

PhoenixTemp30649.tmp.txt
SEQUENCE LISTING

<110> GlaxoSmithKline Biologicals s.a.
Glaxo Group Limited
Mettens, Pascal
Brown, James
Murphy, Dennis

<120> NOVEL COMPOSITIONS AND METHODS

<130> VB63087PCT

<150> US61/083692

<151> 2008-07-25

<160> 249

<170> PatentIn version 3.5

<210> 1

<211> 1053

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> MISC_FEATURE

<223> Strain H37Rv

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20 25 30

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

Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
50 55 60

Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
65 70 75 80

Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
85 90 95

Phe Glu Ala Val Lys Thr Ala Val Val Gln Pro Met Leu Val Ala Ala
100 105 110

Asn Arg Ala Asp Leu Val Ser Leu Val Met Ser Asn Leu Phe Gly Gln
115 120 125

Asn Ala Pro Ala Ile Ala Ala Ile Glu Ala Thr Tyr Glu Gln Met Trp

130

135

140

Ala Ala Asp Val Ser Ala Met Ser Ala Tyr His Ala Gly Ala Ser Ala
145 150 155 160

Ile Ala Ser Ala Leu Ser Pro Phe Ser Lys Pro Leu Gln Asn Leu Ala
165 170 175

Gly Leu Pro Ala Trp Leu Ala Ser Gly Ala Pro Ala Ala Met Thr
180 185 190

Ala Ala Ala Gly Ile Pro Ala Leu Ala Gly Gly Pro Thr Ala Ile Asn
195 200 205

Leu Gly Ile Ala Asn Val Gly Gly Gly Asn Val Gly Asn Ala Asn Asn
210 215 220

Gly Leu Ala Asn Ile Gly Asn Ala Asn Leu Gly Asn Tyr Asn Phe Gly
225 230 235 240

Ser Gly Asn Phe Gly Asn Ser Asn Ile Gly Ser Ala Ser Leu Gly Asn
245 250 255

Asn Asn Ile Gly Phe Gly Asn Leu Gly Ser Asn Asn Val Gly Val Gly
260 265 270

Asn Leu Gly Asn Leu Asn Thr Gly Phe Ala Asn Thr Gly Leu Gly Asn
275 280 285

Phe Gly Phe Gly Asn Thr Gly Asn Asn Asn Ile Gly Ile Gly Leu Thr
290 295 300

Gly Asn Asn Gln Ile Gly Ile Gly Gly Leu Asn Ser Gly Thr Gly Asn
305 310 315 320

Phe Gly Leu Phe Asn Ser Gly Ser Gly Asn Val Gly Phe Phe Asn Ser
325 330 335

Gly Asn Gly Asn Phe Gly Ile Gly Asn Ser Gly Asn Phe Asn Thr Gly
340 345 350

Gly Trp Asn Ser Gly His Gly Asn Thr Gly Phe Phe Asn Ala Gly Ser
355 360 365

Phe Asn Thr Gly Met Leu Asp Val Gly Asn Ala Asn Thr Gly Ser Leu
370 375 380

Asn Thr Gly Ser Tyr Asn Met Gly Asp Phe Asn Pro Gly Ser Ser Asn

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385                               390                               395                               400

Thr Gly Thr Phe Asn Thr Gly Asn Ala Asn Thr Gly Phe Leu Asn Ala
      405                               410                               415

Gly Asn Ile Asn Thr Gly Val Phe Asn Ile Gly His Met Asn Asn Gly
      420                               425                               430

Leu Phe Asn Thr Gly Asp Met Asn Asn Gly Val Phe Tyr Arg Gly Val
      435                               440                               445

Gly Gln Gly Ser Leu Gln Phe Ser Ile Thr Thr Pro Asp Leu Thr Leu
      450                               455                               460

Pro Pro Leu Gln Ile Pro Gly Ile Ser Val Pro Ala Phe Ser Leu Pro
465                               470                               475                               480

Ala Ile Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala
      485                               490                               495

Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser
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Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
      515                               520                               525

Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
      530                               535                               540

Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu
545                               550                               555                               560

Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile
      565                               570                               575

Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn
      580                               585                               590

Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser
      595                               600                               605

Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr
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Pro Ala Asn Ile Thr Val Ser Gly Phe Gln Leu Pro Pro Leu Ser Ile
625                               630                               635                               640

Pro Ser Val Ala Ile Pro Pro Val Thr Val Pro Pro Ile Thr Val Gly

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645

650

655

Ala Phe Asn Leu Pro Pro Leu Gln Ile Pro Glu Val Thr Ile Pro Gln
660 665 670

Leu Thr Ile Pro Ala Gly Ile Thr Ile Gly Gly Phe Ser Leu Pro Ala
675 680 685

Ile His Thr Gln Pro Ile Thr Val Gly Gln Ile Gly Val Gly Gln Phe
690 695 700

Gly Leu Pro Ser Ile Gly Trp Asp Val Phe Leu Ser Thr Pro Arg Ile
705 710 715 720

Thr Val Pro Ala Phe Gly Ile Pro Phe Thr Leu Gln Phe Gln Thr Asn
725 730 735

Val Pro Ala Leu Gln Pro Pro Gly Gly Gly Leu Ser Thr Phe Thr Asn
740 745 750

Gly Ala Leu Ile Phe Gly Glu Phe Asp Leu Pro Gln Leu Val Val His
755 760 765

Pro Tyr Thr Leu Thr Gly Pro Ile Val Ile Gly Ser Phe Phe Leu Pro
770 775 780

Ala Phe Asn Ile Pro Gly Ile Asp Val Pro Ala Ile Asn Val Asp Gly
785 790 795 800

Phe Thr Leu Pro Gln Ile Thr Thr Pro Ala Ile Thr Thr Pro Glu Phe
805 810 815

Ala Ile Pro Pro Ile Gly Val Gly Gly Phe Thr Leu Pro Gln Ile Thr
820 825 830

Thr Gln Glu Ile Ile Thr Pro Glu Leu Thr Ile Asn Ser Ile Gly Val
835 840 845

Gly Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro
850 855 860

Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln
865 870 875 880

Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile
885 890 895

Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr

900

905

910

Thr Pro Pro Leu Thr Ile Glu Pro Ile Gly Val Gly Gly Phe Thr Thr
 915 920 925

Pro Pro Leu Thr Val Pro Gly Ile His Leu Pro Ser Thr Thr Ile Gly
 930 935 940

Ala Phe Ala Ile Pro Gly Gly Pro Gly Tyr Phe Asn Ser Ser Thr Ala
 945 950 955 960

Pro Ser Ser Gly Phe Phe Asn Ser Gly Ala Gly Gly Asn Ser Gly Phe
 965 970 975

Gly Asn Asn Gly Ser Gly Leu Ser Gly Trp Phe Asn Thr Asn Pro Ala
 980 985 990

Gly Leu Leu Gly Gly Ser Gly Tyr Gln Asn Phe Gly Gly Leu Ser Ser
 995 1000 1005

Gly Phe Ser Asn Leu Gly Ser Gly Val Ser Gly Phe Ala Asn Arg
 1010 1015 1020

Gly Ile Leu Pro Phe Ser Val Ala Ser Val Val Ser Gly Phe Ala
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Asn Ile Gly Thr Asn Leu Ala Gly Phe Phe Gln Gly Thr Thr Ser
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 <213> Mycobacterium tuberculosis

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 <223> Strain H37Rv

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 aagacggcgg tgggtgcagcc gatgctggtg gcggccaacc gtgccgacct ggtgtcgtcg 360
 gtgatgtcga acctgttttg acagaacgct ccggcgatcg ctgccattga agccacgtac 420

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gacttaccac	aattggtggg	tcaccatac	acattgaccg	gccctattgt	catcggttca	2340

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<213> Mycobacterium tuberculosis

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<400> 3
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Ala Gly Ala Gly Pro Glu Pro Met Ala Ala Ala Ala Thr Ala Trp Asp
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Gly Leu Ala Met Glu Leu Ala Ser Ala Ala Ala Ser Phe Gly Ser Val
          35              40              45

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Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
          50              55              60

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Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
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Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
          85              90              95

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

PhoenixTemp30649.tmp.txt

Gly Trp Asn Ser Gly His Gly Asn Thr Gly Phe Phe Asn Ala Gly Ser
 355 360 365
 Phe Asn Thr Gly Met Leu Asp Val Gly Asn Ala Asn Thr Gly Ser Leu
 370 375 380
 Asn Thr Gly Ser Tyr Asn Met Gly Asp Phe Asn Pro Gly Ser Ser Asn
 385 390 395 400
 Thr Gly Thr Phe Asn Thr Gly Asn Ala Asn Thr Gly Phe Leu Asn Ala
 405 410 415
 Gly Asn Ile Asn Thr Gly Val Phe Asn Ile Gly His Met Asn Asn Gly
 420 425 430
 Leu Phe Asn Thr Gly Asp Met Asn Asn Gly Val Phe Tyr Arg Gly Val
 435 440 445
 Gly Gln Gly Ser Leu Gln Phe Ser Ile Thr Thr Pro Asp Leu Thr Leu
 450 455 460
 Pro Pro Leu Gln Ile Pro Gly Ile Ser Val Pro Ala Phe Ser Leu Pro
 465 470 475 480
 Ala Ile Thr Leu Pro Ser Leu Thr Ile Pro Ala Ala Thr Thr Pro Ala
 485 490 495
 Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser
 500 505 510
 Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
 515 520 525
 Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
 530 535 540
 Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu
 545 550 555 560
 Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile
 565 570 575
 Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn
 580 585 590
 Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser
 595 600 605

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Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr
 610 615 620
 Pro Ala Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu
 625 630 635 640
 Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val
 645 650 655
 Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro
 660 665 670
 Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Ser Gly Phe Gln Leu Pro
 675 680 685
 Pro Leu Ser Ile Pro Ser Val Ala Ile Pro Pro Val Thr Val Pro Pro
 690 695 700
 Ile Thr Val Gly Ala Phe Asn Leu Pro Pro Leu Gln Ile Pro Glu Val
 705 710 715 720
 Thr Ile Pro Gln Leu Thr Ile Pro Ala Gly Ile Thr Ile Gly Gly Phe
 725 730 735
 Ser Leu Pro Ala Ile His Thr Gln Pro Ile Thr Val Gly Gln Ile Gly
 740 745 750
 Val Gly Gln Phe Gly Leu Pro Ser Ile Gly Trp Asp Val Phe Leu Ser
 755 760 765
 Thr Pro Arg Ile Thr Val Pro Ala Phe Gly Ile Pro Phe Thr Leu Gln
 770 775 780
 Phe Gln Thr Asn Val Pro Ala Leu Gln Pro Pro Gly Gly Gly Leu Ser
 785 790 795 800
 Thr Phe Thr Asn Gly Ala Leu Ile Phe Gly Glu Phe Asp Leu Pro Gln
 805 810 815
 Leu Val Val His Pro Tyr Thr Leu Thr Gly Pro Ile Val Ile Gly Ser
 820 825 830
 Phe Phe Leu Pro Ala Phe Asn Ile Pro Gly Ile Asp Val Pro Ala Ile
 835 840 845
 Asn Val Asp Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Ala Ile Thr
 850 855 860

PhoenixTemp30649.tmp.txt

Thr Pro Glu Phe Ala Ile Pro Pro Ile Gly Val Gly Gly Phe Thr Leu
 865 870 875 880

 Pro Gln Ile Thr Thr Gln Glu Ile Ile Thr Pro Glu Leu Thr Ile Asn
 885 890 895

 Ser Ile Gly Val Gly Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro
 900 905 910

 Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe
 915 920 925

 Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr
 930 935 940

 Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr
 945 950 955 960

 Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Glu Pro Ile Gly Val Gly
 965 970 975

 Gly Phe Thr Thr Pro Pro Leu Thr Val Pro Gly Ile His Leu Pro Ser
 980 985 990

 Thr Thr Ile Gly Ala Phe Ala Ile Pro Gly Gly Pro Gly Tyr Phe Asn
 995 1000 1005

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 1010 1015 1020

 Gly Asn Ser Gly Phe Gly Asn Asn Gly Ser Gly Leu Ser Gly Trp
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 Phe Asn Thr Asn Pro Ala Gly Leu Leu Gly Gly Ser Gly Tyr Gln
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 Asn Phe Gly Gly Leu Ser Ser Gly Phe Ser Asn Leu Gly Ser Gly
 1055 1060 1065

 Val Ser Gly Phe Ala Asn Arg Gly Ile Leu Pro Phe Ser Val Ala
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 Phe Phe Gln Gly Thr Thr Ser
 1100 1105

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 <213> Mycobacterium tuberculosis

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 <221> MISC_FEATURE
 <223> Strain F11

