SEQUENCE LISTING

<110> Swedish Orphan Biovitrum AB

<120> STABLE POLYPEPTIDES BINDING TO HUMAN COMPLEMENT C5

<130> 21070713

<160> 287

<170> PatentIn version 3.5

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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Thr Ile Thr Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Glu Ser Met Lys Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Asn
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Ile Asn Gln Trp Val Ala Phe Ile Asp Ser Leu Tyr Asp
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Glu Val Leu Asp Ala Trp His Glu Ile Asp Thr Leu Pro Asn Leu Thr
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Glu His Ile Gln Ala Asn Glu Glu Ile Asp Arg Leu Pro Asn Leu Thr
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Ile Lys Gln Trp Leu Ala Phe Ile Asn Lys Leu His Asp
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Glu Val Leu His Ala Trp Ala Glu Ile Asp Ala Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
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Glu Val Ile Glu Ala Trp Asp Glu Ile Asp Gly Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Glu Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 33

Glu Val Leu Arg Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 34

Glu Val Leu Glu Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
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Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Asp Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

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<400> 36

Glu Val Ile Asp Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

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<400> 37

Glu Thr Leu Glu Ala Trp Asp Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
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Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Ile Asp Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
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Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Thr Ile Ala Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

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Glu Thr Leu His Ala Trp Ala Glu Ile Asp Arg Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Glu Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
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Leu Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Ile Glu Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Asp Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 47

Glu Thr Ile Glu Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Thr Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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Glu Val Ile Glu Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 51

Glu Val Ile Ala Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 52

Glu Thr Ile Glu Ala Trp Asn Glu Ile Asp Ser Leu Pro Asn Leu Thr
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Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 53

Glu Val Leu Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 54

Glu Val Leu Ala Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Glu Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Thr Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 56
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Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<210> 57
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<400> 57

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 58
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<400> 58

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 59

Glu Val Ile Ala Ala Trp Asp Glu Ile Asp Ser Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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Glu His Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Gln Asp
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Glu Val Leu Glu Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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Glu Val Ile Asp Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
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Glu Thr Ile Asp Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
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Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 64

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

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<400> 65

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 66

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

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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<400> 67

Glu Thr Leu Asp Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 68
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<400> 68

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

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 69

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

Ile Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

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<400> 70

Glu Val Leu Gln Ala Trp Asp Glu Ile Asp Ser Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 71

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 72

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 73
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<400> 73

Glu Val Leu Asp Ala Trp His Glu Ile Asp His Leu Pro Asn Leu Thr
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Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Gln Ile Arg Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
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<400> 75

Glu Thr Leu Tyr Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Glu Lys Leu Gln Asp
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<210> 76
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<400> 76

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
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Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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Glu Val Leu Glu Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
1 5 10 15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
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<400> 78

Glu Thr Ile Glu Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 79
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 79

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 80
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 80

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 81
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 81

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

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 82
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 82

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

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 83
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 83

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 84
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 84

Glu Val Ile Glu Ala Trp Thr Glu Ile Asp Tyr Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 85
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 85

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 86
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 86

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 87
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 87

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 88
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 88

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Leu Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 89
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 89

Glu His Ile Asp Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1   5   10   15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 90
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 90

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asn Asp
            20   25

<210> 91
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 91

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

Leu Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 92
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 92

Glu Val Leu Gln Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 93
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 93

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

<210> 94
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 94

Glu Val Val Glu Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 95
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 95

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 96
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 96

Glu Val Ile Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 97
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 97

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

Leu Thr Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 98
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 98

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Gly Leu Pro Asn Leu Thr
1 5 10 15

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 99
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 99

Glu Thr Ile Glu Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Thr Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 100
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 100

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 101
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 101

Glu Thr Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
20 25

<210> 102
<211> 29
<212> PRT
<213> Artificial Sequence

<220>

<223> Modified bacterial sequence

<400> 102

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
            20   25

<210> 103
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 103

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
            20   25

<210> 104
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 104

Glu Val Ile Asp Ala Asn Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1   5   10   15

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu His Asp
            20   25

<210> 105
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 105

Glu Thr Ile Glu Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 106
<211> 29

<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 106

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

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 107
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 107

Glu His Ile Asp Ala Trp Asn Glu Ile Asp Gly Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 108
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 108

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 109
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 109

Glu Gln Leu Asn Ala Trp Ala Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 110
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 110

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 111
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 111

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 112
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 112

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

Leu Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 113
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 113

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 114
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 114

