

LPD_N

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9USD8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiat
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
Q16927_Aedes_aegypti
G0ETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_americana
E0VE52_Pediculus_humanus_corporis
B0W351_Culex_quinquefasciatus
O76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B
Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

AELVEAKNENQAVFKISKABYADVHQNLSGGWQBELRSNELQYKQLPLS
ALLTVQAKDSNVLAAKVWNGQYARVQOSMPD GWETBEISDQMLEBLRDLPLS
AQFIVRVKYPGRLLAKLENPVHAQFNQQLPNNMAVP---SDLKYETVQNL
GKLYAYVEPDNKVTFQFDADAKYADFNEHFPBEGWATDLHHYQFSYKSPPIK
GQLTVRAESDNKATAVIEENAKYADLQANLSRGWDSEIQENELQYNELPIS
AKLWVRPRSDGDEHLAGTIEEPQYAEIHSKLYRSWQDSEIPDSSELSYSPISLS
AQLYIQPRSDGNLGAKISNAQYAKIHEBELSBEGWETBIPDSQVSYQQLPLS
ANFYVQPFSSDRLSAYIQNAETAQVHAEPLPSGYESHIPSSQLNYKSMPLS

ANFYVQPFSSDRLSAYIQNAETAQVHAEPLPSGYESHIPSSQLNYKSMPLS
AYLVIRPKSRDYVVAVYVQPEYAVFNERLPHYGYATKFFYHDMFKFQPMFMS
AELVEAKNENQAVFKISKABYADVHQNLSGGWQBELRSNELQYKQLPLS
GKLVIEPHTPSVLRGLKDTYHMTVHRMLPDGWDQKFFERESNWERVGMK
NKLTLTPVKDEBYLGTFTQSEVTEVHTTLPGGVDHSVPLENAKYSPLSLP
AKMVINPKSDGYVVGRIDRAHYAQFNQYLADGHRSELSDLKLTWKPMPLS
ARLSLDRNEDQLITGKVTBAQFSPVNTQFSSGWDESVPDEKLHWDVVPMS
GYLVIRPKDHNYYVAYIDRPMYAAFNEYLPRGYRTELSRFNLKQWPMFMS
GYLTVQAKDEKGLTAKLRGQYFPHISNMSRSGWD-----
ANFIVQPLESSDRLSAQIQNAEBIAQVHTELPAGYESHIPSSQLNYKSMPLS
AKLIIQPKTREBELHAQLVEVEHESQINKELPSGWDQEBIBIHD--WQQLSAL
ANFYVQPFSSDRLSAYIQNAETAQVHAEPLPSGYESHIPSSQLNYKSMPLS
AQFTIRVKSPGRLOAKLENPQHGHNFBNEQLPDPRELPV---DLKYOPTPNI

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ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

QANQVFQVNYK-QGAVRSLOVNRNTPTWELNMIKGFVSLFQVDVDTGQNAI
G--KPFQIRMK-HGLIRDLIIVDRDPTWEVNIILKSIVGQLQVDTQGENAV
D--KPFEBISVB-GGRVVALSLPSAFLLSHENLLKGLLSTLQVDSLAYHHV
N--DVEQVYFN-NGLVDKLFVYKDI PHWELNFIKAIASQFQTDVQGNLK
K--DPFBIHFR-NGVIEKMMVVKNDI PQWQLNFKSISASQFQVDTQGNLK
S--KPFELIKMD-NNAVSDLVVDRSISNWEANMIKAIIVSLOLQDITNAENLI
S--KPFQIGLY-KGVIRNVMDKQIKNWEANMIKSIVSLOLQDITKATNLI
H--EPFBIYLY-KGVVSNLRVNKNVSDWELNIIKAVVSIQVDTQGNLK

H--EPFBIYLY-KGVVSNLRVNKNVSDWELNIIKAVVSIQVDTQGNLK
S--KPFGIYRH-KGAIKGLYVEKTI PNNEVNIILKAWISLOVDTRGANLM
QANQVFQVNYK-QGAVRSLOVNRNTPTWELNMIKGFVSLFQVDVDTGQNAI
N--KPFVHVGVNEQFNKLIIVTETDPVWETNMIKGVLSQIQVNLKEV---
R--EPFVVKTK-DGIVDELVVSKDLPVWHVNVIRSIVSQFQIDTQGRRLI
S--KPFGIKIK-KGAIKGLYVEKTVPNHEVNIILKSIVSLOLQDITGANLI
Q--QPFQIBLNSRGEVVRKLRVNKFVELWBIINMIKAIISLOVVDV---
S--KPFGIYYN-KGAVGFYVEKTVPNHEVNMMLKGVVLSLOLQDITGAVYI

B--EPFBIYLY-KGAVRSLOVNRNTPTWELNMIKGFVSLFQVDVDTGQNAI
E--QPFBIYLY-KGAVRSLOVNRNTPTWELNMIKGFVSLFQVDVDTGQNAI
K--DAFAIILQ-NGHIVNVKVKDSTPNWAVNIIKGLISLQVNTQADNLV
H--EPFBIYLY-KGVVSNLRVNKNVSDWELNIIKAVVSIQVDTQGNLK
D--KVFEBIBI-DGGRIVSLDFPSTVVPVQENLIKGLISALQDITSAHRVI

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UPI000258E3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B
Q9U8M0_Periplaneta_americana

KSRRNIVPNGQ--QVSGSFKVMEDSVTGKCBETHYDVDELPMRVVQHPPI
KVN SVQVPTDD--EPYASFKAMEDSVGGKCEVLYDIAPLSDFVIHRSPEL
HNBQDSYDKE--RQQLGFKKMETDVTGDCBETLYTVSPV-----AABWR
KSKFNDVPKGN--QLTGIFKTWEDSVNGEYEVNNEVSVLPEYLIQSPEL
DSKINLVPSGQSGEPMGVYKTMEDSVNGIYETLYDISVLPBYILQARPEL
PSSINILTVQEG--SSTAVFKTMEPTVTGVCETLYEIHPLPDYILQTPWL
KSSHNLQPKEN--KPYGVYKTMEDSVTGKCBETHYDVDELPMRVVQHPPI
--SASPMPKDQ---TCTLMKDSI-----
KSSHNLQPKEN--KPYGVYKTMEDSVTGKCBETHYDVDELPMRVVQHPPI
HSSKPIHPSKN--BNAGYKVMEDPLVTGECETHYDVNLIPAYMIQAHKQW
KSRRNIVPNGQ--QVSGSFKVMEDSVTGKCBETHYDVDELPMRVVQHPPI
-GDPDRDEQED--RLRKIFKVESSVTGRCEVLYDITPITKENMLPQ---
PSKLN SVPHGD--BTAVYKVMEDTVEGECETHYDVTPLPKYVVLTPSPL
KSKYNQLPKEN--DPRGFTVLEEDYFAGLNEVRYDFKPLSEQLRTPPEL

EDKKVYRVFESTVTGRCEALYEVLDHLYPTTYLNPWQW
KSEFNQFPENN--TLTGVIKTMEDSVTGKCBETHYDVDELPMRVVQHPPI
EGHDVKVPDEN--DPRGFTVLEEDYFAGLNEVRYDFKPLSEQLRTPPEL
KSSHNLQPKEN--KPYGVYKTMEDSVTGKCBETHYDVDELPMRVVQHPPI
RHRYNILPNAS--TDSAVYSIRETTITGECETHYDVDELPMRVVQHPPI

ADU04393.1_B_tabaci_SHJ-II
Q27309_Bombyx_mori

KSSHNQLPKEN--KPYGVYKTMEDSVTGBCEBTLTYDVSPLPEITLQTKPWL
HDSQNNYDRE---QQQGLFRKMETDVTGDCBTLTYTVSPV-----ASEWR

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Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_SHJ-II
Q27309_Bombyx_mori

APLA-VK-QQGQGGQGSRSRLIQVVKSRNFSNCDNPVTYHFGFTQESNPF
VPMPTLK-GDGR-----HMEVIKIKNFDCDQRINYHFGMTDNSRLE
RELPRFANEEDP-----MEITKSKNYGHCHRRVAYHFGVPEGAEWT
APLPHLR-NEGE-----FYELLKTRNFSSNRHLVYRYGFNGHEGWD
APLPHLK-GDGE-----FIEVVKTRNFSNSNQHVYIRFGSSGHEGWE
APLKLK-GRGQ-----VIEVVKNKNFTHSKETPSYHFGFHGVDREFD
VPHKHLI-EDGD-----VIEIVKNKNFTHSQSPSYHAGLDGIYGYQ
VFPFNFR-ENGQ-----FIDIVKTTNYSKCEBERSAYHFGITGLTNWK
-----RTFDNVTYRT-----
VFPFNFR-ENGQ-----FIDIVKTTNYSKCEBERSAYHFGITGLTNWK
VFPQQLRGEDGQ-----FIQVTKTQNFDRCDQRMGYHFGFTGYSDFR
APLAVKQQGGQ--GQCHSRLIQVVKSRNFSNCDNPVTYHFGFTQESNPF
-PLVEIBENVN-----VLQVMKTNFTDCKKLPYSYVHGFYFNHNVF
APTYHVG-DKED-----LIDIVKTANFSNCEBQRPGYHFGLTGLTDWK
VFPQPYMQQDDE-----IFEIVKAKNFSNCDRRMGYHFGITGASDIK
TQQHDTK-----LRIMKTHQFTNCRHNSAYKLFHFNAPFYH
VFPQQLWLEEDQH-----VFHVVKSRNFDHCEBQRMGFHFGSDFK
VPIPELK-GSGQ-----HIDIVKTKSYDRYPMSENVFGMTRQMKKE
VFPFKLR-ENGQ-----VIDIVKATNYSKCEBERSAYHFGITGLTNWK
APLSNVN-DN-----VIDIEKTNFSNCKRRPAVHYGLAGIPDL
VFPFNFR-ENGQ-----FIDIVKTTNYSKCEBERSAYHFGITGLTNWK
RELKPFANEQDP-----VEVTKSTNYGHCHRRVAYHFGVPEGAEWT

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Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_SHJ-II
Q27309_Bombyx_mori

PASNQMG--NLVSRAAMGRIIAGE--PDSYTIHSSVTQNEIAISPFGYN
PGTNKNG--KFFSRSSSTRIVISES--LKHFTIQSSVTSKMMVSPRLYD
GTAHRSEBKQFIAQSTVSRILAGKQ----GPIYKAETTSTVSVHPHLYG
AGTNQMG--NFLSRTSQSRIILSGK--LNRFTIQSSVTEKVLIAPIHYN
AGTNQMG--DFLSRSSQSRVILSGK--LNRFTIQSAVTEKVLVAPHVYN
-IDNQIG--EFFSRTSVSRAVITGN--LDSFTLQSSVTVDEVTVPMSQD
PG-NKVG--KFLSRTSVSQAVITGT--LDKYTEVQSSVTEQVIRPTLAD
PASNQMG--QFLSRSNINRVVISGN--VKYYTIQSSVSTNKIVISPQMYE

PASNQMG--QFLSRSNINRVVISGN--VKYYTIQSSVSTNKIVISPQMYE
PNTNQMG--NVASKSLVSYMYLTGN--WYNFTIQSSSMINKVAIAPSLVN
PASNQMG--NLVSRAAMGRIIAGE--PDSYTIHSSVTQNEIAISPFGYN
PAQNKAG--FMSRSQQRTRIVSRNKETGRFTIRSVTFHEVVLKPELFN
PTTNKLG--NFLSRSVTRVLSGN--LKTYTVHSSVTSKVIIVSPBYN
PNTNQMG--NILSKSAVSQIFVVGK--IHNFTIQSASTSKILVSPSLVH
LKQHKPE--TFLSNSAVSRVIADGD-NLKNFTFYSGETIHKIVLNPBIYN
PNTNQMG--NIMTKSEVTQMYLTGN--WYNYTIQSSVTVNKKVVVSPSLVN
PKTNK---NLMSKSSSTRIVISGS--LKDFVIQSAVSTSKTTITPSFND
PASNQMG--QFLSRSNINRVVISGN--VKQYHIQSSVSTNKIVISPQMYE
PGNQMG--DFLARSSVSRVVISGT--LNKFTVQSSVTTNQVVMSPBYN
PASNQMG--QFLSRSNINRVVISGN--VKYYTIQSSVSTNKIVISPQMYE
GTAHKTOEQQLIGRATYSRILTGKE----GPIYKAETTSTVSVHPHLYG

