

38194_739_601_Seq_Listing.txt
SEQUENCE LISTING

<110> PFENEX INC.

<120> PROCESS FOR PURIFYING RECOMBINANT PLASMODIUM FALCIPARUM
CIRCUMSPOROZOITE PROTEIN

<130> 38194-739.601

<140>

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<150> 13/844,261

<151> 2013-03-15

<150> 61/641,105

<151> 2012-05-01

<160> 111

<170> PatentIn version 3.5

<210> 1

<211> 397

<212> PRT

<213> Plasmodium falciparum

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Glu Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr
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Arg Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr
35 40 45

Asn Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser
50 55 60

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

Glu Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln
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Pro Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro
100 105 110

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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp
275 280 285

Pro Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys
290 295 300

Asn Asn Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu
305 310 315 320

Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val
325 330 335

Thr Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn
340 345 350

Lys Pro Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile
355 360 365

Cys Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser
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Ile Gly Leu Ile Met Val Leu Ser Phe Leu Phe Leu Asn
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<210> 2

<211> 363

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

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Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys Lys
      35      40      45

Asn Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu Asp Asn
      50      55      60

Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro Ala Asp
65      70      75      80

Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn
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Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn
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Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn
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Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys Asn
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      260      265      270

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Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn Asn Asn
275 280 285

Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile
290 295 300

Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly
305 310 315 320

Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys Pro Lys
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Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys Lys Met
340 345 350

Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn
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<213> Artificial Sequence

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20 25 30

Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys Lys Asn
35 40 45

Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu Asp Asn Glu
50 55 60

Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro Ala Asp Gly
65 70 75 80

Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
85 90 95

Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro
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115 120 125

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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
180 185 190

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
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Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
210 215 220

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro
225 230 235 240

Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys Asn Asn
245 250 255

Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn Arg Asn
260 265 270

Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn Asn Asn Asn
275 280 285

Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln
290 295 300

Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Asn
305 310 315 320

Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys Pro Lys Asp
325 330 335

Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys Lys Met Glu
340 345 350

Lys Cys Ser Ser Val Phe Asn Val Val Asn
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<210> 4

<211> 1194

<212> DNA

<213> Plasmodium falciparum

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gcaaatgata ttgaaaaaaa aatttgtaaa atggaaaaat gttccagtgt gtttaatgtc	1140
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<210> 5

<211> 1086

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic polynucleotide

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aactggtact cgcttaagaa gaacagccgg agtctcgggtg aaaacgacga tggaaacaac	180
gaggacaacg aaaaactgcg caagccgaaa cataagaaac tgaaacagcc ggctgacggc	240
aacccggacc cgaacgcaaa cccgaacgtg gacccgaatg caaacccgaa tgtggatccc	300
aatgcaaacc cgaatgttga ccccaacgct aacccgaacg cgaatccgaa tgccaaccg	360
aacgccaacc ccaacgcaa tcctaacgcc aatcctaacg caaacccgaa cgcgatccc	420
aatgctaacc ccaacgctaa ccctaacgcc aatccgaacg cgaacccgaa cgctaaccga	480
aacggaacc ctaacgcaa cccgaacgcc aacccgaacg ctaatcctaa tgtagacccc	540
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tccgccgtga agaataacaa taacgaagaa cccagcgaca aacacatcaa agagtacctg	900
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<220>
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aactggtaca gtctgaaaaa gaactcccgt tcaactcggcg aaaatgatga cggcaataac	180
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<210> 7
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 <213> Plasmodium falciparum

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Lys His Lys Lys Leu
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<210> 8
 <211> 21
 <212> PRT
 <213> Plasmodium falciparum

<400> 8
 Asp Lys Arg Asp Gly Asn Asn Glu Asp Asn Glu Lys Leu Arg Lys Pro
 1 5 10 15

Lys His Lys Lys Leu
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<210> 9
 <211> 22
 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: DsbA secretion leader
 peptide

