

LISTADO DE SECUENCIAS

<110> VAXTHERA SAS
OSORIO, JORGE E.

<120> VACUNA CONTRA EL CORONAVIRUS QUE COMPRENDE UNA PROTEINA MOSAICO

<130> 4997.002PC03

<150> US 63/301,417

<151> 2022-01-20

<150> US 63/263,131

<151> 2021-10-27

<150> US 63/172,495

<151> 2021-04-08

<160> 18

<170> PatentIn versión 3.5

<210> 1

<211> 1358

<212> PRT

<213> Secuencia Artificial

<220>

<223> M-1 (secuencia de aminoácidos)

<400> 1

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Asn Arg Asp Thr Gly Pro Pro Ser Ile Ser Thr Asp Thr Val Asp Val

35 40 45

Thr Asn Gly Leu Gly Thr Tyr Tyr Val Leu Asp Arg Val Tyr Leu Asn

50 55 60

Thr Thr Leu Phe Leu Asn Gly Tyr Tyr Pro Thr Ser Gly Ser Thr Tyr

65 70 75 80

Arg	Asn	Met	Ala	Leu	Lys	Gly	Thr	Asp	Lys	Leu	Ser	Thr	Leu	Trp	Phe	85	90	95
Lys	Pro	Pro	Phe	Leu	Ser	Asp	Phe	Ile	Asn	Gly	Ile	Phe	Ala	Lys	Val	100	105	110
Lys	Asn	Thr	Lys	Val	Phe	Lys	Asp	Gly	Val	Met	Tyr	Ser	Glu	Phe	Pro	115	120	125
Ala	Ile	Thr	Ile	Gly	Ser	Thr	Phe	Val	Asn	Thr	Ser	Tyr	Ser	Val	Val	130	135	140
Val	Gln	Pro	Arg	Thr	Ile	Asn	Ser	Thr	Gln	Asp	Gly	Val	Asn	Lys	Leu	145	150	155
Gln	Gly	Leu	Leu	Glu	Val	Ser	Val	Cys	Gln	Tyr	Asn	Met	Cys	Glu	Tyr	165	170	175
Pro	His	Thr	Ile	Cys	His	Pro	Lys	Leu	Gly	Asn	His	Phe	Lys	Glu	Leu	180	185	190
Trp	His	Leu	Asp	Thr	Gly	Val	Val	Ser	Cys	Leu	Tyr	Lys	Arg	Asn	Phe	195	200	205
Thr	Tyr	Asp	Val	Asn	Ala	Thr	Tyr	Leu	Tyr	Phe	His	Phe	Tyr	Gln	Glu	210	215	220
Gly	Gly	Thr	Phe	Tyr	Ala	Tyr	Phe	Thr	Asp	Thr	Gly	Phe	Val	Thr	Lys	225	230	235
Phe	Leu	Phe	Asn	Val	Tyr	Leu	Gly	Met	Ala	Leu	Ser	His	Tyr	Tyr	Val	245	250	255
Met	Pro	Leu	Thr	Cys	Ile	Ser	Arg	Leu	Asp	Ile	Gly	Phe	Thr	Leu	Glu	260	265	270

Tyr Trp Val Thr Pro Leu Thr Pro Arg Gln Tyr Leu Leu Ala Phe Asn			
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Gln Asp Gly Ile Ile Phe Asn Ala Val Asp Cys Met Ser Asp Phe Met			
290	295	300	
Ser Glu Ile Lys Cys Lys Thr Gln Ser Ile Ala Pro Pro Thr Gly Val			
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Tyr Glu Leu Asn Gly Tyr Thr Val Gln Pro Ile Ala Asp Val Tyr Arg			
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Arg Lys Pro Asp Leu Pro Asn Cys Asn Ile Glu Ala Trp Leu Asn Asp			
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Lys Ser Val Pro Ser Pro Leu Asn Trp Glu Arg Lys Thr Phe Ser Asn			
355	360	365	
Cys Asn Phe Asn Met Ser Ser Leu Met Ser Phe Ile Gln Ala Asp Ser			
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Phe Thr Cys Asn Asn Ile Asp Ala Ala Lys Ile Tyr Gly Met Cys Phe			
385	390	395	400
Ser Ser Ile Thr Ile Asp Lys Phe Ala Ile Pro Asn Arg Arg Lys Val			
	405	410	415
Asp Leu Gln Leu Gly Asn Leu Gly Tyr Leu Gln Ser Ser Asn Tyr Arg			
	420	425	430
Ile Asp Thr Thr Ala Thr Ser Cys Gln Leu Tyr Tyr Asn Leu Pro Ala			
435	440	445	
Ala Asn Val Ser Val Ser Arg Phe Asn Pro Ser Thr Trp Asn Lys Arg			
450	455	460	

Phe Gly Phe Ile Glu Asp Ser Val Phe Val Pro Gln Pro Thr Gly Val			
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Phe Thr Asn His Ser Val Val Tyr Ala Gln His Cys Phe Lys Ala Pro			
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Thr Leu Asp Pro Ile Thr Phe Lys Ala Pro Asp Thr Tyr Lys Cys Pro			
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Gln Thr Lys Ser Leu Val Gly Ile Gly Glu His Cys Ser Gly Leu Ala			
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Val Lys Ser Asp Tyr Cys Gly Asn Asn Ser Cys Thr Cys Gln Pro Gln			
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Asn Ile Phe Ala Asn Phe Ile Leu His Asp Val Asn Asn Gly Leu Thr			
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Cys Ser Thr Asp Leu Gln Lys Ala Asn Thr Glu Ile Glu Leu Gly Val			
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Cys Val Asn Tyr Asp Leu Tyr Gly Ile Ser Gly Gln Gly Ile Phe Val			
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Glu Val Asn Ala Thr Tyr Tyr Asn Ser Trp Gln Asn Leu Leu Tyr Asp			
	645	650	655

Ser Asn Gly Asn Leu Tyr Gly Phe Arg Asp Tyr Ile Thr Asn Arg Thr			
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Phe Met Ile His Ser Cys Tyr Ser Gly Arg Val Ser Ala Ala Tyr His			
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Tyr Val Phe Asn Asn Ser Leu Thr Arg Gln Leu Gln Pro Ile Asn Tyr			
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Ser Phe Asp Ser Tyr Leu Gly Cys Val Val Asn Ala Tyr Asn Ser Thr			
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Ala Ile Ser Val Gln Thr Cys Asp Leu Thr Val Gly Ser Gly Tyr Cys			
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Val Asp Tyr Ser Lys Asn Arg Arg Ser Arg Gly Ala Ile Thr Thr Gly			
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Phe Thr Ile Gly Asn Met Glu Glu Phe Ile Gln Thr Ser Ser Pro Lys			
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Val Thr Ile Asp Cys Ala Ala Phe Val Cys Gly Asp Tyr Ala Ala Cys			
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Lys Leu Gln Leu Val Glu Tyr Gly Ser Phe Cys Asp Asn Ile Asn Ala			
835	840	845	

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Gly	Val	Asn	Phe	Asn	Val	Asp	Asp	Ile	Asn	Phe	Ser	Pro	Val	Leu	Gly
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Cys	Leu	Gly	Ser	Glu	Cys	Ser	Lys	Ala	Ser	Ser	Arg	Ser	Ala	Ile	Glu
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Asp	Leu	Leu	Phe	Asp	Lys	Val	Lys	Leu	Ser	Asp	Val	Gly	Phe	Val	Glu
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Ala	Tyr	Asn	Asn	Cys	Thr	Gly	Gly	Ala	Glu	Ile	Arg	Asp	Leu	Ile	Cys
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Val	Gln	Ser	Tyr	Lys	Gly	Ile	Lys	Val	Leu	Pro	Pro	Leu	Leu	Ser	Glu
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				965					970					975	
Pro	Pro	Trp	Thr	Ala	Ala	Ala	Gly	Val	Pro	Phe	Tyr	Leu	Asn	Val	Gln
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1070						1075					1080			
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Gly	Cys	Cys	Asp	Asp	Tyr	Thr	Gly	Tyr	Gln	Glu	Leu	Val	Ile	Lys
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<212> ADN

<213> Secuencia Artificial

<220>

<223> M-1 (secuencia de ácido nucleico)

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<212> PRT

<213> Secuencia Artificial

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<223> M-2 (secuencia de aminoácidos)

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35 40 45

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

Met Gly Arg Phe Phe Asn His Thr Leu Val Leu Leu Pro Asp Gly Cys

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Leu	Ala	Thr	Val	Pro	His	Asn	Leu	Thr	Thr	Ile	Thr	Lys	Pro	Leu	Lys
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Leu	Ser	Pro	Leu	Glu	Gly	Gly	Gly	Trp	Leu	Val	Ala	Ser	Gly	Ser	Thr

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Val	Ala	Met	Thr	Glu	Gln	Leu	Gln	Met	Gly	Phe	Gly	Ile	Thr	Val	Gln
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Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn
			580					585					590		
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu
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	610					615					620				
Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly
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Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser
			645						650					655	
Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr
			660					665					670		
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln
	675						680					685			
Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr
	690					695					700				
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser
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Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys
			725					730					735		
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser

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Gln Val Asp Gln Leu Asn Ser Ser Tyr Phe Lys Leu Ser Ile Pro Thr		
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Asn Phe Ser Phe Gly Val Thr Gln Glu Tyr Ile Gln Thr Thr Ile Gln		
785	790	795
Lys Val Thr Val Asp Cys Lys Gln Tyr Val Cys Asn Gly Phe Gln Lys		
805	810	815
Cys Glu Gln Leu Leu Arg Glu Tyr Gly Gln Phe Cys Ser Lys Ile Asn		
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Leu Phe Ala Ser Val Lys Ser Ser Gln Ser Ser Pro Ile Ile Pro Gly		
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Thr Gly Ser Arg Ser Ala Arg Ser Ala Ile Glu Asp Leu Leu Phe Asp		
885	890	895
Lys Val Thr Ile Ala Asp Pro Gly Tyr Met Gln Gly Tyr Asp Asp Cys		
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Met Gln Gln Gly Pro Ala Ser Ala Arg Asp Leu Ile Cys Ala Gln Tyr		
915	920	925
Val Ala Gly Tyr Lys Val Leu Pro Pro Leu Met Asp Val Asn Met Glu		

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				960
Thr Ala Gly Leu Ser Ser Phe Ala Ala Ile Pro Phe Ala Gln Ser Ile				
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Phe Tyr Arg Leu Asn Gly Val Gly Ile Thr Gln Gln Val Leu Ser Glu				
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Asn Gln Lys Leu Ile Ala Asn Lys Phe Asn Gln Ala Leu Gly Ala Met				
	995		1000	1005
Gln Thr Gly Phe Thr Thr Thr Asn Glu Ala Phe Arg Lys Val Gln				
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Asp Ala Val Asn Asn Asn Ala Gln Ala Leu Ser Lys Leu Ala Ser				
1025		1030		1035
Glu Leu Ser Asn Thr Phe Gly Ala Ile Ser Ala Ser Ile Gly Asp				
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Ile Ile Gln Arg Leu Asp Val Leu Glu Gln Asp Ala Gln Ile Asp				
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Arg Leu Ile Asn Gly Arg Leu Thr Thr Leu Asn Ala Phe Val Ala				
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Gln Gln Leu Val Arg Ser Glu Ser Ala Ala Leu Ser Ala Gln Leu				
1085		1090		1095
Ala Lys Asp Lys Val Asn Glu Cys Val Lys Ala Gln Ser Lys Arg				
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Ser Gly Phe Cys Gly Gln Gly Thr His Ile Val Ser Phe Val Val				

1115		1120		1125
Asn Ala Pro Asn Gly Leu Tyr Phe Met His Val Gly Tyr Tyr Pro				
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Ser Asn His Ile Glu Val Val Ser Ala Tyr Gly Leu Cys Asp Ala				
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Ala Asn Pro Thr Asn Cys Ile Ala Pro Val Asn Gly Tyr Phe Ile				
1160		1165		1170
Lys Thr Asn Asn Thr Arg Ile Val Asp Glu Trp Ser Tyr Thr Gly				
1175		1180		1185
Ser Ser Phe Tyr Ala Pro Glu Pro Ile Thr Ser Leu Asn Thr Lys				
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Tyr Val Ala Pro Gln Val Thr Tyr Gln Asn Ile Ser Thr Asn Leu				
1205		1210		1215
Pro Pro Pro Leu Leu Gly Asn Ser Thr Gly Ile Asp Phe Gln Asp				
1220		1225		1230
Glu Leu Asp Glu Phe Phe Lys Asn Val Ser Thr Ser Ile Pro Asn				
1235		1240		1245
Phe Gly Ser Leu Thr Gln Ile Asn Thr Thr Leu Leu Asp Leu Thr				
1250		1255		1260
Tyr Glu Met Leu Ser Leu Gln Gln Val Val Lys Ala Leu Asn Glu				
1265		1270		1275
Ser Tyr Ile Asp Leu Lys Glu Leu Gly Asn Tyr Thr Tyr Tyr Asn				
1280		1285		1290
Lys Trp Pro Trp Tyr Ile Trp Leu Gly Phe Ile Ala Gly Leu Val				

