

SEQUENCE LISTING

<110> Cellengene Inc.

<120> ANTI-MESOTHELIN CHIMERIC ANTIBODY RECEPTOR SPECIFICALLY BINDING TO MESOTHELIN

<130> PX064541PCT

<150> KR 10-2020-0097546

<151> 2020-08-04

<160> 40

<170> PatentIn version 3.2

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Asp Tyr Gly Met His
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Ser Ile Tyr Gly Ser Gly Gly His Thr Gly Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

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Gln His Ala Tyr Arg Tyr Ser Tyr Ala Phe Asp Val
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Arg Ala Ser Gln Ser Ile Ser Asn Trp Leu Asn
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<400> 5

Ala Thr Ser Ser Leu Gln Ser
1 5

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<220>
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<400> 6

Gln Gln Ser Tyr Ser Phe Pro Phe Thr
1 5

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Ser Tyr Ala Met His
1 5

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Gly Ile Ser Gly Ser Gly Gly Thr Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

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<400> 9

Glu Val Glu Gly Gln Ser Gln Glu Tyr Phe Asp Ile
1 5 10

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Arg Ala Ser Gln Ser Ile Ala Asn Tyr Leu Asn
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Ala Ala Ser Asn Leu Gln Ser
1 5

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Gln Gln Ser Tyr Ser Phe Pro Tyr Thr
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<400> 13

Ser Tyr Ala Met Ser
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Gly Ile Ser Gly Ser Gly Gly Ser Thr Gly Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

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His Gly Gln Val Gly Gly Ile Ser Val Phe Asp Ile
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Arg Ala Ser Gln Ser Ile Ser Asn Trp Leu Asn
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Ala Thr Ser Arg Leu Gln Ser
1 5

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<220>
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<400> 18

Gln Gln Ser Tyr Ser Phe Pro Trp Thr
1 5

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<220>
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<400> 19

Glu Val Gln Leu Val 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 Asp Tyr
20 25 30

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

Ser Ser Ile Tyr Gly Ser Gly Gly His Thr Gly Tyr Ala Asp 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 Lys Gln His Ala Tyr Arg Tyr Ser Tyr Ala Phe Asp Val Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 20
<211> 107
<212> PRT
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<220>
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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Trp
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Ala Thr Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Phe Pro Phe
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

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<220>
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<400> 21

Glu Val Gln Leu Val 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 Ser Tyr
20 25 30

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

Ser Gly Ile Ser Gly Ser Gly Gly Thr Thr Tyr Tyr Ala Asp 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 Lys Glu Val Glu Gly Gln Ser Gln Glu Tyr Phe Asp Ile Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 22
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<400> 22

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ala Asn Tyr
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
35 40 45

Tyr Ala Ala Ser Asn Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Phe Pro Tyr
85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
100 105

<210> 23
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<212> PRT
<213> Artificial

<220>
<223> MSLN38 VH

<400> 23

Glu Val Gln Leu Val 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 Ser Tyr
20 25 30

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

Ser Gly Ile Ser Gly Ser Gly Gly Ser Thr Gly Tyr Ala Asp 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 Lys His Gly Gln Val Gly Gly Ile Ser Val Phe Asp Ile Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 24
<211> 107
<212> PRT
<213> Artificial

<220>
<223> MSLN38 VL

<400> 24

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Trp
20 25 30 ~~Ala Asn Tyr~~

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45

Thr Arg
 Tyr Ala ~~Ala~~ Ser ~~Asn~~ Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Phe Pro Trp
 85 90 95 ~~Tyr~~

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 25
 <211> 63
 <212> DNA
 <213> Artificial

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 <223> CD8

<400> 25
 atggccttac cagtgaccgc cttgctcctg ccgctggcct tgctgctcca cgccgccagg 60
 ccg 63

<210> 26
 <211> 738
 <212> DNA
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<220>
 <223> MSLN34 scFv

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 agctgcgccg cctcggggttt tactttctct gattatggta tgcaactgggt tcgtcaggcg 120
 ccgggcaagg gtctcgaatg ggtttcatct atctacgggt ctggtgggtca cactgggttat 180
 gccgattcag tgaagggtcg ctttaccatt tcccgtgaca actctaagaa tactctgtat 240

ctgcagatga actcgctgcg tgccgaagac acggccgtct attattgcgc caaacagcat	300
gcataccgtt actcttacgc attcgatggt tggggtcagg gcactttagt gaccgtctca	360
tcgggtggag gcggttcagg cggaggtgga tccggcggtg gcggatcgga cattcaaatg	420
acgcagagtc cctcctcact gagtgctagc gtgggcgatc gtgtgacaat tacttgtcgc	480
gctagccagt ctatctctaa ttggctgaac tggatcagc agaaaccggg caaggcgcca	540
aaattgctga tttacgcaac ttctctctg cagtctggtg taccgtcccg tttctctggc	600
agcggttctg gtacggatgt taccctgacc atctcaagcc tccagcctga agattttgcc	660
acctattatt gtcagcaatc ttactctttt ccgtttacgt tcgggcaggg aactaaagt	720
gaaattaaaag ccagcacc	738

