

SEQUENCE LISTING

<110> Confo Therapeutics N.V.

<120> Chimeric proteins and methods to screen for compounds and ligands binding to GPCRs

<130> P6086124PCT

<150> US 62/840,091

<151> 2019-04-29

<150> US 62/840,092

<151> 2019-04-29

<150> US 62/840,094

<151> 2019-04-29

<150> US 62/863,544

<151> 2019-06-19

<150> US 62/934,133

<151> 2019-11-12

<150> US 62/934,136

<151> 2019-11-12

<150> US 62/934,181

<151> 2019-11-12

<160> 23

<170> PatentIn version 3.5

<210> 1

<211> 16

<212> PRT

<213> Artificial sequence

<220>

<223> Hemagglutinin (HA) protein signal peptide

<400> 1

Met	Lys	Thr	Ile	Ile	Ala	Leu	Ser	Tyr	Ile	Phe	Cys	Leu	Val	Phe	Ala
1				5					10					15	

<210> 2

<211> 8

<212> PRT

<213> Artificial sequence

<220>

<223> FLAG-tag

<400> 2

Asp Tyr Lys Asp Asp Asp Asp Ala
1 5

<210> 3

<211> 21

<212> PRT

<213> Artificial sequence

<220>

<223> Linker

<400> 3

Gly Ala Gln Gly Asn Ser Gly Ser Ser Gly Gly Gly Gly Ser Gly Gly
1 5 10 15

Gly Gly Ser Ser Gly
20

<210> 4

<211> 15

<212> PRT

<213> Artificial sequence

<220>

<223> Linker

<400> 4

Gly Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser Gly
1 5 10 15

<210> 5

<211> 158

<212> PRT

<213> Artificial sequence

<220>

<223> Large subunit of the NanoLuc luciferase (LgBit)

<400> 5

Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr Ala Ala
1 5 10 15

Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser Leu Leu
20 25 30

Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val Arg Ser
35 40 45

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

Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe Lys Val
65 70 75 80

Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro Tyr Gly
85 90 95

Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr Phe Gly
100 105 110

Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile Thr Val
115 120 125

Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg Leu Ile
130 135 140

Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
145 150 155

<210> 6
<211> 11
<212> PRT
<213> Artificial sequence

<220>
<223> Small subunit of the NanoLuc luciferase (SmBit)

<400> 6

Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
1 5 10

<210> 7
<211> 149
<212> PRT
<213> Artificial sequence

<220>

<223> XA8633 fusion

<400> 7

Met Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Arg Pro Gly
1 5 10 15

Gly Ser Arg Arg Leu Ser Cys Val Asp Ser Glu Arg Thr Ser Tyr Pro
20 25 30

Met Gly Trp Phe Arg Arg Ala Pro Gly Lys Glu Arg Glu Phe Val Ala
35 40 45

Ser Ile Thr Trp Ser Gly Ile Asp Pro Thr Tyr Ala Asp Ser Val Ala
50 55 60

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

Gln Met Asn Ser Leu Lys His Glu Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Ala Arg Ala Pro Val Gly Gln Ser Ser Ser Pro Tyr Asp Tyr Asp Tyr
100 105 110

Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Gly Ser Ser Gly Gly
115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Ser Gly Val Thr Gly Tyr Arg Leu
130 135 140

Phe Glu Glu Ile Leu
145

<210> 8

<211> 147

<212> PRT

<213> Artificial sequence

<220>

<223> CA2780 fusion

<400> 8

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

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Ser Ile
20 25 30

Asn Thr Met Gly Trp Tyr Arg Gln Ala Pro Gly Lys Gln Arg Glu Leu
35 40 45

Val Ala Ala Ile His Ser Gly Gly Ser Thr Asn Tyr Ala Asn Ser Val
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Ala Asn Thr Val Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Asn Val Lys Asp Tyr Gly Ala Val Leu Tyr Glu Tyr Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Gln Val Thr Val Ser Ser Gly Ser Ser Gly Gly Gly Gly
115 120 125

Ser Gly Gly Gly Gly Ser Ser Gly Val Thr Gly Tyr Arg Leu Phe Glu
130 135 140

Glu Ile Leu
145

<210> 9

<211> 146

<212> PRT

<213> Artificial sequence

<220>

<223> CA4437 fusion

<400> 9

Met Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Phe Val Gln Ala Gly
1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Ser Lys
20 25 30