1295		1300		1305
Ala Leu	Ala Leu Cys Val Phe	Phe Ile Leu Cys Cys	Thr Gly Cys	
1310		1315		1320
Gly Thr	Asn Cys Met Gly Lys	Leu Lys Cys Asn Arg	Cys Cys Asp	
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Arg Tyr	Glu Glu Tyr Asp Leu	Glu Pro His Lys Val	His Val His	
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<210> 4

<211> 4062

<212> ADN

<213> Secuencia Artificial

<220>

<223> M-2 (secuencia de ácido nucleico)

<400> 4

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<210> 5

<211> 1356

<212> PRT

<213> Secuencia Artificial

<220>

<223> M-3 (secuencia de aminoácidos)

<400> 5

Met Lys Leu Phe Leu Ile Leu Leu Val Leu Pro Leu Ala Ser Cys Phe

1 5 10 15

Phe Thr Cys Asn Ser Asn Ala Asn Leu Ser Met Leu Gln Leu Gly Val

20 25 30

Pro Asp Asn Ser Ser Thr Ile Val Thr Gly Leu Leu Pro Thr His Trp

35 40 45

Ile Cys Ala Asn Gln Ser Thr Ser Val Tyr Ser Ala Asn Gly Phe Phe

50 55 60

Tyr Ile Asp Val Gly Asn His Arg Ser Ala Phe Ala Leu His Thr Gly

65 70 75 80

Tyr	Tyr	Asp	Val	Asn	Gln	Tyr	Tyr	Ile	Tyr	Val	Thr	Asn	Glu	Ile	Gly	85	90	95	
Leu	Asn	Ala	Ser	Val	Thr	Leu	Lys	Ile	Cys	Lys	Phe	Gly	Ile	Asn	Thr	100	105	110	
Thr	Phe	Asp	Phe	Leu	Ser	Asn	Ser	Ser	Ser	Ser	Phe	Asp	Cys	Ile	Val	115	120	125	
Asn	Leu	Leu	Phe	Thr	Glu	Gln	Leu	Gly	Ala	Pro	Leu	Gly	Ile	Thr	Ile	130	135	140	
Ser	Gly	Glu	Thr	Val	Arg	Leu	His	Leu	Tyr	Asn	Val	Thr	Arg	Thr	Phe	145	150	155	160
Tyr	Val	Pro	Ala	Ala	Tyr	Lys	Leu	Thr	Lys	Leu	Ser	Val	Lys	Cys	Tyr	165	170	175	
Phe	Asn	Tyr	Ser	Cys	Val	Phe	Ser	Val	Val	Asn	Ala	Thr	Val	Thr	Val	180	185	190	
Asn	Val	Thr	Thr	His	Asn	Gly	Arg	Val	Val	Asn	Tyr	Thr	Val	Cys	Asp	195	200	205	
Asp	Cys	Asn	Gly	Tyr	Thr	Asp	Asn	Ile	Phe	Ser	Val	Gln	Gln	Asp	Gly	210	215	220	
Arg	Ile	Pro	Asn	Gly	Phe	Pro	Phe	Asn	Asn	Trp	Phe	Leu	Leu	Thr	Asn	225	230	235	240
Gly	Ser	Thr	Leu	Val	Asp	Gly	Val	Ser	Arg	Leu	Tyr	Gln	Pro	Leu	Arg	245	250	255	
Leu	Thr	Cys	Leu	Trp	Pro	Val	Pro	Gly	Leu	Lys	Ser	Ser	Thr	Gly	Phe	260	265	270	

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

Asp	Asp	Asn	Val	Leu	Pro	Glu	Thr	Tyr	Val	Ala	Leu	Pro	Ile	Tyr	Tyr
465					470					475					480
Gln	His	Thr	Asp	Ile	Asn	Phe	Thr	Ala	Thr	Ala	Ser	Phe	Gly	Gly	Ser
				485					490					495	
Cys	Tyr	Val	Cys	Lys	Pro	His	Gln	Val	Asn	Ile	Ser	Leu	Asn	Gly	Asn
			500					505					510		
Thr	Ser	Val	Cys	Val	Arg	Thr	Ser	His	Phe	Ser	Ile	Arg	Tyr	Ile	Tyr
		515					520					525			
Asn	Arg	Val	Lys	Ser	Gly	Ser	Pro	Gly	Asp	Ser	Ser	Trp	His	Ile	Tyr
	530					535					540				
Leu	Lys	Ser	Gly	Thr	Cys	Pro	Phe	Ser	Phe	Ser	Lys	Leu	Asn	Asn	Phe
545					550					555					560
Gln	Lys	Phe	Lys	Thr	Ile	Cys	Phe	Ser	Thr	Val	Ala	Val	Pro	Gly	Ser
				565					570					575	
Cys	Asn	Phe	Pro	Leu	Glu	Ala	Thr	Trp	His	Tyr	Thr	Ser	Tyr	Thr	Ile
			580					585					590		
Val	Gly	Ala	Leu	Tyr	Val	Thr	Trp	Ser	Glu	Gly	Asn	Ser	Ile	Thr	Gly
		595					600					605			
Val	Pro	Tyr	Pro	Val	Ser	Gly	Ile	Arg	Glu	Phe	Ser	Asn	Leu	Val	Leu
	610					615					620				
Asn	Asn	Cys	Thr	Lys	Tyr	Asn	Ile	Tyr	Asp	Tyr	Val	Gly	Thr	Gly	Ile
625					630					635					640
Ile	Arg	Ser	Ser	Asn	Gln	Ser	Leu	Ala	Gly	Gly	Ile	Thr	Tyr	Val	Ser
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Asn Ser Gly Asn Leu Leu Gly Phe Lys Asn Val Ser Thr Gly Asn Ile			
660	665	670	
Phe Ile Val Thr Pro Cys Asn Gln Pro Asp Gln Val Ala Val Tyr Gln			
675	680	685	
Gln Ser Ile Ile Gly Ala Met Thr Ala Val Asn Glu Ser Arg Tyr Gly			
690	695	700	
Leu Gln Asn Leu Leu Gln Leu Pro Asn Phe Tyr Tyr Val Ser Asn Gly			
705	710	715	720
Gly Asn Asn Cys Thr Thr Ala Val Met Thr Tyr Ser Asn Phe Gly Ile			
725	730	735	
Cys Ala Asp Gly Ser Leu Ile Pro Val Arg Pro Arg Asn Ser Ser Asp			
740	745	750	
Asn Gly Ile Ser Ala Ile Ile Thr Ala Asn Leu Ser Ile Pro Ser Asn			
755	760	765	
Trp Thr Thr Ser Val Gln Val Glu Tyr Leu Gln Ile Thr Ser Thr Pro			
770	775	780	
Ile Val Val Asp Cys Ala Thr Tyr Val Cys Asn Gly Asn Pro Arg Cys			
785	790	795	800
Lys Asn Leu Leu Lys Gln Tyr Thr Ser Ala Cys Lys Thr Ile Glu Asp			
805	810	815	
Ala Leu Arg Leu Ser Ala His Leu Glu Thr Asn Asp Val Ser Ser Met			
820	825	830	
Leu Thr Phe Asp Ser Asn Ala Phe Ser Leu Ala Asn Val Thr Ser Phe			
835	840	845	

Gly	Asp	Tyr	Asn	Leu	Ser	Ser	Val	Leu	Pro	Gln	Arg	Asn	Ile	His	Ser
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Ser	Arg	Ile	Ala	Gly	Arg	Ser	Ala	Leu	Glu	Asp	Leu	Leu	Phe	Ser	Lys
865						870				875					880
Val	Val	Thr	Ser	Gly	Leu	Gly	Thr	Val	Asp	Val	Asp	Tyr	Lys	Ser	Cys
				885					890					895	
Thr	Lys	Gly	Leu	Ser	Ile	Ala	Asp	Leu	Ala	Cys	Ala	Gln	Tyr	Tyr	Asn
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Gly	Ile	Met	Val	Leu	Pro	Gly	Val	Ala	Asp	Ala	Glu	Arg	Met	Ala	Met
		915						920					925		
Tyr	Thr	Gly	Ser	Leu	Ile	Gly	Gly	Met	Val	Leu	Gly	Gly	Leu	Thr	Ser
		930						935					940		
Ala	Ala	Ala	Ile	Pro	Phe	Ser	Leu	Ala	Leu	Gln	Ala	Arg	Leu	Asn	Tyr
945							950					955			960
Val	Ala	Leu	Gln	Thr	Asp	Val	Leu	Gln	Glu	Asn	Gln	Lys	Ile	Leu	Ala
							965					970			975
Ala	Ser	Phe	Asn	Lys	Ala	Ile	Asn	Asn	Ile	Val	Ala	Ser	Phe	Ser	Ser
				980					985					990	
Val	Asn	Asp	Ala	Ile	Thr	Gln	Thr	Ala	Glu	Ala	Ile	His	Thr	Val	Thr
							995					1000			1005
Ile	Ala	Leu	Asn	Lys	Ile	Gln	Asp	Val	Val	Asn	Gln	Gln	Gly	Ser	
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Ala	Leu	Asn	His	Leu	Thr	Ser	Gln	Leu	Arg	His	Asn	Phe	Gln	Ala	
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Gln Ala Asp Gln Gln Val Asp	Arg Leu Ile Thr Gly Arg Leu Ala
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Ala Leu Asn Ala Phe Val Ser	Gln Val Leu Asn Lys Tyr Thr Glu
1070	1075 1080
Val Arg Ser Ser Arg Arg Leu	Ala Gln Gln Lys Ile Asn Glu Cys
1085	1090 1095
Val Lys Ser Gln Ser Asn Arg	Tyr Gly Phe Cys Gly Asn Gly Thr
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His Ile Phe Ser Ile Val Asn	Ser Ala Pro Asp Gly Leu Leu Phe
1115	1120 1125
Leu His Thr Val Leu Leu Pro	Thr Asp Tyr Lys Asn Val Lys Ala
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Trp Ser Gly Ile Cys Val Asp	Gly Ile Tyr Gly Tyr Val Leu Arg
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Phe Val Gln Ile Tyr Asn Cys	Asn Val Thr Phe Val Asn Ile Ser
1190	1195 1200
Arg Val Glu Leu His Thr Val	Ile Pro Asp Tyr Val Asp Val Asn
1205	1210 1215

Lys	Thr	Leu	Gln	Glu	Phe	Ala	Gln	Asn	Leu	Pro	Lys	Tyr	Val	Lys
1220						1225					1230			

Pro	Asn	Phe	Asp	Leu	Thr	Pro	Phe	Asn	Leu	Thr	Tyr	Leu	Asn	Leu
1235						1240					1245			

Ser	Ser	Glu	Leu	Lys	Gln	Leu	Glu	Ala	Lys	Thr	Ala	Ser	Leu	Phe
1250						1255					1260			

Gln	Thr	Thr	Val	Glu	Leu	Gln	Gly	Leu	Ile	Asp	Gln	Ile	Asn	Ser
1265						1270					1275			

Thr	Tyr	Val	Asp	Leu	Lys	Leu	Leu	Asn	Arg	Phe	Glu	Asn	Tyr	Ile
1280						1285					1290			

Lys	Trp	Pro	Trp	Trp	Val	Trp	Leu	Ile	Ile	Ser	Val	Val	Phe	Val
1295						1300					1305			

Val	Leu	Leu	Ser	Leu	Leu	Val	Phe	Cys	Cys	Leu	Ser	Thr	Gly	Cys
1310						1315					1320			

Cys	Gly	Cys	Cys	Asn	Cys	Leu	Thr	Ser	Ser	Met	Arg	Gly	Cys	Cys
1325						1330					1335			

