

|                   |   |                                                                                                    |                                        |    |    |
|-------------------|---|----------------------------------------------------------------------------------------------------|----------------------------------------|----|----|
| GagaAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSQALGRKSDCFRKS                                                         | GFCAFLK-CPSLTLI-SGKCS-RFYLCCKRIWG----- | :  | 65 |
| LamuAvBD1         | : | -----MRIMYLLLP-FILLLLAQAAG-SSRALGKK-ECLRRNGFCAFLK-CPTLSLI-KGKCS-RFQLCCKSILG-----                   | :                                      | 64 |    |
| TycuAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKK-ECLRQNGFCAFLK-CPSLSLI-SGKCS-RFQLCCKSIWG-----                   | :                                      | 64 |    |
| AlruAvBD1         | : | -----MRIMYLLFP-FILLLLAQAAG-SPQALGKRADCLRRKGFC                                                      | AFLK-CPPFTFI-SGKCS-NLNFCKRIWG-----     | :  | 65 |
| LaleAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSWALGKK-ECLRRNGFCAFLK-CPTLSLI-NGKCS-RFHLCKKSILG-----                   | :                                      | 64 |    |
| CeurAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKK-ECLRQNGFCAFLK-CPSLSLI-SGKCS-RFQLCCKSIWG-----                   | :                                      | 64 |    |
| CemiAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKK-ECLRQNGFCAFLK-CPSLSLI-SGKCS-RFQLCCKSIWG-----                   | :                                      | 64 |    |
| SymiAvBD1         | : | -----MRIVYLLFP-FILLLLAQAAG-SSQALGKREECLRRNGFCVFLK-CPSLSII-AGKCS-TFQLCCKTIWG-----                   | :                                      | 65 |    |
| CrmaAvBD1         | : | -----MRIVYLLFP-FILLLLAQAAG-SSQALGKRKECLRRNGFCAFLK-CPSLSLI-AGKCS-TFQLCCKTIWG-----                   | :                                      | 65 |    |
| PacrAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKRADCLRRNGFCTFLK-CPFLTII-SGTCS-RFQLCCKKIWG-----                   | :                                      | 65 |    |
| PamuAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKREDCLRRNGFCTFLK-CPSLSFI-SGKCS-TFQLCCKPIWG-----                   | :                                      | 65 |    |
| BathAvBD1         | : | -----MRIVYLLFP-FILLLLAQAAG-SSQALGRKSDCLRKNGFCSFLS-CPTFTII-SGKCS-KFSFCKRIWG-----                    | :                                      | 65 |    |
| MegaAvBD1         | : | -----MRIVYLLFP-FILLLLAQAAG-SSLALGKREKCLRRNGFCAFLK-CPTLSVI-SGTCS-RFQVCKTLLG-----                    | :                                      | 65 |    |
| ChpiAvBD1         | : | -----MRIVYLLFP-FILLLLVQAAG-SSQALGKRKDCLRRNGFCAFLK-CPSLSLV-TGKCS-TFQLCCKTIWG-----                   | :                                      | 65 |    |
| CojaAvBD1         | : | -----MRIVYLLFP-FILLLLAHGAAG-SSRDLGKREQCYRQKGFC                                                     | AFLK-CPSLTII-SGKCS-RFHVCKNIWG-----     | :  | 65 |
| TypaAvBD1         | : | -----MRIVYLLLP-FILLLLAQAAG-SSRALGKK-ECLRQNGFCAFLK-CPSLSLI-SGKCS-RFQLCCKSIWG-----                   | :                                      | 64 |    |
| LonyAvBD1         | : | -----MRIVYLLFP-FILLLLVQAAG-SSQALGKRAECLRRNGFCAFLR-CPSLSLI-AGKCS-TFQLCCKTIWR-----                   | :                                      | 65 |    |
| CacaAvBD1         | : | -----MRIMYLLFP-FILLLLAQAAG-SSRAPGNKAECLRQNGFCGFMK-CPFPYGI-RGTCS-NFQFCKKIWG-----                    | :                                      | 65 |    |
| PepiAvBD1         | : | -----MRILYLLFP-FIFLLVQGAAA-STLAPGNKKQCLREKGHC                                                      | GFLK-CAFPFVV-SGKCS-RFFFCKNIWS-----     | :  | 65 |
| OdguAvBD1         | : | -----MRIVYLLFP-FILLLLAQAAG-SSRAPGNKAECHRQNGFCAFLK-CPFPFVV-SGKCT-KFQFCKKIWG-----                    | :                                      | 65 |    |
| CasqAvBD1         | : | -----MRIMYLLFP-FILLLLAQAAG-SSRAPGNKAECLRQNGFCGFMK-CPFPYGI-RGTCS-RFQFCKKIWG-----                    | :                                      | 65 |    |
| CoviAvBD1         | : | -----MRIMYLLFP-FILLLLAQAAG-SSRAPGNKAECLRQNGFCGFMK-CPFPYGI-RGTCS-KFQFCKKIWG-----                    | :                                      | 65 |    |
| NumeAvBD1         | : | -----MRIMYLLFP-VILLLLAQGVAG-SSRAPRSRAECSRQKGFC                                                     | LFPN-CPFGFIV-SGTCS-RFQLCCKKIWG-----    | :  | 65 |
| PhcoAvBD1-partial | : | -----GKREDCLQNGFCAFLK-CPSLSLI-AGKCS-TFQLCCKTIWG-----                                               | :                                      | 40 |    |
| GagaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPRRDMLFCK--GGSCHFGG-CPSHLIK-VGSCF-GFRSCCKWPNNA-----                  | :                                      | 64 |    |
| LamuAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGRCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| TycuAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGRCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| AlruAvBD2         | : | -----MRILYLLFS-LIFLALQVSSG-LSSPRRDMLLOR--RGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| LaleAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGRCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| CeurAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGKCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| CemiAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGKCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| SymiAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| CrmaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--TGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| PacrAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPRRDMLLOR--GGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| PhcoAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPNNA-----                  | :                                      | 64 |    |
| PamuAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPRRDMLLOR--GGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| LonyAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPRHLIK-VGSCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| BathAvBD2         | : | -----MRILYLLFS-LIFLALQVSAG-FSSPRRDMLFCK--GGSCHFGG-CPSHLIK-VGSCF-GFRSCCKWPNNA-----                  | :                                      | 64 |    |
| MegaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| ChpiAvBD2         | : | -----MKILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPHYV-----                  | :                                      | 64 |    |
| CojaAvBD2         | : | -----MRILYLLFS-LIFLALHVSPG-LSSPRRDMLFCK--RGTCHFGN-CPSNKIR-VGNCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| TypaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPKRDMLFCK--RGSCHFGR-CPSHLIK-VGRCF-GFRSCCKWPWDA-----                  | :                                      | 64 |    |
| AllaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-MSSPRRDMLFCK--GGSCHFGK-CPFNLVK-TGKCF-GFRNCKSPWNL-----                   | :                                      | 64 |    |
| CacaAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-MSSPQRDMFLOR--KGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| CasqAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPQRDMFLOR--KGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| CoviAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPQRDMFLOR--KGSCHFGR-CPSHLIK-VGSCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| NumeAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSLSRDMLFCN--GGSCHFGR-CPSHLIK-VGRCF-GFRNCKWPNNA-----                    | :                                      | 64 |    |
| OdguAvBD2         | : | -----MRILYLLFS-LIFLALQVSPG-LSSPRRDMLFCK--KGSCHFGR-CPSHLIK-VGRCF-GFRSCCKWPWDV-----                  | :                                      | 64 |    |
| PepiAvBD2         | : | -----MRILYLLFS-VLFLALQVSPG-LSTPRRDMLFCK--KGSCHFGR-CPFGLVK-VGRCF-GFRNCKSPWDV-----                   | :                                      | 64 |    |
| GagaAvBD3         | : | -----MKILYLLIP-FFLLFLQAAG-----TATQCRIRGGFCRVGS-CRFPHIA-IGKCA-TFISCCGRAYEVDALNSVRTSPWLLAPGNNPH----- | :                                      | 80 |    |
| LamuAvBD3         | : | -----MKILYLLFP-FFLLFLQSAAG-----TPIQCRIRGGYCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG-----                     | :                                      | 59 |    |
| TycuAvBD3         | : | -----MKILYLLFP-FFLLFLQSAAG-----TPIQCRIRGGFCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG-----                     | :                                      | 59 |    |
| LaleAvBD3         | : | -----MKILYLLFP-FFLLFLQSAAG-----TPIQCRIRGGFCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG-----                     | :                                      | 59 |    |
| CeurAvBD3         | : | -----MKILYLLFP-FFLLFLQSAAG-----TPIQCRIRGGFCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG-----                     | :                                      | 59 |    |
| CemiAvBD3         | : | -----MKILYLLFP-FFLLFLQSAAG-----TPIQCRIRGGFCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG-----                     | :                                      | 59 |    |

|                   |   |                                         |                                                 |   |    |
|-------------------|---|-----------------------------------------|-------------------------------------------------|---|----|
| SymiAvBD3         | : | -----MKIILYLLFL-FFFLFLQSAAG-----        | TPIQCRIRGGYCRFGS-CRFPHIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| CrmaAvBD3         | : | -----MKIILYLLFP-FFLLFLQSAAG-----        | TPIQCRIRGGFCRFGS-CRFPHIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| PacrAvBD3         | : | -----MKIILYLLIP-FFLLFLQGAAG-----        | TAIQCRIRGGFCRVGS-CSFPHIP-IGKCA-TFIPCCGSIWG----- | : | 59 |
| PhcoAvBD3         | : | -----MKIILYLLFP-FFLLFLQSAAG-----        | TPLQCRIRGGFCRFGS-CRFPYIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| PepiAvBD3         | : | -----MKIILYLLIP-FFLLFLQGAAG-----        | SAAQCRRRGGSCRFGG-CRFPATR-IGRCT-RLVSCCRRVWA----- | : | 59 |
| PamuAvBD3         | : | -----MKIILYLLIP-FFLLFLQGVSG-----        | TAIQCRIRGGFCRVGS-CSFPHIP-IGKCA-TFIPCCGSIWG----- | : | 59 |
| LonyAvBD3         | : | -----MKIILYLLFP-FFLLFLQSAAG-----        | TPLQCRIRGGFCRFGS-CRFPYIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| MegaAvBD3         | : | -----MKIILYLLFP-FFLLFLQSAAG-----        | TPIQCRIRGGFCRFGS-CRFPHIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| TypaAvBD3         | : | -----MKIILYLLFP-FFLLFLQSAAG-----        | TPIQCRIRGGFCRVGS-CSFPHIA-IAKCA-TFIPCCGSIWG----- | : | 59 |
| CacaAvBD3         | : | -----MKIILYLLIP-FFLLFLQGAEG-----        | NLIQCRRRGGVCRSRG-CPIGHRT-IGKCT-ALVPCCRRI-----   | : | 57 |
| CasqAvBD3         | : | -----MKIILYLLIP-FFLLFLQGAEG-----        | NFIQCRRRGGVCRSRG-CRIRHRT-IGKCA-AFIPCCRRI-----   | : | 57 |
| CoviAvBD3         | : | -----MKIILYLLIP-FFLLFLQGAEG-----        | NFIQCRRRGGVCRSGG-CRIRHRT-IGKCA-AFIPCCRRI-----   | : | 57 |
| NumeAvBD3         | : | -----MKIILYLLIP-FFFLFLQGTAG-----        | STASCRRRGGVCHLGG-CRFPLRT-VGKCG-TFVPCCKNVWG----- | : | 59 |
| OdguAvBD3         | : | -----MKIILYLLIP-FFLLFLQDAAG-----        | NPFQCRQRGGACHFGG-CHIMHRT-IGKCS-ASIPCCRRIWG----- | : | 59 |
| AlruAvBD3-pseudo  | : | -----TKIILYLLIP-SFFLFLQGAAG-----        | TAIQCRIRGGFCRVGS-CRFPHVA-IGKCA-KSITCCGSMWG----- | : | 59 |
| AllaAvBD3-partial | : | -----MKIILYLLIPFFLMLLLQGAAG-----        | GSSQCRRRGGRCQFGP-CLFPNKR-IGKCS-TFLACCKR-----    | : | 57 |
| GagaAvBD4         | : | -----MKIILCFFIV-LLFVAVHGAVG-FSRSPRYHMQ  | GYRGTFCTPGK-CPYGNAY-LGLCR-PKYSCCRWL-----        | : | 63 |
| LamuAvBD4         | : | -----MKIILCFFTV-LLFVVVHQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| TycuAvBD4         | : | -----MKIILCFFTV-LLFVAVHQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| AlruAvBD4         | : | -----MKIILCFFIV-LLFVAVHGAAG-FSQPPRYHIK  | GYRGTFCIPGK-CPNGNAY-LGPCR-SGYACCRWL-----        | : | 63 |
| LaleAvBD4         | : | -----MKIILCFFTV-LLFVAVYQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| CeurAvBD4         | : | -----MKIILCFFTV-LLFVAVHQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| CemiAvBD4         | : | -----MKIILCFFTV-LLFVAVHQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| SymiAvBD4         | : | -----MKIILCFFIV-LLFVAVHQAVG-FSRPPRHYLQ  | GYRGTFCFPGK-CPNGNTY-LGPCH-FGNSCCKWL-----        | : | 63 |
