SEQUENCE LISTING

<110> SANGAMO THERAPEUTICS, INC.

<120> ENGINEERED TARGET SPECIFIC NUCLEASES

<130> 8325-0156.40

<140> PCT/US2017/048409
<141> 2017-08-24

<150> 62/443,981
<151> 2017-01-09

<150> 62/378,978
<151> 2016-08-24

<160> 70

<170> PatentIn version 3.5

<210> 1
<211> 196
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<213> Unknown

<220>
<223> Description of Unknown:
Wild type FokI cleavage half domain

<400> 1

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Arg Asn Ser Thr Gln Asp Arg Ile Leu Glu Met Lys Val Met Glu Phe
        35                  40                  45

Phe Met Lys Val Tyr Gly Tyr Arg Gly Lys His Leu Gly Gly Ser Arg
    50                  55                  60

Lys Pro Asp Gly Ala Ile Tyr Thr Val Gly Ser Pro Ile Asp Tyr Gly
65                  70                  75                  80

Val Ile Val Asp Thr Lys Ala Tyr Ser Gly Gly Tyr Asn Leu Pro Ile
                85                  90                  95

Gly Gln Ala Asp Glu Met Gln Arg Tyr Val Glu Glu Asn Gln Thr Arg
            100                 105                 110

Asn Lys His Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Ser Ser
        115                 120                 125

Val Thr Glu Phe Lys Phe Leu Phe Val Ser Gly His Phe Lys Gly Asn
    130                 135                 140

Tyr Lys Ala Gln Leu Thr Arg Leu Asn His Ile Thr Asn Cys Asn Gly
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145 150 155 160

Ala Val Leu Ser Val Glu Glu Leu Leu Ile Gly Gly Glu Met Ile Lys
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Ala Gly Thr Leu Thr Leu Glu Glu Val Arg Arg Lys Phe Asn Asn Gly
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Glu Ile Asn Phe
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Wild type FokI cleavage half domain

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gtgccccacg agtacatcga gctgatcgag atcgccagga acagcaccca ggaccgcatc 120

ctggagatga aggtgatgga gttcttcatg aaggtgtacg gctacagggg aaagcacctg 180

ggcggaagca gaaagcctga cggcgccatc tatacagtgg gcagccccat cgattacggc 240

gtgatcgtgg acacaaaggc ctacagcggc ggctacaatc tgcctatcgg ccaggccgac 300

gagatgcaga gatacgtgga ggagaaccag acccggaata agcacatcaa ccccaacgag 360

tggtggaagg tgtaccctag cagcgtgacc gagttcaagt tcctgttcgt gagcggccac 420

ttcaagggca actacaaggc ccagctgacc aggctgaacc acatcaccaa ctgcaatggc 480

gccgtgctga gcgtggagga gctgctgatc ggcggcgaga tgatcaaagc cggcaccctg 540

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<220>
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His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu
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<210> 4
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<212> PRT
<213> Unknown

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<220>
<223> Description of Unknown:
Zinc finger protein

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Thr Thr His Ile Arg Thr His
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<210> 5
<211> 23
<212> PRT
<213> Unknown

<220>
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Zinc finger protein

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1 5 10 15

Lys Arg His Thr Lys Ile His
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<210> 6
<211> 23
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<213> Unknown

<220>
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Ser Lys His Ile Lys Thr His
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<210> 7
<211> 179
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20 25 30

Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly Xaa Lys Phe Ala
35 40 45

Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Thr Lys Ile His Thr Gly Ser Gln
50 55 60

Lys Pro Phe Gln Cys Xaa Ile Cys Met Xaa Asn Phe Ser Xaa Xaa Xaa
65 70 75 80

Xaa Xaa Xaa Xaa His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala
85 90 95

Cys Asp Ile Cys Gly Xaa Lys Phe Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa
100 105 110

His Thr Lys Ile His Thr Gly Ser Gln Lys Pro Phe Gln Cys Xaa Ile
115 120 125

Cys Met Xaa Asn Phe Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Ile Arg
130 135 140

Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly Xaa Lys
145 150 155 160

Phe Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Thr His Thr Lys Ile His Leu
165 170 175

Arg Gly Ser

<210> 8
<211> 151
<212> PRT
<213> Artificial Sequence

<220>
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polypeptide

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<223> A, Q, L, E, N, Y, or R

