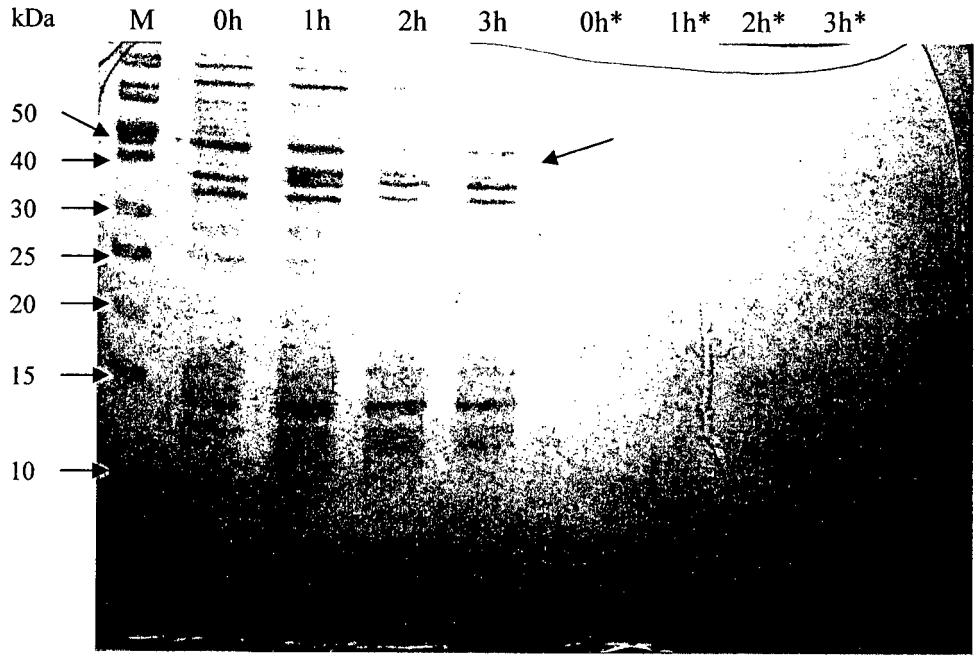
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   1 ATGAAATACCTGCTGCCGACCGCTGCTGCTGGTCTGCTGCTCCTCGCTGCCCAGCCGGCG
   1  M  K  Y  L  L  P  T  A  A  A  G  L  L  L  L  A  A  Q  P  A
  61 ATGGCCATGGGGCGTATTTGCCGTTGCATTTGCGGCCGTGGCATTTGCCGCTGCATCTGT
  21  M  A  M  G  R  I  C  R  C  I  C  G  R  G  I  C  R  C  I  C
 121 GGCGTGCCGGGTGTTGGTGTTCCGGGTGTGGGTGGTGCGACCGGATCCGATGTGAACTTT
  41  G  V  P  G  V  G  V  P  G  V  G  G  A  T  G  S  D  V  N  F
 181 GATCTGAGCACCGCGACCGCGAAAACCTATACCAAATTCATCGAAGATTTTCGTGCGACC
  61  D  L  S  T  A  T  A  K  T  Y  T  K  F  I  E  D  F  R  A  T
 241 CTGCCGTTTAGCCATAAAGTGTATGATATCCCGCTGCTGTATAGCACCATTAGCGATAGC
  81  L  P  F  S  H  K  V  Y  D  I  P  L  L  Y  S  T  I  S  D  S
 301 CGTCGTTTTATTCTGCTGGATCTGACCAGCTATGCGTATGAAACCATTAGCGTGGCGATT
 101  R  R  F  I  L  L  D  L  T  S  Y  A  Y  E  T  I  S  V  A  I
 361 GATGTGACCAACGTGTATGTGGTGGCGTATCGTACCCGTGATGTGAGCTACTTTTTCAAA
