

<i>Tenebrio molitor</i>	1JAE:A PDBID	1	TT	β1	TT	α1	β2	TT	α2																																																		
<i>Tenebrio molitor</i>	1JAE:A PDBID	E	K	D	A	N	F	A	S	G	R	N	S	I	V	H	L	F	E	W	K	N	D	I	A	E	C	E	R	E	L	Q	P	Q	G	F	G	V	H	I	S	P	P	N	E	X	L	V	A	...	D	G	R	P	W	W			
<i>Dendroctonus rhizophagus</i>	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	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	A	V	V	...	E	G	R	P	W	W		
<i>Dendroctonus valens</i>	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	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	A	V	V	...	E	G	R	P	W	W		
<i>Dendroctonus frontalis</i>	GAF101015829.1	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	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	A	V	V	...	E	G	R	P	W	W		
<i>Dendroctonus ponderosae</i>	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	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	A	V	V	...	E	G	R	P	W	W		
<i>Anthonomus grandis</i>	AAN77138.1	Q	H	D	P	H	F	L	E	G	R	S	T	I	V	H	L	F	E	W	K	W	A	D	I	A	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	A	V	V	...	S	G	R	P	W	W		
<i>Hypothenemus hampei</i>	AHY03307.1	Q	H	D	P	H	F	A	D	G	R	N	T	I	V	H	L	F	E	W	K	W	D	I	A	E	C	E	N	E	L	S	K	K	G	F	A	G	V	I	S	P	P	S	E	N	P	I	V	...	E	G	R	P	W	W			
<i>Ips typographus</i>	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	E	C	E	N	E	L	S	K	K	A	Y	A	G	V	I	S	P	P	S	E	N	P	K	V	...	E	G	R	P	W	W		
<i>Ips typographus</i>	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	E	C	E	N	E	L	S	K	K	A	Y	A	G	V	I	S	P	P	S	E	N	P	K	V	...	E	G	R	P	W	W		
<i>Odoiporus longicollis</i>	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	E	C	E	N	E	L	S	K	K	G	F	G	G	V	Q	V	S	P	P	S	E	N	A	I	V	...	E	G	R	P	W	W	
<i>Cosmopolites sordidus</i>	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	E	C	E	N	E	L	S	K	K	G	F	G	G	V	Q	V	S	P	P	S	E	N	A	I	V	...	E	G	R	P	W	W	
<i>Sitophilus oryzae</i>	ADM73187.1	Q	K	D	P	H	F	L	D	G	R	N	T	I	V	H	L	F	E	W	K	W	D	I	A	E	C	E	N	E	L	S	V	K	N	F	A	G	V	Q	V	S	P	P	A	E	S	V	V	...	E	G	R	P	W	W			
<i>Anoplophora glabripennis</i>	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	E	C	E	N	E	L	G	P	K	G	F	A	G	V	I	S	P	P	S	E	N	E	V	I	V	Q	N	G	D	R	P	W	W
<i>Callosobruchus chinensis</i>	BAD83655.1	Q	K	N	N	N	F	V	P	G	R	N	S	I	V	Q	M	F	E	W	R	W	D	I	A	E	C	E	T	I	F	G	P	K	G	F	A	G	V	I	S	P	P	S	E	N	I	V	...	N	G	R	P	W	W				
<i>Aethina tumida</i>	XP_019881963.1	Q	K	D	P	H	F	A	D	D	R	S	V	I	V	H	L	F	E	W	K	H	V	D	V	A	E	C	E	R	I	L	G	P	K	G	F	A	G	V	I	S	P	P	N	E	N	I	V	...	S	S	S	N	R	P	W	W	
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	Q	K	N	N	N	F	A	N	G	R	S	A	I	V	H	L	F	E	W	K	W	D	I	A	E	C	E	N	E	L	G	P	K	G	F	A	G	V	I	S	P	P	S	E	N	A	I	V	...	G	D	R	P	W	W			
<i>Diabrotica virgifera</i>	AAG23133.1	Q	K	D	N	H	F	A	Q	G	R	N	T	I	V	H	L	F	E	W	H	W	D	I	A	E	C	E	N	E	L	G	P	K	G	F	A	G	V	Q	V	S	P	P	S	E	N	S	V	I	...	G	D	R	P	W	W		
<i>Anthonomus grandis</i>	AAN77139.1	Q	K	N	P	N	F	V	D	G	R	G	T	I	V	H	L	F	D	T	W	S	D	I	A	E	C	E	N	E	L	G	P	N	G	F	G	G	V	Q	T	S	P	P	N	E	I	W	Q	N	D	R	P	W	W				
