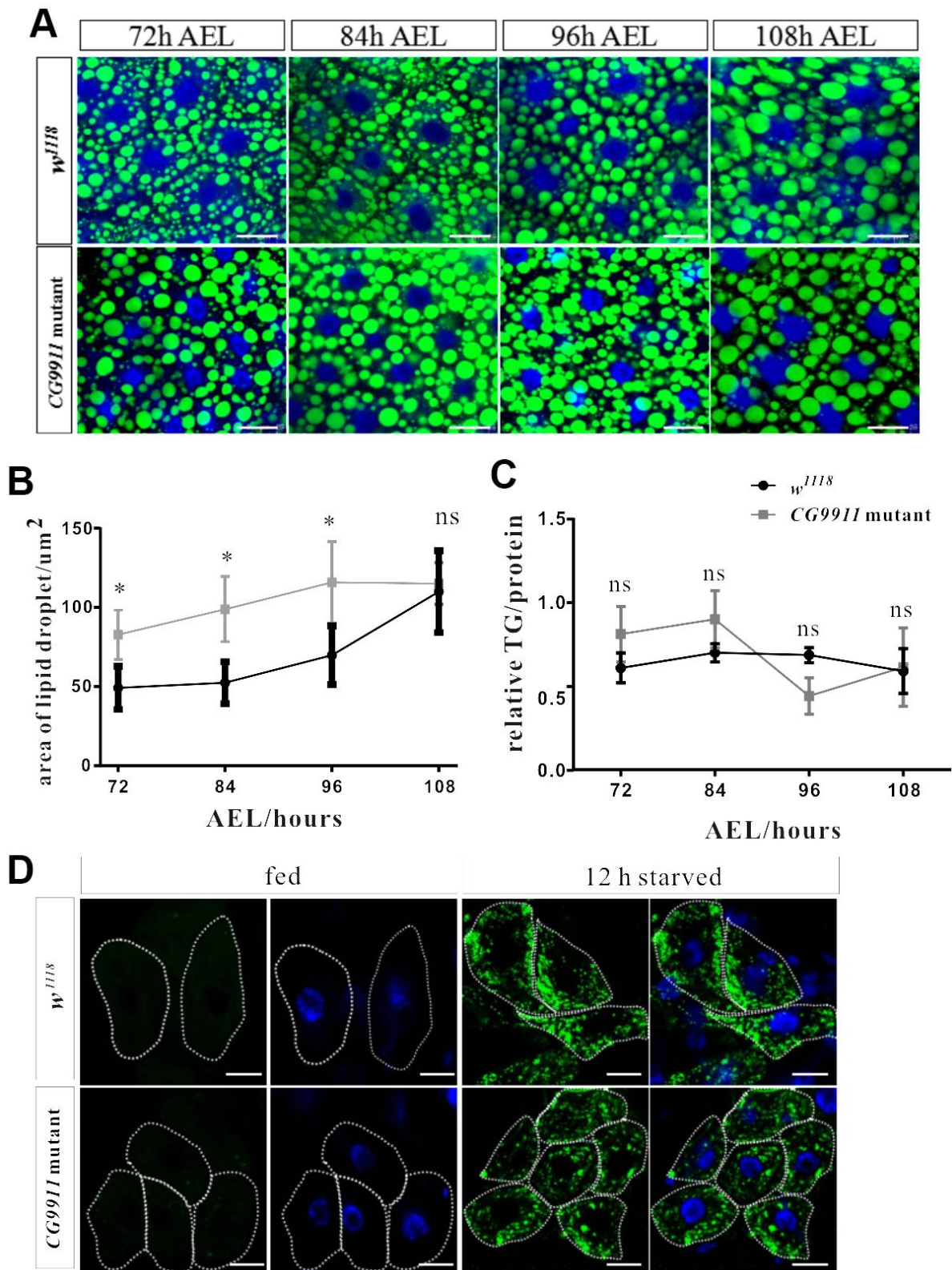
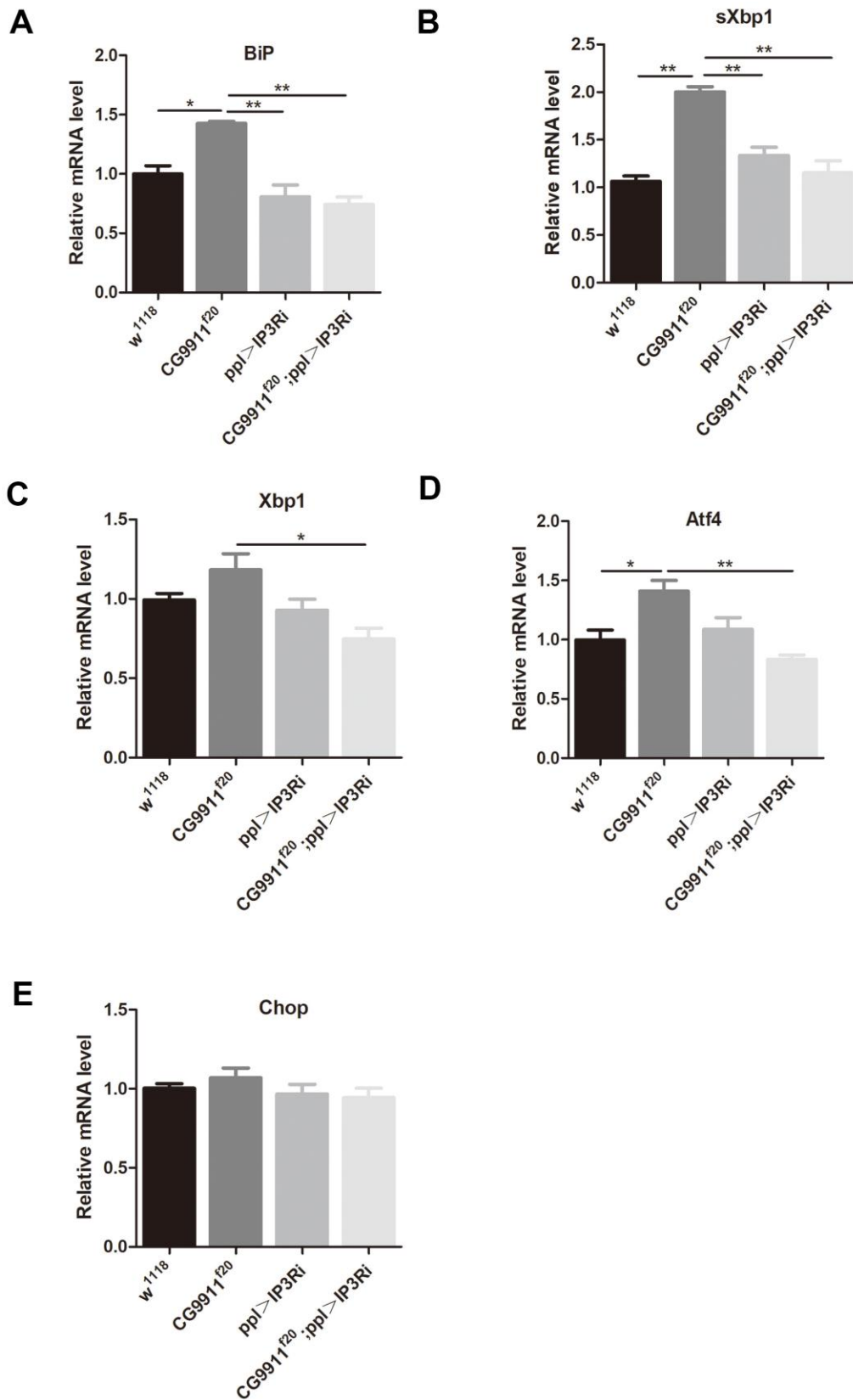


