

SEQUENCE LISTING

<110> Aurealis Oy

<120> Recombinant probiotic bacteria for use in the treatment of a skin dysfunction

<130> 52647WO

<160> 50

<170> BiSSAP 1.0

<210> 1

<211> 554

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..554

<223> /mol_type="protein"

/note="macrophage colony-stimulating factor 1 isoform a precursor"

/organism="Homo sapiens"

<400> 1

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Gly Ser Leu Leu Leu Val Cys Leu Leu Ala Ser Arg Ser Ile Thr
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Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu
35      40      45
Gln Ser Leu Gln Arg Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln
50      55      60
Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val Cys
65      70      75      80
Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr
85      90      95
Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu
100     105     110
Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu
115     120     125
Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln
130     135     140
Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu
145     150     155     160
Asp Lys Asp Trp Asn Ile Phe Ser Lys Asn Cys Asn Asn Ser Phe Ala
165     170     175
Glu Cys Ser Ser Gln Asp Val Val Thr Lys Pro Asp Cys Asn Cys Leu
180     185     190
Tyr Pro Lys Ala Ile Pro Ser Ser Asp Pro Ala Ser Val Ser Pro His
195     200     205
Gln Pro Leu Ala Pro Ser Met Ala Pro Val Ala Gly Leu Thr Trp Glu
210     215     220
Asp Ser Glu Gly Thr Glu Gly Ser Ser Leu Leu Pro Gly Glu Gln Pro
225     230     235     240
Leu His Thr Val Asp Pro Gly Ser Ala Lys Gln Arg Pro Pro Arg Ser
245     250     255
Thr Cys Gln Ser Phe Glu Pro Pro Glu Thr Pro Val Val Lys Asp Ser
260     265     270
Thr Ile Gly Gly Ser Pro Gln Pro Arg Pro Ser Val Gly Ala Phe Asn
275     280     285
Pro Gly Met Glu Asp Ile Leu Asp Ser Ala Met Gly Thr Asn Trp Val
290     295     300
Pro Glu Glu Ala Ser Gly Glu Ala Ser Glu Ile Pro Val Pro Gln Gly
305     310     315     320
Thr Glu Leu Ser Pro Ser Arg Pro Gly Gly Gly Ser Met Gln Thr Glu

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Pro Ala Arg Pro 325 Ser Asn Phe Leu Ser 330 Ala Ser Ser Pro Leu 335 Pro Ala
Ser Ala Lys Gly 340 Gln Gln Pro Ala Asp Val Thr Gly Thr 350 Ala Leu Pro
Arg Val Gly 355 Pro Val Arg Pro Thr Gly Gln Asp Trp 365 Asn His Thr Pro
Gln Lys Thr Asp His 375 Pro Ser Ala Leu Leu Arg 380 Asp Pro Pro Glu Pro
385 Gly Ser Pro Arg Ile 390 Ser Ser Leu Arg Pro Gln Gly Leu Ser Asn Pro
Ser Thr Leu Ser 405 Ala Gln Pro Gln Leu Ser Arg Ser His Ser Ser Gly
Ser Val Leu 420 Pro Leu Gly Glu Leu 425 Gly Arg Arg Ser Thr Arg Asp
Arg Arg Ser Pro Ala Glu Pro Glu Gly Gly Pro Ala Ser Glu Gly Ala
450 Ala Arg Pro Leu Pro Arg Phe Asn Ser Val Pro Leu Thr Asp Thr Gly
465 His Glu Arg Gln Ser 470 Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser
Val Phe His Leu 485 Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val
Gly Gly Leu 500 Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro
Gln Arg Ala Asp Ser Pro Leu Glu Gln Pro Glu Gly 510 Ser Pro Leu Thr
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<211> 438

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..438

<223> /mol_type="protein"

/note="macrophage colony-stimulating factor 1 isoform b precursor"

/organism="Homo sapiens"

<400> 2

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

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Tyr Pro Lys Ala Ile Pro Ser Ser Asp Pro Ala Ser Val Ser Pro His
 195 200 205
 Gln Pro Leu Ala Pro Ser Met Ala Pro Val Ala Gly Leu Thr Trp Glu
 210 215 220
 Asp Ser Glu Gly Thr Glu Gly Ser Ser Leu Leu Pro Gly Glu Gln Pro
 225 230 235 240
 Leu His Thr Val Asp Pro Gly Ser Ala Lys Gln Arg Pro Pro Arg Ser
 245 250 255
 Thr Cys Gln Ser Phe Glu Pro Pro Glu Thr Pro Val Val Lys Asp Ser
 260 265 270
 Thr Ile Gly Gly Ser Pro Gln Pro Arg Pro Ser Val Gly Ala Phe Asn
 275 280 285
 Pro Gly Met Glu Asp Ile Leu Asp Ser Ala Met Gly Thr Asn Trp Val
 290 295 300
 Pro Glu Glu Ala Ser Gly Glu Ala Ser Glu Ile Pro Val Pro Gln Gly
 305 310 315 320
 Thr Glu Leu Ser Pro Ser Arg Pro Gly Gly Gly Ser Met Gln Thr Glu
 325 330 335
 Pro Ala Arg Pro Ser Asn Phe Leu Ser Ala Ser Ser Pro Leu Pro Ala
 340 345 350
 Ser Ala Lys Gly Gln Gln Pro Ala Asp Val Thr Gly His Glu Arg Gln
 355 360 365
 Ser Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser Val Phe His Leu
 370 375 380
 Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val Gly Gly Leu Leu
 385 390 395 400
 Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro Gln Arg Ala Asp
 405 410 415
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 420 425 430
 Gln Val Glu Leu Pro Val
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<210> 3

