**Supplementary 4:**

*Genes, Transcription Factors, Protein Kinases, Intracellular Proteins, and Other Abbreviations as Used in the Article*

**Aap –** amino acid permease

**Aat –** amino acid transporter

**Aca –** adenylyl cyclase-associated protein

**Acc1 –** acetyl-CoA decarboxylase

**Acd1/Acd2/Acd3 –** acyl-CoA dehydrogenase

**Aco1 –** aconitase

**Acs1 –** acetyl-CoA synthetase for histone acetylation

**Ada2 –** histone acetyltransferase complex SAGΑ/ΑDA

**Ade12 –** adenylosuccinate synthase

**Ade2 –** phosphoribosyl aminoimidazole carboxylase

**Ade4 –** PRPPAT (phosphoribosyl pyrophosphate aminotransferase) in purine biosynthesis

**Ade5.7 –** aminoimidazole ribonucleotide synthetase and glycinamide ribonucleotide synthetase, a bifunctional enzyme in the *"de novo"* purine nucleotide biosynthesis

**Ade6 –** phosphoribosylformylglycinamide synthase

**Adh1 –** alcohol dehydrogenase

**Adh21 –** glucose-repressible alcohol dehydrogenase II

**Adh5 –** alcohol dehydrogenase isozyme III

**Adh50 –** alcohol dehydrogenase isoenzyme V, which involves in ethanol production

**Adi1 –** acireductone dioxygenase (1,2-dihydroxy-3-keto-5-methylthiopentene dioxygenase) in the methionine salvage pathway

**Adp1 –** ATP-dependent permease

**Ady2 –** acetate transporter

**Afr1 –** ATP-binding cassette transporter

**Agc1 –** mitochondrial inner membrane protein

**Agn1** - glucan endo-1,3-*α*-glucosidase

**Ago –** Argonaute protein

**Ags –** *α*-1,3-glucan synthase

**Agt1 –** *α*-glucoside transporter or maltose permease

**Agx1 –** alanine glyoxylate aminotransferase

**Aha1 –** chaperone activator

**Aif –** pyridine nucleotide-disulphide oxidoreductase, an apoptosis-inducing factor-like protein family

**Aim2 –** cytoplasmic protein

**Ala1 –** alanine-*t*RNA ligase

**Ald1 –** aldehyde dehydrogenase

**Ald52 –** succinate semialdehyde homologue of S. cerevisiae

**Alg12 –** dolichyl-phosphate-mannose (Dol-P-Man)-dependent *α*-1,6-mannosyltransferase

**Alg3/Cmt1 –** dolichyl-phosphate-mannose (Dol-P-Man)-dependent *α*-1,3-mannosyltransferase

**Alg7 –** UDP-N-acetylglucosamine-1-phosphate transferase for lipid-linked N-oligosaccharide biosynthesis

**Alg9 –** dolichyl-phosphate-mannose (Dol-P-Man)-dependent *α*-1,2-mannosyltransferase

**Alo1 –** *D*-arabinose-1,4-lactone oxidase

**Alp5 –** actin-related protein Arp4p/Act3p complex

**Ams1 –** vacuolar *α*-mannosidase

**Amt1** - putative adenosylmethyltransferase

**Amt1/Mep1 –** ammonium permease/transporter

**Ant –** peroxisomal ATP carrier e.g., Ant1

**Aos1 –** subunit of a heterodimeric nuclear SUMO activating enzyme (E1)

**Aox1 –** alternative oxidase

**Apc –** amino acid-polyamine-organocation secondary carrier protein (APC) superfamily (including the amino acid-polyamine-organocation (APC), the amino acid/auxin permease (AAAP), the alanine or glycine:cation symporter (AGCS), the cation-chloride cotransporter (CCC), the hydroxy/aromatic amino acid permease (HAAAP), the betaine/carnitine/choline transporter (BCCT), the solute:sodium symporter (SSS), the neurotransmitter:sodium symporter (NSS), the nucleobase:cation symporter-1 (NCS1), the nucleobase:cation symporter-2 or nucleobase:ascorbate transporter (NCS2), the sulfate permease (SulP) as family members)

**Apc1 –** anaphase-promoting complex subunit 1

**Apc11 –** ubiquitin-protein ligase

**Aph1 –** canonically secreted extracellular/vacuolar acid phosphatase capable of recycling phosphate from phosphate-rich molecules such as AMP, creatinine phosphate, glucose-1-phosphate, β-glycerol phosphate, mannose-6-phosphate, and phosphotyrosine in the vacuole or from the extracellular milieu. Also, it serves as a biochemical reporter for the PHO signalling pathway

**Apm101 –** clathrin assembly protein AP47

**Apn1 –** DNA-apurinic/apyrimidinic site lyase

**App1 –** antiphagocytic protein 1

**Ara1 –** NADP+-dependent arabinose dehydrogenase

**Ara2 –** NAD-dependent arabinose dehydrogenase, for the biosynthesis of dehydro-D-arabinono-1,4-lactone

**Arb1 –** ATP-binding cassette transporter

**Arc40 –** actin-related protein complex 2/3 subunit 1 with WR40 repeats

**Ard1 –** *D*‐arabinitol dehydrogenase

**Ard1 –** *N*-terminal acetyltransferase A complex catalytic subunit

**Arf2 –** GTP-binding ADP-ribosylation factor

**Arg3 –** ornithine carbamoyltransferase (carbamoylphosphate:*L*-ornithine carbamoyltransferase)

**Arg8 –** acetylornithine aminotransferase

**Arg82 –** arginine metabolism transcriptional control protein

**Arh1 –** mitochondrial inner membrane oxidoreductase for iron homeostasis and Fe-S cluster-containing proteins

**Aro2/4/40 –** chorismate synthase

**Aro7 –** chorismate mutase that catalyses the conversion of chorismate to prephenate in the tyrosine/phenylalanine-specific branch of aromatic amino acid biosynthesis

**Arp2/3 –** actin nucleation proteins

**Arr3 –** arsenite efflux transporter

**Asc1 –** G-β-like protein

**Asr2 –** arsenite-resistant protein

**Atf1 –** *Cre*-binding basic leucine-zipper (bZIP) domain activating transcription factor regulated by Hog1

**Atg –** serine/threonine-protein kinase involved in autophagy

**Atg26 –** UDP-glucose:sterol glucosyltransferase in the biosynthesis of sterol glucoside membrane lipids

**Atg4 –** C54 peptidase family protein

**Atm1 –** mitochondrial inner membrane ABC transporter/iron-sulfur clusters transporter Atm1p

**Atp1 –** *α*-subunit FoF1-type ATP synthase

**Axl2 –** integral plasma-membrane protein

**Ayr10/13 –** NADPH-dependent 1-acyl dihydroxyacetone phosphate reductase

**Bat1 –** cytosolic branched-chain amino acid aminotransferase; highly expressed in stationary phase but repressed in the logarithmic phase

**Bat10 –** mitochondrial branched-chain amino acid aminotransferase with similar expression as Bat1

**Bdf1 –** transcription initiation factor TFIID with a bromodomain repeat motif

**Bdh1/10 –** NAD-dependent (R, R)-butanediol dehydrogenase

**Bds1 –** alkyl/arylsulfatase

**Bem3 –** Rho-GTPase-activating protein

**Bgl2 –** glucan 1,3-*β*-glucosidase

**Bio2 –** biotin synthase

**Blm10 –** yeast proteasome-activator HEAT-repeat protein

**Bna1 –** 3-hydroxyanthranilate-3,4-dioxygenase

**Bna2 –** indoleamine-2,3-dioxygenase

**Bna3 –** aminotransferase

**Bna5 –** kynureninase in the *de novo* biosynthesis of NAD from tryptophan via kynurenine; expression regulated by Hst1p

**Bna6 –** quinolinate phosphoribosyltransferase

**Bni –** bud-neck protein for the localisation of chitin synthase III

**Bni4 –** linking chitin synthase to septin

**Bre2 –** Ash2-trithorax family protein

**Bst –** endoplasmic reticulum-associated protein catabolism

**Bud23 –** methyltransferase methylating 18*S* *r*RNA for *r*RNA processing

**Bud32 –** Bud32 protein kinase

**Bwc –** Basidiomycete white collar

**Cac1 –** *Cryptococcus* adenylyl cyclase

**Cam1 –** calmodulin

**Can –** carbonic anhydrase CO2-sensor

**Cap –** capping protein for actin-binding/regulatory proteins

**Cap –** capsule-associated protein

**Car2/20 –** *L*-ornithine aminotransferase

**Cas –** capsular structural modification

**Cas1 –** capsule synthesis 1 encoding *O*-acetyltransferase needed for capsule polysaccharide synthesis

**Cas2 –** encoding UDP xylose synthase. The Cas1 and Cas2provide the synthesis of the glucoronoxylomannan

**Cat –** *Cryptococcus* acetyl-CoA acetyltransferase

**Cat(1 – 3) –** catalase A

**Cat2 –** carnitine acetyltransferase

**Cat5/Coq7 – cat**abolite repression protein 5 (mitochondrial 5-demethoxyubiquinone hydroxylase)/ubiquinone biosynthesis monooxygenase, a homologue of *S. cerevisiae*

