

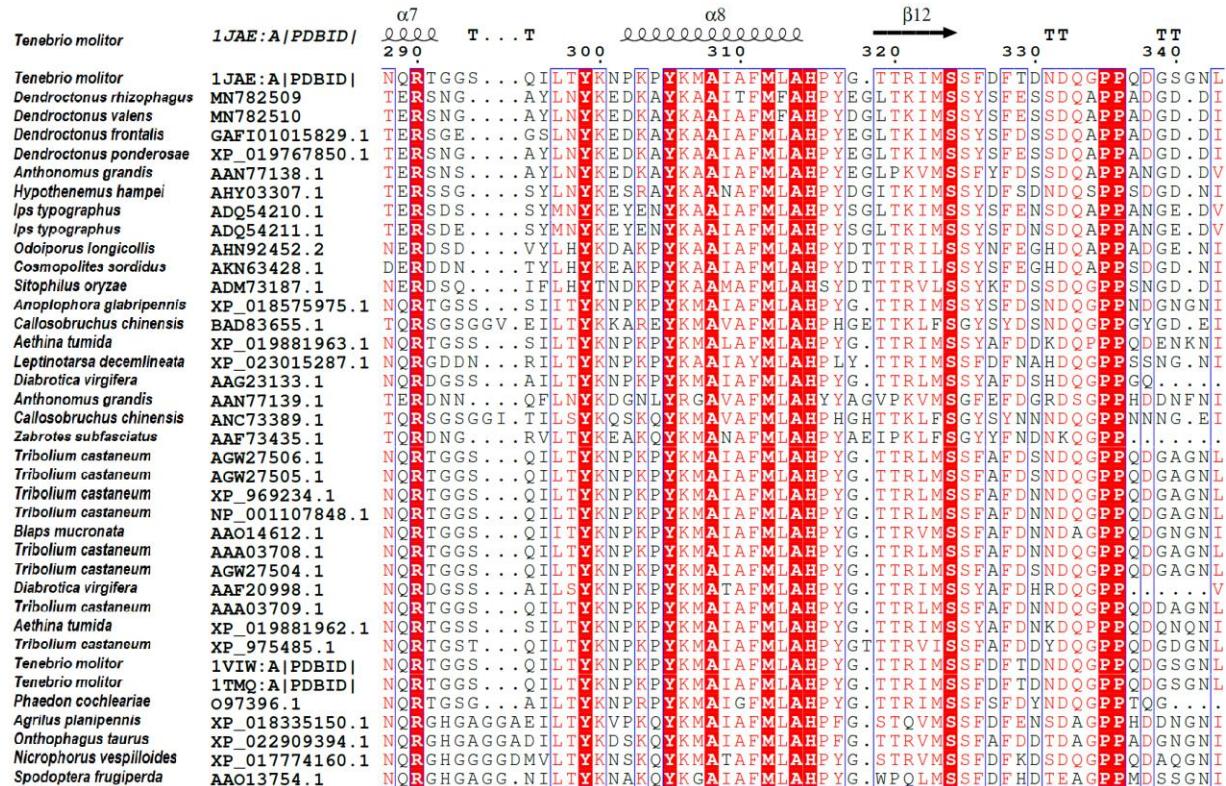
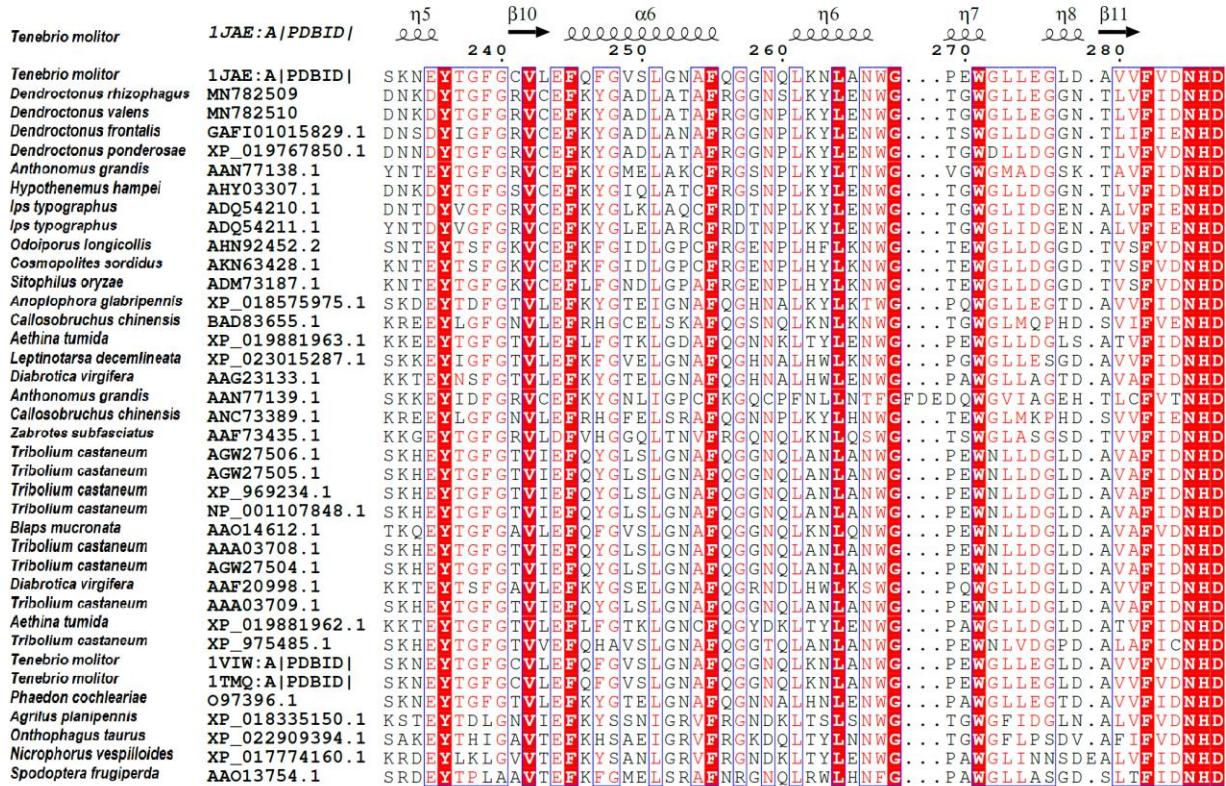
Tenebrio molitor	1JAE:A PDBID		β_1		α_1		β_2		TT	α_2
			TT	10	TT	20	llllllll	30	TT	
Tenebrio molitor	1JAE:A PDBID	E K D A N F A S G R N S I V H L F E W K W N D I A D E C E R F L Q P Q G F G G V Q I S P P N E Y L V A . . . D G R P W W								
Dendroctonus rhizophagus	MN782509	Q H D P H F L D G K N T I V H L F E W K W S D I A S E C E N W L K G F A G V Q I S P P S E N A V V . . . E G R P W W								
Dendroctonus valens	MN782510	Q H D P H F L D G K N T I V H L F E W K W S D I A S E C E N W L S K G F A G V Q I S P P S E N A V V . . . E G R P W W								
Dendroctonus frontalis	GAFI01015829.1	Q H D P H F L E G K N S I V H L F E W K W S D I A A E C E N W L S K G F A G V Q I S P P S E N A V V . . . E G R P W W								
Dendroctonus ponderosae	XP_019767850.1	Q H D P H F L E G K N T I V H L F E W K W S D I A S E C E N W L S K G F A G V Q I S P P S E N A V V . . . E G R P W W								
Anthonomus grandis	AAN77138.1	Q H D P H W V D G R S T I V H L F E W K W A D I A S E C E N F L S K G F A G V Q I S P P S E N A V V . . . S G R P W W								
Hypothenemus hampei	AHY03307.1	Q H D P H F A D G R N T I V H L F G W K W G D I A S E C E N W L R K G F A G V Q I S P P S E N P I V . . . S G R P W W								
Ips typographus	ADQ54210.1	Q H D P H F E N G R N T I V H L F E W K W S D I A N E C E N F L S K A Y A G V Q I S P P S E N P K V . . . E G R P W W								
Ips typographus	ADQ54211.1	Q H D P H F E D G R N T I V H L F E W K W S D I A D E C E N F L S K A Y A G V Q I S P P S E N P K V . . . E G R P W W								
Odoiporus longicollis	AHN92452.2	Q K D P Y F W E G R N T I V H L F E W K H V D V A A E C E N F L S Q K G Y G G V Q V S P P S E N A I V . . . E G R P W W								
Cosmopolites sordidus	AKN63428.1	Q K D S Q F W E G R N T I V H L F E W K H V D V A A E C E N F L S K G F A G V Q V S P P S E N A V V . . . E G R P W W								
Sitophilus oryzae	ADM73187.1	Q K D P H F L D G R N T I V H L F E W K W A D I A S E C E N F L S V K N F A G V Q V S P P A E S V V V . . . E G R P W W								
Anoplophora glabripennis	XP_018575975.1	Q K N N N F E T G R N T I V H L F E W K W S D I A S E C E N F L G P K G F A G V Q I S P P N E N E V I V Q N G D R P W W								
Callosobruchus chinensis	BAD83655.1	Q K N N N F V P G R N S I V Q M F E W R W D D I A N E C E T F L P K G F A G V Q I S P P S E N I V V . . . N G R P W W								
Aethina tumida	XP_019881963.1	Q K D P H F A D D R S V I H L F E W K W S D I A D E C E R Y L P G K G F G G V Q I S P P N E N L V I . . . S S S N R P W W								
Leptinotarsa decemlineata	XP_023015287.1	Q K N N N F A N G R S A I V H L F E W K W A D I A N E C E N F L G P K G F A G V Q I S P P S E N A V I . . . G D R P W W								