<i>Callosobruchus chinensis</i>	ANC73389.1	Q	K	N	N	N	F	H	P	G	R	N	S	I	Q	M	F	E	W	R	W	D	I	A	E	C	E	K	I	F	G	P	R	G	F	A	G	V	I	S	P	P	S	E	N	I	V	...	N	A	R	P	W	W					
<i>Zabrotes subfasciatus</i>	AAF73435.1	Q	K	N	S	N	F	Q	P	G	R	N	S	I	V	Q	M	F	E	W	N	G	N	L	A	K	E	C	E	T	I	L	G	P	K	G	F	A	G	V	I	S	P	P	N	E	N	V	V	...	G	D	E	G	R	P	W	W	
<i>Tribolium castaneum</i>	AGW27506.1	Q	R	D	P	H	F	A	A	D	R	N	S	I	V	H	L	F	E	W	K	W	S	D	I	A	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	Q	V	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Blaps mucronata</i>	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	E	C	E	R	I	L	G	P	K	G	F	G	G	V	I	S	P	P	N	E	Y	L	V	I	...	A	D	S	G	R	P	W	W
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Diabrotica virgifera</i>	AAF20998.1	Q	K	K	N	H	F	A	G	G	R	N	T	I	V	Q	L	F	E	W	H	W	D	I	A	E	C	E	N	E	L	G	P	K	G	F	A	G	V	Q	V	S	P	P	N	E	N	C	V	...	N	G	R	P	W	W			
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Aethina tumida</i>	XP_019881962.1	Q	K	N	P	L	F	A	D	G	R	S	V	I	V	H	L	F	E	W	K	W	E	D	I	A	E	C	E	R	I	L	G	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	S	A	N	N	R	P	W	W	
<i>Tribolium castaneum</i>	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	E	C	E	R	I	L	A	P	K	G	F	G	G	V	I	S	P	P	N	E	N	L	V	...	T	S	S	N	R	P	W	W	
<i>Tenebrio molitor</i>	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	E	C	E	R	I	L	Q	P	Q	G	F	G	V	H	I	S	P	P	N	E	X	L	V	A	...	D	G	R	P	W	W		
<i>Tenebrio molitor</i>	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	E	C	E	R	I	L	Q	P	Q	G	F	G	V	H	I	S	P	P	N	E	X	L	V	A	...	D	G	R	P	W	W		
<i>Phaedon cochleariae</i>	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	E	C	E	N	E	L	G	P	K	G	F	A	G	V	Q	V	S	P	P	A	E	N	T	V	I	...	G	D	R	P	W	W		
<i>Agrius planipennis</i>	XP_018335150.1	Q	W	D	N	H	W	Q	A	G	R	S	T	I	V	H	L	F	E	W	K	W	D	I	A	E	C	E	R	I	L	A	P	K	G	Y	A	G	V	I	S	P	P	S	E	N	V	I	T	D	Q	A	Y	R	P	W	W		
<i>Onthophagus taurus</i>	XP_022909394.1	Q	F	N	T	N	M	W	D	N	R	D	T	M	V	H	L	F	E	W	K	F	S	D	V	A	E	C	E	R	I	L	Q	H	K	G	Y	G	V	L	S	P	V	S	E	N	A	I	V	...	D	K	R	P	W	W			
<i>Nicrophorus vespilloides</i>	XP_017774160.1	Y	K	N	P	N	F	W	D	D	R	N	S	I	V	H	L	F	E	W	K	W	N	D	I	A	E	C	E	R	I	L	Q	K	K	G	Y	G	V	Q	V	S	P	N	E	N	I	V	...	P	N	R	P	W	W				
<i>Spodoptera frugiperda</i>	AAO13754.1	Y	K	N	P	H	Y	A	S	G	R	T	T	M	V	H	L	F	E	W	K	W	D	I	A	E	C	E	T	I	L	G	P	R	G	Y	G	H	O	I	S	P	P	N	E	N	L	A	I	...	W	S	R	O	R	P	W	W	

<i>Tenebrio molitor</i>	1JAE : A PDBID	120	$\eta 2$ 000	130	140	$\alpha 3$ 00000	150	160	$\alpha 4$ 000000000	170
<i>Tenebrio molitor</i>	1JAE : A PDBID	DGMNYP	PAVPY	GSGDFH	SPCEVNNYQ	DADNVRNCEL	VGLRDLN	QSDYVVRG	VGLIDYM	
<i>Dendroctonus rhizophagus</i>	MN782509	SSKSYPAVSY	SEENFH	TSCDI	DYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Dendroctonus valens</i>	MN782510	SSKSYPAVSY	SEENFH	TSCDI	DYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Dendroctonus frontalis</i>	GAF101015829.1	SSKSYPAVSY	SEENFH	TSCDI	DYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Dendroctonus ponderosae</i>	XP_019767850.1	SSKSYPAVSY	SEENFH	TSCDI	DYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Anthonomus grandis</i>	AAN77138.1	GSKSYPAVSY	SEENFH	ATCDI	NYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Hypothenemus hampei</i>	AHY03307.1	GSKSYPAVSY	SEENFH	ASCDI	DYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Ips typographus</i>	ADQ54210.1	DTKSYPTVPY	TSENFH	TSCDI	DYT	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Ips typographus</i>	ADQ54211.1	DTKSYPAVSY	SEENFH	PSCDI	DYS	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Odoiporus longicollis</i>	AHN92452.2	GSKSYPAVSY	SEENFH	PSCDI	DYS	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Cosmopolites sordidus</i>	AKN63428.1	GSKSYPAVSY	SEENFH	PTCDI	NYN	DAASIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Sitophilus oryzae</i>	ADM73187.1	SSKSYPAVSY	TSENFH	TSCDI	DYT	DSSSIRNCEL	TGLKDL	QSDYVVRG	KIIEYM	
<i>Anoplophora glabripennis</i>	XP_018575975.1	DSKSYPGVPY	GSDNFH	TCTVNNYQ		DAENVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Callosobruchus chinensis</i>	BAD83655.1	GSRSYPTVPY	GSDNFH	KSCPINN	NYN	DPAEVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Aethina tumida</i>	XP_019881963.1	DNKKFPGVSY	GSDNFH	ASCRI	DNYQ	DAENVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	GSKYFPAVPY	NSDDFH	PTCTVNNYQ		DAANVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Diabrotica virgifera</i>	AAG23133.1	GSLSYSPVFPY	GSDNFH	SKDCTVNNYQ		DANNIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Anthonomus grandis</i>	AAN77139.1	TNRDYP	PAVPY	TIEH	FTCG	DYN	SPSAIRNCEL	SGLKDL	QSDYVVRG	KIIEYM
<i>Callosobruchus chinensis</i>	ANC73389.1	GSRSYPAVPY	GSDNFH	KSCPINN	NYN	DPAEVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Zabrotes subfasciatus</i>	AAF73435.1	SKKSYPAVPY	GSDNFH	PDCMINN	NYQ	DVNNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Tribolium castaneum</i>	AGW27506.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tribolium castaneum</i>	AGW27505.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tribolium castaneum</i>	XP_969234.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tribolium castaneum</i>	NP_001107848.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Blaps mucronata</i>	AAO14612.1	AGKNYP	PGVPY	GSDNFH	DSC	AINNYQ	DTNNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tribolium castaneum</i>	AAA03708.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tribolium castaneum</i>	AGW27504.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Diabrotica virgifera</i>	AAF20998.1	GSLSYPSVPY	GSDNFH	SRDCTINN	NYQ	ESHNIRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Tribolium castaneum</i>	AAA03709.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Aethina tumida</i>	XP_019881962.1	GNKQFPGIPY	GSDNFH	DSC	AINNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Tribolium castaneum</i>	XP_975485.1	DGKNYP	PAVPY	GSDNFH	DSC	TVNNYQ	DASNVRNCEL	VGLKDL	QSDYVVRG	KIIEYM
<i>Tenebrio molitor</i>	1VIW : A PDBID	DGMNYP	PAVPY	GSGDFH	SPCEVNNYQ	DADNVRNCEL	VGLRDLN	QSDYVVRG	VGLIDYM	
<i>Tenebrio molitor</i>	1TMQ : A PDBID	DGMNYP	PAVPY	GSGDFH	SPCEVNNYQ	DADNVRNCEL	VGLRDLN	QSDYVVRG	VGLIDYM	
