

eolf-seq1
SEQUENCE LISTING

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

<120> NOVEL COMPOSITIONS AND METHODS

<130> VB63088PCT

<150> US61/083699

<151> 2008-07-25

<160> 156

<170> PatentIn version 3.5

<210> 1

<211> 450

<212> PRT

<213> Mycobacterium tuberculosis

<220>

<221> MISC_FEATURE

<223> Strain H37Rv

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Met Ser Glu Leu Ser Val Ala Thr Gly Ala Val Ser Thr Ala Ser Ser
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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

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	eolf-seql		155	160
Ile Asp Arg Leu	Leu 165	Ala Thr Gly Val	Arg 170	Glu Val Pro Gln	Ser Arg 175
Ser Val Asp	Val 180	Ser Asp Asp Pro	Ser 185	Gly Phe Arg Arg	Arg Val Ala 190
Val Ala	Val 195	Asp Glu Ile Ala	Ala 200	Gly Arg Tyr His	Lys Val Ile Leu 205
Ser Arg	Cys Val 210	Glu Val Pro	Phe Ala Ile 215	Asp Phe Pro	Leu Thr Tyr 220
Arg 225	Leu Gly Arg Arg	His 230	Asn Thr Pro Val	Arg 235	Ser Phe Leu Leu Gln 240
Leu Gly Gly Ile	Arg 245	Ala Leu Gly Tyr	Ser 250	Pro Glu Leu Val	Thr Ala 255
Val Arg Ala	Asp 260	Gly Val Val Ile	Thr 265	Glu Pro Leu Ala	Gly Thr Arg 270
Ala Leu	Gly 275	Arg Gly Pro Ala	Ile 280	Asp Arg Leu Ala	Arg Asp Asp Leu 285
Glu Ser	Asn Ser Lys 290	Glu Ile 295	Val Glu His Ala	Ile 300	Ser Val Arg Ser
Ser 305	Leu Glu Glu Ile	Thr 310	Asp Ile Ala Glu	Pro 315	Gly Ser Ala Ala Val 320
Ile Asp Phe Met	Thr 325	Val Arg Glu Arg	Gly 330	Ser Val Gln His	Leu Gly 335
Ser Thr Ile	Arg 340	Ala Arg Leu Asp	Pro 345	Ser Ser Asp Arg	Met Ala Ala 350
Leu Glu Ala	Leu Phe Pro Ala	Val 360	Thr Ala Ser Gly	Ile 365	Pro Lys Ala
Ala Gly	Val 370	Glu Ala Ile	Phe 375	Arg Leu Asp Glu	Cys Pro Arg Gly Leu 380
Tyr 385	Ser Gly Ala Val	Val 390	Met Leu Ser Ala	Asp 395	Gly Gly Leu Asp Ala 400
Ala Leu Thr	Leu 405	Arg Ala Ala Tyr	Gln Val 410	Gly Gly Arg Thr	Trp Leu 415
Arg Ala Gly Ala Gly	Ile Ile Glu Glu	Ser Glu Pro Glu	Arg Glu Phe		

Glu Gln Thr Cys Gln Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala

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Arg Gln
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425 eol-f-seq1

430

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<211> 1353
<212> DNA
<213> Mycobacterium tuberculosis

<220>
<221> misc-feature
<223> strain H37Rv

<400> 2

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1353

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<210> 3
 <211> 450
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>
 <221> MISC_FEATURE
 <223> Strain CDC1551

<400> 3

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Ser Ile Pro Met Pro Ala Gly Val Asn Pro Ala Asp Leu Ala Ala Glu
 20 25 30

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

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

colf-seq1

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

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

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
 420 425 430

Glu Glu Thr Cys Glu Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala
 435 440 445

Arg Gln
 450

<210> 4
 <211> 450
 <212> PRT
 <213> Mycobacterium tuberculosis

<220>

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<221> MISC_FEATURE

<223> Strain F11

<400> 4

Met Ser Glu Leu Ser Val Ala Thr Gly Ala Val Ser Thr Ala Ser Ser
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Ser Ile Pro Met Pro Ala Gly Val Asn Pro Ala Asp Leu Ala Ala Glu
20 25 30

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

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

colf-seq1

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

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

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
420 425 430

Glu Glu Thr Cys Glu Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala
435 440 445