Diabrotica virgifera	AAG23133.1	Q K D N H F A Q G R N T I V H L F E W K H W D A I A S E C E N F L P K G F A G V Q V S P P N E N S V I . . . G D R P W W								
Anthonomus grandis	AAN77139.1	Q K P N P F V D G R G T I V H L F D W T W S D I A D E C E N F L G P N G F G G V Q T S P P N E N I I W V Q N N D R P W W								
Callosobruchus chinensis	ANC73389.1	Q K N N N F H P G R N S I I Q M F E W R W D A I A D E C E K F L G P R G F A G V Q I S P P S E N V I I . . . N A R P W W								
Zabrotes subfasciatus	AAF73435.1	Q K N S N F Q P G R N S I V Q M F E W N W G N L A K E C E T F L P K G F A G I Q I S P P N E N V V V . . . G D E G R P W W								
Tribolium castaneum	AGW27506.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Tribolium castaneum	AGW27505.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q V S P P N E N L V V . . . T S S N R P W W								
Tribolium castaneum	XP_969234.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Tribolium castaneum	NP_001107848.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Blaps mucronata	AAO14612.1	Q K I A N F A D G R N T I V H L F E W K W N D I A D E C E R F L G P K G F G G V Q I S P P N E Y L V I . . . A D S G R P W W								
Tribolium castaneum	AAA03708.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Tribolium castaneum	AGW27504.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Diabrotica virgifera	AAF20998.1	Q K K N H F A G G R N T I V Q L F E W H W D A I A N E C E N F L G P K G F A G V Q V S P P N E N C V V . . . N G R P W W								
Tribolium castaneum	AAA03709.1	Q K D P H F A A D R N S I V H L F E W K W S D I A D V C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Aethina tumida	XP_019881962.1	Q K N P L F A D G R S V I H L F E W K W E D I A L E C E R Y L P G K G F G G V Q I S P P N E N L V V . . . S A N N R P W W								
Tribolium castaneum	XP_975485.1	Q K D P H F A A D R N T I V H L F E W K W S D I A D E C E R F L A P K G F G G V Q I S P P N E N L V V . . . T S S N R P W W								
Tenebrio molitor	1VIW:A PDBID	X K D A N F A S G R N S I V H L F E W K W N D I A D E C E R F L Q P Q G F G G V Q I S P P N E Y L V A . . . D G R P W W								
Tenebrio molitor	1TMQ:A PDBID	X K D A N F A S G R N S I V H L F E W K W N D I A D E C E R F L Q P Q G F G G V Q I S P P N E Y L V A . . . D G R P W W								
Phaedon cochleariae	O97396.1	Q K N N N F A P G R N T I V H L F E W H W D I A N E C E N F L G P K G F A G V Q I S P P A E N T V I . . . G D R P W W								
Agrilus planipennis	XP_018335150.1	Q P D N H W Q A G R S T I V H L F E W K W D D I A D E C E R F L A P K G Y G G V Q I S P P S E N V I V T D Q A Y R P W W								
