

Supplementary Figure 4. Protein alignment of proteins involved in the modulation of NK cell activation. The alignments of known proteins involved in NK cell modulation are shown for the five isolates. Amino acid changes are marked in red.

RL11

P4_RL11 MQTYSTPLTLVIVTSLFLFTTQGSSSSNAVEPTKKPLKLANYRATCEDRTRTLVTRLNNTSH
P6_RL11 MQTYSTPLTLVIVTSLFLFTTQGSSSSNAVEPTKKPLKLANYRATCEDRTRTLVTRLNNTSH
P14_RL11 MQTYSTPLTLVIVTSLFLFTTQGSSSSNAVEPTKKPLKLANYRATCEDRTRTLVTRLNNTSH
P15_RL11 MQTYSTPLTLVIVTSLFLFTTQGSSSSNAVEPTKKPLKLANYRATCEDRTRTLVTRLNNTSH
P10_RL11 MQTYSTPLTLAIVTSLFLFTTQGSSSSNAVEPTKKPLKLANYRATCEDRTRTLVTRLNNTSH

P4_RL11 HSVVWQRYDIYSRYMRRMPPLCIITDAYKETHQGGATFTCTRQNLTLYNLTVKDTGVYL
P6_RL11 HSVVWQRYDIYSRYMRRMPPLCIITDAYKETHQGGATFTCTRQNLTLYNLTVKDTGVYL
P14_RL11 HSVVWQRYDIYSRYMRRMPPLCIITDAYKETHQGGATFTCTRQNLTLYNLTVKDTGVYL
P15_RL11 HSVVWQRYDIYSRYMRRMPPLCIITDAYKETHQGGATFTCTRQNLTLYNLTVKDTGVYL
P10_RL11 HSVVWQRYDIYSRYMRRMPPLCIITDAYKETHQGGATFTCTRQNLTLYNLTVKDTGVYL

P4_RL11 LQDQYTGDEAFYLIHPRSFCRALETRRCFYGPGRVVVTDSEADRAIISDLKRQWSG
P6_RL11 LQDQYTGDEAFYLIHPRSFCRALETRRCFYGPGRVVVTDSEADRAIISDLKRQWSG
P14_RL11 LQDQYTGDEAFYLIHPRSFCRALETRRCFYGPGRVVVTDSEADRAIISDLKRQWSG
P15_RL11 LQDQYTGDEAFYLIHPRSFCRALETRRCFYGPGRVVVTDSEADRAIISDLKRQWSG
P10_RL11 LQDQYTGDEAFYLIHPRSFCRALETRRCFYGPGRVVVTDSEADRAIISDLKRQWSG

P4_RL11 LSLHCAWVSGLMIFVGALVICFLRSQRIGEQAERLRTDLDEPLLLLTVDGDLE
P6_RL11 LSLHCAWVSGLMIFVGALVICFLRSQRIGEQAERLRTDLDEPLLLLTVDGDLE
P14_RL11 LSLHCAWVSGLMIFVGALVICFLRSQRIGEQAERLRTDLDEPLLLLTVDGDLE
P15_RL11 LSLHCAWVSGLMIFVGALVICFLRSQRIGEQAERLRTDLDEPLLLLTVDGDLE
P10_RL11 LSLHCAWVSGLMIFVGALVICFLRSQRIGEQAERLRTDLDEPLLLLTVDGDLE

UL16

P4_UL16 MERRRGTVPLGWFFVLCLSSAPCAVDLGSKSSNSTCRNLNVELASIHGGETWTLHGMC
P6_UL16 MERRRGTVPLGWFFVLCLSSAPCAVDLGSKSSNSTCRNLNVELASIHGGETWTLHGMC
P14_UL16 MERRRGTVPLGWFFVLCLSSAPCAVDLGSKSSNSTCRNLNVELASIHGGETWTLHGMC
P15_UL16 MERRRGTVPLGWFFVLCLSSAPCAVDLGSKSSNSTCRNLNVELASIHGGETWTLHGMC
P10_UL16 MERRRGTVPLGWFFVLCLSSAPCAVDLGSKSSNSTCRNLNVELASIHGGETWTLHGMC

P4_UL16 ISICYENVTEDEIIGVAFTWQHNSVVDLWLYQNDTVIRNFSDITTNILQDGLKMRTVP
P6_UL16 ISICYENVTEDEIIGVAFTWQHNSVVDLWLYQNDTVIRNFSDITTNILQDGLKMRTVP
P14_UL16 ISICYENVTEDEIIGVAFTWQHNSVVDLWLYQNDTVIRNFSDITTNILQDGLKMRTVP
P15_UL16 ISICYENVTEDEIIGVAFTWQHNSVVDLWLYQNDTVIRNFSDITTNILQDGLKMRTVP
P10_UL16 ISICYENVTEDEIIGVAFTWQHNSVVDLWLYQNDTVIRNFSDITTNILQDGLKMRTVP

P4_UL16 VTKLYTSRMVTNLTVGRYDCLRCENGTMKIIERLYVRLGSLYPRPPGSLAKHPSVSADE
P6_UL16 VTKLYTSRMVTNLTVGRYDCLRCENGTMKIIERLYVRLGSLYPRPPGSLAKHPSVSADE
P14_UL16 VTKLYTSRMVTNLTVGRYDCLRCENGTMKIIERLYVRLGSLYPRPPGSLAKHPSVSADE
P15_UL16 VTKLYTSRMVTNLTVGRYDCLRCENGTMKIIERLYVRLGSLYPRPPGSLAKHPSVSADE
P10_UL16 VTKLYTSRMVTNLTVGRYDCLRCENGTMKIIERLYVRLGSLYPRPPGSLAKHPSVSADE

P4_UL16 ELSATLARDIVLVSAILTFFLLALRIPQRLCQRLRIRLPHRYQRLRTED
P6_UL16 ELSATLARDIVLVSAILTFFLLALRIPQRLCQRLRIRLPHRYQRLRTED
P14_UL16 ELSATLARDIVLVSAILTFFLLALRIPQRLCQRLRIRLPHRYQRLRTED
P15_UL16 ELSATLARDIVLVSAILTFFLLALRIPQRLCQRLRIRLPHRYQRLRTED
P10_UL16 ELSATLARDIVLVSAILTFFLLALRIPQRLCQRLRIRLPHRYQRLRTED

UL18

P4_UL18 MMTTWCLTLFVLWMLRVVGMHVLRYGYTGIFDDTSHMTLTVVGFIDGQHFFTYHVNSSDR
P6_UL18 MMTTWCLTLFVLWMLRVVGMHVLRYGYTGIFDDTSHMTLTVVGFIDGQHFFTYHVNSSDR
P14_UL18 MMTTWCLTLFVLWMLRVVGMHVLRYGYTGIFDDTSHMTLTVVGFIDGQHFFTYHVNSSDR
P15_UL18 MMTTWCLTLFVLWMLRVVGMHVLRYGYTGIFDDTSHMTLTVVGFIDGQHFFTYHVNSSDR
P10_UL18 MMTTWCLTLFVLWMLRVVGMHVLRYGYTGIFDDTSHMTLTVVGFIDGQHFFTYHVNSSDK

P4_UL18 TSSRANGTISWMANVSAAYPTYLDGERAKGDLIFNQTEQNLLELEIALGYRSQSVLTWTH
P6_UL18 TSSRANGTISWMANVSAAYPTYLDGERAKGDLIFNQTEQNLLELEIALGYRSQSVLTWTH
P14_UL18 TSSRANGTISWMANVSAAYPTYLDGERAKGDLIFNQTEQNLLELEIALGYRSQSVLTWTH

P15_UL18 TSSRRANGTISWMANVSAAYPTYLDGERAKGDLIFNQTEQNLELEIALGYRSQSVLTWTH
P10_UL18 ASSRRANGTISWMANVSAAYPTYLDGERAKGDLIFNQTEQNLELEIALGYRSQSVLTWTH

