

Fig. 1.

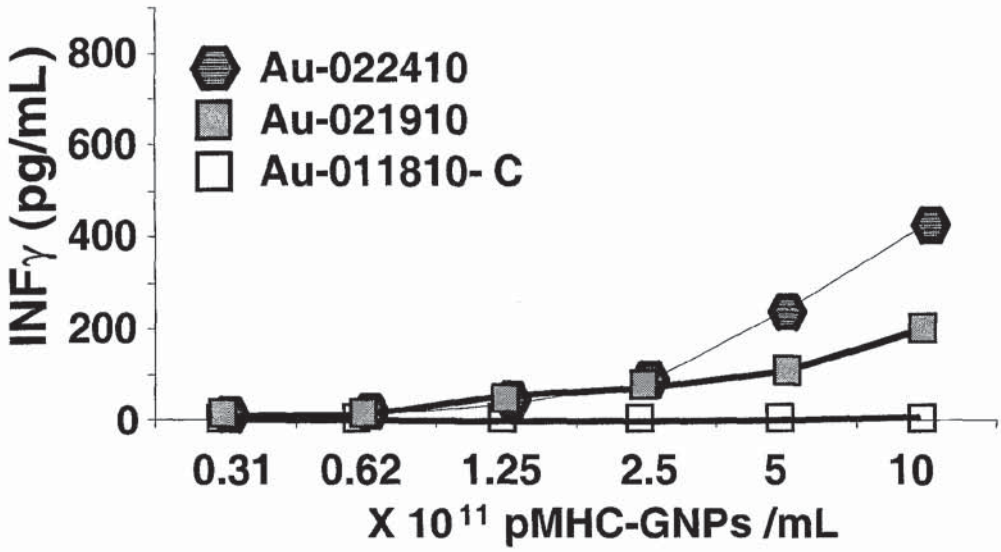

INFγ (pg/mL)
800
600
400
200
0
Au-022410
Au-021910
Au-011810- C
0.31
0.62
1.25
2.5
5
10
X 10 11 pMHC-GNPs /mL

Fig. 2.

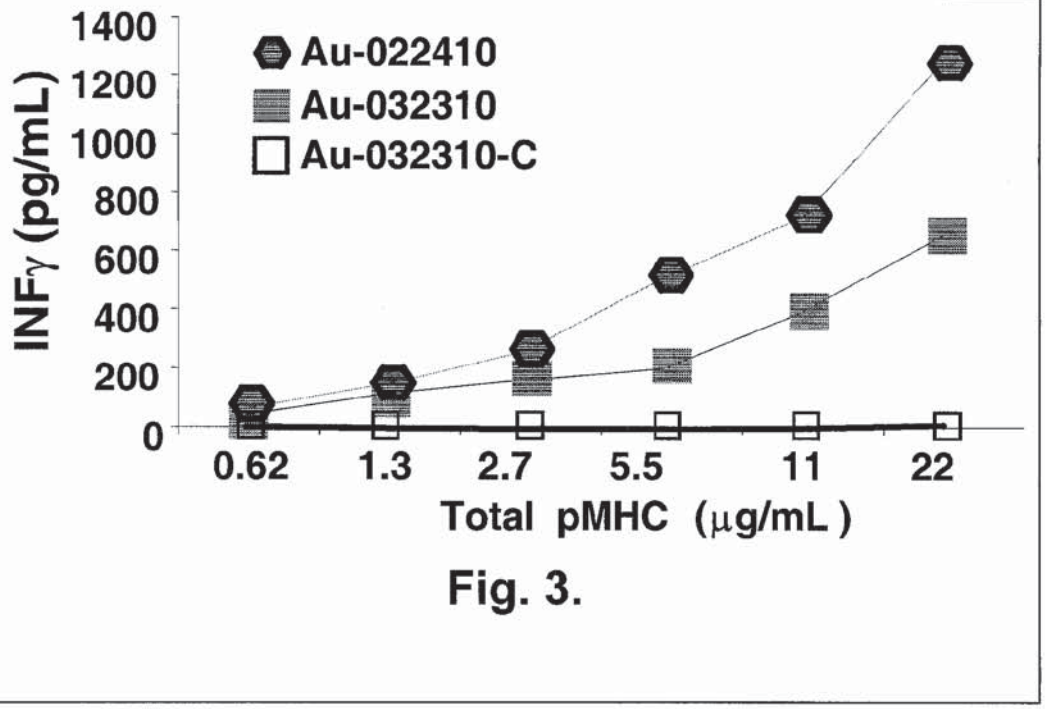

1400
1200
1000
800
600
400
200
0
INFγ (pg/mL)
Au-022410
Au-032310
Au-032310-C
0.62
1.3
2.7
5.5
11
22
Total pMHC (μg/mL)

Fig. 3.

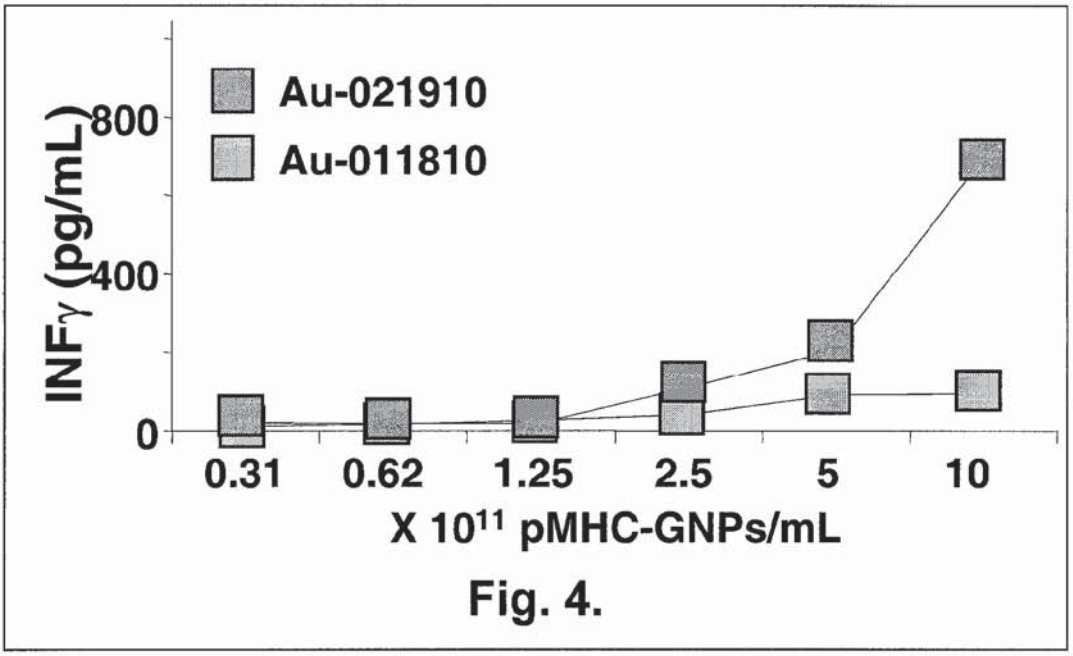

800
400
0
INFγ (pg/mL)
Au-021910
Au-011810
0.31
0.62
1.25
2.5
5
10
X 10^11 pMHC-GNPs/mL

Fig. 4.

