



Supplementary Information for

The Krüppel-like-factor Cabut has cell cycle regulatory properties similar to E2F1

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Supplementary Materials and Methods

Fly strains

w1118, *GMR-Gal4* (1), *GMR-Gal4(ey-CFP)* (generated in this study), *PCNA-miniwhite*⁺ (generated in this study), *en-Gal4* (from A. Brand), *PCNA-GFP* (2), *FRT^{80B} ago³* (3), *e2f2^{76Q1}* (4), *e2f1^{su89}* (5), *e2f1^{LA0365}* and *cbt^{LA0930}* (from J. Merriam), *UAS-cbt* (6), *hs-flp;act>CD2>Gal4,UAS-GFP* (from F. Pignoni), *hs-flp;tub>CD2>Gal4,UAS-GFP;tub-Gal80^{TS},UAS-Diap1* (7), *ap-Gal4,UAS-GFP;tub-Gal80^{ts}* (*ap-Gal4* described in (8)), *UAS-E2f1/DP* (9), *UAS-Stg* (9), *hs-flp,tub-Gal4,UAS-GFP;FRT^{40A} tub-Gal80 (MARCM^{40A})* (10), *FRT^{42D} Dp^{a3}* (11), *e2f1^{rM729}* (12), *hs-flp,tub-Gal4,UAS-GFP;;FRT^{82B} tub-Gal80 (MARCM^{82B})* (10), *FRT^{82B} e2f1⁷¹⁷²* (12), *P[GawB]cbt[NP5201]* (Kyoto # 104895), *cbt^{D41}* and *cbt^{D41} FRT^{2LR}* (generated in this study), *Sco/Cyo,Δ2-3* (Edgar lab stock), *UAS-cbt^{RNAi}* (NIG #4427R-1), *UAS-MED15^{RNAi}* (VDRC #21809), *UAS-GFP-E2f1* (13), *esg-Gal4,UAS-GFP;tub-Gal80^{ts}* (14), *esg-Gal4* (Edgar lab stock), *EGFP-PCNA* (15), *esg-Gal4,tub-Gal80^{ts},UAS-GFP;UAS-flp, act>CD2>Gal4 (esg^{ts} F/O)* (10), *ubi-GFP-E2F1₁₋₂₃₀,ub-mRFPI-NLS-CycB₁₋₂₆₆* (FUCCI#28.7) (16), *UAS-dTIEG* (17).

Immunostaining

Pupae, staged from white pre-pupae (0 hours after puparium formation, 0h APF) at 25°C, were dissected and fixed as described in (7, 18) for 18-44h APF pupae. Pupal cuticle was removed from wings post-fixation. Tissues 18-36h APF were blocked in PBS+0.1%TritonX-100+1%BSA for 1 hour. Tissues 36-44h APF were blocked in PBS+0.3%TritonX-100+1%BSA overnight. Larval discs were dissected and fixed for 30min in 4% paraformaldehyde in PBS for 30min followed by three 20min washes in PBS+0.1%TritonX-100+1%BSA. Wing hinge, notum and antennae were excluded from analyses. EdU labeling was performed on pupal tissues by dissecting tissue in

Ringer's solution and incubating in EdU (10 μ M) for 60min and then fixed in 4% paraformaldehyde in PBS for 30min. Tissues were then processed according to Click-iT EdU Imaging Kit (Invitrogen C 10338). BrdU labeling was performed by dissecting tissue in Ringer's solution and incubating in BrdU (100 μ g/mL) for 30min and then fixed in 4% paraformaldehyde in PBS for 30min. Tissues were then incubated in 2N HCl for 30min and neutralized twice with 100mM Borax for five minutes followed by incubation with anti-BrdU antibody. Midgut staining protocol was described in (14). All samples were stained with primary antibodies with the following dilutions: mouse α -phospho-Histone 3 (Upstate, 1:1,000), rabbit α -phospho-Histone 3 (Millipore, 1:1,000), rabbit α -GFP (Molecular Probes, 1:1,000), chicken α -GFP (Thermo Fisher Scientific, 1:1,000), mouse α -BrdU (BD Biosciences, 1:100), rabbit α -CyclinA (from D. Glover, 1:500), rabbit α -E2F1 (from R. Duronio, 1:500), Guinea pig α -E2F1 ((13), 1:100), rabbit α - β -galactosidase (Cappel, 1:10,000), mouse α - β -galactosidase (Promega, 1:500), mouse α -rat CD2 (Serotec, 1:800), rabbit α -Pdm1 (from X. Yang, 1:100), mouse α -Prospero (DHSB, 1:50), rabbit α -DsRed (Clontech Laboratories, 1:500), mouse α -Diap1 (from B. Hay, 1:100), Appropriate secondary antibodies were Alexa 488, 568, or 633 (Molecular Probes, 1:4,000). Hoescht 33258 (Molecular probes, 1 μ g/mL) or DAPI (Thermo Fisher Scientific, 1:1000) were used to label nuclei. Confocal images were collected on a Zeiss LSM 510, 780, and Leica SP8 microscopes.

Clone cell counts

Clone cell counts to analyze overexpression effects in proliferating cells were performed as described in (9) using *hs-flp;act>CD2>Gal4* with larvae heat-shocked for 10min at 37°C at 48h AED and dissected 72h later at 120h AED. GFP-positive cells per clone were scored blind on a Leica DMR microscope with greater than 100 clones/genotype were scored. Clone cell counts in pupal tissues were performed as described in (7) using *hs-flp;tub>CD2>Gal4,UAS-GFP;tub-*

Gal80^{ts},UAS-Diap1. 0h APF white pre-pupae were heat-shocked for 2min at 37°C and then dissected and fixed between 40-44h APF. GFP-positive cells per clone were scored blind on a Nikon Eclipse TI microscope with greater than 100 clones/genotype scored. The wing margin, hinge and notum were excluded as they have different proliferative properties (7). Clone cell counts to analyze the effect of transgene overexpression in mutant cells were performed using MARCM (19). 2h egg collections were performed and larvae were placed 50 animals/vial. For *e2f1⁷¹⁷²* clonal experiments larvae were heat-shocked at 72h AED for 45min and dissected 48h later at 120h AED. GFP-positive cells per clone were scored blind on a Nikon Eclipse TI microscope and greater than 100 clones/genotype were scored.

Microarrays

Microarray experiments were performed in tandem with (18) and methods have been described there and in (20). 10 wings from animals expressing either *E2f1/DP* or *cbt* by *ap-Gal4;tub-Gal80^{ts}* (or controls) were dissected at the appropriate time points (3rd larval instar, 24h APF, and 36h APF). Temperature shifts limited transgene expression to the pupal stages. Expression in 3rd instar larvae was equivalent to 24h before dissection of wandering larvae. RNA was isolated in Trizol (Invitrogen) and cleaned by RNaseasy column (Qiagen). cDNA synthesis was performed followed by a single subsequent round of T7-dependent linear RNA amplification using the Message AmpTM kit from Ambion (21). Labeling of amplified RNA was performed according to Nimblegen protocols and hybridized to Nimblegen 4-plex 60-mer *Drosophila* expression arrays. To ensure maximum confidence in data reproducibility, hybridizations were performed 4 times with three independently collected biological replicates. Statistically significant changes were determined using a 1.3-fold cutoff by ANOVA (22). Hierarchical clustering was performed using

Genesis (23) and GO enrichment by FatiGO. Correlation coefficients between arrays were determined by centered correlation single linkage.

RT-qPCR

RNA was isolated from 20 pupal wings using Trizol and RNAeasy columns (Qiagen). Equivalent amounts of RNA were used in 40 μ L cDNA synthesis reactions. PCR products were detected by Sybr-Green (Molecular Probes) and analyzed on a MyIQ iCycler (BioRad). Three (or more) independent biological replicates were used to collect data, and error bars indicate the range of measurements. The amplification efficiency of primers was tested using serial dilutions of control cDNA. All primer sets were designed to span introns to prevent amplification of genomic DNA. All presented data is normalized to amount of mRpL30 mRNA which is present at constant levels throughout pupal wing development (7). RNR-S primer sequences used were FWD: ACATCTTGCGAACGTTGTTG and REV: CGTCCAAGGAAAACATTGCT. All other primer sequences and mRpL30 normalization control have been described in (7).

Statistical Analysis

Statistical analyses were performed using the GraphPad Prism 8. Statistical significance (P values) of experiments were calculated by unpaired two-tailed Student's t-test. Statistical significance was denoted as follows: non-significant (ns) $P > 0.05$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ and **** $P < 0.0001$.

Figures S1-S7:

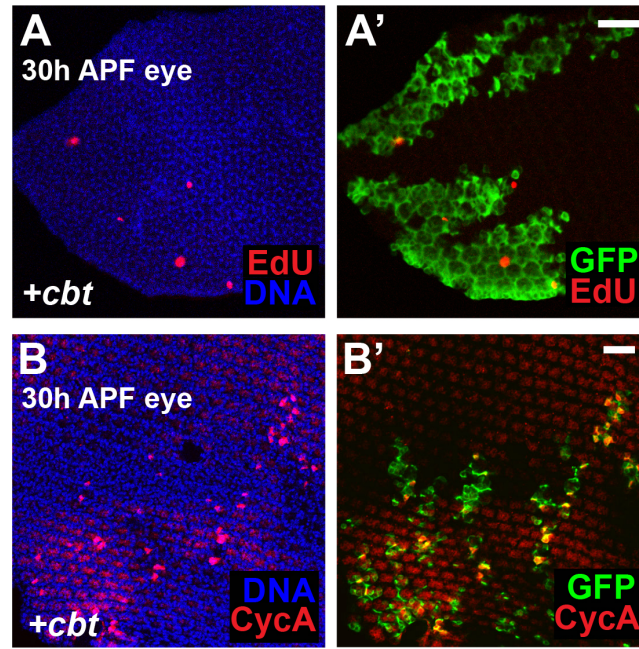


Figure S1. Cbt causes ectopic cell proliferation in pupal eyes

(A, B) 30h APF eyes with GFP-positive marked clones expressing *cbt* by *hs-flp;tub>CD2>Gal4;tub-Gal80^{ts}*. Cbt induced ectopic DNA replication by EdU incorporation (A, red) and ectopic S and G2 phases by anti-CycA staining (B, red). Nuclei were stained with Hoechst (blue). Scale bars represent 20µm.

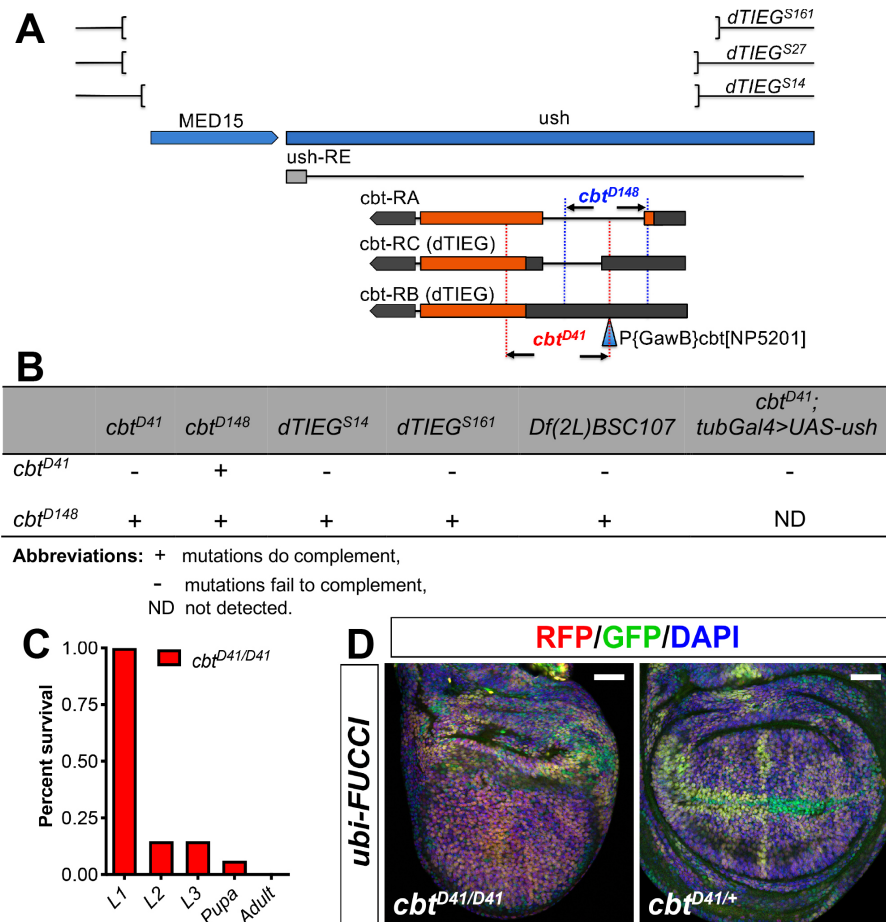


Figure S2. *cbt* null mutant generation and functional validation

(A) Scheme showed the *cbt* mutants generated in this study (*cbt^{D41}* and *cbt^{D148}*) and by others (*dTIEG^{S14}*, *dTIEG^{S27}*, and *dTIEG^{S161}*) (17). Per the sequencing results, *cbt^{D41}* did not impair the first intron, but deleted 241nt of the second intron and caused a frameshift of all three isoforms (Cbt-RA, -RB, and -RC). *cbt^{D148}* deleted 59nt of the first intron of *cbt*-RA but did not impinge on *cbt*-RB and -RC. (B) Genetic complementation tests indicated that of *cbt^{D41}* is a null allele but *cbt^{D148}* is not. (C) *cbt^{D41}* was balanced with the *CyO-uGFP* balancer. Homozygous *cbt^{D41/D41}* larvae (non-GFP 1st instar) were collected for a lethal phase test. The lethal phase test showed that most of the homozygous *cbt^{D41Dd41}* mutants died at the 2nd instar larval stage, and ~5% of them can pass the 3rd instar but died in the pupal stage. (D) A combined fly strain “*cbt^{D41}; ubi-FUCCI/SM5-TM6B*” was generated. Heterozygous (*Tb¹*, squat larvae) and homozygous (non-*Tb¹*) 3rd instar larvae were dissected and stained with anti-GFP and anti-RFP antibodies and DAPI. The homozygous 3rd instar *cbt^{D41Dd41}* larvae have smaller wing imaginal discs with disrupted cell cycle progression. Scale bars represent 40μm.

