**Supplemental Table 1:** lncRNA genes that are DE in mouse.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mouse (GRCm38/mm10)** | | | | | **Human (GRCh38/hg19)** | | |  |
| **lncRNA gene name (Ensembl ID)** | **comparison source** | **log2FC** | ***p*-adj** | **known tissue expression** | **lncRNA ortholog gene name (Ensembl ID)** | **FC info** | **known tissue expression** | **known function** |
| Gm43672 (ENSMUSG00000106019) | TG vs nTG | -0.557 | 7.62E-11 | Heart, brain, muscle, trachea, skin, spleen  <https://rnacentral.org/rna/URS0002A33156/10090> | ENSG00000308496 |  |  |  |
| TG\_f vs nTG\_f | -0.630 | 1.04E-06 |
| TG\_HIIT vs nTG\_HIIT | -0.583 | 3.17E-06 |
| TG\_Sed vs nTG\_Sed | -0.531 | 6.55E-04 |
| TG\_m vs nTG\_m | -0.486 | 1.99E-03 |
| Gm9905  (ENSMUSG00000053358) | TG vs nTG | -0.594 | 3.10E-08 |  |  |  |  |  |
| TG\_HIIT vs nTG\_HIIT | -0.689 | 3.17E-06 |
| TG\_m vs nTG\_m | -0.587 | 1.74E-03 |
| TG\_f vs nTG\_f | -0.602 | 2.28E-03 |
| Gm20632  (ENSMUSG00000093577) | TG\_HIIT vs nTG\_HIIT | -0.546 | 1.80E-03 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A237A7/10090> | ENSG00000290792 |  |  |  |
| Gm42918 (ENSMUSG00000106209) | TG\_m vs nTG\_m | -0.951 | 9.07E-04 |  |  |  |  |  |
| TG vs nTG | -0.680 | 1.20E-03 |
| TG\_HIIT vs nTG\_HIIT | -0.810 | 4.42E-03 |
| Banf2os  (ENSMUSG00000086384) | TG vs nTG | -0.965 | 3.11E-08 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A19B47/10090> |  |  |  |  |
| TG\_f vs nTG\_f | -1.086 | 1.38E-04 |
| TG\_Sed vs nTG\_Sed | -1.047 | 6.55E-04 |
| TG\_HIIT vs nTG\_HIIT | -0.883 | 1.80E-03 |
| TG\_m vs nTG\_m | -0.842 | 1.01E-02 |
| Gm13375  (ENSMUSG00000075514) | TG\_HIIT vs nTG\_HIIT | -0.488 | 4.46E-03 | Brain, skin, bone, thymus, lung, colon, spleen  <https://rnacentral.org/rna/URS0002A2504A/10090> |  |  |  |  |
| RP23-166L22.2  (ENSMUSG00000110340) | TG vs nTG | -1.361 | 1.64E-06 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A4F318/10090> |  |  |  |  |
| TG\_f vs nTG\_f | -1.740 | 5.94E-03 |
| TG\_m vs nTG\_m | -1.159 | 1.01E-02 |
| G730003C15Rik  (ENSMUSG00000097573) | TG\_HIIT vs nTG\_HIIT | -0.684 | 5.47E-03 | ENSG00000287133 |  |  |  |
| TG vs nTG | -0.536 | 8.45E-03 |  |
| E230013L22Rik  (ENSMUSG00000096957) | TG vs nTG | -0.476 | 9.14E-05 | Heart  <https://rnacentral.org/rna/URS0002A1C2B5/10090> |  |  |  | Most upregulated lncRNA after X-ray irradiation in mouse lung tissue, modulates the mRNA BNIP1 (Yu 2024) |
| TG\_HIIT vs nTG\_HIIT | -0.539 | 1.80E-03 |
| TG\_f vs nTG\_f | -0.525 | 2.13E-02 |
| 2900072N19Rik  (ENSMUSG00000087018) | TG vs nTG | -0.760 | 8.45E-03 | Brain  <https://rnacentral.org/rna/URS0002A5782B/10090> | LINC02710  (ENSG00000255269) |  | Testis  <https://rnacentral.org/rna/URS0000EF618F/9606> |  |