<211> 256

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..256

<223> /mol_type="protein"

/note="macrophage colony-stimulating factor 1 isoform c precursor"

/organism="Homo sapiens"

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

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165 170 175
 Glu Cys Ser Ser Gln Gly His Glu Arg Gln Ser Glu Gly Ser Ser
 180 185 190
 Pro Gln Leu Gln Glu Ser Val Phe His Leu Leu Val Pro Ser Val Ile
 195 200 205
 Leu Val Leu Leu Ala Val Gly Gly Leu Leu Phe Tyr Arg Trp Arg Arg
 210 215 220
 Arg Ser His Gln Glu Pro Gln Arg Ala Asp Ser Pro Leu Glu Gln Pro
 225 230 235 240
 Glu Gly Ser Pro Leu Thr Gln Asp Asp Arg Gln Val Glu Leu Pro Val
 245 250 255

<210> 4

<211> 149

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..149

<223> /mol_type="protein"

/note="partial sequence of macrophage colony-stimulating factor 1"

/organism="Homo sapiens"

<400> 4

Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu
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 20 25 30
 Ile Thr Phe Glu Phe Val Asp Gln Glu Leu Lys Asp Pro Val Cys
 35 40 45
 Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr
 50 55 60
 Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu
 65 70 75 80
 Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu
 85 90 95
 Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln
 100 105 110
 Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu
 115 120 125
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 130 135 140
 Glu Cys Ser Ser Gln
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<211> 186

<212> PRT

<213> artificial sequences

<220>

<221> SOURCE

<222> 1..186

<223> /mol_type="protein"

/note="synthetic construct hCSF1 precursor protein"

/organism="artificial sequences"

<400> 5

Met Lys Lys Lys Ile Ile Ser Ala Ile Leu Met Ser Thr Val Ile Leu
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 20 25 30
 Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu Gln Ser Leu Gln
 35 40 45
 Arg Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln Ile Thr Phe Glu
 50 55 60

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Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val Cys Tyr Leu Lys Lys
65 70 75 80
Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr Met Arg Phe Arg
85 90 95
Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu Gln Glu Leu Ser
100 105 110
Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu Glu His Asp Lys
115 120 125
Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln Leu Leu Glu Lys
130 135 140
Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu Asp Lys Asp Trp
145 150 155 160
Asn Ile Phe Ser Lys Asn Cys Asn Asn Ser Phe Ala Glu Cys Ser Ser
165 170 175
Gln Gly His Glu Arg Gln Ser Glu Gly Ser
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<213> artificial sequences

<220>
<221> SOURCE
<222> 1..159
<223> /mol_type="protein"
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/organism="artificial sequences"

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20 25 30
Gln Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val
35 40 45
Cys Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp
50 55 60
Thr Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln
65 70 75 80
Leu Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr
85 90 95
Glu Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu
100 105 110
Gln Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu
115 120 125
Leu Asp Lys Asp Trp Asn Ile Phe Ser Lys Asn Cys Asn Asn Ser Phe
130 135 140
Ala Glu Cys Ser Ser Gln Gly His Glu Arg Gln Ser Glu Gly Ser
145 150 155

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<212> PRT
<213> Homo sapiens

<220>
<221> SOURCE
<222> 1..242
<223> /mol_type="protein"
/note="interleukin-34 isoform 1 precursor"
/organism="Homo sapiens"

<400> 7
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1 5 10 15
Val Ala Leu Gly Asn Glu Pro Leu Glu Met Trp Pro Leu Thr Gln Asn
20 25 30

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Glu Glu Cys Thr Val Thr Gly Phe Leu Arg Asp Lys Leu Gln Tyr Arg
 35 40 45
 Ser Arg Leu Gln Tyr Met Lys His Tyr Phe Pro Ile Asn Tyr Lys Ile
 50 55 60
 Ser Val Pro Tyr Glu Gly Val Phe Arg Ile Ala Asn Val Thr Arg Leu
 65 70 75 80
 Gln Arg Ala Gln Val Ser Glu Arg Glu Leu Arg Tyr Leu Trp Val Leu
 85 90 95
 Val Ser Leu Ser Ala Thr Glu Ser Val Gln Asp Val Leu Leu Glu Gly
 100 105 110
 His Pro Ser Trp Lys Tyr Leu Gln Glu Val Glu Thr Leu Leu Leu Asn
 115 120 125
 Val Gln Gln Gly Leu Thr Asp Val Glu Val Ser Pro Lys Val Glu Ser
 130 135 140
 Val Leu Ser Leu Leu Asn Ala Pro Gly Pro Asn Leu Lys Leu Val Arg
 145 150 155 160
 Pro Lys Ala Leu Leu Asp Asn Cys Phe Arg Val Met Glu Leu Leu Tyr
 165 170 175
 Cys Ser Cys Cys Lys Gln Ser Ser Val Leu Asn Trp Gln Asp Cys Glu
 180 185 190
 Val Pro Ser Pro Gln Ser Cys Ser Pro Glu Pro Ser Leu Gln Tyr Ala
 195 200 205
 Ala Thr Gln Leu Tyr Pro Pro Pro Pro Trp Ser Pro Ser Ser Pro Pro
 210 215 220
 His Ser Thr Gly Ser Val Arg Pro Val Arg Ala Gln Gly Glu Gly Leu
 225 230 235 240
 Leu Pro

<210> 8

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<212> PRT

<213> Homo sapiens

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<222> 1..241

<223> /mol_type="protein"

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/organism="Homo sapiens"

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

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Thr Gln Leu Tyr Pro Pro Pro Pro Trp Ser Pro Ser Ser Pro Pro His
 210 215 220
 Ser Thr Gly Ser Val Arg Pro Val Arg Ala Gln Gly Glu Gly Leu Leu
 225 230 235 240
 Pro

