**Tissue-specific knockdown of genes of the *Argonaute* family modulates lifespan and radioresistance in *Drosophila melanogaster***

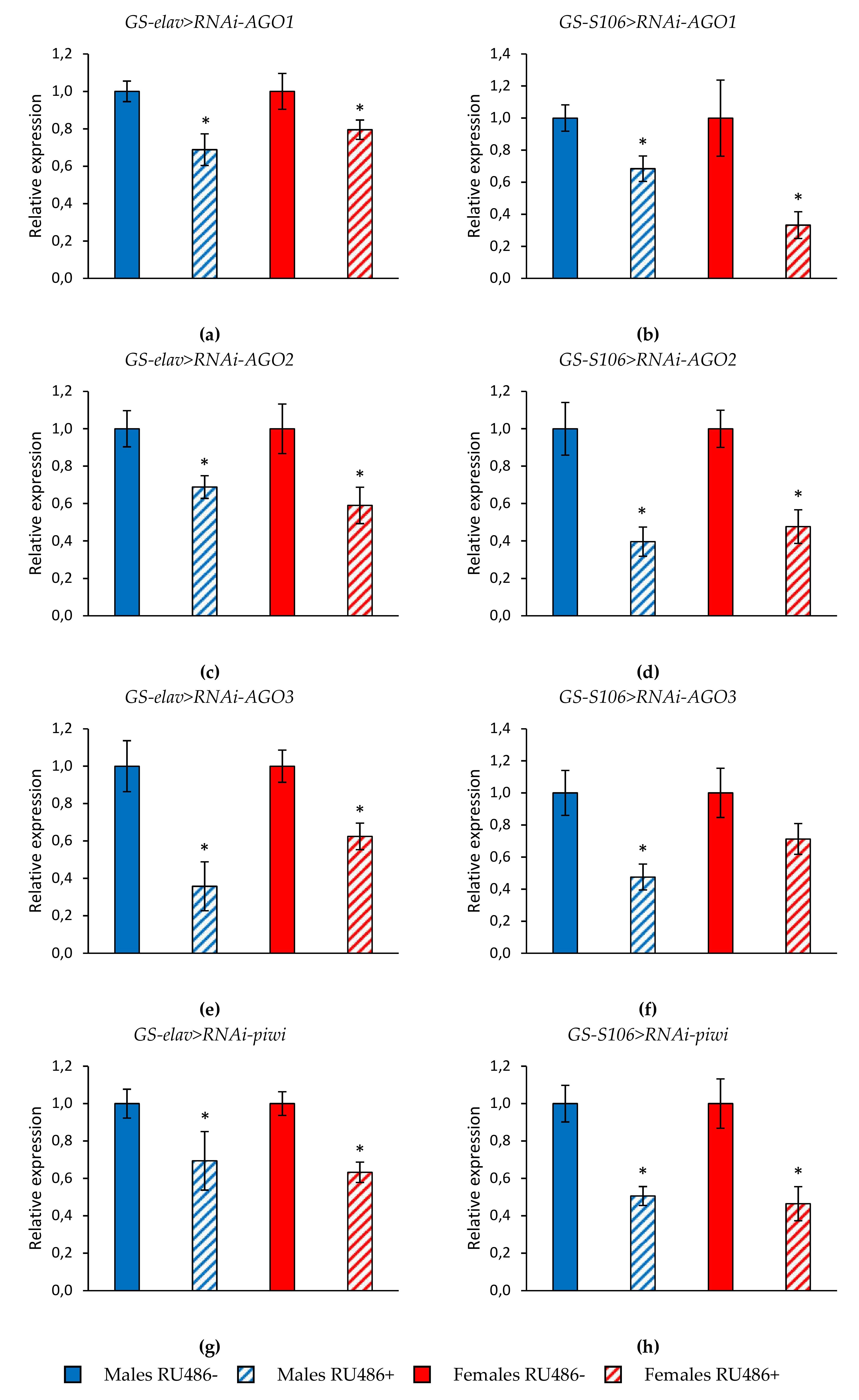
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**Supplementary Materials**