Arg Gln
450

<210> 5
<211> 450
<212> PRT
<213> Mycobacterium tuberculosis

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

<400> 5

Met Ser Glu Leu Ser Val Ala Thr Gly Ala Val Ser Thr Ala Ser Ser
1 5 10 15

colf-seq1

Ser Ile Pro Met₂₀ Pro Ala Gly Val₂₅ Asn Pro Ala Asp Leu₃₀ Ala Ala Glu
 Leu Ala Ala₃₅ Val Val Thr Glu Ser₄₀ Val Asp Glu Asp₄₅ Tyr Leu Leu Tyr
 Glu Cys₅₀ Asp Gly Gln Trp Val₅₅ Leu Ala Ala Gly Val₆₀ Gln Ala Met Val
 Glu Leu Asp Ser Asp₇₀ Glu Leu Arg Val Ile Arg₇₅ Asp Gly Val Thr Arg₈₀
 Arg Gln Gln Trp Ser₈₅ Gly Arg Pro Gly₉₀ Ala Ala Leu Gly Glu Ala₉₅ Val
 Asp Arg Leu₁₀₀ Leu Leu Glu Thr Asp Gln Ala Phe Gly Trp Val₁₁₀ Ala Phe
 Glu Phe Gly₁₁₅ Val His Arg Tyr Gly₁₂₀ Leu Gln Gln Arg Leu₁₂₅ Ala Pro His
 Thr Pro₁₃₀ Leu Ala Arg Val Phe₁₃₅ Ser Pro Arg Thr Arg₁₄₀ Ile Met Val Ser
 Glu Lys Glu Ile Arg Leu₁₅₀ Phe Asp Ala Gly Ile₁₅₅ Arg His Arg Glu Ala₁₆₀
 Ile Asp Arg Leu₁₆₅ Leu Ala Thr Gly Val Arg₁₇₀ Glu Val Pro Gln Ser₁₇₅ Arg
 Ser Val Asp Val₁₈₀ Ser Asp Asp Pro Ser₁₈₅ Gly Phe Arg Arg Arg₁₉₀ Val Ala
 Val Ala Val₁₉₅ Asp Glu Ile Ala Ala Gly Arg Tyr His Lys₂₀₅ Val Ile Leu
 Ser Arg Cys Val Glu Val Pro₂₁₅ Phe Ala Ile Asp Phe₂₂₀ Pro Leu Thr Tyr
 Arg Leu Gly Arg Arg His₂₃₀ Asn Thr Pro Val Arg₂₃₅ Ser Phe Leu Leu Gln₂₄₀
 Leu Gly Gly Ile Arg₂₄₅ Ala Leu Gly Tyr Ser₂₅₀ Pro Glu Leu Val Thr₂₅₅ Ala
 Val Arg Ala Asp₂₆₀ Gly Val Val Ile Thr₂₆₅ Glu Pro Leu Ala Gly₂₇₀ Thr Arg
 Ala Leu Gly₂₇₅ Arg Gly Pro Ala Ile₂₈₀ Asp Arg Leu Ala Arg₂₈₅ Asp Asp Leu

colf-seq1

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

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

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
420 425 430

Glu Glu Thr Cys Glu Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala
435 440 445

Arg Gln
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<210> 6
<211> 450
<212> PRT
<213> Mycobacterium tuberculosis

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

<400> 6

Met Ser Glu Leu Ser Val Ala Thr Gly Ala Val Ser Thr Ala Ser Ser
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Ser Ile Pro Met Pro Ala Gly Val Asn Pro Ala Asp Leu Ala Ala Glu
20 25 30

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

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

colf-seq1

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
420 425 430

Glu Glu Thr Cys Glu Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala
435 440 445

Arg Gln
450

<210> 7
<211> 450
<212> PRT
<213> Mycobacterium bovis

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

<400> 7

Met Ser Glu Leu Ser Val Ala Thr Gly Ala Val Ser Thr Ala Ser Ser
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Ser Ile Pro Met Pro Ala Gly Val Asn Pro Ala Asp Leu Ala Ala Glu
20 25 30

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

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

eo1f-seq1

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

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

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

eo1f-seq1

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
420 425 430

Glu Glu Thr Cys Glu Lys Leu Ser Thr Leu Thr Pro Tyr Leu Val Ala
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Arg Gln
450

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

<220>
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<400> 8

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-10 -5 -1 1

Ala Val Ile Asn Thr Thr Cys Asn Tyr Gly Gln Val Val Ala Ala Leu
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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

eof-seq1

<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
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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 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

