THERA123_ST25

SEQUENCE LISTING

<110> Theravectys
Institut Pasteur

<120> USE OF NON-SUBTYPE B GAG PROTEINS FOR LENTIVIRAL PACKAGING

<130> THERA.11.3

<140> PCT/US2012/
<141> 2012-09-25

<150> 11306222.8
<151> 2011-09-26

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<170> PatentIn version 3.5

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His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Ile Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Gly Gln Leu
50 55 60

Gln Pro Ser Ile Gln Thr Gly Ser Glu Glu Leu Arg Ser Leu Tyr Asn
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Thr Ile Ala Thr Leu Tyr Cys Val His Glu Arg Ile Glu Val Lys Asp
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Thr Lys Glu Ala Val Glu Lys Met Glu Glu Glu Gln Asn Lys Ser Lys
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Tyr Pro Ile Val Gln Asn Leu Gln Gly Gln Met Val His Gln Ala Ile
    130                 135                 140

Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Ile Glu Glu Lys Ala
145                 150                 155                 160

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

Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln
            180                 185                 190

Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Asp Glu Ala Ala Glu
        195                 200                 205

Trp Asp Arg Leu His Pro Val His Ala Gly Pro Val Ala Pro Gly Gln
    210                 215                 220

Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu
225                 230                 235                 240

Gln Glu Gln Ile Ala Trp Met Thr Ser Asn Pro Pro Ile Pro Val Gly
                245                 250                 255

Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg
            260                 265                 270

Met Tyr Ser Pro Val Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu
        275                 280                 285

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu
    290                 295                 300

Gln Ala Ser Gln Asp Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val
305                 310                 315                 320

Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro
                325                 330                 335

Gln Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly Gly
            340                 345                 350

Pro Gly His Lys Ala Arg Val Leu Ala Glu Ala Met Ser Gln Val Thr
        355                 360                 365

Gly Ser Val Thr Ala Val Met Met Gln Arg Gly Asn Phe Lys Gly Pro
    370                 375                 380
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Arg Lys Ser Ile Lys Cys Phe Asn Cys Gly Lys Glu Gly His Thr Ala
385                 390                 395                 400

Lys Asn Cys Arg Ala Pro Arg Lys Lys Gly Cys Trp Lys Cys Gly Arg
                405                 410                 415

Glu Gly His Gln Met Lys Asp Cys Ser Glu Arg Gln Ala Asn Phe Leu
            420                 425                 430

Gly Lys Ile Trp Pro Ser His Lys Gly Arg Pro Gly Asn Phe Leu Gln
        435                 440                 445

Ser Arg Pro Glu Pro Thr Ala Pro Pro Ala Glu Ser Phe Gly Phe Gly
    450                 455                 460

Glu Glu Ile Thr Pro Ser Gln Lys Gln Glu Gln Lys Asp Lys Glu Leu
465                 470                 475                 480

Tyr Pro Leu Ala Ser Leu Lys Ser Leu Phe Gly Asn Asp Pro Ser Ser
                485                 490                 495

Gln Phe Phe Arg Glu Asp Leu Ala Phe Pro Gln Gly Lys Ala Gly Glu
            500                 505                 510

Phe Ser Ser Glu Gln Thr Arg Ala Asn Ser Pro Thr Ser Arg Glu Leu
        515                 520                 525

Arg Val Trp Gly Gly Asp Asn Pro Leu Ser Glu Thr Gly Ala Glu Gly
    530                 535                 540

Gln Gly Thr Val Ser Phe Ser Phe Pro Gln Ile Thr Leu Trp Gln Arg
545                 550                 555                 560

Pro Leu Val Thr Ile Lys Ile Gly Gly Gln Leu Lys Glu Ala Leu Leu
                565                 570                 575

Asp Thr Gly Ala Asp Asp Thr Val Leu Glu Glu Met Asn Leu Pro Gly
            580                 585                 590

