

**SEQUENCE IDENTIFIER**

## SEQUENCE LISTING

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   <151> 2007-07-31
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   Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
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   Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
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   Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
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40 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
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   Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
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    His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
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5   Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
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    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
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    Tyr Leu His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
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25  Ser Gly Ile Ser Tyr Ser Gly Ser Ser Thr Tyr Tyr Ala Asp Ser Val
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    Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
      65      70      75      80
30  Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
      85      90      95
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    His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
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    Arg Asp Ser Asn Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
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50  Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
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    Asp Glu Ala Asp Tyr Tyr Cys Gly Ser Tyr Asp Met Pro Phe Gly Gly
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 Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
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 Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe  
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 Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr  
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 20 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys  
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 Ala Arg Ser Ser Tyr Thr Ile Leu Thr Tyr Tyr Asn Tyr Asn Ala  
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                   20                  25                  30  
 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
                   35                  40                  45  
 Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
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 40 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro  
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 Glu Asp Phe Ala Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp  
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5	Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
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	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Leu	Tyr
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10	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
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	Ala	Arg	Lys	Gly	Met	Ser	Phe	Tyr	Asn	Asn	Lys	Tyr	Ala	Lys	Ser	Met
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20	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
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	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
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	His	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Ala	Pro	Val	Leu	Val	Ile	Tyr
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	Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Ser	Ala	Trp	Thr	Thr	Thr	Met	Met	His
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	Ile	Val	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly	Gln	Pro	Lys
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50	Ala	Ala	Pro	Ser	Val	Thr	Leu	Phe	Pro	Pro	Ser	Ser	Glu	Glu	Leu	Gln
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Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
145          150          155          160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
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5  Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
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Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
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Tyr Leu His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
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25  Ser Gly Ile Ser Tyr Ser Gly Ser Ser Thr Tyr Tyr Ala Asp Ser Val
          50  55  60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
30  Ala Arg Phe Tyr Gln Arg Arg Gln Ile Pro His Gly Tyr Asp Val Trp
          100 105 110
Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro
          115 120 125
35  Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr
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Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr
145 150 155 160
Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro
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40  Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr
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Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn
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His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser
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5   Arg Asp Ser  Asn Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
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    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
    65              70              75              80
    Asp Glu Ala Asp Tyr Tyr Cys Gly Ser Tyr Asp Met Pro Phe Gly Gly
10  85              90              95
    Thr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
    100              105              110
    Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
    115              120              125
15  Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
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    Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
    145              150              155              160
    Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
20  165              170              175
    Ser Ser Tyr  Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
    180              185              190
    Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
    195              200              205
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    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
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40  Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50              55              60
    Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
    65              70              75              80
    Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
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    Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
    100              105              110
    Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
    115              120              125
50  Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
    130              135              140
    Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
    145              150              155              160
    Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val

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His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
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Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
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Glu Pro Lys Ser
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Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35      40      45
Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
      50      55      60
25 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
      65      70      75      80
Glu Asp Phe Ala Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp
      85      90      95
30 Thr Phe Gly Gln Gly Thr Lys Val Glu 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
35 Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
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Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
      165      170      175
40 Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
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	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
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45	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala	
				100					105					110			
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	
		115						120					125				
	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	
50		130					135					140					
	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	
	145					150					155				160		
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	
					165					170					175		

```

His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
5  Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
    210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
10      245
<210> 33
<211> 214
<212> PRT
<213> Artificial
15 <220>
    <223> light Fab chain
    <400> 33
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1      5      10      15
20 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
    20      25      30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35      40      45
25 Tyr Gly Ser Ser Ile Leu Gln 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 Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp
      85      90      95
30 Thr Phe Gly Gln Gly Thr Lys Val Glu 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
35      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
40 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 Ala
45      210
<210> 34
<211> 247
<212> PRT
<213> Artificial
50 <220>
    <223> heavy Fab chain
    <400> 34
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1      5      10      15

```

	Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Gly	Thr	Phe	Ser	Thr	Tyr
			20						25					30		
	Ala	Ile	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
		35					40						45			
5	Gly	Asp	Ile	Ile	Pro	Ile	Trp	Gly	Asp	Ala	Arg	Tyr	Ala	Gln	Lys	Phe
	50						55					60				
	Gln	Gly	Arg	Val	Thr	Ile	Thr	Ala	Asp	Glu	Ser	Thr	Ser	Thr	Ala	Tyr
	65					70					75					80
	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
10					85					90					95	
	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala
				100					105					110		
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser
				115				120						125		
15	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr
	130						135						140			
	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro
	145					150					155					160
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
20					165					170					175	
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
				180					185					190		
	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile
			195					200					205			
25	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val
	210					215						220				
	Glu	Pro	Lys	Ser	Glu	Phe	Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Ala
	225					230					235					240
	Pro	His	His	His	His	His	His									
30					245											
	<210>	35														
	<211>	214														
	<212>	PRT														
	<213>	Artificial														
35	<220>															
	<223>	lighth Fab chain														
	<400>	35														
	Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
	1				5					10					15	
40	Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Asn	Ile	Asn	Asn	Phe
			20						25					30		
	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
		35					40						45			
	Tyr	Gly	Ser	Ser	Ile	Leu	Gln	Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly
45	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	Val	Tyr	Tyr	Cys	His	Gln	Val	Ser	Asp	Thr	Ser	Asp
				85						90					95	
50	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	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
5  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
10  Phe Asn Arg Gly Glu Ala
      210
    <210> 36
    <211> 247
    <212> PRT
15  <213> Artificial
    <220>
    <223> heavy Fab chain
    <400> 36
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
20  1      5      10      15
    Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20      25      30
    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35      40      45
25  Gly Glu Ile Ile Pro Ile Phe Gly Glu Ala Asp Tyr Ala Gln Lys Phe
      50      55      60
    Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
      65      70      75      80
    Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
30  85      90      95
    Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
    Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
35  Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
    Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145      150      155      160
    Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
40  165      170      175
    His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
    Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
45  Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
    Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
      225      230      235      240
    Pro His His His His His His
50  245
    <210> 37
    <211> 214
    <212> PRT
    <213> Artificial

```

&lt;220&gt;

&lt;223&gt; light Fab chain

&lt;400&gt; 37

```

5  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 Asn Ile Asn Asn Phe
           20           25           30
   Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
           35           40           45
10  Tyr Gly Ser Ser Ile Leu Gln 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 Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp
15  Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala
           85           90           95
   Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
           100          105          110
   Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
20  Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
   130          135          140          145
   Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
           150          155          160
25  Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
           165          170          175
   Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
           180          185          190          195
   Phe Asn Arg Gly Glu Ala
30  210

```

&lt;210&gt; 38

&lt;211&gt; 247

&lt;212&gt; PRT

35 &lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; heavy Fab chain

&lt;400&gt; 38

```

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

```

```

    Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
    Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
    145      150      155      160
5   Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
    His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
    Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
    10      195      200      205
    Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
    Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
    225      230      235      240
    15   Pro His His His His His His
          245
        <210> 39
        <211> 214
        <212> PRT
    20   <213> Artificial
        <220>
        <223> light Fab chain
        <400> 39
    25   Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
          5      10      15
    Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
          20      25      30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
          35      40      45
    30   Tyr Gly Ser Ser Ile Leu Gln 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 Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp
    35      85      90      95
    Thr Phe Gly Gln Gly Thr Lys Val Glu 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
    40   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
    45      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
    50   Phe Asn Arg Gly Glu Ala
          210
        <210> 40
        <211> 247
        <212> PRT

```