 121  D  V  T  N  V  Y  V  V  A  Y  R  T  R  D  V  S  Y  F  F  K
 421 GAAAGCCCGCCGGAAGCGTACAACATTCTGTTTAAAGGCACCCGTAAAATTACCCTGCCG
 141  E  S  P  P  E  A  Y  N  I  L  F  K  G  T  R  K  I  T  L  P
 481 TATACCGGCAACTATGAAAACCTGCAGACCGCGGCGCATAAAATTCGTGAAAACATCGAT
 161  Y  T  G  N  Y  E  N  L  Q  T  A  A  H  K  I  R  E  N  I  D
 541 CTGGGCCTGCCGGCCCTGAGCAGCGCGATTACCACCCTGTTTTATTATAACGCGCAGAGC
 181  L  G  L  P  A  L  S  S  A  I  T  T  L  F  Y  Y  N  A  Q  S
 601 GCGCCGAGCGCGCTGCTGGTGCTGATTCAGACCACCGCGGAAGCGGCGCGTTTTAAATAT
 201  A  P  S  A  L  L  V  L  I  Q  T  T  A  E  A  A  R  F  K  Y
 661 ATTGAACGCCACGTGGCGAAATATGTGGCGACCAACTTTAAACCGAACCTGGCCATTATT
 221  I  E  R  H  V  A  K  Y  V  A  T  N  F  K  P  N  L  A  I  I
 721 AGCCTGGAAAACCAGTGGAGCGCCCTGAGCAAACAAATTTTTCTGGCCCAGAACCAGGGC
 241  S  L  E  N  Q  W  S  A  L  S  K  Q  I  F  L  A  Q  N  Q  G
 781 GGCAAATTTCGTAATCCGGTGGATCTGATTAAACCGACCGGCGAACGTTTTCAGGTGACC