**Supplementary Figure 2. Expression pattern of CG9911.** (A) CG9911 is expressed in embryos and marked with green fluorescence signal. Scale bar = 75  $\mu$ m. (B) CG9911 is expressed in larval eye and wing disc with enlarged view. Green signal represents CG9911, nuclei is stained by DAPI. Scale bar = 50  $\mu$ m. (C) CG9911 expression in ovary and testis. F-actin is stained by Phalloidin. Scale bar = 50  $\mu$ m. (D) in larval oenocyte and fat body in adult fly. Scale bar = 25  $\mu$ m. (E) in larval muscle. Scale bar = 25  $\mu$ m. (F) western blot of flies in different developmental stages with CG9911 antibody.  $\beta$ -actin is used as loading control. 3<sup>rd</sup> e and 3<sup>rd</sup> l stands for early and late third instar larvae. P stands for pupae. 3d means adult flies with 3 days after eclosion. (G) Quantity of CG9911 expression.



**Supplementary Figure 3. CG9911 does not affect lipid metabolism of larval fat body and oenocyte.** (A) lipid droplets staining of larval fat body in different developmental stages. Lipid droplets are stained by BODIPY and nuclei is stained by DAPI. Scale bar = 25  $\mu$ m. (B) statistical analysis of LD size of different stages in CG9911 mutant and wild type larvae. (C) Relative TG level of different stages in CG9911 mutant and wild type larvae. (D) LD staining of oenocyte under the condition of normal fed and starvation. Lipid droplets are stained by BODIPY and nuclei is stained by DAPI. Scalebar =25  $\mu$ m. Data are presented as the means  $\pm$  s.e.m. \* $p < 0.05$ .



**Supplementary Figure 4. Real-time PCR detection of UPR marker genes in *w<sup>1118</sup>*, *CG9911<sup>f20</sup>*, *ppl>IP3Ri*, and *CG9911; ppl>IP3Ri* flies, respectively.** BiP (A), sXbp1 (B), Xbp1 (C), Atf4 (D), and Chop (E) were subjected to investigation, respectively. Three independent repeat tests were performed in each group. Data are presented as the means  $\pm$  s.e.m; \*  $p < 0.05$ , \*\*  $p < 0.01$ .