

SEQUENCE LISTING

<110> SHANGHAI JEMINCARE PHARMACEUTICAL CO., LTD; JIANGXI JEMINCARE GROUP CO., LTD.

<120> ANTI-MASP-2 ANTIBODY AND USE THEREOF

<130> MTPISG230487

<150> PCT/CN2022/097268

<151> 2022-06-07

<160> 77

<170> PatentIn version 3.5

<210> 1

<211> 433

<212> PRT

<213> Artificial Sequence

<220>

<223> hMASP2-D456

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Met	Ala	Ser	Met	Thr	Gly	Trp	Lys	Ile	His	Tyr	Thr	Ser	Thr	Ala	His
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Ala	Cys	Pro	Tyr	Pro	Met	Ala	Pro	Pro	Asn	Gly	His	Val	Ser	Pro	Val
			20					25					30		

Gln	Ala	Lys	Tyr	Ile	Leu	Lys	Asp	Ser	Phe	Ser	Ile	Phe	Cys	Glu	Thr
		35					40					45			

Gly	Tyr	Glu	Leu	Leu	Gln	Gly	His	Leu	Pro	Leu	Lys	Ser	Phe	Thr	Ala
	50					55					60				

Val	Cys	Gln	Lys	Asp	Gly	Ser	Trp	Asp	Arg	Pro	Met	Pro	Ala	Cys	Ser
65					70					75				80	

Ile	Val	Asp	Cys	Gly	Pro	Pro	Asp	Asp	Leu	Pro	Ser	Gly	Arg	Val	Glu
				85					90					95	

Tyr Ile Thr Gly Pro Gly Val Thr Thr Tyr Lys Ala Val Ile Gln Tyr
 100 105 110

Ser Cys Glu Glu Thr Phe Tyr Thr Met Lys Val Asn Asp Gly Lys Tyr
 115 120 125

Val Cys Glu Ala Asp Gly Phe Trp Thr Ser Ser Lys Gly Glu Lys Ser
 130 135 140

Leu Pro Val Cys Glu Pro Val Cys Gly Leu Ser Ala Arg Thr Thr Gly
 145 150 155 160

Gly Arg Ile Tyr Gly Gly Gln Lys Ala Lys Pro Gly Asp Phe Pro Trp
 165 170 175

Gln Val Leu Ile Leu Gly Gly Thr Thr Ala Ala Gly Ala Leu Leu Tyr
 180 185 190

Asp Asn Trp Val Leu Thr Ala Ala His Ala Val Tyr Glu Gln Lys His
 195 200 205

Asp Ala Ser Ala Leu Asp Ile Arg Met Gly Thr Leu Lys Arg Leu Ser
 210 215 220

Pro His Tyr Thr Gln Ala Trp Ser Glu Ala Val Phe Ile His Glu Gly
 225 230 235 240

Tyr Thr His Asp Ala Gly Phe Asp Asn Asp Ile Ala Leu Ile Lys Leu
 245 250 255

Asn Asn Lys Val Val Ile Asn Ser Asn Ile Thr Pro Ile Cys Leu Pro
 260 265 270

Arg Lys Glu Ala Glu Ser Phe Met Arg Thr Asp Asp Ile Gly Thr Ala
 275 280 285

Ser Gly Trp Gly Leu Thr Gln Arg Gly Phe Leu Ala Arg Asn Leu Met
 290 295 300

Tyr Val Asp Ile Pro Ile Val Asp His Gln Lys Cys Thr Ala Ala Tyr
 305 310 315 320

Glu Lys Pro Pro Tyr Pro Arg Gly Ser Val Thr Ala Asn Met Leu Cys
 325 330 335

Ala Gly Leu Glu Ser Gly Gly Lys Asp Ser Cys Arg Gly Asp Ser Gly
 340 345 350

Gly Ala Leu Val Phe Leu Asp Ser Glu Thr Glu Arg Trp Phe Val Gly
 355 360 365

Gly Ile Val Ser Trp Gly Ser Met Asn Cys Gly Glu Ala Gly Gln Tyr
 370 375 380

Gly Val Tyr Thr Lys Val Ile Asn Tyr Ile Pro Trp Ile Glu Asn Ile
 385 390 395 400

Ile Ser Asp Phe Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Lys
 405 410 415

Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala His His His His His
 420 425 430

