

Supplementary materials

| | | |
|---------|--|------|
| ApE75X1 | MQLSQTVTSSGVLHMYSAER.....HQQQQQQQQQQQQQQLQQQQQHGGRFVPQSPGVVSSSTSGSGVSPFPAQHHLQLQQQHQQQQQQHQ | 93 |
| ApE75X2 | | 0 |
| ApE75X3 | | 0 |
| ApE75X4 | | 0 |
| SaE75X1 | MQLSQTVTSSGVLHMYSAERHQQQQQQQQQQQQQQQQQQQQPSQQQQQHGGRFVPQSPGVVSSSTSGSGVSPFPAQHHLQLQLQ..... | 88 |
| SaE75X2 | | 0 |
| SaE75X3 | | 0 |
| SaE75X4 | | 0 |
| ApE75X1 | QGGGQQGGGQQGGGQQGGGQQGGGQQGGGQCSLPAPFPSSSAATMRPPAAPGRCKVPVSAAITIKTYSRSEFMLESEPTSPIDLEFDGDT | 193 |
| ApE75X2 |MTVINFKFADAVIQHSSQTACHLLLRLLAEFDGDT | 40 |
| ApE75X3 |MISQNEVTTTSVPARKCFDGD | 23 |
| ApE75X4 |MIIIRWSEISEFDGDT | 21 |
| SaE75X1 |QQHQGGGQQGGGQQGGGQQGGGQQGGGQCSLPAPFPSSSAATMRPPAAPGRCKVPVSAAITIKTYSRSEFMLESEPTSPIDLEFDGDT | 182 |
| SaE75X2 |MTVINFKFADAVIQHSSQTACHLLLRLLAEFDGDT | 40 |
| SaE75X3 |MISQNEVTTTSVPARKCFDGD | 23 |
| SaE75X4 |MIIIRWSEISEFDGDT | 21 |
| ApE75X1 | DNA binding domain (C domain) VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 293 |
| ApE75X2 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 140 |
| ApE75X3 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 123 |
| ApE75X4 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 121 |
| SaE75X1 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 282 |
| SaE75X2 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 140 |
| SaE75X3 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 123 |
| SaE75X4 | VLCRVCGDRASGFHYGVSECGGCFRRRSIQKIQIYPCCTKNCCNILIRNRCQCYCLRRKCSVCGMSRDAVRFGRVPKREKARIMAAHQHSSNSKSKQ | 121 |
| ApE75X1 | P-box EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 393 |
| ApE75X2 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 240 |
| ApE75X3 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 223 |
| ApE75X4 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 221 |
| SaE75X1 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 382 |
| SaE75X2 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 240 |
| SaE75X3 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 223 |
| SaE75X4 | EKAVAELEDQRLVASVVRHALETCDFTSKDVAPTLARAREQPNYTLCHPTLACPLNPSFRVITGQOELLNDFSKRFSPAIRGVVEFAKRIPGFGLLAQ | 221 |
| ApE75X1 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 493 |
| ApE75X2 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 340 |
| ApE75X3 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 323 |
| ApE75X4 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 321 |
| SaE75X1 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 482 |
| SaE75X2 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 340 |
| SaE75X3 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 323 |
| SaE75X4 | DDQVTLKAGVFEVLLVRLACMFDSECNMVTINGQVLRRESVCAYSNARFITDSMFEEAERLNAMRLNDEISGLFNAVIVIAADRPGLRNVFEIERMHK | 321 |
| ApE75X1 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 593 |
| ApE75X2 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 440 |
| ApE75X3 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 423 |
| ApE75X4 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 421 |
| SaE75X1 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 579 |
| SaE75X2 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 437 |
| SaE75X3 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 420 |
| SaE75X4 | QKLCALQSVLMQNHPDRPFLSQELLKKIPDLRTINTLHSEKLLAFKMTQOQNLDDQQQHHQQHQDTTTTTISASAAVQHHQNIIGGWSLMNNDTDFN | 418 |
| ApE75X1 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 693 |
| ApE75X2 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 540 |
| ApE75X3 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 523 |
| ApE75X4 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 521 |
| SaE75X1 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 679 |
| SaE75X2 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 537 |
| SaE75X3 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 520 |
| SaE75X4 | RKSPPEAGSSSSWSDTETSVEDMKSLAMLDEVKSPGLGSVSTSEVCSDEYHHGFSKHAASAPLLAASLAGAVCPIRRHAAAFPSDELHHQVIVRPMSCRRVQ | 518 |
| ApE75X1 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 792 |
| ApE75X2 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 639 |
| ApE75X3 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 622 |
| ApE75X4 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 620 |
| SaE75X1 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 779 |
| SaE75X2 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 637 |
| SaE75X3 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 620 |
| SaE75X4 | RKQDSPTDSGIESGTEKLRDPMHSAPTSVCSFSRSTVEDAVMSADSHHHAIEDMPVLKRVLQAPPLYDNTSLMDEAYKPHKKFRALRSKAKDSAEAEAV | 618 |
| ApE75X1 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 892 |
| ApE75X2 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 739 |
| ApE75X3 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 722 |
| ApE75X4 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 720 |
| SaE75X1 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 879 |
| SaE75X2 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 737 |
| SaE75X3 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 720 |
| SaE75X4 | RPVSATTVHNNSTLLNLHQSSHNNSPQLHHLLTSSLSSTHSTLAKSLRETPKMTAEQIKRTEDIHNFIMREDTACSGYQOOLTQOHHHHHHNNNNHH | 718 |
| ApE75X1 | LEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 989 |
| ApE75X2 | LEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 836 |
| ApE75X3 | LEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 819 |
| ApE75X4 | LEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 817 |
| SaE75X1 | CEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 979 |
| SaE75X2 | CEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 820 |
| SaE75X3 | CEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 837 |
| SaE75X4 | CEQQCPPTRWQHTFVITTSALAQNSCRLSPTEPFSRYASSTVSSGGVLARVLSPSSSSSCAPPPSALSVMVMRRTSPSNVNLQVGITN.....AAAAAEEAAAH | 818 |
| ApE75X1 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 1026 |
| ApE75X2 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 873 |
| ApE75X3 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 856 |
| ApE75X4 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 854 |
| SaE75X1 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 1016 |
| SaE75X2 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 874 |
| SaE75X3 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 857 |
| SaE75X4 | QQPLNLSKKLSFSPTSAVSGGTTTPSPAPAQVAMEA..... | 855 |

