Appendix I: Strains used in this study

Strain	Source
972 h-	Laboratory collection
cdc25-22 h-	Laboratory collection
cdc10-129 h-	Laboratory collection
cdc25-22 sep1Δ::ura4 h-	Matthias Sipiczki
ace2Δ::kanMX6 ade6-M21?h-	This study
ace2Δ::kanMX6 sep1::ura4 ade6-M21? leu1-32 h?	This study
atf1Δ::ura4 ura4-D18 h-	Nic Jones
cdc10-C4 h^+	Paul Nurse
cig1Δ::ura4 cig2Δ::ura4 puc1Δ::ura4	Sergio Moreno
leu1-32 h- pREP3X-fkh2	This study
leu1-32 h- pREP3X-ace2	This study
leu1-32 h- pREP3X-fhl1	This study
leu1-32 h- pREP3X-sep1	This study
mbx1Δ::kanMX6 leu1-32 ura4-D18 ade6-M210 his7-366 h-	Jonathan Miller
meu3Δ::kanMX6 ade6-M21?h-	This study
meu19::kanMX6 ade6-M21?h-	This study
nda3-KM311 h-	Laboratory collection
pcr1Δ::ura4 h-	Nic Jones
prr1Δ::his7 his7? h-	Nic Jones
sep1Δ::ura4 h-	Matthias Sipiczki
SPAC8C9.01Δ::kanMX6 h90 (fhl1)	Laboratory collection
SPAC8C9.01Δ::kanMK6 sep1::ura4 h?	This study
SPBC16G5.15cΔ::ura4 leu1-32 ura4-D18 ade6-M210/216 his7-366 h+/h-	Brian Morgan
SPBC16G5.15cΔ::ura4 leu1-32 ura4-D18 ade6-M21? his7-366 h-	This study

Appendix II: List of buffers, solutions, media and antibiotics

Buffers and stock solutions	Composition
Edinburgh Minimal medium (EMM)	For 1 liter: 3.0 g potassium hydrogen phthalate, 2.2 g Na_2HPO_4, 5.0 g NH_4Cl, 20g D-glucose, 20 ml salts stock (X50), 1 ml vitamin stock (X1000), 0.1 ml mineral stock (X10000)
0.5 M EDTA	For 1 liter: 186.1 g disodium ethylenediaminetetracetate · $2H_2O$
Formal saline	0.9% saline, 3.7% formaldehyde
Freezing mix	YE containing 250 mg of Glutamic Acid, 50% glycerol
Hybridization buffer	5 x SSC, 6 x Denhardt's 60 mM TrisHCl pH 7.6, 0.12% sarkosyl, 48% formamide; filter sterilized
10X LiAc	1M Lithium Acetate, pH 7.5
Luria Bertani medium (LB)	For 1 liter: 10g NaCl, 10 g tryptone, 5 g yeast extract, pH 7.0
Mineral stock (X10000)	For 1 liter: 5.0 g H_3BO_3, 4.0 g $MnSO_4$, 4.0 g $ZnSO_4$ · $7H_2O$, 2.0 g $FeCl_3$ · $6H_2O$, 0.4 g H_2MOO_4 · H_2O, 1.0 g KI, 0.4 g $CuSO_4$ · $5H_2O$, 10 g citric acid
2X Printing buffer	300 mM sodium phosphate, pH 8.5
PEG/LiAc/TE	For 20 ml: 2 ml 10X LiAc, 2 ml 10X TE, filter-sterilized
Phosphate Buffer Saline (PBS)	For 1 liter: 8.0 g NaCl, 0.2 g KH_2PO_4, 1.44 g Na_2HPO_4, 0.2 g KCl, pH 7.4
Salt stock (X50)	For 1 liter: 53.5 g $MgCl_2$ · $6H_2O$, 0.74 g $CaCl_2$ · $2H_20$, 50 g KCl, 20 g Na_2SO_4
SOC medium	For 100 ml: 2.0g Bacto-tryptone, 0.5g Bacto-yeast extract, 1ml 1M NaCl, 0.25ml 1M KCl, 1ml Mg2+ stock (1M MgCl2 . 6H2O, 1M MgSO4 . 7H2O), filter-sterilized, 1ml 2M glucose, filter-sterilized
20X SSC	3 M NaCl, 300 mM Na-citrate, pH 7.0

1X TAE	40 mM Tris-acetate, 1 mM EDTA, pH 7.2
1X TE	10 mM Tris/HCl, pH 8.0, 1 mM EDTA
1X TES	10 mM Tris pH 7.5, 10 mM EDTA pH 8.0, 0.5% SDS
Vitamin stock (1000X)	For 1 liter: 1.0 g Na pantothenate, 10 g nicotinic acid, 10 g inositol, 10 mg biotin
Washing solution 1	2X SSC
Washing solution 2	0.1X SSC, 0.1% SDS
Washing solution 3	0.1X SSC
Yeast Extract (YE)	For 1 liter: 5 g Difco Yeast Extract, 30 g glucose, pH 5.6. Supplements: 250 mg histidine, leucine, adenine, uracil and lysine
Yeast Extract (YE) agar	YE plus 20 l/liter Difco agar

Appendix III: Primers used in this study

PRIMERS for GENE DELETION

Primer name	Sequence
Meu19_F	5’-agttttaacgaccgctacgtagtgtaatgctacaaaataagtctac tcagatattatgcagccgtactcatctgattttgcggatccccgggttaattaa-3’
Meu19_R	5’-gcttactcataatttcttctttaaaaaatcgatgtgacattgtgaatacata aaccgtcaataatctactgctaaaatgcgaattcgagctcgtttaaac-3’
Meu3_F	5’-taacgctaatgtcatacaacaccgtattcgtctgatttgtctacaaaaatgta aacaaacaattattttatcgcattgatcggatccccgggttaattaa-3’
Meu3_R	5’-ctactcattatttcctcattaaaagatcgacttggcactgaaaacaaatgaac cgccgatatcctatattgttacaaagcgaattcgagctcgtttaaac-3’
Ace2_F	5’-atttctctcatcgttctctccttgatttctctacgcattgcactagatactcgcta tcctaagtaaacaagacaatgtcgcggatccccgggttaattaa-3’
Ace2_R	5’-aattgtcacagcattagttcatgtacgatgcttgaatttgaatttatataaaac aaattaaaaacaataatattagtaagaattcgagctcgtttaaac-3’
Fhl1_F	5’-gctttctagtctcattgtgctttcaattggctagaagtttagcttactataaaaaa aggaagtctttgggtcattaaggccggatccccgggttaattaa-3’
Fhl1_R	5’-ccaagttgtgcaatcactgtcaaaaaaagaaaaatgaaacagcttatgcat gctggtaagtgtaattttcggcactaattggaattcgagctcgtttaaac-3’

The underlined sequence represents the sequence homologous to the plasmid multiple cloning site.

PRIMERS for CHECKING GENE DELETIONS

Primer name	Sequence
Ace2_check_R	5’-gttatacacaatactagggtgatg-3’
Meu3_check_R	5’-cgtttcaatattgaaattcttacag-3’
Meu19_check_R	5’-tcgcatctttagattaacatatagg-3’
Kan_check_R	5’-gtcacatcatgcccctgagc-3’

PRIMERS for CLONING - OVEREXPRESSION

Primer name	**Sequence**
C16g5.15 forward	5’-**ctcgag**atgactgttcgcagactcgaaagc-3’
C16g5.15 reverse	5’-gggataagatattaaacaaggtg-3’
C6g10.12c forward	5’-**ctcgag**atgtcgctttcatat-3’
C6g10.12c reverse	5’-tcattagtgctgtctgcgatc-3’
C1142.08 forward	5’-**ctcgag**atgcctgttgcagag-3’
C1142.08 reverse	5’-tcaggtataagaggatgatgtctc-3’
Sep1 forward	5’-**ctcgag**atcttcctcatgaat-3’
Sep1 reverse	5’-ttagaatagtgttgaagtttgac-3’

The sequence in bold corresponds to the *Xho*I restriction site.

Appendix IVa: Time courses experimental conditions

Experiment	Strain	Timepoints	Sample label	Reference	Ref label	Media	Temp (ºC)	Sample OD	Array batch number
Elutriation I	*972 h-*	20	Cy3	Asynchronous *972 h-*	Cy5	EMM	30	0.65	137 & 140
Elutriation II	*972 h-*	20	Cy5	Asynchronous *972 h*	Cy3	EMM	30	0.24	228 & 232
Elutriation III	*972 h-*	20	Cy5	Asynchronous *972 h*	Cy3	EMM	30	0.15	489
cdc25 b&r I	*cdc25-22 h-*	18	Cy3	Asynchronous *cdc25-22 h-*	Cy5	YE	25	0.34	40 & 70
cdc25 b&r I dye swap	*cdc25-22 h-*	18	Cy5	Asynchronous *cdc25-22 h-*	Cy3	YE	25	0.34	40 & 70
cdc25 b&r II	*cdc25-22 h-*	19	Cy5	Asynchronous *cdc25-22 h-*	Cy3	EMM	25	0.19	292
cdc25 elu + b&r	*cdc25-22 h-*	22	Cy5	Asynchronous *cdc25-22 h-*	Cy3	EMM	25	0.22	226, 228 & 232
cdc10 elu + b&r	*cdc10-129 h-*	22	Cy5	Asynchronous *cdc10-129 h-*	Cy3	EMM	25	0.30	331 & 334
cdc10::ura4	*cdc10::ura4 leu1-32 ura4-D18 ade6-M210 + pREP1-HA-res1(1-192)*	3	Cy5	Untreated cdc10::ura4	Cy3	EMM ade	30	0.2	477
cig1Δ cig2Δ puc1Δ elu	*cig1::ura4 cig2::ura4 puc1::ura4*	6	Cy5	Asynchronous *cig1::ura4 cig2::ura4 puc1::ura4 h-*	Cy3	EMM	30	0.15	477
HU b&r	*972 h-*	4	Cy3	Untreated *972 h-*	Cy5	EMM	32	0.08	489
nda3	*nda3-KM311 h-*	3	Cy5	Untreated nda3	Cy3	EMM		0.23	477
sep1 b&r	*cdc25-22 sep1::ura4 h-*	20	Cy5	*cdc25-22 sep1::ura4 h-*	Cy3	EMM	25	0.12	331 & 334
wt b&r	*972 h-*	18	Cy3	*972 h-*	Cy3	EMM	25	0.15	782 & 784