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Q7PQM2_Anopheles_gambiae
UPI000258B3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B

QQKGVVGTLMNATLVSVSHASSGSPQ-----
RQNGLVLSRMNLTAKMEKTSKPLPM-----
KQKAQVHSYVQLILVSVSQDQSGVEWQ-----
SQKGMVGSRVNLTLDYSNFKGSVPT-----
NQKGIIVSSMNIITLQQA-TGSQGSPO-----
KQRGSTRSIVNITLVSMDENQEFEO-----
QKKGSVNSKLNVTLLQVAQPVSENEY-----
SQKGMVISVMMNMTLASF-HQANGSPR-----

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KBPALVYAQVNMTLNDV-HPYDKVPM-----
QQKGVVGTLMNATLVSVSHASSGSPQ-----
SQQGISVSRMNVTLLEBI-KSQQHIPP-----
NQKGEVISRVNVTLVSQVGTSTGSG-----
TEKAMVLAQVNVTLNQI-KRSQKBPV-----
KQKGMVLSHINVTVERKGRRLTVIDY-----
SQKAMVYAQVNMTLNEI-TPYDKYPE-----
AQNSTVLSKLSLTLTLEDMEIKTPMPS-----
SQKGMVSVMMNMTLASF-HQANGSPR-----

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 Q9U8M0_Periplaneta_american
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 EHPHQSNO-----

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 ---KNBNNHHNGDANASRNRSRRDLSQ---YNNGNNNNGNNDNDABEYBKR

 ---ANNNNNRRNDBNVSRSSRRRDISQYKYNSENNNNNDNBDEKNNSGR

 ---RYRRDLNAIKBKKYYEAYKMDQYRLHRLNDT
 ---NNNDAYWRSQKTKFRSRRSI---LRNYNNEBDDNNQNRNQR

 ---QHKDALKQVEKREBRSRNRDLNAQKBBKYYEAYKMDQYRLSRDNDT

 ---RNRDLNAPFKBKQYYEAYKMDQYRLRQKNDT
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 ADU04393.1_B_tabaci_EHJ-II
 Q27309_Bombyx_mori

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 SSDSSSS-----

 SSDSSSS-----

 NGHNGHNGNNGHNGNNGHNGHNGHNGNNGQNNNSNGSSSSSSSSSSSSSSGS

 NGHNGHNGNNGHNGNNGHNGHNGHNGNNGQNNNSNGSSSSSSSSSSSSSSGS

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 B0W351_Culex_quinquefasciatus
 O76823_Blattella_germanica
 Q7PQM2_Anopheles_gambiae

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 ---DNSLSSSEBKLKQDILNLRTDISSSSS-----
 ---SRARRSSDRQQEFPNKDWRSSSSSDSS-----
 ---SSEETNYNGGLKRXTRSVTPPHSSSSSSSESSSSAS-SSSSSSSDSS
 ---EQSSINRKGKNARSQADSSSSSSSSSS-----SSSSSSSSSS
 ---ESSSSHSQESSNQIRRHKRSLSHASSE-----
 ---LQYTSFSLDNYQPDSI-----
 ---BENDRYNNGKFASFARHNGSGSSSSSSSSD-----SSDSSSSSSSS

 SSSSEBNSRYNNGKFASFARHNGSGSSSSSSSPDSSDSSSSSSSSSSSSSS
 ---DSSSSDSSSSSSSESKERHNGTSSSYSS-----SSSSSSSSSSSS
 ---DNNKNWNNNNKNNRNNNDNDSSSSSSSS-----SSSSSSSSSSSS
 ---SRRRSLQNSKRSINMYNDSSSSSSS-----
 ---VKPTGYTEGGFTEQVRNTRHIDEKTLV-----
 ---DDSSSSSSSSSSSESRHRKNGTLADN-----SSSSSSSSSS
 ---BANFDASSGLTEQPVTFRPRRQLFQG-----
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UPI000258B3A9_Megachile_rotundata
 ADU04392.1_1_B_tabaci_B
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 Q7PQM2_Anopheles_gambiae
 UPI000258B3A9_Megachile_rotundata
 ADU04392.1_1_B_tabaci_B
 Q9U8M0_Periplaneta_americana
 ADU04393.1_B_tabaci_EHJ-II
 Q27309_Bombyx_mori

LPD_N

A7BK94_Nilaparvata_lugens
 Q868N5_Apis_mellifera
 R4KE43_Helicoverpa_armigera
 Q9U5D8_Plautia_stali
 O02024_Riptortus_clavatus
 D6W7J2_Tribolium_castaneum
 D6W721_Tribolium_castaneum
 B_tabaci_Asial
 BAG84131_Tetranychus_urticae
 ADU04394.1_B_tabaci_Q
 Q16927_Aedes_aegypti
 G0ETK0_Nilaparvata_lugens
 Q9BPS0_Periplaneta_americana
 E0VES2_Pediculus_humanus_corporis
 B0W351_Culex_quinquefasciatus
 O76823_Blattella_germanica

Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1.1_B_tabaci_B
Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

FTILARVLRMTMHYQDIYDVCQKLFVVSQKEREEGNSHSESFAKKVDANWTF
FTHLVNIIIRTMNRNQAIAEAKNKWQISPKKLLKWDKAD--AFRNRWSVF
FNMLVEELRRTLDAKQMEQASQELHFNSA--QASSHSRQD-ALKSLAWKSF
LMMMRDVRVTRMTAKQLQKATSLIHSESK-----HDLGWIAAY
FNMLVEELRRTLDAKQMEQASQELHFNSA--QASSHSRQD-ALKSLAWKSF
FNILVRLIASMSTEQLSQTSRSIETAKT-----SNNIIKSDMWMIF

LPD_N

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9U5D8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiaticus
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
Q16927_Aedes_aegypti
GOETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_americana
E0VES2_Pediculus_humanus_corporis
B0W351_Culex_quinquefasciatus
O76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1.1_B_tabaci_B
Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

KHATANAGTGPALBAIKNWVEKGDVRNEKAABLVAVLPRTARLPDQYIK
RDAITQTGTGPAFLTIKBIWIERGTTKSMBAANIMSKLPKTVRTPDTSYIR
RDAVVQAGTTPPAFLQIKTWILNKKLQNEBAAQVISTLARLTRYPTKEBIMI
RDAVAQAGTGPALVTIYSWLKSAKVRNEGAQLLAVLPKAAARYPTTEYMD
RDAVAQAGTGPALVTIKQWIQSCKVQGEBAQQLLAVLPYRTARYPTTEYMN
RDAVAEAGTGPALLNIQEWIREGKISRBAAEVUVSTAAVSARQPTTEKYMK
RDAVAQAGTGPALYNIKEWILSGKIDGREAAQVIAVAANAARQPTTEBYIK
CDALVEAGTGPAPFLQIQKIIIEHQQVSDAABARMISRLPVTARFPDKBYMN
CEFIA-----PYTTMFNTRTNST
CDALVEAGTGPAPFLQIQKII-----PYTTMFNTRTNST
RDAVAEAGTTPSAFKLIFDFIKEKKLRGYBAATVIASLAQSI RYPTTEHLLH
KHATANAGTGPALBAIKNWVEKGDVRNEKAABLVAVLPRTARLPDQYIK
RDSVAQAGTTPAALKMVTWIRKEYIKDEBAAKVVAVIPHAADPTDNYIA
RDVLAQAGTGPALTTIVSLITSKKLGEBAAQVVTADTARYPTTEBYLN
RDAMAEAGTTPVFKVIKQYIEBKLRGIBAAQVVTATLPKRIRYPTTEBLMH
RDAVSQAGTWSALNSIQCFISSEMVEPKBASHLITVLPAAVSDKNKAYLH
RDALAQAGTTPPAFKVIKBLIEBKLRGDBAAQVVIATLPKTI RYPTTEVMH
RDAITQAGTGPALLTIKNWVENGDLRSEBAEMLSKIPASARQITAKYIE
CDALVEAGTGPAPFLQIQKIIIEHQQVSDAABARMISRLPVTARFPDKBYMN
RDMVSESGTHPALBELSIWIIISKKLSSEBGAELLATLPRAVIMPTPEYFE
CDALVEAGTGPAPFLQMQKIIIEHQQVSDAABARMISRLPVTARFPDKBYMN
RDGVTQAGTLPAPFKQIQSWEIENKKIQEBAAQVVVALPRTLTRYPTKQIMT

LPD_N

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9U5D8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiaticus
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
Q16927_Aedes_aegypti
GOETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_americana
E0VES2_Pediculus_humanus_corporis
B0W351_Culex_quinquefasciatus
O76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1.1_B_tabaci_B
Q9U8M0_Periplaneta_americana
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

TFEQFATSSNVQNKYLNSTIILGFSEILRKAQVSDTKHMRFGVHSFGR
SFFELLQNPKVSNEQFLNNTAATLSFCEMIHNNAQVNRKSIHNNYPVHTFGR
QFFELAMNPVQEQBRNLNTSALIAATKFIYMGQVNNETAHYYPVSHMYGR
YLFGMVKSKEIQNKYLNDSAVLSFADLVRRSQVDKKSAAHQRYPIHLYGA
YFFDMVTSEIQRQRLNNTALFAFTELSRKSQVDYDVAHNRYPVHLHAK
VYFEMIQNDQIMEQPHYLNESLLLAYTTLIHQVYVNEBYSKSKYPVHSFGS
FFNDMIQDEKIMSQQHLNESALLSYTNLVRQVYANRGGSHAKYIPVYSFGS
SFFNFVRSNNVQHQNQLNETALLAFABELCRKADVNARNAHNYYPVHVYGR
-----LSFARKADVNARNAHNYYPVHVYGR
KLLSLLS-----LSFARKADVNARNAHNYYPVHVYGR
BFFLLVTSADVVLHQBYLNATALFAYSNFVNAQAVNSRAYSAYNYYPVVSFGR
TFEQFATSSNVQNKYLNSTIILGFSEILRKAQVSDTKHMRFGVHSFGR
YFFBMVKDPVHVGEBKYLNSAVLAFSKLLRLAAVDSBAVR-RYPVHVYGR
TFFELVKHPEVVSQPIILRTTSVYTFTKLVRYALVNPKTVHNRYPVHTFGY
BFFLLTSTAVQHQBTLNATALIAFSDFLNRAHVNNQSALNYYPVNSFGR
FLFEMTKDPVFKNMTYVNTSLVLAFASEVIHQVEM-----
BYFLLVTSNAVQHQBLYLNNTALISYCDFLNRAQVNNRSAYNYYPVVSFGR
AFFELATHPQVQTOTALLNVTAITAFSELLFLSQGNDKSIYKFPVHTTDR
SFFNFVRSNNVQHQNQLNETALLAFABELCRKADVNARNAHNYYPVHVYGR
AFNKLVMRDKRVNRQPIVNTSTGLLALATLHRQVH-DAEFSHNNYPVHAFGR
SFFNFVRSNNVQHQNQLNETALLAFABELCRKADVNARNAHNYYPVHVYGR
QFFNFARSPAVKDMFLNNSALMAATKLINLQVNNYTAHSYYPHTMYGR

LPD_N

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9U5D8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiaticus
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
Q16927_Aedes_aegypti
GOETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_americana
E0VES2_Pediculus_humanus_corporis
B0W351_Culex_quinquefasciatus