<400> 4

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 35 40 45

Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
 50 55 60

Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
 65 70 75 80

Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
 85 90 95

Phe Glu Ala Val Lys Thr Ala Val Val Gln Pro Met Leu Val Ala Ala
 100 105 110

Asn Arg Ala Asp Leu Val Ser Leu Val Met Ser Asn Leu Phe Gly Gln
 115 120 125

Asn Ala Pro Ala Ile Ala Ala Ile Glu Ala Thr Tyr Glu Gln Met Trp
 130 135 140

Ala Ala Asp Val Ser Ala Met Ser Ala Tyr His Ala Gly Ala Ser Ala
 145 150 155 160

Ile Ala Ser Ala Leu Ser Pro Phe Ser Lys Pro Leu Gln Asn Leu Ala
 165 170 175

Gly Leu Pro Ala Trp Leu Ala Ser Gly Ala Pro Ala Ala Ala Met Thr
 180 185 190

Ala Ala Ala Gly Ile Pro Ala Leu Ala Gly Gly Pro Thr Ala Ile Asn
 195 200 205

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

PhoenixTemp30649.tmp.txt

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 Ala Ile Thr Leu Pro Ser Leu Thr Ile Pro Ala Ala Thr Thr Pro Ala
 485 490 495

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 Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
 515 520 525

 Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
 530 535 540

 Thr Thr Pro Ala Asn Ile Thr Val Ser Gly Phe Gln Leu Pro Pro Leu
 545 550 555 560

 Ser Ile Pro Ser Val Ala Ile Pro Pro Val Thr Val Pro Pro Ile Thr
 565 570 575

 Val Gly Ala Phe Asn Leu Pro Pro Leu Gln Ile Pro Glu Val Thr Ile
 580 585 590

 Pro Gln Leu Thr Ile Pro Ala Gly Ile Thr Ile Gly Gly Phe Ser Leu
 595 600 605

 Pro Ala Ile His Thr Gln Pro Ile Thr Val Gly Gln Ile Gly Val Gly
 610 615 620

 Gln Phe Gly Leu Pro Ser Ile Gly Trp Asp Val Phe Leu Ser Thr Pro
 625 630 635 640

 Arg Ile Thr Val Pro Ala Phe Gly Ile Pro Phe Thr Leu Gln Phe Gln
 645 650 655

 Thr Asn Val Pro Ala Leu Gln Pro Pro Gly Gly Gly Leu Ser Thr Phe
 660 665 670

 Thr Asn Gly Ala Leu Ile Phe Gly Glu Phe Asp Leu Pro Gln Leu Val
 675 680 685

 Val His Pro Tyr Thr Leu Thr Gly Pro Ile Val Ile Gly Ser Phe Phe
 690 695 700

 Leu Pro Ala Phe Asn Ile Pro Gly Ile Asp Val Pro Ala Ile Asn Val
 705 710 715 720

PhoenixTemp30649.tmp.txt

Asp	Gly	Phe	Thr	Leu	Pro	Gln	Ile	Thr	Thr	Pro	Ala	Ile	Thr	Thr	Pro	
				725					730					735		
Glu	Phe	Ala	Ile	Pro	Pro	Ile	Gly	Val	Gly	Gly	Phe	Thr	Leu	Pro	Gln	
			740					745					750			
Ile	Thr	Thr	Gln	Glu	Ile	Ile	Thr	Pro	Glu	Leu	Thr	Ile	Asn	Ser	Ile	
		755					760					765				
Gly	Val	Gly	Gly	Phe	Thr	Leu	Pro	Gln	Ile	Thr	Thr	Pro	Pro	Ile	Thr	
	770					775					780					
Thr	Pro	Pro	Leu	Thr	Ile	Asp	Pro	Ile	Asn	Leu	Thr	Gly	Phe	Thr	Leu	
785					790					795					800	
Pro	Gln	Ile	Thr	Thr	Pro	Pro	Ile	Thr	Thr	Pro	Pro	Leu	Thr	Ile	Asp	
				805					810					815		
Pro	Ile	Asn	Leu	Thr	Gly	Phe	Thr	Leu	Pro	Gln	Ile	Thr	Thr	Pro	Pro	
			820					825					830			
Ile	Thr	Thr	Pro	Pro	Leu	Thr	Ile	Glu	Pro	Ile	Gly	Val	Gly	Gly	Phe	
		835					840					845				
Thr	Thr	Pro	Pro	Leu	Thr	Val	Pro	Gly	Ile	His	Leu	Pro	Ser	Thr	Thr	
	850					855					860					
Ile	Gly	Ala	Phe	Ala	Ile	Pro	Gly	Gly	Pro	Gly	Tyr	Phe	Asn	Ser	Ser	
865					870					875					880	
Thr	Ala	Pro	Ser	Ser	Gly	Phe	Phe	Asn	Ser	Gly	Ala	Gly	Gly	Asn	Ser	
				885					890					895		
Gly	Phe	Gly	Asn	Asn	Gly	Ser	Gly	Leu	Ser	Gly	Trp	Phe	Asn	Thr	Asn	
			900					905					910			
Pro	Ala	Gly	Leu	Leu	Gly	Gly	Ser	Gly	Tyr	Gln	Asn	Phe	Gly	Gly	Leu	
		915					920					925				
Ser	Ser	Gly	Phe	Ser	Asn	Leu	Gly	Ser	Gly	Val	Ser	Gly	Phe	Ala	Asn	
	930					935					940					
Arg	Gly	Ile	Leu	Pro	Phe	Ser	Val	Ala	Ser	Val	Val	Ser	Gly	Phe	Ala	
945					950					955					960	
Asn	Ile	Gly	Thr	Asn	Leu	Ala	Gly	Phe	Phe	Gln	Gly	Thr	Thr	Ser		
				965					970					975		

<210> 5
 <211> 1050
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> MISC_FEATURE
 <223> Strain Haarlem A

<400> 5

Met Asn Phe Ser Val Leu Pro Pro Glu Ile Asn Ser Ala Leu Ile Phe
 1 5 10 15

Ala Gly Ala Gly Pro Glu Pro Met Ala Ala Ala Thr Ala Trp Asp
 20 25 30

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

Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
 50 55 60

Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
 65 70 75 80

Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
 85 90 95

Phe Glu Ala Val Lys Thr Ala Val Val Gln Pro Met Leu Val Ala Ala
 100 105 110

Asn Arg Ala Asp Leu Val Ser Leu Val Met Ser Asn Leu Phe Gly Gln
 115 120 125

Asn Ala Pro Ala Ile Ala Ala Ile Glu Ala Thr Tyr Glu Gln Met Trp
 130 135 140

Ala Ala Asp Val Ser Ala Met Ser Ala Tyr His Ala Gly Ala Ser Ala
 145 150 155 160

Ile Ala Ser Ala Leu Ser Pro Phe Ser Lys Pro Leu Gln Asn Leu Ala
 165 170 175

Gly Leu Pro Ala Trp Leu Ala Ser Gly Ala Pro Ala Ala Ala Met Thr
 180 185 190

Ala Ala Ala Gly Ile Pro Ala Leu Ala Gly Gly Pro Thr Ala Ile Asn
 195 200 205

PhoenixTemp30649.tmp.txt

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

PhoenixTemp30649.tmp.txt

Pro Pro Leu Gln Ile Pro Gly Ile Ser Val Pro Ala Phe Ser Leu Pro
 465 470 475 480

 Ala Ile Thr Leu Pro Ser Leu Thr Ile Pro Ala Ala Thr Thr Pro Ala
 485 490 495

 Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser
 500 505 510

 Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
 515 520 525

 Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
 530 535 540

 Thr Thr Pro Ala Asn Ile Thr Val Ser Gly Phe Gln Leu Pro Pro Leu
 545 550 555 560

 Ser Ile Pro Ser Val Ala Ile Pro Pro Val Thr Val Pro Pro Ile Thr
 565 570 575

 Val Gly Ala Phe Asn Leu Pro Pro Leu Gln Ile Pro Glu Val Thr Ile
 580 585 590

 Pro Gln Leu Thr Ile Pro Ala Gly Ile Thr Ile Gly Gly Phe Ser Leu
 595 600 605

 Pro Ala Ile His Thr Gln Pro Ile Thr Val Gly Gln Ile Gly Val Gly
 610 615 620

 Gln Phe Gly Leu Pro Ser Ile Gly Trp Asp Val Phe Leu Ser Thr Pro
 625 630 635 640

 Arg Ile Thr Val Pro Ala Phe Gly Ile Pro Phe Thr Leu Gln Phe Gln
 645 650 655

 Thr Asn Val Pro Ala Leu Gln Pro Pro Gly Gly Gly Leu Ser Thr Phe
 660 665 670

 Thr Asn Gly Ala Leu Ile Phe Gly Glu Phe Asp Leu Pro Gln Leu Val
 675 680 685

 Val His Pro Tyr Thr Leu Thr Gly Pro Ile Val Ile Gly Ser Phe Phe
 690 695 700

 Leu Pro Ala Phe Asn Ile Pro Gly Ile Asp Val Pro Ala Ile Asn Val
 705 710 715 720

PhoenixTemp30649.tmp.txt

Asp Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Ala Ile Thr Thr Pro
 725 730 735
 Glu Phe Ala Ile Pro Pro Ile Gly Val Gly Gly Phe Thr Leu Pro Gln
 740 745 750
 Ile Thr Thr Gln Glu Ile Ile Thr Pro Glu Leu Thr Ile Asn Ser Ile
 755 760 765
 Gly Val Gly Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr
 770 775 780
 Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu
 785 790 795 800
 Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Asp
 805 810 815
 Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro
 820 825 830
 Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe
 835 840 845
 Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr
 850 855 860
 Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr
 865 870 875 880
 Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr
 885 890 895
 Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro
 900 905 910
 Leu Thr Ile Glu Pro Ile Gly Val Gly Gly Phe Thr Thr Pro Pro Leu
 915 920 925
 Thr Val Pro Gly Ile His Leu Pro Ser Thr Thr Ile Gly Ala Phe Ala
 930 935 940
 Ile Pro Gly Gly Pro Gly Tyr Phe Asn Ser Ser Thr Ala Pro Ser Ser
 945 950 955 960
 Gly Phe Phe Asn Ser Gly Ala Gly Gly Asn Ser Gly Phe Gly Asn Asn
 965 970 975

PhoenixTemp30649.tmp.txt

Gly Ser Gly Leu Ser Gly Trp Phe Asn Thr Asn Pro Ala Gly Leu Leu
 980 985 990

Gly Gly Ser Gly Tyr Gln Asn Phe Gly Gly Leu Ser Ser Gly Phe Ser
 995 1000 1005

Asn Leu Gly Ser Gly Val Ser Gly Phe Ala Asn Arg Gly Ile Leu
 1010 1015 1020

Pro Phe Ser Val Ala Ser Val Val Ser Gly Phe Ala Asn Ile Gly
 1025 1030 1035

Thr Asn Leu Ala Gly Phe Phe Gln Gly Thr Thr Ser
 1040 1045 1050

<210> 6
 <211> 1078
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> MISC_FEATURE
 <223> Strain C

<400> 6

Met Asn Phe Ser Val Leu Pro Pro Glu Ile Asn Ser Ala Leu Ile Phe
 1 5 10 15

Ala Gly Ala Gly Pro Glu Pro Met Ala Ala Ala Ala Thr Ala Trp Asp
 20 25 30

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

Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
 50 55 60

Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
 65 70 75 80

Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
 85 90 95

Phe Glu Ala Val Lys Thr Ala Val Val Gln Pro Met Leu Val Ala Ala
 100 105 110

Asn Arg Ala Asp Leu Val Ser Leu Val Met Ser Asn Leu Phe Gly Gln
 115 120 125

PhoenixTemp30649.tmp.txt

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

PhoenixTemp30649.tmp.txt

```

Asn Thr Gly Ser Tyr Asn Met Gly Asp Phe Asn Pro Gly Ser Ser Asn
385                               390                               395                               400

Thr Gly Thr Phe Asn Thr Gly Asn Ala Asn Thr Gly Phe Leu Asn Ala
                               405                               410                               415

Gly Asn Ile Asn Thr Gly Val Phe Asn Ile Gly His Met Asn Asn Gly
                               420                               425                               430

Leu Phe Asn Thr Gly Asp Met Asn Asn Gly Val Phe Tyr Arg Gly Val
                               435                               440                               445

Gly Gln Gly Ser Leu Gln Phe Ser Ile Thr Thr Pro Asp Leu Thr Leu
                               450                               455                               460

Pro Pro Leu Gln Ile Pro Gly Ile Ser Val Pro Ala Phe Ser Leu Pro
465                               470                               475                               480

Ala Ile Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala
                               485                               490                               495

Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser
                               500                               505                               510

Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
                               515                               520                               525

Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
                               530                               535                               540

Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu
545                               550                               555                               560

Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile
                               565                               570                               575

Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn
                               580                               585                               590

Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser
                               595                               600                               605

Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr
                               610                               615                               620

Pro Ala Asn Ile Thr Val Ser Gly Phe Gln Leu Pro Pro Leu Ser Ile
625                               630                               635                               640

