

SEQUENCE LISTING

<110> Henkel KGaA
 <120> Mittel enthaltend Proteasen aus *Stenotrophomonas maltophilia*
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 Gly Ala Ser Val Leu Ser Ser Leu Leu Leu Ala Thr Pro Ala Leu Ala
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 Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg
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 Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Ala Val Ala Asn Thr Thr
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 gcg ctg gct tcg tcg ctg aag acg gcc gcc gct ggc ctg gcc agc agc 240
 Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Leu Ala Ser Ser
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 Gln Gly Arg Ala Leu Gly Leu Gln Glu Val Arg Lys Leu Ala Val Gly
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 ccg acc ctg gtc aag acc gac cgt ccg ctc gac cag gcc gaa tcc gag 336
 Pro Thr Leu Val Lys Thr Asp Arg Pro Leu Asp Gln Ala Glu Ser Glu
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1743

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 35 40 45

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

Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
 130 135 140

Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Gly Ile Asn Ile Arg
 145 150 155 160

Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175

Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro
 180 185 190

Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly
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Arg Asp Asn Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Ala Asn Glu
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Cys Gly Ser Gly Ile Pro Ala Ser Asn Ser Ser Trp His Gly Thr His
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Val Ala Gly Thr Val Ala Ala Val Thr Asn Asn Ser Thr Gly Val Ala
 245 250 255

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
 260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
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Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
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Ile Asn Leu Ser Leu Gly Gly Gly Gly Ser Cys Ser Thr Thr Tyr Gln
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Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
 325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
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Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
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Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
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Ser Ile Leu Ser Thr Leu Asn Thr Gly Thr Thr Thr Pro Gly Ser Ala
 385 390 395 400

Thr Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
 405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
 420 425 430

Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
 435 440 445

Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asn Ala Ala
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Val Ala Ala Ala Ile Asn Gly Gly Gly Asn Pro Asn Pro Gly Gly Asn
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Val Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Thr Gly
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Ala Glu Leu Asn Tyr Thr Val Ala Val Pro Ala Gly Ser Thr Gln Leu
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Gln Gly Ser Ala Pro Thr Asp Thr Thr Tyr Thr Cys Arg Pro Tyr Leu
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Asn Ala Gln Tyr
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Ile Ile Val Lys Tyr Arg Ala Gly Ser Ala Ala Ala Gly Asp Arg Ser
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Ala Lys Leu Ser Thr Val Gln Ser Ala Leu Thr Arg Ala Ser Leu Ala
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Gly Gly Thr Ala Arg Ala Ser Thr Leu Gly Pro Gln Val Val Arg Arg
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Leu Gly Val Gly Ala Asp Val Ile Arg Leu Gln Gly Arg Leu Ala Pro
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Ala Glu Leu Gln Arg Val Leu Lys Glu Leu Lys Ala Asp Pro Ala Val
115 120 125

Gln Tyr Ala Glu Ala Asp Val Lys Leu Arg Arg Ser Glu Leu Arg Ala
130 135 140

Gly Asp Val Gln Pro Ala Leu Ala Pro Asn Asp Pro Tyr Tyr Gln Gln
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Tyr Gln Trp His Leu His Asn Ala Thr Gly Gly Ile Asn Ala Pro Ser
165 170 175

Ala Trp Asp Val Ser Gln Gly Glu Gly Val Val Val Ala Val Leu Asp
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Thr Gly Ile Leu Pro Gln His Pro Asp Leu Val Gly Asn Leu Leu Glu
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Gly Tyr Asp Phe Ile Ser Asp Ala Glu Thr Ser Arg Arg Ala Thr Asn
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225 230 235 240

Asn Glu Cys Tyr Thr Gly Ser Val Ala Glu Asp Ser Ser Trp His Gly
 245 250 255

Thr His Val Ala Gly Thr Val Ala Glu Gln Thr Asn Asn Gly Val Gly
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Met Ala Gly Val Ala His Lys Ala Lys Val Leu Pro Val Arg Val Leu
 275 280 285

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

Glu Val Ile Asn Met Ser Leu Gly Gly Ser Gly Ser Cys Asp Gly Thr
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Tyr Gln Asp Ala Ile Asn Gly Ala Ile Ser Arg Gly Thr Thr Val Val
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Val Ala Ala Gly Asn Glu Thr Asp Asn Ala Ser Lys Tyr Arg Pro Ala
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Ser Cys Asp Gly Val Val Thr Val Gly Ala Thr Arg Ile Thr Gly Gly
 370 375 380

Ile Thr Tyr Tyr Ser Asn Tyr Gly Ser Arg Val Asp Leu Ser Gly Pro
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Ala Ala Leu Val Gln Ser Ala Leu Ile Ala Lys Gly Lys Asp Pro Leu
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Ala Pro Ala Ala Met Arg Thr Leu Leu Lys Glu Thr Ala Arg Pro Phe
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Pro Val Ser Ile Pro Thr Ala Thr Pro Ile Gly Thr Gly Ile Val Asp
 485 490 495

Ala Lys Ala Ala Leu Ala Lys Ala Leu Glu Glu Pro Cys Thr Glu Asn
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Cys Gly Pro Val Ala Thr Pro Leu Thr Asn Lys Thr Ala Val Gly Gly
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Leu Asn Gly Thr Ala Gly Ser Ser Arg Leu Tyr Ser Phe Glu Ala Ala
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Gly Lys Ser Thr Arg Pro Gly Thr Ser Glu Thr Val Arg Val Asn Lys
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 35 40 45

Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr

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Pro Thr Leu Val Arg Thr Asp Arg Pro Leu Asp Gln Ala Glu Ser Glu				
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Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu				
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Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Leu				
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Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Ser Ile Asn Val Arg				
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Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile				
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Arg Asp Asn Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Ala Asn Glu				
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Cys Gly Ser Gly Ile Pro Ala Ser Asn Ser Ser Trp His Gly Thr His				
225		230	235	240
Val Ala Gly Thr Val Ala Ala Val Thr Asn Asn Ser Thr Gly Val Ala				
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Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys				
	260		265	270
Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser				
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Ile Asn Met Ser Leu Gly Gly Gly Gly Ser Cys Ser Thr Thr Tyr Gln
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Asn Ala Ile Asn Gly Ala Val Ser Arg Gly Thr Thr Val Val Val Ala
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Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
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Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
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Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
 370 375 380

