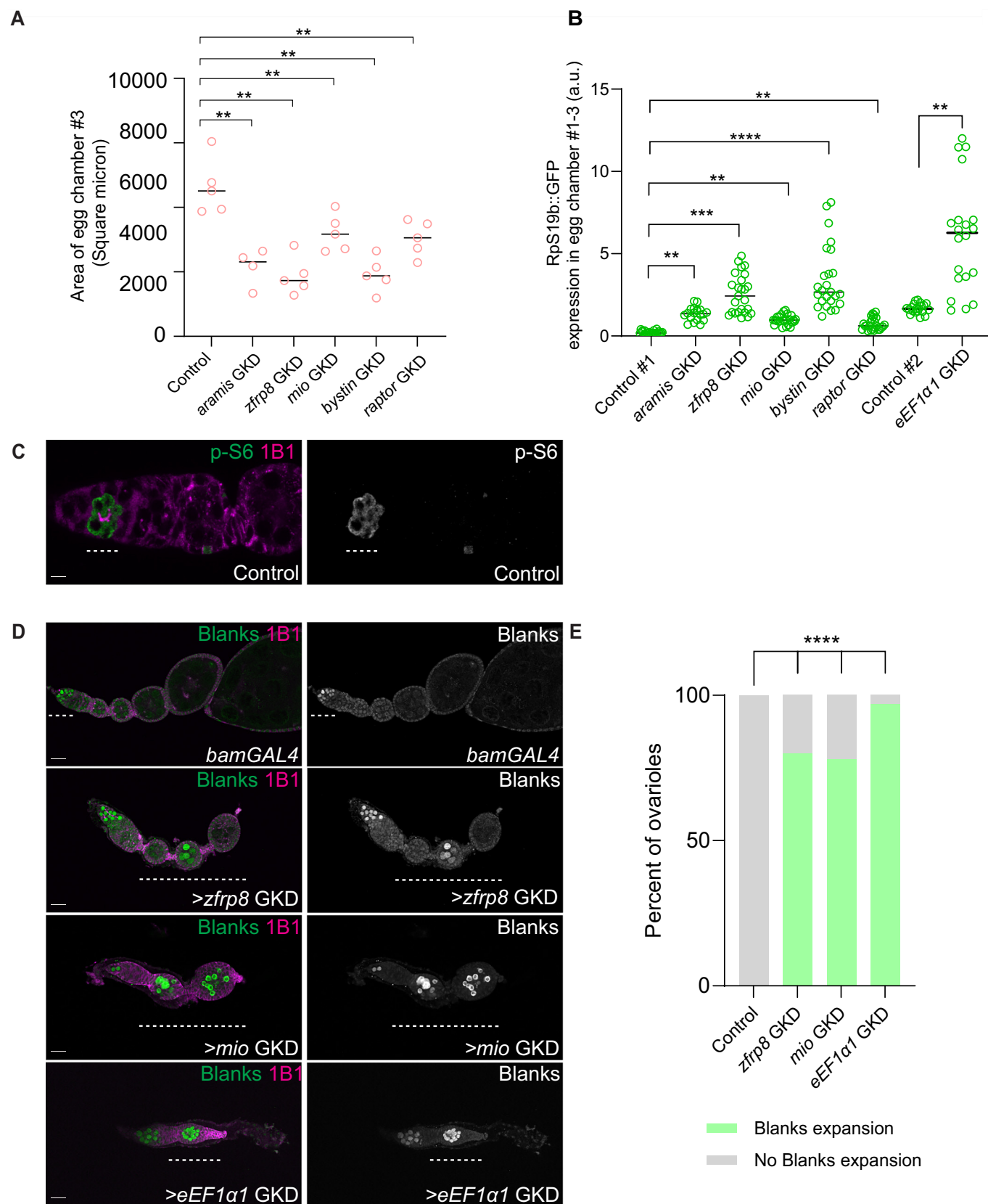


Expanded View Figures

Figure EV1. Ribosome-level regulators are required in the cyst stages for silencing germ cell gene *blanks* during oogenesis.