| CrmaAvBD4         | : | -----MKIILCFFIV-LLFVAVHQAVG-FSRPPRHHLR  | GYRGTFCFPGK-CPNGNTY-LGPCH-FGNSCCKWL-----        | : | 63 |
| PacrAvBD4         | : | -----MKIILCFFIV-LLFVAAHGAAG-FSHPPRDHIQ  | GYRGTFCTPGE-CPYGNSH-LGSCG-SGYSCCRWL-----        | : | 63 |
| PhcoAvBD4         | : | -----MKIILCFFIV-LLFVAVHQAVG-FSRPPRHHLR  | GYRGTFCFPGK-CPNGNTY-LGPCH-FGNSCCKWL-----        | : | 63 |
| PamuAvBD4         | : | -----MKIILCFFIV-LLFVAAHGAAG-FSHPPRDHIQ  | GYRGTFCTPGE-CPYGNSH-LGSCG-SGYSCCRWL-----        | : | 63 |
| LonyAvBD4         | : | -----MKIILCFFIV-LLFVAVHQAVG-FSRPPRHHLR  | GYRGTFCFPGK-CPNGNTY-LGPCH-FGNSCCKWL-----        | : | 63 |
| BathAvBD4A        | : | -----MKIILCFFIV-LLFVAVHGAAG-FSCPPRYHIQ  | GYRGTFCTPGK-CPIGNDY-LGLCR-SGYSCCKWL-----        | : | 63 |
| BathAvBD4B        | : | -----MKIILCFFIV-LLFVAVHGAAG-FSRPPRYHIQ  | GYRGTFCTPGK-CPTGNDY-LGLCR-SGYSCCKWL-----        | : | 63 |
| MegaAvBD4         | : | -----MKIILCFFIV-LLFMAVHQAVG-FSHPPRHHLR  | GYRGTFCFPGK-CPNGNAY-LGACR-SGYSCCRWL-----        | : | 63 |
| ChpiAvBD4         | : | -----MKIILCFFIV-LLFVAVHQAVG-FSRPPRYHLR  | GYRGTFCFPGK-CPNGNTY-LGPCH-FGNSCCKWL-----        | : | 63 |
| CojaAvBD4         | : | -----MKIILCFFV-LLFVAVHGAAG-FSRSPRHHLR   | GYRGTFCTPGK-CPNGNAY-LGPCR-TGYSCCRWL-----        | : | 63 |
| TypaAvBD4         | : | -----MKIILCFFTV-LLFVAVHQAVG-FPRPPRHDLC  | GYRGTFCFPGK-CPDGNAY-LGPCH-SGYSCCRWL-----        | : | 63 |
| AllaAvBD4         | : | -----MKIILRFIFV-LLFVAVHGVAG-VSHPPRHLMR  | GYRGTFCFPGK-CPYGNAY-LGLCR-AGYSCCRWL-----        | : | 63 |
| CacaAvBD4         | : | -----MKIFCFFFFV-LLFVAVPGAAG-FSRPPRYRMQ  | GYRGTFCSPGK-CPYGNNTN-LGROR-SGYSCCRWL-----       | : | 63 |
| CasqAvBD4         | : | -----MKIFCFFFFV-LLFVAVPGAAG-FSRPPRYLMQ  | GYRGTFCFPGK-CPYGNNTN-LGROR-SGYSCCRWL-----       | : | 63 |
| CoviAvBD4         | : | -----MKIFCFFFFV-LLFVAVPGAAG-FSHPPRYHMQ  | GYRGTFCFPGK-CPYGNNTN-LGROR-SGYSCCRWL-----       | : | 63 |
| NumeAvBD4         | : | -----MKIILCFFFFV-LLFVAVHGAAG-FSRPKRYRIQ | GYRGTFCIPGK-CPYGNNTY-LGPCR-TGYSCCKWL-----       | : | 63 |
| OdguAvBD4         | : | -----MKIFCFFFFV-LLFVAVHGAAG-FSRPPRYRIQ  | GYRGTFCFPGK-CPYGNPN-LGROR-SGYSCCRWL-----        | : | 63 |
| PepiAvBD4         | : | -----MKIILRLFFV-LLFVAVHGAAG-FSRPPKGYMQ  | GYRGTFCILGK-CPQGNDY-LGLCR-PGYSCCKWL-----        | : | 63 |
| GagaAvBD5         | : | -----MQIILPLIFA-VLLLMLRAEPG-LSLARGLPQD  | CERRGGFCSHKS-CPPGIGR-IGLCS-KEDFCRCSRWYS-----    | : | 66 |
| LamuAvBD5         | : | -----MKIILPLIFA-ALLLVLRGEPG-LSLAQGSPQD  | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| TycuAvBD5         | : | -----MQIILPLIFA-VLLLVLVRGEPG-LSLAQGSPQD | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| AlruAvBD5         | : | -----MQIILPLFFA-VLLLMLQGEPG-LSLARGLPQD  | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| LaleAvBD5         | : | -----MKIILPLIFA-ALLLVLRGEPG-LSLAQGSPQD  | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| CeurAvBD5         | : | -----MQIILPLIFA-VLLLVLVRGEPG-LSLAQGSPQD | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| CemiAvBD5         | : | -----MQIILPLIFA-VLILVLVRGEPG-LSLAQGSPQD | CERRGGFCSHRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| SymiAvBD5         | : | -----MQIILPLIFV-VLLLMLRGEPG-LSLTPGSPQD  | CERRGGFCSPRS-CPPGIGR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| CrmaAvBD5         | : | -----MQIILPLIFA-VLLLMLWGEPG-LSLTPGSPQD  | CERRGGFCSPRS-CPPGIGR-IGLCS-EQAFCCRCSRWYS-----   | : | 66 |
| PacrAvBD5         | : | -----MQIILPILFA-VLLLMLQGEPG-LSLAQGLSQD  | CERRGGFCSHRS-CPPGIGR-IGLCS-EEVFCCRCSRWYS-----   | : | 66 |
| PhcoAvBD5         | : | -----MQIILPLIFA-VLLLMLRGEPG-LSLTPGSPQD  | CERRGGFCSPRS-CPPGISR-IGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| PamuAvBD5         | : | -----MQIILPVLFA-VLLLMLRGEPG-LSLAQGLPQD  | CERRGGFCSHRS-CPPGIGR-IGLCS-EEVFCCRCSRWYS-----   | : | 66 |
| LonyAvBD5         | : | -----MQIILPLIFA-VLLLMLRGEPG-LSLTPGSPQD  | CERRGGFCSPSS-CPPGIGR-VGLCS-EQVFCCRCSRWYS-----   | : | 66 |
| BathAvBD5         | : | -----MQIILPLIFA-VLLLMLRGEPG-LSLAQGLSQD  | CERRGGFCSHKS-CPPGIGR-IGLCS-KEVFCCRCSRWYS-----   | : | 66 |

|                    |   |                                                                       |                          |                     |    |    |
|--------------------|---|-----------------------------------------------------------------------|--------------------------|---------------------|----|----|
| PepiAvBD5          | : | -----MRILPVLLV-VLLMLQGAAA-LSLAQRSPQDCERRGGFCSHRS-CPPGIGR-IGLCS-EEVFC  | CCSRWYR-----             | :                   | 66 |    |
| MegaAvBD5          | : | -----MQILPLLFA-VLLMLQGEFG-LSLAQGSPQDCERRGGFCSHRS-CPPGISR-IGLCS-EKVFC  | CCSRWYS-----             | :                   | 66 |    |
| ChpiAvBD5          | : | -----MQILPLLFA-VLLMLRGEFG-LSLTPGSPQDCERRGGFCSPRS-CPPGIGR-IGLCS-EQDFC  | CCSRWYS-----             | :                   | 66 |    |
| CojaAvBD5          | : | -----MQILPLLFA-VLLMLQGEFG-LSLARASQDCERRGGFCSHSS-CPPGIGR-IGLCS-EQVFC   | CCSRWYS-----             | :                   | 66 |    |
| TypaAvBD5          | : | -----MQILSLIFA-VLLLVLRGEFG-LSLAQGSPQDCERRGGFCSHRS-CPPGIGR-IGLCS-EQVFC | CCRS-----                | :                   | 62 |    |
| AllaAvBD5          | : | -----MRILPLIFA-VLLMLRGSAG-LSLARGSPQDCERRGGFCSPRS-CPPGITR-VGICS-EQAFCC | CCSRWYS-----             | :                   | 66 |    |
| CacaAvBD5          | : | -----MRILPLIFA-VLLMLRGEFG-LSLARGSPQDCERRGGFCSHRS-CPPGIGR-IGICS-EEVFC  | CCSRWYP-----             | :                   | 66 |    |
| CasqAvBD5          | : | -----MRILPLLFA-VLLMLRGEFG-LSLARGSPQDCERRGGFCSHRS-CPPGIGR-IGICS-EEVFC  | CCSRWYP-----             | :                   | 66 |    |
| CoviAvBD5          | : | -----MRILPLLFA-VLLMLRGEFG-LSLARGSPQDCERRGGFCSHRS-CPPGIGR-IGICS-EEVFC  | CCSRWYP-----             | :                   | 66 |    |
| NumeAvBD5          | : | -----MRILSLIFA-VLLMLRGEFG-LSVAQGSPQDCERRGGFCSHRS-CPPGIGR-IGICS-EQEFCC | CCSRWYP-----             | :                   | 66 |    |
| OdguAvBD5          | : | -----MRILSLIFA-VLLMLQGEFG-LSLARGTPQDCERRGGFCSHRS-CPPGIGR-IGICS-EEVFC  | CCSRWYP-----             | :                   | 66 |    |
| GagaAvBD6          | : | -----MRILYLLLS-VLFVVLQGVAG-QPYFSSPIHACRYQRGVCIPGP-CRWPYYR-VGSCG       | SGSLKSCCVNRWA-----       | :                   | 67 |    |
