

Numbering is for the alignment, not for FV sequence

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      10      20      30      40      50      60      70      80      90     100
FV 29-2224 AQLRQFYVAAQGISWSY-RPEP-----TNSLNLVSV-----TSEFKKIVYREY-EPYFKKEKQPSTISGLLGPPLYAEVGDIIKVFHFNKA
FVIII 20-2351 ATRR-YYLGAVELSWDYMQSDL-----GELPVDARF-PPRVPKSFPFNTSVVYKTLFVEFTDHLFNIAKPRPPWMGLLGPPTIQAEVYD TVVITLKNMA
CP 20-1065 KEKH-YYIGIIETTWDY-ASDHGEEKLISVDTEHSNI---YLQNGPDRIGRLYKKAALYLYQYTDFTFRTTIEKPVWLGFLGPIIKAETGDKVYVHLKNLA
HP 24-1158 ATRV-YYLGIRDVQWNY-APKG--RNVITNQPLDSDIVASSFLKSDKNRIGGTYKKTIIYKEYKDDSYTDEVAQPAWLGFLGPVLAQAEVGDVILIHHLKNFA

      110     120     130     140     150     160     170     180     190     200
FV 29-2224 DKPLSIHPQGI RYSKLSEGASYLDHTFPAEKMDDAVAPGREYTYEWSISEDSGPTHDDPPCLTHIYYSHENLIEDFNSSGLIGPLLI CKKGTLTTEGG--TQ
FVIII 20-2351 SHPVSLHAVGVSYWKASEGAEYDDQTSQREKEDDKVFPGGSHTYVWQVLKENGPMASDPLCLTYSYLSHVLDLVKDLNSGLIGALLVCREGSLAK----EK
CP 20-1065 SRPYTFHSHGITYYKEHEGAIYPDNTTDFQRADDKVYPGEQYTYMLLATEEQSPGEGDNCVTRIIYHSHIDAPKDIASGLIGPLIICKKDSL DKE---KE
HP 24-1158 TRPYTIHPHGVFYEKDSEGS LYPDGS SGPLKADDSVPPGGSHIYNWTIPEGHAPTADAPACL TWIYHSHVDAPRDIATGLIGPLITCKRGALDGN SPPQR

      210     220     230     240     250     260     270     280     290     300
FV 29-2224 KTFDKQIVLLFAVFDESKSWS-----QSSSLMYTVNGYVNGTMPDITVCAHDHISWHLLGMSSGPELFSIHFNQVLEQNHHK
FVIII 20-2351 TQTLHKFILLFAVFDEGKSWH-----SETKNSLMQDRDAASARAWPKMHTVNGYVNRSLPGLIGCHRKSVYWHVIGMGTTP EVHSIFLEGHTFLVRNHR
CP 20-1065 KHIDREFVVMF SVVDENFSWYLEDNIKTYCSEPEKVDKDNEDFQESNRMYSVNGYTFGSLPGLSMCAEDRVKWFYFGMGNEVDVHAAFFH GQALTNKNYR
HP 24-1158 QDVDHDFLLFSVVDENLSWHLNENIATYCSDPASVDKEDETFQESNRMHAINGFVFGNLP ELMCAQKRVAWHLFGMGNEIDVHTAFFH GQMLTTRGHH

      310     320     330     340     350     360     370     380     390     400
FV 29-2224 VSAITLVSATSTTANMTV GPEGKWIISLTPKHLQAGMQAYIDIKNCPKK-----TRNLKKITREQRRHMKRW
FVIII 20-2351 QASLEISPITFLTAQTL LMDLQGQLLFC HISSHQHDGMEAYVKVDSCEPEPQLRMKNNEEAEDYDDDLTDSEMDVVRFD DDNSPSFIQIRSVAKKH PKTW
CP 20-1065 IDTINLFPATLFDAYMVA QNPGEWMLSCQNLNHLKAGLQAFFVQECNK-----SSSKDNIRGKHVRH----
HP 24-1158 TDVANIFPATFVTAEMVPWEPGTW LISQVNSHFRDGMQALYKVKSCSM-----APPVDLLTGK-VRQ----

