

**Table S2. Yeast strains used in this study.**

Name	Relevant genotype	Source
FRO-155	<i>MAT<math>\alpha</math> his3<math>\Delta</math>1 leu2<math>\Delta</math>0 lys2<math>\Delta</math>0 trp5::GSHU lys2::AluIR<sup>a</sup></i>	Storici et al., 2003
KM-193	FRO-155, GSHU::A3-UR <sup>b</sup>	This work
KM-196	FRO-155, GSHU::A3-UR	This work
KM-201	KM-193, UR- <i>LEU2</i> <sup>c</sup>	This work
KM-203	KM-196, UR- <i>LEU2</i>	This work
KM-209	KM-193, UR:: <i>LEU2</i>	This work
KM-211	KM-193, UR:: <i>LEU2</i>	This work
KM-221	KM-201, GSHdw <sup>d</sup>	This work
KM-222	KM-203, GSHdw	This work
KM-257	KM-201, GSHup <sup>e</sup>	This work
KM-259	KM-203, GSHup	This work
KM-261	KM-221, <i>rad52<math>\Delta</math>::kanMX4</i> <sup>f</sup>	This work
KM-263	KM-222, <i>rad52<math>\Delta</math>::kanMX4</i>	This work
KM-265	KM-201, <i>rad52<math>\Delta</math>::kanMX4</i>	This work
KM-267	KM-203, <i>rad52<math>\Delta</math>::kanMX4</i>	This work
KM-269	KM-221, <i>rad51<math>\Delta</math>::kanMX4</i>	This work
KM-271	KM-222, <i>rad51<math>\Delta</math>::kanMX4</i>	This work
KM-273	KM-201, <i>rad51<math>\Delta</math>::kanMX4</i>	This work
KM-275	KM-203, <i>rad51<math>\Delta</math>::kanMX4</i>	This work
KM-277	KM-221, <i>pol32<math>\Delta</math>::kanMX4</i>	This work
KM-279	KM-222, <i>pol32<math>\Delta</math>::kanMX4</i>	This work
KM-281	KM-201, <i>pol32<math>\Delta</math>::kanMX4</i>	This work
KM-283	KM-203, <i>pol32<math>\Delta</math>::kanMX4</i>	This work
KM-315	KM-201, <i>rad59<math>\Delta</math>::kanMX4</i>	This work
KM-317	KM-203, <i>rad59<math>\Delta</math>::kanMX4</i>	This work
KM-319	KM-221, <i>rad59<math>\Delta</math>::kanMX4</i>	This work
KM-321	KM-222, <i>rad59<math>\Delta</math>::kanMX4</i>	This work
KM-323	KM-201, <i>mph1<math>\Delta</math>::kanMX4</i>	This work
KM-325	KM-203, <i>mph1<math>\Delta</math>::kanMX4</i>	This work
KM-327	KM-221, <i>mph1<math>\Delta</math>::kanMX4</i>	This work
KM-329	KM-222, <i>mph1<math>\Delta</math>::kanMX4</i>	This work
KM-331	KM-201, <i>srs2<math>\Delta</math>::kanMX4</i>	This work
KM-333	KM-203, <i>srs2<math>\Delta</math>::kanMX4</i>	This work
KM-335	KM-221, <i>srs2<math>\Delta</math>::kanMX4</i>	This work
KM-337	KM-222, <i>srs2<math>\Delta</math>::kanMX4</i>	This work
KM-339	KM-201, <i>sgs1<math>\Delta</math>::kanMX4</i>	This work
KM-341	KM-203, <i>sgs1<math>\Delta</math>::kanMX4</i>	This work
KM-343	KM-221, <i>sgs1<math>\Delta</math>::kanMX4</i>	This work

KM-345	KM-222, <i>sgs1Δ::kanMX4</i>	This work
KM-347	KM-201, <i>ARS1Δ::kanMX4</i>	This work
KM-349	KM-203, <i>ARS1Δ::kanMX4</i>	This work
KM-379	KM-201, <i>rad1Δ::kanMX4</i>	This work
KM-381	KM-203, <i>rad1Δ::kanMX4</i>	This work
KM-383	KM-201, <i>rad10Δ::kanMX4</i>	This work
KM-385	KM-203, <i>rad10Δ::kanMX4</i>	This work
KM-387	KM-221, <i>rad1Δ::kanMX4</i>	This work
KM-389	KM-222, <i>rad1Δ::kanMX4</i>	This work
KM-391	KM-221, <i>rad10Δ::kanMX4</i>	This work
KM-393	KM-222, <i>rad10Δ::kanMX4</i>	This work

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<sup>a</sup>GSHU *lys2::AluIR* contains the GSHU cassette (including the I-*SceI* gene under the inducible

*GALI* promoter, the hygromycin resistance gene *hyg*, and the counterselectable marker gene

*KIURA3*) and the I-*SceI* site (HOT site) in *TRP5*.

<sup>b</sup>A3-UR amplicon cassette derivative from YRpKM1 plasmid containing an autonomous replicating sequence (*ARS1*), bacterial origin of replication (ORI), ampicillin resistance gene (*Amp<sup>R</sup>*), the green fluorescence protein (GFP) gene and the split *URA3* gene (A3-UR).

<sup>c</sup>*LEU2* is integrated downstream of UR.

<sup>d</sup>GSHdw cassette (including the I-*SceI* gene under the inducible *GALI* promoter and *hyg*) and the I-*SceI* (HOT) site are integrated 10 kb downstream of the UR sequence.

<sup>e</sup>GSHup cassette (including the I-*SceI* gene under the inducible *GALI* promoter and *hyg*) and the I-*SceI* (HOT) site are integrated 10 kb upstream of the A3 sequence.

<sup>f</sup>Single deletion strains contain the *kanMX4* module in place of the chosen gene, and are all derivatives of KM-201,203 or KM-221,222 strains.