| LamuAvBD6C         | : | -----MRILYLLLA-VLFVVLQAVAG-EPSFSSPMHACRHRRGVCIPGR-CRQPYR-VGSCG-AISSC  | CCVRGRWT-----            | :                   | 66 |    |
| LamuAvBD6B         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPMHACRFLRGVCIPGQ-CRRPYR-VGSCG-AIRS   | CCIRGRWT-----            | :                   | 66 |    |
| LamuAvBD6A         | : | -----MRILYLLLA-VLFVVLQGIAG-EPSFSSPMHACRFLRGVCIPGQ-CRRPYR-VGSCG-AIRS   | CCIRGRWT-----            | :                   | 66 |    |
| LamuAvBD6D         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPMHACRFLRGVCIPGQ-CRRPYR-VGSCG-AIRS   | CCIRGRWT-----            | :                   | 66 |    |
| AlruAvBD6          | : | -----MRILYLLLA-VLFVVLQGVAG-QPYFSSPVHACRFQRGVCLLGR-CRQPYR-IGSCG-KRSSC  | CAARRWT-----             | :                   | 66 |    |
| LaleAvBD6A         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPMHACRFLRGVCIPGQ-CRRPYR-VGSCG-AIRS   | CCVRGRWT-----            | :                   | 66 |    |
| LaleAvBD6B         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPMHACTFRKGICFPGR-CRPPYR-VGP          | CR-RRGSCCARGRWT-----     | :                   | 66 |    |
| CemiAvBD6          | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPINSRHRRGICFPGL-CRPPYR-VGP           | CR-RRGSCCARSRWT-----     | :                   | 66 |    |
| PacrAvBD6          | : | -----MRILYLLLG-VLFVVLQGVAG-QPYFSSRIHACRYRKGVCPVPI-CRPPYHW-AGSCG-SVRS  | CCVRGRWA-----            | :                   | 66 |    |
| PhcoAvBD6A         | : | -----MRILFLLLA-VLFVVLQAVAG-ESDFSSPVHSCRRQKGVCMYQG-CQRPYR-VGSCG        | GGFRSSCCVRSRWA-----      | :                   | 67 |    |
| PhcoAvBD6B         | : | -----MRILFLLLA-VLFVVLQAVAG-EPFFSSPMRACRFRRGFCFPWQ-CRRPFYR-VGSCG       | -GFRSCCVRGRWE-----       | :                   | 66 |    |
| PamuAvBD6          | : | -----MRILYLLLG-VLFVVLQGVAG-QSYFSRIHACRYRKGVCPVPI-CRPPYHW-AGSCG        | -GVRSCCVRGRWA-----       | :                   | 66 |    |
| LonyAvBD6B         | : | -----MRILYLLLA-VLFVVLQAVAG-QPYISGHVQ-CRLRNGVCMYGR-CRWPYYQ-VGSCG       | DLRSHCCVRGRWE-----       | :                   | 66 |    |
| LonyAvBD6A         | : | -----MRILYLLLA-VLFVVLQAVAG-QPYISGHVQ-CRLRKGVCLYGR-CPQAYR-VGSCG        | DLRSSCCVRIWA-----        | :                   | 66 |    |
| LonyAvBD6C         | : | -----MRSFNLLLA-VALGGWLQAVGSESYFSSPVHSCRRQKGVCMYQG-CRWPYYR-VGSCS       | -GFSSCCVNRWA-----        | :                   | 67 |    |
| BathAvBD6          | : | -----MRILYLLLA-VLFVVLQGVAG-QRYFSSPIHACRYQRGVCFHGP-CRRPYR-VGSCG        | GGIKSCCVRNKVV-----       | :                   | 67 |    |
| MegaAvBD6B         | : | -----MRILYLLLA-VLLVVLQGVAG-QPLIPNTMHTCSLRRGVCRYGR-CPVLYYQ-IGSCG       | AVRSSCCVSGKLA-----       | :                   | 67 |    |
| ChpiAvBD6A         | : | -----MRILFLLLA-VLFVVLQAVAG-EPFFSSPMRACRFRRGFCFPWQ-CRRPYR-VGSCG        | -SSSCCVRSRWA-----        | :                   | 66 |    |
| ChpiAvBD6B         | : | -----MRILFLLLA-VLFVVLQAVAG-QPYVSSPLH-CRLRKGVCMYGR-CRRPYQ-AGSCG        | GGLRSSCCVRAIWA-----      | :                   | 66 |    |
| ChpiAvBD6C         | : | -----MRILFLLLA-VLFVVLQAVAG-ESYFSSPVHSCRRQKGVCLFGR-CRRPYR-VGSCG        | -GSSSCCVRSRWV-----       | :                   | 66 |    |
| TypaAvBD6C         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPINSRHRRGICFPGR-CRSPYR-VGSCG         | -RGSCCVRGRWT-----        | :                   | 66 |    |
| TypaAvBD6A         | : | -----MRILYLLLA-VLFVVLQSVAA-EPSFSSPMHACRFLRGVCFPGQ-CQRPYR-VGSCG        | -TRSCCIRGRWT-----        | :                   | 66 |    |
| TypaAvBD6D         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPIRACTFRRGICFPGL-CRPPYR-VGP          | CR-RGSCCARGRRT-----      | :                   | 66 |    |
| TypaAvBD6B         | : | -----MRILYLLLA-VLFVVLQGVAG-EPSFSSPMHACRFLRGVCFPGQ-CQRPYR-VGSCG        | -RGSCCIRGRRT-----        | :                   | 66 |    |
| SymiAvBD6A-partial | : | -----G-ESYFSSPVHSCRRQKGVCMYGR-CRRPYR-VGSCAG-LSSC                      | CCVR-----                | :                   | 43 |    |
| SymiAvBD6B-partial | : | -----G-ESYFSSPVHSCRRQKGVCMYGR-CRRPYR-VGSCAG-LSSC                      | CCVRSRWA-----            | :                   | 47 |    |
| SymiAvBD6C-partial | : | -----G-QPYISSPLN-CRLRKGVCMYGR-CRRPYR-VGSCG                            | DLRSSCCVR-----           | :                   | 43 |    |
| SymiAvBD6D-partial | : | -----G-QPYISGPTQ-CRLRKGVCMYGR-CRRPYR-VGSCG                            | DLRSSCCVR-----           | :                   | 43 |    |
| MegaAvBD6A-partial | : | -----G-EPHFSSPMHACRFRRGFC                                             | CKYGG-CRPPYQ-AGSCG       | GGLRSSCCVRGKWA----- | :  | 48 |
| CojaAvBD6-pseudo   | : | -----IEDPFYSAA-LVVLVQGC-QSYLSSPIRACRIRRGICFFGR-CPQPYHH-VGSCG          | -LRSSCCVRRRWA-----       | :                   | 66 |    |
| AlruAvBD7          | : | -----MRILYLLLA-VLFVVLQGVAG-QRHIPRPFDTCRLRNGICFPGI-CRRPYW-IGTC         | NNGIGSCCARGWRN-----      | :                   | 67 |    |
| GagaAvBD7          | : | -----MRILYLLLS-VLFVVLQGVAG-QPFIPRPIDTCRLRNGICFPGI-CRRPYW-IGTC         | NNGIGSCCARGWRS-----      | :                   | 67 |    |
| CemiAvBD7          | : | -----MRILYLLLA-VLFVVLQGVAG-QRYFPQPFDTCLRNGICTRGI-CRRPYW-IGTC          | NNGIGSCCARGWRN-----      | :                   | 67 |    |
| SymiAvBD7          | : | -----MRILFLLLA-VLFVVLQAVAG-QRYFPRPIDTCRLRNGICTRGI-CRRPYW-IGTC         | NNGIGSCCARGWNN-----      | :                   | 67 |    |
| PacrAvBD7          | : | -----MRILYLLLG-VLFVVLQGVAG-QRYIPRPFDNCLRNGICFPGI-CRRPYW-IGTC          | NNGIGSCCAKGWRN-----      | :                   | 67 |    |
| PhcoAvBD7          | : | -----MRILFLLLA-VLFVVLQAAAG-QRYFPRPIDTCRLRNGICTRGI-CRRPYW-IGTC         | NNMGSCCARGWNN-----       | :                   | 67 |    |
| PamuAvBD7          | : | -----MRILYLLLG-VLFVVLQGVAG-QRHIPRPFDNCLRNGICFPGI-CRRPYW-IGTC          | NNGIGSCCAKGWRN-----      | :                   | 67 |    |
| BathAvBD7          | : | -----MRILYLLLA-VLFVVLQGVAG-QPYIPRPIDTCRLRNGICFPGI-CRRPYW-IGTC         | NSGLGSCCARGWRS-----      | :                   | 67 |    |
| MegaAvBD7          | : | -----MRILYLLLA-VLLVVLQGVAG-QHYFPRPFNTCLRNGICTPGI-CRRPYW-IGTC          | NNGIDSCCARGWRN-----      | :                   | 67 |    |
| ChpiAvBD7          | : | -----MRILFLLLA-VLFVVLQAVAG-QRYIPRPIDTCRLRNGICTPGI-CRRPYW-IGTC         | NNMGSCCARGWNN-----       | :                   | 67 |    |