P4_UL18 ECNTTENGSFVAGYEGFGWDGETLMELKDNLTLWTGPNYEISWLKQNKTYIDGKIKNISE
P6_UL18 ECNTTENGSFVAGYEGFGWDGETLMELKDNLTLWTGPNYEISWLKQNKTYIDGKIKNISE
P14_UL18 ECNTTENGSFVAGYEGFGWDGETLMELKDNLTLWTGPNYEISWLKQNKTYIDGKIKNISE
P15_UL18 ECNTTENGSFVAGYEGFGWDGETLMELKDNLTLWTGPNYEISWLKQNKTYIDGKIKNISE
P10_UL18 ECNTTENGSFVAGYEGFGWDGETLMELKDNLTLWTGPNYEISWLKQNKTYIDGKIKNISE

P4_UL18 GDTTIQRNYLKGNCQWSVIYSGFQTPVTHPVVKGVRNQNDNRAEAFCTSYGFFPGEIN
P6_UL18 GDTTIQRNYLKGNCQWSVIYSGFQTPVTHPVVKGVRNQNDNRAEAFCTSYGFFPGEIN
P14_UL18 GDTTIQRNYLKGNCQWSVIYSGFQTPVTHPVVKGVRNQNDNRAEAFCTSYGFFPGEIN
P15_UL18 GDTTIQRNYLKGNCQWSVIYSGFQTPVTHPVVKGVRNQNDNRAEAFCTSYGFFPGEIN
P10_UL18 GDTTIQRNYLKGNCQWSVIYSGFQTPVTHPVVKGVRNQNDNRAEAFCTSYGFFPGEIN

P4_UL18 ITFIHYGDKVPEDSEPQCNPPLPTLDGTFHQGCYVAIFCNQNYTCRVTHGNWTVEIPIISV
P6_UL18 ITFIHYGDKVPEDSEPQCNPPLPTLDGTFHQGCYVAIFCNQNYTCRVTHGNWTVEIPIISV
P14_UL18 ITFIHYGDKVPEDSEPQCNPPLPTLDGTFHQGCYVAIFCNQNYTCRVTHGNWTVEIPIISV
P15_UL18 ITFIHYGDKVPEDSEPQCNPPLPTLDGTFHQGCYVAIFCNQNYTCRVTHGNWTVEIPIISV
P10_UL18 ITFIHYGNKAPDDESEPQCNPPLPTLDGTFHQGCYVAIFCNQNYTCRVTHGNWTVEIPIISV

P4_UL18 TSPDSSSGEVPDHPTANKRYNTMTISSVLLALLLALLCALLFAFLHYFTTLKQYLRNLAFW
P6_UL18 TSPDSSSGEVPDHPTANKRYNTMTISSVLLALLLALLCALLFAFLHYFTTLKQYLRNLAFW
P14_UL18 TSPDSSSGEVPDHPTANKRYNTMTISSVLLALLLALLCALLFAFLHYFTTLKQYLRNLAFW
P15_UL18 TSPDSSSGEVPDHPTANKRYNTMTISSVLLALLLALLCALLFAFLHYFTTLKQYLRNLAFW
P10_UL18 TSPDSSSGEVPDHPTANKRYNTMTISSVLLALLLALLCALLFAFLHYFTTLKQYLRNLAFW

P4_UL18 RYRKVRSS
P6_UL18 RYRKVRSS
P14_UL18 RYRKVRSS
P15_UL18 RYRKVRSS
P10_UL18 RYRKVRSS

UL40

P4_UL40 MNKFSNTRIGFTCAVMAPRTLVLTLGLLCMRIRSLSSPAETTVTAGVTSAHGPLCPLV
P6_UL40 MNKFSNTRIGFTCAVMAPRTLVLTLGLLCMRIRSLSSPAETTVTAGVTSAHGPLCPLV
P14_UL40 MNKFSNTRIGFTCAVMAPRTLVLTLGLLCMRIRSLSSPAETTVTAGVTSAHGPLCPLV
P15_UL40 MNKFSNTRIGFTCAVMAPRTLVLTLGLLCMRIRSLSSPAETTVTAGVTSAHGPLCPLV
P10_UL40 MNKFSNTRIGFTCAVAPRTLILTLGLLCMRIRSLSSPAETTVTAGVTSAHGPLCPLV

P4_UL40 FQGWAYAVYHQGDMLMTLDVYCCRQTSNNTAVAFSRHLAVNTLLIEVGNTHRRADGVS
P6_UL40 FQGWAYAVYHQGDMLMTLDVYCCRQTSNNTAVAFSRHLAVNTLLIEVGNTHRRADGVS
P14_UL40 FQGWAYAVYHQGDMLMTLDVYCCRQTSNNTAVAFSRHLAVNTLLIEVGNTHRRADGVS
P15_UL40 FQGWAYAVYHQGDMLMTLDVYCCRQTSNNTAVAFSRHLAVNTLLIEVGNTHRRADGVS
P10_UL40 FQGWAYAVYHQGDMLMTLDVYCCRQTSNNTAVAFSRHLAVNTLLIEVGNTHRRADGVS

P4_UL40 CLDHFRAQHQCPCPAQTVHVRGVNESAFGITHLQSCCLNEHSQLSERVAYHLKLRPATFGL
P6_UL40 CLDHFRAQHQCPCPAQTVHVRGVNESAFGITHLQSCCLNEHSQLSERVAYHLKLRPATFGL
P14_UL40 CLDHFRAQHQCPCPAQTVHVRGVNESAFGITHLQSCCLNEHSQLSERVAYHLKLRPATFGL
P15_UL40 CLDHFRAQHQCPCPAQTVHVRGVNESAFGITHLQSCCLNEHSQLSERVAYHLKLRPATFGL
P10_UL40 CLDHFRAQHQCPCPAQTVHVRGVNESAFGLTHLQSCCLNEHSQLSERVAYHLKLRPATFGL

P4_UL40 ETWAMYTVGILALGSFSSFYQIARSLGVLPNDDHYYALKKA
P6_UL40 ETWAMYTVGILALGSFSSFYQIARSLGVLPNDDHYYALKKA
P14_UL40 ETWAMYTVGILALGSFSSFYQIARSLGVLPNDDHYYALKKA
P15_UL40 ETWAMYTVGILALGSFSSFYQIARSLGVLPNDDHYYALKKA
P10_UL40 ETWAMYTVGILALGSFSSFYQIARSLGVLPNDDHYYALKKA

UL83

P4_UL83 MESRRRCPPDMISVLGPISGHVLKAVFSRGDTPVLPHETRLQTGIHVRVSPSLILVSQ
P6_UL83 MESRRRCPPDMISVLGPISGHVLKAVFSRGDTPVLPHETRLQTGIHVRVSPSLILVSQ
P14_UL83 MESRRRCPPDMISVLGPISGHVLKAVFSRGDTPVLPHETRLQTGIHVRVSPSLILVSQ
P15_UL83 MESRRRCPPDMISVLGPISGHVLKAVFSRGDTPVLPHETRLQTGIHVRVSPSLILVSQ
P10_UL83 MESRRRCPEMISVLGPISGHVLKAVFSRGDTPVLPHETRLQTGIHVRVSPSLILVSQ

P4_UL83 YTPDSTPCHRGDNLQVQHTYFTGSEVENSVNVHNPTGRSICPSQEPMSIYVYALPLKM
P6_UL83 YTPDSTPCHRGDNLQVQHTYFTGSEVENSVNVHNPTGRSICPSQEPMSIYVYALPLKM
P14_UL83 YTPDSTPCHRGDNLQVQHTYFTGSEVENSVNVHNPTGRSICPSQEPMSIYVYALPLKM

P15_UL83 YTPDSTPCHRGDNQLQVQHTYFTGSEVENVSVNVHNPTGRSICPSQEPMSIYVYALPLKM
P10_UL83 YTPDSTPCHRGDNQLQVQHTYFTGSEVENVSVNVHNPTGRSICPSQEPMSIYVYALPLKM

P4_UL83 LNIPISINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPDV
P6_UL83 LNIPISINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPDV
P14_UL83 LNIPISINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPDV
P15_UL83 LNIPISINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPDV
P10_UL83 LNIPISINVHHYPSAAERKHRHLPVADAVIHASGKQMWQARLTVSGLAWTRQQNQWKEPDV