L-TSKHDQSLHQEYMPYLEBKLSAFEKGDSSQKIIVYIQALGNTAHPRLI
L-TSKHDNSLYDEYIPFLERELRKAHQEKDSPRIQTYIMALGMI GEPKIL
L-ARRNDRFVLDLILPRLSEKLLQCAIEKQEWRSRAQVYIKAIGNLGHREIL
E-ALNHFAVVIEKYPYFQGLRKAQVQKGDSSIQIQVYIRALANMGHPTVW
N-SQBHRQAVPKYIPWLQERLRAVSRGDSIKAQVYIRALGNTHAPKIL
FNTAQGWFFYVKKVPIYLSQKLDEAISNADTKQIHLYIRALGNVGHQOIL
FRTRRQBQYVKKVPIPHLTRKLNBAINSADTKQIHLYIRALGNVGHQOIL
V-LPEHAKAVAHQYLPYYEQNLKRAVANGDSRKIQAYIRAIIGNFAHPKIL
-----SMDCSQSQKFAVTVK--GQAGKRTV-
V-LPEHAKAVAHQYLPYYEQNLKRAVANGDSRKIQAYIRAIIGNFAHPKIL
L-ADADYKIIIEBKIVPWFHQLRBAVNEGDSVKIQVYIRSLGNLGHQPIL
L-TSKHQSLHQEYMPYLEBKLSAFEKGDSSQKIIVYIQALGNTAHPRLI
M-VPKNFSARVKEYIEYFANKLKNVAVKDKDSHKIQVYIRALGNTHADII
L-TRLDLDTVTDTYVYLAQQLQAVKEGDSKTKVQTYVVLGNVAHPKIL
L-ADSKYKIVAHKAVPWLHQLREAVQEADESRIQVYIRAIIGNLGHPEIL

O76823_Blattella_germanica --HQVRDLKIKSVYIPYLVQEFDDAVKENNSIKIQLYTHALGVGTGNTHTLL
 Q7PQM2_Anopheles_gambiae L-ADADYKIVAHKVVWFAHQLRBAVKAGDSVKVQVYIRCLGHLGHPEILL
 UPI000258E3A9_Megachile_rotundata P-SSEQYLDIVNKYIPYLVQVQLKKAVIDDDDSARIQTYIYVALGTIGMYEVL
 ADU04392.1_1_B_tabaci_B V-LPEHAKAVAHQYLPYYEQNLKRAVANGDSRKIQAYIRAIIGNFAHPKILL
 Q9U8M0_Periplaneta_americanana M-VERNYNA-TNDFIDYLGKQLHAAMADGNRPKIQVIRALGNTGNKRILL
 ADU04393.1_B_tabaci_EHJ-II V-LPEHAKAVAHQYLPYYEQNLKRAVANGDSRKIQAYIRAIIGNFAHPKILL
 Q27309_Bombyx_mori L-TKHDAFVLEBILPTLAADLKATVEYKDSKAQVYIQAIGNLGRHRIIL

LPD_N

A7BK94_Nilaparvata_lugens KTFEPYLEGKKSASRFQRLLMVASLYQMTRVHPTTARAVLYRIYKKNPGEA
 Q868N5_Apis_mellifera SVFEPYLEGKQQMTVVFQRTLMVGSLSGKLTETNPKLARSVLYKIYLNMTMEB
 R4KE43_Helicoverpa_armigera QVFPYLEGRIQVPTTYLRVQMVVQLRSLAHQKDKYVRAVLYSILRNTAEB
 Q9U5D8_Plautia_stali AGFEPYLEGKQIPVTDQRLVMIAYLGDMIKVBHNTARSILYKIQNEBGDV
 O02024_Riptortus_clavatus AVFEPYLEGKSQISEFQRLSIIASLDEMTRTHPNLARDVLYRIYQNTAEK
 D6W7J2_Tribolium_castaneum QSFKPYLEGTKKASHFQRTLMVVALDKLAKSNPQVARSVLYKIYQNAHDE
 D6W721_Tribolium_castaneum EAFEPYLEGQKKASHFQRLVLMVVALDRLVEANPRVARSVLFKIYQNPSEY
 B_tabaci_Asiatic EVFEPYLEGKVPISNFCQRTVMVLSLNEARVYVPLARNVLFKIYQNTQEN
 BAG84131_Tetranychus_urticae -----RVYTS-----
 ADU04394.1_B_tabaci_Q EVFEPYLEGKVPISNFCQRTVMVLSLNEARVYVPLARNVLFKIYQNTQEN
 Q16927_Aedes_aegypti SVFEPYLEGTIQITDFQRLAIMVALDNLVIYYPSSLARSVLYRAYQNTADV
 G0ETK0_Nilaparvata_lugens KTFEPYLEGKKSASRFQRLLMVASLYQMTRVHPTTARAVLYRIYKKNPGEA
 Q9BPS0_Periplaneta_americanana RHFEPLYLGRBSVSTHERVTMVFCLDFVKTQPSVAQYILLRLEFENVGET
 E0VE52_Pediculus_humanus_corporis QVFPYLEGKQPMDFQRTLVVTSLSGKLAVHHPKVARTVLYKVVYNTTGEV
 B0W351_Culex_quinquefasciatus NVFEPYLEGKIPVTNFCQRFIVMSLDRLVENFPKLAARTVLYRVYQNNADV
 O76823_Blattella_germanica HYLRPYIIQLKTIHQRLFMVQSLERVVENHPKRLVIDLLLSLYLDQNEH
 Q7PQM2_Anopheles_gambiae NVFEPYLEGKIPVTHFQRLAFIVALDRLVENYPRKARSVLYFKVYQNTQDA
 UPI000258E3A9_Megachile_rotundata PVFEPFLTGREKMTAFQKTLILASLSNFVANHPKALPGLKQIYMNTTES
 ADU04392.1_1_B_tabaci_B EVFEPYLEGKVPISNFCQRTVMVLSLNEARVYVPLARNVLFKIYQNTQEN
 Q9U8M0_Periplaneta_americanana NYLEPYLERKKNATEFERLLMVTSLDILAEINPELARQVLYNVYINIGEN
 ADU04393.1_B_tabaci_EHJ-II EVFEPYLEGKVPISNFCQRTVMVLSLNEARVYVPLARNVLFKIYQNTQEN
 Q27309_Bombyx_mori KVFPYLEGKVEISTYLRTHTIVKNLKTLAKLRDRSVRAVLYSILRNTAEB

LPD_N

A7BK94_Nilaparvata_lugens AELRVAALHLLANANPSAAMLQORMAQQTHWEQSKEVISATQSFIKSAARM
 Q868N5_Apis_mellifera HEVRCATAVFLMLKTNPPSLMLQORMAEFTKLDTRNQVNSAVKSTIQSLMKL
 R4KE43_Helicoverpa_armigera YEVRVAAILNIFMAHPTAEMMQVMAQMTNEDPSVQVRSALKSGIVSAADL
 Q9U5D8_Plautia_stali PAIRVAAVMQLMKTNPASLLQORMAEHTNYDHSBHVNAAVKSAIESAANG
 O02024_Riptortus_clavatus SEIRAAAVRQLMRTNPPAQMLQORMADFTNYDHSQVNAAVKSAIESAAAC
 D6W7J2_Tribolium_castaneum DQVRVAAVYQLMKSQPSAAMLQORMAYTNTVDTSDNQVNAAVKSIIESACEL
 D6W721_Tribolium_castaneum EQVRVAAVYQLMRTKTPSAMLQORMAYTNTVDTSDVNAAVKSSIEFAADL
 B_tabaci_Asiatic QEVRVAAVFLIFGTNPSAQTLORMAQFTYEDQDQVNAAVSSAIRNAAKK
 BAG84131_Tetranychus_urticae -----
 ADU04394.1_B_tabaci_Q QEVRVAAVFLIFGTNPSAQTLORMAQFTNEDQDQVNAAVKSALENAAKA
 Q16927_Aedes_aegypti HEVRCAAVHLLMRTDPPADMLQORMAEFTHEHDPQLVRAAVKSAIETAALA
 G0ETK0_Nilaparvata_lugens AELRVAALHLLANANPSAAMLQORMAQQTHWEQSKEVISATQSFIKSAARM
 Q9BPS0_Periplaneta_americanana QEIRVAALYLLMKTQVSAELFQRLAEYTKFDKNHQVVSQVSAIRSAAKV
 E0VE52_Pediculus_humanus_corporis HQVRVAAVYNLMKTVPVPSMLQORMAQFTHEDPSTQVRSVAVKSAIESAALL
 B0W351_Culex_quinquefasciatus DEVRCAAAAMLMLRTSPPVAMLQORMAEKTDENNSPQVLSAQSLIESAANT
 O76823_Blattella_germanica ADIRVEALFLMLKADPSIHVLKMWAELEHTESNQVLSASQSAIKSAANV
 Q7PQM2_Anopheles_gambiae HEVRCAAVYLLIRTKPPVYMLQORMAEQTHYDPSYVRAAVKTALESASEA
 UPI000258E3A9_Megachile_rotundata QEVRCAALFLIPMTNPPLEVLREIVQFSNNDSSKQVKSQVAVKSTLQGLKHL
 ADU04392.1_1_B_tabaci_B QGVRVAAVFLIFGTNPSAQTLORMAQFTNEDQDQVNAAVKSALENAAKA
 Q9U8M0_Periplaneta_americanana HELRCASVILLMRTQPPAAMLQORMAEFSNIDPVKQVVSQVSAIRSAANL
 ADU04393.1_B_tabaci_EHJ-II QEVRVAAVFLIFGTNPSAQTLORMAQFTNEDQDQVNAAVKSALENAAKA
 Q27309_Bombyx_mori YPVRVAAIQSFIFISHTGEMMQAMAEHTENDPSVEVRAVLYKSAIILSAABL

DUF1943

A7BK94_Nilaparvata_lugens DQNPNSIELARNAQAAVDMLNPNBYGSLSKNPLSSFVIDNID-KSYESQ
 Q868N5_Apis_mellifera -KSPWVKDLAKKARSVNHLHLLTHHEYDYELSRGYIDEKILENQN-IITHMI
 R4KE43_Helicoverpa_armigera -KDPBFWHLRSRTAQAVRHIVTKENLGTTRYSNKFFEDNYVNEDE-QGSFRA
 Q9U5D8_Plautia_stali -DEFYAYPELVRNARSAANLLTPKNYGFQYSQNFIKSYIAKEHDTLEYQHY
 O02024_Riptortus_clavatus TDSVDQQLVNNARAANLTPKNYGVQYSKTHLKSHNVEEQN-LQYQCH
 D6W7J2_Tribolium_castaneum -QGPRYEKIRISAAYSAPKLLTSQDFGVQHSNGNLSRFSVEQEMR-SEYLOK
 D6W721_Tribolium_castaneum -EAPHYRFRQAAHSAKPLLTSKQYGVQYSQGYLRNYITKESH-SLFEQN
 B_tabaci_Asiatic -SAGIREBELABAAQSAVDLLNPKTYGLQFSKKWLRDYIVKBEEN-LAYSVY
 BAG84131_Tetranychus_urticae -----LQNY-----
 ADU04394.1_B_tabaci_Q -HSESRQELAQAAQSAIALLSPKAYGLQYSKKWLRDYIVKBEEN-LAYRVS
 Q16927_Aedes_aegypti DDYDEDSKLAINAKAAINFLNPEVSIQYSFNHIRDYALENLE-LSYRLE
 G0ETK0_Nilaparvata_lugens DQNPNSIELARNAQAAVDMLNPNBYGSLSKNPLSSFVIDNID-KSYESQ
 Q9BPS0_Periplaneta_americanana -EGPYKKBETAKNAQAAVKILSSKPYDDSYSKSFI LNRYRREID-VGYSRL
 E0VE52_Pediculus_humanus_corporis -KTKTNFQLRKNAQAAVNMLVPQVYGVQYSRLNLTDLVQGLH-LGYTQT