Asp	Cys	Gly	Ser	Thr	Lys	Leu	Pro	Tyr	Tyr	Glu	Phe	Glu	Lys	Val
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His	Val	Gln
1355		

<210> 6

<211> 4071

<212> ADN

<213> Secuencia Artificial

<220>

<223> M-3 (secuencia de ácido nucleico)

<400> 6

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 Thr Arg Gly Val Tyr Tyr Pro Asp Lys Val Phe Arg Ser Ser Val Leu
 35 40 45
 His Ser Thr Gln Asp Leu Phe Leu Pro Phe Phe Ser Asn Val Thr Trp
 50 55 60

Phe	His	Ala	Ile	His	Val	Ser	Gly	Thr	Asn	Gly	Thr	Lys	Arg	Phe	Asp
65					70					75					80
Asn	Pro	Val	Leu	Pro	Phe	Asn	Asp	Gly	Val	Tyr	Phe	Ala	Ser	Thr	Glu
				85					90					95	
Lys	Ser	Asn	Ile	Ile	Arg	Gly	Trp	Ile	Phe	Gly	Thr	Thr	Leu	Asp	Ser
			100					105					110		
Lys	Thr	Gln	Ser	Leu	Leu	Ile	Val	Asn	Asn	Ala	Thr	Asn	Val	Val	Ile
		115					120					125			
Lys	Val	Cys	Glu	Phe	Gln	Phe	Cys	Asn	Tyr	Pro	Phe	Leu	Tyr	His	Lys
	130					135					140				
Asn	Asn	Lys	Ser	Trp	Met	Glu	Ser	Glu	Phe	Arg	Val	Tyr	Ser	Ser	Ala
145					150					155					160
Asn	Asn	Cys	Thr	Phe	Glu	Tyr	Val	Ser	Gln	Pro	Phe	Leu	Met	Asp	Leu
				165					170					175	
Glu	Gly	Lys	His	Gly	Asn	Phe	Lys	Asn	Leu	Arg	Glu	Phe	Val	Phe	Lys
			180					185					190		
Asn	Ile	Asp	Gly	Tyr	Phe	Lys	Ile	Tyr	Ser	Lys	His	Thr	Pro	Ile	Asn
		195					200					205			
Leu	Val	Arg	Asp	Leu	Pro	Gln	Gly	Phe	Ser	Ala	Leu	Glu	Pro	Leu	Val
	210					215					220				
Asp	Leu	Pro	Ile	Gly	Ile	Asn	Ile	Thr	Arg	Phe	Gln	Thr	Leu	Leu	Ala
225					230					235					240
Leu	His	Arg	Ser	Tyr	Leu	Thr	Pro	Gly	Asp	Ser	Ser	Ser	Gly	Trp	Thr
				245					250					255	

Ala Gly Ala Ala Ala Tyr Tyr Val Gly Tyr Leu Gln Pro Arg Thr Phe			
260	265	270	
Leu Leu Lys Tyr Asn Glu Asn Gly Thr Ile Thr Asp Ala Val Asp Cys			
275	280	285	
Ala Leu Asp Pro Leu Ser Glu Thr Lys Cys Thr Leu Lys Ser Phe Thr			
290	295	300	
Val Glu Lys Gly Ile Tyr Gln Thr Ser Asn Phe Arg Val Gln Pro Thr			
305	310	315	320
Glu Ser Ile Val Arg Phe Pro Asn Ile Thr Asn Leu Cys Pro Phe Gly			
325	330	335	
Glu Val Phe Asn Ala Thr Arg Phe Ala Ser Val Tyr Ala Trp Asn Arg			
340	345	350	
Lys Arg Ile Ser Asn Cys Val Ala Asp Tyr Ser Val Leu Tyr Asn Ser			
355	360	365	
Ala Ser Phe Ser Thr Phe Lys Cys Tyr Gly Val Ser Pro Thr Lys Leu			
370	375	380	
Asn Asp Leu Cys Phe Thr Asn Val Tyr Ala Asp Ser Phe Val Ile Arg			
385	390	395	400
Gly Asp Glu Val Arg Gln Ile Ala Pro Gly Gln Thr Gly Thr Ile Ala			
405	410	415	
Asp Tyr Asn Tyr Lys Leu Pro Asp Asp Phe Thr Gly Cys Val Ile Ala			
420	425	430	
Trp Asn Ser Asn Asn Leu Asp Ser Lys Val Gly Gly Asn Tyr Asn Tyr			
435	440	445	

Leu	Tyr	Arg	Leu	Phe	Arg	Lys	Ser	Asn	Leu	Lys	Pro	Phe	Glu	Arg	Asp
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Ile	Ser	Thr	Glu	Ile	Tyr	Gln	Ala	Gly	Ser	Lys	Pro	Cys	Asn	Gly	Val
465					470					475					480
Lys	Gly	Phe	Asn	Cys	Tyr	Phe	Pro	Leu	Gln	Pro	Tyr	Gly	Phe	Gln	Pro
			485						490					495	
Thr	Tyr	Gly	Val	Gly	Tyr	Gln	Pro	Tyr	Arg	Val	Val	Val	Leu	Ser	Phe
			500						505					510	
Glu	Leu	Leu	His	Ala	Pro	Ala	Thr	Val	Cys	Gly	Pro	Lys	Lys	Ser	Thr
			515					520					525		
Asn	Leu	Val	Lys	Asn	Lys	Cys	Val	Asn	Phe	Asn	Phe	Asn	Gly	Leu	Thr
			530				535						540		
Gly	Thr	Gly	Val	Leu	Thr	Glu	Ser	Asn	Lys	Lys	Phe	Leu	Pro	Phe	Gln
545					550					555					560
Gln	Phe	Gly	Arg	Asp	Ile	Ala	Asp	Thr	Thr	Asp	Ala	Val	Arg	Asp	Pro
				565					570					575	
Gln	Thr	Leu	Glu	Ile	Leu	Asp	Ile	Thr	Pro	Cys	Ser	Phe	Gly	Gly	Val
			580					585						590	
Ser	Val	Ile	Thr	Pro	Gly	Thr	Asn	Thr	Ser	Asn	Gln	Val	Ala	Val	Leu
			595					600						605	
Tyr	Gln	Gly	Val	Asn	Cys	Thr	Glu	Val	Pro	Val	Ala	Ile	His	Ala	Asp
			610				615					620			
Gln	Leu	Thr	Pro	Thr	Trp	Arg	Val	Tyr	Ser	Thr	Gly	Ser	Asn	Val	Phe
625						630					635				640

Gln	Thr	Arg	Ala	Gly	Cys	Leu	Ile	Gly	Ala	Glu	His	Val	Asn	Asn	Ser			
				645					650					655				
Tyr	Glu	Cys	Asp	Ile	Pro	Ile	Gly	Ala	Gly	Ile	Cys	Ala	Ser	Tyr	Gln			
				660				665						670				
Thr	Gln	Thr	Asn	Ser	Pro	Arg	Arg	Ala	Arg	Ser	Val	Ala	Ser	Gln	Ser			
				675				680						685				
Ile	Ile	Ala	Tyr	Thr	Met	Ser	Leu	Gly	Ala	Glu	Asn	Ser	Val	Ala	Tyr			
				690				695					700					
Ser	Asn	Asn	Ser	Ile	Ala	Ile	Pro	Thr	Asn	Phe	Thr	Ile	Ser	Val	Thr			
705					710					715					720			
Thr	Glu	Ile	Leu	Pro	Val	Ser	Met	Thr	Lys	Thr	Ser	Val	Asp	Cys	Thr			
				725					730					735				
Met	Tyr	Ile	Cys	Gly	Asp	Ser	Thr	Glu	Cys	Ser	Asn	Leu	Leu	Leu	Gln			
				740				745					750					
Tyr	Gly	Ser	Phe	Cys	Thr	Gln	Leu	Asn	Arg	Ala	Leu	Thr	Gly	Ile	Ala			
				755				760					765					
Val	Glu	Gln	Asp	Lys	Asn	Thr	Gln	Glu	Val	Phe	Ala	Gln	Val	Lys	Gln			
				770				775					780					
Ile	Tyr	Lys	Thr	Pro	Pro	Ile	Lys	Asp	Phe	Gly	Gly	Phe	Asn	Phe	Ser			
785					790					795					800			
Gln	Ile	Leu	Pro	Asp	Pro	Ser	Lys	Pro	Ser	Lys	Arg	Ser	Phe	Ile	Glu			
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Asp	Leu	Leu	Phe	Asn	Lys	Val	Thr	Leu	Ala	Asp	Ala	Gly	Phe	Ile	Lys			
				820				825					830					

Gln Tyr Gly Asp Cys Leu Gly Asp Ile Ala Ala Arg Asp Leu Ile Cys			
835	840	845	
Ala Gln Lys Phe Asn Gly Leu Thr Val Leu Pro Pro Leu Leu Thr Asp			
850	855	860	
Glu Met Val Ala Gln Tyr Thr Ser Ala Leu Leu Ala Gly Thr Ile Thr			
865	870	875	880
Ser Gly Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro Phe Ala			
	885	890	895
Met Gln Met Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr Gln Asn Val			
	900	905	910
Leu Tyr Glu Asn Gln Lys Leu Ile Ala Asn Gln Phe Asn Ser Ala Ile			
	915	920	925
Gly Lys Ile Gln Asp Ser Leu Ser Ser Thr Ala Ser Ala Leu Gly Lys			
	930	935	940
Leu Gln Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn Thr Leu Val			
945	950	955	960
Lys Gln Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val Leu Asn Asp			
	965	970	975
Ile Leu Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln Ile Asp Arg			
	980	985	990
Leu Ile Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr Gln Gln			
	995	1000	1005
Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu Ala Ala			
	1010	1015	1020

Thr Lys	Met Ser Glu Cys Val	Leu Gly Gln Ser Lys	Arg Val Asp
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Phe Cys	Gly Lys Gly Tyr His	Leu Met Ser Phe Pro	Gln Ser Ala
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Pro His	Gly Val Val Phe Leu	His Val Thr Tyr Val	Pro Ala Gln
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Glu Lys	Asn Phe Thr Thr Ala	Pro Ala Ile Cys His	Asp Gly Lys
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Ala His	Phe Pro Arg Glu Gly	Val Phe Val Ser Asn	Gly Thr His
1085	1090	1095	
Trp Phe	Val Thr Gln Arg Asn	Phe Tyr Glu Pro Gln	Ile Ile Thr
1100	1105	1110	
Thr Asp	Asn Thr Phe Val Ser	Gly Asn Cys Asp Val	Val Ile Gly
1115	1120	1125	
Ile Val	Asn Asn Thr Val Tyr	Asp Pro Leu Gln Pro	Glu Leu Asp
1130	1135	1140	
Ser Phe	Lys Glu Glu Leu Asp	Lys Tyr Phe Lys Asn	His Thr Ser
1145	1150	1155	
Pro Asp	Val Asp Leu Gly Asp	Ile Ser Gly Ile Asn	Ala Ser Phe
1160	1165	1170	
Val Asn	Ile Gln Lys Glu Ile	Asp Arg Leu Asn Glu	Val Ala Lys
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Asn Leu	Asn Glu Ser Leu Ile	Asp Leu Gln Glu Leu	Gly Lys Tyr
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Glu	Gln	Tyr	Ile	Lys	Trp	Pro	Trp	Tyr	Ile	Trp	Leu	Gly	Phe	Ile
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Ala	Gly	Leu	Ile	Ala	Ile	Val	Met	Val	Thr	Ile	Met	Leu	Cys	Cys
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Met	Thr	Ser	Cys	Cys	Ser	Cys	Leu	Lys	Gly	Cys	Cys	Ser	Cys	Gly
1235						1240					1245			

Ser	Cys	Cys	Lys	Phe	Asp	Glu	Asp	Asp	Ser	Glu	Pro	Val	Leu	Lys
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Gly	Val	Lys	Leu	His	Tyr	Thr
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<211> 3813

<212> ADN

<213> Secuencia Artificial

<220>

<223> M-4 (secuencia de ácido nucleico)

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<210> 11

<211> 1273

<212> PRT

<213> Secuencia Artificial

<220>

<223> M-B (secuencia de aminoácidos)

