

eolf-seq1
SEQUENCE LISTING

<110> PFIZER INC.
Anderson, Annaliesa S.
Hoiseth, Susan K.
Jansen, Kathrin U.
Mark, Ruppen E.
Justin, Moran K.

<120> NEISSERIA MENINGITIDIS COMPOSITIONS AND METHODS THEREOF

<130> PC071917

<160> 81

<170> PatentIn version 3.5

<210> 1

<211> 780

<212> DNA

<213> Neisseria meningitidis (group B)

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<212> DNA

<213> Neisseria meningitidis (group B)

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eolf-seq1

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 <213> Neisseria meningitidis (group B)

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cagaaccact ccgccgtcgt tgccctacag attgaaaaaa tcaacaaccc cgacaaaatc	360
gacagcctga taaaccaacg ctcttcctt gtcagcgggt tggggcgaga acataccgcc	420
ttcaaccaac tgccctgacg caaagccgag tatcacggca aagcattcag ctccgacgac	480
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eolf-seq1

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gacagcctca	atacgggcaa	attgaagaac	gacaaggta	gccgcttcga	ctttatccgt	240
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 <213> *Neisseria meningitidis* (group B)

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aggaaaaacg	agaaactgaa	gctggcggca	caaggtgcgg	aaaaaactta	tggaacggc	180
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caggaccact	ccgccgtcgt	tgccctacag	attgaaaaaa	tcaacaaccc	cgacaaaatc	360
gacagcctga	taaaccaacg	ctccttcctt	gtcagcgggt	tggtgggaga	acataccgcc	420
ttcaaccaac	tgccagcgg	caaagccgag	tatcacggca	aagcattcag	ctccgacgat	480
gctggcggaa	aactgaccta	taccatagat	ttcggcgcca	aacagggaca	cggcaaaatc	540
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taccacctcg	cccttttcgg	cgaccgcgcc	caagaaatcg	ccggctcggc	aaccgtgaag	720
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 <212> DNA
 <213> *Neisseria meningitidis* (group B)

eof-seq1

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 ttggaagact ccatttccca aaacggaaca ctgaccctgt cggcacaagg tgcggaaaga 180
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 gacatagtgg gcgaacatac atcttttgac aagcttccca aagacgtcat ggcgacatat 480
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 ctttacaacc aagccgagaa aggcagttac tctctaggca tctttggcgg gcaagcccag 720
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 <212> DNA
 <213> *Neisseria meningitidis* (group B)

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 aggaaaaacg agaaactgaa gctggcggca caagggtgcgg aaaaaactta tggaaacggc 180
 gacagcctta atacgggcaa attgaagaac gacaagggtca gccgtttcga ctttatccgt 240
 caaatcgaag tggacgggca gctcattacc ttggagagcg gagagtcca agtgtacaaa 300
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 tttgacaagc ttcccaaaga cgtcatggcg acatatcgcg ggacggcggt cggttcagac 480
 gatgccggcg gaaaactgac ctatactata gatcttgctg ccaaacaggg acacggcaaa 540
 atcgaacatt tgaaatcgcc cgaactcaat gtcgagcttg ccaccgccta tatcaagccg 600
 gatgaaaaac accatgccgt catcagcggg tccgtccttt acaatcaaga cgagaaaggc 660
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eof-seq1

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 <213> *Neisseria meningitidis* (group B)

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 gacagcctta atacgggcaa attgaagaac gacaaggcca gccgcttcga ctttatccgt 240
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 gatgctggcg gaaaactgac ctatactata gatttcgccg ccaagcaggg acacggcaaa 540
 atcgaacatt tgaaatcgcc cgaactcaat gtcgagcttg ccaccgcta tatcaagccg 600
 gatgaaaaac gccatgccgt tatcagcggt tccgtccttt acaaccaaga cgagaaaggc 660
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<210> 9
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 <212> DNA
 <213> *Neisseria meningitidis* (group B)

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 gataaaaaac gccatgccgt catcagcggt tccgtccttt acaaccaagc cgagaaaggc 660
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eolf-seq1

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<210> 10
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caaagccatt ccgccttaac cgcctttcag accgagcaaa tacaagattc ggagcattcc	360
gggaagatgg ttgcgaaacg ccagttcaga atcggcgaca tagcgggcca acatacatct	420
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gatgccggcg gaaaactgac ctacaccata gatttcgccg ccaagcaggg aaacggcaaa	540
atcgaacatt tgaaatcgcc agaactcaat gtcgacctgg ccgccgccga tatcaagccg	600
gatggaaaac gccatgccgt catcagcggt tccgtccttt acaaccaagc cgagaaaggc	660
agttactccc tcggtatctt tggcggaaaa gccaggaag ttgccggcag cgcggaagtg	720
aaaaccgtaa acggcatacg ccatatcggc cttgccgccagcaataa	768

<210> 11
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 <212> DNA
 <213> Neisseria meningitidis (group B)

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gccccaagc agggacacgg caaaatcgaa catttgaaat cgccagaact caatgttgac	600
ctggccgccg ccgatatcaa gccggatgaa aaacaccatg ccgtcatcag cggttccgtc	660

eof-seq1

ctttacaacc aagccgagaa aggcagttac tctctaggca tctttggcgg gcaagcccag 720
gaagttgccg gcagcgcgga agtggaaacc gcaaacggca tacgccatat cggctcttgcc 780
gccaagcaat aa 792

<210> 12
<211> 259
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 12

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Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly
20 25 30

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

Thr Leu Ser Ala Gln Gly Ala Glu Lys Thr Phe Lys Ala Gly Asp Lys
50 55 60

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

Phe Asp Phe Val Gln Lys Ile Glu Val Asp Gly Gln Thr Ile Thr Leu
85 90 95

Ala Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asp His Ser Ala Val Val
100 105 110

Ala Leu Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu
115 120 125

Ile Asn Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr
130 135 140

Ala Phe Asn Gln Leu Pro Gly Asp Lys Ala Glu Tyr His Gly Lys Ala
145 150 155 160

Phe Ser Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe
165 170 175

Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Thr Pro Glu
180 185 190

eolf-seq1

Gln Asn Val Glu Leu Ala Ala Ala Glu Leu Lys Ala Asp Glu Lys Ser
195 200 205

His Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu Glu Lys Gly
210 215 220

Thr Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly
225 230 235 240

Ser Ala Thr Val Lys Ile Gly Glu Lys Val His Glu Ile Gly Ile Ala
245 250 255

Gly Lys Gln

<210> 13
<211> 261
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 13

Cys Ser Ser Gly Ser Gly Ser Gly Gly Gly Val Ala Ala Asp Ile
1 5 10 15

Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp
20 25 30

Lys Gly Leu Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn Gly
35 40 45

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

Asp Lys Asp Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Ile
65 70 75 80

Ser Arg Phe Asp Phe Val Gln Lys Ile Glu Val Asp Gly Gln Thr Ile
85 90 95

Thr Leu Ala Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asp His Ser Ala
100 105 110

Val Val Ala Leu Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp
115 120 125

Ser Leu Ile Asn Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly Glu
130 135 140

eolf-seq1

His Thr Ala Phe Asn Gln Leu Pro Ser Gly Lys Ala Glu Tyr His Gly
145 150 155 160

Lys Ala Phe Ser Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile
165 170 175

