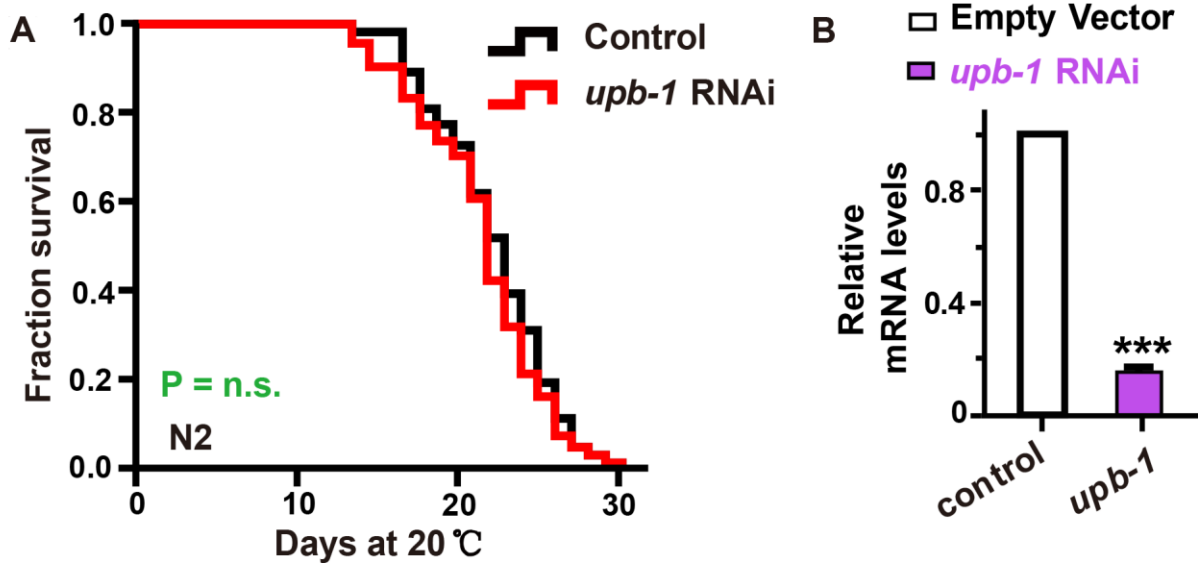
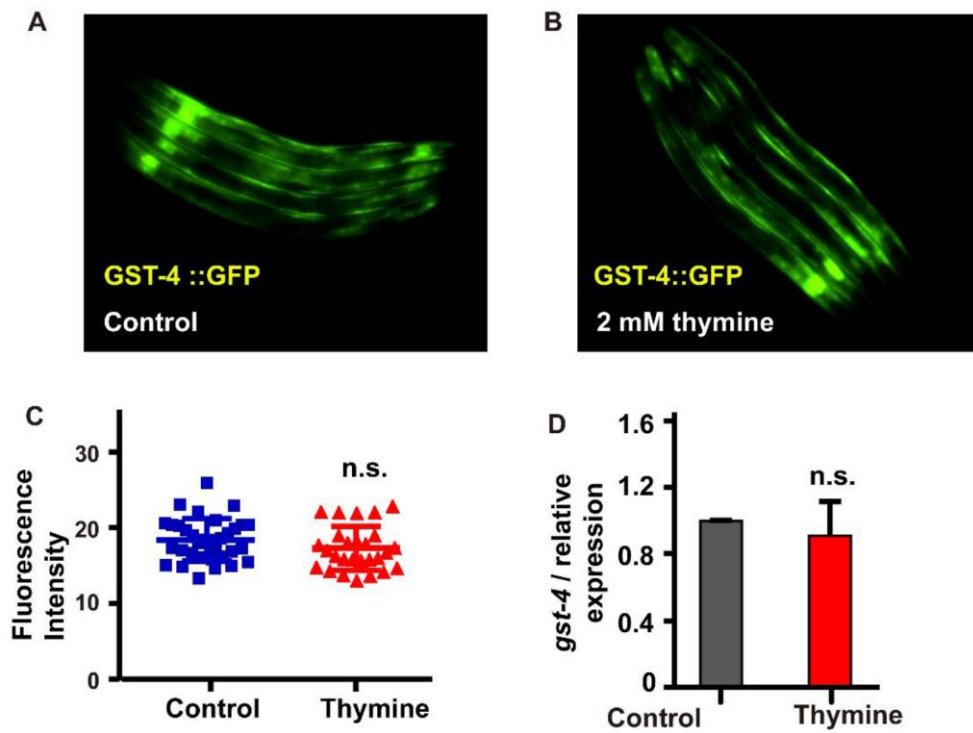


