

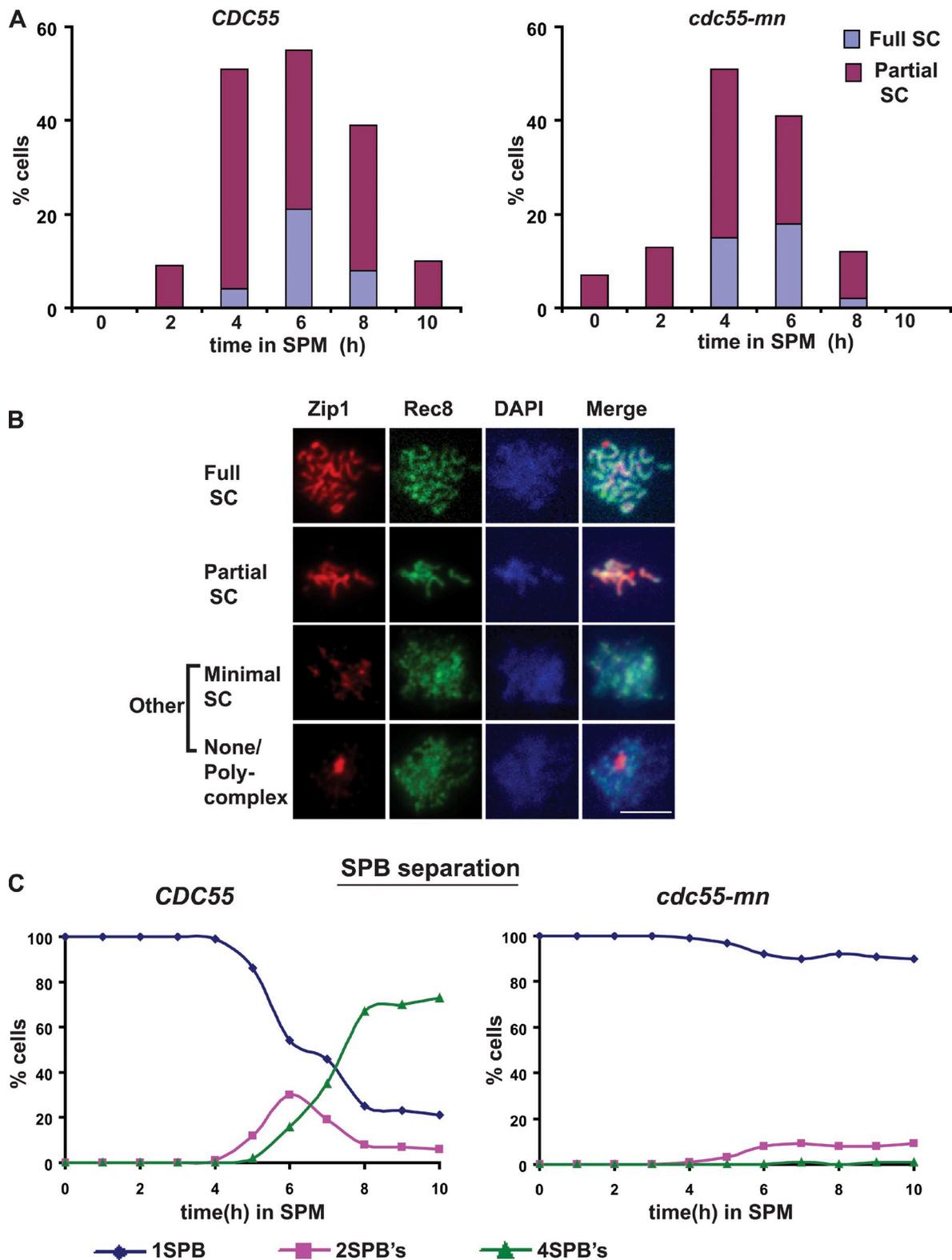
Kerr et al., <http://www.jcb.org/cgi/content/full/jcb.201103019/DC1>

