

SEQUENCE LISTING

<110> CSL Limited

<120> Factor VIII Formulation

<130> SP100588SGA

<150> EP 14179732.4

<151> 2014-08-04

<160> 2

<170> PatentIn version 3.5

<210> 1

<211> 2332

<212> PRT

<213> Homo sapiens

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Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
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Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
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Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
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Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
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Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
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Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
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His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
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Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
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His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
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 His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser
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 Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg
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 Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu
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 Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly
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 Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg
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 Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile
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Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile
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 Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
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Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Arg Ser Thr Arg
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Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys
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Thr Asp Pro Trp Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn
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Val Ser Ser Ser Asp Leu Leu Met Leu Leu Arg Gln Ser Pro Thr Pro
785 790 795 800

His Gly Leu Ser Leu Ser Asp Leu Gln Glu Ala Lys Tyr Glu Thr Phe
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Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn Ser Leu Ser
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Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val
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Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly Lys Lys Ser Ser Pro
915 920 925

Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn Asn Asp
930 935 940

Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp
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Gly Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys
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Lys Asn Ala Thr Ala Leu Arg 1055 1060	Leu Asn His Met Ser 1065	Asn Lys Thr
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Gln Asp Phe Arg Ser Leu Asn 1250 1255	Asp Ser Thr Asn Arg 1260	Thr Lys Lys
His Thr Ala His Phe Ser Lys 1265 1270	Lys Gly Glu Glu Glu 1275	Asn Leu Glu

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Gln	Arg	Ser	Lys	Arg	Ala	Leu	Lys	Gln	Phe	Arg	Leu	Pro	Leu	Glu
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Glu	Thr	Glu	Leu	Glu	Lys	Arg	Ile	Ile	Val	Asp	Asp	Thr	Ser	Thr
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Gln	Glu	Ser	Ser	His	Phe	Leu	Gln	Gly	Ala	Lys	Lys	Asn	Asn	Leu
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Ser	Leu	Ala	Ile	Leu	Thr	Leu	Glu	Met	Thr	Gly	Asp	Gln	Arg	Glu
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 Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe
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Leu	Ile 1790	Ser	Tyr	Glu	Glu	Asp 1795	Gln	Arg	Gln	Gly	Ala 1800	Glu	Pro	Arg
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Val	Gln 1820	His	His	Met	Ala	Pro 1825	Thr	Lys	Asp	Glu	Phe 1830	Asp	Cys	Lys
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Ser	Gly 1850	Leu	Ile	Gly	Pro	Leu 1855	Leu	Val	Cys	His	Thr 1860	Asn	Thr	Leu
Asn	Pro 1865	Ala	His	Gly	Arg	Gln 1870	Val	Thr	Val	Gln	Glu 1875	Phe	Ala	Leu
Phe	Phe 1880	Thr	Ile	Phe	Asp	Glu 1885	Thr	Lys	Ser	Trp	Tyr 1890	Phe	Thr	Glu
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Asp	Pro 1910	Thr	Phe	Lys	Glu	Asn 1915	Tyr	Arg	Phe	His	Ala 1920	Ile	Asn	Gly
Tyr	Ile 1925	Met	Asp	Thr	Leu	Pro 1930	Gly	Leu	Val	Met	Ala 1935	Gln	Asp	Gln
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Glu	Glu 1970	Tyr	Lys	Met	Ala	Leu 1975	Tyr	Asn	Leu	Tyr	Pro 1980	Gly	Val	Phe
Glu	Thr 1985	Val	Glu	Met	Leu	Pro 1990	Ser	Lys	Ala	Gly	Ile 1995	Trp	Arg	Val
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Phe	Leu 2015	Val	Tyr	Ser	Asn	Lys 2020	Cys	Gln	Thr	Pro	Leu 2025	Gly	Met	Ala
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Gly	Gln	Trp	Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly	Ser

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Asp Leu 2075	Leu Ala Pro Met Ile 2080	Ile His Gly Ile Lys 2085
Thr Gln Gly		
Ala Arg 2090	Gln Lys Phe Ser Ser 2095	Leu Tyr Ile Ser Gln 2100
Phe Ile Ile		
Met Tyr 2105	Ser Leu Asp Gly Lys 2110	Lys Trp Gln Thr Tyr 2115
Arg Gly Asn		
Ser Thr 2120	Gly Thr Leu Met Val 2125	Phe Phe Gly Asn Val 2130
Asp Ser Ser		
Gly Ile 2135	Lys His Asn Ile Phe 2140	Asn Pro Pro Ile Ile 2145
Ala Arg Tyr		
Ile Arg 2150	Leu His Pro Thr His 2155	Tyr Ser Ile Arg Ser 2160
Thr Leu Arg		
Met Glu 2165	Leu Met Gly Cys Asp 2170	Leu Asn Ser Cys Ser 2175
Met Pro Leu		
Gly Met 2180	Glu Ser Lys Ala Ile 2185	Ser Asp Ala Gln Ile 2190
Thr Ala Ser		
Ser Tyr 2195	Phe Thr Asn Met Phe 2200	Ala Thr Trp Ser Pro 2205
Ser Lys Ala		
Arg Leu 2210	His Leu Gln Gly Arg 2215	Ser Asn Ala Trp Arg 2220
Pro Gln Val		
Asn Asn 2225	Pro Lys Glu Trp Leu 2230	Gln Val Asp Phe Gln 2235
Lys Thr Met		
Lys Val 2240	Thr Gly Val Thr Thr 2245	Gln Gly Val Lys Ser 2250
Leu Leu Thr		
Ser Met 2255	Tyr Val Lys Glu Phe 2260	Leu Ile Ser Ser Ser 2265
Gln Asp Gly		
His Gln 2270	Trp Thr Leu Phe Phe 2275	Gln Asn Gly Lys Val 2280
Lys Val Phe		
Gln Gly 2285	Asn Gln Asp Ser Phe 2290	Thr Pro Val Val Asn 2295
Ser Leu Asp		
Pro Pro 2300	Leu Leu Thr Arg Tyr 2305	Leu Arg Ile His Pro 2310
Gln Ser Trp		

