevisiae</i> Gal83p and Sip2p; interacts with Snf4p; interaction with Snf1p complex is regulated by carbon source, decreased on ethanol; N-terminal myristoylation; Hog1p-downregulated
orf19.7433		2,19	3,13	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity

orf19.5455		2.19	2.08	Ortholog(s) have mRNA binding, small GTPase regulator activity
orf19.1111		2.18	2.39	Ortholog(s) have chromatin binding, protein complex scaffold activity and role in RNA polymerase II transcriptional preinitiation complex assembly, histone acetylation
orf19.4645	BEM1	2.18	2.07	Protein required for wild-type budding, hyphal growth, and virulence in a mouse systemic infection; suppresses pseudohyphal and filamentous growth defects of various <i>S. cerevisiae</i> mutants and heat sensitivity of <i>S. cerevisiae</i> cdc24 4 mutant
orf19.6092	KEL1	2.18	2.13	Kelch repeat domain-containing protein; localizes to sites of polarized growth; mutant colonies exhibit slightly decreased filamentation ratio; not required for buccal epithelial cell adherence or virulence in mice
orf19.7104		2.18	2.04	Adhesin-like cell wall protein; similar to mucins and to a Litomosoides microfilarial sheath protein; N-terminal secretion signal; rat catheter and Spider biofilm repressed
orf19.6197	DHH1	2.17	2.17	Putative RNA helicase
orf19.2774	LAB5	2.17	2.43	Ortholog(s) have role in protein lipoylation and mitochondrion localization
orf19.1448	APT1	2.17	2.42	Adenine phosphoribosyltransferase; flucytosine induced; repressed by nitric oxide; protein level decreased in stationary phase yeast cultures
orf19.6536	IQG1	2.17	1.9	Actomyosin ring component at bud neck; cell-cycle regulated ser phosphorylation at CDK sites regulate association with Bni1/Bnr1, Iqg1 degradation, and ring disassembly; mutation causes cytokinetic defects; rat catheter biofilm repressed
orf19.7468		2.17	2.15	Putative transcriptional activator; expression upregulated during growth in the mouse oecum; Spider biofilm induced
orf19.1743	ACS1	2.16	1.86	Acetyl-CoA synthetase; induced by human neutrophils; fluconazole-repressed; regulated by Nrg1/Mig1; colony morphology-related gene regulation by Ssn6; only in stationary phase cultures; rat catheter biofilm repressed, Spider biofilm induced
orf19.2850		2.16	1.82	Protein of unknown function; induced by nitric oxide independent of Yhb1p
orf19.3689		2.15	2.31	Putative protein similar to 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase; expression downregulated in an <i>ssr1</i> null mutant
orf19.6529	CDC34	2.15	1.98	Putative ubiquitin-protein ligase; transcript regulated by Nrg1 and Tup1, and by Gcn2 and Gcn4; rat catheter biofilm induced
orf19.7501		2.15	2.26	Nucleosome assembly protein; protein present in exponential and stationary growth phase yeast cultures
orf19.4871	ERO1	2.14	1.88	Ortholog of <i>S. cerevisiae</i> Ero1; role in formation of disulfide bonds in the endoplasmic reticulum; fluconazole-induced; induced by Mn1 under weak acid stress; Spider biofilm induced
orf19.6478	YCF1	2.14	2.1	Putative glutathione S-conjugate transporter; MRP/CFTR-subfamily, ABC type transporter; human neutrophil-induced; oxidative stress-induced via Cap1; possible association with multidrug resistance; possibly essential; Spider biofilm induced
orf19.5102	PLB5	2.14	2.46	Putative GPI-linked phospholipase B, fungal-specific (no mammalian homolog); null mutation eliminates cell-associated phospholipase A2 activity and attenuates virulence; fluconazole-repressed; flow model biofilm repressed
orf19.512		2.14	2.77	Ortholog of <i>S. cerevisiae</i> Kre33; essential; <i>S. cerevisiae</i> ortholog is essential and is required for biogenesis of the small ribosomal subunit
orf19.1078	HBR2	2.13	1.52	Putative alanine glyoxylate aminotransferase; regulated by Gcn4p and hemoglobin; stationary phase enriched protein
orf19.808		2.13	2.02	Ortholog(s) have role in histone deacetylation, negative regulation of chromatin silencing at rDNA and negative regulation of chromatin silencing at silent mating-type cassette, more
orf19.7428	APN1	2.13	2.1	Ortholog of <i>S. cerevisiae</i> Apn1; an AP endonuclease; transcript induced by interaction with macrophages; fungal-specific (no human or murine homolog)
orf19.7433		2.13	2.18	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.1674	CDC53	2.12	1.88	Cullin, a scaffold subunit of the SCF ubiquitin-ligase complexes; depletion leads to increased filamentous growth and premature cell death
orf19.1979	GIT3	2.12	2.43	Putative glycerophosphoinositol permease; white cell specific transcript; fungal-specific; alkaline repressed; caspofungin, macrophage/pseudohyphal-repressed; flow model biofilm induced; Spider biofilm induced
orf19.3451		2.12	2.44	#NV
orf19.2857		2.12	2.28	Ortholog(s) have ATP-dependent DNA helicase activity
orf19.4516		2.12	2.1	Ortholog(s) have tetrahydrofolylpolyglutamate synthase activity, role in one-carbon metabolic process and cytosol, mitochondrion, nucleus localization
orf19.4308	HSL1	2.12	2.17	Probable protein kinase involved in determination of morphology during the cell cycle of both yeast-form and hyphal cells via regulation of Swe1p and Cdc28p; required for full virulence and kidney colonization in mouse systemic infection
orf19.3013	CDC12	2.12	2.33	Septin; essential for viability; forms ring at sites of cell division and also forms filaments in mature chlamydsopore; filamentous growth induced; regulated by Nrg1, Tup1, tyrosol and cell density; rat catheter biofilm repressed
orf19.7150	NRG1	2.12	3.15	Transcription factor/repressor; regulates chlamydsopore formation/hyphal gene induction/virulence and rescue/stress response genes; effects both Tup1 dependent and independent regulation; flow model biofilm induced; Spider biofilm repressed
orf19.5325	KIN3	2.12	1.99	Protein similar to <i>S. cerevisiae</i> Kin3p; induced under Cdc5p depletion; shows Mob2p-dependent hyphal regulation; mutants are hypersensitive to caspofungin
orf19.6809		2.12	2.64	Putative phosphomutase-like protein; protein present in exponential and stationary growth phase yeast; Hap43-repressed; Spider biofilm repressed
orf19.5901	PKC1	2.12	1.97	Protein kinase C; functional homolog of <i>S. cerevisiae</i> Pkc1p; mutant has abnormal yeast-form cell morphology and increased cell lysis; activated by phosphatidylserine; target of antifungal, cercosporamide; R400P mutant is activated
orf19.3778		2.11	2.35	Protein with a predicted role in ribosome biogenesis; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU); repressed in core stress response; repressed by prostaglandins; Hap43-induced
orf19.4257	INT1	2.11	1.8	Protein structurally similar to alpha-subunit of human leukocyte integrin; role in morphogenesis, adhesion, and mouse cecal colonization and systemic virulence; similar to <i>S. cerevisiae</i> Bud4; Hap43-induced gene
orf19.5555		2.11	2.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63300, <i>Candida tropicalis</i> MYA-3404 : CTRG_05769 and <i>Candida albicans</i> WO-1 : CAWG_05077
orf19.1246		2.1	2.42	Putative eisosome component role in proper eisosome assembly; upregulated in <i>cyr1</i> null mutant
orf19.3378		2.09	2.45	#NV
orf19.5197	APE2	2.09	1.9	Protein of unknown function; regulated by Tsa1, Tsa1B in minimal media at 37 degrees C
orf19.609		2.09	1.79	Neutral arginine, alanine, leucine specific metallo-aminopeptidase; purified from cell wall/intracellular fractions; protein repressed during mating; Hog1, farnesol-induced; may be essential (UAU1 method); rat catheter biofilm repressed
orf19.2170	PHM7	2.09	2.3	Protein of unknown function; white cell specific transcript
orf19.3052	YPT1	2.09	2.23	Putative transporter; fungal-specific; Hog1-repressed; repressed by 17-beta-estradiol, ethynyl estradiol; Hap43-induced; Spider biofilm induced
orf19.3052	YPT1	2.09	2.23	Functional homolog of <i>S. cerevisiae</i> Ypt1p, which is an essential small Ras-type GTPase involved in protein secretion at ER-to-Golgi; dominant-negative mutation causes SAP secretion defect and accumulation of intracellular secretory vesicles
orf19.4059		2.08	1.87	Ortholog(s) have role in actin cortical patch localization, arginine transport, cellular protein localization, cellular response to heat, endocytosis, late endosome to vacuole transport and lysine transport, more
orf19.3093	MSH2	2.08	2.28	Putative DNA mismatch repair factor; transcript regulated by Nrg1; flucytosine repressed; transcript regulated by tyrosol and cell density
orf19.5338	GAL4	2.08	2.21	Zn(II)2Cys6 transcription factor; involved in control of glycolysis; ortholog of <i>S. cerevisiae</i> Gal4, but not involved in regulation of galactose utilization genes; caspofungin repressed; Spider biofilm repressed
orf19.1386		2.07	1.82	Ortholog(s) have SNAP receptor activity and role in ER to Golgi vesicle-mediated transport, retrograde vesicle-mediated transport, Golgi to ER vesicle fusion
orf19.6648	SDA1	2.07	2.34	Predicted nuclear protein involved in actin cytoskeleton organization, passage through Start, 60S ribosome biogenesis; rat catheter biofilm induced; Hap43-induced
orf19.6046	APC1	2.07	1.69	Putative Anaphase-Promoting Complex/Cyclosome subunit; essential for growth; periodic mRNA expression, peak at cell cycle S/G2 phase
orf19.3462	SAR1	2.06	1.78	Functional homolog of <i>S. cerevisiae</i> Sar1; which is required for ER-to-Golgi protein transport; binds GTP; similar to small GTPase superfamily proteins; gene has intron; Hap43-induced; rat catheter biofilm repressed
orf19.454	SFL1	2.06	1.94	Transcription factor; involved in negative regulation of flocculation and filamentous growth; induced in core caspofungin response; Spider biofilm induced
orf19.6315		2.06	1.8	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30140, <i>C. parapsilosis</i> CDC317 : CPAR2_204040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114703 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G22880q
orf19.3575	CDC19	2.06	2.27	Pyruvate kinase at yeast cell surface; Gcn4/Hog1/GlcNAc regulated; Hap43/polystyrene adherence induced; repressed by phagocytosis/farnesol; hyphal growth role; stationary phase enriched; flow model biofilm induced; Spider biofilm repressed
orf19.4444	PHO15	2.06	2.42	4-nitrophenyl phosphatase, possible histone H2A phosphatase; involved in regulation of white-opaque switch; hyphal repressed; induced in core stress response; induced by cadmium stress via Hog1; rat catheter and Spider biofilm repressed
orf19.7448	LVS9	2.06	2.4	Saccharopine dehydrogenase; lysine biosynthesis; soluble protein in hyphae; amphotericin B repressed; Gcn4-regulated; colony morphology-related gene regulation by Ssn6; protein present in exponential and stationary growth phase yeast
orf19.6801	RPD31	2.06	2.11	Putative histone deacetylase; involved in regulation of white-opaque switch; Spider biofilm repressed

orf19.2841	<i>PGM2</i>	2.05	1.95	Ortholog of <i>S. cerevisiae</i> Pgm2; induced in planktonic culture; Tye7p-regulated; flow model biofilm induced; rat catheter biofilm repressed
orf19.1923	<i>RRV3</i>	2.05	2.06	Protein with a predicted role in recruitment of RNA polymerase I to rDNA; caspofungin induced; flucytosine repressed; repressed in core stress response; repressed by prostaglandins
orf19.2218		2.05	2.01	#NV
orf19.6011	<i>SIN3</i>	2.05	2.08	Protein similar to <i>S. cerevisiae</i> Sin3p (transcriptional corepressor involved in histone deacetylase recruitment); has paired amphipathic helix PAH1 domain; interacts with ScOpi1p, not CaOpi1p; transposon mutation affects filamentous growth
orf19.6705		2.05	1.71	Putative guanyl nucleotide exchange factor with Sec7 domain; required for normal filamentous growth; regulated by yeast hyphal switch; filament induced; regulated by Nrg1, Tup1, Mob2, Hap43; mRNA binds She3; Spider biofilm induced
orf19.1142	<i>AVT4</i>	2.04	1.92	Putative vacuolar transporter of large neutral amino acids; induced by alpha pheromone in SpiderM medium
orf19.1335		2.04	2.33	Ortholog of <i>S. cerevisiae</i> Mtr4, an ATP-dependent 3'-5' RNA helicase of the DEAD-box family; Hap43-induced gene; Spider biofilm induced
orf19.4257	<i>INT1</i>	2.04	1.67	Protein structurally similar to alpha-subunit of human leukocyte integrin; role in morphogenesis, adhesion, and mouse cecal colonization and systemic virulence; similar to <i>S. cerevisiae</i> Bud4; Hap43-induced gene
orf19.1868	<i>RNR22</i>	2.04	2.07	Putative ribonucleoside diphosphate reductase; colony morphology-related gene regulation by Ssn6; transcript regulated by tyrosol and cell density; Hap43-repressed; Spider biofilm induced
orf19.7506		2.04	2.27	Ortholog(s) have ATPase activity, DNA binding, nucleosome binding activity, role in chromatin remodeling and Isw1 complex localization
orf19.4368		2.03	2.02	Has domain(s) with predicted hydrolase activity and role in cellular process
orf19.4961	<i>STP2</i>	2.03	1.69	Amino-acid-regulated transcription factor; activates transcription of amino acid permease genes; activated by amino-acid-induced proteolytic processing (Ssy1, Csh3 dependent); required for alkalization of medium; Spider biofilm induced
orf19.2003	<i>HNM1</i>	2.03	1.8	Putative choline/ethanolamine transporter; mutation confers hypersensitivity to toxic ergosterol analog; colony morphology-related gene regulation by Ssn6; clade-associated gene expression
orf19.4225	<i>LEU3</i>	2.03	2.07	Zn(II)Cys6 transcription factor; predicted regulator branched-chain amino acid biosynthesis genes; alkaline induced; induced by Mnl1 under weak acid stress; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.2426		2.03	1.86	Predicted HD domain metal dependent phosphohydrolase; Spider biofilm repressed
orf19.3990		2.03	1.87	Ortholog(s) have DNA-directed RNA polymerase activity, RNA polymerase III activity and role in tRNA transcription from RNA polymerase III promoter, transcription initiation from RNA polymerase III promoter
orf19.7234		2.03	2.3	Putative RSC chromatin remodeling complex component; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7571	<i>UBC4</i>	2.03	2.09	Ortholog(s) have ubiquitin binding activity
orf19.1525		2.02	1.62	Ortholog(s) have role in nuclear-transcribed mRNA catabolic process, nonsense-mediated decay and cytoplasm, nucleus localization
orf19.4639.1		2.02	2.11	#NV
orf19.1712	<i>GEA2</i>	2.02	2.04	Putative ARF GTP/GDP exchange factor; induced in low iron; flow model biofilm repressed
orf19.600	<i>TRK1</i>	2.02	2.32	Potassium transporter; mediates K+ and Cl- influx; role in sensitivity to cationic antimicrobial peptides, not by direct uptake, possibly related to membrane permeability; contains 5' UTR intron; Spider biofilm induced
orf19.1944	<i>GPR1</i>	2.02	2.01	Plasma membrane G-protein-coupled receptor of the cAMP-PKA pathway; required for WT hyphal growth; reports differ on role in cAMP-mediated glucose signaling; Gpr1 C terminus binds Gpa2; regulates HWP1 and ECE1; flow model biofilm induced
orf19.2972	<i>PDE2</i>	2.02	1.89	High affinity cyclic nucleotide phosphodiesterase; moderates signaling by cAMP; required for virulence, switching, cell wall, hyphal, not pseudohyphal growth; expressed shortly after hyphal induction; rat catheter and Spider biofilm induced
orf19.2898		2.02	1.91	Ortholog(s) have borate efflux transmembrane transporter activity, role in borate transport, protein targeting to vacuole and fungal-type vacuole, plasma membrane localization
orf19.5876		2.02	1.99	Protein of unknown function; Cyr1-repressed; induced by alpha pheromone in SpiderM medium; rat catheter and Spider biofilm induced
orf19.2779		2.01	2.21	Protein of unknown function; Hap43-repressed gene
orf19.5569		2.01	2.35	Ortholog(s) have role in maintenance of rDNA, mitotic sister chromatid segregation and nuclear envelope localization
orf19.2527		2.01	1.9	Putative protein of unknown function; Hap43-induced; required for normal biofilm growth; F-12/CO2 early biofilm induced
orf19.4791		2.01	2.08	Protein of unknown function; Spider biofilm induced
orf19.2850		2.01	1.79	Protein of unknown function; induced by nitric oxide independent of Yhb1p
orf19.3885		2.01	2.41	Has domain(s) with predicted N-acetyltransferase activity; highly induced during chlamyospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.1446	<i>CLB2</i>	2.01	1.86	B-type mitotic cyclin (cyclin-dependent protein kinase regulatory subunit); essential; required for wild-type mitotic exit; role in cell polarization; interacts with catalytic subunit Cdk1; Spider biofilm repressed
orf19.3066	<i>ENG1</i>	2.01	1.88	Endo-1,3-beta-glucanase; ortholog of <i>S. cerevisiae</i> Dse4 needed for cell separation; caspofungin, fluconazole repressed; repressed by alpha pheromone in SpiderM medium; flow model biofilm induced; rat catheter biofilm repressed
orf19.7529	<i>EPL1</i>	2.01	1.97	Subunit of the NuA4 histone acetyltransferase complex
orf19.1338		2	1.92	Protein of unknown function; possible COPI-coated vesicle, Golgi apparatus, ribosome localization; rat catheter biofilm repressed
orf19.738	<i>MYO5</i>	2	2.27	Class I myosin; nonessential; role in cortical actin patch polarity and polar budding; required for hyphal growth, white-opaque switch; regulatory phosphorylation on S366; downregulated on adherence to polystyrene
orf19.2143		2	1.94	Ortholog(s) have role in endocytic recycling and cytosol, endosome, nucleus localization
orf19.333	<i>FCY2</i>	2	2.11	Purine-cytosine permease of pyrimidine salvage; mutation associated with resistance to flucytosine in clinical isolates; transposon mutation affects filamentation; farnesol-upregulated in biofilm
orf19.4535	<i>PTR3</i>	2	1.96	Protein similar to <i>S. cerevisiae</i> Ptr3p, which is a sensor of external amino acids; expression upregulated in an <i>ssr1</i> null mutant
orf19.6921		2	1.8	Ortholog(s) have RNA polymerase I upstream control element sequence-specific DNA binding transcription factor activity and role in chromatin organization, transcription of nuclear large rRNA transcript from RNA polymerase I promoter
orf19.6979		2	2.58	Ortholog(s) have role in cellular manganese ion homeostasis, mitochondrion organization and fungal-type vacuole membrane localization
orf19.3149	<i>LSP1</i>	1.99	2.04	Eisosome component with a predicted role in endocytosis; protein present in exponential and stationary growth phase yeast cultures; caspofungin repressed; biofilm induced; fungal-specific (no human/murine homolog); sumoylation target
orf19.1800		1.99	2.09	Protein of unknown function; Spider biofilm induced
orf19.6952		1.99	2.15	Ortholog(s) have DNA binding, chromatin binding, histone deacetylase activity
orf19.5746	<i>ALA1</i>	1.99	1.75	Alanyl-tRNA synthetase; translational regulation generates cytoplasmic and mitochondrial forms; Gcn4p-regulated; repressed by amino acid starvation (3-AT); translation-related genes downregulated upon phagocytosis by murine macrophages
orf19.6260		1.99	1.58	Ubiquitin-specific protease; cleaves ubiquitin from ubiquitinated proteins; Spider biofilm induced
orf19.50		1.99	2.07	Ortholog(s) have role in SCF-dependent proteasomal ubiquitin-dependent protein catabolic process, cellular response to methylmercury, response to DNA damage stimulus and SCF ubiquitin ligase complex, cytosol, nucleus localization
orf19.2685	<i>PGA54</i>	1.99	1.88	GPI-anchored protein; Hog1-repressed; induced in <i>cyr1</i> or <i>efg1</i> mutant or in hyphae; colony morphology-related gene regulation by Ssn6; induced in RHE model; mRNA binds She3; regulated in Spider biofilms by Tec1, Egf1, Ntd80, Rob1, Brg1
orf19.24	<i>RTA2</i>	1.99	2.1	Flippase; sphingolipid long chain base release; mediates calcineurin-dependent resistance to azoles; stress-associate; Plc1, Ca2+, calcineurin-regulated; ketoconazole, caspofungin induced; Spider biofilm induced; flow biofilm repressed
orf19.6645	<i>HMO1</i>	1.99	1.74	HMG-box transcription factor; binds upstream of hexose and ergosterol metabolism and cell cycle genes; activates pseudohyphal growth when expressed in <i>S. cerevisiae</i> ; repressed in hyphae; Spider biofilm repressed
orf19.3093	<i>MSH2</i>	1.99	2.08	Putative DNA mismatch repair factor; transcript regulated by Nrg1; flucytosine repressed; transcript regulated by tyrosol and cell density
orf19.7186	<i>CLB4</i>	1.99	1.88	B-type mitotic cyclin; nonessential; negative regulator of pseudohyphal growth; dispensable for mitotic exit, cytokinesis; Fkh2-repressed; flow model biofilm repressed; farnesol-upregulated in biofilm; reduced total RNA in <i>clb4</i> mutant
orf19.7086		1.99	2.01	Ortholog(s) have protein transporter activity, role in transcription factor import into nucleus and cytosol, nuclear envelope localization
orf19.5424		1.99	2.26	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02376
orf19.6225	<i>PCL7</i>	1.98	1.91	Putative cyclin-like protein; possible Pho85 cyclin; hyphal repressed; induced by Mnl1 under weak acid stress
orf19.1095	<i>GLE2</i>	1.98	1.68	Putative nuclear pore complex; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter biofilm repressed
orf19.1837	<i>TBP1</i>	1.98	1.78	Transcription initiation factor; binds TATA box sequence, binding does not require TFIIA; caspofungin repressed; functional homolog of <i>S. cerevisiae</i> and human TATA-binding proteins; Spider biofilm induced
orf19.5530	<i>NAB3</i>	1.98	2.01	Putative nuclear polyadenylated RNA-binding protein; flucytosine repressed
		1.98	2.05	#NV

orf19.2037		1.98	1.98	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15810, <i>C. parapsilosis</i> CDC317 : CPAR2_212950, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_116162 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D18392g
orf19.7247	<i>RIM101</i>	1.98	1.89	Transcription factor; alkaline pH response; required for alkaline-induced hyphal growth; role in virulence in mice; activated by C-terminal proteolytic cleavage; mediates both positive and negative regulation; Spider biofilm induced
orf19.7306		1.98	1.98	Aldo-keto reductase; increased transcript associated with MDR1 overexpression, benomyl or long-term fluconazole treatment; overexpression does not affect drug or oxidative stress sensitivity; stationary phase enriched; flow biofilm repressed
orf19.1751	<i>SPT23</i>	1.97	1.76	Protein involved in regulation of unsaturated fatty acid biosynthesis; controls the expression of the Ole1p delta-9-fatty acid desaturase
orf19.1707		1.97	1.83	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02476
orf19.519		1.97	1.83	Ortholog(s) have RNA polymerase I upstream control element sequence-specific DNA binding, RNA polymerase I upstream control element sequence-specific DNA binding transcription factor activity
orf19.5620		1.97	2.17	Stationary phase enriched protein; Gcn4-regulated; induced by amino acid starvation (3-AT), benomyl or in azole-resistant strain that overexpresses MDR1; flow model biofilm induced; rat catheter biofilm repressed; overlaps orf19.5621
orf19.4297	<i>CKB2</i>	1.97	2.3	Regulatory subunit of protein kinase CK2 (casein kinase II), beta' subunit; null mutants are hypersensitive to caspofungin
orf19.1842	<i>BUD5</i>	1.97	2.26	Predicted GTP/GDP exchange factor for Rsr1; rat catheter biofilm induced
orf19.671	<i>PSP1</i>	1.97	2.13	Protein repressed during the mating process
orf19.2452		1.96	1.86	Protein of unknown function; induced in high iron; repressed in core caspofungin response; ketoconazole-repressed; colony morphology-related gene regulation by Ssn6; possibly subject to Kex2 processing
orf19.6465		1.96	1.86	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_83910, <i>Candida tropicalis</i> MYA-3404 : CTRG_05087 and <i>Candida albicans</i> WO-1 : CAWG_00654
orf19.62		1.96	1.73	#NV
orf19.1832	<i>FCY23</i>	1.96	1.85	Putative transporter; Gcn4p-regulated; more similar to <i>S. cerevisiae</i> Tpn1p, which is a vitamin B6 transporter, than to purine-cytosine permeases
orf19.2873	<i>TOP2</i>	1.96	2.12	DNA topoisomerase II; catalyzes ATP-dependent DNA relaxation and decatenation in vitro; Y842 predicted to be catalytic; functional homolog of <i>S. cerevisiae</i> Top2p; sensitive to amacrine or doxorubicin; farnesol-upregulated in biofilm
orf19.3198	<i>OBPA</i>	1.96	1.74	Similar to oxysterol binding protein; non-sex gene located within the MTLA mating-type-like locus; Plc1p-regulated
orf19.4301		1.96	2.03	Ortholog(s) have role in chromatin silencing at rDNA, chromatin silencing at silent mating-type cassette, chromatin silencing at telomere, regulation of transcription from RNA polymerase II promoter and nucleus localization
orf19.1054		1.96	1.96	Ortholog(s) have structural constituent of nuclear pore activity
orf19.6554		1.96	1.83	Regulator of calcineurin; regulated by calcineurin-Crz1 pathway; feedback regulator of calcineurin-dependent signaling; Hap43-repressed; induced by ketoconazole, hypoxia, during growth in the mouse cecum; Spider biofilm induced
orf19.3877		1.96	1.92	Protein of unknown function; previously merged with orf19.3878; unmerged from orf19.3878 in a revision of Assembly 21
orf19.6891	<i>RFC1</i>	1.96	1.7	Putative DNA replication factor C subunit; ortholog of <i>S. cerevisiae</i> Rfc1; likely essential, based on an insertional mutagenesis strategy; rat catheter biofilm repressed
orf19.4617		1.96	1.78	Predicted peptide alpha-N-acetyltransferase; flow model biofilm induced
orf19.7136	<i>SPT6</i>	1.96	1.74	Putative transcription elongation factor; transposon mutation affects filamentous growth; transcript induced in an RHE model of oral candidiasis and in clinical isolates from oral candidiasis
orf19.5343	<i>ASH1</i>	1.96	1.94	GATA-like transcription factor; localizes to daughter cell, hyphal tip cell nuclei; mRNA localization mediated by She3; required for WT virulence and filamentous growth on solid media; Ras1 repressed in yeast, Cyr1 repressed yeast, hyphae
orf19.6793		1.96	1.83	Protein of unknown function; Sef1, Sfu1, and Hap43 regulated; rat catheter and Spider biofilm induced
orf19.2479	<i>UGA4</i>	1.95	1.62	Putative gamma-aminobutyric acid/polyamine permease; nitrogen catabolite repressed gene, induced in absence of preferred N sources; transcriptionally induced upon phagocytosis by macrophage; gene regulation by nitrogen source requires Gat1p
orf19.5620		1.95	1.48	Stationary phase enriched protein; Gcn4-regulated; induced by amino acid starvation (3-AT), benomyl or in azole-resistant strain that overexpresses MDR1; flow model biofilm induced; rat catheter biofilm repressed; overlaps orf19.5621
orf19.5191	<i>FGR6-1</i>	1.95	1.71	Protein lacking an ortholog in <i>S. cerevisiae</i> ; member of a family encoded by FGR6-related genes in the RB2 repeat sequence; transposon mutation affects filamentous growth
orf19.1237	<i>ARO9</i>	1.95	2.08	Aromatic transaminase; Ehrlich fusel oil pathway of aromatic alcohol biosynthesis; Rim101-dependent pH-regulation (alkaline induced); Hap43-induced gene
orf19.2143		1.95	2.26	Ortholog(s) have role in endocytic recycling and cytosol, endosome, nucleus localization
orf19.6197	<i>DHH1</i>	1.95	2.17	Putative RNA helicase
orf19.2304		1.95	2.17	Protein similar to <i>S. cerevisiae</i> Gvp36p; transposon mutation affects filamentous growth
orf19.6090		1.95	2.42	Putative nucleolar protein with a predicted role in pre-rRNA processing and ribosome biogenesis; repressed by nitric oxide; required for flow model biofilm formation; Spider biofilm repressed
orf19.6679		1.95	1.66	Ortholog(s) have cytosol, nucleus localization
orf19.6418		1.95	2.16	Ortholog(s) have role in ribosomal large subunit biogenesis and cytoplasm, nucleus localization
orf19.1223	<i>DBF2</i>	1.95	1.94	Essential serine/threonine protein kinase involved in mitotic spindle formation and cytokinesis; required for septum formation, exit from mitosis, and normal hyphal morphogenesis; virulence-group-correlated expression
orf19.4909	<i>CBK1</i>	1.94	1.77	Ser/Thr kinase of cell wall integrity pathway; mutants show abnormal morphology and aggregation; Mob2p associated; required for wild-type hyphal growth and transcriptional regulation of cell-wall-associated genes
orf19.1285		1.94	1.79	Plasma membrane-localized protein of unknown function; Hap43p-repressed gene
orf19.4281		1.94	1.71	#NV
orf19.1401	<i>EAP1</i>	1.94	2.13	GPI-anchored cell wall adhesin; Efg1-regulated; mutant suppresses cell adhesion, filamentation, invasive growth defects of <i>S. cerevisiae</i> flo8 or flo11 mutant; biofilm induced; required for biofilm formation; Bcr1-repressed in a/a biofilms
orf19.3097	<i>PDA1</i>	1.94	2.13	Putative pyruvate dehydrogenase alpha chain; fluconazole-induced; protein present in exponential and stationary growth phase yeast cultures; Hap43-induced; Spider biofilm repressed
orf19.5389	<i>FKH2</i>	1.94	1.93	Forkhead transcription factor; morphogenesis regulator; required for wild-type hyphal transcription, cell separation, and for virulence in cell culture; mutant lacks true hyphae, is constitutively pseudohyphal; upregulated in RHE model
orf19.367	<i>CNH1</i>	1.93	1.95	Na+/H+ antiporter; required for wild-type growth, cell morphology, and virulence in a mouse model of systemic infection; not transcriptionally regulated by NaCl; fungal-specific (no human or murine homolog)
orf19.1390	<i>PMI1</i>	1.93	1.59	Phosphomannose isomerase; cell wall biosynthesis enzyme; drug target; functional homolog of <i>S. cerevisiae</i> , <i>E. coli</i> phosphomannose isomerase; Gcn4-regulated; induced on adherence to polystyrene, phagocytosis; 3-AT, Spider biofilm repressed
orf19.267		1.93	2.03	Protein required for normal filamentous growth; mRNA binds She3
orf19.3447		1.93	2.26	Ortholog(s) have mannosyltransferase activity, role in ER-associated protein catabolic process, GPI anchor biosynthetic process, protein processing and endoplasmic reticulum localization
orf19.1313	<i>CDR3</i>	1.93	1.76	Transporter of the Pdr/Cdr family of the ATP-binding cassette superfamily; transports phospholipids out-to-in; expressed in opaque-phase cells; induced by macrophage interaction; fluconazole-repressed; Spider biofilm induced
orf19.4705		1.93	1.78	Ortholog(s) have tRNA adenylyltransferase activity, role in tRNA 3'-terminal CCA addition and cytosol, mitochondrial matrix localization
orf19.1187	<i>CPH2</i>	1.93	1.98	Myc-bHLH transcription factor; promotes hyphal growth; directly regulates Tec1 to induce hypha-specific genes; probably homodimeric, phosphorylated; required for colonization of the mouse GI tract; rat catheter and Spider biofilm induced
orf19.5181	<i>NIK1</i>	1.93	1.91	Histidine kinase involved in a two-component signaling pathway that regulates cell wall biosynthesis; required for wild-type virulence in mouse systemic infection but not for wild-type growth or drug sensitivity/resistance; 9 HAMP domains
orf19.2903	<i>AGO1</i>	1.93	1.66	Putative Argonaute protein involved in RNA silencing; hyphal-induced expression; regulated by Cyr1, Ras1, Efg1, Nrg1, Tup1; rat catheter biofilm repressed
orf19.6393		1.93	2.01	Putative Arf3p GTPase activating protein; Hap43p-repressed gene; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.956		1.93	2.06	Ortholog(s) have role in fermentation and mitochondrion localization
orf19.5121	<i>OPT5</i>	1.93	1.6	Oligopeptide transporter; fungal-specific (no human or murine homolog); induced by BSA, but not by tetrapeptide or pentapeptide
orf19.3215		1.92	1.85	Putative plasma membrane protein; in <i>S. cerevisiae</i> it is localized to the cell bud and mating projection membrane; repressed by alpha pheromone in SpiderM medium
orf19.911		1.92	2.04	#NV
orf19.2590		1.92	1.62	Putative dethiobiotin synthetase; transcript upregulated in clinical isolates from HIV+ patients with oral candidiasis; Hap43-repressed; GlcNAc-induced protein; Spider biofilm induced
orf19.6217	<i>PGA63</i>	1.92	1.86	Component COPII vesicle coat; required for vesicle formation in ER to Golgi transport; predicted GPI-anchor; flow model and Spider biofilm repressed
orf19.1783	<i>YOR1</i>	1.92	1.89	Protein similar to <i>S. cerevisiae</i> Yor1; ABC-type plasma membrane transporter involved in resistance to aureobasidin A; white cell type-specific transcript; Spider biofilm induced
orf19.3439		1.92	1.73	Protein of unknown function; Cyr1-repressed; rat catheter and Spider biofilm induced

orf19.539	LAP3	1.92	1.65	Putative aminopeptidase; positively regulated by Sfu1; clade-associated gene expression; virulence-group-correlated expression; induced by alpha pheromone in SpiderM medium; Hap43-induced; Spider and flow model biofilm induced
orf19.4864		1.92	1.77	Ortholog(s) have acylglycerol lipase activity, serine hydrolase activity, role in triglyceride metabolic process and lipid particle, mitochondrial outer membrane, plasma membrane localization
orf19.3040	EHT1	1.92	2.09	Putative acyl-coenzymeA:ethanol O-acyltransferase; regulated by Sef1, Sfu1, and Hap43; induced by alpha pheromone in SpiderM medium; Spider biofilm induced; promoter bound by Ndt80
		1.92	1.53	#NV
orf19.7504		1.92	2.55	Ortholog of <i>S. cerevisiae</i> Rts3; a component of the protein phosphatase type 2A complex; Plc1-regulated; induced in core caspofungin response; Spider biofilm induced
orf19.1294		1.92	1.89	#NV
orf19.6014	RRS1	1.91	1.85	Putative ribosome biogenesis and nuclear export protein; Hap43p-induced gene; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.2454	PHO87	1.91	1.63	Putative phosphate permease; transcript repressed by Rim101 at pH 8; regulated by white-opaque switch; caspofungin repressed; virulence-group-correlated expression; flow model biofilm induced
orf19.926	EXO1	1.91	1.93	Putative exodeoxyribonuclease; cell-cycle regulated periodic mRNA expression
orf19.5184		1.91	2.28	Putative Ran guanyl-nucleotide exchange factor; probable signal transducer; Spider biofilm repressed
orf19.462		1.91	2.49	#NV
orf19.2786		1.91	1.74	Ortholog(s) have AP-2 adaptor complex, cellular bud neck localization
orf19.3446		1.91	1.93	Ortholog(s) have Ran GTPase binding activity, role in protein import into nucleus and nucleus localization
orf19.6706	GYP7	1.91	2.09	Protein similar to <i>S. cerevisiae</i> Gvp7p (GTPase-activating protein for Ytp1p); caspofungin-induced
orf19.3091		1.91	2.05	Protein of unknown function; repressed during core stress response
orf19.886	PAN1	1.91	1.52	Essential protein involved in endocytosis and polarized growth; ortholog of <i>S. cerevisiae</i> Pan1, which is a part of a complex that regulates actin cytoskeleton; Spider biofilm repressed
orf19.5999	DYN1	1.91	2.09	Dynein heavy chain; motor protein that moves to microtubule minus end; required for yeast cell separation, spindle positioning, nuclear migration, hyphal growth; regulated by Mig1, Hap43; flow model and rat catheter biofilm repressed
orf19.4732	SEC24	1.9	1.66	Protein with a possible role in ER to Golgi transport; induced upon yeast-hyphal switch; sumoylation target; Spider biofilm repressed
orf19.3166		1.9	1.77	Ortholog(s) have role in Golgi to endosome transport, cell morphogenesis, endoplasmic reticulum organization and endosome, mitochondrion, trans-Golgi network localization
orf19.3689		1.9	1.92	Putative protein similar to 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase; expression downregulated in an <i>ssr1</i> null mutant
orf19.4407		1.9	1.5	Protein of unknown function; Hap43-repressed gene
orf19.6883		1.9	1.69	Putative oxysterol binding protein family; probable peripheral membrane protein of the Golgi complex; flow model and Spider biofilm repressed
orf19.7030	SSR1	1.9	2.16	Beta-glucan associated ser/thr rich cell-wall protein with a role in cell wall structure; GPI anchor; similar mRNA abundance in yeast-form and germ tubes; detected at germ tube plasma membrane; repressed in cells treated with Congo Red
orf19.7136	SPT6	1.9	1.99	Putative transcription elongation factor; transposon mutation affects filamentous growth; transcript induced in an RHE model of oral candidiasis and in clinical isolates from oral candidiasis
orf19.7210		1.9	2.01	Protein of unknown function; Spider biofilm induced
orf19.7534	MIS12	1.9	1.91	Mitochondrial C1-tetrahydrofolate synthase precursor
orf19.5755		1.89	1.51	Ortholog(s) have cyclin-dependent protein serine/threonine kinase regulator activity
orf19.1736		1.89	1.43	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.4635	NIP1	1.89	1.87	Putative translation initiation factor; mutation confers hypersensitivity to rofidin A and verrucarin A; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.3360		1.89	1.9	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.5059	GCS1	1.89	1.85	Gamma-glutamylcysteine synthetase; glutathione synthesis, required for virulence; induced in low iron, H ₂ O ₂ , Cd, or presence of human neutrophils; possibly adherence-induced; Spider and F-12/CO ₂ biofilm induced
orf19.5710		1.89	1.96	Nucleoporin component of central core of the nuclear pore complex; mRNA binds She3
orf19.4112		1.89	1.85	Ortholog(s) have ATP binding, magnesium ion binding, thiamine binding, thiamine diphosphokinase activity, role in thiamine biosynthetic process and cytosol localization
orf19.2886	CEK1	1.88	1.79	ERK-family protein kinase; required for wild-type yeast-hypha switch, mating efficiency, virulence in mice; Cst20-Hst7-Cek1-Cph1-MAPK pathway regulates mating, and invasive hyphal growth under some conditions; Spider biofilm induced
orf19.1783	YOR1	1.88	1.69	Protein similar to <i>S. cerevisiae</i> Yor1; ABC-type plasma membrane transporter involved in resistance to aureobasidin A; white cell type-specific transcript; Spider biofilm induced
orf19.921	HMS1	1.88	1.7	hLh domain Myc-type transcript factor; required for morphogenesis induced by elevated temperature or Hsp90 compromise; acts downstream of Pel1; Spider biofilm induced
orf19.1738	UGP1	1.88	2.23	UTP-glucose-1-phosphaturidyl transferase; localizes to yeast, not hyphal cell surface; Hog1-repressed; stationary phase enriched; induced in oralpharyngeal candidiasis; rat catheter biofilm repressed; Bcr1-repressed in RPM1 a/b biofilms
orf19.6021	IHD2	1.88	1.92	Protein of unknown function; induced during hyphae development; induced in low iron; Spider biofilm induced
orf19.4471		1.88	2.07	Ortholog(s) have role in protein targeting to vacuole, re-entry into mitotic cell cycle after pheromone arrest and endoplasmic reticulum membrane localization
orf19.2462	PRV3	1.88	1.81	Protein similar to pirin; induced by Mnl1 under weak acid stress; Hap43-repressed; Spider biofilm induced
orf19.220	PIR1	1.88	2.75	1,3-beta-glucan-linked cell wall protein; N-mannosylated, O-glycosylated by Pmt1; cell wall defect in <i>het</i> mutant; Hog1/fluconazole/hypoxia induced; iron/Efg1/Plc1/temp regulated; flow model biofilm induced; hyphal, Spider biofilm repressed
orf19.6338		1.88	2.06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05352
orf19.3447		1.88	2.26	Ortholog(s) have mannosyltransferase activity, role in ER-associated protein catabolic process, GPI anchor biosynthetic process, protein processing and endoplasmic reticulum localization
orf19.5316	FGR29	1.88	1.81	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; rat catheter biofilm repressed
orf19.7433		1.88	2.09	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.5871	SNF5	1.88	1.71	SWI/SNF chromatin remodeling complex subunit involved in transcriptional regulation; mutants have defects in silicone adherence, biofilm formation, hyphal morphogenesis, cell wall defects; increased cell aggregation during yeast form growth
orf19.3156		1.87	1.58	Protein of unknown function; induced by Mnl1 under weak acid stress
orf19.2841	PGM2	1.87	1.67	Ortholog of <i>S. cerevisiae</i> Pgm2; induced in planktonic culture; Tye7p-regulated; flow model biofilm induced; rat catheter biofilm repressed
orf19.1646		1.87	1.84	Ortholog(s) have rRNA primary transcript binding activity
orf19.4328	CCC2	1.87	1.92	Copper-transporting P-type ATPase of Golgi; required for wild-type iron assimilation (indirect effect via Fet3p); induced by iron starvation, ciclopirox olamine; caspofungin repressed; not required for virulence in mouse systemic infection
orf19.1509	ROD1	1.87	1.66	Protein similar to <i>S. cerevisiae</i> Rod1; a membrane protein with a role in drug tolerance; repressed by Rgt1; mutant is viable
orf19.2315		1.87	1.95	Putative transcription factor with bZIP DNA-binding motif
orf19.6568	SMC6	1.87	2.02	Putative structural maintenance of chromosomes (SMC) protein; Hap43-induced; cell-cycle regulated periodic mRNA expression; <i>S. cerevisiae</i> ortholog not cell-cycle regulated; Spider biofilm induced
orf19.6790		1.87	2	Ortholog(s) have mRNA binding activity, role in 3'-UTR-mediated mRNA destabilization, mitochondrion organization and cytoplasmic mRNA processing body, cytoplasmic stress granule, cytosol, perinuclear region of cytoplasm localization
orf19.265		1.86	1.88	Protein with a ribonuclease III domain; flow model biofilm induced; Spider biofilm induced
orf19.4635	NIP1	1.86	2.06	Putative translation initiation factor; mutation confers hypersensitivity to rofidin A and verrucarin A; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.5558	RBF1	1.86	1.79	Transcription factor; glutamine-rich activation domain; binds RPG-box DNA sequences; predominantly nuclear; mutation causes accelerated induction of filamentous growth; antigenic during human oral infection; Sko1p-repressed
orf19.4326		1.86	1.88	Ortholog(s) have role in mRNA cis splicing, via spliceosome, maturation of 5S rRNA and U4/U6 x U5 tri-snRNP complex localization
orf19.1120	FAV2	1.86	1.99	Adhesin-like protein; induced by mating factor in MTLa/a opaque cells, in <i>cyr1</i> null, in filaments; regulated by Nrg1, Rfg1, Tup1, Tec1, Efg1, Ntd80, Rob1, Bro1; induced in oralpharyngeal candidiasis; Spider biofilm induced
orf19.1763	IFR1	1.86	2.07	Predicted oxidoreductase/dehydrogenase; induced by nitric oxide; rat catheter and Spider biofilm induced
orf19.3537		1.86	1.79	Putative sulfiredoxin; regulated by Tsa1, Tsa1B in minimal media at 37 degrees C; flow model biofilm induced; Spider biofilm induced
orf19.5580	TEL1	1.86	1.58	Ortholog(s) have protein serine/threonine kinase activity, telomeric DNA binding activity and role in DNA damage induced protein phosphorylation, double-strand break repair, histone phosphorylation, telomere maintenance
orf19.7402	DOT1	1.86	1.78	Putative modulator of white-opaque switching
orf19.2521		1.85	1.64	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26390, <i>Debaryomyces hansenii</i> CBS767 : DEHA2C05302g, <i>Pichia stipitis</i> Pignal : PICST_68531 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_59916

orf19.2823	<i>RFG1</i>	1,85	2	HMG domain transcriptional repressor of filamentous growth and hyphal genes; in Tup1-dependent and -independent pathways; binds DNA; transcript not regulated by oxygen or serum; not responsible for hypoxic repression; Spider biofilm induced
orf19.719		1,85	2,01	Ortholog(s) have ubiquitin-protein ligase activity and role in ER-associated protein catabolic process, fungal-type cell wall organization, negative regulation of transcription by transcription factor catabolism, protein ubiquitination
orf19.4956	<i>RPN1</i>	1,85	2,04	Putative 19S regulatory particle of the 26S proteasome; regulated by Gcn2p and Gcn4p
orf19.3915		1,85	1,96	Putative metalloprotease; protein present in exponential and stationary growth phase yeast; Hog1-induced; Hap43-repressed; sumoylation target; Spider biofilm repressed
orf19.1793		1,85	1,93	Ortholog(s) have phosphatidylinositol binding activity, role in cellular response to nitrogen starvation, piecemeal microautophagy of nucleus and Golgi apparatus, endosome, extrinsic to membrane, fungal-type vacuole localization
orf19.5595	<i>SHE3</i>	1,85	1,83	mRNA-binding protein that localizes specific mRNAs to daughter yeast cells and to hyphal tips; required for normal filamentation and host epithelial cell damage; ortholog of <i>S. cerevisiae</i> She3 but target mRNAs differs
orf19.5597	<i>POL5</i>	1,85	1,95	Putative DNA Polymerase phi; F-12/CO2 early biofilm induced
orf19.4928	<i>SEC2</i>	1,85	2,01	Guanyl-nucleotide exchange factor for the small G-protein Sec4; delivery of post-Golgi secretory vesicles to sites of polarized growth; phosphorylation by Cdc28 needed for normal hyphal growth; Hap43-repressed; flow model biofilm induced
orf19.7494		1,85	1,54	Protein of unknown function; cell-cycle regulated periodic mRNA expression
orf19.4264		1,84	1,6	Protein of unknown function; induced during chlamyospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i> ; flow model biofilm induced
orf19.1864		1,84	1,85	Ortholog(s) have cytosol localization
orf19.2632		1,84	1,81	#NV
orf19.1133	<i>MSB1</i>	1,84	1,89	Putative regulator of transcription; expression in <i>S. cerevisiae</i> flo8 and flo11 mutants suggests a role in regulation of adhesion factors
orf19.448	<i>CUE5</i>	1,84	1,79	Predicted ubiquitin-binding protein; rat catheter biofilm repressed
orf19.3893	<i>SCW11</i>	1,84	1,84	Cell wall protein; repressed in ace2 mutant; repressed in core caspofungin response; induced in high iron; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm repressed
orf19.4072	<i>IFF6</i>	1,84	1,8	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.18	<i>IMH3</i>	1,84	1,59	Inosine monophosphate (IMP) dehydrogenase; enzyme of GMP biosynthesis; target of mycophenolic acid and mizoribine monophosphate; antigenic during infection; repressed in core stress response; snoRNA snR54 encoded within IMH3 intron
orf19.1108	<i>HAM1</i>	1,84	1,95	Putative deoxyribonucleoside triphosphate pyrophosphatase; caspofungin repressed; regulated by Gcn2p and Gcn4p
orf19.5095		1,84	1,84	Putative oxysterol-binding protein; caspofungin induced; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4760		1,84	1,95	Putative protein-histidine N-methyltransferase; Spider biofilm induced
orf19.3000	<i>ORC1</i>	1,84	1,8	Putative origin recognition complex large subunit; essential for viability; similar to <i>S. cerevisiae</i> Orc1p origin recognition complex subunit
orf19.3672	<i>GAL10</i>	1,84	2,22	UDP-glucose 4-epimerase; galactose utilization; mutant has cell wall defects and increased filamentation; GlcNAc-, fluconazole- and ketoconazole-induced; stationary phase enriched protein; rat catheter and flow model biofilm induced
orf19.4845	<i>TVP18</i>	1,84	2,01	Putative integral membrane protein; fluconazole-induced
orf19.6968		1,84	1,78	Protein of unknown function; Hog1-repressed; Spider biofilm induced
orf19.7064	<i>GLN4</i>	1,84	2,21	Putative tRNA-Gln synthetase; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage; protein present in exponential and stationary growth phase yeast cultures
orf19.5407	<i>SOF1</i>	1,84	2,36	Putative protein with a predicted role in 40S ribosomal subunit biogenesis; rat catheter biofilm induced
orf19.2781		1,83	1,58	Protein with predicted serine/threonine kinase and tyrosine kinase domains; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.3732	<i>ERG25</i>	1,83	1,96	Putative C-4 methyl sterol oxidase; C4-demethylation of ergosterol biosynthesis intermediates, based on similarity to <i>S. cerevisiae</i> Erg25; fluconazole-induced; induced in azole-resistant strain; rat catheter and Spider biofilm induced
orf19.3370	<i>DOT4</i>	1,83	1,72	Protein similar to ubiquitin C-terminal hydrolase; localizes to cell surface of hyphal cells, but not yeast-form cells; repressed upon high-level peroxide; Hap43p-induced; rat catheter biofilm induced
orf19.3644		1,83	2,01	Protein of unknown function; Cvr1-repressed; rat catheter and Spider biofilm induced
orf19.4274	<i>PUT1</i>	1,83	1,65	Putative proline oxidase; alkaline upregulated by Rim101; flow model biofilm induced; Spider biofilm induced
orf19.4251	<i>ZCF22</i>	1,83	1,7	Predicted Zn(II)2Cys6 transcription factor
orf19.291		1,83	1,75	Ortholog(s) have role in protein sumoylation, response to DNA damage stimulus, response to UV-B, response to UV-C and nuclear envelope localization
orf19.4473	<i>SPC19</i>	1,83	1,83	Essential subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.5586		1,83	1,77	Ortholog(s) have phosphatidylinositol-3,5-bisphosphate 5-phosphatase activity, role in phosphatidylinositol dephosphorylation and PAS complex, cytosol, extrinsic to membrane, fungal-type vacuole membrane localization
orf19.5510		1,83	2,05	Ortholog(s) have role in chromatin silencing at telomere, negative regulation of transcription from RNA polymerase II promoter by pheromones and CHRAC localization
orf19.4370		1,83	1,63	Protein of unknown function; induced by nitric oxide; oxidative stress-induced via Cap1; fungal-specific (no human or murine homolog)
orf19.4781	<i>GRP1</i>	1,83	1,57	Protein similar to dihydroflavonol-4-reductases
orf19.3482		1,83	1,83	Ortholog(s) have NAD+ diphosphatase activity, role in NADH metabolic process and cytosol, nucleus, peroxisome localization
orf19.173		1,83	1,49	C2H2 transcription factor; induced by Mnl1 under weak acid stress
orf19.5117	<i>OLE1</i>	1,83	2,42	Fatty acid desaturase, essential protein involved in oleic acid synthesis; required for aerobic hyphal growth and chlamyospore formation; subject to hypoxic regulation; fluconazole-induced; caspofungin repressed; Hap43p-induced
orf19.2616	<i>UGT51C1</i>	1,82	1,62	UDP-glucose:sterol glucosyltransferase; enzyme of sterol glucoside (membrane-bound lipid) biosynthesis; has UDP-sugar binding domain; activity is UDP-glucose-specific in vitro; enzyme does not use UDP-mannose; Mlg1-regulated
orf19.1267		1,82	1,91	Ortholog of <i>S. cerevisiae</i> : CAJ1, <i>C. glabrata</i> CBS138 : CAGL0L00957g, <i>C. dubliniensis</i> CD36 : Cd36_45380, <i>C. parapsilosis</i> CDC317 : CPAR2_500650 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_132273
orf19.96	<i>TOP1</i>	1,82	2,26	DNA topoisomerase I; required for wild-type growth and for wild-type mouse virulence; sensitive to camptothecin; induced upon adherence to polystyrene; rat catheter biofilm induced
orf19.267		1,82	2	Protein required for normal filamentous growth; mRNA binds She3
orf19.1510	<i>SRD1</i>	1,82	1,7	Sur7 family protein with Pall-like domains; not required for stress responses; mutant is viable
orf19.4479		1,82	2	Putative U3-containing 90S preribosome subunit; Hap43-induced; repressed in core stress response; Spider biofilm induced
orf19.1187	<i>CPH2</i>	1,82	2,27	Myc-bHLH transcription factor; promotes hyphal growth; directly regulates Tec1 to induce hypha-specific genes; probably homodimeric, phosphorylated; required for colonization of the mouse GI tract; rat catheter and Spider biofilm induced
orf19.5701		1,82	1,83	Ortholog(s) have role in DNA replication initiation, establishment of mitotic sister chromatid cohesion and condensed nuclear chromosome kinetochore localization
orf19.6323	<i>HPA2</i>	1,82	1,35	Ortholog(s) have D-amino-acid N-acetyltransferase activity, role in D-amino acid metabolic process and cytosol, nucleus localization
orf19.2032		1,82	1,8	Protein of unknown function; rat catheter biofilm induced
orf19.813		1,82	2,22	Protein of unknown function; mutants are viable; Hap43-induced gene; oxidative stress-induced via Cap1; rat catheter and Spider biofilm induced
orf19.4435		1,82	2,14	Ortholog(s) have structural constituent of cytoskeleton activity, role in microtubule nucleation and spindle pole body localization
orf19.7067		1,82	1,69	Ortholog(s) have RNA polymerase II core binding, RNA polymerase II transcription factor binding transcription factor activity, triplex DNA binding activity
orf19.7552		1,82	2,41	Putative U3-containing small subunit processome complex protein; Hap43-induced gene; repressed in core stress response; Spider biofilm induced
orf19.7586	<i>CHT3</i>	1,82	1,85	Major chitinase; secreted; functional homolog of <i>S. cerevisiae</i> Cht3p; 4 N-glycosylation motifs; possible O-mannosylation; putative signal peptide; hyphal-repressed; farnesol upregulated in biofilm; regulated by Efg1p, Cyr1p, Ras1p
orf19.2479	<i>UGA4</i>	1,81	2	Putative gamma-aminobutyric acid/polyamine permease; nitrogen catabolite repressed gene, induced in absence of preferred N sources; transcriptionally induced upon phagocytosis by macrophage; gene regulation by nitrogen source requires Gat1p
orf19.4779		1,81	2,23	Putative transporter; slightly similar to the Sit1p siderophore transporter; Gcn4p-regulated; fungal-specific; induced by Mnl1p under weak acid stress
orf19.364		1,81	1,71	Putative vacuolar H+-ATPase subunit; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.4369		1,81	1,5	Ortholog of <i>S. cerevisiae</i> Spp41; protein involved in negative regulation of expression of spliceosome components PRP4 and PRP3 in <i>S. cerevisiae</i> ; mutants are viable

orf19.97	<i>CAN1</i>	1.81	1.78	Basic amino acid permease; complements lysine transport mutation; 10 predicted transmembrane regions, 3 predicted N-glycosylation sites; phagocytosis by macrophages induces transcript; rat catheter, Spider and flow model biofilm induced
orf19.2849	<i>AQY1</i>	1.81	1.32	Aquaporin water channel; osmotic shock resistance, WT freeze tolerance; virulent in mice; flucytosine repressed; flow model/RPMI/Spider/rat catheter biofilm induced; required for RPMI biofilm formation; Bcr1-induced in a/a RPMI biofilms
orf19.2038		1.81	2.21	Protein of unknown function; Spider biofilm induced
orf19.3437		1.81	1.92	Has domain(s) with predicted catalytic activity, serine-type endopeptidase activity and role in proteolysis
orf19.501		1.81	2.34	Ortholog(s) have nucleus, preribosome, large subunit precursor localization
orf19.4451	<i>RIA1</i>	1.81	1.98	Putative translation elongation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.5426		1.81	1.85	Putative patatin-like phospholipase; macrophage-regulated gene; fungal-specific (no human or murine homolog)
orf19.2970	<i>LYS2</i>	1.8	1.93	Heterodimeric alpha-aminoacidate reductase large subunit; lysine biosynthesis; predicted binding sites for AMP and alpha-aminoacidate; inhibited by lys or thialysine; regulated by Gcn2 and Gcn4; Spider biofilm induced, flow model repressed
orf19.4123		1.8	1.45	Putative THO complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method; protein newly produced during adaptation to the serum
orf19.2436		1.8	1.44	Predicted protein serine/threonine kinase; Spider biofilm induced
orf19.3178		1.8	1.82	Ortholog(s) have RNA binding activity, role in mRNA splicing, via spliceosome and U2-type prespliceosome localization
orf19.1238	<i>TUB4</i>	1.8	1.53	Putative gamma-tubulin; induced upon adherence to polystyrene; transcript regulated by Nrg1 and Mig1; periodic mRNA expression, peak at cell-cycle S/G2 phase
orf19.6286		1.8	2.22	Ortholog(s) have role in vacuolar transport and endosome localization
orf19.2673		1.8	1.72	Ortholog(s) have role in DNA repair and Smc5-Smc6 complex, cytoplasm, nucleus localization
orf19.6257	<i>GLT1</i>	1.8	1.31	Putative glutamate synthase; regulated by Sef1, Sfu1, and Hap43; rat catheter biofilm repressed
orf19.6842	<i>TUS1</i>	1.8	1.67	Putative guanine nucleotide exchange factor; induced by Mln1 under weak acid stress; Spider biofilm induced
orf19.1236	<i>GVP36</i>	1.8	1.46	BAR domain protein; localizes to early and late Golgi vesicles; predicted role in adaptation to varying nutrient concentrations, fluid-phase endocytosis, actin cytoskeleton polarization and vacuole biogenesis; rat catheter biofilm repressed
orf19.6930	<i>SOL1</i>	1.8	1.8	Cell cycle regulator; partial functional homolog of <i>S. cerevisiae</i> Sic1p; protein degradation regulated by SCF(CDC4) pathway; CDK phosphorylation predicted
orf19.4012	<i>PCL5</i>	1.8	1.57	Putative cyclin for Pho85 kinase; Gcn4-induced; suppresses toxicity of <i>C. albicans</i> Gcn4 overproduction in <i>S. cerevisiae</i> via increased Pho85-dependent phosphorylation and degradation of Gcn4; rat catheter and Spider biofilm induced
orf19.6582	<i>PRE10</i>	1.8	1.63	Alpha7 (C8) subunit of the 20S proteasome; multiple phosphorylated residues; transcript induced upon filamentous growth; Spider biofilm repressed
orf19.5260	<i>RPN2</i>	1.8	2.16	Putative 26S proteasome subunit; transcript regulated by Mig1; caspofungin repressed; regulated by Gcn2 and Gcn4; gene used for strain identification by multilocus sequence typing
orf19.7207	<i>DOA4</i>	1.8	1.66	Ortholog of <i>S. cerevisiae</i> Doa4; a ubiquitin hydrolase involved in recycling ubiquitin from proteasome-bound ubiquitinated intermediates; oxidative stress-induced via Cap1; mutants are viable
orf19.7232	<i>IRR1</i>	1.8	1.79	Putative cohesin complex subunit; cell-cycle regulated periodic mRNA expression
orf19.1734		1.79	1.5	Putative ATPase and nucleosome spacing factor; heterozygous null mutant displays sensitivity to virgineone
orf19.454	<i>SFL1</i>	1.79	2.02	Transcription factor; involved in negative regulation of flocculation and filamentous growth; induced in core caspofungin response; Spider biofilm induced
orf19.4918		1.79	1.48	Has domain(s) with predicted DNA binding, nucleic acid binding activity
orf19.1035	<i>WAR1</i>	1.79	1.73	Zn(II)/Cys6 transcription factor; plays a role in resistance to weak organic acids; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.1212		1.79	1.82	Ortholog(s) have FFAT motif binding, phosphatidylinositol binding activity
orf19.646	<i>GLN1</i>	1.79	1.77	Putative glutamate synthase; regulated by Tsa1, Tsa1B under H2O2 stress conditions; Spider biofilm induced
orf19.2210		1.79	1.56	Protein of unknown function; Spider biofilm induced
orf19.846		1.79	1.81	Predicted protein kinase similar to <i>S. cerevisiae</i> Nrk1; implicated in proteasome function in <i>S. cerevisiae</i> ; induced by Mln1 under weak acid stress
orf19.744	<i>GDB1</i>	1.79	1.57	Putative glycogen debranching enzyme; expression is regulated upon white-opaque switch; regulated by Nrg1, Tup1; rat catheter biofilm repressed
orf19.2216	<i>PDS5</i>	1.79	1.8	Putative protein with a predicted role in establishment and maintenance of sister chromatid condensation and cohesion; cell-cycle regulated periodic mRNA expression
orf19.2844	<i>APL4</i>	1.79	1.81	Predicted gamma-adaptin, large subunit of the clathrin-associated protein (AP-1) complex; that binds clathrin and is involved in vesicle mediated transport; induced in core caspofungin response; rat catheter biofilm repressed
orf19.4279	<i>MNN1</i>	1.79	2.21	Putative alpha-1,3-mannosyltransferase; of the mannosyltransferase complex; negatively regulated by Rim101; transcript elevated in chk1 and nik1 mutants, but not in sln1 mutant; Spider and flow model biofilm induced
orf19.3626		1.79	1.93	Ortholog(s) have cytosol, nucleus localization
orf19.6544	<i>LPB9</i>	1.79	1.66	Protein phosphatase type 1 regulator; role in chromosome segregation, regulation of phosphoprotein phosphatase activity; rat catheter and Spider biofilm induced
orf19.6880	<i>COG4</i>	1.79	1.54	Ortholog(s) have role in CVT pathway, macroautophagy, peroxisome degradation, retrograde transport, vesicle recycling within Golgi and Golgi transport complex, cell division site, cell tip, nucleus localization
orf19.7177	<i>KAP120</i>	1.79	1.4	Putative karvopherin; mutation confers hypersensitivity to cytochalasin D
orf19.1606		1.78	1.94	Protein of unknown function; Plc1-regulated
orf19.2853		1.78	1.58	Protein of unknown function; rat catheter biofilm induced
orf19.306	<i>USO5</i>	1.78	1.64	Putative type II myosin heavy chain; transcription is induced upon filamentous growth and in response to alpha pheromone in SpiderM medium
orf19.2098	<i>ARO8</i>	1.78	1.57	Aromatic transaminase of the Ehrlich fusel oil pathway of aromatic alcohol biosynthesis; Rim101 independent alkaline induction; protein abundance affected by URA3 expression in CAI-4 strain; Gcn4-regulated; stationary phase enriched
orf19.2991	<i>HOL1</i>	1.78	1.72	Putative MFS transporter; regulated by Nrg1; macrophage/pseudohyphal-repressed; induced by alpha pheromone in SpiderM medium; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3476	<i>HRR25</i>	1.78	1.61	Predicted protein serine/threonine kinase; Spider biofilm induced
orf19.2314		1.78	1.72	Protein with a role in nucleolar integrity and processing of pre-rRNA; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); Hap43-induced; Spider biofilm induced
orf19.4931		1.78	1.81	Putative tRNA-Cys synthetase; induced by alpha pheromone in SpiderM medium; ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.1634		1.78	2.45	Has domain(s) with predicted fatty-acyl-CoA binding activity
orf19.4447	<i>YMC1</i>	1.78	1.74	Putative inner mitochondrial membrane transporter; flucytosine induced; Spider biofilm repressed
orf19.2084	<i>CDH1</i>	1.78	2.03	Protein involved in regulation of mitosis; similar to <i>S. cerevisiae</i> Cdh1, which is an APC/C component; transcriptionally induced by Mln1 under weak acid stress
orf19.962		1.78	2.01	Protein with a fungal RNA polymerase I subunit RPA14 domain; proposed to play a role in the recruitment of pol I to the promoter; Hap43-induced gene
orf19.122	<i>CDC20</i>	1.77	1.32	Activator of anaphase-promoting complex/cyclosome; induced under Cdc5 depletion; member of conserved Mcm1 regulon; mRNA expression peaks at cell-cycle G2/M phase; mRNA binds She3 and is localized to buds of yeast cells and to hyphal tips
orf19.4257	<i>INT1</i>	1.77	1.71	Protein structurally similar to alpha-subunit of human leukocyte integrin; role in morphogenesis, adhesion, and mouse cecal colonization and systemic virulence; similar to <i>S. cerevisiae</i> Bud4; Hap43-induced gene
orf19.1750	<i>SLR1</i>	1.77	1.48	Protein similar to mammalian SR-like RNA splicing factor; involved in filamentous growth and virulence; gene has intron; Spider biofilm repressed
orf19.6951		1.77	1.96	Ortholog(s) have sphinganine-1-phosphate aldolase activity and role in calcium-mediated signaling, cellular response to starvation, sphingolipid metabolic process
orf19.2717	<i>SAS10</i>	1.77	1.87	Putative U3-containing small subunit processome complex subunit; Hap43p-induced gene; mutation confers resistance to 5-fluorocytosine (5-FC); repressed upon high-level peroxide stress
orf19.7561	<i>DEF1</i>	1.77	1.95	RNA polymerase II regulator; role in filamentation, epithelial cell escape, dissemination in RHE model; induced by fluconazole, high cell density; Etg1/hyphal regulated; role in adhesion, hyphal growth on solid media; Spider biofilm induced
orf19.2604		1.77	1.72	<i>S. pombe</i> ortholog SPAC2C4.06c is a predicted tRNA (cytosine-5)-methyltransferase; Spider biofilm induced
orf19.4893		1.77	1.84	Protein of unknown function; mutants are viable
orf19.309	<i>DAL5</i>	1.77	1.73	Allantoate permease; nitrogen catabolite repressed, induced in absence of preferred N sources; nitrogen source regulation requires Gat1; possibly essential gene (by UAU1 method); Hap43-repressed
orf19.1582		1.77	1.56	Predicted membrane transporter; member of the drug/proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS); mRNA binds She3
orf19.4384	<i>HXT5</i>	1.77	1.64	Putative sugar transporter; induced by ciclopirox olamine; Snf3-induced; alkaline repressed; colony morphology-related gene regulation by Ssn6; possibly essential gene
orf19.4384	<i>HXT5</i>	1.77	2	Putative sugar transporter; induced by ciclopirox olamine; Snf3-induced; alkaline repressed; colony morphology-related gene regulation by Ssn6; possibly essential gene
orf19.6691		1.77	2.07	Putative member of the multi-drug and toxin extrusion (MATE) family of the multidrug/oligosaccharide/lipid/polysaccharide exporter superfamily; Spider biofilm induced
orf19.6527		1.77	1.91	Pheromone-supervised protein (Psm10) of <i>S. cerevisiae</i> ; colony morphology-related gene regulation by Ssn6; induced by Mln1 under weak acid stress; possibly essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced

orf19.7003		1.77	1.89	#NV
orf19.7469	ARG1	1.77	1.78	Argininosuccinate synthase; arginine synthesis; Gcn4, Rim101 regulated; induced by amino acid starvation (3-AT), benomyl treatment; stationary phase enriched protein; repressed in alkalizing medium; rat catheter, Spider biofilm induced
orf19.5938	SEN1	1.77	1.54	Putative helicase; repressed by prostaglandins
orf19.1738	UGP1	1.76	1.67	UTP-glucose-1-phosphatidyl transferase; localizes to yeast, not hyphal cell surface; Hog1-repressed; stationary phase enriched; induced in oralpharyngeal candidiasis; rat catheter biofilm repressed; Bcr1-repressed in RPM1 a/a biofilms
orf19.2427		1.76	1.73	#NV
orf19.2432	HAC1	1.76	1.9	bZIP transcription factor; role in unfolded protein response and control of morphology; transcript undergoes atypical splicing at C terminus under ER stress; induced during mating and by caspofungin; mRNA binds She3; Spider biofilm induced
orf19.4643		1.76	1.38	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_41430, <i>Candida tropicalis</i> MYA-3404 : CTRG_00187 and <i>Candida albicans</i> WO-1 : CAWG_03642
orf19.2447		1.76	1.7	Putative Type II phosphatidylinositol 4-kinase; Ssr1-repressed; flow model biofilm repressed
orf19.4432	KSP1	1.76	1.53	Putative serine/threonine protein kinase; mRNA binds She3 and is localized to hyphal tips; mutation confers hypersensitivity to amphotericin B
orf19.5634	FRP1	1.76	1.64	Ferric reductase; alkaline-induced by Rim101; iron-chelation-induced by CCAAT-binding factor; fluconazole-repressed; ciclopirox-, hypoxia-, Hap43-induced; colony morphology-related regulation by Ssn6; Spider and flow model biofilm induced
orf19.570	IFF8	1.76	1.58	Putative GPI-anchored adhesin-like protein; decreased transcription is observed in an azole-resistant strain that overexpresses MDR1
orf19.4802	FTH1	1.76	1.69	Protein similar to <i>S. cerevisiae</i> Fth1p, a high affinity iron transporter for intravacuolar stores of iron; repressed by Sftup, amphotericin B, caspofungin; induced by alkaline pH, ciclopirox olamine; regulated by Sef1p, Sft1p, and Hap43p
orf19.1364		1.76	1.59	Ortholog of <i>S. pombe</i> Stm1 G-protein coupled receptor; PQ-loop domains; constitutive expression independent of MTL or white-opaque status; Hap43-repressed
orf19.6317	ADE6	1.76	1.82	5-Phosphoribosylformyl glycine synthetase; adenine biosynthesis; not induced in GCN response, in contrast to <i>S. cerevisiae</i> Ade6; protein in stationary phase yeast-form cultures; flow model and rat catheter biofilm repressed
orf19.6272		1.76	1.69	Putative ubiquitin C-terminal hydrolase; regulated by Gcn2p and Gcn4p
orf19.767	ERG3	1.76	1.86	C-5 sterol desaturase; introduces C-5(6) double bond into episterol; some clinical isolates show increased azole resistance and defects in hyphal growth and virulence; Efg1p-repressed; fluconazole-induced
orf19.7070		1.76	2.04	Ortholog of <i>Candida guilliermondii</i> ATCC 6260 : PGUG_03499, <i>Candida lusitanae</i> ATCC 42720 : CLUG_00410 and <i>Candida albicans</i> WO-1 : CAWG_05407
orf19.3187	ZNC1	1.76	1.53	Zn(2)-Cys(6) transcription factor; regulated by Gcn2 and Gcn4; gene located in zinc cluster region of Chromosome 5, near the MTL locus; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.7473		1.76	1.78	Ortholog(s) have role in endocytosis and actin cortical patch, cellular bud neck, cytoplasm localization
orf19.7529	EPL1	1.76	2	Subunit of the NuA4 histone acetyltransferase complex
orf19.1090		1.75	1.55	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_601110, <i>C. dubliniensis</i> CD36 : Cd36_64660, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_119969 and <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_04881
orf19.3524		1.75	1.99	#NV
orf19.1833		1.75	1.88	Ortholog(s) have pseudouridine synthase activity, role in box H/ACA snoRNA 3'-end processing, rRNA pseudouridine synthesis, snRNA pseudouridine synthesis and 90S preribosome, box H/ACA snoRNP complex, cytosol localization
orf19.3204		1.75	1.76	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51610, <i>C. parapsilosis</i> CDC317 : CPAR2_303630, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135125 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E19030q
orf19.6009	SET1	1.75	1.66	Lysine histone methyltransferase; methylates histone H3 K4; regulates of white-opaque switch, epithelial cell adhesion, agar-embedded filamentation, virulence in mice; unique N-terminus immunogenic in human; rat catheter biofilm repressed
orf19.1623	CAP1	1.75	1.61	AP-1 bZIP transcription factor; apoptotic, oxidative stress response/resistance, multidrug resistance; nuclear in oxidative stress; complements <i>S. cerevisiae</i> yap1 mutant; oralpharyngeal candidiasis-, human neutrophil, Spider biofilm induced
orf19.1468	CDC55	1.75	1.64	Ortholog(s) have protein phosphatase type 2A regulator activity
orf19.2097		1.75	1.76	Predicted DNA-dependent ATPase/helicase; Spider biofilm induced
orf19.2077	ZCF9	1.75	1.42	Putative Zn(II)2Cys6 transcription factor; hypersensitive to toxic ergosterol analog ECC69 and/or ECC1384
orf19.4987	NUP49	1.75	2.02	Nuclear pore protein
orf19.7154	UTP18	1.75	1.9	Putative U3 snoRNA-associated protein; Hap43-induced; repressed in core stress response; physically interacts with TAP-tagged Nop1
orf19.7466	ACC1	1.75	1.91	Putative acetyl-coenzyme-A carboxylases; regulated by Efg1; amphotericin B repressed; caspofungin repressed; 5'-UTR intron; gene used for strain identification by multilocus sequence typing; Hap43-induced; flow model biofilm repressed
orf19.3680	39326	1.75	1.37	Septin, required for wild-type invasive growth in vitro but not required for virulence in a mouse model of systemic infection; localizes to hyphal septum or bud neck; Asn-rich; aberrant gel mobility; phosphorylated in vitro by Gin4p
orf19.7537	BNR1	1.75	1.69	Formin; probable role in hyphal cytoskeletal polarity; synthetic lethality if Bnr1p and Bni1p are absent
orf19.559	FGR14	1.74	1.64	Protein encoded in retrotransposon Zorro3 with similarity to retroviral endonuclease-reverse transcriptase proteins; lacks an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.2820		1.74	1.83	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.4722		1.74	1.67	Ortholog(s) have sequence-specific DNA binding RNA polymerase II transcription factor activity
orf19.139	TRA1	1.74	1.49	Subunit of the NuA4 histone acetyltransferase complex
orf19.649		1.74	1.54	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30530, <i>C. parapsilosis</i> CDC317 : CPAR2_203340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_117008 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G24244g
orf19.556		1.74	1.63	Protein of unknown function; regulated by Ssn6
orf19.1756	GPD1	1.74	1.68	Glycerol-3-phosphate dehydrogenase; glycerol biosynthesis; regulated by Efg1; regulated by Tsa1, Tsa1B under H2O2 stress conditions; Sflow model and Spider biofilm induced
orf19.302		1.74	1.83	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity, role in ER to Golgi vesicle-mediated transport and TRAPP complex, cytosol, nucleus localization
orf19.2740		1.74	1.57	Ortholog(s) have 5'-flap endonuclease activity, role in DNA-dependent DNA replication, double-strand break repair via single-strand annealing, removal of nonhomologous ends, interstrand cross-link repair and Slx1-Slx4 complex localization
orf19.6118		1.74	1.54	Putative guanine nucleotide dissociation stimulator; transcription is positively regulated by Tbf1p
orf19.1400		1.74	1.8	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23640, <i>C. parapsilosis</i> CDC317 : CPAR2_406130, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116273 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B11176q
orf19.2693	GST2	1.74	2.51	Glutathione S transferase; induced by benomyl and in populations of cells exposed to fluconazole over multiple generations; regulated by Nrg1, Tup1; induced by nitric oxide; stationary phase enriched; Spider biofilm induced
orf19.327	HTA3	1.74	1.36	Putative histone H2A; amphotericin B repressed; flucytosine induced; RNA abundance regulated by tyrosol and cell density; Spider biofilm repressed
orf19.2047		1.74	1.83	Putative protein of unknown function; Hap43p-repressed gene; mutation confers hypersensitivity to toxic ergosterol analog, and to amphotericin B
orf19.6103		1.74	1.71	Ortholog(s) have role in ascospore wall assembly and cytosol localization
orf19.3431		1.74	1.9	Ortholog(s) have 3'-5' exonuclease activity, DNA-directed DNA polymerase activity, role in mitochondrial DNA replication and mitochondrial localization
orf19.816	DKC2	1.74	1.91	Protein similar to <i>S. cerevisiae</i> Ytr422wp; transposon mutation affects filamentous growth; induced by Mln1p under weak acid stress
orf19.347	RSN1	1.74	1.59	Protein of unknown function; flow model biofilm induced; Spider biofilm induced; induced during the mating process; Hap43-repressed
orf19.6956	DAL9	1.74	1.65	Putative allantoinase permease; fungal-specific (no human or murine homolog)
orf19.6068	SVF1	1.74	1.66	Putative survival factor; stationary phase enriched protein; fluconazole-induced; regulated by Gcn4p; repressed in response to amino acid starvation (3-AT treatment); fungal-specific (no human or murine homolog)
orf19.6976		1.74	1.96	Predicted MFS membrane transporter; member of the proton coupled folate transporter/heme carrier protein family; virulence-group-correlated expression; Spider biofilm induced
orf19.475		1.74	1.82	Putative rRNA processing protein; rat catheter biofilm induced
orf19.3727	PHO112	1.73	1.64	Putative constitutive acid phosphatase; Rim101-repressed; DTT-extractable; N-glycosylated; Hap43-induced; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3644		1.73	2.02	Protein of unknown function; Cvr1-repressed; rat catheter and Spider biofilm induced
orf19.3854		1.73	1.57	Ortholog of <i>S. cerevisiae</i> Sat4; amphotericin B induced; clade-associated gene expression; Spider biofilm induced
orf19.5037	HRQ2	1.73	1.58	Protein of unknown function; mutants are viable; rat catheter and Spider biofilm induced
orf19.753	MNN15	1.73	1.83	Putative alpha-1,3-mannosyltransferase; predicted role in protein O-linked glycosylation; Spider biofilm induced
orf19.4665		1.73	1.73	Protein of unknown function; Spider biofilm induced
orf19.712	KIP1	1.73	1.54	Non-essential kinesin from the bipolar (Kinesin-5) family; involved in formation of the mitotic spindle
orf19.1994		1.73	1.68	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity, role in retrograde transport, endosome to Golgi and endosome localization
orf19.6713		1.73	1.8	Has domain(s) with predicted nucleic acid binding activity
orf19.5274		1.73	1.39	Ortholog(s) have cellular bud neck, cellular bud tip, cytoplasm localization

orf19.7029		1.73	1.97	Putative guanine deaminase; mutation confers hypersensitivity to toxic ergosterol analog; Spider biofilm induced
orf19.939	NAM7	1.73	1.97	Putative role in nonsense-mediated mRNA decay; similar to <i>S. cerevisiae</i> Nam7p; gene induced by ciclopirox oxamine treatment
orf19.3282	BMT3	1.73	2.17	Beta-mannosyltransferase; adds 2nd beta-mannose to the acid-stable fraction of cell wall phosphopeptidomannan, elongation of beta-mannose chains on the phosphopeptidomannan acid-labile fraction; Hap43-induced; Spider biofilm induced
orf19.5356		1.73	1.93	Protein with a predicted role in cell wall integrity; repressed in core stress response
orf19.1331	HSM3	1.73	1.55	Ortholog(s) have role in mismatch repair, proteasome regulatory particle assembly and cytosol, nucleus, proteasome regulatory particle, base subcomplex localization
orf19.117		1.72	1.63	Ortholog(s) have SNAP receptor activity, role in exocytosis, vesicle fusion and SNARE complex, extrinsic to plasma membrane localization
orf19.3802	PMT6	1.72	1.5	Protein mannosyltransferase; required for virulence in mice, adhesion to endothelium; role in hyphal growth signaling, hygromycin B sensitivity; no major role in cellular PMT activity; Hap4-repressed; Bcr1-repressed in RPM1 a/a biofilms
orf19.4643		1.72	1.57	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_41430, <i>Candida tropicalis</i> MYA-3404 : CTRG_00187 and <i>Candida albicans</i> WO-1 : CAWG_03642
orf19.2724		1.72	1.51	Protein of unknown function; flow model, rat catheter and Spider biofilm induced; Hap43-repressed
orf19.3418		1.72	1.61	Ortholog(s) have endoplasmic reticulum, fungal-type vacuole localization
orf19.1277		1.72	1.59	Protein of unknown function; Rgt1, Hap43-repressed; flow model biofilm induced; Spider biofilm induced
orf19.6195		1.72	1.72	Ortholog(s) have 3'-5'-exoribonuclease activity
orf19.1847	ARO10	1.72	1.72	Aromatic decarboxylase; Ehrlich fusel oil pathway of aromatic alcohol biosynthesis; alkaline repressed; protein abundance affected by URA3 expression in CAI-4 strain; Spider biofilm induced
orf19.323		1.72	1.81	Putative haloacid dehalogenase; localized to plasma membrane
orf19.6608		1.72	1.65	Predicted DDE superfamily endonuclease domain; repression correlates with clinical development of fluconazole resistance; Spider biofilm induced
orf19.5677	DUR4	1.72	1.81	Putative urea permease; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1901	MCM3	1.72	1.43	Putative DNA replication protein; periodic mRNA expression, peak at cell-cycle M/G1 phase; Spider biofilm induced
orf19.2097		1.72	1.82	Predicted DNA-dependent ATPase/helicase; Spider biofilm induced
orf19.5020		1.72	2.07	Protein of unknown function; Hap43-induced; Spider biofilm induced
orf19.7286	RPN7	1.72	2.12	Subunit of the proteasome regulatory particle; regulated by Gcn2p and Gcn4p; protein present in exponential and stationary growth phase yeast cultures
orf19.7511		1.72	1.74	Ortholog(s) have structural constituent of nuclear pore activity and role in cell division, nuclear pore organization, regulation of mitotic cell cycle
orf19.7610	PTP3	1.72	2.1	Putative protein tyrosine phosphatase; hypha induced; alkaline induced; regulated by Efg1, Ras1, cAMP pathways; mutants are viable; Spider biofilm induced; rat catheter biofilm repressed; flow model biofilm repressed
orf19.5908	TEC1	1.72	1.82	TEA/ATTS transcription factor; white cell pheromone response, hyphal gene regulation; required for Spider and RPM1 biofilm formation; regulates BCR1; Cph2 regulated transcript; alkaline, rat catheter, Spider, flow model biofilm induced
orf19.1656		1.71	1.69	Protein with a predicted FYVE/PHD zinc finger domain; Hap43-repressed; Spider biofilm induced
orf19.130		1.71	1.84	Ortholog(s) have protein serine/threonine kinase activity, ubiquitin binding activity
orf19.1777		1.71	1.56	Ortholog(s) have ubiquitin-specific protease activity, role in endocytosis, protein deubiquitination and cell division site, cytosol, nucleus, peroxisome, transport vesicle localization
orf19.5182	POL3	1.71	1.85	Large subunit of DNA polymerase III; partially complements defects of a <i>S. cerevisiae</i> cdc2 mutant; differing reports about periodic (G1/S) or non-periodic mRNA expression through cell cycle; Hap43p-repressed
orf19.1555	SAC3	1.71	1.48	Putative nuclear pore-associated protein, required for small ribosomal subunit biogenesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2791	BBC1	1.71	1.65	Putative SH3-domain-containing protein
orf19.5509		1.71	1.52	#NV
orf19.290	KRE5	1.71	1.89	UDP-glucose:glycoprotein glucosyltransferase; 1,6-beta-D-glucan biosynthesis, hyphal growth, virulence in mouse IV model; partially complements <i>S. cerevisiae</i> kre5 mutant defects; flow biofilm repressed, Bcr1-repressed in RPM1 a/a biofilms
		1.71	1.8	#NV
orf19.4512		1.71	1.62	#NV
orf19.6121	MNL1	1.71	1.61	Transcription factor; induces transcripts of stress response genes via SLE (STRE-like) elements; required for adaptation to weak acid stress; activates a subset of the genes that are repressed by Nrg1
orf19.5678		1.71	1.84	Has domain(s) with predicted role in peptidyl-diphthamide biosynthetic process from peptidyl-histidine and cytoplasm localization
orf19.5267		1.71	1.23	Putative cell wall adhesin-like protein; repressed in core caspofungin response and by alpha pheromone in SpiderM medium; transcript reduced in ace2 mutant; flow model, rat catheter and Spider biofilm repressed
orf19.6417	TSR1	1.71	1.77	Component of 20S pre-rRNA processing unit; repressed by prostaglandins
orf19.4610		1.71	1.44	Predicted metallocarboxypeptidase; role in proteolysis; rat catheter biofilm repressed
orf19.3256	SLN1	1.71	1.69	Histidine kinase involved in a two-component signaling pathway that regulates cell wall biosynthesis; mutants are sensitive to growth on H ₂ O ₂ medium; rat catheter and Spider biofilm induced
orf19.1933		1.71	1.88	Ortholog(s) have role in peroxisome organization and peroxisomal membrane localization
orf19.5445	GLO3	1.71	1.48	Putative ARF GTPase activator; role in COPI coating of Golgi vesicle, ER to Golgi vesicle-mediated transport, retrograde Golgi to ER vesicle-mediated transport; Spider biofilm repressed
orf19.6773	ECM29	1.71	1.85	Putative scaffold protein; assists in association of the proteasome core particle with the regulatory particle; ortholog of <i>S. cerevisiae</i> Ecm29; transposon mutation affects filamentous growth; flow model biofilm repressed
orf19.1505		1.7	1.58	Ortholog(s) have cytoplasm localization
		1.7	1.46	#NV
orf19.4133		1.7	1.83	Protein with a predicted role in transcription from RNA polymerase II promoters; Spider biofilm induced
orf19.6031	VPS27	1.7	1.74	Putative ESCRT-0 complex protein with a role in multivesicular body (MVB) trafficking
orf19.6032	SPE1	1.7	1.75	Ornithine decarboxylase; enzyme of polyamine biosynthesis; mutant is viable; functionally complements polyamine auxotrophy of <i>S. cerevisiae</i> spe1 mutant; downregulated upon adherence to polystyrene
orf19.5198	NOP4	1.7	2.02	Putative nucleolar protein; Hap43-induced; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); represses in core stress response
orf19.2614	RSR1	1.7	1.56	RAS-related protein; GTP/GDP cycling required for wild-type polar bud site selection, hyphal growth guidance; role in systemic virulence in mouse; geranylgeranylation predicted; suppresses <i>S. cerevisiae</i> cdc24-4 mutant heat sensitivity
orf19.2195		1.7	1.68	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05881
orf19.3349		1.7	1.85	Putative RNA polymerase II subunit B150; heterozygous null mutant exhibits resistance to parafungin in the <i>C. albicans</i> fitness test
orf19.1259		1.7	1.59	Ortholog(s) have DNA binding, ubiquitin-protein ligase activity, role in histone catabolic process, histone ubiquitination and Lid2 complex, Snt2C complex, cytoplasm, mitotic spindle pole body localization
orf19.3583		1.7	1.9	Ortholog(s) have role in protein export from nucleus, regulation of chromatin silencing at telomere, ribosomal small subunit export from nucleus and nuclear pore localization
orf19.6846	PHO85	1.7	1.61	Functional homolog of <i>S. cerevisiae</i> Pho85p, a cyclin-dependent kinase that regulates transcription of PHO genes involved in phosphate metabolism; necessary for geldanamycin-induced filamentation; gene has intron
orf19.2081	POM152	1.7	1.48	Putative nuclear pore membrane glycoprotein
orf19.5242	CDC6	1.7	1.85	Putative ATP-binding protein with a predicted role in DNA replication; member of conserved Mcm1p regulon; periodic mRNA expression, peak at cell-cycle M/G1 phase
orf19.6992		1.7	1.9	Predicted MFS membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family; Spider biofilm induced
orf19.7025	MCM1	1.7	1.92	Transcription factor; regulator of hyphal growth; may act with Wor1p; canonical and non-canonical binding sites; MADS domain DNA-binding motif; similar to <i>S. cerevisiae</i> Mcm1p; greater expression in white than opaque cells; intron in 5'-UTR
orf19.7046	MET28	1.7	1.79	Predicted bZIP domain-containing transcription factor; protein induced during the mating process; possibly essential, disruptants not obtained by UAU1 method; Hap43-repressed; rat catheter biofilm induced
orf19.7229	IML2	1.7	1.56	Protein of unknown function; early-stage flow model biofilm induced; Hap43-repressed; Spider biofilm repressed
orf19.7095		1.7	1.84	Ortholog(s) have endoplasmic reticulum localization
orf19.6810		1.7	1.69	Ortholog(s) have protein serine/threonine phosphatase activity
orf19.7612	CTM1	1.7	1.57	Putative cytochrome c lysine methyltransferase; regulated by Gcn2 and Gcn4; transcript induced by Mnl1 under weak acid stress; early-stage flow model biofilm induced
orf19.1590		1.69	1.64	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_18970, <i>C. parapsilosis</i> CDC317 : CPAR2_212800, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F08690g and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_01488
orf19.1789.1	LVS1	1.69	1.57	Saccharopine dehydrogenase (biosynthetic); enzyme of alpha-aminoacidipate lysine biosynthesis pathway; functionally complements <i>S. cerevisiae</i> lvs1 mutation; fungal-specific (no human or murine homolog)
orf19.3197	PAP1	1.69	1.74	Poly(A) polymerase, likely involved in mRNA polyadenylation; PAP is inhibited by parafungin antifungals; non-sex gene located within the MTLA mating-type-like locus
orf19.1915	MPP10	1.69	2.02	Putative SSU processome and 90S preribosome component; repressed in core stress response; repressed by prostaglandins
orf19.1802		1.69	1.95	Putative termination and polyadenylation protein; repressed by prostaglandins; Spider biofilm induced
orf19.171	DBP2	1.69	1.41	Putative DEAD-box family ATP-dependent RNA helicase; flucytosine induced; repressed in core stress response

orf19.700	SEO1	1.69	1.52	Protein with similarity to permeases; Stu1-repressed; flucytosine induced; induced by Mnl1 under weak acid stress; flow model biofilm repressed
orf19.3916		1.69	1.7	Ortholog of C. dubliniensis CD36 : Cd36_53980, C. parapsilosis CDC317 : CPAR2_100980, Candida tenuis NRRL Y-1498 : CANTEDRAFT_116966 and Debaryomyces hansenii CBS767 : DEHA2G19822g
orf19.1757		1.69	1.71	Putative C2H2 transcription factor; expression upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.1563	ECM3	1.69	1.77	Ortholog(s) have endoplasmic reticulum localization
orf19.1567		1.69	1.65	Ortholog(s) have Rab quarantyl-nucleotide exchange factor activity, phosphatidylinositol binding activity
orf19.5178	ERG5	1.69	2.14	Putative C-22 sterol desaturase; fungal C-22 sterol desaturases are cytochrome P450 enzymes of ergosterol biosynthesis, catalyze formation of the C-22(23) double bond in the sterol side chain; transposon mutation affects filamentous growth
orf19.3599	TIF4631	1.69	1.74	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.4835		1.69	1.96	Ortholog(s) have role in endonucleolytic cleavage in 5'-ETS of tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.4596		1.69	1.7	Protein of unknown function; Spider biofilm induced
orf19.7247	RIM101	1.69	1.48	Transcription factor; alkaline pH response; required for alkaline-induced hyphal growth; role in virulence in mice; activated by C-terminal proteolytic cleavage; mediates both positive and negative regulation; Spider biofilm induced
orf19.951		1.69	1.37	Protein of unknown function; transcript repressed upon yeast-hyphal switch; fluconazole-induced; Hap43-repressed; flow model biofilm induced
orf19.1133	MSB1	1.68	1.44	Putative regulator of transcription; expression in S. cerevisiae flo8 and flo11 mutants suggests a role in regulation of adhesion factors
orf19.554	DIT2	1.68	1.77	Monoxygenase of the cytochrome P450 family; produces N,N-bisformyl dihydroxyacetone from N-formyltyrosine; regulated by Nrg1, Mig1, and Tup1; role in chlamydsposore formation; Spider biofilm induced
orf19.3718		1.68	1.33	#NV
orf19.470		1.68	1.69	Ortholog(s) have RNA polymerase II activating transcription factor binding, TBP-class protein binding, chromatin binding, protein complex scaffold activity
orf19.3220		1.68	1.77	Putative rRNA processing protein; Spider biofilm induced
orf19.5036		1.68	1.52	#NV
orf19.2755		1.68	1.69	Ortholog(s) have role in proteasomal ubiquitin-dependent protein catabolic process, proteasomal ubiquitin-independent protein catabolic process and cytosol, nucleus, proteasome core complex, beta-subunit complex localization
orf19.1690	TOS1	1.68	1.52	Protein similar to alpha agglutinin anchor subunit; secreted; exogenously expressed protein is a substrate for Kex2 processing in vitro; fluconazole-induced; induced by alpha pheromone in SpiderM medium; Hap43-induced
orf19.3405	ZCF18	1.68	1.61	Putative Zn(II)Cys6 transcription factor; heterozygous null mutant displays sensitivity to virgineone and decreased colonization of mouse kidneys
orf19.593	FGR32	1.68	1.93	Protein similar to S. cerevisiae Swa2p; induced upon adherence to polystyrene; transposon mutation affects filamentous growth; Hap43p-repressed gene
orf19.6049		1.68	1.4	Ortholog(s) have protein kinase activator activity, role in protein phosphorylation, regulation of cytokinesis and chromosome passenger complex, kinetochore microtubule, spindle midzone localization
orf19.6070	ENA2	1.68	1.35	Putative sodium transporter; induced by ciclopirox olamine; alkaline induced by Rim101; repressed by high-level peroxide stress; induced in oral candidiasis clinical isolates; possibly essential gene; rat catheter and Spider biofilm induced
orf19.7387	ELP3	1.68	1.91	Predicted histone acetyltransferase; role in regulation of transcription, tRNA wobble uridine modification; Spider biofilm induced
orf19.769	IFE1	1.67	1.61	Putative medium-chain alcohol dehydrogenase; rat catheter and Spider biofilm repressed
orf19.6382		1.67	1.65	Putative MRP/CFTR-subfamily ABC transporter; member of multidrug resistance-associated protein (MRP) subfamily of ABC family; similar to S. cerevisiae Bpt1p
orf19.67		1.67	1.66	#NV
orf19.3622	ANP1	1.67	1.74	Putative mannosyltransferase of Golgi; member of Mnn9p family; similar to S. cerevisiae Anp1p; fungal-specific (no human or murine homolog)
orf19.3080		1.67	1.6	Ortholog(s) have role in attachment of spindle microtubules to kinetochore, cellular response to nitrogen starvation, cohesin localization to chromatin and double-strand break repair, more
orf19.4630	CPA1	1.67	1.54	Putative carbamoyl-phosphate synthase subunit; alkaline repressed; rat catheter, Spider and flow model biofilm induced
orf19.6029	ROT1	1.67	1.51	Similar to S. cerevisiae Rot1p, which is involved in cell wall 1,6-beta-glucan biosynthesis; has predicted transmembrane region; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1522		1.67	1.41	Ortholog of C. dubliniensis CD36 : Cd36_16850, C. parapsilosis CDC317 : CPAR2_211990, Candida tenuis NRRL Y-1498 : cten_CGOB_00169 and Debaryomyces hansenii CBS767 : DEHA2G03036g
orf19.1224	FRP3	1.67	1.29	Putative ammonium transporter; upregulated in the presence of human neutrophils; fluconazole-downregulated; repressed by nitric oxide; Spider biofilm induced; rat catheter biofilm repressed
orf19.3751		1.67	1.46	Putative serine/threonine protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4297	CKB2	1.67	1.58	Regulatory subunit of protein kinase CK2 (casein kinase II), beta' subunit; null mutants are hypersensitive to caspofungin
orf19.4688	DAG7	1.67	1.43	Secretory protein; a-specific, alpha-factor induced; mutation confers hypersensitivity to toxic ergosterol analog; fluconazole-induced; induced during chlamydsposore formation in C. albicans and C. dubliniensis
orf19.3547		1.67	1.76	Ortholog(s) have mRNA 3'-UTR binding, translation repressor activity, nucleic acid binding activity, role in negative regulation of translation, ribosomal large subunit biogenesis and large ribosomal subunit, nucleolus localization
orf19.4662	RLM1	1.67	1.83	Putative transcription factor; required for wild-type resistance to cell wall perturbation, caspofungin treatment; regulates caspofungin induction of PGA13
orf19.6185		1.67	1.84	Putative pseudouridine-5-phosphate glycosidase; overlaps orf19.6186 and orf19.6187; Spider biofilm repressed
orf19.6621	MHP1	1.67	1.54	Protein similar to S. cerevisiae Mhp1p, which is involved in microtubule stabilization; transposon mutation affects filamentous growth; possibly transcriptionally regulated upon hyphal formation; possibly an essential gene (by UAU1 method)
orf19.6895		1.67	1.63	#NV
orf19.2055	NPL6	1.67	1.38	Putative nuclear protein localization factor; Hap43-induced; Spider biofilm repressed
orf19.5232	CS2	1.67	1.59	Putative 66S pre-ribosomal particle component; Hap43-induced; essential for growth; transposon mutation affects filamentous growth; Spider biofilm induced
orf19.7232	JRR1	1.67	1.94	Putative cohesin complex subunit; cell-cycle regulated periodic mRNA expression
orf19.2633	HGT14	1.66	1.66	Putative MFS glucose transporter; 20 member C. albicans glucose transporter family; 12 probable membrane-spanning segments; expressed in rich medium with 2% glucose; rat catheter and flow model biofilm induced
orf19.3962	HAS1	1.66	1.52	Functional homolog of S. cerevisiae Has1p, which is a nucleolar protein of the DEAD-box ATP-dependent RNA helicase family that is involved in biogenesis of the ribosome, particularly the small (40S) subunit; caspofungin-downregulated
orf19.1917		1.66	1.7	Protein of unknown function; Spider biofilm repressed
orf19.2018		1.66	1.85	Protein with a predicted DnaJ chaperone domain and a CSL-type zinc finger; Spider biofilm induced
orf19.3631	STN1	1.66	1.58	Protein involved in telomere maintenance; forms a complex with Ten1p
orf19.134		1.66	1.67	Protein of unknown function; overlaps retrotransposon Tca13; ciclopirox olamine induced
orf19.2382		1.66	1.47	Protein similar to isoleucyl-tRNA synthetase; isoleucyl-tRNA synthetase is the target of drugs including the cyclic beta-amino acid icofungipen/PLD-118/BAY-10-8888 and mupirocin
orf19.3688		1.66	1.77	Ortholog(s) have chromatin DNA binding activity and role in cell wall mannoprotein biosynthetic process, positive regulation of transcription from RNA polymerase II promoter, telomere maintenance
orf19.4349		1.66	2.11	Protein of unknown function; transcript repressed by elevated CO2; Spider biofilm induced
orf19.695	RGS2	1.66	1.61	Protein of RGS superfamily; mutants are viable; rat catheter and Spider biofilm induced
orf19.53		1.66	1.76	Ortholog(s) have role in generation of catalytic spliceosome for first transesterification step, mRNA cis splicing, via spliceosome and commitment complex, cytosol localization
orf19.70		1.66	1.57	#NV
orf19.4208	RAD52	1.66	1.58	Required for homologous DNA recombination, repair of UV- or MMS-damaged DNA, telomere length, UV-induced LOH; constitutive expression, MMS-induced; weakly complements S. cerevisiae rad52 mutant; slow growth, increased white-to-opaque switch
orf19.6155		1.66	1.5	Ortholog(s) have DNA ligase (ATP) activity and role in DNA ligation, DNA recombination, DNA replication, Okazaki fragment processing, base-excision repair, mitotic cell cycle, nucleotide excision repair, telomere maintenance
orf19.6322	ARD	1.66	1.91	D-arabitol dehydrogenase, NAD-dependent (ArDH); enzyme of D-arabitol and D-arabinose catabolism; D-arabitol is a marker for active infection in humans; rat catheter and Spider biofilm induced
orf19.723	BCR1	1.66	1.73	Transcription factor; regulates alpha biofilm formation, matrix, cell-surface-associated genes; confers adherence, impermeability, impenetrability, fluconazole resistance; Tup1/Tec1/Mnl1-regulated; mRNA binds She3; Spider biofilm induced
orf19.2172	ARA1	1.66	1.81	D-Arabinose dehydrogenase; dehydro-D-arabinono-1,4-lactone synthesis; active on D-arabinose, L-fucose, L-xylose, L-galactose; inhibited by metal ions, thiol group-specific reagents; induced on polystyrene adherence; Spider biofilm induced
orf19.2007		1.66	1.55	Ortholog(s) have role in Golgi to vacuole transport, ascospore wall assembly, retrograde transport, endosome to Golgi and GARP complex, mitochondrion localization

orf19.1992	<i>SIR2</i>	1.66	1.63	Required for wild-type lifespan, asymmetric inheritance of oxidatively damaged proteins, rDNA silencing; regulates phenotypic switch in strain 3153A, not WO-1; partially complements <i>S. cerevisiae sir2</i> mating defect; Spider biofilm induced
orf19.2763		1.66	1.6	Protein not essential for viability; orf19.10279 possibly transcriptionally regulated upon hyphal formation
orf19.814	<i>SSY1</i>	1.66	1.54	Amino acid sensor; required for wild-type hyphal growth on solid serum or Lees media, not under all conditions; 12 predicted membrane spanning regions; Hap43-repressed; Spider biofilm induced
orf19.1881		1.66	1.91	Putative broad-specificity lysophospholipid acyltransferase; role in glycerophospholipid biosynthesis; rat catheter biofilm repressed
orf19.6966		1.66	1.59	Ortholog(s) have choline kinase activity, ethanolamine kinase activity, role in phosphatidylcholine biosynthetic process, phosphatidylethanolamine biosynthetic process and cytosol, nucleus localization
orf19.6450		1.66	1.66	Protein of unknown function
orf19.3193	<i>FCR3</i>	1.66	1.6	bZIP transcription factor; ortholog of <i>S. cerevisiae</i> Yap3; partially complements fluconazole sensitivity of <i>S. cerevisiae</i> pd1 pdr3; Hap43-induced; required for yeast cell adherence to silicone substrate; flow model biofilm repressed
orf19.1594		1.65	1.49	#NV
orf19.1493	<i>RAD7</i>	1.65	1.62	Protein similar to <i>S. cerevisiae</i> Rad7p, which is a subunit of the Nucleotide Excision Repair Factor 4; induced under hydroxyurea treatment
orf19.1680	<i>TFP1</i>	1.65	1.59	Subunit of vacuolar H ⁺ -ATPase; stationary phase enriched protein; sumoylation target; Spider biofilm repressed
orf19.2501	<i>FLC1</i>	1.65	1.35	Protein involved in heme uptake; putative FAD transporter, similar to <i>S. cerevisiae</i> Fic1; regulated by iron; macrophage-induced; mutant defective in filamentous growth; Spider biofilm induced
orf19.3370	<i>DOT4</i>	1.65	1.74	Protein similar to ubiquitin C-terminal hydrolase; localizes to cell surface of hyphal cells, but not yeast-form cells; repressed upon high-level peroxide; Hap43p-induced; rat catheter biofilm induced
orf19.789	<i>PYC2</i>	1.65	1.44	Putative pyruvate carboxylase; binds biotin cofactor; repressed by Ssk1 response regulator, by benomyl treatment, or in an azole-resistant strain overexpressing MDR1; stationary phase enriched protein; flow model biofilm repressed
orf19.1732		1.65	1.74	#NV
orf19.649		1.65	1.51	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30530, <i>C. parapsilosis</i> CDC317 : CPAR2_203340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_117008 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G24244g
orf19.849		1.65	1.61	Ortholog(s) have role in protein N-linked glycosylation, protein O-linked glycosylation, response to stress
orf19.5523		1.65	1.51	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_62780, <i>C. parapsilosis</i> CDC317 : CPAR2_601690, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113271 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A06644g
orf19.285		1.65	1.75	Ortholog of <i>S. cerevisiae</i> Igo2; role in mRNA stabilization of mRNA; Spider biofilm induced
orf19.2474	<i>PRC3</i>	1.65	1.79	Putative carboxypeptidase Y precursor; transcript regulated by Nrg1 and Mif1; regulated by Gcn2 and Gcn4
orf19.6168		1.65	1.9	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_80830, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F17930g, <i>Candida tropicalis</i> MYA-3404 : CTRG_04030 and <i>Candida lusitanae</i> ATCC 42720 : CLUG_04224
orf19.2672	<i>NCP1</i>	1.65	1.65	NADPH-cytochrome P450 reductase, acts with Erg11p in sterol 14 alpha-demethylation in ergosterol biosynthesis; subject to hypoxic regulation; ketoconazole-induced; caspofungin repressed
orf19.1887		1.65	1.95	Ortholog(s) have sterol esterase activity, role in sterol metabolic process and integral to membrane, lipid particle localization
orf19.4844		1.65	1.6	Ortholog(s) have RNA binding, polynucleotide adenylyltransferase activity, protein binding, bridging activity
orf19.7166		1.65	2.1	Predicted mitochondrial cardiolipin-specific phospholipase; upregulated in an azole-resistant strain that overexpresses MDR1; induced by Mnl1 under weak acid stress; rat catheter and Spider biofilm induced
orf19.931		1.65	1.54	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04452
orf19.1091	<i>NOP8</i>	1.64	1.93	Ortholog of <i>S. cerevisiae</i> Nop8; has a role in ribosomal large subunit biogenesis; rat catheter and Spider biofilm induced
orf19.2708		1.64	1.5	Ortholog(s) have role in mature ribosome assembly and cytosol, nucleolus, polysome, preribosome, large subunit precursor localization
orf19.1771	<i>CWC22</i>	1.64	1.75	Predicted spliceosome-associated protein; role in pre-mRNA splicing; Spider biofilm induced
orf19.3955	<i>MES1</i>	1.64	1.56	Cytoplasmic methionyl-tRNA synthetase; zinc-binding motif; ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage; protein present in exponential and stationary phase yeast
orf19.1769		1.64	1.53	Ortholog(s) have G-protein beta/gamma-subunit complex binding, actin binding activity, role in positive regulation of transcription from RNA polymerase II promoter by pheromones, protein folding and cytoplasm localization
orf19.2751		1.64	1.61	Predicted membrane transporter; member of the monocarboxylate porter (MCP) family, major facilitator superfamily; Hap43-induced gene; alkaline upregulated by Rim101; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1306		1.64	1.44	Ortholog(s) have cytosol, nucleus localization
orf19.4077	<i>MIT1</i>	1.64	1.52	Mannosylinositol phosphorylceramide (MIPC) synthase catalytic subunit; sphingolipid biosynthesis; fluconazole, caspofungin induced; macrophage-repressed; Spider biofilm induced
orf19.1687		1.64	1.77	Ortholog of <i>S. cerevisiae</i> Prp43, an RNA helicase in the DEAH-box family that functions in both RNA polymerase I and polymerase II transcript metabolism; Hap43-induced gene
orf19.2401		1.64	1.53	Ortholog(s) have cysteine-type endopeptidase activity
orf19.3436		1.64	1.73	Protein with a Rho GDP-dissociation inhibitor domain; macrophage-induced gene
orf19.3300	<i>ZPR1</i>	1.64	1.51	Protein with putative zinc finger; regulated by Gcn4p; repressed in response to amino acid starvation (3-aminotriazole treatment); upregulation correlates with clinical development of fluconazole resistance
orf19.6055		1.64	1.41	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_00460, <i>C. parapsilosis</i> CDC317 : CPAR2_800010, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_125085 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D09086g
orf19.6977	<i>GPI1</i>	1.64	1.78	Putative protein of GPI synthesis; expression is reduced in a fluconazole-resistant isolate
orf19.7136	<i>SPT6</i>	1.64	1.72	Putative transcription elongation factor; transposon mutation affects filamentous growth; transcript induced in an RHE model of oral candidiasis and in clinical isolates from oral candidiasis
orf19.7136	<i>SPT6</i>	1.64	1.66	Putative transcription elongation factor; transposon mutation affects filamentous growth; transcript induced in an RHE model of oral candidiasis and in clinical isolates from oral candidiasis
orf19.7347		1.64	1.7	Ortholog(s) have ubiquitin-protein ligase activity, role in ER-associated protein catabolic process and endoplasmic reticulum membrane localization
orf19.7453		1.64	1.42	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02974
orf19.7487		1.64	1.65	Has domain(s) with predicted RNA binding, RNA-directed DNA polymerase activity and role in RNA-dependent DNA replication
orf19.6833		1.64	1.88	#NV
orf19.1990	<i>SNX4</i>	1.63	1.47	Putative sorting nexin; induced during the mating process
orf19.1741	<i>DIT1</i>	1.63	1.66	Ortholog(s) have catalytic activity and role in ascospore wall assembly
orf19.3774	<i>PPG1</i>	1.63	1.49	Putative protein phosphatase of the Type 2A-related family (serine/threonine-specific), similar to <i>S. cerevisiae</i> Ppg1p; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3158		1.63	1.85	Ortholog(s) have cytoplasm localization
orf19.2720		1.63	1.44	Cytosolic chaperonin Cct ring complex subunit; role in the assembly of actin and tubulins; Spider biofilm repressed
orf19.5188	<i>CHS1</i>	1.63	1.41	Chitin synthase; essential; for primary septum synthesis in yeast and hyphae; 1 of several chitin synthases; enzymatically activated by proteolytic processing; complements defects of <i>S. cerevisiae</i> chs1 or chs2; Spider biofilm repressed
orf19.1373	<i>INP51</i>	1.63	1.63	Putative phosphatidylinositol-4,5-bisphosphate phosphatase; involved in maintenance of phosphoinositide levels; affects hyphal growth, virulence, cell integrity; interacts with Irs4p
orf19.2200		1.63	1.61	Protein of unknown function; rat catheter biofilm repressed
orf19.4045	<i>EST1</i>	1.63	1.55	Telomerase subunit; allosteric activator of catalytic activity, but not required for catalytic activity; has TPR domain
orf19.5855	<i>MBP1</i>	1.63	1.59	Putative component of the MBF transcription complex involved in G1/S cell-cycle progression; non-periodic mRNA expression; predicted, conserved MBF binding sites upstream of G1/S-regulated genes
orf19.749		1.63	1.51	#NV
orf19.2326		1.63	1.52	Ortholog(s) have role in chromatin silencing at silent mating-type cassette, double-strand break repair via homologous recombination, intra-S DNA damage checkpoint, mitotic sister chromatid cohesion and nucleus localization
orf19.3434	<i>TRY5</i>	1.63	1.45	Zn(II)Cys6 transcription factor; regulator of yeast form adherence; required for yeast cell adherence to silicone substrate
orf19.6644		1.63	1.8	Protein of unknown function; 2 predicted transmembrane domains; transcript detected on high-resolution tiling arrays; flow model biofilm induced; Spider biofilm repressed
orf19.825	<i>GCD7</i>	1.63	1.78	Putative translation initiator; downregulated in the presence of human whole blood or polymorphonuclear (PMN) cells
orf19.5666		1.63	1.73	Ortholog(s) have transcription coactivator activity
orf19.5873	<i>POL1</i>	1.63	1.42	Putative DNA directed DNA polymerase alpha; RNA abundance regulated by cell cycle, tyrosol and cell density; rat catheter biofilm induced
orf19.1812		1.62	1.46	#NV
orf19.2758	<i>PGA38</i>	1.62	1.45	Putative adhesin-like GPI-anchored protein; repressed during cell wall regeneration; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm repressed
orf19.2657		1.62	1.29	Protein of unknown function
orf19.3364		1.62	1.55	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_403360, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D00814g, <i>Pichia stipitis</i> PICal : PICST_32156 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_04611
orf19.2167		1.62	1.66	Ortholog(s) have role in ribosomal large subunit biogenesis, ribosomal small subunit biogenesis and cytosolic large ribosomal subunit, nucleolus localization
orf19.4315		1.62	1.56	Ortholog(s) have Rab GTPase activator activity, role in vesicle-mediated transport and intracellular localization

orf19.3603	<i>MFG1</i>	1.62	1.97	Regulator of filamentous growth; required for biofilm formation, virulence; interacts with Flo8 and Mss11
orf19.2747	<i>RG1</i>	1.62	1.29	Zn(II)Cys6 transcription factor; transcriptional repressor involved in the regulation of glucose transporter genes; ortholog of <i>S. cerevisiae</i> Rgt1; mutants display decreased colonization of mouse kidneys
orf19.2272	<i>AFT2</i>	1.62	1.64	Putative Aft domain transcription factor; role in regulation of iron metabolism, oxidative stress, adhesion, hyphal growth, colony morphology, virulence; complements <i>S. cerevisiae</i> aft1 mutation; Spider biofilm induced
orf19.2565		1.62	1.48	Predicted intermediate filament protein; required for nuclear and mitochondrial transmission to daughter buds in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.3916		1.62	1.43	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_53980, <i>C. parapsilosis</i> CDC317 : CPAR2_100980, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116966 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G19822g
orf19.6121	<i>MNL1</i>	1.62	2.3	Transcription factor; induces transcripts of stress response genes via SLE (STRE-like) elements; required for adaptation to weak acid stress; activates a subset of the genes that are repressed by Nrg1
orf19.6544	<i>LPI9</i>	1.62	1.94	Protein phosphatase type 1 regulator; role in chromosome segregation, regulation of phosphoprotein phosphatase activity; rat catheter and Spider biofilm induced
orf19.1582		1.62	1.53	Predicted membrane transporter; member of the drug:proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS); mRNA binds She3
orf19.2677		1.62	1.51	Putative GPI transamidase component; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3141		1.62	2.06	Ortholog(s) have role in ER to Golgi vesicle-mediated transport and cytoplasmic mRNA processing body, endoplasmic reticulum membrane, extrinsic to membrane localization
orf19.2026	<i>UBP13</i>	1.62	1.58	Ortholog of <i>S. cerevisiae</i> Ubp13; putative ubiquitin carboxyl-terminal hydrolase; flow model biofilm induced; rat catheter biofilm repressed
orf19.900	<i>NSP1</i>	1.62	2.02	Essential component of the nuclear pore complex; sumoylation target; stationary phase enriched protein; rat catheter biofilm repressed
orf19.6573	<i>BEM2</i>	1.62	1.37	Putative Rho1p GTPase activating protein (GAP); serum-induced transcript; Spider biofilm induced; flow model biofilm repressed
orf19.90		1.62	1.63	Ortholog(s) have cytoplasm localization
orf19.7349	<i>CHS4</i>	1.62	1.76	Activator of Chs3p chitin synthase; required for wild-type wall chitin content, but not for hyphal growth; mutant resistant to Calcofluor white; prenylation and 2 transmembrane segments predicted; functional homolog of <i>S. cerevisiae</i> Chs4p
orf19.6817	<i>FCR1</i>	1.62	1.76	Transcription factor; repressor of fluconazole/ketoconazole/brefeldin A resistance; Tn mutation enhances filamentation; partially rescues <i>S. cerevisiae</i> pdr1 pdr3 fluconazole sensitivity; rat catheter biofilm induced/Spider biofilm repressed
orf19.4263		1.61	1.47	Has domain(s) with predicted nucleotide binding activity
orf19.1536		1.61	1.4	Putative vacuolar transporter; Hap43-induced; required for normal filamentous growth; mRNA binds She3 and is localized to hyphal tips
orf19.3521	<i>ARH2</i>	1.61	1.33	Putative adrenodoxin-NADPH oxidoreductase; role in heme biosynthesis
orf19.3898		1.61	1.43	Ortholog(s) have SNAP receptor activity, role in endocytosis, vesicle fusion and Golgi apparatus, SNARE complex, endoplasmic reticulum, endosome, trans-Golgi network localization
orf19.4950	<i>AKR1</i>	1.61	1.79	Ankryn-repeat protein; induced by fluphenazine
orf19.2290	<i>TOR1</i>	1.61	1.51	Protein similar to TOR family phosphatidylinositol kinases; mutation confers resistance to rapamycin; involved in regulation of ribosome biogenesis, starvation response, and adhesion
orf19.1605	<i>PMS1</i>	1.61	1.63	Putative DNA mismatch repair factor; ortholog of <i>S. cerevisiae</i> PMS1 which is an ATP-binding protein involved in DNA mismatch repair
orf19.4134		1.61	1.74	Ortholog(s) have palmitoyltransferase activity, role in protein palmitoylation and plasma membrane localization
orf19.223		1.61	1.43	Putative serine/threonine protein kinase; Hap43-repressed; induced by prostaglandins; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.1835	<i>PEA2</i>	1.61	1.63	Putative coiled-coil polarisome; predicted role in polarized morphogenesis, cell fusion, and low affinity Ca ²⁺ influx; rat catheter biofilm induced
orf19.2838		1.61	1.85	Protein of unknown function; mutation confers hypersensitivity to amphotericin B; flow model biofilm induced
orf19.5710		1.61	1.56	Nucleoporin component of central core of the nuclear pore complex; mRNA binds She3
orf19.3000	<i>ORC1</i>	1.61	1.66	Putative origin recognition complex large subunit; essential for viability; similar to <i>S. cerevisiae</i> Orc1p origin recognition complex subunit
orf19.3474	<i>IPL1</i>	1.61	1.54	Putative Aurora kinase; Hap43-induced; induced during planktonic growth; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6193	<i>TAF145</i>	1.61	1.62	Protein similar to <i>S. cerevisiae</i> Taf145p, a component of RNA polymerase II transcription factor TFIID; flucytosine repressed; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.6591	<i>PCD1</i>	1.61	1.77	Ortholog(s) have 8-oxo-7,8-dihydroguanosine triphosphate pyrophosphatase activity, role in DNA repair and peroxisome localization
orf19.5081	<i>FUN12</i>	1.61	1.72	Functional homolog of <i>S. cerevisiae</i> Fun12 translation initiation factor eIF5B; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.829	<i>SCH9</i>	1.61	1.78	Protein kinase; involved in growth control, cell size, resistance to rapamycin, cations, chlamydospore formation, filamentous growth under some conditions, and virulence; prevents hyphal growth in hypoxia at high CO ₂ ; Spider biofilm induced
orf19.6912		1.61	1.81	Putative ethanolamine kinase
orf19.6919		1.61	1.72	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_71210, <i>C. parapsilosis</i> CDC317 : CPAR2_702710, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116256 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E17732g
orf19.7149		1.61	1.94	Putative GTPase inhibitor; predicted role in endocytosis, protein targeting to vacuole; rat catheter biofilm repressed
orf19.7274		1.61	2.06	Predicted ORF in retrotransposon Zorro2 with similarity to retroviral reverse transcriptase proteins
orf19.3211	<i>RCF3</i>	1.61	1.5	Putative heteropentameric replication factor C subunit; transcription is induced upon filamentous growth
orf19.7057	<i>GUS1</i>	1.61	1.94	Putative glutamine-tRNA ligase; stationary phase enriched protein; Spider biofilm repressed
orf19.6760	<i>MDS3</i>	1.61	1.9	TOR signaling pathway component; required for growth and hyphal formation at alkaline pH, for full virulence in a mouse model of systemic infection and for SD and Spider medium biofilm formation; role in chlamydospore formation
orf19.1369		1.6	1.33	Protein with predicted peptidase domains; Hap43-repressed gene
orf19.1814	<i>STT4</i>	1.6	1.41	Putative phosphatidylinositol-4-kinase
orf19.117		1.6	1.32	Ortholog(s) have SNAP receptor activity, role in exocytosis, vesicle fusion and SNARE complex, extrinsic to plasma membrane localization
orf19.1341	<i>PRR2</i>	1.6	1.32	Putative serine/threonine protein kinase; mutation confers resistance to 5-fluorocytosine (5-FU)
orf19.114		1.6	1.65	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_61190, <i>C. parapsilosis</i> CDC317 : CPAR2_603230, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00054 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E21142g
orf19.2801		1.6	1.66	#NV
orf19.658	<i>GIN1</i>	1.6	1.42	Protein involved in regulation of DNA-damage-induced filamentous growth; putative component of DNA replication checkpoint; ortholog of <i>S. cerevisiae</i> Mrc1p, an S-phase checkpoint protein; Hap43p-induced gene
orf19.1037		1.6	1.68	Protein of unknown function; rat catheter biofilm repressed
orf19.3605	<i>PEX17</i>	1.6	1.38	Putative peroxin
orf19.223		1.6	1.47	Putative serine/threonine protein kinase; Hap43-repressed; induced by prostaglandins; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.171	<i>DBP2</i>	1.6	1.4	Putative DEAD-box family ATP-dependent RNA helicase; flucytosine induced; repressed in core stress response
orf19.4270	<i>MNN13</i>	1.6	1.54	Predicted alpha-1,3-mannosyltransferase activity with a role in protein glycosylation; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.4268	<i>UTP13</i>	1.6	1.8	Putative U3 snoRNA-associated protein; Hap43-induced; repressed in core stress response; physically interacts with TAP-tagged Nop1
orf19.5188	<i>CHS1</i>	1.6	1.38	Chitin synthase; essential; for primary septum synthesis in yeast and hyphae; 1 of several chitin synthases; enzymatically activated by proteolytic processing; complements defects of <i>S. cerevisiae</i> chs1 or chs2; Spider biofilm repressed
orf19.5219	<i>IRA2</i>	1.6	1.3	GTPase-activating protein; negatively regulates RAS by converting it from the GTP- to the GDP-bound inactive form; Spider biofilm induced; flow model biofilm repressed
orf19.4883		1.6	1.74	Protein of unknown function; <i>S. cerevisiae</i> ortholog Cos111 confers resistance to the antifungal drug ciclopirox olamine; constitutive expression independent of MTL or white-opaque status; Spider biofilm induced
orf19.1182		1.6	2.03	Ortholog(s) have SNAP receptor activity, phosphatidylinositol-3-phosphate binding activity and role in piecemeal microautophagy of nucleus, vacuole fusion, non-autophagic, vesicle fusion
orf19.5725		1.6	1.63	Ortholog(s) have guanylyl-nucleotide exchange factor activity, role in autophagic vacuole fusion, protein targeting to vacuole, vesicle docking and Mon1-Ccz1 complex localization
orf19.1069	<i>RPV4</i>	1.6	1.78	C2H2 transcription factor; putative regulator of proteasome genes; DNA recognition sequence (GAAGCAAAA) enriched in regions upstream of proteasome genes; induced in core stress response; Hap43-induced; Spider biofilm induced
orf19.1233	<i>ADE4</i>	1.6	1.64	Putative phosphoribosylpyrophosphate amidotransferase; flucytosine induced
orf19.1229		1.6	1.49	Ortholog(s) have importin-alpha export receptor activity, role in cell division, protein export from nucleus and nuclear membrane localization
orf19.4681	<i>RAT1</i>	1.6	1.9	5'→3' exonuclease; similar to <i>S. cerevisiae</i> nuclear exonuclease Rat1p; suppresses <i>S. cerevisiae</i> kem1 mutant slow growth, mating defect, and haploid invasive growth defect
orf19.3886		1.6	1.61	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_31820, <i>C. parapsilosis</i> CDC317 : CPAR2_205050, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G10736a and <i>Pichia stipitis</i> Pical - PICST_32993
orf19.1893		1.6	1.49	Protein of unknown function; Spider biofilm repressed
orf19.1890		1.6	1.38	Ortholog(s) have role in medium-chain fatty acid biosynthetic process
orf19.4213	<i>FET31</i>	1.6	1.36	Putative iron transport multicopper oxidase precursor; flucytosine induced; caspofungin repressed

orf19.7221	SET3	1,6	1,54	NAD-dependent histone deacetylase; mutations affect filamentous growth; genetic evidence suggests Set3/Hos2 function as a complex to regulate white-opaque switching, morphogenesis, and virulence; flow model biofilm induced
orf19.7076	GBP2	1,6	1,29	Putative single-strand telomeric DNA-binding protein; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.7368		1,6	1,39	Ortholog(s) have mRNA binding, poly(U) RNA binding activity and role in nuclear-transcribed mRNA catabolic process, nonsense-mediated decay, regulation of mRNA stability, stress granule assembly
orf19.1609		1,59	1,4	Ortholog(s) have role in endonucleolytic cleavage in ITS1 to separate SSU-rRNA from 5.8S rRNA and LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) and mitotic spindle pole body, nucleolus localization
orf19.1045		1,59	1,48	Putative U2 snRNP protein; Hap43p-induced gene; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.5541		1,59	1,6	Protein with similarity to <i>S. pombe</i> Nrd1p; transcription induced upon induction of hyphal growth; regulated by Cph1p, Efg1p, Cph2p; low-level expression; alkaline upregulated; fungal-specific (no human or murine homolog)
orf19.5061	ADE5,7	1,59	1,74	Phosphoribosylamine-glycine ligase and phosphoribosylformylglycinamide cyclo-ligase; interacts with Vps34p; required for hyphal growth and virulence; flucytosine induced; not induced in GCN response, in contrast to <i>S. cerevisiae</i> ortholog
orf19.1544		1,59	1,53	Putative cis-golgi localized protein involved in ER to Golgi transport; Spider biofilm repressed
orf19.4979	KNS1	1,59	1,55	Protein kinase involved in negative regulation of PolIII transcription; effector kinase of the TOR signaling pathway, phosphorylates Rps53p to regulate ribosome and tRNA biosynthesis; Spider and flow model biofilm induced
orf19.2934		1,59	1,94	Similar to <i>S. cerevisiae</i> Bud20; predicted role in cellular bud site selection; rat catheter and Spider biofilm induced
orf19.5487	CDC46	1,59	1,45	Putative hexameric MCM complex subunit; predicted role in control of cell division; periodic mRNA expression. peak at cell-cycle M/G1 phase; regulated by tyrosol, cell density, Plc1; repressed by alpha pheromone in SpiderM medium
orf19.223		1,59	1,47	Putative serine/threonine protein kinase; Hap43p-repressed; induced by prostaglandins; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced
orf19.3467	SEC27	1,59	1,64	Ortholog(s) have ubiquitin binding activity and role in ER to Golgi vesicle-mediated transport, late endosome to vacuole transport via multivesicular body sorting pathway, retrograde vesicle-mediated transport, Golgi to ER
orf19.3910		1,59	1,31	Has domain(s) with predicted RNA binding, ribonuclease T2 activity
orf19.6200		1,59	1,42	Pry family pathogenesis-related protein; oral infection upregulated gene; mutant has reduced capacity to damage oral epithelial cells
orf19.6305		1,59	1,49	Hydroxytrimethyllysine aldolase, the second enzyme in the carnitine biosynthesis pathway; rat catheter biofilm repressed
orf19.1421		1,59	1,53	Ortholog(s) have ureidoglycolate hydrolase activity and cytosol, nucleus localization
orf19.1569	UTP22	1,59	1,73	Putative U3 snoRNP protein; Ssr1-induced; repressed by prostaglandins; heterozygous null mutant is resistant to pamafungin
orf19.335		1,59	1,4	Se1p-, Stu1p-, and Hap43p-regulated gene
orf19.5258		1,59	1,42	Protein of unknown function; induced by nitric oxide
orf19.3235		1,59	1,46	Putative F-actin capping protein subunit alpha; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2549	SHP1	1,58	1,57	Regulator of the type 1 protein phosphatase Glc7p activity, involved in control of morphogenesis, progression through the cell cycle and response to DNA damage
orf19.2355		1,58	1,49	#NV
orf19.4779		1,58	1,55	Putative transporter; slightly similar to the Sit1p siderophore transporter; Gcn4p-regulated; fungal-specific; induced by Mnl1p under weak acid stress
orf19.3523	CRK1	1,58	1,59	Protein kinase of the Cdc2 subfamily involved in hyphal development, virulence; promotes hyphal development independently of Cph1 and Efg1; functionally complements pheromone hypersensitivity of <i>S. cerevisiae</i> sgv1 mutant; Hap43p-repressed
orf19.3633		1,58	1,38	Ortholog(s) have cytosol, nucleus localization
orf19.1093	FLO8	1,58	1,93	Transcription factor; required for hyphal formation and CO2 induced white-opaque switching; regulates hyphal gene expression; required for virulence in mouse systemic infection; binds Efg1p; binds Mss11p via LisH motif; has LUF5 domain
orf19.563	RRP15	1,58	1,67	Putative nucleolar protein; constituent of pre-60S ribosomal particles; Hap43p-induced; repressed by prostaglandins
orf19.2396	IFR2	1,58	1,46	Zinc-binding dehydrogenase; induced by benomyl, ciclopirox olamine, alpha pheromone, Hap43; regulated by oxidative stress via Cap1, osmotic stress via Hog1; protein present in exponential and stationary phase; rat catheter biofilm repressed
orf19.566		1,58	1,28	#NV
orf19.3686		1,58	1,58	Ortholog(s) have protein domain specific binding activity, role in mitochondrial proton-transporting ATP synthase complex assembly and mitochondrion localization
orf19.1332	SNG4	1,58	1,4	Putative membrane transporter; Hap43p-induced; induced by Mnl1p under weak acid stress; shows Mob2-dependent hyphal regulation
orf19.4255	ECM331	1,58	1,62	GPI-anchored protein; mainly at plasma membrane, also at cell wall; Hap43, caspofungin-induced; Plc1-regulated; Hog1, Rim101-repressed; colony morphology-related regulated by Ssn6; induced by ketoconazole and hypoxia
orf19.780	DUR1,2	1,58	1,36	Urea amidolyase; hydrolyzes urea to CO2; use of urea as N source and for hyphal switch in macrophage; regulated by Nrg1/Hap43; required for virulence; promotes mouse kidney and brain colonization; rat catheter and flow model biofilm induced
orf19.2198	FLC3	1,58	1,67	Protein involved in heme uptake; putative FAD transporter, similar to <i>S. cerevisiae</i> Flc3p
orf19.5502		1,58	1,29	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73420, <i>Debaryomyces hanseni</i> CBS767 : DEHA2A05456g, <i>Pichia stiptis</i> Pinal : PICST_30999 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_00155
orf19.5585	SAP5	1,58	1,52	Secreted aspartyl proteinase; sap4,5,6 triple null defective in utilization of protein as N source; virulence role effected by URA3; expressed during infection; mRNA localized to hyphal tip via She3; rat catheter and Spider biofilm induced
orf19.58	RRP6	1,58	1,68	Putative nuclear exosome exonuclease component; Hap43p-induced gene; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.5627		1,58	1,43	<i>S. cerevisiae</i> ortholog Hek2/Khd1 is a putative RNA binding protein involved in the asymmetric localization of ASH1 mRNA; Hap43-induced gene
orf19.1718	ZCF8	1,58	1,58	Predicted Zn(II)2Cys6 transcription factor; repressed by fluphenazine treatment; required for yeast cell adherence to silicone substrate
orf19.2998	TSR2	1,58	1,53	Protein with a predicted role in pre-rRNA processing; repressed by prostaglandins
orf19.4813	GUA1	1,58	1,74	Putative GMP synthase, involved in the final step of guanine biosynthesis; soluble protein in hyphae; flucytosine induced; macrophage-downregulated protein abundance; protein level decreases in stationary phase cultures
orf19.1406		1,58	1,5	Ortholog(s) have DNA-directed DNA polymerase activity, role in error-free translation synthesis, error-prone translation synthesis and mitochondrion, nuclear chromatin, zeta DNA polymerase complex localization
orf19.4890	CLA4	1,58	1,57	Ste20p family Ser/Thr kinase required for wild-type filamentous growth, organ colonization and virulence in mouse systemic infection; role in chlamydospore formation; functional homolog of <i>S. cerevisiae</i> Cla4p; mutant caspofungin sensitive
orf19.2667	RPF1	1,58	1,79	Putative nucleolar protein with a predicted role in the assembly and export of the large ribosomal subunit; essential for growth; rat catheter and Spider biofilm induced
orf19.2261		1,58	1,57	Ortholog(s) have RNA binding activity, role in mRNA splicing, via spliceosome and U2 snRNP, U2-type prespliceosome, cytosol localization
orf19.2498		1,58	1,43	Predicted ubiquitin-protein ligase; Hap43p-repressed gene; oxidative stress-induced via Cap1; flow model biofilm induced
orf19.6848	VPS16	1,58	1,57	Protein similar to <i>S. cerevisiae</i> Vps16p, which is involved in protein-vacuolar targeting; likely to be essential for growth, based on insertional mutagenesis; downregulated in biofilm or in azole-resistant strain that overexpresses MDR1
orf19.3599	TIF4631	1,58	1,28	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.3988		1,58	1,52	Putative adhesin-like protein; induced by Mnl1p under weak acid stress; rat catheter and Spider biofilm induced
orf19.2093	RFA1	1,58	1,71	Putative DNA replication factor A; RNA abundance regulated by cell cycle, tyrosol and cell density
orf19.7239	MDG1	1,58	1,57	Ortholog(s) have role in pheromone-dependent signal transduction involved in conjugation with cellular fusion and cytoplasm, membrane raft, nucleus, plasma membrane localization
orf19.7401	ISW2	1,58	1,38	Ortholog of <i>S. cerevisiae</i> Isw2; an ATPase involved in chromatin remodeling; required for chlamydospore formation; Hap43-induced gene; repressed by high-level peroxide stress
orf19.7405		1,58	1,62	Ortholog of Rad33; involved in nucleotide excision repair in <i>S. cerevisiae</i> ; induced by Mnl1p under weak acid stress
orf19.7412	MUB1	1,58	2,1	Predicted protein required for ubiquitination; role in meiosis, regulation of cell budding in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.7450		1,58	1,45	Ortholog(s) have role in cytokinesis, septin ring assembly and cellular bud neck septin ring localization
orf19.7451	FUN31	1,58	1,9	Putative PAS kinase involved in cell wall damage response; similar to <i>S. cerevisiae</i> Psk1p, a putative serine/threonine protein kinase; induced by Mnl1p under weak acid stress; rat catheter and Spider biofilm induced
orf19.5390		1,58	1,7	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02403
orf19.6748		1,58	1,49	Ortholog(s) have role in ascospore formation, cellular response to cadmium ion, detoxification of cadmium ion
orf19.1751	SPT23	1,57	1,51	Protein involved in regulation of unsaturated fatty acid biosynthesis; controls the expression of the Ole1p delta-9-fatty acid desaturase
orf19.1301		1,57	1,46	Ortholog(s) have cytoplasm, nucleus, ribosome localization

orf19.2655	<i>BUB3</i>	1.57	1.41	Protein similar to <i>S. cerevisiae</i> Bub3; a kinetochore checkpoint component; induced by hydroxyurea treatment; flow model biofilm induced; Spider biofilm induced
orf19.708		1.57	1.44	Ortholog(s) have structural constituent of cytoskeleton activity
orf19.1923	<i>RRV3</i>	1.57	1.5	Protein with a predicted role in recruitment of RNA polymerase I to rDNA; caspofungin induced; flucytosine repressed; repressed in core stress response; repressed by prostaglandins
orf19.4407		1.57	1.39	Protein of unknown function; Hap43-repressed gene
orf19.5299	<i>ECM1</i>	1.57	2.01	Putative pre-ribosomal factor; decreased mRNA abundance observed in <i>cyr1</i> homozygous mutant hyphae; induced by heavy metal (cadmium) stress; Hog1p regulated
orf19.2814		1.57	1.84	#NV
orf19.5727		1.57	1.56	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_64130, <i>C. parapsilosis</i> CDC317 : CPAR2_601230, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115908 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E12540g
orf19.4808	<i>NUP188</i>	1.57	1.56	Putative nuclear pore complex subunit; transcript regulated by Nrg1 and Mig1
orf19.55		1.57	1.47	Ortholog(s) have role in cellular zinc ion homeostasis and endoplasmic reticulum localization
orf19.1666		1.57	1.66	Ortholog of Dig2, a MAP kinase-responsive inhibitor of Ste12; regulates mating-specific genes and invasive growth in <i>S. cerevisiae</i> ; induced by alpha pheromone in SpiderM medium
orf19.3127	<i>CZF1</i>	1.57	1.67	Transcription factor; regulates white-opaque switch; hyphal growth regulator; expression in <i>S. cerevisiae</i> causes dominant negative inhibition of pheromone response; required for yeast cell adherence to silicone; Spider biofilm induced
orf19.3130		1.57	1.64	Ortholog of <i>S. cerevisiae</i> Gpn3 a GTPase with a role in biogenesis of RNA pol II and polIII; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4941	<i>TYE7</i>	1.57	1.36	bHLH transcription factor; control of glycolysis; required for biofilm formation; hyphally regulated by Cph1, Cyr1; flucytosine, Hog1 induced; amphotericin B, caspofungin repressed; induced in flow model biofilm and planktonic cultures
orf19.2173	<i>MAF1</i>	1.57	1.68	Putative negative regulator of RNA polymerase III; decreased expression in hyphae vs yeast cells; caspofungin repressed; Spider biofilm repressed
orf19.2893		1.57	1.47	Protein of unknown function; regulation correlates with clinical development of fluconazole resistance; transcript is upregulated in an RHE model of oral candidiasis
orf19.3435		1.57	1.32	Ortholog of <i>Candida albicans</i> WQ-1 : CAWG_05215
orf19.6425	<i>SK2</i>	1.57	1.88	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion, nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay
orf19.4611		1.57	1.7	Ortholog(s) have ribose phosphate diphosphokinase activity, role in 5-phosphoribose 1-diphosphate biosynthetic process, fungal-type cell wall organization and cytosol localization
orf19.5010	<i>DIM1</i>	1.57	1.86	Putative 18S rRNA dimethylase; predicted role in rRNA modification and processing; Hap43-induced; likely to be essential for growth based on insertional mutagenesis strategy; F-12/CO2 early biofilm induced
orf19.7178	<i>PRE5</i>	1.57	1.55	Alpha6 subunit of the 20S proteasome; regulated by Gcn4; induced in response to amino acid starvation (3-AT); Spider biofilm repressed
orf19.7279	<i>NIT2</i>	1.57	1.48	Putative carbon-nitrogen hydrolase; rat catheter biofilm repressed
orf19.7507		1.57	1.59	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25310, <i>Pichia stipitis</i> Pignal : PICST_30877, <i>Candida tropicalis</i> MYA-3404 : CTRG_01053 and <i>Candida lusitanae</i> ATCC 42720 : CLUG_02644
orf19.6747		1.57	1.55	Ortholog(s) have acid phosphatase activity, role in dephosphorylation, intracellular sterol transport and cytoplasm, nucleus localization
orf19.7638	<i>PRO1</i>	1.57	1.64	Putative gamma-glutamyl kinase; transcript regulated by Nrg1; regulated by Gcn2 and Gcn4; Hap43-repressed gene; early-stage flow model biofilm induced gene
orf19.5991		1.57	1.52	Ortholog(s) have role in maturation of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA), maturation of LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA)
orf19.5932		1.57	1.47	Protein of unknown function; Spider biofilm induced
orf19.3888.2		1.57	1.33	Dubious open reading frame
orf19.4168		1.56	1.52	Ortholog(s) have ribonuclease MRP activity, ribonuclease P activity, role in intronic box C/D snoRNA processing, mRNA cleavage and nuclear ribonuclease P complex, ribonuclease MRP complex localization
orf19.1507	<i>AMN1</i>	1.56	1.33	Putative negative regulator of exit from mitosis; Plc1-regulated; rat catheter biofilm induced
orf19.2519		1.56	1.46	Ortholog(s) have role in chromosome segregation and nuclear MIS12/MIND complex localization
orf19.1671	<i>UTR2</i>	1.56	1.5	Putative GPI anchored cell wall glycosidase; role in adhesion, hyphal growth on Spider (not serum) medium; chitin-binding, glycosyl hydrolase domains; induced during cell wall regeneration; mRNA in yeast-form cells; Spider biofilm induced
orf19.6464		1.56	1.51	Protein of unknown function; induced upon adherence to polystyrene; oxidative stress-induced via Cap1
orf19.3353		1.56	1.18	Protein similar to a mitochondrial complex I intermediate-associated protein; fluconazole-repressed; Spider biofilm induced; rat catheter biofilm repressed
orf19.6259		1.56	1.39	Exosome non-catalytic core component; involved in 3'-5' RNA processing and degradation in the nucleus and cytoplasm; Spider biofilm induced
orf19.3604		1.56	1.52	Ortholog(s) have nucleus localization
orf19.35		1.56	1.4	Predicted kinase; rat catheter, flow model, Spider biofilm induced
orf19.2881	<i>MNN4</i>	1.56	1.38	Regulator of mannosylphosphorylation of N-linked mannans to cell wall proteins; no role in virulence or normal interaction with macrophages; mutant induces inflammatory cytokines in dendritic cells; rat catheter and Spider biofilm induced
orf19.4703		1.56	1.43	Protein with similarity to mutator-like element (MULE) transposase
orf19.642		1.56	1.48	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30470, <i>C. parapsilosis</i> CDC317 : CPAR2_203380, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_117493 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G19228g
orf19.1499	<i>CTF1</i>	1.56	1.85	Putative zinc-finger transcription factor, similar to <i>A. nidulans</i> FarA and FarB; activates genes required for fatty acid degradation; induced by oleate; null mutant displays carbon source utilization defects and slightly reduced virulence
orf19.4674		1.56	1.25	#NV
orf19.5550	<i>MRT4</i>	1.56	1.62	Putative mRNA turnover protein; Hap43-induced; mutation confers hypersensitivity to tubercidin (7-deazaadenosine); rat catheter biofilm induced
orf19.4658		1.56	1.79	RING finger and CHY zinc finger domain-containing protein; mutant are viable
orf19.6540	<i>PFK2</i>	1.56	1.4	Phosphofructokinase beta subunit; fructose 2,6-bisphosphate, AMP activated; ATP inhibited; phagocytosis, hyphal repressed; fluconazole-induced; stationary-phase enriched; flow model biofilm induced; rat catheter/Spider biofilm repressed
orf19.7185		1.56	1.5	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73630, <i>C. parapsilosis</i> CDC317 : CPAR2_805330, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_119330 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G16544g
orf19.3247		1.56	1.62	Putative ortholog of <i>S. cerevisiae</i> Laa1p; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.7317	<i>UGA33</i>	1.56	1.55	Zinc-finger transcription factor; similar to <i>S. cerevisiae</i> Uga3 which regulates gamma-aminobutyrate metabolism gene expression; required for yeast cell adherence to silicone substrate; rat catheter biofilm induced
orf19.773		1.55	1.59	Protein similar to <i>S. cerevisiae</i> Rsa3 predicted nucleolar protein involved in maturation of pre-60S ribosomal particles; rat catheter and Spider biofilm induced
orf19.3722		1.55	1.38	Predicted protein of rapamycin resistance; Spider biofilm induced
orf19.48	<i>RPM2</i>	1.55	1.37	Mitochondrial RNase P subunit; roles in nuclear transcription, cytoplasmic and mitochondrial RNA processing, mitochondrial translation; virulence-group-correlated expression; likely essential (UAU1 method); rat catheter biofilm induced
orf19.1646		1.55	1.49	Ortholog(s) have rRNA primary transcript binding activity
orf19.2540	<i>SAS3</i>	1.55	1.57	Similar to silencing proteins; increased transcription is observed upon fluphenazine treatment; rat catheter biofilm repressed
orf19.2017		1.55	1.35	Ortholog(s) have RNA polymerase I activity and role in regulation of cell size, transcription elongation from RNA polymerase I promoter, transcription of nuclear large rRNA transcript from RNA polymerase I promoter
orf19.5229		1.55	1.48	Ortholog(s) have 3'-5'-exonuclease activity, endonuclease activity, tRNA binding activity
orf19.3608	<i>MSH3</i>	1.55	1.49	Mismatch repair protein; predicted role in repair of insertion or deletion mutations and removal of nonhomologous DNA ends; rat catheter biofilm repressed
orf19.101	<i>RIM9</i>	1.55	1.48	Protein required for alkaline pH response via the Rim101 signaling pathway; ortholog of <i>S. cerevisiae</i> Rim9 and <i>A. nidulans</i> pall; Spider biofilm induced
orf19.2727	<i>GRX3</i>	1.55	1.55	Putative glutaredoxin; flucytosine induced; regulated by Gcn4p; repressed in response to amino acid starvation (3-aminotriazole treatment)
orf19.4984		1.55	1.6	Has domain(s) with predicted catalytic activity, chitin binding, chitinase activity, hydrolase activity, hydrolyzing O-glycosyl compounds activity
orf19.5058	<i>SMI1</i>	1.55	1.26	Cell wall biosynthesis protein; Hap43, caspofungin-repressed; Cyr1-induced in hyphal cells; reduced biofilm cell wall glucan in mutant; possibly essential (UAU1 method); flow model biofilm induced
orf19.6023		1.55	1.38	Protein with a predicted multidrug transporter domain; Hap43-repressed gene
orf19.121	<i>ARC18</i>	1.55	1.29	Putative ARP2/3 complex subunit; mutation confers hypersensitivity to cytochalasin D
orf19.4662	<i>RLM1</i>	1.55	1.59	Putative transcription factor; required for wild-type resistance to cell wall perturbation, caspofungin treatment; regulates caspofungin induction of PGA13
orf19.3000	<i>ORC1</i>	1.55	1.67	Putative origin recognition complex large subunit; essential for viability; similar to <i>S. cerevisiae</i> Orc1p origin recognition complex subunit
orf19.2678	<i>BUB1</i>	1.55	1.5	Putative cell cycle checkpoint kinase; mutation confers increased sensitivity to nocodazole
orf19.1428	<i>DUO1</i>	1.55	1.39	Subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.1553	<i>ENT3</i>	1.55	1.55	Putative epsin; induced during the mating process; transcript is upregulated in an RHE model of oral candidiasis