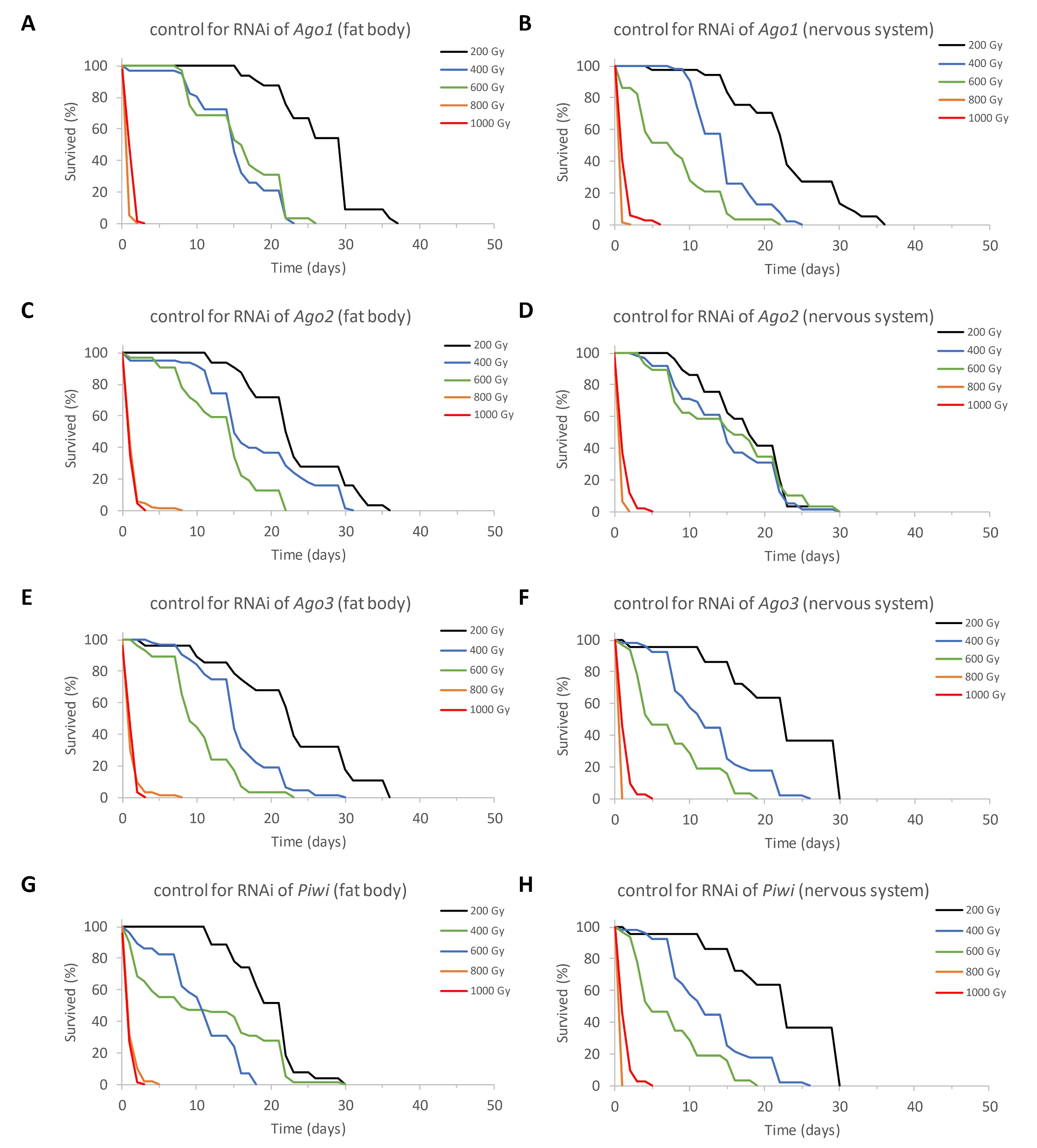
**Table S1**. *Drosophila melanogaster* strains.

