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<110> NousCom AG

<120> VACCINE T CELL ENHANCER

<130> 854-16 PCT

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<160> 51

<170> PatentIn version 3.5

<210> 1

<211> 281

<212> PRT

<213> Siniperca chuatsi

<400> 1

Met Ala Asp Ser Ala Glu Asp Ala Pro Met Ala Arg Gly Ser Leu Ala
1 5 10 15

Gly Ser Asp Glu Ala Leu Ile Leu Pro Ala Gly Pro Thr Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Val Ala Gly Leu Thr Thr Leu Thr Cys Leu
35 40 45

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Gly Gln Lys
50 55 60

Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln
65 70 75 80

Leu Thr Arg Ser Ser Gln Ala Val Ala Pro Met Lys Met His Met Pro
85 90 95

Met Asn Ser Leu Pro Leu Leu Met Asp Phe Thr Pro Asn Glu Asp Ser
100 105 110

Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Ala Val Val Ser Val Glu

115

120

125

Lys Gln Leu Lys Asp Leu Met Gln Asp Ser Gln Leu Pro Gln Phe Asn
 130 135 140

Glu Thr Phe Leu Ala Asn Leu Gln Gly Leu Lys Gln Gln Met Asn Glu
 145 150 155 160

Ser Glu Trp Lys Ser Phe Glu Ser Trp Met Arg Tyr Trp Leu Ile Phe
 165 170 175

Gln Met Ala Gln Gln Lys Pro Val Pro Pro Thr Ala Asp Pro Ala Ser
 180 185 190

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

Ile Gly Ser Tyr Lys Pro Gln Cys Asp Glu Gln Gly Arg Tyr Lys Pro
 210 215 220

Met Gln Cys Trp His Ala Thr Gly Phe Cys Trp Cys Val Asp Glu Thr
 225 230 235 240

Gly Ala Val Ile Glu Gly Thr Thr Met Arg Gly Arg Pro Asp Cys Gln
 245 250 255

Arg Arg Ala Leu Ala Pro Arg Arg Met Ala Phe Ala Pro Ser Leu Met
 260 265 270

Gln Lys Thr Ile Ser Ile Asp Asp Gln
 275 280

<210> 2

<211> 280

<212> PRT

<213> Dicentrarchus labrax

<400> 2

Met Ala His Ser Glu Asp Ala Pro Leu Ala Thr Gly Ser Leu Ala Gly
 1 5 10 15

Ser Glu Glu Ala Leu Val Leu Ser Gly Arg Pro Thr Gly Gly Ser Asn
20 25 30

Ser Arg Ala Leu Lys Ile Ala Gly Leu Thr Thr Leu Ala Cys Leu Leu
35 40 45

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

Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Thr Lys Gln Leu
65 70 75 80

Thr Arg Ser Ser Gln Ala Val Ala Pro Val Arg Met His Met Pro Met
85 90 95

Ser Ser Leu Pro Met Leu Met Asp Phe Thr Asp Glu Asp Ser Lys Ala
100 105 110

Thr Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Val Val Ser Val Glu
115 120 125

Lys Gln Val Lys Asp Leu Ile Gln Asp Ser Gln Leu Pro Gln Phe Asn
130 135 140

Glu Thr Phe Met Ala Asn Leu Gln Ser Leu Lys Gln His Ile Asn Glu
145 150 155 160

Ser Glu Trp Gln Ser Phe Glu Ser Trp Met Arg Tyr Trp Leu Ile Phe
165 170 175

Gln Met Ala Gln Lys Thr Pro Val Pro Pro Thr Ala Asp Pro Ala Ser
180 185 190

Leu Ile Lys Thr Lys Cys Gln Met Glu Ala Ala Pro Gly Pro Ser Lys
195 200 205

Ile Gly Ser Tyr Lys Pro Gln Cys Asp Glu Gln Gly Arg Tyr Lys Pro
210 215 220

Met Gln Cys Trp His Ala Thr Gly Tyr Cys Trp Cys Val Asp Glu Thr
225 230 235 240

Gly Thr Ala Ile Glu Gly Thr Thr Met Arg Gly Arg Pro Asp Cys Gln
245 250 255

Arg Gly Ser Met Pro Arg Arg Val Met Leu Ala Pro Arg Leu Met Gln
260 265 270

Lys Thr Leu Ser Phe Asp Asp Gln
275 280

<210> 3

<211> 279

<212> PRT

<213> Monopterus albus

<400> 3

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

Gly Ser Glu Glu Ala Leu Val Leu Pro Val Ala Pro Arg Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Ile Ala Gly Leu Thr Thr Leu Ala Cys Leu
35 40 45

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Asp Gln Lys
50 55 60

Gln Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Arg Gln
65 70 75 80

Met Thr Arg Thr Ser Gln Ala Val Ala Pro Val Lys Met His Leu Pro
85 90 95

Met Asn Ser Leu Pro Met Leu Met Asp Tyr Thr Ser Asn Glu Asp Pro
100 105 110

Lys Glu Thr Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Ala Val Val
115 120 125