| C530005A16Rik  (ENSMUSG00000085408) | TG vs nTG | -0.414 | 9.85E-03 | Brain  <https://rnacentral.org/rna/URS0002A5A50C/10090> |  |  |  |  |
| Prr33  (ENSMUSG00000043795) | TG\_HIIT vs nTG\_HIIT | -0.519 | 1.80E-03 |  |  |  |  | Annotated in GENCODE M10 as long intergenic non-coding RNA, but traditionally annotated as protein-coding. |
| TG\_m vs nTG\_m | -0.499 | 1.01E-02 |
| TG vs nTG | -0.373 | 2.68E-02 |
| Gm37752  (ENSMUSG00000103385) | TG vs nTG | 2.438 | 1.83E-02 |  |  |  |  |  |
| Gm45012  (ENSMUSG00000109052) | TG vs nTG | -0.422 | 9.49E-04 | Heart  <https://rnacentral.org/rna/URS0002A2D746/10090> | ENSG00000300258 |  |  |  |
| TG\_HIIT vs nTG\_HIIT | -0.415 | 4.00E-02 |
| PARTICL  (ENSG00000286532) | TG\_HIIT vs nTG\_HIIT | -0.468 | 2.45E-02 | Heart, arteries, prostate, esophagus, brain, fallopian tubes, cervix, testis, colon, thyroid, bladder, skin  <https://rnacentral.org/rna/URS0002A47137/9606> | PARTICL  (ENSG00000286532) |  |  | Upregulated following low-dose irradiation. Alters H3K27me3 distribution and interacts with DNA methyltransferase 1 (O’Leary 2017, O’Leary 2019). Forms triple helices clustered at tumor suppressor genes (O’Leary 2017). |
| Mir223hg  (ENSMUSG00000078122) | TG\_m vs nTG\_m | 0.685 | 1.99E-03 | Heart, lung, Spleen, liver, skin, mammary gland, bone, uterus, bladder, adrenal gland,  <https://rnacentral.org/rna/URS0002A33BA1/10090> | Mir223hg  (ENSG00000274536) |  | Appendix, tonsil, lung, bladder, bone, leukocyte, lymph node, small intestine, spleen  <https://rnacentral.org/rna/URS0002A35E6A/9606> | Positive regulator of inflammation in atherosclerosis (Ni 2025, Oo 2025). Differentially expressed in lung adenocarcinoma and ovarian cancer (Akrami 2023, Cu 2023). |
| TG\_HIIT vs nTG\_HIIT | 0.520 | 4.72E-02 |
| Gm28703  (ENSMUSG00000099512) | TG\_m vs nTG\_m | -0.616 | 2.11E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A2C79C/10090> |  |  |  |  |
| TG vs nTG | -0.470 | 2.89E-02 |
| Gm10435  (ENSMUSG00000072902) | TG vs nTG | -0.389 | 1.93E-03 | Heart, lung,  <https://rnacentral.org/rna/URS000078648E/10090> | ENSG00000287315 |  |  |  |
| TG\_m vs nTG\_m | -0.428 | 3.38E-02 |
| TG\_HIIT vs nTG\_HIIT | -0.387 | 4.40E-02 |
| 9830004L10Rik  (ENSMUSG00000099552) | TG vs nTG | -0.660 | 2.68E-02 |  | ENSG00000300443 |  |  |  |
| Gm7628  (ENSMUSG00000025644) | TG vs nTG | -0.731 | 2.68E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0000811860/10090> |  |  |  |  |
| Gm17586  (A\_J\_v1:CM003964.1) | TG vs nTG | 0.759 | 2.69E-04 |  |  |  |  |  |
| TG\_HIIT vs nTG\_HIIT | 0.691 | 4.40E-02 |
| TG\_m vs nTG\_m | 0.758 | 4.79E-02 |
| ANRIL  (ENSG00000240498) | TG vs nTG | 0.649 | 3.10E-02 | Small intestine, colon, brain  <https://rnacentral.org/rna/URS00026A21AD/9606> | ANRIL  (ENSG00000264545) |  |  | Transcriptional regulator and epigenetic modifier in myocardial infarction and coronary artery disease (Moglad 2024). Antisense to CDKN2B. ANRIL KD has been shown to increase CDKN2B expression (da Cunha Agostini 2024, Congrains 2012). Biomarker of different caners (Sanchez 2023). |