|  |  |  |  |
| --- | --- | --- | --- |
| **Strain** | **Genotype** | **Description** | **Source** |
| *Canton-S* | Wild-type strain | Wild-type strain | Bloomington *Drosophila* Stock Center, USA (#64349) |
| *RNAi-AGO1* | *y[1] v[1]; P{y[+t7.7] v[+t1.8]=TRiP.HM04006}attP2* | Expresses dsRNA for RNAi of *AGO1* under *UAS* control in the *VALIUM1* vector | Bloomington *Drosophila* Stock Center, USA (#31700) |
| *RNAi-AGO2* | *y[1] sc[\*] v[1] sev[21]; P{y[+t7.7] v[+t1.8]=TRiP.HMS00108}attP2* | Expresses dsRNA for RNAi of *AGO2* under *UAS* control in the *VALIUM20* vector | Bloomington *Drosophila* Stock Center, USA (#34799) |
| *RNAi-AGO3* | *y[1] v[1]; P{y[+t7.7] v[+t1.8]=TRiP.HMC02938}attP40* | Expresses dsRNA for RNAi of *AGO3* under *UAS* control in the *VALIUM20* vector | Bloomington *Drosophila* Stock Center, USA (#44543) |
| *RNAi-piwi* | *y[1] v[1]; P{y[+t7.7] v[+t1.8]=TRiP.HMJ21827}attP40/CyO* | Expresses dsRNA for RNAi of *piwi* under *UAS* control in the *VALIUM20* vector | Bloomington *Drosophila* Stock Center, USA (#57819) |
| *GS-elav* | *y[1] w[\*]; P{w[+mC]=elav-Switch.O}GSG301* | Expresses steroid-activated GAL4 in the nervous system | Bloomington *Drosophila* Stock Center, USA (#43642) |
| *GS-S106* | *w[1118]; P{w[+mW.hs]=Switch1}106* | Expresses GAL4 fused to steroid receptor ligand binding domain in the adult fat body | Bloomington *Drosophila* Stock Center, USA (#8151) |
| *GS-TIGS-2* | *P{Switch-unk}TIGS-2* | Expresses GAL4 in the digestive system | Courtesy of Dr. Seroude (Queen’s University, Canada) from Scott Pletcher (University of Michigan, USA) |
| *GS-Mhc* | *w; Sp/CyO; P{MHC-GeneSwitch}* | Expresses GAL4 in muscles |

All strains are maintained in the Collection of Laboratory Strains of Fruit Flies *Drosophila* (IB FRC Komi SC UB RAS, Syktyvkar, Russia).



**Figure S1.** Knockdown of *AGO1* (**a, b**), *AGO2* (**c, d**), *AGO3* (**e, f**), and *piwi* (**g, h**) in investigated flies. \* - p < 0.05 (Mann-Whitney U-test).



**Figure S2**. Effects of acute gamma irradiation on the survival of *Drosophila* male imago from the controls for RNAi of *AGO1* (**a, b**), *AGO2* (**c, d**), *AGO3* (**e, f**), *piwi* (**g, h**) in the fat body (**a, c, e, g**) and nervous system (**b ,d, f, h**).

**Table S2.** Primers for real-time PCR.

|  |  |  |
| --- | --- | --- |
| **Gene** | **Forward primer** | **Reverse primer** |
| *β-Tubulin* | GCAACTCCACTGCCATCC | CCTGCTCCTCCTCGAACT |
| *RpL32* | GAAGCGCACCAAGCACTTCATC | CGCCATTTGTGCGACAGCTTAG |
| *EF1α* | AGGGCAAGAAGTAGCTGGTTTGC | GCTGCTACTACTGCGTGTTGTTG |
| *AGO1* | TGCGTCGCAAGTATCGTGTGTG | TCCAGCTGCAGTGGGAATGATTG |
| *AGO2* | ATCTACTACCGAGATGGCGTGAGC | TCTTGGGTTTACAGCCCACCTTG |
| *AGO3* | AACACTCGCATCTTCTCGGGTAGC | TCTACGACAGTTCCTGGCAATGGG |
| *piwi* | AATTCCTGAGCTCTGCCGAGTG | TCATGGCACGCATAAGCTGAAAG |
| *HeT-A1* | CGCGCGGAACCCATCTTCAGA | CGCCGCAGTCGTTTGGTGAGT |
| *R1-element* | CGTTGTTTCCACTGCCGTTA | CCTAGGCTGCGGAAACTGAT |
| *Rt1a* | CCACACAGACTGAGGCAGAA | ACGCATAACTTTCCGGTTTG |
| *1731* | AGCAAACGTCTGTTGGAAGG | CGACAGCAAAACAACACTGC |
| *412* | CACCGGTTTGGTCGAAAG | GGACATGCCTGGTATTTTGG |
| *blood* | TGCCACAGTACCTGATTTCG | GATTCGCCTTTTACGTTTGC |
| *opus* | CGAGGAGTGGGGAGAGATTG | TGCGAAAATCTGCCTGAACC |
| *roo* | CGTCTGCAATGTACTGGCTCT | CGGCACTCCACTAACTTCTCC |
| *microsatellite/LINE-1* | GGCCATGTCCGTCTGTCC | AGCTAGTGTGAATGCGAACG |
| *Sod1* | TGCACGAGTTCGGTGACAACAC | TCCTTGCCATACGGATTGAAGTGC |
| *Prx5* | CCGATGAGCTGAAGTCCAAG | TTGCCGTTCTCCACCACCAG |
| *Gadd45* | AAGTCGCGCACAGATACTCACG | TTTGTTGGTTCGGCAGCTGGTC |
| *Xpc* | AGAAGACGGTGCATTTGAGATTGC | ATGGGATGACAAGCGCCTTGATG |
| *Ku80* | AGCTTCAGAATGTCGCAACTACC | TCGTTGAAATCGAAGAGCAGGAG |
| *spn-B* | ATCACGCAATCCCATCGAGGAC | TCCGGTGCGAGAACATTAACCTG |
| *Hsp27* | ACTGGGTCGTCGTCGTTATTCG | CGCGCGACGTGACATTTGATTG |
| *Hsp68* | TGGGCACATTCGATCTCACTGG | TAACGTCGATCTTGGGCACTCC |
| *Atg1* | AGACTCTTCCTCGTGCAACTAGC | GCTTGAGATCACGATGCACAATTC |
| *Atg5* | CTCGTCAAGCTCAACTCCAAGG | GTTGACCAATCCCAGCCAAAGC |
| *Ire1* | GACAGTGAGGACAGCCGAATTATC | GCGATTGCGGATCCTTGTGTATC |

