

915-PCT - sequence listing.ST25
SEQUENCE LISTING

<110> UNIVERSITE VICTOR SEGALEN BORDEAUX 2
Centre National de la Recherche Scientifique - CNRS

<120> VACCINS ET DIAGNOSTICS CONTRE LES TRYPANOSOMOSES

<130> 915-PCT

<150> FR0957953

<151> 2009-11-10

<160> 60

<170> PatentIn version 3.3

<210> 1

<211> 2316

<212> DNA

<213> Trypanosoma congolense

<400> 1

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 <213> Trypanosoma congolense

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<213> Trypanosoma congolense

<400> 4

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Thr Asp Ser Thr Trp Leu Glu Lys Arg Arg Val Glu Leu Phe Arg Pro
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Trp Gly Lys Gly Asn Pro Asn Val Pro Gly Ala Ser Tyr Ser Ser Asp
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Gly Arg Gly Val Phe Glu Gly Asn Ser Leu Leu Glu Val Asn Asp Gln
85 90 95

Ile Val Thr Leu Ala Gly Ala Arg Tyr Asn Ser Trp Val Asp Gly Tyr
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Ala Gly Met Trp Met Lys Thr Ile Arg Leu Ser Glu Gly His Gln Gly
115 120 125

Pro Gly Ala Ala Asp Trp Met Gln Glu Lys Asn Trp Lys Gly Glu Ala
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Val Ile Val Asn Glu Lys Val Glu Ser His Arg Tyr Ala Leu Met Gly
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Pro Arg Ala Ala Val Val Gly Asp Lys Ile Phe Phe Leu Ser Ile Thr
165 170 175

Ser Asn Lys Ser Lys Asp Ala Leu Ser Ser Pro Ser Asp Glu Ser Asn
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Leu Asp Val Arg Leu Tyr Ile Gly Thr Val Asp Lys Ser Phe Val Gly
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Asp Ala Ser Val His Trp Asn Gly Pro Arg Ser Leu Leu Val Thr Phe
210 215 220

Met Lys Glu Leu Lys Lys Asn Ser Trp Lys Asp Phe Val Glu Gly Ser
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Gly Lys Ser Val Val Met Gly Asp Thr Ile Phe Phe Pro Leu Val Ala
245 250 255

Leu Thr His Lys Gln Ser Arg Ser Cys Val Ile Ala Arg Tyr Arg His
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Asn Asp Glu Asn Trp Thr Phe Thr Arg Val Ala Leu Asp Ile Asp Asp
275 280 285

Cys Thr Asn Pro Thr Leu Leu Leu Trp Lys Asn Glu Leu Met Ile Val
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Val Ala His Asn Leu Lys Asn Lys Val Tyr Arg Ser Val Asp Met Gly
305 310 315 320

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 Phe Gln His His₃₄₀ Ala Asp Asp Val₃₄₅ Asp Arg Gly Asp Ile Leu₃₅₀ Ser Val
 Arg Val₃₅₅ Gly Glu Thr Asp Leu₃₆₀ Leu Leu Phe Ala Tyr Arg₃₆₅ Met Phe Phe
 Ser Ser₃₇₀ Ala Thr Ala Gly Asn₃₇₅ Arg Pro Leu Leu₃₈₀ Leu Trp Met Thr Asp
 Asn₃₈₅ Lys Arg Thr His Cys₃₉₀ Leu Gly Pro Ile Ser₃₉₅ Thr Gly His Leu Phe₄₀₀
 Thr Gly Ala Phe Gly₄₀₅ Ala Leu Leu Tyr Thr₄₁₀ Arg Glu Lys Leu Tyr₄₁₅ Ser
 Leu His Gln Glu₄₂₀ Ser Phe Ser Ser₄₂₅ Leu Ser Ser Leu Phe₄₃₀ Phe Thr Asn
 Leu Thr Gly₄₃₅ Arg Leu Arg Thr Met₄₄₀ Arg Pro Val Leu Asp₄₄₅ Thr Trp Lys
 Thr Ala₄₅₀ Asp Lys Arg Val Met₄₅₅ Gly Leu Tyr Gly Pro₄₆₀ Ser Ala Ala Gly
 Thr Thr₄₆₅ Asn Phe Lys Ser₄₇₀ Ala Glu Pro Ser Ser₄₇₅ Phe Asp Pro Thr Thr₄₈₀
 Gly Leu Val Gly₄₈₅ Phe Trp Ser Thr Ala Ser₄₉₀ Asn Ala Thr His Trp₄₉₅ Gln
 Asp Glu Tyr Leu₅₀₀ Gly Met Asp Gly Val₅₀₅ Leu His Gly Pro Leu₅₁₀ Lys Arg
 Val Thr Thr₅₁₅ Gly Tyr Thr Met Glu₅₂₀ Gly Cys Ala Ala His Val Val Trp
 Pro Val₅₃₀ Gly Gly Glu Ser Glu₅₃₅ Asn Lys Val Tyr His₅₄₀ Leu Ile Ser Asn
 Gly₅₄₅ Leu Thr Val Val Met₅₅₀ Ser Val Ala Val His₅₅₅ Thr Ala Pro Lys Val₅₆₀
 Arg Ile Pro Leu₅₆₅ Leu Gly Val Thr Val Arg₅₇₀ Asn Gly Ser Asn Trp₅₇₅ Ala
 Thr Asp Val Gly₅₈₀ Ile Trp Tyr Asp Asn₅₈₅ Lys Thr Trp Ala Gln₅₉₀ Met Gly

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Gly Asp Glu Val Gly Ala Val Leu Ala Met Glu Val Gly Lys Thr Tyr
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Gln Leu Val Phe Thr Val Lys Gly Gly Val Ala Arg Thr Tyr Val Asp
610 615 620

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

Ser Met Glu Val Asp Glu Met Tyr Ile Gly Asn Arg Asp Lys Ala Met
645 650 655

Thr Lys Cys Ser Ala Asp Ala Leu Asn Val Thr Val Phe Asn Met Leu
660 665 670

Leu Tyr Asn Tyr Glu Leu Ser Pro Ala Asp Val Arg Thr Leu Leu Thr
675 680 685

Met Lys Gly Arg Ser Ala Phe Glu Thr Ile Gly Met Ser Gly Asp Asp
690 695 700

Glu Glu Gln Glu Ala Glu Ser Gly Gly Gly Ser Met Leu Trp Thr Leu
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Ala Val Leu Ile Pro Ala Ile Val Leu Leu Phe Gly Ala Ala Ala Phe
725 730 735

Phe Leu Val Arg Arg Arg Arg Ala Gly Thr Thr Met Pro Pro Ala Thr
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Val Ser Lys
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<213> Trypanosoma congolense

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

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Glu His Thr Tyr Arg Leu Ala Ala Val Asp Ser Val His Ile His Ser
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Leu Val Lys Val Gly Asp Val Leu Val Ala Ile Gly Glu Arg Arg Tyr
65 70 75 80

Arg Leu Ala Gly Glu Met Arg Leu Asn Thr Phe Ser Leu Cys Ser Val
85 90 95

Asp Gly Gly Lys Thr Trp Thr Lys Asp Val Ile Ala Val Gly Met Gly
100 105 110

Ser Thr Ser Tyr His Ser Tyr Pro Ile Leu Tyr Glu Ala Ile Val Lys
115 120 125

Glu Asn Ser Ile Tyr Leu Phe Ala Gly Gly Tyr Asp Ile Asp Thr Val
130 135 140

Gly Thr Gly Asn Ile Asn Ile Ser Ser Arg Gly Trp Asp Pro Leu Leu
145 150 155 160

Ile Val Gly Lys Val Glu Val Ser Arg Gly Leu Phe Ser Gln Ser Ala
165 170 175

Lys Val Thr Trp Gly Thr Gln Val Pro Leu Lys Gly Ser Ile Pro Asp
180 185 190

Gly Leu Arg Met Gly Pro Val Ser Lys Phe Tyr Arg Gly Val Lys Gly
195 200 205

Ala Val Val Thr Glu Val Gly Ser Leu Val Phe Leu Val Glu Leu Thr
210 215 220

Asn Ser His Asn Gln Asp Val Pro Val Val Ile Tyr Ser Thr Asn Asp
225 230 235 240

Gly Glu Asn Trp Asn Leu Glu Pro Leu Asp Pro Gly Val Cys Lys Gly
245 250 255

Tyr Cys His Ile Phe Val Trp Asn Gly Arg Leu Met Leu Gly Asn Gln
260 265 270

Ser Ser Lys Gly His Gln Ile Val Tyr Glu Ser Ile Asn Phe Gly Arg
275 280 285

Glu Trp Val Glu Ala Val Thr Ser Tyr Ser Arg Val Trp Ala Ile Glu
290 295 300

Ala Glu His Gly Lys Leu Tyr Asn Phe Val Thr Ala Thr Val Glu Gly
305 310 315 320

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Glu Val Leu Arg Ile Trp Leu Ser Asp Gly Asp His Phe Ala Glu Ile
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Asp His Ile His Leu Asp Asp Asp Ile Val Gly Glu Gly Thr Leu Leu
355 360 365

Phe Asp Glu Asn Thr Leu Leu Tyr Phe Tyr Arg Lys Ile Gly Tyr Leu
370 375 380

Arg Asp Glu Phe Ser Ser Ser Val Pro Tyr Asp Ile Gly Asn Ile Ala
385 390 395 400

Gln Leu Asp Asp Ala Leu Ala Lys Ile Lys Ser Val Leu Arg Met Trp
405 410 415

Lys Ile Glu Ser Thr Gly Ala Val Glu Gly Gly Gly Val Val Lys Asn
420 425 430

Leu Arg Cys Ile Asp Val Ser Pro Val Val Leu Leu Ser Asn Asp Val
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Asn Ala Thr His Trp Lys Asp Val Tyr Gly Thr Ala Asn Ile Asn Val
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Thr Gly Ala Thr Lys Ala Asp Gly Gly Val Leu Phe Arg Gly Thr Asn
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Arg Gly Ala Ala Trp Tyr Val Gly Glu Arg Ser Gly Thr Gln Met Tyr
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Thr Phe Val Asn Tyr Glu Phe Thr Leu Val Met Thr Val Val Ile Ser
500 505 510