Ser Ile Leu Ser Thr Leu Asn Thr Gly Thr Thr Thr Pro Gly Ser Ala
 385 390 395 400

Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
 405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
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Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
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Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Val Asp Ala Asn Ala Ala
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Val Ala Ala Ala Ile Asn Gly Gly Gly Asn Pro Asn Pro Gly Gly Asn
 465 470 475 480

Val Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Thr Gly
 485 490 495

Ala Glu Leu Asn Tyr Thr Val Ala Val Pro Ala Gly Ser Ser Gln Leu
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Arg Val Thr Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Val Arg

515 520 525

Gln Gly Ser Ala Pro Thr Asp Thr Ser Tyr Thr Cys Arg Pro Tyr Leu
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Ser Gly Asn Ser Glu Thr Cys Thr Ile Asn Ser Pro Ala Ala Gly Thr
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 Gly Ala Ser Val Leu Ser Ser Leu Leu Leu Ala Thr Pro Ala Leu Ala
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ggt gat gtc cag ctc agc ggc ctg cag tcc gcg ccg acc cac cag cgc 144
 Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg
 35 40 45

ttc atc gtg aag tac cgc gac ggc agt gcg ccg gtg gcc aac acc acc 192
 Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr
 50 55 60

gcg ctg gcc tct tcg ctg aag acg gcc gct gcc ggc atc gcc agc agc 240
 Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Ile Ala Ser Ser
 65 70 75 80

cag ggc cgc gcg ctg ggc ctg cag cag gtc cgc agg ctt gcc gtc ggc 288
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tcg ctc agc tat acc gtc aac gtc ccg gct ggc agc acg cag ctg cgc Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Thr Gln Leu Arg 500 505 510	1536
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35 40 45

Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr
50 55 60

Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Ile Ala Ser Ser
65 70 75 80

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

Ser Thr Val Val Arg Thr Asp Arg Ala Leu Asp Gln Ala Glu Ser Glu
100 105 110

Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu
115 120 125

Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
130 135 140

Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Ser Ile Asn Val Arg
 145 150 155 160

Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175

Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro
 180 185 190

Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly
 195 200 205

Arg Asp Ser Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Ala Asn Glu
 210 215 220

Cys Gly Ser Gly Ile Pro Ala Ser Asn Ser Ser Trp His Gly Thr His
 225 230 235 240

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

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
 260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
 275 280 285

Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
 290 295 300

Ile Asn Met Ser Leu Gly Gly Gly Gly Ser Cys Ser Ser Thr Tyr Gln
 305 310 315 320

Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
 325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ala Val Pro Ala Asn Cys
 340 345 350

Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
 355 360 365

Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
 370 375 380

Ser Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala
385 390 395 400

Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
420 425 430

Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
435 440 445

Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala
450 455 460

Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val
465 470 475 480

Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala
485 490 495

Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Thr Gln Leu Arg
500 505 510

Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln
515 520 525

Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser
530 535 540

Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Thr Ala Gly Thr Trp
545 550 555 560

Tyr Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn
565 570 575

Ala Gln Tyr

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<213> Stenotrophomonas maltophilia

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 <223> Protease 5

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 ggt gcg tcc gtt ctg tca tcg ctg ctg ctg gcc acg cct gcg ctg gcc 96
 Gly Ala Ser Val Leu Ser Ser Leu Leu Leu Ala Thr Pro Ala Leu Ala
 20 25 30
 ggt gat gtc cag ctc agc ggt ctg cag tcc gcg ccg acc cat cag cgg 144
 Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg
 35 40 45
 ttc atc gtg aag tac cgc gac ggc agt gcg ccg gtg gcc aac acc acc 192
 Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr
 50 55 60
 gca ctc gcc tct tcg ctg aag acc gcc gcc gcc ggc atc gcc agc agc 240
 Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Ile Ala Ser Ser
 65 70 75 80
 cag ggc cgc gcg ctg ggc ctg cag cag gtc cgc aag ctg gct gtc ggc 288
 Gln Gly Arg Ala Leu Gly Leu Gln Gln Val Arg Lys Leu Ala Val Gly
 85 90 95
 gcc acc gtg gtc agg acc gac cgc gca ctg gac cag gcc gac gcc gaa 336
 Ala Thr Val Val Arg Thr Asp Arg Ala Leu Asp Gln Ala Asp Ala Glu
 100 105 110
 ctg ctg atg cgc aag ctc gcc gcc gac ccg aac gtg gaa tac gtc gaa 384
 Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu
 115 120 125
 gtc gac cag atc atg cgc gcg acg ctg acc ccg aac gac acc cgc ttc 432
 Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
 130 135 140
 agc gag cag tgg ggc ttc ggt acg tcc aac gcg tcg atc aac gtg cgc 480
 Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Ser Ile Asn Val Arg
 145 150 155 160
 ccg gcc tgg gac aag gcc acc ggc acc ggc gtg gtc gtg gcc gtg atc 528
 Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175
 gat acc ggc atc acc aac cat gcc gac ctc aat gcc aac att ctt ccc 576