(A) Quantification of the size of the egg chambers of control and *zfrp8* GKD, *bystin* GKD, *mio* GKD, *raptor* GKD and *eEF1a1* GKD ovaries. Graph shows that *zfrp8* GKD, *bystin* GKD, *mio* GKD, and *raptor* GKD's egg chambers do not grow compared to control ovaries. *eEF1a1* GKD did not lead to the formation of a third egg chamber therefore we were unable to quantitate. Statistics: Two-tailed *t* test; *n* = 5 ovarioles per genotype; *P* = 0.0015 for *aramis* GKD; *P* = 0.0011 for *zfrp8* GKD; *P* = 0.0233 for *mio* GKD; *P* = 0.0010 for *bystin* GKD; *P* = 0.0138 for *raptor* GKD. (B) Arbitrary unit (A.U.) quantification of RpS19b::GFP expression in *zfrp8* GKD, *bystin* GKD, *mio* GKD, *raptor* GKD and *eEF1a1* GKD compared to control ovaries. RpS19b::GFP persists in egg chambers of *zfrp8* GKD, *bystin* GKD, *mio* GKD, *raptor* GKD and *eEF1a1* GKD compared to the egg chambers of control. *n* = 5 ovarioles per genotype. Statistics: Two-tailed *t* test; *n* = 50 ovarioles per genotype; *P* < 0.0001 for *aramis* GKD *P* < 0.0001 for *zfrp8* GKD; *P* < 0.0001 for *mio* GKD; *P* < 0.0001 for *bystin* GKD; *P* < 0.0001 for *raptor* GKD; *P* < 0.0001 for *eEF1a1* GKD. (C) Wild-type control germarium stained for p-S6 (green, right in grayscale) and 1B1 (magenta). p-S6 marking TOR activity is expressed in the cyst stages. (D) Ovarioles stained for Blanks (green, shown in grayscale on right) and 1B1 (magenta). In *bamGAL4* controls, Blanks is expressed in undifferentiated germ cells (yellow arrows) and attenuated in egg chambers. In contrast, GKD of *zfrp8*, *mio*, or *eEF1a1* using *bamGAL4* caused egg chambers to ectopically express Blanks (white dashed lines), fail to grow, and degenerate during oogenesis. (E) Quantitation of percent ovarioles with Blanks expansion in control, *zfrp8* GKD, *bystin* GKD, *mio* GKD, *raptor* GKD and *eEF1a1* GKD ovaries. Statistics: Fisher's exact test; *n* = 50 ovarioles per genotype; *P* < 0.0001 for *zfrp8* GKD; *P* < 0.0001 for *mio* GKD; *P* < 0.0001 for *eEF1a1* GKD. Scale bars: (C-C1) 7.5 μ m; (D-G1) 15 μ m. Source data are available online for this figure.



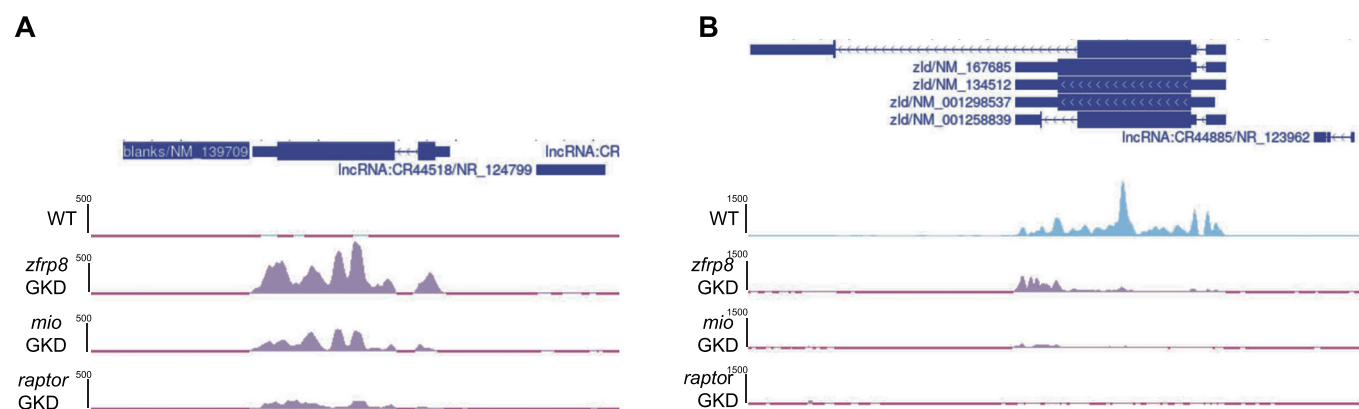


Figure EV2. Ribosome-level regulators are required for silencing germ cell genes during oogenesis.

(A) RNA-seq tracks showing that *blanks* is upregulated upon *>zfrp8* GKD, *>mio* GKD and *>raptor* GKD (purple) compared to control *nosGAL4* (blue). (B) RPKM-normalized RNA-seq tracks showing that *zelda* is downregulated upon *>zfrp8* GKD, *>mio* GKD and *>raptor* GKD (purple) compared to control (*nosGAL4*) (blue).