<210> 27
 <211> 738
 <212> DNA
 <213> Artificial

<220>
 <223> MSLN38 scFv

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agctgcgccg cctcgggttt tactttctct tcttatgcaa tgtcttgggt tcgtcaggcg	120
ccgggcaagg gtctcgaatg ggtttcagggt atctctgggt ctggtgggtc tactggttat	180
gccgattcag tgaagggtcg ctttaccatt tcccgtgaca actctaagaa tactctgtat	240
ctgcagatga actcgctgcg tgccgaagac acggccgtct attattgcgc caaacatggt	300
caggttggtg gtatctctgt tttcgatatc tggggtcagg gcactttagt gaccgtctca	360
tcgggtggag gcggttcagg cggaggtgga tccggcggtg gcggatcgga cattcaaatg	420
acgcagagtc cctcctcact gagtgctagc gtgggcgatc gtgtgacaat tacttgtcgc	480
gctagccagt ctatctctaa ttggctgaac tggatcagc agaaaccggg caaggcgcca	540
aaattgctga tttacgcaac ttcccgtctg cagtctggtg taccgtcccg tttctctggc	600
agcggttctg gtacggatgt taccctgacc atctcaagcc tccagcctga agattttgcc	660

acctattatt gtcagcaatc ttactctttt ccgtggacgt tcgggcaggg aactaaagtg 720
gaaattaaag ccagcacc 738

<210> 28
<211> 135
<212> DNA
<213> Artificial

<220>
<223> CD8 hinge

<400> 28
accacgacgc cagcgccgcg accaccaaca ccggcgccca ccatcgcgtc gcagcccctg 60
tccctgcgcc cagaggcggtg ccggccagcg gcggggggcg cagtgcacac gagggggctg 120
gacttcgcct gtgat 135

<210> 29
<211> 72
<212> DNA
<213> Artificial

<220>
<223> CD8 TM(TransMembrane)

<400> 29
atctacatct gggcgccctt ggccgggact tgtgggggtcc ttctcctgtc actggttattc 60
accctttact gc 72

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<211> 126
<212> DNA
<213> Artificial

<220>
<223> 4-1BB

<400> 30
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actactcaag aggaagatgg ctgtagctgc cgatttccag aagaagaaga aggaggatgt 120
gaactg 126

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<220>
<223> CD3z

<400> 31
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ctataacgag ctcaatctag gacgaagaga ggagtacgat gttttggaca agagacgtgg 120
ccgggaccct gagatggggg gaaagccgag aaggaagaac cctcaggaag gcctgtacaa 180
tgaactgcag aaagataaga tggcggaggc ctacagttag attgggatga aaggcgagcg 240
ccggagggggc aaggggcacg atggccttta ccagggtctc agtacagcca ccaaggacac 300
ctacgacgcc cttcacatgc aggccctgcc ccctcgc 337

<210> 32
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<212> PRT
<213> Artificial

<220>
<223> MSLN3 HCDR1

<400> 32

Asp Tyr Ala Met Ser
1 5

<210> 33
<211> 17
<212> PRT
<213> Artificial

<220>
<223> MSLN3 HCDR2

<400> 33

Ala Ile Ser Ser Ser Gly Gly Thr Thr Tyr Tyr Ala Asp Ser Val Lys
1 5 10 15

Gly

<210> 34
<211> 12
<212> PRT
<213> Artificial

<220>
<223> MSLN3 HCDR3

<400> 34

Glu Glu Glu Gly Glu Trp Arg Glu Tyr Phe Asp Val
1 5 10

<210> 35
<211> 11
<212> PRT
<213> Artificial

<220>
<223> MSLN3 LCDR1

<400> 35

Arg Ala Ser Gln Ser Ile Ser Ser Tyr Leu Asn
1 5 10

<210> 36
<211> 7
<212> PRT
<213> Artificial

<220>
<223> MSLN3 LCDR2

<400> 36

Ala Thr Ser Thr Leu Gln Ser
1 5

<210> 37
<211> 9

<212> PRT
<213> Artificial

<220>
<223> MSLN3 LCDR3

<400> 37

Gln Gln Ser Tyr Thr Phe Pro Tyr Thr
1 5

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<211> 121
<212> PRT
<213> Artificial

<220>
<223> MSLN3 VH

<400> 38

Glu Val Gln Leu Val 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 Asp Tyr
20 25 30

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

Ser Ala Ile Ser Ser Ser Gly Gly Thr Thr Tyr Tyr Ala Asp 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 Lys Glu Glu Glu Gly Glu Trp Arg Glu Tyr Phe Asp Val Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
 115 120

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 <211> 107
 <212> PRT
 <213> Artificial

<220>
 <223> MSLN3 VL

<400> 39

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
 20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45

Tyr Ala Thr Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60

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

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Thr Phe Pro Tyr
 85 90 95

Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 40
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<220>
 <223> MSLN(mesothelin)

