

SEQUENCE LISTING

<110> Bristol-Myers Squibb Company

<120> ANTIBODIES TO TIGIT

<130> 12437-WO-PCT

<150> 62/096,267

<151> 2014-12-23

<160> 53

<170> PatentIn version 3.5

<210> 1

<211> 244

<212> PRT

<213> Homo sapiens

<400> 1

Met Arg Trp Cys Leu Leu Leu Ile Trp Ala Gln Gly Leu Arg Gln Ala
1 5 10 15

Pro Leu Ala Ser Gly Met Met Thr Gly Thr Ile Glu Thr Thr Gly Asn
20 25 30

Ile Ser Ala Glu Lys Gly Gly Ser Ile Ile Leu Gln Cys His Leu Ser
35 40 45

Ser Thr Thr Ala Gln Val Thr Gln Val Asn Trp Glu Gln Gln Asp Gln
50 55 60

Leu Leu Ala Ile Cys Asn Ala Asp Leu Gly Trp His Ile Ser Pro Ser
65 70 75 80

Phe Lys Asp Arg Val Ala Pro Gly Pro Gly Leu Gly Leu Thr Leu Gln
85 90 95

Ser Leu Thr Val Asn Asp Thr Gly Glu Tyr Phe Cys Ile Tyr His Thr
100 105 110

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

Ser Ser Val Ala Glu His Gly Ala Arg Phe Gln Ile Pro Leu Leu Gly
130 135 140

Ala Met Ala Ala Thr Leu Val Val Ile Cys Thr Ala Val Ile Val Val
145 150 155 160

Val Ala Leu Thr Arg Lys Lys Lys Ala Leu Arg Ile His Ser Val Glu
165 170 175

Gly Asp Leu Arg Arg Lys Ser Ala Gly Gln Glu Glu Trp Ser Pro Ser
180 185 190

Ala Pro Ser Pro Pro Gly Ser Cys Val Gln Ala Glu Ala Ala Pro Ala
195 200 205

Gly Leu Cys Gly Glu Gln Arg Gly Glu Asp Cys Ala Glu Leu His Asp
210 215 220

Tyr Phe Asn Val Leu Ser Tyr Arg Ser Leu Gly Asn Cys Ser Phe Phe
225 230 235 240

Thr Glu Thr Gly

<210> 2
<211> 118
<212> PRT
<213> Homo sapiens

<400> 2

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Arg Tyr Phe Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Arg Gly Ser Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Ser Ser Ser Ala Trp Tyr Phe Asp Tyr Trp Gly Gln Gly Asn
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 3
<211> 118
<212> PRT

<213> Artificial Sequence

<220>

<223> human sequence with A72S modification

<400> 3

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Arg Tyr Phe Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Arg Gly Ser Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Ser Ser Ser Ala Trp Tyr Phe Asp Tyr Trp Gly Gln Gly Asn
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 4

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> human sequence with N112Q modification

<400> 4

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Arg Tyr Phe Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Arg Gly Ser Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Ser Ser Ser Ala Trp Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 5
<211> 118
<212> PRT
<213> Artificial Sequence

<220>
<223> human sequence with A72S and N112T modifications

<400> 5

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Arg Tyr Phe Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Arg Gly Ser Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Ser Ser Ser Ala Trp Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 6
<211> 107
<212> PRT
<213> Homo sapiens

<400> 6

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Leu Tyr
85 90 95

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

<210> 7

<211> 130

<212> PRT

<213> Homo sapiens

<400> 7

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly
20 25 30

Ile Tyr Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Asp Tyr Tyr Val Ser Gly Asn Tyr Tyr Asn Val Asp Tyr
100 105 110

Tyr Phe Phe Gly Val Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
115 120 125

Ser Ser
130

<210> 8
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> human sequence with H3Q modification

<400> 8

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Val Ser Ser Gly
20 25 30

Ile Tyr Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Asp Tyr Tyr Val Ser Gly Asn Tyr Tyr Asn Val Asp Tyr
100 105 110

Tyr Phe Phe Gly Val Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val
115 120 125

Ser Ser
130

<210> 9
<211> 109
<212> PRT
<213> Homo sapiens

<400> 9

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30

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

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Arg Ser Asn Trp Pro Pro
85 90 95

Leu Phe Thr Phe Gly Pro Gly Thr Lys Val Asp Ile Lys
100 105

<210> 10
<211> 126
<212> PRT
<213> Homo sapiens

<400> 10

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Ser
20 25 30

Ser His Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
35 40 45

Trp Ile Gly Asn Ile Phe Tyr Ser Gly His Thr Tyr Tyr Asn Pro Ser
50 55 60

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

Ser Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Gln Gly Leu Leu Trp Phe Gly Gly Leu Ser Pro Tyr Tyr
100 105 110

