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Multiple sequence alignment with hierarchical clustering

F. CORPET, 1988, Nucl. Acids Res., 16 (22), 10881-10890

Symbol comparison table: blosum62

Gap weight: 12

Gap length weight: 2

Consensus levels: high=90% low=50%

Consensus symbols:

! is anyone of IV

\$ is anyone of LM

% is anyone of FY

is anyone of NDQEBZ

MSF: 7096 Check: 0 ..
 Name: China1_YP_0097 Len: 7096 Check: 4285 Weight: 0.80
 Name: Nepal_QIB84672 Len: 7096 Check: 4285 Weight: 0.80
 Name: USA1_QH060603. Len: 7096 Check: 4285 Weight: 0.80
 Name: Italy_QIA98553 Len: 7096 Check: 4465 Weight: 0.80
 Name: India_QIA98582 Len: 7096 Check: 4338 Weight: 1.79
 Name: Consensus Len: 7096 Check: 3485 Weight: 0.00

//

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1
China1_YP_ MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG 180
Nepal_QIB8 MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG
USA1_QH060 MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG
Italy_QIA9 MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG
India_QIA9 MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG
Consensus MESLVPGFNE KTHVQLSLPV LQVRDVLVRG FGDSEVEEVL EARQHLKDG T CGLVEVEKGV LPQLEQPYVF IKRSDARTAP HGHVMVELVA ELEGIQYGRS GETLGVLVPH VGEIPVAYRK VLLRKNNGK AGGHSYGADL KSF DLGDELG TDPYEDFQEN WNTKHSSGVT RELMRELNGG

181
China1_YP_ AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL 360
Nepal_QIB8 AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL
USA1_QH060 AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL
Italy_QIA9 AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL
India_QIA9 AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL
Consensus AYTRYVDNFF CGPDGYPLEC IKDLLARAGK ASCTLSEQLD FIDTKRGVYC CREHEHEIAW YTERSEKSYE LQTPFEIKLA KKFDTFNGEC PNFVFLPNSI IKTIQPRVEK KKLDFGMGRI RSVYPVASPN ECNQMLSTL MKCDHCGETS WQTGDFVKAT CFCGTEENLT KEGATTGCGYL

361
China1_YP_ PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA 540
Nepal_QIB8 PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA
USA1_QH060 PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA
Italy_QIA9 PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA
India_QIA9 PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA
Consensus PQNAVVKIYC PACHNSEVGP EHS LAEYHNE SGLKTILRKG GRTIAFGGCV FSYVGCHNKC AYWVPRASAN IGCNHTGVVG EGSEGLNDNL LEILQKEKVN INIVGDFKLN EEIAIILASF SASTSAFVET VKGLDYKAFK QIVESC GNFK VTKGKAKKGA WNIGEQKSIL SPLYAFASEA

541
China1_YP_ ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC 720
Nepal_QIB8 ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC
USA1_QH060 ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC
Italy_QIA9 ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC
India_QIA9 ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC
Consensus ARVRSIFSR TLETAQNSVR VLQKAAITIL DGISQYSRLR IDAMMFTSDL ATNNLVMMAY ITGGVVQLTS QWLTNIFGTV YEKLPVLDW LEEKFKEGVE FLRDGWEIVK FISTACEIV GGQIVTCAKE IKESVQTFK LVNKFALCA DSIIIGGAKL KALNLGETFV THSKGLYRKC

721
China1_YP_ VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW 900
Nepal_QIB8 VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW
USA1_QH060 VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW
Italy_QIA9 VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW
India_QIA9 VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW
Consensus VKSREETGLL MPLKAPKEII FLEGETLPT E VLTEEVLKT GDLQPLEQPT SEAVEAPLVG TPVINGLML LEIKDTEKYC ALAPNMMVTN NTFLLKGGAP TKVTFGDDTV IEVQGYKSVN ITFELDERID KVLNEKCSAY TVELGTEVNE FACVVADAVI KTLQPVSELL TPLGIDLDEW

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Table with 25 columns and 6 rows. Header row: 901. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1080.

Table with 25 columns and 6 rows. Header row: 1081. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1260.

Table with 25 columns and 6 rows. Header row: 1261. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1440.

Table with 25 columns and 6 rows. Header row: 1441. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1620.

Table with 25 columns and 6 rows. Header row: 1621. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1800.

Table with 25 columns and 6 rows. Header row: 1801. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 1980.

Table with 25 columns and 6 rows. Header row: 1981. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 2160.

Table with 25 columns and 6 rows. Header row: 2161. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060, Italy_QIA9, India_QIA9, Consensus. Column 25: 2340.

Table with 25 columns and 6 rows. Header row: 2341. Rows include: China1_YP, Nepal_Q1B8, USA1_QH060. Column 25: 2520.

3961 4140
 China1_YP_ QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ
 Nepal_QIB8 QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ
 USA1_QH060 QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ
 Italy_QIA9 QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ
 India_QIA9 QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ
 Consensus QEAYEQAVAN GDSEVVLKLL KKSLLNVAKSE FDRDAAMQRK LEKMADQAMT QMYKQARSED KRAKVTSAMQ TMLFTMLRKL DNDALNNIIN NARDGCVPLN IIPLTAAKL MVIIPDYNTY KNTCDGTTFT YASALWEIQQ VVDADSKIVQ LSEISMDNSP NLAWPLIVTA LRANSAVKLQ

4141 4320
 China1_YP_ NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES
 Nepal_QIB8 NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES
 USA1_QH060 NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES
 Italy_QIA9 NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES
 India_QIA9 NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES
 Consensus NNELSPVALR QMSCAAGTTQ TACTDDNALA YYNTTKGGRF VLALLSDLQD LKWARFPKSD GTGTIYTELE PPCRFVTDTP KGPKVKLYLF IKGLNNLNRG MVLGSLAATV RLQAGNATEV PANSTVLSFC AFAVDAAKAY KDYLASGGQP ITNCVKMLCT HTGTGQAITV TPEANMQDES

