

## SEQUENCE LISTING

<110> Glaxosmithkline Biologicals  
Glaxosmithkline Biologicals

<120> Novel method and composition

<130> V62209

<160> 16

<170> PatentIn version 3.5

<210> 1

<211> 3204

<212> DNA

<213> HIV

<400> 1

atgggtgccc gagcttcggt actgtctggt ggagagctgg acagatggga gaaaattagg	60
ctgcgccccg gaggcaaaaa gaaatacaag ctcaagcata tcgtgtgggc ctcgagggag	120
cttgaacggt ttgccgtgaa cccaggcctg ctggaaacat ctgagggatg tcgccagatc	180
ctggggcaat tgcagccatc cctccagacc gggagtgaa agctgaggtc cttgtataac	240
acagtggcta ccctctactg cgtacaccag aggatcgaga ttaaggatac caaggaggcc	300
ttggacaaaa ttgaggagga gaaaacaag agcaagaaga agggccagca ggcagctgct	360
gacactgggc atagcaacca ggtatcacag aactatccta ttgtccaaaa cattcagggc	420
cagatggttc atcaggccat cagcccccg acgctcaatg cctgggtgaa ggttgtcgaa	480
gagaaggcct tttctcctga ggttatcccc atgttctccg ctttgagtga gggggccact	540
cctcaggacc tcaatacaat gcttaatacc gtgggaggcc atcaggccgc catgcaaatg	600
ttgaaggaga ctatcaacga ggaggcagcc gagtgggaca gagtgcattc cgtccacgct	660
ggcccaatcg cgccgggaca gatgcgggag cctcgcggct ctgacattgc cggcaccacc	720
tctacactgc aagagcaaat cggatggatg accaacaatc ctcccatccc agttggagaa	780
atctataaac ggtggatcat cctgggcctg aacaagatcg tgcgcatgta ctctccgaca	840
tccatccttg acattagaca gggacccaaa gagcctttta gggattacgt cgaccggttt	900
tataagacct tgcgagcaga gcaggcctct caggaggatc aaaactggat gacggagaca	960
ctcctggtac agaacgctaa ccccgactgc aaaacaatct tgaaggcact agggccggct	1020
gccaccctgg aagagatgat gaccgcctgt caggagtag gcggaccgg acacaaagcc	1080
agagtgttga tgggccccat cagtcccatc gagaccgtgc cggatgaagct gaaacccggg	1140
atggacggcc ccaagggtcaa gcagtggcca ctcaccgagg agaagatcaa ggccctggtg	1200
gagatctgca ccgagatgga gaaagagggc aagatcagca agatcgggccc ggagaacca	1260
tacaacaccc ccgtgtttgc catcaagaag aaggacagca ccaagtggcg caagctggtg	1320
gatttccggg agctgaataa gcggaccag gatttctggg aggtccagct gggcatcccc	1380
catccggccg gcctgaagaa gaagaagagc gtgaccgtgc tggacgtggg cgacgcttac	1440
ttcagcgtcc ctctggacga ggactttaga aagtacaccg cttttaccat cccatctatc	1500

## PhoenixTemp65258.tmp.txt

aacaacgaga	cccctggcat	cagatatcag	tacaacgtcc	tccccaggg	ctggaagggc	1560
tctcccgcc	ttttccagag	ctccatgacc	aagatcctgg	agccgtttcg	gaagcagaac	1620
cccgatatcg	tcatctacca	gtacatggac	gacctgtacg	tgggctctga	cctggaaatc	1680
gggcagcatc	gcacgaagat	tgaggagctg	aggcagcatc	tgctgagatg	gggcctgacc	1740
actccggaca	agaagcatca	gaaggagccg	ccattcctga	agatgggcta	cgagctccat	1800
cccgacaagt	ggaccgtgca	gcctatcgtc	ctccccgaga	aggacagctg	gaccgtgaac	1860
gacatccaga	agctgggtggg	caagctcaac	tgggctagcc	agatctatcc	cgggatcaag	1920
gtgcgccagc	tctgcaagct	gctgcgcggc	accaaggccc	tgaccgaggt	gattcccctc	1980
acggaggaag	ccgagctcga	gctggctgag	aaccgggaga	tcctgaagga	gcccgtgcac	2040
ggcgtgtact	atgaccctc	caaggacctg	atcgccgaaa	tccagaagca	gggccagggg	2100
cagtggacat	accagattta	ccaggagcct	ttcaagaacc	tcaagaccgg	caagtacgcc	2160
cgcattgagg	gcgcccacac	caacgatgtc	aagcagctga	ccgaggccgt	ccagaagatc	2220
acgaccgagt	ccatcgtgat	ctgggggaag	acaccaagt	tcaagctgcc	tatccagaag	2280
gagacctggg	agacgtggtg	gaccgaatat	tggcaggcca	cctggattcc	cgagtgggag	2340
ttcgtgaata	cacctcctct	ggtgaagctg	tgggtaccagc	tcgagaagga	gcccattcgtg	2400
ggcgcgagga	cattctacgt	ggacggcgcg	gccaaccgcg	aaacaaagct	cgggaaggcc	2460
gggtacgtca	ccaaccgggg	ccgccagaag	gtcgtcaccc	tgaccgacac	caccaaccag	2520
aagacggagc	tgcaggccat	ctatctcgct	ctccaggact	ccggcctgga	ggtgaacatc	2580
gtgacggaca	gccagtacgc	gctgggcatt	attcaggccc	agccggacca	gtccgagagc	2640
gaactggtga	accagattat	cgagcagctg	atcaagaaag	agaaggctta	cctcgcctgg	2700
gtcccggccc	ataagggcat	tggcggcaac	gagcaggctg	acaagctggg	gagtgcgggg	2760
attagaaagg	tgctgatggg	gggttttcca	gtcacacctc	aggtaccttt	aagaccaatg	2820
acttacaagg	cagctgtaga	tcttagccac	tttttaaaag	aaaagggggg	actggaaggg	2880
ctaattcact	cccaaagaag	acaagatatc	cttgatctgt	ggatctacca	cacacaaggc	2940
tacttccttg	attggcagaa	ctacacacca	gggccagggg	tcagatatcc	actgaccttt	3000
ggatgggtgct	acaagctagt	accagttgag	ccagataagg	tagaagaggc	caataaagga	3060
gagaacacca	gcttggttaca	ccctgtgagc	ctgcatggga	tggatgacct	ggagagagaa	3120
gtgttagagt	ggaggtttga	cagccgccta	gcatttcatc	acgtggcccg	agagctgcat	3180
ccggagtact	tcaagaactg	ctga				3204

<210> 2  
 <211> 1067  
 <212> PRT  
 <213> HIV

<400> 2

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

PhoenixTemp65258.tmp.txt

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 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  
                   115                  120                  125  
 Ser Gln Asn Tyr Pro Ile Val Gln Asn Ile Gln Gly Gln Met Val His  
                   130                  135                  140  
 Gln Ala Ile Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu  
                   145                  150                  155                  160  
 Glu Lys Ala Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser  
                   165                  170                  175  
 Glu Gly Ala Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly  
                   180                  185                  190  
 Gly His Gln Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu  
                   195                  200                  205  
 Ala Ala Glu Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala  
                   210                  215                  220  
 Pro Gly Gln Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr  
                   225                  230                  235                  240  
 Ser Thr Leu Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile  
                   245                  250                  255  
 Pro Val Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys  
                   260                  265                  270  
 Ile Val Arg Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly  
                   275                  280                  285

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

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

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

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

Val Gly Gly Pro Gly His Lys Ala Arg Val Leu Met Gly Pro Ile Ser  
 355 360 365

Pro Ile Glu Thr Val Pro Val Lys Leu Lys Pro Gly Met Asp Gly Pro  
 370 375 380

Lys Val Lys Gln Trp Pro Leu Thr Glu Glu Lys Ile Lys Ala Leu Val  
 385 390 395 400

Glu Ile Cys Thr Glu Met Glu Lys Glu Gly Lys Ile Ser Lys Ile Gly  
 405 410 415

Pro Glu Asn Pro Tyr Asn Thr Pro Val Phe Ala Ile Lys Lys Lys Asp  
 420 425 430

Ser Thr Lys Trp Arg Lys Leu Val Asp Phe Arg Glu Leu Asn Lys Arg  
 435 440 445

Thr Gln Asp Phe Trp Glu Val Gln Leu Gly Ile Pro His Pro Ala Gly  
 450 455 460

Leu Lys Lys Lys Lys Ser Val Thr Val Leu Asp Val Gly Asp Ala Tyr  
 465 470 475 480

Phe Ser Val Pro Leu Asp Glu Asp Phe Arg Lys Tyr Thr Ala Phe Thr  
 485 490 495

Ile Pro Ser Ile Asn Asn Glu Thr Pro Gly Ile Arg Tyr Gln Tyr Asn  
 500 505 510

Val Leu Pro Gln Gly Trp Lys Gly Ser Pro Ala Ile Phe Gln Ser Ser  
 515 520 525

Met Thr Lys Ile Leu Glu Pro Phe Arg Lys Gln Asn Pro Asp Ile Val  
 530 535 540

Ile Tyr Gln Tyr Met Asp Asp Leu Tyr Val Gly Ser Asp Leu Glu Ile  
 545 550 555 560

Gly Gln His Arg Thr Lys Ile Glu Glu Leu Arg Gln His Leu Leu Arg  
 Page 4

565

570

575

Trp Gly Leu Thr Thr Pro Asp Lys Lys His Gln Lys Glu Pro Pro Phe  
                   580                  585                  590

Leu Lys Met Gly Tyr Glu Leu His Pro Asp Lys Trp Thr Val Gln Pro  
                   595                  600                  605

Ile Val Leu Pro Glu Lys Asp Ser Trp Thr Val Asn Asp Ile Gln Lys  
           610                  615                  620

Leu Val Gly Lys Leu Asn Trp Ala Ser Gln Ile Tyr Pro Gly Ile Lys  
   625                  630                  635                  640

Val Arg Gln Leu Cys Lys Leu Leu Arg Gly Thr Lys Ala Leu Thr Glu  
                   645                  650                  655

Val Ile Pro Leu Thr Glu Glu Ala Glu Leu Glu Leu Ala Glu Asn Arg  
                   660                  665                  670

Glu Ile Leu Lys Glu Pro Val His Gly Val Tyr Tyr Asp Pro Ser Lys  
           675                  680                  685

Asp Leu Ile Ala Glu Ile Gln Lys Gln Gly Gln Gly Gln Trp Thr Tyr  
       690                  695                  700

Gln Ile Tyr Gln Glu Pro Phe Lys Asn Leu Lys Thr Gly Lys Tyr Ala  
   705                  710                  715                  720

Arg Met Arg Gly Ala His Thr Asn Asp Val Lys Gln Leu Thr Glu Ala  
                   725                  730                  735

Val Gln Lys Ile Thr Thr Glu Ser Ile Val Ile Trp Gly Lys Thr Pro  
                   740                  745                  750

