

SEQUENCE LISTING

<110> ONCOTHERAPY SCIENCE, INC.

<120> MELK EPIOTOPE PEPTIDES AND VACCINES CONTAINING THE SAME

<130> ONC-A0811P

<150> US 61/085,663

<151> 2008-08-01

<160> 94

<170> PatentIn version 3.4

<210> 1

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 1

Leu Tyr Val Leu Met Cys Gly Phe Leu

1

5

<210> 2

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 2

Asp Tyr Ile Ile Ser Gln Asp Arg Leu

1

5

<210> 3

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 3

His Tyr Asn Val Thr Thr Thr Arg Leu

1

5

<210> 4

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 4

Asp Tyr Asp Trp Cys Glu Asp Asp Leu

1

5

<210> 5

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 5

Lys Tyr Tyr Glu Leu His Glu Thr Ile

1

5

<210> 6

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 6

Glu Tyr Cys Pro Gly Gly Glu Leu Phe

1

5

<210> 7

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 7

Val Tyr Lys Arg Leu Val Glu Asp Ile

1

5

<210> 8

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 8

Gln Phe Glu Leu Glu Val Cys Gln Leu

1 5

<210> 9

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 9

Asp Phe Val Gln Lys Gly Tyr Thr Leu

1 5

<210> 10

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 10

Val Phe Gly Ser Leu Glu Arg Gly Leu

1

5

<210> 11

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 11

Arg Leu Val Asn Pro Asp Gln Leu Leu

1

5

<210> 12

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 12

Asp Phe Gly Lys Val Thr Met Gln Phe

1

5

<210> 13

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 13

Lys Gly Ala Lys Val Phe Gly Ser Leu

1

5

<210> 14

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 14

Arg Gly Lys Pro Val Arg Leu Arg Leu

1

5

<210> 15

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 15

Lys Asn Gln His Lys Arg Glu Ile Leu

1

5

<210> 16

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 16

Lys Trp Leu Ser Pro Ser Ser Ile Leu

1

5

<210> 17

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 17

Lys Tyr Trp Thr Glu Ser Asn Gly Val

1 5

<210> 18

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 18

Arg Cys Arg Ser Val Glu Leu Asp Leu

1 5

<210> 19

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 19

Lys Leu Lys Leu Ile Asp Phe Gly Leu

1 5

<210> 20

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 20

Leu Leu Asn Glu Ile Met Ser Ile Leu

1 5

<210> 21

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 21

Thr Ala Asn Lys Ile Phe Met Val Leu

1 5

<210> 22

<211> 9

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 22

Lys Tyr Asp Val Pro Lys Trp Leu Ser

1 5

<210> 23

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 23

Val Tyr Lys Arg Leu Val Glu Asp Ile Leu
1 5 10

<210> 24

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 24

Gln Tyr Asp His Leu Thr Ala Thr Tyr Leu
1 5 10

<210> 25

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 25

Glu Tyr His Lys Leu Lys Leu Ile Asp Phe
1 5 10

<210> 26

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 26

Leu Phe Asp Glu Tyr His Lys Leu Lys Leu
1 5 10

<210> 27

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 27

Arg Gly Leu Asp Lys Val Ile Thr Val Leu

1 5 10

<210> 28

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 28

Lys Trp Leu Ser Pro Ser Ser Ile Leu Leu

1 5 10

<210> 29

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 29

Lys Thr Glu Ile Glu Ala Leu Lys Asn Leu

1 5 10

<210> 30

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 30

Arg Asn Asn Arg Gln Thr Met Glu Asp Leu

1 5 10

<210> 31

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 31

Arg Gly Lys Tyr Asp Val Pro Lys Trp Leu

1 5 10

<210> 32

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 32

Lys Gly Asp Ala Trp Val Tyr Lys Arg Leu

1 5 10

<210> 33

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 33

Asp Tyr Asn Tyr Pro Val Glu Trp Gln Ser

1 5 10

<210> 34

<211> 10

<212> PRT

<213> Artificial

<220>

<223> An artificially synthesized peptide

<400> 34

Arg Tyr Thr Thr Pro Ser Lys Ala Arg Asn

