

AN peptide

Op_exim_1 METRIALISVTFVLLAHISGAPVEEQLEEDKRGNYLSGPGRSRGRN---GKRAEGDEIVD-EVADFANLA-DETDEEKRGNMHLQGGG---RAR
Op_exim_2 METRIALISVTFVLLAHISGAPVEEQLEEDKRGNYLSGPGRSRGRN---GKRAEGDEIVD-EVADFANLA-DETDEEKRGNMHLQGGG---RAR
Am_laud MESRIFLLSLAFVLLAQISGAPVDNELEEEKRANFHQNGNGRSRGRGK--PKR-DGE-IVD-EINEIAQLIDDETDEEKRGNMHYTGGRGKAG

Op_exim_1 GR-NRNGKRAEGDENFELDFLDSEEKR-----GNRYMT--GTGG-RQGRNGKRT-DEELQE
Op_exim_2 GR-NRNGKRAEGDENFELDFLDSEEKR-----GNRYMT--GTGG-RQGRNGKRT-DEELQE
Am_laud GR-GRTGKRD--DEGFDEDFDIDEDKRGNRHLTGGGAAGCRRRKQGKRDDEGEFETDLDLEQDKRGNMHLAGAGRGGSRGRNRGCKRD-DGEFDE

Op_exim_1 LLDEEDKRGNMYLQG-GKQRGR---NGKRAD----EDAEALNMEELLEDEKRRKYVLERW-----
Op_exim_2 LLDEEDKRGNMYLQG-GKQRGR---NGKRAD----EDAEALNMEELLEDEKRRKYVLERW-----
Am_laud EGEEAEKRGNMYLQGVGNRRGRGRGKCKRTDGEPE-EDA----LDALLNDDEKRGNMFLAGGGRGGRRGKCK

Calcitonin (short)

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Am_cipu      MRTSLAITIIVCSALYYAVTLVSG--LEKRSF--IVDE-TLPLTGDDFRILADKVDLYNNLIGHLQNFPEQ--F-KRGS--EKG_CAG-FSG_CAQ
Am_cons_1    MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IVNEESLPLTGDDFRILADKVDLYNTLISTLQDKFPEQ--F-KRGT--EKG_CAG-FSG_CAQ
Op_filo      MRTSLAITVAVCSALYYAVTLVSG--LEKRSF--IDDDALLPLTGDDFRVLADKVDIYNALISRIASQFPEQ--F-KRGS--DKG_CAG-FSG_CAQ
Mi_grac      -----LPLTGDDLRILADKVDIYNALISRVATKFPEQ--F-KRGT--EKG_CAS-FSG_CAQ
Am_squa      MRTSLAITVAVCSVLYYAVTLVYG--LEKRSF--IDDEALIPLTGDDLRVADKIDLYNALISHIANKYPEQ--I-KRG----TG_CKG-FAA_CAQ
Op_resi      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDNASSLPLTGDDLRVLADKVDLYNALISHIESKFPEHMGF-KRGGG-GKG_CAS-FTG_CAQ
Op_savi      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDNASSLPLTGDDLRVLADKVDLYNALISHIESKFPEQ--F-KRGG--GKG_CAG-FTG_CAQ
Op_abys      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDNESSLPLTGDDLRILADKVDLYNALISHIESKFPEQ--F-KRGG--DKG_CAG-FTG_CAQ
Op_angus     MRTSLAITIIVCSALYYAVTLVSG--LEKRSYNLIEQESSLPLTGDDLRVLADKVDIYNALISHIESKFPEQ--F-KRG----KG_CRG-FTG_CAH
Op_caes      MRTSLAITIIVCSALYYAVTLVSG--LEKRSYNTIDKESSLPLTGDDLRVLADKVDIYNALISHIESKFPEQ--F-KRG----KG_CGG-FTG_CAQ
Op_scha      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDDE-TLPLTGDDLRILADKVDLYNALIAHIENKFPEQ--F-KRGT--EKG_CAG-FSG_CAQ
Op_lame      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDDE-TLPLTGDDLRILADKVDLYNALIAHIENKFPEQ--F-KRGN--EKG_CSG-FSG_CAQ
Op_impr      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDDESTLPLTGDDLRVLADKVDLYNALIAHIQNKFPEQ--F-KRGS--EKG_CSG-FSG_CAQ
Op_vall      MRTSLAITIIVCSALYYAVTLVSG--LEKRSY--ID-EPVLPLTGDDLRVLADKVDLYNALIFRIQTQFPEQ--F-KRGG--ERG_CAG-FSG_CAQ
Op_brev      -----SS--LEKRSY--IDDNIALPLTGDDLRILADKVDLYNALISEIHSQFPEQ--F-KRGG----G_CRA-FGG_CAQ
Op_brev      -----SS--LEKRSY--IDDNIALPLTGDDLRILADKVDLYNALISEIHSQFPEQ--F-KRGN--EKG_CSG-FSG_CAQ
Ba_hero      MKTSLAITIIVCSALYYAVTLVSG--LEKRSY--IDDETALPLRGNDRILADKVDLYNALIAHVENQFPEQ--F-KRGG--EG_CSG-FSG_CAQ
Cl_cana      -----SALYYAVTLVSG--LEKRSY--IDDETRLPLTGNDLRVLADKVDLYNAFIAHIENQFPEQ--F-KRGG--EG_CSG-FSG_CAQ
Op_liod      MRTSLAITIALCSALYYAVTLVSG--SERRSY--VDETSPLTGNDIRVLADNVLDLYNALIAHIQNFPEQ--FIKRDG--SG_CRG-FSG_CAQ
Op_prol      MRTSLAITIIVCSALYYAVTLVSG--LERRSY--IDDQTTLPLTGDDLRVLADKVDLYNALILHVQNFPEQ--FIKRGNGDNGG_CKG-FSG_CAQ

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Am_cipu      LAAGQSALQAMIHGNRASLFGS-GGPCKRKRS-AD-----EA--
Am_cons_1    LAAGQSALQAMIHGNRASLFGS-GGPCKRKRS-TD-----EA--
Op_filo      LAAGQSALQAMIHGNRASLFGS-GGPCKRKRS-AE-----EA--
Mi_grac      LAAGQSALQALIHGNRASLFGS-SGPCKRKRS-AE-----EA--
Am_squa      LADGQSALQAMIHNNRASLFGS-SGPCKRKRS-AEL-----EA--
Op_resi      LEAGQSALQAMIHANRASLFGS-SGPCKRKRS-AE-QQQPEQEA--
Op_savi      LEAGQSALQAMIHANRASLFGS-GGPCKRKRS-AE--QQPEQEA--
Op_abys      LAAGQNALQAMIHANRASLFGS-SGPCKRKRS-ADQQQQMQQEA--
Op_angus     LDAGQ TALQAMIHADRASLFGS-DGPCKRKRS-VD---QTQQDA--
Op_caes      LDAGQNALQAMIHANRASLFGS-SGPCKRKRS-TD---QVQRDA--
Op_scha      LAAGQSALQAMLHGQRASLFGS-SGPCKRKRS-AE-----EA--
Op_lame      LAAGQSALQAMIHGNRATLFGS-GGPCKRKRS-AE-----EA--
Op_impr      LAAGQSALQAMIHGNRASLFGS-GGPCKRKRS-TD-----EA--
Op_vall      LAAGQSALQAMIHGNRASLFGS-GGPCKRKRS-AE-----EA--
Op_brev      LAIGQNAVRNLIHSNRASIFSSPRGPCR-----
Op_brev      LAAGQSALQAMIHSGRASLFGS-SGPCKRKRS-AE-----EA--
Ba_hero      LAAGQSALQAMIHSGRASLFGS-GGPCKRKRS-AE-----EA--
Cl_cana      LAAGQSALQAMIHGNRASLFGS-GGPCKRRKRLAE-----EA--
Op_liod      LAAGQSALKAMLHHGRASLFGS-TGPCKRRRS-AE-----EA--
Op_prol      LAAGQSALQAMIHSGRASLFGS-GGPCKRKRS-AE-----EA--

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Calcitonin (long)

Am_cipu MRTSVAITIAVCSALYYAVTLVSGLEKRSF--IVDE---TLPLTGDDFRILADKVDLYNNLIGHLQNOFPEQFKRGG-GGCRGFSAQAQLAIGQD
Am_cons_1 MRTSVAITIAVCSALYYAVTLVSGLEKRSY--IVNEE--SLPLTGDDFRILADKVDLYNTLISTLQDKFPEQFKR-G-GGCRDFSAQAQLAIGQD
Op_savi MRTSVAITIAVCSALYYAVTLVSGLEKRSY--IDNAS--SLPLTGDDLRVLADKVDLYNALISHIESKFPEQYKRGG-GGQWYFGGCAQLVIGQN
Op_angus MRTSVAITIAVCSALYYAVTLVSGLEKRSYNLIEQES--SLPLTGDDLRVLADKVDIYNALISHIESKFPEQFKRGG-GGCKHFTGCAQLVIGQN
Op_caes MRTSVAITIAVCSALYYAVTLVSGLEKRSYNTIDKES--SLPLTGDDLRVLADKVDIYNALISHIESKFPEQFKRGG-GGCKHFTGCAQLVIGQN
Op_impr MRTSVAITIAVCSALYYAVTLVSGLEKRSY--IDDES--TLPLTGDDLRVLADKVDLYNALIAHIQNKFPQLKRGG-GGCKSFSGCAQLVIGQN
Ba_hero MKTSVAITIAVCSALYYAVTLVSGLEKRSY--IDDET--ALPLRGNDLRILADKVDLYNALIAHVENQFPEQFKR-G-GGCRGFSGCAQLAEGQN
Op_wend MRTSVAITIAVCSALYYAVTLVSGLEKRSY--TDETPATLPLTGNDLRVLADKVDLYNALIAHIETQLPEQFKR-G-GGCKGFSGCAQLAEGQN
Cl_cana -----SALYYAVTLVSGLEKRSY--IDDET--RLPLTGNDLRVLADKVDLYNAFIAHIENQFPEQFKR-G-GGCKGFSGCAQLTEGQN
Op_prol MRTSVAITIAVCSALYYAVTLVSGLEKRSY--IDDQT--TLPLTGDDLRVLADKVDLYNALILHVQNOFPEQFKR-G-WGCKVFGGCAQLVEGQN
As_tubi MRTSVALTVAICSVMYAVTLVSGFEKRSY--IDYEP--TLPLSGENLRELASNVDLYNNILTRVVNQYPEEFKR-G-GGCRGFSGCAQLAEGQS
As_bidw MRTSVALTVAICSVMYAVTLVSGFEKRSY--IDYEP--TLPLSGENLRELASNVDLYNNILTRVVNQYPEEFKR-G-GGCRGFSGCAQLAEGQS
Op_oedi MRTSVALTVAVCSVMYYAITLVSGFEKRSY--IDYEP--TLPLSGEDLRVLASNVDLYNNILTRVVNQYPEEFKR-G-GGCRGFSGCAQLAEGQS
As_love MRTSVAIIIAVCSIMYYAVTMVSGFEKRSY--IDDEP--TLPLSGEDLRILADNVLDLYNNILTRVVNQYPEQFKR-G-GGCRGFSGCAQLAEGQS

Am_cipu AFRNMMHNNRASLFTSARGPGRRKRSIDQQ--QVLPLTGDEFRLADQVELYNDILGQIASTNLQOF-KR-GSER-GCAGFSGCAQLAAGQSALO
Am_cons_1 AFRNMMHKNRASIFTSARGPGRRKRSIDQQ--QVLPITGDEFRLADEVELYNDILSQAISTNLKQF-KR-GTEK-GCAGFSGCAQLAAGQSALO
Op_savi AVRNMIIHNNRASVFSPPYGPGRKRKRSVSSG--DVLPMSSNDFKLLADDVELYKIDILGQITANSKQF-KRGGGK--GCAGFTGCAQLEAGQSALO
Op_angus ALRNMMHKNRASVFKSPYGPGRKRKRSVSSG--DELQIPNDYRILADDVELYNDILGQITANSNEF-KR--GK--GCRGFTGCAHLDAGQTALQ
Op_caes ALRNMMHKNRASVFKSPYGPGRKRKRSVSSG--EELQIPNDYRILADDVELYNDILGQITANSNEF-KR--GK--GCGGFTGCAQLDAGQNALQ
Op_impr AVRNLIIHNNRASIFSSPRGPGRRKRSVDDVQTEQVLPISGDDFRILADELELYSAILGQMGTRNPKQF-KR-GSEK-GCSGFSGCAQLAAGQSALO
Ba_hero AVRNLMIHNNRASVFSGRGPGGRKRKRSVDDQTEQYLPITGDDLRILADEVDLYNAVIKQIASTYPEQF-KR-GGE--GCSGFSGCAQLAAGQSALO
Op_wend ALRNLMHLNRRASVFSGRGPGGRKRKRSVDDQTEQYLSITGDDLRILADEVDLYNAVLNQIATKYPEQF-KR--GE--GCSGFSGCAQLAAGQSALO
Cl_cana AVRNLMSNRRASIFSGRPGPGGRKRKRSVDDQTEQYLPITGDELRLADEVDIYNAVISQIASQYPEQF-KR-GGE--GCSGFSGCAQLAAGQSALO
Op_prol ALRNLIILSNRAAIFSSPLGPGGRKRKRSVDDQIEQLLPITGDELRLTAGEVDLYNAIISPIATIYPEQFI-KRGNNGDNGGCKGFSGCAQLAAGQSALO
As_tubi ALRNMMHNNRRASMFSGAGGPGGRKRKRSINDQ--SLLPITGDDLRITVADEVDLYNAIISQTAIRYPEQF-KR--GE--GCKGFSGCAQLAAGQSALO
As_bidw ALRNMMHNNRRASMFSGAGGPGGRKRKRSINDQ--SLLPITGDDLRITVADEVDLYNAIISQTAIRYPEQF-KR--GE--GCKGFSGCAQLAAGQSALO
Op_oedi ALRNMMHNNRRASMFSGAGGPGGRKRKRSINDQ--SLLPITGDDLRITVADEVDLYNAIISRTAISYPEQF-KR--GE--GCKGFSGCAQLAAGQSALO
As_love ALRNMMHNNRRASIFSGATGPGKKKRSIDQ--SVPITGNDLRVVADEVDLYNAIISRTAISYPEQL-KR--GE--GCKGFSGCAQLAAGQTALQ

Am_cipu AMIHGNRASLFGSGGPGK-RKRSADEA-----
Am_cons_1 AMIHGNRASLFGSGGPGK-RKRSTDEA-----
Op_savi AMIHANRASLFGSGGPGK-RKRSAEQQPEQEA
Op_angus AMIHADRASLFGSDGPGK-RKRSDVDT-QQDA
Op_caes AMIHANRASLFGSSGPGK-RKRSTDQV-QRDA
Op_impr AMIHGNRASLFGSGGPGK-RKRSTDEA-----
Ba_hero AMIHSGRASLFGSGGPGK-RKRSAEEA-----
Op_wend AMIHNGRASLFGSGGPGK-RKRSAVEA-----
Cl_cana AMIHNGRASLFGSGGPGKRRKRLEAEA-----
Op_prol AMIHSGRASLFGSGGPGK-RKRSAEEA-----
As_tubi AMIHNNRAPLFGSSGPGK-RKRSAEEV-----
As_bidw AMIHNNRAPLFGSSGPGK-RKRSAEEV-----
Op_oedi AMIHNNRAPLFGSSGPGK-RKRSAEEV-----
As_love AMIHNNRAPLFGSSGPGK-RKRSAVEVSK---

CCK 1

Am_cons_1 -----P L L L A I A C L F L T P A A T L P S K T G K ---TRDLSHTDIERLILNTIETVESQAINRKS G T T N D E E V G G T P W K A E N T W K T P T L P D L I K D W K E S V K E R Q E N L
Am_cons_2 MTGDVLP L L L A I A C L F L T P A A T L P S K T G K ---TRDLSHTDIERLILNTIETVESQAINRKS G T T N D E E V G G T P W K A E N T W K T P T L P D L I K D W K E S V K E R Q E N L
Am_squa MTGDVLP L L L A I A C L F L T P A A T L P S K T G T ---SRDLSHTDIERLILNTIETVEAKAVNRDRGDSNDDEEVGGTPWKADNTWKTPTLPDLIKDWKESVKERQENL
Op_savi MTGDVLP L L L A I A C L F L T P A A S L P S K T G N S K S S R D I S H T D L E R L I L N T I E T V E T Q ---NR----PHDEETEGTPWKSEN---TPTLPDLIKDWK----ERRESL
Op_abys -----G N S K S S R D I S H T D L E R L I L N T I E T V E T E A L N R ---PHDEETEGTPWKAEN---TPTLPDLIKDWK----ERREN L
Op_angu MTGDVLP L L L V A T A C L F L S S C A A L P S K T G N T K L G R D I S H T E L E R L I L N T I E T V K N Q A F S R ---ADEEETEGTSWDNEN---TPTLPDVLKDW T ----GRHKS L
Op_reti -----T V E A Q A I N S R Q --THD-EVEGTPWKAENTWKTPTLPDLIKDWKESVKERQESL
Ba_hero -----I A C L F L T P A A S L P S K T G N S K A S R D I S Q T D I E R L I L N T I E T V Q A Q A L N R Q S G -T H D -E V G G T P W K A E N T W K T P T L P D L I K D W K E S V K E R H E S L
Op_perf MTGDVLP L L L A L V C L F L T P A A S L P S K S G N S K A S R D I S Q T D I E R L I L N T I E T V Q A Q A I N R Q S G -T R D -E --G T P W K V E N T W K T Q T L P D L I K D W K E N V Q E R Q E S L
As_love -----C L F L T P A A S L P S K T G S L K A G R D I S Q T D L E R L L L N T I A T A Q V Q V I N R Q S G -T H D -K L G D T -W K A E N T W K T P T L P D L I K D W K A S V K E Q Q D N L