Asp Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Thr
180 185 190

Pro Glu Gln Asn Val Glu Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu
195 200 205

Lys Ser His Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu Glu
210 215 220

Lys Gly Thr Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile
225 230 235 240

Ala Gly Ser Ala Thr Val Lys Ile Arg Glu Lys Val His Glu Ile Gly
245 250 255

Ile Ala Gly Lys Gln
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<210> 14
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<212> PRT
<213> Neisseria meningitidis (group B)

<400> 14

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20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

eolf-seq1
 Gln Ile Tyr Lys Gln Asn His Ser Ala Val Val Ala Leu Gln Ile Glu
 100 105 110
 Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln Arg Ser
 115 120 125
 Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln Leu
 130 135 140
 Pro Asp Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
 145 150 155 160
 Pro Asn Gly Arg Leu His Tyr Ser Ile Asp Phe Thr Lys Lys Gln Gly
 165 170 175
 Tyr Gly Arg Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu
 180 185 190
 Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu
 195 200 205
 Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu Ala
 210 215 220
 Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val Lys
 225 230 235 240
 Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
 245 250

<210> 15
 <211> 254
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 15

Cys Ser Ser Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
 1 5 10 15
 Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln
 20 25 30
 Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
 35 40 45
 Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
 50 55 60

eolf-seq1

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Ile Tyr Lys Gln Asp His Ser Ala Val Val Ala Leu Gln Ile Glu
100 105 110

Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln Arg Ser
115 120 125

Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln Leu
130 135 140

Pro Ser Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
145 150 155 160

Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
165 170 175

His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu
180 185 190

Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu
195 200 205

Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu Ala
210 215 220

Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val Lys
225 230 235 240

Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
245 250

<210> 16
<211> 263
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 16

Cys Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Val Ala Ala Asp
1 5 10 15

Ile Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys
20 25 30

eolf-seq1

Asp Lys Gly Leu Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn
35 40 45

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

Gly Asp Lys Asp Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys
65 70 75 80

Ile Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu
85 90 95

Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser
100 105 110

Ala Leu Thr Ala Leu Gln Thr Glu Gln Val Gln Asp Ser Glu His Ser
115 120 125

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

Glu His Thr Ser Phe Asp Lys Leu Pro Lys Asp Val Met Ala Thr Tyr
145 150 155 160

Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr
165 170 175

Thr Ile Asp Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu
180 185 190

Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala Ala Asp Ile Lys Pro
195 200 205

Asp Glu Lys His His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln
210 215 220

Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe Gly Gly Gln Ala Gln
225 230 235 240

Glu Val Ala Gly Ser Ala Glu Val Glu Thr Ala Asn Gly Ile Arg His
245 250 255

Ile Gly Leu Ala Ala Lys Gln
260

<210> 17
<211> 255
<212> PRT

eolf-seq1

<213> Neisseria meningitidis (group B)

<400> 17

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
100 105 110

Gln Glu Gln Asp Pro Glu His Ser Gly Lys Met Val Ala Lys Arg Arg
115 120 125

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

Pro Lys Asp Val Met Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
145 150 155 160

Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
165 170 175

Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Glu
180 185 190

Leu Ala Thr Ala Tyr Ile Lys Pro Asp Glu Lys His His Ala Val Ile
195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

eof-seq1

Glu Thr Ala Asn Gly Ile His His Ile Gly Leu Ala Ala Lys Gln
245 250 255

<210> 18

<211> 255

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 18

Cys Ser Ser Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

Gln Ile Glu Val Asp Gly Lys Leu Ile Thr Leu Glu Ser Gly Glu Phe
85 90 95

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
100 105 110

Gln Val Gln Asp Ser Glu Asp Ser Gly Lys Met Val Ala Lys Arg Gln
115 120 125

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

Pro Lys Gly Gly Ser Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
145 150 155 160

Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
165 170 175

Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Glu
180 185 190

Leu Ala Thr Ala Tyr Ile Lys Pro Asp Glu Lys Arg His Ala Val Ile
195 200 205

eof-seq1

Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

Glu Thr Ala Asn Gly Ile His His Ile Gly Leu Ala Ala Lys Gln
245 250 255

<210> 19

<211> 255

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 19

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Val Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
100 105 110

Gln Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln
115 120 125

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

Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
145 150 155 160

Asp Ala Ser Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
165 170 175

colf-seq1

Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp
180 185 190

Leu Ala Ala Ser Asp Ile Lys Pro Asp Lys Lys Arg His Ala Val Ile
195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

Glu Thr Ala Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
245 250 255

<210> 20
<211> 255
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 20

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Phe Gln Thr Glu
100 105 110

Gln Ile Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln
115 120 125

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

eof-seq1

Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
145 150 155 160

Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
165 170 175

Gly Asn Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp
180 185 190

Leu Ala Ala Ala Asp Ile Lys Pro Asp Gly Lys Arg His Ala Val Ile
195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Gly Lys Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

Lys Thr Val Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
245 250 255

<210> 21
<211> 263
<212> PRT
<213> Neisseria meningitidis (group B)

<400> 21

Cys Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Ala Ala Asp
1 5 10 15

Ile Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys
20 25 30

Asp Lys Gly Leu Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn
35 40 45

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

Gly Asp Lys Asp Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys
65 70 75 80

Ile Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu
85 90 95

Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser
100 105 110

eof-seq1

Ala Leu Thr Ala Leu Gln Thr Glu Gln Val Gln Asp Ser Glu His Ser
115 120 125

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

Glu His Thr Ser Phe Gly Lys Leu Pro Lys Asp Val Met Ala Thr Tyr
145 150 155 160

Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr
165 170 175

Thr Ile Asp Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu
180 185 190

Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala Ala Asp Ile Lys Pro
195 200 205

Asp Glu Lys His His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln
210 215 220

Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe Gly Gly Gln Ala Gln
225 230 235 240

Glu Val Ala Gly Ser Ala Glu Val Glu Thr Ala Asn Gly Ile Arg His
245 250 255

Ile Gly Leu Ala Ala Lys Gln
260

<210> 22
<211> 26
<212> DNA
<213> Artificial

<220>
<223> synthetic nucleotide sequence: Forward primer

<400> 22
tgccatatga gcagcggaag cggaag

26

<210> 23
<211> 27
<212> DNA
<213> Artificial

<220>
<223> synthetic nucleotide sequence: Reverse primer

<400> 23
cggatcccta ctgtttgccg gcgatgc

27

eolf-seq1

<210> 24
 <211> 49
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic nucleotide sequence: Forward primer

 <400> 24
 tttcttcccg ggaaggagat atacatatgt gcagcagcgg aggcggcgg 49

 <210> 25
 <211> 38
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic nucleotide sequence: Reverse primer

 <400> 25
 tttcttgctc agcattattg cttggcggca agaccgat 38

 <210> 26
 <211> 46
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic nucleotide sequence: Forward primer

 <400> 26
 tttcttcccg ggaaggagat atacatatga gcagcggagg cggcgg 46

 <210> 27
 <211> 38
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic nucleotide sequence: Reverse primer

