

Supplementary Figure 1. Clb2 oscillation and bipolar spindle assembly is not altered in *CDH1-pkm* cells. (A) Cells of the indicated genotype were synchronized with α -factor block and released, and immunoblots performed against Clb2 and Pgc1. (B) Quantification of Clb2 levels from strains in (A), normalized to Pgc1. (C) *CDH1-pkm* strains form morphologically normal long and short spindles in an asynchronous population, assessed by fluorescence microscopy for the spindle-associated kinesin Cin8-GFP and the SPB marker Spc42-CFP (D) Percentage of asynchronous *CDH1* and *CDH1-pkm* cells with separated SPBs.

Supplementary Figure 2. Microscope field of terminally arrested *CDH1-m11* cells. *GALL-ACMI CDH1-m11* cells were released from α -factor into glucose, and the above images taken in the indicated fluorescent channels at 120 minutes after release.

Supplementary Figure 3. *CDH1-m11* results in aberrant nuclear division in the absence of SPB separation. (A) Fluorescence microscopy of fixed *CDH1-m11* or *CDH1* cells 3 hours after release from α -factor, imaging the nuclear histone protein Htb2-mCherry (red) and Myo1-GFP (green) marking the bud neck. Scale bars are 5 microns. (B) Frames from time lapse microscopy of the same strain at the indicated times after release from α -factor, imaged for Htb2-mCherry. Note the ability to divide Htb2-mCherry asymmetrically, as well as the subsequent fusion of the two connected nuclear blobs. (C) *CDH1-m11* strains with Spc29-YFP marking the SPB as well as Tub1-CFP and HTB2-mCherry were released from α -factor, with the depicted images taken 180 minutes after release. Aberrant nuclear morphology with unseparated SPBs are apparent. Adjusted CFP-channel contrast (bottom) reveals microtubule structures possibly responsible for aberrant nuclear migration and/or division. Scale bars are 5 microns.

Supplementary Figure 4. *CLB2-kd* induction in *CDH1-m11* cells approximately halves the intensity of fluorescent SPB foci. SPB intensity, assessed by an automated analysis, of the CFP-channel images from the experiment described and depicted in Figure 4 A-C, for indicated time points. At least 200 cells were analyzed and averaged for each data point.

Supplementary Figure 5. Maintenance of short bipolar spindles in *CDH1-m11* cells is dependent on *SCC1* but not *MAD2* (A) Micrographs of *mad2 CDH1-m11* or *mad2 CDH1* strains 120 minutes after release from α -factor. Scale bars are 5 microns. (B) Images of *scc1-73 CDH1-m11* and *CDH1-m11* strains from Figure 4C obtained 120 minutes after α -factor release. Scale bars are 5 microns.