Ser Val Glu Asp Gln Leu Lys Glu Leu Ile Gln Asp Ala Gln Leu Pro

130

135

140

Glu Phe Asn Glu Thr Phe Met Asp Asn Met Gln Arg Leu Lys Gln Leu
 145 150 155 160

Thr Asn Asp Ser Glu Trp Lys Ser Phe Glu Thr Trp Met Arg Tyr Trp
 165 170 175

Leu Ile Phe Lys Met Ser Gln Gln Lys Pro Thr Ala Pro Thr Thr Glu
 180 185 190

Gln Ala Met Thr Lys Cys Gln Arg Glu Ala Lys Glu Gly Leu Ile Gly
 195 200 205

Ser Tyr Lys Pro Gln Cys Asp Glu Gln Gly His Tyr Met Pro Met Gln
 210 215 220

Cys Trp His Gly Thr Gly Tyr Cys Trp Cys Val Asp Gly Ser Gly Thr
 225 230 235 240

Pro Ile Pro Gly Thr Lys Met Arg Gly Arg Pro Gln Cys Pro Arg Ala
 245 250 255

Thr Ala Ser Arg His Ala Met Arg Ser Pro Phe Leu Met Gln Arg Thr
 260 265 270

Val Gly Ile Asp Asp Glu Lys
 275

<210> 4

<211> 284

<212> PRT

<213> Oreochromis niloticus

<400> 4

Met Ala His Ser Gln Asp Asp Ala Pro Leu Ala Arg Gly Ser Leu Ala
 1 5 10 15

Asp Ser Glu Glu Ile Leu Leu Pro Pro Ala Ala Pro Arg Gly Gly Ser
 20 25 30

Asn Ser Arg Ala Leu Lys Ile Ala Gly Leu Thr Thr Leu Ala Cys Leu
35 40 45

Leu Val Ala Ser Gln Val Phe Thr Ala Tyr Thr Val Phe Ser Gln Lys
50 55 60

Gln Gln Ile His Thr Leu Gln Lys Asn Ser Asp Arg Met Asn Lys Gln
65 70 75 80

Leu Thr Arg Ser Ser His Ala Val Ala Pro Val Arg Met Ala Met Pro
85 90 95

Met Asn Ser Leu Pro Leu Leu Met Asp Phe Thr Glu Asp Ser Thr Ala
100 105 110

Pro Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Ala Ile Val Ser Val
115 120 125

Glu Lys Gln Leu Met Asp Leu Met Gln Asp Ser Glu Leu Pro Gln Phe
130 135 140

Asn Glu Thr Phe Leu Ala Asn Leu Gln Thr Leu Lys Gln His Met Asn
145 150 155 160

Asp Ser Glu Trp Lys Ser Phe Glu Thr Trp Met Arg Tyr Trp Leu Ile
165 170 175

Phe Lys Met Ala Gln Gln Gln Pro Ala Thr Pro Thr Pro Gln Ser Ala
180 185 190

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

Lys Ile Gly Ser Tyr Lys Pro Gln Cys Asp Glu Gln Gly Arg Tyr Lys
210 215 220

Pro Met Gln Cys Trp His Ala Thr Gly Tyr Cys Trp Cys Val Asp Gly
225 230 235 240

Glu Gly His Pro Ile Glu Gly Thr Thr Met Arg Gly Arg Pro Asp Cys
245 250 255

Gln Arg Ala Ala Phe Pro Arg Arg Met Met Val Ala Pro Arg Leu Met
260 265 270

Gln Lys Thr Tyr Asp Met Asp Asp Glu Lys Gln Lys
275 280

<210> 5
<211> 282
<212> PRT
<213> Lates calcarifer

<400> 5

Met Ala His Asn Pro Glu Asp Ala Pro Leu Ala Arg Gly Ser Leu Ala
1 5 10 15

Gly Ser Glu Glu Asp Leu Val Val Pro Ala Gly Pro Arg Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Val Ala Ala Leu Thr Thr Leu Ala Cys Leu
35 40 45

Leu Leu Ser Ser Gln Val Phe Thr Ala Tyr Met Val Phe Ser Gln Lys
50 55 60

Gln Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Leu Gly Lys Gln
65 70 75 80

Met Thr Arg Ser Ser Gln Ala Val Ala Pro Val Arg Met Gln Met Pro
85 90 95

Met Ser Ser Leu Pro Leu Met Met Asp Phe Thr Thr Asp Glu Asp Thr
100 105 110

Lys Thr Ser Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Ala Ile Val
115 120 125