B0W351_Culex quinquefasciatus DEFD D D S E L A Q N A R A A V K M L T N P N Y G L Q Y S S A H F R Q Y A M K E L D - I S Y R L Q
 O76823_Blattella germanica - E G D I Y S E M R R K A K A V E H L L S T R N M D V S Y S K S Y L Y G Y K S K K I N - Y D S L Y N
 Q7PQM2_Anopheles gambiae D E F D D D Y E F S Q N A Q A A V K H L N P R D F S L Q Y S G T F L R D F A F K E L E - L S Y R M Y
 UPI000258B3A9_Megachile rotundata - S D P E W Q S L A K N A Q A A L K L L D S K D Y D P L K S H E F I F N K - M K E E N - L F T N T L
 ADU04392.1_1_B_tabaci_B - H S E S R Q E L A Q A A Q S A I A L L S P K T Y G L Q Y S K K W L R D Y I V K E E N - L A Y R V S
 Q9U8M0_Periplaneta americana - K E P G N L N L A R A A R S A V N I L N P M S M D I A Y S N D I L S S N M I Q D M D - L G Y K D N
 ADU04393.1_B_tabaci_SHJ-II - H S E S R Q E L A Q A A Q S A I A L L S P K T Y G L Q Y S K K W L R D Y I V K E E N - L A Y R V S
 Q27309_Bombyx mori - Q H P R N F Y L S R T A Q A A R Y L V T N E E F G Y Q H S F K F I D D S Y D E D N D - I G - T F V

DUF1943

A7BK94_Nilaparvata lugens L S S I G S V D S I I P S S V F V N F M A N D G G Y K H Q V F H H S A M F S S V N D L L E L V N T Q
 Q868N5_Apis mellifera L N Y V G S E D S V I P R I L Y L T W R S S N G D I K V P S T K V L A M I S S V K S F M E L S L R S
 R4KE43_Helicoverpa armigera V S Y I G G D S K A M P K Y Q T Y S W R D Q I S G W - - G F D T I G A S F S D A Q E I V D F L K Q M
 Q9U5D8_Plautia stali F T Y I K G L D G I Y P S S V L Y N L Q R K I G G Y V H E P Q T M S F M S S S S E B L L N H F F G Q
 O02024_Riptortus clavatus C S S I Q S Q D S S L P S S L M Y E V Q Q S V G G Y H R D P H K F Y F M T S S S E Q A I N L M R Q T
 D6W7J2_Tribolium castaneum F N Y L V G E D S V L P K G I N Y Y L Q G R F G G V R R F V V D M Q S M V S S I E D L I N V F E Q Q
 D6W721_Tribolium castaneum L Q M L G G E D H A V P R G M K Y L L E K Q F G G V Y Q V I N A H A M V S S I E D L V S V F Q Q Q
 B_tabaci_Asiaticus A D T I Q G S D S L I P N Q Y Y A A F F R H V G G F N K R V A S F R A F A S S A S D L Y D R V A D S
 BAG84131_Tetranychus urticae -
 ADU04394.1_B_tabaci_Q A D M I Q S E D S L I P N Q V Y V A L H R Y L G G F A C R V A S F R A M T S S A S D L V E K I Q E Q
 Q16927_Aedes aegypti Y G E I A S N D H R Y P S G L P Y H L R Q N F G G F K - K Y T S F Y Y L V S S M E A F P D I F K K Q
 G0ETK0_Nilaparvata lugens L S S I G S V D S I I P S S V F V N F M A N D G G Y K H Q V F H H S A M F S S V N D L L E L V N T Q
 Q9BPS0_Periplaneta americana Y N Q I G S R D S F M P K S V F Y K L V N I I D G D R D Q A K F G G A V S S V R D V I D F I R Q Q
 B0VE52_Pediculus humanus corporis L Q Y V G S K D S L I P S S V F Y K V L G N V N T Y K T T L L K V S S M V S S V Q A V T E F L Q N S
 B0W351_Culex quinquefasciatus A G Q I A S D N H P V P T G A W L H W H E N L G L K - R L S S Y H Y I V S N M D A L F D L L D N K
 O76823_Blattella germanica L N Y I G S V D S I I P S S V F V N F M A N D G G Y K H Q V F H H S A M F S S V N D L L E L V N T Q
 Q7PQM2_Anopheles gambiae F S Q I A A D D H Y V P S G F F H L R K N M G L K - R F S T F Y Y L I S S M E T F F D L L D K Q
 UPI000258B3A9_Megachile rotundata L N Y I G S D N S P I P T I Y L A T I L Y D G N F K G S P V E L M T M I P N M D S L I D A L I P S
 ADU04392.1_1_B_tabaci_B A D M I Q S E D S L I P N Q V Y V A L H R Y L G G F A C R V A S F R A M T S S A S D L V E K I Q E Q
 Q9U8M0_Periplaneta americana M A H V G S S D S I I P N T I L R K F N R Y A G G Q A E S D I N F S E M V S S V K Q L L K A L R N P
 ADU04393.1_B_tabaci_SHJ-II A D M I Q S E D S L I P N Q V Y V A L H R Y L G G F A C R V A S F R A M T S S A S D L V E K I Q E Q
 Q27309_Bombyx mori I S H I G S E D S L L P K D P K I V T N S K G A W E R N T I E - - A S F S S A E R F L D Y L R D S

DUF1943

A7BK94_Nilaparvata lugens F K -
 Q868N5_Apis mellifera V K -
 R4KE43_Helicoverpa armigera M Y -
 Q9U5D8_Plautia stali L G -
 O02024_Riptortus clavatus I A -
 D6W7J2_Tribolium castaneum T K -
 D6W721_Tribolium castaneum T E -
 B_tabaci_Asiaticus F Y -
 BAG84131_Tetranychus urticae -
 ADU04394.1_B_tabaci_Q F T -
 Q16927_Aedes aegypti Y N T K Y F A D Y Y K S A D Y S T N Y Y N F D K Y S K Y Y K Q Y Y Y S K D S E Y Y Q K F Y G O K K D
 G0ETK0_Nilaparvata lugens F K -
 Q9BPS0_Periplaneta americana F K -
 B0VE52_Pediculus humanus corporis F T -
 B0W351_Culex quinquefasciatus V M -
 O76823_Blattella germanica Y K -
 Q7PQM2_Anopheles gambiae Y D S Y N K H Q B Y K S S D Y Y Y K Y K Q Y P H L P K D Y F S Q Y N K N H K Y N D Y Y E Q F G N
 UPI000258B3A9_Megachile rotundata D K -
 ADU04392.1_1_B_tabaci_B F T -
 Q9U8M0_Periplaneta americana L K -
 ADU04393.1_B_tabaci_SHJ-II F T -
 Q27309_Bombyx mori V F -

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A7BK94_Nilaparvata lugens H N N R N S N N E W T A E N V L K A L N I Q K D Q A E Q L E G N F F L T M L G G K R A F A I N N H T
 Q868N5_Apis mellifera - - - D R B T I I S A A E K I A B E L K I V P E B L V P L E G N L M I N N K Y A L K F F F P D K H I
 R4KE43_Helicoverpa armigera - - - - - A N H R Y T A E K I S E M L K I K R N P Q S P L E G A F F F N I A N Q E R F F S F D E S D
 Q9U5D8_Plautia stali Q Q K Q G H H S D Y T Y Q K I G B I L N G Q Y D D P V Q V E G N F F S F L G S P R F F A F D N H T
 O02024_Riptortus clavatus W S R N Q H G S E Q S Y E N I L R S I H L H T D E P V Q V E G N I L V S G L G G K E F F T F D N H T
 D6W7J2_Tribolium castaneum - - - Q S A N T K W S S E H T A N L F N M Q N E Q R E Q L E G N L Y F H V D A L Q K M W S F D N Q T
 D6W721_Tribolium castaneum - - - Q S V N Y P W S S E N I A K L L H L Q N E Q R E Q L E G S L Y L Q M G A L Q T I F S F D N H T
 B_tabaci_Asiaticus - - - - - E K F S K Y S A B E I F K N F N F K A D Y P K E L E A Y F Q Y Y F L G S K Q Y S F I N E B I
 BAG84131_Tetranychus urticae -
 ADU04394.1_B_tabaci_Q - - - - - M N Q Q F S A E Q I F R Q F N I K P D Y P Q E V E A L L Q Y T V F G A K R W A F F D E E F
 Q16927_Aedes aegypti Y Y N D K E P F K F T A P R I A K L L N I D A E B A E Q L E G Q L L F K L F N G Y F F T A F D N Q T
 G0ETK0_Nilaparvata lugens H N N R N S N N E W T A E N V L K A L N I Q K D Q A E Q L E G N V F L T M L G G K R A F A I N N H T
 Q9BPS0_Periplaneta americana S K Y A E D D D I W D L R E I A N L L E M E E E N V D P L E G N V H Y D Y F G A Q R F F T L N K T S

B0V52_Pediculus_humanus_corporis ----HGDAYTVEKIKTKLLNVEQLVKEQVEGNEFNRYRVGNLHRFFVYDNDHT
 B0W351_Culex_quinquefasciatus KQDNKAEQKQWSTGRIAKLLNIDPEDVEQVVGQLWLBIFNAPHLIAFDNNT
 O76823_Blattella_germanica ---KDNGSPDTPKTLVKF-----VEGNLKYFNMIGVQKFWAFDNTT
 Q7PQM2_Anopheles_gambiae -KNQEBEQKWSSTRIAKLLNIDPEBABELGQFMFOIENGERFFAFNNQT
 UPI000258E3A9_Megachile_rotundata ---RSLVKMATEKIAEBLNIVGDIPVLLGNGFLWRTKFLSRFIPYDENT
 ADU04392.1.1_B_tabaci_B ----MNQQFSAEQIFRQFNKIPDYPQEVVEALLQYTVFGAKRWAFDDEEF
 Q9U8M0_Periplaneta_americana ----RRPEVADRRFENIPPIIIDIAAPPLGNNMLRLWLGNDRRFFSYDKND
 ADU04393.1_B_tabaci_EHJ-II ----MNQQFSAEQIFRQFNKIPDYPQEVVEALLQYTVFGAKRWAFDDEEF
 Q27309_Bombyx_mori ----DRAHKYSAEKIAKLLNKNDBEEPLASFYVDPMNNQRLFSFSESD

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A7BK94_Nilaparvata_lugens MRRSPSIFKBAEQKLKHT-SFNLTFQFYSKNTMKVAFPTPMGLPFVYTSV
 Q868N5_Apis_mellifera LDKLPTLISNYIEAVKEG-KFMNVNMLDYESVHSFPTETGLPEFVYTFNV
 R4KE43_Helicoverpa_armigera LIRLVQDVMEYMKLEQGVVDKHYTKVFNARQVSVMPFVASGMPIFYKYKE
 Q9U5D8_Plautia_stali IEQIPQYIKHIEQKQLQKGLNFHETKYNNQYSVEIGFPLATGVVPIYSYNE
 O02024_Riptortus_clavatus IEQIPQYFNSINIEKLDKKSIVQHTKYNNQYSLEIGFPSAMGLPFVYHLDV
 D6W7J2_Tribolium_castaneum IENLLQIVRKCQDLQNGKHIDYNKMSVNYETALSFPASAWGLPLIYTFDV
 D6W721_Tribolium_castaneum MENLPELVRRKWEDEFQRNKHYAYSKMMIAQESSLALPTVLGLPFIYTYDR
 B_tabaci_Asial FNQIPRDLBSALNKAANGYSFNNTKIFYNDFALTIGFPATGLPFSYTIKL
 BAG84131_Tetranychus_urticae -----YKLL--
 ADU04394.1_B_tabaci_Q FNQIPRRLNDALSKVQNGQSFNSTKFYNDISLSLAFPTATGLPFSYTLKV
 Q16927_Aedes_aegypti IENLPHKMRHLFENLEDGYAFDVTKFYQQQDVVLAFLATGFPIYTLKA
 G0ETK0_Nilaparvata_lugens IEKIPSIFKBAEQKLKHT-SFNLTFQFYSKNTMKVAFPTPMGLPFVYTSV
 Q9BP90_Periplaneta_americana FE-FREELKKYFKKKPQIT---NINKLYNRMELKVGYPNVMGVPEFTFKR
 B0V52_Pediculus_humanus_corporis IETLTOFLNKYTQKTGGQLAYNTQKFFTNYEITLALPTTTGVLVYTLST
 B0W351_Culex_quinquefasciatus IDELPRVIKMKFDLEVNWSVNI TKVYQQGLVTVAMPLETGFPEFTSTQS
 O76823_Blattella_germanica FSNASAVIQEFLKTYKKPTNFNHTKLSSSSSITLTLPCAMGLPAYFKMNS
 Q7PQM2_Anopheles_gambiae IEQFPSLVKKYFEDFEDGFAYNMTKFYQNVVTMAFPLATGLPFHYSLKE
 UPI000258E3A9_Megachile_rotundata VRNLPNKVVVEHLTARKDG-AFHNTHILNLHEMMIDDTDTGLPFVYSLCB
 ADU04392.1.1_B_tabaci_B FNQIPRRLNDALSPKVQNGQSFNSTKFYNDISLSLAFPTATGLPFSYTLKV
 Q9U8M0_Periplaneta_americana IKQLFRNYNAAALPLADMHMLDDMKVYNQKSLAIAFPNALGLPSLFTIDV
 ADU04393.1_B_tabaci_EHJ-II FNQIPRRLNDALSKVQNGQSFNSTKFYNDISLSLAFPTATGLPFSYTLKV
 Q27309_Bombyx_mori LQQLSQYISEYMKKVESGAEKHYTKVYNQDQVSI MPFVASGMPIFYKYKE

