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### **Supplemental information**

### Characteristics and expression of IncRNA

#### and transposable elements

#### in Drosophila aneuploidy

Shuai Zhang, Ruixue Wang, Xilin Zhu, Ludan Zhang, Xinyu Liu, and Lin Sun

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(D-F) PCA plots of samples based on protein-coding genes (D), IncRNAs (E), and TEs (F).

(G-I) Correlation of the expression of different types of transcripts among samples. The Pearson's correlation coefficients and p-values of the medians of expression levels (CPM) for two types of transcripts among samples are shown in the upper left corner of the plots. CF, wildtype female control; CM, wildtype male control; 2LF, trisomy 2L female; 2LM, trisomy 2L male; XXX, metafemale.



### Figure S2, Related to Figure 2. Ratio Distributions of IncRNA and mRNA in aneuploid *Arabidopsis*

(A,B) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 1 (A) and other chromosomes (B) in trisomy 1 *Arabidopsis*.

(C,D) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 2 (C) and other chromosomes (D) in trisomy 2 *Arabidopsis*.

(E,F) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 3 (E) and other chromosomes (F) in trisomy 3 *Arabidopsis*.

(G,H) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 4 (G) and other chromosomes (H) in trisomy 4 *Arabidopsis*.

(I,J) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 5 (I) and other chromosomes (J) in trisomy 5 *Arabidopsis*.

The vertical purple solid line represents the ratio of 1.00, the vertical yellow solid line represents the ratio of 1.50, and the vertical yellow dashed line shows the ratio of 0.67. The ratio distributions were generated using ERCC-normalized RPKM data downloaded from GSE79676, and the percentages of frequencies were plotted in bins of 0.1.



## Figure S3, Related to Figure 2. Ratio Distributions of IncRNA and mRNA in aneuploid embryonic stem cells in mouse

(A-C) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 6 (A), chromosome X (B), and other autosomes (C) in trisomy 6 mouse embryonic stem cells.
(D-F) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 8 (D), chromosome X (E), and other autosomes (F) in trisomy 8 mouse embryonic stem cells.
(G-I) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 11 (G), chromosome X (H), and other autosomes (I) in trisomy 11 mouse embryonic stem cells.
(J-L) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 15 (J), chromosome X (K), and other autosomes (L) in trisomy 15 mouse embryonic stem cells.
The vertical purple solid line represents the ratio of 1.00, the vertical yellow solid line represents the ratio of 1.50, and the vertical yellow dashed line shows the ratio of 0.67. The ratio distributions were generated using CPM data downloaded from GSE179435, and the percentages of frequencies were plotted in bins of 0.1.



#### Figure S4, Related to Figure 2. Ratio Distributions of IncRNA and mRNA in inducedpluripotent stem-derived vascular endothelial cells (iPSC-derived ECs) in Down syndrome (human trisomy 21)

(A-C) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 21 (A), chromosome X (B), and other autosomes (C) in trisomy 21 iPSC-derived ECs compared with wildtype cells.

(D-F) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 21 (D), chromosome X (E), and other autosomes (F) in trisomy 21 iPSC-derived ECs compared with isogenic corrected disomy 21 cells.

(G-I) Ratio distributions of the expression levels of IncRNA and mRNA on chromosome 21 (G), chromosome X (H), and other autosomes (I) in trisomy 21 iPSC-derived ECs compared with wildtype and corrected disomy 21 cells.

The vertical purple solid line represents the ratio of 1.00, the vertical yellow solid line represents the ratio of 1.50, and the vertical yellow dashed line shows the ratio of 0.67. The ratio distributions were generated using FPKM data downloaded from GSE203257, and the percentages of frequencies were plotted in bins of 0.1.



### Figure S5, Related to Figure 3. Differential expression analysis of mRNA in aneuploid *Drosophila*

(A) Venn diagram of the number of differentially expressed mRNA (DE-mRNA) in trisomy 2L female, trisomy 2L male, and metafemale.

(B) Clustering heatmap of mRNAs differentially expressed in all three aneuploidies.

(C) Top 5 enriched GO terms in biological process (BP), cell component (CC), and molecular function (MF) of DE-mRNA in three aneuploidies.

(D) Top 5 enriched KEGG pathways of DE-mRNA in three aneuploidies.

CF, wildtype female control; CM, wildtype male control; 2LF, trisomy 2L female; 2LM, trisomy 2L male; XXX, metafemale.