Onthophagus taurus	XP_022909394.1	Q F P T N M W D N R D T M V H L F E W K F S D V A D E C E R F L Q P K G Y G G V Q V S P V S E N A I V . . . D K R P W W								
Nicrophorus vespilloides	XP_017774160.1	Y K N P F W D D R N S I V H L F E W K W N D I A D E C E R F L Q K K G Y G V Q V S P V N E N V I V . . . P N R P W W								
Spodoptera frugiperda	AAO13754.1	Y K N P H Y A S G R T T M V H L F E W K W D D I A R E C E T F L G P R G Y G G I Q I S P P N E N L A I . . . W S R Q R P W W								

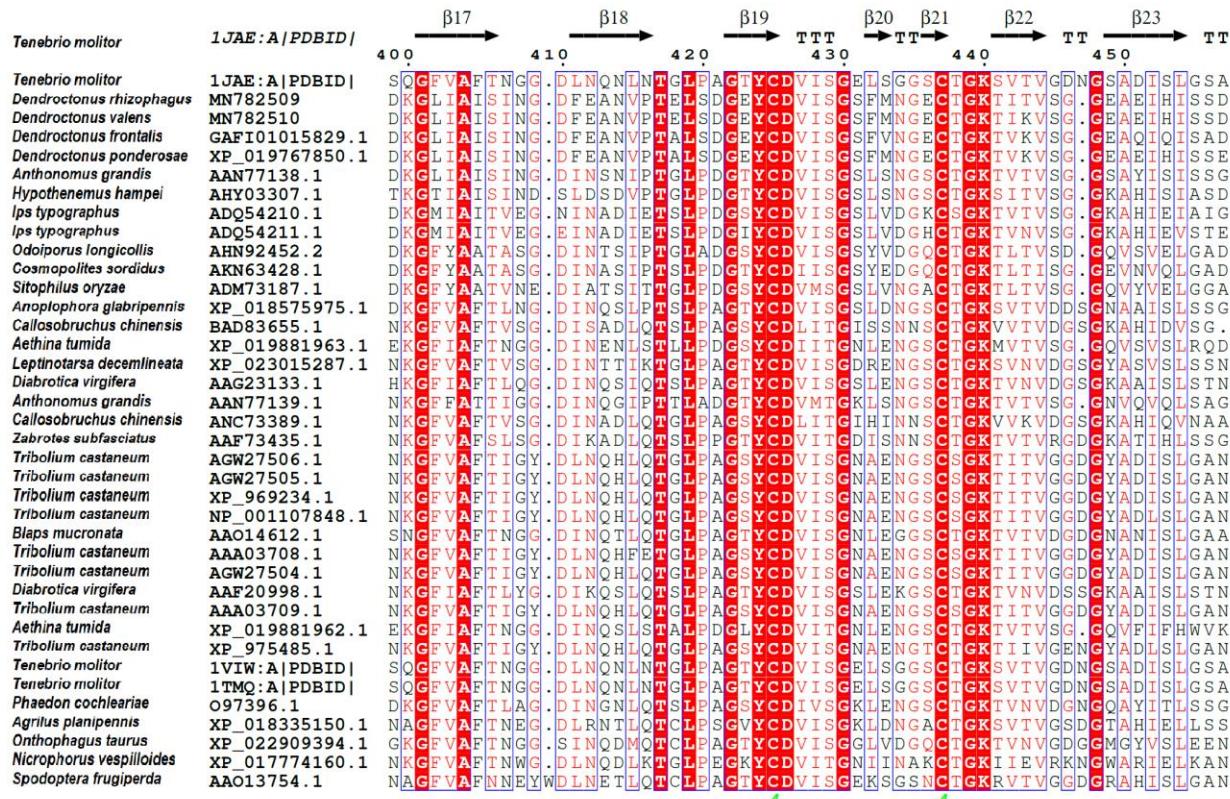
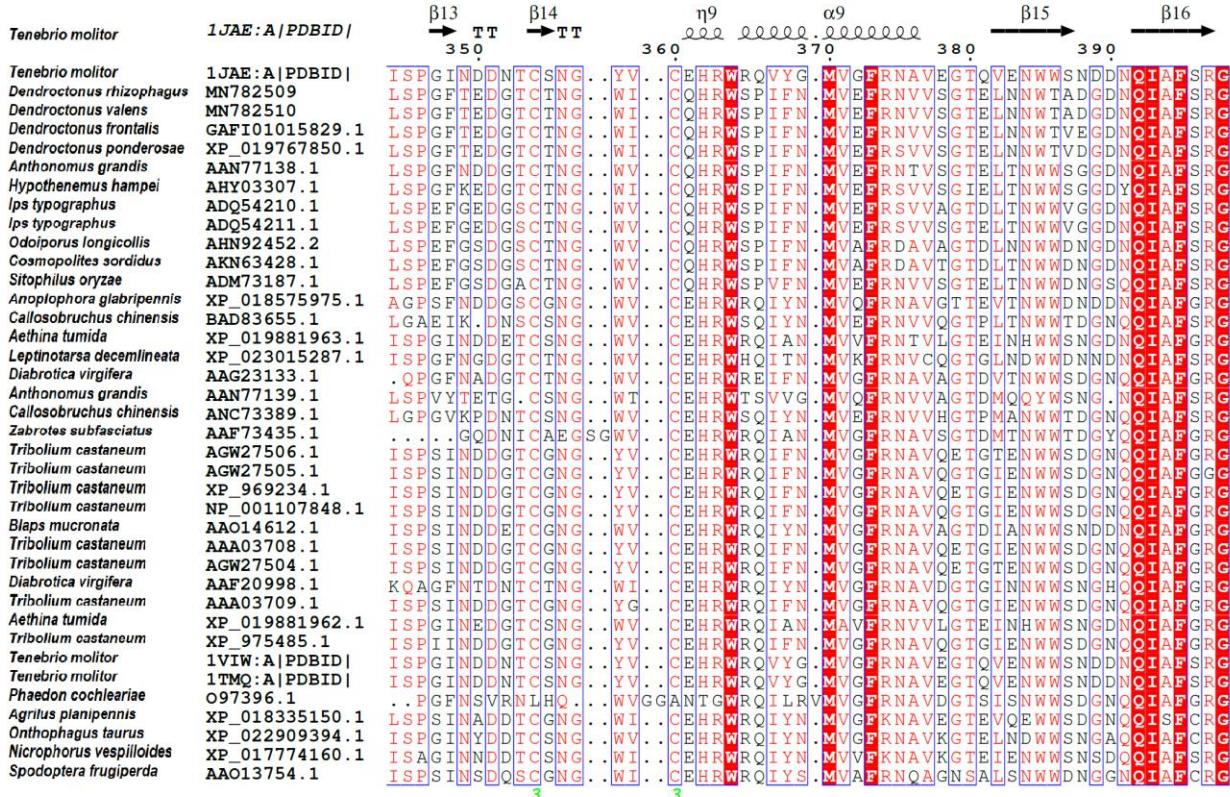
Tenebrio molitor	1JAE:A PDBID		η_1		β_3		β_4		α_2		β_5		β_6		β_7	
			TT	60	TT	70	TT	80	llllllll	90	TT	100	TT	110	TT	120
Tenebrio molitor	1JAE:A PDBID	E R Y Q P V S Y I N T R S G D E S A F T D M T R C N D A G V R I Y V D A V I N H M T G M . . N G V G T S G S S A D H														
Dendroctonus rhizophagus	MN782509	E K Y Q P V S Y I L Q N R N G D E S A L G D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Dendroctonus valens	MN782510	E K Y Q P V S Y I L Q N R N G D E S A L G D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Dendroctonus frontalis	GAFI01015829.1	E K Y Q P V S Y I L Q N R N G D E N A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Dendroctonus ponderosae	XP_019767850.1	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Anthonomus grandis	AAN77138.1	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Hypothenemus hampei	AHY03307.1	E N Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Ips typographus	ADQ54210.1	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Ips typographus	ADQ54211.1	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Odoiporus longicollis	AHN92452.2	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Cosmopolites sordidus	AKN63428.1	E K Y Q P V S Y I L Q N R N G D E S A L A D M I K R C N V G I R I Y A D L V V N H M A T S . . T G Q G T A G N T C D P														
Sitophilus oryzae	ADM73187.1	E R Y Q P L S Y I L N T R S G D E G A L K S M I S R C N K A G I R V R Y A D L V V N H M A A A . . S G S G T A G H S C D A														
Anoplophora glabripennis	XP_018575975.1	E R Y Q P L S Y I L N T R S G D E G A L K S M I S R C N K A G I R V R Y A D L V V N H M A A A . . S G S G T A G H S C D A														
Callosobruchus chinensis	BAD83655.1	E R Y Q P L S Y I L N T R S G D E G A L K S M I S R C N K A G I R V R Y A D L V V N H M A A A . . S G S G T A G H S C D A														
Zabrotes subfasciatus	AAF73435.1	E R Y Q P L S Y I L N T R S G D E G A L K S M I S R C N K A G I R V R Y A D L V V N H M A A A . . S G S G T A G H S C D A														