1 5 10

<210> 35

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 35

Leu Leu Leu Gln Gln Met Leu Gln Val

1 5

<210> 36

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 36

Leu Leu Phe Asp Glu Tyr His Lys Leu

1 5

<210> 37

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 37

Ile Met Gln Asp Tyr Asn Tyr Pro Val

1 5

<210> 38

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 38

Arg Leu Ser Glu Glu Glu Thr Arg Val

1

5

<210> 39

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 39

Lys Leu Ile Asp Phe Gly Leu Cys Ala

1

5

<210> 40

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 40

Phe Leu Pro Phe Asp Asp Asp Asn Val

1 5

<210> 41

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 41

Leu Leu Asn Glu Ile Met Ser Ile Leu

1 5

<210> 42

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 42

Lys Ile Met Arg Gly Lys Tyr Asp Val

1

5

<210> 43

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 43

Gln Ile Val Ser Ala Val Ala Tyr Val

1

5

<210> 44

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 44

Trp Gln Tyr Asp His Leu Thr Ala Thr

1

5

<210> 45

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 45

Trp Leu Ser Pro Ser Ser Ile Leu Leu

1 5

<210> 46

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 46

Trp Ser Met Gly Ile Leu Leu Tyr Val

1 5

<210> 47

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 47

Gln Leu Leu Asn Glu Ile Met Ser Ile

1 5

<210> 48

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 48

Tyr Leu Leu Leu Leu Ala Lys Lys Ala

1 5

<210> 49

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 49

Ser Leu Trp Gln Tyr Asp His Leu Thr

1 5

<210> 50

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 50

Lys Leu His Tyr Asn Val Thr Thr Thr

1 5

<210> 51

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 51

Asn Leu Leu Asn His Pro Trp Ile Met

1

5

<210> 52

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 52

Lys Ile Phe Met Val Leu Glu Tyr Cys

1

5

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 53

Ile Leu Thr Gly Glu Met Val Ala Ile

1 5

<210> 54

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 54

Thr Leu Gly Ser Asp Leu Pro Arg Ile

1 5

<210> 55

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 55

Val Thr Met Gln Phe Glu Leu Glu Val

1

5

<210> 56

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 56

Phe Ile His Leu Asp Asp Asp Cys Val

1

5

<210> 57

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 57

Ser Leu Ala Tyr Ala Ala Pro Glu Leu

1 5

<210> 58

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 58

Arg Leu Val Asn Pro Asp Gln Leu Leu

1 5

<210> 59

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 59

Asn Val Tyr Thr Pro Lys Ser Ala Val

1 5

<210> 60

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 60

Gln Leu Tyr His Val Leu Glu Thr Ala

1

5

<210> 61

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 61

Ser Leu Thr Pro Ala Leu Cys Arg Thr

1

5

<210> 62

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 62

Arg Gly Leu Asp Lys Val Ile Thr Val

1 5

<210> 63

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 63

Lys Leu Lys Leu Ile Asp Phe Gly Leu

1 5

<210> 64

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 64

Ser Met Gly Ile Leu Leu Tyr Val Leu

1 5

<210> 65

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 65

Ile Leu Thr Thr Pro Asn Arg Tyr Thr

1 5

<210> 66

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 66

Ser Ile Leu Leu Leu Gln Gln Met Leu

1

5

<210> 67

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 67

Gln Thr Met Glu Asp Leu Ile Ser Leu

1

5

<210> 68

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 68

Ile Leu Leu Leu Gln Gln Met Leu Gln Val
1 5 10

<210> 69

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 69

Phe Met Phe Pro Glu Pro Lys Thr Pro Val
1 5 10

<210> 70

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 70

Ile Leu Pro Lys Lys His Val Asp Phe Val

1 5 10

<210> 71

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 71

