

Figure S1

Nematoda	Fut8Cjaponica	-----MSVFHQFPPNISHFRSPASRSDMIKCI AVVGTVI -----WMTM
	Fut8Celegans	-----MLKCIAAVGT VV -----WMTM
	Fut8Cbrenneri	-----MFKCIAAVGT VV -----WMTM
	Fut8Cremanei	-----MFKCIAAVGT VV -----WMTM
	Fut8Asuum	-----MQQLGCSMRRAAMA AVAV -----WVLI
	Fut8Lloa	-----MKLR-RTSCSCSMHCILITAV VI -----WSSI
	Fut8Bmalayi	-----MKLR-RTVCPCSMHCILISAV VI -----WSSI
	Fut8Wbancrofti	-----MKLR-RTGCSCSMHCILITAV VI -----WSSI
	Fut8Tspiralis	-----
Arthropoda/trombidiformes	Fut8Turticae	-----MALNFAYAGRVLVGV VLV -----WLLL
Cnidaria	Fut8Hmagnipapillata	-----MAAKIM--RYIGFV TVL -----WLCV
	Fut8Nvectensis	-----MTRRSW--RYLLILL TI -----WLLI
Arthropoda/Mesostigmata	Fut8Moccidentalis	-----MARSIPLTDSTWMSNAIH DYAAASDPPGYHIVSGVAL
Chordata	Fut8Cintestinalis	-----ML--RRGQVFI FIGILLS -----ALNI
Arthropoda/Maxillopoda	Fut8Lsalmonis	-----MR--CKSIH FFVFII LWI-----WLMI
Echinoderma	Fut8SpurpuratusA	-----
Annelida	Fut8Cteleata	-----MRGTW--RVVAGLL VF -----WLLV
Hemichordata	Fut8SkowalevskiiA	-----MKT LW --KFVIAL LF -----W FVI
Cephalochordata	Fut8Bfloridae	-----
Chordata	Fut8Xtropicalis	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Rnorvegicus	-----MRAWTGSW--RWIML ILFA -----WGTL
	Fut8Hsapiens	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Btaurus	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Acarolinensis	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Ggallus	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Mgallopavo	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8Tguttata	-----MRPWTGSW--RWIML ILFA -----WGTL
	Fut8DrerioB	-----MRPWTGSW--RWIAL VLLA -----WGTL
	Fut8Trubipres	-----MRPWAGSW--RWITL VLLA -----WGTL
	Fut8Oniloticus	-----MRPWAGSW--RWITL VLLA -----WGTL
	Fut8Olatipes	-----MRPWAGSW--RWITL VLLA -----WGTL
Arthropodes/Lepidoptera	Fut8Hmelpomene	-----MYLSKWK-RVT VVLLLV -----W IIV
	Fut8Dplexippus	-----MYLTKWK-RAAV LLFI -----W IAV
	Fut8Emori	-----MYFAKWK-RVAV VLLAV -----W IIVV
	Fut8Sfrugiperda	-----MYLAKWK-RAAV VLLFV -----W IIVV
	Fut8Msexta	-----MYLAKWK-RVAV VLLVI -----W IIVV
Arthropodes/Hymenoptera	Fut8Mrotundata	-----MATFWSGRPGWLK VGIVLLAT -----W LLV
	Fut8Amellifera	-----MATFWSGRPGWLK VGLALLAT -----W LLI
	Fut8Bimpatiens	-----MATFWSGRPGWLK VGIALLAT -----W LLV
	Fut8Hsaltator	-----MAAICSGRLGWLK IVIALLAT -----W LIA
	FUT8Cfloridanus	-----MLAICSGRPGWLK LGIALLIT -----W FFV
	Fut8Sinvicta	-----MAAICSGRPGWLK LGIALLAT -----W FLV
	Fut8Acephalotes	-----MAAICSGRPGWLK LGIALLAA -----W FLV
	FUT8Aechinator	-----MAAICSGRPGWLK LGIALLAA -----W FLV
Arthropodes/Phtiraptera	Fut8Phumanus	0 MEHKKVYSKINLNLIN VIFS YEVLCNKAMRSQICS-RILL VSFIV -----W FII
Arthropodes/Chilopoda	Fut8Smaritima	-----MAVGVG-KAIV VLLAV -----W LI
Arthropodes/Brachiopoda	Fut8Dpulex	-----MTMNLRSSNKILA-QAAI ILFFF -----W VVA
Arthropodes/Hemiptera	Fut8Apisum	-----MRQGGWL-RILAF LAFS -----W VAF
Arthropodes/Coleoptera	Fut8Tcastaneum	-----MDTILRRIN VVGWH -RMLV VFLFI -----W LVI
Arthropodes/Diptera	Fut8Dmojavensis	-----ML-----LVRQLFGSSNSWV-RALI IFVLA -----W AVL
	Fut8Dpseudo	-----ML-----LVRQLFGASANSWV-RALVI IFVLA -----W VAL
	Fut8Dananassae	-----ML-----LVRQLFGASANSWA-RALI IFVLA -----W VAL
	Fut8Dmelanogaster	-----ML-----LVRQLFGASANSWA-RALI IFVLA -----W IGL
	Fut8Agambiae	-----M-----IVRQLMG--LNPWA-RVL VPLFV -----W VLF
	Fut8Aaegypti	-----M-----ILRQLMG--LNTWV-RVL IGFISV -----W VIL
	Fut8Cpipiens	-----M-----ILRQLMG--LNTWV-RVL IAFISV -----W VIL

Fut8Cjaponica	1	<u>FLFLYLQLSNNN</u> -----TS-----GGDTI-----RAWRQTKEAIERLQ
Fut8Celegans	1	<u>FLFLYSQLSNNQ</u> -----S-----GGDSI-----RAWRQTKEAIDKLQ
Fut8Cbrenneri	1	<u>FLFLYLQLSNNQ</u> -----TS-----GGDSI-----RAWRQTKEAIDKLQ
Fut8Cremanei	1	<u>FLFLYLQLSNNQ</u> -----SS-----GGDSI-----RAWRQTKEAIDKLQ
Fut8Asuum	1	<u>LIYLSIGIFTIQ</u> -----SR-----EAAERQNEDLFVKYGKAMKEVGLR
Fut8Lloa	1	<u>FFYLSLSLYGLQ</u> -----SK-----GKDVNEQQALILNYERALDLAELK
Fut8Bmalayi	1	<u>FFYLSFNLYGLQ</u> -----SK-----GKDI NEERILALNYERALDLAELK
Fut8Wbancrofti	1	<u>FFYLSFNLYGLQ</u> -----SK-----GKDVNEQHALALNYERALDLAELK
Fut8Tspiralis		-----MFCSAEVEFFS--AADPYYNSDVDQHLLKRLLEEAI AEVNTLR
Fut8Turticae		<u>IFFIGGPLLKRTEG</u> -----DYSLINSENGELILARLSRASSELDLSLR
Fut8Hmagnipapillata		<u>LLYMGFNVYQLV</u> -----EESRKSTHELSMVVEKVAHLK
Fut8Nvectensis		<u>LAYMGWNLLVLV</u> -----EDSNKNQAALDRKDRHVDDLN
Fut8Moccidentalis	0	SCYPNERLVP AARNFGGSDHCELOHRVMSMRSRNRGKLYPDRFGIDSRVNRALDELEDLK
Fut8CintestinalisA	2	<u>FITWKSCVTSSE</u> -----FSNAQSQQTHVDVILEQLQ
Fut8Lsalmonis		<u>KFMWSSKTSQSL</u> -----DNSPEFSEDLLKQLEEAQKQIERLT
Fut8SpurpuratusA		-----MVVED-----AHDNNQRNVENGIFDIENMG
Fut8Cteleata		<u>LLYMSATLFOGG</u> -----S-----DSTADRTERQLSRALHELDLLK
Fut8SkowalevskiiA		<u>LLYLGGGAI GPN</u> -----TEIKLSSRD LNKMISEIELMK
Fut8Bfloridae		--MLGNFY--TG-----DPSTKSSHDLARALAELEKMK
Fut8Xtropicalis		<u>LFYIGGHLVRDN</u> -----ENPDHSSRELSKILAKLERLK
Fut8Rnorvegicus		<u>LFYIGGHLVRDN</u> -----DHPDHSSRELSKILAKLERLK
Fut8Hsapiens		<u>LFYIGGHLVRDN</u> -----DHPDHSSRELSKILAKLERLK
Fut8Btaurus		<u>LFYIGGHLVRGN</u> -----DHPDHSSRELSKILAKLERLK
Fut8Acarolinensis		<u>LFYIGGHLVRDN</u> -----EHPDHSSRELSKILAKLERLK
Fut8Ggallus		<u>LFYIGGHLVRDS</u> -----EHPDHSSRELSKILAKLERLK
Fut8Mgallopavo		<u>LFYIGGHLVRDS</u> -----EHPDHSSRELSKILAKLERLK
Fut8Tguttata		<u>LFYIGGHLVRDS</u> -----EHPDHSSRELSKILAKLERLK
Fut8DrerioB		<u>LFYIGGHLVKDS</u> -----EHAPRSSRELAKILTKLERLK
Fut8Trubipres		<u>LFYIGGHLVRDS</u> -----EHPERSSRELSKILAKLERLK
Fut8Oniloticus		<u>LFYIGGHLVRDS</u> -----EHPERSSRELSKILAKLERLK
Fut8Olatipes		<u>LFYIGGHLVRDS</u> -----EHPERSSRELSKILAKLERLK
Fut8Hmelpomene		<u>TYLVISPLRCEG</u> -----G-----TEEAADFQERLKT VSSQLES LK
Fut8Dplexippus		<u>TYLVI SPLRCDS</u> -----S-----SEESIDFQERLKTASLQLELLK
Fut8Bmori		<u>TYLVISPLRCSG</u> -----N-----SDEIPDVQERLKRMSSELEVLW
<u>Fut8Sfrugiperda</u>		<u>TYLVISPLRCNG</u> -----N-----QDEVAEFQERLKKVSSQLETLR
Fut8Msexta		<u>TYLVISPLRCNG</u> -----S-----ADEAPEFQERLKR VSSQLETLR
Fut8Mrotundata		<u>LIVSVSHIFKAN</u> -----SLSSNN--ESPTNKENAQR LAQMVNDFEILK
Fut8Amellifera		<u>LIISVSHIFKTN</u> -----NLSSNN--ESPTNKENAQR LAQMVNDFEILK
Fut8Bimpatiens		<u>LIISVSHIFKAN</u> -----NLSSNN--ESPTNKENAQR LAQMVNDFEILK
Fut8Hsaltator		<u>LIISISHIFKSN</u> -----ISSNQD--ANAVNKVNMQR LAKMVNDFEILK
FUT8Cfloridanus		<u>LILSIVHIFKLN</u> -----SLSSRD--ASTANKENTQR LAQMVNDFEILK
Fut8Sinivicta		<u>LIITIVHIFKSN</u> -----SLSSRD--ADTANKENTQR LAQMVNDFEILK
Fut8Acephalotes		<u>LIISMIHIFKSN</u> -----SLSSRD--ADTANKENTQR LQMVNDFEILK
FUT8AechinatioR		<u>LIISMIHIFKSN</u> -----SLSSRD--ADTANKENTQR LAQMVNDFEILK
Fut8Phumanus		<u>LLFAARHLSSLK</u> -----SGYGIGQ--NAISEGNKNRLEAALNKLHV LQ
Fut8Smaritima		<u>ILLMTGPILHSN</u> -----ENDEHITRRLTKAMNELEVLK
Fut8Dpulex		<u>LILLTRPPLNNP</u> -----Q-----SDVSSDVLQRLSKAVSELES LK
Fut8Apisum		<u>LLVTVKLV RQQD</u> -----TNDGDSQQLARALRELDKLH
Fut8Tcastaneum		<u>LVFTALPMLGPH</u> -----I-----PSGETKTLERLKRALTDL EALR
Fut8Dmojavensis		<u>VYVFVVKLTNSQ</u> -----AQNOSHQTISASDNEHNARRINQALQ LLEHTE
Fut8Dpseudoobscura		<u>VYVFVVKLTSTQ</u> -----GQA-----TGENEISARRISQALQ LLEHTK
Fut8Dananassae		<u>VYVFVVKLTNTQ</u> -----GQA-----AGESELNARRINQALQ MLEHTR
Fut8Dmelanogaster		<u>VYVFVVKLTNTQ</u> -----GQA-----AGESELNARRISQALQ MLEHTR
Fut8Agambiae		<u>VLIFYSKLNTSA</u> -----ASSS-----SSDGGDDSLKRLERAVQQLERSK
Fut8Aegypti		<u>VLIFYSKLNTGS</u> -----S-----SDSDDAIRRLNQALTYLEKSK
Fut8Cpipiens		<u>VLIFYSKLNTGG</u> -----A-----NDAEDAFRRLNQALSYLEKSK