His

<210> 2

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<212> PRT

<213> Artificial Sequence

<220>

<223> hMASP2A-D456

<400> 2

Met Ala Ser Met Thr Gly Trp Lys Ile His Tyr Thr Ser Thr Ala His
 1 5 10 15

Ala Cys Pro Tyr Pro Met Ala Pro Pro Asn Gly His Val Ser Pro Val
 20 25 30

Gln Ala Lys Tyr Ile Leu Lys Asp Ser Phe Ser Ile Phe Cys Glu Thr
 35 40 45

Gly Tyr Glu Leu Leu Gln Gly His Leu Pro Leu Lys Ser Phe Thr Ala
 50 55 60

Val Cys Gln Lys Asp Gly Ser Trp Asp Arg Pro Met Pro Ala Cys Ser
 65 70 75 80

Ile Val Asp Cys Gly Pro Pro Asp Asp Leu Pro Ser Gly Arg Val Glu
 85 90 95

Tyr Ile Thr Gly Pro Gly Val Thr Thr Tyr Lys Ala Val Ile Gln Tyr
 100 105 110

Ser Cys Glu Glu Thr Phe Tyr Thr Met Lys Val Asn Asp Gly Lys Tyr
 115 120 125

Val Cys Glu Ala Asp Gly Phe Trp Thr Ser Ser Lys Gly Glu Lys Ser
 130 135 140

Leu Pro Val Cys Glu Pro Val Cys Gly Leu Ser Ala Arg Thr Thr Gly
 145 150 155 160

Gly Arg Ile Tyr Gly Gly Gln Lys Ala Lys Pro Gly Asp Phe Pro Trp
 165 170 175

Gln Val Leu Ile Leu Gly Gly Thr Thr Ala Ala Gly Ala Leu Leu Tyr
 180 185 190

Asp Asn Trp Val Leu Thr Ala Ala His Ala Val Tyr Glu Gln Lys His
 195 200 205

Asp Ala Ser Ala Leu Asp Ile Arg Met Gly Thr Leu Lys Arg Leu Ser
 210 215 220

Pro His Tyr Thr Gln Ala Trp Ser Glu Ala Val Phe Ile His Glu Gly
 225 230 235 240

Tyr Thr His Asp Ala Gly Phe Asp Asn Asp Ile Ala Leu Ile Lys Leu
 245 250 255

Asn Asn Lys Val Val Ile Asn Ser Asn Ile Thr Pro Ile Cys Leu Pro
 260 265 270

Arg Lys Glu Ala Glu Ser Phe Met Arg Thr Asp Asp Ile Gly Thr Ala
 275 280 285

Ser Gly Trp Gly Leu Thr Gln Arg Gly Phe Leu Ala Arg Asn Leu Met
 290 295 300

Tyr Val Asp Ile Pro Ile Val Asp His Gln Lys Cys Thr Ala Ala Tyr
 305 310 315 320

Glu Lys Pro Pro Tyr Pro Arg Gly Ser Val Thr Ala Asn Met Leu Cys
 325 330 335

Ala Gly Leu Glu Ser Gly Gly Lys Asp Ser Cys Arg Gly Asp Ala Gly
 340 345 350

Gly Ala Leu Val Phe Leu Asp Ser Glu Thr Glu Arg Trp Phe Val Gly
 355 360 365

Gly Ile Val Ser Trp Gly Ser Met Asn Cys Gly Glu Ala Gly Gln Tyr
 370 375 380

Gly Val Tyr Thr Lys Val Ile Asn Tyr Ile Pro Trp Ile Glu Asn Ile
 385 390 395 400

Ile Ser Asp Phe Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Lys
 405 410 415

Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala His His His His His
 420 425 430

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Met Ala Ser Met Thr Gly Trp Lys Ile His Tyr Thr Ser Thr Ala Arg
 1 5 10 15

Pro Cys Pro Asp Pro Thr Ala Pro Pro Asn Gly Ser Ile Ser Pro Val
 20 25 30

Gln Ala Ile Tyr Val Leu Lys Asp Arg Phe Ser Val Phe Cys Lys Thr
 35 40 45

Gly Phe Glu Leu Leu Gln Gly Ser Val Pro Leu Lys Ser Phe Thr Ala
 50 55 60

Val Cys Gln Lys Asp Gly Ser Trp Asp Arg Pro Met Pro Glu Cys Ser
 65 70 75 80

Ile Ile Asp Cys Gly Pro Pro Asp Asp Leu Pro Asn Gly His Val Asp
 85 90 95

Tyr Ile Thr Gly Pro Glu Val Thr Thr Tyr Lys Ala Val Ile Gln Tyr
 100 105 110

Ser Cys Glu Glu Thr Phe Tyr Thr Met Ser Ser Asn Gly Lys Tyr Val
 115 120 125

Cys Glu Ala Asp Gly Phe Trp Thr Ser Ser Lys Gly Glu Lys Leu Pro
 130 135 140

Pro Val Cys Glu Pro Val Cys Gly Leu Ser Thr His Thr Ile Gly Gly
145 150 155 160

Arg Ile Val Gly Gly Gln Pro Ala Lys Pro Gly Asp Phe Pro Trp Gln
165 170 175

Val Leu Leu Leu Gly Gln Thr Thr Ala Ala Ala Gly Ala Leu Ile His
180 185 190

Asp Asn Trp Val Leu Thr Ala Ala His Ala Val Tyr Glu Lys Arg Met
195 200 205

Ala Ala Ser Ser Leu Asn Ile Arg Met Gly Ile Leu Lys Arg Leu Ser
210 215 220

Pro His Tyr Thr Gln Ala Trp Pro Glu Glu Ile Phe Ile His Glu Gly
225 230 235 240

Tyr Thr His Gly Ala Gly Phe Asp Asn Asp Ile Ala Leu Ile Lys Leu
245 250 255

Lys Asn Lys Val Thr Ile Asn Gly Ser Ile Met Pro Val Cys Leu Pro
260 265 270

Arg Lys Glu Ala Ala Ser Leu Met Arg Thr Asp Phe Thr Gly Thr Val
275 280 285

Ala Gly Trp Gly Leu Thr Gln Lys Gly Leu Leu Ala Arg Asn Leu Met
290 295 300

Phe Val Asp Ile Pro Ile Ala Asp His Gln Lys Cys Thr Ala Val Tyr
305 310 315 320

Glu Lys Leu Tyr Pro Gly Val Arg Val Ser Ala Asn Met Leu Cys Ala
325 330 335

Gly Leu Glu Thr Gly Gly Lys Asp Ser Cys Arg Gly Asp Ser Gly Gly
 340 345 350

Ala Leu Val Phe Leu Asp Asn Glu Thr Gln Arg Trp Phe Val Gly Gly
 355 360 365

Ile Val Ser Trp Gly Ser Ile Asn Cys Gly Ala Ala Asp Gln Tyr Gly
 370 375 380

Val Tyr Thr Lys Val Ile Asn Tyr Ile Pro Trp Ile Glu Asn Ile Ile
 385 390 395 400

Ser Asn Phe Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Lys Phe
 405 410 415