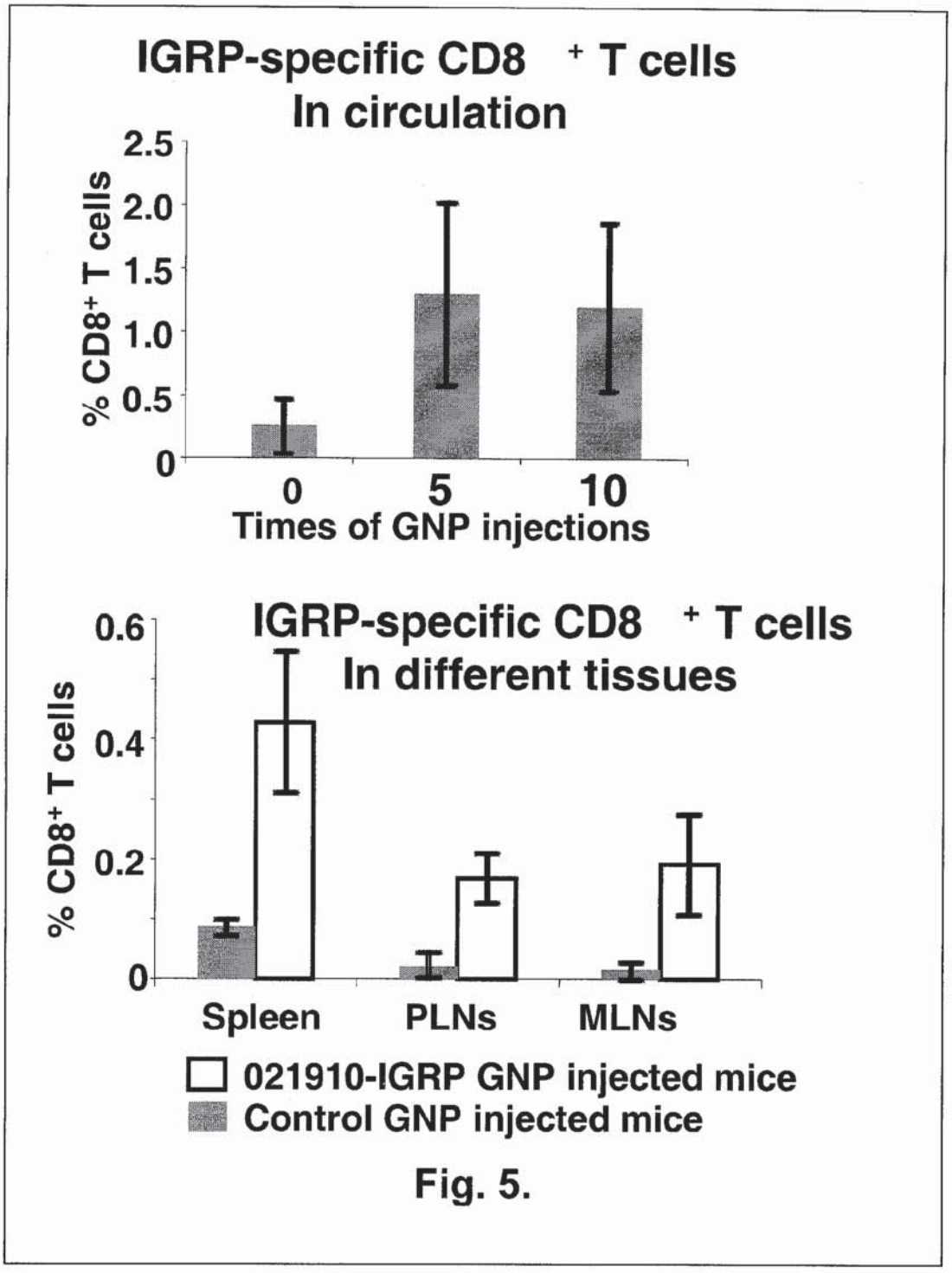

IGRP-specific CD8 + T cells
In circulation
% CD8+ T cells
2.5
2.0
1.5
1.0
0.5
0
0
5
10
Times of GNP injections
IGRP-specific CD8 + T cells
In different tissues
% CD8+ T cells
0.6
0.4
0.2
0
Spleen
PLNs
MLNs
021910-IGRP GNP injected mice
Control GNP injected mice

Fig. 5.

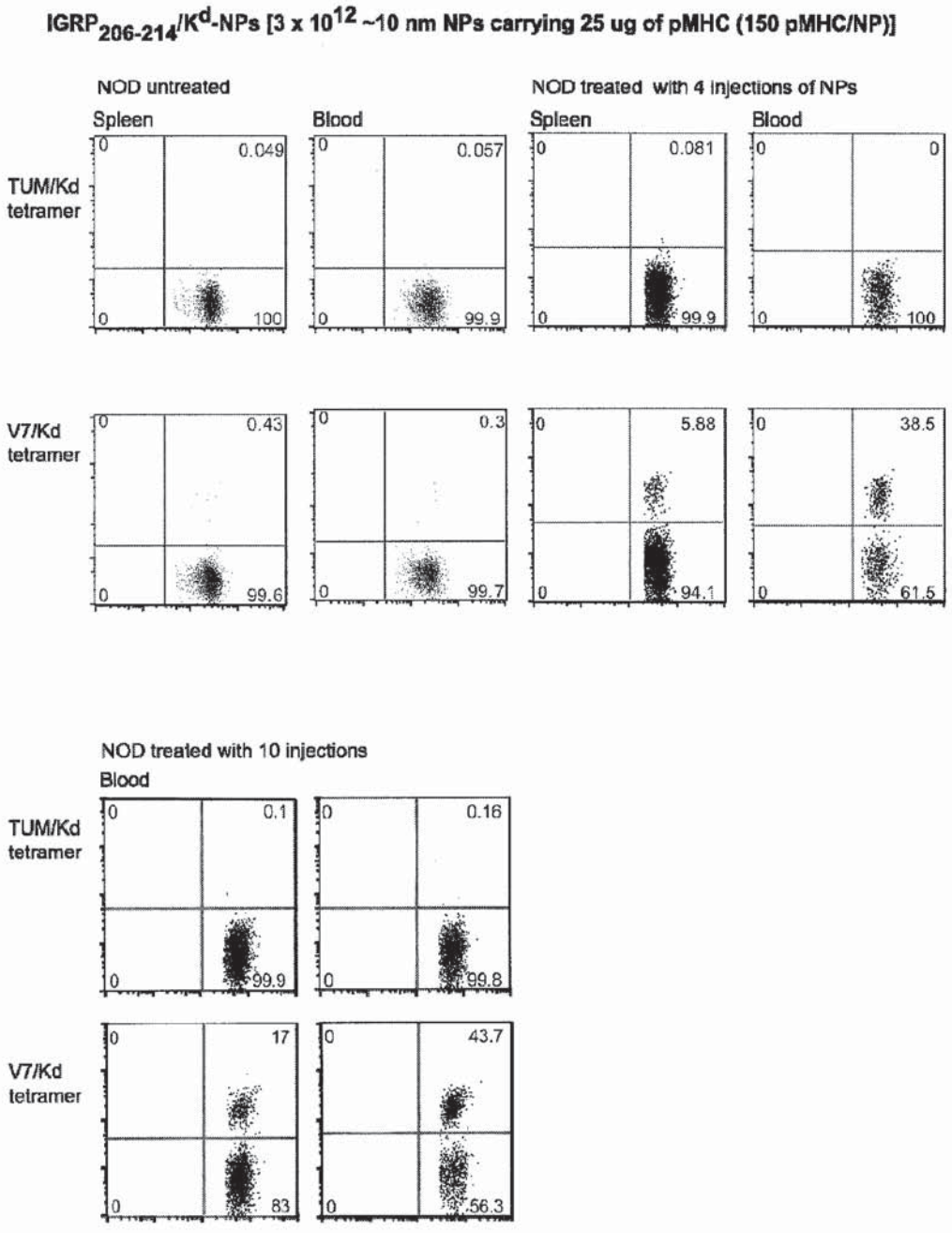
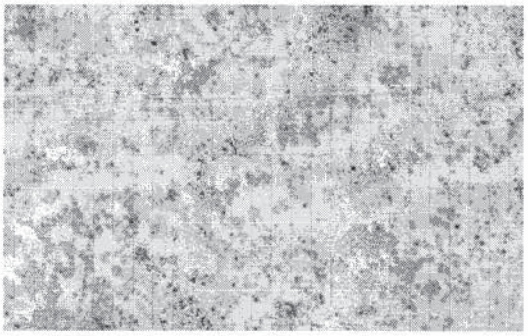

IGRP206-214/Kd-NPs [3 x 10^12 ~10 nm NPs carrying 25 ug of pMHC (150 pMHC/NP)]
NOD untreated
NOD treated with 4 injections of NPs
Spleen
Blood
Spleen
Blood
TUM/Kd tetramer
0.049
100
0.057
99.9
0.081
99.9
0
100
V7/Kd tetramer
0.43
99.6
0.3
99.7
5.88
94.1
38.5
61.5
NOD treated with 10 injections
Blood
TUM/Kd tetramer
0.1
99.9
0.16
99.8
V7/Kd tetramer
17
83
43.7
56.3

Fig. 6.