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A7BK94_Nilaparvata_lugens PTMVYVGGETKVN SHPDLA-----NGNNNFVNIPQYINISADIEAVY
 Q868N5_Apis_mellifera IKLTKTSGTVQAQINPDFA-----FIVNSNLRLETF
 R4KE43_Helicoverpa_armigera PIVIH IQSKAKGKMLDRDQ-----TRKYL TSTMDKELQIT I
 Q9U5D8_Plautia_stali PTLFYADVBAKGHLLQBOG-----KDEYYQVVPYKASSEBGTYKFTV
 O02024_Riptortus_clavatus PTLASVSGKWSGQVELLQQH-----QKEQNEKYSIPVKGQVHGDFEFVY
 D6W7J2_Tribolium_castaneum PTLVHIESEMQASANPSVY-----SQGLQQPBTVDLEYKINAFV
 D6W721_Tribolium_castaneum PALIRVEGNVKVE TNPHIS-----SGDSLKKPDNVNVDFDIHAVI
 B_tabaci_Asial PTLLENFGGEVKAQVQGFKA-----DNNKFRIPBAVNVTAADIVTY
 BAG84131_Tetranychus_urticae -----
 ADU04394.1_B_tabaci_Q PTLVQAGGEVQARVQGHNS-----NNNNNLFRIPEAVNVTABIEIVY
 Q16927_Aedes_aegypti PTVKFEVDASAKTHPQVYKMPAGHPETENDDFYMPQINGSVDVNLLY
 G0ETK0_Nilaparvata_lugens PTMVYVGGETKVN SHPDLA-----NGNNNFVNIPQYINISADIEAVY
 Q9BP90_Periplaneta_americana PTLVTKLTAKTFIMBLKPCD-----HGKPHKFRIFNVSTSDVSVFY
 B0V52_Pediculus_humanus_corporis PVYIGIKGKVQTDVPELRQ-----TQKGYQVPKTLGVTTNVEVTV
 B0W351_Culex_quinquefasciatus PTLVKLEVDASAE TPNMARPKPAGHPENGNDEHIIHPLSANVTADVNVVY
 O76823_Blattella_germanica PSLWKYNGEFSIQTDAK-----TDVPMSLENFMNITGSINLMF
 Q7PQM2_Anopheles_gambiae PTLMKFEFESATYTPSIFIKTPTGYPEKENDDFIHMFRWFNGSADVNMAF
 UPI000258E3A9_Megachile_rotundata CTLHLKLSSTDNYKPFES-----RWFN-----DFQFAI
 ADU04392.1.1_B_tabaci_B PTLVQAGGEVQARVQGHNS-----NNNNNNNLFRIPEAVNVTABIEIVY
 Q9U8M0_Periplaneta_americana PTVLRANSTFRLLNNTSS-----BSSSIEVLVPWKLGARSETSLTY
 ADU04393.1_B_tabaci_EHJ-II PTLVQAGGEVQARVQGHNS-----NNNNNNNLFRIPEAVNVTABIEIVY
 Q27309_Bombyx_mori PAVIH FQSKLKGKFSFPSK-----DNKYYE--ANMIKDVQFTY

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A7BK94_Nilaparvata_lugens SMQSNKSGFMVAPFNHHEYYASVEKNMQFYMA-VQTEANIDLENNEVEFT
 Q868N5_Apis_mellifera SKNVQGRVGFVTPFEBRRHFISGIDSNLHVYAP-LKISLDVNTPKGNMQWK
 R4KE43_Helicoverpa_armigera ARNIDGNVGFMDTLNQLASAGVVRKYQVNVV---VKMSIQMNAAGVLKMK
 Q9U5D8_Plautia_stali SSQKWGKLGFIAPFNQKYLAVVEKNTQFYVVP-FQGLQFNGPBOYFOAT
 O02024_Riptortus_clavatus SAQKSGLMGFVAPFSQNRYYIAGLEKNIHAYVVP-VQAKVBYNPEENKVQAS
 D6W7J2_Tribolium_castaneum SGRVQSOLGFFAFPNHKKRYSAGYDKNFQVVPVQISGKVLNVENKQATLB
 D6W721_Tribolium_castaneum SGRVQTOFCIFTFPDHQRYYSAGYNKFPQLVVP-LNGKMBLNDVQKQLME
 B_tabaci_Asial STKLETKFGFVTFPDHQRYVAGVDKNINFNLP-LKFNVNLDVYNTKABII
 BAG84131_Tetranychus_urticae -----YDVKKDSASLT
 ADU04394.1_B_tabaci_Q ATELKSELGFVTFPNHHERYVAGLAKNIFVNIP-VKVAANVDIANTKVEFY
 Q16927_Aedes_aegypti HRMVDKVGFTVTFPDHQRYIAGYQKLLHGYLP-FNVELGLDFVKDEYFB
 G0ETK0_Nilaparvata_lugens SMQSNKSGFMVTFPNHHEYYASVEKNMQFYMA-VQTEANIDLENNEVEFT

GOETK0_Nilaparvata_lugens MTSPW-AQGLNSNNITVAFNPRQSTSQVAKFTFSYA-----
 Q9BPS0_Periplaneta_american FYYGW-EAQPVFYYDFKLYLDSHNSPAKTVQLKASYD-----NRYTQP
 B0VE52_Pediculus_humanus_corporis VVFPT-ABATIDNTNVDVYYDSKLS TVQSLVLSATYR-----
 B0W351_Culex_quinquefasciatus LLFPLHASQPCHYHQLNLVYDAQRS PVKNIKLSLQQT-----
 O76823_Blattella_germanica LNYDV-PTKIDIFYNNLTVYYDHEDTKNHAVSFTVTKEQSKFYBTLNPPVQ
 Q7PQM2_Anopheles_gambiae LVYPF-ASETYHYHQFNLYYDAQRTSVKKNVKFVLQHK-----
 UPI000258B3A9_Megachile_rotundata IMFPI-KDKQSEYHKVAVIMDKRSD EGGKPLVLSASY-----
 ADU04392.1_1_B_tabaci_B AAFPW-AEKTIQYNNFDVYYDPARSAAKSAKFALNYA-----
 Q9U8M0_Periplaneta_american LAFIW-ARRTINNHNVTLSIDEDQSTTNAVRIEGKYA-----S
 ADU04393.1_B_tabaci_EHJ-II AAFPW-AEKTIQYNNFDVYYDPARSAAKSAKFALNYA-----
 Q27309_Bombyx_mori LASLL-TQEDIALTHFNLLKHLCKQS QSKALTITAYYD-----

A7BK94_Nilaparvata_lugens -DNSDDNNNSHSGHDSNNSNNNNNNNRADYSDAQPSSTTGQTTLMLSHLPL
 Q868N5_Apis_mellifera -----SKVMTRPDTDSENWTFPKMMAVBPDKQ-----
 R4KE43_Helicoverpa_armigera -----QLFNQKQSGELGQADKRRKDV
 Q9USD8_Plautia_stali V-----EQGGQHKKNAKLMNARGKRINAGGSNLAQ-----
 O02024_Riptortus_clavatus NEYGNKGGARMTSKFKKANIRDRSASSARDNLAVPSSBQ-----
 D6W7J2_Tribolium_castaneum -----HTYNSNLNRQPAPEMSSRYQ-----
 D6W721_Tribolium_castaneum -----YKYQSTQAQEKNDQITDIPAFADS-----
 B_tabaci_Asia1 -----SKYAAKQADHESRNANTNDAVTSNNK-----
 BAG84131_Tetranychus_urticae -----
 ADU04394.1_B_tabaci_Q -----NKYANKENNNBEGNSNNNNNNNDAVPSSYQ-----
 Q16927_Aedes_aegypti --FGAPSFEEETGPKHPANRHSYSGNYYESNYAQPFVYS
 GOETK0_Nilaparvata_lugens -ENSDDNNNSHSGHDSNNSNNNNNNNRADYSDAQPSSTA-----
 Q9BPS0_Periplaneta_american EEBBETROHRSKIRRPSASRKRHRSRREBRAPLENLEB-----
 B0VE52_Pediculus_humanus_corporis -----QVTPTEIKHETDGTGKVFVPT-----
 B0W351_Culex_quinquefasciatus TANBTEDFSSSDIKHPKARHQSEGYNEKNLAQPFVFK-----
 O76823_Blattella_germanica QNLKLSGSKKQKHRNVKSHRIRREYTEDENPAIPKDKQ-----
 Q7PQM2_Anopheles_gambiae QADYDQDFQTADVKKHPKSRHGFSGFYNEYNAYQPFVYY-----
 UPI000258B3A9_Megachile_rotundata -----TLDVEAGTEDANQWTQFVNATSAFSEI-----
 ADU04392.1_1_B_tabaci_B -----NKYANKENNNBEGNSNNNNNNNDAVPSSYQ-----
 Q9U8M0_Periplaneta_american KINDVDAGTWTWERSRVERSAKRHRPRPEAQEYDSS-----
 ADU04393.1_B_tabaci_EHJ-II -----NKYANKENNNBEGNSNNNNNNNDAVPSSYQ-----
 Q27309_Bombyx_mori -----EYYNQONS GILTDATDRNLS-----