4321 4500
 China1_YP_ FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG
 Nepal_QIB8 FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG
 USA1_QH060 FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG
 Italy_QIA9 FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG
 India_QIA9 FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG
 Consensus FGGASCLLYC RCHIDHPNPK GFCDLKGKVV QIPTTCANDP VGFTLKNTVC TVCGMWKGYG CSCDQLREPM LQSADAQSFL NRVCVSAAR LTPCGTGTST DVVYRAFDIY NDKVAGFAKF LKTNCCRFQE KDEDNLDIDS YFVVKRHTFS NYQHEETIYN LKDCPAVAK HDFFKFRIDG

4501 4680
 China1_YP_ DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK
 Nepal_QIB8 DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK
 USA1_QH060 DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK
 Italy_QIA9 DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK
 India_QIA9 DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK
 Consensus DMVPHISRQR LTKYTMADLV YALRHFDEGN CDTLKEILVT YNCCDDDFYN KKDWDYFVEN PDILRVYANL GERVRQALLK TVQFCDAMRN AGIVGVLTLD NQDLNGNMYD FGFDIQTTTPG SGVPVDSY SLLMPILTLT RALTAESHVD TDLTKPYIKW DLLKYDFTEE RLKLFDRYFK

4681 4860
 China1_YP_ YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ
 Nepal_QIB8 YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ
 USA1_QH060 YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ
 Italy_QIA9 YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ
 India_QIA9 YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ
 Consensus YWDQTYHPNC VNCLDDRCIL HCANFNVLFS TVFPPTSFGP LVRKIFVDVG PVFVSTGYHF RELGVVHNQD VNLHSSRLSF KELLVYAADP AMHAASGNLL LDKRRTCFVS AALTNVAFQ TVKPGNFKD FYDFAVSKGF FKEGSSVELK HFFFAQDGNA AISDYDYRY NLPTMCDIRQ

4861 5040
 China1_YP_ LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL
 Nepal_QIB8 LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL
 USA1_QH060 LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL
 Italy_QIA9 LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL
 India_QIA9 LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL
 Consensus LLFVVEVVDK YFDCYDGGCI NANQVIVNML DKSAGFPFNK WGARLYYDS MSYEDQDALF AYTKRNVIPIT ITQMNLYKAI SAKNRARTVA GVSICSTMTN RQFHQKLLKS IAATRGATVV IGTSKFYGGW HNMLKTIVSD VENPHLMGWD YPKCDRAMPN MLRIMASLVL ARKHTTCCSL

5041 5220
 China1_YP_ SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY
 Nepal_QIB8 SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY
 USA1_QH060 SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY
 Italy_QIA9 SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY
 India_QIA9 SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY
 Consensus SHRFYRLANE CAQVLESEMVM CGGSLVYKPG GTSSGDATTA YANSVFNICQ AVTANVNALL STDGNKIADK YVRNLQHRLY ECLYRNRDVP TDFVNEFYAY LRKHFSSMIL SDDAVVCFNS TYASQGLVAS IKNFKSVLYY QNNVFMSEAK CWETDLTKG PHEFCSQHTM LVKQGDYVY

5221 5400
 China1_YP_ LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK
 Nepal_QIB8 LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK
 USA1_QH060 LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK
 Italy_QIA9 LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK
 India_QIA9 LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK
 Consensus LPYPDPSRIL GAGCFVDDIV KTDGTLMIER FVSLAIDAYP LTKHPNQEYA DVFHLYLQYI RKLHDELTHG MLDMYSVMLT NDNTSRYWEP EFYEAMYTPH TVLQAVGACV LCNSQTSLRC GACIRRPFLC CKCCYDHVIS TSHKLVLSVN PYVCNAPGCD VTDVTQLYLG GMSYYCKSHK

5401 5580
 China1_YP_ PPISFPLCAN QGVFGLYKNT CVGSDNVTDF NAIATCDWNT AGDYILANTC TERLKLFAAE TLKATEETF LSYGIATVRE VLSRELHLS WEVGKPRPPL NRYVFTGYR VTKNSKVQIG EYTFEKGDYG DAVVYRGT T YKLVNGDYFV LTSHTVMPLS APTLVPEHY VRTIGLYPTL
 Nepal_QIB8 PPISFPLCAN QGVFGLYKNT CVGSDNVTDF NAIATCDWNT AGDYILANTC TERLKLFAAE TLKATEETF LSYGIATVRE VLSRELHLS WEVGKPRPPL NRYVFTGYR VTKNSKVQIG EYTFEKGDYG DAVVYRGT T YKLVNGDYFV LTSHTVMPLS APTLVPEHY VRTIGLYPTL
 USA1_QH060 PPISFPLCAN QGVFGLYKNT CVGSDNVTDF NAIATCDWNT AGDYILANTC TERLKLFAAE TLKATEETF LSYGIATVRE VLSRELHLS WEVGKPRPPL NRYVFTGYR VTKNSKVQIG EYTFEKGDYG DAVVYRGT T YKLVNGDYFV LTSHTVMPLS APTLVPEHY VRTIGLYPTL

	7021								7096
China1_YP_	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	
Nepal_QIB8	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	
USA1_QH060	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	
Italy_QIA9	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	
India_QIA9	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	
Consensus	VMHANYIFWR	NTNPIQLSSY	SLFDMSKFPL	KLRGTAVMSL	KEGQINDMIL	SLLSKGRLII	RENNRVVISS	DVLVNN	