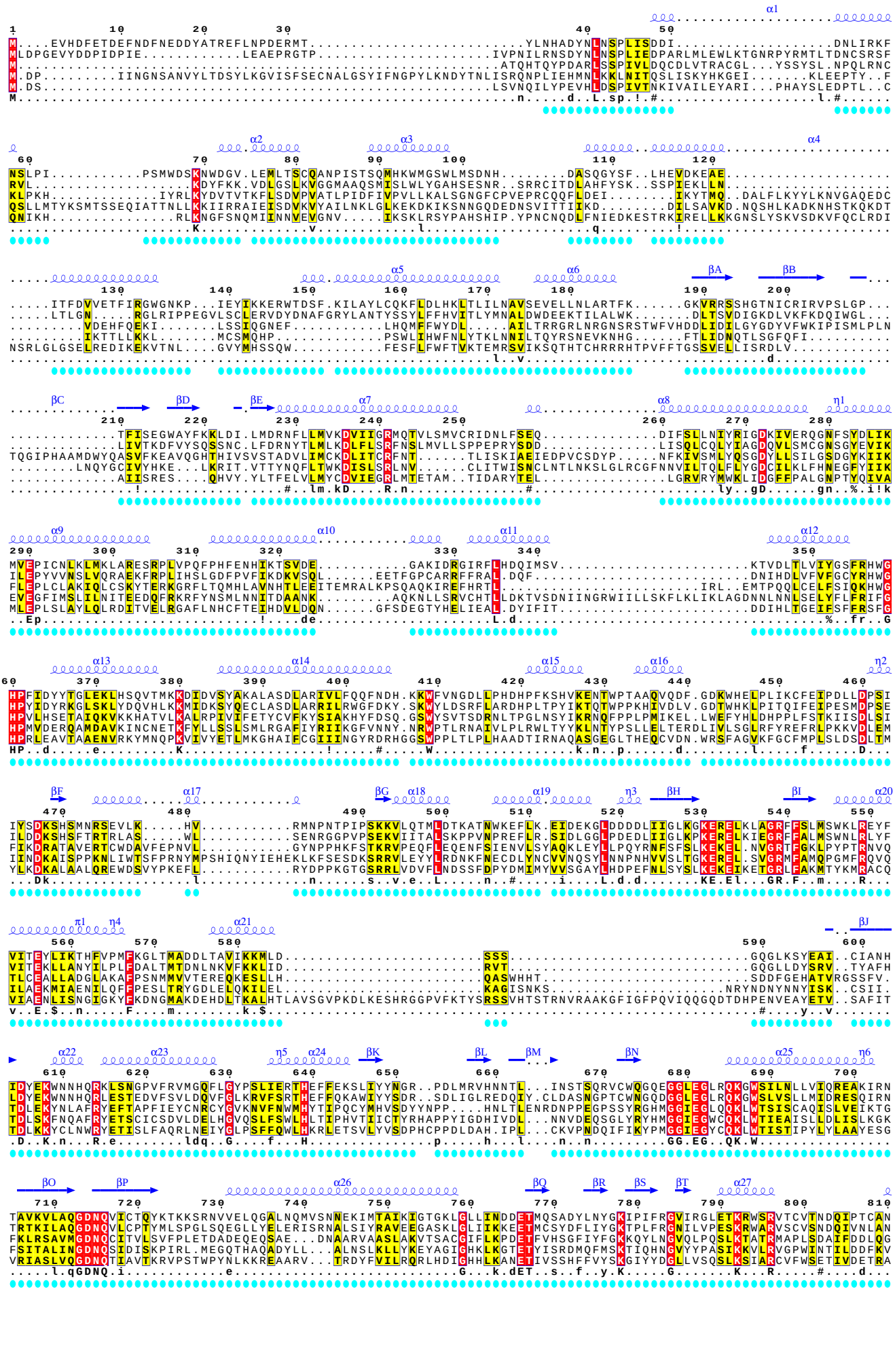
VSV-L
Rabies
Ebola
RSV
Measles
consensus>50

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VSV-L      α28                α29                                α30                                                  α31                α32                α33                α34                α35
           820       830       840       850       860       870       880       890       900                  910       920       930       940       950       960       970       980       990       1000
VSV-L      IMSSVSTNALTVAHFAENPINAMIQYNYFGTFARLLLMMHDPALRQSLYEVQDKIPGLHSS.....TFKYAM...LYLDPSIGGVSGMSLSRFLIRAFPDPVTESL  SFWRFIHVHARSEHL....KEMSAVFGNPEIA......KFRITHIDKLVEDPTSLNIAMGMSPANLLKT.EVKKCLIESRQTIRNQVIKDATIYLYHEEDRLRSFL
Rabies     IMSTVSTNALTVAQHSQSLIKPMRDFLLMSVQAVFHYLLFSPILKGRVY....KILSAEGE.....SFLLAMSRIIYLDPSLGGISGMSLGRFHIRQFSDPVSEGL  SFWREIWLSSQESWI....HALCQEAGNPDLG......ERTLESFTRLLEDPTTLNIRGGASPTILLKD.AIRKALYDEVDKVENSEFREAILLSKTHRDNFILFL
Ebola      TLASIGTAFERSISETRHIFPCRITAAFHTFFSVRILQYHHLGFNKGFDLGQLTLGKPLDF........GTISLALAVPQVLGGLSFLNPEKCFYRNLGDPVTSGL  FQLKTYLRMI.........EMDDLFL.PLIA.....KNPGNCTAIDFVLNPSGLNVPGSQDLTSFLRQIVRRTITLSAKNKLINTLFHASA...DFEDEMVCKWL
RSV        SLESIGSLTQELEYRGESLLCSLIFRNVWLYNQIALQLKNHALCNNKLYLDILKVLKHLKTFFNLDNIDTALTLYMNLPMLFGGGDPNLLYRSFYRRTPDFLTEAI  VHSVFILSYYTNHDLKDKLQDLSDDRLNKFLTCIITFDKNPNAEFVTLMRDPQALGSERQAKITSEINRLAVTEVLSTAPNKI....FSKSAQHYTTTEIDLNDIM
Measles    ACSNIATTMAKSIERGYDRYLAYSLNVLKVIQQILISLGF..TINSTMTRDVV.........IPLLTNNXLLVRMALLPAPIGGMNYLNMSRLFVRNIGDPVTSSI  ADLKRMILAS.........LMPEETLHQVMT.....QQPGDSSFLDWASDPYSANLVCVQSITRLLKNITARFVLIHSPNPMLKGLFHDDS....KEEDEGLAAFL
consensus>50 .m..!.t.......................v...l.......................................m.....l....GG...m.l.r...R...Dpvt...  ....$.d.......................#P..ln.......t..l.......l....#......f..........ed.....$

