**Supporting Information**

**Table S1.** Strains used in this study.

**Table S2.** Oligonucleotides used in this study.

**Table S1.** Strains used in this study.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Strain** | ***MTL* type** | **Genotype** | **White or opaque** | **Source** |
| SC5314 | **a**/**a** | Wild type | White | [[63](#_ENREF_46)] |
| RBY717 | α/α | *ura3::imm434*/*URA3* *iro1::imm434*/*IRO1* | White | [[63](#_ENREF_46)] |
| RBY722 | **a**/α | *ura3::imm434*/*URA3* *iro1::imm434*/*IRO1* | White | [[63](#_ENREF_46)] |
| YL8 | **a**/**a** | *hog1*/*hog1* | White | [[35](#_ENREF_29)] |
| YL9 | **a**/**a** | *hog1*/*hog1* | White | [[35](#_ENREF_29)] |
| YL502 | **a**/**a** | *cpp1*/*cpp1* | White | This study |
| YL503 | **a**/**a** | *cpp1*/*cpp1* | White | This study |
| YL596 | α/α | *cpp1*/*cpp1* | White | This study |
| YL597 | α/α | *cpp1*/*cpp1* | White | This study |
| YL598 | **a**/α | *cpp1*/*cpp1* | White | This study |
| YL599 | **a**/α | *cpp1*/*cpp1* | White | This study |
| YL638 | **a**/**a** | *cpp1*/*cpp1* | Opaque | This study |
| YL639 | **a**/**a** | *cpp1*/*cpp1* | Opaque | This study |
| YL640 | α/α | *cpp1*/*cpp1* | Opaque | This study |
| YL641 | α/α | *cpp1*/*cpp1* | Opaque | This study |
| YL687 | **a**/**a** | *ptp2*/*ptp2* | White | This study |
| YL688 | **a**/**a** | *ptpt2*/*ptp2* | White | This study |
| YL689 | **a**/**a** | *ptp3*/*ptp3* | White | This study |
| YL690 | **a**/**a** | *ptpt3*/*ptp3* | White | This study |
| YL691 | **a**/**a** | *cpp1*/*cpp1::CPP1* | White | This study |
| YL692 | **a**/**a** | *cpp1*/*cpp1::CPP1* | White | This study |
| YL693 | α/α | *cpp1*/*cpp1::CPP1* | White | This study |
| YL694 | α/α | *cpp1*/*cpp1::CPP1* | White | This study |
| YL695 | **a**/α | *cpp1*/*cpp1::CPP1* | White | This study |
| YL696 | **a**/α | *cpp1*/*cpp1::CPP1* | White | This study |
| YL785 | **a**/**a** | *cek2*/*cek2* | White | This study |
| YL786 | **a**/**a** | *cek2*/*cek2* | White | This study |
| YL824 | **a**/**a** | *cek1/cek1* | White | This study |
| YL825 | **a**/**a** | *cek1/cek1* | White | This study |
| YL836 | **a**/**a** | *ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL837 | **a**/**a** | *ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL839 | **a**/**a** | *cpp1*/*cpp1 ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL840 | **a**/**a** | *cpp1*/*cpp1 ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL855 | **a**/**a** | *cpp1*/*cpp1 cek1*/*cek1* | White | This study |
| YL856 | **a**/**a** | *cpp1*/*cpp1 cek1*/*cek1* | White | This study |
| YL857 | **a**/**a** | *cek1*/*cek1 hog1*/*hog1* | White | This study |
| YL858 | **a**/**a** | *cek1*/*cek1 hog1*/*hog1* | White | This study |
| YL876 | **a**/**a** | *cpp1*/*cpp1cek1*/*cek1 ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL877 | **a**/**a** | *cpp1*/*cpp1cek1*/*cek1 ACT1*/*ACT1:: pACT1*-*WOR1* | Opaque | This study |
| YL885 | **a**/**a** | *hog1*/*hog1 cek1*/*cek1 cek2*/*cek2* | White | This study |
| YL886 | **a**/**a** | *hog1*/*hog1 cek1*/*cek1 cek2*/*cek2* | White | This study |
| YL889 | **a**/**a** | *cek1*/*cek1 cek2*/*cek2* | White | This study |
| YL890 | **a**/**a** | *cek1*/*cek1 cek2*/*cek2* | White | This study |
| YL1593 | **a**/**a** | *hog1*/*hog1 cek2*/*cek2* | White | This study |
| YL1594 | **a**/**a** | *hog1*/*hog1 cek2*/*cek2* | White | This study |