Am_cons_1 -AEND-LLRDVPETD---RNLNDKRS--RDYGWGMAFCKRGSRTQKER-----LQTFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--D-EEDIDYDDFVA-
Am_cons_2 -AEND-LLRDVPETD---RNLNDKRS--RDYGWGMAFCKRGSRTQKER-----LQTFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--D-EEDIDYDDFVA-
Am_squa -AEND-ILRDLVPDADLSDLNEKRS--RDYGWGMAFCKRGSRTQNER---HKMETFNKE--YWGTFFFGKR--G-EYGWGHMFGKRNVN-EDEVYDDFVA-
Op_savi AAGDN-FLRGLEEDD---ADIVDKRG--KDYGWGFLMCKRNSRTQSQRQSFQMESKRDH-MYWGTFFFGKRSGDSKYGWGQFFGKR--NGDEEVDYDDFVAL
Op_abys -AGNN-LLGDIEEDD---TDIIDKRG--KDYGWGFLMCKRSSWTQSKRQOSYKMQTKKDSPNYQWGMTFFGKR--NHNYGWGQIFGKR--D-NEEADYDDFVAL
Op_angu -ADNK-LLNGFSEDDA--VNLLDKRSRPKDYNWGILFKRSQLSHRQREQDFKVEFKSN-DYGLGLLFFGKR--NGQYGCNLFCKR--DVADDGDYDDFVAL
Op_reti -AENDLLLGDIADED---TDITEKRN--RDYGWGMAFCKRGSRTQNRQ-SHKVESFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--D-EEQVDYDDFVA-
Ba_hero -AEND-LLRDIPEED---EDIAEKRN--RDYGWGMAFCKRGSRTQNRQ-SHKMETFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--D-EEQVDYDDFVA-
Op_perf -AEND-LLRDLPQDD---EDIMEKRN--RDYGWGMAFCKRGTRTQNRQ-SHKMETFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--D-EEQVDYDDF---
As_love -AEHG-IFQDIPEE---EGLNDKRS--RDYGWGMAFCKRGSRTQNERQ-NHKMETFNKE--YWGTFFFGKR--N-EYGWGHMFGKR--N-EEQMDYDDFVA-

Kisspeptin

Am_squa MRSCCMSRRILPLAWFICFSVAFPLRSLIAENRNLDQNDISSLLVADEDQEHSSDLGFQSANILLDVIERILDRLESSAVPPLQ--ETNDFLQSAP-ETSWPPLENDFLS
Op_resi MRSCFML-RILPVA-FICF--FGLPILSIADSRNLDQ-DIP-LIVREEEESNSSDLGLQSASILLDAIERLLNRLDSSAVPP----QDNDI-QRAP-ETSWPPLENDFLS
Op_savi MRSCFML-RILPVA-FICF--FGLPLLSIADSRNSDQ-DIP-LIVREGEEELNSSDLGLQSASILLDAIERLLNRLDSSAVPP----QDNDI-QRAP-ETSWPPLENDFLS
Op_abys MRSCFLL-RILPVA-FICF--FGLPILSIADSRNSDQ-DIP-LIVREEEEPHSTDFELQSTGFVLDALERLLHRLDASAVPP----QDNDI-QSAPGETSWPPLENDFLS
Op_reti -----EQQNSPDYGLHSANILLDVIERILDRLESSAVPP----EDNDI-HSAP-ETSWPPLENDFLS
Op_impr MSCCSML-RIVPVA-VICF--FVLPFLSIADDRNSDQ-DIP-LVAAEEDQNSDFGLHSASILLNVIERILDRLESSAVPP----QDNDI-YSAP-ETSWPPLENDFLS
Op_fune -----LICS--LGLPVISSADTRSTDQ-DIP-FF-RGEEQENPSDFGIHSTSFLFDVIERILDRLESSALPP----QDNDI-NIAP-ETSWPPLENDFLS
As_bidw MRSCSML-RILPVA-LICS--LGLHVLCSGD-RNTQQ-DLP-LN-RGEQQQNP SGFRLHSADILLDVIEQIVDRLESSALPP----SDNDI-YNAP-ETSWPPLLEQDMLS
Op_oedi -----LEQDMLS
As_love MRSCSML-RILPVA-LICS--LGLPVLCSGD-RHTEQ-DTS-LN-RGDEQQNSDFGLHSASILLDVLERILDQMDSSAVPP----NENDI-YSPP-DASWPPLERDMLS

Am_squa RDVIYLPKSSSSSNTVTLG-ITSIGSRHRGFAP_NKG-LORVIRG--RR_R--NANAGARMLPFCKRSNTVRNS-EDSGTSSV-RCRRRGRGRPRSRGS---FP-PQKLPFCRRL
Op_resi RDHIYLPK-SSSNALKLKHMTSYGKSQR---TSCTEGFLORVIRG--R-----NPNAGARALPFCKRGGNKRNSGDESGTSSV-RCRRRGRGRPP-----PVPRRQRQLPFCKRRV
Op_savi RDHIYLPK-SSSNALKLKHMTLYDKSQR---TSCSEGFLORVIRG--RG-RG-NANAGARALPFCKRGGNKRNSGDESGTSSV-RCRRRGRGRPRSRGI--POP-QQKQLPFCKRRV
Op_abys RDHIYLPK--SSSNALKFG-MTSYGKSQR---ASCSGGIICRVIRG--RGGRG-NVNAGARALPFCKRGGNKRNSGDESGTSSV-RCRRRGRNRPRSRGSSNGFP-QQNKLPFCRRL
Op_reti RDHTYLPK--SGTNSLMLG-MTSYGSRH----VPCSGG-LORVIRG--RQ-RGNNVNAGARALPFCKR-ANVRNS-DEASTSSV-RCRRRGRGRPRSRGS--SYP-QQNKLPFCRRL
Op_impr RDHVYLPK--SSSNALTFG-VTSYGNQR---TSCSEG-LORVIRG--RQ-RG-NANAGARALPFCKR-GSVRNS-DD-GTSAV-RCRRRGRGRPRSRGSL-GYP-KQ-KLPFCRRL
Op_fune RDHVYLPK--SSSKALTIG-VTSYGNWQR---APCT-GIMCRVTRG--KY-RG-NINAGARALPYCKR-----
As_bidw QEPLYPPM--SSGNGLTYG-MTSYEKRQQ---APCN-DMMCAMKRGSRRQ-RI-NPNVNGNMLPFCKR-SDARNS-DEAGMRSV-RCRRRGRGRPRTRGQ-----QQKLPFCRRL
Op_oedi QEPLYPPM--SSGNGLTYG-MTSYENRQQ---APCN-DVMCAMKRG--RQ-RI-NPNVNGNMLPFCKR-SGARNNS-DEAGMRSV-RCRRRGRGRPRTRGH-----QQNKLPFCRRL
As_love QDPLHPPK--SLSNDLTFS-MTSYEKRQQ---APCN-DVMCRMVRG--KQ-RV-NANAGSRMLPFCKR--DNRNS-DEAGMRSV-RCRRRGRGRPRTRGH-----QHNLKLPFCRRL

NG peptide

Am_cipu -----SPVGSSGNS-IQWTKDDNINKLRKEIIASLPADIPAILLKPQTQENKEDT-PQDWTA
Am_cons_1 MALGIKFYTIILNLILVLLAARTIFGEVNTHETSNKVRRSVAVGSSGNS-IQWTKDDNINKLRKEIIASLPADIPAILLKPQTQENKEDS-PQDLTA
Am_cons_2 MALGIKFYTIILNLILVLLAARTIFGEVNTHETSNKVRRSVAVGSSGNS-IQWTKDDNINKLRKEIIASFPADIPAILLKPQTQENKEDS-PQDLTA
Op_filo --VGIRYCVIFNLILVLLAARTIFGEVNTHDISHKVRRSVAVGSSVNS-FQWTTDDNINKLRKDILASIPDDIPAILL----QDDQEDT-PQDLTA
Mi_grac MAVGIRYYAILNLILVLLAARTIFGEVHTQDSTHKVRRSPVGTSVNS-FQWTKDDNINKLRKDILSSIPDEIPAILFNPQTQEDEKDT-LQDLA
Am_squa MAVGIRYYAIFNLILVLFATQTVFGEVNTHESSNKVRRSPVGSFVNS-FQWTKDNNINKLRKDILASIPADYQAALLKHSSEEQEDT-PQDLAA
Op_resi MAVGIRY-AILNLVLVLAARTIFCELHTQDSTHKVRRNTAGVSGNS-NQWTKDDNIHKLROEIIASLPADLPAYLLNPKIHESKDQGTSEQELSA
Op_savi MAVGIRY-AILNLVLVLAARTIFCEIHTKDSTHKVRRNTAGVSGNS-NHFTKDDNIHKLTOELIASLPADHPAYLLNPKIHESKDQGTSPELSA
Op_abys MAVGIRS-AILNLVLVLAARTIFCEVHTEDLTHKVRRTIGVPGNS-NQWTKDNNIHKLROEIIAALPADLPAYLLNPKIHESKDQGTSPELSA
Op_angu MAGGIRH-VILNLLLVLIAARISVSELHISDATQKVRRTSTGGITGNS-NQWTKDESINKLRQDFIASLPGNLPAYLIDSKLLKGDVSPALT-
Op_caes MAGGIRH-AILNLLLVLIAARISVSELQISDATHKVRRTYGGITGNS-NQWTKNESINKLRQELIASLPANLPAYLLHSKISEGNDKDLSPELSA
Op_reti MAVGIRY-AILNLILVLAARTTFGEVNTHDSSHKVRRTGDSSGNS-LQWTKDNNIDKLRKEIFASLPADLPVLLNSQTHEGAEGT--HDLA
Op_lame MAVGIRY-AILNLILVLAARTTFGEVNTHDSSHKVRRTGDSSGNS-LQWTKDNNIDKLRKEIFASLPADLPVLLNSQTHEGKEGT--QDLA
Op_impr MAVGIRY-AILNLILVLIAGRTIFGEVITHDSTHKVRRNTDGPSTGNS-IQWAKDDNIDKLRKEIIASLPADLPVLLKSPOTHERKEGT--QDLST
Op_vall MAVGIRY-AILNLILVLLAVRTIYGEDNTHELTKKVRRDTGGSSGHSQTQWTKDNNINKLRKEIFA---DLPAILLQSQTHEGSHLQELSA
Op_brev MAVGIRY-AIFNLILVLLAARTIYGNEDTHDLTKKVRRTIDSSANS-NQWIENDNIDKLRKEIFASFPADIPAILLKSQTHEESEGTHNIKDLPA
Ba_hero MAVGIRN-AILNLILVLFARTIFGETNTNDLTHKVRRTDGGSSGHS-NHWTKNDNIDKLRKEIFASLPADLPGILLNSKTHETQEGTHDLDLSP
Op_wend -----KNDNIDKLRKEIFASLPADLPGILLKSKIHASQEGTQTDLDLSP
Cl_cana -----
Op_exim_1 -----
Op_liod -----
As_tubi -----L---TRYGEIRV-----GTRDTQ-TIGQKKNNVNKFRNEILASLPANLPNILLDSQTRDTESTQ-TEELSP
As_bidw -----L---TRYGEIRV-----GTRDTQ-TIGQKKNNVNKFRNEILASLPANLPNILLDSQTRDTESTQ-TEELSP
As_bidw -----L---TRYGEIRV-----GTRDTQ-TIGQKKNNVNKFRNEILASLPANLPNILLDSQTRDTESTQ-TEELSP
Op_oedi MAVGIRY-AILNLILVLFVAA-TLFGIIVTDDLTYKVRRTDGGNSGHS-NYWSKKNNVNQFRNEILASLPANLPNIILDSQTRDTESTQ-TEELSP
Op_oedi MAVGIRY-AILNLILVLFVAA-TLFGIIVTDDLTYKVRRTDGGNSGHS-NYWSKKNNVNQFRNEILASLPANLPNIILDSQTRDTESTQ-TEELSP
As_love MAVGIRY-AILNLILVLFATSSIFGEIIVTDDLTYKVRRTDGGTSENS-KYWSNNNNIDEFRNEILASLPADIPSIILLNSQTRTKSTQ-TEELSP

Am_cipu L--EQ--VGKVAAGQAIDA--DGRDN--LYNFLSRQSAR--NNYQ--GLE-----SKRNGFFFGRKNGFFFGRDTEAVKSDSCVSCGPQNSGQC
Am_cons_1 L--EQ--VEKVAIGQAIDA--DARDN--LYNFLSRQSAR--NNYQ--GLE-----SKRNGFFFGRKNGFFFGRDTEAVKSDSCVSCGPQNSGQC
Am_cons_2 L--EQ--VEKVAIGQAIDA--DARDN--LYNFLSRQSAR--NNYQ--GLE-----SKRNGFFFGRKNGFFFGRDTEAVKSDSCVSCGPQNSGQC
Op_filo L--KQ--VGRVTGGRAITNT-DARDN--LFHFLSRPSGR--NNYQ--EGLQ-----SKRNGFFFGRKNGFFFGRDTEAVESNL_CVRCGPENSGQC
Mi_grac L--EQ--VGRVASGHTITD--DARDN--LLHFLSRQTARNNNHQEGLE-----SKRNGFFFGRKNGFFFGRDTEAVKSDL_CVRCGPDNSGQC
Am_squa L--DQ--VGRL--GHET----DARDD--LIHFLSRQSAWNNNHEAGIE-----SKRNGFFFGRKNGFFFGRDTEAVNSDL_CTS_CGPHSAGQC
Op_resi LK--QQ--VENFANIRGN----DANDNLALQTYLSKHPAR--NNNQEGLD-----KRNNGFFYGKRNNGFFFGRDTEAVESNS_CIK_CGPNNSGQC
Op_savi LK--QQ--VENFANKYGN----DESDNLALQTYLSKLLAR--NNHIEGLE-----KRNNGFFYGKRNNGFFFGRDTEAVESNS_CIK_CGPNNSGHC
Op_abys LK--QE--VENFADVNGN----DASDNLAVQTYLSRHPAW--NNYQ--EGLD-----KRNNGFFYGKRNNGFFFGRDTEAVDYN_SCI_CK_CGPNNSGQC
Op_angu ---QP--VEHFTDGN-----NAIDNLRLPAYLSRHPSR--NHFEEALD-----KRNNGFFYGKRNNGFFFGRDTEAVESK_SCI_CIR_CGPDDSGRC
Op_caes LT--QP--VEHFTDGN-----NAIDNLRLPTYLPRHPSR--NQYEEALD-----KRNNGFFYGKRNNGFFFGRDTEAVEQ_SCI_CIR_CGPND_SGRC
Op_reti L--EQ--VENVA--GQGNDN--DARDKLALYNYLSRQSAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDTEAVKSDL_CVPCGPQNSGQC
Op_lame L--EQ--VENIA--GQGN--DARDKLALYNYLSRQSAQ--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDTEAVESDSCVH_CG_CGPQNSGQC
Op_impr L--EQ--VENVA--GQANDN--DARDKLALYNYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDNEAVKSDSCVSCGPQSSGQC
Op_vall L--QH--VGSVA--GVDNQ--DAKDKLALYNYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFYGKRDTE_TVKSDSCIS_CG_CGPQNSGQC
Op_brev L--EH--TESVA--GLGNTK--EARDKLALYNYLSRQPSR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDTEAVKSNY_CVSC_CGPEKSGRC
Ba_hero L--EL--VGNVA--GLESAN--DAREKLALYNYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRGTA_AVESDSCVSC_CGPDNSGQC
Op_wend L--EQ--VGNVA--GLESAN--DAKEQLALYNYLAKQSAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDNEAVESDSCVSC_CGPQNSGKC
Cl_cana -----MALYNYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDTEAVESH_CVSC_CGPQNSGQC
Op_exim_1 -----NYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDTEAVESH_CVSC_CGPQNSGQC
Op_liod -----MALYNYLSRQPAR--NIYQ--EGLD-----KRNNGFFFGRKNGFFFGRDAKAAESDM_CVRC_CGPRNSGQ-
As_tubi L--EQVPVGNLQ--GYGSEE--DAREHLDLYNFMSRNPAPAR--SVYRDESH-----KRNNGFFFGRKNGFFFGRDVEAVSSDSCVSC_CGPENDGQC
As_bidw L--EQVPVGNLQ--GYGSEE--DAREHLDLYNFMSRNPAPAR--SVYRDESHKRNNGFFFGRKNGFFFGRKNGFFFGRDVEAVSSDSCVSC_CGPENDGQC
As_bidw L--EQVPVGNLQ--GYGSEE--DAREHLDLYNFMSRNPAPAR--SVYRDESH-----KRNNGFFFGRKNGFFFGRDVEAVSSDSCVSC_CGPENDGQC
Op_oedi L--EQVPVGNLQ--GYGSED--DAREHLDLYNFMSRNPAPAR--SVYRDESH-----KRNNGFFYGKRNNGFFYGKRDVEAVSSDSCVSC_CGPENDGQC
Op_oedi L--EQVPVGNLQ--GYGSED--DAREHLDLYNFMSRNPAPAR--SVYRDESH-----KRNNGFFYGKRDVEAVSSDSCVSC_CGPENDGQC
As_love L--EQ--VVNVQ--GFGSDN--DAREQLDLYKFMSRNPAPAR--SIYRDESH-----KRNNGFFFGRKNGFFFGRDVEAVTSDSCVRC_CG_CPENDGQC