Ser Val Glu Lys Gln Leu Lys Asp Leu Leu Gln Asp Ala Gln Leu Pro
130 135 140

Gln Phe Asn Glu Thr Phe Gln Ala Asn Leu Gln Ser Leu Lys Gln Gln

145		150		155		160									
Ile	Asn	Glu	Ser	Glu	Trp	Lys	Ser	Phe	Glu	Ser	Trp	Met	Arg	Tyr	Trp
				165					170					175	
Leu	Ile	Phe	Gln	Met	Ala	Gln	Gln	Lys	Pro	Val	Pro	Pro	Thr	Ser	Gln
			180					185					190		
Pro	Ala	Thr	Lys	Ile	Met	Thr	Lys	Cys	Gln	Leu	Glu	Ala	Ala	Pro	Gly
		195					200					205			
Ala	Gly	Lys	Ile	Gly	Ser	Tyr	Lys	Pro	Gln	Cys	Asp	Glu	Gln	Gly	Arg
	210					215					220				
Tyr	Leu	Pro	Met	Gln	Cys	Trp	Tyr	Pro	Thr	Gly	Phe	Cys	Trp	Cys	Val
225					230					235					240
Asp	Gln	Thr	Gly	Lys	Val	Ile	Glu	Gly	Thr	Ser	Met	Arg	Gly	Arg	Pro
				245					250					255	
Asp	Cys	Gln	Arg	Gly	Val	Pro	Arg	Arg	Met	Met	Phe	Ala	Pro	Arg	Leu
			260					265					270		
Met	Gln	Lys	Thr	Leu	Ala	Val	Asp	Asp	Glu						
		275					280								

<210> 6
 <211> 282
 <212> PRT
 <213> Oryzias latipes

 <400> 6

Met	Ala	Asn	Thr	Ala	Glu	Asp	Ala	Ser	Leu	Ala	Ala	Glu	Asp	Val	Ser
1				5					10					15	
Gly	Ser	Glu	Glu	Asn	Leu	Ile	His	Arg	Val	Val	His	Arg	Gly	Gly	Ser
			20					25					30		
Asn	Ser	Arg	Ala	Phe	Lys	Ile	Ala	Gly	Leu	Thr	Thr	Leu	Ala	Cys	Leu
		35					40					45			

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Asn Gln Lys
50 55 60

Gln Gln Ile His Thr Leu Gln Lys Ser Ser Glu Arg Met Gly Lys Gln
65 70 75 80

Leu Thr Arg Ala Ser Gln Ala Val Ala Pro Ala Arg Met Ala Met Pro
85 90 95

Met Asn Ser Leu Pro Leu Val Ser Asp Phe Ser Glu Asp Ala Lys Thr
100 105 110

Pro Leu Thr Lys Leu Gln Asn Thr Ala Val Val Ser Val Glu Lys Gln
115 120 125

Leu Met Asp Leu Met Gln Asp Phe Ser Leu Pro Lys Phe Asn Glu Thr
130 135 140

Phe Gln Ala Asn Leu Glu Thr Leu Arg Gln Gln Val Asn Glu Ser Glu
145 150 155 160

Trp Gln Thr Phe Glu Thr Trp Met Arg Tyr Trp Leu Ile Phe Gln Met
165 170 175

Ala Gln Lys Gln Pro Pro Ala Pro Thr Pro Gln Pro Ala Ser Met Ile
180 185 190

Lys Thr Lys Cys Gln Leu Glu Ala Ala Pro Asp Thr Ile Ser Lys Ile
195 200 205

Gly Thr Tyr Lys Pro Gln Cys Asp Glu Gln Gly Lys Tyr Lys Ala Met
210 215 220

Gln Cys Trp His Ala Thr Gly Tyr Cys Trp Cys Val Asp Glu Ser Gly
225 230 235 240

Asn Pro Ile Glu Gly Thr Thr Met Arg Gly Arg Pro Asp Cys Arg Arg
245 250 255

Gly Leu Ala Pro Tyr Arg Met Met Val Gln Pro Arg Leu Met Gln Arg
260 265 270

Thr Phe Leu Asp Asp Glu Lys Lys Asp Lys
275 280

<210> 7
<211> 27
<212> PRT
<213> *Siniperca chuatsi*

<400> 7

Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met
1 5 10 15

Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val
20 25

<210> 8
<211> 27
<212> PRT
<213> *Dicentrarchus labrax*

<400> 8

Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met
1 5 10 15

Thr Lys Gln Leu Thr Arg Ser Ser Gln Ala Val
20 25

<210> 9
<211> 27
<212> PRT
<213> *Monopterus albus*

<400> 9

Asp Gln Lys Gln Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met
1 5 10 15

Ser Arg Gln Met Thr Arg Thr Ser Gln Ala Val
20 25

<210> 10
<211> 27
<212> PRT

<213> Oreochromis niloticus

<400> 10

Ser Gln Lys Gln Gln Ile His Thr Leu Gln Lys Asn Ser Asp Arg Met
1 5 10 15

Asn Lys Gln Leu Thr Arg Ser Ser His Ala Val
20 25

<210> 11

<211> 27

<212> PRT

<213> Lates calcarifer

<400> 11

Ser Gln Lys Gln Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Leu
1 5 10 15

Gly Lys Gln Met Thr Arg Ser Ser Gln Ala Val
20 25

<210> 12

<211> 27

<212> PRT

<213> Oryzias latipes

<400> 12

Asn Gln Lys Gln Gln Ile His Thr Leu Gln Lys Ser Ser Glu Arg Met
1 5 10 15

Gly Lys Gln Leu Thr Arg Ala Ser Gln Ala Val
20 25

<210> 13

<211> 16

<212> PRT

<213> Siniperca chuatsi

<400> 13

Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln Leu
1 5 10 15

<210> 14

<211> 16
<212> PRT
<213> Dicentrarchus labrax

<400> 14

Gln	Ile	His	Thr	Leu	Gln	Lys	Asn	Ser	Glu	Arg	Met	Thr	Lys	Gln	Leu
1				5					10					15	

