



**Supplementary Figure 1. Evolutionary analyses of *D. melanogaster* genes according to their ages.** The ratios of nonsynonymous substitution rate to the synonymous substitution rate ( $dN/dS$ ) across different ages (Zhang et al. 2010). Old (red) and new (blue) groups were considered those genes originated before and after the *Sophophora* genus emergence, respectively. Total sample sizes of old and new genes, respectively 2348 and 495. Wilcoxon test, \*\*\*  $p < 0.001$ .