### Figure S6, Related to Figure 3. LncRNAs that are significantly differentially expressed in at least two groups of comparisons

(A) Clustering heatmap of IncRNAs differentially expressed in at least two groups of comparisons of trisomy 2L female, trisomy 2L male, and metafemale to their respective controls. CF, wildtype female control; CM, wildtype male control; 2LF, trisomy 2L female; 2LM, trisomy 2L male; XXX, metafemale.

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| IncRNA         | predicted functions  |  |
|----------------|--|--|
| IncRNA:roX2    | oxidative phosphorylation; mitophagy; biosynthesis of amino acids; peroxisome  |  |
| IncRNA:CR43306 | inorganic ion homeostasis; aerobic respiration; cilium assembly; cilium movement; sperm axoneme assembly;<br>organelle assembly; axoneme assembly; plasma membrane bounded cell projection assembly; mitophagy;<br>biosynthesis of amino acids; peroxisome   |  |
| IncRNA:CR44178 | metal ion homeostasis; aerobic respiration; cilium assembly; cilium movement; organelle assembly; mitophagy; biosynthesis of amino acids   |  |
| IncRNA:CR32657 | inorganic ion homeostasis; aerobic respiration; cilium assembly; cilium movement; sperm axoneme assembly; organelle assembly; mitophagy; biosynthesis of amino acids; peroxisome   |  |
| IncRNA:CR33938 | ubiquitin-dependent protein catabolic process; proteasome assembly; cell fate specification; leg disc<br>proximal/distal pattern formation; renal tubule development; Malpighian tubule development; transcription<br>initiation from RNA polymerase II promoter; histone H4 acetylation; cellular response to virus; regulation of<br>smoothened signaling pathway; proteasome; protein processing in endoplasmic reticulum |  |
| IncRNA:roX1    | oxidative phosphorylation; mitophagy; biosynthesis of amino acids; peroxisome  |  |
| IncRNA:CR44418 | mitophagy; biosynthesis of amino acids   |  |
| IncRNA:CR43828 | lysosome   |  |
| IncRNA:CR44225 | regulation of actin polymerization or depolymerization; receptor metabolic process; supramolecular fiber<br>organization; glutamine family amino acid biosynthetic process; receptor clustering  |  |
| IncRNA:CR45916 | glycerophospholipid metabolism   |  |
| IncRNA:CR9284  | regulation of hydrolase activity; tyrosine metabolic process; apoptotic mitochondrial changes  |  |
| asRNA:CR44850  | humoral immune response; positive regulation of antibacterial peptide biosynthetic process; positive regulation of<br>Toll signaling pathway; negative regulation of endopeptidase activity; negative regulation of proteolysis;<br>mitochondrial electron transport, cytochrome c to oxygen   |  |
| IncRNA:CR45809 | attachment of spindle microtubules to kinetochore; regulation of cell cycle; protein phosphorylation; negative regulation of BMP signaling pathway; membrane organization; sperm axoneme assembly; male gamete generation  |  |



#### Figure S7, Related to Figure 4. The function of IncRNAs predicted based on IncRNAmRNA co-expression network

(A) The predicted functions of several IncRNAs with high degree according to the enrichment analysis of their co-expressed mRNAs.

(B) Enriched functions of IncRNA-mRNA co-expression network and related genes.

(C) Enriched pathways of IncRNA-mRNA co-expression network and related genes.

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## Figure S8, Related to Figure 4. Co-located IncRNA and mRNA, and their enrichment analysis

- (A) The number of co-located mRNA owned by per IncRNA.
- (B) The number of co-located lncRNA owned by per mRNA.
- (C) Enriched functions of IncRNA-mRNA co-localization network and related genes.
- (D) Enriched pathways of IncRNA-mRNA co-localization network and related genes.

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| TE         | predicted functions  |
|------------|--|
| HMS-Beagle | ubiquitin-dependent protein catabolic process; proteasome assembly; response to heat; response to external biotic stimulus; Hippo signaling pathway; apoptosis                                       |
| accord     | organophosphate metabolic process; regulation of ATP metabolic process; purine nucleotide biosynthetic process; oxidative phosphorylation; drug metabolism   |
| Burdock    | cellular metal ion homeostasis; regulation of lipid storage; organic acid transmembrane transport  |
| Juan       | purine ribonucleoside monophosphate biosynthetic process; ocellus pigment metabolic process; biosynthesis of cofactors   |
| Max        | negative regulation of peptide secretion; regulation of calcium-mediated signaling; cellular response to starvation; response to carbohydrate; oxidative phosphorylation; drug metabolism; phagosome |



# Figure S9, Related to Figure 5. The function of TE families predicted based on TE-mRNA co-expression network

(A) The predicted functions of several TE families with high degree according to the enrichment analysis of their co-expressed mRNAs.