Tribolium castaneum	AGW27506.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Tribolium castaneum	AGW27505.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Tribolium castaneum	NP_001107848.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Blaps mucronata	AAO14612.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Tribolium castaneum	AAA03708.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Tribolium castaneum	AGW27504.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M T G M . . G T G T A G S Q A D R														
Diabrotica virgifera	AAF20998.1	E R Y Q P V S Y I L N T R S G D E T A F A N I V R C N N A V G V R I Y V D V I N H M S A T . . S G G G T A G G S C D V														
Tribolium castaneum	AAA03709.1	E R Y Q P V S Y I L N T R S G D E T A F A N I V R C N N A V G V R I Y V D V I N H M S A T . . S T E G T A G D V C D P														
Aethina tumida	XP_019881962.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M S A T . . R G T G T A E N N C D P														
Tribolium castaneum	XP_975485.1	E R Y Q P V S Y I L N T R S G D E T A L A D M I S R C N A V G V R I Y V D V I N H M S A T . . R G T G T A E N N C D P														
Tenebrio molitor	1VIW:A PDBID	E R Y Q P V S Y I N T R S G N E S A F T D M T R C N D A G V R I Y V D A V I N H M T G M . . N G V G T S G S S A D H														
Tenebrio molitor	1TMQ:A PDBID	E R Y Q P V S Y I N T R S G N E S A F T D M T R C N D A G V R I Y V D A V I N H M T G M . . N G V G T S G S S A D H														
Phaedon cochleariae	O97396.1	E R Y Q P I S Y I A L N T R S G D E S A L A M I S R C N N A V G V R I Y V D A V I N H M T G M . . S G I G T G G S S C D V														
Agrilus planipennis	XP_018335150.1	E R Y Q P I S Y I N L V T R S G N E E Q F I N M V R C N N A V G V R I Y A D A V I N H M T G D R G D A V G T G S S T A A T														
Onthophagus taurus	XP_022909394.1	E R Y Q P I S Y I N F G T R S G G E S E F A D M T K R C N A V G V R I Y V D V I L N H M T G N W Q I T G T A G S T A D S														
Nicrophorus vespilloides	XP_017774160.1	E R Y Q P I S Y I K L T T R S G N V E D F Q K M S K R C N A V G V R I Y V D V I L N H M A A Q . . Q N I G T A G S T A N P														
Spodoptera frugiperda	AAO13754.1	E R Y Q P I S Y I L V T R S G N E Q Q F A N M V R C N D A G V R I Y V D A I I N H M T G T W N E T G T G G S T A D F														

<i>Tenebrio molitor</i>	1JAE:A PDBID	120	130	140	150	160	170	η2	α3	α4
<i>Tenebrio molitor</i>	1JAE:A PDBID	DGMNYPAVPGSGDFH	.SPCEVNNTYQ	..DADNVRNCLEVGLRDLN	QGSDYVRGVLIDYM					