A7BK94_Nilaparvata_lugens LPTVV-----SRQNEFLRKAAGISGADAMVVDVSARFQDSHGQSNAQY
 Q868N5_Apis_mellifera -ANSK-----TRRQEMMREAGRGIESAKSYVVDVVRVHVPG-ESE--SBT
 R4KE43_Helicoverpa_armigera -PNSE-----ARREMLKRVSAGINNARAQVVDFSATFBG-PQK--QBY
 Q9USD8_Plautia_stali -PSSV-----ENRVDELFTNSYSGIQDARAQVDFASVTFBGGQNK--GQY
 O02024_Riptortus_clavatus ---QREBELLRNVBABIQDAKSHLLDASVTFGGKNNN--AGY
 D6W7J2_Tribolium_castaneum -AAQESW---ERQKEFLKNC SKDIRAVRAHVVDVAIVLFBG-QRI--VKY
 D6W721_Tribolium_castaneum -PE-----KRQQEFVDKLGKYINNPHVVFADATADFG-QYK--VKY
 B_tabaci_Asia1 -PDSE-----ERLNEFVRKSYAGINSATVNAFDFAQFLG-QKE--ADY
 BAG84131_Tetranychus_urticae -----QGG--PDY
 ADU04394.1_B_tabaci_Q -PDNE-----QRMNQFASRAQSGVQSANIDVIDISAQFFG-QKN--ADY
 Q16927_Aedes_aegypti -PGSQ-----RRYEQFFRNAASGIRNSFVRYDDFGFEBYAPQYK--SEF
 GOETK0_Nilaparvata_lugens -ANSR-----SRQNEFLRKAAGISGADAMVVDVSARFQDSHGQSNAQY
 Q9BPS0_Periplaneta_american -SDTE-----TQREELYDIVLPAVRAGRLLYASVSVAFKGBENVYSKY
 B0VE52_Pediculus_humanus_corporis -SDVQ-----TRIKQFYEKVTTGVKGARAVCDVFLNVNA-QTP--VEL
 B0W351_Culex_quinquefasciatus -PASQ-----RRQEQLFKNAGAGIRNSLVSVWDLGAEFBGRQNK--AEF
 O76823_Blattella_germanica -PNSH-----PRRQEBYLSKSMALTDGATAVLLDMLTKFBG-PAE--SYF
 Q7PQM2_Anopheles_gambiae -AGSQ-----RRQEQFMRNAGAGIRNSDYNVYDFGIVFBGKQK--AEF
 UPI000258B3A9_Megachile_rotundata -RDSE-----QRKIRFLEBAAKGIVLAQAGVLDPHIHPFINBE--VKT
 ADU04392.1_1_B_tabaci_B -PDNE-----QRMNQFASRAQSGVQSANIDVIGISAQFFG-QKN--ADY
 Q9U8M0_Periplaneta_american -ANPAIVDRA-DKLEBFLNRAS---GNRVHGLAVRVAFTG-SSD--ATF
 ADU04393.1_B_tabaci_EHJ-II -PDNE-----QRMNQFASRAQSGVQSANIDVIDISAQFFG-QKN--ADY
 Q27309_Bombyx_mori -PNSE-----TRRAEMVKLVSAGINKARVRVVDLSASFBG-SQD--QNY

A7BK94_Nilaparvata_lugens VATVAMANS DASP NARM LFFAS MN PAN-----SDSKAQVC AAA
 Q868N5_Apis_mellifera VETLAWSES NVE SKGRLLGFWRVEMER-----SNADYEVCI GSQ
 R4KE43_Helicoverpa_armigera VLTAAIAKSPVDLKIQSAVFAGRNSV-----QQGDEQINAVVK
 Q9USD8_Plautia_stali AETFABAE SPVSEKSRVLYAYFSASPYQESQ-----YAKAFKAAFHLN
 O02024_Riptortus_clavatus SETTLAHANSPVSEKSRVLYAYFSASPYQESQ-----NTKPFQAAFLD
 D6W7J2_Tribolium_castaneum BSTLAGARSDIDPRGRVLMQMEKDNQ-----HDKPVRVFFAAN
 D6W721_Tribolium_castaneum SATFGVAKSNVDPRQRVFMGYARKVEK-----QNPQVLAIVYQGV
 B_tabaci_Asia1 VCTFAFARS PVABKS RFLFYGHYNTA-----NNKKQCAFBAS
 BAG84131_Tetranychus_urticae VLT-----
 ADU04394.1_B_tabaci_Q VATLAYARS PVABKARFLFYAGANNA-----NNNKNKVAVDAT

Q16927 *Aedes aegypti* TTTTAFADSPVDKTSRQLYFYASPMFSPQSYPFKDIPFSGKQFQFCATAT
 G0ETK0 *Nilaparvata lugens* VATVAMANSQDASSNARMLFFASMNPNAN-----SDSKAQVCAAVA
 Q9BPS0 *Periplaneta americana* EVEGALASSQVNNHISTMLRAHSNDA-----ERKHQYAHVRVN
 E0VES2 *Pediculus humanus corporis* VGTAFALARSVPVDAPVNLIGYFYKTA-----GNDHYEICYDST
 B0W351 *Culex quinquefasciatus* VLTFAKASSPVDKERTLVFASASPYIAVG-----SKKQHQACLSLT
 O76823 *Blattella germanica* TTTVSHATSLVNGSSNYLLFYDQHYE-----EKKRNRQFCLSWT
 Q7PQM2 *Anopheles gambiae* VTTTAYADSPVDKBERLLMLLSFSPYVSSSAFFBIFPFSGKQFQMCFSAT
 UPI000258B3A9 *Megachile rotundata* NLTVAWSASNAETKGRFLSRLTIMNQI-----DEVTEFVCAASQ
 ADU04392.1_1_B_tabaci_B VATLAYARSVPVABKARFLFYAGANNA-----NNNKNKVAVDAT
 Q9U8M0 *Periplaneta americana* DLTAAALGLSNVNGSARALVSYISQPAHPADV-----MPRKTBYDLFAA
 ADU04393.1_B_tabaci_EHJ-II VATLAYARSVPVABKARFLFYAGANNA-----NNNKNKVAVDAT
 Q27309 *Bombyx mori* VLTGTWGDSPVDSKVQGMFLFAGTKSA-----TQGNQQINAVFA

A7BK94 *Nilaparvata lugens* SNFPNVPLMNFHDAALKANPTSRRISADIAFGAQCNAGGHIHADAKLSQTQBE
 Q868N5 *Apis mellifera* IMVSPETLLSYDEKMDQKPKMDFNVDIRYGKNCQKGERIDMNGKLRQSPR
 R4KE43 *Helicoverpa armigera* VTKPEISALNLFLEALKKDVMTYBADIKYGD----GNIHQGNTERTKK
 Q9USD8 *Plautia stali* FKFPPQVPVFNFKKALESDPTSYVEGQINFNDN--BKYKIAFQGGKFBQTEEB
 O02024 *Riptortus clavatus* IKDPQLPAFNYQDALNADSTSQVQGGKINMGEOLE--SQITFKGKLERTQE
 D6W7J2 *Tribolium castaneum* TKIPNTNSLNLKYALEFDPSTSTIQIQGVIEKKSQNDQAINAKLTAKSEEB
 D6W721 *Tribolium castaneum* SHVRNTNGLNLDYAMEFDPSTSTAYIQGLLRKE--QLRSQVDAHIELSKSEQ
B_tabaci_Asial AEMPVPLTNPAAAMKAEPAKSIYANFKFGESEFENAAKVHFANLQKSSSE
 BAG84131 *Tetranychus urticae* ---PGKPAI-----
 ADU04394.1_B_tabaci_Q AYMPNVPLVNAQAQFNADANSRLYVNVKSGENLNDNGAQFQFQANMKQSQBE
 Q16927 *Aedes aegypti* SEFFPRVPLKFSDFDKYYGDASQYFDFLYGESCQGGAHIAVKGKQKQTKGK
 G0ETK0 *Nilaparvata lugens* SNFPNVPLMNFHDAALKANPTSRRISADIAFGAQCNAGGHIHADARLSQTQBE
 Q9BPS0 *Periplaneta americana* VTMPPQVPVIDYRKALEFDPSTSKIQCBEVHFGDTPBKSKSVYFQGGKFBRTDE
 E0VES2 *Pediculus humanus corporis* FKSTYSPIYDLBHAIQSESKSDLNHVHVKFGNKCDTGAKVVLTKLERTPE
 B0W351 *Culex quinquefasciatus* BKYPSPVPMNLNYITALQNDVTSBIDLELSFGEKCCAGGAQVSVNGMLRQTDL
 O76823 *Blattella germanica* VYKPPQVPIMNIIYSAFEFDPNSKVVHAIMNIGKECENGGSAVANIDMLRLSE
 Q7PQM2 *Anopheles gambiae* NQYPNMPKLNFLNVLNFDKVGSMNWELAYGEKCCGGSHVSMKGLIQSEFP
 UPI000258B3A9 *Megachile rotundata* LALTPPYFPVYDEVNNTCKIEFDIDIRHGENCQEDNRVNIIGTGRSNE
 ADU04392.1_1_B_tabaci_B AYMPNVPLVNAQAQFNADANSRFRYANVKS GENLNDNGAQFQFQANMKQSQBE
 Q9U8M0 *Periplaneta americana* LSPAPPIINFNAQALEFDPDSNLDAGLSIFTNDKPSGNLRIKAGELQKSEEB
 ADU04393.1_B_tabaci_EHJ-II AYMPNVPLVNAQAQFNADANSRFRYANVKS GENLNDNGAQFQFQANMKQSQBE
 Q27309 *Bombyx mori* TTKPEIHSLSFSKPLQSDLRAPFGMHFKYQGS----GEIRVSGSFDRTKK

A7BK94 *Nilaparvata lugens* FQBYAKSRPMAKKCFQLMKEKG-QALEYACQONATKVANMLNNYEIVSVKYD-
 Q868N5 *Apis mellifera* LKELVGGATSI IKDCVDEDMKRG-NKILRTRCQKAVVLSMLLDEVD ISMEVP-
 R4KE43 *Helicoverpa armigera* YTELLQKHPLAKLVQEQIANG-NQYQLASHKMLIKAYAPDSLKASVTYK-
 Q9USD8 *Plautia stali* RKNYVKHSQYSABCLBQMQHD-NYIQPVCLNASLNRNALDKYEFTFKFKQ-
 O02024 *Riptortus clavatus* RKKEYLQCHPLARACBSQMQRR-NYIQPACLNATLQANFHNRYPVFNQYQ-
 D6W7J2 *Tribolium castaneum* RKQYLKELPQYKCKQKEMQEG-NYQLPACAMLTAAQANLLDQFSFEMNYH-
 D6W721 *Tribolium castaneum* RKKEYLQEQEYKCKHQMQEG-NTQLPICAKMGRANLLDTPSFKMKYS-
B_tabaci_Asial RRQFLRNALYKQCESEMERG-QYELPACRNFTVADNRMNIEYVNFNFQ-
 BAG84131 *Tetranychus urticae* -----
 ADU04394.1_B_tabaci_Q FRDYFRQSQMYKQCSQQMEQG-EYHMPACRNATVAANRLNEAHFSINFD-
 Q16927 *Aedes aegypti* YREYLRFSVAKACKEQMANG-YYQFEECQQAIDQAYYYDFDYAIEYK-
 G0ETK0 *Nilaparvata lugens* FQBYAKSRPMAKKCFQLMKEKG-QALEYACQONATKVANMLNNYEIVSVKYD-
 Q9BPS0 *Periplaneta americana* RKKFVAESDMAQCLCSAQQNNK-NYLLPACRNVTBEASKLDKYFFKVKYE-
 E0VES2 *Pediculus humanus corporis* RQQYVQTLPOVQTCCKTEVQOG-NKYTANCRNATLQAGLFDKTYFNKIEY-
 B0W351 *Culex quinquefasciatus* WRRTLRSIAIGRCKKNQMAEG-YFALPECQONATRLASALDHYTFDIEFK-
 O76823 *Blattella germanica* HLDYVKNLTVSKLCEHEMRTKRDBVLPACRNSTBRASDLNRVVDINYNL
 Q7PQM2 *Anopheles gambiae* YRHFLRISBAGQSCKQCMDQG-YFQLPACQONATRQAGYFDQYSFNFYK-
 UPI000258B3A9 *Megachile rotundata* LKEDINDISVVKCECKKQMEQG-NKLLRACQKAGDKALQVDEBLQSLQSQ--
 ADU04392.1_1_B_tabaci_B FRDYFRQSQMYKQCSQQMEQG-EYHMPACRNATVAANRLNEAHFSINFD-
 Q9U8M0 *Periplaneta americana* RRNAIRSTPAALACMREMANGNLNLPSCRNATBMANRLDRIRLQAKFE-
 ADU04393.1_B_tabaci_EHJ-II FRDYFRQSQMYKQCSQQMEQG-EYHMPACRNATVAANRLNEAHFSINFD-
 Q27309 *Bombyx mori* YTTLELNHPLAKQCSQQTTLN-NFYQDSCHKAIVMAHAPDHVEFVSFSQ-