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<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
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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
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Gly Pro Pro Ala
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<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

eo1f-seq1

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

Ala Ala Ser
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<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
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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 eolf-seq1
 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
 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

colf-seq1

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
Page 18

colf-seq1

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 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

eolf-seq1

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

colf-seq1

<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

eo1f-seq1

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

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

eolf-seq1

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)

colf-seq1

<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

<220>

<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

colf-seq1

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

colf-seql

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
 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

eof-seq1

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

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 eolf-seq1 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

colf-seq1

<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

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

eo1f-seq1

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

co1f-seq1

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 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

eolf-seql

1	5	10	15
Phe	Ala	Ile	Pro
	20	Ile	Gly
		Gln	Ala
		Met	Ala
		25	Ile
			Ala
			Gly
			Gln
			Ile
			Arg
Ser	Gly	Gly	Gly
	35	Ser	Pro
		Thr	Val
		40	His
			Ile
			Gly
			Pro
			45
			Thr
			Ala
			Phe
			Leu
Gly	Leu	Gly	Val
	50	Val	Val
		Asp	Asn
		55	Asn
			Gly
			Asn
			Gly
			Ala
			Arg
			Val
			Gln
			Arg
Val	Val	Gly	Ser
	65	Ala	Pro
		Ala	Ala
		70	Ser
			Leu
			Gly
			75
			Ile
			Ser
			Thr
			Gly
			80
			Asp
Val	Ile	Thr	Ala
		85	Val
			Asp
			Gly
			Ala
			Pro
			Ile
			90
			Asn
			Ser
			Ala
			Thr
			Ala
			95
			Met
Ala	Asp	Ala	Leu
		100	Asn
			Gly
			His
			His
			Pro
			105
			Gly
			Asp
			Val
			Ile
			Ser
			110
			Val
			Thr
Trp	Gln	Thr	Lys
		115	Ser
			Gly
			Gly
			Thr
			120
			Arg
			Thr
			Gly
			Asn
			Val
			125
			Thr
			Leu
			Ala
Glu	Gly	Pro	Pro
	130	Ala	Glu
			135
			Phe
			Met
			Val
			Asp
			Phe
			Gly
			140
			Ala
			Leu
			Pro
			Pro
Glu	Ile	Asn	Ser
	145	Ala	Arg
			150
			Met
			Tyr
			Ala
			Gly
			Pro
			155
			Gly
			Ser
			Ala
			Ser
			Leu
Val	Ala	Ala	Ala
			Gln
			165
			Met
			Trp
			Asp
			Ser
			Val
			170
			Ala
			Ser
			Asp
			Leu
			Phe
			175
			Ser
Ala	Ala	Ser	Ala
			Phe
			Gln
			Ser
			Val
			180
			Val
			185
			Trp
			Gly
			Leu
			Thr
			Val
			190
			Gly
			Ser
Trp	Ile	Gly	Ser
		195	Ser
			Ala
			Gly
			Leu
			200
			Met
			Val
			Ala
			Ala
			Ala
			205
			Ser
			Pro
			Tyr
Val	Ala	Trp	Met
			210
			Ser
			Val
			Thr
			215
			Ala
			Gly
			Gln
			Ala
			Glu
			220
			Leu
			Thr
			Ala
			Ala
Gln	Val	Arg	Val
			Ala
			225
			Ala
			Ala
			Ala
			Tyr
			Glu
			Thr
			235
			Ala
			Tyr
			Gly
			Leu
			Thr
			240
Val	Pro	Pro	Pro
			Val
			245
			Ile
			Ala
			Glu
			Asn
			Arg
			Ala
			Glu
			Leu
			Met
			Ile
			255
			Leu
Ile	Ala	Thr	Asn
			Leu
			Leu
			Gly
			Gln
			Asn
			260
			Thr
			Pro
			Ala
			Ile
			Ala
			Val
			Asn
			270
Glu	Ala	Glu	Tyr
			Gly
			Glu
			Met
			Trp
			Ala
			Gln
			Asp
			Ala
			Ala
			Ala
			Met
			Phe

eolf-seql

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

co1f-seq1

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

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

colf-seq1

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 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