<i>Dendroctonus rhizophagus</i>	MN782509	SSKSYPAVSYSSEENFH	.TSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Dendroctonus valens</i>	MN782510	SSKSYPAVSYSSEENFH	.TSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Dendroctonus frontalis</i>	GAFI01015829.1	SSKSYPAVSYSSEENFH	.TSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Dendroctonus ponderosae</i>	XP_019767850.1	SSKSYPAVSYSSEENFH	.TSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Anthonomus grandis</i>	AAN77138.1	GSKSYPAVSYSSENFH	.ATCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Hypothenemus hampei</i>	AHY03307.1	GSKSYPAVPSNENFH	.ASCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Ips typographus</i>	ADQ54210.1	DTKSYPTVPTSENFH	.TSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Ips typographus</i>	ADQ54211.1	DTKSYPAVPSYSENFH	.PSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Odoiporus longicollis</i>	AHN92452.2	GSKSYPAVSYSENFH	.PSCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Cosmopolites sordidus</i>	AKN63428.1	GSKSYPAVSYSENFH	.PTCDI	..DAAISRNCELSGLKDL	DQSQDYVRGKIEYEM					
<i>Sitophilus oryzae</i>	ADM73187.1	S SKSYPAVSYTSENFH	.TSCDI	..DAAISRNCELTGLKDL	DQSQDYVRGKIEYEM					
<i>Anoplophora glabripennis</i>	XP_018575975.1	D SKSYPGVPYGSNDNFH	.TTCTVNNYNN	..DAEVRNCLEVGLKDL	DQSQDYVRQKIVAFL					
<i>Callosobruchus chinensis</i>	BAD83655.1	G SKSYPTVYGGDFH	.KSCPPI	..DPAEVNRNCLEVGLPDL	DQGRQYVRDKIVEYEM					
<i>Aethina tumida</i>	XP_019881963.1	D NKKFPGVSYGSDDFH	.ASCRD	..DAEVRNCLEVGLKDL	DQSHAYVRQKIVEYEM					
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	G SKYFPAPVYNSDDFH	.PTCTVNNYNN	..DAANVRNCLEVGLPDL	DQSKDGVRQKLVAYI					
<i>Diabrotica virgifera</i>	AAG23133.1	G SLSYPSPVFGSNDFH	.SKCDI	..DANNIRNCWLGLPDL	DQSHDYVRQKIVEYL					
<i>Anthonomus grandis</i>	AAN77139.1	T NRDYPAPVYTIEHFH	.PTCGM	..SPSAIRNCLEVGLPDL	NTEDYVREREKIDYM					
<i>Callosobruchus chinensis</i>	ANC73389.1	G SRSYPAVYGGDFH	.KSCPPLINNYG	..DPAEVNRNCLEVGLPDL	DQSKQYVRDKIVEYEM					
<i>Zabrotus subfaeciatus</i>	AAF73435.1	S KSKSYPAVYGPDDFH	.PDCMI	..DVNNVRNCQLVGLPDL	DQSKQYVRDKIVGYL					
<i>Tribolium castaneum</i>	AGW27506.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Tribolium castaneum</i>	AGW27505.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Tribolium castaneum</i>	XP_969234.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Tribolium castaneum</i>	NP_001107848.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Blaps mucronata</i>	AAO14612.1	AGKNYPAVYGSDFH	.DISCA	..DTNNVRNCLEGLADL	DQSEYVRGKIEYEM					
<i>Tribolium castaneum</i>	AAA03708.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Tribolium castaneum</i>	AGW27504.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Diabrotica virgifera</i>	AAF20998.1	G SLSYPGVPGPNFH	.SRCDI	..ESHNIRNCALTLGLPDL	DQSHEHVRKIVELY					
<i>Tribolium castaneum</i>	AAA03709.1	D GKNYPAVYGSDFH	.DSCTVNNYQ	..DASNVRNCLEVGLADL	NQGSDYVRSKIEYEM					
<i>Aethina tumida</i>	XP_019881962.1	G NKQFPGIPYGPDFH	.DSCA	..DASNVRNCLEVGLKDL	DSSHYVRQKIVEYEM					
<i>Tribolium castaneum</i>	XP_975485.1	D GKNYPAVYGPDDFH	.EFCT	..DASNVRNCLEVGLIDL	NQSLDHVRSKIEFEM					