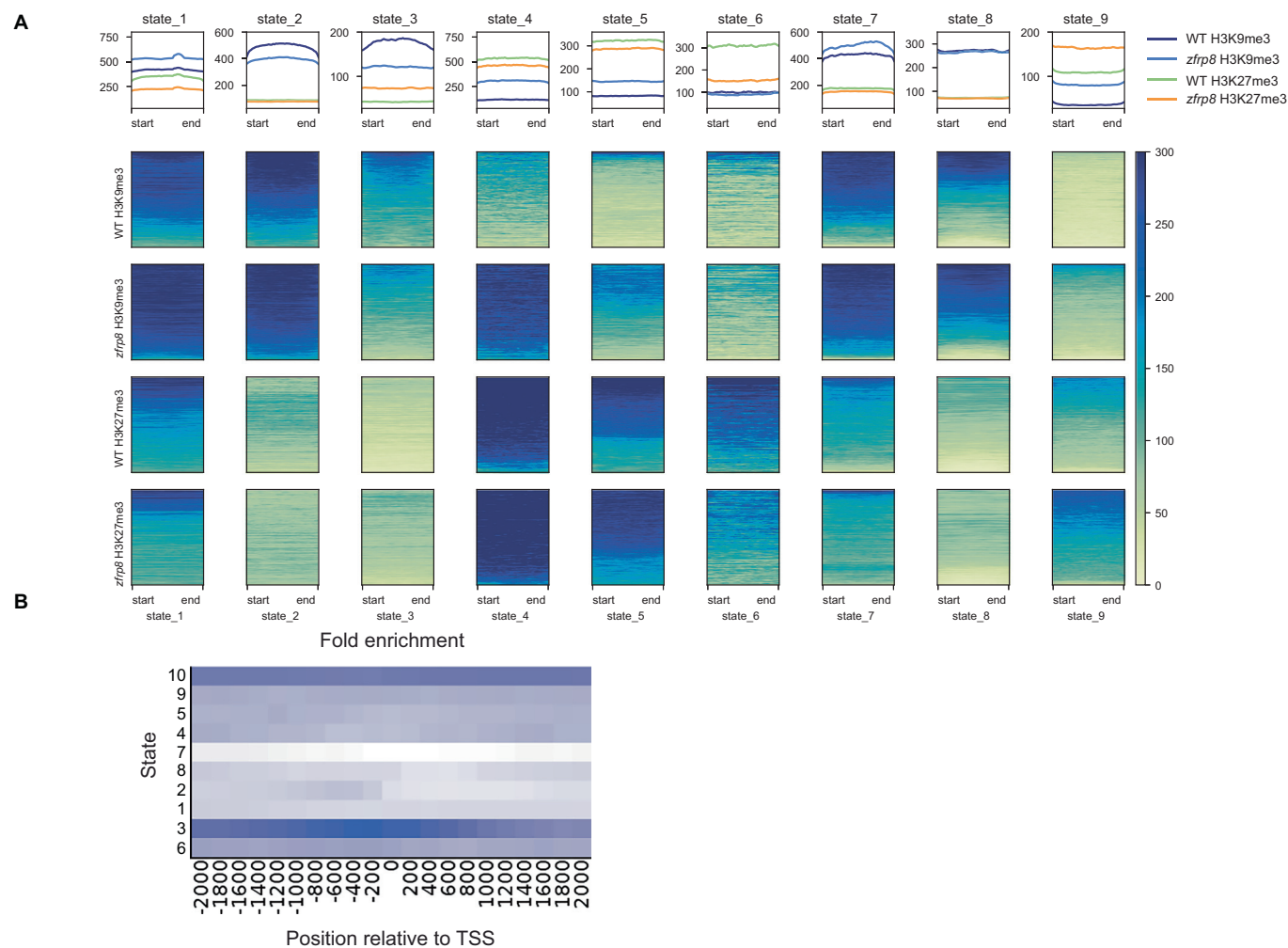


Figure EV3. Ribosome-level regulators are required maintaining proper chromatin state.

(A) A 10-state chromatin model depicting H3K9me3 and H3K27me3 distribution across the genome. This model illustrates H3K9me3 and H3K27me3 dynamics across 10 chromatin states, highlighting their distribution in different genomic regions. In *zfrp8* GKD, H3K9me3 is reduced on promoters in state 3. These findings reveal that ribosome biogenesis influences genome-wide epigenetic landscapes, coordinating transcriptional regulation during oogenesis. (B) In state 3, H3K9me3 is enriched around promoters. Source data are available online for this figure.