<210> 9
 <211> 222
 <212> PRT
 <213> Homo sapiens

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 /organism="Homo sapiens"

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

<210> 10
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 <213> Homo sapiens

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 20 25 30
 Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln Lys Thr Leu Cys
 35 40 45

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Thr Glu Leu Thr Val Thr Asp Ile Phe Ala Ala Ser Lys Asn Thr Thr
 50 55 60
 Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu Arg Gln Phe Tyr
 65 70 75 80
 Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala Thr Ala Gln Gln
 85 90 95
 Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys Arg Leu Asp Arg
 100 105 110
 Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro Val Lys Glu Ala
 115 120 125
 Asn Gln Ser Thr Leu Glu Asn Phe Leu Glu Arg Leu Lys Thr Ile Met
 130 135 140
 Arg Glu Lys Tyr Ser Lys Cys Ser Ser
 145 150

<210> 11
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 <213> Homo sapiens

<220>
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 /organism="Homo sapiens"

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 Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln Lys Asn Thr Thr
 35 40 45
 Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu Arg Gln Phe Tyr
 50 55 60
 Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala Thr Ala Gln Gln
 65 70 75 80
 Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys Arg Leu Asp Arg
 85 90 95
 Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro Val Lys Glu Ala
 100 105 110
 Asn Gln Ser Thr Leu Glu Asn Phe Leu Glu Arg Leu Lys Thr Ile Met
 115 120 125
 Arg Glu Lys Tyr Ser Lys Cys Ser Ser
 130 135

<210> 12
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 <213> Homo sapiens

<220>
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 <222> 1..129
 <223> /mol_type="protein"
 /note="interleukin-4"
 /organism="Homo sapiens"

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 20 25 30
 Phe Ala Ala Ser Lys Asn Thr Thr Glu Lys Glu Thr Phe Cys Arg Ala
 35 40 45
 Ala Thr Val Leu Arg Gln Phe Tyr Ser His His Glu Lys Asp Thr Arg
 50 55 60

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Cys Leu Gly Ala Thr Ala Gln Gln Phe His Arg His Lys Gln Leu Ile
65 70 75 80
Arg Phe Leu Lys Arg Leu Asp Arg Asn Leu Trp Gly Leu Ala Gly Leu
85 90 95
Asn Ser Cys Pro Val Lys Glu Ala Asn Gln Ser Thr Leu Glu Asn Phe
100 105 110
Leu Glu Arg Leu Lys Thr Ile Met Arg Glu Lys Tyr Ser Lys Cys Ser
115 120 125
Ser

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<212> PRT
<213> artificial sequences

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/note="synthetic construct hIL4 precursor protein"
/organism="artificial sequences"

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20 25 30
Ile Thr Leu Gln Glu Ile Ile Lys Thr Leu Asn Ser Leu Thr Glu Gln
35 40 45
Lys Thr Leu Cys Thr Glu Leu Thr Val Thr Asp Ile Phe Ala Ala Ser
50 55 60
Lys Asn Thr Thr Glu Lys Glu Thr Phe Cys Arg Ala Ala Thr Val Leu
65 70 75 80
Arg Gln Phe Tyr Ser His His Glu Lys Asp Thr Arg Cys Leu Gly Ala
85 90 95
Thr Ala Gln Gln Phe His Arg His Lys Gln Leu Ile Arg Phe Leu Lys
100 105 110
Arg Leu Asp Arg Asn Leu Trp Gly Leu Ala Gly Leu Asn Ser Cys Pro
115 120 125
Val Lys Glu Ala Asn Gln Ser Thr Leu Glu Asn Phe Leu Glu Arg Leu
130 135 140
Lys Thr Ile Met Arg Glu Lys Tyr Ser Lys Cys Ser Ser
145 150 155

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/organism="artificial sequences"

<400> 14
Ala His Lys Cys Asp Ile Thr Leu Gln Glu Ile Ile Lys Thr Leu Asn
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Ser Leu Thr Glu Gln Lys Thr Leu Cys Thr Glu Leu Thr Val Thr Asp
20 25 30
Ile Phe Ala Ala Ser Lys Asn Thr Thr Glu Lys Glu Thr Phe Cys Arg
35 40 45
Ala Ala Thr Val Leu Arg Gln Phe Tyr Ser His His Glu Lys Asp Thr
50 55 60
Arg Cys Leu Gly Ala Thr Ala Gln Gln Phe His Arg His Lys Gln Leu
65 70 75 80

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Ile Arg Phe Leu Lys Arg Leu Asp Arg Asn Leu Trp Gly Leu Ala Gly
 85 90 95
 Leu Asn Ser Cys Pro Val Lys Glu Ala Asn Gln Ser Thr Leu Glu Asn
 100 105 110
 Phe Leu Glu Arg Leu Lys Thr Ile Met Arg Glu Lys Tyr Ser Lys Cys
 115 120 125
 Ser Ser
 130

<210> 15
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 <213> Homo sapiens

<220>
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 <223> /mol_type="protein"
 /note="interleukin-10 precursor"
 /organism="Homo sapiens"

<400> 15
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 Arg Ala Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His
 20 25 30
 Phe Pro Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe
 35 40 45
 Ser Arg Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu
 50 55 60
 Leu Leu Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys
 65 70 75 80
 Gln Ala Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro
 85 90 95
 Gln Ala Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu
 100 105 110
 Gly Glu Asn Leu Lys Thr Leu Arg Leu Arg Arg Cys His Arg
 115 120 125
 Phe Leu Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn
 130 135 140
 Ala Phe Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu
 145 150 155 160
 Phe Asp Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile
 165 170 175
 Arg Asn

