

Table S1. Strains used in this study

Strain	Genotype	Parent	Reference
BY4742	<i>S. cerevisiae</i> MAT α his3Δ1 leu2Δ0 lys2Δ0 ura3Δ0	S288C	(1)
SC5314	<i>C. albicans</i> wild-type		(2)
BG2	<i>C. glabrata</i> clinical isolate		(3)
H99	MAT α serotype A		(4)
JEC21	MAT α serotype D		(5)
R265	MAT α VGIIa		(6)
WM276	MAT α VGI		(6)
YSB552	MAT α ire1Δ::NAT-STM#224	H99	(7)
YSB1000	MAT α ire1Δ::NAT-STM#224 IRE1-NEO	YSB552	(7)
YSB723	MAT α hxl1Δ::NAT-STM#295	H99	(7)
YSB762	MAT α hxl1Δ::NAT-STM#295 HXL1-NEO	YSB723	(7)
YSB2493	MAT α sre1Δ::NAT-STM#240	H99	(8)
YSB2308	MAT α hob1Δ::NAT-STM#213	H99	(8)
YSB596	MAT α srx1Δ::NAT-STM#125	H99	(9)
YSB1214	MAT α srx1Δ::NAT-STM#125 SRX1-NEO	YSB596	(9)
YSB1273	MAT α tsa1Δ::NEO	H99	(9)
YSB1204	MAT α tsa3Δ::NEO	H99	(9)
YSB2735	MAT α tsa1Δ::NAT-STM#169 tsa3Δ::NEO	YSB1204	(9)
YSB1667	MAT α trx1Δ::NAT-STM#234	H99	(9)
YSB1791	MAT α trx2Δ::NEO	H99	(9)
YSB1796	MAT α trx1Δ::NAT-STM#234 trx2Δ::NEO	YSB1667	(9)
YSB3785	MAT α rad53Δ::NAT-STM#184	H99	(10)
SG50	MAT α cat1::URA5 ura5	H99	(11)
SG51	MAT α cat2::NAT	H99	(11)
SG52	MAT α cat3::URA5 ura5	H99	(11)
SG53	MAT α cat4::URA5 ura5	H99	(11)
SG61	MAT α cat1::URA5 cat2::NAT cat3::URA5 ura5 cat3::URA5 cat4::NEO ura5	SG60	(11)
KW24	MAT α rdh54Δ::NAT-STM#234	H99	This study
KW78	MAT α rdh54Δ::NAT-STM#234	H99	This study
KW25	MAT α rad54Δ::NAT-STM#234	H99	This study
KW26	MAT α rad54Δ::NAT-STM#234	H99	This study
KW362	MAT α rad51Δ::NAT-STM#56	H99	This study
KW363	MAT α rad51Δ::NAT-STM#56	H99	This study
KW21	MAT α pso2Δ::NAT-STM#234	H99	This study
KW22	MAT α pso2Δ::NAT-STM#234	H99	This study
KW94	MAT α rig1Δ::NAT-STM#230	H99	This study
KW158	MAT α rig1Δ::NAT-STM#230	H99	This study
KW112	MAT α rig2Δ::NAT-STM#234	H99	This study
KW160	MAT α rig2Δ::NAT-STM#234	H99	This study
KW95	MAT α rig3Δ::NAT-STM#230	H99	This study
KW96	MAT α rig3Δ::NAT-STM#230	H99	This study
KW137	MAT α bdr1Δ::NAT-STM#230	H99	This study
KW138	MAT α bdr1Δ::NAT-STM#230	H99	This study
KW193	MAT α bdr1Δ::NAT-STM#230 BDR1-NEO	KW137	This study
KW219	MAT α bdr1Δ::NAT-STM#230 BDR1:GFP-NEO	KW137	This study
KW86	MAT α atg8Δ::NAT-STM#5	H99	This study
KW87	MAT α atg8Δ::NAT-STM#5	H99	This study
KW296	MAT α atg3Δ::NAT-STM#230	H99	This study
KW297	MAT α atg3Δ::NAT-STM#230	H99	This study
KW292	MAT α atg4Δ::NAT-STM#230	H99	This study
KW293	MAT α atg4Δ::NAT-STM#230	H99	This study
YSB1025	MAT α cat1Δ::NAT-STM#177	H99	This study
YSB1026	MAT α cat1Δ::NAT-STM#177	H99	This study
YSB1029	MAT α cat2Δ::NAT-STM#288	H99	This study
YSB1030	MAT α cat2Δ::NAT-STM#288	H99	This study