**Table S2.** Oligonucleotides used in this study.

|  |  |
| --- | --- |
| **Name** | **Sequence(5’->3’)** |
| 197 | GGAGC GCTCG AGATG GTGAT TGGTA ACGGT AGTT |
| 198 | GGAGC GGGCC CGCAA GTCCA AGTAA ATTGT TTTC |
| 199 | GGAGC GCCGC GGATA TTATA ATGAG GGAAG GTG |
| 200 | GGAGC GAGCT CCATT CCAAG ATTCA GTTAG ATCA |
| 201 | GCCAC TTTCA TCAGC TCCTT CA |
| 202 | GTGCT TATTC CGGTA CTGGT GCA |
| 235 | CACCA ACAAT GTTAC CAACC TCATC TTAC |
| 236 | GTGGA GCCAT TGGCG GTATA ATGGT |
| 253 | GGAGC GGGCC CACGT TATTT AATAT GATGA AGCCA |
| 254 | GGAGC GCTCG AGAAG TTGTC TTTAG TTGTA GCTGC |
| 493 | CTGTA TCACT GTGTC TATTG TTCCA T |
| 494 | GATAT TAATT TGGCT TGCTG TGATG G |
| 495 | AACAA CAACA ACAGG CAGCA GCC |
| 496 | CTCGA TGCAA TACAT TAGCT GAATG CA |
| 497 | CAGCA TCATG AAGTA CCCAC ATCAC |
| 498 | TGGTA AAAGA GCCAG GAACG TCTAC |
| 499 | GGCAG TACAT TTACC CACAG AGAC |
| 500 | AGGGA ACAAG GCCCT GTAAG TC |
| 501 | GGAGC GGGCC CATTT CTCCA ATACA CACAC AATC |
| 502 | GGAGC GCTCG AGTAG TAGCG ATTTC TATTG ATGA |
| 503 | GGAGC GCCGC GGTTG GGCTT GGTAG TTGTT GTA |
| 504 | GGAGC GAGCT CAGGA GATTT AATAA CACCG CCAC |
| 519 | GGAGC GGGCC CTGTA ATTAA ATATA GGAAA TATAA |
| 520 | GGAGC GCTCG AGTGA TGTTC ATGAT TTGTT TGTTT |
| 539 | ACCGT TACCA ATCAC CATCC TACA |
| 540 | GTTGT TGAAG TCGTG GTTGT GGAA |
| 541 | TGGAC TTGTG TTGTT ATCTG GACT |
| 542 | CTTGC TGTGT TTGTG TTTGT GTTG |
| 771 | CCTCA ACATC GTCGC CTA |
| 772 | TACTG GAACT GCCGT TACTA TT |
| 773 | ACATT ATTGA AACGA GCCAC CTT |
| 774 | GAGTT CGGAG TTGAA TCACA TACA |
| 775 | TCAGA ACAAG ATGAA GATGA AGAA |
| 776 | TGTGG TGTTG GTGGT AGTA |
| 777 | AGCTT CTACA AACAA CAACA ACAA |
| 778 | AAGAA GAACA AGAGA GGGTG AG |
| 779 | AGCAA CAACA ACAGC AACAA G |
| 780 | GAAGG TATTC TTTGA GGCGT AGTT |
| 781 | CTACA AATGG TTCTG ATGGC GAAA |
| 782 | CATCA TCATC ATCAC CGAAC AGTT |
| RB1 | GGAGCGGGGCCCGTGCAAATGTAAACGCTTTCTG |
| RB2 | GGAGCGCTCGAGTGGGGCCAGTAGATTTCTTC |
| RB3 | GGAGCGCCGCGGCGAAATAGTCATGTCGTAATAC |
| RB4 | GGAGCGGAGCTCTGTCATTGCTCTTTGCTGGC |