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<223> Any amino acid

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Xaa Lys Phe Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Thr Lys Ile His
            20   25   30

Thr Gly Ser Gln Lys Pro Phe Gln Cys Xaa Ile Cys Met Xaa Asn Phe
        35   40   45

Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa His Ile Arg Thr His Thr Gly Glu
    50   55   60

Lys Pro Phe Ala Cys Asp Ile Cys Gly Xaa Lys Phe Ala Xaa Xaa Xaa
65   70   75   80

Xaa Xaa Xaa Xaa His Thr Lys Ile His Thr Gly Ser Gln Lys Pro Phe
                85   90   95

Gln Cys Xaa Ile Cys Met Xaa Asn Phe Ser Xaa Xaa Xaa Xaa Xaa Xaa
            100   105   110

Xaa His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile
        115   120   125

Cys Gly Xaa Lys Phe Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Thr His Thr
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Lys Ile His Leu Arg Gly Ser
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<210> 9
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
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<210> 10
<211> 6
<212> PRT
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<210> 11
<211> 5

<212> PRT
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<220>
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<400> 11
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1 5

<210> 12
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
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<210> 13
<211> 76
<212> DNA
<213> Homo sapiens

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gactagcttc aaagtt 76

<210> 14
<211> 76
<212> DNA
<213> Homo sapiens

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tctcgcttct ttgggt 76

<210> 15
<211> 76
<212> DNA
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agttgctgat gtattg 76

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<211> 76
<212> DNA
<213> Homo sapiens

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ttgcggaatg caaggg 76

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<210> 17
<211> 76
<212> DNA
<213> Homo sapiens

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cgtctgtctc agaata 76

<210> 18
<211> 76
<212> DNA
<213> Homo sapiens

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ggctgagggg ctttga 76

<210> 19
<211> 76
<212> DNA
<213> Homo sapiens

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agggccagca agtgag 76

<210> 20
<211> 76
<212> DNA
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cattggctct aatact 76

<210> 21
<211> 76
<212> DNA
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agctgagagc atgctt 76

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<212> DNA
<213> Homo sapiens

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ttgaaccggg tgtggt 76

<210> 23
<211> 76
<212> DNA
<213> Homo sapiens

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agcccaggag ttcact 76

<210> 24
<211> 76
<212> DNA
<213> Homo sapiens

<400> 24
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agggaagagc ggcagt 76

<210> 25
<211> 76
<212> DNA
<213> Homo sapiens

<400> 25
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actttgtgtg cagctt 76

<210> 26
<211> 76
<212> DNA
<213> Homo sapiens

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ttaatgacta tccatt 76

<210> 27
<211> 76
<212> DNA
<213> Homo sapiens

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cctatttgca gtaccc 76

<210> 28
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<212> DNA
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gtgggaacaa acactg 76

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<212> DNA
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tgggtcctta aaggga 76

<210> 30
<211> 76
<212> DNA
<213> Homo sapiens

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ccggggtgca aagctc 76

<210> 31
<211> 76
<212> DNA
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agccccaggc cggcgg 76

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<212> DNA
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atcatagtca agatga 76

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<212> DNA
<213> Homo sapiens

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tttgaagtag tgtcct 76

<210> 34
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<212> DNA
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ctgttgacag caggca 76

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<213> Homo sapiens

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gatcactagc agtaat 76

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<212> DNA
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aggacggtgt cacccc 76

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acgaaaagtc agtggc 76

<210> 38
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cagaggtgac aacctc 76

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ggggccaccg ctgacc 76

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<211> 76
<212> DNA
<213> Homo sapiens

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tctctgtaac ataaaa 76

<210> 41
<211> 76
<212> DNA
<213> Homo sapiens

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cccctgctga gtcagc 76

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ccagctggct ttctca 76

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<211> 76
<212> DNA
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ctctatagac attagg 76

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<211> 76
<212> DNA
<213> Homo sapiens

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tgcttctggg tttgac 76

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<212> DNA
<213> Homo sapiens

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agcagttcgg aaaggc 76

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<211> 76
<212> DNA
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ttagcatcct cattta 76