<400> 11

Met Phe Val Phe Leu Val Leu Leu Pro Leu Val Ser Ser Gln Cys Val

1 5 10 15

Asn Leu Thr Thr Arg Thr Gln Leu Pro Pro Ala Tyr Thr Asn Ser Phe

20 25 30

Thr Arg Gly Val Tyr Tyr Pro Asp Lys Val Phe Arg Ser Ser Val Leu

35 40 45

His Ser Thr Gln Asp Leu Phe Leu Pro Phe Phe Ser Asn Val Thr Trp

50 55 60

Phe His Ala Ile His Val Ser Gly Thr Asn Gly Thr Lys Arg Phe Asp

65		70		75		80									
Asn	Pro	Val	Leu	Pro	Phe	Asn	Asp	Gly	Val	Tyr	Phe	Ala	Ser	Thr	Glu
			85					90					95		
Lys	Ser	Asn	Ile	Ile	Arg	Gly	Trp	Ile	Phe	Gly	Thr	Thr	Leu	Asp	Ser
			100					105					110		
Lys	Thr	Gln	Ser	Leu	Leu	Ile	Val	Asn	Asn	Ala	Thr	Asn	Val	Val	Ile
		115					120					125			
Lys	Val	Cys	Glu	Phe	Gln	Phe	Cys	Asn	Asp	Pro	Phe	Leu	Gly	Val	Tyr
	130					135					140				
Tyr	His	Lys	Asn	Asn	Lys	Ser	Trp	Met	Glu	Ser	Glu	Phe	Arg	Val	Tyr
145					150					155					160
Ser	Ser	Ala	Asn	Asn	Cys	Thr	Phe	Glu	Tyr	Val	Ser	Gln	Pro	Phe	Leu
			165						170					175	
Met	Asp	Leu	Glu	Gly	Lys	Gln	Gly	Asn	Phe	Lys	Asn	Leu	Arg	Glu	Phe
		180						185					190		
Val	Phe	Lys	Asn	Ile	Asp	Gly	Tyr	Phe	Lys	Ile	Tyr	Ser	Lys	His	Thr
		195					200					205			
Pro	Ile	Asn	Leu	Val	Arg	Asp	Leu	Pro	Gln	Gly	Phe	Ser	Ala	Leu	Glu
	210					215					220				
Pro	Leu	Val	Asp	Leu	Pro	Ile	Gly	Ile	Asn	Ile	Thr	Arg	Phe	Gln	Thr
225				230					235					240	
Leu	Leu	Ala	Leu	His	Arg	Ser	Tyr	Leu	Thr	Pro	Gly	Asp	Ser	Ser	Ser
			245						250				255		
Gly	Trp	Thr	Ala	Gly	Ala	Ala	Ala	Tyr	Tyr	Val	Gly	Tyr	Leu	Gln	Pro

260	265	270
Arg Thr Phe Leu Leu Lys Tyr Asn Glu Asn Gly Thr Ile Thr Asp Ala		
275	280	285
Val Asp Cys Ala Leu Asp Pro Leu Ser Glu Thr Lys Cys Thr Leu Lys		
290	295	300
Ser Phe Thr Val Glu Lys Gly Ile Tyr Gln Thr Ser Asn Phe Arg Val		
305	310	315
Gln Pro Thr Glu Ser Ile Val Arg Phe Pro Asn Ile Thr Asn Leu Cys		
325	330	335
Pro Phe Gly Glu Val Phe Asn Ala Thr Arg Phe Ala Ser Val Tyr Ala		
340	345	350
Trp Asn Arg Lys Arg Ile Ser Asn Cys Val Ala Asp Tyr Ser Val Leu		
355	360	365
Tyr Asn Ser Ala Ser Phe Ser Thr Phe Lys Cys Tyr Gly Val Ser Pro		
370	375	380
Thr Lys Leu Asn Asp Leu Cys Phe Thr Asn Val Tyr Ala Asp Ser Phe		
385	390	395
Val Ile Arg Gly Asp Glu Val Arg Gln Ile Ala Pro Gly Gln Thr Gly		
405	410	415
Lys Ile Ala Asp Tyr Asn Tyr Lys Leu Pro Asp Asp Phe Thr Gly Cys		
420	425	430
Val Ile Ala Trp Asn Ser Asn Asn Leu Asp Ser Lys Val Gly Gly Asn		
435	440	445
Tyr Asn Tyr Leu Tyr Arg Leu Phe Arg Lys Ser Asn Leu Lys Pro Phe		

450		455		460	
Glu Arg Asp Ile Ser Thr	Glu Ile Tyr Gln Ala Gly	Ser Thr Pro Cys			
465	470	475	480		
Asn Gly Val Glu Gly Phe	Asn Cys Tyr Phe Pro Leu	Gln Ser Tyr Gly			
	485	490	495		
Phe Gln Pro Thr Asn Gly	Val Gly Tyr Gln Pro Tyr	Arg Val Val Val			
	500	505	510		
Leu Ser Phe Glu Leu Leu	His Ala Pro Ala Thr Val	Cys Gly Pro Lys			
	515	520	525		
Lys Ser Thr Asn Leu Val	Lys Asn Lys Cys Val Asn	Phe Asn Phe Asn			
	530	535	540		
Gly Leu Thr Gly Thr Gly	Val Leu Thr Glu Ser Asn	Lys Lys Phe Leu			
545	550	555	560		
Pro Phe Gln Gln Phe Gly	Arg Asp Ile Ala Asp Thr	Thr Asp Ala Val			
	565	570	575		
Arg Asp Pro Gln Thr Leu	Glu Ile Leu Asp Ile Thr	Pro Cys Ser Phe			
	580	585	590		
Gly Gly Val Ser Val Ile	Thr Pro Gly Thr Asn Thr	Ser Asn Gln Val			
	595	600	605		
Ala Val Leu Tyr Gln Gly	Val Asn Cys Thr Glu Val	Pro Val Ala Ile			
	610	615	620		
His Ala Asp Gln Leu Thr	Pro Thr Trp Arg Val Tyr	Ser Thr Gly Ser			
625	630	635	640		
Asn Val Phe Gln Thr Arg	Ala Gly Cys Leu Ile Gly	Ala Glu His Val			

					645						650					655
Asn	Asn	Ser	Tyr	Glu	Cys	Asp	Ile	Pro	Ile	Gly	Ala	Gly	Ile	Cys	Ala	
			660					665					670			
Ser	Tyr	Gln	Thr	Gln	Thr	Asn	Ser	Pro	Arg	Arg	Ala	Arg	Ser	Val	Ala	
		675					680					685				
Ser	Gln	Ser	Ile	Ile	Ala	Tyr	Thr	Met	Ser	Leu	Gly	Ala	Glu	Asn	Ser	
	690					695					700					
Val	Ala	Tyr	Ser	Asn	Asn	Ser	Ile	Ala	Ile	Pro	Thr	Asn	Phe	Thr	Ile	
705					710					715				720		
Ser	Val	Thr	Thr	Glu	Ile	Leu	Pro	Val	Ser	Met	Thr	Lys	Thr	Ser	Val	
				725					730				735			
Asp	Cys	Thr	Met	Tyr	Ile	Cys	Gly	Asp	Ser	Thr	Glu	Cys	Ser	Asn	Leu	
		740						745					750			
Leu	Leu	Gln	Tyr	Gly	Ser	Phe	Cys	Thr	Gln	Leu	Asn	Arg	Ala	Leu	Thr	
		755					760					765				
Gly	Ile	Ala	Val	Glu	Gln	Asp	Lys	Asn	Thr	Gln	Glu	Val	Phe	Ala	Gln	
	770					775					780					
Val	Lys	Gln	Ile	Tyr	Lys	Thr	Pro	Pro	Ile	Lys	Asp	Phe	Gly	Gly	Phe	
785					790					795					800	
Asn	Phe	Ser	Gln	Ile	Leu	Pro	Asp	Pro	Ser	Lys	Pro	Ser	Lys	Arg	Ser	
			805						810				815			
Phe	Ile	Glu	Asp	Leu	Leu	Phe	Asn	Lys	Val	Thr	Leu	Ala	Asp	Ala	Gly	
		820					825					830				
Phe	Ile	Lys	Gln	Tyr	Gly	Asp	Cys	Leu	Gly	Asp	Ile	Ala	Ala	Arg	Asp	

835	840	845
Leu Ile Cys Ala Gln Lys Phe Asn Gly Leu Thr Val Leu Pro Pro Leu		
850	855	860
Leu Thr Asp Glu Met Ile Ala Gln Tyr Thr Ser Ala Leu Leu Ala Gly		
865	870	875 880
Thr Ile Thr Ser Gly Trp Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile		
885	890	895
Pro Phe Ala Met Gln Met Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr		
900	905	910
Gln Asn Val Leu Tyr Glu Asn Gln Lys Leu Ile Ala Asn Gln Phe Asn		
915	920	925
Ser Ala Ile Gly Lys Ile Gln Asp Ser Leu Ser Ser Thr Ala Ser Ala		
930	935	940
Leu Gly Lys Leu Gln Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn		
945	950	955 960
Thr Leu Val Lys Gln Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val		
965	970	975
Leu Asn Asp Ile Leu Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln		
980	985	990
Ile Asp Arg Leu Ile Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val		
995	1000	1005
Thr Gln Gln Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn		
1010	1015	1020
Leu Ala Ala Thr Lys Met Ser Glu Cys Val Leu Gly Gln Ser Lys		

1025		1030		1035
Arg Val Asp Phe Cys Gly Lys Gly Tyr His Leu Met Ser Phe Pro				
1040		1045		1050
Gln Ser Ala Pro His Gly Val Val Phe Leu His Val Thr Tyr Val				
1055		1060		1065
Pro Ala Gln Glu Lys Asn Phe Thr Thr Ala Pro Ala Ile Cys His				
1070		1075		1080
Asp Gly Lys Ala His Phe Pro Arg Glu Gly Val Phe Val Ser Asn				
1085		1090		1095
Gly Thr His Trp Phe Val Thr Gln Arg Asn Phe Tyr Glu Pro Gln				
1100		1105		1110
Ile Ile Thr Thr Asp Asn Thr Phe Val Ser Gly Asn Cys Asp Val				
1115		1120		1125
Val Ile Gly Ile Val Asn Asn Thr Val Tyr Asp Pro Leu Gln Pro				
1130		1135		1140
Glu Leu Asp Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys Asn				
1145		1150		1155
His Thr Ser Pro Asp Val Asp Leu Gly Asp Ile Ser Gly Ile Asn				
1160		1165		1170
Ala Ser Val Val Asn Ile Gln Lys Glu Ile Asp Arg Leu Asn Glu				
1175		1180		1185
Val Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln Glu Leu				
1190		1195		1200
Gly Lys Tyr Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Ile Trp Leu				

1205		1210		1215
Gly Phe Ile Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Met				
1220		1225		1230
Leu Cys Cys Met Thr Ser Cys Cys Ser Cys Leu Lys Gly Cys Cys				
1235		1240		1245
Ser Cys Gly Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro				
1250		1255		1260
Val Leu Lys Gly Val Lys Leu His Tyr Thr				
1265		1270		

<210> 12

<211> 3822

<212> ADN

<213> Secuencia Artificial

<220>

<223> M-B (secuencia de ácido nucleico)

<400> 12

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gaaaatggaa ctattactga tgctgtagat tgtgcttttag atccattatc tgaaactaaa	900

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<210> 13

<211> 1347

<212> PRT

<213> Secuencia Artificial

<220>

<223> M5 (secuencia de aminoácidos)

<400> 13

Met Ile His Ser Val Phe Leu Leu Met Phe Leu Leu Thr Pro Thr Glu

1 5 10 15

Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu

20 25 30

Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile

35 40 45

Asp Val Ser Lys Ala Asp Gly Ile Ile Tyr Pro Gln Gly Arg Thr Tyr

50 55 60

Ser Asn Ile Thr Ile Thr Tyr Gln Gly Leu Phe Pro Tyr Gln Gly Asp

65 70 75 80

His Gly Asp Met Tyr Val Tyr Ser Ala Gly His Ala Thr Gly Thr Thr			
	85	90	95
Pro Gln Lys Leu Phe Val Ala Asn Tyr Ser Gln Asp Val Lys Gln Phe			
	100	105	110
Ala Asn Gly Phe Val Val Arg Ile Gly Ala Ala Ala Asn Ser Thr Gly			
	115	120	125
Thr Val Ile Ile Ser Pro Ser Thr Ser Ala Thr Ile Arg Lys Ile Tyr			
	130	135	140
Pro Ala Phe Met Leu Gly Ser Ser Val Gly Asn Phe Ser Asp Gly Lys			
145	150	155	160
Met Gly Arg Phe Phe Asn His Thr Leu Val Leu Leu Pro Asp Gly Cys			
	165	170	175
Gly Thr Leu Leu Arg Ala Phe Tyr Cys Ile Leu Glu Pro Arg Ser Gly			
	180	185	190
Asn His Cys Pro Ala Gly Asn Ser Tyr Thr Ser Phe Ala Thr Tyr His			
	195	200	205
Thr Pro Ala Thr Asp Cys Ser Asp Gly Asn Tyr Asn Arg Asn Ala Ser			
	210	215	220
Leu Asn Ser Phe Lys Glu Tyr Phe Asn Leu Arg Asn Cys Thr Phe Met			
225	230	235	240
Tyr Thr Tyr Asn Ile Thr Glu Asp Glu Ile Leu Glu Trp Phe Gly Ile			
	245	250	255
Thr Gln Thr Ala Gln Gly Val His Leu Phe Ser Ser Arg Tyr Val Asp			
	260	265	270