30,000x



40,000x

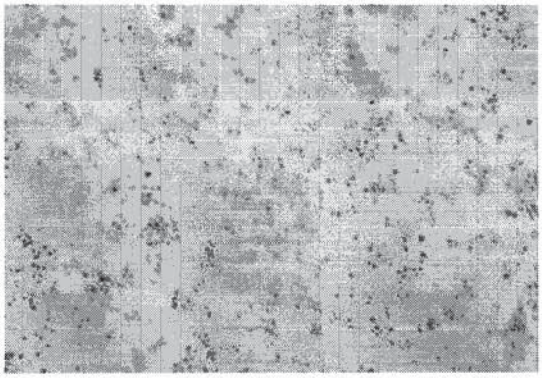
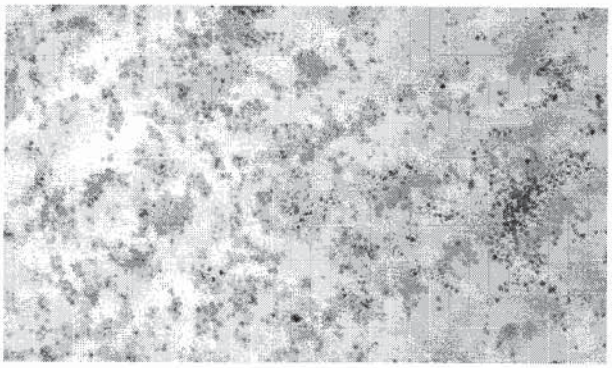


Fig. 7.

30,000x



40,000x

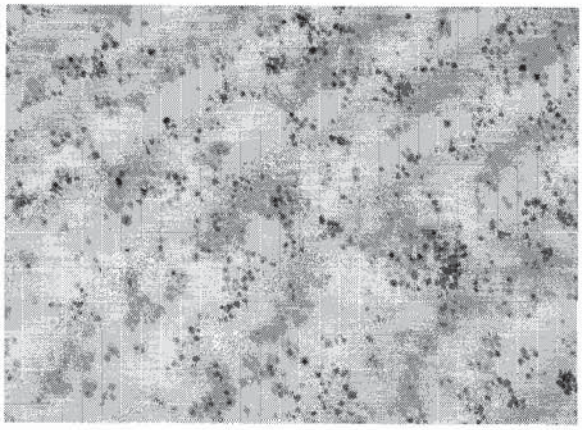


Fig. 8.

Fig. 9A.

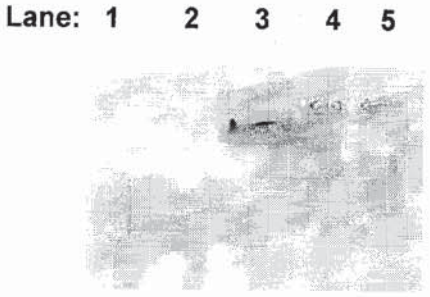


Fig. 9B.

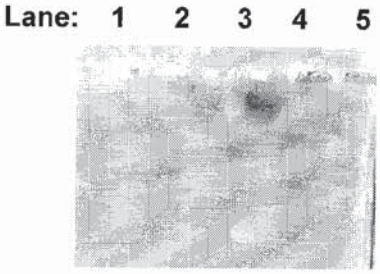


Fig. 9C.

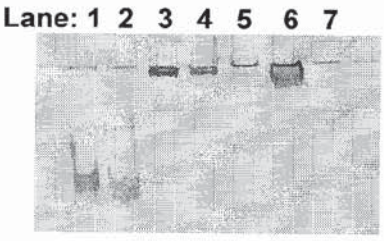


Fig. 9A-C

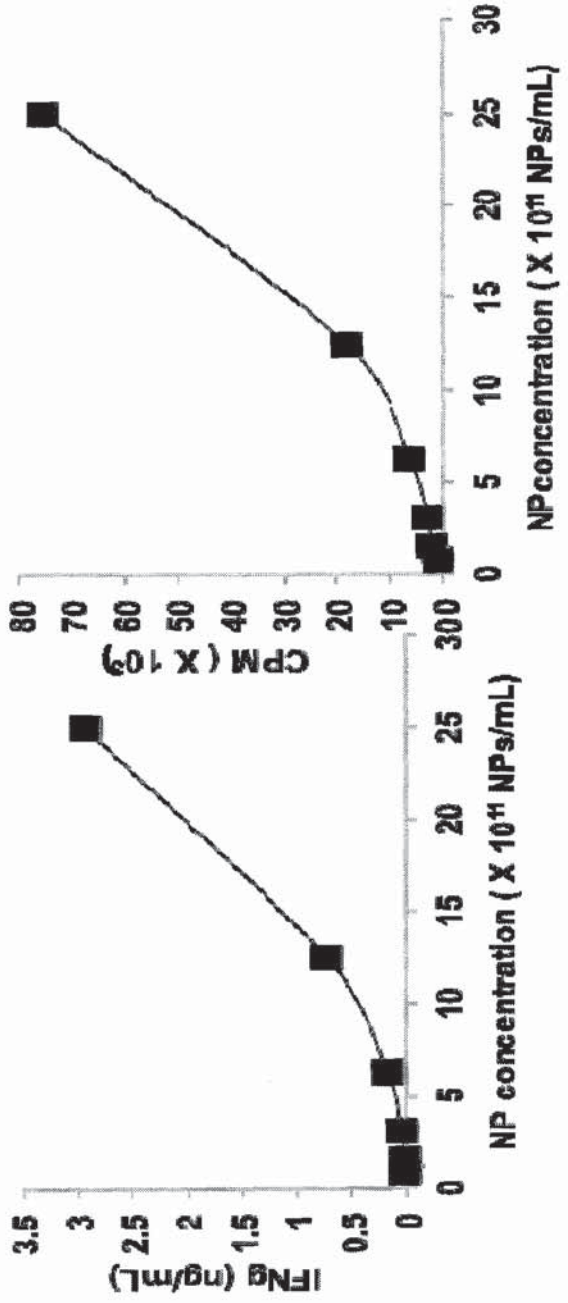

IFNg (ng/mL)
0
0.5
1
1.5
2
2.5
3
3.5
0
5
10
15
20
25
NP concentration (X 10^11 NPs/mL)
CPM (X 10^3)
10
20
30
40
50
60
70
80
0
5
10
15
20
25
30
NPconcentration (X 10^11 NPs/mL)

Fig. 10A.

