Supplemental Materials

Molecular Biology of the Cell

Ren et al.

Supplementary figure legends.

Figure S1. Localization kinetics of Spa2. A) Images from a movie of a *spa2-GFP cdc15-mCherry sid4-RFP* cell captured at 2.5-minute intervals. Scale bar, 5 μm. B) Images at 5-minute intervals from independent representative movies (right and left panels) of *spa2-GFP cdc15-mCherry sid4-RFP* that were begun at different cell cycle stages. Scale bars, 5 μm.

Figure S2. Localization kinetics of Rgf3 to the CR. A) Live cell images of the indicated strain. Scale bar, 5 μm. B Montages of images a movie of the indicated strain at 4-min intervals. Scale bars, 5 μm.

Figure S3. Sequence comparison of Rgf3 homologs. Rgf3 sequences from the 4 indicated *Schizosaccharomyces* species were aligned with amino acid numbers corresponding to the last residue of each line provided to the right. Residues identical between all 4 proteins are in red, conserved residues are in blue, and the three Cdc15 and Imp2 SH3-binding sites are highlighted in cyan.

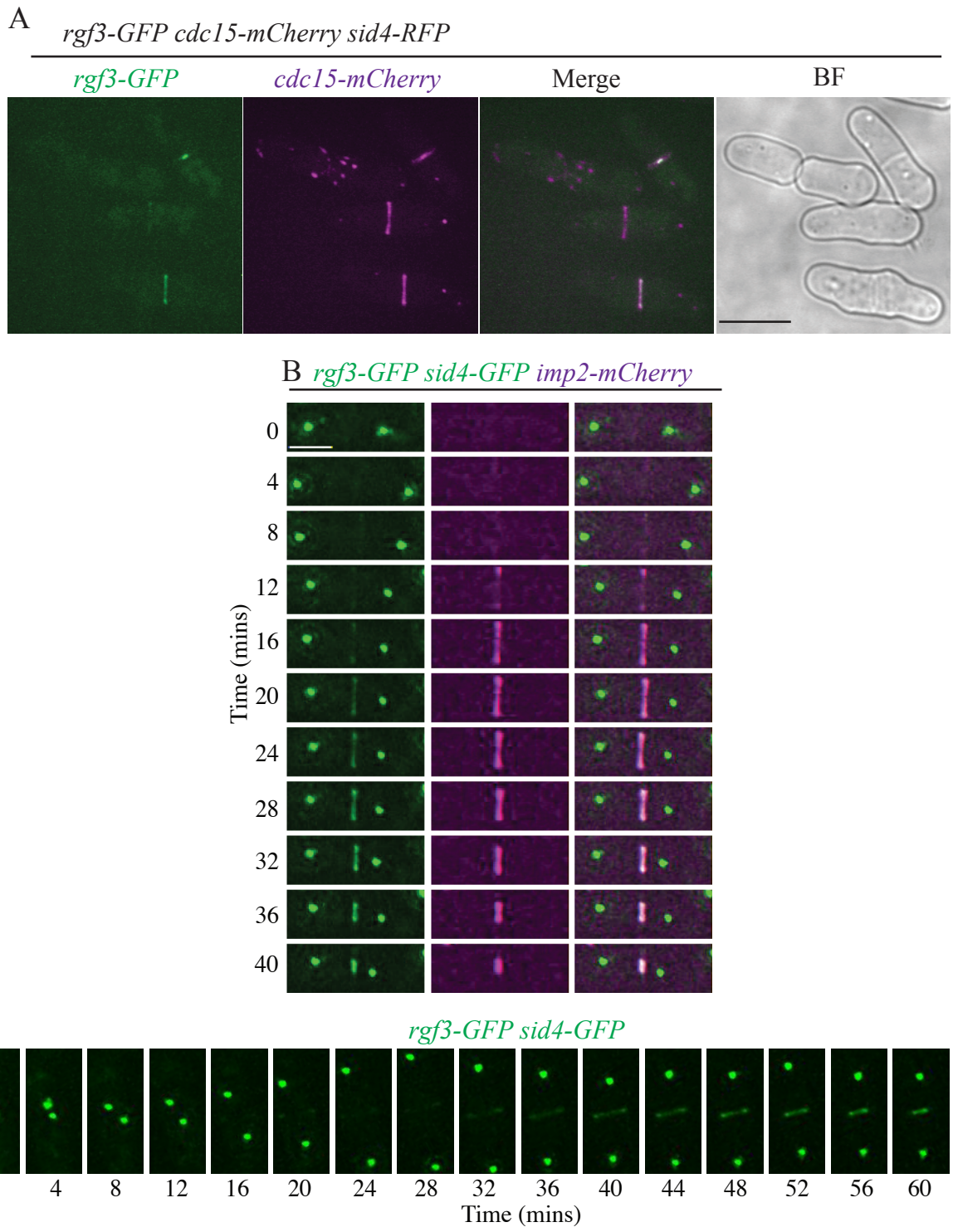
Figure S4. Characterization of Rgf3 and Spa2 association with Cdc15. A) All three predicted $Cdc15_{SH3}$ binding sites in Rgf3 at amino acids 154-160, 169-175 and 264-270 were mutated at their first proline position to alanines to make the 3PA mutant in a fragment of *rgf3* encoding residues 1-290 and tested for localization as GFP fusion proteins. Scale bar, 3 μm. B) *spa2*Δ cells were grown at 32˚C in YE medium, fixed and stained with methyl blue, and imaged. Scale bar, 3 μm. C) The growth patterns of wildtype (wt) and *spa2*Δ cells at 32˚C was assessed by staining the cells with calcofluor and determining the percentage of cells that were growing at one end (monopolar), both ends (bipolar), or undergoing septation. D) The indicated strain was grown at 25˚C and stained live. Scale bar, 3 μm.

Figure S5. Sequence comparison of Spa2 homologs. Spa2 sequences from the 4 indicated *Schizosaccharomyces* species were aligned with amino acid numbers corresponding to the last residue of each line provided to the right. Residues identical in all 4 proteins are in red, conserved residues are in blue, and the Cdc15 and Imp2 SH3-binding site is highlighted in cyan.

Figure S6. Pos1 and Spa2 localization dependencies. A) *pos1-GFP spa2*Δ cells were stained with 50 μM Mitotracker and imaged live. B) The indicated strain was grown at 25˚C and imaged live. Scale bar, 3 μm.

