Fig. S1. The *dDBT* deficiency induces apoptosis in the pupal brain. Apoptosis assay of pupal brains co-stained with anti-ELAV and anti-Caspase-3 antibodies. The presented images of central brain regions of *Drosophila* pupae were captured using fluorescence confocal microscopy with a 63x oil objective and 5-fold magnification. Scale bar: 10 μm.
**Fig. S2.** Heterozygous *dDBT* mutant exhibits brain damage and a shortened lifespan.

(A) Histological analysis of brains section of 7-day-old *Drosophila* from *w*1118 or heterozygous *dDBT* mutant lines and the quantification of the number of vacuoles in each brain. Three brains were used for each group/experiment. Three biological repeats were conducted, and *p* values were calculated using a Student’s t-test. *p < 0.05; **p < 0.01; Error bars indicate standard deviation. (B) Lifespan evaluation of the heterozygous *dDBT* mutants compared to wild type *W*1118 flies (total n=100/each group), which was analyzed by Log-rank(Mantel-Cox) test analysis. Scale bar: 100 μm.
Fig. S3. A higher systemic immune response is induced by the loss of *dDBT*. Quantitative RT-PCR analysis of antimicrobial peptide mRNA expression in the tissues of fat bodies or brains from *w^{1118}* or *dDBT* mutants. Thirty brains were used for each group/experiment. Three biological repeats were conducted, and *p* values were calculated using a Student’s t-test. *p < 0.05; **p < 0.01; ***p < 0.001. n.s., not statistically significant; Error bars indicate standard deviation.