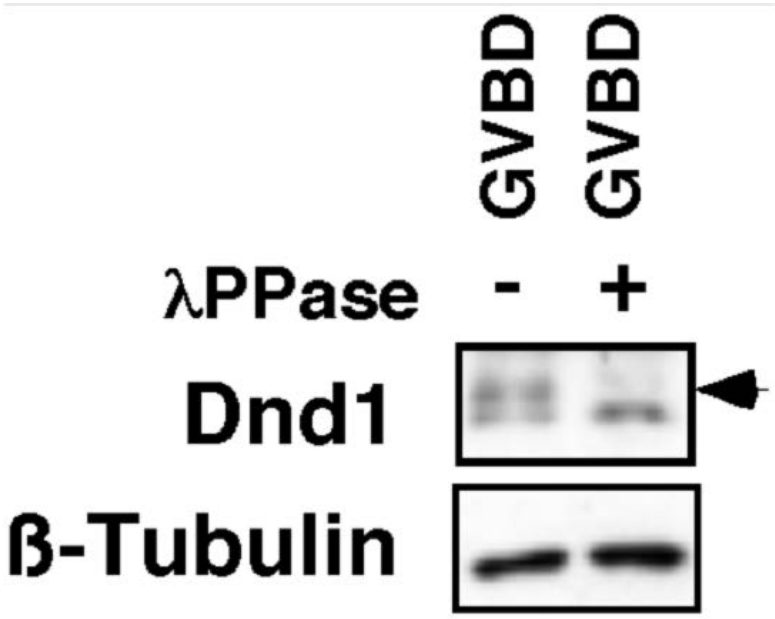

Figure S1. Phosphorylation of Dnd1 after oocyte maturation. (A) Western blot analysis showing the expression of endogenous Dnd1 in eggs (GVBD). Endogenous Dnd1 was enriched by IP from 50 eggs. Half of the IP sample was treated with λPPase. Arrow points to a band detected by anti-Dnd1 antibody, which migrates on SDS-PAGE relatively slowly. This band collapsed after phosphatase treatment, demonstrating that this is a phosphorylated form of Dnd1.