      410     420     430     440     450     460     470     480     490     500
FV 29-2224 EYFIAAEEVIWDYAPVIPA-----NMDKKYRSQHLDNFSNQIGKHYKKVMYTYEDESFTKHTVNP-NMKEDGILGPIIRAQVRD TLKIVFKNMASRP
FVIII 20-2351 VHYIAAEEEDWDYAPLVLA-----PDDRSYKSYQLNNGPQRIGRKYKVRFMAYTDETFKTREA---IQHESGILGPLYG EVGDTLLIIFKNQASRP
CP 20-1065 -YYIAAEEIIWNYAPSGIDIFTKENLTAPGSDSAVF FEQGTTRIGGSYKLVYREYTDASFTNRKERGPEEHLGILGPVIWA EVGDTIRVTFHNKGAYP
HP 24-1158 -YFIEAHEIQWDY GPMGH DGSTGKNLREPGSISDKFFQKSSSRIGGTYWKVRYEAFQDETFQEKMHLE-EDRHLGILGPVIRA EVGDTIQVVFYNRASQP

      510     520     530     540     550     560     570     580     590     600
FV 29-2224 YSIYPHGVTTFSPYEDEVNSSFTSGRNNTMIR---AVQPGETYTYKWNILEFDEPTENDAQCLTRPYSDVDIMRDIASGLIGLLI CKSRSLDRRGIQR
FVIII 20-2351 YNIYPHGIT-----DVRPLYSRRLPKGVKHLKDFPILPGEIFKYKWTVTVEDGPTKSDPRCLTRYSSSFVNMERDLASGLIGPL LICYKESVDQRGNQI
CP 20-1065 LSIIEPIGVRFNKNNEGTYSSPNYNPQRSVPPSASHVAPTETFTYEWTVPKEVGPTNADPVCLAKMYSAVDPTKDI FTGLIGPMKICKKGS L HANGRQK
HP 24-1158 FSMQPHGVFYEKDYEGTVYN-----DGSSYPGL-VAKPF EKVTYRWTVPPHAGPTAQDPACLTWMYFSAADPIRDTNSGLVGP LLVCRAGALGADGKQK
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1210 1220 1230 1240 1250 1260 1270 1280 1290 1300
FV 29-2224 PTDLNQTLPSMDFGWIASLDPDHNQ-----NSSNDTGQASCPPGLYQTVPPPEE-HYQTFPIQDPDQMHSTSDPSHRSSSPPELSEMLEYDRSHKSFPTDI
FVIII 20-2351 PPDAQN--PDMSFFKMLFLPE SARWIQRTHGKNSLNSGQGPSKQLVSLGPEKSVEGQNFLSEKNKVVVVGKGEFTKDVGLKEMVFPSSRNLFLLTNLDNLH
CP 20-1065 -----
HP 24-1158 -----

1310 1320 1330 1340 1350 1360 1370 1380 1390 1400
FV 29-2224 SQMSPSSEHEVWQTVISPDLSQVTLSPPELSQTNLSPDLSSHHTLSPPELIQRNLSPALGQ-----MPISPDLSSHHTLSPDLSH-----
FVIII 20-2351 ENNTHNQEKKIQQEIEKKE-----TLIQENVVLPQIHVTVTGKTNFMKNLFLSTRQNVESYDGAYAPVLQDFRSLNDSTNRTKKHTAHFSKKGEEE
CP 20-1065 -----
HP 24-1158 -----

1410 1420 1430 1440 1450 1460 1470 1480 1490 1500
FV 29-2224 -----TTLSLDLSQTNLSPPELSQTNLSPALGQMPPLSPDLSSHHTLSDLSQTNLSPPELSHMTLSP-----ELSQTNLSPA
FVIII 20-2351 NLEGLGNQTKQIVEKYACTTRISPNTSQQNFVTRQSKRALKQF--RLPLEETELEKRIIVDDTSTQWSKNMKHLTPSTLTQIDYNEKEKGAITQSPLSDC
CP 20-1065 -----
HP 24-1158 -----