Glu Gln Ile Asp Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 115
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 115

Glu Val Leu Ala Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 116
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 116

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

Leu His Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 117
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 117

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 118
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 118

Glu Val Ile Asp Ala Asn Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu His Asp
20 25

<210> 119
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 119

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 120
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 120

Glu Val Ile Glu Ala Trp Thr Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 121
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 121

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 122
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 122

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
            20   25

<210> 123
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 123

Glu His Leu Glu Ala Trp Arg Glu Ile Asp Ala Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 124
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 124

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 125
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 125

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 126
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 126

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 127
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 127

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 128
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 128

Glu Gln Leu Asp Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

<210> 129
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 129

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 130
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 130

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 131
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 131

Glu Val Leu Leu Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 132
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 132

Glu Val Ile Ala Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 133
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 133

Glu Thr Leu Leu Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 134
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 134

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

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 135
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 135

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

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Gln Asp
20 25

<210> 136
<211> 29
<212> PRT
<213> Artificial Sequence

<220>

<223> Modified bacterial sequence

<400> 136

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1   5   10   15

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 137
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 137

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 138
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 138

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 139
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 139

Glu Val Leu Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 140
<211> 29

<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 140

Glu Thr Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 141
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 141

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 142
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 142

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 143
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 143

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 144
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 144

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
20 25

<210> 145
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 145

Glu Val Ile Gln Ala Asn Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu His Asp
20 25

<210> 146
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 146

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 147
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 147

Glu Thr Ile Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

<210> 148
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 148

Glu Thr Leu Arg Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 149
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 149

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
20 25

<210> 150
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 150

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 151
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 151

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

<220>
<223> Modified bacterial sequence

<400> 152

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 153
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 153

Glu Val Ile Arg Ala Trp Asp Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 154
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 154

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile His Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 155
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 155

Glu Thr Ile Glu Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 156
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 156

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

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 157
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 157

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

Val Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 158
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 158

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

Leu Thr Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 159
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 159

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 160
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 160

Glu Thr Leu Gln Ala Trp Asp Glu Ile Asp His Leu Pro Asn Leu Thr
1 5 10 15

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 161
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 161

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 162
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 162

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

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 163
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 163

Glu Val Ile Asp Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Leu Lys Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 164
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 164

Glu Thr Leu His Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 165
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 165

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

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 166
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 166

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

Leu Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 167
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 167

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

Ile Asp Gln Trp Leu Ala Phe Ile Thr Lys Leu Glu Asp
20 25

<210> 168
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 168

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Lys Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 169
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 169

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 170
<211> 29
<212> PRT
<213> Artificial Sequence

<220>

<223> Modified bacterial sequence

<400> 170

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 171
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 171

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

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 172
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 172

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 173
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 173

Glu Thr Leu Lys Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 174
<211> 29

<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 174

Glu Thr Ile Ala Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 175
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 175

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 176
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 176

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 177
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 177

Glu Val Ile Asp Ala Trp Asn Glu Ile Asp Gly Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 178
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 178

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

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
20 25

<210> 179
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 179

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

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 180
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 180

Glu Gln Ile Glu Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 181
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 181

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 182
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 182

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 183
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 183

Glu Val Ile Glu Ala Asn Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu His Asp
20 25

<210> 184
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 184

Glu Thr Leu Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 185
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 185

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 186
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 186

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

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 187
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 187

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 188
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 188

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

Leu Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 189
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 189

Glu Val Leu Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1   5   10   15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 190
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 190

Glu Val Ile Ala Ala Trp Asn Glu Ile Asp Gly Leu Pro Asn Leu Thr
1   5   10   15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 191
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 191

Glu Thr Leu Asn Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1   5   10   15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 192
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 192

Glu Val Leu Ser Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 193
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 193

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

Leu His Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 194
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 194

Glu Gln Ile Glu Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 195
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 195

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 196
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 196

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 197
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 197

Glu Val Ile Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 198
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 198

Glu Thr Ile Asp Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 199
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 199

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 200
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 200

Glu Val Ile Gln Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 201
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 201

Glu Val Leu Asp Ala Trp Ala Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 202
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 202

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 203
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 203

Glu Val Ile Arg Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 204
<211> 29
<212> PRT
<213> Artificial Sequence

<220>

<223> Modified bacterial sequence

<400> 204

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
            20   25

<210> 205
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 205

Glu Val Ile Asp Ala Trp Asn Glu Ile Asp Arg Leu Pro Asn Leu Thr
1   5   10   15

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 206
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 206