<210> 15
<211> 16
<212> PRT
<213> Monopterus albus

<400> 15

Gln	Ile	His	Thr	Leu	Gln	Lys	Asn	Ser	Glu	Arg	Met	Ser	Arg	Gln	Met
1				5					10					15	

<210> 16
<211> 16
<212> PRT
<213> Oreochromis niloticus

<400> 16

Gln	Ile	His	Thr	Leu	Gln	Lys	Asn	Ser	Asp	Arg	Met	Asn	Lys	Gln	Leu
1				5					10					15	

<210> 17
<211> 16
<212> PRT
<213> Lates calcarifer

<400> 17

Gln	Ile	His	Thr	Leu	Gln	Lys	Asn	Ser	Glu	Arg	Leu	Gly	Lys	Gln	Met
1				5					10					15	

<210> 18
<211> 16
<212> PRT
<213> Oryzias latipes

<400> 18

Gln	Ile	His	Thr	Leu	Gln	Lys	Ser	Ser	Glu	Arg	Met	Gly	Lys	Gln	Leu
1				5					10					15	

<210> 19
<211> 81
<212> PRT
<213> Siniperca chuatsi

<400> 19

Met Ala Asp Ser Ala Glu Asp Ala Pro Met Ala Arg Gly Ser Leu Ala
1 5 10 15

Gly Ser Asp Glu Ala Leu Ile Leu Pro Ala Gly Pro Thr Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Val Ala Gly Leu Thr Thr Leu Thr Cys Leu
35 40 45

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Gly Gln Lys
50 55 60

Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln
65 70 75 80

Leu

<210> 20
<211> 25
<212> PRT
<213> Homo sapiens

<400> 20

Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu Glu
1 5 10 15

Leu Asn Ser Ser Ala Leu Pro Pro Thr
20 25

<210> 21
<211> 25
<212> PRT
<213> Homo sapiens

<400> 21

Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln

1 5 10 15

Pro Ala Gln Ala Gln Met Leu Thr Pro
20 25

<210> 22
<211> 25
<212> PRT
<213> Homo sapiens

<400> 22

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

Cys Gly Met Pro Leu Asp Ser Phe Arg
20 25

<210> 23
<211> 25
<212> PRT
<213> Homo sapiens

<400> 23

Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu
1 5 10 15

Ser Ala Trp Leu Leu Glu Leu Ala Pro
20 25

<210> 24
<211> 25
<212> PRT
<213> Homo sapiens

<400> 24

His Ile His Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile Gln Val
1 5 10 15

Gly Phe Gly Arg Ile Gly Lys His Phe
20 25

<210> 25
<211> 137

<212> PRT
<213> Artificial Sequence

<220>
<223> Multimeres of human antigens

<400> 25

Met Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu
1 5 10 15

Glu Leu Asn Ser Ser Ala Leu Pro Pro Thr Ile Leu Pro Gln Ala Pro
20 25 30

Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln Pro Ala Gln Ala Gln Met
35 40 45

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

Met Ala Ile Cys Gly Met Pro Leu Asp Ser Phe Arg Val Ile Gln Thr
65 70 75 80

Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp Leu
85 90 95

Leu Glu Leu Ala Pro His Ile His Arg Ala Gly Gly Leu Phe Val Ala
100 105 110

Asp Ala Ile Gln Val Gly Phe Gly Arg Ile Gly Lys His Phe Gly Tyr
115 120 125

Pro Tyr Asp Val Pro Asp Tyr Ala Ser
130 135

<210> 26
<211> 417
<212> PRT
<213> Artificial Sequence

<220>
<223> Fusion protein of Siniperca chuatsi full length invariant chain
and multimeric antigen

<400> 26

Met Ala Asp Ser Ala Glu Asp Ala Pro Met Ala Arg Gly Ser Leu Ala
1 5 10 15

Gly Ser Asp Glu Ala Leu Ile Leu Pro Ala Gly Pro Thr Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Val Ala Gly Leu Thr Thr Leu Thr Cys Leu
35 40 45