(B) Enriched functions of TE-mRNA co-expression network and related genes.

(C) Enriched pathways of TE-mRNA co-expression network and related genes.

#### А

| CG3295-F-T3TGTTGGGAAATCACTCCCAATTAACTGGAGCTAACAATGGACAGCG3295-R-T7GTAATACGACTCACTATAGGGAGACCACACATGAGGGCACTTCAGTATGHmgD-F-T3TGTTGGGAAATCACTCCCAATTAACCACCCCTAATCCATCACCAAHmgD-R-T7GTAATACGACTCACTATAGGGAGACCACCACACGCACATCTCGGTAATCtsh-F-T3TGTTGGGAAATCACTCCCAATTAACGACCACCACCGCACGTCAGGGdap-F-T3GTAATACGACTCACTATAGGGAGACCACCACCACCGCAGGTAATGGAGATdap-R-T7GTAATACGACTCACTATAGGGAGACCACCACAGGGAGCTGGAGGTGTGTGGTehao-F-T3TGTTGGGAAATCACTCCCAATTAAGGCAGACCACAGAGGACTGCtehao-F-T3TGTTGGGAAATCACTCCCAATTAATGCGAGCCCACAGGAGGACCACAGAGGACCACGAGGACCACGAGGACCGACGA   | Primer name         | Sequence  |
|---|---------------------|---|
| CG3295-R-T7GTAATACGACTCACTATAGGGAGACCACAGTAGGGGCACTTCAGTATGHmgD-F-T3TGTTGGGAAATCACTCCCAATTAACCACCCAATCACTCAC  | CG3295-F-T3         | TGTTGGGAAATCACTCCCAATTAACTGGAGCTAACAATGGACAG      |
| HmgD-F-T3TGTTGGGAAATCACTCCCAATTAACCACCCTAATCCATCACCAAHmgD-R-T7GTAATACGACTCACTATAGGAGACCACCAAGGCAACGCACATCCTGCTAATCtsh-F-T3TGTTGGGAAATCACTCCCAATTAAGCGAGACCACCAACGCACGTCTGTGAGGAGdap-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCAAGCTAAATGGAATdap-R-T7GTAATACGACTCACTATAGGGAGACCACCAAGTAATGCGGATGGTTGGTehao-F-T3TGTTGGGAAATCACTCCCAATTAATGCGGTCTGAACAAGAACTCTehao-R-T7GTAATACGACTCACTATAGGGAGACCACCAGTAGGTCCTTGTCCTAGTCCASu(var)205-R-T3TGTTGGGAAATCACTCCCAATTAATGCAGTCCCAAGACACGACGACGACGACGACGACGACGACGACGAC  | CG3295-R-T7         | GTAATACGACTCACTATAGGGAGACCACAGTAGGGGCACTTCAGTATG  |
| HmgD-R-T7GTAATACGACTCACTATAGGGAGACCACCAACGCACATCCTGCTAATCtsh-F-T3TGTTGGGAAATCACTCCCAATTAACTCCGAAAGCATAGTTCAGGtsh-R-T7GTAATACGACTCACTATAGGAGACCACCAACCTGTGAGGACTTGdap-F-T3TGTTGGGAAATCACTCCCAATTAAGACCGCAAGCTAAATGGGATdap-R-T7GTAATACGACTCACTATAGGGAGACCACCGCAAGCTAATGGGATtdap-R-T7GTAATACGACTCACTATAGGGAGACCACCACAAGAAGACTCTehao-F-T3TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTCSu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACCTCAGACTGACCTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACCACGACTCGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACCGCCGCAATGCCCCTTATCTAnonA-I-F.T3TGTTGGGAAATCACTCCCAATTAAGACGACCACCGCCGCTATATGTGnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACCACCGCCGCTATATGTGGACCTAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACCACTAGTCGGAAGCCACCTGhncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCACACAGTCGGCTAincRNA:CR43916-F.T3TGTTGGGAAATCACTCCCAATTAAGAGACCACCAGGGGTAAAGAGTincRNA:CR45916-F.T3TGTTGGGAAATCACTCCCAATTAAGAGACCACAGGCGTAAGAGGTincRNA:CR42860-F.T3TGTTGGGAAATCACTCCCAATTAAGAGACCACAGGCGTAACasRNA:CR42860-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTAACasRNA:CR42860-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTAACasRNA:CR42860-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTAACincRNA:CR42186-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGATACCGGCTincRNA:CR42186-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCAGAAACC <t< td=""><td>HmgD-F-T3</td><td>TGTTGGGAAATCACTCCCAATTAACCACCCTAATCCATCACCAA</td></t<>                       | HmgD-F-T3           | TGTTGGGAAATCACTCCCAATTAACCACCCTAATCCATCACCAA      |
| tsh-F-T3TGTTGGGAAATCACTCCCAATTAACTCCGAAAGCATAGTTCAGGtsh-F-T3GTAATACGACTCACTATAGGGAGACCACCAACCTTGTCGAGGACTTGdap-F-T3TGTTGGGAAATCACTCCCAATTAAGGACCACAAGTAATGCGAATdap-R-T7GTAATACGACTCACTATAGGGAGACCACCGAAGTAGTGGTTGGTehao-F-T3TGTTGGGAAATCACTCCCAATTAATGCGCTGAACAAGAAACGCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATGCGACTACAGCAACGAGTGCSu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGAGTGCSu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGAGTGCSu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGAGCACCTifc-F-T3TGTTGGGAAATCACTCCCAATTAATACACCGAAGCCACCTifc-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCGCCCAATGGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCGCTGCTATTATCTGAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCGCTGCCATTATGTTnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGAGCCACCGCCGCCCCCCCC  | HmgD-R-T7           | GTAATACGACTCACTATAGGGAGACCACCAACGCACATCCTGCTAATC  |