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

eof-seq1

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

eolf-seql

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		

eolf-seql																			
385					390					395					400				
Leu	Lys	Gly	Phe	Ala 405	Pro	Ala	Ala	Ala	Ala 410	Gln	Ala	Val	Gln	Thr 415	Ala				
Ala	Gln	Asn	Gly 420	Val	Arg	Ala	Met	Ser 425	Ser	Leu	Gly	Ser	Ser	Leu	Gly				
Ser	Ser	Gly 435	Leu	Gly	Gly	Gly	Val 440	Ala	Ala	Asn	Leu	Gly 445	Arg	Ala	Ala				
Ser	Val 450	Gly	Ser	Leu	Ser	Val 455	Pro	Gln	Ala	Trp	Ala 460	Ala	Ala	Ala	Asn	Gln			
Ala 465	Val	Thr	Pro	Ala	Ala 470	Arg	Ala	Leu	Pro	Leu 475	Thr	Ser	Leu	Thr	Ser				
Ala	Ala	Glu	Arg	Gly 485	Pro	Gly	Gln	Met	Leu 490	Gly	Gly	Leu	Pro	Val 495	Gly				
Gln	Met	Gly	Ala 500	Arg	Ala	Gly	Gly	Gly 505	Leu	Ser	Gly	Val	Leu 510	Arg	Val				
Pro	Pro	Arg 515	Pro	Tyr	Val	Met	Pro 520	His	Ser	Pro	Ala	Ala 525	Gly	Asp	Ile				
Ala	Pro 530	Pro	Ala	Leu	Ser	Gln 535	Asp	Arg	Phe	Ala	Asp 540	Phe	Pro	Ala	Leu				
Pro 545	Leu	Asp	Pro	Ser	Ala 550	Met	Val	Ala	Gln	Val 555	Gly	Pro	Gln	Val	Val 560				
Asn	Ile	Asn	Thr	Lys 565	Leu	Gly	Tyr	Asn	Asn 570	Ala	Val	Gly	Ala	Gly 575	Thr				
Gly	Ile	Val	Ile 580	Asp	Pro	Asn	Gly	Val 585	Val	Leu	Thr	Asn	Asn 590	His	Val				
Ile	Ala	Gly 595	Ala	Thr	Asp	Ile	Asn 600	Ala	Phe	Ser	Val	Gly 605	Ser	Gly	Gln				
Thr	Tyr 610	Gly	Val	Asp	Val	Val 615	Gly	Tyr	Asp	Arg	Thr 620	Gln	Asp	Val	Ala				
Val 625	Leu	Gln	Leu	Arg	Gly 630	Ala	Gly	Gly	Leu	Pro 635	Ser	Ala	Ala	Ile	Gly 640				
Gly	Gly	Val	Ala	Val 645	Gly	Glu	Pro	Val	Val 650	Ala	Met	Gly	Asn	Ser 655	Gly				
Gly	Gln	Gly	Gly	Thr	Pro	Arg	Ala	Val	Pro	Gly	Arg	Val	Val	Ala	Leu				

eolf-seq1

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

colf-seq1

<211> 1010
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> M103

<400> 28

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

eo1f-seq1

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

co1f-seq1

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 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