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Gly Gln Lys
50 55 60

Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln
65 70 75 80

Leu Thr Arg Ser Ser Gln Ala Val Ala Pro Met Lys Met His Met Pro
85 90 95

Met Asn Ser Leu Pro Leu Leu Met Asp Phe Thr Pro Asn Glu Asp Ser
100 105 110

Lys Thr Pro Leu Thr Lys Leu Gln Asp Thr Ala Val Val Ser Val Glu
115 120 125

Lys Gln Leu Lys Asp Leu Met Gln Asp Ser Gln Leu Pro Gln Phe Asn
130 135 140

Glu Thr Phe Leu Ala Asn Leu Gln Gly Leu Lys Gln Gln Met Asn Glu
145 150 155 160

Ser Glu Trp Lys Ser Phe Glu Ser Trp Met Arg Tyr Trp Leu Ile Phe
165 170 175

Gln Met Ala Gln Gln Lys Pro Val Pro Pro Thr Ala Asp Pro Ala Ser
180 185 190

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

Ile Gly Ser Tyr Lys Pro Gln Cys Asp Glu Gln Gly Arg Tyr Lys Pro

210

215

220

Met Gln Cys Trp His Ala Thr Gly Phe Cys Trp Cys Val Asp Glu Thr
 225 230 235 240

Gly Ala Val Ile Glu Gly Thr Thr Met Arg Gly Arg Pro Asp Cys Gln
 245 250 255

Arg Arg Ala Leu Ala Pro Arg Arg Met Ala Phe Ala Pro Ser Leu Met
 260 265 270

Gln Lys Thr Ile Ser Ile Asp Asp Gln Leu Leu Pro Phe Tyr Pro Pro
 275 280 285

Asp Glu Ala Leu Glu Ile Gly Leu Glu Leu Asn Ser Ser Ala Leu Pro
 290 295 300

Pro Thr Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr
 305 310 315 320

Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Lys Pro Leu Arg Arg
 325 330 335

Asn Asn Ser Tyr Thr Ser Tyr Ile Met Ala Ile Cys Gly Met Pro Leu
 340 345 350

Asp Ser Phe Arg Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg Asp Val
 355 360 365

Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro His Ile His
 370 375 380

Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile Gln Val Gly Phe Gly
 385 390 395 400

Arg Ile Gly Lys His Phe Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 405 410 415

Ser

<210> 27
<211> 217
<212> PRT
<213> Artificial Sequence

<220>
<223> Fusion protein of Siniperca chuatsi invariant chain fragment and
multimeric antigen

<400> 27

Met Ala Asp Ser Ala Glu Asp Ala Pro Met Ala Arg Gly Ser Leu Ala
1 5 10 15

Gly Ser Asp Glu Ala Leu Ile Leu Pro Ala Gly Pro Thr Gly Gly Ser
20 25 30

Asn Ser Arg Ala Leu Lys Val Ala Gly Leu Thr Thr Leu Thr Cys Leu
35 40 45

Leu Leu Ala Ser Gln Val Phe Thr Ala Tyr Met Val Phe Gly Gln Lys
50 55 60

Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln
65 70 75 80

Leu Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu
85 90 95

Glu Leu Asn Ser Ser Ala Leu Pro Pro Thr Ile Leu Pro Gln Ala Pro
100 105 110

Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln Pro Ala Gln Ala Gln Met
115 120 125

Leu Thr Pro Lys Pro Leu Arg Arg Asn Asn Ser Tyr Thr Ser Tyr Ile
130 135 140

Met Ala Ile Cys Gly Met Pro Leu Asp Ser Phe Arg Val Ile Gln Thr
145 150 155 160

Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp Leu
165 170 175

Leu Glu Leu Ala Pro His Ile His Arg Ala Gly Gly Leu Phe Val Ala
180 185 190

Asp Ala Ile Gln Val Gly Phe Gly Arg Ile Gly Lys His Phe Gly Tyr
195 200 205

Pro Tyr Asp Val Pro Asp Tyr Ala Ser
210 215

<210> 28

<211> 164

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein of Siniperca chuatsi invariant chain fragment and
multimeric antigen

<400> 28

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Leu Leu Pro Phe
20 25 30

Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu Glu Leu Asn Ser Ser
35 40 45

Ala Leu Pro Pro Thr Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr
50 55 60

Ala Thr Tyr Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Lys Pro
65 70 75 80

Leu Arg Arg Asn Asn Ser Tyr Thr Ser Tyr Ile Met Ala Ile Cys Gly
85 90 95

Met Pro Leu Asp Ser Phe Arg Val Ile Gln Thr Ser Lys Tyr Tyr Met
100 105 110

Arg Asp Val Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro

115

120

125

His Ile His Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile Gln Val
 130 135 140

Gly Phe Gly Arg Ile Gly Lys His Phe Gly Tyr Pro Tyr Asp Val Pro
 145 150 155 160

Asp Tyr Ala Ser

<210> 29

<211> 153

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein of Siniperca chuatsi invariant chain fragment and
 multimeric antigen

<400> 29

Met Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg Met Ser Lys Gln
 1 5 10 15

Leu Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu
 20 25 30

Glu Leu Asn Ser Ser Ala Leu Pro Pro Thr Ile Leu Pro Gln Ala Pro
 35 40 45

Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln Pro Ala Gln Ala Gln Met
 50 55 60

Leu Thr Pro Lys Pro Leu Arg Arg Asn Asn Ser Tyr Thr Ser Tyr Ile
 65 70 75 80

Met Ala Ile Cys Gly Met Pro Leu Asp Ser Phe Arg Val Ile Gln Thr
 85 90 95

Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser Ala Trp Leu
 100 105 110

