

SEQUENCE LISTING

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<120> Composition and Method for Treatment of Autoimmune Disease

<130> P101877.WO.01/GST

<150> US 61/038372
 <151> 2008-03-20

<150> IE 2007/0468
 <151> 2007-06-28

<150> IE 2008/0209
 <151> 2008-03-20

<160> 5

<170> PatentIn version 3.3

<210> 1
 <211> 784
 <212> PRT
 <213> Homo sapiens

<400> 1

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

Gly Leu Thr Glu Ala Val Lys Ser Leu Asp Leu Ser Asn Asn Arg Ile
 50 55 60

Thr Tyr Ile Ser Asn Ser Asp Leu Gln Arg Cys Val Asn Leu Gln Ala
 65 70 75 80

Leu Val Leu Thr Ser Asn Gly Ile Asn Thr Ile Glu Glu Asp Ser Phe
 85 90 95

Ser Ser Leu Gly Ser Leu Glu His Leu Asp Leu Ser Tyr Asn Tyr Leu
 100 105 110

Ser Asn Leu Ser Ser Ser Trp Phe Lys Pro Leu Ser Ser Leu Thr Phe
115 120 125

Leu Asn Leu Leu Gly Asn Pro Tyr Lys Thr Leu Gly Glu Thr Ser Leu
130 135 140

Phe Ser His Leu Thr Lys Leu Gln Ile Leu Arg Val Gly Asn Met Asp
145 150 155 160

Thr Phe Thr Lys Ile Gln Arg Lys Asp Phe Ala Gly Leu Thr Phe Leu
165 170 175

Glu Glu Leu Glu Ile Asp Ala Ser Asp Leu Gln Ser Tyr Glu Pro Lys
180 185 190

Ser Leu Lys Ser Ile Gln Asn Val Ser His Leu Ile Leu His Met Lys
195 200 205

Gln His Ile Leu Leu Leu Glu Ile Phe Val Asp Val Thr Ser Ser Val
210 215 220

Glu Cys Leu Glu Leu Arg Asp Thr Asp Leu Asp Thr Phe His Phe Ser
225 230 235 240

Glu Leu Ser Thr Gly Glu Thr Asn Ser Leu Ile Lys Lys Phe Thr Phe
245 250 255

Arg Asn Val Lys Ile Thr Asp Glu Ser Leu Phe Gln Val Met Lys Leu
260 265 270

Leu Asn Gln Ile Ser Gly Leu Leu Glu Leu Glu Phe Asp Asp Cys Thr
275 280 285

Leu Asn Gly Val Gly Asn Phe Arg Ala Ser Asp Asn Asp Arg Val Ile
290 295 300

Asp Pro Gly Lys Val Glu Thr Leu Thr Ile Arg Arg Leu His Ile Pro
305 310 315 320

Arg Phe Tyr Leu Phe Tyr Asp Leu Ser Thr Leu Tyr Ser Leu Thr Glu
325 330 335

Arg Val Lys Arg Ile Thr Val Glu Asn Ser Lys Val Phe Leu Val Pro
340 345 350

Cys Leu Leu Ser Gln His Leu Lys Ser Leu Glu Tyr Leu Asp Leu Ser

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

Cys His Arg Phe His Gly Leu Trp Tyr Met Lys Met Met Trp Ala Trp
610 615 620

Leu Gln Ala Lys Arg Lys Pro Arg Lys Ala Pro Ser Arg Asn Ile Cys
625 630 635 640

Tyr Asp Ala Phe Val Ser Tyr Ser Glu Arg Asp Ala Tyr Trp Val Glu
645 650 655

Asn Leu Met Val Gln Glu Leu Glu Asn Phe Asn Pro Pro Phe Lys Leu
660 665 670

Cys Leu His Lys Arg Asp Phe Ile Pro Gly Lys Trp Ile Ile Asp Asn
675 680 685

Ile Ile Asp Ser Ile Glu Lys Ser His Lys Thr Val Phe Val Leu Ser
690 695 700

Glu Asn Phe Val Lys Ser Glu Trp Cys Lys Tyr Glu Leu Asp Phe Ser
705 710 715 720

His Phe Arg Leu Phe Glu Glu Asn Asn Asp Ala Ala Ile Leu Ile Leu
725 730 735

Leu Glu Pro Ile Glu Lys Lys Ala Ile Pro Gln Arg Phe Cys Lys Leu
740 745 750

Arg Lys Ile Met Asn Thr Lys Thr Tyr Leu Glu Trp Pro Met Asp Glu
755 760 765

Ala Gln Arg Glu Gly Phe Trp Val Asn Leu Arg Ala Ala Ile Lys Ser
770 775 780

<210> 2

<211> 784

<212> PRT

<213> Mus musculus

<400> 2

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Leu Phe Ser Lys Arg Cys Ser Ala Gln Glu Ser Leu Ser Cys Asp Ala
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Ser Gly Val Cys Asp Gly Arg Ser Arg Ser Phe Thr Ser Ile Pro Ser
35 40 45