eof-seq1

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

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

co1f-seq1

<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

eolf-seql

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

eol-f-seq1														
530					535					540				
Pro 545	Leu	Asp	Pro	Ser	Ala 550	Met	Val	Ala	Gln	Val 555	Gly	Pro	Gln	Val 560
Asn	Ile	Asn	Thr	Lys 565	Leu	Gly	Tyr	Asn	Asn 570	Ala	Val	Gly	Ala	Gly 575
Gly	Ile	Val	Ile 580	Asp	Pro	Asn	Gly	Val 585	Val	Leu	Thr	Asn	Asn 590	His 595
Ile	Ala	Gly 595	Ala	Thr	Asp	Ile	Asn 600	Ala	Phe	Ser	Val	Gly 605	Ser	Gly 610
Thr	Tyr 610	Gly	Val	Asp	Val	Val 615	Gly	Tyr	Asp	Arg	Thr 620	Gln	Asp	Val 625
Val 625	Leu	Gln	Leu	Arg	Gly 630	Ala	Gly	Gly	Leu	Pro 635	Ser	Ala	Ala	Ile 640
Gly	Gly	Val	Ala	Val 645	Gly	Glu	Pro	Val	Val 650	Ala	Met	Gly	Asn	Ser 655
Gly	Gln	Gly	Gly 660	Thr	Pro	Arg	Ala	Val 665	Pro	Gly	Arg	Val	Val 670	Ala 675
Gly	Gln	Thr 675	Val	Gln	Ala	Ser	Asp 680	Ser	Leu	Thr	Gly	Ala 685	Glu	Glu 690
Leu	Asn 690	Gly	Leu	Ile	Gln	Phe 695	Asp	Ala	Ala	Ile	Gln 700	Pro	Gly	Asp 705
Gly 705	Gly	Pro	Val	Val	Asn 710	Gly	Leu	Gly	Gln	Val 715	Val	Gly	Met	Asn 720
Ala	Ala	Ser	Ser	Thr 725	Met	Asp	Phe	Gly	Leu 730	Leu	Pro	Pro	Glu	Val 735
Ser	Ser	Arg	Met 740	Tyr	Ser	Gly	Pro	Gly 745	Pro	Glu	Ser	Met	Leu 750	Ala 755
Ala	Ala	Ala 755	Trp	Asp	Gly	Val	Ala 760	Ala	Glu	Leu	Thr	Ser 765	Ala	Ala 770
Ser	Tyr 770	Gly	Ser	Val	Val	Ser 775	Thr	Leu	Ile	Val	Glu 780	Pro	Trp	Met 785
Pro	Ala	Ala	Ala	Ala	Met 790	Ala	Ala	Ala	Ala	Thr 795	Pro	Tyr	Val	Gly 800
Leu	Ala	Ala	Thr	Ala	Ala	Leu	Ala	Lys	Glu	Thr	Ala	Thr	Gln	Ala 805

colf-seq1
810

805

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

eolf-seq1

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
 1115 1120 1125

Gly Arg Lys Pro Pro Val Val Val Ile Arg Glu Gln Pro Pro Pro
 1130 1135 1140

Gly Asn Pro Pro Arg
 1145

<210> 30
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 30

Trp Val Leu Ala Ala Gly Val Gln Ala
 1 5

<210> 31
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 31

Val Leu Ala Ala Gly Val Gln Ala Met
 1 5

<210> 32
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 32

Val Ile Arg Asp Gly Val Thr Arg Arg
 1 5

<210> 33
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 33

Leu Ala Pro His Thr Pro Leu Ala Arg
 1 5

<210> 34

eolf-seq1

<211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 34

Ile Arg Leu Phe Asp Ala Gly Ile Arg
 1 5

<210> 35
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 35

Ile Arg His Arg Glu Ala Ile Asp Arg
 1 5

<210> 36
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 36

Leu Leu Ala Thr Gly Val Arg Glu Val
 1 5

<210> 37
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 37

Phe Arg Arg Arg Val Ala Val Ala Val
 1 5

<210> 38
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 38

Phe Ala Ile Asp Phe Pro Leu Thr Tyr
 1 5

<210> 39
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis
 <400> 39

Phe Pro Leu Thr Tyr Arg Leu Gly Arg
 1 5

<210> 40
 <211> 9
 <212> PRT

<213> Mycobacterium tuberculosis

<400> 40

Tyr Arg Leu Gly Arg Arg His Asn Thr
1 5

<210> 41

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 41

Val Arg Ser Phe Leu Leu Gln Leu Gly
1 5

<210> 42

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 42

Leu Leu Gln Leu Gly Gly Ile Arg Ala
1 5

<210> 43

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 43

Leu Val Thr Ala Val Arg Ala Asp Gly
1 5

<210> 44

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<400> 44

Val Arg Ala Asp Gly Val Val Ile Thr
1 5

<210> 45

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<400> 45

Val Val Ile Thr Glu Pro Leu Ala Gly
1 5

<210> 46

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

eolf-seq1

<400> 46

Ile Val Glu His Ala Ile Ser Val Arg
1 5

<210> 47

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Ile Asp Phe Met Thr Val Arg Glu Arg
1 5

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<211> 9

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Phe Arg Leu Asp Glu Cys Pro Arg Gly
1 5

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Leu Tyr Ser Gly Ala Val Val Met Leu
1 5

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Tyr Ser Gly Ala Val Val Met Leu Ser
1 5

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<400> 51

Val Val Met Leu Ser Ala Asp Gly Gly
1 5

<210> 52

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<400> 52

Trp Leu Arg Ala Gly Ala Gly Ile Ile
1 5

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Glu Leu Ser Val Ala Thr Gly Ala Val
1 5

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Ser Val Ala Thr Gly Ala Val Ser Thr
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Ile Pro Met Pro Ala Gly Val Asn Pro
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Pro Met Pro Ala Gly Val Asn Pro Ala
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Pro Ala Gly Val Asn Pro Ala Asp Leu
1 5