orf19.3443	<i>OYE2</i>	1.55	1.67	Putative NADPH dehydrogenase; induced by nitric oxide; Spider biofilm induced
orf19.4445		1.55	-1.37	Protein of unknown function; Plc1p-regulated; expression induced early upon infection of reconstituted human epithelium (RHE), while expression of the <i>C. dubliniensis</i> ortholog is not; mutant is viable; Spider biofilm induced
orf19.5342		1.55	1.74	Ortholog(s) have cytosol, fungal-type vacuole, nucleus localization
orf19.1613	<i>ILV2</i>	1.54	1.53	#NV
orf19.178		1.54	1.41	Putative acetolactate synthase; regulated by Gcn4p; induced by amino acid starvation (3-AT treatment); stationary phase enriched protein
orf19.2166	<i>VMA5</i>	1.54	1.44	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32460, <i>C. parapsilosis</i> CDC317 : CPAR2_205480, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_115156 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E22154g
orf19.5533		1.54	1.44	Putative vacuolar H(+)-ATPase; plasma membrane localized; rat catheter biofilm repressed
orf19.2534	<i>PIN4</i>	1.54	1.41	Ortholog(s) have quanyl-nucleotide exchange factor activity, ubiquitin binding activity
orf19.2239		1.54	1.25	Protein with similarity to <i>S. cerevisiae</i> Pin4p; transposon mutation affects filamentous growth
orf19.5070		1.54	1.54	#NV
orf19.3787		1.54	1.51	Similar to cell-wall mannoproteins; induced in low iron; induced in <i>cyr1</i> homozygous null; regulated by osmotic and oxidative stress via Hog1; Spider biofilm induced
orf19.1096		1.54	1.77	Ortholog(s) have chromatin DNA binding activity and role in positive regulation of transcription from RNA polymerase II promoter, telomere maintenance, threonylcarbamoyladenosine metabolic process
orf19.4275	<i>RAD9</i>	1.54	1.44	Has domain(s) with predicted ion channel activity, voltage-gated chloride channel activity, role in chloride transport, transmembrane transport and membrane localization
orf19.2654	<i>RMS1</i>	1.54	1.53	DNA damage-dependent checkpoint protein; involved in regulation of DNA-damage-induced filamentous growth; induced by alpha pheromone in SpiderM medium
orf19.5294	<i>PDB1</i>	1.54	1.4	Putative lysine methyltransferase; Hap43-induced; protein induced during mating; possibly essential, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.5213		1.54	1.45	Putative pyruvate dehydrogenase; fluconazole-induced; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.4346		1.54	1.33	Putative protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.2879	<i>IFF5</i>	1.54	1.41	Ortholog(s) have protein anchor activity, role in COPII vesicle coating, protein localization to endoplasmic reticulum exit site and ER to Golgi transport vesicle membrane, endoplasmic reticulum exit site localization
orf19.57	<i>PSF2</i>	1.54	1.45	Putative GPI-anchored protein; adhesin-like protein; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2107	<i>MUQ1</i>	1.54	1.2	Ortholog(s) have role in DNA-dependent DNA replication, cellular protein localization, double-strand break repair via break-induced replication, meiotic chromosome segregation
orf19.216		1.54	1.5	Putative choline phosphate cytidyltransferase/phosphoethanolamine cytidyltransferase; repressed in hyphae compared vs yeast; Hap43-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.2340	<i>CDC48</i>	1.54	1.85	Protein with a metallo-dependent phosphatase domain; ketoconazole-induced; upregulation correlates with clinical development of fluconazole resistance
orf19.3568	<i>RXT3</i>	1.54	1.33	Putative microsomal ATPase; plasma membrane-localized; regulated by Gcn2 and Gcn4; induced by amino acid starvation (3-AT); macrophage/pseudo-hyphal-repressed; protein levels decrease in stationary phase yeast; Spider biofilm repressed
orf19.1633	<i>UTP4</i>	1.54	1.82	Putative transcriptional repressor
orf19.6877	<i>PNG2</i>	1.54	1.45	Putative U3 snoRNA-associated protein; Hap43-induced; physically interacts with TAP-tagged Nop1; Spider biofilm induced
orf19.6886		1.54	1.69	Putative peptide-N-glycanase; gene has variable numbers of 12-bp repeats; induced by caspofungin, ciclopirox olamine, ketoconazole or hypoxia; gene of core caspofungin response; Hap43-induced; Spider biofilm induced
orf19.2654	<i>RMS1</i>	1.54	1.34	Ortholog(s) have rRNA binding activity, role in maturation of LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA), ribosomal large subunit export from nucleus and nucleolus localization
orf19.1100		1.54	1.52	Putative lysine methyltransferase; Hap43-induced; protein induced during mating; possibly essential, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.3984		1.54	1.47	#NV
orf19.2065		1.54	1.35	Protein of unknown function; induced in core caspofungin response; induced in <i>ssr1</i> mutant; induced by nitric oxide independent of Yhb1; Spider biofilm induced
orf19.3281		1.54	1.37	Ortholog(s) have role in allantoin catabolic process and cytosol, nucleus localization
orf19.7648		1.54	1.59	Ortholog(s) have histone demethylase activity (H3-K36 specific), methylated histone residue binding activity and role in histone demethylation
orf19.5865		1.53	1.44	Has domain(s) with predicted antiporter activity, drug transmembrane transporter activity, role in drug transmembrane transport and membrane localization
orf19.4167		1.53	1.39	Ortholog(s) have RNA-dependent ATPase activity, role in generation of catalytic spliceosome for first transesterification step and U2-type catalytic step 1 spliceosome localization
orf19.5753	<i>HGT10</i>	1.53	1.41	Protein of unknown function; Spider biofilm induced
orf19.5066		1.53	1.42	Glycerol permease involved in glycerol uptake; member of the major facilitator superfamily; induced by osmotic stress, at low glucose in rich media, during cell wall regeneration; 12 membrane spans; Hap43p-induced gene
orf19.1672		1.53	1.36	Putative pre-60S pre-ribosomal particle subunit; essential gene; <i>S. cerevisiae</i> ortholog RRP17 is essential; Hap43p-induced; rat catheter biofilm induced
orf19.3221	<i>CPA2</i>	1.53	1.48	Alpha subunit of COPI vesicle coatamer complex; role in ER to Golgi vesicle-mediated transport, retrograde vesicle-mediated transport, Golgi to ER transport; flow model biofilm repressed
orf19.4951		1.53	1.61	Putative arginine-specific carbamoylphosphate synthetase; protein enriched in stationary phase yeast cultures; rat catheter biofilm induced; Spider biofilm induced
orf19.4156		1.53	1.47	Protein of unknown function; Spider biofilm induced
orf19.1196	<i>PKH3</i>	1.53	1.64	#NV
orf19.3599	<i>TIF4631</i>	1.53	1.37	Ortholog(s) have protein kinase activity and role in MAPK cascade involved in cell wall biogenesis, protein phosphorylation
orf19.364		1.53	1.36	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.1111		1.53	1.63	Putative vacuolar H+-ATPase subunit; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.2515		1.53	1.24	Ortholog(s) have chromatin binding, protein complex scaffold activity and role in RNA polymerase II transcriptional preinitiation complex assembly, histone acetylation
orf19.2365	<i>POL2</i>	1.53	1.5	ZZ-type zinc finger protein; rat catheter and Spider biofilm induced
orf19.2362		1.53	1.58	DNA polymerase epsilon; transcript induced by interaction with macrophage; transcript is regulated by Tup1; periodic mRNA expression, peak at cell-cycle G1/S phase
orf19.2591		1.53	1.39	Putative 90S preribosome component; Hap43p-induced gene; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3542	<i>LEM3</i>	1.53	1.58	Ortholog(s) have adenosylmethionine-8-amino-7-oxononanoate transaminase activity and role in biotin biosynthetic process
orf19.5621		1.53	1.5	Putative membrane protein; mutation increases resistance to miltefosine; early-stage flow model biofilm induced
orf19.1963	<i>GDS1</i>	1.53	1.41	Putative protein of unknown function; mutation confers hypersensitivity to amphotericin B; overlaps orf19.5621
orf19.6538	<i>VMA11</i>	1.53	1.54	Putative mitochondrial protein; Hap43-repressed gene; Spider biofilm induced
orf19.4150		1.53	1.43	Predicted ortholog of <i>S. cerevisiae</i> Ttp3/Vma11; c' subunit of the V0 subcomplex of the vacuolar ATPase; required for hemoglobin-iron utilization; Spider biofilm repressed
orf19.3970		1.53	1.66	Putative glutaredoxin; induced by nitric oxide; Spider biofilm induced
orf19.204		1.53	1.42	Putative ribosome biogenesis factor; possibly essential, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.5103		1.53	1.69	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23180, <i>Candida tropicalis</i> MYA-3404 : CTRG_01968 and <i>Candida albicans</i> WO-1 : CAWG_05983
orf19.3441	<i>FRP6</i>	1.53	1.27	Protein with a predicted phosphoglycerate mutase family domain; Hap43-repressed; clade-associated gene expression; induced by hypoxia
orf19.5671		1.53	1.39	Putative ammonia transport protein; regulated by Nrg1 and Tup1; regulated by Ssn6; induced by human neutrophils
orf19.4009	<i>CNB1</i>	1.53	1.38	Ortholog(s) have role in actin cortical patch assembly, septin cytoskeleton organization and cellular bud neck, cellular bud tip, mating projection base, mating projection tip localization
orf19.3062		1.53	1.46	Regulatory subunit of calcineurin B (Ca[2+]-calmodulin-regulated S/T protein phosphatase); required for wild-type resistance to fluconazole or to SDS; micafungin is fungicidal to null mutant
orf19.5457		1.53	1.78	Ortholog(s) have role in chromatin remodeling and ASTRA complex, mitochondrion localization
orf19.7479	<i>NTH1</i>	1.53	1.63	Ortholog(s) have role in ascospore formation and Golgi apparatus, endoplasmic reticulum localization
orf19.7589	<i>SIK1</i>	1.53	1.3	Neutral trehalase; hyphal induction in mutant delayed but not reduced overall; not required for virulence in mice; possible regulatory cAMP-dependent phosphorylation at S10, S213; Hap43-repressed gene; Spider biofilm induced
orf19.6888		1.52	1.5	Putative U3 snoRNP protein; Hap43p-induced gene; physically interacts with TAP-tagged Nop1p
orf19.3599	<i>TIF4631</i>	1.52	1.33	Zn(II)2Cys6 domain transcription factor; regulated by Mig1 and Tup1; rat catheter and Spider biofilm induced
orf19.6255		1.52	1.52	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.3770	<i>ARG8</i>	1.52	1.54	Putative protein of unknown function; Hap43p-repressed gene
		1.52	1.54	Putative acetylmethine aminotransferase; Gcn2, Gcn4 regulated; rat catheter biofilm induced; Spider biofilm induced

orf19.2506		1.52	1.37	Protein of unknown function; opaque-specific transcript; induced during chlamyospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i> ; <i>Hog1</i> -repressed; Spider biofilm induced
orf19.76	<i>SPB1</i>	1.52	1.58	Putative AdoMet-dependent methyltransferase; Hap43-induced; repressed by prostaglandins; possibly essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.796	<i>HYM1</i>	1.52	1.4	Protein of RAM cell wall integrity signaling network; involved in regulation of Ace2 activity and cellular morphogenesis; role in cell separation, azole sensitivity; required for hyphal growth
orf19.4332		1.52	1.35	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52800, <i>C. parapsilosis</i> CDC317 : CPAR2_303110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_92321 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G07964g
orf19.2924		1.52	1.2	#NV
orf19.2208		1.52	1.28	Ortholog(s) have role in response to salt stress and cytoplasm localization
orf19.4875		1.52	1.51	Ortholog(s) have role in mRNA splicing, via spliceosome and U2-type spliceosomal complex localization
orf19.1333	<i>SNG3</i>	1.52	1.28	Putative membrane transporter; Hap43p-induced gene; mutation confers hypersensitivity to toxic ergosterol analog; shows colony morphology-related gene regulation by <i>Ssn6p</i>
orf19.3506	<i>DBR1</i>	1.52	1.57	Debranchase; homozygous mutant accumulates lariat intermediates of mRNA splicing; rat catheter biofilm repressed
orf19.3345	<i>SIZ1</i>	1.52	1.83	Possible SUMO/Smc3 ligase; <i>Rim101</i> -repressed
orf19.5725		1.52	1.34	Ortholog(s) have guanyl-nucleotide exchange factor activity, role in autophagic vacuole fusion, protein targeting to vacuole, vesicle docking and <i>Mon1-Ccz1</i> complex localization
orf19.5847		1.52	1.71	Ortholog(s) have RNA polymerase III activity, role in tRNA transcription from RNA polymerase III promoter and DNA-directed RNA polymerase III complex, cytosol localization
orf19.3715	<i>ASF1</i>	1.52	1.42	Protein similar to <i>S. cerevisiae</i> Asf1p, a chromatin assembly complex component; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.6170		1.52	1.38	Ortholog(s) have microtubule binding, protein heterodimerization activity, protein homodimerization activity
orf19.1856		1.52	1.57	Ortholog(s) have histone deacetylase activity
orf19.3972		1.52	1.49	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, Golgi to endosome transport and ER to Golgi transport vesicle, Golgi membrane, endoplasmic reticulum localization
orf19.983		1.52	1.38	#NV
orf19.997	<i>SNL1</i>	1.52	1.43	Ribosome-associated protein predicted to function in protein synthesis; 1 predicted transmembrane domain; rat catheter biofilm repressed
orf19.3675	<i>GAL7</i>	1.52	1.5	Putative galactose-1-phosphate uridylyl transferase; downregulated by hypoxia, upregulated by ketoconazole; macrophage/pseudohyphal-repressed
orf19.6625		1.52	1.53	Ortholog(s) have acetyltransferase activator activity, histone binding activity and role in double-strand break repair via nonhomologous end joining, nucleosome assembly, positive regulation of histone acetylation
orf19.3100		1.52	1.62	Protein with t-SNARE domains and a microtubule associated domain; Hap43-induced gene; repressed by alpha pheromone in SpiderM medium
orf19.6056		1.52	1.4	Ortholog(s) have phosphatase activity, role in dephosphorylation and cytosol, nucleus localization
orf19.5335	<i>SGS1</i>	1.52	1.51	RecQ-related DNA helicase; Bloom's syndrome-related gene; haploinsufficient for wild-type lifespan; upregulated in farnesol treated biofilm
orf19.7100		1.52	1.39	Putative vacuolar transporter of large neutral amino acids; possibly transcriptionally regulated upon hyphal formation; not the true <i>Avt1</i> ortholog of <i>S. cerevisiae</i>
orf19.5402		1.52	1.78	Protein of unknown function; overlaps orf19.5401
orf19.5423	<i>EST3</i>	1.52	1.46	Telomerase subunit; required for telomere maintenance in vivo; separable roles in telomerase activity and processivity; not required for catalytic activity in vitro; related to mammalian <i>Tpp1p</i>
orf19.7477	<i>YRB1</i>	1.52	1.76	Functional homolog of <i>S. cerevisiae</i> Yrb1p; regulates Gsp1 GTPase activity and thereby affects nucleocytoplasmic transport and cytoskeletal dynamics; transcript is not regulated by white-opaque switch or by dimorphic transition
orf19.7572	<i>SPT7</i>	1.52	1.46	Putative SAGA transcriptional regulatory complex subunit; mutation confers hypersensitivity to toxic ergosterol analog, and to amphotericin B
orf19.4690		1.51	1.35	NRAMP metal ion transporter domain-containing protein; induced by nitric oxide independent of Yhb1; flow model biofilm induced; rat catheter biofilm repressed
orf19.5569		1.51	1.28	Ortholog(s) have role in maintenance of rDNA, mitotic sister chromatid segregation and nuclear envelope localization
orf19.2658		1.51	1.35	#NV
orf19.5067		1.51	1.41	Predicted nuclear exosome-associated nucleic acid binding protein; rat catheter and Spider biofilm induced
orf19.3724		1.51	1.84	Ortholog(s) have role in endonucleolytic cleavage in 5'-ETS of tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.1748		1.51	1.48	Protein of unknown function; shows colony morphology-related gene regulation by <i>Ssn6</i>
orf19.2467	<i>PRN1</i>	1.51	1.41	Protein with similarity to pirins; induced by benomyl and in response to alpha pheromone in SpiderM medium; transcript induced by <i>Mnl1</i> in weak acid stress; rat catheter and Spider biofilm induced
orf19.4339	<i>VPS4</i>	1.51	1.4	AAA-ATPase involved in transport from MVB to the vacuole and ESCRT-III complex disassembly; mutation decreases SAP secretion and virulence in murine intravenous infection; regulated by <i>Gcn2p</i> , <i>Gcn4p</i> ; required for normal <i>Rim8p</i> processing
orf19.2882	<i>XUT1</i>	1.51	1.22	Putative high-affinity, high-capacity xanthine-uric acid/H ⁺ symporter; similar to <i>A. nidulans</i> UapA; member of the Nucleobase-Ascorbate Transporter/Nucleobase-Cation Symporter (NAT/NCS2) family; rat catheter biofilm induced
orf19.2521		1.51	1.37	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26390, <i>Debaryomyces hansenii</i> CBS767 : DEHA2C05302g, <i>Pichia stipitis</i> Pinal : PICST_68531 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_59916
orf19.2512		1.51	1.33	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_81000, <i>C. parapsilosis</i> CDC317 : CPAR2_103050, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116326 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G01958g
orf19.698		1.51	1.38	Integral ER membrane protein; predicted role in maintenance of ER zinc homeostasis; Spider biofilm induced
orf19.231	<i>APL2</i>	1.51	1.34	Phosphorylated protein of unknown function; mutation confers hypersensitivity to toxic ergosterol analog
orf19.2149		1.51	1.39	Putative sulfate permease; <i>S. cerevisiae</i> ortholog YPR003C localizes to the endoplasmic reticulum; regulated by <i>Sef1p</i> -, <i>Sfu1p</i> -, and <i>Hap43p</i>
orf19.2320		1.51	1.6	Putative serine/threonine-protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2030		1.51	1.26	Plasma membrane-associated protein; induced in <i>cyr1</i> or <i>ras1</i> mutant; induced by hypoxia, ketoconazole and during growth in the mouse cecum; induced in oralpharyngeal candidiasis; Spider biofilm induced
orf19.2045		1.51	1.57	Ortholog(s) have diacylglycerol kinase activity, role in phosphatidic acid biosynthetic process and integral to endoplasmic reticulum membrane localization
orf19.3110		1.51	1.35	Possible mannosyltransferase; Spider biofilm induced
orf19.6649	<i>BRF1</i>	1.51	1.49	Component of the general transcription factor for RNA polymerase III (TFIIIB); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2404		1.51	1.54	Ortholog(s) have ribonuclease MRP activity, ribonuclease P activity, role in intronic box C/D snoRNA processing, mRNA cleavage, rRNA processing, tRNA processing and nucleolar ribonuclease P complex localization
orf19.519		1.51	1.36	Ortholog(s) have RNA polymerase I upstream control element sequence-specific DNA binding, RNA polymerase I upstream control element sequence-specific DNA binding transcription factor activity
orf19.4451	<i>RIA1</i>	1.51	1.77	Putative translation elongation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.5387	<i>VPS8</i>	1.51	1.49	Putative vacuolar sorting protein; downregulated upon adherence to polystyrene
orf19.5410		1.51	1.48	Ortholog(s) have microtubule plus-end binding activity, role in nuclear migration along microtubule and cytoplasmic microtubule, nucleus localization
orf19.5416	<i>ESA1</i>	1.51	1.64	Subunit of the NuA4 histone acetyltransferase complex; member of MYST family; Spider biofilm induced
orf19.7497		1.51	1.57	Ortholog(s) have ubiquitin-protein ligase activity, role in protein ubiquitination involved in ubiquitin-dependent protein catabolic process and Cul3-RING ubiquitin ligase complex, cytoplasm, nucleus localization
orf19.7604		1.51	1.47	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity and role in early endosome to Golgi transport, intra-Golgi vesicle-mediated transport, regulation of Rab GTPase activity
orf19.3728		1.51	1.47	Ortholog(s) have protein phosphatase 1 binding, protein phosphatase type 1 regulator activity, role in chromosome segregation, regulation of phosphoprotein phosphatase activity and cytoplasm localization
orf19.1618	<i>GFA1</i>	1.5	1.26	Glucosamine-6-phosphate synthase, homotetrameric enzyme of chitin/hexosamine biosynthesis; inhibited by UDP-GlcNAc, FMDP, N-acyl peptide, kanosamine-6-P; functional homolog of <i>S. cerevisiae</i> Gfa1p; Cagrowth-phase regulated; catalytic Cys
orf19.4775	<i>CTA8</i>	1.5	1.54	Essential transcription factor, mediates heat shock transcriptional induction; in the absence of heat stress, <i>Cta8p</i> levels are modulated by growth temperature to regulate basal expression of genes involved in protein folding
orf19.4874	<i>MNN23</i>	1.5	1.47	Alpha-1,2-mannosyltransferase; mutants hypersensitive to toxic ergosterol analog, amphotericin B, calcofluor white, growth at 42 degrees and have decreased cell wall mannan; flow model biofilm induced
orf19.5573		1.5	1.28	Protein of unknown function; expression downregulated in an <i>ssr1</i> null mutant
orf19.2434	<i>NPL4</i>	1.5	1.39	Putative ubiquitin-binding protein; regulated by <i>Gcn2p</i> and <i>Gcn4p</i>
orf19.2914		1.5	1.32	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_45760, <i>C. parapsilosis</i> CDC317 : CPAR2_401920, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_126814 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D16742g
orf19.1917		1.5	1.7	Protein of unknown function; Spider biofilm repressed
orf19.248	<i>APL5</i>	1.5	1.28	Ortholog of <i>S. cerevisiae</i> and <i>S. pombe</i> Apl5; subunit of the AP-3 adaptor complex involved in Golgi-to-vacuole transport; phosphorylated protein; mutant is viable
orf19.6309	<i>MSS11</i>	1.5	1.36	Transcription factor; activator that binds to Flo8 via a LisH motif to cooperatively activate transcription of hypha-specific genes; required for hyphal growth
orf19.229		1.5	1.35	Ortholog(s) have ubiquitin-protein ligase activity, role in protein ubiquitination involved in ubiquitin-dependent protein catabolic process and chromosome, centromeric region, mitotic spindle pole body, nucleus localization
orf19.3603	<i>MFG1</i>	1.5	1.55	Regulator of filamentous growth; required for biofilm formation, virulence; interacts with Flo8 and Mss11

orf19.1604		1.5	1.36	Predicted Gal4-like DNA-binding transcription factor; Spider biofilm induced
orf19.802	UGA1	1.5	1.34	Putative GABA transaminase; transcription regulated by Mig1 and Tup1; stationary phase enriched protein; rat catheter and Spider biofilm induced
orf19.801	TBF1	1.5	1.35	Essential transcription factor; induces ribosomal protein genes and the rDNA locus; acts with Cbf1 at subset of promoters; recruits Fhl1 and Ith1 to promoters; role is analogous to that of S. cerevisiae Rap1; Spider biofilm induced
orf19.801	TBF1	1.5	1.45	Essential transcription factor; induces ribosomal protein genes and the rDNA locus; acts with Cbf1 at subset of promoters; recruits Fhl1 and Ith1 to promoters; role is analogous to that of S. cerevisiae Rap1; Spider biofilm induced
orf19.493	RPL15A	1.5	1.52	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; positively regulated by Tbf1; Spider biofilm repressed
orf19.268		1.5	1.44	Ortholog(s) have role in transcription-coupled nucleotide-excision repair and Ddb1-Ckn1 complex, cytosol localization
orf19.5561	STE23	1.5	1.52	Ortholog of S. cerevisiae Ste23 metalloprotease; role in N-terminal processing of pro-a-factor to the mature form; Tn mutation affects filamentous growth; Spider biofilm induced
orf19.4910	FGR41	1.5	1.38	Putative GPI-anchored adhesin-like protein; transposon mutation affects filamentous growth; Spider biofilm repressed
orf19.1317	OSH3	1.5	1.55	Protein required for wild-type filamentation; has oxysterol binding protein domain and pleckstrin homology motif; overproduction suppresses cph1 homozygous null filamentation defect; similar to S. cerevisiae Osh3p
orf19.3212	MID1	1.5	1.26	Putative stretch-activated Ca ²⁺ channel of the high affinity calcium uptake system; role in thigmotropism; decreased transcription is observed upon fluphenazine treatment or in an azole-resistant strain with CDR1 and CDR2 overexpression
orf19.6190	SRB1	1.5	1.43	Essential GDP-mannose pyrophosphorylase; makes GDP-mannose for protein glycosylation; functional in S. cerevisiae psa1; on yeast-form, not hyphal cell surface; alkaline induced; induced on adherence to polystyrene; Spider biofilm repressed
orf19.2340	CDC48	1.5	1.7	Putative microsomal ATPase; plasma membrane-localized; regulated by Gcn2 and Gcn4; induced by amino acid starvation (3-AT); macrophage/pseudohyphal-repressed; protein levels decrease in stationary phase yeast; Spider biofilm repressed
orf19.3561	CDC7	1.5	1.51	Putative kinase; cell-cycle regulated periodic mRNA expression; S. cerevisiae ortholog is not cell-cycle regulated; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4184		1.5	1.46	Protein with a predicted role in clathrin cage assembly; Hap43-repressed; Spider biofilm repressed
orf19.6600		1.5	1.78	Ortholog(s) have phosphatidic acid transporter activity and role in cardiolipin metabolic process, phospholipid transport, positive regulation of phosphatidylcholine biosynthetic process
orf19.5081	FUN12	1.5	1.38	Functional homolog of S. cerevisiae Fun12 translation initiation factor eIF5B; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.5106	DIP2	1.5	1.71	Putative small ribonucleoprotein complex; Tn mutation affects filamentous growth; physically interacts with TAP-tagged Nop1; heterozygous null mutant exhibits resistance to parnafungin; Hap43-induced gene; Spider biofilm induced
orf19.4236	RET2	1.5	1.61	Delta subunit of the coatomer complex (COPI); coats Golgi-derived transport vesicles; involved in retrograde transport between Golgi and ER; interacts with Crk1 in the two-hybrid system; Spider biofilm repressed
orf19.5181	NIK1	1.5	1.43	#NV Histidine kinase involved in a two-component signaling pathway that regulates cell wall biosynthesis; required for wild-type virulence in mouse systemic infection but not for wild-type growth or drug sensitivity/resistance; 9 HAMP domains
orf19.5160		1.5	1.65	Ortholog(s) have role in G1/S transition of mitotic cell cycle, TOR signaling cascade, dephosphorylation, regulation of mitotic sister chromatid segregation, tRNA wobble uridine modification
orf19.4451	RIA1	1.5	1.72	Putative translation elongation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.58	RRP6	1.5	1.4	Putative nuclear exosome exonuclease component; Hap43p-induced gene; mutation confers hypersensitivity to 5-fluorouracil (5-FU), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.4002	DUN1	1.5	1.52	Protein similar to S. cerevisiae Dun1p, which is a serine-threonine protein kinase involved in DNA damage cell-cycle checkpoint; induced under Cdc5p depletion
orf19.6049		1.5	1.65	Ortholog(s) have protein kinase activator activity, role in protein phosphorylation, regulation of cytokinesis and chromosome passenger complex, kinetochore microtubule, spindle midzone localization
orf19.5337	UBC15	1.5	1.38	Putative E2 ubiquitin-conjugating enzyme
orf19.3187	ZNC1	1.5	1.38	Zn(2)-Cys(6) transcription factor; regulated by Gcn2 and Gcn4; gene located in zinc cluster region of Chromosome 5, near the MTL locus; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.7427		1.5	1.68	Ortholog(s) have Golgi apparatus, fungal-type vacuole membrane localization
orf19.4546	HOL4	1.5	1.52	Putative ion transporter; alkaline induced by Rim101; Plc1-regulated; caspofungin repressed; rat catheter and Spider biofilm induced
orf19.1754		1.49	1.35	Putative calmodulin-dependent protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5549		1.49	1.39	Ortholog of C. dubliniensis CD36 : Cd36 63380 and Candida albicans WO-1 : CAWG_05071
orf19.852	SAP98	1.49	1.48	Glycosyl-phosphatidylinositol-anchored aspartic endopeptidase; regulated by Gcn2p and Gcn4p; expressed only in opaque MTLa/MTLa cells
orf19.5532		1.49	1.49	Protein of unknown function; Spider biofilm induced
orf19.1010	MNT3	1.49	1.37	Mannosyltransferase; transcription elevated in cyr1, chk1, nik1, and sln1 homozygous null mutants; fungal-specific (no human or murine homolog)
orf19.4063	GPT1	1.49	1.29	GABA/polyamine transporter; 9 to 11 membrane spanning segments; complements GABA uptake defect of an S. cerevisiae uga4 put4 gap1 triple mutant; complements growth of an S. cerevisiae spe1 mutant under polyamine limitation
orf19.216		1.49	1.46	Protein with a metallo-dependent phosphatase domain; ketoconazole-induced; upregulation correlates with clinical development of fluconazole resistance
orf19.3384		1.49	1.48	#NV
orf19.792		1.49	1.28	#NV
orf19.1115	GUK1	1.49	1.47	Ortholog(s) have protein serine/threonine kinase activity, protein serine/threonine/tyrosine kinase activity
orf19.1334		1.49	1.37	Putative guanylate kinase; identified in extracts from biofilm and planktonic cells; protein level decrease in stationary phase cultures; Hap43p-induced gene
orf19.1334		1.49	1.36	Protein of unknown function; repressed by alpha pheromone in SpiderM medium
orf19.422	SPT20	1.49	1.61	Putative transcription factor; downregulated upon adherence to polystyrene; flucytosine repressed
orf19.4245		1.49	1.4	Protein with a predicted pleckstrin domain; Hap43-repressed gene
orf19.4513		1.49	1.36	#NV
orf19.5856		1.49	1.39	Protein of unknown function; mutants are viable; rat catheter and Spider biofilm induced
orf19.2400		1.49	1.3	Membrane-localized protein of unknown function
orf19.3869		1.49	1.37	Ortholog(s) have role in mRNA splicing, via spliceosome, maturation of SSU-rRNA, positive regulation of ATPase activity, positive regulation of helicase activity
orf19.400	GCF1	1.49	1.53	Protein of unknown function; regulated by Tsa1, Tsa1B in minimal media at 37 degrees C; shows colony morphology-related gene regulation by Ssn6; Spider biofilm induced
orf19.3158		1.49	1.27	HMG box mitochondrial protein; binds to mt DNA and the HWP1 promoter; mutant phenotype and functional complementation of an S. cerevisiae abl2 mutation suggest role in mt genome replication, maintenance; flow and Spider biofilm repressed
orf19.1639		1.49	1.33	Ortholog(s) have cytoplasm localization
orf19.809		1.49	1.65	Has domain(s) with predicted oxidoreductase activity and role in oxidation-reduction process
orf19.3114		1.49	1.7	Ortholog(s) have role in maturation of LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) and nucleolus, preribosome localization
orf19.3314	TRS20	1.49	1.3	Predicted pseudouridine synthase; Spider biofilm induced
orf19.3322	DUT1	1.49	1.5	Ortholog(s) have role in ER to Golgi vesicle-mediated transport and TRAPP complex, cytosol, nucleus localization
orf19.3809	BAS1	1.49	1.33	dUTP pyrophosphatase; cell-cycle regulated if expressed in S. cerevisiae; upstream MluI and SCB elements; 17-beta-estradiol, ethynyl estradiol, macrophage induced; decreased in stationary phase yeast; rat catheter, Spider biofilm repressed
orf19.7034		1.49	1.4	Putative Myb-like transcription factor; ortholog S. cerevisiae Bas1, a regulator of purine biosynthetic genes; mutant exhibits adenine auxotrophy and abnormal colony morphology
orf19.7038		1.49	1.55	Putative eIF4E-associated protein; accelerates mRNA degradation by promoting decapping; Spider biofilm repressed
orf19.7216	YPT52	1.49	1.69	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity, role in protein targeting to vacuole and cytoplasm, nucleus localization
orf19.7274		1.49	1.33	Rab-family GTPase involved in vacuolar trafficking, colocalizes with Vps1p and Ypt53p in late endosome
orf19.945	VPS2	1.49	1.43	Predicted ORF in retrotransposon Zorro2 with similarity to retroviral reverse transcriptase proteins
orf19.3256	SLN1	1.49	1.41	Ortholog(s) have role in intraluminal vesicle formation, protein retention in Golgi apparatus, protein targeting to vacuole involved in ubiquitin-dependent protein catabolic process via the multivesicular body sorting pathway
orf19.1534		1.49	1.35	Histidine kinase involved in a two-component signaling pathway that regulates cell wall biosynthesis; mutants are sensitive to growth on H2O2 medium; rat catheter and Spider biofilm induced
orf19.1534		1.49	1.51	Ortholog of S. cerevisiae Zrt3, vacuolar membrane zinc transporter; predicted Kex2 substrate; induced in oralpharyngeal candidiasis; flow model biofilm induced; Spider biofilm induced

orf19.5431		1.49	2.08	Protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.6738	VAN1	1.49	1.57	Member of Mn9 family of mannosyltransferases; ortholog of <i>S. cerevisiae</i> Van1p; fungal-specific (no human or murine homolog)
orf19.7652	CKA1	1.49	1.53	Putative alpha subunit (catalytic subunit) of protein kinase CK2; Cka1p and Cka2p have a common target with respect to fluconazole resistance; synthetically lethal with CKA2; flucytosine induced
orf19.3192	ST11	1.49	1.61	Protein that interacts with Cdc37 and Crk1 in two-hybrid; may be involved in Cdc37 chaperone activity; soluble protein in hyphae; protein in exponential and stationary phase yeast cultures; YNB biofilm induced; Spider biofilm induced
orf19.5607		1.49	1.36	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63860, <i>C. parapsilosis</i> CDC317 : CPAR2_601140, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_92714 and <i>Debaromyces hansenii</i> CBS767 : DEHA2A06072q
orf19.4687	MDN1	1.48	1.29	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.1373	INP51	1.48	1.38	Putative phosphatidylinositol-4,5-bisphosphate phosphatase; involved in maintenance of phosphoinositide levels; affects hyphal growth, virulence, cell integrity, interacts with Irs4p
orf19.164		1.48	1.62	Ortholog(s) have lipase activity and peroxisomal matrix localization
orf19.3788	SPC34	1.48	1.46	Subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.3704		1.48	1.74	Ortholog(s) have role in maturation of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA), maturation of LSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA)
orf19.6244		1.48	1.37	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06250, <i>C. parapsilosis</i> CDC317 : CPAR2_206820, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_125137 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G13266q
orf19.6249	HAK1	1.48	1.32	Putative potassium transporter; similar to <i>Schwanniomyces occidentalis</i> Hak1p; amphotericin B induced; induced upon phagocytosis by macrophage; Hap43-repressed; rat catheter biofilm repressed
orf19.3609	UTP15	1.48	2.03	Small subunit (SSU) processome component; mutation confers resistance to 5-fluorocytosine (5-FC); physically interacts with TAP-tagged Nop1p
orf19.4072	IFF6	1.48	1.56	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.3681		1.48	1.4	Ortholog(s) have Ran GTPase activity, protein transporter activity
orf19.4064	GPI7	1.48	1.37	Protein involved in attachment of GPI-linked proteins to cell wall; member of major facilitator superfamily; phosphodiesterase/nucleotide pyrophosphatase domain; similar to <i>S. cerevisiae</i> Gpi7p
orf19.4913		1.48	1.26	Ortholog(s) have ubiquitin binding activity, role in cellular protein localization, positive regulation of ubiquitin-specific protease activity and cell cortex of cell tip, cell division site, cytosol localization
orf19.5039	RRP42	1.48	1.36	Putative exosome non-catalytic core component; involved in 3'-5' RNA processing; rat catheter biofilm induced
orf19.861	CAP4	1.48	1.38	Predicted bZIP transcription factor; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5559	RAV2	1.48	1.57	Protein similar to <i>S. cerevisiae</i> Rav2; a regulator of (H ⁺)-ATPase in vacuolar membrane; transposon mutation affects filamentous growth
orf19.5580	TEL1	1.48	1.29	Ortholog(s) have protein serine/threonine kinase activity, telomeric DNA binding activity and role in DNA damage induced protein phosphorylation, double-strand break repair, histone phosphorylation, telomere maintenance
orf19.5680		1.48	1.47	Protein with predicted hydrolase domains; similar to a universal stress protein family protein; possibly essential, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.2579		1.48	1.52	Msh4 ortholog of <i>S. cerevisiae</i> ; involved in meiotic recombination and is required for normal levels of crossing over; Spider biofilm induced
orf19.2103		1.48	1.38	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03811
orf19.4890	CLA4	1.48	1.3	Ste20p family Ser/Thr kinase required for wild-type filamentous growth, organ colonization and virulence in mouse systemic infection; role in chlamyospore formation; functional homolog of <i>S. cerevisiae</i> Cla4p; mutant caspofungin sensitive
orf19.6451		1.48	1.8	#NV
orf19.2501	FLC1	1.48	1.55	Protein involved in heme uptake; putative FAD transporter, similar to <i>S. cerevisiae</i> Flc1; regulated by iron; macrophage-induced; mutant defective in filamentous growth; Spider biofilm induced
orf19.6094	VPS53	1.48	1.35	Ortholog(s) have role in Golgi to vacuole transport, retrograde transport, endosome to Golgi and GARP complex localization
orf19.5110	OPY2	1.48	1.49	Predicted transmembrane protein; role in cell wall biogenesis; required for Cek1 phosphorylation; Spider biofilm induced
orf19.4853	HCM1	1.48	1.43	Protein with forkhead domain; similar to <i>S. cerevisiae</i> Hcm1p; Hap43p-induced gene
orf19.150	TIM17	1.48	1.4	Predicted component of the Translocase of the Inner Mitochondrial membrane (TIM23 complex), involved in protein import into mitochondria
orf19.7136	SPT6	1.48	1.64	Putative transcription elongation factor; transposon mutation affects filamentous growth; transcript induced in an RHE model of oral candidiasis and in clinical isolates from oral candidiasis
orf19.6349	RVS162	1.48	1.31	Protein containing a BAR domain, which is found in proteins involved in membrane curvature; null mutant does not display the endocytic, hyphal growth, virulence, or cell wall defects exhibited by mutants in related genes RVS161 and RVS167
orf19.6828		1.48	1.51	Ortholog(s) have role in rRNA processing and nucleolus, preribosome, large subunit precursor localization
orf19.3728		1.48	1.48	Ortholog(s) have protein phosphatase 1 binding, protein phosphatase type 1 regulator activity, role in chromosome segregation, regulation of phosphoprotein phosphatase activity and cytoplasm localization
orf19.5912	MAK21	1.48	1.85	Putative 66S pre-ribosomal particle subunit; mutation confers hypersensitivity to tubercidin (7-deazaadenosine)
orf19.5905		1.48	1.44	Protein of unknown function; Hap43-induced; F-12/CO2 early biofilm induced
orf19.1493	RAD7	1.48	1.39	Protein similar to <i>S. cerevisiae</i> Rad7p, which is a subunit of the Nucleotide Excision Repair Factor 4; induced under hydroxyurea treatment
orf19.1330		1.48	1.27	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05678
orf19.1434		1.47	1.38	Ortholog(s) have protein kinase activator activity
orf19.5844		1.47	1.27	Ortholog(s) have role in meiotic DNA recombinase assembly, reciprocal meiotic recombination and condensed nuclear chromosome localization
orf19.1526	SNF2	1.47	1.49	Protein involved in transcriptional regulation; ortholog of <i>S. cerevisiae</i> Snf2p, which is the catalytic subunit of the SWI/SNF chromatin remodeling complex; interacts with Swi1p; SWI/SNF complex is essential for hyphal growth and virulence
orf19.801	TBF1	1.47	1.28	Essential transcription factor; induces ribosomal protein genes and the rDNA locus; acts with Cbf1 at subset of promoters; recruits Fhl1 and Ifh1 to promoters; role is analogous to that of <i>S. cerevisiae</i> Rap1; Spider biofilm induced
orf19.2293		1.47	1.29	#NV
orf19.3142		1.47	1.37	#NV
orf19.2825	DRE2	1.47	1.35	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_46140, <i>C. parapsilosis</i> CDC317 : CPAR2_501210, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_97195 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E08800g
orf19.2826		1.47	1.28	Putative cytosolic Fe-S protein assembly protein; a-specific transcript; regulated by Sef1, Sfu1, and Hap43; rat catheter and Spider biofilm induced
orf19.1053		1.47	1.6	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_27680, <i>C. parapsilosis</i> CDC317 : CPAR2_801140, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_129982 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E09526q
orf19.1077	ATM1	1.47	1.2	Member of MDR subfamily of ABC family; ortholog of <i>S. cerevisiae</i> ABC transporter, Atm1; induced in low iron; induced by nitric oxide independent of Yhb1
orf19.3895	CHT2	1.47	1.35	GPI-linked chitinase; required for normal filamentous growth; repressed in core caspofungin response; fluconazole, Cyt1, Efg1, pH-regulated; mRNA binds She3 and is localized to yeast-form buds and hyphal tips; Spider biofilm repressed
orf19.494		1.47	1.5	Putative RNA-binding protein; role in assembly of box H/ACA snoRNPs and thus pre-rRNA processing; Spider biofilm induced
orf19.3222		1.47	1.39	Predicted vacuolar protein; rat catheter biofilm repressed; flow model biofilm repressed
orf19.1826	MDM34	1.47	1.3	Putative zinc finger transcription factor; macrophage-downregulated; flow model biofilm induced; flow model and Spider biofilm induced
orf19.2458	SIP5	1.47	1.32	Protein of unknown function; flow model, rat catheter and Spider biofilm induced
orf19.2563		1.47	1.56	Ortholog(s) have U6 snRNA binding activity, role in assembly of spliceosomal tr-snRNP, spliceosomal complex assembly and U6 snRNP localization
orf19.2936		1.47	1.36	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_106450, <i>C. dubliniensis</i> CD36 : Cd36_02330, <i>Loferomyces elongisporus</i> NRLL YB-4239 : LELG_01618 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0807690
orf19.5383	PMA1	1.47	1.54	Plasma membrane H ⁺ -ATPase; highly expressed, comprises 20-40% of total plasma membrane protein; levels increase at stationary phase transition; fluconazole induced; caspofungin repressed; upregulated in RHE model; Spider biofilm repressed
orf19.3501		1.47	1.33	<i>S. cerevisiae</i> ortholog Pxd1 localizes to sites of polarized growth and is required for selection and/or maintenance of polarized growth sites; Hog1p-repressed
orf19.2579		1.47	1.54	Msh4 ortholog of <i>S. cerevisiae</i> ; involved in meiotic recombination and is required for normal levels of crossing over; Spider biofilm induced
orf19.5619		1.47	1.35	Protein of unknown function; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.6544	LPB9	1.47	1.6	Protein phosphatase type 1 regulator; role in chromosome segregation, regulation of phosphoprotein phosphatase activity; rat catheter and Spider biofilm induced
orf19.1562		1.47	1.57	Protein of unknown function; flow model biofilm induced; Spider biofilm induced; repressed by alpha pheromone in SpiderM medium

orf19.6652	<i>DBP8</i>	1.47	1.7	Protein similar to <i>S. cerevisiae</i> Dbp8p, an ATP-dependent helicase involved in rRNA processing; oxidative stress-repressed via <i>Cap1p</i> ; flucytosine repressed; likely to be essential for growth, based on insertional mutagenesis
orf19.6242	<i>CYK3</i>	1.47	1.31	Essential protein involved in cytokinesis; contains an SH3 domain
orf19.2069	<i>SMF3</i>	1.47	1.48	Putative vacuolar iron transporter; alkaline upregulated; caspofungin repressed; induced by Mnl1 under weak acid stress; Hap43-repressed
orf19.3840		1.47	1.33	Putative serine/threonine kinase similar to <i>S. cerevisiae</i> Sak1; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.5241	<i>SNT1</i>	1.47	1.3	Ortholog of <i>S. cerevisiae</i> Snt1; an NAD-independent histone deacetylase; heterozygous transposon mutation affects filamentous growth; null mutants are viable
orf19.6985	<i>TEA1</i>	1.47	1.78	Putative transcription factor with zinc cluster DNA-binding motif; has similarity to <i>S. cerevisiae</i> Tea1p; Hap43p-repressed gene
orf19.7238	<i>NPL3</i>	1.47	1.73	Putative RNA-binding protein; required for normal flow model biofilm growth; nuclear export is facilitated by Hmt1p; transcript upregulated in RHE model of oral candidiasis; Spider biofilm repressed
		1.47	1.51	#NV
orf19.7304		1.47	1.35	Protein of unknown function; Hap43-induced; transcript induced early in infection of reconstituted human epithelium, while expression of the <i>C. dubliniensis</i> ortholog is not upregulated; mutants are viable; rat catheter biofilm repressed
orf19.7413	<i>MMS21</i>	1.47	1.48	Putative MMS21-SMC5-SMC6 complex component
orf19.6113		1.47	1.88	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.6776	<i>GCD2</i>	1.47	1.63	Putative translation initiation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
		1.47	1.71	#NV
orf19.721		1.46	1.29	Ortholog(s) have polynucleotide 5'-hydroxyl-kinase activity
orf19.1926	<i>SEF2</i>	1.46	1.62	Zn(II)Cys6 transcription factor, required for normal resistance to copper; repressed by Sfu1 in high-iron conditions; regulated by Sef1, Sfu1, and Hap43; rat catheter and Spider biofilm induced
orf19.1225	<i>PEX22</i>	1.46	1.22	Putative peroxin
orf19.3071	<i>MIH1</i>	1.46	1.31	Putative protein phosphatase of the PTP family (tyrosine-specific); ortholog of <i>S. cerevisiae</i> Mih1; mRNA binds She3
orf19.5063	<i>COI1</i>	1.46	1.34	Secreted protein; ciclopirox olamine induced; regulated by Ssn6; induced by nitric oxide independent of Yhb1; Hap43-induced; Spider biofilm repressed
orf19.1077	<i>ATM1</i>	1.46	1.3	Member of MDR subfamily of ABC family; ortholog of <i>S. cerevisiae</i> ABC transporter, <i>Atm1</i> ; induced in low iron; induced by nitric oxide independent of Yhb1
orf19.3756	<i>CHR1</i>	1.46	1.44	Predicted DEAD-box ATP-dependent RNA helicase; functional homolog of <i>S. cerevisiae</i> Rok1; Hap43-induced; Spider biofilm induced
orf19.4767	<i>ZCF28</i>	1.46	1.34	Zn(II)Cys6 transcription factor; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.3780		1.46	1.23	Protein likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.1034		1.46	1.29	Protein with a predicted cytochrome b5-like Heme/Steroid binding domain; Hap43, caspofungin repressed; flow model biofilm induced
orf19.2865		1.46	1.39	#NV
orf19.3616	<i>ERG9</i>	1.46	1.31	Putative farnesyl-diphosphate farnesyl transferase (squalene synthase); sterol biosynthesis pathway; likely essential for growth; regulated by fluconazole, lovastatin; amphotericin B, caspofungin repressed; Spider biofilm repressed
orf19.759	<i>SEC21</i>	1.46	1.3	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, retrograde vesicle-mediated transport, Golgi to ER and COPI vesicle coat, cytosol, endosome localization
orf19.6686	<i>ENP2</i>	1.46	1.38	Putative nuclear protein; essential; heterozygous mutation confers resistance to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); Hap43-induced; Spider biofilm induced
orf19.832	<i>GPI3</i>	1.46	1.35	Major facilitator superfamily protein; has phosphodiesterase/nucleotide pyrophosphatase domain; similar to <i>S. cerevisiae</i> Gpi3p, which acts in GPI anchor biosynthesis; Hap43p-induced gene
orf19.1378	<i>SUP35</i>	1.46	1.57	Translation factor eRF3; shows prion-like aggregation in some, not all, studies; partially complements <i>S. cerevisiae</i> sup35 mutant translation defect; species barrier with <i>S. cerevisiae</i> Sup35p; gene not regulated by yeast-hyphal switch
orf19.1281		1.46	1.45	Putative splicing factor required for the first step of pre-mRNA splicing; Spider biofilm induced
orf19.5045	<i>PTP2</i>	1.46	1.21	Predicted protein tyrosine phosphatase; involved in regulation of MAP kinase Hog1 activity; induced by Mnl1 under weak acid stress; rat catheter and Spider biofilm induced
orf19.1792		1.46	1.33	Ortholog(s) have ubiquitin-protein ligase activity
		1.46	1.33	#NV
orf19.2831	<i>RPC31</i>	1.46	1.43	Putative RNA polymerase III subunit C31; repressed by nitric oxide; induced during infection of murine kidney, compared to growth in vitro; has murine homolog
orf19.6203	<i>PUT3</i>	1.46	1.37	Zn(II)Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Put3, a transcription factor involved in the regulation of proline utilization genes
orf19.2402	<i>SSU72</i>	1.46	1.24	Ortholog(s) have CTD phosphatase activity, protein tyrosine phosphatase activity
orf19.6343	<i>FEN1</i>	1.46	1.39	Putative fatty acid elongase; predicted role in sphingolipid biosynthesis; possibly an essential gene, disruptants not obtained by UAU1 method; Spider and flow model biofilm induced
orf19.6091	<i>RIM8</i>	1.46	1.04	Beta-arrestin-like protein; involved in pH response; required for pathogenesis, activation of Rim101 and alkaline pH-induced hyphal growth; colony morphology-related gene regulation by Ssn6p negative feedback regulation target
orf19.2002		1.46	1.54	Ortholog(s) have structural constituent of nuclear pore activity and role in nuclear pore organization, poly(A) ⁺ mRNA export from nucleus, protein import into nucleus, ribosomal large subunit export from nucleus
orf19.426		1.46	1.53	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05120, <i>C. parapsilosis</i> CDC317 : CPAR2_107740, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_136277 and <i>Debaryomyces hanseni</i> CBS767 : DEHA2A02266q
orf19.5159	<i>DUG3</i>	1.46	1.14	Putative glutamine amidotransferase (GATase II); role in glutathione catabolism;
orf19.3193	<i>FCR3</i>	1.46	1.31	bZIP transcription factor; ortholog of <i>S. cerevisiae</i> Yap3; partially complements fluconazole sensitivity of <i>S. cerevisiae</i> pd1 pdr3; Hap43-induced; required for yeast cell adherence to silicone substrate; flow model biofilm repressed
orf19.2081	<i>POM152</i>	1.46	1.23	Putative nuclear pore membrane glycoprotein
orf19.7010		1.46	1.5	Ortholog(s) have cytosol, ubiquitin ligase complex localization
orf19.1911	<i>PGA52</i>	1.46	1.44	GPI-anchored cell surface protein of unknown function; Hap43p-repressed gene; fluconazole-induced; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7239	<i>MDG1</i>	1.46	1.36	Ortholog(s) have role in pheromone-dependent signal transduction involved in conjugation with cellular fusion and cytoplasm, membrane raft, nucleus, plasma membrane localization
orf19.3255	<i>TEN1</i>	1.46	1.62	Protein involved in telomere maintenance; forms a complex with Stn1; transcription is regulated upon yeast-hypha switch; Spider biofilm induced
orf19.3280		1.46	1.57	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01435
orf19.3286		1.46	1.47	Ortholog(s) have alpha-glucosidase activity, role in polysaccharide biosynthetic process, protein N-linked glycosylation and endoplasmic reticulum lumen, glucosidase II complex localization
orf19.7116		1.46	1.47	Protein of unknown function; transcript induced in RHE model of oral candidiasis; Spider biofilm repressed
orf19.5409	<i>IST1</i>	1.46	1.44	Protein with a positive role in the multivesicular body sorting pathway, rat catheter biofilm repressed
orf19.7517	<i>CHT1</i>	1.46	1.43	Chitinase; putative N-terminal catalytic domain; has secretory signal sequence; lacks S/T region and N-glycosylation motifs of Chs2p and Chs3p; alkaline downregulated; expression not detected in yeast-form or hyphal cells
orf19.6832		1.46	1.77	Protein of unknown function; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.799	<i>STE4</i>	1.45	1.3	Beta subunit of heterotrimeric G protein of mating signal transduction pathway; required for mating; transcript is specific to cells homozygous at MTL; induced by alpha pheromone; ortholog of <i>S. cerevisiae</i> Ste4
orf19.1087		1.45	1.26	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_601130, <i>C. dubliniensis</i> CD36 : Cd36_64620, <i>Lodderomyces elongisporus</i> NRRL YB-4239 : LELG_04885 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0F02130
orf19.2822		1.45	1.33	Essential component of the conserved oligomeric Golgi complex; role in fusion of transport vesicles to Golgi compartments; rat catheter biofilm repressed
orf19.3393		1.45	1.8	Putative DEAD-box helicase; Hap43-induced; Spider biofilm induced
orf19.3143		1.45	1.35	#NV
orf19.3487		1.45	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33330, <i>C. parapsilosis</i> CDC317 : CPAR2_701980, <i>Debaryomyces hanseni</i> CBS767 : DEHA2C15840q and <i>Pichia stipitis</i> Pignal : PICST_31066
orf19.1049		1.45	1.28	Predicted NUDIX hydrolase domain; Hap43-induced
orf19.1384		1.45	1.41	#NV
orf19.3683	<i>AGE3</i>	1.45	1.61	Putative ADP-ribosylation factor GTPase activating protein, functional ortholog of <i>S. cerevisiae</i> GCS1; mutation affects endocytosis, hyphal growth, chemical and drug resistance, and sensitivity to cell wall inhibitors
orf19.868	<i>ADAEC</i>	1.45	1.19	Protein of unknown function; transcription is specific to white cell type
orf19.130		1.45	1.55	Ortholog(s) have protein serine/threonine kinase activity, ubiquitin binding activity
orf19.4275	<i>RAD9</i>	1.45	1.49	DNA damage-dependent checkpoint protein; involved in regulation of DNA-damage-induced filamentous growth; induced by alpha pheromone in SpiderM medium
orf19.764		1.45	1.35	Ortholog(s) have clathrin-coated vesicle, cytoplasm localization
orf19.5224	<i>PKH2</i>	1.45	1.44	Putative serine/threonine protein kinase; predicted role in sphingolipid-mediated signaling pathway that controls endocytosis; mRNA binds She3 and is localized to hyphal tips
orf19.782		1.45	1.3	Ortholog(s) have serine hydrolase activity, triglyceride lipase activity, role in lipid homeostasis and lipid particle localization
orf19.4496		1.45	1.43	Ortholog(s) have role in cellular calcium ion homeostasis and Golgi medial cisterna, cis-Golgi network, endoplasmic reticulum, Tunqal-type vacuole membrane localization

orf19.4502		1.45	1.3	Ortholog(s) have ATPase activity, DNA binding, TBP-class protein binding activity
orf19.3395		1.45	1.26	Predicted MFS membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family; induced by nitric oxide, oxidative stress, alpha pheromone; fungal-specific; Hap43-repressed; Spider biofilm induced
orf19.3503		1.45	1.32	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05160
orf19.3207	CCN1	1.45	1.41	G1 cyclin; required for hyphal growth maintenance (not initiation); cell-cycle regulated transcription (G1/S); Cdc28p-Ccn1p initiates Cdc11p S394 phosphorylation on hyphal induction; expression in <i>S. cerevisiae</i> inhibits pheromone response
orf19.2579		1.45	1.46	Msh4 ortholog of <i>S. cerevisiae</i> ; involved in meiotic recombination and is required for normal levels of crossing over; Spider biofilm induced
orf19.5615	AYR2	1.45	1.3	Putative NADPH-dependent 1-acyl dihydroxyacetone phosphate reductase; shows colony morphology-related gene regulation by Ssn6p
orf19.4199	SLY41	1.45	1.76	Protein involved in ER-to-Golgi transport; rat catheter and Spider biofilm induced
orf19.2417	SMC5	1.45	1.4	Protein similar to <i>S. cerevisiae</i> Smc5p, which is involved in DNA repair; transposon mutation affects filamentous growth
orf19.6203	PUT3	1.45	1.42	Zn(II)2Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Put3, a transcription factor involved in the regulation of proline utilization genes
orf19.3744		1.45	1.41	Ortholog(s) have tRNA binding activity, role in tRNA export from nucleus and cytoplasm, nuclear pore localization
orf19.6339	NRG2	1.45	1.39	Transcription factor; transposon mutation affects filamentous growth
orf19.6351		1.45	1.62	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11880, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00231, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D04928g and <i>Pichia stipitis</i> Pignal : PICST_29234
orf19.6458		1.45	1.58	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_72260, <i>C. parapsilosis</i> CDC317 : CPAR2_702840, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115664 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B05940g
orf19.5767		1.45	1.53	Ortholog(s) have RNA binding activity and role in mRNA splicing, via spliceosome
orf19.6594	PLB3	1.45	1.47	GPI-anchored cell surface phospholipase B; possibly secreted; fungal-specific (no mammalian homolog); induced by Tbf1; fluconazole-induced; possible essential gene (UAU1 method); Spider and flow model biofilm induced
orf19.6604		1.45	1.45	Ortholog of <i>S. cerevisiae</i> Pba1 that is involved in 20S proteasome assembly; upregulated in a <i>cyr1</i> null mutant; contains a 5' UTR intron
orf19.6083		1.45	1.29	Has domain(s) with predicted nucleic acid binding, nucleotide binding activity
orf19.398		1.45	1.72	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_08040, <i>C. parapsilosis</i> CDC317 : CPAR2_207180, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114140 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G13992g
orf19.6689	ARG4	1.45	1.59	Argininosuccinate lyase, catalyzes the final step in the arginine biosynthesis pathway; alkaline downregulated; flow model biofilm induced; Spider biofilm induced
orf19.3991		1.45	1.31	Ortholog(s) have role in cellular lipid metabolic process and cytosol localization
orf19.7001	YCK2	1.45	1.31	Plasma membrane protein similar to <i>S. cerevisiae</i> casein kinase I, Yck2p; null mutant has defect in damaging oral epithelial cells and in hyphal branching; transcription is activated in weak acid stress or on contact with host cells
orf19.6442	PRP8	1.45	1.32	Protein similar to <i>S. cerevisiae</i> Prp8, a component of the U4/U6-U5 snRNP complex; repressed by alpha pheromone in SpiderM medium
orf19.1936	SNF1	1.45	1.36	Essential protein; functional homolog of <i>S. cerevisiae</i> Snf1p regulator of sugar metabolism; constitutively expressed; Thr208 phosphorylation may have regulatory role; up-regulation associated with azole resistance; has polyhistidine tract
orf19.71		1.45	1.62	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, protein secretion and COPII vesicle coat, Golgi membrane, cell division site, cell tip, cis-Golgi network, cytosol, nucleus localization
orf19.7527		1.45	1.67	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25130, <i>C. parapsilosis</i> CDC317 : CPAR2_800100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107256 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E18370g
orf19.6786		1.45	1.47	Protein of unknown function; flow model biofilm induced
orf19.7546		1.45	1.78	Protein involved in rRNA processing; required for maturation of the 35S primary transcript of pre-rRNA and for cleavage leading to mature 18S rRNA; Spider biofilm induced
orf19.850		1.44	1.26	Ortholog(s) have protein-N-terminal asparagine amidohydrolase activity, protein-N-terminal glutamine amidohydrolase activity and role in cellular protein modification process, protein catabolic process
orf19.1353		1.44	1.34	Protein of unknown function; repressed by yeast-hypha switch; Ras1-regulated; oral infection induced; mutants defective in damage to oral epithelium; flow model biofilm induced; Spider biofilm induced
orf19.4784	CRP1	1.44	1.31	Copper transporter; CPx P1-type ATPase; mediates Cu resistance; similar to Menkes and Wilson disease proteins; copper-induced; Tbf1-activated; suppresses Cu sensitivity of <i>S. cerevisiae</i> cup1 mutant; flow model biofilm induced
orf19.2631		1.44	1.76	Subunit of Elongator complex; required for modification of wobble nucleosides in tRNA in <i>S. cerevisiae</i> ; Hap43-induced gene
orf19.260	SLD1	1.44	1.65	Phospholipid delta-8 desaturase; catalyzes desaturation at C8 in the long-chain base moiety of hexamers in glucosylceramide synthesis, important for virulence; ketoconazole and hypoxia induced; Hap43-repressed; Spider biofilm induced
orf19.3529	ABP2	1.44	1.27	Putative alpha-actinin-like protein; induced by alpha pheromone in SpiderM medium
orf19.1383		1.44	1.3	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.465	IFF9	1.44	1.48	Predicted GPI-linked cell-wall protein; similar to Hyr1; induced in low iron; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3897		1.44	1.39	Protein of unknown function; decreased transcription is observed upon fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2; transcription is repressed in response to alpha pheromone in SpiderM medium
orf19.3364		1.44	1.53	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_403360, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D00814g, <i>Pichia stipitis</i> Pignal : PICST_32156 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_04611
orf19.3643		1.44	1.4	Protein of unknown function; Hap43-repressed gene
orf19.1304		1.44	1.38	Ortholog(s) have role in U4 snRNA 3'-end processing, exonucleolytic trimming to generate mature 3'-end of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.4459		1.44	1.24	Predicted heme-binding stress-related protein; Trn mutation affects filamentous growth; induced during chlamydospore formation in <i>C. albicans</i> and <i>C. dubliniensis</i> ; Spider biofilm induced
orf19.4799	CEF1	1.44	1.42	Putative mRNA splicing factor; ortholog is essential in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.1730		1.44	1.62	HMG-box protein; Spider biofilm repressed
orf19.2935	RPL10	1.44	1.47	Ribosomal protein L10; intron in 5'-UTR; downregulated upon phagocytosis by murine macrophage; transcription regulated by yeast-hypha switch; Spider biofilm repressed
orf19.5548	LYS14	1.44	1.33	Zn(II)2Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Lys14, which is a transcription factor involved in the regulation of lysine biosynthesis genes
orf19.5490		1.44	1.28	#NV
orf19.2343	VPS23	1.44	1.45	ESCRT I protein sorting complex protein; involved in proteolytic activation of Rim101, which regulates pH response; ortholog of <i>S. cerevisiae</i> Stp22/Vps23
orf19.2746	EMP70	1.44	1.32	Protein with a role in endosome-to-vacuole sorting; rat catheter biofilm repressed
orf19.4521		1.44	1.39	<i>S. cerevisiae</i> ortholog Env9 has similarity to oxidoreductases and is proposed to have vacuolar functions, found in lipid particles, hyphal-induced expression
orf19.4511		1.44	1.3	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04197
orf19.2324	UBA4	1.44	1.24	Putative ubiquitin activating protein; Hap43-repressed; induced by prostaglandins; clade-associated gene expression
orf19.3884	FGR50	1.44	1.79	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; Spider biofilm repressed
orf19.5148	CYR1	1.44	1.42	Class III adenylyl cyclase; mutant lacks cAMP; mutant hyphal growth defect rescued by exogenous cAMP; required for mouse mucosal or systemic infection; role in macrophage sensitivity, apoptosis; downstream of Ras1p and CO2 signaling
orf19.1905		1.44	1.19	#NV
orf19.349		1.44	1.6	Ortholog(s) have role in aerobic respiration, mRNA metabolic process and mitochondrial outer membrane localization
orf19.4851	TFA1	1.44	1.53	Protein with polyglutamate motifs and abundant Ser/Thr residues; described as a subunit of TFIIE, which is a basal transcription initiation factor of RNA Polymerase II; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4032	RPN5	1.44	1.37	Putative COP9 signalosome component; macrophage/pseudohyphal-repressed
orf19.1442	PLB4.5	1.44	1.24	Phospholipase B; Hog1-induced; regulated by Ssn6; putative GPI-anchor; repressed during cell wall regeneration; clade-associated gene expression; Hap43-induced; rat catheter and Spider biofilm repressed
orf19.7182		1.44	1.39	Ortholog(s) have RNA binding activity, role in tRNA modification and cytoplasm, nucleus localization
orf19.979	FAS1	1.44	1.68	Beta subunit of fatty-acid synthase; multifunctional enzyme; Hap43, fluconazole-induced; amphoterin B, caspofungin repressed; macrophage/pseudohyphal-induced; flow model and Spider biofilm repressed
orf19.5315		1.44	1.35	#NV
orf19.7510	KIN2	1.44	1.48	Protein with similarity to <i>S. cerevisiae</i> Kin2p, transcription is positively regulated by Tbf1
orf19.1351		1.44	1.24	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_407000, <i>C. dubliniensis</i> CD36 : Cd36_22440, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00049 and <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_02401
orf19.1859		1.43	1.2	#NV
orf19.1504		1.43	1.42	Putative patatin-like phospholipase; fungal-specific (no human or murine homolog)
orf19.367	CNH1	1.43	1.28	Na+/H+ antiporter; required for wild-type growth, cell morphology, and virulence in a mouse model of systemic infection; not transcriptionally regulated by NaCl; fungal-specific (no human or murine homolog)

orf19.2545	<i>DOT6</i>	1.43	1.42	Protein with a predicted role in telomeric gene silencing and filamentation; repressed by high-level peroxide stress; Spider biofilm induced
orf19.2238	<i>LTE1</i>	1.43	1.43	Protein similar to GDP/GTP exchange factors; repressed by alpha pheromone in SpiderM medium; flow model biofilm repressed
orf19.2289	<i>ARP3</i>	1.43	1.41	Protein with Myc5p-dependent localization to cortical actin patches at hyphal tip; mutation confers hypersensitivity to cytochalasin D; Spider biofilm repressed
orf19.223		1.43	1.42	Putative serine/threonine protein kinase; Hap43-repressed; induced by prostaglandins; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.4796		1.43	1.4	Putative eIF-4E-binding repressor of CAP-dependent translation; stationary phase enriched protein
orf19.3649		1.43	1.22	Ortholog(s) have adenylyl-nucleotide exchange factor activity, role in cytoplasmic translation and cytosolic ribosome, nucleus localization
orf19.5537	<i>WSC2</i>	1.43	1.21	Putative cell wall integrity and stress response protein; mRNA binds She3; Spider biofilm induced
orf19.841		1.43	1.19	Ortholog(s) have role in Golgi vesicle transport and Golgi membrane localization
orf19.3687		1.43	1.5	Ortholog(s) have unfolded protein binding activity, role in cytoskeleton organization, protein folding and prefoldin complex localization
orf19.2507	<i>ARP9</i>	1.43	1.25	Protein similar to <i>S. cerevisiae</i> Arp3p, a component of the Arp2/3 complex involved in actin-dependent processes; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.2510		1.43	1.22	Ortholog(s) have role in protein folding, tubulin complex assembly
orf19.4243		1.43	1.35	Ortholog(s) have ubiquitin binding activity
orf19.2937	<i>PMM1</i>	1.43	1.36	Phosphomannomutase; enzyme of O- and N-linked mannosylation; interconverts mannose-6-phosphate and mannose-1-phosphate; functional homolog of <i>S. cerevisiae</i> Sec53; antigenic in mice; Hap43-induced; flow model and Spider biofilm repressed
orf19.3394		1.43	1.38	Predicted membrane protein; induced by alpha pheromone in SpiderM medium
orf19.3198	<i>OBPA</i>	1.43	1.35	Similar to oxysterol binding protein; non-sex gene located within the MTL mating-type-like locus; Plc1p-regulated
orf19.310		1.43	1.49	Putative mitochondrial protein with a predicted role in cell wall biogenesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5148	<i>CYR1</i>	1.43	1.31	Class III adenylyl cyclase; mutant lacks cAMP; mutant hyphal growth defect rescued by exogenous cAMP; required for mouse mucosal or systemic infection; role in macrophage sensitivity, apoptosis; downstream of Ras1p and CO2 signaling
orf19.6460	<i>PEX1</i>	1.43	1.37	Ortholog(s) have ATPase activity, protein heterodimerization activity, role in protein import into peroxisome matrix, receptor recycling and cytosol, peroxisomal membrane localization
orf19.5104	<i>LTP1</i>	1.43	1.49	Putative protein phosphatase of the PTP family (tyrosine-specific), similar to <i>S. cerevisiae</i> Ltp1p
orf19.808		1.43	1.33	Ortholog(s) have role in histone deacetylation, negative regulation of chromatin silencing at rDNA and negative regulation of chromatin silencing at silent mating-type cassette, more
orf19.6667		1.43	1.29	Predicted histone deacetylase activity; Spider biofilm induced
orf19.1886	<i>RCL1</i>	1.43	1.55	Putative U3-containing 90S preribosome processome complex subunit; Hap43-induced; essential; <i>S. cerevisiae</i> ortholog is essential; represses in core stress response
orf19.4040	<i>ILV3</i>	1.43	1.46	Dihydroxyacid dehydratase; repressed by nitric oxide; macrophage-induced protein; protein in exponential and stationary growth phase; Sef1, Sfu1p, Hap43-regulated; farnesol-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.6984		1.43	1.58	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_85460, <i>C. parapsilosis</i> CDC317 : CPAR2_405760, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116052 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D16940g
orf19.7153		1.43	1.69	Putative exportin, member of the Exportin-T family; flow model biofilm repressed
orf19.5328	<i>GCN1</i>	1.43	1.51	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrion localization
orf19.1533		1.43	1.36	Possible vacuolar protein; Hap43-induced gene
orf19.779	<i>HAT1</i>	1.43	1.33	Hat1-Hat2 histone acetyltransferase complex subunit; involved in DNA damage repair and morphogenesis; mutations cause constitutive pseudohyphal growth, white to opaque switch, caspofungin sensitivity; rat catheter; Spider biofilm repressed
orf19.3734	<i>GEF2</i>	1.42	1.3	Member of the voltage chloride channel family; Hap43p-repressed gene
orf19.1508		1.42	1.31	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.2165		1.42	1.37	Predicted hydrolase; induced by nitric oxide
orf19.1823		1.42	1.24	Predicted membrane protein; transcript repressed by ciclopirox olamine
orf19.2819		1.42	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_27570, <i>C. parapsilosis</i> CDC317 : CPAR2_801010, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00198 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E09306g
orf19.3726		1.42	1.26	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_65640 and <i>Candida albicans</i> WO-1 : CAWG_01583
orf19.3491		1.42	1.31	#NV
orf19.5381		1.42	1.4	Ortholog(s) have mRNA binding activity
orf19.1538	<i>TLG2</i>	1.42	1.37	Putative syntaxin-like L-SNARE; macrophage/pseudohyphal-repressed
orf19.4069		1.42	1.39	Protein of unknown function; repressed by alpha pheromone in SpiderM medium
orf19.100		1.42	1.32	Alpha/beta hydrolase and lipase domain protein; Hap43-repressed; Spider and flow model biofilm induced
orf19.2748	<i>ARG83</i>	1.42	1.34	GAL4-like Zn(II)Cys6 transcription factor; clade-associated expression; null shows abnormal regulation of invasive colony growth, is unable to utilize proline as a nitrogen source; flow model biofilm induced
orf19.866	<i>RAD32</i>	1.42	1.45	Protein similar to <i>S. cerevisiae</i> protein with role in nucleotide excision repair; down-regulation associated with azole resistance; Hap43p-repressed gene
orf19.3778		1.42	1.73	Protein with a predicted role in ribosome biogenesis; mutation confers hypersensitivity to 5-fluorouracil (5-FU), 5-fluorouracil (5-FU); repressed in core stress response; repressed by prostaglandins; Hap43-induced
orf19.131		1.42	1.4	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_61330, <i>C. parapsilosis</i> CDC317 : CPAR2_602800, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94450 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F15554g
orf19.1250		1.42	1.35	Ortholog(s) have role in maturation of SSU-rRNA from tricornic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) and cytoplasm, nucleolus localization
orf19.5051		1.42	1.39	Has domain(s) with predicted protein heterodimerization activity
orf19.697		1.42	1.23	Ortholog(s) have mitochondrial outer membrane localization
orf19.2594		1.42	1.27	Ortholog(s) have RNA polymerase I activity, role in transcription of nuclear large rRNA transcript from RNA polymerase I promoter and DNA-directed RNA polymerase I complex, cytosol localization
orf19.3538	<i>FRE9</i>	1.42	1.51	Ferric reductase; alkaline induced; ciclopirox olamine; Hap43-induced
orf19.3399		1.42	1.29	Ortholog(s) have histone binding activity, role in histone exchange and Swr1 complex, cytoplasm localization
orf19.2194		1.42	1.3	Phosphorylated protein of unknown function
orf19.2266		1.42	1.35	Ortholog(s) have ATPase activity, DNA binding, nucleosome binding activity, role in chromatin remodeling and Isw1 complex localization
orf19.5710		1.42	1.34	Nucleoporin component of central core of the nuclear pore complex; mRNA binds She3
orf19.575	<i>HYR3</i>	1.42	1.36	Putative GPI-anchored adhesin-like protein; similar to Hvr1p induced in high iron, clade-specific repeat variation
orf19.602		1.42	1.43	#NV
orf19.4506	<i>LYS22</i>	1.42	1.51	Putative homocitrate synthase; repressed by nitric oxide and by hypoxia; protein level decreases in stationary phase cultures; induced by ketoconazole; Spider biofilm induced; flow model biofilm repressed
orf19.4201	<i>NHX1</i>	1.42	1.27	Protein similar to <i>S. cerevisiae</i> Nhx1p, which is an Na ⁺ /H ⁺ exchanger required for intracellular sequestration of Na ⁺
orf19.5864	<i>URK1</i>	1.42	1.53	Protein similar to uridine kinase; repressed by ciclopirox olamine; Spider biofilm induced
orf19.4295		1.42	1.53	Ortholog(s) have DNA binding, nucleosome binding, transcription corepressor activity
orf19.2330		1.42	1.52	Putative U3 snoRNA-associated protein; Hap43-induced; transposon mutation affects filamentous growth; repressed by prostaglandins
orf19.2050		1.42	1.7	Ortholog(s) have sterol esterase activity, role in cellular lipid metabolic process, sterol metabolic process and fungal-type vacuole, integral to membrane, lipid particle localization
orf19.8610		1.42	1.38	Ortholog(s) have microtubule binding, structural constituent of cytoskeleton activity
orf19.430	<i>YPT53</i>	1.42	1.33	Rab-family GTPase involved in vacuolar trafficking, colocalizes with Vps1p and Ypt52p in late endosome; Hap43-repressed gene
orf19.524		1.42	1.27	Ortholog(s) have role in mitotic sister chromatid segregation and cytosol, nucleus localization
orf19.6869		1.42	2.04	Putative lipid raft associated protein; Spider biofilm induced
orf19.6950		1.42	1.39	Putative vacuolar membrane transporter for cationic amino acids; Spider biofilm induced
orf19.2680		1.42	1.19	Ortholog(s) have phospholipid-translocating ATPase activity, role in intracellular protein transport, phospholipid translocation and trans-Golgi network transport vesicle localization
orf19.2079	<i>PHHB</i>	1.42	1.32	Putative 4a-hydroxytetrahydrobiopterin dehydratase; transposon mutation affects filamentous growth; flow model biofilm induced; Spider biofilm induced
orf19.5436	<i>UTP8</i>	1.42	1.69	Essential nucleolar protein; involved in tRNA export from the nucleus and ribosomal small subunit biogenesis; physically interacts with TAP-tagged Nop1; Spider biofilm induced
orf19.5442		1.42	1.46	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_80240, <i>C. parapsilosis</i> CDC317 : CPAR2_504040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_130872 and <i>Debaromyces hansenii</i> CBS767 : DEHA2C06006g
orf19.735		1.42	1.22	#NV
orf19.2227		1.41	1.31	Protein of unknown function; flow model biofilm induced; nitric oxide-repressed
orf19.2229		1.41	1.28	Ortholog(s) have ubiquitin-protein ligase activity, role in protein ubiquitination, response to ethanol and cytoplasm, nucleus localization
orf19.2231		1.41	1.22	Protein of unknown function; Spider biofilm induced
orf19.799	<i>STE4</i>	1.41	1.24	Beta subunit of heterotrimeric G protein of mating signal transduction pathway; required for mating; transcript is specific to cells homozygous at MTL; induced by alpha pheromone; ortholog of <i>S. cerevisiae</i> Ste4
orf19.3556		1.41	1.44	Transportin or cytosolic karvopherin beta; Spider biofilm induced
orf19.3161		1.41	1.44	#NV
orf19.3161		1.41	1.44	Ortholog(s) have ATPase activator activity, RNA binding activity

orf19.3455		1.41	1.33	Putative mitochondrial inner membrane magnesium transporter; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3493		1.41	1.36	#NV
orf19.3585		1.41	1.21	Putative tRNA methyltransferase complex subunit; regulated by Gcn4; repressed in response to amino acid starvation (3-aminotriazole treatment); Spider biofilm induced
orf19.4734		1.41	1.33	Protein of unknown function; Hap43-repressed
orf19.3775	SSK2	1.41	1.2	MAP kinase kinase kinase (MAPKKK); regulates Hog1 activation and signaling; repressed by ciclopirox olamine
orf19.6261	BPH1	1.41	1.28	Ortholog of S. cerevisiae Bph1; a putative ortholog of human Chediak-Higashi syndrome protein and murine beige gene implicated in disease syndromes involving defective lysosomal trafficking; mutant is viable
orf19.4497	MED8	1.41	1.26	Ortholog(s) have RNA polymerase II core promoter proximal region sequence-specific DNA binding, RNA polymerase II transcription corepressor activity, TBP-class protein binding, structural molecule activity
orf19.6030		1.41	1.19	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.2653		1.41	1.51	Protein with a transient receptor potential (TRP) ion channel domain; mutants are viable; rat catheter and Spider biofilm induced; flow model biofilm repressed
orf19.5200	SIT4	1.41	1.2	Serine/threonine protein phosphatase catalytic subunit; has a role in cell wall maintenance, hyphal growth, and virulence in a mouse systemic infection model
orf19.1955		1.41	1.45	Ortholog(s) have palmitoyltransferase activity, role in protein palmitoylation, protein targeting to membrane and endoplasmic reticulum palmitoyltransferase complex, extrinsic to endoplasmic reticulum membrane localization
orf19.136		1.41	1.29	Predicted membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS); Hap43p-repressed gene
orf19.575	HYR3	1.41	1.62	Putative GPI-anchored adhesin-like protein; similar to Hvr1p induced in high iron; clade-specific repeat variation
orf19.1066	GIG1	1.41	1.37	Protein induced by N-acetylglucosamine (GlcNAc); localized in cytoplasm; mutation causes increased resistance to nikkomycin Z
orf19.2467	PRN1	1.41	1.46	Protein with similarity to pirins; induced by benomyl and in response to alpha pheromone in SpiderM medium; transcript induced by Mnf1 in weak acid stress; rat catheter and Spider biofilm induced
orf19.2669		1.41	1.47	#NV
orf19.328	NPR2	1.41	1.51	ORF in retrotransposon Tca4; similar to Pol region of retrotransposons encoding reverse transcriptase, protease, integrase; downstream of RHD2, similar to the Gag region encoding nucleocapsid-like protein; rat catheter biofilm induced
orf19.2265		1.41	1.42	Putative urea transporter; induced during infection of murine kidney, compared to growth in vitro; has murine homolog
orf19.5840		1.41	1.46	Ortholog(s) have role in positive regulation of transcription from RNA polymerase II promoter in response to amino acid starvation and SWI/SNF complex localization
orf19.6847		1.41	1.43	Ortholog(s) have cytoplasm, mating projection tip localization
orf19.1883	YCS4	1.41	1.43	Putative tRNA U44 2'-O-methyltransferase; virulence-group-correlated expression; induced during oral infection; mutants have reduced ability to damage oral epithelial cells; early-stage flow model biofilm induced
orf19.1453	SPT5	1.41	1.34	Putative condensin complex subunit; cell-cycle regulated periodic mRNA expression
orf19.7231	FTR2	1.41	1.46	Protein similar to S. cerevisiae Spt5p transcription elongation factor; transposon mutation affects filamentous growth
orf19.7414	ALS6	1.41	1.38	High-affinity iron permease; probably interacts with ferrous oxidase; regulated by iron level, ciclopirox olamine, amphotericin B, caspofungin; complements S. cerevisiae ftr1 iron transport defect; Hap43-repressed; Spider biofilm induced
orf19.5406		1.41	1.48	ALS family protein; expression in S. cerevisiae confers adhesion to gelatin; macrophage-induced gene; N-terminal adhesion domain; ALS family includes cell-surface glycoproteins, some with adhesion function
orf19.7547		1.41	1.4	Predicted plasma membrane associated protein phosphatase; required for normal filamentous growth; mRNA binds She3 and is localized to hyphal tips
orf19.7565	GNP3	1.41	1.37	Ortholog(s) have phosphatidylinositol-3-phosphate binding, ubiquitin-protein ligase activity, role in protein ubiquitination and cytosol, fungal-type vacuole membrane, late endosome, nucleus localization
orf19.5962	HGT4	1.41	1.29	Putative high-affinity glutamine permease; fungal-specific (no human or murine homolog)
orf19.4753	PFK26	1.4	1.23	Glucose and galactose sensor; fermentation, filamentation, virulence roles; 20-member glucose transporter family; extended C terminus; high-glucose repressed; macrophage induced; flow model biofilm repressed; Spider biofilm induced
orf19.3959	SSD1	1.4	1.29	Putative 6-phosphofructo-2-kinase; protein repressed during the mating process
orf19.158		1.4	1.37	Protein with role in resistance to host antimicrobial peptides; virulence role in murine infection; functional homolog of S. cerevisiae Ssd1p, which suppresses various mutant phenotypes; constitutively expressed and not cell-cycle regulated
orf19.2430		1.4	1.2	Ortholog of S. cerevisiae Apd1; required for normal localization of actin patches and normal tolerance of sodium ions and hydrogen peroxide; Hap43-induced; Spider biofilm induced
orf19.4346		1.4	1.27	Ortholog of Candida albicans WO-1 : CAWG_00792
orf19.3484		1.4	1.16	Ortholog(s) have protein anchor activity, role in COP11 vesicle coating, protein localization to endoplasmic reticulum exit site and ER to Golgi transport vesicle membrane, endoplasmic reticulum exit site localization
orf19.6027		1.4	1.23	#NV
orf19.1041		1.4	1.38	Ortholog of C. dubliniensis CD36 : Cd36_00740, C. parapsilosis CDC317 : CPAR2_110170, Candida tenuis NRRL Y-1498 : CANTEDRAFT_133175 and Debaromyces hansenii CBS767 : DEHA2D09724q
orf19.557		1.4	1.45	Ortholog(s) have cyclin-dependent protein serine/threonine kinase activity
orf19.3761	CDC54	1.4	1.25	Protein of unknown function; Hap43-repressed; Spider biofilm repressed
orf19.2542		1.4	1.31	Putative pre-replication complex helicase subunit; transcript regulated by Nrg1 and Mig1; periodic mRNA expression, peak at cell-cycle M/G1 phase; Hap43-induced
orf19.3367		1.4	1.5	Ortholog(s) have nucleus localization
orf19.2360	URA2	1.4	1.52	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.2135	TSM1	1.4	1.21	Putative bifunctional carbamoylphosphate synthetase-aspartate transcarbamylase; flucytosine induced; macrophage/pseudohyphal-induced; 5'-UTR intron; flow model biofilm repressed
orf19.172	RPC19	1.4	1.37	Putative transcription initiation factor TFIID subunit; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Nrg1-regulated
orf19.1110		1.4	1.32	Putative RNA polymerases I and III subunit AC19; Hap43-induced; rat catheter biofilm induced
orf19.2251	AAH1	1.4	1.2	Thiamine pyrophosphokinase, phosphorylates thiamine to produce the coenzyme thiamine pyrophosphate (thiamine diphosphate); active as a homodimer
orf19.5056		1.4	1.26	Adenine deaminase; purine salvage and nitrogen catabolism; colony morphology-related regulation by Ssn6; Hog1, CO2-induced; chlamyospore formation repressed in C. albicans and C. dubliniensis; rat catheter and F-12/CO2 biofilm induced
orf19.4258		1.4	1.24	Ortholog(s) have enzyme regulator activity, mitotic anaphase-promoting complex activity
orf19.615		1.4	1.19	Putative pre-mRNA polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to pamafungin and cordycepin in the C. albicans fitness test
orf19.3683	AGE3	1.4	1.29	#NV
orf19.3764	GSG1	1.4	1.28	Putative ADP-ribosylation factor GTPase activating protein, functional ortholog of S. cerevisiae GCS1; mutation affects endocytosis, hyphal growth, chemical and drug resistance, and sensitivity to cell wall inhibitors
orf19.2933		1.4	1.22	Putative subunit of the TRAPP complex; involved in targeting of ER-to-Golgi transport vesicles; flow model biofilm induced
orf19.5097	CAT8	1.4	1.41	Ortholog(s) have ubiquitin-specific protease activity, role in protein deubiquitination, regulation of transcription, DNA-dependent and cytosol, nucleus localization
orf19.1684		1.4	1.3	Zn(II)Cys6 transcription factor; similar to S. cerevisiae Cat8 but mutant phenotype suggests different target genes; mutant displays increased filamentous/invasive growth; flucytosine repressed; rat catheter biofilm induced
orf19.4479		1.4	1.68	Ortholog of C. dubliniensis CD36 : Cd36_81500, C. parapsilosis CDC317 : CPAR2_503620, Candida tenuis NRRL Y-1498 : CANTEDRAFT_93693 and Debaromyces hansenii CBS767 : DEHA2D15268q
orf19.3411		1.4	1.54	Putative U3-containing 90S preribosome subunit; Hap43-induced; repressed in core stress response; Spider biofilm induced
orf19.2193	PRS5	1.4	1.35	Ortholog(s) have role in cellular bud site selection and cytosol, nucleus localization
orf19.5580	TEL1	1.4	1.44	Putative 5-phospho-ribosyl-1(alpha)-pyrophosphate synthetase; Hap43-induced; repressed during core stress response
orf19.5584	PEP3	1.4	1.23	Ortholog(s) have protein serine/threonine kinase activity, telomeric DNA binding activity and role in DNA damage induced protein phosphorylation, double-strand break repair, histone phosphorylation, telomere maintenance
orf19.2025		1.4	1.35	Peptidase; activity useful for strain identification by multilocus enzyme electrophoresis (MLEE); clade-associated gene expression
orf19.2099	HIR1	1.4	1.47	Dubious open reading frame
orf19.6188		1.4	1.47	Component of the HIR complex, a nucleosome assembly factor involved in chromatin formation; involved in regulation of white-opaque switching frequency
orf19.2626		1.4	1.48	Putative adhesin-like protein
orf19.1006		1.4	1.19	#NV
orf19.3671		1.4	1.23	#NV
orf19.5177		1.4	1.32	Dubious open reading frame
orf19.497	EAF7	1.4	1.46	Ortholog of Candida albicans WO-1 : CAWG_05627
orf19.6893		1.4	1.49	Subunit of the NuA4 histone acetyltransferase complex
orf19.6408		1.4	1.28	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, cellular response to cadmium ion, detoxification of cadmium ion
				Putative DnaJ-like heat shock/chaperone; Hap43-repressed; Spider and F-12/CO2 biofilm induced

orf19.7110		1,4	1,38	Ortholog(s) have tRNA-specific adenosine-37 deaminase activity, role in tRNA modification and cytosol, nucleus localization
orf19.562	<i>FGR13</i>	1,4	1,37	Protein encoded in retrotransposon Zorro3 with a potential zinc finger; lacks an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.2743		1,4	1,25	Ortholog(s) have RNA polymerase II core promoter proximal region sequence-specific DNA binding transcription factor activity involved in negative regulation of transcription, more
orf19.7580		1,4	1,56	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_35095, <i>C. parapsilosis</i> CDC317 : CPAR2_200710, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_112338 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G06094g
orf19.7629		1,4	1,63	Ortholog(s) have Seh1-associated complex, cytosol, extrinsic to fungal-type vacuolar membrane, ribosome localization
orf19.233.1	<i>HRT1</i>	1,4	1,28	Ortholog of <i>S. cerevisiae</i> Hrt1; component of a nuclear ubiquitin-protein ligase complex involved in cell cycle control; induced by hydroxyurea; Spider biofilm induced
orf19.1329		1,4	1,24	#NV
orf19.1606		1,39	1,33	Protein of unknown function; Plc1-regulated
orf19.5568	<i>VPS51</i>	1,39	1,26	Protein with a role in vacuolar function; null mutant has defect in damaging oral epithelial and vascular endothelial cells; required for normal hyphal growth and stress resistance; induced in presence of host oral or vascular cells
orf19.73		1,39	1,2	Putative metalloprotease; associates with ribosomes and is involved in ribosome biogenesis; Spider biofilm induced
orf19.2429		1,39	1,25	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.625		1,39	1,2	#NV
orf19.3174	<i>CDC24</i>	1,39	1,23	GDP-GTP exchange factor for Cdc42p; phosphorylated; required for maintenance of hyphal growth; misexpression blocks hyphal growth and causes avirulence in a mouse model of systemic infection; antigenic during human oral infection
orf19.3606		1,39	1,4	Ortholog of <i>S. cerevisiae</i> Sna4 vacuolar outer membrane protein that plays a role in sensitivity to NA+; induced by Mnl1 under weak acid stress
orf19.262	<i>SMC3</i>	1,39	1,28	Protein similar to <i>S. cerevisiae</i> Smc3p, which is an ATPase involved in sister chromatid cohesion; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.4639.1		1,39	1,4	#NV
orf19.644	<i>HGT9</i>	1,39	1,16	Putative glucose transporter of the major facilitator superfamily; the <i>C. albicans</i> glucose transporter family comprises 20 members; 12 probable membrane-spanning segments; induced at low (0.2%, compared to 2%) glucose in rich media; intron
orf19.1161	<i>PLD1</i>	1,39	1,29	Phospholipase D1; required for phosphatidic acid and for most diacylglycerol production; required for wild-type mouse virulence, but not rat oral virulence; mutant defect in hyphal growth on solid substrates; similar to <i>S. cerevisiae</i> Spo14p
orf19.4715		1,39	1,14	Ortholog(s) have tubulin binding activity, role in microtubule cytoskeleton organization, mitochondrial fission, mitochondrion inheritance, nuclear migration along microtubule and cell cortex, cellular bud tip, mitochondrion localization
orf19.3218		1,39	1,38	Putative multidrug resistance protein; upregulated by Efg1p
orf19.4917		1,39	1,29	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00155
orf19.5038		1,39	1,2	Predicted tRNA (guanine) methyltransferase activity; Spider biofilm induced
orf19.1168	<i>ZCF3</i>	1,39	1,28	Zn(II)2Cys6 domain transcription factor; required for filamentous growth, resistance to rapamycin and flucytosine; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43-repressed; Spider and flow model biofilm induced
orf19.857	<i>FMO2</i>	1,39	1,18	Protein with a monooxygenase domain; Spider biofilm induced
orf19.87	<i>GPX1</i>	1,39	1,3	Putative thiol peroxidase; rat catheter and Spider biofilm induced
orf19.3763		1,39	1,32	Has domain(s) with predicted serine-type endopeptidase activity and integral to membrane localization
orf19.5558	<i>RBF1</i>	1,39	1,25	Transcription factor; glutamine-rich activation domain; binds RPG-box DNA sequences; predominantly nuclear; mutation causes accelerated induction of filamentous growth; antigenic during human oral infection; Sko1p-repressed
orf19.4475	<i>KTR4</i>	1,39	1,44	Mannosyltransferase; induced during cell wall regeneration; fungal-specific (no human or murine homolog); Bcr1-repressed in RPM1 a/a biofilms
orf19.2568	<i>IFU5</i>	1,39	1,35	Predicted membrane protein; estradiol-induced; upregulation associated with CDR1 and CDR2 overexpression or flufenazine; putative drug-responsive regulatory site; similar to <i>S. cerevisiae</i> Wwm1p; Hap43-repressed; Spider biofilm repressed
orf19.288	<i>MET13</i>	1,39	1,27	Putative methionine biosynthesis protein; ketoconazole-induced; amphotericin B repressed; Spider biofilm repressed
orf19.4225	<i>LEU3</i>	1,39	1,23	Zn(II)2Cys6 transcription factor; predicted regulator branched-c ofhain amino acid biosynthesis genes; alkaline induced; induced by Mnl1 under weak acid stress; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.6124	<i>ACE2</i>	1,39	1,36	Transcription factor; similar to <i>S. cerevisiae</i> Ace2 and Swi5; regulates morphogenesis, cell separation, adherence, virulence in a mice; mutant is hyperfilamentous; rat catheter and Spider biofilm induced
orf19.6243	<i>VPS34</i>	1,39	1,28	Autophosphorylated class III phosphatidylinositol 3-kinase; required for normal vesicle transport, hyphal growth, fibroblast adherence, virulence in mouse systemic infection; growth-regulated; caspofungin and hydrogen peroxide sensitivity
orf19.2423	<i>ZCF11</i>	1,39	1,39	Zn(II)2Cys6 transcription factor; required for wild-type filamentous growth; mRNA binds She3
orf19.1367	<i>MTW1</i>	1,39	1,33	Kinetochore component; amount of Nuf2p and Mtw1p protein detected at each centromere is consistent with a single kinetochore microtubule attachment site
orf19.6160		1,39	1,27	Ortholog(s) have role in eisosome assembly and eisosome, membrane raft, mitochondrion, plasma membrane localization
orf19.1589		1,39	1,31	Putative transcription factor component of the core factor (CF) rDNA transcription factor complex; Spider biofilm induced
orf19.5765	<i>NUP82</i>	1,39	1,33	Linker nucleoporin of the nuclear pore complex; role in mRNA export from nucleus, protein import into nucleus, ribosomal large subunit export from nucleus, ribosomal small subunit export from nucleus; rat catheter biofilm repressed
orf19.5136		1,39	1,34	Putative pyridoxamine 5'-phosphate oxidase; planktonic growth and early-stage flow model biofilm induced
orf19.5117	<i>OLE1</i>	1,39	1,68	Fatty acid desaturase, essential protein involved in oleic acid synthesis; required for aerobic hyphal growth and chlamydospore formation; subject to hypoxic regulation; fluconazole-induced; caspofungin repressed; Hap43p-induced
orf19.4683	<i>MLP1</i>	1,39	1,16	Ortholog(s) have ribonucleoprotein complex binding activity
orf19.4110		1,39	1,28	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20490, <i>C. parapsilosis</i> CDC317 : CPAR2_104180, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_116074 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F05148g
orf19.255	<i>ZCF1</i>	1,39	1,31	Zn(II)2Cys6 transcription factor; transcript regulated during hypha formation; 5'-UTR intron; mutants show decreased colonization of mouse kidneys; flow model biofilm induced; Spider biofilm induced
orf19.896	<i>CHK1</i>	1,39	1,37	Histidine kinase; 2-component signaling, cell wall synthesis; hyphal growth defect; avirulent in mouse, not rat vaginal infection; phagocytosis rate increased; Spider biofilm induced; required for RPM1 biofilm; Bcr1-induced in a/a biofilm
orf19.6926	<i>CSC25</i>	1,39	1,29	Guanyl-nucleotide exchange factor; activator of Ras/adenylyl cyclase pathway; functional homolog of <i>S. cerevisiae</i> Cdc25p; commonly called Cdc25; transposon mutation affects filamentous growth
orf19.7159		1,39	1,41	Putative protein of unknown function; Hap43p-repressed gene; ortholog of <i>S. cerevisiae</i> YMR185W
orf19.964	<i>SMC4</i>	1,39	1,3	Ortholog(s) have chromatin binding activity and role in cellular protein localization, mitotic chromosome condensation, tRNA gene clustering
orf19.5318	<i>RAD1</i>	1,39	1,27	Putative single-stranded DNA endonuclease; transcript regulated by Nrg1; macrophage-induced gene
orf19.5340		1,39	1,35	Putative Rab GTPase activator, role in ER to Golgi vesicle-mediated transport; Spider biofilm induced
orf19.7068	<i>MAC1</i>	1,39	1,48	Copper list transcription factor; regulator of CTR1 copper transporter; induces CTR1 in low-copper conditions; ectopic expression causes copper-sensitive stimulation of filamentation in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.5391		1,39	1,52	Predicted RNA splicing and ER to Golgi transport protein; Hap43-induced gene
orf19.7522		1,39	1,37	Protein with a pyridoxal phosphate-dependent transferase domain; Hap43-repressed; mutation confers hypersensitivity to amphotericin B; Spider biofilm repressed
orf19.7557	<i>FGR46</i>	1,39	1,23	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.6240		1,39	1,33	SH3-domain protein; role in barrier septum assembly involved in cell cycle cytokinesis; activates the Chs2 chitin synthase activity during cytokinesis; Spider biofilm repressed
orf19.478		1,39	1,32	Protein required for fusion of cvt-vesicles and autophagosomes with the vacuole; plays a role in autophagy, protein targeting to vacuole and vesicle docking; flow model biofilm induced
orf19.1593		1,38	1,21	#NV
orf19.1302		1,38	1,27	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43500, <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_64619, <i>Candida tropicalis</i> MYA-3404 : CTRG_00335 and <i>Candida albicans</i> WO-1 : CAWG_03437
orf19.5752		1,38	1,21	Ortholog(s) have ubiquitin-protein ligase activity, role in SCF-dependent proteasomal ubiquitin-dependent protein catabolic process and SCF ubiquitin ligase complex localization
orf19.4793		1,38	1,31	Putative ribosome-associated protein; ortholog of <i>S. cerevisiae</i> Tma16; Hap43-induced gene; Spider biofilm induced
orf19.3626		1,38	1,27	Ortholog(s) have cytosol, nucleus localization
orf19.2818		1,38	1,29	Ortholog(s) have RNA-dependent ATPase activity, second spliceosomal transesterification activity, role in generation of catalytic spliceosome for second transesterification step and U2-type catalytic step 2 spliceosome localization
orf19.4760		1,38	1,27	Putative protein-histidine N-methyltransferase; Spider biofilm induced

orf19.5619		1.38	1.23	Protein of unknown function; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.2532	<i>PRS</i>	1.38	1.24	Putative proV-tRNA synthetase; monofunctional Class II synthetase; gene is constitutively expressed
orf19.3949		1.38	1.32	Ortholog(s) have chromatin binding, histone binding activity
orf19.4125	<i>PZF1</i>	1.38	1.16	C2H2 transcription factor; Hap43-induced; rat catheter and Spider biofilm induced
orf19.2728		1.38	1.15	Ortholog(s) have DNA clamp loader activity, role in DNA damage checkpoint, nucleotide-excision repair, reciprocal recombination and Rad17 RFC-like complex, nucleus localization
orf19.3703		1.38	1.32	#NV
orf19.2187	<i>ALG7</i>	1.38	1.29	Protein involved in cell wall mannan biosynthesis; mutation confers hypersensitivity to tunicamycin; transcript elevated in <i>chk1</i> , <i>nik1</i> , and <i>sln1</i> homozygous null mutants; possibly essential gene, disruptants not obtained by UAU1 method
orf19.1169		1.38	1.24	Putative DnaJ-like molecular chaperone; Spider biofilm induced
orf19.132		1.38	1.61	Ortholog(s) have role in histone deacetylation, negative regulation of chromatin silencing at telomere, negative regulation of meiosis, positive regulation of stress-activated MAPK cascade
orf19.5221		1.38	1.29	Ortholog(s) have phosphatidylinositol-4,5-bisphosphate binding activity
orf19.3077	<i>VID21</i>	1.38	1.52	Subunit of the NuA4 histone acetyltransferase complex; soluble protein in hyphae; Spider biofilm repressed
orf19.3459		1.38	1.25	Putative serine/threonine/tyrosine (dual-specificity) kinase; disruptants not obtained by UAU1 method
orf19.522	<i>PIM1</i>	1.38	1.43	ATP-dependent Lon protease; role in degradation of misfolded proteins in mitochondria, biogenesis and maintenance of mitochondria; rat catheter biofilm induced
orf19.5815	<i>SCT2</i>	1.38	1.36	Putative glycerol-3-phosphate acyltransferase; fungal-specific (no human or murine homolog)
orf19.2346		1.38	1.56	Putative protein of unknown function, transcription is positively regulated by Tbf1p
orf19.3534	<i>RHO3</i>	1.38	1.33	Putative Rho family GTPase; possible substrate of protein farnesyltransferase and geranylgeranyltransferase type I; greater transcription in hyphal form than yeast form; plasma membrane-localized
orf19.3509		1.38	1.23	#NV
orf19.1724		1.38	1.13	Protein of unknown function; induced by nitric oxide independent of Yhb1p
orf19.220	<i>PIR1</i>	1.38	1.86	1,3-beta-glucan-linked cell wall protein; N-mannosylated, O-glycosylated by Pmt1; cell wall defect in het mutant; Hog1/fluconazole/hypoxia induced; iron/Efg1/Plc1/temp regulated; flow model biofilm induced; hyphal, Spider biofilm repressed
orf19.6175		1.38	1.58	Putative 35S rRNA processing protein; Hap43-induced; repressed by prostaglandins; Spider biofilm induced
orf19.2909	<i>ERG26</i>	1.38	1.27	C-3 sterol dehydrogenase, catalyzes the 2nd of 3 steps required to remove 2 C-4 methyl groups from an intermediate in ergosterol biosynthesis; amphotericin B, caspofungin repressed; Spider biofilm repressed
orf19.390	<i>CDC42</i>	1.38	1.3	Rho-type GTPase; required for budding and maintenance of hyphal growth; GGase I geranylgeranylated; misexpression blocks hyphal growth, causes avirulence in mouse IV infection; shows actin-dependent localization to hyphal tip
orf19.1422	<i>FZO1</i>	1.38	1.31	Mitochondrial biogenesis protein; rat catheter and Spider biofilm induced
orf19.4404	<i>PGA49</i>	1.38	1.26	Putative GPI-anchored protein
orf19.4862		1.38	1.21	Putative integral membrane protein; <i>S. cerevisiae</i> ortholog Tvp23 localizes to late Golgi vesicles; rat catheter biofilm induced
orf19.1889		1.38	1.27	Putative phosphoglycerate mutase family protein; stationary phase enriched protein; early-stage flow model biofilm induced; Spider biofilm repressed
orf19.6061		1.38	1.33	Ortholog(s) have role in N-acyl ethanolamine metabolic process, N-acyl phosphatidylethanolamine metabolic process and integral to mitochondrial inner membrane localization
orf19.7047	<i>RTF1</i>	1.38	1.37	Putative RNA polymerase II-associated Paf1 complex subunit; induced during the mating process
orf19.5003		1.38	1.37	Ortholog(s) have GTPase regulator activity and cytoplasm, nuclear envelope localization
orf19.7327	<i>PHO88</i>	1.38	1.4	Protein with a role in phosphate transport; biofilm-regulated expression; amphotericin B repressed
orf19.7475	<i>PHO81</i>	1.38	1.32	Protein involved in regulation of hyphal development; required for response to farnesic acid; possibly adherence-induced
orf19.7521	<i>REP1</i>	1.38	1.35	Protein involved in negative regulation of MDR1 transcription; mutants show increased resistance to azole drugs
orf19.7538		1.38	1.49	DNA helicase involved in rDNA replication; Spider biofilm repressed
orf19.6739		1.38	1.7	Ortholog(s) have phosphotransferase activity, role in deoxyribose phosphate catabolic process and cytosol, nucleus localization
orf19.2647	<i>ZCF14</i>	1.37	1.22	Putative Zn(II)2Cys6 transcription factor; caspofungin induced
orf19.1991		1.37	1.3	Ortholog(s) have cytoplasm localization
orf19.259		1.37	1.18	Protein with a predicted role in 60S ribosomal subunit assembly; flow model biofilm induced
orf19.4955		1.37	1.29	Ortholog(s) have role in ascospore wall assembly and endoplasmic reticulum localization
orf19.5065	<i>ERD1</i>	1.37	1.26	Putative membrane protein required for the retention of luminal endoplasmic reticulum proteins; rat catheter biofilm induced
orf19.2665	<i>MSN5</i>	1.37	1.32	Predicted karyopherin involved in nuclear import and export of proteins; flow model biofilm induced; Spider biofilm induced
orf19.3732	<i>ERG25</i>	1.37	1.31	Putative C-4 methyl sterol oxidase; C4-demethylation of ergosterol biosynthesis intermediates, based on similarity to <i>S. cerevisiae</i> Erg25; fluconazole-induced; induced in azole-resistant strain; rat catheter and Spider biofilm induced
orf19.682		1.37	2.14	#NV
orf19.690	<i>PLB2</i>	1.37	1.36	Putative phospholipase B; conserved catalytic region; 6 putative N-glycosylation motifs; predicted secretion signal; no GPI anchor predicted; fungal-specific (no human or murine homolog)
orf19.1077	<i>ATM1</i>	1.37	1.17	Member of MDR subfamily of ABC family; ortholog of <i>S. cerevisiae</i> ABC transporter, <i>Atm1</i> ; induced in low iron; induced by nitric oxide independent of Yhb1
orf19.230		1.37	1.2	Ortholog of <i>S. cerevisiae</i> Pet111; a mitochondrial translational activator specific for the COX2 mRNA; Hap43-induced gene
orf19.4642		1.37	1.2	Protein of unknown function; Hap43-induced gene
orf19.4127		1.37	1.21	Ortholog(s) have actin filament binding activity, role in actin cortical patch localization, actin filament bundle assembly, endocytosis and actin cortical patch localization
orf19.130		1.37	1.3	Ortholog(s) have protein serine/threonine kinase activity, ubiquitin binding activity
orf19.4496		1.37	1.31	Ortholog(s) have role in cellular calcium ion homeostasis and Golgi medial cisterna, cis-Golgi network, endoplasmic reticulum, fungal-type vacuole membrane localization
orf19.3599	<i>TIF4631</i>	1.37	1.24	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.4647	<i>HAP3</i>	1.37	1.34	Predicted CCAAT-binding transcription factor that regulates respiration; Cap2-dependent induction in low iron; opaque specific, alkaline, ciclopirox olamine induced; regulated by Sef1, Sfu1, Hap43; Bcr1-regulated in RPM1 a/a biofilms
orf19.1519		1.37	1.38	Protein of unknown function; Hap43-repressed gene
orf19.2459		1.37	1.3	Protein of unknown function; mRNA binds to She3; Hap43 repressed gene; Spider biofilm induced
orf19.6022	<i>NRM1</i>	1.37	1.19	Transcriptional regulator of cell cycle gene expression; regulates expression of genes involved in DNA replication stress; interacts with Swi4 and Swi6; repressed during core stress response; Spider biofilm repressed
orf19.1839	<i>RPA190</i>	1.37	1.24	Putative RNA polymerase I subunit A190; Hap43p-induced gene; flucytosine induced
orf19.2582		1.37	1.43	Ortholog(s) have role in cytoplasmic translation and cytosol, ribosome localization
orf19.1062		1.37	1.21	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_04020, <i>C. parapsilosis</i> CDC317 : CPAR2_107000, <i>Candida tenuis</i> NRRL Y-1498 : CANTEADRAFT_113990 and <i>Pichia stipitis</i> Pignal : PICST_32780
orf19.6307		1.37	1.41	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30250, <i>Candida tenuis</i> NRRL Y-1498 : CANTEADRAFT_98619, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G22594a and <i>Pichia stipitis</i> Pignal : PICST_50168
orf19.1943		1.37	1.46	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_302610, <i>C. dubliniensis</i> CD36 : Cd36_51070, <i>Candida orthopsilosis</i> Co 90-125 : COURT_0E04770 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_50634
orf19.2260		1.37	1.49	Putative transcription factor with zinc finger DNA-binding motif
orf19.2483	<i>RIM1</i>	1.37	1.22	Putative single-stranded DNA-binding protein; protein level decreases in stationary phase cultures; rat catheter biofilm repressed
orf19.6259		1.37	1.19	Exosome non-catalytic core component; involved in 3'-5' RNA processing and degradation in the nucleus and cytoplasm; Spider biofilm induced
orf19.666		1.37	1.34	Essential protein required for the DNA integrity checkpoint pathway; Spider biofilm induced
orf19.6991	<i>PRE3</i>	1.37	1.49	Putative beta-1 proteasome subunit; macrophage-induced protein; regulated by Gcn2p and Gcn4p; GlcNAc-induced protein
orf19.4615		1.37	1.28	Ortholog(s) have histone deacetylase activity
orf19.5030	<i>DOS2</i>	1.37	1.06	Protein of unknown function; induced during planktonic growth
orf19.5015	<i>MYO2</i>	1.37	1.2	Class V myosin; nonessential; sole class V myosin in <i>C. albicans</i> ; required for WT actin cytoskeletal polarity, nuclear organization, migration, hyphal growth; conserved myosin ATPase/tail domains; Hap43-induced; flow model biofilm repressed
orf19.3252	<i>DAL81</i>	1.37	1.46	Zn(II)2Cys6 transcription factor; ortholog of <i>S. cerevisiae</i> Dal81, involved in the regulation of nitrogen-degradation genes; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.7316		1.37	1.35	Putative phytanoyl-CoA dioxygenase family protein; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); induced by nitric oxide
orf19.5413		1.37	1.48	Ortholog(s) have role in mRNA splicing, via spliceosome and Prp19 complex, spliceosomal complex localization
orf19.5432	<i>TPT1</i>	1.37	1.42	tRNA 2'-phosphotransferase; enzyme of tRNA splicing; functionally complements viability of <i>S. cerevisiae</i> tpt1 null mutant
orf19.778	<i>PIL1</i>	1.37	1.29	Eisosome component; predicted role in endocytosis; echinocandin-binding protein; localizes to cell surface of hyphae, but not yeast-form cells; Hap43, YNB biofilm induced; rat catheter biofilm repressed
orf19.600	<i>TRK1</i>	1.37	1.69	Potassium transporter; mediates K+ and Cl- influx; role in sensitivity to cationic antimicrobial peptides, not by direct uptake, possibly related to membrane permeability; contains 5' UTR intron; Spider biofilm induced

orf19.1536		1.36	1.41	Putative vacuolar transporter; Hap43-induced; required for normal filamentous growth; mRNA binds She3 and is localized to hyphal tips
orf19.1535		1.36	1.22	Protein of unknown function; Hap43-induced gene
orf19.1092		1.36	1.38	Dolicho-P-Man dependent alpha(1-3) mannosyltransferase; role in the synthesis of dolicho-linked oligosaccharide donor for N-linked glycosylation of proteins; rat catheter biofilm repressed
orf19.1089	PEX11	1.36	1.19	Putative peroxisomal membrane protein; role in fatty acid oxidation; expression is Tac1-regulated; Hms1p-dependent induction by geldamycin; Spider biofilm induced
orf19.1611		1.36	1.24	Protein of unknown function; Spider biofilm induced
orf19.2818		1.36	1.25	Ortholog(s) have RNA-dependent ATPase activity, second spliceosomal transesterification activity, role in generation of catalytic spliceosome for second transesterification step and U2-type catalytic step 2 spliceosome localization
orf19.2926		1.36	1.38	Putative nuclease required for DNA single- and double-strand break repair; rat catheter biofilm induced
orf19.1527		1.36	1.15	Protein of unknown function; Spider biofilm induced
orf19.1574		1.36	1.34	Putative TFIID subunit involved in RNA polymerase II transcription initiation; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2827		1.36	1.22	Ortholog(s) have structural constituent of cytoskeleton activity
orf19.3930	YUH2	1.36	1.14	Putative ubiquitin C-terminal hydrolase; sumoylation target
orf19.1100		1.36	1.13	#NV
orf19.5633		1.36	1.33	F-box domain-containing protein; flow model biofilm induced
orf19.3600		1.36	1.42	Protein of unknown function; flow model biofilm induced
orf19.4145	ZCF20	1.36	1.22	Zn(II)Cys6 transcription factor orthologous to S. cerevisiae Hap1; regulated by Sef1, Stu1; Hap43-induced; Spider biofilm induced
orf19.4072	IFF6	1.36	1.24	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.4959		1.36	1.18	Protein of unknown function; Spider biofilm repressed
orf19.3159	UTP20	1.36	1.33	Putative snoRNA-binding protein; S. cerevisiae Utp20 ortholog; likely essential for growth; repressed in core stress response; mutation confers resistance to 5-fluorocytosine (5-FC) and parnafungin
orf19.4892	TPK1	1.36	1.27	cAMP-dependent protein kinase catalytic subunit; Tpk2 isoform; control of morphogenesis and stress response; WT nuclear localization requires Bcy1; produced during stationary, not exponential growth; rat catheter and Spider biofilm induced
orf19.5130	PDI1	1.36	1.17	Putative protein disulfide-isomerase; antigenic in human infection; soluble protein in hyphae; induced by filamentous growth; protein present in exponential and stationary growth phase yeast cultures; flow model biofilm repressed
orf19.5129		1.36	1.26	Ortholog of C. dubliniensis CD36 : Cd36_72910, C. parapsilosis CDC317 : CPAR2_704100, Candida tenuis NRRL Y-1498 : CANTEDRAFT_113193 and Debaromyces hansenii CBS767 : DEHA2E23100g
orf19.3966	CRH12	1.36	1.27	CRH family cell wall protein; transcript regulated by Nrg1 and Tup1; alkaline induced by Rim101; repressed during cell wall regeneration; flow model biofilm induced
orf19.4707		1.36	1.29	Putative secreted acid sphingomyelin phosphodiesterase; possible Kex2p substrate
orf19.2209	YVC1	1.36	1.35	Putative vacuolar cation channel shock; repressed by alpha pheromone in SpiderM medium; flow model biofilm repressed
orf19.4184		1.36	1.28	Protein with a predicted role in clathrin cage assembly; Hap43-repressed; Spider biofilm repressed
orf19.4187		1.36	1.21	Ortholog(s) have role in mitochondrial genome maintenance, phospholipid transport, protein import into mitochondrial outer membrane and ERME5 complex, integral to endoplasmic reticulum membrane localization
orf19.764		1.36	1.34	Ortholog(s) have clathrin-coated vesicle, cytoplasm localization
orf19.2455		1.36	1.23	Ortholog(s) have gamma-glutamyltransferase activity, omega peptidase activity, role in glutathione catabolic process and cytoplasm, nucleus localization
orf19.844	STE11	1.36	1.26	Protein similar to S. cerevisiae Ste11p; mutants are sensitive to growth on H2O2 medium
orf19.418	KOG1	1.36	1.3	Putative TORC1 subunit; heterozygous null mutant displays sensitivity to rapamycin; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.2593	BIO2	1.36	1.34	Putative biotin synthase; induced by high iron; repressed by ciclopirox olamine; upregulated in clinical isolates from HIV+ patients with oral candidiasis; Hap43-repressed; Spider biofilm induced
		1.36	1.19	#NV
orf19.1840		1.36	1.02	Predicted lipid-binding ER protein; involved in ER-plasma membrane tethering; Spider biofilm induced
orf19.1798	TSC2	1.36	1.46	Putative GTPase-activating protein; similar to mammalian tuberlin; involved in control of filamentous growth; mutants are viable
orf19.5651		1.36	1.24	Ortholog(s) have histone demethylase activity (H3-dimethyl-K4 specific), histone demethylase activity (H3-trimethyl-K4 specific) activity
orf19.6220		1.36	1.39	Ortholog(s) have role in positive regulation of transcription elongation from RNA polymerase II promoter and CCR4-NOT core complex localization
orf19.55		1.36	1.71	Ortholog(s) have role in cellular zinc ion homeostasis and endoplasmic reticulum localization
orf19.693		1.36	1.37	Protein of unknown function; Spider biofilm induced; rat catheter biofilm repressed
orf19.6208	MEF2	1.36	1.35	Putative mitochondrial translation elongation factor; caspofungin induced
orf19.6329		1.36	1.34	Protein of unknown function; opaque-specific transcript; fluconazole-repressed; induced in cyr1 mutant and in oralpharyngeal candidiasis; Spider biofilm induced
orf19.915		1.36	1.19	Protein of unknown function; Spider biofilm induced
orf19.1261	CGT1	1.36	1.39	mRNA 5' guanylyltransferase; small subunit of mRNA capping enzyme; binds an RNA Pol II C-terminal domain peptide; Cet1p and Cot1p form a 2:1 complex; functional homolog of S. cerevisiae Ceg1p
orf19.1261	CGT1	1.36	1.17	mRNA 5' guanylyltransferase; small subunit of mRNA capping enzyme; binds an RNA Pol II C-terminal domain peptide; Cet1p and Cot1p form a 2:1 complex; functional homolog of S. cerevisiae Ceg1p
orf19.4923		1.36	1.49	Predicted membrane transporter; sugar porter (SP) family member, major facilitator superfamily; caspofungin induced; Spider biofilm induced
orf19.200		1.36	1.58	Putative nuclear RNA-binding protein; Spider biofilm repressed
orf19.207	PGA55	1.36	1.4	GPI-anchored adhesin-like protein; filament induced; regulated by Nrg1, Tup1; regulated upon hyphal formation; mRNA binds to She3 and is localized to yeast-form buds and hyphal tips; induced during chlamydospore formation
orf19.6099	CCT8	1.36	1.4	Chaperonin-containing T-complex subunit; role in hyphal morphogenesis, particularly starvation-induced; essential; expression in S. cerevisiae inhibits Ras2-mediated pathways; CCT8 and TRP1 overlap; Spider biofilm repressed
orf19.6891	RFC1	1.36	1.29	Putative DNA replication factor C subunit; ortholog of S. cerevisiae Rfc1; likely essential, based on an insertional mutagenesis strategy; rat catheter biofilm repressed
orf19.1998		1.36	1.3	Ortholog of C. dubliniensis CD36 : Cd36_16140, C. parapsilosis CDC317 : CPAR2_213870, Candida tenuis NRRL Y-1498 : CANTEDRAFT_92202 and Debaromyces hansenii CBS767 : DEHA2A01980g
orf19.1026		1.36	1.35	Ortholog(s) have role in exonucleolytic trimming to generate mature 3'-end of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.2765	PGA62	1.36	1.69	Adhesin-like cell wall protein; putative GPI-anchor; fluconazole-induced; induced in high iron; induced during cell wall regeneration; Cvr1 or Ras1 repressed; Tbf1 induced
orf19.5801	RNR21	1.36	1.24	Ribonucleoside-diphosphate reductase; regulated by tyrosol and cell density; ciclopirox olamine, fluconazole or flucytosine induced; regulated by Sef1, Stu1, and Hap43
orf19.3113		1.36	1.46	Protein of unknown function; Spider biofilm induced
orf19.6861		1.36	1.36	Ortholog(s) have ubiquitin-protein ligase activity and role in anaphase-promoting complex-dependent proteasomal ubiquitin-dependent protein catabolic process, chromatin assembly, protein ubiquitination
orf19.3599	TIF4631	1.36	1.26	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.1457		1.36	1.25	Putative RNA polymerase transcription factor TFIIF core component; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5617		1.36	1.25	Ortholog(s) have methylated histone residue binding, transcription factor binding activity
orf19.7202		1.36	1.18	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, protein retention in ER lumen, retrograde vesicle-mediated transport, Golgi to ER and COP1-coated vesicle, ER to Golgi transport vesicle localization
orf19.1175		1.36	1.26	#NV
orf19.7065	PSF3	1.36	1.34	Putative GINS complex subunit; cell-cycle regulated periodic mRNA expression; Spider biofilm induced
orf19.7063		1.36	1.31	Ortholog(s) have tRNA quanylyltransferase activity, role in tRNA modification and cytosol, nucleus localization
orf19.7399		1.36	1.74	#NV
orf19.7422		1.36	1.44	Ortholog(s) have RNA binding activity and nucleus localization
orf19.7472	IFF4	1.36	1.18	Adhesin-like cell surface protein; putative GPI-anchor; null mutant germ tubes show decreased adhesion to plastic substrate; mutants are viable; Hap43-repressed gene
orf19.6803	HUT1	1.36	1.37	Ortholog(s) have UDP-galactose transmembrane transporter activity, role in UDP-galactose transmembrane transport, UDP-glucose transport, regulation of protein folding in endoplasmic reticulum and endoplasmic reticulum localization
orf19.6778		1.36	1.33	Aminophospholipid translocase (flippase); maintains membrane lipid asymmetry in post-Golgi secretory vesicles; contributes to clathrin-coated vesicle formation and endocytosis; flow model biofilm repressed
orf19.6758		1.36	1.51	Predicted glucose 1-dehydrogenase (NADP+); rat catheter biofilm repressed
orf19.6749	KRS1	1.36	1.45	Putative tRNA-Lys synthetase; repressed upon phagocytosis by murine macrophages; stationary phase enriched protein; Spider biofilm repressed
orf19.5965		1.36	1.27	Ortholog(s) have ubiquitin-ubiquitin ligase activity, role in ER-associated protein catabolic process, protein ubiquitination, response to stress and cytoplasm, nucleus localization
orf19.1294		1.36	1.33	#NV

orf19.5912	<i>MAK21</i>	1.36	1.54	Putative 66S pre-ribosomal particle subunit; mutation confers hypersensitivity to tubercidin (7-deazaadenosine)
orf19.773		1.35	1.33	Protein similar to <i>S. cerevisiae</i> Rsa3 predicted nucleolar protein involved in maturation of pre-60S ribosomal particles; rat catheter and Spider biofilm induced
orf19.1441		1.35	1.36	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16230, <i>C. parapsilosis</i> CDC317 : CPAR2_213950, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_112720 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A01848g
orf19.1592		1.35	1.23	Protein of unknown function; Spider biofilm induced
orf19.798	<i>TAF14</i>	1.35	1.26	Putative DNA-binding transcription factor; TFIIF subunit; macrophage-induced protein; possibly required for yeast cell adherence to silicone substrate; mutant has pleiotrophic effects
orf19.2706	<i>CRH11</i>	1.35	1.38	GPI-anchored cell wall transglycosylase, putative ortholog of <i>S. cerevisiae</i> Crh1p; predicted glycosyl hydrolase domain; similar to Csf4p and to antigenic <i>A. fumigatus</i> AspF9; predicted Kex2p substrate; caspofungin-induced
orf19.5065	<i>ERD1</i>	1.35	1.24	#NV Putative membrane protein required for the retention of luminal endoplasmic reticulum proteins; rat catheter biofilm induced
orf19.1299	<i>RPN6</i>	1.35	1.24	Putative 26S proteasome subunit; Hap43p-induced gene; regulated by Gcn2p and Gcn4p
orf19.6017		1.35	1.24	Protein of unknown function; Spider biofilm induced
orf19.3959	<i>SSD1</i>	1.35	1.42	#NV Protein with role in resistance to host antimicrobial peptides; virulence role in murine infection; functional homolog of <i>S. cerevisiae</i> Ssd1p, which suppresses various mutant phenotypes; constitutively expressed and not cell-cycle regulated
orf19.4330		1.35	1.28	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52790, <i>Candida tropicalis</i> MYA-3404 : CTRG_05968 and <i>Candida albicans</i> WO-1 : CAWG_04684
orf19.3365	<i>DAO2</i>	1.35	1.22	Putative D-amino acid oxidase; rat catheter biofilm induced
orf19.252		1.35	1.26	Protein of unknown function; <i>S. cerevisiae</i> ortholog Fmp37 which localizes to mitochondria; Hap43-repressed; Spider biofilm repressed
orf19.3586		1.35	1.32	Ortholog(s) have role in fungal-type cell wall organization, vesicle-mediated transport and integral to endoplasmic reticulum membrane localization
orf19.3719		1.35	1.22	Dubious open reading frame
orf19.4316		1.35	1.24	Trimethyllysine dioxygenase, the first enzyme in the carnitine biosynthesis pathway; hypha-induced expression, regulated by Cyr1, Ras1, Efq1; rat catheter biofilm repressed
orf19.4068		1.35	1.24	Protein of unknown function; flow model biofilm induced
orf19.4982		1.35	1.25	Has domain(s) with predicted role in lipid metabolic process
orf19.4222	<i>SST2</i>	1.35	1.31	Predicted regulator of G-protein signaling in mating pathway; null mutation causes alpha-factor hypersensitivity and mating defect (in opaque MTLA/MTLb background); transcript induced by alpha factor
orf19.4513		1.35	1.25	Protein of unknown function; mutants are viable; rat catheter and Spider biofilm induced
orf19.1204		1.35	1.4	Phosphorylated protein of unknown function; transcript is upregulated clinical isolates from HIV positive patients with oral candidiasis
orf19.1202		1.35	1.3	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_60350, <i>C. parapsilosis</i> CDC317 : CPAR2_603550, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_114325 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G04950g
orf19.4409		1.35	1.38	Ortholog(s) have nucleoside-triphosphatase activity, nucleoside-triphosphate diphosphatase activity and role in cellular response to phosphate starvation, nucleoside triphosphate metabolic process
orf19.607		1.35	1.33	Protein involved in transcription-coupled nucleotide excision repair of UV-induced DNA lesions; Spider biofilm induced
orf19.4558		1.35	1.21	#NV
orf19.1112	<i>BUD7</i>	1.35	1.16	Ortholog(s) have role in Golgi to plasma membrane transport, fungal-type cell wall chitin biosynthetic process and cell division site, clathrin-coated vesicle, cytosol, exomer complex, nucleus, ribosome localization
orf19.1737		1.35	1.14	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01802
orf19.5188	<i>CHS1</i>	1.35	1.23	Chitin synthase; essential; for primary septum synthesis in yeast and hyphae; 1 of several chitin synthases; enzymatically activated by proteolytic processing; complements defects of <i>S. cerevisiae</i> chs1 or chs2; Spider biofilm repressed
orf19.1500		1.35	1.29	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16720, <i>C. parapsilosis</i> CDC317 : CPAR2_210210, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_128446 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B04902g
orf19.4912		1.35	1.28	Ortholog(s) have ubiquitin protein ligase binding activity, role in ubiquitin-dependent endocytosis and Golgi apparatus, clathrin-coated vesicle, cytosol, nucleus, plasma membrane localization
orf19.1339	<i>CPY1</i>	1.35	1.19	Carboxypeptidase Y; transcript regulated at yeast-hypha transition or macrophage response; induced human neutrophils; regulated by Gcn2 and Gcn4; putative N-glycosylation
orf19.6020		1.35	1.2	Ortholog(s) have Atg8 ligase activity and role in C-terminal protein lipidation, CVT pathway, autophagic vacuole assembly, cellular response to nitrogen starvation, mitochondrion degradation, piecemeal microautophagy of nucleus
orf19.3762		1.35	1.27	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11720, <i>C. parapsilosis</i> CDC317 : CPAR2_201890, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_91948 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E16786g
orf19.2930		1.35	1.54	Predicted translation initiation factor; role in translational initiation; Spider biofilm repressed
orf19.747	<i>NBP35</i>	1.35	1.34	#NV Similar to nucleotide-binding proteins; increased transcription is observed upon benomyl treatment; transcription is induced upon filamentous growth
orf19.5480	<i>ILV1</i>	1.35	1.31	Putative threonine dehydratase; regulated by Gcn4 and Gcn2; induced by amino acid starvation (3-AT); protein present in yeast exponential and stationary phase cultures; early-stage flow model biofilm induced
orf19.2611	<i>MCM6</i>	1.35	1.27	Putative MCM DNA replication initiation complex component; mRNA expression peak at cell-cycle M/G1 phase; regulated by tyrosol and cell density; repressed by alpha pheromone in SpiderM medium; Hap43-induced gene
orf19.5043		1.35	1.3	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43610, <i>C. parapsilosis</i> CDC317 : CPAR2_403770, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G16962g and <i>Pichia stipitis</i> Pignal : PICST_30926
orf19.5508		1.35	1.32	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05700
orf19.2875		1.35	1.2	Ortholog of <i>S. pombe</i> SPAC1071.09c DNAJ domain protein; Hap43-induced gene
orf19.5713	<i>YMX6</i>	1.35	1.44	Putative NADH dehydrogenase; macrophage-downregulated gene; induced by nitric oxide; rat catheter biofilm induced
orf19.2571	<i>SEC4</i>	1.35	1.07	Small GTPase of Rab family; role in post-Golgi secretion; possible C-terminal palmitoylation; downregulated on adherence to polystyrene; localizes to the Spitzenkorper during hyphal growth; functional homolog of <i>S. cerevisiae</i> Sec4p
orf19.1119	<i>MTR10</i>	1.35	1.4	Putative importin; member of a family of fungal-specific nuclear importins; Mig1-regulated
orf19.5843	<i>SRR1</i>	1.35	1.73	Two-component system response regulator; involved in stress response; Plc1-regulated; upregulated in cyr1 null mutant; flow model biofilm induced; Spider biofilm induced
orf19.5850	<i>NOC2</i>	1.35	1.79	Putative nucleolar complex protein; Hap43-induced; transposon mutation affects filamentous growth; mutation confers hypersensitivity to 5-fluorouracil (5-FU), tubercidin (7-deazaadenosine); repressed in core stress response
orf19.2473		1.35	1.38	Putative RSC chromatin remodeling complex component; decreased transcription is observed upon flufenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2
orf19.3854		1.35	1.57	Ortholog of <i>S. cerevisiae</i> Sat4; amphotericin B induced; clade-associated gene expression; Spider biofilm induced
orf19.2133	<i>LIP4</i>	1.35	1.36	Secreted lipase, member of a differentially expressed lipase gene family with possible roles in nutrition and/or in creating an acidic microenvironment; expressed more strongly during mucosal infections than during systemic infections
orf19.1813	<i>FLC2</i>	1.35	1.35	Protein involved in heme uptake; putative FAD transporter, similar to <i>S. cerevisiae</i> Fie2p
orf19.2691		1.35	1.45	Planktonic growth-induced gene
orf19.787		1.35	1.22	Protein of unknown function
orf19.2013	<i>KAR2</i>	1.35	1.22	Similar to Hsp70 family chaperones; role in translocation of proteins into the ER; induced in high iron; protein present in exponential and stationary growth phase yeast cultures; flow model and Spider biofilm repressed
orf19.5147	<i>LMO1</i>	1.35	1.25	Protein involved together with Dck1p and Rac1p in invasive filamentous growth and cell wall integrity; acts upstream of MAP kinase Cek1p; has similarity to human ELMO1
orf19.3111	<i>PRA1</i>	1.35	1.2	Cell surface protein that sequesters zinc from host tissue; enriched at hyphal tips; released extracellularly; binds to host complement regulators; mediates leukocyte adhesion and migration; immunogenic in mouse; produced at ambient pH
orf19.6457		1.35	1.47	Ortholog of <i>S. cerevisiae</i> : YBL086C, <i>C. glabrata</i> CBS138 : CAGL0C01815g, <i>C. dubliniensis</i> CD36 : Cd36_72270, <i>C. parapsilosis</i> CDC317 : CPAR2_702850 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_107537
orf19.2895	<i>VMA8</i>	1.35	1.27	Putative vacuolar H ⁺ -ATPase subunit; regulated by Nrg1 and Mig1; transcript increases in populations of cells exposed to fluconazole over multiple generations; rat catheter and Spider biofilm repressed
orf19.5114		1.35	1.36	Sorting nexin; role in maintaining late-Golgi resident enzymes in their proper location by recycling molecules from the prevacuolar compartment; Spider biofilm induced
orf19.1555	<i>SAC3</i>	1.35	1.38	Putative nuclear pore-associated protein, required for small ribosomal subunit biogenesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6634	<i>VMA2</i>	1.35	1.33	Vacuolar H ⁺ -ATPase; protein present in exponential and stationary growth phase yeast cultures; plasma membrane localized; amphotericin B repressed, caspofungin repressed
orf19.4242	<i>CST20</i>	1.35	1.24	Protein kinase of Ste20p/p65PAK family, required for wild-type mating efficiency and virulence in a mouse model; Cst20p-Hst7p-Cek1p-Cph1p MAPK pathway regulates some hyphal growth; involved in Cdc42p growth regulation
orf19.4233	<i>THR4</i>	1.35	1.34	Putative threonine synthase; protein present in exponential and stationary growth phase yeast cultures; Gcn4p-regulated; sumoylation target

orf19.6719		1,35	1,26	Putative nucleosome assembly protein; homozygous transposon insertion causes decreased colony wrinkling under filamentous growth-inducing conditions, but does not block true hyphal formation in liquid media
orf19.511		1,35	1,27	Ortholog(s) have ribosylsuccinylase activity, role in NAD biosynthesis via nicotinamide riboside salvage pathway, nicotinamide riboside metabolic process and cytosol, nucleus localization
orf19.341		1,35	1,51	Putative spermidine export pump; fungal-specific (no human or murine homolog)
orf19.906	ROM2	1,35	1,28	Putative GDP/GTP exchange factor; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.6923		1,35	1,28	Ortholog(s) have chromatin binding activity, role in RNA polymerase II transcriptional preinitiation complex assembly and transcription factor TFIID complex localization
orf19.3047		1,35	1,4	Protein kinase-related protein, required for normal sensitivity to caspofungin
orf19.4624	HRT2	1,35	1,46	Protein described as having a role in Ty3 transposition; repressed in hyphae; stationary phase enriched protein; rat catheter and Spider biofilm repressed
orf19.5027	LCB2	1,35	1,3	Putative serine palmitoyltransferase component; mutation confers hypersensitivity to aureobasidin A
orf19.5019		1,35	1,33	Ortholog of C. dubliniensis CD36 : Cd36_12800, C. parapsilosis CDC317 : CPAR2_203460, Candida tenuis NRRL Y-1498 : CANTEDRAFT_94106 and Debaryomyces hansenii CBS767 : DEHA2C13948g
orf19.4993	SEC18	1,35	1,69	Functional homolog of S. cerevisiae Sec18p, which acts in protein transport; conserved ATP binding site; not glycosylated
orf19.7160		1,35	1,36	Ortholog(s) have unfolded protein binding activity
orf19.5345		1,35	1,32	Putative ubiquitin-like polyubiquitin-binding protein; induced by nitric oxide independent of Yhb1; Spider biofilm repressed
orf19.6800	POS5	1,35	1,64	Protein similar to S. cerevisiae Pos5p, a mitochondrial NADH kinase involved in the oxidative stress response; planktonic growth-induced gene; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.2454	PHO87	1,34	1,21	Putative phosphate permease; transcript repressed by Rim101 at pH 8; regulated by white-opaque switch; caspofungin repressed; virulence-group-correlated expression; flow model biofilm induced
orf19.4776	LYS143	1,34	1,36	Zn(II)Cys6 transcription factor; ortholog of S. cerevisiae Lys14 involved in the regulation of lysine biosynthesis genes
orf19.2024		1,34	1,26	Ortholog of Candida albicans WO-1 : CAWG_03878
orf19.4169		1,34	1,23	Ortholog of C. dubliniensis CD36 : Cd36_40780, Candida tenuis NRRL Y-1498 : CANTEDRAFT_116553, Lodderomyces elongisporus NRLL YB-4239 : LELG_04263 and Debaryomyces hansenii CBS767 : DEHA2G21736g
orf19.1741	DIT1	1,34	1,25	Ortholog(s) have catalytic activity and role in ascospore wall assembly
orf19.2778		1,34	1,19	Protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.4646	UEC1	1,34	1,23	Protein required for damage to oral epithelial cells and for normal hyphal growth and stress resistance; transcription induced on contact with vascular endothelial cells; not highly conserved
orf19.3531		1,34	1,31	Ortholog(s) have role in regulation of DNA-dependent DNA replication initiation and DNA replication preinitiation complex, endoplasmic reticulum, nuclear envelope, spindle pole body localization
orf19.3621		1,34	1,19	Possible pseudogene; similar to Ywp1p; ORF extended upstream from the initiating Met of orf19.3621 has a stop codon in the region corresponding to the Ywp1p signal peptide; disruption causes no apparent phenotype; no expression detected
orf19.1137		1,34	1,19	Ortholog(s) have thymidylate kinase activity, uridylylase activity, role in dTTP biosynthetic process, dTTP biosynthetic process, dUDP biosynthetic process and cytosol, nucleus localization
orf19.4463		1,34	1,24	Ortholog of Candida albicans WO-1 : CAWG_01004
orf19.3528		1,34	1,28	Protein of unknown function; Spider biofilm induced
orf19.3589	SPO11	1,34	1,17	DNA endonuclease; required for genetic recombination between homologous chromosomes during the parasexual cycle; produced in mitotically dividing cells; similar to S. cerevisiae Spo11 which functions in recombination during meiosis
orf19.1488		1,34	1,23	Ortholog of C. dubliniensis CD36 : Cd36_16630, C. parapsilosis CDC317 : CPAR2_210300, Candida tenuis NRRL Y-1498 : CANTEDRAFT_116870 and Debaryomyces hansenii CBS767 : DEHA2B04334g
orf19.262	SMC3	1,34	1,26	Protein similar to S. cerevisiae Smc3p, which is an ATPase involved in sister chromatid cohesion; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.6078	POL93	1,34	1,12	Predicted ORF in retrotransposon Tca8 with similarity to the Pol region of retrotransposons encoding reverse transcriptase, protease and integrase; downregulated in response to ciclopirox olamine; F-12/CO2 early biofilm induced
orf19.3775	SSK2	1,34	1,2	MAP kinase kinase kinase (MAPKKK); regulates Hog1 activation and signaling; repressed by ciclopirox olamine
orf19.3156		1,34	1,24	Protein of unknown function; induced by Mnl1 under weak acid stress
orf19.1150		1,34	1,42	GATA-like transcription factor; oral infection induced; mutant has reduced capacity to damage oral epithelial cells; regulated by Gcn2 and Gcn4; Spider biofilm induced
orf19.4512		1,34	1,26	#NV
orf19.923	THR1	1,34	1,34	Putative homoserine kinase; regulated by Tup1; amphotericin B repressed; regulated by Gcn2 and Gcn4; Spider biofilm repressed
orf19.4490	RPL17B	1,34	1,4	Ribosomal protein L17; mutation confers hypersensitivity to 5-FU, tubercidin; repressed upon phagocytosis by macrophage; Hap43-induced; Spider biofilm repressed
orf19.3646	CTR1	1,34	1,16	Copper transporter; transcribed in low copper; induced Mac1, Tye7, macrophage interaction, alkaline pH via Rim101; 17-beta-estradiol repressed; complements S. cerevisiae ctr1 ctr3 copper transport mutant; flow model/Spider biofilm induced
orf19.4979	KNS1	1,34	1,15	Protein kinase involved in negative regulation of PolIII transcription; effector kinase of the TOR signaling pathway, phosphorylates Rps53p to regulate ribosome and tRNA biosynthesis; Spider and flow model biofilm induced
orf19.274	TFC4	1,34	1,3	Putative RNA polymerase III transcription initiation factor complex (TFIIIC) subunit; induced by Mnl1 under weak acid stress; possibly essential gene, disruptants not obtained by UAU1 method
orf19.4725	SWI6	1,34	1,28	Putative component of the MBF and SBF transcription complexes involved in G1/S cell-cycle progression; periodic mRNA expression, peak at cell-cycle G1/S phase
orf19.4728		1,34	1,28	Ortholog(s) have role in histone deacetylation, negative regulation of meiosis and Set3 complex localization
orf19.4330		1,34	1,36	Ortholog of C. dubliniensis CD36 : Cd36_52790, Candida tropicalis MYA-3404 : CTRG_05968 and Candida albicans WO-1 : CAWG_04684
orf19.6496	TRS33	1,34	1,34	Putative TRAPP complex subunit; constitutive expression independent of MTL or white-opaque status
orf19.2457		1,34	1,19	Protein of unknown function; induced during chlamydospore formation in both C. albicans and C. dubliniensis; Spider biofilm induced
orf19.686		1,34	1,21	Protein of unknown function; regulated by Nrg1
orf19.4878		1,34	1,25	Protein of unknown function; Hap43-repressed; rat catheter biofilm repressed
orf19.619		1,34	1,27	#NV
orf19.5495		1,34	1,43	Putative RNA-binding protein; induced by alpha pheromone in SpiderM medium
orf19.5729	FGR17	1,34	1,17	Putative DNA-binding transcription factor; has zinc cluster DNA-binding motif; lacks an ortholog in S. cerevisiae; transposon mutation affects filamentous growth; Hap43-repressed gene
orf19.2465	POL32	1,34	1,3	Putative subunit of DNA polymerase delta, involved in chromosomal DNA replication; cell-cycle regulated periodic mRNA expression
orf19.3908		1,34	1,28	Protein of unknown function; Spider biofilm induced
orf19.3902		1,34	1,26	Protein of unknown function; repressed by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2; Spider biofilm induced
orf19.2320		1,34	1,36	Putative serine/threonine-protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2973		1,34	1,47	Ortholog(s) have RNA binding, flap-structured DNA binding activity and role in nuclear-transcribed mRNA poly(A) tail shortening, positive regulation of endonuclease activity
orf19.1253	PHO4	1,34	1,3	bHLH transcription factor of the myc-family; required for growth in medium lacking phosphate and for resistance to copper and Phloxine B; induced by Mnl1 under weak acid stress
orf19.4382		1,34	1,3	Ortholog(s) have role in retrograde vesicle-mediated transport, Golgi to ER and COPI vesicle coat, cytosol, nucleus localization
orf19.6635		1,34	1,21	Ortholog of C. dubliniensis CD36 : Cd36_31170, C. parapsilosis CDC317 : CPAR2_205340, Candida tenuis NRRL Y-1498 : CANTEDRAFT_133521 and Debaryomyces hansenii CBS767 : DEHA2E21868g
orf19.660		1,34	1,21	Protein of unknown function; mRNA binds She3
orf19.177		1,34	1,16	Has domain(s) with predicted phosphatidylinositol binding activity and role in cell communication
orf19.4093	PES1	1,34	1,39	Pescadillo homolog required for yeast cell growth, lateral yeast growth on filamentous cells and virulence in mice; hyphal cells grow normally in mutant; mutation confers hypersensitivity to 5-fluorocytosine, 5-fluorouracil, tubercidin
orf19.5647	SUB2	1,34	1,29	Putative TREX complex component with a predicted role in nuclear mRNA export; transcription is regulated by Mig1; Hap43-induced gene; Spider biofilm repressed
orf19.5162	BCK1	1,34	1,26	Ortholog of S. cerevisiae Bck1; MAP kinase kinase of cell integrity pathway; mutant is hypersensitive to caspofungin
orf19.6849	ELC1	1,34	1,29	Putative elongin C; transcript regulated by Nrg1 and Mig1; regulated by Gcn2 and Gcn4
orf19.3309		1,34	1,24	Ortholog of Candida tropicalis MYA-3404 : CTRG_04422 and Candida albicans WO-1 : CAWG_01254
orf19.348	SKN2	1,34	1,71	Protein with a potential role in beta-1,6 glucan biosynthesis; similarity to Kre6 and Skn1; possibly essential, disruptants not obtained by UAU1 method; Hap43-induced; flow model biofilm induced; rat catheter biofilm repressed
orf19.2863		1,34	1,12	Ortholog of C. dubliniensis CD36 : Cd36_28090, C. parapsilosis CDC317 : CPAR2_802560, Candida tenuis NRRL Y-1498 : CANTEDRAFT_104949 and Debaryomyces hansenii CBS767 : DEHA2A12848g
orf19.6955	HBR3	1,34	1,43	Essential protein; regulated by hemoglobin; S. cerevisiae ortholog is essential; Hap43p-induced gene