P4_UL83 YYTSAFVFPKTDVALRHVVCAHELVCSEMENTRATKMQVIGDQYVKVYLESFCEDVPSGKL
P6_UL83 YYTSAFVFPKTDVALRHVVCAHELVCSEMENTRATKMQVIGDQYVKVYLESFCEDVPSGKL
P14_UL83 YYTSAFVFPKTDVALRHVVCAHELVCSEMENTRATKMQVIGDQYVKVYLESFCEDVPSGKL
P15_UL83 YYTSAFVFPKTDVALRHVVCAHELVCSEMENTRATKMQVIGDQYVKVYLESFCEDVPSGKL
P10_UL83 YYTSAFVFPKTDVALRHVVCAHELVCSEMENTRATKMQVIGDQYVKVYLESFCEDVPSGKL

P4_UL83 FMHVTLGSDVEEDLTMRNPQPFMRPHERNGFTVLCPKNMIKPGKISHIMLDVAFTSHE
P6_UL83 FMHVTLGSDVEEDLTMRNPQPFMRPHERNGFTVLCPKNMIKPGKISHIMLDVAFTSHE
P14_UL83 FMHVTLGSDVEEDLTMRNPQPFMRPHERNGFTVLCPKNMIKPGKISHIMLDVAFTSHE
P15_UL83 FMHVTLGSDVEEDLTMRNPQPFMRPHERNGFTVLCPKNMIKPGKISHIMLDVAFTSHE
P10_UL83 FMHVTLGSDVEEDLTMRNPQPFMRPHERNGFTVLCPKNMIKPGKISHIMLDVAFTSHE

P4_UL83 HFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDLLLQRG
P6_UL83 HFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDLLLQRG
P14_UL83 HFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDLLLQRG
P15_UL83 HFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDLLLQRG
P10_UL83 HFGLLCPKSIPGLSISGNLLMNGQQIFLEVQAI RETVELRQYDPVAALFFFDIDLLLQRG

P4_UL83 PQYSEHPTFTSQYRIQGGKLEYRHTWDRHDEGAAQGGDDVWTS GSDSDEELVTTERKT
P6_UL83 PQYSEHPTFTSQYRIQGGKLEYRHTWDRHDEGAAQGGDDVWTS GSDSDEELVTTERKT
P14_UL83 PQYSEHPTFTSQYRIQGGKLEYRHTWDRHDEGAAQGGDDVWTS GSDSDEELVTTERKT
P15_UL83 PQYSEHPTFTSQYRIQGGKLEYRHTWDRHDEGAAQGGDDVWTS GSDSDEELVTTERKT
P10_UL83 PQYSEHPTFTSQYRIQGGKLEYRHTWDRHDEGAAQGGDDVWTS GSDSDEELVTTERKT

P4_UL83 TGGGAMAGASTSAGRKRKSASSATACTAGVMTRGRLKAESTVAPEEDTDESDNEIHNPA
P6_UL83 TGGGAMAGASTSAGRKRKSASSATACTAGVMTRGRLKAESTVAPEEDTDESDNEIHNPA
P14_UL83 TGGGAMAGASTSAGRKRKSASSATACTAGVMTRGRLKAESTVAPEEDTDESDNEIHNPA
P15_UL83 TGGGAMAGASTSAGRKRKSASSATACTAGVMTRGRLKAESTVAPEEDTDESDNEIHNPA
P10_UL83 TGGGAMAGASTSAGRKRKSASSATACTAGVMTRGRLKAESTVAPEEDTDESDNEIHNPA

P4_UL83 VFTWPPWQAGILARNL VPMVATVQGQNLKYQEFFWDANDIYRIFAELG VWPAAQPKRR
P6_UL83 VFTWPPWQAGILARNL VPMVATVQGQNLKYQEFFWDANDIYRIFAELG VWPAAQPKRR
P14_UL83 VFTWPPWQAGILARNL VPMVATVQGQNLKYQEFFWDANDIYRIFAELG VWPAAQPKRR
P15_UL83 VFTWPPWQAGILARNL VPMVATVQGQNLKYQEFFWDANDIYRIFAELG VWPAAQPKRR
P10_UL83 VFTWPPWQAGILARNL VPMVATVQGQNLKYQEFFWDANDIYRIFAELG VWPAAQPKRR

P4_UL83 RHRQEALPGPCIASTPKKHRG
P6_UL83 RHRQEALPGPCIASTPKKHRG
P14_UL83 RHRQEALPGPCIASTPKKHRG
P15_UL83 RHRQEALPGPCIASTPKKHRG
P10_UL83 RHRQEALPGPCIASTPKKHRG

UL112

P4_UL112 MDLPTTVRKYWTFANPNRILHQSVNQTFDVRQFVFDARLVNCVDGDKVLHLNKGWLC
P6_UL112 MDLPTTVRKYWTFANPNRILHQSVNQTFDVRQFVFDARLVNCVDGDKVLHLNKGWLC
P14_UL112 MDLPTTVRKYWTFANPNRILHQSVNQTFDVRQFVFDARLVNCVDGDKVLHLNKGWLC
P15_UL112 MDLPTTVRKYWTFANPNRILHQSVNQTFDVRQFVFDARLVNCVDGDKVLHLNKGWLC
P10_UL112 MDLPTTVRKYWTFANPNRILHQSVNQTFDVRQFVFDARLVNCVDGDKVLHLNKGWLC

P4_UL112 ATIMQHGEASAGAKTQQGFMSIDITGDGELQEHLFVRGGIVFNKSVSSVVGSSGPNESAL
P6_UL112 ATIMQHGEASAGAKTQQGFMSIDITGDGELQEHLFVRGGIVFNKSVSSVVGSSGPNESAL
P14_UL112 ATIMQHGEASAGAKTQQGFMSIDITGDGELQEHLFVRGGIVFNKSVSSVVGSSGPNESAL
P15_UL112 ATIMQHGEASAGAKTQQGFMSIDITGDGELQEHLFVRGGIVFNKSVSSVVGSSGPNESAL
P10_UL112 ATIMQHGEASAGAKTQQGFMSIDITGDGELQEHLFVRGGIVFNKSVSSVVGSSGPNESAL

P4_UL112 LTMISEGNLQVTVYRHYLKNHGESSSGGGCGAASTASAVCVSSLGSGGTRDGPSAEE
P6_UL112 LTMISEGNLQVTVYRHYLKNHGESSSGGGCGAASTASAVCVSSLGSGGTRDGPSAEE
P14_UL112 LTMISEGNLQVTVYRHYLKNHGESSSGGGCGAASTASAVCVSSLGSGGTRDGPSAEE
P15_UL112 LTMISEGNLQVTVYRHYLKNHGESSSGGGCGAASTASAVCVSSLGSGGTRDGPSAEE
P10_UL112 LTMISEGNLQVTVYRHYLKNHGESSSGGGCGAASTASAVCVSSLGSGGTRDGPSAEE

P4_UL112 QQRRRQEQRHEERRKSSSSAGGGGGGGTGGGGGGGGGQHSSSDSANGLLRDPRLMNRQ

P6_UL112 QQRRRQEQRHEERRKSSSSAGGGGGGGTGGGGGGGGSGGQHSSDSANGLLRDPRLMNRQ
P14_UL112 QQRRRQEQRHEERRKSSSSAGGGGGGGTGGGGGGGGSGGQHSSDSANGLLRDPRLMNRQ
P15_UL112 QQRRRQEQRHEERRKSSSSAGGGGGGGTGGGGGGGGSGGQHSSDSANGLLRDPRLMNRQ
P10_UL112 QQRRRQEQRHEERRKSSSSAGGGGGGGAGGGGGGGSGGQHSSDSANGLLRDPRLMNRQ

P4_UL112 KERRPPSSSENDGSPPLREAKRQKTTAQHEGHGGGKNETEQQSGGAGGGGGGGSGRMSL
P6_UL112 KERRPPSSSENDGSPPLREAKRQKTTAQHEGHGGGKNETEQQSGGAGGGGGGGSGRMSL
P14_UL112 KERRPPSSSENDGSPPLREAKRQKTTAQHEGHGGGKNETEQQSGGAGGGGGGGSGRMSL
P15_UL112 KERRPPSSSENDGSPPLREAKRQKTTAQHEGHGGGKNETEQQSGGAGGGGGGGSGRMSL
P10_UL112 KERRPPSSSENDGSPPLREAKRQKTTAQHEGHGGGKNETEQQSGGAGGGGGGGSGRMSL

