

Supplementary File 1—Yeast strains

Strain	Genotype	Used in figures
MJL3617	<p><i>MATa ho::LYS2 lys2 leu2 nuclΔ::LEU2 VMA1-103 trp1::hisG</i> ----- <i>MATα ho::LYS2 lys2 leu2 nuclΔ::LEU2 VMA1-103 trp1::hisG</i></p> <p><i>arg4Δ(eco47III-hpaI) ura3::Ty1 his4'-URA3-[arg4-VRS103]-'his4</i> ----- <i>arg4Δ(eco47III-hpaI) ura3::Ty1 his4::natMX-[arg4-VRS]-KlTRP1</i></p>	S1, 2
MJL3627	<p><i>MATa ho::LYS2 lys2 leu2 nuclΔ::LEU2 VMA1-103 trp1::hisG</i> ----- <i>MATα ho::LYS2 lys2 leu2 nuclΔ::LEU2 VMA1-103 trp1::hisG</i></p> <p><i>arg4Δ(eco47III-hpaI) ura3::Ty1-[arg4-VRS103]-URA3</i> ----- <i>arg4Δ(eco47III-hpaI) ura3::natMX-[arg4-VRS]-KlTRP1</i></p>	S1, 2
MJL3618	<p>MJL3617 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1</i> ----- <i>CUP1</i></p>	1, 2, S2, 3, S3-1, S3-2 4, S4-1, 5, S5-1
MJL3624	<p>MJL3627 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1</i> ----- <i>CUP1</i></p>	1, 2, S2, 3, S3-1, S3-2 4, S4-1, 5, S5-1
MJL3645	<p>MJL3617 + <i>sae2Δ::hphMX</i> ----- <i>sae2Δ::hphMX</i></p>	S1
MJL3643	<p>MJL3627 + <i>sae2Δ::hphMX</i> ----- <i>sae2Δ::hphMX</i></p>	S1

<u>Strain</u>	<u>Genotype</u>	<u>Used in figures</u>
MJL3670	MJL3617 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$	3, S3-1, S3-2, 4, S4-1
MJL3669	MJL3627 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$	3, S3-1, S3-2, 4, S4-1
MJL3729	MJL3617 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3}$ $\frac{kanMX-pCLB2-3HA-MMS4}{kanMX-pCLB2-3HA-MMS4}$	3, S3-1, S3-2, 4, S4-1
MJL3728	MJL3627 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3}$ $\frac{kanMX-pCLB2-3HA-MMS4}{kanMX-pCLB2-3HA-MMS4}$	3, S3-1, S3-2, 4, S4-1
MJL3726	MJL3617 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$ $\frac{pCLB2-3HA-MMS4::kanMX}{pCLB2-3HA-MMS4::kanMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX}$	3, S3-1, S3-2
MJL3725	MJL3627 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$ $\frac{pCLB2-3HA-MMS4::kanMX}{pCLB2-3HA-MMS4::kanMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX}$	3, S3-1, S3-2

<u>Strain</u>	<u>Genotype</u>	<u>Used in figures</u>
MJL3806	MJL3617 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3</i>	4, S4-1, S4-2
MJL3803	MJL3627 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3</i>	4, S4-1, S4-2
MJL3804	MJL3617 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3 mlh3Δ::kanMX</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3 mlh3Δ::kanMX</i>	4, S4-1, S4-2
MJL3805	MJL3627 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3 mlh3Δ::kanMX</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3 mlh3Δ::kanMX</i>	4, S4-1, S4-2
MJL3866	MJL3617 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3 yen1Δ::hphMX</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3 yen1Δ::hphMX</i> <i>slx1Δ::natMX pCLB2-3HA-MMS4::kanMX</i> ----- <i>slx1Δ::natMX pCLB2-3HA-MMS4::kanMX</i>	4, S4-1, S4-2
MJL3858	MJL3627 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 pch2Δ::URA3 yen1Δ::hphMX</i> ----- <i>pCUP1-CUP1 pch2Δ::URA3 yen1Δ::hphMX</i> <i>slx1Δ::natMX pCLB2-3HA-MMS4::kanMX</i> ----- <i>slx1Δ::natMX pCLB2-3HA-MMS4::kanMX</i>	4, S4-1, S4-2
MJL3606	MJL3617 + <i>pCUP1-VDE-kanMX-pCUP1-CUP1 spo11-Y135F-HA3-his6::kanMX</i> ----- <i>pCUP1-CUP1 spo11-Y135F-HA3-his6::kanMX</i>	5, S5-1, S5-2