 <400> 27
 tttcttgctc agcattattg cttggcggca agaccgat 38

 <210> 28
 <211> 36
 <212> DNA
 <213> Artificial

 <220>
 <223> Synthetic nucleotide sequence

 <400> 28
 atgagctctg gaggtggagg aagcgggggc ggtgga 36

 <210> 29

eolf-seq1

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

<220>
 <223> Synthetic amino acid sequence

<400> 29

Met Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
 1 5 10

<210> 30
 <211> 33
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 30
 atgagctctg gaagcggaag cgggggcggt gga

33

<210> 31
 <211> 11
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 31

Met Ser Ser Gly Ser Gly Ser Gly Gly Gly Gly
 1 5 10

<210> 32
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 32
 atgagctctg gaggtggagg a

21

<210> 33
 <211> 7
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 33

Met Ser Ser Gly Gly Gly Gly
 1 5

eof-seq1

<210> 34
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic nucleotide sequence

<400> 34
 atgagcagcg ggggcggtgg a

21

<210> 35
 <211> 28
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 35

Cys Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Thr Ala Asp
 1 5 10 15

Ile Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro
 20 25

<210> 36
 <211> 28
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 36

Cys Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Ala Ala Asp
 1 5 10 15

Ile Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro
 20 25

<210> 37
 <211> 27
 <212> PRT
 <213> Neisseria meningitidis (group B)

<400> 37

Cys Ser Ser Gly Ser Gly Ser Gly Gly Gly Gly Val Ala Ala Asp Ile
 1 5 10 15

Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro
 20 25

<210> 38
 <211> 23
 <212> PRT
 <213> Neisseria meningitidis (group B)

eof-seq1

<400> 38

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro
20

<210> 39

<211> 23

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 39

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Val Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro
20

<210> 40

<211> 23

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 40

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro
20

<210> 41

<211> 15

<212> PRT

<213> Artificial

<220>

<223> Synthetic amino acid sequence

<220>

<221> MISC_FEATURE

<222> (15)..(15)

<223> X is G or V

<400> 41

Met Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Xaa
1 5 10 15

<210> 42

<211> 45

eof-seq1

<212> DNA
<213> Artificial

<220>
<223> Synthetic nucleotide sequence

<400> 42
atgagcagcg gaggcggcgg tgcgccgcc gacatcggcg cgggg 45

<210> 43
<211> 789
<212> DNA
<213> Artificial

<220>
<223> Synthetic nucleotide sequence

<400> 43
agctctggag gtggaggaag cgggggagggt ggagttgcag cagacattgg agcaggatta 60
gcagatgcac tgacggcacc gttggatcat aaagacaaag gcttgaaatc gcttacctta 120
gaagattcta tttcacaaaa tggcaccctt accttgtccg cgcaaggcgc tgaacgtact 180
tttaaagccg gtgacaaaaga taatagctta aatacaggta aactcaaaaa tgataaaatc 240
tcgcgttttg atttcattcg tcaaatcgaa gtagatggcc aacttattac attagaaagc 300
ggtgaattcc aagtatataa acaatcccat tcagcactta cagcattgca aaccgaacag 360
gtccaagact cagaacattc cggcaaaatg gtagctaaac gtcaattccg catcggtgac 420
attgtcggtg aacatacaag cttcggaaaa ttaccaaag atgtgatggc gacctatcgc 480
ggtacggcat ttggatcaga tgatgcaggc ggtaaattaa cttatacaat tgactttgca 540
gcaaaacaag gacatggcaa aattgaacat ttaaatactc ccgaacttaa cgtagatctc 600
gcagcagcag atattaaacc agatgaaaaa caccacgcag tcatttcagg ttcagtttta 660
tacaatcagg cagaaaaagg ttcgtactct ttaggtatatt ttggcgggca agctcaagaa 720
gttgcaggta gcgcagaagt agaaacggca aatggcattc gtcacattgg gttagcggcg 780
aaacaataa 789

<210> 44
<211> 262
<212> PRT
<213> Artificial

<220>
<223> Synthetic amino acid sequence

<400> 44
Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Ala Ala Asp Ile
1 5 10 15

Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp

eolf-seq1

<210> 45
<211> 780
<212> DNA
<213> Artificial

<220>
<223> Synthetic nucleotide sequence

<400> 45
agctctggag gtggaggaag cgggggcggt ggagttgcag cagacattgg agcaggatta 60
gcagatgcac tgacggcacc gttggatcat aaagacaaag gcttgcatgc gcttacctta 120
gatcagtctg tcaggaaaaa tgagaaactt aagttggcgg cgcaaggcgc tgaaaaaact 180
tatggaaacg gtgacagctt aaatacaggt aaactcaaaa atgataaagt ctgcgcgtttt 240
gatttcattc gtcaaatcga agtagatggc aagcttatta cattagaaag cggatgaattc 300
caagtatata aacaatccca ttacgacctt acagcattgc aaaccgaaca ggtccaagac 360
tcagaagatt ccggcaaaat ggtagctaaa cgtcaattcc gcatcgggtg cattgcgggt 420
gaacatacaa gtttcgacaa attacaaaaa ggcggcagtg cgacctatcg cggtagcgga 480
tttgatcag atgatgcagg cggtaaatta acttatacaa ttgactttgc agcaaaacaa 540
ggacatggca aaattgaaca tttaaaatct cccgaactta acgtagagct cgcaaccgca 600
tatattaaac cagatgaaaa acgccacgca gtcatttcag gttcagtttt atacaatcag 660
gacgaaaaag gttcgtactc tttaggtatt tttggcgggc aagctcaaga agttgcaggt 720
agcgcagaag tagaaacggc aaatggcatt caccacattg ggtagcggc gaaacaataa 780

<210> 46
<211> 765
<212> DNA
<213> Artificial

<220>
<223> Synthetic nucleotide sequence

<400> 46
agctctggag gtggaggagt tgcagcagac attggagcag gattagcaga tgcactgacg 60
gcaccgttgg atcataaaga caaaggcttg cagtcgctta ccttagatca gtctgtcagg 120
aaaaatgaga aacttaagtt ggcggcgcaa ggcgctgaaa aaacttatgg aaacggtgac 180
agcttaataa caggtaaact caaaaatgat aaagtctcgc gttttgattt cattcgtcaa 240
atcgaagtag atggcaagct tattacatta gaaagcgggtg aattccaagt atataaacia 300
tcccattcag cacttacagc attgcaaacc gaacagggtcc aagactcaga agattccggc 360
aaaatggtag ctaaactgca attccgcacg ggtgacattg cgggtgaaca tacaagcttc 420
gacaaattac caaaggcggc cagtgcgacc tatcgcggtg cggcatttgg atcagatgat 480
gcaggcggta aattaactta tacaattgac tttgcagcaa aacaaggaca tggcaaaatt 540

eol-f-seq1

gaacatttaa aatctccga acttaacgta gagctcgcaa ccgcatatat taaaccagat	600
gaaaaacgcc acgcagtcac ttcagggttca gttttataca atcaggacga aaaagggttcg	660
tactcttttag gtatttttgg cgggcaagct caagaagttg caggtagcgc agaagtagaa	720
acggcaaatg gcattcacca cattgggtta gcggcgaaac aataa	765