P4_UL112 PLDTSEAVAFNLNYSSSSSAVSSSSNNHHHHHHHNAVTDVAAGTDGALLLPIERGAVVSS
P6_UL112 PLDTSEAVAFNLNYSSSSSAVSSSSNNHHHHHHHNAVTDVAAGTDGALLLPIERGAVVSS
P14_UL112 PLDTSEAVAFNLNYSSSSSAVSSSSNNHHHHHHHNAVTDVAAGTDGALLLPIERGAVVSS
P15_UL112 PLDTSEAVAFNLNYSSSSSAVSSSSNNHHHHHHHNAVTDVAAGTDGALLLPIERGAVVSS
P10_UL112 PLDTSEAVAFNLNYSSSSSAVSSSSNNHHHHHHHNAVTDVAAGTDGALLLPIERGAVVSS

P4_UL112 PSSTSPSSLLSLPRPSSAHSAGETVQESEAATAAAAGLMMRRMRRAPAEAAEAPPQSE
P6_UL112 PSSTSPSSLLSLPRPSSAHSAGETVQESEAATAAAAGLMMRRMRRAPAEAAEAPPQSE
P14_UL112 PSSTSPSSLLSLPRPSSAHSAGETVQESEAATAAAAGLMMRRMRRAPAEAAEAPPQSE
P15_UL112 PSSTSPSSLLSLPRPSSAHSAGETVQESEAATAAAAGLMMRRMRRAPAEAAEAPPQSE
P10_UL112 PSSTSPSSLLSLPRPSSAHSAGETVQESEAATAAAAGLMMRRMRRAPAEAAEAPPQSE

P4_UL112 EENDSTTPVSNCRVPPNSQESAAPQPPRSPRFDDIIQSLTKMLNDCKEKRLCDLPLVSSR
P6_UL112 EENDSTTPVSNCRVPPNSQESAAPQPPRSPRFDDIIQSLTKMLNDCKEKRLCDLPLVSSR
P14_UL112 EENDSTTPVSNCRVPPNSQESAAPQPPRSPRFDDIIQSLTKMLNDCKEKRLCDLPLVSSR
P15_UL112 EENDSTTPVSNCRVPPNSQESAAPQPPRSPRFDDIIQSLTKMLNDCKEKRLCDLPLVSSR
P10_UL112 EENDSTTPVSNCRVPPNSQESAAPQPPRSPRFDDIIQSLTKMLNDCKEKRLCDLPLVSSR

P4_UL112 LLPETSGGTVVVNHSSVARTAAAVSTAGVGPPAAACPLVTTGVVPSGVSAGVAPVAAAV
P6_UL112 LLPETSGGTVVVNHSSVARTAAAVSTAGVGPPAAACPLVTTGVVPSGVSAGVAPVAAAV
P14_UL112 LLPETSGGTVVVNHSSVARTAAAVSTAGVGPPAAACPLVTTGVVPSGVSAGVAPVAAAV
P15_UL112 LLPETSGGTVVVNHSSVARTAAAVSTAGVGPPAAACPLVTTGVVPSGVSAGVAPVAAAV
P10_UL112 LLPETSGGTVVVNHSSVARTAAAVSTAGVGPPAAACPLVTTGVVPSGVSAGVAPVAAAV

P4_UL112 ETPAAPRPVCEIKPYVVPVAVATAAAASNSSSSSSTPLPPPPPPGGRRGRARNNTRGG
P6_UL112 ETPAAPRPVCEIKPYVVPVAVATAAAASNSSSSSSTPLPPPPPPGGRRGRARNNTRGG
P14_UL112 ETPAAPRPVCEIKPYVVPVAVATAAAASNSSSSSSTPLPPPPPPGGRRGRARNNTRGG
P15_UL112 ETPAAPRPVCEIKPYVVPVAVATAAAASNSSSSSSTPLPPPPPPGGRRGRARNNTRGG
P10_UL112 ETPAAPRPVCEIKPYVVPVAVATAAAASNSSSSSAPLPPPPPPGGRRGRARNNTRGG

P4_UL112 GGGGGGRNSRRQAASSSSSSRRSRRRNRHEDEDNDPLLRLSQVAGSRRRGPSFLEDG
P6_UL112 GGGGGGRNSRRQAASSSSSSRRSRRRNRHEDEDNDPLLRLSQVAGSRRRGPSFLEDG
P14_UL112 GGGGGGRNSRRQAASSSSSSRRSRRRNRHEDEDNDPLLRLSQVAGSRRRGPSFLEDG
P15_UL112 GGGGGGRNSRRQAASSSSSSRRSRRRNRHEDEDNDPLLRLSQVAGSRRRGPSFLEDG
P10_UL112 GGGGGGRNSRRQAASSSSSSRRSRRRNRHEDEDNDPLLRLSQVAGSRRRGPSFLEDG

P4_UL112 LEIIDPSEEAIAAASIAAFFDD
P6_UL112 LEIIDPSEEAIAAASIAAFFDD
P14_UL112 LEIIDPSEEAIAAASIAAFFDD
P15_UL112 LEIIDPSEEAIAAASIAAFFDD
P10_UL112 LEIIDPSEEAIAAASIAAFFDD

UL119

P4_UL119 MCPVLAIVLVALLGDTHPGVESSTTSAVTSPSNTTATSTTSISTSNNVTSAVTTTVQTS
P6_UL119 MCPVLAIVLVALLGDTHPGVESSTTSAVTSPSNTTATSTTSISTSNNVTSAVTTTVQTS
P14_UL119 MCPVLAIVLVALLGDTHPGVESSTTSAVTSPSNTTATSTTSISTSNNVTSAVTTTVQTS
P15_UL119 MCPVLAIVLVALLGDTHPGVESSTTSAVTSPSNTTATSTTSISTSNNVTSAVTTTVQTS
P10_UL119 MCSVLAIALVALLGDMHPGVKSSTTSAVTSPSNTTVTSTTSISTSNNVSSAVTTTVQTS

P4_UL119 TSSASTSVIATTQKEGRLYTVNCEASYSYDQVSLNATCKVILLNNTKPNPILSVTCYART
P6_UL119 TSSASTSVIATTQKEGRLYTVNCEASYSYDQVSLNATCKVILLNNTKPNPILSVTCYART
P14_UL119 TSSASTSVIATTQKEGRLYTVNCEASYSYDQVSLNATCKVILLNNTKPNPILSVTCYART
P15_UL119 TSSASTSVIATTQKEGRLYTVNCEASYSYDQVSLNATCKVILLNNTKPNPILSVTCYART
P10_UL119 TSSASTSVIATTQKEGRHLYTVNCEASYSYDQVSLNATCKVILLNNTKPNPILSVTCYART

P4_UL119 DCKGPFTQVGYLSAFPDPNEGKHLHLSYNATAQELLISGLRPQETTEYTCFFSWGRHHNA
P6_UL119 DCKGPFTQVGYLSAFPDPNEGKHLHLSYNATAQELLISGLRPQETTEYTCFFSWGRHHNA
P14_UL119 DCKGPFTQVGYLSAFPDPNEGKHLHLSYNATAQELLISGLRPQETTEYTCFFSWGRHHNA
P15_UL119 DCKGPFTQVGYLSAFPDPNEGKHLHLSYNATAQELLISGLRPQETTEYTCFFSWGRHHNA
P10_UL119 DCKGPFTQVGYLSAFPNDKGLHLSYNATAQELLISGLRPQETTEYTCFFSWGRHHNA

P4_UL119 TWDLFTYPIYAVYGTRLNATTMRVRVLLQEHEHCLLNGSSLYHPNSTVHLHQGNQLIPPW
P6_UL119 TWDLFTYPIYAVYGTRLNATTMRVRVLLQEHEHCLLNGSSLYHPNSTVHLHQGNQLIPPW
P14_UL119 TWDLFTYPIYAVYGTRLNATTMRVRVLLQEHEHCLLNGSSLYHPNSTVHLHQGNQLIPPW
P15_UL119 TWDLFTYPIYAVYGTRLNATTMRVRVLLQEHEHCLLNGSSLYHPNSTVHLHQGNQLIPPW
P10_UL119 TWDLFTYPIYAVYGTRLNATTMRVRVLLQEHEHCLLNGSSLYHPNSTVHLHQGNQLIPPW