Phe Asp Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
115 120 125

<210> 11
<211> 106
<212> PRT
<213> Homo sapiens

<400> 11

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

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Tyr
20 25 30

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

Tyr Asp Ala Ser Asn Arg Ala Thr Gly Ile Pro Ala Arg Phe Ser Gly
50 55 60

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

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Arg Ser Asn Trp Pro Thr
85 90 95

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

<210> 12
<211> 128
<212> PRT
<213> Homo sapiens

<400> 12

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

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

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

Gly Gly Ile Ile Pro Phe Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

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

85

90

95

Ala Arg Gly Gly Ala Ala Ala Gly Thr Thr Arg Tyr Gly Tyr Tyr Tyr
 100 105 110

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

<210> 13

<211> 107

<212> PRT

<213> Homo sapiens

<400> 13

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 Gly Ile Ser Ser Trp
 20 25 30

Leu Ala Trp Tyr Gln Gln Lys Pro Glu Lys Ala Pro Lys Ser Leu Ile
 35 40 45

Tyr Ala Ala 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 Tyr Asn Ser Tyr Pro Ile
 85 90 95

Thr Phe Gly Gln Gly Thr Arg Leu Glu Ile Lys
 100 105

<210> 14

<211> 7

<212> PRT

<213> Homo sapiens

<400> 14

Ser Ser Arg Tyr Phe Trp Gly
 1 5

<210> 15

<211> 16

<212> PRT

<213> Homo sapiens

<400> 15

Tyr Ile Tyr Tyr Arg Gly Ser Thr Tyr Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 16
<211> 8
<212> PRT
<213> Homo sapiens

<400> 16

Ser Ser Ala Trp Tyr Phe Asp Tyr
1 5

<210> 17
<211> 12
<212> PRT
<213> Homo sapiens

<400> 17

Arg Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala
1 5 10

<210> 18
<211> 7
<212> PRT
<213> Homo sapiens

<400> 18

Gly Ala Ser Ser Arg Ala Thr
1 5

<210> 19
<211> 8
<212> PRT
<213> Homo sapiens

<400> 19

Gln Gln Tyr Gly Ser Leu Tyr Thr
1 5

<210> 20
<211> 7
<212> PRT
<213> Homo sapiens

<400> 20

Ser Gly Ile Tyr Tyr Trp Ser
1 5

<210> 21
<211> 16
<212> PRT
<213> Homo sapiens

<400> 21

Tyr	Ile	Tyr	Tyr	Ser	Gly	Ser	Thr	Asn	Tyr	Asn	Pro	Ser	Leu	Lys	Ser
1				5					10					15	

<210> 22

<211> 20

<212> PRT

<213> Homo sapiens

<400> 22

Asp	Tyr	Tyr	Val	Ser	Gly	Asn	Tyr	Tyr	Asn	Val	Asp	Tyr	Tyr	Phe	Phe
1				5					10					15	

Gly	Val	Asp	Val
			20

<210> 23

<211> 11

<212> PRT

<213> Homo sapiens

<400> 23

Arg	Ala	Ser	Gln	Ser	Val	Ser	Ser	Tyr	Leu	Ala
1				5					10	

<210> 24

<211> 7

<212> PRT

<213> Homo sapiens

<400> 24

Asp	Ala	Ser	Asn	Arg	Ala	Thr
1				5		

<210> 25

<211> 11

<212> PRT

<213> Homo sapiens

<400> 25

Gln	Gln	Arg	Ser	Asn	Trp	Pro	Pro	Leu	Phe	Thr
1				5					10	

<210> 26

<211> 7

<212> PRT

<213> Homo sapiens

<400> 26

Ser	Ser	Ser	His	Tyr	Trp	Gly
1				5		

<210> 27
<211> 16
<212> PRT
<213> Homo sapiens

<400> 27

Asn Ile Phe Tyr Ser Gly His Thr Tyr Tyr Asn Pro Ser Leu Lys Ser
1 5 10 15

<210> 28
<211> 16
<212> PRT
<213> Homo sapiens

<400> 28

Gln Gly Leu Leu Trp Phe Gly Gly Leu Ser Pro Tyr Tyr Phe Asp Tyr
1 5 10 15

<210> 29
<211> 11
<212> PRT
<213> Homo sapiens

<400> 29

Arg Ala Ser Gln Ser Val Ser Ser Tyr Leu Ala
1 5 10

<210> 30
<211> 7
<212> PRT
<213> Homo sapiens

<400> 30

Asp Ala Ser Asn Arg Ala Thr
1 5

<210> 31
<211> 8
<212> PRT
<213> Homo sapiens

<400> 31

Gln Gln Arg Ser Asn Trp Pro Thr
1 5

<210> 32
<211> 5
<212> PRT
<213> Homo sapiens

<400> 32

Asn Tyr Ala Ile Ser

1 5

<210> 33
<211> 17
<212> PRT
<213> Homo sapiens

<400> 33

Gly Ile Ile Pro Phe Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe Gln
1 5 10 15