```

<213> Artificial
<220>
<223> heavy Fab chain
<400> 40
5  Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
   1          5          10          15
   Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
       20          25          30
   Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
   10          35          40          45
      Gly Gln Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
        50          55          60
      Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
        65          70          75          80
   15  Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
       85          90          95
      Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
        100          105          110
   20  Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
       115          120          125
      Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
        130          135          140
      Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
        145          150          155          160
   25  Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
       165          170          175
      His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
        180          185          190
   30  Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
       195          200          205
      Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
        210          215          220
      Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
        225          230          235          240
   35  Pro His His His His His His
       245

<210> 41
<211> 214
<212> PRT
40  <213> Artificial
     <220>
     <223> light Fab Chain
     <400> 41
45  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 Asn Ile Asn Asn Phe
        20          25          30
     Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35          40          45
   50  Tyr Gly Ser Ser Ile Leu Gln 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 Val Tyr Tyr Cys His Gln Val Ser Asp Thr Ser Asp

```

```

      85                      90                      95
Thr Phe Gly Gln Gly Thr Lys Val Glu 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
5      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
10  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
15      195                      200                      205
Phe Asn Arg Gly Glu Ala
      210
<210> 42
<211> 247
20  <212> PRT
    <213> Artificial
    <220>
    <223> heavy Fab chain
    <400> 42
25  Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
      1      5      10      15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20      25      30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
30      35      40      45
Gly Ser Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
      50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
      65      70      75      80
35  Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
      85      90      95
Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
40      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145      150      155      160
45  Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
50      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
      225      230      235      240

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```

Pro His His His His His His
                245
<210>  43
<211>  213
5  <212>  PRT
   <213>  Artificial
   <220>
   <223>  light Fab. chain
   <400>  43
10  Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
    1           5           10           15
    Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
        20           25           30
15  His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
    35           40           45
    Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
    50           55           60
    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
    65           70           75           80
20  Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
        85           90           95
    Ile Val Phe Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
        100           105           110
    Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
    115           120           125
25  Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
    130           135           140
    Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
    145           150           155           160
30  Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
        165           170           175
    Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
        180           185           190
    Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
    195           200           205
35  Ala Pro Thr Glu Ala
    210
    <210>  44
    <211>  249
40  <212>  PRT
   <213>  Artificial
   <220>
   <223>  heavy Fab chain
   <400>  44
45  Gln 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 Asn Ala
        20           25           30
    Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
    35           40           45
50  Ser Leu Ile Glu Ala Lys Glu Ala Asn Gly Ala Thr Ser Tyr Ala Ala
    50           55           60
    Gly Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
    65           70           75           80

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Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
      85      90      95
Tyr Cys Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys
      100      105      110
5  Ser Met Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
      115      120      125
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
      130      135      140
10 Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
      145      150      155
Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
      165      170      175
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
      180      185      190
15 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
      195      200      205
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
      210      215      220
Lys Val Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys
20 225      230      235      240
Gly Ala Pro His His His His His
      245
<210> 45
<211> 213
25 <212> PRT
    <213> Artificial
    <220>
    <223> light Fab chain
    <400> 45
30 Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
    1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
35      35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50      55      60
Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
      65      70      75      80
40 Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85      90      95
Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
45      115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
      145      150      155      160
50 Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val