<210> 16
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 <213> Homo sapiens

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 /note="interleukin-10"
 /organism="Homo sapiens"

<400> 16
 Ser Pro Gly Gln Gly Thr Gln Ser Glu Asn Ser Cys Thr His Phe Pro
 1 5 10 15
 Gly Asn Leu Pro Asn Met Leu Arg Asp Leu Arg Asp Ala Phe Ser Arg
 20 25 30
 Val Lys Thr Phe Phe Gln Met Lys Asp Gln Leu Asp Asn Leu Leu Leu
 35 40 45
 Lys Glu Ser Leu Leu Glu Asp Phe Lys Gly Tyr Leu Gly Cys Gln Ala
 50 55 60

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Leu Ser Glu Met Ile Gln Phe Tyr Leu Glu Glu Val Met Pro Gln Ala
65 70 75 80
Glu Asn Gln Asp Pro Asp Ile Lys Ala His Val Asn Ser Leu Gly Glu
85 90 95
Asn Leu Lys Thr Leu Arg Leu Arg Leu Arg Arg Cys His Arg Phe Leu
100 105 110
Pro Cys Glu Asn Lys Ser Lys Ala Val Glu Gln Val Lys Asn Ala Phe
115 120 125
Asn Lys Leu Gln Glu Lys Gly Ile Tyr Lys Ala Met Ser Glu Phe Asp
130 135 140
Ile Phe Ile Asn Tyr Ile Glu Ala Tyr Met Thr Met Lys Ile Arg Asn
145 150 155 160

<210> 17
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<213> Homo sapiens

<220>
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<223> /mol_type="protein"
/note="interleukin-13 precursor"
/organism="Homo sapiens"

<400> 17
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1 5 10 15
Leu Leu Leu Thr Thr Val Ile Ala Leu Thr Cys Leu Gly Gly Phe Ala
20 25 30
Ser Pro Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu
35 40 45
Glu Leu Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly
50 55 60
Ser Met Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala
65 70 75 80
Leu Glu Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr
85 90 95
Gln Arg Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln
100 105 110
Phe Ser Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe
115 120 125
Val Lys Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Arg
130 135 140
Phe Asn
145

<210> 18
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> SOURCE
<222> 1..112
<223> /mol_type="protein"
/note="interleukin-13"
/organism="Homo sapiens"

<400> 18
Gly Pro Val Pro Pro Ser Thr Ala Leu Arg Glu Leu Ile Glu Glu Leu
1 5 10 15
Val Asn Ile Thr Gln Asn Gln Lys Ala Pro Leu Cys Asn Gly Ser Met
20 25 30
Val Trp Ser Ile Asn Leu Thr Ala Gly Met Tyr Cys Ala Ala Leu Glu
35 40 45
Ser Leu Ile Asn Val Ser Gly Cys Ser Ala Ile Glu Lys Thr Gln Arg
50 55 60

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Met Leu Ser Gly Phe Cys Pro His Lys Val Ser Ala Gly Gln Phe Ser
 65 70 75 80
 Ser Leu His Val Arg Asp Thr Lys Ile Glu Val Ala Gln Phe Val Lys
 85 90 95
 Asp Leu Leu Leu His Leu Lys Lys Leu Phe Arg Glu Gly Arg Phe Asn
 100 105 110

<210> 19
 <211> 390
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..390
 <223> /mol_type="protein"
 /note="transforming growth factor beta-1 precursor"
 /organism="Homo sapiens"

<400> 19
 Met Pro Pro Ser Gly Leu Arg Leu Leu Pro Leu Leu Leu Pro Leu Leu
 1 5 10 15
 Trp Leu Leu Val Leu Thr Pro Gly Arg Pro Ala Ala Gly Leu Ser Thr
 20 25 30
 Cys Lys Thr Ile Asp Met Glu Leu Val Lys Arg Lys Arg Ile Glu Ala
 35 40 45
 Ile Arg Gly Gln Ile Leu Ser Lys Leu Arg Leu Ala Ser Pro Pro Ser
 50 55 60
 Gln Gly Glu Val Pro Pro Gly Pro Leu Pro Glu Ala Val Leu Ala Leu
 65 70 75 80
 Tyr Asn Ser Thr Arg Asp Arg Val Ala Gly Glu Ser Ala Glu Pro Glu
 85 90 95
 Pro Glu Pro Glu Ala Asp Tyr Tyr Ala Lys Glu Val Thr Arg Val Leu
 100 105 110
 Met Val Glu Thr His Asn Glu Ile Tyr Asp Lys Phe Lys Gln Ser Thr
 115 120 125
 His Ser Ile Tyr Met Phe Phe Asn Thr Ser Glu Leu Arg Glu Ala Val
 130 135 140
 Pro Glu Pro Val Leu Leu Ser Arg Ala Glu Leu Arg Leu Leu Arg Leu
 145 150 155 160
 Lys Leu Lys Val Glu Gln His Val Glu Leu Tyr Gln Lys Tyr Ser Asn
 165 170 175
 Asn Ser Trp Arg Tyr Leu Ser Asn Arg Leu Leu Ala Pro Ser Asp Ser
 180 185 190
 Pro Glu Trp Leu Ser Phe Asp Val Thr Gly Val Val Arg Gln Trp Leu
 195 200 205
 Ser Arg Gly Gly Glu Ile Glu Gly Phe Arg Leu Ser Ala His Cys Ser
 210 215 220
 Cys Asp Ser Arg Asp Asn Thr Leu Gln Val Asp Ile Asn Gly Phe Thr
 225 230 235 240
 Thr Gly Arg Arg Gly Asp Leu Ala Thr Ile His Gly Met Asn Arg Pro
 245 250 255
 Phe Leu Leu Leu Met Ala Thr Pro Leu Glu Arg Ala Gln His Leu Gln
 260 265 270
 Ser Ser Arg His Arg Arg Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser
 275 280 285
 Thr Glu Lys Asn Cys Cys Val Arg Gln Leu Tyr Ile Asp Phe Arg Lys
 290 295 300
 Asp Leu Gly Trp Lys Trp Ile His Glu Pro Lys Gly Tyr His Ala Asn
 305 310 315 320
 Phe Cys Leu Gly Pro Cys Pro Tyr Ile Trp Ser Leu Asp Thr Gln Tyr
 325 330 335
 Ser Lys Val Leu Ala Leu Tyr Asn Gln His Asn Pro Gly Ala Ser Ala
 340 345 350
 Ala Pro Cys Cys Val Pro Gln Ala Leu Glu Pro Leu Pro Ile Val Tyr
 355 360 365
 Tyr Val Gly Arg Lys Pro Lys Val Glu Gln Leu Ser Asn Met Ile Val
 370 375 380

