

SEQUENCE LISTING

<110> National Research Council of Canada

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<120> Insulin-Like Growth Factor 1 Receptor-Specific Antibodies and
Uses Thereof

<130> 12600-98

<150> 61/948,831

<151> 2014-03-06

<160> 42

<170> PatentIn version 3.5

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

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25

30

Ala Met Ala Trp Xaa Arg Gln Ala Pro Gly Lys Xaa Xaa Glu Xaa Val

35

40

45

Xaa Thr Ile Asp Trp Gly Asp Gly Gly Xaa Arg Tyr Ala Asn Ser Val

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Xaa Lys Xaa Thr Xaa Tyr

65

70

75

80

Leu Gln Met Asn Xaa Leu Xaa Xaa Glu Asp Thr Ala Val Tyr Xaa Cys

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90

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Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp

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Tyr Trp Gly Gln Gly Thr Xaa Val Thr Val Ser Ser

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

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25

30

Ala Met Ala Trp Ser Arg Gln Ala Pro Gly Lys Asp Arg Glu Phe Val

35

40

45

Ala Thr Ile Asp Trp Gly Asp Gly Gly Ala Arg Tyr Ala Asn Ser Val

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Gly Thr Met Tyr

65

70

75

80

Leu Gln Met Asn Asn Leu Glu Pro Glu Asp Thr Ala Val Tyr Ser Cys
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Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
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Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser
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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr
 20 25 30

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

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

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

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

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
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Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr
 20 25 30

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

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

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

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

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser

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Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

1

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15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

20

25

30

Ala Met Ala Trp Ser Arg Gln Ala Pro Gly Lys Gly Leu Glu Phe Val

35

40

45

Ala Thr Ile Asp Trp Gly Asp Gly Gly Thr Arg Tyr Ala Asn Ser Val

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Met Tyr

65

70

75

80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys

85

90

95

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp

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110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser

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Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

20

25

30

Ala Met Ala Trp Ser Arg Gln Ala Pro Gly Lys Asp Arg Glu Phe Val

35

40

45

Ala Thr Ile Asp Trp Gly Asp Gly Gly Thr Arg Tyr Ala Asn Ser Val

50

55

60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Gly Thr Met Tyr

65

70

75

80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Ser Cys

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Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp

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Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser

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Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

20 25 30

Ala Met Ala Trp Ser Arg Gln Ala Pro Gly Lys Asp Arg Glu Phe Val

35 40 45

Ser Thr Ile Asp Trp Gly Asp Gly Gly Thr Arg Tyr Ala Asn Ser Val

50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr

65 70 75 80

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

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
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Phe Glu Asn Phe Leu His Asn Ser Ile Phe Val Pro Arg
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Gln Val Lys Leu Glu 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 Arg Thr Ile Asp Asn Tyr

20 25 30

Ala Met Ala Trp Ser Arg Gln Ala Pro Gly Lys Asp Arg Glu Phe Val

35 40 45

Ala Thr Ile Asp Trp Gly Asp Gly Gly Ala Arg Tyr Ala Asn Ser Val

50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Gly Thr Met Tyr

65 70 75 80

Leu Gln Met Asn Asn Leu Glu Pro Glu Asp Thr Ala Val Tyr Ser Cys

85 90 95

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser Met Thr Val Asp
 115 120 125

Lys Lys Leu Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro
 130 135 140

Pro Cys Lys Glu Cys His Lys Cys Pro Ala Pro Asn Leu Glu Gly Gly
 145 150 155 160

Pro Ser Val Phe Ile Phe Pro Pro Asn Ile Lys Asp Val Leu Met Ile
 165 170 175

Ser Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Val Ser Glu Asp
 180 185 190

Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His
 195 200 205

Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Ile Arg
 210 215 220

Val Val Ser Thr Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys
 225 230 235 240

Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ser Pro Ile Glu
 245 250 255

Arg Thr Ile Ser Lys Ile Lys Gly Leu Val Arg Ala Pro Gln Val Tyr
 260 265 270

Ile Leu Pro Pro Pro Ala Glu Gln Leu Ser Arg Lys Asp Val Ser Leu
 275 280 285

Thr Cys Leu Val Val Gly Phe Asn Pro Gly Asp Ile Ser Val Glu Trp
 290 295 300

Thr Ser Asn Gly His Thr Glu Glu Asn Tyr Lys Asp Thr Ala Pro Val
 305 310 315 320

Leu Asp Ser Asp Gly Ser Tyr Phe Ile Tyr Ser Lys Leu Asn Met Lys
 325 330 335

Thr Ser Lys Trp Glu Lys Thr Asp Ser Phe Ser Cys Asn Val Arg His
 340 345 350

Glu Gly Leu Lys Asn Tyr Tyr Leu Lys Lys Thr Ile Ser Arg Ser Pro
 355 360 365

Gly Lys
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Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro Pro Cys Lys
 1 5 10 15