| TypaAvBD7B         | : | -----MRILYLLLA-VLFVVLQGVAG-QRYFPQPFDTCLRNGICTRGI-CRRPYW-IGTC          | NNGIGSCCARGWRN-----      | :                   | 67 |    |
| TypaAvBD7C         | : | -----MRILCLLLA-VLFVVLQGVAG-QRYFPQPFDTCLRNGICTRGI-CRRPYW-IGTC          | NNGIGSCCARGWRN-----      | :                   | 67 |    |
| TypaAvBD7A         | : | -----MRILYLLLA-VLFVVLQGVAG-QRYFPQPFDTCLRNGICTRGI-CRRPYW-IGTC          | NNGIGSCCARGWRN-----      | :                   | 67 |    |
| AllaAvBD7          | : | -----MRVLYQLLA-VLFVVLQSAVG-QPYFPSTLDP                                 | CYRQRGTCVPGI-CRRPYW-IGTC | RGG-ESCCARGWRN----- | :  | 66 |

|                   |   |                                                                                   |   |    |
|-------------------|---|-----------------------------------------------------------------------------------|---|----|
| CacaAvBD7         | : | -----MRILYLILA-VLFVVLQGVVG-QPYIPRPFDCRLRNGVCFPGI-CRRPYW-IGTCNNGRGSCCARGWKV-----   | : | 67 |
| PepiAvBD7A        | : | -----MRILYQLLV-VLLVVLQGVAG-QRYFPKPLEKCELQGGYCTPGI-CRRPYW-AGSCRNG-RSCCLRGW-----    | : | 64 |
| PepiAvBD7B        | : | -----MRILYQLLV-VLLVVLQGVAG-QGYFPRPPEHCLLRGGYCFPGL-CQRPYR-IGACHHG-NSCCSKRWKNR----- | : | 67 |
| CasqAvBD7         | : | -----MRILYLILA-VLFVVLQGVVG-QPYIPRPFDCRLRNGVCFPGI-CRRPYW-IGTCNNGRGSCCARGWKV-----   | : | 67 |
| CoviAvBD7         | : | -----MRILYLILA-VLFVVLQGVVG-QPYIPRPFDCRLRNGVCFPGI-CRRPYW-IGTCNNGRGSCCARGWQV-----   | : | 67 |
| NumeAvBD7         | : | -----MRILYLILA-VLFVVLQGVVG-QPYIPKPFDTCLQNGICVPGI-CRRPYW-IATCNNGRGSCCARGWRY-----   | : | 67 |
| OdguAvBD7         | : | -----MRILYLILA-VLSMVLQGVAG-QPYFPRPIDTCRLRNGVCFPGI-CRRPYW-VGTCNNGKGSCCARGWKI-----  | : | 67 |
| CrmaAvBD7-pseudo  | : | -----CTRGR-CRRPYW-IGTCNNGMGCACGR-----                                             | : | 26 |
| LonyAvBD7-pseudo  | : | -----MRILYLILA-VLFVVLQAVAG-QHHFPRPIDTCRLRNGICTRGI-CRRPYW-IGTCNNGMGSCCARGWNN-----  | : | 67 |
| TycuAvBD7-partial | : | -----G-QRYFPQPFDTCLRNGICTRGI-CRRPYW-IGTCNNGIGSCCARGWRN-----                       | : | 48 |
| GagaAvBD8         | : | -----MKILYLILA-VLLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGHCQ-RGVPCCRTVYD-----  | : | 66 |
| LamuAvBD8         | : | -----MKILYLFLA-ILLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| TycuAvBD8         | : | -----MKILYLFLA-VLLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| AlruAvBD8         | : | -----MKILYLILA-VLFTALQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHSRAFGRQCQ-RGVQCCRVAYD----- | : | 66 |
| LaleAvBD8         | : | -----MKILYLFLA-ILLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| CeurAvBD8         | : | -----MKILYLFLA-ILLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| CemiAvBD8         | : | -----MKILYLFLA-ILLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVTS----- | : | 66 |
| SymiAvBD8         | : | -----MKILYLFLA-VLLIVLQSSLG-FMRVPSNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| CrmaAvBD8         | : | -----MKILYLFLA-VLLIVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| PacrAvBD8         | : | -----MKILYLFLA-VFLIVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLRTRAFGHCQ-RGVPCCRTVYD-----  | : | 66 |
| PhcoAvBD8         | : | -----MKILYLFLA-VLLIVLQSSLG-FMRVPNNEAQCEQAGGICSKDR-CFHLHTRAFGHCQ-QAVPCCRTVYN-----  | : | 66 |
| PamuAvBD8         | : | -----MKIPYLFLA-VLLIVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLRTRAFGRQCQ-SGVLCCRTVYD----- | : | 66 |
| LonyAvBD8         | : | -----MKILYLFLA-VLLIVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGHCQ-QAVPCCRTVYN-----  | : | 66 |
| BathAvBD8         | : | -----MKILYLILA-VLLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGQCQ-RGVPCCRTVYD-----  | : | 66 |
| MegaAvBD8         | : | -----MKILYLFLA-VLLIVLQSSVG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| ChpiAvBD8         | : | -----MKILYLFLA-VLLIVLRSSLG-FMRVPNNEAQCEQAGGICSKDN-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| CojaAvBD8         | : | -----MKILYLILA-VLLIVLQSSLG-FMRLPNDEAQCEQAGGICSKNH-CFHLHSRAFGRQCQ-RGVQCCRAVYD----- | : | 66 |
| TypaAvBD8         | : | -----MKILYLFLA-VLLTVLQSSLG-FMRVPNNEAQCEQAGGICSKDH-CFHLHTRAFGRQCQ-QAVPCCRTVYN----- | : | 66 |
| AllaAvBD8         | : | -----MKIILYFFA-VLLLVLTSLG-FMRAPNNDVQCEQAGGTCSKDH-CSPPNTRAFGRQCQ-RGVPCCRTVYN-----  | : | 66 |
| CacaAvBD8         | : | -----MKILYLFLA-VLLIVLQSSSG-FMRVPNNEAQCEQAGGSCSKDH-CFPLHTRAFGRQCQ-RGVPCCRTVYD----- | : | 66 |
| CasqAvBD8         | : | -----MKILYLFLS-VLLIVLRSSSG-FMRVPNNEAQCEQAGGSCSKDH-CFPLHTRAFGRQCQ-RGVPCCRTVYD----- | : | 66 |
| CoviAvBD8         | : | -----MKILYLFLA-VLLIVLQSSSG-FMRVPNNEAQCEQAGGSCSKDH-CFPLHTRAFGRQCQ-QGVPCCRTVYD----- | : | 66 |
| NumeAvBD8         | : | -----MKILYLFLA-VLLVVLQSSLG-FMRVPNNEVQCEQAGGTCSKDL-CFQLHTRAFGRQCQ-RGVPCCRTVTD----- | : | 66 |
| OdguAvBD8         | : | -----MKILYLFLV-VLLTVLQSSLG-FMRVPNNEAQCEQAGGSCSKDH-CFPLHTRAFGRQCQ-RGVPCCRTVYD----- | : | 66 |
| PepiAvBD8         | : | -----MKIVYLFLA-VLLLMFQSSLG-FMRAPTNDVQCEQAGGTCSKGY-CSPLNARAFGRQCQ-PGVPCCRT-YD----- | : | 65 |
| GagaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEDADTLACRQSHGSCSFVA-CRAPSVD-IGTCRGGKLKCKWAPSS-----  | : | 67 |
| LamuAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQETADTLACRQNHGSCSFIA-CPAPSVD-IGTCRDGKLKCKRWRPSS----- | : | 67 |
| TycuAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQESADTLACRQSHGSCSFVA-CPAPSVD-IGTCRDGKLKCKRWRLSS----- | : | 67 |
| AlruAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEDPDTLACRQNRGSCSFIA-CRAPSVD-IGTCRGGKLKCKWAPSS-----  | : | 67 |
| CeurAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQESADTLACRQSHGSCSFVA-CPAPSVD-IGTCRDGKLKCKRWRPSS----- | : | 67 |
| CemiAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQESADTLACRQSHGSCSFVA-CPAPSVD-IGTCRDGKLKCKRWRPSS----- | : | 67 |
| SymiAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQSHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| CrmaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQSHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| PacrAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQNRGSCSFIA-CRAPSVD-IGTCRDGKLKCKWTPSS-----  | : | 67 |
| PhcoAvBD9         | : | -----MRILFFLVA-ILFFLFQAAPA-YSQEAADTLACRQSHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| PamuAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQNRGSCSFIA-CRAPSVD-IGTCRDGKLKCKWTPSS-----  | : | 67 |
| LonyAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQSHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| BathAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEDADTLACRQGHGSCSFVA-CRAPSVD-IGTCRGGKLKCKRWAPSS----- | : | 67 |
| MegaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEAADTLACRQNHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| ChpiAvBD9         | : | -----MRILFFLVA-FLFFLFQAAPA-YSQEAADTLACRQSHGSCSFIA-CPAPSVD-IGTCRDGKLKCKKWRPSS----- | : | 67 |
| CojaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQEDPDTLACRQGHGSCSFVA-CRAPSVD-IGTCRGGKLKCKKWSPSS----- | : | 67 |
| TypaAvBD9         | : | -----MRILFVLVA-VLFFLFQAAPA-YSQESADTLACRQSHGSCSFVA-CPAPSVD-IGTCRDGKLKCKRWRPSS----- | : | 67 |
| AllaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-STQEADDTLACRQSRGFCSFVA-CSAPTVD-IGTCRGGKLKCKWTPSS-----  | : | 67 |
| CacaAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQETADTIACRQSRGFCSFVA-CSAPLVD-IGTCRDGKLKCKWTPSS-----  | : | 67 |
| CasqAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQETADTIACRQNRGFCSFVA-CSAPLVD-IGTCRDGKLKCKWTPSS-----  | : | 67 |
| CoviAvBD9         | : | -----MRILFFLVA-VLFFLFQAAPA-YSQETADTIACRQNRGFCSFVA-CSAPLVD-IGTCRDGKLKCKWTPSS-----  | : | 67 |

|                    |   |                                                                                                                       |   |     |
|--------------------|---|-----------------------------------------------------------------------------------------------------------------------|---|-----|
| NumeAvBD9          | : | -----MRILFFLVA-IILFFLFQAAPA-YSQEAADTVACRQNRGSCSFVA-CSAPLVD-IGTCRGGKLCCKWTPSS-----                                     | : | 67  |
| OdguAvBD9          | : | -----MRILFFLVA-VLFFLFQAAPA-YSQETADTIACRQNHGSCSFIA-CSAPLVD-IGTCRGGKLCCKWTPSS-----                                      | : | 67  |
| PepiAvBD9          | : | -----MRILFFLVA-VLFFLFQAVPA-YSQEDGDTLACRQNRGFCSFNA-CSAPLVD-IGTCRGGKLCCKWTPSS-----                                      | : | 67  |
| GagaAvBD10         | : | -----MKILCLLFA-VLLFLFQAAPGSADPLFPDTVACRTQGNECRAGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| LamuAvBD10         | : | -----MKILCVLFA-VLLFLFQAAPGSADLSFPDTTACKAQGNFCRLGA-CPPTFTI-SGPCHGGLLNCCAKITAE-----                                     | : | 68  |
| TycuAvBD10         | : | -----MKILCVLFA-VLLFLFQAAPGSADLSFPDTTACKAQGNFCRLGA-CPPTFTI-SGPCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| AlruAvBD10         | : | -----MKILFLIFA-VFLFLFQAAPGSANPLFPDTVACKTQGNFCLAGA-CPPTFTI-SGQCHGGLLNCCAKIPVQ-----                                     | : | 68  |
| LaleAvBD10         | : | -----MKILCVLFA-VLLFLFQAAPGSADLSFPDTIACKTQGNFCRLGA-CPPTFTI-SGPCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| CeurAvBD10         | : | -----MKILCVLFA-VLLFLFQAAPGSADLSFPDTIACKAQGNFCRLGA-CPPTFTI-SGPCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| SymiAvBD10         | : | -----MKVLYLLFA-VLLFLFQAAPGSADPLYPDTVACRNQGNFCRAGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| CrmaAvBD10         | : | -----MKVLYLLFA-VLLFLFQAAPGSADPLYPDTVACRNQGNFCRAGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| PacrAvBD10         | : | -----MKIYLLIFA-VLLFLFQAASGSADPLFPDTVACRNQGNFCRAGA-CPPTFAI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| PhcoAvBD10         | : | -----MKVLCILFA-VLLFLFQAAPGSADPLYPDTVACRNQGNFCRVGS-CPPTFTI-SGPCHGGLLNCCAKVPAQ-----                                     | : | 68  |
| LonyAvBD10         | : | -----MKVLYLLFA-VLLFLFHAAAGSADPLYPDTVACRNQGNFCRAGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| BathAvBD10         | : | -----MKILCLLFA-VLLFLFQAAPGSADPLFPDTVACRTQGNFCRSGA-CPPTFTI-SGPCHGGMNLNCCAKIPAQ-----                                    | : | 68  |
| MegaAvBD10         | : | -----MKIYLLIFA-VLLFLFQAAPGSADPLFPDTVACRNQGNFCRAGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| ChpiAvBD10         | : | -----MKVLYLLFA-VLLFLFQAAPGSADPLYPDTVACRNQGNFCRVGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| CojaAvBD10         | : | -----MKILFLLFS-IFLFLFQAAPGSAESLFPDTAA CRSQGNFCRVGV-CPPTFTI-SG SCHGGLLHCCAKIPAE-----                                   | : | 68  |
| TypaAvBD10         | : | -----MKILCVLFA-VLLFLFQAAPGSADLSFPDTTACKAQGNFCRLGA-CPPTFTI-SGPCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| AllaAvBD10         | : | -----MKIYLLIFA-VLLLVFQAASSGSADPLFPDTTACKNQGNFCRGGP-CPPTFAV-SG SCHGGLLNCCAKILGK-----                                   | : | 68  |
| CacaAvBD10         | : | -----MKIYLLIFA-VLLFLFQAASGSTDPLFPDTAE CRRQGNFCRAGA-CPPTFTI-SGPCHGGLLNCCAKIPAQ-----                                    | : | 68  |
| CasqAvBD10         | : | -----MKIYLLIFA-VLLFLFQAASGSTDPLFPDTAE CKRQGNFCRAGA-CPPTFTI-SGPCHGGLLHCCAKIPEQ-----                                    | : | 68  |
| NumeAvBD10         | : | -----MKIYLLIFA-VLLFLFQAAPGSADPLYPDTVQ CRSQGNFCRLGA-CPPTFTI-SG SCQGGLLNCCAKIQAQ-----                                   | : | 68  |
| OdguAvBD10         | : | -----MKIYLLIFA-VLLFLFQAASGSTDPLFPDTE CRRQGNFCRTGA-CPPTFTI-SGQCHGGLLNCCAKIPAQ-----                                     | : | 68  |
| PepiAvBD10         | : | -----MRILYLFFA-VLLFLFQAAPGSADPIFPDTAG CKSQGNFCRALE-CPPTFAV-SG SCHGGLLKCCAKIVAK-----                                   | : | 68  |
| CemiAvBD10-pseudo  | : | -----MKILCVFAV--LLFLFQAAPGSADLSFPDTIACKAQGNFCRLGH-APPPSPS-L-DRAMGALNCCAKIPAQ-----                                     | : | 66  |
| PamuAvBD10-pseudo  | : | -----MKIYLLIFA-VLLFLFQAASGSADPLFPDTVACRNQGNFCRAGA-*PPTFAI-SGQCHGGLLNCCAKIPK-----                                      | : | 66  |
| CoviAvBD10-partial | : | -----MKIYLLIFA-VLLFLFQATS????PLFPDTE CRRQGNFCRAGA-CPPTFTI-SGPCHGGLLNCCAK-----                                         | : | 60  |
| GagaAvBD11         | : | -----MKLFSCILMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHTCQDKGGHCVSPKIRCL EEQLGLCPLKRWTCCKEI- | : | 104 |