Figure S7. Genetic interactions among SH3 network components. A) Tetrad analysis of the indicated crosses with the relevant genotypes of mating partners indicated. Schematics of 3 tetrads are provided with the relevant genotypes of progeny indicated. Underneath, images of representative germinated spores or colonies of the indicated genotypes are shown. B) Top panel: The indicated strains were grown at 25˚C and shifted to 36˚C for 6 hours and the percent of cells that remained attached following septation were counted. $n \geq 300$ cells for each strain. Bottom panel: Representative

fixed and DAPI-stained images of the indicated strains are also shown from the 6 hour shift.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8
12
16
20
24
28
32
36
40
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rgf3-GFP sid4-GFP
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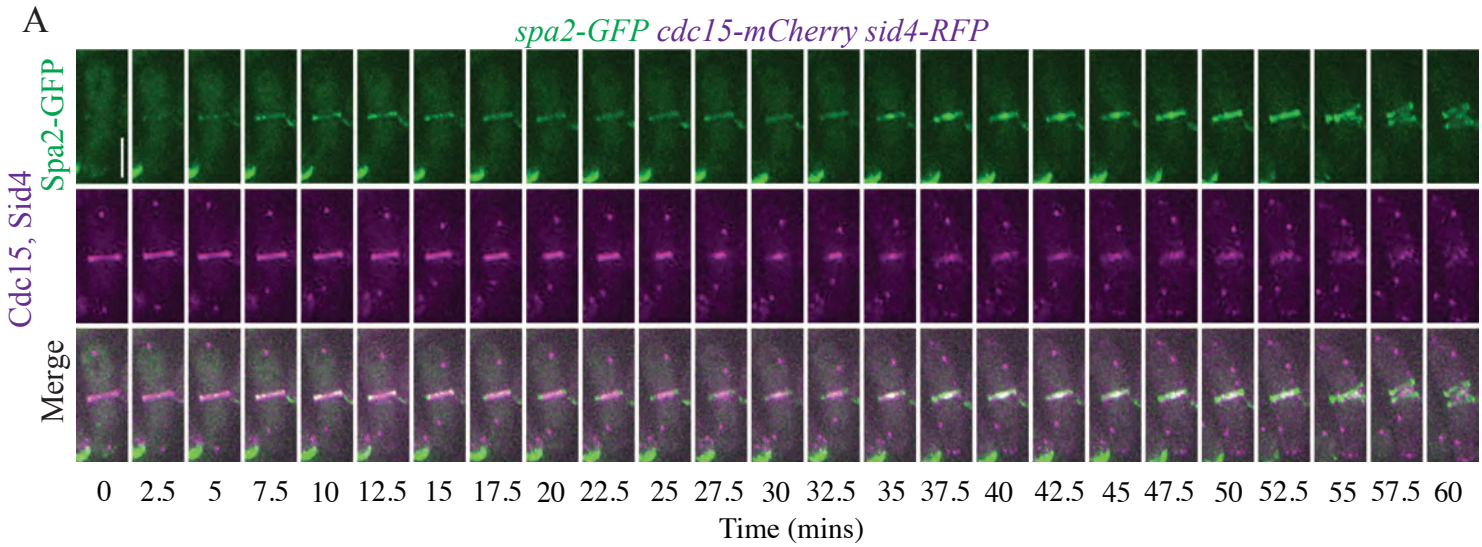
52
56
60
64
68
Time (mins)

Figure S1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Cdc15, Sid4
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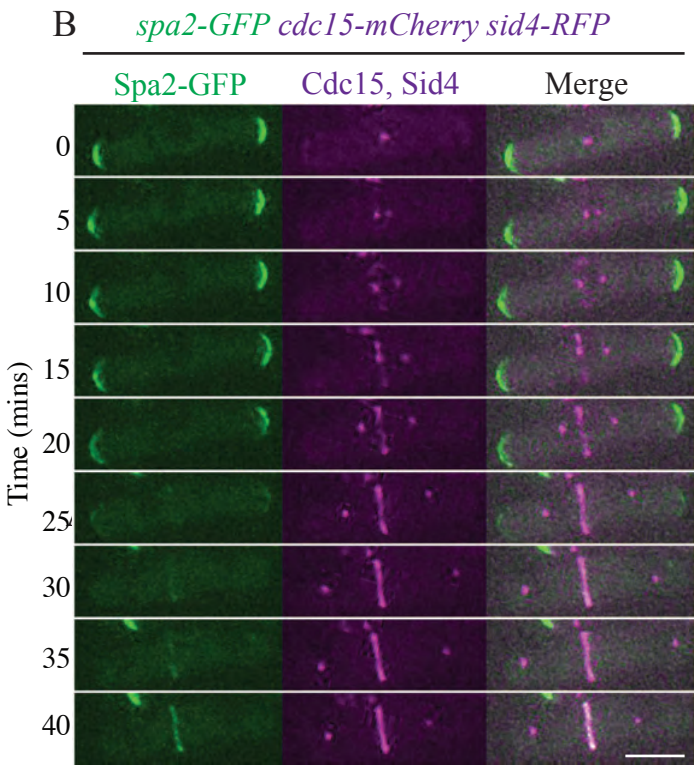
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Cdc15, Sid4
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Time (mins)
0
5
10
15
20
25
30
35
40

Figure S2

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S. pombe       MKLSNELFHR SSKDHGGKSR ICLDSSEDTY PPHSSSP--- ----PSFQKR LSFSDFSTTR LFSPPFLSKR SNNSPH-RFS 72
S. cryophilus  MKLSNDIFRK NSRDERRRKR TSIDYPDDFL ASPVSTP--- -NISPVSPKR LSISDFSSFR LFSSPFNSPK RYDSTHSRQL 76
S. octosporus  MKLSNDIFRK PSRHEHRNKR TSIDYPDDFL ASPVSTPSST PNTSPVSPKR LSISDFSSFR LFSSPFNSPK RHESTHSRRL 80