<210> 47
 <211> 765
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 47	
agcagcgggg gcggtggagt tgcagcagac attggagcag gattagcaga tgcactgacg	60
gcaccgttgg atcataaaga caaaggcttg cagtcgctta ccttagatca gtctgtcagg	120
aaaaatgaga aacttaagtt ggcggcgcaa ggcgctgaaa aaacttatgg aaacggtgac	180
agcttaataa caggtaaact caaaaatgat aaagtctcgc gttttgattt cattcgtcaa	240
atcgaagtag atggcaagct tattacatta gaaagcgggtg aattccaagt atataaacia	300
tcccattcag cacttacagc attgcaaacc gaacagggtcc aagactcaga agattccggc	360
aaaatggtag ctaaacgtca attccgcacg ggtgacattg cgggtgaaca tacaagcttc	420
gacaaattac caaaggcggt cagtgcgacc tatcgcggtg cggcatttgg atcagatgat	480
gcaggcggta aattaactta tacaattgac tttgcagcaa aacaaggaca tggcaaaatt	540
gaacatttaa aatctccga acttaacgta gagctcgcaa ccgcatatat taaaccagat	600
gaaaaacgcc acgcagtcac ttcagggttca gttttataca atcaggacga aaaagggttcg	660
tactcttttag gtatttttgg cgggcaagct caagaagttg caggtagcgc agaagtagaa	720
acggcaaatg gcattcacca cattgggtta gcggcgaaac aataa	765

<210> 48
 <211> 765
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 48	
agcagcggag ggggcggtgt cgccgccgac atcgggtgcgg ggcttgccga tgcactaacc	60
gcaccgctcg accataaaga caaagggttg cagtctttaa cactggatca gtccgtcagg	120
aaaaacgaga aactgaagct ggcggcacaa ggtgcggaaa aaacttatgg aaacggcgac	180
agccttaata cgggcaaatt gaagaacgac aaggctcagcc gcttcgactt tatccgtcaa	240
atcgaagtgg acgggaagct cattaccttg gagagcggag agttccaagt gtacaaacia	300

eo1f-seq1

agccattccg ccttaaccgc ccttcagacc gagcaagtac aagactcgga ggattccggg	360
aagatgggtt cgaaacgcca gttcagaatc ggcgacatag cgggcgaaca tacatctttt	420
gacaagcttc ccaaaggcgg cagtgcgaca tatcgcgga cggcgttcgg ttcagacgat	480
gctggcggaa aactgaccta tactatagat ttcgccgcca agcagggaca cggcaaaatc	540
gaacatttga aatcgcccga actcaatgtc gagcttgcca ccgcctatat caagccggat	600
gaaaaacgcc atgccgttat cagcggttcc gtcctttaca accaagacga gaaaggcagt	660
tactccctcg gtatcttttg cgggcaagcc caggaagttg ccggcagcgc ggaagtggaa	720
accgcaaacg gcatacacca tatcggtctt gccgccaagc agtaa	765

<210> 49
 <211> 254
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 49

Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu Ala
 1 5 10 15

Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln Ser
 20 25 30

Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala
 35 40 45

Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr
 50 55 60

Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln
 65 70 75 80

Ile Glu Val Asp Gly Lys Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln
 85 90 95

Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu Gln
 100 105 110

Val Gln Asp Ser Glu Asp Ser Gly Lys Met Val Ala Lys Arg Gln Phe
 115 120 125

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

eolf-seq1

Lys Gly Gly Ser Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp
145 150 155 160

Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
165 170 175

His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Glu Leu
180 185 190

Ala Thr Ala Tyr Ile Lys Pro Asp Glu Lys Arg His Ala Val Ile Ser
195 200 205

Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly Ser Tyr Ser Leu Gly
210 215 220

Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser Ala Glu Val Glu
225 230 235 240

Thr Ala Asn Gly Ile His His Ile Gly Leu Ala Ala Lys Gln
245 250

<210> 50
<211> 259
<212> PRT
<213> Artificial

<220>
<223> synthetic amino acid sequence

<400> 50

Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Ala Ala Asp Ile
1 5 10 15

Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp
20 25 30

Lys Gly Leu Gln Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu
35 40 45

Lys Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly
50 55 60

Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe
65 70 75 80

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

eolf-seq1

Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala
100 105 110

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

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

Phe Asp Lys Leu Pro Lys Gly Gly Ser Ala Thr Tyr Arg Gly Thr Ala
145 150 155 160

Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe
165 170 175

Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu
180 185 190

Leu Asn Val Glu Leu Ala Thr Ala Tyr Ile Lys Pro Asp Glu Lys Arg
195 200 205

His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly
210 215 220

Ser Tyr Ser Leu Gly Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly
225 230 235 240

Ser Ala Glu Val Glu Thr Ala Asn Gly Ile His His Ile Gly Leu Ala
245 250 255

Ala Lys Gln

<210> 51
<211> 789
<212> DNA
<213> Artificial

<220>
<223> Synthetic nucleotide sequence

<400> 51
agcagcggag gcggcggaag cggaggcggc ggtgtcgccg ccgacatcgg cgcggggctt 60
gccgatgcac taaccgcacc gctcgaccat aaagacaaag gtttgaaatc cctgacattg 120
gaagactcca tttcccaaaa cggaacactg accctgtcgg cacaaggtgc ggaaagaact 180
ttcaaagccg gcgacaaaaga caacagtctc aacacaggca aactgaagaa cgacaaaatc 240
agccgcttcg actttatccg tcaaatcgaa gtggacgggc agctcattac cttggagagc 300

eolf-seq1

ggagagttcc aagtgtacaa acaaagccat tccgccttaa ccgcccttca gaccgagcaa	360
gtacaagact cggagcattc cgggaagatg gttgcgaaac gccagttcag aatcggcgac	420
atagtgggcg aacatacatc ttttggcaag cttcccaaag acgtcatggc gacatatcgc	480
gggacggcgt tcggttcaga cgatgccggc ggaaaactga cctacaccat agatttcgcc	540
gccaagcagg gacacggcaa aatcgaacat ttgaaatcgc cagaactcaa tgttgacctg	600
gccgccgccg atatcaagcc ggatgaaaaa caccatgccg tcacagcgg ttccgtcctt	660
tacaaccaag ccgagaaagg cagttactct ctaggcattt ttggcgggca agcccaggaa	720
gttgccggca gcgcggaagt ggaaaccgca aacggcatac gccatatcgg tcttgccgcc	780
aagcaataa	789

<210> 52
 <211> 45
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 52	
atgagcagcg gaggcggcgg tgtcgccgcc gacatcggcg cggtg	45

<210> 53
 <211> 45
 <212> DNA
 <213> Artificial

<220>
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<400> 53	
atgagcagcg gagggggcgg tgtcgccgcc gacatcggcg cgggg	45