```

PhoenixTemp30649.tmp.txt

Pro Ser Val Ala Ile Pro Pro Val Thr Val Pro Pro Ile Thr Val Gly
 645 650 655
 Ala Phe Asn Leu Pro Pro Leu Gln Ile Pro Glu Val Thr Ile Pro Gln
 660 665 670
 Leu Thr Ile Pro Ala Gly Ile Thr Ile Gly Gly Phe Ser Leu Pro Ala
 675 680 685
 Ile His Thr Gln Pro Ile Thr Val Gly Gln Ile Gly Val Gly Gln Phe
 690 695 700
 Gly Leu Pro Ser Ile Gly Trp Asp Val Phe Leu Ser Thr Pro Arg Ile
 705 710 715 720
 Thr Val Pro Ala Phe Gly Ile Pro Phe Thr Leu Gln Phe Gln Thr Asn
 725 730 735
 Val Pro Ala Leu Gln Pro Pro Gly Gly Gly Leu Ser Thr Phe Thr Asn
 740 745 750
 Gly Ala Leu Ile Phe Gly Glu Phe Asp Leu Pro Gln Leu Val Val His
 755 760 765
 Pro Tyr Thr Leu Thr Gly Pro Ile Val Ile Gly Ser Phe Phe Leu Pro
 770 775 780
 Ala Phe Asn Ile Pro Gly Ile Asp Val Pro Ala Ile Asn Val Asp Gly
 785 790 795 800
 Phe Thr Leu Pro Gln Ile Thr Thr Pro Ala Ile Thr Thr Pro Glu Phe
 805 810 815
 Ala Ile Pro Pro Ile Gly Val Gly Gly Phe Thr Leu Pro Gln Ile Thr
 820 825 830
 Thr Gln Glu Ile Ile Thr Pro Glu Leu Thr Ile Asn Ser Ile Gly Val
 835 840 845
 Gly Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro
 850 855 860
 Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln
 865 870 875 880
 Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile
 885 890 895

PhoenixTemp30649.tmp.txt

```

Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr
    900                      905                      910

Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu
    915                      920                      925

Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Glu
    930                      935                      940

Pro Ile Gly Val Gly Gly Phe Thr Thr Pro Pro Leu Thr Val Pro Gly
945                      950                      955                      960

Ile His Leu Pro Ser Thr Thr Ile Gly Ala Phe Ala Ile Pro Gly Gly
    965                      970                      975

Pro Gly Tyr Phe Asn Ser Ser Thr Ala Pro Ser Ser Gly Phe Phe Asn
    980                      985                      990

Ser Gly Ala Gly Gly Asn Ser Gly Phe Gly Asn Asn Gly Ser Gly Leu
    995                      1000                      1005

Ser Gly Trp Phe Asn Thr Asn Pro Ala Gly Leu Leu Gly Gly Ser
    1010                      1015                      1020

Gly Tyr Gln Asn Phe Gly Gly Leu Ser Ser Gly Phe Ser Asn Leu
    1025                      1030                      1035

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

Ser Val Ala Ser Val Val Ser Gly Phe Ala Asn Ile Gly Thr Asn
    1055                      1060                      1065

Leu Ala Gly Phe Phe Gln Gly Thr Thr Ser
    1070                      1075

<210> 7
<211> 1026
<212> PRT
<213> Mycobacterium bovis

<220>
<221> MISC_FEATURE
<223> Strain BCG

<400> 7

Met Asn Phe Ser Val Leu Pro Pro Glu Ile Asn Ser Ala Leu Ile Phe
1                      5                      10                      15

```


PhoenixTemp30649.tmp.txt

Ala Gly Ala Gly Pro Glu Pro Met Ala Ala Ala Ala Thr Ala Trp Asp
 20 25 30
 Gly Leu Ala Met Glu Leu Ala Ser Ala Ala Ala Ser Phe Gly Ser Val
 35 40 45
 Thr Ser Gly Leu Val Gly Gly Ala Trp Gln Gly Ala Ser Ser Ser Ala
 50 55 60
 Met Ala Ala Ala Ala Ala Pro Tyr Ala Ala Trp Leu Ala Ala Ala Ala
 65 70 75 80
 Val Gln Ala Glu Gln Thr Ala Ala Gln Ala Ala Ala Met Ile Ala Glu
 85 90 95
 Phe Glu Ala Val Lys Thr Ala Val Val Gln Pro Met Leu Val Ala Ala
 100 105 110
 Asn Arg Ala Asp Leu Val Ser Leu Val Met Ser Asn Leu Phe Gly Gln
 115 120 125
 Asn Ala Pro Ala Ile Ala Ala Ile Glu Ala Thr Tyr Glu Gln Met Trp
 130 135 140
 Ala Ala Asp Val Ser Ala Met Ser Ala Tyr His Ala Gly Ala Ser Ala
 145 150 155 160
 Ile Ala Ser Ala Leu Ser Pro Phe Ser Lys Pro Leu Gln Asn Leu Ala
 165 170 175
 Gly Leu Pro Ala Trp Leu Ala Ser Gly Ala Pro Ala Ala Ala Met Thr
 180 185 190
 Ala Ala Ala Gly Ile Pro Ala Leu Ala Gly Gly Pro Thr Ala Ile Asn
 195 200 205
 Leu Gly Ile Ala Asn Val Gly Gly Gly Asn Val Gly Asn Ala Asn Asn
 210 215 220
 Gly Leu Ala Asn Ile Gly Asn Ala Asn Leu Gly Asn Tyr Asn Phe Gly
 225 230 235 240
 Ser Gly Asn Phe Gly Asn Ser Asn Ile Gly Ser Ala Ser Leu Gly Asn
 245 250 255
 Asn Asn Ile Gly Phe Gly Asn Leu Gly Ser Asn Asn Val Gly Val Gly
 260 265 270

PhoenixTemp30649.tmp.txt

Asn Leu Gly Asn Leu Asn Thr Gly Phe Ala Asn Thr Gly Leu Gly Asn
 275 280 285
 Phe Gly Phe Gly Asn Thr Gly Asn Asn Asn Ile Gly Ile Gly Leu Thr
 290 295 300
 Gly Asn Asn Gln Ile Gly Ile Gly Gly Leu Asn Ser Gly Thr Gly Asn
 305 310 315 320
 Phe Gly Leu Phe Asn Ser Gly Ser Gly Asn Val Gly Phe Phe Asn Ser
 325 330 335
 Gly Asn Gly Asn Phe Gly Ile Gly Asn Ser Gly Asn Phe Asn Thr Gly
 340 345 350
 Gly Trp Asn Ser Gly His Gly Asn Thr Gly Phe Phe Asn Ala Gly Ser
 355 360 365
 Phe Asn Thr Gly Met Leu Asp Val Gly Asn Ala Asn Thr Gly Ser Leu
 370 375 380
 Asn Thr Gly Ser Tyr Asn Met Gly Asp Phe Asn Pro Gly Ser Ser Asn
 385 390 395 400
 Thr Gly Thr Phe Asn Thr Gly Asn Ala Asn Thr Gly Phe Leu Asn Ala
 405 410 415
 Gly Asn Ile Asn Thr Gly Val Phe Asn Ile Gly His Met Asn Asn Gly
 420 425 430
 Leu Phe Asn Thr Gly Asp Met Asn Asn Gly Val Phe Tyr Arg Gly Val
 435 440 445
 Gly Gln Gly Ser Leu Gln Phe Ser Ile Thr Thr Pro Asp Leu Thr Leu
 450 455 460
 Pro Pro Leu Gln Ile Pro Gly Ile Ser Val Pro Ala Phe Ser Leu Pro
 465 470 475 480
 Ala Ile Thr Leu Pro Ser Leu Thr Ile Pro Ala Ala Thr Thr Pro Ala
 485 490 495
 Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser
 500 505 510
 Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile Thr Val Gly Ala
 515 520 525

PhoenixTemp30649.tmp.txt

Phe Ser Leu Pro Gly Leu Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala
 530 535 540
 Thr Thr Pro Ala Asn Ile Thr Val Gly Ala Phe Ser Leu Pro Gly Leu
 545 550 555 560
 Thr Leu Pro Ser Leu Asn Ile Pro Ala Ala Thr Thr Pro Ala Asn Ile
 565 570 575
 Thr Val Ser Gly Phe Gln Leu Pro Pro Leu Ser Ile Pro Ser Val Ala
 580 585 590
 Ile Pro Pro Val Thr Val Pro Pro Ile Thr Val Gly Ala Phe Asn Leu
 595 600 605
 Pro Pro Leu Gln Ile Pro Glu Val Thr Ile Pro Gln Leu Thr Ile Pro
 610 615 620
 Ala Gly Ile Thr Ile Gly Gly Phe Ser Leu Pro Ala Ile His Thr Gln
 625 630 635 640
 Pro Ile Thr Val Gly Gln Ile Gly Val Gly Gln Phe Gly Leu Pro Ser
 645 650 655
 Ile Gly Trp Asp Val Phe Leu Ser Thr Pro Arg Ile Thr Val Pro Ala
 660 665 670
 Phe Gly Ile Pro Phe Thr Leu Gln Phe Gln Thr Asn Val Pro Ala Leu
 675 680 685
 Gln Pro Pro Gly Gly Gly Leu Ser Thr Phe Thr Asn Gly Ala Leu Ile
 690 695 700
 Phe Gly Glu Phe Asp Leu Pro Gln Leu Val Val His Pro Tyr Thr Leu
 705 710 715 720
 Thr Gly Pro Ile Val Ile Gly Ser Phe Phe Leu Pro Ala Phe Asn Ile
 725 730 735
 Pro Gly Ile Asp Val Pro Ala Ile Asn Val Asp Gly Phe Thr Leu Pro
 740 745 750
 Gln Ile Thr Thr Pro Ala Ile Thr Thr Pro Glu Phe Ala Ile Pro Pro
 755 760 765
 Ile Gly Val Gly Gly Phe Thr Leu Pro Gln Ile Thr Thr Gln Glu Ile
 770 775 780

PhoenixTemp30649.tmp.txt

Ile Thr Pro Glu Leu Thr Ile Asn Ser Ile Gly Val Gly Gly Phe Thr
 785 790 795 800

 Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile
 805 810 815

 Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr Thr Pro
 820 825 830

 Pro Ile Thr Thr Pro Pro Leu Thr Ile Asp Pro Ile Asn Leu Thr Gly
 835 840 845

 Phe Thr Leu Pro Gln Ile Thr Thr Pro Pro Ile Thr Thr Pro Pro Leu
 850 855 860

 Thr Ile Asp Pro Ile Asn Leu Thr Gly Phe Thr Leu Pro Gln Ile Thr
 865 870 875 880

 Thr Pro Pro Ile Thr Thr Pro Pro Leu Thr Ile Glu Pro Ile Gly Val
 885 890 895

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

 Ser Thr Thr Ile Gly Ala Phe Ala Ile Pro Gly Gly Pro Gly Tyr Phe
 915 920 925

 Asn Ser Ser Thr Ala Pro Ser Ser Gly Phe Phe Asn Ser Gly Ala Gly
 930 935 940

 Gly Asn Ser Gly Phe Gly Asn Asn Gly Ser Gly Leu Ser Gly Trp Phe
 945 950 955 960

 Asn Thr Asn Pro Ala Gly Leu Leu Gly Gly Ser Gly Tyr Gln Asn Phe
 965 970 975

 Gly Gly Leu Ser Ser Gly Phe Ser Asn Leu Gly Ser Gly Val Ser Gly
 980 985 990

 Phe Ala Asn Arg Gly Ile Leu Pro Phe Ser Val Ala Ser Val Val Ser
 995 1000 1005

 Gly Phe Ala Asn Ile Gly Thr Asn Leu Ala Gly Phe Phe Gln Gly
 1010 1015 1020

 Thr Thr Ser
 1025

<210> 8
 <211> 110
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> mat_peptide
 <222> (29)..(110)

<400> 8

Met Arg Leu Ser Leu Thr Ala Leu Ser Ala Gly Val Gly Ala Val Ala
 -25 -20 -15

Met Ser Leu Thr Val Gly Ala Gly Val Ala Ser Ala Asp Pro Val Asp
 -10 -5 -1 1

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu
 5 10 15 20

Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn Ala Ser Pro Val
 25 30 35

Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro Pro Pro Gln Arg
 40 45 50

Ala Ala Met Ala Ala Gln Leu Gln Ala Val Pro Gly Ala Ala Gln Tyr
 55 60 65

Ile Gly Leu Val Glu Ser Val Ala Gly Ser Cys Asn Asn Tyr
 70 75 80

<210> 9
 <211> 97
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 9

Met Ser Leu Leu Asp Ala His Ile Pro Gln Leu Val Ala Ser Gln Ser
 1 5 10 15

Ala Phe Ala Ala Lys Ala Gly Leu Met Arg His Thr Ile Gly Gln Ala
 20 25 30

Glu Gln Ala Ala Met Ser Ala Gln Ala Phe His Gln Gly Glu Ser Ser
 35 40 45

Ala Ala Phe Gln Ala Ala His Ala Arg Phe Val Ala Ala Ala Ala Lys
 50 55 60

Val Asn Thr Leu Leu Asp Val Ala Gln Ala Asn Leu Gly Glu Ala Ala
65 70 75 80

Gly Thr Tyr Val Ala Ala Asp Ala Ala Ala Ala Ser Thr Tyr Thr Gly
85 90 95

Phe

<210> 10
<211> 94
<212> PRT
<213> Mycobacterium tuberculosis

<400> 10

Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met
1 5 10 15

Ile Arg Ala Gln Ala Ala Ser Leu Glu Ala Glu His Gln Ala Ile Val
20 25 30

Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val
35 40 45

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

Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn
65 70 75 80

Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala
85 90

<210> 11
<211> 132
<212> PRT
<213> Mycobacterium tuberculosis

<400> 11

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

Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg Ser
20 25 30

Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu Gly
35 40 45

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

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

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

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

Gln Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr Leu Ala Glu
115 120 125