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

Leu Ser Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 207
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 207

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

Ile His Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 208
<211> 29

<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 208

Glu Gln Leu Lys Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Glu Lys Leu Gln Asp
20 25

<210> 209
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 209

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

<220>
<223> Modified bacterial sequence

<400> 210

Glu Gln Leu Arg Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Gln Asp
20 25

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

<220>
<223> Modified bacterial sequence

<400> 211

Glu Val Leu Glu Ala Trp Arg Glu Ile Asp Ser Leu Pro Asn Leu Thr
1 5 10 15

Ile Ala Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

<220>
<223> Modified bacterial sequence

<400> 212

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

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

<220>
<223> Modified bacterial sequence

<400> 213

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 214
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 214

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

<210> 215
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 215

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 216
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 216

Glu Val Leu Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
            20   25

<210> 217
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 217

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 218
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 218

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 219
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 219

Glu Val Leu Glu Ala Trp Thr Glu Ile Asp Arg Leu Pro Asn Leu Thr
1 5 10 15

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 220
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 220

Glu Gln Leu Tyr Ala Trp Asn Glu Ile Asp His Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Glu Lys Leu Gln Asp
20 25

<210> 221
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 221

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

Ile Lys Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 222
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 222

Glu Val Ile Arg Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Val Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 223
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 223

Glu Val Val Gln Ala Trp Asp Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 224
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 224

Glu Val Ile Arg Ala Trp Asp Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 225
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 225

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

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 226
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 226

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

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
            20   25

<210> 227
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 227

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ser Asp
20 25

<210> 228
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 228

Glu Thr Leu Glu Ala Trp Arg Glu Ile Asp Ser Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 229
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 229

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

Leu Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 230
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 230

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 231
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 231

Glu Thr Leu Glu Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 232
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 232

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

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 233
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 233

Glu Thr Ile Asp Ala Trp Asn Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Leu Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 234
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 234

Glu Thr Leu Asp Ala Trp Asp Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Glu Asp
20 25

<210> 235
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 235

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 236
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 236

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

Ile Glu Gln Trp Leu Ala Phe Ile His Lys Leu His Asp
20 25

<210> 237
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 237

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

Ile Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 238
<211> 29
<212> PRT
<213> Artificial Sequence

<220>

<223> Modified bacterial sequence

<400> 238

Glu Val Ile Gln Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 239
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 239

Glu Val Ile Glu Ala Trp Asn Glu Ile Asp Tyr Leu Pro Asn Leu Thr
1   5   10   15

Ile Ala Gln Trp Ile Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 240
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 240

Glu Thr Ile Gln Ala Trp Asp Glu Ile Asp Arg Leu Pro Asn Leu Thr
1   5   10   15

Leu Gln Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 241
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 241

Glu Thr Ile Gln Ala Trp Asp Glu Ile Asp Lys Leu Pro Asn Leu Thr
1   5   10   15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
            20   25

<210> 242
<211> 29

<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 242

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

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 243
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 243

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

Leu Asn Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 244
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 244

Glu Val Leu Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 245
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 245

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

Ile Glu Gln Trp Leu Ala Phe Ile Glu Lys Leu Glu Asp
20 25

<210> 246
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 246

Glu Val Ile Glu Ala Trp Gln Glu Ile Asp Lys Leu Pro Asn Leu Thr
1 5 10 15

Ile Asp Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 247
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 247

Glu Val Val Asp Ala Trp Asn Glu Ile Asp Gln Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Asp Asp
20 25

<210> 248
<211> 29
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 248

Glu Gln Ile Glu Ala Trp Asn Glu Ile Asp Ala Leu Pro Asn Leu Thr
1 5 10 15

Ile Glu Gln Trp Leu Ala Phe Ile Asn Lys Leu Ala Asp
20 25

<210> 249
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 249

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

```
Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
            20                  25                  30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
    50                  55                  60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65                  70                  75                  80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
                85                  90                  95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
            100                 105
```

<210> 250
<211> 46
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 250

```
Leu Ala Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly
1               5                   10                  15

Val Ser Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu
            20                  25                  30

Gly Val Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
        35                  40                  45
```