A7BK94 *Nilaparvata lugens* RVSSVFKNVYTSIYSSALAQAAYPYHNNHF--SQNSNPSGKIDLNARFNYS
 Q868N5 *Apis mellifera* --SDALIALYSQGLFSLSEIDNLDVSLDVS--NPNKAGKKKIDVRAKLNE
 R4KE43 *Helicoverpa armigera* NVSPMFMNWTSQAYNLLKQLS---WNADV--PMKRVAIDGKLFQDFVQTSY
 Q9USD8 *Plautia stali* NVPEYFQHLAYKAYSFARYEGYQYQEBEYA--GVKNBPG-QIKFQNFPSA
 O02024 *Riptortus clavatus* NVPAGVRRAFHSAYSMGRYALYQNNBENIN---TEQNQEGQIQIGVQFEE
 D6W7J2 *Tribolium castaneum* NIDKVVVNSTYKLYTVLRHYMYPRVSEEDILMENEQVQKD-RLQVKGQFSP
 D6W721 *Tribolium castaneum* DMDPRVINATYKTYSVLRHFLYPRVBEINIV---EPSSDNHLDIQGQFSP
B_tabaci_Asial NIPBYFKNYTYQAFAPARHMGYQYQSENVV--NPHYKPN-BIEGFFKFSF
 BAG84131 *Tetranychus urticae* -----

ADU04394.1_B_tabaci_Q KVSDAVKKNYTYQAFAYARHLGYQYQSENF--NPNGQHN-KIDGYFKFSP
 Q16927_Aedes_aegypti DVGSVAKNLTNKFYNYFYQAFYYPYFBSNFT---YHGKSN-YIKAEFBFAP
 G0ETK0_Nilaparvata_lugens RVSSVVEKNNVYYSIALAQAAAPYHSENMFT---SQNSNPSGKIDLNARFNY
 Q9BPS0_Periplaneta_americana NLSEKCRNRNRTYKAYSYLRRHYFFPYITENVY---FQKHN-QFQIDFQLAP
 E0VES2_Pediculus_humanus_corporis GVPBBLKNYTYRVVNIYTHLAYPYLTEGMP--TQAAQOSKEVEFDVNFPT
 B0W351_Culex quinquefasciatus BIPSSVRNMTNKALNWVQSAVITRWBEDCV---SHKKGKGGKAKLKIELS
 O76823_Blattella_germanica KQHBTFKRRVYKVDYFVRTHLYPHVSSEDIIVDNPAQ---FISANFTLKD
 Q7PQM2_Anopheles_gambiae DVSNYAKNLTYYQFFDYARYFTFPYWNEDYF---FQKHN-QFQIDFQLAP
 UPI000258E3A9_Megachile_rotundata GCRRTQRDMBYFFSHLLSSGIIVGTLAELQ---PKVMDGKINLKAKISK
 ADU04392.1_1_B_tabaci_B KVSDAVKKNYTYQAFAYARHLGYQYQSENF--NPNGQHN-KIDGYFKFSP
 Q9U8M0_Periplaneta_americana NLSDDLINNTYKAYTWIRYFTQPYVTENIA---QBQNPGRNLINVDVNN
 ADU04393.1_B_tabaci_EHJ-II KVSDAVKKNYTYQAFAYARHLGYQYQSENF--NPNGQHN-KIDGYFKFSP
 Q27309_Bombyx_mori DMSPQYRNFPSYHTYRLYEYLGWYTBANPL---KLTQNGKMDFKIDFSY

A7BK94_Nilaparvata_lugens NLRYPNASINTPFFSANVKNVEV-HHALRPL-----VIFHPSL-----
 Q868N5_Apis_mellifera YLKDADVIVNTPIMDAHFKDKVKL-SDFG--F-----STEDILD-----
 R4KE43_Helicoverpa_armigera VDQTLRFEMTSPSGVLRFDNVLVLI-PKFTPYM-----VSLYYPF-----
 Q9USD8_Plautia_stali DFDYFNVSLVTPVETSRFBENIGL-DRHLRPF-----FVQHPGY-----
 O02024_Riptortus_clavatus NLRSVNLSIAAPGLSSNFNSNVRV-PGMVAVF-----VVYHPRY-----
 D6W7J2_Tribolium_castaneum CLSRVNASVVTYEGKVDFFNNVKV-QDWAKAL----LVSHPVH-----
 D6W721_Tribolium_castaneum DLHAVNFASINSEYGNVQVKNVQV-NKWRDL----FVSPQVF-----
 B_tabaci_Asiatic SFRYANFSPFASPALSAAFDNVPV-NPYFAAI----FAPHPTY-----
 BAG84131_Tetranychus_urticae -----
 ADU04394.1_B_tabaci_Q KFDFAQFYFNAPSVAASFKNVVPV-HQYVADF-----FAPHPVY-----
 Q16927_Aedes_aegypti YGDYYNASFFGSPSYAFQVQNYPVFNDYSTYFPYFFKYTFPPRYQPYMHR
 G0ETK0_Nilaparvata_lugens NLRYPNASINTPFFSANVKNVEV-HHALRPL-----VIFHPSL-----
 Q9BPS0_Periplaneta_americana EINAVNVSVKAPILNVEFTDVRVYNKYARAL----FSLNPRY-----
 E0VES2_Pediculus_humanus_corporis DLKVNVLVYLSLTPVGVSTFHSVPV-GEYTRTL----LVSHPVH-----
 B0W351_Culex quinquefasciatus RVSHINVTLATENRRIEIEINLPEVENEWMKSL----VLVHPDL-----
 O76823_Blattella_germanica NTRAFNVSIETPVLVSNATSVRL-QSWQSEM----LRMNPRT-----
 Q7PQM2_Anopheles_gambiae YFDYYNASFYGSDRSFAIQNYPIESEYARYF----FSVHPDF-----
 UPI000258E3A9_Megachile_rotundata NMSANFYSVQLPNINVEBNDVNL--DYFED-----SSB-----
 ADU04392.1_1_B_tabaci_B KFDFAQFYFNAPSVAASFKNVVPV-HQYVADF-----FAPHPVY-----
 Q9U8M0_Periplaneta_americana DGTALNASVDTALMSITWTNIRL-NRWTRSL----VEPSPQD-----
 ADU04393.1_B_tabaci_EHJ-II NFDFAQFYFNAPSVAASFKNVVPV-HQYVADF-----FAPHPVY-----
 Q27309_Bombyx_mori FDRTYTVDIASPSSGARMRDMPI-ATMAPGA-----LSFYQPL-----

VWFD

A7BK94_Nilaparvata_lugens -----NSLEHLLSSCPTMRTTIT-QHVLISA--RTPSAHSTTR
 Q868N5_Apis_mellifera -----TADBDLLINNVFYEDBT-SCMLDKT-RAQTFDGKDY
 R4KE43_Helicoverpa_armigera -----SMTERFANYSSYQYQP-FCSIDGN-QVRTFSNRSY
 Q9USD8_Plautia_stali -----NQLYYFAPDYFDTKNYA-TCGVDGNGVVTTFNGQSY
 O02024_Riptortus_clavatus -----NTYQLLKSPLYQTEBPQATAVIDGN-KATTFSNRTY
 D6W7J2_Tribolium_castaneum -----HVKSRLGGYALNYBTYKANCMVDS-CAVNTLDNRTF
 D6W721_Tribolium_castaneum -----HARARLQGOALKYD TYRPI CVVDKT-QTSTWDNKTY
 B_tabaci_Asiatic -----TAFDFPMQBTFRSKYQA-ACVADKG-FATTFDNRTF
 BAG84131_Tetranychus_urticae -----RLDMLFPNSKY
 ADU04394.1_B_tabaci_Q -----SGFDRLMQDTFOAKYQA-ACVADKM-HATTFDNKTY
 Q16927_Aedes_aegypti LPAHKPRNRPPYELSNYEQFAVDRKQPYP--SCSFSND-YFYTFDNKKY
 G0ETK0_Nilaparvata_lugens -----NSLE-LMSYNNYDYP--TCSVSKN-SISTFDNKTY
 Q9BPS0_Periplaneta_americana -----PLLSQVAKTAFPPQYEP-TCVVDYS-KVNTFDNKTY
 E0VES2_Pediculus_humanus_corporis -----NYVERYQWSAFQYQYKA-YCTIDKA-QTKTFDNQTY
 B0W351_Culex quinquefasciatus -----AWNERLASYAYNGEMNP-SCVVPK-YVDTFDGRTY
 O76823_Blattella_germanica -----SFAKRFAKVALPLYKPT-CVVDSS-YINTFDNFTY
 Q7PQM2_Anopheles_gambiae -----DYERMFNYAYRGNYP-SCAVSNK-FVNTFDGKTY
 UPI000258E3A9_Megachile_rotundata -----EKEDBADNSWLMDDVVS-TCVMDLN-RAETFDGKEF
 ADU04392.1_1_B_tabaci_B -----SGFDRLMQDTFOAKYQA-ACVADKM-HATTFDNKTY
 Q9U8M0_Periplaneta_americana -----TALDRLAREALPLYEP-TCVLDVS-QAATFDNTTY
 ADU04393.1_B_tabaci_EHJ-II -----SGFDRLMQDTFOAKYQA-ACVADKM-HATTFDNRTF
 Q27309_Bombyx_mori -----KAYELVANYFTGHQYQP-YCSIDGT-RIHTFSNRSY

VWFD

A7BK94_Nilaparvata_lugens PTHADLEGWHVMFASTPKN--FNONSGRYSASNSQSNSRYKYKK-----
 Q868N5_Apis_mellifera PLRL-GPCWHAVMTTPYPRINPDNHNKHLIPKDKS-----
 R4KE43_Helicoverpa_armigera DYEL-SKSWHVVMREBYNKIRGKWD-----
 Q9USD8_Plautia_stali SIDY-EDFTYVLVYALPGEHFESSEDSSE--EYESTYLG-----
 O02024_Riptortus_clavatus PIDL-GNCYHVFAMYAPQGGENRQHESISNIQGG-----
 D6W7J2_Tribolium_castaneum PIDL-SKDVVLLHYVPRRPSPIKNQPYLTVPEQLNQVEGY-----
 D6W721_Tribolium_castaneum PSSF-SNGWTVLLHYVPRRPSSSQNKPYESVQELNLEVESY-----
 B_tabaci_Asiatic PAHF-QNNWYVLLMAYMNRNNYNNNFNQYL---QNKNOHSYRDYNEKRF

BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
Q16927_Aedes_aegypti
G0ETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_american
E0VE52_Pediculus_humanus_corporis
B0W351_Culex quinquefasciatus
Q76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B
Q9U8M0_Periplaneta_american
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

VWFD

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9USD8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiatic
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
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G0ETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_american
E0VE52_Pediculus_humanus_corporis
B0W351_Culex quinquefasciatus
O76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B
Q9U8M0_Periplaneta_american
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

VWFD

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9USD8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum
B_tabaci_Asiatic
BAG84131_Tetranychus_urticae
ADU04394.1_B_tabaci_Q
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G0ETK0_Nilaparvata_lugens
Q9BPS0_Periplaneta_american
E0VE52_Pediculus_humanus_corporis
B0W351_Culex quinquefasciatus
Q76823_Blattella_germanica
Q7PQM2_Anopheles_gambiae
UPI000258E3A9_Megachile_rotundata
ADU04392.1_1_B_tabaci_B
Q9U8M0_Periplaneta_american
ADU04393.1_B_tabaci_EHJ-II
Q27309_Bombyx_mori

VWFD

A7BK94_Nilaparvata_lugens
Q868N5_Apis_mellifera
R4KE43_Helicoverpa_armigera
Q9USD8_Plautia_stali
O02024_Riptortus_clavatus
D6W7J2_Tribolium_castaneum
D6W721_Tribolium_castaneum