| LamuAvBD11         | : | -----MNLISCLMA-LLLFLLQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHNCQEEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| TycuAvBD11         | : | -----MNLISCLMA-LLLFLLQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHNCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| AlruAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| LaleAvBD11         | : | -----MNLISCLMA-LLLFLVQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHNCQEEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| CeurAvBD11         | : | -----MNLISCLMA-LLLFLLQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHNCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| CemiAvBD11         | : | -----MNLISCLMA-LLLFLLQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHNCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| SymiAvBD11         | : | -----MNLICCLMA-LLLFLLQAAPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| CrmaAvBD11         | : | -----MNLISCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| PacrAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSSFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| PhcoAvBD11         | : | -----MNLISCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| PamuAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSSFHTCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| LonyAvBD11         | : | -----MNVLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKI ICLQEQLGLCPLKKWKCCKEI-  | : | 104 |
| BathAvBD11         | : | -----MKLFSCILMA-LLLFLLQAVPG--LGLPRDTSRCVRYHGYCIRSKVCPKPFAA-YGTC SWRQKTCCVDTTSDFHTCQDEGGHCVSPKIRCL EEQQGLCPLKRWTCCKEI- | : | 104 |
| MegaAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDATSSFHNCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| ChpiAvBD11         | : | -----MNLISCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFTA-FGTC SWRQKTCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQLGLCPLKNWKCCKEI-  | : | 104 |
| CojaAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRRETCCVDTTSNFHTCQDEGGHCVSPKIRCL QEQMGLCPLKRWKCCKEI-  | : | 104 |
| TypaAvBD11         | : | -----MNLISCLMA-LLLFLLQALPG--LSLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNFHNCQDEGGHCVSPKIRCL QEQLGLCPLKKWKCCKEI-  | : | 104 |
| AllaAvBD11         | : | -----MKLFSHLMA-VLVFLLQAVPG--LGLPKDTLRCVRHQGLCFRSKVCPEPFAA-LGTC SWRRKTCCIDTTLSFRTCQD--HCVSPRIKCLQEEVGLCRQRGWRCCKEI-    | : | 101 |
| CacaAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHTCCHDEGGHCVSPKIRCL EEQRGLCPLKKWRCCKEI- | : | 104 |
| CoviAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCIGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHTCQDEGGHCVSPKIRCL EEQRGLCPLKKWRCCKEI-  | : | 104 |
| NumeAvBD11         | : | -----MKLLSCLMA-VLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSNLHTCQDEGGHCVSPKIRCL EEQLGLCPLKKWKCCKEI-  | : | 104 |
| OdguAvBD11         | : | -----MKLLSCLMA-LLLFLLQAVPG--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHTCQDEGGHCVSPKIRCL QEQRGLCPLKKWKCCREI-  | : | 104 |
| PepiAvBD11         | : | -----MKLFSYILMA-VLLFLLQAVPG--LGLPKDTLRCVGYHGYCFLSKDCPEPFAA-FGTC SWHQKTCCIDTTSNFHTCQDDGGHCVPPRIKCLQEQLGFCPKKKWKCCKV-   | : | 104 |
| CasqAvBD11-partial | : | -----G--LGLPRDTSRCVGYHGYCIRSKVCPKPFAA-FGTC SWRQKTCCVDTTSDFHTCCHDEGGHCVSPKIRCL EEQRGLCPLKKWRCCKEI-                     | : | 85  |
| GagaAvBD12         | : | -----MRNLCFVFI-FISLLAH---G---STHGPDCNHDRGLCRVGN-CNPGEYL-ACYCFEPVILCCKPLSPTPTKT-----                                   | : | 65  |
| LamuAvBD12         | : | -----MGNLCFMFI-FISLLAH---G---STHGPDCNHDRGLCRVGS-CIPGEYL-ACYCFEPVILCCKPLSPTPTKS-----                                   | : | 65  |
| TycuAvBD12         | : | -----MGNLCFMFI-FISLLAH---G---STHGPDCNHDRGLCRVGS-CIPGEYL-ACYCFEPVILCCKPLSPTPTKS-----                                   | : | 65  |

|            |   |                                 |          |         |          |             |            |                                |   |    |
|------------|---|---------------------------------|----------|---------|----------|-------------|------------|--------------------------------|---|----|
| AlruAvBD12 | : | -----MGNICFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGN-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKT-----               | : | 65 |
| LaleAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| CeurAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| CemiAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| SymiAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDGGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| CrmaAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDGGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTATKS-----               | : | 65 |
| PacrAvBD12 | : | -----MGNLCFVFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGN-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| PhcoAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDGGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTATKS-----               | : | 65 |
| PamuAvBD12 | : | -----MWNLCFVFI-FISLLVH---G----  | STHGPDS  | CNHDRGL | CRVGN-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| LonyAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | NTHGPDS  | CNHDGGL | CRVGS-   | CIPGEYL-AKF | CFEPVILC   | CKPLSPTATKS-----               | : | 65 |
| BathAvBD12 | : | -----MGNLCFVFI-FVSLLAH---G----  | STHGPDS  | CNHDRGL | CRVGN-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKT-----               | : | 65 |
| MegaAvBD12 | : | -----MRNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSSTPTKS-----               | : | 65 |
| ChpiAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDGGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTATKS-----               | : | 65 |
| CojaAvBD12 | : | -----MGNLCVFI-FISLLAH---G----   | STQGPDS  | CNHDRGL | CRMGK-   | CIFGEYL-AKY | CFKPIILC   | CKPLSLTPTKT-----               | : | 65 |
| TypaAvBD12 | : | -----MGNLCFMFI-FISLLAH---G----  | STHGPDS  | CNHDRGL | CRVGS-   | CIPGEYL-AKY | CFEPVILC   | CKPLSPTPTKS-----               | : | 65 |
| AllaAvBD12 | : | -----MGILWLVI-FVSLLAH---G----   | AHGPDS   | CNHERGL | CRVGN-   | CIPGEYL-ANY | CFEPIILC   | CKTLSPTPTKS-----               | : | 64 |
| CacaAvBD12 | : | -----MGSLCFVLI-FISLLTH---G----  | SAHGPDS  | CKHGRGL | CRVGN-   | CIPGEYP-DKY | CFKPVIFC   | CKPLTPTPTKS-----               | : | 65 |
| CasqAvBD12 | : | -----MGSLCFVLI-FISLLTH---G----  | SAHGPDS  | CKHGRGL | CRVGN-   | CIPGEYL-DKY | CFKPVIFC   | CKPLTPTPTKS-----               | : | 65 |
| CoviAvBD12 | : | -----MGSLCFVLI-FISLLTH---G----  | SAHGPDS  | CKHGRGL | CRVGN-   | CIPGEYP-DKY | CFKPVIFC   | CKPLTPTPTKS-----               | : | 65 |
