

SEQUENCE LISTING

<110> Howard Hughes Medical Institute

<120> MODIFIED LIGAND-GATED ION CHANNELS AND METHODS OF USE

<130> 30872-0014W01

<150> US 62/359,534

<151> 2016-07-07

<150> US 62/486,779

<151> 2017-04-18

<160> 12

<170> PatentIn version 3.5

<210> 1

<211> 224

<212> PRT

<213> human

<400> 1

Met	Arg	Cys	Ser	Pro	Gly	Gly	Val	Trp	Leu	Ala	Leu	Ala	Ala	Ser	Leu
1				5					10					15	

Leu	His	Val	Ser	Leu	Gln	Gly	Glu	Phe	Gln	Arg	Lys	Leu	Tyr	Lys	Glu
			20					25					30		

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

Gln	Pro	Leu	Thr	Val	Tyr	Phe	Ser	Leu	Ser	Leu	Leu	Gln	Ile	Met	Asp
	50					55					60				

Val	Asp	Glu	Lys	Asn	Gln	Val	Leu	Thr	Thr	Asn	Ile	Trp	Leu	Gln	Met
65					70					75				80	

Ser	Trp	Thr	Asp	His	Tyr	Leu	Gln	Trp	Asn	Val	Ser	Glu	Tyr	Pro	Gly
				85					90					95	

Val	Lys	Thr	Val	Arg	Phe	Pro	Asp	Gly	Gln	Ile	Trp	Lys	Pro	Asp	Ile
			100					105					110		

Leu	Leu	Tyr	Asn	Ser	Ala	Asp	Glu	Arg	Phe	Asp	Ala	Thr	Phe	His	Thr
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

115																	
Asn	Val	Leu	Val	Asn	Ser	Ser	Gly	His	Cys	Gln	Tyr	Leu	Pro	Pro	Gly		
130						135					140						
Ile	Phe	Lys	Ser	Ser	Cys	Tyr	Ile	Asp	Val	Arg	Trp	Phe	Pro	Phe	Asp		
145					150					155					160		
Val	Gln	His	Cys	Lys	Leu	Lys	Phe	Gly	Ser	Trp	Ser	Tyr	Gly	Gly	Trp		
				165					170					175			
Ser	Leu	Asp	Leu	Gln	Met	Gln	Glu	Ala	Asp	Ile	Ser	Gly	Tyr	Ile	Pro		
			180					185					190				
Asn	Gly	Glu	Trp	Asp	Leu	Val	Gly	Ile	Pro	Gly	Lys	Arg	Ser	Glu	Arg		
		195					200					205					
Phe	Tyr	Glu	Cys	Cys	Lys	Glu	Pro	Tyr	Pro	Asp	Val	Thr	Phe	Thr	Val		
	210					215					220						

<210> 2
 <211> 229
 <212> PRT
 <213> human

<400> 2

Met	Arg	Cys	Ser	Pro	Gly	Gly	Val	Trp	Leu	Ala	Leu	Ala	Ala	Ser	Leu		
1				5					10					15			
Leu	His	Val	Ser	Leu	Gln	Gly	Glu	Phe	Gln	Arg	Lys	Leu	Tyr	Lys	Glu		
			20					25					30				
Leu	Val	Lys	Asn	Tyr	Asn	Pro	Leu	Glu	Arg	Pro	Val	Ala	Asn	Asp	Ser		
		35					40					45					
Gln	Pro	Leu	Thr	Val	Tyr	Phe	Ser	Leu	Ser	Leu	Leu	Gln	Ile	Met	Asp		
	50					55					60						
Val	Asp	Glu	Lys	Asn	Gln	Val	Leu	Thr	Thr	Asn	Ile	Trp	Leu	Gln	Met		
65					70					75					80		

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly
85 90 95

Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

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

Asn Gly Glu Trp Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg
195 200 205

Phe Tyr Glu Cys Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val
210 215 220