 261  G  K  F  R  N  P  V  D  L  I  K  P  T  G  E  R  F  Q  V  T
 841 AATGTGGATAGCGATGTGGTGAAAGGCAACATTAAACTGCTGCTGAACAGCCGTGCGAGC
 281  N  V  D  S  D  V  V  K  G  N  I  K  L  L  L  N  S  R  A  S
 901 ACCGCGGATGAAAACTTTATTACCACCATGACCCTGCTGGGCGAAAGCGTGGTGGAATTC
 301  T  A  D  E  N  F  I  T  T  M  T  L  L  G  E  S  V  V  E  F
 961 CCGTGGGCGCTGTGGAAAACCATGCTGAAAGAACTGGGCACGATGGCGCTGCATGCGGGT
 321  P  W  A  L  W  K  T  M  L  K  E  L  G  T  M  A  L  H  A  G
1021 AAAGCGGCGCTGGGTGCGGCAGCGGATACCATTAGCCAGGGCACCCAGGTTCCGGGCGTG
 341  K  A  A  L  G  A  A  A  D  T  I  S  Q  G  T  Q  V  P  G  V
1081 GGCGTTCCGGGCGTTGGTAAGCTTGCGGCCGCACTCGAGCACCACCACCACCACCACTGA
 361  G  V  P  G  V  G  K  L  A  A  A  L  E  H  H  H  H  H  H  *
```

FIGURE 1

(A)


kDa
M
0h
1h
2h
3h
0h*
1h*
2h*
3h*
50
40
30
25
20
15
10

(B)

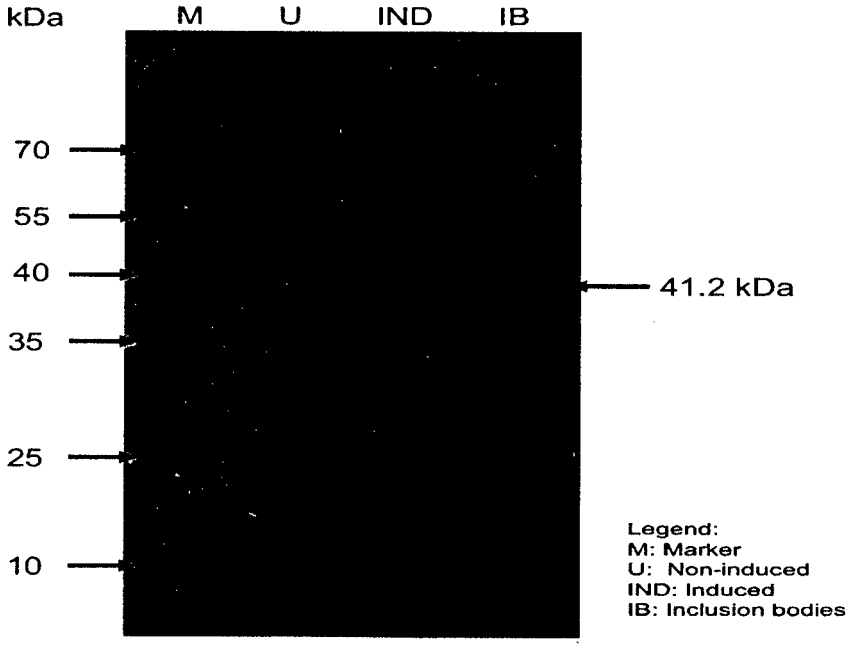

kDa
M
U
IND
IB
70
55
40
35
25
10
41.2 kDa
Legend:
M: Marker
U: Non-induced
IND: Induced
