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Supplementary Materials for

Deterministic splicing of *Dscam2* is regulated by Muscleblind

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This PDF file includes:

Supplementary Materials

Fly genotypes

R cell RNAi experiments (Fig. 1)

1. *w; GMR-GFP, GMR-Gal4/CyO; Dscam2.10B-LexA, LexAop-myr-tdTomato/TM6B*
2. *w; GMR-GFP, GMR-Gal4/CyO; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
3. *w, UAS-Dcr-2; GMR-GFP, GMR-Gal4/CyO; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
4. *w, UAS-Dcr-2; GMR-GFP, GMR-Gal4/UAS-mbl-RNAi(v28732); Dscam2.10A-LexA, LexAop-myr-tdTomato/+*
5. *w, UAS-Dcr-2; GMR-GFP, GMR-Gal4/+; Dscam2.10A-LexA, LexAop-myr-tdTomato/UAS-mbl-RNAi(TRiP.JF03264)*

mbl whole animal experiments (Fig. 1)

1. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato/TM6B*
2. *w; +; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
3. *w; mbl^{e127}/CyO,GFP; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
4. *w; $mbl^{MI00976}$/CyO,GFP; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
5. *w; $mbl^{MI04093}$/CyO,GFP; Dscam2.10A-LexA, LexAop-myr-tdTomato/TM6B*
6. *w; mbl^{e127}/ $mbl^{MI00976}$; Dscam2.10A-LexA, LexAop-myr-tdTomato/+*
7. *w; $mbl^{MI04093}$/ $mbl^{MI00976}$; Dscam2.10A-LexA, LexAop-myr-tdTomato/+*

mbl ey-FLP MARCM experiments (Fig. 2)

1. *w, ey-FLP; FRT42D, Tub-Gal80/FRT42D; Dscam2.10A-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*
2. *w, ey-FLP; FRT42D, Tub-Gal80/FRT42D, mbl^{e27}; Dscam2.10A-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*
3. *w, ey-FLP; FRT42D, Tub-Gal80/FRT42D, mbl^{e127}; Dscam2.10A-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*

mbl expression experiments (Fig. 3)

1. *w; UAS-mCD8-GFP/+; mbl^{NP0420}-Gal4/+*
2. *w; UAS-mCD8-GFP/+; $mbl^{MI00139}$-Gal4/+*

3. *w; Dac-FLP/+; elav-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*

4. *w; Dac-FLP/+; mbl^{NP0420}-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*

5. *w; Dac-FLP/+; $mbl^{MI00139}$-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*

6. *w; Dac-FLP/+; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*

7. *w; Dac-FLP/+; Dscam2.10B-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*

8. *w; +; mbl^{NP0420}-Gal4/UAS-GFP.nls*

9. *w; +; $mbl^{MI00139}$-Gal4/UAS-GFP.nls*

<u>*mbl* ectopic expression in MBs (Fig. 4)</u>

1. *w; +; Dscam2.10A-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*

2. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*

3. *w; P{EP}mbl^{B2-E1}/+; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/+*

4. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/UAS-mblA*

5. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/UAS-mblB*

6. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4, UAS-mCD8-GFP/UAS-mblC*

7. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, Act5c-Gal4,UAS-mCD8-GFP/UAS-$MBNL1_{35}$*

8. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/UAS-mblA; OK107-Gal4/+*

9. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/UAS-mblB; OK107-Gal4/+*

10. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/UAS-mblC; OK107-Gal4/+*

11. *w; +; Dscam2.10B-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/UAS-$MBNL1_{35}$; OK107-Gal4/+*

Lamin neuron FlpOut *mbl* LOF (Fig. 5)

1. *w, 27G05-FLP/(+ or Y); Bl/CyO; Dscam2.10B-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*
2. *w, 27G05-FLP/(+ or Y); Bl/CyO; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*
3. *w, 27G05-FLP/(+ or Y); mbl^{e127}/ CyO; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*
4. *w, 27G05-FLP/(+ or Y); $mbl^{MI00976}$/CyO; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc*
5. *w, 27G05-FLP/(+ or Y); mbl^{e127}/ $mbl^{MI00976}$; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc.*
6. *w, 27G05-FLP/(+ or Y); elav-Gal4/LexAop2>stop>myr::smGdP-V5; Dscam2.10A-LexA/TM2.*
7. *w, 27G05-FLP/(+ or Y); elav-Gal4/LexAop2>stop>myr::smGdP-V5; Dscam2.10B-LexA/TM2.*
8. *w, 27G05-FLP/(+ or Y); elav-Gal4/LexAop2>stop>myr::smGdP-V5; Dscam2.10B-LexA/UAS-mblB.*

L1 axonal and dendritic defects (Fig. 5)

1. *w, 27G05-FLP/(+ or Y); Bl.CyO; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc.*
2. *w, 27G05-FLP/(+ or Y); mbl^{e127}/ $mbl^{MI00976}$; Dscam2.10A-Gal4/ UAS>stop>myr::smGdP-V5-THS-UAS>stop>myr::smGdP-cMyc.*

mbl ey-FLP mosaic experiments (Fig. S1)

1. *w, ey-FLP; FRT42D, GMR-myr-GFP/FRT42D; Dscam2.10B-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/+*
2. *w, ey-FLP; FRT42D, GMR-myr-GFP/FRT42D; Dscam2.10A-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/+*
3. *w, ey-FLP; FRT42D, GMR-myr-GFP/FRT42D, Df(2R)154 ; Dscam2.10A-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/+*
4. *w, ey-FLP; FRT42D, GMR-myr-GFP/FRT42D, mbl^{e27}; Dscam2.10A-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/+*

5. *w, ey-FLP; FRT42D, GMR-myr-GFP/FRT42D, mbl^{MI00976}; Dscam2.10A-LexA, LexAop-myr-tdTomato, UAS-mCD8-GFP/+*

mbl expression (Fig. S3)

