

Table S1. Genome-wide potential *cis*-antisense miRNAs and their antisense transcribed genes of *Mus musculus*.

| No. | miRNA | Name of antisense gene | Type of antisense gene | Complementary sites in the gene ^a | Chromosome |
|-----|-------------------|------------------------|------------------------|--|------------|
| 1 | mmu-miR-5126 | Dner | Protein-coding | 5' UTR | 1 |
| 2 | mmu-miR-6340 | Rab22a | Protein-coding | CDS-3' UTR | 2 |
| 3 | mmu-miR-1905 | Mex3a | Protein-coding | CDS | 3 |
| 4 | mmu-miR-8099 | Lysmd1 | Protein-coding | 3' UTR | 3 |
| 5 | mmu-miR-1895 | Cxxc4 | Protein-coding | CDS | 3 |
| 6 | mmu-miR-6376 | Rpn1 | Protein-coding | 3' UTR | 6 |
| 7 | mmu-miR-292b-5p | D7Ert143e | Non-coding | Exon | 7 |
| 8 | mmu-miR-292b-3p | D7Ert143e | Non-coding | Exon | 7 |
| 9 | mmu-miR-7668-5p | Zfp27 | Protein-coding | 5' UTR | 7 |
| 10 | mmu-miR-762 | Bcl7c | Protein-coding | 5' UTR | 7 |
| 11 | mmu-miR-1957b | Wdr59 | Protein-coding | 3' UTR | 8 |
| 12 | mmu-miR-6244 | Zc3h12c | Protein-coding | CDS | 9 |
| 13 | mmu-miR-130c | Kdelc2 | Protein-coding | 3' UTR | 9 |
| 14 | mmu-miR-135a-5p | Glyctk | Protein-coding | 3' UTR | 9 |
| 15 | mmu-miR-135a-1-3p | Glyctk | Protein-coding | 3' UTR | 9 |
| 16 | mmu-miR-3968 | Trim80 | Protein-coding | CDS | 11 |
| 17 | mmu-miR-431-5p | Rtl1 | Protein-coding | CDS | 12 |
| 18 | mmu-miR-431-3p | Rtl1 | Protein-coding | CDS | 12 |
| 19 | mmu-miR-433-5p | Rtl1 | Protein-coding | CDS | 12 |
| 20 | mmu-miR-433-3p | Rtl1 | Protein-coding | CDS | 12 |
| 21 | mmu-miR-127-5p | Rtl1 | Protein-coding | CDS | 12 |
| 22 | mmu-miR-127-3p | Rtl1 | Protein-coding | CDS | 12 |
| 23 | mmu-miR-434-5p | Rtl1 | Protein-coding | CDS | 12 |
| 24 | mmu-miR-434-3p | Rtl1 | Protein-coding | CDS | 12 |
| 25 | mmu-miR-432 | Rtl1 | Protein-coding | CDS | 12 |
| 26 | mmu-miR-136-5p | Rtl1 | Protein-coding | CDS | 12 |
| 27 | mmu-miR-136-3p | Rtl1 | Protein-coding | CDS | 12 |
| 28 | mmu-miR-1896 | Zscan26 | Protein-coding | CDS | 13 |
| 29 | mmu-miR-3074-5p | 201011101Rik | Protein-coding | 3' UTR | 13 |
| 30 | mmu-miR-3074-1-3p | 201011101Rik | Protein-coding | 3' UTR | 13 |
| 31 | mmu-miR-6363 | 5330426P16Rik | Non-coding | Exon | 16 |
| 32 | mmu-miR-3082-5p | Jmjd8 | Protein-coding | 3' UTR | 17 |
| 33 | mmu-miR-3082-3p | Jmjd8 | Protein-coding | 3' UTR | 17 |
| 34 | mmu-miR-1901 | Cables1 | Protein-coding | CDS | 18 |
| 35 | mmu-miR-6357 | Poli | Protein-coding | CDS | 18 |
| 36 | mmu-miR-3620-5p | Alas2 | Protein-coding | 5' UTR | X |

^aComplementary sites in the gene denotes the sites in the gene that a miRNA might bind it with perfect matches. For protein-coding genes, four types of complementary sites, that is 5' UTR, 3' UTR, CDS and CDS-3' UTR, are involved. CDS-3'UTR denotes that the complementary sites are across part of CDS and 3'UTR. For non-coding genes, only Exon is involved.