Figure S1. Multiple alignment of amino acid sequence characteristics of E75 isoforms between *S. avenae* and *A. pisum*. The DNA binding domain (C domain), the hinge domain (D domain), and the ligand binding domain (E domain) are tagged above the sequence with blue, green, and red lines, respectively; the black triangles indicate that there are four Cys residues in the zinc finger, and the important amino acid residues involved in heme binding are marked with the black arrow.

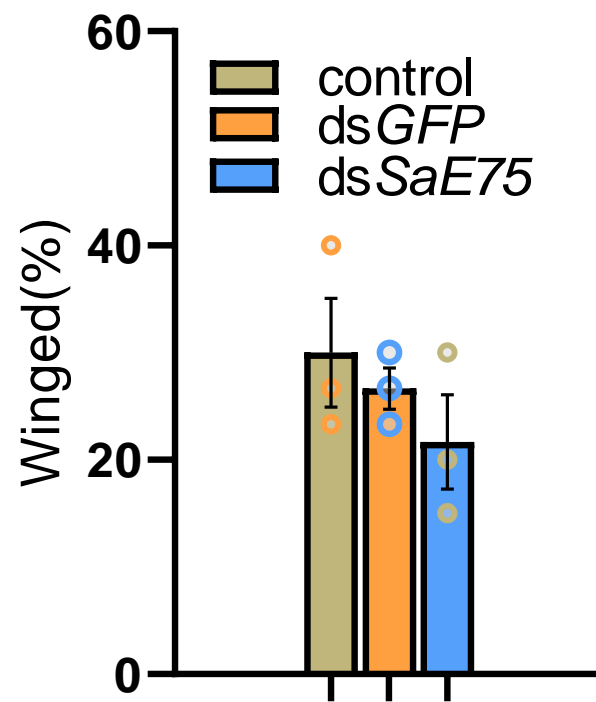


Figure S2. Functional analysis of *SaE75* on *S. avenae* wing development. Different color circle represents three replications of experiment. Error bars represent means \pm SD.

