

## SEQUENCE LISTING

<110> Pieris AG  
 <120> Controlled Release Formulations of Lipocalin Muteins  
 <130> P44542  
 <160> 110  
 <170> PatentIn version 3.5  
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 <211> 154  
 <212> PRT  
 <213> Artificial  
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 <223> Mutein of human tear lipocalin with binding affinity for IL-4R  
 alpha  
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 Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15  
 Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Gly Ser Val  
 20 25 30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45  
 Val Thr Met Gln Arg Ile Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
 50 55 60  
 Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
 65 70 75 80  
 Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95  
 Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
 100 105 110  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140  
 Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150  
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 <223> Mutein of human tear lipocalin with binding affinity for IL-4R

alpha

&lt;400&gt; 2

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Lys Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Phe Thr Ala Gln Arg Asn Gly Arg Trp Gln Glu Leu Lys Leu Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Ala Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

&lt;210&gt; 3

&lt;211&gt; 154

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

<223> Mutein of human tear lipocalin with binding affinity for IL-4R  
alpha

&lt;400&gt; 3

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Glu Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Phe Thr Leu Gln Arg Arg Gly Arg Trp Gln Glu Gly Lys Leu Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 4  
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<212> PRT  
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<220>  
<223> Mutein of human tear lipocalin with binding affinity for IL-4R  
alpha

<400> 4

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Ser Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

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

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe His  
85 90 95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 5  
<211> 154  
<212> PRT  
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<223> Mutein of human tear lipocalin with binding affinity for IL-4R  
alpha

<400> 5

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala His Tyr Ser Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Leu Thr Leu Gln Arg Ala Gly Arg Trp Gln Glu Gly Lys Ile Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 6  
<211> 154  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for IL-4R  
alpha

<400> 6

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Asp Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Gly Thr Leu Gln Arg Lys Gly Arg Pro Gln Glu Met Lys Leu Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 7  
<211> 154  
<212> PRT  
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<220>  
<223> Mutein of human tear lipocalin with binding affinity for IL-4R  
alpha

<400> 7

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Arg Cys Pro Arg Ala Tyr Tyr Gly Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Leu Thr Leu Gln Arg Ser Gly Arg Trp Gln Glu Ser Lys Val Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Arg His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr

85

90

95

Ser Glu Gly Leu Cys Pro Gly Gln Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 8

<211> 154

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 8

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
 50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Asn Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 9

<211> 154  
 <212> PRT  
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<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 9

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

Ala Met Thr Val Asp Pro Gly Ala Leu Arg Cys Leu Ala Gly Ser Val  
 20 25 30

Thr Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Glu Gly Arg Ser Gln Glu Val Lys Val Val Leu  
 50 55 60

Gly Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 10  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 10

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Thr Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Val Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
50 55 60

Gly Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
65 70 75 80

Val Ala His Ile Thr Arg Ser His Val Lys Asp His Tyr Val Phe Tyr  
85 90 95

Ser Glu Gly Cys Leu Asn Gly Val Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 11  
<211> 154  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 11

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Pro Gly Ala Leu Arg Cys Leu Ala Gly Ser Ala  
20 25 30

Thr Pro Met Ala Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Arg  
35 40 45

Val Thr Val Arg Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Ile Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Arg Tyr Thr Ala Ile Gly Gly Ile His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125



Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 12  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 12

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

Ala Met Thr Val Asp Pro Gly Ala Leu Arg Cys Leu Ala Gly Ser Val  
 20 25 30

Ala Pro Met Ala Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Ile Leu  
 50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala Arg Ile Ile Gly Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 13  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 13