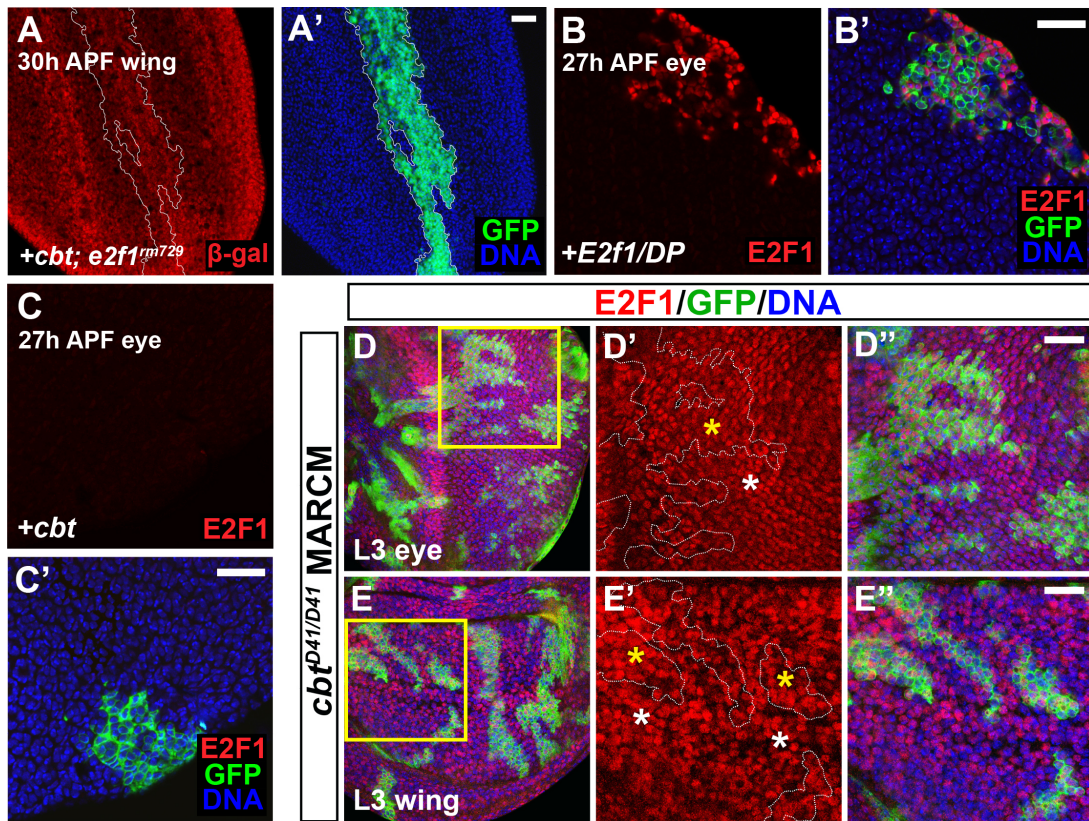


Figure S3. Cbt does not affect *E2f1* mRNA or protein expression

(A-A') GFP-marked clones expressing *cbt* were generated between 48h-72h AED by *hs-flp; act>CD2>Gal4* in animals heterozygous for the enhancer trap *e2f1^{M729}* allele which contains a LacZ insertion downstream of the *e2f1* promoter. 30h APF wings were stained with anti-GFP and anti- β -galactosidase antibodies, and Hoechst 33258. (B-C') GFP marked clones generated by *hs-flp; tub>Gal4; tub-Gal80^{ts}* expressing *E2f1/DP* (B-B') or *cbt* (C-C') analyzed at 27h APF in eyes. Expression of *E2f1/DP* strongly increased the level of E2F1 protein by anti-E2F1 antibody (red) staining while *cbt* did not. (D-E'') *cbt^{D41/D41}* mutant clones were generated by MARCM system at 48h AED and analyzed in the 3rd instar wing (D-D'') and eye (E-E'') discs. The yellow boxes in D and E were enlarged and visualized in D'-D'' and E'-E''. Comparing with the surrounding wild-types areas (indicated by white asterisks), cell clones homozygous for *cbt^{D41}* (indicated by yellow asterisks) did not alter E2F1 protein levels. Clones were labeled by GFP. Nuclei were stained with Hoechst (blue). Scale bars represent 20 μ m.

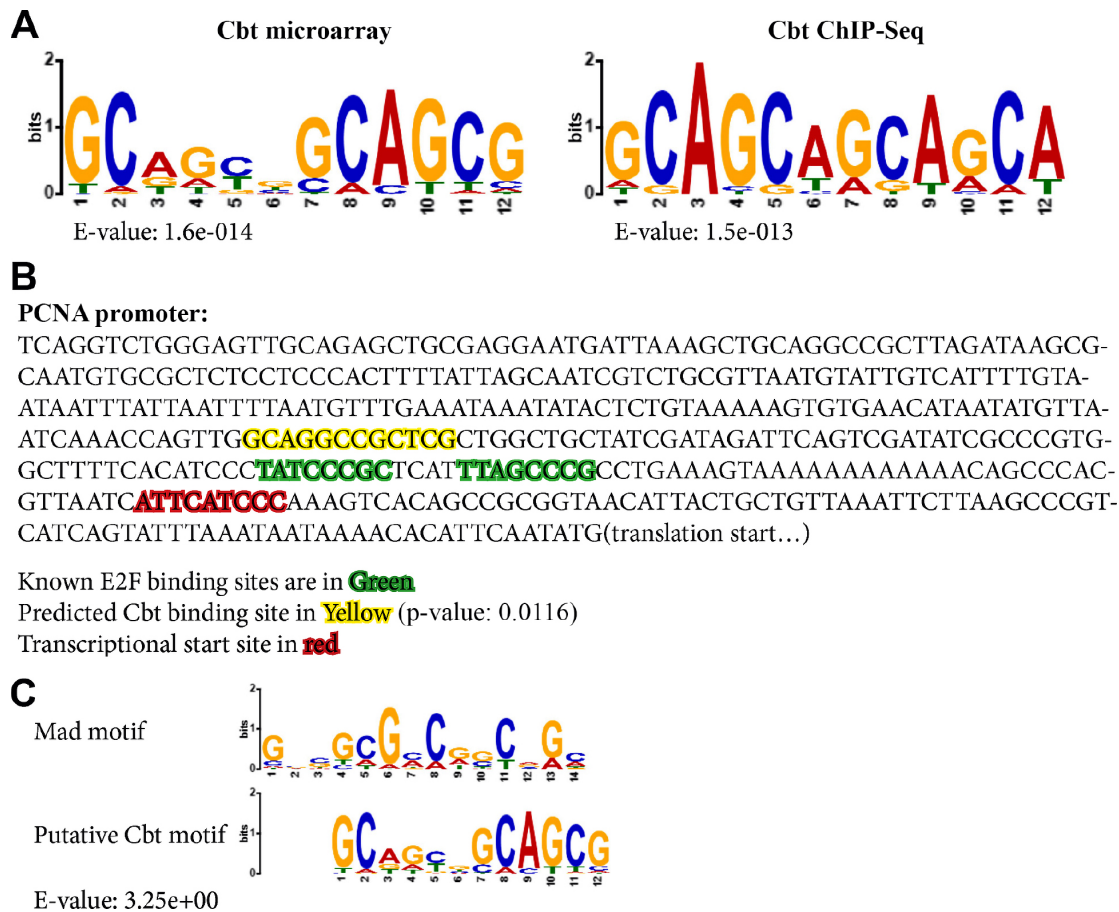


Figure S4: Motif analysis of Cbt

(A) *de novo* motif discovery was performed on TSS regions of Cbt target genes from our microarray data (left) and Cbt binding regions from ChIP-seq (modENCODE) using FIMO (MEME suite). A common GCAGYKGCAGCG motif was identified from both datasets, and a similar motif (p-value: 0.0116) is present at PCNA promoter region (B). (C) Comparison with known fly transcriptional factor motifs using TOMTOM revealed that the putative Cbt motif is similar to Mad binding site.

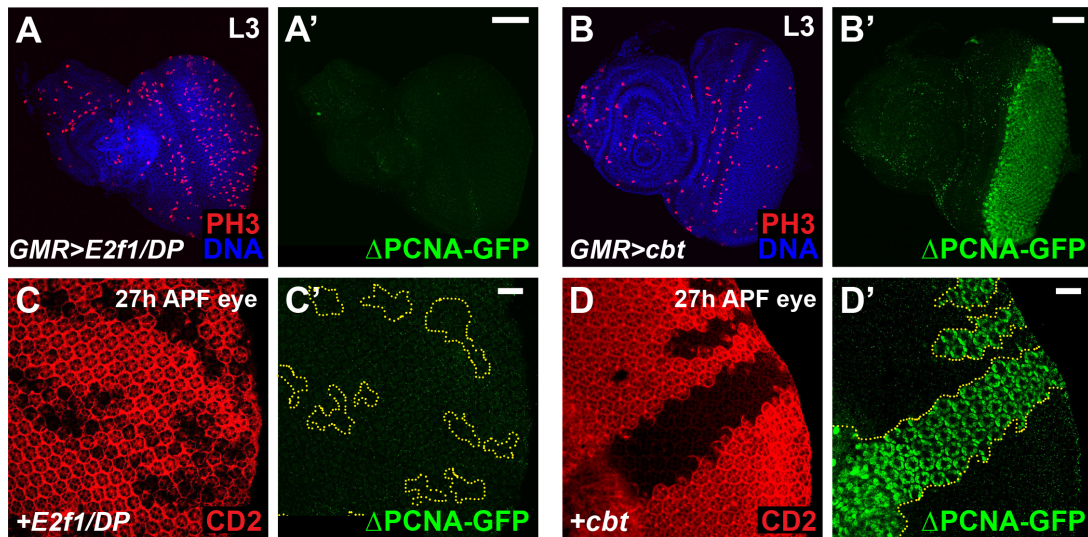


Figure S5. Cbt activates the *PCNA-GFP* reporter independent of the E2F1 binding sites

(A, B) *GMR-Gal4* was used to express either *E2f1/DP* (A) or *cbt* (B) in 3rd larval instar eye discs. Mitoses were detected by anti-PH3 staining (A, B) and expression of the $\Delta PCNA-GFP$ reporter (green) was analyzed (A', B'). Nuclei were stained with Hoechst (blue). Scale bars represent 50 μ m. (C, D) Clones marked by the absence of CD2 (red) expressing either *E2f1/DP* (C) or *cbt* (D) were generated by *hs-flp;act>CD2>Gal4* and examined at 27h APF in eyes for $\Delta PCNA-GFP$ expression. (C) E2F1/DP did not activate the $\Delta PCNA-GFP$ reporter. (D) Cbt strongly activated the $\Delta PCNA-GFP$ reporter. Scale bars represent 20 μ m.