1. *w; mbl^{K01212}-LacZ*
2. *w; mbl^{NP1161}-Gal4/CyO, UAS-LacZ*
3. *w; mbl^{MI00139}-Gal4/+; UAS-CD8-GFP/+*
4. *w; mbl^{MI00139}-Gal4/UAS-GFP.nls*
5. *w; mbl^{NP0420}-Gal4/UAS-GFP.nls*

MB axon defects (Fig. S5)

1. *w; +; +*
2. *w; +; Dscam2^{null}/ Dscam2^{null}*
3. *w; +; Dscam2A/ Dscam2A*
4. *w; +; Dscam2B/ Dscam2B*
5. *w; mbl^{e127}/ mbl^{MI00976}*
6. *w; +; +; OK107-Gal4/+*
7. *w; UAS-mbl-RNAi(v28732)/+*
8. *w; UAS-mbl-RNAi(v28732)/+; +; OK107-Gal4/+*
9. *w; P{EP}mbl^{B2-E1}/+*
10. *w; P{EP}mbl^{B2-E1}/+; +; OK107-Gal4/+*
11. *w; +; UAS-mblA/+*
12. *w; +; UAS-mblA/+; OK107-Gal4/+*
13. *w; +; UAS-mblB/+*
14. *w; +; UAS-mblB/+; OK107-Gal4/+*
15. *w; +; UAS-mblC/+*
16. *w; +; UAS-mblC/+; OK107-Gal4/+*
17. *w; +; UAS-MBNL1$_{35}$/+*
18. *w; +; UAS-MBNL1$_{35}$/+; OK107-Gal4/+*

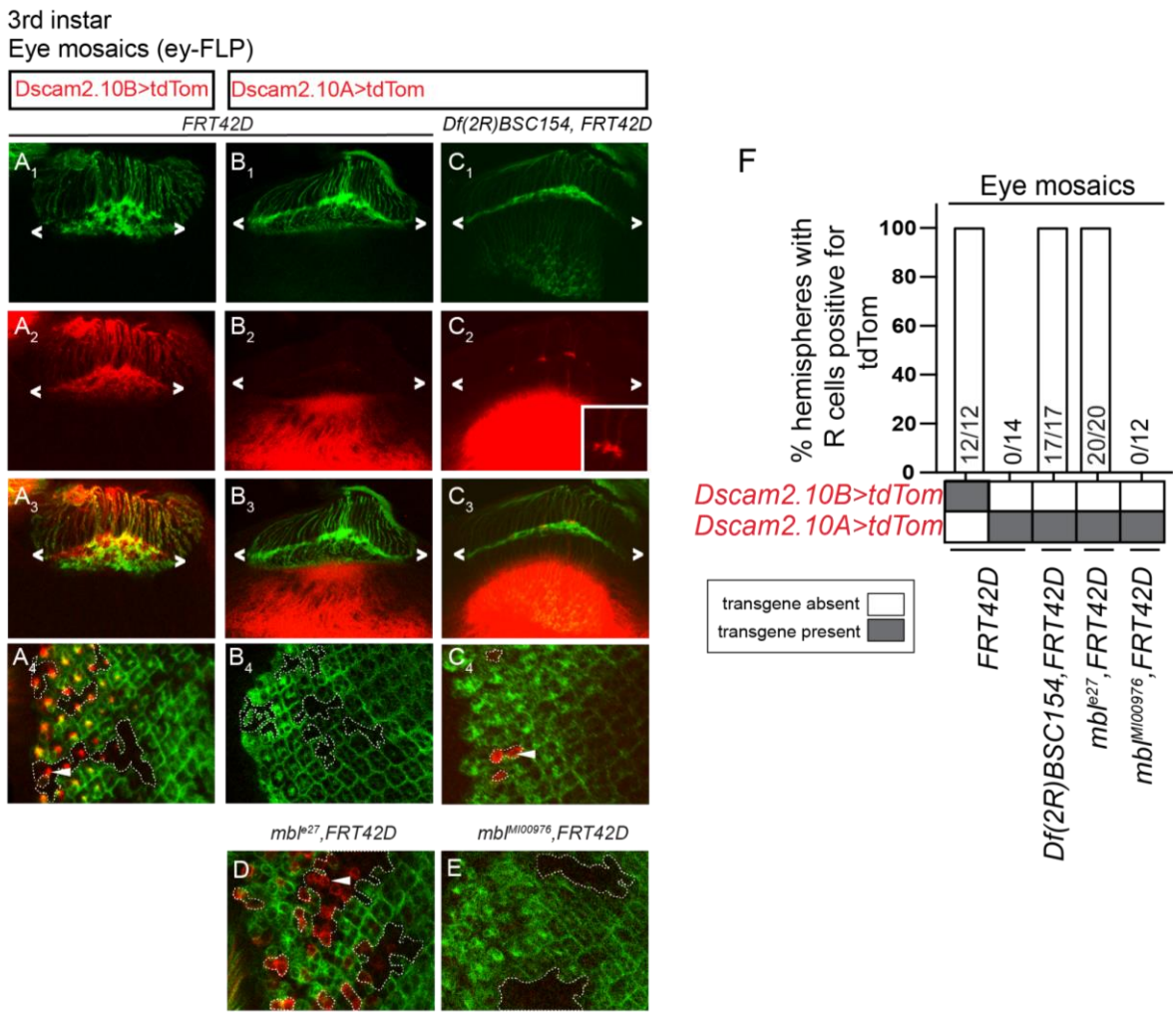

Fig. S1. *Mbl* LOF results in aberrant *Dscam2.10A* reporter expression in eye mosaic clones. (**A-F**) Eye mosaics of *mbl* LOF alleles cause de-repression of *Dscam2.10A>tdTom* in R cells. *WT* mosaic clones (GFP-negative) express *Dscam2.10B>tdTom* (A_1-A_4) but not *Dscam2.10A>tdTom* (B_1-B_4). *Mbl* mutant (GFP-negative) clones, *Df(2R)BSC154* show aberrant *Dscam2.10A* expression in R cells (C_1-C_4). (D) mbl^{e27} eye clones exhibit de-repression of *Dscam2.10A* (red). (E) Clones of a *mbl* allele that deleted only a portion of all *mbl* isoforms ($mbl^{MI00976}$) do not exhibit de-repression of *Dscam2.10A*. (F) Quantification of *Dscam2.10>tdTom* expression in third instar R cells with *mbl* LOF eye mosaic clones. Y-axis represents the number of optic lobes with R cells positive for tdTom over total number of optic lobes quantified as a percentage. On the x-axis, the presence of a transgene is indicated with a grey box.