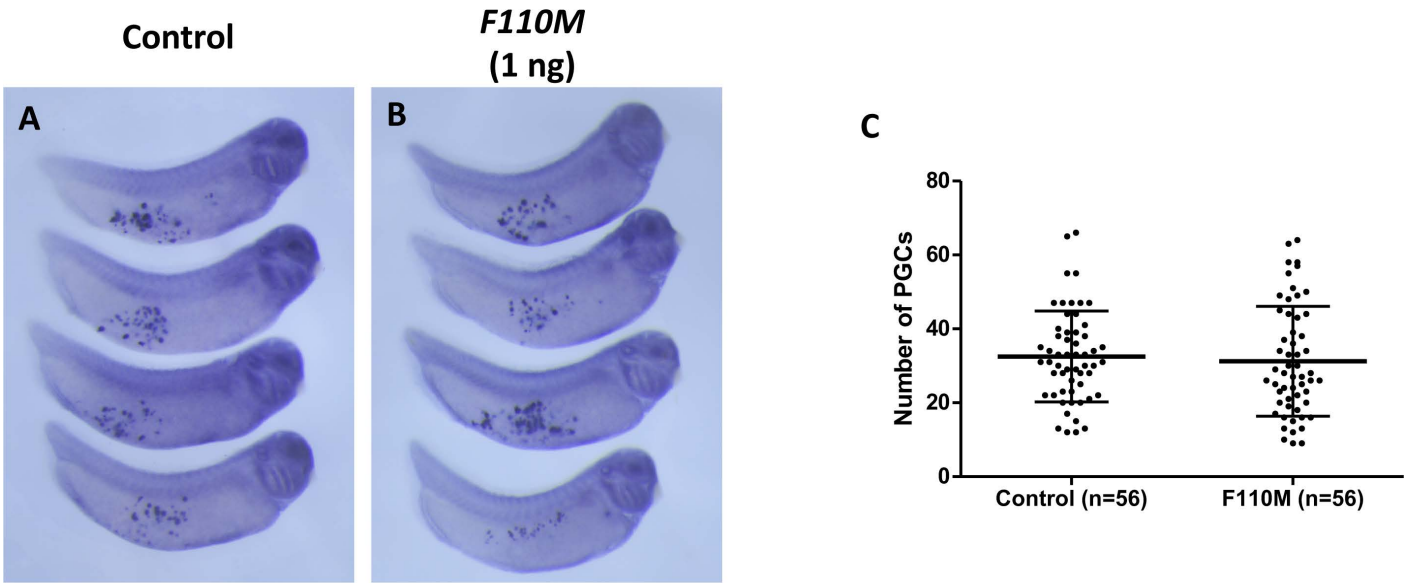

Figure S2. Overexpression of F110M had no effect on PGC development. (A) In situ hybridization showing the expression of *pgat* in control, and *F110M* (1 ng) injected embryos. RNA was injection into the vegetal pole at the 1-cell stage. **(B)** Quantification of results shown in **A**. The number of *pgat*-positive PGCs from each embryo was counted and plotted on the graph. There is no statistically significant difference between control and F110M overexpressed embryos.

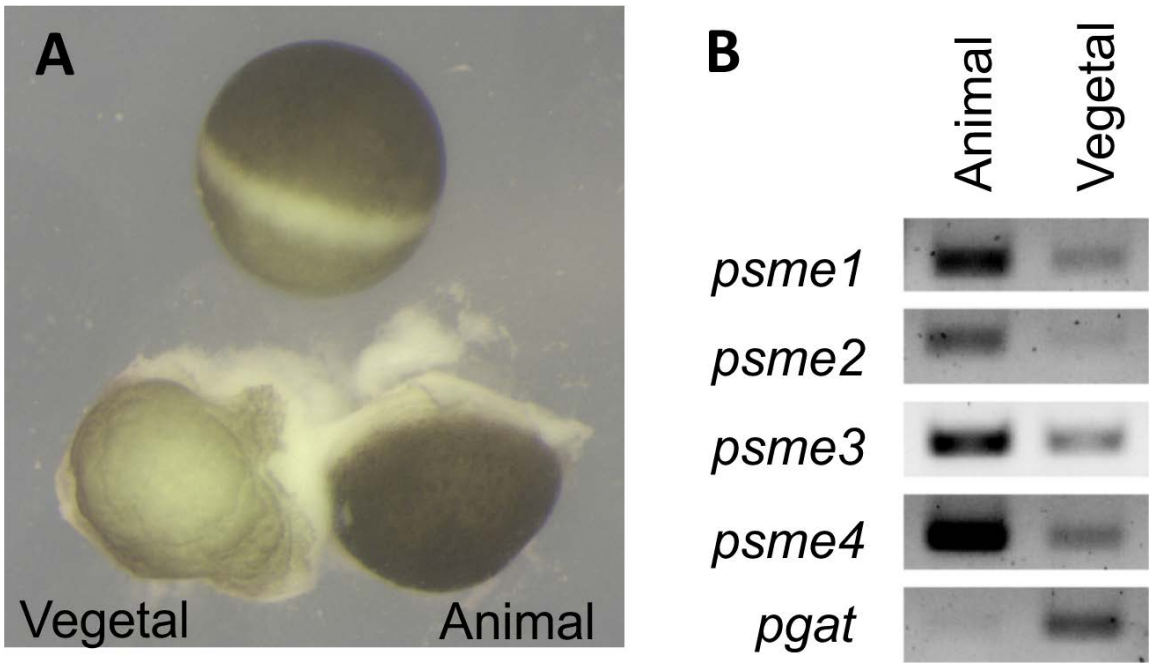

Figure S3. Asymmetric distribution of RNAs encoding ubiquitin-independent proteasome activator. (A) An intact stage VI oocyte and an oocyte that was dissected into animal and vegetal halves. **(B)** RT-PCR results showing the expression of *psme1*, *psme2*, *psme3*, *psme4*, and *pgat* in animal and vegetal halves of dissected oocytes. *pgat* was used as a marker for the vegetal hemisphere.