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Gln Asp Leu Tyr
2330

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35 40 45

Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro
50 55 60

Arg Pro Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val
65 70 75 80

Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val
85 90 95

Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala
100 105 110

Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val
115 120 125

Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn
130 135 140

Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser
145 150 155 160

His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu
165 170 175

Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu
180 185 190

His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp
Page 10

195	200	205
His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser	210	215 220
Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg	225	230 235 240
Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His	245	250 255
Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu	260	265 270
Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile	275	280 285
Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly	290	295 300
Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met	305	310 315 320
Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg	325	330 335
Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Asp Leu Thr Asp	340	345 350
Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe	355	360 365
Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His	370	375 380
Tyr Ile Ala Ala Glu Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu	385	390 395 400
Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro	405	410 415
Gln Arg Ile Gly Arg Lys Tyr Lys Lys Val Arg Phe Met Ala Tyr Thr	420	425 430
Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile	435	440 445
Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile	450	455 460
Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile	465	470 475 480

Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys
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 His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys
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 Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln
 580 585 590
 Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe
 595 600 605
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 Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu
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 Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp
 675 680 685
 Ile Leu Gly Cys His Asn Ser Asp Phe Arg Asn Arg Gly Met Thr Ala
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Gln Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Thr Thr Leu Gln
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 Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro
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 Arg Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu
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 Arg Ala Gln Ser Gly Ser Val Pro Gln Phe Lys Lys Val Val Phe Gln
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 Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro Leu Tyr Arg Gly Glu Leu
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 Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg Ala Glu Val Glu
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 Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro Tyr Ser
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 Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala
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 Glu Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe
 915 920 925
 Trp Lys Val Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys
 930 935 940
 Lys Ala Trp Ala Tyr Phe Ser Asp Val Asp Leu Glu Lys Asp Val His
 945 950 955 960
 Ser Gly Leu Ile Gly Pro Leu Leu Val Cys His Thr Asn Thr Leu Asn
 965 970 975
 Pro Ala His Gly Arg Gln Val Thr Val Gln Glu Phe Ala Leu Phe Phe
 980 985 990
 Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu Asn Met Glu
 995 1000 1005
 Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr
 1010 1015 1020

Phe	Lys	Glu	Asn	Tyr	Arg	Phe	His	Ala	Ile	Asn	Gly	Tyr	Ile	Met
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Ala	Pro	Lys	Leu	Ala	Arg	Leu	His	Tyr	Ser	Gly	Ser	Ile	Asn	Ala
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Thr	Asn	Met	Phe	Ala	Thr	Trp	Ser	Pro	Ser	Lys	Ala	Arg	Leu	His
	1310					1315					1320			
Leu	Gln	Gly	Arg	Ser	Asn	Ala	Trp	Arg	Pro	Gln	Val	Asn	Asn	Pro
	1325					1330					1335			
Lys	Glu	Trp	Leu	Gln	Val	Asp	Phe	Gln	Lys	Thr	Met	Lys	Val	Thr
	1340					1345					1350			
Gly	Val	Thr	Thr	Gln	Gly	Val	Lys	Ser	Leu	Leu	Thr	Ser	Met	Tyr
	1355					1360					1365			
Val	Lys	Glu	Phe	Leu	Ile	Ser	Ser	Ser	Gln	Asp	Gly	His	Gln	Trp
	1370					1375					1380			
Thr	Leu	Phe	Phe	Gln	Asn	Gly	Lys	Val	Lys	Val	Phe	Gln	Gly	Asn
	1385					1390					1395			
Gln	Asp	Ser	Phe	Thr	Pro	Val	Val	Asn	Ser	Leu	Asp	Pro	Pro	Leu
	1400					1405					1410			
Leu	Thr	Arg	Tyr	Leu	Arg	Ile	His	Pro	Gln	Ser	Trp	Val	His	Gln
	1415					1420					1425			
Ile	Ala	Leu	Arg	Met	Glu	Val	Leu	Gly	Cys	Glu	Ala	Gln	Asp	Leu
	1430					1435					1440			
Tyr														