YSB1033	<i>MATα cat3Δ::NAT-STM#169</i>	H99	This study
YSB1034	<i>MATα cat3Δ::NAT-STM#169</i>	H99	This study
YSB1037	<i>MATα cat4Δ::NAT-STM#146</i>	H99	This study
YSB1038	<i>MATα cat4Δ::NAT-STM#146</i>	H99	This study
KW198	<i>MATα PH3:BDR1-NEO</i>	H99	This study
KW199	<i>MATα PH3:BDR1-NEO</i>	H99	This study

Each *NAT-STM#* indicates the Nat^r marker with a unique signature tag.

References

1. **Brachmann CB, Davies A, Cost GJ, Caputo E, Li J, Hieter P, Boeke JD.** 1998. Designer deletion strains derived from *Saccharomyces cerevisiae* S288C: a useful set of strains and plasmids for PCR-mediated gene disruption and other applications. *Yeast* **14**:115-132.
2. **Gillum AM, Tsay EY, Kirsch DR.** 1984. Isolation of the *Candida albicans* gene for orotidine-5'-phosphate decarboxylase by complementation of *S. cerevisiae ura3* and *E. coli pyrF* mutations. *Mol Gen Genet* **198**:179-182.
3. **Cormack BP, Falkow S.** 1999. Efficient homologous and illegitimate recombination in the opportunistic yeast pathogen *Candida glabrata*. *Genetics* **151**:979-987.
4. **Perfect JR, Katabchi N, Cox GM, Ingram CW, Beiser CL.** 1993. Karyotyping of *Cryptococcus neoformans* as an epidemiological tool. *J Clin Microbiol* **31**:3305-3309.
5. **Moore TD, Edman JC.** 1993. The α-mating type locus of *Cryptococcus neoformans* contains a peptide pheromone gene. *Mol Cell Biol* **13**:1962-1970.
6. **Kidd SE, Hagen F, Tscharke RL, Huynh M, Bartlett KH, Fyfe M, Macdougall L, Boekhout T, Kwon-Chung KJ, Meyer W.** 2004. A rare genotype of *Cryptococcus gattii* caused the cryptococcosis outbreak on Vancouver Island (British Columbia, Canada). *Proc Natl Acad Sci USA* **101**:17258-17263.

7. **Cheon SA, Jung KW, Chen YL, Heitman J, Bahn YS, Kang HA.** 2011. Unique evolution of the UPR pathway with a novel bZIP transcription factor, Hxl1, for controlling pathogenicity of *Cryptococcus neoformans*. PLoS Pathog **7**:e1002177.
8. **Jung KW, Yang DH, Maeng S, Lee KT, So YS, Hong J, Choi J, Byun HJ, Kim H, Bang S, Song MH, Lee JW, Kim MS, Kim SY, Ji JH, Park G, Kwon H, Cha S, Meyers GL, Wang LL, Jang J, Janbon G, Adedoyin G, Kim T, Averette AK, Heitman J, Cheong E, Lee YH, Lee YW, Bahn YS.** 2015. Systematic functional profiling of transcription factor networks in *Cryptococcus neoformans*. Nat Commun **6**:6757.
9. **Upadhyay R, Kim H, Jung KW, Park G, Lam W, Lodge JK, Bahn YS.** 2013. Sulphiredoxin plays peroxiredoxin-dependent and -independent roles via the HOG signalling pathway in *Cryptococcus neoformans* and contributes to fungal virulence. Mol Microbiol **90**:630-648.
10. **Lee KT, So YS, Yang DH, Jung KW, Choi J, Lee DG, Kwon H, Jang J, Wang LL, Cha S, Meyers GL, Jeong E, Jin JH, Lee Y, Hong J, Bang S, Ji JH, Park G, Byun HJ, Park S, Park YM, Adedoyin G, Kim T, Averette AK, Choi JS, Heitman J, Cheong E, Lee YH, Bahn YS.** 2016. Systematic fungal analysis of kinases in the fungal pathogen *Cryptococcus neoformans*. Nat Commun **7**:12766.
11. **Giles SS, Stajich JE, Nichols C, Gerald QD, Alspaugh JA, Dietrich F, Perfect JR.** 2006. The *Cryptococcus neoformans* catalase gene family and its role in antioxidant defense. Eukaryot Cell **5**:1447-1459.