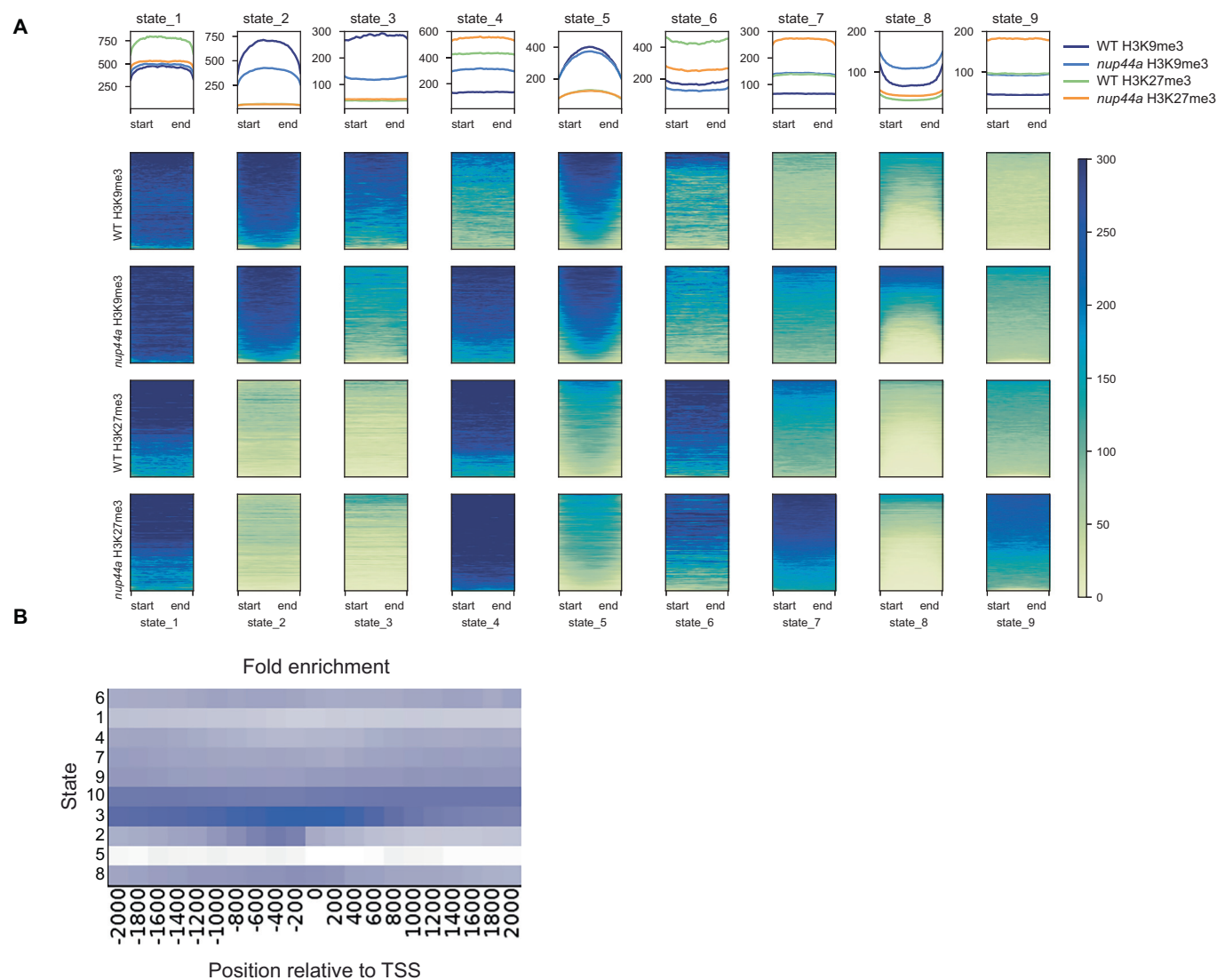


Figure EV4. Ribosome-level regulators are required for maintaining proper chromatin state.

(A) A 10-state chromatin model depicting H3K9me3 and H3K27me3 distribution across the genome. This model illustrates H3K9me3 and H3K27me3 dynamics across 10 chromatin states, highlighting their distribution in different genomic regions. In *Nup44A* GKD, H3K9me3 is reduced on promoters in State 3 and H3K27me3 is redistributed across different states, indicating widespread chromatin reorganization. These findings reveal that *Nup44A* influences genome-wide epigenetic landscape. (B) In state 3, H3K9me3 is enriched around promoters, ensuring transcriptional repression of genes including *rps19b*. Source data are available online for this figure.