Table S2. Genome-wide potential *cis*-antisense miRNAs and their antisense transcribed genes of *Drosophila*

| No. | miRNA | Name of antisense gene | Type of antisense gene | Complementary sites in the gene ^a | Chromosome |
|-----|------------------|------------------------|------------------------|--|------------|
| 1 | dme-miR-4970-5p | CG6729 | Protein-coding | CDS | 2L |
| 2 | dme-miR-4976-5p | CG15236 | Protein-coding | CDS | 2R |
| 3 | dme-miR-4976-3p | CG15236 | Protein-coding | CDS | 2R |
| 4 | dme-miR-9379-5p | CG30485 | Protein-coding | 3' UTR | 2R |
| 5 | dme-miR-9379-3p | CG30485 | Protein-coding | 3' UTR | 2R |
| 6 | dme-miR-4979-5p | Sesn | Protein-coding | 3' UTR | 2R |
| 7 | dme-miR-4979-3p | Sesn | Protein-coding | 3' UTR | 2R |
| 8 | dme-miR-9380-5p | CG7352 | Protein-coding | CDS | 3R |
| 9 | dme-miR-9380-3p | CG7352 | Protein-coding | CDS | 3R |
| 10 | dme-miR-iab-8-5p | iab-4 | Non-coding | Exon | 3R |
| 11 | dme-miR-iab-8-3p | iab-4 | Non-coding | Exon | 3R |
| 12 | dme-miR-4948-5p | Aph-4 | Protein-coding | CDS | 3R |
| 13 | dme-miR-4948-3p | Aph-4 | Protein-coding | CDS | 3R |
| 14 | dme-miR-978-3p | Grip84 | Protein-coding | 3' UTR | X |
| 15 | dme-miR-978-5p | Grip84 | Protein-coding | 3' UTR | X |
| 16 | dme-miR-979-3p | Grip84 | Protein-coding | 3' UTR | X |
| 17 | dme-miR-979-5p | Grip84 | Protein-coding | 3' UTR | X |

melanogaster.

^aComplementary sites in the gene denotes the sites in the gene that a miRNA might bind it with perfect matches. For protein-coding genes, three types of complementary sites, that is 5' UTR, 3' UTR and CDS, are involved. For non-coding genes, only Exon is involved.

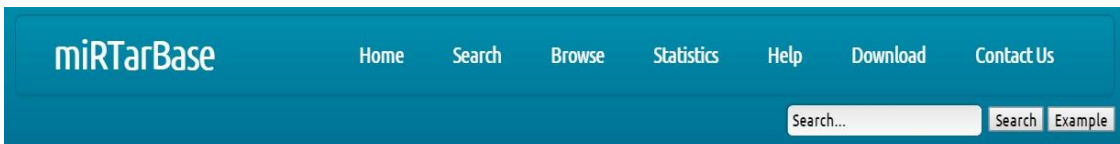
Table S3. Genome-wide potential *cis*-antisense miRNAs and their antisense transcribed genes of *Caenorhabditis elegans*.

| No. | miRNA | Name of antisense gene | Type of antisense gene | Complementary sites in the gene ^a | Chromosome |
|-----|-----------------|------------------------|------------------------|--|------------|
| 1 | cel-miR-50-5p | Y71G12B.36 | Non-coding | Exon | I |
| 2 | cel-miR-50-3p | Y71G12B.36 | Non-coding | Exon | I |
| 3 | cel-miR-1-3p | T09B4.14 | Non-coding | Exon | I |
| 4 | cel-miR-1-5p | T09B4.14 | Non-coding | Exon | I |
| 5 | cel-miR-79-3p | C12C8.6 | Non-coding | Exon | I |
| 6 | cel-miR-79-5p | C12C8.6 | Non-coding | Exon | I |
| 7 | cel-miR-71-5p | F16A11.6 | Non-coding | Exon | I |
| 8 | cel-miR-71-3p | F16A11.6 | Non-coding | Exon | I |
| 9 | cel-miR-8195-5p | tsr-1 | Protein-coding | CDS | II |
| 10 | cel-miR-8195-3p | tsr-1 | Protein-coding | CDS | II |
| 11 | cel-lin-4-5p | F59G1.10 | Non-coding | Exon | II |
| 12 | cel-lin-4-3p | F59G1.10 | Non-coding | Exon | II |
| 13 | cel-miR-60-5p | C32D5.15 | Non-coding | Exon | II |
| 14 | cel-miR-60-3p | C32D5.15 | Non-coding | Exon | II |
| 15 | cel-miR-85-3p | F49E12.14 | Non-coding | Exon | II |
| 16 | cel-miR-85-5p | F49E12.14 | Non-coding | Exon | II |
| 17 | cel-miR-252-5p | W02B12.17 | Non-coding | Exon | II |
| 18 | cel-miR-252-3p | W02B12.17 | Non-coding | Exon | II |
| 19 | cel-miR-45-3p | ZK930.13 | Non-coding | Exon | II |
| 20 | cel-miR-45-5p | ZK930.13 | Non-coding | Exon | II |
| 21 | cel-miR-42-5p | ZK930.12 | Non-coding | IGR-Exon | II |
| 22 | cel-miR-42-3p | ZK930.12 | Non-coding | Exon | II |
| 23 | cel-miR-43-3p | ZK930.12 | Non-coding | Exon | II |
| 24 | cel-miR-43-5p | ZK930.12 | Non-coding | Exon | II |
| 25 | cel-miR-234-3p | C13B4.6 | Non-coding | Exon | II |
| 26 | cel-miR-234-5p | C13B4.6 | Non-coding | Exon | II |
| 27 | cel-miR-80-5p | K01F9.6 | Non-coding | Exon | III |
| 28 | cel-miR-80-3p | K01F9.6 | Non-coding | Exon | III |
| 29 | cel-miR-90-3p | K01F9.7 | Non-coding | Exon | III |
| 30 | cel-miR-90-5p | K01F9.7 | Non-coding | Exon | III |
| 31 | cel-miR-46-5p | ZK525.4 | Non-coding | Exon | III |
| 32 | cel-miR-46-3p | ZK525.4 | Non-coding | Exon | III |
| 33 | cel-miR-124-5p | C29E6.8 | Non-coding | Exon | IV |
| 34 | cel-miR-124-3p | C29E6.8 | Non-coding | IGR-Exon | IV |
| 35 | cel-miR-52-5p | Y37A1B.335 | Non-coding | Exon | IV |
| 36 | cel-miR-52-3p | Y37A1B.335 | Non-coding | Exon | IV |
| 37 | cel-miR-1833 | Y41E3.458 | Non-coding | Exon | IV |
| 38 | cel-miR-255-3p | F08F3.13 | Non-coding | Exon | V |

