

P116908wo ST25
SEQUENCE LISTING

<110> Thrombosis Research Institute

<120> Atheroma vaccine

<130> P116908wo

<150> GB 0709373.5

<151> 2007-05-16

<160> 24

<170> PatentIn version 3.3

<210> 1

<211> 399

<212> PRT

<213> Chlamydia pneumoniae

<400> 1

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

Asn Leu Ala Ala Val Glu Ala Ala Ala Ala Lys Ala Asp Ala Ala Glu
20 25 30

Val Val Ala Ser Gln Glu Gly Ser Glu Met Asn Met Ile Gln Gln Ser
35 40 45

Gln Asp Leu Thr Asn Pro Ala Ala Ala Thr Arg Thr Lys Lys Lys Glu
50 55 60

Glu Lys Phe Gln Thr Leu Glu Ser Arg Lys Lys Gly Glu Ala Gly Lys
65 70 75 80

Ala Glu Lys Lys Ser Glu Ser Thr Glu Glu Lys Pro Asp Thr Asp Leu
85 90 95

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

Arg Gly Leu Arg Asp Ala Ile Gly Asp Asp Ala Ser Pro Glu Asp Ile
115 120 125

Leu Ala Leu Val Gln Glu Lys Ile Lys Asp Pro Ala Leu Gln Ser Thr
130 135 140

Ala Leu Asp Tyr Leu Val Gln Thr Thr Pro Pro Ser Gln Gly Lys Leu
145 150 155 160

Lys Glu Ala Leu Ile Gln Ala Arg Asn Thr His Thr Glu Gln Phe Gly
165 170 175

Arg Thr Ala Ile Gly Ala Lys Asn Ile Leu Phe Ala Ser Gln Glu Tyr
180 185 190

P116908wo ST25

Ala Asp Gln Leu Asn Val Ser Pro Ser Gly Leu Arg Ser Leu Tyr Leu
195 200 205

Glu Val Thr Gly Asp Thr His Thr Cys Asp Gln Leu Leu Ser Met Leu
210 215 220

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

Met Lys Gly Met Ala Thr Glu Leu Lys Arg Gln Gly Pro Tyr Val Pro
245 250 255

Ser Ala Gln Leu Gln Val Leu Met Thr Glu Thr Arg Asn Leu Gln Ala
260 265 270

Val Leu Thr Ser Tyr Asp Tyr Phe Glu Ser Arg Val Pro Ile Leu Leu
275 280 285

Asp Ser Leu Lys Ala Glu Gly Ile Gln Thr Pro Ser Asp Leu Asn Phe
290 300

Val Lys Val Ala Glu Ser Tyr His Lys Ile Ile Asn Asp Lys Phe Pro
305 310 315 320

Thr Ala Ser Lys Val Glu Arg Glu Val Arg Asn Leu Ile Gly Asp Asp
325 330 335

Val Asp Ser Val Thr Gly Val Leu Asn Leu Phe Phe Ser Ala Leu Arg
340 345 350

Gln Thr Ser Ser Arg Leu Phe Ser Ser Ala Asp Lys Arg Gln Gln Leu
355 360 365

Gly Ala Met Ile Ala Asn Ala Leu Asp Ala Val Asn Ile Asn Asn Glu
370 375 380

Asp Tyr Pro Lys Ala Ser Asp Phe Pro Lys Pro Tyr Pro Trp Ser
385 390 395

<210> 2
<211> 515
<212> PRT
<213> Chlamydia pneumoniae

<400> 2

Met Thr Lys Thr Glu Glu Lys Pro Phe Gly Lys Leu Arg Ser Phe Leu
1 5 10 15

Trp Pro Ile His Thr His Glu Leu Lys Lys Val Leu Pro Met Phe Leu
20 25 30

P116908wo ST25

Met Phe Phe Cys Ile Thr Phe Asn Tyr Thr Val Leu Arg Asp Thr Lys
35 40 45

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

Phe Ile Lys Phe Trp Leu Val Val Pro Cys Ala Ile Ile Phe Met Leu
65 70 75 80

Ile Tyr Ala Lys Leu Ser Asn Ile Leu Ser Lys Gln Ala Leu Phe Tyr
85 90 95

Ala Val Gly Thr Pro Phe Leu Ile Phe Phe Ala Leu Phe Pro Thr Val
100 105 110

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

Leu Gln Ala Ile Leu Pro Pro Gly Leu Leu Gly Leu Val Ala Ile Leu
130 135 140

Arg Asn Trp Thr Phe Ala Ala Phe Tyr Val Leu Ala Glu Leu Trp Gly
145 150 155 160

Ser Val Met Leu Ser Leu Met Phe Trp Gly Phe Ala Asn Glu Ile Thr
165 170 175

Lys Ile His Glu Ala Lys Arg Phe Tyr Ala Leu Phe Gly Ile Gly Ala
180 185 190

Asn Ile Ser Leu Leu Ala Ser Gly Arg Ala Ile Val Trp Ala Ser Lys
195 200 205

Leu Arg Ala Ser Val Ser Glu Gly Val Asp Pro Trp Gly Ile Ser Leu
210 215 220

Arg Leu Leu Met Ala Met Thr Ile Val Ser Gly Leu Val Leu Met Ala
225 230 235 240

Ser Tyr Trp Trp Ile Asn Lys Asn Val Leu Thr Asp Pro Arg Phe Tyr
245 250 255

Asn Pro Glu Glu Met Gln Lys Gly Lys Lys Gly Ala Lys Pro Lys Met
260 265 270

Asn Met Lys Asp Ser Phe Leu Tyr Leu Ala Arg Ser Pro Tyr Ile Leu
275 280 285

Leu Leu Ala Leu Leu Val Ile Ala Tyr Gly Ile Cys Ile Asn Leu Ile
290 295 300

P116908wo ST25

Glu Val Thr Trp Lys Ser Gln Leu Lys Leu Gln Tyr Pro Asn Met Asn
305 310 315 320

Asp Tyr Ser Glu Phe Met Gly Asn Phe Ser Phe Trp Thr Gly Val Val
325 330 335

Ser Val Leu Ile Met Leu Phe Val Gly Gly Asn Val Ile Arg Lys Phe
340 345 350

Gly Trp Leu Thr Gly Ala Leu Val Thr Pro Val Met Val Leu Leu Thr
355 360 365

Gly Ile Val Phe Phe Ala Leu Val Ile Phe Arg Asn Gln Ala Ser Gly
370 375 380

Leu Val Ala Met Phe Gly Thr Thr Pro Leu Met Leu Ala Val Val Val
385 390 395 400

Gly Ala Ile Gln Asn Ile Leu Ser Lys Ser Thr Lys Tyr Ala Leu Phe
405 410 415

Asp Ser Thr Lys Glu Met Ala Tyr Ile Pro Leu Asp Gln Glu Gln Lys
420 425 430

Val Lys Gly Lys Ala Ala Ile Asp Val Val Ala Ala Arg Phe Gly Lys
435 440 445

Ser Gly Gly Ala Leu Ile Gln Gln Gly Leu Leu Val Ile Cys Gly Ser
450 455 460

Ile Gly Ala Met Thr Pro Tyr Leu Ala Val Ile Leu Leu Phe Ile Ile
465 470 475 480

Ala Ile Trp Leu Val Ser Ala Thr Lys Leu Asn Lys Leu Phe Leu Ala
485 490 495

Gln Ser Ala Leu Lys Glu Gln Glu Val Ala Gln Glu Asp Ser Ala Pro
500 505 510

Ala Ser Ser
515

<210> 3
<211> 619
<212> PRT
<213> Chlamydia pneumoniae

<400> 3

Met Lys Lys Gly Lys Leu Gly Ala Ile Val Phe Gly Leu Leu Phe Thr
1 5 10 15

P116908wo ST25

Ser Ser Val Ala Gly Phe Ser Lys Asp Leu Thr Lys Asp Asn Ala Tyr
20 25 30

Gln Asp Leu Asn Val Ile Glu His Leu Ile Ser Leu Lys Tyr Ala Pro
35 40 45