S. pombe       YSPPQHPASI NSRRVASYTV QSSPSRTTYR QLPNEPQNSA AYTTYSSFPN ALFDDFSPNN PLDTDPFLTS PGNKQNTVDS 152
S. cryophilus  PMTPQSSRLS PSRRTASYTV RSSPALPTTS S--VYSYDAD PNGTVSSFPN ALHSNFSPSD PLDTDPYLMS PGGQYT--DV 152
S. octosporus  PTTPERPRLS PSRRTTSYTV RSSPALPTMS S--NYLYDAD PNGTVSSFPN ALHTNFSPSD PLDIDPYLMS PG---T--DA 153

S. pombe       FRPLPETPVS PGGSLVHPLP RPPLPSSVSS HSSPYSTTSS TSLYSLYNDI SLSCSPEPYL PLSPTRSPAR TPSPIRLYSS 232
S. cryophilus  HRPLPETP-S PTSPTSHPLP RPPLLNTHSN NSSPYSSSSS NSFYTLYNEL PLSFSPEPYL PLSPTRSPSR STSPFRTAMN 231
S. octosporus  HRPLPETP-S PTSFVTHPLP RPPLLSAHSN NSSPQSTSSS NSFYSLYNEQ PLSFSPEPYL PLSPSRSPSR STSPFRTAIN 232

S. pombe       DALRPQSP-- ------LSPS VEYLTP-PNP YSLKS---DI SSTRQLPKIP VQDYASGKIS SPLITRTHRR AQSETLFSSC 300
S. cryophilus  EADNYSLSHI DSFGCWSDPS FTDLTSSPSP ANFPSPSQEL HISRELPKVP VQQYTSGEIS SPLVSRSSRA TQANALFSSC 311
S. octosporus  DANVNSVSQR DSYGYWSDPS FTDLTSSPSP VSFSSPNKEL HIPRELPKVP ARQYASGDIS S LMSRSSRP TQANALFGSC 312
S. japonicus                                                                                  MKC 3

S. pombe       REPWLVGKLY KWCKEEVFTA LGGLVHEGVS RREVAQVMAT LFTIHIASME FLIAEIIAKN ILGDWINYGL VEVINLEKLQ 380
S. cryophilus  REPWSLKRLF SWCKEEVFPA LSATTTDGAP RQEVAQIMAI LFTMSVASMD FLIAEVLAKN IISDWIQNGY MKVTNLEKLY 391
S. octosporus  REPWSLKKLF MWCKEEVFPA LSATTIDGAP RQDLAQIMAM LFTISVPSMD FLIAEVLAKN IISDWIQNGF MKVINLEKLY 392
S. japonicus   RDPWSLNSLY KWCRDVLAPL MVKQEEGGYY HYEVAQAMAT LFTLRIPKLD FLLAEMLAKN ILIDWIREGV VNVLNFEKLL 83

S. pombe       IAFTSNEPPS GSGVLPFLTN GGCYSYICRS RSCPSKYQCY SCRCARNSSL EFTSLPGQ-S SDTWSIFWNI SSLNSLPSSL 459
S. cryophilus  ITFVDDQFPS SSGVLPILTN GGCYSYTCRS KASSSNYTCY SCRCVRIPAH RLTSTQGDFC DDSWNMFWNL SPQDSLPSSL 471
S. octosporus  ITFVDDEFPS NGGVLPILTN GGCYSYTCRS KSTSSKYTCY TCRCVRKSTN GLTRSQGDTS DDSWNMFWNL SPQDSLPSSL 472
S. japonicus   IEFNHKEDLE HAGVLPALTT GGCYSYTCCS QDRSDKCACY SSRCLHSPLQ KCFENAD--L SNSWNNYWNL PLSDELPGLL 161

S. pombe       SKREIARQNN IHELICKESD YVADLNTLAE LFRDGIVQQQ DAIVPSNRVA DFIQSVFGNV ESIRQLHSRL FLPQLIMRER 539
S. cryophilus  TKKEVARQNN IHELICKESD YVADLHTLAE LFRDGIVQE- NSIVPSNRVA DFIQSVFGNV ESIRQLHSQF ILPQLIIRER 550
S. octosporus  TKKEVARQNN IHELICKESD YVADLHTLAE LFRDGIVQE- NSIVPSNRVA DFIQSVFGNV ESIRQLHSQF ILPQLIIRER 551
S. japonicus   TKKEITRQNN IHELICKESE YVADLDSLAD LFRDGLLKSE TDIIPLGRLA DFIQSVFGNV ETIRTIHSHR FLPQLLVREK 241

S. pombe       LQGPVVSIIG DILLEWIHAA KSSYINYAKQ FPLADETYKL ECQRNTYFAR WLAACRSDPR CRRLDFQHFL QRPTQRLQRY 619
S. cryophilus  LQGPVVSLIG DILLEWIQMA KVSYINYAKQ FPLADETYKL ECQRNTYFAR WLATCRSDPR CRRLDFQHFL QRPTQRLQRY 630
S. octosporus  LQGPVVSLIG DILLEWVHLA KTSYINYAKQ FPLADETYKL ECQRNTYFAR WLASCRSDPR CRRLDFQHFL QRPTQRLQRY 631
S. japonicus   LQGPIVSSIG DVILEWIRVA RDGYINYARQ FPLADETYKF ECQRNTCFAK WLAGCRMDPR CRRLDFQHFL QRPTQRLQRY 321

S. pombe       TLELDTILKH TEQSSWDFQL ITQAVKELRA TCEECDAVIA TVLEANRIRD LSYQLLFKNH ESVNLELRDP EREFFFEGIV 699
S. cryophilus  TLEWDTILKH TDPTSWDYQL ISQAEKELRA TCEECDAVIA TVLEANRIRD LSYQLLFKNH ESINLELRDP EREFFFEGPV 710
S. octosporus  TLEWDTILKH TDPTSWDYQL ISQAEKELRA TCEECDAVIA TVLESNRIRD LSYQLLFKNH EGINLELRDP EREFFFEGPV 711
S. japonicus   TLELNTILKH TDPESLDYKF LTQALKDIRA TCEECDAVIA TVLETNRIRD LSFQLLFKNN EHVNLDLRSP LREFFYEGEV 401