Asp	Thr	Gly	Ile	Thr	Asn	His	Ala	Asp	Leu	Asn	Ala	Asn	Ile	Leu	Pro	
			180					185					190			
ggc	tac	gac	ttc	atc	agc	gac	gcg	gcg	atg	gcg	cgc	gat	ggc	ggc	ggc	624
Gly	Tyr	Asp	Phe	Ile	Ser	Asp	Ala	Ala	Met	Ala	Arg	Asp	Gly	Gly	Gly	
		195					200					205				
cgt	gac	agc	aat	ccc	aac	gac	gag	ggc	gac	tgg	tac	ggc	gac	aac	gag	672
Arg	Asp	Ser	Asn	Pro	Asn	Asp	Glu	Gly	Asp	Trp	Tyr	Gly	Asp	Asn	Glu	
	210					215					220					
tgt	cag	gcc	ggc	tac	ccg	ggc	tcg	aac	tcc	agc	tgg	cat	ggc	acc	cac	720
Cys	Gln	Ala	Gly	Tyr	Pro	Gly	Ser	Asn	Ser	Ser	Trp	His	Gly	Thr	His	
225					230					235					240	
gtg	gcc	ggc	acg	gtc	gct	gcg	gtg	acc	aac	aac	agc	aac	ggc	gtg	gcc	768
Val	Ala	Gly	Thr	Val	Ala	Ala	Val	Thr	Asn	Asn	Ser	Asn	Gly	Val	Ala	
			245						250					255		
ggc	acc	gca	ttc	aat	gcc	aag	gtc	gtg	ccg	gtg	cgc	gtg	ctc	ggc	aag	816
Gly	Thr	Ala	Phe	Asn	Ala	Lys	Val	Val	Pro	Val	Arg	Val	Leu	Gly	Lys	
		260					265						270			
tgc	ggc	ggc	tat	acc	tcc	gac	atc	gcc	gat	gcc	atc	gtc	tgg	gcc	tcc	864
Cys	Gly	Gly	Tyr	Thr	Ser	Asp	Ile	Ala	Asp	Ala	Ile	Val	Trp	Ala	Ser	
	275						280					285				
ggc	ggc	acc	gta	agc	ggc	gtg	ccg	gcc	aat	gcc	aat	ccg	gcc	gag	gtc	912
Gly	Gly	Thr	Val	Ser	Gly	Val	Pro	Ala	Asn	Ala	Asn	Pro	Ala	Glu	Val	
	290					295					300					
atc	aac	ctc	tcg	ctg	ggc	ggc	ggc	ggc	agc	tgc	tcg	acc	acc	tac	cag	960
Ile	Asn	Leu	Ser	Leu	Gly	Gly	Gly	Gly	Ser	Cys	Ser	Thr	Thr	Tyr	Gln	
305				310						315					320	
aac	gcc	atc	aac	ggc	gag	gtc	ggc	cgt	ggc	acc	acc	gtg	gtg	gtc	gct	1008
Asn	Ala	Ile	Asn	Gly	Ala	Val	Gly	Arg	Gly	Thr	Thr	Val	Val	Val	Ala	
			325						330					335		
gcc	ggc	aac	agc	aac	acc	aac	gtg	tcc	tcg	tcg	gta	ccg	gag	aac	tgc	1056
Ala	Gly	Asn	Ser	Asn	Thr	Asn	Val	Ser	Ser	Ser	Val	Pro	Ala	Asn	Cys	
		340					345					350				
ccg	aac	gtg	atc	gca	gtg	gcc	gag	acc	acc	tcg	gca	ggc	gca	cgt	gcc	1104
Pro	Asn	Val	Ile	Ala	Val	Ala	Ala	Thr	Thr	Ser	Ala	Gly	Ala	Arg	Ala	
		355					360					365				
agc	ttc	tcc	aac	tac	ggc	acc	ggc	atc	gac	atc	tcc	gca	ccg	ggc	cag	1152
Ser	Phe	Ser	Asn	Tyr	Gly	Thr	Gly	Ile	Asp	Ile	Ser	Ala	Pro	Gly	Gln	
	370					375					380					
ggc	atc	ctg	tcc	acc	ctc	aac	agc	ggc	acc	acc	acc	ccg	ggc	agc	gcc	1200
Gly	Ile	Leu	Ser	Thr	Leu	Asn	Ser	Gly	Thr	Thr	Thr	Pro	Gly	Ser	Ala	
	385				390					395					400	
agc	tac	gag	tcc	tac	aac	ggc	acc	tcg	atg	gag	gcc	ccg	cac	gtg	gcc	1248
Ser	Tyr	Ala	Ser	Tyr	Asn	Gly	Thr	Ser	Met	Ala	Ala	Pro	His	Val	Ala	
			405						410					415		

ggc gtg gtc gcg ctg atg cag tcg gtg gcc ccg agc ccg ctc agc ccg	1296
Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro	
420 425 430	
gcg cag gtg gaa agc atc atc aag agc acc gcg cgt ccg ctg ccg ggt	1344
Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly	
435 440 445	
gcg tgt tcg ggc ggc tgc ggc gcc ggc atc atc gac gcc gat gcc gca	1392
Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala	
450 455 460	
gtg aca gct gcg atc aac ggc acc act ccc aac ccg ggt ggc acc gtg	1440
Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val	
465 470 475 480	
ctg cag aac aac gtg ccg gtc acc ggc cta ggc gcg gcc agc ggc gca	1488
Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala	
485 490 495	
tcg ctc agc tac acc gtc aac gta ccg gct ggc agc gcg cag ctg cgc	1536
Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg	
500 505 510	
gtg gcg atc agt ggc ggc agc ggt gac gcc gac ctg tac ctg cgc cag	1584
Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln	
515 520 525	
ggc agt gcc ccg acc gac acc gtc tac acc tgc cgc ccg tac ctg agc	1632
Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser	
530 535 540	
ggc aac aac gag acc tgc acc gtc aac agc ccc gct gcc ggc gta tgg	1680
Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp	
545 550 555 560	
cac gtg cgg gtg aag gcg tac agc acc ttc tca ggc gtg acc ctc aac	1728
His Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn	
565 570 575	
gcc cag tac tga	1740
Ala Gln Tyr	

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 <213> Stenotrophomonas maltophilia

<220>
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 <223> Protease 5

<400> 8

Met Ser Gln Val Thr Gln Pro Arg Val Arg Arg Val Trp Val Val Leu

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21

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

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

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
275 280 285

Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
290 295 300

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

Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
340 345 350

Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
355 360 365

Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
370 375 380

Gly Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala
385 390 395 400

Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
420 425 430

Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
435 440 445

Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala
450 455 460

Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val

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465 470 475 480

Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala
 485 490 495

Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg
 500 505 510

Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln
 515 520 525

Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser
 530 535 540

Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp
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His Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn
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Ala Gln Tyr