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Fut8Cjaponica 2 EQNEDLKSLLDKERT--ERNDQHRKIL-----EQESHQE-P-----VV
 Fut8Celegans 2 EQNEDLKSILEKERQ--ERNDQHKIM-----EQSHQL---P-----PN
 Fut8Chrenneri 2 EQNENLKDILENERR--ERNEQHRKIM-----EQTHQV---P-----VN
 Fut8Cremanei 2 EQNEKLKSIMENERR--ERNDQHRKIL-----EQSHQV---P-----AN
 Fut8Asuum EQNEELMRLLLEEREV--VAAKEAQLQQ-----NQ---L-----L-----FA
 Fut8Lloa HENEKHLKLLKGEKI--QPQIKK-LTV-----KKQN-DNILPIKIS-----DEFE
 Fut8Bmalayi HENEMLRRELLKDEKI--EIVKRKKLIM-----KKQNSNATRIKIN-----NKFG
 Fut8Wbancrofti HENEMLRRELLKDEKI--QL-KRKKLIM-----KKQNSNATAHAKIS-----NKFE
 Fut8Tspiralis 2 QQSDSIQQAQFDV--LQKQC-----PQLVDNR-----NFFP
 Fut8Turticae AQNEELRNLLQN--YIPLGLQL-----NKASDLLKDG-----
 Fut8Hmagnipapillata RENEKLRSENIPTLKKFKNKIANSKLSQNEENKTLNLANAYIQVK-----
 Fut8Nvectensis TQNORLQKM--VSELSQKESLE-----SILSKEKKIQ-----
 Fut8Moccidentalis RQNETELRLVIQA--LNGGK-----
 Fut8CintestinalisA 2 LQQNEYKAVLHL--A-----DDVISRLKREAAATTT-----TSHTRLS
 Fut8Lsalmonis DDNIRLNTNIVKD--YQIKEGGDSFH-----PVKDKLKESH-----
 Fut8SpurpuratusA 2 DSTQED-----L--VASSSNG--ANDGGVDYMRNKLKDAEEIISRMEKESKGIQ
 Fut8Cteleata HQNQELHELAEQ--LKQIQNNPVLGATADPTKETQALKVQLAEARKQV-----H
 Fut8SkowalevskiiA 2 DQNEKLKQANE--LREIALLRGDSEM--SKDETVKFMQQLESAQNQI-----A
 Fut8Bfloridae 0 QQNEELRRMADE--LRYGVQMS---Q--DVDRVSLLEQLAKCESDA-----N
 Fut8Xtropicalis 2 QQNEDLRRMAES--LRIPEGPIEQGA--AAGRIRALEEQLLKAKEQI-----E
 Fut8Rnorvegicus 2 QQNEDLRRMAES--LRIPEGPIDQGT--ATGRVVRVLEEQLVKAKEQI-----E
 Fut8Hsapiens 2 QQNEDLRRMAES--LRIPEGPIDQGP--AIGRVRVLEEQLVKAKEQI-----E
 Fut8Btaurus 2 QQNEDLRRMAES--LRIPEGPIDQGP--ASGRIRALEEQLVKAKEQI-----E
 Fut8Acarolinensis 2 QQNEDLRRMAES--LRIPEGPVDQGP--AVGRVHALEEQLIKAKEQM-----E
 Fut8Ggallus 2 QQNEDLRRMAES--LRIPDGPIDQGP--AAGKVHALEEQLLKAKEQI-----E
 Fut8Mgallopavo 2 QQNEDLRRMAES--LRIPDGPIDQGP--AAGKVHALEEQLLKAKEQI-----E
 Fut8Tguttata 2 QQNEDLRRMAES--LRIPDGPIDQGP--AAGKVHALEEQLLKAKEQI-----E
 Fut8DrerioB 2 QQNEDLRRMAQS--LRIPEGQSD--GPI--SSGRLRSLEEQLSRAKQKI-----Q
 Fut8Trubipres 2 QQNEDLRRMAES--LRIPEGQADAGSL--AAGRLRSLEDQLSRAKQKI-----H
 Fut8Oniloticus 2 QQNEDLRRMAES--LRIPEGQADAGSL--AAGRLRSLEDQLTRAKQKI-----H
 Fut8Olatipes 2 QQNEDLRRMAES--LRIPEGQAEAGSL--AAGRLRSLEDQLTRAKQKI-----H
 Fut8H melpomene 2 QQHSNLISQIRK--SSGVN-----LN--GIDT-----
 Fut8Dplexippus 2 QQHSNLISQIKK--SSGLN-----VN-LNEIDA-----
 Fut8Bmori 2 QRNSKLIAQIKK--SSGPN-----GN-LKDLDP-----
 Fut8Sfrugiperda 2 QQHSNLISQIKK--SSSLN-----GN-LKDIDT-----
 Fut8Msexta HQHNNLIAQIRR--SSGLN-----GN-FKDIDT-----
 Fut8Mrotundata 2 RQNEALKNIILG-----ERSKSI--QGDHLGSIHEKLDKVS-----
 Fut8Amellifera 2 RQNEALKNIVLG-----ERSKSI--QGDHLGSIQEKLEKVS-----
 Fut8Bimpatiens 2 RQNEALKNIILG-----ERSKSI--QGDHLGSIQEKLEKVS-----
 Fut8Hsaltator 2 RQNDALKNFILG-----EGSKVM--QGDHLGSIQDRLEKAS-----
 FUT8Cfloridanus 2 QNDALKNFILG-----EGPKSI--QGDHLGSIQDKVGKVS-----
 Fut8Sinivicta 2 QNDALKNFILG-----EGAKSI--QGDHLGSIQDKLEKAS-----
 Fut8Acephalotes 0 QNDALKNFILG--YANISREGSKSI--QGDHLGSVQDRLEKAS-----
 FUT8Aechinatior QNDALKNFILG-----EGSKSI--QGDHLGSVQDRLEKAS-----
 Fut8Phumanus 2 QHSEHLKAVFET--LNNAEENDSVN-----EILKSAEK-V-----
 Fut8Smaritima 2 RQNDLRAILLE--FKIVDVVDSKD-----QLLDDLHEKLNKAN-----ELLH
 Fut8Dpulex VRNQELQWILTN--FSHEAQSGKIK-----EGVVERLRSTLED-K-----
 Fut8Apisum 2 KSNAEALNALVLD--LNYNPRIDNKK-----ILLSY-----FQ
 Fut8Tcastaneum 2 KQNNELQEIFKD--INVDSLGRDQKEA--IENFQYRLTK-----AEHTFS
 Fut8Dmojavensis 2 RRNEELKLLIDE--LMSQDLKQSA-----MKLVQRLNDSHNKQSMG-----DDTLFE
 Fut8Dpseudoobscura 2 QRNEELKQLIDE--LMSQDLKQSA-----LKLQVQKLENDPLNPKQGLESLGAPEAFFD
 Fut8Dananassae 2 QRNEELKQLIDE--LMSQDLKQSA-----LKLQVQRLNDAQNTKNSADGIGPEPESLFE
 Fut8Dmelanogaster 2 QRNEELKQLIDE--LMSQDLKQSA-----MKLVQRLNDAQNTKNSADGIGPEPESLFE
 Fut8Agambiae QVDQELRLLVDE--YLADAGTSADR--KQHFIDELGS-----K-----LE
 Fut8Aegypti QVDQELRLLVDE--YLSQ--SYNR--KQKFVDELGN-----K-----LQ
 Fut8Cpipiens QVDQELRLLVDE--YISDT--SYNR--KQKFVDELGN-----K-----LQ

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Fut8Cjaponica F-----GPO---TT--ARPI--KVIQSDVLGSVEQEVHKRMLDDRI
 Fut8Celegans P-----ENP---SLPKPEPVKEIISKPSILGPVQQEVQKRMLDDRI
 Fut8Cbrenneri S-----DSQ---SLPKPEPIKQIILKSSKLGSVQEVQKRMLDDRI
 Fut8Cremanei P-----ESQ---SIPKPEPVKLVAKPNKLGTEQEVQKRMLDDRI
 Fut8Asuum 0 P-----KAQ---SAV--PSSIAEKSTPRDLFTKEHEIARRDLDNSI
 Fut8Lloa 0 K-----RKQ---QWIDREKSETLLLLPSNGFSMKHE-----
 Fut8Bmalayi 0 K-----G-T--KRIERGKSEILNLLQSNQSGFSMKHEIARRELHNSI
 Fut8Wbancrofti 0 K-----G-T--KRINRGKSETLSLLPSNGFSMKHEIARRELHNSI
 Fut8Tspiralis R-----PRVTAPEQNNHGQTQQORRISPSHELIIYQRLHLEL
 Fut8Turticae ---GLPGEANLPIPASPVSAALAPLSSSPSSSSSSISLNLFASVFNKYEQARRRVSYSY
 Fut8Hmagnipapillata -----EL----KKQLQLKESVPLHSLNIEVLSRRIFNQI
 Fut8Nvectensis 0 -----TL----KR--FSD--KKPQVTEHEKYRRAENEV
 Fut8Moccidentalis -----PI-----PQOELRIAPPTDYEVRRAAENDV
 Fut8CintestinalisA 1 T-----STETIPT-----TTEIQRPAHNLADQDPYIRKLLNDA
 Fut8Lsalmonis -----DSSSSSETLDGPSTAYENTRRRIKHVD
 Fut8SpurpuratusA 1 D-----TROQGSDDSDSNQQYCGSEPSNAYEKIRKVDNGV
 Fut8Cteleata N-----LOK-----RSNAFPLSLAQEELRRKVVETGV
 Fut8SkowalevskiiA 1 D-----LSQAVGKNTKSDVSLHSGSPDHEKLRRIIDNGV
 Fut8Bfloridae 1 S-----NKQQ-----APVGSLDSPSKHEQLQRKLEDGV
 Fut8Xtropicalis 1 M-----YKQ-----QSSNAVSGLGKDEILRRAIENGA
 Fut8Rnorvegicus 1 N-----YKK-----QA---RNLGKDHEILRRRIENGA
 Fut8Hsapiens 1 N-----YKK-----QT--RNLGKDHEILRRRIENGA
 Fut8Btaurus 1 N-----YKK-----QT--RNLGKDHEILRRRIENGA
 Fut8Acarolinensis 1 N-----YKQ-----QTG--DVLGKHEILRRRIENGA
 Fut8Ggallus 1 N-----YKK-----QTG--D-GLGKDHEILRRRIENGA
 Fut8Mgallopavo 1 N-----YKK-----QTV--D-GLGKDHEILRRRIENGA
 Fut8Tguttata 1 N-----YKK-----RTG--D-GLGKDHEILRRRIENGA
 Fut8DrerioB 1 S-----FQR-----LSG--EGPGREQEELRRKVENG
 Fut8Trubipres 1 S-----FQK-----LTG--DGGPPTQEELRRRVENG
 Fut8Oniloticus 1 S-----FQK-----LTG--DGGPPTQEELRRRVENG
 Fut8Olatipes 1 S-----FQK-----LTG--DGGPPTQEELRRKAENG
 Fut8Hmelpomene -----SAF--HTVGGPSEEEYSLRRRVYSNT
 Fut8Dplexippus -----AEF--HNGGGPSEEEYENLRRRIYSNT
 Fut8Bmori -----AFWNLEAGLGPSEEEYENLRRRIHSNT
 Fut8Sfrugiperda -----GSLFLDGVQGPTEYENLRRRIYSNT
 Fut8Msexta -----GALFLNAGQGPTEYENLRRRIHSNT
 Fut8Mrotundata -----LYDELDTKNNIKHSVPSLEYEDLRRRVRRNV
 Fut8Amellifera -----IYEDLLDHQDNVKGHIPSSEYEELRRRIRNNV
 Fut8Bimpatiens -----LYDDLHDHQNDKHGVPSSEYEELRRMIRNNI
 Fut8Hsaltator -----AAYDLAEQPDRLKHGVPPLYEELRRRLRNDI
 FUT8Cfloridanus -----AAYDLIEHQDGAQHGVPSLEHEELRRRLKNDI
 Fut8Sinivicta -----VYYDLIDHQDGSKHGVPSSSEYEELRRRLRNDI
 Fut8Acephalotes -----VYYDLIDHQDGSKHGIPSLEYEELRRRLRNDI
 FUT8AechinatioR -----VYYDLIDHQDGSKHGVPSSLEYEELRRRLRNDI
 Fut8Phumanus -----VTPF-----EEKIDVKSLYNSPSLGYETLRKRIQDDA
 Fut8Smaritima 1 -----KAESGSTNTVCDPSAQFENVRRRIINQV
 Fut8Dpulex -----IRLP-----INFNGLEKKSSGSPSKEYEVRRAIYRGV
 Fut8Apisum -----NSKQSLNGPSEEEYELSRRIYSNT
 Fut8Tcastaneum K-----NQ--VGYVSAKEEPNSEYELRRRIYSNT
 Fut8Dmojavensis VIPADAAGDQOHHQQQP-----QPQPQQLGADAGQLPGQPGIEPSLEYELTRRIQNTI
 Fut8Dpseudoobscura SAPADLRGWNNAEGGNDPLDGAQAQPDLLS-----GDDLGHGEPSEMEYFTRRRRIQNTI
 Fut8Dananassae SAPADLRSWNNVVEAAPN-D-----IV-D-----VGEHGEIEPSLEYEFTRRRIQNTI
 Fut8Dmelanogaster SAPADLRGWNNAEGAPN-D-----LEAG-----VPDHGEFEPSEMEYFTRRRRIQNTI
 Fut8Agambiae QDATGSAGWF-----AVGRPRNGPSLEYERLRRRVETNT
 Fut8Aegypti IQGAGA-----GRFKGVPSLEYEQLRRRRVYSNA
 Fut8Cpipiens IQGVGA-----GHFKGVPSLEYEQLRRRRVYSNT