orf19.4010	PAN3	1.34	1.33	Ortholog(s) have poly(A)-specific ribonuclease activity, role in mRNA 3'-end processing, postreplication repair and PAN complex, cytosol, nucleus localization
orf19.6033	CMP1	1.34	1.31	Catalytic subunit of calcineurin (Ca[2+]-calmodulin-regulated S/T protein phosphatase); required for wild-type virulence, resistance to high pH, Na(+), Li(+), Mn(2+), and fluconazole tolerance; micafungin is fungicidal to null mutant
orf19.6054		1.34	1.2	Protein with a Bul1 domain; binds the ubiquitin ligase Rsp5 and is involved in intracellular trafficking of a general amino acid permease Gap1; repressed in an azole-resistant strain overexpressing MDR1; Spider biofilm induced
orf19.5275		1.34	1.33	Ortholog(s) have ATPase activator activity, role in late endosome to vacuole transport via multivesicular body sorting pathway, positive regulation of protein oligomerization and endosome membrane, multivesicular body localization
orf19.6448		1.34	1.18	Protein of unknown function; Spider biofilm repressed
orf19.1651		1.34	1.19	Ortholog of C. dubliniensis CD36 : Cd36_81960, Pichia stipitis Pigna1 : psti_CGOB_00163, Candida tropicalis MYA-3404 : CTRG_02378 and Candida albicans WO-1 : CAWG_02525
orf19.7300		1.34	1.55	Protein of unknown function; Spider biofilm induced
orf19.7342	AXL1	1.34	1.38	Putative endoprotease; induced by alpha factor; transcript is upregulated in an RHE model of oral candidiasis and in clinical isolates from HIV+ patients with oral candidiasis
orf19.1290	XKS1	1.34	1.27	Putative xylokainase; Hap43-repressed; induced by prostaglandins; rat catheter biofilm repressed
orf19.1759	PHO23	1.34	1.19	Ortholog(s) have methylated histone residue binding activity
orf19.182		1.34	1.23	Ortholog(s) have rRNA (guanine-N1)-methyltransferase activity, role in rRNA modification and endoplasmic reticulum, mitochondrion localization
orf19.195		1.33	1.24	#NV
orf19.749		1.33	1.2	#NV
orf19.1927	SNM1	1.33	1.23	Protein similar to RNase MRP RNA binding protein; ciclopirox olamine induced; regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced
		1.33	1.23	#NV
orf19.1298	NUP84	1.33	1.17	Ortholog(s) have structural constituent of nuclear pore activity
orf19.2636		1.33	1.54	#NV
orf19.1139		1.33	1.2	Protein of unknown function; S. cerevisiae ortholog Svl3 plays a role in endocytosis and is localized to the bud neck; Spider biofilm induced
orf19.4697	MDN1	1.33	1.47	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.5056		1.33	1.26	Ortholog(s) have enzyme regulator activity, mitotic anaphase-promoting complex activity
orf19.2169		1.33	1.2	Ortholog of C. parapsilosis CDC317 : CPAR2_805720, C. dubliniensis CD36 : Cd36_22330, Lodderomyces elongisporus NRLL YB-4239 : LELG_02628 and Candida orthopsilosis Co 90-125 : CORT_0C03440
orf19.34	GIT1	1.33	1.26	Glycerophosphoinositol permease; involved in utilization of glycerophosphoinositol as a phosphate source; Rim101-repressed; virulence-group-correlated expression
orf19.1382	YEA4	1.33	1.27	Putative uridine diphosphate-N-acetylglucosamine (UDP-GlcNAc) transporter; required for cell wall chitin synthesis; induced by alpha pheromone in SpiderM medium
orf19.6308		1.33	1.22	Ortholog of Candida albicans WO-1 : CAWG_01818
orf19.6463		1.33	1.21	Putative ortholog of S. cerevisiae Npa3p; possibly essential for growth (however, depletion mutant is viable)
orf19.3758		1.33	1.16	Ortholog(s) have fungal-type vacuole membrane localization
orf19.2541		1.33	1.4	Ortholog(s) have 3'-5'-exodeoxyribonuclease activity, endonuclease activity, role in apoptotic DNA fragmentation, cellular response to oxidative stress and cytosol, nucleus localization
orf19.2534	PIN4	1.33	1.16	Protein with similarity to S. cerevisiae Pin4p; transposon mutation affects filamentous growth
orf19.5234	RBD1	1.33	1.27	Rhomboid-like protein; similar to putative intramembrane serine proteases; role in filamentous growth; Gcn4-regulated; caspofungin repressed; Spider biofilm induced
orf19.113	CIP1	1.33	1.3	Possible oxidoreductase; transcript induced by cadmium but not other heavy metals, heat shock, yeast-hypha switch, oxidative stress (via Cap1), or macrophage interaction; stationary phase enriched protein; Spider biofilm induced
orf19.409		1.33	1.43	Ortholog of S. cerevisiae Aim38/Rcf2, cytochrome c oxidase subunit; plasma membrane localized; Hap43-repressed; induced in oropharyngeal candidiasis; flow model biofilm induced; Spider biofilm repressed
orf19.1932	CFL4	1.33	1.29	C-terminus similar to ferric reductases; induced in low iron; Sfu1-repressed; ciclopirox olamine induced; colony morphology-related gene regulation by Ssn6; Hap43-repressed; Sef1-regulated
orf19.6261	BPH1	1.33	1.15	Ortholog of S. cerevisiae Bph1; a putative ortholog of human Chediak-Higashi syndrome protein and murine beige gene implicated in disease syndromes involving defective lysosomal trafficking; mutant is viable
orf19.3793		1.33	1.27	Protein of unknown function; mRNA binds She3; regulated by Nrg1; upregulated in a cvr1 or ras1 mutant
orf19.3653	FAT1	1.33	1.35	Predicted enzyme of sphingolipid biosynthesis; upregulated in biofilm
orf19.2534	PIN4	1.33	1.44	Protein with similarity to S. cerevisiae Pin4p; transposon mutation affects filamentous growth
orf19.4185		1.33	1.25	Ortholog(s) have phosphoprotein phosphatase activity, thiosulfate sulfurtransferase activity, role in DNA-dependent DNA replication, protein dephosphorylation, regulation of DNA-dependent DNA replication and cytosol, nucleus localization
orf19.4878		1.33	1.38	Protein of unknown function; Hap43-repressed; rat catheter biofilm repressed
orf19.835		1.33	1.21	Ortholog(s) have role in nucleosome mobilization and Ino80 complex localization
orf19.5297		1.33	1.21	Ortholog(s) have phosphatidylinositol-3-phosphate binding, phosphatidylinositol-5-phosphate binding activity
orf19.2597	MRS2	1.33	1.34	Putative magnesium ion transporter, mitochondrial; fungal-specific (no human or murine homolog)
orf19.2594		1.33	1.38	Ortholog(s) have RNA polymerase I activity, role in transcription of nuclear large rRNA transcript from RNA polymerase I promoter and DNA-directed RNA polymerase I complex, cytosol localization
orf19.5488		1.33	1.29	Ortholog(s) have mitochondrion localization
orf19.1596	FGR28	1.33	1.21	Protein lacking an ortholog in S. cerevisiae; transposon mutation affects filamentous growth; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3536		1.33	1.3	Ortholog(s) have acetylglucosaminyltransferase activity, role in protein N-linked glycosylation and Golgi medial cisterna localization
orf19.5505	HIS7	1.33	1.17	Putative imidazole glycerol phosphate synthase; histidine biosynthesis; no human/murine homolog; transcription induced by histidine starvation; regulated by Gcn2p and Gcn4p; higher protein level in stationary phase
orf19.3203	RCY1	1.33	1.23	Putative F-box protein involved in endocytic membrane traffic and/or recycling; fungal-specific (no human or murine homolog)
orf19.3202		1.33	1.26	Protein of unknown function; mutants are viable
orf19.6220		1.33	1.23	Ortholog(s) have role in positive regulation of transcription elongation from RNA polymerase II promoter and CCR4-NOT core complex localization
orf19.4765	PGA6	1.33	1.17	GPI-anchored cell wall adhesin-like protein; induced by high iron; upregulated upon Als2 depletion; mRNA binds She3 and is localized to hyphal tips; Spider biofilm repressed
orf19.5702		1.33	1.18	Ortholog(s) have cell division site, spindle localization
orf19.4791		1.33	1.27	Protein of unknown function; Spider biofilm induced
orf19.2472		1.33	1.3	Ortholog of S. pombe replication termination factor Rtf2; Spider biofilm induced
orf19.3327	TRM2	1.33	1.26	Putative tRNA methyltransferase; repressed by prostaglandins; Spider biofilm induced
orf19.5862	AFP99	1.33	1.28	Protein related to arginases; downregulated upon adherence to polystyrene; regulated by Gcn2p and Gcn4p
orf19.6119		1.33	1.28	Protein of unknown function; Spider biofilm repressed
orf19.6235		1.33	1.17	Protein of unknown function; Spider biofilm induced
orf19.213		1.33	1.45	Ortholog(s) have role in ubiquitin-dependent protein catabolic process and nucleus, proteasome regulatory particle, lid subcomplex, proteasome storage granule localization
orf19.6555		1.33	1.22	Ortholog(s) have zinc ion binding activity, role in protein import into mitochondrial intermembrane space and cytosol, mitochondrial intermembrane space, nucleus localization
orf19.1587	HGT20	1.33	1.34	Putative glucose transporter of the major facilitator superfamily; the C. albicans glucose transporter family comprises 20 members; 12 probable membrane-spanning segments; regulated by Nrg1
orf19.6176	SEC61	1.33	1.38	ER protein-translocation complex subunit; essential; 10 predicted transmembrane regions; chimeric mutant partially functionally complements S. cerevisiae sec61 defects; Spider biofilm repressed
orf19.6304	LYS5	1.33	1.36	Phosphopantetheinyl transferase; enzyme of lysine biosynthesis; modifies, and thereby activates, Lys2p alpha-aminoadipate reductase; functional homolog of S. cerevisiae Lys5p
orf19.2312		1.33	1.28	Protein similar to ferric reductase Fre10p; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2333		1.33	1.74	Ortholog(s) have role in retrograde transport, endosome to Golgi and cytosol, late endosome, nucleus localization
orf19.3874		1.33	1.17	Predicted cation transmembrane transporter; Spider biofilm induced
orf19.31		1.33	1.16	Ortholog of C. parapsilosis CDC317 : CPAR2_201960, C. dubliniensis CD36 : Cd36_20900, Candida tropicalis MYA-3404 : CTRG_04756 and Candida albicans WO-1 : CAWG_04394
orf19.245	DDC1	1.33	1.28	Putative DNA damage checkpoint protein; transcript induced during filamentous growth; regulated by Nrg1, Tup1
orf19.2489		1.33	1.32	Putative karvopherin beta; repressed by nitric oxide
orf19.3432		1.33	1.32	Predicted membrane transporter, member of the drug-proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS); induced by nitric oxide
orf19.6643	MCT1	1.33	1.5	Putative malonyl-CoA acyl carrier protein acyltransferase
orf19.528	SEC26	1.33	1.38	Secretory vesicles coatomer complex protein
orf19.6850		1.33	1.25	Putative transcription factor with C3HC4 zinc finger DNA-binding motif; mutants are viable
orf19.6856		1.33	1.34	#NV
orf19.1874		1.33	1.22	Ortholog(s) have protein serine/threonine kinase activity, role in meiotic recombination checkpoint, protein phosphorylation, regulation of linear element assembly and cytosol, linear element localization
orf19.871		1.33	1.38	Ortholog(s) have protein transporter activity, role in Golgi to plasma membrane transport, intracellular protein transport and vesicle coat localization
orf19.6927	PEP8	1.33	1.44	Protein similar to S. cerevisiae Pep8p, which is involved in retrograde transport; transposon mutation affects filamentous growth

orf19.4858	VPS41	1.33	1.46	Protein similar to <i>S. cerevisiae</i> Vps41p, which is involved in vacuole organization and biogenesis; transposon mutation affects filamentous growth; regulated by Gcn4p; induced in response to amino acid starvation (3-aminotriazole treatment)
		1.33	1.32	#NV
orf19.6436		1.33	1.21	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34210, <i>C. parapsilosis</i> CDC317 : CPAR2_205590, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00133 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E02178g
orf19.5021	PDX1	1.33	1.61	Pyruvate dehydrogenase complex protein X; essential component of the mitochondrial pyruvate dehydrogenase complex; role in the respiratory pathway; protein present in exponential and stationary growth phase yeast; Spider biofilm repressed
orf19.7237		1.33	1.44	Ortholog(s) have arylformamidase activity and role in NAD biosynthetic process
orf19.7111		1.33	1.25	Putative mitochondrial outer membrane protein membrane fission effector; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7363	KRE6	1.33	1.54	Essential beta-1,6-glucan synthase subunit; change in mRNA length, not abundance, at yeast-hypha transition; alkaline induced by Rim101, on cell wall regeneration; Spider biofilm induced; Bcr1-repressed in RPM1 a/a biofilms
orf19.7396		1.33	1.39	Protein of unknown function; Spider biofilm induced; Hap43-repressed
orf19.5438		1.33	1.53	Putative ubiquitin-protein ligase; role in protein sumoylation, protein ubiquitination; Spider biofilm induced
orf19.7519		1.33	1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25180, <i>C. parapsilosis</i> CDC317 : CPAR2_800030, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_125790 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E18260g
orf19.6763	SLK19	1.33	1.26	Alkaline-induced protein of plasma membrane; affects cell aggregation, cell wall; similar to <i>S. cerevisiae</i> Slk19p (a kinetochore protein with roles in mitosis, meiosis); required for wild-type virulence in mouse; macrophage-downregulated
orf19.156	FGR51	1.33	1.22	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; Hap43p-repressed gene
orf19.1439	IPK1	1.32	1.27	Ortholog of <i>S. cerevisiae</i> /S. pombe Ipk1; an inositol pentakisphosphate 2-kinase, a nuclear protein required for synthesis of 1,2,3,4,5,6-hexakisphosphate; Spider biofilm induced
orf19.1442	PLB4.5	1.32	1.23	Phospholipase B; Hog1-induced; regulated by Ssn6; putative GPI-anchor; repressed during cell wall regeneration; clade-associated gene expression; Hap43-induced; rat catheter and Spider biofilm repressed
orf19.1673	PPT1	1.32	1.26	Putative serine/threonine phosphatase; induced in high iron
orf19.3735		1.32	1.15	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.6224		1.32	1.16	RTA domain protein; predicted role in response to stress; Spider biofilm induced
orf19.2226		1.32	1.22	#NV
orf19.2230		1.32	1.18	Putative pre-mRNA-splicing factor; decreased transcription is observed upon benomyl treatment
orf19.2293		1.32	1.11	#NV
orf19.5579		1.32	1.17	Protein with a predicted double-strand break repair domain; Hap43-repressed gene
orf19.2885	PR2	1.32	1.17	Putative DNA primase; gene adjacent to and divergently transcribed with CDC68; Hap43-induced; Spider biofilm repressed
orf19.855		1.32	1.22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_18340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_124631, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D04356g and <i>Pichia stipitis</i> Pinal : PICST_34839
orf19.5751	ORM1	1.32	1.19	Putative endoplasmic reticulum membrane protein; Hap43p-repressed gene; mutation confers hypersensitivity to aureobasidin A
orf19.1078	HBR2	1.32	1.11	Putative alanine glyoxylate aminotransferase; regulated by Gcn4p and hemoglobin; stationary phase enriched protein
orf19.4730		1.32	1.22	Ortholog of <i>S. cerevisiae</i> : YNL050C, <i>C. glabrata</i> CBS138 : CAGL0G01276g, <i>C. dubliniensis</i> CD36 : Cd36_08220, <i>C. parapsilosis</i> CDC317 : CPAR2_804440 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94168
orf19.5543		1.32	1.16	Ortholog(s) have cell division site, cytosol localization
orf19.3216		1.32	1.18	Similar to Rab GTPase activators; Hap43p-induced gene
orf19.1783	YOR1	1.32	1.31	Protein similar to <i>S. cerevisiae</i> Yor1; ABC-type plasma membrane transporter involved in resistance to aureobasidin A; white cell type-specific transcript; Spider biofilm induced
orf19.107		1.32	1.28	DEAH-box ATP-dependent RNA helicase, required for 18S rRNA synthesis; rat catheter biofilm induced
orf19.4867	SWE1	1.32	1.08	Putative protein kinase with a role in control of growth and morphogenesis, required for full virulence; mutant cells are small, rounded, and sometimes binucleate; not required for filamentous growth; mutant is hypersensitive to caspofungin
orf19.4131		1.32	1.16	Ortholog(s) have role in protein folding in endoplasmic reticulum and ER membrane protein complex localization
orf19.713		1.32	1.26	Ortholog(s) have role in apoptotic process and cytoplasm, nucleus localization
orf19.226		1.32	1.24	#NV
orf19.3969	SFL2	1.32	1.15	Predicted transcription factor; required for filamentous growth, for virulence in RHE model but not in mice; induced upon RHE infection but <i>C. dubliniensis</i> ortholog is not; Spider biofilm induced
orf19.3798		1.32	1.2	Ortholog(s) have tRNA (guanine-N7)-methyltransferase activity, role in tRNA methylation and nucleolus, tRNA methyltransferase complex localization
orf19.4061		1.32	1.14	Protein of unknown function; clade-associated gene expression
orf19.4650	ILV6	1.32	1.2	Putative regulatory subunit of acetolactate synthase; alkaline induced; regulated by Gcn2 and Gcn4; protein present in exponential and stationary growth phase yeast; Spider biofilm repressed
orf19.4796		1.32	1.21	Putative eIF-4E-binding repressor of CAP-dependent translation; stationary phase enriched protein
orf19.4976		1.32	1.26	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00105
orf19.4321		1.32	1.2	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04677
orf19.4723	FAD1	1.32	1.1	Ortholog(s) have ATP binding, FMN adenylyltransferase activity, magnesium ion binding activity, role in FAD biosynthetic process and cytosol, nucleus localization
orf19.4325		1.32	1.22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52760, <i>C. parapsilosis</i> CDC317 : CPAR2_303150, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133407 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G08030g
orf19.4323		1.32	1.17	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity and endosome localization
orf19.5057		1.32	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_07380 and <i>Candida albicans</i> WO-1 : CAWG_00634
orf19.1116		1.32	1.08	Protein of unknown function; planktonic growth-induced gene
orf19.866	RAD32	1.32	1.29	Protein similar to <i>S. cerevisiae</i> protein with role in nucleotide excision repair; down-regulation associated with azole resistance; Hap43p-repressed gene
orf19.6481	YPS7	1.32	1.29	Putative aspartic-type endopeptidase with limited ability to degrade alpha pheromone; mutants show increased sensitivity to alpha pheromone
orf19.841		1.32	1.41	Ortholog(s) have role in Golgi vesicle transport and Golgi membrane localization
orf19.2564		1.32	1.26	Putative nucleolar protein; implicated in ribosome biogenesis; rat catheter biofilm repressed
orf19.4664	NAT4	1.32	1.29	Putative histone acetyltransferase; involved in regulation of white-opaque switch; early-stage flow model biofilm induced; Spider biofilm induced
orf19.2210		1.32	1.29	Protein of unknown function; Spider biofilm induced
orf19.301	PGA1B	1.32	1.18	Putative GPI-anchored protein; regulated by Nrr1, Tup1; rat catheter biofilm repressed
orf19.5507	ENP1	1.32	1.28	Protein required for pre-rRNA processing and 40S ribosomal subunit synthesis; associated with U3 and U14 snoRNAs; transposon mutation affects filamentous growth; repressed by prostaglandins; Spider biofilm induced
orf19.5597	POL5	1.32	1.25	Putative DNA Polymerase phi; F-12/CO2 early biofilm induced
orf19.4763		1.32	1.25	Protein of unknown function; possibly membrane bound; mutants are viable; rat catheter biofilm repressed
orf19.2730		1.32	1.35	Has domain(s) with predicted zinc ion binding activity
orf19.4659		1.32	1.23	Ortholog(s) have RNA binding activity, role in mRNA splicing, via spliceosome and U2-type prespliceosome localization
orf19.2026	UBP13	1.32	1.17	Ortholog of <i>S. cerevisiae</i> Ubp13; putative ubiquitin carboxyl-terminal hydrolase; flow model biofilm induced; rat catheter biofilm repressed
orf19.2371		1.32	1.81	Putative Gag protein of retrotransposon Tca2; separated by a stop codon from Pol protein orf19.2372; likely translated as single polyprotein that includes Gag, reverse transcriptase, protease, and integrase; rat catheter biofilm repressed
orf19.4079	SLP2	1.32	1.18	Protein similar to stomatin mechanoreception protein
orf19.3338		1.32	1.19	#NV
orf19.3471		1.32	1.29	Protein with a predicted anaphase-promoting complex APC subunit 1 CDC26 domain; Hap43-repressed gene
orf19.4148		1.32	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_50820, <i>C. parapsilosis</i> CDC317 : CPAR2_501670, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115294 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E13464g
orf19.3001	TEM1	1.32	1.23	Protein similar to <i>S. cerevisiae</i> Tem1p, which is a GTPase involved in termination of the M phase of the cell cycle; induced under Cdc5p depletion
orf19.6291		1.32	1.19	Ortholog(s) have DNA binding, DNA-dependent ATPase activity, chromatin binding activity
orf19.314		1.32	1.02	Ortholog of <i>S. cerevisiae</i> : STB6, <i>C. dubliniensis</i> CD36 : Cd36_83110, <i>C. parapsilosis</i> CDC317 : CPAR2_103210, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133418 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G08382g
orf19.1260	LEA1	1.32	1.29	Predicted component of U2 snRNP; induced by alpha pheromone in SpiderM medium
orf19.2049		1.32	1.32	Plasma membrane-associated protein; heterozygous null mutant displays sensitivity to virgineone; Spider biofilm induced
orf19.3535		1.32	1.21	Ortholog(s) have cellular bud neck, fungal-type vacuole localization
orf19.6612		1.32	1.26	Putative mitochondrial protein; Hap43p-induced gene
orf19.4383		1.32	1.15	Ortholog(s) have DNA 5'-adenosine monophosphate hydrolase activity, mismatched DNA binding, zinc ion binding activity, role in response to DNA damage stimulus and cytosol, nucleus localization
orf19.4537		1.32	1.42	Ortholog(s) have RNA polymerase II core binding, RNA polymerase II regulatory region DNA binding, core RNA polymerase II recruiting transcription factor activity

orf19.3117	CSA2	1,32	1,14	Extracellular-associated protein; repressed by Rim101 at pH 8; regulated by Tsa1, Tsa1B in minimal media at 37 deg; induced by ketoconazole, nitric oxide, Hap43; required for normal RPMI biofilm formation; Bcr1 induced in RPMI
orf19.6862		1,32	1,5	Hap43-induced gene; mutation confers hypersensitivity to 5-fluorocytosine (5-FU), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.1885	TAF4	1,32	1,46	Putative TFIIID subunit; mutation confers hypersensitivity to toxic ergosterol analog
orf19.634		1,32	1,2	Ortholog of C. dubliniensis CD36 : Cd36_30370, Candida tropicalis MYA-3404 : CTRG_00536 and Candida albicans WO-1 : CAWG_01831
orf19.1447		1,32	1,4	Ortholog of C. dubliniensis CD36 : Cd36_16290, C. parapsilosis CDC317 : CPAR2_214050, Candida tenuis NRRL Y-1498 : CANTEDRAFT_92180 and Debaryomyces hansenii CBS767 : DEHA2A01738g
orf19.3295		1,32	1,31	Has domain(s) with predicted role in cell division, chromosome segregation and MIS12/MIND type complex localization
orf19.3307		1,32	1,17	Flavin-containing monooxygenase; catalyzes oxidation of biological thiols to maintain the ER redox buffer ratio for correct folding of disulfide-bonded proteins; Spider biofilm repressed
orf19.5612	BMT4	1,32	1,19	Beta-mannosyltransferase; for elongation of beta-mannose chains on the acid-labile fraction of cell wall phosphopeptidomannan; 9-gene family member; regulated by Tsa1, Tsa1B; flow model biofilm induced; rat catheter biofilm repressed
		1,32	1,21	#NV
orf19.1128		1,32	1,19	#NV
orf19.3029		1,32	1,24	Predicted 3-hydroxyisobutryl-CoA hydrolase; mitochondrially localized; Spider biofilm induced
orf19.3359	ARP8	1,32	1,26	Putative chromatin-remodeling enzyme complex protein; mutation confers hypersensitivity to toxic ergosterol analog, and to amphotericin B; rat catheter biofilm induced
orf19.5322		1,32	1,26	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity and role in CVT pathway, autophagic vacuole assembly, peroxisome degradation, protein localization to pre-autophagosomal structure, vesicle organization
orf19.3556		1,32	1,23	Transportin or cytosolic karyopherin beta; Spider biofilm induced
orf19.7314	CDG1	1,32	1,52	Putative cysteine dioxygenases; role in conversion of cysteine to sulfite; transcript regulated upon white-opaque switch; rat catheter, Spider and flow model biofilm induced
orf19.7079		1,32	1,13	Ortholog(s) have role in axial cellular bud site selection and cellular bud neck contractile ring localization
orf19.7389	REV3	1,32	1,28	Ortholog(s) have DNA-directed DNA polymerase activity, role in error-free translesion synthesis, error-prone translesion synthesis and cytosol, mitochondrion, nuclear chromatin, nucleus, zeta DNA polymerase complex localization
orf19.7498	LEU1	1,32	1,26	3-isopropylmalate dehydratase; antigenic in humans; repressed in hyphae; alkaline repressed; upregulated by human whole blood or PMNs; regulated by Sef1, Sfu1, and Hap43; rat catheter biofilm induced, Spider biofilm repressed
orf19.6821		1,32	1,39	Ortholog(s) have ubiquitin-protein ligase activity
orf19.3952	SRP101	1,32	1,22	Signal recognition particle (SRP) receptor alpha subunit; involved in SRP-dependent protein targeting; rat catheter biofilm repressed
orf19.1531		1,32	1,12	Ortholog(s) have RNA binding, protein heterodimerization activity, role in mRNA cleavage, mRNA polyadenylation and mRNA cleavage factor complex, mitochondrion localization
orf19.1532	SAM37	1,32	1,18	Protein of the mitochondrial outer membrane, component of the Sorting and Assembly Machinery (SAM) involved in insertion of proteins into the outer membrane; mutants show loss of mtDNA
orf19.475		1,32	1,46	Putative rRNA processing protein; rat catheter biofilm induced
		1,31	1,24	#NV
orf19.4776	LYS143	1,31	1,37	Zn(II)Cys6 transcription factor; ortholog of S. cerevisiae Lys14 involved in the regulation of lysine biosynthesis genes
orf19.1803	CDC43	1,31	1,18	Beta subunit of heterodimeric protein geranylgeranyltransferase type I; GGase I enzyme binds zinc, is Mg-dependent; Cdc42p is GGase I substrate
orf19.2706	CRH11	1,31	1,35	GPI-anchored cell wall transglycosylase, putative ortholog of S. cerevisiae Crh1p; predicted glycosyl hydrolase domain; similar to Csf4p and to antigenic A. fumigatus AspF9; predicted Kex2p substrate; caspofungin-induced
orf19.6222	SPO22	1,31	1,32	Ortholog(s) have role in regulation of synaptonemal complex assembly and condensed nuclear chromosome localization
orf19.2431		1,31	1,19	Dubious open reading frame, only conserved in Candida dubliniensis; induced by alpha pheromone in SpiderM medium; mRNA binds She3. Spider biofilm induced; flow model biofilm repressed
orf19.160		1,31	1,27	#NV
orf19.2661	TLO34	1,31	1,19	Non-telomeric member of a family of telomere-proximal genes of unknown function; predicted N-terminus is extended, relative to that of other family members; overlaps orf19.2662
orf19.3102	CTA6	1,31	1,18	Protein that activates transcription in 1-hybrid assay in S. cerevisiae
orf19.1161	PLD1	1,31	1,23	Phospholipase D1; required for phosphatidic acid and for most diacylglycerol production; required for wild-type mouse virulence, but not rat oral virulence; mutant defect in hyphal growth on solid substrates; similar to S. cerevisiae Spo14p
orf19.2919	MPH1	1,31	1,14	Protein similar to S. cerevisiae Mph1p, which is a DNA helicase involved in DNA repair; induced under hydroxyurea treatment
orf19.5601		1,31	1,13	Ortholog of C. dubliniensis CD36 : Cd36_63910, C. parapsilosis CDC317 : CPAR2_601360, Candida tenuis NRRL Y-1498 : CANTEDRAFT_108198 and Debaryomyces hansenii CBS767 : DEHA2C04136g
orf19.3161		1,31	1,31	Ortholog(s) have ATPase activator activity, RNA binding activity
orf19.1531		1,31	1,25	Ortholog(s) have RNA binding, protein heterodimerization activity, role in mRNA cleavage, mRNA polyadenylation and mRNA cleavage factor complex, mitochondrion localization
orf19.1610		1,31	1,15	Putative protein of unknown function, transcription is activated in the presence of elevated CO2
orf19.1914	FAV3	1,31	1,24	Putative alpha-1,6-mannanase; induced by mating factor in MTLa/MTLa opaque cells
		1,31	1,15	#NV
orf19.3640		1,31	1,17	#NV
orf19.3409	SEC12	1,31	1,23	Putative guanyl-nucleotide exchange factor; induced in high iron; Hap43-repressed
orf19.1077	ATM1	1,31	1,1	Member of MDR subfamily of ABC family; ortholog of S. cerevisiae ABC transporter, Atm1; induced in low iron; induced by nitric oxide independent of Yhb1
orf19.1011	MNV21	1,31	1,22	Ortholog(s) have alpha-1,2-mannosyltransferase activity and Golgi apparatus localization
orf19.6474		1,31	1,12	Protein with chitin synthesis regulation, resistance to Congo red domain; membrane-localized protein; Spider biofilm induced
orf19.6474		1,31	1,21	Protein with chitin synthesis regulation, resistance to Congo red domain; membrane-localized protein; Spider biofilm induced
orf19.3601		1,31	1,25	Has domain(s) with predicted ATP binding, nucleoside-triphosphatase activity, nucleotide binding activity
orf19.2280	ZCF10	1,31	1,17	Putative transcription factor with zinc cluster DNA-binding motif
orf19.4570		1,31	1,16	Ortholog of C. dubliniensis CD36 : Cd36_42090, Debaryomyces hansenii CBS767 : DEHA2C14872g, Pichia stipitis Pigna1 : PICST_74821 and Spathaspora passalidarum NRRL Y-27907 : SPAPADRAFT_58607
orf19.738	MYO5	1,31	1,31	Class I myosin; nonessential; role in cortical actin patch polarity and polar budding; required for hyphal growth, white-opaque switch; regulatory phosphorylation on S366, downregulated on adherence to polystyrene
orf19.5069		1,31	1,15	Ortholog of S. cerevisiae Sae3; meiosis specific protein involved in DMC1-dependent meiotic recombination in S. cerevisiae; Spider biofilm induced
orf19.2160	NAG4	1,31	1,35	Putative transporter, fungal-specific; similar to Nag3p and to S. cerevisiae Ypr156Cp and Ygr138Cp; required for wild-type mouse virulence and wild-type cycloheximide resistance; gene cluster encodes enzymes of GlcNAc catabolism
orf19.104		1,31	1,25	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.3170		1,31	1,22	Ortholog(s) have role in formation of translation preinitiation complex and cytoplasm, cytosolic ribosome localization
orf19.1144		1,31	1,17	Protein with SEL-1 like protein domain; early-stage flow model biofilm induced
orf19.4885	MIR1	1,31	1,42	Putative mitochondrial phosphate transporter; caspofungin repressed; expression is increased in a fluconazole-resistant isolate; induced upon adherence to polystyrene
orf19.3939		1,31	1,43	Ortholog(s) have role in protein folding in endoplasmic reticulum and ER membrane protein complex, cell division site, cytosol, mitotic spindle pole body, nucleus localization
orf19.3271		1,31	1,15	Ortholog of Candida albicans WO-1 : CAWG_01442
orf19.5124	RBR3	1,31	1,21	Cell wall adhesin-like protein; repressed by Rim101; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2191		1,31	1,18	Ortholog(s) have role in endocytic recycling, peptidyl-diphthamide biosynthetic process from peptidyl-histidine and cytosol, endosome, nucleus localization
orf19.5207		1,31	1,2	Predicted diphthamide biosynthesis protein; Spider biofilm induced
orf19.2643	RPO26	1,31	1,2	Putative RNA polymerase subunit; heterozygous null mutant exhibits resistance to parafungin in the C. albicans fitness test
orf19.837	GNA1	1,31	1,27	Glucosamine-6-phosphate acetyltransferase; enzyme of UDP-GlcNAc biosynthesis; required for viability in absence of GlcNAc supplementation; required for persistent infection and wild-type virulence in mouse systemic infection
orf19.414	RSM22	1,31	1,17	Predicted mitochondrial small ribosomal subunit; rat catheter and Spider biofilm induced
orf19.4749		1,31	1,19	Protein of unknown function; hyphal-induced expression, regulated by Cyr1, Ras1, Efg1; Hap43-induced gene; Spider biofilm induced
orf19.5373		1,31	1,27	#NV
orf19.1755	SET2	1,31	1,24	Ortholog(s) have histone methyltransferase activity (H3-K36 specific) activity
orf19.5583		1,31	1,19	Ortholog(s) have methionine-R-sulfoxide reductase activity, role in cellular response to oxidative stress and cytoplasm, nucleus localization

orf19.5486		1,31	1,4	Putative endoribonuclease; heterozygous null mutant exhibits hypersensitivity to parnafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.3753	<i>SEF1</i>	1,31	1,13	Zn2-Cys6 transcription factor; regulates iron uptake; negatively regulated by Sfu1p, positively regulated by Tbf1; promotes virulence in mice; mutants display decreased colonization of mouse kidneys; Spider biofilm induced
orf19.4896	<i>RPA34</i>	1,31	1,39	Putative RNA polymerase I subunit; rat catheter biofilm induced
orf19.5516		1,31	1,53	Ortholog(s) have signal sequence binding activity, role in protein targeting to ER and cytosol, nucleus, signal recognition particle, endoplasmic reticulum targeting localization
orf19.577		1,31	1,29	Predicted protein tyrosine phosphatase; rat catheter biofilm induced
orf19.2690		1,31	1,12	Putative mitochondrial GTPase; required for mitochondrial morphology and genome maintenance; Spider biofilm induced
orf19.603	<i>IMP4</i>	1,31	1,18	Putative SSU processome component; Hap43-induced; repressed by prostaglandins; Spider biofilm induced
orf19.5780		1,31	1,34	Putative protein of unknown function; Hap43p-repressed gene
orf19.1323		1,31	1,24	Phosphorylated protein of unknown function; Hap43p-repressed gene
orf19.4203		1,31	1,45	Ortholog(s) have role in nuclear pore organization, spindle pole body duplication associated with nuclear envelope and nuclear pore transmembrane ring, spindle pole body localization
orf19.3710	<i>YHB5</i>	1,31	1,22	Flavo-hemoglobin-related protein; not required for normal NO resistance; predicted globin/FAD-binding/NAD(P)-binding domains but lacks some conserved residues of flavo-hemoglobins; filament induced; rat catheter and Spider biofilm induced
orf19.6314	<i>RPB8</i>	1,31	1,41	Putative subunit of RNA polymerases I, II, and III; regulated by Gcn4p; repressed in response to amino acid starvation (3-aminotriazole treatment); heterozygous null mutant exhibits resistance to parnafungin
orf19.6319		1,31	1,57	Ortholog(s) have mRNA binding, ubiquitin-specific protease activity and role in protein deubiquitination, regulation of ER to Golgi vesicle-mediated transport, regulation of response to osmotic stress, ribophagy
orf19.2328		1,31	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_10220, <i>C. parapsilosis</i> CDC317 : CPAR2_210530, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_105553 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G14432g
orf19.988		1,31	1,47	Protein of unknown function; oral infection upregulated gene; upregulated in strains from HIV+ patients with oral candidiasis; mutants have reduced ability to damage oral epithelial cells; transcript possibly regulated upon hyphal formation
orf19.5134		1,31	1,44	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_704140, <i>C. dubliniensis</i> CD36 : Cd36_72870, <i>Loederomyces elongisporus</i> NRRL YB-4239 : LELG_05208 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0G04320
orf19.2901	<i>NUP60</i>	1,31	1,73	Ortholog of <i>S. cerevisiae</i> Nup60p; a subunit of the nuclear pore complex; mutants are viable
orf19.5825	<i>NCB2</i>	1,31	1,26	Beta subunit of NC2, heterodimeric regulator of transcription; activates CDR1 transcription; possibly an essential gene, disruptants not obtained by UAU1 method; conditional mutants show decreased susceptibility to azoles
orf19.2485		1,31	1,19	Ortholog(s) have structural constituent of nuclear pore activity and role in chromosome segregation, mitotic spindle assembly checkpoint, nuclear pore complex assembly, protein targeting to nuclear inner membrane
orf19.2000		1,31	1,32	Ortholog(s) have DNA helicase activity, role in DNA replication initiation, donor selection, interstrand cross-link repair, mitotic sister chromatid cohesion, negative regulation of DNA recombination and cytosol, nucleus localization
orf19.1642		1,31	1,36	Ortholog of <i>S. cerevisiae</i> Loc1, a nuclear protein involved in asymmetric localization of ASH1 mRNA in <i>S. cerevisiae</i> ; Hap43-induced gene; Spider biofilm induced
orf19.3677		1,31	1,25	Ortholog(s) have Atg8 ligase activity and role in C-terminal protein lipidation, CVT pathway, ascospore formation, cellular response to nitrogen starvation, macroautophagy, mitochondrion degradation, piecemeal microautophagy of nucleus
orf19.4528		1,31	1,31	Ortholog(s) have role in vacuolar protein processing and endoplasmic reticulum localization
orf19.4538		1,31	1,24	Ortholog(s) have mRNA binding, protein heterodimerization activity, role in mRNA cleavage, mRNA polyadenylation and mRNA cleavage factor complex localization
orf19.4860		1,31	1,14	#NV
orf19.6068	<i>SVF1</i>	1,31	1,18	Putative survival factor; stationary phase enriched protein; fluconazole-induced; regulated by Gcn4p; repressed in response to amino acid starvation (3-AT treatment); fungal-specific (no human or murine homolog)
orf19.651	<i>LYP1</i>	1,31	1,22	Putative permease; amphotericin B induced; flucytosine repressed; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7198		1,31	1,13	CCR4-NOT complex component; involved in controlling mRNA initiation, elongation and degradation; rat catheter biofilm induced
orf19.5312	<i>MET4</i>	1,31	1,43	Putative transcription coactivator; predicted role in sulfur amino acid metabolism; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.5320	<i>NCE4</i>	1,31	1,21	Putative RecQ-mediated genome instability protein; Hap43-repressed gene; periodic mRNA expression, peak at cell-cycle G2/M phase; flow model biofilm induced
orf19.1212		1,31	1,25	Ortholog(s) have FFAT motif binding, phosphatidylinositol binding activity
orf19.1746		1,31	1,14	Protein similar to <i>S. cerevisiae</i> meiosis-specific, spore-wall-localized protein Ssp2p, which is required for wild-type outer spore wall formation in <i>S. cerevisiae</i> ; possibly an essential gene (UAU1 method); Hap43p-repressed
orf19.2781		1,31	1,13	Protein with predicted serine/threonine kinase and tyrosine kinase domains; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.7464		1,31	1,2	Putative subtilisin-family protease; mutation confers hypersensitivity to toxic ergosterol analog
orf19.7489		1,31	1,3	Ortholog(s) have Rho GTPase activator activity
orf19.6349	<i>RVS162</i>	1,31	1,17	Protein containing a BAR domain, which is found in proteins involved in membrane curvature; null mutant does not display the endocytic, hyphal growth, virulence, or cell wall defects exhibited by mutants in related genes <i>RVS161</i> and <i>RVS167</i>
orf19.5958	<i>CDR2</i>	1,31	1,29	Multidrug transporter, ATP-binding cassette (ABC) superfamily; transports triphospholipids, in-to-out direction; overexpressed in azole-resistant isolates; repressed in young biofilms
orf19.1296		1,31	1,31	Ortholog(s) have role in spliceosomal snRNP assembly and U4/U6 x U5 tri-snRNP complex, mitochondrion localization
orf19.923	<i>THR1</i>	1,31	1,22	Putative homoserine kinase; regulated by Tup1; amphotericin B repressed; regulated by Gcn2 and Gcn4; Spider biofilm repressed
orf19.6261	<i>BPH1</i>	1,3	1,31	Ortholog of <i>S. cerevisiae</i> Bph1; a putative ortholog of human Chediak-Higashi syndrome protein and murine beige gene implicated in disease syndromes involving defective lysosomal trafficking; mutant is viable
orf19.1841		1,3	1,26	Protein of unknown function; Hap43-induced gene
orf19.1350		1,3	1,14	Protein with a thioredoxin domain; predicted role in cell redox homeostasis; rat catheter and Spider biofilm induced
orf19.1863		1,3	1,2	Has domain(s) with predicted Rho guanyl-nucleotide exchange factor activity, role in regulation of Rho protein signal transduction and intracellular localization
orf19.246		1,3	1,25	Predicted metalloendopeptidase; Spider biofilm induced
orf19.2291		1,3	1,19	#NV
orf19.162		1,3	1,19	#NV
orf19.2236	<i>FHL1</i>	1,3	1,22	Fork-head transcription factor; forms a heterodimer with Ifh1 that is tethered to promoters by Tbf1; positively regulates rRNA and ribosomal protein gene transcription
orf19.1608		1,3	1,21	Ortholog(s) have cytosol, nucleus localization
orf19.5382		1,3	1,34	Protein of unknown function; overlaps orf19.5381
orf19.1144		1,3	1,14	Protein with SEL-1 like protein domain; early-stage flow model biofilm induced
orf19.3954	<i>PSD2</i>	1,3	1,2	Ortholog(s) have phosphatidylserine decarboxylase activity, role in phosphatidylcholine biosynthetic process, phosphatidylethanolamine biosynthetic process and cell division site, cytosol, endosome localization
orf19.5068	<i>IRE1</i>	1,3	1,26	Putative protein kinase; role in cell wall regulation; mutant is hypersensitive to caspofungin; Spider biofilm induced
orf19.4072	<i>IFF6</i>	1,3	1,21	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.1244	<i>GYP2</i>	1,3	1,18	#NV
		1,3	1,19	Ortholog(s) have Rab GTPase activator activity, role in intracellular protein transport and cell division site, cytosol localization
		1,3	1,35	#NV
orf19.457		1,3	1,62	Ortholog(s) have ubiquitin-specific protease activity, role in protein deubiquitination, ubiquitin-dependent protein catabolic process via the multivesicular body sorting pathway and cytosol localization
orf19.1203	<i>SRO77</i>	1,3	1,19	Protein with a predicted role in docking and fusion of post-Golgi vesicles with the plasma membrane; filament induced; fungal-specific (no human or murine homolog)
orf19.4278		1,3	1,18	Ortholog(s) have methylated histone residue binding activity and role in negative regulation of transcription from RNA polymerase II promoter
orf19.3599	<i>TIF4631</i>	1,3	1,29	Putative translation initiation factor eIF4G; overexpression causes hyperfilamentation; hyphal- and macrophage-induced; genes encoding some translation factors are downregulated upon phagocytosis by murine macrophage
orf19.1730		1,3	1,19	HMG-box protein; Spider biofilm repressed
orf19.3613		1,3	1,22	Ortholog(s) have RNA polymerase II core binding, RNA polymerase II core promoter sequence-specific DNA binding transcription factor activity, TFIIF-class binding transcription factor activity, chromatin binding activity
orf19.4919		1,3	1,2	Has domain(s) with predicted DNA binding, nucleic acid binding activity
orf19.5041		1,3	1,19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43600, <i>C. parapsilosis</i> CDC317 : CPAR2_403780, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_93767 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G16984g
orf19.4707		1,3	1,22	Putative secreted acid sphingomyelin phosphodiesterase; possible Kex2p substrate
orf19.2757		1,3	1,29	Has domain(s) with predicted role in cell redox homeostasis
orf19.4744		1,3	1,23	Putative phosphatidylinositol 3-phosphate (PI3P) phosphatase; repressed by alpha pheromone in SpiderM medium
orf19.783		1,3	1,22	Ortholog(s) have role in endocytosis, retrograde vesicle-mediated transport, Golgi to ER, vacuole organization and COPI-coated vesicle, Golgi membrane, endosome localization

orf19.295		1,3	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_82970, <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_02117, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G01012q and <i>Candida lusitanae</i> ATCC 42720 : CLUG_03529
orf19.3498		1,3	1,24	Protein of unknown function
orf19.4040	<i>ILV3</i>	1,3	1,2	Dihydroxyacid dehydratase; repressed by nitric oxide; macrophage-induced protein; protein in exponential and stationary growth phase; <i>Sef1</i> , <i>Sfu1p</i> , <i>Hap43</i> -regulated; farnesol-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.2804		1,3	1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_83980, <i>C. parapsilosis</i> CDC317 : CPAR2_102620, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_134550 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D12100q
orf19.5714	<i>SAP1</i>	1,3	1,24	Secreted aspartyl proteinase; acts in utilization of protein as nitrogen source; assessment of virulence role complicated by URA3 effects; regulated by growth phase, alpha-pheromone, produced by opaque cells
orf19.1327	<i>RBT1</i>	1,3	1,36	Cell wall protein with similarity to <i>Hwp1</i> ; required for virulence; predicted glycosylation; fluconazole, <i>Tup1</i> repressed; farnesol, alpha factor, serum, hyphal and alkaline induced; <i>Rfg1</i> , <i>Rim101</i> -regulated
orf19.2460		1,3	1,16	Protein of unknown function; substrate for <i>Kex2</i> processing in vitro; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced; <i>Bcr1</i> -repressed in a/a RPMI biofilms
orf19.207	<i>PGA55</i>	1,3	1,3	GPI-anchored adhesin-like protein; filament induced; regulated by <i>Nrg1</i> , <i>Tup1</i> ; regulated upon hyphal formation; mRNA binds to <i>She3</i> and is localized to yeast-form buds and hyphal tips; induced during chlamydoospore formation
orf19.4288	<i>CTA7</i>	1,3	1,3	Zn(II)Cys6 transcription factor; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i> ; has similarity to <i>S. cerevisiae</i> <i>Stb4</i>
orf19.6552		1,3	1,21	Flavin-linked sulphydryl oxidase; predicted localization to endoplasmic reticulum lumen; involved in disulfide bond formation within the ER; Spider biofilm induced
orf19.1359		1,3	1,24	Ortholog(s) have protein complex binding activity, role in ER-associated protein catabolic process, sporulation resulting in formation of a cellular spore and cytoplasm, extrinsic to membrane, nucleus localization
orf19.2325		1,3	1,22	Ortholog(s) have RNA polymerase III type 1 promoter sequence-specific DNA binding and RNA polymerase III type 1 promoter sequence-specific DNA binding TFIIIB recruiting transcription factor activity, more
orf19.1668		1,3	1,38	Protein of unknown function; expression downregulated in an <i>ssr1</i> null mutant
orf19.1670	<i>BRO1</i>	1,3	1,3	Class E vacuolar protein sorting factor; role in transport from multivesicular body to vacuole; not involved in <i>Rim101</i> pathway, macrophage and pseudohyphal-repressed; flow model biofilm induced
orf19.3569		1,3	1,17	Protein of unknown function; <i>S. cerevisiae</i> YLR407W mutants have abnormal budding; constitutive expression independent of MTL or white-opaque status; Spider biofilm induced
orf19.998		1,3	1,28	Putative adapter protein; links synaptojanins <i>Inp52</i> and <i>Inp53</i> to the cortical actin cytoskeleton in <i>S. cerevisiae</i> ; mutants are viable
orf19.83		1,3	1,24	#NV
orf19.1008		1,3	1,13	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01856
orf19.1007	<i>KCS1</i>	1,3	1,17	Putative bZIP transcription factor; Spider biofilm induced
orf19.1427		1,3	1,2	Putative transporter, fungal-specific; Spider biofilm induced
orf19.6690		1,3	1,44	Protein of unknown function; <i>Hap43</i> -repressed gene
orf19.5655		1,3	1,2	Has domain(s) with predicted 2 iron, 2 sulfur cluster binding, iron ion binding, oxidoreductase activity, oxidoreductase activity and acting on paired donors, more
orf19.5675		1,3	1,27	Protein involved in proteolytic control of sumoylated substrates; interacts with SUMO; member of the SWI/SNF family of DNA-dependent ATPases; Spider biofilm induced
orf19.2655	<i>BUB3</i>	1,3	1,27	Protein similar to <i>S. cerevisiae</i> <i>Bub3</i> ; a kinetochore checkpoint component; induced by hydroxyurea treatment; flow model biofilm induced; Spider biofilm induced
orf19.4437		1,3	1,16	Ortholog(s) have ATPase activity, DNA binding, nucleosome binding, rDNA binding activity
orf19.2862	<i>RIB1</i>	1,3	1,18	Putative GTP cyclohydrolase II; enzyme of riboflavin biosynthesis; fungal-specific (no human or murine homolog); regulated by <i>Sef1p</i> , <i>Sfu1p</i> , and <i>Hap43p</i>
orf19.64		1,3	1,18	#NV
orf19.2078		1,3	1,23	Ortholog(s) have role in Golgi to vacuole transport and AP-1 adaptor complex localization
orf19.6559		1,3	1,36	RNA polymerase III transcription initiation factor complex (TFIIIC) subunit; growth phase regulated protein; downregulated in stationary phase yeast cultures; <i>Hap43</i> -repressed; flow model biofilm induced; Spider biofilm repressed
orf19.6071		1,3	1,07	Ortholog(s) have peptide alpha-N-acetyltransferase activity, role in N-terminal peptidyl-methionine acetylation, cytoskeleton organization, mitochondrion inheritance and <i>NatB</i> complex localization
orf19.1996	<i>CHA1</i>	1,3	1,25	Similar to catabolic ser/thr dehydratases; repressed by <i>Rim101</i> ; induced in low iron; regulated on white-opaque switch; filament induced; Tn mutation affects filamentation; flow model biofilm induced; Spider biofilm repressed
orf19.3041		1,3	1,36	Ortholog(s) have ubiquitin protein ligase binding activity
orf19.6438		1,3	1,3	Ortholog(s) have serine C-palmitoyltransferase activity, role in sphingolipid biosynthetic process and SPOTS complex localization
orf19.5011	<i>KAR9</i>	1,3	1,34	Ortholog of <i>S. cerevisiae</i> <i>Kar9</i> ; role in mitotic spindle positioning; nonessential; localizes to bud tip, bud neck, hyphal tip; wild-type localization requires actin and microtubule cytoskeleton; induced by alpha factor
orf19.7227		1,3	1,31	Protein phosphatase inhibitor; <i>Hap43</i> -repressed; homozygous Tn insertion decreases colony wrinkling but does not block hyphal growth in liquid media; mutation confers hypersensitivity to toxic ergosterol analog; Spider biofilm induced
orf19.1174		1,3	1,35	#NV
orf19.978	<i>BDF1</i>	1,3	1,23	Bromodomain transcription factor; repressed upon adherence to polystyrene; reduced mRNA abundance detected in null mutant; macrophage/pseudohyphal-repressed; possibly essential, disruptants not obtained by UAU1 method
orf19.5300		1,3	1,33	Calnexin; integral membrane ER chaperone involved in folding and quality control of glycoproteins; caspofungin induced
orf19.5346		1,3	1,1	Ortholog(s) have role in transcription from RNA polymerase II promoter and transcription factor TFIIID complex localization
orf19.5367	<i>RDH54</i>	1,3	1,29	Putative DNA-dependent ATPase with a predicted role in DNA recombination and repair; transcriptionally induced by interaction with macrophages
orf19.7372	<i>MRR1</i>	1,3	1,24	Putative Zn(II)Cys6 transcription factor; regulator of <i>MDR1</i> transcription; gain-of-function mutations cause upregulation of <i>MDR1</i> (a plasma membrane multidrug efflux pump) and multidrug resistance; <i>Hap43</i> -induced
orf19.7410	<i>CYM1</i>	1,3	1,33	Putative metalloprotease of the mitochondrial intermembrane space; rat catheter biofilm induced
orf19.7475	<i>PHO81</i>	1,3	1,3	Protein involved in regulation of hyphal development; required for response to farnesol acid; possibly adherence-induced
orf19.7483	<i>CRM1</i>	1,3	1,21	Functional homolog of <i>S. cerevisiae</i> <i>Crm1</i> , which acts in protein nuclear export; predicted to be resistant to antifungal drug leptomycin B; partially suppresses signal transduction defects of <i>S. cerevisiae</i> <i>ste20</i> mutant
orf19.4751		1,3	1,22	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.1298	<i>NUP84</i>	1,3	1,2	Ortholog(s) have structural constituent of nuclear pore activity
orf19.2309	<i>PET127</i>	1,3	1,32	Protein with a predicted role in 5'-end processing of mitochondrial RNAs; ortholog of <i>S. cerevisiae</i> <i>Pet127</i> ; <i>Hap43</i> -induced; rat catheter and Spider biofilm induced
orf19.7451	<i>FUN31</i>	1,3	1,17	Putative PAS kinase involved in cell wall damage response; similar to <i>S. cerevisiae</i> <i>Psk1p</i> , a putative serine/threonine protein kinase; induced by <i>Mn1</i> under weak acid stress; rat catheter and Spider biofilm induced
orf19.1597	<i>ABG1</i>	1,29	1,16	Vacuolar membrane protein; depletion causes abnormal vacuolar morphology, cell separation defect, sensitivity to cell wall stress, increased hyphal branching; essential, no mammalian homolog; <i>Cyr1</i> -regulated; rat catheter biofilm repressed
orf19.147	<i>YAK1</i>	1,29	1,22	Predicted serine-threonine protein kinase; involved in hyphal growth regulation and biofilm formation; flow model biofilm induced; induced in core caspofungin response
orf19.1818		1,29	1,29	#NV
orf19.2650		1,29	1,23	Protein of unknown function; rat catheter biofilm induced
orf19.2634		1,29	1,34	#NV
orf19.2638		1,29	1,2	Protein of unknown function; Spider biofilm induced
orf19.4793		1,29	1,29	Putative ribosome-associated protein; ortholog of <i>S. cerevisiae</i> <i>Tma16</i> ; <i>Hap43</i> -induced gene; Spider biofilm induced
orf19.1808	<i>MED5</i>	1,29	1,15	RNA polymerase II mediator complex subunit; transcription positively regulated by <i>Tbf1p</i>
orf19.4882		1,29	1,14	TFIIE small subunit; involved in RNA polymerase II transcription initiation; Spider biofilm induced
orf19.4686		1,29	1,16	Ortholog of <i>S. cerevisiae</i> : YIL151C, <i>C. dubliniensis</i> CD36 : Cd36_41030, <i>C. parapsilosis</i> CDC317 : CPAR2_401340 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104645
orf19.261		1,29	1,18	Ortholog(s) have dolichol kinase activity, role in protein glycosylation and endoplasmic reticulum membrane localization
orf19.1048	<i>IFD6</i>	1,29	1,27	Aldo-keto reductase; similar to aryl alcohol dehydrogenases; protein increase correlates with <i>MDR1</i> overexpression (not <i>CDR1</i> or <i>CDR2</i>) in fluconazole-resistant clinical isolates; farnesol regulated; possibly essential; Spider biofilm induced
orf19.6247		1,29	1,42	Ortholog(s) have chromatin binding activity
orf19.6044	<i>MOB2</i>	1,29	1,09	Mob1/phocin domain protein of RAM signaling network; cell wall integrity; role in cell separation, cortical actin polarization; required for hyphal growth; phosphorylated by <i>Cdc28</i> on hyphal induction; activates <i>Cbk1</i> ; mRNA binds <i>She3</i>
orf19.2237	<i>SPR1</i>	1,29	1,13	Putative GPI-anchored protein; similar but not orthologous to <i>S. cerevisiae</i> <i>Spr1</i> , a sporulation-specific exo-1,3-beta-glucanase; mutant is viable
orf19.4367	<i>SMC1</i>	1,29	1,19	Protein similar to chromosomal ATPases; RNA abundance regulated by tyrosol and cell density; cell-cycle regulated periodic mRNA expression
orf19.1983		1,29	1,29	#NV

orf19.2749		1,29	1,17	BTB/POZ domain protein; induced by Mnl1 under weak acid stress; flow model biofilm induced; Spider biofilm induced
orf19.712	<i>KIP1</i>	1,29	1,19	Non-essential kinesin from the bipolar (Kinesin-5) family; involved in formation of the mitotic spindle
orf19.1766		1,29	1,26	Secreted protein; fluconazole-induced
orf19.190		1,29	1,26	Ortholog(s) have role in endoplasmic reticulum organization, histone exchange and Swr1 complex, mitochondrion localization
orf19.3226		1,29	1,17	Ortholog(s) have role in intracellular sterol transport and fungal-type vacuole lumen localization
orf19.1311	<i>SPO75</i>	1,29	1,29	Ortholog(s) have role in ascospore wall assembly
orf19.4330		1,29	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52790, <i>Candida tropicalis</i> MYA-3404 : CTRG_05968 and <i>Candida albicans</i> WO-1 : CAWG_04684
orf19.3660		1,29	1,24	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_60600, <i>C. parapsilosis</i> CDC317 : CPAR2_208700, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135512 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F15312g
orf19.5192		1,29	1,32	#NV
orf19.862		1,29	1,23	Protein of unknown function; Spider biofilm induced
orf19.856	<i>IFK2</i>	1,29	1,2	Putative thiol-specific monooxygenase; mutant is viable; flow model biofilm induced
orf19.2789		1,29	1,24	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_07040, <i>C. parapsilosis</i> CDC317 : CPAR2_208700, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_108836 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F25674g
orf19.757		1,29	1,21	Ortholog of <i>S. cerevisiae</i> : YPR089W, <i>C. glabrata</i> CBS138 : CAGL0K08008g, <i>C. dubliniensis</i> CD36 : Cd36_04600, <i>C. parapsilosis</i> CDC317 : CPAR2_105630 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_129373
orf19.761	<i>TCO89</i>	1,29	1,21	Putative homolog of <i>S. cerevisiae</i> Tco89p, which is a component of the TOR C1 complex that is involved in the regulation of growth and cell wall integrity; heterozygous null mutant displays sensitivity to rapamycin
orf19.5226	<i>WRS1</i>	1,29	1,17	Putative tRNA-Trp synthetase; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophages
orf19.4361	<i>IFF3</i>	1,29	1,25	Putative GPI-anchored protein
orf19.2381		1,29	1,23	Protein of unknown function; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1516		1,29	1,38	Ortholog(s) have ubiquitin-specific protease activity
orf19.4752	<i>MSN4</i>	1,29	1,13	Zinc finger transcription factor; similar to <i>S. cerevisiae</i> Msn4, but not a significant stress response regulator in <i>C. albicans</i> ; partly complements STRE-activation defect of <i>S. cerevisiae</i> msn2 msn4 double mutant; flow model biofilm induced
orf19.5557	<i>MNN4-4</i>	1,29	1,2	Mannosyltransferase; transcript upregulated in Ssk1 response regulator mutant or in nik1 null mutant, but not in chk1 or sln1 null mutants; pheromone induced; Spider biofilm induced
orf19.1834		1,29	1,21	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_09960, <i>C. parapsilosis</i> CDC317 : CPAR2_212580, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G11770g and <i>Pichia stipitis</i> Pignal : PICST_51041
orf19.2267	<i>RFA2</i>	1,29	1,2	Putative DNA replication factor A; RNA abundance regulated by cell cycle, tyrosol and cell density
orf19.5517		1,29	1,33	Similar to alcohol dehydrogenases; induced by benomyl treatment, nitric oxide; induced in core stress response; oxidative stress-induced via Cap1; Spider biofilm repressed
orf19.4374	<i>PRP42</i>	1,29	1,22	Putative component of the U1 snRNP, involved in splicing; ortholog of <i>S. cerevisiae</i> PRP42
orf19.580		1,29	1,18	Protein of unknown function; mutants are viable; Spider biofilm induced
orf19.6236	<i>NOP6</i>	1,29	1,27	Putative ortholog of <i>S. cerevisiae</i> Nop6; role in ribosomal small subunit biogenesis; Spider biofilm induced
orf19.3009		1,29	1,17	#NV
orf19.3705	<i>PTC6</i>	1,29	1,34	Protein of unknown function; mutants are viable
orf19.2695	<i>UBR1</i>	1,29	1,47	Mitochondrial protein phosphatase of the Type 2C-related family (serine/threonine-specific), functional homolog of <i>S. cerevisiae</i> Ptc6p; mutant shows virulence defect
orf19.2297	<i>ARL3</i>	1,29	1,2	Protein similar to <i>S. cerevisiae</i> Ubr1p ubiquitin-protein ligase; transposon mutation affects filamentous growth; Spider biofilm induced
orf19.1849		1,29	1,43	Putative Ras superfamily GTPase; induced by nitric oxide independent of Yhb1p
orf19.36		1,29	1,16	Ortholog(s) have U3 snoRNA binding, rRNA binding activity, role in maturation of SSU-rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA) and nucleolus, small-subunit processome localization
orf19.6589	<i>SSF1</i>	1,29	1,19	Component of the conserved oligomeric Golgi complex; predicted to mediate fusion of transport vesicles to Golgi compartments; clade-associated gene expression
orf19.1409	<i>VAC7</i>	1,29	1,32	Protein involved in ribosome biogenesis; ortholog of <i>S. cerevisiae</i> Ssf1; Hap43-induced; rat catheter and Spider biofilm induced
orf19.4232	<i>PTH1</i>	1,29	1,14	Ortholog of <i>S. cerevisiae</i> Vac7; integral vacuolar membrane protein involved in vacuole inheritance and morphology; mutants are viable
orf19.6654		1,29	1,22	Putative gluconate transport protein; antigenic during human oral infection; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6708		1,29	1,14	Predicted membrane transporter, member of the L-amino acid transporter-3 (LAT3) family, major facilitator superfamily (MFS)
orf19.1445	<i>ESC4</i>	1,29	1,16	#NV
orf19.4830		1,29	1,29	Protein similar to <i>S. cerevisiae</i> Esc4; a protein that represses transposition; transposon mutation affects filamentation; rat catheter biofilm repressed
orf19.5518		1,29	1,31	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_09110, <i>C. parapsilosis</i> CDC317 : CPAR2_803660, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00140 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B12056g
orf19.1995	<i>MNN24</i>	1,29	1,2	Protein of unknown function; Spider biofilm induced
orf19.5249		1,29	1,24	Alpha-1,2-mannosyltransferase; required for normal cell wall mannann content
orf19.1129		1,29	1,13	Ortholog(s) have role in ascospore formation, meiosis and cytosol, nucleus localization
orf19.2012	<i>NOT3</i>	1,29	1,23	#NV
orf19.7020		1,29	1,18	Transcriptional regulator; not required for buccal epithelial cell adherence or virulence in mouse systemic infection; null mutant colonies exhibit slightly decreased filamentation ratio; required for yeast adherence to silicone substrate
orf19.7199		1,29	1,24	Protein similar to <i>S. cerevisiae</i> Kex1p, which is a pheromone-processing peptidase; possible Kex2p substrate
orf19.956		1,29	1,2	Ortholog(s) have TRC complex, nucleus localization
orf19.5328	<i>GCN1</i>	1,29	1,29	Ortholog(s) have role in fermentation and mitochondrion localization
orf19.7281	<i>PDK2</i>	1,29	1,23	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrion localization
orf19.7456		1,29	1,18	Putative pyruvate dehydrogenase kinase; mutation confers hypersensitivity to amphotericin B
orf19.5436	<i>UTP8</i>	1,29	1,4	Protein of unknown function; flow model biofilm repressed
orf19.7595		1,29	1,27	Essential nucleolar protein; involved in tRNA export from the nucleus and ribosomal small subunit biogenesis; physically interacts with TAP-tagged Nop1; Spider biofilm induced
orf19.6018	<i>LRO1</i>	1,29	1,19	Has domain(s) with predicted dynactin complex localization
orf19.5890		1,29	1,22	#NV
orf19.5869		1,29	1,24	Acyltransferase that catalyzes diacylglycerol esterification of phospholipids; role in lipid storage, triglyceride biosynthesis; flow model biofilm repressed
orf19.3188	<i>TAC1</i>	1,28	1,21	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_84350, <i>C. parapsilosis</i> CDC317 : CPAR2_806070, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133308 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F11682g
orf19.3550	<i>SGO1</i>	1,28	1,31	Ortholog(s) have role in metal ion transport, protein targeting to vacuole, ubiquitin-dependent protein catabolic process and endoplasmic reticulum, fungal-type vacuole membrane localization
orf19.6080		1,28	1,2	Zn(2)-Cys(6) transcriptional activator of drug-responsive genes (CDR1 and CDR2); binds DRE element; gene in zinc cluster region near MTL locus; resequencing indicates that TAC1 spans orf19.3188 and orf19.3189; Spider biofilm induced
orf19.860	<i>BMT8</i>	1,28	1,16	Component of the spindle checkpoint; cell-cycle regulated periodic mRNA expression
orf19.1906		1,28	1,25	Ortholog(s) have role in mitotic spindle orientation checkpoint and spindle pole body localization
orf19.1506		1,28	1,17	Putative beta-mannosyltransferase, member of a 9-gene family including characterized BMT genes with roles in beta-1,2-mannosylation of cell wall phosphopeptidomannan; transposon insertion in promoter region causes decreased colony wrinkling
orf19.1735		1,28	1,17	Protein of unknown function; flow model biofilm induced
orf19.75		1,28	1,16	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03962
orf19.2630	<i>RAD59</i>	1,28	1,29	Ortholog(s) have U2-type spliceosomal complex localization
orf19.1136		1,28	1,14	#NV
orf19.3558		1,28	1,1	Protein involved in homologous recombination and DNA breaks repair; similar to <i>S. cerevisiae</i> Rad59p; N-terminal similarity with Rad52p
orf19.5578		1,28	1,15	Ortholog(s) have AP-2 adaptor complex, cytosol, nucleus localization
orf19.4211	<i>FET3</i>	1,28	1,12	Ortholog(s) have Golgi apparatus, endoplasmic reticulum localization
orf19.3496	<i>CHC1</i>	1,28	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63050 and <i>Candida albicans</i> WO-1 : CAWG_05094
orf19.250	<i>SLC1</i>	1,28	1,23	Multi-copper oxidase; for growth in low iron, prostaglandin E2 synthesis; ketoconazole/caspofungin/amphotericin B repressed; Sef1/Stu1/Hap43 regulated; reports differ if functional homolog of ScFet3; rat catheter and Spider biofilm induced
orf19.1676		1,28	1,15	Clathrin heavy chain; subunit of the major coat protein; role in intracellular protein transport and endocytosis; flow model and rat catheter biofilm repressed
orf19.4461		1,28	1,09	Putative fatty acyltransferase; protein repressed during the mating process
orf19.4465		1,28	1,19	Predicted potassium ion transporter; Spider biofilm induced
orf19.1388		1,28	1,43	#NV
				Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01005
				Protein of unknown function; Spider biofilm induced
				Putative 66S pre-ribosomal particle component; Hap43-induced; F-12/CO2 early biofilm induced

orf19.1050		1,28	1,18	Ortholog of <i>S. cerevisiae</i> : YMR087W, <i>C. glabrata</i> CBS138 : CAGL0J01397g, <i>C. dubliniensis</i> CD36 : Cd36_03920, <i>C. parapsilosis</i> CDC317 : CPAR2_107150 and <i>Pichia stipitis</i> Pignal : PICST_61741
orf19.474		1,28	1,22	Ortholog(s) have role in mRNA export from nucleus, nuclear envelope organization, protein export from nucleus and endoplasmic reticulum, nuclear envelope localization
orf19.4363	SGD1	1,28	1,17	Predicted small ribosomal subunit biogenesis protein; repressed in core stress response; transcript increases in populations of cells exposed to fluconazole over multiple generations; Spider biofilm induced
orf19.4063	GPT1	1,28	1,11	GABA/polyamine transporter; 9 to 11 membrane spanning segments; complements GABA uptake defect of an <i>S. cerevisiae</i> uga4 put4 gap1 triple mutant; complements growth of an <i>S. cerevisiae</i> spe1 mutant under polyamine limitation
orf19.4357		1,28	1,24	Putative protein similar to <i>S. cerevisiae</i> Mgr3p, a subunit of the i-AAA protease supercomplex that degrades misfolded mitochondrial proteins
orf19.4769	IPT1	1,28	1,2	Inositol phosphoryl transferase; catalyzes the synthesis of the most abundant sphingolipid, mannose-(inositol-P)-ceramide, M(IP)2C, from MIPC; required for wild-type membrane localization of Cdr1; Spider biofilm induced
orf19.4132		1,28	1,38	Protein of unknown function; UPF0057 protein family member; localizes to the plasma membrane; Spider biofilm induced
orf19.2627		1,28	1,18	#NV
orf19.1773	RAP1	1,28	1,2	Transcription factor; binds telomeres and regulatory sequences in DNA; involved in telomere maintenance; represses hyphal growth under yeast-favoring conditions; similar to (but shorter than) <i>S. cerevisiae</i> Rap1
orf19.4193		1,28	1,15	Ortholog(s) have Arp2/3 complex binding activity, role in actin cortical patch assembly, actin filament debranching, negative regulation of Arp2/3 complex-mediated actin nucleation and actin cortical patch, cytosol, nucleus localization
orf19.2879	IFF5	1,28	1,19	Putative GPI-anchored protein; adhesin-like protein; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3225	CWH43	1,28	1,22	Putative sensor/transporter protein with a predicted role in cell wall biogenesis; possibly an essential gene, disruptants not obtained by UAU1 method; flow model and rat catheter biofilm repressed
orf19.4567		1,28	1,12	Catechol 1,2-dioxygenase (1,2-CTD), involved in degradation of aromatic compounds; Spider biofilm induced
orf19.4312		1,28	1,2	Ortholog(s) have TBP-class protein binding, transcription cofactor activity
orf19.272	FAA21	1,28	1,32	Predicted acyl CoA synthetase; upregulated upon phagocytosis; transcript regulated by Nrg1 and Mig1
orf19.5124	RBR3	1,28	1,3	Cell wall adhesin-like protein; repressed by Rim101; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1829		1,28	1,16	#NV
orf19.2440		1,28	1,14	<i>S. cerevisiae</i> ortholog Rtt101 is a cullin subunit of E3 ubiquitin ligase complex with a role in anaphase progression; induced by alpha pheromone in SpiderM medium
orf19.3694		1,28	1,22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_02210, <i>C. parapsilosis</i> CDC317 : CPAR2_106350, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116785 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C01980g
orf19.5820	UGA6	1,28	1,25	Putative GABA-specific permease; decreased transcription is observed upon benomyl treatment or in an azole-resistant strain that overexpresses MDR1
orf19.5489		1,28	1,27	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20660, <i>C. parapsilosis</i> CDC317 : CPAR2_104730, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133951 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F02068g
orf19.5491		1,28	1,19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20670, <i>C. parapsilosis</i> CDC317 : CPAR2_104720, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_103989 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F02046g
		1,28	1,14	#NV
orf19.3409	SEC12	1,28	1,2	Putative guanyl-nucleotide exchange factor; induced in high iron; Hap43-repressed
orf19.1796		1,28	1,13	Putative glyoxylate reductase; acts on glyoxylate and hydroxypyruvate substrates; Spider biofilm repressed
orf19.307		1,28	1,41	Ortholog(s) have transcription coactivator activity, role in histone acetylation, transcription from RNA polymerase II promoter and Ada2/Gcn5/Ada3 transcription activator complex, SAGA complex, SLIK (SAGA-like) complex localization
orf19.4757	NAR1	1,28	1,32	Putative cytosolic iron-sulfur (FeS) protein assembly machinery protein; induced by nitric oxide; oxidative stress-induced via Cap1p
orf19.281		1,28	1,34	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_82880, <i>C. parapsilosis</i> CDC317 : CPAR2_102370, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_118463 and <i>Pichia stipitis</i> Pignal : PICST_32241
orf19.1321	HWP1	1,28	1,21	Hyphal cell wall protein; host transglutaminase substrate; opaque-, a-specific, alpha-factor induced; at MTLA side of conjugation tube; virulence complicated by URA3 effects; Bcr1-repressed in RPM1 a/a biofilms; Spider biofilm induced
orf19.2463	PRN2	1,28	1,22	Protein similar to pirin; Hap43p-repressed gene
orf19.3473		1,28	1,21	Ortholog(s) have enzyme activator activity, histone acetyltransferase activity, structural molecule activity
orf19.4515		1,28	1,28	Predicted protein with similarity to cell wall proteins; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4214		1,28	1,28	Protein of unknown function; mutants are viable
orf19.6277		1,28	1,21	Has domain(s) with predicted phosphatidylinositol binding activity and role in cell communication
orf19.1966	BUD23	1,28	1,37	Putative methyltransferase; Hap43-induced; repressed by prostaglandins
orf19.5609		1,28	1,22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63840, <i>C. parapsilosis</i> CDC317 : CPAR2_601510, <i>Debaryomyces hansenii</i> CBS767 : DEHA2A06270g and <i>Pichia stipitis</i> Pignal : PICST_31363
orf19.1813	FLC2	1,28	1,17	Protein involved in heme uptake; putative FAD transporter, similar to <i>S. cerevisiae</i> Fic2p
orf19.3737		1,28	1,21	Protein with a Vps9 vacuolar protein sorting protein domain; Hap43-repressed; repressed by ciclopirox olamine; Spider biofilm induced
orf19.6310		1,28	1,2	Has domain(s) with predicted myosin binding activity
orf19.867		1,28	1,21	Ortholog(s) have superoxide-generating NADPH oxidase activity, role in apoptotic process, regulation of actin cytoskeleton organization and perinuclear endoplasmic reticulum, ribosome localization
orf19.2971		1,28	1,31	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_02630, <i>C. parapsilosis</i> CDC317 : CPAR2_108390, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115724 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D07986g
orf19.3890		1,28	1,27	#NV
orf19.4068		1,28	1,23	Protein of unknown function; flow model biofilm induced
orf19.1009		1,28	1,26	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01857
orf19.2495	GSL1	1,28	1,28	Beta-1,3-glucan synthase subunit; 10 predicted transmembrane regions; caspofungin induced; repressed by yeast-to-hypha transition; young biofilm repressed; induced by biofilm drug exposure; Bcr1-repressed in RPM1 a/a biofilms
orf19.401	TCP1	1,28	1,16	Chaperonin-containing T-complex subunit, induced by alpha pheromone in SpiderM medium; stationary phase enriched protein
orf19.5107	NOT5	1,28	1,52	Protein with similarity to <i>S. cerevisiae</i> Not5p, a member of the transcription regulatory CCR4-NOT complex; required for hyphal growth; antigenic during human oral infection; greater expression in yeast-form cells than hyphae
orf19.2772	HOS3	1,28	1,1	Histone deacetylase; similar to <i>S. cerevisiae</i> Hos3p; greater expression and longer mRNA in white cells, compared to opaque cells; has conserved deacetylation motif
orf19.4118	CNT	1,28	1,37	CNT family H(+)/nucleoside symporter; transports adenosine, uridine, inosine, guanosine, tubercidin; variant alleles for high/low-affinity isoforms: S or G at residue 328 affects specificity; Spider, flow model biofilm induced
orf19.1877		1,28	1,25	Ortholog(s) have cytoplasm, nucleus localization
orf19.1866	VMA10	1,28	1,37	Subunit G of the V1 peripheral membrane domain of the vacuolar H+-ATPase (V-ATPase); involved in vacuolar acidification; rat catheter biofilm repressed
orf19.3193	FCR3	1,28	1,21	bZIP transcription factor; ortholog of <i>S. cerevisiae</i> Yap3; partially complements fluconazole sensitivity of <i>S. cerevisiae</i> pdr1 pdr3; Hap43-induced; required for yeast cell adherence to silicone substrate; flow model biofilm repressed
orf19.2859	SRP40	1,28	1,16	Putative chaperone of small nucleolar ribonucleoprotein particles; macrophage/pseudohyphal-induced; rat catheter biofilm induced
orf19.3988		1,28	1,25	Putative adhesin-like protein; induced by Mnl1 under weak acid stress; rat catheter and Spider biofilm induced
orf19.4033	PRP22	1,28	1,3	Putative RNA-dependent ATPase; induced upon adherence to polystyrene; induced by Mnl1p under weak acid stress
orf19.4488		1,28	1,16	Predicted ortholog of <i>S. cerevisiae</i> Swi3, subunit of the SWI/SNF chromatin remodeling complex; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6975	YST1	1,28	1,21	Ribosome-associated protein; antigenic in mice; complements <i>S. cerevisiae</i> yst1 yst2 mutant; similar to laminin receptor; predicted S/T phosphorylation, N-glycosylation, myristoylation, Hap43-, Gcn4-regulated; Spider biofilm repressed
orf19.6425	SK2	1,28	1,18	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion, nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay
orf19.3986	PPR1	1,28	1,19	Putative transcription factor with zinc cluster DNA-binding motif; has similarity to <i>S. cerevisiae</i> Ppr1p, which is a transcription factor involved in the regulation of uracil biosynthesis genes
orf19.3269	GSL2	1,28	1,25	Protein similar to beta-1,3-glucan synthase; 16 predicted membrane-spanning regions; transcript regulated by Nrg1; very low gene expression in yeast-form and hyphal cells
orf19.3740	PGA23	1,28	1,27	Putative GPI-anchored protein of unknown function; Rim101-repressed; Cyr1-regulated; colony morphology-related gene regulation by Ssn6
orf19.7084	DFI1	1,28	1,42	Cell-surface associated glycoprotein; promotes activation of Cek1 in a matrix-dependent manner; N-glycosylated; Spider biofilm induced
orf19.7455		1,28	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86630 and <i>Candida tropicalis</i> MYA-3404 : CTRG_05698
orf19.7670		1,28	1,39	Putative Ca2+/H+ antiporter; oral infection upregulated gene; mutants have reduced capacity to damage oral epithelial cells

orf19.5901	<i>PKC1</i>	1.28	1.2	Protein kinase C; functional homolog of <i>S. cerevisiae</i> Pkc1p; mutant has abnormal yeast-form cell morphology and increased cell lysis; activated by phosphatidylserine; target of antifungal, cercosporamide; R400P mutant is activated
orf19.153		1.28	1.28	#NV
orf19.6243	<i>VPS34</i>	1.28	1.22	Autophosphorylated class III phosphatidylinositol 3-kinase; required for normal vesicle transport, hyphal growth, fibroblast adherence, virulence in mouse systemic infection; growth-regulated; caspofungin and hydrogen peroxide sensitivity
orf19.3549	<i>CDC21</i>	1.27	1.21	Putative thymidylate synthase; flucytosine induced; rat catheter biofilm repressed; Spider biofilm repressed
orf19.6079		1.27	1.13	Predicted ORF in retrotransposon Tca8 with similarity to the Gag region encoding nucleocapsid-like protein; repressed by ciclopirox olamine; filament induced; regulated by Rfq1, Tup1; overlaps orf19.6078.1
orf19.1789		1.27	1.18	Ortholog(s) have mitochondrion localization
orf19.1927	<i>SNM1</i>	1.27	1.21	Protein similar to RNase MRP RNA binding protein; ciclopirox olamine induced; regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced
orf19.2164		1.27	1.22	#NV
orf19.2228		1.27	1.19	Ortholog(s) have actin monomer binding activity, role in sequestering of actin monomers and mating projection tip localization
orf19.160		1.27	1.26	#NV
orf19.2805	<i>PEX8</i>	1.27	1.17	Putative peroxisomal biogenesis factor; expression regulated during planktonic growth
orf19.1438		1.27	1.16	Protein with homology to NADH dehydrogenase; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.1806		1.27	1.2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30340, <i>C. parapsilosis</i> CDC317 : CPAR2_203900, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113094 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G22374g
orf19.4906		1.27	1.19	Putative adhesin-like protein; positively regulated by Tbf1; Spider biofilm induced
orf19.1529		1.27	1.16	Protein of unknown function; macrophage-induced gene
orf19.6028	<i>HGC1</i>	1.27	1.18	Hypha-specific G1 cyclin-related protein involved in regulation of morphogenesis, biofilm formation; Cdc28-Hgc1 maintains Cdc11 S394 phosphorylation during hyphal growth; required for virulence in mice; regulated by Nrg1, Tup1, farnesol
orf19.1948		1.27	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51110, <i>C. parapsilosis</i> CDC317 : CPAR2_302560, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135271 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E12914g
orf19.4466		1.27	1.18	Ortholog(s) have palmitoyltransferase activity and role in ascospore formation, cellular response to cadmium ion, detoxification of cadmium ion, protein palmitoylation, protein targeting to membrane
orf19.3586		1.27	1.16	Ortholog(s) have role in fungal-type cell wall organization, vesicle-mediated transport and integral to endoplasmic reticulum membrane localization
orf19.1484		1.27	1.17	Ortholog of <i>S. cerevisiae</i> Spc24; a component of the conserved kinetochore-associated Ndc80 complex involved in chromosome segregation, spindle checkpoint activity and kinetochore clustering; Hap43-induced gene
orf19.2504	<i>BMS1</i>	1.27	1.18	Putative GTPase; Hap43-induced gene; mutation confers resistance to 5-fluorocytosine (5-FC); flucytosine induced; repressed by prostaglandins; Spider biofilm induced
orf19.2530		1.27	1.12	Dubious open reading frame
orf19.4766	<i>ARG81</i>	1.27	1.2	Zn(II)Cys6 transcription factor; required for utilization of ornithine as a nitrogen source and for wild-type resistance to caffeine; required for yeast cell adherence to silicone substrate
orf19.3769		1.27	1.22	Ortholog(s) have zinc ion transmembrane transporter activity, role in zinc ion transport and endoplasmic reticulum localization
orf19.135	<i>EXO84</i>	1.27	1.18	Predicted subunit of the exocyst complex, involved in exocytosis; localizes to a crescent on the surface of the hyphal tip
orf19.718	<i>RRN11</i>	1.27	1.14	Putative RNA polymerase I subunit; rat catheter biofilm induced; Spider biofilm induced
orf19.4430		1.27	1.21	Ortholog(s) have ubiquitin binding activity, role in proteasomal ubiquitin-dependent protein catabolic process and cytoplasm, nucleus localization
orf19.4407		1.27	1.22	Protein of unknown function; Hap43-repressed gene
orf19.4405	<i>PPS1</i>	1.27	1.12	Putative dual specificity protein phosphatase, similar to <i>S. cerevisiae</i> Pps1p; mutant shows virulence defect
orf19.1193	<i>GNP1</i>	1.27	1.24	Similar to asparagine and glutamine permease; fluconazole, caspofungin induced; regulated by Nrg1, Mig1, Tup1, Gcn2, Gcn4, and alkaline regulated by Rim101; repressed during chlamydospore formation; rat catheter, flow model biofilm induced
orf19.1249		1.27	1.3	Ortholog(s) have 1-(5-phosphoribosyl)-5-[(5-phosphoribosylamino)methylideneamino]imidazole-4-carboxamide isomerase activity, role in histidine biosynthetic process and cytosol, nucleus localization
orf19.3794	<i>CSR1</i>	1.27	1.22	Transcription factor; role in zinc homeostasis and regulation of Spider biofilm matrix; mutation affects filamentous growth; can suppress <i>S. cerevisiae</i> rok1 mutant inviability; Spider biofilm induced; mutants for abnormal Spider biofilms
orf19.1732		1.27	1.19	#NV
orf19.3617	<i>GTR1</i>	1.27	1.15	Putative GTP-binding protein; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; (see Locus History Note for Assembly 19 correction)
orf19.4914		1.27	1.21	Ortholog(s) have role in response to DNA damage stimulus
orf19.5040		1.27	1.22	Ortholog(s) have nucleocytoplasmic transporter activity, phospholipid binding, single-stranded DNA binding activity
orf19.2185	<i>NSA1</i>	1.27	1.16	Putative 66S pre-ribosomal particles component; Hap43-induced; repressed by prostaglandins
orf19.1170	<i>ARO7</i>	1.27	1.24	Putative chorismate mutase; fungal-specific (no human or murine homolog); alkaline upregulated
orf19.1166	<i>CTA3</i>	1.27	1.42	Protein similar to <i>S. cerevisiae</i> Ede1p, which is involved in endocytosis; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i>
orf19.5209		1.27	1.18	Ortholog(s) have role in CVT pathway, intra-Golgi vesicle-mediated transport and Golgi transport complex, cell division site, cytosol, nucleus localization
orf19.2277	<i>TPK2</i>	1.27	1.21	cAMP-dependent protein kinase catalytic subunit; isoform of Tpk1; needed for epithelial cell damage, engulfment and oral (not systemic) virulence in mice; control of morphogenesis and stress response; rat catheter, Spider biofilm repressed
orf19.5536		1.27	1.18	Has domain(s) with predicted carbon-nitrogen ligase activity, with glutamine as amido-N-donor, hydrolase activity, acting on carbon-nitrogen (but not peptide) bonds, in linear amides activity
orf19.4189		1.27	1.13	Has domain(s) with predicted hydrolase activity
orf19.4739	<i>MSS116</i>	1.27	1.13	Putative DEAD-box protein; required for efficient splicing of mitochondrial Group I and II introns; Hap43-induced; rat catheter biofilm induced
orf19.4744		1.27	1.18	Putative phosphatidylinositol 3-phosphate (PI3P) phosphatase; repressed by alpha pheromone in SpiderM medium
orf19.4363	<i>SGD1</i>	1.27	1.18	Predicted small ribosomal subunit biogenesis protein; repressed in core stress response; transcript increases in populations of cells exposed to fluconazole over multiple generations; Spider biofilm induced
orf19.909	<i>STP4</i>	1.27	1.24	C2H2 transcription factor; induced in core caspofungin response; colony morphology-related gene regulation by Ssn6; induced by 17-beta-estradiol, ethynyl estradiol; rat catheter and Spider biofilm induced
orf19.4348	<i>MED14</i>	1.27	1.25	RNA polymerase II mediator complex subunit
orf19.4746	<i>JIP5</i>	1.27	1.38	Ortholog of <i>S. cerevisiae</i> Jip5; predicted role in biogenesis of the large ribosomal subunit; repressed in core stress response; Hap43-induced gene
orf19.4748		1.27	1.17	Putative U2B' component of the U2 snRNP, involved in splicing; contains an RNA recognition motif (RRM); ortholog of <i>S. cerevisiae</i> MSL1; Hap43p-induced gene
orf19.5817		1.27	1.14	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity, role in ER to Golgi vesicle-mediated transport, intra-Golgi vesicle-mediated transport and TRAPP complex, cis-Golgi network membrane, cytosol, nucleus localization
orf19.3926	<i>RNY11</i>	1.27	1.17	Ortholog(s) have endoribonuclease activity, role in RNA catabolic process, apoptotic process, cell morphogenesis and cytosol, extracellular region, vacuole localization
orf19.1686		1.27	1.13	Ortholog(s) have mitochondrion localization
orf19.4421		1.27	1.56	#NV
orf19.2615	<i>MDL1</i>	1.27	1.12	Putative mitochondrial, half-size MDR-subfamily ABC transporter
orf19.4476		1.27	1.3	Protein with a NADP-dependent oxidoreductase domain; transcript induced by ketoconazole; rat catheter and Spider biofilm induced
orf19.5711		1.27	1.26	Putative phosphatidylinositol transfer protein; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2688	<i>NAN1</i>	1.27	1.37	Putative U3 snoRNP protein; Hap43p-induced gene; physically interacts with TAP-tagged Nop1p
orf19.1715	<i>IRO1</i>	1.27	1.16	Putative transcription factor; role in iron utilization, pathogenesis; both IRO1 and adjacent URA3 are mutated in strain CA14; suppresses <i>S. cerevisiae</i> alt1 mutant low-iron growth defect; hyphal-induced; reports differ about iron regulation
orf19.1058		1.27	1.23	Ortholog(s) have ubiquitin binding activity, role in ubiquitin-dependent protein catabolic process and proteasome regulatory particle, lid subcomplex, proteasome storage granule localization
orf19.3477		1.27	1.26	Putative pseudouridine synthase; predicted role in snRNA pseudouridine synthesis, tRNA pseudouridine synthesis; Spider biofilm induced
orf19.3470		1.27	1.09	Putative flavodoxin; similar to <i>S. cerevisiae</i> Tyw1, an iron-sulfur protein required for synthesis of Wybutosine modified tRNA, predicted Kex2 substrate; Spider biofilm induced
orf19.212	<i>VPS28</i>	1.27	1.21	ESCRT I protein sorting complex subunit; involved in Rim8 processing and proteolytic activation of Rim101, which regulates pH response; role in echinocandin, azole sensitivity
orf19.56		1.27	1.24	#NV
orf19.56	<i>ARG2</i>	1.27	1.26	Putative enzyme of arginine biosynthesis; transcription of genes of arginine biosynthesis pathway, except for ARG2, is induced upon phagocytosis by macrophage
orf19.6459	<i>DPP3</i>	1.27	1.27	Protein similar to <i>S. cerevisiae</i> pyrophosphate phosphatase Dpp1; required for farnesol biosynthesis; repressed by 17-beta-estradiol, ethynyl estradiol; Spider biofilm induced

orf19.2360	URA2	1.27	1.2	Putative bifunctional carbamoylphosphate synthetase-aspartate transcarbamylase; flucytosine induced; macrophage/pseudohyphal-induced; 5'-UTR intron; flow model biofilm repressed
orf19.2488	FAL1	1.27	1.25	eIF4A subfamily of DEAD-box ATP-dependent RNA helicases; predicted nucleolar protein required for maturation of 18S rRNA; Spider biofilm induced
orf19.529		1.27	1.28	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_29750, <i>C. parapsilosis</i> CDC317 : CPAR2_205260, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_91782 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F19294g
orf19.6712		1.27	1.27	Ortholog(s) have COPI-coated vesicle, Golgi apparatus localization
orf19.6729	TIP120	1.27	1.25	Protein similar to human CAND1 (Cullin-Associated Nedd8-Dissociated) protein involved in regulation of SCF complexes; binds unneddylated cullin Cdc53; mutants are viable
orf19.1465		1.27	1.23	Has domain(s) with predicted N-acetyltransferase activity
orf19.6905		1.27	1.14	Ortholog of <i>S. cerevisiae</i> : YNL011C, <i>C. glabrata</i> CBS138 : CAGL0H03619g, <i>C. dubliniensis</i> CD36 : Cd36_71090, <i>C. parapsilosis</i> CDC317 : CPAR2_300420 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_111980
orf19.6917		1.27	1.26	Putative heat shock protein with a zinc finger motif; required for protein import into mitochondria in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.908	FEN12	1.27	1.29	Putative protein with a predicted role in the elongation of fatty acids; amphoterin B, caspofungin repressed
orf19.3810		1.27	1.2	Ortholog(s) have methylenetetrahydrofolate dehydrogenase (NAD+) activity, role in folic acid-containing compound biosynthetic process, one-carbon metabolic process, purine nucleobase biosynthetic process and cytosol, nucleus localization
orf19.3836		1.27	1.19	Ortholog(s) have cytoplasm localization
orf19.2222		1.27	1.21	Putative casein kinase; plasma membrane-localized
orf19.3792		1.27	1.1	Ortholog(s) have role in cytoplasmic mRNA processing body assembly, deadenylation-dependent decapping of nuclear-transcribed mRNA, formation of translation preinitiation complex, negative regulation of translational initiation
orf19.3050	AGE1	1.27	1.27	Putative GTPase activator; induced in low iron; rat catheter biofilm repressed
orf19.6414		1.27	1.32	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34040, <i>C. parapsilosis</i> CDC317 : CPAR2_205850, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_132607 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A11638g
orf19.4597		1.27	1.25	Putative F-actin-capping protein subunit beta; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5004	RAD54	1.27	1.48	Putative DNA-dependent ATPase involved in DNA repair; induced under hydroxyurea treatment; plays an essential role during mitotic growth; mutants display aberrant cell and nuclear morphology
orf19.4991	MPT5	1.27	1.25	Putative RNA-binding protein; Hap43p-repressed gene; protein induced during the mating process
orf19.1915	MPP10	1.27	1.22	Putative SSU processome and 90S preribosome component; repressed in core stress response; repressed by prostaglandins
orf19.4117		1.27	1.15	Protein of unknown function; mutants are viable
orf19.7107		1.27	1.16	Ortholog(s) have role in ribosomal large subunit biogenesis and cytoplasm, nucleus, ribosome localization
orf19.5395		1.27	1.38	Ortholog(s) have role in early endosome to late endosome transport, regulation of protein complex assembly, vacuolar acidification and RAVE complex, extrinsic to membrane localization
orf19.6348		1.27	1.15	Predicted cysteine proteinase domain; mutants are viable
orf19.5959	NOP14	1.27	1.48	Putative nucleolar protein; Hap43-induced; mutation confers resistance to 5-fluorocytosine (5-FU), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); heterozygous mutant is resistant to pamafungin; Spider biofilm induced
orf19.5880		1.27	1.1	Putative voltage-gated chloride channel; predicted role in copper ion and iron ion homeostasis; flow model biofilm induced
orf19.1348		1.27	1.2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22500, <i>Candida tropicalis</i> MYA-3404 : CTRG_01825 and <i>Candida albicans</i> WO-1 : CAWG_05921
orf19.1859		1.26	1.12	#NV
orf19.206		1.26	1.22	Putative adhesin-like protein
orf19.5107	NOT5	1.26	1.12	Protein with similarity to <i>S. cerevisiae</i> Not5p, a member of the transcription regulatory CCR4-NOT complex; required for hyphal growth; antigenic during human oral infection; greater expression in yeast-form cells than hyphae
orf19.163	PAN6	1.26	1.26	Ortholog(s) have pantoate-beta-alanine ligase activity, role in pantothenate biosynthetic process and cytosol, nucleus localization
orf19.773		1.26	1.12	Protein similar to <i>S. cerevisiae</i> Rsa3 predicted nucleolar protein involved in maturation of pre-60S ribosomal particles; rat catheter and Spider biofilm induced
orf19.3199	PIKA	1.26	1.18	Putative phosphatidylinositol kinase; non-sex gene located within the MTLA mating-type-like locus
orf19.247		1.26	1.2	Ortholog(s) have role in endosome organization, regulation of protein localization and BLOC-1 complex, endosome localization
orf19.5223		1.26	1.19	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00199
orf19.5544	SAC6	1.26	1.12	Fimbrin; actin filament bundling protein; transcript regulated by Nrg1 and Mig1; protein level decreases in stationary phase
orf19.3773	CDL1	1.26	1.19	Putative RNase III, ortholog of <i>S. cerevisiae</i> RNT1; merged with orf19.3772 in Assembly 21
orf19.2236	FHL1	1.26	1.21	Fork-head transcription factor; forms a heterodimer with Ifh1 that is tethered to promoters by Tbf1; positively regulates rRNA and ribosomal protein gene transcription
orf19.4070		1.26	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23270
orf19.3774	PPG1	1.26	1.21	Putative protein phosphatase of the Type 2A-related family (serine/threonine-specific), similar to <i>S. cerevisiae</i> Ppg1p; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4129		1.26	1.23	#NV
orf19.2624		1.26	1.19	Protein of unknown function; downregulated by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2
orf19.1776		1.26	1.13	Putative pantothenate-phosphate adenylyltransferase (PPAT); which catalyzes 4th step in coenzyme A biosynthesis from pantothenate; rat catheter biofilm repressed
orf19.1240		1.26	1.16	Ortholog of <i>S. cerevisiae</i> : YPR117W, <i>C. glabrata</i> CBS138 : CAGL0D04510g, <i>C. dubliniensis</i> CD36 : Cd36_45200, <i>C. parapsilosis</i> CDC317 : CPAR2_500480 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_120679
orf19.1310		1.26	1.3	Ortholog(s) have role in nucleotide-excision repair and nucleus localization
orf19.4337		1.26	1.15	Predicted membrane transporter; monocarboxylate porter (MCP) family, major facilitator superfamily (MFS); Spider biofilm induced; rat catheter biofilm repressed
orf19.1251	BRN1	1.26	1.43	Putative condensin complex subunit; cell-cycle regulated periodic mRNA expression
orf19.3523	CRK1	1.26	1.24	Protein kinase of the Cdc2 subfamily involved in hyphal development, virulence; promotes hyphal development independently of Cph1 and Efg1; functionally complements pheromone hypersensitivity of <i>S. cerevisiae</i> sgv1 mutant; Hap43p-repressed
orf19.4312		1.26	1.11	Ortholog(s) have TBP-class protein binding, transcription cofactor activity
orf19.1356		1.26	1.18	Ortholog(s) have thiosulfate sulfurtransferase activity, role in tRNA wobble position uridine thiolation and mitochondrion localization
orf19.1827		1.26	1.12	Protein of unknown function; flow model biofilm induced; induced by alpha pheromone in SpiderM medium
orf19.4702		1.26	1.14	Possible similarity to mutator-like element (MULE) transposase; flow model biofilm induced; expression regulated during planktonic growth
orf19.4699		1.26	1.1	Putative phospholipase of patatin family; similar to <i>S. cerevisiae</i> Tgl3p; predicted Kex2p substrate
orf19.2278		1.26	1.32	Putative 20S proteasome assembly protein; filament induced; induced by alpha pheromone in SpiderM medium
orf19.5542	SAP6	1.26	1.27	Secreted aspartyl protease; expressed during hyphal growth, oral carriage, infection; sap4,5,6 triple mutant defective in protein utilization as N source; virulence role affected by URA3; N-glycosylated; rat catheter biofilm induced
orf19.6479	SEC1	1.26	1.31	Ortholog(s) have SNARE binding activity and role in positive regulation of vesicle fusion, vesicle docking involved in exocytosis
orf19.4361	IFF3	1.26	1.16	Putative GPI-anchored protein
orf19.5716	SAP4	1.26	1.26	Secreted aspartyl protease; sap4,5,6 mutant defective in protein utilization for nitrogen; virulence role complicated by URA3 effects; expressed during mucosal and systemic infections; N-glycosylated; rat catheter, Spider biofilm induced
orf19.2393		1.26	1.22	Putative transcription factor with zinc finger DNA-binding motif
orf19.620		1.26	1.17	#NV
orf19.6027		1.26	1.17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_00740, <i>C. parapsilosis</i> CDC317 : CPAR2_110170, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133175 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D09724g
orf19.2364	MIS11	1.26	1.24	Predicted mitochondrial C1-tetrahydrofolate synthase precursor; putative protein of glycine catabolism; repressed by Efg1; fluconazole-induced; stationary phase enriched protein; rat catheter and Spider biofilm repressed
orf19.5382		1.26	1.15	Protein of unknown function; overlaps orf19.5381
orf19.621		1.26	1.17	#NV
orf19.4498		1.26	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19120, <i>C. parapsilosis</i> CDC317 : CPAR2_103880, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115581 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F08426g
orf19.625		1.26	1.28	#NV
orf19.4415	MED3	1.26	1.28	RNA polymerase II mediator complex subunit
orf19.1283	MEC1	1.26	1.25	Cell cycle checkpoint protein with a role in genome integrity; RNA abundance regulated by tyrosol and cell density
orf19.3545		1.26	1.19	Ortholog(s) have protein serine/threonine kinase activity, role in meiotic anaphase II, protein phosphorylation, septation initiation signaling cascade and cellular bud neck, cytoplasm, new mitotic spindle pole body, nucleus localization
orf19.3399		1.26	1.34	Ortholog(s) have histone binding activity, role in histone exchange and Swr1 complex, cytoplasm localization

orf19.3197	<i>PAP1</i>	1.26	1.17	Poly(A) polymerase, likely involved in mRNA polyadenylation; PAP is inhibited by parnafungin antifungals; non-sex gene located within the MTL mating-type-like locus
orf19.3176	<i>RIM21</i>	1.26	1.3	Plasma membrane pH-sensor involved in the Rim101 pH response pathway; required for processing and activation of Rim101 and for alkaline pH-induced hyphal growth; Spider biofilm induced
orf19.4376		1.26	1.23	Protein of unknown function; Spider biofilm induced
orf19.693		1.26	1.13	Protein of unknown function; Spider biofilm induced; rat catheter biofilm repressed
orf19.2583	<i>PTR2</i>	1.26	1.1	Oligopeptide transporter involved in uptake of di-/tripeptides; highly induced during chlamydo-spore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.4657		1.26	1.24	Ortholog(s) have phosphoprotein phosphatase activity, role in negative regulation of phospholipid biosynthetic process, nuclear envelope organization and Nem1-Spo7 phosphatase complex, integral to membrane, mitochondrial localization
orf19.1716	<i>URA3</i>	1.26	1.13	Orotidine-5'-phosphate decarboxylase; pyrimidine biosynthesis; gene used as genetic marker; decreased expression when integrated at ectopic chromosomal locations can cause defects in hyphal growth and virulence; Spider biofilm repressed
orf19.4789		1.26	1.18	Has domain(s) with predicted metal ion binding activity
orf19.2471	<i>GIM5</i>	1.26	1.4	Putative heterohexameric co-chaperone prefoldin complex subunit; macrophage/pseudohyphal-repressed gene and macrophage-induced protein
orf19.4292		1.26	1.17	Ortholog(s) have SNAP receptor activity, role in Golgi to vacuole transport, vacuole inheritance and Golgi apparatus, endosome localization
orf19.3867	<i>RPL7</i>	1.26	1.44	Ribosomal protein L7; repressed upon phagocytosis by murine macrophages; Hap43-induced; rat catheter and Spider biofilm induced
orf19.1365		1.26	1.11	Putative monooxygenase; mutation confers hypersensitivity to toxic ergosterol analog; constitutive expression independent of MTL or white-opaque status
orf19.4675	<i>ASK1</i>	1.26	1.21	Essential subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.3984		1.26	1.16	Protein of unknown function; induced in core caspofungin response; induced in <i>ssr1</i> mutant; induced by nitric oxide independent of Yhb1; Spider biofilm induced
orf19.3564	<i>RPC40</i>	1.26	1.27	Putative RNA polymerase; protein level decreases in stationary phase cultures; Hap43p-induced gene
orf19.4927	<i>BNI1</i>	1.26	1.19	Formin; role in cytoskeletal organization, cell polarity; role in systemic virulence in mouse; cell-cycle regulated localization to site of polarized growth, bud neck; localizes to Spitzenkörper of hyphae, minor localization at septum
orf19.5132		1.26	1.19	Protein of unknown function; transcript detected on high-resolution tiling arrays; Spider biofilm induced
orf19.5841		1.26	1.26	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_17700, <i>C. parapsilosis</i> CDC317 : CPAR2_212340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_101113 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G03784q
orf19.4392	<i>DEM1</i>	1.26	1.2	Putative mitochondrial exonuclease; alpha-factor induced
orf19.4381	<i>VTC3</i>	1.26	1.45	Putative polyphosphate synthetase; downregulated in core caspofungin response; Hog1p-induced; transcription is opaque-specific; fungal-specific (no human or murine homolog)
orf19.1990	<i>SNX4</i>	1.26	1.31	Putative sorting nexin; induced during the mating process
orf19.3673		1.26	1.35	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity, role in ER to Golgi vesicle-mediated transport, chromosome organization and TRAPP complex, cytosol, nucleus localization
orf19.446		1.26	1.18	Protein of unknown function; constitutive expression independent of MTL or white-opaque status; upregulated in a <i>cyr1</i> mutant
orf19.154		1.26	1.15	Putative ortholog of <i>S. cerevisiae</i> Utp30; a U3-containing 90S preribosome complex protein; Hap43-induced; Spider biofilm induced
orf19.6674	<i>BTS1</i>	1.26	1.25	Putative geranylgeranyl diphosphate synthase; repressed by benomyl treatment; Spider biofilm induced
orf19.6688		1.26	1.17	Protein of unknown function; expression decreases by benomyl treatment or in an azole-resistant strain overexpressing MDR1; Spider biofilm induced
orf19.3107		1.26	1.3	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_46490, <i>Pichia stipitis</i> Pignal : PICST_33598, <i>Spathaspora passalidarum</i> NRRL Y-27907 : spas_CGOB_00037 and <i>Candida tropicalis</i> MYA-3404 : CTRG_03758
orf19.6893		1.26	1.21	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, cellular response to cadmium ion, detoxification of cadmium ion
orf19.6903		1.26	1.22	Predicted RNA polymerase III subunit C37; Spider biofilm induced
orf19.7021	<i>GPH1</i>	1.26	-1.15	Putative glycogen phosphorylase; role in glycogen metabolism; regulated by Ssk1, Mig1, Tup1, Hap43; fluconazole-induced; localizes to cell surface of hyphae, not yeast; stationary phase enriched protein; Spider biofilm induced
orf19.5311		1.26	1.08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43850, <i>C. parapsilosis</i> CDC317 : CPAR2_402060, <i>Pichia stipitis</i> Pignal : PICST_68242, <i>Candida tropicalis</i> MYA-3404 : CTRG_00303 and <i>Candida albicans</i> WO-1 : CAWG_03390
orf19.5441	<i>ULP3</i>	1.26	1.24	SUMO deconjugation enzyme that removes the small ubiquitin-like modifier (SUMO) from proteins
orf19.5459		1.26	1.15	mRNA polyadenylation regulating protein; Hap43-repressed; transcript is upregulated in RHE model of oral candidiasis and in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm repressed
orf19.7460		1.26	1.35	Putative 2'-O-methyltransferase with a predicted role in tRNA modification; transcription is activated in the presence of elevated CO ₂
orf19.7518	<i>ZCF38</i>	1.26	1.3	Putative Zn(II)Cys6 transcription factor
orf19.6741		1.26	1.23	Putative plasma membrane protein; predicted role in cell wall integrity; regulated by Nrg1, Tup1; induced during chlamydo-spore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.1495		1.26	1.14	Ortholog(s) have role in L-methionine salvage from methylthioadenosine and cytosol, nucleus localization
orf19.4231	<i>PTH2</i>	1.26	1.12	Putative cAMP-independent regulatory protein; constitutive expression independent of MTL or white-opaque status; Spider biofilm induced
orf19.1349		1.26	1.18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22470, <i>Candida tropicalis</i> MYA-3404 : CTRG_01829 and <i>Candida albicans</i> WO-1 : CAWG_05920
orf19.1356		1.25	1.15	Ortholog(s) have thiosulfate sulfurtransferase activity, role in tRNA wobble position uridine thiolation and mitochondrial localization
orf19.3868		1.25	1.23	Dubious open reading frame
orf19.2546	<i>TRP2</i>	1.25	1.17	Putative anthranilate synthase with a predicted role in tryptophan biosynthesis; regulated by Gcn2p and Gcn4p
orf19.1831		1.25	1.16	Dubious open reading frame
orf19.857	<i>FMO2</i>	1.25	1.13	Protein with a monooxygenase domain; Spider biofilm induced
orf19.2378		1.25	1.1	Ortholog(s) have role in vacuolar proton-transporting V-type ATPase complex assembly and integral to endoplasmic reticulum membrane localization
orf19.3530	<i>CKA2</i>	1.25	1.42	Catalytic alpha-subunit of protein kinase CK2; interaction with calcineurin pathway affects fluconazole sensitivity; synthetically lethal with CKA1; attenuated virulence in a mouse oropharyngeal candidiasis but not in a systemic mouse model
orf19.6629	<i>ISC1</i>	1.25	1.22	Mitochondrial membrane localized inositol phosphosphingolipid phospholipase C; hydrolyzes complex sphingolipids to produce ceramide; mutant is viable
orf19.5057		1.25	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_07380 and <i>Candida albicans</i> WO-1 : CAWG_00634
orf19.3147		1.25	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21050, <i>C. parapsilosis</i> CDC317 : CPAR2_104310, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_104515 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F01650q
orf19.4632	<i>RPL20B</i>	1.25	1.2	Ribosomal protein L20; repressed upon phagocytosis by murine macrophage; alternatively spliced intron in 5' UTR; Hap43-induced; Spider biofilm repressed
orf19.3140		1.25	1.17	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03159
orf19.3489		1.25	1.14	#NV
orf19.3200	<i>MTLA2</i>	1.25	1.1	Master regulator (activator) of a-type mating; has HMG domain, which is predicted to bind DNA; gene has intron; not related to <i>S. cerevisiae</i> MATA2; a/alpha mating type may increase virulence, provides competitive advantage
orf19.1575	<i>PRS1</i>	1.25	1.15	Phosphoribosylpyrophosphate synthetase; enzyme of purine, pyrimidine, histidine, and tryptophan biosynthesis; essential; Ilucyosine induced; macrophage/pseudohyphal-induced
orf19.2236	<i>FHL1</i>	1.25	1.16	Fork-head transcription factor; forms a heterodimer with Ilh1 that is tethered to promoters by Tbf1; positively regulates tRNA and ribosomal protein gene transcription
orf19.2445		1.25	1.1	Putative dicarboxylic amino acid permease; fungal-specific (no human or murine homolog); induced by alpha pheromone in SpiderM medium
orf19.3356	<i>ESP1</i>	1.25	1.16	Putative caspase-like cysteine protease; mutation confers increased sensitivity to nocodazole; periodic mRNA expression, peak at cell-cycle S/G2 phase; mRNA binds She3
orf19.553		1.25	1.17	Predicted membrane transporter, member of the drug/proton antiporter (12 spanner) (DHA1) family, major facilitator superfamily (MFS)
orf19.3494	<i>CTF5</i>	1.25	1.18	Predicted component of the kinetochore sub-complex COMA; induced during the mating process; repressed by alpha pheromone in SpiderM medium
orf19.1953		1.25	1.2	Predicted protein of unknown function; merged with orf19.1952 in Assembly 21
orf19.1954	<i>PUS4</i>	1.25	1.21	Putative pseudouridine synthase; transcript regulated by Nrg1, Mig1, and Tup1
orf19.252		1.25	1.3	Protein of unknown function; <i>S. cerevisiae</i> ortholog Fmp37 which localizes to mitochondria; Hap43-repressed; Spider biofilm repressed
orf19.4476		1.25	1.23	Protein with a NADP-dependent oxidoreductase domain; transcript induced by ketoconazole; rat catheter and Spider biofilm induced
orf19.4901		1.25	1.23	Predicted methyltransferase; Spider biofilm induced
orf19.4066		1.25	1.15	Putative glycerol-3-phosphate acyltransferase; Hog1-repressed
orf19.5741	<i>ALS1</i>	1.25	1.17	Cell-surface adhesin; adhesion, virulence, immunoprotective roles; band at hyphal base; Rfg1, Ssk1, Spider biofilm induced; flow model biofilm repressed; CAI-4 strain background effects; promoter bound Bcr1, Tect1, Efg1, Ndt80, and Brg1

orf19.1043		1.25	1.23	Ortholog(s) have lysophosphatidic acid acyltransferase activity and role in cellular response to cadmium ion, cellular triglyceride homeostasis, detoxification of cadmium ion, lipid particle organization, protein targeting to vacuole
orf19.1272		1.25	1.16	Protein of unknown function; may play a role in regulation of cell size; rat catheter biofilm repressed
orf19.4574		1.25	1.21	Ortholog(s) have lipid particle localization
orf19.103	KAR5	1.25	1.14	Ortholog of <i>S. cerevisiae</i> Kar5, involved in nuclear membrane fusion during karvoamy; induced by alpha factor
orf19.3785		1.25	1.17	DnaJ chaperone domain protein; role in pre-mRNA splicing; Spider biofilm induced
orf19.4869	SFU1	1.25	1.2	GATA-type transcription factor; regulator of iron-responsive genes; represses iron utilization genes if iron is present; Hap43-repressed; promotes gastrointestinal commensalism in mice; Spider biofilm induced
orf19.3635		1.25	1.2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22580, <i>C. parapsilosis</i> CDC317 : CPAR2_406960, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113677 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D03608q
orf19.4225	LEU3	1.25	-1.01	Zn(II)2Cys6 transcription factor; predicted regulator branched-c of chain amino acid biosynthesis genes; alkaline induced; induced by Mnf1 under weak acid stress; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.45		1.25	1.25	#NV
orf19.4713		1.25	1.1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_07300, <i>C. parapsilosis</i> CDC317 : CPAR2_208300, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_95879 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F26246q
orf19.1159		1.25	1.18	Protein similar to <i>A. nidulans</i> CysA serine O-trans-acetylase; suggests that <i>C. albicans</i> uses an O-acetyl-serine (OAS) pathway of sulfur assimilation; F-12/CO2 early biofilm induced; Spider biofilm induced
orf19.4721		1.25	1.13	Ortholog(s) have RNA binding activity, role in cytoplasmic translation, mRNA processing and mitochondrion localization
orf19.4119	SPO72	1.25	1.13	Protein described as similar to <i>S. cerevisiae</i> sporulation protein; ortholog of <i>S. cerevisiae</i> Atg2, an autophagic vesicle formation protein; up-regulation associated with azole resistance; Spider biofilm induced
orf19.4649	ZCF27	1.25	1.21	Putative Zn(II)2Cys6 transcription factor
orf19.1828	BUD16	1.25	1.21	Putative pyridoxal kinase; a key enzyme in pyridoxal 5'-phosphate synthesis, the active form of vitamin B6; involved in bud-site selection and genome integrity in <i>S. cerevisiae</i> ; induced by alpha pheromone in SpiderM medium
orf19.2922		1.25	1.08	Ortholog(s) have double-stranded DNA binding activity, role in reciprocal meiotic recombination, synapsis and condensed nuclear chromosome localization
orf19.4711		1.25	1.29	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_40890, <i>C. parapsilosis</i> CDC317 : CPAR2_401100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_119698 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G22154q
orf19.652		1.25	1.12	Ortholog(s) have crossover junction endonuclease activity, role in DNA repair and cytoplasm, nucleus localization
orf19.1504		1.25	1.15	Putative patatin-like phospholipase; fungal-specific (no human or murine homolog)
orf19.2795	LHP1	1.25	1.21	Ortholog(s) have tRNA binding activity, role in regulation of ascospore formation, tRNA 3'-trailer cleavage, endonucleolytic and nucleolus, nucleoplasm localization
orf19.2647	ZCF14	1.25	1.15	Putative Zn(II)2Cys6 transcription factor; caspofungin induced
orf19.5212		1.25	1.11	Ortholog(s) have SUMO ligase activity, role in protein sumoylation, reciprocal meiotic recombination, synaptonemal complex assembly and condensed nuclear chromosome localization
orf19.2509		1.25	1.11	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_401850, <i>C. dubliniensis</i> CD36 : Cd36_80970, <i>Lodderomyces elongisporus</i> NRRL YB-4239 : LELG_04407 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0E01890
orf19.6025		1.25	1.26	Ortholog(s) have N-acetylglucosaminidylphosphodolichol N-acetylglucosaminyltransferase activity and role in dolichol-linked oligosaccharide biosynthetic process
orf19.3928		1.25	1.1	Putative transcription factor with zinc finger DNA-binding motif
orf19.1761		1.25	1.19	Predicted oligyl-diphosphooligosaccharide-protein glycotransferase; role in protein N-linked glycosylation; Spider biofilm repressed
orf19.1791		1.25	1.31	Putative protein with a predicted role in 60S ribosomal subunit biogenesis; Hap43p-induced gene; ortholog of <i>S. cerevisiae</i> MAK11
orf19.2834	RPD3	1.25	1.35	Histone deacetylase; regulates frequency of white-to-opaque and opaque-to-white switching; greater expression in white cells than opaque cells; has conserved deacetylation motif
orf19.815	DCK1	1.25	1.18	Putative guanine nucleotide exchange factor; required for embedded filamentous growth; activates Rac1; has a DOCKER domain; similar to adjacent DCK2 and to <i>S. cerevisiae</i> Ytr422wp; regulated by Nrg1; Spider biofilm induced
orf19.2575		1.25	1.1	Putative S-adenosylmethionine-dependent methyltransferase; Hap43p-induced gene
orf19.2110		1.25	1.3	Ortholog(s) have arginyltransferase activity, role in protein arginylation and cytosol, nucleus localization
orf19.2108	SOD6	1.25	1.16	Copper- and zinc-containing superoxide dismutase; gene family includes SOD1, SOD4, SOD5, and SOD6; gene may contain an intron; Hap43-repressed; flow model and rat catheter biofilm induced
orf19.2996		1.25	1.21	Ortholog(s) have cytoplasm localization
orf19.5736	ALS5	1.25	1.31	ALS family adhesin; highly variable; expression in <i>S. cerevisiae</i> causes adhesion to human epithelium, endothelium or ECM, endothelial invasiveness by endocytosis and, at high abundance, ECM-induced aggregation; can form amyloid fibrils
orf19.8		1.25	1.19	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32690, <i>C. parapsilosis</i> CDC317 : CPAR2_204290, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_121459 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E03938q
orf19.5124	RBR3	1.25	1.24	Cell wall adhesin-like protein; repressed by Rim101; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3858		1.25	1.16	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.4683	MLP1	1.25	1.18	Ortholog(s) have ribonucleoprotein complex binding activity
orf19.2675		1.25	1.19	Ortholog(s) have mRNA binding activity, role in spliceosomal complex assembly and U2 snRNP, U2-type prespliceosome localization
orf19.2980		1.25	1.37	Ortholog(s) have ATP-dependent RNA helicase activity and role in generation of catalytic spliceosome for first transesterification step, spliceosomal complex disassembly
orf19.3581		1.25	1.15	Ortholog(s) have histone binding activity, role in DNA replication-dependent nucleosome assembly and CAF-1 complex, cytoplasm, nucleus localization
orf19.4354	MCM2	1.25	1.12	Phosphorylated protein of unknown function; transcription is periodic with a peak at M/G1 phase of the cell cycle
orf19.6347		1.25	1.23	Pre-mRNA splicing factor; important for catalytic step II of pre-mRNA splicing; possible role in cell cycle progression; Spider biofilm induced
orf19.2043		1.25	1.43	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15750, <i>C. parapsilosis</i> CDC317 : CPAR2_213000, <i>Debaromyces hansenii</i> CBS767 : DEHA2D18524q and <i>Pichia stipitis</i> Pignal : PICST_42355
orf19.4945	MSH6	1.25	1.2	Protein similar to <i>S. cerevisiae</i> Msh6p, which is involved in mismatch repair; repressed under Cdc5p depletion; Hap43p-induced gene
orf19.5772		1.25	1.24	Ortholog(s) have role in histone exchange and Swr1 complex localization
orf19.2012	NOT3	1.25	1.25	Transcriptional regulator; not required for buccal epithelial cell adherence or virulence in mouse systemic infection; null mutant colonies exhibit slightly decreased filamentation ratio; required for yeast adherence to silicone substrate
orf19.3676	ABP140	1.25	1.26	Ortholog of <i>S. cerevisiae</i> actin-binding protein Abp140; Hap43-induced; F-12/CO2 early biofilm induced
orf19.4225	LEU3	1.25	1.41	Zn(II)2Cys6 transcription factor; predicted regulator branched-c of chain amino acid biosynthesis genes; alkaline induced; induced by Mnf1 under weak acid stress; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.520		1.25	1.29	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_29660, <i>C. parapsilosis</i> CDC317 : CPAR2_205200, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_96118 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F21428q
orf19.541		1.25	1.47	Has domain(s) with predicted oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, 2-oxoglutarate as one donor, and incorporation of one atom each of oxygen into both donors activity
orf19.1744	HEM4	1.25	1.27	Putative uroporphyrinogen III synthase; induced in high iron or elevated CO2; alkaline, Hap43-repressed
orf19.1458		1.25	1.3	Ortholog(s) have tRNA-specific adenosine deaminase activity, role in tRNA modification and cytoplasm, nucleus localization
orf19.4142		1.25	1.25	Putative transporter; decreased transcription is observed upon fluphenazine treatment
orf19.2088		1.25	1.29	Putative DNA polymerase epsilon subunit D; null mutant is viable but slow-growing and displays abnormal invasive growth on SD and YPD media; Spider biofilm repressed
orf19.2072		1.25	1.44	Ortholog(s) have choline transmembrane transporter activity, ethanolamine transmembrane transporter activity and role in choline transport, ethanolamine transport, glycine betaine transport
orf19.6036	RIC1	1.25	1.42	Ortholog of <i>S. cerevisiae</i> Ric1 quanyl-nucleotide exchange factor; mutant is viable; rat catheter biofilm repressed
orf19.6038	UGA32	1.25	1.36	Predicted Zn(II)2Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Uga3, a transcription factor involved in the regulation of gamma-aminobutyrate metabolism genes; rat catheter biofilm induced
orf19.2435	MSI3	1.25	1.17	Essential HSP70 family protein; required for fluconazole resistance and calcineurin-dependent transcription; interacts with Cgr1; transcript regulated by iron; rat catheter biofilm induced; farnesol repressed in biofilm; sumoylation target
orf19.6506		1.25	1.31	Ortholog(s) have role in histone deacetylation, negative regulation of antisense RNA transcription, regulation of DNA-dependent DNA replication initiation, transcription elongation from RNA polymerase II promoter
orf19.5260	RPN2	1.25	1.27	Putative 26S proteasome subunit; transcript regulated by Mig1; caspofungin repressed; regulated by Gcn2 and Gcn4; gene used for strain identification by multilocus sequence typing
orf19.6981		1.25	1.4	Ortholog of <i>S. cerevisiae</i> : YKR051W, <i>C. glabrata</i> CBS138 : CAGL0K08228g, <i>C. dubliniensis</i> CD36 : Cd36_85420, <i>C. parapsilosis</i> CDC317 : CPAR2_405720 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_124861
orf19.2009	PEX12	1.25	1.09	Ortholog(s) have ubiquitin-protein ligase activity, role in protein import into peroxisome matrix and integral to peroxisomal membrane localization

orf19.6422	SSY5	1.25	1.31	Ortholog(s) have serine-type endopeptidase activity, role in protein processing, response to amino acid stimulus and extrinsic to plasma membrane localization
orf19.6387	HSP104	1.25	1.29	Heat-shock protein; roles in biofilm and virulence; complements chaperone, prion activity in <i>S. cerevisiae</i> ; guanidine-insensitive; heat shock/stress induced; repressed in farnesol-treated biofilm; sumoylation target; Spider biofilm induced
orf19.4614		1.25	1.32	Adapter protein for pexophagy and the cytoplasm-to-vacuole targeting (Cvt) pathway; Spider biofilm induced
orf19.7225		1.25	1.47	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_13150, <i>C. parapsilosis</i> CDC317 : CPAR2_700610, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135418 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E01298g
orf19.7228		1.25	1.28	Possible Golgi membrane protein; transcript positively regulated by Tbf1; mRNA binds She3
orf19.1173		1.25	1.2	#NV
orf19.976	BRE1	1.25	1.31	Putative transcription factor with C3HC4 zinc finger DNA-binding motif; similar to <i>S. cerevisiae</i> Bre1p; transposon mutation affects filamentous growth
orf19.3259		1.25	1.17	Ortholog(s) have peptidase activity, role in protein targeting to ER, signal peptide processing and signal peptidase complex localization
orf19.7282	PEX13	1.25	1.18	Protein required for peroxisomal protein import mediated by PTS1 and PTS2 targeting sequences; transcript induced in an RHE model of oral candidiasis; Hap43-repressed gene
orf19.7108		1.25	1.23	D-ribulose-5-phosphate 3-epimerase; stationary phase enriched protein
orf19.7457		1.25	1.17	Protein with Mob2p-dependent hyphal regulation
orf19.7542		1.25	1.23	#NV
orf19.7564	DPB2	1.25	1.37	Probable subunit of DNA polymerase II (DNA polymerase epsilon), similar to <i>S. cerevisiae</i> Dpb2p; essential for viability; rat catheter biofilm induced
orf19.7637	YHB4	1.25	1.18	Protein related to flavohemoglobins; not required for wild-type nitric oxide resistance; has predicted globin, FAD-binding, and NAD(P)-binding domains but lacks some conserved residues of flavohemoglobins; Hap43p-repressed gene
orf19.3469		1.25	1.15	<i>S. cerevisiae</i> ortholog Stb1 has a role in regulation of MBF-specific transcription at Start; induced in a <i>cyr1</i> null mutant; Spider biofilm induced
orf19.1437		1.24	1.18	#NV
orf19.581		1.24	1.19	Putative RNA-binding protein; transcript is upregulated in an RHE model of oral candidiasis
orf19.145	RPB4	1.24	1.23	Protein similar to <i>S. cerevisiae</i> Rpb4p, which is a component of RNA polymerase II; transposon mutation affects filamentous growth
orf19.114		1.24	1.2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_61190, <i>C. parapsilosis</i> CDC317 : CPAR2_603230, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00054 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E21142g
orf19.3172		1.24	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51840, <i>Candida tropicalis</i> MYA-3404 : CTRG_05315 and <i>Candida albicans</i> WO-1 : CAWG_04584
orf19.5547		1.24	1.11	Protein of unknown function; Hap43-repressed gene
orf19.2761		1.24	1.16	Putative glycosylphosphatidylinositol (GPI) anchor assembly protein; transposon insertion causes decreased colony wrinkling but does not block true hyphal growth; induced by nitric oxide independent of Yhb1p
orf19.119		1.24	1.1	Ortholog(s) have protein C-terminal S-isoprenylcysteine carboxyl O-methyltransferase activity
orf19.1818		1.24	1.13	#NV
orf19.2815		1.24	1.28	#NV
orf19.918	CDR11	1.24	1.08	Putative transporter of PDR subfamily of ABC family; Gon4-regulated; induced by Rim101 at pH 8; Spider biofilm induced
orf19.1599		1.24	1.17	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_06018
orf19.5574		1.24	1.12	Ortholog(s) have mitochondrial outer membrane localization
orf19.4688	DAG7	1.24	1.21	Secretory protein; a-specific, alpha-factor induced; mutation confers hypersensitivity to toxic ergosterol analog; fluconazole-induced; induced during chlamydospore formation in <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.4636		1.24	1.15	Predicted protein of unknown function; overlaps orf19.4636
orf19.856	IFK2	1.24	1.09	Putative thiol-specific monooxygenase; mutant is viable; flow model biofilm induced
orf19.3801	FAV1	1.24	1.18	Protein with weak similarity to <i>S. cerevisiae</i> Fus2p; induced by alpha pheromone mating factor in MTLA/MTLa opaque cells
orf19.3409	SEC12	1.24	1.14	Putative guanyl-nucleotide exchange factor; induced in high iron; Hap43-repressed
orf19.4731		1.24	1.09	Ortholog(s) have role in CVT pathway, intra-Golgi vesicle-mediated transport and Golgi transport complex localization
orf19.3336		1.24	1.04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01228
orf19.2286		1.24	1.1	Putative deoxyhypusine hydroxylase; ketoconazole-induced; protein level decreases in stationary phase cultures; required for biofilm formation; Spider biofilm repressed
orf19.2907	PGA42	1.24	1.2	Putative GPI-anchored adhesin-like protein; decreased transcription is observed in azole-resistant strains that overexpress CDR1 and CDR2 or MDR1
orf19.5742	ALS9	1.24	1.22	ALS family cell-surface glycoprotein; expressed during infection of human epithelial cells; confers laminin adhesion to <i>S. cerevisiae</i> ; highly variable; putative GPI-anchor; Hap43-repressed
orf19.4415	MED3	1.24	1.12	RNA polymerase II mediator complex subunit
orf19.2537		1.24	1.11	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.793	CAK1	1.24	1.2	Monomeric CDK-activating kinase; functional homolog of <i>S. cerevisiae</i> Cak1p; phosphorylates cyclin-free human CDK2; lacks glycine loop motif; conserved lysine (K36) not required for activity; possibly essential gene (by UAU1 method)
orf19.2252		1.24	1.16	Protein of unknown function; rat catheter biofilm repressed
orf19.273		1.24	1.14	Ortholog(s) have unfolded protein binding activity, role in sterol biosynthetic process and endoplasmic reticulum localization
orf19.469	HST7	1.24	1.14	MAP kinase kinase involved in mating and hyphal growth signal transduction pathways; phosphorylates Cek1p; wild-type virulence in mouse systemic infection; functional homolog of <i>S. cerevisiae</i> Ste7p; mutants are hypersensitive to caspofungin
orf19.1727	PMC1	1.24	1.21	Vacuolar calcium P-type ATPase; transcript regulated by calcineurin and fluconazole; mutant shows increased resistance to fluconazole; lithium; increased sensitivity to calcium; Spider biofilm induced
orf19.2862	RIB1	1.24	1.22	Putative GTP cyclohydrolase II; enzyme of riboflavin biosynthesis; fungal-specific (no human or murine homolog); regulated by Sef1p, Sfu1p, and Hap43p
orf19.2528		1.24	1.23	Putative RNA polymerase III transcription factor (TFIIIB) subunit; flucytosine repressed
orf19.2190	VRP1	1.24	1.07	Verprolin-related protein involved in actin cytoskeleton organization and polarized morphogenesis; interacts with Wal1p and Mvo5p; downregulated upon adherence to polystyrene
orf19.1171	BTA1	1.24	1.17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_10780, <i>C. parapsilosis</i> CDC317 : CPAR2_208080, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_120956 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F24508g
orf19.636		1.24	1.15	#NV
orf19.2442		1.24	1.14	Ortholog of <i>S. cerevisiae</i> Shg1; a COMPASS (Set1C) complex subunit that methylates histone H3 on lysine 4 and is required in transcriptional silencing near telomeres; repressed in an azole-resistant strain overexpressing MDR1
orf19.5541		1.24	1.24	Protein with similarity to <i>S. pombe</i> Nrd1p; transcription induced upon induction of hyphal growth; regulated by Cph1p, Efg1p, Cph2p; low-level expression; alkaline upregulated; fungal-specific (no human or murine homolog)
orf19.5225		1.24	1.12	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00201
orf19.689	PLB1	1.24	1.22	Phospholipase B; host cell penetration and virulence in mouse systemic infection; Hog1-induced; signal sequence, N-glycosylation, and Tyr phosphorylation site; induced in fluconazole-resistant strains; rat catheter biofilm repressed
orf19.3077	VID21	1.24	1.26	Subunit of the NuA4 histone acetyltransferase complex; soluble protein in hyphae; Spider biofilm repressed
orf19.3460		1.24	1.41	Protein of unknown function; mRNA binds She3; transcript regulated upon yeast-hypha switch; induced in oralpharyngeal candidiasis
orf19.2560	CDC60	1.24	1.15	Cytosolic leucyl tRNA synthetase; conserved amino acid and ATP binding class I signature, tRNA binding, proofreading motifs; likely essential for growth; interacts with benzoxaborole antifungals; present in exponential and stationary phase
orf19.618		1.24	1.14	#NV
orf19.1338		1.24	1.02	Protein of unknown function; possible COPI-coated vesicle, Golgi apparatus, ribosome localization; rat catheter biofilm repressed
orf19.5302	PGA31	1.24	1.07	Cell wall protein; putative GPI anchor; expression regulated upon white-opaque switch; induced by Congo Red and cell wall regeneration; Bcr1-repressed in RPM1 a/b biofilms
orf19.2940		1.24	1.15	Putative v-SNARE of the endoplasmic reticulum membrane; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2587	HNM3	1.24	1.26	Putative transporter; Hap43, flucytosine repressed; possibly essential, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.1837	TBP1	1.24	1.13	Transcription initiation factor; binds TATA box sequence, binding does not require TFIIA; caspofungin repressed; functional homolog of <i>S. cerevisiae</i> and human TATA-binding proteins; Spider biofilm induced
orf19.2213		1.24	1.22	Ortholog(s) have cytoplasm, nucleus localization
orf19.299	ECM14	1.24	1.09	Ortholog(s) have endoplasmic reticulum, fungal-type vacuole localization
orf19.2833	PGA34	1.24	1.14	Putative GPI-anchored protein; transcript repressed by alpha pheromone in SpiderM medium; induced in oralpharyngeal candidiasis; flow model biofilm induced; Spider biofilm induced
orf19.5064	MIRPL3	1.24	1.12	Ribosomal protein of the large subunit, mitochondrial; repressed in core stress response; protein present in exponential and stationary growth phase yeast cultures
orf19.4787		1.24	1.12	Ortholog(s) have cytoplasm, nucleus localization
orf19.2475	PGA26	1.24	1.34	GPI-anchored adhesin-like protein of the cell wall; role in cell wall integrity; required for normal virulence; induced in high iron and during cell wall regeneration; Hap43-repressed

orf19.4206		1,24	1,11	Ortholog(s) have crossover junction endodeoxyribonuclease activity
orf19.3865	<i>RFX1</i>	1,24	1,34	Transcription factor; involved in DNA damage responses, morphogenesis, and virulence; Spider biofilm induced
orf19.6336	<i>PGA25</i>	1,24	1,27	Putative GPI-anchored adhesin-like protein; fluconazole-downregulated; induced in oralpharyngeal candidiasis; Spider biofilm induced
orf19.6382		1,24	1,12	Putative MRP/CFTR-subfamily ABC transporter; member of multidrug resistance-associated protein (MRP) subfamily of ABC family; similar to <i>S. cerevisiae</i> Bpt1p
orf19.4395		1,24	1,19	Putative actin cytoskeleton component; protein present in exponential and stationary growth phase yeast cultures
orf19.4927	<i>BNI1</i>	1,24	1,26	Formin; role in cytoskeleton organization, cell polarity; role in systemic virulence in mouse; cell-cycle regulated localization to site of polarized growth, bud neck; localizes to Spitzenkörper of hyphae, minor localization at septum
orf19.723	<i>BCR1</i>	1,24	1,15	Transcription factor; regulates α /alpha biofilm formation, matrix, cell-surface-associated genes; confers adherence, impermeability, impenetrability, fluconazole resistance; Tup1/Tec1/Mnl1-regulated; mRNA binds She3; Spider biofilm induced
orf19.2740		1,24	1,2	Ortholog(s) have 5'-flap endonuclease activity, role in DNA-dependent DNA replication, double-strand break repair via single-strand annealing, removal of nonhomologous ends, interstrand cross-link repair and Slx1-Slx4 complex localization
orf19.1993		1,24	1,36	Ortholog(s) have structural molecule activity, role in proteasome assembly, ubiquitin-dependent protein catabolic process and proteasome regulatory particle, lid subcomplex, proteasome storage granule localization
orf19.1426		1,24	1,11	Ortholog of <i>S. cerevisiae</i> Skg6; localizes to the cell cortex, cell bud neck, cell bud tip, incipient cellular bud site, and is membrane-bound; Spider biofilm induced
orf19.1637		1,24	1,21	Ortholog(s) have cytosol, nucleus localization
orf19.658	<i>GIN1</i>	1,24	1,15	Protein involved in regulation of DNA-damage-induced filamentous growth; putative component of DNA replication checkpoint; ortholog of <i>S. cerevisiae</i> Mrc1p, an S-phase checkpoint protein; Hap43p-induced gene
orf19.4403	<i>VPS11</i>	1,24	1,18	Protein involved in protein trafficking; putative role in vesicle-target membrane fusion; mutant lacks vacuole; role in hyphal growth, possibly via vacuole expansion into hypha; role in killing of and survival within macrophage
orf19.1217		1,24	1,15	Ortholog(s) have ribosome binding, ubiquitin-protein ligase activity, role in chromatin modification, chromatin silencing at telomere, protein ubiquitination, ubiquitin-dependent protein catabolic process and nucleus, ribosome localization
orf19.518		1,24	1,31	Ortholog(s) have tRNA (cytosine-5)-methyltransferase activity, role in tRNA methylation and nucleus localization
orf19.5163	<i>SFI1</i>	1,24	1,2	bZIP transcription factor; ortholog of <i>S. cerevisiae</i> Yap3; partially complements fluconazole sensitivity of <i>S. cerevisiae</i> pdr1 pdr3; Hap43-induced; required for yeast cell adherence to silicone substrate; flow model biofilm repressed
orf19.4866	<i>CPP1</i>	1,24	1,17	VH1 family MAPK phosphatase; regulates Cst20-Hst7-Cek1-Cph1 filamentation pathway; represses yeast-hyphal switch; required for virulence in mice; yeast-enriched; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.486	<i>NIP100</i>	1,24	1,14	p150 subunit of dyactin; required for normal spindle formation and position
orf19.3193	<i>FCR3</i>	1,24	1,16	Putative centrin-binding protein; predicted role in spindle pole body duplication; induced by alpha pheromone in SpiderM medium; essential for growth
orf19.6909		1,24	1,27	Ortholog(s) have TFIIH-class transcription factor binding, TFIIH-class transcription factor recruiting transcription factor activity
orf19.3315	<i>CTA9</i>	1,24	1,14	Protein required for normal filamentous growth; induced during the mating process; mRNA binds She3; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i>
orf19.4848	<i>SK3</i>	1,24	1,18	Ortholog(s) have role in negative regulation of G2/M transition of mitotic cell cycle, nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay
orf19.4014		1,24	1,06	Planktonic growth-induced gene
orf19.3812	<i>SSZ1</i>	1,24	1,1	Putative HSP70 chaperone; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.3823	<i>ZDS1</i>	1,24	1,21	Nonessential protein; similar to <i>S. cerevisiae</i> Zds1p
orf19.7183		1,24	1,22	Ortholog(s) have role in protein folding in endoplasmic reticulum and ER membrane protein complex localization
orf19.7210		1,24	1,17	Protein of unknown function; Spider biofilm induced
orf19.5321		1,24	1,2	Ortholog(s) have methylenetetrahydrofolate reductase (NADPH) activity and role in methionine biosynthetic process
orf19.5449		1,24	1,27	Predicted integral membrane protein; Spider biofilm induced
orf19.6771	<i>UBI4</i>	1,24	1,21	Ubiquitin precursor (polyubiquitin) contains 3 tandem repeats of the ubiquitin peptide that are processed to individual units; transcript induced by stress; mRNA in yeast and mycelia at similar abundance; Spider biofilm induced
orf19.6757	<i>GCY1</i>	1,24	1,3	Aldo/keto reductase; mutation confers hypersensitivity to toxic ergosterol analog; farnesol-repressed; stationary phase enriched protein; flow model biofilm induced; Spider biofilm repressed
orf19.6753		1,24	1,11	Protein with a predicted RING-type zinc finger; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1683	<i>PPH21</i>	1,24	1,07	Putative protein phosphatase of the Type 2A-related family (serine/threonine-specific), similar to <i>S. cerevisiae</i> Pph21p; caspofungin repressed; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7667	<i>IAH1</i>	1,24	1,55	Protein similar to <i>S. cerevisiae</i> lah1p, which is involved in acetate metabolism; mutation confers hypersensitivity to tunicamycin; transposon mutation affects filamentous growth
orf19.1290	<i>XKS1</i>	1,24	1,29	Putative xylulokinase; Hap43-repressed; induced by prostaglandins; rat catheter biofilm repressed
orf19.1297		1,24	1,16	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity and role in CVT pathway, early endosome to Golgi transport, macroautophagy, mitochondrion degradation
orf19.769	<i>IFE1</i>	1,23	1,24	Putative medium-chain alcohol dehydrogenase; rat catheter and Spider biofilm repressed
orf19.1616	<i>FGR23</i>	1,23	1,13	Protein of unknown function; repressed by α 1/ α 2 in white-phase cells, α -specific, α factor-induced; Hap43-repressed; flow model biofilm induced; Tn mutation affects filamentous growth
orf19.1534		1,23	1,2	Ortholog of <i>S. cerevisiae</i> Zrt3, vacuolar membrane zinc transporter; predicted Kex2 substrate; induced in oralpharyngeal candidiasis; flow model biofilm induced; Spider biofilm induced
orf19.2116	<i>NAT2</i>	1,23	1,22	Putative N-terminal acetyltransferase; Hap43p-repressed gene; mutation confers hypersensitivity to toxic ergosterol analog
orf19.115		1,23	1,12	Ortholog of <i>Candida tropicalis</i> MYA-3404 : CTRG_02973 and <i>Candida albicans</i> WO-1 : CAWG_05252
orf19.1830		1,23	1,11	#NV
orf19.1830		1,23	1,18	Protein of unknown function; Hap43-induced; rat catheter and Spider biofilm induced
orf19.2825	<i>DRE2</i>	1,23	1,44	Putative cytosolic Fe-S protein assembly protein; α -specific transcript; regulated by Sef1, Sfu1, and Hap43; rat catheter and Spider biofilm induced
orf19.2378		1,23	1,17	Ortholog(s) have role in vacuolar proton-transporting V-type ATPase complex assembly and integral to endoplasmic reticulum membrane localization
orf19.3371	<i>JAB1</i>	1,23	1,15	Component of the COP9 signalosome (CSN) complex, provides catalytic activity for deneddylation that cleaves the ubiquitin-like protein tag Rub1p off the cullin (Cdc53p) molecule
orf19.5534		1,23	1,38	Protein with a predicted role in mitotic spindle elongation, vesicle-mediated transport; flow model biofilm induced
orf19.6249	<i>HAK1</i>	1,23	1,17	Putative potassium transporter; similar to <i>Schwanniomyces occidentalis</i> Hak1p; amphotericin B induced; induced upon phagocytosis by macrophage; Hap43-repressed; rat catheter biofilm repressed
orf19.6252		1,23	1,09	Ortholog(s) have RNA polymerase II transcription factor binding transcription factor activity, core RNA polymerase II binding transcription factor activity
orf19.1814	<i>STT4</i>	1,23	1,11	Putative phosphatidylinositol-4-kinase
orf19.2670		1,23	1,18	Ortholog(s) have 3-hydroxyacyl-[acyl-carrier-protein] dehydratase activity, role in fatty acid biosynthetic process and mitochondrion localization
orf19.706	<i>NMD3</i>	1,23	1,31	Putative nonsense-mediated mRNA decay protein; repressed in core stress response; repressed by prostaglandins
orf19.6079		1,23	1,1	Predicted ORF in retrotransposon Tca8 with similarity to the Gag region encoding nucleocapsid-like protein; repressed by ciclopirox olamine; filament induced; regulated by Rfq1, Tup1; overlaps orf19.6078.1
orf19.3388		1,23	1,14	#NV
orf19.3394		1,23	1,28	Predicted membrane protein; induced by alpha pheromone in SpiderM medium
orf19.3809	<i>BAS1</i>	1,23	1,17	Putative Myb-like transcription factor; ortholog <i>S. cerevisiae</i> Bas1, a regulator of purine biosynthetic genes; mutant exhibits adenine auxotrophy and abnormal colony morphology
orf19.854	<i>UGA11</i>	1,23	1,08	Putative gamma-aminobutyrate (GABA) transaminase; macrophage-induced; overlaps orf19.854.1, which is a region annotated as a blocked reading frame; Spider biofilm induced
orf19.2446		1,23	1,05	Ortholog(s) have cell division site, cell tip, cytoplasm, nucleus localization
orf19.552		1,23	1,09	Ortholog of a <i>S. cerevisiae</i> Atg22; a vacuolar integral membrane protein required for efflux of amino acids during autophagic body breakdown in the vacuole; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.195		1,23	1,27	#NV
orf19.264		1,23	1,26	Has domain(s) with predicted protein kinase binding activity and role in regulation of cyclin-dependent protein serine/threonine kinase activity
orf19.4902		1,23	1,12	#NV
orf19.3936		1,23	1,17	Putative glycerophosphocholine phosphodiesterase; mutation confers hypersensitivity to 5-fluorouracil (5-FU); F-12/CO2 early biofilm induced
orf19.4637		1,23	1,17	Ortholog(s) have role in SCF-dependent proteasomal ubiquitin-dependent protein catabolic process, cellular response to methylmercury and SCF ubiquitin ligase complex, cytosol localization
orf19.4821	<i>LIP1</i>	1,23	1,13	Secreted lipase, member of a lipase gene family whose members are expressed differentially in response to carbon source and during infection; may have a role in nutrition and/or in creating an acidic microenvironment
orf19.4818		1,23	1,15	Protein of unknown function; Spider biofilm induced