Lys Trp Lys Pro Lys Met Ile Gly Gly Ile Gly Gly Phe Ile Lys Val
        595                 600                 605

Arg Gln Tyr Asp Gln Ile Leu Ile Glu Ile Cys Gly Tyr Lys Ala Met
    610                 615                 620

Gly Thr Val Leu Val Gly Pro Thr Pro Val Asn Ile Ile Gly Arg Asn
625                 630                 635                 640

Leu Leu Thr Gln Ile Gly Cys Thr Leu Asn Phe Pro Ile Ser Pro Ile
                645                 650                 655
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Glu Thr Val Pro Val Lys Leu Lys Pro Gly Met Asp Gly Pro Lys Val
            660                 665                 670

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

Cys Thr Glu Met Glu Lys Glu Gly Lys Ile Ser Arg Ile Gly Pro Glu
    690                 695                 700

Asn Pro Tyr Asn Thr Pro Ile Phe Ala Ile Lys Lys Lys Asp Ser Thr
705                 710                 715                 720

Lys Trp Arg Lys Leu Val Asp Phe Arg Glu Leu Asn Lys Arg Thr Gln
                725                 730                 735

Asp Phe Trp Glu Val Gln Leu Gly Ile Pro His Pro Ala Gly Leu Lys
            740                 745                 750

Lys Lys Lys Ser Val Thr Val Leu Asp Val Gly Asp Ala Tyr Phe Ser
        755                 760                 765

Val Pro Leu Asp Glu Asp Phe Arg Lys Tyr Thr Ala Phe Thr Ile Pro
    770                 775                 780

Ser Ile Asn Asn Glu Thr Pro Gly Ile Arg Tyr Gln Tyr Asn Val Leu
785                 790                 795                 800

Pro Gln Gly Trp Lys Gly Ser Pro Ala Ile Phe Gln Ser Ser Met Thr
                805                 810                 815

Lys Ile Leu Glu Pro Phe Arg Lys Gln Asn Pro Glu Ile Val Ile Tyr
            820                 825                 830

Gln Tyr Met Asp Asp Leu Tyr Val Gly Ser Asp Leu Glu Ile Gly Gln
        835                 840                 845

His Arg Thr Lys Ile Glu Glu Leu Arg Glu His Leu Leu Arg Trp Gly
    850                 855                 860

Phe Thr Thr Pro Asp Lys Lys His Gln Lys Glu Pro Pro Phe Leu Trp
865                 870                 875                 880

Met Gly Tyr Glu Leu His Pro Asp Lys Trp Thr Val Gln Pro Ile Lys
                885                 890                 895

Leu Pro Glu Lys Glu Ser Trp Thr Val Asn Asp Ile Gln Lys Leu Val
            900                 905                 910

Gly Lys Leu Asn Trp Ala Ser Gln Ile Tyr Ala Gly Ile Lys Val Lys
        915                 920                 925
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Gln Leu Cys Lys Leu Leu Arg Gly Thr Lys Ala Leu Thr Glu Val Val
    930                 935                 940

Pro Leu Thr Glu Glu Ala Glu Leu Glu Leu Ala Glu Asn Arg Glu Ile
945                 950                 955                 960

Leu Lys Glu Pro Val His Gly Val Tyr Tyr Asp Pro Ser Lys Asp Leu
                965                 970                 975

Ile Ala Glu Leu Gln Lys Gln Gly Asp Gly Gln Trp Thr Tyr Gln Ile
            980                 985                 990

Tyr Gln Glu Pro Phe Lys Asn Leu  Lys Thr Gly Lys Tyr  Ala Arg Thr
        995                 1000                1005

Arg Gly  Ala His Thr Asn Asp  Val Lys Gln Leu Thr  Glu Ala Val
    1010                1015                1020

Gln Lys  Ile Ala Thr Glu Ser  Ile Val Ile Trp Gly  Lys Thr Pro
    1025                1030                1035