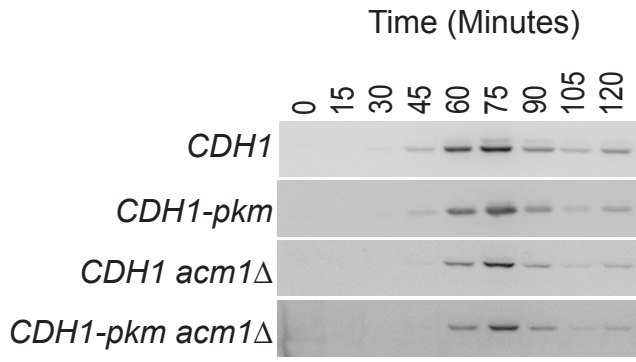
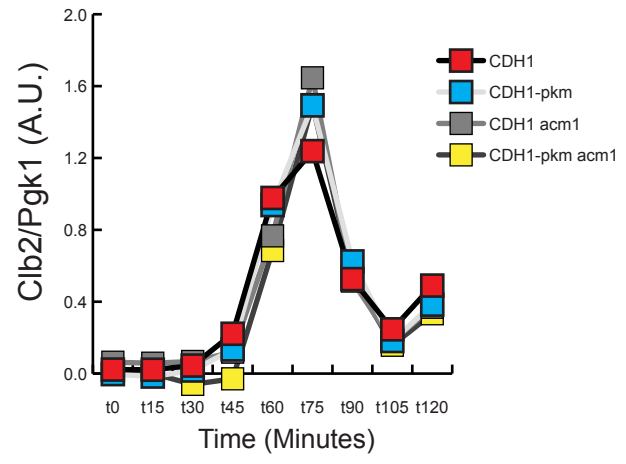
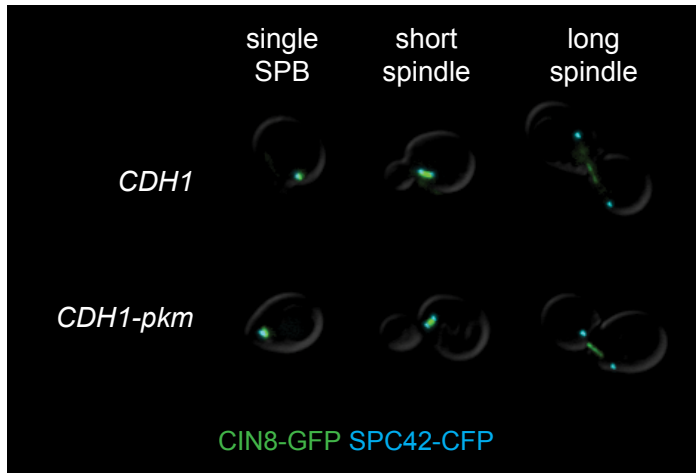
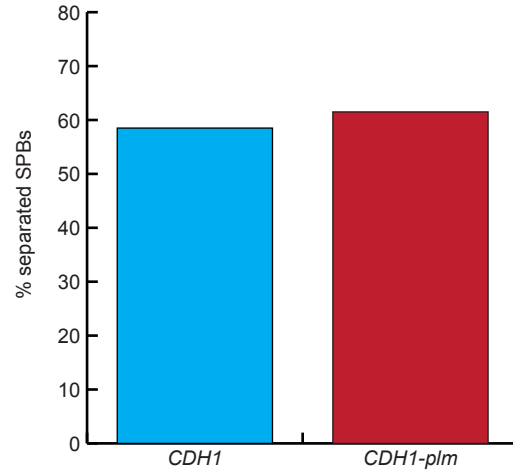
Supplementary Table 1

Strain Name	Genotype
3023-2-1	<i>MATa cdh1-m11::LEU2::URA3::cdh1-m11::TRP1</i>
3023-2-2	<i>MATa cdh1-m11::TRP1::URA3::cdh1-m11::LEU2</i>
JRC35B-8d	<i>MATa cdh1-m11::LEU2::URA3::cdh1-m11::TRP1 cdc23-1</i>
JRC36B-5d	<i>MATa cdh1-m11::TRP1::URA3::cdh1-m11::LEU2 cdc23-1</i>
JRC374A-5b	<i>MATa GAL1-3FLAG-ACMI-URA3::ura3 ADE2</i>
JRC374C-3a	<i>MATa GAL1-3FLAG-ACMI-URA3::ura3 acm1::KanMX ADE2</i>
MNX29-3b	<i>MATa CDH1-m11 GAL1-3FLAG-ACMI-URA3::ura3</i>
MNX29-8b	<i>MATa CDH1-m11 acm1::KanMX GAL1-3FLAG-ACMI-URA3::ura3</i>
JRC258B-9c	<i>MATa CDH1-pkm GAL1-3FLAG-ACMI-URA3::ura3 ADE2?</i>
JRC275B-11d	<i>MATa CDH1-pkm GAL1-3FLAG-ACMI-URA3::ura3 acm1::KanMX</i>
JRC362C-7c	<i>MATa CDH1-pbm GAL1-3FLAG-ACMI-URA3::ura3</i>
JRC373D-6c	<i>MATa bar1 CDH1-pbm GAL1-3FLAG-ACMI-URA3::ura3 acm1::KanMX</i>
JRC307C-2c	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 MYO1-mCherry::HIS3 TRP1::CFP-TUB1</i>
JRC307A-2a	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 MYO1-mCherry::HIS3 TRP1::CFP-TUB1</i>
JRC318A-9c	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 ADE2</i>
JRC318A-11d	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 ade2</i>
JR313	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 ACMI::URA3 ade2</i>
JR314	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 4XACMI::URA3 ade2</i>
JR315	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 2XACMI::URA3 ade2</i>
JRC330I-7b	<i>MATa bar1 GALL-HA3-ACMI::LEU2 SPC42-CFP::TRP1 HIS3::GFP-TUB1 MYO1-mCherry::HIS3 acm1::KanMX</i>
JRC395B-1b	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 SPC42-CFP-TRP1 HIS3::GFP-TUB1 MYO1-mCherry::HIS3 acm1::KanMX</i>
JRC430A-9a	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 18MYC-CDC20-TRP1</i>
JRC430A-5a	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 18MYC-CDC20-TRP1</i>
JRC431B-4a	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 PDS1-18MYC-LEU2</i>
JRC431D-4b	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 PDS1-18MYC-LEU2</i>
JRC389A-6d	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2HTB2-mCherry-HIS5 SPC29-YFP-HIS3 CFP-TUB1-TRP1 MYO1-mCherry-HIS3</i>
JRC390A-5a	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2HTB2-mCherry-HIS5 SPC29-YFP-HIS3 scc1-73 TRP+ ade2</i>
JRC304	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 6MYC-CIN8::ura3::CIN8 ADE2</i>
JRC306	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 6MYC-CIN8-alaKEN::ura3::CIN8 ADE2</i>
JRC301	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 6MYC-CIN8::ura3::CIN8 ade2</i>
JRC303	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 6MYC-CIN8-db::ura3::CIN8-alaKEN ade2</i>
JR325	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 ade2 MET3pr-CLB2-kd::URA3</i>
JR326	<i>MATa bar1 CDH1 GALL-HA-ACMI-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 ade2 MET3pr-CLB2-kd::URA3</i>
JRC370A-6d	<i>MATa bar1 Clb2,kd trp1::TRP1::GAL1-SIC1(2X) HIS3:GFP-TUB1 SPC42-CFP::TRP1</i>
JR393A-2d	<i>MATa bar1 CDH1-m11 GALL-HA-ACMI-LEU2::leu2 trp1::TRP1::GAL1-SIC1(2X)</i>