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys

1                      5                      10                      15  
 Ala Met Thr Val Asp Pro Gly Ala Leu Arg Cys Leu Ala Gly Ser Val  
                     20                      25                      30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
                     35                      40                      45  
 Val Val Val His Ile Lys Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
                     50                      55                      60  
 Gly Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
                     65                      70                      75                      80  
 Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
                     85                      90                      95  
 Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
                     100                      105                      110  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
                     115                      120                      125  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
                     130                      135                      140  
 Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
                     145                      150  
 <210> 14  
 <211> 154  
 <212> PRT  
 <213> Artificial  
 <220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF  
 <400> 14  
 Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
                     1                      5                      10                      15  
 Ala Met Thr Val Asp Pro Gly Ala Leu Arg Cys Leu Ala Gly Ser Val  
                     20                      25                      30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
                     35                      40                      45  
 Val Thr Met His Ile Lys Gly Arg Pro Gln Glu Val Lys Ala Val Leu  
                     50                      55                      60  
 Gly Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
                     65                      70                      75                      80  
 Val Ala Tyr Ile Val Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr

85

90

95

Ser Glu Gly Cys Leu Ser Glu Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 15

<211> 154

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 15

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Ile Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
 50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala His Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 16

<211> 154  
 <212> PRT  
 <213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGFR2

<400> 16

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

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

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Glu His  
 65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Leu Ala Val Gly Thr Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 17  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for VEGFR2

<400> 17

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

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

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Glu His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Ala Val Arg Thr Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
145 150

<210> 18  
<211> 154  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for VEGFR2

<400> 18

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

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

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

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

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Glu His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Leu Ala Val Gly Thr Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 19  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGFR2

<400> 19

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

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

Glu Lys Thr Gly Glu Pro Gly Lys Tyr Thr Ala Pro Gly Gly Glu His  
 65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Leu Ala Val Gly Thr Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 20  
 <211> 154  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGFR2

<400> 20

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys

1                      5                      10                      15  
 Ala Met Thr Val Asp Ser Ile Phe Pro Ser Gly Arg Ile Tyr Ser Val  
                     20                      25                      30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
                     35                      40                      45  
 Val Thr Met Glu Phe Arg Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
                     50                      55                      60  
 Glu Lys Thr Asp Glu Pro Gly Arg Tyr Thr Ala Ser Gly Gly Glu His  
                     65                      70                      75                      80  
 Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
                     85                      90                      95  
 Ser Glu Gly Leu Ala Val Lys Thr Pro Val Pro Gly Val Trp Leu Val  
                     100                      105                      110  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
                     115                      120                      125  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
                     130                      135                      140  
 Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
                     145                      150  
 <210> 21  
 <211> 154  
 <212> PRT  
 <213> Artificial  
 <220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGFR2  
 <400> 21  
 Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
                     1                      5                      10                      15  
 Ala Met Thr Val Asp Ser Ile Phe Pro Ser Gly Arg Ile Tyr Ser Val  
                     20                      25                      30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
                     35                      40                      45  
 Val Thr Met Glu Phe Arg Gly Arg Ser Gln Lys Val Lys Ala Val Leu  
                     50                      55                      60  
 Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Ser Gly Gly Glu His  
                     65                      70                      75                      80  
 Val Ala Tyr Ile Ile Lys Ser His Val Lys Asp His Tyr Ile Phe Tyr

85

90

95

Ser Glu Gly Leu Ala Val Glu Thr Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala  
 145 150

<210> 22  
 <211> 162  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF  
 <400> 22

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Ile Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
 50 55 60

Ser Lys Thr Asp Glu Pro Gly Ile Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala Lys Ile Gly Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala Trp Ser His Pro Gln Phe  
 145 150 155 160

Glu Lys



<210> 23  
 <211> 162  
 <212> PRT  
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<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 23

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Ile Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
 35 40 45

Val Thr Met His Ile Lys Gly Arg Pro Gln Glu Val Lys Ala Val Leu  
 50 55 60

Thr Lys Thr Asp Glu Pro Gly Ala Tyr Thr Ala Ile Gly Gly Ile His  
 65 70 75 80

Val Ala Gln Ile His Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala Trp Ser His Pro Gln Phe  
 145 150 155 160

Glu Lys

<210> 24  
 <211> 162  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 24

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

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

Ile Pro Thr Ser Leu Thr Thr Leu Glu Gly Gly Asp Leu Glu Ala Lys  
35 40 45

Val Thr Met His Ile Lys Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
50 55 60