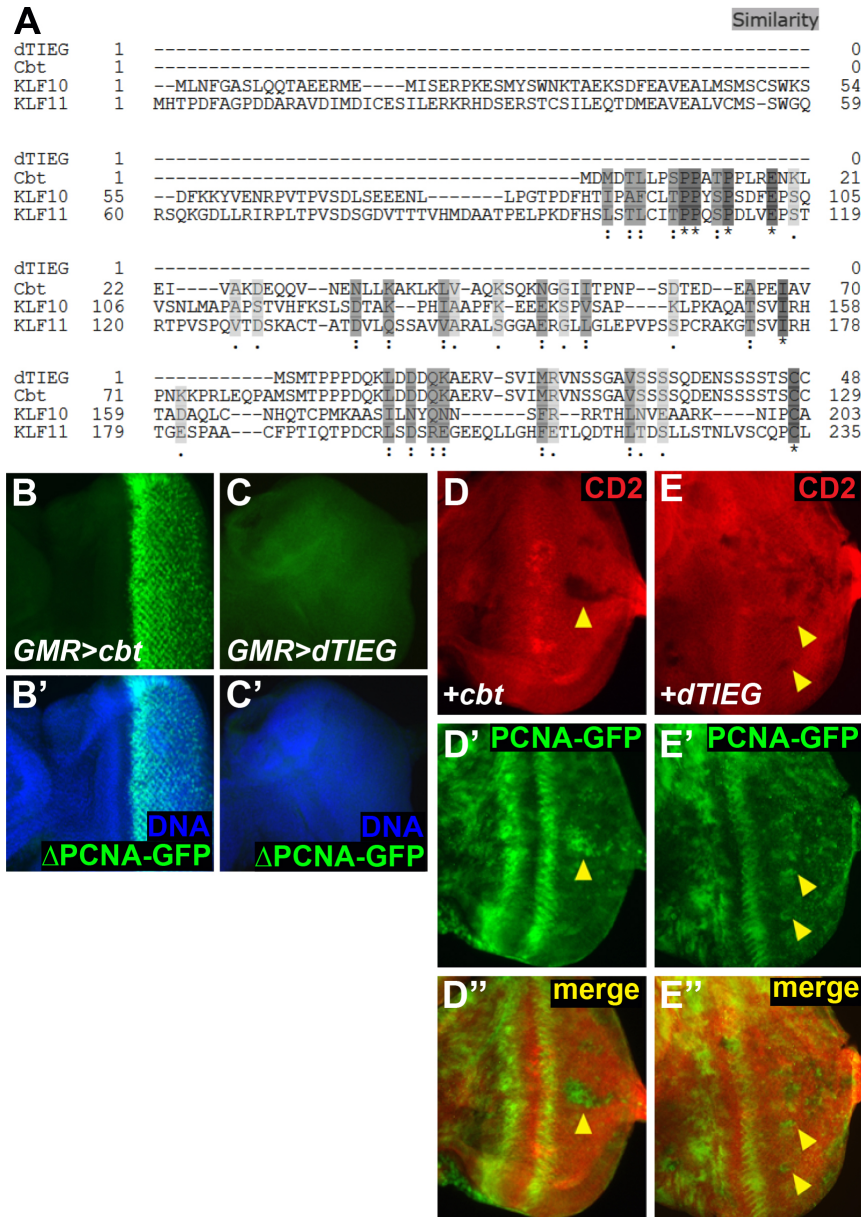


Figure S6. The N-terminus of Cbt is required for the activation of $\Delta PCNA-GFP$ but is dispensable for the activation of $PCNA-GFP$

(A) Sequence alignments of the N-terminus of *Drosophila* dTIEG (the shorter isoform of Cbt), Cbt, and human KLF10 and KLF11 with Uniport (<https://www.uniprot.org/align/>), followed by manual refinement. Fully conserved amino acids are shaded with dark grey and marked with “*” (asterisk). Strongly similar amino acids with scoring > 0.5 in the Gonnet PAM 250 matrix are shaded with medium grey and marked with “:” (colon). Weakly similar amino acids with scoring ≤ 0.5 and > 0 in the Gonnet PAM 250 matrix are shaded with light grey and marked with “.” (period). All unmarked amino acids have a score of 0.0 in the Gonnet PAM 250 matrix. (B-C’)

GMR-Gal4 was used to express either *cbt* (B-B') or *dTIEG* (C-C') in 3rd larval instar eye discs. Overexpression of *cbt* (B), rather than *dTIEG* (C), activates the Δ *PCNA-GFP* reporter. Nuclei were stained with Hoechst (blue). (D-E'') Clones marked by the absence of CD2 (red) expressing either *cbt* (D-D'') or *dTIEG* (E-E'') were generated by *hs-flp;act>CD2>Gal4*. Arrowheads indicate the clone areas that have upregulated *PCNA-GFP*. Both *cbt* (D') and *dTIEG* (E') could activate the *PCNA-GFP* reporter.

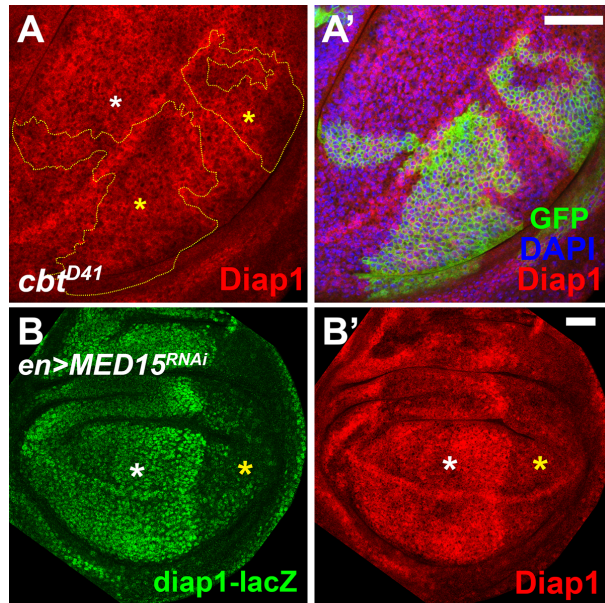


Figure S7. MED15 but not Cbt is required for Yki activity

(A-A') *cbt^{D41/D41}* mutant clones were generated by MARCM system at 48h AED and analyzed in the 3rd instar wing discs. Samples were stained with anti-GFP and anti-Diap1 antibodies and DAPI. Yellow dotted lines marked the clone areas. Yellow asterisks (A) indicates the *Diap1* expression inside of *cbt^{D41/D41}* mutant clones, while the white asterisk (A) indicates the *Diap1* expression in surrounding wild-type cells. (B) Knockdown of *MED15* in the posterior compartment of 3rd instar wing disc was driven by *en-Gal4*. The *Diap1-LacZ* reporter (green) and anti-Diap1 staining (red) were applied to indicate Yki activity. Yellow asterisks in (B and B') indicated the decreasing of *Diap1-lacZ* and the endogenous Diap1 protein levels. White asterisks in (B and B') indicated the normal levels of *Diap1-lacZ* and the endogenous Diap1 in the anterior compartment. Scale bars represent 30µm.

Tables S1-S6:

Table S1. Positive hits from PCNA-miniwhite⁺ screen

EP Line	Predicted Overexpressed Gene	Function/Domains
LA0030	<i>CG7239</i>	Zinc finger transcription factor
LA0035	<i>CG10431</i>	Zinc finger transcription factor
LA0095	<i>CG5789</i>	ATP-binding transporter
LA0202	SH3PX1	Protein binding
LA0316	<i>lola</i>	Zinc finger transcription factor
LA0349	<i>cycE</i>	G1 Cyclin
LA0365	<i>E2f1</i>	Transcription factor
LA0376	NK7.1	Homeobox transcription factor
LA0390	<i>mesr4</i>	Zinc finger transcription factor
LA0411	<i>Hsc70CB</i>	ATPase, chaperone
LA0622	<i>CG12768</i>	Unknown
LA0648	<i>dan</i>	Homeobox transcription factor
LA0718	<i>sec23</i>	GTPase activator
LA0870	dACK	Tyrosine kinase
LA0930	<i>cabut</i>	Zinc finger transcription factor

Table S2. Transcriptional targets of Cbt in pupal wing

A negative number for the "Log₂ FC" means it increased upon *cbt* overexpression, and a positive number means the gene decreased under *cbt* overexpression. Cutoff: log₂ ± 0.4 compared to controls, P<0.05.

Transcript_ID	Gene_ID	Gene_Name	Log2 FC of (+Cbt 24h APF)	Log2 FC of (+Cbt 36h APF)	P.value. adj.Cbt 24h APF	P.value. adj. Cbt 36h APF
FBtr0075108	FBgn0036800	CG6897	-2.45	-2.73	0.00	0.00
FBtr0073286	FBgn0052251	CG32251	-2.57	-1.59	0.00	0.00
FBtr0081258	FBgn0027949	msb11	-2.31	-2.72	0.00	0.00
FBtr0079357	FBgn0031878	sip2	-3.25	-3.57	0.00	0.00
FBtr0077113	FBgn0035640	mad2	-2.09	-1.65	0.00	0.00
FBtr0076771	FBgn0003041	pbl	-2.43	-1.71	0.00	0.00
FBtr0073227	FBgn0011692	pav	-3.13	-3.01	0.00	0.00
FBtr0100318	FBgn0003124	polo	-1.95	-3.16	0.00	0.00

FBtr0074839	FBgn0003124	polo	-1.76	-3.06	0.00	0.00
FBtr0075970	FBgn0002466	sti	-3.36	-3.11	0.00	0.00
FBtr0083586	FBgn0038608	CG7670	-2.90	-3.37	0.00	0.00
FBtr0080059	FBgn0011703	RnrL	-2.13	-1.97	0.00	0.00
FBtr0088046	FBgn0011704	RnrS	-2.10	-2.56	0.00	0.00
FBtr0076603	FBgn0011762	DNApol- α 50	-2.59	-1.95	0.00	0.00
FBtr0077081	FBgn0035644	Pole2	-2.51	-2.84	0.00	0.00
FBtr0082866	FBgn0015270	Orc2	-2.75	-2.56	0.00	0.00
FBtr0086307	FBgn0005655	PCNA/mus209	-2.41	-3.27	0.00	0.00
FBtr0081827	FBgn0014861	Mcm2	-1.91	-1.28	0.00	0.00
FBtr0081438	FBgn0032906	CG9273	-1.36	-1.72	0.00	0.00
FBtr0077679	FBgn0024920	Ts	-2.65	-3.36	0.00	0.00
FBtr0086881	FBgn0003545	sub	-4.12	-3.85	0.00	0.00
FBtr0072733	FBgn0004378	Klp61F	-3.29	-3.69	0.00	0.00
FBtr0084692	FBgn0000140	asp	-4.20	-2.75	0.00	0.00
FBtr0080215	FBgn0040232	cmet	-4.19	-2.98	0.00	0.00
FBtr0080180	FBgn0024227	ial	-1.80	-1.83	0.00	0.00
FBtr0070258	FBgn0026871	CG14781	-3.56	-2.54	0.00	0.00
FBtr0075363	FBgn0027500	CG17286	-2.56	-1.42	0.00	0.00
FBtr0079424	FBgn0031886	CG8902	-2.46	1.05	0.00	0.00
FBtr0088961	FBgn0033156	Incenp	-2.64	-3.29	0.00	0.00
FBtr0089584	FBgn0036689	CG7730	-3.17	-1.49	0.00	0.00
FBtr0071616	FBgn0034614	CG9752	-2.18	-2.41	0.00	0.00
FBtr0087641	FBgn0033881	RacGAP50C	-3.88	-3.99	0.00	0.00
FBtr0075863	FBgn0036354	CG10191	-2.54	-2.85	0.00	0.00
FBtr0083931	FBgn0038821	CG17267	-1.95	-1.76	0.00	0.00
FBtr0082203	FBgn0037781	CG12812	-2.09	-1.01	0.00	0.00
FBtr0075056	FBgn0036815	l(3)neo26	-1.50	-2.45	0.00	0.00
FBtr0075057	FBgn0036815	l(3)neo26	-2.36	-2.03	0.00	0.00
FBtr0086768	FBgn0003022	Ote	-1.12	-0.64	0.00	0.00
FBtr0083183	FBgn0003483	spn-E	-1.58	-1.40	0.00	0.00
FBtr0076585	FBgn0020633	Mcm7	-2.30	-2.29	0.00	0.00
FBtr0082279	FBgn0017577	Mcm5	-3.04	-3.71	0.00	0.00
FBtr0079799	FBgn0010314	Cks30A	-3.39	-3.10	0.00	0.00
FBtr0082483	FBgn0000147	aur	-2.59	-2.22	0.00	0.00
FBtr0086032	FBgn0025458	Bub1	-2.56	-2.01	0.00	0.00
FBtr0075181	FBgn0036738	CG7542	3.15	2.96	0.00	0.00
FBtr0071698	FBgn0050288	CG30288	4.78	5.06	0.00	0.00
FBtr0083290	FBgn0038431	CG10405	2.40	3.78	0.00	0.00
FBtr0073806	FBgn0030501	BthD	-4.02	-4.35	0.00	0.00
FBtr0076885	FBgn0035761	RhoGEF4	-3.58	-3.06	0.00	0.00
FBtr0081095	FBgn0032698	CG10336	-2.31	-1.88	0.00	0.00
FBtr0078090	FBgn0031252	CG13690	-3.38	-3.23	0.00	0.00
FBtr0083133	FBgn0045035	tefu	-1.64	-0.95	0.00	0.00