orf19.4571		1,23	1,07	CoA-transferase family protein; rat catheter biofilm repressed
orf19.384		1,23	1,07	Ortholog(s) have Golgi apparatus, cytosol, nucleus localization
orf19.2713		1,23	1,11	Ortholog(s) have role in reciprocal meiotic recombination and nucleus localization
orf19.718	RRN11	1,23	1,25	Putative RNA polymerase I subunit; rat catheter biofilm induced; Spider biofilm induced
orf19.928		1,23	1,15	Ortholog of C. dubliniensis CD36 : Cd36_50610, C. parapsilosis CDC317 : CPAR2_303690, Candida tenuis NRRL Y-1498 : CANTEDRAFT_93989 and Debaromyces hansenii CBS767 : DEHA2E15400g
orf19.4484		1,23	1,23	#NV
orf19.4491	ERG20	1,23	1,17	Putative farnesyl pyrophosphate synthetase involved in isoprenoid and sterol biosynthesis, based on similarity to S. cerevisiae Erg20p; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.4495	NDH51	1,23	1,1	Nicotinamide adenine dinucleotide dehydrogenase complex I subunit of the mitochondrial electron transport chain; required for wild-type filamentous growth; alkaline repressed; Hap43-repressed; Spider biofilm repressed
orf19.4889		1,23	1,22	Predicted MFS family membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family; Spider biofilm induced
orf19.4466		1,23	1,15	Ortholog(s) have palmitoyltransferase activity and role in ascospore formation, cellular response to cadmium ion, detoxification of cadmium ion, protein palmitoylation, protein targeting to membrane
orf19.1523	FMO1	1,23	1,12	Putative oxidoreductase; mutation confers hypersensitivity to toxic ergosterol analog, and to amphotericin B
orf19.5126		1,23	1,12	Putative adhesin-like protein
orf19.639		1,23	1,19	S. cerevisiae ortholog YDR370C/DXO1 has decapping and 5′-3′ exoRNase activity; decreased transcription is observed upon fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2
orf19.640		1,23	1,17	Integral membrane protein of the ER; role in the synthesis of beta-1,6-glucan in the cell wall; S. cerevisiae ortholog required for cell viability; Spider biofilm induced
orf19.1495		1,23	1,21	Ortholog(s) have role in L-methionine salvage from methylthioadenosine and cytosol, nucleus localization
orf19.2787	PRY1	1,23	1,19	Pry family pathogenesis-related protein; extracellular; opaque specific transcript; repressed by alpha pheromone in SpiderM medium; possibly essential, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.4744		1,23	1,14	Putative phosphatidylinositol 3-phosphate (PI3P) phosphatase; repressed by alpha pheromone in SpiderM medium
orf19.3086	SEC10	1,23	1,38	Ortholog(s) have role in Golgi to plasma membrane transport, cytokinetic cell separation, exocytosis and cell cortex of cell tip, cell division site, cytosol, excyst, mating projection tip, mitotic spindle pole body, nucleus localization
orf19.614		1,23	1,19	#NV
orf19.5728		1,23	1,16	Putative cytochrome P450; Spider biofilm induced
orf19.2391		1,23	1,32	Putative protein of unknown function; Hap43p-repressed gene; S. cerevisiae ortholog YKR023W localizes to mitochondria
orf19.2389		1,23	1,21	Ortholog(s) have DNA replication origin binding, single-stranded DNA binding activity
orf19.6313.2	MVB12	1,23	1,09	ESCRT-I complex subunit with a role in multivesicular body (MVB) trafficking; mutant displays growth defect on alkaline medium; Hap43p-repressed gene
orf19.522	PIM1	1,23	1,2	ATP-dependent Lon protease; role in degradation of misfolded proteins in mitochondria, biogenesis and maintenance of mitochondria; rat catheter biofilm induced
orf19.2361	SPT10	1,23	1,19	Ortholog(s) have sequence-specific DNA binding activity
orf19.1693	CAS4	1,23	1,17	RAM cell wall integrity signaling network protein; cell separation, azole sensitivity; needed for hyphal growth; insertion mutation near 3' end of gene increases caspofungin sensitivity; pheromone/hyphal induced; flow biofilm repressed
orf19.3754		1,23	1,29	#NV
orf19.3501		1,23	1,22	S. cerevisiae ortholog Pxl1 localizes to sites of polarized growth and is required for selection and/or maintenance of polarized growth sites; Hog1p-repressed
orf19.4046		1,23	1,18	Putative transcription factor containing a Zn(2)-Cys(6) binuclear cluster
orf19.2837	ALG5	1,23	1,17	Putative glucosyltransferase involved in cell wall mannan biosynthesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4304	GAP1	1,23	1,13	Amino acid permease; antigenic in human/mouse; 10-12 transmembrane regions; regulated by nitrogen source; alkaline, GlcNAc, phagocytosis induced; WT virulence in mice; Spider and flow model biofilm induced
orf19.575	HYR3	1,23	1,32	Putative GPI-anchored adhesin-like protein; similar to Hvr1p induced in high iron, clade-specific repeat variation
orf19.4507		1,23	1,1	Protein of unknown function; Hap43-repressed; rat catheter biofilm repressed
orf19.4200		1,23	1,1	Ortholog of Candida albicans WO-1 : CAWG_05300
orf19.211		1,23	1,23	Predicted homeodomain-like transcription factor; also has a metal-binding Ada DNA repair protein domain; Spider biofilm induced
orf19.2412		1,23	1,13	Ortholog(s) have role in late endosome to vacuole transport via multivesicular body sorting pathway and Golgi apparatus, Vps55/Vps68 complex, fungal-type vacuole membrane, late endosome localization
orf19.2408		1,23	1,27	Ortholog(s) have tRNA methyltransferase activity, role in tRNA methylation, wybutosine biosynthetic process and cytosol, nucleus localization
orf19.6544	LPB9	1,23	1,17	Protein phosphatase type 1 regulator; role in chromosome segregation, regulation of phosphoprotein phosphatase activity; rat catheter and Spider biofilm induced
orf19.3706		1,23	1,25	Has domain(s) with predicted oxidoreductase activity, zinc ion binding activity and role in oxidation-reduction process
orf19.846		1,23	1,14	Predicted protein kinase similar to S. cerevisiae Nnk1; implicated in proteasome function in S. cerevisiae; induced by Mnl1 under weak acid stress
orf19.6298	SPB4	1,23	1,21	Putative ATP-dependent RNA helicase; flucytosine repressed; Spider biofilm induced
orf19.3735		1,23	1,09	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.2331	ADA2	1,23	1,32	Zinc finger and homeodomain transcriptional coactivator; role in cell wall integrity and in sensitivity to caspofungin; required for the normal transcriptional response to caspofungin; required for yeast cell adherence to silicone substrate
orf19.1843	ALG6	1,23	1,24	Putative glucosyltransferase involved in cell wall mannan biosynthesis; transcription is elevated in chk1, nik1, and sin1 homozygous null mutants; repressed by nitric oxide; possibly essential gene, disruptants not obtained by UAU1 method
orf19.3136		1,23	1,36	Ortholog(s) have transcription coactivator activity, role in DNA repair, cellular carbohydrate metabolic process and cytoplasm localization
orf19.2256		1,23	1,34	Ortholog(s) have cytosol, nucleus localization
orf19.6456		1,23	1,24	Ortholog of C. dubliniensis CD36 : Cd36_72280, C. parapsilosis CDC317 : CPAR2_703040, Candida tenuis NRRL Y-1498 : CANTEDRAFT_125842 and Debaromyces hansenii CBS767 : DEHA2B05984g
orf19.726	PPZ1	1,23	1,43	Protein phosphatase 2; type 1 family serine/threonine specific protein phosphatase involved in cation homeostasis and cell wall integrity
orf19.2899		1,23	1,14	Ortholog(s) have cytosol, nucleus localization
orf19.396	EAF6	1,23	1,22	Subunit of the NuA4 histone acetyltransferase complex; Hap43-repressed; Spider biofilm repressed
orf19.5087	BUD6	1,23	1,12	Protein required for Spitzenkorper formation in hyphal cells (wild-type localization of Mlc1p to the Spitzenkorper); localizes to polarisome
orf19.6632	ACO2	1,23	1,31	Putative aconitate hydratase 2; induced in high iron; regulated by Gcn4; repressed by amino acid starvation (3-AT); protein levels decrease in stationary phase yeast; flow model and Spider biofilm repressed
orf19.2760		1,23	1,22	Putative mRNA cleavage and polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to parnafungin and cordycepin in the C. albicans fitness test
orf19.2961		1,23	1,32	Putative transcription factor with zinc finger DNA-binding motif
orf19.4117		1,23	1,3	Protein of unknown function; mutants are viable
orf19.5175		1,23	1,18	Ortholog(s) have ubiquitin-protein ligase activity, role in ER-associated protein catabolic process and Doa10p ubiquitin ligase complex, integral to endoplasmic reticulum membrane, nuclear inner membrane localization
orf19.6865		1,23	1,21	#NV
orf19.904		1,23	1,15	Ortholog(s) have cytosol, nucleus localization
orf19.4829	DOA1	1,23	1,32	WD repeat protein; required for ubiquitin-mediated protein degradation; role in control of cellular ubiquitin levels; may promote efficient NHEJ in postdiapyc/stationary phase; Spider biofilm repressed
orf19.2059		1,23	1,2	Protein with homology to magnesium-dependent endonucleases and phosphatases; regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced
orf19.3826		1,23	1,21	Predicted transmembrane protein with a role in cell wall polymer composition; Plc1-regulated; Spider biofilm induced
orf19.6040	SNF7	1,23	1,16	ESCRT III complex protein; role in proteolytic activation of Rim101 and Rim8 processing/activation; separable roles in RIM101 pathway and in transport from MVB to vacuole; involved in echinocandin and azole sensitivity
orf19.6526		1,23	1,07	Ortholog(s) have COP1-coated vesicle, Golgi apparatus localization
orf19.5248	MSO1	1,23	1,18	Putative secretory protein involved in S. cerevisiae sporulation; repressed during pseudohyphal growth in the presence of lysed macrophages; Hap43-repressed; Spider biofilm induced
orf19.6989		1,23	1,08	Putative U2 snRNP-associated protein; Spider biofilm induced
orf19.3023	NGG1	1,23	1,22	Ortholog(s) have histone acetyltransferase activity and role in cellular response to cadmium ion, detoxification of cadmium ion, histone acetylation, regulation of transcription from RNA polymerase II promoter
orf19.2012	NOT3	1,23	1,11	Transcriptional regulator; not required for buccal epithelial cell adherence or virulence in mouse systemic infection; null mutant colonies exhibit slightly decreased filamentation ratio; required for yeast adherence to silicone substrate
orf19.4059		1,23	1,13	Ortholog(s) have role in actin cortical patch localization, arginine transport, cellular protein localization, cellular response to heat, endocytosis, late endosome to vacuole transport and lysine transport, more
orf19.7006		1,23	1,26	Ortholog(s) have role in reciprocal meiotic recombination

orf19.5032	<i>SIM1</i>	1,23	1,21	Adhesin-like protein; involved in cell wall maintenance, redundant with Sun41; possibly secreted; macrophage-repressed; repressed by Rim101, Cyr1, Ras1; Spider biofilm induced
orf19.1652	<i>POX1-3</i>	1,23	1,19	Predicted acyl-CoA oxidase; farnesol regulated; stationary phase enriched protein; Spider biofilm induced
orf19.5350		1,23	1,2	Ortholog(s) have cyclin-dependent protein serine/threonine kinase activity
orf19.5357	<i>AKL1</i>	1,23	1,13	Putative serine/threonine protein kinase; induced during the mating process
orf19.3212	<i>MID1</i>	1,23	1,22	Putative stretch-activated Ca ²⁺ channel of the high affinity calcium uptake system; role in thigmotropism; decreased transcription is observed upon fluphenazine treatment or in an azole-resistant strain with CDR1 and CDR2 overexpression
orf19.4975	<i>HYR1</i>	1,23	1,17	GPI-anchored hyphal cell wall protein; macrophage-induced; repressed by neutrophils; resistance to killing by neutrophils, azoles; regulated by Rfg1, Efg1, Nrg1, Tup1, Cyr1, Bcr1, Hap43; Spider and flow model biofilm induced
orf19.7444		1,23	1,21	Ortholog(s) have cytoplasm, holo TFIIH complex localization
orf19.1226		1,23	1,19	#NV
orf19.6787		1,23	1,16	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, ascospore formation, axial cellular bud site selection and ER to Golgi transport vesicle, endoplasmic reticulum membrane localization
orf19.7666		1,23	1,43	Predicted membrane transporter, member of the anion:cation symporter (ACS) family, major facilitator superfamily (MFS)
orf19.5904	<i>RPL19A</i>	1,23	1,28	Ribosomal protein L19; repressed upon phagocytosis by murine macrophages; Hap43-induced gene; Spider biofilm repressed
orf19.5892		1,23	1,28	Ortholog of <i>S. cerevisiae</i> Huh4; similar to hect domain E3 ubiquitin-protein ligases; Hap43-repressed gene
orf19.3433	<i>OYE23</i>	1,23	1,14	Putative NADPH dehydrogenase; induced by nitric oxide, benomyl; oxidative stress-induced via Cap1; Hap43p-repressed; rat catheter biofilm induced
orf19.157		1,23	1,25	#NV
orf19.1753	<i>PUS7</i>	1,22	1,09	Pseudouridine synthase; catalyzes pseudouridylation in U2 snRNA, 5S rRNA, cytoplasmic tRNAs and in pre-tRNA(Tyr); F-12/CO2 early biofilm induced
orf19.3957		1,22	1,14	Ortholog(s) have GTP cyclohydrolase I activity, role in folic acid-containing compound biosynthetic process and cytosol, nucleus localization
orf19.144	<i>SNU114</i>	1,22	1,13	Protein similar to <i>S. cerevisiae</i> Snu114p, which is an RNA helicase involved in pre-mRNA splicing; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.332		1,22	1,13	Member of a complex that contains Prp19; stabilizes U6 snRNA in catalytic forms of the spliceosome containing U2, U5, and U6 snRNAs; Spider biofilm induced
orf19.257		1,22	1,15	Transcription is negatively regulated by Sfu1p; repressed by nitric oxide
orf19.1841		1,22	1,12	Protein of unknown function; Hap43-induced gene
orf19.1340		1,22	1,17	Putative aldose reductase; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.2296		1,22	1,3	Predicted mucin-like protein; ketoconazole-induced; fluconazole-repressed; induced in cyr1 mutant; colony morphology-related gene regulation by Ssn6; flow model biofilm induced; Spider biofilm induced
orf19.1492	<i>PRP39</i>	1,22	1,12	Putative component of the U1 snRNP; involved in splicing; Hap43-induced gene; Spider biofilm induced
orf19.3627		1,22	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22640, <i>C. parapsilosis</i> CDC317 : CPAR2_406910, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104937 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D02706g
orf19.3624	<i>MSU1</i>	1,22	1,26	Ortholog(s) have exoribonuclease II activity, role in mitochondrial RNA catabolic process and mitochondrial degradosome localization
orf19.3071	<i>MIH1</i>	1,22	1,12	Putative protein phosphatase of the PTP family (tyrosine-specific); ortholog of <i>S. cerevisiae</i> Mih1; mRNA binds She3
orf19.3156		1,22	1,12	Protein of unknown function; induced by Mnl1 under weak acid stress
orf19.775		1,22	1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_04450, <i>C. parapsilosis</i> CDC317 : CPAR2_105460, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D07128g and <i>Pichia stipitis</i> Pignal : PICST_80203
orf19.4697	<i>MDN1</i>	1,22	1,12	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.4634		1,22	1,22	Protein required for thiolation of uridine at wobble position of Gln, Lys, and Glu tRNAs; has a role in urmylation; <i>S. cerevisiae</i> ortholog has a role in invasive and pseudohyphal growth
orf19.853	<i>SAP99</i>	1,22	1,16	Putative secreted aspartyl protease; possible Kex2 substrate; induced by low iron; repressed by alpha pheromone in SpiderM1 medium; possibly essential (UAU1 method); regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced
orf19.1679		1,22	1,12	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_81550, <i>C. parapsilosis</i> CDC317 : CPAR2_503570, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00261 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D15378g
orf19.3522		1,22	1,1	Protein of unknown function; flow model biofilm induced; transcript repressed by ciclopirox olamine
orf19.3592	<i>JEM1</i>	1,22	1,11	Functional homolog of <i>S. cerevisiae</i> Jem1p, which acts with Scj1p and Kar2p (BIP) in protein folding and ER-associated degradation of misfolded proteins, and also has a role in karyogamy; has J domain and 4 tetratricopeptide repeats
orf19.366		1,22	1,38	Ortholog(s) have double-stranded DNA binding activity, role in DNA damage checkpoint, double-strand break repair, reciprocal meiotic recombination and checkpoint clamp complex localization
orf19.1009		1,22	1,2	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01857
orf19.2281		1,22	1,21	Has domain(s) with predicted CoA-transferase activity and role in metabolic process
orf19.2503		1,22	1,14	Ortholog of <i>S. cerevisiae</i> : YGL138C, <i>C. glabrata</i> CBS138 : CAGL0H08910g, <i>C. dubliniensis</i> CD36 : Cd36_80910, <i>C. parapsilosis</i> CDC317 : CPAR2_102230 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_109984
orf19.2544		1,22	1,26	Ortholog(s) have aminoacyl-HRNA hydrolase activity, role in negative regulation of proteasomal ubiquitin-dependent protein catabolic process and mitochondrial outer membrane localization
orf19.2282		1,22	1,13	Has domain(s) with predicted catalytic activity, catechol 1,2-dioxygenase activity, ferric iron binding, iron ion binding and oxidoreductase activity, more
orf19.871		1,22	1,12	Ortholog(s) have protein transporter activity, role in Golgi to plasma membrane transport, intracellular protein transport and vesicle coat localization
orf19.4457	<i>BNI4</i>	1,22	1,11	Protein required for wild-type cell wall chitin distribution, morphology, hyphal growth; not essential; similar to <i>S. cerevisiae</i> BNI4p (targeting subunit for Glc7p phosphatase, involved in bud-neck localization of chitin synthase III)
orf19.1871		1,22	1,13	Ortholog(s) have structural molecule activity, role in histone exchange and Swr1 complex localization
orf19.3795	<i>AGP3</i>	1,22	1,15	Putative serine transporter; possible role in assimilation of sulfur; F-12/CO2 early biofilm induced
orf19.1308		1,22	1,2	Predicted membrane transporter, member of the drug/proton antiporter (14 spanner) (DHA2) family, major facilitator superfamily (MFS)
orf19.4724		1,22	1,15	Ortholog(s) have RNA binding activity, role in spliceosomal complex assembly and U2-type prespliceosome localization
orf19.4076	<i>MET10</i>	1,22	1,14	Sulfite reductase; role in sulfur amino acid metabolism; induced by human whole blood or PMNs; Hog1-induced; possibly adherence-induced; flow model, Spider model, F-12/CO2 biofilm induced
orf19.1030		1,22	1,17	Putative peptidyl-prolyl cis-trans isomerase
orf19.2186	<i>SEH1</i>	1,22	1,13	Ortholog(s) have Seh1-associated complex, cytosol, fungal-type vacuole membrane, nuclear membrane, nuclear pore outer ring localization
orf19.2756		1,22	1,14	Ortholog(s) have HDL sequence binding activity, role in ER to Golgi vesicle-mediated transport, protein retention in ER lumen and Golgi apparatus, integral to endoplasmic reticulum membrane localization
orf19.2437	<i>ARC35</i>	1,22	1,08	Putative ARP2/3 complex subunit; shows colony morphology-related gene regulation by Ssn6p; mutation confers hypersensitivity to cytochalasin D
orf19.613		1,22	1,11	#NV
orf19.616		1,22	1,14	#NV
orf19.1515	<i>CHT4</i>	1,22	1,28	Chitinase; similar to <i>S. cerevisiae</i> sporulation-specific Cts2p; functionally complements <i>A. gossypii</i> cts2 mutant sporulation defect; homozygous null mutation causes no obvious defects; transcription decreases upon yeast-to-hyphal switch
orf19.4346		1,22	1,16	Ortholog(s) have protein anchor activity, role in COPII vesicle coating, protein localization to endoplasmic reticulum exit site and ER to Golgi transport vesicle membrane, endoplasmic reticulum exit site localization
orf19.4349		1,22	1,23	Protein of unknown function; transcript repressed by elevated CO2; Spider biofilm induced
orf19.3924		1,22	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04810
orf19.5524		1,22	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_62790, <i>C. parapsilosis</i> CDC317 : CPAR2_601680, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00252 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A0622g
orf19.3188	<i>TAC1</i>	1,22	1,32	Zn(2)-Cys(6) transcriptional activator of drug-responsive genes (CDR1 and CDR2); binds DRE element; gene in zinc cluster region near MTL locus; resequencing indicates that TAC1 spans orf19.3188 and orf19.3189; Spider biofilm induced
orf19.3551	<i>DAD2</i>	1,22	1,11	Essential subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.2745	<i>UME7</i>	1,22	1,25	Putative transcription factor with zinc cluster DNA-binding motif; similar to <i>S. cerevisiae</i> Ume6p, which is a transcription factor involved in the regulation of meiotic genes
orf19.2368		1,22	1,3	Predicted component of U5 snRNP; Spider biofilm induced
orf19.2374		1,22	1,32	#NV
orf19.276		1,22	1,28	Plasma membrane-associated protein; upregulated in an azole-resistant strain that overexpresses MDR1; Hap43-repressed; Spider biofilm induced
orf19.606		1,22	1,07	Protein of unknown function; Hap43-induced; Spider biofilm induced
orf19.1318		1,22	1,25	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43350, <i>C. parapsilosis</i> CDC317 : CPAR2_403560, <i>Debaryomyces hansenii</i> CBS767 : DEHA2A08250g and <i>Pichia stipitis</i> Pignal : PICST_29838
orf19.102		1,22	1,23	Ortholog(s) have translation regulator activity, role in regulation of translation and mitochondrion localization
orf19.2476		1,22	1,21	Ortholog(s) have histone demethylase activity (H3-trimethyl-K4 specific) activity
orf19.5543		1,22	1,03	Ortholog(s) have cell division site, cytosol localization

orf19.3903		1.22	1.08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04793
orf19.3006	GGA2	1.22	1.4	Protein involved in Golgi trafficking; rat catheter and Spider biofilm repressed
		1.22	1.16	#NV
orf19.4680		1.22	1.17	Possible protease; mutation confers hypersensitivity to toxic ergosterol analog
orf19.6316		1.22	1.39	Predicted membrane transporter, member of the L-amino acid transporter-3 (LAT3) family, major facilitator superfamily (MFS)
orf19.2014	BCY1	1.22	1.12	Protein kinase A regulatory subunit; required for nuclear localization of Tpk1; physically interacts with Tpk1; essential; apoptosis-regulated; bcy1 heterozygous or bcy1 tpk2 mutant has filamentous growth defect
orf19.206		1.22	1.2	Putative adhesin-like protein
orf19.3703		1.22	1.25	#NV
orf19.5828		1.22	1.26	Ortholog(s) have pre-mRNA branch point binding activity, role in generation of catalytic spliceosome for first transesterification step, mRNA branch site recognition, mRNA cis splicing, via spliceosome and commitment complex localization
orf19.6602		1.22	1.2	Ortholog(s) have role in aerobic respiration, ubiquinone biosynthetic process and mitochondrial inner membrane localization
orf19.5118	SDS24	1.22	1.45	Protein similar to <i>S. cerevisiae</i> Sds24 involved in cell separation during budding; transcript regulated by Mig1 and Tup1; fluconazole-induced; flow model biofilm induced
orf19.1991		1.22	1.32	Ortholog(s) have cytoplasm localization
orf19.1411		1.22	1.17	Putative cytochrome P450; Hap43-repressed gene
orf19.1414		1.22	1.13	Protein of unknown function; transcript is upregulated in an RHE model of oral candidiasis; Hap43-repressed
orf19.3448		1.22	1.23	Protein of unknown function; ketoconazole-repressed
orf19.6650		1.22	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30990, <i>C. parapsilosis</i> CDC317 : CPAR2_204660, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104939 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G23760q
orf19.681	HAP43	1.22	1.49	CCAAT-binding factor-dependent transcription factor; repressor; also called CAP2; required for low iron response; similar to bZIP transcription factor AP-1; repressed by Sfu1; ciclopirox olamine induced; rat catheter, Spider biofilm induced
orf19.4227		1.22	1.28	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_100400, <i>C. dubliniensis</i> CD36 : Cd36_52020, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F14278g and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0F00500
orf19.2964		1.22	1.14	Ortholog(s) have DNA translocase activity
orf19.4542		1.22	1.13	Ortholog(s) have cyclin-dependent protein serine/threonine kinase inhibitor activity and role in phosphorylation of RNA polymerase II C-terminal domain, regulation of mitotic cell cycle, transcription from RNA polymerase II promoter
orf19.2721		1.22	1.15	Ortholog(s) have role in ascospore formation, regulation of mitotic cell cycle, regulation of translation and cytosol, nucleus localization
orf19.6687		1.22	1.11	Protein of unknown function; rat catheter biofilm repressed
orf19.4095		1.22	1.25	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_407020, <i>C. dubliniensis</i> CD36 : Cd36_23460, <i>Debaryomyces hansenii</i> CBS767 : DEHA2B02002q and <i>Pichia stipitis</i> Pignal : PICST_31649
orf19.6717		1.22	1.35	Putative serine hydrolase; Spider biofilm repressed
orf19.1902	NOC4	1.22	1.14	Putative nuclear protein; Hap43-induced; mutation confers resistance to 5-fluorocytosine (5-FU), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); Spider biofilm induced
orf19.1871		1.22	1.23	Ortholog(s) have structural molecule activity, role in histone exchange and Swr1 complex localization
orf19.3311	IFD3	1.22	1.09	Putative aldo/keto reductase; Mqi1-regulated
orf19.3319		1.22	1.31	Putative thioredoxin; Spider biofilm repressed
orf19.3998		1.22	1.16	Ortholog(s) have Atg8 ligase activity, protein binding, bridging activity and role in C-terminal protein lipidation, CVT pathway, macroautophagy, mitochondrion degradation, piecemeal microautophagy of nucleus
orf19.6998	GTT1	1.22	1.17	Putative glutathione S-transferase; downregulated upon adherence to polystyrene; regulated upon white-opaque switching; induced in the presence of human neutrophils; oxidative stress-induced via Cap1p; regulated by Gcn2p, Gcn4p
orf19.3019		1.22	1.27	Putative DNA-dependent ATPase; transcription may be increased in an azole-resistant strain that overexpresses MDR1
orf19.3059	SUA71	1.22	1.25	Transcription factor TFIIIB; required for transcription initiation and start site selection by RNA polymerase II; downregulated during planktonic growth, whereas related SUA72 is induced; induced by Tbf1; rat catheter, Spider biofilm induced
orf19.6440		1.22	1.34	Ortholog(s) have ubiquitin-protein ligase activity, role in ubiquitin-dependent protein catabolic process and endoplasmic reticulum membrane, nuclear inner membrane localization
orf19.7027		1.22	1.25	Protein of unknown function; Spider biofilm induced
orf19.3923	PGA37	1.22	1.16	Putative GPI-anchored protein; Hap43-repressed; Spider biofilm induced
orf19.3245		1.22	1.33	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26090, <i>C. parapsilosis</i> CDC317 : CPAR2_801510, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_137093 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F20548q
orf19.5370		1.22	1.53	Ortholog(s) have fungal-type vacuole membrane localization
orf19.1207		1.22	1.11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33200 and <i>Candida albicans</i> WO-1 : CAWG_03416
orf19.7061		1.22	1.15	Ortholog(s) have ATPase activity and cytosol, nucleus localization
orf19.7397		1.22	1.45	Ortholog(s) have sequence-specific DNA binding activity and cytoplasm, nucleus, spindle localization
orf19.7523	MKC1	1.22	1.28	MAP kinase; role in biofilm formation, contact-induced invasive filamentation, systemic virulence in mouse, cell wall structure/maintenance, caspofungin response; phosphorylated on surface contact, membrane perturbation, or cell wall stress
orf19.1809		1.22	1.08	#NV
orf19.776		1.22	1.17	Ortholog(s) have role in meiotic sister chromatid cohesion, protein localization to chromosome, centromeric region, reciprocal meiotic recombination, synaptonemal complex assembly
orf19.5887	NUP85	1.22	1.2	Ortholog of <i>S. cerevisiae</i> Nup85; a structural constituent of the nuclear pore; required for alkaline-induced hyphal morphogenesis and for SD or Spider media biofilm formation
orf19.188		1.22	1.18	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04234
orf19.4548	MAK32	1.22	1.09	Putative protein involved in the structural stability of L-A double-stranded RNA-containing particles; downregulated upon adherence to polystyrene
orf19.5596		1.22	1.16	Ortholog(s) have ASTRA complex localization
orf19.6081	PHR2	1.21	1.18	Glycosidase; role in vaginal not systemic infection (low pH not neutral); low pH, high iron, fluconazole, Hap43-induced; Rim101-repressed at pH8; rat catheter biofilm induced; Bcr1-repressed in RPM1 a/ba biofilms
orf19.3376		1.21	1.14	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03459
orf19.1124.2		1.21	1.16	Ortholog(s) have dipthine synthase activity, role in peptidyl-dipthamide biosynthetic process from peptidyl-histidine and cytosol, nucleus localization
orf19.6889	MKK2	1.21	1.17	Ortholog of <i>S. cerevisiae</i> Mkk2; MAP kinase involved in signal transduction; macrophage-downregulated; mutants are viable and hypersensitive to caspofungin
orf19.921	HMS1	1.21	1.16	hLh domain Myc-type transcript factor; required for morphogenesis induced by elevated temperature or Hsp90 compromise; acts downstream of Pel1; Spider biofilm induced
orf19.5754		1.21	1.14	Putative membrane protein with a predicted role in zinc ion homeostasis; Hap43-induced; fluconazole-induced; rat catheter and Spider biofilm induced
orf19.2662		1.21	1.16	Predicted ORF of unknown function; overlaps TLO34/orf19.2661
orf19.1803	CDC43	1.21	1.09	Beta subunit of heterodimeric protein geranylgeranyltransferase type I; GGTase I enzyme binds zinc, is Mg-dependent; Cdc42p is GGTase I substrate
orf19.2921		1.21	1.19	Ortholog(s) have alpha-tubulin binding activity, role in protein folding, tubulin complex assembly and cytosol, nucleus localization
orf19.3288	NMA111	1.21	1.14	Putative serine protease and general molecular chaperone; macrophage-induced gene; repressed in core stress response; merged with orf19.3288.1 in Assembly 21
orf19.3201	MTLA1	1.21	1.16	Homeodomain protein of the MTLA mating type locus; a1 and alpha2 together repress white-opaque switching and mating (an opaque-specific process); a/alpha mating type may increase virulence by competitive advantage; Spider biofilm induced
orf19.1765		1.21	1.27	Secreted protein; fluconazole-induced
orf19.3413	FGR37	1.21	1.1	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.1143		1.21	1.15	Ortholog of <i>Pichia stipitis</i> Pignal : PICST_30878, <i>Spathospora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_60017, <i>Candida guilliermondii</i> ATCC 6260 : PGUG_05223 and <i>Candida tropicalis</i> MYA-3404 : CTRG_01052
orf19.2282		1.21	1.14	Has domain(s) with predicted catalytic activity, catechol 1,2-dioxygenase activity, ferric iron binding, iron ion binding and oxidoreductase activity, more
		1.21	1.14	#NV
orf19.1648	RAD50	1.21	1.29	Putative DNA double-strand break repair factor; involved in response to oxidative stress and drug resistance; flow model biofilm repressed
orf19.3947		1.21	1.17	Ortholog(s) have rDNA binding activity
orf19.4065		1.21	1.07	#NV
orf19.4513		1.21	1.17	Protein of unknown function; mutants are viable; rat catheter and Spider biofilm induced
orf19.3449		1.21	1.13	Ortholog(s) have ubiquitin-protein ligase activity, role in histone catabolic process, histone ubiquitination and cytoplasm, ribosome localization
orf19.4423		1.21	1.13	Putative glucosyltransferase; localized to the mitochondrial membrane
orf19.3647	SEC8	1.21	1.6	Predicted subunit of the exocyst complex, involved in exocytosis; localizes to a crescent on the surface of the hyphal tip
orf19.4560	BFR1	1.21	1.09	Protein involved in the maintenance of normal ploidy; <i>S. cerevisiae</i> ortholog confers Brefeldin A resistance; stationary phase enriched protein; Spider biofilm repressed

orf19.2725		1,21	1,2	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 03525
orf19.3621		1,21	1,18	Possible pseudogene; similar to Ywp1p; ORF extended upstream from the initiating Met of orf19.3621 has a stop codon in the region corresponding to the Ywp1p signal peptide; disruption causes no apparent phenotype; no expression detected
orf19.5043		1,21	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43610, <i>C. parapsilosis</i> CDC317 : CPAR2_403770, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G16962q and <i>Pichia stipitis</i> Pignal : PICST 30926
orf19.6500	ECM42	1,21	1,15	Ornithine acetyltransferase; Gcn2, Gcn4-regulated; clade-specific gene expression; possibly essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
		1,21	1,11	#NV
orf19.1167		1,21	1,18	Ortholog(s) have sulfonate dioxygenase activity and role in sulfur compound catabolic process
orf19.1113		1,21	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_53540, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G07854g, <i>Pichia stipitis</i> Pignal : PICST 32162 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPADRAFT 50795
orf19.3965		1,21	1,17	Ortholog(s) have role in double-strand break repair via homologous recombination, meiotic gene conversion, reciprocal meiotic recombination, replication fork protection and Smc5-Smc6 complex, cytosol, nucleus localization
orf19.4707		1,21	1,13	Putative secreted acid sphingomyelin phosphodiesterase; possible Kex2p substrate
orf19.2274		1,21	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21450, <i>Candida tropicalis</i> MYA-3404 : CTRG_01739 and <i>Candida albicans</i> WO-1 : CAWG 05814
orf19.2791	BBC1	1,21	1,14	Putative SH3-domain-containing protein
orf19.752		1,21	1,09	Has domain(s) with predicted methyltransferase activity and role in metabolic process
orf19.1336	PUP3	1,21	1,16	Putative beta 3 subunit of the 20S proteasome; macrophage/pseudohyphal-repressed
orf19.416		1,21	1,12	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05200, <i>C. parapsilosis</i> CDC317 : CPAR2_107660, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00159 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E07854g
orf19.1377	IPK2	1,21	1,11	Putative inositol polyphosphate multikinase; moderately induced at 42 deg
orf19.3543		1,21	1,25	Dubious open reading frame
orf19.2203		1,21	1,13	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05873
orf19.2197		1,21	1,14	Has domain(s) with predicted N,N-dimethylaniline monooxygenase activity, NADP binding, flavin adenine dinucleotide binding activity and role in oxidation-reduction process
orf19.5501	YAF9	1,21	1,07	Subunit of the NuA4 histone acetyltransferase complex; transcript regulated by Mig1; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.304		1,21	1,2	Putative transporter similar to MDR proteins; fungal-specific; Spider biofilm induced
orf19.3185		1,21	1,26	Ortholog(s) have peptide alpha-N-acetyltransferase activity, role in N-terminal protein amino acid acetylation and NatA complex, cytosolic ribosome, mitochondrion localization
orf19.2810	AAP1	1,21	1,16	Putative amino acid permease; fungal-specific; possibly essential, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.4756		1,21	1,19	Ortholog of <i>S. cerevisiae</i> : YTP1, <i>C. dubliniensis</i> CD36 : Cd36_08490, <i>C. parapsilosis</i> CDC317 : CPAR2_801590, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_109732 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C10384g
orf19.4307		1,21	1,16	Ortholog(s) have role in late endosome to vacuole transport via multivesicular body sorting pathway, protein targeting to vacuole and late endosome localization
orf19.2733		1,21	1,11	Putative subunit of phosphatidylinositol 3-kinase complexes I and II; transcription is activated in the presence of elevated CO ₂
orf19.3748		1,21	1,2	Protein of unknown function; orf19.3747 and orf19.3748 are short, overlapping ORFs in intergenic region between 2 oligopeptide transporter-encoding genes; flow model biofilm induced
orf19.4655	OPT6	1,21	1,22	Putative oligopeptide transporter; fungal-specific (no human or murine homolog); expression of OPT6, OPT7, or OPT8 does not suppress defect of mutant lacking Opt1p, Opt2p, and Opt3p; alleles are nonidentical
orf19.2120		1,21	1,14	#NV
orf19.2111		1,21	1,1	Ortholog(s) have core RNA polymerase II binding transcription factor activity and role in transcription elongation from RNA polymerase II promoter, transcriptional start site selection at RNA polymerase II promoter
orf19.2375		1,21	1,29	#NV
orf19.605		1,21	1,11	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02087
orf19.2995		1,21	1,08	Protein of unknown function; induced by nitric oxide; rat catheter and Spider biofilm induced
orf19.1063		1,21	1,07	Ortholog(s) have dolichyl-phosphate-mannose-glycolipid alpha-mannosyltransferase activity, role in GPI anchor biosynthetic process and integral to endoplasmic reticulum membrane, mannosyltransferase complex, mitochondrion localization
orf19.736	SRB8	1,21	1,12	Putative RNA polymerase II mediator complex subunit; early-stage flow model biofilm induced
orf19.1405	PHO13	1,21	1,21	Putative 4-nitrophenylphosphatase; Hap43p-repressed gene; transcription is regulated upon yeast-hyphal switch
orf19.2135	TSM1	1,21	1,17	Putative transcription initiation factor TFIID subunit; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Nrg1-regulated
orf19.5182	POL3	1,21	1,22	Large subunit of DNA polymerase III; partially complements defects of an <i>S. cerevisiae</i> cdc2 mutant; differing reports about periodic (G1/S) or non-periodic mRNA expression through cell cycle; Hap43p-repressed
orf19.2320		1,21	1,09	Putative serine/threonine-protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.321		1,21	1,35	Ortholog(s) have L-methionine transmembrane transporter activity and role in amino acid transport
orf19.6148		1,21	1,31	Homolog of nuclear distribution factor NuDE, NUDEL; regulates dynein targeting to microtubule plus ends; flow model biofilm repressed
orf19.2988		1,21	1,13	Predicted aminotransferase based on <i>S. pombe</i> ortholog SPBC660.12c; flow model biofilm induced
orf19.4922		1,21	1,33	Ortholog(s) have Rab GTPase binding activity and Golgi apparatus, endoplasmic reticulum localization
orf19.5141		1,21	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05647
orf19.2182	BLM3	1,21	1,07	Putative proteasome activator; binds core proteasome and stimulates proteasome-mediated protein degradation by inducing gate opening; ortholog of <i>S. cerevisiae</i> Blm10; transcript regulated by Nrg1 and Mig1
orf19.1419		1,21	1,22	#NV
orf19.1619		1,21	1,15	Putative kinase subunit of RNA polymerase II carboxy-terminal domain kinase I; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.664		1,21	1,13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_10680, <i>Debaryomyces hansenii</i> CBS767 : DEHA2E14058g, <i>Pichia stipitis</i> Pignal : PICST 29620 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPADRAFT 146037
orf19.6703		1,21	1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73260 and <i>Candida albicans</i> WO-1 : CAWG 05699
orf19.4100		1,21	1,13	#NV
orf19.5665		1,21	1,3	Has domain(s) with predicted 2 iron, 2 sulfur cluster binding, iron ion binding, oxidoreductase activity, oxidoreductase activity and acting on paired donors, more
orf19.5171	PMT1	1,21	1,08	Protein mannosyltransferase; required for virulence in mice and for adhesion to epithelial cells; role in hyphal growth and drug sensitivity; Als1, Sec20, Kre9, Pir1 are substrates; 1 of 5 PMT family members
orf19.1464	BMT5	1,21	1,2	Putative beta-mannosyltransferase involved in beta-1,2-mannosylation of phospholipomannan; 9-member family includes Bmt1, Bmt2, Bmt3, and Bmt4 with roles in mannosylation of cell wall phosphopeptidomannan; Spider biofilm induced
orf19.6879		1,21	1,11	Ortholog(s) have tRNA-intron endonuclease activity, role in tRNA-type intron splice site recognition and cleavage and mitochondrial outer membrane, tRNA-intron endonuclease complex localization
orf19.6893		1,21	1,18	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, cellular response to cadmium ion, detoxification of cadmium ion
orf19.350	PRE9	1,21	1,3	Alpha3 (C9) subunit of the 20S proteasome; transcript regulated by Mig1; flow model biofilm repressed
orf19.6936	RAD53	1,21	1,15	Protein involved in regulation of DNA-damage-induced filamentous growth; putative component of cell cycle checkpoint; ortholog of <i>S. cerevisiae</i> Rad53p, protein kinase required for cell-cycle arrest in response to DNA damage
orf19.6563		1,21	1,17	Ortholog of Kch1 a potassium transporter; mediates K+ influx and activates high-affinity Ca ²⁺ influx system during mating pheromone response in <i>S. cerevisiae</i> ; induced by alpha pheromone in SpiderM medium
orf19.3793		1,21	1,2	Protein of unknown function; mRNA binds She3; regulated by Nrg1; upregulated in a <i>cvr1</i> or <i>ras1</i> mutant
orf19.5259		1,21	1,2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11290, <i>C. parapsilosis</i> CDC317 : CPAR2_805090, <i>Pichia stipitis</i> Pignal : PICST 28850 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG 02709
orf19.3021		1,21	1,25	Putative protein of unknown function; Hap43-repressed gene; Spider biofilm induced
orf19.3048		1,21	1,15	Protein of unknown function; repressed by alpha pheromone in SpiderM medium
orf19.2013	KAR2	1,21	1,05	Similar to Hsp70 family chaperones; role in translocation of proteins into the ER; induced in high iron; protein present in exponential and stationary growth phase yeast cultures; flow model and Spider biofilm repressed
orf19.3063	HFL1	1,21	1,11	HAPS-like; ortholog of <i>S. cerevisiae</i> Dpb3; third-largest subunit of DNA polymerase II (DNA polymerase epsilon); phosphorylated protein; mutants have a growth defect
orf19.1624		1,21	1,13	Non-catalytic subunit of N-terminal acetyltransferase of the NatC type; flow model biofilm repressed
orf19.4573	ZCF26	1,21	1,08	Zn2-Cys6 transcription factor of unknown function; induced by alpha pheromone in SpiderM medium
orf19.5024	GND1	1,21	1,26	6-phosphogluconate dehydrogenase; soluble in hyphae; farnesol, macrophage-induced protein; antigenic in mice; dual localization to cytosol and peroxisomes depends on alternative splicing; rat catheter and Spider biofilm repressed
orf19.7139		1,21	-1,06	Ortholog(s) have role in mRNA splicing, via spliceosome and Prp19 complex, U2-type catalytic step 1 spliceosome, U2-type catalytic step 2 spliceosome, U2-type post-mRNA release spliceosomal complex, U2-type prespliceosome localization
orf19.7242	NCR1	1,21	1,19	Putative vacuolar membrane protein; predicted role in sphingolipid metabolism; transcript regulated by Nrg1 and Mig1; induced by prostaglandins
orf19.7278		1,21	1,21	Similar to a region of the Tca2 (pCal) retrotransposon, which is present in strain hOG1042 as 50 to 100 copies of a linear dsDNA; rat catheter biofilm repressed
orf19.3237		1,21	1,28	Ortholog(s) have cytosol, mitochondrion, nucleus localization

orf19.1935		1,21	1,16	Dubious open reading frame
orf19.7404		1,21	1,31	Catabolic L-serine (L-threonine) deaminase; catalyzes degradation of L-serine and L-threonine; required to use serine or threonine as a sole nitrogen source; Spider biofilm repressed
orf19.7411	OAC1	1,21	1,26	Putative mitochondrial inner membrane transporter; rat catheter biofilm induced
orf19.1229		1,21	1,17	Ortholog(s) have importin-alpha export receptor activity, role in cell division, protein export from nucleus and nuclear membrane localization
orf19.6763	SLK19	1,21	1,51	Alkaline-induced protein of plasma membrane; affects cell aggregation, cell wall; similar to S. cerevisiae Slk19p (a kinetochore protein with roles in mitosis, meiosis); required for wild-type virulence in mouse; macrophage-downregulated
orf19.6755	DLD2	1,21	1,43	Ortholog(s) have D-lactate dehydrogenase (cytochrome) activity, role in aerobic respiration, cellular carbohydrate metabolic process and mitochondrial inner membrane localization
orf19.44		1,21	1,13	#NV
orf19.2549	SHP1	1,2	1,12	Regulator of the type 1 protein phosphatase Gic7p activity, involved in control of morphogenesis, progression through the cell cycle and response to DNA damage
orf19.3190	HAL9	1,2	1,17	Putative Zn(II)Cys6 transcription factor; gene in zinc cluster region of Chr. 5; induced by Mn1 in weak acid; similar to S. cerevisiae Hal9, a putative transcription factor involved in salt tolerance
orf19.5177		1,2	1,14	Ortholog of Candida albicans WO-1 : CAWG 05627
orf19.1524	SPR3	1,2	1,15	Septin; mutant has no obvious phenotype
orf19.1817		1,2	1,17	#NV
orf19.1343	MED16	1,2	1,16	Putative RNA polymerase II mediator complex subunit; induced by nitric oxide
orf19.3373		1,2	1,09	Putative protein of unknown function; transcript upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.2802		1,2	1,17	#NV
orf19.1805	PEX14	1,2	1,11	Ortholog(s) have protein binding, bridging activity, role in protein import into peroxisome matrix, docking and peroxisomal membrane localization
orf19.4330		1,2	1,1	Ortholog of C. dubliniensis CD36 : Cd36_52790, Candida tropicalis MYA-3404 : CTRG_05968 and Candida albicans WO-1 : CAWG 04684
orf19.2547		1,2	1,15	Has domain(s) with predicted RNA binding, ribonuclease activity
orf19.3390		1,2	1,29	#NV
orf19.2847		1,2	1,16	Ortholog(s) have RNA polymerase III activity, role in tRNA transcription from RNA polymerase III promoter and DNA-directed RNA polymerase III complex, mitotic spindle pole body localization
orf19.2449		1,2	1,12	Putative adhesin-like protein; macrophage-induced gene
orf19.1675		1,2	1,21	Ortholog(s) have role in positive regulation of catalytic activity
orf19.1746		1,2	1,12	Protein similar to S. cerevisiae meiosis-specific, spore-wall-localized protein Ssp2p, which is required for wild-type outer spore wall formation in S. cerevisiae; possibly an essential gene (UAU1 method); Hap43p-repressed
orf19.1049		1,2	1,07	Predicted NUDIX hydrolase domain; Hap43-induced
orf19.2347	MNN2	1,2	1,26	Alpha-1,2-mannosyltransferase; similar to S. cerevisiae Mnn2; role in cell wall integrity, temperature sensitivity; iron utilization in low iron; Tn mutation affects filamentous growth; filament induced; increased chitin exposes beta-glucan
orf19.2024		1,2	1,11	Ortholog of Candida albicans WO-1 : CAWG 03878
orf19.99	HAL21	1,2	1,12	Putative phosphoadenosine-5'-phosphate or 3'-phosphoadenosine 5'-phosphosulfate phosphatase; possible role in sulfur recycling; ortholog of S. cerevisiae Met22; predicted Kex2 substrate; F-12/CO2 biofilm induced
orf19.1778		1,2	1,15	Dubious open reading frame
orf19.225		1,2	1,22	Predicted 2-hydroxyacid dehydrogenase; Hap43-repressed gene
orf19.1148		1,2	1,13	Ortholog of C. dubliniensis CD36 : Cd36_11020 and Candida albicans WO-1 : CAWG 00266
orf19.3371	JAB1	1,2	1,09	Component of the COP9 signalosome (CSN) complex, provides catalytic activity for deneddylation that cleaves the ubiquitin-like protein tag Rub1p off the cullin (Cdc53p) molecule
orf19.3796	DCR1	1,2	1,16	Putative Dicer RNase involved in RNA interference, similar to S. cerevisiae Rnt1p but orthologous to S. castellii Dcr1p, which is not conserved in S. cerevisiae
orf19.1309		1,2	1,15	Ortholog of C. dubliniensis CD36 : Cd36_43290, C. parapsilosis CDC317 : CPAR2_403630, Candida tenuis NRRL Y-1498 : CANTEDRAFT_114295 and Debaryomyces hansenii CBS767 : DEHA2G17336g
orf19.1712	GEA2	1,2	1,13	Putative ARF GTP/GDP exchange factor; induced in low iron; flow model biofilm repressed
orf19.4975	HYR1	1,2	1,13	GPI-anchored hyphal cell wall protein; macrophage-induced; repressed by neutrophils; resistance to killing by neutrophils, azoles; regulated by Rfg1, Efg1, Nrg1, Tup1, Cyr1, Bcr1, Hap43; Spider and flow model biofilm induced
orf19.2862	RIB1	1,2	1,08	Putative GTP cyclohydrolase II; enzyme of riboflavin biosynthesis; fungal-specific (no human or murine homolog); regulated by Sef1p, Stu1p, and Hap43p
orf19.3658		1,2	1,17	Ortholog(s) have role in protein folding in endoplasmic reticulum and Golgi apparatus, integral to endoplasmic reticulum membrane, mitochondrion localization
orf19.2649	PCL1	1,2	1,18	Cyclin homolog; transcript induced by filamentous growth; induced by alpha pheromone in SpiderM medium
orf19.5056		1,2	1,15	Ortholog(s) have enzyme regulator activity, mitotic anaphase-promoting complex activity
orf19.5049		1,2	1,15	Putative U3-containing 90S preribosome processome complex subunit; Hap43-induced gene; rat catheter and Spider biofilm induced; F-12/CO2 early biofilm induced
orf19.5206		1,2	1,12	Putative chaperone protein; role in the assembly of box H/ACA snoRNPs and thus for pre-rRNA processing; Spider biofilm induced
orf19.3964	ASH2	1,2	1,13	Ortholog(s) have histone methyltransferase activity (H3-K4 specific) activity and role in cellular response to cadmium ion, chromatin silencing at telomere, detoxification of cadmium ion, histone H3-K4 trimethylation, telomere maintenance
orf19.2604		1,2	1,23	S. pombe ortholog SPAC2C4.06c is a predicted tRNA (cytosine-5)-methyltransferase; Spider biofilm induced
orf19.4186	PCT1	1,2	1,14	Putative choline-phosphate cytidyl transferase, antigenic during human oral infection
orf19.2799	GPI8	1,2	1,14	Protein similar to S. cerevisiae Gpi8p, which is a subunit of the GPI transamidase complex that adds GPI anchors to proteins; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.848	PGA16	1,2	1,08	Putative GPI-anchored protein
orf19.4356	HGT3	1,2	1,22	Putative glucose transporter of the major facilitator superfamily; the C. albicans glucose transporter family comprises 20 members; 12 probable membrane-spanning segments, extended C terminus; expressed in rich medium with 2% glucose
orf19.2394		1,2	1,14	Ortholog(s) have cytoplasm, nucleus localization
orf19.417	MTM1	1,2	1,13	Ortholog(s) have metallochaperone activity, role in manganese ion transport and mitochondrion localization
orf19.2941	SCW4	1,2	1,09	Putative cell wall protein; substrate for Kex2p processing in vitro; expression regulated by white-opaque switch; alkaline repressed; possibly essential (UAU1 method); flow model biofilm induced; Spider biofilm induced
orf19.1762	OCA1	1,2	1,15	Putative protein phosphatase of the PTP family (tyrosine-specific); ortholog of S. cerevisiae Oca1; mutant is viable; mutant shows virulence defect
orf19.1760	RAS1	1,2	1,3	RAS signal transduction GTPase; regulates cAMP and MAP kinase pathways; role in hyphal induction, virulence, apoptosis, heat-shock sensitivity; nonessential; plasma membrane-localized; complements viability of S. cerevisiae ras1 ras2 mutant
orf19.2600	SPC98	1,2	1,25	Putative component of the microtubule-nucleating Tub4p (gamma-tubulin) complex; periodic mRNA expression, peak at cell-cycle S/G2 phase
orf19.4482	IFI3	1,2	1,2	Protein of unknown function; constitutive expression independent of MTL or white-opaque status
orf19.3505		1,2	1,14	Ortholog(s) have role in TOR signaling cascade, actin filament bundle assembly, eisosome assembly, endosomal transport, establishment or maintenance of actin cytoskeleton polarity, regulation of cell growth
orf19.2870		1,2	1,06	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.5643	ECM7	1,2	1,23	Protein involved in control of calcium homeostasis and oxidative stress response; mutants show defects in hyphal growth
orf19.2580	HST2	1,2	1,17	Putative histone deacetylase; role in regulation of white-opaque switch; Spider biofilm induced
orf19.570	IFF8	1,2	1,14	Putative GPI-anchored adhesin-like protein; decreased transcription is observed in an azole-resistant strain that overexpresses MDR1
orf19.5782		1,2	1,4	Ortholog(s) have mitochondrion localization
orf19.2468		1,2	1,17	Ortholog(s) have trans-aconitate 3-methyltransferase activity and cytosol, nucleus localization
orf19.6010	CDC5	1,2	1,12	Polo-like kinase; member of conserved Mcm1 regulon; depletion causes defects in spindle elongation and Cdc35-dependent filamentation; virulence-group-correlated expression; likely essential (UAU1 method); Spider biofilm repressed
orf19.6013		1,2	1,16	Ortholog(s) have cytosol, nucleolus localization
orf19.3905		1,2	1,1	Planktonic growth-induced gene
orf19.2404		1,2	1,28	Ortholog(s) have ribonuclease MRP activity, ribonuclease P activity, role in intronic box C/D snoRNA processing, mRNA cleavage, rRNA processing, tRNA processing and nucleolar ribonuclease P complex localization
orf19.1584		1,2	1,13	Predicted MFS membrane transporter; monocarboxylate porter family member; colony morphology-related gene regulation by Ssn6; flow model biofilm induced; Spider biofilm induced
orf19.1404		1,2	1,18	Predicted tRNA dihydrouridine synthase; Spider biofilm induced
orf19.2129		1,2	1,14	Ortholog of S. cerevisiae Spo71; a meiosis-specific protein required for spore wall formation during sporulation in S. cerevisiae; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6324	VID27	1,2	1,32	Protein similar to S. cerevisiae Vid27p; transposon mutation affects filamentous growth; mutation confers hypersensitivity to toxic ergosterol analog; fungal-specific (no human or murine homolog)
orf19.2336		1,2	1,14	Pry family pathogenesis-related protein; predicted to be extracellular
orf19.1857		1,2	1,12	Putative L-azetidine-2-carboxylic acid acetyltransferase; mutants are viable
orf19.1263	CFL1	1,2	1,26	Protein similar to ferric reductase Fre10p; possible functional homolog of S. cerevisiae Fre1p (reports differ); transcription is negatively regulated by Stu1p, copper, amphotericin B, caspofungin; induced by ciclopirox olamine

orf19.6340		1,2	1,2	Ortholog(s) have RNA polymerase I activity, RNA polymerase II activity, RNA polymerase III activity, RNA-directed RNA polymerase activity
orf19.2253		1,2	1,09	Protein of unknown function; expression regulated by white-opaque switch; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.6469		1,2	1,32	Predicted ORF in retrotransposon Tca11 with similarity to the Gag-Pol region of retrotransposons, which encodes nucleocapsid-like protein, reverse transcriptase, protease, and integrase
orf19.149		1,2	1,17	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.5079	CDR4	1,2	1,21	Putative ABC transporter superfamily; fluconazole, Sfu1, Hog1, core stress response induced; caspofungin repressed; fluconazole resistance not affected by mutation or correlated with expression; rat catheter and flow model biofilm induced
orf19.2006		1,2	1,19	Ortholog(s) have fungal-type vacuole membrane localization
orf19.1628	LAP41	1,2	1,41	Putative aminopeptidase yscJ precursor; mutant is viable; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.1024		1,2	1,19	#NV
orf19.377	PHR3	1,2	1,14	Putative beta-1,3-glucanoyltransferase with similarity to the A. fumigatus GEL family; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.151	TPO5	1,2	1,11	Putative polyamine transporter; mutation confers hypersensitivity to toxic ergosterol analog; hyphal induced; macrophage induced
orf19.816	DCK2	1,2	1,17	Protein similar to S. cerevisiae Ytr422wp; transposon mutation affects filamentous growth; induced by Mnl1p under weak acid stress
orf19.831		1,2	1,2	Ortholog of C. dubliniensis CD36 : Cd36_18570, C. parapsilosis CDC317 : CPAR2_211360, Candida tenuis NRRL Y-1498 : CANTEDRAFT_115359 and Debaryomyces hansenii CBS767 : DEHA2D06886q
orf19.2160	NAG4	1,2	1,04	Putative transporter; fungal-specific; similar to Nag3p and to S. cerevisiae Ypr156Cp and Ygr138Cp; required for wild-type mouse virulence and wild-type cycloheximide resistance; gene cluster encodes enzymes of GlcNAc catabolism
orf19.4084	KIS1	1,2	1,31	Snf1p complex scaffold protein; similar to S. cerevisiae Gal83p and Sip2p with regions of similarity to Sip1p (ASC and KIS domain); interacts with Snf4p; mutants are hypersensitive to caspofungin and hydrogen peroxide; Hap43p-repressed gene
orf19.5166	DBF4	1,2	1,15	Putative Cdc7p-Dbf4p kinase complex regulatory subunit; Hap43p-induced gene; macrophage/pseudohyphal-repressed; cell-cycle regulated periodic mRNA expression; S. cerevisiae ortholog is not cell-cycle regulated
orf19.504		1,2	1,24	Ortholog(s) have ATP-dependent 3'-5' DNA helicase activity, role in nucleosome mobilization and Ino80 complex, cytosol localization
orf19.480		1,2	1,2	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.6901		1,2	1,14	Ortholog(s) have RNA 7-methylguanosine cap binding, exoribonuclease activator activity, m7G(5')pppN diphosphatase activity
orf19.6918		1,2	1,34	Protein of unknown function; Hap43-induced gene; Spider biofilm induced
orf19.351		1,2	1,13	Ortholog of S. cerevisiae : YPR153W, C. glabrata CBS138 : CAGL0L08382g, C. dubliniensis CD36 : Cd36_83540, C. parapsilosis CDC317 : CPAR2_404520 and Candida tenuis NRRL Y-1498 : CANTEDRAFT_115795
orf19.882	HSP78	1,2	1,23	Heat-shock protein; regulated by macrophage response, Nrg1, Mig1, Gcn2, Gcn4, Mnl1p; heavy metal (cadmium) stress-induced; stationary phase enriched protein; rat catheter and Spider biofilm induced
orf19.880		1,2	1,13	Ortholog(s) have role in cargo loading into COPII-coated vesicle and COPII vesicle coat, cytosol, mating projection tip localization
orf19.6580		1,2	1,09	Protein of unknown function; Spider biofilm induced
orf19.6037	ASM3	1,2	1,19	Putative secreted acid sphingomyelin phosphodiesterase; possible Kex2 substrate; transcript increased in an azole-resistant strain that overexpresses MDR1; flow model biofilm induced; F-12/CO2 early biofilm induced
orf19.6053	CIS2	1,2	1,13	Putative role in regulation of biogenesis of the cell wall; upregulated in biofilm; Gcn4p-regulated
orf19.2433		1,2	1,13	Ortholog of C. dubliniensis CD36 : Cd36_05790, C. parapsilosis CDC317 : CPAR2_103730, Pichia stipitis Pignal : PICST_28344, Candida tropicalis MYA-3404 : CTRG_04275 and Candida albicans WO-1 : CAWG_00795
orf19.3054	RPN3	1,2	1,13	#NV
orf19.6411		1,2	1,28	Putative non-ATPase regulatory subunit of the 26S proteasome lid; amphoterin B repressed; oxidative stress-induced via Cap1p
orf19.4628		1,2	1,23	Protein similar to S. cerevisiae Vac14p; a protein involved in regulated synthesis of PtdIns(3,5)P(2); transposon mutation affects filamentous growth
orf19.1175		1,2	1,12	Putative cleavage and polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to pamafungin and cordycepin in the C. albicans fitness test; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7275	FGR24	1,2	1,18	#NV
orf19.7292	ARP2	1,2	1,24	Protein encoded in retrotransposon Zorro2 with similarity to retroviral endonuclease-reverse transcriptase proteins; lacks an ortholog in S. cerevisiae; transposon mutation affects filamentous growth
orf19.7125		1,2	1,11	#NV
orf19.3213		1,2	1,49	Component of the Arp2/3 complex; required for virulence, hyphal growth, cell wall/cytoskeleton organization, not for endocytosis; mutation confers hypersensitivity to cytochalasin D; regulated by Gcn2 and Gcn4; Spider biofilm repressed
orf19.7354	LAC1	1,2	1,15	Protein of unknown function; Spider biofilm induced
orf19.1227	ZCF4	1,2	1,12	Ceramide synthase; required for biosynthesis of ceramides with C18:0 fatty acids, which serve as precursors for glucosylsphingolipids; caspofungin induced
orf19.7606		1,2	1,16	Putative Zn(III)2Cys6 transcription factor
orf19.7638	PRO1	1,2	1,33	Ortholog of C. dubliniensis CD36 : Cd36_35262, Candida tropicalis MYA-3404 : CTRG_05848 and Candida albicans WO-1 : CAWG_02290
orf19.5976		1,2	1,12	Putative gamma-glutamyl kinase; transcript regulated by Nrg1; regulated by Gcn2 and Gcn4; Hap43-repressed gene; early-stage flow model biofilm induced gene
orf19.5935		1,2	1,19	Protein of unknown function; ortholog of S. cerevisiae Um1; downregulated by fluphenazine treatment, in azole-resistant strains that overexpress CDR1 and CDR2 or MDR1
orf19.130		1,19	1,18	Ortholog of C. dubliniensis CD36 : Cd36_84710, C. parapsilosis CDC317 : CPAR2_807470, Candida tenuis NRRL Y-1498 : CANTEDRAFT_136475 and Debaryomyces hansenii CBS767 : DEHA2B08844q
orf19.2549	SHP1	1,19	1,18	Ortholog(s) have protein serine/threonine kinase activity, ubiquitin binding activity
orf19.1431		1,19	1,13	Regulator of the type 1 protein phosphatase Glc7p activity, involved in control of morphogenesis, progression through the cell cycle and response to DNA damage
orf19.581		1,19	1,06	#NV
orf19.193		1,19	1,19	Putative RNA-binding protein; transcript is upregulated in an RHE model of oral candidiasis
orf19.194		1,19	1,2	Ortholog of C. dubliniensis CD36 : Cd36_19300, C. parapsilosis CDC317 : CPAR2_209720, Candida tenuis NRRL Y-1498 : CANTEDRAFT_114035 and Debaryomyces hansenii CBS767 : DEHA2E10494q
orf19.2379	NOT4	1,19	1,02	Putative E3 ubiquitin-protein ligase; required for maintenance, but not induction, of hyphal development; homozygous null mutant is avirulent in mouse systemic infection despite persistence in host; repressed in rat oral candidiasis
orf19.1083		1,19	1,28	Putative protein of unknown function; macrophage-induced gene
orf19.5530	NAB3	1,19	1,09	Putative nuclear polyadenylated RNA-binding protein; flucytosine repressed
orf19.2665	MSN5	1,19	1,06	Predicted karyopherin involved in nuclear import and export of proteins; flow model biofilm induced; Spider biofilm induced
orf19.3728		1,19	1,25	Ortholog(s) have protein phosphatase 1 binding, protein phosphatase type 1 regulator activity, role in chromosome segregation, regulation of phosphoprotein phosphatase activity and cytoplasmic localization
orf19.4761	HST1	1,19	1,17	Putative histone deacetylase, involved in regulation of white-opaque switching
orf19.3804		1,19	1,17	Protein of unknown function; filament induced
orf19.1677		1,19	1,11	#NV
orf19.3526	ITR1	1,19	1,16	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.3411		1,19	1,12	MFS inositol transporter; uptake of exogenous inositol; 12 transmembrane motifs; expressed in rich medium; fluconazole, caspofungin repressed; possibly essential (UAU1 method); flow model, rat catheter and Spider biofilm induced
orf19.1268		1,19	1,08	Ortholog(s) have role in cellular bud site selection and cytosol, nucleus localization
orf19.3848		1,19	1,11	Protein of unknown function; transcript detected on high-resolution tiling arrays; rat catheter biofilm induced
orf19.1647		1,19	1,11	Ortholog of C. dubliniensis CD36 : Cd36_31420, C. parapsilosis CDC317 : CPAR2_205100, Debaryomyces hansenii CBS767 : DEHA2G10648q and Pichia stipitis Pignal : PICST_32997
orf19.3610		1,19	1,19	Ortholog(s) have role in ascospore wall assembly
orf19.104		1,19	1,2	Protein of unknown function; upregulation correlates with clinical development of fluconazole resistance; regulated by Sef1, Sfu1, and Hap43
orf19.4125	PZF1	1,19	1,1	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.4768		1,19	1,1	C2H2 transcription factor; Hap43-induced; rat catheter and Spider biofilm induced
orf19.2717	SAS10	1,19	1,11	Protein of unknown function; Spider biofilm induced
orf19.3968		1,19	1,06	Putative U3-containing small subunit processome complex subunit; Hap43p-induced gene; mutation confers resistance to 5-fluorocytosine (5-FC); repressed upon high-level peroxide stress
				Protein of unknown function; flow model biofilm induced

orf19.3370	<i>DOT4</i>	1,19	1,18	Protein similar to ubiquitin C-terminal hydrolase; localizes to cell surface of hyphal cells, but not yeast-form cells; repressed upon high-level peroxide; Hap43p-induced; rat catheter biofilm induced
orf19.3368		1,19	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 03466
orf19.2883	<i>CSO99</i>	1,19	1,09	Protein of unknown function; Hap43-repressed gene; protein not conserved in <i>S. cerevisiae</i>
		1,19	1,11	#NV
orf19.4553		1,19	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_64990, <i>C. parapsilosis</i> CDC317 : CPAR2_600170, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_121753 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E19712q
orf19.381		1,19	1,08	#NV
orf19.1522		1,19	1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16850, <i>C. parapsilosis</i> CDC317 : CPAR2_211990, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00169 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G0336q
orf19.5196	<i>ESS1</i>	1,19	1,06	Prolyl isomerase (parvulin class); essential; involved in yeast-hyphal switching, Cph1p pathway; has inflexible linker between WW and isomerase domains, unlike human homolog; functional homolog of <i>S. cerevisiae</i> Ess1p
orf19.2184		1,19	1,12	Putative fumarylacetoacetate hydrolase; clade-associated gene expression; rat catheter and Spider biofilm repressed
orf19.5205		1,19	1,12	Protein of unknown function; Hap43-repressed gene
orf19.4266	<i>SPR28</i>	1,19	1,29	Septin; similar to <i>S. cerevisiae</i> meiotic/sporulation septin; mutant has no obvious phenotype; two introns with noncanonical branch site and 5' splice site, respectively; splicing inhibited upon exposure to alpha-factor
orf19.635		1,19	1,06	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.1502		1,19	1,18	Has domain(s) with predicted aminoacyl-tRNA hydrolase activity
orf19.864		1,19	1,15	Ortholog(s) have role in nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay and cytosol, polysome localization
orf19.2276		1,19	1,13	Ortholog(s) have DNA-directed RNA polymerase activity, RNA-directed RNA polymerase activity
orf19.2788		1,19	1,09	Has domain(s) with predicted RNA binding, pseudouridine synthase activity and role in pseudouridine synthesis
orf19.6477		1,19	1,16	Ortholog(s) have tRNA (guanine-N7-)-methyltransferase activity, role in tRNA methylation and cytosol, nucleus, tRNA methyltransferase complex localization
orf19.2558		1,19	1,14	Has domain(s) with predicted zinc ion binding activity and nucleus localization
orf19.2645		1,19	1,05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 04710
orf19.4880		1,19	1,16	Protein of unknown function; flow model biofilm induced
orf19.836		1,19	1,06	Protein likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.6024		1,19	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_00770, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112621, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D09812q and <i>Pichia stipitis</i> Pigna1 : PICST_61958
orf19.4742		1,19	1,21	Putative SH3-domain-containing protein
orf19.3925		1,19	1,11	Putative protein of unknown function, transcription is activated in the presence of elevated CO2
orf19.5376		1,19	1,21	Ortholog of <i>S. cerevisiae</i> Elm1; a serine/threonine protein kinase that regulates cellular morphogenesis, septin behavior, and cytokinesis in <i>S. cerevisiae</i> ; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1376		1,19	1,06	Ortholog(s) have SNAP receptor activity, phosphatidic acid binding activity, role in ascospore-type prospore membrane assembly and Golgi apparatus, endoplasmic reticulum, plasma membrane, prospore membrane localization
orf19.4418	<i>FMT1</i>	1,19	1,11	Putative methionyl-tRNA transformylase; induced upon adherence to polystyrene
orf19.3186		1,19	1,17	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 04571
orf19.52		1,19	1,29	Ortholog(s) have role in cellular iron ion homeostasis and mitochondrion localization
orf19.567	<i>TFB3</i>	1,19	1,22	Putative C3HC4 zinc finger transcription factor; transcript positively regulated by Tbf1; Spider biofilm induced
orf19.576	<i>CTF8</i>	1,19	1,17	Putative kinetochore protein with a predicted role in sister chromatid cohesion; repressed during the mating process; flow model biofilm induced
orf19.2105		1,19	1,15	Putative pre-mRNA-splicing factor; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1327	<i>RBT1</i>	1,19	1,12	Cell wall protein with similarity to Hwp1; required for virulence; predicted glycosylation; fluconazole, Tup1 repressed; farnesol, alpha factor, serum, hyphal and alkaline induced; Rfq1, Rim101-regulated
orf19.4080		1,19	1,22	Putative ribonuclease H2 subunit; required for RNase H2 activity; repressed in Spider biofilms by Bcr1, Tec1, Brg1, Rob1
orf19.4792		1,19	1,18	Protein with a regulator of G-protein signaling domain; Plc1-regulated; Spider biofilm induced; rat catheter biofilm repressed
orf19.5846		1,19	1,3	Putative TFIIF and nucleotide excision repair factor 3 complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.40		1,19	1,13	#NV
orf19.4509		1,19	1,17	Protein of unknown function
orf19.5602	<i>BMT6</i>	1,19	1,16	Beta-mannosyltransferase; beta-1,2-mannosylation of phospholipomannan; member of a 9-member family including Bmt1, Bmt2, Bmt3, and Bmt4 with roles in mannosylation of cell wall phosphopeptidomannan; flow model biofilm induced
orf19.6313	<i>MNT4</i>	1,19	1,21	Predicted alpha-1,3-mannosyltransferase with a role in protein glycosylation; induced in low iron
orf19.3978		1,19	1,3	Protein required for maturation of 18S rRNA; rat catheter biofilm repressed
orf19.6345	<i>RPG1A</i>	1,19	1,17	Putative translation initiation factor; mutation confers hypersensitivity to rotridin A and verrucarin A; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.1004		1,19	1,13	#NV
orf19.1003		1,19	1,07	#NV
orf19.996		1,19	1,07	Protein with a predicted leucine-rich repeat domain; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2245	<i>YPT72</i>	1,19	1,09	Vacuolar Rab small monomeric GTPase involved in vacuolar biogenesis; involved in filamentous growth and virulence
orf19.4740		1,19	1,11	Ortholog(s) have aminoacyl-tRNA hydrolase activity, role in mitochondrial translation and mitochondrion localization
orf19.5133	<i>ZCF29</i>	1,19	1,15	Zn(II)2Cys6 transcription factor; mutants sensitive to caffeine and menadione, resistant to fenpropimorph; Hap43-repressed; mutants have decreased CFU in mouse kidneys and defects in filamentous growth; Spider biofilm induced
orf19.6267		1,19	1,1	Protein of unknown function; mutants are viable
orf19.2901	<i>NUP60</i>	1,19	1,22	Ortholog of <i>S. cerevisiae</i> Nup60p; a subunit of the nuclear pore complex; mutants are viable
orf19.6598	<i>WAL1</i>	1,19	1,47	Protein required for hyphal growth and for wild-type cell morphology, polarized budding, endocytosis, vacuole morphology; similar to Wiskott-Aldrich syndrome protein; localizes to cortical actin patches and hyphal tips
orf19.5078		1,19	1,11	Protein of unknown function; Hap43-repressed gene; rat catheter biofilm repressed
orf19.5074	<i>UBA2</i>	1,19	1,15	Ortholog(s) have SUMO activating enzyme activity, role in protein sumoylation and SUMO activating enzyme complex localization
orf19.5071	<i>NRP1</i>	1,19	1,14	Ortholog(s) have cytoplasmic stress granule, nucleolus localization
orf19.4399	<i>NCS2</i>	1,19	1,22	Putative cytosolic thiouridylase subunit; Spider biofilm induced
orf19.1544		1,19	1,3	Putative cis-golgi localized protein involved in ER to Golgi transport; Spider biofilm repressed
orf19.1566	<i>UTP21</i>	1,19	1,26	Putative U3 snoRNP protein; Hap43-induce; physically interacts with TAP-tagged Nop1; Spider biofilm induced
orf19.427		1,19	1,09	Ortholog(s) have telomeric DNA binding activity and role in chromatin silencing at silent mating-type cassette, chromatin silencing at telomere, single-species biofilm formation on inanimate substrate, telomere capping
orf19.6630		1,19	1,16	Ortholog(s) have role in ER-associated protein catabolic process
orf19.153		1,19	1,12	#NV
orf19.4223	<i>GCD11</i>	1,19	1,08	Gamma subunit of translation initiation factor eIF2; involved in identification of the start codon; likely essential for growth, based on an insertional mutagenesis strategy; Spider biofilm repressed
orf19.514	<i>SNP3</i>	1,19	1,11	Putative U6 snRNA-associated protein; transcript regulated by Mq1
orf19.530		1,19	1,2	Protein with a UV radiation resistance protein/autophagy-related protein 14 domain; Hap43p-induced gene; mutants are viable
orf19.6734	<i>TCC1</i>	1,19	1,29	Putative transcription factor/corepressor; regulation of filamentation and virulence; interacts with Tup1; regulates hypha-specific gene expression; contains 4 tetratricopeptide repeat (TPR) motifs; flucytosine repressed; Tbp1-induced
orf19.3116	<i>EXM2</i>	1,19	1,2	Putative U1 snRNP complex component; decreased transcription is observed upon flufenazine treatment
orf19.5172	<i>LIP9</i>	1,19	1,13	Secreted lipase, member of a lipase gene family whose members are expressed differentially in response to carbon source and during infection; may have a role in nutrition and/or in creating an acidic microenvironment
orf19.6851	<i>CHL4</i>	1,19	1,1	Protein described as having role in chromosome segregation; RNA abundance regulated by tyrosol and cell density
orf19.6864		1,19	1,14	Putative ubiquitin-protein ligase; role in protein ubiquitination; Spider biofilm induced
orf19.1474	<i>SLA1</i>	1,19	1,13	Protein required for assembly of the cortical actin cytoskeleton; contains three SH3 domains; transcription is regulated by Nrg1 and Mq1; flow model biofilm repressed
orf19.6913	<i>GCN2</i>	1,19	1,27	Translation initiation factor 2-alpha (eIF2alpha) kinase; has nonessential role in amino acid starvation response, in contrast to <i>S. cerevisiae</i> homolog; similar to <i>S. cerevisiae</i> Gcn2p
orf19.4433	<i>CPH1</i>	1,19	1,55	Transcription factor; for mating, filamentation on solid media, pheromone-stimulated biofilms, in pathway with Ess1, Czf1; regulated with Efg1 for host cytokine response; regulates galactose metabolism genes; rat catheter biofilm repressed
orf19.1105		1,19	1,13	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_302980, <i>C. dubliniensis</i> CD36 : Cd36_53630, <i>Pichia stipitis</i> Pigna1 : PICST_32155 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0E05120
orf19.6077		1,19	1,11	Putative protein of unknown function; shows colony morphology-related gene regulation by Ssn6p
orf19.6980		1,19	1,13	Has domain(s) with predicted ATP binding, protein kinase activity, protein tyrosine kinase activity, transferase activity, transferring phosphorus-containing groups activity and role in protein phosphorylation
orf19.7017	<i>YOX1</i>	1,19	1,13	Putative homeodomain-containing transcription factor; transcriptional repressor; periodic mRNA expression, peak at cell-cycle G1/S phase

orf19.3591	<i>APE3</i>	1.19	1.13	Putative vacuolar aminopeptidase Y; regulated by Gcn2 and Gcn4; rat catheter and Spider biofilm repressed
orf19.962		1.19	1.2	Protein with a fungal RNA polymerase I subunit RPA14 domain; proposed to play a role in the recruitment of pol I to the promoter; Hap43-induced gene
orf19.3231	<i>CDC27</i>	1.19	1.17	Putative ubiquitin-protein ligase; periodic mRNA expression, peak at cell-cycle S/G2 phase
orf19.5328	<i>GCN1</i>	1.19	1.12	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrial localization
orf19.5365		1.19	1.32	<i>S. cerevisiae</i> ortholog YMR259C interacts with Trm7 for 2'-O-methylation of C32 of substrate tRNAs; downregulated by flufenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2
orf19.7331	<i>FCY24</i>	1.19	1.12	Putative transporter, more similar to <i>S. cerevisiae</i> Tpn1, which is a vitamin B6 transporter, than to purine-cytosine permeases; transcription is regulated by Nrg1; Spider biofilm induced
orf19.7409	<i>ERV25</i>	1.19	1.36	Component of COPII-coated vesicles; transcript induced upon filamentous growth; rat catheter biofilm repressed
orf19.5428		1.19	1.27	Putative Golgi membrane protein with a predicted role in manganese homeostasis; Hap43p-repressed gene; clade-associated gene expression
orf19.7527		1.19	1.21	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25130, <i>C. parapsilosis</i> CDC317 : CPAR2_800100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107256 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E18370q
orf19.5999	<i>DYN1</i>	1.19	1.14	Dynein heavy chain; motor protein that moves to microtubule minus end; required for yeast cell separation, spindle positioning, nuclear migration, hyphal growth; regulated by Mig1, Hap43; flow model and rat catheter biofilm repressed
orf19.5970		1.19	1.3	Putative DNA repair helicase; transcriptionally induced by interaction with macrophage; fungal-specific (no human or murine homolog)
orf19.5968	<i>RDI1</i>	1.19	1.17	Putative rho GDP dissociation inhibitor; transposon mutation affects filamentous growth; farnesol, filament-induced; regulated by Nrg1, Tup1; protein levels low in stationary phase yeast
orf19.1496		1.19	1.14	Putative transcription factor with zinc finger DNA-binding motif; Hap43p-repressed gene
orf19.1355		1.18	1.19	Putative protein of unknown function; stationary phase enriched protein
orf19.1742	<i>HEM3</i>	1.18	1.22	Hydroxymethylbilane synthase; converts 4-porphobilinogen to hydroxymethylbilane in heme biosynthesis; induced in high iron, CO ₂ ; alkaline repressed; regulated by Sef1, Sfu1, and Hap43; rat catheter and Spider biofilm induced
orf19.1907	<i>EMC9</i>	1.18	1.24	Ortholog of <i>S. cerevisiae</i> Nnf2; possible role in chromosome segregation; mutants are viable, induced during the mating process
orf19.1610		1.18	1.13	Putative protein of unknown function, transcription is activated in the presence of elevated CO ₂
orf19.2433		1.18	1.13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05790, <i>C. parapsilosis</i> CDC317 : CPAR2_103730, <i>Pichia stipitis</i> Pignal : PICST_28344, <i>Candida tropicalis</i> MYA-3404 : CTRG_04275 and <i>Candida albicans</i> WO-1 : CAWG_00795
orf19.2660	<i>EAF3</i>	1.18	1.13	Subunit of the NuA4 histone acetyltransferase complex; rat catheter and Spider biofilm induced
orf19.1085		1.18	1.12	Ortholog(s) have ubiquitin-protein ligase activity and role in ER-associated protein catabolic process, protein ubiquitination involved in ubiquitin-dependent protein catabolic process, vesicle organization
orf19.2925		1.18	1.1	Ortholog(s) have role in protein folding, tubulin complex assembly and cytoplasm localization
orf19.985		1.18	1.13	Ortholog(s) have endoplasmic reticulum, ribosome localization
orf19.5059	<i>GCS1</i>	1.18	1.13	Gamma-glutamylcysteine synthetase; glutathione synthesis, required for virulence; induced in low iron, H ₂ O ₂ , Cd, or presence of human neutrophils; possibly adherence-induced; Spider and F-12/CO ₂ biofilm induced
orf19.179		1.18	1.12	#NV
orf19.5576		1.18	1.13	Putative pantothenate kinase; ortholog of <i>S. cerevisiae</i> Cab1; transposon mutation affects filamentous growth; repressed in core stress response
orf19.4261	<i>TIF5</i>	1.18	1.15	Putative translation initiation factor; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.1923	<i>RRN3</i>	1.18	1.06	Protein with a predicted role in recruitment of RNA polymerase I to rDNA; caspofungin induced; flucytosine repressed; repressed in core stress response; repressed by prostaglandins
orf19.1499	<i>CTF1</i>	1.18	1.17	Putative zinc-finger transcription factor, similar to <i>A. nidulans</i> FarA and FarB; activates genes required for fatty acid degradation; induced by oleate; null mutant displays carbon source utilization defects and slightly reduced virulence
orf19.374		1.18	1.11	Ortholog(s) have role in protein targeting to vacuole involved in ubiquitin-dependent protein catabolic process via the multivesicular body sorting pathway
orf19.1479		1.18	1.14	Ortholog of the mitochondria localized <i>S. cerevisiae</i> Pib2 protein of unknown function; has a FYVE zinc finger domain; Spider biofilm induced
orf19.470		1.18	1.19	Ortholog(s) have RNA polymerase II activating transcription factor binding, TBP-class protein binding, chromatin binding, protein complex scaffold activity
orf19.3950	<i>MSM1</i>	1.18	1.13	Mitochondrial methionyl-tRNA synthetase (MetRS); functionally complements methionine auxotrophy of an <i>E. coli</i> MetRS mutant; transcript regulated by Nrg1; flow model biofilm induced
orf19.5071	<i>NRP1</i>	1.18	1.11	Ortholog(s) have cytoplasmic stress granule, nucleolus localization
orf19.1980	<i>GIT4</i>	1.18	1.15	Putative glycerophosphoinositol permease; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method; Hap43p-repressed gene
orf19.4067	<i>FGR18</i>	1.18	1.09	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.2722	<i>CGR1</i>	1.18	1.24	#NV
orf19.3627		1.18	1.13	Negative regulator of yeast-form growth; HSP70 family member; induced by growth cessation at yeast-hyphal transition or in planktonic growth; physically interacts with Msi3p; similar to rat anti-aging gene, SMP30, stationary phase enriched
orf19.5742	<i>ALS9</i>	1.18	1.08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_22640, <i>C. parapsilosis</i> CDC317 : CPAR2_406910, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104937 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D02706q
orf19.4463		1.18	1.12	ALS family cell-surface glycoprotein; expressed during infection of human epithelial cells; confers laminin adhesion to <i>S. cerevisiae</i> ; highly variable; putative GPI-anchor; Hap43-repressed
orf19.4492		1.18	1.07	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01004
orf19.188		1.18	1.13	Ortholog(s) have role in nuclear division, rRNA processing and mitotic spindle pole body, nuclear periphery, nucleolus, preribosome, large subunit precursor localization
orf19.1107		1.18	1.18	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04234
orf19.4800	<i>RIM20</i>	1.18	1.29	Protein involved in the pH response pathway; binds to the transcription factor Rim101 and may serve as a scaffold to facilitate the C-terminal proteolytic cleavage that activates Rim101; required for alkaline pH-induced hyphal growth
orf19.1708		1.18	1.11	Protein of unknown function; Spider biofilm induced
orf19.4322	<i>DAP2</i>	1.18	1.07	Putative dipeptidyl aminopeptidase; transcriptionally regulated during macrophage response
orf19.3873	<i>ARC40</i>	1.18	1.3	Protein similar to <i>S. cerevisiae</i> Arc40; involved in actin filament organization in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; rat catheter and Spider biofilm repressed
orf19.1032	<i>SKO1</i>	1.18	1.17	bZIP transcription factor; involved in cell wall damage response; represses the yeast-to-hypha transition; mutants are caspofungin sensitive; induced by osmotic stress via Hog1; induced by Mm1 under weak acid stress
orf19.5042		1.18	1.12	Ortholog(s) have role in maintenance of rDNA and nuclear periphery localization
orf19.5052		1.18	1.12	Ortholog of <i>S. cerevisiae</i> : YFR045W, <i>C. glabrata</i> CBS138 : CAGLOC02013g, <i>C. dubliniensis</i> CD36 : Cd36_07340, <i>C. parapsilosis</i> CDC317 : CPAR2_208340 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116470
orf19.4266	<i>SPR28</i>	1.18	1.12	Septin; similar to <i>S. cerevisiae</i> meiotic/sporulation septin; mutant has no obvious phenotype; two introns with noncanonical branch site and 5' splice site, respectively; splicing inhibited upon exposure to alpha-factor
orf19.641		1.18	1.12	Ortholog(s) have role in protein folding and endoplasmic reticulum localization
orf19.2457		1.18	1.09	Protein of unknown function; induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i> ; Spider biofilm induced
orf19.4742		1.18	1.12	Putative SH3-domain-containing protein
orf19.2399		1.18	1.14	Putative transcription factor with zinc finger DNA-binding motif; similar to bacterial DnaJ; induced in low iron
orf19.91		1.18	1.14	#NV
orf19.3457	<i>SWD3</i>	1.18	1.12	Protein of unknown function; flow model biofilm induced; Hap43-repressed
orf19.5097	<i>CAT8</i>	1.18	1.13	Ortholog(s) have histone methyltransferase activity (H3-K4 specific) activity, role in chromatin silencing at telomere, histone H3-K4 methylation, telomere maintenance and Set1C/COMPASS complex localization
orf19.2557	<i>SEC65</i>	1.18	1.12	Zn(II)2Cys6 transcription factor; similar to <i>S. cerevisiae</i> Cat8 but mutant phenotype suggests different target genes; mutant displays increased filamentous/invasive growth; flucytosine repressed; rat catheter biofilm induced
orf19.6018	<i>LRO1</i>	1.18	1.08	Component of the protein-targeting Signal Recognition Particle (SRP); similar to mammalian Srp19; functional homolog of <i>S. cerevisiae</i> Sec65; Tbf1-induced
orf19.3767	<i>PEP1</i>	1.18	1.08	Acyltransferase that catalyzes diacylglycerol esterification of phospholipids; role in lipid storage, triglyceride biosynthesis; flow model biofilm repressed
orf19.4253		1.18	1.19	Type I transmembrane sorting receptor for multiple vacuolar hydrolases; cycles between late-Golgi and prevacuolar endosome-like compartments; rat catheter biofilm repressed
orf19.2942	<i>DIP5</i>	1.18	1.14	Ortholog(s) have role in negative regulation of gluconeogenesis, proteasomal ubiquitin-dependent protein catabolic process, regulation of nitrogen utilization, vacuolar protein catabolic process
orf19.4747	<i>HEM14</i>	1.18	1.12	Dicarboxylic amino acid permease; mutation confers hypersensitivity to toxic ergosterol analog; induced upon phagocytosis by macrophage; Gcn4-regulated; upregulated by Rim101 at pH 8; rat catheter and Spider biofilm induced
orf19.5816	<i>EBP7</i>	1.18	1.09	Putative protoporphyrinogen oxidase; involved in heme biosynthesis; predicted Kex2p substrate; iron regulated transcript; Yfh1-induced; Hap43-repressed; rat catheter biofilm repressed
orf19.4673	<i>BMT9</i>	1.18	1.19	Putative NADPH oxidoreductase; mutation confers hypersensitivity to toxic ergosterol analog; oxidative stress-induced via Cap1p
orf19.4673	<i>BMT9</i>	1.18	1.19	Beta-mannosyltransferase, 9-gene family that includes characterized genes BMT1, BMT2, BMT3, and BMT4 with roles in beta-1,2-mannosylation of cell wall phosphopeptidomannan; regulated by Sef1, Sfu1, Hap43; rat catheter biofilm repressed

orf19.748		1,18	1,11	Ortholog(s) have RNA binding, nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.4472		1,18	1,14	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00996
orf19.5592		1,18	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63980, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115187, <i>Candida tropicalis</i> MYA-3404 : CTRG_02719 and <i>Candida albicans</i> WO-1 : CAWG_05060
orf19.6213	<i>SUI2</i>	1,18	1,2	Translation initiation factor eIF2, alpha chain; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage; stationary phase enriched protein
orf19.2733		1,18	1,08	Putative subunit of phosphatidylinositol 3-kinase complexes I and II; transcription is activated in the presence of elevated CO ₂
orf19.5616		1,18	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63740, <i>C. parapsilosis</i> CDC317 : CPAR2_503850, <i>Pichia stipitis</i> Pignal : PICST_32045 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_00070
orf19.1720		1,18	1,1	Ortholog(s) have role in mitotic recombination
orf19.1717		1,18	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_81270, <i>C. parapsilosis</i> CDC317 : CPAR2_502880, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_101483 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A11990g
orf19.5777		1,18	1,26	Protein of unknown function; F-12/CO ₂ early biofilm induced
orf19.5783		1,18	1,02	Ortholog(s) have protein-arginine omega-N monomethyltransferase activity and role in peptidyl-arginine methylation
orf19.1968		1,18	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51280, <i>C. parapsilosis</i> CDC317 : CPAR2_501840, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00020 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F24310g
		1,18	1,13	#NV
orf19.5859	<i>DAL8</i>	1,18	1,18	Putative allantoinase permease; fungal-specific (no human or murine homolog)
orf19.5608		1,18	1,21	RNA polymerase III subunit; Spider biofilm induced
orf19.6237	<i>RAC1</i>	1,18	1,15	G-protein of RAC subfamily; required for embedded filamentous growth, not for serum-induced hyphal growth; dynamic localization at plasma membrane and nucleus; similar to, but not interchangeable with, Cdc42p; lacks <i>S. cerevisiae</i> homolog
orf19.6225	<i>PCL7</i>	1,18	1,04	Putative cyclin-like protein; possible Pho85 cyclin; hyphal repressed; induced by Mnf1 under weak acid stress
orf19.3856	<i>CDC28</i>	1,18	1,2	Cyclin-dependent protein kinase; interacts with regulatory subunit Cyb1; determination of cell morphology during the cell cycle; phosphorylated mostly by Swe1 and phosphorylation is regulated by Hsl1; 5'-UTR intron; Spider biofilm repressed
orf19.2132		1,18	1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_65220, <i>C. parapsilosis</i> CDC317 : CPAR2_213740, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_92162 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A01056g
orf19.6175		1,18	1,19	Putative 35S rRNA processing protein; Hap43-induced; repressed by prostaglandins; Spider biofilm induced
orf19.4686		1,18	1,21	Ortholog of <i>S. cerevisiae</i> : YIL151C, <i>C. dubliniensis</i> CD36 : Cd36_41030, <i>C. parapsilosis</i> CDC317 : CPAR2_401340 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104645
orf19.2703		1,18	1,16	Specificity factor required for ubiquitination and sorting of specific cargo proteins at the multivesicular body; ortholog of <i>S. cerevisiae</i> Ear1; transcript regulated by iron; Ssr1-repressed; Spider biofilm induced
orf19.592		1,18	1,08	Ortholog of <i>S. cerevisiae</i> YNL092W and <i>S. pombe</i> SPBC1778.07; a putative N2227-like methyltransferase; Hap43-repressed gene
orf19.916		1,18	1,18	Putative protein involved in apoptosis; Spider biofilm induced
orf19.2975	<i>YPT7</i>	1,18	1,09	Protein of YPT/RAB family; induced during the mating process
orf19.6373	<i>DCP2</i>	1,18	1,18	Ortholog(s) have m7G(5')pppN diphosphatase activity, mRNA binding activity and role in deadenylation-dependent decapping of nuclear-transcribed mRNA, deadenylation-independent decapping of nuclear-transcribed mRNA, stress granule assembly
orf19.75		1,18	1,16	#NV
orf19.2031	<i>VPS24</i>	1,18	1,08	Protein similar to <i>S. cerevisiae</i> Vps24p, which is a member of the ESCRT III protein sorting complex; downregulated upon adherence to polystyrene
orf19.5773		1,18	1,14	Putative dipeptidyl-peptidase III; protein detected by mass spec in exponential and stationary phase cultures; Hog1p-induced; clade-associated gene expression
orf19.4394		1,18	1,07	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.1424		1,18	1,2	Predicted membrane transporter, member of the oxalate-formate antiporter (OFA) family, major facilitator superfamily (MFS)
orf19.1621	<i>GPA2</i>	1,18	1,28	G-protein alpha subunit; regulates filamentous growth, copper resistance; involved in cAMP-mediated glucose signaling; reports differ on role in cAMP-PKA pathway, MAP kinase cascade; Gpr1 C terminus binds Gpa2; regulates HWP1 and ECE1
orf19.3445	<i>HOC1</i>	1,18	1,09	Protein with similarity to mannosyltransferases; similar to <i>S. cerevisiae</i> Hoc1p and <i>C. albicans</i> Och1p
orf19.3666		1,18	1,13	Predicted debranching enzyme-associated ribonuclease; rat catheter biofilm induced
orf19.6637		1,18	1,11	Predicted glycosyl hydrolase; hypoxia induced; flow model biofilm induced
orf19.2771	<i>BEM3</i>	1,18	1,1	Putative GTPase-activating protein (GAP) for Rho-type GTPase Cdc42p; involved in cell signaling pathways that control cell polarity; similar to <i>S. cerevisiae</i> Bem3p
orf19.2945	<i>PUT4</i>	1,18	1,2	Putative prolase permease; fungal-specific (no human or murine homolog); repressed during the mating process
orf19.810		1,18	1,17	Ortholog(s) have DNA helicase activity, role in DNA unwinding involved in replication, reciprocal meiotic recombination, synapsis and nucleus localization
orf19.6244		1,18	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06250, <i>C. parapsilosis</i> CDC317 : CPAR2_206820, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_125137 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G13266g
orf19.6670	<i>CAC2</i>	1,18	1,09	Component of the chromatin assembly factor I (CAF-1); involved in regulation of white-opaque switching frequency; macrophage-induced
orf19.6693		1,18	1,18	Ortholog(s) have cytosol, nucleus localization
orf19.6694		1,18	1,13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73320, <i>C. parapsilosis</i> CDC317 : CPAR2_703860, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114480 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C13794g
orf19.4109	<i>PMT4</i>	1,18	1,15	Protein mannosyltransferase; required for WT cell wall composition and virulence in mice; roles in hyphal growth and drug sensitivity; one of 5 family members; Ax2 a substrate; Spider biofilm repressed; Bcr1-repressed in RPM1 a/a biofilm
orf19.4080		1,18	1,11	Putative ribonuclease H2 subunit; required for RNase H2 activity; repressed in Spider biofilms by Bcr1, Tec1, Brg1, Rob1
orf19.4079	<i>SLP2</i>	1,18	1,18	Protein similar to stomatin mechanoreception protein
orf19.1462	<i>SMP2</i>	1,18	1,16	Putative Mg ²⁺ -dependent phosphatidate phosphatase; transcript regulated by Nrg1
orf19.6871		1,18	1,28	Protein of unknown function; Hap43-induced; flow model biofilm repressed
orf19.6872		1,18	1,11	Putative protein of unknown function; Hap43p-repressed gene
orf19.352		1,18	1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_83550, <i>C. parapsilosis</i> CDC317 : CPAR2_404510, <i>Debaryomyces hansenii</i> CBS767 : DEHA2B13794g and <i>Pichia stipitis</i> Pignal : PICST_30078
orf19.6949		1,18	1,09	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02687
orf19.4837	<i>DAM1</i>	1,18	1,09	Essential subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.2681	<i>RB7</i>	1,18	1,14	Protein with similarity to RNase T2 enzymes; has putative secretion signal; expression is Tup1-repressed
orf19.2063		1,18	1,31	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_213140, <i>C. dubliniensis</i> CD36 : Cd36_15600, <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_01226 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B02442g
orf19.6573	<i>BEM2</i>	1,18	1,13	Putative Rho1p GTPase activating protein (GAP); serum-induced transcript; Spider biofilm induced; flow model biofilm repressed
orf19.5269		1,18	1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11210, <i>C. parapsilosis</i> CDC317 : CPAR2_805180, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116279 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B10714g
orf19.5265	<i>KIP4</i>	1,18	1,09	<i>S. cerevisiae</i> Smy1 ortholog; Trn mutation affects filamentous growth; filament induced; has Mob2-dependent hyphal regulation; regulated by Nrg1, Tup1; oralpharyngeal candidiasis induced; Spider biofilm induced; flow model biofilm repressed
orf19.5263	<i>SER33</i>	1,18	1,1	Predicted enzyme of amino acid biosynthesis; Gcn4p-regulated; upregulated in biofilm; protein present in exponential and stationary growth phase yeast cultures; <i>S. cerevisiae</i> ortholog is Gcn4p regulated
orf19.5254		1,18	1,11	Protein of unknown function; repressed by nitric oxide
orf19.4606	<i>ERG8</i>	1,18	1,16	Putative phosphomevalonate kinase; enzyme of the mevalonate pathway of isoprenoid biosynthesis; transcript regulated by Nrg1; possible drug target; not conserved in <i>H. sapiens</i>
orf19.7016	<i>PHM5</i>	1,18	1,17	Ortholog(s) have endopolyphosphatase activity, exopolyphosphatase activity, role in polyphosphate catabolic process and fungal-type vacuole membrane, nucleus localization
orf19.7036		1,18	1,08	Ortholog(s) have phosphatase activator activity, role in actin filament organization, endocytosis, mitochondrion degradation, regulation of growth, response to heat, response to salt stress and cytosol, nucleus localization
orf19.7243		1,18	1,24	Deoxycytidine monophosphate (dCMP) deaminase; role in dUMP and dTMP biosynthesis; Spider biofilm repressed
orf19.943	<i>FET3</i>	1,18	1,11	Putative multicopper ferro-O ₂ -oxidoreductase; repressed in core caspofungin response; fails to complement <i>S. cerevisiae</i> fet3 iron-related phenotypes; rat catheter and Spider biofilm induced
orf19.948		1,18	1,07	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04435
orf19.956		1,18	1,1	Ortholog(s) have role in fermentation and mitochondrion localization
orf19.3266		1,18	1,24	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25930, <i>C. parapsilosis</i> CDC317 : CPAR2_800910, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_132053 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E17160g
orf19.5364		1,18	1,13	Putative pre-mRNA splicing factor; intron in 5'-UTR; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1209		1,18	1,16	#NV
orf19.7383	<i>MNN9</i>	1,18	1,17	Protein of N-linked outer-chain mannan biosynthesis; mutant has defective cell wall; required for wild-type hyphal growth; mutant is hygromycin B sensitive and vanadate resistant; has N-terminal membrane-spanning segment (positions 18-34)

orf19.5416	<i>ESA1</i>	1.18	1.23	Subunit of the NuA4 histone acetyltransferase complex; member of MYST family; Spider biofilm induced
orf19.2552		1.18	1.13	Protein similar to <i>S. cerevisiae</i> Pmr1p; amphotericin B induced; previously merged with orf19.2553; unmerged from orf19.2553 in a revision of Assembly 21
orf19.7492	<i>SWC4</i>	1.18	1.2	Subunit of the NuA4 histone acetyltransferase complex
orf19.6792	<i>RRD1</i>	1.18	1.21	Putative peptidyl-prolyl cis/trans-isomerase; caspofungin induced
orf19.6783		1.18	1.17	Putative geranylgeranyltransferase regulatory component
orf19.5919	<i>MEA1</i>	1.18	1.17	Protein similar to <i>A. nidulans</i> MeaA, which is involved in localization of actin cables; Hap43p-induced gene
orf19.1440		1.17	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43090, <i>C. parapsilosis</i> CDC317 : CPAR2_403340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94387 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G17622q
orf19.6489	<i>FMP45</i>	1.17	1.16	Predicted membrane protein induced during mating; mutation confers hypersensitivity to toxic ergosterol analog, to amphotericin B; alkaline repressed; repressed by alpha pheromone in SpiderM medium; rat catheter, Spider biofilm induced
orf19.6491		1.17	1.11	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05572
orf19.1346		1.17	1.14	#NV
orf19.140		1.17	1.16	#NV
orf19.141		1.17	1.17	#NV
orf19.4905		1.17	1.08	Putative MFS transporter; Hap43p-induced gene; also regulated by regulated by Sef1p and Sfu1p; repressed in a <i>ssr1</i> null mutant
orf19.4903		1.17	1.13	Ortholog(s) have endoplasmic reticulum localization
orf19.5599	<i>MDL2</i>	1.17	1.06	Putative mitochondrial, half-size MDR-subfamily ABC transporter
orf19.4689	<i>PGA57</i>	1.17	1.09	Putative GPI-anchored protein; Hap43p-induced gene
orf19.3355	<i>ISN1</i>	1.17	1.09	Putative inosine 5'-monophosphate 5'-nucleotidase; fungal-specific (no human or murine homolog)
orf19.1678		1.17	1.2	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.1047	<i>ERB1</i>	1.17	1.08	Protein with a predicted role in ribosomal large subunit biogenesis; mutation confers hypersensitivity to 5-fluorocytosine (5-FU), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); hyphal, macrophage repressed
		1.17	1.09	#NV
orf19.2821		1.17	1.09	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide
orf19.3352		1.17	1.07	Has domain(s) with predicted oxidoreductase activity and role in metabolic process
orf19.806	<i>VMA7</i>	1.17	1.14	Putative subunit of the V-ATPase complex, which is involved in control of vacuolar pH; highly similar to <i>S. cerevisiae</i> Vma7p; interacts with phosphatidylinositol 3-kinase Vps34p
orf19.3782		1.17	1.1	Predicted membrane transporter; member of the peptide-acetyl-coA transporter (PAT) family, major facilitator superfamily (MFS); induced by alpha pheromone in Spider medium
orf19.113	<i>CIP1</i>	1.17	1.09	Possible oxidoreductase; transcript induced by cadmium but not other heavy metals, heat shock, yeast-hypha switch, oxidative stress (via Cap1), or macrophage interaction; stationary phase enriched protein; Spider biofilm induced
orf19.105	<i>HAL22</i>	1.17	1.17	Putative phosphoadenosine-5'-phosphate or 3'-phosphoadenosine 5'-phosphosulfate phosphatase; possible role in sulfur recycling; Hap43-repressed; F-12/CO2 biofilm induced
orf19.3770	<i>ARG8</i>	1.17	1.11	Putative acetylornithine aminotransferase; Gcn2, Gcn4 regulated; rat catheter biofilm induced; Spider biofilm induced
orf19.123	<i>RCN1</i>	1.17	1.12	Protein involved in calcineurin-dependent signaling that controls stress response and virulence; inhibits calcineurin function
orf19.20	<i>RTS1</i>	1.17	1.07	Putative serine/threonine-protein phosphatase B-type regulatory subunit; transcription is regulated upon yeast-hyphal switch
orf19.22		1.17	1.08	Protein with homology to peroxisomal membrane proteins; Sef1p-, Sfu1p-, and Hap43p-regulated gene
orf19.720	<i>GST3</i>	1.17	1.2	Glutathione S-transferase; expression regulated upon white-opaque switch; induced by human neutrophils; peroxide-induced; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.3629	<i>DSE1</i>	1.17	1.09	Essential cell wall protein involved in cell wall integrity and rigidity; periodic mRNA expression peaks at M/G1 phase; Ace2p-induced; required for virulence in a mouse model of infection
orf19.4428		1.17	1.08	Protein of unknown function; mutants are viable
orf19.1768		1.17	1.11	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_407480, <i>C. dubliniensis</i> CD36 : Cd36_24170, <i>Candida orthopsilosis</i> Co 90-125 : COURT_0C06830 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_65786
orf19.3384		1.17	1.12	#NV
orf19.4887	<i>ECM21</i>	1.17	1.14	Predicted regulator of endocytosis of plasma membrane proteins; fluconazole induced, alkaline induced by Rim101; repressed by caspofungin and in azole-resistant strain overexpressing MDR1; flow model, rat catheter and Spider biofilm induced
orf19.4470		1.17	1.13	Protein of unknown function; Hap43-repressed gene
orf19.6499		1.17	1.14	Predicted DNA-directed RNA polymerase; role in transcription; Spider biofilm induced
orf19.5047		1.17	1.13	#NV
orf19.2443	<i>RGD1</i>	1.17	1.11	GTPase activator protein; transcript induced in low iron; alkaline upregulated; localized to the bud emergence area in G1 phase and in the bud tip during S and G2 phases
orf19.758		1.17	1.2	Ortholog(s) have signal sequence binding activity, role in vacuolar transport and late endosome localization
orf19.687		1.17	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_62090, <i>C. parapsilosis</i> CDC317 : CPAR2_602150, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112751 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F11814q
orf19.6484		1.17	1.04	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_808370, <i>C. dubliniensis</i> CD36 : Cd36_72070, <i>Candida orthopsilosis</i> Co 90-125 : COURT_0C00800 and <i>Candida albicans</i> WO-1 : CAWG_05577
		1.17	1.15	#NV
orf19.2513		1.17	1.11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_81010, <i>C. parapsilosis</i> CDC317 : CPAR2_103060, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_127339 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G01936q
orf19.1513	<i>FAB1</i>	1.17	1.09	Phosphatidylinositol 3-phosphate 5-kinase; required for hyphal growth on solid media, and for wild-type vacuolar morphology and acidification; not required for wild-type virulence in mouse systemic infection or for adherence to HeLa cells
orf19.4754	<i>ZWF1</i>	1.17	1.19	Glucose-6-phosphate dehydrogenase; antigenic in mice; activity induced by O2 or oxidizing agents H2O2, menadione, macrophage; caspofungin repressed; induced in core stress response; regulated by Gcn2, Gcn4; rat catheter biofilm repressed
orf19.713		1.17	1.12	Ortholog(s) have role in apoptotic process and cytoplasm, nucleus localization
orf19.2352		1.17	1.13	Ortholog(s) have mitochondrial localization
orf19.2350		1.17	1.12	Protein similar to <i>S. cerevisiae</i> Yor378w; MFS family transporter; transposon mutation affects filamentous growth; null mutants are viable; fungal-specific (no human or murine homolog)
orf19.2202		1.17	1.34	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.5679		1.17	1.13	#NV
orf19.5710		1.17	1.13	Nucleoporin component of central core of the nuclear pore complex; mRNA binds She3
orf19.1725		1.17	1.13	Putative adhesin-like protein
orf19.207	<i>PGA55</i>	1.17	1.3	GPI-anchored adhesin-like protein; filament induced; regulated by Nrg1, Tup1; regulated upon hyphal formation; mRNA binds to She3 and is localized to yeast-form buds and hyphal tips; induced during chlamydsposore formation
		1.17	1.22	#NV
orf19.3007		1.17	1.17	Ortholog(s) have role in endosome organization, regulation of protein localization and BLOC-1 complex localization
orf19.6194		1.17	1.25	Protein of unknown function; mutants are viable
orf19.2704		1.17	1.09	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03507
orf19.4152	<i>CEF3</i>	1.17	1.04	Translation elongation factor 3; antigenic in humans; predicted C-term nucleotide-binding active site; protein on surface of yeast, not hyphae; polystyrene adherence induced; higher protein amount in stationary phase; possibly essential
orf19.6336	<i>PGA25</i>	1.17	1.16	Putative GPI-anchored adhesin-like protein; fluconazole-downregulated; induced in oropharyngeal candidiasis; Spider biofilm induced
orf19.2332		1.17	1.12	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_210560, <i>C. dubliniensis</i> CD36 : Cd36_10180, <i>Candida orthopsilosis</i> Co 90-125 : COURT_0A09890 and <i>Candida tropicalis</i> MYA-3404 : CTRG_04072
orf19.1844		1.17	1.07	Protein similar to ferric reductase Fre10p
orf19.6151	<i>ARC15</i>	1.17	1.38	Putative ARP2/3 complex subunit; mutation confers hypersensitivity to cytochalasin D
orf19.581		1.17	1.05	Putative RNA-binding protein; transcript is upregulated in an RHE model of oral candidiasis
orf19.6342		1.17	1.15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11980, <i>C. parapsilosis</i> CDC317 : CPAR2_201330, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114815 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G10032q
orf19.981		1.17	1.11	#NV
orf19.6465		1.17	1.16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_83910, <i>Candida tropicalis</i> MYA-3404 : CTRG_05087 and <i>Candida albicans</i> WO-1 : CAWG_00654
orf19.6266		1.17	1.19	Protein of unknown function; Spider biofilm induced
orf19.4175	<i>TOK1</i>	1.17	1.04	Outwardly rectifying, noisily gated potassium channel; modulates sensitivity to human salivary histatin (Hst5); very similar to <i>S. cerevisiae</i> Tok1p, Bcr1-repressed in RPM1 a/a biofilms
orf19.6109	<i>TUP1</i>	1.17	-1.06	Transcriptional corepressor; represses filamentous growth; regulates switching; role in germ tube induction, farnesol response; in repression pathways with Nrg1, Rfg1; farnesol upregulated in biofilm; rat catheter, Spider biofilm repressed
orf19.1429	<i>SOH1</i>	1.17	1.15	Subunit of the RNA polymerase II mediator complex; involved in control of cytokinesis, morphogenesis, biofilm formation, virulence; cell-cycle regulated periodic mRNA expression
orf19.3440	<i>FRP5</i>	1.17	1.2	Protein with a GPR1/FUN34/vaaH family domain; flucytosine repressed

orf19.999	GCA2	1,17	1,12	Predicted extracellular glucoamylase; induced by ketoconazole; possibly essential, disruptants not obtained by UAU1 method; promotes biofilm matrix formation; Spider biofilm induced; Bcr1-induced in RPM1 a/a biofilms
orf19.443		1,17	1,16	Ortholog(s) have DNA-directed RNA polymerase activity, RNA polymerase III activity and role in tRNA transcription from RNA polymerase III promoter, transcription initiation from RNA polymerase III promoter
orf19.6626		1,17	1,13	Predicted homeodomain-containing protein; possible transcription factor; possibly transcriptionally regulated upon hyphal formation
orf19.4244		1,17	1,13	Protein of unknown function; mutants are viable
orf19.4536	CYS4	1,17	1,3	Cystathionine beta-synthase; sulfur amino acid biosynthesis; antigenic in mouse; flow model biofilm induced; alkaline induced; macrophage/pseudohyphal-induced; present in exponential and stationary growth phase yeast cultures
orf19.4105		1,17	1,24	Ortholog(s) have role in DNA repair, DNA replication checkpoint, establishment of mitotic sister chromatid cohesion, maintenance of DNA repeat elements, meiotic chromosome segregation, replication fork arrest, replication fork protection
orf19.491		1,17	1,11	Endoplasmic reticulum (ER) protein-translocation complex subunit
orf19.6868		1,17	1,17	Putative NADPH-dependent methylglyoxal reductase; homozygous transposon insertion causes decreased colony wrinkling under filamentous growth-inducing conditions, but does not block true hyphal formation in liquid media
orf19.6875	VPS35	1,17	-1,01	Putative role in vacuolar sorting; downregulated in biofilm; induced upon adherence to polystyrene
orf19.6915	MRE11	1,17	1,26	Putative DNA double-strand break repair factor; involved in response to oxidative stress and drug resistance
orf19.5520	ASG7	1,17	1,12	a-cell specific protein of unknown function; two predicted transmembrane domains; member of conserved Mcm1 regulon; induced by alpha pheromone in SpiderM medium
orf19.6530		1,17	1,14	Similar to bacterial DnaJ; transcript upregulated in low iron; flow model biofilm induced; Spider biofilm induced
orf19.5256		1,17	1,05	Protein of unknown function; Hap43-repressed gene; induced by alpha pheromone in SpiderM medium
orf19.6994	BAT22	1,17	1,17	Putative branched chain amino acid aminotransferase; regulated by Gcn4p; induced by farnesol treatment, GlcNAc, amino acid starvation (3-aminotriazole treatment); present in exponential and stationary growth phase yeast cultures
orf19.3016		1,17	1,11	Ortholog(s) have role in meiotic chromosome segregation and cytosol, nucleus localization
orf19.6424		1,17	1,2	Ortholog(s) have SUMO ligase activity and role in cell cycle checkpoint, mitotic spindle elongation, protein sumoylation, regulation of mitotic cell cycle, response to DNA damage stimulus
orf19.6420	PGA13	1,17	1,15	GP1-anchored cell wall protein involved in cell wall synthesis; required for normal cell surface properties; induced in oralopharyngeal candidiasis; Spider biofilm induced; Bcr1-repressed in RPM1 a/a biofilms
orf19.7212		1,17	1,15	Phosphorylated protein; homozygous transposon insertion causes decreased colony wrinkling in filamentous growth-inducing conditions, but does not block hyphal formation in liquid media; Hap43-repressed
orf19.7271		1,17	1,1	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.7275	FGR24	1,17	1,06	Protein encoded in retrotransposon Zorro2 with similarity to retroviral endonuclease-reverse transcriptase proteins; lacks an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.3241		1,17	1,12	Ortholog(s) have Seh1-associated complex, extrinsic to fungal-type vacuolar membrane localization
orf19.3248		1,17	1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26070, <i>C. parapsilosis</i> CDC317 : CPAR2_803220, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_131795 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E12694g
orf19.5311		1,17	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43850, <i>C. parapsilosis</i> CDC317 : CPAR2_402060, <i>Pichia stiptis</i> Pignal : PICST_68242, <i>Candida tropicalis</i> MYA-3404 : CTRG_00303 and <i>Candida albicans</i> WO-1 : CAWG_03390
orf19.7335	PRE8	1,17	1,12	Putative alpha-2_sc subunit of proteasome; macrophage-induced protein; regulated by Gcn2p and Gcn4p; transcription is positively regulated by Tbf1p; stationary phase enriched protein
orf19.7356		1,17	1,2	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_807080, <i>C. dubliniensis</i> CD36 : Cd36_85690, <i>Candida orthopsilosis</i> Co 90-125 : CORT_0C02090 and <i>Candida albicans</i> WO-1 : CAWG_02885
orf19.5388	SWD1	1,17	1,21	Ortholog(s) have histone methyltransferase activity (H3-K4 specific) activity, role in chromatin silencing at telomere, histone H3-K4 methylation, telomere maintenance and Set1C/COMPASS complex, cytosol localization
orf19.5465		1,17	1,22	Ortholog(s) have first spliceosomal transesterification activity, role in generation of catalytic spliceosome for first transesterification step and U2-type catalytic step 1 spliceosome, mitotic spindle pole body localization
orf19.7500	PXA1	1,17	1,07	Putative peroxisomal, half-size adrenoleukodystrophy protein (ALD or ALDP) subfamily ABC family transporter
orf19.6756		1,17	1,17	Ortholog(s) have Rab GTPase binding activity and Golgi apparatus, endoplasmic reticulum localization
orf19.7599	UTP5	1,17	1,3	Putative U3 snoRNA-associated protein; Hap43p-induced gene; mutation confers resistance to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); physically interacts with TAP-tagged Nop1p
orf19.7642		1,17	1,14	Ortholog of <i>S. cerevisiae</i> Vps3; CORVET tethering complex component involved in vacuolar protein sorting; Hap43-repressed gene
orf19.5897		1,17	1,11	Ortholog(s) have Seh1-associated complex, cytosol, extrinsic to fungal-type vacuolar membrane localization
orf19.5892		1,17	1,13	Ortholog of <i>S. cerevisiae</i> Hul4; similar to hect domain E3 ubiquitin-protein ligases; Hap43-repressed gene
orf19.849		1,16	1,1	#NV
orf19.1786		1,16	1,11	Ortholog(s) have role in protein N-linked glycosylation, protein O-linked glycosylation, response to stress
orf19.1818		1,16	1,11	#NV
orf19.1123		1,16	1,03	#NV
orf19.920	RMT2	1,16	1,09	Dubious open reading frame
orf19.3561	CDC7	1,16	1,13	Minor protein arginine methyltransferases (PRMT) involved in methylation of arginine residues
orf19.6398		1,16	1,09	Putative kinase; cell-cycle regulated periodic mRNA expression; <i>S. cerevisiae</i> ortholog is not cell-cycle regulated; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3210		1,16	1,11	<i>S. pombe</i> ortholog SPBC460.04c is a predicted sulfonate/alpha-ketoglutarate dioxygenase; induced by nitric oxide; Spider biofilm induced
orf19.9		1,16	1,1	Predicted protein of unknown function; Plc1-regulated
orf19.709	PUP2	1,16	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32700, <i>C. parapsilosis</i> CDC317 : CPAR2_204280, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113831 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E03916g
orf19.5056		1,16	1,25	Alpha5 subunit of the 20S proteasome; macrophage/pseudohyphal-repressed; regulated by Gcn2p and Gcn4p; protein present in exponential and stationary growth phase yeast cultures
orf19.4972		1,16	1,13	Ortholog(s) have enzyme regulator activity, mitotic anaphase-promoting complex activity
orf19.3520		1,16	1,36	Putative transcription factor with zinc finger DNA-binding motif
orf19.4464	SEN15	1,16	1,13	#NV
		1,16	1,16	Similar to delta subunit of tRNA splicing endonuclease; increased transcription is observed upon fluphenazine treatment
		1,16	1,16	#NV
orf19.3945		1,16	1,09	Predicted COP9 signalosome complex subunit 12; flow model biofilm induced
orf19.4948	REX3	1,16	1,13	Ortholog(s) have 3'-5'-exoribonuclease activity and role in U5 snRNA 3'-end processing, exonucleolytic trimming to generate mature 3'-end of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA)
orf19.3168	RPN9	1,16	1,09	Putative regulatory subunit of the 26S proteasome; mutation confers hypersensitivity to amphoterin B; regulated by Mig1, Gcn2 and Gcn4; Spider biofilm repressed
orf19.1246		1,16	1,06	Putative eisosome component role in proper eisosome assembly; upregulated in <i>cyr1</i> null mutant
orf19.239		1,16	1,09	Putative ATP-dependent helicase; induced by nitric oxide
orf19.2715	RPC53	1,16	1,09	Ortholog(s) have RNA polymerase III activity, role in tRNA transcription from RNA polymerase III promoter and DNA-directed RNA polymerase III complex localization
orf19.2711		1,16	1,12	Similar to <i>S. cerevisiae</i> Elp2, an Elongator complex subunit required for modification of wobble nucleosides in tRNA; repressed in core stress response
orf19.3638	PGA46	1,16	1,11	Putative GPI-anchored protein; secreted; fluconazole-induced
orf19.1201		1,16	1,05	Ortholog(s) have serine-IRNA ligase activity, role in invasive growth in response to glucose limitation, mitochondrial seryl-tRNA aminoacylation, pseudohyphal growth and mitochondrial localization
orf19.1221	ALG2	1,16	1,14	Putative mannosyltransferase involved in cell wall mannan biosynthesis; transcription is elevated in <i>chk1</i> , <i>nik1</i> , and <i>sln1</i> homozygous null mutants
orf19.450		1,16	1,05	Protein of unknown function
orf19.4560	BFR1	1,16	1,06	Protein involved in the maintenance of normal ploidy; <i>S. cerevisiae</i> ortholog confers Brefeldin A resistance; stationary phase enriched protein; Spider biofilm repressed
orf19.1035	WAR1	1,16	1,07	Zn(II)Cys6 transcription factor; plays a role in resistance to weak organic acids; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.2859	SRP40	1,16	1,18	Putative chaperone of small nucleolar ribonucleoprotein particles; macrophage/pseudohyphal-induced; rat catheter biofilm induced
orf19.6493		1,16	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_72020 and <i>Candida albicans</i> WO-1 : CAWG_06570
orf19.5053		1,16	1,08	Ortholog(s) have acetyltransferase activity, chromatin binding activity
orf19.138	FIG1	1,16	1,17	<i>S. cerevisiae</i> Fig1 ortholog; an integral membrane protein required for mating; role in thigmotropism; transcript is opaque-specific and a-specific; activated by Cph1 or alpha pheromone
orf19.4269		1,16	1,24	Has domain(s) with predicted ATP binding, protein kinase activity, transferase activity, transferring phosphorus-containing groups activity and role in protein phosphorylation
orf19.4265	UAP1	1,16	1,15	UDP-N-acetylglucosamine pyrophosphorylase, catalyzes biosynthesis of UDP-N-acetylglucosamine from UTP and N-acetylglucosamine 1-phosphate; functional homolog of <i>S. cerevisiae</i> Qri1p; alkaline upregulated
orf19.2458	SIP5	1,16	1,16	Protein of unknown function; flow model, rat catheter and Spider biofilm induced
orf19.2791	BBC1	1,16	1,11	Putative SH3-domain-containing protein
orf19.756	SAP7	1,16	1,06	Pepstatin A-insensitive secreted aspartyl protease; self-processing; expressed in human oral infection; Ssn6p-regulated; role in murine intravenous infection; induced during, but not required for, murine vaginal infection; N-glycosylated
orf19.3466		1,16	1,09	Predicted methyltransferase; downregulated by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2

orf19.2384	MTG1	1.16	1.25	Putative mitochondrial GTPase; likely essential for respiratory competence and in large ribosomal subunit assembly; mitochondrial translation; Spider biofilm induced
orf19.5214	VPS33	1.16	1.24	Ortholog(s) have ATP binding, phosphatidylinositol binding activity
orf19.2508	PRM9	1.16	1.08	Protein described a similar to <i>S. cerevisiae</i> Prm9; not the ortholog though; mutant is viable
orf19.5100	MLT1	1.16	1.09	Vacuolar membrane transporter; MRP subfamily of ABC family; may transport organic anions conjugated to glutathione, glucuronate, or sulfate; needed for virulence in mouse peritonitis; Spider biofilm induced; flow model biofilm repressed
orf19.4672		1.16	1.13	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03665
orf19.2363		1.16	1.4	Ortholog(s) have thiosulfate sulfurtransferase activity and mitochondrion localization
orf19.1759	PHO23	1.16	1.16	Ortholog(s) have methylated histone residue binding activity
orf19.2223		1.16	1.12	#NV
orf19.3544		1.16	1.19	Putative protein of unknown function; Hap43p-repressed gene
orf19.4481	MFALPHA	1.16	1.11	Alpha factor mating pheromone precursor; three copies of pheromone that are proteolytically processed by Kex2p and possibly by Orf19.5851p; required for alpha cells to mate; expressed specifically in opaque phase MTLalpha/MTLalpha cells
orf19.3401	CTA1	1.16	1.06	Protein similar to <i>S. cerevisiae</i> Mos10p, which affects <i>S. cerevisiae</i> filamentous growth; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i> ; protein levels increase under weak acid stress; nonessential
orf19.5503		1.16	1.16	Putative protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.3748		1.16	1.21	Protein of unknown function; orf19.3747 and orf19.3748 are short, overlapping ORFs in intergenic region between 2 oligopeptide transporter-encoding genes; flow model biofilm induced
orf19.3552		1.16	1.15	Ortholog(s) have structural constituent of nuclear pore activity
orf19.5499		1.16	1.16	Has domain(s) with predicted 4-hydroxyphenylpyruvate dioxygenase activity and role in aromatic amino acid family metabolic process, oxidation-reduction process
orf19.3342		1.16	1.51	Ortholog(s) have role in protein deubiquitination and cytoplasm, nucleus localization
orf19.280		1.16	1.1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_82875 and <i>Candida albicans</i> WO-1 : CAWG_02609
orf19.604		1.16	1.35	Ortholog(s) have cytosol localization
orf19.4786	FGR43	1.16	1.1	Protein lacking an <i>S. cerevisiae</i> ortholog; transposon mutation affects filamentous growth; induced by Mnl1 under weak acid stress
orf19.5851	STE13	1.16	1.29	Putative pheromone-processing dipeptidyl aminopeptidase; possible Kex2 substrate; transposon mutation affects filamentous growth; induced by low nitrogen, germ tube formation; flow model biofilm repressed
orf19.9		1.16	1.13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32700, <i>C. parapsilosis</i> CDC317 : CPAR2_204280, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113831 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E03916g
orf19.6227		1.16	1.12	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06390, <i>C. parapsilosis</i> CDC317 : CPAR2_209040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114052 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D14300g
orf19.4283		1.16	1.09	Ortholog(s) have role in translational initiation and cytosol, eukaryotic 43S preinitiation complex, eukaryotic translation initiation factor 3 complex, eIF3e, eukaryotic translation initiation factor 3 complex, eIF3m, nucleus localization
orf19.4136	YBL053	1.16	1.15	Ortholog(s) have protein heterodimerization activity
orf19.3003		1.16	1.14	Putative lipid-binding protein with a predicted role in calcium-dependent phospholipid-binding
orf19.3708	SAP2	1.16	1.16	Major secreted aspartyl proteinase; utilization of protein as nitrogen source; role in virulence complicated by URA3 effects; immunoprotective; regulated by growth, albumin, drugs, white cell-type; flow model biofilm induced
orf19.6205		1.16	1.06	#NV
orf19.6205		1.16	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06550, <i>C. parapsilosis</i> CDC317 : CPAR2_209030, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_111035 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F25300g
orf19.2691		1.16	1.24	Planktonic growth-induced gene
orf19.2674		1.16	1.19	Putative transcription factor with zinc finger DNA-binding motif; Hap43p-repressed gene
orf19.2319		1.16	1.2	Putative nucleolar protein with a predicted role in pre-rRNA processing; Hap43-induced gene; repressed in core stress response
orf19.1948		1.16	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51110, <i>C. parapsilosis</i> CDC317 : CPAR2_302560, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135271 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E12914g
orf19.598		1.16	1.07	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02092
orf19.593	FGR32	1.16	1.1	Protein similar to <i>S. cerevisiae</i> Swa2p; induced upon adherence to polystyrene; transposon mutation affects filamentous growth; Hap43p-repressed gene
orf19.1667		1.16	1.25	Protein with a predicted SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily domain; Hap43-repressed gene
orf19.2251	AAH1	1.16	1.13	Adenine deaminase; purine salvage and nitrogen catabolism; colony morphology-related regulation by Ssn6; Hog1, CO2-induced; chlamydospore formation repressed in <i>C. albicans</i> and <i>C. dubliniensis</i> ; rat catheter and F-12/CO2 biofilm induced
orf19.723	BCR1	1.16	1.1	Transcription factor; regulates a/alpha biofilm formation, matrix, cell-surface-associated genes; confers adherence, impermeability, impenetrability, fluconazole resistance; Tup1/Tec1/Mnl1-regulated; mRNA binds She3; Spider biofilm induced
orf19.4164		1.16	1.15	Ortholog(s) have mitochondrion, ribosome localization
orf19.1018		1.16	1.09	#NV
orf19.6100		1.16	1.15	Cardiolipin synthase; ortholog of <i>S. cerevisiae</i> Crd1 ; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; mutants are viable; Spider biofilm repressed
orf19.386	SAM4	1.16	1.22	Putative S-adenosylmethionine-homocysteine methyltransferase; Hap43-repressed; alkaline induced; Spider biofilm repressed
orf19.1547		1.16	1.07	Ortholog(s) have double-stranded DNA binding, polynucleotide 3'-phosphatase activity and role in double-strand break repair
orf19.1557		1.16	1.11	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, role in protein methylation and cytosol, nucleus localization
orf19.1022		1.16	1.11	#NV
orf19.423		1.16	1.11	Ortholog(s) have enzyme activator activity, m7G(5')pppN diphosphatase activity, mRNA binding activity, role in deadenylation-dependent decapping of nuclear-transcribed mRNA and cytoplasmic mRNA processing body localization
orf19.670	SMT3	1.16	1.22	SUMO, small ubiquitin-like protein; Smt3p-conjugated proteins localize to septation site and mother side of bud neck; <i>C. albicans</i> septins appear not to be Smt3p-modified, in contrast to <i>S. cerevisiae</i> septins
orf19.4545	SWI4	1.16	1.08	Putative component of the SBF transcription complex involved in G1/S cell-cycle progression; periodic mRNA expression, peak at cell-cycle G1/S phase; predicted, conserved MBF binding sites upstream of G1/S-regulated genes
orf19.6656	DUR3	1.16	1.08	Spermidine transporter; induced in strains from HIV patients with oral candidiasis; alkaline repressed; amphotericin B induced; colony morphology regulated by Ssn6; reduced oral epithelial cell damage by mutant; Spider biofilm induced
orf19.6683		1.16	1.27	#NV
orf19.6716	ABD1	1.16	1.34	SAM-dependent RNA methyltransferase; methylates mRNA 5' cap; binds phosphorylated RNA Pol II C-term domain peptide; does not bind mRNA TPase and mRNA GTase (Cet1, Cgt1); functional homolog of <i>S. cerevisiae</i> Abd1; rat catheter biofilm induced
orf19.6722		1.16	1.28	Protein similar to <i>S. cerevisiae</i> Rad4p; down-regulation associated with azole resistance
orf19.3109		1.16	1.1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_46470, <i>C. parapsilosis</i> CDC317 : CPAR2_500900, <i>Debaryomyces hansenii</i> CBS767 : DEHA2B15730g and <i>Candida tropicalis</i> MYA-3404 : CTRG_03755
orf19.6840		1.16	1.04	Protein of unknown function; transcript detected in high-resolution tiling arrays; transcription induced by alpha pheromone in SpiderM medium; Spider and early-stage flow model biofilm induced
orf19.1897		1.16	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21640, <i>C. parapsilosis</i> CDC317 : CPAR2_105040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112352 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C08008g
orf19.6885	SPO7	1.16	1.26	Putative regulatory subunit of Nem1-Spo7 phosphatase holoenzyme that regulates nuclear growth by controlling phospholipid biosynthesis; induced by alpha pheromone in SpiderM medium
orf19.3317	MED22	1.16	1.14	RNA polymerase II mediator complex subunit
orf19.6953	IRS4	1.16	1.12	Protein with roles in cell wall integrity, systemic (but not oral) murine infection, adherence, hyphal growth, and agar-embedded filamentous growth; antioleic in human infection; similar to <i>S. cerevisiae</i> Irs4p
orf19.4013		1.16	1.1	Putative protein of unknown function; Hap43p-repressed gene; <i>S. cerevisiae</i> ortholog YHR045W localizes to the endoplasmic reticulum
orf19.3831		1.16	1.12	Ortholog(s) have telomerase inhibitor activity, role in box C/D snoRNA 3'-end processing, negative regulation of telomere maintenance via telomerase and nucleolus, nucleoplasm localization
orf19.6060	GCN20	1.16	1.11	YEF3-subfamily ABC family protein, predicted not to be a transporter
orf19.6534		1.16	1.34	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05537
orf19.6503		1.16	1.05	Ortholog(s) have structural constituent of ribosome activity, role in mitochondrial translation and mitochondrial large ribosomal subunit localization
orf19.5251	ZCF30	1.16	1.2	Predicted Zn(II)2Cys6 transcription factor; mutants are viable; repressed by fluphenazine; Spider biofilm induced
orf19.4585	TFG1	1.16	1.08	Protein similar to <i>S. cerevisiae</i> Tfg1p, which is part of transcription factor TFIIF; transposon mutation affects filamentous growth; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4612		1.16	1.05	Protein with a diene lactone hydrolase domain; Hap43-repressed gene
orf19.7005		1.16	1.25	#NV
orf19.7206	OCA6	1.16	1.18	Putative protein phosphatase of the PTP family (tyrosine-specific), similar to <i>S. cerevisiae</i> Oca6p; mutant shows virulence defect
orf19.7209		1.16	1.14	Putative Rho GDP dissociation inhibitor; induced by nitric oxide independent of Yhb1p

orf19.940	<i>BUD2</i>	1.16	1.09	GTPase activating protein (GAP) for Rsr1; negative regulator of filament branching, acts in hyphal growth guidance; required for wild-type budding pattern; induced in low iron; regulated by tyrosol and cell density
orf19.7329		1.16	1.08	Ortholog(s) have ubiquitin-protein ligase activity
orf19.7051		1.16	1.25	Maf-like protein; rat catheter biofilm induced
orf19.7359	<i>CRZ1</i>	1.16	1.17	Calcineurin-regulated C2H2 transcription factor; role in maintenance of membrane integrity, azole tolerance; not required for mouse virulence; repressed by low iron; regulates Ca++ influx during alkaline pH response; Spider biofilm induced
orf19.7406		1.16	1.16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86220, <i>C. parapsilosis</i> CDC317 : CPAR2_404490, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94473 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C10560g
orf19.5422		1.16	1.14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_80400, <i>Candida tropicalis</i> MYA-3404 : CTRG_06188 and <i>Candida albicans</i> WO-1 : CAWG_02379
orf19.7542		1.16	1.1	#NV
orf19.4750		1.16	1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_08410, <i>C. parapsilosis</i> CDC317 : CPAR2_301700, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00267 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C10560g
orf19.6827	<i>SLU7</i>	1.16	1.21	Protein similar to <i>S. cerevisiae</i> RNA splicing factor, Slu7; induced by alpha pheromone in SpiderM medium
orf19.7563	<i>BET2</i>	1.16	1.05	Putative Type II geranylgeranyltransferase beta subunit; transcript regulated by Mig1
orf19.5968	<i>RDI1</i>	1.16	1.15	Putative rho GDP dissociation inhibitor; transposon mutation affects filamentous growth; farnesol, filament-induced; regulated by Nrg1, Tup1; protein levels low in stationary phase yeast
orf19.187		1.16	1.19	#NV
		1.16	1.06	#NV
		1.16	1.24	#NV
orf19.3168	<i>RPN8</i>	1.15	1.04	Putative regulatory subunit of the 26S proteasome; mutation confers hypersensitivity to amphotericin B; regulated by Mig1, Gcn2 and Gcn4; Spider biofilm repressed
orf19.5757		1.15	1.09	Ortholog(s) have cytoplasm, nucleus localization
orf19.74	<i>SEC5</i>	1.15	1.1	Predicted exocyst component; ortholog of <i>S. cerevisiae</i> Sec5p; merged with orf19.75 in Assembly 21
orf19.2518		1.15	1.2	Ortholog(s) have ATPase activator activity, soluble NSF attachment protein activity
orf19.120		1.15	1.17	Has domain(s) with predicted protein C-terminal S-isoprenylcysteine carboxyl O-methyltransferase activity, role in C-terminal protein methylation and integral to membrane localization
orf19.2867		1.15	1.08	Ortholog(s) have phosphatidylinositol-3-phosphate binding, protein transporter activity and role in ascospore formation, intracellular protein transport, protein retention in Golgi apparatus, retrograde transport, endosome to Golgi
orf19.4972		1.15	1.06	Putative transcription factor with zinc finger DNA-binding motif
orf19.3071	<i>MIH1</i>	1.15	1.06	Putative protein phosphatase of the PTP family (tyrosine-specific); ortholog of <i>S. cerevisiae</i> Mih1; mRNA binds She3
orf19.1600		1.15	1.17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23530, <i>C. parapsilosis</i> CDC317 : CPAR2_406140, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116829 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B01826g
orf19.6400		1.15	1.12	Ortholog(s) have role in inositol metabolic process and cytosol, nuclear envelope localization
		1.15	1.09	#NV
orf19.1611		1.15	1.19	Protein of unknown function; Spider biofilm induced
orf19.3512	<i>CSP1</i>	1.15	1.09	Putative cell wall associated protein; gene only found in <i>C. albicans</i> and <i>C. dubliniensis</i> ; highly upregulated during chlamydospore development in both species; localized to chlamydospore cell wall
orf19.1080		1.15	1.16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_64900, <i>C. parapsilosis</i> CDC317 : CPAR2_600390, <i>Pichia stipitis</i> Pignal : PICST_30726 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_04023
orf19.4733	<i>YMC2</i>	1.15	1.16	Putative mitochondrial carrier protein; Gcn4-regulated; F-12/CO2 early biofilm induced; Spider biofilm induced
orf19.5539		1.15	1.12	Ortholog(s) have role in retrograde vesicle-mediated transport, Golgi to ER and SNARE complex, integral to cytosolic side of endoplasmic reticulum membrane localization
orf19.1039	<i>BET4</i>	1.15	1.1	Ortholog(s) have Rab geranylgeranyltransferase activity and role in ER to Golgi vesicle-mediated transport, protein geranylgeranylation, protein targeting to membrane
orf19.4568	<i>ZCF25</i>	1.15	1.13	Putative Zn(III)Cys6 transcription factor
orf19.3781		1.15	1.17	Protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.4160		1.15	1.07	Ortholog(s) have serine-type endopeptidase activity, role in glycoprotein metabolic process, mitochondrial tRNA threonylcarbamoyladenosine modification and mitochondrion localization
orf19.4161		1.15	1.14	Ortholog(s) have role in DNA repair and Smc5-Smc6 complex, nucleus localization
orf19.242	<i>SAP8</i>	1.15	1.15	Secreted aspartyl protease; regulated by growth phase, temperature, white-opaque switch; highly expressed in opaque cells and upon deep epidermal invasion; greater expression in vaginal than oral infection; prominent role in biofilms
orf19.2710		1.15	1.12	Ortholog(s) have enzyme activator activity, role in chromosome segregation and cytoplasm, nucleus localization
orf19.4192	<i>CDC14</i>	1.15	1.2	Protein involved in exit from mitosis and morphogenesis; ortholog of <i>S. cerevisiae</i> Cdc14p, which is a dual-specificity phosphatase and cell-cycle regulator; suppresses <i>S. cerevisiae</i> cdc15-1y1, dbf2-2, and (partially) tem1 mutant phenotypes
orf19.3228		1.15	1.12	Putative endosomal transmembrane protein; Hap43p-induced; mutation confers hypersensitivity to amphotericin B
orf19.4801		1.15	1.16	Ortholog(s) have tRNA dimethylallyltransferase activity, role in tRNA modification and cytosol, mitochondrion, nucleolus localization
orf19.1711	<i>END3</i>	1.15	1.07	Regulated by Gcn4p; induced in response to amino acid starvation (3-aminotriazole treatment)
orf19.270		1.15	1.1	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_102150, <i>C. dubliniensis</i> CD36 : Cd36_82780, <i>Pichia stipitis</i> Pignal : psti_CGOB_00155 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0B03450
orf19.4072	<i>IFF6</i>	1.15	1.09	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.4324		1.15	1.14	Has domain(s) with predicted NADH dehydrogenase (ubiquinone) activity, electron carrier activity and membrane localization
orf19.2455		1.15	1.29	Ortholog(s) have gamma-glutamyltransferase activity, omega peptidase activity, role in glutathione catabolic process and cytoplasm, nucleus localization
orf19.3659		1.15	1.06	Putative CTD phosphatase; role in dephosphorylation of RNA polymerase II C-terminal domain, transcription from RNA polymerase II promoter; flow model biofilm induced
orf19.5046	<i>RAM1</i>	1.15	1.08	Protein that acts in prenylation; transcription is alpha-factor induced; regulated in response to lovastatin and fluconazole; Hap43p-repressed gene
orf19.1514		1.15	-1.07	Ortholog(s) have enzyme binding, phosphatidylinositol-4-phosphate binding activity and role in endoplasmic reticulum unfolded protein response, protein localization to Golgi apparatus, retrograde vesicle-mediated transport, Golgi to ER
orf19.1957	<i>CYC3</i>	1.15	1.12	Mitochondrial cytochrome c heme lyase; antigenic cell-wall protein; filament induced; induced on polystyrene adherence, interaction with macrophage; N-glycosylation, 2 heme-binding motifs; rat catheter, Spider biofilm induced
orf19.1824	<i>PGA50</i>	1.15	1.16	Putative GPI-anchored protein; adhesin-like protein
orf19.5210		1.15	1.15	Putative Xbp1 transcriptional repressor; binds to cyclin gene promoters in <i>S. cerevisiae</i> ; Hap43-repressed; possibly essential, disruptants not obtained by UAU1 method
orf19.3967	<i>PFK1</i>	1.15	1.14	Phosphofructokinase alpha subunit; activated by fructose 2,6-bisphosphate, AMP, ATP inhibited; activity reduced on hyphal induction; phagocytosis-repressed; fluconazole, flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.4738		1.15	1.05	Ortholog(s) have role in protein folding in endoplasmic reticulum and integral to endoplasmic reticulum membrane localization
orf19.4741		1.15	1.16	Protein of unknown function; <i>C. albicans</i> - and <i>C. dubliniensis</i> specific gene; rat catheter biofilm repressed
orf19.3080		1.15	1.08	Ortholog(s) have role in attachment of spindle microtubules to kinetochore, cellular response to nitrogen starvation, cohesin localization to chromatin and double-strand break repair, more
orf19.1698		1.15	1.1	Ortholog(s) have phosphatidate phosphatase activity, role in actin cytoskeleton organization, cellular lipid metabolic process and actin cortical patch localization
orf19.4366		1.15	1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_28870, <i>Candida tropicalis</i> MYA-3404 : CTRG_00731 and <i>Candida albicans</i> WO-1 : CAWG_01703
orf19.2933		1.15	1.12	Ortholog(s) have ubiquitin-specific protease activity, role in protein deubiquitination, regulation of transcription, DNA-dependent and cytosol, nucleus localization
orf19.5718		1.15	1.07	Has domain(s) with predicted zinc ion binding activity and role in intracellular protein transport, vesicle-mediated transport
orf19.2505		1.15	1.13	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02437
orf19.2510		1.15	1.15	Ortholog(s) have role in protein folding, tubulin complex assembly
orf19.5371		1.15	1.08	#NV
orf19.4670	<i>CAS5</i>	1.15	1.17	Transcription factor; cell wall damage response; required for adherence, response/resistance to caspofungin; repressed in core stress response; mutants have reduced CFU in mice, hyphal defect in <i>C. elegans</i> infection; Spider biofilm induced
orf19.1753	<i>PUS7</i>	1.15	1.13	Pseudouridine synthase; catalyzes pseudouridylation in U2 snRNA, 5S rRNA, cytoplasmic tRNAs and in pre-tRNA(Tyr); F-12/CO2 early biofilm induced
orf19.4494	<i>KTR2</i>	1.15	1.1	Mannosyltransferase; transcription elevated in chk1, nik1, and sln1 homozygous null mutants; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4420		1.15	1.16	Predicted component of the core factor rDNA transcription factor complex; required for transcription of 35S rRNA genes by RNA polymerase I in <i>S. cerevisiae</i> ; possibly an essential gene, disruptants not obtained by UAU1 method