<i>Tenebrio molitor</i>	1VIW:A PDBID	D GMNYPAVYGSDFH	.SPCE	..DADNVRNCLEVGLRDL	NAGSDYVRGVLIDYM					
<i>Tenebrio molitor</i>	1TMQ:A PDBID	D GMNYPAVYGSDFH	.SPCE	..DADNVRNCLEVGLRDL	NQGSDYVRGVLIDYM					
<i>Phaedon cochleariae</i>	O97396.1	E PISASPAVYGSDFH	.GRC	..DPNNIRNCWLGLPDL	DQSKDVRDKEILEYL					
<i>Agrilus planipennis</i>	XP_018335150.1	SSEEYPAPVYHAEHFH	.PSCS	..DANNVRNCSELGLKDL	QSNSYVAGKIIDYM					
<i>Onthophagus taurus</i>	XP_022909394.1	AIKSYPAVYSAPDFN	.SDCA	..DASNVRNCLEVGLRDL	HQSSEYVRGKMDFL					
<i>Nicrophorus vespilloides</i>	XP_017774160.1	GSKEYPAVYGPNDFH	.PDCS	..DANEVRNCLEVGLRDL	HQGTNYVRGKLVFEL					
<i>Spodoptera frugiperda</i>	AAO13754.1	GNWGYPGVPYGRNDF	.FNWP	..DRVHCCADRVRC	QGENYVRQQIVNYM					

<i>Tenebrio molitor</i>	1JAE:A PDBID	180	190	200	210	220	230	β8	η3	α5	η4	TT	β9
<i>Tenebrio molitor</i>	1JAE:A PDBID	NHMI	D LGVAGFRVDAAKHMSPGDL	S VIFSGL	KLN LNTD	YGF	FADGARPF	I YQEVID	L GGEAI				
<i>Dendroctonus rhizophagus</i>	MN782509	NHLI	S LGVAGFRVDAAKHMWPADL	S EMFGSV	VNDL NTE	F	FSEGS	KPLFY	YQEVID	T GSDPI			
<i>Dendroctonus valens</i>	MN782510	NHLI	S LGVAGFRVDAAKHMWPADL	S EMFGSV	VNDL NTE	F	FSEGS	KALFY	YQEVID	T GSDPI			
<i>Dendroctonus frontalis</i>	GAFI01015829.1	NHLI	S LGVAGFRVDAAKHMWPADL	S EMFGSV	VNDL NTE	F	FSEGS	KPLFY	YQEVID	T GSDPI			
<i>Dendroctonus ponderosae</i>	XP_019767850.1	NHLI	S LGVAGFRVDAAKHMWPADL	S EMFGSV	VNDL NTE	F	FSEGS	KPLFY	YQEVID	T GSDPI			
<i>Anthonomus grandis</i>	AAN77138.1	NHLI	S LGVAGFRVDAAKHMWPADL	S AIFGGSV	VNDL NTD	F	FPSGS	RAMYY	YQEVID	T GSDPV			
<i>Hypothenemus hampei</i>	AHY03307.1	NHLI	S LGVAGFRVDAAKHMWPADL	S AIFGGSV	VNDL NTD	F	FPSGS	RAYI	YQEVID	T GSDPV			
<i>Ips typographus</i>	ADQ54210.1	NHLI	S LGVAGFRVDAAKHMWPADL	S VIFSSV	NELNTE	Y	FPSGS	KPLFY	YQEVID	T GSDPV			
<i>Ips typographus</i>	ADQ54211.1	NHLI	S LGVAGFRVDAAKHMWPADL	S VIFSSV	NELNTE	Y	FPSGS	KPLFY	YQEVID	T GSDPV			
<i>Odoiporus longicollis</i>	AHN92452.2	NHLV	D LGVAGFRVDAAKHMWPADL	E AIFGFSV	VNDL NTD	QGFDGS	S RGPFI	I FQEVID	T GSDPV				
<i>Cosmopolites sordidus</i>	AKN63428.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIFGFSV	KDL NTD	QGFP	S GARAFI	I FQEVID	T GSDPV				
<i>Sitophilus oryzae</i>	ADM73187.1	NHLI	S LGVAGFRVDAAKHMWPADL	QAIYGSV	KDL NTD	HGFAS	S GARAFI	I FQEVID	T STDPV				
<i>Anoplophora glabripennis</i>	XP_018575975.1	D QCVL	D LGVAGFRVDAAKHMWPADL	QAIYGSV	KDL NTD	HGFAS	GTRPFF	F QEVID	L GGEEAI				
<i>Callosobruchus chinensis</i>	BAD83655.1	NHLV	D LGIAGFRVDAAKHIWPADL	QAMYASV	KNL NTE	F	FPENS	RPFY	YQEVID	F GDAI			
<i>Aethina tumida</i>	XP_019881963.1	NHLI	D LGVAGFRVDAAKHMWPADL	E AIYQGL	ED	. TQF .	. GGKPF	I YQEVID	L GGEEAI				
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	DHLI	D LGVAGFRVDAAKHMWPADL	E AIYQGL	MA	KNL NTD	HGF	AEGS	RPF	F QEVID	L GGEEAI		