0.5 OD = 1 X 10^7

Appendix IVb: Mutant strains experimental conditions

Experiment	Strain	Sample label	Reference	Ref label	Media	Temp (ºC)	Sample OD	Array batch number
ace2 #1	*ace2Δ::kanMX6 ade6-M21?h-*	Cy5	*972 h-*	Cy3	EMM ade	32	0.22	489-48
ace2 #2		Cy3		Cy5			0.23	489-7
ace2 #3		Cy5		Cy3			0.23	489-14
ace2 #4		Cy5		Cy3			0.24	489-12
ace2 #5		Cy5		Cy3			0.33	668-2
ace2 sep1 #1	*ace2Δ::kanMX6 sep1::ura4 ade6-M21? leu1-32*	Cy5	*972 h-*	Cy3	EMM ura ade leu	30	0.26	668-9
ace2 sep1 #2		Cy5		Cy3			0.32	668-10
atf1 #1	*atf1Δ::ura4 ura4-D18 h-*	Cy5	*972 h-*	Cy3	YE	25	0.18	596-21
atf1 #2		Cy5		Cy3			0.21	599-2
cdc10-C4 #1	*cdc10-C4 leu1-32 h+*	Cy5	*972 h^+*	Cy3	EMM	25	0.23	489-10
cdc10-C4 #2		Cy5		Cy3			0.24	489-11
cdc10-C4 #3		Cy3		Cy5			0.23	334-19
cdc10-C4 #4		Cy5		Cy3			0.24	334-17
fhl1 #1	*SPAC8C9.01Δ::kanMX6 h90*	Cy3	*972 h-*	Cy5	EMM	25	0.23	334-22
fhl1 #2		Cy5		Cy3			0.23	334-11
fhl1 #3		Cy5		Cy3			0.22	668-41
fkh2 #1	*SPBC16G5.15c::ura4 leu1-32 ura4-D18 ade6-M21? his7-366 h-*	Cy5	*972 h-*	Cy3	YE	30	0.20	560-42
fkh2 #2		Cy5		Cy3			0.20	560-45
mbx1 #1	*mbx1::kanMX6 leu1-32 ura4-D18 ade6-M210 his7-366 h-*	Cy5	*972 h-*	Cy3	EMM leu ura ade his	25	0.23	334-18
mbx1 #2		Cy3		Cy5			0.22	334-20

Experiment	Strain	Sample label	Reference	Ref label	Media	Temp (ºC)	Sample OD	Array batch number
meu3 #1	*meu3::kanMX6 ade6-M21?h-*	Cy5	*972 h-*	Cy3	EMM ade	32	0.23	489-49
meu3 #2		Cy3		Cy5			0.23	489-8
meu19 #1	*meu19::kanMX6 ade6-M21?h-*	Cy5	*972 h-*	Cy3	EMM ade	32	0.22	489-50
meu19 #2		Cy3		Cy5			0.25	489-9
pcr1 #1	*pcr1::ura4 h-*	Cy5	*972 h-*	Cy3	YE	25	0.24	489-17
pcr1 #2		Cy5		Cy3			0.21	560-46
prr1 #1	*prr1Δ::his7 his7? h-*	Cy3	*972 h-*	Cy5	EMM	25	0.23	334-21
prr1 #2		Cy5		Cy3			0.22	334-12
sep1 #1	*sep1Δ h-*	Cy5	*972 h-*	Cy3	EMM	25	0.24	489-13
sep1 #2		Cy3		Cy5			0.25	334-23
sep1 #3		Cy5		Cy3			0.24	334-14
sep1 #4		Cy5		Cy3			0.23	668-5
fhl1 sep1 #1	*SPAC8C9.01Δ::kanMK6 sep1::ura4 ade6-M21? leu1-32 h-*	Cy5	*972 h-*	Cy3	EMM ura ade leu	30	0.23	668-39
fhl1 sep1 #1		Cy5		Cy3			0.23	668-27
ace2 OE #1	*leu1-32 h- pREP3X-ace2*	Cy5	*leu1-32 h- pREP3X*	Cy3	EMM, 15 µM thiamine	32	0.06	596-3
ace2 OE #2		Cy5		Cy3			0.12	560-31
fhl1 OE #1	*leu1-32 h- pREP3X-fhl1*	Cy5		Cy3		32	0.03	596-4
fhl1 OE #2		Cy5		Cy3			0.08	560-47
fkh2 OE #1	*leu1-32 h- pREP3X-fkh2*	Cy5		Cy3		32	0.07	596-20
fkh2 OE #2		Cy5		Cy3			0.04	596-10
sep1 OE #1	*leu1-32 h- pREP3X-sep1*	Cy5		Cy3		32	0.23	596-22
sep1 OE #2		Cy5		Cy3			0.17	596-19

0.5 OD = 1 X 10^7

Appendix V: Additional measurements defining cell cycle synchrony in timecourse experiments and additional clustering

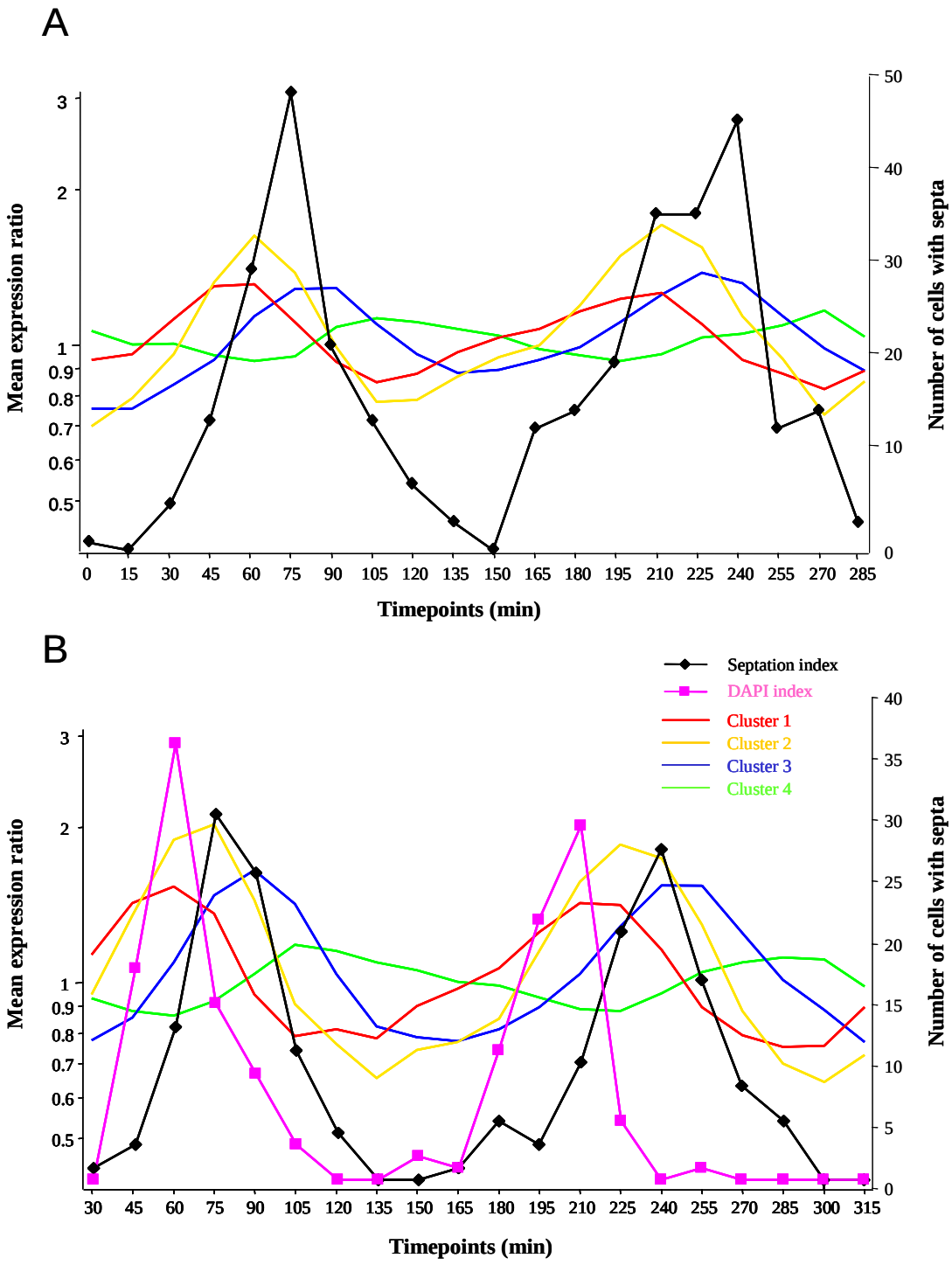

Fig. V.1 Additional measurements for elutriation experiments.