| tsh-R-T7GTAATACGACTCACTATAGGGAGACCACCAACCTTGTCTGAGGACTTGdap-R-T3TGTTGGGAAATCACTCACCAATTAAGACCGCAAGCTAAATGGAATdap-R-T7GTAATACGACTCACTATAGGAGACCACAAGTAATGCGAAGTGTGGTehao-F-T3TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTCTehao-R-T7GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTTGTCCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACCACACACGACCCACGACGCifc-R-T3TGTTGGGAAATCACTCCCAATTAATAACCAGAACCCCACCTifc-R-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCACCACCACCACCACCACCnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGCCACCGCTTATATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCAATTACTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGCACCACGATCGGCCTAIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAACGAGCTACATAGGACCCGGCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAAACGTATGGACTGAAGAGGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGCGAAACAGCGCTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCCTAACGAGGAGGGGTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACGTGGAAGAGGGGGTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACCACGGCTGAACAGGGGGGTIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACCAGGCAAGAGGAGGACAACCGCTAACIncRNA:CR44178-R-T7GTAATACGACTCACTCCAATTAAGGGAGACCACCACTTTGAGAGGAGGGGGIncRNA:CR44178-R-   | tsh-F-T3            | TGTTGGGAAATCACTCCCAATTAACTCCGAAAGCATAGTTCAGG      |
| dap-F-T3TGTTGGGAAATCACTCCCAATTAAGACCGCAAGCTAAATGGAATdap-R-T7GTAATACGACTCACTATAGGAGACACACAAGTAATGGGAATtehao-F-T3TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTCTehao-R-T7GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTGTCCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATTAACCAGAACCGCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGCCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGCGCACCGCCGTTATATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCATTATGGACCTAtg8b-F.T3TGTTGGGAAATCACTCCCAATTAAGCACGCCCGCTATTATGGACCTAtg8b-F.T3TGTTGGGAAATCACTCCCAATTAAGCAGCACCACGTCGGCTAIncRNA:CR33938-F.T3TGTTGGGAAATCACTCCCAATTAAGAACCACTGGGCGCAIncRNA:CR33938-F.T3TGTTGGGAAATCACTCCCAATTAAGAGCTACGAGCAGCAGCAGCAGCGGCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAGCAGTGGGGGAAAACAACTCCATasRNA:CR42860-F.T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F.T7GTAATACGACTCACTATAGGGAGACCACAGGGGTAAAACAACTCCATasRNA:CR42860-F.T3TGTTGGGAAATCACTCCCAATTAAGATGAAGGAGCGGCTIncRNA:CR43148-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGCACACGGCATACGGGGTGAAAACAIncRNA:CR44178-F.T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACAGGCGTGAAAGGGGGTIncRNA:CR44178-F.T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCATACGGGTGAAATCAIncRNA:CR44178-F.T3TGTTGGGAAATCACTCCCAATTAAGGAGGAGCACACGGCAGGAAATCIncRNA:CR44178-F.T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACCGGCAGGAGAAATCIncRNA   | tsh-R-T7            | GTAATACGACTCACTATAGGGAGACCACCAACCTTGTCTGAGGACTTG  |
| dap-R-T7GTAATACGACTCACTATAGGGAGACCACAAGTAATGCGGATGTGTGGTehao-F-T3TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTCTehao-R-T7GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTTGTCCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGAGAGCSu(var)205-R-T7GTAATACGACTCACTATAGGAGACCACTACAGACACTGAGACtic-F-T3TGTTGGGAAATCACTCCCAATTAATTATAACCCGAAGCACCGAGCCCTtic-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCGCTATTATGTnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCGCTCATTATGTTnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCACCGCTCATTATGTGnonA-I-R-T7GTAATACGACTCACTATAGGAGAGCCACCGGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCACCACTAGTGCCTGGAtg8b-R-T7GTAATACGACTCACTATAGGAGAGCCACTAGTCCGGCTAIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAACGTATGGACTCGGCTAIncRNA:CR43916-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCCACAGGGGGAAAACAACTCCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGCGAGACCACAGGCGTAAACAACACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGACCACAGGCGTAACasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGGCACACAGGCGTGGATAACAasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGTAGGAGAGCACACGGCTIncRNA:CR44118-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGAGAGAGGGGGGIncRNA:CR44118-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGAAAGAGGGGGGIncRNA:CR44118-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTAAAGAAGAGGGGGGGIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTGAAAACAACTC </td <td>dap-F-T3</td> <td>TGTTGGGAAATCACTCCCAATTAAGACCGCAAGCTAAATGGAAT</td> | dap-F-T3            | TGTTGGGAAATCACTCCCAATTAAGACCGCAAGCTAAATGGAAT      |
| Tehao-F-T3TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTCTehao-R-T7GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTGTCCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATAACCCGAAGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACGGTCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTCGAATGCCCCTTATCTAnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCAATTAATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTACAGGCCGCTAIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAAACGGAGCACACAAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAAGAGGGAGCCACAAGGCGGAAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAAGGCGGAAAACAACTCCATncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGAAGAGCGGATACGAGGAGGACCACGGAGAGGAGGCGIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCAAGGGAGGG  | dap-R-T7            | GTAATACGACTCACTATAGGGAGACCACAAGTAATGCGGATGTGTTGG  |