Lys Phe Lys Leu Pro Ile Gln Lys Glu Thr Trp Glu Thr Trp Trp Thr  
           755                  760                  765

Glu Tyr Trp Gln Ala Thr Trp Ile Pro Glu Trp Glu Phe Val Asn Thr  
       770                  775                  780

Pro Pro Leu Val Lys Leu Trp Tyr Gln Leu Glu Lys Glu Pro Ile Val  
   785                  790                  795                  800

Gly Ala Glu Thr Phe Tyr Val Asp Gly Ala Ala Asn Arg Glu Thr Lys  
                   805                  810                  815

Leu Gly Lys Ala Gly Tyr Val Thr Asn Arg Gly Arg Gln Lys Val Val  
                   820                  825                  830

Thr Leu Thr Asp Thr Thr Asn Gln Lys Thr Glu Leu Gln Ala Ile Tyr  
           835                  840                  845

PhoenixTemp65258.tmp.txt

Leu Ala Leu Gln Asp Ser Gly Leu Glu Val Asn Ile Val Thr Asp Ser  
 850 855 860  
 Gln Tyr Ala Leu Gly Ile Ile Gln Ala Gln Pro Asp Gln Ser Glu Ser  
 865 870 875 880  
 Glu Leu Val Asn Gln Ile Ile Glu Gln Leu Ile Lys Lys Glu Lys Val  
 885 890 895  
 Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ile Gly Gly Asn Glu Gln  
 900 905 910  
 Val Asp Lys Leu Val Ser Ala Gly Ile Arg Lys Val Leu Met Val Gly  
 915 920 925  
 Phe Pro Val Thr Pro Gln Val Pro Leu Arg Pro Met Thr Tyr Lys Ala  
 930 935 940  
 Ala Val Asp Leu Ser His Phe Leu Lys Glu Lys Gly Gly Leu Glu Gly  
 945 950 955 960  
 Leu Ile His Ser Gln Arg Arg Gln Asp Ile Leu Asp Leu Trp Ile Tyr  
 965 970 975  
 His Thr Gln Gly Tyr Phe Pro Asp Trp Gln Asn Tyr Thr Pro Gly Pro  
 980 985 990  
 Gly Val Arg Tyr Pro Leu Thr Phe Gly Trp Cys Tyr Lys Leu Val Pro  
 995 1000 1005  
 Val Glu Pro Asp Lys Val Glu Glu Ala Asn Lys Gly Glu Asn Thr  
 1010 1015 1020  
 Ser Leu Leu His Pro Val Ser Leu His Gly Met Asp Asp Pro Glu  
 1025 1030 1035  
 Arg Glu Val Leu Glu Trp Arg Phe Asp Ser Arg Leu Ala Phe His  
 1040 1045 1050  
 His Val Ala Arg Glu Leu His Pro Glu Tyr Phe Lys Asn Cys  
 1055 1060 1065

<210> 3  
 <211> 4665  
 <212> DNA  
 <213> HIV

<400> 3  
 atggccgcca gagccagcat cctgagcggg ggcaagctgg acgcctggga gaagatcaga 60  
 ctgaggcctg gcggcaagaa gaagtaccgg ctgaagcacc tgggtgtgggc cagcagagag 120  
 ctggatcgct tcgccctgaa tcctagcctg ctggagacca ccgagggctg ccagcagatc 180

## PhoenixTemp65258.tmp.txt

atgaaccagc	tgcagcccg	cgtgaaaacc	ggcaccgagg	agatcaagag	cctgttcaac	240
accgtggcca	ccctgtactg	cgtgcaccag	cggatcgacg	tgaaggatac	caaggaggcc	300
ctggacaaga	tcgaggagat	ccagaacaag	agcaagcaga	aaaccagca	ggccgctgcc	360
gacaccggcg	acagcagcaa	agtgagccag	aactaccca	tcatccagaa	tgcccagggc	420
cagatgatcc	accagaacct	gagccccaga	accctgaatg	cctgggtgaa	agtgatcgag	480
gaaaaggcct	tcagccccga	agtgatccct	atgttcagcg	ccctgagcga	gggcgccacc	540
ccccaggacc	tgaacgtgat	gctgaacatt	gtgggaggac	accaggccgc	catgcagatg	600
ctgaaggaca	ccatcaatga	ggaggccgcc	gagtgggaca	gactgcaccc	cgtgcaggcc	660
ggacccatcc	cccctggcca	gatcagagag	cccagaggca	gcgacatcgc	cggcaccacc	720
tccaccctc	aagaacagct	gcagtggatg	accggcaacc	ctcccatccc	tgtgggcaac	780
atctacaagc	ggtggatcat	cctgggcctg	aacaagattg	tgcggatgta	cagccccgtg	840
tccatcctgg	atatcaagca	gggccccaa	gagcccttca	gagactacgt	ggaccggttc	900
ttcaaggccc	tgagagccga	gcaggccacc	caggacgtga	agggctggat	gaccgagacc	960
ctgctggtgc	agaacgcaa	ccccgactgc	aagagcatcc	tgaaggccct	gggcagcggc	1020
gccacactgg	aggagatgat	gaccgcctgc	cagggagtgg	gcggacccgg	ccacaaggcc	1080
agagtgtctg	ccgaggccat	gagccaggcc	cagcagacca	acatcatgat	gcagcggggc	1140
aacttcagag	gccagaagcg	gatcaagtgc	ttcaactgcg	gcaaggaggg	ccacctggcc	1200
agaaactgca	gagccccag	gaagaagggc	tgctggaagt	gtggcaagga	agggcaccag	1260
atgaaggact	gcaccgagag	gcaggccaat	ttcctgggca	agatttggcc	tagcagcaag	1320
ggcagaccgg	gcaatttccc	ccagagcaga	cccagagcca	ccgcccctcc	cgccgagctg	1380
ttcggcatgg	gcgagggcat	cgccagcctg	ccaagcagg	agcagaagga	cagagagcag	1440
gtgccccccc	tgggtgtccct	gaagtccctg	ttcggcaacg	atcctctgag	ccagggatcc	1500
cccatcagcc	ccatcgagac	cgtgcccgtg	accctgaagc	ccggcatgga	tggccccaaa	1560
gtgaaacagt	ggcccctgac	cgaggagaag	attaaggccc	tgaccgaaat	ctgtaccgag	1620
atggagaagg	agggaagat	cagcaagatc	ggccccgaga	accctacaa	caccccatc	1680
ttcgccatca	agaagaagga	cagcaccaag	tggcggaaac	tgggtggactt	ccgggagctg	1740
aacaagagga	cccaggactt	ctgggaagtg	cagctgggca	tccccaccc	tgccggcctg	1800
aagaagaaga	agtccgtgac	agtgtctggat	gtgggagcgc	cctacttcag	cgtgcccctg	1860
gacgagaact	tcaggaagta	caccgccttc	accatcccca	gcaccaacaa	cgagaccccc	1920
ggagttagat	accagtacaa	cgtgtgcct	cagggctgga	agggcagccc	cgccatcttc	1980
cagagcagca	tgaccaagat	cctggagccc	ttccggagca	agaaccccga	gatcatcatc	2040
taccagtaca	tggccgccct	gtatgtgggc	agcgatctgg	agatcggcc	gcacaggacc	2100
aagatcgaag	agctgagggc	ccacctgctg	agctggggct	tcaccacccc	cgataagaag	2160
caccagaagg	agcccccttt	cctgtggatg	ggctacgagc	tgacccccga	taagtggacc	2220

PhoenixTemp65258.tmp.txt						
gtgcagccca	tcatgtctgcc	cgataaggag	agctggaccg	tgaacgacat	ccagaaactg	2280
gtgggcaagc	tgaattgggc	cagccaaatc	tacgccggca	ttaaagtga	gcagctgtgc	2340
aggctgctga	gaggcgccaa	agccctgaca	gacatcgtga	caactgacaga	ggaggccgag	2400
ctggagctgg	ccgagaacag	ggagatcctg	aaggaccccg	tgcacggcgt	gtactacgac	2460
cccagcaagg	acctggtggc	cgagattcag	aagcagggcc	aggaccagtg	gacctaccaa	2520
atctaccagg	agcctttcaa	gaacctgaaa	accgggaagt	acgccaggaa	gagaagcgcc	2580
cacaccaacg	atgtgaggca	gctggccgaa	gtggtgcaga	aagtggctat	ggagagcatc	2640
gtgatctggg	gcaagacccc	caagttcaag	ctgcccattc	agaaggagac	ctgggaaacc	2700
tgggtgatgg	actactggca	ggccacctgg	attcctgagt	gggagttcgt	gaacaccccc	2760
cctctggtga	agctgtggta	tcagctggag	aaggacccca	tcctgggctc	cgagaccttc	2820
tacgtggacg	gagccgcca	tagagagacc	aagctgggca	aggccggcta	cgtagaccgac	2880
agaggcagac	agaaagtggg	gtctctgacc	gagacaacca	accagaaaac	cgagctgcac	2940
gccatcctgc	tggccctgca	ggacagcggc	agcgaagtga	acatcgtgac	cgactcccag	3000
tacgccctgg	gcatcattca	ggcccagccc	gatagaagcg	agagcgagct	ggtgaaccag	3060
atcatcgaga	agctgatcgg	caaggacaaa	atctacctga	gctgggtgcc	cgcccacaag	3120
ggcatcggcg	gcaacgagca	ggtggacaag	ctggtgtcca	gcggcatccg	gaaagtgtctg	3180
tttctggacg	gcatcgacaa	ggcccaggag	gaccacgaga	gataccacag	caactggcgg	3240
acaatggcca	gcgacttcaa	cctgcctccc	atcgtggcca	aggagatcgt	ggccagctgc	3300
gataagtgtc	agctgaaggg	cgaggccatg	cacggccagg	tggactgcag	ccctggcatc	3360
tggcagctgg	cctgcaccca	cctggagggc	aaagtgattc	tgggtggccgt	gcacgtggcc	3420
agcggctaca	tcgaggccga	agtgattccc	gccgagaccg	gccaggagac	cgctacttcc	3480
ctgctgaagc	tggccggcag	atggcccgtg	aaagtgggtg	acaccgcca	cggcagcaac	3540
ttcacctctg	ccgccgtgaa	ggccgcctgt	tgggtgggca	atatccagca	ggagttcggc	3600
atcccctaca	accctcagag	ccagggcgtg	gtggccagca	tgaacaagga	gctgaagaag	3660
atcatcggcc	aggtagggga	ccaggccgag	cacctgaaaa	cagccgtgca	gatggccgtg	3720
ttcatccaca	acttcaagcg	gaagggcggc	attggcggct	acagcgccgg	agagcggatc	3780
atcgacatca	tcgccaccga	tatccagacc	aaggaactgc	agaagcagat	caccaagatt	3840
cagaacttca	gagtgtacta	ccgggacagc	agggacccca	tctggaaggg	ccctgccaag	3900
ctgctgtgga	agggcggaag	cgccgtgggtg	atccaggaca	acagcgacat	caaagtgggtg	3960
ccccggagga	aggccaagat	tctgcgggac	tacggcaaac	agatggccgg	cgatgactgc	4020
gtggccggca	ggcaggatga	ggacagatct	atgggcccga	agtgggtcca	gggcagcatt	4080
gtgggctggc	ccgagatccg	ggagagaatg	agaagagccc	ctgccgccc	tcctggagtg	4140
ggcgccgtgt	ctcaggatct	ggataagcac	ggcgccatca	ccagcagcaa	catcaacaac	4200
cccagctgtg	tgtggctgga	ggcccaggaa	gaggaggaag	tgggcttccc	tgtgagaccc	4260
caggtgcccc	tgagacccat	gacctacaag	ggcgcttctg	acctgagcca	cttcctgaag	4320