**Table S3.** Lifespan parameters of flies with tissue-specific knockdown of the *Argonaute* genes.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Genotype** | **Sex** | **Replicate** | **RU486** | **±SE** | **M** | **90%** | **MRDT** | **N** |
| *GS-elav>RNAi-AGO1* | Males | 1 | - | 62.0±1.0 | 61 | 76 | 8.41 | 146 |
| + | 67.6±1.0 \*\* | 68 \*\*\* | 79 | 6.60 | 149 |
| 2 | - | 52.6±0.6 | 54.5 | 63 | 5.16 | 190 |
| + | 50.4±0.7 \* | 52 \* | 62 | 5.46 | 171 |
| Females | 1 | - | 73.0±1.4 | 74 | 88 | 7.38 | 111 |
| + | 71.0±2.3 | 78 | 91 | 9.56 | 98 |
| 2 | - | 62.5±1.6 | 66 | 74 | 5.83 | 83 |
| + | 59.2±1.2 \*\*\* | 63 \*\*\* | 69 \*\*\* | 5.06 | 119 |
| *GS-S106>RNAi-AGO1* | Males | 1 | - | 57.6±1.0 | 56 | 72 | 8.17 | 144 |
| + | 59.5±1.0 | 61 | 72 | 6.66 | 131 |
| Females | 1 | - | 57.3±2.8 | 71 | 89 | 20.4 | 129 |
| + | 72.0±1.9 | 76 \*\* | 91 | 8.94 | 121 |
| 2 | - | 65.1±0.8 | 67 | 74 | 4.57 | 197 |
| + | 63.7±0.9 | 65 \*\* | 77 \* | 5.78 | 177 |
| *GS-TIGS-2>RNAi-AGO1* | Males | 1 | - | 52.3±1.0 | 51 | 65 | 7.25 | 141 |
| + | 51.2±0.9 | 49.5 | 68 | 7.20 | 150 |
| Females | 1 | - | 66.3±2.3 | 76 | 91 | 12.29 | 122 |
| + | 64.2±2.3 | 74 | 92 | 13.34 | 140 |
| *GS-Mhc>RNAi-AGO1* | Males | 1 | - | 47.9±1.0 | 49 | 60 | 7.04 | 134 |
| + | 29.5±1.4 \*\*\* | 32 \*\*\* | 49 \*\*\* | 12.56 | 138 |
| Females | 1 | - | 55.7±1.4 | 59 | 72 | 7.55 | 115 |
| + | 24.9±1.9 \*\*\* | 11 \*\*\* | 53 \*\*\* | 36.91 | 107 |
| *GS-elav>RNAi-AGO2* | Males | 1 | - | 45.1±1.1 | 44 | 61 | 9.02 | 153 |
| + | 42.7±0.9 \*\* | 42 \* | 56 \* | 6.99 | 146 |
| 2 | - | 52.9±0.9 | 55 | 65 | 6.80 | 180 |
| + | 53.3±0.7 | 55 | 63 \*\*\* | 5.00 | 172 |
| Females | 1 | - | 69.5±1.1 | 73 | 84 | 6.28 | 138 |
| + | 61.2±1.6 \*\*\* | 63 \*\*\* | 80 | 9.13 | 139 |
| 2 | - | 64.4±1.1 | 68 | 77 | 5.97 | 187 |
| + | 60.9±0.9 \*\*\* | 64 \*\*\* | 75 | 6.60 | 174 |
| *GS-S106>RNAi-AGO2* | Males | 1 | - | 40.0±1.2 | 42 | 57 | 9.55 | 158 |
| + | 40.0±1.5 | 41 | 60 | 10.83 | 115 |
| 2 | - | 58.1±0.8 | 58 | 70 | 6.31 | 173 |
| + | 57.2±0.6 | 57 | 64 \*\*\* | 5.21 | 171 |
| Females | 1 | - | 63.9±1.7 | 69 | 83 | 10.26 | 164 |
| + | 66.5±1.3 | 66 | 84 | 7.66 | 151 |
| 2 | - | 64.1±0.8 | 65 | 78 | 6.41 | 192 |
| + | 63.8±0.9 | 65 | 77 | 5.57 | 170 |
| *GS-TIGS-2>RNAi-AGO2* | Males | 1 | - | 46.5±0.9 | 45 | 60 | 9.61 | 159 |
| + | 46.5±1.1 | 45 | 64 | 8.66 | 122 |
| Females | 1 | - | 80.1±1.1 | 83 | 92 | 5.53 | 147 |
| + | 76.2±1.2 \*\*\* | 78 \*\*\* | 88 \* | 5.86 | 136 |
| *GS-Mhc>RNAi-AGO2* | Males | 1 | - | 41.7±1.1 | 39 | 57 | 9.17 | 136 |
| + | 27.0±0.9 \*\*\* | 29 \*\*\* | 37 \*\*\* | 8.40 | 123 |