Leu Pro Trp Lys Glu Leu Leu Phe Gly Trp Asp Leu Ser Gln Gln Thr
50 55 60

Gln Gln Ala Arg Leu Gln Leu Val Leu Glu Glu Lys Pro Thr Thr Asn
65 70 75 80

Tyr Cys Gln Lys Val Leu Ser Asn Tyr Val Arg Ser Leu Asn Asp Tyr
85 90 95

His Ala Gly Ile Thr Phe Tyr Arg Thr Glu Ser Ala Tyr Ile Pro Tyr
100 105 110

Val Leu Lys Leu Ser Glu Asp Gly His Val Phe Val Val Asp Val Gln
115 120 125

Thr Ser Gln Gly Asp Ile Tyr Leu Gly Asp Glu Ile Leu Glu Val Asp
130 135 140

Gly Met Gly Ile Arg Glu Ala Ile Glu Ser Leu Arg Phe Gly Arg Gly
145 150 155 160

Ser Ala Thr Asp Tyr Ser Ala Ala Val Arg Ser Leu Thr Ser Arg Ser
165 170 175

Ala Ala Phe Gly Asp Ala Val Pro Ser Gly Ile Ala Met Leu Lys Leu
180 185 190

Arg Arg Pro Ser Gly Leu Ile Arg Ser Thr Pro Val Arg Trp Arg Tyr
195 200 205

Thr Pro Glu His Ile Gly Asp Phe Ser Leu Val Ala Pro Leu Ile Pro
210 215 220

Glu His Lys Pro Gln Leu Pro Thr Gln Ser Cys Val Leu Phe Arg Ser
225 230 235 240

Gly Val Asn Ser Gln Ser Ser Ser Ser Ser Leu Phe Ser Ser Tyr Met
245 250 255

Val Pro Tyr Phe Trp Glu Glu Leu Arg Val Gln Asn Lys Gln Arg Phe
260 265 270

Asp Ser Asn His His Ile Gly Ser Arg Asn Gly Phe Leu Pro Thr Phe
275 280 285

P116908wo ST25

Gly Pro Ile Leu Trp Glu Gln Asp Lys Gly Pro Tyr Arg Ser Tyr Ile
290 295 300

Phe Lys Ala Lys Asp Ser Gln Gly Asn Pro His Arg Ile Gly Phe Leu
305 310 315 320

Arg Ile Ser Ser Tyr Val Trp Thr Asp Leu Glu Gly Leu Glu Glu Asp
325 330 335

His Lys Asp Ser Pro Trp Glu Leu Phe Gly Glu Ile Ile Asp His Leu
340 345 350

Glu Lys Glu Thr Asp Ala Leu Ile Ile Asp Gln Thr His Asn Pro Gly
355 360 365

Gly Ser Val Phe Tyr Leu Tyr Ser Leu Leu Ser Met Leu Thr Asp His
370 375 380

Pro Leu Asp Thr Pro Lys His Arg Met Ile Phe Thr Gln Asp Glu Val
385 390 395 400

Ser Ser Ala Leu His Trp Gln Asp Leu Leu Glu Asp Val Phe Thr Asp
405 410 415

Glu Gln Ala Val Ala Val Leu Gly Glu Thr Met Glu Gly Tyr Cys Met
420 425 430

Asp Met His Ala Val Ala Ser Leu Gln Asn Phe Ser Gln Ser Val Leu
435 440 445

Ser Ser Trp Val Ser Gly Asp Ile Asn Leu Ser Lys Pro Met Pro Leu
450 455 460

Leu Gly Phe Ala Gln Val Arg Pro His Pro Lys His Gln Tyr Thr Lys
465 470 475 480

Pro Leu Phe Met Leu Ile Asp Glu Asp Asp Phe Ser Cys Gly Asp Leu
485 490 495

Ala Pro Ala Ile Leu Lys Asp Asn Gly Arg Ala Thr Leu Ile Gly Lys
500 505 510

Pro Thr Ala Gly Ala Gly Gly Phe Val Phe Gln Val Thr Phe Pro Asn
515 520 525

Arg Ser Gly Ile Lys Gly Leu Ser Leu Thr Gly Ser Leu Ala Val Arg
530 535 540

Lys Asp Gly Glu Phe Ile Glu Asn Leu Gly Val Ala Pro His Ile Asp
545 550 555 560

Leu Gly Phe Thr Ser Arg Asp Leu Gln Thr Ser Arg Phe Thr Asp Tyr
565 570 575

Val Glu Ala Val Lys Thr Ile Val Leu Thr Ser Leu Ser Glu Asn Ala
580 585 590

Lys Lys Ser Glu Glu Gln Thr Ser Pro Gln Glu Thr Pro Glu Val Ile
595 600 605

Arg Val Ser Tyr Pro Thr Thr Thr Ser Ala Ser
610 615

<210> 4

<210>	4
<211>	973

<211>	575
<212>	PRT

<213> Chlamydia pneumoniae

<400> 4

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

Cys Phe Ala Ser Thr Ala Phe Thr Val Glu Val Ile Met Pro Ser Glu
20 25 30

Asn Phe Asp Gly Ser Ser Gly Lys Ile Phe Pro Tyr Thr Thr Leu Ser
35 40 45

Asp Pro Arg Gly Thr Leu Cys Ile Phe Ser Gly Asp Leu Tyr Ile Ala
50 55 60

Asn Leu Asp Asn Ala Ile Ser Arg Thr Ser Ser Ser Cys Phe Ser Asn
65 70 75 80

Arg Ala Gly Ala Leu Gln Ile Leu Gly Lys Gly Gly Val Phe Ser Phe
85 90 95

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

Thr Gln Asn Pro Glu Leu Cys Pro Leu Ser Phe Ser Gly Phe Ser Gln
115 120 125

Met Ile Phe Asp Asn Cys Glu Ser Leu Thr Ser Asp Thr Ser Ala Ser
130 135 140

Asn Val Ile Pro His Ala Ser Ala Ile Tyr Ala Thr Thr Pro Met Leu
145 150 155 160

Phe Thr Asn Asn Asp Ser Ile Leu Phe Gln Tyr Asn Arg Ser Ala Gly
165 170 175

Phe Gly Ala Ala Ile Arg Gly Thr Ser Ile Thr Ile Glu Asn Thr Lys

P116908WO ST25
185

180

190

Lys Ser Leu₁₉₅ Leu Phe Asn Gly Asn₂₀₀ Gly Ser Ile Ser Asn₂₀₅ Gly Gly Ala
 Leu Thr₂₁₀ Gly Ser Ala Ala Ile₂₁₅ Asn Leu Ile Asn₂₂₀ Asn Ser Ala Pro Val
 Ile₂₂₅ Phe Ser Thr Asn Ala₂₃₀ Thr Gly Ile Tyr Gly₂₃₅ Gly Ala Ile Tyr Leu₂₄₀
 Thr Gly Gly Ser Met₂₄₅ Leu Thr Ser Gly Asn₂₅₀ Leu Ser Gly Val Leu₂₅₅ Phe
 Val Asn Asn Ser₂₆₀ Ser Arg Ser Gly Gly₂₆₅ Ala Ile Tyr Ala Asn₂₇₀ Gly Asn
 Val Thr Phe₂₇₅ Ser Asn Asn Ser Asp₂₈₀ Leu Thr Phe Gln Asn₂₈₅ Asn Thr Ala
 Ser Pro₂₉₀ Gln Asn Ser Leu Pro₂₉₅ Ala Pro Thr Pro₃₀₀ Pro Thr Pro Pro
 Ala Val Thr Pro Leu Leu₃₁₀ Gly Tyr Gly Gly Ala₃₁₅ Ile Phe Cys Thr Pro₃₂₀
 Pro Ala Thr Pro Pro₃₂₅ Pro Thr Gly Val Ser₃₃₀ Leu Thr Ile Ser Gly₃₃₅ Glu
 Asn Ser Val Thr₃₄₀ Phe Leu Glu Asn Ile₃₄₅ Ala Ser Glu Gln Gly₃₅₀ Gly Ala
 Leu Tyr Gly₃₅₅ Lys Lys Ile Ser Ile₃₆₀ Asp Ser Asn Lys Ser₃₆₅ Thr Ile Phe
 Leu Gly₃₇₀ Asn Thr Ala Gly Lys₃₇₅ Gly Gly Ala Ile Ala₃₈₀ Ile Pro Glu Ser
 Gly₃₈₅ Glu Leu Ser Leu Ser₃₉₀ Ala Asn Gln Gly Asp₃₉₅ Ile Leu Phe Asn Lys₄₀₀
 Asn Leu Ser Ile Thr₄₀₅ Ser Gly Thr Pro Thr₄₁₀ Arg Asn Ser Ile His₄₁₅ Phe
 Gly Lys Asp Ala₄₂₀ Lys Phe Ala Thr Leu₄₂₅ Gly Ala Thr Gln Gly₄₃₀ Tyr Thr
 Leu Tyr Phe₄₃₅ Tyr Asp Pro Ile Thr₄₄₀ Ser Asp Asp Leu Ser₄₄₅ Ala Ala Ser
 Ala Ala Ala Thr Val Val Val Asn Pro Lys Ala Ser Ala Asp Gly Ala