<210> 54
 <211> 783
 <212> DNA
 <213> Artificial

<220>
 <223> Synthetic nucleotide sequence

<400> 54	
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gatgcactaa ctgcgccgct cgaccataaa gacaaagggt tgaaatccct gacattggaa	120
gactccattt cccaaaacgg aacactgacc ctgtcggcac aagggtgcgga aaaaactttc	180
aaagtcggcg acaaagacaa cagtctcaat acaggcaaat tgaagaacga caaaatcagc	240
cgcttcgact ttgtgcaaaa aatcgaagtg gacggacaaa ccatcacgct ggcaagcggc	300
gaatttcaaa tatacaaaca ggaccactcc gccgtcgttg ccctacagat tgaaaaaatc	360

eo1f-seq1

aacaaccccg acaaaatcga cagcctgata aaccaacgct ccttccttgt cagcggtttg	420
ggcggagaac ataccgcctt caaccaactg cccagcggca aagccgagta tcacggcaaa	480
gcattcagct ccgacgatgc cggcggaaaa ctgacctata ccatagattt tgccgcaaaa	540
cagggacacg gcaaaatcga acacctgaaa acacccgagc agaatgtcga gcttgcctcc	600
gccgaactca aagcagatga aaaatcacac gccgtcattt tgggcgacac gcgctacggc	660
agcgaagaaa aaggcactta ccacctcgct cttttcggcg accgagccca agaaatcgcc	720
ggctcggcaa ccgtgaagat aagggaaaag gttcacgaaa tcggcatcgc cggcaaacag	780
tag	783

<210> 55
 <211> 260
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 55

Ser	Ser	Gly	Ser	Gly	Ser	Gly	Gly	Gly	Gly	Val	Ala	Ala	Asp	Ile	Gly	1	5	10	15
Thr	Gly	Leu	Ala	Asp	Ala	Leu	Thr	Ala	Pro	Leu	Asp	His	Lys	Asp	Lys	20	25	30	
Gly	Leu	Lys	Ser	Leu	Thr	Leu	Glu	Asp	Ser	Ile	Ser	Gln	Asn	Gly	Thr	35	40	45	
Leu	Thr	Leu	Ser	Ala	Gln	Gly	Ala	Glu	Lys	Thr	Phe	Lys	Val	Gly	Asp	50	55	60	
Lys	Asp	Asn	Ser	Leu	Asn	Thr	Gly	Lys	Leu	Lys	Asn	Asp	Lys	Ile	Ser	65	70	75	80
Arg	Phe	Asp	Phe	Val	Gln	Lys	Ile	Glu	Val	Asp	Gly	Gln	Thr	Ile	Thr	85	90	95	
Leu	Ala	Ser	Gly	Glu	Phe	Gln	Ile	Tyr	Lys	Gln	Asp	His	Ser	Ala	Val	100	105	110	
Val	Ala	Leu	Gln	Ile	Glu	Lys	Ile	Asn	Asn	Pro	Asp	Lys	Ile	Asp	Ser	115	120	125	
Leu	Ile	Asn	Gln	Arg	Ser	Phe	Leu	Val	Ser	Gly	Leu	Gly	Gly	Glu	His	130	135	140	

eolf-seq1

Thr Ala Phe Asn Gln Leu Pro Ser Gly Lys Ala Glu Tyr His Gly Lys
 145 150 155 160

Ala Phe Ser Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp
 165 170 175

Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Thr Pro
 180 185 190

Glu Gln Asn Val Glu Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys
 195 200 205

Ser His Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu Glu Lys
 210 215 220

Gly Thr Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala
 225 230 235 240

Gly Ser Ala Thr Val Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile
 245 250 255

Ala Gly Lys Gln
 260

<210> 56
 <211> 5
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 56

Ser Gly Gly Gly Gly
 1 5

<210> 57
 <211> 259
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 57

Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Thr Ala Asp Ile
 1 5 10 15

Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp
 20 25 30

eof-seq1

Lys Gly Leu Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn Gly
 35 40 45
 Thr Leu Thr Leu Ser Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly
 50 55 60
 Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe
 65 70 75 80
 Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu Ile Thr Leu Glu
 85 90 95
 Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala
 100 105 110
 Leu Gln Thr Glu Gln Glu Gln Asp Pro Glu His Ser Glu Lys Met Val
 115 120 125
 Ala Lys Arg Arg Phe Arg Ile Gly Asp Ile Ala Gly Glu His Thr Ser
 130 135 140
 Phe Asp Lys Leu Pro Lys Asp Val Met Ala Thr Tyr Arg Gly Thr Ala
 145 150 155 160
 Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe
 165 170 175
 Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu
 180 185 190
 Leu Asn Val Asp Leu Ala Val Ala Tyr Ile Lys Pro Asp Glu Lys His
 195 200 205
 His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys Gly
 210 215 220
 Ser Tyr Ser Leu Gly Ile Phe Gly Glu Lys Ala Gln Glu Val Ala Gly
 225 230 235 240
 Ser Ala Glu Val Glu Thr Ala Asn Gly Ile His His Ile Gly Leu Ala
 245 250 255
 Ala Lys Gln

eolf-seq1

<211> 260

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 58

Cys Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Thr Ala Asp
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Ile Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys
20 25 30

Asp Lys Gly Leu Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn
35 40 45

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

Gly Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg
65 70 75 80

Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln Leu Ile Thr Leu
85 90 95

Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr
100 105 110

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

Val Ala Lys Arg Arg Phe Arg Ile Gly Asp Ile Ala Gly Glu His Thr
130 135 140

Ser Phe Asp Lys Leu Pro Lys Asp Val Met Ala Thr Tyr Arg Gly Thr
145 150 155 160

Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp
165 170 175

Phe Ala Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Ser Pro
180 185 190

Glu Leu Asn Val Asp Leu Ala Val Ala Tyr Ile Lys Pro Asp Glu Lys
195 200 205

His His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn Gln Asp Glu Lys
210 215 220

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

eolf-seq1

225		230		235		240
Gly Ser Ala Glu Val 245	Glu Thr Ala Asn Gly Ile His His Ile Gly Leu 250 255					
Ala Ala Lys Gln 260						
<210>	59					
<211>	255					
<212>	PRT					
<213>	Neisseria meningitidis (group B)					
<400>	59					
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Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln 20 25 30						
Ser Leu Ile Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu 35 40 45						
Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn 50 55 60						
Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg 65 70 75 80						
Gln Ile Glu Val Asp Gly Gln Leu Ile Thr Leu Glu Ser Gly Glu Phe 85 90 95						
Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu 100 105 110						
Gln Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln 115 120 125						
Phe Arg Ile Gly Asp Ile Ala Gly Glu His Thr Ser Phe Asp Lys Leu 130 135 140						
Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Ser Ser Asp 145 150 155 160						
Asp Ala Gly Gly Lys Leu Ile Tyr Thr Ile Asp Phe Ala Ala Lys Gln 165 170 175						
Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp						

oolf-seq1

180

185

190

Leu Ala Ala Ala Asp Ile Lys Pro Asp Glu Lys His His Ala Val Ile
195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu
210 215 220

