

Table S1. Yeast strains used in this study

Strain	Relevant Genotype	Parent Strain	Reference
Y1	<i>MATa trp1-1 can1-100 leu2-3,112 his 3-11,5 ura3 GAL+ ADE+</i>	W303	Laboratory collection
Y3	<i>MATa ade2-1 trp1-1 can1-100 leu2-3,112 his 3-11,5 ura3 GAL+</i>	W303	Laboratory collection
Y6	<i>MATa ade2-1 trp1-1 can1-100 leu2-3,112 his 3-11,5 ura3 GAL+</i>	W303	Laboratory collection
Y47	<i>MATa leu2::P_{ADHI}-CFP- hisG::URA3::kanR::hisG</i>	Y1	Gift from E. O'Shea [26]
Y139	<i>MATa his3::P_{1xtetO}-vYFP-HIS3</i>	Y1 +B163	Laboratory collection
Y163	<i>MATa his3::P_{7xtetO}-vYFP-HIS3</i>	Y1 +B165	Laboratory collection
Y216	<i>MATa ade2-1 ura3::P_{7xtetO}-vYFP-kanR</i>	Y6	Laboratory collection [27]
Y231	<i>MATa leu2::P_{PGK1}-RFP ADE2::P_{MYO2}- tTA ura3::P_{7xtetO}-CFP-kanR</i>	Y3	Laboratory collection [27]
Y236	<i>MATa/α leu2::P_{PGK1}-RFP ADE2::P_{MYO2}- tTA ura3/ura3::P_{7xtetO}-CFP-kanR/ P_{7xtetO}-vYFP-kanR</i>	Y231xY216	This study
EY2210	<i>MATa ADE+ NHP2::RFP-NAT spl2Δ::LEU2 pho4Δ::PHO4(1-741bp)- cYFP-HIS3 pho84Δ::CFP-kanR</i>	W303	Gift from E. O'Shea
EY2150	<i>MATa ADE+ NHP2::RFP-NAT spl2Δ::LEU2 pho84Δ::CFP-kanR</i>	W303	Gift from E. O'Shea

<i>PHO4::cYFP-HIS3</i>			
EY131	<i>MATa pho4Δ::TRP1</i>	W303	Gift from E. O'Shea
Y114	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho84Δ::CFP-kanR</i> <i>pho4Δ::TRP1</i>	EY2210 (EY131 PCR template)	This study
Y152	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::CFP-kanR phm4Δ::P_{GPD}-</i> <i>PHO81-HIS3MX6 leu2Δ::P_{TEF1m7}-</i> <i>PHO4-cYFP</i>	Y114 (+ B133 PCR product, + B141)	Laboratory collection
Y320	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::KIURA3</i>	Y114	This study
Y532	<i>MATa doa1::vYFP + pRS316-DOA1</i>	Y1 + B858	This study
Y784	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::klura3</i>	Y320	This study
Y785	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::klura3 phm4Δ::HIS3MX6</i>	Y784	This study ("kinetic" base strain)
Y947	<i>MATa ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::klura3 phm4Δ::HIS3MX6</i> <i>leu2Δ::P_{TEF1m7}-PHO4ΔP2-tetR-cYFP</i>	Y785 (+B798)	This study

Y955	<i>MATα his3::P_{1tetO}-tdTomato-HIS3</i>	Y2 (+B229)	This study
Y960	<i>MATα ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4Δ::TRP1</i> <i>pho84Δ::klura3 phm4Δ::HIS3MX6</i> <i>leu2Δ::P_{TEF1m7}-PHO4ΔP2-tetR-cYFP</i> <i>URA3::P_{1tetO}-CFP</i>	Y947 (+B579)	This study
Y962	<i>MATα ADE+ NHP2::RFP-NAT</i> <i>spl2Δ::LEU2 pho4::TRP1</i> <i>pho84Δ::klura3 phm4::HIS3MX6</i> <i>leu2Δ::P_{TEF1m7}-PHO4ΔP2-tetR-cYFP</i> <i>URA3::P_{7tetO}-CFP</i>	Y947 (+B720)	This study
Y1011	<i>MATα/α his3/his3::P_{1tetO}-vYFP-</i> <i>HIS3/P_{1tetO}-tdTomato-HIS3</i>	Y139 x Y955	This study