Glu Gly Val Lys Glu Asn Ile Pro Val Leu Ala Val Ala Val Asn Glu
515 520 525

Gly Asp Ser Asn Lys Ile Leu Glu Val Ser Tyr Asn Ala Asp Gly Arg
530 535 540

Trp His Leu Thr Phe Gly Gly Lys Tyr Val Pro Thr Val Gly Phe His
545 550 555 560

Leu His Asn Ser Thr His Gln Val Ala Val Thr Met Tyr Gly Gly Ser
565 570 575

Phe Ser Val Lys Val Asp Gly Thr Ala Leu Ser Ser Ala Arg Asn Ser
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Ile Lys Val Leu Lys Gln Pro Ser Arg Ile Ser Tyr Phe Tyr Ile Gly
595 600 605

Gly Tyr Gly Asn Pro Arg Thr Thr Pro Asn Gly Glu Leu Met Val Arg
610 615 620

Asn Val Ala Leu Tyr Lys Arg Glu Leu Ser Ser Leu Glu Leu Asp Val
625 630 635 640

Met Phe Leu Gln Ser Tyr Trp Ala Arg Cys Pro Ala Lys Ser Leu Leu
645 650 655

Ala Ala Gln Glu Lys Pro Thr Gly Asp Gly Val Glu Ala Pro Gly Arg
660 665 670

Met Gly Leu Phe Leu Tyr Leu Leu Leu Ala Ile Ile Ser Tyr Ala Val
675 680 685

Gln Ala Gly Gly Gly Thr Asp Asn Arg Val Ala
690 695

<210> 6
<211> 717
<212> PRT
<213> Trypanosoma congolense

<400> 6

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Met Arg Leu Val Ser Phe Ala Phe Val Val Leu Ile Arg Val Ser His
20 25 30

Met Pro Ser Glu Gly Leu Ala Arg Val Asp Ala Gly Asp Lys Gly Asn
35 40 45

His Glu Val Gly Val Asn Arg Thr Gly Pro Tyr Ser Tyr Arg Ser Pro
50 55 60

Ser Leu Leu Ala Val Gln Gly Ser Leu Ile Thr Val Ser Glu Thr Trp
65 70 75 80

Asp Thr Thr Asp Glu Lys Lys Tyr Val Asp Val Ile Thr Glu Tyr Ser
85 90 95

Arg Asp Tyr Gly Thr Ser Leu Val Thr Gln Val Ala Ile Arg Ser Asp
100 105 110

Lys Ala Asp Phe His Ala Val Tyr Thr His Gln Glu Asp Arg Glu Ser
115 120 125

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Thr Leu His Pro Thr Ala Val Ala Ser Gly Asp Lys Val Tyr Val Leu
130 135 140

Val Phe Cys Lys Asn Ile Gly Ala Asn Asp Ser Leu Thr Gly Asp Gln
145 150 155 160

Val Ile Met Pro Tyr Val Ala Thr Gly Thr Val Leu Pro Leu Gly Ala
165 170 175

Ile Gly Glu Thr Trp Val Asp Trp Thr Ala Leu Asn Pro Ile Arg Ala
180 185 190

Leu Leu Pro Gly Phe Val Gly Gly Lys Arg Ala Ser Arg Phe Phe Gly
195 200 205

Gly Gly Gly Asn Gly Ile Ala Thr Pro Gln Gly Thr Ile Ile Ile Pro
210 215 220

Val Gln Val Val Arg Thr Asp Asp Glu Tyr Phe Ala Ser Ile Ile Tyr
225 230 235 240

Ser Thr Asn Gly Gly Ser Ser Trp Ala Leu Ala Lys Gly Val Thr Asp
245 250 255

Ala Gly Cys Arg Glu Ser Ser Val Leu Glu Trp Lys Gly Lys Leu Leu
260 265 270

Leu Val Ser Arg Ser Asn Asp Gly Phe Thr Lys Val Tyr Glu Ser Gly
275 280 285

Asp Met Gly Thr Lys Trp Thr Glu Ala Leu Gly Thr Ile Ser Arg Val
290 295 300

Phe Gly Asn Ser Pro Asn Arg Thr Gly Pro Gly Asn Gln Gly Ser Ala
305 310 315 320

Val Val Ala Asn Ile Asp Asn Val Pro Val Met Ile Phe Ser His Thr
325 330 335

Thr Val Leu His Gly Gly Gly Asp Gly Asp Asp Ser Gly Arg Ile Arg
340 345 350

Glu Ile His Gln Arg Ile Trp Leu Ser Asp Gly Asn Arg Ile Val Lys
355 360 365

Val Gly His Ile Tyr Trp Asp Asp His Leu Gln Ser Ser His Asn Asn
370 375 380

Leu Leu Tyr Asp Lys Gly Lys Leu Phe Cys Ala Tyr Glu Ala Gly Ala
385 390 395 400

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Glu Lys Thr Ser Ala Val Leu Val Arg Ser Leu Asp Asp Glu Leu Ser
405 410 415

Lys Val Glu Ala Ala Leu Glu Ala Trp Lys Arg Gln Asp Ser Tyr Leu
420 425 430

Ser Thr Val Cys Ala Ser Gly Ser Asp Thr Ala Pro Cys Glu Ser Gly
435 440 445

Val Pro Ile Asp Gly Leu Val Gly Leu Leu Ser Thr Thr Leu Ser Glu
450 455 460

Arg Gln Trp Ile Asp Ala Tyr Leu Ser Val Ser Ala Glu Val Val Gly
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Ala Arg Ser Ile Pro Gln Gly Val Leu Phe Glu Gly Pro Ile Arg Gly
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Gly Arg Trp Pro Val Ala Ala Gln Gly Gln Asn Gln Arg Tyr His Phe
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Val Ser Lys His Phe Thr Leu Val Ile Thr Val Ser Ile His Glu Arg
515 520 525

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Gly Ala Asp Leu Glu Leu Ser Tyr Thr Ala Asp His Arg Trp His Val
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Arg His Gly Asn Glu His Gly Ser Thr Ser Gly Ala Trp Val Lys Asp
565 570 575

Arg Glu His Gln Leu Val Leu Val Cys Glu Ala Gly Asp Ala Ser Leu
580 585 590

Tyr Leu Asp Gly Lys Arg Met Pro Thr Met Gly Arg Arg Leu Val Glu
595 600 605

Ser Gly Ala Pro Leu Gly Val Ser His Phe Ser Ile Gly Gly Tyr Gly
610 615 620

Leu Glu Lys Arg Ser Pro Asn Gly Lys Leu Thr Val Arg Asn Val Met
625 630 635 640

Leu Tyr Asn Arg Pro Leu Asn Lys Thr Glu Ile Asp Thr Val Phe His
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Val Arg Asp Lys Ile Thr Ala Ala Thr Thr Ile Val Lys Ala Phe Glu
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Gln Lys Asn Arg Val Asn Val Gln Met Val Asn Ser Lys Gln Asp His
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<213> Trypanosoma congolense

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<213> Trypanosoma congolense

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 <213> Trypanosoma congolense

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<212> DNA
<213> Trypanosoma congolense

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ggaacttcat ggaatgaagc gatcggaagt atctctcgtg taattggtaa ctcgcggtac	1080
cgtaacgatc ctgggggggc aggtagctca attgccataa ctgtggaggg agtaccggtg	1140
atgctcgtta ctacccgga aatgcgaag ggtagggtgga atcgcgaccg aatgcgactg	1200
tggctcacgg acggcaatcg gatgtggctt gttggacaga tttctgaagg ggacgacaac	1260
agtgcctaca gctacctgtt atacactaaa aatgggacgt tattgtgtct ctacgagcga	1320
aacattcgtg agatatacag cttttatcta gcccggtgg aggatgagat ggaggatata	1380

915-PCT - sequence listing.ST25

aagtcaactg	tgaggctatg	gaaagcgcat	gacgagctcc	tgtcgggaga	ctgtcaactg	1440
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tccaagaata	acaagcaagt	ctcccacgat	ccgccatcga	gaagcaccat	gaagcggcgt	1620
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aacttgttta	cttcaacccc	ggccccgctc	aaaaccggta	aaggtagcac	ggttaccgtg	2040
aataatgtca	tcctgtacaa	ccgtatgcta	aacgaaaccg	aacttgacag	tttattcaac	2100
agcagggacc	tcatcgatga	agtgggagat	gtgcatcccg	tgtctggagg	tggagtcggc	2160
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<210> 13
 <211> 2364
 <212> DNA
 <213> Trypanosoma congolense

<400> 13						
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agcttggttc	tcccaggggg	gctttggtac	aagaaagatg	agtggaagga	tggaatttgg	180
ctgcaatcta	aagagtggaa	agccgggtat	gcgtggtggc	cgtggcggtc	gtggtgctcc	240
aataaaaacta	tcggtgctgc	cgggaaagaa	ctttgccgca	aggaatggga	ctctcagagg	300
gaaaaaggat	acacactcaa	gccaagggaa	agcgtgctct	ttagggagag	tagtggcaca	360
aagagaatgc	gccgcgttca	ctcctttcgc	ataccttcga	tggttgaggc	gaacgggtgtg	420
ttaattggca	ttgcagacgc	gcgatatttg	agctccgcgg	acttcacttt	catcgacacg	480
gttgccaagt	acagtgctga	cggcgggtgag	acgtggaaaa	ctgaagtcac	cattgaaaat	540
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gtcgtaacac	cggacggcac	gatcgtatct	cccatccagg	taaaaaattc	atggaatcaa	900
gtcgccgcaa	tgataatgta	ttcgagtgcg	gatggcgcca	cgtggcactt	gggaggaggc	960