VSV-L      α36       α37       α38       η7        α39                                α40
           1010      1020      1030      1040      1050      1060      1070                                1080      1090
VSV-L      WSINPLFPRFLSEFKSGTFLGVADGLISLFQNSRTIRNSFKKKYHRELDDLIVRSEVSSLTHLGKLHLRRGSC...................KMWTCSA.THADTLR
Rabies     ISVEPLFPRFLSELFSSSFLGIPESIIGLIQNSRTIRRQFRKSLSKTLEESFYNSEIHGISRMTQTPQRVGGV.....................WPCSS.ERADLLR
Ebola      LSSTPVMSRFAADIFSRTPSGKRLQILGYLEGTRTLLASKIINN.........NTETPVLDRLRKITLQRWSLWFSYLD.HCDNILAEAL.TQITCTV.DLAQILR
RSV        QNIEPTYPHGLRVVYESLPFYKAEKIVNLISGTKSITNILEKTS.........AIDLTDIDRATEMMRKNITLLIRILPLDCNRDKREIL.SMENLSITELSKYVR
Measles    MDRHIIVPRAAHEILDHSVTGARESIAGMLDTTKGLIRASMRKG.........GLTSRVITRLSNYDYEQFRAGMVLLT....GRKRNVLIDKESCSV.QLARALR
consensus>50 ....p..pr...e.......g..e.i..l.q.........................e.....rl.............................cs..e.a..lR

VSV-L      α41       βU        βV                                                                                  α40
           1100      1110      1120      1130      1140      1150      1160      1170
VSV-L      YKSW.....GRTVIGTTVPHPLEML.GPQHRKETPCAPC...NTSGFN.YVSVHCPDGIHDV....FSSR.....GPLPAYLGSKTSESTSILQPWERESKVPLIK
Rabies     EISW.....GRKVVGTTVPHPSEML.GLLPKSSISCT...CGATGGGNPRVSVSVLPSFDQS....FFSR.....GPLKGYLGSSTSMSTQLFHAWEKVTNVHVVK
Ebola      EYSWAHILEGRPLIGATLPCMIEQFKVFWLKPYEQCPQCSNAKQPGGKPFVSVAV..KKHIVSAWPNASRISWTIGDGIPYIGSRTEDKIGQPAIKPKCPS.AALR
RSV        ERSWS....LSNIVGVTSPSIMYTM.................DIKYTTSTISSGIIIEKYNVNSLTRGER.....GPTKPWVGSSTQEKKTMPVYNRQVLTK.KQR
Measles    SHMWARLARGRPIYGLEVPDVLESMRGHLIRRHETCAICECGSVNYGWFFVPSGC..QLDDIDKETSSLR........VPYIGSTTDERTDMKLAFVRAPS.RSLR