Val Ala Ala Trp Thr Leu Lys Ala Ala Ala His His His His His His
 420 425 430

<210> 4

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<223> cMASP2-D456

<400> 4

Met Ala Ser Met Thr Gly Trp Lys Ile His Tyr Thr Ser Thr Ala Gln
 1 5 10 15

Pro Cys Pro Tyr Pro Met Ala Pro Pro Asn Gly His Leu Ser Pro Val
 20 25 30

Gln Ala Lys Tyr Ile Leu Lys Asp Ser Phe Ser Ile Phe Cys Glu Pro
 35 40 45

Gly Tyr Glu Leu Leu Gln Gly His Leu Pro Leu Lys Ser Phe Ala Ala
 50 55 60

Val Cys Gln Lys Asp Gly Ser Trp Asp Gln Pro Met Pro Ser Cys Ser
65 70 75 80

Ile Val Asp Cys Gly Pro Pro Asp Asp Leu Pro Ser Gly Arg Val Glu
85 90 95

Tyr Ile Thr Gly Pro Glu Val Thr Thr Tyr Lys Ala Val Ile Gln Tyr
100 105 110

Ser Cys Glu Glu Thr Phe Tyr Thr Met Lys Val Asn Asp Gly Lys Tyr
115 120 125

Val Cys Glu Ala Asp Gly Phe Trp Thr Ser Ser Lys Gly Glu Arg Ser
130 135 140

Pro Pro Val Cys Glu Pro Val Cys Gly Leu Ser Ala Arg Thr Thr Gly
145 150 155 160

Gly Arg Ile Tyr Gly Gly Gln Lys Ala Lys Pro Gly Asp Phe Pro Trp
165 170 175

Gln Val Leu Ile Leu Gly Gly Ser Thr Ala Ala Gly Ala Leu Leu Tyr
180 185 190

Asp Asn Trp Val Leu Thr Ala Ala His Ala Ile Tyr Glu Gln Lys His
195 200 205

Asp Ala Ser Ser Leu Asp Ile Arg Leu Gly Ala Leu Lys Arg Leu Ser
210 215 220

Pro His Tyr Thr Gln Ala Trp Ala Glu Ala Val Phe Ile His Glu Gly
225 230 235 240

Tyr Thr His Asp Ala Gly Phe Asp Asn Asp Ile Ala Leu Ile Lys Leu
245 250 255

Asn Asn Lys Val Val Ile Asn Ser Asn Ile Thr Pro Ile Cys Leu Pro
260 265 270

Arg Lys Glu Ala Glu Ser Phe Met Arg Thr Asp Asp Ile Gly Thr Ala
 275 280 285

Ser Gly Trp Gly Leu Thr Gln Arg Gly Leu Leu Ala Arg Asn Leu Met
 290 295 300

Tyr Val Asp Ile Pro Ile Val Asp His Gln Lys Cys Thr Ala Ala Tyr
 305 310 315 320

Glu Lys Pro Pro Tyr Ser Gly Gly Ser Val Thr Ala Asn Met Leu Cys
 325 330 335

Ala Gly Leu Glu Ser Gly Gly Lys Asp Ser Cys Arg Gly Asp Ser Gly
 340 345 350

Gly Ala Leu Val Phe Leu Asp Asn Glu Thr Gln Arg Trp Phe Val Gly
 355 360 365

Gly Ile Val Ser Trp Gly Ser Met Asn Cys Gly Glu Ala Gly Gln Tyr
 370 375 380

Gly Val Tyr Thr Lys Val Ile Asn Tyr Ile Pro Trp Ile Lys Asn Ile
 385 390 395 400

Ile Ser Asn Phe Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ala Lys
 405 410 415

Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala His His His His His
 420 425 430

His

<210> 5

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain variable region of 50A6

<400> 5

Asn Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1 5 10 15

Glu Ser Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Thr Ser
 20 25 30

Ile His Trp Tyr Gln Gln Arg Ser Asn Glu Ser Pro Arg Leu Leu Ile
 35 40 45

Lys Tyr Ala Ser Arg Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Arg Val Glu Ser
 65 70 75 80

Glu Asp Phe Ser Ile Tyr Tyr Cys Gln Gln Ser Tyr Ser Ser Leu Tyr
 85 90 95

Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Arg
 100 105

<210> 6

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> 50A6 L-FR1

<400> 6

Asn Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1 5 10 15

Glu Ser Val Ser Leu Ser Cys
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<210> 7
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<220>
 <223> 50A6 LCDR1f»JYB1931A63 LCDR1

<400> 7

Arg Ala Ser Gln Ser Val Ser Thr Ser Ile His
 1 5 10

<210> 8
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 50A6 L-FR2

<400> 8

Trp Tyr Gln Gln Arg Ser Asn Glu Ser Pro Arg Leu Leu Ile Lys
 1 5 10 15

<210> 9
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 50A6 LCDR2f»JYB1931A63 LCDR2

<400> 9

Tyr Ala Ser Arg Ser Ile Ser
 1 5

<210> 10
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 50A6 L-FR3

<400> 10

Gly Ile Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
1 5 10 15

Leu Ser Ile Asn Arg Val Glu Ser Glu Asp Phe Ser Ile Tyr Tyr Cys
20 25 30

<210> 11

<211> 9

<212> PRT

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<223> 50A6 LCDR3E»JYB1931A63 LCDR3

<400> 11

Gln Gln Ser Tyr Ser Ser Leu Tyr Thr
1 5

<210> 12

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> 50A6 L-FR4

<400> 12

Phe Gly Ala Gly Thr Lys Leu Glu Leu Arg
1 5 10

<210> 13

<211> 125

<212> PRT

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<223> Heavy chain variable region of 50A6