D6W721_Tribolium_castaneum
B_tabaci_Asial
 BAG84131_Tetranychus_urticae
 ADU04394.1_B_tabaci_Q
 Q16927_Aedes_aegypti
 G0ETK0_Nilaparvata_lugens
 Q9BPS0_Periplaneta_americanana
 B0VE52_Pediculus_humanus_corporis
 B0W351_Culex_quinquefasciatus
 O76823_Blattella_germanica
 Q7PQM2_Anopheles_gambiae
 UPI000258B3A9_Megachile_rotundata
 ADU04392.1_1_B_tabaci_B
 Q9U8M0_Periplaneta_americanana
 ADU04393.1_B_tabaci_EHJ-II
 Q27309_Bombyx_mori

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QNKKYARNEDASYSSSSSSSSSSSDSSSSSSSSMDN-----
KNNKYAKDQDSSYSSSSSSSSSDSSSSSSSDSSSSSSSSSSPSSSSSSSDSS
RYRYYNHNVBESSSSSSSSSDSSSSSSSESSSR-----
GIRPYDIDDDSSSSSSSSSSSSSSSSSSSKSNS-----
RYRYYNHNVDSSSSESDSSSSSSSESSSNSKSDSSS-----
QVIKLADTSSSESSSESHENNSPSSBSQVNKSKRQPNSRPR-----
RYNYYYKDFDLSSSSSSESSSSSDE-----
KNNKYAKDQDSSYSSSSSSSDSSSSSSSDSSSSSSSS-----
FELPHPVNDTSSSSSSSESSSSSSSSSESASNSDLHNN-----
KNNKYAKDQDSSYSSSSSSSDSSSSSSSDSSSSSSSSPSSSSSSSDSS
-----

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A7BK94_Nilaparvata_lugens
 Q868N5_Apis_mellifera
 R4KE43_Helicoverpa_armigera
 Q9U5D8_Plautia_stali
 O02024_Riptortus_clavatus
 D6W7J2_Tribolium_castaneum
 D6W721_Tribolium_castaneum
B_tabaci_Asial
 BAG84131_Tetranychus_urticae
 ADU04394.1_B_tabaci_Q
 Q16927_Aedes_aegypti
 G0ETK0_Nilaparvata_lugens
 Q9BPS0_Periplaneta_americanana
 B0VE52_Pediculus_humanus_corporis
 B0W351_Culex_quinquefasciatus
 O76823_Blattella_germanica
 Q7PQM2_Anopheles_gambiae
 UPI000258B3A9_Megachile_rotundata
 ADU04392.1_1_B_tabaci_B
 Q9U8M0_Periplaneta_americanana
 ADU04393.1_B_tabaci_EHJ-II
 Q27309_Bombyx_mori

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--SSSSSSNRNNNRNNNNKNNRSNNNSSERLANP-----
-----DTEMSTWGYHHNVNKHCT-----
AIRQRDEBWTSTPNVYRTRSYLKKRGQCQ-----
-----RRLQTMPGNDIEGKLPMPSCS-----
QQQNNKSKKNKANGSEBRMKVQGSBCS-----
-----GGEMYAREG-----
IDAERRGRGBCS-----
SYYYNNNGNNDNNNRNNNRNNKNNRNGSSSSSSSSSSPSSMBSYBQR
RRSPKFLSAGKSDKKASIQP-----
SSSSSSSQSNDNNRNNNNRNNNSNNNNNRNNNNRNNNNNNSSSSQSBASYBQR
SRSGSSSSSSSEBQKQEPHFKQBEHSMKBCP-----
SSSSSSNRNNNRNNNNRNNRSNNNSSERLANP-----
TSSSSSESNESALPRGENKLHRAQPPSRNCH-----
BYGDSQEBESGETTDGHNTKCT-----
SSSSSSSSSSSEBSEKHEPDSQKYSMKBCD-----
SSSSSSSSSSSESNBSVLAKKIINNQIGKPE-----TLIPBQSPM
SDDSNSSSEBRKPNREHFFEKQOYTEKCA-----
SSSSSSSSSDSSSQSNDNNRNNNNRNNNNRQ-----
STSSSSSSSSSEBSEAGAPEKSRKTSBPQ-----
SSSSSSSQSNDNNRNNNNRNNNSNNNNNRNNNNRNNNNNNSSSSQSBASYBQR
BSQSCGEDQWQSETVYKRSYDKHKGACB-----

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A7BK94_Nilaparvata_lugens
 Q868N5_Apis_mellifera
 R4KE43_Helicoverpa_armigera
 Q9U5D8_Plautia_stali
 O02024_Riptortus_clavatus
 D6W7J2_Tribolium_castaneum
 D6W721_Tribolium_castaneum
B_tabaci_Asial
 BAG84131_Tetranychus_urticae
 ADU04394.1_B_tabaci_Q
 Q16927_Aedes_aegypti
 G0ETK0_Nilaparvata_lugens
 Q9BPS0_Periplaneta_americanana
 B0VE52_Pediculus_humanus_corporis
 B0W351_Culex_quinquefasciatus
 O76823_Blattella_germanica
 Q7PQM2_Anopheles_gambiae
 UPI000258B3A9_Megachile_rotundata
 ADU04392.1_1_B_tabaci_B
 Q9U8M0_Periplaneta_americanana
 ADU04393.1_B_tabaci_EHJ-II
 Q27309_Bombyx_mori

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-----TKLIQDVKNNGDQVCISIRPVPKQCKG-FSPAGSSEKBEVDYVCM
IHRTOVKETDDKICFTMRPVVSCASG-CTAVETKSKPKYKFCM
LVQQVQYHBNHGBICITTTPLPSCQSH-CHGEGYKVOAAQVICQ
TYKIQIVKEGGRSCFSLRPQVSCNPN-CKPTKNIQKHEIFHCR
KLMTQIVBENDKSCFSTTPQACASH-CRPTGKIQKIVDFHCV
IMYRTOYALAAGQTCFISISVPVCKDG-YKQVESLNRFPVPAHCV
KLQTRYVBNGBICFTIRPLPVCKSR-CQQRGTIYKNVQVYCS
NQNGPSIRKLYRSMNGBDGTCSFVNSIPTCRYF-YKPOGGANKEIDFYCV
ELRTIVIKRENDICLSKFPPEYMCNPN-FKPTTTTSKQIDLVC
NQNGPSIRKLYRAINQDDMCFTINAIPTCRYF-AKPVGSAKKMVDIFYCA
VQHQQVFEQGDRTCFSLRPLPVCHSK-CVATEKISKYFDVHCF
TKLIQDVKNNGDQVCISIRPVPKQCKG-FSPAGSSEKBEVDYVCM
MHLHRIVTRNGKQICISKLALTECAPL-CREESHSTTKTEAFVCF
TKRIMVIERDQKHCFSVHPQACKPG-CQVBKTKTMNAEFICV
MVHQVQYVEKDNELCFSKRPLPVCNSR-CKAVEKEAKYVDVHCR
TSDDKCMTQQRPHTYBNQFCVSEKPLDTCMPLICHATESYIDVNFYCV
MQHRVQYIEQGDKICFTNRALPTCSSQ-CKAFEKIQKYVDVHCR
-----PACATI-SR-----
CQQQQPQQQQPQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ
STLHRTMVVEBVTBICFSMRPLPECAPR-FKPADTLKKKIKFHCCL
NQNGPSIRKLYRAINQDDMCFTINAIPTCRYF-AKPVGSAKKMVDIFYCA
VRQQVQFYBNHGBICITTSRVVPSQSH-CRAGDYKIQHVQVTC

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A7BK94_Nilaparvata_lugens
 Q868N5_Apis_mellifera
 R4KE43_Helicoverpa_armigera
 Q9U5D8_Plautia_stali
 O02024_Riptortus_clavatus

```

SHGKN-AQFWINQIFQGGYV-LLEQKQH--NAT--FMKNIPQRCVRDN--
EKNEA-AMKLLKRIEKGANP-DLSQKPV--STT--BELTVPFVCKA----
SKADQQRFTYRNQIQGGQNP-QVTGVPK--VEQ--YRVPTSCKA----
PDNDNLTGHWLRMVQKGANP-DLSQKSS--NSK--MSVMLPBGCTSIIH--
QASSS-SRNWAQMIKNGANP-DPSAKEK--HRQ--ILLQLPTGCVFKA--

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D6W7J2_Tribolium_castaneum	ESSQL-ARSLRRQIDQGANF-SFKSKPC--HSE--VMMOMAKRCEN----
D6W721_Tribolium_castaneum	RSTSS-TNLWKNEIQKGASP-DPSLQQV--SKT--IQMEMPKKCLP----
<u>B_tabaci_Asiaticus</u>	PRNSEEAQYFEKLMKKGVNPSQLSSKKA--NQ--FKVNIPEYCVV----
BAG84131_Tetranychus_urticae	PNAHPTAHLWAKEAEKRLIT-EVRDFDS--TST--STYDRPTKCVAESVR
ADU04394.1_B_tabaci_Q	PKSSSEAAQHFSKLIAGGAAPSQLSLKKF--NQK--FEVNIPEYCVV----
Q16927_Aedes_aegypti	EKDSTQAKKPKSDIGRGYTP-DFKSFAP--HKT--YKFNYPKSCVYKAY-
G0ETK0_Nilaparvata_lugens	SHGKN-AQFWINQIFQGGYV-KLEQKQH--NAT--FMKNIPQRCVDRN--
Q9BPS0_Periplaneta_americana	PPGPT-ADHYTKLVRKGVSP-DFSRKTD--IVN--LRVTIPSRCVFSKI--
B0VE52_Pediculus_humanus_corporis	NKTQT-SSHWAQMVARGAQP-NPKNKAN--ACK--MQFEGPEVCTDA---
B0W351_Culex_quinquefasciatus	SVQDSAAQMLKQQIRKGVNP-DMSAKSV--SKT--MKFAVPKQCVHIH--
O76823_Blattella_germanica	PLGPA-AHHYMKLVKKGILP-DLSRNRN--GRVVLPVFIPIQCEPVLN-
Q7PQM2_Anopheles_gambiae	DATDSAAQLFKQIRKGVNP-DMSNKSIV--TST--VKYFEPKCKVFAN--
UPI000258B3A9_Megachile_rotundata	-----R-----
ADU04392.1_1_B_tabaci_B	PRSQLRTKPKKRTLYPQTVPCHQPRRREVLHQRYPNLQIPSCARWKRQHE
Q9U8M0_Periplaneta_americana	TKGPT-ASHWLKMKVKKGVNP-DFSARKRE--HQ--LEVDIPAKCVRRH---
ADU04393.1_B_tabaci_SHJ-II	PKSSSEAAQHFSKLIAGGAAPSQLSLKKF--NQK--FEVNIPEYCVV----
Q27309_Bombyx_mori	SKLDHDFRMYKBEQIKKQNE-EVSGIPS--VQK--FKVPEVTCQF----

A7BK94_Nilaparvata_lugens	--
Q868N5_Apis_mellifera	--
R4KE43_Helicoverpa_armigera	--
Q9USD8_Plautia_stali	--
O02024_Riptortus_clavatus	--
D6W7J2_Tribolium_castaneum	--
D6W721_Tribolium_castaneum	--
<u>B_tabaci_Asiaticus</u>	--
BAG84131_Tetranychus_urticae	G I
ADU04394.1_B_tabaci_Q	--
Q16927_Aedes_aegypti	--
G0ETK0_Nilaparvata_lugens	--
Q9BPS0_Periplaneta_americana	--
B0VE52_Pediculus_humanus_corporis	--
B0W351_Culex_quinquefasciatus	--
O76823_Blattella_germanica	--
Q7PQM2_Anopheles_gambiae	--
UPI000258B3A9_Megachile_rotundata	--
ADU04392.1_1_B_tabaci_B	N G
Q9U8M0_Periplaneta_americana	--
ADU04393.1_B_tabaci_SHJ-II	--
Q27309_Bombyx_mori	--