Am_cipu VMFGTCCSPQFGCYFMTQEASACTTHHI--ANTCWKQD--LMPSC--GRR--GICVADAVCCSPKDGACRIDLSCSMQEQTNIEYKN
Am_cons_1 VMYGTCCGRQFGCYMMTPEASACITHHI--ANTCQKQD--IMPSC--GGR--GICVSDAMCCSPKDGACRIDLSCSKQQQSNIIEYKN
Am_cons_2 VMYGTCCGRQFGCYMMTPEASACITHHI--ANTCQKQD--IMPSC--GGR--GICVSDAMCCSPKDGACRIDLSCSKQQQSNIIEYTK
Op_filo VMFGTCCSPQFGCYFMTPEASPCTQRHI--NNSCWRPD--LMPSC--GRR--GVCVADALCCSPNDGVFRIDFS-----
Mi_grac VMFGTCCSSKYGCFYFMTPEASPCTQHVI--KNTCWRRD--LMTSC--GRR--GICVAEALCCSPQDGVCRIDLSCSLTPQQNNIDNEM
Am_squa VMYGTCCIPQYGCYIMTPEASSCTQHVV--DSSCWRQD--TIRSCGIGRR--GICAGEALCFLPKDGAFRVDLSCSTTQQKNINDKD
Op_resi VMFGTCCSAEFGCYFMTKESEACMTPRV---DTCFSQE--KRPTC--SRR--GICVANGICCCSPKDGACKIDAVCRSNAKKTN---
Op_savi VMFGTCCSPEFGCYFMNKESEACMTPRV---NTCVSEE--KRPPC--SGR--GICVAPGICCCSPRDGACKIDAVCRSNAKKTN---
Op_abys VMFGTCCSPELGCYFMTKESAACMTRV---DTCLSQE--RRESC--SRR--GICVADGVCCSPRDGACKIDASCSSNAKKTTE---
Op_angu VGYGMCCSEENGCIYIKTKEAAVCRTPDV---GACLNEE--KPQOC--GVG--GICVADGVCCSPRDGACKPEPKCNIHTKQATE---
Op_caes IGYGMCCSEEHGCIYMMTKEAAVCRSAV---STCVSDE--RAKRC--GIR--GICVADGVCCSPRDGACKPEPKCSILTEKATE---
Op_reti VMYGTCCSPKFGCYMMTKESEACMSHHA--NNGCWNQE--LMTTSC--GR--GLCVAEVCCSPRDGACKIDLSCST-----
Op_lame VMFGTCCSPQFGCYLMTKESEACMSHVV--GNACWDQE--LMTTSC--GRRGLGLCVAEAVCCSPRDGACKIDLSCST--QAKTLGYNE
Op_impr VMFGTCCSPQFGCYLMTKESEACMTHHV--GTGCWNQD--LMPSC--GRR--GICVAEAVCCSPRDGACKIDYSCST--QEKTIDYTE
Op_vall VMYGTCCSPQYGCYIMTSESEACMRQNLIHSGCWNHE--STPTC--GSR--GICVTDVAVCCSPQDGAICIIDLTCST--QKKTIN---
Op_brev VMYGTCCSPQFGCYIMTSEADACKTRHVGTTHSDCWKQE--STPSC--GRR--GMCVSEFCCSPEDRACFIDSSCSL---KTLD---
Ba_hero VMFGTCCSGKLGCYLMTTESEACTKHHV--GTGCWNQE--LMQPC--GRR--AMCVAEGVCCSPQDGAACKIDFSCSAAQKKTIE---
Op_wend VMFGTCCSPEFGCFLMTQESEPCMKHHV--GTGCFDEG--LTPSC--GRRGLGLCVAKDLCCSPQDGAACKRIDPSCLA--PKKIND---
Cl_cana VMFGTCCSLQFGCYEMTEESKACMTHHV--GTGCWDLDELHPPTCD--GRR--GVCVAEAVCCSPQDGAACKIDLSCSA--QTKTID---
Op_exim_1 VMFGTCCSLQFGCYVMTEESKACMTHHV--STGCWDLA-----
Op_liod -----
As_tubi VMYGTCCSPKFGCYLMTKESEACMSNHV--GRECWDQE--SSPSC--GRG--GLCVTNSICCCSPKASSCHIDVSCST--QTIPLD---
As_bidw VMYGTCCSPKFGCYLMTKESEACMTNHV--GRECWDQE--SSPSC--GRG--GLCVTNSICCCSPKASSCHIDVSCST--QTIPLD---
As_bidw VMYGTCCSPKFGCYLMTKESEACMTNHV--GRECWDQE--SSPSC--GRG--GLCVTNSICCCSPKASSCHIDVSCST--QTIPLD---
Op_oedi VMYGTCCSPKFGCYLMTKESEACMTNHV--GRECWDYE--SSPSC--GRG--GLCVANSICCCSPKASSCHIDVSCST--QTIPLD---
Op_oedi VMYGTCCSPKFGCYLMTKESEACMTNHV--GRECWDYE--SSPSC--GRG--GLCVANSICCCSPKASSCHIDVSCST--QTIPLD---
As_love VTYGTCCSPKFGCFLMTKESEACLTNHV--GRECWNHE--SSPLC--GRG--GVCVTNNVCCSPQAGSCHIDVSCST--QTTTTTE---

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Op_filo MQSSNIAALATFFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-DASN--PDKRLEWVDKKTPEKRLFWVDKKSP-----EK
Am_squa MQSSNIAALATLCVFAVFAQAAYSLSYDAPQRSKRLEW-VDKK-S-DASN--PDKRLEWVDKKTPEKRLFWVDKKSP-----EK
Op_resi MQSSNIAALATVFVFAVFAQAAYSLSYNPAERSKRLEW-VDKKSADENSP--IDKRLEWVDKKSPEKRLFWVDKKSPEKRLFWVDKKASPDLEK
Op_savi MQSSNIAALATVFVFAVFAQAAYSLSYNPAERSKRLEW-VDKKSADENSP--IDKRLEWVDKKSPEKRLFWVDKKSS-----PELEK
Op_abys MQSSNIAALATVFVFAAVFAQAAYSLSYNPAERSKRLEW-VDKKSADADT--VDKRLEWVDKKSPEKRLFWVDKKSPEKRLFWVDKKS-ADLEK
Op_angu MQSSNIIALATLFVFAVFAQAAYSLSYNPAERSKRLEW-VDKKSAD--DSP--IDKRLEWVDKKSPEKRLFWVDKKSP-----EK
Op_caes MQSSNIIALATLFVFAVFAQAAYSLSYNPAERSKRLEW-VDKKSAD--DSP--IDKRLEWVDKKSPEKRLFWVDKKSPEKRLFWVDKKS-ADLEK
Op_fasc MQSSNIAALATIFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-ENSQ--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_scha MQSSNIAALATIFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-ENSQ--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_reti MQSSNIAALATIFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-ENSQ--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_lame MQSSNIAALATIFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-EDSQ--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_bisp MQSSNIAALATLFVFAAVFAQAAYSLSYDAPQRSKRLEW-VDKK-A-ENSQ--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_vall MQSSNIAVLATIFVFAAVFAQAAYSLSYDAPQRTKRLEW-VDKKAADNSV--PDKRLEWVDKKTPEKRLFWVDKKSP-----EK
Op_brev MQSSNIAALATIFVFAVFAQAAYSLSYDAPQRSKRLEW-VDKKAADNSV--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Ba_hero MQSSNIAAMATICVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-AEDDSL--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_appr MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-S-EDSL--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_vivi MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRKRLEW-VDKK-S-EDSL--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_aust MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRKRLEW-VDKK-S-EDSL--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_cyli MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSL--PDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_wend MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_plic MQSSNIAAVLATLFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_fune MQSSNIAVLATLFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_perf MQSSNIAVLATLFVFAAIFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Cl_cana MQSSNIAVLATLFVFAAIFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_exim_1 MQSSNIAALATLFVFAAIFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_prol MQSSNIAALATIFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Gl_sp_no MQSSNIAALATLFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Am_laud MQSSNIAVLATLFVFAAVFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK
Op_john MQSSNIAALATLFVFAAIFAQAAYSLSYDTQQRSKRLEW-VDKK-A-EDSLSPDKRLEWVDKKTPEKRLFWVDKKTP-----EK

Op_filo RLFWVDKKDAKDECVPISNIDKVADCMISVVSQYAKHIEAECKSSGTLSESCVNDMNVKRTGANINCLYDTEGGNN--
Am_squa RLFWVDKKDGEMEL----DYNKIADCMLQVVEELSKHIESQCRVEGSLSQSCVTDMSNKRAAANKNCLIDPTGGSS--
Op_resi RLFWVDKKGADVFPVSLNIDKIADCMIQVVSQYGKHIEEQCKQDGTLSQSCVEEMNEKRTQANTNCLT--EEGH---
Op_savi RLFWVDKKGADVFPVSLHDIDKIADCMIQVVSQYGKHIEEQCKQDGTLSQSCVEEMNEKRTQANTNCLT--EGGQ---
Op_abys RLFWVDKKGADVFPVSLNDIDKISDCMIQVVSQYAKHIEETCKQDGSLSQSCVEGMNGKRTQANFNCLTNYEGGVGGE
Op_angu RLFWVDKKNADVVPVPSIDEIDKIADCIIQVVTQYGKHIEEQCKQEDSLSKSCVEEMNDKRTQANFNCLTNYA-----
Op_caes RLFWVDKKNADVVPVPSIDEIDKIADCIIQVVTQYGKHIEEQCKQEEESLSKSCVEEMNEKRTQANFNCLTNYT-----
Op_fasc RLFWVDKKDSDTECVPVTNIDKVADCMINVVSQYAKHIEAECKEPGVLEACVKQVNEKRTQANINCLYD TDGN----
Op_scha RLFWVDKKDSDTECVPVTNIDKVADCMINVVSQYAKHIEAECKEPGVLEACVKQVNEKRTQAN-----
Op_reti RLFWVDKKDADTECVPVTNIDKVADCMINVVSQYAKHIEAECKEPGVLEACVKQVNEKRTQANINCLYD TDGN----
Op_lame RLFWVDKKDSDKESVLI SNIDKIADCMIQVVSQYAKHIESDCKQTGTLSKSCVEKVNEERTQANINCLYETNEGN---
Op_bisp RLFWVDKKDADAECVPSNIDKVADCMINVVSQYAKHIEECKAPGTLS-ESCVKELNQRRTQANINCLYDAEGGN---
Op_vall RLFWVDKKDSDTQCVPSNIDKLADCMISVVSQYAKHIEETECKEPGTLS-ESCVKQVNEKRTANINCLYDTEGGN---
Op_brev RLFWVDKKDADAECVPTNIDKVADCMISVVSEYAKHIEETECKAPGTLS-ESCVKDVNAKRTQANINCLYD TDGSK---
Ba_hero RLFWVDKKDEDSVQVQVTHINKIADCMIKVSEYGKHIEAECKQPGVNT-ETCVEKLVNKRRAEAMNCLYDYEGGQP--
Op_appr RLFWVDKKDDAVQVQVTHINKIADCMIKVVAEYGKHIEAECKQQGVNT-ETCVEQLNVKRAEAMNCLYDYEGGQP--
Op_vivi RLFWVDKKDDAAQVQVISHINKIADCMIKVVAEYGKHIEAECKQPGVNT-ETCLVDMNVKRAESNMNCLYDFEGGHA--
Op_aust RLFWVDKKDDSAQVQVIAHINKIADCMIKVSEYGKHIEAECKQPGVST-ETCIEEMNVKRAESNMNCLYDFEGGQA--
Op_cyli RLFWVDKKDDSVLVQVKHINKIADCMIKVVAEYGKHVQAECKQPGVDA-QTCVEELSIKRAEAMNCMMSDIEGGQS--
Op_wend RLFWVDKKSDETIQVPI SHINKVADCMLKVTEYAKHVKAEECEQPGVNA-ESCVEQRNVERAEANINCLYDYEGGQP--
Op_plic RLFWVDKKDDETVTIELKYINKIADCMIKVSEYAKHIEAECKQPGVET-QTCVEQLNVKRTGANINCLYDFEGGAP--
Op_fune RLFWVDKKDDDTVTIEIKYINKIADCMIKVSEYAKHIEAECKQPGVET-QTCVEELNVKRTGANINCLYNFEGGAP--
Op_perf RLFWVDKKDDAVTIEIKYINKIADCMIKVSEYAKHIEAECKQPGVET-QTCVEQLNVKRTGANINCLYDFEGGAP--
Cl_cana RLFWVDKKDDESVPVHIKYINKVADCMIKVSEYAKHIEAECKEPGVET-QTCVEKLVNKRTEANINCLYDFEGGAP--
Op_exim_1 RLFWVDKKADETASILIANINKIADCMIKVSEYAKHIEAECKQPGVET-QACVEQLNVKRTGANINCLYDYEGGHP--
Op_prol RLFWVDKKDSDTVPAAAGNINKVADCMIKVSEYAKHIEDECKEQGRIT-QDCVEQLNVKRAEAMNINCLYDSGGGNH--
Gl_sp_no RLFWVDKKAADG----LSNINALADC FVKVFSKYLDHVSA-CKEAGLENVKECMEDVNQRRTIANTNCMHDTEGSSK--
Am_laud RLFWVDKK-ADG----FSKIDALADC MVKVF SKYMEHVSA-CKDEGIDKVKECMSEINAKRTIANTNCMYDTEGAE---
Op_john RLFWVDKK-ADAPNFPVSNINDIADCMIKVF AKYAEHVEA-CKNSGVEGLKECMEEVNQRRTISNTNCLSDTEGGM---

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Am_cipu	MLGMKTLVAYAAIVLALIV-TTGTS	EDIE----	DTEDLQIADE-NELTYI-----	EPN-YQELLISLQKAREN--GA-LQDIDD-----	KRMAS-
Mi_grac	MLGMRSLLAYAAIVLALVV-SIGTSE	EDIE----	DTAE-ELLDE-NVITDVD----	EPN-YQDLLLSLQKARRN--GL--QDVDD-----	KRMAA-
Am_squa	MLGMRSLLAYAAVVLAVIV-STGTSE	EDLE----	NTEE--FVDE-NALTDFE----	QPDYQOELLRSRVQKAREN--DF--EDVDD-----	KRMAA-
Op_savi	MLGMKTLAYAAIVLALVV-TTGTS	EDIE--DPETEELQLADE-NEITDI-----	EPD-YEALLASLQRAREI--GYDGDVDD-----	KRMAS-	
Op_abys	MLGMKTLAYAAIVLALVV-TTGTS	EDIE--DLDTEELQLGDE-NEITDI-----	EPN-YQALLSSLQRAREN--GY--DDVDD-----	KRMAS-	
Op_angu	MLPLKSLLASVAIVLALIVTTTGT	EDLE--DTDTQNIETPND-NDIMDI-----	EPDFFEALLSNLQKAREN-LYE--DDIDA-----	KRMAS-	
Op_caes	MLPMRTLIASAAIVLTLIVTTTGT	EDIE--DTETHNLEIPDD-NDIMDI-----	EPD-FEALLSSLQKARDN-LYE--DDIDD-----	KRMAS-	
Op_reti	MLGMKTLAYAAIVLALVV-TTGTS	EDIE--EPDTQELQLADE-NELMDI-----	EPD-YPELLMNLQKAREN-GGL--QDVDD-----	KRMAS-	
Op_lame	MLGMKTLAYAAIVLALVV-TTGTS	EDIE--EPETQELQLADE-NELMDI-----	EPD-YQELLMNLQRAREN--GL--QEVDD-----	KRMAS-	
Op_impr	MLGMKTLAYAAVVFALVV-STGTSE	EDIE--EPEIEELQLADE-NELMDI-----	EPD-YQELLLNLQKAREN--GV--QDIED-----	KRMAS-	
Op_bisp	MLGMKTLAYAAIVLALVV-SIATSE	EDIE--EPDSEELQLADE-NELMDI-----	EPD-YQELLMNLQKAREN--GV--QDIDY-----	KRMAA-	
Op_brev	MLGVKTLVAYAAILLALIV-STGTSE	IDID--EPDTQQLQLLDE-NELMDI-----	EPD-YEELLMNLQRAREN--G--KEFDE-----	KRMSS-	
Ba_hero	MLGVKAVLAYAAIVLALVV-SIGTSE	DVI--DPETEDLELADQ-NELMDL-----	ETD-YQELLLNLQRARAN-AGE--QELDE-----	KRMSS-	
Op_cyli	MLGVKTVLAYAAIVLALVV-STGTSE	DVT--EPETEELQLADE-NELMDL-----	EPD-YQELLLNLQRARANAAGE--QEVDE-----	KRMSS-	
Op_wend	MLGMKTILAYAAIVLALVV-TTGTS	DVI--EPETEELQLADE-NELMDL-----	EPD-YQELLLNLQRAREQ-AGE--HELND-----	KRMAS-	
Op_plic	MLGVKTVLAYAAVVLALVV-STGTSE	DIT--EPEAELELANE-NELMDL-----	EPE-YQELLMNLQRARSN-AGD--QEIDE-----	KRMSAS	
Op_fune	MLGVKTVLAYAAIVLALVV-STGTSE	DIT--EPEAELELANE-NELMDL-----	EPD-YQELLLNLQRARSN-AGD--QEIDE-----	KRMSAS	
Op_perf	MLGVKTVLAYAAVVLALVV-STGTSE	DIT--EPEAELELANE-NELMDL-----	EPD-YQELLMNLQRARSN-AGD--QEIDE-----	KRMSAS	
Cl_cana	MLGVKTVLAYAAVVLALVV-STGTSE	DIT--EPEAELELANE-NELMDL-----	EPD-YQELLMNLQRARSN-AAE--QELDE-----	KRMAAS	
Op_exim_1	MLGVKTVLAYAAVVLALVV-STGTSE	DIT--EPESEEFELANE-NELMDL-----	EPD-YQELLMNLQRARSN-AGD--QELDE-----	KRMSAS	
Op_exim_2	MLGVKTVLAYAAVVLALVV-STGTSE	DIT--EPESEEFELANE-NELMDL-----	EPD-YQELLMNLQRARSN-AGD--QELDE-----	KRMSAS	
Op_liod	MLGMKTVLAYGAIVLALVV-STGTSE	DIV--EPESEEFELANQ-NEFMDL-----	EPD-VQELLMNLQRARAS--GE--QEIDD-----	KRMTSA	
Op_prol	MLGMKTVLAYAAIVLALVV-STGTSE	DIV--EPESEEFELANE-NELMDL-----	EPD-YQELLMNLQRARAN--GE--LEVDD-----	KRMAS-	
As_tubi	MLGVKTVLAYFAIVLALVV-TAGTSE	DVD--ESDTEKYDQSDN-NNVIDDFDKSEPD-YQELLMNLQARAI--EL--EADD-----	KRARGA		
Op_oedi	MLGVKTVLAYSIVLALVV-TAGTSE	DVD--ESDTEKYDQSDN-NNVIDDFDKSEPD-YQELLMNLQARAT--EL--EEADD-----	KRARGA		
As_love	MLRVKTVLAYSIVLALVV-SAGTSE	DVE--ESDAEKYDQVDD-NNFIDDFDKSEPD-YQELLMNLQARAK--QL--EFDDMSSRWKKAQEA			
Gl_sp_no	MLGVKSMLAYAAIVLALVV-STGTSE	DI---EPETDEYGLADSDDDVIDF--KDIEPD-YQELLMNLQRARAN--SA--QDFNN-----	KRMAS-		
Op_john	MLGVKTVLAYAAIVLALVV-STGTSE	DVRIEPEAEDEFELADD-NDLIDF--KDIEPE---ELLMNLQRARAI--GQ--QELDE-----	KRMSS-		