915-PCT - sequence listing.ST25

gcaacacccg ttggtacaac agaggcatcc gctatctggt gggacggcaa actggttctc	1020
aattgcagaa cggacttggg gtaccgcaaa gtattcgaga caaccgacct tgggacaacg	1080
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aaaggtagct caggcagtgct tattactttg gaggtcgagg gtgtgcaagt catgcttatt	1200
acgcagccta agaatacga aggggattac aaccgtgatc gcctacaact gtggctgagt	1260
gatggcagtc gtgtgtgggt agtcggacag atatcacgag gcgatgacaa cagtccctac	1320
agctcgctgc tgtacactag tgacgataag ctttattgcc tgtatgaaca ggatatccgg	1380
ggagttttga gcatttacct tgtccatctc gttgacgaac tggagaaaat caaagcgacc	1440
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gatggcagcg attgcaacgg cgtgcccacc gctggcctcg tcgggctgct ttccggacct	1560
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ttgttgatat cggcgctatt ctacg	2364

<210> 14
 <211> 2319
 <212> DNA
 <213> Trypanosoma congolense

<400> 14	
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cgaagcttgt tcctcccagg ggggctttgg tacaagaaag atgagtggaa ggatggcaat	180
tggctgcaat ctaaagagtg gaaagccggg tatgctgtgt ggccgtggcg gtcgtggtgc	240
tccaataaaa ctatcggtgc gtccgggaaa gaactttgcc gcaaggaatg ggactctcag	300
agggaaaaag gatacacact caagccaagg gaaagcgtgc tctttaggga gagcagtggc	360
acaaagagaa tgcgccgcgt tcactccttt cgcatacctt cgatggttga ggcgaatggt	420

915-PCT - sequence listing.ST25

gtgttaattg gcattgcaga tgcgcgatat ttgagctccg cggacttcac tttcatcgac	480
acggttgcca agtacagtgc tgacggcggg gagacgtgga aaactgaagt catcattgaa	540
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aacagtattt atgtgcttgt tggaaggtag aacatctcca aagcgtattg gacgtggcaa	660
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<210> 15
<211> 734

915-PCT - sequence listing.ST25

<212> PRT

<213> Trypanosoma congolense

<400> 15

Met Trp Pro Val Asn Cys Tyr Ala Leu Leu Ala Leu Val Val Ala Gly
1 5 10 15

Gln Cys Cys Gly Pro Met His Ala Thr Ala Ala Val Gly Thr Thr His
20 25 30

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

Pro Lys Asp Gly Glu Val Trp Trp Ser Asn Pro Gln Pro Gly Trp Lys
50 55 60

Glu Val Tyr Asp Asp Glu Trp Glu Glu Trp Phe Met Glu Gln Glu Gly
65 70 75 80

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

Asp Gly Tyr Ile Leu Val Gly Gly Pro Lys Leu Asn Ser Pro Asp Met
100 105 110

Asn Ser Thr Gly Met Thr Met Arg Thr Val His Ser Tyr Arg Ile Pro
115 120 125

Ser Ile Val Glu Val Gly Gly Val Leu Met Cys Val Gly Asp Ala Arg
130 135 140

Tyr Ile Thr Ser Thr Asp Tyr Phe Phe Thr Asp Thr Val Ala Ala Tyr
145 150 155 160

Ser Thr Asp Gly Gly Arg Thr Trp Lys Arg Glu Val Ile Ile Pro Asn
165 170 175

Gly Arg Val Asp Ala His Tyr Ser Arg Val Val Asp Pro Thr Val Val
180 185 190

Ala Lys Gly Asn Asn Ile Tyr Val Leu Val Gly Arg Tyr Asn Val Thr
195 200 205

Arg Gly Tyr Trp His Asn Gln Asn Asp Glu Ala Ala Ile Ala Asp Trp
210 215 220

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

Ala Thr Asp Val Ser Ile Ser Trp Glu Arg Thr Ala Leu Lys Ser Leu
245 250 255

915-PCT - sequence listing.ST25

Tyr Asn Phe Pro Val Ser Gly Ser Pro Gly Thr Gln Phe Leu Gly Gly
 260 265 270
 Ala Gly Gly Gly Val Val Thr Ser Asn Gly Thr Ile Val Leu Pro Val
 275 280 285
 Gln Ala Arg Asn Lys Ala Asn Arg Val Val Ser Met Ile Leu Tyr Ser
 290 295 300
 Ala Asp Asp Gly Lys Ser Trp His Phe Gly Lys Gly Glu Ala Gly Val
 305 310 315 320
 Gly Thr Ser Glu Ala Ala Leu Thr Glu Trp Asp Gly Lys Leu Leu Ile
 325 330 335
 Ser Ala Arg Ser Asp Gly Gly Gln Gly Tyr Arg Met Ile Phe Glu Ser
 340 345 350
 Ser Asp Leu Gly Ala Thr Trp Lys Glu Met Leu Asn Ser Ile Ser Arg
 355 360 365
 Val Ile Gly Asn Ser Pro Gly Arg Ser Gly Pro Gly Ser Ser Ser Gly
 370 375 380
 Phe Ile Thr Val Thr Val Glu Gly Val Pro Val Met Leu Leu Thr His
 385 390 395 400
 Pro Lys Asn Leu Lys Gly Val Tyr Ser Arg Asp Arg Leu Gln Met Trp
 405 410 415
 Met Thr Asp Gly Asn Arg Met Trp His Val Gly Gln Val Ser Glu Gly
 420 425 430
 Asp Asp Asn Ser Ala Tyr Ser Ser Leu Leu Tyr Thr Pro Asp Gly Val
 435 440 445
 Leu Tyr Cys Leu His Glu Gln Asn Ile Asp Glu Val Tyr Ser Leu His
 450 455 460
 Leu Val Arg Leu Val Asp Glu Leu Lys Ser Ile Lys Ser Thr Ala Leu
 465 470 475 480
 Val Trp Lys Ala Gln Asp Glu Leu Leu Leu Gly Asn Cys Leu Pro Gly
 485 490 495
 Asp Lys Tyr Asp Pro Gly Cys Asp Gly Ile Pro Thr Ala Gly Leu Ala
 500 505 510
 Gly Leu Leu Val Gly Pro Leu Thr Glu Lys Thr Trp Pro Asp Ala Tyr
 515 520 525