| Females | 1 | - | 74.7±1.5 | 75 | 84 | 4.63 | 66 |
| + | 14.9±1.7 \*\*\* | 8 \*\*\* | 43 \*\*\* | 6931.47 | 83 |
| *GS-elav>RNAi-AGO3* | Males | 1 | - | 59.9±0.9 | 62 | 70 | 5.98 | 136 |
| + | 52.5±1.3 \*\*\* | 56 \*\*\* | 64 \*\*\* | 6.26 | 125 |
| 2 | - | 51.3±1.6 | 54 | 64 | 7.23 | 66 |
| + | 54.1±1.0 | 53 | 64 | 5.92 | 79 |
| Females | 1 | - | 66.5±2.1 | 77 | 84 | 9.32 | 125 |
| + | 69.3±1.1 \* | 74 \* | 83 | 6.86 | 148 |
| 2 | - | 61.8±2.2 | 70 | 83 | 10.22 | 98 |
| + | 69.5±1.5 | 74 | 82 | 6.34 | 87 |
| *GS-S106>RNAi-AGO3* | Males | 1 | - | 57.0±0.8 | 57 | 68 | 5.67 | 128 |
| + | 56.9±0.9 | 57 | 67 | 5.96 | 152 |
| 2 | - | 54.5±0.9 | 56 | 68 | 6.68 | 169 |
| + | 54.3±1.0 | 56 | 66 | 7.10 | 159 |
| Females | 1 | - | 77.6±1.2 | 77.5 | 93 | 7.84 | 102 |
| + | 71.0±1.9 \*\*\* | 77 | 86 \*\*\* | 7.59 | 109 |
| 2 | - | 67.8±1.2 | 71 | 84 | 7.54 | 220 |
| + | 68.5±1.0 | 71 | 81 \*\*\* | 6.39 | 220 |
| *GS-TIGS-2>RNAi-AGO3* | Males | 1 | - | 51.8±0.9 | 53 | 59 | 5.45 | 129 |
| + | 46.5±0.9 \*\*\* | 50 \*\*\* | 54 | 6.50 | 132 |
| Females | 1 | - | 57.1±2.7 | 70.5 | 86 | 16.10 | 112 |
| + | 62.1±2.3 | 73 | 87 | 12.80 | 126 |
| *GS-Mhc>RNAi-AGO3* | Males | 1 | - | 57.5±0.6 | 59 | 64 | 3.93 | 139 |
| + | 26.2±0.5 \*\*\* | 25 \*\*\* | 36 \*\*\* | 4.24 | 142 |
| Females | 1 | - | 74.0±1.7 | 80.5 | 89 | 7.75 | 112 |
| + | 16.4±1.1 \*\*\* | 12 \*\*\* | 33 \*\*\* | 13.73 | 86 |
| *GS-elav>RNAi-piwi* | Males | 1 | - | 62.5±1.1 | 64 | 78 | 7.42 | 154 |
| + | 69.5±0.9 \*\*\* | 72 \*\*\* | 82 \*\*\* | 6.16 | 137 |
| Females | 1 | - | 72.8±2.0 | 75 | 85 | 6.27 | 73 |
| + | 76.9±2.1 \*\*\* | 82 \*\*\* | 88 | 5.46 | 64 |
| 2 | - | 68.6±1.8 | 69.5 | 79 | 5.84 | 36 |
| + | 72.1±1.3 | 71 | 81 | 4.24 | 41 |
| *GS-S106>RNAi-piwi* | Males | 1 | - | 61.7±1.0 | 61 | 75 | 7.50 | 119 |
| + | 62.6±1.3 \* | 64 | 77 | 7.82 | 119 |
| 2 | - | 53.2±0.7 | 53 | 64 | 5.42 | 159 |
| + | 55.1±1.0 \* | 57 \*\* | 64 | 5.01 | 128 |
| Females | 1 | - | 62.9±2.1 | 71 | 84 | 11.00 | 114 |
| + | 65.1±1.9 | 69 | 84 | 9.12 | 118 |
| 2 | - | 63.6±1.1 | 66 | 78 | 6.93 | 168 |
| + | 64.2±1.5 | 66 | 80 | 7.68 | 147 |
| *GS-TIGS-2>RNAi-piwi* | Males | 1 | - | 60.7±0.9 | 64 | 71 | 5.94 | 162 |
| + | 59.4±0.8 | 59 | 73 | 6.79 | 170 |
| Females | 1 | - | 77.8±0.9 | 80.5 | 86 | 5.24 | 138 |
| + | 76.6±1.0 | 77 | 85 | 5.07 | 131 |
| *GS-Mhc>RNAi-piwi* | Males | 1 | - | 53.4±1.0 | 55.5 | 62 | 4.36 | 86 |
| + | 26.9±1.6 \*\*\* | 26 \*\*\* | 51 \*\*\* | 15.56 | 93 |
| Females | 1 | - | 69.1±4.6 | 82 | 85 | 8.76 | 115 |
| + | 16.5±2.3 \*\*\* | 10 \*\*\* | 37 \*\*\* | 21.94 | 126 |