<210> 251
<211> 1676
<212> PRT
<213> Homo sapiens

<400> 251

```
Met Gly Leu Leu Gly Ile Leu Cys Phe Leu Ile Phe Leu Gly Lys Thr
1               5                   10                  15

Trp Gly Gln Glu Gln Thr Tyr Val Ile Ser Ala Pro Lys Ile Phe Arg
            20                  25                  30

Val Gly Ala Ser Glu Asn Ile Val Ile Gln Val Tyr Gly Tyr Thr Glu
        35                  40                  45

Ala Phe Asp Ala Thr Ile Ser Ile Lys Ser Tyr Pro Asp Lys Lys Phe
```

50 55 60

Ser Tyr Ser Ser Gly His Val His Leu Ser Ser Glu Asn Lys Phe Gln
65 70 75 80

Asn Ser Ala Ile Leu Thr Ile Gln Pro Lys Gln Leu Pro Gly Gly Gln
85 90 95

Asn Pro Val Ser Tyr Val Tyr Leu Glu Val Val Ser Lys His Phe Ser
100 105 110

Lys Ser Lys Arg Met Pro Ile Thr Tyr Asp Asn Gly Phe Leu Phe Ile
115 120 125

His Thr Asp Lys Pro Val Tyr Thr Pro Asp Gln Ser Val Lys Val Arg
130 135 140

Val Tyr Ser Leu Asn Asp Asp Leu Lys Pro Ala Lys Arg Glu Thr Val
145 150 155 160

Leu Thr Phe Ile Asp Pro Glu Gly Ser Glu Val Asp Met Val Glu Glu
165 170 175

Ile Asp His Ile Gly Ile Ile Ser Phe Pro Asp Phe Lys Ile Pro Ser
180 185 190

Asn Pro Arg Tyr Gly Met Trp Thr Ile Lys Ala Lys Tyr Lys Glu Asp
195 200 205

Phe Ser Thr Thr Gly Thr Ala Tyr Phe Glu Val Lys Glu Tyr Val Leu
210 215 220

Pro His Phe Ser Val Ser Ile Glu Pro Glu Tyr Asn Phe Ile Gly Tyr
225 230 235 240

Lys Asn Phe Lys Asn Phe Glu Ile Thr Ile Lys Ala Arg Tyr Phe Tyr
245 250 255

Asn Lys Val Val Thr Glu Ala Asp Val Tyr Ile Thr Phe Gly Ile Arg
260 265 270

Glu Asp Leu Lys Asp Asp Gln Lys Glu Met Met Gln Thr Ala Met Gln
275 280 285

Asn Thr Met Leu Ile Asn Gly Ile Ala Gln Val Thr Phe Asp Ser Glu
290 295 300

Thr Ala Val Lys Glu Leu Ser Tyr Tyr Ser Leu Glu Asp Leu Asn Asn
305 310 315 320

Lys Tyr Leu Tyr Ile Ala Val Thr Val Ile Glu Ser Thr Gly Gly Phe

```
                325                 330                 335

Ser Glu Glu Ala Glu Ile Pro Gly Ile Lys Tyr Val Leu Ser Pro Tyr
            340                 345                 350

Lys Leu Asn Leu Val Ala Thr Pro Leu Phe Leu Lys Pro Gly Ile Pro
        355                 360                 365

Tyr Pro Ile Lys Val Gln Val Lys Asp Ser Leu Asp Gln Leu Val Gly
    370                 375                 380

Gly Val Pro Val Thr Leu Asn Ala Gln Thr Ile Asp Val Asn Gln Glu
385                 390                 395                 400

Thr Ser Asp Leu Asp Pro Ser Lys Ser Val Thr Arg Val Asp Asp Gly
                405                 410                 415

Val Ala Ser Phe Val Leu Asn Leu Pro Ser Gly Val Thr Val Leu Glu
            420                 425                 430

Phe Asn Val Lys Thr Asp Ala Pro Asp Leu Pro Glu Glu Asn Gln Ala
        435                 440                 445

Arg Glu Gly Tyr Arg Ala Ile Ala Tyr Ser Ser Leu Ser Gln Ser Tyr
    450                 455                 460

Leu Tyr Ile Asp Trp Thr Asp Asn His Lys Ala Leu Leu Val Gly Glu
465                 470                 475                 480

His Leu Asn Ile Ile Val Thr Pro Lys Ser Pro Tyr Ile Asp Lys Ile
                485                 490                 495

Thr His Tyr Asn Tyr Leu Ile Leu Ser Lys Gly Lys Ile Ile His Phe
            500                 505                 510

Gly Thr Arg Glu Lys Phe Ser Asp Ala Ser Tyr Gln Ser Ile Asn Ile
        515                 520                 525

Pro Val Thr Gln Asn Met Val Pro Ser Ser Arg Leu Leu Val Tyr Tyr
    530                 535                 540

Ile Val Thr Gly Glu Gln Thr Ala Glu Leu Val Ser Asp Ser Val Trp
545                 550                 555                 560

Leu Asn Ile Glu Glu Lys Cys Gly Asn Gln Leu Gln Val His Leu Ser
                565                 570                 575

Pro Asp Ala Asp Ala Tyr Ser Pro Gly Gln Thr Val Ser Leu Asn Met
            580                 585                 590

Ala Thr Gly Met Asp Ser Trp Val Ala Leu Ala Ala Val Asp Ser Ala
```