<400> 9
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 1 5 10 15

Gly Met Thr Ala Gln Ala
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<210> 10
 <211> 20
 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: Azu secretion leader
 peptide

<400> 10
 Met Phe Ala Lys Leu Val Ala Val Ser Leu Leu Thr Leu Ala Ser Gly
 1 5 10 15

Gln Leu Leu Ala
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<210> 11
 <211> 31
 <212> PRT

<213> Unknown

<220>

<223> Description of Unknown: Ibp-S31A secretion leader polypeptide

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Met Ile Arg Asp Asn Arg Leu Lys Thr Ser Leu Leu Arg Gly Leu Thr
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<210> 12

<211> 21

<212> PRT

<213> Unknown

<220>

<223> Description of Unknown: Tpr secretion leader peptide

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Cys Gln Ala Met Ala
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<210> 13

<211> 24

<212> PRT

<213> Unknown

<220>

<223> Description of Unknown: CupB2 secretion leader peptide

<400> 13

Met Leu Phe Arg Thr Leu Leu Ala Ser Leu Thr Phe Ala Val Ile Ala
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Gly Leu Pro Ser Thr Ala His Ala
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<210> 14

<211> 25

<212> PRT

<213> Unknown

<220>

<223> Description of Unknown: CupA2 secretion leader peptide

<400> 14

Met Ser Cys Thr Arg Ala Phe Lys Pro Leu Leu Leu Ile Gly Leu Ala
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Thr Leu Met Cys Ser His Ala Phe Ala
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<210> 15
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 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: Nika secretion leader peptide

<400> 15
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Pro Met Ala Val Ala
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<210> 16
 <211> 24
 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: Pbp A20V secretion leader peptide

<400> 16
 Met Lys Leu Lys Arg Leu Met Ala Ala Met Thr Phe Val Ala Ala Gly
 1 5 10 15

Val Ala Thr Val Asn Ala Val Ala
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<210> 17
 <211> 21
 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: DsbC secretion leader peptide

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Thr Phe Ala Leu Ala
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<210> 18
 <211> 21
 <212> PRT
 <213> Unknown

<220>
 <223> Description of Unknown: TolB secretion leader peptide

<400> 18
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Gly Ile Ala Ala Ala
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<210> 19
<211> 24
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: Pbp secretion leader
peptide

<400> 19
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Val Ala Thr Ala Asn Ala Val Ala
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<210> 20
<211> 23
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: Lao secretion leader
peptide

<400> 20
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Phe Ser Ala Thr Ala Met Ala
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<210> 21
<211> 23
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: CupC2 secretion leader
peptide

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Met Ala Thr Gln Ala Ala Ala
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<210> 22
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<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: PorE secretion leader
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Gln Gln Ala Gly Ala
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<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: Pbp secretion leader
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<400> 23
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Val Ala Thr Ala Asn Ala Val Ala
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<210> 24
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<212> PRT
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<220>
<223> Description of Unknown: FlgI secretion leader
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<212> PRT
<213> Unknown

<220>
<223> Description of Unknown: ttg2C secretion leader
polypeptide

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Ala

<210> 26

<211> 13

<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

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Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser
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<210> 27

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic peptide

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<210> 28

<211> 4

<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

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Cys Ser Ser Val
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<210> 29

<211> 16

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic peptide

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<210> 30

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

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Glu Leu Asn Tyr
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<210> 31
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<220>
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<210> 32
<211> 19
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<220>
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<400> 32
Asn Thr Arg Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn
1 5 10 15

Leu Tyr Asn

<210> 33
<211> 4
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 33
Glu Leu Asn Tyr
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<210> 34
<211> 11
<212> PRT
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<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 34
Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
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<210> 35
<211> 8
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 35

Asp Asn Ala Gly Thr Asn Leu Tyr
1 5

<210> 36

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 36

Asp Asn Ala Gly Thr Asn Leu Tyr Asn Glu Leu
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<210> 37