S. pombe       QRRSDSRLDW LDIHLFLLDN YLIMAKARKD KRTNASRYVV SKRPIPLDLL VLSPKMDDFQ LKSNTNKFLG SLAGNLPQE- 778
S. cryophilus  FRKSESRLDW IEIHIFLLDN YFIMAKPRRD KRTNAMKFLV SKRPIPMDLL VLNPLTEEWN SRNSSNKFLG SLTGNFPYDG 790
S. octosporus  FRKSESRLDW IEIHIFLLDN YFIMAKARRD KRTNSMKYLV SKRPIPMDLL VLNPLIEEWN SRSS--KFLG TLASNFPYEG 789
S. japonicus   LRKSNSRLEW LNIHLFLLDN YLVMTKVKRE RKSSATKYLV SKRPIPLDLL VVERIDDLSL HRSSPSRMFG NFSLTTSEGT 481

S. pombe       SLTTKSKRKS KV--NLELMF DATAEKNNEN SMNSAVFEKS QLYPFTIRHL GAYTASYTLY VESLQLRKLW VEKINVAKKR 856
S. cryophilus  STNVRSKRKS RL--NLDILY DYNSDKMNEG SLNTLALEKQ HFYPFTVRHL GGLSSTYTLY TESLQLRKLW MDKINFARKR 868
S. octosporus  SLNARSKRKS RL--NLDIRN DYNSDRMNED SWNNLTPEKP HFYPFTVRHL GGLSSTYTLY TESSQLRKLW MDKINFARKR 867
S. japonicus   FRTRRSSMRL NKFQSQSTLS EKHKRSNSDN TLSPGRSEKQ QLFAFAVRHL GRTPMTYTFY TETAQARKIW IEKLNFAQKR 561

S. pombe       HSQKINIKNP FALKVVSDVA FQYPPSDLVN GNEPLNSFNE ITLVEGSSID RALNEVAWKH PIVSEELLPE PIAYGDISCI 936
S. cryophilus  HAQKMHKKSP FALQIVSDVS FQYPPADLSH TFESSSRSPE ISLVEGSAVD RALTMAAWRY PIHNEDDLPE AINYGDITCI 948
S. octosporus  HAQKMHRKNP FTLQIVSDVS FQYPPADISG TLDSSSRSPE ISLVEGSVVD RALTMAAWSY PIHNEDDLPE AINYGDITCI 947
S. japonicus   HAQKQHDKVP FAAKVLSDVL FKDTSDGPYF NSSSQDSSAK IDLVEGSVVD RALQEASWKY PIPTAGDLPN AIASGPVFSI 641

S. pombe       AQFNDYEGHV SVLIATSTGI FLGAFGDSSD IRDWKKISSQ RRVTQLGVVE EFDILLELRD KTLYAHKLSR IIEMGLIESK 1016
S. cryophilus  AQFGGADGKL SICIATTTGV FLGSFGGNSN IREWRKISSH RRVMQIGLLE EFDCLLELRD RSMYAHKLSR VIETGTLEPK 1028
S. octosporus  SQFGGTDGKL SICISTTTGV FLGFFGGNSN IREWRKISSH RRVTQIGFLE EFDCLLELRD RSMYAYRLSR VIESGTLEPK 1027
S. japonicus   AQFCLEGNTV SFFAATCNGV FYGEHGKDKD IRSWRKVFDH RRVTQLGVLE EFDLLLELRD KTLFAHKLSQ IIELTNPEPF 721

S. pombe       I----AVVIG TPHAVSFFKI GKLSEGASVK RERTLVFYKE GLGNTTTIIC CEPVIGLGHN YQKTYAFKRK DVTSFRTLDD 1092
S. cryophilus  V----AIPVG TSHNISFFKI SKLTEGASIK RERTLIFFKQ GSGNASSIHC CEPVVGLGHH NQKAYNFKQK NVSSFRILEE 1104
S. octosporus  V----AIPVG NSHNISFFKI SKLTEGASLK RERTLIFFKQ GSGNSSSIHC CEPVVGLGHH NQKAYNFKLK NVSSFRTLEE 1103
S. japonicus   VERGTAQVLG TPHAVSQFKI AKVEEGSLLK RSRTYILYKE MTGTFTFIRC CEPVVGFGHN YQKAYGFRQK DVISFRVVDQ 801

S. pombe       FHVTANCHSI DCFKYSIALC HNKGIDVLRL DPKLAVGFPS PSVLNDTLFR NRINNSKPLG VFRIHDPSLF ACCYQFGAVF 1172
S. cryophilus  FRVLADCYSM NCFKYSIAIS RQKGIDIVRL DPKLAVSFPS PSVLTDPFYR SRLNNSKPLG VFRVHDSTIF ACCYHNGALF 1184
S. octosporus  FRVLADCYSI NCFKYSIAIS RQKGIDIVRL DPKLAVSFPS PSVLADPLYR SRLNSSKPLG VFRVHDPAIF ACCYQTGALF 1183
S. japonicus   FQVTNDTSFA NVFKYSFAVT NSKGIEVIRL DPKLRNNIPS QVSLYDSPAR NFAMSSKPLS LLRTSKRGIF ACCYETGAFF 881

S. pombe       VNGEGSMVNK ECWFDWIGKP NSVTSCHGYL IAFNDEFVEI WNTRTRKLNQ IIQGNDIKYY PSNSDWLANG KYIMFGMVHP 1252
S. cryophilus  VNGEGSLIKK DAWLQWIGRP NSVACYEGYL LAFSDDFIEI WNSRSMKQVQ VIQGNNIRLH ASNSDLLSDG KHVMFSMTHP 1264
S. octosporus  VNGEGSLIKK DAWLPWIGRP NSIACHEGYL MAFSDDFIEI WNSRSMKQVQ IIQGNNIRLH SSNSDLLPDG KHVMFSMTHP 1263
S. japonicus   VTSEGQLTRT TEFINWLGTP EHVCMVGDYL LSFDKNFVEI WSTETLQLEQ IIQGNSIQYH PSGSEWHPSG IMPVFSMTHP 961