Panel A and B refer to two independent biological experiments, elutriations 1809 and 1012 respectively. For each graph, septation index and average expression profiles for the four clusters are shown. In panel b the DAPI index is also shown

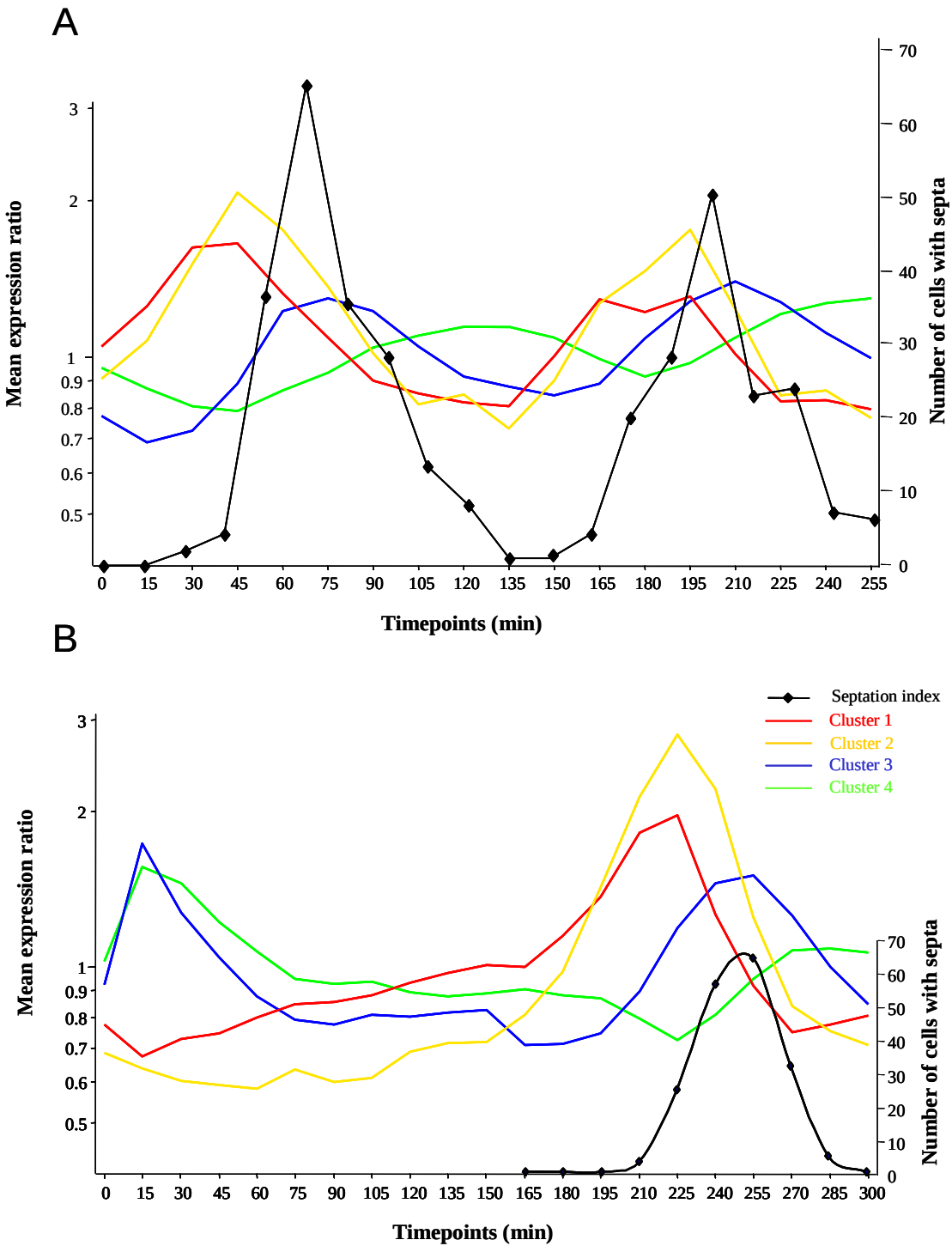

Fig. V.2 Additional measurements for *cdc25* experiments.

Panel A refers to a *cdc25* 'block and release' experiment (1601), panel B refers to a *cdc25* elutriation + 'block and release' (1402). For each graph, septation index and average expression profiles for the four clusters are shown.

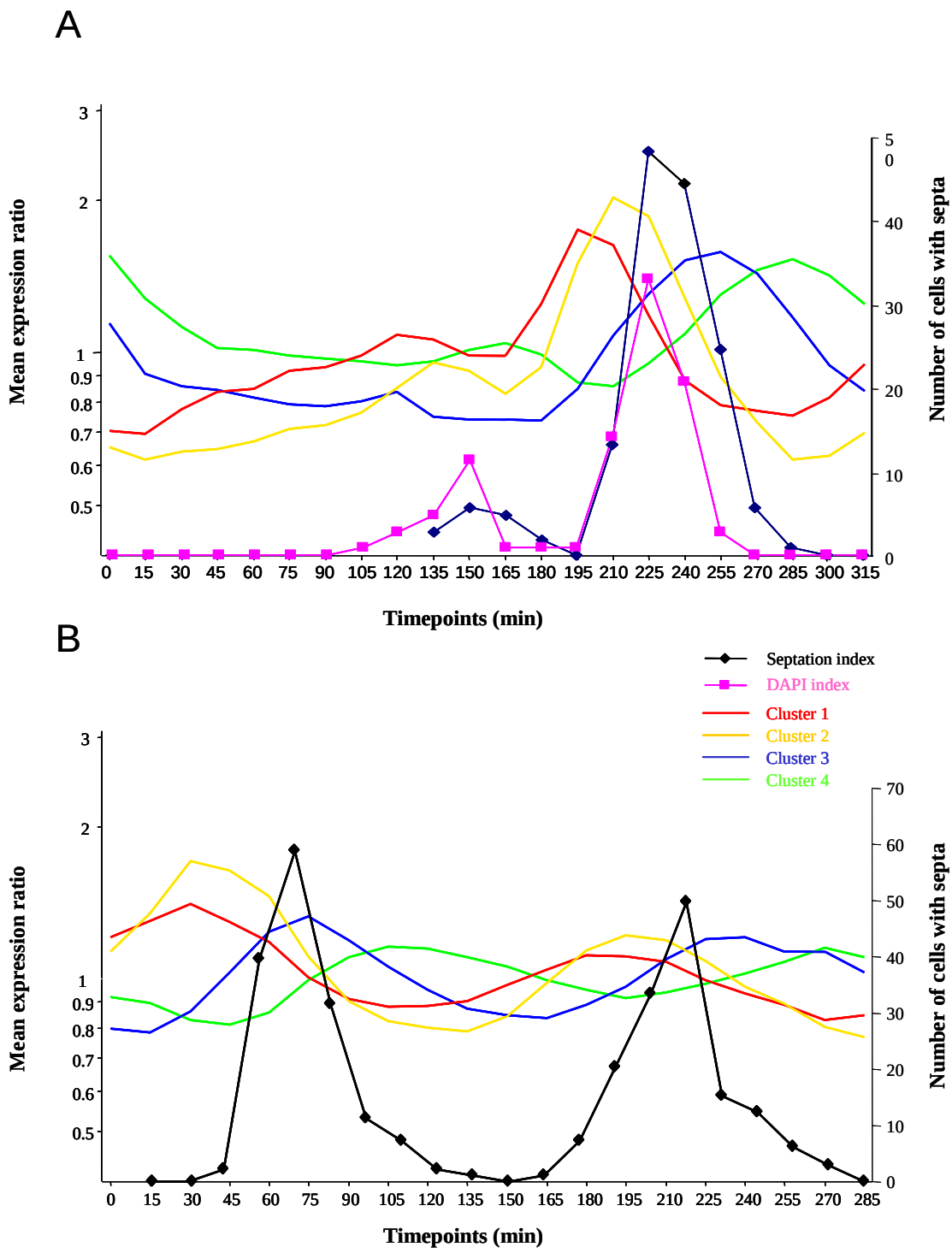

Fig. V.3 Additional measurements for *cdc25* and *cdc10* experiments.

Panel A refers to a *sep1Δ cdc25* 'block and release' experiment (2009), panel B refers to a *cdc10* elutriation + 'block and release' (509). For each graph, septation index and average expression profiles for the four clusters are shown.

Wild type elutriation

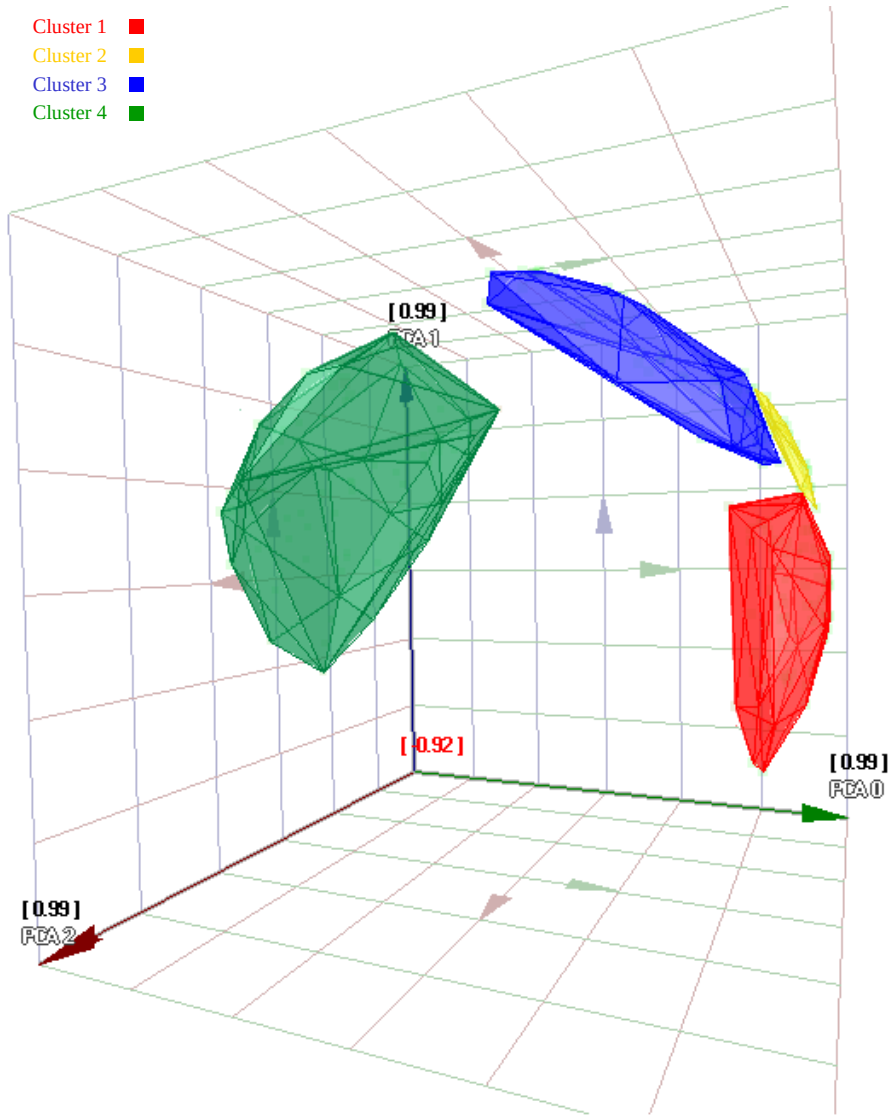

Fig. V.4 3-dimensional representation of the four clusters of cell cycle regulated genes for an elutriation experiment.