IB: Inclusion bodies

FIGURE 2

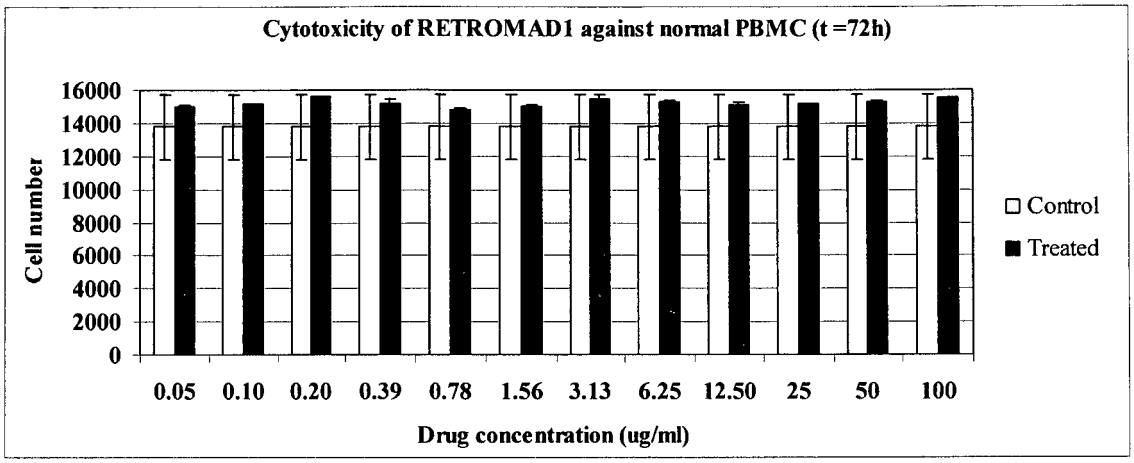


FIGURE 3

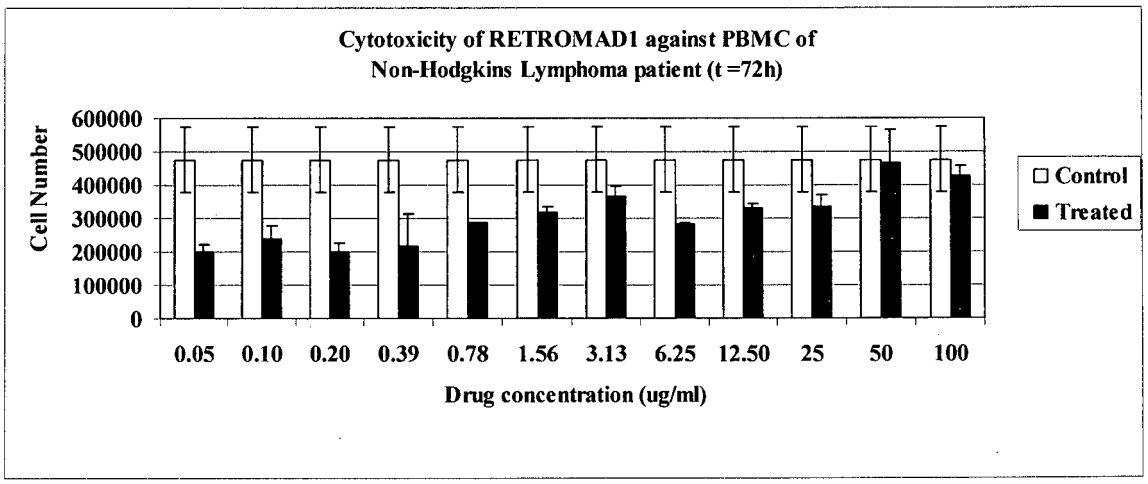
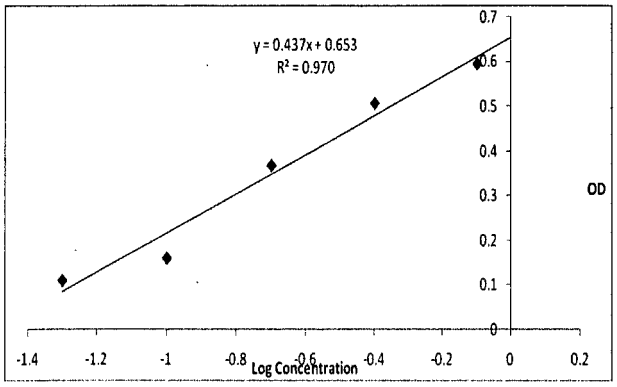
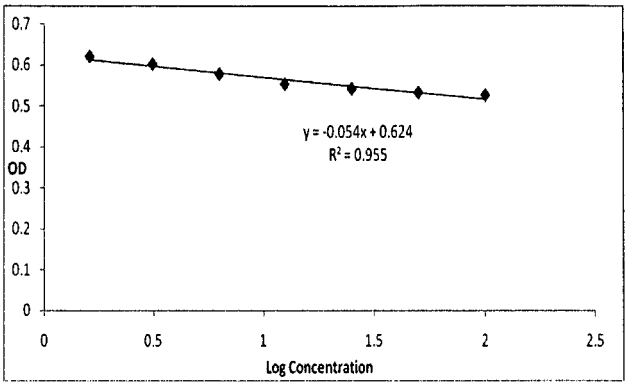


FIGURE 4

A


y = 0.437x + 0.653
R² = 0.970
OD
Log Concentration
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1.4
-1.2
-1
-0.8
-0.6
-0.4
-0.2
0
0.2

B


y = -0.054x + 0.624
R² = 0.955
OD
Log Concentration
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.5
1
1.5
2
2.5

C

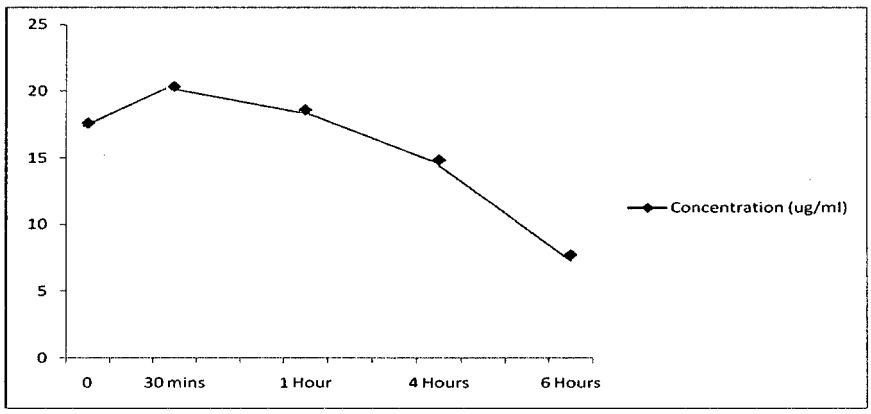
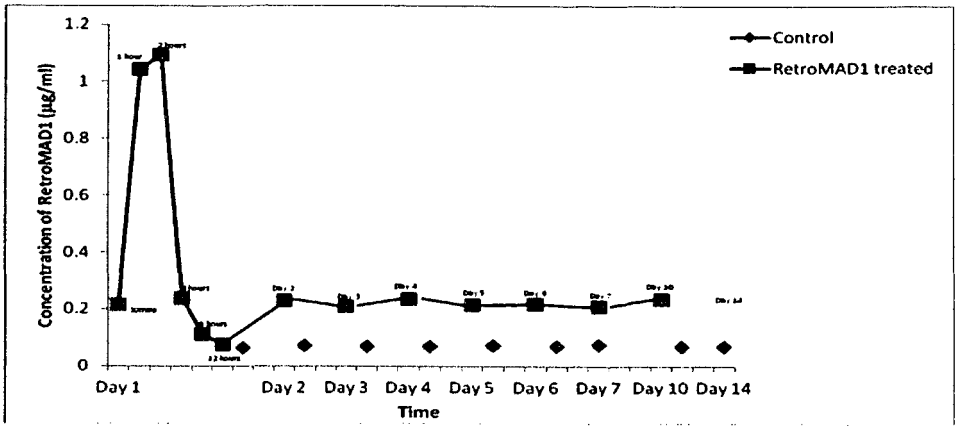

25
20
15
10
5
0
0
30 mins
1 Hour
4 Hours
6 Hours
Concentration (ug/ml)

FIGURE 5

A


Concentration of RetroMAD1 (µg/ml)
1.2
1
0.8
0.6
0.4
0.2
0
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Day 7
Day 10
Day 14
Time
Control
RetroMAD1 treated

B

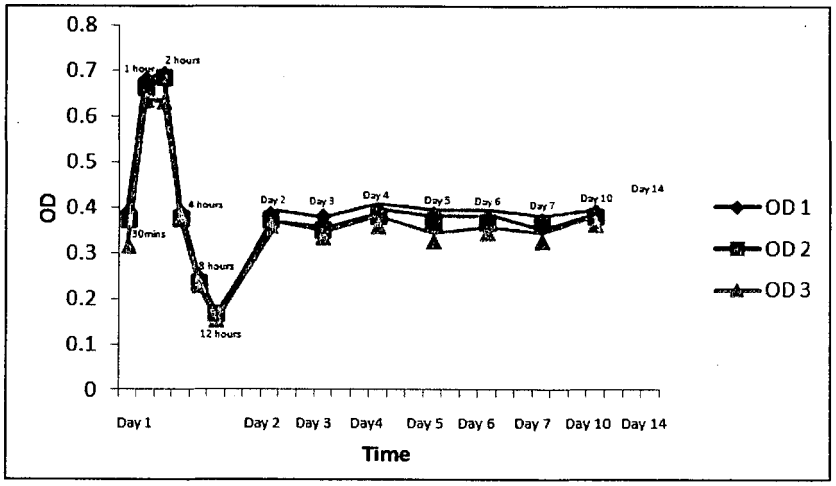
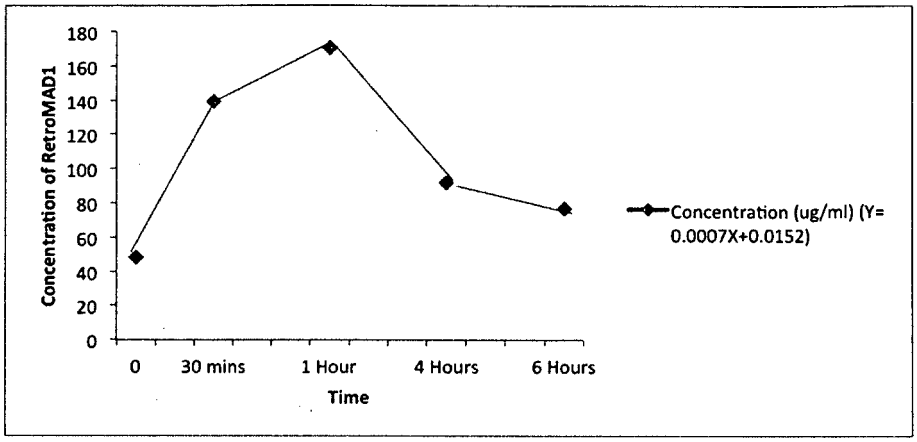
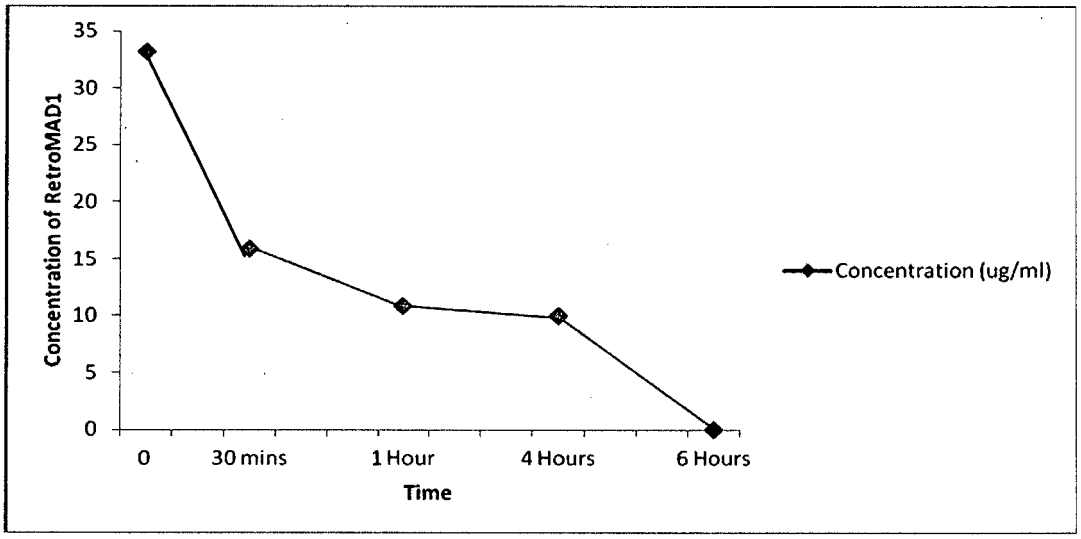