Ser Lys Thr Asp Glu Pro Gly Met Tyr Thr Ala Ile Gly Gly Ile His  
65 70 75 80

Val Ala Arg Ile Met Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala Trp Ser His Pro Gln Phe  
145 150 155 160

Glu Lys

<210> 25  
<211> 162  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for VEGF

<400> 25

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ile Gly Ala Leu Arg Cys Leu Ala Gly Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
35 40 45

Val Val Val His Ile Lys Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Ser Lys Thr Asp Glu Pro Gly Pro Tyr Thr Ala Ile Gly Gly Ile His  
65 70 75 80

Val Ala Lys Ile Lys Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala Trp Ser His Pro Gln Phe  
145 150 155 160

Glu Lys

<210> 26  
<211> 238  
<212> PRT  
<213> Artificial

<220>  
<223> Fusion protein of ompA, a human tear lipocalin mutein with  
binding affinity for VEGF, albumin-binding domain (abd) and  
Strep-Tag II

<400> 26

Met Lys Lys Thr Ala Ile Ala Ile Ala Val Ala Leu Ala Gly Phe Ala  
1 5 10 15

Thr Val Ala Gln Ala Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly  
20 25 30

Thr Trp Tyr Leu Lys Ala Met Thr Val Asp Val Gly Ala Leu Arg Cys  
35 40 45

Leu Ala Gly Ser Val Ile Pro Thr Thr Leu Thr Thr Leu Glu Gly Gly  
50 55 60

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

Val Lys Ala Val Leu Ser Lys Thr Asp Glu Pro Gly Ile Tyr Thr Ala  
85 90 95

Ile Gly Gly Ile His Val Ala Lys Ile Gly Arg Ser His Val Lys Asp  
100 105 110

His Tyr Ile Phe Tyr Ser Glu Gly Cys Leu Ser Gly Val Pro Val Pro  
115 120 125

Gly Val Trp Leu Val Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu

130                      135                      140  
 Glu Asp Phe Glu Lys Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser  
 145                      150                      155                      160  
 Ile Leu Ile Pro Arg Gln Ser Glu Thr Ser Ser Pro Gly Ser Ala Gly  
                     165                      170                      175  
 Ala Val Asp Ala Asn Ser Leu Ala Glu Ala Lys Val Leu Ala Asn Arg  
                     180                      185                      190  
 Glu Leu Asp Lys Tyr Gly Val Ser Asp Tyr Tyr Lys Asn Leu Ile Asn  
                     195                      200                      205  
 Asn Ala Lys Thr Val Glu Gly Val Lys Ala Leu Ile Asp Glu Ile Leu  
                     210                      215                      220  
 Ala Ala Leu Pro Ser Ala Trp Ser His Pro Gln Phe Glu Lys  
 225                      230                      235  
  
 <210> 27  
 <211> 152  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Mutein of human tear lipocalin with binding affinity for c-Met  
  
 <400> 27  
 Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1                      5                      10                      15  
 Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
                     20                      25                      30  
 Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Lys  
                     35                      40                      45  
 Val Thr Met Asn Gln Ile Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
                     50                      55                      60  
 Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
 65                      70                      75                      80  
 Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
                     85                      90                      95  
 Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
                     100                      105                      110  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
                     115                      120                      125  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg

130

135

140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 28  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 28

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 29  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 29

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Thr Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 30  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 30

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Pro Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 31  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 31

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Arg Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 32  
<211> 152  
<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 32

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Ala Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Lys Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Arg Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 33

<211> 152

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 33

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Val Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Met Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu



50

55

60

Glu Lys Thr Asp Glu Pro Gly Arg Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 34

<211> 152

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 34

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Cys Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg

130

135

140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 35  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 35

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Cys Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 36  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 36

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Cys His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 37  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 37

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Cys Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
 145 150