<400> 13

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg

1 5 10 15
 Ser Leu Ser Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asp Tyr
 20 25 30
 Asn Met Ala Trp Val Arg Gln Thr Pro Lys Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Thr Ile Leu Phe Asp Gly Ser Arg Thr Tyr Tyr Arg Asp Ser Val
 50 55 60
 Lys Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala Lys Ser Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Asp Ser Leu Arg Ser Glu Asp Thr Ala Thr Tyr Tyr Cys
 85 90 95
 Ser Thr Glu Ser Pro Tyr Tyr Ser Glu Gly Tyr Tyr Gln Gly Tyr Phe
 100 105 110
 Asp Tyr Trp Gly Gln Gly Val Met Val Thr Val Ser Ser
 115 120 125

<210> 14
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 50A6 H-FR1

<400> 14

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Arg
 1 5 10 15

Ser Leu Ser Leu Ser Cys Ala Ala Ser
 20 25

<210> 15

<211> 7
 <212> PRT
 <213> Artificial Sequence

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 <223> 50A6 HCDR1F»JYB1931A63 HCDR1

<400> 15

Gly Phe Thr Phe Asn Asp Tyr
 1 5

<210> 16
 <211> 19
 <212> PRT
 <213> Artificial Sequence

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 <223> 50A6 H-FR2

<400> 16

Asn Met Ala Trp Val Arg Gln Thr Pro Lys Lys Gly Leu Glu Trp Val
 1 5 10 15

Ala Thr Ile

<210> 17
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 50A6 HCDR2F»JYB1931A63 HCDR2

<400> 17

Leu Phe Asp Gly Ser Arg
 1 5

<210> 18
 <211> 41
 <212> PRT
 <213> Artificial Sequence

<220>

<223> 50A6 H-FR3

<400> 18

Thr	Tyr	Tyr	Arg	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Glu
1				5					10					15	

Asn	Ala	Lys	Ser	Thr	Leu	Tyr	Leu	Gln	Met	Asp	Ser	Leu	Arg	Ser	Glu
			20					25					30		

Asp	Thr	Ala	Thr	Tyr	Tyr	Cys	Ser	Thr
		35				40		

<210> 19

<211> 16

<212> PRT

<213> Artificial Sequence

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<223> 50A6 HCDR3;JYB1931A63 HCDR3

<400> 19

Glu	Ser	Pro	Tyr	Tyr	Ser	Glu	Gly	Tyr	Tyr	Gln	Gly	Tyr	Phe	Asp	Tyr
1				5					10					15	

<210> 20

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> 50A6 H-FR4

<400> 20

Trp	Gly	Gln	Gly	Val	Met	Val	Thr	Val	Ser	Ser
1				5					10	

<210> 21

<211> 107

<212> PRT

<213> Artificial Sequence

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<223> Light chain variable region of JYB1931A63

<400> 21

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
 1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Thr Ser
 20 25 30

Ile His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile
 35 40 45

Lys Tyr Ala Ser Arg Ser Ile Ser Gly Ile Pro Ala Arg Phe Ser Gly
 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
 65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Ser Tyr Ser Ser Leu Tyr
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 22

<211> 23

<212> PRT

<213> Artificial Sequence

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<223> JYB1931A63 L-FR1

<400> 22

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
 1 5 10 15

Glu Arg Ala Thr Leu Ser Cys
 20

<210> 23
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A63 L-FR2

<400> 23

Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Arg	Leu	Leu	Ile	Lys
1				5					10					15

<210> 24
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 <212> PRT
 <213> Artificial Sequence

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 <223> JYB1931A63 L-FR3

<400> 24

Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5					10						15

Leu	Thr	Ile	Ser	Ser	Leu	Glu	Pro	Glu	Asp	Phe	Ala	Val	Tyr	Tyr	Cys
			20					25					30		

<210> 25
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A63 L-FR4

<400> 25

Phe	Gly	Gln	Gly	Thr	Lys	Leu	Glu	Ile	Lys
1				5					10

<210> 26
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<223> Heavy chain variable region of JYB1931A63

<400> 26

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asp Tyr
20 25 30

Asn Met Ala Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Thr Ile Leu Phe Asp Gly Ser Arg Thr Tyr Tyr Arg Asp Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ser Thr Glu Ser Pro Tyr Tyr Ser Glu Gly Tyr Tyr Gln Gly Tyr Phe
100 105 110

Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 27

<211> 25

<212> PRT

<213> Artificial Sequence

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<223> JYB1931A63 H-FR1

<400> 27

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser
20 25

<210> 28
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<212> PRT
<213> Artificial Sequence

<220>
<223> JYB1931A63 H-FR2

<400> 28

Asn Met Ala Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
1 5 10 15

Ala Thr Ile

<210> 29
<211> 41
<212> PRT
<213> Artificial Sequence

<220>
<223> JYB1931A63 H-FR3

<400> 29

Thr Tyr Tyr Arg Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
1 5 10 15

Asn Ala Lys Asn Ser Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu
20 25 30

Asp Thr Ala Val Tyr Tyr Cys Ser Thr
35 40

<210> 30
<211> 11
<212> PRT

<213> Artificial Sequence

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<223> JYB1931A63 H-FR4;JYB1931A13 H-FR4

<400> 30

Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser
1				5					10	

<210> 31

<211> 107

<212> PRT

<213> Artificial Sequence

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<223> Light chain variable region of 47A1

<400> 31

Asp	Ile	Val	Met	Thr	Gln	Ser	Gln	Lys	Phe	Met	Ser	Thr	Ser	Val	Gly
1				5					10					15	

Asp	Arg	Val	Ser	Val	Thr	Cys	Lys	Ala	Ser	Gln	Asn	Val	Gly	Ser	Asn
		20						25					30		

Val	Ala	Trp	Phe	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Pro	Leu	Ile
		35						40				45			

Tyr	Ser	Ala	Ser	Tyr	Arg	Tyr	Ser	Gly	Val	Pro	Asp	Arg	Phe	Thr	Gly
		50				55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Asn	Val	Gln	Ser
65					70					75				80	

