

SEQUENCE LISTING

<110> Nascent Limited

<120> HUMAN ANTIBODIES AND BINDING FRAGMENTS THEREOF TO TENASCIN

<130> P000170_WO

<160> 86

<170> PatentIn version 3.5

<210> 1

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> light chain amino acid sequence

<400> 1

Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
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Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Tyr	Ile	Gln	Gly	Phe
			20					25					30		

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

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

Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Asp	Ile	Lys	Arg	Thr	Val	Ala	Ala
			100					105					110		

Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125

Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140

Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160

Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175

Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190

Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205

Phe Asn Arg Gly Glu Cys
210

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<220>
<223> heavy chain amino acid sequence

<400> 2

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Ser Tyr Gln Ser Asp Glu Asp Ala Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala
130 135 140

Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
145 150 155 160

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
210 215 220

Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
260 265 270

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
370 375 380

Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
385 390 395 400

Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg
405 410 415

Trp Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
420 425 430

His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly
435 440 445

<210> 3
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<223> CDHR1 amino acid sequence

<400> 3

Asp Tyr Ala Met His
1 5

<210> 4
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<223> CDRH2 amino acid sequence

<400> 4

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

Gly

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Asp Ile Ser Ala Val Pro Asp Thr Phe Asp Ile
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<223> VH amino acid sequence

<400> 6

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Ile Ser Ala Val Pro Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

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<223> CDRL1 amino acid sequence

<400> 7

Arg Ala Ser Gln Tyr Ile Gln Gly Phe Leu Asn
1 5 10

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<223> CDRL2 amino acid sequence

<400> 8

Asp Ala Ser Asn Leu Glu Thr
1 5

<210> 9
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<223> Antibody CDRL3 amino acid sequence

<400> 9

Gln Gln Ser Tyr Ser Thr Pro Gln Thr
1 5

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<223> VL amino acid sequence

<400> 10

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Tyr Ile Gln Gly Phe
20 25 30

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

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

Thr Phe Gly Gln Gly Thr Lys Val Asp Ile Lys Arg
100 105

<210> 11

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<223> VL amino acid sequence

<400> 11

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

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Tyr Ile Gln Gly Phe
20 25 30

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

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

Thr Phe Gly Gln Gly Thr Lys Val Asp Ile Lys
100 105

<210> 12
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<220>
<223> CDRH3 amino acid sequence

<400> 12

Val Met Ser Ser Met Glu Asp Ala Phe Asp Ile
1 5 10

<210> 13
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<212> PRT
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<223> VH amino acid sequence

<400> 13

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Val Met Ser Ser Met Glu Asp Ala Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 14
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<400> 14

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

<210> 15
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> VH amino acid sequence

<400> 15

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Gly Gln Lys Gly Glu Gly Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

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<223> CDRH3 amino acid sequence

<400> 16

Gly Thr Arg Gly Glu Gly Asp Thr Phe Asp Ile
1 5 10

<210> 17
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> VH amino acid sequence

<400> 17

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Gly Thr Arg Gly Glu Gly Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 18
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<213> Artificial Sequence

<220>
<223> CDRH3 amino acid sequence

<400> 18

Ser Tyr Gln Ser Asp Glu Asp Ala Phe Asp Ile
1 5 10

<210> 19
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> VH amino acid sequence

<400> 19

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Ser Tyr Gln Ser Asp Glu Asp Ala Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 20

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<212> PRT

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<223> CDRH2 amino acid sequence - CDRs changed as result of the
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<400> 20

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

Tyr

<210> 21

<211> 0

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<210> 22

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<212> PRT

<213> Artificial Sequence

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<223> VL amino acid sequence

<400> 22

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	Arg	Ala	Ser	Gln	Tyr	Ile	Gln	Gly	Phe
		20						25					30		

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

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

Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Asp	Ile	Lys	Arg
			100					105			

<210> 23

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> VL amino acid sequence

<400> 23

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 Arg Ala Ser Gln Tyr Ile Gln Gly Phe
20 25 30