S. pombe       QYHDRHLILA LNKAKTNSFI IED 1275
S. cryophilus  QFHDRHLILA LDLVKEENLM DV  1286
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S. japonicus   VYPDRRLIMA LELTKLGNEL P   982
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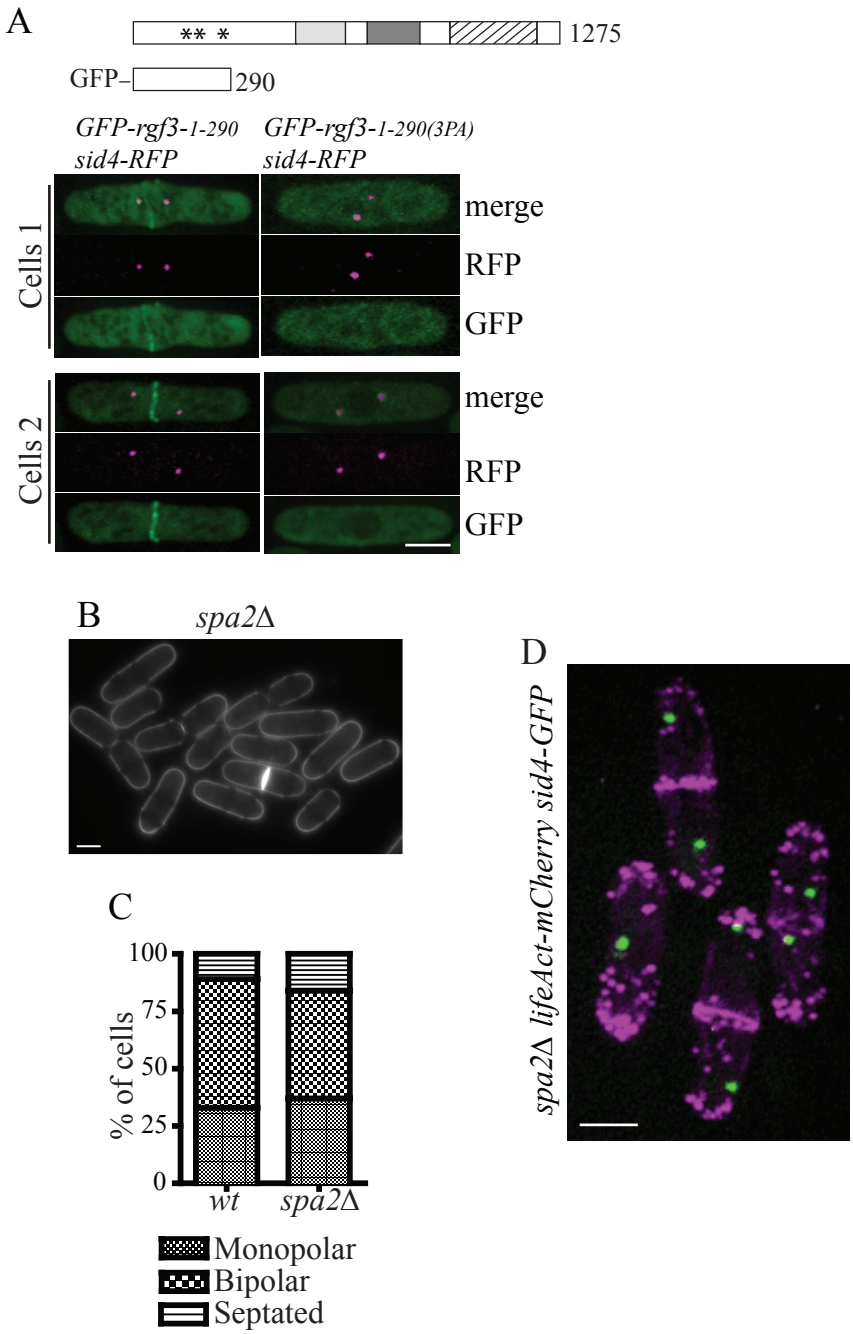
Figure S3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** *
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sid4-RFP
GFP-rgf3-1-290(3PA)
sid4-RFP
Cells 1
merge
RFP
GFP
Cells 2
merge
RFP
GFP
B
spa2Δ
C
100
75
50
25
0
% of cells
wt
spa2Δ
Monopolar
Bipolar
Septated
D
spa2Δ lifeAct-mCherry sid4-GFP

Figure S4

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S. pombe       MQSIIIRQYR FLARYLEPEF VKDPALRNAN ARPREKLQRL SHIQFSELLT DVADELQRRI NNDPKVRFLP PVDSYHPKRN 80
S. octosporus  MQNIIIRQYR FLAKYLEPEF FKEPALRNAN ARPREKLQRL SHVQFSELLT DVADELQRRI NNDPKVPFLP PVESYHPKRN 80
S. cryophilus  MQNIIIRQYR FLAKYLEPEF FKEPTLRNAN ARPREKLQRL SHVQFSELLT DVADELQRRI NNDPKVPFLP PVESYHPKRN 80
S. japonicas   MRSIIIRQFR FLSRYLEPEF ARDPNL--VN SRSREKLQRL SHSQFNELLT DVSDELHRRI NNDPNIPHLP SVDTFHPKRN 78

S. pombe       HARQKLSSLA PTRLRDLCMD VFFEVQSRYS GALKEVSSNT P-PNMTRAAS QPPPQVQRLP ASAPKHDLYS SANASSASLH 159
S. octosporus  HARQKLASLA PSRLRDLCMD VYFEVQARYG NALKEVDTPT SLAQPSRTNS HPQVASQRNP SATHGVKAEG S---SSSSLH 157
S. cryophilus  HARQKLASLA PSRLRDLCMD VYFEVQARYN NALKEVDTTP TMAQPNRTIS HPQLSSQRST QAAHGSKIEG P---SSSSLH 157
S. japonicas   HARQKMSTLA PLRLRDLCID VFFELQTRYP AVVAESPSNV SSSSLPNSSG APRTPTNATA SNASTASLGK A---SSPQYM 155

S. pombe       PTEQRTTSSP TIPSYANRTH TDSPTSLSHR LPNVP----D TNALNTVQAN NSSTSSLSQG AQTGIDSSSN YLSRIEMLES 235
S. octosporus  PSERRTTSSP NVV-NSKIAS REAPSSSSHA LPMVP----D AAPKSP---P HRVAE----- -----DSTTK YLAKIEMLEN 219
S. cryophilus  PLDRRTTSSP NVV-YPKKAS RETPSPSSHA LPMVP----D ATPKSPHRAP VPQTE----- -----DSPSK YLAKIEMLEN 222
S. japonicas   PATTAINTNQ PPRLPTPSSS SPSVSNMPHR LPKAPHGRED VSIESSYMTS PTASPSQQQA IPVRSESPTK FLSRIELLES 235