consensus>50 ..sW.....gr.viG.t.P...e.l..........c..............!s........dv.......R.....g....y.GS.T.e.....................

VSV-L      α42       η8        α43       α44                                                α45       βW                α46       βX
           1180      1190      1200      1210      1220      1230      1240      1250      1260      1270                1280      1290      1300      1310      1320      1330      1340      1350
VSV-L      RATRLRDAISWFVEPDSK...LAMTILSNIHSLTGEEWTKRQHG.FKRTGSALHRFSTSRMSHGGFASQSTAALTRLMATTDTMRDLGD.....QNFDFLFQATLL  YAQITTT..VARDGWITSCTD...HYHIACKSCLRPI..EEITLDSSMDYTPPDVSHVLKTWRNGEGSW................GQEIKQIYPLEGNWKNLAPAE
Rabies     RALSLKESINWFITRDSN...LAQALIRNIMSLTGPDFPLEEAPVFKRTGSALHRFKSARYSEGGYSSVCPNLLSHISVSTDTMSDLTQDG...KNYDFMFQPLML  YAQTWTSELVQRDTRLRDSTF...HWHLRCNRCVRPI..DDVTLETSQIFEFPDVSKRISRMVSGAVPH................FQRLPDIRLRPGDFESLSGRE
Ebola      EAIELASRLTWVTQGSSNSDLLIKPFLEARVNLSVQEI.LQMTP.SHYSGNIVHRYNDQYSPHSFMANRMSNSATRLIVSTNTLGEFSGGGQSARDSNIIFQNVIN  YAVALFD.IKFRNTEATDIQYNRAHLHL.TKCCTREVPAQYLTYTSTLDLDL..TRYRENELIYDSNPLKGGLNCNISFDNPFFQGKRLNIIEDDLIRLPHLSGWE
RSV        DQIDLLAKLDWVYASIDNKDEFMEELSIGTLGLTYEKA.KKLFP.QYLSVNYLHRLTVSSRPCEFPASIPAYRTTNYHFDTSPINRILTEKYGDEDIDIVFQNCIS  FGLSLMS.VVEQF...............TNVCPNRI....ILIPKLNEIHL......MKPPIFTG.........DVDIHKLKQVIQKQHMFLPDKISLTQYVELF
Measles    SAVRIATVYSWAYGDDDSSWNEAWLLAKQRANVSLEEL.RVITP.ISTSTNLAHRLRDRSTQVKYSGTSLVRVARYTTISNDNLSFVISDKK..VDTNFIYQQGML  LGLGVLE.TLFRLEKNTGPSNTVLHLHVETDCCVIPM.IDHPRIPSSRKLEL.RAELCTNPLIYDNAPL.....IDRDATRLYTQSHRRHLVEFVTWSTPQLYHIL
consensus>50 .a..l.....W.....................l..ee......p.........HR..........................td.m...........#.#..%Q....  y.........r............h.h.....C...i..d.......................i.............................i.........l....