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

Ser	Gln	Phe	Asn	Tyr	Lys	Gln	Ser	Phe	Ser	Asn	Pro	Thr	Cys	Leu	Ile	465	470	475	480
Leu	Ala	Thr	Val	Pro	His	Asn	Leu	Thr	Thr	Ile	Thr	Lys	Pro	Leu	Lys	485	490	495	
Tyr	Ser	Tyr	Ile	Asn	Lys	Cys	Ser	Arg	Leu	Leu	Ser	Asp	Asp	Arg	Thr	500	505	510	
Glu	Val	Pro	Gln	Leu	Val	Asn	Ala	Asn	Gln	Tyr	Ser	Pro	Cys	Val	Ser	515	520	525	
Ile	Val	Pro	Ser	Thr	Val	Trp	Glu	Asp	Gly	Asp	Tyr	Tyr	Arg	Lys	Gln	530	535	540	
Leu	Ser	Pro	Leu	Glu	Gly	Gly	Gly	Trp	Leu	Val	Ala	Ser	Gly	Ser	Thr	545	550	555	560
Val	Ala	Met	Thr	Glu	Gln	Leu	Gln	Met	Gly	Phe	Gly	Ile	Thr	Val	Gln	565	570	575	
Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn	580	585	590	
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu	595	600	605	
Tyr	Gly	Val	Ser	Gly	Arg	Gly	Val	Phe	Gln	Asn	Cys	Thr	Ala	Val	Gly	610	615	620	
Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly	625	630	635	640
Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser	645	650	655	

Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr	
				660					665					670		
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln	
		675						680					685			
Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr	
	690						695					700				
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser	
705						710					715				720	
Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys	
				725					730					735		
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser	
			740						745					750		
Val	Pro	Gly	Glu	Met	Arg	Leu	Ala	Ser	Ile	Ala	Phe	Asn	His	Pro	Ile	
		755					760					765				
Gln	Val	Asp	Gln	Leu	Asn	Ser	Ser	Tyr	Phe	Lys	Leu	Ser	Ile	Pro	Thr	
	770					775						780				
Asn	Phe	Ser	Phe	Gly	Val	Thr	Gln	Glu	Tyr	Ile	Gln	Thr	Thr	Ile	Gln	
785						790				795					800	
Lys	Val	Thr	Val	Asp	Cys	Lys	Gln	Tyr	Val	Cys	Asn	Gly	Phe	Gln	Lys	
				805						810				815		
Cys	Glu	Gln	Leu	Leu	Arg	Glu	Tyr	Gly	Gln	Phe	Cys	Ser	Lys	Ile	Asn	
			820						825					830		
Gln	Ala	Leu	His	Gly	Ala	Asn	Leu	Arg	Gln	Asp	Asp	Ser	Val	Arg	Asn	
		835						840						845		

Leu	Phe	Ala	Ser	Val	Lys	Ser	Ser	Gln	Ser	Ser	Pro	Ile	Ile	Pro	Gly
850						855					860				
Phe	Gly	Gly	Asp	Phe	Asn	Leu	Thr	Leu	Leu	Glu	Pro	Val	Ser	Ile	Ser
865					870					875					880
Thr	Gly	Ser	Arg	Ser	Ala	Arg	Ser	Ala	Ile	Glu	Asp	Leu	Leu	Phe	Asp
				885					890					895	
Lys	Val	Thr	Ile	Ala	Asp	Pro	Gly	Tyr	Met	Gln	Gly	Tyr	Asp	Asp	Cys
			900					905					910		
Met	Gln	Gln	Gly	Pro	Ala	Ser	Ala	Arg	Asp	Leu	Ile	Cys	Ala	Gln	Lys
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Phe	Asn	Gly	Leu	Thr	Val	Leu	Pro	Pro	Leu	Leu	Thr	Asp	Asp	Met	Ile
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Ala	Ala	Tyr	Thr	Ala	Ala	Leu	Val	Ser	Gly	Thr	Ala	Thr	Ala	Gly	Trp
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Thr	Phe	Gly	Ala	Gly	Ala	Ala	Leu	Gln	Ile	Pro	Phe	Ala	Met	Gln	Met
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Ala	Tyr	Arg	Phe	Asn	Gly	Ile	Gly	Val	Thr	Gln	Asn	Val	Leu	Tyr	Glu
			980					985					990		
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		995					1000					1005			
Gln	Glu	Ser	Leu	Thr	Thr	Thr	Ser	Thr	Ala	Leu	Gly	Lys	Leu	Gln	
	1010					1015					1020				
Asp	Val	Val	Asn	Gln	Asn	Ala	Gln	Ala	Leu	Asn	Thr	Leu	Val	Lys	
	1025					1030					1035				

Gln Leu Ser Ser Asn Phe Gly	Ala Ile Ser Ser Val	Leu Asn Asp
1040	1045	1050
Ile Leu Ser Arg Leu Asp Pro	Pro Glu Ala Glu Val	Gln Ile Asp
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Arg Leu Ile Thr Gly Arg Leu	Gln Ser Leu Gln Thr	Tyr Val Thr
1070	1075	1080
Gln Gln Leu Ile Arg Ala Ala	Glu Ile Arg Ala Ser	Ala Asn Leu
1085	1090	1095
Ala Ala Thr Lys Met Ser Glu	Cys Val Leu Gly Gln	Ser Lys Arg
1100	1105	1110
Val Asp Phe Cys Gly Lys Gly	Tyr His Leu Met Ser	Phe Pro Gln
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Ala Ala Pro His Gly Val Val	Phe Leu His Val Thr	Tyr Val Pro
1130	1135	1140
Ser Gln Glu Lys Asn Phe Thr	Thr Ala Pro Ala Ile	Cys His Glu
1145	1150	1155
Gly Lys Ala Tyr Phe Pro Arg	Glu Gly Val Phe Val	Phe Asn Gly
1160	1165	1170
Thr Ser Trp Phe Ile Thr Gln	Arg Asn Phe Phe Ser	Pro Gln Ile
1175	1180	1185
Ile Thr Thr Asp Asn Thr Phe	Val Ser Gly Asn Cys	Asp Val Val
1190	1195	1200
Ile Gly Ile Ile Asn Asn Thr	Val Tyr Asp Pro Leu	Gln Pro Glu
1205	1210	1215

Leu Asp Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys Asn His
 1220 1225 1230

Thr Ser Pro Asp Val Asp Leu Gly Asp Ile Ser Gly Ile Asn Ala
 1235 1240 1245

Ser Val Val Asn Ile Gln Lys Glu Ile Asp Arg Leu Asn Glu Val
 1250 1255 1260

Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln Glu Leu Gly
 1265 1270 1275

Lys Tyr Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Val Trp Leu Gly
 1280 1285 1290

Phe Ile Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Leu Leu
 1295 1300 1305

Cys Cys Met Thr Ser Cys Cys Ser Cys Leu Lys Gly Ala Cys Ser
 1310 1315 1320

Cys Gly Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val
 1325 1330 1335

Leu Lys Gly Val Lys Leu His Tyr Thr
 1340 1345

<210> 14

<211> 4044

<212> ADN

<213> Secuencia Artificial

<220>

<223> M5 (secuencia de ácido nucleico)

<400> 14

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gacaagacct	ggccccggcc	gatagacgtt	agcaaagcag	atggaataat	ttatccccag	180
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cacggtgata	tgtacgtata	cagtgcgggc	catgcgacgg	gcacgacgcc	gcagaagttg	300
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agaaatgcgt	cactaaacag	ctttaaggag	tattttaatt	tacgcaactg	tacctttatg	720
tacacgtata	atatcacaga	ggatgagatt	ctcgagtggg	tcggtataac	tcaaacggct	780
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<210> 15

<211> 1347

<212> PRT

<213> Secuencia Artificial

<220>

<223> M5 + D510G (secuencia de aminoácidos)

<400> 15

Met Ile His Ser Val Phe Leu Leu Met Phe Leu Leu Thr Pro Thr Glu
1 5 10 15

Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu
20 25 30

Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile
35 40 45

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

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

His Gly Asp Met Tyr Val Tyr Ser Ala Gly His Ala Thr Gly Thr Thr
85 90 95

Pro Gln Lys Leu Phe Val Ala Asn Tyr Ser Gln Asp Val Lys Gln Phe
100 105 110

Ala Asn Gly Phe Val Val Arg Ile Gly Ala Ala Ala Asn Ser Thr Gly
115 120 125

Thr Val Ile Ile Ser Pro Ser Thr Ser Ala Thr Ile Arg Lys Ile Tyr
130 135 140

Pro Ala Phe Met Leu Gly Ser Ser Val Gly Asn Phe Ser Asp Gly Lys
145 150 155 160

Met Gly Arg Phe Phe Asn His Thr Leu Val Leu Leu Pro Asp Gly Cys
165 170 175

Gly Thr Leu Leu Arg Ala Phe Tyr Cys Ile Leu Glu Pro Arg Ser Gly

370		375		380
Phe Ser Pro Leu Leu Ser Gly Thr Pro Pro Gln Val Tyr Asn Phe Lys				
385		390		400
Arg Leu Val Phe Thr Asn Cys Asn Tyr Asn Leu Thr Lys Leu Leu Ser				
	405		410	415
Leu Phe Ser Val Asn Asp Phe Thr Cys Ser Gln Ile Ser Pro Ala Ala				
	420		425	430
Ile Ala Ser Asn Cys Tyr Ser Ser Leu Ile Leu Asp Tyr Phe Ser Tyr				
	435		440	445
Pro Leu Ser Met Lys Ser Asp Leu Ser Val Ser Ser Ala Gly Pro Ile				
	450		455	460
Ser Gln Phe Asn Tyr Lys Gln Ser Phe Ser Asn Pro Thr Cys Leu Ile				
465		470		480
Leu Ala Thr Val Pro His Asn Leu Thr Thr Ile Thr Lys Pro Leu Lys				
	485		490	495
Tyr Ser Tyr Ile Asn Lys Cys Ser Arg Leu Leu Ser Asp Gly Arg Thr				
	500		505	510
Glu Val Pro Gln Leu Val Asn Ala Asn Gln Tyr Ser Pro Cys Val Ser				
	515		520	525
Ile Val Pro Ser Thr Val Trp Glu Asp Gly Asp Tyr Tyr Arg Lys Gln				
	530		535	540
Leu Ser Pro Leu Glu Gly Gly Gly Trp Leu Val Ala Ser Gly Ser Thr				
545		550		560
Val Ala Met Thr Glu Gln Leu Gln Met Gly Phe Gly Ile Thr Val Gln				

					565						570						575
Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn		
			580					585					590				
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu		
		595					600					605					
Tyr	Gly	Val	Ser	Gly	Arg	Gly	Val	Phe	Gln	Asn	Cys	Thr	Ala	Val	Gly		
	610					615					620						
Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly		
625					630					635					640		
Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser		
				645					650					655			
Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr		
			660					665					670				
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln		
	675						680					685					
Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr		
	690					695					700						
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser		
705					710					715				720			
Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys		
			725						730				735				
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser		
			740					745					750				
Val	Pro	Gly	Glu	Met	Arg	Leu	Ala	Ser	Ile	Ala	Phe	Asn	His	Pro	Ile		