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Fut8Cjaponica 0 REMFYLLHSQNIENSTK-----ILLENQMTSLMALSGKLEKLDGSE
 Fut8Celegans REMFYLLHSQTIENSTK-----ILLETQMI SLMGLSAQLEKLEGSE
 Fut8Chrenneri REMFYLLHSQTIENSTK-----TLLENQMI SLMGLSAKLEKLEGSE
 Fut8Cremanei REMFYLVHSQSIENSTK-----ALIENQMI SLMGLSAKLEKLEGSE
 Fut8Asuum 0 RELFFYLNSQFEK--NDGL-----PFARHAMNQVLSLLGQSAAFSDIDGAE
 Fut8Lloa 0 -----LSSLGQAAAFKNIDLAE
 Fut8Bmalayi WELYYYLDSQLISTHNNNS-----KFINHIRNQLSLLGQAAAFKNIDSAE
 Fut8Wbancrofti 0 WELYYYLNSQLISTHNNNS-----KFINHIRNQLSLLGQAAAFKNIDSAE
 Fut8Tspiralis 0 TELGFAIRGVFEGLLKKEEKQD-----DAHQAIAKAYQRLKRQHOKLITQSLKLG EADDRL
 Fut8Turticae 1 NELWFFLNDHFHKN-----VSLKLFVNEHRASFMYDLESLSDR--DY
 Fut8Hmagnipapillata REMWFLISSQVKRMKNIVPKP-----GYEDVLNFLDTYRELNQITERDFEELVSMDSVS
 Fut8Nvectensis REIFYYLSAEITKINKKIQQA-----K-KQLTHMLKMSETLHQMLTNDLEKMNSLDGKS
 Fut8Moccidentalis RELWFFARAQLDKLLKEARGA---D---RDVFKRLRQGIYERQLSALVNLDKMTRRDGYE
 Fut8Cintestinalis 2 HELQLTFRARFGSPSNES-----DPNYYVQWMIDQONALINNIIEFRDQ--NL
 Fut8Lsalmonis REMWNFINVKLKFPEHRLKS---QNEELSSKLETREVFVFFYNAVLIDMDTLAEVDGHA
 Fut8SpurpuratusA 2 TEIWYYMRSQNLQKSS---GDQKTQVKIDQILENGGEQORIKPKL-TKKALSGDFG
 Fut8Cteleata 2 NEMWYLVRSQGLGQLRKEVMQ--NQAAQASLRVQGLMEDAADHRVLLTDLNSLRANGMD
 Fut8SkowalevskiiA 2 TEIWYYIKSKLNKIKKTS----DKDQIDEQIDEILVDGGDQORSILTDIYLLGVSGGID
 Fut8Bfloridae 2 RELWFLVKAQLKLMKSDS-----QASSVKDRIDNLLTDVGDHQRITLADAQQLRDADGGL
 Fut8Xtropicalis 2 KEFWYFVQSEVKKLKHLD-----RNELQRHVDEI I IDMGHQORSVMTDLYYLSQTDGAG
 Fut8Rnorvegicus 2 KELWFFLQSELKLLKHLE-----GNELQRHADEILLDLGHHERSIMTDLYYLSQTDGAG
 Fut8Hsapiens 2 KELWFFLQSELKLLKNLE-----GNELQRHADEFLLDLGHHERSIMTDLYYLSQTDGAG
 Fut8Btaurus 2 KELWFFLQSELKLLKNLE-----GNELQRHADEFLLDLGHHERSIMTDLYYLSQTDGAG
 Fut8Acarolinensis 2 KELWFFLQSELKLLKSL-----GSELQRHTDELLS DLGDHERSIMTDLYYLSQTDGAG
 Fut8Ggallus 2 KELWFFLQSELKLLKNLE-----GSELQRRIDEFLS DLGHQERSIMTDLYYLSQTDGAG
 Fut8Mgallopavo 2 KELWFFLQSELKLLKNLE-----GSELQRRIDEFLS DLGHQERSIMTDLYYLSQTDGAG
 Fut8Tguttata 2 KELWFFLQSELKLLKNLE-----GSELQTRIDEFLS DLGHQERSIMTDLYYLSQTDGAG
 Fut8DrerioB 2 RELWYFIHSEIQKLSHVN-----PTDRQKQTDALLQDLGHQORAIMTDLHELQADGAG
 Fut8Trubipres 2 KEFWYFVRSEVKKLVKVD-----PNERQKYAETLLEDLGHQERSIMTDLYYLSQADGVG
 Fut8Oniloticus 2 KEFWYFVRSEVKKLANVE-----PSERQKYADTLLQDLGHQERSIMTDLYYLSQADGVG
 Fut8Olatipes 2 KEFWYFVRNEVKKLANTE-----LSERQKYADTLLQDLGHQERSIMTDLYYLSQADGVG
 Fut8Hmelpomene 2 KELWYFVNHELKSLVNDVQ-----TDKIKSILDQVADRKRSLSDQEKLPELDGYH
 Fut8Dplexippus 2 KEIWFYINHELTKLVNDVQ-----PEKVQAILDQVADRKRSLSDQEKLPELDGYE
 Fut8Bmori 2 KEFWYIANHELKGLMHESDK-----EAKIRAILLEQLSDRKSTLLSDQEKLSEMDGYH
 Fut8Sfrugiperda 2 KELWYVHHELTKVIQEDNK-----AEKIQTILDQIGERKRSLSDQOQSLPELDGYH
 Fut8Msexta KELWYVSHELGKLHEENK-----EKKIQAILDQVADRKRSLISDEEKLPELDGYH
 Fut8Mrotundata 2 QELWYYSIAELSKLKKTKIDKPSYDQKE--KRIQDVLNRVWDHKKRSLIIDIDRLKADGYD
 Fut8Amellifera 2 QEMWYYINAELSKFRKIDKLNVDQRE--KRIQDTLKNVWDHKKSLTIDIDRLTKADGYD
 Fut8Bimpatiens 2 QETWYYINAELSKFRKIDKLNVEQRE--KKIQDTLKNVWDHKKSLIIDIDKLMKADGYD
 Fut8Hsaltator 2 QELWYVIAAELNFKFKHIDDFTHDQKEKEKDIQDVLKNTWEHKKSLIMNVDKLTADGYN
 Fut8Cfloridanus 2 QETWYYSIAELNFKFKHIDEFTYDQRE--REIQDVLKNVWEHKKSLTNDKLLKVDGYE
 Fut8Sinivicta 2 QEMWYVSAELNFKFKHIDEFTYDQRE--KEIQDVMKNAWEHKKSLIIDKLLKADGYN
 Fut8Acephalotes 2 QEMWYVIAAELNFKFKHIDEFTYDQRE--KEIQDVIKNAWEHKKSLIIDKLLKSDGYD
 Fut8AechinatioR 2 QEMWYVIAAELNFKFKHIDEFTYDQRE--KEIQDVIKNAWEHKKSLIIDKLLKSDGYD
 Fut8Phumanus 2 QEFWYFYSQLEKLGDIK---RTSPELTKINNILKMTAEHKL SLMKDIINGLSKEDGFS
 Fut8Smaritima NEMWLYTKNELKVLKTKMDDD-KT---KIKMDKMIRLETQYKRVILNDLATLSNIDGLG
 Fut8Dpulex 2 QENWYFVQEQLEKLLKSGRD--QSAP EISNLIQEIILNSGKEHEI ILLNDIQELSNMENHD
 Fut8Apisum KELWYVNSSELQSLVKEDDS-----VRVEHISKIKNIIGEHYRSLLDKDVSSLADVGH
 Fut8Tcastaneum KEFWYFIHGLLDLEKKAH---ESAPEIVDSVKYLLSLGVEHKKRSLLDIDQLAEVDGYA
 Fut8Dmojavensis AEIWNFFSSELGKLRKAVG---PGNSELEESIQQVLLQGADHKKRSLSDMEQLRRVDGYE
 Fut8Dpseudoobscura GEIWNFFSSELAKISKVVAS--KGPKELEESINQVLLQGAEHKKRSLSDMDHMRSDGYE
 Fut8Dananassae GEIWNFFSSELGKVRKAVAAG--HANTDLEETINQVLLQGAEHKKRSLSDMEHLRRSDGYE
 Fut8Dmelanogaster GEIWNFFSSELGKVRKAVAAG--HASADLEESINQVLLQGAEHKKRSLSDMERMRQSDGYE
 Fut8Agambiae QELWNFLQSEVTKVQKQAL---RSAP ELAKPLNAFLSLAADHKKRSLTDIRMRAADGYE
 Fut8Aegypti QELWNLLHSETAKLAKTAR---RNTPEIYAPAENFLALAAEHKKRSLLDINQMRASDGYE
 Fut8Cpipiens QELWNFLNSEVIKAAKIGR---KNSPEIAPPLDALLSLASEHKKRSLLDINQMRASDGYE