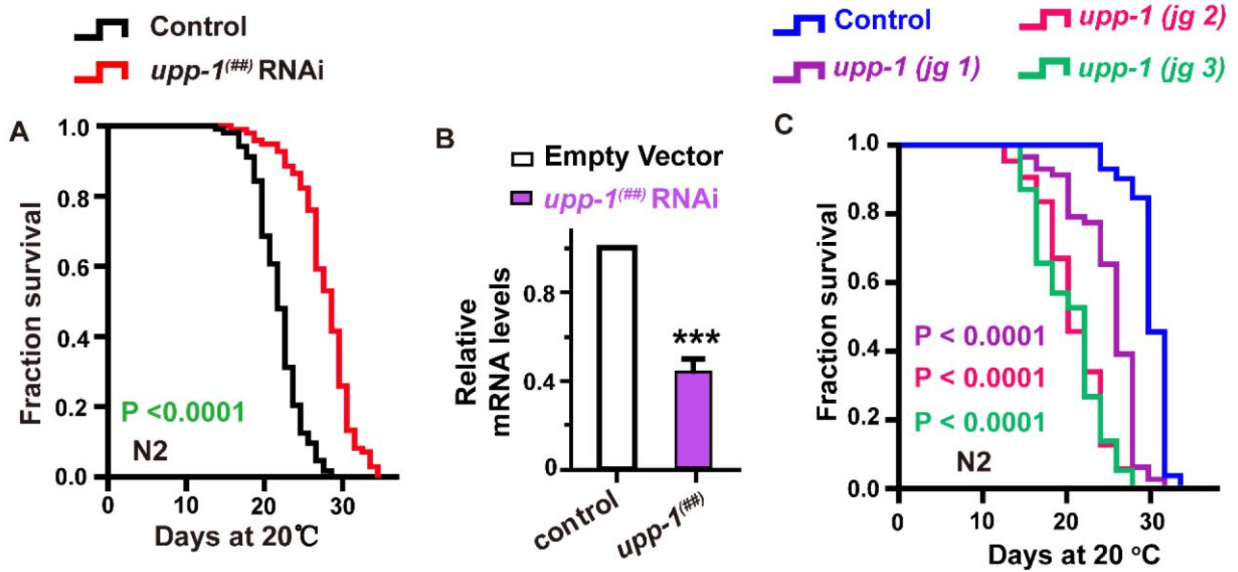
SUPPLEMENTARY FIGURES



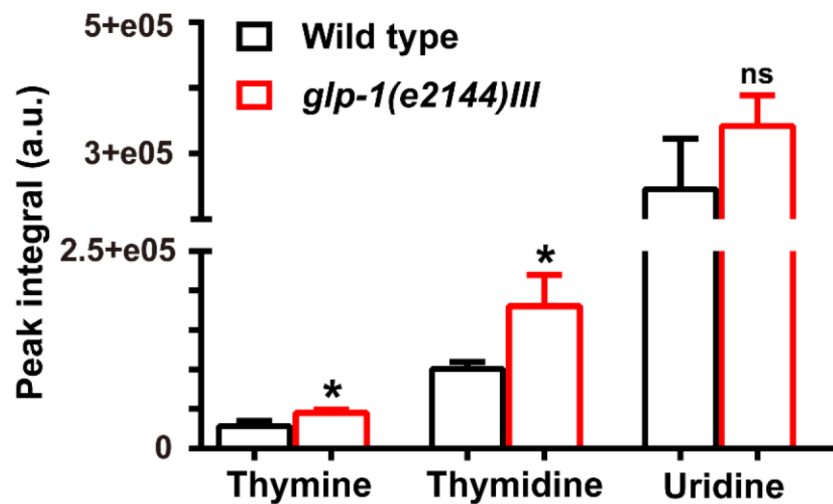
**Supplementary Figure 1. Lifespan of wildtype animals exposed to *upb-1* RNAi bacteria.** Lifespan analysis of wild-type N2 exposed to *upb-1* RNAi (red) or control bacteria (black). For *P* value, lifespan values of repetitions showed in supporting Supplementary Table 1. (B) *upb-1* RNA levels in whole worm RNA extracts after treatment of *C. elegans* with RNAi *upb-1* versus control RNAi. (mean  $\pm$  SD of three independent experiments, each with three technical replicates,  $*** P < 0.001$ , Student's *t* test).