<210> 38  
 <211> 152  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 38

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
 20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
 35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
 50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
 65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
 85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
 100 105 110

Gly Arg Asp Pro Cys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
 115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
 130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
 145 150

<210> 39  
 <211> 152  
 <212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 39

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Met  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 40

<211> 152

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 40

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Leu Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Met  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Leu Ala Val Leu

50

55

60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 41

<211> 152

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 41

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

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

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile His Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg

130

135

140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 42  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 42

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Met  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Cys Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 43  
<211> 158  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 43

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

Trp Tyr Leu Lys Ala Met Thr Val Asp Arg Glu Phe Pro Glu Met Asn  
20 25 30

Leu Glu Ser Val Thr Pro Met Thr Leu Thr Thr Leu Glu Gly Gly Asn  
35 40 45

Leu Glu Ala Lys Val Thr Met Leu Ile Ser Gly Arg Cys Gln Glu Val  
50 55 60

Lys Ala Val Leu Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Asp  
65 70 75 80

Gly Gly Lys His Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His  
85 90 95

Tyr Ile Phe Tyr Cys Glu Gly Glu Leu His Gly Lys Pro Val Arg Gly  
100 105 110

Val Lys Leu Val Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu  
115 120 125

Asp Phe Glu Lys Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile  
130 135 140

Leu Ile Pro Arg Gln Ser Glu Thr Cys Ser Pro Gly Ser Asp  
145 150 155

<210> 44  
<211> 158  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 44

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Thr Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Glu  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ile Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95



Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly His His His His His His  
145 150 155

<210> 45

<211> 158

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 45

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Met Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Ser Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Arg Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Ser Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly His His His His His His  
145 150 155

<210> 46

<211> 158

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 46

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Met  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly His His His His His His  
145 150 155

<210> 47

<211> 158

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 47

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

Thr Pro Leu Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Met  
35 40 45

Val Thr Leu Asn Gln Val Gly Arg Ser Gln Glu Val Leu Ala Val Leu

50

55

60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Thr Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly His His His His His His  
145 150 155

<210> 48

<211> 158

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 48

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

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

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile His Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg

130

135

140

Gln Ser Glu Thr Ser Ser Pro Gly His His His His His His  
145 150 155

<210> 49  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 49

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

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

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 50  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 50

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

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

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
65 70 75 80

Val Thr Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 51  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 51

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Thr Gln Asp Pro Leu Ser Leu Tyr Val Ser Val  
20 25 30

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

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ser Tyr Gly Gly Ala His  
65 70 75 80

Val Thr Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 52  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 52

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Val Gly Asp Leu Gly Ser Arg Val Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 53  
<211> 152  
<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 53

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Pro Gly Asp Ile Arg Ser Leu Ile Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 54

<211> 152

<212> PRT

<213> Artificial

<220>

<223> Mutein of human tear lipocalin with binding affinity for c-Met

<400> 54

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Ser Glu Asp Ala Phe Ser Val Thr Val Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu

50                      55                      60  
 Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
 65                      70                      75                      80  
 Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
                     85                      90                      95  
 Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
                     100                      105                      110  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
                     115                      120                      125  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
                     130                      135                      140  
 Gln Ser Glu Thr Ser Ser Pro Gly  
 145                      150  
  
 <210> 55  
 <211> 152  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Mutein of human tear lipocalin with binding affinity for c-Met  
  
 <400> 55  
 Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
 1                      5                      10                      15  
  
 Ala Met Thr Val Asp Val Val Asp Trp Arg Ser Gln Val Arg Ser Val  
                     20                      25                      30  
  
 Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Thr  
                     35                      40                      45  
  
 Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
                     50                      55                      60  
  
 Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Ala Tyr Gly Gly Ala His  
 65                      70                      75                      80  
  
 Val Thr Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
                     85                      90                      95  
  
 Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
                     100                      105                      110  
  
 Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
                     115                      120                      125  
  
 Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg



130

135

140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 56  
<211> 152  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of human tear lipocalin with binding affinity for c-Met  
<400> 56