Gly Leu Thr Ala Ala Met Lys Ser Leu Asp Leu Ser Phe Asn Lys Ile
50 55 60

Thr Tyr Ile Gly His Gly Asp Leu Arg Ala Cys Ala Asn Leu Gln Val
65 70 75 80

Leu Met Leu Lys Ser Ser Arg Ile Asn Thr Ile Glu Gly Asp Ala Phe
85 90 95

Tyr Ser Leu Gly Ser Leu Glu His Leu Asp Leu Ser Asp Asn His Leu
100 105 110

Ser Ser Leu Ser Ser Ser Trp Phe Gly Pro Leu Ser Ser Leu Lys Tyr
115 120 125

Leu Asn Leu Met Gly Asn Pro Tyr Gln Thr Leu Gly Val Thr Ser Leu
130 135 140

Phe Pro Asn Leu Thr Asn Leu Gln Thr Leu Arg Ile Gly Asn Val Glu
145 150 155 160

Thr Phe Ser Glu Ile Arg Arg Ile Asp Phe Ala Gly Leu Thr Ser Leu
165 170 175

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

Ser Leu Lys Ser Ile Arg Asp Ile His His Leu Thr Leu His Leu Ser
195 200 205

Glu Ser Ala Phe Leu Leu Glu Ile Phe Ala Asp Ile Leu Ser Ser Val
210 215 220

Arg Tyr Leu Glu Leu Arg Asp Thr Asn Leu Ala Arg Phe Gln Phe Ser
225 230 235 240

Pro Leu Pro Val Asp Glu Val Ser Ser Pro Met Lys Lys Leu Ala Phe
245 250 255

Arg Gly Ser Val Leu Thr Asp Glu Ser Phe Asn Glu Leu Leu Lys Leu
260 265 270

Leu Arg Tyr Ile Leu Glu Leu Ser Glu Val Glu Phe Asp Asp Cys Thr

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

Glu Ala Gly Asp Asn His Phe Val Cys Ser Cys Glu Leu Leu Ser Phe
530 535 540

Thr Met Glu Thr Pro Ala Leu Ala Gln Ile Leu Val Asp Trp Pro Asp
545 550 555 560

Ser Tyr Leu Cys Asp Ser Pro Pro Arg Leu His Gly His Arg Leu Gln
565 570 575

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

Gly Val Cys Cys Ala Leu Leu Leu Leu Ile Leu Leu Val Gly Ala Leu
595 600 605

Cys His His Phe His Gly Leu Trp Tyr Leu Arg Met Met Trp Ala Trp
610 615 620

Leu Gln Ala Lys Arg Lys Pro Lys Lys Ala Pro Cys Arg Asp Val Cys
625 630 635 640

Tyr Asp Ala Phe Val Ser Tyr Ser Glu Gln Asp Ser His Trp Val Glu
645 650 655

Asn Leu Met Val Gln Gln Leu Glu Asn Ser Asp Pro Pro Phe Lys Leu
660 665 670

Cys Leu His Lys Arg Asp Phe Val Pro Gly Lys Trp Ile Ile Asp Asn
675 680 685

Ile Ile Asp Ser Ile Glu Lys Ser His Lys Thr Val Phe Val Leu Ser
690 695 700

Glu Asn Phe Val Arg Ser Glu Trp Cys Lys Tyr Glu Leu Asp Phe Ser
705 710 715 720

His Phe Arg Leu Phe Asp Glu Asn Asn Asp Ala Ala Ile Leu Val Leu
725 730 735

Leu Glu Pro Ile Glu Arg Lys Ala Ile Pro Gln Arg Phe Cys Lys Leu
740 745 750