orf19.4899	GCA1	1,15	1,11	Extracellular/plasma membrane-associated glucoamylase; expressed in rat oral infection; regulated by carbohydrates, pH, galactose; promotes biofilm matrix formation; flow model biofilm induced; Bcr1 repressed in RPM1 a/a biofilms
orf19.4900	MNN12	1,15	1,16	Predicted alpha-1,3-mannosyltransferase activity with a role in protein glycosylation
orf19.2612		1,15	1,1	C2H2 zinc finger transcription factor; expression reduced in <i>ssr1</i> null mutant; flow model biofilm induced
orf19.2051		1,15	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15670, <i>C. parapsilosis</i> CDC317 : CPAR2_213100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135034 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E14980q
orf19.4474		1,15	1,09	Ortholog(s) have cytoplasm, nucleus localization
orf19.5592		1,15	1,08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63980, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115187, <i>Candida tropicalis</i> MYA-3404 : CTRG_02719 and <i>Candida albicans</i> WO-1 : CAWG_05060
orf19.4764		1,15	1,14	Ortholog(s) have poly(A)-specific ribonuclease activity, role in mRNA 3'-end processing, postreplication repair and PAN complex localization
orf19.4312		1,15	1,06	Ortholog(s) have TBP-class protein binding, transcription cofactor activity
orf19.2113		1,15	1,09	Putative integral peroxisomal membrane protein; Hap43p-repressed gene
orf19.3330	CRL1	1,15	1,14	Predicted GTPase of RHO family; CAAX motif geranylgeranylated; expression in <i>S. cerevisiae</i> causes dominant-negative inhibition of pheromone response
orf19.224		1,15	1,08	#NV
orf19.2411	SYN8	1,15	1,09	Putative endosomal SNARE; role in protein transport; rat catheter and Spider biofilm induced
orf19.4286		1,15	1,29	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.3740	PGA23	1,15	1,22	Putative GPI-anchored protein of unknown function; Rim101-repressed; Cyt1-regulated; colony morphology-related gene regulation by <i>Ssn6</i>
orf19.2299		1,15	1,08	Ortholog(s) have protein tag activity and role in cell budding, cellular response to oxidative stress, invasive growth in response to glucose limitation, protein urmylation, tRNA wobble position uridine thiolation
orf19.3983		1,15	1,15	Protein with a predicted transcription factor BTF3 domain; flow model biofilm induced
orf19.201		1,15	1,11	Protein of unknown function; unmerged from orf19.202 in a revision of Assembly 21
orf19.4949		1,15	1,03	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_801735, <i>C. dubliniensis</i> CD36 : Cd36_84090, <i>Candida orthopsilosis</i> Co 90-125 : CORT_0B03960 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_141253
orf19.2184		1,15	1,14	Putative fumarylacetoacetate hydrolase; clade-associated gene expression; rat catheter and Spider biofilm repressed
orf19.2911	SEC3	1,15	1,25	Predicted subunit of the exocyst complex, involved in exocytosis; required for hyphal growth after the first septin ring formation; interacts with septins Cdc3p, Cdc10p, and Cdc11p; localizes to a crescent on the surface of the hyphal tip
		1,15	1,16	#NV
orf19.389		1,15	1,04	Protein of unknown function; Hap43-induced gene
orf19.5090		1,15	1,1	Ortholog(s) have tRNA-specific adenosine deaminase activity, tRNA-specific adenosine-34 deaminase activity and role in adenosine to inosine editing, tRNA modification
orf19.1559	HOM2	1,15	1,13	Aspartate-semialdehyde dehydrogenase; forms a homodimer; conserved in bacteria, archaea, and fungi but not in mammals; ketoconazole-repressed; protein present in exponential and stationary growth phase yeast cultures; GlcNAC-induced protein
orf19.1620		1,15	1,03	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.6624		1,15	1,18	Ortholog(s) have GTPase activator activity and clathrin-coated vesicle, endosome localization
orf19.6630		1,15	1,18	Ortholog(s) have role in ER-associated protein catabolic process
orf19.2768	AMS1	1,15	-1,02	Putative alpha-mannosidase; transcript regulated by <i>Nrg1</i> ; induced during cell wall regeneration; flow model biofilm induced; Spider biofilm induced
orf19.4548	MAK32	1,15	1,02	Putative protein involved in the structural stability of L-A double-stranded RNA-containing particles; downregulated upon adherence to polystyrene
orf19.6710	UTP9	1,15	1,12	Small-subunit processome protein; <i>Ssr1</i> -induced; repressed by prostaglandins; physically interacts with TAP-tagged <i>Nop1</i>
orf19.6720		1,15	1,14	P-Loop domain-containing protein of unknown function; transposon mutation affects filamentous growth; Spider biofilm induced
orf19.6732		1,15	1,07	Ortholog(s) have cytosol, nucleus localization
orf19.3115		1,15	1,19	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.5165		1,15	1,1	Ortholog(s) have cytoplasm localization
orf19.501		1,15	1,19	Ortholog(s) have nucleus, preribosome, large subunit precursor localization
orf19.1444		1,15	1,17	Ortholog(s) have phosphatidylinositol-4,5-bisphosphate binding activity, role in actin cortical patch assembly, actin filament organization, endocytosis and actin cortical patch, mating protection tip localization
orf19.337	VT11	1,15	1,14	Ortholog(s) have SNAP receptor activity and role in Golgi to vacuole transport, intra-Golgi vesicle-mediated transport, vacuole fusion, non-autophagic, vesicle fusion
orf19.894		1,15	1,14	Ortholog(s) have guanyl-nucleotide exchange factor activity, role in retrograde transport, endosome to Golgi and Golgi membrane, <i>Ric1p-Rap1p</i> complex, guanyl-nucleotide exchange factor complex localization
orf19.8064		1,15	1,32	Ortholog(s) have phosphatidylinositol binding, ubiquitin binding activity
orf19.5253		1,15	1,08	Has domain(s) with predicted ATP binding, protein kinase activity, protein tyrosine kinase activity, transferase activity, transferring phosphorus-containing groups activity and role in protein phosphorylation
orf19.6971	DIE2	1,15	1,27	Ortholog(s) have dolichyl-phosphate-glucose-glycolipid alpha-glucosyltransferase activity, role in protein N-linked glycosylation and endoplasmic reticulum membrane localization
orf19.3014	BMH1	1,15	1,03	Sole 14-3-3 protein in <i>C. albicans</i> ; role in hyphal growth; possibly regulated by host interaction; localizes to yeast-form cell surface, not hyphae; alternatively spliced 5' UTR intron; Spider biofilm repressed
orf19.3023	NGG1	1,15	1,05	Ortholog(s) have histone acetyltransferase activity and role in cellular response to cadmium ion, detoxification of cadmium ion, histone acetylation, regulation of transcription from RNA polymerase II promoter
orf19.3023	NGG1	1,15	1,08	Ortholog(s) have histone acetyltransferase activity and role in cellular response to cadmium ion, detoxification of cadmium ion, histone acetylation, regulation of transcription from RNA polymerase II promoter
		1,15	1,09	#NV
orf19.6393		1,15	1,12	Putative Arf3p GTPase activating protein; Hap43p-repressed gene; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4623		1,15	1,11	Protein of unknown function; Spider biofilm repressed
orf19.4626		1,15	1,02	Ortholog(s) have role in TOR signaling cascade, positive regulation of transcription from RNA polymerase I promoter and cytosol, extrinsic to membrane, nucleus localization
orf19.7158		1,15	1,2	Protein of allantoin permease family; fungal-specific (no human or murine homolog); Hap43p-repressed gene
orf19.7251	WSC4	1,15	1,11	Putative cell wall integrity and stress response subunit 4 precursor; transcription is specific to white cell type
orf19.3285		1,15	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25800, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116265, <i>Debaryomyces hansenii</i> CBS767 : DEHA2E17380q and <i>Pichia stipitis</i> Pinal : PICST_62836
orf19.5318	RAD1	1,15	1,06	Putative single-stranded DNA endonuclease; transcript regulated by <i>Nrg1</i> ; macrophage-induced gene
orf19.7088		1,15	1,19	Ortholog(s) have single-stranded telomeric DNA binding activity, role in regulation of translational fidelity, telomere maintenance, threonylcarbamoyladenosine metabolic process and cytosol, nucleus localization
orf19.7360		1,15	1,2	Ortholog(s) have enzyme activator activity, role in histone deubiquitination, regulation of transcription from RNA polymerase II promoter and DUBm complex, SAGA complex localization
orf19.7381	AHR1	1,15	1,31	Zn(II)Cys6 transcription factor; involved in regulation of adhesion genes; involved in white-opaque switch; forms complex with <i>Mcm1</i> ; mutant is sensitive to 5-fluorocytosine and lithium chloride; Spider biofilm induced
orf19.7454	TAF60	1,15	1,23	Putative TFIID and SAGA complex subunit; mutation confers hypersensitivity to amphotericin B
orf19.5449		1,15	1,04	Predicted integral membrane protein; Spider biofilm induced
orf19.6796	YSA1	1,15	1,09	Predicted Nudix hydrolase family member with ADP-ribose pyrophosphatase activity; role in metabolism of O-acetyl-ADP-ribose to AMP and acetylated ribose 5-phosphate; rat catheter biofilm repressed
orf19.6781	ZFU2	1,15	1,04	Zn(II)Cys6 transcription factor; regulator of yeast form adherence; mutants display increased colonization of mouse kidneys; required for yeast cell adherence to silicone substrate; Spider biofilm induced
		1,15	1,09	#NV
orf19.5949	FAS2	1,15	1,14	Alpha subunit of fatty-acid synthase; required for virulence in mouse systemic infection and rat oropharyngeal infection models; regulated by <i>Etg1</i> ; fluconazole-induced; amphotericin B repressed; flow model and Spider biofilm repressed
orf19.5931	ARV1	1,15	1,16	Lipid transporter involved in sterol trafficking and transport of glycosylphosphatidylinositol and sphingolipid precursors
orf19.183	HIS3	1,15	1,14	Imidazoleglycerol-phosphate dehydratase, enzyme of histidine biosynthesis; functionally complements <i>S. cerevisiae</i> his3-1 mutation; hyphal-induced expression; regulated by <i>Gcn2p</i> and <i>Gcn4p</i> ; fungal-specific (no human or murine homolog)
		1,14	1,12	#NV
orf19.6488		1,14	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_72050, <i>C. parapsilosis</i> CDC317 : CPAR2_301140, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135055 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E07678q
orf19.1805	PEX14	1,14	1,14	Ortholog(s) have protein binding, bridging activity, role in protein import into peroxisome matrix, docking and peroxisomal membrane localization
orf19.1984		1,14	1,12	#NV
orf19.76	SPB1	1,14	1,13	Putative AdoMet-dependent methyltransferase; Hap43-induced; repressed by prostaglandins; possibly essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.124	CIC1	1,14	1,19	Putative proteasome-interacting protein; rat catheter biofilm induced
orf19.3625		1,14	1,1	Has domain(s) with predicted zinc ion binding activity
orf19.2869		1,14	1,06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_46110, <i>Candida tropicalis</i> MYA-3404 : CTRG_03792 and <i>Candida albicans</i> WO-1 : CAWG_03165

orf19.3491		1.14	1.08	#NV
orf19.1806		1.14	1.05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30340, <i>C. parapsilosis</i> CDC317 : CPAR2_203900, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113094 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G22374g
orf19.3077	<i>VID21</i>	1.14	1.06	Subunit of the Nua4 histone acetyltransferase complex; soluble protein in hyphae; Spider biofilm repressed
orf19.807	<i>CHS5</i>	1.14	1.09	Putative chitin biosynthesis protein; fungal-specific; repressed upon yeast-to-hypha switch; rat catheter biofilm repressed
orf19.3152	<i>AMO2</i>	1.14	1.04	Protein similar to <i>A. niger</i> predicted peroxisomal copper amino oxidase; mutation confers hypersensitivity to toxic ergosterol analog; F-12/CO2 early biofilm induced
orf19.4701		1.14	1.12	Ortholog(s) have ATPase activity, tRNA binding activity, role in protein urmylation, regulation of transcription from RNA polymerase II promoter, tRNA wobble uridine modification and Elongator holoenzyme complex localization
orf19.4631	<i>ERG251</i>	1.14	1.61	C-4 sterol methyl oxidase; role in ergosterol biosynthesis; Hap43-induced; ketoconazole-induced; amphotericin B, caspofungin repressed; possibly essential gene, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.3486		1.14	1.06	#NV
orf19.3196		1.14	1.11	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04564
orf19.1946		1.14	1.15	Similar to an aldose 1-epimerase-related protein; antigenic during murine systemic infection; protein present in exponential and stationary phase yeast cultures; Hap43-induced; Spider biofilm repressed
orf19.562	<i>FGR13</i>	1.14	1.11	Protein encoded in retrotransposon Zorro3 with a potential zinc finger; lacks an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.1270	<i>FRE3</i>	1.14	1.11	Protein with similarity to ferric reductase Fre10p; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.107		1.14	1.13	DEAH-box ATP-dependent RNA helicase, required for 18S rRNA synthesis; rat catheter biofilm induced
orf19.3783		1.14	1.2	Protein of unknown function; rat catheter biofilm induced
orf19.4162	<i>MLH1</i>	1.14	1.03	Putative mismatch repair protein; cell-cycle regulated periodic mRNA expression
orf19.4980	<i>HSP70</i>	1.14	1.11	Putative hsp70 chaperone; role in entry into host cells; heat-shock, amphotericin B, cadmium, ketoconazole-induced; surface localized in yeast and hyphae; antigenic in host; farnesol-downregulated in biofilm; Spider biofilm induced
orf19.716		1.14	1.12	Protein of unknown function; Hap43-induced; regulated by Nrg1, Tup1; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced; Bcr1-repressed in RPM1 a/a biofilms
orf19.240	<i>PAM17</i>	1.14	1.13	Predicted component of the presequence translocase-associated import motor (PAM complex) involved in protein import into mitochondrial matrix
orf19.4404	<i>PGA49</i>	1.14	1.1	Putative GPI-anchored protein
orf19.4424	<i>PHO100</i>	1.14	1.12	Putative inducible acid phosphatase; DTT-extractable and observed in culture supernatant in low-phosphate conditions; slight effect on murine virulence; virulence-group-correlated expression; N-glycosylated; F-12/CO2 early biofilm induced
orf19.4969	<i>KEM1</i>	1.14	1.09	5'-3' exoribonuclease of cytoplasmic stress granules; role in filamentous growth; complements slow growth/mating of <i>S. cerevisiae</i> kem1 mutant; required for SD or Spider medium biofilm formation
orf19.3373		1.14	1.08	Putative protein of unknown function; transcript upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.168		1.14	1.12	Ortholog(s) have role in U4 snRNA 3'-end processing, exonucleolytic trimming to generate mature 3'-end of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.3380	<i>HWP2</i>	1.14	1.09	GPI-anchored, glycosylated cell wall protein; required for biofilm formation, adhesion, filamentous growth on some media; expressed in hyphae; mutant delayed in virulence; regulated by Efg1, Tup1; similar to Hwp1 and Rbt1 domains
orf19.3380	<i>HWP2</i>	1.14	1.1	GPI-anchored, glycosylated cell wall protein; required for biofilm formation, adhesion, filamentous growth on some media; expressed in hyphae; mutant delayed in virulence; regulated by Efg1, Tup1; similar to Hwp1 and Rbt1 domains
orf19.4411	<i>HOS1</i>	1.14	1.13	Histone deacetylase; similar to <i>S. cerevisiae</i> Hos1; has conserved deacetylation motif; slightly greater expression in white cells than in opaque cells
orf19.4557		1.14	1.1	Ortholog(s) have microtubule binding, structural constituent of cytoskeleton activity and role in microtubule nucleation, mitotic spindle assembly checkpoint, protein localization to kinetochore, sister chromatid orientation
orf19.4566		1.14	1.07	Protein similar to <i>S. cerevisiae</i> Rot1p, which has roles in cytoskeletal dynamics and cell wall biosynthesis; predicted Kex2p substrate
orf19.4320		1.14	1.06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04676
orf19.5050	<i>MTO1</i>	1.14	1.1	Putative mitochondrial protein; rat catheter biofilm induced
orf19.5195	<i>URA6</i>	1.14	1.11	Ortholog(s) have adenylate kinase activity, uridylylase kinase activity, role in 'de novo' pyrimidine nucleobase biosynthetic process and cytosol, nucleus localization
orf19.2190	<i>VRP1</i>	1.14	1.12	Verp1-related protein involved in actin cytoskeleton organization and polarized morphogenesis; interacts with Walp and Myo5p; downregulated upon adherence to polystyrene
orf19.2923		1.14	1.12	Predicted membrane transporter, member of the drug:proton antiporter (14 spanner) (DHA2) family, MFS superfamily; induced by alpha pheromone in SpiderM medium
orf19.4273		1.14	1.08	Putative mitochondrial membrane protein; ortholog of <i>S. cerevisiae</i> Sls1; coordinates expression of mitochondrially-encoded genes; Hap43-induced
orf19.1086		1.14	1.12	Ortholog(s) have role in protein deubiquitination, regulation of ER to Golgi vesicle-mediated transport, regulation of retrograde vesicle-mediated transport, Golgi to ER, ribophagy and cytoplasm localization
orf19.2440		1.14	1.06	<i>S. cerevisiae</i> ortholog Rtt101 is a cullin subunit of E3 ubiquitin ligase complex with a role in anaphase progression; induced by alpha pheromone in SpiderM medium
orf19.5221		1.14	1.04	Ortholog(s) have phosphatidylinositol-4,5-bisphosphate binding activity
orf19.3461		1.14	1.06	Protein of unknown function; oxidative stress-induced via Cap1; induced by alpha pheromone in SpiderM medium
orf19.2640	<i>FUR1</i>	1.14	1.13	Uracil phosphoribosyltransferase; predicted tetrameric enzyme of pyrimidine salvage; mutations associated with flucytosine resistance in clade I clinical isolates; flucytosine, macrophage-induced protein; levels decrease in stationary phase
orf19.5218		1.14	1.02	#NV
orf19.4743	<i>AFG1</i>	1.14	1.04	Putative mitochondrial ATPase of the AAA family; similar but not orthologous to <i>S. cerevisiae</i> Afg1; mutant is viable; regulated by Sef1, Stu1, and Hap43
orf19.4897	<i>SFH5</i>	1.14	1.28	Putative phosphatidylinositol transporter; rat catheter and Spider biofilm repressed
orf19.4304	<i>GAP1</i>	1.14	1.12	Amino acid permease; antigenic in human/mouse; 10-12 transmembrane regions; regulated by nitrogen source; alkaline, Gln:Glc; nitrogen source induced; WT virulence in mice; Spider and flow model biofilm induced
orf19.2461	<i>PRN4</i>	1.14	1.14	Protein with similarity to pirins; induced by benomyl treatment; flow model biofilm repressed
orf19.3327	<i>TRM2</i>	1.14	1.12	Putative tRNA methyltransferase; repressed by prostaglandins; Spider biofilm induced
orf19.3323		1.14	1.18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_01240, <i>C. parapsilosis</i> CDC317 : CPAR2_109140, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114227 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D15026g
orf19.3914		1.14	1.06	Has domain(s) with predicted translation initiation factor activity, role in translational initiation and cytoplasm localization
orf19.2146	<i>HAT2</i>	1.14	1	Putative Hat1-Hat2 histone acetyltransferase complex subunit; role in DNA damage repair and morphogenesis; mutations cause constitutive pseudohyphal growth, caspofungin sensitivity; rat catheter and Spider biofilm repressed
orf19.6283		1.14	1.1	Ortholog(s) have mitochondrion localization
orf19.3748		1.14	1.08	Protein of unknown function; orf19.3747 and orf19.3748 are short, overlapping ORFs in intergenic region between 2 oligopeptide transporter-encoding genes; flow model biofilm induced
orf19.6327	<i>HET1</i>	1.14	1.32	Putative sphingolipid transfer protein; involved in localization of glucosylceramide which is important for virulence; Spider biofilm repressed
orf19.1850	<i>SIW14</i>	1.14	1.13	Putative protein phosphatase of the PTP family (tyrosine-specific), similar to <i>S. cerevisiae</i> Siw14p; mutant shows virulence defect; Hap43p-repressed gene
orf19.322		1.14	1.08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02670
orf19.3977		1.14	1.09	Protein with a role in translation; flow model biofilm repressed
orf19.6133	<i>PIF1</i>	1.14	1.22	Putative DNA helicase; decreased transcription is observed upon flufenazine treatment
orf19.1254	<i>SEC23</i>	1.14	1.06	Putative GTPase-activating protein; regulated upon yeast-hypha switch; Spider biofilm repressed
orf19.6378	<i>TRM9</i>	1.14	1.08	Putative tRNA methyltransferase; repressed during the mating process
orf19.2033	<i>PGA19</i>	1.14	1.06	Putative GPI-anchored protein; macrophage-induced gene; mutants are viable
orf19.6274	<i>PBR1</i>	1.14	1.08	Protein of unknown function; required for cohesion, adhesion, and RPM1 biofilm formation; induced by alpha pheromone in white cells; fluconazole-induced; Spider biofilm induced
orf19.4937	<i>CHS3</i>	1.14	1.07	Major chitin synthase of yeast and hyphae; synthesizes short-chitin fibrils; Chs4-activated; transcript induced at yeast-hyphal transition; Chs1 and Chs2, but not Chs3, are inhibited by the protuberberine HWY-289; Spider biofilm induced
orf19.2905		1.14	1.1	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03194
orf19.6607		1.14	1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34785, <i>C. parapsilosis</i> CDC317 : CPAR2_201110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107773 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G07018g
orf19.1639		1.14	1.1	Has domain(s) with predicted oxidoreductase activity and role in oxidation-reduction process
orf19.429		1.14	1.16	Putative non-canonical poly(A) polymerase; repressed by nitric oxide; Spider biofilm induced
orf19.5798	<i>LIG4</i>	1.14	1.12	DNA ligase; mRNA detected in yeast-form and pseudohyphal cells, induced upon hyphal induction; suppresses <i>S. cerevisiae</i> ime1-1 mutant IME2 transcription defect; required for wild-type filamentous growth and wild-type pathogenesis
orf19.6685	<i>ISY1</i>	1.14	1.13	Putative pre-mRNA-splicing factor; mutation confers resistance to 5-fluorocytosine (5-FC); rat catheter biofilm induced

orf19.4106		1,14	1,18	Ortholog of <i>S. cerevisiae</i> : YJR141W, <i>C. glabrata</i> CBS138 : CAGL0M00264g, <i>C. dubliniensis</i> CD36 : Cd36_20520, <i>C. parapsilosis</i> CDC317 : CPAR2_104880 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_126860
orf19.3098		1,14	1,08	Predicted RNA-dependent ATPase RNA helicase; Hap43-induced gene
orf19.5174	TAF19	1,14	1,13	Putative TFIID subunit; mutation confers hypersensitivity to amphotericin B; rat catheter biofilm induced
orf19.1900		1,14	1,19	Ortholog(s) have RNA methyltransferase activity, role in 7-methylguanosine cap hypermethylation, meiosis, nucleologenesis, regulation of telomere maintenance via telomerase and nucleolus localization
orf19.1867		1,14	1,13	Putative malate permease; induced during macrophage infection; regulated by Gcn2 and Gcn4; putative peroxisome targeting signal; Hap43-repressed; Spider biofilm induced
orf19.481	GCD1	1,14	-1,02	Putative translation initiation factor; transcript regulated by Mig1; repressed upon phagocytosis by murine macrophage
orf19.59	REI1	1,14	1,21	Putative cytoplasmic pre-60S factor; Hap43-induced; repressed by prostaglandins
orf19.6957		1,14	1,1	Protein of unknown function
orf19.4847		1,14	1,18	Protein of unknown function; overlaps orf19.4846
orf19.4841	SHY1	1,14	1,11	Cytochrome c oxidase biosynthesis protein; transcript regulated by Nrg1 and Mig1
orf19.6522		1,14	1,13	Putative allantoinase permease; Gcn4-regulated; Spider biofilm induced
orf19.6506		1,14	1,09	Ortholog(s) have role in histone deacetylation, negative regulation of antisense RNA transcription, regulation of DNA-dependent DNA replication initiation, transcription elongation from RNA polymerase II promoter
orf19.5271		1,14	1,06	Protein of unknown function; Hap43-induced gene
orf19.6970		1,14	1,2	Protein of unknown function; mutants are viable
orf19.1622	YCG1	1,14	1,09	Putative condensin G
orf19.5022		1,14	1,11	Ortholog(s) have inorganic cation transmembrane transporter activity and role in cellular cobalt ion homeostasis, cellular manganese ion homeostasis, cobalt ion transport, manganese ion transport
orf19.7144		1,14	1,13	Ortholog(s) have GTPase activity, ribosome binding activity, role in nonfunctional rRNA decay, nuclear-transcribed mRNA catabolic process, no-go decay, ribosome disassembly and cytosol localization
orf19.7151		1,14	1,12	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05751
orf19.7173		1,14	1,05	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_702310, <i>C. dubliniensis</i> CD36 : Cd36_73730, <i>Loederomyces elongisporus</i> NRLL YB-4239 : LELG_04029 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0G02490
orf19.7175	HLJ1	1,14	1,12	Putative HSP40 co-chaperone; repressed during the mating process
orf19.7194		1,14	1,08	Protein required for virulence in reconstituted human epithelium (RHE) model of ex vivo infection; decreased transcription is observed upon fluphenazine treatment; induced upon adherence to polystyrene
orf19.7205	DUR7	1,14	1,16	Putative urea transporter; fungal-specific (no human or murine homolog)
orf19.7257	MLH3	1,14	1,08	Ortholog(s) have role in mismatch repair, reciprocal meiotic recombination and MutLbeta complex localization
orf19.7303		1,14	1,23	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34495, <i>Candida tropicalis</i> MYA-3404 : CTRG_05947 and <i>Candida albicans</i> WO-1 : CAWG_02181
orf19.7058		1,14	1,13	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion and cytoplasm, nucleus localization
orf19.7355	SSN8	1,14	1,08	Ortholog of <i>S. cerevisiae</i> Ssn8; a component of RNA polymerase II holoenzyme; mutants are viable and are sensitive to hydrogen peroxide medium
orf19.7379	FAA2	1,14	1,05	Putative acyl CoA synthetase; expression regulated upon white-opaque switch; rat catheter biofilm induced; Spider biofilm induced
orf19.7424	NSA2	1,14	1,13	Putative protein constituent of 66S pre-ribosomal particles; Hap43-induced; repressed by prostaglandins
orf19.5469		1,14	1,08	Protein with a predicted DEAD-like DNA/RNA helicase domain; shows colony morphology-related gene regulation by Ssn6; overlaps orf19.5472; Spider biofilm repressed
orf19.7548	MED21	1,14	1,26	Ortholog(s) have RNA polymerase II repressing transcription factor binding, RNA polymerase II transcription coactivator activity, RNA polymerase II transcription corepressor activity
orf19.5954		1,14	1,06	Ortholog(s) have enzyme activator activity, role in ascospore wall assembly, meiosis I, positive regulation of protein catabolic process and anaphase-promoting complex localization
orf19.234	PHA2	1,14	1,13	Putative prephenate dehydratase; Hap43p-repressed gene; expression downregulated in an <i>ssr1</i> null mutant
		1,14	1,1	#NV
		1,14	1,21	#NV
		1,14	1,09	#NV
orf19.1616	FGR23	1,13	1,11	Protein of unknown function; repressed by a1/alpha2 in white-phase cells, a-specific, alpha factor-induced; Hap43-repressed; flow model biofilm induced; Tn mutation affects filamentous growth;
orf19.3781		1,13	1,11	Protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.795	VPS36	1,13	1,3	ESCRT II protein sorting complex subunit; involved in Rim8 processing and proteolytic activation of Rim101, which regulates pH response; role in uptake of Histatin-5 into vacuole
orf19.1522		1,13	1,22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16850, <i>C. parapsilosis</i> CDC317 : CPAR2_211990, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00169 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G03036g
orf19.1303		1,13	1,04	Ortholog(s) have translation release factor activity, role in mitochondrial translational termination and mitochondrion localization
orf19.4954		1,13	1,07	Ortholog(s) have endoplasmic reticulum, integral to membrane localization
orf19.5704		1,13	1,15	Ortholog(s) have rRNA binding activity, role in mitochondrial RNA processing, mitochondrial genome maintenance, rRNA metabolic process and mitochondrion localization
orf19.3206	CC77	1,13	1,09	Cytosolic chaperonin Cct ring complex; protein is present in exponential and stationary growth phase yeast cultures; sumoylation target
orf19.1815		1,13	1,14	Ortholog of <i>S. cerevisiae</i> /S. pombe Tif6; constituent of 66S pre-ribosomal particles; Spider biofilm induced
orf19.4904		1,13	1,15	Ortholog(s) have nucleosome binding activity, role in chromatin silencing at telomere, histone exchange and Swr1 complex, cytosol, nuclear chromosome, telomeric region localization
orf19.4330		1,13	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52790, <i>Candida tropicalis</i> MYA-3404 : CTRG_05968 and <i>Candida albicans</i> WO-1 : CAWG_04684
orf19.710		1,13	1,08	#NV
orf19.3151		1,13	1,06	Has domain(s) with predicted catalytic activity, coenzyme binding activity and role in cellular metabolic process
		1,13	1,11	#NV
orf19.3456		1,13	1,07	Protein with a predicted serine/threonine kinase and tyrosine kinase domain; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3512	CSP1	1,13	1,09	Putative cell wall associated protein; gene only found in <i>C. albicans</i> and <i>C. dubliniensis</i> ; highly upregulated during chlamydospore development in both species; localized to chlamydospore cell wall
orf19.1541		1,13	1,09	Protein with a globin-like domain; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.3851		1,13	1,13	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.4569		1,13	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_42100, <i>Debaromyces hansenii</i> CBS767 : DEHA2C14850g, <i>Pichia stipitis</i> Pignal : PICST_52615 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_58608
orf19.2906	PGA41	1,13	1,1	Putative GPI-anchored protein; adhesin-like protein
orf19.4958	ECM25	1,13	1,13	Non-essential protein involved in cell morphogenesis
orf19.2713		1,13	1,19	Ortholog(s) have role in reciprocal meiotic recombination and nucleus localization
orf19.3630	RRP8	1,13	1,09	Ribosomal protein; Hap43-induced; F-12/CO2 early biofilm and rat catheter biofilm induced
orf19.4433	CPH1	1,13	1,08	Transcription factor; for mating, filamentation on solid media, pheromone-stimulated biofilms; in pathway with Ess1, Czf1; required with Efg1 for host cytokine response; regulates galactose metabolism genes; rat catheter biofilm repressed
orf19.3637		1,13	1,12	Dubious open reading frame
orf19.3450.1		1,13	1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_61450, <i>C. parapsilosis</i> CDC317 : CPAR2_602710, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00240 and <i>Pichia stipitis</i> Pignal : psti_CGOB_00191
orf19.929		1,13	1,06	Protein of unknown function; rat catheter biofilm repressed
orf19.927		1,13	1,1	Ortholog(s) have role in positive regulation of transcription from RNA polymerase II promoter, telomere maintenance and EKC/KEOPS complex, cytosol, nucleus localization
orf19.3374	ECE1	1,13	1,14	Hypha-specific protein; regulated by Rtg1, Nrg1, Tup1, Cph1, Efg1, Hog1, farnesol, phagocytosis; fluconazole-induced; rat catheter and Spider biofilm induced; flow model biofilm repressed; Bcr1-repressed in RPM1 alpha biofilms
orf19.191	KIC1	1,13	1,08	Member of the GCK-III subfamily of eukaryotic Ste20p kinases; in RAM cell wall integrity signaling network; role in cell separation, azole sensitivity; required for hyphal growth; constitutive expression is MTL, white-opaque independent
orf19.1702	ARF3	1,13	1,08	Similar to but not orthologous to <i>S. cerevisiae</i> Arf3; transcript filament induced; Tup1 regulated; rat catheter biofilm repressed (see Locus History Note for Assembly 19 correction)
orf19.4555	ALS4	1,13	1,09	GPI-anchored adhesin; role in adhesion, germ tube induction; growth, temperature regulated; expressed during infection of human buccal epithelial cells; repressed by vaginal contact; biofilm induced; repressed during chlamydospore formation
orf19.1215		1,13	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_64550, <i>Candida tropicalis</i> MYA-3404 : CTRG_02747 and <i>Candida albicans</i> WO-1 : CAWG_04972
orf19.4560	BFR1	1,13	1,11	Protein involved in the maintenance of normal ploidy; <i>S. cerevisiae</i> ortholog confers Brefeldin A resistance; stationary phase enriched protein; Spider biofilm repressed
orf19.1706	MET18	1,13	1,1	Putative protein with a predicted role in nucleotide excision repair (NER) and RNA polymerase II (RNAP II) transcription; Pic1p-regulated
		1,13	1,11	#NV
orf19.470		1,13	1,07	Ortholog(s) have RNA polymerase II activating transcription factor binding, TBP-class protein binding, chromatin binding, protein complex scaffold activity

orf19.1028	<i>ELA1</i>	1,13	1,1	Elongin A; F-box protein; ubiquitin-protein ligase; role in protein ubiquitination and ubiquitin-dependent protein catabolism; rat catheter biofilm induced
orf19.6502		1,13	1,09	Short-chain dehydrogenase/reductase; upregulation correlates with clinical development of fluconazole resistance
orf19.95		1,13	1,06	Ortholog of <i>S. cerevisiae</i> : PRM5, <i>C. dubliniensis</i> CD36 : Cd36_60980, <i>C. parapsilosis</i> CDC317 : CPAR2_603060, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113703 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F10032g
orf19.4908		1,13	1,1	Dubious open reading frame
orf19.2386		1,13	1,04	Ortholog(s) have role in endonucleolytic cleavage in 5'-ETS of tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA and LSU-rRNA), more
orf19.2514		1,13	1,11	Predicted methyltransferase; rat catheter biofilm induced
orf19.910	<i>PRP3</i>	1,13	1,11	Predicted splicing factor, component of the U4/U6-U5 snRNP complex; Hap43-induced gene; rat catheter biofilm induced
orf19.5101	<i>CCR4</i>	1,13	1,06	Component of the Ccr4-Pop2 mRNA deadenylase; transposon mutation affects filamentous growth
orf19.2366		1,13	1,14	Has domain(s) with predicted DNA binding activity and role in DNA integration
orf19.1685	<i>ZCF7</i>	1,13	1,11	Predicted Zn(II)2Cys6 transcription factor; mutant shows reduced colony wrinkling on Spider medium and is unable to utilize mannitol as a carbon source; mutants have increased colonization of mouse kidneys
orf19.4502		1,13	1,18	Ortholog(s) have ATPase activity, DNA binding, TBP-class protein binding activity
orf19.4483		1,13	1,07	#NV
orf19.4306		1,13	1,18	Ortholog(s) have methylthioribulose 1-phosphate dehydratase activity, role in L-methionine salvage from methylthioadenosine and cytoplasm localization
orf19.5493	<i>GSP1</i>	1,13	1,02	Small RAN G-protein; essential; no prenylation predicted; can rescue <i>S. cerevisiae</i> gsp1 viability; macrophage/pseudohyphal-induced; transcript not regulated by white-opaque, yeast-hypha switching; GlnAc-induced; Spider biofilm repressed
orf19.2028	<i>MXR1</i>	1,13	1,06	Putative methionine sulfoxide reductase; Plc1-regulated; induced by human neutrophils, flucytosine; macrophage regulated (gene induced, protein decreased); possibly adherence-induced; Spider biofilm induced
orf19.277	<i>THI6</i>	1,13	1,2	Putative thiamin-phosphate pyrophosphorylase, hydroxyethylthiazole kinase; fungal-specific; Spider biofilm induced
orf19.278		1,13	1,09	Protein of unknown function; required for adhesion to abiotic substrate; Spider biofilm induced
orf19.2465	<i>POL32</i>	1,13	1,09	Putative subunit of DNA polymerase delta, involved in chromosomal DNA replication; cell-cycle regulated periodic mRNA expression
orf19.4518		1,13	1,1	Protein kinase of unknown function; mutants are viable
orf19.4209		1,13	1,12	Ortholog(s) have NEDD8 activating enzyme activity, role in protein neddylation and cytosol, nucleus localization
orf19.5606		1,13	1,05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05051
orf19.5601		1,13	1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63910, <i>C. parapsilosis</i> CDC317 : CPAR2_601360, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_108198 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C04136g
orf19.1240		1,13	1,06	Ortholog of <i>S. cerevisiae</i> : YPR117W, <i>C. glabrata</i> CBS138 : CAGL0D04510g, <i>C. dubliniensis</i> CD36 : Cd36_45200, <i>C. parapsilosis</i> CDC317 : CPAR2_500480 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_120679
orf19.6012		1,13	1	Ortholog(s) have cell division site, cell tip, cytosol localization
orf19.6154		1,13	-1,01	#NV
orf19.2131		1,13	1,24	Ortholog(s) have ubiquitin-protein ligase activity and role in protein ubiquitination, ubiquitin-dependent protein catabolic process via the multivesicular body sorting pathway
orf19.6296	<i>VPS22</i>	1,13	1,07	ESCRT-II complex protein with a role in multivesicular body (MVB) trafficking; required for processing of Rim8p; Hap43p-repressed gene
orf19.4678		1,13	1,08	Predicted triglyceride lipase; Spider biofilm induced
orf19.3738	<i>PGA22</i>	1,13	1,1	Putative GPI-anchored protein; adhesin-like protein
orf19.3740	<i>PGA23</i>	1,13	1,19	Putative GPI-anchored protein of unknown function; Rim101-repressed; Cyr1-regulated; colony morphology-related gene regulation by Ssn6
orf19.2305		1,13	1,05	Ortholog(s) have tubulin binding activity, role in tubulin complex assembly and prefoldin complex localization
orf19.2334	<i>BIG1</i>	1,13	1,17	Endoplasmic reticulum (ER) protein; ortholog of <i>S. cerevisiae</i> Big1; required for beta-1,6-glucan synthesis, filamentation, adhesion, and virulence; rat catheter biofilm repressed
orf19.3582		1,13	1,06	Ortholog(s) have protein-lysine N-methyltransferase activity, role in peptidyl-lysine dimethylation, vesicle-mediated transport and cytosol, nucleus localization
orf19.3571		1,13	1,12	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19870, <i>C. parapsilosis</i> CDC317 : CPAR2_209420, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_100922 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D11176g
orf19.4930	<i>SPC3</i>	1,13	1,05	Essential protein; similar to <i>S. cerevisiae</i> Spc3p, a component of the signal peptidase complex required for signal peptidase activity; predicted integral ER membrane protein; complements spc3 and suppresses sec61 <i>S. cerevisiae</i> mutants
orf19.5145	<i>SSP96</i>	1,13	1,08	Putative flavin-containing monooxygenase; F-12/CO2 early biofilm induced
orf19.5137		1,13	1,09	Protein of unknown function; regulated by Sef1, Stu1, Hap43; Spider biofilm repressed
orf19.2040		1,13	1,14	Ortholog(s) have oxidoreductase activity, acting on NAD(P)H activity, role in iron-sulfur cluster assembly, nitric oxide biosynthetic process, oxidation-reduction process and mitochondrion localization
orf19.4939	<i>MON2</i>	1,13	1,08	Peripheral membrane protein; role in endocytosis and vacuole integrity; flow model and rat catheter biofilm repressed
orf19.2908		1,13	1,09	Predicted oxidoreductase; rat catheter biofilm induced
orf19.2492	<i>STE3</i>	1,13	1,15	Protein similar to <i>S. cerevisiae</i> Ste3p, the receptor for a-factor mating pheromone; alpha mating-type-specific transcription
orf19.4400		1,13	1,08	Has domain(s) with predicted role in anaphase-promoting complex-dependent proteasomal ubiquitin-dependent protein catabolic process, regulation of mitotic metaphase/anaphase transition and anaphase-promoting complex localization
orf19.5122		1,13	1,08	#NV
orf19.1542	<i>HEX3</i>	1,13	1,04	Protein similar to <i>S. cerevisiae</i> Hex3p, which is involved in DNA damage response; transposon mutation affects filamentous growth
orf19.3438		1,13	1,02	Ortholog(s) have chaperone binding activity, role in ER-associated protein catabolic process, protein folding in endoplasmic reticulum, response to unfolded protein and endoplasmic reticulum lumen localization
orf19.6623		1,13	1,07	Ortholog(s) have RNA polymerase II core binding activity, role in regulation of transcription by chromatin organization, transcription elongation from RNA polymerase II promoter and transcription elongation factor complex localization
orf19.6627		1,13	1,12	Protein of unknown function; possibly transcriptionally regulated upon hyphal formation
orf19.812		1,13	1,06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_18730, <i>C. parapsilosis</i> CDC317 : CPAR2_212510, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135843 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D06732g
orf19.2720		1,13	1,1	Cytosolic chaperonin Cct ring complex subunit; role in the assembly of actin and tubulins; Spider biofilm repressed
orf19.544.1	<i>PRE6</i>	1,13	1,11	Putative alpha-4 subunit of the proteasome; reported as macrophage-induced protein and macrophage/pseudohyphal-repressed gene; regulated by Gcn2p and Gcn4p; removed from/reinstated in Assembly 20 (see Locus History)
orf19.6863	<i>YPH1</i>	1,13	1,23	Vacuolar H(+)-ATPase; transcription regulated by Nrg1, Mig1, and Tup1
orf19.1901	<i>MCM3</i>	1,13	1,11	Putative DNA replication protein; periodic mRNA expression, peak at cell-cycle M/G1 phase; Spider biofilm induced
orf19.500		1,13	1,21	Ortholog(s) have tRNA (adenine-N1-)-methyltransferase activity, role in tRNA methylation and nucleus, tRNA (m1A) methyltransferase complex localization
orf19.1238	<i>TUB4</i>	1,13	1,13	Putative gamma-tubulin; induced upon adherence to polystyrene; transcript regulated by Nrg1 and Mig1; periodic mRNA expression, peak at cell-cycle S/G2 phase
orf19.3315	<i>CTA9</i>	1,13	1,09	Protein required for normal filamentous growth; induced during the mating process; mRNA binds She3; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i>
orf19.3318		1,13	1,16	Ortholog(s) have cytoplasm localization
orf19.3819		1,13	1,09	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.3821		1,13	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_44290, <i>C. parapsilosis</i> CDC317 : CPAR2_500740, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_137302 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F07326g
orf19.3833		1,13	1,09	Putative DNA-binding transcription factor; decreased transcription is observed upon fluphenazine treatment; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43p-induced gene
orf19.6569		1,13	1,07	Predicted transmembrane transporter; induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.6570	<i>NUP</i>	1,13	1,07	Nucleoside permease; adenosine and guanosine are substrates, whereas cytidine, adenine, guanine, uridine, uracil are not; similar to a nucleoside permease of <i>S. pombe</i> , possibly processed by Kex2p
orf19.6532		1,13	1,07	Ortholog(s) have FAD transmembrane transporter activity, role in FAD transport and mitochondrion localization
orf19.4625	<i>TOA2</i>	1,13	1,18	Putative TflIA small subunit; protein abundance decreased in CAI4 strain compared to the SC5314 strain, abundance not affected by reintegration of URA3 in CAI4; flucytosine induced; possibly an essential gene (UAU1 method)
orf19.4627		1,13	1,12	Ortholog(s) have structural constituent of nuclear pore activity
orf19.5034	<i>YBP1</i>	1,13	1,05	Protein involved in response to oxidative stress, binds and stabilizes Cap1p transcription factor in response to H2O2; essential for macrophage killing
orf19.4991	<i>MPT5</i>	1,13	1,17	Putative RNA-binding protein; Hap43p-repressed gene; protein induced during the mating process
orf19.7223		1,13	1,13	Ortholog(s) have protein-lysine N-methyltransferase activity, role in peptidyl-lysine monomethylation and cytosol, nucleus localization

orf19.954		1.13	1.16	Putative DnaJ-like chaperone; Hap43-repressed gene
orf19.971	SKN7	1.13	1.07	Putative homolog of <i>S. cerevisiae</i> Skn7p, which is predicted to be a response regulator protein in a phosphorelay signal transduction pathway; required for normal hydrogen peroxide resistance
orf19.3273		1.13	1.36	Ortholog(s) have actin monomer binding, protein kinase inhibitor activity, ribosome binding activity, role in negative regulation of protein phosphorylation and cytoplasm, nucleus, polysome, ribosome localization
orf19.5353		1.13	1.12	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_407790, <i>C. dubliniensis</i> CD36 : Cd36_24630, <i>Candida orthopsilosis</i> Co 90-125 : COURT_0C07130 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_149801
orf19.7367	UBP1	1.13	1.04	Ortholog(s) have ubiquitin-specific protease activity, role in protein deubiquitination and endoplasmic reticulum localization
orf19.7447	JEN1	1.13	1.09	Lactate transporter; induced by lactic acid, activated by Cat8; alkaline repressed by Rim101; localizes to plasma membrane; Spider biofilm induced
orf19.5411		1.13	1.18	Ortholog(s) have NEDD8 ligase activity, role in protein neddylation, regulation of mitotic cell cycle and cytosol, nucleus localization
orf19.5412		1.13	1.12	Ortholog of <i>S. cerevisiae</i> : ECM9, <i>C. glabrata</i> CBS138 : CAGL0L02255g, <i>C. dubliniensis</i> CD36 : Cd36_80470, <i>C. parapsilosis</i> CDC317 : CPAR2_503390 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_133107
orf19.7537	BNR1	1.13	1.08	Formin; probable role in hyphal cytoskeletal polarity; synthetic lethality if Bnr1p and Bni1p are absent
orf19.5974	ATG9	1.13	1.22	Protein similar to <i>S. cerevisiae</i> Atg9; required for early step in autophagy; required for cytoplasm to vacuole trafficking of Lap41; Spider biofilm induced
orf19.5927	RPS15	1.13	-1.09	Putative ribosomal protein; macrophage/pseudohyphal-induced after 16 h; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.232		1.12	1.08	RNA polymerase II mediator complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5064	MRPL3	1.12	1.13	Ribosomal protein of the large subunit, mitochondrial; repressed in core stress response; protein present in exponential and stationary growth phase yeast cultures
orf19.2451	PGA45	1.12	1.16	Putative GPI-anchored cell wall protein; repressed in core caspofungin response; Hog1-induced; regulated by Ssn6; Mob2-dependent hyphal regulation; flow model biofilm induced
orf19.6234		1.12	1.11	Putative U2 snRNP component; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); Hap43-induced, Spider biofilm induced
orf19.3067		1.12	1.13	#NV
orf19.5580	TEL1	1.12	1.06	Ortholog(s) have protein serine/threonine kinase activity, telomeric DNA binding activity and role in DNA damage induced protein phosphorylation, double-strand break repair, histone phosphorylation, telomere maintenance
orf19.3163		1.12	1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51910, <i>C. parapsilosis</i> CDC317 : CPAR2_101650, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94797 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D06578g
orf19.1772		1.12	1.24	Ortholog(s) have mitochondrion localization
orf19.2911	SEC3	1.12	1.11	Predicted subunit of the exocyst complex, involved in exocytosis; required for hyphal growth after the first septin ring formation; interacts with septins Cdc3p, Cdc10p, and Cdc11p; localizes to a crescent on the surface of the hyphal tip
orf19.1973	HAP5	1.12	1.1	Component of CCAAT-binding transcription factor; roles in filamentous growth, low-iron induction of FRP1; regulates genes involved in respiratory growth; functional homolog of <i>S. cerevisiae</i> Hap5p; Cap1p-dependent expression in low iron
orf19.4778	LYS142	1.12	1.03	Zn(II)Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Lys14, involved in the regulation of lysine biosynthesis genes; fungal-specific
orf19.4607		1.12	1.12	Possible Golgi membrane protein; Hap43-repressed; hypha induced; flow model biofilm induced; Spider biofilm induced
orf19.2016	ERG28	1.12	1.1	Ortholog(s) have protein binding, bridging activity, role in ergosterol biosynthetic process and endoplasmic reticulum membrane localization
orf19.2968		1.12	1.07	Protein of unknown function; Spider biofilm induced
orf19.6254	ANT1	1.12	1.06	Peroxisomal adenine nucleotide transporter; role in beta-oxidation of medium-chain fatty acid and peroxisome proliferation; rat catheter biofilm induced
orf19.1539		1.12	1.06	Protein of unknown function; F-12/CO2 early biofilm induced
orf19.3899	SDC1	1.12	1.1	Putative COMPASS/SET1C histone methyltransferase complex subunit
orf19.4639		1.12	1.14	Protein present in exponential and stationary growth phase yeast cultures
orf19.1240		1.12	1.06	Ortholog of <i>S. cerevisiae</i> : YPR117W, <i>C. glabrata</i> CBS138 : CAGL0D04510g, <i>C. dubliniensis</i> CD36 : Cd36_45200, <i>C. parapsilosis</i> CDC317 : CPAR2_500480 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_120679
orf19.5856		1.12	1.1	Membrane-localized protein of unknown function
orf19.2454	PHO87	1.12	1.03	Putative phosphate permease; transcript repressed by Rim101 at pH 8; regulated by white-opaque switch; caspofungin repressed; virulence-group-correlated expression; flow model biofilm induced
orf19.794	SSN3	1.12	1.07	Putative cyclin-dependent protein kinase; mutants are sensitive to growth on H2O2 medium
orf19.1701	RK1	1.12	1.04	Ortholog(s) have ribose-5-phosphate isomerase activity, role in pentose-phosphate shunt, pyridoxine biosynthetic process and cytoplasm, nucleus localization
orf19.4525		1.12	1.08	Ortholog(s) have endoplasmic reticulum, nuclear pore localization
orf19.3796	DCR1	1.12	1.14	Putative Dicer RNase involved in RNA interference, similar to <i>S. cerevisiae</i> Rnt1p but orthologous to <i>S. castellii</i> Dcr1p, which is not conserved in <i>S. cerevisiae</i>
		1.12	1.05	#NV
orf19.451	SOK1	1.12	1.26	Protein kinase; mutants are sensitive to growth on hydrogen peroxide medium; induced by alpha pheromone in SpiderM medium; rat catheter and Spider biofilm induced
orf19.4726		1.12	1.02	Ortholog(s) have calcium ion binding, enzyme activator activity
orf19.467	WOR3	1.12	1.07	Transcription factor; modulator of white-opaque switch; induced in opaque cells; promoter bound by Wort1; overexpression at 25 degr shifts cells to opaque state; deletion stabilizes opaque cells at higher temperatures; Spider biofilm induced
orf19.3942		1.12	1.08	Ortholog(s) have structural molecule activity
orf19.4916		1.12	1.15	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.646	GLN1	1.12	-1.05	Putative glutamate synthase, regulated by Tsa1, Tsa1B under H2O2 stress conditions; Spider biofilm induced
orf19.762		1.12	1.09	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_105580, <i>C. dubliniensis</i> CD36 : Cd36_04550, <i>Lodderomyces elongisporus</i> NRRL YB-4239 : LELG_03202 and <i>Candida orthopsilosis</i> Co 90-125 : COURT_0B06800
orf19.89	PEX7	1.12	1.12	Ortholog(s) have peroxisome matrix targeting signal-2 binding activity, role in protein import into peroxisome matrix, docking and cytosol, nucleus, peroxisome localization
orf19.568	SPE2	1.12	1.14	Putative S-adenosylmethionine decarboxylase; Hap43-induced gene; possibly adherence-induced; Spider biofilm induced
orf19.4365		1.12	1.08	Has domain(s) with predicted RNA methyltransferase activity and role in RNA processing
orf19.2385	KT112	1.12	1.01	Protein similar to <i>S. cerevisiae</i> Kti12p, which associates with Elongator complex; has a role in resistance to killer toxin; predicted Kex2p substrate; Hap43p-induced gene
orf19.5216		1.12	1.06	Has domain(s) with predicted acyl-CoA hydrolase activity and role in acyl-CoA metabolic process
orf19.1374		1.12	1.05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23840, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_104074, <i>Debaromyces hansenii</i> CBS767 : DEHA2B13310g and <i>Pichia stipitis</i> Pinal : PICST_58235
orf19.5480	ILV1	1.12	1.15	Putative threonine dehydratase; regulated by Gcn4 and Gcn2; induced by amino acid starvation (3-AT); protein present in yeast exponential and stationary phase cultures; early-stage flow model biofilm induced
orf19.1794		1.12	1.12	Ortholog(s) have RNA binding, translation regulator activity and role in Group I intron splicing, mitochondrial respiratory chain complex IV biogenesis, positive regulation of mitochondrial translation
orf19.2878	PGA15	1.12	1.03	Putative GPI-anchored protein
orf19.3192	ST11	1.12	1.15	Protein that interacts with Cdc37 and Crk1 in two-hybrid; may be involved in Cdc37 chaperone activity; soluble protein in hyphae; protein in exponential and stationary phase yeast cultures; YNB biofilm induced; Spider biofilm induced
orf19.6222	SPO22	1.12	1.11	Ortholog(s) have role in regulation of synaptonemal complex assembly and condensed nuclear chromosome localization
orf19.5693		1.12	1.18	Subunit of the GPI (glycosylphosphatidylinositol):protein transamidase complex; removes the GPI-anchor signal and attaches GPI to proteins in the ER; Spider biofilm repressed
orf19.317	PNP1	1.12	1.07	Purine nucleoside phosphorylase; metabolizes inosine and guanosine nucleosides; in the nicotinamide riboside salvage pathway; Spider biofilm repressed
orf19.2584	OPT9	1.12	1.15	Probable pseudogene similar to fragments of OPT1 oligopeptide transporter gene; decreased expression in hyphae compared to yeast-form cells; transcriptionally induced upon phagocytosis by macrophage
orf19.2735	SEN2	1.12	1.15	Putative tRNA splicing endonuclease subunit; mutation confers hypersensitivity to toxic ergosterol analog and to amphotericin B; 5'-UTR intron; Hap43-induced; Spider biofilm induced
orf19.286		1.12	1.05	Has a predicted autophagy-related protein domain; transcription repressed by fluphenazine treatment
orf19.1719	SGA1	1.12	1.22	Putative glucoamylase; induced in oropharyngeal candidiasis; rat catheter and Spider biofilm induced
		1.12	1.08	#NV
		1.12	1.08	#NV
orf19.6476		1.12	1.14	Putative protein with a predicted role in exocytic transport from the Golgi; filament induced
orf19.2406		1.12	1.08	Ortholog(s) have role in microautophagy, positive regulation of transcription from RNA polymerase II promoter and EGO complex, cytosol, fungal-type vacuole membrane, late endosome membrane, nuclear chromatin localization
orf19.1394		1.12	1.01	Putative protein of unknown function; mutant is viable; protein level decreases in stationary phase cultures; Spider biofilm induced

orf19.6297		1,12	1,17	Ortholog(s) have pseudouridine synthase activity, role in tRNA pseudouridine synthesis and cytosol, nucleus localization
orf19.4677		1,12	1,08	Putative protein of unknown function, transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.1934	HST3	1,12	1,05	Histone H3K56 deacetylase; reduced copy number increases opaque cell formation; repressed by MMS, hydroxyurea and high-levels of hydrogen peroxide; Hap43p-induced; ectopic expression blocks genotoxin-induced switching; nicotinamide target
orf19.2974	YKT6	1,12	1,19	Putative protein of the vacuolar SNARE complex; predicted role in vacuolar fusion; rat catheter biofilm repressed
orf19.3561	CDC7	1,12	1,09	Putative kinase; cell-cycle regulated periodic mRNA expression; S. cerevisiae ortholog is not cell-cycle regulated; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1002		1,12	1,12	Protein of unknown function; Hap43-repressed gene
orf19.992	LKH1	1,12	1,09	Putative leukotriene A(4) hydrolase; repressed during the mating process; Hog1p-induced
orf19.4924		1,12	1,07	Protein of unknown function; repressed in <i>ssr1</i> mutant; Spider biofilm induced
orf19.725		1,12	1,04	Ortholog of C. dubliniensis CD36 : Cd36_31880, C. parapsilosis CDC317 : CPAR2_702220, Candida tenuis NRRL Y-1498 : CANTEDRAFT_115848 and Debaryomyces hansenii CBS767 : DEHA2E06028q
orf19.6276		1,12	1,07	Protein of unknown function; rat catheter biofilm repressed
orf19.4942		1,12	1,08	Ortholog of Candida albicans WO-1 : CAWG_00134
orf19.4934	OP4	1,12	1,08	Ala- Leu- and Ser-rich protein; secreted; N-terminal hydrophobic region; possible glycosylation; opaque-specific transcript; repressed by alpha pheromone in opaque MTLA homozygotes; fluconazole-induced; Spider biofilm induced
orf19.2180		1,12	1,06	Ortholog(s) have calcium ion binding, zinc ion binding activity, role in axial cellular bud site selection, bipolar cellular bud site selection, regulation of COPII vesicle coating and cellular bud neck, cytosol, nucleus localization
orf19.5796	SHE9	1,12	1,16	Protein with similarity to S. cerevisiae She9p, which inhibits growth when overproduced; gene has possible growth-regulation element; fungal-specific (no human or murine homolog)
orf19.4544		1,12	1,06	Ortholog of C. dubliniensis CD36 : Cd36_01640, C. parapsilosis CDC317 : CPAR2_106830, Candida tenuis NRRL Y-1498 : cten_CGOB_00039 and Debaryomyces hansenii CBS767 : DEHA2B06578g
orf19.6737		1,12	1,17	Protein of unknown function; mutants are viable; induced in a <i>cyr1</i> , <i>ras1</i> , or <i>orf1</i> homozygous null
orf19.5664	HOF1	1,12	1,12	Ortholog of S. cerevisiae Hof1; a protein localized to the bud neck and required for cytokinesis in S. cerevisiae; periodic mRNA expression, peak at cell-cycle G2/M phase; mutant is viable
orf19.1900		1,12	1,09	Ortholog(s) have RNA methyltransferase activity, role in 7-methylguanosine cap hypermethylation, meiosis, nucleolusgenesis, regulation of telomere maintenance via telomerase and nucleolus localization
orf19.1888		1,12	1,11	Putative nicotinamide riboside hydrolase; cleaves N-glycosidic bonds in nucleosides; pyrimidine salvage and nicotinamide riboside salvage pathways; Spider biofilm induced
orf19.493	RPL15A	1,12	1,04	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; positively regulated by Tbf1; Spider biofilm repressed
orf19.6907		1,12	-1,01	Ortholog(s) have DNA binding activity and cytoplasm, nuclear chromatin localization
orf19.3294	MBF1	1,12	1,32	Putative transcriptional coactivator; caspofungin repressed
orf19.4441		1,12	1,08	Ortholog(s) have DNA replication origin binding, double-stranded DNA binding, single-stranded DNA binding activity
orf19.6955	HBR3	1,12	1,13	Essential protein; regulated by hemoglobin; S. cerevisiae ortholog is essential; Hap43p-induced gene
orf19.2095		1,12	1,34	Ortholog(s) have role in negative regulation of transcription from RNA polymerase II promoter in response to iron and cytosol, nucleus localization
orf19.3833		1,12	1,05	Putative DNA-binding transcription factor; decreased transcription is observed upon fluphenazine treatment; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43p-induced gene
orf19.6557		1,12	1,08	Protein with a predicted fatty acid amide hydrolase I domain; induced by Mnl1 under weak acid stress
orf19.6048		1,12	-1,05	Protein of unknown function; Spider biofilm induced
orf19.6431		1,12	1,03	Protein of unknown function; Spider biofilm induced
orf19.7042		1,12	1,11	Protein of unknown function; induced by benomyl or in an azole-resistant strain overexpressing MDR1; induced by nitric oxide; Spider biofilm induced
orf19.4983		1,12	1,13	Ortholog of C. dubliniensis CD36 : Cd36_12520, C. parapsilosis CDC317 : CPAR2_201720, Candida tenuis NRRL Y-1498 : CANTEDRAFT_108003 and Debaryomyces hansenii CBS767 : DEHA2D05214g
orf19.972		1,12	1,1	Ortholog(s) have 5'-flap endonuclease activity, role in DNA-dependent DNA replication and Slx1-Slx4 complex localization
orf19.3230	BOI2	1,12	1,08	Putative SH3-domain-containing protein; mutation confers hypersensitivity to toxic ergosterol analog; Spider biofilm induced
orf19.3233	HSE1	1,12	1,1	ESCR1-0 complex subunit; SH3-domain-containing protein
orf19.5358		1,12	1,08	Phosphorylated protein of unknown function
orf19.7326		1,12	1,12	Ortholog(s) have protein-lysine N-methyltransferase activity, role in peptidyl-lysine dimethylation and cytoplasm, nucleus localization
orf19.7337		1,12	1,05	Protein with a nischarin related domain and leucine rich repeats; Spider biofilm induced
orf19.7094	HGT12	1,12	1,08	Glucose, fructose, mannose transporter; major facilitator superfamily; role in macrophage-induced hyphal growth; detected at germ tube plasma membrane by mass spectrometry; Srt3p-induced; 12 probable transmembrane segments
orf19.5404		1,12	1,11	#NV
orf19.6820		1,12	1,05	Has domain(s) with predicted protein heterodimerization activity, role in DNA-dependent transcription, initiation and transcription factor TFIIID complex localization
orf19.7601		1,12	1,22	Putative mitochondrial 2' O-ribose methyltransferase; predicted role in methylation of U(2791) in 21S rRNA; Spider biofilm induced
orf19.3195	HIP1	1,12	1,17	Similar to amino acid permeases; alkaline, flucytosine induced; regulated by Plc1, Gcn2 and Gcn4; fungal-specific; Spider biofilm induced
orf19.1433		1,11	1,05	#NV
orf19.1438		1,11	1,06	Protein of unknown function; Hap43-repressed; colony morphology-related gene regulation by Ssn6; Spider biofilm induced
orf19.1438		1,11	1,07	Protein with homology to NADH dehydrogenase; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.2620		1,11	1,15	#NV
orf19.2637		1,11	1,1	Ortholog of C. dubliniensis CD36 : Cd36_33120 and Candida albicans WO-1 : CAWG_02046
orf19.2455		1,11	1,14	Ortholog(s) have Golgi apparatus, fungal-type vacuole membrane localization
orf19.2455		1,11	1,08	#NV
orf19.4880		1,11	1,02	Ortholog(s) have gamma-glutamyltransferase activity, omega peptidase activity, role in glutathione catabolic process and cytoplasm, nucleus localization
orf19.5469		1,11	1,09	Protein of unknown function; flow model biofilm induced
orf19.4334	PGA58	1,11	1,09	Protein with a predicted DEAD-like DNA/RNA helicase domain; shows colony morphology-related gene regulation by Ssn6; overlaps orf19.5472; Spider biofilm repressed
orf19.707	APG7	1,11	1,04	Putative GPI-anchored protein; transcription is positively regulated by Tbf1p
orf19.3515		1,11	1,09	Ortholog(s) have APG12 activating enzyme activity, APG8 activating enzyme activity
orf19.4636		1,11	1,11	Putative 3-hydroxyanthranilic acid dioxygenase, involved in NAD biosynthesis; Hap43p-repressed gene
orf19.1780		1,11	1,1	Predicted protein of unknown function; overlaps orf19.4636
orf19.3788	SPC34	1,11	1,15	Has domain(s) with predicted catalytic activity
orf19.21		1,11	1,08	Subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.1779	MP65	1,11	1,1	Ortholog(s) have role in ethanol metabolic process and mitochondrial inner membrane localization
orf19.4353	ULP2	1,11	1,11	Cell surface mannoprotein; cell-wall glucan metabolism, adhesion; adhesin motif; O-glycosylation; induced by heat, germ tube formation, wall regeneration; mycelial antigen; diagnostic marker; fluconazole-repressed; Spider biofilm induced
orf19.460	CEK2	1,11	1,07	SUMO deconjugation enzyme; removes the small ubiquitin-like modifier (SUMO) from proteins; Spider biofilm induced
orf19.3367		1,11	1,03	MAP kinase required for wild-type efficiency of mating; component of the signal transduction pathway that regulates mating; ortholog of S. cerevisiae Fus3; induced by Cph1, pheromone; transposon mutation affects filamentous growth
orf19.1278		1,11	1,1	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.3376		1,11	1,09	#NV
orf19.3375		1,11	1,06	Ortholog of Candida albicans WO-1 : CAWG_03459
orf19.1200		1,11	1,12	Ortholog of C. dubliniensis CD36 : Cd36_43270 and Candida albicans WO-1 : CAWG_03460
orf19.4494	KTR2	1,11	1,12	Protein of unknown function; Spider biofilm induced
orf19.184	MDM10	1,11	1,1	Mannosyltransferase; transcription elevated in <i>chk1</i> , <i>nik1</i> , and <i>sln1</i> homozygous null mutants; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1253	PHO4	1,11	1,09	Predicted component of the mitochondrial sorting and assembly machinery (SAM complex) and ER-mitochondria encounter structure (ERMES) complex with a role in protein import into mitochondria
orf19.3227	FTH2	1,11	1,28	bHLH transcription factor of the myc-family; required for growth in medium lacking phosphate and for resistance to copper and Phloxine B; induced by Mnl1 under weak acid stress
orf19.4523		1,11	1,06	Putative iron transporter; similar to S. cerevisiae Fth1p
orf19.3937		1,11	1,03	Ortholog(s) have 5-formyltetrahydrofolate cyclo-ligase activity, role in folic acid-containing compound biosynthetic process and mitochondrion localization
orf19.702		1,11	1,16	Ortholog(s) have protein phosphatase type 2A regulator activity, role in cellular response to nitrogen starvation, signal transduction and cytosol, nucleus localization
orf19.702		1,11	1,16	Ortholog(s) have DNA helicase activity, role in regulation of translational termination and polysome localization

orf19.4890	<i>CLA4</i>	1,11	1,15	Ste20p family Ser/Thr kinase required for wild-type filamentous growth, organ colonization and virulence in mouse systemic infection; role in chlamydospore formation; functional homolog of <i>S. cerevisiae</i> Cla4p; mutant caspofungin sensitive
orf19.2652	<i>TEF4</i>	1,11	1,09	Putative translation elongation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.2525	<i>LYS12</i>	1,11	1,12	Homoisocitrate dehydrogenase; catalyzes 4th step in the alpha-aminoadipate pathway of lysine biosynthesis; clade-associated gene expression; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.2783	<i>PIR32</i>	1,11	1,12	Cell wall protein, putative structural component of the cell wall; mutation leads to increased chitin content, increased virulence and resistance to stresses; macrophage-induced gene
orf19.2784		1,11	1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_07090, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00237, <i>Debaromyces hansenii</i> CBS767 : DEHA2F25542g and <i>Pichia stipitis</i> Pinal : psti_CGOB_00186
orf19.2794		1,11	1,05	Putative non-specific single-domain racemase; regulated by Gcn4p; repressed in response to amino acid starvation (3-AT treatment); alkaline upregulated; macrophage-induced protein
orf19.3463		1,11	1,08	Putative GTPase; role in 60S ribosomal subunit biogenesis; Spider biofilm induced
orf19.3468	<i>ALG11</i>	1,11	1,1	Alpha-1,2-mannosyltransferase; catalyzes sequential addition of 2 terminal alpha 1,2-mannose residues to the Man5GlcNAc2-PP-dolichol intermediate during asparagine-linked glycosylation in the ER; Spider biofilm induced
orf19.4872		1,11	1,06	Protein of unknown function; induced by Mn1 under weak acid stress; Hap43-induced; mutant is viable
orf19.4882		1,11	1,02	TFIIE small subunit; involved in RNA polymerase II transcription initiation; Spider biofilm induced
orf19.2387		1,11	1,09	Putative tRNA-Pro synthetase; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.3760	<i>DLH1</i>	1,11	1,17	Functional homolog of <i>S. cerevisiae</i> Dmc1; a meiosis-specific protein required for repair of double-strand breaks and pairing between homologous chromosomes
orf19.696	<i>STE2</i>	1,11	1,08	Receptor for alpha factor mating pheromone, MFalpha; required for a-type cells to respond to alpha factor, for opaque a-form mating and white a-form response; possible Kex2p substrate; a-specific, alpha-factor induced, A1p-Alpha2p repressed
orf19.5098	<i>NTG1</i>	1,11	1,12	Protein with strong similarity to both <i>S. cerevisiae</i> Ntg1 and Ntg2 DNA repair glycosylases; transcript induced by iron; Hap43-repressed gene; Spider biofilm induced
orf19.3923	<i>PGA37</i>	1,11	1,15	Putative GPI-anchored protein; Hap43-repressed; Spider biofilm induced
orf19.5556		1,11	1,11	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05078
orf19.2610		1,11	1,06	Putative tRNA binding protein; intron-containing gene; Spider biofilm induced
orf19.1186		1,11	1,06	Has domain(s) with predicted role in attachment of GPI anchor to protein and GPI-anchor transamidase complex localization
orf19.3553	<i>RPF2</i>	1,11	1,03	Putative pre-rRNA processing protein; Hap43p-induced gene; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.578		1,11	1,14	Ortholog(s) have Rab GTPase activator activity and role in actin filament organization, endocytosis, exocytosis, regulation of GTPase activity, regulation of protein localization
orf19.2738	<i>SUL2</i>	1,11	1,13	Putative sulfate transporter; transcript negatively regulated by Sfu1; amphotericin B induced; F-12/CO2 and Spider biofilm induced
orf19.4656		1,11	1,13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_41300, <i>C. parapsilosis</i> CDC317 : CPAR2_400390, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_94704 and <i>Debaromyces hansenii</i> CBS767 : DEHA2B02992g
orf19.5631		1,11	1,13	#NV
orf19.279		1,11	1,06	Protein with a predicted D-Tyr-tRNA(Tyr) deacylase domain; Hap43-repressed gene
orf19.1714	<i>PGA44</i>	1,11	1,05	Putative GPI-anchored protein
orf19.1964		1,11	1,09	Protein of unknown function; repressed by fluphenazine treatment; induced by benomyl treatment and in an RHE model; regulated by Nrg1, Tup1
orf19.5604	<i>MDR1</i>	1,11	1,08	Plasma membrane MDR/MFS multidrug efflux pump; methotrexate is preferred substrate; overexpression in drug-resistant clinical isolates confers fluconazole resistance; repressed in young biofilms; rat catheter biofilm induced
orf19.4807		1,11	1,04	Ortholog(s) have inorganic diphosphatase activity, role in aerobic respiration and mitochondrion localization
orf19.4142		1,11	1,04	Putative transporter; decreased transcription is observed upon fluphenazine treatment
orf19.4135	<i>PRC2</i>	1,11	1,08	Putative carboxypeptidase; induced by human neutrophils; Spider biofilm induced
orf19.3010		1,11	1,16	Putative lipoyl ligase; role in modification of mitochondrial enzymes by attachment of lipoyl acid groups; rat catheter biofilm induced
orf19.1360		1,11	1,12	Ortholog(s) have role in mitochondrial genome maintenance and mitochondrion localization
orf19.1362	<i>SMM1</i>	1,11	1,08	Putative dihydrodipyrrole synthase; Hap43-induced gene; rat catheter biofilm induced; Spider biofilm induced
orf19.6291		1,11	1,1	Ortholog(s) have DNA binding, DNA-dependent ATPase activity, chromatin binding activity
orf19.6299		1,11	1,15	#NV
orf19.3743		1,11	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_27230, <i>C. parapsilosis</i> CDC317 : CPAR2_801320, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_113198 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E23782g
orf19.2668	<i>RHD2</i>	1,11	1,08	Predicted ORF in retrotransposon Tc4 with similarity to the Gag region encoding nucleocapsid-like protein; overlaps blocked reading frame orf19.2668.1; yeast-enriched transcript; rat catheter biofilm induced
orf19.332		1,11	1,1	Member of a complex that contains Prp19; stabilizes U6 snRNA in catalytic forms of the spliceosome containing U2, U5, and U6 snRNAs; Spider biofilm induced
orf19.313	<i>DAL4</i>	1,11	1,19	Putative allantoin permease; fungal-specific (no human or murine homolog)
orf19.3976		1,11	1,08	Ortholog(s) have structural constituent of cytoskeleton activity, role in establishment of mitotic spindle orientation, nuclear migration and astral microtubule, cell cortex, dynein complex, spindle pole body localization
orf19.593	<i>FGR32</i>	1,11	1,08	Protein similar to <i>S. cerevisiae</i> Swa2p; induced upon adherence to polystyrene; transposon mutation affects filamentous growth; Hap43p-repressed gene
orf19.1255	<i>ZCF5</i>	1,11	1,09	Zn(II)Cys6 transcription factor; colony morphology-related gene regulation by Ssn6
orf19.6354		1,11	1,06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11870, <i>C. parapsilosis</i> CDC317 : CPAR2_201650, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00224 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D04884g
orf19.993		1,11	1,06	Protein of unknown function; rat catheter biofilm repressed
orf19.984	<i>PHO8</i>	1,11	1,08	Putative repressible vacuolar alkaline phosphatase; Rim101-induced transcript; regulated by Tsa1, Tsa1B in minimal media at 37 deg; possibly adherence-induced
orf19.6382		1,11	1,16	Putative MRP/CFTR-subfamily ABC transporter; member of multidrug resistance-associated protein (MRP) subfamily of ABC family; similar to <i>S. cerevisiae</i> Bpt1p
orf19.3876	<i>ZCF19</i>	1,11	1,1	Predicted Zn(II)Cys6 transcription factor
orf19.3140		1,11	1,14	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03159
orf19.5832	<i>HPT1</i>	1,11	1,13	Putative hypoxanthine-guanine phosphoribosyltransferase; protein abundance affected by URA3 expression in the CA4 strain background; protein level decreases in stationary phase; Spider biofilm induced
orf19.6100		1,11	1,22	Cardiolipin synthase; ortholog of <i>S. cerevisiae</i> Crd1; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; mutants are viable; Spider biofilm repressed
orf19.1409	<i>VAC7</i>	1,11	1,19	Ortholog of <i>S. cerevisiae</i> Vac7; integral vacuolar membrane protein involved in vacuole inheritance and morphology; mutants are viable
orf19.1417		1,11	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43970, <i>C. parapsilosis</i> CDC317 : CPAR2_401720, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_102588 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G16698g
orf19.1418	<i>SEC15</i>	1,11	1,06	Predicted exocyst subunit; cellular bud tip-associated protein; ortholog of <i>S. cerevisiae</i> SEC15
orf19.376		1,11	1,02	Protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.3665	<i>SET6</i>	1,11	1,19	Ortholog of <i>S. cerevisiae</i> Set6; a SET domain protein of unknown function; Hap43-induced; rat catheter and Spider biofilm induced
orf19.6641		1,11	1,07	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01892
orf19.665	<i>NEP1</i>	1,11	1,02	Ortholog(s) have rRNA (pseudouridine) methyltransferase activity
orf19.5799		1,11	1,06	Ortholog(s) have cytoplasm localization
orf19.6665		1,11	1,2	Ortholog(s) have Ran GTPase binding, nucleocytoplasmic transporter activity
orf19.4107		1,11	1,24	Exopolphosphatase, hydrolyzes inorganic polyphosphate (poly P) into Pi residues; Spider biofilm repressed
orf19.5676		1,11	1,1	Ortholog(s) have cytosol, nucleus localization
orf19.3103		1,11	1,1	Ortholog(s) have RNA polymerase III activity, role in tRNA transcription from RNA polymerase III promoter and DNA-directed RNA polymerase III complex, cytoplasm localization
orf19.6845		1,11	1,06	Putative transcription factor with bZIP DNA-binding motif; rat catheter biofilm induced
orf19.488	<i>MEX67</i>	1,11	1,04	Nuclear export protein; has NTF2-like domain; interacts with Mir2p via the NTF2-like domain
orf19.2074		1,11	1,08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03833
orf19.2064		1,11	1,04	Putative transcription factor with zinc finger DNA-binding motif
orf19.5276		1,11	1,12	Putative nuclear pore-associated protein; Hap43p-induced gene; induced upon low-level peroxide stress; possibly an essential gene; disruptants not obtained by UAU1 method
orf19.5251	<i>ZCF30</i>	1,11	1,16	Predicted Zn(II)Cys6 transcription factor; mutants are viable; repressed by fluphenazine; Spider biofilm induced
orf19.6988	<i>OST1</i>	1,11	1,1	Alpha subunit of the oligosaccharyltransferase complex of the ER lumen; catalyzes asparagine-linked glycosylation of newly synthesized proteins; Spider biofilm repressed
orf19.6423		1,11	1,13	Ortholog(s) have fructose-2,6-bisphosphate 2-phosphatase activity, role in glucose metabolic process and cytoplasm localization
		1,11	1,02	#NV
orf19.4581		1,11	1,07	Putative glycosylphosphatidylinositol-alpha 1,4 mannosyltransferase I; regulated by Tsa1p, Tsa1Bp under H2O2 stress conditions
orf19.7038		1,11	1,06	Ortholog(s) have phosphatidylinositol-3-phosphate binding activity, role in protein targeting to vacuole and cytoplasm, nucleus localization
orf19.7144		1,11	1,11	Ortholog(s) have GTPase activity, ribosome binding activity, role in nonfunctional rRNA decay, nuclear-transcribed mRNA catabolic process, no-go decay, ribosome disassembly and cytosol localization
orf19.7157		1,11	1,05	Protein with a tubulin binding cofactor C domain; flow model biofilm induced

orf19.7214		1,11	1,16	Glucan 1,3-beta-glucosidase; regulated by Nrg1, Tup1 and possibly Tac1; induced by NO and during cell wall regeneration; stationary phase enriched; possibly essential (UAU1 method); F-12/CO2 early biofilm induced; flow biofilm repressed
orf19.7218	<i>RBE1</i>	1,11	1,02	Pry family cell wall protein; Rim101, Efg1, Ssn6, alkaline repressed; O-glycosylation; no GPI anchor predicted; ketoconazol induced; regulated by Sef1, Sfu1, Hap4; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.7254		1,11	1,1	Ortholog(s) have role in mRNA metabolic process, mitochondrial translational initiation and extrinsic to membrane, mitochondrial inner membrane localization
orf19.3239	<i>CTF18</i>	1,11	1,07	Protein with a predicted role in sister chromatid cohesion; cell-cycle regulated periodic mRNA expression
orf19.3271		1,11	1,12	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01442
orf19.7320	<i>LIP7</i>	1,11	1,05	Probable lipase, part of a gene family whose members are differentially expressed during infection; lacks a signal sequence for secretion, unlike other family members; may have a role in nutrition or in creating an acidic microenvironment
orf19.7344		1,11	1,05	Ortholog(s) have DNA binding, chromatin binding, histone deacetylase activity
orf19.7103		1,11	1,06	Predicted exonuclease; Spider biofilm induced
orf19.7073		1,11	1,15	Ortholog of <i>S. cerevisiae</i> : YCL002C, <i>C. glabrata</i> CBS138 : CAGL0B04719g, <i>C. dubliniensis</i> CD36 : Cd36_70180, <i>C. parapsilosis</i> CDC317 : CPAR2_805360 and <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00114
orf19.7369	<i>TRM12</i>	1,11	1,25	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, transferase activity, transferring alkyl or aryl (other than methyl) groups activity and role in tRNA methylation, w/ubytosine biosynthetic process
orf19.7378		1,11	1,22	Ortholog(s) have phosphopantothencysteine decarboxylase activity, protein phosphatase inhibitor activity and role in regulation of mitotic cell cycle, response to salt stress
orf19.7441		1,11	1,23	Ortholog(s) have role in cellular lipid metabolic process, mRNA export from nucleus, protein export from nucleus and nuclear envelope localization
orf19.5384	<i>CHS8</i>	1,11	1,16	Chitin synthase required for synthesis of long-chitin fibrils; nonessential; 8 or 9 membrane spanning regions; mRNA present in yeast and hyphae; induced during cell wall regeneration; flow model biofilm repressed
orf19.5430	<i>BUD21</i>	1,11	1,22	Small-subunit processome component; repressed by prostaglandins
orf19.6809		1,11	1,04	Putative phosphomutase-like protein; protein present in exponential and stationary growth phase yeast; Hap43-repressed; Spider biofilm repressed
orf19.7558	<i>YTA6</i>	1,11	1,21	Protein similar to <i>S. cerevisiae</i> Yta6p ATPase but ortholog of <i>S. cerevisiae</i> Sap1; transposon mutation affects filamentous growth; induced by Mnl1 under weak acid stress
orf19.7583	<i>ZCF39</i>	1,11	1,41	Zn(II)Cys6 transcription factor; mutants are viable; filament induced; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.7631	<i>SLD5</i>	1,11	1,11	Putative GINS complex subunit; cell-cycle regulated periodic mRNA expression
orf19.5947	<i>SEC7</i>	1,11	1,09	Putative guanine nucleotide exchange factor (GEF); mutation confers hypersensitivity to Brefeldin A; caspofungin repressed
orf19.5880		1,11	1,12	Putative voltage-gated chloride channel; predicted role in copper ion and iron ion homeostasis; flow model biofilm induced
orf19.5875	<i>VAM3</i>	1,11	1,05	Predicted target membrane receptor (t-SNARE) involved in vacuolar transport, endocytosis, and secretion; required for biofilm formation in RPMI-1640 and for virulence; rat catheter biofilm repressed
orf19.236	<i>RPL9B</i>	1,11	1,09	Ribosomal protein L9; repressed upon phagocytosis by murine macrophages; repressed by nitric oxide; protein levels decrease in stationary phase; Hap43-induced; Spider biofilm repressed
orf19.5599	<i>MDL2</i>	1,11	1,09	Putative mitochondrial, half-size MDR-subfamily ABC transporter
orf19.6487		1,1	1,02	#NV
orf19.1595		1,1	1,02	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_808350, <i>C. dubliniensis</i> CD36 : Cd36_72060, <i>Candida orthopsilosis</i> Co 90-125 : CORT_0C00820 and <i>Candida albicans</i> WO-1 : CAWG_05575
orf19.230		1,1	1,09	Ortholog(s) have Dsc E3 ubiquitin ligase complex, endoplasmic reticulum localization
orf19.750		1,1	1,11	Ortholog of <i>S. cerevisiae</i> Pet111; a mitochondrial translational activator specific for the COX2 mRNA; Hap43-induced gene
orf19.244	<i>DCG1</i>	1,1	1,1	Protein of unknown function; exogenously expressed protein is a substrate for Kex2p processing in vitro
orf19.206		1,1	1,11	Protein of unknown function; ortholog of <i>S. cerevisiae</i> Dca1; transcript regulated by Nrg1 and Mig1
orf19.989		1,1	1,02	Putative adhesin-like protein
orf19.1482	<i>HSK3</i>	1,1	1,13	Mitochondrial ribosomal protein of the small subunit; Spider biofilm repressed
orf19.1012		1,1	1,04	Subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules; expression regulated during planktonic growth
orf19.656	<i>DPP1</i>	1,1	1,09	Ortholog(s) have clathrin binding activity, role in Golgi to vacuole transport, endosomal transport and AP-1 adaptor complex, cytosol, endosome, nucleus localization
orf19.3720		1,1	1,01	Putative diacylglycerol pyrophosphate phosphatase of diacylglycerol production for phospholipid biosynthesis; downregulation correlates with clinical development of fluconazole resistance
orf19.6248		1,1	1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_27400, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_103764, <i>Debaromyces hansenii</i> CBS767 : DEHA2B08250q and <i>Pichia stipitis</i> Pinal : PICST_63653
orf19.1391		1,1	1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06210, <i>Candida tropicalis</i> MYA-3404 : CTRG_04227 and <i>Candida albicans</i> WO-1 : CAWG_00750
orf19.3852		1,1	1,21	Protein with similarity to trimeric LpxA-like enzymes; Hap43-repressed gene
orf19.103	<i>KAR5</i>	1,1	1,08	Has domain(s) with predicted carbohydrate binding, catalytic activity and role in carbohydrate metabolic process
orf19.4981		1,1	1,07	Ortholog of <i>S. cerevisiae</i> Kar5; involved in nuclear membrane fusion during karyogamy; induced by alpha factor
orf19.2625		1,1	1,01	Ortholog(s) have endoplasmic reticulum localization
orf19.3169		1,1	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02051
orf19.3166		1,1	1,09	Ortholog(s) have role in RNA polymerase II complex localization to nucleus, RNA polymerase III complex localization to nucleus, establishment of mitotic sister chromatid cohesion and cytosol, nucleus localization
orf19.3163		1,1	1,04	Ortholog(s) have role in Golgi to endosome transport, cell morphogenesis, endoplasmic reticulum organization and endosome, mitochondrion, trans-Golgi network localization
orf19.3639		1,1	1,08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_51910, <i>C. parapsilosis</i> CDC317 : CPAR2_101650, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94797 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D06578g
orf19.2355		1,1	1,06	#NV
orf19.1368		1,1	1,04	Ortholog(s) have alkylbase DNA N-glycosylase activity and role in DNA dealkylation involved in DNA repair, base-excision repair, AP site formation
orf19.1106		1,1	1,15	#NV
orf19.1247		1,1	1,07	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.1212		1,1	1,11	Protein with Mob2p-dependent hyphal regulation; fluconazole-induced
		1,1	1,11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_45230, <i>C. parapsilosis</i> CDC317 : CPAR2_500450, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_103249 and <i>Debaromyces hansenii</i> CBS767 : DEHA2C07524q
		1,1	1,11	Ortholog(s) have FFAT motif binding, phosphatidylinositol binding activity
		1,1	1,1	#NV
orf19.269	<i>SES1</i>	1,1	1,04	Ortholog(s) have Seryl-tRNA synthetase; charges the tRNA that recognizes the CUG codon, which typically specifies Leu, but specifies Ser in <i>C. albicans</i> ; complements <i>S. cerevisiae</i> ses1 mutant viability; soluble protein in hyphae; macrophage-regulated
orf19.4121		1,1	1,05	Predicted thioesterase/thiol ester dehydrase-isomerase; Spider biofilm induced
orf19.4072	<i>IFF6</i>	1,1	1,07	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.1033	<i>STR2</i>	1,1	1,07	Ortholog(s) have cystathionine gamma-synthase activity, role in transsulfuration and cytosol, nucleus localization
orf19.3941	<i>URA7</i>	1,1	1,3	CTP synthase 1; flucytosine induced; protein present in exponential and stationary growth phase yeast cultures
orf19.4888		1,1	1,1	Has domain(s) with predicted nucleic acid binding, nucleotide binding activity
orf19.5207		1,1	1,08	Predicted diphthamide biosynthesis protein; Spider biofilm induced
orf19.2753	<i>ZCF15</i>	1,1	1,01	Predicted Zn(II)Cys6 transcription factor of unknown function; rat catheter biofilm induced
orf19.2790	<i>SWD2</i>	1,1	1,04	Ortholog(s) have histone methyltransferase activity (H3-K4 specific) activity
orf19.2792	<i>IST2</i>	1,1	1,07	Ortholog(s) have lipid binding activity, role in endoplasmic reticulum membrane organization, regulation of phosphatidylinositol dephosphorylation and cellular bud membrane, cortical endoplasmic reticulum localization
orf19.3091		1,1	1,05	Protein of unknown function; repressed during core stress response
orf19.5722		1,1	1,06	Ortholog(s) have DNA binding activity
orf19.4244		1,1	1,07	Protein of unknown function; mutants are viable
orf19.2587	<i>HNM3</i>	1,1	-1,01	Putative transporter; Hap43, flucytosine repressed; possibly essential, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.746		1,1	1,04	Has domain(s) with predicted role in protein transport
orf19.5485	<i>MEC3</i>	1,1	1,08	Putative DNA damage and meiotic pachytene checkpoint protein; increased transcription is observed upon benomyl treatment
orf19.4044	<i>MUM2</i>	1,1	1	Protein similar to <i>S. cerevisiae</i> Mum2, a protein essential for meiotic DNA replication and sporulation; induced by alpha pheromone in SpiderM medium; transcript regulated by Tup1
orf19.59	<i>REI1</i>	1,1	1,97	Putative cytoplasmic pre-60S factor; Hap43-induced; repressed by prostaglandins
orf19.2585		1,1	1,12	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01548
orf19.2119	<i>NDT80</i>	1,1	1,1	Ortholog of Ndt80; meiosis-specific transcription factor; activator of CDR1 induction by antifungal drugs; required for wild-type drug resistance and for Spider biofilm formation; transcript induced by antifungal drug treatment
orf19.2684		1,1	1,06	Protein of unknown function; flow model biofilm repressed
orf19.4520		1,1	1,05	Putative gluconokinase; rat catheter biofilm induced

orf19.4519	<i>SUV3</i>	1,1	1,21	RNA helicase; mitochondrial RNA catabolism; required for chlamydospore formation, embedded hyphal growth, wild-type respiratory growth, alkaline-induced morphogenesis and SD or Spider biofilm formation; rat catheter biofilm induced
orf19.3328		1,1	1,09	Putative transcription factor; <i>S. cerevisiae</i> ortholog Hot1 is required for the transient induction of glycerol biosynthetic genes <i>GPD1</i> and <i>GPP2</i> in response to high osmolarity, filament induced
orf19.1964		1,1	1,09	Protein of unknown function; repressed by fluphenazine treatment; induced by benomyl treatment and in an RHE model; regulated by <i>Nrg1</i> , <i>Tup1</i>
orf19.1240		1,1	1,08	Ortholog of <i>S. cerevisiae</i> : YPR117W, <i>C. glabrata</i> CBS138 : CAGL0D04510g, <i>C. dubliniensis</i> CD36 : Cd36_45200, <i>C. parapsilosis</i> CDC317 : CPAR2_500480 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_120679
orf19.6117		1,1	1,3	<i>S. pombe</i> ortholog SPAC5D6.04 is a predicted auxin family transmembrane transporter; ketoconazole and hypoxia induced
orf19.223		1,1	1,09	Putative serine/threonine protein kinase; Hap43-repressed; induced by prostaglandins; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.215		1,1	1,04	Component of a complex containing the Tor2p kinase; possible a role in regulation of cell growth; Spider biofilm induced
orf19.6547		1,1	1,12	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05528
orf19.3716		1,1	1,16	#NV
orf19.6166		1,1	1,02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_80810, <i>C. parapsilosis</i> CDC317 : CPAR2_101800, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_103482 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F17864g
orf19.1661	<i>DBP5</i>	1,1	-1	Ortholog(s) have RNA helicase activity, RNA-dependent ATPase activity, inositol hexakisphosphate binding activity and role in mRNA export from nucleus, translational termination
orf19.3565		1,1	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19830, <i>C. parapsilosis</i> CDC317 : CPAR2_206470, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113899 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C05676g
orf19.983		1,1	1,1	#NV
orf19.5770	<i>OPT8</i>	1,1	1,35	Oligopeptide transporter; similar to Opt1 and to <i>S. cerevisiae</i> Ygl114wp, but not other OPTs; induced by nitric oxide, amphotericin B; expression of OPT6, 7, 8 does not complement mutants lacking Opt1, Opt2, and Opt3; Spider biofilm induced
orf19.3871	<i>DAD3</i>	1,1	1,02	Subunit of the Dam1 (DASH) complex, which acts in chromosome segregation by coupling kinetochores to spindle microtubules
orf19.3873	<i>ARC40</i>	1,1	1,06	Protein similar to <i>S. cerevisiae</i> Aro40; involved in actin filament organization in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; rat catheter and Spider biofilm repressed
orf19.201		1,1	1,07	Protein of unknown function; unmerged from orf19.202 in a revision of Assembly 21
orf19.543	<i>FUM11</i>	1,1	1,09	Fumarate hydratase; induced in high iron; protein in exponential and stationary-phase yeast cells, but higher in stationary phase; rat catheter biofilm repressed
orf19.5131		1,1	1,1	Ortholog of <i>S. cerevisiae</i> Gid7, a GID complex protein; involved in proteasome-dependent catabolite inactivation of fructose-1,6-bisphosphatase; Hap43-repressed gene
orf19.6269		1,1	1,02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05990, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_91852, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G15356a and <i>Pichia stipitis</i> Pigna1 : PICST_87044
orf19.6269		1,1	1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05990, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_91852, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G15356a and <i>Pichia stipitis</i> Pigna1 : PICST_87044
orf19.4937	<i>CHS3</i>	1,1	1,07	Major chitin synthase of yeast and hyphae; synthesizes short-chitin fibrils; Chs4-activated; transcript induced at yeast-hyphal transition; Chs1 and Chs2, but not Chs3, are inhibited by the protuberberine HWY-289; Spider biofilm induced
orf19.4172		1,1	1,04	Has domain(s) with predicted hydrolase activity and role in metabolic process
orf19.6605		1,1	-1,08	Ortholog(s) have fungal-type vacuole, mitochondrion localization
orf19.399		1,1	1,21	Putative serine/threonine protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1617		1,1	1,1	Protein similar to <i>S. cerevisiae</i> Ydr282cp; transposon mutation affects filamentous growth; Hap43p-repressed gene
orf19.3667		1,1	1,01	Has domain(s) with predicted ATP binding, microtubule binding, microtubule motor activity, role in microtubule-based movement and microtubule associated complex localization
orf19.2760		1,1	1,07	Putative mRNA cleavage and polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to parnafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.2946	<i>HNM4</i>	1,1	1,14	Putative choline permease; fungal-specific (no human or murine homolog)
orf19.515		1,1	1,12	Has domain(s) with predicted nucleic acid binding, zinc ion binding activity
orf19.537		1,1	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_29810, <i>C. parapsilosis</i> CDC317 : CPAR2_206030, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_102086 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F14014g
orf19.547		1,1	1,11	Ortholog(s) have 5'-flap endonuclease activity, single-stranded DNA specific 5'-3' exodeoxyribonuclease activity
orf19.6681		1,1	1,03	#NV
orf19.2160	<i>NAG4</i>	1,1	-1,03	Protein of unknown function; Spider biofilm induced
orf19.6730		1,1	1,16	Putative transporter; fungal-specific; similar to Nag3p and to <i>S. cerevisiae</i> Ypr156Cp and Ygr138Cp; required for wild-type mouse virulence and wild-type cycloheximide resistance; gene cluster encodes enzymes of GlcNAc catabolism
orf19.4863	<i>PDC2</i>	1,1	1,08	Ortholog(s) have nucleolus localization
orf19.5667	<i>MNR2</i>	1,1	1,23	Homeodomain-like transcription factor; regulator of pyruvate decarboxylase; contains a putative C-terminal activation domain. Glu- and Pro-rich; complements glucose utilization defect of <i>S. cerevisiae</i> <i>pdc2</i> mutant
orf19.3102	<i>CTA6</i>	1,1	1,03	Putative ion transporter; fungal-specific (no human or murine homolog)
orf19.1072		1,1	1,08	Protein that activates transcription in 1-hybrid assay in <i>S. cerevisiae</i>
orf19.355		1,1	1,12	#NV
orf19.4446		1,1	1,28	Has domain(s) with predicted oxidoreductase activity and role in oxidation-reduction process
orf19.893	<i>PGA17</i>	1,1	1,02	Protein similar to ammonium permeases that is probably inactive, as a <i>mep2 mep3</i> double homozygous null mutation abolishes cellular ammonium permease activity; fungal-specific (no human or murine homolog)
orf19.889	<i>THI20</i>	1,1	1,12	Putative GPI-anchored protein; exogenously expressed protein substrate for Kex2 processing in vitro; repressed by alpha pheromone in SpiderM medium; macrophage-induced; induced in oralpharyngeal candidiasis; Spider biofilm induced
orf19.6942	<i>ORC3</i>	1,1	1,11	Putative trifunctional enzyme of thiamine biosynthesis, degradation and salvage; Spider biofilm induced
orf19.4011		1,1	1,1	Protein similar to <i>S. cerevisiae</i> Orc3p, which is a component of the origin recognition complex involved in DNA replication; mutation confers hypersensitivity to toxic ergosterol analog; induced under hydroxyurea treatment
orf19.2061		1,1	1,05	Similar to <i>S. pombe</i> mug180, a predicted esterase/lipase; highly induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i> ; flow model biofilm induced
orf19.3829	<i>PHR1</i>	1,1	1,03	Protein of unknown function; mutants are viable
orf19.6575		1,1	1,08	Cell surface glycosidase; may act on cell-wall beta-1,3-glucan prior to beta-1,6-glucan linkage; role in systemic, not vaginal virulence (neutral, not low pH); high pH or filamentation induced; Bcr1-repressed in RPM1 a/a biofilm
orf19.6520		1,1	1,05	Protein of unknown function; rat catheter biofilm repressed
orf19.6512	<i>EXO70</i>	1,1	1,03	Putative allantoinase permease; fungal-specific (no human or murine homolog)
orf19.3034	<i>RLI1</i>	1,1	1,13	Predicted subunit of the exocyst complex, involved in exocytosis; localizes to a crescent on the surface of the hyphal tip
orf19.3037		1,1	1,24	Member of RNase L inhibitor (RLI) subfamily of ABC family; predicted not to be a transporter; regulated by Sef1p, Stu1p, and Hap43p
orf19.7041		1,1	1,07	Putative poly(A)-binding protein; regulated by Gcn4p; induced in response to amino acid starvation (3-AT treatment); protein present in exponential and stationary growth phase yeast cultures
orf19.5014		1,1	1,05	Putative pre-tRNA processing protein; heterozygous null mutant exhibits hypersensitivity to parnafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.7161	<i>SUI3</i>	1,1	1,06	Ortholog(s) have mitochondrion localization
orf19.7208	<i>CSK1</i>	1,1	1,02	Putative translation initiation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.3245		1,1	1,07	Putative mitogen-activated protein (MAP) kinase with an unknown role; null mutant produces wrinkled colonies; similar to <i>S. cerevisiae</i> Smk1p, which is a protein kinase required for sporulation
orf19.7295		1,1	1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26090, <i>C. parapsilosis</i> CDC317 : CPAR2_801510, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_137093 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F20548g
orf19.7340		1,1	1,04	Ortholog(s) have protein phosphatase 1 binding activity, role in actin filament organization, cortical actin cytoskeleton organization, endocytosis, protein secretion and actin cortical patch, nucleus localization
orf19.7341		1,1	1,06	Protein of unknown function; possibly <i>C. albicans</i> specific; Spider biofilm induced
orf19.1210		1,1	1,17	Protein of unknown function; flow model biofilm induced; ketoconazole-repressed
orf19.7440	<i>HST6</i>	1,1	1,12	Ortholog(s) have L-arginine transmembrane transporter activity, L-aspartate transmembrane transporter activity and L-glutamate transmembrane transporter activity, more
orf19.7495		1,1	1,07	ABC transporter related to mammalian P-glycoproteins; functional homolog of <i>S. cerevisiae</i> Ste6p (a-pheromone transporter); required for mating of MTLA cells; a-type specific, not regulated during white-opaque or yeast-hyphal switching
orf19.7539	<i>INO2</i>	1,1	1,11	Protein with NADPH oxidoreductase containing flavin mononucleotide (FMN) domain; induced by nitric oxide
orf19.7618		1,1	-1,05	Transcriptional activator that forms a heterodimer with Ino4p; likely regulates genes involved in phosphatidylcholine and phosphatidylinositol biosynthesis, fatty acid beta-oxidation, and peroxisome biogenesis
orf19.5978		1,1	1,09	Putative nucleolar protein with a predicted role in pre-18S rRNA processing; P1c1p-regulated; Spider biofilm induced
orf19.5978		1,1	1,09	Has domain(s) with predicted oxidoreductase activity, transferase activity, transferring acyl groups other than amino-acyl groups, zinc ion binding activity and role in oxidation-reduction process

orf19.5967	<i>FGR44</i>	1,1	1,08	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.5953		1,1	1,19	C2H2 transcription factor; predicted regulator of ribosomal protein and biogenesis genes; possibly essential, disruptants not obtained by UAU1 method; rat catheter biofilm induced
orf19.5949	<i>FAS2</i>	1,1	1,33	Alpha subunit of fatty-acid synthase; required for virulence in mouse systemic infection and rat oropharyngeal infection models; regulated by Efg1; fluconazole-induced; amphotericin B repressed; flow model and Spider biofilm repressed
orf19.5949	<i>FAS2</i>	1,1	1,04	Alpha subunit of fatty-acid synthase; required for virulence in mouse systemic infection and rat oropharyngeal infection models; regulated by Efg1; fluconazole-induced; amphotericin B repressed; flow model and Spider biofilm repressed
orf19.5918		1,1	1,07	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02773
orf19.5879		1,1	1,02	Has domain(s) with predicted oxidoreductase activity and role in metabolic process
orf19.5870	<i>CTP1</i>	1,1	1,03	Putative citrate transport protein; flucytosine induced; amphotericin B repressed, caspofungin repressed; Hap43p-induced gene
orf19.5806		1,1	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05051
		1,1	1,03	#NV
		1,1	1,1	#NV
orf19.5741	<i>ALS1</i>	1,09	1	Cell-surface adhesin; adhesion, virulence, immunoprotective roles; band at hyphal base; Rtg1, Ssk1, Spider biofilm induced; flow model biofilm repressed; CAI-4 strain background effects; promoter bound Bcr1, Tec1, Efg1, Ndt80, and Brg1
orf19.3956		1,09	1,06	Ortholog(s) have glutamyl-HRNA synthase (glutamine-hydrolyzing) activity and role in endoplasmic reticulum organization, glutamyl-HRNA Gln biosynthesis via transamidation
orf19.838.1	<i>RPS9B</i>	1,09	1,06	Predicted ribosomal protein; repressed upon phagocytosis by murine macrophage; transcript possibly regulated upon hyphal formation; Spider biofilm repressed
orf19.2686		1,09	1,14	Ortholog(s) have carboxypeptidase activity, role in nitrogen compound metabolic process, proteolysis involved in cellular protein catabolic process and fungal-type vacuole lumen localization
orf19.141		1,09	1,14	#NV
orf19.3080		1,09	1,1	Ortholog(s) have role in attachment of spindle microtubules to kinetochore, cellular response to nitrogen starvation, cohesin localization to chromatin and double-strand break repair, more
orf19.657	<i>SAM2</i>	1,09	1,1	S-adenosylmethionine synthetase; localizes to surface of hyphae, not yeast cells; alkaline, Hog1-induced; farnesol-downregulated; F-12/CO2 early biofilm induced; Spider biofilm repressed
orf19.5541		1,09	1,03	Protein with similarity to <i>S. pombe</i> Nrd1p; transcription induced upon induction of hyphal growth; regulated by Cph1p, Efg1p, Cph2p; low-level expression; alkaline upregulated; fungal-specific (no human or murine homolog)
		1,09	1,07	#NV
orf19.2539		1,09	1,02	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.102		1,09	1,08	Ortholog(s) have translation regulator activity, role in regulation of translation and mitochondrion localization
orf19.105	<i>HAL22</i>	1,09	1,05	Putative phosphoadenosine-5'-phosphate or 3'-phosphoadenosine 5'-phosphosulfate phosphatase; possible role in sulfur recycling; Hap43-repressed; F-12/CO2 biofilm induced
orf19.3470		1,09	1,13	Putative flavodoxin; similar to <i>S. cerevisiae</i> Tyw1, an iron-sulfur protein required for synthesis of Wybutosine modified tRNA; predicted Kex2 substrate; Spider biofilm induced
orf19.1774		1,09	1,05	Predicted dehydrogenase; transcript upregulated in an RHE model of oral candidiasis; virulence-group-correlated expression; Spider biofilm repressed
orf19.406	<i>ERG1</i>	1,09	1,07	Squalene epoxidase, epoxidation of squalene to 2,3(S)-oxidosqualene; ergosterol biosynthesis; allylamine antifungal drug target; NADH reducing cofactor but <i>S. cerevisiae</i> Erg1 uses NADPH; flow model biofilm induced; Spider biofilm repressed
orf19.4427	<i>SKP1</i>	1,09	1,1	Putative subunit D of kinetochore protein complex CBF3; regulated by Gcn4p; repressed in response to amino acid starvation (3-aminotriazole treatment)
orf19.4963		1,09	1,09	Ortholog(s) have role in ER-associated protein catabolic process and cytoplasm, nucleolus localization
orf19.169	<i>CHO2</i>	1,09	1,09	Putative phosphatidyl-ethanolamine N-methyltransferase; fungal-specific (no human or murine homolog); amphotericin B repressed; Hap43p-induced gene
		1,09	1,06	#NV
orf19.4488		1,09	1,02	Predicted ortholog of <i>S. cerevisiae</i> Swi3, subunit of the SWI/SNF chromatin remodeling complex; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.193		1,09	1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19310, <i>C. parapsilosis</i> CDC317 : CPAR2_209710, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113479 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C15114q
orf19.4062	<i>TRY2</i>	1,09	1,03	Transcription factor; regulator of yeast form adherence; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.1653		1,09	1,06	Has domain(s) with predicted integral to membrane localization
orf19.1654		1,09	1,03	Predicted membrane protein; induced by prostaglandins
orf19.1029	<i>RPP1</i>	1,09	1,04	Putative ortholog of <i>S. cerevisiae</i> Rpp1; subunit of both RNase MRP and nuclear RNase P; rat catheter and Spider biofilm induced
orf19.1725		1,09	1,04	Putative adhesin-like protein
orf19.5566		1,09	1,1	Ortholog(s) have role in protein lipoylation and mitochondrion localization
orf19.5125		1,09	-1,12	Protein of unknown function; induced by ketoconazole; Spider, F-12/CO2 and flow model biofilm induced
orf19.1956		1,09	1,1	Ortholog(s) have role in reciprocal meiotic recombination and mitochondrion localization
orf19.4188	<i>NMD5</i>	1,09	1,03	Karyopherin; carrier protein involved in nuclear import of proteins; repressed in core stress response; Hap43-induced; Spider biofilm induced
orf19.5228	<i>RIB3</i>	1,09	1,08	3,4-Dihydroxy-2-butanone 4-phosphate synthase; homodimeric enzyme of riboflavin biosynthesis; converts ribulose 5-phosphate to L-3,4-dihydroxy-2-butanone 4-phosphate; transcription regulated on yeast-hyphal switch, macrophage interaction
orf19.2796		1,09	1,03	Ortholog(s) have DNA-directed DNA polymerase activity, role in DNA replication initiation, telomere capping and alpha DNA polymerase primase complex, cytosol, nuclear envelope localization
orf19.3088		1,09	1,13	bZIP transcription factor; possibly transcriptionally regulated upon hyphal formation; Hap43; F-12/CO2 early biofilm induced; Spider biofilm induced
orf19.5724		1,09	1,07	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_500910, <i>C. dubliniensis</i> CD36 : Cd36_64110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115913 and <i>Pichia stipitis</i> Pignal : PICST_32870
orf19.5720		1,09	1,04	Predicted membrane transporter, member of the monocarboxylate porter (MCP) family, major facilitator superfamily (MFS); ketoconazole or caspofungin repressed; Spider biofilm induced
orf19.2516		1,09	1,07	Has domain(s) with predicted role in cell redox homeostasis
orf19.6026	<i>ERG2</i>	1,09	1,03	C-8 sterol isomerase; enzyme of ergosterol biosynthesis; converts fecosterol to episterol; mutant is hypersensitive to multiple drugs, ketoconazole-induced; flow model and Spider biofilm repressed
orf19.5295		1,09	1,04	Protein with a predicted endonuclease/exonuclease/phosphatase family domain and a carbon catabolite repressor protein 4 domain; induced by alpha pheromone in SpiderM medium
orf19.5291		1,09	1,06	Ortholog(s) have role in phospholipid biosynthetic process and endoplasmic reticulum localization
orf19.1958		1,09	1,04	Dubious open reading frame
orf19.5479	<i>FGR12</i>	1,09	1,06	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; flow model biofilm induced
orf19.3499		1,09	1,1	Secreted protein; Hap43-repressed; fluconazole-induced; regulated by Tsa1, Tsa1B under H2O2 stress conditions; induced by Mnl1p under weak acid stress; Spider biofilm induced
orf19.1795	<i>PUF3</i>	1,09	1,05	Ortholog of <i>S. cerevisiae</i> Puf3; mRNA-binding protein involved in RNA catabolism; mutant is viable
orf19.5525		1,09	-1	Putative oxidoreductase; protein levels affected by URA3 expression in CAI-4 strain background; Efg1, Eth1 regulated; Rgt1-repressed; protein present in exponential and stationary growth phase yeast; rat catheter biofilm repressed
orf19.2836		1,09	1,03	Protein with similarity to carbonic anhydrases
orf19.6217	<i>PGA63</i>	1,09	1,01	Component COPII vesicle coat; required for vesicle formation in ER to Golgi transport; predicted GPI-anchor; flow model and Spider biofilm repressed
orf19.5630	<i>APA2</i>	1,09	1,04	Putative ATP adenylyltransferase II; regulated by Gcn4; repressed by amino acid starvation (3-AT); induced by prostaglandins; Hap43-repressed; Spider biofilm repressed
orf19.1119	<i>MTR10</i>	1,09	1,08	Putative importin; member of a family of fungal-specific nuclear importins; Mlg1-regulated
orf19.1321	<i>HWP1</i>	1,09	1,19	Hyphal cell wall protein; host transglutaminase substrate; opaque-, a-specific, alpha-factor induced; at MTLA side of conjugation tube; virulence complicated by URA3 effects; Bcr1-repressed in RPM1 a/a biofilms; Spider biofilm induced
orf19.4783		1,09	1,07	Protein of unknown function; induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.4788	<i>ARG5,6</i>	1,09	1,21	Arginine biosynthetic enzyme; processed in <i>S. cerevisiae</i> into 2 polypeptides with acetylglutamate kinase (Arg6) activity and acetylglutamate-phosphate reductase (Arg5) activity; Gcn4 regulated; alkaline repressed; Spider biofilm induced
orf19.3479		1,09	1,03	#NV
orf19.4508		1,09	1,09	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 04200
orf19.1970		1,09	1,16	Putative vacuole biogenesis protein
orf19.5543		1,09	-1,02	Ortholog(s) have cell division site, cytosol localization
orf19.1185		1,09	-1,06	Ortholog(s) have protein homodimerization activity, ubiquitin-protein ligase activity
orf19.218	<i>BUD20</i>	1,09	1,05	Protein similar to <i>S. cerevisiae</i> Bud20p, which affects bud site selection; transposon mutation affects filamentous growth
orf19.4804	<i>LIP2</i>	1,09	1,05	Secreted lipase; member of a differentially expressed lipase gene family; expressed in alimentary tract, but not oral tissue, during mouse oral infection; may have a role in nutrition and/or in creating an acidic microenvironment
orf19.3356	<i>ESP1</i>	1,09	1,13	Putative caspase-like cysteine protease; mutation confers increased sensitivity to nocodazole; periodic mRNA expression, peak at cell-cycle S/G2 phase; mRNA binds She3

orf19.3012	ARO80	1,09	1,06	Zn(II)Cys6 transcription factor; transcriptional activator of aromatic amino acid catabolism; regulator of aromatic alcohol biosynthesis via the Ehrlich pathway; mutant is viable
orf19.3010.1	ECM33	1,09	1	GPI-anchored cell wall protein; mutants show cell-wall defects and reduced adhesion, host cell damage, and endocytosis; mutant infection is immunoprotective in murine model; fluconazole-induced; caspofungin repressed
orf19.6209		1,09	1,08	Predicted membrane transporter; monocarboxylate porter (MCP) family, major facilitator superfamily (MFS); possibly essential, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.2698		1,09	1,02	Ortholog(s) have role in protein folding in endoplasmic reticulum and ER membrane protein complex localization
orf19.1616	FGR23	1,09	1,07	Protein of unknown function; repressed by a1/alpha2 in white-phase cells, a-specific, alpha factor-induced; Hap43-repressed; flow model biofilm induced; Tn mutation affects filamentous growth;
orf19.6360		1,09	1,02	Protein involved in pre-mRNA splicing; Spider biofilm induced
orf19.991	DJP1	1,09	1,08	Similar to bacterial DnaJ; reported to have a role in peroxisome biogenesis; induced in low iron and upon adherence to polystyrene
orf19.986	GLY1	1,09	1,11	L-threonine aldolase; complements glycine auxotrophy of S. cerevisiae shm1 shm2 gly1-1 triple mutant; macrophage/pseudohyphal-induced; the GLY1 locus has an RFLP and is triploid in strain SGY269; flow model biofilm induced
orf19.6379		1,09	1,04	Ortholog of C. dubliniensis CD36 : Cd36_33820, C. parapsilosis CDC317 : CPAR2_206210, Candida tenuis NRRL Y-1498 : CANTEDRAFT_92567 and Debaryomyces hansenii CBS767 : DEHA2E06138g
orf19.3132		1,09	1,14	Predicted endoplasmic reticulum zinc transporter; induced by nitric oxide
orf19.4398		1,09	1,08	Protein of unknown function; rat catheter biofilm induced
orf19.3134		1,09	1,01	Protein of unknown function; flow model biofilm induced
orf19.26		1,09	1,04	Putative peptide N-glycanase; induced by nitric oxide independent of Yhb1p
orf19.5145	SSP96	1,09	1,07	Putative flavin-containing monooxygenase; F-12/CO2 early biofilm induced
orf19.5142	DFR1	1,09	1,06	Trimethoprim resistant dihydrofolate reductase (DHFR), reduces 7,8-dihydrofolate to 5,4,7,8-tetrahydrofolate; binds NADPH; target of drugs that selectively inhibit the fungal enzyme rather than the human enzyme
orf19.2035		1,09	1,05	Ortholog of C. parapsilosis CDC317 : CPAR2_212930, C. dubliniensis CD36 : Cd36_15830, Candida orthopsilosis Co 90-125 : CORT_0A12240 and Candida tropicalis MYA-3404 : CTRG_01155
orf19.6453		1,09	1,02	Ortholog of C. dubliniensis CD36 : Cd36_72300, C. parapsilosis CDC317 : CPAR2_703060, Candida tenuis NRRL Y-1498 : CANTEDRAFT_92002 and Debaryomyces hansenii CBS767 : DEHA2B06028g
orf19.729		1,09	1,17	Adaptor protein required for specific mRNA transport; protein similar but not orthologous to S. cerevisiae She3; transposon mutation affects filamentous growth
orf19.4940		1,09	1,03	Putative histidine permease; fungal-specific (no human or murine homolog); Hap43p-induced gene
orf19.4166	ZCF21	1,09	1,07	Predicted Zn(II)Cys6 transcription factor; mutants display increased colonization of mouse kidneys; Spider biofilm induced
orf19.2889		1,09	1,08	Ortholog(s) have role in chromatin remodeling and Ino80 complex, cytoplasm localization
orf19.5835		1,09	1,13	Ortholog(s) have role in rRNA processing, ribosomal small subunit assembly and CUR1 complex, UTP-C complex, cytosol localization
orf19.2492	STE3	1,09	1,08	Protein similar to S. cerevisiae Ste3p, the receptor for a-factor mating pheromone; alpha mating-type-specific transcription
orf19.4401	YVH1	1,09	1,1	Putative dual specificity phosphatase (phosphoserine/threonine and phosphotyrosine phosphatase); required for wild-type growth rate and for wild-type virulence in mouse model of systemic infection; Hap43p-induced gene
orf19.5105	MED15	1,09	1,11	RNA polymerase II mediator complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1567		1,09	1,06	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity, phosphatidylinositol binding activity
orf19.1630		1,09	1,15	Ortholog(s) have cytoplasm localization
orf19.6628		1,09	-1	Protein of unknown function; rat catheter biofilm repressed
orf19.663	GIN4	1,09	1,03	Autophosphorylated kinase; role in pseudohyphal-hyphal switch and cytokinesis; phosphorylates Cdc11p on S395; necessary for septin ring within germ tube but not for septin band at mother cell junction; physically associates with septins
orf19.669	PRM1	1,09	1,02	Putative membrane protein with a predicted role in membrane fusion during mating; Hap43p-repressed gene; protein induced during the mating process
orf19.5808		1,09	1,05	Ortholog(s) have protein-lysine N-methyltransferase activity, role in negative regulation of G2/M transition of mitotic cell cycle, peptidyl-lysine methylation and cytosol, nucleus localization
orf19.517	HAP31	1,09	1,05	CCAAT-binding transcription factor; regulates CYC1; required for resistance to rapamycin, copper; induced in high iron; repressed in low iron; Sef1, Sfu1, and Hap43 regulated; rat catheter and Spider biofilm induced
orf19.526	NHP2	1,09	1,13	Putative H/ACA snoRNP protein; macrophage/pseudohyphal-induced
orf19.6678		1,09	1,11	Protein of unknown function; Hap43-repressed gene
orf19.6718		1,09	1,04	Has domain(s) with predicted sequence-specific DNA binding activity
orf19.5172	LIP9	1,09	1,08	Secreted lipase, member of a lipase gene family whose members are expressed differentially in response to carbon source and during infection; may have a role in nutrition and/or in creating an acidic microenvironment
orf19.5156		1,09	1,06	Protein similar to S. cerevisiae Phs1p, which is required for growth; has six putative membrane-spanning regions
orf19.6920		1,09	1,05	Protein of unknown function; induced during chlamydospore formation in both C. albicans and C. dubliniensis; Hap43-induced gene; Spider biofilm induced; F-12/CO2 early biofilm induced
orf19.3304		1,09	1,06	Exosome non-catalytic core component; involved in 3'-5' RNA processing and degradation in the nucleus and cytoplasm; Spider biofilm induced
orf19.3306		1,09	1,08	Ortholog(s) have four-way junction DNA binding activity, role in meiotic recombination checkpoint, synaptonemal complex assembly and lateral element localization
orf19.4019		1,09	1,07	Ortholog(s) have protein phosphatase regulator activity, role in negative regulation of DNA damage checkpoint, protein dephosphorylation and cytoplasm, nucleus localization
orf19.2094	PDR6	1,09	1,15	Putative pleiotropic drug resistance regulatory protein 6; transcript regulated by Nrg1; induced by alpha pheromone in SpiderM medium
orf19.2090		1,09	1,17	Ortholog of S. cerevisiae Ecm16, an essential DEAH-box ATP-dependent RNA helicase specific to the U3 snoRNP required for 18S rRNA synthesis; Hap43-induced; Spider biofilm induced
orf19.6562	RNH35	1,09	1,11	Putative ribonuclease H2 catalytic subunit; flucytosine induced; Spider biofilm repressed
orf19.6501		1,09	1,1	Ortholog of C. dubliniensis CD36 : Cd36_71960, Pichia stipitis Pigna1 : psti_CGOB_00136, Spathaspora passalidarum NRRL Y-27907 : SPAPADRAFT_63786 and Candida tropicalis MYA-3404 : CTRG_05049
orf19.4652		1,09	1,15	Protein of unknown function; rat catheter biofilm induced
orf19.6975	YST1	1,09	1,08	Ribosome-associated protein; antigenic in mice; complements S. cerevisiae yst1 yst2 mutant; similar to laminin receptor; predicted S/T phosphorylation, N-glycosylation, myristoylation, Hap43-, Gcn4-regulated; Spider biofilm repressed
orf19.6982		1,09	1,09	Ortholog(s) have ribosome binding activity and mitochondrion localization
orf19.6987	DNM1	1,09	1,19	Putative dynamin-related GTPase; transcript upregulated inbRHE model of oral candidiasis; transcript regulated by Nrg1, Mig1, and Tup1
orf19.3061	IMP1	1,09	1,15	Predicted subunit of the mitochondrial inner membrane peptidase complex involved in protein targeting to mitochondria
orf19.6425	SK2	1,09	1,04	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion, nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay
orf19.6396		1,09	1,01	Putative patatin-like phospholipase; similar to S. cerevisiae Nte1p, which is predicted to be a membrane protein; antigenic during human oral infection; Hap43p-repressed gene
orf19.6390		1,09	1,04	Protein of unknown function; Spider biofilm induced
orf19.4582		1,09	1,02	Ortholog(s) have role in U1 snRNA 3'-end processing, U4 snRNA 3'-end processing and U5 snRNA 3'-end processing, more
orf19.4595		1,09	1,06	Ortholog of C. dubliniensis CD36 : Cd36_41860, C. parapsilosis CDC317 : CPAR2_400440, Candida tenuis NRRL Y-1498 : CANTEDRAFT_103033 and Debaryomyces hansenii CBS767 : DEHA2B03234g
orf19.4616	POL30	1,09	1,02	Similar to proliferating cell nuclear antigen (PCNA); RNA abundance regulated by tyrosol, cell density; induced by flucytosine, interaction with macrophages; stationary phase enriched protein; rat catheter and Spider biofilm repressed
orf19.7035	RFC2	1,09	1,14	Putative heteropentameric replication factor C subunit; periodic mRNA expression, peak at cell-cycle G1/S phase
orf19.5007	ACT1	1,09	-1,05	Actin; gene has intron; transcript regulated by growth phase, starvation; at polarized growth site in budding and hyphal cells; required for wild-type Cdc42 localization; unprocessed N terminus; Hap43-induced; Spider biofilm repressed
orf19.7201	SLA2	1,09	1,2	Actin binding protein with roles in growth control and morphogenesis; required for alkaline pH-induced hyphal formation; localized to actin patches; rat catheter biofilm repressed
orf19.7204		1,09	1,08	Ortholog(s) have cytoplasm localization
orf19.937		1,09	1,03	Ortholog of Candida albicans WO-1 : CAWG_04446
orf19.952		1,09	1,11	Has domain(s) with predicted DNA binding activity
orf19.955		1,09	1,05	Protein of unknown function; Spider biofilm repressed
orf19.966	DUS4	1,09	1,01	Ortholog(s) have tRNA dihydrouridine synthase activity, role in tRNA modification and mitochondrion localization
orf19.3240	ERG27	1,09	1,16	3-Keto sterol reductase of ergosterol biosynthesis; acts in C-4 sterol demethylation with Erg25p and Erg26p; possible drug target, essential for viability; functional homolog of S. cerevisiae Erg27p
orf19.5302	PGA31	1,09	1,09	Cell wall protein; putative GPI anchor; expression regulated upon white-opaque switch; induced by Congo Red and cell wall regeneration; Bcr1-repressed in RPM1 a/a biofilms
orf19.7414	ALS6	1,09	1,08	ALS family protein; expression in S. cerevisiae confers adhesion to gelatin; macrophage-induced gene; N-terminal adhesion domain; ALS family includes cell-surface glycoproteins, some with adhesion function
orf19.7301		1,09	1,02	Has domain(s) with predicted DNA binding, nucleic acid binding activity

orf19.7332	<i>ELF1</i>	1.09	1.04	Putative mRNA export protein; Walker A and B (ATP/GTP binding) motifs; required for wild-type morphology, growth; expressed in hyphal, pseudohyphal, and yeast form; Hap43-induced; Spider and flow model biofilm induced
orf19.7077		1.09	1.03	Putative ferric reductase; induced by Mac1 under copper starvation; Plc1-regulated; Rim101-repressed
orf19.5429		1.09	1.03	Ortholog(s) have DNA replication origin binding, ubiquitin-protein ligase activity
orf19.5469		1.09	1.07	Protein with a predicted DEAD-like DNA/RNA helicase domain; shows colony morphology-related gene regulation by Ssn6; overlaps orf19.5472; Spider biofilm repressed
orf19.7472	<i>IFF4</i>	1.09	1.11	Adhesin-like cell surface protein; putative GPI-anchor; null mutant germ tubes show decreased adhesion to plastic substrate; mutants are viable; Hap43-repressed gene
		1.09	1.05	#NV
orf19.6769		1.09	1.12	Ortholog(s) have cytoplasm localization
orf19.6747		1.09	1.18	Ortholog(s) have acid phosphatase activity, role in dephosphorylation, intracellular sterol transport and cytoplasm, nucleus localization
orf19.7551	<i>ALO1</i>	1.09	1.28	D-Arabinono-1,4-lactone oxidase involved in biosynthesis of dehydro-D-arabinono-1,4-lactone, which has a protective role against oxidative damage; plasma membrane-localized; required for full virulence in a mouse model of systemic infection
orf19.7553		1.09	1.2	Protein of unknown function; rat catheter biofilm repressed
orf19.5987		1.09	1.09	Ortholog(s) have tRNA (guanine-N2)-methyltransferase activity, role in tRNA methylation and cytosol, nucleus, tRNA (m2G10) methyltransferase complex localization
orf19.5963		1.09	1.1	Putative prenyltransferase; essential gene in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.5947	<i>SEC7</i>	1.09	1.04	Putative guanine nucleotide exchange factor (GEF); mutation confers hypersensitivity to Brefeldin A; caspofungin repressed
orf19.5908	<i>TEC1</i>	1.09	1.06	TEA/ATTS transcription factor; white cell pheromone response, hyphal gene regulation; required for Spider and RPM1 biofilm formation; regulates BCR1; Cph2 regulated transcript; alkaline, rat catheter, Spider, flow model biofilm induced
		1.09	1.06	#NV
		1.09	1.07	#NV
		1.09	1.01	#NV
		1.09	1.05	#NV
orf19.4171		1.08	1.1	Has domain(s) with predicted ATP binding activity
orf19.579	<i>FOL1</i>	1.08	1.06	Putative dihydroonepterin aldolase (dihydro-6-hydroxymethylpterin pyrophosphokinase); fungal-specific (no human or murine homolog)
orf19.839		1.08	1.1	Putative endoribonuclease; induced by nitric oxide independent of Yhb1p; mutation confers hypersensitivity to aureobasidin A
orf19.1434		1.08	1.09	Ortholog(s) have protein kinase activator activity
orf19.1860	<i>LSC2</i>	1.08	1.21	Putative succinate-CoA ligase beta subunit; regulated by Mig1, Tup1; induced in high iron; protein present in exponential and stationary growth phase yeast cells; Spider biofilm repressed
orf19.3559		1.08	1.06	<i>S. cerevisiae</i> ortholog Mrps35p is a structural constituent of ribosome and localizes to mitochondrial small ribosomal subunit; the snoRNA CD39 is encoded within the MRPS35 intron
		1.08	1.05	#NV
orf19.3074	<i>TLO10</i>	1.08	1.04	Member of a family of telomere-proximal genes of unknown function
orf19.4691		1.08	1.05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03682
orf19.3510		1.08	1.03	#NV
orf19.1913		1.08	1.12	Protein of unknown function; flow model biofilm induced
orf19.1274		1.08	1.07	Has domain(s) with predicted DNA binding, zinc ion binding activity, role in transcription, DNA-dependent and nucleus localization
orf19.6475		1.08	1.1	Protein of unknown function; flow model biofilm induced
orf19.3952	<i>SRP101</i>	1.08	1.03	Signal recognition particle (SRP) receptor alpha subunit; involved in SRP-dependent protein targeting; rat catheter biofilm repressed
orf19.3935		1.08	1.1	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04819
orf19.1036	<i>MNS1</i>	1.08	1.04	Alpha-1,2-mannosidase; processes Man8GlcNAc2 to Man8GlcNAc2 isomer B; member of ER localized glycosyl hydrolase family 47; ER form is converted by Kex2 to cytosolic form; flow model biofilm repressed
orf19.4820		1.08	1.17	Ortholog(s) have mitochondrion localization
orf19.109		1.08	1.14	Probable mitochondrial tyrosyl-tRNA synthetase, based on conservation in other fungi
orf19.238	<i>CCP1</i>	1.08	-1	Cytochrome-c peroxidase N terminus; Rim101, alkaline pH repressed; induced in low iron or by macrophage interaction; oxygen-induced activity; regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced; rat catheter biofilm repressed
orf19.4217		1.08	1.11	Ortholog of <i>Candida tropicalis</i> MYA-3404 : CTRG_03197, <i>Candida lusitanae</i> ATCC 42720 : CLUG_02837 and <i>Candida albicans</i> WO-1 : CAWG_04597
orf19.1307		1.08	1.08	Predicted membrane protein; rat catheter biofilm induced
orf19.4346		1.08	1.06	Ortholog(s) have protein anchor activity, role in COPII vesicle coating, protein localization to endoplasmic reticulum exit site and ER to Golgi transport vesicle membrane, endoplasmic reticulum exit site localization
orf19.4488		1.08	1.07	Predicted ortholog of <i>S. cerevisiae</i> Swi3, subunit of the SWI/SNF chromatin remodeling complex; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1105.3		1.08	1.08	Protein of unknown function
orf19.1699	<i>BZZ1</i>	1.08	1.13	Protein similar to <i>S. cerevisiae</i> Bzz1p, which is an SH3 domain protein involved in the regulation of actin polymerization
orf19.1214		1.08	1.21	Ortholog(s) have metalloaminopeptidase activity, role in protein initiator methionine removal involved in protein maturation and cytosol, nucleus localization
orf19.4563		1.08	1.1	Protein of unknown function; repressed by prostaglandins; Hap43-induced, Spider biofilm induced
orf19.4719	<i>CWH41</i>	1.08	1.08	Processing alpha glucosidase I, involved in N-linked protein glycosylation and assembly of cell wall beta 1,6 glucan; rat catheter biofilm repressed
orf19.3219		1.08	1.02	Ortholog of <i>S. cerevisiae</i> Sia1; involved in activation of the Pma1 plasma membrane H ⁺ -ATPase by glucose in <i>S. cerevisiae</i> ; Spider biofilm induced
orf19.2650		1.08	1.04	Protein of unknown function; rat catheter biofilm induced
orf19.1822	<i>UME6</i>	1.08	1.11	Zn(II)Cys6 transcription factor; role in hyphal extension, virulence, adherence to plastic; filament induced; regulated by Nrg1/Tup1/Rtg1, alkaline conditions; expression promotes highly filamentous biofilms; rat catheter biofilm induced
orf19.2395	<i>IME2</i>	1.08	1.01	Putative serine/threonine protein kinase; mutation confers hypersensitivity to amphotericin B
orf19.5217	<i>TES1</i>	1.08	1.08	Putative acyl-CoA thioesterase
orf19.693		1.08	1.08	Protein of unknown function; Spider biofilm induced; rat catheter biofilm repressed
orf19.5375		1.08	1.08	#NV
orf19.1370		1.08	1.11	Protein of unknown function; expression regulated by white-opaque switch; repressed by alpha pheromone in SpiderM medium
orf19.5477		1.08	1.03	#NV
orf19.2212		1.08	1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21980, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G19734g, <i>Pichia stipitis</i> Pignal : pstI CGOB_00208 and <i>Spathospora passalidarum</i> NRRL Y-27907 : spas CGOB_00029
orf19.2222		1.08	1.1	Putative casein kinase; plasma membrane-localized
orf19.3406		1.08	1.06	Predicted chloride transporter; member of conserved Mcm1 regulon; Spider biofilm repressed
orf19.5513	<i>PRP45</i>	1.08	1.08	Protein required for pre-mRNA splicing; Spider biofilm induced
orf19.4375		1.08	1.1	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, role in chromatin silencing at rDNA, nicotinamide metabolic process and cytosol localization
orf19.2805	<i>PEX8</i>	1.08	1.09	Putative peroxisomal biogenesis factor; expression regulated during planktonic growth
orf19.2581		1.08	1.07	Protein with a predicted epimerase/dehydratase domain; Hap43-repressed gene
orf19.2101		1.08	-1.31	Ortholog(s) have protein anchor activity, role in protein insertion into ER membrane, retrograde vesicle-mediated transport, Golgi to ER and GET complex, mitochondrion localization
orf19.284		1.08	1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_82890, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G01034g, <i>Pichia stipitis</i> Pignal : PICST_32242 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_04638
orf19.5776	<i>TOM1</i>	1.08	-1.29	Putative E3 ubiquitin ligase; transcript regulated by Nrg1 and Mlg1
orf19.1321	<i>HWP1</i>	1.08	1.09	Hyphal cell wall protein; host transglutaminase substrate; opaque-, a-specific, alpha-factor induced; at MTLA side of conjugation tube; virulence complicated by URA3 effects; Bcr1-repressed in RPM1 a/b biofilms; Spider biofilm induced
orf19.5724		1.08	1.08	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_500910, <i>C. dubliniensis</i> CD36 : Cd36_64110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115913 and <i>Pichia stipitis</i> Pignal : PICST_32870
orf19.4517		1.08	1.06	Protein of unknown function; Hap43-induced gene
orf19.47		1.08	1.07	#NV
orf19.4201	<i>NHX1</i>	1.08	1.19	Protein similar to <i>S. cerevisiae</i> Nhx1p, which is an Na ⁺ /H ⁺ exchanger required for intracellular sequestration of Na ⁺
orf19.4151	<i>SPO1</i>	1.08	1.05	Protein similar to phospholipase B; fungal-specific (no human or murine homolog)
		1.08	1.08	#NV
orf19.3863		1.08	1.06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_31580, <i>C. parapsilosis</i> CDC317 : CPAR2_205000, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G10846g and <i>Pichia stipitis</i> Pignal : PICST_32988
orf19.3711		1.08	1.15	Protein with monoxygenase domains; flow model biofilm induced
orf19.1393		1.08	1.12	Ortholog(s) have NAD transporter activity, pyruvate secondary active transmembrane transporter activity, role in NAD transmembrane transport, mitochondrial pyruvate transport and endoplasmic reticulum, mitochondrion localization

