

## Description of Additional Supplementary Files

|                       |   |
|-----------------------|---|
| Supplementary Data 1  | Information of dN/dS in pathways                          |
| Supplementary Data 2  | Lh specific genes   |
| Supplementary Data 3  | Lb specific genes   |
| Supplementary Data 4  | Lh venom protein-coding genes (VP)                        |
| Supplementary Data 5  | Homologs of Lar across the Lh and Lb genomes              |
| Supplementary Data 6  | Annotated IPR domains across hymenopteran genomes         |
| Supplementary Data 7  | Documented PF03272 in Pfam                                |
| Supplementary Data 8  | Documented IPR004954 in InterPro                          |
| Supplementary Data 9  | Genus abundance of Lb microbiota sequencing               |
| Supplementary Data 10 | Assembly statistics of available Leptopilina genomes      |
| Supplementary Data 11 | Hexpoda genomes used in this study to search Lar homologs |
| Supplementary Data 12 | Primer sequences used in this study                       |