Gly Pro Pro Ala
130

<210> 12
<211> 195
<212> PRT
<213> Mycobacterium tuberculosis

<400> 12

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
1 5 10 15

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
20 25 30

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
35 40 45

Gly Ile Val Ile Asp Pro Asn Gly Val Val Leu Thr Asn Asn His Val
50 55 60

Ile Ala Gly Ala Thr Asp Ile Asn Ala Phe Ser Val Gly Ser Gly Gln
65 70 75 80

Thr Tyr Gly Val Asp Val Val Gly Tyr Asp Arg Thr Gln Asp Val Ala
85 90 95

Val Leu Gln Leu Arg Gly Ala Gly Gly Leu Pro Ser Ala Ala Ile Gly
100 105 110

Gly Gly Val Ala Val Gly Glu Pro Val Val Ala Met Gly Asn Ser Gly
115 120 125

Gly Gln Gly Gly Thr Pro Arg Ala Val Pro Gly Arg Val Val Ala Leu
130 135 140

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Gly Gln Thr Val Gln Ala Ser Asp Ser Leu Thr Gly Ala Glu Glu Thr
145 150 155 160

Leu Asn Gly Leu Ile Gln Phe Asp Ala Ala Ile Gln Pro Gly Asp Ser
165 170 175

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

Ala Ala Ser
195

<210> 13
<211> 391
<212> PRT
<213> Mycobacterium tuberculosis
<400> 13

Met Val Asp Phe Gly Ala Leu Pro Pro Glu Ile Asn Ser Ala Arg Met
1 5 10 15

Tyr Ala Gly Pro Gly Ser Ala Ser Leu Val Ala Ala Ala Gln Met Trp
20 25 30

Asp Ser Val Ala Ser Asp Leu Phe Ser Ala Ala Ser Ala Phe Gln Ser
35 40 45

Val Val Trp Gly Leu Thr Val Gly Ser Trp Ile Gly Ser Ser Ala Gly
50 55 60

Leu Met Val Ala Ala Ala Ser Pro Tyr Val Ala Trp Met Ser Val Thr
65 70 75 80

Ala Gly Gln Ala Glu Leu Thr Ala Ala Gln Val Arg Val Ala Ala Ala
85 90 95

Ala Tyr Glu Thr Ala Tyr Gly Leu Thr Val Pro Pro Pro Val Ile Ala
100 105 110

Glu Asn Arg Ala Glu Leu Met Ile Leu Ile Ala Thr Asn Leu Leu Gly
115 120 125

Gln Asn Thr Pro Ala Ile Ala Val Asn Glu Ala Glu Tyr Gly Glu Met
130 135 140

Trp Ala Gln Asp Ala Ala Ala Met Phe Gly Tyr Ala Ala Ala Thr Ala
145 150 155 160

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Thr Ala Thr Ala Thr Leu Leu Pro Phe Glu Glu Ala Pro Glu Met Thr
 165 170 175

Ser Ala Gly Gly Leu Leu Glu Gln Ala Ala Ala Val Glu Glu Ala Ser
 180 185 190

Asp Thr Ala Ala Ala Asn Gln Leu Met Asn Asn Val Pro Gln Ala Leu
 195 200 205

Gln Gln Leu Ala Gln Pro Thr Gln Gly Thr Thr Pro Ser Ser Lys Leu
 210 215 220

Gly Gly Leu Trp Lys Thr Val Ser Pro His Arg Ser Pro Ile Ser Asn
 225 230 235 240

Met Val Ser Met Ala Asn Asn His Met Ser Met Thr Asn Ser Gly Val
 245 250 255

Ser Met Thr Asn Thr Leu Ser Ser Met Leu Lys Gly Phe Ala Pro Ala
 260 265 270

Ala Ala Ala Gln Ala Val Gln Thr Ala Ala Gln Asn Gly Val Arg Ala
 275 280 285

Met Ser Ser Leu Gly Ser Ser Leu Gly Ser Ser Gly Leu Gly Gly Gly
 290 295 300

Val Ala Ala Asn Leu Gly Arg Ala Ala Ser Val Gly Ser Leu Ser Val
 305 310 315 320

Pro Gln Ala Trp Ala Ala Ala Asn Gln Ala Val Thr Pro Ala Ala Arg
 325 330 335

Ala Leu Pro Leu Thr Ser Leu Thr Ser Ala Ala Glu Arg Gly Pro Gly
 340 345 350

Gln Met Leu Gly Gly Leu Pro Val Gly Gln Met Gly Ala Arg Ala Gly
 355 360 365

Gly Gly Leu Ser Gly Val Leu Arg Val Pro Pro Arg Pro Tyr Val Met
 370 375 380

Pro His Ser Pro Ala Ala Gly
 385 390

<210> 14
 <211> 392
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 14

Met Ser Arg Ala Phe Ile Ile Asp Pro Thr Ile Ser Ala Ile Asp Gly
1 5 10 15

Leu Tyr Asp Leu Leu Gly Ile Gly Ile Pro Asn Gln Gly Gly Ile Leu
20 25 30

Tyr Ser Ser Leu Glu Tyr Phe Glu Lys Ala Leu Glu Glu Leu Ala Ala
35 40 45

Ala Phe Pro Gly Asp Gly Trp Leu Gly Ser Ala Ala Asp Lys Tyr Ala
50 55 60

Gly Lys Asn Arg Asn His Val Asn Phe Phe Gln Glu Leu Ala Asp Leu
65 70 75 80

Asp Arg Gln Leu Ile Ser Leu Ile His Asp Gln Ala Asn Ala Val Gln
85 90 95

Thr Thr Arg Asp Ile Leu Glu Gly Ala Lys Lys Gly Leu Glu Phe Val
100 105 110

Arg Pro Val Ala Val Asp Leu Thr Tyr Ile Pro Val Val Gly His Ala
115 120 125

Leu Ser Ala Ala Phe Gln Ala Pro Phe Cys Ala Gly Ala Met Ala Val
130 135 140

Val Gly Gly Ala Leu Ala Tyr Leu Val Val Lys Thr Leu Ile Asn Ala
145 150 155 160

Thr Gln Leu Leu Lys Leu Leu Ala Lys Leu Ala Glu Leu Val Ala Ala
165 170 175

Ala Ile Ala Asp Ile Ile Ser Asp Val Ala Asp Ile Ile Lys Gly Ile
180 185 190

Leu Gly Glu Val Trp Glu Phe Ile Thr Asn Ala Leu Asn Gly Leu Lys
195 200 205

Glu Leu Trp Asp Lys Leu Thr Gly Trp Val Thr Gly Leu Phe Ser Arg
210 215 220

Gly Trp Ser Asn Leu Glu Ser Phe Phe Ala Gly Val Pro Gly Leu Thr
225 230 235 240

Gly Ala Thr Ser Gly Leu Ser Gln Val Thr Gly Leu Phe Gly Ala Ala

245

250

255

Gly Leu Ser Ala Ser Ser Gly Leu Ala His Ala Asp Ser Leu Ala Ser
260 265 270

Ser Ala Ser Leu Pro Ala Leu Ala Gly Ile Gly Gly Gly Ser Gly Phe
275 280 285

Gly Gly Leu Pro Ser Leu Ala Gln Val His Ala Ala Ser Thr Arg Gln
290 295 300

Ala Leu Arg Pro Arg Ala Asp Gly Pro Val Gly Ala Ala Ala Glu Gln
305 310 315 320

Val Gly Gly Gln Ser Gln Leu Val Ser Ala Gln Gly Ser Gln Gly Met
325 330 335

Gly Gly Pro Val Gly Met Gly Gly Met His Pro Ser Ser Gly Ala Ser
340 345 350

Lys Gly Thr Thr Thr Lys Lys Tyr Ser Glu Gly Ala Ala Ala Gly Thr
355 360 365

Glu Asp Ala Glu Arg Ala Pro Val Glu Ala Asp Ala Gly Gly Gly Gln
370 375 380

Lys Val Leu Val Arg Asn Val Val
385 390

<210> 15
<211> 423
<212> PRT
<213> Mycobacterium tuberculosis

<400> 15

Met Asp Phe Gly Leu Leu Pro Pro Glu Val Asn Ser Ser Arg Met Tyr
1 5 10 15

Ser Gly Pro Gly Pro Glu Ser Met Leu Ala Ala Ala Ala Ala Trp Asp
20 25 30

Gly Val Ala Ala Glu Leu Thr Ser Ala Ala Val Ser Tyr Gly Ser Val
35 40 45

Val Ser Thr Leu Ile Val Glu Pro Trp Met Gly Pro Ala Ala Ala Ala
50 55 60

Met Ala Ala Ala Ala Thr Pro Tyr Val Gly Trp Leu Ala Ala Thr Ala
65 70 75 80

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Ala Leu Ala Lys Glu Thr Ala Thr Gln Ala Arg Ala Ala Ala Glu Ala
85 90 95

Phe Gly Thr Ala Phe Ala Met Thr Val Pro Pro Ser Leu Val Ala Ala
100 105 110

Asn Arg Ser Arg Leu Met Ser Leu Val Ala Ala Asn Ile Leu Gly Gln
115 120 125

Asn Ser Ala Ala Ile Ala Ala Thr Gln Ala Glu Tyr Ala Glu Met Trp
130 135 140

Ala Gln Asp Ala Ala Val Met Tyr Ser Tyr Glu Gly Ala Ser Ala Ala
145 150 155 160

Ala Ser Ala Leu Pro Pro Phe Thr Pro Pro Val Gln Gly Thr Gly Pro
165 170 175

Ala Gly Pro Ala Ala Ala Ala Ala Thr Gln Ala Ala Gly Ala Gly
180 185 190

Ala Val Ala Asp Ala Gln Ala Thr Leu Ala Gln Leu Pro Pro Gly Ile
195 200 205

Leu Ser Asp Ile Leu Ser Ala Leu Ala Ala Asn Ala Asp Pro Leu Thr
210 215 220

Ser Gly Leu Leu Gly Ile Ala Ser Thr Leu Asn Pro Gln Val Gly Ser
225 230 235 240

Ala Gln Pro Ile Val Ile Pro Thr Pro Ile Gly Glu Leu Asp Val Ile
245 250 255

Ala Leu Tyr Ile Ala Ser Ile Ala Thr Gly Ser Ile Ala Leu Ala Ile
260 265 270

Thr Asn Thr Ala Arg Pro Trp His Ile Gly Leu Tyr Gly Asn Ala Gly
275 280 285

Gly Leu Gly Pro Thr Gln Gly His Pro Leu Ser Ser Ala Thr Asp Glu
290 295 300

Pro Glu Pro His Trp Gly Pro Phe Gly Gly Ala Ala Pro Val Ser Ala
305 310 315 320

Gly Val Gly His Ala Ala Leu Val Gly Ala Leu Ser Val Pro His Ser
325 330 335

Trp Thr Thr Ala Ala Pro Glu Ile Gln Leu Ala Val Gln Ala Thr Pro
 340 345 350

Thr Phe Ser Ser Ser Ala Gly Ala Asp Pro Thr Ala Leu Asn Gly Met
 355 360 365

Pro Ala Gly Leu Leu Ser Gly Met Ala Leu Ala Ser Leu Ala Ala Arg
 370 375 380

Gly Thr Thr Gly Gly Gly Gly Thr Arg Ser Gly Thr Ser Thr Asp Gly
 385 390 395 400

Gln Glu Asp Gly Arg Lys Pro Pro Val Val Val Ile Arg Glu Gln Pro
 405 410 415

Pro Pro Gly Asn Pro Pro Arg
 420

<210> 16
 <211> 95
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> INIT_MET
 <222> (1)..(1)

<220>
 <221> mat_peptide
 <222> (2)..(95)

<400> 16

Met Thr Glu Gln Gln Trp Asn Phe Ala Gly Ile Glu Ala Ala Ala Ser
 -1 1 5 10 15

Ala Ile Gln Gly Asn Val Thr Ser Ile His Ser Leu Leu Asp Glu Gly
 20 25 30

Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp Gly Gly Ser Gly Ser
 35 40 45