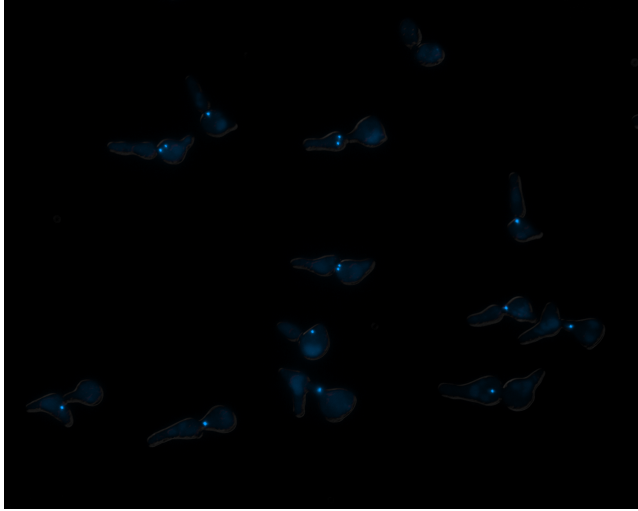
	<i>CLB2-ken,db SPC42-CFP::TRP1 HIS3::GFP-TUB1 MYO1-mCherry::HIS3</i>
JRC344F-12d	<i>MATa bar1 CIN8-GFP::URA3 SPC42-CFP::TRP1 acm1::KanMX</i>
JRC312A-5b	<i>MATa bar1 CDH1-pkm CIN8-GFP::URA3 SPC42-CFP::TRP1 acm1::KanMX</i>
JRC406B-4b	<i>MATa bar1 CDH1 GALL-HA-ACM1-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 mad2::KanMX ade2</i>
JRC406C-4b	<i>MATa bar1 CDH1-m11 GALL-HA-ACM1-LEU2::leu2 HIS3::GFP-TUB1 SPC42-CFP-TRP1 MYO1-mCherry::HIS3 mad2::KanMX ade2</i>
JRC379A-4d	<i>MATa bar1 CDH1-m11 GALL-HA-ACM1-LEU2::leu2 HT2B-mCherry-HIS5 MYO1-GFP-KanMX</i>
JRC379A-1a	<i>MATa bar1 CDH1 GALL-HA-ACM1-LEU2::leu2 HT2B-mCherry-HIS5 MYO1-GFP-KanMX</i>
JRC388A-5c	<i>MATa CDH1-11m HT2B-mCherry-HIS5 405-GALL-109 MYO1-mCherry::HIS3 SPC29-YFP-HIS3 CFP-TUB1-TRP1</i>