Leu Glu Leu Ala Pro His Ile His Arg Ala Gly Gly Leu Phe Val Ala
115 120 125

Asp Ala Ile Gln Val Gly Phe Gly Arg Ile Gly Lys His Phe Gly Tyr
130 135 140

Pro Tyr Asp Val Pro Asp Tyr Ala Ser
145 150

<210> 30
<211> 11
<212> PRT
<213> Influenza A virus

<400> 30

Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
1 5 10

<210> 31
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Generic sequence

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is G, D, S or N

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa is E or Q

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is N or S

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> Xaa is D or E

<220>
<221> MISC_FEATURE

<222> (16)..(16)
<223> Xaa is M or L

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> Xaa is G, N, S or T

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> Xaa is K or R

<220>
<221> MISC_FEATURE
<222> (20)..(20)
<223> Xaa is L or M

<220>
<221> MISC_FEATURE
<222> (23)..(23)
<223> Xaa is S, T or A

<220>
<221> MISC_FEATURE
<222> (25)..(25)
<223> Xaa is Q or H

<400> 31

Xaa	Gln	Lys	Xaa	Gln	Ile	His	Thr	Leu	Gln	Lys	Xaa	Ser	Xaa	Arg	Xaa
1			5					10						15	

Xaa	Xaa	Gln	Xaa	Thr	Arg	Xaa	Ser	Xaa	Ala	Val
		20					25			

<210> 32
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Generic sequence

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa is L or F

<220>
<221> MISC_FEATURE

<222> (4)..(4)
<223> Xaa is I or V

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa is G or A

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa is T or A

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Xaa is L or V

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa is A or S

<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa is M or T

<400> 32

Ala	Xaa	Lys	Xaa	Ala	Xaa	Leu	Thr	Thr	Leu	Xaa	Cys	Leu	Leu	Xaa	Xaa
1				5					10					15	

Ser	Gln	Val	Phe	Thr	Ala	Tyr	Xaa	Val	Phe
			20					25	

<210> 33
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Generic sequence

<220>
<221> MISC_FEATURE
<222> (3)..(3)
<223> Xaa is M, V or A

<220>
<221> MISC_FEATURE

<222> (4)..(4)
<223> Xaa is R or K

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa is H, A or Q

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> Xaa is M or L

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa is N or S

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> Xaa is M or L

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Xaa is M, L or V

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa is M or S

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> Xaa is F or Y

<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa is T or S

<400> 33

Ala Pro Xaa Xaa Met Xaa Xaa Pro Met Xaa Ser Leu Pro Xaa Xaa Xaa
1 5 10 15

Asp Xaa Xaa

<210> 34

<211> 25
<212> PRT
<213> Mus musculus

<400> 34

Leu Arg Thr Ala Ala Tyr Val Asn Ala Ile Glu Lys Ile Phe Lys Val
1 5 10 15

Tyr Asn Glu Ala Gly Val Thr Phe Thr
20 25

<210> 35
<211> 25
<212> PRT
<213> Mus musculus

<400> 35

Ser Asn Phe Thr Val Asp Cys Ser Lys Ala Gly Asn Asp Met Leu Leu
1 5 10 15

Val Gly Val His Gly Pro Arg Thr Pro
20 25

<210> 36
<211> 25
<212> PRT
<213> Mus musculus

<400> 36

Glu Ser Asp Arg Asn Lys Glu Ser Ser Asp Gln Thr Ser Val Asn Met
1 5 10 15

Asn Gly Leu Glu Asn Lys Ile Ser Tyr
20 25

<210> 37
<211> 25
<212> PRT
<213> Mus musculus

<400> 37

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

Thr Ser Glu Met Thr Trp Lys Ser Ser
20 25

<210> 38
<211> 25
<212> PRT
<213> Mus musculus

<400> 38

Ala Val Gln Lys Leu Asn Leu Gln Asn Leu Val Ile Leu Gln Ala Pro
1 5 10 15

Glu Asn Leu Thr Leu Ser Asn Leu Ser
20 25

<210> 39
<211> 25
<212> PRT
<213> Mus musculus

<400> 39

Thr Ser Ile Pro Ser Val Ser Asn Ala Leu Asn Trp Lys Glu Phe Ser
1 5 10 15

Phe Ile Gln Ser Thr Leu Gly Tyr Val
20 25

<210> 40
<211> 25
<212> PRT
<213> Mus musculus

<400> 40

Ile Ile Gln Val Ser Pro Lys Asp Ile Gln Leu Thr Ile Phe Pro Ser
1 5 10 15

Lys Ser Val Lys Glu Gly Asp Thr Val
20 25

<210> 41
<211> 25
<212> PRT
<213> Mus musculus

<400> 41

His Ser Gly Gln Asn His Leu Lys Glu Met Ala Ile Ser Val Leu Glu
1 5 10 15

Ala Arg Ala Cys Ala Ala Ala Gly Gln
20 25

<210> 42

<211> 25

<212> PRT

<213> Mus musculus

<400> 42

Lys Ala Ser Lys Lys Gly Met Trp Ser Glu Gly Asn Ser Ser His Thr
1 5 10 15

Ile Arg Asp Leu Lys Tyr Thr Ile Glu
20 25

<210> 43

<211> 25

<212> PRT

<213> Mus musculus

<400> 43

Leu Pro Gly Phe Lys Gly Val Lys Gly His Ser Gly Ile Asp Gly Leu
1 5 10 15

Lys Gly Gln Pro Gly Ala Gln Gly Val
20 25

<210> 44

<211> 25

<212> PRT

<213> Mus musculus

<400> 44

Ala Leu Gly Ser Leu Ala Leu Met Ile Trp Leu Met Thr Thr Pro His
1 5 10 15

Ser His Glu Thr Glu Gln Lys Arg Leu
20 25

<210> 45
<211> 25
<212> PRT
<213> Mus musculus

<400> 45

Ser	Trp	Ile	His	Cys	Trp	Lys	Tyr	Leu	Ser	Val	Gln	Ser	Gln	Leu	Phe
1				5				10						15	

