**Details of the DIFFCOEX algorithm used to identify both differentially co-expressed and significantly preserved modules in this study**

**Detecting differentially co-expressed modules in male and female *D. melanogaster***. A soft-thresholding parameter value (β1) of 5 was used. The cutreeHybrid function was invoked, with cutHeight = 0.995, and minClustersize = 30, to extract modules from the hierarchical tree.

**Detecting significantly preserved modules in male and female *D. melanogaster*.** A soft-thresholding parameter value (β1) of 5 was used. The cutreeHybrid function was invoked, with cutHeight = 0.992, and minClustersize = 30, to extract modules from the hierarchical tree.