S. pombe       SLAKSNSLLD SSKSEMEALK AKSISDATKH KNEIFQLEEK LHEASHEAEI SIKKLNDAEN RIKEL----- ------ENNP 304
S. octosporus  NLAKSNSLLD VSKSEIESLK AKLNSEAVHH KSRMFNMEEK LHEASLQITT LNEKLKESQL T--------- ------RSTS 284
S. cryophilus  SLAKSNSLLD ISKSELEALK TKLNSEAVHH KGQLFNMEEK LHEMSLHVTT LNEKLKEAQN Q--------- ------RSSS 287
S. japonicas   NLAKANSLLD ANKAEMEAMT RQHTADQAKH KNELFQLEDK LHEAVHEKTT LSSQLEAAQK KIEELTKEVE KVNAAAEERQ 315

S. pombe       TLSFNPELEK NLKLMQELIV AESSKTQHIV ELESCIDSLK AETERWKKVA INAK-----S AKIDEDIRLF TMTTVPMKSI 379
S. octosporus  PAGVDGEFEK SLKMMQGLIL SETTKVHHIN ELEKSFEAQK DETERWKRVA INAK-----A SKIDDDVRLF TMNTIPMKTV 359
S. cryophilus  PGGLDSEVER SLKMMQGLIL SETAKVHHIN ELEKSFEAQK GETERWKRIA INAK-----A SKIDDDVRLF TMNTVPMKTV 362
S. japonicas   TKRGNMELEE HLSQMRMLIQ AESKHLNELD EMQSQLERVK RESFQWKEKY YQVKLQNESA SKVDATACLF QNPPVSPETL 395

S. pombe       RELISPNGFL DEQLYIRYFV EMNVFVASLR RDSPSQWMST AKDIALTLEA IVSSLREKSL LEELPDLGKK VDDLCSFTNS 459
S. octosporus  RELVSPNGIV DEQLYVRYFV EMNVFMSSLR KDSPSQWMLT AKDIALTLEA IVSGLREAVL TKELLGLGSS IDDLCTFTNN 439
S. cryophilus  RELISPKGIV DEQLYVRYFV EMNVFVSSLR KDNPSQWMLT AKDLALTLEA IVSSLREAAL SDELPDLRSS IDDLCTFTNN 442
S. japonicas   DKCTSDDGVF NRKDFVRYLF EMNEFIAATR SENSSQLLTK MKSLAIVLDT LATQAREKSF ADS-SELMKH MDEVYIHADT 474

S. pombe       LMEQVRLAVI NGALLPIYHV DASACSISIS LMDIAKTYGL TNTGKSSLSV GRNSLHPVDD LKALSVAKTL LSEKSKQFSE 539
S. octosporus  LMQQVRVASS NGAF-PISHI DASACSISIT LSEIVKKHGL LDSGKSSASY ARTSLHPVDD LKSLSAAKTI LGDKTRRYNE 518
S. cryophilus  LMQQVRVTSS NGAL-PIGHI DASACSISVA LLEIVKKYGL LDSGKSIASY ARTSLHPVDD LKALSAAKVI LADKTRRYNE 521
S. japonicas   LMLQVRNFAI NKGLTPLLHI DATAYTLSSV LINIVKQHQL HPDEMTRSSR G-DGTRAVNQ VETLSHVKEI VSKETDNLVA 553

S. pombe       TNQKLLDAIS SDSSSSTIQQ RVHEDINVIR DTLFDVSSPL ELMRDRAAYA VIHNALQEMR RYCMQLIEQE GHGENFGFTD 619
S. octosporus  VNQHLLNAIS DGRATYEVQQ LIHVLTSIIR DTLFDVSAPL ELMRDRNAFG IIHVSLQELR KCCMLLSDYE NQEQ----PS 594
S. cryophilus  VNQQVLNAIS DGRATYEVQQ LIHISTSIIR DTLFDVSAPL EMMRDRNAFG IIHVSLQELR KSCMLLCEYE RHEQ----PS 597
S. japonicas   GVQALVDSVH EHRSQADVYE GVRNIAAIVR DVLFDITPLV NQVSAFVDAS TVHDTLKALR DNRLRLLDAQ DFDK------ 627

S. pombe       NNSVPPLTDL AFSAAKCFKD ILRAIEDAEF SVQRTQFSTR 659
S. octosporus  DPTIPPLTDL AFSTAKCFKN ILRSIEDAEF TVQKTQFSNK 634
S. cryophilus  DSTIPPLTDL AFTTVKCFKN ILRSIEDAEF TVQKTQFSSK 637
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Figure S5

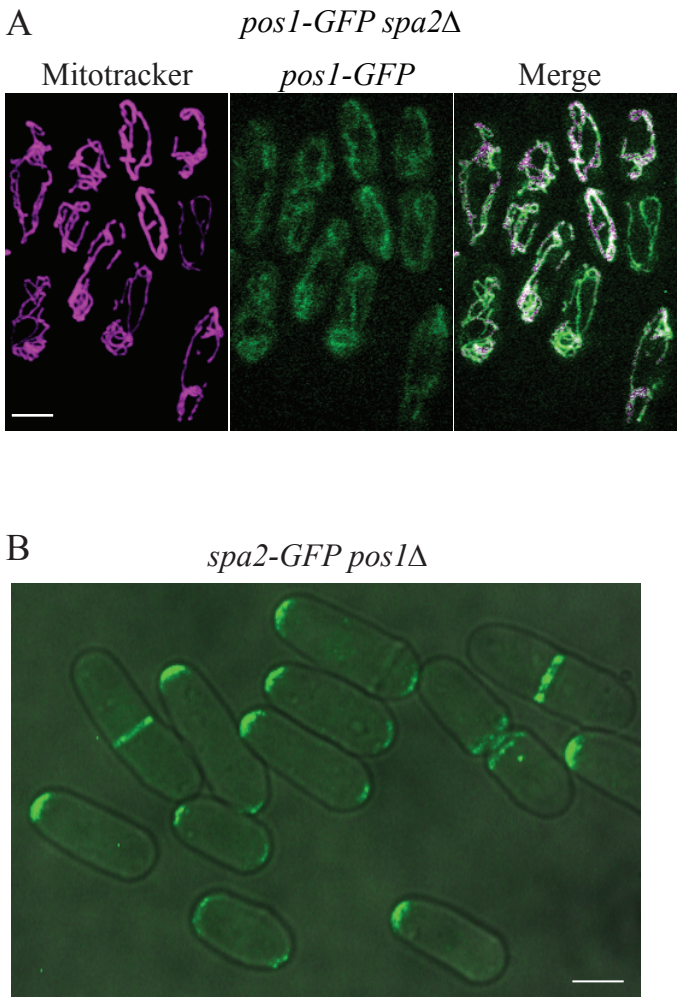
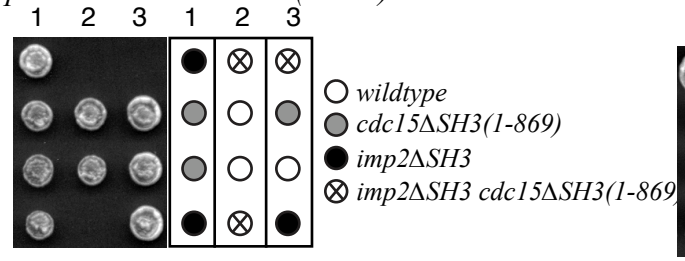