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

Phe Ile Phe Pro Pro Asn Ile Lys Asp Val Leu Met Ile Ser Leu Thr
 35 40 45

Pro Lys Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp
 50 55 60

Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln
 65 70 75 80

Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Ile Arg Val Val Ser
 85 90 95

Thr Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys
 100 105 110

Cys Lys Val Asn Asn Lys Asp Leu Pro Ser Pro Ile Glu Arg Thr Ile
 115 120 125

Ser Lys Ile Lys Gly Leu Val Arg Ala Pro Gln Val Tyr Ile Leu Pro
 130 135 140

Pro Pro Ala Glu Gln Leu Ser Arg Lys Asp Val Ser Leu Thr Cys Leu
 145 150 155 160

Val Val Gly Phe Asn Pro Gly Asp Ile Ser Val Glu Trp Thr Ser Asn

165

170

175

Gly His Thr Glu Glu Asn Tyr Lys Asp Thr Ala Pro Val Leu Asp Ser

180

185

190

Asp Gly Ser Tyr Phe Ile Tyr Ser Lys Leu Asn Met Lys Thr Ser Lys

195

200

205

Trp Glu Lys Thr Asp Ser Phe Ser Cys Asn Val Arg His Glu Gly Leu

210

215

220

Lys Asn Tyr Tyr Leu Lys Lys Thr Ile Ser Arg Ser Pro Gly Gly Gly

225

230

235

240

Gly Ser Gly Gly Gly Gly Ser Gln Val Lys Leu Glu Glu Ser Gly Gly

245

250

255

Gly Leu Val Gln Ala Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser

260

265

270

Gly Arg Thr Ile Asp Asn Tyr Ala Met Ala Trp Ser Arg Gln Ala Pro
 275 280 285

Gly Lys Asp Arg Glu Phe Val Ala Thr Ile Asp Trp Gly Asp Gly Gly
 290 295 300

Ala Arg Tyr Ala Asn Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp
 305 310 315 320

Asn Ala Lys Gly Thr Met Tyr Leu Gln Met Asn Asn Leu Glu Pro Glu
 325 330 335

Asp Thr Ala Val Tyr Ser Cys Ala Met Ala Arg Gln Ser Arg Val Asn
 340 345 350

Leu Asp Val Ala Arg Tyr Asp Tyr Trp Gly Gln Gly Thr Gln Val Thr
 355 360 365

Val Ser Ser
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Met Lys Ser Gly Ser Gly Gly Gly Ser Pro Thr Ser Leu Trp Gly Leu