FBtr0084728	FBgn0015625	CycB3	-1.58	-1.81	0.00	0.00
FBtr0081697	FBgn0024912	agt	-1.08	-0.96	0.00	0.00
FBtr0087461	FBgn0027783	SMC2	-1.67	-1.06	0.00	0.00
FBtr0070182	FBgn0026143	CDC45L	-1.08	-0.60	0.00	0.00
FBtr0086787	FBgn0034299	CG5757	-1.77	-1.19	0.00	0.00
FBtr0082083	FBgn0028997	nmdyn-D7	-1.39	-1.14	0.00	0.00
FBtr0073468	FBgn0026268	antdh	3.30	4.37	0.00	0.00
FBtr0077125	FBgn0035627	Sse	-2.19	-1.78	0.00	0.00
FBtr0080935	FBgn0015391	glu	-1.32	-0.75	0.00	0.00
FBtr0085534	FBgn0002924	ncd	-1.77	-1.58	0.00	0.00
FBtr0086025	FBgn0033054	CG14591	1.75	1.30	0.00	0.00
FBtr0081449	FBgn0032896	CG14400	2.71	3.06	0.00	0.00
FBtr0071697	FBgn0050289	CG30289	2.91	3.57	0.00	0.00
FBtr0070294	FBgn0025382	Rab27	-2.24	-2.67	0.00	0.00
FBtr0084556	FBgn0026257	cav	-1.23	-0.77	0.00	0.00
FBtr0073410	FBgn0030241	feo	-1.79	-1.52	0.00	0.00
FBtr0085119	FBgn0005696	DNAPol- α 73	-1.89	-1.82	0.00	0.00
FBtr0079320	FBgn0000351	cort	-1.51	-0.78	0.00	0.01
FBtr0074876	FBgn0036907	CG8533	1.16	1.84	0.00	0.00
FBtr0084323	FBgn0039018	CG4771	-2.10	-1.26	0.00	0.00
FBtr0084665	FBgn0051125	CG31125	-1.75	-1.62	0.00	0.00
FBtr0074007	FBgn0015926	dah	-2.31	-2.33	0.00	0.00
FBtr0084408	FBgn0020756	DNAPol- epsilon	-2.20	-1.53	0.00	0.00
FBtr0075497	FBgn0036565	CG5235	-1.85	-2.10	0.00	0.00
FBtr0072678	FBgn0035209	CG13914	-3.04	-1.98	0.00	0.00
FBtr0072237	FBgn0003401	shu	-1.90	-1.73	0.00	0.00
FBtr0084115	FBgn0004493	DNAPol- α 180	-1.85	-1.35	0.00	0.00
FBtr0085795	FBgn0003268	rod	-1.89	-1.47	0.00	0.00
FBtr0084558	FBgn0026257	cav	-1.29	-0.75	0.00	0.01
FBtr0081475	FBgn0032929	Mcm10	-1.83	-1.36	0.00	0.00
FBtr0088675	FBgn0033354	CG13745	-2.07	-0.93	0.00	0.04
FBtr0085777	FBgn0061476	zwilch	-1.46	-1.44	0.00	0.00
FBtr0088482	FBgn0023180	Orc6	-1.74	-0.99	0.00	0.01
FBtr0078241	FBgn0011425	DNAPrim	-1.26	-0.62	0.00	0.03
FBtr0088222	FBgn0033549	CG12936	-1.73	-1.56	0.00	0.00
FBtr0073264	FBgn0015287	RfC40	-0.77	-0.61	0.00	0.00
FBtr0084975	FBgn0039403	Sld5	-1.33	-0.76	0.00	0.01
FBtr0072066	FBgn0015903	apt	-1.06	-0.65	0.00	0.01
FBtr0077678	FBgn0004584	Rrp1	-1.24	-0.98	0.00	0.00
FBtr0080833	FBgn0001086	fzy	-1.43	-1.84	0.00	0.00
FBtr0085265	FBgn0039563	CG4951	-0.91	0.45	0.00	0.03
FBtr0074809	FBgn0031070	CG12702	-2.24	-1.42	0.00	0.01
FBtr0005673	FBgn0002887	mus201	-0.92	-0.79	0.00	0.00
FBtr0087387	FBgn0000996	dup	-1.44	-1.03	0.00	0.00

FBtr0071911	FBgn0000405	CycB	-1.71	-1.60	0.00	0.00
FBtr0082690	FBgn0040494	CG7242	-1.11	-1.51	0.00	0.00
FBtr0074998	FBgn0023395	Chd3	-2.06	-1.87	0.00	0.00
FBtr0070293	FBgn0025382	Rab27	-1.45	-1.55	0.00	0.00
FBtr0081867	FBgn0010173	RpA-70	-0.71	-0.90	0.00	0.00
FBtr0088310	FBgn0033526	Caf1-105	-1.04	-0.73	0.00	0.00
FBtr0085414	FBgn0039638	CG11881	-1.46	-1.24	0.00	0.00
FBtr0073850	FBgn0030500	CG9938	-2.08	-1.18	0.00	0.03
FBtr0080225	FBgn0028700	RfC38	-0.58	-0.46	0.00	0.00
FBtr0072132	FBgn0034922	CG5602	-1.62	-0.86	0.00	0.04
FBtr0075130	FBgn0015946	grim	-1.26	-0.86	0.00	0.01
FBtr0079817	FBgn0032105	Borr	-1.00	-1.25	0.00	0.00
FBtr0088469	FBgn0010316	dap	-0.76	-0.84	0.00	0.00
FBtr0082086	FBgn0016792	dmt	-0.92	-0.71	0.00	0.00
FBtr0088685	FBgn0027513	CG8262	-1.05	-0.87	0.00	0.00
FBtr0083738	FBgn0038695	CG14280	-1.12	-0.70	0.00	0.02
FBtr0085047	FBgn0039449	CG6425	-0.94	-1.05	0.00	0.00
FBtr0085095	FBgn0027889	ball	-1.11	-0.70	0.00	0.02
FBtr0083478	FBgn0000063	ald	-1.15	-0.81	0.00	0.01
FBtr0071015	FBgn0029937	CG8300	-0.58	-0.51	0.00	0.00
FBtr0083835	FBgn0038772	CG4973	-0.73	-0.60	0.00	0.00
FBtr0071912	FBgn0000405	CycB	-1.36	-1.48	0.00	0.00
FBtr0078373	FBgn0052438	Smc5	-0.75	-0.47	0.00	0.03
FBtr0082385	FBgn0011774	Irbp	-0.94	-0.99	0.00	0.00
FBtr0087655	FBgn0033835	IM10	1.16	2.43	0.00	0.00
FBtr0082386	FBgn0037894	Ranbp9	-1.20	-1.23	0.00	0.00
FBtr0076019	FBgn0036263	thoc6	-0.66	-0.54	0.00	0.00
FBtr0081898	FBgn0051453	CG31453	-0.77	-0.83	0.00	0.00
FBtr0077375	FBgn0031617	CG15635	1.60	1.96	0.00	0.00
FBtr0082933	FBgn0003480	spn-B	-1.09	-0.79	0.00	0.01
FBtr0073655	FBgn0030407	CG2543	-0.55	-1.03	0.00	0.00
FBtr0084491	FBgn0039125	CG5857	-0.84	-0.59	0.00	0.02
FBtr0083408	FBgn0038489	CG12265	-0.81	-0.83	0.00	0.00
FBtr0076075	FBgn0000404	CycA	-0.77	-1.35	0.00	0.00
FBtr0077446	FBgn0011603	ine	1.25	1.40	0.00	0.00
FBtr0072865	FBgn0002183	dre4	-0.85	-0.75	0.00	0.00
FBtr0088790	FBgn0011659	Mlh1	-0.81	-0.54	0.00	0.04
FBtr0074074	FBgn0030646	CG9203	-0.94	-0.93	0.00	0.00
FBtr0082304	FBgn0037834	Art1	-0.49	-0.68	0.00	0.00
FBtr0072856	FBgn0002872	mu2	-0.79	-0.61	0.00	0.02
FBtr0083921	FBgn0004107	cdc2c	-1.06	-1.20	0.00	0.00
FBtr0083922	FBgn0004107	cdc2c	-0.75	-1.18	0.00	0.00
FBtr0081934	FBgn0037633	CG9839	-0.78	-0.68	0.00	0.01
FBtr0079319	FBgn0031848	CG11329	-1.00	-1.30	0.00	0.00

FBtr0088911	FBgn0004243	scra	-0.99	-1.59	0.00	0.00
FBtr0086750	FBgn0034314	CG5140	-0.69	-0.49	0.00	0.04
FBtr0085796	FBgn0039854	CG1635	0.73	1.12	0.00	0.00
FBtr0075960	FBgn0036297	CG14121	-0.81	-1.04	0.00	0.00
FBtr0086277	FBgn0034495	CG11788	-0.65	-0.57	0.01	0.02
FBtr0087388	FBgn0011660	Pms2	-0.86	-0.84	0.01	0.01
FBtr0070146	FBgn0015799	Rbf	-0.63	-0.47	0.01	0.05
FBtr0075095	FBgn0040322	GNBP2	0.58	0.72	0.01	0.00
FBtr0081287	FBgn0003732	Top2	-0.64	-0.49	0.01	0.05
FBtr0086535	FBgn0034447	CG7744	-0.86	-0.73	0.01	0.03
FBtr0080930	FBgn0022213	Cas	-0.59	-0.52	0.01	0.02
FBtr0078489	FBgn0037141	DNApol-eta	-0.96	-0.78	0.01	0.04
FBtr0071414	FBgn0030170	CG2990	-1.10	-0.95	0.01	0.03
FBtr0073278	FBgn0016013	Faa	0.46	0.74	0.01	0.00
FBtr0073541	FBgn0027259	l(1)G0237	-0.80	-0.78	0.02	0.02
FBtr0070762	FBgn0024332	Mcm3	-1.15	-1.32	0.02	0.00
FBtr0085267	FBgn0039559	Mes-4	-0.64	-0.61	0.02	0.02
FBtr0081488	FBgn0032934	CG8679	-0.72	-0.61	0.02	0.05
FBtr0083935	FBgn0038820	CG4000	-1.20	-4.43	0.02	0.00
FBtr0074222	FBgn0027521	CG3679	-0.90	-0.87	0.02	0.02
FBtr0086305	FBgn0034494	CG10444	-0.59	-0.76	0.02	0.00
FBtr0070586	FBgn0029672	CG2875	-0.44	-0.52	0.03	0.01
FBtr0075965	FBgn0036301	CG4069	-0.48	-0.60	0.04	0.01
FBtr0079044	FBgn0053113	Rtnl1	-0.75	-0.80	0.04	0.03
FBtr0077074	FBgn0002638	Bj1	-0.68	-0.73	0.04	0.03
FBtr0071934	FBgn0040091	Ugt58Fa	-0.42	-0.85	0.05	0.00
FBtr0078688	FBgn0037338	Snm1	-0.50	-0.75	0.05	0.00
FBtr0076499	FBgn0004379	Klp67A	-3.00	-2.12	0.00	0.00
FBtr0085157	FBgn0039504	CG14260	-1.68	-0.68	0.00	0.04
FBtr0078255	FBgn0037025	CG11451	-1.59	-1.30	0.00	0.00
FBtr0084573	FBgn0039164	CG5524	-1.23	-0.96	0.00	0.00
FBtr0081099	FBgn0032705	Grip71	-1.27	-0.84	0.00	0.02
FBtr0089184	FBgn0019985	Glu-RA	1.76	1.48	0.00	0.01
FBtr0075350	FBgn0063485	Lasp	-1.04	-1.49	0.00	0.00
FBtr0075096	FBgn0040322	GNBP2	0.56	0.47	0.00	0.01
FBtr0071550	FBgn0034569	CG3221	-1.52	-2.00	0.00	0.00
FBtr0085110	FBgn0029155	Mdh	-1.11	-0.62	0.00	0.04
FBtr0081426	FBgn0032895	CG9335	2.68	2.03	0.00	0.00
FBtr0080853	FBgn0032582	CG13258	-3.95	-1.89	0.00	0.00
FBtr0073148	FBgn0035462	CG1120	-0.66	-0.54	0.00	0.02
FBtr0087306	FBgn0050085	CG30085	-1.49	1.42	0.00	0.00
FBtr0082928	FBgn0011474	pr-set7	-1.01	-0.72	0.00	0.02
FBtr0082132	FBgn0037746	CG8478	-3.40	-0.86	0.00	0.04
FBtr0075094	FBgn0040322	GNBP2	0.72	0.52	0.00	0.01