Ala Ser Asp Glu Glu Ile Gln Asp Val Ser Gly Thr Trp Tyr Leu Lys  
1 5 10 15

Ala Met Thr Val Asp Gly Ser Asp Trp Glu Ser Val Phe Ala Ser Val  
20 25 30

Thr Pro Ile Thr Leu Thr Thr Leu Glu Gly Gly Asn Leu Glu Ala Thr  
35 40 45

Val Thr Leu Asn Gln Ile Gly Arg Ser Gln Glu Val Leu Ala Val Leu  
50 55 60

Glu Lys Thr Asp Glu Pro Gly Lys Tyr Thr Leu Tyr Gly Gly Ala His  
65 70 75 80

Val Ala Tyr Ile Gln Arg Ser His Val Lys Asp His Tyr Ile Phe Tyr  
85 90 95

Ser Glu Gly Asp Thr Trp Gly Gly Pro Val Pro Gly Val Trp Leu Val  
100 105 110

Gly Arg Asp Pro Lys Asn Asn Leu Glu Ala Leu Glu Asp Phe Glu Lys  
115 120 125

Ala Ala Gly Ala Arg Gly Leu Ser Thr Glu Ser Ile Leu Ile Pro Arg  
130 135 140

Gln Ser Glu Thr Ser Ser Pro Gly  
145 150

<210> 57  
<211> 186  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4  
<400> 57

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Leu Val Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 58  
<211> 186  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 58

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Tyr Ile Trp Arg Asn Asp Arg Tyr Pro  
35 40 45

Met Gln Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Asp Thr Lys Lys Cys Glu Tyr Pro Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

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

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Gln Val Asn His  
115 120 125

Asn Thr Glu His Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 59  
<211> 186  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 59

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
 180 185

<210> 60  
 <211> 186  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 60

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Met Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Val Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                     165                    170                    175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
                     180                    185

<210> 61  
 <211> 186  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 61

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                     20                    25                    30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                     35                    40                    45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
                     50                    55                    60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65                    70                    75                    80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                     85                    90                    95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
                     100                    105                    110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
                     115                    120                    125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
                     130                    135                    140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145                    150                    155                    160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                     165                    170                    175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
                     180                    185

<210> 62  
 <211> 186  
 <212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 62

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu His Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln His Ala Met Val Phe Phe Glu Leu Val Glu Asp  
115 120 125

Asn Ala Gly Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 63

<211> 186

<212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 63

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr

20

25

30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Glu Leu Val Glu Asp  
115 120 125

Asn Ala Gly Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 64

<211> 186

<212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 64

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile





115

120

125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
 180 185

<210> 66

<211> 186

<212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 66

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Phe  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Val Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile

165

170

175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 67  
<211> 186  
<212> PRT  
<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 67

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asp Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 68  
<211> 186  
<212> PRT  
<213> Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 68

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Arg His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
 180 185

&lt;210&gt; 69

&lt;211&gt; 186

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 69

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asp Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Thr  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Gly Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Gly Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly Ser Ala Trp Ser His Pro Gln Phe  
180 185

<210> 70  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 70

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 71  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4  
<400> 71

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Ser Asp  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 72  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 72

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Ser Asp  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 73  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 73

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Leu Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Arg Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 74  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 74

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asp Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

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

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

&lt;210&gt; 75

&lt;211&gt; 178

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 75

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro



35                      40                      45  
 Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
   50                      55                      60  
 Asn Val Thr Ser Val Ile Leu Ser His Lys Lys Cys Glu Tyr Thr Val  
   65                      70                      75                      80  
 Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                     85                      90                      95  
 Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
                     100                      105                      110  
 Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
                     115                      120                      125  
 Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
                     130                      135                      140  
 Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
   145                      150                      155                      160  
 Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                     165                      170                      175  
 Asp Gly  
  