Figure S1. **PP2A<sup>Cdc55</sup> is not required for SC assembly and disassembly but is required for SPB separation during meiosis.** (A) Wild-type (Y1843) and *cdc55-mn* (Y2198) cells were induced to sporulate. Aliquots of the sporulating culture were taken every hour and subjected to chromosome spreading. The spreads were stained using anti-HA (to visualize Rec8) and anti-Zip1 (to visualize SC) antibodies. Frequencies of partial SC and full SC observed in chromosome spreads from the two cultures were plotted as a function of time. These are representative data from three experimental repeats. (B) Representative images of full SC, partial SC, dot/minimal SC, and no signal/polycomplexes are shown. (C) *CDC55* (Y2111) and *cdc55-mn* (Y2149) cells containing *SPC42-GFP* were induced to sporulate. SPB separation was detected by counting the number of Spc42-GFP dots in the two sporulating cultures ( $n = 200$ ). Bar, 2  $\mu$ m.

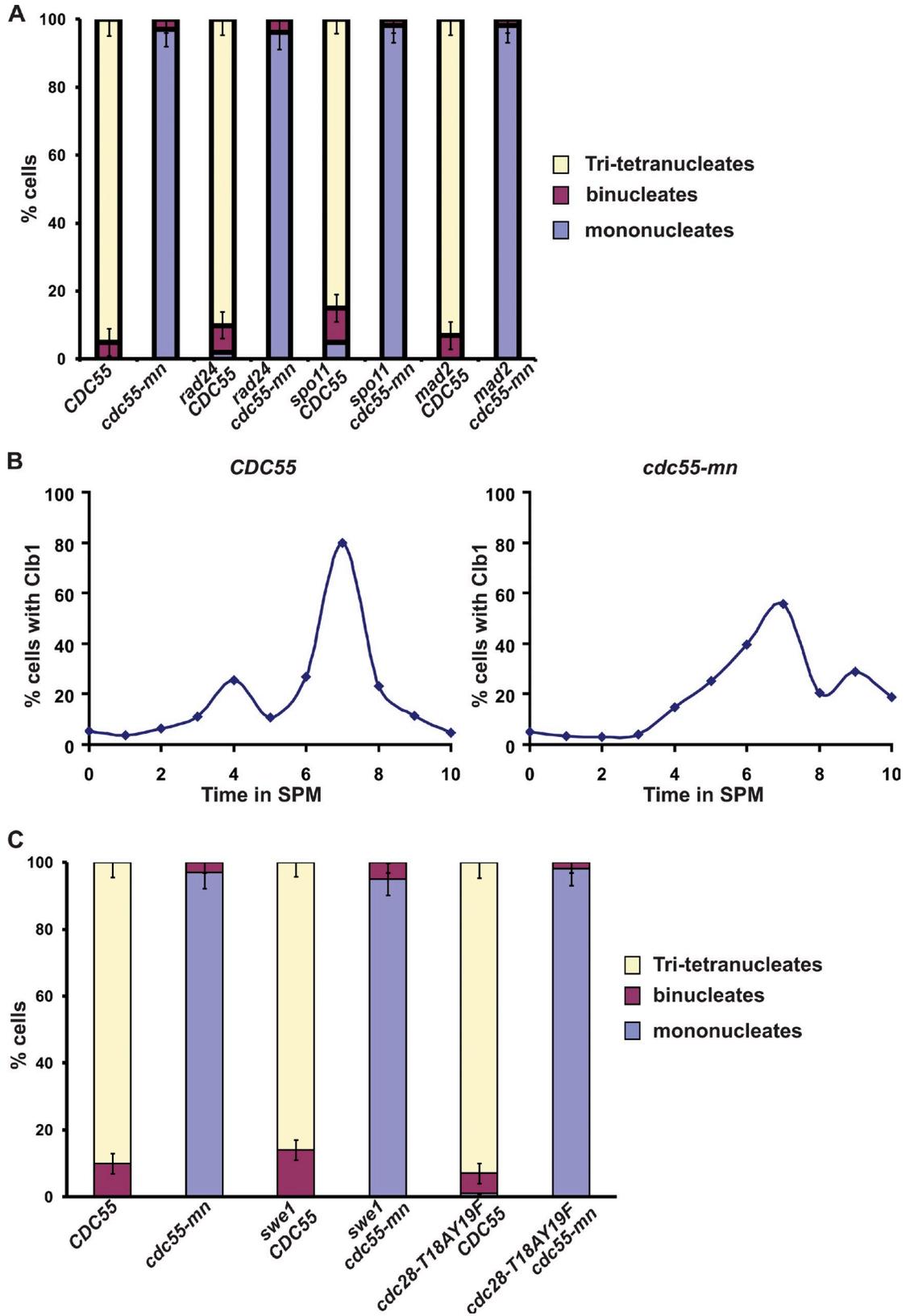