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```

      195                200                205
Ala Pro Thr Glu Ala
      210
<210> 46
5 <211> 249
  <212> PRT
  <213> Artificial
  <220>
  <223> heavy Fab chain
10 <400> 46
   Gln 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 Asn Ala
           20                25                30
15 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35                40                45
   Ser Gln Ile Glu Ala Lys Gln Pro Gly Gly Ala Thr Ser Tyr Ala Ala
      50                55                60
   Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
20 65                70                75                80
   Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
           85                90                95
   Tyr Cys Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys
           100                105                110
25 Ser Met Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
      115                120                125
   Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
      130                135                140
   Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
30 145                150                155                160
   Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
           165                170                175
   Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
           180                185                190
35 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
      195                200                205
   Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
      210                215                220
   Lys Val Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys
40 225                230                235                240
   Gly Ala Pro His His His His His His
           245
   <210> 47
   <211> 213
45 <212> PRT
  <213> Artificial
  <220>
  <223> light Fab chain
  <400> 47
50 Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
   1                    5                10                15
   Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
           20                25                30
   His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr

```

		35		40		45													
		Tyr	Asp	Ser	Lys	Arg	Pro	Ser	Gly	Ile	Pro	Glu	Arg	Phe	Ser	Gly	Ser		
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5		Asn	Ser	Gly	Asn	Thr	Ala	Thr	Leu	Thr	Ile	Ser	Gly	Thr	Gln	Ala	Glu		
		65					70					75					80		
		Asp	Glu	Ala	Asp	Tyr	Tyr	Cys	Ser	Ala	Trp	Thr	Thr	Thr	Met	Met	His		
					85					90					95				
		Ile	Val	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Thr	Val	Leu	Gly	Gln	Pro	Lys		
					100					105					110				
10		Ala	Ala	Pro	Ser	Val	Thr	Leu	Phe	Pro	Pro	Ser	Ser	Glu	Glu	Leu	Gln		
					115				120					125					
		Ala	Asn	Lys	Ala	Thr	Leu	Val	Cys	Leu	Ile	Ser	Asp	Phe	Tyr	Pro	Gly		
		130						135					140						
		Ala	Val	Thr	Val	Ala	Trp	Lys	Ala	Asp	Ser	Ser	Pro	Val	Lys	Ala	Gly		
15		145					150					155					160		
		Val	Glu	Thr	Thr	Thr	Pro	Ser	Lys	Gln	Ser	Asn	Asn	Lys	Tyr	Ala	Ala		
					165					170							175		
		Ser	Ser	Tyr	Leu	Ser	Leu	Thr	Pro	Glu	Gln	Trp	Lys	Ser	His	Arg	Ser		
					180					185					190				
20		Tyr	Ser	Cys	Gln	Val	Thr	His	Glu	Gly	Ser	Thr	Val	Glu	Lys	Thr	Val		
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		Ala	Pro	Thr	Glu	Ala													
		210																	
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25		<211>	249																
		<212>	PRT																
		<213>	Artificial																
		<220>																	
		<223>	heavy Fab chain																
30		<400>	48																
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		Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Asn	Asn	Ala		
					20				25					30					
35		Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val		
					35			40						45					
		Ser	Thr	Ile	Glu	Ala	Lys	Met	Pro	Asn	Gly	Ala	Thr	Phe	Tyr	Ala	Ala		
		50					55						60						
		Pro	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr		
40		65				70					75						80		
		Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr		
					85					90						95			
		Tyr	Cys	Ala	Arg	Lys	Gly	Met	Ser	Phe	Tyr	Asn	Asn	Lys	Tyr	Ala	Lys		
					100					105					110				
45		Ser	Met	Phe	Asp	Leu	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser		
					115				120					125					
		Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys		
		130						135					140						
		Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr		
50		145				150					155						160		
		Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser		
					165					170						175			
		Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser		
					180					185					190				

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Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
      195                200                205
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
      210                215                220
5  Lys Val Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys
   225                230                235                240
Gly Ala Pro His His His His His His
      245

<210> 49
10 <211> 213
   <212> PRT
   <213> Artificial
   <220>
   <223> light Fab chain
15 <400> 49
   Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
   1      5      10      15
   Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
20 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
   35      40      45
   Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
   50      55      60
25 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
   65      70      75      80
   Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85      90      95
   Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
30 Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
   115      120      125
   Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
   130      135      140
35 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
   145      150      155      160
   Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
   Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
40 Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
   195      200      205
   Ala Pro Thr Glu Ala
   210

<210> 50
45 <211> 247
   <212> PRT
   <213> Artificial
   <220>
   <223> heavy Fab chain
50 <400> 50
   Gln 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 Asn Ala
      20      25      30

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Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35              40              45
Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
      50              55              60
5  Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
10  Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
   115              120              125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
   130              135              140
15  Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
   145              150              155              160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165              170              175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
20  Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
   180              185              190              200
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
   210              215              220
25  Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
   225              230              235              240
Pro His His His His His His
      245

<210>  51
30  <211> 213
    <212> PRT
    <213> Artificial
    <220>
    <223> light Fab chain
35  <400> 51
    Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
    1              5              10              15
    Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20              25              30
40  His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
   35              40              45
    Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
   50              55              60
    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
45  65              70              75              80
    Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85              90              95
    Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100              105              110
50  Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
   115              120              125
    Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
   130              135              140
    Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly

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145              150              155              160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
              165              170              175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
5 Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
              180              185              190
              195              200              205
Ala Pro Thr Glu Ala
210
10 <210> 52
    <211> 247
    <212> PRT
    <213> Artificial
    <220>
15 <223> heavy Fab chain
    <400> 52
Gln 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 Asn Ala
20              20              25              30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
              35              40              45
Ser Gly Ile Ser Ala Asp Gly Val His Lys Phe Tyr Ala Asp Ser Val
50              55              60
25 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
30              100              105              110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
              115              120              125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
130              135              140
35 Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145              150              155              160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
              165              170              175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
40              180              185              190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
              195              200              205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
210              215              220
45 Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225              230              235              240
Pro His His His His His His
245
50 <210> 53
    <211> 213
    <212> PRT
    <213> Artificial
    <220>
    <223> light Fab chain

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```

<400> 53
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
5      20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50      55      60
10 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
      65      70      75      80
Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85      90      95
15 Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
      115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
20 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
      145      150      155      160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
25 Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195      200      205
Ala Pro Thr Glu Ala
      210
30 <210> 54
    <211> 247
    <212> PRT
    <213> Artificial
    <220>
35 <223> heavy Fab chain
    <400> 54
Gln 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 Asn Ala
40      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Asn Ile Asn Val Gln Gly Asp Tyr Thr Gly Tyr Ala Asp Ser Val
      50      55      60
45 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
50 Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
      100      105      110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140

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```

Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145                      150                      155                      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
                      165                      170                      175
5  His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
                      180                      185                      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
                      195                      200                      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
10  210                      215                      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225                      230                      235                      240
Pro His His His His His His
                      245
15  <210> 55
    <211> 216
    <212> PRT
    <213> Artificial
    <220>
20  <223> light Fab chain
    <400> 55
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 Asn Ile Asn Asn Phe
25  20                      25                      30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35  35                      40                      45
Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50  55                      60
30  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 Ser Gln Asp His Phe Tyr Pro Pro
85  90                      95
Ser Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val
35  100                     105                     110
Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys
115                     120                     125
Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg
130                     135                     140
40  Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn
145                     150                     155                     160
Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser
165                     170                     175
Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys
45  180                     185                     190
Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
195                     200                     205
Lys Ser Phe Asn Arg Gly Glu Ala
210                     215
50  <210> 56
    <211> 247
    <212> PRT
    <213> Artificial
    <220>

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<223> heavy Fab chain
<400> 56
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1      5      10      15
5 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
20      25      30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35      40      45
10 Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65      70      75      80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85      90      95
15 Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
115      120      125
20 Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
165      170      175
25 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
180      185      190
Ser Val Val Thr Val Pro Ser Ser Leu Gly Thr Gln Thr Tyr Ile
195      200      205
30 Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
245
35 <210> 57
<211> 215
<212> PRT
<213> Artificial
<220>
40 <223> light Fab chain
<400> 57
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1      5      10      15
45 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
20      25      30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35      40      45
Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Asn Asp Phe Tyr Ser Pro
85      90      95
Ser Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala

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      100      105      110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
      115      120      125
5 Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
      130      135      140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145      150      155      160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
      165      170      175
10 Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
      180      185      190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
      195      200      205
Ser Phe Asn Arg Gly Glu Ala
15      210      215
<210> 58
<211> 247
<212> PRT
<213> Artificial
20 <220>
<223> heavy Fab chain
<400> 58
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1      5      10      15
25 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20      25      30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35      40      45
30 Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
      50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65      70      75      80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
      85      90      95
35 Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
40 Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
45 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
50      210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
      245

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<210> 59
<211> 215
<212> PRT
<213> Artificial
5 <220>
  <223> light Fab chain
  <400> 59
    Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
    1          5          10          15
10  Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
    20          25          30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35          40          45
15  Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Tyr Asp Phe Tyr Leu Ser
    85          90          95
20  Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
    100          105          110
    Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
    115          120          125
25  Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
    130          135          140
    Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
    145          150          155          160
    Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
    165          170          175
30  Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
    180          185          190
    Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
    195          200          205
    Ser Phe Asn Arg Gly Glu Ala
35  210          215
    <210> 60
    <211> 247
    <212> PRT
    <213> Artificial
40 <220>
  <223> heavy Fab chain
  <400> 60
    Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
    1          5          10          15
45  Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
    20          25          30
    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
    35          40          45
50  Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50          55          60
    Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
    65          70          75          80
    Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
    85          90          95

```

	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala
				100					105					110		
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser
			115					120					125			
5	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr
		130					135					140				
	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro
	145					150					155					160
10	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
					165						170				175	
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
			180						185					190		
	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile
			195					200					205			
15	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val
		210					215					220				
	Glu	Pro	Lys	Ser	Glu	Phe	Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Ala
	225					230					235					240
20	Pro	His	His	His	His	His	His									
					245											
	<210>	61														
	<211>	214														
	<212>	PRT														
	<213>	Artificial														
25	<220>															
	<223>	light Fab chain														
	<400>	61														
	Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly
	1				5					10					15	
30	Asp	Arg	Val	Thr	Ile	Thr	Cys	Arg	Ala	Ser	Gln	Asn	Ile	Asn	Asn	Phe
				20					25					30		
	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
			35					40					45			
35	Tyr	Gly	Ser	Ser	Ile	Leu	Gln	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	Tyr	Cys	Ile	Gln	Thr	Phe	Phe	Leu	Pro	Asp
					85					90					95	
40	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	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			
45	Thr	Ala	Ser	Val	Val	Cys	Leu	Asn	Asn	Phe	Tyr	Pro				

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      210
<210> 62
<211> 247
<212> PRT
5  <213> Artificial
    <220>
    <223> heavy light chain
    <400> 62
10  Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
    1      5      10      15
    Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
        20      25      30
    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35      40      45
15  Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50      55      60
    Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
    65      70      75      80
    Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
20  85      90      95
    Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
    100      105      110
    Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
    115      120      125
25  Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
    130      135      140
    Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
    145      150      155      160
    Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
30  165      170      175
    His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
    180      185      190
    Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
    195      200      205
35  Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
    210      215      220
    Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
    225      230      235      240
    Pro His His His His His His
40  245
    <210> 63
    <211> 214
    <212> PRT
    <213> Artificial
45  <220>
    <223> light Fa chain
    <400> 63
    Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
    1      5      10      15
50  Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
    20      25      30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35      40      45
    Tyr Gly Ser Ser Ile Leu Gln 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			
5	Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Gln	Asp	Asn	Leu	Pro	Arg			
					85					90					95				
	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	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						
10	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			
15					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						
20	Phe	Asn	Arg	Gly	Glu	Ala													
		210																	
	<210>	64																	
	<211>	247																	
	<212>	PRT																	
25	<213>	Artificial																	
	<220>																		
	<223>	heavy Fab chain																	
	<400>	64																	
	Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ser			
30	1			5						10				15					
	Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Gly	Thr	Phe	Ser	Thr	Tyr			
				20					25					30					
	Ala	Ile	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met			
			35					40					45						
35	Gly	Arg	Ile	Ile	Pro	Ile	Phe	Gly	Thr	Ala	Asn	Tyr	Ala	Gln	Lys	Phe			
		50					55					60							
	Gln	Gly	Arg	Val	Thr	Ile	Thr	Ala	Asp	Glu	Ser	Thr	Ser	Thr	Ala	Tyr			
	65					70					75					80			
	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys			
40					85					90					95				
	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala			
				100					105					110					
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser			
			115					120					125						
45	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr			
		130					135					140							
	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro				
	145					150					155				160				
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val			
50					165					170					175				
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser			
				180					185					190					
	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile			
			195				200						205						