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 37

Asp Asn Ala Gly Thr Asn Leu Tyr Asn Glu Leu Glu Met Asn Tyr Tyr
1 5 10 15

Gly

<210> 38

<211> 16

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 38

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<210> 39

<211> 5

<212> PRT

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<223> Description of Artificial Sequence: Synthetic peptide

<400> 39

Thr Asn Leu Tyr Asn

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5

<210> 40
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<220>
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<400> 40
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<210> 41
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<220>
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<400> 41
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Lys Lys Asn

<210> 42
 <211> 24
 <212> PRT
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<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 42
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Asn Ser Arg Ser Leu Gly Glu Asn
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<210> 43
 <211> 12
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<220>
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<400> 43
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<210> 44

<211> 17
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<220>
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<400> 44
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Gly

<210> 45
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

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Gly Glu Asn

<210> 46
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 46
 Glu Asn Trp Tyr Ser Leu Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn
 1 5 10 15

Asp

<210> 47
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 47
 Glu Asn Trp Tyr Ser Leu Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn
 1 5 10 15

<210> 48

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 48

Glu Asn Trp Tyr Ser Leu Lys Lys Asn Ser Arg
1 5 10

<210> 49

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 49

Ser Leu Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn Asp
1 5 10

<210> 50

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 50

Ser Leu Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn
1 5 10

<210> 51

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 51

Ser Arg Ser Leu Gly Glu Asn Asp
1 5

<210> 52

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 52

Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro
1 5 10 15

Ala

<210> 53
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 53
 Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val
 1 5 10

<210> 54
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 54
 Asp Pro Asn Ala Asn Pro Asn Val
 1 5

<210> 55
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 55
 Asp Pro Asn Ala Asn Pro Asn
 1 5

<210> 56
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 56
 Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala
 1 5 10 15

Asn Pro Asn Ala
 20

<210> 57
 <211> 33
 <212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 57

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
1 5 10 15

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
20 25 30

Val

<210> 58

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 58

Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala
1 5 10 15

Asn Pro Asn Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro
20 25 30

Asn

<210> 59

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 59

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys Asn Asn Gln
1 5 10 15

Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn Arg Asn Val
20 25 30

<210> 60

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 60

Asn Gly Gln Gly His Asn Met Pro Asn
1 5

<210> 61

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 61

Asp Pro Asn Arg Asn Val
1 5

<210> 62

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 62

Asp Pro Asn Arg Asn Val Asp Glu Asn
1 5

<210> 63

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 63

Asp Pro Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val
1 5 10 15

Lys Asn

<210> 64

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 64

Asp Glu Asn Ala Asn Ala Asn Ser Ala
1 5

<210> 65

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 65

Asp Glu Asn Ala Asn Ala Asn
1 5

<210> 66

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 66

Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn Asn
1 5 10

<210> 67

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 67

Ser Ala Val Lys Asn Asn Asn Asn
1 5

<210> 68

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 68

Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn Lys
1 5 10

<210> 69

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 69

Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn
1 5 10 15

Ser Leu Ser Thr

<210> 70
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 70
 Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser
 1 5 10 15

Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly
 20 25

<210> 71
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 71
 Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser
 1 5 10 15

<210> 72
 <211> 43
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 polypeptide

<400> 72
 Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser
 1 5 10 15

Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Asn Gly Ile Gln Val
 20 25 30

Arg Ile Lys Pro Gly Ser Ala Asn Lys Pro Lys
 35 40

<210> 73
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 73
 Asp Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser
 Page 23

1 5 10 15

Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Asn
20 25

<210> 74
<211> 42
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 74
Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr
1 5 10 15

Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Asn Gly Ile Gln Val Arg
20 25 30

Ile Lys Pro Gly Ser Ala Asn Lys Pro Lys
35 40

<210> 75
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 75
Lys His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr
1 5 10 15

<210> 76
<211> 38
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
polypeptide