Glu Ala Tyr Gln Gly Val Gln Gln Lys Trp Asp Ala Thr Ala Thr Glu
 50 55 60

Leu Asn Asn Ala Leu Gln Asn Leu Ala Arg Thr Ile Ser Glu Ala Gly
 65 70 75

Gln Ala Met Ala Ser Thr Glu Gly Asn Val Thr Gly Met Phe Ala
 80 85 90

<210> 17
 <211> 338
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> mat_peptide
 <222> (43)..(338)

<400> 17

Met Gln Leu Val Asp Arg Val Arg Gly Ala Val Thr Gly Met Ser Arg
 -40 -35 -30

Arg Leu Val Val Gly Ala Val Gly Ala Ala Leu Val Ser Gly Leu Val
 -25 -20 -15

Gly Ala Val Gly Gly Thr Ala Thr Ala Gly Ala Phe Ser Arg Pro Gly
 -10 -5 -1 1 5

Leu Pro Val Glu Tyr Leu Gln Val Pro Ser Pro Ser Met Gly Arg Asp
 10 15 20

Ile Lys Val Gln Phe Gln Ser Gly Gly Ala Asn Ser Pro Ala Leu Tyr
 25 30 35

Leu Leu Asp Gly Leu Arg Ala Gln Asp Asp Phe Ser Gly Trp Asp Ile
 40 45 50

Asn Thr Pro Ala Phe Glu Trp Tyr Asp Gln Ser Gly Leu Ser Val Val
 55 60 65 70

Met Pro Val Gly Gly Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Gln Pro
 75 80 85

Ala Cys Gly Lys Ala Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu
 90 95 100

Thr Ser Glu Leu Pro Gly Trp Leu Gln Ala Asn Arg His Val Lys Pro
 105 110 115

Thr Gly Ser Ala Val Val Gly Leu Ser Met Ala Ala Ser Ser Ala Leu
 120 125 130

Thr Leu Ala Ile Tyr His Pro Gln Gln Phe Val Tyr Ala Gly Ala Met
 135 140 145 150

Ser Gly Leu Leu Asp Pro Ser Gln Ala Met Gly Pro Thr Leu Ile Gly
 155 160 165

Leu Ala Met Gly Asp Ala Gly Gly Tyr Lys Ala Ser Asp Met Trp Gly
 170 175 180

Pro Lys Glu Asp Pro Ala Trp Gln Arg Asn Asp Pro Leu Leu Asn Val
 185 190 195

Gly Lys Leu Ile Ala Asn Asn Thr Arg Val Trp Val Tyr Cys Gly Asn
 200 205 210

Gly Lys Pro Ser Asp Leu Gly Gly Asn Asn Leu Pro Ala Lys Phe Leu
 215 220 225 230

Glu Gly Phe Val Arg Thr Ser Asn Ile Lys Phe Gln Asp Ala Tyr Asn
 235 240 245

Ala Gly Gly Gly His Asn Gly Val Phe Asp Phe Pro Asp Ser Gly Thr
 250 255 260

His Ser Trp Glu Tyr Trp Gly Ala Gln Leu Asn Ala Met Lys Pro Asp
 265 270 275

Leu Gln Arg Ala Leu Gly Ala Thr Pro Asn Thr Gly Pro Ala Pro Gln
 280 285 290

Gly Ala
 295

<210> 18
 <211> 325
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> mat_peptide
 <222> (41)..(325)

<400> 18

Met Thr Asp Val Ser Arg Lys Ile Arg Ala Trp Gly Arg Arg Leu Met
 -40 -35 -30 -25

Ile Gly Thr Ala Ala Ala Val Val Leu Pro Gly Leu Val Gly Leu Ala
 -20 -15 -10

Gly Gly Ala Ala Thr Ala Gly Ala Phe Ser Arg Pro Gly Leu Pro Val
 -5 -1 1 5

Glu Tyr Leu Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val
 10 15 20

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Gln Phe Gln Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp
 25 30 35 40
 Gly Leu Arg Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro
 45 50 55
 Ala Phe Glu Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val
 60 65 70
 Gly Gly Gln Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly
 75 80 85
 Lys Ala Gly Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu
 90 95 100
 Leu Pro Gln Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser
 105 110 115 120
 Ala Ala Ile Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala
 125 130 135
 Ala Tyr His Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu
 140 145 150
 Leu Asp Pro Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met
 155 160 165
 Gly Asp Ala Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser
 170 175 180
 Asp Pro Ala Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu
 185 190 195 200
 Val Ala Asn Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro
 205 210 215
 Asn Glu Leu Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe
 220 225 230
 Val Arg Ser Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly
 235 240 245
 Gly His Asn Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp
 250 255 260
 Glu Tyr Trp Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser
 265 270 275 280

Ser Leu Gly Ala Gly
285

<210> 19
<211> 144
<212> PRT
<213> Mycobacterium tuberculosis

<220>
<221> INIT_MET
<222> (1)..(1)

<220>
<221> mat_peptide
<222> (2)..(144)