Am_cipu	-GWKRSKM-AAGWKR	GQNAAGWKR																			GSN---	AAAGWKR	-GQALP
Mi_grac	-GWKRADM-AAGWKR	GQSAAAGWKR	GQSAAAGWKR																		PAN---	AAAGWKR	-G-AMA
Am_squa	-GWKRGNSAAAGWKR	GNSAAAGWKR	GQTAAAGWKR																		PANA--	AAAGWKR	GGTSMA
Op_savi	-GWKRGQSAAAGWKR	GQSAAAGWKR																			GHA---	AAPGWKR	-GHAAA
Op_abys	-GWKRGQSAAAGWKR	GQSAAAGWKR																			PANPAN	AAAGWKR	-GQAAA
Op_angu	-GWKRGHSAVSGWKRDQP	--QPR	-QMAASGWKR																		GNA---	AASGWKR	-GQAAA
Op_caes	-GWKRGHSAAGWKRDQS	--QPR	-GQMAASGWKR	DQS	QPRGQSAASGWKR	DQS	QPRGQSAASGWKR	PANAAGWKR													GHA---	AASGWKR	-GQAAV
Op_reti	-GWKRGQSAAAGWKR	GQSAAAGWKR																			PA---	SAAGWKR	-GQAAA
Op_lame	-GWKRGQSAAAGWKR	GQSAAAGWKR																			PA---	SAAGWKR	-GQAAA
Op_impr	-GWKRGPSAAAGWKR	GQSAAAGWKR																			PAS---	AAAGWKR	-GQSAA
Op_bisp	-GWKRGQSAAAGWKR	GQSAAAGWKR																			PAS---	AAAGWKR	-GQSAA
Op_brev	-GWKRAQS-AAGWKRAQSA	-AGWKR	APSAAAGWKR																		PAS---	AASGWKR	-APSAA
Ba_hero	-GWKRAQG-AAGWKRTQSAAAGWKR																				PAS---	AAAGWKR	-GQSAA
Op_cyli	-GWKRAQS-AAGWKRTQSAAAGWKR																				PAS---	AAAGWKR	-GQSAA
Op_wend	-GWKRAQG-AAGWKRTQNAAAGWKR																				PAS---	AAAGWKR	-GQSAA
Op_plic	-GWKRAQ--AAGWKRAQSAA-GWKR																				PAS---	AAAGWKR	-GQPAA
Op_fune	-GWKRAQ--AAGWKRAQSAA-GWKR																				PAS---	AAAGWKR	-GQAAA
Op_perf	AGWKRAQG-AAGWKRAQSAA-GWKR																				PAS---	AAAGWKR	NGQSAA
Cl_cana	-GWKRAQG-AAGWKR	MQSAA-GWKR																			PAS---	AAAGWKR	-GQAAA
Op_exim_1	-GWKRAQG-AAGWKRTQSAA-GWKR																				PAS---	AAAGWKR	-GQAAA
Op_exim_2	-GWKRAQG-AAGWKRTQSAA-GWKR																				PAS---	AAAGWKR	-GQAAA
Op_liod	-GWKRAQG-AAGWKRAQGAA-GWKR																				PAS---	AAAGWKR	-GQSAA
Op_prol	-GWKRAQG-AAGWKRGQSAA-GWKR																				PAS---	AAAGWKR	-GQSAA
As_tubi	AGWKR	GQT-AAGWKRP	PHAAAGWKR																		GQT---	AAAGWKR	-RQTAA
Op_oedi	AGWKR	GQT-AAGWKRP	PHAAAGWKR																		GQT---	AAAGWKR	-RQTAA
As_love	AGWKR	QAQA-AAGWKRP	PSAAAGWKR																		GQS---	AAAGWKR	-EQSAA
Gl_sp_no	-GWKRAQG-AAGWKRAQGAA-GWKR																				SQ---	GASGWKR	-AQG-A
Op_john	-GWKRAQG-AAGWKRGQSAA-GWKR																				APN---	AAAGWKR	-GQS-A

Am_cipu	GGWKR	GQSAAA	SGWKR	GHA	-AAGWKR	-----	DFE	VPIDVD	TRGGET	TWRNNQVK	-TASGWKR	TSRSANLLQQ	--NDEDEP
Mi_grac	GGWKR	GQAAAA	-GWKR	GPA	AAAGWKR	-----	DFE	--PIEVD	TRGDGN	WRDNQIK	-TASGWKR	TSRSVNNVQE	-NAEEEEEP
Am_squa	GGWKR	GQAAAA	-GWKR	GNSAA	AGWKR	-----	DFE	--PIEVD	TRDNGN	YRNNQIK	-AASGWKR	TSRSVNLVQD	-NTEEEEEP
Op_savi	PGWKR	GHAAP	-GWKR	GQYAA	AGWKR	-AQAAGWKR	RDY	--PIEVD	TRAGEN	WRNSQMK	-AASGWKR	T-----	-----LH
Op_abys	AGWKR	GQAAAA	-GWKR	GQSAA	AGWKR	AAQAAGWKR	RDY	--PIDVET	RG-ENRR	DPQMK	-AASGWKR	T-----	-----LH
Op_angu	SGWKR	GQAAA	-SGWKR	GQAAA	SGWKR	-----	D	----PIEVD	TRGNNN	WRNSQVK	-SASGWKR	TVY	-----
Op_caes	SGWKR	GQAAA	-SGWKR	-----	-----	-----	D	----PIEVD	ARGDNN	WRNSQIK	-SASGWKR	TPY	-----
Op_reti	AGWKR	GQSAAA	-GWKR	GQSAA	AGWKR	-----	DYN	--PIEVD	TRGGEN	WRKANM	NAAASGWKR	TARSANRQQ	---NANQLP
Op_lame	AGWKR	GQSAAA	-GWKR	-----	-----	-----	DYN	--PIEVD	TRGGEN	WRNANM	KAASGWKR	TARSASRQQ	NVENANQLP
Op_impr	AGWKR	GQSAAA	-GWKR	AK	--PAGWKR	-----	DY	---PIEVD	TRGGEN	WRNGNM	KSASSGWKR	TARSATRQQ	NVENANQLP
Op_bisp	AGWKR	GQSAAA	-GWKR	AK	--AAGWKR	-----	DY	---PIEVD	TRAGEN	WRNGNV	KSASSGWKR	TARSATRQQ	YVENANQLP
Op_brev	AGWKR	AQGAA	--GWKR	-----	-----	-----	DY	---PIDID	TRGDEN	WKANM	KNAASGWKR	TSRSASR	--NVDNIDQLP
Ba_hero	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRNSNL	KTASSGWKR	TARSANRQQ	RVENTNQLP
Op_cyli	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRNTNL	KTASSGWKR	TARSANRQQ	RVD---QLP
Op_wend	AGWKR	AQSAA	--GWKR	-----	-----	-----	DN	---PIDVD	TRGGDN	WRNNNL	K-SASGWKR	TARSATRQQ	RVDNSNQLP
Op_plic	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRH-NE	KTASAGWKR	TARSATRQQ	RVDNTYQFP
Op_fune	AGWKR	AKSAA	--GWKR	-----	-----	-----	DN	---PIDLD	TRGGEN	WRHND	KTASSGWKR	TARSATRQQ	RADNTYQLP
Op_perf	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRH-NE	KTASSGWKR	TARSAPRQQ	RVDNTYQLP
Cl_cana	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRNSNE	KTASSGWKR	TARSATRQQ	RVDNTYQLP
Op_exim_1	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRNTNE	KTASSGWK	-----	-----
Op_exim_2	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDVD	TRGGEN	WRNTNE	KTASSGWKR	TARSATRQQ	RADNTYQLP
Op_liod	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDME	TRGGEN	WKPNL	KTASAGWKR	TARSANIQQ	RVDNTNQLP
Op_prol	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDLD	TRGGEN	WRNPNL	KTASSGWKR	TPRSASRQQ	RVDNTNQLP
As_tubi	AGWKR	AKGAA	--GWKR	-----	-----	-----	DN	---QIDLD	TRGGNS	WRNSNL	K-AAAGWKR	TSRSANRQQ	EEDTIDQIP
Op_oedi	AGWKR	AKGAA	--GWKR	-----	-----	-----	DN	---QIDLN	TRGGNS	WRNSNL	K-AASGWKR	TSRSANRQQ	EEDTIDQIP
As_love	AGWKR	AKG	--ASGWKR	-----	-----	-----	DN	---PIDLN	TRGGEN	WRNSNS	KSASAGWKR	TTRSANRQQ	IENINQLP
Gl_sp_no	AGWKR	AKS	--ASGWKR	-----	-----	-----	DN	---PISME	TRGDEN	WRHNNI	KSASSGWKR	TSRSANKE	QRIEDVNQLP
Op_john	AGWKR	GKS	--ASGWKR	-----	-----	-----	DS	---PISLE	TRSGEN	WRNANL	KTASSGWKR	TARSANRQQ	TV--VNQHP

NP27

Am_cipu MRMITC-TALLCVLLAL-LDTRQAVC--EAG-IPVRYQTGTFFGKRT-VTDEDALRALDGPYGRNLLDLLKAWVYRYSQMEAAEQVDAK
Am_cons_1 MRMITC-TALLCVLLAL-LDTRQAVC--EGG-IPVRYQTGTFFGKRT-VTDEDALRALDGPYGRNLLDLLKAWVYRYNQMEAAEQVDSK
Op_filo MRLVTCATALLCVLFAL-LDTRQAVC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLLDL-----
Mi_grac MRLITCATALICVLLAL-LDTRQAVC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLMDLLKTWVYRYSQMEAADQLETN
Am_squa MRLIACCTALICVLLAL-LDTRQAVC--EGG-IPVRYQTGTFFGKRT-VSDADVLRALNGPYGRNWMDLLKEA-YRYSQLEAADQLEGN
Op_resi MRMITC-AALLCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-QVTSDEDVLRALAGPSNRNLLNLMKAW-YQLNQLOGVDQVESN
Op_savi MRMITC-AALFCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-QVTSDEDVLRALAGPSDRNLLNLMKAW-YQLNQLOGVDQVESN
Op_abys MRMITC-AALFCVLLALILDTRQNGC--EAG-IPVRYQTGTFFGKRT-NVISDEDVLRALDGPYGRKLLDLMKAW-YQLNQLEAVEQVESN
Op_angu MRMITC-AAVLCLLLALILDTRQNGC--EAN-IPVRYQTGTFFGKRT-KAATDEEIMRSLEGAHGRNVLDLVKRW-YQLNQLOGVEQVDSN
Op_scha -----LAL-IDTRQNGC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLLDLMKAWVYRLHQMEAAEQVESN
Op_reti MRMITC-AALLCVLLAL-IDTRQNGC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLLDLMKAWVYRLHQMEATEQVESN
Op_impr MRMITC-TALLCVLLAL-LDTRQSGC--EAG-IPVRYQTGTFFGKRT-ISDEDVLRALDGPYGRNLLDLMKARVYR--QMEAAEEVESN
Op_bisp MRMITC-AALLCVLLAL-LDTRQSGC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLLDLMKAWVYRLNQMEVAEQVESN
Op_vall MRMITC-AALVCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-VSDEDVLRALDGPYGRNLLDLMKAWVYRLNQMETADQIEAN
Op_brev MRVITC-AALLCMLLAL-LDTRQSGC--EAG-IPVRYQTGTFFGKRT-VSDDVLRALDGPYGRNLLDLMKAWVYRLNQLEVGEQVEAN
Ba_hero MRMLTC-AALLCILLAL-LDTRQSGC--EAG-IPVRYQTGTFFGKRT-MSDEDVLRALDGPYGRNLLDLMKAWVYRLKQMEAAEEVESN
Op_wend MRMLTC-AALLCVLLAL-LDTRQSGCVAAG-IPVRYQTGTFFGKRT-MSDEDVLRALDGPYGRNLLDLMKAWVYRLKQMEAVDEVEAH
Op_fune MRVITC-AALFCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-TSDEDVLRALDGPYGRNLLDLMKAWLYRLNQIEAAQEVESN
Op_perf MRMITC-AALFCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-TSDEDVLRALDGPYGRNLLDLMKAWLYRLNQMEAAQEVESN
Cl_cana MRMITC-AALFCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-TTDEDVLRALDGPYGRNLLDLMKAWLYRLNQMEAAQEVESN
Op_liod MRMITC-AALLCVLLALILDTRQSGC--EAG-IPVRYQTGTFFGKRT-MSDEDILRALNGPYGRNMMDRMKSVMYR--QMEAAEEVESN
Op_prol MRMITC-AALLCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-MSDEDVLRALDGPYGRNLLDLMKAWVYRLNQMEAAEEVESN
As_tubi MRMLIF-AALLCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-ILTDEDVLRALDGPYGRNLMDLKMSWLYRLNQIKVAKEVESN
As_bidw MRMLIF-AALLCVLLAL-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-ILTDEDVLRALDGPYGRNLMDLKMSWLYRLNQIKVANEVESN
As_love MRMITC-ATLLCVLLAM-LDTRQNGC--EAG-IPVRYQTGTFFGKRT-MTDEDVLRALDGPYGRNLMDLKMSWLYRLNQVQVTKEVESN
Gl_sp_no MRVITC-TVLMCVLLAL-IDTRQSYC--EAGRIIPVRYQTGQIFGKRT-MSDEDVLRALDGPYGRNLLDLMKLSVYRLNQLEGTDEVESK
Op_john MRVITC-ATLLCVLLAL-IDTRQSGC--EAGRIIPVRYQTGQIFGKRT-MTDEDVLRALDGPYGRNLLDLMKLSAYRLNQLEGADDVESN
Op_lyma MRVITC-AALLCVLLAL-IDTRQSGC--EAGRIIPVRYQTGQIFGKRT-MTDDVLRALDGPYGRNLLDLMK-----