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Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
  210                      215                      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225                      230                      235                      240
5  Pro His His His His His His
    245
<210> 65
<211> 213
<212> PRT
10 <213> Artificial
    <220>
    <223> light Fab chain
    <400> 65
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
15 1      5      10      15
    Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
        20      25      30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
        35      40      45
20 Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Glu Ser Tyr Val Val Thr
25      85      90      95
    Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro
        100      105      110
    Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr
        115      120      125
30 Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
    130      135      140
    Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
    145      150      155      160
    Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser
35      165      170      175
    Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
        180      185      190
    Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
        195      200      205
40 Asn Arg Gly Glu Ala
    210
<210> 66
<211> 247
<212> PRT
45 <213> Artificial
    <220>
    <223> heavy Fab chain
    <400> 66
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
50 1      5      10      15
    Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
        20      25      30
    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35      40      45

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    Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
      50      55      60
    Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
    65      70      75      80
5   Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
      85      90      95
    Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
    Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
    10      115      120      125
    Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
    Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
    145      150      155      160
15  Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
    His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
    Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
    20      195      200      205
    Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
    Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
    225      230      235      240
25  Pro His His His His His His
      245
    <210> 67
    <211> 213
    <212> PRT
    <213> Artificial
    <220>
    <223> light Fab chain
    <400> 67
    Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
    35  1      5      10      15
    Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
      20      25      30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
      35      40      45
40  Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Thr His Ser Gln Ser Thr
    45      85      90      95
    Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro
      100      105      110
    Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr
      115      120      125
50  Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys
      130      135      140
    Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu
    145      150      155      160
    Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser

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                    165                    170                    175
Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala
                    180                    185                    190
Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe
5      195                    200                    205
Asn Arg Gly Glu Ala
    210
<210> 68
<211> 247
10 <212> PRT
    <213> Artificial
    <220>
    <223> heavy Fab chain
    <400> 68
15 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
    1      5      10      15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
    20
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
20      35      40      45
Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
    50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65      70      75      80
25 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
    85      90      95
Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
    100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
30      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
    130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
35 Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
    165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
    180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
40      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
    210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225      230      235      240
45 Pro His His His His His His
    245
<210> 69
<211> 213
<212> PRT
50 <213> Artificial
    <220>
    <223> light Fab chain
    <400> 69
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln

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1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
5      35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50      55      60
Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
65      70      75      80
10     Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Gly Ala Gly Ser His Gln
85      90      95
Met Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
15     115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
130      135      140
Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
145      150      155      160
20     Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
165      170      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
180      185      190
25     Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
195      200      205
Ala Pro Thr Glu Ala
210
<210> 70
<211> 247
30     <212> PRT
      <213> Artificial
      <220>
      <223> heavy Fab chain
      <400> 70
35     Gln 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 Asn Ala
20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
40     35      40      45
Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65      70      75      80
45     Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85      90      95
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
100      105      110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
50     115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160

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Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val  
                             165                            170                            175  
 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser  
                             180                            185                            190  
 5 Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile  
                             195                            200                            205  
 Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val  
                             210                            215                            220  
 10 Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala  
     225                            230                            235                            240  
 Pro His His His His His His  
                             245  
 <210> 71  
 <211> 213  
 15 <212> PRT  
     <213> Artificial  
     <220>  
     <223> light Fab chain  
     <400> 71  
 20 Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln  
     1                            5                            10                            15  
 Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val  
                             20                            25                            30  
 25 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr  
                             35                            40                            45  
 Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser  
                             50                            55                            60  
 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu  
     65                            70                            75                            80  
 30 Asp Glu Ala Asp Tyr Cys Gln Ala Tyr Asp Val Asn Tyr Met Gln  
                             85                            90                            95  
 Asp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys  
                             100                            105                            110  
 35 Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln  
                             115                            120                            125  
 Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly  
                             130                            135                            140  
 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly  
     145                            150                            155                            160  
 40 Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala  
                             165                            170                            175  
 Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser  
                             180                            185                            190  
 45 Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val  
                             195                            200                            205  
 Ala Pro Thr Glu Ala  
                             210  
 <210> 72  
 <211> 247  
 50 <212> PRT  
     <213> Artificial  
     <220>  
     <223> heavy Fab chain  
     <400> 72

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      Gln 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 Ser Asn Ser
      20          25          30
5    Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35          40          45
      Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
      50          55          60
10   Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
      Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
      100          105          110
15   Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115          120          125
      Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130          135          140
20   Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145          150          155          160
      Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165          170          175
      His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180          185          190
25   Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195          200          205
      Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210          215          220
      Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
30   225          230          235          240
      Pro His His His His His His
      245
<210> 73
<211> 213
35  <212> PRT
      <213> Artificial
      <220>
      <223> light Fab chain
      <400> 73
40   Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
      1          5          10          15
      Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20          25          30
      His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
45   35          40          45
      Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50          55          60
      Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
      65          70          75          80
50   Asp Glu Ala Asp Tyr Tyr Cys Gln Thr Trp Thr Leu Ser His Met Gly
      85          90          95
      Asn Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100          105          110
      Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln

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```

      115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
5  145      150      155      160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
10 Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195      200      205
Ala Pro Thr Glu Ala
      210
<210> 74
15 <211> 247
    <212> PRT
    <213> Artificial
    <220>
    <223> heavy Fab chain
20 <400> 74
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1  5  10
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Ala
      20      25      30
25 Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
      50      55      60
30 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
      100      105      110
35 Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
40 145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
45 Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
50 Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
      225      230      235      240
Pro His His His His His His
      245
<210> 75
<211> 213

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50

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Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115                      120                      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130                      135                      140
5  Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
   145                      150                      155                      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165                      170                      175
10 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
   180                      185                      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195                      200                      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210                      215                      220
15 Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
   225                      230                      235                      240
Pro His His His His His His
      245

<210> 77
20 <211> 213
   <212> PRT
   <213> Artificial
   <220>
   <223> light Fab chain
25 <400> 77
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5                      10                      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20                      25                      30
30 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
   35                      40                      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
   50                      55                      60
35 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
   65                      70                      75                      80
Asp Glu Ala Asp Tyr Tyr Cys Ser Thr Tyr Asp Val Gly Ser Asp Tyr
      85                      90                      95
Tyr Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100                      105                      110
40 Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
   115                      120                      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130                      135                      140
Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
45 145                      150                      155                      160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165                      170                      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180                      185                      190
50 Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
   195                      200                      205
Ala Pro Thr Glu Ala
      210
<210> 78

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<211> 247
<212> PRT
<213> Artificial
<220>
5 <223> heavy Fab chain
<400> 78
Gln 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 Ser Asn Ser
10      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35      40      45
Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
50      55      60
15 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
100      105      110
20 Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
130      135      140
25 Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
165      170      175
30 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
210      215      220
35 Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
245

<210> 79
40 <211> 212
<212> PRT
<213> Artificial
<220>
<223> light Fab chain
45 <400> 79
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
20      25      30
50 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50      55      60
Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu

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65              70              75              80
Asp Glu Ala Asp Tyr Tyr Cys Gln Ser Tyr Ala Gly Ser Phe Phe Asp
      85              90              95
5 Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys Ala
      100              105              110
Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln Ala
      115              120              125
Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly Ala
      130              135              140
10 Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly Val
      145              150              155              160
Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala Ser
      165              170              175
Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser Tyr
      180              185              190
15 Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val Ala
      195              200              205
Pro Thr Glu Ala
      210
20 <210> 80
    <211> 247
    <212> PRT
    <213> Artificial
    <220>
25 <223> heavy Fab chain
    <400> 80
Gln 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 Asn Ala
30      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Asn Ile Thr Ser Ser Ser Ser Met Thr His Tyr Ala Asp Ser Val
      50      55      60
35 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
40      100      105      110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
45 Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
50      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220

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Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225                230                235                240
Pro His His His His His His
                245

5  <210>  81
   <211>  213
   <212>  PRT
   <213>  Artificial
   <220>
10 <223>  light Fab chain
   <400>  81
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
15      20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50      55      60
20 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
      65      70      75      80
Asp Glu Ala Asp Tyr Cys Gln Thr Trp Thr Leu Ser His Met Gly
      85      90      95
Asn Val Phe Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
25      100     105     110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
      115     120     125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130     135     140
30 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
      145     150     155     160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165     170     175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
35      180     185     190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195     200     205
Ala Pro Thr Glu Ala
      210
40 <210>  82
   <211>  247
   <212>  PRT
   <213>  Artificial
   <220>
45 <223>  heavy Fab chain
   <400>  82
Gln 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 Asn Ala
50      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
      50      55      60

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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
5  Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
100        105        110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
115        120        125
10 Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
130        135        140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145        150        155        160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
165        170        175
15 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
180        185        190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
195        200        205
20 Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
210        215        220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225        230        235        240
Pro His His His His His His
245
25 <210> 83
    <211> 213
    <212> PRT
    <213> Artificial
    <220>
30 <223> light Fab chain#
    <400> 83
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5      10      15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
20      25      30
35 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50      55      60
40 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
65      70      75      80
Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Gly Ala Gly Ser His Gln
85      90      95
45 Met Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
130      135      140
50 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
145      150      155      160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
165      170      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser

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      180      185      190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195      200      205
Pro Thr Glu Ala
5      210
<210> 84
<211> 247
<212> PRT
<213> Artificial
10 <220>
<223> heavy Fab chain
<400> 84
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1      5      10      15
15 Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Ala
      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
20      50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
25 Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
      100      105      110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
30      130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
o Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
35 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
40      210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
      245
45 <210> 85
<211> 216
<212> PRT
<213> Artificial
<220>
50 <223> light Fab chain
<400> 85
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 Asn Ile Asn Asn Phe

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					20					25					30		
		Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
			35						40					45			
5		Tyr	Gly	Ser	Ser	Ile	Leu	Gln	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	Tyr	Cys	Ser	Gln	Asp	His	Phe	Tyr	Pro	Pro
					85						90					95	
10		Ser	Gly	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val
					100					105						110	
		Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys
				115					120					125			
		Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	
15		130						135					140				
		Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn
		145					150					155					160
		Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser
					165						170					175	
20		Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys
					180					185					190		
		Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr
				195					200					205			
25		Lys	Ser	Phe	Asn	Arg	Gly	Glu	Ala								
		210						215									
		<210>	86														
		<211>	247														
		<212>	PRT														
		<213>	Artificial														
30		<220>															
		<223>	heavy Fab chain														
		<400>	86														
		Gln	Val	Gln	Leu	Val	Gln	Ser	Gly	Ala	Glu	Val	Lys	Lys	Pro	Gly	Ser
		1			5						10				15		
35		Ser	Val	Lys	Val	Ser	Cys	Lys	Ala	Ser	Gly	Gly	Thr	Phe	Ser	Thr	Tyr
				20					25					30			
		Ala	Ile	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
				35					40					45			
40		Gly	Lys	Ile	Ile	Pro	Ile	Phe	Gly	Asp	Ala	Asp	Tyr	Ala	Gln	Lys	Phe
		50						55					60				
		Gln	Gly	Arg	Val	Thr	Ile	Thr	Ala	Asp	Glu	Ser	Thr	Ser	Thr	Ala	Tyr
		65					70					75					80
		Met	Glu	Leu	Ser	S											



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His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
5  Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
    210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
10      245
<210> 87
<211> 215
<212> PRT
<213> Artificial
15 <220>
    <223> light Fab chain
    <400> 87
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1      5      10      15
20 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
    20      25      30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35      40      45
25 Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Tyr Asp Phe Tyr Leu Ser
      85      90      95
30 Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
    100      105      110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
    115      120      125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
35      130      135      140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145      150      155      160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
      165      170      175
40 Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
    180      185      190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
    195      200      205
Ser Phe Asn Arg Gly Glu Ala
45      210      215
<210> 88
<211> 247
<212> PRT
<213> Artificial
50 <220>
    <223> heavy Fab chain
    <400> 88
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1      5      10      15

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Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20      25      30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35      40      45
5  Gly Lys Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
    50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65      70      75      80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
10      85      90      95
Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
15 Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
    130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
20      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
25 Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
    210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
30      245
<210> 89
<211> 215
<212> PRT
<213> Artificial
35 <220>
    <223> light Fab chain
    <400> 89
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1      5      10      15
40 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Asn Ile Asn Asn Phe
    20      25      30
Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35      40      45
Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
45      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 Asn Asp Phe Tyr Ser Pro
      85      90      95
50 Ser Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
    100      105      110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
    115      120      125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu

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```

      130              135              140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145              150              155              160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
5      165              170              175
Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
      180              185              190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
      195              200              205
10  Ser Phe Asn Arg Gly Glu Ala
      210              215
<210> 90
<211> 247
<212> PRT
15  <213> Artificial
<220>
<223> heavy Fab chain
<400> 90
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
20  1      5      10
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20      25      30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35      40      45
25  Gly Gln Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
      50      55      60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65      70      75      80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
30      85      90      95
Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
      100      105      110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
35  Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
40      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
45  Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Lys Gly Ala
225      230      235      240
Pro His His His His His His
50      245
<210> 91
<211> 215
<212> PRT
<213> Artificial

```

&lt;220&gt;

&lt;223&gt; light Fab chain

&lt;400&gt; 91

```

5  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 Asn Ile Asn Asn Phe
           20           25           30
   Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
           35           40           45
10  Tyr Gly Ser Ser Ile Leu Gln 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 Tyr Cys Gln Gln Tyr Asp Phe Tyr Leu Ser
15  Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
           85           90           95
   Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
           100          105          110
   Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
           115          120          125
20  Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
   145          150          155          160
   Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
25  Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
           165          170          175
   Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
           180          185          190
           195          200          205
30  Ser Phe Asn Arg Gly Glu Ala
           210          215

```

&lt;210&gt; 92

&lt;211&gt; 247

&lt;212&gt; PRT

35 &lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; heavy Fab chain

&lt;400&gt; 92

```

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

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```

      115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
      130      135      140
5 Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165      170      175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
      180      185      190
10 Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
      195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
      210      215      220
Glu Pro Lys Ser Glu Phe Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala
15 225      230      235      240
Pro His His His His His His
      245
<210> 93
<211> 214
20 <212> PRT
<213> Artificial
<220>
<223> IgG4 - light chain
<400> 93
25 Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1 5 10 15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
30 35 40 45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
50 55 60
Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
65 70 75 80
35 Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85      90      95
Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
40 115 120 125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
145 150 155 160
45 Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
50 195 200 205
Ala Pro Thr Glu Cys Ser
      210
<210> 94
<211> 455