VSV-L      α46       α47                                                                                                α48                                                α49                α50       α51
           1360      1370      1380      1390      1400      1410      1420      1430      1440      1450                1460      1470      1480      1490      1500      1510      1520
VSV-L      QSYQVGRCIGFLYGDLAYRKSTHAEDSSLFPLSIQGRIRGRGFLKGL....LDGLMRASCCQVIHRRSLAHLKRPANA.VYGGLIYLIDKLSVSPPFLSLTRSG..  ...PIRDELETIPHKIPTSYPTS...........NRDMGVIVRNYFKYQCRLIEKGKYRSHYSQLW...LFSDVLS.....................IDFIGPF....
Rabies     KSHHIGSAQGLLYSILVAIHDSGYNDGTIFPVNIYGKVSPRDYLRGL....ARGVLIGSSICFLTRMTNININRPLEL.VSGVISYILLRLDNHPSLYIMLREP..  ...SLRGEIFSIPQKIPAAYPTT.....MKE.GNRSILCYLQHVLRYEREIITA...SPENDWLW...IFSDFRSAK...................MTYLSLI....
Ebola      LAKTIMQSII..........SDSNNSST....DPISSGETRSFTTHFL.TYPKIGLLYSFGAFVSYYLGNTILRTKKLTLDNFLYYLTTQIHNLPHRSLRILKPTF  KHASVMSRLMSIDPHFSIYIGGAAGDRGLSDAARLFLRTSISSFLTFVKEWIIN...RGTIVPLW...IVYPLEGQN......PTPVNNFL.....YQIVELLVHDS
RSV        LSNKTLKS............GSHVNS......NLILAHKISDYFHNT.......................................YI.....................  .....LSTNLAGHWILIIQLMKDSKGIFEKDWGEGYITDHMFINLKVFFNA.........YKTYLLC...............FHKGYGKAKLECDMNTSDLLCVLE
Measles    LGLGVLE.TLFRLEKNTGPSNTVLHLHVETDCCVIPM.IDHPRIPSSRKLEL.RAELCTNPLIYDNAPL.....IDRDATRLYTQSHRRHLVEFVTWSTPQLYHIL  AKSTALSMIDL....VTKFEKDHMNEIS....ALIGDDDINSFITEFLLIEPRLFTI.......................YL.....................  .....GQCAINWAFDVHYHRPSGKYQMGELLSSFLSRMSKGVFKVLVNALSH...PKIYKKFWHCGIIEPIHGPSLDAQNLHTTVCNMVYTCYMTYLDLLLNEE
consensus>50 y.........r............h.h.....C...i..d.......................i.............................i.........l....  .......................#...................%.......................Y.....................

VSV-L      α52       α53                                                                                                α54       α55
           1530      1540      1550      1560      1570      1580                1590      1600      1610      1620      1630      1640
VSV-L      SISTTLLQILYKPFLSGKDKNELR...........................ELANLSSLLR.....SGEGWE....DIHVKFFTKDIL..........LCPEEIRH  ACKFGIAKDN.NKDMSYPPWGRESRGTITTIPVYYTTTPYP....KMLEMPPRIQNPLLSGIRL.......................................
Rabies     TYQSHLLLQRVERNLSKSMRDNLR...........................QLSSLMRQVL.....GGHGEDTLESDDNIQRLLKDSLR......RTRWVDQEVRH  AARTMTGDYSPNKKVSRKVGCSEWVCSAQQVAVSTSANPAPVSELDIRALSKRFQNPLISGLRV.......................................