Figure S2. Nuclear division defect of *cdc55-mn* cells is not caused by activation of pachytene/spindle assembly checkpoints or lack of Clb1 expression or hyperphosphorylation of Cdc28 at Y19 by Swe1. (A) *CDC55* (Y1737), *cdc55-mn* (Y1738), *rad24* (Y2280), *cdc55-mn rad24* (Y2282), *spo11* (Y2270), *cdc55-mn spo11* (Y2271), *mad2* (Y2289), and *mad2 cdc55-mn* (Y2156) strains were induced to sporulate for 24 h. Cells were harvested, and nuclear division was scored by staining with DAPI ( $n = 500$ ). (B) Diploid *CDC55 CLB1myc9* (Y2027) and *cdc55-mn CLB1myc9* (Y2028) cells were induced to sporulate. Clb1 expression was assayed in the two sporulating cultures by immunofluorescence using anti-Myc antibodies. (C) *CDC55* (Y1737), *cdc55-mn* (Y1738), *swe1 $\Delta$*  (Y2102), *cdc55-mn swe1 $\Delta$*  (Y2103), *cdc28-T18AY19F* (Y2241), and *cdc55-mn cdc28-T18AY19F* (Y2242) strains were induced to sporulate for 24 h. Cells were harvested, and nuclear division was scored by staining with DAPI ( $n = 500$ ). Error bars represent SEM.