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Gly Val Asn Pro Ala Asp Leu Ala Ala
1 5

eolf-seq1

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Asn Pro Ala Asp Leu Ala Ala Glu Leu
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Asp Leu Ala Ala Glu Leu Ala Ala Val
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Leu Ala Ala Val Val Thr Glu Ser Val
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Val Thr Glu Ser Val Asp Glu Asp Tyr
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Thr Glu Ser Val Asp Glu Asp Tyr Leu
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Ser Val Asp Glu Asp Tyr Leu Leu Tyr
 1 5

eolf-seq1

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Gly Gln Trp Val Leu Ala Ala Gly Val
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Val Leu Ala Ala Gly Val Gln Ala Met
 1 5

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Glu Leu Asp Ser Asp Glu Leu Arg Val
 1 5

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Asp Ser Asp Glu Leu Arg Val Ile Arg
 1 5

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Gln Gln Trp Ser Gly Arg Pro Gly Ala
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eolf-seq1

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Gly Arg Pro Gly Ala Ala Leu Gly Glu
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Arg Pro Gly Ala Ala Leu Gly Glu Ala
 1 5

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Ala Leu Gly Glu Ala Val Asp Arg Leu
 1 5

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Gly Glu Ala Val Asp Arg Leu Leu Leu
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Ala Phe Gly Trp Val Ala Phe Glu Phe
 1 5

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Arg Leu Ala Pro His Thr Pro Leu Ala
 1 5

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<400> 77

Leu Ala Pro His Thr Pro Leu Ala Arg
 1 5

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Ala Pro His Thr Pro Leu Ala Arg Val
 1 5

<210> 79

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Pro His Thr Pro Leu Ala Arg Val Phe
 1 5

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Pro Leu Ala Arg Val Phe Ser Pro Arg
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Arg Val Phe Ser Pro Arg Thr Arg Ile
 1 5

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<400> 82

Val Phe Ser Pro Arg Thr Arg Ile Met
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<210> 83

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<400> 83

eo1f-seq1

Val Ser Glu Lys Glu Ile Arg Leu Phe
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Ala Gly Ile Arg His Arg Glu Ala Ile
1 5

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Leu Leu Ala Thr Gly Val Arg Glu Val
1 5

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Arg Glu Val Pro Gln Ser Arg Ser Val
1 5

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Val Pro Gln Ser Arg Ser Val Asp Val
1 5

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Val Ser Asp Asp Pro Ser Gly Phe Arg
1 5

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Asp Pro Ser Gly Phe Arg Arg Arg Val

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Ser Gly Phe Arg Arg Val Ala Val
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<400> 91

Gly Phe Arg Arg Arg Val Ala Val Ala
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Phe Arg Arg Arg Val Ala Val Ala Val
 1 5

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Arg Val Ala Val Ala Val Asp Glu Ile
 1 5

<210> 94
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<400> 94

Ile Ala Ala Gly Arg Tyr His Lys Val
 1 5

<210> 95
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<400> 95

Ala Gly Arg Tyr His Lys Val Ile Leu
 1 5

eo1f-seq1

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Arg Tyr His Lys Val Ile Leu Ser Arg
 1 5

<210> 97
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Val Ile Leu Ser Arg Cys Val Glu Val
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Val Pro Phe Ala Ile Asp Phe Pro Leu
 1 5

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Phe Ala Ile Asp Phe Pro Leu Thr Tyr
 1 5

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Ile Asp Phe Pro Leu Thr Tyr Arg Leu
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Leu Gly Arg Arg His Asn Thr Pro Val
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<210> 102

eolf-seq1

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Asn Thr Pro Val Arg Ser Phe Leu Leu
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Pro Val Arg Ser Phe Leu Leu Gln Leu
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Arg Ala Leu Gly Tyr Ser Pro Glu Leu
 1 5

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Ala Leu Gly Tyr Ser Pro Glu Leu Val
 1 5

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Tyr Ser Pro Glu Leu Val Thr Ala Val
 1 5

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Ser Pro Glu Leu Val Thr Ala Val Arg
1 5

<210> 109

<211> 9

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Ala Val Arg Ala Asp Gly Val Val Ile
1 5

<210> 110

<211> 9

<212> PRT

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Ile Thr Glu Pro Leu Ala Gly Thr Arg
1 5