PDF

Am_cipu MHATLLFSSAIVVLLGLAASSSDDLDPKRIADNDF AQMRSQADRD FEVVAFKNLLKEYLRTYGKRD--VEKRLSQNDFSQLRSNQLDEELTKQLIARFLHQAGRR
Am_cons_1 MHATLLFSSAILVLLGLVA-SDDLDPKRIADNDF AQMRSQADRD FEVVAFKNLLKEYLRTYGKRD--VEKRLSQNDFSQLRSNQLDEELTKQLIAKFLHQAGRR
Mi_grac MHATLLFSSAILVLLGLAASSSDDLDPKRIADNDF AQMRSQADRD FEVVAFKNLLKEYLSKYGKRN--VEKRLSQNDFSQLRSNLLDEELTKQLIAKFLEQAGRR
Am_squa MHATLLFSSAILVLLGLAASSSDNLPDKRIADNDF AQMRSQADRD FEVVAFKNLLKEYLRTYGKRD--VEKRLSQNDFSQLRSNQLDEELTKQLIAKFLQOAGRR
Op_savi MHTTLIFSSAVLAVLLGVVI-STDSLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLSNYGKRN--VEKRLSQNDF AQQRSNQMEEDIMKQMI AQILKNAGRR
Op_abys MHTTLIFSSAILAVLLGLVA-SSDSLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLGKYGKRD--VEKRLSQNDFAEQRSNQ IDEEIMKQMI AQFLNRAGRR
Op_caes MHTTLMFSSAIAVLLALTV-STESLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLGKHGKRN--VEKRLSQNDFAEQRSNQND EIMKQMI AQFLQKTGRR
Op_scha MHTTLIFSSAILAVLLGLAA-SSDSLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLGROGKRD--VEKRLSQNDFSQMRSNLLDEELTKQLIAKFLYQAGRR
Op_reti MHTTLIFSSAILAVLLGLAA-SSDSLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLGROGKR --VEKRLSQNDFSQIRSNLLDEELTKQLIAKFLYQAGRR
Op_impr MHTTLIFSSAILAVLLGLAA-SSDSLDPKRIADNDF AQMRSQADRD FEVIAFKNLLREYLGROGKRD--VEKRLSQNDFSQLRSNLLDEELTKQLIAKFLYQAGRR
Op_brev MHTSLIFSSAILAVLLCLVAS-TSDLLDPKRIADNDF AQMRSQADRAHENILFKNLLKQILFEQGKRD--VDKRLSQNDFSQLRSNLLDEELTKQLIAKFLYQAGRR
Ba_hero MHTTLIFSSAILAVLLCLAASSSDLLTEKRIADNDF AQMRSAADRANEDIKFRNLLKQILFEQGKRD--VDKRLSQNDFSQLRSNLLDEELTKQLIAKFLFQAGRR
Op_wend MHTTLIFSSAILAVLLGLAASSSDLLTEKRIADNDF AQMRSAADRANEDIKFRNLLKQILFEQGKRD--VDKRLSQNDFSQLRSNMLDEELTKQLIAKFLFQAGRR
Op_fune MHTTIVFLSAILAVLLGLAT-STDLLPEKRIADNDF AQMRSAADRANEIAFRNLLKQILFEQGKRDV-VDKRLSQNDFSQLRSNQLDEELTRQLIAKFLFQAGRR
Op_perf MHTTIVFLSAILAVLLGLAA-SSDLIPEKRIADNDF AQMRSAADRANEIAFRNLLKQILFEQGKRD--VDKRLSQNDYSQLRSNQLDEELTKQLIAKFLFQAGRR
Cl_cana MHTTLIFSSAILAVLLGLAA-SSDLLPEKRIADNDF AQMRSAADRANEIAFRNLLKQILFEQGKRD--VDKRLSQNDFSQLRSNQLDEELTKQLIAKFLFQAGRR
As_tubi MHTSLILSSAILAVLLSLAA-SDDLDPKRIADNDF AQMRSEADRANEVIAFRNLLQQILKEQGKRSY-IDKRLAQNDFSQLRNNQLDEELTKQLIAKFLSQAGRR
As_bidw MHTSLILSSAILAVLLSLVA-SDDLDPKRIADNDF AQMRSEADRANEVIAFRNLLQQILKEQGKRSY-IDKRLAQNDFSQLRNNQLDEELTKQLIAKFLSQAGRR
As_love MHTSLIFSSAILAVLLSLVA-SDDLDPKRIADNDF AQMRSEADRANEVIAFRNLLQQILKEQGKRSY-IEKRLAQNDFSQIRNNQLDEELTKQLIAKFLNQAGRR
Op_john MHITLIFSSAILAVLLCLTA-SDDLLEEKRIADNDF AQMRSIADRKNEAIAFRNLLSQILKEQGKRD--VEKRLSQNDFSQLRSNLLDEELTKQLIARFLYRAGRR

F-type SALMfa

Am_cipu MARVRNVLLFATL-CCYASISS-GD-ENQ-V-GDNEEIDH-EQLVHLV-KRVANQVQFLEDQ-LGM---SD-----NNEEL-VKSLSKRQASN-QPA-NGLPMNVPVKMSGFAFCRDKRD-G

Am_cten MARVRNVLLFATL-CCYASISS-GD-ENQ-V-GDNEEIDH-QQLVHFV-KRVANQVQFLEDQ-LGM---SD-----NNEEL-VKSLSKRQASN-QPA-NGLPMNVPVKMSGFAFCRDKRD-G

Am_cons_1 MARVRNVLLFATL-CCYASISS-GD-ENQ-V-REKEEIDH-DQLVDFV-RNLAEQVELLEDHVLMS---SE-----NNEGL-VKSLSKRQASN-RPA-SGLPMNVPVKMSGFAFCRDKRDGG

Am_cons_2 MARVRNVLLFATL-CCYASISS-GD-ENQ-V-REKEEIDH-DQLVDFV-RNLAEQVELLEDHVLMS---SE-----NNEGL-VKSLSKRQASN-RPA-SGLPMNVPVKMSGFAFCRDKRDGG

Op_filo MARVRNVLLFATL-CCYASISS-GD-GNN-F-DDNQENNQ-DEFIDLA-RRIEREVQLLNKQ-LGI---TE---Y-NEDENL-VKSLSKRQANK-GSG-SGLPMNVPVKMSGFIFCRDKRD-A

Mi_grac MARVRNVLLFATL-CCYASISS-GD-GND-L-DGNQNNQ-EKVLEHA-RRIEREVQLLNKE-LGF---TD---Y-NEDEDL-VKSLIKRQANK-GSG-NGLPMNVPVKMSGFISWCRDKRD-A

Am_squa MARVRNVLLFATL-CCYASISS-GD-GNN-L-DEQQ--NQ-KEVLDLAIERIEREVHLLQEE---I---SE---Y-KQDEDLSVKSLHKRQANK-GSGNSGLPMNVPVKMSGFAFCRDKRD-A

Op_resi MARVRHVLLFATL-CCYASISY-AN-ENE-Y-EPSQQLDH-EKLEDLA-SRIGEELRILELE-LGM---QD-----SNDVDM-VKSLQKRQAAT-RSGGSGGLPMNVPVKMSGFAFCRDKRD-G

Op_savi MAMVRHVLLFATL-CCYASISY-AD-EENE-Y-EPSQQLDH-EKLVALA-SRIAEVRILELG-LGM---QD-----SNDVDI-VKSLQKRQAAT-RSGGSGGLPMNVPVKMSGFAFCRDKRD-G

Op_abys MARVRHVLLFATL-CCYASISY-AD-ENE-Y-EPSQELDHEEKLVALA-SRIIDEVR--NFE-LGL---KD-----NDADM-VKSLQKRQATT-RS--SGLP--VPVKMSGFAFCRDKRD-G

Op_angu MARVRHVLLFATL-CCYASISY-AE-ENE-Y-QTNQELH-DKLVELA-SRIAEVRILELE-LGI---QYNEDDTEDNTDI-IKSLQKRQAATPRSGGSGGLPMNVPVKMSGFAFCRDKRD-G

Op_scha MARVRNVLLFATL-CCYASISYAVD-EEE-Y-EGTPELNN-EQLVQLV-KGIADVEVRILELE-LGV---QQ-----KDNDM-VKSLQKRQAVN-NPA-NGLPMNVPVKMSGFVFCRDKRDAS

Op_reti MARVRNVLLFATL-CCYASISYGVDE-EDE-Y-QGTQD-NT-EQLKQLV-EGIGDEVRIELV-LGG---HP-----NKVNM-VRSLSKRQAVN-NPA-NGLPMNVPVKMSGFVFCRDKRDS

Op_lame MARVRNVLLFATL-CCYASISHAD-EDE-Y-EGTQDLNH-EQLVQFA-RDMEHGLWRLEQE-LGM---QR-----DE-DM-VKSLQKRQAV--NPA-NGLPMNVPVKMSGFAFCRDKRDS

Op_impr -----LLFATL-CCYASISY-AD-ENE-F-GATEDIDH-EQLVQLA-RKIAAEVRILELE-LGM---QE-----NDVDI-VKSLQKRQAVN-RPA-NGLPMNVPVKMSGFAFCRDKRD-G

Op_bisp MARMRNIVLLFATL-FCYTSISY-AN-EDE-Y-GGNQDLDH-EQLVELA-RRIATEVRILELE-LGM---QE-----NDVDI-VKSLQKRQAVN-RPANGLPMNVPVKMSGFAFCRDKRD-G

Op_vall MARARNLVLLFATI-CCYASISY-AD-EQE-Y-EGTQDLDH-EQLVELA-RRITEVRILEMELEDI---QD-----NHVPS-VKSLQKRQAVN-----GLPMNVPVKMSGFAFCRDKRDS

Op_brev MARVRNVLLLATI-CCYASISY-AD-EQE-Y-EGSPDIDH-EQLVELA-SRIAEVRILELE-LSR---QD-----NDADI-VKSLQKRQA-----GGLPMNVPVKMSGFAFCRDKRDGG

Ba_hero MARVRNVLLFVTL-CCYTSISH-AN-EP-----DVDQ-ENLVELA-RQIGEEVRILKVG-LGI---HD-----NNDV---VKSLQKRQAVN-HPA-SGLPMNVPVKMSGFAFCRDKRD-S

Op_appr MARVRNVLLFVTL-CCYTSISQ-AN-EP-----DVDQ-ENLLDLA-RKIEEVRILERE-LN-----ENDVDN-VKSLQKRQAVN-NPA-SGLPMNVPVKMSGFAFCRDKRD-S

Op_macu MARVRNVLLFVTL-CCYTSISH-AN-EP-----DVDQ-EDLAEAL-KKIEDEVRLLEIG-LGI---RD-----NNDVDI-VKSLQKRQAAN--PA-SGLPMNVPVKMSGFAFCRDKRD-S

Op_vivi MARLRNVLLFATL-CCYTSISH-AD-EPN-Y-VVNPVDQ-ENLVELA-RQIGEEVRILEVG-LGI---RD-----NDDVDI-VKSLQKRQAGN-NPA-SGLPMNVPVKMSGFAFCRDKRD-S

Op_cyli MDRVRNILLFVSL-CCYTSISH-AN-EPN-Y-GVAENADQ-ENLVELA-RKIGEEVRILELE-LGI---HG-----NDDVDI-VKSLQKRQAVN--PA-SGLPMNVPVKMSGFAFCRDKRD-S

Op_wend MARVRNVLLCVTA-CCYASLCH-AN-ESK-Y-GESPDLDQ-ENLVELA-KKIGEVRLLELG-LRM---PA-----DDDVDI-VKSLQKRQAKD--PE-SGLPMNVPVKMSGFAFCRDKRD-T

Op_plic MAGVRNLLVLFVTL-CCYASISH-AN-EPK-Y-EGTQDLQ-ENLVEFA-RKIGDELRIELG-LGIQ---NN-----DDNEDI-VKSLQKRQAGN-NPA-GGLPMNVPVKMSGFVFCRDKRD-A

Op_fune MAGVRNLLLFVTL-CCYASISH-AN-ESK-Y-EGTQDLQ-ENLVEFA-RKIGDELRIELR-LG---N-----DDNEDI-VKSLQKRQA-N-NPA-SGLPMNVPVKMSGFVFCRDKRD-A

Op_perf MARVRNLLLFATL-CCYTSISH-AN-EPK-Y-EATPDLQ-ENLVELA-RQIGDKLRLLOFG-LGI---EN-----NDE---VKSLSKRQAGS-NPG-SGVPNVPVKMSGFAFCRDKRD-A

Cl_cana MAGVRNLLLFVATL-CFYASISH-AN-EPK-Y-EGTQDIDQ-ENLVELV-RKFGHDLRIEEG-LGI---KN-----IDDEGS-VKSLQKRQAGN-NPA-SGLPMNVPVKMSGFAFCRDKRD-A

Op_exim_1 MAGVRNLLLFATL-CCYASISH-AN-EPK-Y-GGNPDMQ-DNLVELA-RKIGDWRLLLELG-LGIQHVQN-----IDDEDI-VKSLQKRQAGN-NPA-SGLPMNVPVKMSGFVFCRDKRD-A

Op_exim_2 MAGVRNLLLFATL-CCYASISH-AN-EPK-Y-GGNPDMQ-DNLVELA-RKIGDWRLLLELG-LGIQHVQN-----IDDEDI-VKSLQKRQAGN-NPA-SGLPMNVPVKMSGFVFCRDKRD-A

Op_liod MARVRNVLLFATL-CCYTSISH-AN-EQG-Y---EEEINK-ENLEDFA-RKLAAEVRILQLG-LGM---E-----DNEENI-VKSLQKRQADT-RPG-SALPMNVPVKMSGFAFCRDKRD-A

Op_prol MARVRNVLLFATL-CCYTLISH-AH-AEG-YEATPEEVSK-ENLIEFA-RKIAAEVRILKLG-LGM-----DNDVDI-VKSLQKRQADD-HIG-SGLPMNVPVKMSGFAFCRDKRD-A

As_tubi MAQMRNVLLFVTL-FCYASTSN-AD-DNN-FAANEEELNH-EQLVELA-RRISDEVRIELE-LGF---QD-KN---DDELET-VKSLQKRQAGN-RPG-SGVPNVPVKMSGFVFCRDKRD-A

As_bidw MAQMRNVLLFVTL-FCYASTSN-AD-DNN-FAANEEELNH-EQLVELA-RRISDEVRIELE-LGF---QD-KN---DDELET-VKSLQKRQAGN-RPG-SGVPNVPVKMSGFVFCRDKRD-A

Op_oedi MAQMRNVLLFVTL-FCYASTSN-AD-DNN-FAANEEEPNH-EQLVELA-RRISDEVRIELE-LGF---QD-KN---DDELET-VKSLQKRQAGN-RPG-SGIPNVPVKMSGFVFCRDKRD-A

Go_pust MARVRSVLLLATL-CCYSSTSH-AD-DND-Y-GATEELNH-EQLVELG-RRITNEVRILLELE-LGI---QD-KND---QNQVDT-VKSLQKRQAVH-RAG-SGVPNVPVKMSGFVFCRDKRD-A

As_love MARMRNIVLLFVTL-CCSAPSH-AN-DNG-Y-DATEERNR-EQLVELE-RIITD-VRLLEHE-LGL---QH-TN---DELDT-VKSLQKRQADN-RPG-SGVPNVPVKMSGFAFCRDKRD-A

Op_john MARVRNVILFVTL-CCHASISY-AE-D----ETTQELNK-EQLVEFA-RKIAGEVEFLKHT-LGM---QE-NN---GHQLDI-VKSLQKRQAV-----PMNVPVKMSGFVFCRDKRD-A

Op_lyma MARVRNVILFVTL-CCHASVSH-AE-DIE-F-EGTQDFSH-EQLVEFA-RRIAGEMELLELE-LGI---QD-KN---EDQMDI-VKSLQKRQAVD-R---HGVPNVPVKMSGFAFCRDKRD-A