<210> 47
<211> 76
<212> DNA
<213> Homo sapiens

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aggatctggg ggccag 76

<210> 48
<211> 77
<212> DNA
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gaggatctgg gggccag 77

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<400> 50
cctcacctag aacctgggcc cctgcaactg taacctgtgg ca 42

<210> 51
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ccagaggaag aacagttgct tgggtctagg cctcaggaag gg 42

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<212> DNA
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<400> 52
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<400> 53
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<210> 54
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<212> DNA
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<210> 55
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<212> DNA
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<210> 56
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<212> DNA
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<400> 56
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<210> 57
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<212> DNA
<213> Homo sapiens

<400> 57
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<210> 58
<211> 195
<212> PRT
<213> Artificial Sequence

<220>
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1 5 10 15

Leu Lys His Val Pro His Glu Tyr Ile Glu Leu Ile Glu Ile Ala Gln
20 25 30

Asp Ser Lys Gln Asn Arg Leu Phe Glu Phe Lys Val Val Glu Phe Leu
35 40 45

Lys Glu Val Tyr Asp Tyr Asn Gly Lys His Leu Gly Gly Ser Arg Lys
50 55 60

Pro Asp Gly Ala Leu Tyr Thr Asn Gly Leu Lys Thr Asp Tyr Gly Ile
65 70 75 80

Ile Leu Asp Thr Lys Ala Tyr Lys Asp Gly Tyr Ser Leu Pro Ile Ser
85 90 95

Gln Ala Asp Glu Met Gln Arg Tyr Val Asp Glu Asn Asn Asn Arg Asn
100 105 110

Ala Ile Ile Asn Pro Asn Glu Trp Trp Lys Val Tyr Pro Asn Ser Ile
115 120 125

.

Leu Asp Phe Lys Phe Leu Phe Val Ser Gly Phe Phe Lys Gly Asp Tyr
130 135 140

Lys Lys Gln Leu Ala Arg Val Ser Asn Leu Thr Lys Arg Lys Gly Ala
145 150 155 160

Val Leu Ser Val Glu Gln Leu Leu Leu Gly Gly Glu Lys Ile Lys Asp
165 170 175

Gly Ser Leu Thr Leu Glu Asp Val Gly Asp Lys Phe Asn Asn Asp Glu
180 185 190

Ile Ile Phe
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<210> 59
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 59
Gln Ile Val Lys Ser Ser Ile Glu Met Ser Lys Ala Asn Met Arg Asp
1 5 10 15

Asn Leu Gln Met Leu Pro His Asp Tyr Ile Glu Leu Ile Glu Ile Ser
20 25 30

Gln Asp Pro Tyr Gln Asn Arg Ile Phe Glu Met Lys Val Met Asp Leu
35 40 45

Phe Ile Asn Glu Tyr Gly Phe Ser Gly Ser His Leu Gly Gly Ser Arg
50 55 60

Lys Pro Asp Gly Ala Met Tyr Ala His Gly Phe Gly Val Ile Val Asp
65 70 75 80

Thr Lys Ala Tyr Lys Asp Gly Tyr Asn Leu Pro Ile Ser Gln Ala Asp
85 90 95

Glu Met Glu Arg Tyr Val Arg Glu Asn Ile Asp Arg Asn Glu His Val
100 105 110

Asn Ser Asn Arg Trp Trp Asn Ile Phe Pro Glu Asp Thr Asn Glu Tyr
115 120 125

Lys Phe Leu Phe Val Ser Gly Phe Phe Lys Gly Asn Phe Glu Lys Gln
130 135 140

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

145 150 155 160

Val Glu His Leu Leu Leu Gly Ala Glu Tyr Ile Lys Arg Gly Ile Leu
165 170 175

Thr Leu Tyr Asp Phe Lys Asn Ser Phe Leu Asn Lys Glu Ile Gln Phe
180 185 190

<210> 60
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<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