Each coloured area represents a cluster of genes. Classification is shown for one elutriation experiment (2201). This graph was obtained using Principal Component Analysis (PCA) in Arrayminer.

cdc25 ‘block and release’

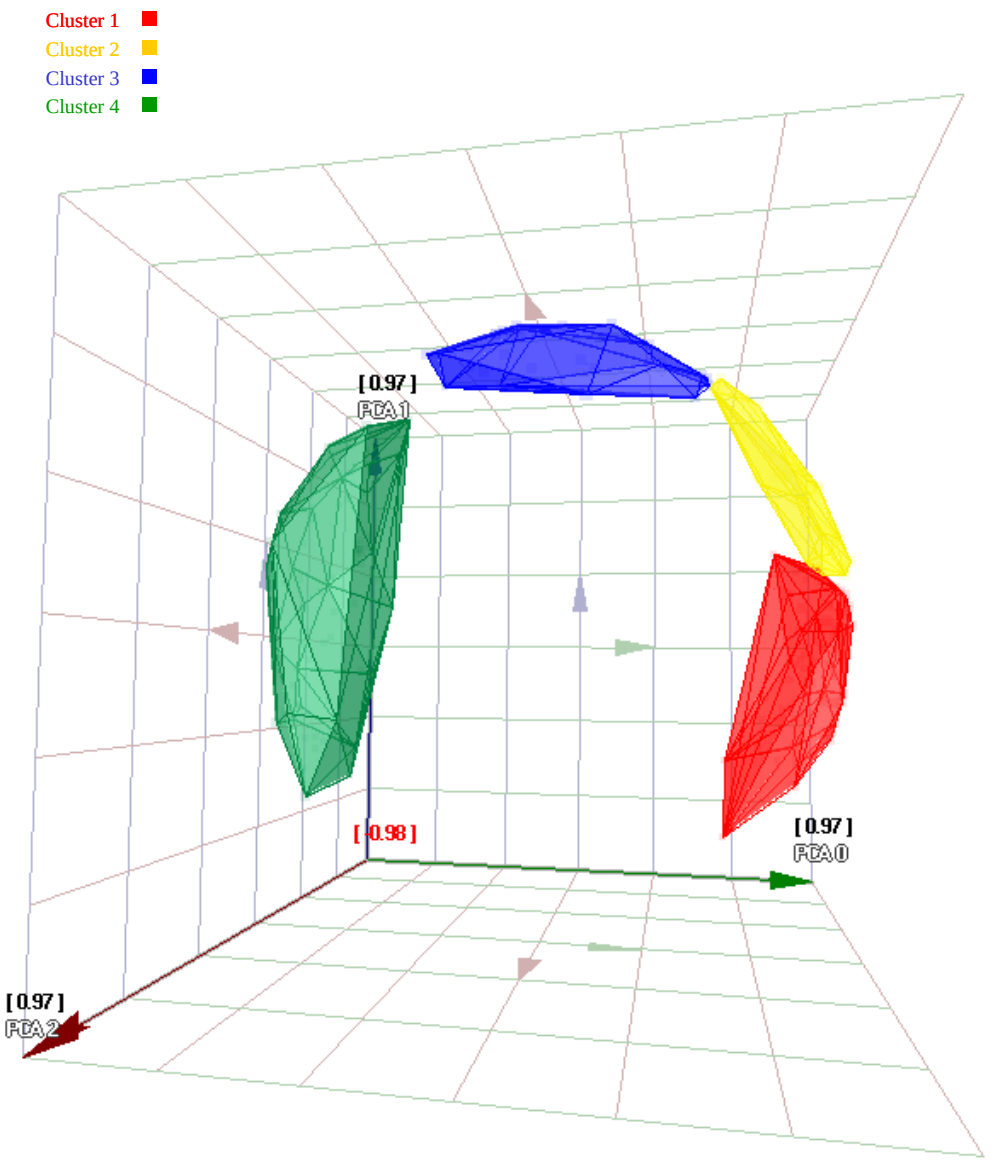

Fig. V.5 3-dimensional representation of the four clusters of cell cycle regulated genes for a *cdc25* ‘block and release’ experiment.

Each coloured area represents a cluster of genes. Classification is shown for one *cdc25* ‘block and release’ experiment (2001). This graph was obtained using Principal Component Analysis (PCA) in Arrayminer.

Appendix VI: List of 407 genes periodically expressed during the cell cycle

Biological names	Systematic names	Gene description [a]	Cluster	Motifs
ste7	SPAC23E2.03c	Protein required for mating and meiosis	1	FLEX
sso1; psy1	SPCC825.03c	Syntaxin-like component of the plasma membrane docking/fusion complex	1	FLEX
slp1	SPAC821.08c	WD-domain protein of the spindle defect checkpoint and APC activator	1	FLEX
sid2; pld5	SPAC24B11.11c	Protein kinase involved in regulation of cytokinesis	1	FLEX
ark1; sex1	SPCC330.16; SPCC320.13c	Aurora kinase involved in regulation of mitosis	1	
rum1	SPBC32F12.09	Inhibitor of the Cdc2p cyclin-dependent kinase complex	1	FLEX, Novel 2
rhp51; rad51	SPAC644.14C	Required for DNA repair and meiotic recombination	1	MCB 1
plo1	SPAC23C11.16	Polo kinase involved in regulation of mitosis and cytokinesis	1	FLEX, Novel 3
myo3; myp2	SPAC4A8.05c	Myosin-3 isoform, heavy chain (Type II myosin)	1	
mus81	SPCC4G3.05c	Holliday junction resolvase subunit	1	
msh6	SPCC285.16c	Protein involved in mismatch repair (mutS family)	1	FLEX
mob1	SPBC428.13c	Protein involved in regulation of cytokinesis	1	FLEX, MCB 1, Novel 2
meu29	SPAC25H1.05	Unknown function	1	Ace2, FLEX
meu16		Non-coding RNA	1	
klp6	SPBC1685.15c; SPBC649.01c	Kinesin motor protein; KIP3 subfamily	1	FLEX
klp5	SPBC2F12.13	Kinesin motor protein; KIP3 subfamily	1	FLEX, MCB 1
imp2	SPAC13F4.08c; SPBC11C11.02	Protein required for medial ring disassembly after cytokinesis	1	FLEX, MCB 1, Novel 1
etd1	SPAC1006.08	Protein required for cytokinesis	1	FLEX, MCB 1
chs2	SPBC1734.17; SPBC1709.01	Member of chitin synthase family, involved in cell wall maintenance	1	MCB 1
cdc20; pol2	SPBC25H2.13c	DNA polymerase epsilon catalytic subunit	1	FLEX, MCB 2
cdc15; rng1	SPAC20G8.05c	Protein involved in cytokinesis	1	FLEX
bet1	SPAC23C4.13	Member of SNARE domain containing family	1	FLEX
apc15; apc16	SPBC83.04	Component of APC/cyclosome complex	1	FLEX

	SPCC757.12	**Protein containing an alpha amylase N-terminal catalytic domain**	**1**	**Novel 2**
ace2	**SPAC6G10.12c**	**Zinc finger transcription factor**	**1**	**FLEX**
	SPAC5D6.02c	**Unknown function**	**1**	
	SPCC576.02	**Member of aspartate and glutamate racemases family**	**1**	**FLEX**
	SPAC30D11.01c; SPAC56F8.01	**Member of glycosyl hydrolases family 31, involved in carbohydrate metabolism**	**1**	
	SPBC4F6.12	**LIM domain protein, low similarity to paxillin focal adhesion protein that regulates integrin or growth factor-mediated responses**	**1**	
wis3; spo12	**SPAC3F10.15c**	**Protein likely to play role in regulating cell cycle progression, possibly at G2 to M phase transition**	**1**	**FLEX, Novel 1**
	SPBC27.05	**Unknown function**	**1**	
	SPAC23H4.19; SPAC1705.03c	**Putative cell wall biogenesis protein**	**1**	**FLEX, Novel 1, Novel 2**
	SPBC19G7.04	**Unknown function, possible transcriptional regulator, may contain HMG box**	**1**	**FLEX**
	SPAC19B12.02c	**Protein with high similarity to 1,3-beta-glucanosyltransferase, member of glycolipid anchored surface protein (GAS1) family**	**1**	**FLEX**
	SPBC16G5.15c	**Fork head protein type transcription factor**	**1**	**FLEX**
rho4	**SPAC16A10.04**	**Rho protein involved in regulation of cytoskeleton, cytokinesis, and cell wall integrity**	**1**	**FLEX, Novel 1**
mde6	**SPAC15A10.10**	**Protein likely to play a role in meiosis or sporulation, requires Mei4p for transcriptional activation**	**1**	**FLEX**
	SPAC15A10.09c	**Unknown function**	**1**	**FLEX, MCB 1, Novel 1**
mac1	**SPAC13G7.04c**	**Transmembrane protein involved in cell separation**	**1**	**FLEX, Novel 2**
	SPAC11E3.13c	**Member of glycolipid anchored surface protein (GAS1) family, possible involvement in cell wall maintenance**	**1**	**MCB 1**
	SPBC1198.07c	**Putative glycosylphosphatidylinositol (GPI)-anchored protein involved in cell wall biosynthesis**	**1**	**FLEX**
top1	SPBC1703.14c	DNA topoisomerase I, involved in chromatin organisation	1	FLEX, Novel 1
spn2	SPAC821.06	Septin homolog, involved in cell separation	1	
sad1; sta1	SPBC16H5.01c; SPBC12D12.01	Spindle pole body associated protein	1	