1 5 10 15

Leu Phe Leu Ser Ala Ala Leu Ser Leu Trp Pro Thr Ser Gly Glu Ile

20 25 30

Cys Gly Pro Gly Ile Asp Ile Arg Asn Asp Tyr Gln Gln Leu Lys Arg

35 40 45

Leu Glu Asn Cys Thr Val Ile Glu Gly Tyr Leu His Ile Leu Leu Ile

50 55 60

Ser Lys Ala Glu Asp Tyr Arg Ser Tyr Arg Phe Pro Lys Leu Thr Val

65 70 75 80

Ile Thr Glu Tyr Leu Leu Leu Phe Arg Val Ala Gly Leu Glu Ser Leu

85 90 95

Gly Asp Leu Phe Pro Asn Leu Thr Val Ile Arg Gly Trp Lys Leu Phe

100

105

110

Tyr Asn Tyr Ala Leu Val Ile Phe Glu Met Thr Asn Leu Lys Asp Ile

115

120

125

Gly Leu Tyr Asn Leu Arg Asn Ile Thr Arg Gly Ala Ile Arg Ile Glu

130

135

140

Lys Asn Ala Asp Leu Cys Tyr Leu Ser Thr Val Asp Trp Ser Leu Ile

145

150

155

160

Leu Asp Ala Val Ser Asn Asn Tyr Ile Val Gly Asn Lys Pro Pro Lys

165

170

175

Glu Cys Gly Asp Leu Cys Pro Gly Thr Met Glu Glu Lys Pro Met Cys

180

185

190

Glu Lys Thr Thr Ile Asn Asn Glu Tyr Asn Tyr Arg Cys Trp Thr Thr

195

200

205

Asn Arg Cys Gln Lys Met Cys Pro Ser Thr Cys Gly Lys Arg Ala Cys
 210 215 220

Thr Glu Asn Asn Glu Cys Cys His Pro Glu Cys Leu Gly Ser Cys Ser
 225 230 235 240

Ala Pro Asp Asn Asp Thr Ala Cys Val Ala Cys Arg His Tyr Tyr Tyr
 245 250 255

Ala Gly Val Cys Val Pro Ala Cys Pro Pro Asn Thr Tyr Arg Phe Glu
 260 265 270

Gly Trp Arg Cys Val Asp Arg Asp Phe Cys Ala Asn Ile Leu Ser Ala
 275 280 285

Glu Ser Ser Asp Ser Glu Gly Phe Val Ile His Asp Gly Glu Cys Met
 290 295 300

Gln Glu Cys Pro Ser Gly Phe Ile Arg Asn Gly Ser Gln Ser Met Tyr
 305 310 315 320

Cys Ile Pro Cys Glu Gly Pro Cys Pro Lys Val Cys Glu Glu Glu Lys
 325 330 335

Lys Thr Lys Thr Ile Asp Ser Val Thr Ser Ala Gln Met Leu Gln Gly

340

345

350

Cys Thr Ile Phe Lys Gly Asn Leu Leu Ile Asn Ile Arg Arg Gly Asn

355

360

365

Asn Ile Ala Ser Glu Leu Glu Asn Phe Met Gly Leu Ile Glu Val Val

370

375

380

Thr Gly Tyr Val Lys Ile Arg His Ser His Ala Leu Val Ser Leu Ser

385

390

395

400

Phe Leu Lys Asn Leu Arg Leu Ile Leu Gly Glu Glu Gln Leu Glu Gly

405

410

415

Asn Tyr Ser Phe Tyr Val Leu Asp Asn Gln Asn Leu Gln Gln Leu Trp

420

425

430

Asp Trp Asp His Arg Asn Leu Thr Ile Lys Ala Gly Lys Met Tyr Phe

435

440

445

Ala Phe Asn Pro Lys Leu Cys Val Ser Glu Ile Tyr Arg Met Glu Glu
 450 455 460

Val Thr Gly Thr Lys Gly Arg Gln Ser Lys Gly Asp Ile Asn Thr Arg
 465 470 475 480

Asn Asn Gly Glu Arg Ala Ser Cys Glu Ser Asp Val Leu His Phe Thr
 485 490 495

Ser Thr Thr Thr Ser Lys Asn Arg Ile Ile Ile Thr Trp His Arg Tyr
 500 505 510

Arg Pro Pro Asp Tyr Arg Asp Leu Ile Ser Phe Thr Val Tyr Tyr Lys
 515 520 525

Glu Ala Pro Phe Lys Asn Val Thr Glu Tyr Asp Gly Gln Asp Ala Cys
 530 535 540

Gly Ser Asn Ser Trp Asn Met Val Asp Val Asp Leu Pro Pro Asn Lys
 545 550 555 560

Asp Val Glu Pro Gly Ile Leu Leu His Gly Leu Lys Pro Trp Thr Gln
 565 570 575

Tyr Ala Val Tyr Val Lys Ala Val Thr Leu Thr Met Val Glu Asn Asp

580

585

590

His Ile Arg Gly Ala Lys Ser Glu Ile Leu Tyr Ile Arg Thr Asn Ala

595

600

605

Ser Val Pro Ser Ile Pro Leu Asp Val Leu Ser Ala Ser Asn Ser Ser

610

615

620

Ser Gln Leu Ile Val Lys Trp Asn Pro Pro Ser Leu Pro Asn Gly Asn

625

630

635

640

Leu Ser Tyr Tyr Ile Val Arg Trp Gln Arg Gln Pro Gln Asp Gly Tyr

645

650

655

Leu Tyr Arg His Asn Tyr Cys Ser Lys Asp Lys Ile Pro Ile Arg Lys

660

665

670

Tyr Ala Asp Gly Thr Ile Asp Ile Glu Glu Val Thr Glu Asn Pro Lys

675

680

685

Thr Glu Val Cys Gly Gly Glu Lys Gly Pro Cys Cys Ala Cys Pro Lys
 690 695 700

Thr Glu Ala Glu Lys Gln Ala Glu Lys Glu Glu Ala Glu Tyr Arg Lys
 705 710 715 720

Val Phe Glu Asn Phe Leu His Asn Ser Ile Phe Val Pro Arg Pro Glu
 725 730 735

Arg Lys Arg Arg Asp Val Met Gln Val Ala Asn Thr Thr Met Ser Ser
 740 745 750