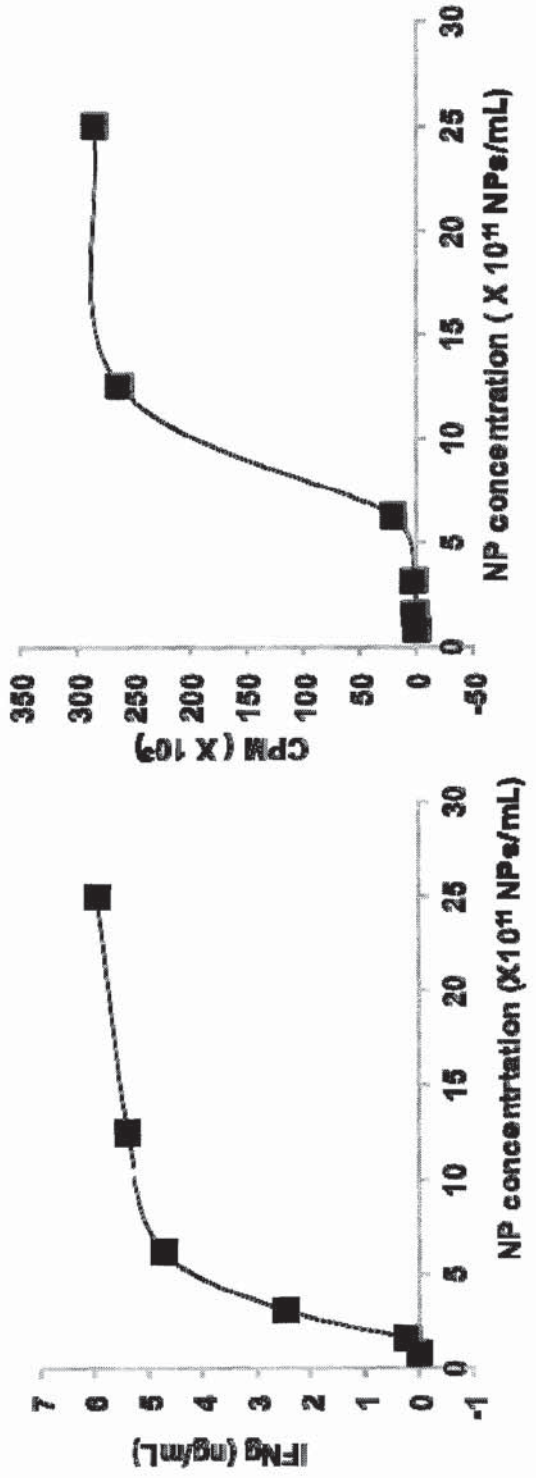

CPM (X 10³)
350
300
250
200
150
100
50
0
-50
0
5
10
15
20
25
30
NP concentration (X 10¹¹ NPs/mL)
IFNg (ng/mL)
7
6
5
4
3
2
1
0
-1
0
5
10
15
20
25
30
NP concentration (X10¹¹ NPs/mL)

Fig. 10B

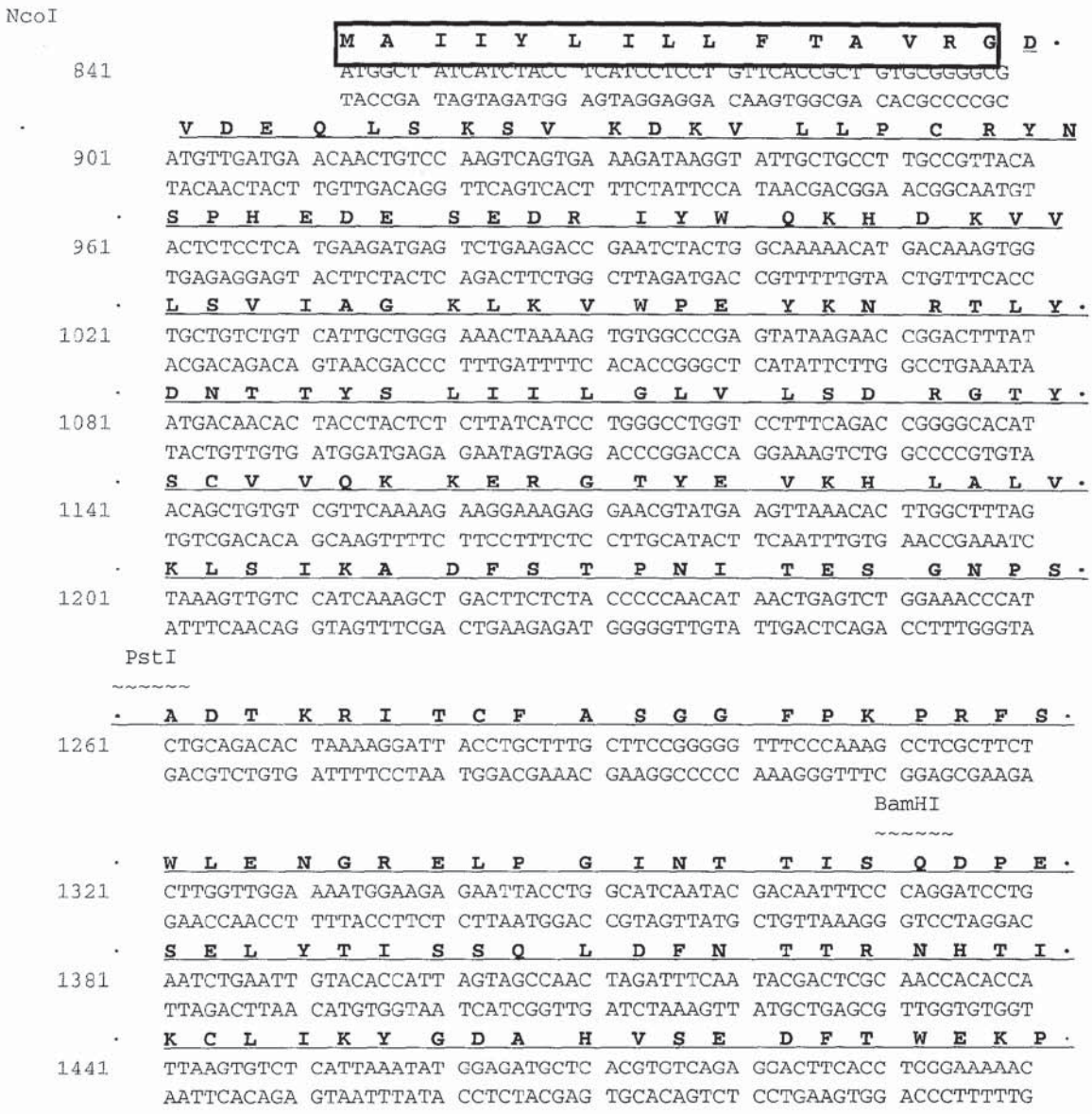

NcoI
M A I I Y L I L L F T A V R G D
841 ATGGCT ATCATCTACC TCATCCTCCT GTTCACCGCT GTGCGGGGCG
TACCGA TAGTAGATGG AGTAGGAGGA CAAGTGGCGA CACGCCCCGC
V D E Q L S K S V K D K V L L P C R Y N
901 ATGTTGATGA ACAACTGTCC AAGTCAGTGA AAGATAAGGT ATTGCTGCCT TGCCGTTACA
TACAACTACT TGTTGACAGG TTCAGTCACT TTCTATTCCA TAACGACGGA ACGGCAATGT
S P H E D E S E D R I Y W Q K H D K V V
961 ACTCTCCTCA TGAAGATGAG TCTGAAGACC GAATCTACTG GCAAAAACAT GACAAAGTGG
TGAGAGGAGT ACTTCTACTC AGACTTCTGG CTTAGATGAC CGTTTTTGTA CTGTTTCACC
L S V I A G K L K V W P E Y K N R T L Y
1021 TGCTGTCTGT CATTGCTGGG AAACTAAAAG TGTGGCCCGA GTATAAGAAC CGGACTTTAT
ACGACAGACA GTAACGACCC TTTGATTTTC ACACCGGGCT CATATTCTTG GCCTGAAATA
D N T T Y S L I I L G L V L S D R G T Y
1081 ATGACAACAC TACCTACTCT CTTATCATCC TGGGCCTGGT CCTTTCAGAC CGGGGCACAT
TACTGTTGTG ATGGATGAGA GAATAGTAGG ACCCGGACCA GGAAAGTCTG GCCCCGTGTA
S C V V Q K K E R G T Y E V K H L A L V
1141 ACAGCTGTGT CGTTCAAAAG AAGGAAAGAG GAACGTATGA AGTTAAACAC TTGGCTTTAG
TGTCGACACA GCAAGTTTTC TTCCTTTCTC CTTGCATACT TCAATTTGTG AACCGAAATC
K L S I K A D F S T P N I T E S G N P S
1201 TAAAGTTGTC CATCAAAGCT GACTTCTCTA CCCCCAACAT AACTGAGTCT GGAAACCCAT
ATTTCAACAG GTAGTTTCGA CTGAAGAGAT GGGGGTTGTA TTGACTCAGA CCTTTGGGTA
PstI
A D T K R I T C F A S G G F P K P R F S
1261 CTGCAGACAC TAAAAGGATT ACCTGCTTTG CTTCCGGGGG TTTCCCAAAG CCTCGCTTCT
GACGTCTGTG ATTTTCCTAA TGGACGAAAC GAAGGCCCCC AAAGGGTTTC GGAGCGAAGA
BamHI
W L E N G R E L P G I N T T I S Q D P E
1321 CTTGGTTGGA AAATGGAAGA GAATTACCTG GCATCAATAC GACAATTTCC CAGGATCCTG
GAACCAACCT TTTACCTTCT CTTAATGGAC CGTAGTTATG CTGTTAAAGG GTCCTAGGAC
S E L Y T I S S Q L D F N T T R N H T I
1381 AATCTGAATT GTACACCATT AGTAGCCAAC TAGATTTCAA TACGACTCGC AACCACACCA
TTAGACTTAA CATGTGGTAA TCATCGGTTG ATCTAAAGTT ATGCTGAGCG TTGGTGTGGT
K C L I K Y G D A H V S E D F T W E K P
1441 TTAAGTGTCT CATTAAATAT GGAGATGCTC ACGTGTCAGA GCACTTCACC TCGGAAAAAC
AATTCACAGA GTAATTTATA CCTCTACGAG TGCACAGTCT CCTGAAGTGG ACCCTTTTTG