<400> 19

Met Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro
-1 1 5 10 15

Glu Phe Ser Glu Leu Phe Ala Ala Phe Pro Ser Phe Ala Gly Leu Arg
20 25 30

Pro Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu
35 40 45

Gly Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys
50 55 60

Asp Val Asp Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu
65 70 75

Arg Thr Glu Gln Lys Asp Phe Asp Gly Arg Ser Glu Phe Ala Tyr Gly
80 85 90 95

Ser Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp
100 105 110

Ile Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val
115 120 125

Ser Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn
130 135 140

<210> 20
<211> 228
<212> PRT
<213> Mycobacterium tuberculosis

$\langle 220 \rangle$

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<221> mat peptide
```

<222> (24) .. (228)

<400> 20

Met Arg Ile Lys Ile Phe Met Leu Val Thr Ala Val Val Leu Leu Cys
-20 -15 -10

Cys Ser Gly Val Ala Thr Ala Ala Pro Lys Thr Tyr Cys Glu Glu Leu
-5 -1 1 5

Lys Gly Thr Asp Thr Gly Gln Ala Cys Gln Ile Gln Met Ser Asp Pro
10 15 20 25

Ala Tyr Asn Ile Asn Ile Ser Leu Pro Ser Tyr Tyr Pro Asp Gln Lys
30 35 40

Ser Leu Glu Asn Tyr Ile Ala Gln Thr Arg Asp Lys Phe Leu Ser Ala
45 50 55

Ala Thr Ser Ser Thr Pro Arg Glu Ala Pro Tyr Glu Leu Asn Ile Thr
60 65 70

Ser Ala Thr Tyr Gln Ser Ala Ile Pro Pro Arg Gly Thr Gln Ala Val
75 80 85

Val Leu Lys Val Tyr Gln Asn Ala Gly Gly Thr His Pro Thr Thr Thr
90 95 100 105

Tyr Lys Ala Phe Asp Trp Asp Gln Ala Tyr Arg Lys Pro Ile Thr Tyr
110 115 120

Asp Thr Leu Trp Gln Ala Asp Thr Asp Pro Leu Pro Val Val Phe Pro
125 130 135

Ile Val Gln Gly Glu Leu Ser Lys Gln Thr Gly Gln Gln Val Ser Ile
140 145 150

Ala Pro Asn Ala Gly Leu Asp Pro Val Asn Tyr Gln Asn Phe Ala Val
155 160 165

Thr Asn Asp Gly Val Ile Phe Phe Phe Asn Pro Gly Glu Leu Leu Pro
170 175 180 185

Glu Ala Ala Gly Pro Thr Gln Val Leu Val Pro Arg Ser Ala Ile Asp
190 195 200

Ser Met Leu Ala
205

<210> 21
 <211> 355
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> mat_peptide
 <222> (33)..(355)

<400> 21

Met Ser Asn Ser Arg Arg Arg Ser Leu Arg Trp Ser Trp Leu Leu Ser
 -30 -25 -20

Val Leu Ala Ala Val Gly Leu Gly Leu Ala Thr Ala Pro Ala Gln Ala
 -15 -10 -5 -1

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
 1 5 10 15

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
 20 25 30

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
 35 40 45

Gly Ile Val Ile Asp Pro Asn Gly Val Val Leu Thr Asn Asn His Val
 50 55 60

Ile Ala Gly Ala Thr Asp Ile Asn Ala Phe Ser Val Gly Ser Gly Gln
 65 70 75 80

Thr Tyr Gly Val Asp Val Val Gly Tyr Asp Arg Thr Gln Asp Val Ala
 85 90 95

Val Leu Gln Leu Arg Gly Ala Gly Gly Leu Pro Ser Ala Ala Ile Gly
 100 105 110

Gly Gly Val Ala Val Gly Glu Pro Val Val Ala Met Gly Asn Ser Gly
 115 120 125

Gly Gln Gly Gly Thr Pro Arg Ala Val Pro Gly Arg Val Val Ala Leu
 130 135 140

Gly Gln Thr Val Gln Ala Ser Asp Ser Leu Thr Gly Ala Glu Glu Thr
 145 150 155 160

Leu Asn Gly Leu Ile Gln Phe Asp Ala Ala Ile Gln Pro Gly Asp Ser
 165 170 175

PhoenixTemp30649.tmp.txt

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

Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe Ala
195 200 205

Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg Ser Gly
210 215 220

Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu Gly Leu
225 230 235 240

Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val Gln Arg Val Val
245 250 255

Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr Gly Asp Val Ile
260 265 270

Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr Ala Met Ala Asp
275 280 285

Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser Val Thr Trp Gln
290 295 300

Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr Leu Ala Glu Gly
305 310 315 320

Pro Pro Ala

<210> 22
<211> 323
<212> PRT
<213> Artificial Sequence

<220>
<223> Ser/Ala mutant of mature Mtb32A

<400> 22

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
1 5 10 15

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
20 25 30

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
35 40 45

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Gly Ile Val Ile Asp Pro Asn Gly Val Val Leu Thr Asn Asn His Val
 50 55 60

Ile Ala Gly Ala Thr Asp Ile Asn Ala Phe Ser Val Gly Ser Gly Gln
 65 70 75 80

Thr Tyr Gly Val Asp Val Val Gly Tyr Asp Arg Thr Gln Asp Val Ala
 85 90 95

Val Leu Gln Leu Arg Gly Ala Gly Gly Leu Pro Ser Ala Ala Ile Gly
 100 105 110

Gly Gly Val Ala Val Gly Glu Pro Val Val Ala Met Gly Asn Ser Gly
 115 120 125

Gly Gln Gly Gly Thr Pro Arg Ala Val Pro Gly Arg Val Val Ala Leu
 130 135 140

Gly Gln Thr Val Gln Ala Ser Asp Ser Leu Thr Gly Ala Glu Glu Thr
 145 150 155 160

Leu Asn Gly Leu Ile Gln Phe Asp Ala Ala Ile Gln Pro Gly Asp Ala
 165 170 175

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

Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly Phe Ala
 195 200 205

Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg Ser Gly
 210 215 220

Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu Gly Leu
 225 230 235 240

Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val Gln Arg Val Val
 245 250 255

Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr Gly Asp Val Ile
 260 265 270

Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr Ala Met Ala Asp
 275 280 285

Ala Leu Asn Gly His His Pro Gly Asp Val Ile Ser Val Thr Trp Gln
 290 295 300

Thr Lys Ser Gly Gly Thr Arg Thr Gly Asn Val Thr Leu Ala Glu Gly
 305 310 315 320

Pro Pro Ala

<210> 23
 <211> 96
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 23

Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
 1 5 10 15

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

Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly
 35 40 45

Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp
 50 55 60

Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr
 65 70 75 80

Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
 85 90 95

<210> 24
 <211> 723
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Mtb72f

<400> 24

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

Phe Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg
 20 25 30

Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu
 35 40 45

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

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Val 65	Val	Gly	Ser	Ala	Pro 70	Ala	Ala	Ser	Leu	Gly 75	Ile	Ser	Thr	Gly	Asp 80
Val	Ile	Thr	Ala	Val 85	Asp	Gly	Ala	Pro	Ile 90	Asn	Ser	Ala	Thr	Ala	Met 95
Ala	Asp	Ala	Leu 100	Asn	Gly	His	His	Pro 105	Gly	Asp	Val	Ile	Ser	Val	Thr 110
Trp	Gln	Thr 115	Lys	Ser	Gly	Gly	Thr	Arg	Thr	Gly	Asn	Val 125	Thr	Leu	Ala
Glu	Gly 130	Pro	Pro	Ala	Glu	Phe 135	Met	Val	Asp	Phe	Gly 140	Ala	Leu	Pro	Pro
Glu 145	Ile	Asn	Ser	Ala	Arg 150	Met	Tyr	Ala	Gly	Pro 155	Gly	Ser	Ala	Ser	Leu 160
Val	Ala	Ala	Ala	Gln 165	Met	Trp	Asp	Ser	Val 170	Ala	Ser	Asp	Leu	Phe	Ser 175
Ala	Ala	Ser	Ala 180	Phe	Gln	Ser	Val	Val 185	Trp	Gly	Leu	Thr	Val 190	Gly	Ser
Trp	Ile	Gly 195	Ser	Ser	Ala	Gly	Leu 200	Met	Val	Ala	Ala	Ala 205	Ser	Pro	Tyr
Val 210	Ala	Trp	Met	Ser	Val	Thr 215	Ala	Gly	Gln	Ala	Glu 220	Leu	Thr	Ala	Ala
Gln 225	Val	Arg	Val	Ala	Ala 230	Ala	Ala	Tyr	Glu	Thr 235	Ala	Tyr	Gly	Leu	Thr 240
Val	Pro	Pro	Pro	Val 245	Ile	Ala	Glu	Asn	Arg 250	Ala	Glu	Leu	Met	Ile	Leu 255
Ile	Ala	Thr	Asn 260	Leu	Leu	Gly	Gln	Asn 265	Thr	Pro	Ala	Ile	Ala 270	Val	Asn
Glu	Ala	Glu 275	Tyr	Gly	Glu	Met	Trp 280	Ala	Gln	Asp	Ala	Ala 285	Ala	Met	Phe
Gly 290	Tyr	Ala	Ala	Ala	Thr	Ala 295	Thr	Ala	Thr	Ala	Thr 300	Leu	Leu	Pro	Phe
Glu 305	Glu	Ala	Pro	Glu	Met 310	Thr	Ser	Ala	Gly	Gly 315	Leu	Leu	Glu	Gln	Ala 320

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Ala Ala Val Glu Glu Ala Ser Asp Thr Ala Ala Ala Asn Gln Leu Met
325 330 335

Asn Asn Val Pro Gln Ala Leu Gln Gln Leu Ala Gln Pro Thr Gln Gly
340 345 350

Thr Thr Pro Ser Ser Lys Leu Gly Gly Leu Trp Lys Thr Val Ser Pro
355 360 365

His Arg Ser Pro Ile Ser Asn Met Val Ser Met Ala Asn Asn His Met
370 375 380

Ser Met Thr Asn Ser Gly Val Ser Met Thr Asn Thr Leu Ser Ser Met
385 390 395 400

Leu Lys Gly Phe Ala Pro Ala Ala Ala Ala Gln Ala Val Gln Thr Ala
405 410 415

Ala Gln Asn Gly Val Arg Ala Met Ser Ser Leu Gly Ser Ser Leu Gly
420 425 430

Ser Ser Gly Leu Gly Gly Gly Val Ala Ala Asn Leu Gly Arg Ala Ala
435 440 445

Ser Val Gly Ser Leu Ser Val Pro Gln Ala Trp Ala Ala Ala Asn Gln
450 455 460

Ala Val Thr Pro Ala Ala Arg Ala Leu Pro Leu Thr Ser Leu Thr Ser
465 470 475 480

Ala Ala Glu Arg Gly Pro Gly Gln Met Leu Gly Gly Leu Pro Val Gly
485 490 495

Gln Met Gly Ala Arg Ala Gly Gly Gly Leu Ser Gly Val Leu Arg Val
500 505 510

Pro Pro Arg Pro Tyr Val Met Pro His Ser Pro Ala Ala Gly Asp Ile
515 520 525

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
530 535 540

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
545 550 555 560

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
565 570 575

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

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

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

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

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

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

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

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

Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met Asn Thr
705 710 715 720

Ala Ala Ser

<210> 25
<211> 723
<212> PRT
<213> Artificial Sequence

<220>
<223> M72

<400> 25

Met Thr Ala Ala Ser Asp Asn Phe Gln Leu Ser Gln Gly Gly Gln Gly
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Phe Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg
20 25 30

Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu
35 40 45

Gly Leu Gly Val Val Asp Asn Asn Gly Asn Gly Ala Arg Val Gln Arg

50

55

60

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

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

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

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

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

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

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

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

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

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

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

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

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

Glu Ala Glu Tyr Gly Glu Met Trp Ala Gln Asp Ala Ala Ala Met Phe
275 280 285

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

Glu Glu Ala Pro Glu Met Thr Ser Ala Gly Gly Leu Leu Glu Gln Ala

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

565

570

575

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

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

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

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

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

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

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

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

Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met Asn Thr
 705 710 715 720

Ala Ala Ser

<210> 26
 <211> 702
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Mtb71f

<400> 26

Asp Pro Val Asp Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val
 1 5 10 15

Val Ala Ala Leu Asn Ala Thr Asp Pro Gly Ala Ala Ala Gln Phe Asn
 20 25 30

Ala Ser Pro Val Ala Gln Ser Tyr Leu Arg Asn Phe Leu Ala Ala Pro
 35 40 45

PhoenixTemp30649.tmp.txt

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Pro  Pro  Gln  Arg  Ala  Ala  Met  Ala  Ala  Gln  Leu  Gln  Ala  Val  Pro  Gly
 50                                55                                60

Ala  Ala  Gln  Tyr  Ile  Gly  Leu  Val  Glu  Ser  Val  Ala  Gly  Ser  Cys  Asn
65                                70                                75                                80

Asn  Tyr  Glu  Leu  Met  Thr  Ile  Asn  Tyr  Gln  Phe  Gly  Asp  Val  Asp  Ala
                        85                                90                                95

His  Gly  Ala  Met  Ile  Arg  Ala  Gln  Ala  Ala  Ser  Leu  Glu  Ala  Glu  His
                        100                                105                                110

Gln  Ala  Ile  Val  Arg  Asp  Val  Leu  Ala  Ala  Gly  Asp  Phe  Trp  Gly  Gly
                        115                                120                                125

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

Phe  Gln  Val  Ile  Tyr  Glu  Gln  Ala  Asn  Ala  His  Gly  Gln  Lys  Val  Gln
145                                150                                155                                160

Ala  Ala  Gly  Asn  Asn  Met  Ala  Gln  Thr  Asp  Ser  Ala  Val  Gly  Ser  Ser
                        165                                170                                175

Trp  Ala  Thr  Ser  Met  Ser  Leu  Leu  Asp  Ala  His  Ile  Pro  Gln  Leu  Val
                        180                                185                                190

Ala  Ser  Gln  Ser  Ala  Phe  Ala  Ala  Lys  Ala  Gly  Leu  Met  Arg  His  Thr
      195                                200                                205

Ile  Gly  Gln  Ala  Glu  Gln  Ala  Ala  Met  Ser  Ala  Gln  Ala  Phe  His  Gln
      210                                215                                220

Gly  Glu  Ser  Ser  Ala  Ala  Phe  Gln  Ala  Ala  His  Ala  Arg  Phe  Val  Ala
225                                230                                235                                240

Ala  Ala  Ala  Lys  Val  Asn  Thr  Leu  Leu  Asp  Val  Ala  Gln  Ala  Asn  Leu
                        245                                250                                255

Gly  Glu  Ala  Ala  Gly  Thr  Tyr  Val  Ala  Ala  Asp  Ala  Ala  Ala  Ala  Ser