**CBD1/2 –** protein with CBS domains regulating activity in response to ATP or AMP binding

**Cbf5 –** pseudouridine synthase catalytic subunit

**Cbk – c**ell wall **b**iosynthesis serine/threonine **k**inase (a member of RAM signalling network protein kinase belonging to the AGC kinase family)

**Cbp –** ubiquinol-cytochrome c chaperone

**Cbr1 –** microsomal *cyt b* reductase, a homologue of *S. cerevisiae*

**Ccc1/2 –** copper transporter, a P-type ATPase

**Ccn1 –** cryptococcal crooked neck 1

**Ccn1 –** cyclin B and related kinase-activating proteins

**Ccp1 –** mitochondrial *cyt c* peroxidase

**Ccr4 –** *m*RNA deadenylase

**Cda –** chitin deacetylase

**Cdb4 –** curved DNA-binding protein

**Cdc10 –** septin *aspD*

**Cdc11 –** septin *aspA*

**Cdc12 –** septin *aspC*

**Cdc14 –** phosphoprotein phosphatase

**Cdc16/23 –** anaphase-promoting complex subunits protein

**Cdc24 –** a GEF protein mediating a conserved signalling event for thermotolerance, polarised growth, and pathogenesis via Ras1, Cdc24, Cdc42, and Pak kinase Ste20

**Cdc31 –** EF-hand Ca2+-binding protein

**Cdc36 –** CCR4-NOT transcription complex

**Cdc4 –** myosin regulatory light chain

**Cdc40 –** cell division cycle 40

***cdc420* –** a paralogue of *cdc42* gene

**Cdc43 –** encoding β-subunit of geranylgeranyltransferase-1 (Ggtase-1), catalysing the attachment of hydrophobic isoprenoid moieties onto C-terminal CaaX motifs (cysteine, 2 aliphatic amino acids, and variable amino acid)

**Cel1 –** cellulase similar to Cap60

**Cfl1 –** cryptococcaladhesin that promotes cell-cell aggregation and hyphal growth but is not involved in the maintenance of hyphal growth/sporulation

**Cfo –** *Cryptococcus* ferroxidase with Fe2+ transport activity

**Cgl –** *Cryptococcus* glycerol lipase

**Cgl1 –** triacylglycerol lipase

**Cgp1 –** microtubule-associated protein

**Cha1/10 –** *L*-serine/*L*-threonine deaminase

**Chl1 –** DNA helicase

**Chs –** chitin synthase

**Cid1 –** caffeine-induced death protein

**Cig1 –** cytokine-inducing glycoprotein

**Cin1 –** cryptococcal intersectin 1 (human endocytic ITSN1 homologue)

**Cir1/2 –** *Cryptococcus* iron regulator electron transfer flavoprotein-ubiquinone oxidoreductase homologue of *S. cerevisiae*

**Ckb1 –** casein kinase II *β*-subunit

**CKS1 –** protein kinase activator

**Clc-A/Clc1 –** voltage-gated chloride channel gene

**Clr6 – c**ryptic **l**oci **r**egulator encoding putative class I histone deacetylase that removes an acetyl group from *ε*-N-acetyl-lysine amino acid residue on a histone, thereby enhancing tighter wrapping of histones on DNA to prevent access to transcription factors and DNA expression

**Cna/Cnb –** temperature- and calcium-induced calcineurin, inhibited by FK506

**Cnc –** glycosyltransferase

**Cnh –** cellubiuronate synthase

**Cnh1 –** cyanate hydratase

**Cnj –** lactonohydrolase

**Cnk –** *D*-xylulose-5-phosphate/*D*-fructose-6-phosphate phosphoketolase

**Cns5 –** putative *C. neoformans* septin‐like protein 5

**Cob –** apocytochrome *b*

**Cop1 –** *α*-subunit of coatomer

**Coq10 –** ubiquinone-binding protein

**Coq2 –** *p*-hydroxybenzoate polyprenyltransferase

**Cox1/17 –** *cyt c* oxidase copper chaperone

**Cox5a –** *cyt c* oxidase subunit IV

**Cpa –** cyclophilin A

**Cpk1 –** putative MAP kinase Ubc3

**Cpp – *C****ryptococcus* **p**urine/cytosine **p**ermease e.g., Cpp2 homologues of *S. cerevisiae* Fcy2 and Fcy21

**Cpr –** constitutive pheromone receptor, e.g., *Cpr****a*** gene is a *MAT****a*** strain-specific gene encoding putative seven-transmembrane domain pheromone receptors with diverse functions – mating, virulence, capsule

**Cps1 –** hyaluronic acid synthase/cellubiuronic synthase essential in transcellular transmigration

**Cps1/10 –** vacuolar carboxypeptidase yscS

**CPY –** carboxypeptidase Y

**Cqs1 –** *Cryptococcus* quorum sensing-like molecule

**Crg –** a regulator of G-protein signalling

**CRIB – C**dc42/**R**ac **i**nteraction **b**inding domain, e.g., Ste20p, which can interact via CRIB with Cdc42p, activate Rac1p and Dch2p

***Crn* –** *Drosophila* crooked neck gene

**Crp –** cyclophilin-type peptidyl-prolyl *cis*-trans isomerase

**Crz1/Sp1 –** cell wall transcriptional regulator known as calcineurin-responsive zinc finger 1

**Csh1 –** mannosyltransferase

**CSR –** common stress response/regulatory genes

**Csr1**-3 **–** chitin synthase regulators

**Css1 –** ATP-citrate synthase subunit 1

**Cta11 –** catalase 1

**Cta12/Cat3 –** catalase, homologue of *S. cerevisiae*

**Ctf18 –** chromosome transmission fidelity protein

**Ctf4 –** chromatin-associated protein with WD40 repeat motif

**Cts1 –** phospholipid-binding protein

**Ctt1 –** catalase 4

**Cul1 –** cullins

**Cwc24 –** pre-*m*RNA-splicing factor homologue of *S. pombe* Cwf24p

**CWI –** cell wall integrity

**Cxt1 –** cryptococcal xylosyltransferase 1, a type II membrane protein with an *N*-linked glycosylation site and two DXD motifs

**Cyb20/21 –** *cyt b2*; a *L*-lactate *cyt* *c* oxidoreductase

**Cyb25/50 –** *cyt* *b5*-like heme, a homologue of *S. cerevisiae*

**Cys2 –** homoserine *O*-acetyltransferase

**Cys4 –** cystathionine *β*-synthase

**Cys40 –** PLP-dependent, a homologue of Cys4

**Czc –** *Cryptococcus* zinc cluster

**Dak –** dihydroxyacetone kinase isoenzyme I

**Dal –** sugar transporter

**Dbp –** DEAD-Box ATP-dependent RNA helicase

**Dch2 – d**ual **C**dc42 **h**omologue

**Dcn1 –** cullin neddylation with NEDD8 ligase activity regulating ubiquitin-protein ligase activity

**Dcr1 –** 2,4‐dienoyl‐CoA reductase

**Dcr1 –** endoribonuclease

**Dcs1 –** hydrolase

**Ddi1 –** SNARE-binding protein

**Der1 –** ER-associated degradation

**Dfr1 –** dihydrofolate reductase

**Dho1 –** dihydroorotate dehydrogenase

**Dhp –** 3´-exoribonuclease

**Dip5 –** amino acid transporter

**Dld2 –** *D*-lactate dehydrogenase

**Dmc1 –** RecA (recombinant protein A) homologue

**Dna2 –** ATP-dependent DNA replication helicase

**Doa4 –** ubiquitin *C*-terminal hydrolase

**Dog1 –** 2-deoxyglucose-6-phosphate phosphatase

**Dot5 –** thiol-specific antioxidant enzyme

**Dox2/3 –** dioxygenase

**Drs1 –** ATP-dependent RNA helicase

**Drs2/20 –** aminophospholipid translocase (flippase) maintaining membrane lipid asymmetry in the post-Golgi secretory vesicles