Asn Thr Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Leu
35 40 45

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

Lys Gly Arg Phe Thr Ile Ser Arg Asp Ser Ala Lys Asn Thr Val Leu
65 70 75 80

Leu Gln Met Asn Val Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

His Leu Arg Gln Asn Asn Arg Gly Ser Trp Phe His Tyr Trp Gly Gln
100 105 110

Gly Thr Gln Val Thr Val Ser Ser Gly Ser Ser Gly Gly Gly Gly Ser
115 120 125

Gly Gly Gly Gly Ser Ser Gly Val Thr Gly Tyr Arg Leu Phe Glu Glu
130 135 140

Ile Leu
145

<210> 10
<211> 155
<212> PRT
<213> Artificial sequence

<220>
<223> CA4435 fusion

<400> 10

Met Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn
20 25 30

Tyr Lys Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp
35 40 45

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

Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu
65 70 75 80

Tyr Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Cys Pro Ala Pro Phe Thr Arg Asp Cys Phe Asp Val Thr
100 105 110

Ser Thr Thr Tyr Ala Tyr Arg Gly Gln Gly Thr Gln Val Thr Val Ser
115 120 125

Ser Gly Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Ser Gly
130 135 140

Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
145 150 155

<210> 11
<211> 341
<212> PRT
<213> Artificial sequence

<220>
<223> MC4R-B2AR chimera 1

<400> 11

Met Val Asn Ser Thr His Arg Gly Met His Thr Ser Leu His Leu Trp
1 5 10 15

Asn Arg Ser Ser Tyr Arg Leu His Ser Asn Ala Ser Glu Ser Leu Gly
20 25 30

Lys Gly Tyr Ser Asp Gly Gly Cys Tyr Glu Gln Leu Phe Val Ser Pro
35 40 45

Glu Val Phe Val Thr Leu Gly Val Ile Ser Leu Leu Glu Asn Ile Leu
50 55 60

Val Ile Thr Ala Ile Ala Lys Phe Glu Arg Leu Gln Ser Pro Met Tyr
65 70 75 80

Phe Phe Ile Cys Ser Leu Ala Val Ala Asp Met Leu Val Ser Val Ser
85 90 95

Asn Gly Ser Glu Thr Ile Val Ile Thr Leu Leu Asn Ser Thr Asp Thr
100 105 110

Asp Ala Gln Ser Phe Thr Val Asn Ile Asp Asn Val Ile Asp Ser Val
115 120 125

Ile Cys Ser Ser Leu Leu Ala Ser Ile Cys Ser Leu Leu Ser Ile Ala
130 135 140

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

Leu Thr Val Lys Arg Val Gly Ile Ile Ile Ser Cys Ile Trp Ala Ala
165 170 175

Cys Thr Val Ser Gly Ile Leu Phe Ile Ile Tyr Ser Asp Ser Ser Ala
180 185 190

Val Ile Ile Cys Leu Ile Thr Met Phe Phe Thr Met Leu Ala Leu Met
195 200 205

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

Lys Ile Asp Lys Ser Glu Gly Arg Phe His Val Gln Asn Leu Ser Gln
225 230 235 240

Val Glu Gln Asp Gly Arg Thr Gly His Gly Leu Arg Arg Ser Ser Lys
245 250 255

Phe Cys Leu Lys Glu His Lys Ala Leu Lys Thr Leu Gly Ile Ile Ile
260 265 270

Gly Val Phe Val Val Cys Trp Ala Pro Phe Phe Leu His Leu Ile Phe
275 280 285

Tyr Ile Ser Cys Pro Gln Asn Pro Tyr Cys Val Cys Phe Met Ser His
290 295 300

Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile Ile Asp Pro
305 310 315 320

Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe Gln Glu Leu
325 330 335

Leu Cys Leu Arg Arg
340

<210> 12
<211> 341
<212> PRT
<213> Artificial sequence

<220>
<223> MC4R-B2AR chimera 2

<400> 12

Met Val Asn Ser Thr His Arg Gly Met His Thr Ser Leu His Leu Trp
1 5 10 15

Asn Arg Ser Ser Tyr Arg Leu His Ser Asn Ala Ser Glu Ser Leu Gly
20 25 30

Lys Gly Tyr Ser Asp Gly Gly Cys Tyr Glu Gln Leu Phe Val Ser Pro
35 40 45

Glu Val Phe Val Thr Leu Gly Val Ile Ser Leu Leu Glu Asn Ile Leu
50 55 60

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

Tyr Phe Ile Cys Ser Leu Ala Val Ala Asp Met Leu Val Ser Val Ser
85 90 95

Asn Gly Ser Glu Thr Ile Val Ile Thr Leu Leu Asn Ser Thr Asp Thr
100 105 110

Asp Ala Gln Ser Phe Thr Val Asn Ile Asp Asn Val Ile Asp Ser Val
115 120 125

Ile Cys Ser Ser Leu Leu Ala Ser Ile Cys Ser Leu Leu Ser Ile Ala
130 135 140

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

Leu Thr Val Lys Arg Val Gly Ile Ile Ile Ser Cys Ile Trp Ala Ala
165 170 175

Cys Thr Val Ser Gly Ile Leu Phe Ile Ile Tyr Ser Asp Ser Ser Ala
180 185 190

Val Ile Ile Cys Leu Ile Thr Met Phe Phe Thr Met Leu Ala Leu Met
195 200 205

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

Lys Ile Asp Lys Ser Glu Gly Arg Phe His Val Gln Asn Leu Ser Gln
225 230 235 240

Val Glu Gln Asp Gly Arg Thr Gly His Gly Leu Arg Arg Ser Ser Lys
245 250 255

Phe Cys Leu Lys Glu His Lys Ala Leu Lys Thr Leu Gly Ile Leu Ile
260 265 270

Gly Val Phe Val Val Cys Trp Ala Pro Phe Phe Leu His Leu Ile Phe
275 280 285

Tyr Ile Ser Cys Pro Gln Asn Pro Tyr Cys Val Cys Phe Met Ser His
290 295 300

Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile Ile Asp Pro
305 310 315 320

Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe Gln Glu Leu
325 330 335

Leu Cys Leu Arg Arg
340

<210> 13
<211> 332
<212> PRT
<213> Artificial sequence

<220>
<223> MC4R

<400> 13

Met Val Asn Ser Thr His Arg Gly Met His Thr Ser Leu His Leu Trp
1 5 10 15

Asn Arg Ser Ser Tyr Arg Leu His Ser Asn Ala Ser Glu Ser Leu Gly
20 25 30

Lys Gly Tyr Ser Asp Gly Gly Cys Tyr Glu Gln Leu Phe Val Ser Pro
35 40 45

Glu Val Phe Val Thr Leu Gly Val Ile Ser Leu Leu Glu Asn Ile Leu
50 55 60

Val Ile Val Ala Ile Ala Lys Asn Lys Asn Leu His Ser Pro Met Tyr
65 70 75 80

Phe Phe Ile Cys Ser Leu Ala Val Ala Asp Met Leu Val Ser Val Ser
85 90 95

Asn Gly Ser Glu Thr Ile Val Ile Thr Leu Leu Asn Ser Thr Asp Thr
100 105 110

Asp Ala Gln Ser Phe Thr Val Asn Ile Asp Asn Val Ile Asp Ser Val
115 120 125

Ile Cys Ser Ser Leu Leu Ala Ser Ile Cys Ser Leu Leu Ser Ile Ala
130 135 140

Val Asp Arg Tyr Phe Thr Ile Phe Tyr Ala Leu Gln Tyr His Asn Ile
145 150 155 160

Met Thr Val Lys Arg Val Gly Ile Ile Ile Ser Cys Ile Trp Ala Ala
165 170 175

Cys Thr Val Ser Gly Ile Leu Phe Ile Ile Tyr Ser Asp Ser Ser Ala
180 185 190

Val Ile Ile Cys Leu Ile Thr Met Phe Phe Thr Met Leu Ala Leu Met
195 200 205

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

Arg Ile Ala Val Leu Pro Gly Thr Gly Ala Ile Arg Gln Gly Ala Asn
225 230 235 240

Met Lys Gly Ala Ile Thr Leu Thr Ile Leu Ile Gly Val Phe Val Val
245 250 255

Cys Trp Ala Pro Phe Phe Leu His Leu Ile Phe Tyr Ile Ser Cys Pro
260 265 270

Gln Asn Pro Tyr Cys Val Cys Phe Met Ser His Phe Asn Leu Tyr Leu
275 280 285

Ile Leu Ile Met Cys Asn Ser Ile Ile Asp Pro Leu Ile Tyr Ala Leu
290 295 300

Arg Ser Gln Glu Leu Arg Lys Thr Phe Lys Glu Ile Ile Cys Cys Tyr
305 310 315 320

Pro Leu Gly Gly Leu Cys Asp Leu Ser Ser Arg Tyr
325 330

<210> 14
<211> 413
<212> PRT
<213> Artificial sequence

<220>
<223> B2AR

<400> 14

Met Gly Gln Pro Gly Asn Gly Ser Ala Phe Leu Leu Ala Pro Asn Gly
1 5 10 15

Ser His Ala Pro Asp His Asp Val Thr Gln Glu Arg Asp Glu Val Trp
20 25 30

Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val
35 40 45

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

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

Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met
85 90 95

Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile
100 105 110

Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala
115 120 125

Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu
130 135 140

Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val
145 150 155 160

Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala
165 170 175

Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp
180 185 190

Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe
195 200 205

Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln
210 215 220

Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe
225 230 235 240

His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His
245 250 255

Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu
260 265 270

Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro
275 280 285

Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg
290 295 300

Lys Glu Val Tyr Ile Leu Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly
305 310 315 320

Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe
325 330 335

Gln Glu Leu Leu Cys Leu Arg Arg Ser Ser Leu Lys Ala Tyr Gly Asn
340 345 350

Gly Tyr Ser Ser Asn Gly Asn Thr Gly Glu Gln Ser Gly Tyr His Val
355 360 365

Glu Gln Glu Lys Glu Asn Lys Leu Leu Cys Glu Asp Leu Pro Gly Thr
370 375 380

Glu Asp Phe Val Gly His Gln Gly Thr Val Pro Ser Asp Asn Ile Asp
385 390 395 400

Ser Gln Gly Arg Asn Cys Ser Thr Asn Asp Ser Leu Leu
405 410

<210> 15
<211> 356
<212> PRT
<213> Artificial sequence

<220>
<223> APL receptor-MOR chimer

<400> 15

Met Lys Thr Ile Ile Ala Leu Ser Tyr Ile Phe Cys Leu Val Phe Ala
1 5 10 15

Asp Tyr Lys Asp Asp Asp Asp Ala Met Glu Glu Gly Gly Asp Phe Asp
20 25 30

Asn Tyr Tyr Gly Ala Asp Asn Gln Ser Glu Cys Glu Tyr Thr Asp Trp
35 40 45

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

Leu Gly Thr Thr Gly Asn Gly Leu Val Leu Trp Thr Ile Val Arg Tyr
65 70 75 80

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

Val Ala Asp Leu Thr Phe Val Val Thr Leu Pro Leu Trp Ala Thr Tyr
100 105 110

Thr Tyr Arg Asp Tyr Asp Trp Pro Phe Gly Thr Phe Phe Cys Lys Leu
115 120 125

Ser Ser Tyr Leu Ile Phe Val Asn Met Tyr Ala Ser Val Phe Cys Leu
130 135 140

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

Ala Leu Asp Phe Arg Thr Pro Arg Asn Gly Ala Val Ala Thr Ala Val
165 170 175

Leu Trp Val Leu Ala Ala Leu Leu Ala Met Pro Val Met Val Leu Arg
180 185 190

Thr Thr Gly Asp Leu Glu Asn Thr Thr Lys Val Gln Cys Tyr Met Asp
195 200 205

Tyr Ser Met Val Ala Thr Val Ser Ser Glu Trp Ala Trp Glu Val Gly
210 215 220

Leu Gly Val Ser Ser Thr Thr Val Gly Phe Val Val Pro Phe Thr Ile
225 230 235 240

Met Leu Thr Cys Tyr Gly Leu Met Ile Leu Arg Leu Lys Ser Val Arg
245 250 255

Met Leu Ser Gly Ser Lys Glu Lys Asp Arg Asn Leu Arg Arg Ile Leu
260 265 270

Ser Ile Ile Val Val Leu Val Val Thr Phe Ala Leu Cys Trp Met Pro
275 280 285

Tyr His Leu Val Lys Thr Leu Tyr Met Leu Gly Ser Leu Leu His Trp
290 295 300

Pro Cys Asp Phe Asp Leu Phe Leu Met Asn Ile Phe Pro Tyr Cys Thr
305 310 315 320

Cys Ile Ser Tyr Val Asn Ser Cys Leu Asn Pro Phe Leu Tyr Ala Phe
325 330 335

Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr
340 345 350

Ser Ser Asn Ile
355

<210> 16
<211> 535
<212> PRT
<213> Artificial sequence

<220>
<223> Fusion protein

<400> 16

Met Lys Thr Ile Ile Ala Leu Ser Tyr Ile Phe Cys Leu Val Phe Ala
1 5 10 15

Asp Tyr Lys Asp Asp Asp Asp Ala Met Glu Glu Gly Gly Asp Phe Asp
20 25 30

Asn Tyr Tyr Gly Ala Asp Asn Gln Ser Glu Cys Glu Tyr Thr Asp Trp
35 40 45

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

Leu Gly Thr Thr Gly Asn Gly Leu Val Leu Trp Thr Ile Val Arg Tyr
65 70 75 80

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

Val Ala Asp Leu Thr Phe Val Val Thr Leu Pro Leu Trp Ala Thr Tyr
100 105 110

Thr Tyr Arg Asp Tyr Asp Trp Pro Phe Gly Thr Phe Phe Cys Lys Leu
115 120 125

Ser Ser Tyr Leu Ile Phe Val Asn Met Tyr Ala Ser Val Phe Cys Leu
130 135 140

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

Ala Leu Asp Phe Arg Thr Pro Arg Asn Gly Ala Val Ala Thr Ala Val
165 170 175

Leu Trp Val Leu Ala Ala Leu Leu Ala Met Pro Val Met Val Leu Arg
180 185 190

Thr Thr Gly Asp Leu Glu Asn Thr Thr Lys Val Gln Cys Tyr Met Asp
195 200 205

Tyr Ser Met Val Ala Thr Val Ser Ser Glu Trp Ala Trp Glu Val Gly
210 215 220

Leu Gly Val Ser Ser Thr Thr Val Gly Phe Val Val Pro Phe Thr Ile
225 230 235 240

Met Leu Thr Cys Tyr Gly Leu Met Ile Leu Arg Leu Lys Ser Val Arg
245 250 255

Met Leu Ser Gly Ser Lys Glu Lys Asp Arg Asn Leu Arg Arg Ile Leu
260 265 270

Ser Ile Ile Val Val Leu Val Val Thr Phe Ala Leu Cys Trp Met Pro
275 280 285

Tyr His Leu Val Lys Thr Leu Tyr Met Leu Gly Ser Leu Leu His Trp
290 295 300

Pro Cys Asp Phe Asp Leu Phe Leu Met Asn Ile Phe Pro Tyr Cys Thr
305 310 315 320

Cys Ile Ser Tyr Val Asn Ser Cys Leu Asn Pro Phe Leu Tyr Ala Phe
325 330 335

Leu Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr
340 345 350

Ser Ser Asn Ile Gly Ala Gln Gly Asn Ser Gly Ser Ser Gly Gly Gly
355 360 365

Gly Ser Gly Gly Gly Gly Ser Ser Gly Val Phe Thr Leu Glu Asp Phe
370 375 380

Val Gly Asp Trp Glu Gln Thr Ala Ala Tyr Asn Leu Asp Gln Val Leu
385 390 395 400

Glu Gln Gly Gly Val Ser Ser Leu Leu Gln Asn Leu Ala Val Ser Val
405 410 415

Thr Pro Ile Gln Arg Ile Val Arg Ser Gly Glu Asn Ala Leu Lys Ile
420 425 430

Asp Ile His Val Ile Ile Pro Tyr Glu Gly Leu Ser Ala Asp Gln Met
435 440 445

Ala Gln Ile Glu Glu Val Phe Lys Val Val Tyr Pro Val Asp Asp His
450 455 460

His Phe Lys Val Ile Leu Pro Tyr Gly Thr Leu Val Ile Asp Gly Val
465 470 475 480

Thr Pro Asn Met Leu Asn Tyr Phe Gly Arg Pro Tyr Glu Gly Ile Ala
485 490 495

Val Phe Asp Gly Lys Lys Ile Thr Val Thr Gly Thr Leu Trp Asn Gly
500 505 510

Asn Lys Ile Ile Asp Glu Arg Leu Ile Thr Pro Asp Gly Ser Met Leu
515 520 525

Phe Arg Val Thr Ile Asn Ser
530 535

<210> 17
<211> 413
<212> PRT
<213> Artificial sequence

<220>
<223> UniProt P07550 (ADRB2_HUMAN)