915-PCT - sequence listing.ST25

Arg Cys Val Asn Ala Ala Thr Ser Gly Ala Val Ser Thr Ala Glu Gly
530 535 540

Val Arg Leu Asp Val Gly Gly Gly Gly His Val Val Trp Pro Val Ser
545 550 555 560

Glu Gln Gly Gln Asp Gln Arg Tyr Tyr Phe Thr Asn Ser Glu Phe Thr
565 570 575

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

Leu Leu Gly Phe Val Asn Arg Lys Gly Lys Val Asn Lys Ile Leu Lys
595 600 605

Val Ser Leu Ser Gly Val Glu Trp Leu Leu Ala Tyr Gly Asn Glu Tyr
610 615 620

Asn Ser Thr Ala Ala Glu Pro Leu Ser Val Asn Glu Ser His Gln Val
625 630 635 640

Val Leu Thr Leu His Asp Gly Ile Val Ser Leu His Val Asp Gly Gly
645 650 655

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

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

Lys Glu His Val Asn Ile Thr Val Ser Asn Val Leu Val Tyr Asn Arg
690 695 700

Pro Leu Arg Gly Val Glu Leu Leu Gly Leu Phe Ala Asn Arg Gly Arg
705 710 715 720

Ile Arg Val Pro Gly Ser Asp Asn Gly Val Leu Ser Gly Gly
725 730

<210> 16
<211> 734
<212> PRT
<213> Trypanosoma congolense

<400> 16

Met Trp Pro Val Asn Cys Tyr Ala Leu Leu Ala Leu Val Val Ala Gly
1 5 10 15

Gln Cys Cys Gly Pro Met His Ala Thr Ala Ala Val Gly Thr Thr His
20 25 30

915-PCT - sequence listing.ST25

Gln Ala Leu₃₅ Leu Trp Gly Ser Lys₄₀ Trp Ala Leu Arg Asn₄₅ Lys Thr Thr

Pro Lys₅₀ Asp Gly Glu Val Trp₅₅ Trp Ser Asn Pro Gln₆₀ Pro Gly Trp Lys

Glu₆₅ Val Tyr Asp Asp Glu₇₀ Trp Glu Glu Trp Phe₇₅ Met Glu Gln Glu Gly₈₀

Pro Thr Gly Val Asn₈₅ Gly Val Arg Gly Glu₉₀ Trp Tyr Arg Arg Met₉₅ Thr

Asp Gly Tyr Ile₁₀₀ Leu Val Gly Gly Pro₁₀₅ Lys Leu Asn Ser Pro₁₁₀ Asp Met

Asn Ser Thr₁₁₅ Gly Thr Thr Met Arg₁₂₀ Thr Val His Ser Tyr₁₂₅ Arg Ile Pro

Ser Ile₁₃₀ Val Glu Val Gly Gly₁₃₅ Val Leu Met Cys Val₁₄₀ Gly Asp Ala Arg

Tyr₁₄₅ Ile Thr Ser Thr Asp₁₅₀ Tyr Phe Phe Thr Asp₁₅₅ Thr Val Ala Ala Tyr₁₆₀

Ser Thr Asp Gly Gly₁₆₅ Arg Thr Trp Lys Arg₁₇₀ Glu Val Ile Ile Pro₁₇₅ Asn

Gly Arg Val Asp₁₈₀ Ala His Tyr Ser Arg₁₈₅ Val Val Asp Pro Thr₁₉₀ Val Val

Ala Lys Gly₁₉₅ Asn Asn Ile Tyr Val₂₀₀ Leu Val Gly Arg Tyr₂₀₅ Asn Val Thr

Arg Gly₂₁₀ Tyr Trp His Asn Arg₂₁₅ Asn Asp Lys Ala Ala₂₂₀ Ile Ala Asp Trp

Glu₂₂₅ Pro Phe Val Tyr Lys₂₃₀ Gly Thr Val Asn Val₂₃₅ Gly Thr Lys Gly Thr₂₄₀

Ala Thr Asp Val Ser₂₄₅ Ile Ser Trp Glu Arg₂₅₀ Thr Ala Leu Lys Ser₂₅₅ Leu

Tyr Asn Phe Pro₂₆₀ Val Ser Gly Ser Pro₂₆₅ Gly Thr Gln Phe Leu₂₇₀ Gly Gly

Ala Gly Gly₂₇₅ Gly Val Val Thr Ser₂₈₀ Asn Gly Thr Ile Val₂₈₅ Leu Pro Val

Gln Ala₂₉₀ Arg Asn Lys Ala Asn₂₉₅ Arg Val Val Ser Met₃₀₀ Ile Leu Tyr Ser

915-PCT - sequence listing.ST25

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

Gly Thr Ser Glu Ala Ala Leu Thr Glu Trp Asp Gly Lys Leu Leu Ile
325 330 335

Ser Thr Arg Ser Asp Gly Gly Gln Gly Tyr Arg Met Ile Phe Glu Ser
340 345 350

Ser Asp Leu Gly Ala Thr Trp Lys Glu Met Leu Asn Ser Ile Ser Arg
355 360 365

Val Ile Gly Asn Ser Pro Gly Arg Ser Gly Pro Gly Ser Ser Ser Gly
370 375 380

Phe Ile Thr Val Thr Val Glu Gly Val Pro Val Met Leu Leu Thr His
385 390 395 400

Pro Lys Asn Leu Lys Gly Val Tyr Ser Arg Asp Arg Leu Gln Met Trp
405 410 415

Met Thr Asp Gly Asn Arg Met Trp His Val Gly Gln Val Ser Glu Gly
420 425 430

Asp Asp Asn Ser Ala Tyr Ser Ser Leu Leu Tyr Thr Pro Asp Gly Val
435 440 445

Leu Tyr Cys Leu His Glu Gln Asn Ile Asp Glu Val Tyr Ser Leu His
450 455 460

Leu Val Arg Leu Val Asp Glu Leu Lys Ser Ile Lys Ser Thr Ala Leu
465 470 475 480

Val Trp Lys Ala Gln Asp Glu Leu Leu Leu Gly Asn Cys Leu Pro Gly
485 490 495

Asp Lys Tyr Asp Pro Gly Cys Asp Gly Ile Pro Thr Ala Gly Leu Ala
500 505 510

Gly Leu Leu Val Gly Pro Leu Thr Glu Lys Thr Trp Pro Asp Ala Tyr
515 520 525

Arg Cys Val Asn Ala Ala Thr Ser Gly Ala Val Ser Thr Ala Glu Gly
530 535 540

Val Arg Leu Asp Val Gly Gly Gly Gly His Val Val Trp Pro Val Ser
545 550 555 560

Glu Gln Gly Gln Asp Gln Arg Tyr Tyr Phe Thr Asn Ser Glu Phe Thr
565 570 575

915-PCT - sequence listing.ST25

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

Leu Leu Gly Phe Val Asn Arg Lys Gly Lys Val Lys Lys Ile Leu Lys
595 600 605

Val Ser Leu Ser Gly Val Glu Trp Leu Leu Ala Tyr Gly Asn Glu Tyr
610 615 620

Asn Ser Thr Ala Ala Glu Pro Leu Asn Val Asn Glu Ser His Gln Val
625 630 635 640

Val Leu Thr Leu His Asp Gly Ile Val Ser Leu His Val Asp Gly Gly
645 650 655

Asn Met Thr Ala Thr Val Ser Val Arg Val Ala Ser Pro Ala Glu Leu
660 665 670

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

Lys Glu His Ala Asn Ile Thr Val Ser Asn Val Leu Val Tyr Asn Arg
690 695 700

Pro Leu Arg Gly Val Glu Leu Leu Gly Leu Phe Ala Asn Arg Gly Arg
705 710 715 720

Ile Arg Val Pro Gly Ser Asp Asn Ser Val Leu Ser Gly Gly
725 730

<210> 17
<211> 734
<212> PRT
<213> Trypanosoma congolense

<400> 17

Met Arg Pro Val Asn Cys Tyr Ala Leu Leu Ala Leu Val Val Ala Gly
1 5 10 15

Gln Cys Cys Gly His Met His Ala Thr Ala Ala Val Gly Thr Thr His
20 25 30

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

Pro Lys Asp Gly Glu Val Trp Trp Ser Asn Pro Gln Pro Gly Trp Lys
50 55 60

Glu Val Tyr Asp Asp Glu Trp Glu Glu Trp Phe Met Glu Gln Glu Gly
65 70 75 80

Pro Thr Gly Val Asn Gly Val Arg Gly Glu Trp Tyr Arg Arg Met Lys

915-PCT - sequence listing.ST25

85

90

95

Asp Gly Tyr Ile₁₀₀ Leu Val Gly Gly Pro₁₀₅ Lys Leu Asn Ser Pro₁₁₀ Asp Met
 Asn Ser Thr₁₁₅ Gly Thr Thr Met Arg₁₂₀ Thr Val His Ser Tyr₁₂₅ Arg Ile Pro
 Ser Ile₁₃₀ Val Glu Val Gly Gly₁₃₅ Val Leu Met Cys Val₁₄₀ Gly Asp Ala Arg
 Tyr Ile Thr Ser Thr Asp₁₅₀ Tyr Phe Phe Thr Asp₁₅₅ Thr Val Ala Ala Tyr₁₆₀
 Ser Thr Asp Gly Gly₁₆₅ Lys Thr Trp Lys Thr₁₇₀ Glu Val Ile Ile Pro₁₇₅ Asn
 Gly Arg Val Asp₁₈₀ Ala His Tyr Ser Arg₁₈₅ Val Val Asp Pro Thr₁₉₀ Val Val
 Ala Lys Gly₁₉₅ Asn Asn Ile Tyr Val₂₀₀ Leu Val Gly Arg Tyr₂₀₅ Asn Val Thr
 Arg Gly₂₁₀ Tyr Trp His Asn Gln₂₁₅ Asn Asp Glu Ala Ala₂₂₀ Ile Ala Asp Trp
 Glu Pro Phe Val Tyr Lys₂₃₀ Gly Thr Val Asn Val₂₃₅ Gly Thr Lys Gly Thr₂₄₀
 Ala Thr Asp Val Ser₂₄₅ Ile Ser Trp Glu Arg₂₅₀ Thr Ala Leu Lys Ser₂₅₅ Leu
 Tyr Asn Phe Pro₂₆₀ Val Ser Gly Ser Pro₂₆₅ Gly Thr Gln Phe Leu₂₇₀ Gly Gly
 Ala Gly Gly₂₇₅ Gly Val Val Thr Ser₂₈₀ Asn Gly Thr Ile Val₂₈₅ Leu Pro Val
 Gln Ala₂₉₀ Arg Asn Lys Ala Asn₂₉₅ Arg Val Val Ser Met₃₀₀ Ile Leu Tyr Ser
 Ala Asp Asp Gly Lys Ser₃₁₀ Trp His Phe Gly Glu₃₁₅ Gly Glu Ala Gly Val₃₂₀
 Gly Thr Ser Glu Ala₃₂₅ Ala Leu Thr Glu Trp₃₃₀ Asp Gly Lys Leu Leu₃₃₅ Ile
 Ser Thr Arg Ser₃₄₀ Asp Gly Gly Gln Gly₃₄₅ Tyr Arg Met Ile Phe₃₅₀ Glu Ser
 Ser Asp Leu Gly Ala Thr Trp Lys Glu Met Leu Asn Ser Ile Ser Arg