Arg	Gly	Ser	Ser	Leu	Leu	Phe	Arg	Arg
			20				25	

<210> 46
<211> 25
<212> PRT
<213> Mus musculus

<400> 46

Glu	Val	Ala	Thr	Arg	Met	Gln	Ser	Phe	Gly	Met	Lys	Ile	Val	Gly	Tyr
1				5				10						15	

Asp	Pro	Ile	Ile	Ser	Pro	Glu	Val	Ala
			20				25	

<210> 47
<211> 25
<212> PRT
<213> Mus musculus

<400> 47

Thr	Val	Ser	Val	Val	Ala	Leu	His	Asp	Asp	Met	Glu	Asn	Gln	Pro	Leu
1				5				10						15	

Ile	Gly	Ile	Gln	Ser	Thr	Ala	Ile	Pro
			20				25	

<210> 48
<211> 25
<212> PRT
<213> Mus musculus

<400> 48

Phe Pro Glu Phe Ala Arg Tyr Thr Thr Pro Glu Asp Thr Thr Pro Glu
1 5 10 15

Pro Gly Glu Asp Pro Arg Val Thr Arg
20 25

<210> 49

<211> 512

<212> PRT

<213> Artificial Sequence

<220>

<223> Multimer of antigenic fragments of Mus musculus antigens

<400> 49

Met Leu Arg Thr Ala Ala Tyr Val Asn Ala Ile Glu Lys Ile Phe Lys
1 5 10 15

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

Cys Ser Lys Ala Gly Asn Asp Met Leu Leu Val Gly Val His Gly Pro
35 40 45

Arg Thr Pro Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr
50 55 60

Tyr Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Glu Ser Asp Arg
65 70 75 80

Asn Lys Glu Ser Ser Asp Gln Thr Ser Val Asn Met Asn Gly Leu Glu
85 90 95

Asn Lys Ile Ser Tyr Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu
100 105 110

Glu Ile Gly Leu Glu Leu Asn Ser Ser Ala Leu Pro Pro Thr Gln Thr
115 120 125

Ser Pro Thr Gly Ile Leu Pro Thr Thr Ser Asn Ser Ile Ser Thr Ser
130 135 140

Glu Met Thr Trp Lys Ser Ser Ala Val Gln Lys Leu Asn Leu Gln Asn
145 150 155 160

Leu Val Ile Leu Gln Ala Pro Glu Asn Leu Thr Leu Ser Asn Leu Ser
165 170 175

Thr Ser Ile Pro Ser Val Ser Asn Ala Leu Asn Trp Lys Glu Phe Ser
180 185 190

Phe Ile Gln Ser Thr Leu Gly Tyr Val Ile Ile Gln Val Ser Pro Lys
195 200 205

Asp Ile Gln Leu Thr Ile Phe Pro Ser Lys Ser Val Lys Glu Gly Asp
210 215 220

Thr Val His Ile His Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile
225 230 235 240

Gln Val Gly Phe Gly Arg Ile Gly Lys His Phe His Ser Gly Gln Asn
245 250 255

His Leu Lys Glu Met Ala Ile Ser Val Leu Glu Ala Arg Ala Cys Ala
260 265 270

Ala Ala Gly Gln Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg Asp Val
275 280 285

Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro Lys Ala Ser
290 295 300

Lys Lys Gly Met Trp Ser Glu Gly Asn Ser Ser His Thr Ile Arg Asp
305 310 315 320

Leu Lys Tyr Thr Ile Glu Leu Pro Gly Phe Lys Gly Val Lys Gly His
325 330 335

Ser Gly Ile Asp Gly Leu Lys Gly Gln Pro Gly Ala Gln Gly Val Ala
340 345 350

Leu Gly Ser Leu Ala Leu Met Ile Trp Leu Met Thr Thr Pro His Ser
355 360 365

His Glu Thr Glu Gln Lys Arg Leu Ser Trp Ile His Cys Trp Lys Tyr
370 375 380

Leu Ser Val Gln Ser Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg
385 390 395 400

Arg Lys Pro Leu Arg Arg Asn Asn Ser Tyr Thr Ser Tyr Ile Met Ala
405 410 415

Ile Cys Gly Met Pro Leu Asp Ser Phe Arg Glu Val Ala Thr Arg Met
420 425 430

Gln Ser Phe Gly Met Lys Ile Val Gly Tyr Asp Pro Ile Ile Ser Pro
435 440 445

Glu Val Ala Thr Val Ser Val Val Ala Leu His Asp Asp Met Glu Asn
450 455 460

Gln Pro Leu Ile Gly Ile Gln Ser Thr Ala Ile Pro Phe Pro Glu Phe
465 470 475 480

Ala Arg Tyr Thr Thr Pro Glu Asp Thr Thr Pro Glu Pro Gly Glu Asp
485 490 495

Pro Arg Val Thr Arg Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
500 505 510