 <210> 76  
 <211> 178  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
  
 <400> 76  
 Gln Asp Ser Thr Ser Asp Leu Ile Pro Ala Pro Pro Leu Ser Lys Val  
   1                      5                      10                      15  
 Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                     20                      25                      30  
 Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                     35                      40                      45  
 Met Asn Met Tyr Ala Thr Val Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
   50                      55                      60  
 Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
   65                      70                      75                      80  
 Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn

85

90

95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 77  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 77

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asp Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu

130

135

140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 78  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 78

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Leu Val Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 79  
 <211> 180  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 79

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Tyr Ile Trp Arg Asn Asp Arg Tyr Pro  
 35 40 45

Met Glu Asn Asp Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys  
 50 55 60

Ser Tyr Asn Val Thr Ser Val Ile Phe Asp Thr Lys Lys Cys Glu Tyr  
 65 70 75 80

Pro Ile Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu  
 85 90 95

Gly Asn Ile Lys Ser Tyr Arg Met Asp Thr Ser Tyr Leu Val Arg Val  
 100 105 110

Val Ser Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Gln Val  
 115 120 125

Asn His Asn Thr Glu His Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys  
 130 135 140

Glu Leu Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser  
 145 150 155 160

Leu Gly Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln  
 165 170 175

Cys Ile Asp Gly  
 180

<210> 80  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 80

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Met Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Val Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 81  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 81

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 82  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 82

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 83  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 83

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu His Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln His Ala Met Val Phe Phe Glu Leu Val Glu Asp  
115 120 125

Asn Ala Gly Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 84  
 <211> 177  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 84

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Glu Leu Val Glu Asp  
 115 120 125

Asn Ala Gly Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp



<210> 85  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 85

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Val Val Phe Phe Gln Leu Val Glu Asp  
 115 120 125

Asn Ala Gly Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 86  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 86

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

1                      5                      10                      15  
 Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                     20                      25                      30  
 Val Leu Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                     35                      40                      45  
 Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
                     50                      55                      60  
 Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
                     65                      70                      75                      80  
 Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                     85                      90                      95  
 Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
                     100                      105                      110  
 Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Leu Ala Glu Asp  
                     115                      120                      125  
 Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
                     130                      135                      140  
 Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
                     145                      150                      155                      160  
 Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                     165                      170                      175

Asp Gly

<210> 87  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 87

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                     20                      25                      30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                     35                      40                      45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr

50

55

60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Phe  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Val Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 88  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 88

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asp Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser

100

105

110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 89  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 89

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Arg His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly

145                                      150                                      155                                      160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
    165                                      170                                      175

Asp Gly

<210> 90  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 90

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
    20                                      25                                      30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
    35                                      40                                      45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
    50                                      55                                      60

Asp Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Thr  
 65                                      70                                      75                                      80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
    85                                      90                                      95

Ile Lys Ser Tyr Gly Gly Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
    100                                      105                                      110

Thr Asn Tyr Asn Gln His Ala Thr Val Phe Phe Lys Leu Ala Gly Asp  
    115                                      120                                      125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
    130                                      135                                      140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145                                      150                                      155                                      160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
    165                                      170                                      175

Asp Gly

<210> 91

<211> 178  
 <212> PRT  
 <213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 91

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Leu Ser His Lys Lys Cys Glu Tyr Thr Val  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 92  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 92

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                   20                  25                  30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
           35                  40                  45

Met Asp Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
       50                  55                  60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
   65                  70                  75                  80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                   85                  90                  95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
           100                  105                  110

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

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
   130                  135                  140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
   145                  150                  155                  160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
           165                  170                  175

Asp Gly

<210> 93  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 93

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
           20                  25                  30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
       35                  40                  45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
       50                  55                  60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Ser Asp  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 94  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 94

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Val Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110



Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 95  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 95

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Leu Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Arg Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                   165                  170                  175

Asp Gly

<210> 96  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 96

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                   20                  25                  30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                   35                  40                  45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
                   50                  55                  60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
                   65                  70                  75                  80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                   85                  90                  95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
                   100                  105                  110

Thr Asn Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
                   115                  120                  125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
                   130                  135                  140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
                   145                  150                  155                  160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                   165                  170                  175