<400> 17

Met Gly Gln Pro Gly Asn Gly Ser Ala Phe Leu Leu Ala Pro Asn Gly
1 5 10 15

Ser His Ala Pro Asp His Asp Val Thr Gln Glu Arg Asp Glu Val Trp
20 25 30

Val Val Gly Met Gly Ile Val Met Ser Leu Ile Val Leu Ala Ile Val
35 40 45

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

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

Val Met Gly Leu Ala Val Val Pro Phe Gly Ala Ala His Ile Leu Met
85 90 95

Lys Met Trp Thr Phe Gly Asn Phe Trp Cys Glu Phe Trp Thr Ser Ile
100 105 110

Asp Val Leu Cys Val Thr Ala Ser Ile Glu Thr Leu Cys Val Ile Ala
115 120 125

Val Asp Arg Tyr Phe Ala Ile Thr Ser Pro Phe Lys Tyr Gln Ser Leu
130 135 140

Leu Thr Lys Asn Lys Ala Arg Val Ile Ile Leu Met Val Trp Ile Val
145 150 155 160

Ser Gly Leu Thr Ser Phe Leu Pro Ile Gln Met His Trp Tyr Arg Ala
165 170 175

Thr His Gln Glu Ala Ile Asn Cys Tyr Ala Asn Glu Thr Cys Cys Asp
180 185 190

Phe Phe Thr Asn Gln Ala Tyr Ala Ile Ala Ser Ser Ile Val Ser Phe
195 200 205

Tyr Val Pro Leu Val Ile Met Val Phe Val Tyr Ser Arg Val Phe Gln
210 215 220

Glu Ala Lys Arg Gln Leu Gln Lys Ile Asp Lys Ser Glu Gly Arg Phe
225 230 235 240

His Val Gln Asn Leu Ser Gln Val Glu Gln Asp Gly Arg Thr Gly His
245 250 255

Gly Leu Arg Arg Ser Ser Lys Phe Cys Leu Lys Glu His Lys Ala Leu
260 265 270

Lys Thr Leu Gly Ile Ile Met Gly Thr Phe Thr Leu Cys Trp Leu Pro
275 280 285

Phe Phe Ile Val Asn Ile Val His Val Ile Gln Asp Asn Leu Ile Arg
290 295 300

Lys Glu Val Tyr Ile Leu Leu Asn Trp Ile Gly Tyr Val Asn Ser Gly
305 310 315 320

Phe Asn Pro Leu Ile Tyr Cys Arg Ser Pro Asp Phe Arg Ile Ala Phe
325 330 335

Gln Glu Leu Leu Cys Leu Arg Arg Ser Ser Leu Lys Ala Tyr Gly Asn
340 345 350

Gly Tyr Ser Ser Asn Gly Asn Thr Gly Glu Gln Ser Gly Tyr His Val
355 360 365

Glu Gln Glu Lys Glu Asn Lys Leu Leu Cys Glu Asp Leu Pro Gly Thr
370 375 380

Glu Asp Phe Val Gly His Gln Gly Thr Val Pro Ser Asp Asn Ile Asp
385 390 395 400

Ser Gln Gly Arg Asn Cys Ser Thr Asn Asp Ser Leu Leu
405 410

<210> 18

<211> 355

<212> PRT

<213> Artificial sequence

<220>

<223> OX2-MOR chimera

<400> 18

Met Ser Gly Thr Lys Leu Glu Asp Ser Pro Pro Cys Arg Asn Trp Ser
1 5 10 15

Ser Ala Ser Glu Leu Asn Glu Thr Gln Glu Pro Phe Leu Asn Pro Thr
20 25 30

Asp Tyr Asp Asp Glu Glu Phe Leu Arg Tyr Leu Trp Arg Glu Tyr Leu
35 40 45

His Pro Lys Glu Tyr Glu Trp Val Leu Ile Ala Gly Tyr Ile Ile Val
50 55 60

Phe Val Val Ala Leu Ile Gly Asn Val Leu Val Met Tyr Val Ile Val
65 70 75 80

Arg Tyr Thr Lys Met Lys Thr Ala Thr Asn Tyr Phe Ile Val Asn Leu
85 90 95

Ser Leu Ala Asp Val Leu Val Thr Ile Thr Cys Leu Pro Ala Thr Leu
100 105 110

Val Val Asp Ile Thr Glu Thr Trp Phe Phe Gly Gln Ser Leu Cys Lys