Trp Leu Ser Pro Ser Ser Ile Leu Leu Leu

1 5 10

<210> 72

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 72

Trp Ile Met Gln Asp Tyr Asn Tyr Pro Val

1 5 10

<210> 73

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 73

Met Gln Phe Glu Leu Glu Val Cys Gln Leu

1 5 10

<210> 74

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 74

Asn Leu Leu Phe Asp Glu Tyr His Lys Leu

1 5 10

<210> 75

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 75

Arg Gln Ile Val Ser Ala Val Ala Tyr Val

1 5 10

<210> 76

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 76

Val Val Phe Arg Gln Ile Val Ser Ala Val

1 5 10

<210> 77

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 77

Ile Met Ser Ile Leu Pro Lys Lys His Val

1 5 10

<210> 78

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 78

Leu Leu Tyr Val Leu Met Cys Gly Phe Leu

1 5 10

<210> 79

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 79

Lys Val Thr Met Gln Phe Glu Leu Glu Val

1 5 10

<210> 80

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 80

Gln Leu Leu Asn Glu Ile Met Ser Ile Leu

1 5 10

<210> 81

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 81

Arg Leu Val Glu Asp Ile Leu Ser Ser Cys

1 5 10

<210> 82

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 82

Ser Leu Trp Gln Tyr Asp His Leu Thr Ala

1 5 10

<210> 83

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 83

Leu Glu Thr Ala Asn Lys Ile Phe Met Val

1 5 10

<210> 84

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 84

Gln Leu Gln Lys Pro Asp Val Val Gly Ile

1 5 10

<210> 85

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 85

Arg Leu Ser Glu Glu Glu Thr Arg Val Val

1 5 10

<210> 86

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 86

Ala Leu Cys Arg Thr Pro Ala Asn Lys Leu

1 5 10

<210> 87

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 87

Trp Gln Ser Lys Asn Pro Phe Ile His Leu

1 5 10

<210> 88

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 88

Thr Ile Gly Thr Gly Gly Phe Ala Lys Val

1 5 10

<210> 89

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 89

Met Leu Gln Val Asp Pro Lys Lys Arg Ile

1 5 10

<210> 90

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 90

Val Glu Trp Gln Ser Lys Asn Pro Phe Ile

1 5 10

<210> 91

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 91

Trp Val Tyr Lys Arg Leu Val Glu Asp Ile

1 5 10

<210> 92

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> An artificially synthesized peptide

<400> 92

Ile Leu Thr Thr Pro Asn Arg Tyr Thr Thr

1 5 10

<210> 93

<211> 2501

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (139)..(2094)

<400> 93

cgaaaagatt cttaggaacg ccgtaccagc cgcgtctctc aggacagcag gcccctgtcc 60

ttctgtcggg cgccgctcag ccgtgccctc cgcccctcag gttctttttc taattccaaa 120

taaacttgca agaggact atg aaa gat tat gat gaa ctt ctc aaa tat tat 171

Met Lys Asp Tyr Asp Glu Leu Leu Lys Tyr Tyr

1	5	10	
gaa tta cat gaa act att ggg aca ggt ggc ttt gca aag gtc aaa ctt			219
Glu Leu His Glu Thr Ile Gly Thr Gly Gly Phe Ala Lys Val Lys Leu			
15	20	25	
gcc tgc cat atc ctt act gga gag atg gta gct ata aaa atc atg gat			267
Ala Cys His Ile Leu Thr Gly Glu Met Val Ala Ile Lys Ile Met Asp			
30	35	40	
aaa aac aca cta ggg agt gat ttg ccc cgg atc aaa acg gag att gag			315
Lys Asn Thr Leu Gly Ser Asp Leu Pro Arg Ile Lys Thr Glu Ile Glu			
45	50	55	
gcc ttg aag aac ctg aga cat cag cat ata tgt caa ctc tac cat gtg			363
Ala Leu Lys Asn Leu Arg His Gln His Ile Cys Gln Leu Tyr His Val			
60	65	70	75
cta gag aca gcc aac aaa ata ttc atg gtt ctt gag tac tgc cct gga			411
Leu Glu Thr Ala Asn Lys Ile Phe Met Val Leu Glu Tyr Cys Pro Gly			
80	85	90	
gga gag ctg ttt gac tat ata att tcc cag gat cgc ctg tca gaa gag			459
Gly Glu Leu Phe Asp Tyr Ile Ile Ser Gln Asp Arg Leu Ser Glu Glu			
95	100	105	
gag acc cgg gtt gtc ttc cgt cag ata gta tct gct gtt gct tat gtg			507
Glu Thr Arg Val Val Phe Arg Gln Ile Val Ser Ala Val Ala Tyr Val			
110	115	120	

cac agc cag ggc tat gct cac agg gac ctc aag cca gaa aat ttg ctg 555
His Ser Gln Gly Tyr Ala His Arg Asp Leu Lys Pro Glu Asn Leu Leu