**DSP –** dual-specify phosphatase dephosphorylating phosphotyrosine and phosphothreonine

**Dug2 –** putative di- and tri-peptidase that form a complex with Dug1p and Dug3p to degrade Gsh

**Dug3 –** putative glutamine amidotransferase, may form a complex with Dug1p and Dug2p to degrade GSH

**Dur1/10/11 –** urea amidolyase with urea carboxylase and allophanate hydrolase activities during allantoin catabolism

**Dur3 –** urea and polyamine plasma membrane transporter

**Dus1/3 –** *t*RNA-dihydrouridine synthase

**Eca1** **–** K+/Na+ efflux *P*-type ATPase

**Ece1 –** endothelin-converting enzyme 1

**Ech1 –** enoyl‐CoA hydratase

**Eci1 –** enoyl‐CoA hydratase/isomerase

**eEF –** eukaryotic translational elongation factor

**Efb1 –** elongation factor 1*β*

**Egd2 –** nascent polypeptide-associated complete *α*-subunit

**EGTA –** ethylene glycol-bis (*β*-aminoethyl ether)-N, N, N', N'-tetraacetic acid (a calcium chelator)

**Ehd3/31 –** 3-hydroxyisobutyryl-CoA hydrolase, a member of enoyl-CoA hydratase/isomerases

**eIF –** eukaryotic translational initiation factor

**Elp3 –** RNA polymerase II elongation complex

**Emg1 –** ribosome biogenesis protein

**Ena1/5/50/51/52 –** Na+ or K+ P-type membrane ATPase cation transporter

**Eno1 –** enolase

**Eor1/2 –** enoyl reductase

**Erg –** ergosterol regulatory gene

**Erg1 –** squalene epoxidase/monooxygenase

**Erg10 –** acetyl-CoA acetyltransferase

**Erg11 –** *Cyt P450* lanosterol 14*α*-demethylase

**Erg110 –** Δ14-sterol demethylase activity with heme-binding pocket

**Erg13 –** 3-hydroxy-3-methylglutaryl‐CoA (HMG-CoA) synthase in mevalonate biosynthesis

**Erg2 –** *Δ8*-sterol isomerase

**Erg20 –** polyprenyl synthetase

**Erg24 –** *Δ14*-sterol reductase

**Erg25 –** *Δ4*-methylsterol oxidase (sterol desaturase)

**Erg26 –** *Δ3*-sterol dehydrogenase/3-*β*-hydroxysteroid dehydrogenase, a homologue of *S. cerevisiae*

**Erg27 –** 3-keto sterol reductase

**Erg3 –** *Δ5*-sterol desaturase

**Erg4 –** *Δ24/28*-sterol reductase

**Erg5 –** *Δ22*-sterol desaturase

**Erg50 –** *Δ22*-sterol desaturase with cyt *P450*

**Erg6 –** *Δ24*-sterol methyltransferase

**Erg7 –** lanosterol synthase

**Erg8 –** phosphomevalonate kinase

**Erk –** extracellular signal-regulated kinase MAPK with T-E-Y motif (Cpk1 and Mpk1)

**Ero1 –** ER oxidoreductase

**Erv29 –** ER to Golgi vesicle-mediated transport

**ESR –** environmental stress response/regulatory groups of genes/ER-stress response genes

**Ess1 –** parvulin-class peptidyl-prolyl *cis/trans* isomerases (PPIases/rotamase)

**eTRF –** eukaryotic translational release factor

**Exg1 –** cellulase

**Faa1 –** fatty acid activator 1 (long‐chain fatty acid CoA ligase/long-chain fatty acyl:CoA synthetase 1 gene)

**Faa2/20 –** medium-chain fatty acyl-CoA synthetase

**Fas1 –** fatty acid synthase *β*-subunit (a homologue of *S. cerevisiae*) regulated by Can2

**Fas2 –** fatty acid synthase complex protein

**Fba10 –** fructose-bisphosphate aldolase

**Fbp1 –** F-box protein 1 containing a putative F-box domain and 12 leucine-rich repeats (LRR) similar to *S. cerevisiae* Grr1p but not a homologue

**Fbp26 –** fructose-2,6-bisphosphatase

**FCCP –** 4-trifluoromethoxycarbonylcyanide phenylhydrazone

**Fcy1 –** flucytosine-cytosine permease/deaminase, a zinc-binding protein that hydrolytically deaminated cytosine to uracil

**Fcy21 –** cytosine permease

**Fdh1 –** formate dehydrogenase

**Fds1 –** fatty acid desaturase

**Fen2 –** Liz1p, pantothenate transporter

**Feo1/2 –** Fe2+ oxygenase superfamily

**Fet –** iron transporter

**Fet3/5 –** ferroxidase/multicopper oxidase or iron transporter

**Fhb1 –** flavohemoglobin denitrosylase (nitric oxide dioxygenase)

**Fkbp12 –** macrolide-binding protein

**Fks –** yeast 1,3-*β*-*D*-glucan synthase

**Flr1 –** Scr1 protein

**FMLP –** formylmethionylleucylphenylalanine

**Fmp52 –** mitochondrial outer membrane protein; can be induced by UVA irradiation

**Fnx1 –** multidrug resistance protein

**Fol2 –** GTP-cyclohydrolase I, catalyses the first step in the folic acid biosynthetic pathway

**For1/Oye2/3/20/21 –** NADH:FMN oxidoreductase belonging to the NADH oxidase family

**For2/4 –** FAD-binding monooxygenase

**For3 –** FAD-dependent oxidoreductase with integrase zinc-binding domain

**Fot1 –** formyl transferase in purine biosynthesis

**Fox2 –** 3-hydroxyacyl-CoA dehydrogenase and enoyl-CoA hydratase activities; a multifunctional enzyme of the peroxisomal fatty acid *β*-oxidation pathway

**Fox21/22 –** short-chain dehydrogenase, a homologue of *S. cerevisiae*

**Fpr3 –** peptidylprolyl *cis-trans* isomerase

**Frd1 –** *cyt b5*-like heme-binding protein

**Fre2/7/20 –** cell surface iron reductase/ferric-chelate reductase

**Fre201 –** metalloreductase

**Fre3/6/7/8 –** ferric reductases

**Frl1 –** ferritin/ribonucleotide reductase-like enzyme

**Frr1 –** ferric reductase regulatory protein; FKBP12 prolyl isomerase homologue

**Fsb1/2 –** oxidoreductase with 2Fe-2S iron-sulfur cluster binding domain

**Ftr/Fth –** high-affinity ferrous iron permease/transporter (*Cft* gene in *C. neoformans*)

**Fum1 –** fumarate hydratase

**Fur1/10 –** uracil phosphoribosyltransferase synthesising UMP from uracil in pyrimidine salvage pathway; flucytosine-uracil phosphoribosyltransferase (UPRT)/uracil permease

**Fzd –** dehydrogenase

**Gad1 –** glutamate decarboxylase

**Gal1 –** galactokinase that phosphorylates *α*-*D*-galactose to *α*-*D*-galactose-1-phosphate during alternative carbon source metabolism

**Gal10 –** UDP-glucose-4-epimerase, catalyses the reversible conversion of UDP-galactose and UDP-D-glucose in galactose metabolism

**Gal2 –** hexose transporter/galactose permease

**Gat –** transcriptional activator

**GBD –** GTP-binding domain

**Gcn1** - eIF-2-*α*-kinase activator of Gcn2 protein kinase in response to low amino acids, carbon, and purines; component of Gcn1-Gcn20 translating ribosome complex

**Gcn2 –** yeast protein kinase

**Gcn3 –** *α*-subunit eIF-2B

**Gcn5 –** histone acetyltransferase

**Gcs1 –** glucosylceramide synthase 1, which synthesises the membrane sphingolipid GlcCer from the C9-methyl ceramide

**Gcy1, Ypr1/Ypr10/Ypr13/Ypr14/Ypr15/Ypr16/Ypr17 –** aldo/keto NADPreductase family

**Gdb1 –** glycogen debranching enzyme

**GDF1/GDF2/GDF3 –** protein with glutathione-dependent formaldehyde activating domain

**Gdh1/Gdh3 –** NADP+-dependent glutamate dehydrogenase

**Gdh2 –** NAD+-dependent glutamate/leucine/phenylalanine/valine dehydrogenase, a homologue of *S. cerevisiae*

**Gfa1 –** glutamine:fructose‐6‐phosphate amidotransferase

**GFP –** green fluorescent protein

**GGA2 –** VHS-domain containing protein

**Glg1 –** glycogenin glucosyltransferase

**Glh3 –** glycosylhydrolase family 3

**Glh5 –** glycosylhydrolase family 5

**Glh63 –** glycosylhydrolase family 63

**Glh71/Glh710 –** glycosylhydrolase family 71 with WSC domain

**Gln1 –** glutamine synthetase

**Glo2 –** hydroxyacylglutathione hydrolase

**GLT1 –** NAD+-dependent glutamate synthase with Fe-S cluster binding region

**Gly1 –** threonine aldolase

**GNA1 –** glucosamine-6-phosphate acetyltransferase

**GND2 –** NAD-binding 6-phosphogluconate dehydrogenase decarboxylating enzyme required for cell growth in *D*-glucono-*Δ*-lactone

**Gno1 –** *S*-nitrosoglutathione (GSNO) reductase

**Gpa –** G-protein *α* subunit

**Gpb** **–** G-protein *β*-subunit

**Gpd1 –** NAD-dependent glycerol/glyceraldehyde-3‐phosphate dehydrogenase

**Gph –** glycogen phosphorylase

**Gpi8 –** glycosylphosphatidylinositol transamidase

**Gpt2 –** ER glycerol-3-phosphate:dihydroxyacetone phosphate dual substrate-specific *sn*-1 acyltransferase located in the lipid particles

**Gpx –** phospholipid hydroperoxide glutathione peroxidase

**Grasp –** Golgi reassembly and stacking protein

**Gre2 –** homologue of mammalian 3-*β*-hydroxysteroid dehydrogenase (**g**ene de **r**espuesta an **e**strés –stress-responsive gene)

**Grs1 –** glycine-*t*RNA ligase

**Grx –** glutathione-dependent oxidoreductase (e.g. Grx4 and Grx5monothiol glutaredoxin in *C. neoformans* but Grx3 and Grx4 in *S. cerevisiae*)