Am_cipu	QLVRR	-----	-SAQ--AKPVKLAGFAFGKR	-GQLVKR	SSDDQLMEEDET	---EKR	GALDAAFTFKRR	---DPSALS	SAFSFGKR	RDPM	-GLNAL	TFGKR				
Am_cten	QLVRR	-----	-SAQ--AKPVKLAGFAFGKR	-GQLVKR	SSDDQLMEEDET	---EKR	GALDAAFTFKRR	---DPSALS	SAFSFGKR	RDPM	-GLNAL	TFGKR				
Am_cons_1	QLVRR	-----	-SAQ--AKPVKLAGFAFGKR	-GQLVKR	SSDDQLLEEEET	---EKR	DALH-AFTFKRR	---DPSALS	SSFTFGKR	RDPM	-GLSALT	TFGKR				
Am_cons_2	QLVRR	-----	-SAQ--AKPVKLAGFAFGKR	-GQLVKR	SSDDQLLEEDDT	---EKR	DALH-AFTFKRR	---DPSALS	SSFTFGKR	RDPM	-GLSALT	TFGKR				
Op_filo	PLVRR	-----	-SAQ--AKPVKLTGFQFGKR	-GQLEKR	SADDKLMEEDET	---EKR	AALD-AFTFKRR	---DPSGL	TAFSFGKR	RDPL	-GLNAL	TFGKR				
Mi_grac	PLVRR	-----	-SAP--SKPVKLSGFIFGKR	-AQLEKR	SADDKLMEEDET	---EKR	AFD-AFTFKRR	---DPSGL	SAFSFGKR	RDPT	-RLSALT	TFGKR				
Am_squa	PLVRR	-----	-SAQ--SKPVKLAGFAFGKR	-GQLEKR	SADDKLMEEDET	---EKR	ALSS-AFTFKRR	---DPSGL	SALTFGKR	RDPM	-GLSALT	TFGKR				
Op_resi	QLVRR	-----	-SASSGAKPVKLAGFAFGKR	-RAGQLVKR	SSDDQLVEEDGA	---EKR	AAMD-AFTFKRY	---DPSGL	SAFSFGKR	RDPL	-GLSALT	TFGKR				
Op_savi	QLVRR	-----	-SASSGAKPVKLAGFAFGKR	-RAGQLVKR	SSDDQLLHEDGA	---EKR	AAMD-AFTFKRY	---DPSGL	SAFSFGKR	RDPL	-GLSALT	TFGKR				
Op_abys	SLVRR	-----	-SASSGGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLLEEDST	---EKR	AAMD-AFTFKRM	---SDPSGL	SAFSFGKR	RDPM	-GLSALT	TFGKR				
Op_angu	QLVRR	-----	-SAKSGDKPVKLAGFAFGKR	-GQPVKR	STNDELEEDGE	---EKR	AAMD-AFTFKRI	---SDQE	-LSPFS	FEKRDPT	-GLSALT	TFGKR				
Op_scha	QLVRR	-----	-SAGSGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEEEDEA	---EKR	AAMD-AFTFKRL	---SKDPS	ALS	SAFNFGKR	RDPM	-GLSALT	TFGKR			
Op_reti	QLVRR	-----	-SAGSSSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEAEDEA	---EKR	AAMD-AFTFKRL	---SNDPS	ALS	SAFNFGKR	RDPM	-GLSALT	TFGKR			
Op_lame	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEEEDEA	---EKR	ASMD-AFTFKRL	---SNDPS	ALS	SAFSFGKR	RDPM	-GLSALT	TFGKR			
Op_impr	QLVRR	-----	--SASASKPVKLAGFAFGKR	-GQPVKR	SSDDQLEEQDA	---EKR	AAMD-AFTFKRP	---SGDPT	GL	SAFNFGKR	RDPM	-SLSALT	TFGKR			
Op_bisp	QLVRR	-----	-SAVAGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEEQDDA	---EKR	AAMD-AFTFKRP	---SGDPT	GL	SAFSFGKR	RDPM	-SLSALT	TFGKR			
Op_vall	QLVRR	-----	-SAGNTGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEDDETAATE	---EKR	ASMD-AFTFKRP	---SSD	---	LSSFS	FSGKRDP	---LSALT	TFGKR			
Op_brev	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-GQLVKR	SSDDQLEEQTT	---EKR	ANLD-AFTFKRK	---AGD	---	LSAFS	FSGKRDP	---LSALT	TFGKR			
Ba_hero	QLVRR	-----	-SAGAGNPKPVKLAGFAFGKR	-NQPVKR	SSDDRTEEEE	---DKR	GAMD-AFTFKRP	---SGNPT	GL	SAFSFGKR	REP	VGSL	SALT	TFGKR		
Op_appr	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-NQPVKR	SSDDRADEEE	---DKR	GAMG-AFTFKRP	---SGNPS	GL	SAFSFGKR	REPL	GL	SALT	TFGKR		
Op_macu	QLVRR	-----	-SAGTGSKPVKLAGFAFGKR	-N-PVKR	SSDDRADEEE	---DKR	GAMD-AFTFKRP	---SGNPS	GL	SAFSFGKR	REP	VGSL	SALT	TFGKR		
Op_vivi	QPVRR	-----	-SAGAGGKPVKLAGFAFGKR	-NPLVKR	SSDDKVEEQD	---DKR	GAMD-AFTFKRP	---PSVSGD	PSALS	SAFSFGKR	RD	PVGS	SALT	TFGKR		
Op_cyli	QLVRR	-----	-SAGAGRKPVKLAGFAFGKR	-NQLVKR	SSDDQAEEEE	---DKR	GAMD-AFTFKRP	---SGDPT	GL	SAFSFGKR	RD	PVGS	SALT	TFGKR		
Op_wend	NLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-NQPVKR	SSDDQIEEEE	---DKR	GAMD-AFNFAKP	---SGDPS	GL	SAFSFGKR	RD	PVGS	SALT	TFGKR		
Op_plic	QLVRR	-----	-SA---KPVKLAGFQFGKR	-GQPVKR	SSDDQAEHEE	---EKR	GRMD-AFAFKRL	---SGDPS	ALS	SAFSFGKR	RD	PVSS	SALT	TFGKR		
Op_fune	QLVRR	-----	-SA---SKPVKLAGFAFGKR	-GQPVKR	SPDDQAEED	---EKR	GPMD-AFAFKRL	---SGDPS	ALS	SSFSFGKR	RD	PV	SGLS	SALT	TFGKR	
Op_perf	QLVRR	-----	-SAG--SKPVKLAGFAFGKR	-GQPVKR	SSDDQLQEED	---EKR	GALD-AFAFKRR	---SGDPS	GL	SAFSFGKR	RD	PASS	SALT	TFGKR		
Cl_cana	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-GQPVKR	SSDDQAEHEE	---DKR	GAMD-AFTFKRL	---SGGKS	ALS	SAFSFGKR	RD	PVGS	SALT	TFGKR		
Op_exim_1	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-NQPVKR	SSDDQAEHEE	---DKR	GAMD-AFTFKRL	---PGDPS	ALS	SAFSFGKR	RD	PVSS	SALT	TFGKR		
Op_exim_2	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-NQPVKR	SSDDQAEHEE	---DKR	GAMD-AFTFKRL	---PGDPS	ALS	SAFSFGKR	RD	PVSS	SALT	TFGKR		
Op_liod	QLVRR	SAS--SGSKPKMSGFAFGKR	RDVQLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-GQPVKR	SSDDQAEHEE	---DKR	GALD-AFHFKRL	---SNDPS	GL	SAFSFGKR	-EPMG	SL	SGL	TFGKR
Op_prol	QLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-GQPVKR	SSDDQAEHEE	---DKR	GALD-AFTFKRL	---SSDP	---	LSAFN	FGKR	REP	VSS	SALT	TFGKR	
As_tubi	PLVRR	SAG--AGAS-KMSGFAFGKR	RDSELVKR	SA---GKPVKLAGFAFGKR	-SQLVKR	SSDNVAENEE	---EKR	GAMD-AFTFKRL	---SGDPS	GL	STFSFGKR	RNP	PGT	SALT	TFGKR	
As_bidw	PLVRR	SAG--AGAS-KMSGFAFGKR	RDSELVKR	SA---GKPVKLAGFAFGKR	-SQLVKR	SSDNVAENEE	---EKR	GAMD-AFTFKRL	---SGDPS	GL	STFSFGKR	RNP	PGT	SALT	TFGKR	
Op_oedi	PLVRR	SAG--AGAS-KMSGFAFGKR	RDSELVKR	SA---GKPVKLAGFAFGKR	-SQLVKR	SSDNVAENEE	---EKR	GAMD-AFTFKRL	---SGDPS	GL	STFSFGKR	RNP	PGT	SALT	TFGKR	
Go_pust	PLVRR	SAKAAAGSA-KMSGFVFGKR	RDSELVKR	SASAGSKPVKLAGFAFGKR	-SQLVKR	SLDYEAENDE	---EKR	GAMN-AFTFKRL	---SSDP	-----	AAVTF	EKR				
As_love	QLVRR	SAG--AGAA-KMSGFAFGKR	RDSEIVKR	SAGARSKPVKLAGFAFGKR	-SQLVKR	SSDNEEENDE	---EKR	GARN-AFTFKRL	---SGNPS	ALS	SAFSFGKR	REP	PGS	SALT	TFGKR	
Op_john	QLVRR	-----	-SAG--SKPTKLAGFAFGKR	-GQPVKR	SSDNEAEDGQ	---EKR	GTM-D-AFAFKRP	---SGDPT	GL	SAFSFGKR	RD	PMS	SLS	SAL	AFGKR	
Op_lyma	PLVRR	-----	-SAGAGSKPVKLAGFAFGKR	-NPVKR	SSDNEANDKE	---EKR	VPMD-AFAFKRP	---SGDPT	GL	SAFSFGKR	RD	PL	SS	SLS	SAL	AFGKR

Am_cipu	-GMNPASGYSAFTFCR	QMDNLHAFSFCR	GMDPSGLSAFSFCR	GRDPSALSASFSGCR	-----	MG-M-NAFTFCR	KREGL--E-EDGAFE-EENDD--EKR	NQLSSLTGYTFCKR
Am_cten	-GMNPASRHSAFTFCR	QMDNLHAFSFCR	GMDPSGLSAFSFCR	DRDPSALSASFSGCR	-----	MG-M-NAFTFCR	KREGL--E-EDGAFE-EENDD--EKR	NQLSSLTGYTFCKR
Am_cons_1	-G-SP-SGYSAFTFCR	QMDNLHAFSFCR	GRDPSGLSAFSFCR	GRDPSALSASFSGCR	-----	MGGM-KAFTFCR	KREDL--E-EEGAF-A-EENDD--EKR	NQLSSLTGYTFCKR
Am_cons_2	-G-SP-SGYSAFTFCR	QMDNLHAFSFCR	GRDPSGLSAFSFCR	GRDPSALSASFSGCR	-----	MGGM-KAFTFCR	KREDL--E-EEGAF-A-EENDD--EKR	NQLSSLTGYTFCKR
Op_filo	--MSP-SGYSAFTFCR	QMDNLHAFSFCR	GMDPSSLALTFCKR	GRDPSSLSASFSGCR	-----	MG-M-NAFTFCR	KRDEL--E-EDGAFE-DENDD--EKR	SLSLTGYTFCKR
Mi_grac	-GMSP-SGYSAFTFCR	GRMDNLNAFSFCR	GMDPSTLSASFSGCR	GRDPSALSASFSGCR	-----	MG-M-NAFTFCR	KRDEL--E-EDGAFE-EENDD--EKR	-----SYSKR
Am_squa	-GMNP-SGYSAFTFCR	GRMDNLNAFSFCR	GMDPSGLSAFSFCR	GRDPSALSASFSGCR	-----	MG--PAFTFCR	KRDE---EDGAFE-EENYD--EKR	SRIGALTGLTYCKR
Op_resi	-GMNP-SGMSAFAFSGCR	RMEPLSAFSGCR	GRKRGMDPSGLSAFSFCR	GMDPSGLSAFSFCR	-----	MG-M-NAFTFCR	KREGG--EEEDPAFE-EENNN--EKR	AGYNGLSQFTFCR
Op_savi	-GMNP-SGMSAFAFSGCR	RMEPLSAFSGCR	GRKRGMDPSGLSAFSFCR	GMDPSGLSAFSFCR	-----	MG-M-NAFTFCR	KREGG--EEEDPAFE-EENNN--EKR	AGYNGLSQFTFCR
Op_abys	-GMP-SGMSAFAFSGCR	RMEPLSAFSGCR	GRKRGMDPSGLSAFSFCR	GMDPLGLNAFSFCR	-----	MG-M-NAFTFCR	KREG--EEEDAAL-EEDNND--EKR	AGYNGLSQFTFCR
Op_angu	-GMHP-SSMSAFAFSGCR	RMDPLSAFSGCR	RAMDPAFSAFSGCR	GMDPSALSASFSGCR	GTGPS-GLSAFSGCR	MG-M-NAFTFCR	KREG--E-EETAFAKNTND--EKR	AGYNGLSAGTYFCR
Op_scha	-GMDP-SGFAFSGCR	R-EPYSAFSGCR	GMDPSALSASFSGCR	ARDPSALSASFNGCR	-----	MCGMTNAFTFCR	KREGL---EEDGAFE-EENQDEE	KRGGYNGIAGTYFCR
Op_reti	-GMDP-SGFAFSGCR	R-EPYSAFSGCR	GMDPSALSASFSGCR	ARDPSALSASFNGCR	-----	MCGMTNAFTFCR	KREDL---EEEGAFE-EENQDEE	KRGGYNGISGYTFCKR
Op_lame	-GMNP-SGFAFSGCR	R-EPLSAFSGCR	GMDPSALSASFSGCR	GRDPSALSASFNGCR	-----	ANMGMTNAFTFCR	KRDD---EEDGAFE-EENQDEE	KRGGYNGISGYTFCKR
Op_impr	-GMDP-SGFAFSGCR	R-DPFSAFSGCR	GMDPTALSASFSGCR	RDPSALSASFSGCR	-----	MGGLTNAFTFCR	KRDDT---EEDGAFE-EENNN--EKR	DFSALAGTYFCR
Op_bisp	-GMDP-SGFAFSGCR	R-DPFSALTFCKR	GMDPSALSASFSGCR	GRDPSALSASFNGCR	-----	MGGLTNAFTFCR	KRDDA---EEDGAFE-EDNND--EKR	GFNGISGYTFCKR
Op_vall	-GMNP-AGFNAFSGCR	R-DPFSAFSGCR	GRDPSALGAFSGCR	GRDSNALGAFSGCR	-----	--GM-DAFTFCR	KREDL--D-VEGAF--DENED--EKR	AYNNGMSGFSGCR
Op_brev	-GMKP-SAFDAFSGCR	R-DPLSAFSGCR	GMDPNALGAFSGCR	GRD-NALGAFSGCR	-----	--GM-DAFTFCR	KRDD---EEGAFE-DED---EKR	AYNPI SAYTFCKR
Ba_hero	-GMDP-AGFSAFNGCR	R-DPLSAFNGCR	GMDPSGLSAFSFCR	GRDPSGLSAFSFCR	SRVP--SLSAFDFCKR	--G-M-DAFTFCR	KREDL--D-EEGAFE-DENDD--EKR	GFNGISGYTFCKR
Op_appr	-GMDP-AGFSAFNGCR	R-DPLSAFNGCR	GMDATGLSAFSFCR	GRDPSGLSAFSFCR	GRVP--SLSAFDFCKR	--G-M-DAFAFCR	KREDL--D-EDGAFE-DENED--EKR	GFNGISGYTFCKR
Op_macu	-GMDP-SGFAFNGCR	R-DPLSAFAFCR	GMDASGLSAFSFCR	GRDASGLSAFNGCR	GRVP--QLSAFDFCKR	--G-M-HAFTFCR	KREDL--D-EEGAFEDDENDD--EKR	GFNGISGYTFCKR
Op_vivi	-A-NP-SGFAFNGCR	R-DPLTAFNGCR	AMDASGLSAFSFCR	GRDSNGLSAFSFCR	GRMP--SLGAFDFCKR	--G-M-DAFTFCR	KREEL--D-DEGAFE-EENED--EKR	NFNGISGYTFCKR
Op_cyli	-GMDP-AGYSAFSGCR	R-DPLSAFSGCR	GMDATGLSAFSFCR	GRDPSGLSAFNGCR	GRMP--SLSAFDFCKR	--G-M-DAFTFCR	KREDL--D-DEGAFE-DENDD--EKR	GFNGISGYTFCKR
Op_wend	-AMEP-AGFAFSGCR	R-DPLGAFSGCR	GMDASGLSAFNGCR	GRDATGLSAFSFCR	GRVP--SLSAFDFCKR	--GRM-DAFAFCR	KREDL--EEEDGAFE-DENDN--EKR	GYQGISGYTLCKR
Op_plic	-GMDP-SGFAFNGCR	R-DPLGAFSGCR	GGMDATGLSAFSFCR	GRDAAGLSAFSGCR	GRMP--SLSAFDFCKR	--G-Y-DAFTFCR	KREGL--D-EEGAFE--ENDD--EKR	--FNGISGLTFCKR
Op_fune	-GMDP-SGFAFNGCR	R-DPLGALTFCKR	GGMDASGLSAFSFCR	GRDGAGLSAFSGCR	GRMP--SLSAFDFCKR	--G-F-DAFTFCR	KREGL--DEEGAFE--ENDD--EKR	--FNGISGLTFCKR
Op_perf	-GMDP-SGFNAFNGCR	R-DPLSAFNGCR	GGMDTGLSAFSFCR	GRDASGLSAFSFCR	GRMP--SLSAFDFCKR	--G-F-DAFTFCR	KREGL--DEEGAF--DENDD--EKR	--FNGISGLTFCKR
Cl_cana	-GMDP-SGFAFNGCR	R-NPLSDFNLCKR	GGMDASGLSAFSFCR	GRDATGLSAFSFCR	GRMP--SLSAFDFCKR	--G-M-DAFTFCR	KREGL--D-EEGAFE-EENDD--EKR	--FNGISGYTFCKR
Op_exim_1	-GMDP-SGFAFNGCR	R-DPLSAFNGCR	GGMDASGLSAFSFCR	GRDAAGLSAFSGCR	GRMP--SLSAFDFCKR	--G-M-DAFTFCR	KREGL--D-EEGAFE-DENDD--EKR	--FNGISGYTFCKR
Op_exim_2	-GMDP-SGFAFNGCR	R-DPLSAFNGCR	GGMDASGLSAFSFCR	GRDAAGLSAFSGCR	GRMP--SLSAFDFCKR	--G-M-DAFTFCR	KREGL--D-EEGAFE-DENDD--EKR	--FNGISGYTFCKR
Op_liod	-GMDP-SGLGAFSGCR	R-DPLGAFSGCR	GGMDASGLSAFSFCR	GRNPTGISAFSGCR	GRVP--NLSAFDFCKR	--G-M-DAFTFCR	KREDM--D-EEGAFE-DENEN--EKR	AYNNGISGLTFCKR
Op_prol	-GMDP-SGFAFSGCR	R-DPLGAFSGCR	GGLDASGLSAFSFCR	GRDPSGMGAFSGCR	GRVP--NLSAFDFCKR	--G-M-DAFTFCR	KREDM--D-EEGAFE-EENDD--EKR	AYSGISGYTFCKR
As_tubi	-GMYP-SGLSAFNGCR	R-DPLSTFSGCR	GVE-SGLSAFNGCR	GYDQSGLSAFSGCR	MPTGSLSAFNGCR	--G-M-NAFTFCR	KREDL--D-EEAAFE-DENND--EKR	AFNGMSGYTFCKR
As_bidw	-GMYP-SGLSAFNGCR	R-DPLSTFSGCR	GVE-SGLSAFNGCR	GYDQSGLSAFSGCR	MPTGSLSAFNGCR	--G-M-NAFTFCR	KREDL--D-EEAAFE-DENND--EKR	AFNGMSGYTFCKR
Op_oedi	-GMYP-SGLSAFNGCR	R-DPLSTFSGCR	GME-SGLSAFNGCR	GYDQSGLSAFSGCR	MPTGSLSAFNGCR	--G-M-NAFTFCR	KREDL--D-EEAAFE-DENND--EKR	AFNGMSGYTFCKR
Go_pust	-GMNP-SGISAFNGCR	R-DPSTFSGCR	GMESTGLSAFNGCR	GYDQSGLSAFSGCR	WPTNSLSAFDFCKR	--G-M-NAFTFCR	KRYL--D-EEGAF--DENKD--EKR	AYNAMYGYTFCKR
As_love	-GMNP-SALSAFNGCR	R-DPLSAFSGCR	GMQ-SGLSAFNGCR	GYDENGSSFSFCR	MPTGSLSGDFCKR	--G-M-DAFTFCR	KREDL--N-EEGAF--DENND--EKR	AFNGISGYTFCKR
Op_john	-GMDR-SGFNAFSGCR	R-DPLSAFSGCR	GMD--RLNAFNGCR	GRNLGSLAFDFCKR	-----	--G-M-DAFAFCR	KREN--D-EDGAFE-DED---EKR	AFDGLSAYAFCKR
Op_lyma	-GMDP-SGFNAFSGCR	R-DPLSAFSGCR	GMD--GLNAFNGCR	GRDSALSASFNGCR	GRMPMGLSAFDFCKR	--G-M-DAFAFCR	KREDL--D-EEGAF--DENDD--EKR	AFNGLSGYAFCKR