<210> 111

<211> 9

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Glu Pro Leu Ala Gly Thr Arg Ala Leu
1 5

<210> 112

<211> 9

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Gly Thr Arg Ala Leu Gly Arg Gly Pro
1 5

<210> 113

<211> 9

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Arg Ala Leu Gly Arg Gly Pro Ala Ile
1 5

<210> 114

<211> 9

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eolf-seq1

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Leu Glu Ser Asn Ser Lys Glu Ile Val
 1 5

<210> 115

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<213> Mycobacterium tuberculosis

<400> 115

Glu Ile Val Glu His Ala Ile Ser Val
 1 5

<210> 116

<211> 9

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<400> 116

Ile Val Glu His Ala Ile Ser Val Arg
 1 5

<210> 117

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 117

His Ala Ile Ser Val Arg Ser Ser Leu
 1 5

<210> 118

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 118

Ser Val Arg Ser Ser Leu Glu Glu Ile
 1 5

<210> 119

<211> 9

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<213> Mycobacterium tuberculosis

<400> 119

Ser Leu Glu Glu Ile Thr Asp Ile Ala
 1 5

<210> 120

<211> 9

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<400> 120

eolf-seq1

Asp Ile Ala Glu Pro Gly Ser Ala Ala
1 5

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Ala Glu Pro Gly Ser Ala Ala Val Ile
1 5

<210> 122
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Arg Glu Arg Gly Ser Val Gln His Leu
1 5

<210> 123
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Ser Val Gln His Leu Gly Ser Thr Ile
1 5

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Arg Leu Asp Pro Ser Ser Asp Arg Met
1 5

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Asp Pro Ser Ser Asp Arg Met Ala Ala
1 5

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Ser Ser Asp Arg Met Ala Ala Leu Glu
1 5

eo1f-seq1

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Asp Arg Met Ala Ala Leu Glu Ala Leu
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Arg Met Ala Ala Leu Glu Ala Leu Phe
 1 5

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Ala Ala Leu Glu Ala Leu Phe Pro Ala
 1 5

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Ala Leu Glu Ala Leu Phe Pro Ala Val
 1 5

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Leu Glu Ala Leu Phe Pro Ala Val Thr
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Phe Pro Ala Val Thr Ala Ser Gly Ile
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eolf-seq1

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Ala Val Thr Ala Ser Gly Ile Pro Lys
1 5

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Val Thr Ala Ser Gly Ile Pro Lys Ala
1 5

<210> 135
<211> 9
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Gly Ile Pro Lys Ala Ala Gly Val Glu
1 5

<210> 136
<211> 9
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<400> 136
Ile Pro Lys Ala Ala Gly Val Glu Ala
1 5

<210> 137
<211> 9
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Lys Ala Ala Gly Val Glu Ala Ile Phe
1 5

<210> 138
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<400> 138
Ala Gly Val Glu Ala Ile Phe Arg Leu
1 5

<210> 139
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eof-seq1

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Arg Leu Asp Glu Cys Pro Arg Gly Leu
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<210> 140
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Cys Pro Arg Gly Leu Tyr Ser Gly Ala
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<210> 141
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Gly Leu Tyr Ser Gly Ala Val Val Met
 1 5

<210> 142
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 <212> PRT
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Leu Tyr Ser Gly Ala Val Val Met Leu
 1 5

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Val Met Leu Ser Ala Asp Gly Gly Leu
 1 5

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 <400> 144

Gly Leu Asp Ala Ala Leu Thr Leu Arg
 1 5

<210> 145
 <211> 9
 <212> PRT
 <213> Mycobacterium tuberculosis

eolf-seq1

<400> 145

Leu Asp Ala Ala Leu Thr Leu Arg Ala
1 5

<210> 146

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 146

Ala Ala Leu Thr Leu Arg Ala Ala Tyr
1 5

<210> 147

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 147

Leu Thr Leu Arg Ala Ala Tyr Gln Val
1 5

<210> 148

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 148

Ala Tyr Gln Val Gly Gly Arg Thr Trp
1 5

<210> 149

<211> 9

<212> PRT

<213> Mycobacterium tuberculosis

<400> 149

Thr Trp Leu Arg Ala Gly Ala Gly Ile
1 5

<210> 150

<211> 9

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<213> Mycobacterium tuberculosis

<400> 150

Glu Glu Ser Glu Pro Glu Arg Glu Phe
1 5

<210> 151

<211> 9

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<213> Mycobacterium tuberculosis