115 120 125

Val Ile Pro Tyr Leu Gln Thr Val Ser Val Ser Val Ser Val Leu Thr
130 135 140

Leu Ser Cys Ile Ala Leu Asp Arg Tyr Ile Ala Val Cys His Pro Val
145 150 155 160

Lys Ala Leu Asp Phe Arg Thr Pro Arg Asn Ala Arg Asn Ser Ile Val
165 170 175

Ile Ile Trp Ile Val Ser Cys Ile Ile Met Ile Pro Gln Ala Ile Val
180 185 190

Met Glu Cys Ser Thr Val Phe Pro Gly Leu Ala Asn Lys Thr Thr Leu
195 200 205

Phe Thr Val Cys Asp Glu Arg Trp Gly Gly Glu Ile Tyr Pro Lys Met
210 215 220

Tyr His Ile Cys Phe Phe Leu Val Thr Tyr Met Ala Pro Leu Cys Leu
225 230 235 240

Met Val Leu Ala Tyr Gly Leu Met Ile Leu Arg Leu Lys Ser Val Arg
245 250 255

Met Leu Ser Gly Ser Lys Glu Lys Asp Arg Ala Arg Arg Lys Thr Ala
260 265 270

Arg Met Leu Met Ile Val Leu Leu Val Phe Ala Ile Cys Tyr Leu Pro
275 280 285

Ile Ser Ile Leu Asn Val Leu Lys Arg Val Phe Gly Met Phe Ala His
290 295 300

Thr Glu Asp Arg Glu Thr Val Tyr Ala Trp Phe Thr Phe Ser His Trp
305 310 315 320

Leu Val Tyr Ala Asn Ser Ala Ala Asn Pro Ile Ile Tyr Ala Phe Leu
325 330 335

Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr Ser
340 345 350

Ser Asn Ile
355

<210> 19
<211> 355
<212> PRT
<213> Artificial sequence

<220>
<223> MOR (truncated) Uniprot P35372-1

<400> 19

Ala Pro Thr Asn Ala Ser Asn Cys Thr Asp Ala Leu Ala Tyr Ser Ser
1 5 10 15

Cys Ser Pro Ala Pro Ser Pro Gly Ser Trp Val Asn Leu Ser His Leu
20 25 30

Asp Gly Asn Leu Ser Asp Pro Cys Gly Pro Asn Arg Thr Asp Leu Gly
35 40 45

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

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

Phe Gly Asn Phe Leu Val Met Tyr Val Ile Val Arg Tyr Thr Lys Met
85 90 95

Lys Thr Ala Thr Asn Ile Tyr Ile Phe Asn Leu Ala Leu Ala Asp Ala
100 105 110

Leu Ala Thr Ser Thr Leu Pro Phe Gln Ser Val Asn Tyr Leu Met Gly
115 120 125

Thr Trp Pro Phe Gly Thr Ile Leu Cys Lys Ile Val Ile Ser Ile Asp
130 135 140

Tyr Tyr Asn Met Phe Thr Ser Ile Phe Thr Leu Cys Thr Met Ser Val
145 150 155 160

Asp Arg Tyr Ile Ala Val Cys His Pro Val Lys Ala Leu Asp Phe Arg
165 170 175

Thr Pro Arg Asn Ala Lys Ile Ile Asn Val Cys Asn Trp Ile Leu Ser
180 185 190

Ser Ala Ile Gly Leu Pro Val Met Phe Met Ala Thr Thr Lys Tyr Arg
195 200 205

Gln Gly Ser Ile Asp Cys Thr Leu Thr Phe Ser His Pro Thr Trp Tyr
210 215 220

Trp Glu Asn Leu Leu Lys Ile Cys Val Phe Ile Phe Ala Phe Ile Met
225 230 235 240

Pro Val Leu Ile Ile Thr Val Cys Tyr Gly Leu Met Ile Leu Arg Leu
245 250 255

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

Arg Arg Ile Thr Arg Met Val Leu Val Val Val Ala Val Phe Ile Val
275 280 285

Cys Trp Thr Pro Ile His Ile Tyr Val Ile Ile Lys Ala Leu Val Thr
290 295 300