Tables

Table S1. Primer information in this study

| Gene | Primer sequences | Application | Length of product (bp) | Amplification efficiency |
|-----------------------|--|--------------------------|------------------------|--------------------------|
| <i>SaE75X1</i> F | ATGCAGTTGTCTCAAGTCGTA | cDNA cloning | 3048 | - |
| <i>SaE75X1</i> R | TTACGCTTCCATGGCCACCTGAGCG | | | |
| <i>SaE75X2</i> F | TTACGCTTCCATGGCCACC | | 2625 | - |
| <i>SaE75X2</i> R | ATGACCGTTATAAATTTCAA | | | |
| <i>SaE75X3</i> F | ATGATTAGTCAAAACGAAGTC | | 2571 | - |
| <i>SaE75X3</i> R | ATGGCCACCTGAGCGGGAGCA | | | |
| <i>SaE75X4</i> F | ATGCCAGACACGATAATTATC | | 2505 | - |
| <i>SaE75X4</i> R | ACGGCGGACGTCGGCGACGGGGACA | | | |
| * <i>SaE75F</i> | CGACTCTGAGTGTAACAGCA | RT-qPCR | 165 | 103.4% |
| * <i>SaE75R</i> | GCGTTGAATAGACCAATTTC | | 194 | 93.7% |
| <i>Saftz-f1F</i> | CAGACATAATCCTCCGTCAT | | | |
| <i>Saftz-f1R</i> | GTCTTGGCTGTATTGGTGAT | | 199 | 97.3% |
| <i>Sabr-cF</i> | CTGAGAGACGATGAGGACTT | RT-qPCR (Reference gene) | 151 | 96.9% |
| <i>Sabr-cR</i> | CGTGGTAGATGAACTCAACC | | 152 | 103.0% |
| <i>SaHr3F</i> | GTCCCGACATTATGACCTAC | | | |
| <i>SaHr3R</i> | CAGTAAGTTTCAACGAAGCC | | | |
| <i>HELF</i> | TGCTACCGGATGTGGGAAAA | RNAi | 377 | - |
| <i>HELRL</i> | TCCAGCCACGTTCTCTGTTT | | | |
| * <i>dsSaE75</i> F | <u>taatacgactcactataggg</u> GGTCTATTCAACGCCGT CAT | | 424 | - |
| * <i>dsSaE75</i> R | <u>taatacgactcactataggg</u> GCGAAGTCGAACATGGA GTC | | | |
| <i>dsGFPF</i> | <u>taatacgactcactataggg</u> CCTGTTCCATGGCCAAC | RNAi | 424 | - |
| <i>dsGFPR</i> | <u>taatacgactcactataggg</u> AAAGGACAGGGCCATC G | | | |

Note: * means the primers were designed from the common region of *SaE75X1-X4*; sequences of T7 promoter in primers were lowercase alphabet.

