

Table S1A. Read statistics for 8 drosophila CLEAR-CLIP samples.

| sampleName | Raw Reads | clean Reads | Uniq Reads | Mapped Reads | Chimeric Reads | Percentage |
|------------|-----------|-------------|------------|--------------|----------------|------------|
| W01 | 22252916 | 22166118 | 2607404 | 1104091 | 18398 | 1.67% |
| W02 | 18229939 | 18194988 | 2204986 | 950071 | 16954 | 1.05% |
| W03 | 20063980 | 20005202 | 3417700 | 1578808 | 25779 | 1.02% |
| W04 | 48304093 | 47895896 | 4951811 | 2946369 | 68635 | 1.79% |
| C01 | 23493584 | 23438634 | 2356272 | 873423 | 17674 | 1.02% |
| C02 | 24206211 | 24047074 | 3333769 | 1296768 | 25325 | 1.03% |
| C03 | 11505949 | 11487289 | 1244821 | 464129 | 9733 | 1.05% |
| C04 | 45347628 | 45216440 | 4062840 | 2094932 | 51894 | 1.66% |

Table S1B. Experimentally Validated miRNA Targets Found in chimeras supported interactions

| miRNA | Genes | Number of chimeric reads | Found in Experiments |
|----------------|------------------|--------------------------|--|
| dme-bantam-3p | hid | 58 | W^{1118} (whole body), W^{1118} (head) |
| dme-let-7-5p | ab | 12 | W^{1118} (head) |
| dme-miR-11-3p | E(spl)malpha-BFM | 13 | W^{1118} (whole body) |
| dme-miR-124-3p | gli | 20 | clk^{jrk} (head) |
| dme-miR-1-3p | tutl | 14 | W^{1118} (head) |
| dme-miR-1-3p | CG18542 | 5 | W^{1118} (whole body) |
| dme-miR-1-3p | DI | 10 | clk^{jrk} (Whole body), clk^{jrk} (head) |
| dme-miR-1-3p | Msr-110 | 8 | clk^{jrk} (whole body) |
| dme-miR-1-3p | Chd64 | 13 | W^{1118} (head) |
| dme-miR-14-3p | EcR | 5 | W^{1118} (head) |
| dme-miR-14-3p | sug | 6 | W^{1118} (whole body) |
| dme-miR-14-3p | IP3K2 | 4 | W^{1118} (whole body) |
| dme-miR-34-5p | Su(z)12 | 2 | W^{1118} (whole body) |
| dme-miR-7-5p | E(spl)m3-HLH | 1 | W^{1118} (whole body) |
| dme-miR-7-5p | h | 21 | W^{1118} (head) |
| dme-miR-8-3p | wls | 2 | clk^{jrk} (whole body) |
| dme-miR-8-3p | pan | 7 | clk^{jrk} (whole body) |

Table S1C. miRNA-first and miRNA-last distribution found in CLEAR-CLIP

| sample | W^{1118} | | clk^{jrk} | |
|-------------------|------------|------------|-------------|------------|
| | head | Whole body | Head | Whole body |
| miRfirst chimeric | 4500 | 6697 | 2271 | 4151 |
| miRlast chimeric | 269 | 590 | 214 | 346 |

Table S2. The primers are used in this study

| | |
|-----------|-------------------------------|
| tim-yg-F | AGTCGCCACTCACCATTCCCT |
| tim-yg-R | CGTTGTTCTTCTTGCTCTGC |
| actin-F | CCAACCGTGAGAAGATGA |
| actin-R | GGAGTCCAGAACGATACC |
| 2s | TGCTTGGACTACATATGGTTGAGGG |
| miR-375 | CGACGTTTGTTCGTTTGGCTTAAGTTA |
| miR-9c | GCGATTGTA CTTCATCAGGTGCTCTG |
| mir-276a | CAGTCA GACCCC ATGTAG GAACTT C |
| miR-305 | cgcATTGTACTTCATCAGGTGCTCTG |
| Pdp1-F | CCGATTCCCTGGGTCAC |
| Pdp1-R | GCGATGGCGGATTTAGC |
| Vri-F | GTCGGTCGAGCCGTAA |
| Vri-R | TTGTGCAGTTCGGGGTT |
| rp49-F | TCGGTTACGGATCGAACAA |
| rp49-R | GACAATCTCCTTGCGTTCT |
| U27-F | GCTGATGACAAACCAATAGACAAGCA |
| miR-210-F | AGCTGCTGGCCACTGCACAAGAT |