Glu	Asp	Leu	Ala	Glu	Tyr	Phe	Cys	His	Gln	Tyr	Asn	Thr	Tyr	Pro	Leu
				85					90					95	

Thr	Phe	Gly	Ala	Gly	Thr	Lys	Leu	Glu	Leu	Asn
			100					105		

<210> 32

<211> 23
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 <213> Artificial Sequence

<220>
 <223> 47A1 L-FR1

<400> 32

Asp	Ile	Val	Met	Thr	Gln	Ser	Gln	Lys	Phe	Met	Ser	Thr	Ser	Val	Gly
1				5				10						15	

Asp	Arg	Val	Ser	Val	Thr	Cys
			20			

<210> 33
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 47A1 LCDR1;JYB1931A13 LCDR1

<400> 33

Lys	Ala	Ser	Gln	Asn	Val	Gly	Ser	Asn	Val	Ala
1				5				10		

<210> 34
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 47A1 L-FR2

<400> 34

Trp	Phe	Gln	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Pro	Leu	Ile	Tyr
1				5				10						15

<210> 35
 <211> 7
 <212> PRT
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<220>

<223> 47A1 LCDR2;JYB1931A13 LCDR2

<400> 35

Ser Ala Ser Tyr Arg Tyr Ser

1 5

<210> 36

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 L-FR3

<400> 36

Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr

1 5 10 15

Leu Thr Ile Ser Asn Val Gln Ser Glu Asp Leu Ala Glu Tyr Phe Cys

20 25 30

<210> 37

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 LCDR3;JYB1931A13 LCDR3

<400> 37

His Gln Tyr Asn Thr Tyr Pro Leu Thr

1 5

<210> 38

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 L-FR4

<400> 38

Phe Gly Ala Gly Thr Lys Leu Glu Leu Asn
 1 5 10

<210> 39
 <211> 114
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<220>
 <223> Heavy chain variable region of 47A1

<400> 39

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1 5 10 15

Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Tyr Ser Ile Thr Ser Asp
 20 25 30

Tyr Ala Trp Asn Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
 35 40 45

Met Gly Tyr Ile Ser Tyr Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Ile Ser Ile Thr Arg Asn Thr Ser Thr Asn Gln Phe Phe
 65 70 75 80

Leu Gln Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Phe Cys
 85 90 95

Ala Arg Tyr Trp Gly Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val
 100 105 110

Ser Ser

<210> 40
 <211> 25
 <212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 H-FR1

<400> 40

Asp	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gln
1				5					10					15	

Ser	Leu	Ser	Leu	Thr	Cys	Thr	Val	Thr
			20					25

<210> 41

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 HCDR1;JYB1931A13 HCDR1

<400> 41

Gly	Tyr	Ser	Ile	Thr	Ser	Asp	Tyr
1				5			

<210> 42

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 H-FR2

<400> 42

Ala	Trp	Asn	Trp	Ile	Arg	Gln	Phe	Pro	Gly	Asn	Lys	Leu	Glu	Trp	Met
1				5					10					15	

Gly Tyr Ile

<210> 43

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 HCDR2;JYB1931A13 HCDR2

<400> 43

Ser Tyr Ser Gly Arg
1 5

<210> 44

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 H-FR3

<400> 44

Thr Ser Tyr Asn Pro Ser Leu Lys Ser Arg Ile Ser Ile Thr Arg Asn
1 5 10 15

Thr Ser Thr Asn Gln Phe Phe Leu Gln Leu Asn Ser Val Thr Thr Glu
20 25 30

Asp Thr Ala Thr Tyr Phe Cys Ala Arg
35 40

<210> 45

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 HCDR3;JYB1931A13 HCDR3

<400> 45

Tyr Trp Gly Asp Tyr
1 5

<210> 46

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> 47A1 H-FR4

<400> 46

Trp	Gly	Gln	Gly	Thr	Thr	Leu	Thr	Val	Ser	Ser
1				5					10	

<210> 47

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain variable region of JYB1931A13

<400> 47

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5					10					15	

Asp	Arg	Val	Thr	Ile	Thr	Cys	Lys	Ala	Ser	Gln	Asn	Val	Gly	Ser	Asn
			20					25					30		

Val	Ala	Trp	Phe	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Pro	Leu	Ile
			35					40				45			

Tyr	Ser	Ala	Ser	Tyr	Arg	Tyr	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
			50			55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro
65					70					75				80	

Glu	Asp	Phe	Ala	Thr	Tyr	Phe	Cys	His	Gln	Tyr	Asn	Thr	Tyr	Pro	Leu
				85					90					95	

Thr	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys
			100					105		

<210> 48

<211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 L-FR1

<400> 48

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
1				5				10						15	

Asp	Arg	Val	Thr	Ile	Thr	Cys
			20			

<210> 49
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 L-FR2

<400> 49

Trp	Phe	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Pro	Leu	Ile	Tyr
1				5				10						15

<210> 50
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 L-FR3

<400> 50

Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5				10						15	

Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro	Glu	Asp	Phe	Ala	Thr	Tyr	Phe	Cys
			20				25						30		

<210> 51

<211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 L-FR4

<400> 51

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys
 1 5 10

<210> 52
 <211> 114
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain variable region of JYB1931A13

<400> 52

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Tyr Ser Ile Thr Ser Asp
 20 25 30

Tyr Ala Trp Asn Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp
 35 40 45

Ile Gly Tyr Ile Ser Tyr Ser Gly Arg Thr Ser Tyr Asn Pro Ser Leu
 50 55 60

Lys Ser Arg Val Thr Ile Ser Arg Asp Thr Ser Lys Asn Gln Phe Ser
 65 70 75 80

Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Tyr Trp Gly Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
 100 105 110

Ser Ser

<210> 53
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 H-FR1

<400> 53

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1 5 10 15

Thr Leu Ser Leu Thr Cys Thr Val Ser
 20 25

<210> 54
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 H-FR2

<400> 54

Ala Trp Asn Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
 1 5 10 15

Gly Tyr Ile

<210> 55
 <211> 41
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> JYB1931A13 H-FR3