| NumeAvBD12 | : | -----MGSLCVLLI-FISLLAH---G----  | SAHGPDI  | CNHDGGL | CRMGS-   | CIPGEYL-AKY | CFEPIILC   | CKTLSPTPTKS-----               | : | 65 |
| OdguAvBD12 | : | -----MGSLCFMI-FIFLLAH---G----   | STHGPDS  | CNHGRGL | CRMGS-   | CIPGEYL-AKY | CFKPVILC   | CKPLSPTPTKS-----               | : | 65 |
| PepiAvBD12 | : | -----MGILCFILI-FTSLLAH---G----  | NTHGPDS  | CNHKRGL | CRMGN-   | CIPGEYL-TQY | CFEPIILC   | CKSLKKFAEDAQRNKLQQVEDCRLR----- | : | 79 |
| LamuAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| GagaAvBD13 | : | -----MRILQLLFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| TycuAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| AlruAvBD13 | : | -----MRIYQLLFAILVILLLLQDEPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| LaleAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| CeurAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| CemiAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| SymiAvBD13 | : | -----MRILQLLFTIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| CrmaAvBD13 | : | -----MRILQLLFTIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| PacrAvBD13 | : | -----MRILQLLFAIVVILLLLQDTPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| PhcoAvBD13 | : | -----MRILQLLFTIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| PamuAvBD13 | : | -----MRILQLLFAIVVILLLLQDTPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| LonyAvBD13 | : | -----MRILQLLFAIVVILLLLQHAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| BathAvBD13 | : | -----MRILQLLFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| MegaAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| ChpiAvBD13 | : | -----MRILQLLFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| CojaAvBD13 | : | -----MRILQLLFAIVVILLLLQDAPA---  | KGFSDSQL | CRNNHGH | CRRL--   | CFHMETW-SGS | CLNGRLRCCR | -----                          | : | 60 |
| TypaAvBD13 | : | -----MRILQLVFAIVVILLLLQDAPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| AllaAvBD13 | : | -----MRILQLLFAILVILLLLQDMPA---  | RGLSDSQ  | CRNNHGH | CRRL--   | CFHMENW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| CacaAvBD13 | : | -----MRILQLLFAIVIIILLQDAPA---   | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| CasqAvBD13 | : | -----MRILQLLFAIVIIILLQDAPA---   | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| CoviAvBD13 | : | -----MRILQLLFAIVIIILLQDAPA---   | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| NumeAvBD13 | : | -----MRILQLLFAIIVILLLLQDVPA---  | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGG | CLNGRLRCCR | -----                          | : | 60 |
| OdguAvBD13 | : | -----MRILQLLFAIVTIILLQDAPA---   | RGFSDSQL | CRNNHGH | CRRL--   | CFHMESW-AGS | CMNGRLRCCR | -----                          | : | 60 |
| PepiAvBD13 | : | -----MRIFQLLFAIVVILLLLQDMPA---  | KGLSDSQ  | CRNNRGH | CRRL--   | CFHMETW-AGS | CLNGRLRCCR | -----                          | : | 60 |
| GagaAvBD14 | : | -----MGIF-LLFL-VLLAVPQAAP-----  | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-SGT | CYNGLAKC   | CRPFW-----                     | : | 59 |
| TycuAvBD14 | : | MSAKATGIF-LLLL-VLLAVPQAAP-----  | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| AlruAvBD14 | : | MSAKATGMF-LLLL-VLLAVPQTAP-----  | SDTVT    | CRKMGK  | KCSFLL-  | CPLFKRS-SGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| LaleAvBD14 | : | MSAKATGIF-LLLL-VLLAVPQAAP-----  | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| CeurAvBD14 | : | MSAKATGIF-LLLL-VLLAVPQAAP-----  | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| SymiAvBD14 | : | MSAKATSIIF-LLLL-VLLAVPQAAP----- | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| CrmaAvBD14 | : | MSAKATSIIF-LLLL-VLLAVPQAAP----- | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| PacrAvBD14 | : | MSAKATGIF-LLLL-VLLAVPQAAP-----  | SDTVT    | CRKMGK  | GRCSFLL- | CPFFERS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |
| PhcoAvBD14 | : | MSAKATSIIF-LLLL-VLLAVPQAAP----- | SDTVT    | CRKMGK  | KCSFLL-  | CPFFKRS-TGT | CYNGLAKC   | CRPFW-----                     | : | 64 |

|                   |   |                            |                                                             |   |    |
|-------------------|---|----------------------------|-------------------------------------------------------------|---|----|
| PamuAvBD14        | : | MSAKATGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGRCSFLL-CPFFERS-TGTCYNGLAKCCRPFW-----        | : | 64 |
| LonyAvBD14        | : | MSAKATSIIF-LLLL-VLLAVPQAAP | -----SDTVTCRKMKGKCSFLL-CPFFKRS-TGTCYNGLAKCCRPFW-----        | : | 64 |
| BathAvBD14        | : | -----MGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGKCSFLL-CPFFKRS-SGTCYNGLAKCCRPFW-----        | : | 59 |
| MegaAvBD14        | : | MSAKATGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGKCSFLL-CPFFKRS-VGTCYNGLAKCCRPFW-----        | : | 64 |
| ChpiAvBD14        | : | MSAKATSIIF-LLLL-VLLAVPQAAP | -----SDTVTCRKMKGKCSFLL-CPFFKRS-TGTCYNGLAKCCRPFW-----        | : | 64 |
| CojaAvBD14        | : | MSAKATGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGECFLL-CPLFKRS-RGTCYNGLAKCCRPFWIHGRH-----    | : | 69 |
| TypaAvBD14        | : | MSAKATGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGKCSFLL-CPFFERS-TGTCYNGLAKCCRPFW-----        | : | 64 |
| CacaAvBD14        | : | -----MGIL-LLLL-LFLAVSQVASE | -----SDTVTCRKIRGKCSFLL-CPIFKRS-VGTCYNGLAKCCRPFW-----        | : | 59 |
| PepiAvBD14        | : | -----MGIL-LLLL-VLLAVSHAAAE | -----SDTVMCRKMKGECFLL-CSFFKRS-TGTCYNGLAKCCRPFW-----         | : | 59 |
| CasqAvBD14        | : | -----MGIL-LLLL-LFLAVSQVASE | -----SDTVTCRKIRGKCSFLL-CPIFKRS-VGTCYNGLAKCCRPFW-----        | : | 59 |
| CoviAvBD14        | : | -----MGIL-LLLL-VLLAVSQVASE | -----SDTVTCRKIRGKCSFLL-CPIFKRS-VGTCYNGLAKCCRPFW-----        | : | 59 |
| NumeAvBD14        | : | -----MSIL-LLLL-VLLVVSQAAP  | -----SDTVTCRKMKGKCSFFL-CPFFKRS-AGTCYNGLAKCCRHFW-----        | : | 59 |
| OdguAvBD14        | : | -----MGIL-LLLL-VLLAVSQAASG | -----SDTITCRKIRGKCSFLL-CPFFKRS-VGTCYNGLAKCCRPFW-----        | : | 59 |
| LamuAvBD14        | : | MSAKATGIF-LLLL-VLLAVPQAAP  | -----SDTVTCRKMKGKCSFLL-CPFFKRS-TGTCYNGLAKCCRPFW-----        | : | 64 |
| CemiAvBD14-pseudo | : | MSAKATGIFLLLVLLAVPRLQLQVK  | -----SDTVTCRKMKGKCSFLL-CPFFKRS---LVPATMDWCCRPLLVTFHGLC----- | : | 70 |