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 ggt gcg tcc gtt ctg tca tcg ctg ctg ctg gcc acg cct gcg ctg gcc 96
 Gly Ala Ser Val Leu Ser Ser Leu Leu Leu Ala Thr Pro Ala Leu Ala
 20 25 30
 ggt gat gtc cag ctc agc ggc ctg cag tcc gcg ccg acg cac cag cgc 144
 Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg

35	40	45	
ttc atc gtc aag tac cgc gac ggc agc gcc gcc gtg gcc aac act act			192
Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Ala Val Ala Asn Thr Thr			
50	55	60	
gcg ctg gct tcg tcg ctg aag acg gcc gcc gcc ggc ctg gcc agc agc			240
Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Leu Ala Ser Ser			
65	70	75	80
cag ggc cgc gcg ctg ggc ctg cag cag gtc cgc aag ctg gcc gtc ggc			288
Gln Gly Arg Ala Leu Gly Leu Gln Gln Val Arg Lys Leu Ala Val Gly			
85	90	95	
ccg acc ctg gtc aag acc gac cgt ccg ctc gac cag gcc gaa tcc gag			336
Pro Thr Leu Val Lys Thr Asp Arg Pro Leu Asp Gln Ala Glu Ser Glu			
100	105	110	
ctg ctg atg cgc aag ctg gcc gcc gac ccg aac gtg gaa tac gtc gaa			384
Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu			
115	120	125	
gtc gac cag atc atg cgc gcg acg ctg acc ccg aac gac acc cgc ttc			432
Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe			
130	135	140	
agc gag caa tgg ggc ttc ggc acc tcc aat gcc ggc atc aac atc cgg			480
Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Gly Ile Asn Ile Arg			
145	150	155	160
ccg gcc tgg gac aag gcc acc ggc acc ggc gtg gtg gtg gcc gtg atc			528
Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile			
165	170	175	
gat acc ggc atc acc aac cat gcc gat ctc aac gcc aac atc ctg ccg			576
Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro			
180	185	190	
ggc tat gac ttc atc agc gac gcc gcg atg gcg cgc gat ggc ggc ggc			624
Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly			
195	200	205	
cgc gac aac aat ccg aac gac gaa ggc gac tgg tac ggc gcc aac gag			672
Arg Asp Asn Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Ala Asn Glu			
210	215	220	
tgt ggc tcg ggc atc ccg gcc tcc aac tcc agc tgg cac ggc acc cac			720
Cys Gly Ser Gly Ile Pro Ala Ser Asn Ser Ser Trp His Gly Thr His			
225	230	235	240
gtt gcc ggc acc gtg gcg gcg gtg acc aac aac agt acc ggc gtg gca			768
Val Ala Gly Thr Val Ala Ala Val Thr Asn Asn Ser Thr Gly Val Ala			
245	250	255	
ggt acc gcg ttc aat gcc aag gtc gtg ccg gtg cgc gtg ctc ggc aag			816
Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys			
260	265	270	

tgc ggc ggc tac acc tcc gac atc gcc gat gcg atc gtg tgg gcg tcc Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser 275 280 285	864
ggt ggc acc gtc agc ggc gta ccg gcc aac gcc aat ccg gcc gaa gtc Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val 290 295 300	912
atc aac ctc tcg ctg ggc ggc ggt ggc agc tgc tcg acc acc tac cag Ile Asn Leu Ser Leu Gly Gly Gly Gly Ser Cys Ser Thr Thr Tyr Gln 305 310 315 320	960
aac gcg atc aac ggc gcg gtc ggc cgt ggc acc acc gtg gta gtc gcc Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala 325 330 335	1008
gcc ggc aac agc aac acc aac gtg tcc tcg tcg gtg ccg gcc aac tgc Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys 340 345 350	1056
ccg aac gtg atc gcg gtg gcg gcg acc acc tcg gcc ggt gca cgt gcc Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala 355 360 365	1104
agc ttc tcc aac tac ggt acc ggc atc gac att tcg gca ccg ggc cag Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln 370 375 380	1152
agc atc ctc tcc acc ctc aac acc ggc acc acc acg ccg ggc agc gcg Ser Ile Leu Ser Thr Leu Asn Thr Gly Thr Thr Thr Pro Gly Ser Ala 385 390 395 400	1200
acc tac gcg tcg tac aac ggc acc tcg atg gca gcg ccg cac gtg gcc Thr Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala 405 410 415	1248
ggc gtg gtc gcg ctg atg cag tcg gtc gct ccg agc ccg ctg agc ccg Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro 420 425 430	1296
gcg cag gtc gag agc atc atc aag agc acg gca cgt ccg ctg ccg ggc Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly 435 440 445	1344
gcc tgc tcg ggt ggt tgc ggc gcc ggc atc atc gac gcc aat gcc gcc Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asn Ala Ala 450 455 460	1392
gtg gcc gca gcg atc aat ggt ggc ggc aac ccg aac ccg ggt ggc aac Val Ala Ala Ala Ile Asn Gly Gly Gly Asn Pro Asn Pro Gly Gly Asn 465 470 475 480	1440
gtg ctg cag aac aac gta ccg gtg acc ggc ctg ggc gct gcg acc ggt Val Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Thr Gly 485 490 495	1488
gcc gag ctg aac tac acc gtc gcg gtt ccg gcc ggc agc acc cag ctg Ala Glu Leu Asn Tyr Thr Val Ala Val Pro Ala Gly Ser Thr Gln Leu	1536

500	505	510	
cgc gtc gcg atc agt ggc ggc agc ggt gat gcc gac ctg tat gtg cgc			1584
Arg Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Val Arg			
515	520	525	
caa ggc agt gcc ccg acc gat acc acc tac acc tgc cgt ccg tac ctg			1632
Gln Gly Ser Ala Pro Thr Asp Thr Thr Tyr Thr Cys Arg Pro Tyr Leu			
530	535	540	
agc ggc aac agc gag acc tgc acc atc aac agt cct gcc gcc ggc acc			1680
Ser Gly Asn Ser Glu Thr Cys Thr Ile Asn Ser Pro Ala Ala Gly Thr			
545	550	555	560
tgg tat gtg cgg gtg aag gcc tac agc acc ttc tcg ggc ctg acc ctc			1728
Trp Tyr Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Leu Thr Leu			
565	570	575	
aac gcc cag tac tga			1743
Asn Ala Gln Tyr			
580			