P4_UL119 NISNVTYNGQRLREFVFYLNQTYTVVRLHVQIAGRSFTTTYVFIKSDPLFEDRLLAYGVL
P6_UL119 NISNVTYNGQRLREFVFYLNQTYTVVRLHVQIAGRSFTTTYVFIKSDPLFEDRLLAYGVL
P14_UL119 NISNVTYNGQRLREFVFYLNQTYTVVRLHVQIAGRSFTTTYVFIKSDPLFEDRLLAYGVL
P15_UL119 NISNVTYNGQRLREFVFYLNQTYTVVRLHVQIAGRSFTTTYVFIKSDPLFEDRLLAYGVL
P10_UL119 NISNVTYNGQRLREFVFYLNQTYTVVRLHVQIAGRSFTTTYVFIKSDPLFEDRLLAYGVL

P4_UL119 AFLVFMVILLVYTYMLARRRDWSYKRLEEPVEEKKHPVPYFKQW
P6_UL119 AFLVFMVILLVYTYMLARRRDWSYKRLEEPVEEKKHPVPYFKQW
P14_UL119 AFLVFMVILLVYTYMLARRRDWSYKRLEEPVEEKKHPVPYFKQW
P15_UL119 AFLVFMVILLVYTYMLARRRDWSYKRLEEPVEEKKHPVPYFKQW
P10_UL119 AFLVFMVILLVYTYMLARRRDWSYKRLEEPVEEKKHPVPYFKQW

UL135

P4_uL135 MVWLWLGVLLGGTGLASLVLAISLFTQRRGRKRSDETSSRGRLPGAASDKRGACACCYR
P6_UL135 MVWLWLGVLLGGTGLASLVLAISLFTQRRGRKRSDETSSRGRLPGAASDKRGACACCYR
P10_UL135 MVWLWLGVLLGGTGLASLVLAISLFTQRRGRKRSDETSSRGRLPGAASDKRGACACCYR
P14_UL135 MVWLWLGVLLGGTGLASLVLAISLFTQRRGRKRSDETSSRGRLPGAASDKRGACACCYR
P15_UL135 MVWLWLGVLLGGTGLASLVLAISLFTQRRGRKRSDETSSRGRLPGAASDKRGACACCYR

P4_uL135 IPKEDVVEPLDLELGLMRVATHPPTQVPRCTSLYIGEDGLPIDKPEFPPARFEIPDVST
P6_UL135 IPKEDVVEPLDLELGLMRVATHPPTQVPRCTSLYIGEDGLPIDKPEFPPARFEIPDVST
P10_UL135 IPKEDVVEPLDLELGLMRVATHPPTQVPRCTSLYIGEDGLPIDKPEFPPARFEIPDVST
P14_UL135 IPKEDVVEPLDLELGLMRVATHPPTQVPRCTSLYIGEDGLPIDKPEFPPARFEIPDVST
P15_UL135 IPKEDVVEPLDLELGLMRVATHPPTQVPRCTSLYIGEDGLPIDKPEFPPARFEIPDVST

P4_uL135 PGTPTSIGRSPSHCSSSSLSASSASVDTVLHQPPPSWKPPPPGRKKRPPTPPVRAPTTR
P6_UL135 PGTPTSIGRSPSHCSSSSLSASSASVDTVLHQPPPSWKPPPPGRKKRPPTPPVRAPTTR
P10_UL135 PGTPTSIGRSPSHCSSSSLSASSASVDTVLHQPPPSWKPPPPGRKKRPPTPPVRAPTTR
P14_UL135 PGTPTSIGRSPSHCSSSSLSASSASVDTVLHQPPPSWKPPPPGRKKRPPTPPVRAPTTR
P15_UL135 PGTPTSIGRSPSHCSSSSLSASSASVDTVLHQPPPSWKPPPPGRKKRPPTPPVRAPTTR

P4_uL135 LSSHRPPTIPAPRKNLSTPPTKKTTPPTKPKPVGWTPPVTPRPFKTPTPQKPPRNPR
P6_UL135 LSSHRPPTIPAPRKNLSTPPTKKTTPPTKPKPVGWTPPVTPRPFKTPTPQKPPRNPR
P10_UL135 LSSHRPPTIPAPRKNLSTPPTKKTTPPTKPKPVGWTPPVTPRPFKTPTPQKPPRNPR
P14_UL135 LSSHRPPTIPAPRKNLSTPPTKKTTPPTKPKPVGWTPPVTPRPFKTPTPQKPPRNPR
P15_UL135 LSSHRPPTIPAPRKNLSTPPTKKTTPPTKPKPVGWTPPVTPRPFKTPTPQKPPRNPR

P4_uL135 PRTVLENLSKVGLSCPCPRPRTPEPTTLPIVSVSELAPPPRWSIEELLEKAVQSVMK
P6_UL135 PRTVLENLSKVGLSCPCPRPRTPEPTTLPIVSVSELAPPPRWSIEELLEKAVQSVMK
P10_UL135 PRTVLENLSKVGLSCPCPRPRTPEPTTLPIVSVSELAPPPRWSIEELLEKAVQSVMK
P14_UL135 PRTVLENLSKVGLSCPCPRPRTPEPTTLPIVSVSELAPPPRWSIEELLEKAVQSVMK
P15_UL135 PRTVLENLSKVGLSCPCPRPRTPEPTTLPIVSVSELAPPPRWSIEELLEKAVQSVMK

P4_uL135 DAESMQMT
P6_UL135 DAESMQMT
P10_UL135 DAESMQMT
P14_UL135 DAESMQMT
P15_UL135 DAESMQMT

UL141

P6_UL141 MCRRESLRTLPLWFLVLLSCPRLLEYSSSSFPFATADIAEKMWAENYETTSPAPVLAEG
P10_UL141 MCRRESLRTLPLWFLVLLSCPRLLEYSSSSFPFATADIAEKMWAENYETTSPAPVLAEG

P6_UL141 EQVTIPCTVMTHSWPMVSIARARFCRSHDGSDELILDAVKGHRLMNGLQYRLPYATWNFSQ
P10_UL141 EQVTIPCTVMTHSWPMVSIARARFCRSHDGSDELILDAVKGHRLMNGLQYRLPYATWNFSQ

P6_UL141 LHLGQIFSLTFNVSTDTAGMYECLVLRNYSHGLIMQRFVILTQLETLSRPDEPCCTPALGR
P10_UL141 LHLGQIFSLTFNVSTDTAGMYECLVLRNYSHGLIMQRFVILTQLETLSRPDEPCCTPALGR

P6_UL141 YSLGDQIWSPTPWRLRNHDCGMRYGFQRNYFYIGRADAEDCWKPACDDEEPDRCWTVIQR
P10_UL141 YSLGDQIWSPTPWRLRNHDCGMRYGFQRNYFYIGRADAEDCWKPACDDEEPDRCWTVIQR

P6_UL141 YRLPGDCYRSQPHPPKFLPVTAPPADIDTGMSPWATRGIAAF LGFWSIFTVCFLCYLCY
P10_UL141 YRLPGDCYRSQPHPPKFLPVTAPPADIDTGMSPWATRGIAAF LGFWSIFTVCFLCYLCY

P6_UL141 LQCCGRWCPTPGRGRRGGEGYRRLPTYDSYPGVKKMKR
P10_UL141 LQCCGRWCPTPGRGRRGGEGYRRLPTYDSYPGVKKMKR

UL142

P6_UL142 MRIEWACWLFYGVSSVSGSERLSYRYHLESNSSANVVCNGNISVFNGLTGVRYNITVG
P10_UL142 MRIEWACWLFYGVSSVSGSERLSYRYHLESNSSANVVCNGNISVFNGLTGVRYNITVG

P6_UL142 ISSSLLIGHLTIQTLESWFTSWVQNKSYKQPLSTTETLYNIDSENIHRVSQYFHTRWIK
P10_UL142 ISSSLLIGHLTIQTLESWFTSWVQNKSYKQPLSTTETLYNIDSENIHRVSQYFHTRWIK