<i>Phaedon cochleariae</i>	O97396.1	EPSASPAVPY	GSGDFH	GRCTSN	NYQ	DPNNIRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Agrilus planipennis</i>	XP_018335150.1	SSEYPAVPY	HAERFH	PCS	VNNYQ	DANNVRNCEL	SGLKDL	QSDYVVRG	KIIEYM	
<i>Onthophagus taurus</i>	XP_022909394.1	AIKSYPAVPY	SAPDN	SDCA	ITDYN	NAENVRNCEL	VGLRDLH	QSDYVVRG	KIIEYM	
<i>Nicrophorus vespilloides</i>	XP_017774160.1	GSKEYPAVPY	GPNDFH	PDC	SINN	NATEVRDCEL	VGLKDL	QSDYVVRG	KIIEYM	
<i>Spodoptera frugiperda</i>	AAO13754.1	GNWGYPGVPY	GRNDFH	NWPH	CVIQ	HDYGC	CADRVNCEL	SGLKDL	QSDYVVRG	KIIEYM

Tenebrio molitor		1JAE : A PDBID	00000	β8	η3	α5	η4	TT	β9	220	230			
			180	190	200	210	220	230	240	250	260			
Tenebrio molitor	1JAE : A PDBID	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Dendroctonus rhizophagus	MN782509	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Dendroctonus valens	MN782510	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Dendroctonus frontalis	GAFI01015829.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Dendroctonus ponderosae	XP_019767850.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Anthonomus grandis	AAN77138.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Hypothenemus hampei	AHY03307.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Ips typographus	ADQ54210.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Ips typographus	ADQ54211.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Odoiporus longicollis	AHN92452.2	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Cosmopolites sordidus	AKN63428.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Sitophilus oryzae	ADM73187.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Anoplophora glabripennis	XP_018575975.1	DQCV	D	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI
Callosobruchus chinensis	BAD83655.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Aethina tumida	XP_019881963.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Leptinotarsa decemlineata	XP_023015287.1	DHLID	D	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI
Diabrotica virgifera	AAG23133.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Anthonomus grandis	AAN77139.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Callosobruchus chinensis	ANC73389.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Zabrotes subfasciatus	AAF73435.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	AGW27506.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	AGW27505.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	XP_969234.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	NP_001107848.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Blaps mucronata	AAO14612.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	AAA03708.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	AGW27504.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Diabrotica virgifera	AAF20998.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	AAA03709.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Aethina tumida	XP_019881962.