**Gsc –** glucan synthase

**Gsh1 –** *γ*-glutamylcysteine synthetase

**Gsp1 –** *Ran*-subfamily monomeric small GTPase is of *Ras*-superfamily for regulating RNA and protein trafficking

**GSR –** genotoxic stress response/regulatory groups of genes

**Gth –** glucose transporter e.g., Gth1

**Guk1 –** guanylate kinase

**Gut2/Gut20 –** glyceraldehyde-3-phosphate dehydrogenase with FAD-dependent oxidoreductase, a homologue of *S. cerevisiae*

**Gyp7 –** *Rab* GTPase activator

**Had1/Had2 –** haloacid dehalogenase, a *β*-phosphoglucomutase protein superfamily

**Had2 –** 3-hydroxyacyl-CoA dehydrogenase with NAD-binding domain

**Had2/Ser33 –** hydroxyacid dehydrogenase with oxidoreductase activity

**hAldr** **–** peroxisomal fatty acid transporter

**Hat1 –** HAT1p-HAT2p histone acetyltransferase complex

**Hcd1 –** 3-hydroxyacyl-CoA dehydrogenase

**Hem1 –** 5-aminolevulinate synthase

**Hem13 –** coproporphyrinogen III oxidase

**Hem14 –** FAD-containing amine oxidoreductase

**Hem14 –** protoporphyrinogen oxidase, a mitochondrial enzyme converting protoporphyrinogen IX to protoporphyrin IX in heme biosynthesis

**Hem3 –** hydroxymethylbilane synthase

**His4 –** phosphoribosyl-ATP pyrophosphatase, phosphoribosyl-AMP cyclohydrolase, histidinol dehydrogenase in histidine biosynthesis

**His5 –** histidinol-phosphate aminotransferase in histidine biosynthesis

**His7 –** imidazole glycerol phosphate synthase in histidine biosynthesis

**Hmg2 –** 3-hydroxyl-3-methylglutaryl-CoA reductase

**Hmp1 –** cruciform DNA binding protein

**HMSR/HMR –** heavy-metal stress response/regulatory groups of genes/heavy-metal resistance

**Hmt2 –** sulphide-quinone oxidoreductase/flavo-binding protein

**Hnt1 –** adenosine 5'-monophosphoramidase, a homologue of HINT

**Hnt2 –** dinucleoside triphosphate hydrolase

**Hoc –** *α*-1,6-mannosyltransferase

**Hog1 –** a *p38* family of MAPK with a T-G-Y motif

**Hom3 –** aspartate kinase

**Hor2 –** *D-L*-glycerol-3-phosphatase, redundant to *Rhr2/Gpp1* encoding glycerol phosphatase, which is involved in glycerol biosynthesis induced in response to hyperosmotic stress and oxidative stress and diauxic transition

**Hox1 –** heme oxygenase

**Hrd1 –** sinoviolin, a transmembrane ubiquitin ligase for ER-associated proteasomal degradation

**Hrt1 –** ubiquitin-protein ligase

**Hsp104 –** heat shock protein 104

**Hsp31 –** DJ-1/ThiJ/Pfp1 superfamily, yeast stress-inducible homodimeric heat shock protein chaperone with methylglyoxalase activity

**Hsp78 –** heat shock protein chaperone

**Hsp90 –** chaperone activator

**HTG –** high-temperature growth

**Hxl1 – H**ac1, **X**bp1-**L**ike gene 1 encoding UPR transcriptional factor

**Hxs1 –** glucose sensor-like protein

**Hyr1 –** glutathione peroxidase

**IBR1** **–** IBR domain-containing protein

**Icl1 –** isocitrate lyase catabolising isocitrate into succinate and glyoxylate

**Idh1/Idp1/Lys1 –** isocitrate/isopropyl malate dehydrogenase

**Idi1 –** isopentenyl diphosphate *Δ*-isomerase

**Ifa38 –** microsomal *β*-ketoreductase, a homologue of *S. cerevisiae*

**Ifm1 –** GTPase

**Ils1 –** isoleucine-*t*RNA ligase

**Ilv1 –** threonine deaminase in isoleucine biosynthesis

**Ilv2 –** acetolactate synthase for isoleucine and valine biosynthesis

**Ilv3 –** dihydroxyacid dehydratase in the branched-chain amino acid biosynthesis

**Ilv5 –** acetohydroxyacid reductoisomerase

**Ima1 –** major isomaltase (*α*-1,6-glucosidase) and a member of the IMA isomaltase family; specifically, catalysing isomaltose and palatinose and *α*-methylglucoside

**Ima2 –** *α*-glucosidase, a member of the IMA isomaltase family that specifically catalysed isomaltose, *α*-methylglucoside, and palatinose

**Imd2 –** IMP dehydrogenase with GMP reductase domain, the enzyme can be repressed by nutrient limitation

**Ino1/Myo1 –** *myo*-inositol-1-phosphate synthase

**Iox1 –** inositol oxygenase

**Irc24 –** putative benzyl reductase with oxidoreductase activity

**Ire1 –** ER-resident transmembrane kinase/RNase

**Isa1 –** Fe-S assembly protein 1

**Ism1 –** isoleucyl-*t*RNA synthetase

**Itr1 –** *myo*-inositol transporter protein or hexose transporter

**Jen1 –** carboxylic acid transporter

**Jlp1 –** putative taurine dioxygenase mobilising sulfite from taurine (a sulfonate)

**Jsn1 –** pumilio domain-containing protein *c*

**Kar2/Bip –** ER-residence molecular chaperone

**KGD1 –** mitochondrial TCA *α*-ketoglutarate dehydrogenase complex homologue of *S. cerevisiae*

**Kgd2/20/Lat1 –** dihydrolipoyl transsuccinylase, a component of *α-*KGD1 complex, a homologue of *S. cerevisiae*

**Kic –** serine/threonine-protein kinase related to Pak/Ste20 protein family

**Kin1/2 –** serine/threonine protein kinases homologue of Par-1/MARK (cell polarity regulator)

**Kip1 –** kinesin family member 21A

**Klp3 –** kinesin-like protein 3

**KOG1 –** WD-repeat protein Mip1p

**Kpr1/2 –** ketopantoate reductase PanE/ApbA

**Kre –** *β*-glucan synthase

**Kre33 –** nucleolar protein

**Lad1 –** *D*-lactaldehyde dehydrogenase

**Lad1 –** NAD-dependent epimerase/dehydratase family

**Las17/Bee1 –** actin nucleation regulatory proteins

**Lcb2/Lcb20/Lcb21 –** subunit of serine palmitoyltransferase necessary in sphingolipid synthesis

**LepA –** conserved membrane GTPase

**Leu1 –** 2-isopropylmalate synthase

**Leu2 –** 3-isopropylmalate dehydrogenase–an Fe–S cluster protein required for leucine biosynthesis

**Leu9 –** *α*-isopropylmalate synthase II (2-isopropylmalate synthase) in leucine biosynthesis

**Lia1 –** deoxyhypusine hydroxylase with PBS lyase HEAT-like repeat

**Lip5 –** coenzyme lipoic acid, a homologue of *E. coli* lipoic acid synthase

**Liv3 –** a Wor1-motif DNA binding protein (orthologue of *C. albicans* Wor1)

**Lot6 –** NADPH-dependent FMN reductase

**Lpd1 –** dihydrolipoamide dehydrogenase

**Lpe1 –** lipase-esterase with AB hydrolase 3 domain

**LPL –** lysophospholipase

**LPTA –** lysophospholipase/transacylase

**Lsc1 –** succinyl-CoA ligase *α*-subunit

**Lsc2 –** *β*-subunit of succinyl-CoA ligase

**Lsp1 –** an eisosome core component

**Lys10 –** dihydrodipicolinate synthase in lysine biosynthesis

**Lys2 –** aminoadipate-semialdehyde dehydrogenase

**Lys2 –** *α*-aminoadipate reductase in lysine biosynthesis

**Lys21 –** homocitrate synthase isozyme in lysine biosynthesis

**Lys4/Lys40/Lys41/Lys42 –** homoaconitase, converting homocitrate to homoisocitrate in lysine biosynthesis

**Mae1/Mae10/Mae11 –** a mitochondrial malic enzyme in amino acid biosynthesis having NAD binding domain, a homologue of *S. cerevisiae*

**Mal –** hexose transporter

**Man1 –** phosphomannose isomerase

**Map1 –** methionine aminopeptidase homologue

**MAPK –** mitogen-activated protein kinases such as Mpk1, a homologue of *S. cerevisiae* Slt2 or human Erk5

**May1 –** major aspartyl peptidase 1

**Mbf –** transcriptional coactivator

**Mbo1 –** molybdopterin oxidoreductase

**Mbs1 –** APSES-like transcription factor (**Mb**p1- and **S**wi4-like DNA binding protein 1)

**Mcm5 –** ATP dependent DNA helicase

**Mde5 –** *α*-amylase

**Mdh1/Mdh3 –** mitochondrial lactate/malate dehydrogenase with NAD binding domain, a homologue of *S. cerevisiae*

**Mdh3 –** peroxisomal malate dehydrogenase catalysing the interconversion of malate and oxaloacetate in the glyoxylate cycle