125 130 135

ttt gat gaa tat cat aaa tta aag ctg att gac ttt ggt ctc tgt gca 603
Phe Asp Glu Tyr His Lys Leu Lys Leu Ile Asp Phe Gly Leu Cys Ala

140 145 150 155

aaa ccc aag ggt aac aag gat tac cat cta cag aca tgc tgt ggg agt 651
Lys Pro Lys Gly Asn Lys Asp Tyr His Leu Gln Thr Cys Cys Gly Ser

160 165 170

ctg gct tat gca gca cct gag tta ata caa ggc aaa tca tat ctt gga 699
Leu Ala Tyr Ala Ala Pro Glu Leu Ile Gln Gly Lys Ser Tyr Leu Gly

175 180 185

tca gag gca gat gtt tgg agc atg ggc ata ctg tta tat gtt ctt atg 747
Ser Glu Ala Asp Val Trp Ser Met Gly Ile Leu Leu Tyr Val Leu Met

190 195 200

tgt gga ttt cta cca ttt gat gat gat aat gta atg gct tta tac aag 795
Cys Gly Phe Leu Pro Phe Asp Asp Asp Asn Val Met Ala Leu Tyr Lys

205 210 215

aag att atg aga gga aaa tat gat gtt ccc aag tgg ctc tct ccc agt 843
Lys Ile Met Arg Gly Lys Tyr Asp Val Pro Lys Trp Leu Ser Pro Ser

220 225 230 235

agc att ctg ctt ctt caa caa atg ctg cag gtg gac cca aag aaa cgg 891
Ser Ile Leu Leu Leu Gln Gln Met Leu Gln Val Asp Pro Lys Lys Arg

240	245	250	
att tct atg aaa aat cta ttg aac cat ccc tgg atc atg caa gat tac			939
Ile Ser Met Lys Asn Leu Leu Asn His Pro Trp Ile Met Gln Asp Tyr			
255	260	265	
aac tat cct gtt gag tgg caa agc aag aat cct ttt att cac ctc gat			987
Asn Tyr Pro Val Glu Trp Gln Ser Lys Asn Pro Phe Ile His Leu Asp			
270	275	280	
gat gat tgc gta aca gaa ctt tct gta cat cac aga aac aac agg caa			1035
Asp Asp Cys Val Thr Glu Leu Ser Val His His Arg Asn Asn Arg Gln			
285	290	295	
aca atg gag gat tta att tca ctg tgg cag tat gat cac ctc acg gct			1083
Thr Met Glu Asp Leu Ile Ser Leu Trp Gln Tyr Asp His Leu Thr Ala			
300	305	310	315
acc tat ctt ctg ctt cta gcc aag aag gct cgg gga aaa cca gtt cgt			1131
Thr Tyr Leu Leu Leu Leu Ala Lys Lys Ala Arg Gly Lys Pro Val Arg			
320	325	330	
tta agg ctt tct tct ttc tcc tgt gga caa gcc agt gct acc cca ttc			1179
Leu Arg Leu Ser Ser Phe Ser Cys Gly Gln Ala Ser Ala Thr Pro Phe			
335	340	345	
aca gac atc aag tca aat aat tgg agt ctg gaa gat gtg acc gca agt			1227
Thr Asp Ile Lys Ser Asn Asn Trp Ser Leu Glu Asp Val Thr Ala Ser			
350	355	360	

gat aaa aat tat gtg gcg gga tta ata gac tat gat tgg tgt gaa gat 1275
Asp Lys Asn Tyr Val Ala Gly Leu Ile Asp Tyr Asp Trp Cys Glu Asp
365 370 375

tac tgg aca gaa tca aat ggg gtg gaa tct aaa tca tta act cca gcc 1371
Tyr Trp Thr Glu Ser Asn Gly Val Glu Ser Lys Ser Leu Thr Pro Ala
400 405 410

act cct aag tct gct gta aag aat gaa gag tac ttt atg ttt cct gag 1467
Thr Pro Lys Ser Ala Val Lys Asn Glu Glu Tyr Phe Met Phe Pro Glu
430 435 440

acg cca aat cgt tac act aca ccc tca aaa gct aga aac cag tgc ctg 1563
Thr Pro Asn Arg Tyr Thr Thr Pro Ser Lys Ala Arg Asn Gln Cys Leu
460 465 470 475