Table S2. Species information for phylogenetic tree used in this study

| Order | Species | Gene name | GenBank accession number |
|-------------|---------------------------------------|---|--|
| Hemiptera | <i>Acyrtosiphon pisum</i> | <i>ApE75X1, ApE75X2, ApE75X3, ApE75X4</i> | XP_016657682.1, XP_008180288.1, XP_008180289.1, XP_008180290.1 |
| | <i>Aphis gossypii</i> | <i>AgE75X1, AgE75X2, AgE75X3, AgE75X4</i> | XP_050054422.1, XP_050054429.1, XP_050054432.1, XP_050054438.1 |
| | <i>Diuraphis noxia</i> | <i>DnE75X1, DnE75X2, DnE75X3, DnE75X4</i> | XP_015372971.1, XP_015372972.1, XP_015372973., XP_015372974.1 |
| | <i>Melanaphis sacchari</i> | <i>MsaE75X1, MsaE75X2, MsaE75X3</i> | XP_025206796.1, XP_025206797.1, XP_025206798.1 |
| | <i>Myzus persicae</i> | <i>MpE75X1, MpE75X2, MpE75X3, MpE75X4</i> | XP_022162355.1, XP_022162356.1, XP_022162357.1, XP_022162358.1 |
| | <i>Rhopalosiphum maidis</i> | <i>RmE75X1, RmE75X2, RmE75X3</i> | XP_026814295.1, XP_026814296.1, XP_026814297.1 |
| | <i>Sitobion avenae</i> | <i>SaE75X1, SaE75X2, SaE75X3, SaE75X4</i> | OP058107, OP058108, OP058109, OP058110 |
| | <i>Apolygus lucorum</i> | <i>AluE75A, AluE75B, AluE75C</i> | ATN39778.1, KAF6203537.1, ATN39780.1 |
| | <i>Bemisia tabaci</i> | <i>BtaE75X1, BtaE75X2, BtaE75X3, BtaE75X4</i> | XP_018907601.1, XP_018907602.1, XP_018907603.1, XP_018907604.1 |
| | <i>Cimex lectularius</i> | <i>CIE75X1, CIE75X2, CIE75X3</i> | XP_014240379.1, XP_014240380.1, XP_014240381.1 |
| | <i>Homalodisca vitripennis</i> | <i>HvE75X1, HvE75X2, HvE75X3, HvE75X4, HvE75X5</i> | XP_046680981.1, XP_046680982.1, XP_046680983.1, XP_046680984.1, XP_046680985.1 |
| Blattodea | <i>Nilaparvata lugens</i> | <i>NIE75X1, NIE75X2</i> | XP_039292205.1, AST48086.1 |
| | <i>Blattella germanica</i> | <i>BgE75A, BgE75B, BgE75C, BgE75D, BgE75E</i> | CAJ87513.1, CAJ87514.1, CAM97373.1, CAM97374.1, CAM97375.1 |
| | <i>Cryptotermes secundus</i> | <i>CsE75X1, CsE75X2, CsE75X3, CsE75X4</i> | XP_023709200.1, XP_023709201.2, XP_023709202.1, XP_023709203.1 |
| | <i>Zootermopsis nevadensis</i> | <i>ZnE75X1, ZnE75X2, ZnE75X3, ZnE75X4</i> | XP_021938067.1, XP_021938068.1, XP_021938069 .1, XP_021938070.1 |
| Coleoptera | <i>Diabrotica virgifera virgifera</i> | <i>DvvE75X1, DvvE75X2, DvvE75X3, DvvE75X4, DvvE75X5, DvvE75X6</i> | XP_028130296.1, XP_028130297.1, XP_028130298.1, XP_028130301.1, XP_028130302.1, XP_028130303.1 |
| | <i>Leptinotarsa decemlineata</i> | <i>LdE75X1, LdE75X2, LdE75X3</i> | AKN56577.1, AKN56578.1, ALU57795.1 |
| | <i>Tribolium castaneum</i> | <i>TcE75X1, TcE75X2, TcE75X3, TcE75X4, TcE75X5</i> | NP_001308599.1.1, XP_008197844, XP_971362.2, XP_015838721, XP_015838722.1 |
| Hymenoptera | <i>Apis laboriosa</i> | <i>AlaE75X1, AlaE75X2</i> | XP_043795752.1, XP_043795762.1 |
| | <i>Apis mellifera</i> | <i>AmE75X1, AmE75X2, AmE75X3</i> | XP_006564381.2, XP_006564382.1, XP_006564383.2 |
| | <i>Friesiella melittae</i> | <i>FvE75X1, FvE75X2, FvE75X3</i> | XP_043510979.1, XP_043510980.1, XP_043510981.1 |
| | <i>Camponotus floridanus</i> | <i>CfE75X1, CfE75X2, CfE75X3, CfE75X4</i> | XP_025268006.1, XP_025268007.1, XP_011259848.2, XP_011259847.2 |
| | <i>Linepithema humile</i> | <i>LhE75X1, LhE75X2, LhE75X3, LhE75X4</i> | XP_012226918.1, XP_012226919.1, XP_012226920.1, XP_012226921.1 |
| | <i>Ooceraea biroii</i> | <i>ObE75X1, ObE75X2, ObE75X3</i> | XP_011332916.2, XP_019886380.2, XP_011332918.2 |
| Orthoptera | <i>Schistocerca gregaria</i> | <i>SgE75X1, SgE75X2, SgE75X3, SgE75X4</i> | XP_049859092.1, XP_049859093.1, XP_049859094.1, XP_049859095.1 |
| | <i>Schistocerca cancellate</i> | <i>ScE75X1, ScE75X2, ScE75X3, ScE75X4</i> | XP_049778571.1, XP_049778572.1, XP_049778573.1, XP_049778574.1 |
| | <i>Schistocerca americana</i> | <i>SamE75X1, SamE75X2, SamE75X3, SamE75X4,</i> | XP_046992523.1, XP_046992524.1, XP_046992525.1, XP_046992527.1 |