Gly Ile Phe Gly Gly Lys Ala Gln Glu Val Ala Gly Ser Ala Glu Val
225 230 235 240

Lys Thr Val Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
245 250 255

<210> 60

<211> 255

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 60

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
100 105 110

Gln Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln
115 120 125

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

Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp

eolf-seq1
155

145 150 160

Asp Ala Ser Gly Lys₁₆₅ Leu Thr Tyr Thr Ile₁₇₀ Asp Phe Ala Ala Lys₁₇₅ Gln

Gly His Gly Lys₁₈₀ Ile Glu His Leu Lys₁₈₅ Ser Pro Glu Leu Asn Val₁₉₀ Asp

Leu Ala Ala₁₉₅ Ser Asp Ile Lys Pro₂₀₀ Asp Lys Lys Arg His₂₀₅ Ala Val Ile

Ser Gly₂₁₀ Ser Val Leu Tyr Asn₂₁₅ Gln Ala Glu Lys Gly₂₂₀ Ser Tyr Ser Leu

Gly Ile Phe Gly Gly Gln₂₃₀ Ala Gln Glu Val Ala₂₃₅ Gly Ser Ala Glu Val₂₄₀

Glu Thr Ala Asn Gly₂₄₅ Ile Arg His Ile Gly₂₅₀ Leu Ala Ala Lys Gln₂₅₅

<210> 61
 <211> 768
 <212> DNA
 <213> Artificial

<220>
 <223> synthetic nucleic acid sequence

<400> 61
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 aggaaaaacg agaaactgaa gctggcggca caagggtgcg aaaaaactta tggaaacggc 180
 gacagcctca atacgggcaa attgaagaac gacaagggtca gccgcttcga ctttatccgt 240
 caaatcgaag tggacgggca gctcattacc ttggagagcg gagagttcca agtgtacaaa 300
 caaagccatt ccgccttaac cgcccttcag accgagcaag tacaagattc ggagcattca 360
 ggggaagatgg ttgcgaaacg ccagttcaga atcggcgata tagcgggtga acatacatct 420
 tttgacaagc ttcccgaagg cggcagggcg acatatcgcg ggacggcatt cggttcagac 480
 gatgccagtg gaaaactgac ctacaccata gatttcgccg ccaagcaggg acacggcaaa 540
 atcgaacatt tgaaatcgcc agaactcaat gttgacctgg ccgcctccga tatcaagccg 600
 gataaaaaac gccatgccgt catcagcggg tccgtccttt acaaccaagc cgagaaaggc 660
 agttactctc taggcattct tggcgggcaa gccaggaag ttgccggcag cgcagaagtg 720
 gaaaccgcaa acggcatacg ccatatcggt cttgccgcca agcagtaa 768

eo1f-seq1

<210> 62
 <211> 255
 <212> PRT
 <213> Artificial

<220>
 <223> Synthetic amino acid sequence

<400> 62

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Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln
 20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
 35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
 50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
 65 70 75 80

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

Gln Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu
 100 105 110

Gln Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln
 115 120 125

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

Pro Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp
 145 150 155 160

Asp Ala Ser Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
 165 170 175

Gly His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp
 180 185 190

Leu Ala Ala Ser Asp Ile Lys Pro Asp Lys Lys Arg His Ala Val Ile
 195 200 205

Ser Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu

eolf-seq1

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Ile Tyr Lys Gln Asp His Ser Ala Val Val Ala Leu Gln Ile Glu
100 105 110

Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn Gln Arg Ser
115 120 125

Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln Leu
130 135 140

Pro Ser Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp
145 150 155 160

Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
165 170 175

His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu
180 185 190

Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu
195 200 205

Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu Ala
210 215 220

Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val Lys
225 230 235 240

Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
245 250

<210> 65
<211> 786
<212> DNA
<213> Artificial Sequence

eolf-seq1

<220>

<223> Synthetic nucleic acid sequence

<400> 65

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gaagattcta tttcacaaaa tggcaccctt accttgtccg cgcaaggcgc tgaaaaaact      180
tttaaagtcg gtgacaaaga taatagctta aatacaggta aactcaaaaa tgataaaatc      240
tcgcgttttg atttcgtgca aaaaatcgaa gtagatggcc aaaccattac attagcaagc      300
ggtgaattcc aaatatataa acaagaccat tcagcagtcg ttgcattgca aattgaaaaa      360
atcaacaacc cgcacaaaat cgacagcctg ataaaccaac gttccttcct tgtcagcggt      420
ttgggcggtg aacatacagc cttcaaccaa ttaccaagcg gcaaagcgga gtatcacggt      480
aaagcattta gtcagatga tgcaggcggt aaattaactt atacaattga ctttgcagca      540
aaacaaggac atggcaaaat tgaacattta aaaacacccg aacagaacgt agagctcgca      600
tccgcagaac tcaaagcaga tgaaaaatca cacgcagtca ttttgggtga cacgcgctac      660
ggcagcgaag aaaaaggtag ttaccactta gctctttttg gcgaccgagc tcaagaaatc      720
gcaggtagcg caaccgtaaa gataagggaa aagggttcacg aaattgggat cgcgggcaaa      780
caataa                                           786

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<210> 66

<211> 258

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic amino acid sequence

<400> 66

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Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Val Ala Ala Asp Ile
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Gly Ala Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp
20     25     30
Lys Ser Leu Gln Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu
35     40     45
Lys Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly
50     55     60
Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe
65     70     75     80

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eolf-seq1

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

Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asn His Ser Ala Val Val Ala
100 105 110

Leu Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile
115 120 125

Asn Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala
130 135 140

Phe Asn Gln Leu Pro Asp Gly Lys Ala Glu Tyr His Gly Lys Ala Phe
145 150 155 160

Ser Ser Asp Asp Pro Asn Gly Arg Leu His Tyr Ser Ile Asp Phe Thr
165 170 175

Lys Lys Gln Gly Tyr Gly Arg Ile Glu His Leu Lys Thr Pro Glu Gln
180 185 190

Asn Val Glu Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His
195 200 205

Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr
210 215 220

Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser
225 230 235 240

Ala Thr Val Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly
245 250 255

Lys Gln

<210> 67
<211> 780
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic nucleic acid sequence

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ttagatcagt ctgtcaggaa aaatgagaaa cttaagttgg cggcgcaagg cgctgaaaaa	180

eolf-seq1

acttatggaa acggtgacag cttaaataca ggtaaactca aaaatgataa agtctcgcgt	240
tttgatttca ttcgtcaaat cgaagtagat ggccaaacca ttacattagc aagcggtgaa	300
ttccaaatat ataaacaaaa ccattcagca gtcgttgcac tgcaaattga aaaaatcaac	360
aaccccgaca aaatcgacag cctgataaac caacgttcct tccttgtcag cggtttgggc	420
ggtgaacata cagccttcaa ccaattacca gacggcaaag cggagtatca cggtaaagca	480
tttagctcag atgatccgaa cggtaggtta cactattcca ttgactttac caaaaaacaa	540
ggatacggca gaattgaaca tttaaaaacg cccgaacaga acgtagagct cgcacccgca	600
gaactcaaag cagatgaaaa atcacacgca gtcatttttg gtgacacgcg ctacggcggc	660
gaagaaaaag gtacttacca cttagccctt tttggcgacc gcgtcaaga aatcgcaggt	720
agcgcaaccg taaagataag ggaaaagggt cacgaaattg ggatcgcggg caaacaataa	780

<210> 68
 <211> 253
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic amino acid sequence

<400> 68

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

eolf-seq1

Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe Asn Gln Leu Pro
130 135 140

Ser Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser Ser Asp Asp Ala
145 150 155 160

Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly His
165 170 175

Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu Ala
180 185 190

Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu Gly
195 200 205

Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu Ala Leu
210 215 220

Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val Lys Ile
225 230 235 240

Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
245 250

<210> 69
<211> 765
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic nucleic acid sequence