P116908wo ST25
460

450

455

Tyr Ser Gly Thr Ile Val Phe Ser Gly Glu Thr Leu Thr Ala Thr Glu
465 470 475 480

Ala Ala Thr Pro Ala Asn Ala Thr Ser Thr Leu Asn Gln Lys Leu Glu
485 490 495

Leu Glu Gly Gly Thr Leu Ala Leu Arg Asn Gly Ala Thr Leu Asn Val
500 505 510

His Asn Phe Thr Gln Asp Glu Lys Ser Val Val Ile Met Asp Ala Gly
515 520 525

Thr Thr Leu Ala Thr Thr Asn Gly Ala Asn Asn Thr Asp Gly Ala Ile
530 535 540

Thr Leu Asn Lys Leu Val Ile Asn Leu Asp Ser Leu Asp Gly Thr Lys
545 550 555 560

Ala Ala Val Val Asn Val Gln Ser Thr Asn Gly Ala Leu Thr Ile Ser
565 570 575

Gly Thr Leu Gly Leu Val Lys Asn Ser Gln Asp Cys Cys Asp Asn His
580 585 590

Gly Met Phe Asn Lys Asp Leu Gln Gln Val Pro Ile Leu Glu Leu Lys
595 600 605

Ala Thr Ser Asn Thr Val Thr Thr Thr Asp Phe Ser Leu Gly Thr Asn
610 615 620

Gly Tyr Gln Gln Ser Pro Tyr Gly Tyr Gln Gly Thr Trp Glu Phe Thr
625 630 635 640

Ile Asp Thr Thr Thr His Thr Val Thr Gly Asn Trp Lys Lys Thr Gly
645 650 655

Tyr Leu Pro His Pro Glu Arg Leu Ala Pro Leu Ile Pro Asn Ser Leu
660 665 670

Trp Ala Asn Val Ile Asp Leu Arg Ala Val Ser Gln Ala Ser Ala Ala
675 680 685

Asp Gly Glu Asp Val Pro Gly Lys Gln Leu Ser Ile Thr Gly Ile Thr
690 695 700

Asn Phe Phe His Ala Asn His Thr Gly Asp Ala Arg Ser Tyr Arg His
705 710 715 720

Met Gly Gly Gly Tyr Leu Ile Asn Thr Tyr Thr Arg Ile Thr Pro Asp

P116908WO ST25

725

730

735

Ala Ala Leu Ser Leu Gly Phe Gly Gln Leu Phe Thr Lys Ser Lys Asp
740 745 750

Tyr Leu Val Gly His Gly His Ser Asn Val Tyr Phe Ala Thr Val Tyr
755 760 765

Ser Asn Ile Thr Lys Ser Leu Phe Gly Ser Ser Arg Phe Phe Ser Gly
770 775 780

Gly Thr Ser Arg Val Thr Tyr Ser Arg Ser Asn Glu Lys Val Lys Thr
785 790 795 800

Ser Tyr Thr Lys Leu Pro Lys Gly Arg Cys Ser Trp Ser Asn Asn Cys
805 810 815

Trp Leu Gly Glu Leu Glu Gly Asn Leu Pro Ile Thr Leu Ser Ser Arg
820 825 830

Ile Leu Asn Leu Lys Gln Ile Ile Pro Phe Val Lys Ala Glu Val Ala
835 840 845

Tyr Ala Thr His Gly Gly Ile Gln Glu Asn Thr Pro Glu Gly Arg Ile
850 855 860

Phe Gly His Gly His Leu Leu Asn Val Ala Val Pro Val Gly Val Arg
865 870 875 880

Phe Gly Lys Asn Ser His Asn Arg Pro Asp Phe Tyr Thr Ile Ile Val
885 890 895

Ala Tyr Ala Pro Asp Val Tyr Arg His Asn Pro Asp Cys Asp Thr Thr
900 905 910

Leu Pro Ile Asn Gly Ala Thr Trp Thr Ser Ile Gly Asn Asn Leu Thr
915 920 925

Arg Ser Thr Leu Leu Val Gln Ala Ser Ser His Thr Ser Val Asn Asp
930 935 940

Val Leu Glu Ile Phe Gly His Cys Gly Cys Asp Ile Arg Arg Thr Ser
945 950 955 960

Arg Gln Tyr Thr Leu Asp Ile Gly Ser Lys Leu Arg Phe
965 970

<210> 5
<211> 389
<212> PRT
<213> Chlamydia pneumoniae

P116908WO ST25

<400> 5

```

Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Ser Ala Ala Phe Ala Gly
 1      5      10      15

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

Ser Leu Leu Ile Asp Gly Thr Ile Trp Glu Gly Ala Ala Gly Asp Pro
 35      40      45

Cys Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Leu Arg Ala Gly
 50      55      60

Phe Tyr Gly Asp Tyr Val Phe Asp Arg Ile Leu Lys Val Asp Ala Pro
 65      70      75      80

Lys Thr Phe Ser Met Gly Ala Lys Pro Thr Gly Ser Ala Ala Ala Asn
 85      90      95

Tyr Thr Thr Ala Val Asp Arg Pro Asn Pro Ala Tyr Asn Lys His Leu
100      105      110

His Asp Ala Glu Trp Phe Thr Asn Ala Gly Phe Ile Ala Leu Asn Ile
115      120      125

Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Asn Gly Tyr
130      135      140

Ile Arg Gly Asn Ser Thr Ala Phe Asn Leu Val Gly Leu Phe Gly Val
145      150      155      160

Lys Gly Thr Thr Val Asn Ala Asn Glu Leu Pro Asn Val Ser Leu Ser
165      170      175

Asn Gly Val Val Glu Leu Tyr Thr Asp Thr Ser Phe Ser Trp Ser Val
180      185      190

Gly Ala Arg Gly Ala Leu Trp Glu Cys Gly Cys Ala Thr Leu Gly Ala
195      200      205

Glu Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu Leu Asn Val
210      215      220

Ile Cys Asn Val Ser Gln Phe Ser Val Asn Lys Pro Lys Gly Tyr Lys
225      230      235      240

Gly Val Ala Phe Pro Leu Pro Thr Asp Ala Gly Val Ala Thr Ala Thr
245      250      255

Gly Thr Lys Ser Ala Thr Ile Asn Tyr His Glu Trp Gln Val Gly Ala
260      265      270

```

P116908wo ST25

Ser Leu Ser Tyr Arg Leu Asn Ser Leu Val Pro Tyr Ile Gly Val Gln
275 280 285

Trp Ser Arg Ala Thr Phe Asp Ala Asp Asn Ile Arg Ile Ala Gln Pro
290 295 300

Lys Leu Pro Thr Ala Val Leu Asn Leu Thr Ala Trp Asn Pro Ser Leu
305 310 315 320

Leu Gly Asn Ala Thr Ala Leu Ser Thr Thr Asp Ser Phe Ser Asp Phe
325 330 335

Met Gln Ile Val Ser Cys Gln Ile Asn Lys Phe Lys Ser Arg Lys Ala
340 345 350

Cys Gly Val Thr Val Gly Ala Thr Leu Val Asp Ala Asp Lys Trp Ser
355 360 365

Leu Thr Ala Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His Val Ser
370 375 380