PhoenixTemp65258.tmp.txt

gagaagggcg gcctggacgg cctgatctac agccggaagc ggcaggagat cctggatctg	4380
tggtgtacc acaccaggg ctacttcccc gactggcaga attacacccc tggccctgga	4440
gtgcggtatc ccctgacctt cggctggtgc ttcaagctgg tgcctatgga gcccgcgaa	4500
gtggagaagg ccacagaggg cgagaacaac agcctgctgc accctatctg ccagcacggc	4560
atggacgatg aggagcggga agtgctgac tggaagtctg acagcaggct ggcctgaag	4620
cacagagccc aggaactgca cccagagttc tacaaggact gctga	4665

<210> 4  
 <211> 1554  
 <212> PRT  
 <213> HIV

<400> 4

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

Gln Pro Ala Val Lys Thr Gly Thr Glu Glu Ile Lys Ser Leu Phe Asn  
 65 70 75 80

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

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

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

Ser Gln Asn Tyr Pro Ile Ile Gln Asn Ala Gln Gly Gln Met Ile His  
 130 135 140

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

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

Glu Gly Ala Thr Pro Gln Asp Leu Asn Val Met Leu Asn Ile Val Gly  
 180 185 190

Gly His Gln Ala Ala Met Gln Met Leu Lys Asp Thr Ile Asn Glu Glu  
 195 200 205  
 Ala Ala Glu Trp Asp Arg Leu His Pro Val Gln Ala Gly Pro Ile Pro  
 210 215 220  
 Pro Gly Gln Ile Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr  
 225 230 235 240  
 Ser Thr Pro Gln Glu Gln Leu Gln Trp Met Thr Gly Asn Pro Pro Ile  
 245 250 255  
 Pro Val Gly Asn Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys  
 260 265 270  
 Ile Val Arg Met Tyr Ser Pro Val Ser Ile Leu Asp Ile Lys Gln Gly  
 275 280 285  
 Pro Lys Glu Pro Phe Arg Asp Tyr Val Asp Arg Phe Phe Lys Ala Leu  
 290 295 300  
 Arg Ala Glu Gln Ala Thr Gln Asp Val Lys Gly Trp Met Thr Glu Thr  
 305 310 315 320  
 Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Ser Ile Leu Lys Ala  
 325 330 335  
 Leu Gly Ser Gly Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly  
 340 345 350  
 Val Gly Gly Pro Gly His Lys Ala Arg Val Leu Ala Glu Ala Met Ser  
 355 360 365  
 Gln Ala Gln Gln Thr Asn Ile Met Met Gln Arg Gly Asn Phe Arg Gly  
 370 375 380  
 Gln Lys Arg Ile Lys Cys Phe Asn Cys Gly Lys Glu Gly His Leu Ala  
 385 390 395 400  
 Arg Asn Cys Arg Ala Pro Arg Lys Lys Gly Cys Trp Lys Cys Gly Lys  
 405 410 415  
 Glu Gly His Gln Met Lys Asp Cys Thr Glu Arg Gln Ala Asn Phe Leu  
 420 425 430  
 Gly Lys Ile Trp Pro Ser Ser Lys Gly Arg Pro Gly Asn Phe Pro Gln  
 435 440 445  
 Ser Arg Pro Glu Pro Thr Ala Pro Pro Ala Glu Leu Phe Gly Met Gly  
 450 455 460  
 Glu Gly Ile Ala Ser Leu Pro Lys Gln Glu Gln Lys Asp Arg Glu Gln  
 Page 10

465                      470                      475                      480  
 Val Pro Pro Leu Val Ser Leu Lys Ser Leu Phe Gly Asn Asp Pro Leu  
                          485                                      490                                      495  
 Ser Gln Gly Ser Pro Ile Ser Pro Ile Glu Thr Val Pro Val Thr Leu  
                          500                                      505                                      510  
 Lys Pro Gly Met Asp Gly Pro Lys Val Lys Gln Trp Pro Leu Thr Glu  
                          515                                      520                                      525  
 Glu Lys Ile Lys Ala Leu Thr Glu Ile Cys Thr Glu Met Glu Lys Glu  
                          530                                      535                                      540  
 Gly Lys Ile Ser Lys Ile Gly Pro Glu Asn Pro Tyr Asn Thr Pro Ile  
                          545                                      550                                      555                                      560  
 Phe Ala Ile Lys Lys Lys Asp Ser Thr Lys Trp Arg Lys Leu Val Asp  
                          565                                      570                                      575  
 Phe Arg Glu Leu Asn Lys Arg Thr Gln Asp Phe Trp Glu Val Gln Leu  
                          580                                      585                                      590  
 Gly Ile Pro His Pro Ala Gly Leu Lys Lys Lys Lys Ser Val Thr Val  
                          595                                      600                                      605  
 Leu Asp Val Gly Asp Ala Tyr Phe Ser Val Pro Leu Asp Glu Asn Phe  
                          610                                      615                                      620  
 Arg Lys Tyr Thr Ala Phe Thr Ile Pro Ser Thr Asn Asn Glu Thr Pro  
                          625                                      630                                      635                                      640  
 Gly Val Arg Tyr Gln Tyr Asn Val Leu Pro Gln Gly Trp Lys Gly Ser  
                          645                                      650                                      655  
 Pro Ala Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu Pro Phe Arg  
                          660                                      665                                      670  
 Ser Lys Asn Pro Glu Ile Ile Ile Tyr Gln Tyr Met Ala Ala Leu Tyr  
                          675                                      680                                      685  
 Val Gly Ser Asp Leu Glu Ile Gly Gln His Arg Thr Lys Ile Glu Glu  
                          690                                      695                                      700  
 Leu Arg Ala His Leu Leu Ser Trp Gly Phe Thr Thr Pro Asp Lys Lys  
                          705                                      710                                      715                                      720  
 His Gln Lys Glu Pro Pro Phe Leu Trp Met Gly Tyr Glu Leu His Pro  
                          725                                      730                                      735  
 Asp Lys Trp Thr Val Gln Pro Ile Met Leu Pro Asp Lys Glu Ser Trp  
                          740                                      745                                      750

PhoenixTemp65258.tmp.txt

Thr Val Asn Asp Ile Gln Lys Leu Val Gly Lys Leu Asn Trp Ala Ser  
 755 760 765  
 Gln Ile Tyr Ala Gly Ile Lys Val Lys Gln Leu Cys Arg Leu Leu Arg  
 770 775 780  
 Gly Ala Lys Ala Leu Thr Asp Ile Val Thr Leu Thr Glu Glu Ala Glu  
 785 790 795 800  
 Leu Glu Leu Ala Glu Asn Arg Glu Ile Leu Lys Asp Pro Val His Gly  
 805 810 815  
 Val Tyr Tyr Asp Pro Ser Lys Asp Leu Val Ala Glu Ile Gln Lys Gln  
 820 825 830  
 Gly Gln Asp Gln Trp Thr Tyr Gln Ile Tyr Gln Glu Pro Phe Lys Asn  
 835 840 845  
 Leu Lys Thr Gly Lys Tyr Ala Arg Lys Arg Ser Ala His Thr Asn Asp  
 850 855 860  
 Val Arg Gln Leu Ala Glu Val Val Gln Lys Val Ala Met Glu Ser Ile  
 865 870 875 880  
 Val Ile Trp Gly Lys Thr Pro Lys Phe Lys Leu Pro Ile Gln Lys Glu  
 885 890 895  
 Thr Trp Glu Thr Trp Trp Met Asp Tyr Trp Gln Ala Thr Trp Ile Pro  
 900 905 910  
 Glu Trp Glu Phe Val Asn Thr Pro Pro Leu Val Lys Leu Trp Tyr Gln  
 915 920 925  
 Leu Glu Lys Asp Pro Ile Leu Gly Ala Glu Thr Phe Tyr Val Asp Gly  
 930 935 940  
 Ala Ala Asn Arg Glu Thr Lys Leu Gly Lys Ala Gly Tyr Val Thr Asp  
 945 950 955 960  
 Arg Gly Arg Gln Lys Val Val Ser Leu Thr Glu Thr Thr Asn Gln Lys  
 965 970 975  
 Thr Glu Leu His Ala Ile Leu Leu Ala Leu Gln Asp Ser Gly Ser Glu  
 980 985 990  
 Val Asn Ile Val Thr Asp Ser Gln Tyr Ala Leu Gly Ile Ile Gln Ala  
 995 1000 1005  
 Gln Pro Asp Arg Ser Glu Ser Glu Leu Val Asn Gln Ile Ile Glu  
 1010 1015 1020

PhoenixTemp65258.tmp.txt

Lys	Leu	Ile	Gly	Lys	Asp	Lys	Ile	Tyr	Leu	Ser	Trp	Val	Pro	Ala
	1025					1030					1035			
His	Lys	Gly	Ile	Gly	Gly	Asn	Glu	Gln	Val	Asp	Lys	Leu	Val	Ser
	1040					1045					1050			
Ser	Gly	Ile	Arg	Lys	Val	Leu	Phe	Leu	Asp	Gly	Ile	Asp	Lys	Ala
	1055					1060					1065			
Gln	Glu	Asp	His	Glu	Arg	Tyr	His	Ser	Asn	Trp	Arg	Thr	Met	Ala
	1070					1075					1080			
Ser	Asp	Phe	Asn	Leu	Pro	Pro	Ile	Val	Ala	Lys	Glu	Ile	Val	Ala
	1085					1090					1095			
Ser	Cys	Asp	Lys	Cys	Gln	Leu	Lys	Gly	Glu	Ala	Met	His	Gly	Gln
	1100					1105					1110			
Val	Asp	Cys	Ser	Pro	Gly	Ile	Trp	Gln	Leu	Ala	Cys	Thr	His	Leu
	1115					1120					1125			
Glu	Gly	Lys	Val	Ile	Leu	Val	Ala	Val	His	Val	Ala	Ser	Gly	Tyr
	1130					1135					1140			
Ile	Glu	Ala	Glu	Val	Ile	Pro	Ala	Glu	Thr	Gly	Gln	Glu	Thr	Ala
	1145					1150					1155			
Tyr	Phe	Leu	Leu	Lys	Leu	Ala	Gly	Arg	Trp	Pro	Val	Lys	Val	Val
	1160					1165					1170			
His	Thr	Ala	Asn	Gly	Ser	Asn	Phe	Thr	Ser	Ala	Ala	Val	Lys	Ala
	1175					1180					1185			
Ala	Cys	Trp	Trp	Ala	Asn	Ile	Gln	Gln	Glu	Phe	Gly	Ile	Pro	Tyr
	1190					1195					1200			
Asn	Pro	Gln	Ser	Gln	Gly	Val	Val	Ala	Ser	Met	Asn	Lys	Glu	Leu
	1205					1210					1215			
Lys	Lys	Ile	Ile	Gly	Gln	Val	Arg	Asp	Gln	Ala	Glu	His	Leu	Lys
	1220					1225					1230			
Thr	Ala	Val	Gln	Met	Ala	Val	Phe	Ile	His	Asn	Phe	Lys	Arg	Lys
	1235					1240					1245			
Gly	Gly	Ile	Gly	Gly	Tyr	Ser	Ala	Gly	Glu	Arg	Ile	Ile	Asp	Ile
	1250					1255					1260			
Ile	Ala	Thr	Asp	Ile	Gln	Thr	Lys	Glu	Leu	Gln	Lys	Gln	Ile	Thr
	1265					1270					1275			