orf19.2149		1,08	1,06	Putative sulfate permease; <i>S. cerevisiae</i> ortholog YPR003C localizes to the endoplasmic reticulum; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.6173	<i>STD1</i>	1,08	1,01	Putative transcription factor; involved in control of glucose-regulated gene expression; repressed by Rgt1; Spider biofilm induced
orf19.2697		1,08	1,1	Ortholog(s) have role in protein monoubiquitination, regulation of dipeptide transmembrane transport by regulation of transcription from RNA polymerase II promoter and cytoplasm, nucleus localization
orf19.261		1,08	1,1	Ortholog(s) have dolichol kinase activity, role in protein glycosylation and endoplasmic reticulum membrane localization
orf19.2400		1,08	1,07	Ortholog(s) have role in mRNA splicing, via spliceosome, maturation of SSU-rRNA, positive regulation of ATPase activity, positive regulation of helicase activity
orf19.1942	<i>SGE1</i>	1,08	1,1	Putative multidrug resistance factor; induced in low iron; regulated by Sef1, Sfu1, and Hap43
orf19.1939		1,08	1,07	Ortholog of <i>S. cerevisiae</i> : YDR374C, <i>C. glabrata</i> CBS138 : CAGL0A02970g, <i>C. dubliniensis</i> CD36 : Cd36_51030, <i>C. parapsilosis</i> CDC317 : CPAR2_303320 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_106457
orf19.6147		1,08	1,01	Putative histone chaperone; role in chromatin remodeling; rat catheter and Spider biofilm repressed
orf19.6142		1,08	1,07	Ortholog(s) have double-stranded DNA binding activity, role in reciprocal meiotic recombination and condensed nuclear chromosome localization
orf19.6135		1,08	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32970, <i>C. parapsilosis</i> CDC317 : CPAR2_701710, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_106599 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E04488g
orf19.590		1,08	1,01	Putative thiamine biosynthesis enzyme; decreased expression in an <i>ssr1</i> null mutant; protein present in exponential and stationary growth phase yeast cultures
orf19.1257		1,08	1,06	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03251
orf19.3572		1,08	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19880, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_117672, <i>Debaryomyces hansenii</i> CBS767 : DEHA2D11154g and <i>Pichia stipitis</i> Pignal : PICST_59570
orf19.6369	<i>RIO2</i>	1,08	1,05	Putative serine kinase with a predicted role in the processing of the 20S pre-rRNA into mature 18S rRNA; null mutants are hypersensitive to caspofungin
orf19.3887		1,08	1,07	Ortholog(s) have cytoplasm, nucleus localization
orf19.27		1,08	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20860, <i>C. parapsilosis</i> CDC317 : CPAR2_104250, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115100 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E10450g
orf19.5139		1,08	1,22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_72800, <i>Candida tropicalis</i> MYA-3404 : CTRG_05211 and <i>Candida albicans</i> WO-1 : CAWG_05649
orf19.4177	<i>HIS5</i>	1,08	1,07	Putative histidinol-phosphate aminotransferase; Gcn4p-regulated; protein present in exponential and stationary growth phase yeast cultures
orf19.4180	<i>SEC72</i>	1,08	-1	ER protein-translocation complex component; regulated by Gcn4p; repressed in response to amino acid starvation (3-aminotriazole treatment); sumoylation target
orf19.2910	<i>PGA43</i>	1,08	1,05	Putative GPI-anchored protein
orf19.5834		1,08	1,06	Ortholog(s) have protein transporter activity, role in mRNA export from nucleus and cytoplasm, nucleus localization
orf19.2481		1,08	1,08	Protein of unknown function; Spider biofilm induced
orf19.6606		1,08	1,06	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_201040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112677, <i>Debaryomyces hansenii</i> CBS767 : DEHA2E02420g and <i>Pichia stipitis</i> Pignal : PICST_37559
orf19.5203		1,08	1,11	Protein of unknown function; Hap43-induced gene
orf19.2010		1,08	1,13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16030, <i>C. parapsilosis</i> CDC317 : CPAR2_213800, <i>Debaryomyces hansenii</i> CBS767 : DEHA2A01320g and <i>Pichia stipitis</i> Pignal : PICST_29434
orf19.1430		1,08	1,02	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_402120, <i>C. dubliniensis</i> CD36 : Cd36_43870, <i>Loferomyces elongisporus</i> NRLL YB-4239 : LELG_04437 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0E02170
orf19.1023		1,08	1,06	#NV
orf19.3442		1,08	1,1	Putative oxidoreductase; Hap43-repressed gene
orf19.434	<i>PRD1</i>	1,08	1,05	Putative proteinase; transcript regulated by Nrg1, Mig1, and Tup1; Hogp-induced; stationary phase enriched protein; Hap43-repressed; rat catheter biofilm repressed
orf19.444		1,08	1,05	Has domain(s) with predicted nucleic acid binding, nucleotide binding activity
orf19.2962		1,08	1,03	Protein of unknown function; Spider biofilm induced
orf19.820	<i>SDS22</i>	1,08	1,18	Putative protein serine-threonine phosphatase; macrophage/pseudohyphal-repressed
orf19.3125		1,08	1,11	Protein of unknown function; mutants are viable
orf19.1891	<i>36982</i>	1,08	1,15	Vacuolar aspartic proteinase; transcript equivalent in yeast-form and mycelial cells but is elevated at lower growth temperatures; upregulated by human neutrophils; protein enriched in stationary phase; Spider biofilm induced
orf19.6898		1,08	1,02	Protein similar to <i>S. pombe</i> SPBC1709.16c a predicted aromatic ring-opening dioxygenase; induced by benomyl treatment or in azole-resistant strain that overexpresses MDR1; Spider biofilm induced
orf19.886	<i>PAN1</i>	1,08	1	Essential protein involved in endocytosis and polarized growth; ortholog of <i>S. cerevisiae</i> Pan1, which is a part of a complex that regulates actin cytoskeleton; Spider biofilm repressed
orf19.6929		1,08	1,03	Ortholog(s) have acid phosphatase activity and cytosol, nucleus localization
orf19.4856	<i>LIP3</i>	1,08	1,07	Secreted lipase; gene family member whose members are expressed differentially in response to carbon source and infection; possible role in nutrition and/or in creating an acidic microenvironment; flow model biofilm induced
orf19.4834		1,08	1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_09140, <i>C. parapsilosis</i> CDC317 : CPAR2_804920, <i>Debaryomyces hansenii</i> CBS767 : DEHA2B10516g and <i>Pichia stipitis</i> Pignal : PICST_30058
orf19.3986	<i>PPR1</i>	1,08	1,02	Putative transcription factor with zinc cluster DNA-binding motif; has similarity to <i>S. cerevisiae</i> Ppr1p, which is a transcription factor involved in the regulation of uracil biosynthesis genes
orf19.4030		1,08	1,07	Ortholog(s) have DNA primase activity, single-stranded DNA binding activity, role in DNA replication, synthesis of RNA primer, telomere maintenance and alpha DNA polymerase:primase complex localization
orf19.3828		1,08	1,04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03357
orf19.5262		1,08	1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_11270 and <i>Candida albicans</i> WO-1 : CAWG_00238
orf19.6978		1,08	1,11	Planktonic growth-induced gene
orf19.6986		1,08	1,05	Has domain(s) with predicted Rab GTPase activator activity, role in regulation of Rab GTPase activity and intracellular localization
orf19.6407		1,08	1,01	Ortholog(s) have role in ribosomal large subunit biogenesis and cytoplasm, cytosolic large ribosomal subunit, preribosome, large subunit precursor localization
orf19.6391		1,08	1,11	Protein of unknown function; transcript upregulated in azole-resistant strain overexpressing MDR1; Spider biofilm induced
orf19.7032		1,08	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_70790, <i>C. parapsilosis</i> CDC317 : CPAR2_301530, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94947 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A0525g
orf19.7043		1,08	1,04	Ortholog(s) have endoplasmic reticulum localization
orf19.5031	<i>SSK1</i>	1,08	1,14	Response regulator of two-component system; role in oxidative stress response, cell wall biosynthesis, virulence, hyphal growth on solid media; expressed in hyphae and yeast; peroxisomal targeting sequence (PTS1); Spider biofilm induced
orf19.5012		1,08	1,05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_12740, <i>C. parapsilosis</i> CDC317 : CPAR2_201620, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107586 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D04994g
orf19.74	<i>SEC5</i>	1,08	1,07	Predicted exocyst component; ortholog of <i>S. cerevisiae</i> Sec5p, merged with orf19.75 in Assembly 21
orf19.7200		1,08	1,04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73480, <i>Pichia stipitis</i> Pignal : PICST_30727, <i>Candida tropicalis</i> MYA-3404 : CTRG_05165 and <i>Candida albicans</i> WO-1 : CAWG_05712
orf19.935	<i>AGA1</i>	1,08	1	Protein with some similarity to agglutinin subunit; expression regulated upon white-opaque switch; Spider biofilm induced
orf19.956		1,08	1,07	Ortholog(s) have role in fermentation and mitochondrion localization
orf19.5328	<i>GCN1</i>	1,08	1,01	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrion localization
orf19.7301		1,08	1,06	Has domain(s) with predicted DNA binding, nucleic acid binding activity
orf19.7361		1,08	1,18	Ortholog(s) have tRNA-intron endonuclease activity, role in tRNA-type intron splice site recognition and cleavage and mitochondrial outer membrane, tRNA-intron endonuclease complex localization
orf19.7377	<i>ASE1</i>	1,08	1,05	Putative microtubule-associated protein; member of conserved Mcm1p regulon; periodic mRNA expression, peak at cell-cycle G2/M phase
orf19.5428		1,08	1,11	Putative Golgi membrane protein with a predicted role in manganese homeostasis; Hap43p-repressed gene; clade-associated gene expression
orf19.7480		1,08	1,04	Putative protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.6813		1,08	1,08	Protein of unknown function; Hap43-induced gene
orf19.6780	<i>MET8</i>	1,08	1,07	Putative bifunctional dehydrogenase and ferredoxin-like protein with a predicted role in sirochrome biosynthesis; regulated by Gcn2p and Gcn4p
orf19.6766	<i>NOP13</i>	1,08	1,11	Ortholog of <i>S. cerevisiae</i> Nop13; a nucleolar protein found in preribosomal complexes; Hap43-induced gene; rat catheter biofilm induced
orf19.7629		1,08	1,05	Ortholog(s) have Seh1-associated complex, cytosol, extrinsic to fungal-type vacuolar membrane, ribosome localization
orf19.7635	<i>DRS1</i>	1,08	1,05	Putative nucleolar DEAD-box protein; Hap43-induced; mutation confers hypersensitivity to 5-fluorouracil (5-FU), tubercidin (7-deazaadenosine); Tbf1-induced; repressed in core stress response
orf19.7642		1,08	1,07	Ortholog of <i>S. cerevisiae</i> Vps3; CORVET tethering complex component involved in vacuolar protein sorting; Hap43-repressed gene
orf19.5964	<i>ARF2</i>	1,08	1,04	Putative ADP-ribosylation factor; mutation confers hypersensitivity to Brefeldin A; Spider biofilm repressed
orf19.5947	<i>SEC7</i>	1,08	1,14	Putative guanine nucleotide exchange factor (GEF); mutation confers hypersensitivity to Brefeldin A; caspofungin repressed

orf19.5903	<i>RAX1</i>	1.08	1.03	Protein with a predicted role in bud site selection; hypha-induced expression; Spider biofilm induced
		1.08	1.07	#NV
		1.08	1.03	#NV
		1.08	1.06	#NV
		1.08	1.09	#NV
		1.08	1.08	#NV
		1.08	1.04	#NV
		1.07	1.11	#NV
orf19.2671		1.07	1.29	Protein with a predicted FAD-dependent pyridine nucleotide reductase domains; putative oxidoreductase; Plc1-regulated; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2552		1.07	1.09	Protein similar to <i>S. cerevisiae</i> Pmr1p; amphotericin B induced; previously merged with orf19.2553; unmerged from orf19.2553 in a revision of Assembly 21
orf19.2449		1.07	1.05	Putative adhesin-like protein; macrophage-induced gene
orf19.1483		1.07	1.04	Ortholog(s) have copper ion binding activity, role in mitochondrial respiratory chain complex IV assembly and extrinsic to mitochondrial inner membrane, mitochondrial intermembrane space localization
orf19.3663	<i>PHO91</i>	1.07	1.03	Putative low-affinity phosphate transporter; fungal-specific (no human or murine homolog)
orf19.3768		1.07	1.07	#NV
orf19.3937		1.07	1.08	Ortholog(s) have protein phosphatase type 2A regulator activity, role in cellular response to nitrogen starvation, signal transduction and cytosol, nucleus localization
		1.07	1.05	#NV
orf19.4769	<i>IPT1</i>	1.07	1.06	Inositol phosphoryl transferase; catalyzes the synthesis of the most abundant sphingolipid, mannose-(inositol-P)2-ceramide, M(IP)2C, from MIPC; required for wild-type membrane localization of Cdr1; Spider biofilm induced
orf19.805		1.07	1.07	Putative protein of unknown function; possibly mitochondrial; Hap43-repressed; Spider biofilm repressed
orf19.804		1.07	1.04	Putative mitochondrial carrier family transporter; rat catheter biofilm induced
orf19.240	<i>PAM17</i>	1.07	1.04	Predicted component of the presequence translocase-associated import motor (PAM complex) involved in protein import into mitochondrial matrix
orf19.4196		1.07	1.12	Dubious open reading frame
orf19.4967	<i>COX19</i>	1.07	1.01	Putative cytochrome c oxidase assembly protein; Plc1-regulated; rat catheter biofilm induced
orf19.459	<i>ADP1</i>	1.07	1.08	Putative PDR-subfamily ABC transporter; similar to WHITE subfamily proteins; gene used for strain identification by multilocus sequence typing
orf19.187		1.07	1.02	#NV
orf19.791	<i>RIM11</i>	1.07	1.04	Ortholog of <i>S. cerevisiae</i> Rim11; a protein kinase involved in meiosis and sporulation in <i>S. cerevisiae</i> ; mutant is viable
orf19.39		1.07	1.06	#NV
orf19.3229		1.07	1.19	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.1697		1.07	1.12	Ortholog(s) have role in cytoplasmic translation and cytoplasm, polysomal ribosome localization
orf19.1697		1.07	1.05	Ortholog(s) have role in cytoplasmic translation and cytoplasm, polysomal ribosome localization
orf19.1700	<i>RPS7A</i>	1.07	1.02	Ribosomal protein S7; genes encoding cytoplasmic ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.4522		1.07	1.02	Ortholog(s) have role in response to drug and cytosol, nucleus localization
orf19.1155	<i>DPP2</i>	1.07	1.04	Protein similar to <i>S. cerevisiae</i> pyrophosphate phosphatase Lpp1p; possible role in farnesol biosynthesis
orf19.4120	<i>LAS1</i>	1.07	1.05	Putative bud formation and morphogenesis protein; mutation confers hypersensitivity to 5-fluorouracil (5-FU); 5-fluorouracil (5-FU); macrophage-induced; Spider biofilm induced
orf19.468		1.07	1.03	#NV
orf19.1728		1.07	1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_81190, <i>C. parapsilosis</i> CDC317 : CPAR2_503840, <i>Debaryomyces hansenii</i> CBS767 : DEHA2A09042q and <i>Pichia stipitis</i> Pignal : PICST_42519
orf19.5563	<i>RNH1</i>	1.07	1.04	Ribonuclease H (RNase H); hyphal-induced; flucytosine induced; similar to orf19.5564 (see Locus History); possibly essential (UAU1 method); rat catheter biofilm induced; flow model biofilm repressed
orf19.2857		1.07	1.15	Ortholog(s) have ATP-dependent DNA helicase activity
orf19.5126		1.07	1.07	Putative adhesin-like protein
orf19.4907		1.07	1.06	Putative protein of unknown function; Hap43p-repressed gene; increased transcription is observed upon fluphenazine treatment; possibly transcriptionally regulated by Tac1p; induced by nitric oxide; fungal-specific (no human/murine homolog)
orf19.5287		1.07	1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30690, <i>C. parapsilosis</i> CDC317 : CPAR2_204140, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F16940g and <i>Candida tropicalis</i> MYA-3404 : CTRG_00570
orf19.834		1.07	1.08	Ortholog(s) have carbohydrate binding, mannosyl-oligosaccharide 1,2-alpha-mannosidase activity, role in ER-associated protein catabolic process and endoplasmic reticulum lumen localization
orf19.3685	<i>PSY2</i>	1.07	1.06	Putative protein phosphatase PP4 complex subunit; macrophage-induced gene
orf19.5479	<i>FGR12</i>	1.07	-1.02	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; flow model biofilm induced
orf19.2342	<i>SFT2</i>	1.07	1.05	Putative membrane protein; transcript regulated by Mq1; Spider biofilm induced
orf19.3199	<i>PIKA</i>	1.07	1.17	Putative phosphatidylinositol kinase; non-sex gene located within the MTLA mating-type-like locus
orf19.4346		1.07	1.07	Ortholog(s) have protein anchor activity, role in COPII vesicle coating, protein localization to endoplasmic reticulum exit site and ER to Golgi transport vesicle membrane, endoplasmic reticulum exit site localization
orf19.655	<i>PHO84</i>	1.07	1.04	High-affinity phosphate transporter; transcript regulated by white-opaque switch; Hog1, ciclopirox olamine or alkaline induced; caspofungin, stress repressed; upregulated in RHE model; Spider and flow model biofilm induced, Hap43-induced
orf19.5646		1.07	1.06	Ortholog of <i>S. cerevisiae</i> : YPL034W, <i>C. glabrata</i> CBS138 : CAGL0L06996g, <i>C. dubliniensis</i> CD36 : Cd36_40280, <i>C. parapsilosis</i> CDC317 : CPAR2_402170 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_137348
orf19.3548		1.07	1.06	Ortholog(s) have mitochondrion localization
orf19.5491		1.07	1.06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20670, <i>C. parapsilosis</i> CDC317 : CPAR2_104720, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112860 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F02046q
orf19.4654		1.07	1.07	Protein of unknown function; Spider biofilm induced
orf19.1571	<i>ATO7</i>	1.07	1.04	Putative fungal-specific transmembrane protein
orf19.1570	<i>ERG7</i>	1.07	1.13	2,3-epoxysqualene-lanosterol cyclase (lanosterol synthase), conversion of 2,3-oxidosqualene to lanosterol in sterol biosynthesis; fluconazole-induced; possibly essential, disruptants not obtained by UAU1 method; rat catheter biofilm induced
orf19.275		1.07	1.15	Ortholog(s) have ribonuclease MRP activity, ribonuclease P activity, role in intronic box C/D snoRNA processing, mRNA cleavage and endoplasmic reticulum, nucleolar ribonuclease P complex, ribonuclease MRP complex localization
orf19.2318.1		1.07	1.12	Ortholog(s) have inositol phosphoceramide synthase regulator activity, role in inositolphosphoceramide metabolic process and inositol phosphoceramide synthase complex, integral to Golgi membrane localization
orf19.3912	<i>GLN3</i>	1.07	1.07	GATA transcription factor, involved in regulation of nitrogen starvation-induced filamentous growth; regulates transcription of Mep2 ammonium permease; regulated by Gcn2 and Gcn4; mRNA binds She3; Spider biofilm induced
orf19.217		1.07	1.04	Ortholog(s) have sequence-specific DNA binding activity
orf19.2422	<i>ARC1</i>	1.07	1.02	Putative G4 nucleic acid binding protein; macrophage/pseudohyphal-repressed; protein enriched in stationary phase yeast-form cultures; Spider biofilm repressed
orf19.2417	<i>SMC5</i>	1.07	1.15	Protein similar to <i>S. cerevisiae</i> Smc5p, which is involved in DNA repair; transposon mutation affects filamentous growth
orf19.1366		1.07	1.01	Has domain(s) with predicted oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, 2-oxoglutarate as one donor, and incorporation of one atom each of oxygen into both donors activity
orf19.1580		1.07	1.14	Protein of unknown function; Spider biofilm induced
orf19.1397		1.07	1.04	Has domain(s) with predicted heme binding activity
orf19.4685		1.07	1.04	Dubious open reading frame
orf19.6306		1.07	1.07	#NV
orf19.6306		1.07	1.02	Trimethylaminobutylaldehyde dehydrogenase, the third enzyme of the carnitine biosynthesis pathway
orf19.319		1.07	1.08	Ortholog of <i>S. cerevisiae</i> : YDR286C, <i>C. glabrata</i> CBS138 : CAGL0H01111g, <i>C. dubliniensis</i> CD36 : Cd36_83160, <i>C. parapsilosis</i> CDC317 : CPAR2_101820 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113333
orf19.315		1.07	1.22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_83120, <i>C. parapsilosis</i> CDC317 : CPAR2_103220, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112860 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G08360q
orf19.3981	<i>MAL31</i>	1.07	1.05	Putative high-affinity maltose transporter; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; alkaline induced; Spider biofilm induced
orf19.1264	<i>CFL2</i>	1.07	1.06	Oxidoreductase; iron utilization; Stu1/Se1/Hap43/Nrg1/Tup1/Rim101 regulated; alkaline/low iron/fluphenazine/ciclopirox olamine, flucytosine, fluconazole, Spider/flow model/rat catheter biofilm induced; caspofungin/amphotericin B repressed
orf19.3578		1.07	1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19950, <i>C. parapsilosis</i> CDC317 : CPAR2_104135, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00075 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F0796q
orf19.6346		1.07	1.06	Putative nuclear export protein; Hap43p-induced gene; decreased transcription is observed in an azole-resistant strain that overexpresses MDR1
orf19.6382		1.07	1.08	Putative MRP/CFTR-subfamily ABC transporter; member of multidrug resistance-associated protein (MRP) subfamily of ABC family; similar to <i>S. cerevisiae</i> Bpt1p

orf19.3872		1,07	1,08	Protein of unknown function; oral infection induced; mutants have reduced capacity to damage oral epithelial cells; rat catheter biofilm repressed
orf19.5155	CHS6	1,07	1,05	Protein with tetratricopeptide repeats (TPRs); ortholog of <i>S. cerevisiae</i> Chs6, which has role in localizing chitin synthase; Cyr1-regulated in hyphae; possibly essential, disruptants not obtained by UAU1 method; flow model biofilm repressed
orf19.5148	CYR1	1,07	1,13	Class III adenylyl cyclase; mutant lacks cAMP; mutant hyphal growth defect rescued by exogenous cAMP; required for mouse mucosal or systemic infection; role in macrophage sensitivity, apoptosis; downstream of Ras1p and CO2 signaling
orf19.5144	PGA28	1,07	1,05	Protein similar to <i>S. cerevisiae</i> Wsc2p, which has roles in stress- and cell-wall-related processes; predicted Kex2p substrate; putative GPI-anchored adhesin-like protein
orf19.2044	PGA27	1,07	1,02	Putative GPI-anchored protein
orf19.5373		1,07	1,06	#NV
orf19.6268		1,07	1,05	Putative cohesin complex subunit; expression downregulated in an <i>ssr1</i> null mutant
orf19.4163		1,07	1,05	Ortholog(s) have role in protein targeting to vacuole, receptor-mediated endocytosis, response to pheromone and actin cortical patch, cytosol, endosome, plasma membrane, ribosome localization
orf19.3428		1,07	1,05	Protein of unknown function; flow model biofilm induced
orf19.3425		1,07	1,13	RING/FYVE/PHD zinc finger protein; Spider biofilm induced
orf19.3420		1,07	1,07	Protein of unknown function; decreased expression in hyphae than in yeast
orf19.393	APS3	1,07	1,01	Component of the adaptor complex AP-3, which is involved in vacuolar protein sorting
orf19.1021		1,07	1,07	#NV
orf19.438		1,07	1,1	Ortholog of <i>S. cerevisiae</i> : YHR078W, <i>C. glabrata</i> CBS138 : CAGL0J10626g, <i>C. dubliniensis</i> CD36 : Cd36_05020, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_95811 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E07524g
orf19.6640	TPS1	1,07	1,09	Trehalose-6-phosphate synthase; role in hyphal growth and virulence in mouse systemic infection; induced in presence of human neutrophils; macrophage/pseudohyphal-repressed after 16h; stationary phase enriched protein; Hap43-repressed
orf19.2766		1,07	1,01	Dubious open reading frame
orf19.4235	PDE1	1,07	1,09	Low affinity cyclic nucleotide phosphodiesterase; mediates cAMP signaling in response to glucose or intracellular acidification; macrophage-repressed; Spider biofilm induced
orf19.5802		1,07	1,06	Ortholog(s) have role in maturation of SSU-rRNA and cytoplasm, nucleus localization
orf19.2723	HIT1	1,07	1,05	#NV
orf19.2723	HIT1	1,07	1,1	Ortholog of <i>S. cerevisiae</i> Hit1; protein of unknown function required for high temperature growth; flow model biofilm induced; Spider biofilm induced
orf19.3117	CSA2	1,07	-1,04	Extracellular-associated protein; repressed by Rim101 at pH 8; regulated by Tsa1, Tsa1B in minimal media at 37 deg; induced by ketoconazole, nitric oxide, Hap43; required for normal RPMI biofilm formation; Bcr1 induced in RPMI
orf19.5155	CHS6	1,07	1,11	Protein with tetratricopeptide repeats (TPRs); ortholog of <i>S. cerevisiae</i> Chs6, which has role in localizing chitin synthase; Cyr1-regulated in hyphae; possibly essential, disruptants not obtained by UAU1 method; flow model biofilm repressed
orf19.1745		1,07	1,02	Protein of unknown function; Hap43-repressed gene
orf19.1905		1,07	1,04	#NV
orf19.6882	OSM1	1,07	-1,22	Putative flavoprotein subunit of fumarate reductase; soluble protein in hyphae; caspofungin repressed; stationary phase enriched protein; flow model biofilm induced; Spider biofilm repressed
orf19.4439		1,07	1,13	Ortholog of <i>Candida albicans</i> WQ-1 : CAWG_00687
orf19.4855	BUD31	1,07	1,06	Bud31 ortholog; not subject to mating-type regulation, in contrast to <i>S. cerevisiae</i> Bud31 which has a role in specifying the bud site; Spider biofilm induced
orf19.4822	LIP10	1,07	1,02	Secreted lipase, member of a lipase gene family whose members are expressed differentially in response to carbon source and during infection; may have a role in nutrition and/or in creating an acidic microenvironment
orf19.4007		1,07	-1,01	Ortholog(s) have protein-lysine N-methyltransferase activity, role in peptidyl-lysine monomethylation, peptidyl-lysine trimethylation and cytosol, nucleolus localization
orf19.4026	HIS1	1,07	1,02	ATP phosphoribosyl transferase; enzyme of histidine biosynthesis; acid upregulated/alkaline repressed by Rim101; regulated by Gcn2, Gcn4; strain CA9 is a his1 mutant; flow model biofilm induced; Spider biofilm repressed
orf19.6997	ATO5	1,07	1,12	#NV
orf19.3015	ARX1	1,07	1,01	Putative fungal-specific transmembrane protein
orf19.3015	ARX1	1,07	1,06	Putative ribosomal large subunit biogenesis protein; repressed in core stress response; repressed by prostaglandins
orf19.3045		1,07	1,03	Predicted aldehyde dehydrogenase domain; virulence-group-correlated expression
orf19.6425	SK2	1,07	1,12	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion, nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay
orf19.6413		1,07	1,04	Protein of unknown function; rat catheter biofilm induced
orf19.6408		1,07	1,08	Putative DnaJ-like heat shock/chaperone; Hap43-repressed; Spider and F-12/CO2 biofilm induced
orf19.5023	DAL7	1,07	1,12	Putative allantoin permease; mutant is viable
orf19.5017	DUR32	1,07	1,16	Putative urea transporter; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7184		1,07	1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73640, <i>C. parapsilosis</i> CDC317 : CPAR2_702340, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112965 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G16566g
orf19.2224		1,07	1,03	#NV
orf19.5314		1,07	1,06	#NV
orf19.3557	GPI19	1,07	1,04	Subunit of GPI-GlcNAc transferase; role in synthesis of N-acetylglucosaminyl phosphatidylinositol (GlcNAc-PI), the first intermediate in GPI anchor synthesis; complements <i>S. cerevisiae</i> gpi19 mutant; flow model biofilm induced
orf19.7093	HGT13	1,07	1,06	Predicted sugar transporter, involved in glycerol utilization; member of the major facilitator superfamily; 12 transmembrane; gene has intron; oxidative stress-induced via Cap1p; expressed in rich medium, 2% glucose
orf19.7353		1,07	1,04	Ortholog(s) have plus-end-directed microtubule motor activity, tubulin-dependent ATPase activity
orf19.7371	ZCF35	1,07	1,09	Zn(II)2Cys6 transcription factor; Hap43-induced; Spider biofilm induced
orf19.5397		1,07	1,02	#NV
orf19.5397		1,07	1,05	Putative conserved oligomeric Golgi complex subunit; decreased transcription is observed upon flufenazine treatment
orf19.7494		1,07	1,06	Protein of unknown function; cell-cycle regulated periodic mRNA expression
orf19.6807		1,07	1,04	Predicted ORF in retrotransposon Tca17 with similarity to parts of the Gag-Pol region of retrotransposons; clade-associated gene expression
orf19.6007		1,07	1,16	Predicted fatty acid acyl transferase-related protein domain; repressed by prostaglandins
orf19.5941		1,07	1,11	Ortholog(s) have role in ER to Golgi vesicle-mediated transport and ER to Golgi transport vesicle, integral to Golgi membrane, integral to endoplasmic reticulum membrane localization
		1,07	1,13	#NV
		1,07	1,01	#NV
		1,07	1,03	#NV
		1,07	1,08	#NV
		1,07	1,08	#NV
orf19.3998		1,06	1,04	Ortholog(s) have Atg8 ligase activity, protein binding, bridging activity and role in C-terminal protein lipidation, CVT pathway, macroautophagy, mitochondrion degradation, piecemeal microautophagy of nucleus
orf19.1591	ERG10	1,06	1,03	Acetyl-CoA acetyltransferase; role in ergosterol biosynthesis; soluble in hyphae; changes in protein abundance associated with azole resistance; fluconazole or ketoconazole induced; macrophage-downregulated protein; GlcNAc-induced protein
orf19.922	ERG11	1,06	1,04	Lanosterol 14-alpha-demethylase; cytochrome P450 family; role in ergosterol biosynthesis; target of azole antifungals; may contribute to drug resistance; azole or flow model biofilm induced; drug treated biofilm induced; hypoxia regulated
orf19.2927	MNN11	1,06	1,03	Ortholog(s) have alpha-1,2-galactosyltransferase activity, alpha-1,6-mannosyltransferase activity and role in fungal-type cell wall biogenesis, protein N-linked glycosylation, protein O-linked glycosylation, protein galactosylation
orf19.3146		1,06	-1,02	#NV
orf19.69		1,06	1	Protein of unknown function; induced by Mln1 under weak acid stress
orf19.11		1,06	1,08	Protein of unknown function; transcript regulated by Mig1 and Tup1; rat catheter biofilm induced
orf19.4258		1,06	1,08	Putative pre-mRNA polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to pamafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.4704	ARO1	1,06	1,02	Putative pentafunctional arom enzyme; fungal-specific (no human or murine homolog); Gcn2p-, Gcn4p-regulated
orf19.3290		1,06	1,07	Plasma membrane-localized protein; repressed by nitric oxide; Hap43p-repressed gene
orf19.2915		1,06	1,07	Ortholog(s) have nucleoside-diphosphatase activity, nucleoside-triphosphatase activity, nucleoside-triphosphate diphosphatase activity, role in protein mannosylation and COP1-coated vesicle, Golgi membrane localization
orf19.1920		1,06	1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15040
orf19.4735		1,06	1,05	Ornithine cyclodeaminase family protein; Sef1, Sfu1, and Hap43-regulated; ortholog of <i>S. cerevisiae</i> YGL159W and <i>S. pombe</i> SPAP11E:10.01; rat catheter biofilm induced
orf19.473	TPO4	1,06	1,1	Putative spermidine transporter; fungal-specific (no human or murine homolog); Spider biofilm induced; promoter bound by Tec1 and Ndt80; Bcr1-repressed in RPMI a/b biofilms

orf19.3770	ARG8	1.06	1.06	Putative acetylmethionine aminotransferase; Gcn2, Gcn4 regulated; rat catheter biofilm induced; Spider biofilm induced
orf19.3697		1.06	1.04	Ortholog(s) have role in re-entry into mitotic cell cycle after pheromone arrest and endoplasmic reticulum localization
orf19.3791	FGR10	1.06	1.07	Putative asparaginase; lacks ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; Spider biofilm induced
		1.06	1.04	#NV
orf19.4972		1.06	1.02	Putative transcription factor with zinc finger DNA-binding motif
orf19.3944	GRR1	1.06	1.03	F-box protein component of the SCF ubiquitin-ligase complex required for cell cycle progression; involved in negative control of pseudohyphal growth; Spider biofilm induced
orf19.5568	VPS51	1.06	1.13	Protein with a role in vacuolar function; null mutant has defect in damaging oral epithelial and vascular endothelial cells; required for normal hyphal growth and stress resistance; induced in presence of host oral or vascular cells
orf19.5190		1.06	1.02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05610
orf19.867		1.06	-1.01	Ortholog(s) have superoxide-generating NADPH oxidase activity, role in apoptotic process, regulation of actin cytoskeleton organization and perinuclear endoplasmic reticulum, ribosome localization
orf19.6482		1.06	1.06	Protein of unknown function; induced by nitric oxide independent of Yhb1p; regulated by Sef1, Sfu1, and Hap43; rat catheter biofilm induced
orf19.2797		1.06	1.11	Has domain(s) with predicted ATP binding, DNA binding, helicase activity, hydrolase activity, nucleic acid binding activity
orf19.3083		1.06	1.07	Putative lipid phosphatase of the endoplasmic reticulum; role in DNA repair, actin cytoskeleton organization, cellular manganese ion homeostasis; Spider biofilm repressed
orf19.3080		1.06	1.03	Ortholog(s) have role in attachment of spindle microtubules to kinetochores, cellular response to nitrogen starvation, cohesin localization to chromatin and double-strand break repair, more
orf19.5289		1.06	1.06	Dubious open reading frame
orf19.908	FEN12	1.06	1.06	Putative protein with a predicted role in the elongation of fatty acids; amphotericin B, caspofungin repressed
orf19.911		1.06	-1.25	#NV
orf19.4252		1.06	1.04	Ortholog(s) have protein serine/threonine kinase activity
orf19.2347	MNN2	1.06	1.11	Alpha-1,2-mannosyltransferase; similar to <i>S. cerevisiae</i> Mnn2; role in cell wall integrity, temperature sensitivity; iron utilization in low iron; Tn mutation affects filamentous growth; filament induced; increased chitin exposes beta-glucan
orf19.3504	RPL23A	1.06	-1.09	Ribosomal protein; downregulated upon phagocytosis by murine macrophage; Hap43-induced; sumoylation target; Spider biofilm repressed
orf19.3196		1.06	1.04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 04564
orf19.5526	SEC20	1.06	-1	Essential protein; similar to <i>S. cerevisiae</i> Sec20p; depletion causes membrane accumulation and drug sensitivity; expression regulated by growth phase; O-mannosylation regulates proteolysis; does not complement <i>S. cerevisiae</i> sec20-1 mutant
orf19.6610		1.06	-1.02	Ortholog(s) have microtubule binding, structural constituent of cytoskeleton activity
orf19.2739		1.06	1.06	Ortholog(s) have histone binding activity, role in DNA replication-dependent nucleosome assembly and CAF-1 complex, chromosome, centromeric region, nucleus localization
		1.06	1.11	#NV
orf19.1314		1.06	1.05	Protein of unknown function; planktonic growth-induced gene
orf19.1070		1.06	1.05	Ortholog(s) have cytoplasm localization
orf19.5861	KRE9	1.06	1.02	Protein of beta-1,6-glucan biosynthesis; required for serum-induced hyphal growth; required for efficient utilization of galactose and for growth on glucose; similar to <i>S. cerevisiae</i> Kre9p and Knh1p; O-glycosylated by Pmt1p
orf19.6230		1.06	1.02	Ortholog(s) have enzyme regulator activity, pyrophosphatase activity
orf19.209	DFG10	1.06	1.03	Ortholog(s) have role in dolichol biosynthetic process, dolichol-linked oligosaccharide biosynthetic process, polyprenol catabolic process, pseudohyphal growth and endoplasmic reticulum localization
orf19.4153		1.06	1.09	Ortholog(s) have NEDD8 activating enzyme activity, role in protein redoxylation and cytosol, nucleus localization
orf19.2694	TYS1	1.06	1.08	Putative tRNA-Tyr synthetase; downregulated upon phagocytosis by murine macrophages; stationary phase enriched protein; Spider biofilm repressed
orf19.1930	CFL5	1.06	1.06	Ferric reductase; induced in low iron; ciclopirox olamine, flucytosine induced; amphotericin B, Sfu1 repressed; Tbf1, Hap43 induced
orf19.331		1.06	1.03	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, protein methyltransferase activity and role in peptidyl-glutamine methylation, regulation of translation
orf19.2989	GOR1	1.06	1.09	Ortholog(s) have glyoxylate reductase activity, role in glyoxylate catabolic process and cytosol, mitochondrion, nucleus localization
orf19.3574	MDJ2	1.06	1.05	Predicted component of the mitochondrial import motor; involved in protein import into mitochondrial matrix; early-stage flow model biofilm induced
orf19.3563		1.06	1.02	Protein of unknown function; mutants are viable
orf19.6353		1.06	1.11	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 00172
orf19.999	GCA2	1.06	-1.01	Predicted extracellular glucoamylase; induced by ketoconazole; possibly essential, disruptants not obtained by UAU1 method; promotes biofilm matrix formation; Bcr1-induced in RPM1 a/a biofilms
orf19.3879		1.06	1.09	Predicted protein of unknown function; overlaps orf19.3879.1, which is a region annotated as blocked reading frame
orf19.25		1.06	1.03	Ortholog(s) have tRNA (guanine) methyltransferase activity, role in tRNA methylation and cytoplasm, nucleolus localization
orf19.5140		1.06	1.03	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.6461		1.06	1.02	Ortholog(s) have unfolded protein binding activity, role in aerobic respiration, mitochondrial respiratory chain complex IV assembly, protein processing and mitochondrial inner membrane localization
orf19.733		1.06	1.39	Ortholog(s) have endoplasmic reticulum localization
orf19.6273		1.06	1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05960, <i>C. parapsilosis</i> CDC317 : CPAR2_301790, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112420 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G15290q
orf19.4936		1.06	1.08	Dubious open reading frame
orf19.2180		1.06	-1.01	Ortholog(s) have calcium ion binding, zinc ion binding activity, role in axial cellular bud site selection, bipolar cellular bud site selection, regulation of COP11 vesicle coating and cellular bud neck, cytosol, nucleus localization
orf19.3423	TIF3	1.06	1.07	Putative translation initiation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.4402		1.06	1	#NV
orf19.403	PCL2	1.06	1.07	Cyclin homolog; reduced expression observed upon depletion of Cln3; farnesol regulated; periodic mRNA expression, peak at cell-cycle G1/S phase; Hap43-induced; rat catheter biofilm repressed
orf19.6614		1.06	-1.03	#NV
orf19.666		1.06	1.03	Essential protein required for the DNA integrity checkpoint pathway; Spider biofilm induced
orf19.4243		1.06	1.14	Ortholog(s) have ubiquitin binding activity
orf19.4234		1.06	1.04	Protein of unknown function; Hap43-induced gene; Ctr86 ortholog in <i>S. cerevisiae</i> is essential; Spider biofilm induced
		1.06	1.09	#NV
orf19.2963		1.06	1.03	Has domain(s) with predicted NAD+ binding activity
orf19.823		1.06	1.02	Protein of unknown function; Spider biofilm induced
orf19.2158	NAG3	1.06	-1.05	Putative MFS transporter; similar to Nag4; required for wild-type mouse virulence and cycloheximide resistance; in gene cluster that includes genes encoding enzymes of GlcNAc catabolism; Spider biofilm repressed
orf19.1903		1.06	1.08	#NV
orf19.1473		1.06	1.04	2-hydroxyacid dehydrogenase domain-containing protein; Hap43-repressed gene; induced by alpha pheromone in SpiderM medium
orf19.879		1.06	1.15	Ortholog(s) have myosin binding activity, role in intracellular mRNA localization, mating type switching and cytoplasm localization
orf19.4861		1.06	1.04	Protein of unknown function; rat catheter biofilm repressed
orf19.4823	LIP6	1.06	1.12	Secreted lipase, member of family of lipase genes expressed differentially in response to carbon source and during infection; may have a role in nutrition and/or in creating an acidic microenvironment; induced on adherence to polystyrene
orf19.2071		1.06	1.04	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.2060	SOD5	1.06	1.03	Cu and Zn-containing superoxide dismutase; protects against oxidative stress; induced by neutrophils, hyphal growth, caspofungin, osmotic/oxidative stress; oropharyngeal candidiasis induced; rat catheter and Spider biofilm induced
orf19.6528		1.06	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_71740, <i>C. parapsilosis</i> CDC317 : CPAR2_703440, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_102923 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C03190q
orf19.6518		1.06	1.08	Predicted aldehyde dehydrogenase (NAD(P)+); Spider biofilm induced
orf19.5277		1.06	1.02	Ortholog(s) have role in nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, protein ubiquitination and cytoplasm, nucleolus, polysome localization
orf19.3042		1.06	1.07	Protein of unknown function; Hap43-induced; rat catheter biofilm induced
orf19.6449		1.06	1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34310
orf19.6402	CYS3	1.06	1.06	Cystathionine gamma-lyase; induced by alkaline, amphotericin B, cadmium stress, oxidative stress via Cap1; possibly adherence-induced; Hog1 regulated; reduced levels in stationary phase yeast cells; Spider and flow model biofilm induced
orf19.4577		1.06	1.05	Ortholog(s) have GTPase activating protein binding, cAMP-dependent protein kinase inhibitor activity, signal transducer activity

orf19.4589		1,06	1,02	Ortholog(s) have polyamine oxidase activity, role in pantothenate biosynthetic process, polyamine catabolic process and cytoplasm localization
orf19.4592	<i>HSX11</i>	1,06	1,09	UDP-glucose:ceramide glucosyltransferase (glucosylceramide synthase [GCS], EC 2.4.1.80); involved in glucosylceramide biosynthesis, which is important for virulence
orf19.4621		1,06	1,11	Ortholog(s) have cytoplasmic mRNA processing body localization
orf19.7007		1,06	1,02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_70990 and <i>Candida albicans</i> WO-1 : CAWG_05464
orf19.7009		1,06	1,07	Has domain(s) with predicted catalytic activity, coenzyme binding activity and role in cellular metabolic process
orf19.7023		1,06	1	Ortholog of <i>S. cerevisiae</i> loc4, a protein that influences gene expression through chromatin remodeling; oxidative stress-induced via Cap1
orf19.5001	<i>CUP2</i>	1,06	1,14	Putative copper-binding transcription factor; required for normal resistance to copper; activates transcription of metallothionein genes; Hap43-repressed; Spider biofilm induced
orf19.4988		1,06	1,06	<i>S. cerevisiae</i> ortholog Sae2 is an endonuclease that processes hairpin DNA structures with the MRX complex, involved in meiotic and mitotic double-strand break repair; upregulated in a <i>cyr1</i> null mutant
orf19.7141	<i>UFE1</i>	1,06	-1,21	Protein interacting with Sec20p, possibly involved in retrograde transport between the Golgi and the endoplasmic reticulum; functional homolog of <i>S. cerevisiae</i> Ufe1p, which is an ER t-SNARE that mediates the retrograde traffic
orf19.88	<i>ILV5</i>	1,06	1,04	Ketol-acid reductoisomerase; antigenic; regulated by Gcn4; GlcNAc, amino acid starvation (3-AT)-induced; macrophage-repressed protein; protein present in exponential and stationary phase; flow model and Spider biofilm repressed
orf19.1180		1,06	1	Putative 2-aminoacidipate transaminase; rat catheter and Spider biofilm repressed
orf19.974	<i>ROT2</i>	1,06	1,04	Alpha-glucosidase II, catalytic subunit, required for N-linked protein glycosylation and normal cell wall synthesis; alkaline downregulated
orf19.3238		1,06	1,04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01469
orf19.3276	<i>PWP2</i>	1,06	1	Putative 90S pre-ribosomal component; repressed in core stress response; repressed by prostaglandins; physically interacts with TAP-tagged Nop1; Hap43-induced
orf19.3277		1,06	1,03	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01437
orf19.7323	<i>CBP1</i>	1,06	1,08	Corticosteroid binding protein; transcription induced at late log-phase or upon adherence to polystyrene; not induced by corticosterone; contains a possible NAD/FAD binding region; regulated by Nrg1, Tup1; Spider biofilm induced
orf19.7089	<i>PMR1</i>	1,06	1,05	Putative secretory pathway P-type Ca2+/Mn2+-ATPase; required for protein glycosylation and cell wall maintenance; required for hyphal tip oscillation in semisolid substrate; putative ortholog of <i>S. cerevisiae</i> PMR1
orf19.7357		1,06	1,02	Ortholog(s) have role in coenzyme A biosynthetic process and cytosol, nucleus localization
orf19.7358	<i>SAM50</i>	1,06	1,06	Predicted component of the SAM complex involved in mitochondrial protein import
orf19.7376		1,06	1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_85880, <i>C. parapsilosis</i> CDC317 : CPAR2_806870, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_96983 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D16148g
orf19.7452		1,06	1,1	Ortholog(s) have chromatin binding activity and role in DNA replication initiation, DNA unwinding involved in replication, double-strand break repair via break-induced replication
orf19.6829		1,06	-1	Protein with a predicted mitochondrial ATPase expression domain; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6824	<i>TRY6</i>	1,06	1,03	Helix-loop-helix transcription factor; regulator of yeast form adherence; required for yeast cell adherence to silicone substrate; Spider and F-12/CO2 biofilm induced; repressed by alpha pheromone in SpiderM medium
orf19.6788		1,06	1,15	Protein with a predicted role in cotranslational protein targeting to membrane; induced during chlamydsopore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.6784	<i>PGA32</i>	1,06	1,06	Putative GPI-anchored adhesin-like protein; induced in high iron; Spider biofilm induced
orf19.6763	<i>SLK19</i>	1,06	1,1	Alkaline-induced protein of plasma membrane; affects cell aggregation, cell wall; similar to <i>S. cerevisiae</i> Slk19p (a kinetochore protein with roles in mitosis, meiosis); required for wild-type virulence in mouse; macrophage-downregulated
orf19.6742		1,06	1,06	Ortholog(s) have CTD phosphatase activity
orf19.7620		1,06	1,07	Ortholog(s) have role in mRNA splicing, via spliceosome and spliceosomal complex localization
orf19.6005	<i>HGT5</i>	1,06	1,02	Putative glucose transporter of the major facilitator superfamily; the <i>C. albicans</i> glucose transporter family comprises 20 members; 12 probable membrane-spanning segments, extended N terminus; expressed in rich medium; Hap43p-repressed
orf19.6001	<i>SAP3</i>	1,06	1,01	Secreted aspartyl proteinase, acts in utilization of protein as nitrogen source; assessment of virulence role complicated by URA3 effects; regulated by growth phase; produced by opaque phase cells; alpha-pheromone repressed
orf19.5992	<i>WOR2</i>	1,06	1,07	Zn(II)Cys6 transcription factor; regulator of white-opaque switching; required for maintenance of opaque state; Hap43-induced
orf19.5971		1,06	1,04	Ortholog of <i>S. cerevisiae</i> : MTC6, <i>C. glabrata</i> CBS138 : CAGL0101892g, <i>C. dubliniensis</i> CD36 : Cd36_84990, <i>C. parapsilosis</i> CDC317 : CPAR2_405620 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_99433
		1,06	1,02	#NV
		1,06	1,07	#NV
		1,06	1,07	#NV
orf19.1804		1,05	1,03	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion and mitochondrion localization
orf19.1124		1,05	-1,02	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.1821		1,05	1,05	Protein of unknown function; repressed by alpha pheromone in SpiderM medium
orf19.3173		1,05	1,08	Ortholog(s) have Golgi apparatus, endoplasmic reticulum localization
orf19.123	<i>RCN1</i>	1,05	1,08	Protein involved in calcineurin-dependent signaling that controls stress response and virulence; inhibits calcineurin function
orf19.5530	<i>NAB3</i>	1,05	1,02	Putative nuclear polyadenylated RNA-binding protein; flucytosine repressed
orf19.4972		1,05	1,03	Putative transcription factor with zinc finger DNA-binding motif
orf19.1162		1,05	1,03	Protein of unknown function; transcript upregulated by benomyl treatment
orf19.3209	<i>FGR42</i>	1,05	1,04	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.4287		1,05	1,05	Putative oxidoreductase; Hap43-repressed gene; clade-associated gene expression
orf19.551		1,05	1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_29980, <i>C. parapsilosis</i> CDC317 : CPAR2_204170, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_110235 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F17072g
orf19.1911	<i>PGA52</i>	1,05	1,16	GPI-anchored cell surface protein of unknown function; Hap43p-repressed gene; flucanazole-induced; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.38		1,05	1,05	#NV
orf19.3412	<i>ATG15</i>	1,05	1,03	Putative lipase; fungal-specific (no human or murine homolog); Hap43p-repressed gene
orf19.1801	<i>CBR1</i>	1,05	1,17	Putative cytochrome B5 reductase; plasma membrane-localized
orf19.18	<i>IMH3</i>	1,05	1,05	Inosine monophosphate (IMP) dehydrogenase; enzyme of GMP biosynthesis; target of mycophenolic acid and mizoribine monophosphate; antigenic during infection; repressed in core stress response; snRNA snR54 encoded within IMH3 intron
orf19.644	<i>HGT9</i>	1,05	1,04	Putative glucose transporter of the major facilitator superfamily; the <i>C. albicans</i> glucose transporter family comprises 20 members; 12 probable membrane-spanning segments; induced at low (0.2%, compared to 2%) glucose in rich media; intron
orf19.4342		1,05	1,04	Zn2Cys6 transcription factor involved in sterol uptake; flow model biofilm induced; Spider biofilm repressed
orf19.1491		1,05	1,07	Ortholog(s) have RNA binding activity, role in mRNA splicing, via spliceosome and U1 snRNP, U2-type prespliceosome localization
orf19.4965		1,05	1,08	Protein of unknown function; rat catheter biofilm induced
orf19.3700	<i>TOM70</i>	1,05	1,04	Ortholog(s) have mitochondrion targeting sequence binding, protein channel activity and role in protein import into mitochondrial inner membrane, protein import into mitochondrial matrix
orf19.3695		1,05	1,05	Ortholog(s) have diacylglycerol cholinephosphotransferase activity, ethanolaminephosphotransferase activity, role in phosphatidylcholine biosynthetic process, phosphatidylethanolamine biosynthetic process and Golgi apparatus localization
orf19.1276		1,05	1,02	Protein with a selenoprotein domain and a thioredoxin-like fold domain; similar to <i>S. cerevisiae</i> Vhs3p, which is a putative phosphopantothencysteine decarboxylase
orf19.166	<i>ASG1</i>	1,05	1,09	Gal4p family zinc-finger transcription factor with similarity to <i>S. cerevisiae</i> Asg1p
orf19.612		1,05	1,04	Ortholog of <i>S. cerevisiae</i> : AIM32, <i>C. glabrata</i> CBS138 : CAGL0101529g, <i>C. dubliniensis</i> CD36 : Cd36_33550, <i>C. parapsilosis</i> CDC317 : CPAR2_702070 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114174
		1,05	1,03	#NV
orf19.4886		1,05	1,05	Putative adhesin-like protein; Hap43-repressed; rat catheter and Spider biofilm induced
orf19.4798		1,05	1,08	Ortholog(s) have role in establishment of protein localization to plasma membrane and mitochondrion, plasma membrane localization
orf19.271	<i>ADH4</i>	1,05	1,04	Predicted 3-hydroxyacyl-CoA dehydrogenase; transcript is increased in azole-resistant strain overexpressing MDR1; transcript is increased in populations of cells exposed to fluconazole over multiple generations; mutant is viable
orf19.3213		1,05	1,04	Protein of unknown function; Spider biofilm induced
orf19.3940		1,05	1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_54170, <i>C. parapsilosis</i> CDC317 : CPAR2_100960, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_96367 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G24618g
orf19.4916		1,05	1	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.2520		1,05	-1,07	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.384		1,05	1,06	Ortholog(s) have Golgi apparatus, cytosol, nucleus localization
orf19.2605	<i>PRK1</i>	1,05	1,09	Putative protein serine/threonine kinase; mutants sensitive to growth on hydrogen peroxide medium

orf19.2435	MSI3	1.05	1.08	Essential HSP70 family protein; required for fluconazole resistance and calcineurin-dependent transcription; interacts with Cgr1; transcript regulated by iron; rat catheter biofilm induced; famosol repressed in biofilm; sumoylation target
orf19.4740		1.05	1.05	Ortholog(s) have aminoacyl-tRNA hydrolase activity, role in mitochondrial translation and mitochondrion localization
orf19.5220		1.05	1.04	Putative RNA exonuclease; induced in a <i>ssr1</i> null mutant
orf19.6480		1.05	1.05	Ortholog(s) have role in UDP-glucose transport and COPI-coated vesicle, Golgi apparatus localization
orf19.2930		1.05	-1	Predicted translation initiation factor; role in translational initiation; Spider biofilm repressed
orf19.5722		1.05	1.07	Ortholog(s) have DNA binding activity
orf19.2641	ARP1	1.05	1.06	Putative centractin; induced upon adherence to polystyrene
orf19.715		1.05	1.03	Protein of unknown function; Hap43-induced; rat catheter and Spider biofilm induced
orf19.5549		1.05	1.06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_63380 and <i>Candida albicans</i> WO-1 : CAWG_05071
orf19.3407	RAD18	1.05	1.04	Putative transcription factor with zinc finger DNA-binding motif; Hap43p-repressed gene
orf19.631		1.05	-1.03	#NV
orf19.5588	PGA60	1.05	1.08	Putative GPI-anchored adhesin-like protein; hyphal-induced expression
orf19.3190	HAL9	1.05	1.16	Putative Zn(II)Cys6 transcription factor; gene in zinc cluster region of Chr. 5; induced by Mn1 in weak acid; similar to <i>S. cerevisiae</i> Hal9, a putative transcription factor involved in salt tolerance
orf19.5644		1.05	1.04	Ortholog(s) have role in ascospore wall assembly, spore membrane bending pathway and cytoplasm, prospore membrane localization
orf19.5492		1.05	-1.03	Ortholog(s) have mRNA binding activity, role in mRNA splicing, via spliceosome and U1 snRNP, U2-type prespliceosome, commitment complex localization
orf19.1714	PGA44	1.05	1.03	Putative GPI-anchored protein
orf19.5605		1.05	1.05	Ortholog(s) have protein binding, bridging, ubiquitin protein ligase binding activity and role in positive regulation of ubiquitin dependent endocytosis, regulation of intracellular transport
orf19.1239		1.05	1.06	Secreted protein; exogenously expressed protein is a substrate for Kex2 processing in vitro; fluconazole-regulated; Spider biofilm induced
orf19.1228	HAP2	1.05	1	CCAAT-binding transcription factor; regulates low-iron induction of FRP1; in these conditions CBF comprises Hap43 and probably Hap2 and Hap3; possibly essential, disruptants not obtained by UAU1 method; Cap1-dependent induction in low iron
orf19.6131	KSR1	1.05	-1	3-ketosphinganine reductase, catalyzes the second step in phytosphingosine synthesis
orf19.6227		1.05	1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06390, <i>C. parapsilosis</i> CDC317 : CPAR2_209040, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114052 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D14300g
orf19.3906		1.05	1.02	Protein of unknown function; mutants are viable
orf19.3904		1.05	1.06	Protein of unknown function; Spider biofilm induced
orf19.3900		1.05	1.03	Ortholog(s) have role in mitochondrial fusion and integral to mitochondrial outer membrane localization
orf19.210		1.05	1.19	Ortholog(s) have role in protein localization to bud neck and cellular bud neck, cytosol localization
orf19.4815	YTM1	1.05	1.03	Protein similar to <i>S. cerevisiae</i> Ytm1p, which is involved in biogenesis of the large ribosomal subunit; transposon mutation affects filamentous growth; protein level decreases in stationary phase cultures; Hap43p-induced gene
orf19.3865	RFX1	1.05	1.11	Transcription factor; involved in DNA damage responses, morphogenesis, and virulence; Spider biofilm induced
orf19.6164		1.05	1.02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02424
orf19.6169	ATO1	1.05	1.09	Putative fungal-specific transmembrane protein; induced by Rgt1; Spider biofilm induced
orf19.6302	PGA39	1.05	1.03	Putative GPI-anchored protein
orf19.6326		1.05	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_60130, <i>C. parapsilosis</i> CDC317 : CPAR2_603380, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94402 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G06556g
orf19.6328		1.05	1.01	Putative protein of the mitochondrial intermembrane space; predicted role in acetate utilization and gluconeogenesis; Spider biofilm repressed
orf19.2301		1.05	1.09	Ortholog(s) have role in proteasome regulatory particle assembly and cytosol, nucleus localization
orf19.2676		1.05	1.06	Predicted hexameric RecA-like ATPase Eip456 Elongator subcomplex subunit; required for modification of wobble nucleosides in tRNA; Spider biofilm induced
orf19.2335		1.05	1	Putative aspartyl aminopeptidase; stationary phase enriched protein; mutation confers hypersensitivity to 5-fluorouracil (5-FU); Hog1-induced; planktonic growth-induced; rat catheter and Spider biofilm repressed
orf19.1941	NUF2	1.05	1.01	Kinetochore component; amount of Nuf2p and Mtw1p protein detected at each centromere is consistent with a single kinetochore microtubule attachment site
orf19.1842	BUD5	1.05	1.05	Predicted GTP/GDP exchange factor for Rsr1; rat catheter biofilm induced
orf19.6148		1.05	1.05	Homolog of nuclear distribution factor NudE, NUDEL; regulates dynein targeting to microtubule plus ends; flow model biofilm repressed
orf19.3209	FGR42	1.05	1.05	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.3135		1.05	1.09	Ortholog(s) have protein binding, bridging activity and role in ER-associated protein catabolic process, lipid particle organization
orf19.2247		1.05	1.17	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_406700, <i>C. dubliniensis</i> CD36 : Cd36_21220, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_127772 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0C06120
orf19.2034		1.05	1.02	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_212925, <i>C. dubliniensis</i> CD36 : Cd36_15840, <i>Candida orthopsilosis</i> Co 90-125 : CORT_0A12230 and <i>Candida tropicalis</i> MYA-3404 : CTRG_01156
orf19.6455		1.05	1.05	Protein of unknown function, transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.4169		1.05	1.08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_40780, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116553, <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_04263 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G21736g
orf19.4181	SPC2	1.05	1.01	Signal peptidase complex component; role in ER protein translocation; transcript is induced upon filamentous growth
orf19.2177		1.05	1.01	<i>Sef1p</i> -, <i>Sfu1p</i> -, and Hap43p-regulated gene; overlaps IFM3/orf19.2176
orf19.3430		1.05	-1	Plasma membrane-associated protein; physically interacts with TAP-tagged Nop1p
orf19.3422	FMP27	1.05	1.07	Putative mitochondrial protein; mRNA binds She3
orf19.2888		1.05	1.17	Ortholog(s) have role in early endosome to Golgi transport, protein complex assembly and Golgi apparatus, TRAPP complex, clathrin-coated vesicle localization
orf19.5830	LHS1	1.05	1.11	Protein similar to <i>S. cerevisiae</i> Hsp70p; predicted Kex2p substrate; possibly essential, disruptants not obtained by UAU1 method; flow model biofilm repressed
orf19.5827	BUB2	1.05	1.02	Ortholog(s) have GTPase activator activity, role in mitotic spindle orientation checkpoint, negative regulation of septation initiation signaling cascade and cytosol, mitotic spindle pole body, nucleus localization
orf19.2494		1.05	1.01	Ortholog(s) have glutaminyl-tRNA synthase (glutamine-hydrolyzing) activity, role in glutaminyl-tRNA-Gln biosynthesis via transamidation, mitochondrial translation and glutamyl-tRNA(Gln) amidotransferase complex, mitochondrion localization
orf19.2496	ATO2	1.05	1.03	Putative fungal-specific transmembrane protein; fluconazole repressed, Hap43-repressed; flow model biofilm induced; Spider biofilm induced
orf19.6595	RTA4	1.05	1.05	Protein similar to <i>S. cerevisiae</i> Rsb1p, involved in fatty acid transport; transposon mutation affects filamentous growth; alkaline downregulated; caspofungin induced; possibly an essential gene; Hap43p-repressed
orf19.446		1.05	1.03	Protein of unknown function; constitutive expression independent of MTL or white-opaque status; upregulated in a <i>cyr1</i> mutant
orf19.6642		1.05	1	Ortholog(s) have role in ER to Golgi vesicle-mediated transport, cellular response to nitrogen starvation, negative regulation of G0 to G1 transition
orf19.677	CHO1	1.05	1.09	Putative phosphatidylserine synthase; ortholog of <i>S. transposon</i> mutation affects filamentous growth; regulated by Nrg1, Tup1
orf19.5793	PR26	1.05	-1.03	Protein with similarity to proteasomal 26S regulatory subunit of <i>S. cerevisiae</i> , <i>H. sapiens</i> , <i>Methanobacterium thermoautotrophicum</i> (Archaeobacterium)
orf19.2952	EXG2	1.05	1.04	GPI-anchored cell wall protein, similar to <i>S. cerevisiae</i> exo-1,3-beta-glucosidase Exg2p; predicted Kex2p substrate; induced during cell wall regeneration; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43p-repressed
orf19.2949	IML1	1.05	1.03	Putative protein with a role in autophagy; rat catheter biofilm induced
orf19.811		1.05	1.01	Protein of unknown function; mutant is viable; Hap43-repressed
orf19.6702	DED81	1.05	1.07	Putative tRNA-Asn synthetase; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage; protein enriched in stationary phase yeast cultures
orf19.6730		1.05	1.12	Ortholog(s) have nucleolus localization
orf19.5662	PEP7	1.05	1.08	Vesicle transport protein; acts in endosomal transport; roles in metal ion resistance, virulence, adhesion, hyphal growth, chlamydospore formation; similar to <i>S. cerevisiae</i> Pep7p
orf19.6866		1.05	1.15	Putative U1-70K component of the U1 snRNP, involved in splicing; ortholog of <i>S. cerevisiae</i> SNP1; downregulated upon adherence to polystyrene
orf19.6900		1.05	1.02	Ortholog(s) have role in mitochondrial genome maintenance, mitochondrion inheritance, phospholipid transport, protein import into mitochondrial outer membrane and ERMES complex, cytosol, nucleus, plasma membrane localization
orf19.3320		1.05	1.02	Dubious open reading frame
		1.05	1.06	#NV
		1.05	1.12	#NV
orf19.4842		1.05	1.01	Protein of unknown function; Spider biofilm induced
orf19.4015	CAG1	1.05	1.03	heterotrimeric G protein alpha subunit; positive role in mating pheromone response; opaque-enriched transcript; transcript repressed by MTL1-MTLpha2; regulated by hemoglobin-responsive Hbr1 via MTL genes; rat catheter biofilm repressed
orf19.2087	SAS2	1.05	1.04	Predicted histone acetyltransferase involved in histone H4 acetylation; member of MYST family

orf19.3813		1.05	1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_44340, <i>C. parapsilosis</i> CDC317 : CPAR2_302240, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_105331 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E03454q
orf19.6581		1.05	1.1	Ortholog(s) have palmitoyltransferase activity, role in protein palmitoylation and endoplasmic reticulum localization
orf19.6043		1.05	1.05	Has domain(s) with predicted UDP-N-acetylmuramate dehydrogenase activity, catalytic activity, flavin adenine dinucleotide binding, oxidoreductase activity, acting on CH-OH group of donors activity and role in oxidation-reduction process
orf19.151	<i>TPO5</i>	1.05	1.06	Putative polyamine transporter; mutation confers hypersensitivity to toxic ergosterol analog; hyphal induced; macrophage induced
orf19.6995	<i>ATO6</i>	1.05	1.02	Putative fungal-specific transmembrane protein
orf19.4594	<i>CLC1</i>	1.05	1.01	Clathrin light chain; subunit of the major coat protein involved in intracellular protein transport and endocytosis; rat catheter and Spider biofilm repressed
orf19.73		1.05	1.01	Putative metalloprotease; associates with ribosomes and is involved in ribosome biogenesis; Spider biofilm induced
orf19.4608	<i>PDC12</i>	1.05	1.02	Putative pyruvate decarboxylase; fungal-specific (no human or murine homolog)
orf19.7011		1.05	1.03	Ortholog(s) have 90S preribosome, cytoplasm, mitotic spindle pole body, nucleolus localization
orf19.7024		1.05	1.08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05448
orf19.5026		1.05	1.04	C2H2 transcription factor; Spider biofilm induced
orf19.941	<i>SEC14</i>	1.05	1.03	Essential protein; functional homolog of <i>S. cerevisiae</i> Sec14p, a Golgi phosphatidylinositol/phosphatidylcholine transfer protein that regulates choline-phosphate cytidyltransferase and thereby affects secretion; biofilm-regulated
orf19.968	<i>PGA14</i>	1.05	-1.01	Putative GPI-anchored protein; induced during cell wall regeneration; regulated by Ssn6p
orf19.3242		1.05	-1.04	Putative TFIIID and SAGA complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3261	<i>ATO9</i>	1.05	1.09	Putative fungal-specific transmembrane protein
orf19.3287	<i>BUD22</i>	1.05	1.06	Protein with a predicted role in 18S rRNA maturation and small ribosomal subunit biogenesis; repressed in core stress response; repressed by prostaglandins
orf19.5303	<i>PGA30</i>	1.05	-1	GPI-anchored protein of cell wall
orf19.5348	<i>TPS3</i>	1.05	-1.02	Predicted trehalose-phosphate synthase regulatory subunit; regulated by Efg1; regulated by Tsa1, Tsa1B under H2O2 stress conditions; flow model biofilm induced (reports differ)
orf19.7322		1.05	1.29	Protein of unknown function; <i>S. cerevisiae</i> ortholog Ypl225w interacts with ribosomes; rat catheter biofilm induced
orf19.7330		1.05	1.04	Protein with a predicted heme oxygenase domain; Spider biofilm induced
orf19.7114	<i>CSA1</i>	1.05	1.02	Surface antigen on elongating hyphae and buds; strain variation in repeat number; ciclopirox, filament induced, alkaline induced by Rim101; Efg1-, Cph1, Hap43-regulated; required for WT RPM biofilm formation; Bcr1-induced in a/b biofilms
orf19.7112	<i>FRP2</i>	1.05	1.02	Putative ferric reductase; alkaline induced by Rim101; fluconazole-downregulated; upregulated in the presence of human neutrophils; possibly adherence-induced; regulated by Sef1, Sfu1, and Hap43
orf19.7074		1.05	-1.03	Ortholog(s) have RNA polymerase II transcription factor recruiting transcription factor activity, methylated histone residue binding activity
orf19.7365		1.05	1.05	Ortholog(s) have ubiquitin-protein ligase activity and role in negative regulation of apoptotic process, negative regulation of gluconeogenesis, proteasomal ubiquitin-dependent protein catabolic process
orf19.7393		1.05	1.02	Predicted NAD+/NADH kinase; possible role in cellular iron ion homeostasis; Spider biofilm induced
orf19.5404		1.05	1.08	#NV
orf19.7463		1.05	1.06	Ortholog(s) have role in ascospore wall assembly and ascospore wall, nuclear envelope localization
orf19.6826	<i>SLF1</i>	1.05	1.03	Putative polysome-associated RNA binding protein; macrophage-induced gene
orf19.7556		1.05	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34965, <i>C. parapsilosis</i> CDC317 : CPAR2_200910, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_95984 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E02926g
orf19.7568		1.05	1.05	Ortholog of <i>S. cerevisiae</i> : SPS4, <i>C. glabrata</i> CBS138 : CAGL0109834g, <i>C. dubliniensis</i> CD36 : Cd36_35035, <i>C. parapsilosis</i> CDC317 : CPAR2_200810 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112327
orf19.7609	<i>PGA11</i>	1.05	1.03	Putative GPI-anchored protein
orf19.7614		1.05	1.06	Protein of unknown function; Hap43-induced gene; mutant is viable
orf19.7661	<i>HMI1</i>	1.05	-1	ATP-dependent 3' - 5' helicase involved in maintenance of mitochondrial DNA; ortholog of <i>S. cerevisiae</i> Hmi1; rat catheter biofilm repressed
orf19.5910		1.05	-1	Putative histone acetyltransferase complex subunit; induced upon low-level peroxide stress; Spider biofilm induced
orf19.5906	<i>ADE2</i>	1.05	1.11	Phosphoribosylaminoimidazole carboxylase; role in adenine biosynthesis; required for normal growth and virulence in immunosuppressed mouse infection; not induced in GCN response, in contrast to <i>S. cerevisiae</i> ADE2; stationary phase-enriched
orf19.5892		1.05	1.02	Ortholog of <i>S. cerevisiae</i> Huh4; similar to hect domain E3 ubiquitin-protein ligases; Hap43-repressed gene
		1.05	1.04	#NV
		1.05	1.06	#NV
orf19.1178		1.04	1.07	Putative transcription factor with bZIP DNA-binding motif; Hap43p-repressed gene
orf19.6078	<i>POL93</i>	1.04	-1.02	Predicted ORF in retrotransposon Tca8 with similarity to the Pol region of retrotransposons encoding reverse transcriptase, protease and integrase; downregulated in response to ciclopirox olamine; F-12/CO2 early biofilm induced
orf19.4633		1.04	1.28	Ortholog(s) have carbonyl reductase (NADPH) activity, oxidoreductase activity, acting on the aldehyde or oxo group of donors, NAD or NADP as acceptor activity and cytosol, nucleus, ribosome localization
orf19.1268		1.04	1.11	Protein of unknown function; transcript detected on high-resolution tiling arrays; rat catheter biofilm induced
orf19.1010	<i>MNT3</i>	1.04	1.05	Mannosyltransferase; transcription elevated in <i>cyr1</i> , <i>chk1</i> , <i>nik1</i> , and <i>sln1</i> homozygous null mutants; fungal-specific (no human or murine homolog)
orf19.1393		1.04	1.05	Ortholog(s) have NAD transporter activity, pyruvate secondary active transmembrane transporter activity, role in NAD transmembrane transport, mitochondrial pyruvate transport and endoplasmic reticulum, mitochondrion localization
orf19.2285		1.04	1.09	Protein of unknown function; transcription induced by benomyl treatment
orf19.6257	<i>GLT1</i>	1.04	1.05	Putative glutamate synthase; regulated by Sef1, Sfu1, and Hap43; rat catheter biofilm repressed
orf19.3848		1.04	1.07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_31420, <i>C. parapsilosis</i> CDC317 : CPAR2_205100, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G10648g and <i>Pichia stipitis</i> Pignal : PICST_32997
orf19.1646		1.04	1.07	Ortholog(s) have rRNA primary transcript binding activity
orf19.4159		1.04	-1.02	Has domain(s) with predicted role in transmembrane transport
orf19.4341		1.04	1.08	Ortholog(s) have role in attachment of GPI anchor to protein and GPI-anchor transamidase complex localization
orf19.4060	<i>ARO4</i>	1.04	1.15	3-deoxy-D-arabinoheptulosate-7-phosphate synthase; aromatic amino acid biosynthesis; GCN-regulated; feedback-inhibited by tyrosine if produced in <i>S. cerevisiae</i> Aro3p and Aro4p catalyze same reaction; protein decreases in stationary phase
orf19.4884	<i>WOR1</i>	1.04	1.01	Transcription factor ("master switch") of white-opaque phenotypic switching; required to establish and maintain the opaque state; opaque-specific, nuclear; regulates its own expression; suggested role in regulation of adhesion factors
orf19.4078		1.04	-1	Ortholog(s) have role in U1 snRNA 3'-end processing, U4 snRNA 3'-end processing and U5 snRNA 3'-end processing, more
orf19.2853		1.04	1.05	Protein of unknown function; rat catheter biofilm induced
orf19.3084		1.04	1.05	Ortholog(s) have histone acetyltransferase activity, role in chromatin silencing at telomere and SAS acetyltransferase complex, nuclear chromatin localization
orf19.5725		1.04	1.05	Ortholog(s) have guanylyl-nucleotide exchange factor activity, role in autophagic vacuole fusion, protein targeting to vacuole, vesicle docking and Mon1-Ccz1 complex localization
orf19.5211	<i>IDP1</i>	1.04	-1.03	Putative isocitrate dehydrogenase; transcriptionally induced by interaction with macrophage; alkaline induced; Spider biofilm repressed
orf19.2939		1.04	1.1	Ortholog(s) have mitochondrion localization
orf19.5814		1.04	1.1	Protein of unknown function; Spider biofilm induced
orf19.5380	<i>LYS144</i>	1.04	1.01	Zn(II)/Cys6 transcription factor; has similarity to <i>S. cerevisiae</i> Lys14, involved in the regulation of lysine biosynthesis genes
orf19.2351	<i>NIT3</i>	1.04	1.01	Putative nitrilase; regulated by Gcn2p and Gcn4p; protein present in exponential and stationary growth phase yeast cultures
orf19.2616	<i>UGT51C1</i>	1.04	1.04	UDP-glucose:sterol glucosyltransferase; enzyme of sterol glucoside (membrane-bound lipid) biosynthesis; has UDP-sugar binding domain; activity is UDP-glucose-specific in vitro; enzyme does not use UDP-mannose; Mlg1-regulated
orf19.634		1.04	-1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_30370, <i>Candida tropicalis</i> MYA-3404 : CTRG_00536 and <i>Candida albicans</i> WO-1 : CAWG_01831
orf19.310		1.04	1.01	Putative mitochondrial protein with a predicted role in cell wall biogenesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5700	<i>TLO11</i>	1.04	-1.07	Member of a family of telomere-proximal genes of unknown function; may be spliced in vivo
orf19.5498	<i>EFH1</i>	1.04	1	APSES transcription factor; homodimer; minor role in transcriptional regulation vs Efg1; regulates filamentous growth, phenotypic switch; EFG1 and EFH1 genetically interact; expression interferes with mouse intestinal tract colonization
orf19.3344	<i>VPS17</i>	1.04	-1.08	Ortholog(s) have phosphatidylinositol-3-phosphate binding, protein transporter activity
orf19.5789	<i>ADE8</i>	1.04	-1.09	Putative phosphoribosylglycinamide formyl-transferase, enzyme of amino acid biosynthesis pathway; upregulated in biofilm; <i>S. cerevisiae</i> ortholog is Gcn4p regulated; protein enriched in stationary phase yeast-form cultures
orf19.5863		1.04	1.05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_84160, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00085, <i>Debaryomyces hansenii</i> CBS767 : DEHA2B08404a and <i>Pichia stipitis</i> Pignal : PICST_67031

orf19.2410	SYS3	1.04	1.05	Protein similar to <i>S. cerevisiae</i> Sys3p; putative role in endosome-Golgi vesicle docking; upregulated in biofilm; induced upon adherence to polystyrene
orf19.4814		1.04	1.07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_08960, <i>C. parapsilosis</i> CDC317 : CPAR2_201680, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00021 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F11088g
orf19.4146	SMD3	1.04	1.01	Putative core snRNP protein; induced upon adherence to polystyrene
orf19.6187		1.04	-1.01	possible pseudouridine monophosphate glycosidase; overlaps orf19.6185 and orf19.618; has intron; Spider biofilm repressed
orf19.1938		1.04	1	Ortholog of <i>S.pombe</i> SPCC825.05c; a predicted splicing coactivator; transcription repressed in azole-resistant strain overexpressing CDR1 and CDR2; induced by benomyl treatment
orf19.3980		1.04	1.05	Ortholog(s) have role in cytoplasmic translation, regulation of translation and cytosol, polysomal ribosome localization
orf19.3567	BIO32	1.04	1.02	Putative class III aminotransferase with a predicted role in biotin biosynthesis; Spider biofilm induced
orf19.6362	SPA2	1.04	1.01	Protein involved in cell polarity, Spitzenkorper formation; required for mouse virulence; localizes to hyphal tip; cell-cycle regulated localization in yeast-form cells; functional domains conserved with <i>S. cerevisiae</i> ; Hap43p-induced gene
orf19.6363		1.04	-1.1	#NV
orf19.28		1.04	1.06	Putative thiamine transmembrane transporter; Spider biofilm induced
orf19.31		1.04	1.03	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_201960, <i>C. dubliniensis</i> CD36 : Cd36_20900, <i>Candida tropicalis</i> MYA-3404 : CTRG_04756 and <i>Candida albicans</i> WO-1 : CAWG_04394
orf19.206		1.04	1.03	Putative adhesin-like protein
orf19.2046	POT1-2	1.04	1.02	Putative peroxisomal 3-ketoacyl CoA thiolase; Hap43p-repressed
orf19.2051		1.04	1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15670, <i>C. parapsilosis</i> CDC317 : CPAR2_213100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135034 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E14960g
orf19.4946		1.04	1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_12240, <i>C. parapsilosis</i> CDC317 : CPAR2_801750, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_135403 and <i>Pichia stipitis</i> Pignal : PICST_29111
orf19.5838	SER2	1.04	1	Ortholog(s) have phosphoserine phosphatase activity, role in L-serine biosynthetic process and cytoplasm, nucleus localization
orf19.5835		1.04	1.05	Ortholog(s) have role in rRNA processing, ribosomal small subunit assembly and CUR1 complex, UTP-C complex, cytosol localization
orf19.5831		1.04	1.01	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_212260, <i>C. dubliniensis</i> CD36 : Cd36_17620, <i>Candida orthopsilosis</i> Co 90-125 : CORT_0A11590 and <i>Candida tropicalis</i> MYA-3404 : CTRG_01348
orf19.5760	IHD1	1.04	1.04	GPI-anchored protein; alkaline, hypha-induced; regulated by Nrg1, Rfg1, Tup1 and Tsa1, Tsa1B in minimal media at 37; oropharyngeal candidiasis induced ; Spider biofilm induced; regulated in Spider biofilms by Tec1, Efg1, Ndt80, Rob1, Brg1
orf19.6604		1.04	1.1	Ortholog of <i>S. cerevisiae</i> Pba1 that is involved in 20S proteasome assembly; upregulated in a <i>cyr1</i> null mutant; contains a 5' UTR intron
orf19.5083	DRG1	1.04	1.03	Member of the DRG family of GTP-binding proteins; involved in regulation of invasive filamentous growth
orf19.1420		1.04	1.09	Ortholog(s) have cytosol, nucleus localization
orf19.1543	OP1	1.04	1.04	Leucine zipper transcription factor; repressor of INO1 involved in inositol biosynthesis; functional homolog of <i>S. cerevisiae</i> Opi1; has putative Opi1-Sin3 interaction domain; interacts with ScSin3, but not CaSin3
orf19.442		1.04	1.29	Protein of unknown function; overlaps RPT1/orf19.441
orf19.6636		1.04	1	Protein of unknown function; rat catheter biofilm repressed
orf19.4245		1.04	1.04	Protein with a predicted pleckstrin domain; Hap43p-repressed gene
orf19.5804	HYU1	1.04	-1.04	Putative hydantoin utilization protein A; induced upon adherence to polystyrene; regulated by Gcn2p and Gcn4p
orf19.533		1.04	1.05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_01778
		1.04	1.04	#NV
orf19.6698		1.04	1.09	Ortholog(s) have asparagine-tRNA ligase activity, role in mitochondrial asparaginyl-tRNA aminoacylation and mitochondrion localization
orf19.4104		1.04	1.08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_20540, <i>C. parapsilosis</i> CDC317 : CPAR2_104860, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116071 and <i>Pichia stipitis</i> Pignal : PICST_32327
orf19.4091	MED18	1.04	1.05	RNA polymerase II mediator complex subunit; rat catheter biofilm repressed
orf19.5657	SWI1	1.04	-1.03	Protein involved in transcription regulation; ortholog of <i>S. cerevisiae</i> Swi1p, which is a subunit of the SWI/SNF chromatin remodeling complex; interacts with Snf2p; SWI/SNF complex is essential for hyphal growth and virulence
orf19.3112	ZRT1	1.04	1.03	Putative zinc transporter; acts with Pra1 in sequestration of zinc from host tissues during infection; hyphal, macrophage-induced; alkaline induced upon adherence to polystyrene; induced in oropharyngeal candidiasis; Spider biofilm induced
orf19.6859		1.04	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_44860, <i>Candida tropicalis</i> MYA-3404 : CTRG_04054 and <i>Candida albicans</i> WO-1 : CAWG_03295
orf19.878	NBN1	1.04	1.1	Subunit of the NuA4 histone acetyltransferase complex; Plc1p-regulated
orf19.4858	VPS41	1.04	1.07	Protein similar to <i>S. cerevisiae</i> Vps41p, which is involved in vacuole organization and biogenesis; transposon mutation affects filamentous growth; regulated by Gcn4p; induced in response to amino acid starvation (3-aminotriazole treatment)
orf19.6959		1.04	1.04	#NV
orf19.4043		1.04	-1.03	Protein with a predicted pleckstrin homology domain; induced by alpha pheromone in SpiderM medium
orf19.3838	EFB1	1.04	-1.03	Translation elongation factor EF-1 beta; repressed by human whole blood or PMNs; macrophage/pseudohyphal-induced; antigenic in mouse; farnesol-downregulated; snoRNA snR18 is encoded within the EFB1 intron; Spider biofilm repressed
orf19.3845	FGR3	1.04	-1.01	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.6035		1.04	1	Protein of unknown function; repressed by nitric oxide
orf19.6039		1.04	1.03	Ortholog(s) have SNAP receptor activity, role in ER to Golgi vesicle-mediated transport, intra-Golgi vesicle-mediated transport, vesicle fusion with Golgi apparatus and SNARE complex, cis-Golgi network, integral to membrane localization
orf19.6510	GRX1	1.04	1.01	Putative glutaredoxin; induced in low iron
orf19.6507		1.04	1.02	Putative curved DNA-binding protein orthologous to <i>S. pombe</i> Cdb4; stationary phase enriched protein; rat catheter and Spider biofilm repressed
orf19.424	TRP99	1.04	1.1	Putative thioredoxin peroxidase/alkyl hydroperoxide reductase; induced in low iron; regulated by Gcn4; induced in response to amino acid starvation (3-AT treatment)
orf19.6972	SMI1B	1.04	1.12	Putative cell wall assembly regulatory protein; Rim101-repressed; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6999		1.04	1.02	Predicted oxidoreductase; rat catheter biofilm repressed
orf19.6416		1.04	1.05	Protein involved in N-glycosylation; Spider biofilm induced; rat catheter biofilm repressed
orf19.4579	ERV29	1.04	1.06	Putative SURF4 family member; plasma membrane-localized; flow model biofilm repressed
orf19.4607		1.04	1	Possible Golgi membrane protein; Hap43p-repressed; hypha induced; flow model biofilm induced; Spider biofilm induced
orf19.4609		1.04	1.01	Putative diene lactone hydrolase; protein abundance is affected by URA3 expression in the CAI-4 strain background; protein present in exponential and stationary growth phase yeast cultures; rat catheter biofilm repressed
orf19.4629		1.04	1.03	Ortholog(s) have ubiquitin-ubiquitin ligase activity, role in mitochondrion inheritance, protein monoubiquitination, protein polyubiquitination and plasma membrane, ubiquitin ligase complex localization
orf19.4993	SEC18	1.04	1.04	Functional homolog of <i>S. cerevisiae</i> Sec18p, which acts in protein transport; conserved ATP binding site; not glycosylated
orf19.4988		1.04	1.07	<i>S. cerevisiae</i> ortholog Sae2 is an endonuclease that processes hairpin DNA structures with the MRX complex, involved in meiotic and mitotic double-strand break repair; upregulated in a <i>cyr1</i> null mutant
orf19.7167		1.04	1.06	Putative adhesin-like protein
orf19.7267	SAM35	1.04	1	Predicted component of the sorting and assembly machinery (SAM complex) of the mitochondrial outer membrane, involved in protein import into mitochondria
orf19.949		1.04	1.07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_50420, <i>C. parapsilosis</i> CDC317 : CPAR2_304100, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_98299 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B07634g
orf19.956		1.04	1.01	Ortholog(s) have role in fermentation and mitochondrion localization
orf19.3232		1.04	1.07	Putative transporter; mutation confers hypersensitivity to toxic ergosterol analog; fungal-specific (no human or murine homolog)
orf19.3249	LAG1	1.04	1.05	Putative ceramide synthase component; Hap43p-repressed gene; amphotericin B repressed
orf19.3263	ATO10	1.04	1.04	Putative fungal-specific transmembrane protein; rat catheter and Spider biofilm induced
orf19.7311		1.04	1.14	Protein of unknown function; Spider biofilm induced
orf19.7317	UGA33	1.04	1.11	Zinc-finger transcription factor; similar to <i>S. cerevisiae</i> Uga3 which regulates gamma-aminobutyrate metabolism gene expression; required for yeast cell adherence to silicone substrate; rat catheter biofilm induced
orf19.7332	ELF1	1.04	1.09	Putative mRNA export protein; Walker A and B (ATP/GTP binding) motifs; required for wild-type morphology, growth; expressed in hyphal, pseudohyphal, and yeast form; Hap43p-induced; Spider and flow model biofilm induced
orf19.7121		1.04	1.02	Protein of unknown function; Spider biofilm repressed
orf19.7083	DCC1	1.04	1.06	Protein with a predicted role in sister chromatid cohesion and telomere length maintenance; cell-cycle regulated periodic mRNA expression
orf19.1747	KIP2	1.04	1.07	Putative kinesin-related motor protein involved in mitotic spindle positioning; repressed by alpha pheromone in SpiderM medium; periodic mRNA expression; peak at cell-cycle G2/M phase

orf19.6751		1.04	1.06	Ortholog(s) have tRNA methyltransferase activity, role in cytoplasmic translation, tRNA methylation and cytoplasm localization
orf19.7550	<i>IFA14</i>	1.04	1.13	Putative LPF family protein; Plc1-regulated; induced by alpha pheromone in SpiderM medium
orf19.7554		1.04	1.05	Transporter; similar to the Sit1 siderophore transporter; induced by nitric oxide independent of Yhb1; repressed during chlamydospore formation in <i>C. albicans</i> and <i>C. dubliniensis</i> ; rat catheter biofilm repressed
orf19.7593		1.04	1.05	Putative asparaginase; predicted role in asparagine catabolism; Spider biofilm induced
orf19.7598		1.04	-1.01	Ortholog(s) have histone acetyltransferase activity, role in histone acetylation and Ada2/Gcn5/Ada3 transcription activator complex localization
orf19.7622	<i>SPT3</i>	1.04	-1.01	Functional homolog of <i>S. cerevisiae</i> Spt3p; required for virulence in mouse systemic infection; homozygous null mutant is hyperfilamentous
orf19.7634	<i>MCD1</i>	1.04	-1.01	Alpha-kleisin cohesin complex subunit; for sister chromatid cohesion in mitosis and meiosis; repressed by alpha pheromone in SpiderM medium; periodic cell-cycle expression; Hap43-repressed; rat catheter and Spider biofilm repressed
orf19.5994	<i>RHB1</i>	1.04	1.14	Putative small G protein from the Ras superfamily involved in cell wall integrity and control of filamentous growth under nitrogen starvation
orf19.5977	<i>CEM1</i>	1.04	1.08	Protein similar to <i>S. cerevisiae</i> Cem1p, an acyl carrier protein involved in fatty acid biosynthesis; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.5940	<i>ZCF32</i>	1.04	-1	Predicted Zn(II)2Cys6 transcription factor; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43-repressed
orf19.5915	<i>DUR35</i>	1.04	-1.01	Putative urea transporter
orf19.5884		1.04	-1.01	Putative nucleolar preribosomal-associated protein; decreased transcription is observed upon benomyl treatment or in an azole-resistant strain that overexpresses MDR1; Spider biofilm induced
orf19.5877	<i>ATF1</i>	1.04	1.02	Putative alcohol acetyltransferase; caspofungin repressed; expression depends on Tac1p
orf19.4549	<i>FGR38</i>	1.04	-1.02	Protein lacking an ortholog in <i>S. cerevisiae</i> ; member of a family of related proteins; transposon mutation affects filamentous growth; macrophage-induced gene; Hap43p-repressed gene
		1.04	-1.02	#NV
		1.04	1.07	#NV
		1.04	-1.02	#NV
		1.04	1.02	#NV
		1.04	1	#NV
		1.04	1.05	#NV
		1.04	1.03	#NV
		1.04	1.01	#NV
		1.04	1.04	#NV
		1.04	1.04	#NV
		1.04	1.04	#NV
		1.04	1.08	#NV
		1.04	1.05	#NV
orf19.4699		1.03	1.04	Putative phospholipase of patatin family; similar to <i>S. cerevisiae</i> Tgl3p; predicted Kex2p substrate
orf19.2555	<i>URA5</i>	1.03	1.01	Putative orotate phosphoribosyltransferase; protein abundance is affected by URA3 expression in the CAI-4 strain background; fluocytosine induced; protein level decreased in stationary phase cultures
orf19.807	<i>CHS5</i>	1.03	1.07	Putative chitin biosynthesis protein; fungal-specific; repressed upon yeast-to-hypha switch; rat catheter biofilm repressed
orf19.7680	<i>CTA26</i>	1.03	1.13	Putative transcription factor/activator; Med2 mediator complex domain; transcript is upregulated in an RHE model of oral candidiasis; member of a family of telomere-proximal genes; Efg1, Hap43-repressed
orf19.2724		1.03	1.1	Protein of unknown function; flow model, rat catheter and Spider biofilm induced; Hap43-repressed
orf19.246		1.03	1.19	Predicted metalloendopeptidase; Spider biofilm induced
orf19.558	<i>GUT1</i>	1.03	1.02	Putative glycerol kinase; downregulated upon adherence to polystyrene; greater mRNA abundance observed in a <i>cyr1</i> homozygous null mutant than in wild type
orf19.1139		1.03	1.01	Protein of unknown function; <i>S. cerevisiae</i> ortholog Svl3 plays a role in endocytosis and is localized to the bud neck; Spider biofilm induced
orf19.1486		1.03	1.06	Protein with a life-span regulatory factor domain; regulated by Sef1, Sfu1, and Hap43; flow model biofilm induced; Spider biofilm induced
orf19.1040	<i>MAD2</i>	1.03	1.05	Protein required for the spindle assembly checkpoint of the cell cycle; necessary for survival in host cell macrophages and for virulence in a mouse model of systemic candidiasis
orf19.2287	<i>RPA12</i>	1.03	1.03	Putative DNA-directed RNA polymerase I; induced upon adherence to polystyrene
orf19.4155		1.03	-1	#NV
orf19.1342	<i>SHM1</i>	1.03	1.04	Mitochondrial serine hydroxymethyltransferase; complements the glycine auxotrophy of an <i>S. cerevisiae</i> <i>shm1</i> null <i>shm2</i> null <i>glt1-1</i> triple mutant; protein present in exponential and stationary growth phase yeast cultures
orf19.646	<i>GLN1</i>	1.03	-1.11	Putative glutamate synthase; regulated by Tsa1, Tsa1B under H2O2 stress conditions; Spider biofilm induced
orf19.643		1.03	1.01	Ortholog(s) have role in apoptotic process, mitotic spindle elongation, sister chromatid biorientation, spindle assembly checkpoint
orf19.4197	<i>YHM2</i>	1.03	1.03	Predicted carrier protein; exports citrate from and imports oxoglutarate into the mitochondrion; alkaline induced; Spider biofilm repressed
orf19.1192	<i>DNA2</i>	1.03	1.06	Protein similar to <i>S. cerevisiae</i> Dna2p, which is a DNA replication factor involved in DNA repair; induced under hydroxyurea treatment
orf19.72		1.03	-1.02	#NV
orf19.4072	<i>IFF6</i>	1.03	1.01	Putative GPI-anchored adhesin-like protein; opaque-specific transcript; macrophage-induced gene; Hap43-repressed gene; Spider biofilm induced
orf19.5567	<i>POP4</i>	1.03	1.02	Ortholog of <i>S. cerevisiae</i> Pop4; a subunit of both RNase MRP and nuclear RNase P; filament induced; regulated by Nrg1, Tup1; likely essential, based on UAU1 strategy; rat catheter and Spider biofilm induced
orf19.4918		1.03	1.02	Has domain(s) with predicted DNA binding, nucleic acid binding activity
orf19.3655		1.03	1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_60640, <i>C. parapsilosis</i> CDC317 : CPAR2_602930, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115038 and <i>Pichia stipitis</i> Pignal : PICST_31932
orf19.760		1.03	1.01	Ortholog(s) have role in ribosome biogenesis and mitochondrion localization
orf19.3458		1.03	1.02	Ortholog(s) have role in late endosome to vacuole transport via multivesicular body sorting pathway, protein targeting to vacuole and Golgi apparatus, Vps55/Vps68 complex, fungal-type vacuole membrane, mitochondrion localization
orf19.5723	<i>POX1</i>	1.03	-1	Predicted acyl-CoA oxidase; regulated upon white-opaque switch; upregulated upon phagocytosis; Spider biofilm induced
orf19.4873		1.03	1.02	Protein of unknown function; transcript regulated by white-opaque switch; flow model biofilm induced; Spider biofilm induced
orf19.839		1.03	1.03	Putative endoribonuclease; induced by nitric oxide independent of Yhb1p; mutation confers hypersensitivity to aureobasidin A
orf19.3929		1.03	-1	Ortholog(s) have mitochondrion localization
orf19.4666		1.03	1.01	Protein of unknown function; hyphal-induced expression, regulated by Cvr1, Ras1, Efg1; Spider biofilm induced
orf19.4299	<i>MSW1</i>	1.03	1.06	Protein similar to <i>S. cerevisiae</i> Msw1p, which is mitochondrial tryptophanyl-tRNA synthetase; Hap43p-repressed gene; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.4310		1.03	1.03	Dubious open reading frame
orf19.5500	<i>MAK16</i>	1.03	1	Putative constituent of 66S pre-ribosomal particles; Hap43-induced; repressed by prostaglandins; Spider biofilm induced
orf19.2573	<i>FRS1</i>	1.03	1.02	Phenylalanyl-tRNA synthetase; possible role in early cell wall biosynthesis; downregulated by phagocytosis by macrophages; possibly essential gene, disruptants not obtained by UAU1 method; protein present in exponential and stationary phase
orf19.287		1.03	1.01	Putative NADH-ubiquinone oxidoreductase subunit; Hap43p-repressed gene; repressed by nitric oxide; identified in detergent-resistant membrane fraction (possible lipid raft component)
orf19.4783		1.03	1.04	Protein of unknown function; induced during chlamydospore formation in both <i>C. albicans</i> and <i>C. dubliniensis</i>
orf19.5853		1.03	1.08	#NV
orf19.2471	<i>GIM5</i>	1.03	1.02	Putative heterohexameric cochaperone prefoldin complex subunit; macrophage/pseudohyphal-repressed gene and macrophage-induced protein
orf19.5866		1.03	1.05	Protein of unknown function; mutants are viable
orf19.6233		1.03	1.06	Ortholog(s) have endoplasmic reticulum, nuclear envelope localization
orf19.3907		1.03	1.08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04797
orf19.1581		1.03	1.02	Planktonic growth-induced gene
orf19.1402	<i>CCT2</i>	1.03	1.05	Chaperonin of the cytosolic TCP1 ring complex; protein present in exponential and stationary-phase yeast cells, but higher amounts in stationary phase; GlcNAc-induced protein
orf19.6282		1.03	1.04	Has domain(s) with predicted nucleic acid binding, nucleotide binding activity
orf19.6288		1.03	1.02	Dubious open reading frame
orf19.2310		1.03	1.02	Predicted single-stranded nucleic acid binding protein; flow model biofilm induced
orf19.2306		1.03	-1.11	Ortholog(s) have acireductone dioxygenase (Ni2+-requiring) activity, role in L-methionine salvage from methylthioadenosine and cytosol, nucleus localization
orf19.329		1.03	1.16	Putative pre-mRNA branch point binding protein; role in mRNA splicing via spliceosome; Spider biofilm repressed
orf19.325		1.03	1.1	Putative mRNA cleavage and polyadenylation factor; heterozygous null mutant exhibits hypersensitivity to parnafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.6139	<i>FRE7</i>	1.03	1.02	Copper-regulated cupric reductase; repressed by ciclopirox olamine or 17-beta-estradiol; induced by alkaline conditions or interaction with macrophage; Spider biofilm induced

orf19.1266		1.03	1.03	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.994		1.03	1.01	Protein of unknown function; induced by Mnl1 under weak acid stress; flow model biofilm repressed
orf19.29		1.03	1.05	Ortholog of <i>S. cerevisiae</i> Tah11, a DNA replication licensing factor required for pre-replication complex assembly; rat catheter, flow model and Spider biofilm induced
orf19.207	PGA55	1.03	1.04	GP1-anchored adhesin-like protein; filament induced; regulated by Nrg1, Tup1; regulated upon hyphal formation; mRNA binds to She3 and is localized to yeast-form buds and hyphal tips; induced during chlamydo-spore formation
orf19.5148	CYR1	1.03	1.03	Class III adenylyl cyclase; mutant lacks cAMP; mutant hyphal growth defect rescued by exogenous cAMP; required for mouse mucosal or systemic infection; role in macrophage sensitivity, apoptosis; downstream of Ras1p and CO2 signaling
orf19.2029	RFC5	1.03	-1.01	Putative heteropentameric replication factor C subunit; periodic mRNA expression, peak at cell-cycle G1/S phase
orf19.542.2	MM1	1.03	1.02	Predicted mitochondrial protein involved in outer membrane protein import; rat catheter biofilm repressed
orf19.6280		1.03	1.06	Dubious open reading frame
orf19.4182		1.03	-1.01	Ortholog(s) have role in response to drug and mitochondrion localization
orf19.4183	MUC1	1.03	-1.02	Protein similar to <i>S. cerevisiae</i> Muc1; a cell surface glycoprotein involved in filamentous growth; repressed by benomyl treatment; mutant is viable
orf19.3417	ACF2	1.03	1.02	Putative endo-1,3-beta-glucanase; fungal-specific (no human or murine homolog)
orf19.3417	ACF2	1.03	1.02	Putative endo-1,3-beta-glucanase; fungal-specific (no human or murine homolog)
orf19.5771	PBP2	1.03	1.02	Putative RNA binding protein; transcript regulated by Nrg1, Mig1, and Tup1
orf19.6110		1.03	1.03	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 01361
orf19.5093		1.03	1.01	Ortholog(s) have DNA translocase activity
orf19.2005	REG1	1.03	1.01	Putative protein phosphatase regulatory subunit; Hap43-repressed gene; macrophage/pseudo-hyphal-induced; possibly regulated upon hyphal formation; flow model biofilm induced
orf19.1027	PDR16	1.03	-1	Phosphatidylinositol transfer protein; induction correlates with CDR1, CDR2 overexpression/azole resistance; fluphenazine, 17-beta-estradiol, ethynyl estradiol, NO induced; farnesol-downregulated in biofilm; rat catheter biofilm induced
orf19.2774	LAB5	1.03	1.03	Ortholog(s) have role in protein lipoylation and mitochondrion localization
orf19.5796	SHE9	1.03	1.13	Protein with similarity to <i>S. cerevisiae</i> She9, which inhibits growth when overproduced; gene has possible growth-regulation element; fungal-specific (no human or murine homolog)
orf19.5797	PLC2	1.03	-1.03	Phosphatidylinositol (PI)3-specific phospholipase C (PI-PLC); predicted type 2 membrane protein; role in, and regulated by, filamentation, Nrg1 and Tup1; no mouse systemic virulence role; orf19.5797 and orf19.1586 are almost identical
orf19.2957		1.03	1.04	Protein required for transfer of mannosylphosphate; induced by alpha pheromone in SpiderM medium
orf19.2945	PUT4	1.03	1.03	Putative proline permease; fungal-specific (no human or murine homolog); repressed during the mating process
orf19.6701		1.03	-1.02	Protein with similarity to amino acid-tRNA ligase; stationary phase enriched protein; GlcNAc-induced protein
orf19.4115		1.03	1.05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 04349
orf19.6715		1.03	1.02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 03078
orf19.5673	OPT7	1.03	-1	Putative oligopeptide transporter; possibly transports GSH or related compounds; Hog1-induced; expression of OPT6, -7, or -8 does not suppress defect of mutant lacking OPT1-3; Hap43-repressed; F-12/CO2 early biofilm induced
orf19.484	MRPL40	1.03	-1.01	Putative mitochondrial ribosomal protein; Spider biofilm repressed
orf19.1450		1.03	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_16320, <i>Candida tropicalis</i> MYA-3404 : CTRG_01238 and <i>Candida albicans</i> WO-1 : CAWG 03918
orf19.338		1.03	1.16	Putative glycoside hydrolase; stationary phase enriched protein; Hog1p-downregulated; shows colony morphology-related gene regulation by Ssn6p
orf19.6922		1.03	1.01	Dubious open reading frame
orf19.6940		1.03	1.09	Protein of unknown function
orf19.6948	CCC1	1.03	1.01	Manganese transporter; required for normal filamentous growth; mRNA binds She3, localized to hyphal tips; repressed by NO, alkaline pH; colony morphology-related regulation by Ssn6; regulated by Sef1, Sfu1, Hap43; Spider biofilm induced
orf19.4005		1.03	-1	Putative dephospho-CoA kinase; protein likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.4023	MRP2	1.03	1.15	Protein similar to <i>S. cerevisiae</i> Mrp2p, which is a component of the small subunit of the mitochondrial ribosome; transposon mutation affects filamentous growth
orf19.2082	SAP30	1.03	-1	Aspartic-type endopeptidase; involved in degradation of alpha pheromone; functional equivalent of <i>S. cerevisiae</i> Bart1; a-cell specific; induced by alpha pheromone
orf19.2073		1.03	-1.11	Protein with a multidrug and toxin extrusion protein domain; induced by Mnl1 under weak acid stress
orf19.3841		1.03	1.03	Putative protein serine/threonine kinase; predicted role in vesicle formation in autophagy and the cytoplasm-to-vacuole targeting (Cvt) pathway; Spider biofilm induced
orf19.6558		1.03	1.03	Has domain(s) with predicted zinc ion binding activity, role in ER to Golgi vesicle-mediated transport, intracellular protein transport and COPII vesicle coat localization
orf19.6584	PRT1	1.03	-1.03	Putative translation initiation factor eIF3; mutation confers hypersensitivity to rosidin A, verrucarin A; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophages
orf19.6065		1.03	-1.01	RNA polymerase II holoenzyme/mediator subunit; regulated by Mig1, Tup1; amphotericin B, caspofungin repressed; protein present in exponential and stationary growth phase yeast; Hap43-repressed; Spider biofilm repressed
orf19.5247		1.03	-1.03	Ortholog(s) have cytoplasm localization
orf19.5246		1.03	1.03	Protein of unknown function; Hap43-repressed gene
orf19.6996	MNN14	1.03	1.04	Predicted alpha-1,3-mannosyltransferase activity with a role in protein glycosylation; Hap43-repressed; Spider biofilm induced
orf19.3018	SPP1	1.03	1.04	Putative histone methyltransferase; induced by nitric oxide independent of Yhb1p; cell-cycle regulated periodic mRNA expression
orf19.3030		1.03	1.02	Ortholog(s) have phosphatidylinositol binding activity
orf19.3049		1.03	-1.02	Ortholog(s) have protein kinase activity, role in activation of bipolar cell growth, ascospore wall assembly, protein phosphorylation and cell division site, cytosol, nucleus, prospore membrane localization
orf19.6444		1.03	1.09	Ortholog(s) have role in cellular response to amino acid starvation, meiosis, regulation of TOR signaling cascade and Seh1-associated complex, cytosol, extrinsic to fungal-type vacuolar membrane localization
orf19.6437	CDC23	1.03	-1.02	Similar to anaphase-promoting complex component; possibly transcriptionally regulated by Tac1p
orf19.4599	PHO89	1.03	1.03	Putative phosphate permease; transcript regulated upon white-opaque switch; alkaline induced by Rim101; possibly adherence-induced; F-12/CO2 model, rat catheter and Spider biofilm induced
orf19.5016		1.03	1.03	Ortholog(s) have role in cellular response to UV and cytosol, nucleus localization
orf19.7140		1.03	-1.14	Putative catechol o-methyltransferase; stationary phase enriched protein; transcription upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm repressed
orf19.7148	TPO2	1.03	1.03	Putative polyamine transport protein; fungal-specific (no human or murine homolog)
orf19.7192		1.03	1.05	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05720
orf19.7252		1.03	1.01	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 00017
orf19.936		1.03	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_50530, <i>C. parapsilosis</i> CDC317 : CPAR2_303990, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107934 and <i>Pichia stipitis</i> Pigna1 : PICST_63283
orf19.3254		1.03	1.02	Protein of unknown function; mutants are viable
orf19.7319	SUC1	1.03	1.04	Zinc-finger transcription factor; regulates alpha-glucosidase expression; complements <i>S. cerevisiae</i> suc2 for sucrose utilization and mal13 maltase defect; required for yeast cell adherence to silicone substrate; rat catheter biofilm induced
orf19.7324	THI13	1.03	1.04	Thiamine pyrimidine synthase; synthesis of the thiamine precursor hydroxymethylpyrimidine phosphate; single-turnover enzyme that provides histidine for HMP-P formation; induced by nitric oxide independent of Yhb1; Spider biofilm induced
orf19.7443		1.03	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86510, <i>C. parapsilosis</i> CDC317 : CPAR2_206110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112184 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F17292q
orf19.5387	VPS8	1.03	1.16	Putative vacuolar sorting protein; downregulated upon adherence to polystyrene
orf19.7490		1.03	-1.01	Predicted membrane transporter; fucose:proton symporter family member, MFS superfamily; flow model biofilm induced
orf19.6776	GCD2	1.03	1	Putative translation initiation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.7664		1.03	1.15	Ortholog(s) have nucleolus localization
orf19.6008		1.03	1	<i>S. cerevisiae</i> ortholog YL032C interacts with ribosomes; repressed by alpha pheromone in SpiderM medium
orf19.5989		1.03	1.03	Putative cleavage factor 1 subunit; required for the cleavage and polyadenylation of pre-mRNA 3' ends; Spider biofilm repressed
orf19.5975	TRY4	1.03	1.03	C2H2 transcription factor; fluconazole-repressed; induced in <i>ssr1</i> mutant; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.5966		1.03	-1	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02810
orf19.5938	SEN1	1.03	1	Putative helicase; repressed by prostaglandins
orf19.5915	DUR35	1.03	1.07	Putative urea transporter
orf19.5894		1.03	1.02	Ortholog of <i>S. cerevisiae</i> : YEL023C, <i>C. glabrata</i> CBS138 : CAGL0103168g, <i>C. dubliniensis</i> CD36 : Cd36_84380, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_101635 and <i>Pichia stipitis</i> Pigna1 : PICST_19384
		1.03	1.02	#NV
		1.03	1.02	#NV

orf19.230		1.02	1.03	Ortholog of <i>S. cerevisiae</i> Pet111; a mitochondrial translational activator specific for the COX2 mRNA; Hap43-induced gene
orf19.1907	<i>EMC9</i>	1.02	-1.04	Ortholog of <i>S. cerevisiae</i> Nnf2; possible role in chromosome segregation; mutants are viable, induced during the mating process
orf19.3074	<i>TLO10</i>	1.02	1.01	Member of a family of telomere-proximal genes of unknown function
orf19.1177		1.02	1.02	Ortholog of <i>S. cerevisiae</i> Rtt106; histone chaperone that regulates chromatin structure in transcribed and silenced chromosomal regions; affects transcriptional elongation; Hap43-repressed; Spider biofilm repressed
orf19.3387		1.02	1.03	#NV
orf19.1528		1.02	-1.04	Putative mitochondrial RNA polymerase specificity factor; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3518		1.02	1.12	Ortholog(s) have dicarboxylic acid transmembrane transporter activity, role in mitochondrial transport and mitochondrial inner membrane localization
orf19.251		1.02	-1.01	ThiJ/Ptp1 protein; binds human immunoglobulin E; alkaline, fluconazole, Hog1 repressed; induced in core stress response; hypoxia, oxidative stress via Cap1, Hap43 induced; stationary-phase enriched; rat catheter, Spider biofilm induced
orf19.561		1.02	-1.01	#NV
orf19.1389		1.02	-1.07	Ortholog(s) have poly(A) RNA binding activity, role in mRNA metabolic process and cytoplasm localization
orf19.1038		1.02	1.08	#NV
orf19.3366	<i>CSH3</i>	1.02	1.18	Functional homolog of <i>S. cerevisiae</i> Shr3p, which is a chaperone specific for amino acid permeases; localized to ER; required for wild-type amino-acid responsive hyphal growth and for mouse systemic virulence; regulated by Gcn2p and Gcn4p
orf19.3154		1.02	-1.02	Ortholog(s) have mitochondrion localization
orf19.4221	<i>ORC4</i>	1.02	-1.03	Phosphorylated protein similar to <i>S. cerevisiae</i> Orc4, subunit of the origin recognition complex (ORC); induced by alpha pheromone in SpiderM medium
orf19.4340		1.02	1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52890, <i>C. parapsilosis</i> CDC317 : CPAR2_501970, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113546 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E09900q
orf19.4969	<i>KEM1</i>	1.02	1	5'->3' exonuclease of cytoplasmic stress granules; role in filamentous growth; complements slow growth/mating of <i>S. cerevisiae</i> kem1 mutant; required for SD or Spider medium biofilm formation
orf19.4966	<i>AGC1</i>	1.02	1.04	Putative mitochondrial carrier protein; transcript is alkaline upregulated rat catheter biofilm induced
orf19.3699	<i>TEP1</i>	1.02	1.02	Putative protein phosphatase of the PTP family (tyrosine-specific), similar to <i>S. cerevisiae</i> Twp1p
orf19.4524	<i>ZCF24</i>	1.02	1.03	Predicted Zn(II)2Cys6 transcription factor; caspofungin induced; Hap43-repressed
orf19.2859	<i>SRP40</i>	1.02	1.01	Putative chaperone of small nucleolar ribonucleoprotein particles; macrophage/pseudohyphal-induced; rat catheter biofilm induced
orf19.2851		1.02	1.03	Putative ornithine transport protein; localized to the mitochondrial membrane
orf19.4919		1.02	1.03	Has domain(s) with predicted DNA binding, nucleic acid binding activity
orf19.701	<i>CFL11</i>	1.02	1.03	Protein similar to ferric reductase Fre10p; flucytosine repressed; possibly adherence-induced; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter biofilm repressed
orf19.705	<i>GCN5</i>	1.02	1	Putative histone acetyltransferase; mutation confers hypersensitivity to 5-fluorouracil (5-FU); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3330.3	<i>POX18</i>	1.02	1.01	Similar to Pox18, a peroxisomal protein; induced during chlamydospore formation in <i>C. albicans</i> and <i>C. dubliniensis</i> ; A21 sequence updated based on new sequence and analysis, the allelic orf19.10841 was reinstated; Spider biofilm induced
orf19.1114		1.02	1.33	Cytochrome c oxidase subunit; membrane-localized protein; rat catheter biofilm induced
orf19.4190	<i>PAM18</i>	1.02	1	Predicted component of the presequence translocase-associated import motor (PAM complex) involved in protein import into mitochondrial matrix; rat catheter biofilm induced
orf19.771	<i>LPG20</i>	1.02	-1.06	Aldo-keto reductase family protein; similar to aryl alcohol dehydrogenases; osmotic stress-induced, correlates with overexpression of MDR1 in fluconazole-resistant isolate; stationary phase enriched protein
orf19.4870	<i>DBP3</i>	1.02	1.07	Putative ATP-dependent DEAD-box RNA helicase; Hap43-induced; repressed by prostaglandins; Spider biofilm induced
orf19.1336	<i>PUP3</i>	1.02	-1.11	Putative beta 3 subunit of the 20S proteasome; macrophage/pseudohyphal-repressed
orf19.5378	<i>SCL1</i>	1.02	1.02	Proteasome subunit YC7alpha; protein present in exponential and stationary growth phase yeast cultures; flow model and Spider biofilm repressed
orf19.1836	<i>APN2</i>	1.02	1.03	Putative class II basic (AP) endonuclease; flucytosine induced
orf19.4865		1.02	1.02	Ortholog(s) have phosphatidylinositol-3,5-bisphosphate 5-phosphatase activity, phosphatidylinositol-3-phosphatase activity, phosphatidylinositol-4-phosphate phosphatase activity and role in phosphatidylinositol dephosphorylation
orf19.5531	<i>CDC37</i>	1.02	1	Chaperone for Crk1p; interacts with Crk1p kinase domain and with Sti1p; putative phosphorylation site at Ser14; functional homolog of <i>S. cerevisiae</i> Cdc37p; likely to be essential for growth; regulated by Gcn2p and Gcn4p
orf19.2574		1.02	-1.05	Ortholog(s) have Golgi apparatus localization
orf19.579	<i>FOL1</i>	1.02	1.04	Putative dihydroonepterin aldolase (dihydro-6-hydroxymethylpterin pyrophosphokinase); fungal-specific (no human or murine homolog)
orf19.3481		1.02	1.07	Putative mitochondrial ATP-dependent RNA helicase of the DEAD-box family, transcription is activated in the presence of elevated CO2
orf19.4210		1.02	1.02	Ortholog(s) have phospholipase A2 activity, role in cardiolipin acyl-chain remodeling and mitochondrion localization
orf19.4803		1.02	-1.01	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00488
orf19.4812		1.02	1.01	Phosphopantetheine:protein transferase (PPTase); Spider biofilm induced
orf19.4144		1.02	-1.01	Predicted protein kinase; clade-associated gene expression
orf19.6551		1.02	1.02	Ortholog(s) have SNAP receptor activity, role in Golgi vesicle transport, vesicle fusion and Golgi medial cisterna, SNARE complex localization
orf19.6184		1.02	1	Protein of unknown function; Spider biofilm repressed
orf19.6196		1.02	-1.07	Component of the SWI/SNF and RSC chromatin remodeling complexes; suggested role in chromosome maintenance; Spider biofilm induced
orf19.6295	<i>MAS2</i>	1.02	-1.02	Putative processing peptidase, catalytic (alpha) subunit; protein level decreases in stationary phase cultures
orf19.1938		1.02	1.04	Ortholog of <i>S. pombe</i> SPCC825.05c; a predicted splicing coactivator; transcription repressed in azole-resistant strain overexpressing CDR1 and CDR2; induced by benomyl treatment
orf19.3973		1.02	-1.48	Ortholog of Hua1, a zinc finger domain protein with sequence similarity to Type I J-proteins; flow model biofilm induced
orf19.3982		1.02	-1.05	Maltase; induced during growth on sucrose; induced by alpha pheromone in SpiderM medium; early-stage flow model biofilm induced
orf19.584		1.02	1	Has domain(s) with predicted heme binding, peroxidase activity and role in oxidation-reduction process, response to oxidative stress
orf19.2987		1.02	-1.01	Ortholog(s) have role in cellular ion homeostasis, mitochondrion inheritance, regulation of cardiolipin metabolic process and mitochondrial inner membrane, nucleus localization
orf19.2985		1.02	1.03	Protein of unknown function; Hap43-repressed gene
orf19.1665	<i>MNT1</i>	1.02	1.03	#NV
orf19.1665	<i>MNT1</i>	1.02	-1	Alpha-1,2-mannosyl transferase; predicted type II Golgi membrane protein; adds 2nd mannose during cell-wall mannoprotein biosynthesis; required for wild-type virulence and adherence to epithelial cells; Hap43-induced
orf19.6341		1.02	1.1	Ortholog(s) have 5-amino-6-(5-phosphoribosylamino)uracil reductase activity, role in riboflavin biosynthetic process and cytosol, nucleus localization
orf19.3138	<i>NOP1</i>	1.02	1.07	Nucleolar protein; flucytosine induced; Hap43-induced; Spider biofilm repressed
orf19.6277		1.02	1.04	Has domain(s) with predicted phosphatidylinositol binding activity and role in cell communication
orf19.4179		1.02	1.01	Putative adhesin-like protein
orf19.3426	<i>ANB1</i>	1.02	1	Translation initiation factor eIF-5A; repressed in hyphae vs yeast cells; downregulated upon phagocytosis by murine macrophage; Hap43-induced; GlcNAc-induced protein; Spider biofilm repressed
orf19.5842		1.02	1.01	Protein with predicted heme synthase middle domains NAD(P)-binding; Hap43-repressed gene
orf19.5821		1.02	1.06	Ortholog of <i>S. cerevisiae</i> : YML002W, <i>C. glabrata</i> CBS138 : CAGL0L07634g, <i>C. dubliniensis</i> CD36 : Cd36_17530, <i>C. parapsilosis</i> CDC317 : CPAR2_212430 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_128807
orf19.2484		1.02	-1.01	Has domain(s) with predicted peptidase activity and role in proteolysis
orf19.4390		1.02	1.02	Protein of unknown function; repressed by alpha pheromone in SpiderM medium; transcript induced by Mnl1 under weak acid stress
orf19.5809		1.02	1.01	Putative arylformamidase, enzyme of the NAD biosynthesis pathway; Gcn4p-regulated
orf19.532	<i>RBR2</i>	1.02	-1.17	Cell wall protein; expression repressed by Rim101; transcript regulated upon white-opaque switching; repressed by alpha pheromone in SpiderM medium; macrophage-induced gene
orf19.2158	<i>NAG3</i>	1.02	-1.13	Putative MFS transporter; similar to Nag4; required for wild-type mouse virulence and cycloheximide resistance; in gene cluster that includes genes encoding enzymes of GlcNAc catabolism; Spider biofilm repressed
orf19.3123	<i>RPT5</i>	1.02	1.01	26S proteasome regulatory subunit; transcript regulated by Nrg1 and Mig1; regulated by Gcn2 and Gcn4; protein level decreases in stationary phase
orf19.3120		1.02	-1	PDR-subfamily ABC transporter (half-size); similar to WHITE subfamily proteins; repressed by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2; induced by nitric oxide; rat catheter biofilm induced
orf19.3097	<i>PDA1</i>	1.02	1.05	Putative pyruvate dehydrogenase alpha chain; fluconazole-induced; protein present in exponential and stationary growth phase yeast cultures; Hap43-induced; Spider biofilm repressed

orf19.5179	LIP5	1.02	-1.01	Cold-activated secreted lipase, differentially expressed lipase gene family member with possible roles in nutrition and acidic microenvironment; LIP5 and LIP8 expressed at all stages of mucosal and systemic infection; affects filamentation
orf19.5168		1.02	1.03	Ortholog(s) have role in maturation of SSU-rRNA and cytosol, nucleolus localization
orf19.6840		1.02	1.02	Protein of unknown function; transcript detected in high-resolution tiling arrays; transcription induced by alpha pheromone in SpiderM medium; Spider and early-stage flow model biofilm induced
orf19.1880	HEM15	1.02	1.02	Putative ferredoxinase involved in heme biosynthesis; transcript not regulated by iron levels and not affected by a yfh1 null mutation; Spider biofilm repressed
orf19.496		1.02	1.07	Ortholog(s) have DNA-dependent ATPase activity, dinucleotide insertion or deletion binding, guanine/thymine mispair binding activity, role in mismatch repair, mitochondrial DNA repair and mitochondrial localization
orf19.345		1.02	-1	Succinate semialdehyde dehydrogenase; for utilization of gamma-aminobutyrate (GABA) as a nitrogen source; part of 4-aminobutyrate and glutamate degradation pathways; rat catheter biofilm induced
orf19.356	GTT13	1.02	-1	Putative glutathione S-transferase; opaque-specific transcript; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.4436	GPX3	1.02	1.06	Putative glutathione peroxidase involved in Cap1p-dependent oxidative stress response, required for Cap1p oxidation in response to H2O2; planktonic growth-induced
orf19.4442	ALG9	1.02	-1.01	Putative mannosyltransferase; similar to S. cerevisiae Alg9p; has HKEXR motif
orf19.872		1.02	1.03	Ortholog of C. dubliniensis CD36 : Cd36_18230, Debaryomyces hansenii CBS767 : DEHA2E020636g, Pichia stipitis Pigna1 : PICST_66811 and Spathaspora passalidarum NRRL Y-27907 : SPADADRAFT_60843
orf19.6931		1.02	-1.03	Putative cleavage factor I subunit; heterozygous null mutant exhibits hypersensitivity to pamafungin and cordycepin in the C. albicans fitness test
orf19.6940		1.02	1	Protein of unknown function
orf19.4000	GRF10	1.02	1.01	Putative homeodomain transcription factor; null mutant is an adenine auxotroph; Spider biofilm induced; promoter bound by Bcr1, Tec1, Efg1, Ndt80 and Brq1
orf19.4036	APM1	1.02	1.01	Ortholog of S. cerevisiae/S. pombe Apr1; a clathrin-associated protein complex (AP-1) subunit; phosphorylated protein; Tr mutation affects filamentous growth; Spider biofilm repressed
orf19.2070		1.02	1.02	Ortholog(s) have role in G1/S transition of mitotic cell cycle, chromatin remodeling, nucleosome disassembly, transcription elongation from RNA polymerase II promoter and RSC complex localization
orf19.2057		1.02	1.03	Ortholog(s) have ATP binding, ATPase activity, metalloproteinase activity, role in protein complex assembly, proteolysis, signal peptide processing and m-AAA complex, mitochondrial inner boundary membrane localization
orf19.3813		1.02	-1.1	Ortholog of C. dubliniensis CD36 : Cd36_44340, C. parapsilosis CDC317 : CPAR2_302240, Candida tenuis NRRL Y-1498 : CANTEDRAFT_105331 and Debaryomyces hansenii CBS767 : DEHA2E03454g
orf19.6561	LAT1	1.02	1.02	Putative dihydroipoamide acetyltransferase component (E2) of pyruvate dehydrogenase complex; sumoylation target; Spider biofilm repressed
orf19.6566		1.02	1.03	Ortholog of C. dubliniensis CD36 : Cd36_71420, C. parapsilosis CDC317 : CPAR2_300980, Candida tenuis NRRL Y-1498 : CANTEDRAFT_94952 and Debaryomyces hansenii CBS767 : DEHA2A05346g
orf19.6063	UBP6	1.02	1.01	Putative ubiquitin-specific protease of the 26S proteasome; oxidative stress-induced via Cap1p
orf19.6533	MSK1	1.02	-1.01	Putative mitochondrial lysine-tRNA synthetase; flucytosine repressed
orf19.5278		1.02	-1.01	Protein of unknown function; Spider biofilm induced
orf19.5244	MCD4	1.02	1.02	Protein of major facilitator superfamily; has phosphodiesterase/nucleotide pyrophosphatase domain; similar to S. cerevisiae Mcd4p, which acts in GPI anchor biosynthesis; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5233		1.02	-1.02	Ortholog of Candida albicans WO-1 : CAWG_00211
orf19.3029		1.02	-1.04	Predicted 3-hydroxyisobutyryl-CoA hydrolase; mitochondrially localized; Spider biofilm induced
orf19.3060		1.02	1.01	OPutative dolichyl-diphosphooligosaccharide-protein glycotransferase; role in protein N-linked glycosylation; Spider biofilm repressed
orf19.6435		1.02	-1.02	Highly conserved subunit of mitochondrial pyruvate carrier; Hap43-repressed; Spider biofilm repressed
orf19.4605	TYR1	1.02	-1.02	Putative prephenate dehydrogenase; enzyme of tyrosine biosynthesis; fungal-specific (no human or murine homolog)
orf19.942	KRE62	1.02	-1	Putative subunit of glucan synthase; macrophage-induced gene; Bcr1-regulated in a/a RPMI biofilms
orf19.3269	GSL2	1.02	1.01	Protein similar to beta-1,3-glucan synthase; 16 predicted membrane-spanning regions; transcript regulated by Nrg1; very low gene expression in yeast-form and hyphal cells
orf19.3284		1.02	-1	Ortholog of Candida albicans WO-1 : CAWG_01431
orf19.5339		1.02	1.02	Ortholog of S. cerevisiae Spg5; required for proteasome assembly during quiescence; transcript detected on high-resolution tiling arrays; Spider biofilm induced
orf19.7291		1.02	1.09	Ortholog(s) have tRNA (adenine-N1)-methyltransferase activity, role in tRNA methylation and cytosol, nucleus, tRNA (m1A) methyltransferase complex localization
orf19.7119	RAD3	1.02	-1.01	Ortholog of S. cerevisiae Rad3; 5' to 3' DNA helicase, nucleotide excision repair and transcription, subunit of RNA polII initiation factor TFIIH and Nucleotide Excision Repair Factor 3 (NEF3)
orf19.7449		1.02	1.02	Ortholog(s) have role in mitochondrial genome maintenance, plasmid maintenance and cytosol, mitochondrion localization
orf19.5399	IFF11	1.02	-1.01	Secreted protein required for normal cell wall structure and for virulence; member of the IFF family; Hap43p-repressed gene
orf19.5472		1.02	-1.02	Protein of unknown function; overlaps orf19.5469
orf19.6740		1.02	1.07	Ortholog(s) have ubiquitin-protein ligase activity and role in generation of catalytic spliceosome for first transesterification step
orf19.7566		1.02	-1.08	Predicted amino acid transport domain; transcript upregulated in clinical strains from HIV+ patients with oral candidiasis; alkaline upregulated by Rim101; rat catheter. Spider and flow model biofilm induced
orf19.7567		1.02	-1	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.7576		1.02	1.05	Ortholog of S. pombe atf1 alkyltransferase-like protein; mutants are viable; Spider biofilm induced
orf19.7579	FGR34	1.02	1.16	Protein lacking an ortholog in S. cerevisiae; transposon mutation affects filamentous growth
orf19.7608		1.02	1.02	Protein of unknown function; fluconazole-repressed; Spider biofilm induced
orf19.7632		1.02	1.01	Ortholog of C. dubliniensis CD36 : Cd36_35360, C. parapsilosis CDC317 : CPAR2_200320, Candida tenuis NRRL Y-1498 : CANTEDRAFT_136418 and Debaryomyces hansenii CBS767 : DEHA2A14080g
orf19.5973	PHB2	1.02	1.03	Prohibitin 2; plasma membrane localized
orf19.5971		1.02	1.01	Ortholog of S. cerevisiae : MTC6, C. glabrata CBS138 : CAGL0101892g, C. dubliniensis CD36 : Cd36_84990, C. parapsilosis CDC317 : CPAR2_405620 and Candida tenuis NRRL Y-1498 : CANTEDRAFT_99433
orf19.5942		1.02	-1.01	Zinc finger protein orthologous to S. cerevisiae Itt1; repressed by adherence to polystyrene; Spider biofilm induced
orf19.5885		1.02	-1.03	Putative U3 snoRNP protein; flucytosine induced
orf19.1494	RAD23	1.02	-1.01	S. cerevisiae Rad23 ortholog; binds damaged DNA; Spider biofilm repressed
		1.02	1.03	#NV
		1.02	-1.01	#NV
		1.02	1.02	#NV
		1.02	1.03	#NV
		1.02	1.05	#NV
orf19.5614		1.01	-1.04	Putative ribonuclease H1; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.3170		1.01	-1.09	Ortholog(s) have role in formation of translation preinitiation complex and cytoplasm, cytosolic ribosome localization
orf19.776		1.01	1.03	Ortholog(s) have role in meiotic sister chromatid cohesion, protein localization to chromosome, centromeric region, reciprocal meiotic recombination, synaptonemal complex assembly
orf19.14		1.01	1.26	#NV
orf19.4697	MDN1	1.01	-1.01	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.3150	GRE2	1.01	1.07	Putative reductase; Nrg1 and Tup1-regulated; benomyl- and hyphal-induced; macrophage/pseudohyphal-repressed; repressed by low iron; possibly involved in osmotic stress response; stationary phase enriched protein; Spider biofilm induced
orf19.3289		1.01	-1.1	Phosphorylated protein of unknown function
orf19.412	SSH1	1.01	1.07	Protein with a role in protein translocation across membranes
orf19.1961		1.01	1.03	Planktonic growth-induced gene
orf19.2284		1.01	-1.03	Protein with an FMN-binding domain; Hap43-repressed; flow model biofilm induced
orf19.3361		1.01	-1.04	#NV
orf19.1305		1.01	1.01	Ortholog(s) have tRNA (guanine) methyltransferase activity, role in tRNA methylation and mitochondrial matrix, nucleus localization
orf19.405	VCX1	1.01	1	Putative H+/Ca2+ antiporter; Spider biofilm repressed
orf19.407	GCD6	1.01	-1.02	Ortholog of S. cerevisiae Gcd6; catalytic epsilon subunit of the translation initiation factor eIF2B; genes encoding translation factors are repressed by phagocytosis by murine macrophages
orf19.1767		1.01	1.02	Ortholog(s) have protein complex scaffold, ubiquitin-specific protease activity, role in histone H3-K4 methylation, histone H3-K79 methylation, histone deubiquitination and DUBm complex, SAGA complex, SLIK (SAGA-like) complex localization
orf19.1295	VAS1	1.01	-1.1	Putative tRNA-Val synthetase; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.1156	FUS1	1.01	1.02	Membrane protein required for mating; ortholog of S. cerevisiae Fus1; transcript induced by Cph1 in cells homozygous for the MTLa locus; alpha factor induced
orf19.5559	RAV2	1.01	1.02	Protein similar to S. cerevisiae Rav2; a regulator of (H+)-ATPase in vacuolar membrane; transposon mutation affects filamentous growth

orf19.3658		1.01	1.05	Ortholog(s) have role in protein folding in endoplasmic reticulum and Golgi apparatus, integral to endoplasmic reticulum membrane, mitochondrion localization
orf19.703		1.01	-1.02	Ortholog(s) have 2',3'-cyclic-nucleotide 3'-phosphodiesterase activity, role in cyclic nucleotide metabolic process and clathrin-coated vesicle localization
orf19.2920		1.01	-1.09	Ortholog(s) have role in ribosome biogenesis and cytosol, ribosome localization
orf19.1122		1.01	-1.02	Protein of unknown function; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.4273		1.01	1.14	Putative mitochondrial membrane protein; ortholog of <i>S. cerevisiae</i> Sls1; coordinates expression of mitochondrially-encoded genes; Hap43-induced
orf19.1020		1.01	1.04	#NV
orf19.741		1.01	1	Dubious open reading frame
orf19.4503		1.01	1.01	Similar to HMG-box variant of <i>S. pombe</i> ; Spider biofilm repressed
orf19.4863	<i>PDC2</i>	1.01	-1.02	Homeodomain-like transcription factor; regulator of pyruvate decarboxylase; contains a putative C-terminal activation domain, Glu- and Pro-rich; complements glucose utilization defect of <i>S. cerevisiae</i> <i>pdc2</i> mutant
orf19.5693		1.01	-1.02	Subunit of the GPI (glycosylphosphatidylinositol):protein transamidase complex; removes the GPI-anchor signal and attaches GPI to proteins in the ER; Spider biofilm repressed
orf19.599		1.01	-1	Dubious open reading frame
orf19.2992	<i>RPP1A</i>	1.01	-1.14	Conserved acidic ribosomal protein; likely role in regulation of translation elongation; interacts with Rpp2B; 1 of 4 similar <i>C. albicans</i> ribosomal proteins (Rpp1A, Rpp1B, Rpp2A, Rpp2B); Hap43-induced; Spider biofilm repressed
orf19.2469	<i>RAD10</i>	1.01	1	Ortholog of <i>S. cerevisiae</i> Rad10, an endonuclease involved in nucleotide excision repair; mutant is extremely sensitive to UV irradiation; transcript repressed in alkaline conditions
orf19.3329		1.01	1.01	Ortholog(s) have sphingosine-1-phosphate phosphatase activity, role in calcium-mediated signaling and endoplasmic reticulum localization
orf19.5857		1.01	1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_84070, <i>C. parapsilosis</i> CDC317 : CPAR2_102720, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_98617 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D07392g
orf19.5611		1.01	-1.01	Predicted 3-methylbutanol:NAD(P) oxidoreductase and methylglyoxal reductase (NADPH-dependent); role in ergosterol metabolic process; early stage flow model biofilm induced; Spider biofilm induced
orf19.2419		1.01	1.02	Ortholog of <i>S. cerevisiae</i> Dom34; a protein that facilitates ribosomal subunit dissociation when translation is stalled; peloto ortholog; Hap43-repressed gene
orf19.4284	<i>BUR2</i>	1.01	1	Protein with similarity to <i>S. cerevisiae</i> Bur2p, contains a cyclin domain; not required for wild-type hyphal growth, adherence to buccal epithelial cells, or virulence in mouse systemic infection
orf19.4136	<i>YBL053</i>	1.01	1.05	Ortholog(s) have protein heterodimerization activity
orf19.3862		1.01	1.06	Putative intracellular transport protein; heterozygous null mutant displays sensitivity to rapamycin; expression upregulated during growth in the mouse cecum
orf19.6550		1.01	-1.01	Putative mitochondrial outer membrane protein; regulated by Sef1p-, Sfu1p-, and Hap43p
orf19.1577		1.01	1.06	Has domain(s) with predicted sequence-specific DNA binding, sequence-specific DNA binding transcription factor activity, zinc ion binding activity and role in regulation of transcription, DNA-dependent
orf19.6199		1.01	1.08	Ortholog(s) have ATP-dependent 5'-3' DNA helicase activity and DNA helicase A complex, alpha DNA polymerase:primase complex, cytosol localization
orf19.2701		1.01	1	Protein of unknown function; Ras1 and Cvr1 repressed; rat catheter and Spider biofilm induced
orf19.913.2		1.01	-1	Ortholog of subunit 6 of the ubiquinol cytochrome-c reductase complex, a component of the mitochondrial inner membrane electron transport chain; Hap43-repressed gene
orf19.2970	<i>LYS2</i>	1.01	-1.04	Heterodimeric alpha-aminoacidate reductase large subunit; lysine biosynthesis; predicted binding sites for AMP and alpha-aminoadipate; inhibited by lys or thialysine; regulated by Gcn2 and Gcn4; Spider biofilm induced, flow model repressed
orf19.6365	<i>PTP1</i>	1.01	-1.02	Phosphotyrosine-specific protein phosphatase; rat catheter biofilm induced
orf19.3889		1.01	-1	#NV
orf19.199		1.01	1.01	Protein of unknown function; hyphal-induced expression; upregulated in a <i>cvr1</i> null mutant
orf19.2042		1.01	1	Ortholog(s) have role in mitochondrial tRNA wobble uridine modification and mitochondrial inner membrane localization
orf19.4934	<i>OP4</i>	1.01	1.01	Ala- Leu- and Ser-rich protein; secreted; N-terminal hydrophobic region; possible glycosylation; opaque-specific transcript; repressed by alpha pheromone in opaque MTLA homozygotes; fluconazole-induced; Spider biofilm induced
orf19.4174		1.01	-1.02	Ortholog(s) have nicotinamide riboside transmembrane transporter activity, role in nicotinamide riboside transport, transmembrane transport and fungal-type vacuole membrane localization
orf19.2183	<i>KRE30</i>	1.01	1.02	YEF3-subfamily ABC family protein; predicted not to be a transporter; repressed in core stress response; mutation confers hypersensitivity to amphotericin B
orf19.6597		1.01	-1	Ortholog(s) have cytoplasm localization
orf19.1565		1.01	-1.06	Putative transcription factor with zinc finger DNA-binding motif
orf19.1636	<i>STE50</i>	1.01	1.02	Protein with sterile alpha motif (SAM) and Ras-associated domain (RAD); similar to <i>S. cerevisiae</i> Rad50p, which is involved in signal transduction via interaction with and regulation of MAPKKK
orf19.3444		1.01	1	Predicted membrane transporter, member of the drug:proton antiporter (14 spanner) (DHA2) family, major facilitator superfamily (MFS); Hap43p-repressed gene
orf19.4529		1.01	1.06	Ortholog of Srp21, signal recognition particle subunit, functions in protein targeting to the endoplasmic reticulum membrane; predicted adhesin-like protein; mutants are viable
orf19.4529		1.01	-1	Ortholog of Srp21, signal recognition particle subunit, functions in protein targeting to the endoplasmic reticulum membrane; predicted adhesin-like protein; mutants are viable
orf19.527		1.01	1.01	Protein of unknown function; flow model biofilm induced
orf19.4116		1.01	1.02	Ortholog(s) have N-acetyltransferase activity, role in response to drug and nuclear envelope, plasma membrane localization
orf19.4092		1.01	-1.02	Trimeric GatFAB AmidoTransferase(AdT) complex subunit; involved in the formation of Q-IRNAQ; repressed by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1; Spider biofilm induced
orf19.4081		1.01	1.02	Dubious open reading frame
orf19.6726		1.01	1.01	Ortholog(s) have DNA secondary structure binding activity
orf19.5669		1.01	1.01	Protein with B-cell receptor-associated protein 31-like domain; membrane-localized protein
orf19.3124		1.01	1.1	Ortholog(s) have mRNA binding, metalloaminopeptidase activity, role in negative regulation of gene expression, protein initiator methionine removal involved in protein maturation and cytosolic ribosome, nucleolus localization
orf19.6855		1.01	1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_04370, <i>C. parapsilosis</i> CDC317 : CPAR2_105410, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114891 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D13420g
orf19.1874		1.01	-1	Ortholog(s) have protein serine/threonine kinase activity, role in meiotic recombination checkpoint, protein phosphorylation, regulation of linear element assembly and cytosol, linear element localization
orf19.506	<i>YDJ1</i>	1.01	1.16	Putative type I HSP40 co-chaperone; heavy metal (cadmium) stress-induced
orf19.6867		1.01	-1.02	Protein with a predicted cytochrome b5-like heme/steroid binding domain; repressed by alpha pheromone in SpiderM medium
orf19.6877	<i>PNG2</i>	1.01	1.05	Putative peptide:N-glycanase; gene has variable numbers of 12-bp repeats; induced by caspofungin, ciclopirox olamine, ketoconazole or hypoxia; gene of core caspofungin response; Hap43-induced; Spider biofilm induced
orf19.3312		1.01	-1.02	Protein of unknown function; flow model and Spider biofilm repressed
orf19.344		1.01	1.01	Protein of unknown function; upregulated by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2; transcript possibly regulated by Tac1
orf19.876	<i>PGA33</i>	1.01	-1.13	Putative GPI-anchored protein of unknown function; Spider biofilm repressed
orf19.6933		1.01	1	Ortholog(s) have peptidyl-prolyl cis-trans isomerase activity, protein phosphatase type 2A regulator activity
orf19.4850		1.01	-1.02	Ortholog(s) have cytosol, nucleus localization
orf19.3999		1.01	-1	Ortholog(s) have fungal-type vacuole membrane localization
orf19.4028		1.01	-1.01	Putative cis-prenyltransferase involved in dolichol synthesis; participates in endoplasmic reticulum (ER) protein sorting; flow model biofilm induced
orf19.4032	<i>RPN5</i>	1.01	1.06	Putative COP9 signalosome component; macrophage/pseudohyphal-repressed
orf19.2087	<i>SAS2</i>	1.01	1.01	Predicted histone acetyltransferase involved in histone H4 acetylation; member of MYST family
orf19.3839	<i>SAP10</i>	1.01	1.07	Secreted aspartyl protease; roles in adhesion, virulence (RHE model), cell surface integrity; distinct specificity from Sap9; at cell membrane and wall; GPI-anchored; induced in low iron; Tbf1-activated; Spider biofilm induced
orf19.6052	<i>CNS1</i>	1.01	-1.19	Putative co-chaperone; Hap43p-induced gene; mutation confers hypersensitivity to radicicol
orf19.6517	<i>RAD14</i>	1.01	-1.05	Putative DNA repair protein; transcription is regulated upon yeast-hyphal switch; flucytosine repressed
orf19.3047		1.01	-1.01	Protein kinase-related protein, required for normal sensitivity to caspofungin
orf19.6447	<i>ARF1</i>	1.01	1	ADP-ribosylation factor; probable GTPase involved in intracellular transport; one of several <i>C. albicans</i> ADP-ribosylation factors; N-mristov/protein; substrate of Nmt1; Spider biofilm induced
orf19.4057		1.01	-1.08	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00885
orf19.4575		1.01	-1.03	Ortholog(s) have mitochondrion localization
orf19.4578	<i>CYT2</i>	1.01	-1.01	Cytochrome c1 heme lyase; transcript regulated by Nrg1; induced in high iron
orf19.4584	<i>PHO114</i>	1.01	-1.02	Acid phosphatase; induced by Mnl1 under weak acid stress; Spider biofilm induced
orf19.7013		1.01	1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_70940, <i>C. parapsilosis</i> CDC317 : CPAR2_300280, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F22220g and <i>Pichia stipitis</i> Pigna1 : PICST_32459
orf19.4996		1.01	1.01	Ortholog(s) have cytoplasm, nucleus localization
orf19.4995		1.01	1.05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_12580
orf19.7170		1.01	-1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73740, <i>Candida tropicalis</i> MYA-3404 : CTRG_05151 and <i>Candida albicans</i> WO-1 : CAWG_05736
orf19.7250		1.01	-1.04	Protein of unknown function; rat catheter and Spider biofilm induced