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

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

Thr Phe Gly Gln Gly Thr Lys Val Asp Ile Lys
100 105

<210> 24

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDRH3 amino acid sequence

<400> 24

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

<210> 25

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> VH amino acid sequence

<400> 25

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Gly Thr Val Gly Glu Gly Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 26

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDRH3 amino acid sequence

<400> 26

Asp Lys Tyr Pro Val Leu Asp Thr Phe Asp Ile
1 5 10

<210> 27
<211> 120
<212> PRT
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<223> VH amino acid sequence

<400> 27

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Lys Tyr Pro Val Leu Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 28
<211> 11
<212> PRT
<213> Artificial Sequence

<220>

<223> CDRH3 amino acid sequence

<400> 28

Ala Leu Ala Arg Gly His Asp Thr Phe Asp Ile
1 5 10

<210> 29

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> VH amino acid sequence

<400> 29

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Ala Leu Ala Arg Gly His Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 30
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> CDRH3 amino acid sequence

<400> 30

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

<210> 31
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> VH amino acid sequence

<400> 31

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Ile Ser Ala Val Met Asp Val Pro Gln Thr Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 32

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> CDRH3 amino acid sequence

<400> 32

Val Met Arg Thr Gly Leu Asp Thr Phe Asp Ile
1 5 10

<210> 33

<211> 120

<212> PRT

<213> Artificial Sequence

<220>

<223> VH amino acid sequence

<400> 33

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Val Met Arg Thr Gly Leu Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 34
<211> 446
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified IgG4

<400> 34

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Ser Tyr Gln Ser Asp Glu Asp Ala Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125

Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala
130 135 140

Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
145 150 155 160

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175

Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190

Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr Cys Asn Val Asp His Lys
195 200 205

Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Ser Lys Tyr Gly Pro
210 215 220

Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val
225 230 235 240

Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
245 250 255

Pro Glu Val Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu
260 265 270

Val Gln Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
275 280 285

Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser
290 295 300

Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
305 310 315 320

Cys Lys Val Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile
325 330 335

Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
340 345 350

Pro Ser Gln Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
355 360 365

Val Lys Gly Phe Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
370 375 380

Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
385 390 395 400

Gly Ser Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp
405 410 415

Gln Glu Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
420 425 430

Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
435 440 445

<210> 35
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<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody B12 framework germlined VH amino acid sequence

<400> 35

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

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

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
50 55 60

Lys Tyr 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 Leu Tyr Tyr Cys
85 90 95

Ala Lys Asp Ile Ser Ala Val Pro Asp Thr Phe Asp Ile Trp Gly Gln
100 105 110

Gly Thr Met Val Thr Val Ser Ser
115 120

<210> 36
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<220>
<223> Hinge linker

<400> 36

Asp Lys Thr His Thr Cys Ala Ala
1 5

<210> 37
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<220>
<223> Hinge linker

<400> 37

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
1 5 10

<210> 38
<211> 18
<212> PRT
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<220>
<223> Hinge linker

<400> 38

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Thr Cys Pro Pro Cys
1 5 10 15

Pro Ala

<210> 39
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Hinge linker

<400> 39

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Thr Cys Pro Pro Cys
1 5 10 15

Pro Ala Thr Cys Pro Pro Cys Pro Ala
20 25

<210> 40
<211> 30
<212> PRT
<213> Artificial Sequence

<220>
<223> Hinge linker

<400> 40

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Gly Lys Pro Thr Leu
1 5 10 15

Tyr Asn Ser Leu Val Met Ser Asp Thr Ala Gly Thr Cys Tyr
20 25 30

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

<220>
<223> Hinge linker

<400> 41

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Gly Lys Pro Thr His
1 5 10 15

Val Asn Val Ser Val Val Met Ala Glu Val Asp Gly Thr Cys Tyr
20 25 30

<210> 42
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Hinge linker

<400> 42

Asp Lys Thr His Thr Cys Cys Val Glu Cys Pro Pro Cys Pro Ala
1 5 10 15

<210> 43
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<220>
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<400> 43