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| Diptera | | <i>SamE75X5</i> | |
| | <i>Schistocerca serialis cubense</i> | <i>SscE75X1, SscE75X2, SscE75X3, SscE75X4, SscE75X5</i> | XP_049956056.1, XP_049956057.1, XP_049956059.1, XP_049956060.1, XP_049956061.1 |
| | <i>Schistocerca piceifrons</i> | <i>SpE75X1, SpE75X2, SpE75X3, SpE75X4, SpE75X5</i> | XP_047110316.1, XP_047110317.1, XP_047110319.1, XP_047110320.1 |
| | <i>Schistocerca nitens</i> | <i>SnE75X1, SnE75X2, SnE75X3, SnE75X4, SnE75X5</i> | XP_049807890.1, XP_049807891.1, XP_049807892.1, XP_049807893.1, XP_049807894.1 |
| | <i>Locusta migratoria</i> | <i>LmE75X1, LmE75X2, LmE75X3</i> | QKY88966.1, QKY88967.1, QKY88968.1 |
| | <i>Aedes aegypti</i> | <i>AaeE75A, AaeE75B, AaeE75C</i> | CAL36974.1, CAL36973.1, CAL36975.1 |
| | <i>Aedes albopictus</i> | <i>AalE75X1, AalE75X2, AalE75X3</i> | XP_029720431.1, XP_019556691.1, XP_019556692.1 |
| | <i>Culex quinquefasciatus</i> | <i>CqE75X1, CqE75X2, CqE75X3</i> | XP_038113830.1, XP_001849917.2, XP_038113837.1 |
| | <i>Bactrocera neohumeralis</i> | <i>BnE75BX1, BnE75BX2, BnE75BX3, BnE75BX4, BnE75BX5, BnE75BX6</i> | XP_050336968.1, XP_050336969.1, XP_050336970.1, XP_050336971.1, XP_050336972.1, XP_050336973.1 |
| | <i>Bactrocera tryoni</i> | <i>BtrE75BX1, BtrE75BX2, BtrE75BX3, BtrE75BX4, BtrE75BX5, BtrE75BX6</i> | XP_039965865.1, XP_039965866.1, XP_039965868.1, XP_039965869.1, XP_039965870.1, XP_039965871.1 |
| | <i>Bactrocera dorsalis</i> | <i>BdE75BX1, BdE75BX2, BdE75BX3, BdE75BX4, BdE75BX5</i> | XP_049315304.1, XP_049315306.1, XP_049315307.1, XP_049315308.1, XP_049315309.1 |
| | <i>Drosophila mauritiana</i> | <i>DmaE75BX1, DmaE75BX2, DmaE75BX3, DmaE75BX4</i> | XP_033157614.1, XP_033157615.1, XP_033157616.1, XP_033157617.1 |
| Lepidoptera | <i>Drosophila simulans</i> | <i>DsE75BX1, DsE75BX2, DsE75BX3, DsE75BX4, DsE75BX5</i> | XP_039149874.1, XP_016032380.2, XP_039149875.2, XP_039149876.1, XP_016032381.2 |
| | <i>Drosophila melanogaster</i> | <i>DmeE75BA, DmeE75BB, DmeE75BC, DmeE75BD, DmeE75BE, DmeE75BF, DmeE75BG</i> | NP_524133.2, NP_730321.1, NP_730322.1, NP_730323.1, NP_001246821.1, NP_001246822.1, NP_001303380.1 |
| | <i>Bombyx mori</i> | <i>BmoE75A, BmoE75B, BmoE75C</i> | NP_001106079.1, NP_001106080.1, NP_001037042.1 |
| | <i>Bombyx mandarina</i> | <i>BmaE75X1, BmaE75X2, BmaE75X3</i> | XP_028027338.1, XP_028027339.1, XP_028027340.1 |
| | <i>Manduca sexta</i> | <i>MseE75X1, MseE75X2, MseE75X3</i> | XP_030039289.1, XP_030039296.1, XP_030039301.1 |
| | <i>Pieris napi</i> | <i>PnE75X1, PnE75X2, PnE75X3, PnE75X4, PnE75X5</i> | XP_047509890.1, XP_047509891.1, XP_047509892.1, XP_047509893.1 |
| | <i>Zerene cesonia</i> | <i>ZcE75X1, ZcaE75X2</i> | XP_038215405.1, XP_038215406.1 |