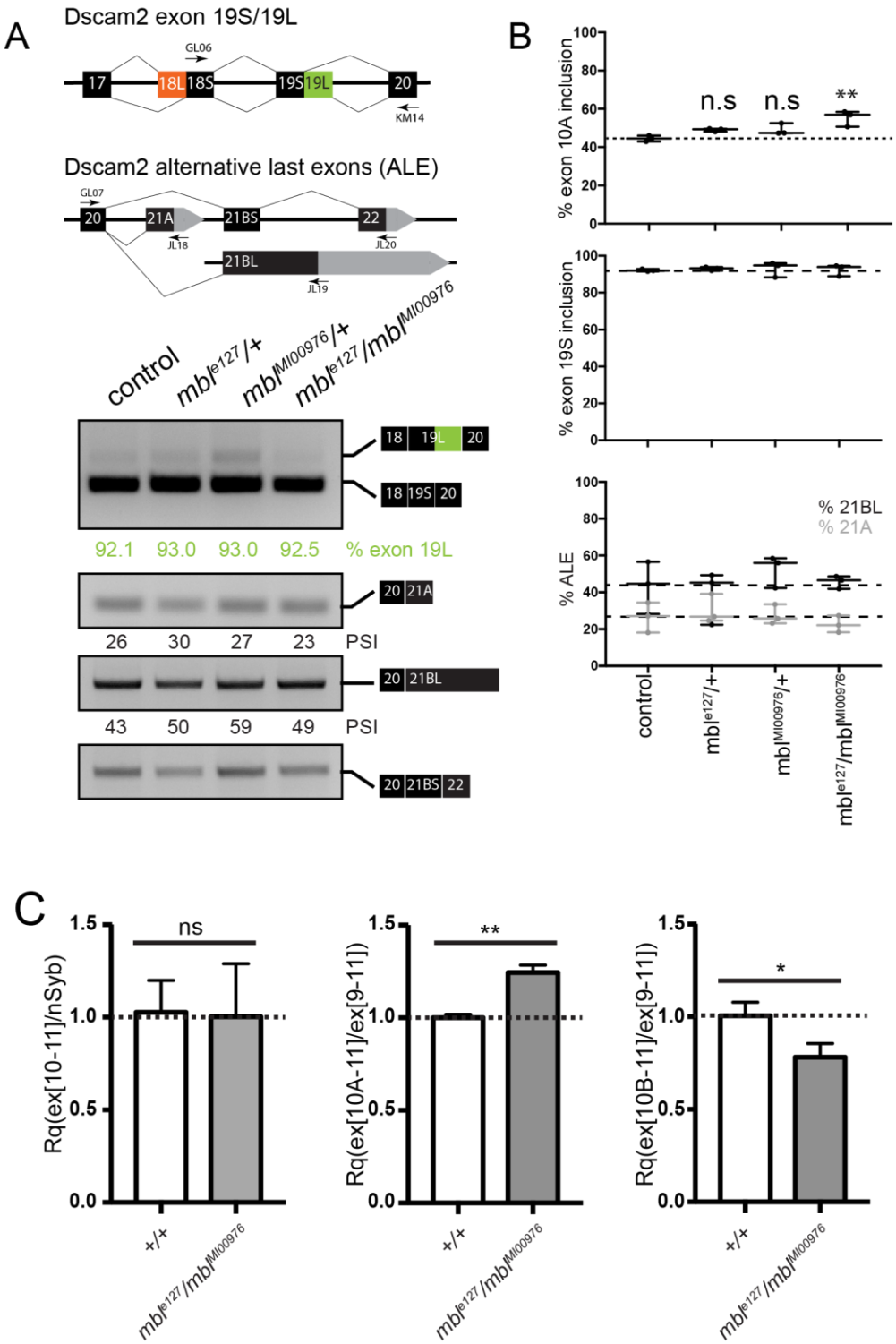

Fig. S2. *Mbl* LOF is associated with increased *Dscam2.10A* inclusion without affecting other *Dscam2* splicing events. (**A**) *Mbl* LOF ($mbl^{e127}/mbl^{MI00976}$) does not affect other *Dscam2* splicing events. Semiquantitative RT-PCR from different genotypes indicated. Primers amplified the variable region that includes exon 19S/19L or three alternative last exons (ALE). Percentage of 19L inclusion was calculated by dividing the 19L band by

19L+19S. Percentage of ALE 21A and ALE 21BL inclusion was calculated by dividing respectively the 21A and 21BL band by 21A+21BL+21BS (total). (**B**) Graphs of RT-PCR data from A and Fig. 1P. Top graph depicts *Dscam2.10A* inclusion. Middle graph represents exon 19S inclusion. Bottom graph represents percentage inclusion of different ALEs. Plots show minimum (bottom line), mean (middle line) and maximum (top line) points, where individual points depict biological replicates. Dashed line represents mean of control. (**C**) Quantitative RT-PCR of *mbl* LOF mutant ($mbl^{e127}/mbl^{MI00976}$) show increased exon 10A inclusion and decreased exon 10B inclusion. The left graph shows *Dscam2.10* levels compared to *synaptobrevin* (*nSyb*). The middle graph shows *Dscam2.10A* levels compared to *Dscam2.10*. The right graph shows *Dscam2.10B* levels compared to *Dscam2.* Bar graph format (error bars depict standard error of means). The y-axis is the relative quantity (Rq). Dashed line represents mean of control. Unpaired t-test was conducted to compare Rq levels between control and *mbl* LOF mutants. ns $P > 0.05$, * $P < 0.05$, ** $P < 0.01$.