480	485	490	
tta atg aca ggt gtc att agc cct gag agg cgg tgc cgc tca gtg gaa			1659
Leu Met Thr Gly Val Ile Ser Pro Glu Arg Arg Cys Arg Ser Val Glu			
495	500	505	
ttg gat ctc aac caa gca cat atg gag gag act cca aaa aga aag gga			1707
Leu Asp Leu Asn Gln Ala His Met Glu Glu Thr Pro Lys Arg Lys Gly			
510	515	520	
gcc aaa gtg ttt ggg agc ctt gaa agg ggg ttg gat aag gtt atc act			1755
Ala Lys Val Phe Gly Ser Leu Glu Arg Gly Leu Asp Lys Val Ile Thr			
525	530	535	
gtg ctc acc agg agc aaa agg aag ggt tct gcc aga gac ggg ccc aga			1803
Val Leu Thr Arg Ser Lys Arg Lys Gly Ser Ala Arg Asp Gly Pro Arg			
540	545	550	555
aga cta aag ctt cac tat aat gtg act aca act aga tta gtg aat cca			1851
Arg Leu Lys Leu His Tyr Asn Val Thr Thr Thr Arg Leu Val Asn Pro			
560	565	570	
gat caa ctg ttg aat gaa ata atg tct att ctt cca aag aag cat gtt			1899
Asp Gln Leu Leu Asn Glu Ile Met Ser Ile Leu Pro Lys Lys His Val			
575	580	585	
gac ttt gta caa aag ggt tat aca ctg aag tgt caa aca cag tca gat			1947
Asp Phe Val Gln Lys Gly Tyr Thr Leu Lys Cys Gln Thr Gln Ser Asp			
590	595	600	

ttt ggg aaa gtg aca atg caa ttt gaa tta gaa gtg tgc cag ctt caa	1995
Phe Gly Lys Val Thr Met Gln Phe Glu Leu Glu Val Cys Gln Leu Gln	
605 610 615	
aaa ccc gat gtg gtg ggt atc agg agg cag cgg ctt aag ggc gat gcc	2043
Lys Pro Asp Val Val Gly Ile Arg Arg Gln Arg Leu Lys Gly Asp Ala	
620 625 630 635	
tgg gtt tac aaa aga tta gtg gaa gac atc cta tct agc tgc aag gta	2091
Trp Val Tyr Lys Arg Leu Val Glu Asp Ile Leu Ser Ser Cys Lys Val	
640 645 650	
taa ttgatggatt cttccatcct gccggatgag tgtgggtgtg atacagccta	2144
cataaagact gttatgatcg ctttgatttt aaagttcatt ggaactacca acttgtttct	2204
aaagagctat ctttaagacca atatctcttt gtttttaaac aaaagatatt attttgtgta	2264
tgaatctaaa tcaagcccat ctgtcattat gttactgtct tttttaatca tgtgggttttg	2324
tatattaata attgttgact ttcttagatt cacttccata tgtgaatgta agctcttaac	2384
tatgtctctt tgtaatgtgt aatttctttc tgaaataaaa ccatttgtga atataaaaaa	2444
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa	2501

