SEQUENCE LISTING

<110> NousCom AG

<120> Teleost invariant chain cancer vaccine

<130> 854-21 PCT

<150> EP18201541.2
<151> 2018-10-19

<160> 30

<170> PatentIn version 3.5

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Asn Gln Arg Xaa Asp Ile Lys Ser Leu Glu Glu Gln Xaa Ser Xaa Leu
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Xaa Xaa Xaa Xaa Thr Xaa Gly Arg Ser Xaa Xaa
            20   25

<210> 2
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<213> Paralichthys olivaceus

<400> 2

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

Val Asp Val Gly Ala Pro Ala Gln Gly Gly Arg Ser Ala Asn Ala Tyr
            20   25   30

Lys Val Val Gly Leu Thr Val Leu Ala Cys Val Leu Val Met Ser Gln

```
        35                  40                  45

Ala Met Ile Ile Tyr Phe Leu Val Asn Gln Arg Gly Asp Ile Lys Ser
    50                  55                  60

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

Ser Ala Ser Met Ser Met Gln Leu Pro Ser Ser Phe His Ser Leu Thr
                85                  90                  95

Phe Asp Glu Lys Ser Ser Thr Arg Ala Pro Glu Glu Thr Gly Pro Pro
            100                 105                 110

Gln Ala Thr Gln Cys Gln Leu Glu Ala Ala Gly Glu Lys Pro Val Gln
        115                 120                 125

Val Pro Gly Leu Arg Pro Asp Cys Asp Glu Arg Gly Leu Tyr Arg Leu
    130                 135                 140

Lys Gln Cys Leu Lys His Arg Cys Trp Cys Val Asn Pro Ala Asn Gly
145                 150                 155                 160

Glu Gln Ile Pro Gly Ser Leu Gly Lys Glu Asp Val Thr Cys Asn Lys
                165                 170                 175

Gly Val His Ser Val Gly Leu Asp Lys Val Leu
            180                 185
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<210> 3
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<400> 3

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1               5                   10                  15
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Asn Glu Gln Leu Thr Lys Gly Arg Ser Ala Ser
            20                  25
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<210> 4
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<400> 4

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Asp Ile Lys Ser Leu Glu Glu Gln His Ser Gly Leu Asn Glu Gln Leu
1               5                   10                  15
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<210> 5
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<213> Larimichthys crocea

<400> 5

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

Asn Val Pro Ala Ala Gln Arg Gly Ser Ser Ser Arg Ala Tyr Lys Val
            20                  25                  30

Ala Gly Phe Thr Leu Leu Ala Cys Leu Leu Ile Ala Gly Gln Ala Met
        35                  40                  45

Ile Ala Tyr Phe Leu Leu Asn Gln Arg Asn Asp Ile Lys Ser Leu Glu
    50                  55                  60

Glu Gln Asn Ser Asn Leu Gln Ala Glu Met Thr Arg Gly Arg Ser Val
65                  70                  75                  80

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

Asp Val Ser Met Asp Glu Asp Ser Ser Ile Thr Asp Pro Glu Lys Pro
            100                 105                 110
```

```
Ala Pro Arg Gln Val Thr Asp Cys Gln Leu Glu Ala Ala Gly Lys Lys
        115                 120                 125


Pro Val Gln Val Pro Gly Phe Arg Pro Ser Cys Asp Glu Arg Gly Leu
    130                 135                 140


Tyr Gln Pro Gln Gln Cys Phe Met Thr Gln Cys Trp Cys Val Asn Pro
145                 150                 155                 160


Ala Asn Gly Lys Gln Ile Pro Gly Ser Leu Lys Asn Gly Gln Ala Ser
                165                 170                 175


Cys Arg Ala Ala Val Ile Ala Val Ser Arg Ile Glu Tyr Ile Cys Thr
            180                 185                 190


Asp Val Gln Glu
        195


<210>  6
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<400>  6

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


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


<210>  7
<211>  16
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<400>  7

Asp Ile Lys Ser Leu Glu Glu Gln Asn Ser Asn Leu Gln Ala Glu Met
1               5                   10                  15
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Asp Gln Lys Gln Gln Ile Gln Xaa Leu Gln Xaa Xaa Asn Gln Arg Xaa
1   5   10   15

Glu Lys Gln Xaa Xaa Xaa Arg Xaa Arg Xaa Ser
            20   25

<210> 9
<211> 197
<212> PRT
<213> Boleophthalmus pectiniros

<400> 9

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

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

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

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

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

Met Gly Gln Arg Pro Arg Glu Ser Leu Lys Lys Ile Val Met Pro Ala
                85   90   95

Asn Ser Met Pro Ile Leu Asp Phe Phe Asp Asp Gly Lys Ser Pro Gln
            100   105   110

Asn Ser Pro Lys Ala Glu Pro Pro Lys Gln Asp Val Ala Pro Pro Ser