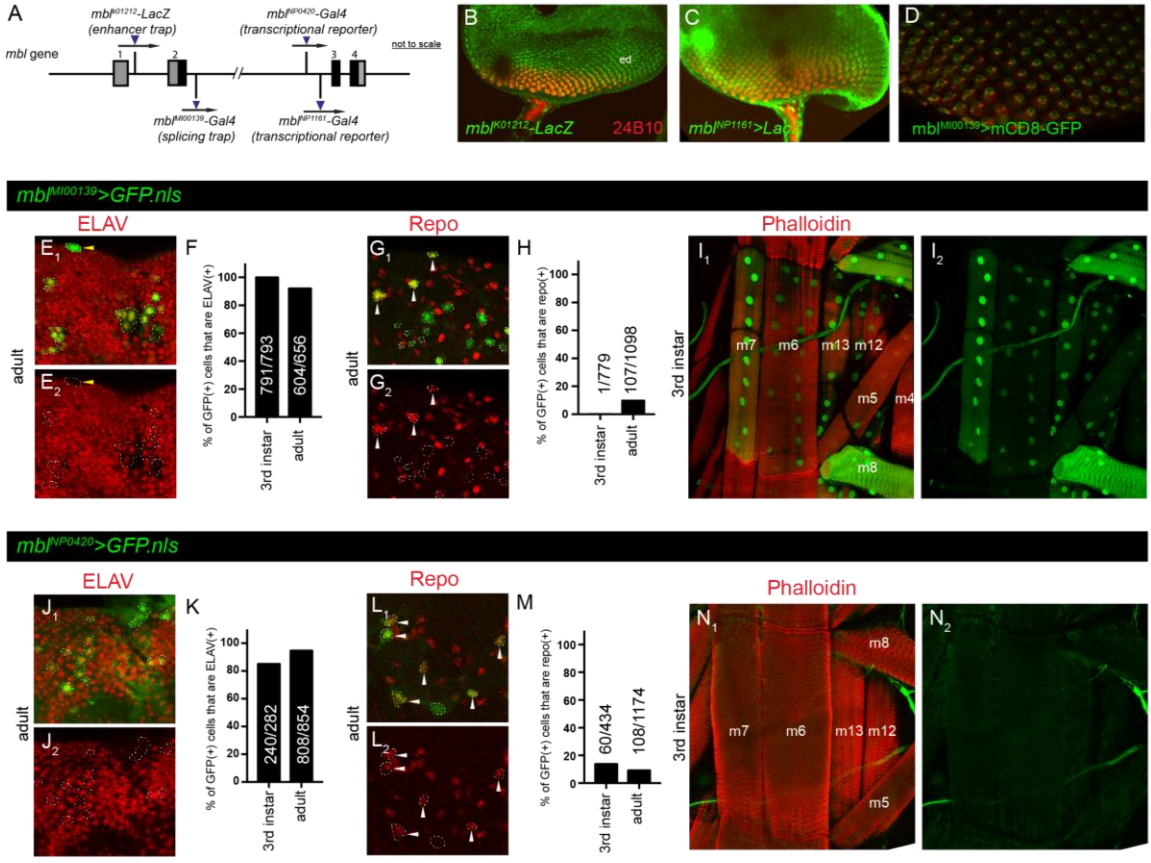

Fig. S3. *Mbl* is expressed in R cells, neurons, and glia. (**A**) Schematic showing the insertion locations of different *mbl* reporters. Translated regions (black) and non-translated regions (grey) are shown.

(**B-D**) *Mbl* is expressed in R cells (red) in third instar eye-discs (ed). The *mbl* enhancer traps *mbl*^{K01212}*-LacZ* (B), *mbl*^{NP1161}*-Gal4* (C) and splicing trap reporter *mbl*^{MI00139}*-Gal4* (D, green) overlapped with a marker of R cells (24B10).

(**E-I**) *mbl*^{MI00139}*>GFP.nls* is expressed in neurons and muscles. (E_1-E_2) Representative confocal image of a *mbl*^{MI00139}*>GFP.nls* (green) adult brain co-labeled with an ELAV antibody (red). Dashed lines demarcate GFP(+) cells. Yellow solid arrowheads show GFP(+) cells that are ELAV(-). (F) Quantification of *mbl* in third instar and adult brains where ~90-100% of GFP(+) cells are also ELAV(+) (black bars). Y-axis represents the number of GFP(+) cells positive for ELAV quantified as a percentage. (G_1-G_2) Representative confocal image of a *mbl*^{MI00139}*>GFP.nls* adult brain labeled with a Repo antibody (red). Dashed lines demarcate GFP(+) cells. White solid arrowheads show GFP(+) cells that are positive for Repo. (H) Quantification of *mbl*^{MI00139}*>GFP.nls* where ~0-10% of *mbl*^{MI00139}*>GFP.nls* (+) cells are also Repo(+).Y-axis represents the number of GFP(+) cells positive for Repo

quantified as a percentage. (I_1-I_2) *mbl*^{MI00139}>*GFP.nls* expression is also found in third instar muscles m4-m8, m12 and m13 (Phalloidin, red).