orf19.3250		1,01	1,01	Ortholog(s) have RNA binding activity, role in mRNA cis splicing, via spliceosome and U1 snRNP, U2-type prespliceosome localization
orf19.5365		1,01	1,04	S. cerevisiae ortholog YMR259C interacts with Trm7 for 2'-O-methylation of C32 of substrate tRNAs; downregulated by fluphenazine treatment or in an azole-resistant strain that overexpresses CDR1 and CDR2
orf19.5368		1,01	1,03	Ortholog of Vms1; component of a Cdc48-complex involved in protein quality control in S. cerevisiae; Spider biofilm repressed
orf19.7286	RPN7	1,01	1,02	Subunit of the proteasome regulatory particle; regulated by Gcn2p and Gcn4p; protein present in exponential and stationary growth phase yeast cultures
orf19.7293	MPS1	1,01	-1,01	Monopolar spindle protein, a putative kinase; essential for growth; periodic mRNA expression, peak at cell-cycle S/G2 phase
orf19.7098		1,01	-1	Putative protein of unknown function; Hap43-repressed; repressed by nitric oxide; Spider biofilm induced
orf19.7082		1,01	-1,02	S-adenosylmethionine transporter of the mitochondrial inner membrane; mitochondrial carrier family; predicted role in biotin biosynthesis and respiratory growth; Spider biofilm repressed
orf19.7055		1,01	1,01	Dubious open reading frame
orf19.7348		1,01	1,06	Ortholog of Candida albicans WO-1 : CAWG 02678
		1,01	1,06	#NV
orf19.5439		1,01	1,14	Ortholog of C. parapsilosis CDC317 : CPAR2_504010, C. dubliniensis CD36 : Cd36_80270, Lodderomyces elongisporus NRLL YB-4239 : LELG 02294 and Pichia stipitis Pigna1 : PICST 29581
orf19.5469		1,01	-1,01	Protein with a predicted DEAD-like DNA/RNA helicase domain; shows colony morphology-related gene regulation by Ssn6; overlaps orf19.5472; Spider biofilm repressed
orf19.7555		1,01	1,04	Ortholog of Candida albicans WO-1 : CAWG 02247
orf19.7589		1,01	-1,07	Protein of unknown function; Hap43-repressed gene; transcript induced by elevated CO2
orf19.7615		1,01	-1,03	Protein involved in endoplasmic reticulum (ER) to Golgi vesicle-mediated transport; putative subunit of the transport protein particle (TRAPP) complex of the cis-Golgi; Spider biofilm induced
orf19.7627		1,01	1,02	Ortholog(s) have endoplasmic reticulum, mitochondrion localization
orf19.5984		1,01	-1,01	Putative protein of unknown function; homozygous transposon insertion causes decreased colony wrinkling under filamentous growth-inducing conditions, but does not block true hyphal formation in liquid media
orf19.5930		1,01	1,02	Ortholog(s) have nucleocytoplasmic transporter activity, structural constituent of nuclear pore activity
orf19.5874		1,01	-1,01	Ortholog of C. dubliniensis CD36 : Cd36_84250, C. parapsilosis CDC317 : CPAR2_806160, Candida tenuis NRRL Y-1498 : CANTEDRAFT 137075 and Debaryomyces hansenii CBS767 : DEHA2F11462g
		1,01	1,02	#NV
		1,01	-1,06	#NV
		1,01	1,03	#NV
		1,01	1,01	#NV
		1,01	-1,02	#NV
orf19.3172		1	1	Ortholog of C. dubliniensis CD36 : Cd36_51840, Candida tropicalis MYA-3404 : CTRG_05315 and Candida albicans WO-1 : CAWG 04584
orf19.2621		1	1,08	Ortholog(s) have role in mRNA splicing, via spliceosome and U1 snRNP, U2-type prespliceosome, U4/U6 x U5 tri-snRNP complex, U5 snRNP, cytosol localization
orf19.3960	HYS2	1	1,07	Putative DNA polymerase III (delta) subunit with a predicted role in DNA replication and DNA repair; cell-cycle regulated periodic mRNA expression
orf19.4335	TNA1	1	1,04	Putative nicotinic acid transporter; detected at germ tube plasma membrane by mass spectrometry; transcript induced upon phagocytosis by macrophage; rat catheter biofilm induced
orf19.5575		1	1,02	Putative peripheral peroxisomal membrane peroxin; required for regulating peroxisome size and maintenance; Spider biofilm induced
orf19.5576		1	-1,01	Putative pantothenate kinase; ortholog of S. cerevisiae Cab1; transposon mutation affects filamentous growth; repressed in core stress response
orf19.1185		1	1,04	Ortholog(s) have protein homodimerization activity, ubiquitin-protein ligase activity
orf19.2232	RPL11	1	-1,21	Ribosomal protein; repressed by phagocytosis; colony morphology-related gene regulation by Ssn6; Hap43-induced; Spider biofilm repressed
orf19.692		1	1,08	Protein of unknown function; Hap43-repressed gene; rat catheter and Spider biofilm induced
orf19.1387		1	1,09	Ortholog(s) have 4 iron, 4 sulfur cluster binding activity, role in iron-sulfur cluster assembly, tRNA wobble uridine modification and cytoplasm localization
orf19.4195		1	1,02	Ortholog of C. dubliniensis CD36 : Cd36_60540, C. parapsilosis CDC317 : CPAR2_602830, Candida tenuis NRRL Y-1498 : CANTEDRAFT 108530 and Debaryomyces hansenii CBS767 : DEHA2F15532g
orf19.4964		1	-1,02	Ortholog(s) have role in cellular bud site selection, mRNA export from nucleus, mRNA splicing, via spliceosome and RES complex localization
orf19.1198		1	-1,01	Predicted mitochondrial intermembrane space protein of unknown function; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.564	KAR3	1	-1,01	Kinesin-like microtubule motor protein; required for nuclear fusion during mating; C-terminal motor domain; mutants are viable; null has high-frequency white-opaque switching phenotype
orf19.5126		1	-1,01	Putative adhesin-like protein
orf19.3691	TIM21	1	1,01	Component of the Translocase of the Inner Mitochondrial membrane (TIM23 complex); for protein import into mitochondria; Hap43, ketoconazole-repressed; Spider biofilm repressed
		1	1,01	#NV
orf19.4416	VPS13	1	-1,01	Putative vacuolar protein sorting-associated protein; gene used for multilocus sequence typing
orf19.2215	GLE1	1	1,03	Putative nucleoporin; moderately induced at 42 degrees C
orf19.292		1	-1,02	Ortholog of C. parapsilosis CDC317 : CPAR2_102390, C. dubliniensis CD36 : Cd36_82960, Candida tenuis NRRL Y-1498 : CANTEDRAFT 133198 and Lodderomyces elongisporus NRLL YB-4239 : LELG 02116
orf19.3182	GIS2	1	1	Translational activator for mRNAs with internal ribosome entry sites; induced in high iron; repressed by yeast-hypha switch; null exhibits sensitivity to sorbitol, 5-fluorocytosine, and cold temperatures; Spider biofilm repressed
orf19.2740		1	1,1	Ortholog(s) have 5'-flap endonuclease activity, role in DNA-dependent DNA replication, double-strand break repair via single-strand annealing, removal of nonhomologous ends, interstrand cross-link repair and Slx1-Slx4 complex localization
orf19.3348		1	-1	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.2104		1	-1,03	Ortholog(s) have chaperone binding activity, role in aerobic respiration, iron-sulfur cluster assembly and mitochondrion localization
orf19.5628		1	1,07	Mitochondrial dicarboxylate transporter; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5728		1	-1	Putative cytochrome P450; Spider biofilm induced
orf19.3480		1	-1,05	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.3911	SAH1	1	1	S-adenosyl-L-homocysteine hydrolase; sulfur amino acid metabolism; antigenic in human; alkaline, fluconazole-induced expression; Gcn4-regulated; amino acid starvation (3-AT) repressed; flow model biofilm induced; Spider biofilm repressed
orf19.2128		1	1,03	Ortholog(s) have mitochondrion localization
orf19.3971		1	1,02	Protein of unknown function; early-stage flow model biofilm induced
orf19.6359		1	1,03	Ortholog(s) have endopeptidase activity, role in mitochondrial respiratory chain complex assembly, proteolysis and mitochondrial inner membrane peptidase complex localization
orf19.732		1	-1,02	Possible dehydrogenase; flow model biofilm induced; rat catheter biofilm induced; Spider biofilm induced
orf19.4948	REX3	1	-1	Ortholog(s) have 3'-5'-exoribonuclease activity and role in U5 snRNA 3'-end processing, exonucleolytic trimming to generate mature 3'-end of 5.8S rRNA from tricistronic rRNA transcript (SSU-rRNA, 5.8S rRNA, LSU-rRNA)
orf19.4179		1	1	Putative adhesin-like protein
orf19.3427		1	-1,02	Ortholog of Candida albicans WO-1 : CAWG 05207
orf19.3415	PTK2	1	-1,06	Putative protein kinase of polyamine import; mutation confers hypersensitivity to high concentrations of tunicamycin; YPD flow model biofilm induced; rat catheter and Spider biofilm induced
orf19.4247		1	1,07	Protein of unknown function; rat catheter and Spider biofilm repressed
orf19.4239		1	-1,01	Planktonic growth-induced gene
orf19.4230		1	-1,03	20S proteasome subunit (beta7); protein present in exponential and stationary growth phase yeast cultures
orf19.2948	SNO1	1	-1,05	Protein with a predicted role in pyridoxine metabolism; stationary phase protein; regulated by Tup1, Efg1; Spider biofilm induced
orf19.485		1	-1	Ortholog(s) have structural constituent of cytoskeleton activity
orf19.4041	PEX4	1	-1,07	Putative peroxisomal ubiquitin conjugating enzyme; regulated by Sef1, Stu1, and Hap43; rat catheter biofilm induced; Spider biofilm induced
orf19.3825	RCE1	1	-1,05	Putative Type II CAAX prenyl protease; induced during the mating process
orf19.6587	GIR2	1	-1,01	Ortholog of S. cerevisiae Gir2; transposon mutation affects filamentous growth
orf19.6044	MOB2	1	-1,01	Mob1/phocin domain protein of RAM signaling network; cell wall integrity; role in cell separation, cortical actin polarization; required for hyphal growth; phosphorylated by Cdc28 on hyphal induction; activates Cbk1; mRNA binds She3
orf19.3034	RLI1	1	1,03	Member of RNase L inhibitor (RLI) subfamily of ABC family; predicted not to be a transporter; regulated by Sef1p, Stu1p, and Hap43p
		1	1,02	#NV
orf19.4590	RFX2	1	-1,01	Transcriptional repressor; regulator of filamentation, response to DNA damage, adhesion, virulence in murine mucosal, systemic infections; RFX domain; regulated by Nrg1, UV-induced; partially complements S. cerevisiae rfx1 mutant defects
orf19.7245		1	-1,04	Ortholog(s) have tRNA (5-methylaminomethyl-2-thiouridylate)-methyltransferase activity, role in mitochondrial tRNA thio-modification and mitochondrion localization

orf19.5302	PGA31	1	1,01	Cell wall protein; putative GPI anchor; expression regulated upon white-opaque switch; induced by Congo Red and cell wall regeneration; Bcr1-repressed in RPM1 a/a biofilms
orf19.7395		1	-1	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02922
orf19.7626	EIF4E	1	-1,01	Translation initiation factor eIF4E; genes encoding ribosomal subunits, translation factors, tRNA synthetases downregulated by phagocytosis by macrophage; alternatively spliced intron in 5' UTR; protein levels decrease in stationary phase
		1	-1,05	#NV
		1	-1,02	#NV
		1	-1,02	#NV
		1	-1,03	#NV
		1	-1,04	#NV
		1	-1,04	#NV
orf19.145	RPB4	-1	-1,03	Protein similar to <i>S. cerevisiae</i> Rpb4p, which is a component of RNA polymerase II; transposon mutation affects filamentous growth
orf19.2449		-1	1,07	Putative adhesin-like protein; macrophage-induced gene
orf19.1976	TRX2	-1	-1,09	Similar to thioredoxins; not expected to be enzymatically active because it lacks a canonical thioredoxin active site (TTP-Cys-Gly-Pro-Cys); TRX1 encodes all of the cytoplasmic/nuclear thioredoxin function in <i>C. albicans</i> ; Hap43p-induced
orf19.458		-1	1,04	Ortholog(s) have protein transmembrane transporter activity and role in chaperone-mediated protein complex assembly, mitochondrial respiratory chain complex III assembly, protein insertion into mitochondrial membrane from inner side
orf19.4697	MDN1	-1	1,02	Putative midasin, a very large dynein-related AAA-type ATPase; induced during the mating process
orf19.1181		-1	1,02	Has domain(s) with predicted catalytic activity and membrane localization
orf19.3682	CWH8	-1	1,09	Putative dolichyl pyrophosphate (Dol-P-P) phosphatase; ketoconazole-induced; expression is increased in a fluconazole-resistant isolate; clade-associated gene expression; Hap43p-induced gene
orf19.4350		-1	1,01	#NV
orf19.4962	RMP1	-1	1,03	Ortholog of Rmp1; subunit of RNase MRP subunit that processes pre-rRNA and has a role in cell cycle-regulated degradation of daughter cell-specific mRNAs; rat catheter and Spider biofilm induced
orf19.925	SAM51	-1	-1,02	Component of the SAM complex involved in mitochondrial protein import, involved in beta-barrel protein assembly; member of the Omp85 protein family
orf19.5717		-1	-1,02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 05019
orf19.4668		-1	1,03	Protein with a glycoside hydrolase domain; mutants are viable
orf19.4505	ADH3	-1	-1,03	Putative NAD-dependent (R,R)-butanediol dehydrogenase; regulated by white-opaque switch; induced by nitric oxide independent of Yhb1; Spider biofilm induced
orf19.290	KRE5	-1	1,01	UDP-glucose:glycoprotein glucosyltransferase; 1,6-beta-D-glucan biosynthesis, hyphal growth, virulence in mouse IV model; partially complements <i>S. cerevisiae</i> kre5 mutant defects; flow biofilm repressed, Bcr1-repressed in RPM1 a/a biofilms
orf19.3404		-1	-1,05	Protein of unknown function; transcription repressed by fluphenazine treatment
orf19.632		-1	-1	#NV
orf19.4653		-1	-1	Protein similar to GPI-linked cell-wall proteins; induced in low iron; Spider biofilm induced; regulated in Spider biofilms by Bcr1, Tect1, Ndt80, Brg1
orf19.2686		-1	1,03	Ortholog(s) have carboxypeptidase activity, role in nitrogen compound metabolic process, proteolysis involved in cellular protein catabolic process and fungal-type vacuole lumen localization
orf19.3483		-1	1,01	Putative phosphatidyl glycerol phospholipase C; Plc1-regulated; flow model biofilm induced; Spider biofilm induced
		-1	-1,03	#NV
orf19.6146	CLG1	-1	1,06	Putative cyclin-like protein; transcription is regulated upon yeast-hyphal switch
orf19.6141	HGT16	-1	-1,15	Putative glucose transporter of the major facilitator superfamily; the <i>C. albicans</i> glucose transporter family comprises 20 members; 12 probable membrane-spanning segments; gene has intron; expressed in rich medium with 2% glucose
orf19.2986		-1	1,02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_02750, <i>C. parapsilosis</i> CDC317 : CPAR2_106015, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_107500 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D08250g
orf19.2977	MIA40	-1	-1,04	Predicted component of the mitochondrial intermembrane space import machinery; Hap43p-repressed gene
orf19.1265		-1	-1,02	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity and role in CVT pathway, early endosome to Golgi transport, intra-Golgi vesicle-mediated transport, macroautophagy, regulation of Rab GTPase activity
orf19.4929		-1	-1,04	Ortholog(s) have translation regulator activity and role in RNA metabolic process, aerobic respiration, mitochondrial respiratory chain complex IV biogenesis, positive regulation of mitochondrial translational initiation
orf19.30	SPF1	-1	1	P-type calcium-transporting ATPase, involved in control of calcium homeostasis, response to ER stress, hyphal growth, biofilm formation and virulence
orf19.728	TSC11	-1	-1,02	Protein similar to <i>S. cerevisiae</i> Tsc11p which is involved in sphingolipid biosynthesis; transposon mutation affects filamentous growth
orf19.6277		-1	-1,03	Has domain(s) with predicted phosphatidylinositol binding activity and role in cell communication
orf19.6281		-1	-1,02	#NV
orf19.4167		-1	-1,02	Protein of unknown function; Spider biofilm induced
orf19.2907	PGA42	-1	-1,02	Putative GPI-anchored adhesin-like protein; decreased transcription is observed in azole-resistant strains that overexpress CDR1 and CDR2 or MDR1
orf19.2892		-1	-1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_45910, <i>C. parapsilosis</i> CDC317 : CPAR2_501110, <i>Candida tenuis</i> NRRL Y-1498 : CANTEEDRAFT_119393 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E08976g
orf19.5820	UGA6	-1	-1,01	Putative GABA-specific permease; decreased transcription is observed upon benomyl treatment or in an azole-resistant strain that overexpresses MDR1
orf19.2001		-1	1,03	Has domain(s) with predicted L-ascorbic acid binding, iron ion binding, oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen and oxidoreductase activity, more
orf19.1571	ATO7	-1	1,01	Putative fungal-specific transmembrane protein
orf19.6639		-1	-1,04	Ortholog of <i>S. cerevisiae</i> Mdm36; mitochondrial distribution and morphology protein; Hap43-repressed gene
orf19.5812		-1	1,03	Ortholog of <i>S. cerevisiae</i> Ett1, a nuclear protein that inhibits replication of Bromo mosaic virus; early-stage flow model biofilm induced
orf19.516		-1	-1,08	<i>S. cerevisiae</i> ortholog Rft1p has role in glycolipid translocation, protein N-linked glycosylation and localizes to endoplasmic reticulum membrane, regulated by Sef1p-, Sfu1p-, and Hap43p
		-1	1,01	#NV
orf19.1451	SRB9	-1	-1,02	Subunit of the RNA polymerase II mediator complex; transposon mutation affects filamentous growth; suppresses <i>S. cerevisiae</i> diploid filamentous (flo8, ste7, ste12, tect1) or haploid invasive (flo8) mutant growth defects
orf19.881	DFG16	-1	1,08	Rim101 pathway protein that acts in Rim101 processing; regulates filamentation in response to alkaline pH; required for host tissue invasion during infection; flow model biofilm induced
orf19.874		-1	-1	Predicted mitochondrial F ₁ -AAA protease supercomplex; degrades misfolded mitochondrial proteins; Hap43-repressed gene
orf19.3996		-1	1,08	Putative mannosyltransferase; similar to <i>S. cerevisiae</i> Gpi10p; has HKEXRF motif
orf19.4024	RIB5	-1	-1,11	Putative riboflavin synthase; fungal-specific (no human or murine homolog); farnesol-downregulated; protein present in exponential and stationary growth phase yeast cultures
orf19.2067		-1	-1,1	Protein with a predicted role in mitochondrial iron metabolism; Hap43-repressed; expression upregulated during growth in the mouse cecum; Spider biofilm induced
orf19.3817		-1	-1,06	Ortholog(s) have cytoplasm, nucleolus localization
orf19.6574	ALK6	-1	-1,01	Putative cytochrome P-450 of N-alkane-induced detoxification; macrophage-induced gene
orf19.6586		-1	1	Protein of unknown function; transcript induced by benomyl or in azole-resistant strain overexpressing MDR1; Ssn6 colony morphology-related regulation; induced by NO; Hap43-repressed; rat catheter and flow model biofilm induced
orf19.6508		-1	-1,03	Ortholog(s) have protein transporter activity, role in Golgi to plasma membrane transport, intracellular protein transport and vesicle coat localization
orf19.5237	VPH2	-1	-1,02	Ortholog(s) have role in vacuolar acidification, vacuolar proton-transporting V-type ATPase complex assembly and endoplasmic reticulum membrane localization
orf19.6405		-1	-1,01	Protein of unknown function; decreased transcription is observed in an azole-resistant strain that overexpresses MDR1
orf19.4601		-1	-1,04	Putative RNA polymerase III transcription initiation factor complex (TFIIIC) subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.5029	MODF	-1	-1,01	Ortholog(s) have mitochondrion localization
orf19.5013	AGM1	-1	1	Phosphoacetylglucosamine mutase (N-acetylglucosamine-phosphate mutase); enzyme of UDP-N-acetylglucosamine (UDP-GlcNAc) biosynthesis
orf19.4998	ROB1	-1	-1,01	Zn(II)Cys6 transcription factor; required for Spider model biofilm formation; mutant displays abnormal colony morphology and invasive growth; caspofungin repressed; flow model biofilm induced; rat catheter biofilm repressed
orf19.7148	TPO2	-1	1,03	Putative polyamine transport protein; fungal-specific (no human or murine homolog)
orf19.7343		-1	-1,02	Ortholog(s) have role in mRNA splicing, via spliceosome and U4/U6 x U5 tri-snRNP complex localization
orf19.6811	ISA2	-1	-1,02	Protein required for maturation of mitochondrial [4Fe-4S] proteins; role in biotin biosynthetic process; rat catheter and Spider biofilm induced

orf19.6782	<i>BMT1</i>	-1	1.06	Beta-mannosyltransferase, required for addition of the 1st beta-mannose residue to acid-stable fraction of cell wall phosphopeptidomannan; 9-gene family member; mutants induce higher levels of inflammatory cytokines in mouse dendritic cells
orf19.5961		-1	-1.32	Ortholog(s) have role in proteasome regulatory particle assembly, proteolysis and cytosol, nucleus, proteasome regulatory particle localization
orf19.5924	<i>ZCF31</i>	-1	-1.03	Zn(II)Cys6 transcription factor of unknown function; mutant is sensitive to copper and SDS, and resistant to Calcofluor White; required for yeast cell adherence to silicone substrate
orf19.5896		-1	-1.01	Protein of unknown function; induced by alpha pheromone in SpiderM medium
		-1	1.02	#NV
		-1	-1.03	#NV
		-1	1.01	#NV
		-1	-1.03	#NV
		-1	-1.04	#NV
orf19.2168		-1.01	-1.01	Putative sterol deacetylase; flow model biofilm induced; rat catheter biofilm repressed
orf19.1273		-1.01	-1.02	Ortholog(s) have tubulin binding activity, role in tubulin complex assembly and prefoldin complex localization
orf19.1140		-1.01	1.05	Protein of unknown function; Spider biofilm repressed
orf19.2712	<i>HCA4</i>	-1.01	-1.02	Putative role in regulation of cell wall biogenesis; Hap43p-induced gene; possibly an essential gene, disruptants not obtained by UAU1 method; flow model and rat catheter biofilm induced
orf19.4219	<i>RIX7</i>	-1.01	-1.01	Putative ATPase of the AAA family; role in ribosomal subunit export from the nucleus; mutation impairs hyphal growth and biofilm formation
orf19.1490	<i>MSB2</i>	-1.01	1.02	Mucin family adhesin-like protein; cell wall damage sensor; required for Cek1 phosphorylation by cell wall stress; Rim101-repressed; activation releases extracellular domain into medium; Spider biofilm induced
orf19.1163		-1.01	-1.04	Has domain(s) with predicted GTP binding activity
orf19.2607		-1.01	1.04	Protein of unknown function; Spider biofilm induced
orf19.4875		-1.01	1.02	Ortholog(s) have role in mRNA splicing, via spliceosome and U2-type spliceosomal complex localization
orf19.6469		-1.01	-1	Predicted ORF in retrotransposon Tca11 with similarity to the Gag-Pol region of retrotransposons, which encodes nucleocapsid-like protein, reverse transcriptase, protease, and integrase
orf19.1381		-1.01	-1.07	Ortholog of <i>S. cerevisiae</i> /S. pombe Lsb5; predicted role in actin cortical patch localization, actin filament organization, endocytosis; flow model biofilm induced; Spider biofilm repressed
orf19.4414		-1.01	1.05	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_45590, <i>C. parapsilosis</i> CDC317 : CPAR2_501450, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_105024 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D12364g
orf19.1282	<i>CKS1</i>	-1.01	-1.03	Ortholog(s) have histone binding, protein complex binding, protein homodimerization activity, protein kinase activator activity, ubiquitin binding activity
orf19.3180		-1.01	1	Ortholog(s) have phosphatidylinositol-4,5-bisphosphate 5-phosphatase activity, role in phosphatidylinositol dephosphorylation and endoplasmic reticulum localization
orf19.1185		-1.01	1.08	Ortholog(s) have protein homodimerization activity, ubiquitin-protein ligase activity
orf19.3545		-1.01	-1.01	Ortholog(s) have protein serine/threonine kinase activity, role in meiotic anaphase II, protein phosphorylation, septation initiation signaling cascade and cellular bud neck, cytoplasm, new mitotic spindle pole body, nucleus localization
orf19.2742		-1.01	-1.06	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_400095, <i>C. dubliniensis</i> CD36 : Cd36_42560, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113280 and <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_04166
orf19.2106		-1.01	-1.01	Putative protein of unknown function; Hap43p-repressed gene
orf19.2369		-1.01	-1.01	Ortholog(s) have ATP binding, DNA replication origin binding activity
orf19.5854	<i>SBP1</i>	-1.01	1.15	Similar to RNA binding proteins; downregulated upon adherence to polystyrene; stationary-phase enriched protein
orf19.6232	<i>NPR1</i>	-1.01	1.13	Predicted serine/threonine protein kinase, involved in regulation of ammonium transport; induced in core stress response; Hap43p-repressed gene
orf19.4284	<i>BUR2</i>	-1.01	-1.01	Protein with similarity to <i>S. cerevisiae</i> Bur2p, contains a cyclin domain; not required for wild-type hyphal growth, adherence to buccal epithelial cells, or virulence in mouse systemic infection
orf19.4143	<i>FYV5</i>	-1.01	1.11	Protein with a predicted role maturation of 18S rRNA; rat catheter biofilm induced
orf19.2303	<i>FGR16</i>	-1.01	1.13	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; fluconazole-downregulated
orf19.6139	<i>FRE7</i>	-1.01	-1.02	Copper-regulated cupric reductase; repressed by ciclopirox olamine or 17-beta-estradiol; induced by alkaline conditions or interaction with macrophage; Spider biofilm induced
orf19.6138		-1.01	1.04	Protein similar to ferric reductase Fre10p; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2982		-1.01	1.01	Ortholog(s) have protein complex scaffold, protein kinase activator activity
orf19.1663	<i>MNT2</i>	-1.01	-1	Alpha-1,2-mannosyl transferase; adds 3rd mannose in cell-wall mannoprotein biosynthesis; partially redundant with Mnt1; role in adherence and virulence; expressed in yeast and hyphae; fungal-specific; Hap43-induced; Spider biofilm induced
orf19.5138	<i>IFA21</i>	-1.01	1.01	IPF family A protein; mutants are viable; Spider biofilm induced
orf19.6271		-1.01	-1.03	Ortholog(s) have role in mRNA splicing, via spliceosome and nucleus, transcriptionally active chromatin localization
orf19.4168		-1.01	-1.03	Ortholog(s) have ribonuclease MRP activity, ribonuclease P activity, role in intronic box C/D snoRNA processing, mRNA cleavage and nucleolar ribonuclease P complex, ribonuclease MRP complex localization
orf19.4176		-1.01	1.04	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.2906	<i>PGA41</i>	-1.01	1.01	Putative GPI-anchored protein; adhesin-like protein
orf19.5837		-1.01	1.02	Ortholog(s) have 4-amino-4-deoxychorismate lyase activity, role in folic acid biosynthetic process and cytoplasm localization
orf19.2487		-1.01	1.02	Protein with a predicted phosphonobulokinase/uridine kinase domain; Spider biofilm induced
orf19.2500		-1.01	-1.07	Has domain(s) with predicted transferase activity and role in biosynthetic process
orf19.5768	<i>SNF4</i>	-1.01	-1	Transcription factor; ortholog of <i>S. cerevisiae</i> Snf4; caspofungin repressed; transposon mutation affects filamentation
orf19.6114		-1.01	-1.44	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.6082		-1.01	-1.07	Ortholog(s) have unfolded protein binding activity, role in protein folding, protein localization to cell surface and integral to endoplasmic reticulum membrane, mitochondrial outer membrane localization
orf19.3674	<i>GAL102</i>	-1.01	-1.04	UDP-glucose 4,6-dehydratase; role in mannosylation of cell wall proteins; mutation confers hypersensitivity to toxic ergosterol analog; overlaps orf19.3673; Spider biofilm induced
orf19.445		-1.01	-1.03	Protein of unknown function; repressed by prostaglandins
orf19.155	<i>URE2</i>	-1.01	1.06	Functional homolog of <i>S. cerevisiae</i> Ure2p, which is a regulator of nitrogen utilization, and which also has an infectious prion form called [URE3]; forms [URE3] prion when expressed in <i>S. cerevisiae</i>
orf19.5792	<i>SMP3</i>	-1.01	-1.03	Mannosyltransferase of glycosylphosphatidylinositol (GPI) biosynthesis; catalyzes mannosylation of Man3-GPI precursor; essential for viability; 8-9 transmembrane regions predicted; has HQEXRF motif; functional homolog of <i>S. cerevisiae</i> Smp3p
orf19.7410	<i>CYM1</i>	-1.01	1	Putative metalloprotease of the mitochondrial intermembrane space; rat catheter biofilm induced
orf19.6680	<i>FGR27</i>	-1.01	1.11	Zn(II)Cys6 transcription factor; transposon mutation affects filamentous growth; required for yeast cell adherence to silicone substrate; Spider biofilm induced
orf19.1891	36982	-1.01	-1.2	Vacuolar aspartic proteinase; transcript equivalent in yeast-form and mycelial cells but is elevated at lower growth temperatures; upregulated by human neutrophils; protein enriched in stationary phase; Spider biofilm induced
orf19.490	<i>NAT5</i>	-1.01	-1.06	Subunit of the N-terminal acetyltransferase NatA; Spider biofilm repressed
orf19.477		-1.01	-1.05	Ortholog(s) have role in mitochondrial translation and mitochondrion localization
orf19.1456		-1.01	1.01	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03922
orf19.4450	<i>ZCF23</i>	-1.01	-1.08	Predicted Zn(II)Cys6 transcription factor; ortholog of <i>S. cerevisiae</i> Gsm1; flow model biofilm induced
orf19.4017		-1.01	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_54840, <i>C. parapsilosis</i> CDC317 : CPAR2_100270, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00242 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D14058g
orf19.4021		-1.01	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_54870, <i>C. parapsilosis</i> CDC317 : CPAR2_100250, <i>Debaromyces hansenii</i> CBS767 : DEHA2D13992g and <i>Pichia stipitis</i> Pigna1 : PICST_40400
orf19.2066		-1.01	-1.04	Ortholog(s) have cytoplasm localization
orf19.3809	<i>BAS1</i>	-1.01	-1.04	Putative Myb-like transcription factor; ortholog <i>S. cerevisiae</i> Bas1, a regulator of purine biosynthetic genes; mutant exhibits adenine auxotrophy and abnormal colony morphology
orf19.3818	<i>GOA1</i>	-1.01	-1.01	Protein required for respiratory growth, resistance to oxidants, chlamydospore formation, hyphal growth under some conditions, and virulence; relocates from the cytoplasm to the mitochondrion during oxidative or osmotic stress
orf19.6577	<i>FLU1</i>	-1.01	-1.02	Multidrug efflux pump of the plasma membrane; MDR family member of the MFS (major facilitator superfamily) of transporters; involved in histatin 5 efflux; fungal-specific (no human/murine homolog)
orf19.6585		-1.01	-1.05	Ortholog(s) have mitochondrion localization
orf19.3055	<i>MED17</i>	-1.01	1	Putative RNA polymerase II mediator complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4580		-1.01	-1.03	Protein of unknown function; Hap43-repressed gene
orf19.7255	<i>RPC10</i>	-1.01	1.07	Putative RNA polymerase subunit ABC10-alpha of RNA polymerase complexes I, II, and III; flucytosine induced; Spider biofilm induced
orf19.7264		-1.01	-1.02	Metalloprotease subunit of the 19S regulatory particle of the 26S proteasome lid; couples the deubiquitination and degradation of proteasome substrates; role in fission of mitochondria and peroxisome; Spider biofilm repressed
orf19.938		-1.01	-1.02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_50520, <i>C. parapsilosis</i> CDC317 : CPAR2_304000, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00233 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E12408g
orf19.7101		-1.01	-1.06	Ortholog(s) have telomeric DNA binding activity, role in protein localization to chromosome, telomere maintenance via telomerase and ASTRA complex, nuclear telomere cap complex localization

orf19.7067		-1,01	1,05	Ortholog(s) have RNA polymerase II core binding, RNA polymerase II transcription factor binding transcription factor activity, triplex DNA binding activity
orf19.7059		-1,01	-1,01	Ortholog(s) have endoribonuclease activity, role in nuclear mRNA surveillance of mRNP export, transcription, DNA-dependent and cytoplasm, nucleus localization
orf19.1279	<i>CDS1</i>	-1,01	-1,02	Protein similar to <i>S. cerevisiae</i> Cds1p; transposon mutation affects filamentous growth
orf19.6822		-1,01	-1,03	Ortholog(s) have NEDD8 ligase activity, ubiquitin binding activity and role in positive regulation of ubiquitin-protein ligase activity, protein neddylation
orf19.6804		-1,01	1,07	Ortholog(s) have signal sequence binding activity, role in protein targeting to ER and cytosol, nuclear periphery, signal recognition particle, endoplasmic reticulum targeting localization
orf19.7558	<i>YTA6</i>	-1,01	-1,04	Protein similar to <i>S. cerevisiae</i> Yta6p ATPase but ortholog of <i>S. cerevisiae</i> Sap1; transposon mutation affects filamentous growth; induced by Mnl1 under weak acid stress
orf19.7570	<i>UGA3</i>	-1,01	1,16	Zn(II)Cys6 transcription factor; required for utilization of gamma-aminobutyrate (GABA) as a nitrogen source; mutants display decreased CFU in mouse kidneys; Spider biofilm induced
orf19.7597	<i>PGA12</i>	-1,01	-1,01	Putative GPI-anchored protein
orf19.7624		-1,01	1,02	Ortholog(s) have role in rRNA processing and 90S preribosome, nucleolus localization
orf19.5984		-1,01	-1,02	Putative protein of unknown function; homozygous transposon insertion causes decreased colony wrinkling under filamentous growth-inducing conditions, but does not block true hyphal formation in liquid media
orf19.5902	<i>RAS2</i>	-1,01	-1,04	Protein similar to <i>S. cerevisiae</i> Ras2; has opposite effects to Ras1; Tn mutation affects filamentous growth; rat catheter and Spider biofilm induced
		-1,01	-1,04	#NV
		-1,01	1,02	#NV
		-1,01	1,02	#NV
		-1,01	1,01	#NV
		-1,01	1,01	#NV
		-1,01	-1,05	#NV
		-1,01	1	#NV
		-1,01	-1,03	#NV
		-1,01	-1,06	#NV
		-1,01	1	#NV
		-1,01	-1	#NV
orf19.2244		-1,02	-1,04	Similar to oxidoreductases and to <i>S. cerevisiae</i> Yjr096wp; Sfu1 repressed; induced by benomyl treatment, Ssr1; Hap43-repressed; flow model biofilm repressed
orf19.1930	<i>CFL5</i>	-1,02	1,02	Ferric reductase; induced in low iron; ciclopirox olamine, flucytosine induced; amphotericin B, Sfu1 repressed; Tbf1, Hap43 induced
orf19.5572		-1,02	1,01	Protein of unknown function; Spider biofilm repressed
orf19.3532	<i>MRPL10</i>	-1,02	1,05	Putative mitochondrial large subunit ribosomal protein; colony morphology-related gene regulation by Ssn6
orf19.3359	<i>ARP8</i>	-1,02	-1,01	Putative chromatin-remodeling enzyme complex protein; mutation confers hypersensitivity to toxic ergosterol analog, and to amphotericin B; rat catheter biofilm induced
orf19.6246		-1,02	1,03	Ortholog(s) have peptide alpha-N-acetyltransferase activity, role in N-terminal peptidyl-methionine acetylation, cytoskeleton organization, mitochondrion inheritance and Nat5 complex, cytosol, nucleus localization
orf19.2542		-1,02	-1,03	Ortholog(s) have nucleus localization
orf19.4819		-1,02	1,02	Protein of unknown function; transcript detected on high-resolution tiling arrays; rat catheter biofilm induced
orf19.2160	<i>NAG4</i>	-1,02	-1	Putative transporter, fungal-specific; similar to Nag3p and to <i>S. cerevisiae</i> Ypr156Cp and Ygr138Cp; required for wild-type mouse virulence and wild-type cycloheximide resistance; gene cluster encodes enzymes of GlcNAc catabolism
orf19.3777	<i>IMG2</i>	-1,02	1,02	Mitochondrial ribosomal protein of the large subunit; rat catheter biofilm induced
orf19.3789	<i>RPL24A</i>	-1,02	-1,12	Predicted ribosomal protein; downregulated upon phagocytosis by murine macrophage; intron in 5'-UTR; Hap43-induced; Spider biofilm repressed
orf19.3789	<i>RPL24A</i>	-1,02	-1,06	Predicted ribosomal protein; downregulated upon phagocytosis by murine macrophage; intron in 5'-UTR; Hap43-induced; Spider biofilm repressed
orf19.763		-1,02	-1,07	Small subunit of the heterodimeric cap binding complex; component of the spliceosomal commitment complex; Spider biofilm repressed
orf19.3402	<i>FPG1</i>	-1,02	-1,27	Formamidopyrimidine DNA glycosylase, involved in repair of gamma-irradiated DNA; Hap43p-repressed gene
orf19.2199	<i>PHO86</i>	-1,02	-1,14	Putative endoplasmic reticulum protein; possibly adherence-induced
orf19.2829		-1,02	-1,04	Ortholog(s) have role in protein transport and endoplasmic reticulum, nuclear envelope localization
orf19.4373		-1,02	-1,12	Protein similar to <i>S. cerevisiae</i> Fmn1p, which is riboflavin kinase; predicted Kex2p substrate; Hap43p-repressed gene
orf19.4305		-1,02	-1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52590, <i>C. parapsilosis</i> CDC317 : CPAR2_100565, <i>Debaryomyces hanseni</i> CBS767 : DEHA2G06908q and <i>Candida quilliermondii</i> ATCC 6260 : PGUG_02858
orf19.5496	<i>AVT1</i>	-1,02	1,01	Putative vacuolar transporter; promoter bound by a1p and alpha2p by ChIP-chip analysis
orf19.4652		-1,02	1	Protein of unknown function; rat catheter biofilm induced
orf19.2367		-1,02	1,02	Putative protein of unknown function; Hap43-induced; repressed by Rim101; Spider biofilm induced
orf19.3478	<i>NIP7</i>	-1,02	1,39	Putative nucleolar protein with role in ribosomal assembly; hyphal-induced; Hap43-induced; Spider biofilm induced
orf19.6239		-1,02	-1,04	Putative serine/threonine protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.4811		-1,02	-1,03	Putative tricarboxylate carrier family protein; localized to the mitochondrial membrane
orf19.6539		-1,02	1,01	Putative transcription modulator; RuvB-like protein family member; heterozygous null mutant displays sensitivity to virgineone
orf19.2127	<i>CST5</i>	-1,02	-1,06	Scaffold protein for the mitogen-activated protein (MAP) kinase cascade that regulates mating; required for opaque mating or white biofilm formation in response to mating pheromone; induced in response to pheromone; Hap43p-repressed
orf19.2320		-1,02	-1,12	Putative serine/threonine-protein kinase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3976		-1,02	1,01	Ortholog(s) have structural constituent of cytoskeleton activity, role in establishment of mitotic spindle orientation, nuclear migration and astral microtubule, cell cortex, dynactin complex, spindle pole body localization
orf19.597		-1,02	-1,09	Protein with an aspartate aminotransferase domain; Gcn4p-regulated
orf19.586	<i>ERV46</i>	-1,02	-1	Putative ER-derived vesicle protein; COPII-coated vesicle complex subunit; transcript induced by filamentous growth; Spider biofilm repressed
orf19.731	<i>EMP46</i>	-1,02	-1,02	Protein similar to <i>S. cerevisiae</i> Emp46, an integral membrane component of ER-derived COPII-coated vesicles; functions in ER to Golgi transport; induced by alpha pheromone in SpiderM medium
orf19.6275		-1,02	1,02	Ortholog(s) have cytosol localization
orf19.4170	<i>CSP2</i>	-1,02	-1,03	Putative cell wall associated protein; <i>C. albicans</i> and <i>C. dubliniensis</i> specific gene highly induced during chlamydospore development in both species; localized to chlamydospore cell wall; Hap43-repressed; Spider biofilm induced
orf19.5821		-1,02	-1,02	Ortholog of <i>S. cerevisiae</i> : YML002W, <i>C. glabrata</i> CBS138 : CAGL0L07634g, <i>C. dubliniensis</i> CD36 : Cd36_17530, <i>C. parapsilosis</i> CDC317 : CPAR2_212430 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_128807
orf19.2476		-1,02	1,01	Ortholog(s) have histone demethylase activity (H3-trimethyl-K4 specific) activity
orf19.1548		-1,02	-1,08	Ortholog(s) have role in mRNA splicing, via spliceosome and U4/U6 x U5 tri-snRNP complex localization
orf19.431	<i>ZCF2</i>	-1,02	1	Zn(II)Cys6 transcription factor; regulates sulfite tolerance through expression of SSU1 and CDG1; Hap43-repressed; Spider biofilm induced
orf19.673		-1,02	1,17	Has domain(s) with predicted FMN binding, catalytic activity, oxidoreductase activity and role in oxidation-reduction process
orf19.4085		-1,02	1,12	Protein of unknown function; transcript detected on high-resolution tiling arrays
orf19.6833.2		-1,02	-1,04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00951
		-1,02	-1,03	#NV
orf19.1459	<i>PPE1</i>	-1,02	-1,04	Protein similar to <i>S. cerevisiae</i> Ppe1p; shows genetic interaction with some genes involved in diploid filamentous growth and haploid invasive growth in <i>S. cerevisiae</i>
orf19.6911		-1,02	-1,01	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_05482
orf19.4443	<i>YPD1</i>	-1,02	-1,11	Phosphohistidine intermediate protein in a phosphorelay signal transduction pathway; residue His69 is the phosphoacceptor histidine; predicted to be soluble and cytosolic; functional homolog of <i>S. cerevisiae</i> Ypd1p
orf19.2092		-1,02	1,29	Putative peroxisomal cystathionine beta-lyase; Gcn4p-regulated
orf19.3844	<i>MRP8</i>	-1,02	1,03	Mitochondrial ribosomal protein; ortholog of <i>S. cerevisiae</i> Mrp8; transcript induced in hyphal form; mutant is viable; flow model and rat catheter biofilm repressed
orf19.6583		-1,02	1,02	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.6045		-1,02	-1,34	Putative phosphatidylserine decarboxylase; involved in phosphatidylethanolamine; Spider biofilm repressed
orf19.5243	<i>TRP3</i>	-1,02	1,02	Putative bifunctional enzyme with predicted indole-3-glycerol-phosphate synthase and anthranilate synthase activities; regulated by Gcn2p and Gcn4p
orf19.6403		-1,02	1,03	Ortholog(s) have adenylyl-nucleotide exchange factor activity, role in SRP-dependent cotranslational protein targeting to membrane, translocation and endoplasmic reticulum localization
orf19.6398		-1,02	-1,05	<i>S. pombe</i> ortholog SPBC460.04c is a predicted sulfonate/alpha-ketoglutarate dioxygenase; induced by nitric oxide; Spider biofilm induced
orf19.6392		-1,02	1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33870, <i>C. parapsilosis</i> CDC317 : CPAR2_204450, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113827 and <i>Debaryomyces hanseni</i> CBS767 : DEHA2E04158q
orf19.4587	<i>HGH1</i>	-1,02	-1,06	Putative HMG1/2-related protein; transcript regulated by Mln1
orf19.4603	<i>ARL1</i>	-1,02	-1,01	Putative GTPase; mutation confers dose-dependent sensitivity to Brefeldin A
orf19.5035	<i>HPC2</i>	-1,02	1,01	Ortholog(s) have DNA binding, nucleosome binding activity

orf19.5009		-1.02	1	Ortholog(s) have cytoplasm localization
orf19.933		-1.02	-1.04	Ortholog(s) have protein homodimerization activity, ubiquitin-protein ligase activity and role in UV-damage excision repair, free ubiquitin chain polymerization, postreplication repair, protein K63-linked ubiquitination
orf19.944	<i>IFG3</i>	-1.02	-1.02	Putative D-amino acid oxidase; Spider biofilm induced
orf19.3267		-1.02	-1.03	Ortholog(s) have palmitoyltransferase activity and role in ascospore wall assembly, cortical actin cytoskeleton organization, establishment of cell polarity, protein palmitoylation, regulation of exocytosis, vacuole fusion, non-autophagic
orf19.5304		-1.02	-1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43800 and <i>Candida albicans</i> WO-1 : CAWG_03395
orf19.7290		-1.02	-1.09	Ortholog(s) have RNA cap binding activity, role in deadenylation-dependent decapping of nuclear-transcribed mRNA and cytoplasmic mRNA processing body, cytosol, mRNA cap binding complex, nucleus localization
orf19.7321		-1.02	-1.02	Ortholog(s) have role in re-entry into mitotic cell cycle after pheromone arrest and endoplasmic reticulum localization
orf19.7328		-1.02	-1.07	Protein with a Staphylococcal nuclease domain; transcript regulated by Mig1 and Tup1; flow model and Spider biofilm repressed
orf19.7339	<i>BGL22</i>	-1.02	-1.04	Putative glucanase; induced during cell wall regeneration
orf19.5393		-1.02	-1.06	Putative cysteine sulfinate decarboxylase; transcript positively regulated by Tbf1; Spider biofilm induced
orf19.2124		-1.02	1.03	Predicted alcohol dehydrogenase; Spider biofilm induced
orf19.5400		-1.02	-1.05	#NV
orf19.7491	<i>RTT109</i>	-1.02	-1.07	Histone acetyltransferase, mutants are sensitive to DNA damage, show decreased virulence in mice, decreased white-to-opaque switching and increased susceptibility to killing by macrophages
orf19.7503	<i>CDA2</i>	-1.02	-1.08	Putative chitin deacetylase; transcription is positively regulated by Tbf1p
orf19.7516		-1.02	-1.11	Putative glycoside hydrolase; Hap43-induced gene
orf19.7663		-1.02	1.1	Ortholog(s) have role in homologous chromosome segregation, protein localization to nucleolar rDNA repeats, rDNA condensation and monopolin complex, nuclear envelope, nucleolus localization
orf19.5982	<i>RPL18</i>	-1.02	-1.04	Predicted ribosomal protein; Plc1p-regulated, Tbf1-activated; repressed upon phagocytosis by murine macrophage; Hap43p-induced; Spider biofilm repressed
orf19.5952		-1.02	-1.02	Protein of unknown function; induced by nitric oxide independent of Yhb1; Sef1, Sfu1, and Hap43-induced; rat catheter and Spider biofilm induced
orf19.5929		-1.02	1	Putative protein of unknown function, transcription is positively regulated by Tbf1p
orf19.5921		-1.02	-1.06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_84580, <i>C. parapsilosis</i> CDC317 : CPAR2_404290, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115338 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G13596g
orf19.6245		-1.02	-1.03	Protein of unknown function; regulated by osmotic stress via Hog1 and oxidative stress (Hog1- and Cap1-independent); induced by alpha pheromone in SpiderM medium; Spider biofilm induced
		-1.02	-1.04	#NV
		-1.02	-1.02	#NV
		-1.02	-1.02	#NV
		-1.02	-1.04	#NV
		-1.02	1.01	#NV
		-1.02	1.02	#NV
		-1.02	-1.04	#NV
		-1.02	-1.02	#NV
		-1.02	-1.03	#NV
		-1.02	1.01	#NV
orf19.1989	<i>DCW1</i>	-1.03	-1.07	Protein with predicted GPI modification; dfg5 dcw1 double mutant is inviable; not required for wild-type hyphal growth; upregulated in <i>cyr1</i> mutant (yeast or hyphal form); Hap43-induced
orf19.6382		-1.03	-1.04	Putative MRP/CFTR-subfamily ABC transporter; member of multidrug resistance-associated protein (MRP) subfamily of ABC family; similar to <i>S. cerevisiae</i> Bpt1p
orf19.3661		-1.03	-1.39	Putative deubiquitinating enzyme; induced by Mnl1 under weak acid stress
orf19.3820		-1.03	1.05	Protein with DNA binding domain, an endonuclease domain; adjacent to CEN4, the centromere region of Chr 4; clade-associated gene expression
orf19.1805	<i>PEX14</i>	-1.03	-1.1	Ortholog(s) have protein binding, bridging activity, role in protein import into peroxisome matrix, docking and peroxisomal membrane localization
orf19.6399	<i>ATS1</i>	-1.03	-1.06	Protein required for modification of wobble nucleosides in tRNA; induced upon adherence to polystyrene; regulated by Sef1, Sfu1, and Hap43
orf19.3291	<i>HMT1</i>	-1.03	-1.08	Major type I protein arginine methyltransferases (PRMT); involved in asymmetric dimethylation of arginine residues; involved in nuclear export of Npl3; Spider biofilm repressed
orf19.227	<i>COX7</i>	-1.03	-1.21	Putative cytochrome c oxidase; flucytosine induced; repressed by nitric oxide
orf19.2547		-1.03	-1.07	Has domain(s) with predicted RNA binding, ribonuclease activity
orf19.1109		-1.03	-1.06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_53580, <i>C. parapsilosis</i> CDC317 : CPAR2_303030, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G07766g and <i>Pichia stipitis</i> Pignal : psti_CGOB_00176
orf19.1252	<i>YME1</i>	-1.03	-1.07	Ortholog(s) have ATP-dependent peptidase activity, role in misfolded or incompletely synthesized protein catabolic process, protein folding and i-AAA complex localization
orf19.3797		-1.03	-1.03	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.1704	<i>FOX3</i>	-1.03	-1.15	Putative peroxisomal 3-oxoacyl CoA thiolase; transcript regulated by white-opaque switch; Spider biofilm induced
orf19.3615		-1.03	1.08	Protein of unknown function; induced in core caspofungin response; expression upregulated in an <i>ssr1</i> null mutant; induced by nitric oxide independent of Yhb1p
orf19.5054		-1.03	-1.05	Putative quinolinate phosphoribosyl transferase, involved in NAD biosynthesis; Hap43p-repressed gene
orf19.2560	<i>CDC60</i>	-1.03	-1.04	Cytosolic leucyl tRNA synthetase; conserved amino acid and ATP binding class I signature, tRNA binding, proofreading motifs; likely essential for growth; interacts with benzoxaborole antifungals; present in exponential and stationary phase
orf19.2639		-1.03	1.02	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.3921		-1.03	1.04	Ortholog(s) have cell division site, cell tip, cytosol, nucleus localization
orf19.3533		-1.03	-1.03	Ortholog(s) have role in ascospore formation, mitochondrial respiratory chain complex assembly, positive regulation of transcription from RNA polymerase II promoter
orf19.3396	<i>HCH1</i>	-1.03	-1.03	Ortholog of <i>S. cerevisiae</i> Hch1, a regulator of heat shock protein Hsp90; regulated by Gcn4; induced in response to amino acid starvation (3-aminotriazole treatment); mutants are viable
orf19.4728		-1.03	1.01	Ortholog(s) have role in histone deacetylation, negative regulation of meiosis and Set3 complex localization
orf19.5519	<i>GCV1</i>	-1.03	-1.04	Putative T subunit of glycine decarboxylase; transcript negatively regulated by Sfu1; Spider biofilm repressed
orf19.5530	<i>NAB3</i>	-1.03	-1	Putative nuclear polyadenylated RNA-binding protein; flucytosine repressed
orf19.2812		-1.03	1.02	Protein of unknown function; Spider biofilm induced
orf19.2731		-1.03	1.07	Ortholog of <i>Debaryomyces hansenii</i> CBS767 : DEHA2E16016g, <i>Pichia stipitis</i> Pignal : PICST_38487, <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_58603 and <i>Candida tropicalis</i> MYA-3404 : CTRG_00248
orf19.1325	<i>ECM38</i>	-1.03	-1.15	Putative gamma-glutamyltransferase; alkaline upregulated; Spider biofilm induced; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1969	<i>CCW14</i>	-1.03	-1.03	Putative mannoprotein of cell wall with role in response to stress; increased mRNA abundance observed in <i>cyr1</i> homozygous mutant (hyphal or yeast-form cells) and in <i>ras1</i> homozygous mutant (yeast-form cells)
orf19.5610	<i>ARG3</i>	-1.03	-1.05	Putative ornithine carbamoyltransferase; Gcn4-regulated; Hap43-induced; repressed in alkalinizing medium; rat catheter and Spider biofilm induced
orf19.4805		-1.03	1.01	Putative membrane protein; induced by alpha pheromone in SpiderM medium; Hap4-induced gene; Spider biofilm induced
orf19.4682	<i>HGT17</i>	-1.03	-1.04	Putative MFS family glucose transporter; 20 members in <i>C. albicans</i> ; 12 probable membrane-spanning segments; induced at low (0.2%, compared to 2%) glucose in rich media; Spider biofilm induced
orf19.3736	<i>KAR4</i>	-1.03	-1.01	Transcription factor; required for gene regulation in response to pheromones; ortholog of <i>S. cerevisiae</i> Kar4; role in karvogamy, opaque-specific, a-specific; induced by alpha factor
orf19.1852		-1.03	-1.07	Ortholog(s) have mitochondrion localization
orf19.2983	<i>CDC73</i>	-1.03	-1.03	Putative transcription elongation factor; cdc73 kap114 double transposon mutation affects filamentous growth; Spider biofilm repressed
orf19.2980		-1.03	-1.04	Ortholog(s) have ATP-dependent RNA helicase activity and role in generation of catalytic spliceosome for first transesterification step, spliceosomal complex disassembly
orf19.1659	<i>ALG8</i>	-1.03	-1.03	Putative glucosyltransferase involved in cell wall mannan biosynthesis; transcription is elevated in <i>nik1</i> and <i>sln1</i> homozygous null mutants, but not in the <i>chk1</i> null mutant; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2257		-1.03	1.03	Predicted ER protein involved in ER-nucleus signaling; Spider biofilm repressed
orf19.730		-1.03	-1.04	Ortholog(s) have Rho GTPase activator activity and role in establishment or maintenance of actin cytoskeleton polarity, small GTPase mediated signal transduction
orf19.2174	<i>RAD57</i>	-1.03	-1.06	Putative DNA recombination and repair protein; induced by interaction with macrophage; transcript is regulated by Nrg1, Mig1, and Tup1; essential protein; <i>S. cerevisiae</i> ortholog is essential
orf19.2897	<i>SOU2</i>	-1.03	-1.05	Protein similar to Sou1; not required for utilization of L-sorbose; Spider biofilm induced
orf19.5833		-1.03	-1.08	Ortholog(s) have polyubiquitin binding activity
orf19.2478		-1.03	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_05410, <i>C. parapsilosis</i> CDC317 : CPAR2_107480, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_94695 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D02288g
orf19.6590	<i>VMA22</i>	-1.03	-1.04	Ortholog(s) have unfolded protein binding activity, role in vacuolar acidification, vacuolar proton-transporting V-type ATPase complex assembly and extrinsic to endoplasmic reticulum membrane localization
orf19.4241		-1.03	-1.05	Protein of unknown function; transcript detected on high-resolution tiling arrays

orf19.2951	<i>HOM6</i>	-1.03	-1.09	Putative homoserine dehydrogenase; Gcn4-regulated; induced by amino acid starvation (3-AT treatment); macrophage-induced protein; protein level decreases in stationary phase cultures; flow model biofilm repressed
orf19.3108		-1.03	1.05	Putative DNA repair methyltransferase; induced by nitric oxide independent of Yhb1; Spider biofilm induced
orf19.6860		-1.03	1.03	Ortholog(s) have CDP-diacylglycerol-inositol 3-phosphatidyltransferase activity, role in phosphatidylinositol biosynthetic process and Golgi apparatus, integral to membrane, mitochondrial outer membrane localization
orf19.895	<i>HOG1</i>	-1.03	-1.04	MAP kinase of osmotic, heavy metal-, and core stress response; role in regulation of glycerol, D-arabitol in response to stress; phosphorylated in response to H2O2 (Ssk1-dependent) or NaCl; mutant induces protective mouse immune response
orf19.4849		-1.03	-1.01	Protein required for localizing proteasomes to the nucleus; involved in ubiquitin-mediated protein degradation; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm induced
orf19.4003	<i>TIP20</i>	-1.03	-1.02	Protein interacting with Sec20p, possibly involved in retrograde transport between the Golgi and the endoplasmic reticulum; similar to <i>S. cerevisiae</i> Tip20p
orf19.2682		-1.03	-1.08	Ortholog(s) have TBP-class protein binding, TBP-class protein binding RNA polymerase II transcription factor activity involved in preinitiation complex assembly activity
orf19.2068		-1.03	-1.03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_15550, <i>C. parapsilosis</i> CDC317 : CPAR2_213190, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_119026 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2Q08514g
orf19.2054	<i>FGR15</i>	-1.03	-1.11	Putative transcription factor with zinc finger DNA-binding motif; lacks an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth; caspofungin induced; mutation causes marginal increase in caspofungin sensitivity
orf19.3815		-1.03	-1.01	Has domain(s) with predicted ubiquitin thiolesterase activity and role in ubiquitin-dependent protein catabolic process
orf19.6041	<i>RPO41</i>	-1.03	-1.1	Putative mitochondrial RNA polymerase; repressed in core stress response; Spider biofilm induced
orf19.6404	<i>GSH2</i>	-1.03	-1.04	Putative glutathione synthase; induced in high iron; heavy metal (cadmium) stress-induced
orf19.4600		-1.03	-1.05	Protein of unknown function; possible mitochondrial protein; Spider biofilm induced
orf19.4985	<i>GUP1</i>	-1.03	-1.04	Putative O-acyltransferase with a role in glycerol uptake; functionally complements growth of <i>S. cerevisiae</i> <i>gup1</i> mutant under salt stress; required for normal ergosterol distribution, hyphal growth, biofilm formation
orf19.5308		-1.03	-1.1	Protein of unknown function; induced by Rgt1
orf19.5362	<i>PSO2</i>	-1.03	-1.01	Putative DNA cross-link repair protein; expressed in opaque or white MTLa/MTLa or MTLalpha/MTLalpha, but not MTLalpha/MTLalpha cells; telomere-proximal gene; mutation does not affect white-to-opaque phenotypic switching
orf19.7312	<i>ERG13</i>	-1.03	-1.25	3-hydroxy-3-methylglutaryl coenzyme A synthase; ergosterol biosynthesis; sumoylation target; Tn mutation affects filamentation; amphotericin B, caspofungin repressed; exponential, stationary growth phase expressed; Spider biofilm repressed
orf19.7336		-1.03	-1.04	Predicted membrane transporter; member of the drug:proton antiporter (14 spanner) (DHA2) family, major facilitator superfamily (MFS); Spider biofilm induced
orf19.7345		-1.03	-1.06	Ortholog(s) have ATP binding activity and cytosol, nucleus localization
orf19.7102		-1.03	1.04	Has domain(s) with predicted exonuclease activity, nucleic acid binding activity and intracellular localization
orf19.7072	<i>PEL1</i>	-1.03	-1.05	Predicted enzyme of mitochondrial phospholipid biosynthesis; rat catheter and flow model biofilm induced
orf19.6773	<i>ECM29</i>	-1.03	-1.06	Putative scaffold protein; assists in association of the proteasome core particle with the regulatory particle; ortholog of <i>S. cerevisiae</i> <i>Ecm29</i> ; transposon mutation affects filamentous growth; flow model biofilm repressed
orf19.6769		-1.03	-1.06	Ortholog(s) have cytoplasm localization
orf19.7655	<i>RPO21</i>	-1.03	-1.28	RNA polymerase II; ortholog of <i>S. cerevisiae</i> <i>Rpo21</i> , transposon mutation affects filamentous growth; flow model biofilm repressed
orf19.5933		-1.03	-1.06	Protein of unknown function; transcript induced by benomyl treatment
orf19.5894		-1.03	-1.03	Ortholog of <i>S. cerevisiae</i> : YEL023C, <i>C. glabrata</i> CBS138 : CAGL003168g, <i>C. dubliniensis</i> CD36 : Cd36_84380, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_101635 and <i>Pichia stipitis</i> Pignol : PICST_19384
		-1.03	-1.06	#NV
		-1.03	-1.06	#NV
		-1.03	-1.04	#NV
		-1.03	-1.01	#NV
orf19.5615	<i>AYR2</i>	-1.04	-1.05	Putative NADPH-dependent 1-acyl dihydroxyacetone phosphate reductase; shows colony morphology-related gene regulation by <i>Ssn6p</i>
orf19.1786		-1.04	-1.02	#NV
orf19.1986	<i>ARO2</i>	-1.04	-1	Putative chorismate synthase; fungal-specific (no human or murine homolog); protein level decreased in stationary phase yeast cultures; GlcNAc-induced protein
orf19.2298	<i>WBP1</i>	-1.04	-1.33	Putative oligosaccharyltransferase subunit; Spider biofilm repressed
orf19.5754		-1.04	-1.04	Putative membrane protein with a predicted role in zinc ion homeostasis; Hap43-induced; fluconazole-induced; rat catheter and Spider biofilm induced
		-1.04	-1.04	#NV
orf19.1217		-1.04	1.02	Ortholog(s) have ribosome binding, ubiquitin-protein ligase activity, role in chromatin modification, chromatin silencing at telomere, protein ubiquitination, ubiquitin-dependent protein catabolic process and nucleus, ribosome localization
orf19.4718	<i>TRP5</i>	-1.04	-1.14	Predicted tryptophan synthase; identified in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation; Gcn4p-regulated; <i>S. cerevisiae</i> ortholog is Gcn4p regulated; upregulated in biofilm;
orf19.2208		-1.04	-1.04	Ortholog(s) have role in response to salt stress and cytoplasm localization
orf19.2378		-1.04	-1.08	Ortholog(s) have role in vacuolar proton-transporting V-type ATPase complex assembly and integral to endoplasmic reticulum membrane localization
orf19.6018	<i>LRO1</i>	-1.04	1.01	Acyltransferase that catalyzes diacylglycerol esterification of phospholipids; role in lipid storage, triglyceride biosynthesis; flow model biofilm repressed
orf19.5813		-1.04	-1.08	Putative adhesin-like protein; upregulated during growth in the mouse cecum; flow model, rat catheter and Spider biofilm induced
orf19.1382	<i>YEA4</i>	-1.04	1	Putative uridine diphosphate-N-acetylglucosamine (UDP-GlcNAc) transporter; required for cell wall chitin synthesis; induced by alpha pheromone in SpiderM medium
orf19.300	<i>AIP2</i>	-1.04	-1.04	Putative actin interacting protein; regulated by Gcn4; induced in response to amino acid starvation (3-AT); repressed by elevated CO2; flow model biofilm repressed
orf19.5513	<i>PRP45</i>	-1.04	-1.04	Protein required for pre-mRNA splicing; Spider biofilm induced
orf19.5527		-1.04	1.04	Protein with a predicted role in 5.8S rRNA processing; flow model biofilm induced
orf19.3177		-1.04	1.04	Ortholog(s) have 2,5-diamino-6-ribitylamino-4(3H)-pyrimidinone 5'-phosphate deaminase activity, pseudouridine synthase activity, role in riboflavin biosynthetic process, tRNA pseudouridine synthesis and cytosol localization
orf19.5640	<i>PEX5</i>	-1.04	-1.12	Pex5p family protein; required for PTS1-mediated peroxosomal protein import, fatty acid beta-oxidation; similar to <i>S. cerevisiae</i> <i>Pas10p</i> peroxosomal targeting receptor; macrophage/pseudohyphal-repressed; Hap43p-repressed
orf19.5693		-1.04	1.01	Subunit of the GPI (glycosylphosphatidylinositol):protein transamidase complex; removes the GPI-anchor signal and attaches GPI to proteins in the ER; Spider biofilm repressed
orf19.2681	<i>RB77</i>	-1.04	1.01	Protein with similarity to RNase T2 enzymes; has putative secretion signal; expression is Tup1-repressed
orf19.6016		-1.04	1	Ortholog(s) have GTPase activity, calcium ion binding activity, role in mitochondrion inheritance, phospholipid homeostasis, regulation of mitochondrion organization andERMES complex, cytosol, nuclear envelope localization
orf19.6132		-1.04	-1.11	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33000, <i>C. parapsilosis</i> CDC317 : CPAR2_701740, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_93887 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E04554g
orf19.4149		-1.04	-1.04	Predicted protein of unknown function; overlaps orf19.4149.1
orf19.4679	<i>AGP2</i>	-1.04	1.15	Amino acid permease; hyphal repressed; white-opaque switch regulated; induced in core caspofungin response, during cell wall regeneration, by flucytosine; regulated by Sef1, Stu1, and Hap43; rat catheter and Spider biofilm induced
orf19.2317		-1.04	1.07	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.3131	<i>OYE32</i>	-1.04	1.15	NAD(P)H oxidoreductase family protein; induced by nitric oxide, amphotericin B, oxidative stress via Cap1; upregulation associated with MDR1 overexpression or benomyl treatment; macrophage-downregulated protein; Spider biofilm induced
orf19.5764	<i>SK8</i>	-1.04	-1.06	Ortholog(s) have role in nuclear-transcribed mRNA catabolic process, 3'-5' exonucleolytic nonsense-mediated decay, nuclear-transcribed mRNA catabolic process, non-stop decay and protein complex assembly, more
orf19.4194		-1.04	-1.01	Putative TFIIF complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.1219		-1.04	-1.06	Ortholog of <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_149713
orf19.6858	<i>EDC3</i>	-1.04	1.01	Ortholog(s) have role in cytoplasmic mRNA processing body assembly, deadenylation-independent decapping of nuclear-transcribed mRNA and cytoplasmic mRNA processing body localization
orf19.482	<i>RPT4</i>	-1.04	-1.05	26S proteasome regulatory subunit; regulated by Gcn2p and Gcn4p; protein level decreases in stationary phase cultures
orf19.4455		-1.04	-1	Protein of unknown function; Spider biofilm induced
orf19.4029		-1.04	1.11	Ortholog(s) have role in ribosomal large subunit assembly and cytosolic ribosome, nucleus localization
orf19.3846	<i>LVS4</i>	-1.04	-1.03	Homoacetylase; regulated by Gcn4, Gcn2; induced in response to amino acid starvation (3-AT); induced by human whole blood or PMNs; Hap43-repressed; flow model and Spider biofilm repressed
orf19.6579		-1.04	-1.01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_71340, <i>C. parapsilosis</i> CDC317 : CPAR2_301350, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114098 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D03432g
orf19.6066		-1.04	-1.13	Hexadecenal dehydrogenase; involved in the conversion of sphingosine 1-phosphate breakdown product hexadecenal to hexadecenoic acid; Spider biofilm induced
orf19.5235		-1.04	-1.07	Putative mitochondrial ribosomal protein of the large subunit; Hap43-induced; mutants are viable; protein level decreases in stationary phase
orf19.7272		-1.04	-1.05	Protein of unknown function; transcript detected on high-resolution tiling arrays

orf19.3251	ARC19	-1,04	-1,06	Putative ARP2/3 complex subunit; Hap43-induced gene; mutation confers hypersensitivity to cytochalasin D; rat catheter biofilm repressed
orf19.5351	TIF11	-1,04	-1,05	Translation initiation factor eIF1a; possibly transcriptionally regulated upon hyphal formation; genes encoding ribosomal subunits, transcription factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.7313	SSU1	-1,04	-1,04	Protein similar to <i>S. cerevisiae</i> Ssu1 sulfite transport protein; Tn mutation affects filamentous growth; regulated by Gcn2 and Gcn4; induced by nitric oxide; Hap43-repressed; Spider and flow model biofilm induced
orf19.7520	POT1	-1,04	-1,14	Putative peroxisomal 3-oxoacyl CoA thiolase; transcript regulated by Nrg1 and Mig1; farnesol regulated; Hap43-repressed
orf19.6779	PRO2	-1,04	-1,05	Putative gamma-glutamyl phosphate reductase with a predicted role in proline biosynthesis; regulated by Gcn2p and Gcn4p
orf19.5986	THI4	-1,04	-1,03	Thiamine biosynthetic enzyme precursor; repressed during the mating process; stationary phase enriched protein; Spider biofilm induced
		-1,04	-1,05	#NV
		-1,04	-1,03	#NV
		-1,04	1,04	#NV
		-1,04	-1,05	#NV
		-1,04	-1,03	#NV
		-1,04	-1,05	#NV
		-1,04	-1,02	#NV
		-1,04	-1,03	#NV
		-1,04	-1,07	#NV
orf19.2868		-1,05	-1,09	Protein of unknown function; induced by alpha pheromone in SpiderM medium
orf19.1164	GAR1	-1,05	-1,08	Putative H/ACA snoRNP pseudouridylyase complex protein; mutation confers hypersensitivity to tubercidin (7-deazaadenosine); macrophage/pseudohyphal-induced; Spider biofilm repressed
orf19.194		-1,05	-1,06	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19300, <i>C. parapsilosis</i> CDC317 : CPAR2_209720, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114035 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E10494g
orf19.3593	RPT6	-1,05	-1,08	Putative ATPase of the 19S regulatory particle of the 26S proteasome; transcript regulated by Mig1; regulated by Gcn2 and Gcn4
orf19.243	OXR1	-1,05	1	Ortholog(s) have role in cellular response to oxidative stress and cytosol, mitochondrion, nucleus localization
orf19.2713		-1,05	-1,03	Ortholog(s) have role in reciprocal meiotic recombination and nucleus localization
orf19.3648		-1,05	-1	Ortholog(s) have crossover junction endonuclease activity, transcription coactivator activity
orf19.2208		-1,05	-1,16	Ortholog(s) have role in response to salt stress and cytoplasm localization
orf19.2606	HDA1	-1,05	-1,06	Histone deacetylase; inducer of filamentation; conserved deacetylation motif; regulates white-to-opaque switch frequency but not opaque-to-white switch; greater expression in white cells than opaque cells; inhibited by trichostatin-A;
orf19.755	MRPL37	-1,05	-1,1	Putative mitochondrial large subunit ribosomal protein; shows colony morphology-related gene regulation by Ssn6p
orf19.2798		-1,05	-1,06	Putative helicase; fungal-specific (no human or murine homolog)
orf19.4413	CMD1	-1,05	1,04	Calmodulin; calmodulin inhibitors cause a defect in hyphal growth; transcript not regulated by yeast-hyphal transition; mutation confers hypersensitivity to cytochalasin D and high concentrations of tunicamycin; gene has intron
orf19.3205		-1,05	-1,13	Mitochondrial ribosomal protein of the large subunit; rat catheter biofilm induced
orf19.3183		-1,05	-1,18	Protein with a role in insertion of tail-anchored proteins into the ER membrane; required for efficient mating, in shmoo formation and nuclear migration in the pre-zygote of <i>S. cerevisiae</i> ; Hap43-repressed
		-1,05	-1,07	#NV
orf19.1573		-1,05	-1,02	Ortholog(s) have endoplasmic reticulum, fungal-type vacuole membrane localization
		-1,05	-1,04	#NV
orf19.5599	MDL2	-1,05	-1,01	Putative mitochondrial, half-size MDR-subfamily ABC transporter
orf19.6336	PGA25	-1,05	-1,05	Putative GPI-anchored adhesin-like protein; fluconazole-downregulated; induced in oralpharyngeal candidiasis; Spider biofilm induced
orf19.316	SEC13	-1,05	-1,03	Putative protein transport factor; antigenic during murine systemic infection; macrophage-downregulated protein; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.203	STB3	-1,05	-1,14	Putative SIN3-binding protein 3 homolog; caspofungin induced; macrophage/pseudohyphal-repressed; rat catheter biofilm induced
orf19.6277		-1,05	-1,04	Has domain(s) with predicted phosphatidylinositol binding activity and role in cell communication
orf19.2890		-1,05	-1,05	Has domain(s) with predicted sugar:hydrogen symporter activity, role in carbohydrate transport and Golgi membrane, integral to membrane localization
orf19.2499		-1,05	-1,08	Putative peptidyl-prolyl cis-trans isomerase
orf19.5762	PGA61	-1,05	-1	Putative GPI-anchored protein
orf19.5759	SNO2	-1,05	-1,02	Protein similar to <i>S. cerevisiae</i> Snp2p transporter; member of PDR subfamily of ABC family; transposon mutation affects filamentation; benomyl-induced transcription; detected at yeast-form cell plasma membrane by mass spec
orf19.6612		-1,05	-1,1	Putative mitochondrial protein; Hap43p-induced gene
orf19.2008		-1,05	-1,1	Ortholog(s) have S-methyl-5-thioribose-1-phosphate isomerase activity, role in L-methionine salvage from methylthioadenosine and cytosol, nucleus localization
orf19.437	GRS1	-1,05	-1,06	Putative tRNA-Gly synthetase; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage; stationary phase enriched protein
orf19.6638	PTC4	-1,05	-1,08	Type PP2C serine/threonine phosphatase; localized to mitochondria; mutation causes sensitivity to sodium, potassium and azole drugs; decreased expression in hyphae compared to yeast-form cells
orf19.676		-1,05	-1,05	Microtubule-binding protein of the cortical microtubule; delays exit from mitosis when the spindle is abnormally oriented; Spider biofilm repressed
orf19.4099	ECM17	-1,05	1,17	Putative sulfite reductase beta subunit; role in cell wall biogenesis; regulated by Tsa1/Tsa1B in H2O2 stress; Gcn4-regulated; Tbf1-activated; Hap43-repressed; Spider, flow, F-12/CO2 model biofilm induced
orf19.3121	GST1	-1,05	1,01	Putative glutathione S-transferase; upregulated in the presence of human neutrophils; expression is regulated upon white-opaque switching; increased transcription is observed upon benomyl treatment
orf19.5164	ECM39	-1,05	1,06	Putative mannosyltransferase similar to <i>S. cerevisiae</i> Ecm39p, which has a role in Calcofluor white resistance; predicted Kex2p substrate; has HKEXRF motif
orf19.487	SPT14	-1,05	-1,04	Putative DNA-binding transcription factor; predicted role in regulation of biogenesis of the cell wall; upregulated in biofilm; protein newly produced during adaptation to the serum
orf19.3811	GYP1	-1,05	-1,01	Putative Cis-golgi GTPase-activating protein; transcript regulated by Nrg1, Mig1, and Tup1
orf19.3836		-1,05	-1,02	Ortholog(s) have cytoplasm localization
orf19.3031	SEC62	-1,05	-1,02	Putative endoplasmic reticulum (ER) protein-translocation complex subunit
orf19.7128	SYS1	-1,05	-1,11	Putative Golgi integral membrane protein; transcript regulated by Mig1
orf19.7219	FTR1	-1,05	-1,07	High-affinity iron permease; required for mouse virulence, low-iron growth; iron, amphotericin B, caspofungin, ciclopirox, Hog1p, Sef1p, Sfu1p, and Hap43p regulated; complements <i>S. cerevisiae</i> ftr1 iron transport; Hap43p-repressed
orf19.7109		-1,05	-1,06	Ortholog(s) have role in meiosis and cytosol, nucleus localization
orf19.7105	FAR1	-1,05	-1,04	Protein involved in regulation of pheromone-mediated mating; repressed by A1p and Alpha2p in white-phase cells; null mutant shows no pheromone response in opaque cells; overexpression causes enhanced pheromone response and cell cycle arrest
orf19.7097		-1,05	1,07	Putative cytoplasmic RNA-binding protein; heterozygous null mutant exhibits hypersensitivity to panafungin and cordycepin in <i>C. albicans</i> fitness test; Spider biofilm repressed
orf19.7375		-1,05	-1,01	Putative U1A component of the U1 snRNP, involved in splicing; contains two RNA recognition motifs (RRMs); ortholog of <i>S. cerevisiae</i> MUD1
orf19.7417	TSA1	-1,05	-1,12	TSA/alkyl hydroperoxide peroxidase C (AhPC) family protein; similar to thiol-dependent peroxidases of oxidative stress signaling; antigenic; hyphal surface, nucleus; yeast-form nucleus, cytoplasm; biofilm, phagocytosis, peroxide induced
orf19.7458		-1,05	1,04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86660, <i>Candida tenuis</i> NRRL Y-1498 : cten_CG0B_00028, <i>Candida tropicalis</i> MYA-3404 : CTRG_05695 and <i>Candida albicans</i> WO-1 : CAWG_02979
orf19.5425		-1,05	-1,02	Ortholog(s) have 3'-RNA processing endonuclease activity, role in tRNA 3'-trailer cleavage, endonucleolytic and mitochondrion, nucleus localization
orf19.7482		-1,05	-1,07	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_803740, <i>C. dubliniensis</i> CD36 : Cd36_25640, <i>Lodderomyces elongisporus</i> NRLL YB-4239 : LELG_00467 and <i>Candida orthopsilosis</i> Co 90-125 : CORT_0A03760
orf19.6797		-1,05	-1,07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86960, <i>C. parapsilosis</i> CDC317 : CPAR2_808800, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113621 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F02486g
orf19.6795		-1,05	-1,07	Ortholog(s) have enzyme activator activity
orf19.6789		-1,05	-1,02	<i>S. cerevisiae</i> ortholog Nud1 is a spindle pole body outer plaque component; it acts through the mitotic exit network to specify asymmetric spindle pole body inheritance; Hap43-induced gene
orf19.6777		-1,05	-1,09	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03032
orf19.7660	VPS2	-1,05	1,11	Protein required for hyphal growth; has similarity to <i>S. cerevisiae</i> Vps2p
orf19.5920		-1,05	-1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_84570, <i>C. parapsilosis</i> CDC317 : CPAR2_404420, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115339 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G13618g
orf19.4230		-1,05	-1,02	20S proteasome subunit (beta7); protein present in exponential and stationary growth phase yeast cultures
		-1,05	-1,04	#NV
		-1,05	-1,09	#NV

		-1.05	-1.03	#NV
		-1.05	-1.04	#NV
orf19.3787		-1.06	-1.07	Ortholog(s) have chromatin DNA binding activity and role in positive regulation of transcription from RNA polymerase II promoter, telomere maintenance, threonylcarbamoyladenosine metabolic process
orf19.5535		-1.06	1.02	Predicted membrane transporter, member of the anion:cation symporter (ACS) family, major facilitator superfamily (MFS)
orf19.1401	EAP1	-1.06	-1.06	GP1-anchored cell wall adhesin; Efg1-regulated; mutant suppresses cell adhesion, filamentation, invasive growth defects of <i>S. cerevisiae</i> flo8 or flo11 mutant; biofilm induced; required for biofilm formation; Bcr1-repressed in a/a biofilms
orf19.3730		-1.06	-1.08	Protein similar to <i>S. cerevisiae</i> Kre27p, which has a role in resistance to killer toxin; predicted Kex2p substrate
orf19.3148		-1.06	-1.1	Protein of unknown function; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3932		-1.06	-1.08	Predicted RNA binding protein; stationary phase enriched; induced in core caspofungin response; induced by nitric oxide independent of Yhb1; repressed in <i>ssr1</i> null; ketoconazole, hypoxia induced; Spider biofilm induced
orf19.5750	SHM2	-1.06	-1.29	Cytoplasmic serine hydroxymethyltransferase; complements glycine auxotrophy of <i>S. cerevisiae</i> shm1 shm2 gly1-1 mutant; antigenic; farnesol-upregulated in biofilm; stationary-phase enriched protein; rat catheter and Spider biofilm repressed
orf19.2538	PTC2	-1.06	-1.06	Protein phosphatase of the Type 2C-related family (serine/threonine-specific) with a potential role in DNA damage checkpoint control; localizes to both cytoplasm and mitochondria; mutant shows virulence defect
orf19.1982		-1.06	-1.05	#NV
orf19.68		-1.06	-1.06	#NV
orf19.1195		-1.06	-1.06	Ortholog(s) have metalloendopeptidase activity, role in cellular iron ion homeostasis, protein processing involved in protein targeting to mitochondrion and mitochondrion localization
orf19.1248		-1.06	-1.09	Putative RNA polymerase II subunit B44; heterozygous null mutant exhibits resistance to parnafungin in the <i>C. albicans</i> fitness test; Spider biofilm repressed
orf19.1220	RVS167	-1.06	-1.12	SH3-domain- and BAR domain-containing protein involved in endocytosis; null mutant exhibits defects in hyphal growth, virulence, cell wall integrity, and actin patch localization; cosediments with phosphorylated Myo5p
orf19.6494	WHI3	-1.06	-1.09	Putative RNA binding protein; induced during infection of murine kidney, compared to growth in vitro; has murine homolog
orf19.5201		-1.06	-1.06	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.4881		-1.06	1.03	#NV
orf19.3100		-1.06	-1.09	Protein with t-SNARE domains and a microtubule associated domain; Hap43-induced gene; repressed by alpha pheromone in SpiderM medium
orf19.5483		-1.06	-1.12	Ortholog(s) have GTPase activity, ribosome binding activity, role in positive regulation of translation and mitochondrial matrix, mitochondrial ribosome localization
orf19.4467		-1.06	-1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_03660, <i>C. parapsilosis</i> CDC317 : CPAR2_106860, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_96694 and <i>Debaromyces hansenii</i> CBS767 : DEHA2G15950g
orf19.5685	THS1	-1.06	-1.06	Putative threonyl-tRNA synthetase; transcript regulated by Mig1 and Tup1; repressed upon phagocytosis by murine macrophages; stationary phase enriched protein; Spider biofilm repressed
orf19.2112		-1.06	-1.13	snRNP U5 splicing factor component; involved in positioning the 3' splice site during the 2nd catalytic step of splicing; Spider biofilm induced
orf19.4287		-1.06	-1.06	Putative oxidoreductase; Hap43-repressed gene; clade-associated gene expression
orf19.6152		-1.06	1.09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32830, <i>C. parapsilosis</i> CDC317 : CPAR2_205930, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115846 and <i>Debaromyces hansenii</i> CBS767 : DEHA2E06072g
orf19.2984	MST1	-1.06	-1.07	Ortholog(s) have role in mitochondrial threonyl-tRNA aminoacylation and mitochondrion localization
orf19.3888	PGI1	-1.06	-1.14	Glucose-6-phosphate isomerase; enzyme of glycolysis; antigenic; Efg1-regulated; induced upon adherence to polystyrene; repressed by phagocytosis, human neutrophils; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.2891		-1.06	-1.11	Ortholog(s) have role in cellular response to oxidative stress, misfolded or incompletely synthesized protein catabolic process, protein import into peroxisome matrix and mitochondrial inner membrane localization
orf19.5839	PDR17	-1.06	-1.03	Fungal-specific protein (no human or murine homolog); role in sensitivity to fluconazole, specifically
orf19.5824		-1.06	-1.07	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.2481		-1.06	-1.05	Protein of unknown function; Spider biofilm induced
orf19.433		-1.06	-1.01	Ortholog(s) have Rab guanyl-nucleotide exchange factor activity, role in intra-Golgi vesicle-mediated transport, protein complex assembly and TRAPP complex, trans-Golgi network localization
orf19.439		-1.06	-1.09	Ortholog(s) have recombinase activity, single-stranded DNA binding activity
orf19.4534		-1.06	1.2	Putative UBX-domain (ubiquitin-regulatory domain) protein; macrophage-downregulated gene
orf19.6662		-1.06	-1.08	Putative coenzyme Q (ubiquinone) binding protein; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.6699		-1.06	-1.08	Ortholog(s) have histidinol-phosphatase activity, role in histidine biosynthetic process and cytosol, nucleus localization
orf19.4101		-1.06	-1.1	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_104840, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116070, <i>Debaromyces hansenii</i> CBS767 : DEHA2F04994g and <i>Pichia stipitis</i> Pinal : psti_CGOB_00085
orf19.4094		-1.06	-1.08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23450, <i>C. parapsilosis</i> CDC317 : CPAR2_407010, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00249 and <i>Debaromyces hansenii</i> CBS767 : DEHA2B01980g
orf19.6731		-1.06	-1.06	Protein of unknown function; repressed by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.492	ADE17	-1.06	-1.2	5-Aminimidazole-4-carboxamide ribotide transformylase, enzyme of adenine biosynthesis; antigenic in human; soluble protein in hyphae; not induced during GCN response, in contrast to the <i>S. cerevisiae</i> ortholog
orf19.1453	SPT5	-1.06	-1.05	Protein similar to <i>S. cerevisiae</i> Spt5p transcription elongation factor; transposon mutation affects filamentous growth
orf19.4440	SEC34	-1.06	-1.09	Ortholog(s) have role in CVT pathway, ER to Golgi vesicle-mediated transport, macroautophagy, peroxisome degradation, retrograde transport, vesicle recycling within Golgi and Golgi transport complex, cell division site localization
orf19.5614		-1.06	-1.2	Putative ribonuclease H1; possibly an essential gene, disruptants not obtained by UAU1 method; flow model biofilm induced; Spider biofilm induced
orf19.886	PAN1	-1.06	-1.17	Essential protein involved in endocytosis and polarized growth; ortholog of <i>S. cerevisiae</i> Pan1, which is a part of a complex that regulates actin cytoskeleton; Spider biofilm repressed
orf19.4861.1		-1.06	1	Protein of unknown function
orf19.6525		-1.06	1.04	<i>S. cerevisiae</i> ortholog Inp1 is a peripheral membrane protein of peroxisomes involved in peroxisomal inheritance; induced by Mn1 under weak acid stress
orf19.7037	YAE1	-1.06	-1.1	Ortholog(s) have role in ribosomal large subunit biogenesis, translational initiation and cytoplasm, nucleus localization
orf19.3742		-1.06	-1.13	Protein of unknown function; Spider biofilm induced; upregulated in a <i>cyr1</i> null mutant
orf19.970		-1.06	-1.09	Protein with a predicted role in microtubule-related processes; Spider biofilm induced
orf19.3273		-1.06	-1.08	Ortholog(s) have actin monomer binding, protein kinase inhibitor activity, ribosome binding activity, role in negative regulation of protein phosphorylation and cytoplasm, nucleus, polysome, ribosome localization
orf19.5306		-1.06	-1.07	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_43820 and <i>Candida albicans</i> WO-1 : CAWG_03393
orf19.5328	GCN1	-1.06	-1.06	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrion localization
orf19.5363		-1.06	-1.06	Component of UDP-GlcNAc transferase; required for the 2nd step of dolichyl-linked oligosaccharide synthesis; Spider biofilm induced
orf19.7392	DED1	-1.06	-1.09	Predicted ATP-dependent RNA helicase; RNA strand annealing activity; Spider biofilm induced
orf19.6802		-1.06	-1.05	Ortholog(s) have palmitoyltransferase activity, role in protein palmitoylation, vacuole fusion, non-autophagic and Golgi apparatus, endoplasmic reticulum, fungal-type vacuole membrane localization
orf19.6752		-1.06	-1.07	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.236	RPL9B	-1.06	-1.34	Ribosomal protein L9; repressed upon phagocytosis by murine macrophages; repressed by nitric oxide; protein levels decrease in stationary phase; Hap43-induced; Spider biofilm repressed
		-1.06	-1.07	#NV
		-1.06	-1.06	#NV
orf19.2295		-1.07	1.03	#NV
orf19.3934	CAR1	-1.07	-1.08	Arginase; arginine catabolism; transcript regulated by Nrg1, Mig1, Tup1; colony morphology-related regulation by Ssn6; alkaline induced; protein decreased in stationary phase; sumoylation target; flow model biofilm induced
orf19.1481	HAP42	-1.07	-1.01	Predicted transcription factor; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3963		-1.07	1.01	Ortholog(s) have mitochondrion localization
orf19.2642		-1.07	-1.08	Ortholog(s) have myosin II binding activity, role in actomyosin contractile ring contraction and cellular bud neck contractile ring localization
orf19.4669	AAT22	-1.07	-1.13	Aspartate aminotransferase; nitrogen metabolism; similar but not orthologous to <i>S. cerevisiae</i> Aat2; clade-associated gene expression; protein levels decrease in stationary phase yeast; mutant is viable; flow model biofilm repressed
orf19.4666		-1.07	-1.08	Protein of unknown function; hyphal-induced expression, regulated by Cvr1, Ras1, Efq1; Spider biofilm induced
orf19.6469		-1.07	-1.09	Predicted ORF in retrotransposon Tca11 with similarity to the Gag-Pol region of retrotransposons, which encodes nucleocapsid-like protein, reverse transcriptase, protease, and integrase
orf19.1286		-1.07	-1.02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04776
orf19.4290	TRR1	-1.07	1.15	Thioredoxin reductase; regulated by Tsa1/Tsa1B, Hap43; induced by nitric oxide, peroxide; oxidative stress-induce via Cap1; induced by human neutrophils; stationary phase enriched protein
orf19.6550		-1.07	-1.13	Putative mitochondrial outer membrane protein; regulated by Sef1p, Sfu1p, and Hap43p
orf19.6462		-1.07	-1.15	Ortholog(s) have role in protein folding in endoplasmic reticulum and ER membrane protein complex, cytosol localization

orf19.5768	<i>SNF4</i>	-1,07	-1,08	Transcription factor; ortholog of <i>S. cerevisiae</i> Snf4; caspofungin repressed; transposon mutation affects filamentation
orf19.674		-1,07	-1,07	Ortholog(s) have U6 snRNA binding, pre-mRNA binding activity and role in mRNA cis splicing, via spliceosome, spliceosomal snRNP assembly
orf19.4228		-1,07	-1,04	Protein with a role in insertion of tail-anchored proteins into the ER membrane; Spider biofilm repressed
orf19.6659	<i>GAP6</i>	-1,07	-1,1	Broad-specificity amino acid permease; Plc1, Gcn4 regulated; rat catheter biofilm induced
orf19.6660		-1,07	1,28	Protein of unknown function; mRNA binds to She3; Hap43-repressed; rat catheter and flow model biofilm induced
orf19.42		-1,07	-1,06	#NV
orf19.1878	<i>MED4</i>	-1,07	-1,06	RNA polymerase II core mediator complex subunit
orf19.357		-1,07	-1,11	Ortholog(s) have role in inner mitochondrial membrane organization, mitochondrion inheritance, mitochondrion morphogenesis, negative regulation of proteolysis, protein folding, replicative cell aging
orf19.4825		-1,07	-1,07	Mitochondrial matrix protein; required for assembly/stability of the F1 sector of mitochondrial F1FO ATP synthase at high temperature; rat catheter biofilm repressed
orf19.3995	<i>RIM13</i>	-1,07	1,01	Protease of the pH response pathway; likely to mediate activation of Rim101 via C-terminal cleavage; required for alkaline pH-induced hyphal growth and for normal chlamydospore formation; Hap43-repressed; flow model biofilm induced
orf19.4018		-1,07	-1,12	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.5239		-1,07	-1,08	Predicted alanine-tRNA ligase; oxidative stress-induced via Cap1
orf19.3027		-1,07	-1,17	Putative DNA translocase; Spider biofilm repressed
orf19.5033		-1,07	-1,08	Ortholog(s) have Ato8 ligase activity, protein tag activity
orf19.7203	<i>MRP7</i>	-1,07	-1,09	Mitochondrial ribosomal protein of the large subunit; rat catheter biofilm induced
orf19.7257	<i>MLH3</i>	-1,07	-1,03	Ortholog(s) have role in mismatch repair, reciprocal meiotic recombination and MuiLbeta complex localization
orf19.7071	<i>FGR2</i>	-1,07	-1,04	Protein similar to phosphate transporters; transposon mutation affects filamentous growth; expression is regulated upon white-opaque switching
orf19.5464		-1,07	1,16	Protein of unknown function; overlaps SEC6/orf19.5463
orf19.7542		-1,07	1,09	#NV
orf19.6754		-1,07	1,02	Protein of unknown function; Spider biofilm induced
orf19.1682		-1,07	-1,2	Membrane protein; Hap43p-repressed gene; repressed by nitric oxide
orf19.2115		-1,08	-1,07	Putative molybdopterin-converting factor; fungal-specific (no human or murine homolog)
orf19.164		-1,08	-1,08	Ortholog(s) have lipase activity and peroxisomal matrix localization
orf19.93		-1,08	-1,07	Putative mitochondrial intermembrane space protein; colony morphology-related gene regulation by Ssn6; regulated by Sef1, Sfu1, and Hap43; Spider biofilm repressed; rat catheter biofilm induced
orf19.3559		-1,08	-1,08	<i>S. cerevisiae</i> ortholog Mrps35p is a structural constituent of ribosome and localizes to mitochondrial small ribosomal subunit; the snoRNA CD39 is encoded within the MRPS35 intron
orf19.10	<i>ALK8</i>	-1,08	-1,12	Alkane-inducible cytochrome P450; catalyzes hydroxylation of lauric acid to hydroxyauric acid; overproduction causes fluconazole resistance in WT and causes multidrug resistance in a <i>cdri1</i> <i>cdri2</i> double mutant; rat catheter biofilm repressed
orf19.2551	<i>MET6</i>	-1,08	-1,37	Essential 5-methyltetrahydropteroylglutamate-homocysteine methyltransferase (cobalamin-independent methionine synthase); antigenic in murine/human systemic infection; heat shock, estrogen, GCN-induced; Spider biofilm repressed
orf19.508	<i>QDR1</i>	-1,08	-1,1	Putative antibiotic resistance transporter; regulated by white-opaque switch, Nrg1, Tup1; Hap43, caspofungin repressed; repressed during chlamydospore formation; flow model biofilm induced; Spider biofilm repressed
orf19.1972		-1,08	-1,05	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, role in histone lysine methylation and cytoplasm, nuclear chromatin localization
orf19.3358	<i>LSC1</i>	-1,08	-1,1	Putative succinate-CoA ligase subunit; induced by high iron; fluconazole-induced; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.4128		-1,08	-1,09	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19390, <i>C. parapsilosis</i> CDC317 : CPAR2_209600, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_134010 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C14960g
orf19.3517		-1,08	-1,07	Ortholog(s) have Dsc E3 ubiquitin ligase complex, endoplasmic reticulum, fungal-type vacuole lumen localization
orf19.2752	<i>ADR1</i>	-1,08	-1,04	C2H2 transcription factor; ortholog of <i>S. cerevisiae</i> Adr1 but mutant phenotype suggests a different set of target genes; transposon mutation affects filamentous growth; Spider biofilm induced
orf19.92		-1,08	-1,34	Protein with a predicted thioredoxin-like domain; Hap43-repressed; induced by prostaglandins
orf19.2938		-1,08	-1,12	Putative mitochondrial inner membrane protein with a predicted role in the assembly of respiratory complex III; Hap43p-repressed gene; <i>S. cerevisiae</i> ortholog FMP25 localizes to mitochondrion
orf19.714		-1,08	-1,07	Ortholog(s) have GTPase activity and role in intracellular protein transport, retrograde transport, endosome to Golgi
orf19.1957	<i>CYC3</i>	-1,08	-1,1	Mitochondrial cytochrome c heme lyase; antigenic cell-wall protein; filament induced; induced on polystyrene adherence, interaction with macrophage; N-glycosylation, 2 heme-binding motifs; rat catheter, Spider biofilm induced
orf19.5618		-1,08	-1,06	Ortholog(s) have SNARE binding, unfolded protein binding activity
orf19.1057		-1,08	1,03	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_03980, <i>C. parapsilosis</i> CDC317 : CPAR2_107050, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113999 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D12518g
orf19.5849	<i>CWT1</i>	-1,08	-1,04	Zn2Cys6 transcription factor involved in negative regulation of nitrosative stress response; mutant has cell wall defects; transcription increased at stationary phase; has predicted PAS domain; similar to <i>S. cerevisiae</i> Rds2p
orf19.6116	<i>GLK4</i>	-1,08	-1,1	Putative glucokinase; decreased expression in hyphae compared to yeast-form cells
orf19.6126	<i>KGD2</i>	-1,08	1,18	Putative dihydrolipoyamide S-succinyltransferase; induced in high iron; Hap43-repressed; Spider biofilm repressed
orf19.6137		-1,08	-1,14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_32940, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_134955, <i>Debaryomyces hansenii</i> CBS767 : DEHA2E04422g and <i>Pichia stipitis</i> Pinal : PICST_33357
orf19.6355		-1,08	-1,13	Ortholog(s) have role in ribosome biogenesis and cytosol, nucleolus localization
orf19.4393	<i>CIT1</i>	-1,08	-1,12	Citrate synthase; induced by phagocytosis; induced in high iron; Hog1-repressed; Efg1-regulated under yeast, not hyphal growth conditions; present in exponential and stationary phase; Spider biofilm repressed; rat catheter biofilm induced
orf19.2965		-1,08	-1,05	Putative guanyl-nucleotide exchange factor; Spider biofilm repressed
orf19.6727	<i>RIT1</i>	-1,08	-1,05	Putative initiator tRNA methionine ribosyltransferase; fungal-specific (no human or murine homolog)
orf19.1478	<i>STT3</i>	-1,08	-1,05	Putative oligosaccharyltransferase complex component; flow model and rat catheter biofilm repressed
orf19.5281		-1,08	-1,05	Predicted essential RNA-binding G protein; ortholog an effector of mating response pathway in <i>S. cerevisiae</i> ; mainly associated with nuclear envelope and ER; flow model and Spider biofilm repressed
orf19.7235		-1,08	-1,11	Putative protein of unknown function; mutation confers hypersensitivity to amphoterin B
orf19.7124	<i>RVS161</i>	-1,08	-1,28	Protein required for endocytosis; contains a BAR domain, which is found in proteins involved in membrane curvature; null mutant exhibits defects in hyphal growth, virulence, cell wall integrity, and actin patch localization
orf19.7403		-1,08	1,09	Ortholog of <i>S. cerevisiae</i> : YML020W, <i>C. glabrata</i> CBS138 : CAGL0J10538g, <i>C. dubliniensis</i> CD36 : Cd36_86190, <i>C. parapsilosis</i> CDC317 : CPAR2_404740 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_107670
orf19.7578		-1,08	-1,07	Ortholog(s) have oligosaccharide binding activity, role in ER-associated protein catabolic process and Hrd1p ubiquitin ligase ERAD-L complex, luminal surveillance complex localization
orf19.7657	<i>POP3</i>	-1,08	1,05	Putative RNase MRP and nuclear RNase P component; decreased repressed by prostaglandins; Spider biofilm induced
orf19.7658	<i>RFC4</i>	-1,08	-1,03	Putative heteropentameric replication factor C subunit; flucytosine induced; periodic mRNA expression, peak at cell-cycle G1/S phase
orf19.5956	<i>PIN3</i>	-1,08	-1,15	Putative SH3-domain-containing protein; predicted role in actin cytoskeleton organization; Spider biofilm repressed
orf19.118	<i>FAD2</i>	-1,09	1,14	Delta-12 fatty acid desaturase, involved in production of linoleic acid, which is a major component of membranes
orf19.2928		-1,09	-1,14	Ortholog(s) have COPI-coated vesicle, Golgi apparatus localization
orf19.3337		-1,09	-1,07	Protein of unknown function; merged with orf19.3338; rat catheter, flow and Spider model biofilm induced; promoter bound by Bcr1, Efg1, Ndt80, and Rob1; orf19.3338 Bcr1-repressed in RPM1 a/a biofilms
orf19.2233	<i>PRE2</i>	-1,09	-1,23	Putative proteasome beta-5 subunit; macrophage-induced protein
orf19.3894		-1,09	-1,11	Putative inositol oxygenase; mutation confers hypersensitivity to toxic ergosterol analog; Spider biofilm induced
orf19.362	<i>TL09</i>	-1,09	-1,29	Member of a family of telomere-proximal genes of unknown function; Hap43p-repressed gene
orf19.842	<i>ASR3</i>	-1,09	-1,22	Adenylyl cyclase and stress responsive protein; induced in <i>cyr1</i> or <i>ras1</i> mutant; Spider biofilm induced
orf19.3099	<i>TRP4</i>	-1,09	-1,07	Predicted enzyme of amino acid biosynthesis; upregulated in biofilm; regulated by Gcn2p and Gcn4p; <i>S. cerevisiae</i> ortholog is Gcn4p regulated
orf19.633		-1,09	-1,07	Putative methyltransferase; decreased expression in hyphae compared to yeast; expression regulated during planktonic growth; flow model biofilm induced; Hap43-repressed gene
orf19.5692		-1,09	-1,2	Ortholog(s) have ubiquitin-protein ligase activity, role in anaphase-promoting complex-dependent proteasomal ubiquitin-dependent protein catabolic process, protein ubiquitination and anaphase-promoting complex localization
orf19.751		-1,09	-1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_04660, <i>Candida tropicalis</i> MYA-3404 : CTRG_04484 and <i>Candida albicans</i> WO-1 : CAWG_00904
orf19.1961		-1,09	1,14	Planktonic growth-induced gene
orf19.3861	<i>SIS1</i>	-1,09	-1,13	Putative Type II HSP40 co-chaperone; macrophage/pseudohyphal-repressed; heavy metal (cadmium) stress-induced; heterozygous null mutant displays sensitivity to virineone; rat catheter biofilm induced
orf19.6160		-1,09	-1,12	Ortholog(s) have role in eisosome assembly and eisosome, membrane raft, mitochondrion, plasma membrane localization
orf19.2154	<i>HXX1</i>	-1,09	1,01	N-acetylglucosamine (GlcNAc) kinase; involved in GlcNAc utilization; required for wild-type hyphal growth and mouse virulence; GlcNAc-induced transcript; induced by alpha pheromone in SpiderM medium

orf19.2302		-1,09	-1,06	Ortholog(s) have enzyme regulator activity, role in cellular calcium ion homeostasis and integral to endoplasmic reticulum membrane localization
orf19.1940		-1,09	-1,1	Ortholog(s) have role in cellular response to cadmium ion, detoxification of cadmium ion, ubiquinone biosynthetic process and mitochondrial inner membrane localization
orf19.1664		-1,09	-1,1	Protein of unknown function; expression downregulated in an <i>srr1</i> null mutant
orf19.1560	<i>POB3</i>	-1,09	-1,08	Protein involved in chromatin assembly and disassembly; ortholog of <i>S. cerevisiae</i> Pob3; transposon mutation affects filamentous growth; rat catheter biofilm repressed
orf19.672		-1,09	1	Ortholog(s) have U5 snRNP localization
orf19.6668		-1,09	-1,1	Ortholog(s) have ubiquitin-protein ligase activator activity and role in ER-associated protein catabolic process, establishment of protein localization to endoplasmic reticulum membrane
orf19.1876		-1,09	-1,07	Ortholog(s) have mRNA binding activity, role in mRNA splice site selection, positive regulation of mRNA splicing, via spliceosome and U1 snRNP, U2-type prespliceosome, commitment complex localization
orf19.6057		-1,09	-1,2	Ortholog(s) have 3-methyl-2-oxobutanoate hydroxymethyltransferase activity, role in pantothenate biosynthetic process and mitochondrion localization
orf19.6967	<i>USO6</i>	-1,09	1,01	Putative vesicular transport protein; transcript induced by filamentous growth; rat catheter biofilm repressed
orf19.5006	<i>GCV3</i>	-1,09	-1,59	Glycine decarboxylase, subunit H; protein level decrease in stationary phase cultures
orf19.7193		-1,09	-1,11	Specificity factor required for ubiquitination; role in protein targeting to vacuole; involved in ubiquitin-dependent protein catabolism via the multivesicular body sorting pathway; Spider biofilm induced
orf19.980		-1,09	-1,09	Ortholog(s) have inositol heptakisphosphate kinase activity, inositol hexakisphosphate 1-kinase activity, inositol hexakisphosphate 3-kinase activity, inositol hexakisphosphate 4-kinase activity, inositol hexakisphosphate 6-kinase activity
orf19.3234	<i>OYE22</i>	-1,09	-1,13	Putative NADPH dehydrogenase; rat catheter biofilm induced
		-1,09	-1,05	#NV
		-1,09	-1,06	#NV
orf19.1601	<i>RPL3</i>	-1,1	1,06	Ribosomal protein, large subunit; induced by ciclopirox olamine treatment; genes encoding cytoplasmic ribosomal subunits are downregulated upon phagocytosis by murine macrophages; Hap43-induced gene; Spider biofilm repressed
orf19.3453		-1,1	-1,1	Ortholog(s) have cellular bud tip, cytoplasm localization
orf19.2825	<i>DRE2</i>	-1,1	-1,11	Putative cytosolic Fe-S protein assembly protein; a-specific transcript; regulated by Sef1, Sfu1, and Hap43; rat catheter and Spider biofilm induced
orf19.61		-1,1	-1,1	#NV
orf19.1153	<i>GAD1</i>	-1,1	-1,1	Putative glutamate decarboxylase; alkaline, macrophage-downregulated gene; amphotericin B induced; induced by Mn1 under weak acid stress; stationary phase enriched protein; rat catheter biofilm repressed
orf19.2646	<i>ZCF13</i>	-1,1	-1,08	Predicted Zn(II)Cys6 transcription factor; similar to but not the true ortholog of <i>S. cerevisiae</i> Hap1; mutants display decreased colonization of mouse kidneys
orf19.6498		-1,1	-1,08	Ortholog(s) have role in RNA polymerase II complex localization to nucleus, RNA polymerase III complex localization to nucleus and DNA-directed RNA polymerase II, holoenzyme, cytoplasm localization
orf19.1164	<i>GAR1</i>	-1,1	1,02	Putative H/ACA snoRNP pseudouridylylase complex protein; mutation confers hypersensitivity to tubercidin (7-deazaadenosine); macrophage/pseudohyphal-induced; Spider biofilm repressed
		-1,1	-1,09	#NV
orf19.761	<i>TCO89</i>	-1,1	-1,18	Putative homolog of <i>S. cerevisiae</i> Tco89p, which is a component of the TOR C1 complex that is involved in the regulation of growth and cell wall integrity; heterozygous null mutant displays sensitivity to rapamycin
orf19.5126		-1,1	1,01	Putative adhesin-like protein
orf19.2418		-1,1	-1,18	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_28190, <i>C. parapsilosis</i> CDC317 : CPAR2_802530, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_109615 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A12650q
orf19.4817	<i>RAM2</i>	-1,1	-1,06	Alpha subunit of heterodimeric protein geranylgeranyltransferase type I and farnesyltransferase; a-specific transcript; lovastatin, fluconazole regulated; GGTase I binds zinc, is Mg-dependent; Cdc42 substrate; rat catheter biofilm repressed
orf19.6143		-1,1	-1,11	Predicted long-chain-alcohol oxidase; Spider biofilm induced
orf19.6357		-1,1	-1,09	Ortholog(s) have role in mitotic DNA integrity checkpoint, negative regulation of protein import into nucleus during spindle assembly checkpoint, nucleocytoplasmic transport
orf19.6374		-1,1	-1,19	Ortholog(s) have unfolded protein binding activity, role in mitochondrial proton-transporting ATP synthase complex assembly and integral to mitochondrial membrane, mitochondrial inner membrane localization
orf19.6264		-1,1	-1,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_06080, <i>C. parapsilosis</i> CDC317 : CPAR2_803360, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_112428 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G15532q
orf19.2953	<i>TOM20</i>	-1,1	-1,09	Putative mitochondrial primary import receptor
orf19.334		-1,1	-1,08	Protein of unknown function; flow model biofilm induced; Spider biofilm induced; regulated by Sef1, Sfu1, and Hap43
orf19.4831	<i>MTS1</i>	-1,1	-1,06	Sphingolipid C9-methyltransferase; catalyzes methylation of the 9th carbon in the long chain base component of glucosylceramides; glucosylceramide biosynthesis is important for virulence; Spider biofilm repressed
orf19.4001		-1,1	-1,01	Ortholog(s) have role in protein insertion into mitochondrial membrane from inner side and intrinsic to mitochondrial inner membrane, mitochondrial matrix localization
orf19.5245	<i>BUL4</i>	-1,1	-1,06	Protein with a predicted BUL1 N-terminal and C-terminal domains; Bul1 binds the ubiquitin ligase Rsp5 in <i>S. cerevisiae</i> ; Hap43-repressed gene; rat catheter biofilm induced
orf19.7161	<i>SUI3</i>	-1,1	-1,13	Putative translation initiation factor; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.7297		-1,1	1,25	Putative cystathionine gamma-synthase; decreased levels in stationary phase cultures; Hog1p-induced; Gcn4p-regulated
orf19.7096		-1,1	1,05	Ortholog(s) have fungal-type vacuole membrane, mitochondrion localization
orf19.7463		-1,1	-1,04	Ortholog(s) have role in ascospore wall assembly and ascospore wall, nuclear envelope localization
orf19.7594		-1,1	-1,14	Protein of unknown function; Spider biofilm induced
orf19.7654	<i>CPR6</i>	-1,1	-1,13	Putative peptidyl-prolyl cis-trans isomerase; macrophage/pseudohyphal-repressed; heavy metal (cadmium) stress-induced; heterozygous null mutant displays sensitivity to virineone; rat catheter biofilm induced
orf19.5980		-1,1	-1,02	Protein of unknown function; Hap43-repressed gene
orf19.4777	<i>DAK2</i>	-1,11	-1,17	Putative dihydroxyacetone kinase; repressed by yeast-hypha switch; fluconazole-induced; caspofungin repressed; protein enriched in stationary phase yeast cultures; flow model biofilm induced; rat catheter and Spider biofilm repressed
		-1,11	-1,07	#NV
orf19.3139		-1,11	-1,09	Putative NADP-dependent oxidoreductase; Hap43-repressed; induced by benomyl treatment; oxidative stress-induced via Cap1; rat catheter biofilm repressed
orf19.3516		-1,11	-1,01	Protein of unknown function; Hap43-repressed; Spider biofilm repressed
orf19.4526	<i>HSP30</i>	-1,11	-1,11	Putative heat shock protein; fluconazole repressed; amphotericin B induced; Spider biofilm induced; rat catheter biofilm induced
orf19.4048	<i>DES1</i>	-1,11	-1,44	Putative delta-4 sphingolipid desaturase; planktonic growth-induced gene
orf19.5522		-1,11	1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_62760, <i>C. parapsilosis</i> CDC317 : CPAR2_601700, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115220 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A06666q
orf19.4379	<i>PRP13</i>	-1,11	1,28	Putative integral inner mitochondrial membrane protein with similarity to exonucleases
orf19.5848		-1,11	-1,14	RING-type zinc finger protein; upregulated during oral infection; mutants have reduced ability to damage oral epithelial cells; Spider and flow model biofilm induced
orf19.6238		-1,11	-1,17	Has domain(s) with predicted oxidoreductase activity and role in oxidation-reduction process
orf19.6160		-1,11	-1,11	Ortholog(s) have role in eisosome assembly and eisosome, membrane raft, mitochondrion, plasma membrane localization
orf19.1403		-1,11	-1,16	Ortholog(s) have ATP:ADP antiporter activity, calcium ion binding activity, role in ADP transport, ATP transport, mitochondrial transport and mitochondrion localization
orf19.2137		-1,11	-1,11	Ortholog(s) have mitochondrion localization
orf19.2143		-1,11	-1,12	Ortholog(s) have role in endocytic recycling and cytosol, endosome, nucleus localization
orf19.2258		-1,11	-1,08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21310, <i>C. parapsilosis</i> CDC317 : CPAR2_406650, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_130046 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F24134q
		-1,11	-1,09	#NV
orf19.5763		-1,11	-1,14	Has domain(s) with predicted oxidoreductase activity and role in metabolic process
orf19.3303		-1,11	-1,12	Ortholog(s) have tRNA methyltransferase activity, role in tRNA methylation, wybutosine biosynthetic process and cytosol, mitochondrion, nucleus localization
orf19.359	<i>GTT12</i>	-1,11	-1,14	Ortholog(s) have glutathione peroxidase activity, glutathione transferase activity, role in glutathione metabolic process and endoplasmic reticulum, mitochondrial outer membrane, plasma membrane localization
orf19.4025	<i>PRE1</i>	-1,11	-1,04	Putative beta 4 subunit of the 20S proteasome; Rim101-induced at acid pH; flucytosine induced; amphotericin B repressed
orf19.2076		-1,11	-1,11	Protein of unknown function; <i>S. pombe</i> ortholog SPAC7D4.05 encodes a predicted hydrolase; Hap43-repressed; Spider biofilm induced
orf19.6534.2	<i>CRN1</i>	-1,11	-1,15	Coronin; cortical actin cytoskeletal component; predicted role in regulation of actin patch assembly; rat catheter and Spider biofilm repressed
orf19.5264		-1,11	-1,13	Dubious open reading frame
orf19.5231		-1,11	-1,11	Protein of unknown function; flow model biofilm induced
orf19.4583		-1,11	-1,12	Protein with a mitochondrial carrier protein domain; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.7163		-1,11	-1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73790, <i>C. parapsilosis</i> CDC317 : CPAR2_702880, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_92070 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D10318q

orf19.7266		-1,11	-1,13	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_00007
orf19.7442		-1,11	-1,1	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_86500, <i>C. parapsilosis</i> CDC317 : CPAR2_206120, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_100862 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F17270q
orf19.6830		-1,11	-1,18	Putative enoyl-CoA hydratase; Spider biofilm induced
orf19.7675		-1,11	-1,09	Mitochondrial ribosomal protein of the large subunit; Spider biofilm repressed
orf19.7680	CTA26	-1,11	-1,16	Putative transcription factor/activator; Med2 mediator complex domain; transcript is upregulated in an RHE model of oral candidiasis; member of a family of telomere-proximal genes; Efg1_Hap43-repressed
orf19.5926	ARG11	-1,11	-1,04	Putative ornithine transporter of the mitochondrial inner membrane; induced during the mating process
orf19.5925		-1,11	-1,11	Ortholog of <i>S. cerevisiae</i> : AIM6, <i>C. glabrata</i> CBS138 : CAGLOC05533g, <i>C. dubliniensis</i> CD36 : Cd36_84610, <i>C. parapsilosis</i> CDC317 : CPAR2_404550 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115337
		-1,11	-1,1	#NV
orf19.2659		-1,12	1,07	#NV
orf19.3696	TOM22	-1,12	-1,09	Putative mitochondrial import receptor subunit; colony morphology-related gene regulation by Ssn6
orf19.1206		-1,12	-1,11	#NV
orf19.2785	ATP7	-1,12	-1,18	Putative subunit of the F1F0-ATPase complex; colony morphology-related gene regulation by Ssn6; farnesol, macrophage-downregulated protein abundance; protein present in exponential and stationary yeast growth phases; Hap43-induced
orf19.3465	RPL10A	-1,12	-1,19	Predicted ribosomal protein; downregulated upon phagocytosis by murine macrophages; Hap43-induced; Spider biofilm repressed
orf19.2555	URA5	-1,12	-1,22	Putative orotate phosphoribosyltransferase; protein abundance is affected by URA3 expression in the CAI-4 strain background; flucytosine induced; protein level decreased in stationary phase cultures
orf19.5290		-1,12	-1,19	Protein of unknown function; repressed by Sfu1; Hap43-induced gene
orf19.4774	AOX1	-1,12	-1,02	Alternative oxidase; low abundance; constitutively expressed; one of two isoforms (Aox1p and Aox2p); involved in a cyanide-resistant respiratory pathway present in plants, protists, and some fungi, absent in <i>S. cerevisiae</i> ; Hap43p-repressed
orf19.2877	PDC11	-1,12	-1,07	Pyruvate decarboxylase; antigenic; on hyphal not yeast cell surface; Hap43, Gcn4, Efg1, Efh1, Hsf1 regulated; fluconazole, farnesol induced; amino acid starvation repressed; flow model biofilm induced; Spider biofilm repressed
orf19.3175		-1,12	-1,14	Putative ortholog of human electron transfer flavoprotein dehydrogenase (ETF-dH); alkaline repressed; repressed by nitric oxide; virulence-group-correlated expression; Spider biofilm induced
orf19.5632		-1,12	-1,03	#NV
orf19.5648		-1,12	1,01	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_40300, <i>C. parapsilosis</i> CDC317 : CPAR2_402190, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00197 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2F06160g
orf19.5779	RNR1	-1,12	-1,14	Ribonucleotide reductase large subunit; induced in low iron; transposon mutation affects filamentous growth; farnesol upregulated in biofilm; regulated by cell cycle, tyrosol, cell density; regulated by Sef1, Sfu1, and Hap43
orf19.5788	EFT2	-1,12	-1,1	Elongation Factor 2 (eEF2); GTPase; essential; highly expressed; target of sordarin antifungals; antigenic in human/mouse; lacks site for regulatory phosphorylation by eEF2 kinase; GCN-regulated; higher protein amount in stationary phase
orf19.4785	PTC1	-1,12	-1,1	Putative protein phosphatase of the Type 2C-related family (serine/threonine-specific), similar to <i>S. cerevisiae</i> Ptc1p; mutant shows virulence defect
orf19.6284		-1,12	-1,07	Ortholog(s) have GTP binding, signal recognition particle binding activity, role in protein targeting to ER and integral to endoplasmic reticulum membrane localization
orf19.1662		-1,12	-1,18	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.989		-1,12	-1,22	Mitochondrial ribosomal protein of the small subunit; Spider biofilm repressed
orf19.734	GLK1	-1,12	-1,03	Putative glucokinase; transcript regulated upon yeast-hyphal switch; Efg1 regulated; fluconazole-induced; induced in core stress response; colony morphology-related gene regulation by Ssn6; GlcNAc-induced protein
orf19.5089	TERT	-1,12	-1,1	Telomerase reverse transcriptase; catalytic protein subunit of telomere synthesis; essential for telomerase activity; has telomerase-specific motif T and other conserved reverse transcriptase motifs
orf19.4384	HXT5	-1,12	-1,14	Putative sugar transporter; induced by ciclopirox olamine; Snf3-induced; alkaline repressed; colony morphology-related gene regulation by Ssn6; possibly essential gene
orf19.829	SCH9	-1,12	-1,14	Protein kinase; involved in growth control, cell size, resistance to rapamycin, cations, chlamydospor formation, filamentous growth under some conditions, and virulence; prevents hyphal growth in hypoxia at high CO2; Spider biofilm induced
orf19.522	PIM1	-1,12	1,01	ATP-dependent Lon protease; role in degradation of misfolded proteins in mitochondria, biogenesis and maintenance of mitochondria; rat catheter biofilm induced
orf19.5658	MNN10	-1,12	-1,1	Ortholog(s) have alpha-1,6-mannosyltransferase activity, role in barrier septum assembly and alpha-1,6-mannosyltransferase complex localization
orf19.3117	CSA2	-1,12	-1,11	Extracellular-associated protein; repressed by Rim101 at pH 8; regulated by Tsa1, Tsa1B in minimal media at 37 deg; induced by ketoconazole, nitric oxide, Hap43; required for normal RPMI biofilm formation; Bcr1 induced in RPMI
orf19.3106	MET16	-1,12	1,22	Putative 3'-phosphoadenylylsulfate reductase; sulfur amino acid metabolism; reports differ on regulation during biofilm formation; fungal-specific; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43p-repressed gene
orf19.4839		-1,12	-1,48	GET complex subunit; expression downregulated in an <i>ssr1</i> null mutant
orf19.3843		-1,12	-1,23	Ortholog(s) have role in filamentous growth, posttranslational protein targeting to membrane, translocation and Sec62/Sec63 complex localization
orf19.5279		-1,12	-1,18	Ortholog(s) have structural constituent of ribosome activity, role in aerobic respiration and mitochondrial large ribosomal subunit localization
orf19.5274		-1,12	-1,12	Ortholog(s) have cellular bud neck, cellular bud tip, cytoplasm localization
orf19.5266		-1,12	-1,12	Planktonic growth-induced gene
orf19.7130		-1,12	-1,21	Protein of unknown function; Hap43-repressed gene
orf19.7170		-1,12	-1,12	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_73740, <i>Candida tropicalis</i> MYA-3404 : CTRG_05151 and <i>Candida albicans</i> WO-1 : CAWG_05736
orf19.7366		-1,12	-1,12	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity and nucleolus localization
orf19.6745	TPH1	-1,12	-2,05	Triose-phosphate isomerase; antigenic in mouse/human; mutation affects filamentation; macrophage-repressed; protein in exponential and stationary growth phase yeast; possibly essential; flow model biofilm induced; Spider biofilm repressed
orf19.7621		-1,12	-1,14	Putative subunit of an alternative replication factor C complex; role in DNA replication, genome integrity, homologous recombination-mediated repair and telomere homeostasis
orf19.3954	PSD2	-1,13	-1,11	Ortholog(s) have phosphatidylserine decarboxylase activity, role in phosphatidylcholine biosynthetic process, phosphatidylethanolamine biosynthetic process and cell division site, cytosol, endosome localization
orf19.3951	TIP1	-1,13	-1,36	Protein with a predicted role in biogenesis of ER-derived COPII transport vesicles; mutation confers hypersensitivity to toxic ergosterol analog
orf19.4157	SPS20	-1,13	-1,17	Peroxisomal 2,4-dienoyl-CoA reductase; stationary phase enriched protein; Spider biofilm induced
orf19.4410	ALG1	-1,13	-1,13	Protein similar to <i>S. cerevisiae</i> Alg1p, a mannosyltransferase involved in N-linked protein glycosylation; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.4468		-1,13	-1,18	Putative succinate dehydrogenase; localized to the mitochondrial membrane; Hap43p-repressed gene
orf19.2754	TIM13	-1,13	-1,17	Predicted mitochondrial intermembrane space protein with a role in protein import into mitochondria
orf19.5689		-1,13	-1,27	Epsilon-COP subunit of the coatomer; regulates retrograde Golgi-to-ER protein traffic; Spider biofilm repressed
orf19.284		-1,13	-1,02	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_82890, <i>Debaryomyces hansenii</i> CBS767 : DEHA2G01034g, <i>Pichia stipitis</i> Pinal : PICST_32242 and <i>Candida guilliermondii</i> ATCC 6260 : PGUG_04638
orf19.3324	TIF	-1,13	-1,16	Translation initiation factor; upregulated in highly virulent strain compared to less virulent strain; antigenic in human; flucytosine induced; downregulated upon phagocytosis by macrophages; Spider biofilm repressed
orf19.6163	CSE4	-1,13	-1,12	Centromeric histone H3 variant; role in structural changes of centromeric nucleosomes during cell cycle; 4 nucleosomes bind 1 centromere, each has 1 Cse4 molecule during most of cell cycle, 2 molecules in anaphase; Spider biofilm repressed
orf19.1396		-1,13	-1,1	Ortholog(s) have ARF GTPase activator activity, role in ER to Golgi vesicle-mediated transport, intra-Golgi vesicle-mediated transport and Golgi apparatus, clathrin-coated vesicle localization
orf19.2135	TSM1	-1,13	-1,12	Putative transcription initiation factor TFIID subunit; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Nrg1-regulated
orf19.6134		-1,13	-1,11	Ortholog(s) have role in ER-dependent peroxisome organization, retrograde vesicle-mediated transport, Golgi to ER and Dsl1p complex, endoplasmic reticulum membrane, nuclear envelope, peroxisome localization
orf19.6105	MVD	-1,13	1,01	Mevalonate diphosphate decarboxylase; functional homolog of <i>S. cerevisiae</i> Erg19; possible drug target; regulated by carbon source, yeast-hypha switch, growth phase, antifungals; gene has intron; rat catheter, Spider biofilm repressed
orf19.2761		-1,13	-1,13	Putative glycosylphosphatidylinositol (GPI) anchor assembly protein; transposon insertion causes decreased colony wrinkling but does not block true hyphal growth; induced by nitric oxide independent of Yhb1p
orf19.4248		-1,13	-1,17	Ortholog of <i>S. cerevisiae</i> YLR118C (alias Apt1); acyl-protein thioesterase responsible for depalmitoylation of Gpa1 in <i>S. cerevisiae</i> ; regulated by Gcn4; repressed in response to amino acid starvation (3AT); rat catheter biofilm repressed
orf19.6663	RPS25B	-1,13	-1,16	Ribosomal protein; macrophage/pseudohyphal-induced after 16 h; repressed upon phagocytosis by murine macrophage; transcript positively regulated by Tbf1; 5'-UTR intron; Hap43-induced; Spider biofilm repressed
orf19.4089	SGT1	-1,13	-1,06	Putative co-chaperone protein with a predicted role in kinetochore assembly; mutation confers hypersensitivity to radicicol; sumoylation target
orf19.6736		-1,13	1,04	Protein required for mitochondrial ribosome small subunit biogenesis; role in maturation of SSU-rRNA; Spider biofilm induced

orf19.873		-1.13	-1.16	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_04115
orf19.3994		-1.13	-1.17	Dolichyl-diphosphooligosaccharide-protein glycotransferase; predicted role in protein N-linked glycosylation, protein O-linked mannosylation; Spider biofilm repressed
orf19.6074	<i>HBR1</i>	-1.13	-1.14	Essential protein involved in regulation of MTL gene expression; hemoglobin-regulated inhibitor of white-opaque switching, may affect survival in host; activator of MTLalpha1 and MTLalpha2; transcript activated by hemoglobin
orf19.6434	<i>PEX19</i>	-1.13	-1.01	Ortholog(s) have peroxisome membrane targeting sequence binding activity
orf19.7019	<i>YML6</i>	-1.13	-1.09	Putative mitochondrial ribosomal protein; induced upon adherence to polystyrene
orf19.7127	<i>TLO16</i>	-1.13	-1.18	Member of a family of telomere-proximal genes of unknown function; may be spliced in vivo
orf19.7215		-1.13	-1.12	Nucleolar protein; component of the small subunit processome containing the U3 snoRNA; involved in pre-18S rRNA processing; flow model biofilm repressed
orf19.7260		-1.13	1	Protein with a predicted NADP-dependent oxidoreductase or aldo-keto reductase domain; Hap43-repressed; Spider biofilm repressed
orf19.7270		-1.13	-1.02	Protein of unknown function; Spider biofilm repressed
orf19.5360	<i>RPC11</i>	-1.13	-1.12	Putative RNA polymerase III subunit C11; repressed in core caspofungin response; Spider biofilm induced
orf19.7446	<i>OPI3</i>	-1.13	-1.24	Phosphatidylethanolamine N-methyltransferase; phosphatidylcholine biosynthesis; downregulation correlates with clinical development of fluconazole resistance; amphotericin B, caspofungin repressed; Hap43-induced; Spider biofilm repressed
orf19.5397		-1.13	-1.27	Putative conserved oligomeric Golgi complex subunit; decreased transcription is observed upon fluphenazine treatment
orf19.5461		-1.13	1.04	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02350
orf19.7486	<i>MRPL6</i>	-1.13	-1.24	Putative mitochondrial ribosomal protein
orf19.7585	<i>INO1</i>	-1.13	-1.11	Inositol-1-phosphate synthase; antigenic in human; repressed by farnesol in biofilm or by caspofungin; upstream inositol/choline regulatory element; glycosylation predicted; rat catheter, flow model induced; Spider biofilm repressed
orf19.7613	<i>HCR1</i>	-1.13	-1.14	Putative translation initiation factor; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
		-1.13	-1.11	#NV
orf19.3198	<i>OBPA</i>	-1.14	-1.09	Similar to oxysterol binding protein; non-sex gene located within the MTLA mating-type-like locus; Plc1p-regulated
orf19.3698		-1.14	-1.11	Protein of unknown function that may function in RNA processing; filament induced
orf19.2884	<i>CDC68</i>	-1.14	-1.04	Functional homolog of <i>S. cerevisiae</i> Cdc68, a transcription elongation factor; essential; possible drug target
orf19.5564		-1.14	-1.23	Ortholog(s) have nucleolus localization
orf19.843		-1.14	-1.14	Putative DNA repair exonuclease; fungal-specific (no human or murine homolog)
orf19.5514		-1.14	-1.11	Ortholog of <i>S. pombe</i> SPCC550.08, an N-acetyltransferase; transcript induced during growth in the mouse cecum
orf19.5731	<i>PAD1</i>	-1.14	-1.1	Putative phenylacrylic acid decarboxylase; repressed by Rqt1p
orf19.1071		-1.14	-1.1	#NV
orf19.6156		-1.14	-1.14	Ortholog of <i>S. cerevisiae</i> : AIM11, <i>C. glabrata</i> CBS138 : CAGL0104928g, <i>C. dubliniensis</i> CD36 : Cd36_80770, <i>C. parapsilosis</i> CDC317 : CPAR2_102260 and <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_114262
orf19.1578		-1.14	-1.1	Ortholog of <i>S. cerevisiae</i> Rrp5, an RNA binding protein involved in synthesis of 18S and 5.8S rRNAs; Hap43-induced gene
orf19.1576		-1.14	-1.11	Ortholog(s) have nuclear localization sequence binding, ubiquitin binding activity, role in response to ethanol and cytosol localization
orf19.1669	<i>AFG3</i>	-1.14	-1.07	Similar to <i>S. cerevisiae</i> Afg3p, a subunit of the mitochondrial inner membrane m-AAA protease; likely to be essential for growth, based on an insertional mutagenesis strategy
orf19.6344	<i>RBK1</i>	-1.14	-1.09	Ortholog(s) have cytosol, nucleus localization
orf19.3128		-1.14	-1.06	Ortholog(s) have syntaxin binding activity and role in ER to Golgi vesicle-mediated transport, positive regulation of SNARE complex assembly, retrograde vesicle-mediated transport, Golgi to ER, vesicle fusion with Golgi apparatus
orf19.2041		-1.14	-1.11	Ortholog(s) have DNA translocase activity, histone acetyl-lysine binding activity
orf19.6090		-1.14	-1.16	Putative nucleolar protein with a predicted role in pre-rRNA processing and ribosome biogenesis; repressed by nitric oxide; required for flow model biofilm formation; Spider biofilm repressed
orf19.6086	<i>LEU4</i>	-1.14	-1.14	Putative 2-isopropylmalate synthase; regulated by Nrg1, Mig1, Tup1, Gcn4; induced by human whole blood or PMNs; macrophage/pseudohyphal-repressed after 16h; Spider biofilm repressed
orf19.6084		-1.14	-1.17	Protein of unknown function; flow model biofilm induced; Spider biofilm induced
orf19.3679		-1.14	-1.17	Putative protein of unknown function; stationary phase enriched protein
orf19.5806	<i>ALD5</i>	-1.14	-1.16	NAD-aldehyde dehydrogenase; decreased expression in fluconazole-resistant isolate, or in hyphae; biofilm induced; fluconazole-downregulated; protein abundance is affected by URA3 expression in the CAI-4 strain; stationary phase enriched
orf19.2966		-1.14	-1.08	Predicted diene lactone hydrolase domain; clade-associated gene expression; farnesol-downregulated; rat catheter biofilm repressed
orf19.832	<i>GPI13</i>	-1.14	-1.14	Major facilitator superfamily protein; has phosphodiesterase/nucleotide pyrophosphatase domain; similar to <i>S. cerevisiae</i> Gpi13p, which acts in GPI anchor biosynthesis; Hap43p-induced gene
orf19.535	<i>RBR1</i>	-1.14	-1.2	Glycosylphosphatidylinositol (GPI)-anchored cell wall protein; required for filamentous growth at acidic pH; expression repressed by Rim101 and activated by Nrg1; Hap43-induced
orf19.6671	<i>LAP4</i>	-1.14	-1.09	Protein similar to aminopeptidase I; mutation confers hypersensitivity to amphotericin B; transcript regulated in macrophage response; flow model biofilm induced
orf19.6902	<i>DBP7</i>	-1.14	-1.09	Putative ATP-dependent DEAD-box RNA helicase; Hap43-induced; rat catheter biofilm induced
orf19.3301		-1.14	-1.14	Putative ubiquitin ligase complex component; induced by heavy metal (cadmium) stress; Hog1-induced; transcript induced by Mln1p under weak acid stress; flow model biofilm induced; Spider biofilm induced
orf19.340		-1.14	-1.13	Ortholog(s) have role in protein targeting to membrane, protein targeting to vacuole and ESCRT I complex localization
orf19.4448	<i>SOG2</i>	-1.14	-1.16	Leucine-rich-repeat domain protein of RAM cell wall integrity signaling network; role in cell separation, azole sensitivity; required for hyphal growth; lacks orthologs in higher eukaryotes
orf19.6990		-1.14	-1.16	Putative peptidyl-prolyl cis-trans isomerase; predicted endoplasmic reticulum (ER) localization
orf19.3055	<i>MED17</i>	-1.14	1.01	Putative RNA polymerase II mediator complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7512		-1.14	1.02	Has domain(s) with predicted electron carrier activity, heme binding, iron ion binding, monooxygenase activity, oxidoreductase activity and acting on paired donors, more
orf19.1910		-1.15	-1.38	Predicted NADH-dependent flavin oxidoreductase; Hap43-repressed gene
orf19.4220		-1.15	-1.28	Predicted pyridoxal 5'-phosphate synthase; regulated by Gcn4; repressed by amino acid starvation (3-AT treatment); rat catheter biofilm repressed
orf19.173		-1.15	-1.08	C2H2 transcription factor; induced by Mln1 under weak acid stress
orf19.192		-1.15	-1.13	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_19320, <i>C. parapsilosis</i> CDC317 : CPAR2_209670, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113478 and <i>Debaromyces hansenii</i> CBS767 : DEHA2C15136q
orf19.1704	<i>FOX3</i>	-1.15	-1.32	Putative peroxisomal 3-oxoacyl CoA thiolase; transcript regulated by white-opaque switch; Spider biofilm induced
orf19.1031	<i>HMG1</i>	-1.15	-1.05	HMG-CoA reductase; enzyme of sterol pathway; inhibited by lovastatin; gene not transcriptionally regulated in response to lovastatin and fluconazole
orf19.3100		-1.15	-1.12	Protein with t-SNARE domains and a microtubule associated domain; Hap43-induced gene; repressed by alpha pheromone in SpiderM medium
orf19.3901		-1.15	-1.19	Putative benzene desulfurase; induced by nitric oxide independent of Yhb1p
orf19.6177		-1.15	-1.04	Protein of unknown function; Spider biofilm repressed
orf19.2699	<i>ABP1</i>	-1.15	-1.35	Ortholog of <i>S. cerevisiae</i> Abp1; actin-binding protein of the cortical actin cytoskeleton; caspofungin induced; protein only detected in stationary phase yeast-form cultures; Spider biofilm repressed
orf19.1946		-1.15	-1.23	Similar to an aldose 1-epimerase-related protein; antigenic during murine systemic infection; protein present in exponential and stationary phase yeast cultures; Hap43-induced; Spider biofilm repressed
orf19.6112	<i>CTA2</i>	-1.15	-1.48	Putative transcription factor; Med2 mediator domain; activates transcription in 1-hybrid assay in <i>S. cerevisiae</i> ; repressed by Etg1; member of a family of telomere-proximal genes; Tbf1-induced
orf19.3678		-1.15	-1.21	Protein of unknown function; mutants are viable
orf19.6673	<i>HEX1</i>	-1.15	-1.15	Beta-N-acetylhexosaminidase/chitinase, highly glycosylated enzyme that is secreted to the periplasm and culture medium; required for full virulence; may have role in carbon or nitrogen scavenging; possibly an essential gene (UAU1 method)
orf19.6072	<i>CDC13</i>	-1.15	-1.18	Essential protein with similarity to <i>S. cerevisiae</i> Cdc13p, involved in telomere maintenance
orf19.6537		-1.15	-1.18	Ortholog(s) have role in chromosome segregation and nuclear MIS12/MIND complex, spindle pole localization
orf19.6515	<i>HSP90</i>	-1.15	-1.15	Essential chaperone, regulates several signal transduction pathways and temperature-induced morphogenesis; activated by heat shock, stress; localizes to surface of hyphae, not yeast cells; mediates echinocandin and biofilm azole resistance
orf19.6509		-1.15	-1.14	Ortholog(s) have role in cellular response to zinc ion and cytosol, nucleus localization
orf19.3058	<i>COQ6</i>	-1.15	-1.14	Ortholog(s) have role in ubiquinone biosynthetic process and mitochondrial inner membrane localization
orf19.7165	<i>MED9</i>	-1.15	-1.14	RNA polymerase II mediator complex subunit; Hap43p-repressed gene
orf19.7213		-1.15	-1.15	Putative ATP-dependent RNA helicase; fungal-specific (no human or murine homolog)
orf19.947	<i>MRP17</i>	-1.15	-1.19	Predicted mitochondrial ribosomal protein
orf19.3275		-1.15	-1.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_25870, <i>C. parapsilosis</i> CDC317 : CPAR2_804000, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115661 and <i>Debaromyces hansenii</i> CBS767 : DEHA2B05852g
orf19.7056		-1.15	-1.14	Putative protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; regulated by Sef1, Stu1, and Hap43
orf19.7050	<i>NOP15</i>	-1.15	-1.12	Nucleolar ribosome biogenesis factor; hyphal-induced expression; Hap43-induced; rat catheter biofilm induced

orf19.7388	<i>PBS2</i>	-1,15	-1,09	MAPK kinase (MAPKK); role in osmotic and oxidative stress responses, oxidative stress adaptation; required for stress regulation of <i>Hog1p</i> localization and activity; functional homolog of <i>S. cerevisiae Pbs2p</i>
orf19.6744		-1,15	-1,35	Ortholog(s) have role in regulation of mitotic metaphase/anaphase transition and cytosol, nucleus localization
orf19.7602	<i>AHA1</i>	-1,15	1,01	Putative Hsp90p co-chaperone; Hap43-repressed; heavy metal (cadmium) stress-induced; oxidative stress-induced via <i>Cap1</i> ; rat catheter biofilm induced; flow model biofilm repressed
orf19.7650	<i>LTV1</i>	-1,15	-1,1	Putative GSE complex component; repressed by prostaglandins
orf19.6250		-1,16	-1,08	Ortholog(s) have eukaryotic initiation factor 4G binding, mRNA binding activity
orf19.740	<i>HAP41</i>	-1,16	-1,41	Putative Hap4-like transcription factor; Hap43-repressed; not required for response to low iron; induced by Mnl1 under weak acid stress; Spider biofilm induced
orf19.5230	<i>MRPS9</i>	-1,16	-1,33	Mitochondrial ribosomal protein S9; has N-terminal mitochondrial targeting signal and an S9 consensus motif; overexpression in <i>S. cerevisiae</i> causes respiratory defect that is reversible upon cessation of <i>C. albicans</i> gene expression
orf19.2726		-1,16	1,14	Putative plasma membrane protein; Plc1-regulated; Spider biofilm induced
orf19.4426	<i>PEX3</i>	-1,16	-1,26	Putative peroxisomal protein involved in targeting proteins into peroxisomes; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.609		-1,16	-1,11	Protein of unknown function; white cell specific transcript
orf19.2383	<i>YKU80</i>	-1,16	-1,08	Yku70p-Yku80p Ku complex subunit involved in nonhomologous end joining during double-strand break repair repair; Hap43-repressed gene; flow model biofilm induced
orf19.298		-1,16	-1,24	Protein of unknown function; flow model biofilm induced
orf19.308		-1,16	-1,19	Ortholog(s) have role in nucleobase-containing compound transport and plasma membrane localization
orf19.3184		-1,16	-1,17	Ortholog(s) have Golgi apparatus, fungal-type vacuole membrane localization
orf19.6211		-1,16	1	Protein of unknown function; protein newly produced during adaptation to the serum
orf19.60		-1,16	-1,21	#NV
orf19.5735	<i>CDC50</i>	-1,16	-1,19	Putative endosomal protein; induced by Mnl1p under weak acid stress
orf19.3129		-1,16	-1,25	Putative chromatin remodelling complex protein; heterozygous null mutant displays sensitivity to virginone; Spider biofilm repressed
orf19.387	<i>GCR3</i>	-1,16	-1,1	Functional homolog of <i>S. cerevisiae Gcr3</i> , which acts in regulation of glycolytic genes; no intron predicted, in contrast to intron in <i>S. cerevisiae GCR3</i> gene
orf19.5085		-1,16	-1,13	Ortholog(s) have nuclear localization sequence binding, protein transporter activity and role in mRNA export from nucleus, protein import into nucleus, regulation of mitosis, regulation of protein desumoylation
orf19.828		-1,16	-1,14	Putative ribosomal protein, large subunit, mitochondrial precursor; repressed by prostaglandins; Spider biofilm repressed
orf19.540		-1,16	-1,13	Has domain(s) with predicted palmitoyl-(protein) hydrolase activity and role in cellular protein modification process
orf19.550	<i>PDX3</i>	-1,16	-1,18	Pyridoxamine-phosphate oxidase; transcript regulated by yeast-hypha switch and by Nrg1, Mig1, Tup1; Hap43, caspofungin repressed; present in exponential and stationary phase yeast cultures
orf19.6904	<i>GCN3</i>	-1,16	-1,11	Putative translation initiator; downregulated in the presence of human whole blood or polymorphonuclear (PMN) cells
orf19.6910	<i>PSF1</i>	-1,16	-1,12	Putative GINS complex subunit which is localized to DNA replication origins; implicated in assembly of the DNA replication machinery; flow model biofilm induced
orf19.336	<i>YAH1</i>	-1,16	-1,15	Protein similar to oxidoreductases; induced in high iron; Hap43-repressed
orf19.342	<i>BMT7</i>	-1,16	-1,11	Beta-mannosyltransferase, member of a 9-gene family that includes characterized genes BMT1, BMT2, BMT3, and BMT4 with roles in beta-1,2-mannosylation of cell wall phosphopeptidomannan; downregulated in azole-resistant strain; Hap43p-induced
orf19.353	<i>ULP1</i>	-1,16	-1,03	SUMO deconjugation enzyme that cleaves the small ubiquitin-like modifier (SUMO) off proteins
orf19.6511	<i>LIG1</i>	-1,16	-1,1	tRNA ligase; functional homolog of <i>S. cerevisiae Trl1</i>
orf19.5268	<i>MED10</i>	-1,16	-1,12	RNA polymerase II mediator complex subunit; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.3057		-1,16	-1,09	Ortholog(s) have role in mitochondrial genome maintenance and endoplasmic reticulum localization
orf19.3065	<i>DAO1</i>	-1,16	-1,31	Putative D-amino acid oxidase; transcription is regulated upon yeast-hyphal switch
orf19.7156	<i>FAA2-3</i>	-1,16	-1,11	Predicted acyl CoA synthetase
orf19.3243	<i>SRP54</i>	-1,16	-1,28	Putative signal recognition particle (SRP) subunit; induced in <i>ssr1</i> null; Spider biofilm repressed
orf19.7305		-1,16	-1,08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_34510, <i>Candida tropicalis</i> MYA-3404 : CTRG_05938 and <i>Candida albicans</i> WO-1 : CAWG_02183
orf19.7307		-1,16	-1,09	Putative oxidoreductase; similar to <i>S. cerevisiae</i> Pqa3p; possible Kex2p substrate
orf19.7052		-1,16	-1,16	Putative polyphosphatidylinositol phosphatase; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7386		-1,16	-1,11	Ortholog(s) have ribosome binding activity
orf19.7417	<i>TSA1</i>	-1,16	1,02	TSA/alkyl hydroperoxide peroxidase C (AHPc) family protein; similar to thiol-dependent peroxidases of oxidative stress signaling; antigenic; hyphal surface, nucleus; yeast-form nucleus, cytoplasm; biofilm, phagocytosis, peroxide induced
orf19.7426		-1,16	-1,1	Ortholog(s) have dolichyl-diphosphooligosaccharide-protein glycotransferase activity, role in protein N-linked glycosylation via asparagine, protein complex assembly and oligosaccharyltransferase complex localization
orf19.5985		-1,16	-1,14	Ortholog(s) have tubulin binding activity, role in tubulin complex assembly and nucleus, polysome, prefoldin complex localization
orf19.3611		-1,17	-1,27	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide
orf19.2832	<i>INN1</i>	-1,17	-1,07	Protein with similarity to <i>S. cerevisiae</i> Inn1p, which is an essential protein of the contractile actomyosin ring required for ingress of the plasma membrane into the bud neck during cytokinesis; contains a C2 membrane targeting domain
orf19.1326		-1,17	-1,14	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_03455
orf19.6167	<i>AYR1</i>	-1,17	1,04	Putative oxidoreductase; transcriptionally induced by interaction with macrophage; rat catheter biofilm repressed
orf19.2313		-1,17	-1,32	Putative ortholog of <i>S. cerevisiae</i> Pex32 a peroxisomal integral membrane protein with a role in negative regulation of peroxisome size; Hap43-repressed gene
orf19.6369	<i>RIO2</i>	-1,17	-1,17	Putative serine kinase with a predicted role in the processing of the 20S pre-rRNA into mature 18S rRNA; null mutants are hypersensitive to caspofungin
orf19.4391		-1,17	-1,14	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_28730, <i>Candida tropicalis</i> MYA-3404 : CTRG_00749 and <i>Candida albicans</i> WO-1 : CAWG_01683
orf19.826	<i>MED1</i>	-1,17	-1,13	RNA polymerase II mediator complex subunit; RNA polymerase II transcription cofactor
orf19.6908		-1,17	-1,15	Dihydrofolate synthetase involved in folic acid biosynthesis
orf19.898	<i>HEM2</i>	-1,17	-1,2	Putative porphobilinogen synthase; induced in high iron; protein level decrease in stationary phase cultures; Spider biofilm repressed
orf19.4035	<i>PGA4</i>	-1,17	-1,62	GPI-anchored cell surface protein; beta-1,3-glucanase/transferase with similarity to the <i>A. fumigatus</i> GEL family; transcript induced in RHE model of oral candidiasis; fluconazol-induced
orf19.6076		-1,17	-1,13	Ortholog(s) have protein transporter activity and role in ascospore formation, cellular response to cadmium ion, detoxification of cadmium ion, intracellular protein transport, retrograde transport, endosome to Golgi
orf19.6517	<i>RAD14</i>	-1,17	-1,13	Putative DNA repair protein; transcription is regulated upon yeast-hyphal switch; flucytosine repressed
orf19.7195	<i>RAD6</i>	-1,17	-1,16	Functional ortholog of <i>S. cerevisiae</i> Rad6; negative regulator of hyphal growth; required for wild-type UV resistance; acts in pathway with Elg1; ; transcript is UV-induced, slightly repressed during hyphal growth; gene has two introns
orf19.7116		-1,17	-1,21	Protein of unknown function; transcript induced in RHE model of oral candidiasis; Spider biofilm repressed
orf19.7047	<i>RTF1</i>	-1,17	-1,13	Putative RNA polymerase II-associated Paf1 complex subunit; induced during the mating process
orf19.7362	<i>SKN1</i>	-1,17	-1,13	Protein with a role in beta-1,6-glucan synthesis; probable N-glycosylated type II membrane protein; transcript and mRNA length change induced by yeast-hypha transition; induced by Rim101, caspofungin; rat catheter and Spider biofilm induced
orf19.7389	<i>REV3</i>	-1,17	-1,17	Ortholog(s) have DNA-directed DNA polymerase activity, role in error-free translesion synthesis, error-prone translesion synthesis and cytosol, mitochondrion, nuclear chromatin, nucleus, zeta DNA polymerase complex localization
orf19.5443	<i>BNA4</i>	-1,17	1,04	#NV
orf19.7481	<i>MDH1</i>	-1,17	-1,19	Mitochondrial malate dehydrogenase; regulated by Mig1, Tup1, white-opaque switch, phagocytosis; induced in high iron; antigenic during murine and human infection; repressed in Spider biofilms by Bcr1, Tect1, Ndt80, Rob1, Brg1
orf19.7619		-1,17	-1,16	Protein with a mitochondrial distribution and morphology domain; possibly an essential gene, disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.7644		-1,17	-1,12	Ortholog(s) have ubiquitin-protein ligase activity, role in anaphase-promoting complex-dependent proteasomal ubiquitin-dependent protein catabolic process, protein ubiquitination and anaphase-promoting complex localization
orf19.7673		-1,17	-1,19	Ortholog(s) have mRNA binding activity, role in mRNA splicing, via spliceosome and U1 snRNP, U2-type prespliceosome, U4/U6 x U5 tri-snRNP complex, U5 snRNP, commitment complex localization
orf19.6002	<i>RPL8B</i>	-1,17	-1,15	Predicted ribosomal protein; regulated upon yeast-hypha switch; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.5544	<i>SAC6</i>	-1,18	1,05	Fimbrin; actin filament bundling protein; transcript regulated by Nrg1 and Mig1; protein level decreases in stationary phase