Arg Ser Cys Lys Cys Ser
385 390

<210> 20
<211> 112
<212> PRT
<213> Homo sapiens

<220>
<221> SOURCE
<222> 1..112
<223> /mol_type="protein"
/note="transforming growth factor beta-1"
/organism="Homo sapiens"

<400> 20
Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys Cys
1 5 10 15
Val Arg Gln Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp Lys Trp
20 25 30
Ile His Glu Pro Lys Gly Tyr His Ala Asn Phe Cys Leu Gly Pro Cys
35 40 45
Pro Tyr Ile Trp Ser Leu Asp Thr Gln Tyr Ser Lys Val Leu Ala Leu
50 55 60
Tyr Asn Gln His Asn Pro Gly Ala Ser Ala Ala Pro Cys Cys Val Pro
65 70 75 80
Gln Ala Leu Glu Pro Leu Pro Ile Val Tyr Tyr Val Gly Arg Lys Pro
85 90 95
Lys Val Glu Gln Leu Ser Asn Met Ile Val Arg Ser Cys Lys Cys Ser
100 105 110

<210> 21
<211> 442
<212> PRT
<213> Homo sapiens

<220>
<221> SOURCE
<222> 1..442
<223> /mol_type="protein"
/note="transforming growth factor beta-2 isoform 1 precursor"
/organism="Homo sapiens"

<400> 21
Met His Tyr Cys Val Leu Ser Ala Phe Leu Ile Leu His Leu Val Thr
1 5 10 15
Val Ala Leu Ser Leu Ser Thr Cys Ser Thr Leu Asp Met Asp Gln Phe
20 25 30
Met Arg Lys Arg Ile Glu Ala Ile Arg Gly Gln Ile Leu Ser Lys Leu
35 40 45
Lys Leu Thr Ser Pro Pro Glu Asp Tyr Pro Glu Pro Glu Glu Val Pro
50 55 60
Pro Glu Val Ile Ser Ile Tyr Asn Ser Thr Arg Asp Leu Leu Gln Glu
65 70 75 80
Lys Ala Ser Arg Arg Ala Ala Ala Cys Glu Arg Glu Arg Ser Asp Glu
85 90 95
Glu Tyr Tyr Ala Lys Glu Val Tyr Lys Ile Asp Met Pro Pro Phe Phe
100 105 110
Pro Ser Glu Thr Val Cys Pro Val Val Thr Thr Pro Ser Gly Ser Val
115 120 125
Gly Ser Leu Cys Ser Arg Gln Ser Gln Val Leu Cys Gly Tyr Leu Asp
130 135 140
Ala Ile Pro Pro Thr Phe Tyr Arg Pro Tyr Phe Arg Ile Val Arg Phe
145 150 155 160
Asp Val Ser Ala Met Glu Lys Asn Ala Ser Asn Leu Val Lys Ala Glu
165 170 175
Phe Arg Val Phe Arg Leu Gln Asn Pro Lys Ala Arg Val Pro Glu Gln
180 185 190

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

<210> 22

<211> 414

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..414

<223> /mol_type="protein"

/note="transforming growth factor beta-2 isoform 2 precursor"

/organism="Homo sapiens"

<400> 22

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

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Leu Thr Ser Pro Thr Gln Arg Tyr Ile Asp Ser Lys Val Val Lys Thr
 180 185 190
 Arg Ala Glu Gly Glu Trp Leu Ser Phe Asp Val Thr Asp Ala Val His
 195 200 205
 Glu Trp Leu His His Lys Asp Arg Asn Leu Gly Phe Lys Ile Ser Leu
 210 215 220
 His Cys Pro Cys Cys Thr Phe Val Pro Ser Asn Asn Tyr Ile Ile Pro
 225 230 235 240
 Asn Lys Ser Glu Glu Leu Glu Ala Arg Phe Ala Gly Ile Asp Gly Thr
 245 250 255
 Ser Thr Tyr Thr Ser Gly Asp Gln Lys Thr Ile Lys Ser Thr Arg Lys
 260 265 270
 Lys Asn Ser Gly Lys Thr Pro His Leu Leu Leu Met Leu Leu Pro Ser
 275 280 285
 Tyr Arg Leu Glu Ser Gln Gln Thr Asn Arg Arg Lys Lys Arg Ala Leu
 290 295 300
 Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys Cys Leu Arg
 305 310 315 320
 Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp Ile His
 325 330 335
 Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys Pro Tyr
 340 345 350
 Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser Leu Tyr Asn
 355 360 365
 Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Ser Gln Asp
 370 375 380
 Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Lys Thr Pro Lys Ile
 385 390 395 400
 Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser
 405 410