OD
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1 hour
2 hours
30mins
4 hours
8 hours
12 hours
Day 1
Day 2
Day 3
Day4
Day 5
Day 6
Day 7
Day 10
Day 14
Time
OD 1
OD 2
OD 3

FIGURE 6

A


Concentration of RetroMAD1
180
160
140
120
100
80
60
40
20
0
0
30 mins
1 Hour
4 Hours
6 Hours
Time
Concentration (ug/ml) (Y= 0.0007X+0.0152)

B


Concentration of RetroMAD1
35
30
25
20
15
10
5
0
0
30 mins
1 Hour
4 Hours
6 Hours
Time
Concentration (ug/ml)

C

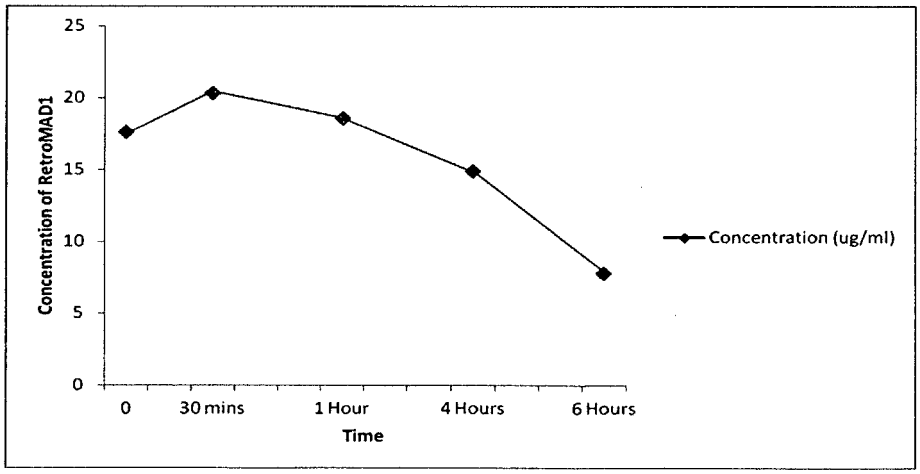

Concentration of RetroMAD1
25
20
15
10
5
0
0
30 mins
1 Hour
4 Hours
6 Hours
Time
Concentration (ug/ml)

FIGURE 7

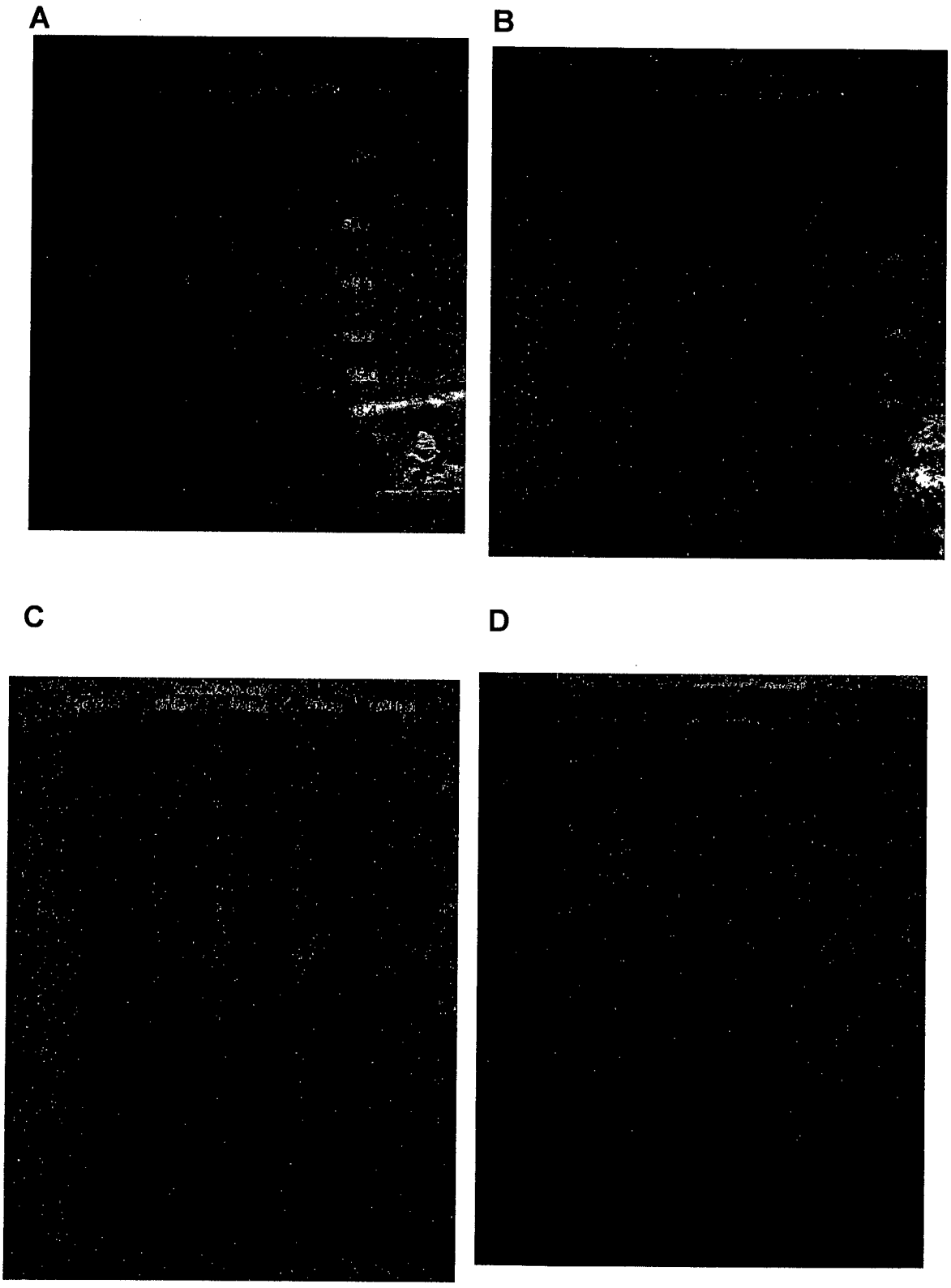
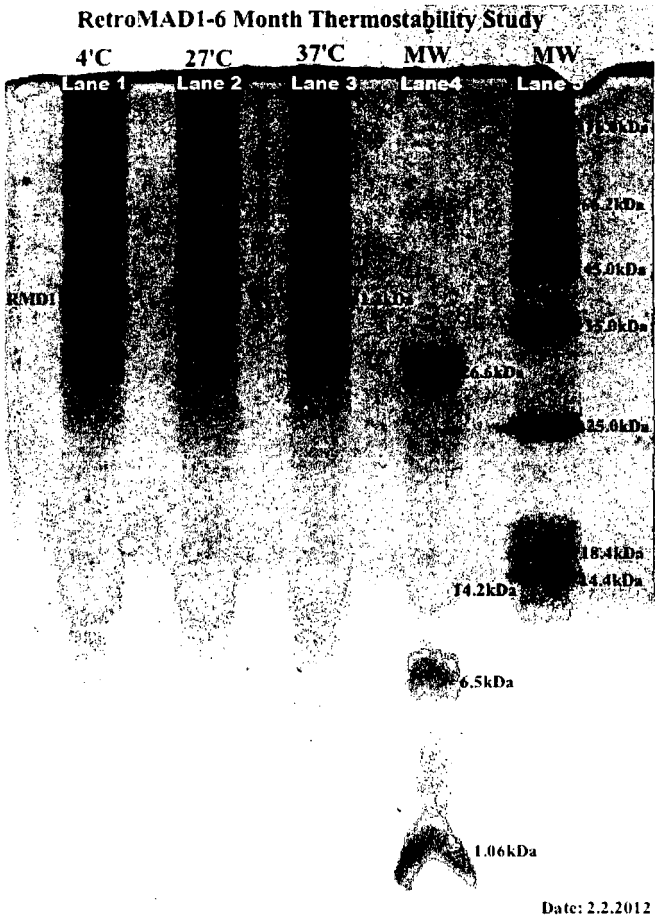


FIGURE 8

A


RetroMAD1-6 Month Thermostability Study
4'C
27'C
37'C
MW
MW
Lane 1
Lane 2
Lane 3
Lane4
Lane 5
RMD1
66.2kDa
45.0kDa
35.0kDa
25.0kDa
18.4kDa
14.4kDa
14.2kDa
6.5kDa
1.06kDa
Date: 2.2.2012

B

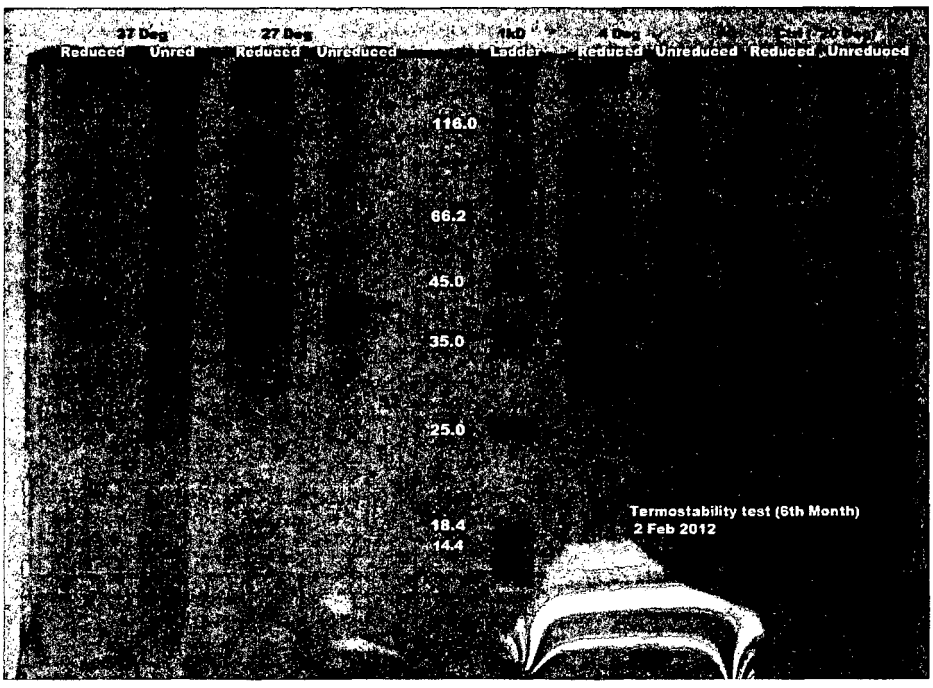