| Tehao-R-T7GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTTGTCCASu(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATTAACCCGAAGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTTnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCGCAATTACTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCACTGCCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACTAGGCCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGAGCGCGCAIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGGGGAAAACAACTCCATasRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAACCACAGGGGGTAAAACAACTCCATasRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAAGAGTGGAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGAAACCACTCCATasRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGAAACAGGCGATACGGGAGCTIncRNA:CR44148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGAAGAGGGGTGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTAAAGAGGGGTGIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCAACAGGTCACTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGTCAACAGGTCACTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCACCACGTCAACAGGTCACTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGTCACTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTA   | Tehao-F-T3          | TGTTGGGAAATCACTCCCAATTAATTGCGTCTGAACAAGAACTC      |
| Su(var)205-F-T3TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGCSu(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATTAACCCGAAGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACGCTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTTnonA-I-F-T3GTAATACGACTCACTATAGGGAGACCACCGCCGCTATTATGTGTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCAATAGACCTCGAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCACCACTAGTCGGACTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAACGTATGGACTCGGCTAIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCCACAGGGGGAAAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGCGGAGAACAGCGCGAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCGTGAACAGGCGGTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAACTGTAAGAAGGGGGGIncRNA:CR44148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTGAACAGGGGGGIncRNA:CR44148-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCAACAGGTATCACTCAC   | Tehao-R-T7          | GTAATACGACTCACTATAGGGAGACCACGTAGGTCTTGTCCTTGTCCA  |
| Su(var)205-R-T7GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGACifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATTAACCCGAAGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGGACGCAACCGCTATTATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGCCACCGTCGCTATTATCTGGACCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCAGTGCGCTAIncRNA:CR3938-F-T3TGTTGGGAAATCACTCCCAATTAAGAACGTATGGACTCGGCTAIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAACGATGGAGCAAACACCCCATasRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAAGGGGGGAAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAACAACCTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGCATAACGTGGAACasRNA:CR42860-R-T3TGTTGGGAAATCACTCCCAATTAAGATGACGCGGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCGTGAACGAGGGTGIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACGGAGACGAGGGGGGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTTGTAGGAGGGGGGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGTCAACAGGAGGAGGIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGACGAGTAAIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGAGGAGAAATCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGAGGAGGGGGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGAGACCACTATTGAGAGAGGGGGG   | Su(var)205-F-T3     | TGTTGGGAAATCACTCCCAATTAATCAAAACGTACCACAGATGC      |
| ifc-F-T3TGTTGGGAAATCACTCCCAATTAATTATTAACCCGAAGCCACCTifc-R-T7GTAATACGACTCACTATAGGGAGACCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAGGGGGAGACCACAGGGGAGAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGGGGAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGGGGTAAACAACTCCATIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGGAGTGGCTIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCAGAGCGGCTIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGAGGAAGGTGGCTIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTGAAGGGGGCTIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTGAGGAGACCACGGCTGIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTGAAGAGGGGGGIncRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTAACGGGAGACCACGTCTIncRNA:CR424178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCAGAGAAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCGACCACGTCAACTCIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTATTTGCCCGAAGTCACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACCACTATTGGGAGAGGGGGHMS-Beagl  | Su(var)205-R-T7     | GTAATACGACTCACTATAGGGAGACCACTACAGACACTGACTCTGGAC  |