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1 5 10 15

Asn Ile Ser Leu Asp Tyr Leu Gln Leu Val Asp Ile Ser Thr Asp Ser
20 25 30

Lys Gln Asn Arg Leu Phe Glu Met Lys Val Met Asp Leu Phe Ile Asn
35 40 45

Glu Leu Asp Phe Lys Gly Ser His Leu Gly Gly Gly Arg Lys Pro Asp
50 55 60

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

Tyr Lys Asp Gly Tyr Asn Leu Pro Ile Ser Gln Ala Asp Glu Met Glu
85 90 95

Arg Tyr Val Arg Glu Asn Ile Asp Arg Asn Lys Gly Ile Asn Pro Asn
100 105 110

Glu Trp Trp Thr Ile Phe Pro Ser Ser Ile Asn Asp Phe Thr Phe Leu
115 120 125

Phe Val Ser Gly Tyr Phe Lys Gly Asn Phe Glu Gly Gln Leu Gln Arg
130 135 140

Ile Ser Met Ser Thr Gly Ile Lys Gly Gly Ala Ile Gly Val Glu His
145 150 155 160

Leu Leu Leu Cys Ala Glu Tyr Tyr Lys Arg Gly Ile Leu Ser His Gln
165 170 175

Asp Ile Arg Asp Ser Phe Lys Asn Ala Glu Ile Glu Phe
180 185

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<210> 61
<211> 192
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 61
Ile Lys Ser Asn Ile Ser Leu Leu Lys Asp Glu Leu Arg Gly Gln Ile
1 5 10 15

Ser His Ile Ser His Glu Tyr Leu Ser Leu Ile Asp Leu Ala Phe Asp
20 25 30

Ser Lys Gln Asn Arg Leu Phe Glu Met Lys Val Leu Glu Leu Leu Val
35 40 45

Asn Glu Tyr Gly Phe Lys Gly Arg His Leu Gly Gly Ser Arg Lys Pro
50 55 60

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

Val Asp Thr Lys Ala Tyr Ser Glu Gly Tyr Ser Leu Pro Ile Ser Gln
85 90 95

Ala Asp Glu Met Glu Arg Tyr Val Arg Glu Asn Ser Asn Arg Asp Glu
100 105 110

Glu Val Asn Pro Asn Lys Trp Trp Glu Asn Phe Ser Glu Glu Val Lys
115 120 125

Lys Tyr Tyr Phe Val Phe Ile Ser Gly Ser Phe Lys Gly Lys Phe Glu
130 135 140

Glu Gln Leu Arg Arg Leu Ser Met Thr Thr Gly Val Asn Gly Ser Ala
145 150 155 160

Val Asn Val Val Asn Leu Leu Leu Gly Ala Glu Lys Ile Arg Ser Gly
165 170 175

Glu Met Thr Ile Glu Glu Leu Glu Arg Ala Met Phe Asn Asn Ser Glu
180 185 190

<210> 62
<211> 186
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 62
Lys Leu Ala Lys Ser Ser Gln Ser Glu Thr Lys Glu Lys Leu Arg Glu
1 5 10 15

Lys Leu Arg Asn Leu Pro His Glu Tyr Leu Ser Leu Val Asp Leu Ala
20 25 30

Tyr Asp Ser Lys Gln Asn Arg Leu Phe Glu Met Lys Val Ile Glu Leu
35 40 45

Leu Thr Glu Glu Cys Gly Phe Gln Gly Leu His Leu Gly Gly Ser Arg
50 55 60

Arg Pro Asp Gly Val Leu Tyr Thr Ala Gly Leu Thr Asp Asn Tyr Gly
65 70 75 80

Ile Ile Leu Asp Thr Lys Ala Tyr Ser Ser Gly Tyr Ser Leu Pro Ile
85 90 95

Ala Gln Ala Asp Glu Met Glu Arg Tyr Val Arg Glu Asn Gln Thr Arg
100 105 110

Asp Glu Leu Val Asn Pro Asn Gln Trp Trp Glu Asn Phe Glu Asn Gly
115 120 125

Leu Gly Thr Phe Tyr Phe Leu Phe Val Ala Gly His Phe Asn Gly Asn
130 135 140

Val Gln Ala Gln Leu Glu Arg Ile Ser Arg Asn Thr Gly Val Leu Gly
145 150 155 160

Ala Ala Ala Ser Ile Ser Gln Leu Leu Leu Leu Ala Asp Ala Ile Arg
165 170 175

Gly Gly Arg Met Asp Arg Glu Arg Leu Arg
180 185

<210> 63
<211> 190
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 63
Lys Ile Ser Lys Thr Asn Ile Leu Glu Leu Lys Asp Lys Val Arg Asp
1 5 10 15