Thr Met Arg Arg Arg
225

<210> 3
<211> 247
<212> PRT
<213> mouse

<400> 3

Ile Ile Arg Arg Arg Pro Leu Phe Tyr Ala Val Ser Leu Leu Leu Pro
1 5 10 15

Ser Ile Phe Leu Met Val Val Asp Ile Val Gly Phe Cys Leu Pro Pro
20 25 30

Asp Ser Gly Glu Arg Val Ser Phe Lys Ile Thr Leu Leu Leu Gly Tyr
35 40 45

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

Thr Pro Leu Ile Gly Val Tyr Phe Val Val Cys Met Ala Leu Leu Val
65 70 75 80

Ile Ser Leu Ala Glu Thr Ile Phe Ile Val Arg Leu Val His Lys Gln
85 90 95

Asp Leu Gln Arg Pro Val Pro Asp Trp Leu Arg His Leu Val Leu Asp
100 105 110

Arg Ile Ala Trp Ile Leu Cys Leu Gly Glu Gln Pro Met Ala His Arg
115 120 125

Pro Pro Ala Thr Phe Gln Ala Asn Lys Thr Asp Asp Cys Ser Gly Ser
130 135 140

Asp Leu Leu Pro Ala Met Gly Asn His Cys Ser His Val Gly Gly Pro
145 150 155 160

Gln Asp Leu Glu Lys Thr Pro Arg Gly Arg Gly Ser Pro Leu Pro Pro
165 170 175

Pro Arg Glu Ala Ser Leu Ala Val Arg Gly Leu Leu Gln Glu Leu Ser
180 185 190

Ser Ile Arg His Phe Leu Glu Lys Arg Asp Glu Met Arg Glu Val Ala
195 200 205

Arg Asp Trp Leu Arg Val Gly Tyr Val Leu Asp Arg Leu Leu Phe Arg
210 215 220

Ile Tyr Leu Leu Ala Val Leu Ala Tyr Ser Ile Thr Leu Val Thr Leu
225 230 235 240

Trp Ser Ile Trp His Tyr Ser

<210> 4
 <211> 236
 <212> PRT
 <213> human

<400> 4

Leu Phe Tyr Val Val Ser Leu Leu Leu Pro Ser Ile Phe Leu Met Val
 1 5 10 15

Met Asp Ile Val Gly Phe Tyr Leu Pro Pro Asn Ser Gly Glu Arg Val
 20 25 30

Ser Phe Lys Ile Thr Leu Leu Leu Gly Tyr Ser Val Phe Leu Ile Ile
 35 40 45

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

Val Tyr Phe Val Val Cys Met Ala Leu Leu Val Ile Ser Leu Ala Glu
 65 70 75 80

Thr Ile Phe Ile Val Arg Leu Val His Lys Gln Asp Leu Gln Gln Pro
 85 90 95

Val Pro Ala Trp Leu Arg His Leu Val Leu Glu Arg Ile Ala Trp Leu
 100 105 110

Leu Cys Leu Arg Glu Gln Ser Thr Ser Gln Arg Pro Pro Ala Thr Ser
 115 120 125

Gln Ala Thr Lys Thr Asp Asp Cys Ser Ala Met Gly Asn His Cys Ser
 130 135 140

His Met Gly Gly Pro Gln Asp Phe Glu Lys Ser Pro Arg Asp Arg Cys
 145 150 155 160

Ser Pro Pro Pro Pro Pro Arg Glu Ala Ser Leu Ala Val Cys Gly Leu
 165 170 175