Lys Ile Gln Asn Phe Arg Val Tyr Tyr Arg Asp Ser Arg Asp Pro  
 1280 1285 1290  
 Ile Trp Lys Gly Pro Ala Lys Leu Leu Trp Lys Gly Glu Gly Ala  
 1295 1300 1305  
 Val Val Ile Gln Asp Asn Ser Asp Ile Lys Val Val Pro Arg Arg  
 1310 1315 1320  
 Lys Ala Lys Ile Leu Arg Asp Tyr Gly Lys Gln Met Ala Gly Asp  
 1325 1330 1335  
 Asp Cys Val Ala Gly Arg Gln Asp Glu Asp Arg Ser Met Gly Gly  
 1340 1345 1350  
 Lys Trp Ser Lys Gly Ser Ile Val Gly Trp Pro Glu Ile Arg Glu  
 1355 1360 1365  
 Arg Met Arg Arg Ala Pro Ala Ala Ala Pro Gly Val Gly Ala Val  
 1370 1375 1380  
 Ser Gln Asp Leu Asp Lys His Gly Ala Ile Thr Ser Ser Asn Ile  
 1385 1390 1395  
 Asn Asn Pro Ser Cys Val Trp Leu Glu Ala Gln Glu Glu Glu  
 1400 1405 1410  
 Val Gly Phe Pro Val Arg Pro Gln Val Pro Leu Arg Pro Met Thr  
 1415 1420 1425  
 Tyr Lys Gly Ala Phe Asp Leu Ser His Phe Leu Lys Glu Lys Gly  
 1430 1435 1440  
 Gly Leu Asp Gly Leu Ile Tyr Ser Arg Lys Arg Gln Glu Ile Leu  
 1445 1450 1455  
 Asp Leu Trp Val Tyr His Thr Gln Gly Tyr Phe Pro Asp Trp Gln  
 1460 1465 1470  
 Asn Tyr Thr Pro Gly Pro Gly Val Arg Tyr Pro Leu Thr Phe Gly  
 1475 1480 1485  
 Trp Cys Phe Lys Leu Val Pro Met Glu Pro Asp Glu Val Glu Lys  
 1490 1495 1500  
 Ala Thr Glu Gly Glu Asn Asn Ser Leu Leu His Pro Ile Cys Gln  
 1505 1510 1515  
 His Gly Met Asp Asp Glu Glu Arg Glu Val Leu Ile Trp Lys Phe  
 1520 1525 1530  
 Asp Ser Arg Leu Ala Leu Lys His Arg Ala Gln Glu Leu His Pro  
 1535 1540 1545

Glu Phe Tyr Lys Asp Cys  
1550

<210> 5  
<211> 2025  
<212> DNA  
<213> HIV

```

<400> 5
atgagggtga tggagatcca gcggaactgc cagcacctgc tgagatgggg catcatgatc      60
ctgggcatga ttatcatctg cagcaccgcc gacaacctgt gggtgaccgt gtactacggc      120
gtgcctgtgt ggagagatgc cgagaccacc ctgttctgcg ccagcgacgc caaggcctac      180
agcaccgaga agcacaatgt gtgggccacc cagcctgcg tgccctaccga tcccaaccct      240
caggagatcc ccctggacaa cgtgaccgag gagttcaaca tgtggaagaa caacatggtg      300
gaccagatgc acgaggacat catcagcctg tgggaccaga gcctgaagcc ctgctgcag      360
ctgaccccc tgtgctgac cctgaactgc agcaacgcca gagtgaacgc caccttcaac      420
tccaccgagg acagggaggg catgaagaac tgcagcttca acatgaccac cgagctgcgg      480
gataagaagc agcaggtgta cagcctgttc taccggctgg acatcgagaa gatcaacagc      540
agcaacaaca acagcgagta ccggctggtg aactgcaata ccagcgccat caccaggcc      600
tgccctaagg tgaccttcga gcccatcccc atccactact gcgcccctgc cggcttcgcc      660
atcctgaagt gcaacgacac cgagttcaat ggcaccggcc cctgcaagaa tgtgagcacc      720
gtgcagtga cccacggcat caagcccgtg gtgtccaccc agctgctgct gaacggcagc      780
ctggccgaga gagaagtgcg gatcaggagc gagaacatcg ccaacaacgc caagaacatc      840
atcgtgcagt tcgccagccc cgtgaagatc aactgcatcc ggcccaacaa caatacccgg      900
aagagctaca gaatcggccc tggccagacc ttctacgcca ccgacattgt gggcgacatc      960
agacaggccc actgcaacgt gtccaggacc gactggaaca acacctgag actggtggcc     1020
aaccagctgc ggaagtactt cagcaacaag accatcatct tcaccaacag cagcggcgga     1080
gacctggaga tcaccacca cagcttcaat tgtggcggcg agttcttcta ctgcaacacc     1140
tccggcctgt tcaatagcac ctggaccacc aacaacatgc aggagtcaa cgacaccagc     1200
aacggcacca tcaccctgcc ctgccggatc aagcagatca tccggatgtg gcagcgcgtg     1260
ggccaggcca tgtacgcccc tcccatcgag ggcgtgattc gctgcgagag caacatcacc     1320
ggcctgatcc tgaccagaga tggcggcaac aacaattccg ccaacgagac cttcagacct     1380
ggcggcggag atatccggga caactggcgg agcgagctgt acaagtacaa ggtggtgaag     1440
atcgagcccc tgggcgtggc cccaccaga gccaagagaa gagtgggtgga gcgggagaag     1500
agagccgtgg gcatcggcgc cgtgtttctg ggcttcctgg gagccgccgg atctacaatg     1560
ggagccgcca gcatcaccct gaccgtgcag gccagacagc tgctgagcgg catcgtgcag     1620
cagcagagca atctgctgag agccatcgag gccagcagc agctgctgaa gctgacagtg     1680

```

## PhoenixTemp65258.tmp.txt

tggggcatca agcagctgca ggccaggggtg ctggccgtgg agagatacct gagggaccag 1740  
 cagctcctgg gcatctgggg ctgcagcggc aagctgatct gcaccaccaa cgtgccctgg 1800  
 aatagcagct ggagcaacaa gagctacgac gacatctggc agaacatgac ctggctgcag 1860  
 tgggacaagg agatcagcaa ctacaccgac atcatctaca gcctgatcga ggagagccag 1920  
 aaccagcagg agaagaacga gcaggatctg ctggccctgg acaagtgggc caacctgtgg 1980  
 aactggttcg acatcagcaa gtggctgtgg tacatcagat cttga 2025

<210> 6  
 <211> 674  
 <212> PRT  
 <213> HIV

<400> 6

Met Arg Val Met Glu Ile Gln Arg Asn Cys Gln His Leu Leu Arg Trp  
1 5 10 15

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

Leu Trp Val Thr Val Tyr Tyr Gly Val Pro Val Trp Arg Asp Ala Glu  
35 40 45

Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr Ser Thr Glu Lys  
50 55 60

His Asn Val Trp Ala Thr His Ala Cys Val Pro Thr Asp Pro Asn Pro  
65 70 75 80

Gln Glu Ile Pro Leu Asp Asn Val Thr Glu Glu Phe Asn Met Trp Lys  
85 90 95

Asn Asn Met Val Asp Gln Met His Glu Asp Ile Ile Ser Leu Trp Asp  
100 105 110

Gln Ser Leu Lys Pro Cys Val Gln Leu Thr Pro Leu Cys Val Thr Leu  
115 120 125

Asn Cys Ser Asn Ala Arg Val Asn Ala Thr Phe Asn Ser Thr Glu Asp  
130 135 140

Arg Glu Gly Met Lys Asn Cys Ser Phe Asn Met Thr Thr Glu Leu Arg  
145 150 155 160

Asp Lys Lys Gln Gln Val Tyr Ser Leu Phe Tyr Arg Leu Asp Ile Glu  
165 170 175

Lys Ile Asn Ser Ser Asn Asn Asn Ser Glu Tyr Arg Leu Val Asn Cys  
180 185 190

Asn Thr Ser Ala Ile Thr Gln Ala Cys Pro Lys Val Thr Phe Glu Pro  
Page 16



195

200

205

Ile Pro Ile His Tyr Cys Ala Pro Ala Gly Phe Ala Ile Leu Lys Cys  
 210 215 220

Asn Asp Thr Glu Phe Asn Gly Thr Gly Pro Cys Lys Asn Val Ser Thr  
 225 230 235 240

Val Gln Cys Thr His Gly Ile Lys Pro Val Val Ser Thr Gln Leu Leu  
 245 250 255

Leu Asn Gly Ser Leu Ala Glu Arg Glu Val Arg Ile Arg Ser Glu Asn  
 260 265 270

Ile Ala Asn Asn Ala Lys Asn Ile Ile Val Gln Phe Ala Ser Pro Val  
 275 280 285

Lys Ile Asn Cys Ile Arg Pro Asn Asn Asn Thr Arg Lys Ser Tyr Arg  
 290 295 300

Ile Gly Pro Gly Gln Thr Phe Tyr Ala Thr Asp Ile Val Gly Asp Ile  
 305 310 315 320

Arg Gln Ala His Cys Asn Val Ser Arg Thr Asp Trp Asn Asn Thr Leu  
 325 330 335

Arg Leu Val Ala Asn Gln Leu Arg Lys Tyr Phe Ser Asn Lys Thr Ile  
 340 345 350

Ile Phe Thr Asn Ser Ser Gly Gly Asp Leu Glu Ile Thr Thr His Ser  
 355 360 365

Phe Asn Cys Gly Gly Glu Phe Phe Tyr Cys Asn Thr Ser Gly Leu Phe  
 370 375 380

Asn Ser Thr Trp Thr Thr Asn Asn Met Gln Glu Ser Asn Asp Thr Ser  
 385 390 395 400