FBtr0087743	FBgn0033815	CG4676	1.01	1.03	0.00	0.00
FBtr0084849	FBgn0039328	CG10675	-1.45	-1.51	0.00	0.00
FBtr0075097	FBgn0040322	GNBP2	0.59	0.51	0.01	0.03
FBtr0089940	FBgn0025682	scf	0.50	0.44	0.00	0.01
FBtr0088677	FBgn0033348	CG8247	-0.89	-0.53	0.00	0.02
FBtr0087143	FBgn0034112	CG3896	-1.39	-1.92	0.00	0.00
FBtr0078387	FBgn0026371	SAK	-0.76	-0.47	0.00	0.01
FBtr0087818	FBgn0050488	CG30488	-1.31	-1.04	0.00	0.01
FBtr0087725	FBgn0033795	Cap-G	-0.84	-0.51	0.00	0.02
FBtr0074475	FBgn0030864	CG8173	-1.30	-0.77	0.00	0.00
FBtr0073049	FBgn0035427	CG14959	-0.44	0.47	0.04	0.03
FBtr0081049	FBgn0032670	CG5783	1.39	1.07	0.00	0.02
FBtr0083222	FBgn0038394	CG10264	-1.04	-1.37	0.01	0.00
FBtr0088745	FBgn0014469	Cyp4e2	0.60	0.89	0.04	0.00
FBtr0077262	FBgn0052512	CG32512	1.55	1.07	0.00	0.01
FBtr0073337	FBgn0035538	DopEcR	1.32	-1.45	0.00	0.00
FBtr0078240	FBgn0036978	Toll-9	-2.41	-1.99	0.00	0.00
FBtr0088213	FBgn0033541	CG12934	5.63	5.94	0.00	0.00
FBtr0084850	FBgn0045761	CG10618	-0.56	-0.76	0.05	0.01
FBtr0091838	FBgn0053834	His1:CG33834	-1.92	-1.18	0.00	0.00
FBtr0085892	FBgn0051617	His1:CG31617	-1.82	-0.75	0.00	0.00
FBtr0073329	FBgn0035553	CG13722	-3.30	-0.85	0.00	0.03
FBtr0084707	FBgn0039238	CG7016	0.80	-1.07	0.04	0.01
FBtr0072272	FBgn0005638	slbo	-3.04	-1.44	0.00	0.00
FBtr0073298	FBgn0035543	CG15020	2.45	-1.89	0.00	0.01
FBtr0071928	FBgn0034756	Cyp6d2	-2.75	-1.68	0.00	0.00
FBtr0083995	FBgn0038827	Fancd2	-1.61	0.88	0.00	0.01
FBtr0084481	FBgn0039094	CG10184	-0.55	-1.21	0.05	0.00
FBtr0084961	FBgn0000591	E(spl)	-3.02	-2.16	0.00	0.00
FBtr0087952	FBgn0033737	CG8831	-0.57	0.46	0.00	0.01
FBtr0075675	FBgn0003388	shd	0.94	-0.79	0.01	0.05
FBtr0083119	FBgn0038321	CG6218	0.40	1.15	0.01	0.00
FBtr0087122	FBgn0034140	CG8317	-0.82	-2.12	0.01	0.00
FBtr0084045	FBgn0051189	CG31189	-2.45	-3.06	0.00	0.00
FBtr0088982	FBgn0015929	dpa	-1.05	0.76	0.00	0.03
FBtr0073136	FBgn0035452	CG10359	-1.81	-2.08	0.00	0.00
FBtr0087637	FBgn0033874	CG6347	1.22	-1.26	0.03	0.03
FBtr0080638	FBgn0020258	ppk	-2.94	-1.31	0.00	0.02
FBtr0088003	FBgn0033702	CG8854	0.95	-1.25	0.02	0.00
FBtr0075478	FBgn0036591	CG13050	2.43	1.09	0.00	0.04
FBtr0072585	FBgn0035167	Gr61a	-1.30	-1.90	0.00	0.00
FBtr0075906	FBgn0036324	CG12520	-2.26	-2.77	0.00	0.00
FBtr0079070	FBgn0016076	vri	-2.37	2.40	0.00	0.00
FBtr0084150	FBgn0038919	CG17843	-0.58	-1.42	0.00	0.00

FBtr0072660	FBgn0035199	CG9134	-0.70	0.78	0.01	0.00
FBtr0081569	FBgn0011020	l(3)s2214	-0.62	-0.90	0.04	0.00
FBtr0085580	FBgn0039749	CG11498	0.71	1.36	0.04	0.00
FBtr0088206	FBgn0033579	CG13229	-1.09	-0.97	0.00	0.01
FBtr0075403	FBgn0052158	CG32158	-1.91	-1.34	0.00	0.00
FBtr0082194	FBgn0001321	knk	-1.54	-1.21	0.00	0.00
FBtr0077137	FBgn0035612	CG10625	-4.01	-3.69	0.00	0.00
FBtr0077417	FBgn0031629	CG3244	-4.15	-1.22	0.00	0.03
FBtr0077080	FBgn0052412	CG32412	-1.15	-0.61	0.00	0.01
FBtr0073516	FBgn0002948	nod	-0.71	-0.94	0.02	0.00
FBtr0089969	FBgn0034405	Jheh2	-1.29	-1.66	0.00	0.00
FBtr0078634	FBgn0037381	CG10999	-0.89	-0.84	0.01	0.01
FBtr0071995	FBgn0034800	CG3788	-1.02	-0.49	0.00	0.05
FBtr0072129	FBgn0011236	ken	-1.45	-1.71	0.00	0.00
FBtr0088492	FBgn0050001	CG30001	-0.81	-0.79	0.01	0.01
FBtr0071788	FBgn0034699	CG13504	1.33	1.59	0.00	0.00
FBtr0100155	FBgn0013974	Gyc76C	-0.75	-0.51	0.00	0.04
FBtr0072462	FBgn0052475	mthl8	-0.71	-0.85	0.00	0.00
FBtr0074807	FBgn0031071	CG12701	-1.54	-1.15	0.00	0.00
FBtr0070681	FBgn0025739	pon	-1.28	-1.00	0.00	0.01
FBtr0087943	FBgn0033749	achi	-0.63	-0.41	0.00	0.04
FBtr0088474	FBgn0033443	CG1698	-4.57	-3.92	0.00	0.00
FBtr0079164	FBgn0031737	CG11142	-2.32	-1.29	0.00	0.01
FBtr0088634	FBgn0033372	CG13742	-0.91	-1.34	0.00	0.00
FBtr0076785	FBgn0023076	Clk	-1.26	-1.28	0.01	0.01
FBtr0088831	FBgn0002891	mus205	-1.19	-1.52	0.00	0.00
FBtr0077559	FBgn0031549	CG15415	-1.26	-1.24	0.00	0.00
FBtr0079561	FBgn0031959	Spz3	-0.94	-0.97	0.00	0.00
FBtr0070821	FBgn0029820	CG16721	-0.56	-0.56	0.02	0.02
FBtr0089970	FBgn0034405	Jheh2	-1.33	-1.58	0.00	0.00
FBtr0083692	FBgn0038632	CG14301	-0.88	-0.96	0.00	0.00
FBtr0082899	FBgn0053329	CG33329	-2.53	-3.07	0.00	0.00
FBtr0070245	FBgn0026876	CG11403	-0.80	-1.63	0.05	0.00
FBtr0088631	FBgn0033375	CG8078	0.45	0.62	0.02	0.00
FBtr0088844	FBgn0050377	CG30377	-0.81	-1.29	0.02	0.00
FBtr0086900	FBgn0034249	RhoGAP54D	-0.82	-0.76	0.01	0.01
FBtr0075076	FBgn0036824	CG3902	0.78	0.53	0.00	0.00
FBtr0083378	FBgn0015011	Ahcy89E	-2.04	-1.78	0.00	0.00
FBtr0075402	FBgn0052158	CG32158	-1.56	-1.31	0.00	0.00
FBtr0075406	FBgn0052158	CG32158	-1.45	-1.43	0.00	0.00
FBtr0074824	FBgn0036954	CG17147	1.53	2.76	0.00	0.00
FBtr0087287	FBgn0034046	tun	-0.60	-0.80	0.00	0.00
FBtr0086139	FBgn0033096	ZIP1	1.29	0.85	0.00	0.02
FBtr0070416	FBgn0029608	CG3091	-1.67	-1.16	0.00	0.00

FBtr0078162	FBgn0002931	net	-0.52	-1.40	0.03	0.00
FBtr0083674	FBgn0004461	gwl	-1.15	-1.13	0.00	0.00
FBtr0084044	FBgn0051207	CG31207	-1.49	-1.75	0.01	0.00
FBtr0087514	FBgn0033942	CG10112	-4.71	-1.31	0.00	0.01
FBtr0088057	FBgn0050038	CG30038	-0.62	-0.71	0.04	0.02
FBtr0074945	FBgn0036891	CG9372	-3.08	-3.32	0.00	0.00
FBtr0076894	FBgn0035718	CG14820	-1.27	-2.40	0.00	0.00
FBtr0080137	FBgn0051870	CG31870	-2.60	-2.36	0.00	0.00
FBtr0085249	FBgn0027579	CG5508	-0.72	-0.65	0.00	0.01
FBtr0089270	FBgn0010473	tutl	0.50	-0.57	0.05	0.02
FBtr0083379	FBgn0015011	Ahcy89E	-2.04	-1.73	0.00	0.00
FBtr0071413	FBgn0052694	CG32694	-3.32	-2.44	0.00	0.00
FBtr0089292	FBgn0010549	l(2)03659	-1.55	-2.64	0.00	0.00
FBtr0088055	FBgn0033664	MCPH1	-1.19	-0.97	0.01	0.03
FBtr0080887	FBgn0002652	squ	-1.55	-0.96	0.00	0.00
FBtr0083858	FBgn0038741	CG17186	1.04	1.10	0.00	0.00
FBtr0082378	FBgn0040251	Ugt86Di	-1.49	-1.54	0.01	0.01
FBtr0089463	FBgn0041607	AsnS	-2.89	-1.90	0.00	0.00
FBtr0084033	FBgn0038857	CG17282	0.70	0.66	0.00	0.00
FBtr0074592	FBgn0030931	Rad51D	-1.94	-1.13	0.00	0.00
FBtr0080105	FBgn0040496	CG17104	-1.17	-2.08	0.00	0.00
FBtr0072619	FBgn0035179	CG12038	1.02	1.19	0.01	0.00
FBtr0084113	FBgn0038894	CG15497	0.94	0.90	0.02	0.02
FBtr0084634	FBgn0039180	CG5715	-0.90	-0.83	0.01	0.01
FBtr0083603	FBgn0053520	Rpb4	-0.52	-0.72	0.05	0.00
FBtr0075125	FBgn0052195	CG32195	-0.76	-1.27	0.03	0.00
FBtr0080138	FBgn0051870	CG31870	-2.71	-2.20	0.00	0.00
FBtr0083753	FBgn0027595	CG5629	-0.66	-1.14	0.00	0.00
FBtr0083659	FBgn0038633	CG14303	-1.40	-1.46	0.00	0.00
FBtr0089698	FBgn0040673	CG15234	-1.85	-1.81	0.00	0.00
FBtr0085140	FBgn0003495	spz	-1.28	-2.62	0.00	0.00
FBtr0091911	FBgn0053907	His4:CG33907	-3.41	-1.45	0.00	0.00
FBtr0071425	FBgn0052692	CG32692	-2.89	-2.23	0.00	0.00
FBtr0074956	FBgn0036901	LCBP1	-0.90	-2.24	0.00	0.00
FBtr0085926	FBgn0051611	His4:CG31611	-3.30	-1.33	0.00	0.00
FBtr0082138	FBgn0037753	CG12947	-1.42	1.03	0.00	0.01
FBtr0077934	FBgn0031343	CG18131	-1.42	-1.69	0.00	0.00
FBtr0083902	FBgn0053192	MtnD	1.26	1.07	0.02	0.05
FBtr0071535	FBgn0003748	Treh	0.84	0.47	0.00	0.01
FBtr0079510	FBgn0041182	TepII	-0.78	-0.67	0.02	0.05
FBtr0074954	FBgn0036901	LCBP1	-0.90	-2.30	0.00	0.00
FBtr0088105	FBgn0033584	CG7737	-0.79	-1.26	0.04	0.00
FBtr0083882	FBgn0038788	Sirt2	1.27	0.92	0.00	0.00
FBtr0089478	FBgn0036640	nxf2	-1.03	-1.27	0.00	0.00

FBtr0076304	FBgn0052055	CG32055	1.04	1.75	0.03	0.00
FBtr0085412	FBgn0039641	CG14511	-0.69	-0.63	0.00	0.00
FBtr0083950	FBgn0038804	CG10877	-1.34	-1.39	0.00	0.00
FBtr0085870	FBgn0039886	CG2003	-0.54	-0.53	0.00	0.00
FBtr0076523	FBgn0035957	CG5144	-0.89	0.73	0.01	0.04
FBtr0089245	FBgn0025726	unc-13	-1.02	-0.76	0.00	0.01
FBtr0085142	FBgn0003495	spz	-1.25	-2.70	0.00	0.00
FBtr0076084	FBgn0036208	CG10361	1.43	3.43	0.03	0.00
FBtr0091873	FBgn0053869	His4:CG33869	-2.73	-1.35	0.00	0.00
FBtr0074211	FBgn0000536	eas	-0.56	-0.51	0.01	0.03
FBtr0070387	FBgn0011576	Cyp4d2	-0.78	-1.01	0.01	0.00
FBtr0085141	FBgn0003495	spz	-1.26	-2.71	0.00	0.00
FBtr0085139	FBgn0003495	spz	-1.18	-2.47	0.00	0.00
FBtr0073308	FBgn0035557	CG11353	-2.89	-1.57	0.00	0.01
FBtr0073255	FBgn0035508	CG15005	-1.12	-2.03	0.03	0.00
FBtr0083560	FBgn0038581	CG14314	-1.16	-0.96	0.00	0.00
FBtr0084572	FBgn0039167	CG17786	-1.31	1.52	0.00	0.00
FBtr0077203	FBgn0003423	slgA	0.75	-0.75	0.04	0.04
FBtr0088073	FBgn0050035	CG30035	2.37	1.21	0.00	0.03
FBtr0087646	FBgn0033873	CG6337	0.95	-1.14	0.01	0.00
FBtr0081069	FBgn0032685	CG10211	-1.98	-1.96	0.00	0.00
FBtr0070197	FBgn0040364	CG11378	-0.98	-2.48	0.03	0.00
FBtr0081334	FBgn0032848	CG10722	-1.59	-1.94	0.00	0.00
FBtr0081154	FBgn0000075	amd	-1.49	-1.15	0.00	0.02
FBtr0074955	FBgn0036901	LCBP1	-1.11	-2.52	0.00	0.00
FBtr0084031	FBgn0038859	Obp93a	1.39	0.99	0.00	0.04
FBtr0074990	FBgn0036855	CG14084	1.01	1.14	0.01	0.00
FBtr0072251	FBgn0041706	CG3253	-1.30	-1.65	0.00	0.00
FBtr0087233	FBgn0050094	CG30094	0.95	0.94	0.04	0.04
FBtr0088974	FBgn0033174	CG11125	-2.52	-1.72	0.00	0.00
FBtr0081153	FBgn0000075	amd	-1.59	-0.98	0.00	0.03
FBtr0079468	FBgn0031906	CG5160	-1.60	-1.00	0.00	0.03
FBtr0081209	FBgn0032783	CG10237	-1.17	0.69	0.00	0.01
FBtr0080294	FBgn0032402	CG14945	-1.00	-0.96	0.00	0.00
FBtr0085137	FBgn0003495	spz	-1.23	-2.42	0.00	0.00
FBtr0089784	FBgn0003177	pyd	-0.64	-0.79	0.01	0.00
FBtr0070857	FBgn0029779	CG11473	1.12	1.53	0.01	0.00
FBtr0100369	FBgn0028428	lh	-2.11	-2.16	0.00	0.00
FBtr0076697	FBgn0035856	CG13679	-1.46	-1.71	0.00	0.00
FBtr0071867	FBgn0050269	CG30269	-1.16	-0.59	0.00	0.03
FBtr0076276	FBgn0047038	CG6463	1.02	1.42	0.04	0.00
FBtr0074989	FBgn0036855	CG14084	0.92	1.19	0.03	0.00
FBtr0085144	FBgn0003495	spz	-1.11	-2.35	0.00	0.00
FBtr0073169	FBgn0035480	CG14984	-1.49	-0.83	0.00	0.02