<210> 10
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 <212> PRT
 <213> *Stenotrophomonas maltophilia*

<220>
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 <223> Protease 7

<400> 10

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Gly Ala Ser Val Leu Ser Ser Leu Leu Leu Ala Thr Pro Ala Leu Ala
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Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg
35 40 45

Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Ala Val Ala Asn Thr Thr
50 55 60

Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Leu Ala Ser Ser
65 70 75 80

Gln Gly Arg Ala Leu Gly Leu Gln Gln Val Arg Lys Leu Ala Val Gly
85 90 95

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

Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu
 115 120 125

Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
 130 135 140

Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Gly Ile Asn Ile Arg
 145 150 155 160

Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175

Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro
 180 185 190

Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly
 195 200 205

Arg Asp Asn Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Ala Asn Glu
 210 215 220

Cys Gly Ser Gly Ile Pro Ala Ser Asn Ser Ser Trp His Gly Thr His
 225 230 235 240

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

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
 260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
 275 280 285

Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
 290 295 300

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

Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
 325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
 340 345 350

Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
 355 360 365

Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
 370 375 380

Ser Ile Leu Ser Thr Leu Asn Thr Gly Thr Thr Thr Pro Gly Ser Ala
 385 390 395 400

Thr Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
 405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
 420 425 430

Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
 435 440 445

Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asn Ala Ala
 450 455 460

Val Ala Ala Ala Ile Asn Gly Gly Gly Asn Pro Asn Pro Gly Gly Asn
 465 470 475 480

Val Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Thr Gly
 485 490 495

Ala Glu Leu Asn Tyr Thr Val Ala Val Pro Ala Gly Ser Thr Gln Leu
 500 505 510

Arg Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Val Arg
 515 520 525

Gln Gly Ser Ala Pro Thr Asp Thr Thr Tyr Thr Cys Arg Pro Tyr Leu
 530 535 540

Ser Gly Asn Ser Glu Thr Cys Thr Ile Asn Ser Pro Ala Ala Gly Thr
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Trp Tyr Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Leu Thr Leu
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Asn Ala Gln Tyr
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			5						10			15					
ggt	gcg	tcc	gtt	ctg	tca	tcg	ctg	ctg	ctg	gcc	acg	cct	gcg	ctg	gcc	96	
Gly	Ala	Ser	Val	Leu	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Pro	Ala	Leu	Ala		
			20						25			30					
ggt	gat	gtc	cag	ctc	agc	ggt	ctg	cag	tcc	gcg	ccg	acc	cat	cag	cgg	144	
Gly	Asp	Val	Gln	Leu	Ser	Gly	Leu	Gln	Ser	Ala	Pro	Thr	His	Gln	Arg		
			35						40			45					
ttc	atc	gtg	aag	tac	cgc	gac	ggc	agt	gcg	ccg	gtg	gcc	aac	acc	acc	192	
Phe	Ile	Val	Lys	Tyr	Arg	Asp	Gly	Ser	Ala	Pro	Val	Ala	Asn	Thr	Thr		
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gca	ctc	gcc	tct	tcg	ctg	aag	acc	gcc	gcc	gcc	ggc	atc	gcc	agc	agc	240	
Ala	Leu	Ala	Ser	Ser	Leu	Lys	Thr	Ala	Ala	Ala	Gly	Ile	Ala	Ser	Ser		
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cag	ggc	cgc	gcg	ctg	ggc	ctg	cag	cag	gtc	cgc	aag	ctg	gct	gtc	ggc	288	
Gln	Gly	Arg	Ala	Leu	Gly	Leu	Gln	Gln	Val	Arg	Lys	Leu	Ala	Val	Gly		
			85						90						95		
tcc	acc	gtg	gtc	agg	acc	gac	cgc	gca	ctg	gac	cag	gcc	gac	gcc	gaa	336	
Ser	Thr	Val	Val	Arg	Thr	Asp	Arg	Ala	Leu	Asp	Gln	Ala	Asp	Ala	Glu		
			100						105						110		
ctg	ctg	atg	cgc	aag	ctc	gcc	gcc	gac	ccg	aac	gtg	gaa	tac	gtc	gaa	384	
Leu	Leu	Met	Arg	Lys	Leu	Ala	Ala	Asp	Pro	Asn	Val	Glu	Tyr	Val	Glu		
			115						120						125		
gtc	gac	cag	atc	atg	cgc	gcg	acg	ctg	acc	ccg	aac	gac	acc	cgc	ttc	432	