Asn Gly Thr Ile Thr Leu Pro Cys Arg Ile Lys Gln Ile Ile Arg Met  
 405 410 415

Trp Gln Arg Val Gly Gln Ala Met Tyr Ala Pro Pro Ile Glu Gly Val  
 420 425 430

Ile Arg Cys Glu Ser Asn Ile Thr Gly Leu Ile Leu Thr Arg Asp Gly  
 435 440 445

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

Ile Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys  
 465 470 475 480

PhoenixTemp65258.tmp.txt

Ile Glu Pro Leu Gly Val Ala Pro Thr Arg Ala Lys Arg Arg Val Val  
485 490 495

Glu Arg Glu Lys Arg Ala Val Gly Ile Gly Ala Val Phe Leu Gly Phe  
500 505 510

Leu Gly Ala Ala Gly Ser Thr Met Gly Ala Ala Ser Ile Thr Leu Thr  
515 520 525

Val Gln Ala Arg Gln Leu Leu Ser Gly Ile Val Gln Gln Gln Ser Asn  
530 535 540

Leu Leu Arg Ala Ile Glu Ala Gln Gln Gln Leu Leu Lys Leu Thr Val  
545 550 555 560

Trp Gly Ile Lys Gln Leu Gln Ala Arg Val Leu Ala Val Glu Arg Tyr  
565 570 575

Leu Arg Asp Gln Gln Leu Leu Gly Ile Trp Gly Cys Ser Gly Lys Leu  
580 585 590

Ile Cys Thr Thr Asn Val Pro Trp Asn Ser Ser Trp Ser Asn Lys Ser  
595 600 605

Tyr Asp Asp Ile Trp Gln Asn Met Thr Trp Leu Gln Trp Asp Lys Glu  
610 615 620

Ile Ser Asn Tyr Thr Asp Ile Ile Tyr Ser Leu Ile Glu Glu Ser Gln  
625 630 635 640

Asn Gln Gln Glu Lys Asn Glu Gln Asp Leu Leu Ala Leu Asp Lys Trp  
645 650 655

Ala Asn Leu Trp Asn Trp Phe Asp Ile Ser Lys Trp Leu Trp Tyr Ile  
660 665 670

Arg Ser

<210> 7  
<211> 1545  
<212> DNA  
<213> HIV

<400> 7  
atgaaagtga aggagaccag gaagaattat cagcacttgt ggagatgggg caccatgctc 60  
cttgggatgt tgatgatctg tagtgctgca gaacaattgt gggtcacagt ctattatggg 120  
gtacctgtgt ggaaagaagc aactaccact ctattctgtg catcagatgc taaagcatat 180  
gatacagagg tacataatgt ttgggccaca catgcctgtg tacccacaga cccaaccca 240  
caagaagtag tattgggaaa tgtgacagaa tattttaaca tgtggaaaaa taacatggta 300

PhoenixTemp65258.tmp.txt

gaccagatgc atgaggatat aatcagttta tgggatcaaa gcttgaagcc atgtgtaaaa 360  
ttaacccac tctgtgttac tttagattgc gatgatgtga ataccactaa tagtactact 420  
accactagta atggttggac aggagaaata aggaaaggag aaataaaaaa ctgctctttt 480  
aatatcacca caagcataag agataagggt caaaaagaat atgcactttt ttataacctt 540  
gatgtagtac caatagatga tgataatgct actacaaaaa ataaaactac tagaaacttt 600  
aggttgatac attgtaactc ctgagtcag acacaggcct gtccaaagggt atcatttgaa 660  
ccaattccca tacattattg tgccccggct ggttttgcga ttctgaagtg taacaataag 720  
acgtttgatg gaaaaggact atgtacaaat gtcagcacag tacaatgtac acatggaatt 780  
aggccagtag tgtcaactca actgctgtta aatggcagtc tagcagaaga agaggtagta 840  
attagatctg acaatttcat ggacaatact aaaaccataa tagtacagct gaatgaatct 900  
gtagcaatta attgtacaag acccaacaac aatacaagaa aagggtataca tataggacca 960  
gggagagcct tttatgcagc aagaaaaata ataggagata taagacaagc acattgtaac 1020  
cttagtagag cacaatggaa taacacttta aacagatag ttataaaatt aagagaacac 1080  
tttggaata aaacaataaa atttaatcaa tcctcaggag gggaccaga aattgtaagg 1140  
catagtttta attgtggagg ggaatttttc tactgtgata caacacaact gtttaatagt 1200  
acttggaatg gtactgaagg aaataacact gaaggaaata gcacaatcac actcccatgt 1260  
agaataaaac aaattataaa catgtggcag gaagtaggaa aagcaatgta tgcccctccc 1320  
atcgaggagc aaattagatg ttcacaaat attacagggc tgctattaac aagagatggt 1380  
ggtaccgaag ggaatgggac agagaatgag acagagatct tcagacctgg aggaggagat 1440  
atgagggaca attggagaag tgaattatat aaatataaag tagtaaaagt tgaaccacta 1500  
ggagtagcac ccaccagggc aaagagaaga gtggtgcaga gataa 1545

<210> 8  
<211> 514  
<212> PRT  
<213> HIV

<400> 8

Met Lys Val Lys Glu Thr Arg Lys Asn Tyr Gln His Leu Trp Arg Trp  
1 5 10 15

Gly Thr Met Leu Leu Gly Met Leu Met Ile Cys Ser Ala Ala Glu Gln  
20 25 30

Leu Trp Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys Glu Ala Thr  
35 40 45

Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys Ala Tyr Asp Thr Glu Val  
50 55 60

His Asn Val Trp Ala Thr His Ala Cys Val Pro Thr Asp Pro Asn Pro  
65 70 75 80

PhoenixTemp65258.tmp.txt

Gln Glu Val Val Leu Gly Asn Val Thr Glu Tyr Phe Asn Met Trp Lys  
85 90 95

Asn Asn Met Val Asp Gln Met His Glu Asp Ile Ile Ser Leu Trp Asp  
100 105 110

Gln Ser Leu Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val Thr Leu  
115 120 125

Asp Cys Asp Asp Val Asn Thr Thr Asn Ser Thr Thr Thr Thr Ser Asn  
130 135 140

Gly Trp Thr Gly Glu Ile Arg Lys Gly Glu Ile Lys Asn Cys Ser Phe  
145 150 155 160

Asn Ile Thr Thr Ser Ile Arg Asp Lys Val Gln Lys Glu Tyr Ala Leu  
165 170 175

Phe Tyr Asn Leu Asp Val Val Pro Ile Asp Asp Asp Asn Ala Thr Thr  
180 185 190

Lys Asn Lys Thr Thr Arg Asn Phe Arg Leu Ile His Cys Asn Ser Ser  
195 200 205

Val Met Thr Gln Ala Cys Pro Lys Val Ser Phe Glu Pro Ile Pro Ile  
210 220

His Tyr Cys Ala Pro Ala Gly Phe Ala Ile Leu Lys Cys Asn Asn Lys  
225 230 235 240

Thr Phe Asp Gly Lys Gly Leu Cys Thr Asn Val Ser Thr Val Gln Cys  
245 250 255

Thr His Gly Ile Arg Pro Val Val Ser Thr Gln Leu Leu Leu Asn Gly  
260 265 270

Ser Leu Ala Glu Glu Glu Val Val Ile Arg Ser Asp Asn Phe Met Asp  
275 280 285

Asn Thr Lys Thr Ile Ile Val Gln Leu Asn Glu Ser Val Ala Ile Asn  
290 295 300

Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly Pro  
305 310 315 320

Gly Arg Ala Phe Tyr Ala Ala Arg Lys Ile Ile Gly Asp Ile Arg Gln  
325 330 335

Ala His Cys Asn Leu Ser Arg Ala Gln Trp Asn Asn Thr Leu Lys Gln  
340 345 350

PhoenixTemp65258.tmp.txt

Ile Val Ile Lys Leu Arg Glu His Phe Gly Asn Lys Thr Ile Lys Phe  
355 360 365

Asn Gln Ser Ser Gly Gly Asp Pro Glu Ile Val Arg His Ser Phe Asn  
370 375 380

Cys Gly Gly Glu Phe Phe Tyr Cys Asp Thr Thr Gln Leu Phe Asn Ser  
385 390 395 400

Thr Trp Asn Gly Thr Glu Gly Asn Asn Thr Glu Gly Asn Ser Thr Ile  
405 410 415

Thr Leu Pro Cys Arg Ile Lys Gln Ile Ile Asn Met Trp Gln Glu Val  
420 425 430

Gly Lys Ala Met Tyr Ala Pro Pro Ile Gly Gly Gln Ile Arg Cys Ser  
435 440 445

Ser Asn Ile Thr Gly Leu Leu Leu Thr Arg Asp Gly Gly Thr Glu Gly  
450 455 460

Asn Gly Thr Glu Asn Glu Thr Glu Ile Phe Arg Pro Gly Gly Gly Asp  
465 470 475 480

Met Arg Asp Asn Trp Arg Ser Glu Leu Tyr Lys Tyr Lys Val Val Lys  
485 490 495

Val Glu Pro Leu Gly Val Ala Pro Thr Arg Ala Lys Arg Arg Val Val  
500 505 510

Gln Arg

<210> 9  
<211> 2178  
<212> DNA  
<213> Mycobacterium tuberculosis

<400> 9  
atgcatcaca cggccgctc cgataacttc cagctgtccc aggggtgggca gggattcgcc 60  
attccgatcg ggcaggcgat ggcgatcgcg ggccagatcc gatcgggtgg ggggtcaccc 120  
accgttcata tcgggcctac cgccttcctc ggcttgggtg ttgtcgacaa caacggcaac 180  
ggcgcacgag tccaacgcgt ggtcgggagc gctccggcgg caagtctcgg catctccacc 240  
ggcgacgtga tcaccgcggt cgacggcgct ccgatcaact cggccaccgc gatggcggac 300  
gcgcttaacg ggcacatcc cggtgacgtc atctcggtga cctggcaaac caagtcgggc 360  
ggcacgcgta cagggaacgt gacattggcc gagggacccc cggccgaatt catggtggat 420  
ttcggggcgt taccaccgga gatcaactcc gcgaggatgt acgccggccc gggttcggcc 480  
tcgctggtgg ccgcggctca gatgtgggac agcgtggcga gtgacctgtt ttcggccgcg 540