Asp Lys Thr His Thr Cys Pro Arg Cys Pro Glu Pro Lys Ser Cys Asp
1 5 10 15

Thr Pro Pro Pro Cys Pro Arg Cys Pro Ala
20 25

<210> 44
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<213> Artificial Sequence

<220>
<223> Hinge linker

<400> 44

Asp Lys Thr His Thr Cys Pro Ser Cys Pro Ala
1 5 10

<210> 45
<211> 7
<212> PRT
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<220>
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<400> 45

Ser Gly Gly Gly Gly Ser Glu
1 5

<210> 46
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<400> 46

Asp Lys Thr His Thr Ser
1 5

<210> 47
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 47

Ser Gly Gly Gly Gly Ser
1 5

<210> 48
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 48

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10

<210> 49
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 49

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

<210> 50
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 50

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Gly Ser
20

<210> 51

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 51

Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
20 25

<210> 52

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 52

Ala Ala Ala Gly Ser Gly Gly Ala Ser Ala Ser
1 5 10

<210> 53

<211> 16

<212> PRT

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<220>

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<220>
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<222> (7)..(7)
<223> Xaa can be any naturally occurring amino acid

<400> 53

Ala Ala Ala Gly Ser Gly Xaa Gly Gly Gly Ser Gly Ala Ser Ala Ser
1 5 10 15

<210> 54
<211> 21
<212> PRT
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<220>
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<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (12)..(12)
<223> Xaa can be any naturally occurring amino acid

<400> 54

Ala Ala Ala Gly Ser Gly Xaa Gly Gly Gly Ser Xaa Gly Gly Gly Ser
1 5 10 15

Gly Ala Ser Ala Ser
20

<210> 55
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
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<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (17)..(17)
<223> Xaa can be any naturally occurring amino acid

<400> 55

Ala	Ala	Ala	Gly	Ser	Gly	Xaa	Gly	Gly	Gly	Ser	Xaa	Gly	Gly	Gly	Ser
1				5				10					15		

Xaa	Gly	Gly	Gly	Ser	Gly	Ala	Ser	Ala	Ser
			20				25		

<210> 56
<211> 31
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<220>
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<223> Xaa can be any naturally occurring amino acid

<220>
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<223> Xaa can be any naturally occurring amino acid

<220>

<221> misc_feature
<222> (22)..(22)
<223> Xaa can be any naturally occurring amino acid

<400> 56

Ala Ala Ala Gly Ser Gly Xaa Gly Gly Gly Ser Xaa Gly Gly Gly Ser
1 5 10 15

Xaa Gly Gly Gly Ser Xaa Gly Gly Gly Ser Gly Ala Ser Ala Ser
20 25 30

<210> 57
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<220>
<221> misc_feature
<222> (7)..(7)
<223> Xaa can be any naturally occurring amino acid

<400> 57

Ala Ala Ala Gly Ser Gly Xaa Ser Gly Ala Ser Ala Ser
1 5 10

<210> 58
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 58

Pro Gly Gly Asn Arg Gly Thr Thr Thr Thr Arg Arg Pro Ala Thr Thr
1 5 10 15

Thr Gly Ser Ser Pro Gly Pro Thr Gln Ser His Tyr
20 25

<210> 59
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 59

Ala Thr Thr Thr Gly Ser Ser Pro Gly Pro Thr
1 5 10

<210> 60
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 60

Ala Thr Thr Thr Gly Ser
1 5

<210> 61
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 61

Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Ser Pro Pro Ser Lys Glu
1 5 10 15

Ser His Lys Ser Pro
20

<210> 62
<211> 15

<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 62

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

<210> 63
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 63

Gly	Gly	Gly	Gly	Ile	Ala	Pro	Ser	Met	Val	Gly	Gly	Gly	Gly	Ser
1				5					10					15

<210> 64
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 64

Gly	Gly	Gly	Gly	Lys	Val	Glu	Gly	Ala	Gly	Gly	Gly	Gly	Gly	Ser
1				5					10					15

<210> 65
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 65

Gly Gly Gly Gly Ser Met Lys Ser His Asp Gly Gly Gly Gly Ser
1 5 10 15

<210> 66
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 66

Gly Gly Gly Gly Asn Leu Ile Thr Ile Val Gly Gly Gly Gly Ser
1 5 10 15

<210> 67
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 67

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

<210> 68
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 68

Gly Gly Glu Lys Ser Ile Pro Gly Gly Gly Gly Ser
1 5 10

<210> 69
<211> 18
<212> PRT
<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 69

