

Supplementary table 1. Protein complexes enriched for subunits with over-expression phenotypes.

Complex (MIPS ID)	Description	Subunits (tested)	Fraction essential subunits	P-value ^a	Significant at 5% FDR
320	Nucleosomal protein complex	8 (6)	0.83	0.00042	No
480.10	SPB components	13 (12)	0.50	0.00591	No
110	cAMP-dependent protein kinase	4 (4)	0.75	0.01266	No
290.20.20	Tim17p-complex	2 (2)	1.00	0.02378	No
510.190.70	MBF complex	2 (2)	1.00	0.02438	No
190.10	1,3-beta-D-glucan synthase	3 (2)	1.00	0.02439	No
510.190.60	SBF complex	2 (2)	1.00	0.02535	No
500.20.20	eEF2	2 (2)	1.00	0.02556	No
260.50.10	t-SNAREs	8 (5)	0.60	0.03009	No

^aP-values calculated from 100,000 randomisations (see materials and methods).

Supplementary table 2. Protein complexes enriched for essential subunits.

Complex (MIPS ID)	Description	Subunits	Fraction essential subunits	P-value ^a	Significant at 5% FDR
410.30	Pre-replication complex (pre-RC)	16	1.00	0	Yes
410.35	Replication complex	20	0.90	0.00001	Yes
510.120	RNA polymerase III	13	1.00	0.00002	Yes
510.70.20	TAFIIIs	12	0.92	0.00017	Yes
360.10.10	20S proteasome	15	0.87	0.00019	Yes
510.100	TFIIH	9	1.00	0.00019	Yes
440.30.10	mRNA splicing	37	0.68	0.0004	Yes
130	Chaperonine containing T-complex TRiC (TCP RING Complex)	8	1.00	0.00045	Yes
410.20	Replication initiation	8	1.00	0.0005	Yes

	complex				
360.10.20	19/22S regulator	18	0.78	0.00091	Yes
440.30.20	rRNA splicing	24	0.71	0.00153	Yes
500.10.40	eIF3	7	1.00	0.00164	Yes
440.14.10	RNase P	10	0.90	0.00173	Yes
270.20.30	Dam1 protein	9	0.89	0.00303	Yes
	complex				
440.12.20	RNase MRP	9	0.89	0.00305	Yes
410.10	Post-replication	6	1.00	0.00349	Yes
	complex (Origin				
	recognition				
	complex=ORC)				
510.180.10.30	NEF3 complex	9	0.89	0.00371	Yes
510.40.10	RNA polymerase II	13	0.77	0.00606	No
480.10	SPB components	13	0.77	0.00672	No
410.40.30	Replication factor C	5	1.00	0.00881	No
	complex				
440.10.10	pre mRNA3'-end	5	1.00	0.0089	No
	processing factor CFI				
510.150	TFIIIC	5	1.00	0.00913	No
290.20.10	Tim22p-complex	5	1.00	0.00918	No
445.10	SCF-CDC4 complex	5	1.00	0.0092	No
510.10	RNA polymerase I	14	0.71	0.01453	No
160	Exocyst complex	7	0.86	0.01704	No
440.12.10	Exosome complex	7	0.86	0.01715	No
440.10.20	pre mRNA3'-end	4	1.00	0.0226	No
	processing factor				
	CFII				
410.40.60	DNA polymerase	4	1.00	0.02289	No
	alpha (I) - primase				
	complex				
270.10.10	CBF3 protein	4	1.00	0.0231	No
	complex				
510.20	Core Factor (CF)	4	1.00	0.02322	No
410.33	GIN5 complex	4	1.00	0.02337	No
310.10	NSP1 complex	4	1.00	0.02352	No
270.20.40	Ndc80 protein	4	1.00	0.02372	No
	complex				
445.30	SCF-MET30	4	1.00	0.0238	No
	complex				
60	Anaphase promoting	11	0.73	0.02466	No
	complex (APC)				
260.90	Arp2p/Arp3p	6	0.83	0.03623	No
	complex				
475.05	Sister chromatid	6	0.83	0.03662	No
	cohesion complex				

260.30.10	COPI	8	0.75	0.04389	No
260.60	TRAPP (Transport Protein Particle) complex	10	0.70	0.04763	No
400	RSC complex (Remodel the structure of chromatin)	10	0.70	0.04806	No

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