<210> 23
 <211> 112
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..112
 <223> /mol_type="protein"
 /note="transforming growth factor beta-2"
 /organism="Homo sapiens"

<400> 23
 Ala Leu Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys Cys
 1 5 10 15
 Leu Arg Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp
 20 25 30
 Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys
 35 40 45
 Pro Tyr Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser Leu
 50 55 60
 Tyr Asn Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Ser
 65 70 75 80
 Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Lys Thr Pro
 85 90 95
 Lys Ile Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser
 100 105 110

<210> 24
 <211> 412
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..412
 <223> /mol_type="protein"

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 /note="transforming growth factor beta-3 preproprotein"
 /organism="Homo sapiens"

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<400> 24
Met Lys Met His Leu Gln Arg Ala Leu Val Val Leu Ala Leu Leu Asn
1      5      10      15
Phe Ala Thr Val Ser Leu Ser Leu Ser Thr Cys Thr Thr Leu Asp Phe
20      25      30
Gly His Ile Lys Lys Lys Arg Val Glu Ala Ile Arg Gly Gln Ile Leu
35      40      45
Ser Lys Leu Arg Leu Thr Ser Pro Pro Glu Pro Thr Val Met Thr His
50      55      60
Val Pro Tyr Gln Val Leu Ala Leu Tyr Asn Ser Thr Arg Glu Leu Leu
65      70      75      80
Glu Glu Met His Gly Glu Arg Glu Glu Gly Cys Thr Gln Glu Asn Thr
85      90      95
Glu Ser Glu Tyr Tyr Ala Lys Glu Ile His Lys Phe Asp Met Ile Gln
100      105      110
Gly Leu Ala Glu His Asn Glu Leu Ala Val Cys Pro Lys Gly Ile Thr
115      120      125
Ser Lys Val Phe Arg Phe Asn Val Ser Ser Val Glu Lys Asn Arg Thr
130      135      140
Asn Leu Phe Arg Ala Glu Phe Arg Val Leu Arg Val Pro Asn Pro Ser
145      150      155      160
Ser Lys Arg Asn Glu Gln Arg Ile Glu Leu Phe Gln Ile Leu Arg Pro
165      170      175
Asp Glu His Ile Ala Lys Gln Arg Tyr Ile Gly Gly Lys Asn Leu Pro
180      185      190
Thr Arg Gly Thr Ala Glu Trp Leu Ser Phe Asp Val Thr Asp Thr Val
195      200      205
Arg Glu Trp Leu Leu Arg Arg Glu Ser Asn Leu Gly Leu Glu Ile Ser
210      215      220
Ile His Cys Pro Cys His Thr Phe Gln Pro Asn Gly Asp Ile Leu Glu
225      230      235      240
Asn Ile His Glu Val Met Glu Ile Lys Phe Lys Gly Val Asp Asn Glu
245      250      255
Asp Asp His Gly Arg Gly Asp Leu Gly Arg Leu Lys Lys Gln Lys Asp
260      265      270
His His Asn Pro His Leu Ile Leu Met Met Ile Pro Pro His Arg Leu
275      280      285
Asp Asn Pro Gly Gln Gly Gly Gln Arg Lys Lys Arg Ala Leu Asp Thr
290      295      300
Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys Val Arg Pro Leu
305      310      315      320
Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp Val His Glu Pro
325      330      335
Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro Cys Pro Tyr Leu Arg
340      345      350
Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly Leu Tyr Asn Thr Leu
355      360      365
Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Pro Gln Asp Leu Glu
370      375      380
Pro Leu Thr Ile Leu Tyr Tyr Val Gly Arg Thr Pro Lys Val Glu Gln
385      390      395      400
Leu Ser Asn Met Val Val Lys Ser Cys Lys Cys Ser
405      410

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<210> 25
<211> 112
<212> PRT
<213> Homo sapiens

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<220>
<221> SOURCE
<222> 1..112
<223> /mol_type="protein"
      /note="transforming growth factor beta-3"
      /organism="Homo sapiens"

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<400> 25

Ala Leu Asp Thr Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys
 1 5 10 15
 Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp
 20 25 30
 Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro Cys
 35 40 45
 Pro Tyr Leu Arg Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly Leu
 50 55 60
 Tyr Asn Thr Leu Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Pro
 65 70 75 80
 Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Val Gly Arg Thr Pro
 85 90 95
 Lys Val Glu Gln Leu Ser Asn Met Val Val Lys Ser Cys Lys Cys Ser
 100 105 110

<210> 26

<211> 288

<212> PRT

<213> Homo sapiens

<220>

<221> SOURCE

<222> 1..288

<223> /mol_type="protein"

/note="fibroblast growth factor 2 precursor"

/organism="Homo sapiens"

<400> 26

Met Val Gly Val Gly Gly Gly Asp Val Glu Asp Val Thr Pro Arg Pro
 1 5 10 15
 Gly Gly Cys Gln Ile Ser Gly Arg Gly Ala Arg Gly Cys Asn Gly Ile
 20 25 30
 Pro Gly Ala Ala Ala Trp Glu Ala Ala Leu Pro Arg Arg Arg Pro Arg
 35 40 45
 Arg His Pro Ser Val Asn Pro Arg Ser Arg Ala Ala Gly Ser Pro Arg
 50 55 60
 Thr Arg Gly Arg Arg Thr Glu Glu Arg Pro Ser Gly Ser Arg Leu Gly
 65 70 75 80
 Asp Arg Gly Arg Gly Arg Ala Leu Pro Gly Gly Arg Leu Gly Gly Arg
 85 90 95
 Gly Arg Gly Arg Ala Pro Glu Arg Val Gly Gly Arg Gly Arg Gly Arg
 100 105 110
 Gly Thr Ala Ala Pro Arg Ala Ala Pro Ala Ala Arg Gly Ser Arg Pro
 115 120 125
 Gly Pro Ala Gly Thr Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala
 130 135 140
 Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys
 145 150 155 160
 Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile
 165 170 175
 His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp Pro His
 180 185 190
 Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys
 195 200 205
 Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu
 210 215 220
 Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Phe Glu Arg Leu
 225 230 235 240
 Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp
 245 250 255
 Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr
 260 265 270
 Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser
 275 280 285