Leu Gln Glu Leu Ser Ser Ile Arg Gln Phe Leu Glu Lys Arg Asp Glu
 180 185 190

Ile Arg Glu Val Ala Arg Asp Trp Leu Arg Val Gly Ser Val Leu Asp
 195 200 205

Lys Leu Leu Phe His Ile Tyr Leu Leu Ala Val Leu Ala Tyr Ser Ile
 210 215 220

Thr Leu Val Met Leu Trp Ser Ile Trp Gln Tyr Ala
 225 230 235

<210> 5
 <211> 202
 <212> PRT
 <213> mouse

<400> 5

Met Gly Tyr Tyr Leu Ile Gln Met Tyr Ile Pro Ser Leu Leu Ile Val
 1 5 10 15

Ile Leu Ser Trp Ile Ser Phe Trp Ile Asn Met Asp Ala Ala Pro Ala
 20 25 30

Arg Val Gly Leu Gly Ile Thr Thr Val Leu Thr Met Thr Thr Gln Ser
 35 40 45

Ser Gly Ser Arg Ala Ser Leu Pro Lys Val Ser Tyr Val Lys Ala Ile
 50 55 60

Asp Ile Trp Met Ala Val Cys Leu Leu Phe Val Phe Ser Ala Leu Leu
 65 70 75 80

Glu Tyr Ala Ala Val Asn Phe Val Ser Arg Gln His Lys Glu Leu Leu
 85 90 95

Arg Phe Arg Arg Lys Arg Arg His His Lys Glu Asp Glu Ala Gly Glu
 100 105 110

Gly Arg Phe Asn Phe Ser Ala Tyr Gly Met Gly Pro Ala Cys Leu Gln
 115 120 125

Ala Lys Asp Gly Ile Ser Val Lys Gly Ala Asn Asn Ser Asn Thr Thr
130 135 140

Asn Pro Pro Pro Ala Pro Ser Lys Ser Pro Glu Glu Met Arg Lys Leu
145 150 155 160

Phe Ile Gln Arg Ala Lys Lys Ile Asp Lys Ile Ser Arg Ile Gly Phe
165 170 175

Pro Met Ala Phe Leu Ile Phe Asn Met Phe Tyr Trp Ile Ile Tyr Lys
180 185 190

Ile Val Arg Arg Glu Asp Val His Asn Gln
195 200

<210> 6
<211> 471
<212> PRT
<213> artificial

<220>
<223> (alpha)7-5HT3 chimeric receptor

<400> 6

Met Arg Cys Ser Pro Gly Gly Val Trp Leu Ala Leu Ala Ala Ser Leu
1 5 10 15

Leu His Val Ser Leu Gln Gly Glu Phe Gln Arg Lys Leu Tyr Lys Glu
20 25 30

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

Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp
50 55 60

Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met
65 70 75 80

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly
85 90 95

Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

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

Asn Gly Glu Trp Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg
195 200 205

Phe Tyr Glu Cys Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val
210 215 220