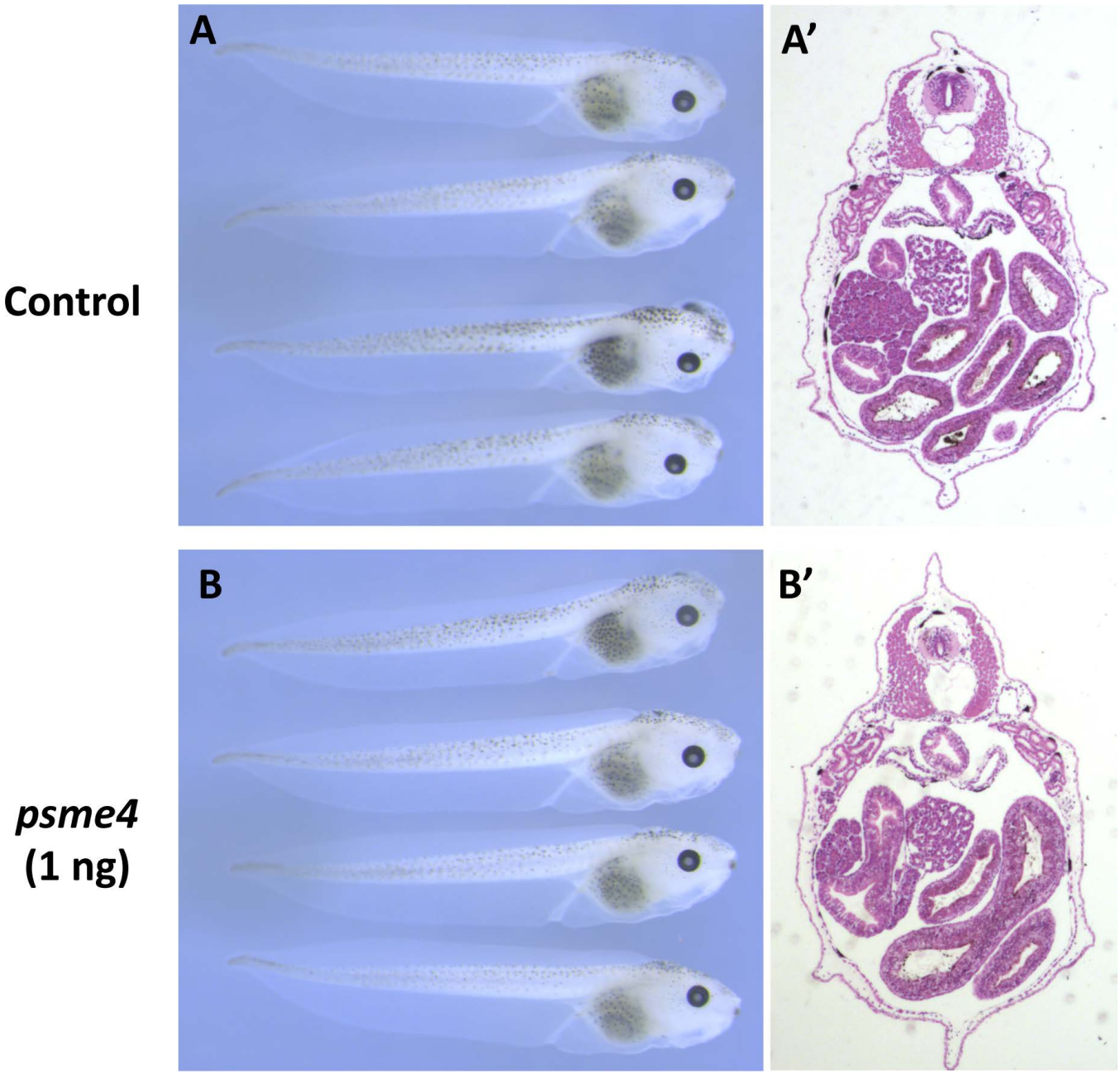

Figure S4. Overexpression of PSME4 had no effect on somatic development. Whole embryo morphology **(A** and **B)** and cross-section **(A'** and **B')** of control **(A** and **A')**, and *psme4* (1 ng) injected embryos **(B** and **B')**. RNA was injection into the vegetal pole at the 1-cell stage.

Table S1. An excel sheet to show proteomic analysis of proteasome components in the animal and vegetal hemisphere in 1-cell stage embryos.

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