P6_UL142 SLQENHTCDLTNSTPTYTYQANVNTNYLTLTSSGWQDRLNYTAINSTHFNLTESNITSI
P10_UL142 SLQENHTCDLTNSTPTYTYQANVNTNYLTLTSSGWQDRLNYTAINSTHFNLTESNITSI

P6_UL142 HKYLNTTCIERLRNYTLKSVYTTTVPQNVTTTPQHHTTTTLYTPPNAITIQDTTQSHTVQTP
P10_UL142 HKYLNTTCIERLRNYTLKSVYTTTVPQNVTTTPQHHTTTTLYTPPNAITIQDTTQSHTVQTP

P6_UL142 SFNDTHNVEHTLNINYVLSQKTNNTTSPWVYAIPMGATATIGASLYIGKHFTPVRFVYE
P10_UL142 SFNDTHNVEHTLNINYVLSQKTNNTTSPWVYAIPMGATATIGASLYIGKHFTPVRFVYE

P6_UL142 VWRGQ
P10_UL142 VWRGQ

UL148

P4_UL148 MLRLLFTLVLLALHGPSVNASRDYVHVRLLSYRGDPLVFKHTFSGVRRPFTELGWAVCRD
P6_UL148 MLRLLFTLVLLALHGPSVNASRDYVHVRLLSYRGDPLVFKHTFSGVRRPFTELGWAVCRD
P14_UL148 MLRLLFTLVLLALHGPSVNASRDYVHVRLLSYRGDPLVFKHTFSGVRRPFTELGWAVCRD
P15_UL148 MLRLLFTLVLLALHGPSVNASRDYVHVRLLSYRGDPLVFKHTFSGVRRPFTELGWAVCRD
P10_UL148 MLRLLFTLVLLALHGPSVNASRDYVHVRLLSYRGDPLVFKHTFSGVRRPFTELGWAVCRD

P4_UL148 WDSMHCTPFWSTDLEQMTDSVRRYSTVSPGKEVTLQLHGNQTVQPSFLSFTCRLQLEPVV
P6_UL148 WDSMHCTPFWSTDLEQMTDSVRRYSTVSPGKEVTLQLHGNQTVQPSFLSFTCRLQLEPVV
P14_UL148 WDSMHCTPFWSTDLEQMTDSVRRYSTVSPGKEVTLQLHGNQTVQPSFLSFTCRLQLEPVV
P15_UL148 WDSMHCTPFWSTDLEQMTDSVRRYSTVSPGKEVTLQLHGNQTVQPSFLSFTCRLQLEPVV
P10_UL148 WDSMHCTPFWSTDLEQMTDSVRRYSTVSPGKEVTLQLHGNQTVQPSFLSFTCRLQLEPVV

P4_UL148 ENVGLYVAYVNDGERPQQFFTPQVDVRFALYLETLSRIVEPLESGRLAVEFDTPLDAL
P6_UL148 ENVGLYVAYVNDGERPQQFFTPQVDVRFALYLETLSRIVEPLESGRLAVEFDTPLDAL
P14_UL148 ENVGLYVAYVNDGERPQQFFTPQVDVRFALYLETLSRIVEPLESGRLAVEFDTPLDAL
P15_UL148 ENVGLYVAYVNDGERPQQFFTPQVDVRFALYLETLSRIVEPLESGRLAVEFDTPLDAL
P10_UL148 ENVGLYVAYVNDGERPQQFFTPQVDVRFALYLETLSRIVEPLESGRLAVEFDTPLDAL

P4_UL148 APDLVSSLFVAGHGETDFYMNWTLRRSQTHYLEEMALQVEILKPRGVRHRAIIHHPKLQP
P6_UL148 APDLVSSLFVAGHGETDFYMNWTLRRSQTHYLEEMALQVEILKPRGVRHRAIIHHPKLQP
P14_UL148 APDLVSSLFVAGHGETDFYMNWTLRRSQTHYLEEMALQVEILKPRGVRHRAIIHHPKLQP
P15_UL148 APDLVSSLFVAGHGETDFYMNWTLRRSQTHYLEEMALQVEILKPRGVRHRAIIHHPKLQP
P10_UL148 APDLVSSLFVAGHGETDFYMNWTLRRSQTHYLEEMALQVEILKPRGVRHRAIIHHPKLQP

P4_UL148 GVGLWIDFCVYRYNARLTRGYVRYTLSPKARLPAKAEGWLVS�DRFIVQYLNTLLITMMA
P6_UL148 GVGLWIDFCVYRYNARLTRGYVRYTLSPKARLPAKAEGWLVS�DRFIVQYLNTLLITMMA
P14_UL148 GVGLWIDFCVYRYNARLTRGYVRYTLSPKARLPAKAEGWLVS�DRFIVQYLNTLLITMMA
P15_UL148 GVGLWIDFCVYRYNARLTRGYVRYTLSPKARLPAKAEGWLVS�DRFIVQYLNTLLITMMA
P10_UL148 GVGLWIDFCVYRYNARLTRGYVRYTLSPKARLPAKAEGWLVS�DRFIVQYLNTLLITMMA

P4_UL148 AIWARVLITYLVSRRR
P6_UL148 AIWARVLITYLVSRRR
P14_UL148 AIWARVLITYLVSRRR
P15_UL148 AIWARVLITYLVSRRR
P10_UL148 AIWARVLITYLVSRRR

UL148A

P4_UL148A MSSDSNFDWPVPCVVVMTSVVLFAGLHVYLVYVRRQLVAFCLKVCVRCCKDETTPL
P6_UL148A MSSDSNFDWPVPCVVVMTSVVLFAGLHVYLVYVRRQLVAFCLKVCVRCCKDETTPL
P14_UL148A MSSDSNFDWPVPCVVVMTSVVLFAGLHVYLVYVRRQLVAFCLKVCVRCCKDETTPL
P15_UL148A MSSDSNFDWPVPCVVVMTSVVLFAGLHVYLVYVRRQLVAFCLKVCVRCCKDETTPL
P10_UL148A MSSSDNLDWPVPCVVVMTSVVLFAGLHVYLVYVRRQLVAFCLKVCVRCCKDETTPL

P4_UL148a VEDAEPPELEMVEVSDECY
P6_UL148A VEDAEPPELEMVEVSDECY
P14_UL148A VEDAEPPELEMVEVSDECY
P15_UL148A VEDAEPPELEMVEVSDECY
P10_UL148A VEDAEPPELEMVEVSDECY

US9

P4_US9 MILWSPSTCSFFWHWCLIAVSVLSSRSKESLRLSWSSDESSASSSSRICPLSNSKSVRLP
P6_US9 MILWSPSTCSFFWHWCLIAVSVLSSRSKESLRLSWSSDESSASSSSRICPLSNSKSVRLP
P10_US9 MILWSPSTCSFFWHWCLIAVSVLSSRSKESLRLSWSSDESSASSSSRICPLSNSKSVRLP
P14_US9 MILWSPSTCSFFWHWCLIAVSVLSSRSKESLRLSWSSDESSASSSSRICPLSNSKSVRLP
P15_US9 MILWSPSTCSFFWHWCLIAVSVLSSRSKESLRLSWSSDESSASSSSRICPLSNSKSVRLP

P4_US9 QYPRGFGDVSGYRVSSSVSECYVQHGVLVAAWLVVGRNFSDTAPRAYGTWGNERSATHFKV
P6_US9 QYPRGFGDVSGYRVSSSVSECYVQHGVLVAAWLVVGRNFSDTAPRAYGTWGNERSATHFKV
P10_US9 QYPRGFGDVSGYRVSSSVSECYVQHGVLVAAWLVVGRNFSDTAPRAYGTWGNERSATHFKV
P14_US9 QYPRGFGDVSGYRVSSSVSECYVQHGVLVAAWLVVGRNFSDTAPRAYGTWGNERSATHFKV
P15_US9 QYPRGFGDVSGYRVSSSVSECYVQHGVLVAAWLVVGRNFSDTAPRAYGTWGNERSATHFKV