<210> 27

<211> 155
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..155
 <223> /mol_type="protein"
 /note="mature FGF2"
 /organism="Homo sapiens"

<400> 27
 Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly
 1 5 10 15
 Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu
 20 25 30
 Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg
 35 40 45
 Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu
 50 55 60
 Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn
 65 70 75 80
 Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys
 85 90 95
 Val Thr Asp Glu Cys Phe Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr
 100 105 110
 Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys
 115 120 125
 Arg Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys
 130 135 140
 Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser
 145 150 155

<210> 28
 <211> 146
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..146
 <223> /mol_type="protein"
 /note="fibroblast growth factor 2"
 /organism="Homo sapiens"

<400> 28
 Pro Ala Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro Gly His
 1 5 10 15
 Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu
 20 25 30
 Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp
 35 40 45
 Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser
 50 55 60
 Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly
 65 70 75 80
 Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Phe Glu
 85 90 95
 Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Thr
 100 105 110
 Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Ser
 115 120 125
 Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala
 130 135 140
 Lys Ser
 145

<210> 29

<211> 180
 <212> PRT
 <213> artificial sequences

<220>
 <221> SOURCE
 <222> 1..180
 <223> /mol_type="protein"
 /note="synthetic construct hFGF2-153 precursor protein "
 /organism="artificial sequences"

<400> 29
 Met Lys Lys Lys Ile Ile Ser Ala Ile Leu Met Ser Thr Val Ile Leu
 1 5 10 15
 Ser Ala Ala Ala Pro Leu Ser Gly Val Tyr Ala Ala Gly Ser Ile Thr
 20 25 30
 Thr Leu Pro Ala Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro
 35 40 45
 Gly His Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe
 50 55 60
 Phe Leu Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys
 65 70 75 80
 Ser Asp Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val
 85 90 95
 Val Ser Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu
 100 105 110
 Asp Gly Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe
 115 120 125
 Phe Glu Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys
 130 135 140
 Tyr Thr Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu
 145 150 155 160
 Gly Ser Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met
 165 170 175
 Ser Ala Lys Ser
 180

<210> 30
 <211> 153
 <212> PRT
 <213> artificial sequences

<220>
 <221> SOURCE
 <222> 1..153
 <223> /mol_type="protein"
 /note="synthetic construct hFGF2-153"
 /organism="artificial sequences"

<400> 30
 Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly Gly Ser
 1 5 10 15
 Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu Tyr Cys
 20 25 30
 Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg Val Asp
 35 40 45
 Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu Gln Ala
 50 55 60
 Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn Arg Tyr
 65 70 75 80
 Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys Val Thr
 85 90 95
 Asp Glu Cys Phe Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr Asn Thr
 100 105 110
 Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys Arg Thr
 115 120 125
 Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys Ala Ile
 130 135 140

Leu Phe Leu Pro Met Ser Ala Lys Ser
145 150

<210> 31
<211> 728
<212> PRT
<213> Homo sapiens

<220>
<221> SOURCE
<222> 1..728
<223> /mol_type="protein"
/note="hepatocyte growth factor"
/organism="Homo sapiens"

<400> 31
Met Trp Val Thr Lys Leu Leu Pro Ala Leu Leu Leu Gln His Val Leu
1 5 10 15
Leu His Leu Leu Leu Pro Ile Ala Ile Pro Tyr Ala Glu Gly Gln
20 25 30
Arg Lys Arg Arg Asn Thr Ile His Glu Phe Lys Lys Ser Ala Lys Thr
35 40 45
Thr Leu Ile Lys Ile Asp Pro Ala Leu Lys Ile Lys Thr Lys Lys Val
50 55 60
Asn Thr Ala Asp Gln Cys Ala Asn Arg Cys Thr Arg Asn Lys Gly Leu
65 70 75 80
Pro Phe Thr Cys Lys Ala Phe Val Phe Asp Lys Ala Arg Lys Gln Cys
85 90 95
Leu Trp Phe Pro Phe Asn Ser Met Ser Ser Gly Val Lys Lys Glu Phe
100 105 110
Gly His Glu Phe Asp Leu Tyr Glu Asn Lys Asp Tyr Ile Arg Asn Cys
115 120 125
Ile Ile Gly Lys Gly Arg Ser Tyr Lys Gly Thr Val Ser Ile Thr Lys
130 135 140
Ser Gly Ile Lys Cys Gln Pro Trp Ser Ser Met Ile Pro His Glu His
145 150 155 160
Ser Phe Leu Pro Ser Ser Tyr Arg Gly Lys Asp Leu Gln Glu Asn Tyr
165 170 175
Cys Arg Asn Pro Arg Gly Glu Glu Gly Gly Pro Trp Cys Phe Thr Ser
180 185 190
Asn Pro Glu Val Arg Tyr Glu Val Cys Asp Ile Pro Gln Cys Ser Glu
195 200 205
Val Glu Cys Met Thr Cys Asn Gly Glu Ser Tyr Arg Gly Leu Met Asp
210 215 220
His Thr Glu Ser Gly Lys Ile Cys Gln Arg Trp Asp His Gln Thr Pro
225 230 235 240
His Arg His Lys Phe Leu Pro Glu Arg Tyr Pro Asp Lys Gly Phe Asp
245 250 255
Asp Asn Tyr Cys Arg Asn Pro Asp Gly Gln Pro Arg Pro Trp Cys Tyr
260 265 270
Thr Leu Asp Pro His Thr Arg Trp Glu Tyr Cys Ala Ile Lys Thr Cys
275 280 285
Ala Asp Asn Thr Met Asn Asp Thr Asp Val Pro Leu Glu Thr Thr Glu
290 295 300
Cys Ile Gln Gly Gln Gly Glu Gly Tyr Arg Gly Thr Val Asn Thr Ile
305 310 315 320
Trp Asn Gly Ile Pro Cys Gln Arg Trp Asp Ser Gln Tyr Pro His Glu
325 330 335
His Asp Met Thr Pro Glu Asn Phe Lys Cys Lys Asp Leu Arg Glu Asn
340 345 350
Tyr Cys Arg Asn Pro Asp Gly Ser Glu Ser Pro Trp Cys Phe Thr Thr
355 360 365
Asp Pro Asn Ile Arg Val Gly Tyr Cys Ser Gln Ile Pro Asn Cys Asp
370 375 380
Met Ser His Gly Gln Asp Cys Tyr Arg Gly Asn Gly Lys Asn Tyr Met
385 390 395 400
Gly Asn Leu Ser Gln Thr Arg Ser Gly Leu Thr Cys Ser Met Trp Asp
405 410 415