Supplementary Table 2

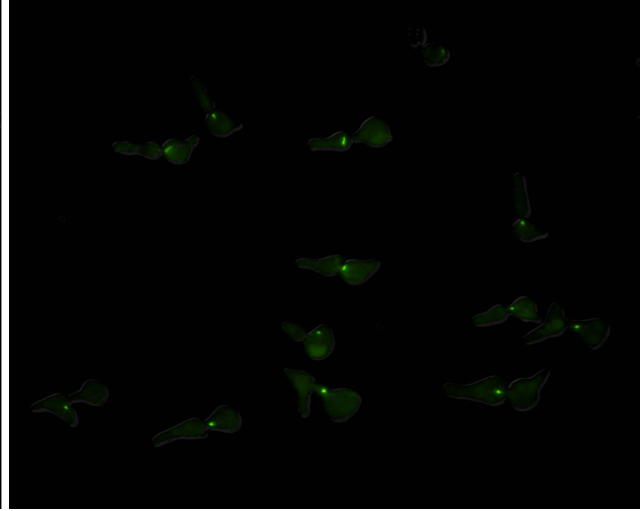
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JRP67	pRS 406 <i>CDH1-pkm (S125A-S259A)</i>	cut with BglII to integrate at CDH1
JRP90	pRS 406 <i>CDH1-pbm (S15A-S41A-S156A-S172A)</i>	cut with BglII to integrate at CDH1
406-HLP112	pRS 406 <i>GALI-3FLAG-ACM1</i>	cut with StuI to integrate at ura3
405-GALL-HLP109	pRS 405 <i>GALL-HA-ACM1</i>	cut with XcmI to integrate at leu2
DJC235	pRS404 <i>18MYC-CDC20</i>	cut with MluI integrate at CDC20
JRP87	pRS406 <i>6MYC-CIN8</i>	cut with PacI to integrate at CIN8
JRP88	pRS406 <i>6MYC-CIN8 alaKEN</i>	cut with PacI to integrate at CIN8
JRP89	pRS406 <i>6MYC-CIN8-KED</i>	cut with PacI to integrate at CIN8
JRP91	pRS406 <i>ACM1</i>	cut with StuI to integrate at ura3
JRP95	pRS406 <i>MET3-CLB2-ken,db</i>	cut with StuI to integrate at ura3