Ile Pro Glu Thr Thr Phe Gln Thr Val Ser Trp His Phe Cys Ile Ala
305 310 315 320

Leu Gly Tyr Thr Asn Ser Cys Leu Asn Pro Val Leu Tyr Ala Phe Leu
325 330 335

Asp Glu Asn Phe Lys Arg Cys Phe Arg Glu Phe Cys Ile Pro Thr Ser
340 345 350

Ser Asn Ile
355

<210> 20
<211> 120
<212> PRT
<213> Artificial sequence

<220>
<223> CA2780

<400> 20

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Ser Ile Asn
20 25 30

Thr Met Gly Trp Tyr Arg Gln Ala Pro Gly Lys Gln Arg Glu Leu Val
35 40 45

Ala Ala Ile His Ser Gly Gly Ser Thr Asn Tyr Ala Asn Ser Val Lys
50 55 60

Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Ala Asn Thr Val Tyr Leu
65 70 75 80

Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys Asn
85 90 95

Val Lys Asp Tyr Gly Ala Val Leu Tyr Glu Tyr Asp Tyr Trp Gly Gln
100 105 110

Gly Thr Gln Val Thr Val Ser Ser
115 120

<210> 21
<211> 122
<212> PRT
<213> Artificial sequence

<220>
<223> X8633

<400> 21

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Arg Pro Gly Gly
1 5 10 15

Ser Arg Arg Leu Ser Cys Val Asp Ser Glu Arg Thr Ser Tyr Pro Met
20 25 30

Gly Trp Phe Arg Arg Ala Pro Gly Lys Glu Arg Glu Phe Val Ala Ser
35 40 45

Ile Thr Trp Ser Gly Ile Asp Pro Thr Tyr Ala Asp Ser Val Ala Asp
50 55 60

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

Met Asn Ser Leu Lys His Glu Asp Thr Ala Val Tyr Tyr Cys Ala Ala
85 90 95

Arg Ala Pro Val Gly Gln Ser Ser Ser Pro Tyr Asp Tyr Asp Tyr Trp
100 105 110

Gly Gln Gly Thr Gln Val Thr Val Ser Ser
115 120

<210> 22
<211> 128
<212> PRT
<213> Artificial sequence

<220>
<223> CA4435

<400> 22

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Lys Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

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

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
65 70 75 80

Leu Gln Met Asn Ser Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Cys Pro Ala Pro Phe Thr Arg Asp Cys Phe Asp Val Thr Ser
100 105 110

Thr Thr Tyr Ala Tyr Arg Gly Gln Gly Thr Gln Val Thr Val Ser Ser
115 120 125

<210> 23
<211> 119
<212> PRT
<213> Artificial sequence

<220>

<223> CA4437

<400> 23

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Phe Val Gln Ala Gly Gly
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Ser Ile Phe Ser Lys Asn
20 25 30

Thr Met Ala Trp Phe Arg Gln Ala Pro Gly Lys Glu Arg Glu Leu Val
35 40 45

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

Gly Arg Phe Thr Ile Ser Arg Asp Ser Ala Lys Asn Thr Val Leu Leu
65 70 75 80

Gln Met Asn Val Leu Lys Pro Glu Asp Thr Ala Val Tyr Tyr Cys His
85 90 95

Leu Arg Gln Asn Asn Arg Gly Ser Trp Phe His Tyr Trp Gly Gln Gly
100 105 110

Thr Gln Val Thr Val Ser Ser
115