Lys Phe  Lys Leu Pro Ile Gln  Lys Glu Thr Trp Glu  Thr Trp Trp
    1040                1045                1050

Ile Glu  Tyr Trp Gln Ala Thr  Trp Ile Pro Glu Trp  Glu Phe Val
    1055                1060                1065

Asn Thr  Pro Pro Leu Val Lys  Leu Trp Tyr Gln Leu  Glu Lys Glu
    1070                1075                1080

Pro Ile  Ile Gly Ala Glu Thr  Phe Tyr Val Asp Gly  Ala Ala Asn
    1085                1090                1095

Arg Glu  Thr Lys Leu Gly Lys  Ala Gly Tyr Val Thr  Asp Arg Gly
    1100                1105                1110

Arg Gln  Lys Val Val Pro Phe  Thr Asp Thr Thr Asn  Gln Lys Thr
    1115                1120                1125

Glu Leu  Gln Ala Ile Asn Leu  Ala Leu Gln Asp Ser  Gly Leu Glu
    1130                1135                1140

Val Asn  Ile Val Thr Asp Ser  Gln Tyr Ala Leu Gly  Ile Ile Gln
    1145                1150                1155

Ala Gln  Pro Asp Lys Ser Glu  Ser Glu Leu Val Ser  Gln Ile Ile
    1160                1165                1170

Glu Gln  Leu Ile Lys Lys Glu  Lys Val Tyr Leu Ala  Trp Val Pro
    1175                1180                1185
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Ala His  Lys Gly Ile Gly Gly  Asn Glu Gln Val Asp  Lys Leu Val
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Ser Gln  Gly Ile Arg Lys Val  Leu Phe Leu Asp Gly  Ile Asp Lys
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Ala Gln  Glu Glu His Glu Lys  Tyr His Asn Asn Trp  Arg Ala Met
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Ala Ser  Asp Phe Asn Leu Pro  Pro Val Val Ala Lys  Glu Ile Val
    1235                 1240                 1245

Ala Ser  Cys Asp Lys Cys Gln  Leu Lys Gly Glu Ala  Met His Gly
    1250                 1255                 1260

Gln Val  Asp Cys Ser Pro Gly  Ile Trp Gln Leu Asp  Cys Thr His
    1265                 1270                 1275

Leu Glu  Gly Lys Val Ile Leu  Val Ala Val His Val  Ala Ser Gly
    1280                 1285                 1290

Tyr Ile  Glu Ala Glu Val Ile  Pro Ala Glu Thr Gly  Gln Glu Thr
    1295                 1300                 1305

Ala Tyr  Phe Leu Leu Lys Leu  Ala Gly Arg Trp Pro  Val Lys Val
    1310                 1315                 1320

Val His  Thr Asp Asn Gly Ser  Asn Phe Thr Ser Ala  Thr Val Lys
    1325                 1330                 1335

Ala Ala  Cys Trp Trp Ala Gly  Ile Lys Gln Glu Phe  Gly Ile Pro
    1340                 1345                 1350

Tyr Asn  Pro Gln Ser Gln Gly  Val Val Glu Ser Met  Asn Lys Glu
    1355                 1360                 1365

Leu Lys  Lys Ile Ile Gly Gln  Val Arg Asp Gln Ala  Glu His Leu
    1370                 1375                 1380

Lys Thr  Ala Val Gln Met Ala  Val Phe Ile His Asn  Phe Lys Arg
    1385                 1390                 1395

Lys Gly  Gly Ile Gly Gly Tyr  Ser Ala Gly Glu Arg  Ile Ile Asp
    1400                 1405                 1410

Ile Ile  Ala Thr Asp Ile Gln  Thr Arg Glu Leu Gln  Lys Gln Ile
    1415                 1420                 1425