      260                                265                                270

Thr  Tyr  Thr  Gly  Phe  Asp  Ile  Met  Asp  Phe  Gly  Leu  Leu  Pro  Pro  Glu
      275                                280                                285

Val  Asn  Ser  Ser  Arg  Met  Tyr  Ser  Gly  Pro  Gly  Pro  Glu  Ser  Met  Leu
      290                                295                                300

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PhoenixTemp30649.tmp.txt

Ala Ala Ala Ala Ala Trp Asp Gly Val Ala Ala Glu Leu Thr Ser Ala
305 310 315 320

Ala Val Ser Tyr Gly Ser Val Val Ser Thr Leu Ile Val Glu Pro Trp
325 330 335

Met Gly Pro Ala Ala Ala Ala Met Ala Ala Ala Thr Pro Tyr Val
340 345 350

Gly Trp Leu Ala Ala Thr Ala Ala Leu Ala Lys Glu Thr Ala Thr Gln
355 360 365

Ala Arg Ala Ala Ala Glu Ala Phe Gly Thr Ala Phe Ala Met Thr Val
370 375 380

Pro Pro Ser Leu Val Ala Ala Asn Arg Ser Arg Leu Met Ser Leu Val
385 390 395 400

Ala Ala Asn Ile Leu Gly Gln Asn Ser Ala Ala Ile Ala Ala Thr Gln
405 410 415

Ala Glu Tyr Ala Glu Met Trp Ala Gln Asp Ala Ala Val Met Tyr Ser
420 425 430

Tyr Glu Gly Ala Ser Ala Ala Ala Ser Ala Leu Pro Pro Phe Thr Pro
435 440 445

Pro Val Gln Gly Thr Gly Pro Ala Gly Pro Ala Ala Ala Ala Ala Ala
450 455 460

Thr Gln Ala Ala Gly Ala Gly Ala Val Ala Asp Ala Gln Ala Thr Leu
465 470 475 480

Ala Gln Leu Pro Pro Gly Ile Leu Ser Asp Ile Leu Ser Ala Leu Ala
485 490 495

Ala Asn Ala Asp Pro Leu Thr Ser Gly Leu Leu Gly Ile Ala Ser Thr
500 505 510

Leu Asn Pro Gln Val Gly Ser Ala Gln Pro Ile Val Ile Pro Thr Pro
515 520 525

Ile Gly Glu Leu Asp Val Ile Ala Leu Tyr Ile Ala Ser Ile Ala Thr
530 535 540

Gly Ser Ile Ala Leu Ala Ile Thr Asn Thr Ala Arg Pro Trp His Ile
545 550 555 560

PhoenixTemp30649.tmp.txt

Gly Leu Tyr Gly Asn Ala Gly Gly Leu Gly Pro Thr Gln Gly His Pro
565 570 575

Leu Ser Ser Ala Thr Asp Glu Pro Glu Pro His Trp Gly Pro Phe Gly
580 585 590

Gly Ala Ala Pro Val Ser Ala Gly Val Gly His Ala Ala Leu Val Gly
595 600 605

Ala Leu Ser Val Pro His Ser Trp Thr Thr Ala Ala Pro Glu Ile Gln
610 615 620

Leu Ala Val Gln Ala Thr Pro Thr Phe Ser Ser Ser Ala Gly Ala Asp
625 630 635 640

Pro Thr Ala Leu Asn Gly Met Pro Ala Gly Leu Leu Ser Gly Met Ala
645 650 655

Leu Ala Ser Leu Ala Ala Arg Gly Thr Thr Gly Gly Gly Gly Thr Arg
660 665 670

Ser Gly Thr Ser Thr Asp Gly Gln Glu Asp Gly Arg Lys Pro Pro Val
675 680 685

Val Val Ile Arg Glu Gln Pro Pro Pro Gly Asn Pro Pro Arg
690 695 700

<210> 27
<211> 920
<212> PRT
<213> Artificial Sequence

<220>
<223> M72-Mtb9.9-Mtb9.8

<400> 27

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

Phe Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg
20 25 30

Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu
35 40 45

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

Val Val Gly Ser Ala Pro Ala Ala Ser Leu Gly Ile Ser Thr Gly Asp

65		70		75		80									
Val	Ile	Thr	Ala	Val	Asp	Gly	Ala	Pro	Ile	Asn	Ser	Ala	Thr	Ala	Met
				85					90					95	
Ala	Asp	Ala	Leu	Asn	Gly	His	His	Pro	Gly	Asp	Val	Ile	Ser	Val	Thr
			100					105					110		
Trp	Gln	Thr	Lys	Ser	Gly	Gly	Thr	Arg	Thr	Gly	Asn	Val	Thr	Leu	Ala
		115					120					125			
Glu	Gly	Pro	Pro	Ala	Glu	Phe	Met	Val	Asp	Phe	Gly	Ala	Leu	Pro	Pro
	130					135					140				
Glu	Ile	Asn	Ser	Ala	Arg	Met	Tyr	Ala	Gly	Pro	Gly	Ser	Ala	Ser	Leu
145					150					155					160
Val	Ala	Ala	Ala	Gln	Met	Trp	Asp	Ser	Val	Ala	Ser	Asp	Leu	Phe	Ser
				165					170					175	
Ala	Ala	Ser	Ala	Phe	Gln	Ser	Val	Val	Trp	Gly	Leu	Thr	Val	Gly	Ser
			180					185					190		
Trp	Ile	Gly	Ser	Ser	Ala	Gly	Leu	Met	Val	Ala	Ala	Ala	Ser	Pro	Tyr
		195					200					205			
Val	Ala	Trp	Met	Ser	Val	Thr	Ala	Gly	Gln	Ala	Glu	Leu	Thr	Ala	Ala
	210					215					220				
Gln	Val	Arg	Val	Ala	Ala	Ala	Ala	Tyr	Glu	Thr	Ala	Tyr	Gly	Leu	Thr
225					230					235					240
Val	Pro	Pro	Pro	Val	Ile	Ala	Glu	Asn	Arg	Ala	Glu	Leu	Met	Ile	Leu
				245					250					255	
Ile	Ala	Thr	Asn	Leu	Leu	Gly	Gln	Asn	Thr	Pro	Ala	Ile	Ala	Val	Asn
			260					265					270		
Glu	Ala	Glu	Tyr	Gly	Glu	Met	Trp	Ala	Gln	Asp	Ala	Ala	Ala	Met	Phe
		275					280					285			
Gly	Tyr	Ala	Ala	Ala	Thr	Ala	Thr	Ala	Thr	Ala	Thr	Leu	Leu	Pro	Phe
	290					295					300				
Glu	Glu	Ala	Pro	Glu	Met	Thr	Ser	Ala	Gly	Gly	Leu	Leu	Glu	Gln	Ala
305					310					315					320
Ala	Ala	Val	Glu	Glu	Ala	Ser	Asp	Thr	Ala	Ala	Ala	Asn	Gln	Leu	Met

325

330

335

Asn Asn Val Pro Gln Ala Leu Gln Gln Leu Ala Gln Pro Thr Gln Gly
 340 345 350

Thr Thr Pro Ser Ser Lys Leu Gly Gly Leu Trp Lys Thr Val Ser Pro
 355 360 365

His Arg Ser Pro Ile Ser Asn Met Val Ser Met Ala Asn Asn His Met
 370 375 380

Ser Met Thr Asn Ser Gly Val Ser Met Thr Asn Thr Leu Ser Ser Met
 385 390 395 400

Leu Lys Gly Phe Ala Pro Ala Ala Ala Gln Ala Val Gln Thr Ala
 405 410 415

Ala Gln Asn Gly Val Arg Ala Met Ser Ser Leu Gly Ser Ser Leu Gly
 420 425 430

Ser Ser Gly Leu Gly Gly Gly Val Ala Ala Asn Leu Gly Arg Ala Ala
 435 440 445

Ser Val Gly Ser Leu Ser Val Pro Gln Ala Trp Ala Ala Ala Asn Gln
 450 455 460

Ala Val Thr Pro Ala Ala Arg Ala Leu Pro Leu Thr Ser Leu Thr Ser
 465 470 475 480

Ala Ala Glu Arg Gly Pro Gly Gln Met Leu Gly Gly Leu Pro Val Gly
 485 490 495

Gln Met Gly Ala Arg Ala Gly Gly Gly Leu Ser Gly Val Leu Arg Val
 500 505 510

Pro Pro Arg Pro Tyr Val Met Pro His Ser Pro Ala Ala Gly Asp Ile
 515 520 525

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
 530 535 540

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
 545 550 555 560

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
 565 570 575

Gly Ile Val Ile Asp Pro Asn Gly Val Val Leu Thr Asn Asn His Val

580

585

590

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

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

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

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

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

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

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

Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met Asn Thr
705 710 715 720

Ala Ala Ser Ser Thr Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp
725 730 735

Ala His Gly Ala Met Ile Arg Ala Gln Ala Ala Ser Leu Glu Ala Glu
740 745 750

His Gln Ala Ile Val Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly
755 760 765

Gly Ala Gly Ser Val Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg
770 775 780

Asn Phe Gln Val Ile Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val
785 790 795 800

Gln Ala Ala Gly Asn Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser
805 810 815

Ser Trp Ala Thr Ser Met Ser Leu Leu Asp Ala His Ile Pro Gln Leu
820 825 830

Val Ala Ser Gln Ser Ala Phe Ala Ala Lys Ala Gly Leu Met Arg His

835

840

845

Thr Ile Gly Gln Ala Glu Gln Ala Ala Met Ser Ala Gln Ala Phe His
850 855 860

Gln Gly Glu Ser Ser Ala Ala Phe Gln Ala Ala His Ala Arg Phe Val
865 870 875 880

Ala Ala Ala Ala Lys Val Asn Thr Leu Leu Asp Val Ala Gln Ala Asn
885 890 895

Leu Gly Glu Ala Ala Gly Thr Tyr Val Ala Ala Asp Ala Ala Ala Ala
900 905 910

Ser Thr Tyr Thr Gly Phe Pro Trp
915 920

<210> 28

<211> 1010

<212> PRT

<213> Artificial Sequence

<220>

<223> M103

<400> 28

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Phe Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg
20 25 30

Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu
35 40 45

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

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

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

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

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

PhoenixTemp30649.tmp.txt

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

PhoenixTemp30649.tmp.txt

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Ser Met Thr Asn Ser Gly Val Ser Met Thr Asn Thr Leu Ser Ser Met
385                               390               395               400

Leu Lys Gly Phe Ala Pro Ala Ala Ala Ala Gln Ala Val Gln Thr Ala
                               405               410               415

Ala Gln Asn Gly Val Arg Ala Met Ser Ser Leu Gly Ser Ser Leu Gly
                               420               425               430

Ser Ser Gly Leu Gly Gly Gly Val Ala Ala Asn Leu Gly Arg Ala Ala
435                               440               445

Ser Val Gly Ser Leu Ser Val Pro Gln Ala Trp Ala Ala Ala Asn Gln
450                               455               460

Ala Val Thr Pro Ala Ala Arg Ala Leu Pro Leu Thr Ser Leu Thr Ser
465                               470               475               480

Ala Ala Glu Arg Gly Pro Gly Gln Met Leu Gly Gly Leu Pro Val Gly
                               485               490               495

Gln Met Gly Ala Arg Ala Gly Gly Gly Leu Ser Gly Val Leu Arg Val
500                               505               510

Pro Pro Arg Pro Tyr Val Met Pro His Ser Pro Ala Ala Gly Asp Ile
515                               520               525

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
530                               535               540

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
545                               550               555               560

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
565                               570               575

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

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

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

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

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PhoenixTemp30649.tmp.txt

Gly Gly Val Ala Val Gly Glu Pro Val Val Ala Met Gly Asn Ser Gly
 645 650 655
 Gly Gln Gly Gly Thr Pro Arg Ala Val Pro Gly Arg Val Val Ala Leu
 660 665 670
 Gly Gln Thr Val Gln Ala Ser Asp Ser Leu Thr Gly Ala Glu Glu Thr
 675 680 685
 Leu Asn Gly Leu Ile Gln Phe Asp Ala Ala Ile Gln Pro Gly Asp Ala
 690 695 700
 Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met Asn Thr
 705 710 715 720
 Ala Ala Ser Ser Gly Phe Ser Arg Pro Gly Leu Pro Val Glu Tyr Leu
 725 730 735
 Gln Val Pro Ser Pro Ser Met Gly Arg Asp Ile Lys Val Gln Phe Gln
 740 745 750
 Ser Gly Gly Asn Asn Ser Pro Ala Val Tyr Leu Leu Asp Gly Leu Arg
 755 760 765
 Ala Gln Asp Asp Tyr Asn Gly Trp Asp Ile Asn Thr Pro Ala Phe Glu
 770 775 780
 Trp Tyr Tyr Gln Ser Gly Leu Ser Ile Val Met Pro Val Gly Gly Gln
 785 790 795 800
 Ser Ser Phe Tyr Ser Asp Trp Tyr Ser Pro Ala Cys Gly Lys Ala Gly
 805 810 815
 Cys Gln Thr Tyr Lys Trp Glu Thr Phe Leu Thr Ser Glu Leu Pro Gln
 820 825 830
 Trp Leu Ser Ala Asn Arg Ala Val Lys Pro Thr Gly Ser Ala Ala Ile
 835 840 845
 Gly Leu Ser Met Ala Gly Ser Ser Ala Met Ile Leu Ala Ala Tyr His
 850 855 860
 Pro Gln Gln Phe Ile Tyr Ala Gly Ser Leu Ser Ala Leu Leu Asp Pro
 865 870 875 880
 Ser Gln Gly Met Gly Pro Ser Leu Ile Gly Leu Ala Met Gly Asp Ala
 885 890 895

PhoenixTemp30649.tmp.txt

Gly Gly Tyr Lys Ala Ala Asp Met Trp Gly Pro Ser Ser Asp Pro Ala
900 905 910

Trp Glu Arg Asn Asp Pro Thr Gln Gln Ile Pro Lys Leu Val Ala Asn
915 920 925

Asn Thr Arg Leu Trp Val Tyr Cys Gly Asn Gly Thr Pro Asn Glu Leu
930 935 940

Gly Gly Ala Asn Ile Pro Ala Glu Phe Leu Glu Asn Phe Val Arg Ser
945 950 955 960

Ser Asn Leu Lys Phe Gln Asp Ala Tyr Asn Ala Ala Gly Gly His Asn
965 970 975

Ala Val Phe Asn Phe Pro Pro Asn Gly Thr His Ser Trp Glu Tyr Trp
980 985 990

Gly Ala Gln Leu Asn Ala Met Lys Gly Asp Leu Gln Ser Ser Leu Gly
995 1000 1005

Ala Gly
1010

<210> 29
<211> 1148
<212> PRT
<213> Artificial Sequence

<220>
<223> M114

<400> 29

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

Phe Ala Ile Pro Ile Gly Gln Ala Met Ala Ile Ala Gly Gln Ile Arg
20 25 30

Ser Gly Gly Gly Ser Pro Thr Val His Ile Gly Pro Thr Ala Phe Leu
35 40 45

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

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

Val Ile Thr Ala Val Asp Gly Ala Pro Ile Asn Ser Ala Thr Ala Met

85

90

95

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

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

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

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

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

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

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

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

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

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

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

Glu Ala Glu Tyr Gly Glu Met Trp Ala Gln Asp Ala Ala Ala Met Phe
 275 280 285

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

Glu Glu Ala Pro Glu Met Thr Ser Ala Gly Gly Leu Leu Glu Gln Ala
 305 310 315 320

Ala Ala Val Glu Glu Ala Ser Asp Thr Ala Ala Ala Asn Gln Leu Met
 325 330 335

Asn Asn Val Pro Gln Ala Leu Gln Gln Leu Ala Gln Pro Thr Gln Gly

340

345

350

Thr Thr Pro Ser Ser Lys Leu Gly Gly Leu Trp Lys Thr Val Ser Pro
 355 360 365

His Arg Ser Pro Ile Ser Asn Met Val Ser Met Ala Asn Asn His Met
 370 375 380

Ser Met Thr Asn Ser Gly Val Ser Met Thr Asn Thr Leu Ser Ser Met
 385 390 395 400

Leu Lys Gly Phe Ala Pro Ala Ala Ala Ala Gln Ala Val Gln Thr Ala
 405 410 415

Ala Gln Asn Gly Val Arg Ala Met Ser Ser Leu Gly Ser Ser Leu Gly
 420 425 430

Ser Ser Gly Leu Gly Gly Gly Val Ala Ala Asn Leu Gly Arg Ala Ala
 435 440 445

Ser Val Gly Ser Leu Ser Val Pro Gln Ala Trp Ala Ala Ala Asn Gln
 450 455 460

Ala Val Thr Pro Ala Ala Arg Ala Leu Pro Leu Thr Ser Leu Thr Ser
 465 470 475 480

Ala Ala Glu Arg Gly Pro Gly Gln Met Leu Gly Gly Leu Pro Val Gly
 485 490 495

Gln Met Gly Ala Arg Ala Gly Gly Gly Leu Ser Gly Val Leu Arg Val
 500 505 510

Pro Pro Arg Pro Tyr Val Met Pro His Ser Pro Ala Ala Gly Asp Ile
 515 520 525

Ala Pro Pro Ala Leu Ser Gln Asp Arg Phe Ala Asp Phe Pro Ala Leu
 530 535 540

Pro Leu Asp Pro Ser Ala Met Val Ala Gln Val Gly Pro Gln Val Val
 545 550 555 560