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<213>  Artificial
<220>
<223>  IgG4 - heavy chain
5  <400>  94
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    1          5          10          15
    Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Ala
          20          25          30
10  Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
    35          40          45
    Ser Gln Ile Glu Ala Lys Gln Pro Gly Gly Ala Thr Ser Tyr Ala Ala
    50          55          60
    Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr
15  65          70          75          80
    Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr
          85          90          95
    Tyr Cys Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys
          100          105          110
20  Ser Met Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
    115          120          125
    Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
    130          135          140
    Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
25  145          150          155          160
    Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
          165          170          175
    Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
          180          185          190
30  Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
    195          200          205
    Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
    210          215          220
    Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro
35  225          230          235          240
    Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
          245          250          255
    Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
          260          265          270
40  Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
    275          280          285
    Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
    290          295          300
    Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
45  305          310          315          320
    Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
          325          330          335
    Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
          340          345          350
50  Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
    355          360          365
    Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
    370          375          380
    Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys

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```

385              390              395              400
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
              405              410              415
Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
5  Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
    435              440              445
Leu Ser Leu Ser Leu Gly Lys
    450              455
10 <210> 95
    <211> 214
    <212> PRT
    <213> Artificial
    <220>
15 <223> IgG4 - light chain
    <400> 95
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1  5 10 15
Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
20 20 25 30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
    35 40 45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
    50 55 60
25 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
    65 70 75 80
Asp Glu Ala Asp Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
    85 90 95
Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
30 100 105 110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
    115 120 125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
    130 135 140
35 Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
    145 150 155 160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
    165 170 175
Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
40 180 185 190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
    195 200 205
Ala Pro Thr Glu Cys Ser
    210
45 <210> 96
    <211> 455
    <212> PRT
    <213> Artificial
    <220>
50 <223> IgG4 - heavy chain
    <400> 96
Gln 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 Asn Ala

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				20				25					30			
	Trp	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val
			35					40					45			
5	Ser	Thr	Ile	Glu	Ala	Lys	Met	Pro	Asn	Gly	Ala	Thr	Phe	Tyr	Ala	Ala
	50						55					60				
	Pro	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr
	65					70					75					80
	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr
					85					90					95	
10	Tyr	Cys	Ala	Arg	Lys	Gly	Met	Ser	Phe	Tyr	Asn	Asn	Lys	Tyr	Ala	Lys
				100					105					110		
	Ser	Met	Phe	Asp	Leu	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser
			115					120					125			
15	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg
	130						135					140				
	Ser	Thr	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr
	145					150					155					160
	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser
					165					170						175
20	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser
				180					185					190		
	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr
			195					200					205			
25	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys
	210						215					220				
	Arg	Val	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro
	225					230					235					240
	Glu	Phe	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys
					245					250					255	
30	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val
				260					265					270		
	Asp	Val	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp
			275					280					285			
35	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe
	290						295					300				
	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp
	305					310					315					320
	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu
					325					330					335	
40	Pro	Ser	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg
				340					345					350		
	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys
			355					360								



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      450                      455
<210>  97
<211>  214
<212>  PRT
5  <213>  Artificial
<220>
<223>  IgG4 - light chain
<400>  97
10  Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
    1           5           10           15
    Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
        20           25           30
    His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
        35           40           45
15  Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
    50           55           60
    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
    65           70           75           80
    Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
20  85           90           95
    Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
        100           105           110
    Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Leu Gln
        115           120           125
25  Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
    130           135           140
    Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
    145           150           155           160
    Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
30  165           170           175
    Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
        180           185           190
    Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
        195           200           205
35  Ala Pro Thr Glu Cys Ser
    210
<210>  98
<211>  453
<212>  PRT
40  <213>  Artificial
<220>
<223>  IgG4 - heavy chain
<400>  98
45  Gln 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 Asn Ala
        20           25           30
    Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
        35           40           45
50  Ser Gly Ile Ser Ala Asp Gly Val His Lys Phe Tyr Ala Asp Ser Val
    50           55           60
    Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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	
	Ala	Arg	Lys	Gly	Met	Ser	Phe	Tyr	Asn	Asn	Lys	Tyr	Ala	Lys	Ser	Met
				100					105					110		
5	Phe	Asp	Leu	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser
			115					120					125			
	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr
		130					135					140				
	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro
	145					150					155					160
10	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
					165					170					175	
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
				180					185					190		
15	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr
			195					200					205			
	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val
		210					215					220				
	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe
	225				230						235					240
20	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr
				245					250						255	
	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val
				260				265						270		
	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val
		275						280					285			
25	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser
		290					295					300				
	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu
	305					310					315					320
30	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser
					325					330					335	
	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro
			340						345					350		
35	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln
		355						360					365			
	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala
		370					375					380				
	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr
	385					390					395					400
40	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu
					405					410					415	
	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser</

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    Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
    1      5      10      15
    Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
5  His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35      40      45
    Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50      55      60
    Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
    10 65      70      75      80
    Asp Glu Ala Asp Tyr Tyr Cys Ser Ala Trp Thr Thr Thr Met Met His
      85      90      95
    Ile Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
15  Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
      115      120      125
    Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
    Ala Val Thr Val Ala Trp Lys Ala Asp Ser Ser Pro Val Lys Ala Gly
    20 145      150      155      160
    Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
    Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
25  Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195      200      205
    Ala Pro Thr Glu Cys Ser
      210
    <210> 100
30  <211> 453
    <212> PRT
    <213> Artificial
    <220>
    <223> IgG4 - heavy chain
35  <400> 100
    Gln 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 Asn Ala
      20      25      30
40  Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
    Ser Asn Ile Asn Val Gln Gly Asp Tyr Thr Gly Tyr Ala Asp Ser Val
      50      55      60
    Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
    45 65      70      75      80
    Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
      85      90      95
    Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
      100      105      110
50  Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115      120      125
    Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
      130      135      140
    Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro

```

```

145          150          155          160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
165          170          175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
5      180          185          190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
195          200          205
Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val
210          215          220
10  Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe
225          230          235          240
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
245          250          255
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
15      260          265          270
Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val
275          280          285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
290          295          300
20  Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305          310          315          320
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
325          330          335
Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
25      340          345          350
Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
355          360          365
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
370          375          380
30  Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385          390          395          400
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu
405          410          415
Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
35      420          425          430
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
435          440          445
Leu Ser Leu Gly Lys
450
40  <210> 101
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      <212> PRT
      <213> Artificial
      <220>
45  <223> IgG4 - light chain
      <400> 101
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 Asn Ile Asn Asn Phe
20      25      30
50  Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35      40      45
Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50          55          60