37 Deg
Reduced
Unred
27 Deg
Reduced
Unreduced
1kD
Ladder
4 Deg
Reduced
Unreduced
Reduced
Unreduced
116.0
66.2
45.0
35.0
25.0
18.4
14.4
Termostability test (6th Month)
2 Feb 2012

FIGURE 9

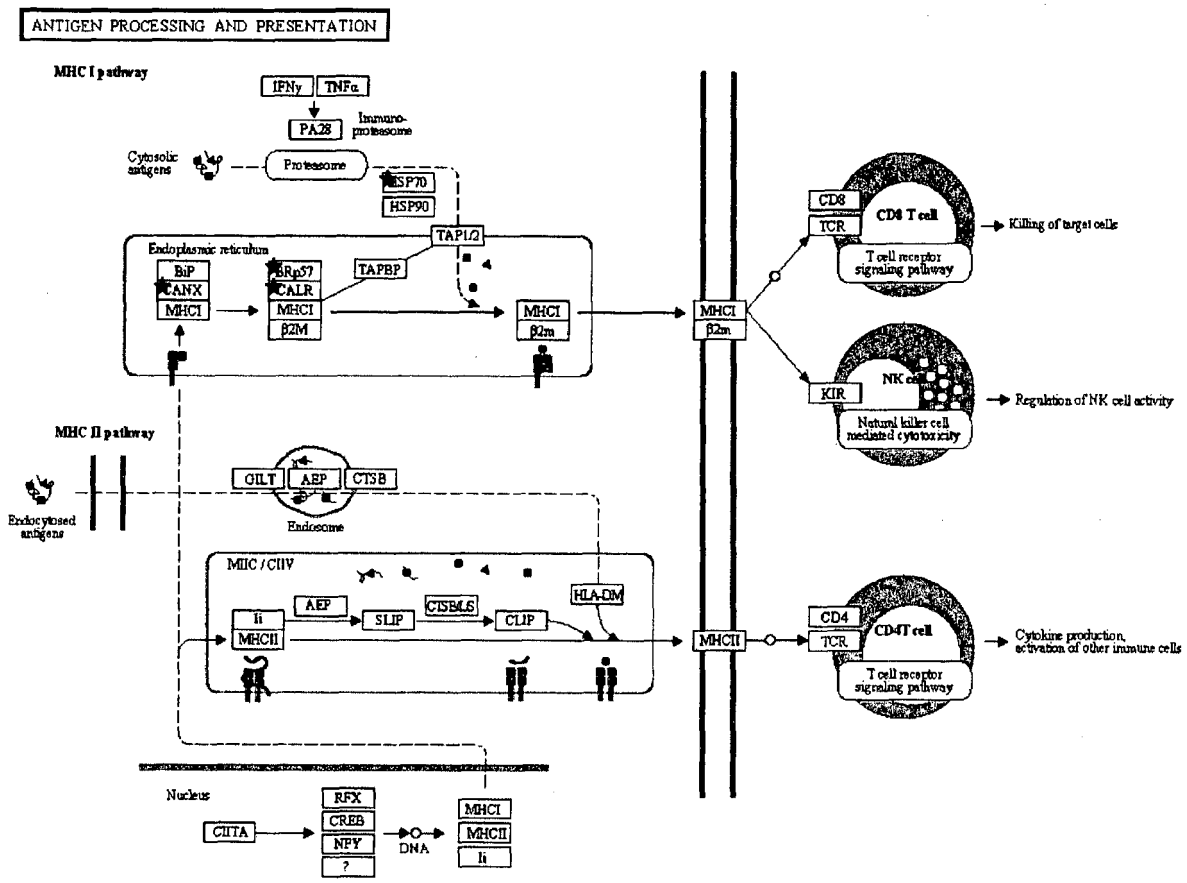

ANTIGEN PROCESSING AND PRESENTATION
MHC I pathway
IFNγ
TNFα
PA28
Immuno-proteasome
Cytosolic antigens
Proteasome
HSP70
HSP90
TAP1/2
Endoplasmic reticulum
BiP
CANX
MHCI
ERp57
CALR
β2M
TAPBP
MHCI
β2m
MHCI
β2m
CD8
TCR
CD8 T cell
T cell receptor signaling pathway
Killing of target cells
KIR
NK cell
Natural killer cell mediated cytotoxicity
Regulation of NK cell activity
MHC II pathway
Endocytosed antigens
GILT
AEP
CTSB
Endosome
MIIC / CIIV
AEP
CTSB/LS
HLA-DM
Ii
MHCII
SLIP
CLIP
MHCII
CD4
TCR
CD4 T cell
T cell receptor signaling pathway
Cytokine production, activation of other immune cells
Nucleus
CIITA
RFX
CREB
NFY
?
DNA
MHCI
MHCII
Ii

FIGURE 10

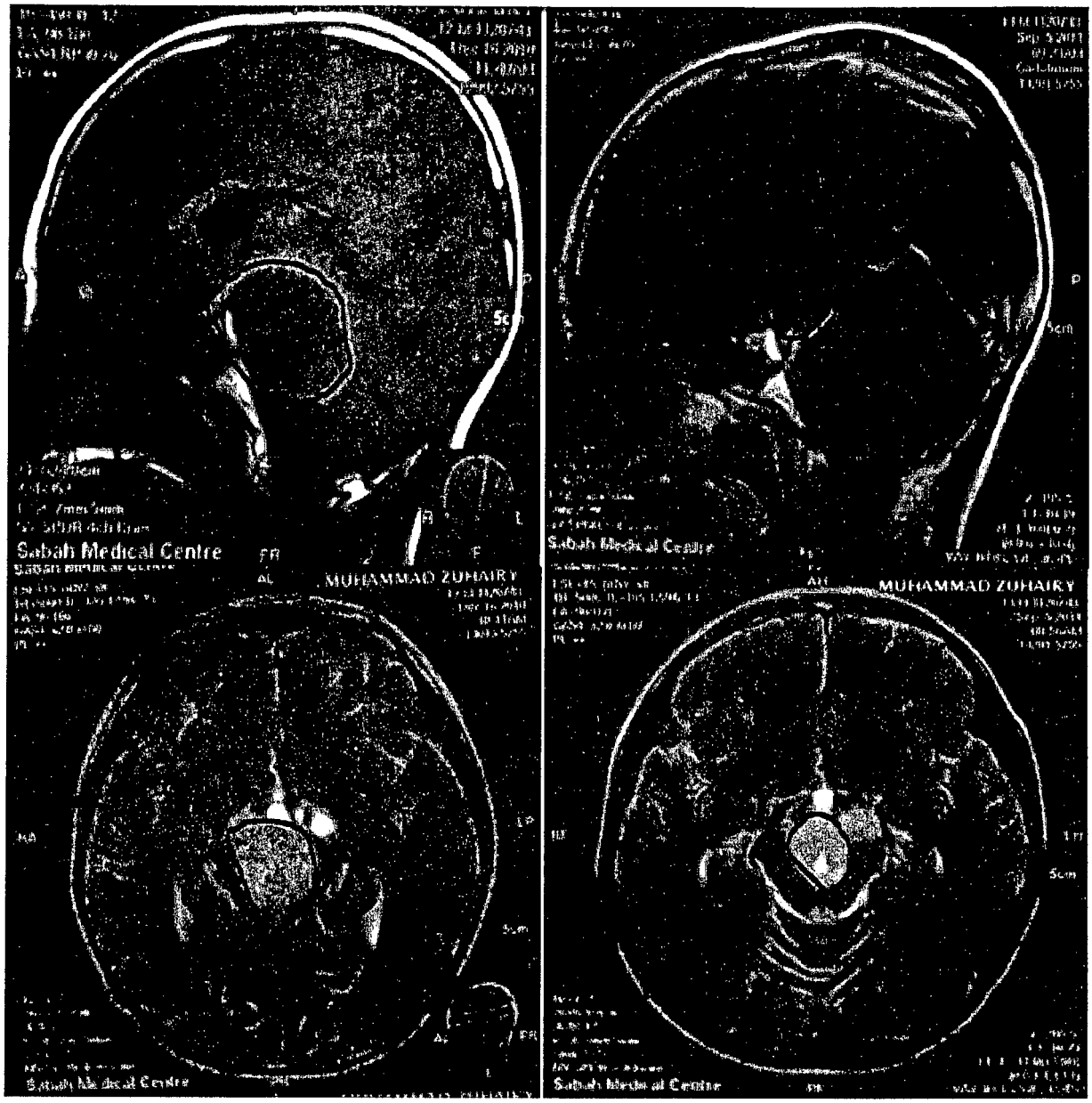