<u>Strain</u>	<u>Genotype</u>	<u>Used in figures</u>
MJL3605	MJL3627 + $\frac{pCUP1-VDE-kanMX-pCUP1-CUP1}{pCUP1-CUP1} \frac{spo11-Y135F-HA3-his6::kanMX}{spo11-Y135F-HA3-his6::kanMX}$	5, S5-1, S5-2
MJL3697	MJL3617 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$ $\frac{spo11-Y135F-HA3-his6::kanMX}{spo11-Y135F-HA3-his6::kanMX}$	5B, S5-1, S5-2
MJL3696	MJL3627 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{mlh3\Delta::kanMX}{mlh3\Delta::kanMX}$ $\frac{spo11-Y135F-HA3-his6::kanMX}{spo11-Y135F-HA3-his6::kanMX}$	5C, S5-1, S5-2
MJL3731	MJL3617 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3}$ $\frac{pCLB2-3HA-MMS4::kanMX}{pCLB2-3HA-MMS4::kanMX} \frac{spo11-Y135F-HA3-his6::kanMX}{spo11-Y135F-HA3-his6::kanMX}$	5B, S5-1, S5-2
MJL3730	MJL3627 + $\frac{pCUP1-VDE-hphMX-pCUP1-CUP1}{CUP1} \frac{yen1\Delta::hphMX}{yen1\Delta::hphMX} \frac{slx1\Delta::natMX}{slx1\Delta::URA3}$ $\frac{pCLB2-3HA-MMS4::kanMX}{pCLB2-3HA-MMS4::kanMX} \frac{spo11-Y135F-HA3-his6::kanMX}{spo11-Y135F-HA3-his6::kanMX}$	5C, S5-1, S5-2

Supplementary File 1—Yeast Strains. The *ura3::Ty* allele contains a Ty element near a *RsaI* site in *URA3* coding sequences (T.-C. Wu and M. Lichten, unpublished observations). *his4'-URA3-[arg4-VRS103]-'his4* and *ura3::Ty-[arg4-VRS103]-URA3* inserts are identical to inserts in MJL1077 and MJL1094 (Wu & Lichten 1995) except that they contain the *arg4-VRS103* allele (see Materials and Methods). In *his4::natMX-[arg4-VRS]-KITRP1*, *natMX* sequences (Goldstein & McCusker 1999) replace sequences from chromosome V coordinate 66033 to +483bp downstream of *URA3* and *K. lactis TRP1* sequences (Stark & Milner 1989) replace sequences from +350bp downstream of *ARG4* to chromosome V coordinate 67716; in *ura3::natMX-[arg4-VRS]-KITRP1*, *natMX* sequences (Goldstein & McCusker 1999) replace sequences from chromosome III coordinate 115943 to +483bp downstream of *URA3* and *K. lactis TRP1* sequences (Stark & Milner 1989) replace sequences from +356bp downstream of *ARG4* to chromosome III coordinate 116919 (all yeast genome coordinates from Saccharomyces Genome Database build #R64-2-1). *pCUP1-VDE-kanMX-pCUP1-CUP1* contains plasmid pMJ920 (see Materials and Methods) integrated at the *CUP1* locus; in *pCUP1-VDE-hphMX-pCUP1-CUP1*, the G418-resistance module is replaced by a hygromycin-resistance module (Goldstein & McCusker 1999). The following alleles have been previously described: *kanMX-pCLB2-3HA-MMS4* (Jessop et al. 2006); *spo11-Y135F-HA3-his6::kanMX* (Kee & Keeney 2002). *mlh3Δ::kanMX*, *slx1Δ::natMX* and *slx1Δ::URA3* and *yen1Δ::hphMX* were constructed by an exact replacement of the relevant coding sequences by the indicated drug-resistance module (Goldstein & McCusker 1999) or by *URA3* coding sequences. *pch2* mutant strain was constructed by replacing the wild type *PCH2* locus with the *pch2Δ::URA3* allele from pSS52 (San-Segundo & Roeder 1999) where the +266 to +1741 coding region of *PCH2* (*AccI-BamHI* fragment) has been replaced with a *URA3* fragment (*ClaI-BamHI*).

References

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