```
        115                 120                 125

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

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

Val Ser Glu Thr Asp Trp Lys Ser Phe Glu Ala Trp Met His Tyr Trp
                165                 170                 175

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

Asp Gly Gly Ser Lys
        195
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<210> 10
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<213> Boleophthalmus pectiniros

<400> 10

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

Glu Lys Gln Met Gly Gln Arg Pro Arg Glu Ser
            20                  25
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<210> 11
<211> 16
<212> PRT
<213> Boleophthalmus pectiniros

<400> 11

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Gln Ile Gln Gly Leu Gln Thr Ser Asn Gln Arg Leu Glu Lys Gln Met
1               5                   10                  15
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<210> 12

<211> 278
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<213> Boleophthalmus pectiniros

<400> 12

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

Gly Ser Glu Gln Val Leu Ile Pro Ala Ser Gly Thr Pro Gly Gly Ser
20 25 30

Asn Gly His Ala Leu Lys Ile Ala Gly Ile Thr Thr Leu Val Cys Leu
35 40 45

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

Gln Gln Ile Gln Asp Leu Gln Ala Thr Asn Gln Arg Met Glu Lys Gln
65 70 75 80

Val Ser Leu Arg Ser Arg Val Ser Pro Gln Lys Met Val Met Pro Met
85 90 95

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

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

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

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

Gln Val Asn Glu Thr Ser Trp Lys Ser Leu Glu Ser Trp Leu Arg Tyr
165 170 175

```
Trp Leu Ile Phe Gln Met Ala Gln Lys Ala Pro Thr Pro Gln Pro Ala
            180                 185                 190


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


Gly Leu Ile Gly Ala Tyr Arg Pro Gln Cys Asp Glu Gln Gly Asn Tyr
    210                 215                 220


Lys Arg Met Gln Cys Trp His Ala Thr Arg Gln Cys Trp Cys Val Asp
225                 230                 235                 240


Glu Ser Gly Thr Pro Ile Asp Gly Ser Asn Thr Gln Gly Arg Pro Asn
                245                 250                 255


Cys Asp Gln Phe Leu Arg Ala Arg Arg Thr Lys Ser Asn Thr Leu Met
            260                 265                 270


Leu Ala Asp Leu Thr Asp
        275
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<210> 13
<211> 27
<212> PRT
<213> Boleophthalmus pectiniros

<400> 13

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


Glu Lys Gln Val Ser Leu Arg Ser Arg Val Ser
            20                  25
```

<210> 14
<211> 16
<212> PRT
<213> Boleophthalmus pectiniros

<400> 14

Gln Ile Gln Asp Leu Gln Ala Thr Asn Gln Arg Met Glu Lys Gln Val
1 5 10 15

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<223> Xaa is M or F

<220>
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<220>
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<222> (24)..(24)
<223> Xaa is F or M

<220>
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<222> (25)..(25)
<223> Xaa is L, M or V

<220>
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<223> Xaa is V, F or L

<400> 15

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

Xaa Gln Xaa Xaa Xaa Xaa Tyr Xaa Xaa Xaa
            20   25

<210> 16
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<212> PRT
<213> Mus musculus

<400> 16

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> 17
<211> 25
<212> PRT
<213> Mus musculus

<400> 17

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> 18
<211> 25
<212> PRT
<213> Mus musculus

<400> 18

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> 19
<211> 25
<212> PRT
<213> Mus musculus

<400> 19

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> 20
<211> 25
<212> PRT
<213> Mus musculus

<400> 20

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> 21
<211> 137
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<213> Artificial Sequence

<220>
<223> Penta antigen with N-terminal met and C-terminal HA tag

<400> 21

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

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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
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<220>
<223> Fusion protein of Boleophthalmus pectinirostris FL invariant chain and multimeric antigen

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<220>
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<222> (198)..(333)
<223> Multimeric antigen

<400> 22

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

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

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

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

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

Met Gly Gln Arg Pro Arg Glu Ser Leu Lys Lys Ile Val Met Pro Ala
                85                  90                  95

Asn Ser Met Pro Ile Leu Asp Phe Phe Asp Asp Gly Lys Ser Pro Gln
            100                 105                 110

Asn Ser Pro Lys Ala Glu Pro Pro Lys Gln Asp Val Ala Pro Pro Ser
        115                 120                 125

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

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

Val Ser Glu Thr Asp Trp Lys Ser Phe Glu Ala Trp Met His Tyr Trp
                165                 170                 175

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

Asp Gly Gly Ser Lys Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu
```

```
        195                 200                 205

Glu Ile Gly Leu Glu Leu Asn Ser Ser Ala Leu Pro Pro Thr Ile Leu
    210                 215                 220

Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala Thr Tyr Leu Gln Pro Ala
225                 230                 235                 240

Gln Ala Gln Met Leu Thr Pro Lys Pro Leu Arg Arg Asn Asn Ser Tyr
                245                 250                 255