psc3	SPAC17H9.20; SPAC607.01	Cohesin complex component, required for sister chromatid cohesion and normal mitosis	1	MCB 1
	SPBC32H8.09	Protein containing WD domain G-beta repeat	1	
ndk1	SPAC806.07	Nucleoside diphosphate kinase	1	
dis1	SPCC736.14	Microtubule-associated protein required for chromosome segregation (functions with Klp5p and Klp6p in kinetochore-spindle attachment)	1	
csk1	SPAC1D4.06c	Cyclin-dependent kinase activating kinase (CAK) involved in activating Cdc2p (activity partially redundant with Mcs6p-Mcs2p complex)	1	
crk1; mcs6; mop1	SPBC19F8.07	Cyclin-dependent kinase activating kinase (CAK) involved in activating Cdc2p kinase, putative transcription initiation factor TFIIH subunit	1	
cid13	SPAC821.04c	Cytoplasmic poly(A) polymerase involved in regulation of ribonucleotide reductase (suc22) mRNA, TRF family of nucleotidyltransferases	1	Novel 1
cdr1; nim1	SPAC644.06c	Protein kinase involved in regulation of mitosis	1	
cdc25; sal2	SPAC24H6.05	Tyrosine phosphatase that activates Cdc2p kinase, involved in G2/M transition and DNA damage checkpoints	1	
cdc13	SPAC19G10.09C; SPBC582.03	Cyclin that promotes entry into mitosis from G2 phase, forms complex with Cdc2	1	
aph1	SPCC4G3.02	Diadenosine tetraphosphatase, catalyzes hydrolysis of dinucleoside polyphosphate compounds	1	
	SPBPB2B2.09c	Member of the ketopantoate reductase PanE or ApbA family, involved in thiamine biosynthesis	1	
rps602; rps6	SPAPB1E7.12	Protein with high similarity to ribosomal S6 proteins	1	
	SPAC824.04	Protein containing three WD domains (WD-40 repeat)	1	
	SPAP8A3.11c	Member of GTP1 or OBG family of GTP-binding proteins, similarity to developmentally regulated protein with possible role in neurogenesis	1	
	SPAP27G11.08c	Unknown function	1	FLEX
	SPAC9.11	Unknown function	1	
	SPBC646.06c	Member of glycosyl hydrolase family 71, putative glucanase	1	FLEX, Novel 2
	SPAC589.09	Protein containing a CRAL-TRIO domain, putative	1	

		phosphatidylinositol metabolism		
	SPAC589.02c	Component of mediator subcomplex that may function in negative regulation of transcription	1	
	SPCC4G3.06c	Unknown function, possible mitochondrial ribosomal protein of large subunit	1	FLEX
	SPBC4F6.11c	Unknown function	1	MCB 1
	SPBC4F6.05c	Member of legume-like lectin family	1	
	SPBC428.12c	Putative RNA binding protein	1	
	SPBC1306.02; SPBC4.08	Protein containing eight WD domains (WD-40 repeat), possible role in activated transcription by RNA polymerase II	1	FLEX
	SPBC3H7.13	Member of forkhead associated (FHA) domain family, similarity to S. pombe spindle checkpoint protein Dma1p	1	
pmc2	SPAC2F7.04	Mediator complex component, involved in regulating RNA polymerase II activity	1	
	SPBC27B12.06	Protein with possible role in glycosylphosphatidylinositol biosynthesis	1	FLEX
	SPBC26H8.13c	Unknown function	1	
	SPAC24H6.01c; SPAPB21F2.01	Unknown function, similarity to putative glycerol transporter involved in phospholipid biosynthesis	1	FLEX, MCB 1
	SPAC24C9.05c	Unknown function	1	
	SPAC23G3.04	Unknown function	1	Novel 3
spn7; mde8	SPBC21.08c; SPBC19F8.01c	Septin homolog, involved in cell separation	1	FLEX
	SPBC19C2.10	Protein containing an Src homology 3 (SH3) domain, putative actin binding	1	
spp2; pri2	SPBC17D11.06	DNA primase, large (non-catalytic) subunit	1	
	SPBC1709.13c	Member of SET domain containing family	1	
	SPAC1687.19c	Probable tRNA-guanine transglycosylase	1	FLEX
	SPAC1687.17c	Member of the Der1-like family, putative transmembrane protein with signal peptide	1	FLEX
	SPAC1687.10	Unknown function	1	
	SPBC1685.03	Member of signal peptidases type I family, which cleave signal peptides from secreted proteins	1	

	SPAC13G7.10	Protein with two Myb-like DNA-binding domains	1	FLEX
	SPAC13G6.03	Member of type I phosphodiesterase or nucleotide pyrophosphatase family	1	
	SPAC13C5.05c	Member of phosphoglucomutase or phosphomannomutase C-terminal domain containing family	1	
pds5	SPAC110.02	Protein required for maintenance of sister chromatid cohesion	1	MCB 1
mik1	**SPBC660.14**	**Protein kinase that inhibits Cdc2p kinase**	**2**	**FLEX, MCB 1, MCB 2**
pol1; swi7	**SPAC3H5.06c**	**DNA polymerase alpha catalytic subunit**	**2**	**FLEX, Histone**
	SPAC644.05c	**Protein similar to dUTP pyrophosphatase, which maintains dUTP at low levels to prevent misincorporation into DNA**	**2**	**MCB 1, MCB 2**
	SPAC1071.09c	**Protein containing a DnaJ domain, which mediates interaction with heat shock proteins**	**2**	
	SPBC1289.01c; SPBC1539.11c	**Unknown function, putative involvement in chitin biosynthesis**	**2**	**MCB 1**
	SPCC1322.04	**Putative UTP-glucose-1-phosphate uridylyltransferase**	**2**	**FLEX**
	SPCC1322.10	**Unknown function, similar to cell-surface proteins and proteoglycans**	**2**	**FLEX**
	SPAC14C4.09	**Unknown function, putative glucanase**	**2**	
	SPBC16A3.07c	**Unknown function**	**2**	**MCB 1, MCB 2**
	SPBC1709.12	**Unknown function**	**2**	**Ace2**
	SPAC17H9.18c	**Unknown function**	**2**	**FLEX**
	SPCC74.07c; SPCC18.01c	**Member of SUN family, contains predicted N-terminal signal sequence**	**2**	**Ace2, FLEX**
	SPCC18.02	**Protein with similarity to synaptic vesicle-associated acetylcholine transporter**	**2**	
	SPAC23A1.01c; SPAC19G12.16c	**Unknown function, similarity to podocalyxin like, a transmembrane sialomucin important for lymphocyte adhesion and homing**	**2**	**Ace2, FLEX, MCB 1**
	SPBC21B10.13c; SPAC21B10.13c	**Homeobox domain (homeodomain) protein, putative transcription factor**	**2**	
	SPAC23H4.01c; SPAP27G11.01	**Unknown function, contains a pleckstrin homology (PH) domain**	**2**	**Ace2, FLEX**
	SPBC27.04	**Unknown function**	**2**	**Novel 1**
ams2	**SPCC4F11.01;**	**Protein that binds binds chromatin at centromere and is**	**2**	**MCB 1**

	SPCC290.04	**involved in chromosome segregation**		
	SPBC2A9.07c	**Unknown function**	**2**	
	SPAC2E1P5.03	**Protein containing a DnaJ domain, which mediates interaction with heat shock proteins**	**2**	**Ace2, MCB 1**
	SPBC31F10.17c	**Unknown function**	**2**	**FLEX, Novel 1**
	SPBC32F12.10	**Protein with phosphoglucomutase or phosphomannomutase C-terminal domain**	**2**	**FLEX**
	SPBC3E7.12c	**Unknown function, possible role in regulation of chitin synthase**	**2**	**Ace2, MCB 1**
rgf3	**SPCC645.06c**	**Protein containing a pleckstrin homology (PH) and a RhoGEF (GTPase exchange factor) domain**	**2**	
	SPBC651.04	**Unknown function**	**2**	**FLEX**
mrc1; huc1	**SPAC694.06c**	**Protein required for DNA replication checkpoint**	**2**	**MCB 1, MCB 2**
	SPBC83.18c	**Protein containing a C2 domain, which may be involved in calcium-dependent phospholipid binding**	**2**	**Ace2**
	SPCC965.14c	**Member of cytidine and deoxycytidylate deaminase zinc-binding region family**	**2**	**FLEX**
cdc18	**SPBC14C8.07c**	**Protein that couples cell cycle signals to DNA replication machinery and induces replication**	**2**	**MCB 1, MCB 2**
cdc22	**SPAC1F7.05**	**Ribonucleoside-diphosphate reductase large chain, likely required for initiation of DNA replication**	**2**	**MCB 1, MCB 2**
cdm1	**SPBC12D12.02c**	**DNA polymerase delta subunit**	**2**	**FLEX, Novel 2**
cdt1	**SPBC428.18**	**Protein that coordinates completion of S phase with onset of mitosis**	**2**	**MCB 1, MCB 2**
cdt2	**SPAC17H9.19c**	**Protein required for DNA replication**	**2**	**MCB 1, MCB 2**
cig2; cyc17	**SPAPB2B4.03**	**Major G1/S-phase cyclin, promotes onset of S phase**	**2**	**FLEX**
cut2	**SPBC1815.02c; SPBC14C8.01c**	**Securin; required for sister chromatid separation**	**2**	**Ace2, FLEX**
dfp1; him1; rad35	**SPCC550.13**	**Regulatory subunit of the Hsk1p-Dfp1p kinase copmlex involved in S phase initiation**	**2**	**FLEX, MCB 1**
eng1	**SPAC821.09**	**Endo-beta-1,3-glucanase required for cell separation**	**2**	**FLEX**
exg1	**SPBC1105.05**	**Putative exo-beta-1,3-glucanase**	**2**	**Novel 2**
fin1	**SPAC19E9.02**	**NimA family kinase; regulates spindle formation and recruitment of Plo1p to SPB, promotes chromatin condensation**	**2**	**FLEX**