| 6330403L08Rik  (ENSMUSG00000075585) | TG\_HIIT vs nTG\_HIIT | -0.387 | 3.14E-02 | Heart, brain, skeletal muscle, colon, small intestine, trachea  <https://rnacentral.org/rna/URS0000775964/10090> | PDGFA-DT  (ENSG00000223855) | HCM\_m vs ctrl\_m: log2FC 0.327, p-adj 2.62E-01  HCM\_f vs ctrl\_f: log2FC -0.499, p-adj 6.38E-01  HCM vs ctrl: log2FC 0.194, p-adj 5.17E-01 | Heart  <https://rnacentral.org/rna/URS0000314D59/9606> |  |
| TG\_HIIT vs nTG\_HIIT | -0.387 | 3.14E-02 |  |
| TG\_HIIT vs nTG\_HIIT | -0.387 | 3.14E-02 |  |
| Gm45051  (ENSMUSG00000108435) | TG\_HIIT vs nTG\_HIIT | -0.582 | 3.14E-02 | Kidney  <https://rnacentral.org/rna/URS00009C60DF/10090> |  |  |  |  |
| Gm10115  (ENSMUSG00000062319) | TG\_HIIT vs nTG\_HIIT | 0.540 | 3.14E-02 | Heart, brain  <https://rnacentral.org/rna/URS0000781B46/10090> |  |  |  |  |
| TG vs nTG | 0.443 | 3.48E-02 |
| Gm43318  (ENSMUSG00000105974) | TG vs nTG | 1.918 | 3.34E-02 |  |  |  |  |  |
| Gm43267  (ENSMUSG00000104662) | TG vs nTG | -1.062 | 3.43E-02 |  |  |  |  |  |
| Gm43426  (ENSMUSG00000106214) | TG vs nTG | 1.105 | 3.48E-02 |  |  |  |  |  |
| RP24-96N12.2  (ENSMUSG00000110322) | TG vs nTG | -0.335 | 3.48E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A60790/10090> |  |  |  |  |
| TG\_HIIT vs nTG\_HIIT | -0.384 | 4.72E-02 |
| Gm44386  (ENSMUSG00000107689) | TG\_HIIT vs nTG\_HIIT | -0.540 | 4.40E-02 | Heart, muscle, lung, adipose tissue, kidney, thymus, skin, colon, trachea  <https://rnacentral.org/rna/URS0002A20769/10090> | ENSG00000233060 |  | Brain  <https://rnacentral.org/rna/URS00002EFB52/9606> |  |
| Arhgap27os2  (ENSMUSG00000085360) | TG\_m vs nTG\_m | 1.039 | 4.71E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A4F8BB/10090> | ENSG00000294490 |  |  |  |
| RP23-299N4.1  (ENSMUSG00000109841) | TG\_HIIT vs nTG\_HIIT | -0.583 | 4.72E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A4B653/10090> |  |  |  |  |
| Gm17473  (ENSMUSG00000097805) | TG vs nTG | -0.884 | 4.94E-02 | All tissues have low expression  <https://rnacentral.org/rna/URS0002A49E0F/10090> |  |  |  |  |
| 9430062P05Rik  (ENSMUSG00000104263) | TG vs nTG | -0.467 | 4.95E-02 |  |  |  |  |  |
| Gm17281  (MGP\_FVBNJ\_G0005910) | TG\_HIIT vs nTG\_HIIT | -0.337 | 4.99E-02 |  |  |  |  |  |

**Description:**

Sorted by ascending average *p*-adj value across each comparison source.

**Legend:**

TG: transgenic, nTG: non-transgenic, M: male, F: female, HIIT: high intensity interval training, Sed: sedentary, HCM: hypertrophic cardiomyopathy, NF: non-failing, FC: fold change, *p*-adj: Benjamini-Hochberg-adjusted *p*-value