<i>Diabrotica virgifera</i>	AAG23133.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KDL T	. .	GSGLS	RPF	I YQEVID	L GGEEAV			
<i>Anthonomus grandis</i>	AAN77139.1	NHLI	E IGVAGFRIDAAKHMWPADL	E IIYGSV	NDL NTD	F	ISAGS	RPF	F QEVID	Y GNDVV			
<i>Callosobruchus chinensis</i>	ANC73389.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGRV	KNL NTE	F	F PAN	RPF	Y QEVID	F GGDAAV			
<i>Zabrotus subfaeciatus</i>	AAF73435.1	NHLV	D LGIAGFRVDAAKHMWPADL	S AIYGSV	KNL NSAY	F	F PGGS	RPF	I YQEVID	D YGTEPI			
<i>Tribolium castaneum</i>	AGW27506.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KNL NTD	HGF	LDGQ	KPF	I FQEVID	L GGEEAI			
<i>Tribolium castaneum</i>	AGW27505.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KNL NTD	HGF	LDGQ	KPF	I FQEVID	L GGEEAI			
<i>Tribolium castaneum</i>	XP_969234.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KNL NTD	HGF	P DQ	KPF	I FQEVID	L GGEEAI			
<i>Tribolium castaneum</i>	NP_001107848.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYASV	KNL NTD	HGF	LDGQ	KPF	I FQEVID	L GGEEAI			
<i>Blaps mucronata</i>	AAO14612.1	NHMV	D LGVAGFRVDAAKHMWPADL	E VIYGSV	KNL NSD	YGF	SGSE	RPF	I FQEVID	L GGEEPI			
<i>Tribolium castaneum</i>	AAA03708.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KNL NTD	HGF	LGQ	KPF	I FQEVID	L GGEEAI			
<i>Tribolium castaneum</i>	AGW27504.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KYL NT	HGF	LDGQ	KPF	I FQEVID	L GGEEAI			
<i>Diabrotica virgifera</i>	AAF20998.1	NHLV	D LGVAGFRVDAAKHMWPADL	KAIYDSV	KDL TGN	. .	G LSG	RPF	V YQEVID	L GGEEAV			
<i>Tribolium castaneum</i>	AAA03709.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KNL NTD	HGF	LDGQ	KPF	I FQEVID	L GGEEAI			
<i>Aethina tumida</i>	XP_019881962.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYQGL	KD	. TQF .	. .	GGKPF	I YQEVID	L GGEEPI			
<i>Tribolium castaneum</i>	XP_975485.1	NHLV	D LGVAGFRVDAAKHMWPADL	E AIYGSV	KYL NT	HGF	LDGQ	KPF	I FQEVID	F GGEAV			
<i>Tenebrio molitor</i>	1VIW:A PDBID	NHMI	D LGVAGFRVDAAKHMSPGDL	S VIFDGL	KNL NTD	YGF	FADGARPF	I YQEVID	L GGEEAI				
<i>Tenebrio molitor</i>	1TMQ:A PDBID	NHMI	D LGVAGFRVDAAKHMSPGDL	S VIFSGL	KNL NTD	YGF	FADGARPF	I YQEVID	L GGEEAI				
<i>Phaedon cochleariae</i>	O97396.1	NHLV	D LGVAGFRVDAAKHMWPADL	QVYIGRV	KDL NTD	HGF	S QGS	RPF	F YQEVID	L GGEEGV			
<i>Agrilus planipennis</i>	XP_018335150.1	NKLI	S YGVAGFRIDAAKHMTP	SDL KVYDSL	NDL NTE	YGF	P ANS	KPF	I YQEVID	L GGEEAV			
<i>Onthophagus taurus</i>	XP_022909394.1	NKLV	N LGVGFRVDAAKHMWPADL	QVYIGRV	NNL NTD	YGF	P SGARPY	V YQEVID	L GGEGI				
<i>Nicrophorus vespilloides</i>	XP_017774160.1	NLNI	N LGVGFFRVDAAKHMWPADL	EDLKVIYNQV	KNL SVNYGF	APGS	R PYI	I YQEVID	L GGEGI				
<i>Spodoptera frugiperda</i>	AAO13754.1	NHLI	N LGVGFRIDAAGKHMWPADL	RVYIYDRV	HNL NTAHGF	P SGARPYI	I YQEVID	*	L GGEEVI				