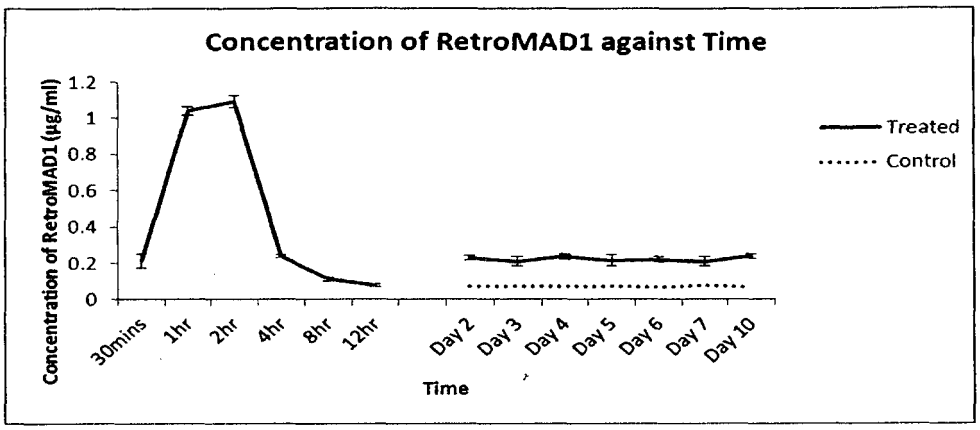
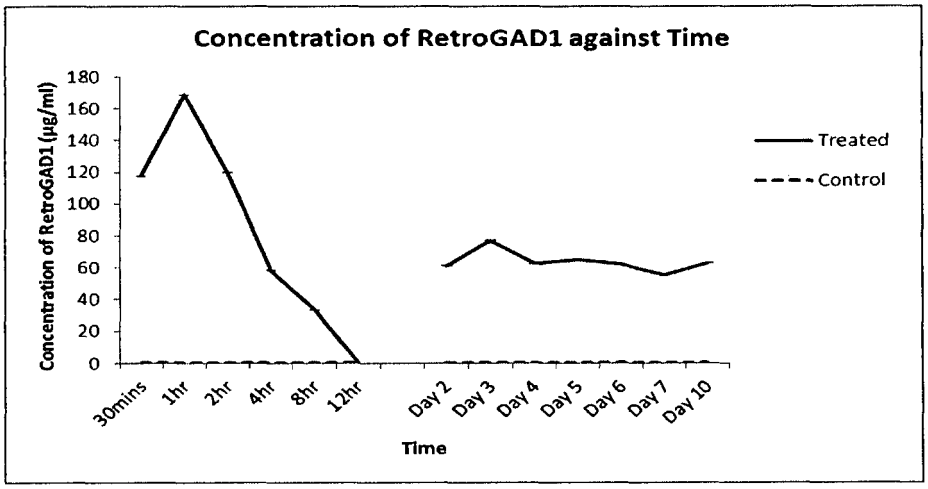

Sabah Medical Centre
MUHAMMAD ZUHAIRY
Sabah Medical Centre
MUHAMMAD ZUHAIRY

FIGURE 11

A



B



C

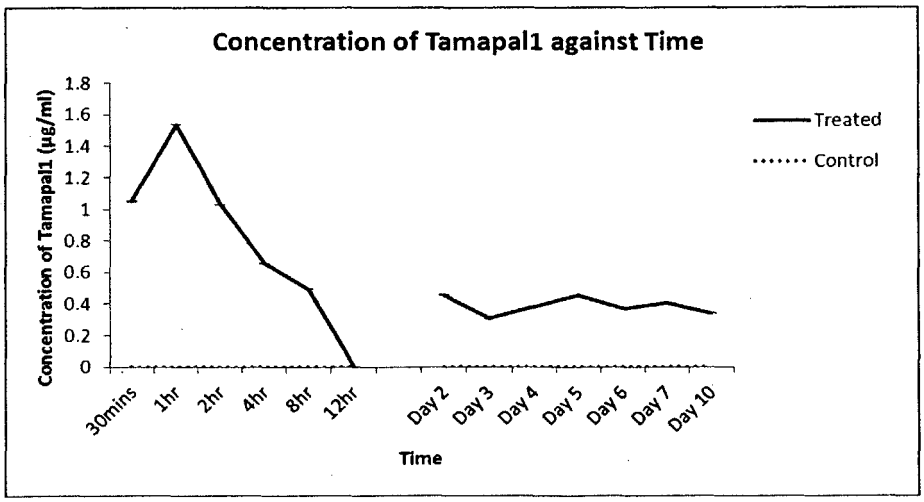
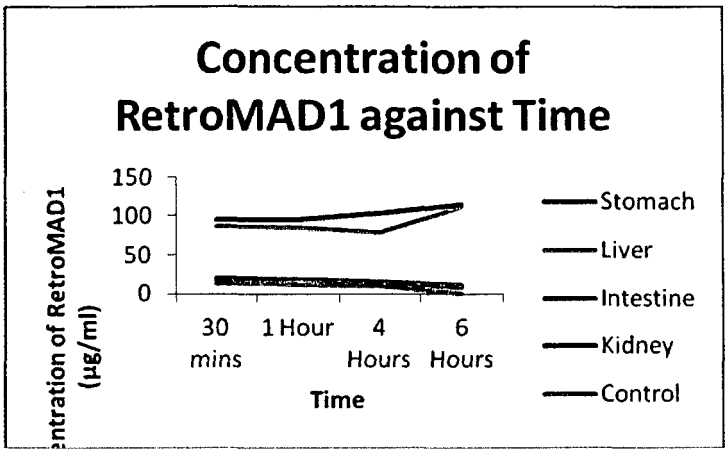
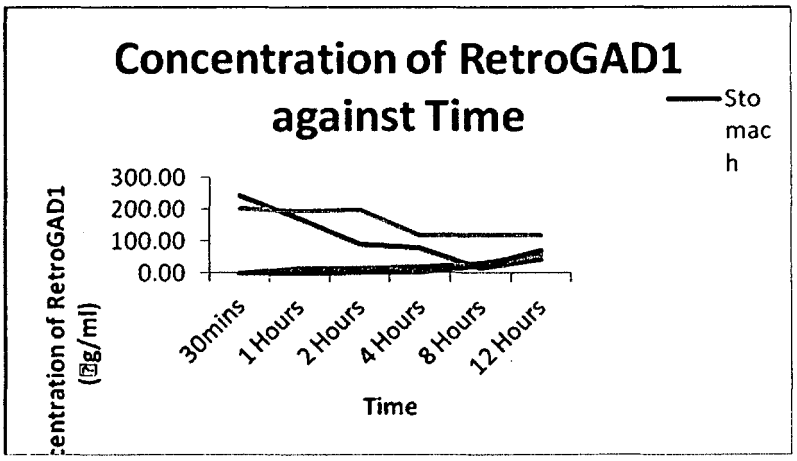


FIGURE 12

A



B



C

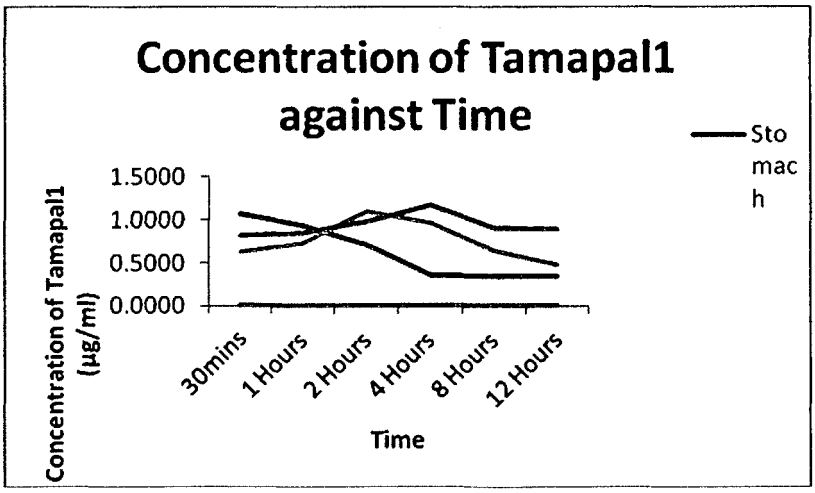


FIGURE 13

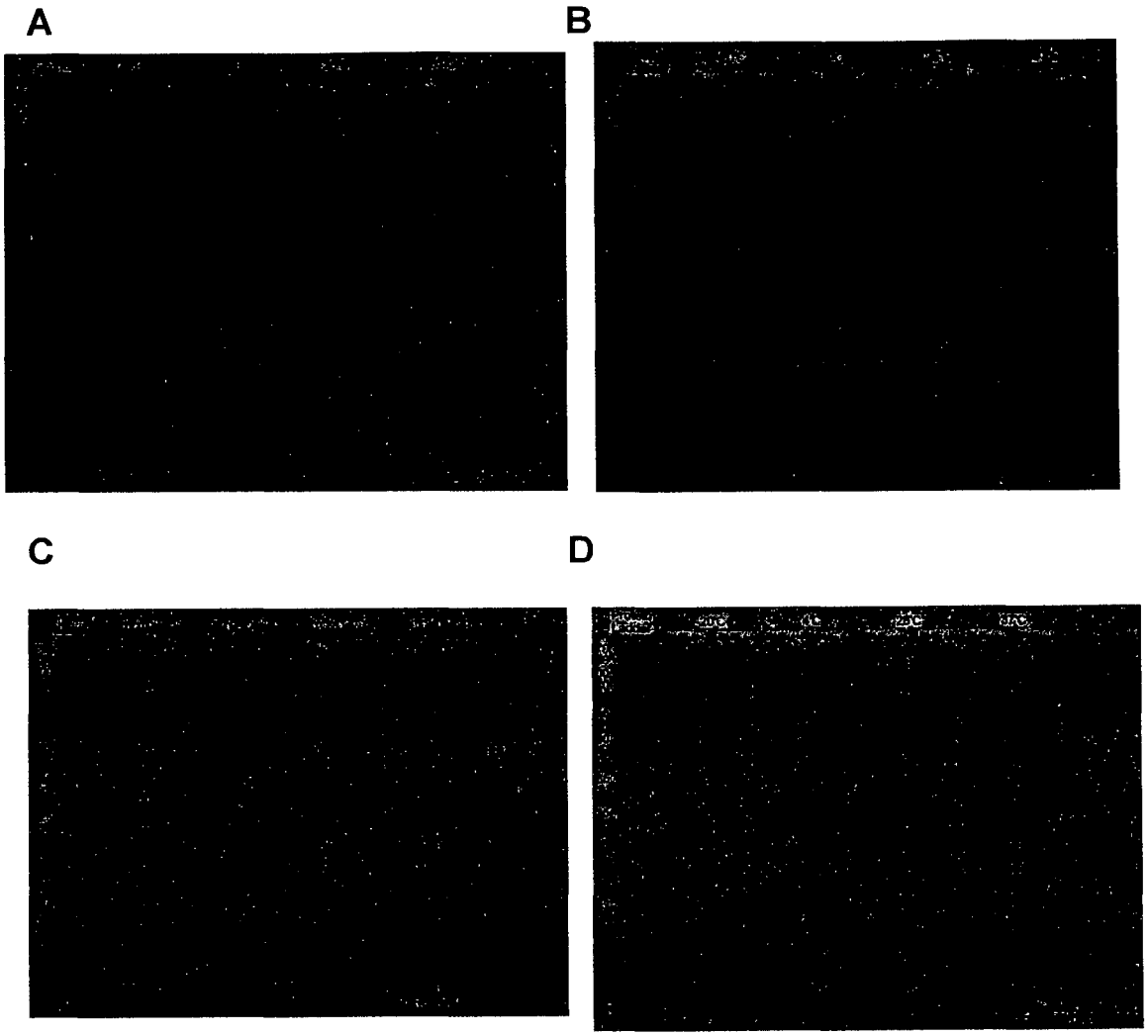
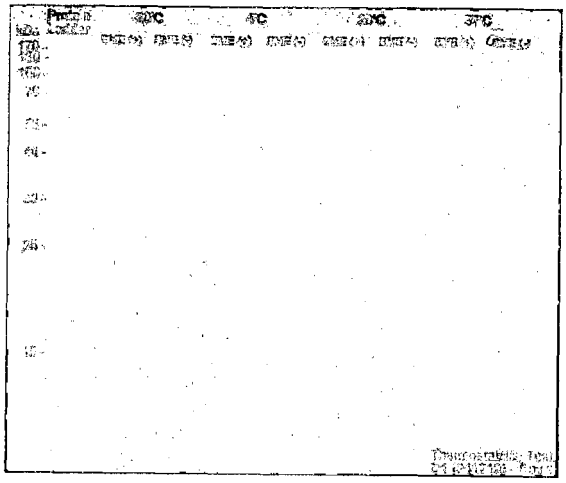
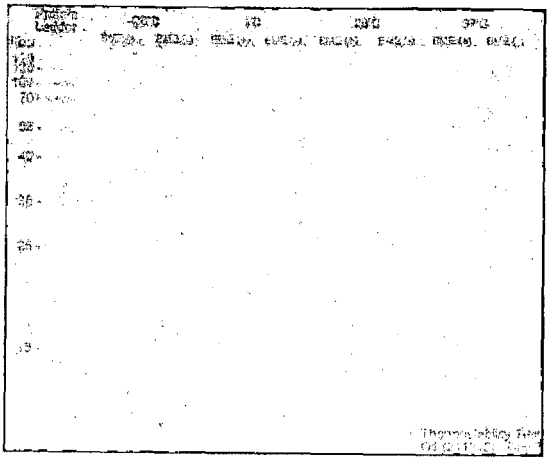


FIGURE 14

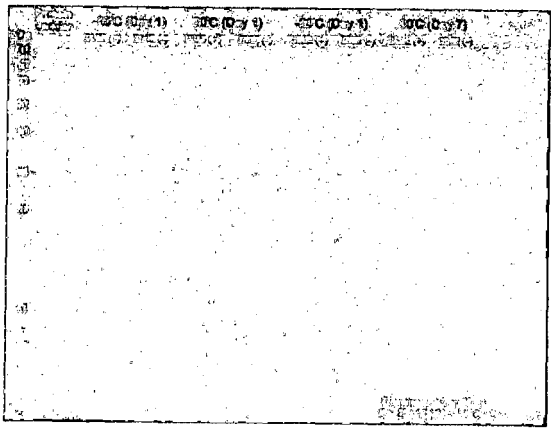
A



B



C



D

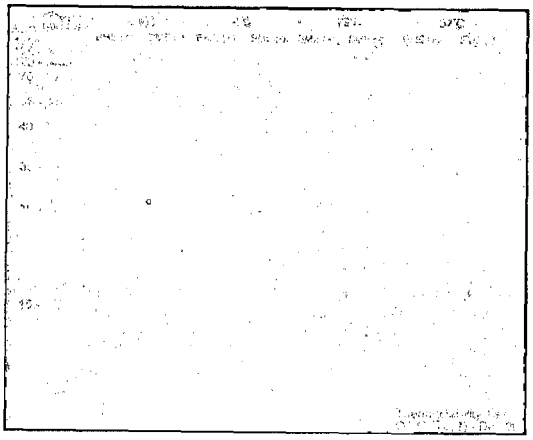


FIGURE 15

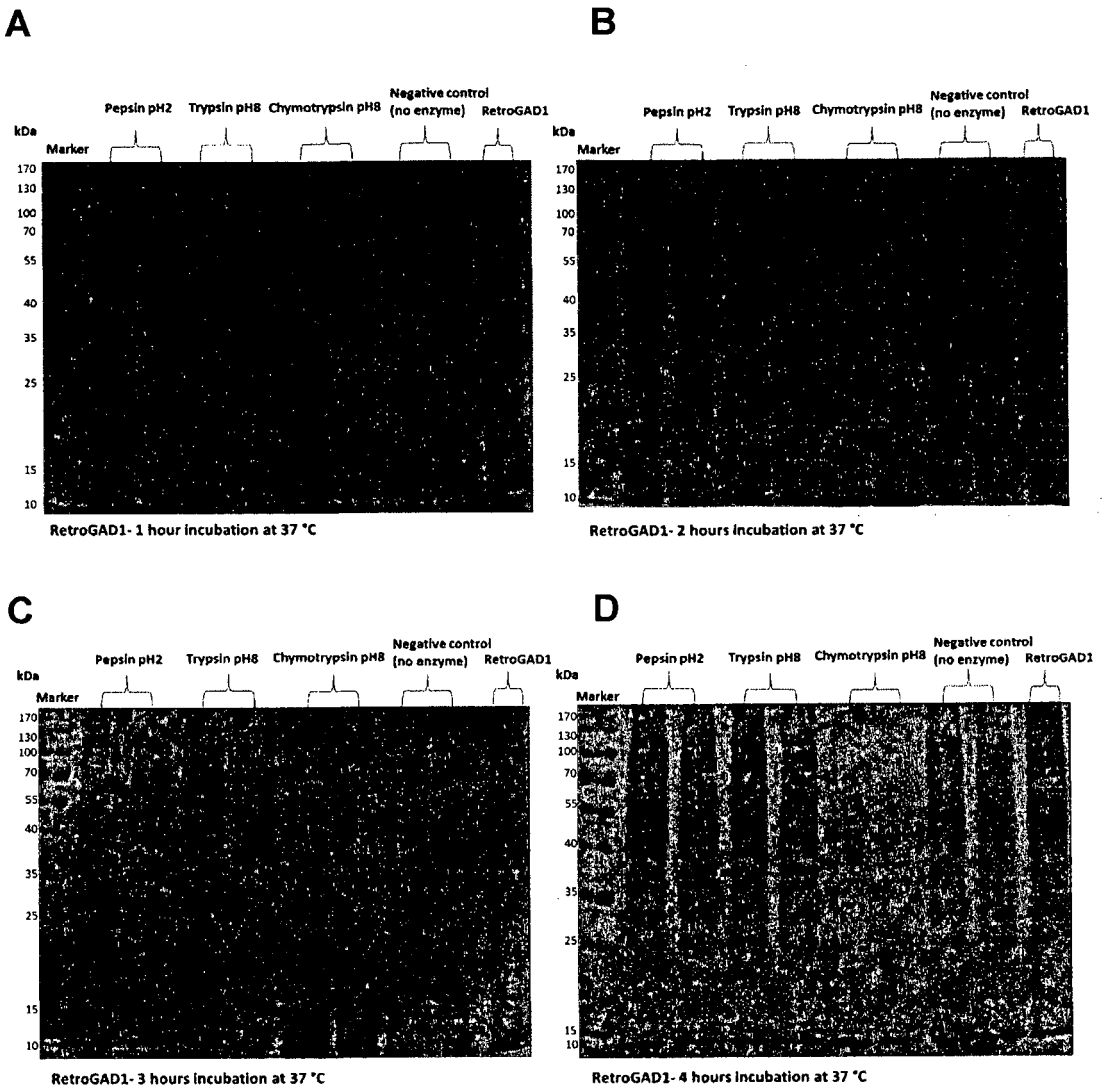

A
B
C
D
Pepsin pH2
Trypsin pH8
Chymotrypsin pH8
Negative control (no enzyme)
RetroGAD1
kDa
Marker
170
130
100
70
55
40
35
25
15
10
RetroGAD1- 1 hour incubation at 37 °C
RetroGAD1- 2 hours incubation at 37 °C
RetroGAD1- 3 hours incubation at 37 °C