Ile Ile Arg Arg Arg Pro Leu Phe Tyr Ala Val Ser Leu Leu Leu Pro
225 230 235 240

Ser Ile Phe Leu Met Val Val Asp Ile Val Gly Phe Cys Leu Pro Pro
245 250 255

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

Ser Val Phe Leu Ile Ile Val Ser Asp Thr Leu Pro Ala Thr Ile Gly
275 280 285

Thr Pro Leu Ile Gly Val Tyr Phe Val Val Cys Met Ala Leu Leu Val
290 295 300

Ile Ser Leu Ala Glu Thr Ile Phe Ile Val Arg Leu Val His Lys Gln

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

<210> 7
 <211> 430
 <212> PRT
 <213> artificial

<220>
 <223> (alpha)7-GlyR chimeric receptor

<400> 7

Met Arg Cys Ser Pro Gly Gly Val Trp Leu Ala Leu Ala Ala Ser Leu

1		5		10		15											
Leu	His	Val	Ser	Leu	Gln	Gly	Glu	Phe	Gln	Arg	Lys	Leu	Tyr	Lys	Glu		
			20					25					30				
Leu	Val	Lys	Asn	Tyr	Asn	Pro	Leu	Glu	Arg	Pro	Val	Ala	Asn	Asp	Ser		
		35					40					45					
Gln	Pro	Leu	Thr	Val	Tyr	Phe	Ser	Leu	Ser	Leu	Leu	Gln	Ile	Met	Asp		
	50					55					60						
Val	Asp	Glu	Lys	Asn	Gln	Val	Leu	Thr	Thr	Asn	Ile	Trp	Leu	Gln	Met		
65					70					75					80		
Ser	Trp	Thr	Asp	His	Tyr	Leu	Gln	Trp	Asn	Val	Ser	Glu	Tyr	Pro	Gly		
				85					90					95			
Val	Lys	Thr	Arg	Phe	Pro	Asp	Gly	Gln	Ile	Trp	Lys	Pro	Asp	Ile	Leu		
			100					105					110				
Leu	Tyr	Asn	Ser	Ala	Asp	Glu	Arg	Phe	Asp	Ala	Thr	Phe	His	Thr	Asn		
		115					120					125					
Val	Leu	Val	Asn	Ser	Ser	Gly	His	Cys	Gln	Tyr	Leu	Pro	Pro	Gly	Ile		
	130					135					140						
Phe	Lys	Ser	Ser	Cys	Tyr	Ile	Asp	Val	Arg	Trp	Phe	Pro	Phe	Asp	Val		
145					150					155					160		
Gln	His	Cys	Lys	Leu	Lys	Phe	Gly	Ser	Trp	Ser	Tyr	Gly	Gly	Trp	Ser		
			165						170					175			
Leu	Asp	Leu	Gln	Met	Gln	Glu	Ala	Asp	Ile	Ser	Gly	Tyr	Ile	Pro	Asn		
			180					185					190				
Gly	Glu	Trp	Asp	Leu	Val	Gly	Ile	Pro	Gly	Lys	Arg	Ser	Glu	Arg	Phe		
		195					200					205					
Tyr	Glu	Cys	Cys	Lys	Glu	Pro	Tyr	Pro	Asp	Val	Thr	Phe	Thr	Val	Thr		
	210					215					220						