klp8	**SPAC144.14**	**Protein containing a kinesin motor domain**	**2**	
meu19		**Non-coding RNA**	**2**	
	SPAP14E8.02	**Unknown function**	**2**	**MCB 1, MCB 2**
par2; pbp2	**SPAC6F12.12**	**Protein phosphatase PP2A, B' regulatory subunit, required for cytokinesis, morphogenesis, and stress tolerance**	**2**	**Ace2**
rep2	**SPBC2F12.11c**	**Zinc finger transcriptional activator, MBF transcriptional complex**	**2**	
rpc17	**SPAPB1E7.10**	**Unknown function**	**2**	
	SPBPB2B2.13	**Protein similar to galactokinase, which catalyzes first step in galactose metabolism**	**2**	
	SPAPJ760.03c	**Unknown function**	**2**	**Ace2, FLEX**
mid2	**SPAPYUG7.03c**	**Protein required for septin function and stability during cytokinesis**	**2**	**Ace2, MCB 1**
rad21	**SPCC338.17c**	**Cohesin complex subunit, double-strand-break repair protein**	**2**	
rph1; pfh1; pif1	**SPBC887.14c**	**ATP-dependent DNA helicase involved in telomere maintenance, DNA replication, and DNA repair**	**2**	
psm3; smc3	**SPAC10F6.09c**	**Cohesin complex subunit, involved in sister chromatid cohesion and progression through mitosis**	**2**	**MCB 2**
ste9; srw1	**SPAC144.13c**	**Protein required for mating and sporulation, may regulate anaphase promoting complex**	**2**	
ssb1; rad11	**SPBC660.13c**	**Single-stranded DNA-binding protein subunit, required for DNA replication**	**2**	**MCB 1, MCB 2, Novel 1**
ulp1	**SPBC19G7.09**	**Ubl2p-specific protease**	**2**	**FLEX, MCB 1**
	SPAC343.20	**Unknown function**	**2**	
	SPCC63.13	**Protein containing a DnaJ domain, which mediates interaction with heat shock proteins**	**2**	
	SPBC839.02; SPBC24E9.02	**Unknown function, contains an N-terminal arrestin (or S-antigen) domain, possibly fungal specific**	**2**	
cdc4	SPAP8A3.08	EF-hand component of actomyosin contractile ring, required for cytokinesis	2	Ace2, Novel 3
cdc10	SPBC336.12c	Component of MBF transcriptional activation complex involved in control of START	2	
bgs4; cwg1	SPCC1840.02c	Putative 1,3-beta-glucan synthase component, cell wall synthesis	2	
	SPAC11E3.10	Unknown function, member of VanZ-like family	2	

	SPAC22F8.04	Unknown function	2	MCB 1
	SPAC22G7.02	Unknown function	2	Ace2, Novel 3
	SPAC27D7.12c	Unknown function	2	MCB 1
	SPBC2A9.13	Unknown function	2	Ace2
	SPAC2F7.14c	Protein similar to 3'-5' exoribonuclease required for 3' processing of ribosomal 5.8S rRNA and component of 3'-5' exosome complex	2	MCB 1
	SPBC32C12.03c	Protein with protein kinase domain, similar to S. pombe Kin1p, a putative serine-threonine protein kinase involved in regulating cell polarity	2	FLEX, MCB 2
	SPCC4F11.03c	Unknown function	2	MCB 1
	SPAC4H3.11c	Unknown function	2	Histone
	SPCC553.12c; SPCC794.13	Unknown functionl	2	MCB 1
	SPCC794.15	Unknown function	2	
	SPBC9B6.07; SPAC9B6.07	Unknown function, possible role in maturation of 25S rRNA	2	
chs5	SPAC6G9.12	Protein with fibronectin domain involved in cell surface binding, and BRCT domain found in checkpoint proteins, similar to chitin synthase	2	FLEX
cnp1; sim2	SPBC1105.17	CENP-A-like protein, histone H3 variant specific to inner centromeres and required for chromosome segregation	2	FLEX, MCB 2
eso1; eco1	SPBC16A3.11	DNA polymerase eta, involved in sister chromatid cohesion	2	FLEX, MCB 1
	SPBPB21E7.10; SPAPB21E7.10	Unknown function	2	
pob1	SPBC1289.04c	Protein required for cell polarity and cell separation	2	Ace2
	SPCC1795.10c	**Unknown function**	**3**	**Ace2**
	SPBC17G9.06c	**Unknown function**	**3**	**Ace2**
	SPBC19C7.04c	**Unknown function**	**3**	
	SPCC338.12	**Unknown function**	**3**	**Ace2, MCB 1, Novel 3**
hht1	**SPAC1834.04**	**Histone H3.1**	**3**	**Histone, MCB 1**
hht2	**SPBC8D2.04**	**Histone H3.2**	**3**	**Histone**
hht3; clo5	**SPBC1105.11c**	**Histone H3.3**	**3**	**Histone**
hhf1; ams1	**SPAC1834.03c**	**Histone H4.1**	**3**	**Histone, MCB 1**

hhf2; ams3	**SPBC8D2.03c**	**Protein similar to histone H4.1, contains a core histone domain**	**3**	**Histone**
hhf3; ams4	**SPBC1105.12**	**Histone 4.3**	**3**	**Histone**
hta1	**SPCC622.08c**	**Histone H2A-alpha**	**3**	**Histone, MCB 1**
hta2	**SPAC19G12.06c**	**Histone H2A-beta**	**3**	**Histone**
htb1	**SPCC622.09**	**Histone H2B-alpha**	**3**	**Histone, MCB 1**
pht1	**SPBC11B10.10c**	**Histone H2A variant**	**3**	
	SPBPJ4664.02	**Unknown function, possible cell surface glycoprotein**	**3**	
prl36		**Non coding RNA**	**3**	
sap1	**SPCC1672.02c**	**DNA-binding protein required for growth and mating type switching**	**3**	
sod2	**SPAC977.10**	**Sodium/proton antiporter**	**3**	
	SPAC1F7.03	Unknown function	3	
	SPCC306.08c	Malate dehydrogenase, mitochondrial precursor	3	
	SPAC1142.02c; SPAC17G6.19c	Unknown function, contains three TPR domains	3	FLEX
	SPBC1105.14	Protein containing two zinc finger DNA binding domains, possible role in proteasome regulation	3	
	SPAC12G12.07c	Unknown function, domain similar to integrin-a cytoplasmic region	3	
	SPBC1348.10c; SPAC1348.10c	Member of lysophospholipase catalytic domain family, putative lysophospholipase precursor	3	MCB 1
	SPAC806.09c; SPAC1639.01c	SUR4 family protein, putative fatty acid elongation protein	3	Ace2
	SPBC16G5.05c	Protein containing MSP domain, possible type II integral ER membrane protein involved in inositol regulation	3	
	SPCC1906.01	Mannose-1-phosphate guanyltransferase	3	
	SPBC19G7.16	Member of IWS1 C terminus containing family, possible roles in in transcription regulation and transcription elongation	3	Novel 3
	SPBC21B10.09; SPAC21B10.09	Protein similar to acetyl-CoA transporter	3	
	SPAC22G7.01c; SPAPJ696.03c	Protein containing metallopeptidase family M24 domain, similar to x-prolyl aminopeptidase	3	
	SPBPJ758.01; SPBC23E6.01c	Protein with RNA recognition motifs, similar to U1 snRNA-associated protein that suppresses splicing defects and mediates	3	

		recombination		
	SPBC28F2.11	Protein with a high mobility HMG-box domain	3	
	SPBC31F10.16	Unknown function	3	Ace2
	SPBC337.20; SPBC1734.04	Protein similar to cis Golgi protein, putative involvement in protein glycosylation in the golgi	3	MCB 1
	SPAC343.13	Member of PET112 family, may be involved in mitochondrial gene translation	3	
	SPAC631.01c	Member of F-actin capping protein beta subunit family	3	
	SPAC6F6.13c	Unknown function, DUF726 domain	3	Ace2
	SPBC83.11	Unknown function, possible role in binding phosphatidylinositol	3	
	SPAC977.09c	Member of lysophospholipase catalytic domain containing family, similar to phospholipase B, which deacylates phosphatidylinositol	3	MCB 1
cam1	SPAC3A12.14	Calmodulin, essential calcium-binding regulatory protein	3	Histone
csx2	SPBC17G9.08c	Protein with putative arf GTPase activation domain and pleckstrin homology domain, similar to GTPase activating protein for ARF	3	Ace2
cyp4	SPBP8B7.25	Protein similar to cyclophilin B, a peptidyl prolyl cis-trans isomerase	3	
pas1	SPAC57A10.01; SPAC19E9.03	Cyclin involved in regulation of mating, interacts with Pef1p and Cdc2p kinases	3	
php5	SPBC3B8.02	CCAAT-binding factor subunit, required for growth on non-fermentable carbon sources	3	
rad25	SPAC17A2.13c	14-3-3- protein involved in DNA damage checkpoint control	3	MCB 1
rer1	SPAC22E12.05c	Protein similar to component of COPII-coated vesicles, member of retention of ER proteins family	3	
spd1	**SPAC29B12.03**	**Negative regulator of S phase**	**4**	
rds1	**SPAC343.12**	**Stress response protein**	**4**	
psu1	**SPAC1002.13c**	**Protein required for cell wall integrity, member of SUN protein family**	**4**	
	SPAC13G6.10c	**Unknown function**	**4**	**MCB 1**
	SPAP7G5.06	**Protein similar to amino acid permease, a proton symport transporter for all naturally-occurring L-amino acids**	**4**	
	SPAC5H10.06c	**Protein similar to alcohol dehydrogenase IV, which is involved in carbohydrate metabolism**	**4**	