FBtr0083584	FBgn0004618	gl	-0.93	-0.85	0.01	0.02
FBtr0088175	FBgn0040763	CG18336	0.72	0.72	0.01	0.00
FBtr0085737	FBgn0039821	CG15556	-1.56	-3.10	0.02	0.00
FBtr0085371	FBgn0039637	CG11880	-0.77	-0.74	0.02	0.03
FBtr0072916	FBgn0035309	CG15879	-0.87	-1.31	0.00	0.00
FBtr0077117	FBgn0035636	Cralbp	-1.18	-1.05	0.01	0.02
FBtr0071824	FBgn0034725	CG6044	-1.47	-0.95	0.00	0.03
FBtr0085145	FBgn0003495	spz	-1.22	-2.56	0.00	0.00
FBtr0085583	FBgn0003738	Tpi	1.39	1.05	0.00	0.00
FBtr0082825	FBgn0038179	CG9312	-2.30	-1.27	0.00	0.00
FBtr0071416	FBgn0030171	CG2989	-2.72	-1.28	0.00	0.00
FBtr0089549	FBgn0026309	aft	-0.51	-0.48	0.02	0.03
FBtr0086954	FBgn0034223	CG6522	-0.52	-0.52	0.03	0.04
FBtr0077619	FBgn0031468	CG2975	-2.05	-1.27	0.00	0.03
FBtr0085449	FBgn0039677	CG18110	-1.11	-1.55	0.00	0.00
FBtr0071786	FBgn0034705	CG11170	-0.41	-0.84	0.03	0.00
FBtr0075473	FBgn0036595	CG13046	2.21	1.73	0.00	0.00
FBtr0080238	FBgn0032362	CG14928	-1.21	1.25	0.00	0.00
FBtr0100451	FBgn0053155	CG33155	0.47	0.41	0.02	0.04
FBtr0082568	FBgn0038017	CG4115	-1.53	1.43	0.02	0.03
FBtr0079163	FBgn0031737	CG11142	-1.21	-2.05	0.01	0.00
FBtr0081917	FBgn0037630	CG11775	-4.40	-3.71	0.00	0.00
FBtr0085116	FBgn0003482	spn-D	-2.67	-2.77	0.00	0.00
FBtr0080188	FBgn0011676	Nos	-2.78	-2.14	0.00	0.02
FBtr0085143	FBgn0003495	spz	-1.38	-2.74	0.00	0.00
FBtr0071427	FBgn0030166	CG15251	-4.09	-2.50	0.00	0.00
FBtr0084438	FBgn0039101	CG16710	1.02	0.86	0.00	0.01
FBtr0075754	FBgn0036382	CG13737	-1.92	1.99	0.00	0.00
FBtr0082437	FBgn0037936	CG6908	-3.38	-1.59	0.00	0.00
FBtr0073031	FBgn0052280	CG32280	0.51	0.57	0.01	0.00
FBtr0082324	FBgn0022359	Sodh-2	1.10	1.47	0.00	0.00
FBtr0081422	FBgn0051673	CG31673	-0.87	-0.77	0.01	0.02
FBtr0075659	FBgn0036474	Or71a	-1.20	-0.79	0.00	0.03
FBtr0071823	FBgn0034725	CG6044	-1.54	-1.06	0.00	0.02
FBtr0072570	FBgn0023000	mth	0.57	0.68	0.00	0.00
FBtr0085677	FBgn0039790	CG2246	1.95	1.73	0.00	0.00
FBtr0089378	FBgn0040796	CG13064	2.01	1.24	0.00	0.04
FBtr0100046	FBgn0053993	CG33993	-0.54	-0.72	0.01	0.00
FBtr0082877	FBgn0038190	CG9926	-1.21	-0.78	0.00	0.01
FBtr0079477	FBgn0041181	TepIII	-1.46	1.45	0.00	0.00
FBtr0072426	FBgn0028738	ETH	-1.16	-0.77	0.00	0.01
FBtr0072427	FBgn0015801	Reg-5	-0.61	0.96	0.04	0.00
FBtr0084125	FBgn0038897	CG5849	-1.47	-1.18	0.00	0.00
FBtr0077115	FBgn0035638	Tektin-C	-5.39	-6.34	0.00	0.00

FBtr0081618	FBgn0000071	Ama	-1.73	-0.84	0.00	0.00
FBtr0073324	FBgn0052244	CG32244	-1.40	1.78	0.00	0.00
FBtr0077604	FBgn0031516	CG9663	-0.48	-0.84	0.02	0.00
FBtr0086927	FBgn0050104	CG30104	-3.58	-5.55	0.00	0.00
FBtr0076317	FBgn0036043	CG8177	-0.77	-1.49	0.00	0.00
FBtr0075673	FBgn0040487	BobA	-2.27	-0.98	0.00	0.02
FBtr0086677	FBgn0063491	GstE9	-1.19	1.35	0.02	0.01
FBtr0081753	FBgn0051284	CG31284	-1.02	1.08	0.01	0.01
FBtr0087513	FBgn0050076	CG30076	-2.46	-1.70	0.00	0.00
FBtr0072501	FBgn0052476	mthl14	-1.50	-1.35	0.02	0.04
FBtr0080740	FBgn0001983	wor	-0.62	-0.62	0.03	0.03
FBtr0081534	FBgn0037503	CG14598	-4.24	-1.77	0.00	0.03
FBtr0083639	FBgn0038629	CG14304	-1.50	-0.90	0.00	0.03
FBtr0084693	FBgn0040600	CG13631	-1.20	1.21	0.01	0.01
FBtr0077330	FBgn0031106	Syx16	0.72	0.73	0.04	0.04
FBtr0083989	FBgn0038835	CG17274	-0.92	-0.74	0.00	0.02
FBtr0074153	FBgn0030716	CG9170	-1.48	-1.49	0.00	0.00
FBtr0081474	FBgn0051627	CG31627	-2.96	-2.59	0.00	0.00
FBtr0089128	FBgn0039905	CG2052	-2.06	-2.45	0.00	0.00
FBtr0072767	FBgn0035266	CG7995	1.38	0.67	0.00	0.04
FBtr0081207	FBgn0032783	CG10237	-0.93	0.57	0.00	0.01
FBtr0083039	FBgn0038289	CG6934	1.47	2.22	0.01	0.00
FBtr0087530	FBgn0050069	CG30069	-1.13	0.72	0.00	0.03
FBtr0073341	FBgn0066365	dyl	-2.08	1.74	0.00	0.02
FBtr0073273	FBgn0035497	CG14995	-1.33	1.91	0.02	0.00
FBtr0078346	FBgn0027542	CG6014	-0.86	0.56	0.00	0.05
FBtr0084643	FBgn0039203	CG13618	-4.76	-1.93	0.00	0.00
FBtr0087824	FBgn0033753	Cyp301a1	-0.85	0.89	0.01	0.00
FBtr0088311	FBgn0033524	Cyp49a1	-0.83	1.99	0.04	0.00
FBtr0084722	FBgn0040601	CG13643	-3.01	-1.54	0.00	0.00
FBtr0078615	FBgn0037412	Osi4	-1.61	2.48	0.01	0.00
FBtr0073271	FBgn0035497	CG14995	-1.13	2.10	0.04	0.00
FBtr0077646	FBgn0031488	CG17265	0.53	0.78	0.01	0.00
FBtr0085638	FBgn0039759	CG9733	-2.21	1.75	0.00	0.00
FBtr0080133	FBgn0021953	Fatp	-0.47	0.51	0.05	0.03
FBtr0080554	FBgn0032535	Ance-2	-2.24	1.85	0.00	0.00
FBtr0076716	FBgn0035865	CG7201	-1.56	2.10	0.01	0.00
FBtr0070072	FBgn0000022	ac	-0.68	-2.50	0.01	0.00
FBtr0080408	FBgn0032449	CG17036	-0.73	-1.93	0.01	0.00
FBtr0078867	FBgn0052946	CG32946	3.77	2.04	0.00	0.00
FBtr0080621	FBgn0052971	CG32971	-1.45	-2.05	0.00	0.00
FBtr0075823	FBgn0036369	CG10089	-1.59	-1.27	0.00	0.00
FBtr0085584	FBgn0003738	Tpi	1.05	1.67	0.00	0.00
FBtr0100832	FBgn0065108	ppk16	0.68	1.10	0.03	0.00

FBtr0089667	FBgn0036681	CG13027	-0.74	-0.95	0.02	0.00
FBtr0075361	FBgn0036648	CG4098	0.48	0.61	0.00	0.00
FBtr0077920	FBgn0031327	CG5397	-1.93	-1.84	0.00	0.00
FBtr0080406	FBgn0032452	CG15484	-2.25	-2.17	0.00	0.00
FBtr0081166	FBgn0000422	Ddc	-2.21	-1.89	0.00	0.00
FBtr0075870	FBgn0036323	CG14118	-2.26	-1.93	0.00	0.00
FBtr0070073	FBgn0004170	sc	-0.65	-1.79	0.05	0.00
FBtr0071608	FBgn0034627	EfSec	-0.71	-0.65	0.00	0.00
FBtr0076915	FBgn0010387	Dbi	0.93	1.92	0.02	0.00
FBtr0076439	FBgn0035977	PGRP-LF	-1.56	-1.09	0.00	0.00
FBtr0072807	FBgn0035253	CG7971	-0.43	-0.55	0.02	0.00
FBtr0089491	FBgn0035976	PGRP-LC	-1.95	-1.50	0.00	0.00
FBtr0076916	FBgn0010387	Dbi	0.96	2.06	0.04	0.00
FBtr0078593	FBgn0037410	Osi2	-1.99	-0.56	0.00	0.04
FBtr0083463	FBgn0038525	CG14329	-0.58	0.65	0.03	0.01
FBtr0084344	FBgn0039041	CG13838	0.87	0.88	0.02	0.02
FBtr0074983	FBgn0052207	CG32207	-0.65	-0.82	0.00	0.00
FBtr0071429	FBgn0030163	CG1791	-2.13	-1.22	0.00	0.01
FBtr0072571	FBgn0023000	mth	0.59	0.78	0.01	0.00
FBtr0070101	FBgn0052816	CG32816	-0.97	-0.97	0.02	0.02
FBtr0085423	FBgn0004369	Ptp99A	-0.61	-0.90	0.04	0.00
FBtr0079547	FBgn0031976	CG7367	-0.89	-1.46	0.00	0.00
FBtr0075006	FBgn0003089	pip	-0.93	-1.32	0.02	0.00
FBtr0083923	FBgn0051203	CG31203	-1.06	0.86	0.00	0.01
FBtr0086632	FBgn0034394	CG15096	-1.77	-1.05	0.00	0.04
FBtr0100226	FBgn0029608	CG3091	-1.75	-0.92	0.00	0.02
FBtr0083140	FBgn0038299	CG6687	-0.89	-1.21	0.03	0.00
FBtr0082598	FBgn0038037	Cyp9f2	-1.20	-1.06	0.00	0.00
FBtr0083711	FBgn0038674	CG14285	0.67	0.96	0.04	0.00
FBtr0083673	FBgn0038647	CG14302	-1.35	-1.87	0.01	0.00
FBtr0089235	FBgn0005558	ey	1.30	0.97	0.00	0.02
FBtr0089490	FBgn0035976	PGRP-LC	-1.36	-1.44	0.00	0.00
FBtr0075915	FBgn0052112	CG32112	-0.40	-0.47	0.02	0.01
FBtr0085862	FBgn0039872	CG2196	-3.38	-2.18	0.00	0.00
FBtr0089367	FBgn0000303	Cha	-2.15	-2.58	0.00	0.00
FBtr0086886	FBgn0028494	CG6424	0.99	1.20	0.00	0.00
FBtr0078882	FBgn0051530	CG31530	2.44	1.52	0.00	0.01
FBtr0087935	FBgn0033742	CG8550	-2.33	-1.18	0.00	0.00
FBtr0088471	FBgn0005614	trpl	-2.35	-3.97	0.00	0.00
FBtr0072955	FBgn0028504	CG12182	-0.99	-1.13	0.00	0.00
FBtr0075398	FBgn0026061	Mipp1	-0.65	-0.65	0.01	0.01
FBtr0089492	FBgn0035976	PGRP-LC	-2.06	-1.16	0.00	0.01
FBtr0081903	FBgn0037611	CG11755	-0.50	-0.65	0.00	0.00
FBtr0075027	FBgn0036849	CG14079	-2.67	-1.53	0.00	0.00

