## Supplementary Tables

**Table S1.** Details of chitin deacetylase sequences used for phylogenetic analysis.

| Insect Species | Gene Name | Accession Number |
|---|---|---|
| *Bombyx mori* | *BmCDA1* | XP_004929283.1 |
| | *BmCDA2A* | NP_001103795.1 |
| | *BmCDA2B* | NP_001103796.1 |
| | *BmCDA3A* | XP_021207356.1 |
| | *BmCDA3B* | XP_004931841.2 |
| | *BmCDA4* | XP_012548585.1 |
| | *BmCDA5* | XP_021207767.1 |
| | *BmCDA6* | XP_004923454.1 |
| | *BmCDA7* | XP_004923480.1 |
| | *BmCDA8* | XP_004923455.1 |
| *Bactrocera dorsalis* | *BdCDA1* | AUP42574.1 |
| | *BdCDA2A* | AUP42576.1 |
| | *BdCDA2B* | AUP42575.1 |
| | *BdCDA3* | AUP42577.1 |
| | *BdCDA4* | AUP42578.1 |
| | *BdCDA5* | XP_011210019.1 |
| | *BdCDA9* | AUP42579.1 |
| *Drosophila melanogaster* | *DmCDA1* | NP_730444 |
| | *DmCDA2* | NP_001163469 |
| | *DmCDA3* | NP_609806 |
| | *DmCDA4* | NP_728468 |
| | *DmCDA5* | NP_001097044 |
| | *DmCDA9* | NP_611192 |
| *Apis mellifera* | *AmCDA1* | XP_391915 |
| | *AmCDA2* | XP_623723 |
| | *AmCDA4* | XP_001120478 |
| | *AmCDA5* | XP_624655 |
| *Tribolium castaneum* | *TcCDA1* | NP_001095946 |
| | *TcCDA2A* | NP_001096047 |
| | *TcCDA2B* | NP_001116303 |
| | *TcCDA3* | NP_001104011 |
| | *TcCDA4* | NP_001103903 |
| | *TcCDA5A* | NP_001103739 |
| | *TcCDA5B* | NP_001107799 |
| | *TcCDA6* | NP_001103905 |
| | *TcCDA7* | NP_001104012 |
| | *TcCDA8* | NP_001103906 |
| | *TcCDA9* | NP_001103904 |
| *Nasonia vitripennis* | *NvCDA1* | XP_001604765 |
| | *NvCDA2* | XP_001604838 |
| | *NvCDA3* | XP_001606617 |
| | *NvCDA4* | XP_001607989 |
| | *NvCDA5* | XP_001603918 |
| *Lasioderma serricorne* | *LsCDA1* | AXU05961.1 |
| *Mamestra brassicae* | *MbCDA1* | AEI30868.1 |

| | | |
|---|---|---|
| *Stegobium paniceum* | *SpCDA1* | AYA83838.1 |
| *Helicoverpa armigera* | *HaCDA1* | ADB43610.1 |
| | *HaCDA2* | KM598637 |
| *Heortia vitessoides* | *HvCDA1* | MK389498 |
| | *HvCDA2* | MK389499 |
| *Locusta migratoria* | *LmCDA1* | ANA57443.1 |
| | *LmCDA2A* | ANA57444.1 |
| | *LmCDA2B* | ANA57445.1 |

**Table S2.** Primers used in this study.

| Application of Primers | Gene Name | Forward Primer (5′-3′) | Reverse Primer (5′-3′) |
|---|---|---|---|
| ORF confirmation | *LsCDA1* | ATTTGTGATGGCGCCACGTTTA | TTAGAAGAAACCATCTCCGGTGG |
| qPCR analysis | *LsCDA1* | GCTTTCTTGTTTTGGGTGGA | CGAGGTCAATTTGCAGGAAT |
| | *LsTRE1* | CCTACGGACCAAGACCTGAA | TTTGTTGGTTGCGTTGGTAA |
| | *LsUAP1* | GGCAACACTGATCCATCCTT | GGCACTCTGCACGATTATGA |
| | *LsCHS1* | AAAGAAGAATCTGGTTCTCT | ATATAGTGCTCTCGTCACCA |
| | *LsDY* | GAGATGACGGACGTGAACAC | TCAACACCAACAGCAGCATC |
| | *LsWG* | AGCCTCCCCAATCCCACT | AGGGCAGCATCGAGACCT |
| | *LsVG* | GGGCTGTTCACGATTACCAT | GAATCCTGAACTTGCGCTTC |
| | *LsAP* | TTTTCGGAATGAGGAGATGC | AAGGCGATGGATAATGCAAG |
| | *EF1α* | GCATCTCCACGGATTTCACT | AAGGCAAGACGCTTATCGAA |
| | *18S* | GTTGATCACGTCGCAAGCTA | AGGTTTCCCTCTGGCTTGTT |
| dsRNA synthesis | *LsCDA1* | TAATACGACTCACTATAGGGACCTCTGTTGTATACTGATG | TAATACGACTCACTATAGGGCGTTCATCATCATTGTGAGT |
| | *LsCYP302a1* | TAATACGACTCACTATAGGGTTTGATCGTCTACACCAGAA | TAATACGACTCACTATAGGGAACTGCTCATTGCTTCTACT |
| | *LsCYP306a1* | TAATACGACTCACTATAGGGATCGTCGGTTACTTGCCTTT | TAATACGACTCACTATAGGGGCGCTATGCTTGCTCATGCC |
| | *LsCYP314a1* | TAATACGACTCACTATAGGGAAGCATATAAGCGGTTGGTT | TAATACGACTCACTATAGGGGGTACCAACAAGAACTCAAA |
| | *LsE74* | TAATACGACTCACTATAGGGCGCCGCCTCCGACTAAACATC | TAATACGACTCACTATAGGGGGTATGAGTGGTGCCATCTGT |
| | *LsE78* | TAATACGACTCACTATAGGGCGACCAGTCCGATTCCGAAAC | TAATACGACTCACTATAGGGCGGCACCCTCTTGGCAAACTC |
| | *LsFTZ-F1* | TAATACGACTCACTATAGGGCGAAAATATGTCATTGTTT | TAATACGACTCACTATAGGGAGTGCTCGTCGAACTGATTCG |
| | *GFP* | TAATACGACTCACTATAGGGCAGTTCTTGTTGAATTAGATG | TAATACGACTCACTATAGGGAATGTTACCATCTTCTTTAA |