

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Source data for taxonomy of corresponding SVs for ALDEx2 effect plot of the adult honey bee microbiota during LX3 supplementation.

File Name: Supplementary Data 2

Description: Source data for immune- and antioxidant-related relative gene expression.

File Name: Supplementary Data 3

Description: Source data for intra-individual correlations between bacterial abundance and innate immune-related gene expression.