755								760								765
Gln	Val	Asp	Gln	Leu	Asn	Ser	Ser	Tyr	Phe	Lys	Leu	Ser	Ile	Pro	Thr	
770						775					780					
Asn	Phe	Ser	Phe	Gly	Val	Thr	Gln	Glu	Tyr	Ile	Gln	Thr	Thr	Ile	Gln	
785					790					795					800	
Lys	Val	Thr	Val	Asp	Cys	Lys	Gln	Tyr	Val	Cys	Asn	Gly	Phe	Gln	Lys	
				805					810					815		
Cys	Glu	Gln	Leu	Leu	Arg	Glu	Tyr	Gly	Gln	Phe	Cys	Ser	Lys	Ile	Asn	
			820					825					830			
Gln	Ala	Leu	His	Gly	Ala	Asn	Leu	Arg	Gln	Asp	Asp	Ser	Val	Arg	Asn	
		835					840					845				
Leu	Phe	Ala	Ser	Val	Lys	Ser	Ser	Gln	Ser	Ser	Pro	Ile	Ile	Pro	Gly	
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Phe	Gly	Gly	Asp	Phe	Asn	Leu	Thr	Leu	Leu	Glu	Pro	Val	Ser	Ile	Ser	
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Thr	Gly	Ser	Arg	Ser	Ala	Arg	Ser	Ala	Ile	Glu	Asp	Leu	Leu	Phe	Asp	
			885						890					895		
Lys	Val	Thr	Ile	Ala	Asp	Pro	Gly	Tyr	Met	Gln	Gly	Tyr	Asp	Asp	Cys	
			900					905					910			
Met	Gln	Gln	Gly	Pro	Ala	Ser	Ala	Arg	Asp	Leu	Ile	Cys	Ala	Gln	Lys	
			915				920					925				
Phe	Asn	Gly	Leu	Thr	Val	Leu	Pro	Pro	Leu	Leu	Thr	Asp	Asp	Met	Ile	
930						935					940					
Ala	Ala	Tyr	Thr	Ala	Ala	Leu	Val	Ser	Gly	Thr	Ala	Thr	Ala	Gly	Trp	

945		950		955		960										
Thr	Phe	Gly	Ala	Gly	Ala	Ala	Leu	Gln	Ile	Pro	Phe	Ala	Met	Gln	Met	
				965					970					975		
Ala	Tyr	Arg	Phe	Asn	Gly	Ile	Gly	Val	Thr	Gln	Asn	Val	Leu	Tyr	Glu	
				980					985					990		
Asn	Gln	Lys	Gln	Ile	Ala	Asn	Gln		Phe	Asn	Lys	Ala	Ile	Ser	Gln	Ile
				995				1000						1005		
Gln	Glu	Ser	Leu	Thr	Thr	Thr		Ser	Thr	Ala	Leu	Gly		Lys	Leu	Gln
	1010							1015					1020			
Asp	Val	Val	Asn	Gln	Asn	Ala		Gln	Ala	Leu	Asn	Thr		Leu	Val	Lys
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Gln	Leu	Ser	Ser	Asn	Phe	Gly		Ala	Ile	Ser	Ser	Val		Leu	Asn	Asp
	1040							1045					1050			
Ile	Leu	Ser	Arg	Leu	Asp	Pro		Pro	Glu	Ala	Glu	Val		Gln	Ile	Asp
	1055							1060					1065			
Arg	Leu	Ile	Thr	Gly	Arg	Leu		Gln	Ser	Leu	Gln	Thr		Tyr	Val	Thr
	1070							1075					1080			
Gln	Gln	Leu	Ile	Arg	Ala	Ala		Glu	Ile	Arg	Ala	Ser		Ala	Asn	Leu
	1085							1090					1095			
Ala	Ala	Thr	Lys	Met	Ser	Glu		Cys	Val	Leu	Gly	Gln		Ser	Lys	Arg
	1100							1105					1110			
Val	Asp	Phe	Cys	Gly	Lys	Gly		Tyr	His	Leu	Met	Ser		Phe	Pro	Gln
	1115							1120					1125			
Ala	Ala	Pro	His	Gly	Val	Val		Phe	Leu	His	Val	Thr		Tyr	Val	Pro

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Ser Gln Glu Lys Asn Phe Thr	Thr Ala Pro Ala Ile	Cys His Glu		
1145	1150	1155		
Gly Lys Ala Tyr Phe Pro Arg	Glu Gly Val Phe Val	Phe Asn Gly		
1160	1165	1170		
Thr Ser Trp Phe Ile Thr Gln	Arg Asn Phe Phe Ser	Pro Gln Ile		
1175	1180	1185		
Ile Thr Thr Asp Asn Thr Phe	Val Ser Gly Asn Cys	Asp Val Val		
1190	1195	1200		
Ile Gly Ile Ile Asn Asn Thr	Val Tyr Asp Pro Leu	Gln Pro Glu		
1205	1210	1215		
Leu Asp Ser Phe Lys Glu Glu	Leu Asp Lys Tyr Phe	Lys Asn His		
1220	1225	1230		
Thr Ser Pro Asp Val Asp Leu	Gly Asp Ile Ser Gly	Ile Asn Ala		
1235	1240	1245		
Ser Val Val Asn Ile Gln Lys	Glu Ile Asp Arg Leu	Asn Glu Val		
1250	1255	1260		
Ala Lys Asn Leu Asn Glu Ser	Leu Ile Asp Leu Gln	Glu Leu Gly		
1265	1270	1275		
Lys Tyr Glu Gln Tyr Ile Lys	Trp Pro Trp Tyr Val	Trp Leu Gly		
1280	1285	1290		
Phe Ile Ala Gly Leu Ile Ala	Ile Val Met Val Thr	Ile Leu Leu		
1295	1300	1305		
Cys Cys Met Thr Ser Cys Cys	Ser Cys Leu Lys Gly	Ala Cys Ser		

1310 1315 1320
 Cys Gly Ser Cys Cys Lys Phe Asp Glu Asp Asp Ser Glu Pro Val
 1325 1330 1335
 Leu Lys Gly Val Lys Leu His Tyr Thr
 1340 1345

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 1 5 10 15

 Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu
 20 25 30

 Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile
 35 40 45

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

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

 His Gly Asp Met Tyr Val Tyr Ser Ala Gly His Ala Thr Gly Thr Thr
 85 90 95

 Pro Gln Lys Leu Phe Val Ala Asn Tyr Ser Gln Asp Val Lys Gln Phe
 100 105 110

Ala	Asn	Gly	Phe	Val	Val	Arg	Ile	Gly	Ala	Ala	Ala	Asn	Ser	Thr	Gly			
		115						120					125					
Thr	Val	Ile	Ile	Ser	Pro	Ser	Thr	Ser	Ala	Thr	Ile	Arg	Lys	Ile	Tyr			
		130					135					140						
Pro	Ala	Phe	Met	Leu	Gly	Ser	Ser	Val	Gly	Asn	Phe	Ser	Asp	Gly	Lys			
145					150					155					160			
Met	Gly	Arg	Phe	Phe	Asn	His	Thr	Leu	Val	Leu	Leu	Pro	Asp	Gly	Cys			
				165					170					175				
Gly	Thr	Leu	Leu	Arg	Ala	Phe	Tyr	Cys	Ile	Leu	Glu	Pro	Arg	Ser	Gly			
		180						185					190					
Asn	His	Cys	Pro	Ala	Gly	Asn	Ser	Tyr	Thr	Ser	Phe	Ala	Thr	Tyr	His			
		195					200					205						
Thr	Pro	Ala	Thr	Asp	Cys	Ser	Asp	Gly	Asn	Tyr	Asn	Arg	Asn	Ala	Ser			
		210					215					220						
Leu	Asn	Ser	Phe	Lys	Glu	Tyr	Phe	Asn	Leu	Arg	Asn	Cys	Thr	Phe	Met			
225					230					235					240			
Tyr	Thr	Tyr	Asn	Ile	Thr	Glu	Asp	Glu	Ile	Leu	Glu	Trp	Phe	Gly	Ile			
			245						250					255				
Thr	Gln	Thr	Ala	Gln	Gly	Val	His	Leu	Phe	Ser	Ser	Arg	Tyr	Val	Asp			
			260					265					270					
Leu	Tyr	Gly	Gly	Asn	Met	Phe	Gln	Phe	Ala	Thr	Leu	Pro	Val	Tyr	Asp			
		275					280					285						
Thr	Ile	Lys	Tyr	Tyr	Ser	Ile	Ile	Pro	His	Ser	Ile	Arg	Ser	Ile	Gln			
		290				295					300							

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

Tyr	Ser	Tyr	Ile	Asn	Lys	Cys	Ser	Arg	Leu	Leu	Ser	Asp	Asp	Arg	Thr
				500				505						510	
Glu	Val	Pro	Gln	Leu	Val	Asn	Ala	Asn	Gln	Tyr	Ser	Pro	Cys	Val	Ser
				515				520						525	
Thr	Val	Pro	Ser	Thr	Val	Trp	Glu	Asp	Gly	Asp	Tyr	Tyr	Arg	Lys	Gln
				530				535						540	
Leu	Ser	Pro	Leu	Glu	Gly	Gly	Gly	Trp	Leu	Val	Ala	Ser	Gly	Ser	Thr
545						550					555				560
Val	Ala	Met	Thr	Glu	Gln	Leu	Gln	Met	Gly	Phe	Gly	Ile	Thr	Val	Gln
				565					570						575
Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn
				580					585						590
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu
				595					600						605
Tyr	Gly	Val	Ser	Gly	Arg	Gly	Val	Phe	Gln	Asn	Cys	Thr	Ala	Val	Gly
				610					615						620
Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly
625						630					635				640
Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser
				645						650					655
Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr
				660						665					670
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln
				675					680						685

Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr	690	695	700	
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser	705	710	715	720
Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys	725	730	735	
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser	740	745	750	
Val	Pro	Gly	Glu	Met	Arg	Leu	Ala	Ser	Ile	Ala	Phe	Asn	His	Pro	Ile	755	760	765	
Gln	Val	Asp	Gln	Leu	Asn	Ser	Ser	Tyr	Phe	Lys	Leu	Ser	Ile	Pro	Thr	770	775	780	
Asn	Phe	Ser	Phe	Gly	Val	Thr	Gln	Glu	Tyr	Ile	Gln	Thr	Thr	Ile	Gln	785	790	795	800
Lys	Val	Thr	Val	Asp	Cys	Lys	Gln	Tyr	Val	Cys	Asn	Gly	Phe	Gln	Lys	805	810	815	
Cys	Glu	Gln	Leu	Leu	Arg	Glu	Tyr	Gly	Gln	Phe	Cys	Ser	Lys	Ile	Asn	820	825	830	
Gln	Ala	Leu	His	Gly	Ala	Asn	Leu	Arg	Gln	Asp	Asp	Ser	Val	Arg	Asn	835	840	845	
Leu	Phe	Ala	Ser	Val	Lys	Ser	Ser	Gln	Ser	Ser	Pro	Ile	Ile	Pro	Gly	850	855	860	
Phe	Gly	Gly	Asp	Phe	Asn	Leu	Thr	Leu	Leu	Glu	Pro	Val	Ser	Ile	Ser	865	870	875	880

Thr	Gly	Ser	Arg	Ser	Ala	Arg	Ser	Ala	Ile	Glu	Asp	Leu	Leu	Phe	Asp				
																885	890	895	
Lys	Val	Thr	Ile	Ala	Asp	Pro	Gly	Tyr	Met	Gln	Gly	Tyr	Asp	Asp	Cys				
																900	905	910	
Met	Gln	Gln	Gly	Pro	Ala	Ser	Ala	Arg	Asp	Leu	Ile	Cys	Ala	Gln	Lys				
																915	920	925	
Phe	Asn	Gly	Leu	Thr	Val	Leu	Pro	Pro	Leu	Leu	Thr	Asp	Asp	Met	Ile				
																930	935	940	
Ala	Ala	Tyr	Thr	Ala	Ala	Leu	Val	Ser	Gly	Thr	Ala	Thr	Ala	Gly	Trp				
																945	950	955	960
Thr	Phe	Gly	Ala	Gly	Ala	Ala	Leu	Gln	Ile	Pro	Phe	Ala	Met	Gln	Met				
																965	970	975	
Ala	Tyr	Arg	Phe	Asn	Gly	Ile	Gly	Val	Thr	Gln	Asn	Val	Leu	Tyr	Glu				
																980	985	990	
Asn	Gln	Lys	Gln	Ile	Ala	Asn	Gln	Phe	Asn	Lys	Ala	Ile	Ser	Gln	Ile				
																995	1000	1005	
Gln	Glu	Ser	Leu	Thr	Thr	Thr	Ser	Thr	Ala	Leu	Gly	Lys	Leu	Gln					
																1010	1015	1020	
Asp	Val	Val	Asn	Gln	Asn	Ala	Gln	Ala	Leu	Asn	Thr	Leu	Val	Lys					
																1025	1030	1035	
Gln	Leu	Ser	Ser	Asn	Phe	Gly	Ala	Ile	Ser	Ser	Val	Leu	Asn	Asp					
																1040	1045	1050	
Ile	Leu	Ser	Arg	Leu	Asp	Pro	Pro	Glu	Ala	Glu	Val	Gln	Ile	Asp					
																1055	1060	1065	