Met Arg Arg Arg Met Gly Tyr Tyr Leu Ile Gln Met Tyr Ile Pro Ser
225 230 235 240

Leu Leu Ile Val Ile Leu Ser Trp Ile Ser Phe Trp Ile Asn Met Asp
245 250 255

Ala Ala Pro Ala Arg Val Gly Leu Gly Ile Thr Thr Val Leu Thr Met
260 265 270

Thr Thr Gln Ser Ser Gly Ser Arg Ala Ser Leu Pro Lys Val Ser Tyr
275 280 285

Val Lys Ala Ile Asp Ile Trp Met Ala Val Cys Leu Leu Phe Val Phe
290 295 300

Ser Ala Leu Leu Glu Tyr Ala Ala Val Asn Phe Val Ser Arg Gln His
305 310 315 320

Lys Glu Leu Leu Arg Phe Arg Arg Lys Arg Arg His His Lys Glu Asp
325 330 335

Glu Ala Gly Glu Gly Arg Phe Asn Phe Ser Ala Tyr Gly Met Gly Pro
340 345 350

Ala Cys Leu Gln Ala Lys Asp Gly Ile Ser Val Lys Gly Ala Asn Asn
355 360 365

Ser Asn Thr Thr Asn Pro Pro Pro Ala Pro Ser Lys Ser Pro Glu Glu
370 375 380

Met Arg Lys Leu Phe Ile Gln Arg Ala Lys Lys Ile Asp Lys Ile Ser
385 390 395 400

Arg Ile Gly Phe Pro Met Ala Phe Leu Ile Phe Asn Met Phe Tyr Trp
405 410 415

Ile Ile Tyr Lys Ile Val Arg Arg Glu Asp Val His Asn Gln
420 425 430

<211> 466
<212> PRT
<213> artificial

<220>
<223> (alpha)7-5HT3 chimeric receptor

<400> 8

Met Arg Cys Ser Pro Gly Gly Val Trp Leu Ala Leu Ala Ala Ser Leu
1 5 10 15

Leu His Val Ser Leu Gln Gly Glu Phe Gln Arg Lys Leu Tyr Lys Glu
20 25 30

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

Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp
50 55 60

Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met
65 70 75 80

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly
85 90 95

Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

Ser Leu Asp Leu Gln Met Gln Glu Ala Asp Ile Ser Gly Tyr Ile Pro

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

Leu Ala Val Cys Gly Leu Leu Gln Glu Leu Ser Ser Ile Arg Gln Phe
405 410 415

Leu Glu Lys Arg Asp Glu Ile Arg Glu Val Ala Arg Asp Trp Leu Arg
420 425 430

Val Gly Ser Val Leu Asp Lys Leu Leu Phe His Ile Tyr Leu Leu Ala
435 440 445

Val Leu Ala Tyr Ser Ile Thr Leu Val Met Leu Trp Ser Ile Trp Gln
450 455 460

Tyr Ala
465

<210> 9
<211> 195
<212> PRT
<213> human

<400> 9

Leu Leu Gln Thr Tyr Phe Pro Ala Thr Leu Met Val Met Leu Ser Trp
1 5 10 15

Val Ser Phe Trp Ile Asp Arg Arg Ala Val Pro Ala Arg Val Pro Leu
20 25 30

Gly Ile Thr Thr Val Leu Thr Met Ser Thr Ile Ile Thr Gly Val Asn
35 40 45

Ala Ser Met Pro Arg Val Ser Tyr Ile Lys Ala Val Asp Ile Tyr Leu
50 55 60

Trp Val Ser Phe Val Phe Val Phe Leu Ser Val Leu Glu Tyr Ala Ala
65 70 75 80

Val Asn Tyr Leu Thr Thr Val Gln Glu Arg Lys Glu Gln Lys Leu Arg
85 90 95

Glu Lys Leu Pro Cys Thr Ser Gly Leu Pro Pro Pro Arg Thr Ala Met
100 105 110

Leu Asp Gly Asn Tyr Ser Asp Gly Glu Val Asn Asp Leu Asp Asn Tyr
115 120 125

Met Pro Glu Asn Gly Glu Lys Pro Asp Arg Met Met Val Gln Leu Thr
130 135 140

Leu Ala Ser Glu Arg Ser Ser Pro Gln Arg Lys Ser Gln Arg Ser Ser
145 150 155 160

Tyr Val Ser Met Arg Ile Asp Thr His Ala Ile Asp Lys Tyr Ser Arg
165 170 175

Ile Ile Phe Pro Ala Ala Tyr Ile Leu Phe Asn Leu Ile Tyr Trp Ser
180 185 190

Ile Phe Ser
195

<210> 10
<211> 428
<212> PRT
<213> artificial

<220>
<223> (alpha)7- GABAC chimeric receptor

<400> 10

Met Arg Cys Ser Pro Gly Gly Val Trp Leu Ala Leu Ala Ala Ser Leu
1 5 10 15

Leu His Val Ser Leu Gln Gly Glu Phe Gln Arg Lys Leu Tyr Lys Glu
20 25 30

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

Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp
50 55 60

Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met
65 70 75 80

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly
85 90 95

Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

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

Asn Gly Glu Trp Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg
195 200 205

Phe Tyr Glu Cys Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val
210 215 220