±SE - mean lifespan (days)

M - median lifespan (days)

90% - the age of 90 % mortality (days)

MRDT - the mortality rate doubling time (days)

N - the number of flies in a sample

\* - differences between variants with *Argonautes*’knockdown induction with RU486 and without knockdown are statistically significant with p < 0.05 (fifth column - Mantel-Cox test, sixth column - Gehan-Breslow-Wilcoxon test, seventh column - Wang-Allison test)

\*\* - p < 0.01

\*\*\* - p < 0.001

**Table S4** Survival of flies with tissue-specific knockdown of the *Argonaute* genes in the condition of γ-irradiation.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Genotype** | **Sex** | **RU486** | **IR** | **±SE** | **M** | **90%** | **MRDT** | **N** |
| *GS-elav>RNAi-AGO1* | Males | - | 0 | 47.5±1.4 | 49.5 | 64 | 8.42 | 118 |
| + | 0 | 47.4±1.4 | 51 | 66 | 8.60 | 124 |
| - | 700 | 21.4±0.5 | 20 | 27 | 3.15 | 122 |
| + | 700 | 20.0±0.5 | 21 | 27 | 3.53 | 113 |
| Females | - | 0 | 58.4±1.6 | 66 | 80 | 9.29 | 163 |
| + | 0 | 54.1±1.3 \*\*\* | 59 \*\*\* | 68 \*\*\* | 7.10 | 116 |
| - | 700 | 18.1±0.6 | 17 | 21 | 8.74 | 109 |
| + | 700 | 29.4±1.2 \*\*\* | 21 \*\*\* | 47 \*\*\* | 9.81 | 106 |
| *GS-S106>RNAi-AGO1* | Males | - | 0 | 42.2±1.2 | 44 | 59 | 8.20 | 118 |
| + | 0 | 43.4±1.2 | 41 | 60 | 8.42 | 115 |
| - | 700 | 19.5±0.6 | 18 | 28 | 4.29 | 116 |
| + | 700 | 26.6±0.7 \*\*\* | 28 \*\*\* | 34 \*\*\* | 4.28 | 117 |
| Females | - | 0 | 60.5±1.3 | 66 | 75 | 7.57 | 188 |
| + | 0 | 57.9±1.4 \*\*\* | 66 \*\* | 70 \*\*\* | 6.11 | 114 |
| - | 700 | 19.4±0.9 | 18 | 31 | 10.60 | 118 |
| + | 700 | 31.4±1.5 \*\*\* | 28 \*\*\* | 56 \*\*\* | 13.79 | 111 |
| *GS-elav>RNAi-AGO2* | Males | - | 0 | 50.1±1.1 | 52 | 60 | 6.17 | 115 |
| + | 0 | 54.6±0.8 | 56 \*\* | 65 | 4.76 | 116 |
| - | 700 | 30.1±0.9 | 31 | 42 | 6.15 | 119 |
| + | 700 | 22.0±1.0 \*\*\* | 17 \*\*\* | 38 | 11.77 | 118 |
| Females | - | 0 | 60.3±1.3 | 63 | 73 | 5.86 | 114 |
| + | 0 | 60.7±1.4 \* | 67 \*\* | 73 | 5.87 | 118 |
| - | 700 | 29.4±1.4 | 21 | 51 | 13.09 | 101 |
| + | 700 | 26.3±1.5 | 17 \*\*\* | 56 | 22.70 | 110 |
| *GS-S106>RNAi-AGO2* | Males | - | 0 | 43.1±1.7 | 46 | 63 | 11.01 | 122 |