Fig 11A

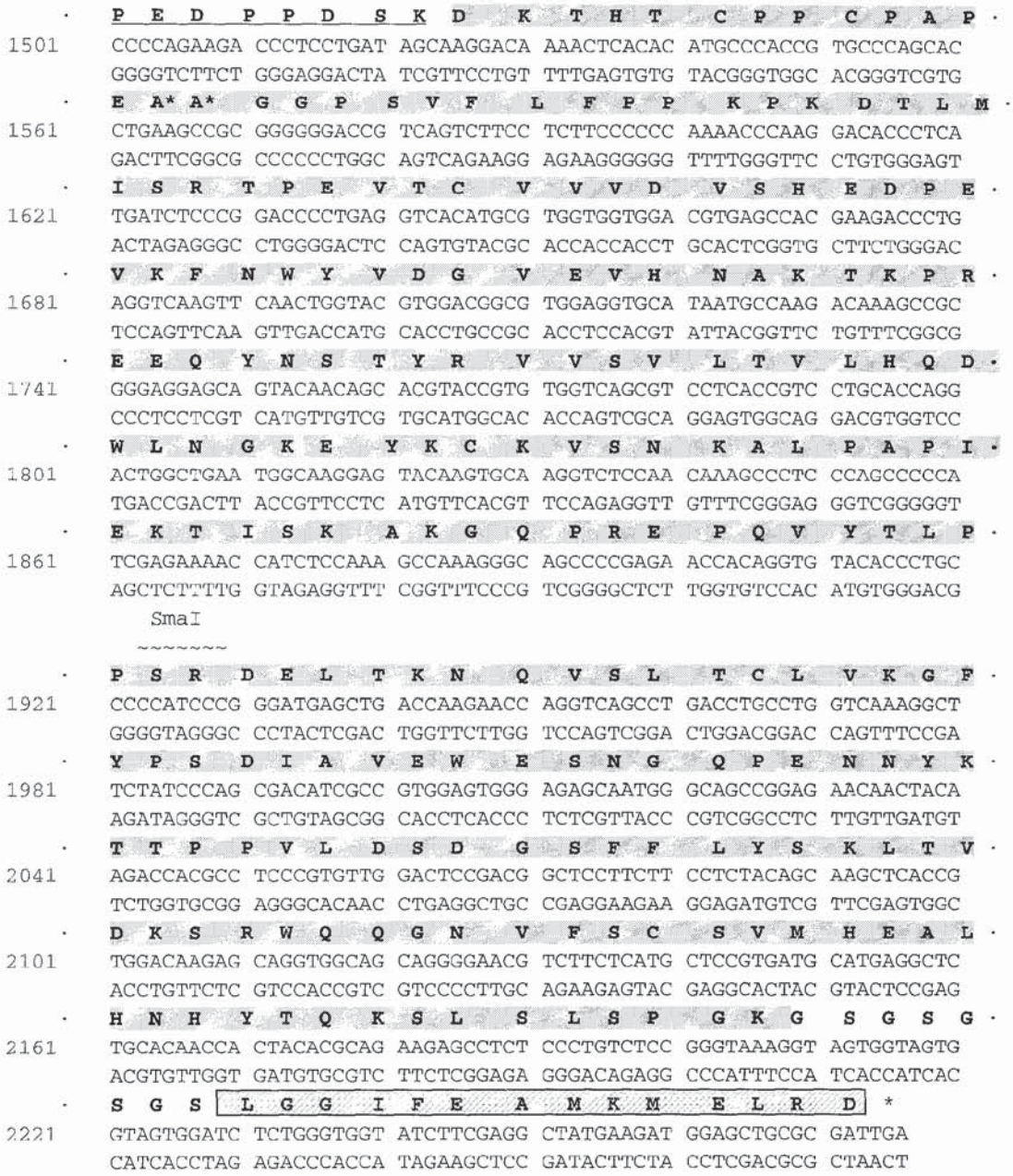

P E D P P D S K D K T H T C P P C P A P
1501 CCCCAGAAGA CCCTCCTGAT AGCAAGGACA AAACTCACAC ATGCCCACCG TGCCCAGCAC
GGGGTCTTCT GGGAGGACTA TCGTTCCTGT TTTGAGTGTG TACGGGTGGC ACGGGTCGTG
E A* A* G G P S V F L F P P K P K D T L M
1561 CTGAAGCCGC GGGGGGACCG TCAGTCTTCC TCTTCCCCCC AAAACCCAAG GACACCCTCA
GACTTCGGCG CCCCCCTGGC AGTCAGAAGG AGAAGGGGGG TTTTGGGTTC CTGTGGGAGT
I S R T P E V T C V V V D V S H E D P E
1621 TGATCTCCCG GACCCCTGAG GTCACATGCG TGGTGGTGGA CGTGAGCCAC GAAGACCCTG
ACTAGAGGGC CTGGGGACTC CAGTGTACGC ACCACCACCT GCACTCGGTG CTTCTGGGAC
V K F N W Y V D G V E V H N A K T K P R
1681 AGGTCAAGTT CAACTGGTAC GTGGACGGCG TGGAGGTGCA TAATGCCAAG ACAAAGCCGC
TCCAGTTCAA GTTGACCATG CACCTGCCGC ACCTCCACGT ATTACGGTTC TGTTTCGGCG
E E Q Y N S T Y R V V S V L T V L H Q D
1741 GGGAGGAGCA GTACAACAGC ACGTACCGTG TGGTCAGCGT CCTCACCGTC CTGCACCAGG
CCCTCCTCGT CATGTTGTCG TGCATGGCAC ACCAGTCGCA GGAGTGGCAG GACGTGGTCC
W L N G K E Y K C K V S N K A L P A P I
1801 ACTGGCTGAA TGGCAAGGAG TACAAGTGCA AGGTCTCCAA CAAAGCCCTC CCAGCCCCCA
TGACCGACTT ACCGTTCCTC ATGTTCACGT TCCAGAGGTT GTTTCGGGAG GGTCGGGGGT
E K T I S K A K G Q P R E P Q V Y T L P
1861 TCGAGAAAAC CATCTCCAAA GCCAAAGGGC AGCCCCGAGA ACCACAGGTG TACACCCTGC
AGCTCTTTTG GTAGAGGTTT CGGTTTCCCG TCGGGGCTCT TGGTGTCCAC ATGTGGGACG
SmaI
P S R D E L T K N Q V S L T C L V K G F
1921 CCCCATCCCG GGATGAGCTG ACCAAGAACC AGGTCAGCCT GACCTGCCTG GTCAAAGGCT
GGGGTAGGGC CCTACTCGAC TGGTTCTTGG TCCAGTCGGA CTGGACGGAC CAGTTTCCGA
Y P S D I A V E W E S N G Q P E N N Y K
1981 TCTATCCCAG CGACATCGCC GTGGAGTGGG AGAGCAATGG GCAGCCGGAG AACAACTACA
AGATAGGGTC GCTGTAGCGG CACCTCACCC TCTCGTTACC CGTCGGCCTC TTGTTGATGT
T T P P V L D S D G S F F L Y S K L T V
2041 AGACCACGCC TCCCGTGTTG GACTCCGACG GCTCCTTCTT CCTCTACAGC AAGCTCACCG
TCTGGTGCGG AGGGCACAAC CTGAGGCTGC CGAGGAAGAA GGAGATGTCG TTCGAGTGGC
D K S R W Q Q G N V F S C S V M H E A L
2101 TGGACAAGAG CAGGTGGCAG CAGGGGAACG TCTTCTCATG CTCCGTGATG CATGAGGCTC
ACCTGTTCTC GTCCACCGTC GTCCCCTTGC AGAAGAGTAC GAGGCACTAC GTACTCCGAG
H N H Y T Q K S L S L S P G K G S G S G
2161 TGCACAACCA CTACACGCAG AAGAGCCTCT CCCTGTCTCC GGGTAAAGGT AGTGGTAGTG
ACGTGTTGGT GATGTGCGTC TTCTCGGAGA GGGACAGAGG CCCATTTCCA TCACCATCAC
S G S L G G I F E A M K M E L R D *
2221 GTAGTGGATC TCTGGGTGGT ATCTTCGAGG CTATGAAGAT GGAGCTGCGC GATTGA
CATCACCTAG AGACCCACCA TAGAAGCTCC GATACTTCTA CCTCGACGCG CTAACT