## PhoenixTemp65258.tmp.txt

tcggcggtttc agtcggtggt ctgggggtctg acgggtgggggt cgtggatagg ttcgtcggcg	600
ggctctgatgg tggcggcggc ctcgccgtat gtggcggtgga tgagcgtcac cgcggggcag	660
gccgagctga ccgccgcca ggtccgggtt gctgcggcgg cctacgagac ggcgtatggg	720
ctgacggtgc ccccgccggt gatcgccgag aaccgtgctg aactgatgat tctgatagcg	780
accaacctct tggggcaaaa caccgcggcg atcgcggtca acgaggccga atacggcgag	840
atgtgggccc aagacgccgc cgcgatgttt ggctacgccg cggcgacggc gacggcgacg	900
gcgacgttgc tgccgttcga ggaggcgccg gagatgacca gcgcgggttg gtcctcag	960
caggccgccg cggtcgagga ggcctccgac accgccgcgg cgaaccagtt gatgaacaat	1020
gtgccccagg cgctgcaaca gctggcccag ccacgcagg gcaccacgcc ttcttccaag	1080
ctgggtggcc tgtggaagac ggtctcgccg catcggtcgc cgatcagcaa catggtgtcg	1140
atggccaaca accacatgtc gatgaccaac tcgggtgtgt cgatgaccaa caccttgagc	1200
tcgatgttga agggctttgc tccggcggcg gccgccagg ccgtgcaaac cgcggcgcaa	1260
aacgggttcc gggcgatgag ctcgctgggc agctcgctgg gttcttcggg tctgggcggt	1320
ggggtggccg ccaacttggg tcgggcggcc tcggtcggtt cgttgtcggg gccgcaggcc	1380
tgggccgcgg ccaaccaggc agtcaccccg gcggcgccgg cgctgccgct gaccagcctg	1440
accagcgccg cggaagagg gcccgggcag atgctgggcg ggctgccggt ggggcagatg	1500
ggcgccaggg ccggtggtgg gctcagtggg gtgctgcgtg ttccgccgcg accctatgtg	1560
atgccgatt ctccggcagc cggcgatata gccccgccg ccttgctgca ggaccggttc	1620
gccgacttcc ccgcgctgcc cctcgacccg tccgcgatgg tcgccaagt ggggccacag	1680
gtggtcaaca tcaacaccaa actgggctac aacaacgccg tgggcgccgg gaccggcatc	1740
gtcatcgatc ccaacggtgt cgtgctgacc aacaaccag tgatcgccgg gccaccgac	1800
atcaatgcgt tcagcgctcg ctccggccaa acctacggcg tcgatgtggg cgggtatgac	1860
cgcaccagg atgtcgcggt gctgcagctg cgcggtgccg gtggcctgcc gtcggcgcg	1920
atcggtggcg gcgtcgcggt tggtagccc gtcgtcgca tgggcaacag cgggtggcag	1980
ggcggaacgc cccgtgcggt gcctggcagg gtggtcgcg tcggccaaac cgtgcaggcg	2040
tcggattcgc tgaccggtgc cgaagagaca ttgaacgggt tgatccagtt cgatgccgcg	2100
atccagcccg gtgatgcggg cgggcccgtc gtcaacggcc taggacaggt ggtcggtatg	2160
aacacggccg cgctcctag	2178

<210> 10  
 <211> 725  
 <212> PRT  
 <213> Mycobacterium tuberculosis  
 <400> 10

Met	His	His	Thr	Ala	Ala	Ser	Asp	Asn	Phe	Gln	Leu	Ser	Gln	Gly	Gly
1				5					10					15	

Gln	Gly	Phe	Ala	Ile	Pro	Ile	Gly	Gln	Ala	Met	Ala	Ile	Ala	Gly	Gln
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Page 22

20

25

30

Ile Arg Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala  
 35 40 45

Phe Leu Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val  
 50 55 60

Gln Arg Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr  
 65 70 75 80

Gly Asp Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr  
 85 90 95

Ala Met Ala Asp Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser  
 100 105 110

Val Thr Trp Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr  
 115 120 125

Leu Ala Glu Gly Pro Pro Ala Glu Phe Met Val Asp Phe Gly Ala Leu  
 130 135 140

Pro Pro Glu Ile Asn Ser Ala Arg Met Tyr Ala Gly Pro Gly Ser Ala  
 145 150 155 160

Ser Leu Val Ala Ala Ala Gln Met Trp Asp Ser Val Ala Ser Asp Leu  
 165 170 175

Phe Ser Ala Ala Ser Ala Phe Gln Ser Val Val Trp Gly Leu Thr Val  
 180 185 190

Gly Ser Trp Ile Gly Ser Ser Ala Gly Leu Met Val Ala Ala Ala Ser  
 195 200 205

Pro Tyr Val Ala Trp Met Ser Val Thr Ala Gly Gln Ala Glu Leu Thr  
 210 215 220

Ala Ala Gln Val Arg Val Ala Ala Ala Ala Tyr Glu Thr Ala Tyr Gly  
 225 230 235 240

Leu Thr Val Pro Pro Pro Val Ile Ala Glu Asn Arg Ala Glu Leu Met  
 245 250 255

Ile Leu Ile Ala Thr Asn Leu Leu Gly Gln Asn Thr Pro Ala Ile Ala  
 260 265 270

Val Asn Glu Ala Glu Tyr Gly Glu Met Trp Ala Gln Asp Ala Ala Ala  
 275 280 285

Met Phe Gly Tyr Ala Ala Ala Thr Ala Thr Ala Thr Ala Thr Leu Leu  
 290 295 300

PhoenixTemp65258.tmp.txt

Pro Phe Glu Glu Ala Pro Glu Met Thr Ser Ala Gly Gly Leu Leu Glu  
 305 310 315 320  
 Gln Ala Ala Ala Val Glu Glu Ala Ser Asp Thr Ala Ala Ala Asn Gln  
 325 330 335  
 Leu Met Asn Asn Val Pro Gln Ala Leu Gln Gln Leu Ala Gln Pro Thr  
 340 345 350  
 Gln Gly Thr Thr Pro Ser Ser Lys Leu Gly Gly Leu Trp Lys Thr Val  
 355 360 365  
 Ser Pro His Arg Ser Pro Ile Ser Asn Met Val Ser Met Ala Asn Asn  
 370 375 380  
 His Met Ser Met Thr Asn Ser Gly Val Ser Met Thr Asn Thr Leu Ser  
 385 390 395 400  
 Ser Met Leu Lys Gly Phe Ala Pro Ala Ala Ala Ala Gln Ala Val Gln  
 405 410 415  
 Thr Ala Ala Gln Asn Gly Val Arg Ala Met Ser Ser Leu Gly Ser Ser  
 420 425 430  
 Leu Gly Ser Ser Gly Leu Gly Gly Gly Val Ala Ala Asn Leu Gly Arg  
 435 440 445  
 Ala Ala Ser Val Gly Ser Leu Ser Val Pro Gln Ala Trp Ala Ala Ala  
 450 455 460  
 Asn Gln Ala Val Thr Pro Ala Ala Arg Ala Leu Pro Leu Thr Ser Leu  
 465 470 475 480  
 Thr Ser Ala Ala Glu Arg Gly Pro Gly Gln Met Leu Gly Gly Leu Pro  
 485 490 495  
 Val Gly Gln Met Gly Ala Arg Ala Gly Gly Gly Leu Ser Gly Val Leu  
 500 505 510  
 Arg Val Pro Pro Arg Pro Tyr Val Met Pro His Ser Pro Ala Ala Gly  
 515 520 525  
 Asp Ile Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro  
 530 535 540  
 Ala Leu Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln  
 545 550 555 560  
 Val Val Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala  
 565 570 575



PhoenixTemp65258.tmp.txt

Gly Thr Gly Ile Val Ile Asp Pro Asn Gly Val Val Leu Thr Asn Asn  
580 585 590

His Val Ile Ala Gly Ala Thr Asp Ile Asn Ala Phe Ser Val Gly Ser  
595 600 605

Gly Gln Thr Tyr Gly Val Asp Val Val Gly Tyr Asp Arg Thr Gln Asp  
610 615 620

Val Ala Val Leu Gln Leu Arg Gly Ala Gly Gly Leu Pro Ser Ala Ala  
625 630 635 640

Ile Gly Gly Gly Val Ala Val Gly Glu Pro Val Val Ala Met Gly Asn  
645 650 655

Ser Gly Gly Gln Gly Gly Thr Pro Arg Ala Val Pro Gly Arg Val Val  
660 665 670

Ala Leu Gly Gln Thr Val Gln Ala Ser Asp Ser Leu Thr Gly Ala Glu  
675 680 685

Glu Thr Leu Asn Gly Leu Ile Gln Phe Asp Ala Ala Ile Gln Pro Gly  
690 695 700

Asp Ala Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met  
705 710 715 720

Asn Thr Ala Ala Ser  
725

<210> 11  
<211> 1149  
<212> DNA  
<213> Plasmodium falciparum

<400> 11  
atgatgagaa aacttgccat cctcagcgtc agctctttcc tgttcgtgga ggccctcttc 60  
caggagtatc agtgctacgg aagcagcagc aatacaaggg tcctgaacga gctcaactat 120  
gacaacgctg gaacgaacct gtataacgag ctggagatga actactatgg caagcaggag 180  
aactggtata gcctgaagaa gaacagccgg tccctgggcg agaacgacga cggcaacaac 240  
aacaacggcg acaacggcag ggagggcaaa gatgaggaca agagggacgg gaacaacgag 300  
gataacgaga agctgcggaa gccaagcac aagaaactca agcagcccg cgcggaac 360  
ccggacccca atgcaaattc caacgtcgac ccaaacgcaa accctaactg ggaccccaac 420  
gccaatccca acgtcgatcc taatgccaat ccaaagcca accctaactg aaatccta 480  
gcaaacccta acgccaatcc taacgccaac ccaaagcca acccaaactg taaccccaac 540  
gctaacccta atgcaaattc caatgctaac ccaaagctgg accctaactg taaccccaac 600  
gcaaacccta acgccaatcc taacgccaac ccaaagctga acccaaactg aaatcccaac 660

## PhoenixTemp65258.tmp.txt

gctaacccta acgcaaacc caacgccaac cctaattgcca accccaatgc taacccaac 720  
gccaatccaa acgcaaattcc aaacgccaac ccaaattgcaa accccaacgc taatccaac 780  
gccaacccaa acgccaatcc taacaagaac aatcagggca acgggcaggc ccataacatg 840  
ccgaacgacc ctaatcgga tgtggacgag aacgccaacg ccaacagcgc cgtgaagaac 900  
aacaacaacg aggagccctc cgacaagcac atcaaggaat acctgaacaa gatccagaac 960  
agtctgagca ccgagtggtc cccctgctcc gtgacctgcg gcaacggcat ccaggtgagg 1020  
atcaagcccg gctccgcaa caagcccaag gacgagctgg actacgcaa cgacatcgag 1080  
aagaagatct gcaagatgga gaaatgcagc tctgtgttca acgtcgtgaa ctccgccatc 1140  
ggcctgtga 1149

<210> 12  
<211> 382  
<212> PRT  
<213> Plasmodium falciparum

<400> 12

Met Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser Phe Leu Phe Val  
1 5 10 15

Glu Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr  
20 25 30

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

Asn Asn Gly Asp Asn Gly Arg Glu Gly Lys Asp Glu Asp Lys Arg Asp  
85 90 95

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

Leu Lys Gln Pro Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn  
115 120 125

Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn  
130 135 140

Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn  
145 150 155 160

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn  
165 170 175

PhoenixTemp65258.tmp.txt

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn  
180 185 190

Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn  
195 200 205

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

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

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

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys Asn Asn Gln  
260 265 270

Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn Arg Asn Val  
275 280 285

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

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

Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr Cys Gly Asn Gly  
325 330 335

Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys Pro Lys Asp Glu  
340 345 350

Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys Lys Met Glu Lys  
355 360 365

Cys Ser Ser Val Phe Asn Val Val Asn Ser Ala Ile Gly Leu  
370 375 380

<210> 13

<211> 1275

<212> DNA

<213> Plasmodium falciparum

<400> 13

atgatggctc ccgatcctaa tgcaaattcca aatgcaaacc caaacgcaaa cccaatgca 60

aattcctaattg caaaccccaa tgcaaatcct aatgcaaatt ctaatgccaa tccaaatgca 120

aatccaaatg caaacccaaa cgcaaaccac aatgcaaatt ctaatgccaa tccaaatgca 180

aatccaaatg caaacccaaa tgcaaaccac aatgcaaacc ccaatgcaaa tcctaataaa 240

aacaatcaag gtaatggaca aggtcacaat atgccaaatg acccaaaccg aatgtagat 300

PhoenixTemp65258.tmp.txt

gaaaatgcta atgccaacag tgctgtaaaa aataataata acgaagaacc aagtgataag 360  
cacataaaag aatattttaa caaaatacaa aattctcttt caactgaatg gtcccatgt 420  
agtgtaaact gtggaaatgg tattcaagtt agaataaagc ctggctctgc taataaacct 480  
aaagacgaat tagattatgc aaatgatatt gaaaaaaaaa ttgttaaat ggaaaaatgt 540  
tccagtgtgt ttaatgtcgt aaatagttca ataggattag ggcctgtgac gaacatggag 600  
aacatcacat caggattcct aggaccctg ctctgtgttac aggcgggggtt tttcttgttg 660  
acaagaatcc tcacaatacc gcagagtcta gactcgtggg ggacttctct caattttcta 720  
gggggatcac ccgtgtgtct tggccaaaat tcgcagtccc caacctcaa tcactacca 780  
acctcctgtc ctccaatttg tcctgtttat cgctggatgt gtctgcggcg tttatcata 840  
ttcctcttca tcctgtctgt atgcctcatc ttcttattgg ttcttctgga ttatcaaggt 900  
atgttgcccg tttgtcctct aattccagga tcaacaaca ccaatacggg accatgcaa 960  
acctgcacga ctctgtctca aggcaactct atgtttccct catgttgctg taaaaacct 1020  
acggatggaa attgcacctg tattcccatc ccatcgtcct gggctttcgc aaaataccta 1080  
tgggagtggg cctcagtcctg tttctcttgg ctcatgttac tagtgccatt tgttcagtgg 1140  
ttcgtagggc tttccccac tgtttggctt tcagctatat ggatgatgtg gtattggggg 1200  
ccaagtctgt acagcatcgt ggtcccttt ataccgctgt taccaatttt cttttgtctc 1260  
tgggtataca tttaa 1275

<210> 14  
<211> 424  
<212> PRT  
<213> Plasmodium falciparum  
<400> 14

Met Met Ala Pro Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala  
1 5 10 15  
Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala  
20 25 30  
Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala  
35 40 45  
Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala  
50 55 60  
Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Lys  
65 70 75 80  
Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro Asn  
85 90 95  
Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn Asn  
100 105 110

PhoenixTemp65258.tmp.txt

Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn Lys  
 115 120 125  
 Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr Cys  
 130 135 140  
 Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys Pro  
 145 150 155 160  
 Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys Lys  
 165 170 175  
 Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile Gly  
 180 185 190  
 Leu Gly Pro Val Thr Asn Met Glu Asn Ile Thr Ser Gly Phe Leu Gly  
 195 200 205  
 Pro Leu Leu Val Leu Gln Ala Gly Phe Phe Leu Leu Thr Arg Ile Leu  
 210 215 220  
 Thr Ile Pro Gln Ser Leu Asp Ser Trp Trp Thr Ser Leu Asn Phe Leu  
 225 230 235 240  
 Gly Gly Ser Pro Val Cys Leu Gly Gln Asn Ser Gln Ser Pro Thr Ser  
 245 250 255  
 Asn His Ser Pro Thr Ser Cys Pro Pro Ile Cys Pro Gly Tyr Arg Trp  
 260 265 270  
 Met Cys Leu Arg Arg Phe Ile Ile Phe Leu Phe Ile Leu Leu Leu Cys  
 275 280 285  
 Leu Ile Phe Leu Leu Val Leu Leu Asp Tyr Gln Gly Met Leu Pro Val  
 290 295 300  
 Cys Pro Leu Ile Pro Gly Ser Thr Thr Thr Asn Thr Gly Pro Cys Lys  
 305 310 315 320  
 Thr Cys Thr Thr Pro Ala Gln Gly Asn Ser Met Phe Pro Ser Cys Cys  
 325 330 335  
 Cys Thr Lys Pro Thr Asp Gly Asn Cys Thr Cys Ile Pro Ile Pro Ser  
 340 345 350  
 Ser Trp Ala Phe Ala Lys Tyr Leu Trp Glu Trp Ala Ser Val Arg Phe  
 355 360 365  
 Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln Trp Phe Val Gly Leu  
 370 375 380

Ser Pro Thr Val Trp Leu Ser Ala Ile Trp Met Met Trp Tyr Trp Gly  
 385 390 395 400

Pro Ser Leu Tyr Ser Ile Val Ser Pro Phe Ile Pro Leu Leu Pro Ile  
 405 410 415

Phe Phe Cys Leu Trp Val Tyr Ile  
 420

<210> 15  
 <211> 3411  
 <212> DNA  
 <213> HIV

<400> 15  
 atggtcattg ttcagaacat acagggccaa atggtccacc aggcaattag tccgcgaact 60  
 cttaatgcat ggggtgaagg cgtggaggaa aaggcattct ccccgagggt cattccgatg 120  
 ttttctgcgc tatctgaggg cgcaacgccg caagacctta ataccatgct taacacggta 180  
 ggcgggcacc aagccgctat gcaaatgcta aaagagacta taaacgaaga ggccgccgaa 240  
 tgggatcgag tgcacccggg gcacgccggc ccaattgcac caggccagat gcgcgagccg 300  
 cgcggtctg atattgcagg aactacgtct acccttcagg agcagattgg gtggatgact 360  
 aacaatccac caatcccggg cggagagatc tataagagggt ggatcactact gggactaaac 420  
 aagatagtcc gcatgtattc tccgacttct atactggata tacgccagg cccaaaggag 480  
 ccgttcaggg actatgtcga ccgattctat aagacccttc gcgcagagca ggcatcccag 540  
 gaggtcaaaa attggatgac agaaactctt ttggtgcaga atgcgaatcc ggattgtaaa 600  
 acaattttaa aggctctagg accggccgca acgctagaag agatgatgac ggcttgtcag 660  
 ggagtcggtg gaccggggca taaagccgc gtcttacaca tgggcccgat atctccgata 720  
 gaaacagttt cgggtcaagct taaaccaggg atggatgggtc caaagggtcaa gcagtggccg 780  
 ctaacggaag agaagattaa ggcgctcgta gagatttgta ctgaaatgga gaaggaaggc 840  
 aagataagca agatcgggcc agagaacccg tacaatacac cggtatttgc aataaagaaa 900  
 aaggattcaa caaatggcg aaagcttgta gattttaggg aactaaacaa gcgaacccaa 960  
 gacttttggg aagtccaact agggatccca catccagccg gtctaaagaa gaagaaatcg 1020  
 gtcacagtcc tggatgtagg agacgcatat tttagtgtac cgcttgatga ggacttccga 1080  
 aagtatactg cgtttactat accgagcata aacaatgaaa cgccaggcat tcgctatcag 1140  
 tacaacgtgc tcccgaggg ctggaagggg tctccggcga tatttcagag ctgtatgaca 1200  
 aaaatacttg aaccattccg aaagcagaat ccggatattg taatttacca atacatggac 1260  
 gatctctatg tgggctcgga tctagaaatt gggcagcatc gcactaagat tgaggaaactg 1320  
 aggcaacatc tgcttcgatg gggcctcact actcccgaca agaagcacca gaaggagccg 1380  
 ccgttcctaa agatgggcta cgagcttcat ccggacaagt ggacagtaca gccgatagtg 1440  
 ctgcccgaag aggattcttg gaccgtaaat gatattcaga aactagtcgg caagcttaac 1500  
 tgggcctctc agatttacc aggcattaag gtccgacagc ttgcaagct actgagggga 1560

## PhoenixTemp65258.tmp.txt

actaaggctc	taacagaggt	catcccatta	acggaggaag	cagagcttga	gctggcagag	1620
aatcgcgaaa	ttcttaagga	gccggtgcac	gggggtatact	acgacccctc	caaggacctt	1680
atagccgaga	tccagaagca	ggggcagggc	caatggacgt	accagatata	tcaagaaccg	1740
tttaagaatc	tgaagactgg	gaagtacgcg	cgcacgag	gggctcatal	taatgatgta	1800
aagcaactta	cgaagcagt	acaaaagatt	actactgagt	ctattgtgat	atggggcaag	1860
accccaaagt	tcaagctgcc	catacagaag	gaaacatggg	aaacatggtg	gactgaatat	1920
tggcaagcta	cctggattcc	agaatgggaa	tttgtcaaca	cgccgccact	tgtaagctt	1980
tggtaccagc	ttgaaaagga	gccgatagta	ggggcagaga	ccttctatgt	cgatggcgcc	2040
gcgaatcgcg	aaacgaagct	aggcaaggcg	ggatacgtga	ctaatagggg	ccgcaaaaag	2100
gtcgtaaccc	ttacggatac	caccaatcag	aagactgaac	tacaagcgat	ttaccttgca	2160
cttcaggata	gtggcctaga	ggtcaacata	gtcacggact	ctcaatatgc	gcttggcatt	2220
attcaagcgc	agccagatca	aagcgaaagc	gagcttgtaa	accaaataat	agaacagctt	2280
ataaagaaag	agaaggtata	tctggcctgg	gtccccgctc	acaaggggaat	tggcggcaat	2340
gagcaagtgg	acaagctagt	cagcgctggg	attcgcaagg	ttcttgcgat	ggggggtaag	2400
tggtctaagt	ctagcgtagt	cggctggccg	acagtccgcg	agcgcatgcg	acgcgccgaa	2460
ccagccgcag	atggcgtagg	ggcagcgctc	agggatctgg	agaagcacgg	ggctataact	2520
tccagtaaca	cggcggcgac	gaacgccgca	tgcgcatggt	tagaagccca	agaagaggaa	2580
gaagtagggt	ttccggtaac	tccccagggt	ccgttaaggc	cgatgacctt	taaggcagcg	2640
gtggatcttt	ctcacttctt	taaggagaaa	ggggggctgg	agggcttaat	tcacagccag	2700
aggcgacagg	atattcttga	tctgtggatt	taccataccc	aggggtactt	tccggactgg	2760
cagaattaca	ccccggggcc	aggcgtagcg	tatcccctga	ctttcgggtg	gtgctacaaa	2820
ctagtcccag	tggaacccga	caaggtcgaa	gaggctaata	agggcgagaa	cacttctctt	2880
cttcacccgg	taagcctgca	cgggatggat	gaccagaac	gagaggttct	agaatggagg	2940
ttcgactctc	gacttgcggt	ccatcacgta	gcacgcgagc	tgcatccaga	atatttcaag	3000
aactgccgcc	caatgggagc	cagggccagt	gtacttagtg	gcggagaact	agatcgatgg	3060
gaaaagatac	gcctacgccc	ggggggcaag	aagaagtaca	agcttaagca	cattgtgtgg	3120
gcctctcgcg	aacttgagcg	attcgagtg	aatccaggcc	tgcttgagac	gagtgaaggc	3180
tgtaggcaaa	ttctggggca	gctacagccg	agcctacaga	ctggcagcga	ggagcttcgt	3240
agtctttata	ataccgtcgc	gactctctac	tgcgttcatc	aacgaattga	aataaaggat	3300
actaaagagg	cccttgataa	aattgaggag	gaacagaata	agtcgaaaaa	gaaggcccag	3360
caggccgccc	ccgacaccgg	gcacagcaac	cagggtgtccc	aaaactacta	a	3411