Arg Lys Ile Met Asn Thr Lys Thr Tyr Leu Glu Trp Pro Leu Asp Glu
755 760 765

Gly Gln Gln Glu Val Phe Trp Val Asn Leu Arg Thr Ala Ile Lys Ser
770 775 780

<210> 3
<211> 586
<212> PRT
<213> Homo sapiens

<400> 3

Met Pro His Thr Leu Trp Met Val Trp Val Leu Gly Val Ile Ile Ser
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20 25 30

Asn Gly Ile Cys Lys Gly Ser Ser Gly Ser Leu Asn Ser Ile Pro Ser
35 40 45

Gly Leu Thr Glu Ala Val Lys Ser Leu Asp Leu Ser Asn Asn Arg Ile
50 55 60

Thr Tyr Ile Ser Asn Ser Asp Leu Gln Arg Cys Val Asn Leu Gln Ala
65 70 75 80

Leu Val Leu Thr Ser Asn Gly Ile Asn Thr Ile Glu Glu Asp Ser Phe
85 90 95

Ser Ser Leu Gly Ser Leu Glu His Leu Asp Leu Ser Tyr Asn Tyr Leu
100 105 110

Ser Asn Leu Ser Ser Ser Trp Phe Lys Pro Leu Ser Ser Leu Thr Phe
115 120 125

Leu Asn Leu Leu Gly Asn Pro Tyr Lys Thr Leu Gly Glu Thr Ser Leu
130 135 140

Phe Ser His Leu Thr Lys Leu Gln Ile Leu Arg Val Gly Asn Met Asp
145 150 155 160

Thr Phe Thr Lys Ile Gln Arg Lys Asp Phe Ala Gly Leu Thr Phe Leu
165 170 175

Glu Glu Leu Glu Ile Asp Ala Ser Asp Leu Gln Ser Tyr Glu Pro Lys
180 185 190

Ser Leu Lys Ser Ile Gln Asn Val Ser His Leu Ile Leu His Met Lys

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

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

Ser Asn Asn Asn Leu Asn Leu Phe Ser Leu Asn Leu Pro Gln Leu Lys
465 470 475 480

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

Leu Leu Pro Met Leu Leu Val Leu Lys Ile Ser Arg Asn Ala Ile Thr
500 505 510

Thr Phe Ser Lys Glu Gln Leu Asp Ser Phe His Thr Leu Lys Thr Leu
515 520 525

Glu Ala Gly Gly Asn Asn Phe Ile Cys Ser Cys Glu Phe Leu Ser Phe
530 535 540

Thr Gln Glu Gln Gln Ala Leu Ala Lys Val Leu Ile Asp Trp Pro Ala
545 550 555 560

Asn Tyr Leu Cys Asp Ser Pro Ser His Val Arg Gly Gln Gln Val Gln
565 570 575

Asp Val Arg Leu Ser Val Ser Glu Cys His
580 585

<210> 4
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<212> PRT
<213> Homo sapiens

<400> 4

Lys Glu Glu Ser Ser Asn Gln Ala Ser Leu Ser Cys Asp Arg Asn Gly
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Ile Cys Lys Gly Ser
20

<210> 5
<211> 13
<212> PRT
<213> Homo sapiens

<400> 5

Cys Ser Cys Glu Phe Leu Ser Phe Thr Gln Glu Gln Gln

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