<210> 94
 <211> 651
 <212> PRT

<213> Homo sapiens

<400> 94

Met Lys Asp Tyr Asp Glu Leu Leu Lys Tyr Tyr Glu Leu His Glu Thr
1 5 10 15

Ile Gly Thr Gly Gly Phe Ala Lys Val Lys Leu Ala Cys His Ile Leu
20 25 30

Thr Gly Glu Met Val Ala Ile Lys Ile Met Asp Lys Asn Thr Leu Gly
35 40 45

Ser Asp Leu Pro Arg Ile Lys Thr Glu Ile Glu Ala Leu Lys Asn Leu
50 55 60

Arg His Gln His Ile Cys Gln Leu Tyr His Val Leu Glu Thr Ala Asn
65 70 75 80

Lys Ile Phe Met Val Leu Glu Tyr Cys Pro Gly Gly Glu Leu Phe Asp
85 90 95

Tyr Ile Ile Ser Gln Asp Arg Leu Ser Glu Glu Glu Thr Arg Val Val
100 105 110

Phe Arg Gln Ile Val Ser Ala Val Ala Tyr Val His Ser Gln Gly Tyr
115 120 125

Ala His Arg Asp Leu Lys Pro Glu Asn Leu Leu Phe Asp Glu Tyr His
130 135 140

Lys Leu Lys Leu Ile Asp Phe Gly Leu Cys Ala Lys Pro Lys Gly Asn
145 150 155 160

Lys Asp Tyr His Leu Gln Thr Cys Cys Gly Ser Leu Ala Tyr Ala Ala
165 170 175

Pro Glu Leu Ile Gln Gly Lys Ser Tyr Leu Gly Ser Glu Ala Asp Val
180 185 190

Trp Ser Met Gly Ile Leu Leu Tyr Val Leu Met Cys Gly Phe Leu Pro
195 200 205

Phe Asp Asp Asp Asn Val Met Ala Leu Tyr Lys Lys Ile Met Arg Gly
210 215 220

Lys Tyr Asp Val Pro Lys Trp Leu Ser Pro Ser Ser Ile Leu Leu Leu
225 230 235 240

Gln Gln Met Leu Gln Val Asp Pro Lys Lys Arg Ile Ser Met Lys Asn
245 250 255

Leu Leu Asn His Pro Trp Ile Met Gln Asp Tyr Asn Tyr Pro Val Glu
260 265 270

Trp Gln Ser Lys Asn Pro Phe Ile His Leu Asp Asp Asp Cys Val Thr
275 280 285

Glu Leu Ser Val His His Arg Asn Asn Arg Gln Thr Met Glu Asp Leu
290 295 300

Ile Ser Leu Trp Gln Tyr Asp His Leu Thr Ala Thr Tyr Leu Leu Leu
305 310 315 320

Leu Ala Lys Lys Ala Arg Gly Lys Pro Val Arg Leu Arg Leu Ser Ser
325 330 335

Phe Ser Cys Gly Gln Ala Ser Ala Thr Pro Phe Thr Asp Ile Lys Ser
340 345 350

Asn Asn Trp Ser Leu Glu Asp Val Thr Ala Ser Asp Lys Asn Tyr Val
355 360 365

Ala Gly Leu Ile Asp Tyr Asp Trp Cys Glu Asp Asp Leu Ser Thr Gly
370 375 380

Ala Ala Thr Pro Arg Thr Ser Gln Phe Thr Lys Tyr Trp Thr Glu Ser
385 390 395 400

Asn Gly Val Glu Ser Lys Ser Leu Thr Pro Ala Leu Cys Arg Thr Pro
405 410 415

Ala Asn Lys Leu Lys Asn Lys Glu Asn Val Tyr Thr Pro Lys Ser Ala
420 425 430

Val Lys Asn Glu Glu Tyr Phe Met Phe Pro Glu Pro Lys Thr Pro Val
435 440 445

Asn Lys Asn Gln His Lys Arg Glu Ile Leu Thr Thr Pro Asn Arg Tyr
450 455 460

Thr Thr Pro Ser Lys Ala Arg Asn Gln Cys Leu Lys Glu Thr Pro Ile
465 470 475 480

Lys Ile Pro Val Asn Ser Thr Gly Thr Asp Lys Leu Met Thr Gly Val
485 490 495

Ile Ser Pro Glu Arg Arg Cys Arg Ser Val Glu Leu Asp Leu Asn Gln
500 505 510

Ala His Met Glu Glu Thr Pro Lys Arg Lys Gly Ala Lys Val Phe Gly
515 520 525

Ser Leu Glu Arg Gly Leu Asp Lys Val Ile Thr Val Leu Thr Arg Ser
530 535 540

Lys Arg Lys Gly Ser Ala Arg Asp Gly Pro Arg Arg Leu Lys Leu His
545 550 555 560

Tyr Asn Val Thr Thr Thr Arg Leu Val Asn Pro Asp Gln Leu Leu Asn
565 570 575

Glu Ile Met Ser Ile Leu Pro Lys Lys His Val Asp Phe Val Gln Lys
580 585 590

Gly Tyr Thr Leu Lys Cys Gln Thr Gln Ser Asp Phe Gly Lys Val Thr
595 600 605

Met Gln Phe Glu Leu Glu Val Cys Gln Leu Gln Lys Pro Asp Val Val
610 615 620

Gly Ile Arg Arg Gln Arg Leu Lys Gly Asp Ala Trp Val Tyr Lys Arg
625 630 635 640

Leu Val Glu Asp Ile Leu Ser Ser Cys Lys Val
645 650