595 600 605

Val Tyr Gly Val Gln Arg Gly Ala Lys Lys Pro Leu Glu Arg Val Phe
610 615 620

Gln Phe Leu Glu Lys Ser Asp Leu Gly Cys Gly Ala Gly Gly Gly Leu
625 630 635 640

Asn Asn Ala Asn Val Phe His Leu Ala Gly Leu Thr Phe Leu Thr Asn
645 650 655

Ala Asn Ala Asp Asp Ser Gln Glu Asn Asp Glu Pro Cys Lys Glu Ile
660 665 670

Leu Arg Pro Arg Arg Thr Leu Gln Lys Lys Ile Glu Glu Ile Ala Ala
675 680 685

Lys Tyr Lys His Ser Val Val Lys Lys Cys Cys Tyr Asp Gly Ala Cys
690 695 700

Val Asn Asn Asp Glu Thr Cys Glu Gln Arg Ala Ala Arg Ile Ser Leu
705 710 715 720

Gly Pro Arg Cys Ile Lys Ala Phe Thr Glu Cys Cys Val Val Ala Ser
725 730 735

Gln Leu Arg Ala Asn Ile Ser His Lys Asp Met Gln Leu Gly Arg Leu
740 745 750

His Met Lys Thr Leu Leu Pro Val Ser Lys Pro Glu Ile Arg Ser Tyr
755 760 765

Phe Pro Glu Ser Trp Leu Trp Glu Val His Leu Val Pro Arg Arg Lys
770 775 780

Gln Leu Gln Phe Ala Leu Pro Asp Ser Leu Thr Thr Trp Glu Ile Gln
785 790 795 800

Gly Val Gly Ile Ser Asn Thr Gly Ile Cys Val Ala Asp Thr Val Lys
805 810 815

Ala Lys Val Phe Lys Asp Val Phe Leu Glu Met Asn Ile Pro Tyr Ser
820 825 830

Val Val Arg Gly Glu Gln Ile Gln Leu Lys Gly Thr Val Tyr Asn Tyr
835 840 845

Arg Thr Ser Gly Met Gln Phe Cys Val Lys Met Ser Ala Val Glu Gly
850 855 860

Ile Cys Thr Ser Glu Ser Pro Val Ile Asp His Gln Gly Thr Lys Ser

865 870 875 880

Ser Lys Cys Val Arg Gln Lys Val Glu Gly Ser Ser Ser His Leu Val
885 890 895

Thr Phe Thr Val Leu Pro Leu Glu Ile Gly Leu His Asn Ile Asn Phe
900 905 910

Ser Leu Glu Thr Trp Phe Gly Lys Glu Ile Leu Val Lys Thr Leu Arg
915 920 925

Val Val Pro Glu Gly Val Lys Arg Glu Ser Tyr Ser Gly Val Thr Leu
930 935 940

Asp Pro Arg Gly Ile Tyr Gly Thr Ile Ser Arg Arg Lys Glu Phe Pro
945 950 955 960

Tyr Arg Ile Pro Leu Asp Leu Val Pro Lys Thr Glu Ile Lys Arg Ile
965 970 975

Leu Ser Val Lys Gly Leu Leu Val Gly Glu Ile Leu Ser Ala Val Leu
980 985 990

Ser Gln Glu Gly Ile Asn Ile Leu Thr His Leu Pro Lys Gly Ser Ala
995 1000 1005

Glu Ala Glu Leu Met Ser Val Val Pro Val Phe Tyr Val Phe His
1010 1015 1020

Tyr Leu Glu Thr Gly Asn His Trp Asn Ile Phe His Ser Asp Pro
1025 1030 1035

Leu Ile Glu Lys Gln Lys Leu Lys Lys Lys Leu Lys Glu Gly Met
1040 1045 1050

Leu Ser Ile Met Ser Tyr Arg Asn Ala Asp Tyr Ser Tyr Ser Val
1055 1060 1065

Trp Lys Gly Gly Ser Ala Ser Thr Trp Leu Thr Ala Phe Ala Leu
1070 1075 1080

Arg Val Leu Gly Gln Val Asn Lys Tyr Val Glu Gln Asn Gln Asn
1085 1090 1095

Ser Ile Cys Asn Ser Leu Leu Trp Leu Val Glu Asn Tyr Gln Leu
1100 1105 1110

Asp Asn Gly Ser Phe Lys Glu Asn Ser Gln Tyr Gln Pro Ile Lys
1115 1120 1125

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

1130 1135 1140

Leu Thr Ala Phe Thr Val Ile Gly Ile Arg Lys Ala Phe Asp Ile
1145 1150 1155

Cys Pro Leu Val Lys Ile Asp Thr Ala Leu Ile Lys Ala Asp Asn
1160 1165 1170

Phe Leu Leu Glu Asn Thr Leu Pro Ala Gln Ser Thr Phe Thr Leu
1175 1180 1185

Ala Ile Ser Ala Tyr Ala Leu Ser Leu Gly Asp Lys Thr His Pro
1190 1195 1200

Gln Phe Arg Ser Ile Val Ser Ala Leu Lys Arg Glu Ala Leu Val
1205 1210 1215

Lys Gly Asn Pro Pro Ile Tyr Arg Phe Trp Lys Asp Asn Leu Gln
1220 1225 1230

His Lys Asp Ser Ser Val Pro Asn Thr Gly Thr Ala Arg Met Val
1235 1240 1245

Glu Thr Thr Ala Tyr Ala Leu Leu Thr Ser Leu Asn Leu Lys Asp
1250 1255 1260

Ile Asn Tyr Val Asn Pro Val Ile Lys Trp Leu Ser Glu Glu Gln
1265 1270 1275

Arg Tyr Gly Gly Gly Phe Tyr Ser Thr Gln Asp Thr Ile Asn Ala
1280 1285 1290

Ile Glu Gly Leu Thr Glu Tyr Ser Leu Leu Val Lys Gln Leu Arg
1295 1300 1305

Leu Ser Met Asp Ile Asp Val Ser Tyr Lys His Lys Gly Ala Leu
1310 1315 1320

His Asn Tyr Lys Met Thr Asp Lys Asn Phe Leu Gly Arg Pro Val
1325 1330 1335

Glu Val Leu Leu Asn Asp Asp Leu Ile Val Ser Thr Gly Phe Gly
1340 1345 1350

Ser Gly Leu Ala Thr Val His Val Thr Thr Val Val His Lys Thr
1355 1360 1365

Ser Thr Ser Glu Glu Val Cys Ser Phe Tyr Leu Lys Ile Asp Thr
1370 1375 1380