P4_US9 GAPQLENDGALRYETELPQVDARLSYVMLTVYPCACNRSVLHCRPASRLPWLPLRVTPS
P6_US9 GAPQLENDGALRYETELPQVDARLSYVMLTVYPCACNRSVLHCRPASRLPWLPLRVTPS
P10_US9 GAPQLENDGALRYETELPQVDARLSYVMLTVYPCACNRSVLHCRPASRLPWLPLRVTPS
P14_US9 GAPQLENDGALRYETELPQVDARLSYVMLTVYPCACNRSVLHCRPASRLPWLPLRVTPS
P15_US9 GAPQLENDGALRYETELPQVDARLSYVMLTVYPCACNRSVLHCRPASRLPWLPLRVTPS

P4_US9 DLERLFAERRYLTFLYVVLVQFVKHVALFSFGVQVACCVYLRWIRPWVGRHRATGRTSR
P6_US9 DLERLFAERRYLTFLYVVLVQFVKHVALFSFGVQVACCVYLRWIRPWVGRHRATGRTSR
P10_US9 DLERLFAERRYLTFLYVVLVQFVKHVALFSFGVQVACCVYLRWIRPWVGRHRATGRTSR
P14_US9 DLERLFAERRYLTFLYVVLVQFVKHVALFSFGVQVACCVYLRWIRPWVGRHRATGRTSR
P15_US9 DLERLFAERRYLTFLYVVLVQFVKHVALFSFGVQVACCVYLRWIRPWVGRHRATGRTSR

P4_US9 EEEAKDD
P6_US9 EEEAKDD
P10_US9 EEEAKDD
P14_US9 EEEAKDD
P15_US9 EEEAKDD

US12

P4_US12 MVQIQFHQGEPLGHKKEKPPVSPSPPPIRRVTITKDEDTLRSVQHFLMVMVRLYGTVV
P6_US12 MVQIQFHQGEPLGHKKEKPPVSPSPPPIRRVTITKDEDTLRSVQHFLMVMVRLYGTVV
P10_US12 MVQIQFHQGEPLGHKKEKPPVSPSPPPIRRVTITKDEDTLRSVQHFLMVMVRLYGTVV
P15_US12 MVQIQFHQGEPLGHKKEKPPVSPSPPPIRRVTITKDEDTLRSVQHFLMVMVRLYGTVV
P14_US12 MVQIQFHQGEPLGHKKEKPPVSPSPPPIRRVTITKDEDTLRSVQHFLMVMVRLYGTVV

P4_US12 FQTSATIATTILFMLIPWRVTPYLRDTPFWSTLLPCALRCHAYWLERRRRPGTLMMLVM
P6_US12 FQTSATIATTILFMLIPWRVTPYLRDTPFWSTLLPCALRCHAYWLERRRRPGTLMMLVM
P10_US12 FQTSATIATTILFMLIPWRVTPYLRDTPFWSTLLPCALRCHAYWLERRRRPGTLMMLVM
P15_US12 FQTSATIATTILFMLIPWRVTPYLRDTPFWSTLLPCALRCHAYWLERRRRPGTLMMLVM
P14_US12 FQTSATIATTILFMLIPWRVTPYLRDTPFWSTLLPCALRCHAYWLERRRRPGTLMMLVM

P4_US12 VYTTLTTSISVSTIGLCFDRTVVIQAYVLSMMLCVWCTGLAWLMAWNMQRRRLAILCLLSFM
P6_US12 VYTTLTTSISVSTIGLCFDRTVVIQAYVLSMMLCVWCTGLAWLMAWNMQRRRLAILCLLSFM
P10_US12 VYTTLTTSISVSTIGLCFDRTVVIQAYVLSMMLCVWCTGLAWLMAWNMQRRRLAILCLLSFM
P15_US12 VYTTLTTSISVSTIGLCFDRTVVIQAYVLSMMLCVWCTGLAWLMAWNMQRRRLAILCLLSFM
P14_US12 VYTTLTTSISVSTIGLCFDRTVVIQAYVLSMMLCVWCTGLAWLMAWNMQRRRLAILCLLSFM

P4_US12 LPILWLFIAVQSWEPYQRIILALTVSFIYGLKIVLIRDTLTVLYRSPSNCTDGDLLRTA
P6_US12 LPILWLFIAVQSWEPYQRIILALTVSFIYGLKIVLIRDTLTVLYRSPSNCTDGDLLRTA
P10_US12 LPILWLFIAVQSWEPYQRIILALTVSFIYGLKIVLIRDTLTVLYRSPSNCTDGDLLRTA
P15_US12 LPILWLFIAVQSWEPYQRIILALTVSFIYGLKIVLIRDTLTVLYRSPSNCTDGDLLRTA

P14_US12 LPIILWLFIAVQSWEPYQRILALTVSFIYGLKIVLIRDITLTVLYRSPSNCYTDGDLRRTA
P4_US12 MLLYMDQVIMFLLVVVPLTAPIWYPNYAGALGRTAHWLFHK
P6_US12 MLLYMDQVIMFLLVVVPLTAPIWYPNYAGALGRTAHWLFHK
P10_US12 MLLYMDQVIMFLLVVVPLTAPIWYPNYAGALGRTAHWLFHK
P15_US12 MLLYMDQVIMFLLVVVPLTAPIWYPNYAGALGRTAHWLFHK
P14_US12 MLLYMDQVIMFLLVVVPLTAPIWYPNYAGALGRTAHWLFHK

US14

P14_US14 METVSTQRETASSETERTREAASAETTDATFRSLEEGSTISSRYSETASTVSEDAVCWLR
P15_US14 METVSTQRETASSETERTREAASAETTDATFRSLEEGSTISSRYSETASTVSEDAVCWLR
P10_US14 M~~K~~TVSTQRETASSETERTREAASAETTDATFRSLEEGSTISSRYSETASTVSE~~N~~AVCWLR
P6_US14 METVSTQRETASSETERTREAASAETTDATFRSLEEGSTISSRYSETASTVSEDAVCWLR
P4_US14 METVSTQRETASSETERTREAASAETTDATFRSLEEGSTISSRYSETASTVSEDAVCWLR

P14_US14 RTAIVMRVYGLLTLETAFSVLISALVWLGYPVSLGYECSDDPSPLLLCTPVLVVGALELT
P15_US14 RTAIVMRVYGLLTLETAFSVLISALVWLGYPVSLGYECSDDPSPLLLCTPVLVVGALELT
P10_US14 RTAIVMRVYGLLTLETAFSVLISALVWLGYPVSLGYECSDDPSPLLLCTPVLVVGALELT
P6_US14 RTAIVMRVYGLLTLETAFSVLISALVWLGYPVSLGYECSDDPSPLLLCTPVLVVGALELT
P4_US14 RTAIVMRVYGLLTLETAFSVLISALVWLGYPVSLGYECSDDPSPLLLCTPVLVVGALELT

P14_US14 DHRHPSNGLVFALYVALLSFTTAGLNLCATAPIGISSILITWTLFVACNGVAWEHRLSSV
P15_US14 DHRHPSNGLVFALYVALLSFTTAGLNLCATAPIGISSILITWTLFVACNGVAWEHRLSSV
P10_US14 DHRHPSNGLVFALYVALLSFTTAGLNLCATAPIGISSILITWTLFVACNGVAWEHRLSSV
P6_US14 DHRHPSNGLVFALYVALLSFTTAGLNLCATAPIGISSILITWTLFVACNGVAWEHRLSSV
P4_US14 DHRHPSNGLVFALYVALLSFTTAGLNLCATAPIGISSILITWTLFVACNGVAWEHRLSSV

P14_US14 WRDALFTSTLLTVMVSVLASTYTWLHKTLLCLYTVFVGCILAVLFQDVRVIATKMPVSHV
P15_US14 WRDALFTSTLLTVMVSVLASTYTWLHKTLLCLYTVFVGCILAVLFQDVRVIATKMPVSHV
P10_US14 WRDALFTSTLLTVMVSVLASTYTWLHKTLLCLYTVFVGCILAVLFQDVRVIATKMPV~~N~~HV
P6_US14 WRDALFTSTLLTVMVSVLASTYTWLHKTLLCLYTVFVGCILAVLFQDVRVIATKMPVSHV
P4_US14 WRDALFTSTLLTVMVSVLASTYTWLHKTLLCLYTVFVGCILAVLFQDVRVIATKMPVSHV