Fut8Cjaponica DRRKTLRSELASRIHKSIDLHLQNPSTCADAKTLLCNLDKECGFGCQLHHVTVCAITAFAT
 Fut8Celegans EERFKQRTAITQRIFKSIIEKLQNPKACSEAKTLVCNLDKECGFGCQLHHVTVCAITAFAT
 Fut8Chrenneri DERIKKRSEITNRMKSIKKLQNPKSCGEANTLVCNLDKECGFGCQLHHVTVCAITAFAT
 Fut8Cremanei DERMSQRSEITNRIKLSIEKLQNPQSGDVNTLVCNLDKECGFGCQLHHVTVCAITAFAT
 Fut8Asuum 2 KWREAAALATISAKIQSQLDRLQNPNDCTSARSLICHNLKGCQFGCQLHHVTVCFIVAYGT
 Fut8Lloa 2 SWRANALANISAIQFNHFDMQNPDDCKSARILTCDLNKQCGFGCQLHHVTVCFIVAYGS
 Fut8Bmalayi 2 SWRANALANISAIQFNHFNMQNPDDCKTARILTCDLNKQCGFGCQLHHVTVCFIVAYGS
 Fut8Wbancrofti 2 SWRTNALANISAIQFNHFNMQNPDDCKTARILTCDLNKQCGFGCQLHHVTVCFIVAYGS
 Fut8Tspiralis 1 QLRSE-----ARLQHLGNA-----VQEQLGFCQFGCQMHHVTVCLIVSYT
 Fut8Turticae EWRKNEFKKLTFTSVVDKLNPPNCCATANKLVCRLNKGCGFGCQMHHVTVCMVVALAT
 Fut8Hmagnipapillata EYKDSLALALELSNIVQKRIFTLQNPKNCDTAKKLVCSLNKGCQYGCQMHHVTVCFIVAYST
 Fut8Nvectensis KWQWSEHEELSRIVQERIKKLQNPKDCSTSKKLIQNLKGCQYGCQVHHVTVCFIVAFGS
 Fut8Moccidentalis 2 MWRKQEAEDLQRIQLDRIRVYLQNPADCSAKKLVFNLNKGCQYGCQLHHVTVCMIMATSM
 Fut8CintestinalisA 0 EARGEAAARKLQDLVQKRINYLQNPKDCRSNRKLVCAIHKKCGFGCQLHHVTVCMMTAYGT
 Fut8Lsalmonis AWRLQESKNLSLHVQSRILTALQNPSCDKNARKLLCNLNKGCQYGCQIHHVTVCFVSAIGA
 Fut8SpurpuratusA 0 -----DGFVVRGHIGKXENPKDCSKAKKIVCNLNKGCQYGCQVHHVTVCMIVAYAT
 Fut8Cteleata 0 EWRHREHEQLTELVTQRIKYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFIAYGT
 Fut8SkowalevskiiA 0 MWRENAKELEQTVQKRLKYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCLIMAYGS
 Fut8Bfloridae 0 AWRQREAAHALQDLVQRRHLQNPKDCSKAKKLLCNLNKGCQYGCQLHHVTVCFMAYGT
 Fut8Xtropicalis 0 DWREKEAKDLTDLVQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Rnorvegicus 0 DWREKEAKDLTELQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Hsapiens 0 DWREKEAKDLTELQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Btaurus 0 DWREKEAKDLTELQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Acarolinensis 0 DWREKEAKDLTDLVQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Ggallus 0 DWREKEAKDLTDLVQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Mgallopavo 0 DWREKEAKDLTDLVQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Tguttata 0 DWREKEAKDLTDLVQRRITYLQNPKDCSKAKKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8DrerioB 0 EWRDKEARDLSILVQRRISFLQNPQDCSKARKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Trubipres 0 EWRMKEAKDLSDLVQNRITYLQNPDCSKARKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Oniloticus 0 EWRMKEAKDLSDLVQNRITYLQNPDCSKARKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Olatipes 0 DWRTKEAKDLSDLVQNRITYLQNPDCSKARKLVFNLNKGCQYGCQLHHVTVCFMIAYGT
 Fut8Hmelpomene 0 EWRVTEAANVSDLVQRRILYLNQNPSCDKARKVICNLNKGCGFGCQLHHIVYCLIFAYAT
 Fut8Dplexippus 0 DWRRSEASEVSDLVQKRLKYLQNPDCDKARKVICNLNKGCGFGCQLHHIVYCLIFAYAT
 Fut8Bmori 0 EWRQLEAANVSDLVQRRILYLNQNPDCREARKLICNLNKGCGFGCQLHHIVYCLIFAYAT
 Fut8Sfrugiperda 0 EWRQAEANVSDLVQRRILYLNQNPDCDKARKLICNLNKGCGFGCQLHHIVYCLIFAYAT
 Fut8Msexta EWRQMEANVSDLVQRRILYLNQNPDCREARKLICNLNKGCGFGCQLHHIVYCLIFAYAT
 Fut8Mrotundata EWRKKEAKDLSDLVQRRFKYLQNPSCDKARKLVCSLNKGCQYGCQIHHITYCFIVAYGT 0
 Fut8Amellifera EWRKKEAKDLSDLVQRRFKYLQNPSCDKARKLVCSLNKGCQYGCQIHHITYCFIVAYGT 0
 Fut8Bimpatiens EWRKKEAKDLSDLVQRRFRHLQNPSCDKARKLVCSLNKGCQYGCQIHHITYCFIVAYGT 0
 Fut8Hsaltator 2 EWREKEAKDLSDLVQRRFRYLQNPDCDKAKKLVCSLNKGCQYGCQLHHITYCFMAYGT 0
 FUT8Cfloridanus 2 EWRKKEAKDLSDLVQKRFYLQNPADCSAKKLIQNLNKGCGFGCQIHHITYCFIVAYGT 0
 Fut8Sinivicta 2 EWREKEAKDLSDLVQRRFRYLQNPDCDKAKKLIQNLNKGCGFGCQIHHITYCFIVAYGT 0
 Fut8Acephalotes 2 EWREKEAKDLSDLVQRRFRYLQNPDCDKAKKLIQNLNKGCGFGCQIHHITYCFIVAYGT 0
 FUT8Aechinatior EWRKKEAKDLSDLVQRRFRYLQNPDCDKAKKLIQNLNKGCGFGCQIHHITYCFIVAYGT
 Fut8Phumanus 0 SWRKSESASLAELEKRLKLLQNPEDCTTAKKLIQNLNKGCGFGCQIHHIAYCLIVAYAS
 Fut8Smaritima 0 EWREREAKSLSDLVQRRHLQNPKDCDKNAKLLCNLNKGCQYGCQIHHVTVCFIVAYGS
 Fut8Dpulex 0 AWRSTEARALSDDLQRRHLQNPADCSAKKLIQNLNKGCGYGCQIHHIAYCFIMAYAT
 Fut8Apisum 0 AWRQQESENLSNLVQKRLHLLQNPSCDKARKLVCDLNKGCQYGCQLHHVTVCFIVAYAT
 Fut8Tcastaneum 0 TWREKEANDLSGLVQKRFHFLQNPADCKTAKKLIQNLNKGCGYGCQLHHAVYCFMAYGT
 Fut8Dmojavensis 0 AWRQEQAKDLSDLVQRRHLHLLQNPSCDKNAKLVCKLNKGCQYGCQLHHVTVCFIVAYAT
 Fut8Dpseudoobscura 0 TWRHKEARDLSDDLQRRHLHLLQNPSCDKNAKLVCKLNKGCQYGCQLHHVTVCFIVAYAT
 Fut8Dananassae 0 AWRHREAKESDLVQRRHLHLLQNPSCDKNAKLVCKLNKGCQYGCQLHHVTVCFIVAYAT
 Fut8Dmelanogaster 0 AWRHKEARDLSDDLQRRHLHLLQNPSCDKNAKLVCKLNKGCQYGCQLHHVTVCFIVAYAT
 Fut8Agambiae AWRHREAADLSELVQKRLTRLQNPENCSARKLICRLNKGCGYGCQLHHVTVCFIMAYAT
 Fut8Aegypti FWRYKESKDLSDLVQKRLTHLQNPEDCSARKLICRLNKGCGYGCQLHHVTVCFIMAYAT
 Fut8Cpipiens FWRYKESKDLSDLVQRRLSYLQNPEDCSARKLVCRNLKGCQYGCQLHHVTVCFIMAYAT