915-PCT - sequence listing.ST25

355

360

365

Val Ile Gly Asn Ser Pro Lys Arg Asn Gly Pro Gly Ser Ser Ser Gly
370 375 380

Phe Ile Thr Val Thr Val Glu Gly Val Pro Val Met Leu Leu Thr His
385 390 395 400

Pro Lys Asn Leu Lys Gly Ser Tyr Tyr Arg Asp Arg Leu Gln Met Trp
405 410 415

Met Thr Asp Gly Asn Arg Met Trp His Val Gly Gln Val Ser Glu Gly
420 425 430

Asp Asp Asn Ser Ala Tyr Ser Ser Leu Leu Tyr Thr Pro Asp Gly Val
435 440 445

Leu Tyr Cys Leu His Glu Gln Asn Ile Asp Glu Val Tyr Ser Leu His
450 455 460

Leu Val Arg Leu Val Asp Glu Leu Lys Ser Ile Lys Ser Thr Ala Leu
465 470 475 480

Val Trp Lys Ala Gln Asp Glu Leu Leu Leu Gly Asn Cys Leu Pro Gly
485 490 495

Asp Lys Tyr Asp Pro Gly Cys Asp Gly Ile Pro Thr Ala Gly Leu Ala
500 505 510

Gly Leu Leu Val Gly Pro Leu Thr Glu Lys Thr Trp Pro Asp Ala Tyr
515 520 525

Arg Cys Val Asn Ala Ala Thr Ser Gly Ala Val Ser Thr Ala Glu Gly
530 535 540

Val Arg Leu Asp Val Gly Gly Gly Gly His Val Val Trp Pro Val Ser
545 550 555 560

Glu Gln Gly Gln Asp Gln Arg Tyr Tyr Phe Thr Asn Ser Glu Phe Thr
565 570 575

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

Leu Leu Gly Phe Val Asn His Lys Gly Lys Val Asn Lys Ile Leu Lys
595 600 605

Val Ser Leu Ser Gly Val Glu Trp Leu Leu Ala Tyr Gly Asn Glu Tyr
610 615 620

Asn Ser Thr Ala Ala Glu Pro Leu Ser Val Asn Glu Ser His Gln Val

915-PCT - sequence listing.ST25

625 630 635 640

Val Leu Thr Leu His Asp Gly Ile Val Ser Leu His Val Asp Gly Gly
645 650 655

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

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

Lys Glu His Ala Asn Ile Thr Val Ser Asn Val Leu Val Tyr Asn Arg
690 695 700

Pro Leu Arg Gly Val Glu Leu Leu Gly Leu Phe Ala Asn Arg Gly Arg
705 710 715 720

Ile Arg Val Pro Gly Ser Asp Asn Gly Val Leu Ser Gly Gly
725 730

<210> 18
<211> 778
<212> PRT
<213> Trypanosoma congolense
<400> 18

Met Ser His Cys Phe Val Pro Ala Trp Ser Lys Ala Leu Cys Leu Leu
1 5 10 15

Leu Leu Ser His Cys Leu Tyr Leu Ala His Ala Ser Gly Asn Gly Arg
20 25 30

Thr Thr Arg Glu Leu Phe Leu Gly Gly Gly His Trp Val Val Gly Lys
35 40 45

Glu Cys Leu Ala Val Asn Glu Glu Gly Ser Ala Ala Arg Thr Leu Glu
50 55 60

Cys Asn Gly Asn Cys Ser Pro Asp Glu Asp Ser Gln Arg Arg Ser Ala
65 70 75 80

Asp Asp Asn Asp Gly Leu Gln Glu Glu Thr Ile Asn Cys Val Leu Glu
85 90 95

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

Val Val Asp Ser Phe Arg Ile Pro Ser Ile Val Glu Val Asp Gly Val
115 120 125

Leu Ile Thr Val Ser Asp Val Arg Tyr Leu Asn Ser Asn Asp Leu Ser
130 135 140

915-PCT - sequence listing.ST25

Phe Ile Asp Thr Val Ala Arg Tyr Ser Ala Asp Gly Gly Arg Thr Trp
 145 150 155 160
 Glu Thr Glu Val Ile Ile Lys Asn Ala Arg Val Asn Ala Glu His Ser
 165 170 175
 Arg Val Val Asp Pro Thr Val Val Val Lys Asn Asn Thr Ile Phe Val
 180 185 190
 Leu Val Gly Arg Tyr Asn Lys Ser Asp Ala Tyr Trp Thr Trp Gln Gly
 195 200 205
 Gly Gly Gly Asp Trp Asp Ile Leu Met His Lys Gly Thr Val Thr Lys
 210 215 220
 Ser Leu Arg Gly Gly Lys Pro Ser Val Asn Ile Glu Trp Asp Glu Pro
 225 230 235 240
 Gln Asn Leu Lys Tyr Leu Leu Ser Thr Val Gly Lys Ile Asp Gly Arg
 245 250 255
 Ser Leu Ile Gln Tyr Ile Gly Gly Val Gly Asn Cys Val Val Thr Pro
 260 265 270
 Asn Gly Thr Ile Val Leu Pro Val Gln Val Leu Asn Thr Asn Arg Ser
 275 280 285
 Val Met Ala Met Ile Ile Tyr Ser Thr Asp Glu Gly Glu Ser Trp Gln
 290 295 300
 Phe Ser Lys Ser Ala Thr Pro Val Gly Thr Thr Glu Ser Ser Ile Val
 305 310 315 320
 Trp Trp Asp Asp Lys Leu Leu Leu Asn Gly Arg Thr Asn Asn Asp Leu
 325 330 335
 Gly Tyr Arg Lys Val Tyr Glu Ser Ser Asp Leu Gly Thr Thr Trp Thr
 340 345 350
 Glu Val Val Gly Thr Ile Ser Arg Val Ile Gly Asn Ser Pro Gly Arg
 355 360 365
 Asn Gln Pro Gly Ser Ser Gly Ser Ser Ile Ala Ile Thr Leu Glu Gly
 370 375 380
 Met Arg Val Met Leu Ile Thr Gln Pro Lys Asn Ile Lys Gly Ser Trp
 385 390 395 400
 His Arg Asp Arg Leu Gln Leu Trp Leu Thr Asp Gly Asn Arg Val Trp
 405 410 415

915-PCT - sequence listing.ST25

Leu Val Gly Gln Ile Ser Glu Gly Asp Asp Asn Gly Pro Tyr Ser Ser
 420 425 430
 Leu Leu Tyr Thr Ser Asn Gly Thr Leu Tyr Cys Leu Tyr Glu Gln Asp
 435 440 445
 Lys Ala Ala Val Leu Ser Ile Tyr Leu Ile Lys Leu Glu Asp Glu Leu
 450 455 460
 Glu Ser Ile Lys Ser Ile Val Lys Leu Trp Lys Asp Gln Asp Ala Leu
 465 470 475 480
 Leu Ser Gly Asn Cys Ser Ser Pro Asp Gly Asp Tyr Thr Glu Gly Cys
 485 490 495
 Val Gly Ile Pro Thr Ala Gly Leu Val Gly Leu Leu Ser Gly Pro Ser
 500 505 510
 Asp Glu Asp Val Trp His Asp Ala Tyr Arg Cys Val Asp Ala Ser Val
 515 520 525
 Glu Asn Val Val Asn Val Ala Asp Gly Leu Gln Leu Ser Gly Trp Asn
 530 535 540
 Ser Ser Arg Val Leu Trp Pro Val Ser Ser Gln Gly Gln Asp Gln Lys
 545 550 555 560
 Tyr His Phe Ala Asp Val His Phe Thr Leu Val Ala Asn Leu Arg Leu
 565 570 575
 Val Gly Ala Pro Lys Gly Asp Phe Ser Leu Val Gly Phe Glu Met Tyr
 580 585 590
 Glu Gly Glu Thr Arg Lys Thr Val Lys Leu Ser Ala Ile Lys Ser Ala
 595 600 605
 Leu Trp Glu Met Cys His Thr Asp Leu Thr Thr Arg Gly Ser Arg Gly
 610 615 620
 Ser Leu Pro Cys Asp Glu Val His Gln Val Ala Leu Thr Leu Arg Asn
 625 630 635 640
 Gly Val Ile Ser Val Tyr Ala Asn Gly Arg His Leu Ser Val Leu Asp
 645 650 655
 Thr Lys Val Ala Gly Ala Asn Glu Leu Leu Asn Ile Ser Asn Phe Phe
 660 665 670
 Val Gly His Pro Gly Val Gly Gly Ala Leu Pro Trp Gly Ser Ala Val
 675 680 685