Am_cipu DTQ-----AAAD--DNTLN-QEETLRTN---
Am_cten DTQ-----AAAE--DNTLN-QEETLRTN---
Am_cons_1 DTQE-----AAAAD--DNTLN-QEETLRTN---
Am_cons_2 DTQE-----AAAAD--DNTLN-QEETLRTN---
Op_filo DTH-----EAAAE--DNALN-QEETMRTD---
Mi_grac DTQ-----EAAAE--DNTLY-QEETLRTD---
Am_squa DTQ-----EAAAD--DNTLN-QEETLRTE---
Op_resi DTQ-----AAAAE---ETLNHNDETLRTD---
Op_savi DTQ-----AAAAE---ETLNHNDETLRTD---
Op_abys DTQ-----AAAE---ETLNHNDEILRTD---
Op_angu DTE-----AVE---ERLN-NDETLRDD---
Op_scha DTK-----AAAD---ESLNHNEETLRTD---
Op_reti DTK-----AAAD---ESLNHNEETLRTD---
Op_lame DTK-----AAAE---DTLNHNDETLRTD---
Op_impr DTK-----AAAD---DTLNQNEETLRTD---
Op_bisp DTK-----AAAE---DRLNHNDEIRTE---
Op_vall DTK-----AAAE---DTLNENDETLRTD---
Op_brev DTE-----AAGD---DTLNHNEETLRTD---
Ba_hero DTN-----AAAEDDADTLNHNDETLRTD---
Op_appr DTD-----AAAEDDADTLNHNDETLRTN---
Op_macu DTN-----AAAEDDADTLNHNDETLRTD---
Op_vivi DTH-----AAAADNADTLNHNDETLRTD---
Op_cyli DTN-----AAAE--DADTLNHHKDETLRTD---
Op_wend DTN-----AAAE--DAERLDHNDETLRTD---
Op_plic DTD-----AAAN--DADTLN--NDDILRTD---
Op_fune DTD-----AAAN--DADTLN--TDDTLRTN---
Op_perf DTN-----AAAD--EADILNHNDEILRTD---
Cl_cana DTN-----AAAE--DADTLNHNDETLRTD---
Op_exim_1 DTN-----AAAE--DADTLNHHDETLRTD---
Op_exim_2 DTN-----AAAE--DADTLNHHDETLRTD---
Op_liod DTN-----AAVE--NADTLNHNDETLRTD---
Op_prol DTN-----AAAE--DADTLNHNDETLRTD---
As_tubi DTD-----AADD--TEDTLNHNDEILRTDN--
As_bidw DTD-----AADD--TEDTLNHNDEILRTDN--
Op_oedi DTD-----AADD--TEDTLNHNDEILRTDN--
Go_pust DTD-----AAED--AEETLNHNDETLRTDN--
As_love DTE-----EA---EDTLNHNADTLRTDN--
Op_john DT-----VAAD---DTLNHNEETLRTDN--
Op_lyma DTD-----AAAE---DTLNHNDETLRTDN--

L-type SALMFa

Am_cons_1 MRLQPRFVFFICALVPIVLAGTIPRRNSGGKEVPTSFYHDVVLVKDQ-QMENEDRDIEERRSGRGRTY-LNSGLLFGKRFDDTG-DFLLT-DD-----DL
Op_pilo MRLQPRFV-FFICALVPIVLAGTIPRR--GGNEVPA-FNYDAMVKDK-QMENEDRDIEERRSGR-RTY-LNSGLLFGKRFDET--GDFLT-DE-----EE
Op_resi MRLIPGLV-LFICALVPIIAAGTIPRR--TSKELPT-YNYDAMVKDQ-QMENEDREIEERRSGRSRTY-LNSGLLFGKRFETA-DDFIN-ED-----NT
Op_savi MRLIPGLV-LFICALVPIIAAGTIPRR--TSKELPT-YNYDAKVKDQ-QMENEDREIEERRSARSRTY-LNSGLLFGKRFETA-DDFIN-ED-----NT
Op_abys MRLQPRLV-LFICALVPIIAAGTIPRR--TSKELPT-YNYDAMVKDQ-QMENEDREIEERRSGR-RTY-LNSGLLFGKRFETA-DAFIN-DD-----DT
Op_angu MRLQARLV-LFICAIIPVIAAGVPPRR--ASKESPT-YNYDAMVKDP-QMANQDKEIEERRSGRSRTY-LNSGLLFGKRFEEAA-DDFIN-DE-----NT
Op_caes MRLQARLV-LFICALIPVIAAGVAPRR--STKELPT-YNYDAMVKDP-QMANQDREIEERRSGRSRTY-LNSGLLFGKRFEEAA-DDFIN-DD-----DP
Op_impr MRLQPRLV-FFICALVPIIAAGTIPRR--TGIEVPT-FNYDAKVKDQ-QMENEDREIEERRSGR-RTHSLNSGLLFGKRFEEET--EDFLN-DD-----DT
Ba_hero MRLQPLLV-FFICALVPFVAGTIPRR---NFEVFN-YNYDAMVKDQ-QMENEDKEVEERRSGR-RTHSLNSGLLFGKRFEEET--DDFIN-DD-----ET
Op_plic MRLQPLLV-FFICAIVPFVAGTIPRR--TGFEVFN-YNYDAMVKNQ-QMENEDKEVEERRSGR-RHTLNSGLLFGKRFEEET--DDFIN-DD-----EL
Op_fune MRLQPLLV-FFICAIVPFVAGTIPRR--TGFEVFN-YNYDAMVKNQ-QMENEDKEVEERRSGR-RHTLNSGLLFGKRFEEET--DDFIN-DD-----ES
Op_perf MRLQPLLV-FFICAIVPFVAGTIPRR--TGFEVFN-YNYDAMVQDK-PMENQNKVEVEERRSGR-RHTLNSGLLFGKRFEEET--DDFIN-DD-----ES
Cl_cana MRLQPLLV-FFICAIVPFVAGTIPRR--TGFEVFN-YNYDAMVKDQ-QMENEDKEVEERRSGR-RHTLNSGLLFGKRFEEET--DDFIN-DD-----ET
Op_liod MRLQPLLV-FVICALVPFVAGTIPRR--TGFEVFN-YNYDAMVKDQ-QMENEDKEIDERRSGR-RHTLNSGLLFGKRFEEET--DDFIN-DD-----ET
As_tubi MRLQPLEV-CFICALVPFVATGRIPRR----LEAPQ-YNYAAMVKS--HLEDDNKEIEERRSGRRNPNLSLNSGLFFGKRFDDGT--DEFVN-DD-----ET
As_bidw MRLQPLEV-CFICALVPFVATGRIPRR----LEAPQ-YNYAAMVKS--HLEDDNKEIEERRSGRRNPNLSLNSGLFFGKRFDDGT--DEFVN-DD-----ET
Op_oedi MRLQPLEV-CFICALVPFVATGRIPRR----LEAPQ-YNYAAMVKS--HMEDDNKEIEERRSGRRNPNLSLNSGLFFGKRFDDGT--DEFVN-DD-----ET
As_love MRLQPLEV-CFICAIVPFVATGRLPRR----FEAPQ-YNYAAMVKDR-TMEDDNKEIEERRSGRRNPPGLNSGLFFGKRFDDGT--DEFVN-DD-----ET
Gl_sp_no MRLQPLLV-FCICALVPFAATGTIPRR-RSGFEGAN-YNYDVLVKDTAQLEDEDKEIEERRSGR-RNPNLSLNSGLIFGRRFEETAADDFLN-DD-----ES
Op_john MRLQPLLV-CFICALVPFVATGTIPRR--TAFEGHN-YNYDAMVKDT-QMENENKEIDERRSGRRRGPALNSALIFGKRLEGT--DDFLN-DD-----ET

Am_cons_1 DEDTRHFNVETRGRNRLPFHSALMQCKRTPPLDEEDMLTSRSKRRSRP--LFHSGIMMGKRYPSLFSEDAADD-----KRKS---RLRWSDGMLFGK-
Op_pilo D--NRHFNVETIRGRNRLPFHSALMQCKRT-PLERDL-MSRSKRRTRP--VFHSGIMMGKRYQL-YSDDAVD-----KRKS---RLRWSDGMLFGK-
Op_resi R-QQQQFTVDIRGRNRLPFHSGLMQCKRS-PEVEREP-ESGNRKRTRP--AFHSAMLLGKRFPN-FEFDAADD--DLEEFKRKAS--RLRWSGTGTFGRK
Op_savi RQQQQQFTVDIRGRNRLPFHSGLMQCKRN-PQDEREP-ESSI-KRGRP--KFHSAMAFGKRYPN-FEFDAADD--DLEEFKRKAS--RLRWATGTQFGRK
Op_abys R-QQQQFTVDIRGRNKLPFHSGLMQCKRS-PQQENGP-DSNDWKRTRP--KFHSAMLLGKRLPN-FEFDAADDAQDIDEFKRKS--RLRWSNGMAFGRK
Op_angu N-QQQQFTVEVRGRSKLPPHFSALMQCKRS-SLEDEF--DSSFSKRGKQAKFHSAMLLGKRYPE-FGIDAVDGVQNIDEFKRKS--RLRWSNGMAFGRK
Op_caes N-QPQQFTVEVRGRSKLPPHFSALMQCKRN-SLEDES--DSSFNKRKPKAKFHSAMLLGKRYPE-FGINEVDDHQDIEEFKRKS--RLRWSNGISFGRK
Op_impr R----EINVEIRGRNRLPFHSALMQCKRT-PQQEE---ENSAKRRSRP--VFHSGFMMGKRFPN--EYDAADDA-NIEEFKRKAA--RLRWSNGMQFGK-
Ba_hero R----QINVDIRGRNKLPPHSGLMQCKRN-PEQEE---ADNAKRRTRP--IFHSGFMMGKRYPE---SESDDD--LEEFKRKAG-ARLRWSDGMQFGK-
Op_plic R----QFNVDIRGRNKLPPHSGLMQCKRD-PQQ-----GISDKRRSRP--AFHSGFMMGKRYPP---FEADND--LEEFKRKAG-QRLMWSNGISFGK-
Op_fune R----QFNVDIRGRNKLPPHSGLMQCKRD-SQQ-----EISNKRTRP--VFHSGFMMGKRYPP---YEIDND--LEDFKRKAG-QRLMWSNGISFGK-
Op_perf R----QINLDIRGRNKLPPHSGLMQCKRD-PQQEQ---REISNKRTRP--VFHSGFMMGKRYPP---YENDND--LEEFKRKAG-QRLMWSNGISFGK-
Cl_cana R----QINVDIRGRNKLPPHSGLMQCKRN-PQQDQ---QEISDKRRSRP--VFHSGFMMGKRYPP---YEIDND--LEEFKRKAG-QRLMWSNGIQFGK-
Op_liod K----QINVDIRGRNKLPPHSGLMQCKRN--QQSG---EEISAKRRTRP--VFHSGFMMGKRYQ---MESADDA-NLEDVKKRKYARLRWSDGMQFGK-
As_tubi R----QINMEIRGRSKLPPHSGLMQCKRN-QQEEEGM---TEKRRTRP--VFHSGIMMGKRYPS-----IGDANDLEEFKRKAG-QRLRWSNGMQFGK-
As_bidw R----QINMEIRGRSKLPPHSGLMQCKRN-QQEEEGM---TEKRRTRP--VFHSGIMMGKRYPS-----IGDANDLEEFKRKAG-QRLRWSNGMQFGK-
Op_oedi R----QINMEIRGRSKLPPHSGLMQCKRN-QQDEEGM---TEKRRTRP--VFHSGIMMGKRYPS-----IGDANDLEEFKRKAG-QRLRWSNGMQFGK-
As_love R----QINVDVRGRNKLPPHSGLMQCKRN-QQEEQGM---TEKRRSRP--VFHSGIMMGKRFPD-----DDLEEFKRKAG-QRLRWSDGMQFGK-
Gl_sp_no R----QINLEIRGRSRLPFHSGLMQCKRN-PQQDDL----SVKRRSRP--AFHTGFLMGKRFPE-----ADDL-DLEEFKRRTG-QRLRFSDGMLFGK-
Op_john K----QIKVDIRGRSRLPFHTGFMQCKRN-PQQVDQ----SAKRRTRP--VFHSGFMMGKRFPD-----ADEM-DLEEFKRKAG--RLRFSDGMLFGK-

Tachykinin

Am_cipu MASI-DWTKNLPAVALIVCGVLFCHGQAQLAAENTGALKEITDFDEETQ-YPELDL-DWIQPENAAFMK--LSPE---L-WENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWLEEFMSG---

Am_cons_1 MAFR-NWTQNLPAVALIVCGVLFCHGQGQLTADNTGALKEITFEFEDETQ-YPEVDL-DWIEPED-DFLNP-----ISF-NVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWLEEFMSG---

Am_cons_2 MAFI-NWTQNLPAVALIVCGVLFCHGQGQLTADNTGALKEITFEFEDETQ-YPEVDL-DWIEPED-DFLNP-----ISF-NVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWLEEFMSG---

Op_filo MASI-DWTKRLPAITLIICGVLFCHGQAQLPADSNGALKEITFEFENDT---PELDL-DWIEPEDAAF-----LSWDNVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWLEDYMSG---

Mi_grac MASM-DWTKKLPAVALIICGVLFCHGQAQLSAENTGALKEITFEFEDENQ-YPELDL--VFEPEDAALLQPLLSPD---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWFEEYMSG---

Am_squa MASI-DWTKKLPAAVLIICGVLFCHGQAQEFSAENAGALKEITDFENDETQ-FPEVDQRDWIEPEEADFLKPLLSQDFQVLNWNENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRS-DWLEEYMSG---

Op_resi MVAI--WTRKLPAAVLFICGVLFCHGQGQLSHENNGALNEITFEFNDDTQ-YPELDP-EWIRQDDTAALKPILLSPE---LSWENVPLQ-YVKRKGKSVFSAGLFGKR--SSGWNQGHQNGLFGKRTSDWLDAYLSG---

Op_abys MVAIKDWTRKLPAAVLFICGVLFCHVCGQLSPENTGALNEITQFNDDTQ-YPDLDP-EWITQEDTAALNPLLSPE---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SSGWNQGHQNGLFGKRTTDWLEEYLSG---

Op_impr MASIKNWTKKLPAVALIICGVLFCHGQGQLSPENTGALNEITFEFDEETQ-YPELEP-DWIQPEDAAFLNPFLSPN---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKR--NWLEEYMSG---

Op_vall MASMKNWINKLIAVTLIICGVLFCHGQAQLSSENAGALTEITFEFDDTQ-YPDADP-DWIEPEDAAFLNPILLSPD---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNTWLEEYMSG---

Ba_hero MASIKSWTKKLPAVALIICGVLFCHGQGQLTPENTGALNEITFEFDDTQ-YPDLDP-DWIEPEDAAFLGILLSPD---ISWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVSG---

Op_cyli MASIKSWTKKLPAVALIICGVLFCHGQGQLSPENTGALNEITFEFDDTQ-YPDLDP-DWIEPEDAAFLGILLSPD---LPWEKVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVSG---

Op_wend MASIKSWTKKLPAVALIICGVLFCHGQGQLTPEDPGALNEITFEFDDTQ-YPDLDP-DWIEPEDAAFLGILLSPD---LSWDNVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVSG---

Op_plic MASMKCWTKKLPAIALIICGVLFCHGQAQLTADDTGALNEITFEFDDTQ-YPNLDP-DWIAPEDAFLGHILLSPD---LSWENVPLQ-YVKRRKHQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVTG---

Cl_cana MASMKSWTKKLPAIALIICGVLFCHGQAQLTPDNTGALNEITFEFDDTQ-YPNLDP-DWIEPEDAAFLGILLSPD---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVTG---

Op_prol MASIKSWTKKLPAVALIICGVLFCHGQGQLTPKGTGALNEITFEFDDTQ-YPDLDP-DWIEPDAAFLGILLSPD---LSWENVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLEEYVSG---

As_tubi MASLKNWTRNLPALTLIICGSLFCHGQAQLAPDSTGALNDLTFEFDDETQ-FPKIDP-DWINQEDAVFLGILLSND---LTLDNVPLQ-YVKRRKNQVFSAGLFGKR--SGWNQGHQNGLFGKRSNNWLKEYVSG---

Gl_sp_no --SVKSWTRNQAVLIFCGVFFCSGQGQLTPDKSGALNELTFENDDTT-YPMDP-DWIDPEDAAFLAPVLTPE---LTWEHVPLQ-LVKRRKNVFSAGLFGKR--NGWNQGGQTGLFGKR--NWFEYVSSARA---

Op_john MASVSWTKKLPAVALIICGVLFCHGQAQLTSDNTGALNEITGFNDDTQ-FPDLDP-DWIEQEDAAFLGILLSPD---SSWETVPLQ-FIKRRKNVFSAGLFGKR--SGWNEGHQNGLFGKRSNTWLEEYVTG---

Am_cipu -----GE-DGDDNED-----SSSQYA-KK-QWNPNOQTGGLFGKRN-----DQFAKRTYGDMLQSLHDRVESAM-DKRKAA--ATLG--RVTKSSGQHVFRGTGGLFGKR--SVEDPGMQRALWPEDEQRRK---

Am_cons_1 -----GD-ESDDNSE-----SSSQYA-KK-QWN-DQKSGLFGKRS-----DQFARRTYSDMLQSLHDRVETAM-DKRKAAA--ATLG--RVTKSSGQHVFRGTGGLFGKR--SAEPPGMQRALWPEEEQRRK---

Am_cons_2 -----GD-ESDDNSE-----SSSQYA-KK-QWN-DQKSGLFGKRS-----DQFARRTYSDMLQSLHDRVETAM-DKRKAAA--ATLG--RVTKSSGQHVFRGTGGLFGKR--SAEPPGMQRALWPEEEQRRK---