Asp Gly

<210> 97  
 <211> 178  
 <212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 97

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Phe Pro His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asp Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 98

<211> 178

<212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 98

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr

Asp Gly

 $\langle 220 \rangle$ 

<400> 99

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile



115                      120                      125  
 Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
     130                      135                      140  
  
 Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
     145                      150                      155                      160  
  
 Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
                     165                      170                      175  
  
 Asp Gly  
  
 <210> 101  
 <211> 178  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
  
 <400> 101  
  
 Gln Asp Ser Thr Ser Asp Leu Ile Pro Ala Pro Pro Leu Ser Lys Val  
     1                      5                      10                      15  
  
 Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
                     20                      25                      30  
  
 Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
                     35                      40                      45  
  
 Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
                     50                      55                      60  
  
 Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
     65                      70                      75                      80  
  
 Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
                     85                      90                      95  
  
 Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
                     100                      105                      110  
  
 Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
                     115                      120                      125  
  
 Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Cys Lys Glu Leu  
                     130                      135                      140  
  
 Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
     145                      150                      155                      160  
  
 Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile

165

170

175

Asp Gly

<210> 102  
 <211> 178  
 <212> PRT  
 <213> Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 102

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Cys Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 103  
 <211> 178  
 <212> PRT  
 <213> Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 103

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Cys Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

&lt;210&gt; 104

&lt;211&gt; 178

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 104

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30



Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Cys Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 105  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 105

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
165 170 175

Asp Gly

<210> 106  
<211> 178  
<212> PRT  
<213> Artificial

<220>  
<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 106

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Cys Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 107

<211> 178

<212> PRT

<213> Artificial

<220>

<223> Mutein of hNGAL with binding affinity for CTLA-4

<400> 107

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Cys Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 108  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4  
 <400> 108

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Cys Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

<210> 109  
 <211> 178  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 109

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

Pro Leu Gln Gln Cys Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Arg Ile Leu Arg Asp Asp Gln His Pro  
 35 40 45

Met Asn Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Ile Ser Ser His Lys Lys Cys Glu Tyr Thr Ile  
 65 70 75 80

Ala Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Gly Asp Lys Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asp Tyr Asn Gln Tyr Ala Val Val Phe Phe Lys Leu Ala Glu Asp  
 115 120 125

Asn Ala Glu Phe Phe Ala Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly

&lt;210&gt; 110

&lt;211&gt; 178

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Mutein of hNGAL with binding affinity for CTLA-4

&lt;400&gt; 110

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

Pro Leu Gln Gln Asn Phe Gln Asp Asn Gln Phe His Gly Lys Trp Tyr  
 20 25 30

Val Val Gly Leu Ala Gly Asn Ala Ile Leu Arg Glu Asp Lys Asp Pro

35

40

45

Gln Lys Met Tyr Ala Thr Ile Tyr Glu Leu Lys Glu Asp Lys Ser Tyr  
 50 55 60

Asn Val Thr Ser Val Leu Phe Arg Lys Lys Lys Cys Asp Tyr Trp Ile  
 65 70 75 80

Arg Thr Phe Val Pro Gly Ser Gln Pro Gly Glu Phe Thr Leu Gly Asn  
 85 90 95

Ile Lys Ser Tyr Pro Gly Leu Thr Ser Tyr Leu Val Arg Val Val Ser  
 100 105 110

Thr Asn Tyr Asn Gln His Ala Met Val Phe Phe Lys Lys Val Ser Gln  
 115 120 125

Asn Arg Glu Tyr Phe Lys Ile Thr Ile Tyr Gly Arg Thr Lys Glu Leu  
 130 135 140

Ala Ser Glu Leu Lys Glu Asn Phe Ile Arg Phe Ser Lys Ser Leu Gly  
 145 150 155 160

Leu Pro Glu Asn His Ile Val Phe Pro Val Pro Ile Asp Gln Cys Ile  
 165 170 175

Asp Gly