FBtr0071409	FBgn0030164	CG1889	-3.02	-2.14	0.00	0.00
FBtr0079564	FBgn0031955	CG14535	-1.23	-0.94	0.01	0.04
FBtr0075424	FBgn0036619	CG4784	-3.39	-2.42	0.00	0.00
FBtr0082599	FBgn0038037	Cyp9f2	-1.29	-1.15	0.00	0.00
FBtr0100482	FBgn0014869	Pglym78	0.76	1.03	0.04	0.00
FBtr0086060	FBgn0033033	scarface	-1.41	-2.71	0.00	0.00
FBtr0071720	FBgn0034666	CG9294	-1.45	1.61	0.03	0.01
FBtr0088211	FBgn0033574	CG7722	-1.83	-2.08	0.00	0.00
FBtr0072912	FBgn0026593	CG5707	-3.35	-5.09	0.00	0.00
FBtr0076467	FBgn0036003	CG14180	0.54	0.46	0.01	0.02
FBtr0071408	FBgn0030164	CG1889	-2.75	-2.10	0.00	0.00
FBtr0071428	FBgn0030165	CG15250	-4.23	-2.28	0.00	0.00
FBtr0072039	FBgn0046253	CG3502	-2.36	-1.40	0.00	0.00
FBtr0079579	FBgn0051607	CG31607	-3.13	-1.87	0.00	0.00
FBtr0082608	FBgn0038020	GstD9	1.78	2.09	0.00	0.00
FBtr0080433	FBgn0032473	CG5204	-2.53	-1.43	0.00	0.00
FBtr0074953	FBgn0052209	CG32209	-2.21	-3.65	0.00	0.00
FBtr0076704	FBgn0035864	CG33274	-3.16	-3.77	0.00	0.00
FBtr0084100	FBgn0038878	CG3301	-1.85	-1.02	0.00	0.00
FBtr0076718	FBgn0035861	CG7213	-4.71	-5.20	0.00	0.00
FBtr0076599	FBgn0000121	Arr2	-2.41	-2.23	0.00	0.00
FBtr0081935	FBgn0037631	CG11776	-4.11	-3.25	0.00	0.00
FBtr0084544	FBgn0039152	CG6129	2.01	1.96	0.00	0.00
FBtr0074969	FBgn0020277	lush	-1.85	-1.44	0.00	0.00
FBtr0073984	FBgn0030589	CG9519	-4.54	-2.95	0.00	0.00
FBtr0089267	FBgn0030538	CG13402	-2.73	-1.14	0.00	0.00
FBtr0076698	FBgn0035857	CG8006	-1.76	-1.95	0.00	0.00
FBtr0084321	FBgn0051139	CG31139	-2.26	-0.91	0.00	0.03
FBtr0076720	FBgn0052364	CG32364	-2.61	-3.33	0.00	0.00
FBtr0075899	FBgn0036332	CG11261	-2.11	-1.58	0.00	0.00
FBtr0085861	FBgn0017448	CG2187	-1.53	-0.63	0.00	0.05
FBtr0077976	FBgn0031326	CG5156	-3.43	-5.16	0.00	0.00
FBtr0071988	FBgn0034808	CG9896	1.15	1.24	0.00	0.00
FBtr0079436	FBgn0002938	ninaC	-1.45	-1.07	0.00	0.00
FBtr0070872	FBgn0029843	Nep1	-1.90	-2.31	0.00	0.00
FBtr0084337	FBgn0017590	klg	-3.19	-2.57	0.00	0.00
FBtr0082069	FBgn0027950	MBD-like	1.08	0.78	0.00	0.00
FBtr0087083	FBgn0034151	CG15617	-1.96	-1.26	0.00	0.01
FBtr0076703	FBgn0035862	CG13672	-1.52	-0.91	0.00	0.01
FBtr0086033	FBgn0033048	CG7881	-1.52	-1.66	0.00	0.00
FBtr0084859	FBgn0039321	CG10550	-1.00	-0.57	0.00	0.03
FBtr0076500	FBgn0035978	UGP	-0.89	-0.96	0.00	0.00
FBtr0081550	FBgn0015575	alpha-Est7	-1.82	-1.54	0.00	0.00
FBtr0085308	FBgn0039594	CG9990	-0.91	-1.40	0.00	0.00

FBtr0079929	FBgn0000180	bib	-1.13	-0.94	0.00	0.00
FBtr0086934	FBgn0034229	CG4847	-1.26	-0.74	0.00	0.03
FBtr0072587	FBgn0035169	CG13890	-0.86	-0.67	0.00	0.00
FBtr0075426	FBgn0011693	Pdh	-1.16	-0.68	0.00	0.05
FBtr0087157	FBgn0034126	CG4398	-1.77	-1.43	0.00	0.00
FBtr0076623	FBgn0035905	CG6781	-1.27	-0.92	0.00	0.01
FBtr0073583	FBgn0000808	gd	-1.65	-1.00	0.00	0.04
FBtr0085629	FBgn0039764	CG15535	1.62	2.02	0.00	0.00
FBtr0084132	FBgn0038902	CG6800	-1.16	-1.45	0.00	0.00
FBtr0077010	FBgn0035696	Best2	-1.07	-1.05	0.00	0.00
FBtr0086564	FBgn0053453	CG33453	-1.75	-2.56	0.00	0.00
FBtr0089025	FBgn0033129	Tsp42Eh	-0.94	-0.85	0.00	0.00
FBtr0078101	FBgn0031213	galectin	-0.88	-0.67	0.00	0.01
FBtr0072337	FBgn0035040	CG4741	-1.56	-1.24	0.00	0.01
FBtr0076434	FBgn0035975	PGRP-LA	-0.95	-1.03	0.00	0.00
FBtr0082600	FBgn0038035	CG17227	-0.66	-0.88	0.00	0.00
FBtr0086937	FBgn0034229	CG4847	-1.34	-0.94	0.00	0.03
FBtr0070836	FBgn0029804	CG3097	-1.47	-3.02	0.00	0.00
FBtr0079434	FBgn0031902	Wnt6	-1.07	-1.43	0.00	0.00
FBtr0084713	FBgn0039246	CG10845	-1.70	-1.76	0.00	0.00
FBtr0075013	FBgn0003089	pip	-1.28	-1.20	0.00	0.00
FBtr0079472	FBgn0031926	CG6739	-2.04	-2.18	0.00	0.00
FBtr0082323	FBgn0037818	CG6465	-1.52	-1.72	0.00	0.00
FBtr0082338	FBgn0040259	Ugt86Da	-0.87	-1.34	0.00	0.00
FBtr0091709	FBgn0035635	PGRP-LD	-1.20	-0.94	0.00	0.02
FBtr0083271	FBgn0038416	CG17930	-1.15	-0.88	0.00	0.03
FBtr0074603	FBgn0004959	phm	-1.16	-1.46	0.00	0.00
FBtr0084666	FBgn0039214	CG5794	-0.94	-0.73	0.00	0.03
FBtr0081421	FBgn0032889	CG9331	-0.81	-0.66	0.00	0.03
FBtr0100285	FBgn0050481	mRpL53	0.54	0.56	0.00	0.00
FBtr0085822	FBgn0039863	CG1815	-0.64	-0.80	0.00	0.00
FBtr0072239	FBgn0034909	CG4797	-0.69	-1.36	0.01	0.00
FBtr0075475	FBgn0036593	CG13048	-1.13	-1.45	0.01	0.00
FBtr0084857	FBgn0039321	CG10550	-0.92	-1.01	0.01	0.00
FBtr0080880	FBgn0028523	CG5888	-0.78	-1.01	0.01	0.00
FBtr0070990	FBgn0029888	CG3192	1.00	1.47	0.01	0.00
FBtr0084259	FBgn0038979	CG7046	-2.60	-2.82	0.01	0.00
FBtr0081038	FBgn0032668	CG17681	-1.24	-1.83	0.01	0.00
FBtr0072313	FBgn0020521	pio	-1.07	-1.00	0.01	0.02
FBtr0076432	FBgn0035975	PGRP-LA	-0.83	-0.72	0.01	0.03
FBtr0087313	FBgn0050084	tun	-1.11	-0.96	0.01	0.03
FBtr0075012	FBgn0003089	pip	-0.71	-1.05	0.01	0.00
FBtr0076696	FBgn0035856	CG13679	-1.08	-1.12	0.01	0.01
FBtr0075638	FBgn0036480	CG17081	-0.68	-0.72	0.01	0.01

FBtr0089001	FBgn0050502	CG30502	-0.76	-0.76	0.01	0.01
FBtr0081516	FBgn0023090	dtr	-1.05	-0.99	0.01	0.02
FBtr0082486	FBgn0037970	CG12201	0.62	0.72	0.02	0.00
FBtr0075990	FBgn0036246	CG17154	-0.93	-0.97	0.02	0.01
FBtr0088938	FBgn0003733	tor	-0.84	-0.82	0.02	0.02
FBtr0085860	FBgn0039873	CG2191	-0.56	-0.55	0.02	0.02
FBtr0081591	FBgn0037498	CG10029	-1.08	-1.17	0.02	0.01
FBtr0072943	FBgn0020509	Acp62F	-0.98	-1.18	0.03	0.01
FBtr0072649	FBgn0024277	trio	-0.44	-0.56	0.03	0.00
FBtr0082287	FBgn0037844	CG4570	1.11	1.56	0.03	0.00
FBtr0071740	FBgn0034663	CG4363	-1.72	-1.67	0.03	0.04
FBtr0076020	FBgn0036260	Rh7	-0.71	-0.71	0.04	0.04
FBtr0077255	FBgn0031162	CG1819	-1.11	-1.29	0.04	0.02
FBtr0088809	FBgn0033271	CG8708	-0.82	-0.84	0.04	0.04
FBtr0082935	FBgn0038230	CG14843	-0.56	-0.86	0.04	0.00
FBtr0082068	FBgn0027950	MBD-like	0.44	0.53	0.05	0.01
FBtr0086759	FBgn0034323	CG18537	0.75	0.99	0.05	0.01
FBtr0085328	FBgn0039609	CG14529	-0.69	-0.98	0.05	0.00

Table S3. Direct targets of Cbt

By examining the overlap of Cbt ChIP peaks (PMID: 25572844) (24) with the Cbt microarray targets shown in Table S2, we identified 86 genes that are both transcriptionally regulated by Cbt and are also associated with one or more Cbt binding peak. These genes are scored as direct Cbt targets.