	SPAC1039.02	**Unknown function, possible membrane protein**	**4**	
	SPAC1039.01	Member of amino acid permease family of membrane transporters	4	
	SPBC119.10	Asparagine synthetase	4	Novel 3
	SPCC1235.11	Unknown function, member of UPF0041 uncharacterized protein family	4	
	SPCC126.09	Member of ZIP zinc transporter family, possible metal transporter and vacuolar membrane protein	4	
	SPBC1271.07c	Protein containing acetyltransferase (GNAT) domain	4	FLEX
	SPBC1271.08c	Unknown function	4	
	SPAC139.02c	Probable mitochondrial oxaloacetate transporter	4	
	SPBC13G1.09	Member of bystin family, possible role in 35S pre-rRNA processing into 18S rRNA	4	
	SPCC1494.06c	Member of the DEAD or DEAH box ATP-dependent RNA helicase, possible role in rRNA processing	4	
	SPCC1682.08c	Protein containing six Pumilio-family RNA binding domains, possible role in mRNA metabolism	4	
	SPBC16D10.06	Member of ZIP zinc transporter family	4	
	SPCC1739.01; SPCC1906.05	Member of zinc finger family, which bind DNA or RNA	4	
	SPCC1795.12c	Unknown function	4	FLEX
	SPBC17D1.06; SPCC17D1.06	Member of the DEAD or DEAH box ATP-dependent RNA helicase	4	FLEX
pof6	SPCC18.04	Protein involved in cell division, contains F-box domain	4	Novel 3
	SPCC18.05c	Protein containing nine WD domains (WD-40 repeat), possible membrane receptor	4	Novel 3
	SPCC1827.06c	Aspartate semialdehyde dehydrogenase	4	FLEX
rrn3	SPAC18G6.11c	Protein involved in initiation of transcription of rDNA promoter	4	
	SPAC1F12.05	Unknown function	4	
	SPAC212.08c	Telomeric protein of unknown function, possibly S. pombe specific	4	
	SPAC212.10	Pseudogene; malic acid transport protein; truncated C at terminal	4	
	SPAC24B11.10c	Unknown function, possible protoplast regeneration protein that stimulates chitin synthase III activity	4	
	SPBC25B2.08	Unknown function	4	FLEX

	SPAC2C4.18; SPAC25G10.01	Protein with RNA recognition motif, possible splicing factor that activates pre-mRNA splicing	4	
	SPBC29A3.01	Member of P-type ATPase, similar to copper-transporting ATPase	4	
	SPAC2C4.11c	Unknown function	4	
	SPAC323.07c	Member of the MatE family of integral membrane proteins	4	Novel 3
	SPBC365.16	Unknown function	4	
	SPBC3B8.06	Unknown function	4	
	SPCC548.06c	Protein similar to putative H+-glucose symporter involved in glucose transport	4	Novel 3
arg5	SPBC56F2.09c	Protein similar to amidotransferase small subunit of carbamoylphosphate synthetase	4	
	SPCC594.04c	Unknown function	4	
gmh2	SPAC5H10.13c	Protein similar to alpha-1,2-galactosyltransferase	4	MCB 1
	SPAC6B12.07c	Protein with zinc finger and N-terminal domain that may be involved in G protein associated signal transduction	4	
	SPAC6G9.02c	Protein with five Pumilio-family (Puf) RNA binding domains	4	
	SPCC757.11c	Unknown function	4	
ibp1	SPBC24E9.07; SPBC839.07	Protein phosphatase, rhodanese-like domain	4	Novel 3
	SPAC869.02c	Member of globin family of oxygen transporters, similar to flavohemoglobin that protects from stress	4	
	SPBC8E4.03	Protein with arginase family domain, similar to agmatine ureohydrolase	4	
	SPAC9.10	Member of amino acid permease family of membrane transporters	4	
cig1	SPCC645.01; SPCC4E9.02	B-type cyclin involved in G1 to S phase transition	4	FLEX, MCB 1
csx1	SPAC17A2.09c	Protein containing three RNA recognition motifs, similar to U1 snRNA-associated protein	4	
dak1; dak2	SPAC977.16c	Dihydroxyacetone kinase, isoenzyme II	4	Novel 3
gpd2	SPAC23D3.04c	Glycerol-3-phosphate dehydrogenase	4	Novel 3
mae1	SPAPB8E5.03	Malate transporter	4	
	SPCP1E11.08	Protein similar to nuclear protein involved in ribosome biogenesis	4	
	SPBP8B7.15c	Protein similar to Polyadenylation Factor I complex component	4	

		required for mRNA cleavage and polyadenylation		
pac2	SPAC31G5.11	Regulatory protein involved in sexual development via cAMP-independent pathway	4	
	SPAPB24D3.09c	Protein with ABC transporter domains, similar to brefeldin A resistance protein involved in multidrug resistance	4	
	SPBPB2B2.06c	Protein with calcineurin-like phosphoesterase domain	4	
	SPBP7E8.01; SPBPB7E8.01	Unknown function	4	
TF2-1		Retrotransposable element; tf2-type transposon	4	
TF2-10		Retrotransposable element; tf2-type transposon	4	
TF2-2		Retrotransposable element; tf2-type transposon	4	
TF2-3; TF2-4		Retrotransposable element; tf2-type transposon	4	
TF2-5		Retrotransposable element; tf2-type transposon	4	
TF2-6		Retrotransposable element; tf2-type transposon	4	
TF2-7		Retrotransposable element; tf2-type transposon	4	
TF2-8		Retrotransposable element; tf2-type transposon	4	
TF2-9		Retrotransposable element; tf2-type transposon	4	
bgl2	SPAC26H5.08c	Protein similar to beta-glucosidase, a cell wall endo-beta-1,3-glucanase	4	
	SPBC11C11.05	Member of yeast cell wall synthesis protein KRE9 or KNH1 family	4	FLEX
	SPAC11D3.04c	Unknown functionhypothetical protein; sequence orphan; shows expression on microarray	4	
	SPBC1271.10c	Protein similar to membrane transporter	4	
	SPBC12C2.12c; SPBC21D10.03c	Protein similar to glyoxalase I, contains glyoxalase, bleomycin resistance protein or dioxygenase family domains	4	
	SPBC1347.09	Unknown function	4	
	SPAC1486.09	Protein similar to protein that functions in 20S proteasome maturation and 26S proteasome assembly	4	FLEX
	SPCC1494.07	Unknown function	4	Novel 3
	SPCC1494.08c	Unknown function	4	Novel 2
	SPAC14C4.12c	Unknown function, contains SWIRM domain	4	
	SPAC1527.03	Unknown function, contains La domain	4	
	SPAC16C9.03	Possible role in nuclear export of 60S ribosomal subunits	4	

	SPBC16D10.02	Putative DNA-(amino)methyltransferase	4	Novel 3
	SPBC1711.07	Protein containing three WD domains (WD-40 repeat), possible role in ribosome assembly	4	MCB 1
	SPAC17A2.06c	Unknown function, similar to protein involved in vacuolar sorting	4	
	SPBC17D11.08	Unknown function, four WD domains (WD-40 repeats)	4	
	SPCC1827.05c	Protein with RNA recognition motif, similar to nucleolar protein	4	
	SPCC18B5.07c; SPBC18B5.07c	Member of RanBP1 domain containing family, similar to nuclear pore protein (nucleoporin)	4	
	SPCC1919.05	Protein containing nine TPR domains, similar to superkiller 3, which protects cells from RNA viruses	4	
	SPAC19B12.11c	Unknown function, similar to putative nuclear pore protein involved in bud site selection	4	FLEX, Novel 1
	SPAC19G12.09	Protein with aldo-keto reductase family domain, similar to aldehyde reductase	4	
	SPAC1B3.08	Member of PCI (proteasome, COP9-complex and eIF3) or PINT (Proteasome, Int-6, Nip-1 and TRIP-15) domain family	4	MCB 1
	SPAC823.03; SPAC1E11.03	Protein with kinase domain, similar to CDC-like kinase 2, which may regulate mRNA splicing	4	
	SPBC215.13	Unknown function, similar to protein involved in vesicle formation in endoplasmic reticulum	4	MCB 1
	SPAC222.09	Unknown function	4	
	SPAC23H4.15	Member of DUF663 protein of unknown function family, possible role in rRNA processing and 40S ribosomal subunit biogenesis	4	FLEX
	SPBC24C6.10c	Unknown function	4	
	SPBC19F5.05c; SPBC25D12.01c	Unknown function	4	
	SPAC27D7.09c	Unknown function	4	
	SPAC26F1.07	Protein similar to aldehyde reductase that reduces carbonyl-containing substrates and metabolizes xenobiotics	4	
	SPAC27D7.11c	Unknown function	4	Novel 3
	SPAC27F1.06c	Protein with FKBP-type peptidyl-prolyl cis-trans isomerase domain	4	Ace2
	SPBC29A10.08	Glycolipid-anchored surface protein precursor	4	
	SPAC29B12.08	Unknown function	4	MCB 1