<400> 151

eof-seq1

Arg Glu Phe Glu Glu Thr Cys Glu Lys
1 5

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<400> 152

Lys Leu Ser Thr Leu Thr Pro Tyr Leu
1 5

<210> 153
<211> 9
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<400> 153

Ser Thr Leu Thr Pro Tyr Leu Val Ala
1 5

<210> 154
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<212> PRT
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<400> 154

Thr Leu Thr Pro Tyr Leu Val Ala Arg
1 5

<210> 155
<211> 1053
<212> PRT
<213> Mycobacterium tuberculosis
<400> 155

Met Asn Phe Ser Val Leu Pro Pro Glu Ile Asn Ser Ala Leu Ile Phe
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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

colf-seq1

Phe Glu Ala Val₁₀₀ Lys Thr Ala Val₁₀₅ Val Gln Pro Met Leu Val₁₁₀ Ala Ala
 Asn Arg Ala₁₁₅ Asp Leu Val Ser Leu₁₂₀ Val Met Ser Asn Leu₁₂₅ Phe Gly Gln
 Asn Ala₁₃₀ Pro Ala Ile Ala₁₃₅ Ile Glu Ala Thr Tyr Glu Gln Met Trp
 Ala₁₄₅ Ala Asp Val Ser Ala₁₅₀ Met Ser Ala Tyr His Ala Gly Ala Ser Ala₁₆₀
 Ile Ala Ser Ala₁₆₅ Leu Ser Pro Phe Ser Lys₁₇₀ Pro Leu Gln Asn Leu₁₇₅ Ala
 Gly Leu Pro Ala₁₈₀ Trp Leu Ala Ser Gly₁₈₅ Ala Pro Ala Ala Ala Met Thr
 Ala Ala Ala₁₉₅ Gly Ile Pro Ala Leu₂₀₀ Ala Gly Gly Pro Thr Ala Ile Asn
 Leu Gly₂₁₀ Ile Ala Asn Val Gly₂₁₅ Gly Gly Asn Val Gly₂₂₀ Asn Ala Asn Asn
 Gly₂₂₅ Leu Ala Asn Ile Gly₂₃₀ Asn Ala Asn Leu Gly₂₃₅ Asn Tyr Asn Phe Gly₂₄₀
 Ser Gly Asn Phe Gly₂₄₅ Asn Ser Asn Ile Gly₂₅₀ Ser Ala Ser Leu Gly₂₅₅ Asn
 Asn Asn Ile Gly₂₆₀ Phe Gly Asn Leu Gly₂₆₅ Ser Asn Asn Val Gly₂₇₀ Val Gly
 Asn Leu Gly₂₇₅ Asn Leu Asn Thr Gly₂₈₀ Phe Ala Asn Thr Gly₂₈₅ Leu Gly Asn
 Phe Gly₂₉₀ Phe Gly Asn Thr Gly₂₉₅ Asn Asn Asn Ile Gly₃₀₀ Ile Gly Leu Thr
 Gly₃₀₅ Asn Asn Gln Ile Gly₃₁₀ Ile Gly Gly Leu Asn₃₁₅ Ser Gly Thr Gly Asn₃₂₀
 Phe Gly Leu Phe Asn₃₂₅ Ser Gly Ser Gly Asn₃₃₀ Val Gly Phe Phe Asn₃₃₅ Ser
 Gly Asn Gly Asn₃₄₀ Phe Gly Ile Gly Asn₃₄₅ Ser Gly Asn Phe Asn₃₅₀ Thr Gly
 Gly Trp Asn₃₅₅ Ser Gly His Gly Asn₃₆₀ Thr Gly Phe Phe Asn₃₆₅ Ala Gly Ser

colf-seq1

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 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

colf-seq1

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

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

colf-seq1

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
1025 1030 1035

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

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<212> PRT
<213> Mycobacterium tuberculosis

<400> 156

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Thr Arg Arg Thr Leu Ser Lys Ser Trp Asp Asp Ser Ile Phe Ser Glu
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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
65 70 75 80

Phe Phe Ser Pro Ser Val Val Asn Glu Ile Ile Glu Pro Thr Ile Gly
85 90 95

Asp Ile Thr Asn Asn Ala Arg Gly Glu Val Ala Ser Leu Gly Phe Leu
 100 105 110 ^{eo1f-seq1}
 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