Arg Ser Arg Asn Thr Thr Ala Ala Asp Thr Tyr Asn Ile Thr Asp Pro
 755 760 765

Glu Glu Leu Glu Thr Glu Tyr Pro Phe Phe Glu Ser Arg Val Asp Asn
 770 775 780

Lys Glu Arg Thr Val Ile Ser Asn Leu Arg Pro Phe Thr Leu Tyr Arg
 785 790 795 800

Ile Asp Ile His Ser Cys Asn His Glu Ala Glu Lys Leu Gly Cys Ser
 805 810 815

Ala Ser Asn Phe Val Phe Ala Arg Thr Met Pro Ala Glu Gly Ala Asp

820

825

830

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

835

840

845

Phe Leu Lys Trp Pro Glu Pro Glu Asn Pro Asn Gly Leu Ile Leu Met

850

855

860

Tyr Glu Ile Lys Tyr Gly Ser Gln Val Glu Asp Gln Arg Glu Cys Val

865

870

875

880

Ser Arg Gln Glu Tyr Arg Lys Tyr Gly Gly Ala Lys Leu Asn Arg Leu

885

890

895

Asn Pro Gly Asn Tyr Thr Ala Arg Ile Gln Ala Thr Ser Leu Ser Gly

900

905

910

Asn Gly Ser Trp Thr Asp Pro Val Phe Phe Tyr Val Gln Ala Lys Thr

915

920

925

Gly Tyr Glu Asn Phe Ile His Leu Ile Ile Ala Leu Pro Val Ala Val
 930 935 940

Leu Leu Ile Val Gly Gly Leu Val Ile Met Leu Tyr Val Phe His Arg
 945 950 955 960

Lys Arg Asn Asn Ser Arg Leu Gly Asn Gly Val Leu Tyr Ala Ser Val
 965 970 975

Asn Pro Glu Tyr Phe Ser Ala Ala Asp Val Tyr Val Pro Asp Glu Trp
 980 985 990

Glu Val Ala Arg Glu Lys Ile Thr Met Ser Arg Glu Leu Gly Gln Gly
 995 1000 1005

Ser Phe Gly Met Val Tyr Glu Gly Val Ala Lys Gly Val Val Lys
 1010 1015 1020

Asp Glu Pro Glu Thr Arg Val Ala Ile Lys Thr Val Asn Glu Ala
 1025 1030 1035

Ala Ser Met Arg Glu Arg Ile Glu Phe Leu Asn Glu Ala Ser Val
 1040 1045 1050

Met Lys Glu Phe Asn Cys His His Val Val Arg Leu Leu Gly Val

1055

1060

1065

Val Ser Gln Gly Gln Pro Thr Leu Val Ile Met Glu Leu Met Thr

1070

1075

1080

Arg Gly Asp Leu Lys Ser Tyr Leu Arg Ser Leu Arg Pro Glu Met

1085

1090

1095

Glu Asn Asn Pro Val Leu Ala Pro Pro Ser Leu Ser Lys Met Ile

1100

1105

1110

Gln Met Ala Gly Glu Ile Ala Asp Gly Met Ala Tyr Leu Asn Ala

1115

1120

1125

Asn Lys Phe Val His Arg Asp Leu Ala Ala Arg Asn Cys Met Val

1130

1135

1140

Ala Glu Asp Phe Thr Val Lys Ile Gly Asp Phe Gly Met Thr Arg

1145

1150

1155

Asp Ile Tyr Glu Thr Asp Tyr Tyr Arg Lys Gly Gly Lys Gly Leu
 1160 1165 1170

Leu Pro Val Arg Trp Met Ser Pro Glu Ser Leu Lys Asp Gly Val
 1175 1180 1185

Phe Thr Thr Tyr Ser Asp Val Trp Ser Phe Gly Val Val Leu Trp
 1190 1195 1200

Glu Ile Ala Thr Leu Ala Glu Gln Pro Tyr Gln Gly Leu Ser Asn
 1205 1210 1215

Glu Gln Val Leu Arg Phe Val Met Glu Gly Gly Leu Leu Asp Lys
 1220 1225 1230

Pro Asp Asn Cys Pro Asp Met Leu Phe Glu Leu Met Arg Met Cys
 1235 1240 1245

Trp Gln Tyr Asn Pro Lys Met Arg Pro Ser Phe Leu Glu Ile Ile
 1250 1255 1260

Ser Ser Ile Lys Glu Glu Met Glu Pro Gly Phe Arg Glu Val Ser
 1265 1270 1275

Phe Tyr Tyr Ser Glu Glu Asn Lys Leu Pro Glu Pro Glu Glu Leu

1280

1285

1290

Asp Leu Glu Pro Glu Asn Met Glu Ser Val Pro Leu Asp Pro Ser

1295

1300

1305

Ala Ser Ser Ser Ser Leu Pro Leu Pro Asp Arg His Ser Gly His

1310

1315

1320

Lys Ala Glu Asn Gly Pro Gly Pro Gly Val Leu Val Leu Arg Ala

1325

1330

1335

Ser Phe Asp Glu Arg Gln Pro Tyr Ala His Met Asn Gly Gly Arg

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1345

1350

Lys Asn Glu Arg Ala Leu Pro Leu Pro Gln Ser Ser Thr Cys

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1360

1365

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<223> Furin cleavage site

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Arg Lys Arg Arg

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<211> 33

<212> DNA

<213> Artificial

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<223> Forward primer

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cgggatccgc caccatgaag tctggctccg gag

33

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<211> 34