| ifc-R-T7GTAATACGACTCACTATAGGGAGACCACGTCCGAATGCCCCTTATCTAnonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACTAGACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAAAACGGTAGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGACCACAGGCGGAAACCACCGGAAGGACCACAGGCGATAGCasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGAAGGTGIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGAGAGACCACGGCATACGTGGAAATCIncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGGGGGGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGGCAAACAGTTCCACGTCTTIncRNA:CR444178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGGTCGAGAAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGTCAACAGGTCACTCTHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAGGGGGG  | ifc-F-T3            | TGTTGGGAAATCACTCCCAATTAATTATTAACCCGAAGCCACCT      |
| nonA-I-F-T3TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTTnonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGATTTGAAAGAGGGGTGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACAGGACGAGTAAIncRNA:CR44118-F-T3TGTTGGGAAATCACTCCCAATTAAGGAAGGGACCACGGCAAACGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGGTGGAAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACAGGACGAGGAAATCACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAAGGAGGGGGGGAGGGHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGAACGAAGGGGAGCGGTGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | ifc-R-T7            | GTAATACGACTCACTATAGGGAGACCACGTCCGAATGCCCCTTATCTA  |
| nonA-I-R-T7GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCTAtg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTGAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAGACCACGGCATGGATGG  | nonA-I-F-T3         | TGTTGGGAAATCACTCCCAATTAAGACGCAACCGCTTATATGTT      |
| Atg8b-F-T3TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCGAtg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGTGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACCACGTCAACAGTTTCCACGTCTTIncRNA:CR444178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACCACGGCAGGACACAGGACGACTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACCACGTCAACAGGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGAGGGGGGGGG  | nonA-I-R-T7         | GTAATACGACTCACTATAGGGAGACCACCGTCGCTATTATCTGGACCT  |
| Atg8b-R-T7GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTCIncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGTGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGCGCTTGTAGGAGGGGGGGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGGCTTGTAGGAGGGGGGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGTCAACAGTTCCACGTCTTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGGCAGGAGCGACGACTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGTCACTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAGGGAGACCACGTCAACAGGACGAGTAAIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGAGCAGGACAACGGAGAAAIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGGGACCACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGGGACCACTATTTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGAGGGGAGCGACGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | Atg8b-F-T3          | TGTTGGGAAATCACTCCCAATTAAGCAGCTACATAAGACCTTCG      |
| IncRNA:CR33938-F-T3TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTAIncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAGAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACAGGCGTAAACAACTCCATasRNA:CR42860-R-T7GTAATACGACTCACTATAGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGAAGGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGTGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGATCCACGTCAACAGTTTCCACGTCTTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACCACGGCACAGGACGACGACTIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAGGAGACCACGTCAACAGGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAACGAGGGGGGGGG  | Atg8b-R-T7          | GTAATACGACTCACTATAGGGAGACCACTAGTCCTTGTCGAAGTGCTC  |