orf19.2618	<i>MET2</i>	-1,18	1,02	Homoserine acetyltransferase; Hap43p-, Gcn4p-regulated; macrophage/pseudohyphal-repressed; not highly biofilm induced, in contrast to many sulfur amino acid metabolic genes; no human or murine homolog; virulence-group-correlated expression
orf19.1392		-1,18	-1,32	Ortholog(s) have chaperone binding, protein disulfide isomerase activity, unfolded protein binding activity, role in ER-associated protein catabolic process, protein retention in ER lumen and endoplasmic reticulum membrane localization
orf19.2154	<i>HXK1</i>	-1,18	-1,1	N-acetylglucosamine (GlcNAc) kinase; involved in GlcNAc utilization; required for wild-type hyphal growth and mouse virulence; GlcNAc-induced transcript; induced by alpha pheromone in SpiderM medium
orf19.1117		-1,18	-1,11	Protein similar to <i>Candida boidinii</i> formate dehydrogenase; virulence-group-correlated expression; Hap43-repressed; Spider biofilm repressed
orf19.5647	<i>SUB2</i>	-1,18	-1,23	Putative TREX complex component with a predicted role in nuclear mRNA export; transcription is regulated by Mig1; Hap43-induced gene; Spider biofilm repressed
orf19.5528	<i>MOB1</i>	-1,18	-1,11	Putative mitotic exit network component; periodic mRNA expression, peak at cell-cycle G2/M phase
orf19.5785		-1,18	-1,35	Protein of unknown function; upregulated in a <i>cvr1</i> or <i>ras1</i> null mutant; induced by nitric oxide
orf19.2146	<i>HAT2</i>	-1,18	-1,11	Putative Hat1-Hat2 histone acetyltransferase complex subunit; role in DNA damage repair and morphogenesis; mutations cause constitutive pseudohyphal growth, caspofungin sensitivity; rat catheter and Spider biofilm repressed
orf19.2307		-1,18	-1,06	Ortholog(s) have role in mRNA cleavage, mRNA polyadenylation, mitotic sister chromatid segregation, regulation of G1/S transition of mitotic cell cycle and cytosol, mRNA cleavage and polyadenylation specificity factor complex localization
orf19.6376	<i>PTC5</i>	-1,18	-1,41	Mitochondrial protein phosphatase of the Type 2C-related family (serine/threonine-specific), involved in drug response and cadmium tolerance
orf19.3138	<i>NOP1</i>	-1,18	1,02	Nucleolar protein; flucytosine induced; Hap43-induced; Spider biofilm repressed
orf19.5092		-1,18	-1,13	Ortholog of <i>C. parapsilosis</i> CDC317 : CPAR2_207660.1, <i>C. dubliniensis</i> CD36 : Cd36_07680, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113324 and <i>Debaromyces hansenii</i> CBS767 : DEHA2C11088q
orf19.4388		-1,18	-1,17	Protein with a histone fold domain; similar to TAFII47 proteins from <i>S. cerevisiae</i> , <i>Danio rerio</i> , <i>Drosophila melanogaster</i> , human, and mouse
orf19.2960	<i>FRS2</i>	-1,18	-1,14	Putative tRNA-Phe synthetase; downregulated upon phagocytosis by murine macrophage; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.536		-1,18	-1,15	Ortholog(s) have chromatin binding, protein complex scaffold, ubiquitin binding activity and role in histone acetylation, transcription from RNA polymerase II promoter
orf19.6665		-1,18	-1,12	Ortholog(s) have Ran GTPase binding, nucleocytoplasmic transporter activity
orf19.4088	<i>GLO2</i>	-1,18	-1,15	Ortholog(s) have hydroxyacylglutathione hydrolase activity, role in cellular carbohydrate metabolic process, methylglyoxal catabolic process to D-lactate and cytosol, nucleus localization
orf19.3104	<i>YDC1</i>	-1,18	-1,09	Alkaline dihydroceramidase; involved in sphingolipid metabolism; Mob2-dependent hyphal regulation; transcript is regulated by <i>Nrg1</i> and <i>Mig1</i> ; Hap43-repressed
orf19.875		-1,18	-1,18	Protein required for respiratory growth
orf19.6512	<i>EXO70</i>	-1,18	-1,11	Predicted subunit of the exocyst complex, involved in exocytosis; localizes to a crescent on the surface of the hyphal tip
orf19.5270		-1,18	-1,11	Protein of unknown function; rat catheter biofilm induced
orf19.6387	<i>HSP104</i>	-1,18	-1,26	Heat-shock protein; roles in biofilm and virulence; complements chaperone, prion activity in <i>S. cerevisiae</i> ; guanidine-insensitive; heat shock/stress induced; repressed in farnesol-treated biofilm; sumoylation target; Spider biofilm induced
orf19.7370		-1,18	-1,14	Possible G-protein coupled receptor; vacuolar membrane transporter for cationic amino acids; PQ-loop motif; rat catheter and Spider biofilm induced
orf19.7394	<i>GDA1</i>	-1,18	-1,16	Golgi membrane GTPase, required for wild-type O-mannosylation, not N-glycosylation; required for wild-type hyphal induction, cell wall, and cell surface charge; not required for HeLa cell adherence; functional homolog of <i>S. cerevisiae</i> <i>Gda1p</i>
orf19.7437		-1,18	1	Putative protein of unknown function; Hap43p-repressed gene; ortholog of <i>S. cerevisiae</i> YJL218W
orf19.5440	<i>RPT2</i>	-1,18	-1,07	Putative ATPase of the 19S regulatory particle of the 26S proteasome; oxidative stress-induced via Cap1; Spider biofilm repressed
orf19.7592	<i>FAA4</i>	-1,18	-1,13	Predicted acyl CoA synthase
orf19.7646		-1,18	-1,15	Ortholog(s) have role in box C/D snoRNP assembly, protein folding, rRNA processing, regulation of cell size and R2TP complex, cytoplasm, nucleus, small nucleolar ribonucleoprotein complex localization
orf19.7655	<i>RPO21</i>	-1,18	-1,37	RNA polymerase II; ortholog of <i>S. cerevisiae</i> Rpo21, transposon mutation affects filamentous growth; flow model biofilm repressed
orf19.7662		-1,18	-1,24	Ortholog(s) have RNA polymerase II core binding activity, role in mRNA 3'-end processing, negative regulation of transcription, RNA-mediated and nuclear chromatin, site of double-strand break localization
orf19.1183		-1,19	-1,16	Ortholog(s) have fungal-type vacuole localization
orf19.1485		-1,19	-1,35	Mitochondrial ribosomal protein of the large subunit; rat catheter biofilm induced
orf19.2559	<i>CDC4</i>	-1,19	-1,06	F-box subunit of SCF(CDC4) ubiquitin ligase; functional homolog of <i>S. cerevisiae</i> Cdc4; mutation/deletion causes hyperfilamentation; <i>Sol1</i> is a substrate of SCF-Cdc4; Spider biofilm induced
orf19.105	<i>HAL22</i>	-1,19	-1,17	Putative phosphoadenosine-5'-phosphate or 3'-phosphoadenosine 5'-phosphosulfate phosphatase; possible role in sulfur recycling; Hap43-repressed; F-12/CO2 biofilm induced
orf19.3922		-1,19	-1,02	Possible pyrimidine 5' nucleotidase; protein present in exponential and stationary growth phase yeast cultures; Hap43p-repressed gene
orf19.5682		-1,19	-1,26	Ortholog(s) have protein binding, bridging, protein transporter activity and role in chromosome condensation, protein import into nucleus, protein targeting to membrane, regulation of mitotic cell cycle
orf19.1580		-1,19	-1,14	Protein of unknown function; Spider biofilm induced
orf19.5094	<i>BUL1</i>	-1,19	-1,12	Protein similar but not orthologous to <i>S. cerevisiae</i> Bul1; a protein involved in selection of substrates for ubiquitination; mutants are viable; macrophage/pseudohyphal-induced; rat catheter biofilm induced
orf19.513		-1,19	-1,13	Protein with a DNA-binding domain, similar to <i>S. cerevisiae</i> meiosis-specific transcription factor <i>Ndt80p</i>
orf19.532	<i>RBR2</i>	-1,19	-1,14	Cell wall protein; expression repressed by Rim101; transcript regulated upon white-opaque switching; repressed by alpha pheromone in SpiderM medium; macrophage-induced gene
orf19.4086		-1,19	-1,19	Ortholog(s) have cytoplasm localization
orf19.6723		-1,19	-1,09	Protein of unknown function; Spider biofilm induced
orf19.3296		-1,19	-1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_01020, <i>C. parapsilosis</i> CDC317 : CPAR2_110130, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_93515 and <i>Debaromyces hansenii</i> CBS767 : DEHA2D14542q
orf19.868	<i>ADAEC</i>	-1,19	-1,18	Protein of unknown function; transcription is specific to white cell type
orf19.3012	<i>ARO80</i>	-1,19	-1,18	Zn(II)Cys6 transcription factor; transcriptional activator of aromatic amino acid catabolism; regulator of aromatic alcohol biosynthesis via the Ehrlich pathway; mutant is viable
orf19.7190	<i>OGG1</i>	-1,19	-1,11	Mitochondrial glycosylase/lyase; repairs oxidative damage to mitochondrial DNA, contributes to UVA resistance, role in base-excision repair; Spider biofilm induced
orf19.7263		-1,19	-1,21	Putative X-Pro aminopeptidase; Spider biofilm repressed
orf19.7054		-1,19	-1,13	Dubious open reading frame
orf19.7364		-1,19	-1,14	Has domain(s) with predicted N,N-dimethylaniline monooxygenase activity, NADP binding, flavin adenine dinucleotide binding activity and role in oxidation-reduction process
orf19.6770		-1,19	-1,19	protein with ENTH Epsin domain, N-terminal; Spider biofilm repressed
orf19.7615		-1,19	-1,16	Protein involved in endoplasmic reticulum (ER) to Golgi vesicle-mediated transport; putative subunit of the transport protein particle (TRAPP) complex of the cis-Golgi; Spider biofilm induced
orf19.1975		-1,2	-1,25	Ortholog(s) have role in mRNA splicing, via spliceosome and U4/U6 x U5 tri-snRNP complex, U5 snRNP localization
orf19.2531	<i>CSP37</i>	-1,2	1,05	Hyphal cell wall protein; role in progression of mouse systemic infection; predicted P-loop, divalent cation binding, N-glycosylation sites; expressed in yeast and hyphae; hyphal downregulated; stationary-phase enriched; GlcNAc-induced
orf19.7127.1		-1,2	-1,23	Putative protein of unknown function, transcript is upregulated in an RHE model of oral candidiasis
orf19.2852		-1,2	-1,26	Ortholog(s) have structural constituent of ribosome activity, role in mitochondrial translational initiation and mitochondrial small ribosomal subunit localization
orf19.5288	<i>IFE2</i>	-1,2	-1,25	Putative alcohol dehydrogenase; yeast-enriched transcript; E1g1-regulated; induced by prostaglandins, Hog1, fluconazole; rat catheter biofilm induced
orf19.3881		-1,2	-1,15	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_31790, <i>C. parapsilosis</i> CDC317 : CPAR2_204900, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_136864 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F13200q
orf19.2248	<i>ARE2</i>	-1,2	-1,01	Acyl CoA:sterol acyltransferase; uses cholesterol and oleoyl-CoA substrates; protuberberine derivative drug inhibits enzyme activity; ketoconazole-induced; Hap43-repressed; flow model biofilm induced; Spider biofilm induced
orf19.2036		-1,2	-1,29	Predicted dihydriodol dehydrogenase; ortholog of <i>S. pombe</i> SPAC513.06c; flow model and rat catheter biofilm repressed
orf19.4384	<i>HXT5</i>	-1,2	-1,12	Putative sugar transporter; induced by ciclopirox olamine; Snf3-induced; alkaline repressed; colony morphology-related gene regulation by <i>Ssn6</i> ; possibly essential gene
orf19.425		-1,2	-1,24	Has domain(s) with predicted translation release factor activity and role in translational termination
orf19.428		-1,2	-1,31	Putative serine/threonine kinase; induced dunno planktonic growth; rat catheter biofilm repressed
orf19.679	<i>FGR39</i>	-1,2	-1,2	Protein lacking an ortholog in <i>S. cerevisiae</i> ; transposon mutation affects filamentous growth
orf19.6682		-1,2	-1,12	#NV
orf19.3305	<i>ZCF17</i>	-1,2	-1,15	Putative Zn(II)Cys6 transcription factor
orf19.7197		-1,2	-1,18	Putative intranuclear transport and DNA replication mediator; heterozygous null mutant exhibits resistance to parnafungin in the <i>C. albicans</i> fitness test; Spider biofilm induced

orf19.7420		-1,2	-1,21	Ortholog(s) have RNA polymerase II transcription coactivator activity involved in preinitiation complex assembly activity
orf19.4362		-1,21	-1,16	Ortholog(s) have role in protein targeting to mitochondrion and mitochondrial outer membrane localization
orf19.3706		-1,21	-1,42	Has domain(s) with predicted oxidoreductase activity, zinc ion binding activity and role in oxidation-reduction process
orf19.6377		-1,21	-1,18	Ortholog(s) have protein C-terminal leucine carboxyl O-methyltransferase activity, role in C-terminal protein methylation, cellular protein complex assembly and mitochondrion localization
orf19.4388		-1,21	-1,45	Protein with a histone fold domain; similar to TAF147 proteins from <i>S. cerevisiae</i> , <i>Danio rerio</i> , <i>Drosophila melanogaster</i> , <i>human</i> , and <i>mouse</i>
orf19.538		-1,21	-1,13	Ortholog(s) have role in GPI anchor biosynthetic process and glycosylphosphatidylinositol-N-acetylglucosaminyltransferase (GPI-GnT) complex localization
orf19.899		-1,21	-1,2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_18040, <i>C. parapsilosis</i> CDC317 : CPAR2_211790, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_109928 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2E21010g
orf19.2089		-1,21	-1,17	Ortholog of Nvy1, v-SNARE component of the vacuolar SNARE complex involved in vesicle fusion in <i>S. cerevisiae</i> ; Hap43-repressed gene
orf19.6432		-1,21	-1,13	Ortholog(s) have ATPase activity, role in response to drug, ribosomal large subunit biogenesis and cytosol, preribosome, large subunit precursor localization
orf19.43		-1,21	-1,5	#NV
orf19.7222	PAM16	-1,21	-1,14	Putative maltase; regulated by Gcn4; repressed by amino acid starvation (3-AT); rat catheter biofilm induced
orf19.631		-1,21	-1,23	#NV
orf19.7596		-1,21	-1,14	Protein with a phosphoglycerate mutase family domain; Hap43-repressed gene
orf19.3167		-1,22	-1,27	Heme A:farnesyltransferase; catalyzes the 1st step in conversion of protoheme to the heme A prosthetic group required for cytochrome c oxidase activity; Spider biofilm repressed
orf19.1180		-1,22	-1,32	Putative 2-aminoadipate transaminase; rat catheter and Spider biofilm repressed
orf19.3799		-1,22	-1,31	Ortholog(s) have role in endoplasmic reticulum tubular network maintenance, nuclear pore complex assembly and Golgi apparatus, cortical endoplasmic reticulum, integral to endoplasmic reticulum membrane, mitochondrion localization
orf19.1655	PXP2	-1,22	-1,24	Putative acyl-CoA oxidase; enzyme of fatty acid beta-oxidation; induced during macrophage infection; opaque specific transcript; putative peroxisome targeting signal; Spider biofilm induced
orf19.93		-1,22	-1,31	Putative mitochondrial intermembrane space protein; colony morphology-related gene regulation by Ssn6; regulated by Sef1, Sfu1, and Hap43; Spider biofilm repressed; rat catheter biofilm induced
orf19.1371		-1,22	-1,28	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_23880, <i>C. parapsilosis</i> CDC317 : CPAR2_806590, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_92769 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2B13376g
orf19.5681		-1,22	-1,08	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_50190, <i>C. parapsilosis</i> CDC317 : CPAR2_302680, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_109949 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G00814g
orf19.1324	RAD2	-1,22	-1,1	Ortholog of <i>S. cerevisiae</i> Rad2, a nucleotide excision repair nuclease; null mutant is extremely sensitive to UV irradiation; transcript induced by interaction with macrophages
orf19.1358	GCN4	-1,22	-1,41	bZIP transcription factor; amino acid control response; required for Efg1-dependent pseudohyphal induction by amino acid starvation, not by serum; human whole blood and PMN induced; required for biofilm formation; Spider biofilm induced
orf19.1395		-1,22	-1,24	Ortholog(s) have inorganic phosphate transmembrane transporter activity, role in phosphate ion transport, transmembrane transport and mitochondrion localization
orf19.2178	MRS4	-1,22	-1,08	Mitochondrial carrier family member, involved in iron homeostasis; putative membrane transporter localized to the mitochondrial membrane; transcription under control of Atf2p; regulated by Sef1p, Sfu1p, and Hap43p
orf19.6592		-1,22	-1,03	Predicted membrane transporter, member of the aromatic acid:proton symporter (AAHS) family, major facilitator superfamily (MFS)
orf19.1412		-1,22	-1,22	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_44020, <i>C. parapsilosis</i> CDC317 : CPAR2_302330, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_105448 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2C10582g
orf19.3126	CCT6	-1,22	-1,09	Putative cytosolic chaperonin Cct ring complex subunit; mutation confers hypersensitivity to cytochalasin D; GlcNAc-induced protein; Spider biofilm repressed
orf19.6906	ASC1	-1,22	-1,14	40S ribosomal subunit similar to G-beta subunits; glucose or N starvation induced filamentation; required for virulence in mice; snoRNA snR24 encoded in ASC1 intron; repressed in stationary phase; GlcNAc-induced; Spider biofilm repressed
orf19.7164		-1,22	-1,49	Ortholog(s) have role in vacuolar protein processing and Golgi apparatus, endoplasmic reticulum, fungal-type vacuole membrane localization
orf19.7188	RPP1B	-1,22	-1,12	Conserved acidic ribosomal protein, likely involved in regulation of translation elongation; interacts with Rpp2A; 1 of 4 similar <i>C. albicans</i> ribosomal proteins (Rpp1A, Rpp1B, Rpp2A, Rpp2B); induced by Tbf1; Spider biofilm repressed
orf19.7217	RPL4B	-1,22	-1,13	Ribosomal protein 4B; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.7115	SAC7	-1,22	-1,08	Putative GTPase activating protein (GAP) for Rho1; repressed upon adherence to polystyrene; macrophage/pseudohyphal-repressed; transcript is upregulated in RHE model of oral candidiasis and in clinical oral candidiasis
orf19.7590		-1,22	-1,17	Putative NADH-ubiquinone oxidoreductase; identified in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation; repressed by nitric oxide
orf19.7617		-1,22	-1,15	Ortholog(s) have peptide alpha-N-acetyltransferase activity, role in N-terminal protein amino acid acetylation, histone acetylation and NatA complex, cytosol, cytosolic ribosome, nucleus localization
orf19.5184		-1,23	-1,07	Putative Ran guanyl-nucleotide exchange factor; probable signal transducer; Spider biofilm repressed
orf19.94		-1,23	-1,4	Protein of unknown function; Spider biofilm induced
orf19.4468		-1,23	-1,36	Putative succinate dehydrogenase; localized to the mitochondrial membrane; Hap43p-repressed gene
orf19.5521	ISA1	-1,23	-1,29	Putative mitochondrial iron-sulfur protein; alkaline repressed; induced in high iron; regulated by Sef1, Sfu1, Hap43; Spider biofilm induced
orf19.2828		-1,23	-1,09	Ortholog(s) have alpha-tubulin binding, microtubule binding activity, role in post-chaperonin tubulin folding pathway and cytosol, nucleus localization
orf19.4293		-1,23	-1,32	Ortholog(s) have role in iron-sulfur cluster assembly, ribosomal large subunit export from nucleus, tRNA wobble uridine modification and cytosol, nucleus localization
orf19.4809	ERG12	-1,23	-1,24	Ortholog(s) have mevalonate kinase activity and role in ergosterol biosynthetic process, farnesyl diphosphate biosynthetic process, mevalonate pathway, isopentenyl diphosphate biosynthetic process, mevalonate pathway
orf19.6548	ISU1	-1,23	-1,42	Protein with similarity to NiU; possible role in iron-sulfur cluster biogenesis; induced in low iron; rat catheter biofilm induced; rat catheter and Spider biofilm induced
orf19.1361	TIM23	-1,23	-1,3	Protein involved in mitochondrial matrix protein import
orf19.6371		-1,23	-1,16	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_33750, <i>C. parapsilosis</i> CDC317 : CPAR2_205650, <i>Candida tenuis</i> NRRL Y-1498 : cten_CGOB_00253 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2A11088g
orf19.7550	IFA14	-1,23	-1,3	Putative LPF family protein; Plc1-regulated; induced by alpha pheromone in SpiderM medium
orf19.827		-1,23	-1,45	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_18620, <i>C. parapsilosis</i> CDC317 : CPAR2_212480, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115371 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D06798g
orf19.5665		-1,23	-1,15	Ortholog(s) have D-arabinose 1-dehydrogenase [NAD(P)+] activity and role in dehydro-D-arabinono-1,4-lactone biosynthetic process
orf19.3298	CCH1	-1,23	-1,14	Voltage-gated Ca2+ channel of the high affinity calcium uptake system; roles in thigmotaxis, establishment of galvanotaxis; transcript regulated by Nrg1 and Mig1; flow model biofilm repressed
orf19.3994		-1,23	-1,36	Dolichyl-diphosphooligosaccharide-protein glycotransferase; predicted role in protein N-linked glycosylation, protein O-linked mannosylation; Spider biofilm repressed
orf19.5236		-1,23	-1,14	Ortholog(s) have dehydrodolichyl diphosphate synthase activity, role in protein glycosylation and lipid particle localization
orf19.7167		-1,23	-1,19	Putative adhesin-like protein
orf19.7179		-1,23	-1,26	Ortholog(s) have role in intracellular sequestering of iron ion, iron-sulfur cluster assembly, protein maturation and mitochondrial matrix localization
orf19.6818		-1,23	-1,14	Ortholog(s) have cytosol, mitochondrion localization
orf19.7588		-1,23	-1,13	Ortholog(s) have mitochondrion localization
orf19.7611	TRX1	-1,23	-1,22	Thioredoxin; involved in response to reactive oxygen species; biofilm, benomyl, flucytosine, peroxide, Hap43 induced; amphoterin B, caspofungin repressed; induced by human neutrophils; macrophage-repressed gene
orf19.3590	IPP1	-1,24	-1,23	Putative inorganic pyrophosphatase; antigenic; soluble protein in hyphae; macrophage-induced protein; protein present in exponential and stationary phase yeast; possibly essential (UAU1 method); sulfonation target; Spider biofilm repressed
orf19.1158		-1,24	-1,24	Ortholog of <i>S. cerevisiae</i> YH2 required for normal ER membrane biosynthesis; Hap43-repressed gene
orf19.4727		-1,24	-1,31	Ortholog(s) have succinate dehydrogenase (ubiquinone) activity
orf19.637	SDH2	-1,24	-1,21	Succinate dehydrogenase, Fe-S subunit; localizes to surface of yeast cells, but not hyphae; induced in high iron and during log phase aerobic growth; repressed by nitric oxide, Hap43
orf19.3400	COQ3	-1,24	-1,48	Protein with a predicted role in coenzyme Q biosynthesis; transcriptionally induced by interaction with macrophages; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.6180		-1,24	-1,07	Protein similar to <i>Pichia anomala</i> YDL054c and <i>S. cerevisiae</i> Ydl054cp; transmembrane regions predicted; Hap43p-repressed gene
orf19.6366		-1,24	-1,17	Has domain(s) with predicted RNA binding activity
orf19.3291	HMT1	-1,24	-1,18	Major type I protein arginine methyltransferases (PRMT); involved in asymmetric dimethylation of arginine residues; involved in nuclear export of Npl3; Spider biofilm repressed
orf19.905	AVT7	-1,24	-1,31	Ortholog of <i>S. cerevisiae</i> Avt7 transporter; repressed upon adherence to polystyrene; constitutive expression independent of MTL or white-opaque status; Spider biofilm induced

orf19.3827		-1.24	-1.35	Ortholog(s) have metalloendopeptidase activity, role in misfolded or incompletely synthesized protein catabolic process and mitochondrial inner membrane localization
orf19.5475		-1.24	-1.26	Sef1p-, Sfu1p-, and Hap43p-regulated gene
		-1.24	-1.17	#NV
		-1.24	-1.18	#NV
		-1.24	-1.17	#NV
orf19.3392	DOG1	-1.25	-1.35	Putative 2-deoxyglucose-6-phosphatase; haloacid dehalogenase hydrolase/phosphatase superfamily; similar to S. cerevisiae Dog1, Dog2, Hor1, Rhr2; regulated by Nrg1, Tup1; Spider biofilm repressed
orf19.4317	GRE3	-1.25	-1.02	Putative D-xylose reductase; antigenic in murine systemic infection; soluble protein in hyphae; induced by farnesol, macrophage interaction and by Mnl1 under weak acid stress; stationary-phase enriched protein; Spider biofilm induced
orf19.4816		-1.25	-1.31	Protein of unknown function; induced by nitric oxide
orf19.6102	RCA1	-1.25	-1.29	Protein involved in regulation of carbonic anhydrases; controls CO2 sensing; bZIP domain-containing transcription factor of the ATF/CREB family; null mutant displays slow growth, abnormal colony morphology and invasive growth
orf19.4096	TAZ1	-1.25	-1.4	Putative lyso-phosphatidylcholine acyltransferase, required for normal phospholipid content of mitochondrial membranes; rat catheter biofilm induced
orf19.3122	ARR3	-1.25	-1.28	ortholog of S. cerevisiae Arr3; arsenite transporter of the plasma membrane required for resistance to arsenic compounds; benomyl-induced; Gcn4-regulated; Hap43-repressed; mutant is viable; Spider biofilm induced
orf19.897	VPS20	-1.25	-1.23	ESCRT III complex protein; role in multivesicular body (MVB) trafficking; required for processing of Rim8; Bcr1-repressed in RPM1 a/a biofilms
orf19.7316		-1.25	-1.28	Putative phytanoyl-CoA dioxygenase family protein; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); induced by nitric oxide
orf19.7513	ALK2	-1.25	-1.1	N-Alkane inducible cytochrome P450
orf19.6337	TLO13	-1.25	-1.25	Member of a family of telomere-proximal genes of unknown function; may be spliced in vivo; overlaps orf19.6337.1, which is a region annotated as blocked reading frame
orf19.7625	PGA1	-1.25	-1.17	Putative GPI-anchored protein; induced during cell wall regeneration; required for normal adhesion to host cells and for adherence during Sabouraud biofilm formation; Spider biofilm induced
orf19.7414	ALS6	-1.26	-1.31	ALS family protein; expression in S. cerevisiae confers adhesion to gelatin; macrophage-induced gene; N-terminal adhesion domain; ALS family includes cell-surface glycoproteins, some with adhesion function
orf19.6253	RPS23A	-1.26	-1.04	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.1160		-1.26	-1.39	Ortholog(s) have COP11 adaptor activity and role in ER to Golgi vesicle-mediated transport, fungal-type cell wall organization, protein glycosylation, protein retention in Golgi apparatus
orf19.4751		-1.26	-1.2	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.1959		-1.26	-1.12	Ortholog(s) have ubiquitin-specific protease activity, role in protein deubiquitination and cytosol, ribosome localization
orf19.5639	HIS4	-1.26	-1.26	Multifunctional enzyme that catalyzes three steps of histidine biosynthesis, with phosphoribosyl-AMP cyclohydrolase, phosphoribosyl-ATP diphosphatase, and histidinol dehydrogenase activities; required for wild-type adhesion to human cells
orf19.6231	MRPL19	-1.26	-1.3	Putative ribosomal protein; induced upon adherence to polystyrene; Spider biofilm repressed
orf19.2151	NAG6	-1.26	-1.34	Protein required for wild-type mouse virulence and wild-type cycloheximide resistance; putative GTP-binding motif; similar to S. cerevisiae Yor165Wp; in gene cluster that encodes enzymes of GlcNAc catabolism; no human or murine homolog
orf19.6181		-1.26	-1.24	Ortholog of Candida albicans WO-1 : CAWG_03093
orf19.6356		-1.26	-1.22	Ortholog(s) have role in mRNA splicing, via spliceosome and U4/U6 x U5 tri-snRNP complex localization
orf19.589	VPS21	-1.26	-1.17	Late endosomal Rab small monomeric GTPase involved in transport of endocytosed proteins to the vacuole; involved in filamentous growth and virulence; Spider biofilm induced
orf19.5113	ADH2	-1.26	-1.01	Alcohol dehydrogenase; soluble in hyphae; expression regulated by white-opaque switching; regulated by Ssn6; induced by Mnl1 in weak acid stress; protein enriched in stationary phase yeast cultures; Spider biofilm induced
orf19.5323	MDH1-3	-1.26	-1.68	Predicted malate dehydrogenase; farnesol regulated; protein present in exponential and stationary growth phase yeast; Hap43p-repressed gene
orf19.7680	CTA26	-1.26	-1.62	Putative transcription factor/activator; Med2 mediator complex domain; transcript is upregulated in an RHE model of oral candidiasis; member of a family of telomere-proximal genes; Efg1, Hap43-repressed
		-1.26	-1.19	#NV
orf19.3772		-1.27	-1.19	#NV
orf19.5747		-1.27	-1.25	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.3938		-1.27	-1.29	Putative mitochondrial ribosomal protein of the small subunit; mutation confers hypersensitivity to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine)
orf19.2192	GDH2	-1.27	-1.55	Putative NAD-specific glutamate dehydrogenase; fungal-specific; transcript regulated by Nrg1, Mig1, Tup1, and Gcn4; stationary phase enriched protein; flow model biofilm induced; Spider biofilm induced
orf19.688		-1.27	-1.12	Mitochondrial ribosomal protein of the small subunit; S. cerevisiae ortholog is essential for viability; Spider biofilm repressed
orf19.3540	MAK5	-1.27	-1.2	Putative nucleolar DEAD-box RNA helicase; oxidative stress-repressed via Cap1; repressed by prostaglandins
orf19.3508		-1.27	-1.45	Putative protein of unknown function; stationary phase enriched protein
orf19.3347	RPB7	-1.27	-1.25	Functional homolog of S. cerevisiae Rpb7; essential subunit of RNA Polymerase II; enhances hyperfilamentation of an S. cerevisiae rpb4 mutant; suppresses defects of S. cerevisiae rpb4 and ess1 mutants; Spider biofilm repressed
orf19.3859		-1.27	-1.25	Putative microsomal beta-keto-reductase; transcript upregulated by treatment with ciclopirox olamine; induced by alpha pheromone in SpiderM medium; regulated by Sef1, Sfu1, and Hap43
orf19.6085	RPL16A	-1.27	-1.72	Ribosomal protein; transposon mutation affects filamentous growth; repressed upon phagocytosis by murine macrophages; Hap43-induced; Spider biofilm repressed
orf19.4533		-1.27	-1.05	Ortholog(s) have ribosome localization
orf19.4097		-1.27	-1.15	Ortholog of C. dubliniensis CD36 : Cd36_23480, C. parapsilosis CDC317 : CPAR2_407050, Candida tenuis NRRL Y-1498 : CANTEDRAFT_116822 and Debaryomyces hansenii CBS767 : DEHA2B02046q
orf19.3297		-1.27	-1.36	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.3310		-1.27	-1.31	Protein of unknown function; Hap43-repressed; rat catheter and Spider biofilm induced
orf19.7181		-1.27	-1.13	Ortholog of C. dubliniensis CD36 : Cd36_73670, C. parapsilosis CDC317 : CPAR2_702370, Candida tenuis NRRL Y-1498 : CANTEDRAFT_119320 and Debaryomyces hansenii CBS767 : DEHA2G16632q
orf19.7549	PMT5	-1.27	-1.08	Protein mannosyltransferase (PMT), expressed at extremely low levels; not required for wild-type hyphal growth, drug resistance, or virulence in mouse systemic infection; one of five PMT family members
orf19.5934		-1.27	-1.17	Ortholog(s) have DNA topoisomerase type I activity
		-1.27	-1.26	#NV
orf19.6253	RPS23A	-1.28	-1.36	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.3757	ATP20	-1.28	-1.63	Putative mitochondrial ATP synthase; shows colony morphology-related gene regulation by Ssn6p; flucytosine induced; caspofungin repressed; macrophage/pseudohyphal-induced
orf19.5143	TIM54	-1.28	-1.36	Predicted component of the mitochondrial TIM22 complex; involved in protein import into mitochondrial inner membrane; Spider biofilm repressed
orf19.5296		-1.28	-1.39	Ortholog(s) have role in mitochondrial respiratory chain complex IV assembly and integral to mitochondrial inner membrane localization
orf19.5098	NTG1	-1.28	-1.42	Protein with strong similarity to both S. cerevisiae Ntg1 and Ntg2 DNA repair glycosylases; transcript induced by iron; Hap43-repressed gene; Spider biofilm induced
orf19.2151	NAG6	-1.28	-1.26	Protein required for wild-type mouse virulence and wild-type cycloheximide resistance; putative GTP-binding motif; similar to S. cerevisiae Yor165Wp; in gene cluster that encodes enzymes of GlcNAc catabolism; no human or murine homolog
orf19.583		-1.28	-1.28	Indoleamine 2,3-dioxygenase (IDO); rate-limiting enzyme of tryptophan catabolism via kynurenine; enzyme inhibition by 1-methyl-D,L-tryptophan increases hyphal growth; expressed in yeast and hyphae; rat catheter and Spider biofilm induced
orf19.3573	PEX6	-1.28	-1.63	Ortholog(s) have ATPase activity, protein heterodimerization activity, role in protein import into peroxisome matrix, receptor recycling, replicative cell aging and cytosol, nucleus, peroxisome localization
orf19.6358		-1.28	-1.17	Ortholog(s) have protein homodimerization activity, ubiquitin-protein ligase activity and role in free ubiquitin chain polymerization, postreplication repair, protein K63-linked ubiquitination
orf19.4943	PSA2	-1.28	-1.62	Mannose-1-phosphate guanylyltransferase; Hap43, macrophage-repressed; stationary phase enriched protein; Spider biofilm induced; rat catheter biofilm repressed
orf19.392		-1.28	-1.32	Ortholog(s) have role in mitochondrial respiratory chain complex III assembly and integral to mitochondrial membrane localization
orf19.4836	URA1	-1.28	-1.55	Dihydroorotate dehydrogenase; de novo pyrimidine biosynthesis; regulated by yeast-hypha switch, Nrg1/Mig1/Tup1; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.7181		-1.28	-1.32	Ortholog of C. dubliniensis CD36 : Cd36_73670, C. parapsilosis CDC317 : CPAR2_702370, Candida tenuis NRRL Y-1498 : CANTEDRAFT_119320 and Debaryomyces hansenii CBS767 : DEHA2G16632q
orf19.3264	CCE1	-1.28	-1.19	Putative Holliday junction resolving enzyme; similar to S. cerevisiae Cce1p
orf19.5352		-1.28	-1.36	Protein with a predicted magnesium transporter domain; mutants are viable
orf19.7078		-1.28	-1.6	Ortholog(s) have role in meiosis and cytoplasm localization
		-1.28	-1.17	#NV
orf19.3946		-1.29	-1.55	Ortholog(s) have membrane insertase activity, role in protein insertion into mitochondrial membrane from inner side, respiratory chain complex IV assembly and integral to mitochondrial inner membrane localization

orf19.4895		-1.29	-1.28	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_09650, <i>C. parapsilosis</i> CDC317 : CPAR2_805060, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_95780 and <i>Debaromyces hansenii</i> CBS767 : DEHA2B12320g
orf19.2835		-1.29	-1.13	Ortholog(s) have SUMO activating enzyme activity, role in protein sumoylation, regulation of mitotic cell cycle, response to DNA damage stimulus and SUMO activating enzyme complex, cytosol localization
orf19.5845	<i>RNR3</i>	-1.29	-1.14	Putative ribonucleotide reductase large subunit; transcript induced in low iron; rat catheter and Spider biofilm induced
orf19.2422	<i>ARC1</i>	-1.29	-1.38	Putative G4 nucleic acid binding protein; macrophage/pseudohyphal-repressed; protein enriched in stationary phase yeast-form cultures; Spider biofilm repressed
orf19.5157		-1.29	-1.25	Protein with a protein tyrosine phosphatase-like protein domain; putative membrane-spanning regions; rat catheter biofilm induced
orf19.354		-1.29	-1.21	Ortholog(s) have aminopeptidase activity, role in protein processing, protein stabilization and extrinsic to mitochondrial inner membrane, nucleus localization
orf19.6058	<i>GLO1</i>	-1.29	-1.21	Putative monomeric glyoxalase I; oxidative stress-induced via Cap1; flow model and rat catheter biofilm repressed
orf19.5255	<i>PXA2</i>	-1.29	-1.4	Putative peroxisomal, half-size adrenoleukodystrophy protein (ALD or ALDP) subfamily ABC transporter; Gcn4p-regulated
orf19.3026	<i>MAS1</i>	-1.29	-1.22	Putative mitochondrial processing protease; Hap43-repressed; transcript regulated by Nrg1; oxidative stress-induced via Cap1
orf19.7391	<i>OCH1</i>	-1.29	-1.61	Alpha-1,6-mannosyltransferase; initiates N-glycan outer chain branch addition; similar to <i>S. cerevisiae</i> Och1p; required for wild-type virulence in mouse intravenous infection; fungal-specific (no human or murine homolog)
orf19.7672		-1.29	-1.16	Ortholog(s) have role in ER-associated protein catabolic process, endoplasmic reticulum unfolded protein response and Doa10p ubiquitin ligase complex, Hrd1p ubiquitin ligase ERAD-L complex, endoplasmic reticulum localization
orf19.1149	<i>MRF1</i>	-1.3	-1.39	Putative mitochondrial respiratory protein; induced by farnesol, benomyl, nitric oxide, core stress response; oxidative stress-induced via Cap1; stationary-phase enriched protein; Spider biofilm induced
orf19.4406	<i>NIF3</i>	-1.3	-1.28	Protein of unknown function; ortholog of <i>S. cerevisiae</i> Nif3; rat catheter biofilm repressed
orf19.3087	<i>UBI3</i>	-1.3	-1.74	Fusion of ubiquitin with the S34 protein of the small ribosomal subunit; mRNA decreases upon heat shock, appears to be degraded; functional homolog of <i>S. cerevisiae</i> RPS31; Hap43-induced; Spider biofilm repressed
orf19.4290	<i>TRR1</i>	-1.3	-1.05	Thioredoxin reductase; regulated by Tsa1/Tsa1B, Hap43; induced by nitric oxide, peroxide; oxidative stress-induce via Cap1; induced by human neutrophils; stationary phase enriched protein
orf19.5823	<i>SGT2</i>	-1.3	-1.47	Putative small tetratricopeptide repeat (TPR)-containing protein; protein abundance is affected by URA3 expression in the CAI-4 strain background; Mig1-regulated
orf19.5811	<i>MET1</i>	-1.3	-1.34	Putative uroporphyrin-3 C-methyltransferase, methionine biosynthesis enzyme; upregulated by human whole blood or polymorphonuclear (PMN) cells; Hog1p-induced; fungal-specific (no human or murine homolog); Hap43p-repressed
orf19.4532		-1.3	-1.08	Protein of unknown function; present in exponential and stationary growth phase yeast cultures
orf19.4102	<i>RPN10</i>	-1.3	-1.32	Putative 19S regulatory particle of the 26S proteasome; macrophage/pseudohyphal-repressed; regulated by Gcn2 and Gcn4; Spider biofilm repressed
orf19.4031		-1.3	-1.24	Ortholog(s) have cytoplasm localization
orf19.5280	<i>MUP1</i>	-1.3	-1.3	Putative high affinity methionine permease; alkaline upregulated by Rim101; Spider biofilm induced
orf19.5341	<i>RPS4A</i>	-1.3	-1.27	Predicted ribosomal protein; repressed upon phagocytosis by murine macrophage; positively regulated by Tbf1; Spider biofilm repressed
orf19.198	<i>ASN1</i>	-1.31	-1.3	Putative asparagine synthetase; soluble protein in hyphae; regulated by Rim101; decreased expression at pH 4 vs pH 8; protein detected during exponential and stationary phases of yeast-form growth
orf19.5629	<i>QCR7</i>	-1.31	-1.71	Putative ubiquinol-cytochrome-c reductase, subunit 7; Hap43p-repressed gene
orf19.6452	<i>RBP1</i>	-1.31	-1.31	Peptidyl-prolyl cis-trans isomerase; rapamycin-binding protein; homozygous null mutation confers rapamycin resistance; regulated by Gcn4p; macrophage-induced protein; repressed in response to 3-AT; functional homolog of <i>S. cerevisiae</i> Rbp1p
orf19.1549		-1.31	-1.33	Plasma membrane-associated protein identified in detergent-resistant membrane fraction (possible lipid raft component); repressed by nitric oxide; predicted transmembrane helix
orf19.6944	<i>PHB1</i>	-1.31	-1.38	Putative prohibitin; identified in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation; Hap43p-repressed gene
orf19.4824		-1.31	-1	Planktonic growth-induced gene
orf19.7018	<i>RPS18</i>	-1.31	-1.22	Predicted ribosomal protein; repressed upon phagocytosis by murine macrophage; repressed by nitric oxide; Hap43-induced; Spider biofilm repressed
orf19.6403.1	<i>RPP2A</i>	-1.31	-1.74	Acidic ribosomal protein; likely role in translation elongation regulation; interacts with Rpp1B; 1 of 4 similar ribosomal proteins (Rpp1A, Rpp1B, Rpp2A, Rpp2B); CUG start codon; upstream uORFs; Tbf1-induced; Spider biofilm repressed
orf19.967		-1.31	-1.18	Major mitochondrial nuclease; has RNase and DNA endo- and exonucleolytic activities; roles in mitochondrial recombination, apoptosis and maintenance of ploidy; Spider biofilm repressed
orf19.3546	<i>PEX2</i>	-1.32	-1.15	Ortholog(s) have ubiquitin-protein ligase activity, role in protein import into peroxisome matrix and peroxisomal membrane localization
orf19.6318		-1.32	-1.02	Ortholog(s) have endoplasmic reticulum, mitochondrion localization
orf19.6321	<i>PGA48</i>	-1.32	-1.25	Putative GPI-anchored adhesin-like protein; similar to <i>S. cerevisiae</i> Spi1p, which is induced at stationary phase; transcript induced in high iron; flow model biofilm induced; Spider biofilm repressed
orf19.2337	<i>ALP1</i>	-1.32	-1.09	Cystine transporter; present in pathogenic yeasts (no human or murine homolog); Spider biofilm induced
orf19.2263		-1.32	-1.49	Has domain(s) with predicted adenyl nucleotide binding activity
orf19.6265	<i>RPS22A</i>	-1.32	-1.49	Predicted ribosomal protein; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.1873		-1.32	-1.46	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide
orf19.6075		-1.32	-1.64	Putative CCR4-Not complex transcription factor; ortholog of <i>S. cerevisiae</i> Cdc36; Hap43-repressed gene
orf19.5433		-1.32	-1.24	Ortholog(s) have protein binding involved in protein folding activity, role in mitochondrial respiratory chain complex III assembly and mitochondrial matrix localization
orf19.4147	<i>GLR1</i>	-1.33	-1.07	Glutathione reductase; upregulated by human neutrophils; oxidative stress-induced regulation via Cap1p; overexpression correlates with multidrug resistance in a cap1 mutant, farnesol induced; stationary phase enriched protein
orf19.6214	<i>ATC1</i>	-1.33	-1.15	Cell wall acid trehalase; catalyzes hydrolysis of the disaccharide trehalose; similar to <i>S. cerevisiae</i> vacuolar acid trehalase (Ath1p); Hap43p-repressed gene
orf19.318		-1.33	-1.23	Ortholog(s) have role in iron-sulfur cluster assembly and mitochondrial matrix localization
orf19.6375	<i>RPS20</i>	-1.33	-1.5	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; transcript positively regulated by Tbf1; Spider biofilm repressed
orf19.5076	<i>PFY1</i>	-1.33	-1.07	Profilin; functional homolog of <i>S. cerevisiae</i> Pfy1; hyphae, macrophage/pseudohyphal-induced; regulated by Nrg1, Tup1; gene lacks intron (unlike <i>S. cerevisiae</i> PFY1); complements growth of <i>S. cerevisiae</i> srV2 mutant; nonessential
orf19.2003	<i>HNM1</i>	-1.33	-1.46	Putative choline/ethanolamine transporter; mutation confers hypersensitivity to toxic ergosterol analog; colony morphology-related gene regulation by Ssn6; clade-associated gene expression
orf19.1466	<i>REX2</i>	-1.33	-1.37	Putative 3'-5' RNA exonuclease with a predicted role in 3'-end processing of U4 and U5 snRNAs, 5S and 5.8S rRNAs; rat catheter biofilm induced
orf19.6938	<i>MEU1</i>	-1.33	-1.16	Putative methylthioadenosine phosphorylase; protein level decreases in stationary phase cultures
orf19.3043		-1.33	-1.42	Ortholog(s) have triglyceride lipase activity, role in triglyceride catabolic process and mitochondrion localization
orf19.1907	<i>EMC9</i>	-1.33	-1.53	Ortholog of <i>S. cerevisiae</i> Nnf2; possible role in chromosome segregation; mutants are viable, induced during the mating process
orf19.6807		-1.33	-1.48	Predicted ORF in retrotransposon Tca17 with similarity to parts of the Gag-Pol region of retrotransposons; clade-associated gene expression
orf19.2532	<i>PRS</i>	-1.34	-1.59	Putative proV-tRNA synthetase; monofunctional Class II synthetase; gene is constitutively expressed
orf19.3651	<i>PGK1</i>	-1.34	-1.77	Phosphoglycerate kinase; localizes to cell wall and cytoplasm; antigenic in murine/human infection; flow model biofilm, Hog1-, Hap43-, GCN-induced; repressed upon phagocytosis; repressed in Spider biofilms by Bcr1, Ndt80, Rob1, Brg1
orf19.5734	<i>POP2</i>	-1.34	-1.62	Component of the Ccr4-Pop2 mRNA deadenylation; heterozygous null mutant exhibits resistance to parnafungin and cordycepin in the <i>C. albicans</i> fitness test
orf19.2954		-1.34	-1.97	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide
orf19.5654	<i>STE24</i>	-1.34	-1.26	Protein-dependent protease
orf19.1470	<i>RPS26A</i>	-1.34	-1.48	Ribosomal protein; regulated by Nrg1, Tup1; repressed upon phagocytosis by murine macrophage; alternatively spliced intron in 5'-UTR; Spider biofilm repressed
orf19.3292		-1.34	-1.09	Ortholog(s) have peptide-methionine (R)-S-oxide reductase activity, role in cellular response to oxidative stress and cytosol, mitochondrion, nucleus localization
orf19.5025	<i>MET3</i>	-1.34	-1.09	ATP sulfurylase; sulfate assimilation; repressed by Met, Cys, Sfu1, or in fluconazole-resistant isolate; Hog1, caspofungin, white phase-induced; induced on biofilm formation, even in presence of Met and Cys; Spider, F-12/CO2 biofilm induced
orf19.5005	<i>OSM2</i>	-1.34	-2.11	Putative mitochondrial fumarate reductase; regulated by Ssn6p, Gcn2p, and Gcn4p; Hog1p-downregulated; stationary phase enriched protein; Hap43p-repressed gene
orf19.5730		-1.35	-1.51	Putative phenylacryvic acid decarboxylase; clade-associated gene expression
orf19.198	<i>ASN1</i>	-1.35	-1.4	Putative asparagine synthetase; soluble protein in hyphae; regulated by Rim101; decreased expression at pH 4 vs pH 8; protein detected during exponential and stationary phases of yeast-form growth
orf19.3308	<i>STB5</i>	-1.35	-1.41	Putative transcription factor with zinc cluster DNA-binding motif; has similarity to <i>S. cerevisiae</i> Stb5p; Hap43p-repressed gene

orf19.903	<i>GPM1</i>	-1,35	-1,48	Phosphoglycerate mutase; surface protein that binds host complement Factor H and FHL-1; antigenic; fluconazole, or amino acid starvation (3-AT) induced, farnesol-repressed; Hap43, flow model biofilm induced; Spider biofilm repressed
orf19.7187	<i>MAM33</i>	-1,35	-1,69	Putative mitochondrial acidic matrix protein; regulated by Ssn6p; protein present in exponential and stationary growth phase yeast cultures
orf19.3265	<i>TRM1</i>	-1,35	-1,08	Putative N2,N2-dimethylguanine tRNA methyltransferase; induced upon adherence to polystyrene
orf19.5328	<i>GCN1</i>	-1,35	-1,35	Ortholog(s) have role in regulation of translational elongation and cytosolic ribosome, mitochondrion localization
		-1,35	-1,28	#NV
orf19.4336	<i>RPS5</i>	-1,36	-1,92	Ribosomal protein S5; macrophage/pseudohyphal-induced after 16 h; downregulated upon phagocytosis by murine macrophage; Hap43-induced; Spider biofilm repressed
orf19.4651	<i>PGA53</i>	-1,36	-1,05	GPI-anchored cell surface protein of unknown function; greater mRNA abundance observed in a <i>cyr1</i> homozygous null mutant than in wild type
orf19.2601	<i>HEM1</i>	-1,36	-1,1	Putative 5-aminolevulinic synthase; caspofungin repressed; induced by high iron, nitric oxide; regulated by Ssn6; Hap43-repressed; Spider biofilm induced
orf19.4412		-1,36	-1,28	Ortholog(s) have DNA-directed DNA polymerase activity, deoxycytidyl transferase activity and role in error-free translesion synthesis, error-prone translesion synthesis
orf19.2175		-1,36	-1,24	Putative mitochondrial cell death effector; induced by nitric oxide; Spider biofilm induced; rat catheter biofilm repressed
orf19.1560	<i>POB3</i>	-1,36	-1,22	Protein involved in chromatin assembly and disassembly; ortholog of <i>S. cerevisiae</i> Pob3; transposon mutation affects filamentous growth; rat catheter biofilm repressed
orf19.6928	<i>SAP9</i>	-1,36	-1,08	Secreted aspartyl protease; roles in adhesion, cell surface integrity; induced by antifungal drugs, stationary phase, or in white-phase cells; farnesol-downregulated in biofilm; autocatalytic processing; GPI-anchor; Spider biofilm induced
orf19.6447	<i>ARF1</i>	-1,36	-1,57	ADP-ribosylation factor; probable GTPase involved in intracellular transport; one of several <i>C. albicans</i> ADP-ribosylation factors; N-myrystoylprotein; substrate of Ntm1; Spider biofilm induced
orf19.5313		-1,36	-1,19	#NV
orf19.7531		-1,36	-1,14	Protein of unknown function; stationary phase enriched protein; induced upon yeast-hypha transition; benomyl or caspofungin induced; Hap43-repressed; Spider biofilm induced
orf19.5886	<i>CUP5</i>	-1,36	-1,46	Putative proteolipid subunit of the vacuolar H(+)-ATPase V0 sector; required for vacuolar acidification, secretion, filamentous growth; caspofungin repressed
orf19.4777	<i>DAK2</i>	-1,37	-1,36	Putative dihydroxyacetone kinase; repressed by yeast-hypha switch; fluconazole-induced; caspofungin repressed; protein enriched in stationary phase yeast cultures; flow model biofilm induced; rat catheter and Spider biofilm repressed
orf19.1722		-1,37	-1,24	Ortholog of <i>Candida albicans</i> WO-1 : CAWG_02462
orf19.2846		-1,37	-1,15	Protein of unknown function; Hap43-repressed; induced in core caspofungin response; regulated by yeast-hypha switch; Spider biofilm repressed
orf19.6105	<i>MVD</i>	-1,37	-1,15	Mevalonate diphosphate decarboxylase; functional homolog of <i>S. cerevisiae</i> Erg19; possible drug target; regulated by carbon source, yeast-hypha switch, growth phase, antifungals; gene has intron; rat catheter, Spider biofilm repressed
orf19.6884	<i>GWT1</i>	-1,37	-1,53	Inositol acyltransferase with role in early steps of GPI anchor biosynthetic process; antifungal drug target
orf19.4620	<i>TIM12</i>	-1,37	-1,49	Predicted component of the TIM22 complex, involved in protein import into mitochondrial inner membrane; flow model biofilm induced
orf19.7285		-1,37	-1,57	Ortholog(s) have role in mRNA cleavage, mRNA polyadenylation, snoRNA 3'-end processing, termination of RNA polymerase II transcription, exosome-dependent, termination of RNA polymerase II transcription, poly(A)-coupled
orf19.3920		-1,38	-1,27	Ortholog(s) have protein disulfide isomerase activity, protein disulfide oxidoreductase activity, role in protein folding and fungal-type vacuole localization
orf19.5158		-1,38	-1,62	Protein with similarity to a human gene associated with colon cancer and to orf19.5158; regulated by Gcn4, Cyr1; induced by amino acid starvation; macrophage-induced protein, macrophage-repressed; Spider biofilm induced
orf19.6578		-1,38	-1,4	Predicted membrane transporter; vesicular neurotransmitter (VNT) family, major facilitator superfamily (MFS); repressed in core caspofungin response; induced in oropharyngeal candidiasis; Spider biofilm induced
orf19.3919		-1,39	-1,39	RNase-like superfamily domain-containing protein; early-stage flow model biofilm induced; Spider biofilm induced
orf19.6127	<i>LPD1</i>	-1,39	-1,48	Putative dihydrolipamide dehydrogenase; soluble in hyphae; antigenic in human oral infection and murine systemic infection; macrophage-induced protein; protein present in exponential and stationary phase yeast cultures; Hap43p-repressed
orf19.4246		-1,39	-1,01	Protein with similarity to <i>S. cerevisiae</i> Ykr070w; Tn mutation affects filamentation; Hog1-repressed; colony morphology-related gene regulation by Ssn6p; induced during cell wall regeneration; possibly essential
orf19.6696	<i>TIM9</i>	-1,39	-1,29	Predicted protein of the mitochondrial intermembrane space; rat catheter biofilm induced; Spider biofilm repressed
orf19.5326		-1,39	-1,58	Putative transcription factor with zinc finger DNA-binding motif; possible ortholog of <i>S. cerevisiae</i> Miq2p
orf19.7123		-1,39	-1,3	Protein of unknown function; Spider biofilm repressed
orf19.7425		-1,39	-1,35	Ortholog(s) have uracil DNA N-glycosylase activity, role in DNA repair and mitochondrion, nucleus localization
orf19.5982	<i>RPL18</i>	-1,39	-1,65	Predicted ribosomal protein; Plc1p-regulated, Tbf1-activated; repressed upon phagocytosis by murine macrophage; Hap43p-induced; Spider biofilm repressed
orf19.185		-1,39	-1,4	Ortholog(s) have structural constituent of ribosome activity, role in mitochondrial translational initiation and mitochondrial small ribosomal subunit localization
orf19.2438		-1,4	-1,54	Ortholog(s) have mitochondrion, ribosome localization
orf19.4499	<i>RIM2</i>	-1,4	-1,18	Putative mitochondrial carrier protein; induced by alpha pheromone in SpiderM medium; Spider biofilm induced
orf19.4478		-1,4	-1,2	Ortholog(s) have aspartate-tRNA ligase activity, role in mitochondrial aspartyl-tRNA aminoacylation and mitochondrion localization
orf19.6129	<i>MRPL8</i>	-1,4	-1,41	Mitochondrial 60S ribosomal protein subunit; Hap43p-repressed gene
orf19.6096	<i>TRP1</i>	-1,4	-1,07	Phosphoribosylanthranilate isomerase; tryptophan biosynthesis; expected unifunctional, unlike trifunctional enzyme of some other fungi; complements <i>E. coli</i> trpC, <i>S. cerevisiae</i> trp1 mutant; CCT1 and TRP1 overlap; Spider biofilm repressed
orf19.498		-1,4	-1,43	Putative mitochondrial ribosomal component of the small subunit; possibly an essential gene, disruptants not obtained by UAU1 method; Spider biofilm repressed
orf19.1476		-1,4	-1,6	Ortholog(s) have mRNA (N6-adenosine)-methyltransferase activity and role in mRNA methylation, meiosis
orf19.238	<i>CCP1</i>	-1,4	-1,26	Cytochrome-c peroxidase N terminus; Rim101, alkaline pH repressed; induced in low iron or by macrophage interaction; oxygen-induced activity; regulated by Sef1, Sfu1, and Hap43; Spider biofilm induced; rat catheter biofilm repressed
orf19.1782		-1,41	-1,47	Membrane-localized protein of unknown function
orf19.4051	<i>HTS1</i>	-1,41	-1,66	Putative tRNA-His synthetase; downregulated upon phagocytosis by murine macrophage; stationary phase enriched protein; Spider biofilm repressed
orf19.2994	<i>RPL13</i>	-1,41	-1,16	Putative ribosomal subunit; antigenic during murine infection; downregulated upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.2992	<i>RPP1A</i>	-1,41	-1,55	Conserved acidic ribosomal protein; likely role in regulation of translation elongation; interacts with Rpp2B; 1 of 4 similar <i>C. albicans</i> ribosomal proteins (Rpp1A, Rpp1B, Rpp2A, Rpp2B); Hap43-induced; Spider biofilm repressed
orf19.6192		-1,41	-1,69	Protein of unknown function; Plc1-regulated; transcript detected in high-resolution tiling arrays
orf19.2896	<i>SOU1</i>	-1,41	1,09	Enzyme involved in utilization of L-sorbose; has sorbitol dehydrogenase, fructose reductase, and sorbose reductase activities; NAD-binding site motif; transcriptional regulation affected by chromosome 5 copy number; Hap43p-induced gene
orf19.7121		-1,41	-1,12	Protein of unknown function; Spider biofilm repressed
orf19.7603		-1,41	-1,45	Protein with a predicted role in cytochrome c oxidase assembly; rat catheter biofilm induced
orf19.7665		-1,41	-1,25	Ortholog(s) have role in mitochondrial respiratory chain complex IV assembly and mitochondrion inner membrane localization
orf19.1950		-1,42	-1,48	Ortholog(s) have phosphatase activity
orf19.3350	<i>MRP20</i>	-1,42	-1,67	Component of mitochondrial ribosome; decreased expression in hyphae compared to yeast-form cells
orf19.5285	<i>PST3</i>	-1,42	-1,41	Putative flavodoxin; YNB biofilm induced; stationary phase enriched protein; rat catheter and Spider biofilm repressed
orf19.1978	<i>GIT2</i>	-1,42	-1,32	Putative glycerophosphoinositol permease; fungal-specific; repressed by alpha pheromone in SpiderM medium; Hap43-repressed; Spider biofilm induced
orf19.2737		-1,42	-1,33	Carbohydrate kinase domain-containing protein; Spider biofilm induced
orf19.5334		-1,42	-1,43	Ortholog of <i>S. cerevisiae</i> Tis11, a mRNA-binding protein; transcription regulated by yeast-hyphal switch; flow model biofilm induced; Spider biofilm repressed
orf19.5444	<i>TIM44</i>	-1,42	-1,39	Protein involved in transport across membranes; Spider biofilm repressed
orf19.3997	<i>ADH1</i>	-1,43	-1,8	Alcohol dehydrogenase; oxidizes ethanol to acetaldehyde; at yeast cell surface; immunogenic in humans/mice; complements <i>S. cerevisiae</i> adh1 adh2 adh3 mutant; fluconazole, farnesol-induced; flow model biofilm induced; Spider biofilm repressed
orf19.6553		-1,43	-1,25	Membrane-localized protein of unknown function; possibly secreted; fluconazole-induced
orf19.3043		-1,43	-1,5	Ortholog(s) have triglyceride lipase activity, role in triglyceride catabolic process and mitochondrion localization
orf19.5943		-1,43	-1,37	Ortholog(s) have role in peroxisome organization and peroxisomal membrane localization
orf19.2414		-1,44	-1,8	Ortholog of <i>S. cerevisiae</i> Mpm1; a mitochondrial intermembrane space protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.326		-1,44	-1,35	Protein of unknown function; Spider biofilm repressed
orf19.6672	<i>MDJ1</i>	-1,44	-1,53	Putative member of the HSP40 (DnaJ) family of chaperones; rat catheter and Spider biofilm induced

orf19.6873	RPS8A	-1.44	-2.2	Small 40S ribosomal subunit protein; induced by ciclopirox olamine; repressed upon phagocytosis by murine macrophage; 5'-UTR intron: Hap43-induced; Spider biofilm repressed
orf19.1517	ARO3	-1.45	-1.7	3-deoxy-D-arabinoheptulosonate-7-phosphate synthase; aromatic amino acid synthesis; GCN-regulated; feedback-inhibited by phe if expressed in S. cerevisiae; decreased in stationary phase; flow model biofilm induced
orf19.4250		-1.45	-1.82	Ortholog of C. dubliniensis CD36 : Cd36_52200, C. parapsilosis CDC317 : CPAR2_502480, Candida tenuis NRRL Y-1498 : CANTEEDRAFT_115972 and Debaryomyces hansenii CBS767 : DEHA2G19976g
orf19.1191		-1.45	-1.47	Ortholog(s) have ubiquitin-protein ligase activity, role in ER-associated protein catabolic process and Hrd1p ubiquitin ligase ERAD-L complex, Hrd1p ubiquitin ligase ERAD-M complex, luminal surveillance complex localization
orf19.5238		-1.45	-1.47	Ortholog(s) have cytosol, nucleus localization
orf19.6443		-1.45	-1.22	Protein with an enoyl-CoA hydratase related domain; Spider biofilm induced
orf19.5417	DOT5	-1.45	-1.41	Putative nuclear thiol peroxidase; alkaline downregulated; sumoylation target; Spider and flow model biofilm induced
orf19.2782		-1.46	-1.7	Ortholog(s) have disulfide oxidoreductase activity, role in cellular response to oxidative stress, response to osmotic stress and mitochondrial matrix localization
orf19.2241	PST1	-1.46	-1.44	Putative 1,4-benzoquinone reductase; hyphal-induced; regulated by Cyr1, Ras1, Efg1, Nrg1, Rtg1, Tup1; Hap43-induced; Spider biofilm induced
orf19.5587		-1.46	-1.41	Protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis
orf19.1545		-1.46	-1.51	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.2966	MGM101	-1.46	-1.66	Putative mitochondrial genome maintenance protein; fungal-specific (no human or murine homolog); mutation confers hypersensitivity to tubercidin (7-deazaadenosine)
orf19.5663	RCH1	-1.46	-1.36	Plasma membrane protein; involved in regulation of cytosolic calcium homeostasis; null mutation confers sensitivity to calcium and resistance to azoles and terbinafine; rat catheter biofilm induced
orf19.7590		-1.46	-1.69	Putative NADH-ubiquinone oxidoreductase; identified in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation; repressed by nitric oxide
orf19.5748		-1.47	-1.82	Ortholog of C. dubliniensis CD36 : Cd36_64250, Candida tenuis NRRL Y-1498 : cten_CGOB_00218, Debaryomyces hansenii CBS767 : DEHA2E19888g and Spathaspora passalidarum NRRL Y-27907 : spas_CGOB_00025
orf19.2156	NAG1	-1.47	-1.59	Glucosamine-6-phosphate deaminase; required for normal hyphal growth and mouse virulence; converts glucosamine 6-P to fructose 6-P; reversible reaction in vitro; gene and protein is GlcNAc-induced; Spider biofilm induced
orf19.2415		-1.47	-1.62	Ortholog(s) have role in mitochondrial translation and mitochondrion localization
orf19.6219		-1.47	-1.39	Ortholog of C. dubliniensis CD36 : Cd36_06470, C. parapsilosis CDC317 : CPAR2_208960, Candida tenuis NRRL Y-1498 : CANTEEDRAFT_114040 and Pichia stipitis Pignol : PICST_51125
orf19.6186		-1.47	-1.55	Predicted protein of unknown function; overlaps orf19.6185
orf19.23	RTA3	-1.47	-1.07	Similar to S. cerevisiae Rta1 (role in 7-aminosterol resistance) and Rsb1 (flippase); putative drug-responsive regulatory site; induced by fluphenazine, estradiol, ketoconazole, caspofungin; rat catheter biofilm induced
orf19.4857		-1.47	-1.25	Protein with a dual-specificity phosphatase domain; Hap43-induced gene
orf19.7265		-1.47	-1.25	Putative zinc-finger domain protein with a predicted role in pre-mRNA splicing; Hap43-repressed; Spider biofilm repressed
orf19.6965		-1.48	-1.43	#NV
orf19.394		-1.48	-1.41	Putative kynureninase; predicted role in NAD biosynthesis; Hap43-repressed gene; flow model biofilm induced
orf19.7269		-1.48	-1.77	Putative polyamine acetyltransferase; acetylates polyamines (e.g. putrescine, spermidine, spermine) and aralkylamines (e.g. tryptamine, phenylethylamine); Spider biofilm repressed
orf19.4737	TPO3	-1.49	-1.51	Putative polyamine transporter; MFS-MDR family; induced by Sfu1, regulated upon white-opaque; decreased expression in hyphae vs yeast-form cells; regulated by Nrg1; Spider biofilm repressed
orf19.3870	ADE13	-1.49	-1.7	Adenylosuccinate lyase; enzyme of adenine biosynthesis; soluble protein in hyphae; not induced during GCN response, in contrast to the S. cerevisiae ortholog; repressed by nitric oxide
orf19.4088	GLO2	-1.49	-1.34	Ortholog(s) have hydroxyacylglutathione hydrolase activity, role in cellular carbohydrate metabolic process, methylglyoxal catabolic process to D-lactate and cytosol, nucleus localization
orf19.1770	CYC1	-1.5	-1.35	Cytochrome c; complements defects of S. cerevisiae cyc1 cyc7 double mutant; induced in high iron; alkaline repressed; repressed by nitric oxide; Hap43-dependent repression in low iron; regulated by Sef1, Sfu1
orf19.4358		-1.5	-1.58	Putative protein of unknown function; Hap43p-repressed gene; S. cerevisiae ortholog YDL157C localizes to mitochondria
orf19.5660		-1.5	-1.72	Ortholog(s) have ubiquitin-protein ligase activity, role in protein import into peroxisome matrix, protein ubiquitination and endoplasmic reticulum, peroxisomal membrane localization
orf19.7015	RPP0	-1.5	-1.77	Putative ribosomal protein; antigenic in mouse; repressed upon phagocytosis by murine macrophage; induced by Tbf1; overlaps orf19.7014; Spider biofilm repressed
orf19.2439		-1.51	-1.35	Fatty acid biosynthetic protein; shows colony morphology-related gene regulation by Ssn6p; protein newly produced during adaptation to the serum
orf19.415		-1.51	-1.48	Putative protein of unknown function; Hap43p-repressed gene
orf19.1799	GAP5	-1.51	-1.58	Putative general amino acid permease; fungal-specific (no human or murine homolog)
orf19.2830	RRP9	-1.51	-1.4	Ribosomal protein; mutation confers resistance to 5-fluorocytosine (5-FC), 5-fluorouracil (5-FU), and tubercidin (7-deazaadenosine); physically interacts with TAP-tagged Nop1; Hap43-induced; Spider biofilm induced
orf19.1865	MCS7	-1.51	-1.86	S. cerevisiae ortholog Mcs7 has a role in reciprocal meiotic recombination; Spider biofilm repressed
orf19.4618	FBA1	-1.51	-1.33	Fructose-bisphosphate aldolase; glycolytic enzyme; antigenic in murine/human infection; regulated by yeast-hypha switch; induced by Efg1, Gcn4, Hog1, fluconazole; phagocytosis-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.7668	MAL2	-1.51	-1.37	Alpha-glucosidase; hydrolyzes sucrose for sucrose utilization; transcript regulated by Suc1, induced by maltose, repressed by glucose; Tn mutation affects filamentous growth; upregulated in RHE model; rat catheter and Spider biofilm induced
orf19.1952		-1.52	-1.66	#NV
orf19.5642		-1.52	-1.54	Ortholog of S. cerevisiae Dif1; which regulates nuclear localization of Rnr2 and Rnr4; colony morphology-related gene regulation by Ssn6; induced in cvr1 mutant; Spider biofilm induced
orf19.4660	RPS6A	-1.52	-1.6	Ribosomal protein 6A; localizes to cell surface of yeast cells but not hyphae; repressed upon phagocytosis by murine macrophage; possibly essential; Hap43-induced; Spider biofilm repressed
orf19.1632		-1.52	-1.32	Ortholog(s) have cytosol, nucleus localization
orf19.432		-1.52	-1.28	Predicted SCF ubiquitin ligase complex protein; Spider biofilm induced; rat catheter biofilm induced
orf19.5167	IFM1	-1.52	-1.52	Putative mitochondrial translation initiation factor; transcript regulated by Nrg1, Mif1, and Tup1
orf19.4006		-1.52	-1.45	Ortholog(s) have cytosol, nucleus localization
orf19.6445	ECI1	-1.52	-1.58	Protein similar to S. cerevisiae Eci1p, which is involved in fatty acid oxidation; transposon mutation affects filamentous growth; expression is regulated upon white-opaque switching
orf19.840	RPL21A	-1.53	-2.19	Putative ribosomal protein; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.3541	ERF1	-1.53	-1.32	Putative translation release factor 1, which interacts with stop codons and promotes release of nascent peptides from ribosomes; Hap43p-induced gene
orf19.3051		-1.53	-1.36	Protein of unknown function; S. pombe ortholog SPAC17A2.02c plays a role in resistance to cadmium; colony morphology-related gene regulation by Ssn6; Spider biofilm repressed
orf19.7092		-1.53	-1.48	Putative NAD dependent epimerase/dehydratase family protein; Spider biofilm repressed
orf19.5466	RPS24	-1.53	-1.56	Predicted ribosomal protein; hyphal downregulated; repressed upon phagocytosis by murine macrophage; transcriptionally activated by Tbf1; Spider biofilm repressed
orf19.2201		-1.54	-1.4	Ortholog(s) have ribosome binding activity, role in mitochondrial respiratory chain complex III assembly, positive regulation of mitochondrial translation and mitochondrial ribosome localization
orf19.5591	ADO1	-1.54	-1.38	Adenosine kinase; heterozygous null mutant is resistant to cordycepin in C. albicans fitness test; ketoconazole-induced; protein level decrease in stationary phase cultures; sumoylation target; Spider biofilm repressed
orf19.3321	MRS7	-1.54	-1.2	Member of the LETM1-like protein family, mitochondrial membrane protein
orf19.2249		-1.54	-1.54	Putative metalloprotease of the mitochondrial inner membrane; expression downregulated in an ssr1 null mutant
orf19.5119		-1.54	-2.05	#NV
orf19.4240		-1.54	-1.84	Ortholog(s) have role in GPI anchor biosynthetic process, cellular manganese ion homeostasis and endoplasmic reticulum, fungal-type vacuole membrane localization
orf19.5960	NCE102	-1.54	-1.74	Non classical protein export protein; localized to plasma membrane; Hap43-induced gene; flow model biofilm induced; Spider biofilm induced
orf19.4954		-1.55	-1.22	Ortholog(s) have endoplasmic reticulum, integral to membrane localization
orf19.1626		-1.55	-1.47	Deoxyhypusine synthase; catalyzes formation of deoxyhypusine, the first step in hypusine biosynthesis; Spider biofilm repressed
orf19.499		-1.55	-1.46	Ortholog(s) have S-adenosylmethionine-dependent methyltransferase activity, role in translational readthrough and mitochondrion localization
orf19.7258	DDI1	-1.55	-1.3	Putative DNA damage inducible v-SNARE binding protein; macrophage/pseudohyphal-repressed
orf19.7382	CAM1	-1.55	-1.49	Putative translation elongation factor eEF1 gamma; protein level decreased in stationary phase cultures; Spider biofilm repressed
orf19.2803	HEM13	-1.56	-1.12	Coproporphyrinogen III oxidase; antigenic; on yeast cell surface, not hyphae; iron-regulated expression; Hap43, macrophage-repressed; farnesol-induced; possibly essential; flow model biofilm induced; rat catheter, Spider biofilm repressed
orf19.3076		-1.57	-1.83	Ortholog(s) have role in vesicle-mediated transport and COPI-coated vesicle, integral to Golgi membrane localization

orf19.4477	CSH1	-1.57	-1.17	Aldo-keto reductase; role in fibronectin adhesion, cell surface hydrophobicity; regulated by temperature, growth phase, benomyl, macrophage interaction; azole resistance associated; Spider biofilm induced; rat catheter biofilm repressed
orf19.505	SRV2	-1.57	-1.4	Adenylate cyclase-associated protein; regulates adenylate cyclase activity; required for wild-type germ tube formation and for virulence in mice; mutant defects in filamentous growth are rescued by cAMP or dbcAMP; Spider biofilm repressed
orf19.4780		-1.58	-1.33	Predicted MFS family membrane transporter, member of the drug:proton antiporter (12 spanner) (DHA1) family; Spider biofilm induced
orf19.5591	ADO1	-1.58	-1.49	Adenosine kinase; heterozygous null mutant is resistant to cordycepin in <i>C. albicans</i> fitness test; ketoconazole-induced; protein level decrease in stationary phase cultures; sumoylation target; Spider biofilm repressed
orf19.5073	DPM1	-1.58	-1.62	Putative dolichol phosphate mannose synthase; filament induced; Tup1-regulated; flow model and rat catheter biofilm repressed
orf19.4618	FBA1	-1.58	-1.58	Fructose-bisphosphate aldolase; glycolytic enzyme; antigenic in murine/human infection; regulated by yeast-hypha switch; induced by Efg1, Gcn4, Hog1, fluconazole; phagocytosis-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.2019		-1.59	-1.88	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.754	YBN5	-1.59	-1.49	P-loop ATPase with similarity to human OLA1 and bacterial YchF; Spider biofilm repressed
orf19.1546		-1.59	-1.74	Membrane-localized protein of unknown function
orf19.5369		-1.59	-1.57	Uroporphyrinogen decarboxylase; catalyzes the 5th step in the heme biosynthetic pathway; flow model and Spider biofilm repressed
orf19.1710	ALI1	-1.6	-1.64	Putative NADH-ubiquinone oxidoreductase; in detergent-resistant membrane fraction (possible lipid raft component); predicted N-terminal acetylation; nitric oxide-repressed; plasma membrane-localized; protein level decreases in stationary phase
orf19.1709		-1.6	-1.74	Sterol carrier domain protein; alkaline downregulated; colony morphology-related gene regulation by Ssn6; Spider biofilm induced
orf19.6541	RPL5	-1.6	-1.79	Ribosomal protein; repressed upon phagocytosis by murine macrophages; Hap43-induced; Spider biofilm repressed
orf19.4828		-1.6	-1.35	WD repeat domain protein; Hap43-repressed gene; flow model biofilm induced
orf19.7152		-1.6	-1.36	Protein similar to Aspergillus CYSK O-acetylserine sulphydrylase, suggesting that <i>C. albicans</i> uses an O-acetyl-serine (OAS) pathway of sulfur assimilation; upregulated in biofilm; protein level decreases in stationary phase cultures
orf19.5462		-1.6	-1.26	Protein of unknown function
orf19.1588		-1.61	-1.56	Putative mitochondrial protein of unknown function; regulated by Sef1p, Sfu1p, and Hap43p
orf19.4229		-1.61	-1.62	Putative polyphosphate phosphatase; role in hydrolysis of diphosphorylated inositol polyphosphates and diadenosine polyphosphates; Spider biofilm induced
orf19.6698		-1.62	-1.62	Ortholog(s) have asparagine-tRNA ligase activity, role in mitochondrial asparaginyl-tRNA aminoacylation and mitochondrial localization
orf19.5661	PTC7	-1.62	-1.49	Protein phosphatase, type 2C; has S/T phosphatase activity, Mn2+/Mg2+ dependent; predicted membrane-spanning segment and mitochondrion-targeting signal
orf19.5788	EFT2	-1.63	-2.13	Elongation Factor 2 (eEF2); GTPase; essential; highly expressed; target of sordarin antifungals; antigenic in human/mouse; lacks site for regulatory phosphorylation by eEF2 kinase; GCN-regulated; higher protein amount in stationary phase
orf19.6709		-1.63	-1.83	Predicted alpha/beta hydrolase; Spider biofilm induced
orf19.489	DAP1	-1.63	-1.74	Similar to mammalian membrane-associated progesterone receptors involved in DNA damage response; induced in core stress response; Hog1 regulated; clade-associated expression; Hap43-repressed
orf19.882	HSP78	-1.63	-1.75	Heat-shock protein; regulated by macrophage response, Nrg1, Mig1, Gcn2, Gcn4, Mnl1p; heavy metal (cadmium) stress-induced; stationary phase enriched protein; rat catheter and Spider biofilm induced
orf19.5705	NAM2	-1.64	-1.76	Mitochondrial leucyl-tRNA synthetase
orf19.5749	SBA1	-1.64	-2.01	Similar to co-chaperones; induced in high iron; farnesol-, heavy metal (cadmium) stress-induced; protein level decreases in stationary phase cultures; Hap43-repressed
orf19.6367	SSB1	-1.64	-1.87	HSP70 family heat shock protein; mRNA in yeast and germ tubes; at yeast cell surface, not hyphae; antigenic in human/mouse infection; macrophage, GCN-induced; possibly essential; sumoylation target; Hap43-induced; Spider biofilm repressed
orf19.6109	TUP1	-1.64	-1.8	Transcriptional corepressor; represses filamentous growth; regulates switching; role in germ tube induction, farnesol response; in repression pathways with Nrg1, Rfg1; farnesol upregulated in biofilm; rat catheter, Spider biofilm repressed
orf19.2967	TIF34	-1.64	-1.68	Putative translation initiation factor eIF3, p39 subunit; mutation confers hypersensitivity to rocin A, verrucarin A; downregulated upon phagocytosis by murine macrophages; Spider biofilm repressed
orf19.1477		-1.64	-1.97	Protein of unknown function; possible ER protein; Hap43p-repressed; Spider biofilm induced
orf19.3293		-1.64	-1.34	Putative enoyl reductase involved in very long chain fatty acid elongation; possibly an essential gene, disruptants not obtained by UAU1 method
orf19.7261	GDI1	-1.64	-1.45	Putative Rab GDP-dissociation inhibitor; GlcNAc-induced protein; Spider biofilm repressed
orf19.6109	TUP1	-1.65	-1.65	Transcriptional corepressor; represses filamentous growth; regulates switching; role in germ tube induction, farnesol response; in repression pathways with Nrg1, Rfg1; farnesol upregulated in biofilm; rat catheter, Spider biofilm repressed
orf19.704	SOL3	-1.66	-1.9	Putative 6-phosphogluconolactonase; present in exponential and stationary growth phase yeast cultures; macrophage-downregulated protein; Spider biofilm repressed
orf19.2407	DPS1-1	-1.66	-1.83	Putative tRNA-Asp synthetase; genes encoding ribosomal subunits, translation factors, tRNA synthetases are downregulated upon phagocytosis by murine macrophage; protein enriched in stationary phase yeast cultures
orf19.6208	MEF2	-1.66	-1.81	Putative mitochondrial translation elongation factor; caspofungin induced
orf19.3449		-1.67	-1.29	Ortholog(s) have ubiquitin-protein ligase activity, role in histone catabolic process, histone ubiquitination and cytoplasm, ribosome localization
orf19.7124	RVS161	-1.67	-1.5	Protein required for endocytosis; contains a BAR domain, which is found in proteins involved in membrane curvature; null mutant exhibits defects in hyphal growth, virulence, cell wall integrity, and actin patch localization
orf19.7080	LEU2	-1.67	-2.17	Isopropyl malate dehydrogenase; leucine biosynthesis; induced by human whole blood or PMNs; protein level decreases in stationary phase; GlcNAc-induced protein; flow model biofilm repressed
orf19.1435	TEF1	-1.68	-2.08	Translation elongation factor 1-alpha; at cell surface; binds human plasminogen; macrophage/pseudohyphal-induced; induced in RHE model of oral candidiasis, in clinical oral candidiasis isolates; possibly essential; Spider biofilm repressed
orf19.3332		-1.68	-1.39	Ortholog of Bre4 in <i>S. cerevisiae</i> has a role in brefeldin A resistance; a drug that affect intracellular transport; Spider biofilm induced
orf19.5484	SER1	-1.68	-1.63	Putative 3-phosphoserine aminotransferase; predicted role in serine and glycine biosynthesis; protein present in exponential and stationary yeast growth phases; Spider biofilm repressed
orf19.4204		-1.68	-1.79	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.320		-1.68	1.31	Predicted short chain dehydrogenase; Spider biofilm induced
orf19.544	RPR2	-1.68	-1.45	Ortholog(s) have ribonuclease P activity, role in intronic box C/D snoRNA processing and cytosol, nucleolar ribonuclease P complex localization
orf19.6947	GTT11	-1.68	-1.73	Glutathione S-transferase, localized to ER; induced in exponentially growing cells, under oxidative stress; induced by nitric oxide; Spider biofilm induced
orf19.7012		-1.68	-1.69	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.5648		-1.69	-1.73	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_40300, <i>C. parapsilosis</i> CDC317 : CPAR2_402190, <i>Candida tenuis</i> NRRL Y-1498 : cten CGOB_00197 and <i>Debaromyces hansenii</i> CBS767 : DEHA2F06160g
orf19.1896	SSC1	-1.69	-1.97	Heat shock protein; at yeast-form cell surface, not hyphae; antigenic; Gcn4-regulated; induced by amino acid starvation (3-AT) or by adherence to polystyrene; macrophage-repressed; sumoylation target; possibly essential
orf19.2608	ADH5	-1.7	-2.34	Putative alcohol dehydrogenase; regulated by white-opaque switch; fluconazole-induced; antigenic in murine infection; regulated by Nrg1, Tup1; Hap43, macrophage repressed, flow model biofilm induced; Spider biofilm induced
orf19.3341		-1.7	-1.96	Putative tRNA-Arg synthetase; essential; genes encoding ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage; downregulated by growth in the mouse cecum
orf19.7485		-1.7	-1.5	Putative mitochondrial ribosomal protein of the large subunit; Hap43p-repressed gene; ortholog of <i>S. cerevisiae</i> MRPL9
orf19.2157	DAC1	-1.71	-1.57	N-acetylglucosamine-6-phosphate (GlcNAc6P) deacetylase; N-acetylglucosamine utilization; required for wild-type hyphal growth and virulence in mouse systemic infection; gene and protein are GlcNAc-induced; Spider biofilm induced
orf19.863		-1.71	-1.73	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.4248		-1.71	-1.67	Ortholog of <i>S. cerevisiae</i> YLR118C (alias Apt1); acyl-protein thioesterase responsible for depalmitoylation of Gpa1 in <i>S. cerevisiae</i> ; regulated by Gcn4; repressed in response to amino acid starvation (3AT); rat catheter biofilm repressed
orf19.4827	ADE12	-1.71	-1.53	Adenylosuccinate synthase; upregulated in biofilm; decreased expression in hyphae vs yeast-form cells; not induced during GCN response, in contrast to <i>S. cerevisiae</i> ADE12, which is induced by Gcn4p; stationary phase-enriched protein
orf19.675		-1.72	-1.93	Cell wall protein; induced in core stress response and core caspofungin response; iron-regulated; amphotericin B, ketoconazole, and hypoxia induced; regulated by Cyr1, Ssn6; induced in oropharyngeal candidiasis; Spider biofilm repressed

orf19.51		-1.72	-1.61	Ortholog(s) have role in mitochondrion organization, translational initiation and eukaryotic translation initiation factor 3 complex localization
orf19.4294		-1.72	-1.72	Ortholog(s) have oxidoreductase activity, role in cytochrome c-heme linkage, mitochondrial membrane organization and extrinsic to mitochondrial inner membrane localization
orf19.4351		-1.72	-1.13	#NV
orf19.7298	CHS2	-1.72	-1.55	Chitin synthase; nonessential; required for wild-type chitin deposition in hyphae; transcript regulated during dimorphic transition; Chs1 and Chs2, but not Chs3, are inhibited by the protoberberine HWY-289; flow model biofilm repressed
orf19.1809		-1.73	-2.09	#NV
orf19.5515		-1.73	-1.84	Ortholog(s) have ribosome binding activity, role in mitochondrial respiratory chain complex III assembly, positive regulation of mitochondrial translation and integral to mitochondrial membrane, mitochondrial ribosome localization
orf19.6229	CAT1	-1.73	-1.79	Catalase; resistance to oxidative stress, neutrophils, peroxide; role in virulence; regulated by iron, ciclopirox, fluconazole, carbon source, pH, Rim101, Ssn6, Hog1, Hap43, Sfu1, Sef1, farnesol, core stress response; Spider biofilm induced
orf19.4676		-1.73	-1.82	Protein with homology to mitochondrial intermembrane space proteins; regulated by Sef1p-, Sfu1p- and Hap43p
orf19.1551		-1.73	-1.87	Predicted protein of unknown function; overlaps CPR3/orf19.1552
orf19.1872		-1.73	-2.03	Plasma membrane protein; repressed by nitric oxide
orf19.1190	STV1	-1.73	-1.68	Predicted subunit a of vacuolar proton-translocating ATPase V0 domain, Golgi isoform
orf19.585		-1.74	-1.91	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.2916		-1.75	-2.04	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_45740, <i>C. parapsilosis</i> CDC317 : CPAR2_401900, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_116046 and <i>Pichia stipitis</i> Pignal : PICST_28890
orf19.2262		-1.75	-2.15	Protein similar to quinone oxidoreductases; induced by benomyl treatment, nitric oxide; oxidative stress-induced via Cap1; stationary-phase enriched protein; Spider biofilm induced
orf19.6596		-1.75	-1.26	Putative esterase; possibly transcriptionally regulated by Tac1; induced by Mn1 under weak acid stress; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.5180	PRX1	-1.75	-1.78	Thioredoxin peroxidase; transcriptionally induced by interaction with macrophage; fluconazole induced; Fkh2p-downregulated; caspofungin repressed; protein present in exponential and stationary growth phase yeast cultures
orf19.6916		-1.75	-1.58	Ortholog(s) have unfolded protein binding activity, role in mitochondrial proton-transporting ATP synthase complex assembly and mitochondrion localization
orf19.4758		-1.76	-2.1	Putative reductase or dehydrogenase; Hap43-repressed gene; alkaline repressed
orf19.1057		-1.76	-1.69	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_03980, <i>C. parapsilosis</i> CDC317 : CPAR2_107050, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_113999 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2D12518q
orf19.2978		-1.76	-1.85	Protein of unknown function; Hap43-repressed gene
orf19.3822	SCS7	-1.76	-1.6	Putative ceramide hydroxylase; regulated by Nrg1; induced in high iron; fluconazole-induced; Hap43-repressed; Spider biofilm induced
orf19.5989		-1.76	-1.58	Putative cleavage factor I subunit; required for the cleavage and polyadenylation of pre-mRNA 3' ends; Spider biofilm repressed
orf19.2917		-1.77	-1.7	Putative GTPase; heterozygous null mutant exhibits resistance to parnafungin in the <i>C. albicans</i> fitness test; Hap43p-induced gene
		-1.77	-1.94	#NV
orf19.1721	NCE103	-1.77	-1.54	Carbonic anhydrase; converts of CO2 to bicarbonate; essential for virulence in host niches with limited CO2, normal white opaque switch; Mn1-induced in weak acid stress; Hap43-induced gene; F-12/CO2, rat catheter, Spider biofilm induced
orf19.7643		-1.77	-1.92	Ortholog(s) have 4-hydroxybenzoate octaprenyltransferase activity, antioxidant activity and role in cellular response to cadmium ion, detoxification of cadmium ion, ubiquinone biosynthetic process
orf19.4565	BGL2	-1.79	-1.38	Cell wall 1,3-beta-glucosyltransferase; mutant has cell-wall and growth defects, but wild-type 1,3- or 1,6-beta-glucan content; antigenic; virulence role in mouse systemic infection; rat catheter biofilm induced
orf19.4090		-1.8	-1.76	Predicted membrane transporter, member of the fucose-proton symporter (FHS) family, major facilitator superfamily (MFS)
orf19.4449		-1.8	-1.75	Ortholog(s) have superoxide dismutase copper chaperone activity, role in cellular copper ion homeostasis, cellular response to metal ion, intracellular copper ion transport and cytosol, mitochondrial inner membrane, nucleus localization
orf19.7605	PUP1	-1.8	-1.71	Putative beta 2 subunit of the 20S proteasome; macrophage/pseudohyphal-repressed; Spider biofilm repressed
orf19.6263		-1.81	-2.03	Predicted MFS membrane transporter; member of the monocarboxylate porter (MCP) family; Spider biofilm induced
orf19.7421	CYP5	-1.81	-1.85	Putative peptidyl-prolyl cis-trans isomerase; macrophage-downregulated protein level; protein level decrease in stationary phase cultures; predicted endoplasmic reticulum (ER) localization
orf19.3333		-1.82	-1.73	Ortholog(s) have poly(A) RNA binding activity, role in mRNA polyadenylation, poly(A)+ mRNA export from nucleus, regulation of mRNA stability and cytoplasm, nucleus localization
orf19.675		-1.82	-1.41	Cell wall protein; induced in core stress response and core caspofungin response; iron-regulated; amphotericin B, ketoconazole, and hypoxia induced; regulated by Cyr1, Ssn6; induced in oropharyngeal candidiasis; Spider biofilm repressed
orf19.4371	TAL1	-1.83	-2.19	Transaldolase; protein present in exponential and stationary growth phase yeast cultures; oxidative stress-induced via Cap1; induced by nitric oxide independent of Yhb1p; sumoylation target; rat catheter biofilm repressed
orf19.2250	SPE3	-1.83	-1.7	Putative spermidine synthase; predicted role in pantothenate and spermidine biosynthesis; Spider biofilm repressed
orf19.5418		-1.83	-1.79	Ortholog(s) have role in ER to Golgi vesicle-mediated transport and endoplasmic reticulum localization
orf19.1372		-1.84	-2.11	Protein of unknown function; transcript regulated by Mig1 and Tup1
orf19.3195	HIP1	-1.84	-2.03	Similar to amino acid permeases; alkaline, flucytosine induced; regulated by Plc1, Gcn2 and Gcn4; fungal-specific; Spider biofilm induced
orf19.6653	MTG2	-1.84	-1.86	Putative Obg family GTPase member; peripheral protein of the mitochondrial inner membrane; associates with the large ribosomal subunit; required for mitochondrial translation; rat catheter biofilm repressed
orf19.4040	ILV3	-1.85	-1.75	Dihydroxyacid dehydratase; repressed by nitric oxide; macrophage-induced protein; protein in exponential and stationary growth phase; Sef1, Sfu1p, Hap43-regulated; farnesol-repressed; flow model biofilm induced; Spider biofilm repressed
orf19.6814	TDH3	-1.85	-1.83	NAD-linked glyceraldehyde-3-phosphate dehydrogenase; binds fibronectin, laminin; at cell surface; antigenic in infection; farnesol-repressed; stationary phase-enriched; GlcNAc-induced; flow model biofilm induced; Spider biofilm repressed
orf19.5250		-1.86	-1.97	Has domain(s) with predicted cofactor binding activity
orf19.377	PHR3	-1.87	-1.54	Putative beta-1,3-glucanosyltransferase with similarity to the <i>A. fumigatus</i> GEL family; fungal-specific (no human or murine homolog); possibly an essential gene, disruptants not obtained by UAU1 method
orf19.2283	DQD1	-1.87	-2.22	Putative 3-dehydroquinate dehydratase; ketoconazole-repressed; protein abundance downregulated by macrophages; flow model biofilm induced
orf19.339	NDE1	-1.87	-2.16	Putative NADH dehydrogenase; may act alternatively to complex I in respiration; caspofungin repressed; rat catheter biofilm induced; Spider biofilm repressed
orf19.4004	CCT3	-1.87	-1.67	Putative cytosolic chaperonin Cct ring complex subunit; mutation confers hypersensitivity to cytochalasin D
orf19.3022		-1.88	-1.96	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.1300		-1.89	-2.17	Putative mitochondrial membrane protein; homozygous transposon insertion causes decreased colony wrinkling under filamentous growth-inducing conditions, but does not block true hyphal formation in liquid media
orf19.3008	COQ4	-1.89	-1.9	Protein with a putative role in coenzyme Q biosynthesis; transcriptionally induced by interaction with macrophage; Hap43p-repressed gene
orf19.346	ALT1	-1.89	-1.82	Putative alanine transaminase; mutation confers hypersensitivity to 5-fluorocytosine (5-FC); rat catheter and flow model biofilm induced
orf19.6565		-1.9	-1.87	Conserved mitochondrial inner membrane insertase; mediates insertion of mitochondrial- and nuclear-encoded proteins from the matrix into the inner membrane; Spider biofilm repressed
orf19.5379	ERG4	-1.91	-1.6	Protein similar to sterol C-24 reductase; shows Mob2p-dependent hyphal regulation; fluconazole-induced; caspofungin repressed; rat catheter biofilm repressed
orf19.6785	RPS12	-1.91	-1.96	Acidic ribosomal protein S12; regulated by Gcn4, activated by Tbf1; repressed by amino acid starvation (3-AT); protein abundance is affected by URA3 expression in CAI-4 strain background; sumoylation target; Spider biofilm repressed
orf19.5193		-1.92	-1.78	#NV
orf19.2311	RPL82	-1.92	-1.76	Predicted ribosomal protein; genes encoding cytoplasmic ribosomal subunits, translation factors, and tRNA synthetases are downregulated upon phagocytosis by murine macrophage
orf19.4250		-1.92	-2.26	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_52200, <i>C. parapsilosis</i> CDC317 : CPAR2_502480, <i>Candida tenuis</i> NRRL Y-1498 : CANTEDRAFT_115972 and <i>Debaryomyces hansenii</i> CBS767 : DEHA2G19976q
orf19.2156	NAG1	-1.93	-2.13	Glucosamine-6-phosphate deaminase; required for normal hyphal growth and mouse virulence; converts glucosamine 6-P to fructose 6-P; reversible reaction in vitro; gene and protein is GlcNAc-induced; Spider biofilm induced
orf19.6805		-1.93	-2.11	Protein of unknown function; Spider biofilm induced
orf19.4396		-1.94	-1.9	Mitochondrial inner membrane protein; mammalian mitofilin domain; Spider biofilm repressed
orf19.376		-1.94	-2.26	Protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.2954		-1.94	-2.64	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide
orf19.5161		-1.94	-2	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.5077		-1.95	-1.96	Protein of unknown function; Hap43-repressed gene; repressed by nitric oxide

orf19.5660		-1.95	-1.74	Ortholog(s) have ubiquitin-protein ligase activity, role in protein import into peroxisome matrix, protein ubiquitination and endoplasmic reticulum, peroxisomal membrane localization
orf19.3244		-1.95	-1.78	Ortholog(s) have role in mitochondrial respiratory chain complex assembly and mitochondrion localization
orf19.133		-1.96	-1.67	Protein of unknown function; induced by nitric oxide independent of Yhb1p
orf19.819		-1.97	-1.95	Ortholog(s) have role in lipiate biosynthetic process and mitochondrion localization
orf19.6183	<i>TIM8</i>	-1.98	-1.96	Predicted mitochondrial intermembrane space protein with role in protein import into mitochondrial inner membrane and cytosol
orf19.6099	<i>CCT8</i>	-1.98	-1.82	Chaperonin-containing T-complex subunit; role in hyphal morphogenesis, particularly starvation-induced; essential; expression in <i>S. cerevisiae</i> inhibits Ras2-mediated pathways; CCT8 and TRP1 overlap; Spider biofilm repressed
orf19.5215	<i>TES15</i>	-1.99	-2.22	Putative acyl-CoA thioesterase; Hap43-repressed; Spider biofilm induced
orf19.305		-1.99	-2.06	Protein of unknown function; upregulated in a <i>cvr1</i> null mutant
orf19.5698		-1.99	-2.02	Putative mitochondrial ribosomal protein of the large subunit; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm repressed
orf19.1586	<i>FGR22</i>	-1.99	-1.79	Putative phosphatidylinositol-specific phospholipase C (PI-PLC); predicted type 2 membrane protein; no <i>S. cerevisiae</i> ortholog; role in, and regulated by, filamentation. Hap43p; almost identical to orf19.5797
orf19.1974	<i>TFS1</i>	-2	-2.51	Putative carboxypeptidase y inhibitor; transcript regulated upon yeast-hypha switch; colony morphology-related gene regulation by <i>Ssn6</i>
orf19.6941		-2	-2.34	Putative diacylglycerol acyltransferase; catalyzes the terminal step of triacylglycerol formation; flow model biofilm induced; Spider biofilm induced
orf19.3997	<i>ADH1</i>	-2	-1.5	Alcohol dehydrogenase; oxidizes ethanol to acetaldehyde; at yeast cell surface; immunogenic in humans/mice; complements <i>S. cerevisiae</i> <i>adh2 adh3</i> mutant; fluconazole, farnesol-induced; flow model biofilm induced; Spider biofilm repressed
orf19.1967		-2.01	-1.89	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.6934		-2.01	-1.81	Ortholog(s) have role in protein insertion into mitochondrial membrane from inner side and integral to mitochondrial inner membrane localization
orf19.395	<i>ENO1</i>	-2.04	-2.64	Enolase; glycolysis and gluconeogenesis; major cell-surface antigen; binds host plasmin/plasminogen; immunoprotective; Hap43, phagocytosis induced; farnesol-repressed; flow model biofilm induced; Spider biofilm repressed; may be essential
orf19.2808	<i>ZCF16</i>	-2.05	-2.39	Predicted Zn(II)2Cys6 transcription factor; mutants are viable; rat catheter biofilm induced
orf19.1880	<i>HEM15</i>	-2.05	-1.88	Putative ferredoxinase involved in heme biosynthesis; transcript not regulated by iron levels and not affected by a <i>yhf1</i> null mutation; Spider biofilm repressed
orf19.680	<i>TIM50</i>	-2.06	-1.97	Predicted component of the Translocase of the Inner Mitochondrial membrane (TIM23 complex); involved in mitochondrial protein import; Spider biofilm repressed
orf19.1152		-2.06	-1.91	Protein of unknown function; induced in core stress response; Gcn2 and Gcn4 regulated; flow model biofilm induced; Spider biofilm induced
orf19.1413	<i>YFH1</i>	-2.06	-2.3	Frataxin; may be required for iron storage or delivery; role in oxidative stress resistance; transcript regulated by <i>Nrg1</i> , repressed if iron absent induced by macrophage interaction; Hap43-repressed gene
orf19.6406		-2.06	-2.38	Ortholog(s) have role in regulation of sporulation resulting in formation of a cellular spore and cytosol, mitochondrion, nucleus localization
orf19.5305	<i>RHD3</i>	-2.08	-2.15	GPI-anchored yeast-associated cell wall protein; induced in high iron; clade-associated gene expression; not essential for cell wall integrity; fluconazole-repressed; flow model and Spider biofilm repressed
orf19.5420		-2.09	-2.08	Ortholog(s) have role in fatty acid metabolic process
orf19.4894		-2.1	-1.9	Protein with similarity to <i>S. cerevisiae</i> Yer010cp, a protein of unknown function belonging to the prokaryotic RraA family; repressed by benomyl; Hap43-induced; Spider biofilm induced
orf19.946	<i>MET14</i>	-2.1	-1.75	Putative adenylsulfate kinase; predicted role in sulfur metabolism; possibly adherence-induced; protein present in exponential and stationary growth phase yeast; F-12/CO2 biofilm induced
orf19.5450	<i>ETR1</i>	-2.1	-2.63	Putative 2-enoyl thioester reductase; protein present in exponential and stationary growth phase yeast cultures; rat catheter biofilm repressed
orf19.6531	<i>NUC2</i>	-2.11	-2.26	Putative NADH-ubiquinone oxidoreductase; identified in detergent-resistant membrane fraction (possible lipid raft component); alkaline repressed; Hap43-repressed; Spider biofilm repressed
orf19.397		-2.12	-2.34	Ortholog(s) have structural constituent of ribosome activity and cytosol, mitochondrion large ribosomal subunit, nucleus localization
orf19.5693		-2.13	-1.68	Subunit of the GPI (glycosylphosphatidylinositol):protein transamidase complex; removes the GPI-anchor signal and attaches GPI to proteins in the ER; Spider biofilm repressed
orf19.6794	<i>FESUR1</i>	-2.13	-2.76	Putative ubiquinone reductase; transcriptionally induced by interaction with macrophage; alkaline downregulated; repressed by nitric oxide; clade-associated gene expression; Hap43p-repressed gene
orf19.3526	<i>ITR1</i>	-2.14	-1.79	MFS inositol transporter; uptake of exogenous inositol; 12 transmembrane motifs; expressed in rich medium; fluconazole, caspofungin repressed; possibly essential (UAU1 method); flow model, rat catheter and Spider biofilm induced
orf19.3577	<i>COQ5</i>	-2.14	-1.99	Putative methyltransferase of ubiquinone biosynthesis; regulated by Gcn4; repressed by amino acid starvation (3-AT), Hap43; induced upon adherence to polystyrene; Spider biofilm repressed
orf19.7236	<i>TIF35</i>	-2.14	-1.85	Putative translation initiation factor; repressed upon phagocytosis by murine macrophage; Spider biofilm repressed
orf19.6312	<i>RPS3</i>	-2.16	-1.88	Ribosomal protein S3; Hog1, Hap43-induced; grepped upon phagocytosis by murine macrophage; present in exponential and stationary phase cells; Spider biofilm repressed
orf19.2762	<i>AHP1</i>	-2.16	-1.97	Alkyl hydroperoxide reductase; immunogenic; fluconazole-induced; amphotericin B, caspofungin, alkaline repressed; core stress response induced; <i>Ssk1/Nrg1/Tup1/Ssn6/Hog1</i> regulated; flow model biofilm induced; rat catheter biofilm repressed
orf19.1985		-2.17	-2.33	Has aminoglycoside phosphotransferase and protein kinase domains; rat catheter and flow model biofilm induced
orf19.4504		-2.17	-2.15	Has domain(s) with predicted oxidoreductase activity, transferase activity, transferring acyl groups other than amino-acyl groups, zinc ion binding activity and role in oxidation-reduction process
orf19.4947		-2.17	-2.43	Mitochondrial membrane protein of unknown function; Spider biofilm induced
orf19.5788	<i>EFT2</i>	-2.18	-2	Elongation Factor 2 (eEF2); GTPase; essential; highly expressed; target of sordarin antifungals; antigenic in human/mouse; lacks site for regulatory phosphorylation by eEF2 kinase; GCN-regulated; higher protein amount in stationary phase
orf19.6524	<i>TOM40</i>	-2.18	-1.99	Protein involved in mitochondrial protein import; Spider biofilm repressed
orf19.1650	<i>TOM6</i>	-2.2	-2.01	Predicted component of the TOM (translocase of outer membrane) complex, involved in protein import into mitochondria
orf19.3656	<i>COX15</i>	-2.21	-2.36	Cytochrome oxidase assembly protein; transcript regulated by <i>Nrg1</i> and <i>Tup1</i> ; alkaline repressed; Hap43-repressed; early-stage flow model biofilm induced; Spider biofilm repressed
orf19.3651	<i>PGK1</i>	-2.21	-1.9	Phosphoglycerate kinase; localizes to cell wall and cytoplasm; antigenic in murine/human infection; flow model biofilm, Hog1-, Hap43-, GCN-induced; repressed upon phagocytosis; repressed in Spider biofilms by <i>Bcr1</i> , <i>Ndt80</i> , <i>Rob1</i> , <i>Brg1</i>
orf19.2478.1		-2.21	-1.96	60S ribosomal protein L7; snoRNA <i>snR39b</i> encoded within the 2nd intron
orf19.7085		-2.21	-1.76	Protein of unknown function; induced in core stress response; induced by cadmium stress via Hog1; oxidative stress-induced via Cap1; induced by Mn1 under weak acid stress; macrophage-repressed; rat catheter and Spider biofilm induced
orf19.7409	<i>ERV25</i>	-2.21	-2.01	Component of COPII-coated vesicles; transcript induced upon filamentous growth; rat catheter biofilm repressed
orf19.3357		-2.22	-2.91	Ortholog(s) have mitochondrion localization
orf19.2613	<i>ECM4</i>	-2.22	-2.42	Cytoplasmic glutathione S-transferase; regulated by <i>Nrg1</i> , <i>Tup1</i> ; induced in core stress response, in <i>cyr1</i> or <i>ras1</i> mutant (yeast or hyphal cells); Tn mutation affects filamentous growth; stationary phase enriched; Spider biofilm induced
orf19.1154	<i>EGD1</i>	-2.24	-2.25	Putative GAL4 DNA-binding enhancer protein; soluble protein in hyphae; biofilm induced; macrophage/pseudohyphal-induced; equal level of protein in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.1977	<i>URA4</i>	-2.25	-2.51	Dihydroorotase; protein present in exponential and stationary growth phase yeast cultures
orf19.2117	<i>LEU5</i>	-2.26	-2.09	Putative mitochondrial carrier protein; Hap43-repressed; rat catheter biofilm induced
orf19.4826	<i>IDH1</i>	-2.27	-1.65	Putative mitochondrial NAD-isocitrate dehydrogenase subunit 1; soluble protein in hyphae; protein level decrease in stationary phase cultures
orf19.4543	<i>UGA2</i>	-2.28	-3.06	Predicted succinate semialdehyde dehydrogenase; predicted role in glutamate catabolism; transcription regulated by <i>Mig1</i> , <i>Tup1</i> , <i>Gcn4</i> ; mutants are viable
orf19.5683		-2.29	-1.77	Putative integral membrane protein of unknown function; clade-associated gene expression; Spider biofilm induced
orf19.6179		-2.29	-2.48	Protein of unknown function; overlaps <i>FBP1/orf19.6178</i>
orf19.1635	<i>RPL12</i>	-2.3	-2.28	Ribosomal protein L12, 60S ribosomal subunit; downregulated by human whole blood or polymorphonuclear cells; genes encoding cytoplasmic ribosomal subunits are downregulated upon phagocytosis by macrophage; <i>Tbf1p</i> -activated; Hap43p-induced
orf19.3268	<i>TMA19</i>	-2.31	-2.03	Cell wall protein, ortholog of <i>S. cerevisiae</i> <i>Tma19p</i> (Yk1065cp)
orf19.685	<i>YHM1</i>	-2.32	-2.3	Putative mitochondrial carrier protein; fungal-specific (no human or murine homolog); Hap43p-repressed gene
orf19.6816		-2.32	-1.78	Putative xylose and arabinose reductase; flow model biofilm induced; Spider biofilm repressed
orf19.5565		-2.33	-2.49	Putative 3-hydroxyisobutyrate dehydrogenase; rat catheter and Spider biofilm induced
orf19.1564		-2.33	-1.95	Plasma membrane-localized protein of unknown function
orf19.1179		-2.33	-2.44	Protein of unknown function; induced in high iron; possibly subject to <i>Kex2</i> processing; Hap43-repressed
orf19.7325	<i>SCO1</i>	-2.33	-2.19	Putative copper transporter; Hap43p-repressed gene
orf19.2214		-2.34	-2.29	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization

orf19.2268	<i>RCK2</i>	-2.35	-2.31	Predicted MAP kinase-activated protein kinase, similar to <i>S. cerevisiae</i> serine/threonine protein kinase Rck2p; induced by osmotic stress via Hog1p; macrophage/pseudohyphal-repressed; mutants are sensitive to rapamycin
orf19.7284	<i>ASR2</i>	-2.35	-2.18	Adenyl cyclase and stress responsive protein; induced in <i>cyr1</i> or <i>ras1</i> mutant; stationary phase enriched protein; Spider biofilm induced
orf19.3002	<i>RPS1</i>	-2.36	-1.94	Putative ribosomal protein 10 of the 40S subunit; elicits host antibody response during infection; transcript induced during active growth; Spider biofilm repressed
orf19.1643		-2.37	-2.05	Ortholog(s) have serine-type endopeptidase activity, role in regulation of mitochondrion organization, signal peptide processing and mitochondrial inner membrane localization
orf19.6062		-2.38	-2.78	Putative TIM23 translocase complex subunit; membrane-localized; Hap43-repressed
orf19.3340	<i>SOD2</i>	-2.4	-3.57	Mitochondrial Mn-containing superoxide dismutase; protection against oxidative stress; homotetramer active; N-terminal 34 amino acids removed on mitochondrial import; H2O2-induced via Cap1p; Hap43p-, alkaline-downregulated, farnesol-induced
orf19.2039	<i>MSF1</i>	-2.4	-2.66	Putative phenylalanine-tRNA ligase; protein level decreases in stationary phase cultures; Hap43p-repressed gene
orf19.4114	<i>FAA2-1</i>	-2.4	-2.17	Predicted long chain fatty acid CoA ligase; upregulated upon phagocytosis; induced by nitric oxide independent of Yhb1
orf19.2062	<i>SOD4</i>	-2.4	-2.04	Cu and Zn-containing superoxide dismutase; role in response to host innate immune ROS; regulated on white-opaque switch; ciclopirox olamine induced; caspofungin repressed; SOD1,4,5,6 gene family; yeast-associated; Spider biofilm induced
orf19.7118		-2.4	-2.43	Ortholog(s) have adenylate kinase activity, nucleoside triphosphate adenylate kinase activity, role in nucleotide metabolic process and mitochondrial inner membrane localization
orf19.3612	<i>PST2</i>	-2.41	-2.17	Putative NADH:quinone oxidoreductase; similar to 1,4-benzoquinone reductase; immunogenic in mice; induced by benomyl, oxidative stress via Cap1; fungal-specific; farnesol-repressed; Spider biofilm induced
orf19.2644	<i>QCR2</i>	-2.41	-2.42	Ubiquinol-cytochrome-c reductase; antigenic; induced by interaction with macrophage; repressed by nitric oxide; in detergent-resistant membrane fraction (possible lipid raft component); levels decrease in stationary phase; Hap43p-repressed
orf19.2125		-2.42	-2.37	Protein of unknown function; GlcNAc-induced protein; Spider biofilm induced; rat catheter biofilm repressed
orf19.2969	<i>RAD16</i>	-2.44	-1.86	Ortholog of <i>S. cerevisiae</i> Rad16; a protein that recognizes and binds damaged DNA; flucytosine induced; rat catheter and Spider biofilm induced
orf19.6189		-2.44	-2.6	Chalcone related protein family; flow model biofilm induced
orf19.1643		-2.46	-2.52	Ortholog(s) have serine-type endopeptidase activity, role in regulation of mitochondrion organization, signal peptide processing and mitochondrial inner membrane localization
orf19.5928	<i>RPP2B</i>	-2.46	-2.73	Conserved acidic ribosomal protein; possibly involved in regulation of translation elongation; interacts with Rpp1A; 1 of 4 similar C. albicans proteins (Rpp1A, Rpp1B, Rpp2A, Rpp2B); macrophage/pseudohyphal-induced; Spider biofilm repressed
orf19.4022	<i>SDH4</i>	-2.47	-2.34	Succinate dehydrogenase, membrane subunit; induced in high iron
orf19.6287	<i>AAT21</i>	-2.48	-2.56	Putative aspartate aminotransferase; stationary phase enriched protein; Gcn4-regulated; Spider biofilm induced
orf19.7310		-2.48	-2.35	Protein with a role in directing meiotic recombination events to homologous chromatids; induced by ciclopirox olamine; positively regulated by Sfu1; Hog1, fluconazole-repressed; Hap43-induced; Spider biofilm induced
orf19.1625		-2.49	-2.35	Putative ubiquinone oxidoreductase; repressed by nitric oxide; Hap43p-repressed
orf19.6165	<i>KGD1</i>	-2.5	-3.05	Putative 2-oxoglutarate dehydrogenase; regulated by Efg1 under yeast but not hyphal growth conditions; transcript induced in an RHE model of oral candidiasis; stationary phase enriched protein; Hap43-repressed; rat catheter biofilm induced
orf19.1065	<i>SSA2</i>	-2.51	-2.45	HSP70 family chaperone; cell wall fractions; antigenic; beta-defensin peptides import; ATPase domain binds histatin 5; at hyphal surface, not yeast; farnesol-repressed in biofilm; flow model, Spider biofilm repressed; caspofungin repressed
orf19.440	<i>SDH1</i>	-2.51	-2.76	Putative mitochondrial succinate dehydrogenase; macrophage/pseudohyphal-induced; repressed by nitric oxide
orf19.5645	<i>MET15</i>	-2.53	-2.19	O-acetylhomoserine O-acetylserine sulphydrylase; sulfur amino acid synthesis; immunogenic; Hog1, adherence-induced; brown color of mutant in Pb(2+) medium a visual selection; chlamydospore formation induced; F-12/CO2 biofilm induced
orf19.6096	<i>TRP1</i>	-2.53	-2.48	Phosphoribosylanthranilate isomerase; tryptophan biosynthesis; expected unifunctional, unlike trifunctional enzyme of some other fungi; complements <i>E. coli</i> trpC, <i>S. cerevisiae</i> trp1 mutant; CCT1 and TRP1 overlap; Spider biofilm repressed
orf19.3354		-2.54	-2.62	Ortholog(s) have structural constituent of ribosome activity and 90S preribosome, cytosolic small ribosomal subunit, nucleolus localization
orf19.2520		-2.55	-2.89	Ortholog(s) have structural constituent of ribosome activity and mitochondrial small ribosomal subunit localization
orf19.2521		-2.55	-2.2	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_26390, <i>Debaryomyces hansenii</i> CBS767 : DEHA2C05302g, <i>Pichia stipitis</i> Pinal : PICST_68531 and <i>Spathaspora passalidarum</i> NRRL Y-27907 : SPAPADRAFT_59916
orf19.3684		-2.55	-3.64	Putative oxidoreductase; Spider biofilm induced
orf19.7283		-2.55	-3.37	Protein of unknown function; rat catheter and Spider biofilm induced
orf19.7478		-2.57	-2.3	Ortholog(s) have antioxidant activity, di-trans,poly-cis-decaprenylcistransferase activity, protein heterodimerization activity, trans-hexaprenyltransferase activity
orf19.6965		-2.58	-2.63	#NV
orf19.2809	<i>CTN3</i>	-2.59	-2.26	Peroxisomal carnitine acetyl transferase; no obvious metabolic, hyphal, virulence defects in Ura+ strain; induced by macrophage engulfment, hyphal growth, starvation, nonfermentable carbon sources; rat catheter, Spider biofilm induced
orf19.7577	<i>MSS51</i>	-2.6	-2.59	Putative mRNA maturation factor; fungal-specific (no human or murine homolog)
orf19.6472	<i>CYP1</i>	-2.62	-3.22	Peptidyl-prolyl cis-trans isomerase; cyclosporin A sensitive activity; soluble in hyphae; biofilm induced, macrophage-induced protein; downregulated upon treatment of biofilm with farnesol; present in exponential and stationary phase cells
orf19.5791	<i>IDH2</i>	-2.63	-2.71	Putative mitochondrial NAD-isocitrate dehydrogenase subunit; induced by ciclopirox; induced in high iron; present in exponential and stationary growth phases; Spider biofilm repressed
orf19.969		-2.63	-2.57	Ortholog(s) have ribose phosphate diphosphokinase activity, role in 5-phosphoribose 1-diphosphate biosynthetic process, fungal-type cell wall organization and cytosol, nucleus localization
orf19.7676	<i>XYL2</i>	-2.63	-3.3	D-xylulose reductase; immunogenic in mice; soluble protein in hyphae; induced by caspofungin, fluconazole, Hog1 and during cell wall regeneration; Mn11-induced in weak acid stress; stationary phase enriched; flow model biofilm induced
orf19.2269		-2.65	-2.53	Putative 3-phosphoserine phosphatase; induced by benomyl or in azole-resistant strain that overexpresses MDR1; early-stage flow model biofilm induced; Spider biofilm repressed
orf19.685	<i>YHM1</i>	-2.66	-2.58	Putative mitochondrial carrier protein; fungal-specific (no human or murine homolog); Hap43p-repressed gene
orf19.999	<i>GCA2</i>	-2.68	-2.92	Predicted extracellular glucoamylase; induced by ketoconazole; possibly essential, disruptions not obtained by UAU1 method; promotes biofilm matrix formation; Spider biofilm induced; Bcr1-induced in RPM1 a/a biofilms
orf19.2275		-2.73	-2.74	Putative mitochondrial ribosomal protein; predicted role in aerobic respiration; Spider biofilm repressed
orf19.2525	<i>LYS12</i>	-2.75	-2.85	Homocitrate dehydrogenase; catalyzes 4th step in the alpha-aminoadipate pathway of lysine biosynthesis; clade-associated gene expression; protein level decreases in stationary phase cultures; Spider biofilm repressed
orf19.7288		-2.75	-3.05	Protein with predicted oxidoreductase and dehydrogenase domains; Hap43-repressed; Spider biofilm induced
orf19.683		-2.76	-3.02	#NV
orf19.6136		-2.76	-3.26	Ortholog of <i>S. cerevisiae</i> Mrp14, a mitochondrial ribosomal protein of the large subunit; repressed by nitric oxide
orf19.549		-2.76	-2.99	Ortholog(s) have structural constituent of ribosome activity and mitochondrial inner membrane, mitochondrial large ribosomal subunit localization
orf19.7091		-2.77	-2.55	Protein of unknown function; induced by nitric oxide; Spider biofilm repressed
orf19.4899	<i>GCA1</i>	-2.78	-3.38	Extracellular/plasma membrane-associated glucoamylase; expressed in rat oral infection; regulated by carbohydrates, pH, galactose; promotes biofilm matrix formation; flow model biofilm induced; Bcr1 repressed in RPM1 a/a biofilms
orf19.2414		-2.82	-2.92	Ortholog of <i>S. cerevisiae</i> Mpm1; a mitochondrial intermembrane space protein of unknown function; Hap43-repressed; Spider biofilm induced
orf19.5649		-2.82	-3.2	Ortholog of <i>Candida lusitanae</i> ATCC 42720 : CLUG_00275 and <i>Candida albicans</i> WO-1 : CAWG_03759
orf19.3064	<i>MRPL27</i>	-2.83	-2.89	Putative 60S ribosomal protein L27, mitochondrial precursor
orf19.6899		-2.91	-3.26	Putative oxidoreductase; mutation confers hypersensitivity to toxic ergosterol analog; rat catheter and Spider biofilm induced
orf19.7350	<i>RCT1</i>	-2.91	-3.21	Fluconazole-induced protein; Ras1, Cyr1 repressed and Efg1 induced; regulated by Nrg1, Tup1, Tbf1, Ssn6; induced in oropharyngeal candidiasis; rat catheter biofilm repressed
orf19.1375	<i>LEU42</i>	-2.93	-2.91	Putative alpha-isopropylmalate synthase; fungal-specific; induced by human blood or polymorphonuclear cells; regulated by Gcn2 and Gcn4; stationary phase enriched protein; Spider biofilm induced
orf19.3707	<i>YHB1</i>	-2.93	-2.56	Nitric oxide dioxygenase; acts in nitric oxide scavenging/detoxification; role in virulence in mouse; transcript activated by NO, macrophage interaction; Hap43, hypha repressed; mRNA binds She3
orf19.2259		-2.93	-2.83	Ortholog(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.2570	<i>MCI4</i>	-2.95	-3.05	Putative NADH-ubiquinone dehydrogenase; Hap43p-repressed gene
orf19.1650	<i>TOM6</i>	-2.95	-3.42	Predicted component of the TOM (translocase of outer membrane) complex, involved in protein import into mitochondria
orf19.1467	<i>COX13</i>	-2.96	-2.92	Cytochrome c oxidase; flucytosine induced; repressed by nitric oxide
orf19.3579	<i>ATP4</i>	-2.97	-3.54	Putative FO-ATP synthase subunit 4; macrophage/pseudohyphal-induced; present in exponential and stationary growth phases
orf19.7350	<i>RCT1</i>	-2.97	-2.95	Fluconazole-induced protein; Ras1, Cyr1 repressed and Efg1 induced; regulated by Nrg1, Tup1, Tbf1, Ssn6; induced in oropharyngeal candidiasis; rat catheter biofilm repressed
orf19.4898		-2.98	-2.7	Putative protein of unknown function; induced by prostaglandins

orf19.2150		-2.98	-3.14	Putative ortholog of mammalian electron transfer flavoprotein complex subunit ETF-alpha; Spider biofilm repressed
orf19.5257	<i>LCB4</i>	-2.99	-2.76	Putative sphingosine kinase; <i>Tact1p</i> -regulated expression; rat catheter biofilm induced
orf19.5686		-3.01	-3.3	Protein of unknown function; Spider biofilm induced
orf19.3089		-3.02	-3.07	Predicted mitochondrial intermembrane space protein; predicted role in phospholipid metabolism; rat catheter and Spider biofilm induced
orf19.3335		-3.07	-2.75	Plasma membrane protein of unknown function; colony morphology-related gene regulation by <i>Ssn6</i> ; repressed by nitric oxide
orf19.930	<i>PET9</i>	-3.08	-4.51	Mitochondrial ADP/ATP carrier protein involved in ATP biosynthesis; possible lipid raft component; 3 predicted transmembrane helices; flucytosine induced; ketoconazole-induced; downregulated by <i>Efg1p</i>
orf19.3334	<i>RPS21</i>	-3.09	-2.43	Protein component of the small (40S) subunit; repressed upon phagocytosis by murine macrophage; positively regulated by <i>Tbf1</i> ; Spider biofilm repressed
orf19.535	<i>RBR1</i>	-3.13	-2.87	Glycosylphosphatidylinositol (GPI)-anchored cell wall protein; required for filamentous growth at acidic pH; expression repressed by <i>Rim101</i> and activated by <i>Nrg1</i> ; Hap43-induced
orf19.1372		-3.16	-3.01	Protein of unknown function; transcript regulated by <i>Mig1</i> and <i>Tup1</i>
orf19.5805	<i>DLD1</i>	-3.17	-3.83	Putative D-lactate dehydrogenase; white cell-specific transcript; colony morphology-related gene regulation by <i>Ssn6</i> ; Hap43-repressed; rat catheter biofilm induced; Spider biofilm repressed
orf19.4041	<i>PEX4</i>	-3.26	-3.2	Putative peroxisomal ubiquitin conjugating enzyme; regulated by <i>Sef1</i> , <i>Sfu1</i> , and Hap43; rat catheter biofilm induced; Spider biofilm induced
orf19.2947	<i>SNZ1</i>	-3.28	-4.25	Stationary phase protein; vitamin B synthesis; induced by yeast-hypha switch, 3-AT or in azole-resistant strain overexpressing <i>MDR1</i> ; soluble in hyphae; regulated by <i>Gcn4</i> , macrophage; Spider biofilm induced; rat catheter biofilm repressed
orf19.7600	<i>FDH3</i>	-3.31	-2.67	Glutathione-dependent formaldehyde dehydrogenase; glycine catabolism; repressed by <i>Efg1</i> in yeast, not hyphal growth conditions; induced by <i>Mnl1</i> under weak acid stress; Spider biofilm repressed
orf19.2091		-3.32	-3.31	Putative NADH dehydrogenase; repressed by nitric oxide; Hap43p-repressed
orf19.1416	<i>COX11</i>	-3.33	-3.12	Cytochrome oxidase assembly protein; transcript regulated by <i>Nrg1</i> ; protein repressed during the mating process; Hap43-repressed gene; rat catheter biofilm induced
orf19.3974	<i>PUT2</i>	-3.34	-3.78	Putative delta-1-pyrroline-5-carboxylate dehydrogenase; alkaline upregulated; protein present in exponential and stationary growth phase yeast cultures; flow model biofilm induced; Spider biofilm induced
orf19.4602	<i>MDH1-1</i>	-3.38	-3.81	Predicted malate dehydrogenase precursor; macrophage-induced transcript; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm repressed
orf19.6853		-3.4	-3.33	Protein of unknown function; Spider biofilm repressed
orf19.2871	<i>SDH12</i>	-3.44	-5.26	Succinate dehydrogenase; soluble protein in hyphae; macrophage-downregulated protein level; downregulated by <i>Efg1p</i> ; repressed by nitric oxide; protein present in exponential and stationary growth phase yeast cultures; Hap43p-repressed gene
orf19.1471	<i>COX4</i>	-3.44	-3.96	Putative cytochrome c oxidase subunit IV; <i>Mig1</i> -regulated; macrophage/pseudohyphal-induced gene; macrophage-induced protein; repressed by nitric oxide; 5'-UTR intron; Hap43-repressed
orf19.3507	<i>MCR1</i>	-3.52	-3.6	NADH-cytochrome-b5 reductase; soluble in hyphae; alkaline downregulated; farnesol, ketoconazole or flucytosine induced; protein present in exponential and stationary growth phase yeast; YNB biofilm induced; rat catheter biofilm repressed
orf19.5674	<i>PGA10</i>	-3.54	-3.53	GPI anchored membrane protein; utilization of heme and hemoglobin for Fe in host; <i>Rim101</i> at pH/hypoxia/ketoconazole/ciclopirox/hypha-induced; required for RPMI biofilm formation; Bcr1-induced in a/a biofilm; rat catheter biofilm repressed
orf19.4016		-3.58	-3.91	Putative ubiquinol-cytochrome-c reductase; amphotericin B induced; repressed by nitric oxide; protein level decreases in stationary phase cultures; Hap43-repressed; Spider biofilm repressed
orf19.717	<i>HSP60</i>	-3.62	-3.4	Heat shock protein; soluble in hyphae; regulated by <i>Nrg1</i> and by iron; induced in high iron; heavy metal (cadmium) stress-induced; sumoylation target; protein present in exponential and stationary phase cells; Hap43-repressed
orf19.1896	<i>SSC1</i>	-3.69	-4.81	Heat shock protein; at yeast-form cell surface, not hyphae; antigenic; <i>Gcn4</i> -regulated; induced by amino acid starvation (3-AT) or by adherence to polystyrene; macrophage-repressed; sumoylation target; possibly essential
orf19.6838		-3.72	-2.87	Putative protein of unknown function, transcript upregulated in clinical isolates from HIV+ patients with oral candidiasis; Spider biofilm induced
orf19.3733	<i>IDP2</i>	-3.74	-5.32	Iso citrate dehydrogenase; white-opaque switch regulated; morphology-regulation by <i>Ssn6</i> ; protein in exponential and stationary phase yeast; Hap43-repressed; Spider biofilm repressed by <i>Bcr1</i> , <i>Tec1</i> , <i>Ndt80</i> , <i>Rob1</i> , <i>Brg1</i> ; Spider biofilm induced
orf19.5858	<i>EGD2</i>	-3.75	-4.14	Nascent polypeptide associated complex protein alpha subunit; soluble protein in hyphae; macrophage/pseudohyphal-induced; protein level decrease in stationary phase cultures; GlcNAc-induced protein; Spider biofilm repressed
orf19.6311		-3.77	-3.18	Protein of unknown function; Hap43-induced; rat catheter and Spider biofilm induced
orf19.2048		-3.77	-4.13	Protein of unknown function; transcript positively regulated by <i>Sfu1</i> ; Hap43 repressed; Spider biofilm induced
orf19.1480		-3.78	-3.44	Putative succinate dehydrogenase; enzyme of citric acid cycle; repressed by nitric oxide; <i>Efg1</i> , Hap43 repressed
orf19.1449		-3.83	-3.58	Protein of unknown function; induced in azole-resistant strain that overexpresses <i>MDR1</i> ; protein present in exponential and stationary growth phase yeast cultures; Spider biofilm induced
		-3.83	-3.4	#NV
orf19.5112	<i>TKL1</i>	-3.86	-3.85	Putative transketolase; localizes to surface of yeast cells, not hyphae; soluble protein in hyphae; transcript regulated by <i>Nrg1</i> , <i>Mig1</i> , and <i>Tup1</i> ; antigenic in human or murine infection; possibly essential (by UAU1 method)
orf19.7131		-3.88	-4.73	Butyrobetaine dioxygenase, the fourth enzyme of the carnitine biosynthesis pathway
orf19.2341	<i>HNT1</i>	-3.91	-5.9	Protein with similarity to protein kinase C inhibitor-1; protein level decreases in stationary phase cultures
orf19.6059	<i>TTR1</i>	-3.91	-3	Putative glutaredoxin; described as a glutathione reductase; induced by human neutrophils and benomyl treatment; alkaline repressed; regulated by <i>Gcn2</i> and <i>Gcn4</i> ; required for virulence in mouse model; Spider biofilm induced
orf19.1585	<i>ZRT2</i>	-3.94	-4.29	Zinc transporter; ciclopirox olamine, fluconazole, alkaline repressed; transcript induced by amphotericin B, interaction with macrophages; possibly essential (UAU1 method); induced in oropharyngeal candidiasis; Spider biofilm induced
orf19.1042	<i>POR1</i>	-3.99	-5.29	Mitochondrial outer membrane porin; in detergent-resistant membrane fraction (possible lipid raft component); antigenic in human, mouse; Hap43p-induced; flucytosine-, macrophage-, farnesol- induced; fluconazole, caspofungin repressed
orf19.5641	<i>CAR2</i>	-4.02	-3.72	Ornithine aminotransferase; arginine metabolism; alkaline induced; mutant sensitive to toxic ergosterol analog, to amphotericin B; exponential and stationary phase yeast; flow model biofilm induced; rat catheter, Spider biofilm repressed
orf19.4082	<i>DDR48</i>	-4.04	-3.33	Immunogenic stress-associated protein; filamentation regulated; induced by benomyl/caspofungin/ketoconazole or in azole-resistant strain; <i>Hog1</i> , farnesol, alkaline repressed; stationary phase enriched; Spider, flow model biofilm induced
orf19.6724	<i>FUM12</i>	-4.08	-4.78	Putative fumarate hydratase; enzyme of citric acid cycle; fluconazole, <i>Efg1</i> repressed; induced in high iron; protein present in exponential and stationary growth phase
orf19.7280		-4.11	-3.02	Ortholog of <i>Candida albicans</i> WO-1 : CAWG 02163
orf19.5419	<i>ATP5</i>	-4.22	-4.67	Putative FO-ATP synthase FO subunit B; caspofungin repressed; protein level decreased in stationary phase yeast cultures; Spider biofilm repressed
orf19.3223	<i>ATP3</i>	-4.34	-5.1	F1-ATP synthase complex subunit; caspofungin repressed; flucytosine and macrophage/pseudohyphal-induced; present in exponential and stationary growth phases; Hap43p-induced gene
orf19.7678	<i>ATP16</i>	-4.36	-4.94	Subunit of the mitochondrial F1FO ATP synthase; sumoylation target; protein newly produced during adaptation to the serum; Spider biofilm repressed
orf19.7244		-4.38	-4.75	Putative fumarylacetoacetate hydrolase; induced by nitric oxide independent of <i>Yhb1</i> ; regulated by <i>Sef1</i> , <i>Sfu1</i> , Hap43; flow model biofilm induced
orf19.1862		-4.44	-3.34	Possible stress protein; increased transcription associated with <i>CDR1</i> and <i>CDR2</i> overexpression or fluphenazine treatment; regulated by <i>Sfu1</i> , <i>Nrg1</i> , <i>Tup1</i> ; stationary phase enriched protein; Spider biofilm induced
orf19.1552	<i>CPR3</i>	-4.44	-5.54	Putative peptidyl-prolyl cis-trans isomerase; macrophage-induced protein; protein levels decrease in stationary phase yeast cultures; predicted mitochondrial localization; overlaps orf19.1551
orf19.4759	<i>COX5</i>	-4.45	-3.8	Cytochrome oxidase subunit V; putative upstream CCAAT box regulatory element; macrophage/pseudohyphal-induced; repressed by nitric oxide; intron in 5'-UTR; Hap43p-dependent repression in low iron medium
orf19.4082	<i>DDR48</i>	-4.55	-3.94	Immunogenic stress-associated protein; filamentation regulated; induced by benomyl/caspofungin/ketoconazole or in azole-resistant strain; <i>Hog1</i> , farnesol, alkaline repressed; stationary phase enriched; Spider, flow model biofilm induced
orf19.3171	<i>ACH1</i>	-4.66	-5.46	Acetyl-coA hydrolase; acetate utilization; nonessential; soluble protein in hyphae; antigenic in human; induced on polystyrene adherence; farnesol-, ketoconazole-induced; no human or murine homolog; stationary phase-enriched protein
orf19.4216		-4.73	-3.57	Putative heat shock protein; decreased expression in hyphae; transcription is increased in populations of cells exposed to fluconazole over multiple generations; overexpression increases resistance to farnesol and azoles
orf19.2599	<i>CRC1</i>	-4.92	-5.75	Mitochondrial carnitine carrier protein
orf19.6725		-5.01	-6.39	#NV
orf19.5684		-5.13	-4.62	Ortholoq(s) have structural constituent of ribosome activity and mitochondrial large ribosomal subunit localization
orf19.5635	<i>PGA7</i>	-5.19	-5.88	GPI-linked hyphal surface antigen; induced by ciclopirox olamine, ketoconazole, <i>Rim101</i> at pH 8; Hap43, fluconazole; flow model biofilm induced; Spider biofilm induced; required for RPMI biofilm; Bcr1-induced in a/a biofilm
orf19.4311	<i>YNK1</i>	-5.2	-4.95	Nucleoside diphosphate kinase (NDP kinase); homo-hexameric; soluble protein in hyphae; flucytosine induced; biofilm induced; macrophage-induced protein; stationary phase enriched protein; Spider biofilm repressed

orf19.3733	<i>IDP2</i>	-5,2	-8,7	Isocitrate dehydrogenase; white-opaque switch regulated; morphology-regulation by Ssn6; protein in exponential and stationary phase yeast; Hap43-repressed; Spider biofilm repressed by Bcr1, Tec1, Ndt80, Rob1, Brg1; Spider biofilm induced
orf19.6854	<i>ATP1</i>	-5,27	-7,03	ATP synthase alpha subunit; antigenic in human/mouse; at hyphal surface; ciclopirox, ketoconazole, flucytosine induced; Efg1, caspofungin repressed; may be essential; sumoylation target; stationary phase-enriched; Spider biofilm repressed
orf19.3539		-5,29	-3,89	Predicted nucleolar S-adenosylmethionine-dependent rRNA methyltransferase; Spider biofilm induced
orf19.3053		-5,4	-4,47	Protein of unknown function; present in exponential and stationary phase yeast; identified in extracts from biofilm and planktonic cells; flow model biofilm induced gene; GlcNAc-induced protein
orf19.361		-5,41	-5,41	#NV
orf19.4932		-5,59	-5,93	Ortholog(s) have role in mitochondrial translation and mitochondrion localization
orf19.4216		-5,82	-4,83	Putative heat shock protein; decreased expression in hyphae; transcription is increased in populations of cells exposed to fluconazole over multiple generations; overexpression increases resistance to farnesol and azoles
orf19.7675		-5,88	-8,06	Mitochondrial ribosomal protein of the large subunit; Spider biofilm repressed
orf19.5636	<i>RBT5</i>	-6,1	-5,51	GPI-linked cell wall protein; hemoglobin utilization; Rfg1, Rim101, Tbf1, Fe regulated; Sfu1, Hog1, Tup1, serum, alkaline pH, antifungal drugs, geldamycin repressed; Hap43 induced; required for RPMI biofilms; Spider biofilm induced
orf19.5636	<i>RBT5</i>	-6,29	-5,34	GPI-linked cell wall protein; hemoglobin utilization; Rfg1, Rim101, Tbf1, Fe regulated; Sfu1, Hog1, Tup1, serum, alkaline pH, antifungal drugs, geldamycin repressed; Hap43 induced; required for RPMI biofilms; Spider biofilm induced
orf19.4833	<i>MLS1</i>	-6,32	-8,83	Malate synthase; glyoxylate cycle enzyme; no mammalian homolog; regulated upon white-opaque switch; phagocytosis, strong oxidative stress induced; stationary phase enriched; flow model biofilm repressed; rat catheter, Spider biofilm induced
orf19.3931	<i>SFC1</i>	-6,49	-7,92	Putative succinate-fumarate transporter; involved in repression of growth on sorbose; alkaline induced; rat catheter biofilm induced; Spider biofilm induced
orf19.4591	<i>CAT2</i>	-6,51	-6,22	Major carnitine acetyl transferase; intracellular acetyl-CoA transport; localized in peroxisomes and mitochondria; induced in macrophages; Hog1-repressed; stationary phase enriched; farnesol-upregulated in biofilm; Spider biofilm induced
orf19.7514	<i>PCK1</i>	-6,8	-6,35	Phosphoenolpyruvate carboxykinase; glucose, C-source, yeast-hypha, Hap43 regulated; fluconazole, phagocytosis, H2O2, oral candidiasis, Spider/rat catheter/flow model biofilm induced; repressed in biofilm by Bcr1, Tec1, Ndt80, Rob1, Brg1
orf19.3527	<i>CYT1</i>	-6,88	-7,36	Cytochrome c1; induced in high iron; alkaline repressed; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43-repressed; Spider biofilm repressed
orf19.2211		-6,95	-5,17	Ortholog of <i>C. dubliniensis</i> CD36 : Cd36_21990, <i>C. parapsilosis</i> CDC317 : CPAR2_103660, <i>Debaryomyces hansenii</i> CBS767 : DEHA2F19756g and <i>Pichia stipitis</i> Pignol : PICST_61375
orf19.5653	<i>ATP2</i>	-7,5	-8,21	F1 beta subunit of F1F0 ATPase complex; antigenic in human, mice; induced by ciclopirox olamine; caspofungin repressed; macrophage/pseudohyphal-induced; detected during exponential and stationary growth phases; Spider biofilm repressed
orf19.5893	<i>RIP1</i>	-7,55	-6,67	Putative ubiquinol cytochrome c-reductase; induced by high iron; Hap43, nitric oxide, alkaline repressed; Spider biofilm repressed
orf19.6047	<i>TUF1</i>	-8,77	-11,59	Translation elongation factor TU; macrophage/pseudohyphal-induced; repressed upon phagocytosis by murine macrophage; levels decrease in stationary phase cells; Spider biofilm repressed
orf19.3527	<i>CYT1</i>	-9,18	-9,65	Cytochrome c1; induced in high iron; alkaline repressed; possibly an essential gene, disruptants not obtained by UAU1 method; Hap43-repressed; Spider biofilm repressed
orf19.2344	<i>ASR1</i>	-9,33	-10,38	Heat shock protein; transcript regulated by cAMP, osmotic stress, ciclopirox olamine, ketoconazole; repressed by Cyr1, Ras1; colony morphology-related regulated by Ssn6; stationary phase enriched; Hap43-induced; Spider biofilm induced
orf19.822	<i>HSP21</i>	-9,33	-13,51	Small heat shock protein; role in stress response and virulence; fluconazole-downregulated; induced in <i>cyr1</i> or <i>ras1</i> mutant; stationary phase enriched protein; detected in some, not all, biofilm extracts; Spider biofilm induced
orf19.1552	<i>CPR3</i>	-9,47	-10,03	Putative peptidyl-prolyl cis-trans isomerase; macrophage-induced protein; protein levels decrease in stationary phase yeast cultures; predicted mitochondrial localization; overlaps orf19.1551
orf19.2344	<i>ASR1</i>	-13,65	-12,34	Heat shock protein; transcript regulated by cAMP, osmotic stress, ciclopirox olamine, ketoconazole; repressed by Cyr1, Ras1; colony morphology-related regulated by Ssn6; stationary phase enriched; Hap43-induced; Spider biofilm induced
orf19.5447	<i>HGT19</i>	-15,14	-12,96	Putative MFS glucose/myo-inositol transporter; 20 member family; 12 transmembrane segments, extended N terminus; expressed in rich medium; Hap43, phagocytosis, rat catheter, Spider and flow model biofilm induced
orf19.6837	<i>FMA1</i>	-16,65	-16,93	Putative oxidoreductase; induced by ciclopirox olamine; upregulation correlates with clinical development of fluconazole resistance; Spider biofilm repressed
orf19.742	<i>ALD6</i>	-17,11	-20,47	Putative aldehyde dehydrogenase; stationary phase enriched protein; expression regulated upon white-opaque switch; rat catheter biofilm induced; rat catheter and Spider biofilm induced
orf19.1064	<i>ACS2</i>	-18,63	-15,73	Acetyl-CoA synthetase; antigenic during human and murine infection; induced by Efg1; macrophage-induced protein; soluble protein in hyphae; gene contains intron; flow model and Spider biofilm repressed
orf19.6844	<i>ICL1</i>	-21,4	-19,24	Isocitrate lyase; glyoxylate cycle enzyme; required for virulence in mice; induced upon phagocytosis by macrophage; farnesol regulated; Pex5-dependent peroxisomal localization; stationary phase enriched; rat catheter, Spider biofilm induced
orf19.5446		-27,22	-20,15	Putative protein of unknown function; transcript is upregulated in clinical isolates from HIV+ patients with oral candidiasis; regulated by Ssn6
orf19.5307	<i>JEN2</i>	-32,72	-34,77	Dicarboxylic acid transporter; regulated by glucose repression; induced by Rgt1; disruptants not obtained by UAU1 method; rat catheter and Spider biofilm induced
orf19.3664	<i>HSP31</i>	-78,86	-82,08	Putative 30 kDa heat shock protein; repressed during the mating process; rat catheter biofilm induced

¹ Standard name in the *Candida* Genome Database (CGD), except for *DUR3*, *OPT2*, *OPT3* and *STP1*.

	upregulated, high reproducibility
	upregulated, medium reproducibility
	downregulated, high reproducibility
	downregulated, medium reproducibility
	Not reliable