<400> 40

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

Ala Leu Gly Ser Leu Leu Phe Leu Leu Phe Ser Leu Gly Trp Val Gln
20 25 30

Pro Ser Arg Thr Leu Ala Gly Glu Thr Gly Gln Glu Ala Ala Pro Leu
35 40 45

Asp Gly Val Leu Ala Asn Pro Pro Asn Ile Ser Ser Leu Ser Pro Arg
50 55 60

Gln Leu Leu Gly Phe Pro Cys Ala Glu Val Ser Gly Leu Ser Thr Glu
65 70 75 80

Arg Val Arg Glu Leu Ala Val Ala Leu Ala Gln Lys Asn Val Lys Leu
85 90 95

Ser Thr Glu Gln Leu Arg Cys Leu Ala His Arg Leu Ser Glu Pro Pro
100 105 110

Glu Asp Leu Asp Ala Leu Pro Leu Asp Leu Leu Leu Phe Leu Asn Pro
115 120 125

Asp Ala Phe Ser Gly Pro Gln Ala Cys Thr Arg Phe Phe Ser Arg Ile
130 135 140

Thr Lys Ala Asn Val Asp Leu Leu Pro Arg Gly Ala Pro Glu Arg Gln
145 150 155 160

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

Leu Ser Glu Ala Asp Val Arg Ala Leu Gly Gly Leu Ala Cys Asp Leu
180 185 190

Pro Gly Arg Phe Val Ala Glu Ser Ala Glu Val Leu Leu Pro Arg Leu
195 200 205

Val Ser Cys Pro Gly Pro Leu Asp Gln Asp Gln Gln Glu Ala Ala Arg
210 215 220

Ala Ala Leu Gln Gly Gly Gly Pro Pro Tyr Gly Pro Pro Ser Thr Trp
225 230 235 240

Ser Val Ser Thr Met Asp Ala Leu Arg Gly Leu Leu Pro Val Leu Gly
245 250 255

Gln Pro Ile Ile Arg Ser Ile Pro Gln Gly Ile Val Ala Ala Trp Arg
260 265 270

Gln Arg Ser Ser Arg Asp Pro Ser Trp Arg Gln Pro Glu Arg Thr Ile
275 280 285

Leu Arg Pro Arg Phe Arg Arg Glu Val Glu Lys Thr Ala Cys Pro Ser
290 295 300

Gly Lys Lys Ala Arg Glu Ile Asp Glu Ser Leu Ile Phe Tyr Lys Lys
305 310 315 320

Trp Glu Leu Glu Ala Cys Val Asp Ala Ala Leu Leu Ala Thr Gln Met
325 330 335

Asp Arg Val Asn Ala Ile Pro Phe Thr Tyr Glu Gln Leu Asp Val Leu
340 345 350

Lys His Lys Leu Asp Glu Leu Tyr Pro Gln Gly Tyr Pro Glu Ser Val
355 360 365

Ile Gln His Leu Gly Tyr Leu Phe Leu Lys Met Ser Pro Glu Asp Ile
370 375 380

Arg Lys Trp Asn Val Thr Ser Leu Glu Thr Leu Lys Ala Leu Leu Glu
385 390 395 400

Val Asn Lys Gly His Glu Met Ser Pro Gln Ala Pro Arg Arg Pro Leu
405 410 415

Pro Gln Val Ala Thr Leu Ile Asp Arg Phe Val Lys Gly Arg Gly Gln
420 425 430

Leu Asp Lys Asp Thr Leu Asp Thr Leu Thr Ala Phe Tyr Pro Gly Tyr
435 440 445

Leu Cys Ser Leu Ser Pro Glu Glu Leu Ser Ser Val Pro Pro Ser Ser
450 455 460

Ile Trp Ala Val Arg Pro Gln Asp Leu Asp Thr Cys Asp Pro Arg Gln
465 470 475 480

Leu Asp Val Leu Tyr Pro Lys Ala Arg Leu Ala Phe Gln Asn Met Asn
485 490 495

Gly Ser Glu Tyr Phe Val Lys Ile Gln Ser Phe Leu Gly Gly Ala Pro
500 505 510

Thr Glu Asp Leu Lys Ala Leu Ser Gln Gln Asn Val Ser Met Asp Leu
515 520 525

Ala Thr Phe Met Lys Leu Arg Thr Asp Ala Val Leu Pro Leu Thr Val
530 535 540

Ala Glu Val Gln Lys Leu Leu Gly Pro His Val Glu Gly Leu Lys Ala
545 550 555 560

Glu Glu Arg His Arg Pro Val Arg Asp Trp Ile Leu Arg Gln Arg Gln
565 570 575

Asp Asp Leu Asp Thr Leu Gly Leu Gly Leu Gln Gly Gly Ile Pro Asn
580 585 590

Gly Tyr Leu Val Leu Asp Leu Ser Met Gln Glu Ala Leu Ser Gly Thr
595 600 605

Pro Cys Leu Leu Gly Pro Gly Pro Val Leu Thr Val Leu Ala Leu Leu
610 615 620

Leu Ala Ser Thr Leu Ala
625 630