915-PCT - sequence listing.ST25

Val Arg Asp Val Leu Leu Tyr Asn Arg Pro Leu His Glu Thr Glu Leu
690 695 700

Glu Ser Leu Tyr Leu Asn Gly Asp Val Ile Lys Val Val Asn His Gly
705 710 715 720

Ala Ala Gly Ile Ser Ala Ala Arg Asp Ala Glu Leu Leu His Val Arg
725 730 735

Gly Asp Gly Gly Asp Lys Pro Asp Ala Val Pro Leu Lys Leu Ala Ile
740 745 750

Ile Thr Gly Asp Gly Val Val Arg Phe Arg Gly Leu Tyr Gln Met Ala
755 760 765

Ser Leu Val Leu Leu Gly Leu Met Leu Ser
770 775

<210> 19
<211> 778
<212> PRT
<213> Trypanosoma congolense

<400> 19

Met Ser His Cys Phe Val Pro Val Trp Ser Lys Ala Leu Cys Leu Leu
1 5 10 15

Leu Leu Ser His Cys Leu Tyr Leu Ala His Ala Ser Gly Asn Gly Arg
20 25 30

Thr Thr Arg Glu Leu Phe Leu Gly Gly Gly His Trp Val Val Gly Lys
35 40 45

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

Cys Asn Gly Asn Cys Ser Pro Asp Glu Asp Ser Arg Ile Arg Ser Ala
65 70 75 80

Asp Asp Asn Asp Gly Leu Gln Glu Glu Thr Ile Asn Cys Ala Leu Glu
85 90 95

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

Ile Val Asp Ser Phe Arg Ile Pro Ser Ile Val Glu Val Asp Gly Val
115 120 125

Leu Ile Thr Val Ser Asp Val Arg Tyr Leu Asn Ser Asn Asp Leu Ser
130 135 140

915-PCT - sequence listing.ST25

Phe Ile Asp Thr Val Ala Arg Tyr Ser Ala Asp Gly Gly Arg Thr Trp
 145 150 155 160
 Glu Thr Glu Val Ile Ile Lys Asn Ala Arg Val Asn Ala Glu His Ser
 165 170 175
 Arg Val Val Asp Pro Thr Val Val Val Lys Asn Asn Thr Ile Phe Val
 180 185 190
 Leu Val Gly Arg Tyr Asn Lys Ser Asp Ala Tyr Trp Thr Trp Gln Gly
 195 200 205
 Gly Gly Gly Asp Trp Asp Ile Leu Met His Lys Gly Thr Val Thr Lys
 210 215 220
 Ser Leu Arg Gly Gly Lys Pro Ser Val Asn Ile Glu Trp Asp Glu Pro
 225 230 235 240
 Gln Asn Leu Lys Tyr Leu Leu Ser Thr Val Gly Lys Ile Asp Gly Arg
 245 250 255
 Ser Leu Ile Gln Tyr Ile Gly Gly Val Gly Asn Cys Val Val Thr Pro
 260 265 270
 Asn Gly Thr Ile Val Leu Pro Val Gln Val Leu Asn Thr Asn Arg Ser
 275 280 285
 Val Met Ala Met Ile Ile Tyr Ser Thr Asp Glu Gly Glu Ser Trp Gln
 290 295 300
 Phe Ser Lys Ser Ala Thr Pro Val Gly Thr Thr Glu Ser Ser Ile Val
 305 310 315 320
 Trp Trp Asp Asp Lys Leu Leu Leu Asn Gly Arg Thr Asn Asn Asp Leu
 325 330 335
 Gly Tyr Arg Lys Val Tyr Glu Ser Ser Asp Leu Gly Thr Thr Trp Lys
 340 345 350
 Glu Val Val Gly Thr Ile Ser Arg Val Ile Gly Asn Ser Pro Gly Arg
 355 360 365
 Asn Gln Pro Gly Ser Ser Gly Ser Ser Ile Ala Ile Thr Leu Glu Gly
 370 375 380
 Met Arg Val Met Leu Ile Thr Gln Pro Lys Asn Ile Lys Gly Ser Trp
 385 390 395 400
 His Arg Asp Arg Leu Gln Leu Trp Leu Thr Asp Gly Asn Arg Val Trp
 405 410 415

915-PCT - sequence listing.ST25

Leu Val Gly Gln Ile Ser Glu Gly Asp Asp Asp Gly Pro Tyr Ser Ser
 420 425 430
 Leu Leu Tyr Thr Ser Asn Gly Thr Leu Tyr Cys Leu Tyr Glu Gln Asp
 435 440 445
 Lys Ser Ala Val Leu Ser Ile Tyr Leu Ile Lys Leu Glu Asp Glu Leu
 450 455 460
 Glu Ser Ile Lys Ser Ile Val Lys Leu Trp Lys Asp Gln Asp Ala Leu
 465 470 475 480
 Leu Ser Gly Asn Cys Ser Ser Pro Asp Gly Asp Tyr Thr Glu Gly Cys
 485 490 495
 Val Gly Ile Pro Thr Ala Gly Leu Val Gly Leu Leu Ser Gly Pro Ser
 500 505 510
 Asp Gly Asp Val Trp His Asp Ala Tyr Arg Cys Val Asp Ala Ser Val
 515 520 525
 Asp Asn Val Val Asn Val Ala Asp Gly Leu Gln Leu Ser Gly Trp Asn
 530 535 540
 Ser Ser Arg Val Leu Trp Pro Val Ser Ser Gln Gly Gln Asp Gln Lys
 545 550 555 560
 Tyr His Phe Ala Asn Val His Phe Thr Leu Val Ala Asn Leu Arg Leu
 565 570 575
 Val Gly Ala Pro Lys Gly Asp Phe Ser Leu Val Gly Phe Glu Thr Tyr
 580 585 590
 Glu Gly Glu Arg Arg Lys Thr Val Lys Leu Ser Ala Ile Lys Ser Ala
 595 600 605
 Phe Trp Glu Met Cys His Thr Asp Leu Thr Thr Arg Gly Ser Arg Gly
 610 615 620
 Ser Pro Pro Cys Asp Glu Val His Gln Val Ala Leu Thr Leu Arg Asp
 625 630 635 640
 Gly Val Ile Ser Val Tyr Ala Asn Gly Arg His Leu Ser Val Leu Asp
 645 650 655
 Thr Lys Ile Ala Gly Ala Asn Glu Leu Leu Asn Ile Thr Asn Phe Phe
 660 665 670
 Val Gly His Pro Gly Val Gly Asp Ala Leu Pro Trp Gly Ser Ala Val
 675 680 685

915-PCT - sequence listing.ST25

Val Arg Asp Val Leu Leu Tyr Asn Arg Pro Leu His Glu Thr Glu Leu
690 695 700

Glu Ser Leu Tyr Leu Asn Gly Asp Val Ile Lys Val Val Asn His Gly
705 710 715 720

Ala Ala Gly Ile Ser Ala Ala Arg Asp Ala Glu Leu Leu His Val Arg
725 730 735

Glu Asp Gly Gly Asp Lys Pro Asn Ala Val Pro Leu Lys Leu Ala Ile
740 745 750

Ile Thr Asp Asp Gly Val Ala Arg Phe Arg Gly Leu Tyr Gln Met Ala
755 760 765

Ser Leu Met Leu Leu Gly Leu Met Leu Ser
770 775

<210> 20
<211> 738
<212> PRT
<213> Trypanosoma congolense

<400> 20

Met Pro Ser Tyr Leu Leu Pro Ala Ala Val Val Leu Tyr Cys Phe Gly
1 5 10 15

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

Met Glu Ala Gly Gln Trp Ser Val Asn Lys Asp Cys Leu Ile Thr Ala
35 40 45

Glu Gly Ser Arg Arg Ser Lys Ala Ser Gly Ser Tyr Glu Lys Gly Tyr
50 55 60

Ala Ser Val Glu Ser Thr Thr Lys Asp Val Asn Thr Arg Gly Gly Val
65 70 75 80

Gln Thr Ser Glu Ala Cys Thr Leu Glu Pro Glu Val Arg Asp Asn Ser
85 90 95

Thr Ser Gly Asp Gly Lys Glu Arg His Leu Ile His Ser Phe Arg Ile
100 105 110

Pro Ser Leu Val Glu Ile Asp Gly Val Leu Ile Ala Thr Phe Asp Thr
115 120 125

Arg Tyr Leu His Ala Ser Asp Ser Ser Leu Ile Asp Thr Ala Met Lys
130 135 140

915-PCT - sequence listing.ST25

Tyr Ser Ala Asp Gln Gly Lys Thr Trp Lys Thr Glu Ile Ile Ile Lys
 145 150 155 160
 Asn Ala Arg Leu Thr Asp Asn Phe Ser Arg Val Val Asp Pro Thr Val
 165 170 175
 Val Val Lys Gly Asp Asn Leu Phe Ile Phe Val Gly Arg Tyr Asn Thr
 180 185 190
 Ser Ser Thr Pro Trp Val Trp Gln Lys Asn Gly Lys Asp Trp Asp Val
 195 200 205
 Leu Leu Tyr Lys Ala Lys Val Arg Lys Glu Ser Ala Gly Gly Val Pro
 210 215 220
 Ser Val Ser Phe Thr Trp Asp Glu Pro Leu His Leu Lys His Leu Leu
 225 230 235 240
 Thr Ser Val Gly Lys Ile Asp Gly Arg Ser Leu Ile Gln Tyr Ile Gly
 245 250 255
 Gly Val Gly Asn Gly Ile Val Thr Pro Lys Gly Thr Ile Val Phe Pro
 260 265 270
 Val Gln Val Leu Asn Thr Asn Lys Ser Val Met Asn Met Leu Leu Tyr
 275 280 285
 Ser Ser Asn Asp Gly Lys Thr Trp Glu Phe Ser Lys Thr Ser Thr Pro
 290 295 300
 Ala Gly Thr Thr Glu Ala Ser Leu Val Trp Trp Asp Gly Gln Leu Leu
 305 310 315 320
 Leu Thr Ser Arg Thr Thr Pro Asp Val Gly Ser Arg Lys Val Tyr Leu
 325 330 335
 Thr Ser Asp Leu Gly Thr Ser Trp Asn Glu Ala Ile Gly Ser Ile Ser
 340 345 350
 Arg Val Ile Gly Asn Ser Arg Tyr Arg Asn Asp Pro Gly Gly Ser Gly
 355 360 365
 Ser Ser Ile Ala Ile Thr Val Glu Gly Val Pro Val Met Leu Val Thr
 370 375 380
 His Pro Glu Asn Ala Lys Gly Arg Trp Asn Arg Asp Arg Met Arg Leu
 385 390 395 400
 Trp Leu Thr Asp Gly Asn Arg Met Trp Leu Val Gly Gln Ile Ser Glu
 405 410 415