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Fut8Cjaponica QRMLILRRDQSWKYSAR-----GWTSVFKPISKCSYDEA--VGKT-----DLKP 0
 Fut8Celegans 2 QRMMVLKRDGSSWKYSSH-----GWTSVFKKLSKCSFDEA--VGNT-----EAKP 0
 Fut8Chrenneri 2 KRMLILKRDGSSWKYSSR-----GWTSVFEPISKCSFDEA--VGKT-----ELKP 0
 Fut8Cremanei 2 KRMMILKRDGSSWKYSSR-----GWTSVFEPISKCSFDDA--VGKA-----EMKP 0
 Fut8Asuum NRTLILLHDGRDWNYSKG-----GWTA AFLPISRCKHADV--SKD--EGNEEWS 0
 Fut8Lloa NRTLVLTDGRTWNYATN-----GWTA AFLPITKCSFSEI--FKP--NEYADDWGT 0
 Fut8Bmalayi NRTLVLTDGRTWNYAAN-----GWNA AFLPITKCSFSEI--FKVTLNENADDWGI 0
 Fut8Wbancrofti NRTLVLTDGRTWNYAAN-----GWNA AFLPITKCSFSEI--FKVTARFPKD--- 0
 Fut8Tspiralis NRTMILRGD--RWYS SSR-----GWTSVFKPLSETCTEAE-----DVPPSMFTA 0
 Fut8Turticae KRTMILDSN--NWRYPNPNAHGSREPSWNLIFQPLSRTCTTAD-----GKTHKPWSE 0
 Fut8Hmagnipapillata GRTMIIDSS--GWRYSSK-----GWDA YFES-VTSCCKDFQ-----E-A-KEWGY 0
 Fut8Nvectensis QRTMIIDST--GWRYSSS-----GWSGIFLQPSETCTSYT-----G-GFSNWQR 0
 Fut8Moccidentalis KRTLILQSK--GWRYNPR-----GYEDIFQPVSNSCIAET-----GGRSRKYPA 0
 Fut8Cintestinalis GRTMILVSK--LWLYNPG-----GWEEIFEPLSATCTQTF-----NFKPQVWRG 1
 Fut8Lsalmonis GRALVLKSK--GWRYNRA-----GFENVFKPLSETCQRIPEVLQGELPLSRSSWPG 1
 Fut8SpurpuratusA ERTLILDSK--GWRYARE-----GWKFFLPLSETCLDRK-----GESSGRWGA 0
 Fut8Cteleta QRTFVLESR--GWRY SSE-----GWKEYFLPLSETCTDRQ-----GDSSRAWGG 0
 Fut8SkowalevskiiA ERTLILES K--GWRYAKD-----GWKFFQPLSNTCVTIT-----GTSRNAWTE 1
 Fut8Bfloridae ERTMILNSQ--GWRYSSG-----GWKVFPLPLSETCTDPS-----GSSRGPWKG 1
 Fut8Xtropicalis QRTLILESQ--SWRYATG-----GWETVFKPVSETCTDRS-----GSSTGHWSG 1
 Fut8Rnorvegicus QRTLILESQ--NWRYPATG-----GWETVFRPVSETCTDRS-----GLSTGHWSG 1
 Fut8Hsapiens QRTLILESQ--NWRYPATG-----GWETVFRPVSETCTDRS-----GISTGHWSG 1
 Fut8Btaurus QRTLILESH--NWRYPATG-----GWETVFRPVSETCTDRS-----GVSTGHWSG 1
 Fut8Acarolinensis QRTLILESQ--NWRYPATG-----GWETVFRPVSETCTDRS-----GSTTGHWSG 1
 Fut8Ggallus QRTLILESQ--NWRYPATG-----GWETVFRPVSETCTDRS-----GTTTGHWSG 1
 Fut8Mgallopavo QRTLILESQ--NWRYPATG-----GWETVFRPVSECTDRS-----GTTTGHWSG 1
 Fut8Tguttata QRTLILESQ--NWRYPATG-----GWETVFRPVSETCTDRA-----GSSSTGHWSG 1
 Fut8DrerioB QRVLILESH--NWRYPAPK-----GWETVFKAVSETCTDRS-----GATTGHWSG 1
 Fut8Trubipres QRTLILESH--NWRYPAPG-----GWETVFLPVSNCTDRS-----GATTGHWSG 1
 Fut8Oniloticus QRTLILESH--NWRYPAPG-----GWETVFLPVSNCTDRS-----GATTGHWSG 1
 Fut8Olatipes QRTLILESH--NWRYPAPG-----GWETVFLPVSNCTDRS-----GASTGHWSG 1
 Fut8Hmelpomene ERTLILNSK--GWRYNNK-----GWYVFPISDTCVSVY-----DDKVVPWPA 1
 Fut8Dplexippus ERTLILNSK--GWRYNNK-----GWYVFPISDTCCTAY-----DDKVVPWPA 1
 Fut8Bmori ERTLILNSK--GWRYNTK-----GWYVFPISSECLSSY-----DDKVVPWPV 1
 Fut8Sfrugiperda ERTLILNSK--GWRYNNK-----GWYVFPISDTCCTAY-----DDKVVPWPV 1
 Fut8Msexta ERTLILNSK--GWRYNTK-----GWDYVFPISDSCCTAY-----DDKVVPWPV 1
 Fut8Mrotundata ERTLIIKSK--GWRYHKD-----GWESVFKPLSDTCVSTN-----GASHANWPG 1
 Fut8Amellifera ERTLIIKSK--GWRYHKD-----GWESVFKPLSDTCVSTN-----GASHANWPG 1
 Fut8Bimpatiens ERTLIIKSK--GWRYHKD-----GWESVFKPLSETCVSTI-----GASHANWPG 1
 Fut8Hsaltator ERTLIIKSK--GWRYHKD-----GWESVFKPLSDTCVSTN-----GVSHSNWPG 1
 FUT8Cfloridanus ERTLIIKSK--GWRYOKE-----GWESVFKPLSNTCLSTT-----GVSHSNWPG 1
 Fut8Sinivicta ERTLIMKSK--GWRYHKD-----GWESVFKPLSDNCLSTT-----GTSHSNWPG 1
 Fut8Acephalotes ERTLIMKSK--GWRYHKD-----GWESVFKPLSDTCLSTT-----GTSHSNWPG 1
 FUT8Aechinatio ERTLIMKSK--GWRYHKD-----GWESVFKPLSDTCLSTS-----GTSHSNWPG 1
 Fut8Phumanus KRTLILTSK--GWRYHKS-----GWEDIFLPLSDTCRSPS-----GASRVGWPG 1
 Fut8Smaritima GRTLILNSK--GWRYNKD-----GWESVFKPVSDSCTSTM-----GVGSAMWPG 1
 Fut8Dpulex KRTLILNSK--KWRYHRG-----GWKVFPLPLSDTCTDPS-----GLDRSNWPG 1
 Fut8Apisum ERTLILRSK--GWRYSKG-----GWQDVFLPLSDTCLLPN-----GETTNRWPG 1
 Fut8Tcastaneum KRTLILKSK--GWRYHKA-----GWEEIFKPVSDTCVDPS-----GKSVSNWPG 1
 Fut8Dmojavensis ERTLILKSR--GWRYHKG-----GWEEVFRPVSDNCQDAG-----TAYAYNWPG 1
 Fut8Dpseudoobscura ERTMILKSR--GWRYHKG-----GWEEVFPISKGCHDAG-----SANAYNWPG 1
 Fut8Dananassae ERTLILKSR--GWRYHKG-----GWEEVFPVSNCHDAG-----TANTYNWPG 1
 Fut8Dmelanogaster ERTLILKSR--GWRYHKG-----GWEEVFPVSNCHDAG-----TANTYNWPG 1
 Fut8Agambiae ERTLILKSK--GWRYHKA-----GWEEVFPISDTCCLDSN-----GASHASWPG 1
 Fut8Aegypti ERTLVLKSK--GWRYHKA-----GWEEVFPISDTCCLSDA-----GATHASWPG 1
 Fut8Cpipiens ERTLILKSK--GWRYHKA-----GWEEVFPISDTCCLDAN-----GATHASWPG 1

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Fut8Cjaponica 2 FTENSPARVLSLGIIVDSLITK--PEFLPQAVPQILRNLTAIHSHPPAFFVGTFFISYLMR 0
 Fut8Celegans 2 FAEPSPARVSLGIIVDSLITK--PTFLPQAVPEQLLESLTSLHSHPPAFFVGTFFISYLMR 0
 Fut8Chrenneri 2 FTDPSPARVSLGIIVDSLITK--PTFLPQAVPEQLLGNLTALHSHPPAFFVGTFFISYLMR 0
 Fut8Cremanei 2 FADPSPERVSLGIIVDSLITK--PAFLPQAIPEQLLSTLSSLHSHPPAFFVGTFFISYLMR 0
 Fut8Asuum VAMSARSRVVKLPIIDGLHGR--PPFLPLAFPEFLASDLLKLSNPPVFFISQFLRYLMR 0
 Fut8Lloa GKHYRNKRIVKLPIDSLAFR--PPYLPLAIPQSYSEDELLKLSNPPAFFISQFIRYLMR 0
 Fut8Bmalayi GEHYKDKRIVKLPIDSLQR--PAYLPLAIPQLYSAELOKLSNSPAFFISQFIRYLMR 0
 Fut8Wbancrofti 0 FSHYRDKRIVKLPIDSLQR--PPYLPLAIPQLYSAELOKLSNSPVPFFISQFIRYLMR 0
 Fut8Tspiralis 1 EGDLLKKSFLVDAPVIDIFDKEQYPLPLSFPKELADELLQVHSYPPVWVWIGQFVRYLMR 2
 Fut8Turticae 0 GV---TAQVVDLPIIDSLRPR--MDYLPRAIPEQISEKLITLHGSPVWFMGQILGFIMR
 Fut8Hmagnipapillata DH--ASHQVVHLPIVDALFPR--PSQMPQAVPKDLFDQIRMFHGHPPFVWVWIGQFCKFLFK
 Fut8Nvectensis -N--NDAQNVILPIVDLSLPR--PPYMPMAVPEDLADRLSRLHGHPPFVWVWIGQFAKYLFK
 Fut8Moccidentalis 0 SG--DEVVNLEMPIDIGLITQK--PDCLPLAVPKALVPRLSQLHANPALWWSIQIVGLFQR
 Fut8CintestinalisA ELESANELEVMLPAVDQLPKA--PRFAPLGIPEDLADELQDFHSGPQVWVWVGFQIKYIFR
 Fut8Lsalmonis KE---DTVNVDIPIVDSVNPR--PKHLPPSIPKEIASRIIRLHGDPVWVWVSEVLRYLIR
 Fut8SpurpuratusA PSNIEHLQVVELPIVDGLHPR--PEFLPLAIPEDISQRLMRIHGHPVWVWVGMQIMTYIQR
 Fut8Cteleta 0 KKRLLTYVQVVDLPIIDSLRPR--PPFMPQAIADLAPRLMRMHGHPFVWVWVIAQFLTYLTR
 Fut8SkowalevskiiA ESRIKDVQVVDLPIVDGLHPR--PNYLPLAIPEDLSERLLRLHGHQPAVWVWVIAQFVKYVTR
 Fut8Bfloridae EK-SKDTQVVEMPVDSIYPR--PPYLPLGIPEDLSRLLRLHGNPSVWFIAQFVLYLQR
 Fut8Xtropicalis EANDKNVQVVELPIVDLSLHPR--PPYLPLGVPEDLADRLIRLHGDPVWVWVQFVKYLIR
 Fut8Rnorvegicus EVNDKNIQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLVRVHGDPVWVWVQFVKYLIR
 Fut8Hsapiens EVKDKNVQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLVRVHGDPVWVWVQFVKYLIR
 Fut8Btaurus EIKDKNVQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLVRVHGDPVWVWVQFVKYLIR
 Fut8Acarolinensis ETNDKDVQVIELPIVDLSLHPR--PPYLPLAIPEDLADRLIRVHGDPVWVWVQFVKYLIR
 Fut8Ggallus ETNDKDVQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLIRVHGDPVWVWVQFVKYLIR
 Fut8Mgallopavo EANDKDVQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLIRVHGDPVWVWVQFVKYLIR
 Fut8Tguttata EANDKDVQVVELPIVDLSLHPR--PPYLPLAVPEDLADRLIRVHGDPVWVWVQFVKYLIR
 Fut8DrierioB EAHDRDVQVVELPIVDLSLHPR--PPYLPLAVPEDLAPRLQRLHGDPVWVWVQFVKFLVR
 Fut8Trubipres EAHDKDVQVVELPIVDLSLHPR--PPYLPLAIPEDLAPRLQRLHGDPVWVWVQFVKYLVR
 Fut8Oniloticus EAHDKDVQVVELPIVDLSLHPR--PPYLPLAIPEDLAPRLQRLHGDPVWVWVQFVKYLVR
 Fut8Olatipes EAHDKDVQVVELPIVDLSLHPR--PPYLPLAIPEDLAPRLHRLHGDPVWVWVQFVKYLVR
 Fut8Hmelpomene SY---DAKVVSLPFIIDSLISQK--PKFLPLAIPSDLAHRIVRFNGDPPSSWVWIGQMLKYVLK 2
 Fut8Dplexippus SY---DAKVVSLPFIIDSVSQK--PKFLPLAVPSDLAHRIVRFNGDPPSSWVWIGQMLKYVLK 2
 Fut8Bmori SY---DAKVVSLPFIIDSLISQK--PKFLPLAVPKDLAHRIVRFNGDPPSSWVWIGQMLKFLK 2
 Fut8Sfrugiperda TY---DAKVLALTFIIDSLISQK--PKFLPLAIPKDLAHRITRFNGDPPSSWVWIGQMLKYILK 2
 Fut8Msexta LY---DAKVVSLPFIIDSLISQK--PKFLPLAIPKDLAPRIVRFNGDPPSSWVWIGQMLKYILK
 Fut8Mrotundata DA---SKQVISLPIVDNVYPK--PRYQPPSVPEDLAPRLEKHLHGHPVWVWVQVVKYLMR
 Fut8Amellifera DS---SKQVISLPIVDNVYPK--PRYQPPSVPADLASRLEKHLHGHPVWVWVQVVKYLMR
 Fut8Bimpatiens DS---SKQVISLPIVDNVYPK--PRFQPPSVPADLASRLEKHLHGHPVWVWVQVVKYLMR
 Fut8Hsaltator DP---TKQVISLPIVDNVYPK--PKYQAPSVPADLAARLEKIHGHPVWVWVQVVKYLMR
 FUT8Cfloridanus DP---SKQVISLPIVDNVYPK--PRFQPPSVPADLAPRLEKIHGHPVWVWVQVVKYLMR
 Fut8Sinivicta DP---SKQVISLPIVDNVYPK--PRFQPPSVPADLAPRLEKIHGHPVWVWVQVVKYLMR
 Fut8Acephalotes DP---SKQVISLPIVDNVYPK--PRFQPPSVPADLAPRLEKIHGHPVWVWVQVVKYLMR
 FUT8AechinatioR DP---SKQVISLPIVDNVYPK--PRFQPPSVPADLAPRLEKIHGHPVWVWVQVVKYLMR
 Fut8Phumanus QS---DSQVVVLPIDITLFR--PEFLPPIPKDLAPRLIKLHSQPLAWWIGQMLRYLMR
 Fut8Smaritima YG---DAQVLDLPIIDSLISPR--PDYLPALPRDLAARMQRLHGDPVWVWVQFLKYLLR
 Fut8Dpulex TN---ETQVIELPIVDMLSPR--PPFLPLAIPRDLSEMIIRLHGDPVWVWVQFVKYLLR
 Fut8Apisum HR---NTQVITLPIIDSLNPR--PPFLPLALPEDLAPRLNVLHGDPVWVWVQFLKYLLR
 Fut8Tcastaneum NS---ETQVVNLPIDSLISPR--PPFLPLAIPEDLAPRLTRLHGDPVWVWVQILKFLLR
 Fut8Dmojavensis KP---NTQVLVLPIDSLMPR--PPYLPLAVPEDLAPRLKRLHGDPVWVWVQFLKYLLR
 Fut8Dpseudoobscura KP---NTQVLVLPIDSLMPR--PPYLPLAVPEDLAPRLKRLHGDPVWVWVQFLKYLLR
 Fut8Dananassae KP---NTQVLVLPIDSLMPR--PPYLPLAVPEDLAPRLKRLHGDPVWVWVQFLKYLLR
 Fut8Dmelanogaster KP---NTQVLVLPIDSLMPR--PPYLPLAVPEDLAPRLKRLHGDPVWVWVQFLKYLLR
 Fut8Agambiae QS---NTQVLTLPIDSLNPR--PPYLPLAIPADLAPRLMKLHGDPVWVWVQFLKYLLK
 Fut8Aegypti TP---ETQVLTVPIDSLNPR--PPYLPLAIPADLAPRLIKLHGDPVWVWVQFLKYLLK
 Fut8Cpipiens TT---ETQVLTVPIDSLNPR--PPYLPLAIPADLAPRLMKLHGDPVWVWVQFLKYLLK