Gln Asp Ile Glu Ala Ser His Tyr Arg Gly Tyr Gly Asn Ser Asp

1385 1390 1395

Tyr Lys Arg Ile Val Ala Cys Ala Ser Tyr Lys Pro Ser Arg Glu
1400 1405 1410

Glu Ser Ser Ser Gly Ser Ser His Ala Val Met Asp Ile Ser Leu
1415 1420 1425

Pro Thr Gly Ile Ser Ala Asn Glu Glu Asp Leu Lys Ala Leu Val
1430 1435 1440

Glu Gly Val Asp Gln Leu Phe Thr Asp Tyr Gln Ile Lys Asp Gly
1445 1450 1455

His Val Ile Leu Gln Leu Asn Ser Ile Pro Ser Ser Asp Phe Leu
1460 1465 1470

Cys Val Arg Phe Arg Ile Phe Glu Leu Phe Glu Val Gly Phe Leu
1475 1480 1485

Ser Pro Ala Thr Phe Thr Val Tyr Glu Tyr His Arg Pro Asp Lys
1490 1495 1500

Gln Cys Thr Met Phe Tyr Ser Thr Ser Asn Ile Lys Ile Gln Lys
1505 1510 1515

Val Cys Glu Gly Ala Ala Cys Lys Cys Val Glu Ala Asp Cys Gly
1520 1525 1530

Gln Met Gln Glu Glu Leu Asp Leu Thr Ile Ser Ala Glu Thr Arg
1535 1540 1545

Lys Gln Thr Ala Cys Lys Pro Glu Ile Ala Tyr Ala Tyr Lys Val
1550 1555 1560

Ser Ile Thr Ser Ile Thr Val Glu Asn Val Phe Val Lys Tyr Lys
1565 1570 1575

Ala Thr Leu Leu Asp Ile Tyr Lys Thr Gly Glu Ala Val Ala Glu
1580 1585 1590

Lys Asp Ser Glu Ile Thr Phe Ile Lys Lys Val Thr Cys Thr Asn
1595 1600 1605

Ala Glu Leu Val Lys Gly Arg Gln Tyr Leu Ile Met Gly Lys Glu
1610 1615 1620

Ala Leu Gln Ile Lys Tyr Asn Phe Ser Phe Arg Tyr Ile Tyr Pro
1625 1630 1635

Leu Asp Ser Leu Thr Trp Ile Glu Tyr Trp Pro Arg Asp Thr Thr

1640 1645 1650

Cys Ser Ser Cys Gln Ala Phe Leu Ala Asn Leu Asp Glu Phe Ala
1655 1660 1665

Glu Asp Ile Phe Leu Asn Gly Cys
1670 1675

<210> 252
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 252

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 253
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 253

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

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

35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 254
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 254

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Val Leu Ala Asn Arg Glu Leu Asp Lys Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asn Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Leu His Ile Leu Ala Ala Leu Pro
100 105

<210> 255
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 255

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Ser Glu Ile

1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 256
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 256

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Glu Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 257
<211> 108
<212> PRT

<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 257

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Ala
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 258
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 258

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Glu Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 259
<211> 103
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 259

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Leu Ala Glu Ala Lys Glu Ala
50 55 60

Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser Asp Phe Tyr Lys Arg
65 70 75 80

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

Ala Ile Leu Ala Ala Leu Pro
100

<210> 260
<211> 57
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 260

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro
50 55

<210> 261
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 261

```
Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1               5                   10                  15


Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
            20                  25                  30


Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45


Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys Val Glu Gly Ser Leu Ala
    50                  55                  60


Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65                  70                  75                  80


Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
                85                  90                  95


Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
            100                 105
```

<210> 262
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 262

```
Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1               5                   10                  15


Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
            20                  25                  30


Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45


Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys Val Ala Gly Ser Leu Ala
    50                  55                  60


Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65                  70                  75                  80
```

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 263
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 263

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Glu Ser Ser Gln Ala Pro Lys Val Glu Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 264
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 264

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

```
Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys Val Glu Gly Ser Leu Ala
    50                  55                  60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65                  70                  75                  80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
                85                  90                  95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
            100                 105
```

<210> 265
<211> 57
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 265

```
Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1               5                   10                  15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
            20                  25                  30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45

Lys Lys Leu Glu Ser Ser Gln Ala Pro
    50                  55
```

<210> 266
<211> 57
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 266

```
Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1               5                   10                  15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
            20                  25                  30

Lys Leu Asp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45

Lys Lys Leu Ser Glu Ser Gln Ala Pro
    50                  55
```

<210> 267
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 267

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 268
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 268

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Glu Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 269
<211> 108
<212> PRT

<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 269

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

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

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 270
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 270

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Asp Ser Gln Ala Pro Lys Val Glu Gly Ser Leu Ala
50 55 60

Glu Ala Lys Glu Ala Ala Asn Ala Glu Leu Asp Ser Tyr Gly Val Ser
65 70 75 80

Asp Phe Tyr Lys Arg Leu Ile Asp Lys Ala Lys Thr Val Glu Gly Val
85 90 95

Glu Ala Leu Lys Asp Ala Ile Leu Ala Ala Leu Pro
100 105

<210> 271
<211> 62
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 271

Ala Glu Ala Lys Tyr Ala Lys Glu Val Leu Glu Ala Trp Asp Glu Ile
1 5 10 15

Asp Arg Leu Pro Asn Leu Thr Ile Glu Gln Trp Leu Ala Phe Ile Asn
20 25 30

Lys Leu Asp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys Val Asp Gly Ser
50 55 60