	SPAC31A2.07c	Putative RNA helicase, possible role in ribosome biogenesis	4	
	SPAC31G5.02	Possible role in role cell wall organization and biogenesis	4	
	SPCC31H12.01; SPCC1183.11	Member of mechanosensitive ion channel family	4	
	SPAC328.05	Protein containing three RNA recognition motifs, possible role in protein-nucleus export	4	FLEX
gps2	SPBC365.14c	Putative UDP-glucose 4-epimerase involved in UDP-galactose synthesis and protein glycosylation	4	
	SPAC3G9.05	Unknown function, similar to cell polarity and cell fusion protein	4	
	SPBC405.02c; SPBC4C3.01	Unknown function	4	FLEX
	SPCC417.05c	Unknown function, similar to protein that stimulates chitin synthase III activity	4	
	SPBC428.10	Unknown function, similar to cell surface flocculin required for invasive and pseudohyphal growth	4	Novel 3
	SPAC521.02	Unknown function	4	
sst1	SPAC521.04c	Member of sodium or calcium exchanger protein family of membrane transporters	4	
	SPCC553.10	Unknown function	4	FLEX, MCB 1
	SPAC57A10.09c	Protein similar to DNA-binding and DNA-bending protein involved in transcriptional activation, contains HMG family domain	4	
	SPAC637.13c	Unknown function, pleckstrin homology (PH) domain	4	
	SPBC651.01c; SPBC725.18c	Unknown function, similar to a putative nucleolar GTP-binding protein required for ribosomal subunit biogenesis	4	FLEX
	SPBC660.06	Unknown function	4	
	SPAC688.11	Protein with actin binding domains, similar to talin-like protein required for hyphal growth	4	
	SPCC794.03	Member of amino acid permease family of membrane transporters	4	
	SPCC794.11c	Protein with actin binding domain, possible role in formation of clathrin coats at the Golgi and endosomes	4	MCB 1
	SPAC821.03c	Unknown function	4	
	SPAC9.07c	Putative GTP-binding protein	4	
	SPAC9E9.04	Unknown function, contains predicted N-term signal sequence and transmembrane helices	4	FLEX

cbh2	SPBC14F5.12c	DNA binding protein, possible role in chromosome segregation, role in histone tail modifications at centromere	4	
cdc2; swo2	SPBC11B10.09	Cyclin-dependent kinase, regulates cell cycle transitions G1/S and G2/M	4	
cds1	SPCC18B5.11c	Protein kinase involved in unreplicated DNA checkpoint response	4	FLEX
	SPACUNK4.15	Unknown function	4	Ace2
dim1	SPBC336.02	Protein similar to ribosomal RNA adenine dimethylases	4	
git3	SPCC1753.02c	Protein involved in cAMP pathway and required for growth under high osmotic stress	4	
myo52; myp5; myo4	SPCC1919.10c	Class V myosin, involved in polarized cell growth and vacuole fusion	4	FLEX, MCB 1
	SPAC31G5.12c	Unknown function, similar to negative effector of RNA polymerase III	4	
nrd1	SPAC2F7.11	Protein containing four RNA recognition motifs	4	
	SPAPB15E9.01c; SPAPB18E9.06c	Unknown function	4	
	SPAPB18E9.03c	Unknown function	4	
	SPAPB18E9.05c	Unknown function	4	
pcr1; mts2	SPAC21E11.03c	Transcription factor that plays roles in mating, meiosis and stress response	4	
pim1; ptr2; dcd1	SPBC557.03c	GTP-exchange factor (GEF) for Spi1p, required for nucleo-cytoplasmic transport, microtubule function and cytokinesis	4	
pka1; git6	SPBC106.10	Catalytic subunit of the cAMP-dependent protein kinase	4	
rdp1	SPAC1B1.01	Protein containing a C2H2 type zinc finger domain, binds to DNA damage response elements	4	Ace2
ssp1	SPCC297.03	Protein kinase that mediates rapid osmotic stress response at cell surface	4	
thi1; ntf1	SPAC6G10.01; SPAC1486.10	Regulatory protein for thiamine repressible genes, required forsynthesis of thiazole moiety of thiamine	4	MCB 1
	SPAC6F12.03c	Member of SNARE domain containing family	4	
top2	SPBC1A4.03c	DNA topoisomerase II	4	MCB 1
trx1; trx2	SPAC7D4.07c	Putative thioredoxin involved inresponse to heavy metals	4	FLEX
uvi15	SPBC649.04	Protein essential for stationary phase survival, induced by stress	4	Novel 2

vip1	SPAC10F6.06	Protein containing an RNA recognition motif	4	
	SPCC320.02c; SPCC1235.01	Unknown function	N(1)	FLEX, Histone
prl3		Non-coding RNA	N(1)	
hsk1	**SPBC776.12c**	**Protein kinase of the Hsk1p-Dfp1p complex involved in S phase initiation**	**N(1,2)**	
	SPCC338.08	**Unknown function**	**N(1,2)**	
mfm2	**SPAC513.03**	**Precursor polypeptide for mating pheromone M factor produced by h- cells**	**N(1,2)**	
spk1	SPAC31G5.09c	MAP kinase (MAPK) acting in the mating and sporulation pathways	N(1,2)	
byr2; ste8	SPBC2F12.01; SPBC1D7.05	MAP kinase kinase kinase acting upstream of MAPKK Byr1p and MAP kinase Spk1p in pheromone signaling pathway	N(1,2)	
	SPAC1006.06	Protein with RhoGEF domain, similar to Rho GDP-GTP exchange factor activated by cell wall defects	N(1,2)	
	SPAC12G12.06c	Probable RNA 3'-terminal phosphate cyclase	N(1,2)	
	SPCC1322.09	Unknown function	N(1,2)	MCB 2
	SPAC14C4.05c	Unknown function	N(1,2)	FLEX, MCB 2
	SPBC1683.07	Protein similar to alpha-glucosidase	N(1,2)	Ace2
hri1	SPAC20G4.03c	Translation initiation factor 2 alpha kinase, may play role in negative regulation of eIF2alpha in response to stress	N(1,2)	
	SPBC365.01	Unknown function, CRAL-TRIO domain and a CRAL or TRIO N terminus domain	N(1,2)	
din1	SPAC19D5.06c	Unknown function	N(1,2)	Novel 2
mei2	SPAC27D7.03c	RNA-binding protein involved in meiosis	N(1,2)	
spm1; pmk1	SPBC119.08	MAP kinase involved in maintenance of cell wall integrity	N(1,2)	FLEX
	SPCC965.06	Protein similar to potassium voltage-gated channel	N(1,2,3)	Novel 1
cnd2	SPCC306.03c	Subunit of condensin complex involved in chromosome condensation	N(1,3)	
isp6; prb1	SPAC4A8.04	Putative subtilase-type proteinase, role in sexual differentiation+E49	N(1,3,4)	
	SPAC869.05c	**Member of sulfate transporter family, similar to sulfate permease**	**N(1,4)**	
	SPAC1002.17c	Protein with phosphoribosyl transferase domain, possible role in pyrimidine salvage pathway	N(1,4)	

	SPAC1610.04	Unknown function	N(1,4)	
	SPCC16C4.06c	Protein with tRNA pseudouridine synthase domains	N(1,4)	Novel 1
sim4	SPBC18E5.03c	Centromere-associated protein required for chromosome segregation and silencing	N(1,4)	
	SPBC19G7.07c	Member of PPR repeat containing family	N(1,4)	
	SPCC330.15c; SPCC320.14	Member of pyridoxal phosphate dependent enzyme family, similar to racemase that catalyzes the racemisation of L-serine to D-serine	N(1,4)	
	SPBC428.17c	Unknown function	N(1,4)	
	SPCC553.07c	**Member of impB, mucB or samB family, possible role as translesion DNA repair polymerase**	**N(2,3)**	
	SPBC800.11	**Protein with inosine-uridine preferring nucleoside hydrolase domain**	**N(2,3)**	
	SPAC750.05c	**Telomeric protein of unknown function, highly similar to S. pombe SPAC977.01, SPAC1348.02 and SPBPB2B2.19c**	**N(2,3)**	
	SPBC1348.02; SPAC1348.02	**Telomeric protein of unknown function, highly similar to S. pombe SPAC977.01, SPAC750.05C and SPBPB2B2.19c**	**N(2,3)**	
	SPBPB2B2.19c	**Telomeric protein of unknown function, highly similar to S. pombe SPAC977.01, SPAC1348.02 and SPAC750.05C**	**N(2,3)**	**Histone**
	SPAC977.01	**Telomeric protein of unknown function, highly similar to S. pombe SPAC1348.02, SPAC750.05C and SPBPB2B2.19c**	**N(2,3)**	**FLEX**
	SPBC409.22c; SPBC1306.01c	**Protein with elongation factor Tu GTP binding domain, similar to mitochondrial translation elongation factor G**	**N(2,3)**	
	SPAC17G6.03	Protein with calcineurin-like phosphoesterase domain	N(2,3)	
	SPBC18E5.07	Unknown function	N(2,3)	Novel 2
	SPBC21B10.07; SPAC21B10.07	Protein with glycosyl hydrolase family 16 domain	N(2,3)	
	SPAC2E1P3.04	Protein with possible role in detoxifying extracellular amines and nitrogen metabolism	N(2,3)	Ace2, Novel 3
	SPAC29A4.05	Protein similar to calmodulin 1, which regulates the calcium-dependent activity of enzymes including phosphatases	N(2,4)	
	SPAC631.02	**Protein with two bromodomains, which interact with acetylated lysine**	**N(3,4)**	
	SPBC1271.09	**Member of sugar (and other) transporter family, possible role in inositol metabolism**	**N(3,4)**	**Novel 3**

	SPCC364.07; SPCC4G3.01	Protein similar to 3-phosphoglycerate dehydrogenase, which catalyzes first step in synthesis of serine	N(3,4)	
	SPAC3A11.10c	Member of Rnal dipeptidase family, zinc-dependent metalloproteinases that hydrolyze various dipeptides	N(3,4)	
	SPAC664.03	Member of Paf1 family, components of RNA polymerase II associated complexes	N(3,4)	Ace2, FLEX
pro1	SPAC821.11	Protein similar to gamma-glutamyl phosphate reductase involved in proline biosynthesis	N(3,4)	
fim1	SPBC1778.06c	Fimbrin, role in actin organization during medial ring formation and polarized growth	N(3,4)	
	SPBPB21E7.09; SPAPB21E7.09	Protein similar to L-asparaginase II	N(4)	FLEX, MCB 1, Novel 3

[a] Gene descriptions are based on the information in PombePD (www.incyte.com/control/tools/proteome) and *S. pombe* GeneDB (www.genedb.org/genedb/pombe/index.jsp) databases.

Genes are sorted according to the cluster they belong to; genes in bold are of 'high amplitude' and the unclassified genes (N) are listed at the bottom of the list.