Ile Lys  Ile Gln Asn Phe Arg  Val Tyr Tyr Arg Asp  Ser Arg Asp
    1430                 1435                 1440
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Pro Ile  Trp Lys Gly Pro Ala  Lys Leu Leu Trp Lys  Gly Glu Gly
    1445                1450                1455


Ala Val  Val Ile Gln Asp Asn  Ser Asp Ile Lys Val  Val Pro Arg
    1460                1465                1470


Arg Lys  Val Lys Ile Ile Arg  Asp Tyr Gly Lys Gln  Met Ala Gly
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Asp Asp  Cys Val Ala Ser Arg  Gln Asp Glu Asp
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            20                  25                  30


His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Thr Leu Asn Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Gly Gln Leu
    50                  55                  60


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


Thr Val Ala Thr Leu Tyr Cys Val His Glu Arg Ile Glu Val Lys Asp
                85                  90                  95


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

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Gly Gln Leu
50 55 60

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

Thr Val Ala Thr Leu Tyr Cys Val His Glu Arg Ile Glu Val Lys Asp
85 90 95

Thr Lys Glu Ala Val Glu Lys Met Glu Glu Glu Gln Asn Lys Ser Lys
100 105 110

Lys Lys Thr Gln Gln Ala Ala Ala Asp Ser Ser Gln Val Ser Gln Asn
115 120 125

Tyr

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His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu
50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu Arg Ser Leu Tyr Asn
65 70 75 80

Thr Val Ala Thr Leu Tyr Cys Val His Gln Arg Ile Glu Ile Lys Asp
85 90 95

Thr Lys Glu Ala Leu Asp Lys Ile Glu Glu Glu Gln Asn Lys Ser Lys
100 105 110

Lys Lys Ala Gln Gln Ala Ala Ala Asp Thr Gly His Ser Asn Gln Val
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Ser Gln Asn Tyr
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His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
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Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
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Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys His Ile
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Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly Leu
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Leu Glu Thr Thr Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu Gln Pro
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Ser Leu Gln Thr Gly Ser Glu Glu Leu
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His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Glu Gln Leu
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Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
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Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
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His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Gly Gly Cys Arg Gln Ile Leu Glu Gln Leu
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Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
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His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Ile Asn Pro
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Gly Leu Leu Glu Thr Ser Ala Gly Cys Arg Gln Ile Leu Gly Gln Leu
50 55 60

His Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
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20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly Leu
35 40 45

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50 55 60

Ser Leu Pro Thr Gly Ser Glu Glu Leu
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<213> Human immunodeficiency virus type 1

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20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu
50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 13
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<213> Human immunodeficiency virus type 1

<400> 13

Ala Arg Ala Ser Ile Leu Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Glu Gly Cys Ile Gln Ile Leu Gly Gln Leu Gln Pro
50 55 60

Ser Leu Gln Thr Gly Ser Glu Glu Leu
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<212> PRT
<213> Human immunodeficiency virus type 1

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20 25 30

His Val Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

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

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 15
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 15

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Gln Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Glu Gln Leu
50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Ile
65 70 75

<210> 16
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 16

Met Gly Ala Arg Ala Ser Ile Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Gln Tyr Arg Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

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

His Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 17
<211> 73
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 17

Ala Arg Ala Ser Ile Leu Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Lys Lys Arg Tyr Arg Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Arg Gln Leu Gln Pro
50 55 60

Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70

<210> 18
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 18

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Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1               5                   10                  15


Glu Arg Ile Arg Leu Arg Pro Arg Gly Lys Lys Lys Tyr Gln Leu Lys
            20                  25                  30


His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ser Val Asn Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Arg Gln Leu
    50                  55                  60


Gln Pro Ala Leu Gln Thr Gly Ser Glu Asp Phe
65                  70                  75


<210>  19
<211>  75
<212>  PRT
<213>  Human immunodeficiency virus type 1

<400>  19

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu
    50                  55                  60


Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65                  70                  75


<210>  20
<211>  75
<212>  PRT
<213>  Human immunodeficiency virus type 1

<400>  20

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1               5                   10                  15