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Lys Asn Met Glu Asp Leu His Arg His Ile Phe Trp Glu Pro Asp Ala
 420 425 430
 Ser Lys Leu Asn Glu Asn Tyr Cys Arg Asn Pro Asp Asp Ala His
 435 440 445
 Gly Pro Trp Cys Tyr Thr Gly Asn Pro Leu Ile Pro Trp Asp Tyr Cys
 450 455 460
 Pro Ile Ser Arg Cys Glu Gly Asp Thr Thr Pro Thr Ile Val Asn Leu
 465 470 475 480
 Asp His Pro Val Ile Ser Cys Ala Lys Thr Lys Gln Leu Arg Val Val
 485 490 495
 Asn Gly Ile Pro Thr Arg Thr Asn Ile Gly Trp Met Val Ser Leu Arg
 500 505 510
 Tyr Arg Asn Lys His Ile Cys Gly Gly Ser Leu Ile Lys Glu Ser Trp
 515 520 525
 Val Leu Thr Ala Arg Gln Cys Phe Pro Ser Arg Asp Leu Lys Asp Tyr
 530 535 540
 Glu Ala Trp Leu Gly Ile His Asp Val His Gly Arg Gly Asp Glu Lys
 545 550 555 560
 Cys Lys Gln Val Leu Asn Val Ser Gln Leu Val Tyr Gly Pro Glu Gly
 565 570 575
 Ser Asp Leu Val Leu Met Lys Leu Ala Arg Pro Ala Val Leu Asp Asp
 580 585 590
 Phe Val Ser Thr Ile Asp Leu Pro Asn Tyr Gly Cys Thr Ile Pro Glu
 595 600 605
 Lys Thr Ser Cys Ser Val Tyr Gly Trp Gly Tyr Thr Gly Leu Ile Asn
 610 615 620
 Tyr Asp Gly Leu Leu Arg Val Ala His Leu Tyr Ile Met Gly Asn Glu
 625 630 635 640
 Lys Cys Ser Gln His His Arg Gly Lys Val Thr Leu Asn Glu Ser Glu
 645 650 655
 Ile Cys Ala Gly Ala Glu Lys Ile Gly Ser Gly Pro Cys Glu Gly Asp
 660 665 670
 Tyr Gly Gly Pro Leu Val Cys Glu Gln His Lys Met Arg Met Val Leu
 675 680 685
 Gly Val Ile Val Pro Gly Arg Gly Cys Ala Ile Pro Asn Arg Pro Gly
 690 695 700
 Ile Phe Val Arg Val Ala Tyr Tyr Ala Lys Trp Ile His Lys Ile Ile
 705 710 715 720
 Leu Thr Tyr Lys Val Pro Gln Ser
 725

<210> 32
 <211> 463
 <212> PRT
 <213> Homo sapiens

<220>
 <221> SOURCE
 <222> 1..463
 <223> /mol_type="protein"
 /note="hepatocyte growth factor alpha chain"
 /organism="Homo sapiens"

<400> 32
 Gln Arg Lys Arg Arg Asn Thr Ile His Glu Phe Lys Lys Ser Ala Lys
 1 5 10 15
 Thr Thr Leu Ile Lys Ile Asp Pro Ala Leu Lys Ile Lys Thr Lys Lys
 20 25 30
 Val Asn Thr Ala Asp Gln Cys Ala Asn Arg Cys Thr Arg Asn Lys Gly
 35 40 45
 Leu Pro Phe Thr Cys Lys Ala Phe Val Phe Asp Lys Ala Arg Lys Gln
 50 55 60
 Cys Leu Trp Phe Pro Phe Asn Ser Met Ser Ser Gly Val Lys Lys Glu
 65 70 75 80
 Phe Gly His Glu Phe Asp Leu Tyr Glu Asn Lys Asp Tyr Ile Arg Asn
 85 90 95
 Cys Ile Ile Gly Lys Gly Arg Ser Tyr Lys Gly Thr Val Ser Ile Thr
 100 105 110

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