<400> 69
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aggaaaaatg agaaacttaa gttggcggcg caaggcgctg aaaaaactta tggaaacggg 180
gacagcttaa atacaggtaa actcaaaaat gataaagtct cgcgttttga tttcattcgt 240
caaatcgaag tagatggcca acttattaca ttagaaaagcg gtgaattcca aatatataaa 300
caagaccatt cagcagtcgt tgcattgcaa attgaaaaaa tcaacaacc cgacaaaatc 360
gacagcctga taaaccaacg ttccttcctt gtcagcgggt tgggcgggtga acatacagcc 420
ttcaaccaat taccaagcgg caaagcggag taccacggta aagcatttag ctcagatgat 480
gcaggcggta aattaactta tacaattgac ttgcagcaa aacaaggaca tggcaaaatt 540
gaacatttaa aaacacccga acagaacgta gagctcgcat ccgcagaact caaagcagat 600
gaaaaatcac acgcagtcat tttgggtgac acgcgctacg gcggcgaaga aaaaggtact 660

eolf-seq1

taccacttag ctctttttgg cgaccgagct caagaaatcg caggtagcgc aaccgtaaag	720
ataagggaaa aggttcacga aattgggatc gcgggcaaac aataa	765

<210> 70
 <211> 255
 <212> PRT
 <213> *Neisseria meningitidis* (group B)
 <400> 70

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

eolf-seq1

Leu Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu
210 215 220

Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val
225 230 235 240

Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
245 250 255

<210> 71
<211> 254
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic amino acid sequence

<400> 71

Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu Ala
1 5 10 15

Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln Ser
20 25 30

Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala
35 40 45

Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr
50 55 60

Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln
65 70 75 80

Ile Glu Val Asp Gly Lys Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln
85 90 95

Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu Gln
100 105 110

Val Gln Asp Ser Glu Asp Ser Gly Lys Met Val Ala Lys Arg Gln Phe
115 120 125

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

Lys Gly Gly Ser Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp
145 150 155 160

eolf-seq1
 Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
 165 170 175
 His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu Leu
 180 185 190
 Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile Leu
 195 200 205
 Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu Ala
 210 215 220
 Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val Lys
 225 230 235 240
 Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
 245 250

<210> 72
 <211> 768
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic nucleic acid sequence

<400> 72
 atgagcagcg gagggggcgg tgctgccgcc gacatcggtg cggggcttgc cgatgcacta 60
 accgcaccgc tcgaccataa agacaaaggt ttgcagtctt taacgctgga tcagtccgtc 120
 aggaaaaacg agaaactgaa gctggcgcca caaggtgcgg aaaaaactta tggaaacggc 180
 gacagcctta atacgggcaa attgaagaac gacaaggcca gccgcttcga ctttatccgt 240
 caaatcgaag tggacgggaa gctcattacc ttggagagcg gagagttcca agtgtacaaa 300
 caaagccatt ccgccttaac cgcccttcag accgagcaag tacaagactc ggaggattcc 360
 gggaagatgg ttgcgaaacg ccagttcaga atcggcgaca tagcgggcga acatacatct 420
 tttgacaagc ttcccaaagg cggcagtgcg acatatcgcg ggacggcggtt cggttcagac 480
 gatgctggcg gaaaactgac ctatactata gatttcgccg ccaaacaggg acacggcaaa 540
 atcgaacact tgaaaacacc cgagcaaaat gtcgagcttg cctccgccga actcaaagca 600
 gatgaaaaat cacacgccgt cattttgggc gacacgcgct acggcggcga agaaaaaggc 660
 acttaccacc tcgccctttt cggcgaccgc gcccaagaaa tcgccggctc ggcaaccgtg 720
 aagataaggg aaaaggttca cgaaatcggc atcgccggca aacagtaa 768

<210> 73
 <211> 786
 <212> DNA

eolf-seq1

<213> Artificial Sequence

<220>

<223> Synthetic nucleic acid sequence

<400> 73

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atgtccagcg gttcaggcag cggcgggtgga ggcgtggcag cagatatcgg aacaggttta      60
gcagatgctc tgacagcacc cttagatcac aaagacaaag gacttaaadc actgacattg      120
gaagattcta tctcgcaaaa tgggtactctc actcttttcag cccaaggcgc agaaaaaaca      180
tttaaagtag gcgataaaga taactcctta aatacaggta aattaaaaaa tgacaaaadc      240
tcacggtttg atttcgttca gaaaattgaa gtagatggac aaacgattac attagcaagc      300
ggcgaattcc aaatttataa acaagaccat tcagcagtag tagcattaca aatcgaaaaa      360
attaacaacc cggacaaaat tgattctctt attaaccaac gctcttttct cgtatcagga      420
cttggtggtg aacatacagc gtttaatcaa ctgccgtcag gaaaagcaga atatcatggt      480
aaagcatttt catcagacga cgcagggtggc aaactgacct atactattga ctttgacgca      540
aaacagggac atggaaaaat tgaacattta aaaacacccg aacagaacgt agaactggcc      600
tcagcagaat tgaaagctga tgaaaaatcc catgcagtaa ttttaggcga tacacgttac      660
ggtagcgaag aaaaaggtag atatacctta gctctttttg gcgatcgtgc tcaagaaatt      720
gctggttccg caacagttaa aatccgtgaa aaagtacatg aaatcggcat tgcaggtaaa      780
caataa                                         786
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<210> 74

<211> 262

<212> PRT

<213> Neisseria meningitidis (group B)

<400> 74

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Cys Ser Ser Gly Gly Gly Ser Gly Gly Gly Val Ala Ala Asp
1      5      10      15

Ile Gly Thr Gly Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys
20     25     30

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

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

Gly Asp Lys Asp Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys
65     70     75     80

Ile Ser Arg Phe Asp Phe Val Gln Lys Ile Glu Val Asp Gly Gln Thr
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eolf-seq1

85 90 95

Ile Thr Leu Ala Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asn His Ser
 100 105 110

Ala Val Val Ala Leu Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile
 115 120 125

Asp Ser Leu Ile Asn Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly
 130 135 140

Glu His Thr Ala Phe Asn Gln Leu Pro Gly Asp Lys Ala Glu Tyr His
 145 150 155 160

Gly Lys Ala Phe Ser Ser Asp Asp Pro Asn Gly Arg Leu His Tyr Thr
 165 170 175

Ile Asp Phe Thr Asn Lys Gln Gly Tyr Gly Arg Ile Glu His Leu Lys
 180 185 190

Thr Pro Glu Leu Asn Val Asp Leu Ala Ser Ala Glu Leu Lys Ala Asp
 195 200 205

Glu Lys Ser His Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu
 210 215 220

Glu Lys Gly Thr Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu
 225 230 235 240

Ile Ala Gly Ser Ala Thr Val Lys Ile Gly Glu Lys Val His Glu Ile
 245 250 255

Gly Ile Ala Gly Lys Gln
 260

<210> 75
 <211> 254
 <212> PRT
 <213> Artificial sequence

<220>
 <223> synthetic amino acid sequence

<400> 75

Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Val Leu Ala
 1 5 10 15

Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Ser Leu Gln Ser
 20 25 30

eof-seq1

Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala
35 40 45

Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr
50 55 60

Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln
65 70 75 80

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

Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Leu Gln Thr Glu Gln
100 105 110