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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 Asn Asp Phe Tyr Ser Pro
          85          90          95
5  Ser Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
    100          105          110
Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
    115          120          125
Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
10  130          135          140
Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145          150          155          160
Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
          165          170          175
15  Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
    180          185          190
Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
    195          200          205
Ser Phe Asn Arg Gly Glu Cys
20  210          215
<210> 102
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<212> PRT
<213> Artificial
25  <220>
    <223> IgG4 - heavy chain
    <400> 102
Gln Val Glu Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1  5          10          15
30  Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
    20          25          30
Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
    35          40          45
Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
35  50          55          60
Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65          70          75          80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
          85          90          95
40  Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
    100          105          110
Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
    115          120          125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
45  130          135          140
Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145          150          155          160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
          165          170          175
50  His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
    180          185          190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
    195          200          205
Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val

```

	210		215		220												
	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe	
	225					230					235					240	
5	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	
					245					250					255		
	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	
				260					265					270			
	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	
			275					280					285				
10	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser	
	290						295					300					
	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	
	305					310					315					320	
	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser	
15					325					330					335		
	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	
				340					345					350			
	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln	
		355					360						365				
20	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	
	370						375					380					
	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	
	385					390					395					400	
	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu	
25					405					410					415		
	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser	
			420						425					430			
	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	
		435					440						445				
30	Leu	Ser	Leu	Gly	Lys												
	450																
	<210>	103															
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	<212>	PRT															
35	<213>	Artificial															
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	<223>	IgG4 - light chain															
	<400>	103															
40	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	Asn	Ile	Asn	Asn	Phe	
				20					25					30			
	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile	
			35					40					45				
45	Tyr	Gly	Ser	Ser	Ile	Leu	Gln	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	Tyr	Cys	Gln	Gln	Tyr	Asp	Phe	Tyr	Leu	Ser	
50					85					90					95		
	Gly	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala	
			100						105					110			
	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	
		115						120					125				

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      Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
          130                      135                      140
      Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
      145                      150                      155                      160
5    Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
          165                      170                      175
      Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
          180                      185                      190
      Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
      195                      200                      205
10   Ser Phe Asn Arg Gly Glu Cys
          210                      215
      <210> 104
      <211> 453
15   <212> PRT
      <213> Artificial
      <220>
      <223> IgG4 - heavy chain
      <400> 104
20   Gln Val Glu Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
      1                      5                      10                      15
      Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
          20                      25                      30
      Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35                      40                      45
25   Gly Arg Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Tyr Ala Gln Lys Phe
          50                      55                      60
      Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
          65                      70                      75                      80
30   Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
          85                      90                      95
      Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
          100                      105                      110
      Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115                      120                      125
35   Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
          130                      135                      140
      Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
          145                      150                      155                      160
40   Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
          165                      170                      175
      His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
          180                      185                      190
      Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
          195                      200                      205
45   Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val
          210                      215                      220
      Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe
          225                      230                      235                      240
50   Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
          245                      250                      255
      Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
          260                      265                      270
      Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val

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      275      280      285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
  290      295      300
5 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
  305      310      315      320
  Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
      325      330      335
  Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
      340      345      350
10 Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
      355      360      365
  Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
      370      375      380
  Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
15 385      390      395      400
  Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu
      405      410      415
  Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
      420      425      430
20 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
      435      440      445
  Leu Ser Leu Gly Lys
      450
<210> 105
25 <211> 214
  <212> PRT
  <213> Artificial
  <220>
  <223> IgG4 - light chain
30 <400> 105
  Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
  1      5      10      15
  Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
35 His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35      40      45
  Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
      50      55      60
  Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
40 65      70      75      80
  Asp Glu Ala Asp Tyr Tyr Cys Gln Thr Trp Thr Leu Ser His Met Gly
      85      90      95
  Asn Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
45 Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
      115      120      125
  Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
      130      135      140
  Ala Val Thr Val Ala Trp Lys Gly Asp Ser Ser Pro Val Lys Ala Gly
50 145      150      155      160
  Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
  Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190

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Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195                200                205
Ala Pro Thr Glu Cys Ser
      210
5  <210> 106
   <211> 453
   <212> PRT
   <213> Artificial
   <220>
10 <223> IgG4 - heavy chain
   <400> 106
Gln Val Glu 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 Asn Ala
15      20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35      40      45
Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
      50      55      60
20 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
25      100     105     110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115     120     125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
      130     135     140
30 Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145     150     155     160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
      165     170     175
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
35      180     185     190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
      195     200     205
Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val
      210     215     220
40 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe
      225     230     235     240
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
      245     250     255
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
45      260     265     270
Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val
      275     280     285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
      290     295     300
50 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
      305     310     315     320
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
      325     330     335
Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro

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      340      345      350
Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
      355      360      365
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
5      370      375      380
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
      385      390      395      400
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu
      405      410      415
10 Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
      420      425      430
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
      435      440      445
Leu Ser Leu Gly Lys
15      450
<210> 107
<211> 214
<212> PRT
<213> Artificial
20 <220>
<223> IgG4 - light chain
<400> 107
Asp Ile Glu Leu Thr Gln Pro Pro Ser Val Ser Val Ala Pro Gly Gln
1      5      10      15
25 Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
      20      25      30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
      35      40      45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
30      50      55      60
Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
      65      70      75      80
Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Gly Ala Gly Ser His Gln
      85      90      95
35 Met Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
      100      105      110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
      115      120      125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
40      130      135      140
Ala Val Thr Val Ala Trp Lys Gly Asp Ser Ser Pro Val Lys Ala Gly
      145      150      155      160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
      165      170      175
45 Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
      180      185      190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
      195      200      205
Ala Pro Thr Glu Cys Ser
50      210
<210> 108
<211> 453
<212> PRT
<213> Artificial

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&lt;220&gt;

&lt;223&gt; IgG4 - heavy chain

&lt;400&gt; 108

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5  Gln Val Glu 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 Asn Ala
      20          25          30
   Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35          40          45
10  Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
   50          55          60
   Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
   65          70          75          80
   Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
15  Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
   100          105          110
   Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
   115          120          125
20  Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
   130          135          140
   Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
   145          150          155          160
   Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
25  His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
   165          170          175          180
   Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
   185          190          195          200
30  Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val
   210          215          220
   Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe
   225          230          235          240
   Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
35  Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
   245          250          255          260
   Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val
   265          270          275          280
40  Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
   285          290          295          300
   Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
   305          310          315          320
   Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
45  Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
   325          330          335          340
   Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
   345          350          355          360
50  Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
   365          370          375          380
   Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
   385          390          395          400
   Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu

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          405          410          415
Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
          420          425          430
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
5      435          440          445
Leu Ser Leu Gly Lys
      450
<210> 109
<211> 216
10 <212> PRT
    <213> Artificial
    <220>
    <223> IgG4 - light chain
    <400> 109
15 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 Asn Ile Asn Asn Phe
          20      25      30
    Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
20      35      40      45
    Tyr Gly Ser Ser Ile Leu Gln 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
25 Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Asp His Phe Tyr Pro Pro
    85      90      95
    Ser Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val
    100      105      110
    Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys
30      115      120      125
    Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg
    130      135      140
    Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn
    145      150      155      160
35 Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser
    165      170      175
    Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys
    180      185      190
    Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr
40      195      200      205
    Lys Ser Phe Asn Arg Gly Glu Cys
    210      215
    <210> 110
    <211> 453
45 <212> PRT
    <213> Artificial
    <220>
    <223> IgG4 - heavy chain
    <400> 110
50 Gln Val Glu Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