Figure S6

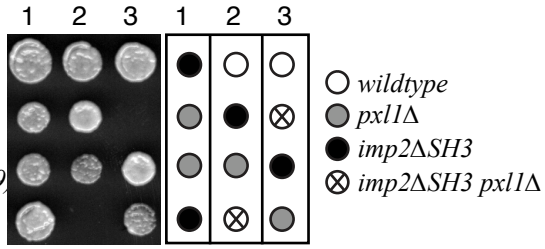
A

imp2ΔSH3 x cdc15ΔSH3(1-869)

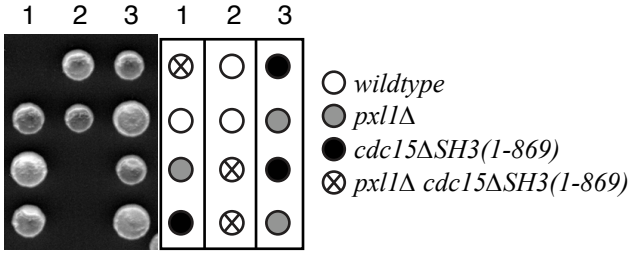


imp2ΔSH3 cdc15ΔSH3(1-869)

imp2ΔSH3 x pxl1Δ

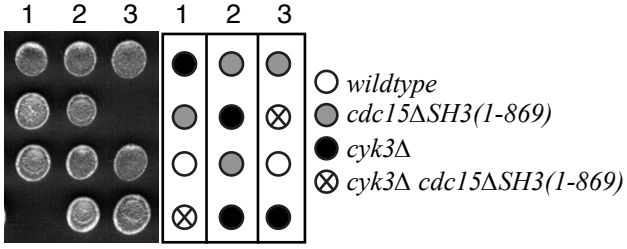


pxl1Δ x cdc15ΔSH3(1-869)



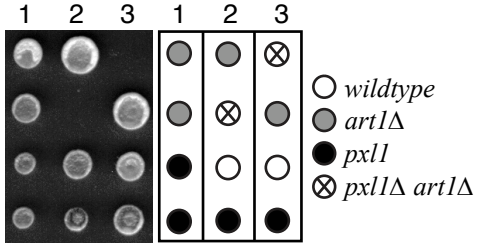
pxl1Δ cdc15ΔSH3(1-869)

cyk3Δ x cdc15ΔSH3(1-869)



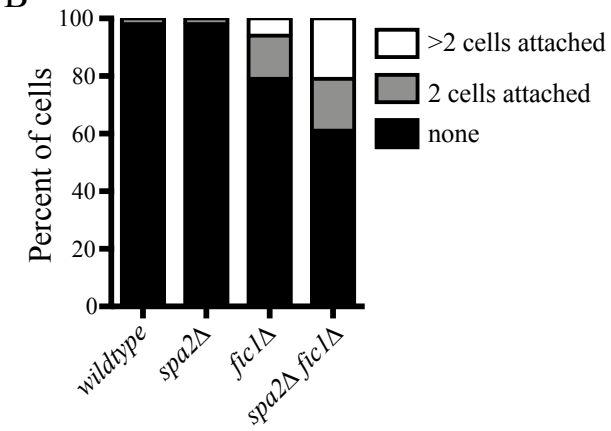
cyk3Δ cdc15ΔSH3(1-869)