<400> 55

Thr Ser Tyr Asn Pro Ser Leu Lys Ser Arg Val Thr Ile Ser Arg Asp
 1 5 10 15

Thr Ser Lys Asn Gln Phe Ser Leu Lys Leu Ser Ser Val Thr Ala Ala
 20 25 30

Asp Thr Ala Val Tyr Tyr Cys Ala Arg
 35 40

<210> 56

<211> 327

<212> PRT

<213> Artificial Sequence

<220>

<223> Heavy chain variable region of JYB1931A63;heavy chain variable region of JYB1931A13

<400> 56

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
 1 5 10 15

Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
 65 70 75 80

Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95

Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro
 100 105 110

Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 115 120 125

Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 130 135 140

Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
 145 150 155 160

Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
 165 170 175

Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 180 185 190

Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
 195 200 205

Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 210 215 220

Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
 225 230 235 240

Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 245 250 255

Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 260 265 270

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 275 280 285

Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
 290 295 300

Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 305 310 315 320

Leu Ser Leu Ser Leu Gly Lys
 325

<210> 57

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain variable regionJYB1931A63f»light chain variable regionJYB1931A13

<400> 57

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 65 70 75 80

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 100 105

<210> 58

<211> 23

<212> PRT
 <213> Artificial Sequence

<220>
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<220>
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 <222> (1)..(1)
 <223> Xaa = Glu or Asn

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> Xaa = Leu or Val

<220>
 <221> misc_feature
 <222> (14)..(14)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (18)..(18)
 <223> Xaa = Arg or Ser

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> Xaa = Ala or Val

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> Xaa = Ser or Thr

<400> 58

Xaa Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Xaa Xaa Pro Gly
 1 5 10 15

Glu Xaa Xaa Xaa Leu Ser Cys
 20

<210> 59
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of L-FR2

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> Xaa = Lys or Arg

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> Xaa = Pro or Ser

<220>
 <221> misc_feature
 <222> (7)..(7)
 <223> Xaa = Gly or Asn

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> Xaa = Glu or Gln

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> Xaa = Ala or Ser

<400> 59

Trp	Tyr	Gln	Gln	Xaa	Xaa	Xaa	Xaa	Xaa	Pro	Arg	Leu	Leu	Ile	Lys
1			5						10					15

<210> 60
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of L-FR3

<220>
 <221> misc_feature
 <222> (4)..(4)
 <223> Xaa = Ala or Ser

<220>
 <221> misc_feature

<222> (18)..(18)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> Xaa = Asn or Ser

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> Xaa = Arg or Ser

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> Xaa = Leu or Val

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> Xaa = Pro or Ser

<220>
 <221> misc_feature
 <222> (28)..(28)
 <223> Xaa = Ala or Ser

<220>
 <221> misc_feature
 <222> (29)..(29)
 <223> Xaa = Ile or Val

<400> 60

Gly	Ile	Pro	Xaa	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5				10					15		

Leu	Xaa	Ile	Xaa	Xaa	Xaa	Glu	Xaa	Glu	Asp	Phe	Xaa	Xaa	Tyr	Tyr	Cys
			20					25					30		

<210> 61
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of L-FR4

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> Xaa = Ala or Gln

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> Xaa = Ile or Leu

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> Xaa = Lys or Arg

<400> 61

Phe	Gly	Xaa	Gly	Thr	Lys	Leu	Glu	Xaa	Xaa
1				5					10

<210> 62
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of H-FR1

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> Xaa = Gly or Arg

<220>
 <221> misc_feature
 <222> (19)..(19)
 <223> Xaa = Arg or Ser

<400> 62

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Xaa
1				5					10					15	

Ser	Leu	Xaa	Leu	Ser	Cys	Ala	Ala	Ser
			20					25

<210> 63
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of H-FR2

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> Xaa = Ala or Thr

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> Xaa = Gly or Lys

<400> 63

Asn	Met	Ala	Trp	Val	Arg	Gln	Xaa	Pro	Xaa	Lys	Gly	Leu	Glu	Trp	Val
1				5				10					15		

Ala Thr Ile

<210> 64
 <211> 41
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of H-FR3

<220>
 <221> misc_feature
 <222> (16)..(16)
 <223> Xaa = Asp or Glu

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> Xaa = Asn or Ser

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> Xaa = Asp or Asn

<220>
 <221> misc_feature
 <222> (31)..(31)
 <223> Xaa = Ala or Ser

<220>
 <221> misc_feature
 <222> (36)..(36)
 <223> Xaa = Thr or Val

<400> 64

Thr	Tyr	Tyr	Arg	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Xaa
1				5					10					15	

Asn	Ala	Lys	Xaa	Xaa	Leu	Tyr	Leu	Gln	Met	Xaa	Ser	Leu	Arg	Xaa	Glu
			20					25					30		

Asp	Thr	Ala	Xaa	Tyr	Tyr	Cys	Ser	Thr
		35				40		

<210> 65
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of H-FR4

<220>
 <221> misc_feature
 <222> (5)..(5)
 <223> Xaa = Thr or Val

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> Xaa = Leu or Met

<400> 65

Trp Gly Gln Gly Xaa Xaa Val Thr Val Ser Ser
 1 5 10

<210> 66
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 1 of VL

<220>
 <221> misc_feature
 <222> (1)..(1)
 <223> Xaa = Glu or Asn

<220>
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 <222> (13)..(13)
 <223> Xaa = Leu or Val

<220>
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 <222> (14)..(14)
 <223> Xaa = Ser or Thr

<220>
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 <222> (18)..(18)
 <223> Xaa = Arg or Ser

<220>
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 <222> (19)..(19)
 <223> Xaa = Ala or Val