Val Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln Phe
115 120 125

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

Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp
145 150 155 160

Ala Ser Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
165 170 175

His Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp Leu
180 185 190

Ala Ala Ser Asp Ile Lys Pro Asp Lys Lys Arg His Ala Val Ile Ser
195 200 205

Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly
210 215 220

Ile Phe Gly Gly Gln Ala Gln Glu Val Ala Gly Ser Ala Glu Val Glu
225 230 235 240

Thr Ala Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
245 250

<210> 76
<211> 258
<212> PRT
<213> Artificial Sequence

eof-seq1

<220>

<223> Synthetic amino acid sequence

<400> 76

Cys Gly Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Thr Gly
1 5 10 15

Leu Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu
20 25 30

Lys Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn Gly Thr Leu Thr
35 40 45

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

Asn Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Ile Ser Arg Phe
65 70 75 80

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

Ser Gly Glu Phe Gln Ile Tyr Lys Gln Asp His Ser Ala Val Val Ala
100 105 110

Leu Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile
115 120 125

Asn Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala
130 135 140

Phe Asn Gln Leu Pro Ser Gly Lys Ala Glu Tyr His Gly Lys Ala Phe
145 150 155 160

Ser Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala
165 170 175

Ala Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln
180 185 190

Asn Val Glu Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His
195 200 205

Ala Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu Glu Lys Gly Thr
210 215 220

Tyr His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser
225 230 235 240

eolf-seq1

Ala Thr Val Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly
245 250 255

Lys Gln

<210> 77
<211> 257
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic amino acid sequence

<400> 77

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

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Lys
20 25 30

Ser Leu Thr Leu Glu Asp Ser Ile Ser Gln Asn Gly Thr Leu Thr Leu
35 40 45

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

Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp Lys Ile Ser Arg Phe Asp
65 70 75 80

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

Gly Glu Phe Gln Ile Tyr Lys Gln Asp His Ser Ala Val Val Ala Leu
100 105 110

Gln Ile Glu Lys Ile Asn Asn Pro Asp Lys Ile Asp Ser Leu Ile Asn
115 120 125

Gln Arg Ser Phe Leu Val Ser Gly Leu Gly Gly Glu His Thr Ala Phe
130 135 140

Asn Gln Leu Pro Ser Gly Lys Ala Glu Tyr His Gly Lys Ala Phe Ser
145 150 155 160

Ser Asp Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala
165 170 175

eolf-seq1

Lys Gln Gly His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn
180 185 190

Val Glu Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala
195 200 205

Val Ile Leu Gly Asp Thr Arg Tyr Gly Ser Glu Glu Lys Gly Thr Tyr
210 215 220

His Leu Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala
225 230 235 240

Thr Val Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys
245 250 255

Gln

<210> 78
<211> 255
<212> PRT
<213> Artificial sequence

<220>
<223> Synthetic amino acid sequence

<400> 78

Cys Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu
1 5 10 15

Ala Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln
20 25 30

Ser Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu
35 40 45

Ala Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn
50 55 60

Thr Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg
65 70 75 80

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

Gln Ile Tyr Lys Gln Ser His Ser Ala Leu Val Ala Leu Gln Thr Glu
100 105 110

Gln Ile Asn Asn Ser Asp Lys Ser Gly Ser Leu Ile Asn Gln Arg Ser
 115 120 125
 Phe Arg Ile Ser Gly Ile Ala Gly Glu His Thr Ala Phe Asn Gln Leu
 130 135 140
 Pro Lys Gly Gly Lys Ala Thr Tyr Arg Gly Thr Ala Phe Ser Ser Asp
 145 150 155 160
 Asp Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln
 165 170 175
 Gly His Gly Lys Ile Glu His Leu Lys Thr Pro Glu Gln Asn Val Glu
 180 185 190
 Leu Ala Ser Ala Glu Leu Lys Ala Asp Glu Lys Ser His Ala Val Ile
 195 200 205
 Leu Gly Asp Thr Arg Tyr Gly Gly Glu Glu Lys Gly Thr Tyr His Leu
 210 215 220
 Ala Leu Phe Gly Asp Arg Ala Gln Glu Ile Ala Gly Ser Ala Thr Val
 225 230 235 240
 Lys Ile Arg Glu Lys Val His Glu Ile Gly Ile Ala Gly Lys Gln
 245 250 255

<210> 79
 <211> 254
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic amino acid sequence

<400> 79

Ser Ser Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu Ala
 1 5 10 15
 Asp Ala Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln Ser
 20 25 30
 Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala
 35 40 45
 Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr
 50 55 60
 Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln

eof-seq1

Leu Thr Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala
 35 40 45
 Ala Gln Gly Ala Glu Lys Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr
 50 55 60
 Gly Lys Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln
 65 70 75 80
 Ile Glu Val Asp Gly Gln Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln
 85 90 95
 Val Tyr Lys Gln Ser His Ser Ala Leu Thr Ala Phe Gln Thr Glu Gln
 100 105 110
 Ile Gln Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln Phe
 115 120 125
 Arg Ile Gly Asp Ile Ala Gly Glu His Thr Ser Phe Asp Lys Leu Pro
 130 135 140
 Glu Gly Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp
 145 150 155 160
 Ala Gly Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly
 165 170 175
 Asn Gly Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp Leu
 180 185 190
 Ala Ala Ala Asp Ile Lys Pro Asp Gly Lys Arg His Ala Val Ile Ser
 195 200 205
 Gly Ser Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly
 210 215 220
 Ile Phe Gly Gly Lys Ala Gln Glu Val Ala Gly Ser Ala Glu Val Lys
 225 230 235 240
 Thr Val Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
 245 250

<210> 81
 <211> 252
 <212> PRT
 <213> Artificial Sequence

eof-seq1

<220>

<223> Synthetic amino acid sequence

<400> 81

Gly Gly Gly Gly Val Ala Ala Asp Ile Gly Ala Gly Leu Ala Asp Ala
1 5 10 15

Leu Thr Ala Pro Leu Asp His Lys Asp Lys Gly Leu Gln Ser Leu Thr
20 25 30

Leu Asp Gln Ser Val Arg Lys Asn Glu Lys Leu Lys Leu Ala Ala Gln
35 40 45

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

Leu Lys Asn Asp Lys Val Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu
65 70 75 80

Val Asp Gly Gln Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr
85 90 95

Lys Gln Ser His Ser Ala Leu Thr Ala Phe Gln Thr Glu Gln Ile Gln
100 105 110

Asp Ser Glu His Ser Gly Lys Met Val Ala Lys Arg Gln Phe Arg Ile
115 120 125

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

Gly Arg Ala Thr Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly
145 150 155 160

Gly Lys Leu Thr Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly Asn Gly
165 170 175

Lys Ile Glu His Leu Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala
180 185 190

Ala Asp Ile Lys Pro Asp Gly Lys Arg His Ala Val Ile Ser Gly Ser
195 200 205

Val Leu Tyr Asn Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe
210 215 220

Gly Gly Lys Ala Gln Glu Val Ala Gly Ser Ala Glu Val Lys Thr Val
225 230 235 240

eolf-seq1

Asn Gly Ile Arg His Ile Gly Leu Ala Ala Lys Gln
245 250