(continued on next page)

| No. | miRNA | Name of antisense gene | Type of antisense gene | Complementary sites in the gene ^a | Chromosome |
|-----|-----------------|------------------------|------------------------|--|------------|
| 39 | cel-miR-255-5p | F08F3.13 | Non-coding | Exon | V |
| 40 | cel-miR-253-5p | F44E7.15 | Non-coding | Exon | V |
| 41 | cel-miR-253-3p | F44E7.15 | Non-coding | Exon | V |
| 42 | cel-miR-259-5p | F25D1.9 | Non-coding | Exon | V |
| 43 | cel-miR-259-3p | F25D1.9 | Non-coding | Exon | V |
| 44 | cel-miR-87-3p | F10C2.11 | Non-coding | Exon | V |
| 43 | cel-miR-87-5p | F10C2.11 | Non-coding | Exon | V |
| 44 | cel-miR-8210-5p | C54G10.5 | Non-coding | Exon | V |
| 45 | cel-miR-8210-3p | C54G10.5 | Non-coding | IGR-Exon | V |
| 46 | cel-miR-74-5p | T24D8.16 | Non-coding | IGR-Exon | X |
| 47 | cel-miR-74-5p | T24D8.16 | Non-coding | Exon | X |
| 48 | cel-miR-271 | C04F6.8 | Non-coding | Exon | X |

^aComplementary sites in the gene denotes the sites in the gene that a miRNA might bind it with perfect matches. There are three types of complementary sites are involved, CDS for protein-coding genes and IGR-Exon and Exon for non-coding genes, respectively. IGR stands for intergenic region.



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| ID | Species (miRNA) | Species (Target) | miRNA | Target | Validation methods | | | | | | | Sum | # of papers |
|----------------------------|-----------------|------------------|-----------------|---------|--------------------|--------------|------|----------------------|-----|--------|-------|-----|-------------|
| | | | | | Strong evidence | | | Less strong evidence | | | | | |
| | | | | | Reporter assay | Western blot | qPCR | Microarray | NGS | pSILAC | Other | | |
| MIRT000707 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | JAK2 | ✓ | ✓ | | | | | ✓ | 3 | 1 |
| MIRT001167 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | NR3C2 | ✓ | | ✓ | | | | ✓ | 3 | 1 |
| MIRT001941 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | APC | ✓ | | ✓ | | | | ✓ | 3 | 1 |
| MIRT006793 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | HOXA10 | ✓ | | | | | | | 1 | 1 |
| MIRT007105 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | MYC | ✓ | ✓ | | | | | | 2 | 1 |
| MIRT035578 | Homo sapiens | Homo sapiens | hsa-miR-135a-5p | ALOX5AP | | | | | | | ✓ | 1 | 1 |

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Figure S1. A snapshot of experimentally validated targets of hsa-miR-135a-5p from miRTarBase (Hsu et al., 2014)

SUPPLEMENTARY REFERENCE:

Hsu, S-D, Tseng, Y-T, Shrestha, S, Lin, Y-L, Khaleel, A, Chou, C-H, Chu, C-F, Huang, H-Y, Lin, C-M, Ho, S-Y, *et al.* 2014. miRTarBase update 2014: an information resource for experimentally validated miRNA-target interactions. *Nucleic Acids Res* **42**, D78-D85.