| + | 0 | 44.9±1.1 \* | 46 | 58 \*\* | 6.46 | 107 |
| - | 700 | 35.5±0.8 | 38 | 44 | 4.54 | 121 |
| + | 700 | 32.8±0.8 \*\* | 34 \*\* | 41 | 4.94 | 118 |
| Females | - | 0 | 63.9±1.1 | 66 | 76 | 6.12 | 140 |
| + | 0 | 65.1±1.3 | 69 | 75 | 5.46 | 98 |
| - | 700 | 25.6±1.3 | 20 | 46 | 14.58 | 115 |
| + | 700 | 27.9±1.6 \* | 17 | 59 \*\*\* | 23.86 | 128 |
| *GS-elav>RNAi-AGO3* | Males | - | 0 | 50.4±1.2 | 52 | 67 | 7.27 | 116 |
| + | 0 | 48.4±1.4 | 51 | 63 \* | 7.02 | 99 |
| - | 700 | 27.9±0.8 | 28 | 38 | 5.78 | 118 |
| + | 700 | 19.1±0.7 \*\*\* | 17 \*\*\* | 30 \*\* | 6.58 | 117 |
| Females | - | 0 | 67.2±1.6 | 73 | 83 | 7.45 | 132 |
| + | 0 | 67.2±1.6 | 70 | 81 | 6.90 | 110 |
| - | 700 | 20.8±1.0 | 17 | 41 | 15.15 | 114 |
| + | 700 | 23.3±1.1 | 17 | 45 | 15.38 | 114 |
| *GS-S106>RNAi-AGO3* | Males | - | 0 | 49.3±1.4 | 51 | 63 | 8.15 | 115 |
| + | 0 | 50.7±1.4 | 51.5 | 66 | 8.03 | 112 |
| - | 700 | 28.1±0.9 | 30 | 38 | 6.30 | 121 |
| + | 700 | 25.7±0.9 | 25 | 38 | 7.92 | 116 |
| Females | - | 0 | 67.3±1.7 | 74 | 83 | 7.26 | 125 |
| + | 0 | 67.6±1.5 | 70 | 83 | 7.52 | 121 |
| - | 700 | 28.9±1.5 | 27 | 51 | 15.23 | 109 |
| + | 700 | 38.4±1.6 \*\*\* | 41 \*\*\* | 60 \*\*\* | 11.88 | 114 |
| *GS-elav>RNAi-piwi* | Males | - | 0 | 45.7±1.2 | 46 | 60 | 6.98 | 113 |
| + | 0 | 46.0±1.2 | 48 | 60 | 6.70 | 95 |
| - | 700 | 24.0±0.7 | 25 | 34 | 5.80 | 124 |
| + | 700 | 17.2±0.5 \*\*\* | 14 \*\*\* | 26 \*\*\* | 5.55 | 118 |
| Females | - | 0 | 63.3±1 .0 | 66 | 74 | 5.80 | 129 |
| + | 0 | 66.3±1.4 \*\*\* | 68 \*\*\* | 80 \*\* | 7.22 | 127 |
| - | 700 | 35.2±1.0 | 38 | 51 | 6.56 | 114 |
| + | 700 | 22.1±1.0 \*\*\* | 17 \*\*\* | 40 | 12.82 | 115 |
| *GS-S106>RNAi-piwi* | Males | - | 0 | 48.9±1.3 | 51 | 63 | 6.98 | 97 |
| + | 0 | 53.9±1.1 \*\*\* | 59 \*\* | 66 \*\* | 5.86 | 113 |
| - | 700 | 22.1±0.8 | 25 | 31 | 5.31 | 103 |
| + | 700 | 25.0±0.8 \*\*\* | 25 \*\* | 38 \*\*\* | 6.34 | 120 |
| Females | - | 0 | 64.3±1.4 | 68 | 80 | 7.24 | 129 |
| + | 0 | 60.2±1.8 | 68 | 77 | 9.49 | 147 |
| - | 700 | 23.9±1.4 | 17 | 51 | 24.45 | 116 |
| + | 700 | 46.6±1.5 \*\*\* | 51 \*\*\* | 63 \*\*\* | 8.34 | 114 |