Gly Gln Phe Arg Phe
385

<210> 6
<211> 165
<212> PRT
<213> Chlamydia pneumoniae

<400> 6

Met Leu Tyr Trp Phe Leu Ser Pro Ile Met Gly Glu Asp Leu Met Ala
1 5 10 15

Gln Lys Glu Ile Val Ser Asn Arg Lys Ala Leu Arg Asn Tyr Glu Val
20 25 30

Ile Glu Thr Leu Glu Ala Gly Ile Val Leu Thr Gly Thr Glu Ile Lys
35 40 45

Ser Leu Arg Asp His Gly Gly Asn Leu Gly Asp Ala Tyr Val Ile Val
50 55 60

Ser Lys Gly Glu Gly Trp Leu Leu Asn Ala Ser Ile Ala Pro Tyr Arg
65 70 75 80

Phe Gly Asn Ile Tyr Asn His Glu Glu Arg Arg Lys Arg Lys Leu Leu
85 90 95

Leu His Arg Tyr Glu Leu Arg Lys Leu Glu Gly Lys Ile Ala Gln Lys
100 105 110

P116908WO ST25

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

Lys Val Arg Leu Gly Cys Cys Arg Gly Lys Lys Ala Tyr Asp Lys Arg
130 135 140

Arg Thr Ile Ile Glu Arg Glu Lys Glu Arg Glu Val Ala Ala Ala Met
145 150 155 160

Lys Arg Arg His His
165

<210> 7
<211> 22
<212> PRT
<213> Artificial

<220>
<223> 5' PCR oligonucleotide

<400> 7

Gly Thr Gly Cys Ala Thr Ala Thr Gly Ala Cys Ala Ala Ala Ala Ala
1 5 10 15

Cys Cys Gly Ala Ala Gly
20

<210> 8
<211> 25
<212> PRT
<213> Artificial

<220>
<223> 3' PCR oligonucleotide

<400> 8

Gly Cys Thr Gly Gly Ala Thr Cys Cys Ala Cys Thr Ala Ala Ala Ala
1 5 10 15

Ala Gly Cys Ala Gly Gly Thr Ala Gly
20 25

<210> 9
<211> 20
<212> PRT
<213> Artificial

<220>
<223> 5' PCR oligonucleotide

<400> 9

Gly Gly Ala Gly Gly Cys Ala Thr Ala Thr Gly Gly Cys Ala Gly Cys
1 5 10 15

Ala Thr Cys Ala

20

<210> 10
 <211> 28
 <212> PRT
 <213> Artificial

<220>
 <223> 3' PCR oligonucleotide

<400> 10

Cys Ala Cys Ala Gly Gly Ala Thr Cys Cys Gly Thr Ala Thr Thr Gly
 1 5 10 15

Gly Thr Thr Thr Thr Gly Cys Ala Thr Gly Gly Cys
 20 25

<210> 11
 <211> 231
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 11

Met Ser Lys Pro Ser Pro Arg Asn Ala Asn Gln Pro Gln Lys Pro Ser
 1 5 10 15

Ala Ser Phe Asn Lys Lys Thr Arg Ser Arg Leu Ala Glu Leu Ala Ala
 20 25 30

Gln Lys Lys Ala Lys Ala Asp Asp Leu Glu Gln Val His Pro Val Pro
 35 40 45

Thr Glu Glu Glu Ile Lys Lys Ala Leu Gly Asn Ile Phe Glu Gly Leu
 50 55 60

Ser Asn Gly Leu Asp Leu Gln Gln Ile Leu Gly Leu Ser Asp Tyr Leu
 65 70 75 80

Leu Glu Glu Ile Tyr Thr Val Ala Tyr Thr Phe Tyr Ser Gln Gly Lys
 85 90 95

Tyr Asn Glu Ala Val Gly Leu Phe Gln Leu Leu Ala Ala Ala Gln Pro
 100 105 110

Gln Asn Tyr Lys Tyr Met Leu Gly Leu Ser Ser Cys Tyr His Gln Leu
 115 120 125

His Leu Tyr Asn Glu Ala Ala Phe Gly Phe Phe Leu Ala Phe Asp Ala
 130 135 140

Gln Pro Asp Asn Pro Ile Pro Pro Tyr Tyr Ile Ala Asp Ser Leu Leu
 145 150 155 160

P116908wo ST25

Lys Leu Gln Gln Pro Glu Glu Ser Asn Asn Phe Leu Asp Val Thr Met
165 170 175

Asp Ile Cys Gly Asn Asn Pro Glu Phe Lys Ile Leu Lys Glu Arg Cys
180 185 190

Gln Ile Met Lys Gln Ser Ile Glu Lys Gln Met Ala Gly Glu Thr Lys
195 200 205

Lys Ala Pro Thr Lys Lys Pro Ala Gly Lys Ser Lys Thr Thr Thr Asn
210 215 220

Lys Lys Ser Gly Lys Lys Arg
225 230

<210> 12
<211> 172
<212> PRT
<213> Chlamydia pneumoniae
<400> 12

Met Ser His Leu Asn Tyr Leu Leu Glu Lys Ile Ala Ala Ser Ser Lys
1 5 10 15

Glu Asp Phe Pro Phe Pro Asp Asp Leu Glu Ser Tyr Leu Glu Gly Tyr
20 25 30

Val Pro Asp Lys Asn Ile Ala Leu Asp Thr Tyr Gln Lys Ile Phe Lys
35 40 45

Ile Ser Ser Glu Asp Leu Glu Lys Val Tyr Lys Glu Gly Tyr His Ala
50 55 60

Tyr Leu Asp Lys Asp Tyr Ala Lys Ser Ile Thr Val Phe Arg Trp Leu
65 70 75 80

Val Phe Phe Asn Pro Phe Val Ser Lys Phe Trp Phe Ser Leu Gly Ala
85 90 95

Ser Leu His Met Ser Glu Gln Tyr Ser Gln Ala Leu His Ala Tyr Gly
100 105 110

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

Tyr Ile Cys Tyr Thr Leu Thr Asn Glu His Glu Glu Ala Glu Lys Ala
130 135 140

Leu Glu Met Ala Trp Val Arg Ala Gln His Lys Pro Leu Tyr Asn Glu
145 150 155 160

Leu Lys Glu Glu Ile Leu Asp Ile Arg Lys His Lys
Page 15

165

P116908wo ST25
170

<210> 13
 <211> 556
 <212> PRT
 <213> *Chlamydia pneumoniae*

<400> 13

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

Met Ala Ser Cys Phe Ala Ser Gly Gly Ile Glu Ala Ala Val Ala Glu
 20 25 30

Ser Leu Ile Thr Lys Ile Val Ala Ser Ala Glu Thr Lys Pro Ala Pro
 35 40 45

Val Pro Met Thr Ala Lys Lys Val Arg Leu Val Arg Arg Asn Lys Gln
 50 55 60

Pro Val Glu Gln Lys Ser Arg Gly Ala Phe Cys Asp Lys Glu Phe Tyr
 65 70 75 80

Pro Cys Glu Glu Gly Arg Cys Gln Pro Val Glu Ala Gln Gln Glu Ser
 85 90 95

Cys Tyr Gly Arg Leu Tyr Ser Val Lys Val Asn Asp Asp Cys Asn Val
 100 105 110

Glu Ile Cys Gln Ser Val Pro Glu Tyr Ala Thr Val Gly Ser Pro Tyr
 115 120 125

Pro Ile Glu Ile Leu Ala Ile Gly Lys Lys Asp Cys Val Asp Val Val
 130 135 140

Ile Thr Gln Gln Leu Pro Cys Glu Ala Glu Phe Val Ser Ser Asp Pro
 145 150 155 160

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

Leu Gly Ala Gly Asp Lys Cys Lys Ile Thr Val Trp Val Lys Pro Leu
 180 185 190