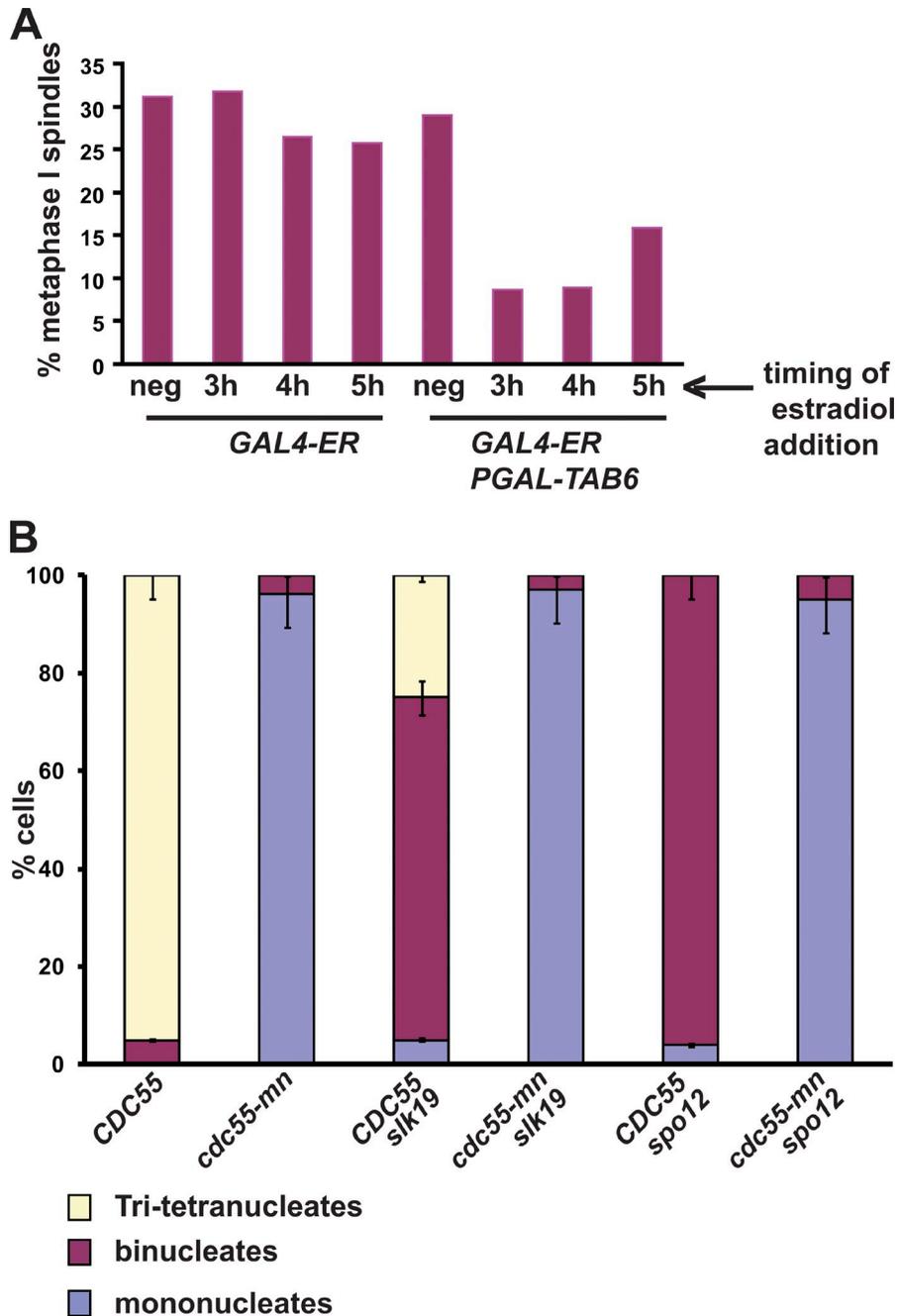


Figure S3. **Premature release of Cdc14 during meiosis inhibits formation of metaphase I spindles, and PP2A<sup>Cdc55</sup> acts downstream of Slk19 and Spo12 in the FEAR pathway.** (A) Diploid  $P_{GAL-TAB6} GAL4-ER P_{CLB2-CDC20}$  (Y2285) and  $GAL4-ER P_{CLB2-CDC20}$  (Y2287) strains were arrested in metaphase I by transferring them to SPM for 8 h. Estradiol was added at 3, 4, and 5 h to the cultures, and the effect on spindle formation was determined by immunofluorescence using antitubulin antibodies ( $n = 200$ ). These are representative data from three experimental repeats. (B)  $CDC55$  (Y1737), *cdc55-mn* (Y1738), *slk19*  $\Delta$  (Y2267), *cdc55-mn slk19*  $\Delta$  (Y2269), *spo12*  $\Delta$  (Y2272), and *cdc55-mn spo12*  $\Delta$  (Y2274) strains were induced to sporulate for 24 h. Cells were harvested, and nuclear division was scored by staining with DAPI ( $n = 500$ ). Error bars represent SEM.