Glu Arg Ile Arg Leu Arg Pro Gly Gly Ser Lys Lys Tyr Lys Leu Lys
            20                  25                  30


His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
        35                  40                  45


Ser Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Leu Gly Gln Leu
```

50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 21
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 21

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Gln Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Ser Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu
50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 22
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 22

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Lys Trp
1 5 10 15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Ile Gly Gln Leu
50 55 60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 23
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 23

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
20 25 30

His Val Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Lys Gln Ile Leu Ala Gln Leu
50 55 60

His Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65 70 75

<210> 24
<211> 72
<212> PRT
<213> Human immunodeficiency virus type 1

<220>
<221> misc_feature
<222> (18)..(18)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (51)..(51)
<223> Xaa can be any naturally occurring amino acid

<400> 24

Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys Ile
1 5 10 15

Arg Xaa Arg Gln Gly Gly Lys Lys Lys Tyr Lys Leu Lys His Ile Val
20 25 30

Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly Leu Leu
35 40 45

Glu Thr Xaa Glu Gly Cys Arg Gln Ile Leu Glu Gln Leu Gln Pro Ala
50 55 60

Leu Gln Thr Gly Ser Glu Glu Leu
65 70

<210> 25
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 25

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

```
Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
            20                  25                  30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ser Gly Gly Cys Arg Gln Ile Leu Gly Gln Leu
    50                  55                  60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
65                  70                  75
```

<210> 26
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 26

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Thr Trp
1               5                   10                  15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Ala Leu Lys
            20                  25                  30

His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Thr Leu Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Gly Gln Leu
    50                  55                  60

Gln Pro Ser Ile Gln Thr Gly Ser Glu Glu Ile
65                  70                  75
```

<210> 27
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 27

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1               5                   10                  15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
            20                  25                  30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu
    50                  55                  60

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu
```

65 70 75

<210> 28
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 28

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Thr Trp
1 5 10 15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Ala Leu Lys
20 25 30

His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Thr Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Gly Gln Leu
50 55 60

Gln Pro Ser Ile Gln Thr Gly Ser Glu Glu Ile
65 70 75

<210> 29
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 29

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Ile Ser Gln Leu
50 55 60

Gln Pro Ser Leu Lys Thr Gly Ser Glu Glu Leu
65 70 75

<210> 30
<211> 75
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 30

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Glu Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Thr Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

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

Gln Ser Ser Ile Gln Thr Gly Ser Glu Glu Ile
65 70 75

<210> 31
<211> 73
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 31

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Glu Trp Glu Lys
1 5 10 15

Ile Gln Leu Arg Pro Gly Gly His Lys Arg Tyr Lys Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Ile Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Gly Gly Cys Arg Gln Ile Met Gly Gln Leu Gln Pro
50 55 60

Ala Ile Gln Thr Gly Ser Glu Glu Leu
65 70

<210> 32
<211> 73
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 32

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Arg Lys Arg Tyr Arg Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile Ser Gln Leu Gln Pro
50 55 60

Ser Leu Lys Thr Gly Ser Glu Glu Leu
65 70

<210> 33
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 33

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu
50 55 60

<210> 34
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 34

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Thr Trp
1 5 10 15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Ala Leu Lys
20 25 30

His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Thr Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile
50 55 60

<210> 35
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 35

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Ile

50 55 60

<210> 36
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 36

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Glu Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Thr Tyr Lys Leu Lys
20 25 30

His Ile Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile
50 55 60

<210> 37
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 37

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Glu Trp Glu Lys
1 5 10 15

Ile Gln Leu Arg Pro Gly Gly His Lys Arg Tyr Lys Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Ile Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Gly Gly Cys Arg Gln Ile Met
50 55

<210> 38
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 38

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Arg Lys Arg Tyr Arg Leu Lys His Ile
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ser Glu Gly Cys Lys Gln Ile Ile
50 55

<210> 39
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 39

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Arg Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Met Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Lys Gln Leu Met
50 55 60

<210> 40
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<220>
<221> misc_feature
<222> (54)..(54)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (61)..(61)
<223> Xaa can be any naturally occurring amino acid

<400> 40

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ser Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Met Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Met Glu Arg Phe Ala Leu Asn Pro
35 40 45

Asp Leu Leu Glu Thr Xaa Glu Gly Cys Gln Gln Ile Xaa
50 55 60

<210> 41
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 41

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Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp Glu Lys
1               5                   10                  15


Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Ile Lys His Leu
            20                  25                  30


Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro Gly Leu
        35                  40                  45


Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Met
    50                  55


<210>  42
<211>  61
<212>  PRT
<213>  Human immunodeficiency virus type 1

<400>  42

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Arg Tyr Arg Met Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Asp Arg Phe Ala Leu Asn Pro
        35                  40                  45


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


<210>  43
<211>  61
<212>  PRT
<213>  Human immunodeficiency virus type 1

<400>  43

Met Gly Ala Arg Ala Ser Val Leu Thr Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Ser Tyr Lys Ile Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
        35                  40                  45


Asp Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Met
    50                  55                  60


<210>  44
<211>  61
<212>  PRT
<213>  Human immunodeficiency virus type 1

<400>  44
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```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Asp Arg Phe Ala Leu Asn Pro
        35                  40                  45


Ser Leu Leu Glu Thr Ser Glu Gly Cys Gln Gln Ile Ile
    50                  55                  60
```