Thr Ser Tyr Ile Met Ala Ile Cys Gly Met Pro Leu Asp Ser Phe Arg
            260                 265                 270

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

Ser Ala Trp Leu Leu Glu Leu Ala Pro His Ile His Arg Ala Gly Gly
    290                 295                 300

Leu Phe Val Ala Asp Ala Ile Gln Val Gly Phe Gly Arg Ile Gly Lys
305                 310                 315                 320

His Phe Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
                325                 330
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<210> 23
<211> 323
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<213> Artificial Sequence

<220>
<223> Fusion protein of Paralichthys olivaceus FL invariant chain and multimeric antigen

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<220>
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<222> (188)..(323)
<223> Multimeric antigen

<400> 23

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


Val Asp Val Gly Ala Pro Ala Gln Gly Gly Arg Ser Ala Asn Ala Tyr
            20                  25                  30


Lys Val Val Gly Leu Thr Val Leu Ala Cys Val Leu Val Met Ser Gln
        35                  40                  45


Ala Met Ile Ile Tyr Phe Leu Val Asn Gln Arg Gly Asp Ile Lys Ser
    50                  55                  60


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


Ser Ala Ser Met Ser Met Gln Leu Pro Ser Ser Phe His Ser Leu Thr
                85                  90                  95


Phe Asp Glu Lys Ser Ser Thr Arg Ala Pro Glu Glu Thr Gly Pro Pro
            100                 105                 110


Gln Ala Thr Gln Cys Gln Leu Glu Ala Ala Gly Glu Lys Pro Val Gln
        115                 120                 125


Val Pro Gly Leu Arg Pro Asp Cys Asp Glu Arg Gly Leu Tyr Arg Leu
    130                 135                 140


Lys Gln Cys Leu Lys His Arg Cys Trp Cys Val Asn Pro Ala Asn Gly
145                 150                 155                 160


Glu Gln Ile Pro Gly Ser Leu Gly Lys Glu Asp Val Thr Cys Asn Lys
                165                 170                 175
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```
Gly Val His Ser Val Gly Leu Asp Lys Val Leu Leu Leu Pro Phe Tyr
            180                 185                 190

Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu Glu Leu Asn Ser Ser Ala
        195                 200                 205

Leu Pro Pro Thr Ile Leu Pro Gln Ala Pro Ser Gly Pro Ser Tyr Ala
    210                 215                 220

Thr Tyr Leu Gln Pro Ala Gln Ala Gln Met Leu Thr Pro Lys Pro Leu
225                 230                 235                 240

Arg Arg Asn Asn Ser Tyr Thr Ser Tyr Ile Met Ala Ile Cys Gly Met
                245                 250                 255

Pro Leu Asp Ser Phe Arg Val Ile Gln Thr Ser Lys Tyr Tyr Met Arg
            260                 265                 270

Asp Val Ile Ala Ile Glu Ser Ala Trp Leu Leu Glu Leu Ala Pro His
        275                 280                 285

Ile His Arg Ala Gly Gly Leu Phe Val Ala Asp Ala Ile Gln Val Gly
    290                 295                 300

Phe Gly Arg Ile Gly Lys His Phe Gly Tyr Pro Tyr Asp Val Pro Asp
305                 310                 315                 320

Tyr Ala Ser
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<210> 24
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<220>
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<223> Boleophthalmus pectinirostris invariant chain FRAG_A fragment

<220>
<221> MISC_FEATURE
<222> (29)..(164)
<223> Multimeric antigen

<400> 24

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

Leu Glu Lys Gln Met Gly Gln Arg Pro Arg Glu Ser 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> 25
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<220>
<223> Fusion protein of Paralichthys olivaceus invariant chain fragment FRAG_A and multimeric antigen

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<220>
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<223> Multimeric antigen

<400> 25

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

Leu Asn Glu Gln Leu Thr Lys Gly Arg Ser Ala Ser 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
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<210> 26
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<220>
<223> Fusion protein of Boleophthalmus pectinirostris invariant chain fragment FRAG_B and multimeric antigen

<220>
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<220>
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<400> 26

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

Met Leu Leu Pro Phe Tyr Pro Pro Asp Glu Ala Leu Glu Ile Gly Leu
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```
            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>  27
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<212>  PRT
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<220>
<223>  Fusion protein of Paralichthys olivaceus invariant chain fragment
       FRAG_B and multimeric antigen


<220>
<221>  MISC_FEATURE
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<223>  Paralichthys olivaceus invariant chain fragment FRAG_B
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<220>
<221> MISC_FEATURE
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<223> Multimeric antigen

<400> 27

Met Asp Ile Lys Ser Leu Glu Glu Gln His Ser Gly Leu Asn Glu 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
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Pro Tyr Asp Val Pro Asp Tyr Ala Ser
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Gln Ile Gln Xaa Leu Gln Xaa Xaa Asn Gln Arg Xaa Glu Lys Gln Xaa
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Gly Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
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