Lys Leu Lys Tyr Val Asp His Arg Tyr Leu Ala Leu Ile Asp Leu Ala
20 25 30

Tyr Asp Gly Thr Ala Asn Arg Asp Phe Glu Ile Gln Thr Ile Asp Leu

35 40 45

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

Lys Pro Asp Gly Ile Ile Ser Tyr Asn Ile Asn Gly Val Ile Ile Asp
65 70 75 80

Asn Lys Ala Tyr Ser Thr Gly Tyr Asn Leu Pro Ile Asn Gln Ala Asp
85 90 95

Glu Met Ile Arg Tyr Ile Glu Glu Asn Gln Thr Arg Asp Glu Lys Ile
100 105 110

Asn Ser Asn Lys Trp Trp Glu Ser Phe Asp Glu Lys Val Lys Asp Phe
115 120 125

Asn Tyr Leu Phe Val Ser Ser Phe Phe Lys Gly Asn Phe Lys Asn Asn
130 135 140

Leu Lys His Ile Ala Asn Arg Thr Gly Val Asn Gly Gly Ala Ile Asn
145 150 155 160

Val Glu Asn Leu Leu Tyr Phe Ala Glu Glu Leu Lys Ala Gly Arg Ile
165 170 175

Ser Tyr Leu Asp Ser Phe Lys Met Tyr Asn Asn Asp Glu Ile
180 185 190

<210> 64
<211> 190
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 64
Val Lys Ser Glu Val Ser Val Phe Lys Asp Tyr Leu Arg Thr His Leu
1 5 10 15

Thr His Val Asp His Arg Tyr Leu Ile Leu Val Asp Leu Gly Phe Asp
20 25 30

Gly Ser Ser Asp Arg Asp Tyr Glu Met Lys Thr Ala Glu Leu Phe Thr
35 40 45

Ala Glu Leu Gly Phe Met Gly Ala Arg Leu Gly Asp Thr Arg Lys Pro
50 55 60

Asp Val Cys Val Tyr His Gly Ala Asn Gly Leu Ile Ile Asp Asn Lys
65 70 75 80

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Ala Tyr Gly Lys Gly Tyr Ser Leu Pro Ile Lys Gln Ala Asp Glu Ile
                85                  90                  95

Tyr Arg Tyr Ile Glu Glu Asn Lys Glu Arg Asp Ala Arg Leu Asn Pro
            100                 105                 110

Asn Gln Trp Trp Lys Val Phe Asp Glu Ser Val Thr His Phe Arg Phe
        115                 120                 125

Ala Phe Ile Ser Gly Ser Phe Thr Gly Gly Phe Lys Asp Arg Ile Glu
    130                 135                 140

Leu Ile Ser Met Arg Ser Gly Ile Cys Gly Ala Ala Val Asn Ser Val
145                 150                 155                 160

Asn Leu Leu Leu Met Ala Glu Glu Leu Lys Ser Gly Arg Leu Asp Tyr
                165                 170                 175

Glu Glu Trp Phe Gln Tyr Phe Asp Asn Asp Glu Ile Ser Phe
            180                 185                 190


<210> 65
<211> 192
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      polypeptide

<400> 65
Gln Glu Leu Lys Asp Glu Gln Ala Glu Lys Arg Lys Ala Lys Phe Leu
1               5                   10                  15

Lys Glu Thr Asn Leu Pro Met Lys Tyr Ile Glu Leu Leu Asp Ile Ala
            20                  25                  30

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

Phe Arg Asn Val Tyr Arg Leu His Ser Lys Leu Leu Gly Gly Gly Arg
    50                  55                  60

Lys Pro Asp Gly Leu Leu Tyr Gln Asp Arg Phe Gly Val Ile Val Asp
65                  70                  75                  80

Thr Lys Ala Tyr Gly Lys Gly Tyr Ser Lys Ser Ile Asn Gln Ala Asp
                85                  90                  95

Glu Met Ile Arg Tyr Ile Glu Asp Asn Lys Arg Arg Asp Glu Asn Arg
            100                 105                 110