A**B****C****D**

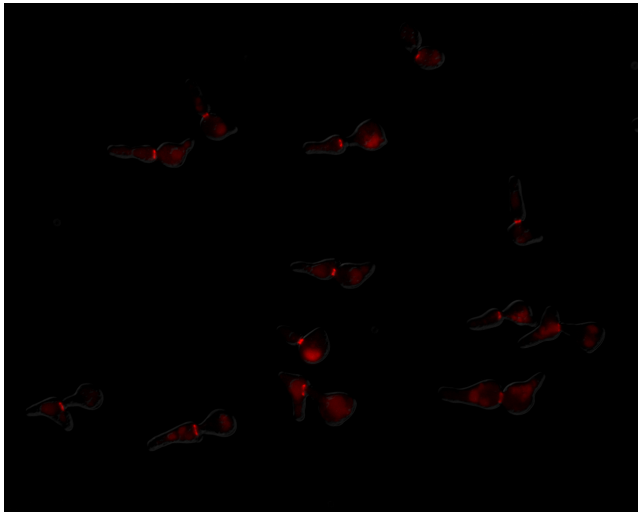
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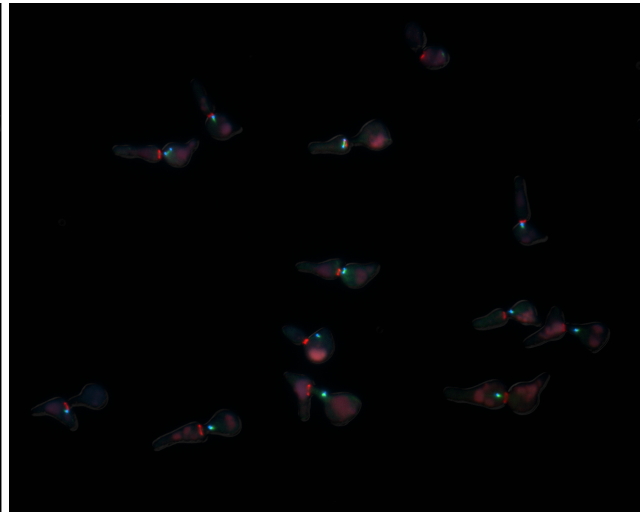
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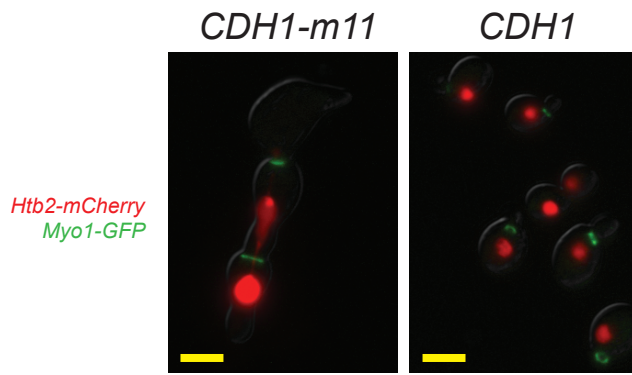
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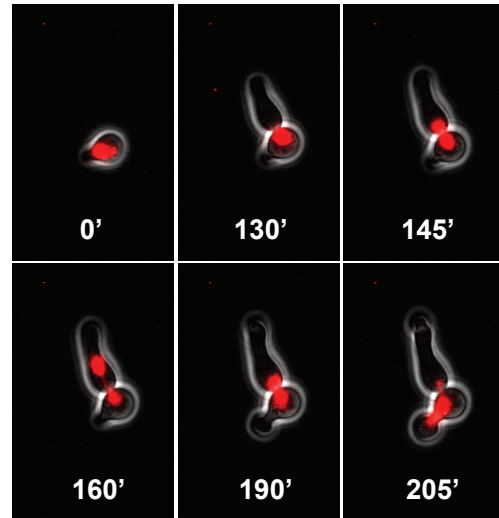
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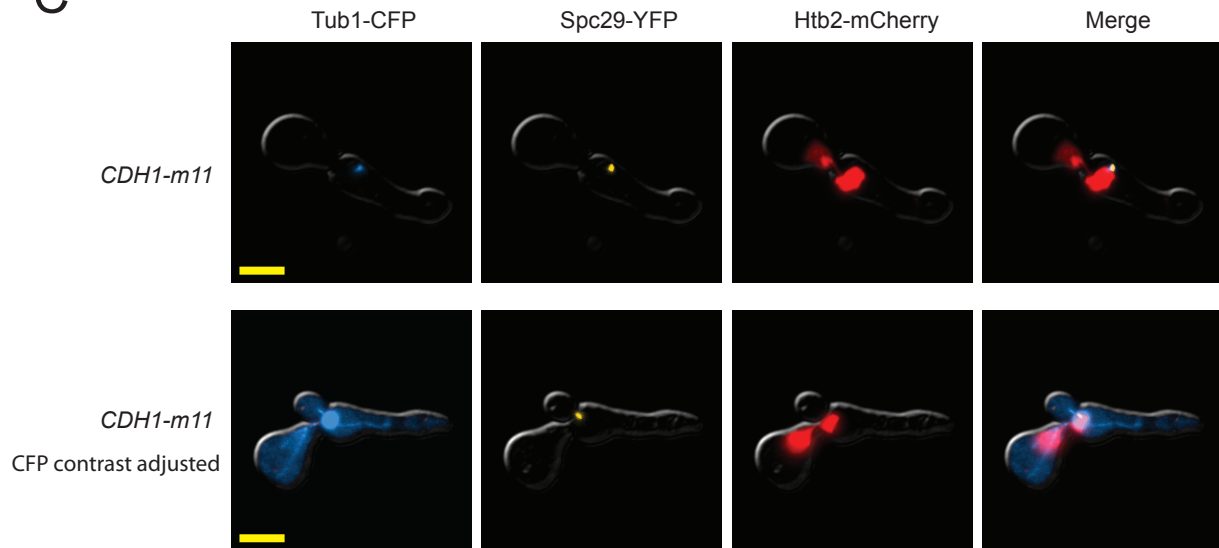
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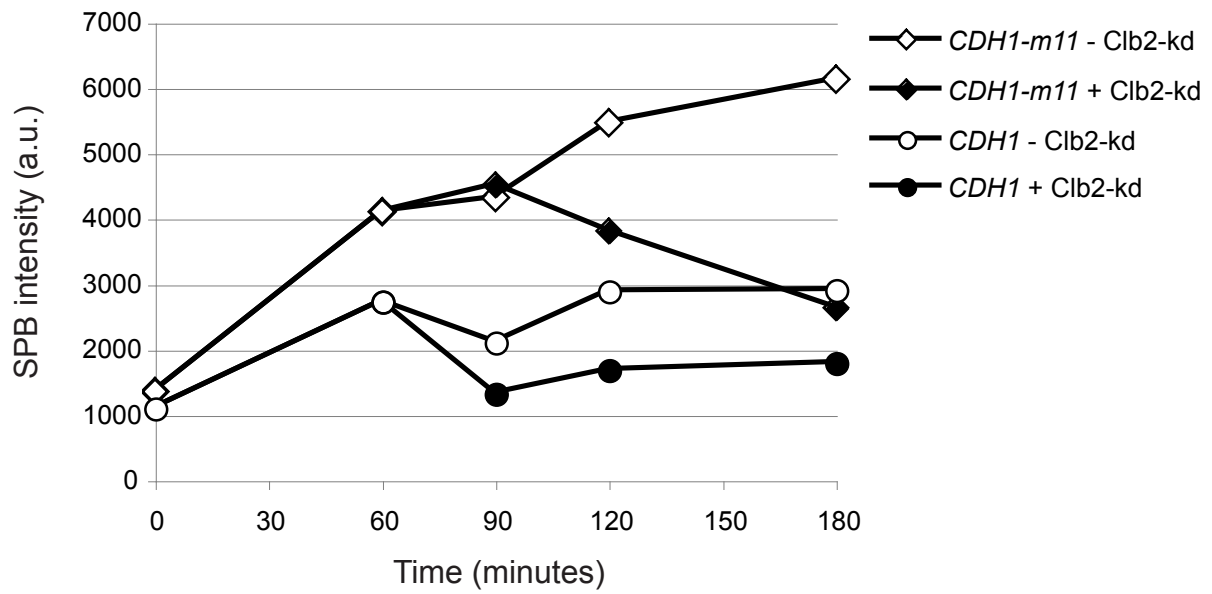