<210> 272
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 272

Ala Glu Ala Lys Tyr Ala Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1 5 10 15

Ala Leu Leu Pro Asn Leu Thr Asn Gln Gln Lys Arg Ala Phe Ile Arg
20 25 30

Lys Leu Tyr Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys
50 55

<210> 273
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 273

Ala Glu Ala Lys Tyr Ala Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile

1 5 10 15

Ala Leu Leu Pro Asn Leu Thr Asn Gln Gln Lys Arg Ala Phe Ile Arg
20 25 30

Lys Leu Tyr Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 274
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 274

Ala Glu Ala Lys Tyr Ala Lys Glu Met Arg Asn Ala Tyr Trp Glu Ile
1 5 10 15

Ala Leu Leu Pro Asn Leu Thr Asn Gln Gln Lys Arg Ala Phe Ile Arg
20 25 30

Lys Leu Tyr Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 275
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 275

Ala Glu Ala Lys Tyr Ala Lys Glu Leu Ile Glu Ala Ala Ala Glu Ile
1 5 10 15

Asp Ala Leu Pro Asn Leu Thr Arg Arg Gln Trp Asn Ala Phe Ile Lys
20 25 30

Lys Leu Val Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys
50 55

<210> 276

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

<220>
<223> Modified bacterial sequence

<400> 276

Ala Glu Ala Lys Tyr Ala Lys Glu Leu Ile Glu Ala Ala Ala Glu Ile
1 5 10 15

Asp Ala Leu Pro Asn Leu Thr Arg Arg Gln Trp Asn Ala Phe Ile Lys
20 25 30

Lys Leu Val Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 277
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 277

Ala Glu Ala Lys Tyr Ala Lys Glu Leu Ile Glu Ala Ala Ala Glu Ile
1 5 10 15

Asp Ala Leu Pro Asn Leu Thr Arg Arg Gln Trp Asn Ala Phe Ile Lys
20 25 30

Lys Leu Val Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 278
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 278

Ala Glu Ala Lys Tyr Ala Lys Glu Gln Asp Ala Ala Ala His Glu Ile
1 5 10 15

Arg Trp Leu Pro Asn Leu Thr Phe Asp Gln Arg Val Ala Phe Ile His
20 25 30

Lys Leu Ala Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys
50 55

<210> 279
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 279

Ala Glu Ala Lys Tyr Ala Lys Glu Gln Asp Ala Ala Ala His Glu Ile
1 5 10 15

Arg Trp Leu Pro Asn Leu Thr Phe Asp Gln Arg Val Ala Phe Ile His
20 25 30

Lys Leu Ala Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 280
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 280

Ala Glu Ala Lys Tyr Ala Lys Glu Gln Asp Ala Ala Ala His Glu Ile
1 5 10 15

Arg Trp Leu Pro Asn Leu Thr Phe Asp Gln Arg Val Ala Phe Ile His
20 25 30

Lys Leu Ala Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 281
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 281

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
20 25 30

Lys Leu Trp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Asp Ser Gln Ala Pro Lys
50 55

<210> 282
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 282

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
20 25 30

Lys Leu Trp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys
50 55

<210> 283
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 283

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
20 25 30

Lys Leu Trp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Ser Glu Ser Gln Ala Pro Lys

50 55

<210> 284
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 284

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
20 25 30

Lys Leu Trp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys
50 55

<210> 285
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 285

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
20 25 30

Lys Leu Trp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
35 40 45

Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys
50 55

<210> 286
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 286

Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1 5 10 15

```
Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
            20                  25                  30

Lys Leu Trp Asp Asp Pro Ser Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45

Lys Lys Leu Ser Asp Ser Gln Ala Pro Lys
    50                  55
```

<210> 287
<211> 58
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified bacterial sequence

<400> 287

```
Ala Glu Ala Lys Tyr Ala Lys Glu Asn Leu Phe Ala Gly Trp Glu Ile
1               5                   10                  15

Ser Asp Leu Pro Asn Leu Thr Asp Tyr Gln Arg Asn Ala Phe Ile Tyr
            20                  25                  30

Lys Leu Trp Arg Gln Pro Glu Gln Ser Ser Glu Leu Leu Ser Glu Ala
        35                  40                  45

Lys Lys Leu Ser Asp Ser Gln Ala Pro Lys
    50                  55
```