915-PCT - sequence listing.ST25

Gly Asp Asp Asn Ser Ala Tyr Ser Tyr Leu Leu Tyr Thr Lys Asn Gly
420 425 430

Thr Leu Leu Cys Leu Tyr Glu Arg Asn Ile Arg Glu Ile Tyr Ser Ile
435 440 445

Tyr Leu Ala Arg Leu Glu Asp Glu Met Glu Asp Ile Lys Ser Thr Val
450 455 460

Arg Leu Trp Lys Ala His Asp Glu Leu Leu Ser Gly Asp Cys Gln Leu
465 470 475 480

Asn Lys Lys Arg Arg Ser Gly Cys Thr Gly Ile Pro Ile Thr Gly Leu
485 490 495

Val Gly Leu Leu Ala Gly Leu Pro Arg Lys Ser Val Trp Pro Asp Ala
500 505 510

Tyr Asn Cys Val Asp Ala Ser Ile Ser Lys Asn Asn Lys Gln Val Ser
515 520 525

His Asp Pro Pro Ser Arg Ser Thr Met Lys Arg Arg Val Val Trp Pro
530 535 540

Val Gly Asp Gln Gly Gln Asp Gln Arg Tyr His Phe Val Asn Thr His
545 550 555 560

Phe Thr Phe Val Ala Thr Ile Tyr Phe Asp Arg Ala Pro Gln Glu Val
565 570 575

Ser Leu Met Gly Phe Glu Asn Asn Glu Glu Ser Thr Lys Thr Leu Thr
580 585 590

Val Ser Ile Gly Asn Gly Arg Leu Val Leu Thr Tyr Gly Gly Leu Leu
595 600 605

Glu Glu Ile Pro Met Thr Arg Leu Asp Trp Ser Val Thr His Gln Val
610 615 620

Ala Leu Thr Leu His Asn Gly Glu Val Ser Leu His Val Asp Gly Asn
625 630 635 640

Pro Ser Ile Ala Asn Val Arg Leu Lys Leu His Glu Pro Asp Arg Leu
645 650 655

Leu Asn Ile Ser Asn Leu Phe Thr Ser Thr Pro Ala Pro Val Lys Thr
660 665 670

Gly Lys Gly Ser Thr Val Thr Val Asn Asn Val Ile Leu Tyr Asn Arg
675 680 685

915-PCT - sequence listing.ST25

Met Leu Asn Glu Thr Glu Leu Ala Arg Leu Phe Asn Ser Arg Asp Leu
690 695 700

Ile Asp Glu Val Gly Asp Val His Pro Val Ser Gly Gly Gly Val Gly
705 710 715 720

Glu Trp Arg Phe His Val Trp Ile Leu Leu Ala Ala Tyr Val Leu Val
725 730 735

Ala Tyr

<210> 21
<211> 787
<212> PRT
<213> Trypanosoma congolense
<400> 21

Met Gly Tyr Ser Lys Ser Val Arg Gln Thr Leu Ile Cys Leu Leu Leu
1 5 10 15

Val Ala Ile Asp Thr Tyr His Cys Thr Thr Ala Tyr Gly Ser Gly Ile
20 25 30

Arg Gly Glu Glu Glu Lys Asn Arg Ser Leu Phe Leu Pro Gly Gly Leu
35 40 45

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

Glu Trp Lys Ala Gly Tyr Ala Trp Trp Pro Trp Arg Ser Trp Cys Ser
65 70 75 80

Asn Lys Thr Ile Gly Ala Ser Gly Lys Glu Leu Cys Arg Lys Glu Trp
85 90 95

Asp Ser Gln Arg Glu Lys Gly Tyr Thr Leu Lys Pro Arg Glu Ser Val
100 105 110

Leu Phe Arg Glu Ser Ser Gly Thr Lys Arg Met Arg Arg Val His Ser
115 120 125

Phe Arg Ile Pro Ser Met Val Glu Ala Asn Gly Val Leu Ile Gly Ile
130 135 140

Ala Asp Ala Arg Tyr Leu Ser Ser Ala Asp Phe Thr Phe Ile Asp Thr
145 150 155 160

Val Ala Lys Tyr Ser Ala Asp Gly Gly Glu Thr Trp Lys Thr Glu Val
165 170 175

Ile Ile Glu Asn Ala Arg Val Asp Ser Phe His Ser Arg Val Val Asp

915-PCT - sequence listing.ST25

180

185

190

Pro Thr Val₁₉₅ Ala Val Lys Asn₂₀₀ Asn Ser Ile Tyr Val₂₀₅ Leu Val Gly Arg

Tyr Asn₂₁₀ Thr Ser Asn Thr Tyr₂₁₅ Trp Thr Met Gln₂₂₀ Asn Asn Gly Asn Asp

Trp₂₂₅ Asp Ile Leu Met Tyr₂₃₀ Lys Gly Thr Val Thr₂₃₅ Lys Thr Ser Glu Asp₂₄₀

Gly Lys Pro Ala₂₄₅ Ala Asn Ile Glu Trp Thr₂₅₀ Gly Thr Gln Asn₂₅₅ Leu Lys

Tyr Leu Leu Lys₂₆₀ Leu Val Asp Gln₂₆₅ Ile Glu Gly Lys Ser₂₇₀ Leu Thr Gln

Phe Leu Gly₂₇₅ Gly Val Gly Asn Thr₂₈₀ Val Val Thr Pro Asp₂₈₅ Gly Thr Ile

Val Phe₂₉₀ Pro Ile Gln Val Lys₂₉₅ Asn Ser Trp Asn₃₀₀ Gln Val Ala Ala Met

Ile₃₀₅ Met Tyr Ser Ser Asp₃₁₀ Asp Gly Ala Thr Trp₃₁₅ His Leu Gly Gly₃₂₀

Ala Thr Pro Val Gly₃₂₅ Thr Thr Glu Ala Ser₃₃₀ Ala Ile Trp Trp Asp₃₃₅ Gly

Lys Leu Val₃₄₀ Leu Asn Cys Arg Thr Asp₃₄₅ Leu Gly Tyr Arg Lys₃₅₀ Val Phe

Glu Thr Thr₃₅₅ Asp Leu Gly Thr Thr₃₆₀ Trp Lys Glu Ser₃₆₅ Leu Gly Ala Leu

Ser Arg₃₇₀ Val Ile Gly Asn Ser₃₇₅ Pro Asp Arg Lys₃₈₀ Gln Lys Gly Ser Ser

Gly₃₈₅ Ser Ala Ile Thr Leu₃₉₀ Glu Val Glu Gly Val₃₉₅ Gln Val Met Leu Ile₄₀₀

Thr Gln Pro Lys Asn₄₀₅ Thr Lys Gly Asp Tyr₄₁₀ Asn Arg Asp Arg₄₁₅ Leu Gln

Leu Trp Leu Ser₄₂₀ Asp Gly Ser Arg Val₄₂₅ Trp Leu Val Gly₄₃₀ Gln Ile Ser

Arg Gly Asp₄₃₅ Asp Asn Ser Pro Tyr₄₄₀ Ser Ser Leu Leu Tyr₄₄₅ Thr Ser Asp

Asp Lys Leu Tyr Cys Leu Tyr Glu Gln Asp Ile Arg Gly Val Leu Ser

915-PCT - sequence listing.ST25

450

455

460

Ile Tyr Leu Val His Leu Val Asp Glu Leu Glu Lys Ile Lys Ala Thr
465 470 475 480

Val Arg Leu Trp Lys Glu Gln Asp Ala Leu Leu Ser Gly Asn Cys Ser
485 490 495

Ala Thr Ala Glu Asp Gly Ser Asp Cys Asn Gly Val Pro Thr Ala Gly
500 505 510

Leu Val Gly Leu Leu Ser Gly Pro Ala Gln Gly Asn Ala Trp Pro Asp
515 520 525

Ala Tyr Asn Cys Val Asn Ala Ser Leu Val Asn Val Thr Ser Asp Ala
530 535 540

Asp Gly Leu Gln Leu Gly Gly Leu Asn Arg Gly Arg Val Ser Trp Pro
545 550 555 560

Val Arg Ala Gln Gly Gln Asp Gln Arg Tyr Tyr Phe Ala Asn Val Arg
565 570 575

Phe Thr Leu Val Ala Thr Val Arg Leu Asn Gly Ile Ser Asn Leu Glu
580 585 590

Ile Pro Leu Met Gly Phe Glu Asn Phe Gln Lys Ser Thr Arg Asp Thr
595 600 605

Leu Ile Val Ser Ile Val Asp Asp Ala Tyr Trp Ser Lys Cys Lys Glu
610 615 620

Gly Pro Val Pro Gly Val Asn Val Asp Ala Pro Glu Cys Gln Lys Phe
625 630 635 640

His Gln Val Ala Ile Met Phe Gln Asn Gly Arg Val Ser Val Tyr Ala
645 650 655

Asp Gly Ile His Ile Pro Gln Leu Asp Thr Ser Ile Val Asp Ala Ser
660 665 670

Ala Leu Leu Asn Ile Ser Ser Phe Phe Leu Gly His Pro Glu Val Gly
675 680 685

Ser Arg Phe Thr Ser Ala Asp Val Ile Val Lys Asn Val Leu Leu Tyr
690 695 700

Asn Arg Pro Leu Thr Glu Gly Glu Ser Lys Ile Leu Tyr Ala Asn Glu
705 710 715 720

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

915-PCT - sequence listing.ST25

725

730

735

Lys Thr Pro Ala Ser Met Arg Val Asp Thr Ala Asn Lys Arg Gly Tyr
740 745 750

Thr Asn Phe Pro Leu Lys Leu Thr Ile Ile His Ser Asn Gly Glu Ala
755 760 765

Pro Ile Arg Gln Leu Ser Arg Leu Val Ile Ile Val Leu Leu Ile Ser
770 775 780

Ala Leu Phe
785

<210> 22
<211> 771
<212> PRT
<213> Trypanosoma congolense
<400> 22

Met Cys Glu Arg Lys Ser Val Phe Ala Phe Pro Glu Val Val Lys Asn
1 5 10 15

Gly Arg Ser Val Ser Gly Gly His Gln Gly Thr Trp Cys Thr Pro Leu
20 25 30

Leu Leu Ile Ser Ala Ile Phe Leu Pro Leu Thr Cys Cys Ser Glu Ser
35 40 45

Thr Asp Ser Thr Trp Leu Glu Lys Arg Arg Val Glu Leu Phe Arg Pro
50 55 60

Trp Gly Lys Gly Asn Pro Asn Val Pro Gly Ala Ser Tyr Ser Ser Asp
65 70 75 80

Gly Arg Gly Val Phe Glu Gly Asn Ser Leu Leu Glu Val Asn Asp Gln
85 90 95

Ile Val Thr Leu Ala Gly Ala Arg Tyr Asn Ser Trp Val Asp Gly Tyr
100 105 110

Ala Gly Met Trp Met Lys Thr Ile Arg Leu Ser Glu Gly His Gln Gly
115 120 125

Pro Gly Ala Ala Asp Trp Met Gln Glu Lys Asn Trp Lys Gly Glu Ala
130 135 140

Val Ile Val Asn Glu Lys Val Glu Ser His Arg Tyr Ala Leu Met Gly
145 150 155 160

Pro Arg Ala Ala Val Val Gly Asp Lys Ile Phe Phe Leu Ser Ile Thr
165 170 175

915-PCT - sequence listing.ST25

Ser Asn Lys Ser Lys Asp Ala Leu Ser Ser Pro Ser Asp Glu Ser Asn
180 185 190

Leu Asp Val Arg Leu Tyr Ile Gly Thr Val Asp Lys Ser Phe Val Gly
195 200 205

Asp Ala Ser Val His Trp Asn Gly Pro Arg Ser Leu Leu Val Thr Phe
210 215 220

Met Lys Glu Leu Lys Lys Asn Ser Trp Lys Asp Phe Val Glu Gly Ser
225 230 235 240

Gly Lys Ser Val Val Met Gly Asp Thr Ile Phe Phe Pro Leu Val Ala
245 250 255

Leu Thr His Lys Gln Ser Arg Ser Cys Val Ile Ala Arg Tyr Arg His
260 265 270

Asn Asp Glu Asn Trp Thr Phe Thr Arg Val Ala Leu Asp Ile Asp Asp
275 280 285

Cys Thr Asn Pro Thr Leu Leu Leu Trp Lys Asn Glu Leu Met Ile Val
290 295 300

Val Ala His Asn Leu Lys Asn Lys Val Tyr Arg Ser Val Asp Met Gly
305 310 315 320

Leu Thr Trp Thr Asp Ala Ser Lys Thr Arg Arg Tyr Ala Leu Thr Asn
325 330 335

Phe Gln His His Ala Asp Asp Val Asp Arg Gly Asp Ile Leu Ser Val