Lys Glu Gly Cys Cys Phe Thr Ala Ala Thr Val Cys Ala Cys Pro Glu
 195 200 205

Leu Arg Ser Tyr Thr Lys Cys Gly Gln Pro Ala Ile Cys Ile Lys Gln
 210 215 220

Glu Gly Pro Asp Cys Ala Cys Leu Arg Cys Pro Val Cys Tyr Lys Ile
 225 230 235 240

P116908WO ST25

Glu	Val	Val	Asn	Thr	Gly	Ser	Ala	Ile	Ala	Arg	Asn	Val	Thr	Val	Asp
			245					250						255	
Asn	Pro	Val	Pro	Asp	Gly	Tyr	Ser	His	Ala	Ser	Gly	Gln	Arg	Val	Leu
			260					265					270		
Ser	Phe	Asn	Leu	Gly	Asp	Met	Arg	Pro	Gly	Asp	Lys	Lys	Val	Phe	Thr
		275					280					285			
Val	Glu	Phe	Cys	Pro	Gln	Arg	Arg	Gly	Gln	Ile	Thr	Asn	Val	Ala	Thr
	290					295					300				
Val	Thr	Tyr	Cys	Gly	Gly	His	Lys	Cys	Ser	Ala	Asn	Val	Thr	Thr	Val
305					310					315					320
Val	Asn	Glu	Pro	Cys	Val	Gln	Val	Asn	Ile	Ser	Gly	Ala	Asp	Trp	Ser
				325					330					335	
Tyr	Val	Cys	Lys	Pro	Val	Glu	Tyr	Ser	Ile	Ser	Val	Ser	Asn	Pro	Gly
			340					345					350		
Asp	Leu	Val	Leu	His	Asp	Val	Val	Ile	Gln	Asp	Thr	Leu	Pro	Ser	Gly
		355					360					365			
Val	Thr	Val	Leu	Glu	Ala	Pro	Gly	Gly	Glu	Ile	Cys	Cys	Asn	Lys	Val
	370					375					380				
Val	Trp	Arg	Ile	Lys	Glu	Met	Cys	Pro	Gly	Glu	Thr	Leu	Gln	Phe	Lys
385					390					395					400
Leu	Val	Val	Lys	Ala	Gln	Val	Pro	Gly	Arg	Phe	Ile	Asn	Gln	Val	Ala
				405					410					415	
Val	Thr	Ser	Glu	Ser	Asn	Cys	Gly	Thr	Cys	Thr	Ser	Cys	Ala	Glu	Thr
			420					425					430		
Thr	Thr	His	Trp	Lys	Gly	Leu	Ala	Ala	Thr	His	Met	Cys	Val	Leu	Asp
		435					440					445			
Thr	Asn	Asp	Pro	Ile	Cys	Val	Gly	Glu	Asn	Thr	Val	Tyr	Arg	Ile	Cys
	450					455					460				
Val	Thr	Asn	Arg	Gly	Ser	Ala	Glu	Asp	Thr	Asn	Val	Ser	Leu	Ile	Leu
465					470					475					480
Lys	Phe	Ser	Lys	Glu	Leu	Gln	Pro	Ile	Ala	Ser	Ser	Gly	Pro	Thr	Lys
				485					490					495	
Gly	Thr	Ile	Ser	Gly	Asn	Thr	Val	Val	Phe	Asp	Ala	Leu	Pro	Lys	Leu
			500					505					510		

P116908WO ST25

Gly Ser Lys Glu Ser Val Glu Phe Ser Val Thr Leu Lys Gly Ile Ala
515 520 525

Pro Gly Asp Ala Arg Gly Glu Ala Ile Leu Ser Ser Asp Thr Leu Thr
530 535 540

Ser Pro Val Ser Asp Thr Glu Asn Thr His Val Tyr
545 550 555

<210> 14

<211> 519

<212> PRT

<213> Chlamydia pneumoniae

<400> 14

Met Ser Glu Gln Glu Lys Leu Ser Asn Tyr Asn Ala Asp Lys Lys Leu
1 5 10 15

Phe Ser Gly Ile Asp Lys Leu Phe Gln Ile Val Lys Gly Ser Tyr Gly
20 25 30

Pro Lys Gln Ser Leu Ser Pro Thr Ser Phe Phe Lys Glu Arg Gly Phe
35 40 45

Tyr Ala Ile Ser Gln Thr Glu Leu Ser Asn Ser Tyr Glu Asn Leu Gly
50 55 60

Val Asp Phe Ala Lys Ala Met Val Asn Lys Ile His Lys Glu His Ser
65 70 75 80

Asp Gly Ala Thr Thr Gly Leu Ile Leu Leu His Ala Ile Leu Gln Glu
85 90 95

Ser Tyr Ala Ala Leu Glu Lys Gly Ile Ser Thr His Lys Leu Ile Ala
100 105 110

Ser Leu Lys Leu Gln Gly Glu Lys Leu Gln Glu Ala Leu Gln Gln Gln
115 120 125

Ser Trp Pro Ile Lys Asp Ala Leu Lys Val Arg Asn Ile Ile Phe Ser
130 135 140

Ser Leu His Met Pro Thr Ile Ala Asp His Phe Tyr Asn Ala Phe Ser
145 150 155 160

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

Asp Lys Thr Ser Met Asp Val Phe Gln Gly Phe Lys Ile Pro Ala Gly
180 185 190

P116908wo ST25

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

P116908wo ST25

Gly Ile Ser Val Phe Ser Arg Glu Ile Glu Asp Leu Ile Ala Gly Gly
465 470 475 480

Ile Leu Asp Ser Leu Ala Thr Thr Ser Thr Ile Leu Ala Gln Ala Leu
485 490 495

Asp Thr Ala Ile Leu Val Leu Ser Ser Lys Ile Leu Ile Leu Glu Asn
500 505 510

Gln Tyr Glu Ile Ser Thr Leu
515

<210> 15
<211> 1200
<212> DNA
<213> Chlamydia pneumoniae

<400> 15
atggcagcat caggaggcac aggtggttta ggaggcactc aggggtgtcaa ccttgcagct 60
gtagaagctg cagctgcaaa agcagatgca gcagaagttg tagccagcca agaaggttct 120
gagatgaaca tgattcaaca atctcaggac ctgacaaatc ccgcagcagc aacacgcacg 180
aaaaaaaaagg aagagaagtt tcaaactcta gaatctcgga aaaaaggaga agctggaaag 240
gctgagaaaa aatctgaatc tacagaagag aagcctgaca cagatcttgc tgataagtat 300
gcttctggga attctgaaat ctctgggtcaa gaacttcgcg gcctgcgtga tgcaatagga 360
gacgatgctt ctccagaaga cattcttgct cttgtacaag agaaaattaa agaccagct 420
ctgcaatcca cagctttgga ctacctgggt caaacgactc caccctcca aggtaaatta 480
aaagaagcgc ttatccaagc aaggaatact catacggagc aattcggacg aactgctatt 540
ggcgcaaaaa acatcttatt tgcctctcaa gaatatgcag accaactgaa tgtttctcct 600
tcagggttc gctctttgta cttagaagtg actggagaca cacatactg tgatcagcta 660
ctttctatgc ttcaagaccg ctatacctac caagatatgg ctattgtcag ctcttttcta 720
atgaaaggaa tggcaacaga attaaaaagg cagggtccct acgtaccag tgcgcaacta 780
caagttctca tgacagaaac tcgtaacctg caagcagttc ttacctcgta cgattacttt 840
gaaagtcgcg ttcctatctt actcgatagc ttaaaagctg agggaatcca aactccttct 900
gatctaaact ttgtgaaggt agctgagtc taccataaaa tcattaacga taagttccca 960
acagcatcta aagtagaacg agaagtccgc aatctcatag gagacgatgt tgattctgtg 1020
accggtgtct tgaacttatt cttttctgct ttacgtcaaa cgctgctcacg ctttttctct 1080
tcagcagaca aacgtcagca attaggagct atgattgcta atgctttaga tgctgtaa 1140
ataaacaatg aagattatcc caaagcatca gacttccta aaccctatcc ttggtcatga 1200