Arg	Leu	Ile	Thr	Gly	Arg	Leu	Gln	Ser	Leu	Gln	Thr	Tyr	Val	Thr
1070						1075					1080			
Gln	Gln	Leu	Ile	Arg	Ala	Ala	Glu	Ile	Arg	Ala	Ser	Ala	Asn	Leu
1085						1090					1095			
Ala	Ala	Thr	Lys	Met	Ser	Glu	Cys	Val	Leu	Gly	Gln	Ser	Lys	Arg
1100						1105					1110			
Val	Asp	Phe	Cys	Gly	Lys	Gly	Tyr	His	Leu	Met	Ser	Phe	Pro	Gln
1115						1120					1125			
Ala	Ala	Pro	His	Gly	Val	Val	Phe	Leu	His	Val	Thr	Tyr	Val	Pro
1130						1135					1140			
Ser	Gln	Glu	Lys	Asn	Phe	Thr	Thr	Ala	Pro	Ala	Ile	Cys	His	Glu
1145						1150					1155			
Gly	Lys	Ala	Tyr	Phe	Pro	Arg	Glu	Gly	Val	Phe	Val	Phe	Asn	Gly
1160						1165					1170			
Thr	Ser	Trp	Phe	Ile	Thr	Gln	Arg	Asn	Phe	Phe	Ser	Pro	Gln	Ile
1175						1180					1185			
Ile	Thr	Thr	Asp	Asn	Thr	Phe	Val	Ser	Gly	Asn	Cys	Asp	Val	Val
1190						1195					1200			
Ile	Gly	Ile	Ile	Asn	Asn	Thr	Val	Tyr	Asp	Pro	Leu	Gln	Pro	Glu
1205						1210					1215			
Leu	Asp	Ser	Phe	Lys	Glu	Glu	Leu	Asp	Lys	Tyr	Phe	Lys	Asn	His
1220						1225					1230			
Thr	Ser	Pro	Asp	Val	Asp	Leu	Gly	Asp	Ile	Ser	Gly	Ile	Asn	Ala
1235						1240					1245			

Ser Val	Val Asn Ile Gln Lys	Glu Ile Asp Arg Leu	Asn Glu Val
1250	1255	1260	
Ala Lys	Asn Leu Asn Glu Ser	Leu Ile Asp Leu Gln	Glu Leu Gly
1265	1270	1275	
Lys Tyr	Glu Gln Tyr Ile Lys	Trp Pro Trp Tyr Val	Trp Leu Gly
1280	1285	1290	
Phe Ile	Ala Gly Leu Ile Ala	Ile Val Met Val Thr	Ile Leu Leu
1295	1300	1305	
Cys Cys	Met Thr Ser Cys Cys	Ser Cys Leu Lys Gly	Ala Cys Ser
1310	1315	1320	
Cys Gly	Ser Cys Cys Lys Phe	Asp Glu Asp Asp Ser	Glu Pro Val
1325	1330	1335	
Leu Lys	Gly Val Lys Leu His	Tyr Thr	
1340	1345		
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Met Ile His Ser Val Phe Leu Leu Met Phe Leu Leu Thr Pro Thr Glu			
1	5	10	15
Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu			
	20	25	30
Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile			
	35	40	45

Asp	Val	Ser	Lys	Ala	Asp	Gly	Ile	Ile	Tyr	Pro	Gln	Gly	Arg	Thr	Tyr	50	55	60	
Ser	Asn	Ile	Thr	Ile	Thr	Tyr	Gln	Gly	Leu	Phe	Pro	Tyr	Gln	Gly	Asp	65	70	75	80
His	Gly	Asp	Met	Tyr	Val	Tyr	Ser	Ala	Gly	His	Ala	Thr	Gly	Thr	Thr	85	90	95	
Pro	Gln	Lys	Leu	Phe	Val	Ala	Asn	Tyr	Ser	Gln	Asp	Val	Lys	Gln	Phe	100	105	110	
Ala	Asn	Gly	Phe	Val	Val	Arg	Ile	Gly	Ala	Ala	Ala	Asn	Ser	Thr	Gly	115	120	125	
Thr	Val	Ile	Ile	Ser	Pro	Ser	Thr	Ser	Ala	Thr	Ile	Arg	Lys	Ile	Tyr	130	135	140	
Pro	Ala	Phe	Met	Leu	Gly	Ser	Ser	Val	Gly	Asn	Phe	Ser	Asp	Gly	Lys	145	150	155	160
Met	Gly	Arg	Phe	Phe	Asn	His	Thr	Leu	Val	Leu	Leu	Pro	Asp	Gly	Cys	165	170	175	
Gly	Thr	Leu	Leu	Arg	Ala	Phe	Tyr	Cys	Ile	Leu	Glu	Pro	Arg	Ser	Gly	180	185	190	
Asn	His	Cys	Pro	Ala	Gly	Asn	Ser	Tyr	Thr	Ser	Phe	Ala	Thr	Tyr	His	195	200	205	
Thr	Pro	Ala	Thr	Asp	Cys	Ser	Asp	Gly	Asn	Tyr	Asn	Arg	Asn	Ala	Ser	210	215	220	
Leu	Asn	Ser	Phe	Lys	Glu	Tyr	Phe	Asn	Leu	Arg	Asn	Cys	Thr	Phe	Met	225	230	235	240

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

Ile	Ala	Ser	Asn	Cys	Tyr	Ser	Ser	Leu	Ile	Leu	Asp	Tyr	Phe	Ser	Tyr			
		435						440					445					
Pro	Leu	Ser	Met	Lys	Ser	Asp	Leu	Ser	Val	Ser	Ser	Ala	Gly	Pro	Ile			
		450					455					460						
Ser	Gln	Phe	Asn	Tyr	Lys	Gln	Ser	Phe	Ser	Asn	Pro	Thr	Cys	Leu	Ile			
465					470					475					480			
Leu	Ala	Thr	Val	Pro	His	Asn	Leu	Thr	Thr	Ile	Thr	Lys	Pro	Leu	Lys			
					485					490				495				
Tyr	Ser	Tyr	Ile	Asn	Lys	Cys	Ser	Arg	Leu	Leu	Ser	Asp	Gly	Arg	Thr			
			500					505					510					
Glu	Val	Pro	Gln	Leu	Val	Asn	Ala	Asn	Gln	Tyr	Ser	Pro	Cys	Val	Ser			
		515					520					525						
Thr	Val	Pro	Ser	Thr	Val	Trp	Glu	Asp	Gly	Asp	Tyr	Tyr	Arg	Lys	Gln			
		530				535					540							
Leu	Ser	Pro	Leu	Glu	Gly	Gly	Gly	Trp	Leu	Val	Ala	Ser	Gly	Ser	Thr			
545					550					555					560			
Val	Ala	Met	Thr	Glu	Gln	Leu	Gln	Met	Gly	Phe	Gly	Ile	Thr	Val	Gln			
				565					570					575				
Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn			
			580					585					590					
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu			
		595					600					605						
Tyr	Gly	Val	Ser	Gly	Arg	Gly	Val	Phe	Gln	Asn	Cys	Thr	Ala	Val	Gly			
		610				615					620							

Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly	625	630	635	640
Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser	645	650	655	
Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr	660	665	670	
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln	675	680	685	
Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr	690	695	700	
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser	705	710	715	720
Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys	725	730	735	
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser	740	745	750	
Val	Pro	Gly	Glu	Met	Arg	Leu	Ala	Ser	Ile	Ala	Phe	Asn	His	Pro	Ile	755	760	765	
Gln	Val	Asp	Gln	Leu	Asn	Ser	Ser	Tyr	Phe	Lys	Leu	Ser	Ile	Pro	Thr	770	775	780	
Asn	Phe	Ser	Phe	Gly	Val	Thr	Gln	Glu	Tyr	Ile	Gln	Thr	Thr	Ile	Gln	785	790	795	800
Lys	Val	Thr	Val	Asp	Cys	Lys	Gln	Tyr	Val	Cys	Asn	Gly	Phe	Gln	Lys	805	810	815	

Cys	Glu	Gln	Leu	Leu	Arg	Glu	Tyr	Gly	Gln	Phe	Cys	Ser	Lys	Ile	Asn			
			820					825					830					
Gln	Ala	Leu	His	Gly	Ala	Asn	Leu	Arg	Gln	Asp	Asp	Ser	Val	Arg	Asn			
			835					840					845					
Leu	Phe	Ala	Ser	Val	Lys	Ser	Ser	Gln	Ser	Ser	Pro	Ile	Ile	Pro	Gly			
			850					855					860					
Phe	Gly	Gly	Asp	Phe	Asn	Leu	Thr	Leu	Leu	Glu	Pro	Val	Ser	Ile	Ser			
865						870				875					880			
Thr	Gly	Ser	Arg	Ser	Ala	Arg	Ser	Ala	Ile	Glu	Asp	Leu	Leu	Phe	Asp			
						885				890					895			
Lys	Val	Thr	Ile	Ala	Asp	Pro	Gly	Tyr	Met	Gln	Gly	Tyr	Asp	Asp	Cys			
			900					905						910				
Met	Gln	Gln	Gly	Pro	Ala	Ser	Ala	Arg	Asp	Leu	Ile	Cys	Ala	Gln	Lys			
			915					920						925				
Phe	Asn	Gly	Leu	Thr	Val	Leu	Pro	Pro	Leu	Leu	Thr	Asp	Asp	Met	Ile			
			930					935					940					
Ala	Ala	Tyr	Thr	Ala	Ala	Leu	Val	Ser	Gly	Thr	Ala	Thr	Ala	Gly	Trp			
945								950				955			960			
Thr	Phe	Gly	Ala	Gly	Ala	Ala	Leu	Gln	Ile	Pro	Phe	Ala	Met	Gln	Met			
								965						970				
Ala	Tyr	Arg	Phe	Asn	Gly	Ile	Gly	Val	Thr	Gln	Asn	Val	Leu	Tyr	Glu			
								980						990				
Asn	Gln	Lys	Gln	Ile	Ala	Asn	Gln	Phe	Asn	Lys	Ala	Ile	Ser	Gln	Ile			
								995						1000				

Gln Glu	Ser Leu Thr Thr Thr	Ser Thr Ala Leu Gly	Lys Leu Gln
1010		1015	1020
Asp Val	Val Asn Gln Asn Ala	Gln Ala Leu Asn Thr	Leu Val Lys
1025		1030	1035
Gln Leu	Ser Ser Asn Phe Gly	Ala Ile Ser Ser Val	Leu Asn Asp
1040		1045	1050
Ile Leu	Ser Arg Leu Asp Pro	Pro Glu Ala Glu Val	Gln Ile Asp
1055		1060	1065
Arg Leu	Ile Thr Gly Arg Leu	Gln Ser Leu Gln Thr	Tyr Val Thr
1070		1075	1080
Gln Gln	Leu Ile Arg Ala Ala	Glu Ile Arg Ala Ser	Ala Asn Leu
1085		1090	1095
Ala Ala	Thr Lys Met Ser Glu	Cys Val Leu Gly Gln	Ser Lys Arg
1100		1105	1110
Val Asp	Phe Cys Gly Lys Gly	Tyr His Leu Met Ser	Phe Pro Gln
1115		1120	1125
Ala Ala	Pro His Gly Val Val	Phe Leu His Val Thr	Tyr Val Pro
1130		1135	1140
Ser Gln	Glu Lys Asn Phe Thr	Thr Ala Pro Ala Ile	Cys His Glu
1145		1150	1155
Gly Lys	Ala Tyr Phe Pro Arg	Glu Gly Val Phe Val	Phe Asn Gly
1160		1165	1170
Thr Ser	Trp Phe Ile Thr Gln	Arg Asn Phe Phe Ser	Pro Gln Ile
1175		1180	1185

Ile	Thr	Thr	Asp	Asn	Thr	Phe	Val	Ser	Gly	Asn	Cys	Asp	Val	Val
1190						1195					1200			

Ile	Gly	Ile	Ile	Asn	Asn	Thr	Val	Tyr	Asp	Pro	Leu	Gln	Pro	Glu
1205						1210					1215			