    1      5      10      15
    Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
    20      25      30
    Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

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	Gly	Lys	Ile	Ile	Pro	Ile	Phe	Gly	Asp	Ala	Asp	Tyr	Ala	Gln	Lys	Phe	
		50					55					60					
5	Gln	Gly	Arg	Val	Thr	Ile	Thr	Ala	Asp	Glu	Ser	Thr	Ser	Thr	Ala	Tyr	
	65					70					75					80	
	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
					85					90					95		
	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala	
				100					105					110			
10	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	
			115					120					125				
	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr	
		130					135					140					
15	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	
	145					150					155					160	
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	
					165					170					175		
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	
				180					185					190			
20	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr	
			195					200					205				
	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val	
		210					215					220					
25	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe	
	225					230					235					240	
	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	
					245					250					255		
	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	
				260					265					270			
30	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	
			275					280					285				
	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser	
		290					295					300					
35	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	
		305				310					315					320	
	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser	
				325						330					335		
	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	
				340					345					350			
40	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln	
			355					360	</								

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<211> 215
<212> PRT
<213> Artificial
<220>
5 <223> IgG4 - light chain
  <400> 111
    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 Asn Ile Asn Asn Phe
    20           25           30
10  Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
    35           40           45
    Tyr Gly Ser Ser Ile Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
    50           55           60
15  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 Tyr Asp Phe Tyr Leu Ser
    85           90           95
    Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
    100          105          110
20  Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
    115          120          125
    Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
    130          135          140
25  Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
    145          150          155          160
    Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
    165          170          175
    Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
    180          185          190
30  Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
    195          200          205
    Ser Phe Asn Arg Gly Glu Cys
    210          215
35 <210> 112
    <211> 453
    <212> PRT
    <213> Artificial
    <220>
40 <223> IgG4 - heavy chain
    <400> 112
      Gln Val Glu Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
      1           5           10           15
      Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Thr Tyr
      20           25           30
45  Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35           40           45
      Gly Lys Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
      50           55           60
50  Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
      65           70           75           80
      Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
      85           90           95
      Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala

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				100					105				110			
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser
			115					120					125			
5	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr
		130					135					140				
	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro
	145					150					155					160
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
					165					170					175	
10	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
				180					185					190		
	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr
		195						200					205			
	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val
15		210					215					220				
	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe
	225					230					235					240
	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr
					245					250					255	
20	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val
				260					265						270	
	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val
		275						280					285			
	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser
25		290					295					300				
	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu
	305					310					315					320
	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser
					325					330					335	
30	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro
				340					345					350		
	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln
		355						360					365			
	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala
35		370					375					380				
	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr
	385					390					395					400
	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu
					405					410					415	
40	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser
				420					425					430		
	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser
		435						440					445			
	Leu	Ser	Leu	Gly	Lys											
45		450														
	<210>	113														
	<211>	215														
	<212>	PRT														
	<213>	Artificial														
50	<220>															
	<223>	IgG4 - light chain														
	<400>	113														
	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	Asn	Ile	Asn	Asn	Phe
				20					25					30		
	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
			35					40					45			
5	Tyr	Gly	Ser	Ser	Ile	Leu	Gln	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
10	Glu	Asp	Phe	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Asn	Asp	Phe	Tyr	Ser	Pro
					85					90					95	
	Ser	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala
				100					105					110		
	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser
				115				120					125			
15	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu
		130					135						140			
	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser
	145					150					155					160
20	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu
					165					170					175	
	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	Val
				180					185					190		
	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys
			195					200					205			
25	Ser	Phe	Asn	Arg	Gly	Glu	Cys									
		210					215									
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				20					25					30		
	Ala	Ile	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Gln	Gly	Leu	Glu	Trp	Met
				35				40					45			
40	Gly	Gln	Ile	Ile	Pro	Ile	Phe	Gly	Asp	Ala	Asp	Tyr	Ala	Gln	Lys	Phe
		50					55					60				
	Gln	Gly	Arg	Val	Thr	Ile	Thr	Ala	Asp	Glu	Ser	Thr	Ser	Thr	Ala	Tyr
	65					70					75					80
45	Met	Glu	Leu	Ser	Ser	Leu	Arg	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys
					85					90					95	
	Ala	Arg	Ser	Ser	Tyr	Thr	Ile	Leu	Thr	Thr	Tyr	Tyr	Asn	Tyr	Asn	Ala
				100					105					110		
	Met	Asp	Asn	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser
				115				120					125			
50	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys	Ser	Arg	Ser	Thr
		130					135					140				
	Ser	Glu	Ser	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro
	145					150					155					160
	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val



					165					170				175		
	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser
				180					185					190		
5	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Lys	Thr	Tyr	Thr
			195					200					205			
	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Arg	Val
		210					215				220					
	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Phe
	225					230					235				240	
10	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr
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	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val
				260					265					270		
	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val
15			275					280					285			
	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Phe	Asn	Ser
		290					295					300				
	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu
	305					310					315				320	
20	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Gly	Leu	Pro	Ser
					325					330					335	
	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro
			340						345					350		
	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met	Thr	Lys	Asn	Gln
25			355					360					365			
	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala
		370					375					380				
	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr
	385					390					395				400	
30	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Arg	Leu
					405					410					415	
	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val	Phe	Ser	Cys	Ser
				420					425					430		
	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser
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				20					25					30		
	Leu	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile
50			35					40					45			
	Tyr	Gly	Ser	Ser	Ile	Leu	Gln	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	

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      Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Tyr Asp Phe Tyr Leu Ser
                        85                      90                      95
      Gly Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
                        100                    105                    110
5    Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
      115                      120                      125
      Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
      130                      135                      140
10   Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
      145                      150                      155                      160
      Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
                        165                      170                      175
      Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
                        180                      185                      190
15   Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys
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      Ser Phe Asn Arg Gly Glu Cys
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                        20                      25                      30
30   Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
      35                      40                      45
      Gly Gln Ile Ile Pro Ile Phe Gly Asp Ala Asp Tyr Ala Gln Lys Phe
      50                      55                      60
35   Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
      65                      70                      75                      80
      Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                        85                      90                      95
      Ala Arg Ser Ser Tyr Thr Ile Leu Thr Thr Tyr Tyr Asn Tyr Asn Ala
                        100                    105                    110
40   Met Asp Asn Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
      115                      120                      125
      Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg Ser Thr
      130                      135                      140
45   Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
      145                      150                      155                      160
      Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
                        165                      170                      175
      His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
                        180                      185                      190
50   Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr Tyr Thr
      195                      200                      205
      Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val
      210                      215                      220
      Glu Ser Lys Tyr Gly Pro Pro Cys Pro Pro Cys Pro Ala Pro Glu Phe

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225          230          235          240
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
          245          250          255
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
5          260          265          270
Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp Gly Val
          275          280          285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe Asn Ser
          290          295          300
10 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
305          310          315
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu Pro Ser
          325          330          335
Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
15          340          345          350
Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys Asn Gln
          355          360          365
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
          370          375          380
20 Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
385          390          395
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Arg Leu
          405          410          415
Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser Cys Ser
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Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
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Leu Ser Leu Gly Lys
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Thr Ala Arg Ile Ser Cys Ser Gly Asp Asn Leu Gly Lys Lys Tyr Val
40          20          25          30
His Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr
          35          40          45
Tyr Asp Ser Lys Arg Pro Ser Gly Ile Pro Glu Arg Phe Ser Gly Ser
          50          55          60
45 Asn Ser Gly Asn Thr Ala Thr Leu Thr Ile Ser Gly Thr Gln Ala Glu
65          70          75          80
Asp Glu Ala Asp Tyr Tyr Cys Gln Ala Trp Gly Ala Gly Ser His Gln
          85          90          95
Met Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly Gln Pro Lys
50          100          105          110
Ala Ala Pro Ser Val Thr Leu Phe Pro Pro Ser Ser Glu Glu Leu Gln
          115          120          125
Ala Asn Lys Ala Thr Leu Val Cys Leu Ile Ser Asp Phe Tyr Pro Gly
          130          135          140

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Ala Val Thr Val Ala Trp Lys Gly Asp Ser Ser Pro Val Lys Ala Gly
145          150          155          160
Val Glu Thr Thr Thr Pro Ser Lys Gln Ser Asn Asn Lys Tyr Ala Ala
          165          170          175
5  Ser Ser Tyr Leu Ser Leu Thr Pro Glu Gln Trp Lys Ser His Arg Ser
          180          185          190
Tyr Ser Cys Gln Val Thr His Glu Gly Ser Thr Val Glu Lys Thr Val
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Ala Pro Thr Glu Cys Ser
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20  Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Asn Ala
          20      25      30
Trp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
          35      40      45
Ser Ala Ile Asn Ala Lys Gly Gln Phe Thr Ser Tyr Ala Asp Ser Val
25  50      55      60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr 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
30  Ala Arg Lys Gly Met Ser Phe Tyr Asn Asn Lys Tyr Ala Lys Ser Met
          100      105      110
Phe Asp Leu Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser
          115      120      125
Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
35  130      135      140
Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
145      150      155      160
Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
          165      170      175
40  His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
          180      185      190
Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
          195      200      205
Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
45  210      215      220
Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala
225      230      235      240
Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
          245      250      255
50  Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
          260      265      270
Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val
          275      280      285
Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln

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