<210> 16
<211> 1548
<212> DNA
<213> Chlamydia pneumoniae

P116908WO ST25

```

<400> 16
atgacaaaaa ccgaagaaaa acccttttggga aaattgcgct ctttcttggtg gccgatacat    60
actcacgagc taaagaaagt tctgccaatg ttcctaattg tcttctgtat tacatttaac    120
tatacggtgt tacgcgatac aaaagacact cttattgttg gagctcctgg ttctggtgca    180
gaggcaatac ctttcatcaa gttttggctt gttgtcccct gtgctattat ctttatgctt    240
atztatgcaa agctaagtaa tattttaagt aagcaggcct tattttatgc agtgggaaacg    300
ccctttttta ttttctttgc cctgttcccc actgtaattt atccgctacg cgatgtttta    360
catcctacag aatttgctga ccgtttacag gccatcctac ctccaggatt gctaggactc    420
gttgccatct taagaaactg gacatttgct gcattttatg tacttgctga actatgggga    480
agcgtcatgc tatctctaata gttctgggga tttgctaata aaattacaaa aatccacgaa    540
gcaaagcgtt tctacgctct tttcggtatc ggagctaata tttctttact agcttctggt    600
cgtgcaattg tttgggcttc aaagttgaga gcttccgttt ctgaagggtg agatccttgg    660
ggaatttctt tacgtctttt gatggctatg actattgtat ctggacttgt tcttatggcc    720
agttactggt ggatcaataa gaacgtattg accgatcctc gcttctataa tccagaagaa    780
atgcaaaaag ggaaaaaagg tgctaaacct aaaatgaata tgaaagatag cttcctctat    840
cttgctagat ctctttatat tcttttatta gctctcttgg ttattgccta tggattttgc    900
attaacttaa tcgaagtgc ttggaaaagt cagctgaaac tgcaatatcc taatatgaat    960
gactatagtg agttcatggg gaacttctcc ttctggactg gcgtagtatc cgtacttatc   1020
atgctatttg ttggtggtaa cgtcattcgt aaatttggat ggtaactgg agccctagtc   1080
actcctgtca tggttctcct aacaggatc gttttcttcg ctcttggtat ctttagaaac   1140
caagcttctg ggctggctgc tatgttcggt acaactcctc tcatgctagc tgtggttgtc   1200
ggagctatac agaataattct ttcgaaatcc acaaaatacg ctctctttga ctcaactaaa   1260
gaaatggcct atatccctct tgaccaagag caaaaagtca aaggtaaggc tgctattgat   1320
gtagtgtctg cccgcttcgg aaaatcagga ggagctttta tccaacaagg tttgctcggt   1380
atctgtggaa gtattggagc tatgacctt tatcttgagc tgattcttct tttcatcatt   1440
gctatttggg ttggtttctgc aactaagtta acaaaactat tcttagcgca gtctgctctt   1500
aaagaacaag aagtggctca agaagattca gctcctgctt cttcatag    1548

```

```

<210> 17
<211> 1860
<212> DNA
<213> Chlamydia pneumoniae

```

```

<400> 17
atgaaaaaag ggaaattagg agccatagtt tttggccttc tatttacaag tagtggtgct    60
ggtttttcta aggatttgac taaagacaac gcttatcaag atttaaattg catagagcat    120
ttaatatcgt taaaatatgc tcctttacca tggaaggaaac tattatttgg ttgggattta    180
tctcagcaaa cacagcaagc tcgcttgcaa ctggtcttag aagaaaaacc aacaaccaac    240

```

P116908wo ST25

tactgccaga aggtactctc taactacgtg agatcattaa acgattatca tgcagggatt	300
acgtttttatc gtactgaaag tgcgtatatc ccttacgtat tgaagttaag tgaagatggt	360
catgtctttg tagtcgacgt acagactagc caaggggata tttacttagg ggatgaaatc	420
cttgaagtag atggaatggg gattcgtgag gctatcgaaa gccttcgctt tggacgaggg	480
agtgccacag actattctgc tgcagttcgt tccttgacat cgcgttccgc cgcttttgga	540
gatgcggttc cttcaggaat tgccatgttg aaacttcgcc gaccagtggt tttgatccgt	600
tcgacaccgg tccgttggcg ttatactcca gagcatatcg gagatttttc tttagttgct	660
cctttgattc ctgaacataa acctcaatta cctacacaaa gttgtgtgct attccgttcc	720
ggggtaaatt cacagtcttc tagtagctct ttattcagtt cctacatggt gccttatttc	780
tgggaagaat tgcgggttca aaataagcag cgttttgaca gtaatcacca tatagggagc	840
cgtaatggat ttttacctac gtttggctct attctttggg aacaagacaa ggggccctat	900
cgttcctata tctttaaagc aaaagattct cagggcaatc cccatcgcat aggattttta	960
agaatttctt cttatgtttg gactgattta gaaggacttg aagaggatca taaggatagt	1020
ccttggggagc tctttggaga gatcatcgat catttggaaa aagagactga tgctttgatt	1080
attgatcaga cccataatcc tggaggcagt gttttctatc tctattcggt actatctatg	1140
ttacagatc atcctttaga tactcctaaa catagaatga ttttactca ggatgaagtc	1200
agctcggctt tgcactggca agatctacta gaagatgtct tcacagatga gcaggcagtt	1260
gccgtgctag gggaaactat ggaaggatat tgcattggata tgcattgctgt agcctctctt	1320
caaaacttct ctcagagtgt cctttcttcc tgggtttcag gtgatattaa cctttcaaaa	1380
cctatgcctt tgctaggatt tgcacagggt cgacctcatc ctacacatca atatactaaa	1440
cctttgttta tgttgataga cgaggatgac ttctcttggt gagatttagc gcctgcaatt	1500
ttgaaggata atggccgcgc tactctcatt ggaaagccaa cagcaggagc tggaggtttt	1560
gtattccaag tcactttccc taaccgttct ggaattaaag gtctttcttt aacaggatct	1620
ttagctgtta ggaaagatgg tgagtttatt gaaaacttag gagtggctcc tcatattgat	1680
ttaggattta cctccagga tttgcaaact tccaggttta ctgattacgt tgaggcagtg	1740
aaaactatag ttttaacttc tttgtctgag aacgctaaga agagtgaaga gcagacttct	1800
ccgcaagaga cgctgaagt tattcgagtc tcttatccca caacgacttc tgcttcgtaa	1860

<210> 18

<211> 2922

<212> DNA

<213> Chlamydia pneumoniae

<400> 18

atgaaaacgt ctattcgtaa gttcttaatt tctaccacac tggcgccatg ttttgcttca	60
acagcgttta ctgtagaagt tatcatgcct tccgagaact ttgatggatc gagtgggaag	120
atttttcctt acacaacact ttctgatcct agagggacac tctgtatttt ttcaggggat	180