<212> DNA

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<223> Reverse primer

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34

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<213> Artificial

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<223> MJ1 primer

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gccagccgg ccatggccsm kgtgcagctg gtggaktctg gggga

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<223> MJ3 primer

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cgccatcaag gtaccagttg a

21

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ggggtacctg tcatccaagg accagctga

29

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tatgaagaca ccaggcccag gtaaagctgg aggagtct

38

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<212> DNA

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<223> Reverse primer

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ttgttcggat cctgaggaga cggtgacctg

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<223> IGF1R-5 peptide

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Glu Phe Val Ala Thr Ile Asp Trp Gly Asp Gly Gly Ala Arg

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Thr Ile Asp Asn Tyr Ala Met Ala Trp Ser Arg

1 5 10

<210> 29

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<212> PRT

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<223> IGF1R-5 peptide

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Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Gly Ser Leu Arg

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Ile Thr Trp Gly Gly Asp Asn Thr Phe Tyr Ser Asn Ser Val Lys

1 5 10 15

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Thr Thr Tyr Tyr Ala Asp Ser Val Lys

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Glu Phe Val Ala Ala Gly Ser Ser Thr Gly Arg

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Thr Phe Ser Met Asp Pro Met Ala Trp Phe Arg

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Asp Glu Tyr Ala Tyr Trp Gly Gln Gly Thr Gln Val Thr Val Ser Ser

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Gly Gln Ala Gly Gln Gly Ser Glu Gln Lys

20 25

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<223> EG2 peptide

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Asp Phe Ser Asp Tyr Val Met Gly Trp Phe Arg

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Leu Glu Glu Ser Gly Gly Gly Leu Val Gln Ala Gly Asp Ser Leu Arg

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<210> 37

<211> 32

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<223> EG2 peptide

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

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Val Tyr Tyr Cys Ala Val Asn Ser Ala Gly Thr Tyr Val Ser Pro Arg
 20 25 30

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<212> PRT

<213> Artificial

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<223> Albumin peptide

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Ala Pro Gln Val Ser Thr Pro Thr Leu Val Glu Ala Ala Arg
 1 5 10

<210> 39

<211> 29

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<223> Galanin-cysteamide

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Gly Trp Thr Leu Asn Ser Ala Gly Tyr Leu Leu Gly Pro His Ala Ile
 1 5 10 15

Asp Asn His Arg Ser Phe Ser Asp Lys His Gly Leu Thr

20

25

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Val Gln Cys

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Xaa Val Xaa Leu Xaa Glu Ser Gly Gly Gly Leu Val Gln Xaa Gly Gly

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Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Arg Thr Ile Asp Asn Tyr