Leu	Asp	Ser	Phe	Lys	Glu	Glu	Leu	Asp	Lys	Tyr	Phe	Lys	Asn	His
1220						1225					1230			

Thr	Ser	Pro	Asp	Val	Asp	Leu	Gly	Asp	Ile	Ser	Gly	Ile	Asn	Ala
1235						1240					1245			

Ser	Val	Val	Asn	Ile	Gln	Lys	Glu	Ile	Asp	Arg	Leu	Asn	Glu	Val
1250						1255					1260			

Ala	Lys	Asn	Leu	Asn	Glu	Ser	Leu	Ile	Asp	Leu	Gln	Glu	Leu	Gly
1265						1270					1275			

Lys	Tyr	Glu	Gln	Tyr	Ile	Lys	Trp	Pro	Trp	Tyr	Val	Trp	Leu	Gly
1280						1285					1290			

Phe	Ile	Ala	Gly	Leu	Ile	Ala	Ile	Val	Met	Val	Thr	Ile	Leu	Leu
1295						1300					1305			

Cys	Cys	Met	Thr	Ser	Cys	Cys	Ser	Cys	Leu	Lys	Gly	Ala	Cys	Ser
1310						1315					1320			

Cys	Gly	Ser	Cys	Cys	Lys	Phe	Asp	Glu	Asp	Asp	Ser	Glu	Pro	Val
1325						1330					1335			

Leu	Lys	Gly	Val	Lys	Leu	His	Tyr	Thr
1340						1345		

<210> 18

<211> 1347

<212> PRT

<213> Secuencia Artificial

<220>

<223> Proteína S Mosaico de CoV similar a MERS-CoV/de murciélago SARS

<400> 18

Met Ile His Ser Val Phe Leu Leu Met Phe Leu Leu Thr Pro Thr Glu
1 5 10 15

Ser Tyr Val Asp Val Gly Pro Asp Ser Val Lys Ser Ala Cys Ile Glu
20 25 30

Val Asp Ile Gln Gln Thr Phe Phe Asp Lys Thr Trp Pro Arg Pro Ile
35 40 45

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

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

His Gly Asp Met Tyr Val Tyr Ser Ala Gly His Ala Thr Gly Thr Thr
85 90 95

Pro Gln Lys Leu Phe Val Ala Asn Tyr Ser Gln Asp Val Lys Gln Phe
100 105 110

Ala Asn Gly Phe Val Val Arg Ile Gly Ala Ala Ala Asn Ser Thr Gly
115 120 125

Thr Val Ile Ile Ser Pro Ser Thr Ser Ala Thr Ile Arg Lys Ile Tyr
130 135 140

Pro Ala Phe Met Leu Gly Ser Ser Val Gly Asn Phe Ser Asp Gly Lys
145 150 155 160

Met Gly Arg Phe Phe Asn His Thr Leu Val Leu Leu Pro Asp Gly Cys

					165					170					175	
Gly	Thr	Leu	Leu	Arg	Ala	Phe	Tyr	Cys	Ile	Leu	Glu	Pro	Arg	Ser	Gly	
			180					185					190			
Asn	His	Cys	Pro	Ala	Gly	Asn	Ser	Tyr	Thr	Ser	Phe	Ala	Thr	Tyr	His	
		195					200					205				
Thr	Pro	Ala	Thr	Asp	Cys	Ser	Asp	Gly	Asn	Tyr	Asn	Arg	Asn	Ala	Ser	
	210						215					220				
Leu	Asn	Ser	Phe	Lys	Glu	Tyr	Phe	Asn	Leu	Arg	Asn	Cys	Thr	Phe	Met	
225					230					235					240	
Tyr	Thr	Tyr	Asn	Ile	Thr	Glu	Asp	Glu	Ile	Leu	Glu	Trp	Phe	Gly	Ile	
					245				250					255		
Thr	Gln	Thr	Ala	Gln	Gly	Val	His	Leu	Phe	Ser	Ser	Arg	Tyr	Val	Asp	
			260					265					270			
Leu	Tyr	Gly	Gly	Asn	Met	Phe	Gln	Phe	Ala	Thr	Leu	Pro	Val	Tyr	Asp	
		275					280					285				
Thr	Ile	Lys	Tyr	Tyr	Ser	Ile	Ile	Pro	His	Ser	Ile	Arg	Ser	Ile	Gln	
	290					295					300					
Ser	Asp	Arg	Lys	Ala	Trp	Ala	Ala	Phe	Tyr	Val	Tyr	Lys	Leu	Gln	Pro	
305					310					315				320		
Leu	Thr	Phe	Leu	Leu	Asp	Phe	Ser	Val	Asp	Gly	Tyr	Ile	Arg	Arg	Ala	
					325				330					335		
Ile	Asp	Cys	Gly	Phe	Asn	Asp	Leu	Ser	Gln	Leu	His	Cys	Ser	Tyr	Glu	
			340					345				350				
Ser	Phe	Asp	Val	Glu	Ser	Gly	Val	Tyr	Ser	Val	Ser	Ser	Phe	Glu	Ala	

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

545		550		555		560									
Val	Ala	Met	Thr	Glu	Gln	Leu	Gln	Met	Gly	Phe	Gly	Ile	Thr	Val	Gln
				565					570					575	
Tyr	Gly	Thr	Asp	Thr	Asn	Ser	Val	Cys	Pro	Lys	Leu	Glu	Phe	Ala	Asn
			580					585					590		
Asp	Thr	Lys	Ile	Ala	Ser	Gln	Leu	Gly	Asn	Cys	Val	Glu	Tyr	Ser	Leu
		595					600					605			
Tyr	Gly	Val	Ser	Gly	Arg	Gly	Val	Phe	Gln	Asn	Cys	Thr	Ala	Val	Gly
	610					615					620				
Val	Arg	Gln	Gln	Arg	Phe	Val	Tyr	Asp	Ala	Tyr	Gln	Asn	Leu	Val	Gly
625					630					635				640	
Tyr	Tyr	Ser	Asp	Asp	Gly	Asn	Tyr	Tyr	Cys	Leu	Arg	Ala	Cys	Val	Ser
			645						650					655	
Val	Pro	Val	Ser	Val	Ile	Tyr	Asp	Lys	Glu	Thr	Lys	Thr	His	Ala	Thr
			660					665					670		
Leu	Phe	Gly	Ser	Val	Ala	Cys	Glu	His	Ile	Ser	Ser	Thr	Met	Ser	Gln
	675						680					685			
Tyr	Ser	Arg	Ser	Thr	Arg	Ser	Met	Leu	Lys	Arg	Arg	Asp	Ser	Thr	Tyr
	690					695					700				
Gly	Pro	Leu	Gln	Thr	Pro	Val	Gly	Cys	Val	Leu	Gly	Leu	Val	Asn	Ser
705				710						715				720	
Ser	Leu	Phe	Val	Glu	Asp	Cys	Lys	Leu	Pro	Leu	Gly	Gln	Ser	Leu	Cys
			725					730					735		
Ala	Leu	Pro	Asp	Thr	Pro	Ser	Thr	Leu	Thr	Pro	Arg	Ser	Val	Arg	Ser

740	745	750
Val Pro Gly Glu Met Arg Leu Ala Ser Ile Ala Phe Asn His Pro Ile		
755	760	765
Gln Val Asp Gln Leu Asn Ser Ser Tyr Phe Lys Leu Ser Ile Pro Thr		
770	775	780
Asn Phe Ser Phe Gly Val Thr Gln Glu Tyr Ile Gln Thr Thr Ile Gln		
785	790	795
Lys Val Thr Val Asp Cys Lys Gln Tyr Val Cys Asn Gly Phe Gln Lys		
805	810	815
Cys Glu Gln Leu Leu Arg Glu Tyr Gly Gln Phe Cys Ser Lys Ile Asn		
820	825	830
Gln Ala Leu His Gly Ala Asn Leu Arg Gln Asp Asp Ser Val Arg Asn		
835	840	845
Leu Phe Ala Ser Val Lys Ser Ser Gln Ser Ser Pro Ile Ile Pro Gly		
850	855	860
Phe Gly Gly Asp Phe Asn Leu Thr Leu Leu Glu Pro Val Ser Ile Ser		
865	870	875
Thr Gly Ser Arg Ser Ala Arg Ser Ala Ile Glu Asp Leu Leu Phe Asp		
885	890	895
Lys Val Thr Ile Ala Asp Pro Gly Tyr Met Gln Gly Tyr Asp Asp Cys		
900	905	910
Met Gln Gln Gly Pro Ala Ser Ala Arg Asp Leu Ile Cys Ala Gln Lys		
915	920	925
Phe Asn Gly Leu Thr Val Leu Pro Pro Leu Leu Thr Asp Asp Met Ile		

930		935		940
Ala Ala Tyr Thr Ala Ala Leu Val Ser Gly Thr Ala Thr Ala Gly Trp				
945		950		955
				960
Thr Phe Gly Ala Gly Ala Ala Leu Gln Ile Pro Phe Ala Met Gln Met				
	965		970	975
Ala Tyr Arg Phe Asn Gly Ile Gly Val Thr Gln Asn Val Leu Tyr Glu				
	980		985	990
Asn Gln Lys Gln Ile Ala Asn Gln Phe Asn Lys Ala Ile Ser Gln Ile				
	995		1000	1005
Gln Glu Ser Leu Thr Thr Thr Ser Thr Ala Leu Gly Lys Leu Gln				
1010		1015		1020
Asp Val Val Asn Gln Asn Ala Gln Ala Leu Asn Thr Leu Val Lys				
1025		1030		1035
Gln Leu Ser Ser Asn Phe Gly Ala Ile Ser Ser Val Leu Asn Asp				
1040		1045		1050
Ile Leu Ser Arg Leu Asp Lys Val Glu Ala Glu Val Gln Ile Asp				
1055		1060		1065
Arg Leu Ile Thr Gly Arg Leu Gln Ser Leu Gln Thr Tyr Val Thr				
1070		1075		1080
Gln Gln Leu Ile Arg Ala Ala Glu Ile Arg Ala Ser Ala Asn Leu				
1085		1090		1095
Ala Ala Thr Lys Met Ser Glu Cys Val Leu Gly Gln Ser Lys Arg				
1100		1105		1110
Val Asp Phe Cys Gly Lys Gly Tyr His Leu Met Ser Phe Pro Gln				

1115		1120		1125
Ala Ala Pro His Gly Val Val Phe Leu His Val Thr Tyr Val Pro				
1130		1135		1140
Ser Gln Glu Lys Asn Phe Thr Thr Ala Pro Ala Ile Cys His Glu				
1145		1150		1155
Gly Lys Ala Tyr Phe Pro Arg Glu Gly Val Phe Val Phe Asn Gly				
1160		1165		1170
Thr Ser Trp Phe Ile Thr Gln Arg Asn Phe Phe Ser Pro Gln Ile				
1175		1180		1185
Ile Thr Thr Asp Asn Thr Phe Val Ser Gly Asn Cys Asp Val Val				
1190		1195		1200
Ile Gly Ile Ile Asn Asn Thr Val Tyr Asp Pro Leu Gln Pro Glu				
1205		1210		1215
Leu Asp Ser Phe Lys Glu Glu Leu Asp Lys Tyr Phe Lys Asn His				
1220		1225		1230
Thr Ser Pro Asp Val Asp Leu Gly Asp Ile Ser Gly Ile Asn Ala				
1235		1240		1245
Ser Val Val Asn Ile Gln Lys Glu Ile Asp Arg Leu Asn Glu Val				
1250		1255		1260
Ala Lys Asn Leu Asn Glu Ser Leu Ile Asp Leu Gln Glu Leu Gly				
1265		1270		1275
Lys Tyr Glu Gln Tyr Ile Lys Trp Pro Trp Tyr Val Trp Leu Gly				
1280		1285		1290
Phe Ile Ala Gly Leu Ile Ala Ile Val Met Val Thr Ile Leu Leu				

1295							1300							1305
Cys	Cys	Met	Thr	Ser	Cys	Cys	Ser	Cys	Leu	Lys	Gly	Ala	Cys	Ser
1310							1315							1320
Cys	Gly	Ser	Cys	Cys	Lys	Phe	Asp	Glu	Asp	Asp	Ser	Glu	Pro	Val
1325							1330							1335
Leu	Lys	Gly	Val	Lys	Leu	His	Tyr	Thr						
1340							1345							