P116908wo ST25

ctctacattg	cgaatcttga	taatgccata	tccagaacct	cttccagttg	ctttagcaat	240
agggcgggag	cactacaaat	cttaggaaaa	ggtgggggtt	tctccttctt	aaatatccgt	300
tcttcagctg	acggagccgc	gattagtagt	gtaatcaccc	aaaatcctga	actatgtccc	360
ttgagttttt	caggatttag	tcagatgata	ttcgataact	gtgaatcttt	gacttcagat	420
acctcagcga	gtaatgtcat	acctcacgca	tcggcgattt	acgctacaac	gcccagctc	480
tttacaaca	atgactccat	actattccaa	tacaaccgtt	ctgcaggatt	tggagctgcc	540
attcgaggca	caagcatcac	aatagaaaa	acgaaaaaga	gccttctctt	taatggtaat	600
ggatccatct	ctaattggagg	ggccctcacg	ggatctgcag	cgatcaacct	catcaacaat	660
agcgctcctg	tgattttctc	aacgaatgct	acagggatct	atgggtggggc	tatttacctt	720
accggaggat	ctatgtctac	ctctgggaac	ctctcaggag	tcttgttcgt	taataatagc	780
tcgcgctcag	gaggcgctat	ctatgctaac	ggaaatgtca	cattttctaa	taacagcgac	840
ctgactttcc	aaaacaatac	agcatctcca	caaaactcct	tacctgcacc	tacacctcca	900
cctacaccac	cagcagtcac	tcctttgtta	ggatatggag	gcgccatctt	ctgtactcct	960
ccagctaccc	ccccaccaac	aggtgttagc	ctgactatat	ctggagaaaa	cagcgttaca	1020
ttcctagaaa	acattgcctc	cgaacaagga	ggagccctct	atggcaaaaa	gatctctata	1080
gattctaata	aatctacaat	atttcttggg	aatacagctg	gaaaaggagg	cgctattgct	1140
attcccgaat	ctggggagct	ctctctatcc	gcaaatcaag	gtgatatacct	ctttaacaag	1200
aacctcagca	tcactagtgg	gacacctact	cgcaatagta	ttcacttcgg	aaaagatgcc	1260
aagtttgcca	ctctaggagc	tacgcaaggc	tataccctat	acttctatga	tccgattaca	1320
tctgatgatt	tatctgctgc	atccgcagcc	gctactgtgg	tcgtcaatcc	caaagccagt	1380
gcagatggtg	cgtattcagg	gactattgtc	ttttcaggag	aaaccctcac	tgctaccgaa	1440
gcagcaaccc	ctgcaaatgc	tacatctaca	ttaaaccaaa	agctagaact	tgaaggcggt	1500
actctcgctt	taagaaacgg	tgctacctta	aatgttcata	acttcacgca	agatgaaaag	1560
tccgtcgta	tcattggatgc	agggaccaca	ttagcaacta	caaatggagc	taataatact	1620
gacggtgcta	tcaccttaaa	caagcttgta	atcaatctgg	attctttgga	tggcactaaa	1680
gcggctgtcg	ttaatgtgca	gagtaccaat	ggagctctca	ctatatccgg	aactttagga	1740
cttgtaaaaa	actctcaaga	ttgctgtgac	aaccacggga	tgtttaataa	agatttacag	1800
caagttccga	ttttagaact	caaagcgact	tcaaatactg	taaccactac	ggacttcagt	1860
ctcggcacia	acggctatca	gcaatctccc	tatgggtatc	aaggaaactg	ggagtttacc	1920
atagacacga	caaccatac	ggtcacagga	aattggaaaa	aaaccgggta	tcttcctcat	1980
ccggagcgtc	ttgctcccct	cattccta	at	agcctatggg	caaacgtcat	2040
gctgtaagtc	aagcgtcagc	agctgatggc	gaagatgtcc	ctgggaagca	actgagcatc	2100
acaggaatta	caaatttctt	ccatgcgaat	cataccggtg	atgcacgcag	ctaccgccat	2160
atgggtggag	gctacctcat	caatacctac	acacgcatca	ctccagatgc	tgcgtaagt	2220

P116908wo ST25

ctaggttttg gacagctggt tacaaaaatct aaggattacc tcgtaggtca cggtcattct	2280
aacgttttatt tcgctacagt atactctaac atcaccaagt ctctgtttgg atcatcgaga	2340
ttctttctcag gaggcacttc tcgagttacc tatagccgta gcaatgagaa agtaaagact	2400
tcatatacaa aattgcctaa agggcgctgc tcttgagta acaattgctg gttaggagaa	2460
ctcgaaggga accttcccat cactctctct tctcgcatt taaacctcaa gcagatcatt	2520
ccctttgtaa aagctgaagt tgcttacgag actcatgggg gcatccaaga aaatacccct	2580
gaggggagga tttttggaca cggtcattct ctcaacgttg cagttcccgt aggcgtccgc	2640
tttggtaaaa atttctcataa tcgaccagat ttttacta taatcgtagc ctatgctcct	2700
gatgtctatc gtcacaatcc tgattgcgat acgacattac ctattaatgg agctacgtgg	2760
acctctatag ggaataatct aaccagaagt actttgctag tacaagcatc cagccatact	2820
tcagtaaatg atgttctaga gatcttcggg cactgtggat gtgatattcg cagaacctcc	2880
cgtcaatata ctctagatat aggaagcaaa ttacgatttt aa	2922

<210> 19
 <211> 1170
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 19	
atgaaaaaac tcttaaagtc ggcgttatta tccgccgcat ttgctgggtc tgcggctcc	60
ttacaagcct tgctgttagg gaacccttct gatccaagct tattaattga tggtaacaata	120
tgggaagggtg ctgcaggaga tccttgcat ccttgcgcta cttggtgca cgctattagc	180
ttacgtgctg gattttacgg agactatggt ttcgaccgta tcttaaaagt agatgcacct	240
aaaacatttt ctatgggagc caagcctact ggatccgctg ctgcaaacta tactactgcc	300
gtagatagac ctaaccggc ctacaataag ctttacacg atgcagagtg gttcactaat	360
gcaggcttca ttgccttaaa ctttgggat cgctttgatg ttttctgtac tttaggagct	420
tctaattggtt acattagagg aaactctaca gcgttcaatc tcgttggttt attcggagtt	480
aaaggtaacta ctgtaaatgc aaatgaacta ccaaagctt cttaagtaa cggagttggt	540
gaactttaca cagacacctc tttctcttgg agcgtaggcg ctcgtggagc cttatgggaa	600
tgcggttggtg caactttggg agctgaattc caatatgcac agtccaaacc taaagttgaa	660
gaacttaatg tgatctgtaa cgtatcgcaa ttctctgtaa acaaaccctaa gggctataaa	720
ggcgttgctt tccccttgcc aacagacgct ggcgtagcaa cagctactgg aacaaagtct	780
gcgaccatca attatcatga atggcaagta ggagcctctc tatcttacag actaaactct	840
ttagtcccat acattggagt acaatggtct cgagcaactt ttgatgctga taacatccgc	900
attgctcagc caaaactacc tacagctggt ttaaacttaa ctgcatggaa cccttcttta	960
ctaggaaatg ccacagcatt gtctactact gattcgttct cagacttcat gcaaattggt	1020
tcctgtcaga tcaacaagtt taaatctaga aaagcttgtg gagttactgt aggagctact	1080
ttagttgatg ctgataaatg gtcacttact gcagaagctc gtttaattaa cgagagagct	1140

P116908WO ST25

gctcacgtat ctggtcagtt cagattctaa 1170

<210> 20
<211> 498
<212> DNA
<213> Chlamydia pneumoniae

<400> 20
atgttatact ggTTTTTgtc cccaattatg ggggaggatc ttatggcaca aaaagaaatt 60
gtttctaatac gcaaggctct gcgtaactat gaagttatag agactttaga agcaggcatc 120
gttttgactg ggactgagat taagtcgttg cgcgatcatg ggggaaacct cggatgatgct 180
tatgtcattg tttctaaagg tgaggggtgg ttattaaacg cgagtattgc tccctatcgg 240
tttgaaaata tctataacca tgaggagcgt cgtaaacgta aactccttct tcatagatat 300
gaacttcgta agttagaggg taagattgct caaaagggca tgactttgat tcctctggga 360
atgttgctga gtcgcggtc tgtaaggta cgtttgggtt gttgtcgtgg gaaaaagct 420
tatgataagc gtcgtacgat catagaaaga gaaaaggaac gtgaagttgc cgctgctatg 480
aagaggcgcc atcattga 498