**Mdn –** Midasin for large subunit ribosomal maturation and export

**Mdr1 –** multidrug resistance protein 1

**Mei2 –** RNA-binding protein involved in meiosis

**MEK –** a mitogen-activated protein kinase kinase/MAP2K (like Ste11*α*) phosphorylating MAPK and ERK

**Mep –** mediator modulating proteins such as Mep12 and Mep13

**Met1/Met101 –** uroporphyrin-3C-methyltransferase

**Met10 –** sulfite reductase *α*-subunit converting sulfite into sulfide

**Met13 –** methylenetetrahydrofolate reductase

**Met14 –** adenylylsulfate kinase

**Met17 –** cysteine synthase

**Met2 –** homoserine transacetylase

**Met3 –** sulfate adenylyltransferase/ATP sulfurylase

**Met30** - sulfur metabolite repression control protein and a negative regulator of sulfur amino acids genes expression for biosynthesis

**Met5 –** nitrite and sulphite reductase with a 4Fe-4S binding domain

**Met5/Met10 –** sulfite reductase converting sulfite to sulfide

**Met7 –** folylpolyglutamate synthase

**Meu –** methylthioadenosine phosphorylase

**Mfe2 –** multifunctional enzyme of the peroxisomal fatty acid *β*-oxidation pathway with 3-hydroxyacyl-CoA dehydrogenase and enoyl-CoA hydratase activities

**Mfs –** putative allontoate transporter/permease

***Mfα* –** *α*-pheromone gene

**Mga2 –** transcriptional activator

**Mgt2 –** magnesium transporter

**Mio1 –** myo-inositol oxygenase

**Mip –** mitochondria phosphate transporter

**MipD –** *r*RNA processing and maturation

**Mis1 –** mitochondrial C1-tetrahydrofolate synthase

**Mis3 –** *r*RNA assembly protein

**Mkk2 –** Ste/Ste7 protein kinase

**Mlo2 –** zinc-finger protein Mlo2p

**Mmt2 –** mitochondrial-associate proteins participating in iron accumulation

**Mnd1 –** recombination and dsDNA breakage repair protein

**Mnn2/Ktr3 –** *α*-1,2-mannosyltransferase

**Mns1 –** *α*-1,2-mannosidase involved in ER quality control

**Mnt –** myristoyl-CoA:protein *N*-myristoyltransferase

**Mp88 –** T cell-stimulating mannoprotein

**Mpd1 –** mannitol‐1‐phosphate dehydrogenase

**Mpe1 –** retinoblastoma-binding protein

**Mpf3 –** mannoprotein of *Filobasidiella* *neoformans* 3

**Mph –** maltose permease homologue e.g., Mph2

**Mrs4 –** inner membrane solute transporter

**Msh6 –** DNA mismatch repair protein

**Mtd1 –** NAD-dependent 5,10-methylenetetrahydrafolate dehydrogenase/cyclohydrolase

**Mug158 –** Duf323 domain-containing protein

**Mug58 –** *D*-glycerate-3-kinase

**Mug72 –** 2-dehydropantoate 2-reductase

**Mup1 –** high-affinity methionine/cysteine permease

**Mup3 –** low-affinity methionine/cysteine permease

**Mxr1/Mxr2 –** peptide methionine sulfoxide reductase

**Myo2 –** myosin class V heavy chain

**Nab2 –** nuclear polyadenylated RNA-binding protein

**Nad –** NADH dehydrogenase

**Nam7 –** DNA helicase

**Nap1 –** nucleosome assembly protein

**Nas6 –** non-ATPase subunit 6

**Nat6/Nat60/Nat61/Nat62/Nat63/Nat64 –** alcohol dehydrogenase superfamily with *N*-acetyltransferase domain

**Ncp –** NADP-*cyt* *P450* reductase

**Ncs1 –** neuronal calcium sensor 1

**Nde2 –** pyridine nucleotide-disulfide oxidoreductase, a homologue of *S. cerevisiae*

**Ndh –** mitochondria external NADH dehydrogenase

**Nep1/Nep3/Nep4 –** NAD-dependent epimerase/dehydratase such as GlcNAc transferase

**Nep2 –** NAD-dependent epimerase with NADB Rossman fold domain

**New1 –** *m*RNA export factor eIF1

**Nfs1 –** cysteine desulfurase involved in an iron-sulfur cluster (Fe/S) biogenesis

**Nfu1 –** homologue Fe-S cluster protein

**NF**-***κ*B –** nuclear factor kappa-light-chain-enhancer of activated B cells

**Nic1 –** nickel transporter

**Nmd –** ribosomal large subunit assembly and maintenance

**Nmr1/Nmr3 –** NmrA, nitrogen metabolite repressor and a negative transcription regulator

**Nmr2 –** NmrA (nitrogen metabolite repressor); a negative transcription regulator

**Nob1 –** Nin1/Rpn12 binding protein 1 for rRNA maturation

**Nog1 –** GTPase for 60*S* ribosomal subunit biogenesis (Nucleolar GTP-binding protein 1)

**Nor1/Nor3/Nor4/Nor5/Nor6/Nor7/Nor8/Nor9 –** oxidoreductase family with NAD-binding Rossmann fold

**Nor11 –** NADH ubiquinone oxidoreductase

**Nor2/Nor10 –** 6-phosphogluconate dehydrogenase with NAD binding domain

**NSR –** nitrosative stress regulatory groups of genes

**Nsr1**– RNA splicing factor Pad-1

**Nth1 –** neutral trehalase (*α,α*-trehalase) degrading trehalose for stress tolerance

**Nuc2+ –** encoding Nuc2+p, a nuclear scaffold-like protein that blocks spindle elongation in mitotic anaphase of fission yeast. Also, it blocks the formation of a septate network during cytokinesis and mutant yeasts of this gene are *ts*

**Nuo2/Nuo3 –** NAD-ubiquinone oxidoreductase

**Nuo51 –** mitochondrial NAD-ubiquinone oxidoreductase with Fe-S cluster binding domain

**Och1/Hoc1 –** *α*-1,6-mannosyltransferase

**Ofd1 –** oxoglutarate and iron-dependent oxygenase, a homologue of *S. pombe* PKHD-type hydroxylase

**Ogg1 –** mitochondrial glycosylase/glycosyl lyase that repairs oxidative damage to mitochondrial DNA

**OMSR –** osmotic stress response/regulatory groups of genes

**Ops –** opsin

**Opt1 –** oligopeptide transporter

**Orc2 –** origin recognition complex

**OSR –** oxidative stress response/regulatory groups of genes

**Ost1 –** lipid-linked *N*-oligosaccharyltransferase

**Ost2 –** subunit of the ER oligosaccharyltransferase complex

**Otu2 – o**varian **tu**mour family domain-containing protein 6B with predicted cysteine protease activity localised to the cytoplasm in response to DNA replication stress

**Ova1 –** putative phosphatidylethanolamine-binding protein

**Ovd1 –** phosphatidylethanolamine-binding protein

**Oxy –** oxidant-sensitive gene

**Oye2 –** NADPH dehydrogenase 2

**Pab1 –** poly(A) binding protein

**Pah1 –** nuclear elongation and deformation protein 1

**Pak –** *p21*-activated protein kinase, which includes Ste20*α*, Ste20***a***, and Pak1

**Pan2 –** PAB-dependent poly(A)-specific ribonuclease subunit

**Pan6 –** pantothenate biosynthesis

**PAS –** Per-Arnt-Sim DNA interacting domain

**Pas1 –** cyclin

**Pbp1 –** PAB1-binding protein 1

**Pbr –** peripheral-type benzodiazepine receptor

**Pbx –** parallel *β*-helix repeat protein

**Pck1 –** phosphoenolpyruvate carboxykinase 1

**Pcl12 –** alternative cyclin

**Pcl6/Pcl7 –** cryptococcal glycogen storage control protein

**Pcs60 –** a peroxisomal protein that binds AMP and mRNA

**Pda1 –** *α*-subunit of pyruvate dehydrogenase E1, a homologue of *S. cerevisiae*

**Pdb1 –** mitochondrial *β*-subunit E1 component of pyruvate dehydrogenase activity with pyridine binding domain, a homologue of S. cerevisiae

**Pdc1 –** pyruvate decarboxylase

**Pdh –** mitochondrial pyruvate dehydrogenase

**Pdx1 –** dihydrolipoamide dehydrogenase (E3)-binding protein of mitochondrial pyruvate dehydrogenase complex

**Pdx3 –** pyridoxamine 5'-phosphate oxidase

**PepP –** prolidase

**Pet8 –** mitochondrial SAM transporter

**Pex –** peroxisomal biogenesis factor

**Pex7 –** peroxisome targeting signal receptor

**Pfk –** phosphofructokinase

**Pgs1 –** phosphatidylglycerolphosphate synthase; committed and rate-limiting step of cardiolipin biosynthesis

**Phd –** plant homeodomain finger proteins

phenotypic defect in SD + 2% galactose culture of *S. cerevisiae.* This protein contains a conserved Cyclin Box and PEST domain regions