<220>
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 <222> (20)..(20)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> Xaa = Lys or Arg

<220>
 <221> misc_feature
 <222> (40)..(40)

<223> Xaa = Pro or Ser

<220>

<221> misc_feature

<222> (41)..(41)

<223> Xaa = Gly or Asn

<220>

<221> misc_feature

<222> (42)..(42)

<223> Xaa = Glu or Gln

<220>

<221> misc_feature

<222> (43)..(43)

<223> Xaa = Ala or Ser

<220>

<221> misc_feature

<222> (60)..(60)

<223> Xaa = Ala or Ser

<220>

<221> misc_feature

<222> (74)..(74)

<223> Xaa = Ser or Thr

<220>

<221> misc_feature

<222> (76)..(76)

<223> Xaa = Asn or Ser

<220>

<221> misc_feature

<222> (77)..(77)

<223> Xaa = Arg or Ser

<220>

<221> misc_feature

<222> (78)..(78)

<223> Xaa = Leu or Val

<220>

<221> misc_feature

<222> (80)..(80)

<223> Xaa = Pro or Ser

<220>

<221> misc_feature

<222> (84)..(84)

<223> Xaa = Ala or Ser

<220>

<221> misc_feature

<222> (85)..(85)

<223> Xaa = Ile or Val

<220>

<221> misc_feature

<222> (100)..(100)

<223> Xaa = Ala or Gln

<220>

<221> misc_feature

<222> (106)..(106)

<223> Xaa = Ile or Leu

<220>

<221> misc_feature

<222> (107)..(107)

<223> Xaa = Lys or Arg

<400> 66

Xaa	Ile	Val	Leu	Thr	Gln	Ser	Pro	Ala	Thr	Leu	Ser	Xaa	Xaa	Pro	Gly
1			5						10					15	

Glu	Xaa	Xaa	Xaa	Leu	Ser	Cys	Arg	Ala	Ser	Gln	Ser	Val	Ser	Thr	Ser
			20					25					30		

Ile	His	Trp	Tyr	Gln	Gln	Xaa	Xaa	Xaa	Xaa	Xaa	Pro	Arg	Leu	Leu	Ile
		35					40					45			

Lys	Tyr	Ala	Ser	Arg	Ser	Ile	Ser	Gly	Ile	Pro	Xaa	Arg	Phe	Ser	Gly
	50					55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Xaa	Ile	Xaa	Xaa	Xaa	Glu	Xaa
65					70					75					80

Glu	Asp	Phe	Xaa	Xaa	Tyr	Tyr	Cys	Gln	Gln	Ser	Tyr	Ser	Ser	Leu	Tyr
				85					90					95	

Thr	Phe	Gly	Xaa	Gly	Thr	Lys	Leu	Glu	Xaa	Xaa
			100					105		

<210> 67
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> general formula 1 of VH

<220>
<221> misc_feature
<222> (16)..(16)
<223> Xaa = Gly or Arg

<220>
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<222> (19)..(19)
<223> Xaa = Arg or Ser

<220>
<221> misc_feature
<222> (40)..(40)
<223> Xaa = Ala or Thr

<220>
<221> misc_feature
<222> (42)..(42)
<223> Xaa = Gly or Lys

<220>
<221> misc_feature
<222> (73)..(73)
<223> Xaa = Asp or Glu

<220>
<221> misc_feature
<222> (77)..(77)
<223> Xaa = Asn or Ser

<220>
<221> misc_feature
<222> (78)..(78)
<223> Xaa = Ser or Thr

<220>
<221> misc_feature
<222> (84)..(84)
<223> Xaa = Asp or Asn

<220>
 <221> misc_feature
 <222> (88)..(88)
 <223> Xaa = Ala or Ser

<220>
 <221> misc_feature
 <222> (93)..(93)
 <223> Xaa = Thr or Val

<220>
 <221> misc_feature
 <222> (119)..(119)
 <223> Xaa = Thr or Val

<220>
 <221> misc_feature
 <222> (120)..(120)
 <223> Xaa = Leu or Met

<400> 67

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Xaa
 1 5 10 15

Ser Leu Xaa Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asp Tyr
 20 25 30

Asn Met Ala Trp Val Arg Gln Xaa Pro Xaa Lys Gly Leu Glu Trp Val
 35 40 45

Ala Thr Ile Leu Phe Asp Gly Ser Arg Thr Tyr Tyr Arg Asp Ser Val
 50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Xaa Asn Ala Lys Xaa Xaa Leu Tyr
 65 70 75 80

Leu Gln Met Xaa Ser Leu Arg Xaa Glu Asp Thr Ala Xaa Tyr Tyr Cys
 85 90 95

Ser Thr Glu Ser Pro Tyr Tyr Ser Glu Gly Tyr Tyr Gln Gly Tyr Phe
 100 105 110

Asp	Tyr	Trp	Gly	Gln	Gly	Xaa	Xaa	Val	Thr	Val	Ser	Ser
		115					120					125

<210> 68
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 2 of L-FR1

<220>
 <221> misc_feature
 <222> (3)..(3)
 <223> Xaa = Gln or Val

<220>
 <221> misc_feature
 <222> (8)..(8)
 <223> Xaa = Pro or Gln

<220>
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 <222> (9)..(9)
 <223> Xaa = Lys or Ser

<220>
 <221> misc_feature
 <222> (10)..(10)
 <223> Xaa = Phe or Ser

<220>
 <221> misc_feature
 <222> (11)..(11)
 <223> Xaa = Leu or Met

<220>
 <221> misc_feature
 <222> (13)..(13)
 <223> Xaa = Ala or Thr

<220>
 <221> misc_feature
 <222> (20)..(20)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (21)..(21)

<223> Xaa = Ile or Val

<400> 68

Asp	Ile	Xaa	Met	Thr	Gln	Ser	Xaa	Xaa	Xaa	Xaa	Ser	Xaa	Ser	Val	Gly
1				5				10						15	