<210> 21
<211> 696
<212> DNA
<213> Chlamydia pneumoniae

<400> 21
atgagcaagc cctctcctcg taatgccaat caacctcaaa aaccttcagc ctctttcaat 60
aaaaaacgc gaagccgtct agcagagctg gctgctcaaa agaaagcaaa ggctgatgac 120
ttagaacaag tccatcccg acctacggaa gaagaaatta aaaaagcttt aggcaatatac 180
ttcgaaggct ttagcaatgg actagacct caacagattc taggtctctc ggactatctc 240
ttagaggaga tctatactgt agcttatata ttctattctc aagggaagta caacgaagct 300
gtaggactct tccagttatt ggcagcagca caacctcaga actacaagta tatgttaggg 360
ttaagctcct gctaccacca attgcattta tataatgaag cggcttttgg atttttcctt 420
gctttcgatg ctcaacctga caaccaatt cctccttact acattgctga tagcttattg 480
aagctacagc aaccgaaga atctaacaat ttcttagacg tcaccatgga tatctgtggg 540
aataaccag aattcaaaat cttaaagaa cgttgccaaa ttatgaaaca gtctattgag 600
aagcagatgg ctggagaaac taagaaagca cgcacaaaaa aacctgcggg aaaaagcaaa 660
acaactacaa ataagaaaag cggaaagaaa cgttag 696

<210> 22
<211> 519
<212> DNA
<213> Chlamydia pneumoniae

<400> 22
atgtcacatt taaattatct actagaaaa atcgctgcat cttccaagga agacttcctt 60

P116908wo ST25

ttcccagatg atttggaag ctatttggaa ggatatgtcc cggataaaaa tatagcttta	120
gatacctacc aaaagatctt caagatatcc tccgaggatc ttgaaaaagt atataaagag	180
ggttatcacg cctatctcga caaagactat gctaaaagca tcaccgtttt tcgctgggta	240
gttttcttca atccttttgt ctctaagttt tggttttctt taggtgcctc tctacatatg	300
tccgaacaat attcacaagc tttgcatgcc tatggagtca ctgcagtcct tcgagataaa	360
gatccctatc ctcattacta tgcctacata tgctatactc ttacaaatga acatgaagaa	420
gctgaaaaag ctttagaaat ggcgtgggta cgtgcacaac acaagcccct ctataatgaa	480
ttgaaagaag aaattctaga tattcgaaaa cataaataa	519

<210> 23
 <211> 1671
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 23

atgtccaaac tcatcagacg agtagttacg gtccttgctc taacgagtat ggcgagttgc	60
tttgccagcg ggggtataga ggccgctgta gcagagtctc tgattactaa gatcgctcgt	120
agtgcggaaa caaagccagc acctgttcct atgacagcga agaagggttag acttgctcgt	180
agaaataaac aaccagttga acaaaaaagc cgtggtgctt tttgtgataa agaattttat	240
ccctgtgaag agggacgatg tcaacctgta gaggctcagc aagagtcttg ctacggaaga	300
ttgtattctg taaaagtaaa cgatgattgc aacgtagaaa tttgccagtc cgttccagaa	360
tacgctactg taggatctcc ttaccctatt gaaatccttg ctataggcaa aaaagattgt	420
gttgatgttg tgattacaca acagctacct tgcaagctg aattcgtaag cagtgatcca	480
gaaacaactc ctacaagtga tgggaaatta gtctggaaaa tcgatcgctt gggcgcagga	540
gataaatgca aaattactgt atgggtaaaa cctcttaaag aagggtgctg cttcacagct	600
gctactgtat gtgcttgccc agagctccgt tcttatacta aatgcggtca accagccatt	660
tgtattaagc aagaaggacc tgactgtgct tgcctaagat gccctgtatg ctacaaaatc	720
gaagtagtga acacaggatc tgctattgcc cgtaacgtaa ctgtagataa tcctgttccc	780
gatggctatt ctcatgcatc tggtaaaaga gttctctctt ttaacttagg agacatgaga	840
cctggcgata aaaaggtatt tacagttgag ttctgccctc aaagaagagg tcaaatcact	900
aacgttgcta ctgtaactta ctgcggtgga cacaatgtt ctgcaaattg aactacagtt	960
gttaatgagc cttgtgtaca agtaaatatc tctgggtgctg attgggtctta cgtatgtaaa	1020
cctgtggagt actctatctc agtatcgaat cctgggagact tggttcttca tgatgtcgtg	1080
atccaagata cactcccttc tgggtgtaca gtactcgaag ctcttggtgg agagatctgc	1140
tgtaataaaag ttgtttggcg tattaagaa atgtgcccag gagaaaccct ccagtttaaa	1200
cttgtagtga aagctcaagt tcctggaaga ttcataaatc aagttgcagt aactagttag	1260
tctaactgcg gaacatgtac atcttgcgca gaaacaacaa cacattggaa aggtcttgca	1320
gctaccata tgtgcgtatt agacacaaat gatcctatct gtgtaggaga aaatactgtc	1380

P116908wo ST25

tatcgtatct gtgtaactaa ccgtgggttct gctgaagata ctaacgtatc tttaatcttg	1440
aagtttctcaa aagaacttca gccaatagct tcttcaggtc caactaaagg aacgatttca	1500
ggtaataaccg ttgttttcga cgctttacct aaactcgggt ctaaggaatc tgtagagttt	1560
tctgttacct tgaaaggtat tgctcccgga gatgctcgcg gcgaagctat tctttcttct	1620
gatacactga cttcaccagt atcagacaca gaaaataccc acgtgtatta a	1671

<210> 24
 <211> 1560
 <212> DNA
 <213> Chlamydia pneumoniae

<400> 24 atgtccgaac aggaaaaatt atctaattac aatgctgata aaaaactttt ttcagggata	60
gataaacttt tccagatagt aaagggatcg tatgggtcca agcaatccct ctccccaact	120
tctttcttta aagagcgtgg cttctacgt atttcacaaa cagaactttc gaattcctat	180
gaaaatctcg gtgtagatth tgcgaaagct atgggtgaata aaattcataa ggaacacagc	240
gacggcgcga ctactggact tattttactc catgcaattt tacaggaaag ctatgcagct	300
ttagaaaagg gaatctccac acacaagctc attgcctctt taaaattgca gggagaaaag	360
cttcaggaag ctttacaaca acaatcttgg cctattaaag atgctctaaa agttcgcaat	420
attatttttt cttctctaca catgcccacc attgccgatc atttttataa tgctttttct	480
gtggtaggcc ctgaggggtct tatctccatc actaaggaga gagaaaacga caaaacttcc	540
atggatgtct ttcaaggatt taaaattcct gcaggggatg cttcgacgta tttgtttct	600
gatacagcgt ctgctctaac tagaattgct catcctctaa ttctgatcac agatagaaag	660
atctctatga ttcactcctt acttccccta ctccaagaaa tttcagaaca aaaccagcac	720
ctcatcattt tctgtgaaga tatcgatcca gacgtacttg ctacccttgt tgtaacaaa	780
ttgcaagggc tcttgcaagt aactgtagtc accattcttc aactctctac tacaatcaa	840
gaattagccg aggatattgc tttatttact gggaccaca tttgtccttg ccaagaagca	900
tctcatgttt tagctcctga gatgggtcact ttagggtcct gtctatctat agaaatctca	960
gagtcacaaa cgacactcat tggaggccta catatcccgg aagtcctgac cttaaagacg	1020
cgacaattag cagaagaaat acgcacgacc tcatgccttg aaacaaaaaa aaggctaatac	1080
aaaagcacia atagggtcca aagttcggta gccattcttc ctactgatga agataacgaa	1140
cctttatata ccctcgtctt taagattatg gaatctgctt taagtcgtgg gtatgttcct	1200
ggaggaggcg ttgcattggt ctatgcatct ttaacttttag ggactcctaa agatgatgct	1260
gatgagaata gtattgcaat ttctctctta cagaaggcct gttgtgctcc tctgaagctc	1320
ttggcaacca atgcagactt ggatggggat gccgtgattg ctaagctctc ctacttgga	1380
acaacaagcc taggaatcag tgtgttttct agagaaattg aagatcttat tgctggtgga	1440
atcttagatt cgttagctac gacatctaca atcctagccc aagccttaga tacagcgatt	1500

P116908WO ST25
ctcgttctct cttctaaaat tttaatttta gaaaatcaat atgagatttc tacgctctga 1560