Table S1. List of yeast strains used in the study

Strain name	Genotype	Used in figure
Y1737	MATa/α, <i>cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S2 and S3
Y1738	MATa/α	S2 and S3
Y1843	MATa/α, <i>leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, REC8-ha3::URA3/REC8-ha3::URA3, PDS1-myc18::KITR1/PDS1-myc18::KITR1, tetO::URA3/ura3</i>	1 and S1
Y2027	MATa/α, <i>CLB1-myc9::KITR1/CLB1-myc9::KITR1</i>	S2
Y2028	MATa/α, <i>CLB1-myc9::KITR1/CLB1-myc9::KITR1, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S2
Y2072	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, rec8::REC8-ha3::URA3/rec8::REC8-ha3::URA3, leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, ura3::tetO::URA3/ura3</i>	4 and 5
Y2075	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, rec8::REC8-ha3::URA3/rec8::REC8-ha3-URA3, leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, ura3::tetO-URA3/ura3</i>	4 and 5
Y2078	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::net1-6Cdk-TEV-myc9::TRP1/trp1::net1-6Cdk-TEV-myc9::TRP1, rec8::REC8-ha3::URA3/rec8::REC8-ha3::URA3, leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, ura3::tetO::URA3/ura3</i>	4 and 5
Y2081	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, rec8::REC8-ha3::URA3/rec8::REC8-ha3::URA3, leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, ura3::tetO::URA3/ura3</i>	4 and 5
Y2102	MATa/α, <i>swe1Δ::HIS3/swe1Δ::HIS3</i>	S2
Y2103	MATa/α, <i>swe1Δ::HIS3/swe1Δ::HIS3, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S2
Y2111	MATa/α, <i>SPC42-GFP::HIS3/SPC42-GFP::HIS3</i>	2 and S1
Y2119	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, cdc20::P<sub>CLB2</sub>-CDC20::KanMX6/cdc20::P<sub>CLB2</sub>-CDC20::KanMX6</i>	3
Y2120	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, cdc20::P<sub>CLB2</sub>-CDC20::KanMX6/cdc20::P<sub>CLB2</sub>-CDC20::KanMX6</i>	3
Y2149	MATa/α, <i>SPC42-GFP::HIS3/SPC42-GFP::HIS3, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	2
Y2156	MATa/α, <i>cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, mad2::HIS3MX6/mad2::HIS3MX6</i>	S2
Y2161	MATa/α, <i>ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3/ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3</i>	3
Y2198	MATa/α, <i>leu2::tetR-GFP-LEU2/leu2::tetR-GFP-LEU2, REC8-HA3::URA3/REC8-ha3::URA3, PDS1-myc18::TRP1/PDS1-myc18::TRP1, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, ura3::tetO-URA3/ura3</i>	1 and S1
Y2212	MATa/α, <i>ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3/ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3, his3::P<sub>GAL</sub>-CDC14-TAB6::HIS3/his3</i>	3
Y2241	MATa/α, <i>cdc28::cdc28-T18AY19F::TRP1/cdc28::cdc28-T18AY19F::TRP1</i>	S2
Y2242	MATa/α, <i>cdc28::cdc28-T18AY19F::TRP1/cdc28::cdc28-T18AY19F::TRP1, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S2
Y2267	MAT a/α, <i>slk19Δ::HIS3/slkl9Δ::HIS3</i>	S3
Y2269	MAT a/α, <i>slk19Δ::HIS3/slkl9Δ::HIS3, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S3
Y2270	MAT a/α, <i>spo11Δ::TRP1/spo11Δ::TRP1</i>	S2
Y2271	MATa/α, <i>cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, spo11Δ::TRP1/spo11Δ::TRP1</i>	S2
Y2272	MAT a/α, <i>spo12::KanMX6/spo12::KanMX6</i>	S3
Y2274	MAT a/α, <i>cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, spo12::KanMX6/spo12::KanMX6</i>	S3
Y2276	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::net1-6Cdk-TEV-myc9::TRP1/trp1::net1-6CDK-TEV-myc9::TRP1, cdc55Δ::NatMX6/cdc55Δ::NatMX6</i>	4
Y2278	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::NET1-TEV-myc9::TRP1/trp1::NET1-TEV-myc9::TRP1, cdc55Δ::NatMX6/cdc55Δ::NatMX6</i>	4
Y2280	MATa/α, <i>rad24Δ::LEU2/rad24Δ::LEU2</i>	S2
Y2282	MATa/α, <i>rad24Δ::LEU2/rad24Δ::LEU2, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6</i>	S2
Y2285	MATa/α, <i>ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3/ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3, his3::P<sub>GAL</sub>-CDC14-TAB6::HIS3/his3, cdc20::P<sub>CLB2</sub>-CDC20::KanMX6/cdc20::P<sub>CLB2</sub>-CDC20::KanMX6</i>	S3
Y2287	MATa/α, <i>ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3/ura3::P<sub>GPD1</sub>-GAL4(848).ER::URA3, cdc20::P<sub>CLB2</sub>-CDC20::KanMX6/cdc20::P<sub>CLB2</sub>-CDC20::KanMX6</i>	S3
Y2289	MATa/α, <i>mad2Δ::HIS3MX6/mad2Δ::HIS3MX6</i>	S2
Y2307	MATa/α, <i>net1Δ::HIS5/net1Δ::HIS5, trp1::net1-6Cdk-TEV-myc9::TRP1/trp1::net1-6Cdk-TEV-myc9::TRP1, cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6/cdc55::P<sub>CLB2</sub>-ha3-CDC55::KanMX6, cdc20::P<sub>CLB2</sub>-CDC20::KanMX6/cdc20::P<sub>CLB2</sub>-CDC20::KanMX6</i>	3

All yeast strains are derivatives of SK1 and have the following markers, unless otherwise stated: *ho::LYS2/ho::LYS2, ura3/ura3, leu2::hisG/leu2::hisG, trp1::hisG/trp1::hisG, his3::hisG/his3::hisG, and lys2/lys2.*