Op_filo -----TD-DSADNTE-----SNQYA-KK-QQNPNOQTGGLFGKRN-----DQVMRRTYDVMLQSLHDRVASAM-EKRKASA--ASLG--RVTKSSGQHVFRGTGGLFGKR--SAEPPGMQRALWPEDEQRRK---

Mi_grac -----SE-DSGDNAE-----SSSQYA-KK-QWNPNOQTGGLFGKRN-----DQLTRRTYDVMLQNLHDRVESAM-DKRKAS--PAIG--RVTKSSGQHVFRGTGGLFGKR--SAEPPGMQRALWPEDEQRRK---

Am_squa -----SD-DSGDNAE-----SSSQYA-KK-QWNPNOQTGGLFGKRS-----DQLARRTYDMLQNLHDRVESAI-DKRKAS--DSVG--RVTKSSGQHVFRSGLFGKR--SAEEDMQRALWPEDEQRRK---

Op_resi -----DD-----EADHYSEKR-EWNNNQKT-GMFGKRH-----SDVEQRTYEDILQSLHDKLM-----DKRTA-----NVG--RVTKSSGQHVFRSAGLFGKR--SAEPEMEKALWPEDEQRRK---

Op_abys -----NN-DEADNEY-----KR-EWNPNOQT-GMFGKRN-----SEVKRRTYGDILQSLQDKLV-----EKRGAA-----SLG--RVTKLSGQHVFRGTGGLFGKR--SAEPPDMEQALWPEEEQRRK---

Op_impr -----RE-QEDAADA-----GNTQYAKRQ-WSPNOQTGGLWCKRN-----SEAARRTYEEMQLSLHDKVESAM-DKRSSP-----NLG--RVTKSSGQHVFRGTGGLFGKR--SVEEPEMQRALWPEDEQRRK---

Op_vall -----RENDGDEAAD-----AVLQYAKRQRWNPNOQTGGLFGKRN-----SHVV-RTYEDMLQSLHDKVESAMVEKRRANAA--ANSG--RVTKSSGQHVFRGTGGLFGKR--STEDAGMQRALWPEDEQRRK---

Ba_hero -----RD-DADKAD-----TTKYSKRQRWNPNOQTGGLFGKRN-----SEVVKRTYEEMQLTLQDKVESAM-DKRSPA-----NLG--KIFTKSSGQHVFRGTGGLFGKR--SAEPPDMQRALWPENEQRRK---

Op_cyli -----RD-DADDEAD-----TTKYAKRQSWNPKQHTTGLFGKRN-----SEVKRRTYEEMKTLQDKVQSAM-DKRSA-----NLG--RVTKSSGQHVFRGTGGLFGKR--SAEPEMQRALWPENQRRK---

Op_wend -----RD-GADGEAD-----TTKYAKRQ-WNPNOHTGGLFGKRN-----SEVIRRTYEEMQLSLQDKVQSASV-DKRSA-----NLG--RVTKSSGQHVFRGTGGLFGKR--SAEPEMQRALWPEEEQRRK---

Op_plic -----RD-DED-KED-----ATNYSKRQRWNOQQTGGLFGKRN-----SDDLRTYEEMQLTLQDKVESAV-DKRSA-----NLG--RVTKSSGQHVFRGTGGLFGKR--SVEDPQMORALWPEDEQ-----

Cl_cana -----RD-DED-EAN-----TTHYSKRQRWNPNOQTGGLFGKRN-----SDVLRRTYEEMQLTLQDKVESAV-DKRSPA-----NLG--RVTKSSGQHVFRGTGGLFGKR--SAEPPAMQRALWPEEEQRRK---

Op_prol -----RD-DEKDKSD-----TTQYAKRQRWNOQQTSTGLFGKRN-----SEVVRRTYEDMLQSLQDKVETAM-DKRSA-----NLG--RVTKSSGQHVFRGTGGLFGKR--SVEDPGMQRALWPEDEQRRK---

As_tubi -----SDEAAADSPLE---YGOAAGQYAKRQRWNPNOQON-GLFGKRN-----SDLVKRTYDNMLQTLREKVKSAI-DKRSA-----TNLG--RVTKSSGQHVFRAGLFGKR--SAEPELQORALWPENEQRRQTNA---

Gl_sp_no VDAAAANAD-EAVDTTDE---YGLNAGQYAKRQRWNOQOQP-GLFGKRNHAADDTAAARRTYKEMKTLQDKVESTI-DKRT-----NNPG--RVTKSSGQHVFRSGLFGKR--SAEAPGMQRALWPENEQRRK---

Op_john -----RD-DVEEAGGTAQDFGQTAGQYAKRQRWNOQOQTGGLFGKRN-----TDDAARRTYEEMKTLQEKVASTM-DKRSP-----NNIG--RVTKSSGQHIFRTGGLFGKR--SAEAPGMERALWPENEQRRK---

TRH-1

Am_cipu MQDLMNIRGGLV-PLFILVALSTVCLAD-----TE-GWPNE--EVETVDLLDDEEKRFAPGKRLLLLLKGREWVGEE---GY
 Mi_grac MQNLVTLRGGLG-PLFLEVVLSSVCLAEPEGELE--AANDITPLREDGWPDD--EGEAL--YEDEAKRFAPGKRLLLLLKGKRWVGGMP---EM
 Op_angu -----ICLLVLAGCMSCFGDPVDLE--NTANDITPLKE-GWPDN--EVQTFEELEDEVKRFAPGKRLLLLLKGREWVGGMP---EM
 Op_lame MQDPTIVRGCLV-PLFLLLALGTVCCLADPADLE--GTNDITPLRE-GWPDN--EDEALEELENEVKRFSPGKRLLLLLKGKRWVGGMP---EM
 Op_impr MQELIIVRGCLV-PLFFLLALGTVCCLADPADLE--GAANDITPLRE-GWPDGTGLEDDLELEDLNEVKRFSPGKRLLLLLKGKRWVGGFPLEFEN
 Ba_hero_a MQEPRYNRGNLV-PLFLLLALGTVCCLAVPGDF---TANDITPLKEGGWLNNGLEDATLEELQNEVKRFSPGKRLLLLLKGKRWIGGMP---EL
 Ba_hero_b MQEPRYNRGNLV-PLFLLLALGTVCCLAVPGDF---TANDITPLKEGGWLNNGLEDATLEELQNEVKRFSPGKRLLLLLKGKRWIGGMP---EL
 Op_vivi MQEPRYNRGNLV-PLFLLLALGTVCCLADHVDLD--DANDIAPLKE-GWPDNRLEDATLEELQNEVKRFSPGKRLLLLLKGKRWVGGMP---EM
 Op_perf MQELRYNRGNLV-PLFLLLALGTVCCLADPVNDI--SANDITPLRE-GWPDNELAEPEYEG---VKRFSPGKRLLFLGKRWVGGMP---EM
 Cl_cana MQELRYNRGYLV-PLFLLLALGTVCCLADPADLE--TTNDITPLRE-GWPDNGLEDETFEEMQ--VKRFSPGKRLLFLGKRWVGGMP---EM
 Op_exim_1 MQELRYNRGYLV-PLFLLLALGTVCCLADPADLE--GTANDITPLRE-GWPDNGLEDETFEELQNEVKRFSPGKRLLFLGKRWVGGMP---EM
 Op_exim_2 MQELRYNRGYLV-PLFLLLALGTVCCLADPADLE--GTANDITPLRE-GWPDNGLEDETFEELQNEVKRFSPGKRLLFLGKRWVGGMP---EM
 Op_liod_a MQEARYRGCLG-PLFLLLALGTVCCLADPADLE--DAANDVTPLE-DWPGNDLEDVTLEELQYEVKRFSPGKRLLILLGKRWVGGMP---EM
 Op_liod_b MQEARYRGCLG-PLFLLLALGTVCCLADPADLE--DAANDVTPLE-DWPGNDLEDVTLEELQYEVKRFSPGKRLLILLGKRWVGGMP---EM
 As_bidw MQEPRYNRSCLLSPLLLLLALGTV-CFADVGELE--DTANDVTPPKE-GWTNNALEDESILDALENEVKRFSPGKRLLLLLKGKRWVGGMP---ET
 Op_oedi MQEPRYNRSCLLSPLLLLLALGTV-CFADVGELE--GTANDVTPLE-GWTNNALEDESILDALGNEVKRFSPGKRLLLLLKGKRWVGGMP---ET
 As_love MQEPRYHRTCLLSPILLLLALGTV-CRADGGELD--RTANDIAPLSN-GWTNNALEDDALEVLDNEVKRFSPGKRLLLLLKGKRWVGGMP---EM
 Op_john MQESRYHRGCLL-PLFLLLALGTV-CLADLGDLELEGAANDIRPLRE-GWPENGL---EELNEVKRFSPGKRLLLLLKGKRWIGGMP---EM
 Op_lyma MQEPRYRGCLV-PLLLLLALGTV-CLADLGDLELEGTANDITPFRE-GWPDNGLEDETLELENEVKRFSPGKRLLLLLKGKRWIGGMP---EM

Am_cipu SDDPFPDKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWLGEEEE---YDPEE-----NLNMETRQFSAGKRQFSAGKR---
 Mi_grac VDMPEE---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----
 Op_angu VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGEEDDGLLENDDMKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_lame VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGGEPEE--WEDEDMKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_impr DDM-----KRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGFPLE--FEDEDVKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Ba_hero_a VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGGEPE--VLNQDEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFS
 Ba_hero_b VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGGEPE--VLNQDEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_vivi VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFAAGKR-----QWVGGEPE--FD-EAQKRQFSAGKRQFAAGKRQYAACKRQFTAGKR---
 Op_perf VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGEPE---DEEEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Cl_cana VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGGEPE--FDDEEEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_exim_1 VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGQPDL--LDDEEEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_exim_2 VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWVGQPDL--LDDEEEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_liod_a VDMPET---RQFSPGKRQFSPGKRQFSPGKRQFSPGKRQFSPGKRQWVGGESE--FEDEEEKRQFSPGKRQFSPGKRQFSPGKRQFSPGKR---
 Op_liod_b VDMPET---RQFSPGKRQFSPGKRQFSPGKRQFSPGKR-----QWVGGESE--FEDEEEKRQFSPGKRQFSPGKRQFSPGKRQFSPGKR---
 As_bidw VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----EWMDDGPD--LEEEDEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_oedi VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----EWMDDGPN--LEEEDEKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 As_love VDMPET---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----EWM-DEPD--LDEEAKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_john VDMPQT---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWIGGAED---ENEEAKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---
 Op_lyma VDIPQT---RQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----QWIGGEDD---ANEEAKRQFSAGKRQFSAGKRQFSAGKRQFSAGKR---

Am_cipu ----QFSAGKRDWEEE-LTPEEL--MDMFQAPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE--EEYDPEEMLNMATRQFSAGKR----
Mi_grac ----QFSAGKRDWEEETELTPEEF--MDMIPLPETRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGG-----QWVGGD--LEYEPEEDLDMETRQFSAGKRQFS
Op_angu ----QFSAGKRDWEDE-LTPEDL--MDILPAPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE---YNPDDMLDMET-----
Op_lame ----QFSAGKRDWEE--LTPEDL--SDIVAAPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGM---ENPDDMLDMETRQFSAGKR----
Op_impr ----QFSAGKRDWEEENLTQDLLALDMLPLPETRQFSAGKRQFSAGKR-----QWVGGE--LEYDPNEMLDMETRQFSAGKR----
Ba_hero_a AGRQFSAGKRDWEEENLTQDLLALDMLPLPETRQFSAGKRQFSAGKR-----QWVGGE--LEYDPNEMLDMETRQFSAGKR----
Ba_hero_b ----QFSAGKRDWEEENLTQDLLALDMLPLPETRQFSAGKRQFSAGKR-----QWVGGE--LEYDPNEMLDMETRQFSAGKR----
Op_vivi ----QFSAGKRDWEEELTPEDLLALDMLPVPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGD--LEYNPEEMLDMETRQFSAGKR----
Op_perf ----QFSAGKRDWEEDNLTQDLLALGMLPIPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE--QEYDPEDMLDMETRQFSAGKR----
Cl_cana ----QFSAGKRDWEEEDLTQDLLALEMLPAPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE--TEYNPEDMLDMETRQFSAGKR----
Op_exim_1 ----QFSAGKRDWEEEDLTQDLLALEMLPLPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE--QEYNPEDMLDMETRQFSAGKR----
Op_exim_2 ----QFSAGKRDWEEEDLTQDLLALEMLPLPETRQFSAGKRQFSAGKRQFSAGKR-----QWVGGE--QEYNPEDMLDMETRQFSAGKR----
Op_liod_a ----QFSPGKREWDND-LTPEDLLAMGLLPAPETRQFSPGKRQFSPGKRQFSPGKR-----QWVGGE--LEYNPDDMLEMEARQFSPGKR----
Op_liod_b ----QFSPGKREWDND-LTPEDLLAMGLLPAPETRQFSPGKRQFSPGKRQFSPGKR-----QWVGGE--LEYNPDDMLEMEARQFSPGKR----
As_bidw ----QFSAGKRDWEQD-LTPEDYLAMEMLPAPETRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGD---YDPEELLDMETRQFSAGKR----
Op_oedi ----QFSAGKRDWEQD-LTPEEYLAMEMLPAPETRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGD---YDPEELLDMETRQFSAGKR----
As_love -----DWRQD-LTPEELLAMEMLPAPETRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQWVGGE---YDPEELLNMEARQFSAGKR----
Op_john ----QFSAGKRDWEEH-LTPEEYLAMEMLPAPETRQFSAGKRQFAAGKRQFSAGKR-----QWIGGQEEQEYNPDDFLDMETRQFSAGKR----
Op_lyma ----QFSAGKRDWEQN-LNPEEYLAMEMLPAPETRQFSAGKRQFSAGKRQFSAGKR-----QWIGGDEGQEYNPDDFLDMATRQFSAGKR----

Am_cipu ----QFSAGKRQFSAGKRQWVGEE--AFLPEMDTRQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----DDGETNILDEILEAEPDLAEA--E
Mi_grac ----DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--SDTHILDEILEAHPDAA--AEGA
Op_angu AGRQFSAGKRQFSAGKRQWVGG---DVLPEMETRQFSAGKRQFSAGKRQFSAGKRQFSAGKR-----D--ADTDILDQILNADTTEE---E
Op_lame ----RQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEIL--DPAADDALAE
Op_impr ----QFSAGKRQFSAGKRQWVGGMENPDDMLDMETRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILEADPAGEDALAE
Ba_hero_a ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILEADPAENALSE
Ba_hero_b ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILEADPAENALSE
Op_vivi ----QFSAGKRQFSAGKRQWVGG---DALPEMETRQFSAGKRQFSAGKRQFSAGKR-----D--ETDILDEILQAEPEAEDAFSE
Op_perf ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILDAEPAAANALSE
Cl_cana ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILEAEPAAANALSE
Op_exim_1 ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--VTNILEEILEAEPAAVDALSE
Op_exim_2 ----QFSAGKRQFSAGKRQWVGG---DVLPEMDTRQFSAGKRQFSAGKRQFSAGKR-----D--VTNILEEILEAEPAAVDALSE
Op_liod_a ----QFSPGKRQFSPGKRQFSPGKR-----D--ETNILDEILEAEPAAENALSE
Op_liod_b ----QFSPGKRQFSPGKRQFSPGKR-----D--ETNILDEILEAEPAAENALSE
As_bidw ----QFSAGKRQISAGNRQWVGG---EALPEMETRQFSAGKRQFSAGKRQFSAGKR-----D--ESNILHEILNAEPAAANSLSE
Op_oedi ----QFSAGKRQFSAGKRQWVGG---EALPEMETRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILDAEPAAANSLSE
As_love ----QFSAGKRQWIGG---EALPEMETRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILAAEPAVANALSE
Op_john ----QWIGG---DVIPDMETRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFSAGKRQFAAGKR-----DTNILDEFLEANPAENDALSE
Op_lyma ----QFNPGKRQFSAGKRQWIGG---DAIPNMETRQFSAGKRQFSAGKRQFSAGKR-----D--ETNILDEILENDPAENALSE

TRH-2

Am_cons_2 **MLSVACVSPAILL-LSIVSVC---NTVTAEDHALTENENKYLFDRLLLNLRSSANRQKALNDLIRNYIPLDH--SARNKNVLLLEVLANLGNVPFD**
Am_squa **MFSVTRVSSAILLSAAVLSLW---HTASADDNALTDSENKYLFDRLLLNLRSSENRHKALNDLIRNYIPLDHSTSARNKNVLLLEVLANLGDVPFD**
Cl_cana -----**CVSSVLFL-LSAVSVW---STVEADDNALTDSENKYLFDRLLNLRSSENRQKALS LIRNYI PVDQ--STRNKNILLEVLANLGNVPFD**

Am_cons_2 FG GP-ADE-KSATGTADF-WQDD-IDDLEDN--RVNIQL---DDL**SKRWGNGPGPRGKRFAMEANSRVI**RRD**DGHGHGPGPRGKRQGPRGKKQGPR**
Am_squa FG GP-ADNTAAATNSED F-WKDDVADDLEET--RVNIQL---DDL**SKRWGSGPGPRGKRFATAVNSRVRRR**----**GP GPRGKRQGPRGKKQGPR**
Cl_cana FG GP-AEDPSVNQITQDMQWSADDFNDIESRQNL LNQL---DDL**NKRWGS GPGPRGKRF**GV EVNSRVRRR----**GP GPRGKRQGPRGKKQGPR**

Am_cons_2 **GKKDEEDENEYCLKNPCLQTIARTKYVCDCTEKEDPQKCQAI**VED--Q
Am_squa **GKKDEED**-----
Cl_cana **GKKEDEE**-SEFI--KPCWQTMAKKDYLCDCTNEEDPTNCQIIGGNTHK