±SE- mean lifespan (days)

M - median lifespan (days)

90% - the age of 90 % mortality (days)

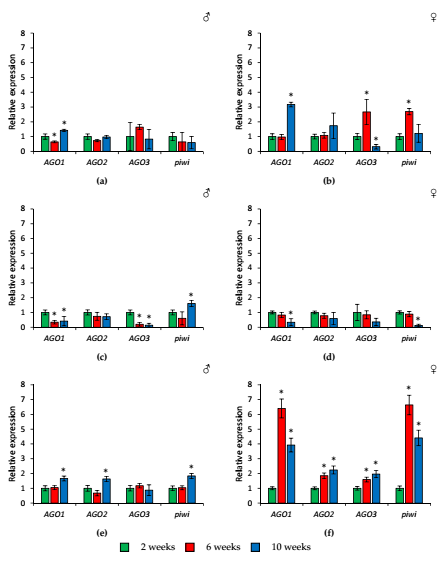
MRDT - the mortality rate doubling time (days)

N - the number of flies in a sample

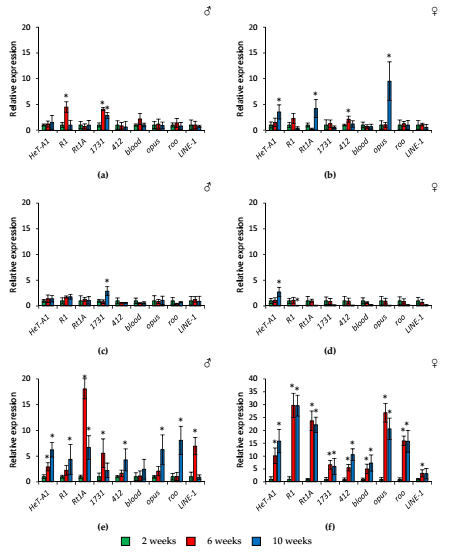
\* - differences between variants with *Argonautes*’knockdown induction with RU486 and without knockdown are statistically significant with p < 0.05 (fifth column - Mantel-Cox test, sixth column - Gehan-Breslow-Wilcoxon test, seventh column - Wang-Allison test)

\*\* - p < 0.01

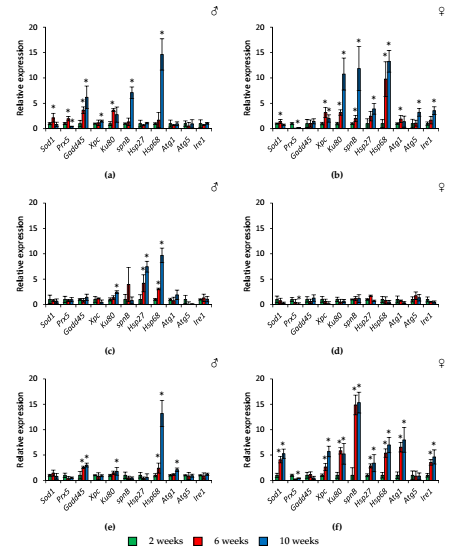
\*\*\* - p < 0.001

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**Figure S3.** Age-related changes in the expression of *Argonaute* genes in heads (**a, b**), toraxes (**c, d**), abdomens (**e, f**) of wild-type *Canton-S* males (**a, c, e**) and females (**b, d, f**). \* - p < 0.05 (Mann-Whitney U-test).



**Figure S4.** Age-related changes in the expression of transposable elements in heads (**a, b**), toraxes (**c, d**), abdomens (**e, f**) of wild-type *Canton-S* males (**a, c, e**) and females (**b, d, f**). \* - p < 0.05 (Mann-Whitney U-test).



**Figure S5.** Age-related changes in the expression of stress response genes in heads (**a, b**), toraxes (**c, d**), abdomens (**e, f**) of wild-type *Canton-S* males (**a, c, e**) and females (**b, d, f**). \* - p < 0.05 (Mann-Whitney U-test).