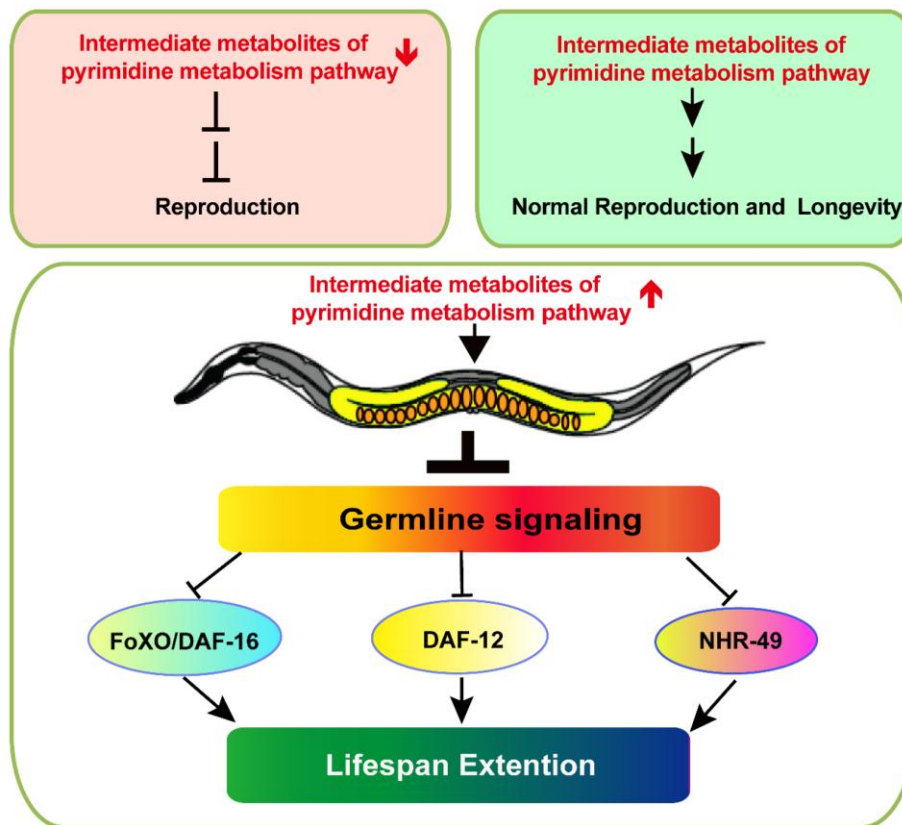
**Supplementary Figure 2. Effect of thymine on the level of *gst-4*.** (A–C) Images and quantification of GFP fluorescence. mean  $\pm$  SD,  $n \geq 30$  (Student's *t* test). (D) QPCR analysis of the mRNA level of *gst-4*, means  $\pm$  SD,  $n=3$  (Student's *t* test).



**Supplementary Figure 3. Effect of *upp-1* on the aging of *Caenorhabditis elegans*.** (A) Lifespan analysis of wild-type N2 exposed to *upp-1*<sup>(##)</sup> RNAi (red) or control bacteria (black). For *P* value, lifespan values of repetitions showed in supporting Supplementary Table 1. (B) *upp-1* RNA levels after treatment of *C. elegans* with RNAi *upp-1*<sup>(##)</sup> versus control RNAi. (mean  $\pm$  SD of four independent experiments, each with three technical replicates, \*\*\*  $P < 0.001$ , Student's *t* test). (C) Lifespan analysis of *upp-1* (*jg 1*, *jg 2* and *jg 3*) mutants. *P* value, lifespan values of repetitions showed in supporting Supplementary Table 1.



**Supplementary Figure 4. Difference of concentration of pyrimidine intermediates between *glp-1* mutant and wild-type.**



Supplementary Figure 5. Mechanisms of action of pyrimidine intermediates in *C. elegans*.