pxl1Δ x art1Δ



pxl1Δ art1Δ

B



spa2Δ fic1Δ, 36˚C

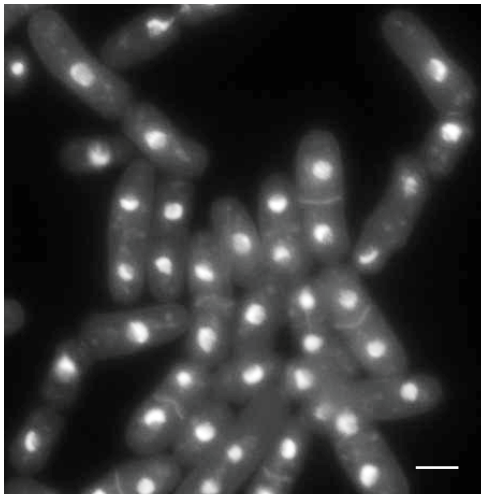


Figure S7

TABLE S4 *S. pombe* strains used in this study

Figure 2		
KGY4401	*rgf3-MYC$_{13}$:kan^R ura4-D18 ade6-M210 leu1-32 h$^-$*	Lab stock
KGY6894	*spa2-FLAG$_3$:kan^R ura4-D18 ade6-M210 leu1-32 h$^-$*	This study
KGY7654	*rgf3-TAP:kan^R nda3-KM311 ade6-M21X leu1-32 ura4-D18 h$^+$*	Lab stock
KGY6919	*spa2-TAP:kan^R nda3-KM311 ade6-M21X leu1-32 ura4-D18 h$^?$*	Lab stock
Figure 3		
KGY11545	*spa2-GFP:kan^R cdc15-mCherry:kan^R sid4-RFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study
KGY11704	*spa2-GFP:kan^R cdc15-mCherry:kan^R nda3-KM311 ade6-M21X ura4-D18 leu1-32 h$^?$*	This study
KGY15778	*cdc15-mCherry:kan^R spa2-GFP:kan^R ade6-M21X ura4-D18 leu1-32 h$^?$*	This study
KGY14225	*spa2-mCherry$_3$:kan^R sid4-RFP:kan^R Imp2-GFP:kan^R ade6-M21X ura4-D18 leu1-32 h$^?$*	This study
KGY6670	*sid4-GFP:kan^R fic1-GFP:kan^R ade6-M21X leu1-32 ura4-D18 h-*	Lab stock
KGY7970	*cyk3-GFP:kan^R sid4-GFP:kan^R leu1-32 ade6-M21X ura4-D18 h-*	Lab stock
KGY16760	*pos1-GFP:kan^R sid4-GFP:kan^R leu1-32 ade6-M21X ura4-D18 h$^?$*	This study
KGY16759	*pxl1-GFP:kan^R sid4-GFP:kan^R leu1-32 ade6-M21X ura4-D18 h$^?$*	This study
Figure 4		
KGY9004	*rgf3-GFP:kan^R sid4-GFP:kan^R cdc15Δ(1-752)-FLAG$_3$:kan^R ade6-M210 ura4-D18 leu1-32 h$^+$*	This study
KGY9007	*rgf3-GFP:kan^R sid4-GFP:kan^R imp2ΔSH3-FLAG$_3$:hyg^R ade6-M216 ura4-D18 leu1-32 h$^-$*	This study
KGY9012	*spa2-GFP:kan^R sid4-GFP:kan^R cdc15Δ(1-752)-FLAG$_3$:kan^R ade6-M216 ura4-D18 leu1-32 h$^+$*	This study
KGY9014	*spa2-GFP:kan^R sid4-GFP:kan^R imp2ΔSH3-FLAG$_3$:hyg^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study
Figure 5		
KGY1296	*PJ69-4A MATa trp1-190 leu2-3,112 ura3-52 his3-200 gal4Δ gal80Δ LYS2:GAL1-HIS3 GAL2-ADE2 met2::GAL-lacZ*	Lab stock
KGY11936	*rgf3- GFP:kan^R sid4-RFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study
KGY16185	*rgf3-3PA(P160A P172A P267A)-mGFP:kan^R sid4-RFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study
KGY16265	*rgf3-GFP:kan^R sid4-RFP:kan^R nda3-KM311 ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
KGY16266	*rgf3-3PA(P160A P172A P267A)-mGFP:kan^R sid4-RFP:kan^R nda3-KM311 ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
KGY15643	*rgf3-3PA(P160A P172A P267A)-mGFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^+$*	This study
KGY246	*ade6-M210 ura4-D18 leu1-32 h$^-$*	Lab stock
Figure 6		
KGY15974	*spa2-GFP:kan^R ade6-M216 ura4-D18 leu1-32 h$^-$*	This study
KGY15754	*spa2-P191A-GFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study

Figure 7		
KGY16300	*rgf3-FLAG$_3$:kan^R ura4-D18 ade6-M210 leu1-32 h$^+$*	This study
KGY2030	*lad1-1 ura4-D18 leu1-32 ade6-M210 h$^-$*	Lab stock
KGY14544	*art1::kan^R ura4-D18 ade6-M210 leu1-32 h$^+$*	This study
KGY14669	*art1::kan^R lad1-1 leu1-32 ura4-D18 ade6-M210 h$^?$*	This study
KGY4407	*rgf3-GFP:kan^R ade6-M210 ura4-D18 leu1-32 h-*	This study
KGY14592	*rgf3-GFP:kan^R art1::kan^R ura4-D18 ade6-M210 leu1-32 h$^?$*	This study
Figure 8		
KGY16002	*spa2::ura4$^+$ ura4-D18 leu1-32 ade6-210 h$^-$*	This study
KGY11170	*spa2::ura4$^+$ cyk3::ura4$^+$ ade-M21X leu1-32 ura4-D18 h$^+$*	This study
KGY10855	*spa2::ura4$^+$ fic1::ura4$^+$ ade-M21X leu1-32 ura4-D18 h$^+$*	This study
KGY7490	*cyk3::ura4$^+$ ade6-M21X leu1-32 ura4-D18 h$^-$*	Lab stock
KGY6008	*fic1::ura4$^+$ leu1-32 ura4-D18 ade6-M21X h$^+$*	This study
KGY6004	*crn1-GFP:kan^R h$^-$*	Fred Chang
Figure 9		
KGY8379	*pos1- FLAG$_3$:kan^R ade6-M210 leu1-32 ura4-D18 h$^-$*	This study
KGY9016	*spa2-GFP:kan^R pos1-FLAG$_3$:kanR ade6-M21X ura4-D18 leu1-32 h$^-$*	This study
KGY10861	*spa2-GFP:kan^R ade6-M21X leu1-32 ura4-D18 h$^+$*	This study
KGY11768	*pos1-GFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^+$*	This study
KGY8613	*pos1-GFP:kan^R spa2::ura4$^+$ade6-M21X ura4-D18 leu1-32 h$^-$*	This study
KGY15814	*pos1::ura4$^+$ ade6-M210 leu1-32 ura4-D18 h$^+$*	This study
KGY15681	*pos1::ura4$^+$ cyk3::ura4$^+$ ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
KGY16397	*crn1-GFP:kan^R pos1::ura4$^+$ ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
Figure S1		
KGY11544	*rgf3-GFP:kan^R cdc15-mCherry:kan^R sid4-RFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
KGY14745	*rgf3-GFP:kan^R imp2-mCherry$_3$:kan^R sid4-GFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^?$*	This study
Figure S5		
KGY16220	*spa2::ura4$^+$ lifeAct-mCherry:leu+ sid4-GFP:kan^R ade6-M210 ura4-D18 leu1-32 h$^-$*	This study
KGY7392	*sid4-RFP:kan^R ade6-M216 ura4-D18 leu1-32 h$^+$*	Lab stock
Figure S6		
KGY11996	*spa2-GFP:kan^R pos1::ura4$^+$ ura4-D18 ade6-M210 leu1-32 h$^?$*	This study