**PHH –** pH homeostasis

**Pho13 –** *p*-nitrophenyl phosphatase

**Pho4 –** phosphate signalling pathway (PHO) activator

**Pho81 –** cyclin-dependent kinase (Cdk) inhibitor with conserved lysine surface cluster in the SPX domain

**Pho84, Pho85, Pho89, Pho840 –** high-affinity phosphate transporter/permease

**Phy –** phytochrome

**Pik1 –** 1-phosphatidylinositol-4-kinase

**PinX –** *r*RNA maturation

**Pka –** cAMP-dependent protein kinase A catalytic subunit

**Pki1 –** ribose-5-phosphate ketoisomerase

**Pkp1 –** mitochondrial protein dehydrogenase kinase; a negative regulator of pyruvate dehydrogenase kinase activity

**Plc –** phosphatidylinositol‐specific phospholipase C

**Plr –** aldo-keto reductase/pyridoxal reductase domain

**Pma1 –** plasma membrane H+-transporting ATPase

**Pmt –** protein *O*-mannosyltransferase (3 putative in *C. neoformans* Pmt1, Pmt2, and Pmt4)

**Pmt/Spb –** *r*RNA methyltransferase

**Pnc1 –** nicotinamidase converting nicotinamide to nicotinic acid in the NAD+ salvage pathway

**Pno –** partner of Nob gene product for *r*RNA processing and maturation

**pNPP –** *ρ*-nitrophenylphosphate

polyphosphate

**Pot1 –** peroxisomal oxoacylthiolase (3-ketoacyl-CoA thiolase in fatty acid *β*-oxidation)

**Pp2c –** protein phosphatase type 2C dephosphorylating phosphothreonine and phosphoserine

**Pps1 –** putative dual-specificity protein phosphatase in the DNA synthesis *S* phase of the cell cycle

**Ppx1** - exopolyphosphatase

**Pqp1 –** pro-Qsp1 protease 1 (a secreted serine protease)

**Pre1 –** *β*-type 2 proteasome subunit protein

**Pre10 –** *α*-type 3 proteasome subunit protein

**Pre2 –** *β*-type 5 proteasome subunit protein

**Pre3 –** *β*-type 6 proteasome subunit protein

**Pre4 –** *β*-type 7 proteasome subunit protein with endopeptidase with peptidylglutamyl-peptide-hydrolyzing activity linking proteasome to stress and ubiquitin-dependent proteolysis

**Pre5 –** *α*-type 1 proteasome subunit protein

**Pre6 –** *α*-type 7 proteasome subunit protein

**Pre7 –** *β*-type 6 proteasome subunit protein

**Pre8 –** putative α-type 20S proteasome core particle subunit protein

**Pre9 –** *α*-type 4 proteasome subunit protein

**PRES –** pheromone-response elements

**Pri1 –** DNA primase small subunit

**Pro2 –** *γ*-glutamyl phosphate reductase in proline biosynthesis

**Pro3 –** pyrroline-5-carboxylate reductase in proline biosynthesis

**Prp17 – p**re-*m***R**NA-**p**rocessing factor 17

**Prx1 –** thioredoxin peroxidase (peroxiredoxin)

**Psa1 –** mannose-1-phosphate guanylyltransferase

**Pst2 –** flavodoxin

**Ptc5 –** protein phosphatase 2C that regulates PDH

**Ptc6 –** protein phosphatase 2C involved in macroautophagy

**Pth11 –** orthologue of CFEM domain protein (an eight-cysteine-containing protein domain) in *Magnaporthe* *grisea,* essential for fungal pathogenesis

**Ptp –** protein tyrosine kinase **–** Ptp1 and Ptp2 (a major negative repressor of Hog1 hyperphosphorylation)

**Ptp1 –** polyol transporter protein 1

**Ptr –** peptide transporter

**Pub1 –** polyadenylated RNA-binding protein

**Puf4 –** Pumilio-FBF (FEM-3 binding factor) homology domain family 4 of *m*RNA binding proteins very similar to yeast Mpt5

**Pum1 –** translational repressing RNA-binding protein

**Pup1 –** *β*-type 2 proteasome subunit protein

**Pup3 –** *β*-type 3 proteasome subunit protein

**Put1/Put5 –** paralogue genes encoding proline oxidase

**Put2 –** pyrroline-5-carboxylate dehydrogenase

**Pxa1 –** peroxisomal fatty acid transporter

**Pxa2 –** adrenoleukodystrophy protein

**Pyk –** pyruvate kinase

**Pyx3 –** pyridine nucleotide-disulfide oxidoreductase

**Qde1 –** a DNA- and RNA-directed RNA polymerase (DdRp and RdRP)

**Qde2 –** Qip 3' 🡪5' exonuclease facilitating the conversion of duplex siRNA to ssRNA

**Qde3 –** DNA helicase

**Qdr –** multidrug transporter

**Qip1 –** exonuclease Qde-2-interacting protein **–** a member of meiotic silencing by unpaired DNA (MSUD) converting duplex siRNA into ssRNA during quelling by degrading the passenger strand, a process involved during sexual reproduction

**Qri1 –** UTP-glucose-1-phosphate uridylyltransferase in GPI anchor biosynthesis

**Qri8 –** ubiquitin-conjugating enzyme

**Rab51 –** RecA (recombinant protein A) homologue

**Rac1 –** Rho-GTPase protein with C-terminal CAAX box motifs for prenylation and membrane localisation

**Rad –** DNA helicase **–** a subunit of nucleotide excision repair factor 3 (Rad3 **–** RNA polymerase II transcriptional factor) and repair factor 1 (Rad14 **–** hydrophilic protein)

**Rad16 –** DNA repair protein

**Rad2 –** DNA-specific endodeoxyribonuclease for nucleotide excision repair (DNA repairsome)

**Rad23 –** UV-excision repair protein Rhp42p

**Rad4 –** DNA repair protein Rhp42p

**Rad5 –** DNA repair protein

**Rad53/CAMK –** serine/threonine-protein kinase

**Rad6 –** ubiquitin-conjugated enzyme E2

**Rad7 –** DNA repair protein with DNA dependent ATPase activity

**Ram1 –** farnesyltransferase *β*-chain subunit

**Ram1/Ram10 –** prenyltransferase, a membrane localised Ras protein

**Rax1 –** Gpr regulator protein involved in budding neck

**Rbg –** ribosome-interacting GTPase

**Rck2 –** CAMK/CAMK1 protein kinase

**Rdi1 –** Rho-GDP dissociating inhibitor

**Rds1 –** stress response protein with a ferritin-like domain

**Reg1-Glc7 –** protein phosphatase 1 (PP1) containing the regulatory subunit Reg1 and the catalytic subunit Glc7 implicated in the dephosphorylation of threonine

**Rgf3 –** Rho-GTF

**Rgt2 –** sugar transporter

**Rhg4 –** receptor-like kinase

**Rho-GEF –** Rho Guanine nucleotide Exchange Factors

**Rib4 –** 6,7-dimethyl-8-ribityllumazine synthase

**Rim101 –** cell wall transcriptional regulator

**Rim15 –** trehalose-associated proteins

**Ris1** **–** Snf2-related protein with DNA-dependent ATPases and *N*-terminal DAED-like helicase

**Rlm1 –** MADS box transcriptional factor

**Rnp –** RNA-binding protein for *r*RNA processing

**Rnr1 –** the *β*-barrel domain of ribonucleotide reductase

**Rnr2 –** *β*-subunit ribonucleotide diphosphate reductase

**Rnr20 –** small chain unit of ribonucleotide diphosphate reductase

**Rnr3 –** *α*-subunit ribonucleotide diphosphate reductase

**RNS –** reactive nitrogen species

**ROS –** reactive oxygen species

**Rpa –** DNA-directed RNA polymerase I subunit

**Rpa32 –** replication protein A domain

**Rpc –** putative RNA polymerase III subunit

**Rpl –** 60*S* ribosomal protein

**Rpn1/Rpn10 –** 26*S* proteasome regulatory subunit

**Rpn11 –** multidrug resistance protein

**Rpn12 –** 26*S* proteasome non-ATPase regulatory subunit 8

**Rpn14** **–** pre-*m*RNA splicing factor Prp17p with WD40-repeat protein

**Rpn2 –** 26*S* proteasome regulatory subunit with endopeptidase activity

**Rpn3 –** 26*S* proteasome non-ATPase regulatory subunit 3

**Rpn5** **–** 26*S* proteasome non-ATPase regulatory subunit 12

**Rpn6 –** 26*S* proteasome regulatory subunit RPN6p with endopeptidase activity

**Rpn7 –** 26*S* proteasome subunit RPN7p

**Rpn8/Rpn80/Rpn12 –** proteasome regulatory subunit 12 with JAB ubiquitin protease domain similar to Cop9 complex subunit 6

**Rpn9 –** 26*S* proteasome regulatory subunit Rpn9p

**Rpo41 –** mitochondria RNA polymerase

**Rps –** 40*S* ribosomal protein

**Rps/Rpl –** core ribosomal proteins

**Rps0 –** 40*S* ribosomal protein S0

**Rps1 –** 40*S* ribosomal protein S1

**Rps31/Ubi3 –** ribosomal chaperone

**Rpt1 –** 26*S* proteasome regulatory subunit 7 with endopeptidase activity

**Rpt2 –** 26*S* proteasome regulatory subunit 4 homologue with endopeptidase activity

**Rpt3 –** 26*S* proteasome regulatory subunit 6B homologue with endopeptidase activity

**Rpt4 –** 26*S* proteasome subunit Rpt4p with ATPase activity

**Rpt5 –** 26*S* protease regulatory subunit 6A

**Rpt6 –** 26*S* proteasome regulatory subunit 8 homologue with endopeptidase activity

**Rrb1 –** glutamate-rich WD repeat 1

**Rsc8 –** chromatin remodelling subunit factor

**Rsg –** the regulator of G protein signalling

**Rsn1 –** Duf221 family protein

**RSP5** **–** ubiquitin-protein ligase

**Rub1/Nedd8 –** ribosomal chaperone ubiquitin-like protein in complex with Cdc53p in budding yeast for E3 ubiquitin-protein ligase function