<210> 50
<211> 539
<212> PRT
<213> Artificial Sequence

<220>
<223> Multimer of antigenic fragments of Mus musculus antigens

<400> 50

Met Gly Gln Lys Glu Gln Ile His Thr Leu Gln Lys Asn Ser Glu Arg
1 5 10 15

Met Ser Lys Gln Leu Thr Arg Ser Ser Gln Ala Val Leu Arg Thr Ala
20 25 30

Ala Tyr Val Asn Ala Ile Glu Lys Ile Phe Lys Val Tyr Asn Glu Ala
35 40 45

Gly Val Thr Phe Thr Ser Asn Phe Thr Val Asp Cys Ser Lys Ala Gly
50 55 60

Asn Asp Met Leu Leu Val Gly Val His Gly Pro Arg Thr Pro Ile Leu
65 70 75 80

Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln Pro Ala
85 90 95

Gln Ala Gln Met Leu Thr Pro Glu Ser Asp Arg Asn Lys Glu Ser Ser
100 105 110

Asp Gln Thr Ser Val Asn Met Asn Gly Leu Glu Asn Lys Ile Ser Tyr
115 120 125

Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu Glu
130 135 140

Leu Asn Ser Ser Ala Leu Pro Pro Thr Gln Thr Ser Pro Thr Gly Ile
145 150 155 160

Leu Pro Thr Thr Ser Asn Ser Ile Ser Thr Ser Glu Met Thr Trp Lys
165 170 175

Ser Ser Ala Val Gln Lys Leu Asn Leu Gln Asn Leu Val Ile Leu Gln
180 185 190

Ala Pro Glu Asn Leu Thr Leu Ser Asn Leu Ser Thr Ser Ile Pro Ser
195 200 205

Val Ser Asn Ala Leu Asn Trp Lys Glu Phe Ser Phe Ile Gln Ser Thr
210 215 220

Leu Gly Tyr Val Ile Ile Gln Val Ser Pro Lys Asp Ile Gln Leu Thr
225 230 235 240

Ile Phe Pro Ser Lys Ser Val Lys Glu Gly Asp Thr Val His Ile His
245 250 255

Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile Gln Val Gly Phe Gly
260 265 270

Arg Ile Gly Lys His Phe His Ser Gly Gln Asn His Leu Lys Glu Met
275 280 285

Ala Ile Ser Val Leu Glu Ala Arg Ala Cys Ala Ala Ala Gly Gln Val
290 295 300

Ile Gln Thr Ser Lys Tyr Tyr Met Arg Asp Val Ile Ala Ile Glu Ser
305 310 315 320

Ala Trp Leu Leu Glu Leu Ala Pro Lys Ala Ser Lys Lys Gly Met Trp
325 330 335

Ser Glu Gly Asn Ser Ser His Thr Ile Arg Asp Leu Lys Tyr Thr Ile
340 345 350

Glu Leu Pro Gly Phe Lys Gly Val Lys Gly His Ser Gly Ile Asp Gly
355 360 365

Leu Lys Gly Gln Pro Gly Ala Gln Gly Val Ala Leu Gly Ser Leu Ala
370 375 380

Leu Met Ile Trp Leu Met Thr Thr Pro His Ser His Glu Thr Glu Gln
385 390 395 400

Lys Arg Leu Ser Trp Ile His Cys Trp Lys Tyr Leu Ser Val Gln Ser
405 410 415

Gln Leu Phe Arg Gly Ser Ser Leu Leu Phe Arg Arg Lys Pro Leu Arg
420 425 430

Arg Asn Asn Ser Tyr Thr Ser Tyr Ile Met Ala Ile Cys Gly Met Pro
435 440 445

Leu Asp Ser Phe Arg Glu Val Ala Thr Arg Met Gln Ser Phe Gly Met
450 455 460

Lys Ile Val Gly Tyr Asp Pro Ile Ile Ser Pro Glu Val Ala Thr Val
465 470 475 480

Ser Val Val Ala Leu His Asp Asp Met Glu Asn Gln Pro Leu Ile Gly
485 490 495

Ile Gln Ser Thr Ala Ile Pro Phe Pro Glu Phe Ala Arg Tyr Thr Thr
500 505 510

Pro Glu Asp Thr Thr Pro Glu Pro Gly Glu Asp Pro Arg Val Thr Arg
515 520 525

Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
530 535

<210> 51
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Generic sequence

<220>
<221> MISC_FEATURE
<222> (8)..(8)
<223> Xaa is N or S

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa is D or E

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is M or L

<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> Xaa is G, N, S or T

<220>
<221> MISC_FEATURE
<222> (14)..(14)

<223> Xaa is K or R

<220>

<221> MISC_FEATURE

<222> (16)..(16)

<223> Xaa is L or M

<400> 51

Gln	Ile	His	Thr	Leu	Gln	Lys	Xaa	Ser	Xaa	Arg	Xaa	Xaa	Xaa	Gln	Xaa
1				5					10					15	