i6l

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Fut8Cjaponica	FNVETIEKLEAAVQS--MKL	SRGPIVGLQIRRTDKV	GT	EAAFHALKEYMEWTEIWFKVEE
Fut8Celegans	FNSATQEKLDKALKS--IPLDKG	PIVGLQIRRTDKV	GT	EAAFHALKEYMEWTEIWFKVEE
Fut8Chrenneri	FNSDTKEKLEEA VKA--IPFDKGP	PVGLQIRRTDKV	GT	EAAFHALKEYMEWTEIWFKVEE
Fut8Cremanei	FNAETKEKLEAALKA--IPFSEGP	PVGLQIRRTDKV	GT	EAAFHALKEYMEWAEIWFKIEE
Fut8Asuum	1 PNDELAKRITEAASK--VPFNKGP	PVGLQIRRTDKV	GT	EAAFHALPEYMKWTEYWFQIEE
Fut8Lloa	1 PSAVFAKEIDQAVKK--VPFDKGP	PIVGLQIRRTDKI	HT	EASFHDLDEYIKWAEDWFKIEE
Fut8Bmalayi	1 PSAVFAKEIDLAVKK--VPFDKGP	PIVGLQIRRTDKI	HT	EASFHDLDEYMKWAEDWFKIEE
Fut8Wbancrofti	1 PSAVFAKEIDLAVKK--VPFDKGP	PIVGLQIRRTDKI	HT	EASFHDLDEYMKWAEDWFKIEE
Fut8Tspiralis	2 FVDSVKLDDLDEKLET--YGF-RHP	PIVGIHVRRTDKI	LS	EASFHSVKEYMEEVENWYDVQM
Fut8Turticae	PSQEMKKFLENACKR--FKF-RSP	IIGIHVRRTDKV	GT	EASYHSLTEYMKYAEQYFQNL
Fut8Hmagnipapillata	2 YKPDLOREITEKKKS--LGF-KSP	IVGVQIRRTDKI	IN	EAAHYDIDEYMWVDLYYKLLA
Fut8Nvectensis	2 YNANVQKEINEKRER--MGF-KSP	IVGIQVRRTDKI	IN	EAAHVEVEEYMWVQLYYSRLG
Fut8Moccidentalis	0 PQRGTSDFLKEVRDH--HGI-KCP	YAGIHVRRTDKI	GT	EADYHGIDEYMSWVAEYFDKYE
Fut8CintestinalisA	2 PRPWLKELDGYEVT--VDY-STP	IVGVHVRRTDKI	IG	EASFHAIDEYMKHVDDWDFDRYD
Fut8Lsalmonis	PQEDLQVLLNSTEEDKLPD--KSP	PVGIHVRRTDKV	GT	EAAHFHVEEYMEYVEERFKYLD
Fut8SpurpuratusA	2 PQUALQEDIDKMSQA--LGF-TNP	IVGLHVRRTDKV	GT	EAAFHGIEEYMFHAEFFYLRLE
Fut8Cteleta	2 LQPAFQRDIDDDVSHS--LGF-KCP	IVGVHVRRTDKV	GT	EAAFHGLDEYMIYVEEYFNLE
Fut8SkowalevskiiA	2 PQQVLOSFLDETRNK--VKF-ENP	IVGVHVRRTDKV	GT	EAAFHNIIDEYMVHVEEYKRLS
Fut8Bfloridae	2 YQPYLQODIEETAQK--LGF-KHP	IVGIHVRRTDKI	IN	EAAHYHSIAEYMEWVEEYQLLQ
Fut8Xtropicalis	2 PQQWLEKEIEESTKK--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEEHFQLLA
Fut8Rnorvegicus	2 PQQWLEKEIEEATK--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEEHFQLLA
Fut8Hsapiens	2 PQQWLEKEIEEATK--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEEHFQLLA
Fut8Btaurus	2 PQQWLEKEIEEATK--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEEHFQLLA
Fut8Acarolinensis	2 PQQWLEKEIEEATR--LGF-KHP	IVGIHVRRTDKV	GT	EAAHFPIEEYMIHVEERFQLLA
Fut8Ggallus	2 PQQWLEKEIEEATR--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEERFELLA
Fut8Mgallopavo	2 PQQWLEKEIEEATR--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEERFELLA
Fut8Tguttata	2 PQQWLEKEIEEATR--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMVHVEERFELLA
Fut8DrerioB	2 PQAWEKEIQETCLK--LGF-KHP	IIGVHVRRTDKV	GT	EAAHFPIEEYMVHVEEQFSMA
Fut8Trubipres	2 PQAWEKEIQOSTAK--LGF-KHP	IVGVHVRRTDKV	GT	EAAHFPIEEYMIHVEEQFQLLA
Fut8Oniloticus	2 PQAWEKEIQOTTAK--LGF-KHP	IIGVHVRRTDKV	GT	EAAHFPIEEYMLHVEEQFQLLA
Fut8Olatipes	2 PQGWLEKEIQOSTAK--LGF-KHP	IIGVHVRRTDKV	GT	EAAHFPIEEYMLHVEEQFQLLA
Fut8Hmflopomene	2 PKEETQKAINETIAK--LNF-KNP	IVGVHVRRTDKV	GT	EAAFHHLHEYMQHVQHYEQQLQ
Fut8Dplexippus	2 PRAAMQKAINETIAK--MNF-KNP	IVGVHVRRTDKV	GT	EAAFHHLHEYMQHVQHYEQQLQ
Fut8Bmori	2 PRLPMQKAINDTIAK--MNF-KSP	IVGVHVRRTDKV	GT	EAAFHHLHEYMAHVVDYDQLE
<u>Fut8Sfrugiperda</u>	2 PRQAMQKAINDTIAK--MNF-KKP	IVGVHVRRTDKV	GT	EAAFHHLHEYMAHVVDYDQLE
Fut8Msexta	PRVAMQKAINETIAK--MNF-KTP	IVGVHVRRTDKV	GT	EAAFHHLHEYMAHVVDYDQLE
Fut8Mrotundata	PQEHVTKTLNYAKDR--LGF-KKP	IVGIHVRRTDKV	GT	EAAHYDIDEYMKVVEQYFDELE
Fut8Amellifera	PQEHVKKMLDDAKER--LGF-KKP	IVGIHVRRTDKV	GT	EAAHYDIDEYMIKVQYFDELE
Fut8Bimpatiens	PQEHVKRTLENAKEK--LGF-KKP	IVGVHVRRTDKV	GT	EAAHYDIDEYMKVVEQYFDELE
Fut8Hsaltator	PQDHVKKTLEKAKEK--LGF-KKP	PVGVHVRRTDKV	GT	EAAHYDIDEYMTKVEQYFDELE
FUT8Cfloridanus	PQDHVKKTLEKAKER--LGF-KKP	IVGVHVRRTDKV	GT	EAAHYDIDEYMSKVEQYFDELE
Fut8Sinivicta	PQDHVKKTLEKAKER--LGF-KKP	IVGIHVRRTDKV	GT	EAAHYDIDEYMTKVEQYFDEFE
Fut8Acephalotes	PQDHVKKTLEKAKER--LGF-KKP	IVGVHVRRTDKV	GT	EAAHYDIDEYMIKVEQYFDELE
FUT8Aechinator	PQDHVRRTLEKAKER--LGF-KKP	IVGIHVRRTDKV	GT	EAAHYDIDEYMIKVEQYFDELE
Fut8Phumanus	2 PQQPSTEKFNFESINK--LNF-KKP	IVGVHVRRTDKI	IG	EADFHSIEEYMKHVGDWDFDQOI
Fut8Smaritima	2 PQQNLQANIDEMTDK--LGF-KKP	IVGIHVRRTDKV	GT	EAAFHKLHEYMLHAGEFYQQLA
Fut8Dpulex	2 YQPETQKMLDQAKEK--MKF-ESP	PVGVHVRRTDKV	GT	EAAFHHSIDEYMLYVADFFDKLE
Fut8Apisum	2 PQQATSNKLDYEGKK--VKF-QKP	IVGVHVRRTDKV	GT	EAAFHKLDEYMVHVEYQYKYKE
Fut8Tcastaneum	2 PQQPQTAAVMQETMTH--MGF-KRP	IVGVHVRRTDKV	GT	EAAHYGIEEYMTAVDEYYKELE
Fut8Dmojavensis	2 PQTETRDFLNSGMRK--LGW-ERP	IVGVHVRRTDKV	GT	EAAFHGIDEYMTHVDEYYRTLE
Fut8Dpseudoobscura	2 PQQPTREFLFAGMRN--LGW-ERP	IVGVHVRRTDKV	GT	EAAACHSIGEYMTHVDEYYRTLE
Fut8Dananassae	2 PQTTRDFLTAGMRN--LGW-ERP	IVGVHVRRTDKV	GT	EAAACHSVEEYMTHVDEYYRTLE
Fut8Dmelanogaster	2 PQPTRDFLTSGMRN--LGW-ERP	IVGVHVRRTDKV	GT	EAAACHSVEEYMTYVEDYYRTLE
Fut8Agambiae	2 PTGETRQMLENGIER--LGF-KKP	IVGVHVRRTDKV	GT	EAAFHGIEEYMTAVDDYDQLE
Fut8Aegypti	2 PTGETRQMLENGIEK--LGF-KKP	IVGVHVRRTDKV	GT	EAAFHGIEEYMQAVDDYDQVE
Fut8Cpipiens	2 PTGETRQMLENGMEK--LGF-RKP	IVGVHVRRTDKV	GT	EAAFHGIEEYMAVDDYDQVE