340 345 350

Arg Val Gly Glu Thr Asp Leu Leu Leu Phe Ala Tyr Arg Met Phe Phe
355 360 365

Ser Ser Ala Thr Ala Gly Asn Arg Pro Leu Leu Leu Trp Met Thr Asp
370 375 380

Asn Lys Arg Thr His Cys Leu Gly Pro Ile Ser Thr Gly His Leu Phe
385 390 395 400

Thr Gly Ala Phe Gly Ala Leu Leu Tyr Thr Arg Glu Lys Leu Tyr Ser
405 410 415

Leu His Gln Glu Ser Phe Ser Ser Leu Ser Ser Leu Phe Phe Thr Asn
420 425 430

Leu Thr Gly Arg Leu Arg Thr Met Arg Pro Val Leu Asp Thr Trp Lys
435 440 445

915-PCT - sequence listing.ST25

Thr Ala Asp Lys Arg Val Met Gly Leu Tyr Gly Pro Ser Ala Ala Gly
450 455 460

Thr Thr Asn Phe Lys Ser Ala Glu Pro Ser Ser Phe Asp Pro Thr Thr
465 470 475 480

Gly Leu Val Gly Phe Trp Ser Thr Ala Ser Asn Ala Thr His Trp Gln
485 490 495

Asp Glu Tyr Leu Gly Met Asp Gly Val Leu His Gly Pro Leu Lys Arg
500 505 510

Val Thr Thr Gly Tyr Thr Met Glu Gly Cys Ala Ala His Val Val Trp
515 520 525

Pro Val Gly Gly Glu Ser Glu Asn Lys Val Tyr His Leu Ile Ser Asn
530 535 540

Gly Leu Thr Val Val Met Ser Val Ala Val His Thr Ala Pro Lys Val
545 550 555 560

Arg Ile Pro Leu Leu Gly Val Thr Val Arg Asn Gly Ser Asn Trp Ala
565 570 575

Thr Asp Val Gly Ile Trp Tyr Asp Asn Lys Thr Trp Ala Gln Met Gly
580 585 590

Gly Asp Glu Val Gly Ala Val Leu Ala Met Glu Val Gly Lys Thr Tyr
595 600 605

Gln Leu Val Phe Thr Val Lys Gly Gly Val Ala Arg Thr Tyr Val Asp
610 615 620

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

Ser Met Glu Val Asp Glu Met Tyr Ile Gly Asn Arg Asp Lys Ala Met
645 650 655

Thr Lys Cys Ser Ala Asp Ala Leu Asn Val Thr Val Phe Asn Met Leu
660 665 670

Leu Tyr Asn Tyr Glu Leu Ser Pro Ala Asp Val Arg Thr Leu Leu Thr
675 680 685

Met Lys Gly Arg Ser Ala Phe Glu Thr Ile Gly Met Ser Gly Asp Asp
690 695 700

Glu Glu Gln Glu Ala Glu Ser Gly Gly Gly Ser Met Leu Trp Thr Leu
705 710 715 720

915-PCT - sequence listing.ST25

Ala Val Leu Ile Pro Ala Ile Val Leu Leu Phe Gly Ala Ala Ala Phe
725 730 735

Phe Leu Val Arg Arg Arg Arg Ala Gly Thr Thr Met Pro Pro Ala Thr
740 745 750

Val His His Asn Pro Tyr Phe Met Asn Ala Thr Asp Asp Thr Leu Glu
755 760 765

Val Ser Lys
770

<210> 23
<211> 20
<212> PRT
<213> Trypanosoma vivax

<400> 23

Arg Thr Ser Ile Asp Tyr His Leu Ile Asp Thr Val Ala Lys Tyr Ser
1 5 10 15

Ala Asp Asp Gly
20

<210> 24
<211> 19
<212> PRT
<213> Trypanosoma congolense

<400> 24

Pro Lys Asn Ile Lys Gly Ser Trp His Arg Asp Arg Leu Gln Leu Trp
1 5 10 15

Leu Thr Asp

<210> 25
<211> 19
<212> PRT
<213> Trypanosoma vivax

<400> 25

Pro Val Ser Ala Gln Gly Gln Asp His Arg Tyr Glu Ala Ala Asn Ala
1 5 10 15

Glu His Thr

<210> 26
<211> 12
<212> PRT
<213> Trypanosoma congolense

915-PCT - sequence listing.ST25

<400> 26

Lys Val Asp Gly Thr Ala Leu Ser Ser Ala Arg Asn
1 5 10

<210> 27

<211> 16

<212> PRT

<213> Trypanosoma congolense

<400> 27

Lys Ile Glu Ser Thr Gly Ala Val Glu Gly Gly Gly Val Val Lys Asn
1 5 10 15

<210> 28

<211> 12

<212> PRT

<213> Trypanosoma congolense

<400> 28

Lys Val Thr Trp Gly Thr Gln Val Pro Leu Lys Gly
1 5 10

<210> 29

<211> 13

<212> PRT

<213> Trypanosoma congolense

<400> 29

Arg Glu Trp Val Glu Ala Val Thr Ser Tyr Ser Arg Val
1 5 10

<210> 30

<211> 13

<212> PRT

<213> Trypanosoma congolense

<400> 30

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

<210> 31

<211> 14

<212> PRT

<213> Trypanosoma congolense

<400> 31

Lys Leu Tyr Asn Phe Val Thr Ala Thr Val Glu Gly Arg Arg
1 5 10

<210> 32

<211> 15

<212> PRT

<213> Trypanosoma congolense

<400> 32

915-PCT - sequence listing.ST25

Arg Ile Ser Tyr Phe Tyr Ile Gly Gly Tyr Gly Asn Pro Arg Thr
1 5 10 15

<210> 33
<211> 12
<212> PRT
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<210> 35
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<400> 35

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Asn Lys Ile

<210> 36
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<400> 36

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Ile Gly Asn Ile Ala Gln Leu Asp Asp Ala Leu Ala Lys Ile
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<210> 37
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<400> 37

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<210> 38

915-PCT - sequence listing.ST25

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<400> 38

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Gln Gly Gln Asp Gln Arg Tyr
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<400> 43

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915-PCT - sequence listing.ST25

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<210> 45
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Arg Met Lys Asp Gly Tyr Ile Leu Val Gly Gly Pro Lys Leu
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<210> 46
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 <212> PRT
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<400> 46

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Gly Thr Pro Val Asp Gly Gly Ala Lys Glu
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<210> 47
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<400> 47

Arg Tyr Ile Thr Ser Thr Asp Tyr Phe Phe Thr Asp Thr Val Ala Ala
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Tyr Ser Thr Asp Gly Gly Arg Thr
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<400> 48

Arg Val Ile Gly Asn Ser Pro Gly Arg Ser
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915-PCT - sequence listing.ST25

<400> 49

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Gly Val Pro Val Met Leu Leu Thr His Pro Lys Asn
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<212> PRT

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Gly Val Pro Val Met Leu Leu Thr His Pro Lys Asn
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<211> 14

<212> PRT

<213> Trypanosoma congolense

<400> 52

Arg Gly Glu Leu Pro Leu Leu Gly Phe Val Asn His Lys Gly
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<210> 53

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<212> PRT

<213> Trypanosoma congolense

<400> 53

Arg Met Thr Asp Gly Tyr Ile Leu Val Gly Gly Pro Lys Leu
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<211> 14

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<400> 54

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915-PCT - sequence listing.ST25

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Gly Thr Pro Val Asp Gly Gly Ala Lys Glu
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<400> 56

Arg Ile Arg Val Pro Gly Ser Asp Asn Ser Val Leu Ser Gly Gly
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<210> 57
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Gly Pro Thr Gly Val Asp Gly Val Arg Ala
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<400> 58

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Asp Gly Lys Leu
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<210> 59
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 <212> PRT
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<400> 59

Lys Ala Pro Asn Ser Asn Val Ala Val Leu Gly Phe Gly Asn Ser Lys
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Gly

<210> 60
 <211> 14
 <212> PRT
 <213> Trypanosoma congolense

<400> 60

Lys	Val	Phe	Glu	Thr	Thr	Asp	Leu	Gly	Thr	Thr	Trp	Lys	Glu
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