Ebola      SRQQAFKTTISDH.VHPH..DNLVYT.........CKSTASNFFHASLAYWRSRHRNSNRKYLARDSSTGSSTNNSDGHIERSQEQTTRDPHDGTERNLVLQMSHE  IKRTTIPQENTHQGPSFQSFLSDSACGTANPKLNFDRSRHNVKFQDHNSASKREGHQIISHRLVLPFFTLSQGTRQLTSSNESQTQDEISKYLRQ...........
RSV        LIDSSYWKSMSKVFLEQK.........VIKYILSQDASLHRVKGCHSF.KLWFLKRLNVAEFTVCPWVVNIDYHPTHMK...................AILTYIDL  VRMGLINIDRIHIKNKHKFNDEFYTSNLFYINYNFSDNTHLLT.KHI.....RIANSELEN.......NYNKLYHPTPETLENILANPIKSNDKKTLNDYCIGKNV
Measles    LDEFTFLLCESDEDVVPDRFDNIQAKHLCVLADLYCQPGTCPPIRGLRPVEKCAVLTNHIKAEARLSPAGSSWNINPIIVDHYSCSLT..................Y  LRRGSIKQIRLRVDPGF.IFDALAEANVSQPKIG.SNNISNMSIKDF.....RPPHDDVAKLLK....DINTSKHNLPISGGNLANYEIHAFRR...........
consensus>50 ..q...........................dn.....................l..........g.........v.......................  .....i.....................................R.....................................
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VSV-L                                                                                                                                α57       π2
                                                                                                                                                  1650      1660
VSV-L     ..........................................................................................................GQLPTGAHYKIRSILHGMGIH
Rabies    ..........................................................................................................VQWATGAHYKLKPILDDLNVF
Ebola     ......................LRS...............VID.................................TTVYC........RF..TGIVSSMHYKLDEVLWEIESF
RSV       DSIMLPLLSNKKLIKSSAMIRTNYSKQDLYNLFPMVVIDRIIDHSGNTAKSNQLYTTTSHQISLVHNSTSLYCMLPWHHINRFNFVFSSTGCKISIEYILKDLKIK
Measles   ..........................................................................................IGLNSSACYKAVEI....STL
consensus>50 ..........................................................................................yk...!l......
                                                                                                                                  ●●●●●●●●●●●●●●●●●●●●
                                                                                                                                            ▲

                                βZ                α58                βA                                η9        η10                                α59
VSV-L                                                                                                                                                                  1670      1680      1690      1700      1710      1720      1730      1740      1750
VSV-L     YRDFLS.......CGDGSGGMTA.ALLRENVHSRGIFNSLLELSGSVM..RGASPEPP...SALETLGGDK.SRCVNGETCWEYPSDLCDPRTWDYFLRLKAGLG.
Rabies    PSLCLV.......VGDGSGGISR.AVLNMFPDAKLVFNSLLEVNDLMA..SGTHPLPP...SAIMRGGNDIVSRVIDLDSIWEKPSDLRNLATWKYFQSVQKQVN.
Ebola     KSAVTL......AEGEGAGALLL...IQKYQVKTLFFNTLATESSIESEIVSGMTTPRMLLPVMSKFHNDQIEIILN.....NSASQITDITNPTWFKDQRARLP.
RSV       DPNCIA......FIGEGAGNLLLRTVVELHPDIRYIYRSLKDCND........HSLPIEF....LRLYNGHIN..IDYGE..NLTIPATDATNNIHWSYLHIKFA.
Measles   IRRCLEPGEDGLFLGEGSGSMLV.TYKEILKLNKCFYNSGVSANSRSGQ.RELAPYPSEVGLVEHRMGVGNIVKVLF.....NGRPEVTWVGSVDCFNFIVSNIPT
consensus>50 ..............G#G.G.m......e........%nsl................P..............i....n.....#...d..d......f.........
             ●●●●●●        ●●●●●●●●●● ●●●●●●●●●●●●●●●●●●●●●●●●  ●●●●●●●●●   ●●●●●●●●●● ●●●●●●●●●●●●●●●●●●●
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