Thr Met Arg Arg Arg Thr Leu Tyr Tyr Leu Leu Gln Thr Tyr Phe Pro
225 230 235 240

Ala Thr Leu Met Val Met Leu Ser Trp Val Ser Phe Trp Ile Asp Arg
245 250 255

Arg Ala Val Pro Ala Arg Val Pro Leu Gly Ile Thr Thr Val Leu Thr
260 265 270

Met Ser Thr Ile Ile Thr Gly Val Asn Ala Ser Met Pro Arg Val Ser
275 280 285

Tyr Ile Lys Ala Val Asp Ile Tyr Leu Trp Val Ser Phe Val Phe Val
290 295 300

Phe Leu Ser Val Leu Glu Tyr Ala Ala Val Asn Tyr Leu Thr Thr Val
305 310 315 320

Gln Glu Arg Lys Glu Gln Lys Leu Arg Glu Lys Leu Pro Cys Thr Ser
325 330 335

Gly Leu Pro Pro Pro Arg Thr Ala Met Leu Asp Gly Asn Tyr Ser Asp
340 345 350

Gly Glu Val Asn Asp Leu Asp Asn Tyr Met Pro Glu Asn Gly Glu Lys
355 360 365

Pro Asp Arg Met Met Val Gln Leu Thr Leu Ala Ser Glu Arg Ser Ser
370 375 380

Pro Gln Arg Lys Ser Gln Arg Ser Ser Tyr Val Ser Met Arg Ile Asp
385 390 395 400

Thr His Ala Ile Asp Lys Tyr Ser Arg Ile Ile Phe Pro Ala Ala Tyr
405 410 415

Ile Leu Phe Asn Leu Ile Tyr Trp Ser Ile Phe Ser
420 425

<210> 11
<211> 233
<212> PRT
<213> human

<400> 11

Met Arg Cys Ser Pro Gly Gly Val Trp Leu Ala Leu Ala Ala Ser Leu
1 5 10 15

Leu His Val Ser Leu Gln Gly Glu Phe Gln Arg Lys Leu Tyr Lys Glu
20 25 30

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

Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp
50 55 60

Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met
65 70 75 80

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Val Ser Glu Tyr Pro Gly
85 90 95

Val Lys Thr Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ser Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln His Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

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

Asn Gly Glu Trp Asp Leu Val Gly Ile Pro Gly Lys Arg Ser Glu Arg
195 200 205

Phe Tyr Glu Cys Cys Lys Glu Pro Tyr Pro Asp Val Thr Phe Thr Val
210 215 220

Thr Met Arg Arg Arg Thr Leu Tyr Tyr
225 230

<210> 12
<211> 502
<212> PRT
<213> rat

<400> 12

Met Gly Gly Gly Arg Gly Gly Ile Trp Leu Ala Leu Ala Ala Ala Leu
1 5 10 15

Leu His Val Ser Leu Gln Gly Glu Phe Gln Arg Arg Leu Tyr Lys Glu
20 25 30

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

Gln Pro Leu Thr Val Tyr Phe Ser Leu Ser Leu Leu Gln Ile Met Asp
50 55 60

Val Asp Glu Lys Asn Gln Val Leu Thr Thr Asn Ile Trp Leu Gln Met
65 70 75 80

Ser Trp Thr Asp His Tyr Leu Gln Trp Asn Met Ser Glu Tyr Pro Gly
85 90 95

Val Lys Asn Val Arg Phe Pro Asp Gly Gln Ile Trp Lys Pro Asp Ile
100 105 110

Leu Leu Tyr Asn Ser Ala Asp Glu Arg Phe Asp Ala Thr Phe His Thr
115 120 125

Asn Val Leu Val Asn Ala Ser Gly His Cys Gln Tyr Leu Pro Pro Gly
130 135 140

Ile Phe Lys Ser Ser Cys Tyr Ile Asp Val Arg Trp Phe Pro Phe Asp
145 150 155 160

Val Gln Gln Cys Lys Leu Lys Phe Gly Ser Trp Ser Tyr Gly Gly Trp
165 170 175

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

Asn Gly Glu Trp Asp Leu Met Gly Ile Pro Gly Lys Arg Asn Glu Lys
195 200 205

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

Leu Ala Lys Ile Leu Glu Glu Val Arg Tyr Ile Ala Asn Arg Asn Arg
435 440 445

Cys Gln Asp Glu Ser Glu Val Ile Cys Ser Glu Trp Lys Phe Ala Ala
450 455 460

Cys Val Val Asp Pro Leu Cys Leu Met Ala Phe Ser Val Phe Thr Ile
465 470 475 480

Ile Cys Thr Ile Gly Ile Leu Met Ser Ala Pro Asn Phe Val Glu Ala
485 490 495

Val Ser Lys Asp Phe Ala
500