Asn Pro Ile Lys Trp Trp Glu Ala Phe Pro Asp Thr Ile Pro Glu Phe
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115 120 125

Tyr Phe Met Trp Val Ser Ser Lys Phe Ile Gly Lys Phe Gln Glu Gln
130 135 140

Leu Asp Tyr Thr Ser Asn Glu Thr Gln Ile Lys Gly Ala Ala Leu Asn
145 150 155 160

Val Glu Gln Leu Leu Leu Gly Ala Asp Leu Val Leu Lys Gly Gln Leu
165 170 175

His Ile Ser Asp Leu Pro Ser Tyr Phe Gln Asn Lys Glu Ile Glu Phe
180 185 190

<210> 66
<211> 189
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 66
Lys Val Ser Lys Thr Asn Ile Leu Glu Leu Lys Asp Asn Thr Arg Glu
1 5 10 15

Lys Leu Val Tyr Leu Asp His Arg Tyr Leu Ser Leu Phe Asp Leu Ala
20 25 30

Tyr Asp Asp Lys Ala Ser Arg Asp Phe Glu Ile Gln Thr Ile Asp Leu
35 40 45

Leu Ile Asn Glu Leu Gln Phe Lys Gly Leu Arg Leu Gly Glu Arg Arg
50 55 60

Lys Pro Asp Gly Ile Ile Tyr Gly Val Asn Gly Val Ile Ile Asp Asn
65 70 75 80

Lys Ala Tyr Ser Lys Gly Tyr Asn Leu Pro Ile Arg Gln Ala Asp Glu
85 90 95

Met Ile Arg Tyr Ile Gln Glu Asn Gln Ser Arg Asp Glu Lys Leu Asn
100 105 110

Pro Asn Lys Trp Trp Glu Asn Phe Glu Glu Glu Thr Ser Lys Phe Asn
115 120 125

Tyr Leu Phe Ile Ser Ser Lys Phe Ile Ser Gly Phe Lys Lys Asn Leu
130 135 140

Gln Tyr Ile Ala Asp Arg Thr Gly Val Asn Gly Gly Ala Ile Asn Val
145 150 155 160

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Glu Asn Leu Leu Cys Phe Ala Glu Met Leu Lys Ser Gly Lys Leu Glu
165 170 175

Tyr Asn Asp Phe Phe Asn Gln Tyr Asn Asn Asp Glu Ile
180 185

<210> 67
<211> 185
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic polypeptide

<400> 67
Ile Glu Glu Gln Lys Ala Ile Phe Leu Gln Lys Thr Lys Leu Pro Leu
1 5 10 15

Ser Tyr Ile Glu Leu Leu Glu Ile Ala Arg Asp Gly Lys Arg Ser Arg
20 25 30

Asp Phe Glu Phe Ile Thr Met Glu Leu Phe Lys Asn Ile Tyr Lys Ile
35 40 45

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

Met Pro Glu Phe Gly Val Ile Val Asp Thr Lys Ala Tyr Ala Asp Gly
65 70 75 80

Tyr Ser Lys Ser Ile Ala Gln Ala Asp Glu Met Ile Arg Tyr Ile Glu
85 90 95

Asp Asn Lys Arg Arg Asp Pro Ser Arg Asn Ser Thr Lys Trp Trp Glu
100 105 110

His Phe Pro Thr Ser Ile Asn Asn Phe Tyr Phe Leu Trp Val Ser Ser
115 120 125

Val Phe Val Asn Lys Phe His Glu Gln Leu Ser Tyr Thr Ala Gln Glu
130 135 140

Thr Gln Thr Val Gly Ala Ala Leu Ser Val Glu Gln Leu Leu Leu Gly
145 150 155 160

Ala Asp Ser Val Leu Lys Gly Asn Leu Thr Thr Glu Lys Phe Ile Asp
165 170 175

Ser Phe Lys Asn Gln Glu Ile Val Phe
180 185

<210> 68

<211> 9
<212> PRT
<213> Unknown

<220>
<223> Description of Unknown:
"LAGLIDADG" family peptide motif sequence

<400> 68
Leu Ala Gly Leu Ile Asp Ala Asp Gly
1 5

<210> 69
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 69
tgtcaggatt gggttccg 18

<210> 70
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 70
ctcctgaaag tggccggg 18