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Motif I

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Fut8Cjaponica	2	RRQ-----GTPLSRRIFIASDDPTVVPEAKLNYP--DYEVLGSTEIAQTAQ-LNNRYTDA
Fut8Celegans		KRQ-----GKPLERRIFIASDDPTVVPEAKNDYP--NYEVYGSTIEIAKTAQ-LNNRYTDA
Fut8Chrenneri	2	KRQ-----GKPLKRRIFIASDDPTVVPEAKNDYP--DYEVEFGSTEIAKTAQ-LNNRYTDA
Fut8Cremanei	2	RRQ-----GKPLKRMVFIASDDPTVVPEAQNYP--EYKVGSTEIAKTAQ-LNNRYTDA
Fut8Asuum	2	YRI-----GRSIQRRIYIATDDPSVFAEAKKYS--NYEVYGDVAIADSAQ-TRKRYSSD
Fut8Lloa	2	YRI-----GSSVKRRIYIATDDPEIFDELLMKYP--NYEYIGDPKISKMAQ-VHSRYTIE
Fut8Bmalayi	2	YRT-----RLSVKRRYIYIATDDPEVDFEVLTKYP--NYEYIGDPKISNMAQ-VHSRYTVE
Fut8Wbancrofti	2	YRT-----RLSIKRRIYIATDDPEVDFEVLTKYP--NYEYIGDPKISNMAQ-VHSRYTVE
Fut8Tspiralis		LHN-DSFLPAGGKRAVYVATDDPTVFDLTKREYP--NYLFIGSYEVAKSAT-AQKRYTDA
Fut8Turticae	0	IYQORSKNDKIERLIYLATDDTNIWREI KPFEEKGFTFIGDSQIAQSAG-LTSRYSLD
Fut8Hmagnipapillata	2	ISK-----PFDKRRVFASDDTSVLIEAKKYP--EYEFLLSDSGVSESAK-VSRRYSDE
Fut8Nvectensis	2	LNQ-----AIDSKRVYVASDDPSVFPPELQRYKYP--DYTFISDQDISKSAG-IASRYSDA
Fut8Moccidentalis		AIH-----GPLDKRRVYIATDDASVLKDAAKLFP--DYEFSGDQDIAKSAA-LKSRYSVE
Fut8CintestinalisA	2	QQRNS-QQEPTRRRVYLATDDPTLLPLAKAKFP--HYTFVSVFVHSRTAGSLFHRYS TD
Fut8Lsalmonis	2	ASL-----GSNVERRVYVASDDPRVLVECRKFFP--HYSFYGDATVARSA-VSSRYS SD
Fut8SpurpuratusA	2	RRQ-----EVPVRKIYLATDDASLLKEAERKYP--KYTFVSDNAISKSAG-LSSRYS ED
Fut8Cteleata	2	KSQ-----SIEQRAIYLATDDPNLHTEAKTKYP--NYKIIIGESEFSKSAG-LSSRYT DN
Fut8SkowalevskiiA	2	RIR-----DVPKIRVYLATDEPKLLSEAKQKFP--DYIFVSDNDISRTAG-LGQRYSEE
Fut8Bfloridae	2	KTQ-----EVKRRVYLATDEPNLLTEAQKQYP--EYDFVSDNAISKSAG-LSSRYT DS
Fut8Xtropicalis	2	RRM-----QIDKRRVYLATDDPTLLQEAQAKYP--QYEFISDNSISWSAG-LHNRYTEN
Fut8Rnorvegicus	2	RRM-----QVDKRRVYLATDDPALKEAKTKYS--NYEFISDNSISWSAG-LHNRYTEN
Fut8Hsapiens	2	RRM-----QVDKRRVYLATDDPSLLKEAKTKYP--NYEFISDNSISWSAG-LHNRYTEN
Fut8Btaurus	2	RRM-----QVDKRRVYLATDDPSLLKEAKTKYP--HYEFISDNSISWSAG-LHNRYTEN
Fut8Acarolinensis	2	RRM-----HIDKRRVYLATDDPSLLQEAQSKYS--DYEFISDNSISWSAG-LHNRYTEN
Fut8Ggallus	2	RRM-----HVDKRRVYLATDDPSLLQEAQSKYP--NYEFISDNSISWSAG-LHNRYTEN
Fut8Mgallopavo	2	RRM-----HVDKRRVYLATDDPSLLQEAQSKYP--NYEFISDNSISWSAG-LHNRYTEN
Fut8Tguttata	2	RRM-----HVDKRRVYLATDDPSLLQEAQSKYP--NYEFISDNSISWSAG-LHNRYTEN
Fut8DrerioB	2	QRG-----HVDKRRVYLATDDPALLQEAQTKYT--DYEFISDNSISWSAG-LHNRYTEN
Fut8Trubripres	2	RRV-----HVDKRRVYLATDDPSLLQEAQSKYP--EYEFISDNSISWSAG-LHNRYTEN
Fut8Oniloticus	2	RRA-----HVDKRRVYLATDDPSLLQEAQTKYP--DYEFISDNSISWSAG-LHNRYTEN
Fut8Olatipes	2	RRV-----RVDKRRVYLATDDPSLLQEAQTKYP--DYEFISDNSISWSAG-LHNRYTEN
Fut8Hmlepomene	0	LSR-----EVDARRVYLATDDAAVLEEAARKKYP--TYTILGDAGVAQTAA-THRRYS PQ
Fut8Dplexippus	0	MTK-----HVDKRRVYLATDDANVLQDARNKYK--EYEFLLGDPPIAKTAA-THRRYT PL
Fut8Bmori	0	LTR-----PVDVRRVYLATDDANVLDDARQKYP--EYTFLLGDPPIAKTAA-THRRYT PL
<u>Fut8Sfrugiperda</u>	0	LTR-----PVAVRRVYLATDDANVLEDAKSKYP--SYEFLGDASIAKTAA-THRRYT PL
Fut8Msexta		LTR-----TVDARRVYLATDDANVLEDAKSKYP--EYTFLLGDASIAKTAA-THRRYT PL
Fut8Mrotundata		VKP-----DVRRVFLASDDPKVITTARNRYS--NYEIIIGDPEIAEMAS-VAKRYS DS
Fut8Amellifera		TKP-----EVRRVFLASDDPKVITTARNRYS--NYEIIADPEIAETAS-VAKRYS DS
Fut8Bimpatiens		PKP-----EVRRVFLASDDPKVITTARNRYS--NYEIIIGDPEIAETAS-VAKRYS DS
Fut8Hsaltator		TKP-----DARRVFLASDDPKVITTARKNYP--NYVIIIGDPEIAETAS-VAKRYS DS
FUT8Cfloridanus		TKP-----DVKRVFLASDDPKVITTARKRYT--NYEIIIGDPDIAETAS-VAKRYS DV
Fut8Sinivicta		TKP-----DVKRVFLASDDPKVITTARKRYP--NYEIIIGDPEIAETAS-VAKRYS DT
Fut8Acephalotes		TKP-----DVRRVFLASDDPKVITTARKRYP--NYEIIIGDPEIAETAS-VAKRYS DT
FUT8Aechinator		TKP-----DVRRVFLASDDPKVITTARKRYP--NYEIIIGDPEIAETAS-VAKRYS DT
Fut8Phumanus	2	QNG-----VEINRRRIYLATDDPKVIFEAKNKYP--DYDVIGDPDVAKTAG-MSTRYS DN
Fut8Smaritima	2	LRQ-----NVTERRIYLASDDPNVFAEAKRSFP--GFEFIGDPNIAKSAA-MATRYT DS
Fut8Dpulex	2	MKE-----KIKVRRVYLASDDPSVLPEAKKYP--EYEFLLGDVSIAGGAA-VATRYT DS
Fut8Apisum	2	LTD-----KVDKRRVYLATDEPKLFSEAKRKYP--EYEIFGDEDISKTAS-ISKRYSD Q
Fut8Tcastaneum		LKT-----SVDKRRRIYLATDDPKVIADAKSKYS--HYEILGDPISISKTAA-ISTRYS DS
Fut8Dmojavensis		ING-----SSVRRIFLASDDARVIVEARKKYP--QYQIVGDPEVARMAS-VSTRYT DT
Fut8Dpseudoobscura		ING-----TTVRRRVFLASDDAVVIEEAREKYP--HYQIIIGDPEVARMAS-VSTRYT DT
Fut8Dananassae		VNG-----TSVRRIFLASDDALVIEEARRKYP--EYQIIIGDPEVARMAS-VSTRYT DT
Fut8Dmelanogaster		VNG-----STVARRIFLASDDAQVIEEARRKYP--QYQIIIGDPEVARMAS-VSTRYT DT
Fut8Agambiae	0	LTE-----KVDKRRVFLASDDPKVIEETKTKYP--HYEVIIGDPNVAKMAA-VSTRYT DS
Fut8Aegypti	0	MVE-----AIDKRRVFIASDDPKVIDEAKTKYP--HYEVIIGDPDVAKVAA-VSTRYT DS
Fut8Cpiapiens	0	MTE-----AIDKRRVFIASDDPKVIDEAKSKYP--HYEIIIGDPDVAKVAA-VSTRYT DS