| IncRNA:CR33938-R-T7GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCGIncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGATGTGAAAGAGGGGGGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGGTCCACGTCTTIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGGCAGAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | IncRNA:CR33938-F-T3 | TGTTGGGAAATCACTCCCAATTAAAAAACGTATGGACTCGGCTA      |
| IncRNA:CR45916-F-T3TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGTIncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-R-T7GTAATACGACTCACTATAGGAGAGCCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGGGIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAACCACGTCAACAGTTTCCACGTCTTIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGGACGAGTAAIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | IncRNA:CR33938-R-T7 | GTAATACGACTCACTATAGGGAGACCACAAATTTTGTCCAAAGGGCCG  |
| IncRNA:CR45916-R-T7GTAATACGACTCACTATAGGGAGACCACAGGGGGTAAAACAACTCCATasRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAIncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGATTGAAAGAGGGGGTGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | IncRNA:CR45916-F-T3 | TGTTGGGAAATCACTCCCAATTAAAATGCGATGGGAGTAAGAGT      |
| asRNA:CR42860-F-T3TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAACasRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAlncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTlncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATClncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGTGlncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGGCACGGCACG   | IncRNA:CR45916-R-T7 | GTAATACGACTCACTATAGGGAGACCACAGGGGGGTAAAACAACTCCAT |
| asRNA:CR42860-R-T7GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTAlncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTlncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATClncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGGTGlncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTlncRNA:CR44178-R-T3TGTTGGGAAATCACTCCCAATTAAAGGAACAGGACGACGAGTAAlncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAlncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | asRNA:CR42860-F-T3  | TGTTGGGAAATCACTCCCAATTAAGATGACTGAACAGCCGTAAC      |
| IncRNA:CR43148-F-T3TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCTIncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGGTGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGAGCGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | asRNA:CR42860-R-T7  | GTAATACGACTCACTATAGGGAGACCACAGGCATACGTGGATGGTTTA  |
| IncRNA:CR43148-R-T7GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATCIncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGGTGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTIncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGACGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | IncRNA:CR43148-F-T3 | TGTTGGGAAATCACTCCCAATTAAAAACTGTAAGGAAGGTGGCT      |
| IncRNA:CR44178-F-T3TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGTGIncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR4418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGACGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | IncRNA:CR43148-R-T7 | GTAATACGACTCACTATAGGGAGACCACGGCTTGTAGGAGTGGAAATC  |
| IncRNA:CR44178-R-T7GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTTIncRNA:CR4418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR4418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | IncRNA:CR44178-F-T3 | TGTTGGGAAATCACTCCCAATTAAAGGGTATTGAAAGAGGGGTG      |
| IncRNA:CR44418-F-T3TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAAIncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | IncRNA:CR44178-R-T7 | GTAATACGACTCACTATAGGGAGACCACGTCAACAGTTTCCACGTCTT  |
| IncRNA:CR44418-R-T7GTAATACGACTCACTATAGGGAGACCACTATTTGCCCGAAGTCAACTCHMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC   | IncRNA:CR44418-F-T3 | TGTTGGGAAATCACTCCCAATTAAAGTTGGAACAGGACGAGTAA      |
| HMS-Beagle-F-T3TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGGHMS-Beagle-R-T7GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | IncRNA:CR44418-R-T7 | GTAATACGACTCACTATAGGGAGACCACTATTTGCCCGAAGTCAACTC  |
| HMS-Beagle-R-T7 GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  | HMS-Beagle-F-T3     | TGTTGGGAAATCACTCCCAATTAAGAATGTAGAGTGGGGAGTGG      |
|   | HMS-Beagle-R-T7     | GTAATACGACTCACTATAGGGAGACCACTATTGATGGAGAAGGCGGTC  |

В



## Figure S10, Related to Figure 6. Probe primers designed for candidate genes and their validation

(A) The sequences of probe primers.

(B) The size of the products of the primers after PCR amplification and *in vitro* transcription was tested by agarose gel electrophoresis.