Gly

<210> 34
<211> 19
<212> PRT
<213> Homo sapiens

<400> 34

Gly Gly Ala Ala Ala Gly Thr Thr Arg Tyr Gly Tyr Tyr Tyr Tyr Gly
1 5 10 15

Met Asp Val

<210> 35
<211> 11
<212> PRT
<213> Homo sapiens

<400> 35

Arg Ala Ser Gln Gly Ile Ser Ser Trp Leu Ala
1 5 10

<210> 36
<211> 7
<212> PRT
<213> Homo sapiens

<400> 36

Ala Ala Ser Ser Leu Gln Ser
1 5

<210> 37
<211> 9
<212> PRT
<213> Homo sapiens

<400> 37

Gln Gln Tyr Asn Ser Tyr Pro Ile Thr
1 5

<210> 38
<211> 19
<212> PRT
<213> Homo sapiens

<400> 38

Asn Trp Glu Gln Gln Asp Gln Leu Leu Ala Ile Cys Asn Ala Asp Leu
1 5 10 15

Gly Trp His

<210> 39
<211> 11
<212> PRT
<213> Homo sapiens

<400> 39

Phe Cys Ile Tyr His Thr Tyr Pro Asp Gly Thr
1 5 10

<210> 40
<211> 21
<212> PRT
<213> Homo sapiens

<400> 40

Gln Val Asn Trp Glu Gln Gln Asp Gln Leu Leu Ala Ile Cys Asn Ala
1 5 10 15

Asp Leu Gly Trp His
20

<210> 41
<211> 4
<212> PRT
<213> Homo sapiens

<400> 41

His Thr Tyr Pro
1

<210> 42
<211> 20
<212> PRT
<213> Homo sapiens

<400> 42

Gly Arg Ile Phe Leu Glu Val Leu Glu Ser Ser Val Ala Glu His Gly
1 5 10 15

Ala Arg Phe Gln
20

<210> 43
<211> 8
<212> PRT
<213> Homo sapiens

<400> 43

Ala Glu His Gly Ala Arg Phe Gln
1 5

<210> 44
<211> 12
<212> PRT
<213> Homo sapiens

<400> 44

Leu Leu Ala Ile Cys Asn Ala Asp Leu Gly Trp His
1 5 10

<210> 45
<211> 329
<212> PRT
<213> Homo sapiens

<400> 45

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

<210> 46
<211> 329
<212> PRT
<213> Homo sapiens

<400> 46

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 100 105 110

Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
 115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
 130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
 145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
 165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
 180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
 225 230 235 240

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
 260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

<210> 47
<211> 329
<212> PRT
<213> Homo sapiens

<400> 47

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

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

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

<210> 48
<211> 329
<212> PRT
<213> Homo sapiens

<400> 48

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser

50

55

60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
85 90 95

Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
100 105 110

Pro Ala Pro Glu Ala Glu Gly Ala Pro Ser Val Phe Leu Phe Pro Pro
115 120 125

Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
145 150 155 160

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
180 185 190

His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
195 200 205

Lys Ala Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
225 230 235 240

Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
260 265 270

Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
275 280 285

Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
290 295 300

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr

305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly
325

<210> 49
<211> 107
<212> PRT
<213> Homo sapiens

<400> 49

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
20 25 30

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

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 50
<211> 417
<212> PRT
<213> Homo sapiens

<220>
<221> SIGNAL
<222> (1)..(20)