Fig. 11B

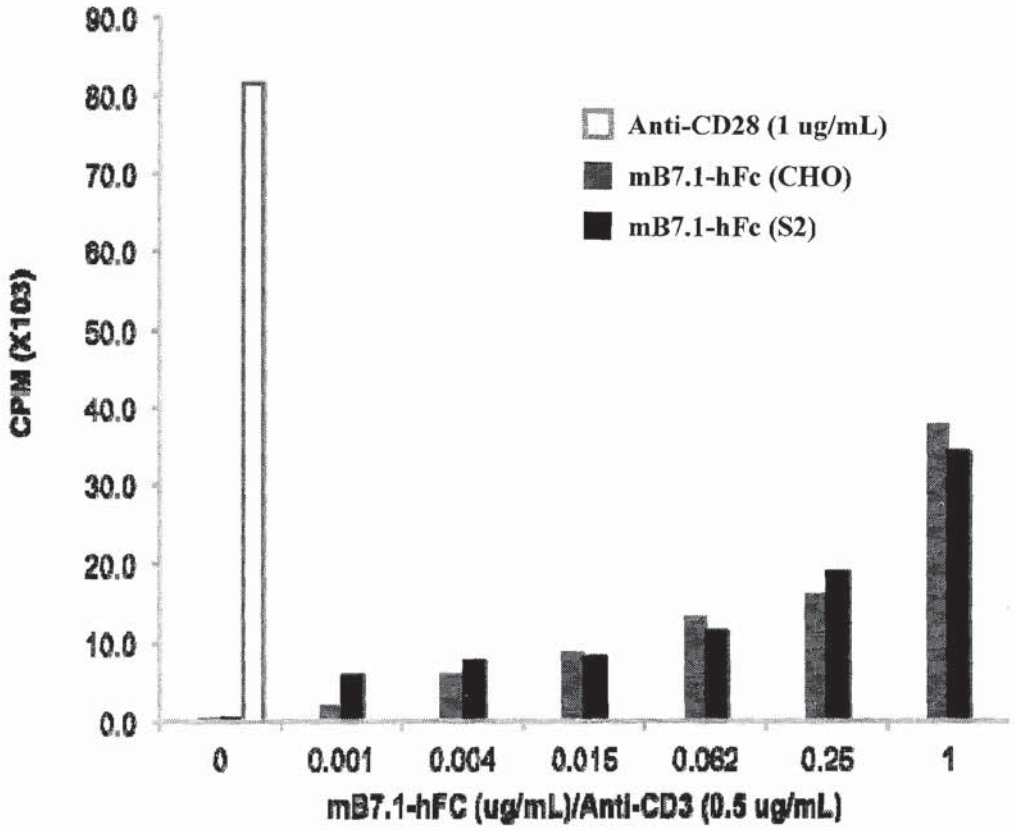

90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
CPM (X103)
Anti-CD28 (1 ug/mL)
mB7.1-hFc (CHO)
mB7.1-hFc (S2)
0
0.001
0.004
0.015
0.062
0.25
1
mB7.1-hFC (ug/mL)/Anti-CD3 (0.5 ug/mL)

Fig. 12

SEQUENCE LISTING

<110> UTI LIMITED PARTNERSHIP

<120> COMPOSITIONS AND METHODS FOR THE PREVENTION AND TREATMENT OF CANCER

<130> SG3778A

<140> PCT/EP2011/069931
<141> 2011-11-11

<150> 61/413,330
<151> 2010-11-12

<160> 105

<170> PatentIn version 3.5

<210> 1
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 1
Lys Ile Ser Val Ser Leu Pro Leu Ser Leu Ser Gln Ser Val Cys
1 5 10 15

<210> 2
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 2
Gln Leu Ser Lys Asp Thr Ser Val Leu Thr Phe Thr Phe Cys
1 5 10

<210> 3
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 3
Cys Ser Asp Ala His Pro Gly Asp Ser Ser Gly Asp Ser Ser Gly Leu
1 5 10 15

Asn

<210> 4
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 4
Arg Gly Glu Val Arg Gln Phe Thr Leu Arg His Trp Leu Lys Val
1 5 10 15

<210> 5
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 5
Gly Asp Tyr Leu Asn Asp Glu Ala Leu Trp Asn Lys Cys
1 5 10

<210> 6
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 6
Gly Lys Val Ile Asp Asp Asn Asp His Leu Ser Gln Glu Ile Cys
1 5 10 15

<210> 7
<211> 14
<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 7
Leu Met Ala Asn Ser Thr Trp Gly Tyr Pro Phe His Asp Gly
1 5 10

<210> 8
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 8
Leu Asn Val Val Pro Trp Asn Leu Thr Leu Phe Ser Ile Leu
1 5 10

<210> 9
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 9
Thr His Ser Phe Thr Ala Phe Lys Arg His Val Cys
1 5 10

<210> 10
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 10
Asn Leu Ser Leu Pro Pro Ser Leu Ser Leu Ser Ile Cys
1 5 10

<210> 11

<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 11
Glu Arg Pro Ser Ser Val Leu Thr Ile Tyr Asp Ile Gly Ile Gln Cys
1 5 10 15

<210> 12
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 12
Cys Tyr Gln Gln Tyr Thr Asn Leu Gln Glu Arg Pro Ser Ser Val
1 5 10 15

<210> 13
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 13
Thr Val Glu Pro Glu Thr Gly Asp Pro Val Thr Leu Arg Leu Cys
1 5 10 15

<210> 14
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 14
Cys Ser Arg Lys Lys Arg Ala Asp Lys Lys Glu Asn Gly Thr Lys Leu
1 5 10 15

Leu

<210> 15
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 15
Phe Leu Leu Val Leu Gly Phe Ile Ile
1 5

<210> 16
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 16
Val Leu Pro Ser Val Ala Met Phe Leu
1 5

<210> 17
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 17
Leu Val Leu Gly Phe Ile Ile Ala Leu
1 5

<210> 18
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic

peptide"

<400> 18
Lys Val Val Thr Ser Ser Phe Val Val
1 5

<210> 19
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 19
Leu Val Pro Gly Thr Lys Phe Tyr Ile
1 5

<210> 20
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 20
Leu Leu Pro Ile Arg Thr Leu Pro Leu
1 5

<210> 21
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 21
Tyr Leu Val Lys Lys Gly Thr Ala Thr
1 5

<210> 22
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 22
Ser Leu Phe Ala Glu Thr Ile Trp Val
1 5

<210> 23
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 23
Met Leu Ile Ala Met Tyr Phe Tyr Thr
1 5