<400> 76
Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro
1 5 10 15

Cys Ser Val Thr Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly
20 25 30

Ser Ala Asn Lys Pro Lys
35

<210> 77
<211> 13
<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 77

Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg
1 5 10

<210> 78

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 78

Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
1 5 10 15

Glu Leu Glu Met Asn Tyr Tyr Gly Lys
20 25

<210> 79

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 79

Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
1 5 10 15

Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln
20 25

<210> 80

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 80

Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn Glu Leu Glu
1 5 10 15

Met Asn Tyr Tyr Gly Lys
20

<210> 81

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 81

Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn Glu Leu Glu Met
1 5 10 15

Asn Tyr Tyr Gly Lys
20

<210> 82

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 82

Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn Glu Leu Glu Met Asn Tyr
1 5 10 15

Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys
20 25

<210> 83

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 83

Thr Asn Leu Tyr Asn Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu
1 5 10 15

Asn Trp Tyr Ser Leu Lys
20

<210> 84

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 84

Tyr Asn Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr
1 5 10 15

Ser Leu Lys Lys
20

<210> 85
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 85
 Gln Glu Asn Trp Tyr Ser Leu Lys
 1 5

<210> 86
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 86
 Gln Glu Asn Trp Tyr Ser Leu Lys Lys
 1 5

<210> 87
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 87
 Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu Asp Asn Glu Lys Leu
 1 5 10 15

Arg

<210> 88
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 88
 Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu Asp Asn Glu Lys
 1 5 10 15

<210> 89
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 Page 27

peptide

<400> 89

Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu Asp Asn Glu Lys
 1 5 10

<210> 90

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 90

Asp Asn Glu Lys Leu Arg Lys Pro Lys
 1 5

<210> 91

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 91

Leu Lys Gln Pro Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn
 1 5 10 15

Val Asp Pro Asn Ala Asn Pro Asn Val Asp
 20 25

<210> 92

<211> 28

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 92

Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys Asn Asn Gln Gly Asn
 1 5 10 15

Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn Arg
 20 25

<210> 93

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 93

Pro Asn Ala Asn Pro Asn Lys Asn Asn Gln Gly Asn Gly Gln Gly His
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1 5 10 15

Asn Met Pro Asn Asp Pro Asn Arg
20

<210> 94
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 94
Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn
1 5 10 15

Arg

<210> 95
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 95
Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn
1 5 10

<210> 96
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 96
Gly His Asn Met Pro Asn Asp Pro Asn Arg Asn Val Asp Glu Asn Ala
1 5 10 15

Asn Ala Asn Ser Ala Val Lys
20

<210> 97
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic peptide

<400> 97
Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys
Page 29

1

5

10

<210> 98
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 98
 Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn Asn Asn
 1 5 10 15

Asn Glu

<210> 99
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 99
 Asn Asn Asn Asn Glu Glu Pro Ser Asp Lys
 1 5 10

<210> 100
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 100
 His Ile Lys Glu Tyr Leu Asn Lys Ile Gln Asn Ser Leu Ser Thr Glu
 1 5 10 15

Trp

<210> 101
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 101
 Glu Tyr Leu Asn Lys
 1 5

<210> 102

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 102

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

Gly	Asn	Gly	Ile	Gln	Val	Arg
			20			

<210> 103

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 103

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

Gly	Asn	Gly	Ile	Gln	Val	Arg	Ile	Lys	Pro	Gly
			20					25		

<210> 104

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 104

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

Asn	Asp	Ile	Glu	Lys	Lys
			20		

<210> 105

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 105

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

Asn	Asp	Ile	Glu	Lys
-----	-----	-----	-----	-----

<210> 106
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 106
 Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys
 1 5 10

<210> 107
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 107
 Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys
 1 5 10

<210> 108
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 108
 Cys Ser Ser Val Phe Asn Val Val Asn
 1 5

<210> 109
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

<400> 109
 Cys Ser Ser Val Phe Asn Val Val
 1 5

<210> 110
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic peptide

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<220>

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<223> Alkylated-Cys

<400> 110

Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg Val Leu Asn Glu
1 5 10 15

<210> 111

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 111

Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg Val Leu Asn
1 5 10 15

Glu