Asp	Arg	Val	Xaa	Xaa	Thr	Cys
		20				

<210> 69

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> general formula 2 of L-FR2

<220>

<221> misc_feature

<222> (8)..(8)

<223> Xaa = Lys or Gln

<220>

<221> misc_feature

<222> (9)..(9)

<223> Xaa = Ala or Ser

<400> 69

Trp	Phe	Gln	Gln	Lys	Pro	Gly	Xaa	Xaa	Pro	Lys	Pro	Leu	Ile	Tyr
1				5				10					15	

<210> 70

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> general formula 2 of L-FR3

<220>

<221> misc_feature

<222> (4)..(4)

<223> Xaa = Asp or Ser

<220>

<221> misc_feature
 <222> (7)..(7)
 <223> Xaa = Ser or Thr

<220>
 <221> misc_feature
 <222> (21)..(21)
 <223> Xaa = Asn or Ser

<220>
 <221> misc_feature
 <222> (22)..(22)
 <223> Xaa = Leu or Val

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> Xaa = Pro or Ser

<220>
 <221> misc_feature
 <222> (27)..(27)
 <223> Xaa = Phe or Leu

<220>
 <221> misc_feature
 <222> (29)..(29)
 <223> Xaa = Glu or Thr

<400> 70

Gly	Val	Pro	Xaa	Arg	Phe	Xaa	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr
1				5					10					15	

Leu	Thr	Ile	Ser	Xaa	Xaa	Gln	Xaa	Glu	Asp	Xaa	Ala	Xaa	Tyr	Phe	Cys
			20					25					30		

<210> 71
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> general formula 2 of L-FR4

<220>
 <221> misc_feature
 <222> (3)..(3)

<223> Xaa = Ala or Gly

<220>

<221> misc_feature

<222> (7)..(7)

<223> Xaa = Leu or Val

<220>

<221> misc_feature

<222> (9)..(9)

<223> Xaa = Ile or Leu

<220>

<221> misc_feature

<222> (10)..(10)

<223> Xaa = Lys or Asn

<400> 71

Phe Gly Xaa Gly Thr Lys Xaa Glu Xaa Xaa
1 5 10

<210> 72

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> general formula 2 of H-FR1

<220>

<221> misc_feature

<222> (1)..(1)

<223> Xaa = Asp or Gln

<220>

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<222> (17)..(17)

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Xaa Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
1 5 10 15

Xaa Leu Ser Leu Thr Cys Thr Val Xaa
 20 25

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Ala Trp Asn Trp Ile Arg Gln Xaa Pro Gly Xaa Xaa Leu Glu Trp Xaa
 1 5 10 15

Gly Tyr Ile

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 <223> Xaa = Phe or Tyr

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Thr	Ser	Tyr	Asn	Pro	Ser	Leu	Lys	Ser	Arg	Xaa	Xaa	Ile	Xaa	Arg	Xaa
1				5					10					15	

Thr	Ser	Xaa	Asn	Gln	Phe	Xaa	Leu	Xaa	Leu	Xaa	Ser	Val	Thr	Xaa	Xaa
			20					25					30		

Asp	Thr	Ala	Xaa	Tyr	Xaa	Cys	Ala	Arg
		35					40	

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Trp	Gly	Gln	Gly	Thr	Xaa	Xaa	Thr	Val	Ser	Ser
1				5					10	

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<400> 76

Asp	Ile	Xaa	Met	Thr	Gln	Ser	Xaa	Xaa	Xaa	Xaa	Ser	Xaa	Ser	Val	Gly
1				5					10					15	

Asp	Arg	Val	Xaa	Xaa	Thr	Cys	Lys	Ala	Ser	Gln	Asn	Val	Gly	Ser	Asn
		20						25					30		

Val	Ala	Trp	Phe	Gln	Gln	Lys	Pro	Gly	Xaa	Xaa	Pro	Lys	Pro	Leu	Ile
		35					40					45			

Tyr	Ser	Ala	Ser	Tyr	Arg	Tyr	Ser	Gly	Val	Pro	Xaa	Arg	Phe	Xaa	Gly
	50					55					60				

Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Xaa	Xaa	Gln	Xaa
65					70					75					80

Glu	Asp	Xaa	Ala	Xaa	Tyr	Phe	Cys	His	Gln	Tyr	Asn	Thr	Tyr	Pro	Leu
				85					90					95	

Thr	Phe	Gly	Xaa	Gly	Thr	Lys	Xaa	Glu	Xaa	Xaa
			100					105		

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<400> 77

Xaa	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Gly	Leu	Val	Lys	Pro	Ser	Gln
1				5					10					15	

Xaa	Leu	Ser	Leu	Thr	Cys	Thr	Val	Xaa	Gly	Tyr	Ser	Ile	Thr	Ser	Asp
			20					25					30		

Tyr	Ala	Trp	Asn	Trp	Ile	Arg	Gln	Xaa	Pro	Gly	Xaa	Xaa	Leu	Glu	Trp
		35					40					45			

Xaa	Gly	Tyr	Ile	Ser	Tyr	Ser	Gly	Arg	Thr	Ser	Tyr	Asn	Pro	Ser	Leu
	50					55					60				

Lys	Ser	Arg	Xaa	Xaa	Ile	Xaa	Arg	Xaa	Thr	Ser	Xaa	Asn	Gln	Phe	Xaa
65					70					75					80

Leu	Xaa	Leu	Xaa	Ser	Val	Thr	Xaa	Xaa	Asp	Thr	Ala	Xaa	Tyr	Xaa	Cys
				85					90					95	

Ala	Arg	Tyr	Trp	Gly	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Xaa	Xaa	Thr	Val
			100					105					110		

Ser	Ser
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