<210> 16  
 <211> 1136  
 <212> PRT  
 <213> HIV

&lt;400&gt; 16

Met Val Ile Val Gln Asn Ile Gln Gly Gln Met Val His Gln Ala Ile  
1 5 10 15

Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Val Val Glu Glu Lys Ala  
20 25 30

Phe Ser Pro Glu Val Ile Pro Met Phe Ser Ala Leu Ser Glu Gly Ala  
35 40 45

Thr Pro Gln Asp Leu Asn Thr Met Leu Asn Thr Val Gly Gly His Gln  
50 55 60

Ala Ala Met Gln Met Leu Lys Glu Thr Ile Asn Glu Glu Ala Ala Glu  
65 70 75 80

Trp Asp Arg Val His Pro Val His Ala Gly Pro Ile Ala Pro Gly Gln  
85 90 95

Met Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Leu  
100 105 110

Gln Glu Gln Ile Gly Trp Met Thr Asn Asn Pro Pro Ile Pro Val Gly  
115 120 125

Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg  
130 135 140

Met Tyr Ser Pro Thr Ser Ile Leu Asp Ile Arg Gln Gly Pro Lys Glu  
145 150 155 160

Pro Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Thr Leu Arg Ala Glu  
165 170 175

Gln Ala Ser Gln Glu Val Lys Asn Trp Met Thr Glu Thr Leu Leu Val  
180 185 190

Gln Asn Ala Asn Pro Asp Cys Lys Thr Ile Leu Lys Ala Leu Gly Pro  
195 200 205

Ala Ala Thr Leu Glu Glu Met Met Thr Ala Cys Gln Gly Val Gly Gly  
210 215 220

Pro Gly His Lys Ala Arg Val Leu His Met Gly Pro Ile Ser Pro Ile  
225 230 235 240

Glu Thr Val Ser Val Lys Leu Lys Pro Gly Met Asp Gly Pro Lys Val  
245 250 255

Lys Gln Trp Pro Leu Thr Glu Glu Lys Ile Lys Ala Leu Val Glu Ile  
260 265 270



PhoenixTemp65258.tmp.txt

Cys Thr Glu Met Glu Lys Glu Gly Lys Ile Ser Lys Ile Gly Pro Glu  
 275 280 285  
 Asn Pro Tyr Asn Thr Pro Val Phe Ala Ile Lys Lys Lys Asp Ser Thr  
 290 300  
 Lys Trp Arg Lys Leu Val Asp Phe Arg Glu Leu Asn Lys Arg Thr Gln  
 305 310 315 320  
 Asp Phe Trp Glu Val Gln Leu Gly Ile Pro His Pro Ala Gly Leu Lys  
 325 330 335  
 Lys Lys Lys Ser Val Thr Val Leu Asp Val Gly Asp Ala Tyr Phe Ser  
 340 345 350  
 Val Pro Leu Asp Glu Asp Phe Arg Lys Tyr Thr Ala Phe Thr Ile Pro  
 355 360 365  
 Ser Ile Asn Asn Glu Thr Pro Gly Ile Arg Tyr Gln Tyr Asn Val Leu  
 370 375 380  
 Pro Gln Gly Trp Lys Gly Ser Pro Ala Ile Phe Gln Ser Cys Met Thr  
 385 390 395 400  
 Lys Ile Leu Glu Pro Phe Arg Lys Gln Asn Pro Asp Ile Val Ile Tyr  
 405 410 415  
 Gln Tyr Met Asp Asp Leu Tyr Val Gly Ser Asp Leu Glu Ile Gly Gln  
 420 425 430  
 His Arg Thr Lys Ile Glu Glu Leu Arg Gln His Leu Leu Arg Trp Gly  
 435 440 445  
 Leu Thr Thr Pro Asp Lys Lys His Gln Lys Glu Pro Pro Phe Leu Lys  
 450 455 460  
 Met Gly Tyr Glu Leu His Pro Asp Lys Trp Thr Val Gln Pro Ile Val  
 465 470 475 480  
 Leu Pro Glu Lys Asp Ser Trp Thr Val Asn Asp Ile Gln Lys Leu Val  
 485 490 495  
 Gly Lys Leu Asn Trp Ala Ser Gln Ile Tyr Pro Gly Ile Lys Val Arg  
 500 505 510  
 Gln Leu Cys Lys Leu Leu Arg Gly Thr Lys Ala Leu Thr Glu Val Ile  
 515 520 525  
 Pro Leu Thr Glu Glu Ala Glu Leu Glu Leu Ala Glu Asn Arg Glu Ile  
 530 535 540

Leu Lys Glu Pro Val His Gly Val Tyr Tyr Asp Pro Ser Lys Asp Leu  
545 550 555 560

Ile Ala Glu Ile Gln Lys Gln Gly Gln Gly Gln Trp Thr Tyr Gln Ile  
565 570 575

Tyr Gln Glu Pro Phe Lys Asn Leu Lys Thr Gly Lys Tyr Ala Arg Met  
580 585 590

Arg Gly Ala His Thr Asn Asp Val Lys Gln Leu Thr Glu Ala Val Gln  
595 600 605

Lys Ile Thr Thr Glu Ser Ile Val Ile Trp Gly Lys Thr Pro Lys Phe  
610 615 620

Lys Leu Pro Ile Gln Lys Glu Thr Trp Glu Thr Trp Trp Thr Glu Tyr  
625 630 635 640

Trp Gln Ala Thr Trp Ile Pro Glu Trp Glu Phe Val Asn Thr Pro Pro  
645 650 655

Leu Val Lys Leu Trp Tyr Gln Leu Glu Lys Glu Pro Ile Val Gly Ala  
660 665 670

Glu Thr Phe Tyr Val Asp Gly Ala Ala Asn Arg Glu Thr Lys Leu Gly  
675 680 685

Lys Ala Gly Tyr Val Thr Asn Arg Gly Arg Gln Lys Val Val Thr Leu  
690 695 700

Thr Asp Thr Thr Asn Gln Lys Thr Glu Leu Gln Ala Ile Tyr Leu Ala  
705 710 715 720

Leu Gln Asp Ser Gly Leu Glu Val Asn Ile Val Thr Asp Ser Gln Tyr  
725 730 735

Ala Leu Gly Ile Ile Gln Ala Gln Pro Asp Gln Ser Glu Ser Glu Leu  
740 745 750

Val Asn Gln Ile Ile Glu Gln Leu Ile Lys Lys Glu Lys Val Tyr Leu  
755 760 765

Ala Trp Val Pro Ala His Lys Gly Ile Gly Gly Asn Glu Gln Val Asp  
770 775 780

Lys Leu Val Ser Ala Gly Ile Arg Lys Val Leu Ala Met Gly Gly Lys  
785 790 795 800

Trp Ser Lys Ser Ser Val Val Gly Trp Pro Thr Val Arg Glu Arg Met  
805 810 815

Arg Arg Ala Glu Pro Ala Ala Asp Gly Val Gly Ala Ala Ser Arg Asp  
Page 34

820

825

830

Leu Glu Lys His Gly Ala Ile Thr Ser Ser Asn Thr Ala Ala Thr Asn  
           835                                  840                                  845

Ala Ala Cys Ala Trp Leu Glu Ala Gln Glu Glu Glu Glu Val Gly Phe  
       850                                  855                                  860

Pro Val Thr Pro Gln Val Pro Leu Arg Pro Met Thr Tyr Lys Ala Ala  
   865                                  870                                  875                                  880

Val Asp Leu Ser His Phe Leu Lys Glu Lys Gly Gly Leu Glu Gly Leu  
                                   885                                  890                                  895

Ile His Ser Gln Arg Arg Gln Asp Ile Leu Asp Leu Trp Ile Tyr His  
                                   900                                  905                                  910

Thr Gln Gly Tyr Phe Pro Asp Trp Gln Asn Tyr Thr Pro Gly Pro Gly  
           915                                  920                                  925

Val Arg Tyr Pro Leu Thr Phe Gly Trp Cys Tyr Lys Leu Val Pro Val  
       930                                  935                                  940

Glu Pro Asp Lys Val Glu Glu Ala Asn Lys Gly Glu Asn Thr Ser Leu  
   945                                  950                                  955                                  960

Leu His Pro Val Ser Leu His Gly Met Asp Asp Pro Glu Arg Glu Val  
                                   965                                  970                                  975

Leu Glu Trp Arg Phe Asp Ser Arg Leu Ala Phe His His Val Ala Arg  
                                   980                                  985                                  990

Glu Leu His Pro Glu Tyr Phe Lys Asn Cys Arg Pro Met Gly Ala Arg  
           995                                  1000                                  1005

Ala Ser Val Leu Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys Ile  
       1010                                  1015                                  1020

Arg Leu Arg Pro Gly Gly Lys Lys Lys Tyr Lys Leu Lys His Ile  
       1025                                  1030                                  1035

Val Trp Ala Ser Arg Glu Leu Glu Arg Phe Ala Val Asn Pro Gly  
       1040                                  1045                                  1050

Leu Leu Glu Thr Ser Glu Gly Cys Arg Gln Ile Leu Gly Gln Leu  
       1055                                  1060                                  1065

Gln Pro Ser Leu Gln Thr Gly Ser Glu Glu Leu Arg Ser Leu Tyr  
       1070                                  1075                                  1080

Asn Thr Val Ala Thr Leu Tyr Cys Val His Gln Arg Ile Glu Ile  
       1085                                  1090                                  1095

PhoenixTemp65258.tmp.txt

Lys Asp Thr Lys Glu Ala Leu Asp Lys Ile Glu Glu Glu Gln Asn  
1100 1105 1110

Lys Ser Lys Lys Lys Ala Gln Gln Ala Ala Ala Asp Thr Gly His  
1115 1120 1125

Ser Asn Gln Val Ser Gln Asn Tyr  
1130 1135