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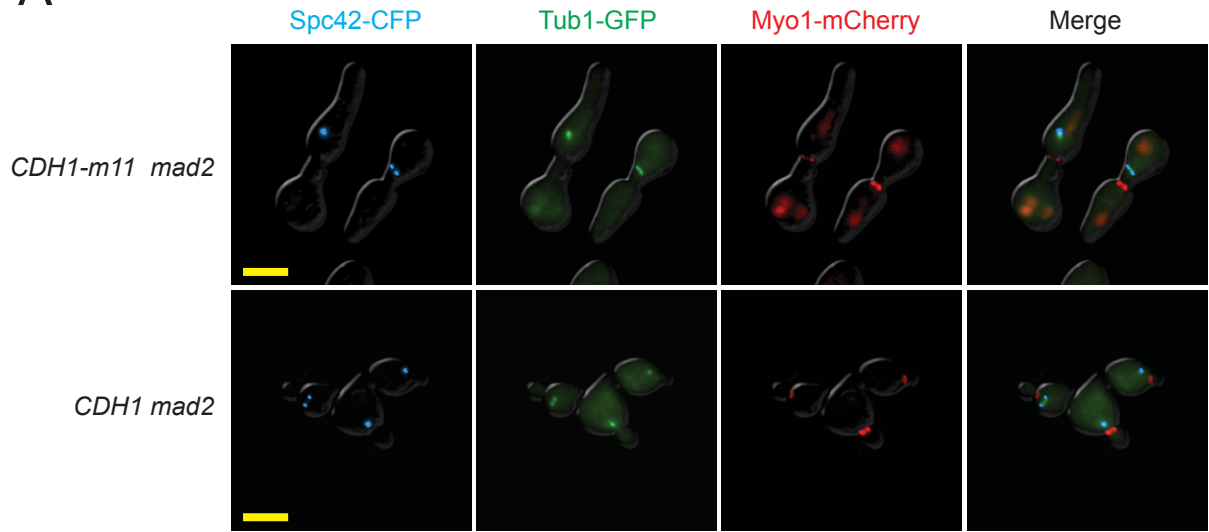


C





A



B