(J_1-J_2) Representative confocal image of a *mbl*^{NP0420}>*GFP.nls* (green) adult brain co-labeled with an ELAV antibody (red). Dashed lines demarcate GFP(+) cells. (**K**) Quantification of *mbl*^{NP0420}>*GFP.nls* in third instar and adult brains where ~80-90% of GFP(+) cells are also ELAV(+). (**L**-**M**) In third instar and adult brains, *mbl*^{NP0420}>*GFP.nls* overlaps minimally with Repo (red). (L_1-L_2) Representative confocal image of a *mbl*^{NP0420}>*GFP.nls* adult brain labeled with Repo. Dashed lines demarcate GFP(+) cells. White solid arrowheads show GFP(+) cells that are positive for Repo. (M) Quantification of *mbl*^{NP0420}>*GFP.nls* in third instar and adult brains where ~10-15% of GFP (+) cells are also Repo(+). (N_1-N_2) *mbl*^{NP0420}>*GFP.nls* expression is not detected in third instar muscles m4-m8, m12 and m13 (Phalloidin, red).

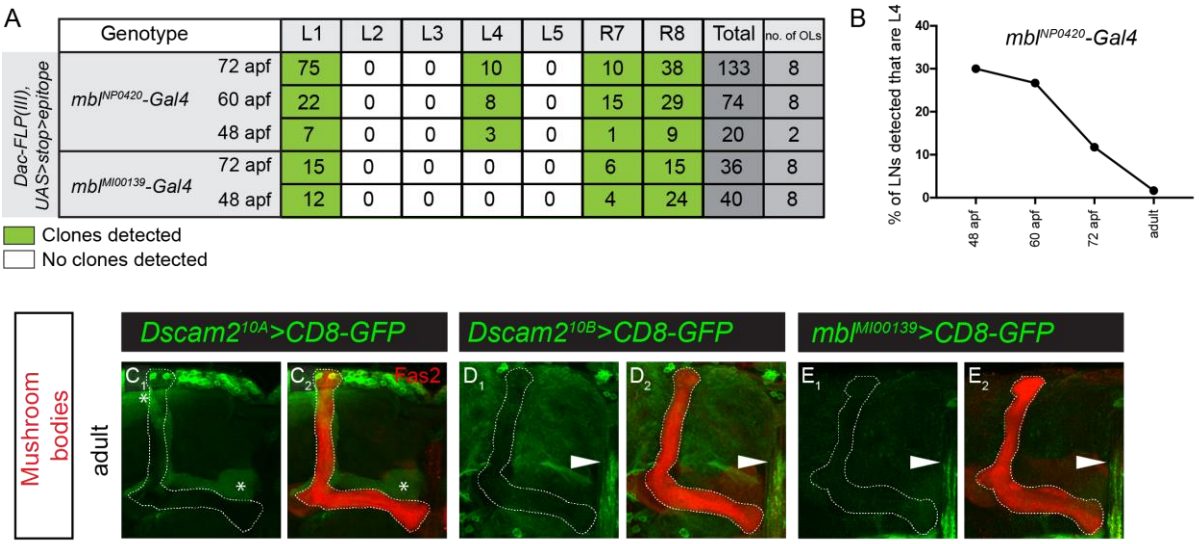

Fig. S4. *Mbl* expression is cell type specific and correlates with *Dscam2.10B*. (**A**) Quantification of lamina neurons and R7-R8 neurons observed using the intersectional strategy during development. Two different *mbl* reporters were used. The transcriptional reporter labeled L4 cells early in development whereas the splicing trap reporter did not. This is most likely due to the lower efficiency of the splicing trap given that it produced 5X fewer L1 clones at 72hr compared to the transcriptional reporter. Green boxes represent detection of reporter expression at different hours after pupal formation (apf). (**B**) A plot of the percentage of L4 lamina neurons over total lamina neurons during development (data from the *mbl* transcriptional reporter).

(**C**-**E**) *Mbl* is not detected in MB neurons that express *Dscam2.10A* in adults. (C_1-C_2) *Dscam2.10A* is expressed in α'β' mushroom body neurons (asterisks) but not the αβ and γ subsets of MB neurons labeled by Fas2 (red). Neither *Dscam2.10B* (D_1-D_2) nor *mbl* (E_1-E_2) are expressed in developing MB neurons. Neurons in the midline express both *Dscam2.10B* and *mbl* (white arrowhead).