**Rum1 –** the regulator of *Ustilago* *maydis* 1 **–** a Phd transcription factor that inhibits cyclin-dependent kinase in fission yeast to promote sporulation

**Ryl2 –** Ras-like GTP-binding protein

**Rze1 –** a long noncoding RNA (lncRNA) promoting the cytoplasmic export of Znf2 for translation

**Sac –** inositol/phosphatidylinositol phosphatase

**Sah1 –** *S*-adenosylhomocysteine hydrolase

**Sam1/Sam2 –** *S*-adenosylmethionine synthase

**Sav1 –** *C. neoformans* homologue of yeast Sec4/Rab8 GTPase sub-family protein for vesicle-mediated exocytic secretion

**Sca1 –** succinyl-CoA:3-ketoacid-CoA transferase

**SCAP –** SREBP cleavage-activating protein (same as Scp1p)

**Scd1/Scd2/Scd3/Scd4/Scd5/Scd6/Scd7/Scd8/Scd9/Scd10/Scd11/Scd12/Scd13/Scd14 –** oxidation-reduction dehydrogenase

**SCF –** Skp1, Cullins, and F-box protein units of E3 ligase

**Sch9 –** AGC/AKT protein kinase

**Scl1 –** *α*-type 6 proteasome subunit protein

**Scs7 –** sphingolipid *α*-hydroxylase for long-chain fatty acid synthesis

**Sdh1 –** flavoprotein subunit of succinate dehydrogenase

**Sdh2 –** 2Fe-2S iron-sulfur cluster binding domain of succinate dehydrogenase

**Sec –** exocyst complex component

**Sec13 –** COPII protein

**Sec14-1, Sec14-2, Sfh5 –** phosphatidylinositol-lipid transfer protein homologue of *S. cerevisiae* Sec14 and Sfh-5 for *trans*-Golgi protein traffic pathway

**Sec16 –** COPII vesicle coat protein

**Sec27 –** coatomer *β*-subunit

**Sec28 –** COPI protein

**Sec4 –** secretory vesicle-associated Rab GTPase

**Sec53 –** phosphomannomutase:glycosylation secretory proteins

**Sec61 –** *γ*-subunit of protein translocation complex for misfolded proteins out of ER

**See1 –** methyltransferase in vesicle transport

**Ser1 –** 3-phosphoserine aminotransferase in serine biosynthesis

**Ser3/Ser30/Ser31 –** NAD-dependent *D*-isomer specific 2-hydroxyacid dehydrogenase; 3-phosphoglycerate dehydrogenase in serine biosynthesis

**Set1 –** histone-lysine *N*-methyltransferase

**Sfa1 –** alcohol dehydrogenase/glutathione-dependent formaldehyde dehydrogenase

**Sfc1/Acr1** - succinate:fumarate antiporter

**Sft1 –** vesicle transport protein

**Sgl1 –** sterylglucosidase 1

**Sgt1 –** a co-chaperone of Hsp90 that promotes its interaction with Cyr1p, adenylate cyclase (ecdysoneless protein homologue needed for embryonic development in *Drosophila* and cell growth in yeast)

**SHAM –** salicylhydroxamic acid

**She4 –** component of UCS (Unc-45/Cro1/She4p) domain protein with several irregular armadillo (ARM) repeats that promote UCS dimerisation to favour the non-muscle myosin on the actin filament for cell differentiation, cell wall and membrane integrity, cytokinesis, and endocytosis

**Sip5 –** C3HC4-type zinc finger protein

**Sir2 –** silent mating type information regulation 2

**Sis –** sex-induced silencing ensuring genomic stability

**Sis1 –** a type II Hsp40 that interacts with Hsp70 and the active E3 ligase (Ubr1p) to promote terminally misfolded cytosolic protein degradation

**Sit1/Sit2/Sit3/Sit4/Sit5/Sit6 –** feroxamine B siderophore/siderochrome-iron uptake transporter

**Sjl –** synaptojanin-like protein

**Skp1** - ubiquitin-protein ligase

**Sks1** - serine/threonine-protein kinase

**Slg1 –** putative carbohydrate-binding domain cell wall stress-responsive component (WSC)

**Sln1 –** osmosensing histidine protein kinase

**Sly41 –** ER-to-Golgi transport-mediated protein

**Smg –** Aryl alcohol oxidase homologue

**Smg1 –** glucose-methanol-choline oxidoreductase/putative aryl alcohol oxidase

**Smm1 –** dihydrouridine synthase

**Smt1 – s**phingolipid C9 **m**ethyl**t**ransferase

**Smy2 –** encoding COPII vesicle interacting with Sec23p/Sec24p

**Snc2 –** V-type SNAREs (**s**oluble ***N***-ethylmaleimide-sensitive factor **a**ttachment protein **r**eceptor**s**) – vesicle-coupled membrane-associated factor involved in budding

**Snf1 –** sucrose non-fermenting serine/threonine-protein kinase 1 complex (homologue of AMPK in mammals)

**Snf2/Swi –** ATP-dependent chromatin-remodelling enzyme

**Snf3 –** glucose permease

**Snf4 –** Snf1 kinase complex with CBS binding domain

**Snf7 –** sucrose non-fermenting protein 7 – a key regulator of the endosomal sorting complex required for transport (ESCRT)-III for the formation and cargo of multivesicular bodies (MVB). It is avacuolar-sorting protein

**Soa1 –** putative sulfonate/sulfur transporter

**Sod1 –** copper/zinc cytoplasmic superoxide dismutase

**Sod2 –** mitochondrial manganese superoxide dismutase

**Sol1, Sol2, Sol3 –** 6-phosphogluconolactonase-like protein

**SOMO –** ubiquitin-like 1-activating enzyme E1B encoded by *Uba2*

**Sor1 –** alcohol dehydrogenase (sorbitol dehydrogenase) with GroES-like domain

**Sp96 –** spore coating protein

**Spb –** ATP-dependent RNA helicase

**Spc34 –** microsomal signal peptidase 34 *kDa* subunit

***Spe3-Lys9* –** *wt* chimeric spermidine synthase-saccharopine dehydrogenase

***spe3-Lys9* –** spermidine synthase mutant-saccharopine dehydrogenase

***Spe3-lys9* –** spermidine synthase-saccharopine dehydrogenase mutant

**Spf1 –** *P*-type ATPase as in haloacid dehydrogenase

**Spo14 –** phospholipase D active site

**Sps1 –** 2-deoxy-*D*-gluconate-3-dehydrogenase

**Sps19 –** dehydrogenase enzyme for carbohydrate metabolism

**Spt3 –** transcription initiation co-factor

**Sqr1 –** homologue of *S. pombe* mitochondrial sulfide:quinone oxidoreductase

**SRE –** stress response elements

**SREBP –** mammalian sterol regulatory element-binding protein (*Sre* gene in fungus)

**Srx1 –** sulphiredoxin

**Ssa4 –** heat shock protein 7 (70 *kDa* protein)/chaperone

**Ssd –** translational repressor of cell wall integrity

**Ssk1 –** sensory transduction histidine kinase

**Ssl1 –** RNA polymerase II transcription factor

**Ssn3/Srb10 –** a functional protein phosphorylation mediator homologue associating with Srb11 in the RNA polymerase II holoenzyme. It could restore flocculation in the yeast

**Ssn8/Srb11 –** *C*-type cyclin protein associating with specific cyclin-dependent kinase (Cdk) like Cdk8

**Ssn801 –** cyclin *C*

***Ssr* –** specific-stress regulatory genes

**Sss1 –** subunit of ER translocase essential for ER-associated degradation

**Ste14 –** protein-*S*-isoprenylcysteine-*O*-methyltransferase (prenylated protein carboxylmethyltransferase) probably involved in Mf***a*** maturation

**Ste6 –** mating factor A secretion protein

**Stl1 –** putative glycerol/H+ symporter for monosaccharide transporter

**Str1 –** cystathionine-*γ*-lyase

**Sub2 –** ATP-dependent RNA helicase

**Suc2 –** sucrose- and raffinose-degrading enzyme, invertase

**Sul1/Sul2 –** sulfate transporter/permease

**Sup45 –** eukaryotic peptide chain release factor

**Sur2 –** sphinganine/sphingosine C-4 hydroxylase – an ER enzyme converting sphinganine to phytosphingosine; sterol desaturase

**Swe1 –** Myt1 kinase

**Sxi1*α* –** sex inducer 1*α* for cell identity factor in MAT*α* similar to Sxi2**a** in MAT**a**

**Syf1/Syf2/Syf3 – sy**nthetic lethal with Cdc **f**orty (Syf3p is also known as Clf1p)

**Tad2 –** cytidine deaminase

**Tah18 –** NAPDH-dependent diflavin reductase

**Tao3 –** RAM (**R**egulation of **A**ce2p activity and cellular **M**orphogenesis) is a cell polarity signalling network protein