20 25 30

Ala Met Ala Trp Xaa Arg Gln Ala Pro Gly Lys Xaa Xaa Glu Xaa Val

35 40 45

Xaa Thr Ile Asp Trp Gly Asp Gly Gly Xaa Arg Tyr Ala Asn Ser Val

50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Xaa Lys Xaa Thr Xaa Tyr

65 70 75 80

Leu Gln Met Asn Xaa Leu Xaa Xaa Glu Asp Thr Ala Val Tyr Xaa Cys

85 90 95

Ala Met Ala Arg Gln Ser Arg Val Asn Leu Asp Val Ala Arg Tyr Asp
 100 105 110

Tyr Trp Gly Gln Gly Thr Xaa Val Thr Val Ser Ser Met Thr Val Asp
 115 120 125

Lys Lys Leu Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro
 130 135 140

Pro Cys Lys Glu Cys His Lys Cys Pro Ala Pro Asn Leu Glu Gly Gly
 145 150 155 160

Pro Ser Val Phe Ile Phe Pro Pro Asn Ile Lys Asp Val Leu Met Ile
 165 170 175

Ser Leu Thr Pro Lys Val Thr Cys Val Val Val Asp Val Ser Glu Asp
 180 185 190

Asp Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His
 195 200 205

Thr Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Ile Arg
 210 215 220

Val Val Ser Thr Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys

225 230 235 240

Glu Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ser Pro Ile Glu

245 250 255

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

260 265 270

Ile Leu Pro Pro Pro Ala Glu Gln Leu Ser Arg Lys Asp Val Ser Leu

275 280 285

Thr Cys Leu Val Val Gly Phe Asn Pro Gly Asp Ile Ser Val Glu Trp

290 295 300

Thr Ser Asn Gly His Thr Glu Glu Asn Tyr Lys Asp Thr Ala Pro Val

305 310 315 320

Leu Asp Ser Asp Gly Ser Tyr Phe Ile Tyr Ser Lys Leu Asn Met Lys

325 330 335

Thr Ser Lys Trp Glu Lys Thr Asp Ser Phe Ser Cys Asn Val Arg His
 340 345 350

Glu Gly Leu Lys Asn Tyr Tyr Leu Lys Lys Thr Ile Ser Arg Ser Pro
 355 360 365

Gly Lys
 370

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Glu Pro Ser Gly Pro Ile Ser Thr Ile Asn Pro Cys Pro Pro Cys Lys

1

5

10

15

Glu Cys His Lys Cys Pro Ala Pro Asn Leu Glu Gly Gly Pro Ser Val

20

25

30

Phe Ile Phe Pro Pro Asn Ile Lys Asp Val Leu Met Ile Ser Leu Thr

35

40

45

Pro Lys Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp Pro Asp

50

55

60

Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr Ala Gln

65

70

75

80

Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Ile Arg Val Val Ser

85

90

95

Thr Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu Phe Lys

100

105

110

Cys Lys Val Asn Asn Lys Asp Leu Pro Ser Pro Ile Glu Arg Thr Ile

115

120

125

Ser Lys Ile Lys Gly Leu Val Arg Ala Pro Gln Val Tyr Ile Leu Pro
 130 135 140

Pro Pro Ala Glu Gln Leu Ser Arg Lys Asp Val Ser Leu Thr Cys Leu
 145 150 155 160

Val Val Gly Phe Asn Pro Gly Asp Ile Ser Val Glu Trp Thr Ser Asn
 165 170 175

Gly His Thr Glu Glu Asn Tyr Lys Asp Thr Ala Pro Val Leu Asp Ser
 180 185 190

Asp Gly Ser Tyr Phe Ile Tyr Ser Lys Leu Asn Met Lys Thr Ser Lys
 195 200 205

Trp Glu Lys Thr Asp Ser Phe Ser Cys Asn Val Arg His Glu Gly Leu
 210 215 220

Lys Asn Tyr Tyr Leu Lys Lys Thr Ile Ser Arg Ser Pro Gly Gly Gly
 225 230 235 240

Gly Ser Gly Gly Gly Gly Ser Xaa Val Xaa Leu Xaa Glu Ser Gly Gly
 245 250 255

Gly Leu Val Gln Xaa Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser

260

265

270

Gly Arg Thr Ile Asp Asn Tyr Ala Met Ala Trp Xaa Arg Gln Ala Pro

275

280

285

Gly Lys Xaa Xaa Glu Xaa Val Xaa Thr Ile Asp Trp Gly Asp Gly Gly

290

295

300

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

305

310

315

320

Asn Xaa Lys Xaa Thr Xaa Tyr Leu Gln Met Asn Xaa Leu Xaa Xaa Glu

325

330

335

Asp Thr Ala Val Tyr Xaa Cys Ala Met Ala Arg Gln Ser Arg Val Asn

340

345

350

Leu Asp Val Ala Arg Tyr Asp Tyr Trp Gly Gln Gly Thr Xaa Val Thr

355

360

365

Val Ser Ser

370