<400> 50

Met Ala Arg Ala Met Ala Ala Ala Trp Pro Leu Leu Leu Val Ala Leu
1 5 10 15

Leu Val Leu Ser Trp Pro Pro Pro Gly Thr Gly Asp Val Val Val Gln
20 25 30

Ala Pro Thr Gln Val Pro Gly Phe Leu Gly Asp Ser Val Thr Leu Pro
35 40 45

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

Pro Ile Asn Thr Thr Leu Ile Cys Asn Val Thr Asn Ala Leu Gly Ala
305 310 315 320

Arg Gln Ala Glu Leu Thr Val Gln Val Lys Glu Gly Pro Pro Ser Glu
325 330 335

His Ser Gly Met Ser Arg Asn Ala Ile Ile Phe Leu Val Leu Gly Ile
340 345 350

Leu Val Phe Leu Ile Leu Leu Gly Ile Gly Ile Tyr Phe Tyr Trp Ser
355 360 365

Lys Cys Ser Arg Glu Val Leu Trp His Cys His Leu Cys Pro Ser Ser
370 375 380

Thr Glu His Ala Ser Ala Ser Ala Asn Gly His Val Ser Tyr Ser Ala
385 390 395 400

Val Ser Arg Glu Asn Ser Ser Ser Gln Asp Pro Gln Thr Glu Gly Thr
405 410 415

Arg

<210> 51
<211> 372
<212> PRT
<213> Homo sapiens

<220>
<221> SIGNAL
<222> (1)..(27)

<400> 51

Met Ala Arg Ala Met Ala Ala Ala Trp Pro Leu Leu Leu Val Ala Leu
1 5 10 15

Leu Val Leu Ser Trp Pro Pro Pro Gly Thr Gly Asp Val Val Val Gln
20 25 30

Ala Pro Thr Gln Val Pro Gly Phe Leu Gly Asp Ser Val Thr Leu Pro
35 40 45

Cys Tyr Leu Gln Val Pro Asn Met Glu Val Thr His Val Ser Gln Leu
50 55 60

Thr Trp Ala Arg His Gly Glu Ser Gly Ser Met Ala Val Phe His Gln
65 70 75 80

Thr	Gln	Gly	Pro	Ser	Tyr	Ser	Glu	Ser	Lys	Arg	Leu	Glu	Phe	Val	Ala	
				85					90					95		
Ala	Arg	Leu	Gly	Ala	Glu	Leu	Arg	Asn	Ala	Ser	Leu	Arg	Met	Phe	Gly	
			100					105					110			
Leu	Arg	Val	Glu	Asp	Glu	Gly	Asn	Tyr	Thr	Cys	Leu	Phe	Val	Thr	Phe	
		115					120					125				
Pro	Gln	Gly	Ser	Arg	Ser	Val	Asp	Ile	Trp	Leu	Arg	Val	Leu	Ala	Lys	
		130				135						140				
Pro	Gln	Asn	Thr	Ala	Glu	Val	Gln	Lys	Val	Gln	Leu	Thr	Gly	Glu	Pro	
145					150					155					160	
Val	Pro	Met	Ala	Arg	Cys	Val	Ser	Thr	Gly	Gly	Arg	Pro	Pro	Ala	Gln	
				165					170					175		
Ile	Thr	Trp	His	Ser	Asp	Leu	Gly	Gly	Met	Pro	Asn	Thr	Ser	Gln	Val	
			180					185					190			
Pro	Gly	Phe	Leu	Ser	Gly	Thr	Val	Thr	Val	Thr	Ser	Leu	Trp	Ile	Leu	
		195					200					205				
Val	Pro	Ser	Ser	Gln	Val	Asp	Gly	Lys	Asn	Val	Thr	Cys	Lys	Val	Glu	
		210				215					220					
His	Glu	Ser	Phe	Glu	Lys	Pro	Gln	Leu	Leu	Thr	Val	Asn	Leu	Thr	Val	
225					230					235					240	
Tyr	Tyr	Pro	Pro	Glu	Val	Ser	Ile	Ser	Gly	Tyr	Asp	Asn	Asn	Trp	Tyr	
				245					250					255		
Leu	Gly	Gln	Asn	Glu	Ala	Thr	Leu	Thr	Cys	Asp	Ala	Arg	Ser	Asn	Pro	
			260					265					270			
Glu	Pro	Thr	Gly	Tyr	Asn	Trp	Ser	Thr	Thr	Met	Gly	Pro	Leu	Pro	Pro	
		275					280					285				
Phe	Ala	Val	Ala	Gln	Gly	Ala	Gln	Leu	Leu	Ile	Arg	Pro	Val	Asp	Lys	
	290					295					300					
Pro	Ile	Asn	Thr	Thr	Leu	Ile	Cys	Asn	Val	Thr	Asn	Ala	Leu	Gly	Ala	
305					310					315					320	
Arg	Gln	Ala	Glu	Leu	Thr	Val	Gln	Val	Lys	Glu	Gly	Pro	Pro	Ser	Glu	
				325					330					335		

His Ser Gly Thr Glu His Ala Ser Ala Ser Ala Asn Gly His Val Ser
340 345 350

Tyr Ser Ala Val Ser Arg Glu Asn Ser Ser Ser Gln Asp Pro Gln Thr
355 360 365

Glu Gly Thr Arg
370

<210> 52
<211> 364
<212> PRT
<213> Homo sapiens

<220>
<221> SIGNAL
<222> (1)..(27)