<210> 45
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 45

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Lys Tyr Arg Met Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Asp Arg Phe Ala Leu Asn Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Leu
    50                  55                  60
```

<210> 46
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<220>
<221> misc_feature
<222> (42)..(42)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> misc_feature
<222> (49)..(49)
<223> Xaa can be any naturally occurring amino acid

<400> 46

```
Met Gly Ala Arg Ala Ser Ile Leu Ser Gly Gly Arg Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
            20                  25                  30


His Leu Val Trp Ala Ser Arg Glu Leu Xaa Arg Phe Ala Leu Asn Pro
        35                  40                  45
```

Xaa Leu Leu Glu Ser Ala Glu Gly Cys Gln Gln Ile Met
50 55 60

<210> 47
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 47

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp Glu Lys
1 5 10 15

Ile Gln Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys His Leu
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro Asp Leu
35 40 45

Leu Glu Thr Ser Glu Gly Cys Gln Gln Ile Ile
50 55

<210> 48
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 48

Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ser Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys His Leu
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro Ser Leu
35 40 45

Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Met
50 55

<210> 49
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 49

Met Gly Ala Arg Ala Ser Val Leu Arg Gly Glu Lys Leu Asp Thr Trp
1 5 10 15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Met Met Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Ala Pro

35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Arg Gln Ile Ile
50 55 60

<210> 50
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 50

Met Gly Ala Arg Ala Ser Ile Leu Arg Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Gln Leu Arg Pro Gly Gly Lys Lys Arg Tyr Met Leu Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Arg Gln Ile Ile
50 55 60

<210> 51
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 51

Met Gly Ala Arg Ala Ser Val Leu Arg Gly Glu Lys Leu Asp Thr Trp
1 5 10 15

Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Met Met Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Ala Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Arg Gln Ile Ile
50 55 60

<210> 52
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 52

Met Gly Ala Arg Ala Ser Ile Leu Arg Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Gln Leu Arg Pro Gly Gly Lys Lys Arg Tyr Met Leu Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Arg Gln Ile Ile
50 55 60

<210> 53
<211> 59
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 53

Ala Arg Ala Ser Ile Leu Arg Gly Gly Gln Leu Asp Arg Trp Glu Lys
1 5 10 15

Ile Arg Leu Arg Pro Gly Gly Lys Lys His Tyr Met Leu Lys His Leu
20 25 30

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Val Leu Asn Pro Gly Leu
35 40 45

Leu Glu Thr Ala Glu Gly Cys Lys Gln Ile Met
50 55

<210> 54
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 54

Met Gly Ala Arg Ala Ser Ile Leu Thr Gly Glu Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Met Ile Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Ile
50 55 60

<210> 55
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 55

Met Gly Ala Arg Ala Ser Ile Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Lys Tyr Arg Met Lys
20 25 30