1510 1520 1530 1540 1550 1560 1570 1580 1590 1600
FV 29-2224 LGQMPISPDLSSHHTLSDLSQTNLSPPELSQTNLSPALGQMPPLSPDPS-----HTTSLSDLSQTNLSPPELSQTNLSPDLSEMPPLFADLSQIPLT
FVIII 20-2351 LTRSHSIPQANRSPPI--AKVSSFPISIRPIYLRVLFQDNSSHLPAASYRKKD SGVQESSHFLOGAKKNNLSLAILTLEMTGDQREVGSIGTSATNSVT
CP 20-1065 -----
HP 24-1158 -----

1610 1620 1630 1640 1650 1660 1670 1680 1690 1700
FV 29-2224 PDLQMTLSPDLGETDLSPNFGQMSLSPDLQVTLSPDISDTLLPDLSPQISPPPDLQIFYPSESSQSLLLQEFNESFPYPDLGQ-----
FVIII 20-2351 YKKVENTVLP--KPDLPKTSQKVELLPKV-----HIYQKDLFPTETSNGSPGHLDLV-----EGSLLQGTGAIKWNEANRPGKVPFLRVATESS
CP 20-1065 -----
HP 24-1158 -----

1710 1720 1730 1740 1750 1760 1770 1780 1790 1800
FV 29-2224 -----MPSPSSPTLNDTFLSKEFNPLVIVGLSKDGTDYIEIIPKEE
FVIII 20-2351 AKTPSKLLDPLAWDNHYGTQIPKEEWSQEKSPKTAFFKKKDTILSLNACESNHAAIAINEGQNKPEIEVTVAKQGRTERLCSQNPVPLKRHQREITRTT
CP 20-1065 -----
HP 24-1158 -----

1810 1820 1830 1840 1850 1860 1870 1880 1890 1900
FV 29-2224 VQSS~~EDDYAEIDYV~~PYDDPYKTDV~~RT-NINSSRDPDNIAAWYLRSNNGNRRNYIAAEEISWDYSEFVQRET~~DI~~ED~~-----SDDI~~PEDTTYK~~
FVIII 20-2351 LQSD~~QEE~~-----IDYDDTISVEMKKEDFDIYDE~~ENQSP~~---RSFQKKTRHYFIAAVERLWDYGMSSSP-HVLRNRAQSGSV-----PQFK
CP 20-1065 -----STFYLGERTYIIAAVEVEWDYSPQREWEKELHHLQEQNVS-NAFLDKGEFYIGSKYK
HP 24-1158 -----RQRYQAARIYYIMAEVEWDYCPDRSWEREW~~HNQSEKDSYGIIFLSNKDGLLGSRYK~~

1910 1920 1930 1940 1950 1960 1970 1980 1990 2000
FV 29-2224 KVVFRKYLDSTFTTKRDP~~RGEYEEHLGILGPIIRA~~EVDDVIQVRFKNLASRPYSLHAHGLSYEKSSEGGKTYEDD~~SP~~EWFKEDNAVQPNSSYTYVWHATERS
FVIII 20-2351 KVV~~FQ~~EFTDGSFTQPLYRGELNEHLGILGPIIRA~~EV~~EDNIMVTFRNQASRPYSFYSSLI~~SYE~~---EDQRQGAEP~~RKNF~~-----VKPNETKTYFWKVQH~~HM~~
CP 20-1065 KVVYRQYTDSTFRVPVERKA~~EEHLGILG~~PQLHADVGD~~KVKIIFKNMATRPYSI~~HAHGVQTESSTVTP-----TLPGETLTYVW~~KIPERS~~
HP 24-1158 KAVFREYTDGTFRIPR~~PRTGPEEHLGILG~~PLIKGEVGDILT~~VVFKNNASRPYSV~~HAHGV-LESTTVWP-----LAAEPGEV~~VTYQWNIPERS~~