Arg	Pro	Leu	Ser	Tyr	Arg	Pro	Pro	Phe	Pro	Phe	Gly	Phe	Pro	Ser	Val
1				5					10					15	

Arg Pro

<210> 70

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 70

Tyr	Pro	Arg	Ser	Ile	Tyr	Ile	Arg	Arg	Arg	His	Pro	Ser	Pro	Ser	Leu
1				5					10					15	

Thr Thr

<210> 71

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 71

Thr	Pro	Ser	His	Leu	Ser	His	Ile	Leu	Pro	Ser	Phe	Gly	Leu	Pro	Thr
1				5					10					15	

Phe Asn

<210> 72
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 72

Arg	Pro	Val	Ser	Pro	Phe	Thr	Phe	Pro	Arg	Leu	Ser	Asn	Ser	Trp	Leu
1				5					10					15	

Pro Ala

<210> 73
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 73

Ser	Pro	Ala	Ala	His	Phe	Pro	Arg	Ser	Ile	Pro	Arg	Pro	Gly	Pro	Ile
1				5					10					15	

Arg Thr

<210> 74
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 74

Ala	Pro	Gly	Pro	Ser	Ala	Pro	Ser	His	Arg	Ser	Leu	Pro	Ser	Arg	Ala
1				5					10					15	

Phe Gly

<210> 75
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 75

Pro	Arg	Asn	Ser	Ile	His	Phe	Leu	His	Pro	Leu	Leu	Val	Ala	Pro	Leu
1				5				10						15	

Gly Ala

<210> 76
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 76

Met	Pro	Ser	Leu	Ser	Gly	Val	Leu	Gln	Val	Arg	Tyr	Leu	Ser	Pro	Pro
1				5				10						15	

Asp Leu

<210> 77
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 77

Ser Pro Gln Tyr Pro Ser Pro Leu Thr Leu Thr Leu Pro Pro His Pro
1 5 10 15

Ser Leu

<210> 78
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 78

Asn Pro Ser Leu Asn Pro Pro Ser Tyr Leu His Arg Ala Pro Ser Arg
1 5 10 15

Ile Ser

<210> 79
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 79

Leu Pro Trp Arg Thr Ser Leu Leu Pro Ser Leu Pro Leu Arg Arg Arg
1 5 10 15

Pro

<210> 80
<211> 18
<212> PRT
<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 80

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

Pro Pro

<210> 81

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 81

Val	Pro	Pro	Ala	Pro	Val	Val	Ser	Leu	Arg	Ser	Ala	His	Ala	Arg	Pro
1				5					10					15	

Pro Tyr

<210> 82

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Flexible linker

<400> 82

Leu	Arg	Pro	Thr	Pro	Pro	Arg	Val	Arg	Ser	Tyr	Thr	Cys	Cys	Pro	Thr
1				5					10					15	

Pro

<210> 83

<211> 18

<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 83

Pro	Asn	Val	Ala	His	Val	Leu	Pro	Leu	Leu	Thr	Val	Pro	Trp	Asp	Asn
1				5					10					15	

Leu Arg

<210> 84
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
<223> Flexible linker

<400> 84

Cys	Asn	Pro	Leu	Leu	Pro	Leu	Cys	Ala	Arg	Ser	Pro	Ala	Val	Arg	Thr
1				5					10					15	

Phe Pro

<210> 85
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Rigid linker

<400> 85

Gly	Ala	Pro	Ala	Pro	Ala	Ala	Pro	Ala	Pro	Ala
1				5					10	

<210> 86
<211> 4

<212> PRT
<213> Artificial Sequence

<220>
<223> Rigid linker

<400> 86

Pro Pro Pro Pro

1