Gene_ID	Gene_Name		Gene_ID	Gene_Name
FBgn0000022	ac		FBgn0033579	CG13229
FBgn0000121	Arr2		FBgn0033749	achi
FBgn0000147	aur		FBgn0034046	tun
FBgn0000404	CycA		FBgn0034299	CG5757
FBgn0000405	CycB		FBgn0034494	CG10444
FBgn0000536	eas		FBgn0034614	CG9752
FBgn0001086	fzy		FBgn0035199	CG9134
FBgn0001321	knk		FBgn0035266	Gk
FBgn0002466	sti		FBgn0035497	CG14995
FBgn0002638	Bj1		FBgn0035557	CG11353

FBgn0002924	ncd		FBgn0035612	CG10625
FBgn0002948	nod		FBgn0035638	Tektin-C
FBgn0003022	Ote		FBgn0035640	mad2
FBgn0003124	polo		FBgn0036246	CG17154
FBgn0003423	slgA		FBgn0036978	Toll-9
FBgn0003732	Top2		FBgn0037633	CG9839
FBgn0004170	sc		FBgn0037834	Art1
FBgn0004618	gl		FBgn0038394	CG10264
FBgn0005638	slbo		FBgn0038608	WRNexo
FBgn0005655	PCNA/mus209		FBgn0038632	CG14301
FBgn0010314	Cks30A		FBgn0038741	CG17186
FBgn0015270	Orc2		FBgn0038772	CG4973
FBgn0015799	Rbf		FBgn0038859	Obp93a
FBgn0015929	dpa		FBgn0039167	CG17786
FBgn0020258	ppk		FBgn0039594	CG9990
FBgn0020633	Mcm7		FBgn0039790	CG2246
FBgn0023000	mth		FBgn0039863	CG1815
FBgn0023076	Clk		FBgn0039886	CG2003
FBgn0026876	CG11403		FBgn0040232	cmet
FBgn0027949	msb11		FBgn0040251	Ugt86Di
FBgn0028494	CG6424		FBgn0041181	TepIII
FBgn0029672	CG2875		FBgn0041607	asparagine-synthetase
FBgn0029820	CG16721		FBgn0045035	tefu
FBgn0030164	CG1889		FBgn0050035	Tret1-1
FBgn0030170	CG2990		FBgn0050085	CG30085
FBgn0030646	CG9203		FBgn0050481	mRpL53
FBgn0030864	CG8173		FBgn0051870	CG31870
FBgn0031252	CG13690		FBgn0052475	mth18
FBgn0031468	CG2975		FBgn0052512	CG32512
FBgn0032685	CG10211		FBgn0053113	Rtnl1
FBgn0032889	CG9331		FBgn0053155	CG33155
FBgn0033048	CG7881		FBgn0053453	CG33453
FBgn0033443	CG1698		FBgn0063485	Lasp

Table S4. Gene ontology (GO) enrichment analysis of the direct Cbt targets

(Cutoff: P<0.05)

GO Term	Description	Count	Adj. P value
GO:0006261	DNA-dependent DNA replication	10	4.64E-06
GO:0006260	DNA replication	10	1.40E-05
GO:1903047	mitotic cell cycle process	17	1.40E-05
GO:0051726	regulation of cell cycle	15	1.40E-05
GO:0000278	mitotic cell cycle	18	1.40E-05
GO:0007346	regulation of mitotic cell cycle	12	3.88E-05
GO:0000070	mitotic sister chromatid segregation	9	1.45E-04
GO:0007067	mitotic nuclear division	12	2.12E-04
GO:0007049	cell cycle	21	2.12E-04
GO:0000819	sister chromatid segregation	9	2.69E-04
GO:0022402	cell cycle process	19	5.16E-04
GO:0010564	regulation of cell cycle process	10	6.49E-04
GO:0000280	nuclear division	15	6.49E-04
GO:0048285	organelle fission	15	8.24E-04
GO:0098813	nuclear chromosome segregation	10	8.24E-04
GO:0007059	chromosome segregation	10	0.001467944
GO:0006259	DNA metabolic process	11	0.003669937
GO:0045786	negative regulation of cell cycle	8	0.004164179
GO:0044772	mitotic cell cycle phase transition	8	0.005777938
GO:0007056	spindle assembly involved in female meiosis	4	0.005777938
GO:0044770	cell cycle phase transition	8	0.006182304
GO:1901990	regulation of mitotic cell cycle phase transition	7	0.019604028
GO:1901987	regulation of cell cycle phase transition	7	0.019604028
GO:0090306	spindle assembly involved in meiosis	4	0.019629599
GO:0006275	regulation of DNA replication	4	0.029790016
GO:1901988	negative regulation of cell cycle phase transition	6	0.029790016
GO:1901991	negative regulation of mitotic cell cycle phase transition	6	0.029790016
GO:0007052	mitotic spindle organization	5	0.037133223
GO:0051225	spindle assembly	5	0.045486586
GO:0007144	female meiosis I	3	0.045486586
GO:0045930	negative regulation of mitotic cell cycle	6	0.045486586
GO:0010948	negative regulation of cell cycle process	6	0.045486586
GO:0051301	cell division	9	0.049616574

Table S5. Shared ChIP-binding targets of Cbt and E2F1

By cross-comparing the Cbt ChIP-Seq data (PMID: 25572844) (24) and E2F1 ChIP-chip data (PMID: 22927638) (25), 117 shared target genes of Cbt and E2F1 were identified. Cbt peaks were assigned to 2306 genes. E2F1 peaks were assigned to 255 genes. The significance of overlap ($p=2.007555851498559E-28$) was assessed by hypergeometric test.

Gene_ID	Gene_Name		Gene_ID	Gene_Name
FBgn0000015	Abd-B		FBgn0029915	CG14434
FBgn0000541	E(bx)		FBgn0030054	Caf1-180
FBgn0000662	fl(2)d		FBgn0030170	CG2990
FBgn0000721	for		FBgn0030329	prtp
FBgn0001197	His2Av		FBgn0030400	CG11138
FBgn0001297	kay		FBgn0030724	Nipsnap
FBgn0001323	knrl		FBgn0030735	CG3632
FBgn0001994	crp		FBgn0030744	CG9992
FBgn0002466	sti		FBgn0031145	Ntf-2
FBgn0002638	Bj1		FBgn0031191	Cp110
FBgn0002948	nod		FBgn0031395	CG10874
FBgn0003079	phl		FBgn0031820	DLP
FBgn0003415	skd		FBgn0032394	CG6746
FBgn0004009	wg		FBgn0032474	DnaJ-H
FBgn0004370	Ptp10D		FBgn0032682	CG10176
FBgn0004373	fwd		FBgn0032748	CG10492
FBgn0004432	Cyp1		FBgn0032886	CG9328
FBgn0004587	B52		FBgn0033609	fbl6
FBgn0004828	His3.3B		FBgn0033787	CG13321
FBgn0005612	Sox14		FBgn0033812	Pex13
FBgn0005613	Sox15		FBgn0034240	MESR4
FBgn0005624	Psc		FBgn0034500	CG11200
FBgn0005630	lola		FBgn0034987	CG3363
FBgn0005654	lat		FBgn0035357	MEP-1
FBgn0005655	PCNA/mus209		FBgn0036684	CG3764
FBgn0008654	Su(z)2		FBgn0036783	CheA75a
FBgn0010228	HmgZ		FBgn0037007	CG5059
FBgn0010379	Akt1		FBgn0037021	CG11399
FBgn0010382	CycE		FBgn0037377	CG1218
FBgn0010548	Aldh-III		FBgn0037734	trbd

FBgn0010602	lwr		FBgn0037834	Art1
FBgn0010651	l(2)08717		FBgn0038118	timeout
FBgn0011225	jar		FBgn0039071	CG4434
FBgn0011327	Uch-L3		FBgn0039659	CG14506
FBgn0011785	BRWD3		FBgn0040071	tara
FBgn0015229	glec		FBgn0040309	Jafrac1
FBgn0015270	Orc2		FBgn0043456	CG4747
FBgn0015321	UbcD4		FBgn0050085	CG30085
FBgn0015396	jumu		FBgn0051694	CG31694
FBgn0015777	nrv2		FBgn0051716	Cnot4
FBgn0015799	Rbf		FBgn0052103	CG32103
FBgn0016977	spen		FBgn0052133	ptip
FBgn0020386	Pdk1		FBgn0083968	CG34132
FBgn0020496	CtBP		FBgn0085344	CG34315
FBgn0020503	CLIP-190		FBgn0086655	jing
FBgn0020633	Mcm7		FBgn0086695	hd
FBgn0020887	Su(z)12		FBgn0086899	tlk
FBgn0020912	Ptx1		FBgn0086902	kis
FBgn0022720	zf30C		FBgn0250911	CG42245
FBgn0022764	Sin3A		FBgn0259113	DNApol-alpha180
FBgn0022772	Orc1		FBgn0259938	cwo
FBgn0022893	Df31		FBgn0260936	scny
FBgn0023143	Uba1		FBgn0260991	Incenp
FBgn0025621	CG16989		FBgn0261278	grp
FBgn0026063	KP78b		FBgn0261617	nej
FBgn0026064	KP78a		FBgn0261641	CG42724
FBgn0027085	Aats-leu		FBgn0263490	mld
FBgn0028420	Kr-h1		FBgn0264270	Sxl
FBgn0028953	CG14478			

Table S6. Gene ontology (GO) enrichment analysis of the shared ChIP-binding targets of Cbt and E2F1 (Cutoff: $P < 1.00E-04$)

GO Term	Description	Count	Adj. P value
GO:0006261	DNA-dependent DNA replication	12	1.76E-07
GO:0016043	cellular component organization	61	1.76E-07
GO:0007049	cell cycle	31	1.76E-07
GO:0048731	system development	53	1.76E-07
GO:0031323	regulation of cellular metabolic process	44	1.76E-07
GO:0019219	regulation of nucleobase-containing compound metabolic process	36	1.76E-07
GO:0034654	nucleobase-containing compound biosynthetic process	38	1.76E-07
GO:0050794	regulation of cellular process	63	1.76E-07
GO:0031326	regulation of cellular biosynthetic process	37	1.76E-07
GO:0009889	regulation of biosynthetic process	37	1.76E-07
GO:0051171	regulation of nitrogen compound metabolic process	38	1.86E-07
GO:0019222	regulation of metabolic process	45	2.21E-07
GO:0044767	single-organism developmental process	66	2.21E-07
GO:1901362	organic cyclic compound biosynthetic process	39	2.21E-07
GO:0050789	regulation of biological process	65	2.21E-07
GO:0071840	cellular component organization or biogenesis	61	2.21E-07
GO:0044260	cellular macromolecule metabolic process	67	2.27E-07
GO:0006355	regulation of transcription, DNA-templated	33	2.27E-07
GO:2001141	regulation of RNA biosynthetic process	33	2.27E-07
GO:1903506	regulation of nucleic acid-templated transcription	33	2.27E-07
GO:0090304	nucleic acid metabolic process	46	2.27E-07
GO:0018130	heterocycle biosynthetic process	38	2.27E-07
GO:0032502	developmental process	66	2.37E-07
GO:0019438	aromatic compound biosynthetic process	38	2.37E-07
GO:0022402	cell cycle process	28	2.37E-07
GO:0051252	regulation of RNA metabolic process	34	2.39E-07
GO:2000112	regulation of cellular macromolecule biosynthetic process	35	2.88E-07
GO:0048856	anatomical structure development	65	2.88E-07
GO:0006351	transcription, DNA-templated	32	3.03E-07
GO:0010556	regulation of macromolecule biosynthetic process	35	3.06E-07
GO:0006260	DNA replication	12	3.06E-07
GO:0007275	multicellular organism development	60	3.80E-07
GO:0080090	regulation of primary metabolic process	42	4.79E-07

GO:0051726	regulation of cell cycle	18	8.25E-07
GO:0097659	nucleic acid-templated transcription	33	9.62E-07
GO:0032774	RNA biosynthetic process	33	1.01E-06
GO:0048513	animal organ development	37	1.10E-06
GO:0006996	organelle organization	45	1.50E-06
GO:0044763	single-organism cellular process	82	2.04E-06
GO:0044237	cellular metabolic process	75	2.04E-06
GO:0048869	cellular developmental process	50	2.31E-06
GO:0044707	single-multicellular organism process	62	2.32E-06
GO:0065007	biological regulation	66	2.32E-06
GO:0010468	regulation of gene expression	35	2.56E-06
GO:0060429	epithelium development	31	2.56E-06
GO:0043067	regulation of programmed cell death	14	2.86E-06
GO:0009653	anatomical structure morphogenesis	42	4.44E-06
GO:0060255	regulation of macromolecule metabolic process	39	6.94E-06
GO:0007444	imaginal disc development	23	7.14E-06
GO:0006325	chromatin organization	20	9.01E-06
GO:0034645	cellular macromolecule biosynthetic process	45	9.72E-06
GO:0010564	regulation of cell cycle process	13	9.72E-06
GO:0009059	macromolecule biosynthetic process	45	1.06E-05
GO:0030154	cell differentiation	47	1.06E-05
GO:0009888	tissue development	31	1.10E-05
GO:0006139	nucleobase-containing compound metabolic process	46	1.13E-05
GO:0010941	regulation of cell death	14	1.29E-05
GO:0016070	RNA metabolic process	39	1.63E-05
GO:0006357	regulation of transcription from RNA polymerase II promoter	20	2.29E-05
GO:0007346	regulation of mitotic cell cycle	13	2.29E-05
GO:0046483	heterocycle metabolic process	46	2.33E-05
GO:0043170	macromolecule metabolic process	68	2.33E-05
GO:0032989	cellular component morphogenesis	26	2.95E-05
GO:0042981	regulation of apoptotic process	12	3.01E-05
GO:1901360	organic cyclic compound metabolic process	47	3.01E-05
GO:0012501	programmed cell death	16	3.05E-05
GO:0006974	cellular response to DNA damage stimulus	15	3.41E-05
GO:0044249	cellular biosynthetic process	49	3.51E-05
GO:0006259	DNA metabolic process	15	3.69E-05
GO:0006277	DNA amplification	6	4.00E-05
GO:0006725	cellular aromatic compound metabolic process	46	4.23E-05

GO:0000278	mitotic cell cycle	19	4.42E-05
GO:0033554	cellular response to stress	21	5.14E-05
GO:0044238	primary metabolic process	73	5.18E-05
GO:0051276	chromosome organization	22	6.61E-05
GO:0043412	macromolecule modification	32	7.01E-05
GO:0008219	cell death	16	7.25E-05
GO:0007447	imaginal disc pattern formation	9	8.06E-05
GO:0009058	biosynthetic process	49	8.80E-05
GO:0016477	cell migration	14	8.89E-05
GO:0022008	neurogenesis	32	9.00E-05

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