Val 130	Asp	Gln	Ile	Met	Arg	Ala 135	Thr	Leu	Thr	Pro	Asn 140	Asp	Thr	Arg	Phe	
agc	gag	cag	tgg	ggc	ttc	ggt	acg	tcc	aac	gcg	tcg	atc	aac	gtg	cgc	480
Ser 145	Glu	Gln	Trp	Gly	Phe 150	Gly	Thr	Ser	Asn 155	Ala	Ser	Ile	Asn	Val	Arg 160	
ccg	gcc	tgg	gac	aag	gcc	acc	ggc	acc	ggc	gtg	gtc	gtg	gcc	gtg	atc	528
Pro	Ala	Trp	Asp	Lys 165	Ala	Thr	Gly	Thr	Gly 170	Val	Val	Val	Ala	Val	Ile 175	
gat	acc	ggc	atc	acc	aac	cat	gcc	gac	ctc	aat	gcc	aac	att	ctt	ccc	576
Asp	Thr	Gly	Ile 180	Thr	Asn	His	Ala	Asp 185	Leu	Asn	Ala	Asn	Ile 190	Leu	Pro	
ggc	tac	gac	ttc	atc	agc	gac	gcg	gcg	atg	gcg	cgc	gat	ggc	ggt	ggc	624
Gly	Tyr	Asp 195	Phe	Ile	Ser	Asp 200	Ala	Ala	Met	Ala	Arg 205	Asp	Gly	Gly	Gly	
cgt	gac	agc	aat	ccc	aac	gac	gag	ggc	gac	tgg	tac	ggt	gac	aac	gag	672
Arg	Asp 210	Ser	Asn	Pro	Asn	Asp 215	Glu	Gly	Asp	Trp 220	Tyr	Gly	Asp	Asn	Glu	
tgt	cag	gcc	ggt	tac	ccg	ggc	tcg	aac	tcc	agc	tgg	cac	ggt	acc	cac	720
Cys 225	Gln	Ala	Gly	Tyr 230	Pro	Gly	Ser	Asn	Ser	Ser 235	Trp	His	Gly	Thr	His 240	
gtg	gcc	ggc	acg	gtc	gct	gcg	gtg	acc	aac	aac	agc	aac	ggc	gtg	gcc	768
Val	Ala	Gly	Thr 245	Val	Ala	Ala	Val	Thr	Asn 250	Asn	Ser	Asn	Gly	Val	Ala 255	
ggt	acc	gca	ttc	aat	gcc	aag	gtc	gtg	ccg	gtg	cgc	gtg	ctc	ggc	aag	816
Gly	Thr	Ala 260	Phe	Asn	Ala	Lys	Val 265	Val	Pro	Val	Arg	Val 270	Leu	Gly	Lys	
tgc	ggc	ggc	tat	acc	tcc	gac	atc	gcc	gat	gcc	atc	gtc	tgg	gcc	tcc	864
Cys	Gly 275	Gly	Tyr	Thr	Ser	Asp 280	Ile	Ala	Asp	Ala	Ile 285	Val	Trp	Ala	Ser	
ggc	ggc	acc	gta	agc	ggt	gtg	ccg	gcc	aat	gcc	aat	ccg	gcc	gag	gtc	912
Gly 290	Gly	Thr	Val	Ser	Gly	Val 295	Pro	Ala	Asn	Ala 300	Asn	Pro	Ala	Glu	Val	
atc	aac	ctc	tcg	ctg	ggc	ggc	ggc	ggc	agc	tgc	tcg	acc	acc	tac	cag	960
Ile 305	Asn	Leu	Ser	Leu 310	Gly	Gly	Gly	Gly	Ser	Cys 315	Ser	Thr	Thr	Tyr	Gln 320	
aac	gcc	atc	aac	ggc	gcg	gtc	ggc	cgt	ggc	acc	acc	gtg	gtg	gtc	gct	1008
Asn	Ala	Ile	Asn 325	Gly	Ala	Val	Gly	Arg	Gly 330	Thr	Thr	Val	Val	Val	Ala 335	
gcc	ggc	aac	agc	aac	acc	aac	gtg	tcc	tcg	tcg	gta	ccg	gcg	aac	tgc	1056
Ala	Gly	Asn 340	Ser	Asn	Thr	Asn	Val	Ser 345	Ser	Ser	Val	Pro	Ala	Asn	Cys	
ccg	aac	gtg	atc	gca	gtg	gcc	gcg	acc	acc	tcg	gca	ggt	gca	cgt	gcc	1104
Pro	Asn 355	Val	Ile	Ala	Val	Ala	Ala 360	Thr	Thr	Ser	Ala 365	Gly	Ala	Arg	Ala	

agc ttc tcc aac tac ggc acc ggc atc gac atc tcc gca ccg ggc cag	1152
Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln	
370 375 380	
ggc atc ctg tcc acc ctg aac agc ggc acc acc acc ccg ggc agc gcc	1200
Gly Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala	
385 390 395 400	
agc tac gcg tcc tac aac ggc acc tcg atg gcg gcc ccg cac gtg gcc	1248
Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala	
405 410 415	
ggc gtg gtc gcg ctg atg cag tcg gtg gcc ccg agc ccg ctg agc ccg	1296
Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro	
420 425 430	
gcg cag gtg gaa agc atc atc aag agc acc gcg cgt ccg ctg ccg ggt	1344
Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly	
435 440 445	
gcg tgt tcg ggt ggt tgc ggc gcc ggc atc atc gac gcc gat gcc gca	1392
Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala	
450 455 460	
gtg aca gct gcg atc aac ggc acc act ccc aac ccg ggt ggc acc gtg	1440
Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val	
465 470 475 480	
ctg cag aac aac gtg ccg gtc acc ggc cta ggc gcg gcc agc ggc gca	1488
Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala	
485 490 495	
tcg ctg agc tac acc gtc aac gta ccg gct ggc agc gcg cag ctg cgc	1536
Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg	
500 505 510	
gtg gcg atc agt ggc ggc agc ggt gac gcc gac ctg tac ctg cgc cag	1584
Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln	
515 520 525	
ggc agt gcc ccg acc gac acc gtc tac acc tgc cgc ccg tac ctg agc	1632
Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser	
530 535 540	
ggc aac aac gag acc tgc acc gtc aac agc ccc gct gcc ggc gta tgg	1680
Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp	
545 550 555 560	
cac gtg cgg gtg aag gcg tac agc acc ttc tcg ggc gtg acc ctg aac	1728
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gcc cag tac tga	1740
Ala Gln Tyr	

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Gly Asp Val Gln Leu Ser Gly Leu Gln Ser Ala Pro Thr His Gln Arg
 35 40 45

Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr
 50 55 60

Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Ile Ala Ser Ser
 65 70 75 80

Gln Gly Arg Ala Leu Gly Leu Gln Gln Val Arg Lys Leu Ala Val Gly
 85 90 95

Ser Thr Val Val Arg Thr Asp Arg Ala Leu Asp Gln Ala Asp Ala Glu
 100 105 110

Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu
 115 120 125

Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
 130 135 140

Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Ser Ile Asn Val Arg
 145 150 155 160

Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175

Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro
 180 185 190

Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly
 195 200 205

Arg Asp Ser Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Asp Asn Glu
 210 215 220

Cys Gln Ala Gly Tyr Pro Gly Ser Asn Ser Ser Trp His Gly Thr His
 225 230 235 240

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

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
 260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
 275 280 285

Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
 290 295 300

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

Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
 325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
 340 345 350

Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
 355 360 365

Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
 370 375 380

Gly Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala
 385 390 395 400

Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
 405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro

420	425	430
Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly		
435	440	445
Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala		
450	455	460
Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val		
465	470	475
Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala		
485	490	495
Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg		
500	505	510
Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln		
515	520	525
Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser		
530	535	540
Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp		
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His Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn		
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Ala Gln Tyr

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1				5				10						15		
ggt	gcg	tcc	gtt	ctg	tca	tcg	ctg	ctg	ctg	gcc	acg	cct	gcg	ctg	gcc	96
Gly	Ala	Ser	Val	Leu	Ser	Ser	Leu	Leu	Leu	Ala	Thr	Pro	Ala	Leu	Ala	
			20					25					30			
ggt	gat	gtc	cag	ctc	agc	ggt	ctg	cag	tcc	gcg	ccg	acc	cat	cag	cgg	144
Gly	Asp	Val	Gln	Leu	Ser	Gly	Leu	Gln	Ser	Ala	Pro	Thr	His	Gln	Arg	
		35					40					45				
ttc	atc	gtg	aag	tac	cgc	gac	ggc	agt	gcg	ccg	gtg	gcc	aac	acc	acc	192
Phe	Ile	Val	Lys	Tyr	Arg	Asp	Gly	Ser	Ala	Pro	Val	Ala	Asn	Thr	Thr	
	50					55					60					
gca	ctc	gcc	tct	tcg	ctg	aag	acc	gcc	gcc	gcc	ggc	atc	gcc	agc	agc	240
Ala	Leu	Ala	Ser	Ser	Leu	Lys	Thr	Ala	Ala	Ala	Gly	Ile	Ala	Ser	Ser	
65					70					75					80	
cag	ggc	cgc	gcg	ctg	ggc	ctg	cag	cag	gtc	cgc	aag	ctg	gct	gtc	ggc	288
Gln	Gly	Arg	Ala	Leu	Gly	Leu	Gln	Gln	Val	Arg	Lys	Leu	Ala	Val	Gly	
				85					90					95		
tcc	acc	gtg	gtc	agg	acc	gac	cgc	gca	ctg	gac	cag	gcc	gac	gcc	gaa	336
Ser	Thr	Val	Val	Arg	Thr	Asp	Arg	Ala	Leu	Asp	Gln	Ala	Asp	Ala	Glu	
			100					105					110			
ctg	ctg	atg	cgc	aag	ctc	gcc	gcc	gac	ccg	aac	gtg	gaa	tac	gtc	gaa	384
Leu	Leu	Met	Arg	Lys	Leu	Ala	Ala	Asp	Pro	Asn	Val	Glu	Tyr	Val	Glu	
		115					120					125				
gtc	gac	cag	atc	atg	cgc	gcg	acg	ctg	acc	ccg	aac	gac	acc	cgc	ttc	432
Val	Asp	Gln	Ile	Met	Arg	Ala	Thr	Leu	Thr	Pro	Asn	Asp	Thr	Arg	Phe	
	130					135					140					
agc	gag	cag	tgg	ggc	ttc	ggt	acg	tcc	aac	gcg	tcg	atc	aac	gtg	cgc	480
Ser	Glu	Gln	Trp	Gly	Phe	Gly	Thr	Ser	Asn	Ala	Ser	Ile	Asn	Val	Arg	
145				150						155					160	
ccg	gcc	tgg	gac	aag	gcc	acc	ggc	acc	ggc	gtg	gtc	gtg	gcc	gtg	atc	528
Pro	Ala	Trp	Asp	Lys	Ala	Thr	Gly	Thr	Gly	Val	Val	Val	Ala	Val	Ile	
				165					170					175		
gat	acc	ggc	atc	acc	aac	cat	gcc	gac	ctc	aat	gcc	aac	att	ctt	ccc	576
Asp	Thr	Gly	Ile	Thr	Asn	His	Ala	Asp	Leu	Asn	Ala	Asn	Ile	Leu	Pro	
			180					185					190			
ggc	tac	gac	ttc	atc	agc	gac	gcg	gcg	atg	gcg	cgc	gat	ggc	ggt	ggc	624
Gly	Tyr	Asp	Phe	Ile	Ser	Asp	Ala	Ala								

tgt cag gcc ggt tac ccg ggc tcg aac tcc agc tgg cat ggc acc cac Cys Gln Ala Gly Tyr Pro Gly Ser Asn Ser Ser Trp His Gly Thr His 225 230 235 240	720
gtg gcc ggc acg gtc gct gcg gtg acc aac aac agc aac ggc gtg gcc Val Ala Gly Thr Val Ala Ala Val Thr Asn Asn Ser Asn Gly Val Ala 245 250 255	768
ggt acc gca ttc aat gcc aag gtc gtg ccg gtg cgc gtg ctc ggc aag Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys 260 265 270	816
tgc ggc ggc tat acc tcc gac atc gcc gat gcc atc gtc tgg gcc tcc Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser 275 280 285	864
ggc ggc acc gta agc ggt gtg ccg gcc aat gcc aat ccg gcc gag gtc Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val 290 295 300	912
atc aac ctc tcg ctg ggc ggc ggc ggc agc tgc tcg acc acc tac cag Ile Asn Leu Ser Leu Gly Gly Gly Gly Ser Cys Ser Thr Thr Tyr Gln 305 310 315 320	960
aac gcc atc aac ggc gcg gtc ggc cgt ggc acc acc gtg gtg gtc gct Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala 325 330 335	1008
gcc ggc aac agc aac acc aac gtg tcc tcg tcg gta ccg gcg aac tgc Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys 340 345 350	1056
ccg aac gtg atc gca gtg gcc gcg acc acc tcg gca ggt gca cgt gcc Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala 355 360 365	1104
agc ttc tcc aac tac ggc acc ggc atc gac atc tcc gca ccg ggc cag Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln 370 375 380	1152
ggc atc ctg tcc acc ctc aac agc ggc acc acc acc ccg ggc agc gcc Gly Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala 385 390 395 400	1200
agc tac gcg tcc tac aac ggc acc tcg atg gcg gcc ccg cac gtg gcc Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala 405 410 415	1248
ggc gtg gtc gcg ctg atg cag tcg gtg gcc ccg agc ccg ctc agc ccg Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro 420 425 430	1296
gcg cag gtg gaa agc atc atc aag agc acc gcg cgt ccg ctg ccg ggt Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly 435 440 445	1344
gcg tgt tcg ggt ggt tgc ggc gcc ggc atc atc gac gcc gat gcc gca Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala 445 450 455	1392