Asn Ile Asn Thr Lys Leu Gly Tyr Asn Asn Ala Val Gly Ala Gly Thr
 565 570 575

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

Ile Ala Gly Ala Thr Asp Ile Asn Ala Phe Ser Val Gly Ser Gly Gln

595

600

605

Thr Tyr Gly Val Asp Val Val Gly Tyr Asp Arg Thr Gln Asp Val Ala
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Val Leu Gln Leu Arg Gly Ala Gly Gly Leu Pro Ser Ala Ala Ile Gly
625 630 635 640

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

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

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

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

Gly Gly Pro Val Val Asn Gly Leu Gly Gln Val Val Gly Met Asn Thr
705 710 715 720

Ala Ala Ser Ser Thr Met Asp Phe Gly Leu Leu Pro Pro Glu Val Asn
725 730 735

Ser Ser Arg Met Tyr Ser Gly Pro Gly Pro Glu Ser Met Leu Ala Ala
740 745 750

Ala Ala Ala Trp Asp Gly Val Ala Ala Glu Leu Thr Ser Ala Ala Val
755 760 765

Ser Tyr Gly Ser Val Val Ser Thr Leu Ile Val Glu Pro Trp Met Gly
770 775 780

Pro Ala Ala Ala Ala Met Ala Ala Ala Ala Thr Pro Tyr Val Gly Trp
785 790 795 800

Leu Ala Ala Thr Ala Ala Leu Ala Lys Glu Thr Ala Thr Gln Ala Arg
805 810 815

Ala Ala Ala Glu Ala Phe Gly Thr Ala Phe Ala Met Thr Val Pro Pro
820 825 830

Ser Leu Val Ala Ala Asn Arg Ser Arg Leu Met Ser Leu Val Ala Ala
835 840 845

Asn Ile Leu Gly Gln Asn Ser Ala Ala Ile Ala Ala Thr Gln Ala Glu

850

855

860

Tyr Ala Glu Met Trp Ala Gln Asp Ala Ala Val Met Tyr Ser Tyr Glu
 865 870 875 880

Gly Ala Ser Ala Ala Ala Ser Ala Leu Pro Pro Phe Thr Pro Pro Val
 885 890 895

Gln Gly Thr Gly Pro Ala Gly Pro Ala Ala Ala Ala Ala Thr Gln
 900 905 910

Ala Ala Gly Ala Gly Ala Val Ala Asp Ala Gln Ala Thr Leu Ala Gln
 915 920 925

Leu Pro Pro Gly Ile Leu Ser Asp Ile Leu Ser Ala Leu Ala Ala Asn
 930 935 940

Ala Asp Pro Leu Thr Ser Gly Leu Leu Gly Ile Ala Ser Thr Leu Asn
 945 950 955 960

Pro Gln Val Gly Ser Ala Gln Pro Ile Val Ile Pro Thr Pro Ile Gly
 965 970 975

Glu Leu Asp Val Ile Ala Leu Tyr Ile Ala Ser Ile Ala Thr Gly Ser
 980 985 990

Ile Ala Leu Ala Ile Thr Asn Thr Ala Arg Pro Trp His Ile Gly Leu
 995 1000 1005

Tyr Gly Asn Ala Gly Gly Leu Gly Pro Thr Gln Gly His Pro Leu
 1010 1015 1020

Ser Ser Ala Thr Asp Glu Pro Glu Pro His Trp Gly Pro Phe Gly
 1025 1030 1035

Gly Ala Ala Pro Val Ser Ala Gly Val Gly His Ala Ala Leu Val
 1040 1045 1050

Gly Ala Leu Ser Val Pro His Ser Trp Thr Thr Ala Ala Pro Glu
 1055 1060 1065

Ile Gln Leu Ala Val Gln Ala Thr Pro Thr Phe Ser Ser Ser Ala
 1070 1075 1080

Gly Ala Asp Pro Thr Ala Leu Asn Gly Met Pro Ala Gly Leu Leu
 1085 1090 1095

Ser Gly Met Ala Leu Ala Ser Leu Ala Ala Arg Gly Thr Thr Gly

1100

1105

1110

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

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Ile Leu Pro Phe Ser Val Ala Ser Val
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Phe Ala Asn Ile Gly Thr Asn Leu Ala
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Asn Phe Ser Val Leu Pro Pro Glu Ile
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Val Leu Pro Pro Glu Ile Asn Ser Ala
1 5

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Leu Pro Pro Glu Ile Asn Ser Ala Leu
1 5

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Pro Glu Ile Asn Ser Ala Leu Ile Phe
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Glu Ile Asn Ser Ala Leu Ile Phe Ala
1 5

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Gly Ala Gly Pro Glu Pro Met Ala Ala
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Gly Pro Glu Pro Met Ala Ala Ala Ala
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Glu Pro Met Ala Ala Ala Ala Thr Ala
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Ala Ala Ala Thr Ala Trp Asp Gly Leu
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Ala Thr Ala Trp Asp Gly Leu Ala Met
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Ala Trp Asp Gly Leu Ala Met Glu Leu
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Gly Leu Ala Met Glu Leu Ala Ser Ala
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Leu Ala Met Glu Leu Ala Ser Ala Ala
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Val Thr Ser Gly Leu Val Gly Gly Ala
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Ala Met Ala Ala Ala Ala Ala Pro Tyr
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Ala Ala Ala Ala Ala Pro Tyr Ala Ala
1 5

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Ala Ala Ala Pro Tyr Ala Ala Trp Leu
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Ala Ala Pro Tyr Ala Ala Trp Leu Ala
1 5

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Ala Pro Tyr Ala Ala Trp Leu Ala Ala
1 5

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Tyr Ala Ala Trp Leu Ala Ala Ala Ala
1 5

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Ala Ala Trp Leu Ala Ala Ala Ala Val
1 5

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Trp Leu Ala Ala Ala Val Gln Ala
1 5

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Gln Ala Glu Gln Thr Ala Ala Gln Ala
1 5

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Ala Glu Gln Thr Ala Ala Gln Ala Ala
1 5

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Thr Ala Ala Gln Ala Ala Ala Met Ile
1 5

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Ala Ala Met Ile Ala Glu Phe Glu Ala
1 5

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Ala Met Ile Ala Glu Phe Glu Ala Val
1 5

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Ala Glu Phe Glu Ala Val Lys Thr Ala
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Phe Glu Ala Val Lys Thr Ala Val Val
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Glu Ala Val Lys Thr Ala Val Val Gln
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Lys Thr Ala Val Val Gln Pro Met Leu
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Gln Pro Met Leu Val Ala Ala Asn Arg
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Pro Met Leu Val Ala Ala Asn Arg Ala
1 5

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Leu Val Ala Ala Asn Arg Ala Asp Leu
1 5

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Ala Asn Arg Ala Asp Leu Val Ser Leu
1 5

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Arg Ala Asp Leu Val Ser Leu Val Met
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Val Ser Leu Val Met Ser Asn Leu Phe
1 5

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Asn Leu Phe Gly Gln Asn Ala Pro Ala
1 5

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

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Ala Ile Asn Leu Gly Ile Ala Asn Val
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Asn Ala Asn Leu Gly Asn Tyr Asn Phe
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Asn Tyr Asn Phe Gly Ser Gly Asn Phe
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Asn Leu Gly Ser Asn Asn Val Gly Val
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Ser Leu Asn Thr Gly Ser Tyr Asn Met
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Asn Ala Asn Thr Gly Phe Leu Asn Ala
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Phe Leu Asn Ala Gly Asn Ile Asn Thr
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Ser Ile Thr Thr Pro Asp Leu Thr Leu
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Thr Pro Asp Leu Thr Leu Pro Pro Leu
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Asp Leu Thr Leu Pro Pro Leu Gln Ile
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Pro Leu Gln Ile Pro Gly Ile Ser Val
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Ile Pro Gly Ile Ser Val Pro Ala Phe
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Gly Ile Ser Val Pro Ala Phe Ser Leu
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Val Pro Ala Phe Ser Leu Pro Ala Ile
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Ala Phe Ser Leu Pro Ala Ile Thr Leu
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Leu Pro Ala Ile Thr Leu Pro Ser Leu
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Ala Ile Thr Leu Pro Ser Leu Asn Ile
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Thr Leu Pro Ser Leu Asn Ile Pro Ala
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Leu Pro Ser Leu Asn Ile Pro Ala Ala
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Ala Thr Thr Pro Ala Asn Ile Thr Val
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Thr Pro Ala Asn Ile Thr Val Gly Ala
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Asn Ile Thr Val Gly Ala Phe Ser Leu
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Ala Phe Ser Leu Pro Gly Leu Thr Leu
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Ala Thr Thr Pro Ala Asn Ile Thr Val
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Asn Ile Thr Val Gly Ala Phe Ser Leu
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Ala Phe Ser Leu Pro Gly Leu Thr Leu
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Leu Pro Gly Leu Thr Leu Pro Ser Leu
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Thr Leu Pro Ser Leu Asn Ile Pro Ala
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Ala Thr Thr Pro Ala Asn Ile Thr Val
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His Leu Pro Ser Thr Thr Ile Gly Ala
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Leu Pro Ser Thr Thr Ile Gly Ala Phe
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Ser Ile Pro Met Pro Ala Gly Val Asn Pro Ala Asp Leu Ala Ala Glu
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Leu Ala Ala Val Val Thr Glu Ser Val Asp Glu Asp Tyr Leu Leu Tyr
 35 40 45

PhoenixTemp30649.tmp.txt

Glu Cys Asp Gly Gln Trp Val Leu Ala Ala Gly Val Gln Ala Met Val
 50 55 60

Glu Leu Asp Ser Asp Glu Leu Arg Val Ile Arg Asp Gly Val Thr Arg
 65 70 75 80

Arg Gln Gln Trp Ser Gly Arg Pro Gly Ala Ala Leu Gly Glu Ala Val
 85 90 95

Asp Arg Leu Leu Leu Glu Thr Asp Gln Ala Phe Gly Trp Val Ala Phe
 100 105 110

Glu Phe Gly Val His Arg Tyr Gly Leu Gln Gln Arg Leu Ala Pro His
 115 120 125

Thr Pro Leu Ala Arg Val Phe Ser Pro Arg Thr Arg Ile Met Val Ser
 130 135 140

Glu Lys Glu Ile Arg Leu Phe Asp Ala Gly Ile Arg His Arg Glu Ala
 145 150 155 160

Ile Asp Arg Leu Leu Ala Thr Gly Val Arg Glu Val Pro Gln Ser Arg
 165 170 175

Ser Val Asp Val Ser Asp Asp Pro Ser Gly Phe Arg Arg Arg Val Ala
 180 185 190

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

Ser Arg Cys Val Glu Val Pro Phe Ala Ile Asp Phe Pro Leu Thr Tyr
 210 215 220

Arg Leu Gly Arg Arg His Asn Thr Pro Val Arg Ser Phe Leu Leu Gln
 225 230 235 240

Leu Gly Gly Ile Arg Ala Leu Gly Tyr Ser Pro Glu Leu Val Thr Ala
 245 250 255

Val Arg Ala Asp Gly Val Val Ile Thr Glu Pro Leu Ala Gly Thr Arg
 260 265 270

Ala Leu Gly Arg Gly Pro Ala Ile Asp Arg Leu Ala Arg Asp Asp Leu
 275 280 285

Glu Ser Asn Ser Lys Glu Ile Val Glu His Ala Ile Ser Val Arg Ser
 290 295 300

PhoenixTemp30649.tmp.txt

Ser Leu Glu Glu Ile Thr Asp Ile Ala Glu Pro Gly Ser Ala Ala Val
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Ile Asp Phe Met Thr Val Arg Glu Arg Gly Ser Val Gln His Leu Gly
 325 330 335

Ser Thr Ile Arg Ala Arg Leu Asp Pro Ser Ser Asp Arg Met Ala Ala
 340 345 350

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

Ala Gly Val Glu Ala Ile Phe Arg Leu Asp Glu Cys Pro Arg Gly Leu
 370 375 380

Tyr Ser Gly Ala Val Val Met Leu Ser Ala Asp Gly Gly Leu Asp Ala
 385 390 395 400

Ala Leu Thr Leu Arg Ala Ala Tyr Gln Val Gly Gly Arg Thr Trp Leu
 405 410 415

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

Ser Ala Gln Ala Ala Phe Trp Ser Ala Leu Ser Leu Pro Pro Leu Leu
 35 40 45

Leu Gly Met Leu Gly Ser Leu Ala Tyr Val Ala Pro Leu Phe Gly Pro
 50 55 60

Asp Thr Leu Pro Ala Ile Glu Lys Ser Ala Leu Ser Thr Ala His Ser

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65                               70                               75                               80
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Asp Ile Thr Asn Asn Ala Arg Gly Glu Val Ala Ser Leu Gly Phe Leu
      100                               105                               110
Ile Ser Leu Trp Ala Gly Ser Ser Ala Ile Ser Ala Phe Val Asp Ala
      115                               120                               125
Val Val Glu Ala His Asp Gln Thr Pro Leu Arg His Pro Val Arg Gln
      130                               135                               140
Arg Phe Phe Ala Leu Phe Leu Tyr Val Val Met Leu Val Phe Leu Val
      145                               150                               155                               160
Ala Thr Ala Pro Val Met Val Val Gly Pro Arg Lys Val Ser Glu His
      165                               170                               175
Ile Pro Glu Ser Leu Ala Asn Leu Leu Arg Tyr Gly Tyr Tyr Pro Ala
      180                               185                               190
Leu Ile Leu Gly Leu Thr Val Gly Val Ile Leu Leu Tyr Arg Val Ala
      195                               200                               205
Leu Pro Val Pro Leu Pro Thr His Arg Leu Val Leu Gly Ala Val Leu
      210                               215                               220
Ala Ile Ala Val Phe Leu Ile Ala Thr Leu Gly Leu Arg Val Tyr Leu
      225                               230                               235                               240
Ala Trp Ile Thr Arg Thr Gly Tyr Thr Tyr Gly Ala Leu Ala Thr Pro
      245                               250                               255
Ile Ala Phe Leu Leu Phe Ala Phe Phe Gly Gly Phe Ala Ile Met Leu
      260                               265                               270
Gly Ala Glu Leu Asn Ala Ala Val Gln Glu Glu Trp Pro Ala Pro Ala
      275                               280                               285
Thr His Ala His Arg Leu Gly Asn Trp Leu Lys Ala Arg Ile Gly Val
      290                               295                               300
Gly Thr Thr Thr Tyr Ser Ser Thr Ala Gln His Ser Ala Val Ala Ala
      305                               310                               315                               320
Glu Pro Pro Ser

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PhoenixTemp30649.tmp.txt