<400> 52

Met Ala Arg Ala Met Ala Ala Ala Trp Pro Leu Leu Leu Val Ala Leu
1 5 10 15

Leu Val Leu Ser Trp Pro Pro Pro Gly Thr Gly Asp Val Val Val Gln
20 25 30

Ala Pro Thr Gln Val Pro Gly Phe Leu Gly Asp Ser Val Thr Leu Pro
35 40 45

Cys Tyr Leu Gln Val Pro Asn Met Glu Val Thr His Val Ser Gln Leu
50 55 60

Thr Trp Ala Arg His Gly Glu Ser Gly Ser Met Ala Val Phe His Gln
65 70 75 80

Thr Gln Gly Pro Ser Tyr Ser Glu Ser Lys Arg Leu Glu Phe Val Ala
85 90 95

Ala Arg Leu Gly Ala Glu Leu Arg Asn Ala Ser Leu Arg Met Phe Gly
100 105 110

Leu Arg Val Glu Asp Glu Gly Asn Tyr Thr Cys Leu Phe Val Thr Phe
115 120 125

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

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

Val Pro Met Ala Arg Cys Val Ser Thr Gly Gly Arg Pro Pro Ala Gln
165 170 175

Ile Thr Trp His Ser Asp Leu Gly Gly Met Pro Asn Thr Ser Gln Val
180 185 190

Pro Gly Phe Leu Ser Gly Thr Val Thr Val Thr Ser Leu Trp Ile Leu
195 200 205

Val Pro Ser Ser Gln Val Asp Gly Lys Asn Val Thr Cys Lys Val Glu
210 215 220

His Glu Ser Phe Glu Lys Pro Gln Leu Leu Thr Val Asn Leu Thr Val
225 230 235 240

Tyr Tyr Pro Pro Glu Val Ser Ile Ser Gly Tyr Asp Asn Asn Trp Tyr
245 250 255

Leu Gly Gln Asn Glu Ala Thr Leu Thr Cys Asp Ala Arg Ser Asn Pro
260 265 270

Glu Pro Thr Gly Tyr Asn Trp Ser Thr Thr Met Gly Pro Leu Pro Pro
275 280 285

Phe Ala Val Ala Gln Gly Ala Gln Leu Leu Ile Arg Pro Val Asp Lys
290 295 300

Pro Ile Asn Thr Thr Leu Ile Cys Asn Val Thr Asn Ala Leu Gly Ala
305 310 315 320

Arg Gln Ala Glu Leu Thr Val Gln Val Lys Gly Thr Glu His Ala Ser
325 330 335

Ala Ser Ala Asn Gly His Val Ser Tyr Ser Ala Val Ser Arg Glu Asn
340 345 350

Ser Ser Ser Gln Asp Pro Gln Thr Glu Gly Thr Arg
355 360

<210> 53
<211> 392
<212> PRT
<213> Homo sapiens

<220>
<221> SIGNAL
<222> (1)..(27)

<400> 53

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

Leu	Gly	Gln	Asn	Glu	Ala	Thr	Leu	Thr	Cys	Asp	Ala	Arg	Ser	Asn	Pro	
			260				265						270			
Glu	Pro	Thr	Gly	Tyr	Asn	Trp	Ser	Thr	Thr	Met	Gly	Pro	Leu	Pro	Pro	
			275				280				285					
Phe	Ala	Val	Ala	Gln	Gly	Ala	Gln	Leu	Leu	Ile	Arg	Pro	Val	Asp	Lys	
			290				295				300					
Pro	Ile	Asn	Thr	Thr	Leu	Ile	Cys	Asn	Val	Thr	Asn	Ala	Leu	Gly	Ala	
305					310					315					320	
Arg	Gln	Ala	Glu	Leu	Thr	Val	Gln	Val	Lys	Glu	Gly	Pro	Pro	Ser	Glu	
				325				330				335				
His	Ser	Gly	Met	Ser	Arg	Asn	Ala	Ile	Ile	Phe	Leu	Val	Leu	Gly	Ile	
			340				345						350			
Leu	Val	Phe	Leu	Ile	Leu	Leu	Gly	Ile	Gly	Ile	Tyr	Phe	Tyr	Trp	Ser	
			355				360				365					
Lys	Cys	Ser	Arg	Glu	Val	Leu	Trp	His	Cys	His	Leu	Cys	Pro	Ser	Ser	
			370				375				380					
Glu	His	His	Gln	Ser	Cys	Arg	Asn									
385					390											