450	455	460	
gtg aca gct gcg atc aac ggc acc act ccc aac ccg ggt ggc acc gtg			1440
Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val			
465	470	475	480
ctg cag aac aac gtg ccg gtc acc ggc cta ggc gcg gcc agc ggc gca			1488
Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala			
	485	490	495
tcg ctc agc tac acc gtc aac gta ccg gct ggc agc gcg cag ctg cgc			1536
Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg			
	500	505	510
gtg gcg atc agt ggc ggc agc ggt gac gcc gac ctg tac ctg cgc cag			1584
Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln			
	515	520	525
ggc agt gcc ccg acc gac acc gtc tac acc tgc cgc ccg tac ctg agc			1632
Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser			
	530	535	540
ggc aac aac gag acc tgc acc gtc aac agc ccc gct gcc ggc gta tgg			1680
Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp			
545	550	555	560
cac gtg cgg gtg aag gcg tac agc acc ttc tcg ggc gtg acc ctc aac			1728
His Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn			
	565	570	575
gcc cag tac tga			1740
Ala Gln Tyr			

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<400> 14

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			20					25					30		

Gly	Asp	Val	Gln	Leu	Ser	Gly	Leu	Gln	Ser	Ala	Pro	Thr	His	Gln	Arg
		35					40					45			

Phe Ile Val Lys Tyr Arg Asp Gly Ser Ala Pro Val Ala Asn Thr Thr
 50 55 60

Ala Leu Ala Ser Ser Leu Lys Thr Ala Ala Ala Gly Ile Ala Ser Ser
 65 70 75 80

Gln Gly Arg Ala Leu Gly Leu Gln Gln Val Arg Lys Leu Ala Val Gly
 85 90 95

Ser Thr Val Val Arg Thr Asp Arg Ala Leu Asp Gln Ala Asp Ala Glu
 100 105 110

Leu Leu Met Arg Lys Leu Ala Ala Asp Pro Asn Val Glu Tyr Val Glu
 115 120 125

Val Asp Gln Ile Met Arg Ala Thr Leu Thr Pro Asn Asp Thr Arg Phe
 130 135 140

Ser Glu Gln Trp Gly Phe Gly Thr Ser Asn Ala Ser Ile Asn Val Arg
 145 150 155 160

Pro Ala Trp Asp Lys Ala Thr Gly Thr Gly Val Val Val Ala Val Ile
 165 170 175

Asp Thr Gly Ile Thr Asn His Ala Asp Leu Asn Ala Asn Ile Leu Pro
 180 185 190

Gly Tyr Asp Phe Ile Ser Asp Ala Ala Met Ala Arg Asp Gly Gly Gly
 195 200 205

Arg Asp Ser Asn Pro Asn Asp Glu Gly Asp Trp Tyr Gly Asp Asn Glu
 210 215 220

Cys Gln Ala Gly Tyr Pro Gly Ser Asn Ser Ser Trp His Gly Thr His
 225 230 235 240

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

Gly Thr Ala Phe Asn Ala Lys Val Val Pro Val Arg Val Leu Gly Lys
 260 265 270

Cys Gly Gly Tyr Thr Ser Asp Ile Ala Asp Ala Ile Val Trp Ala Ser
 275 280 285

Gly Gly Thr Val Ser Gly Val Pro Ala Asn Ala Asn Pro Ala Glu Val
 290 295 300

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

Asn Ala Ile Asn Gly Ala Val Gly Arg Gly Thr Thr Val Val Val Ala
 325 330 335

Ala Gly Asn Ser Asn Thr Asn Val Ser Ser Ser Val Pro Ala Asn Cys
 340 345 350

Pro Asn Val Ile Ala Val Ala Ala Thr Thr Ser Ala Gly Ala Arg Ala
 355 360 365

Ser Phe Ser Asn Tyr Gly Thr Gly Ile Asp Ile Ser Ala Pro Gly Gln
 370 375 380

Gly Ile Leu Ser Thr Leu Asn Ser Gly Thr Thr Thr Pro Gly Ser Ala
 385 390 395 400

Ser Tyr Ala Ser Tyr Asn Gly Thr Ser Met Ala Ala Pro His Val Ala
 405 410 415

Gly Val Val Ala Leu Met Gln Ser Val Ala Pro Ser Pro Leu Ser Pro
 420 425 430

Ala Gln Val Glu Ser Ile Ile Lys Ser Thr Ala Arg Pro Leu Pro Gly
 435 440 445

Ala Cys Ser Gly Gly Cys Gly Ala Gly Ile Ile Asp Ala Asp Ala Ala
 450 455 460

Val Thr Ala Ala Ile Asn Gly Thr Thr Pro Asn Pro Gly Gly Thr Val
 465 470 475 480

Leu Gln Asn Asn Val Pro Val Thr Gly Leu Gly Ala Ala Ser Gly Ala
 485 490 495

Ser Leu Ser Tyr Thr Val Asn Val Pro Ala Gly Ser Ala Gln Leu Arg
 500 505 510

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Val Ala Ile Ser Gly Gly Ser Gly Asp Ala Asp Leu Tyr Leu Arg Gln
515 520 525

Gly Ser Ala Pro Thr Asp Thr Val Tyr Thr Cys Arg Pro Tyr Leu Ser
530 535 540

Gly Asn Asn Glu Thr Cys Thr Val Asn Ser Pro Ala Ala Gly Val Trp
545 550 555 560

His Val Arg Val Lys Ala Tyr Ser Thr Phe Ser Gly Val Thr Leu Asn
565 570 575

Ala Gln Tyr