**Tcn21 –** mariner-type transposon

**Tco –** two-components system

**Tea1 –** cell polarity protein

**Tef1 –** elongation factor 1*α*

**Tfd2/Tfd3/Tfd4/Tfd5 –** taurine dioxygenase TauD

**Tgl5 –** patatin-like phospholipase domain protein

**Thi6 –** thiamine monophosphate synthase

**Thr1 –** homoserine kinase

**Thr4 –** threonine synthase

**Ths1 –** threonine-*t*RNA ligase

**Tif1 –** ATP-dependent RNA helicase eIF4A

**Tif3 –** translation initiation factor 4B

**Tif5 –** translation initiation factor

**Tkl1/Tkl2 –** transketolase in pentose phosphate pathway and aromatic amino acid synthesis

**Tm8 –** mitochondrial import inner membrane translocase subunit protein

**Tma29 –** NADP+-dependent dehydrogenase

**Tmt1 –** *trans*-aconitate methyltransferase in leucine biosynthesis

**Tmt2 –** protein with thiopurine-*S*-methyl transferase domain

**Tna –** nicotinic acid permease

**TNF*α* –** tumour necrosis factor

**Toa2 –** transcription initiation factor 2a small changing protein

**Tok –** potassium channel

**Tom1 –** E3 ubiquitin-protein ligase

**Top1 –** DNA topoisomerase I

**Tor1 –** the target of rapamycin

**Tpo1 –** spermine transporter

**Tps1 –** trehalose-6-phosphate synthase

**Tps2 –** trehalose-6-phosphate phosphatase

**Tra/Iki –** histone acetyltransferase

**Trm44 –** putative *t*RNA methyltransferase located in the cytoplasm

**Trp1 –** phosphoribosyl anthranilate isomerase in tryptophan biosynthesis

**Trp2 –** anthranilate synthase component I **–** ASCO-I of chorismate aminase

**Trp3 –** anthranilate synthase component II **–** ASCOII of glutamine amidotransferase/phosphoribosyl anthranilate isomerase/indole glycerol phosphate synthase

**Trp4 –** anthranilate phosphoribosyltransferase (APRT)

**Trp5 –** tryptophan synthase

**Trr1 –** cytoplasmic thioredoxin reductase

**Tsa1 – t**hiol-**s**pecific **a**ntioxidantthioredoxin peroxidase (thioredoxin-dependent peroxide reductase)

**Tsc10 –** a short-chain dehydrogenase, a homologue of *S. cerevisiae*

**Tsc13 –** 3-oxo-5*α*-steroid 4-dehydrogenase

**Tsr2 –** *r*RNA processing protein

**TtdT/YgjE –** tartrate/succinate antiporter

**Tub2 –** *β*-tubulin

**Tub4 –** *γ*-tubulin

**Tuf1 –** nuclear-encoded mitochondria elongation factor Tu

**Tul1** - ligase

**Tup1 –** putative global repressor of about 3% of all the genes in *C. neoformans*

**Txl1 –** thioredoxin-like respiratory-chain NADH dehydrogenase

**Tyr1 –** prephenate dehydrogenase in tyrosine biosynthesis

**Ubc1 –** ubiquitin-conjugating enzyme E2S

**Ubc12 –** E2 ubiquitin-conjugating enzyme

**Ubc13 –** ubiquitin-conjugating enzyme E2 subunit 13

**Ubc4 –** ubiquitin-conjugating enzyme E2 4

**Ubc5** **–** ubiquitin-conjugating enzyme E2 domain

**Ubc6 –** ubiquitin-conjugating enzyme E2 6

**Ubc60** **–** ubiquitin-conjugating enzyme

**Ubc7p/Qri8p –** endoplasmic reticulum-associated ubiquitin-conjugating enzyme

**Ubc8 –** ubiquitin-protein ligase

**Ubi3 –** ubiquitin fusion protein homologue of *C. albicans*

**Ubi4 –** polyubiquitin

**Ubp13 –** ubiquitin *C*-terminal hydrolase 13

**Ubp14 –** ubiquitin *C*-terminal hydrolase 14 **–** highly expressed during filamentous growth

**Ubp16 –** ubiquitin *C*-terminal hydrolase 16

**Ubp6 –** ubiquitin *C*-terminal hydrolase 6

**Ubq1 –** NADH ubiquinone-dehydrogenase

**Uga1/Uga10 –** GABA transaminase, for oxidative stress tolerance

**Uga2/Uga20 –** succinate semialdehyde dehydrogenase utilising GABA for nitrogen source

**Uga3 –** Pro1 protein

**Uga4 –** high-affinity *γ*-aminobutyric acid (GABA) permease

**Ugd1 –** NAD-binding UDP-glucose/GDP-mannose dehydrogenase family

**Uge1 –** UDP‐glucose epimerase

**Uge4 –** UDP-galactose-4-epimerase

**Ugp1 –** UDP‐glucose pyrophosphorylase

**Ugt1 –** UDP‐galactose transporter

**Ula1 –** ubiquitin-activating enzyme E1 for neddylation-related pathway

**Uox1 –** uric acid oxidase

**Ura2/Ura20/Ura21 –** carbamoylphosphate synthetase-aspartate transcarbamylase, a bifunctional enzyme in pyrimidines biosynthesis

**Ura3 –** OMP decarboxylase in pyrimidine synthesis

**Ura5 –** orotidine monophosphate pyrophosphorylase

**Ure6 –** apourease complex component

**Uri1 –** uricase

**Usx1 –** UDP-xylose synthase for capsule xylosylation

**Utp10 –** U3 small nucleolar RNA-associated protein 10

**Utp22 –** pre-*r*RNA processing protein

**Uve1 –** endonuclease for base/nucleotide excision repair pathway in UV-DNA damage

**Uxs1 –** UDP-xylose synthase/UDP-glucuronate decarboxylase 1

**Vad1 –** virulence-associated DEAD-Box RNA helicase-encoding protein, a member of the RCK/p54 subfamily of RNA DExD/H-Box proteins identified as components of Ccr4-Not complex (global control of gene expression, a regulator of transcription, and *m*RNA stability)

**Vam6 –** Rab-GEF protein

**Vcx1 –** Ca2+/H+ antiporter

**Vph1 –** vacuolar/vesicular H+-ATPase proton pump

**Vps1 –** vacuolar protein sorting regulator, dynamin

**Vps17 –** a membrane coat complex retromer subunit Vps5/Snx1

**Vps29/Vps36** **–** retrograde transporter (yeast vacuolar protein sorting-associated protein 29)

**Vps34 –** phosphatidylinositol-3-kinase (PI3K)

**Vps4 –** AAA+-type ATPase

**Vtc4 – v**acuolar **t**ransport **c**haperone complex involved in the synthesis and storage of inorganic

**Wbp1 –** lipid-linked *N*-oligosaccharyltransferase

**Wos2 –** Hsp90-co-chaperon orthologue protein

**Wsc –** cell wall integrity and stress response protein

**Wsp1 –** Wiskott-Aldrich syndrome protein (WASP) homologue with *N*-terminal basic domain (B) and GBD actively existing as Rac1 and Cdc42 effectors for vacuole/endosomal morphology and actin organisation, respectively

**Xfp1/Xfp2 –** xylulose-5-phosphate:*D*-fructose-6-phosphate phosphoketolase

**Xut1 –** putative membrane transporter

**Xyl2 –** NAD-dependent (R, R)-butanediol dehydrogenase, similar to Bdh1/10

**Yah1 –** 2Fe-2S iron-sulfur cluster binding domain homologue of *S. cerevisiae*

**Yap4 –** AP-1-like transcription factor

**Ybl095W –** thioesterase-containing domain (TED) protein with mitochondrial targeting sequence (MTS)

**Yef1/Yef10 –** ATP-NADH kinase that can phosphorylate NAD and NADH

**Yfh7 –** phosphoribulose kinase

**Yhb –** flavohemoglobin

**Yir007w –** glycosyl hydrolase family 5

**Yjl206c –** fungal-specific transcription factor

**Ylr290 –** mitochondrial protein, a homologue of *S. cerevisiae*

**Ymr099C –** aldose-1-epimerase

**Ypc –** alkaline phytoceramidase

**Ypd –** phosphotransfer protein/phosphorelay intermediate protein

**Ypi1 –** protein phosphatase inhibitor 1

**Ypr12 –** NAD+-dependent aryl alcohol dehydrogenase

**Yrb1** - Ran-specific GTPase-activating protein 1

**Yrm1 –** Zn2+-Cys6 zinc-finger transcriptional factor

**Yuh1** **–** carboxyl-terminal proteinase (yeast ubiquitin carboxyl-terminal hydrolase)

**Yvh –** putativeprotein tyrosine phosphatase

**Zpr1/Znf –** zinc-finger protein regulating filamentation/hyphal formation (Znf2) or pheromone production and cell fusion (Znf3)

**Zrt1 –** Zn2+ transporter

**Zta1/Zta10/Zta11 –** NADPH-dependent quinone reductase

**Zta13 –** zinc-binding dehydrogenase

**Ztd1 –** zeta-toxin containing protein