<210> 24
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 24
Leu Met Trp Thr Leu Pro Val Met Leu
1 5

<210> 25
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 25
Met Leu Ile Val Tyr Ile Phe Glu Cys
1 5

<210> 26
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 26
Tyr Ile Phe Glu Cys Ala Ser Cys Ile
1 5

<210> 27
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 27
Leu Val Leu Met Leu Ile Val Tyr Ile
1 5

<210> 28
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 28
Ala Leu Cys Arg Arg Arg Ser Met Val
1 5

<210> 29
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 29
Leu Leu Ser Gly Leu Ser Leu Phe Ala
1 5

<210> 30
<211> 9

<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 30
Phe Leu Leu Val Val Gly Leu Ile Val
1 5

<210> 31
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 31
Leu Val Val Gly Leu Ile Val Ala Leu
1 5

<210> 32
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 32
Lys Val Val Lys Ser Asp Phe Val Val
1 5

<210> 33
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 33
Thr Leu Pro Val Gln Thr Leu Pro Leu
1 5

<210> 34
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 34
Asp Leu His Val Ile Ser Asn Asp Val
1 5

<210> 35
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 35
Val Leu Val His Pro Gln Trp Val Leu
1 5

<210> 36
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 36
Phe Leu Arg Pro Gly Asp Asp Ser Ser
1 5

<210> 37
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 37
Ala Leu Gly Thr Thr Cys Tyr Ala Ser
1 5

<210> 38
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 38
Lys Leu Gln Cys Val Asp Leu His Val
1 5

<210> 39
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 39
Glu Leu Ala His Tyr Asp Val Leu Leu
1 5

<210> 40
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 40
Asn Leu Asn Gly Ala Gly Asp Pro Leu
1 5

<210> 41
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 41

Thr Leu Arg Val Asp Cys Thr Pro Leu
1 5

<210> 42
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 42
Met Met Asn Asp Gln Leu Met Phe Leu
1 5

<210> 43
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 43
Ala Leu Phe Asp Ile Glu Ser Lys Val
1 5

<210> 44
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 44
Leu Leu His Glu Thr Asp Ser Ala Val
1 5

<210> 45
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 45
Val Leu Ala Lys Glu Leu Lys Phe Val
1 5

<210> 46
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 46
Ile Leu Leu Trp Gln Pro Ile Pro Val
1 5

<210> 47
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 47
Asp Leu Phe Gly Ile Trp Ser Lys Val
1 5

<210> 48
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 48
Pro Leu Glu Arg Phe Ala Glu Leu Val
1 5

<210> 49
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source

<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 49
Lys Gln Gly Asn Phe Asn Ala Trp Val
1 5

<210> 50
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 50
Asn Leu Leu Arg Arg Met Trp Val Thr
1 5

<210> 51
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 51
Asn Leu Phe Glu Thr Pro Ile Leu Ala
1 5

<210> 52
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 52
Asn Leu Phe Glu Thr Pro Val Glu Ala
1 5

<210> 53
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 53
Gly Leu Gln His Trp Val Pro Glu Leu
1 5

<210> 54
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 54
Val Gln Phe Val Ala Ser Tyr Lys Val
1 5

<210> 55
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 55
Arg Leu Leu Ala Ala Leu Cys Gly Ala
1 5

<210> 56
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 56
Leu Leu Leu Leu Thr Val Leu Thr Val
1 5

<210> 57
<211> 9
<212> PRT

<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 57
Leu Leu Leu Thr Val Leu Thr Val Val
1 5

<210> 58
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 58
Phe Leu Ser Phe His Ile Ser Asn Leu
1 5

<210> 59
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 59
Leu Leu Val Leu Val Cys Val Leu Val
1 5

<210> 60
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 60
Ala Leu Leu Val Leu Val Cys Val Leu
1 5

<210> 61

<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 61
Ser Leu Ser Tyr Thr Asn Pro Ala Val
1 5

<210> 62
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 62
Asn Leu Thr Ile Ser Asp Val Ser Val
1 5

<210> 63
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 63
Ala Leu Ala Ser Thr Ala Pro Pro Val
1 5

<210> 64
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 64
Ala Ile Leu Cys Trp Thr Phe Trp Val
1 5

<210> 65
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 65
Phe Ile Leu Met Phe Ile Val Tyr Ala
1 5

<210> 66
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 66
Leu Thr Ala Glu Cys Ile Phe Phe Val
1 5

<210> 67
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 67
Met Leu Gln Asp Asn Cys Cys Gly Val
1 5

<210> 68
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 68
Ile Leu Cys Trp Thr Phe Trp Val Leu

1 5

<210> 69
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 69
Lys Ile Leu Leu Ala Tyr Phe Ile Leu
1 5

<210> 70
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 70
Phe Val Gly Ile Cys Leu Phe Cys Leu
1 5

<210> 71
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 71
Val Leu Leu Ser Val Ala Met Phe Leu
1 5

<210> 72
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 72
Leu Leu Ser Val Ala Met Phe Leu Leu
1 5

<210> 73
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 73
Ile Leu Gly Ser Leu Pro Phe Phe Leu
1 5

<210> 74
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 74
Ile Leu Asn Ala Tyr Leu Val Arg Val
1 5

<210> 75
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 75
Phe Leu Leu Val Gly Phe Ala Gly Ala
1 5

<210> 76
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic

peptide"

<400> 76
Asn Leu Gln Pro Gln Leu Ala Ser Val
1 5

<210> 77
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 77
Cys Met Phe Asp Ser Lys Glu Ala Leu
1 5

<210> 78
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 78
Tyr Leu Tyr Val Leu Val Asp Ser Ala
1 5

<210> 79
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 79
Tyr Met Asp Gly Thr Met Ser Gln Val
1 5

<210> 80
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 80
Lys Met Ala Arg Phe Ser Tyr Ser Val
1 5

<210> 81
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 81
Gly Leu Val Met Asp Glu His Leu Val
1 5

<210> 82
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 82
Phe Leu Pro Gly Cys Asp Gly Leu Val
1 5

<210> 83
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 83
Cys Met Leu Gly Ser Phe Cys Ala Cys
1 5

<210> 84
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 84
Tyr Leu Ala Phe Arg Asp Asp Ser Ile
1 5

<210> 85
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 85
Trp Leu Pro Lys Lys Cys Ser Leu Cys
1 5

<210> 86
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 86
Cys Leu Asn Gly Gly Thr Cys Met Leu
1 5

<210> 87
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 87
Met Leu Val Gly Ile Cys Leu Ser Ile
1 5

<210> 88
<211> 9

<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 88
Phe Glu Leu Gly Leu Val Ala Gly Leu
1 5

<210> 89
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 89
Lys Met Val Arg Phe Ser Tyr Ser Val
1 5

<210> 90
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 90
Cys Leu Asn Glu Gly Thr Cys Met Leu
1 5

<210> 91
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 91
Met Leu Ala Gly Ile Cys Leu Ser Ile
1 5

<210> 92
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 92
Arg Leu Leu Phe Phe Leu Leu Phe Leu
1 5

<210> 93
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 93
Thr Leu Ala Tyr Leu Ile Phe Cys Leu
1 5

<210> 94
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 94
Leu Leu Phe Leu Thr Pro Met Glu Val
1 5

<210> 95
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 95
Lys Leu Met Ser Pro Lys Leu Tyr Val
1 5

<210> 96
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 96
Leu Leu Phe Phe Leu Leu Phe Leu Val
1 5

<210> 97
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 97
Ser Leu Phe Leu Gly Ile Leu Ser Val
1 5

<210> 98
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 98
Ala Ile Ser Gly Met Ile Leu Ser Ile
1 5

<210> 99
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
peptide"

<400> 99

Phe Ile Arg Ala His Thr Pro Tyr Ile
1 5

<210> 100
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 100
Ser Leu Asn Phe Ile Arg Ala His Thr
1 5

<210> 101
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 101
Leu Lys Met Glu Ser Leu Asn Phe Ile
1 5

<210> 102
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 102
Ser His Phe Leu Lys Met Glu Ser Leu
1 5

<210> 103
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic peptide"