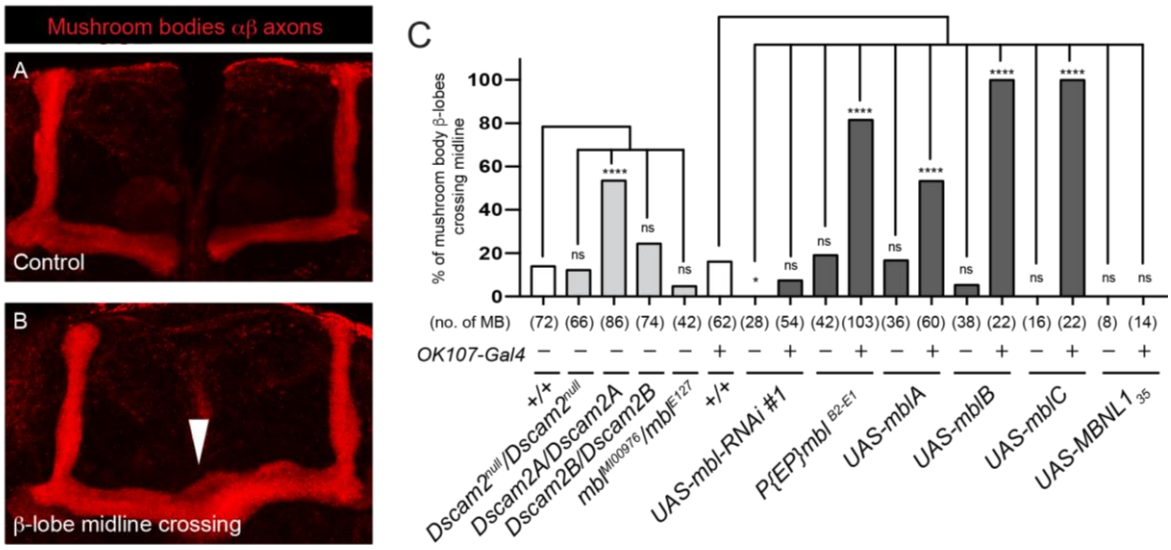

Fig. S5. Neurons overexpressing mbl phenocopy *Dscam2* single-isoform mutants. (**A-B**) MBs overexpressing *mbl* exhibit defects associated with *Dscam2* single isoform mutants. (A) A representative confocal image of control adult αβ lobes (red) with clear separation between the two β-lobes at the midline. (B) A representative confocal image of adult αβ lobes from an animal overexpressing *mblA*. β-lobe axons inappropriately cross the midline (arrowhead). (**C**) Quantification of β-lobe axon midline crossing defects. Numbers in parentheses represent total number of MBs quantified. Fishers exact test was used to compare genotypes to their corresponding controls (white bars). ns (not significant) $P>0.05$, * $P<0.05$ and **** $P<0.0001$.

Table S1. List of tested RNAi lines that did not derepress *Dscam2.10A* in R cells.