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<i>Tenebrio molitor</i>	<i>1JAE:A PDBID/</i>	$\beta 24 \xrightarrow{\quad} TT$
<i>Tenebrio molitor</i>	1JAE:A PDBID	460 470
<i>Dendroctonus rhizophagus</i>	MN782509	E D D G V L A I H V N A K L
<i>Dendroctonus valens</i>	MN782510	D T E A A I A I H V N A K L
<i>Dendroctonus frontalis</i>	GAF101015829.1	D T E A A I A I H V N A K L
<i>Dendroctonus ponderosae</i>	XP_019767850.1	D T E A A I A I H A N A K L
<i>Anthonomus grandis</i>	AAN77138.1	D T N A A V A I H V N A K C
<i>Hypothenemus hampei</i>	AHY03307.1	D R E A A V A I H A N A K L
<i>Ips typographus</i>	ADQ54210.1	E S E T A V A I H V N A K L
<i>Ips typographus</i>	ADQ54211.1	E S E C V V A V H V N A K L
<i>Odoiporus longicollis</i>	AHN92452.2	E T E A A V A I H V N A K L
<i>Cosmopolites sordidus</i>	AKN63428.1	E S E A A V A I H V N A K L
<i>Sitophilus oryzae</i>	ADM73187.1	E L E A A V A I H V N A K L
<i>Anoplophora glabripennis</i>	XP_018575975.1	E D D G V L A I H V N A K L
<i>Callosobruchus chinensis</i>	BAD83655.1	. V D G V L A I H V N S R L Q S K L
<i>Aethina tumida</i>	XP_019881963.1	E E D G V M A I H L G A K L
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	G D D F V L A I H E E S K L
<i>Diabrotica virgifera</i>	AAG23133.1	E D D G V V A I H V N A K L
<i>Anthonomus grandis</i>	AAN77139.1	G D E I A M A I H V E S K L S
<i>Callosobruchus chinensis</i>	ANC73389.1	. L D G A L A I H V N A R V Q S K L
<i>Zabrotes subfasciatus</i>	AAF73435.1	E P D G I L A I H V S A K L T S K L
<i>Tribolium castaneum</i>	AGW27506.1	E D D G V I A I H V N A K L
<i>Tribolium castaneum</i>	AGW27505.1	E D D G V I A I H V N A K L
<i>Tribolium castaneum</i>	XP_969234.1	E D D G V I A I H V N A K L
<i>Tribolium castaneum</i>	NP_001107848.1	E D D G V I A I H V N A K L
<i>Blaps mucronata</i>	AAO14612.1	E D D G V L A I H I N A K V
<i>Tribolium castaneum</i>	AAA03708.1	E D D G V I A I H V N A K L
<i>Tribolium castaneum</i>	AGW27504.1	E D D G V I A I H V N A K L
<i>Diabrotica virgifera</i>	AAF20998.1	E E D G V V A I H V N A K L
<i>Tribolium castaneum</i>	AAA03709.1	E D D G V I A I H V N A K L
<i>Aethina tumida</i>	XP_019881962.1	M R R M E F
<i>Tribolium castaneum</i>	XP_975485.1	E D D G V I A I H V N A K L
<i>Tenebrio molitor</i>	1VIW:A PDBID	E D D G V L A I H V N A K L
<i>Tenebrio molitor</i>	1TMQ:A PDBID	E D D G V L A I H V N A K L
<i>Phaedon cochleariae</i>	O97396.1	E D D G F L A I H V G A K V
<i>Agabus planipennis</i>	XP_018335150.1	E D D G V L A I H I N A K Q S
<i>Onthophagus taurus</i>	XP_022909394.1	E D D G V L A I H V N A K L
<i>Nicrophorus vespilloides</i>	XP_017774160.1	E E D G V L A I H T N A R L
<i>Spodoptera frugiperda</i>	AAO13754.1	E F D M V L A I H T G P E V R I F V A L S