<400> 103
Tyr Leu Phe Leu Gly Ile Leu Ser Val
1 5

<210> 104
<211> 1422
<212> DNA
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic polynucleotide"

<220>
<221> CDS
<222> (1)..(1419)

<400> 104
atg gct atc atc tac ctc atc ctc ctg ttc acc gct gtg cgg ggc gat
48
Met Ala Ile Ile Tyr Leu Ile Leu Leu Phe Thr Ala Val Arg Gly Asp
1 5 10 15

gtt gat gaa caa ctg tcc aag tca gtg aaa gat aag gta ttg ctg cct
96
Val Asp Glu Gln Leu Ser Lys Ser Val Lys Asp Lys Val Leu Leu Pro
20 25 30

tgc cgt tac aac tct cct cat gaa gat gag tct gaa gac cga atc tac
144
Cys Arg Tyr Asn Ser Pro His Glu Asp Glu Ser Glu Asp Arg Ile Tyr
35 40 45

tgg caa aaa cat gac aaa gtg gtg ctg tct gtc att gct ggg aaa cta
192
Trp Gln Lys His Asp Lys Val Val Leu Ser Val Ile Ala Gly Lys Leu
50 55 60

aaa gtg tgg ccc gag tat aag aac cgg act tta tat gac aac act acc
240
Lys Val Trp Pro Glu Tyr Lys Asn Arg Thr Leu Tyr Asp Asn Thr Thr
65 70 75 80

tac tct ctt atc atc ctg ggc ctg gtc ctt tca gac cgg ggc aca tac
288
Tyr Ser Leu Ile Ile Leu Gly Leu Val Leu Ser Asp Arg Gly Thr Tyr
85 90 95

agc tgt gtc gtt caa aag aag gaa aga gga acg tat gaa gtt aaa cac
336
Ser Cys Val Val Gln Lys Lys Glu Arg Gly Thr Tyr Glu Val Lys His
100 105 110

```
ttg gct tta gta aag ttg tcc atc aaa gct gac ttc tct acc ccc aac
384
Leu Ala Leu Val Lys Leu Ser Ile Lys Ala Asp Phe Ser Thr Pro Asn
        115                 120                 125

ata act gag tct gga aac cca tct gca gac act aaa agg att acc tgc
432
Ile Thr Glu Ser Gly Asn Pro Ser Ala Asp Thr Lys Arg Ile Thr Cys
    130                 135                 140

ttt gct tcc ggg ggt ttc cca aag cct cgc ttc tct tgg ttg gaa aat
480
Phe Ala Ser Gly Gly Phe Pro Lys Pro Arg Phe Ser Trp Leu Glu Asn
145                 150                 155                 160

gga aga gaa tta cct ggc atc aat acg aca att tcc cag gat cct gaa
528
Gly Arg Glu Leu Pro Gly Ile Asn Thr Thr Ile Ser Gln Asp Pro Glu
                165                 170                 175

tct gaa ttg tac acc att agt agc caa cta gat ttc aat acg act cgc
576
Ser Glu Leu Tyr Thr Ile Ser Ser Gln Leu Asp Phe Asn Thr Thr Arg
            180                 185                 190

aac cac acc att aag tgt ctc att aaa tat gga gat gct cac gtg tca
624
Asn His Thr Ile Lys Cys Leu Ile Lys Tyr Gly Asp Ala His Val Ser
        195                 200                 205

gag gac ttc acc tgg gaa aaa ccc cca gaa gac cct cct gat agc aag
672
Glu Asp Phe Thr Trp Glu Lys Pro Pro Glu Asp Pro Pro Asp Ser Lys
    210                 215                 220

gac aaa act cac aca tgc cca ccg tgc cca gca cct gaa gcc gcg ggg
720
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly
225                 230                 235                 240

gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg
768
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
                245                 250                 255

atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac
816
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
            260                 265                 270

gaa gac cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg
864
Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
        275                 280                 285

cat aat gcc aag aca aag ccg cgg gag gag cag tac aac agc acg tac
912
His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
```

```
    290                 295                 300

cgt gtg gtc agc gtc ctc acc gtc ctg cac cag gac tgg ctg aat ggc
960
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
305                 310                 315                 320

aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc
1008
Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
                325                 330                 335

gag aaa acc atc tcc aaa gcc aaa ggg cag ccc cga gaa cca cag gtg
1056
Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
            340                 345                 350

tac acc ctg ccc cca tcc cgg gat gag ctg acc aag aac cag gtc agc
1104
Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
        355                 360                 365

ctg acc tgc ctg gtc aaa ggc ttc tat ccc agc gac atc gcc gtg gag
1152
Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
    370                 375                 380

tgg gag agc aat ggg cag ccg gag aac aac tac aag acc acg cct ccc
1200
Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
385                 390                 395                 400

gtg ttg gac tcc gac ggc tcc ttc ttc ctc tac agc aag ctc acc gtg
1248
Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
                405                 410                 415

gac aag agc agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg atg
1296
Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
            420                 425                 430

cat gag gct ctg cac aac cac tac acg cag aag agc ctc tcc ctg tct
1344
His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
        435                 440                 445

ccg ggt aaa ggt agt ggt agt ggt agt gga tct ctg ggt ggt atc ttc
1392
Pro Gly Lys Gly Ser Gly Ser Gly Ser Gly Ser Leu Gly Gly Ile Phe
    450                 455                 460

gag gct atg aag atg gag ctg cgc gat tga
1422
Glu Ala Met Lys Met Glu Leu Arg Asp
465                 470
```

<210> 105
<211> 473
<212> PRT
<213> Artificial Sequence

<220>
<221> source
<223> /note="Description of Artificial Sequence: Synthetic
polypeptide"

<400> 105
Met Ala Ile Ile Tyr Leu Ile Leu Leu Phe Thr Ala Val Arg Gly Asp
1 5 10 15

Val Asp Glu Gln Leu Ser Lys Ser Val Lys Asp Lys Val Leu Leu Pro
20 25 30

Cys Arg Tyr Asn Ser Pro His Glu Asp Glu Ser Glu Asp Arg Ile Tyr
35 40 45

Trp Gln Lys His Asp Lys Val Val Leu Ser Val Ile Ala Gly Lys Leu
50 55 60

Lys Val Trp Pro Glu Tyr Lys Asn Arg Thr Leu Tyr Asp Asn Thr Thr
65 70 75 80

Tyr Ser Leu Ile Ile Leu Gly Leu Val Leu Ser Asp Arg Gly Thr Tyr
85 90 95

Ser Cys Val Val Gln Lys Lys Glu Arg Gly Thr Tyr Glu Val Lys His
100 105 110

Leu Ala Leu Val Lys Leu Ser Ile Lys Ala Asp Phe Ser Thr Pro Asn
115 120 125

Ile Thr Glu Ser Gly Asn Pro Ser Ala Asp Thr Lys Arg Ile Thr Cys
130 135 140

Phe Ala Ser Gly Gly Phe Pro Lys Pro Arg Phe Ser Trp Leu Glu Asn
145 150 155 160

Gly Arg Glu Leu Pro Gly Ile Asn Thr Thr Ile Ser Gln Asp Pro Glu
165 170 175

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

```
Asn His Thr Ile Lys Cys Leu Ile Lys Tyr Gly Asp Ala His Val Ser
        195                 200                 205

Glu Asp Phe Thr Trp Glu Lys Pro Pro Glu Asp Pro Pro Asp Ser Lys
    210                 215                 220

Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly
225                 230                 235                 240

Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
                245                 250                 255

Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
            260                 265                 270

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
        275                 280                 285

His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
    290                 295                 300

Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
305                 310                 315                 320

Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
                325                 330                 335

Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
            340                 345                 350

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

Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
    370                 375                 380

Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
385                 390                 395                 400

Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
                405                 410                 415

Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
```

```
            420                 425                 430

His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
        435                 440                 445

Pro Gly Lys Gly Ser Gly Ser Gly Ser Gly Ser Leu Gly Gly Ile Phe
    450                 455                 460

Glu Ala Met Lys Met Glu Leu Arg Asp
465                 470
```