Flybase Number	CG Number	Gene Name	RNAi ID	no. of ol/ed	no. of animals
FBgn0052062	CG32062	A2bp1	27286	12	6
FBgn026239	CG6671	AGO1	33727	3	2
FBgn0000114	CG31762	aret	44483	18	9
FBgn0004587	CG10851	B52	v38862	16	8
FBgn0004587	CG10851	B52	v38860	4	2
FBgn0037660	CG18005	beag	v103832	8	4
FBgn0015907	CG13425	bl	v2912	10	6
FBgn0015907	CG13425	bl	v105271	9	5
FBgn0262475	CG6319	bru-2	50631	13	7
FBgn0264001	CG43744	Bru-3	50734	8	4
FBgn0031883	CG11266	Caper	55742	10	6
FBgn0031883	CG11266	Caper	55742	8	4
FBgn0022942	CG7035	Cbp80	v22331	12	8
FBgn0035136	CG6905	Cdc5	v13492	2	1
FBgn0035136	CG6905	Cdc5	v109369	10	5
FBgn0032690	CG10333	CG10333	v18132	12	8
FBgn0032690	CG10333	CG10333	v18133	4	2
FBgn0036277	CG10418	CG10418	v105940	11	6
FBgn0037531	CG10445	CG10445	v104753	14	7
FBgn0036314	CG10754	CG10754	v31346	11	8
FBgn0039920	CG11360	CG11360	v38491	15	8
FBgn0039920	CG11360	CG11360	v38492	11	6
FBgn0035692	CG13298	CG13298	55257	8	4
FBgn0035162	CG13900	CG13900	v18955	9	6
FBgn0035163	CG13900	CG13900	v108248	16	8
FBgn0037220	CG14641	CG14641	v110507/CyOtb	11	6
FBgn0038464	CG16941	CG16941	v20338	1	1
FBgn0033089	CG17266	CG17266	v25243	10	5
FBgn0033089	CG17266	CG17266	v25244	2	1
FBgn0029751	CG17764	CG17764	v20541	12	7
FBgn0029751	CG17764	CG17764	v101894	10	5
FBgn0035271	CG2021	CG2021	28579	8	5
FBgn0031266	CG2807	CG2807	v25162	8	5
FBgn0037344	CG2926	CG2926	v33589	11	5
FBgn050122	CG30122	CG30122	55209	6	3
FBgn0031631	CG3225	CG3225	v24725	9	5
FBgn0052533	CG32533	CG32533	v38634	1	1
FBgn0052533	CG32533	CG32533	v51785	11	6
FBgn0031628	CG3294	CG3294	v26111/TM6B	12	6
FBgn0031628	CG3294	CG3294	v26111/TM6B	12	6
FBgn0053108	CG33108	CG33108	v24996	9	5
FBgn0031229	CG3436	CG3436	55207/CyOtb	4	2
FBgn0031492	CG3542	CG3542	v26227	10	5
FBgn0031492	CG3542	CG3542	v26229	4	2
FBgn0031493	CG3605	CG3605	v26250	12	7
FBgn0031493	CG3605	CG3605	v26252	8	5
FBgn0035987	CG3689	CG3689	v45278	10	5
FBgn0028474	CG4119	CG4119	v26395	9	5
FBgn0028474	CG4119	CG4119	v106696/CyOtb	10	6
FBgn0034598	CG4266	CG4266	v26472	14	7
FBgn0034598	CG4266	CG4266	v26475	4	2
FBgn0031287	CG4291	CG4291	v21819/TM6B	11	6
FBgn0035016	CG4612	CG4612	v52497	9	5
FBgn0039566	CG4849	CG4849	v21962	9	5
FBgn0032194	CG4901	CG4901	v34904	11	6
FBgn0038344	CG5205	CG5205	v107282	9	5
FBgn0039182	CG5728	CG5728	v24697	14	7
FBgn0038927	CG6015	CG6015	34565	lethal	
FBgn0030631	CG6227	CG6227	v40351	11	8
FBgn0030632	CG6227	CG6227	v40352	12	6
FBgn0004903	CG6354	CG6354	31333	12	9
FBgn0004903	CG6354	CG6354	55662	8	4
FBgn0035675	CG6610	CG6610	v106830	10	6
FBgn0035675	CG6610	CG6610	31870	10	6
FBgn0036828	CG6841	CG6841	v34253/CyOtb	10	5
FBgn0030085	CG6999	CG6999	v110143	11	7
FBgn0030085	CG6999	CG6999	55157	12	6
FBgn0035872	CG7185	CG7185	v107147	5	3
FBgn0035872	CG7185	CG7185	34804	14	7
FBgn0036734	CG7564	CG7564	v100562	10	5
FBgn0035235	CG7879	CG7879	56930	10	5
FBgn0038887	CG7907	CG7907	55370	6	3
FBgn0035253	CG7971	CG7971	v101384	10	7
FBgn0027567	CG8108	CG8108	v35344	12	7
FBgn0030697	CG8565	CG8565	v100449	10	7
FBgn0030697	CG8565	CG8565	55368	11	6
FBgn0032883	CG9323	CG9323	v44984	12	8
FBgn0032883	CG9323	CG9323	v110410	8	4
FBgn0015621	CG3642	Clp	v26259	12	7
FBgn0015621	CG3642	Clp	v26261	13	7
FBgn0263995	CG43738	cpo	28360	8	4
FBgn0027873	CG1957	Cpsf100	50893/TM6B	8	5
FBgn0027873	CG1957	Cpsf100	50893/TM6B	8	5
FBgn0024698	CG10110	Cpsf160	v18009	11	6
FBgn0024698	CG10110	Cpsf160	v110571	9	6
FBgn0261065	CG7698	Cpsf73	v39558	9	5
FBgn0000377	CG3193	crn	v25919	lethal	
FBgn0039867	CG2261	CstF-50	v43716	10	5
FBgn0039867	CG2261	CstF-50	v109583	8	4
FBgn0027841	CG7697	CstF-64	v21045/CyOtb	10	6
FBgn0010220	CG12759	Dbp45A	v17306	6	3
FBgn0010221	CG12760	Dbp45A	v104183	13	7
FBgn0033160	CG11107	Dhx15	v44119/CyOtb	10	6
FBgn0031601	CG3058	Dim1	v21258	10	5
FBgn0259220	CG42320	Doa	v19066	9	5
FBgn0020306	CG9696	dom	v7787	2	1
FBgn0000562	CG4051	egl	28969	8	4
FBgn0001942	CG9075	eIF-4a	v42202	lethal	
FBgn0034237	CG4878	eIF3-S9	32880	lethal	
FBgn0260400	CG4262	elav	28371	2	1
FBgn0033859	CG6197	fand	v104186	10	5
FBgn0036850	CG10419	Gem2	v47372	13	8
FBgn0036850	CG10419	Gem2	v47374	10	7
FBgn0259139	CG6946	glo	33668	9	6
FBgn0259139	CG6946	glo	v27752	12	6
FBgn0001179	CG8019	hay	v41023	12	8
FBgn0014189	CG7269	Het25E	v22557	9	5
FBgn0011224	CG31000	heph	v33735	10	6
FBgn0011224	CG31000	heph	v110749	18	10
FBgn0264491	CG10293	how	v13756	13	7
FBgn0264491	CG10293	how	v100775	10	5
FBgn0004838	CG10377	Hrb27c, Hrp48	v16040	12	7
FBgn0004838	CG10377	Hrb27c, Hrp48	31685	6	3
FBgn0004838	CG10377	Hrb27c, Hrp48	33716	8	4
FBgn0004237	CG12749	Hrb87F, hrp36	v51759	9	6
FBgn0004237	CG12749	Hrb87F, hrp36	52937	11	6
FBgn0004237	CG12749	Hrb87F, hrp36	31244	14	8
FBgn0001215	CG9983	Hrb98DE, hrp38	31303	10	7
FBgn0001215	CG9983	Hrb98DE, hrp38	32351	13	8
FBgn0015949	CG9854	hrg	v42283	12	6