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Motif II

i8l

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Fut8Cjaponica 1 DIYYFGGQLAHEVLVIEDHVAQTP-QEIDLKVGDKVGIAGNHWNHNGYSKGTNRRT--FKEG
 Fut8Celegans 1 DIYYFGGQQAHEVIVIEDHIAQNN-KEIDLKVGDKVGIAGNHWNHNGYSKGTNRQT--YKEG
 Fut8Chrenneri 1 DIYYFGGQQAHEVIVIEDHVALNN-KEIDLKVGDKVGIAGNHWNHNGYSKGTNRRT--YKEG
 Fut8Cremanei 1 DIYYFGGQQAHEVVVIEDHVALNN-KEIDLKVGDKVGIAGNHWDGYSKGTNRRT--YKEG
 Fut8Asuum 1 DLYYFGGQLAHEQVVVEAYEAESK-QEISLKVGDVIGVAGNHWDGFSKGVNRRRT--GANG
 Fut8Lloa 1 DIYYFGGQQAHEQVAVESYRAESG-NEIDLKIGDIIIGIAGNHWNHNGFSMGTNRRT--GKKG
 Fut8Bmalayi 1 DIYYFGGQQAHEQVAVESYRAEND-NEIDLKIGDIIIGIAGNHWDGFSKGTNRRT--GKKG
 Fut8Wbancrofti 1 DIYYFGGQQAHEQVAVESYRAEND-NEIDLKIGDIIIGIAGNHWDGFSKGTNRRT--GKKV
 Fut8Tspiralis DVYFYGQHPHDVMA8YBEPGP-DEIELKIGDRIGIAGNHWNHNGYSKGVNRRRT--QKSG
 Fut8Turticae DIYYFGGQNAHNQIAILNHDPPEP--QIPMKIGDTIGIAGNHWNHNGWSKGLNRVN--GKTG 1
 Fut8Hmagnipapillata DIYYFGGQQEHKTRVWIPHTAKGR-SELDLVRVGDVIGIAGNHWNHNGQAKGLLHNL--QKTG 1
 Fut8Nvectensis DIYYFGGQSGHNRAILPHTAETR-EEIDLEVGDVIGIAGNHWDGYSKGTNRRT--GQMG
 Fut8Mocoidentalis DIFYFGGQKDHDEFAIADNLQPDSSGGEIAFKKGDIIIGIAGNHWDGYSKGINRRT--KQRG
 Fut8Cintestinalis DVYFCGGQTAHEQTAVLHDHAPKPGSQEIELRIGDVVVLSGNHWDGYSKGTNRRT--KKTG 0
 Fut8Lsalmonis DIWYFGGQDEHQEQEVIYHGPKTR-DEIELKVGDVIGVAGNHWDGFSKGNLNRN--RRVG
 Fut8SpurpuratusA DIYYFGGQNAHEQTVLYEHKPGS-DEIEMRPGDSIGVAGNHWDGYSKGSNLRSTPRRAG
 Fut8Cteleata DIYYFGGQNGHSGMA8YHEPRSGSEMQLVTGDHVGIAGNHWDGYSKGNRRRT--GKTG
 Fut8SkowalevskiiA DVYFYGQNAHDEKVLVYTHIPRNG-AEIPLELDDAIGIAGNHWDGYSKGHNRRI--NKSG
 Fut8Bfloridae DIYYFGGQGDHNQVAIAKHEPRNQ-QEITYLEQGDDELGVAGNHWDGYSKGVNRRRT--HKSG
 Fut8Xtropicalis DIYYFGGQNAHNQIAIYPHQPRNA-EEIPLEPGDIIIGVAGNHWDGYSKGINRKL--GRTG
 Fut8Rnorvegicus DIYYFGGQNAHNQIAYVPHKPRTD-EEIPMEPGDIIIGVAGNHWDGYSKGVNRRKL--GKTG
 Fut8Hsapiens DIYYFGGQNAHNQIAIYAHQPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGVNRRKL--GRTG
 Fut8Btaurus DIYYFGGQNAHNQIAYVHEPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGVNRRKL--GRTG
 Fut8Acarolinensis DIYYFGGQNAHNQIAIYAHHPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGVNRRKL--GKTG
 Fut8Ggallus DIYYFGGQNAHNQIAYVAHHPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGINRKL--GKTG
 Fut8Mgallopavo DIYYFGGQNAHNQIAYVAHHPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGINRKL--GKTG
 Fut8Tguttata DIYYFGGQNAHNQIAIYAHHPRTA-DEIPMEPGDIIIGVAGNHWDGYSKGINRKL--GRTG
 Fut8DrerioB DIYYFGGQNAHNQIAYPHQPRTA-EDIPLDPGDVIGVAGNHWDGNSKGINRKL--GRTG
 Fut8Trubipres DIYYFGGQNAHNQIAIYPHQPRHG-DDIPLEPGDVVGVAGNHWDGYSKGVNRRKL--GRTG
 Fut8Oniloticus DIYYFGGQNAHNQIAYVPHQPRNS-EDIPLDPGDVIGVAGNHWDGYSKGINRKL--GRTG
 Fut8Olatipes DIYYFGGQNAHNQIAIYPHQPRNS-EDIPLDPGDVIGVAGNHWDGYSKGINRKL--GRTG
 Fut8Hmelpomene 0 DIYYFGGQNAHRRRAVMPHTALDH-HQLDLQMGDLIGIAGNHWNHNGFGRGTNKRT--NLNG 0
 Fut8Dplexippus 0 DIYYFGGQNAHRRRALMNHEA-GG-QEISFQAGDLIGIAGNHWNHNGFGRGTNKRT--NLNG 0
 Fut8Bmori 0 DIYYFGGQNAHDRVAIMQNHGGKN-EDISFEVGDKIGVAGNHWNHNGYGRGTNKRT--NMNG 0
 Fut8Sfrugiperda 0 DIYYFGGQNAHDRVAVMPNDG-AY-QDISFQVGDVIGIAGNHWNHNGYGRGTNKRT--NMNG 0
 Fut8Msexta DIYYFGGQNAHDRVAVMSTGGKS-QDISFEAGDRIGIAGNHWNHNGYGRGTNKRT--NVNG
 Fut8Mrotundata DIYYGGQNPHPHKVILDHQPRRS-GEIELKVGDLVEVFGNHWDGYSKGYNTRT--SMTG
 Fut8Amellifera DIYYGGQNSHPHQVILDHKPRKD-GEIELKVGDLIEVFGNHWDGYSKGYNTRT--SMTG
 Fut8Bimpatiens DIYYGGQNPHPHQAILDHKPRKE-GEIELKVGDLIEVFGNHWDGYSKGYNTRT--SMTG
 Fut8Hsaltator DIYYGGQNPHPHVAIIDHKPRKN-GELELKAGDLIEVYGNHWDGFSKGYNSRT--SMTG
 FUT8Cfloridanus DIYYGGQNPHPHVAILDHKPRKN-GELEMKIGDLIEVYGNHWDGFSKGYNTRT--SMTG
 Fut8Sinivicta DIYYGGQNPHPHVAILDHKPRKN-GELELKTGDLIDVFGNHWDGYSKGYNTRT--SMTG
 Fut8Acephalotes DIYYGGQNPHPHVAILDHKPRKN-GELELKVGDVIGVAGNHWDGFSKGYNTRT--SMTG
 FUT8AechinatioR DIYYGGQNPHPHVAILGHKPRKN-GELELKVGDVIGVAGNHWDGFSKGYNTRT--SMTG
 Fut8Phumanus 0 DVYFYGQNAHSSVAVLPHEPMNS-NEIELKVGDKIIIVAGNHWDGYSKGRNLR--NKEG
 Fut8Smaritima DIYYFGGQNAHNHRVIVSHESQAS-NELELMAGDVIGIAGNHWDGYSKGINRRT--KQOG
 Fut8Dpulex DIYYGGQGPHQIYAMYSKHAHRP-GEISIEVGDVIGIAGNHWDGYSKGTNERT--KQSG
 Fut8Apisum DIYYGGQKRRRLHVAVLPHKANGP-HEMNLVVGDEIAVAGNHWDGYSKGTNLR--KESG
 Fut8Tcastaneum DVYFYGQNPHTIIVLSHEPRKN-GEMSVVAGDLIGVAGNHWNHNGFSKGRNLR--NQIA
 Fut8Dmojavensis DIYYGGQNPHNRAVIVPHKPRSH-EDLQLKVGDLVSVAGNHWDGNSKGNTRT--NQGG
 Fut8Dpseudoobscura DIYYGGQNAHNRRVVIASPRTH-EDLQLRVDDLVSAGNHWDGNSKGNTRT--NQGG
 Fut8Dananassae DIYYGGQNAHNRRVVIAPKPRSH-EDLQLRVGDVLSVAGNHWDGNSKGNTRT--NQGG
 Fut8Dmelanogaster DIYYGGQNAHNRRVVIAPKPRTH-EDLQLRVGDVLSVAGNHWDGNSKGNTRT--NQGG
 Fut8Agambiae DIYYGGQNSHNREVVLPHEPKNH-DEIQIRPGDLVGVAGNHWNHNGYSKGNLRT--NQVG
 Fut8Aegypti DIYYGGQNAHNREVVLPHPKPNH-DEIHMKGDLIGVAGNHWNHNGYSKGNVRT--GOVG
 Fut8Cpipiens DIYYGGQNAHNREVVLAHNPKNH-DEIHMKGDLVGVAGNHWNHNGYSKGNNSRT--SQVG
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Fut8Cjaponica	VFPSYKVVNDWRTFFFSALLD-----
Fut8Celegans	VFPSYKVVNDWRKFKFEALLD-----
Fut8Chrenneri	VFPSYKVVNDWRQFNFEALLD-----
Fut8Cremanei	VFPSYKVVNDWRQFNFEALLD-----
Fut8Asuum	LYPSYKVKREKWIIVVFPF-----
Fut8Lloa	LYPSYKAREKYIIVDFP-----
Fut8Bmalayi	LYPSYKAREKYITLDFP-----
Fut8Wbancrofti	FIHLTKFVKS----ISP-----
Fut8Tspiralis	FYPSYKVEAWNLAETPYDW-SEILK-----
Fut8Turticae	LYPGFKADEKIDIAKFEAFDNIDT*-----
Fut8Hmagnipapillata	LFPAYKIEDIHDVEEFPIPKE-----
Fut8Nvectensis	LYPSYKVEEVMETAQFPDFDL-----
Fut8Moccidentalis	LYPSFKTKEHVDVDFGDFIL-----
Fut8CintestinalisA	LYPSYKVNEKIPLKLYLTYPEADSYKGEANT---
Fut8Lsalmonis	LYPEYKTKEKFRIVEFRGLRGSEQS*-----
Fut8SpurpuratusA	LYPSYKVEDKTNIAKMPTYPEAENFOL-----
Fut8Cteleta	LFPYKVMVEDVEIIVDFPPTYPEATPQRGGGSR---
Fut8SkowalevskiiA	LYPSYKTEDKPNIAKMPTYPEADKVEL-----
Fut8Bfloridae	LYPSYKVEEKIELVKYPTYPEVEESS-----
Fut8Xtropicalis	LYPSYKVKKEIETVKYPTYQEAKE-----
Fut8Rnorvegicus	LYPSYKVKREKIETVKYPTYPEAKE-----
Fut8Hsapiens	LYPSYKVKREKIETVKYPTYPEAKE-----
Fut8Btaurus	LYPSYKVKREKIETVKYPTYPEAKE-----
Fut8Acarolinensis	LYPSYKVKKEIETVKYPTYPEADK-----
Fut8Ggallus	LYPSYKVKKEIETVKYPTYPEAKE-----
Fut8Mgallopavo	LYPSYKVKKEIETVKYPTYPEAKE-----
Fut8Tguttata	LYPSYKVKKEIETVKYPTYPEADK-----
Fut8DrerioB	LYPSYKVKKEIETVKYPTYPEADKMLSS-----
Fut8Trubipres	LYPSYKVKKEIETVKYPTYPEADKLLTAQK----
Fut8Oniloticus	LYPSYKVKREKIETVKYPMYPEADKLLNSQNK---
Fut8Olatipes	LYPSYKVKKEIETVKYPLYP-----
Fut8Hmelpomene	LVPWYKTADHLVLYPFPEYRHASTDS-----
Fut8Dplexippus	LIPWYKTADHLVLYPFPEYKHLQ--TETROKDL-
Fut8Bmori	LIPWYKTADHLVLYPFPEYKQVPIYSETSQKNV-
Fut8Sfrugiperda	LIPWYKTADHLVLYPFPEYKQVPLYTDTRQKDL-
Fut8Msexta	LIPWYKTADHLVLYPFPEYKQVQYSDTRQKNL-
Fut8Mrotundata	LFPFVKVKNPVDVDFPKYPNVPLNENKNE----
Fut8Amellifera	LFPFVKVKNPVDVDFPKYSNVPLRENKNE----
Fut8Bimpatiens	LFPFVKVKNPVDVDFPKYYPVPLQENRNE----
Fut8Hsaltator	LFPFVKVKNRVAADVDFPKYPSVPLENKID----
FUT8Cfloridanus	LFPFVKVKNPVDVDFPKYSNVLLVEDKTD----
Fut8Sinivicta	LFPFVKVKNPVDVDFPKYSNISPLENKDD----
Fut8Acephalotes	LFPFVKVKNPIDAVDFPKYSNIPLLENKED----
FUT8AechinatioR	LFPFVKVKNPVDVDFPKYSNIPLLENKED----
Fut8Phumanus	0 LYPSFKVQNRVKVVDVDFPVNDGGLTF-----
Fut8Smaritima	LYPSFKATNKLQIADFPPTYPEVKQNELSSSR---
Fut8Dpulex	LYPSFKAVDKYNIIDFPYSEVAVAA-----
Fut8Apisum	0 LYPTFKVSPKIETAPFASYPDVTLSTNELQEOKR
Fut8Tcastaneum	LYPSFKVKDKIETAKFPPTYAEVDKHENDDQOIS-
Fut8Dmojavensis	LFPFVKVVDKVEDAKLPLVYPGV*-----
Fut8Dpseudoobscura	LFPFVKVEEKIDTAKLPLVYPGV-----
Fut8Dananassae	LFPFVKVEEKVDTAKLPLVYPGV-----
Fut8Dmelanogaster	LFPFVKVEEKVDTAKLPLYAGI-----
Fut8Agambiae	LFPFVKVNDKIEIVELPKYYPYVK-----
Fut8Aaegypti	LFPFVKVNDKIEVVELPPTYPNVK-----
Fut8Cpipiens	LFPFVKVNDKIEVVDLPHYPKVK-----

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