```
His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Leu Ile
    50                  55                  60
```

<210> 56
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 56

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Gln Leu Lys
            20                  25                  30

His Val Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Ile
    50                  55                  60
```

<210> 57
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 57

```
Met Gly Ala Arg Ala Ser Ile Leu Thr Gly Glu Lys Leu Asp Ala Trp
1               5                   10                  15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Met Ile Lys
            20                  25                  30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
        35                  40                  45

Gly Leu Leu Glu Thr Ala Glu Gly Cys Gln Gln Ile Ile
    50                  55                  60
```

<210> 58
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 58

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Asp Trp
1               5                   10                  15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Gln Tyr Lys Leu Lys
            20                  25                  30
```

```
His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Lys Ile Ile
    50                  55                  60
```

<210> 59
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 59

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Met Lys
            20                  25                  30


His Leu Ile Trp Ala Gly Arg Glu Leu Asp Arg Phe Ala Leu Asp Pro
        35                  40                  45


Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Lys Ile Ile
    50                  55                  60
```

<210> 60
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 60

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Met Lys
            20                  25                  30


His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asp Ser
        35                  40                  45


Gly Leu Leu Glu Thr Thr Glu Gly Cys Arg Lys Ile Ile
    50                  55                  60
```

<210> 61
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 61

```
Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1               5                   10                  15


Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Lys Tyr Lys Met Lys
```

20 25 30

His Leu Ile Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asp Pro
35 40 45

Gly Leu Leu Glu Thr Ser Glu Gly Cys Arg Lys Ile Ile
50 55 60

<210> 62
<211> 38
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 62

Gly Gly Lys Lys Lys Tyr Arg Leu Lys His Leu Val Trp Ala Ser Arg
1 5 10 15

Glu Leu Glu Arg Phe Ala Leu Asn Pro Gly Leu Leu Glu Thr Thr Glu
20 25 30

Gly Cys Lys Gln Ile Ile
35

<210> 63
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 63

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Arg Lys Lys Tyr Arg Leu Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Asp Leu Leu Glu Thr Ala Asp Gly Cys Gln Gln Ile Leu
50 55 60

<210> 64
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 64

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Asp Leu Leu Asp Thr Ala Glu Gly Cys Leu Gln Leu Ile
50 55 60

<210> 65
<211> 61
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 65

Met Gly Ala Arg Ala Ser Val Leu Ser Gly Gly Lys Leu Asp Ala Trp
1 5 10 15

Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
20 25 30

His Leu Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Leu Asn Pro
35 40 45

Gly Leu Leu Glu Thr Pro Glu Gly Cys Leu Gln Ile Ile
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<210> 66
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<212> PRT
<213> Human immunodeficiency virus type 1

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<400> 66

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Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Arg Leu Lys
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His Leu Val Trp Ala Ser Arg Glu Leu Asp Arg Phe Ala Leu Asn Pro
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Asp Leu Leu Glu Thr Ala Asp Gly Cys Leu Lys Ile Xaa
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Met Gly Ala Arg Ala Ser Ile Leu Ser Gly Gly Lys Leu Asp Asp Trp

THERA123_ST25

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Glu Lys Ile Arg Leu Arg Pro Gly Gly Lys Lys Gln Tyr Arg Ile Lys
            20                  25                  30

His Leu Val Trp Ala Ser Arg Glu Leu Asp Arg Phe Ala Leu Asn Pro
        35                  40                  45

Gly Leu Leu Glu Ser Ala Lys Gly Cys Gln Gln Ile Leu
    50                  55                  60
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