FBgn0002431	CG9484	hyd	v44675	12	6
FBgn0039691	CG1972	IntS11	v33450	7	5
FBgn0039691	CG1972	IntS11	v109408	8	5
FBgn0036570	CG5222	IntS9	v110367	10	5
FBgn0026713	CG32604	l(1)G0007	v31908	15	8
FBgn0026714	CG32605	l(1)G0008	v31909	4	2
FBgn0086444	CG10689	l(2)37Cb	v31324	9	6
FBgn0263599	CG5931	l(3)72Ab	v43962	5	3
FBgn0263600	CG5932	l(3)72Ab	v110666	6	3
FBgn0035838	CG7942	ldbr	v110582	8	5
FBgn0035838	CG7942	ldbr	55661	8	6
FBgn0034834	CG3162	LS2	v21379	11	7
FBgn0034834	CG3162	LS2	v21380	14	7
FBgn0261067	CG4279	LSm1	v28793	11	6
FBgn0261067	CG4279	LSm1	v50653	10	5
FBgn0033450	CG12924	Lsm11	v108336	12	6
FBgn0051184	CG31184	LSm3	56892	4	2
FBgn0261068	CG13277	Lsm7	v23862	10	6
FBgn0011666	CG5099	msi	55152	10	5
FBgn0262737	CG7437	mub	v28024	16	9
FBgn0014366	CG2925	noi	v20943	9	5
FBgn0015520	CG10328	nonA-l	v101567	7	4
FBgn0015520	CG10328	nonA-l	52934	3	2
FBgn0261619	CG5119	pAbp	v22007	9	5
FBgn0005648	CG2163	Pabp2	v106466	10	5
FBgn0086895	CG8241	pea	v47782	9	5
FBgn0027784	CG6011	Prp18	v13760	10	6
FBgn0027784	CG6011	Prp18	v100287	2	1
FBgn0261119	CG5519	Prp19	v108575	11	6
FBgn0261119	CG5519	Prp19	v41438	3	2
FBgn0036915	CG7757	Prp3	v25548	9	6
FBgn0036487	CG6876	Prp31	v35131	3	2
FBgn0036487	CG6876	Prp31	v103721	6	3
FBgn0033688	CG8877	Prp8	v18565	12	7
FBgn0261552	CG42670	Ps	v44710	18	9
FBgn0261552	CG42670	Ps	v24214	10	5
FBgn0014870	CG8912	Psi	v28989	16	8
FBgn0014870	CG8912	Psi	v28990	10	5
FBgn0014870	CG8912	Psi	v105135	10	7
FBgn0028577	CG12085	pUf68	v109796	8	4
FBgn0003165	CG9755	pum	36676	12	7
FBgn0022987	CG4816	qkr54B	34896	10	5
FBgn0022986	CG3613	qkr58E-1	55159	10	5
FBgn0022985	CG5821	qkr58E-2	55279/CyOtb	6	3
FBgn0022984	CG3584	qkr58E-3	55922	10	5
FBgn0260944	CG17136	Rbp1	v21083/TM6B	12	6
FBgn0260944	CG17136	Rbp1	v110008	11	6
FBgn0030479	CG1987	Rbp1-like	v105883	10	6
FBgn0030479	CG1987	Rbp1-like	44100	4	2
FBgn0260943	CG32169	rbp6	61324/CyOtb	8	4
FBgn0015778	CG9412	rin	33392/TM6B	12	7
FBgn0003261	CG10279	Rm62	v46908/TM6B	12	6
FBgn0037707	CG16788	RnpS1	56910	10	5
FBgn0037707	CG16788	RnpS1	36580	6	3
FBgn0005649	CG5422	Rox8	v100563	10	5
FBgn0005649	CG5422	Rox8	v41439	12	6
FBgn0011305	CG5655	Rsf1	v22186/TM3	15	10
FBgn0267790	CG9373	rump	42665/CyOtb	6	3
FBgn0039229	CG6995	Saf-B	51759		5
FBgn0265298	CG5442	SC35	v40590	5	3
FBgn0265298	CG5442	SC35	v104978	6	3
FBgn0025571	CG5836	SF1	v13426	3	2
FBgn0040284	CG6987	SF2	v27775/TM3	13	7
FBgn0040284	CG6987	SF2	v27776/TM6B	6	4
FBgn0052423	CG32423	shep	43545	4	3
FBgn0002354	CG1420	Slu7	v103587	5	3
FBgn0262601	CG5352	SmB	v40587	3	2
FBgn0262601	CG5352	SmB	v110713	12	6
FBgn0261933	CG10753	SmD1	v31343/TM6B	8	4
FBgn0261933	CG10753	SmD1	v31342	7	4
FBgn0261789	CG1249	SmD2	v31947	4	2
FBgn0261789	CG1249	SmD2	v31946	8	4
FBgn0261789	CG1249	SmD2	v100690	4	2
FBgn0023167	CG8427	SmD3	v35933	8	5
FBgn0261790	CG18591	SmE	v23569	4	2
FBgn0261790	CG18591	SmE	v23570/TM6B	10	5
FBgn0000426	CG16792	SmF	v107644/CyOtb	lethal	
FBgn0000426	CG16792	SmF	26734	12	6
FBgn0036641	CG16725	Smn	v100392	7	4
FBgn0003449	CG4528	snf	51459	16	8
FBgn0003449	CG4528	snf	55914	9	5
FBgn0016978	CG8749	snRNP-U1-70K	v23150	11	8
FBgn0016978	CG8749	snRNP-U1-70K	v23151	10	6
FBgn0261792	CG5454	snRNP-U1-C	v22132	11	6
FBgn0261792	CG5454	snRNP-U1-C	v22133	10	5
FBgn0261791	CG9742	SNRPG	v39256	10	5
FBgn0015818	CG3780	Spx	v40471	9	5
FBgn0015818	CG3780	Spx	v40472	9	5
FBgn0263396	CG16901	sqd, hrp40	v32395	12	6
FBgn0263396	CG16901	sqd, hrp40	31302	20	10
FBgn0036340	CG11274	SRm160	v6439	9	5
FBgn0036340	CG11274	SRm160	v100751	8	4
FBgn0015298	CG4457	Srp19	51160	lethal	
FBgn0024285	CG4602	Srp54	v51088	8	6
FBgn0024285	CG4602	Srp54	55254	9	5
FBgn0026370	CG8174	SRPK	v103416	9	6
FBgn0025702	CG11489	srpk79D	v47544	8	5
FBgn0025702	CG11489	srpk79D	v47545	10	5
FBgn0003520	CG5753	stau	31247	9	5
FBgn0003559	CG17170	su(f)	v110125	6	3
FBgn0003638	CG3019	su(wa)	v25597	12	9
FBgn0003638	CG3019	su(wa)	v104716	10	5
FBgn0264270	CG43770	Sxl	34393	10	5
FBgn0037371	CG2097	Sym	v33470	9	5
FBgn0038826	CG17838	syp	56972	10	5
FBgn0038826	CG17838	syp	v33012	15	9
FBgn0025790	CG10327	TBPH	v38377	7	4
FBgn0025790	CG10327	TBPH	v38379	10	5
FBgn0003741	CG16724	tra	v2560	12	6
FBgn0003742	CG10128	tra2	v8868	9	5
FBgn0039117	CG10210	tst	v38356	8	4
FBgn0039117	CG10210	tst	v108216	12	6
FBgn0033378	CG8781	tsu	55367	11	6
FBgn0033378	CG8781	tsu	28955	9	5
FBgn0033210	CG1406	U2A	v17358/TM6B	9	5
FBgn0033210	CG1406	U2A	v109815	11	6
FBgn0017457	CG3582	U2af38	v110075	9	5
FBgn0017457	CG3582	U2af38	29304	13	7
FBgn0005411	CG9998	U2af50	v24176	11	6
FBgn0005411	CG9998	U2af50	v24177	10	6
FBgn0036733	CG6322	U4-U6-60K	v34242	8	6
FBgn0036733	CG6322	U4-U6-60K	v110393	10	6
FBgn0030354	CG1559	Upf1	43144	12	7
FBgn0028554	CG10203	xl6	v31203	14	8
FBgn0028555	CG10204	xl6	v100226	11	7
FBgn0021895	CG18426	ytr	55704	4	2