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tribolium castaneum	XP_975485.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tenebrio molitor	1VIW : A PDBID	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Tenebrio molitor	1TMQ : A PDBID	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Phaedon cochleariae	O97396.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Agrilus planipennis	XP_018335150.1	NKLLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Onthophagus taurus	XP_022909394.1	NKLLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Nicrophorus vespilloides	XP_017774160.1	NKLLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	
Spodoptera frugiperda	AAO13754.1	NHMLD	LGVA	GFRVDA	KHMS	PGDL	SVIFSG	LKNTD	YGFAD	GARPFI	YQEV	IDLG	GEAI	

— *

1

		<div> <div>β24</div> <div> <div>460</div> <div>470</div> </div> </div>	
<i>Tenebrio molitor</i>	1JAE:A PDBID		
<i>Tenebrio molitor</i>	1JAE:A PDBID	EDDG	VLAIHVNAKL
<i>Dendroctonus rhizophagus</i>	MN782509	DTDA	AIATHVNAKL
<i>Dendroctonus valens</i>	MN782510	DTDA	AIATHVNAKL
<i>Dendroctonus frontalis</i>	GAFI01015829.1	DSDA	AVATHVNAKL
<i>Dendroctonus ponderosae</i>	XP_019767850.1	DTDA	AIATHANAKL
<i>Anthonomus grandis</i>	AAN77138.1	DTNA	AVATHVNAKC
<i>Hypothenemus hampei</i>	AHY03307.1	DREA	AVATHANAKL
<i>Ips typographus</i>	ADQ54210.1	ESDT	AVATHVNAKL
<i>Ips typographus</i>	ADQ54211.1	ESDC	VVAHVNAKL
<i>Odoiporus longicollis</i>	AHN92452.2	ETDA	AVATHVNAKL
<i>Cosmopolites sordidus</i>	AKN63428.1	ESDA	AVATHVNAKL
<i>Sitophilus oryzae</i>	ADM73187.1	ELDA	AVATHVNAKL
<i>Anoplophora glabripennis</i>	XP_018575975.1	EDDG	VLAIHVNAKL
<i>Callosobruchus chinensis</i>	BAD83655.1	.VDG	VLAIHVNSRLQSKL
<i>Aethina tumida</i>	XP_019881963.1	EDDG	VMAIHLGAKL
<i>Leptinotarsa decemlineata</i>	XP_023015287.1	GDDF	VLAITHEESKL
<i>Diabrotica virgifera</i>	AAG23133.1	EDDG	VVAIHVNAKL
<i>Anthonomus grandis</i>	AAN77139.1	GD EI	AMATHVESKLS
<i>Callosobruchus chinensis</i>	ANC73389.1	.LDG	ALATHVNAKVQSKL
<i>Zabrotes subfasciatus</i>	AAF73435.1	EPDG	ILATHVSAKLTSKL
<i>Tribolium castaneum</i>	AGW27506.1	EDDG	VIAIHVNAKL
<i>Tribolium castaneum</i>	AGW27505.1	EDDG	VIAIHVNAKL
<i>Tribolium castaneum</i>	XP_969234.1	EDDG	VIAIHVNAKL
<i>Tribolium castaneum</i>	NP_001107848.1	EDDG	VIAIHVNAKL
<i>Blaps mucronata</i>	AAO14612.1	EDDG	VLAIHINAKV
<i>Tribolium castaneum</i>	AAA03708.1	EDDG	VIAIHVNAKL
<i>Tribolium castaneum</i>	AGW27504.1	EDDG	VIAIHVNAKL
<i>Diabrotica virgifera</i>	AAF20998.1	EDDG	VVAIHVNAKL
<i>Tribolium castaneum</i>	AAA03709.1	EDDG	VIAIHVNAKL
<i>Aethina tumida</i>	XP_019881962.1	MRRMEF	
<i>Tribolium castaneum</i>	XP_975485.1	EDDG	VIAIHVNAKL
<i>Tenebrio molitor</i>	1VIW:A PDBID	EDDG	VLAIHVNAKL
<i>Tenebrio molitor</i>	1TMQ:A PDBID	EDDG	VLAIHVNAKL
<i>Phaedon cochleariae</i>	O97396.1	EDDG	FLATHVGAKV
<i>Agritus planipennis</i>	XP_018335150.1	EDDG	VLAIHINAKQS
<i>Onthophagus taurus</i>	XP_022909394.1	EDDG	VLAIHVNAKL
<i>Nicrophorus vespilloides</i>	XP_017774160.1	EDDG	VLAITHTNARL
<i>Spodoptera frugiperda</i>	AAO13754.1	EFDM	VLAITGPEVRIFVALS