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100
FV 29-2224 GPESPGSACRAWAYSAVNPEKDIH~~SGLIGPLLI~~CQKGI~~LHKDSNMPMDMRE~~FVLLFMTFDEK~~SWY~~EKKSRSSWRLT~~SSEMK~~-----KSHEFHAIN
FVIII 20-2351 APTKDEFDCKAWAYFS~~DVLEKDVH~~SGLIGPLLVCHTNTLNPAHGRQVTVQEFALFF~~TIFDE~~TKSWYFTENMERN-CRAPCNIQMEDPT~~FKENYRFHAIN~~
CP 20-1065 GAGTEDSACIPWAYYSTVDQ~~VKDL~~YSGLIGPLIVCRRPYLKVFN~~PRRKL~~--EFALLFLVFDENESWYLD~~DDNI~~KTY-SDHPEKVNKDDEEF~~IESNKM~~HAIN
HP 24-1158 GPGPNDSACVSWIYYSAVDPIK~~DMYSGLVG~~PLAICQKGI~~LPHGGRSDMRE~~FALLFLIFDENKSWYLEENVATH~~GSQDPGSINLQ~~DET~~FLESNKM~~HAIN

2110 2120 2130 2140 2150 2160 2170 2180 2190 2200
FV 29-2224 GMIY-SLPGLKMYEQEWVRLHLLNIGGSQDIH~~VVHFH~~GQTLL~~ENGNKQHQLG~~VWPLLPGSFKTLEMKASKPGWLLNTEVGENQ~~RAGMQTPFLIMDR~~DCR
FVIII 20-2351 GYIMDTLPGLVMAQDQ~~RIRWYLLSMG~~SNENIHSIH~~FSGHVFTVR~~KK~~EEYK~~MALYNLYPGV~~FETVEM~~LPSKAGIWRVECLIGEHLHAGMSTL~~FLVYSNKCQ~~
CP 20-1065 GRMFGNLQGLTMHV~~GDEVNWYLMG~~MNEIDLHTV~~HFGHSFQY~~KHRGVYSSD~~VDFIFPGTYQ~~TLEMFPRTPGI~~WLLHCHVTDHI~~HAGMETTYTVLQ~~NEDT~~
HP 24-1158 GKLYANLRGLTMYQGERVAWYMLAMGQ~~DVLDHTIHF~~HAESFLYRNGENYRADV~~DLFP~~PGTFEVVEMVASNPGT~~WLMHCHVTDHV~~HAGMETLFT~~TVFSRTEH~~

2210 2220 2230 2240 2250 2260 2270 2280 2290 2300
FV 29-2224 MPMGLSTGIISDSQIKASEFLGY~~EPRLARLN~~NGGSYN~~AWSV~~EKLAAEFASKPWIQVDMQKEVIITGIQ~~TQGA~~KHYLKS~~CYTTE~~FYVAYSSN~~QINWQIFK~~
FVIII 20-2351 TPLGMASGHIRD~~FQITASGQY~~GQWAPKLARLH~~YSGSIN~~AWSTKEPF-----SWIKVDLLAPMI~~IHG~~IKTQGARQ~~KFSS~~LYISQFIIMYSLD~~GKKWQTYR~~
CP 20-1065 KSG-----
HP 24-1158 LSPLTVITKETEKAVPP~~RDIEEGNVKMLGMQ~~IP~~IKN~~VEMLASVLVAISV~~TLLLVV~~LALGGV~~VWYQHRQ~~RKLRRNRRSIL~~DD~~SFKLLS~~FKQ~~-----

2310 2320 2330 2340 2350 2360 2370 2380 2390 2400
FV 29-2224 GNSTRNVMYFNGNSDASTIKENQ~~FD~~PPIVARYIRISPT~~RAYNRPTLR~~LELOGCEVNGCSTPLGMEN~~GKIEN~~KQITASSFK~~SWWGDY~~WEPFRARL~~NAQGR~~
FVIII 20-2351 GNSTGTLMVFFGNVDSSGI~~KHNIFN~~PPIIARYIRL~~HP~~THYSIRSTLR~~ME~~LMGCDLNSCSMPLG~~MESKAISDA~~QITASSYFT~~NMFAT~~-WSPSKARL~~HLQGR~~
CP 20-1065 -----
HP 24-1158 -----