P14_US14 IRSSLILYATETLIYHTLLMLTPVWVSARWDQMFSYLAKLGTYYHYLIDNGTLSVILNT
P15_US14 IRSSLILYATETLIYHTLLMLTPVWVSARWDQMFSYLAKLGTYYHYLIDNGTLSVILNT
P10_US14 IRSSLILYATETLIYHTLLMLTPVWVSARWDQMFSYLAKLGTYYHYLIDNGTLSVIL~~N~~S
P6_US14 IRSSLILYATETLIYHTLLMLTPVWVSARWDQMFSYLAKLGTYYHYLIDNGTLSVILNT
P4_US14 IRSSLILYATETLIYHTLLMLTPVWVSARWDQMFSYLAKLGTYYHYLIDNGTLSVILNT

P14_US14 TTATFQSKAA
P15_US14 TTATFQSKAA
P10_US14 TTATFQ~~S~~VA
P6_US14 TTATFQSKAA
P4_US14 TTATFQSKAA

US18

P4_US18 MGD~~T~~ASVSEHHESPTVTIVPLHRSHALVAEQQLFQWLKRFKLLMEVYHGLVWQLACTLTV
P6_US18 MGD~~T~~ASVSEHHESPTVTIVPLHRSHALVAEQQLFQWLKRFKLLMEVYHGLVWQLACTLTV
P10_US18 MGD~~T~~ASVSEHHESPTVTIVPLHRSHALVAEQQLFQWLKRFKLLMEVYHGLVWQLACTLTV
P14_US18 MGD~~T~~ASVSEHHESPTVTIVPLHRSHALVAEQQLFQWLKRFKLLMEVYHGLVWQLACTLTV
P15_US18 MGD~~T~~ASVSEHHESPTVTIVPLHRSHALVAEQQLFQWLKRFKLLMEVYHGLVWQLACTLTV

P4_US18 CLLAWLAFPDVQGCANGI~~V~~PALSSIVPVSTLAML~~R~~GF~~A~~FRPHTTNFAHLTVACLLINT
P6_US18 CLLAWLAFPDVQGCANGI~~V~~PALSSIVPVSTLAML~~R~~GF~~A~~FRPHTTNFAHLTVACLLINT
P10_US18 CLLAWLAFPDVQGCANGI~~V~~PALSSIVPVSTLAML~~R~~GF~~A~~FRPHTTNFAHLTVACLLINT
P14_US18 CLLAWLAFPDVQGCANGI~~V~~PALSSIVPVSTLAML~~R~~GF~~A~~FRPHTTNFAHLTVACLLINT
P15_US18 CLLAWLAFPDVQGCANGI~~V~~PALSSIVPVSTLAML~~R~~GF~~A~~FRPHTTNFAHLTVACLLINT

P4_US18 GITVCTGFCGERRVIGLSFALVMVFFVLCGLTYLAGNNPTRWKVIGIGYGSVIVFYLL
P6_US18 GITVCTGFCGERRVIGLSFALVMVFFVLCGLTYLAGNNPTRWKVIGIGYGSVIVFYLL
P10_US18 GITVCTGFCGERRVIGLSFALVMVFFVLCGLTYLAGNNPTRWKVIGIGYGSVIVFYLL
P14_US18 GITVCTGFCGERRVIGLSFALVMVFFVLCGLTYLAGNNPTRWKVIGIGYGSVIVFYLL
P15_US18 GITVCTGFCGERRVIGLSFALVMVFFVLCGLTYLAGNNPTRWKVIGIGYGSVIVFYLL

P4_US18 LYFSPVLWVSKIYSGLYVLVVTAA~~S~~AVLIYETLDLIYQRGTL~~S~~KN~~S~~VCVSVVLYTIVMSL
P6_US18 LYFSPVLWVSKIYSGLYVLVVTAA~~S~~AVLIYETLDLIYQRGTL~~S~~KN~~S~~VCVSVVLYTIVMSL

P10_US18 LYFSPVLWVSKIYSGLYVLVWTAASAVLIYETLDLIYQRGTLKNSVCVSVVLYTIVMSL
P14_US18 LYFSPVLWVSKIYSGLYVLVWTAASAVLIYETLDLIYQRGTLKNSVCVSVVLYTIVMSL
P15_US18 LYFSPVLWVSKIYSGLYVLVWTAASAVLIYETLDLIYQRGTLKNSVCVSVVLYTIVMSL

P4_US18 LNMSVAIFSGHVWVQYAEKHGGRIDGVSLLSLL
P6_US18 LNMSVAIFSGHVWVQYAEKHGGRIDGVSLLSLL
P10_US18 LNMSVAIFSGHVWVQYAEKHGGRIDGVSLLSLL
P14_US18 LNMSVAIFSGHVWVQYAEKHGGRIDGVSLLSLL
P15_US18 LNMSVAIFSGHVWVQYAEKHGGRIDGVSLLSLL

US20

P4_US20 MQAQEANALLSRMEALEWFKKFTVWLRVYAIFFQLAFSFGSGVFWLGFPPQNRNFCVE
P6_US20 MQAQEANALLSRMEALEWFKKFTVWLRVYAIFFQLAFSFGSGVFWLGFPPQNRNFCVE
P10_US20 MQAQEANALLSRMEALEWFKKFTVWLRVYAIFFQLAFSFGSGVFWLGFPPQNRNFCVE
P14_US20 MQAQEANALLSRMEALEWFKKFTVWLRVYAIFFQLAFSFGSGVFWLGFPPQNRNFCVE
P15_US20 MQAQEANALLSRMEALEWFKKFTVWLRVYAIFFQLAFSFGSGVFWLGFPPQNRNFCVE

P4_US20 NYSFFLTVLVPIVCMFITYTLGNEHPSNATVLFYLLANSLTAAIFQMCSESRLVGSYV
P6_US20 NYSFFLTVLVPIVCMFITYTLGNEHPSNATVLFYLLANSLTAAIFQMCSESRLVGSYV
P10_US20 NYSFFLTVLVPIVCMFITYTLGNEHPSNATVLFYLLANSLTAAIFQMCSESRLVGSYV
P14_US20 NYSFFLTVLVPIVCMFITYTLGNEHPSNATVLFYLLANSLTAAIFQMCSESRLVGSYV
P15_US20 NYSFFLTVLVPIVCMFITYTLGNEHPSNATVLFYLLANSLTAAIFQMCSESRLVGSYV

P4_US20 MTLALFISFTGLAFLGGRDRRWRKICISCVVVMLLSFLTLALLSDADWLQKIVVTLCAFS
P6_US20 MTLALFISFTGLAFLGGRDRRWRKICISCVVVMLLSFLTLALLSDADWLQKIVVTLCAFS
P10_US20 MTLALFISFTGLAFLGGRDRRWRKICISCVVVMLLSFLTLALLSDADWLQKIVVTLCAFS
P14_US20 MTLALFISFTGLAFLGGRDRRWRKICISCVVVMLLSFLTLALLSDADWLQKIVVTLCAFS
P15_US20 MTLALFISFTGLAFLGGRDRRWRKICISCVVVMLLSFLTLALLSDADWLQKIVVTLCAFS

P4_US20 ISFFLGILAYDSLMIFFCPPNQICIRHAVCLYLDSMAIFLTLMLSGPRWISLSDGAPL
P6_US20 ISFFLGILAYDSLMIFFCPPNQICIRHAVCLYLDSMAIFLTLMLSGPRWISLSDGAPL
P10_US20 ISFFLGILAYDSLMIFFCPPNQICIRHAVCLYLDSMAIFLTLMLSGPRWISLSDGAPL
P14_US20 ISFFLGILAYDSLMIFFCPPNQICIRHAVCLYLDSMAIFLTLMLSGPRWISLSDGAPL
P15_US20 ISFFLGILAYDSLMIFFCPPNQICIRHAVCLYLDSMAIFLTLMLSGPRWISLSDGAPL

P4_US20 DNGTLTAASTTGKS
P6_US20 DNGTLTAASTTGKS
P10_US20 DNGTLTAASTTGKS
P14_US20 DNGTLTAASTTGKS
P15_US20 DNGTLTAASTTGKS