RetroGAD1- 4 hours incubation at 37 °C

FIGURE 16

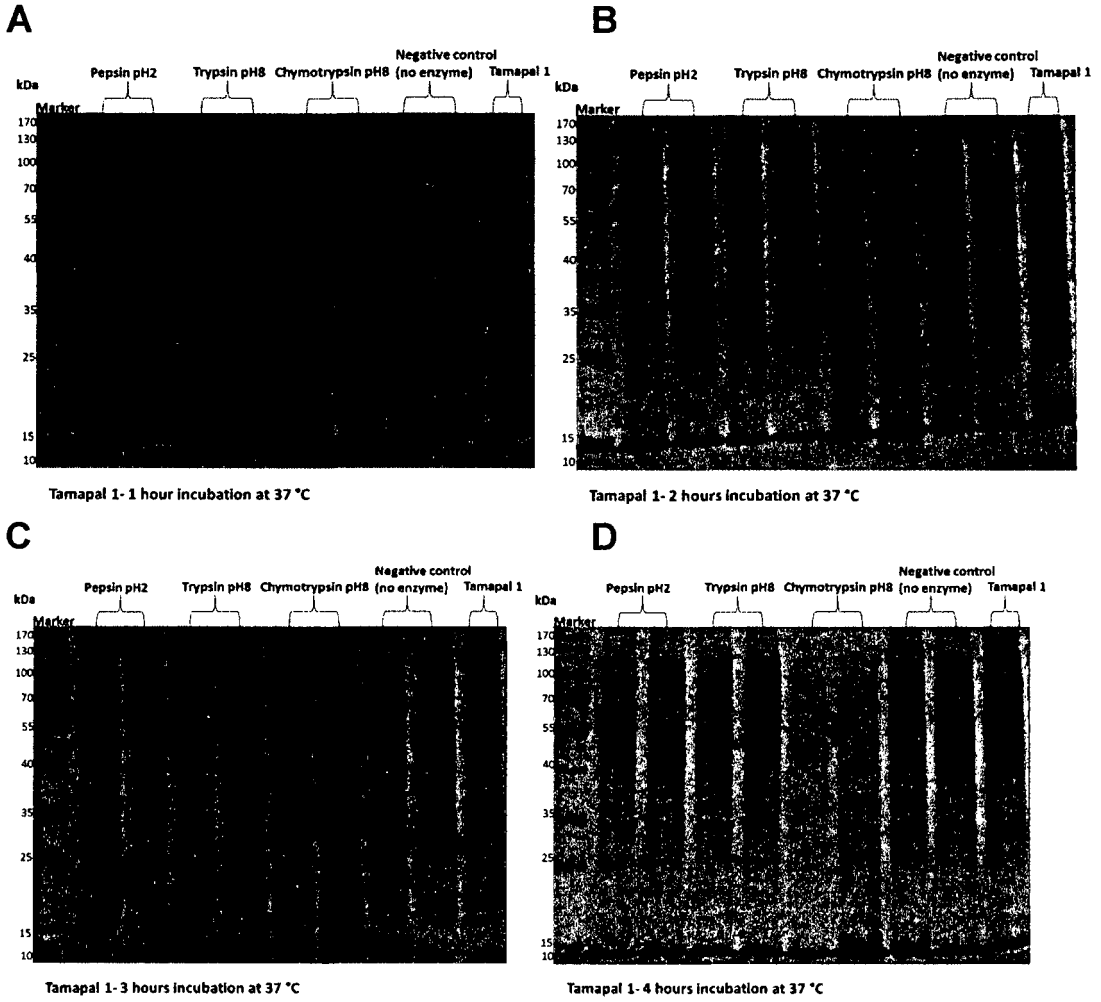


FIGURE 17

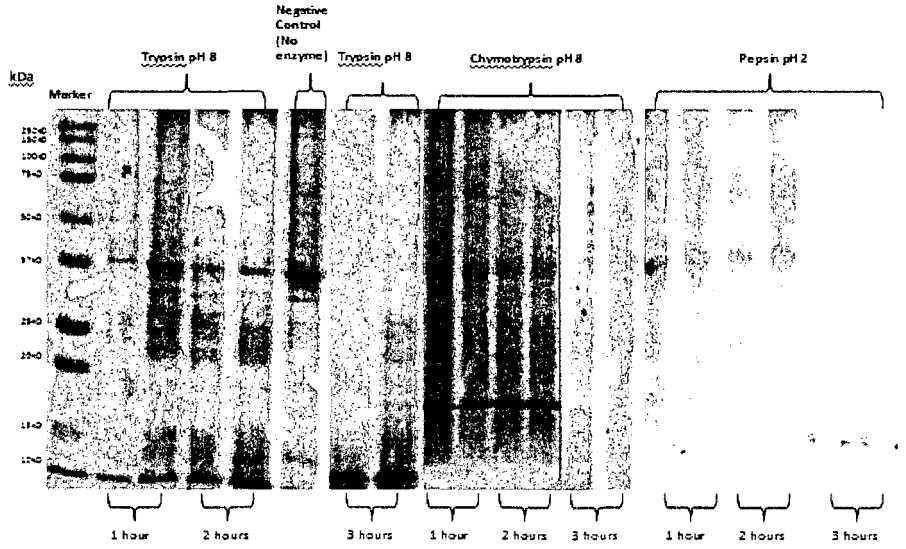


FIGURE 18

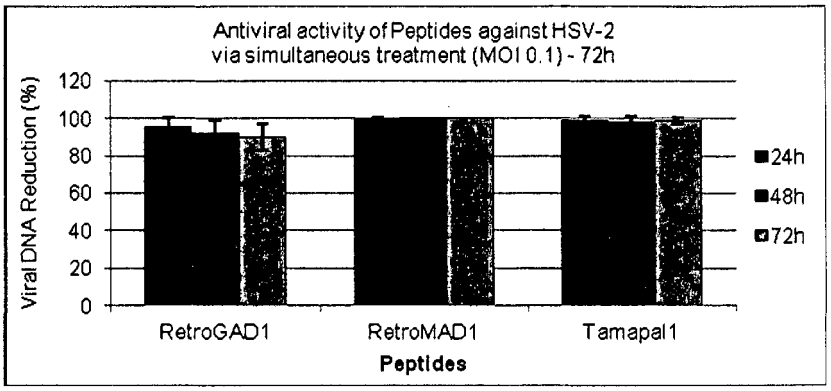
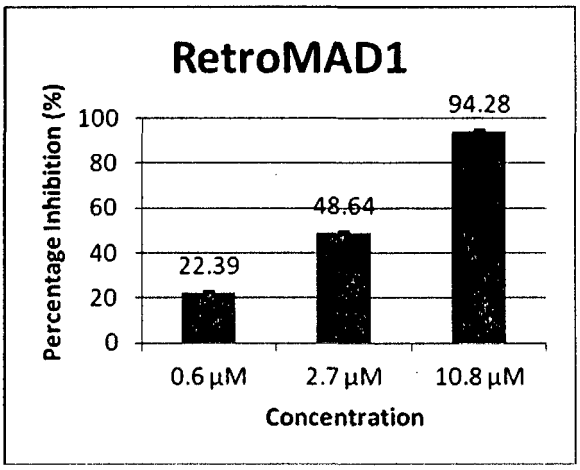
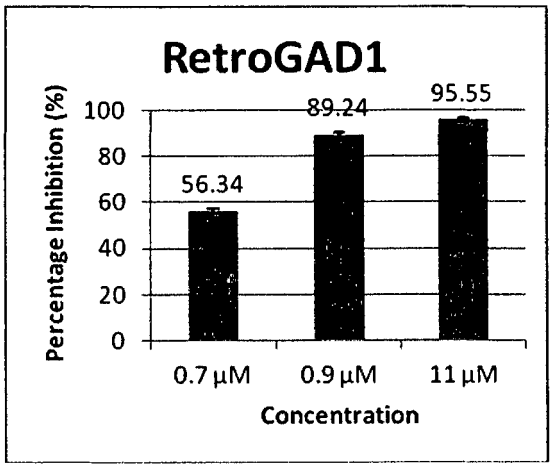


FIGURE 19

A



B



C

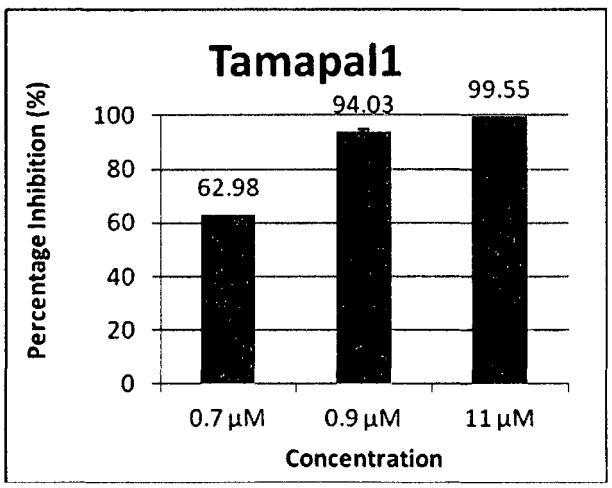


FIGURE 20

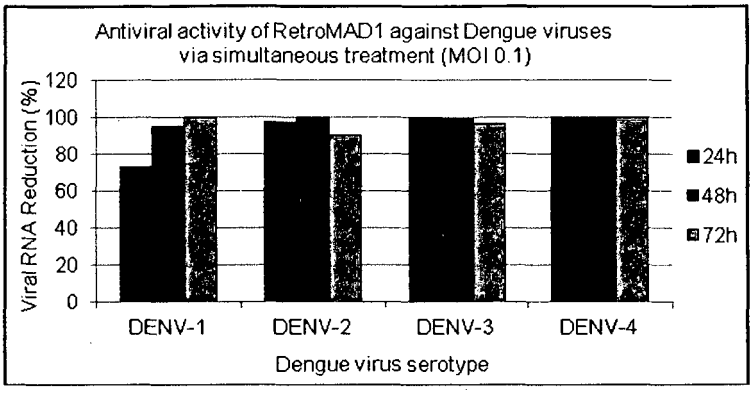
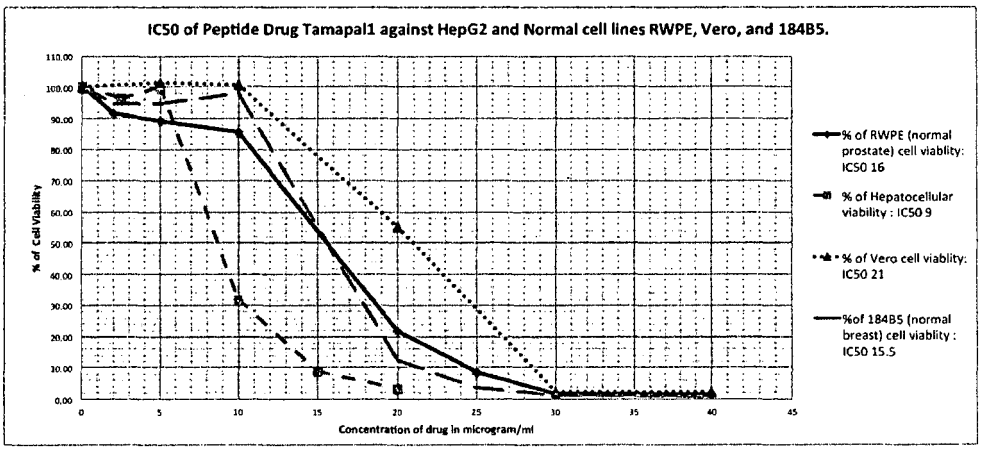


FIGURE 21

A



B

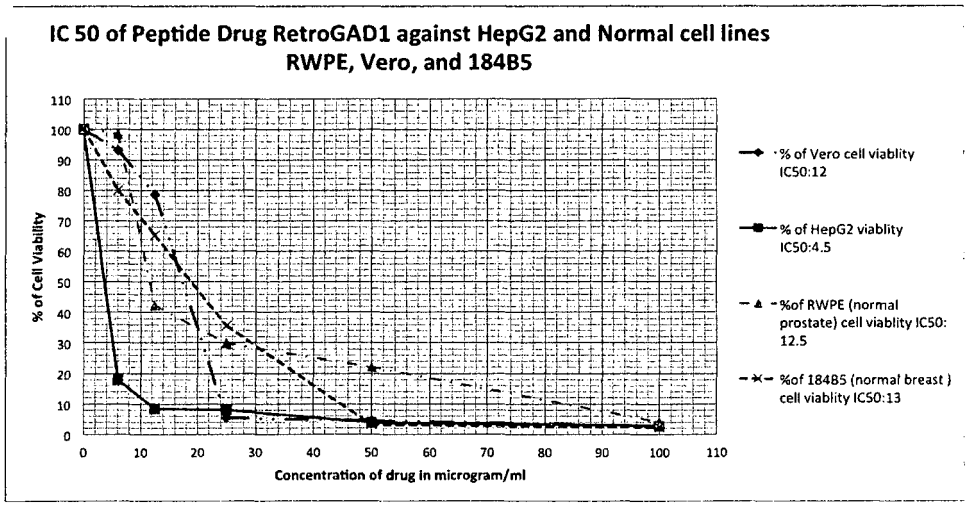


FIGURE 22

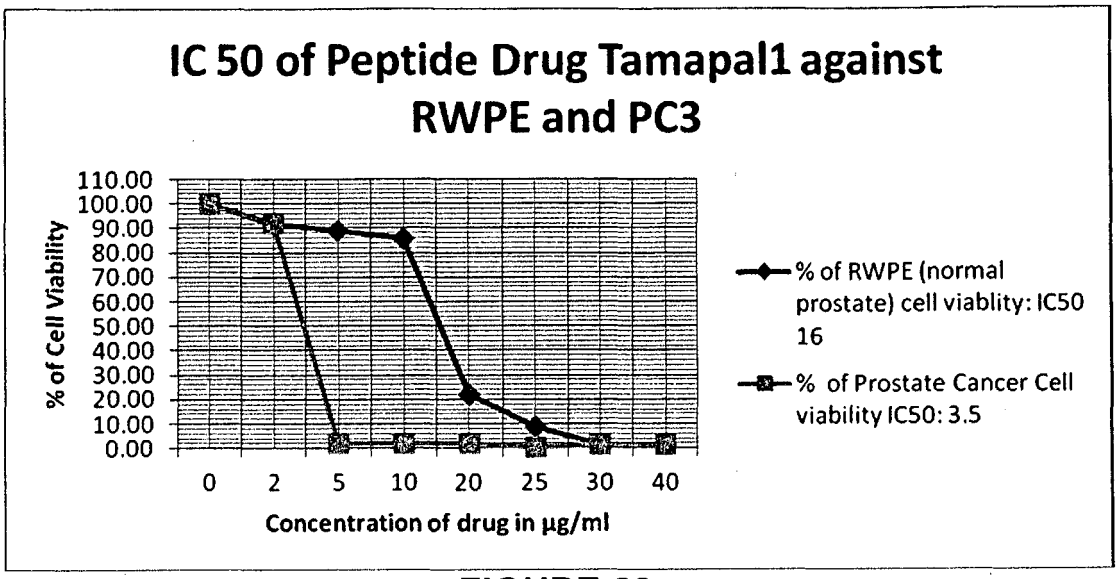


FIGURE 23

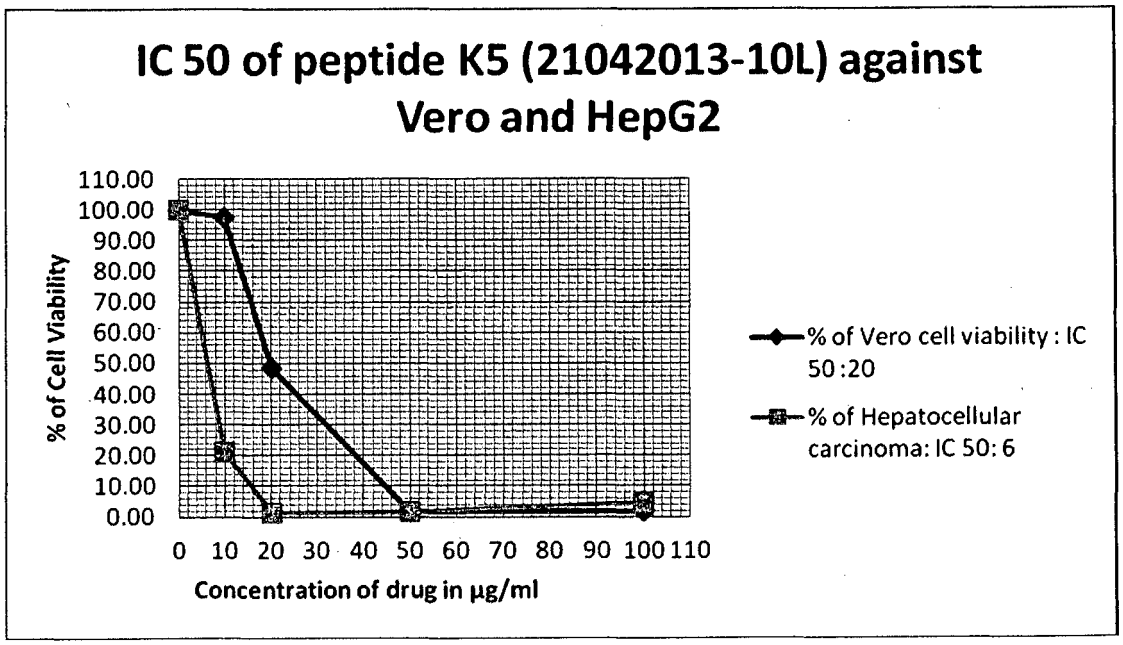


FIGURE 24

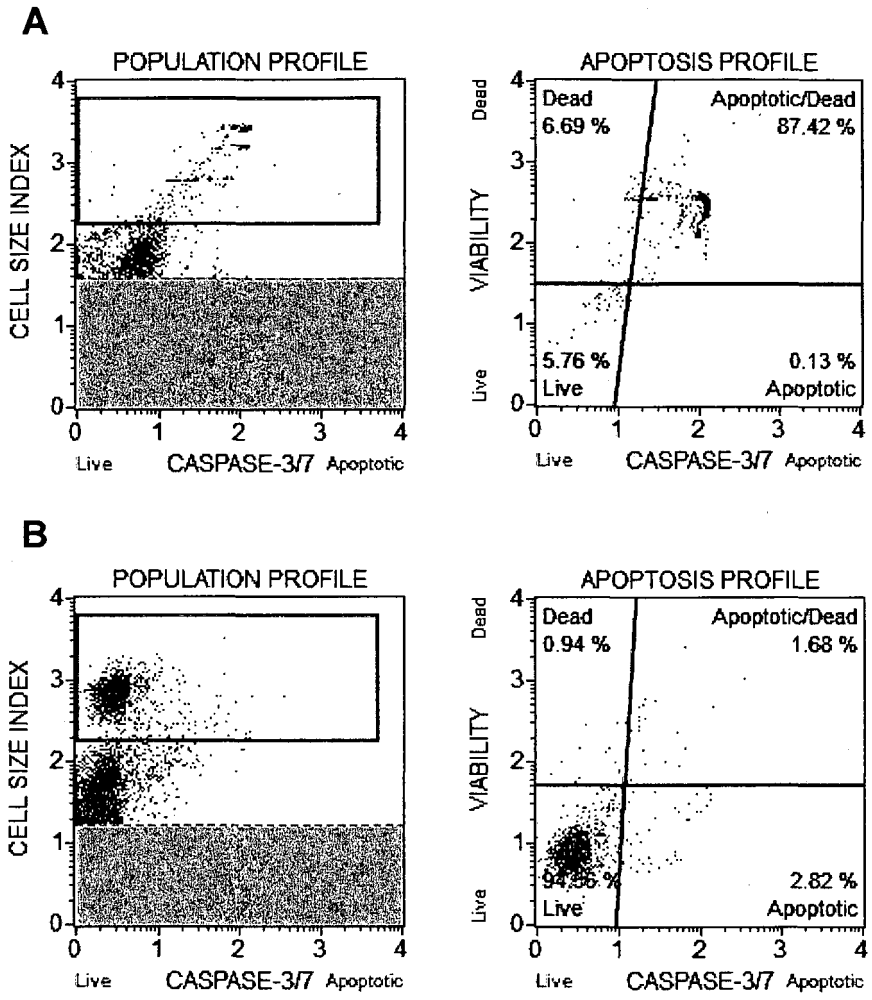

A
POPULATION PROFILE
CELL SIZE INDEX
Live
CASPASE-3/7
Apoptotic
APOPTOSIS PROFILE
Dead
VIABILITY
Live
Dead
6.69 %
Apoptotic/Dead
87.42 %
5.76 %
Live
0.13 %
Apoptotic
B
POPULATION PROFILE
APOPTOSIS PROFILE
Dead
0.94 %
Apoptotic/Dead
1.68 %
2.82 %
Apoptotic

FIGURE 25

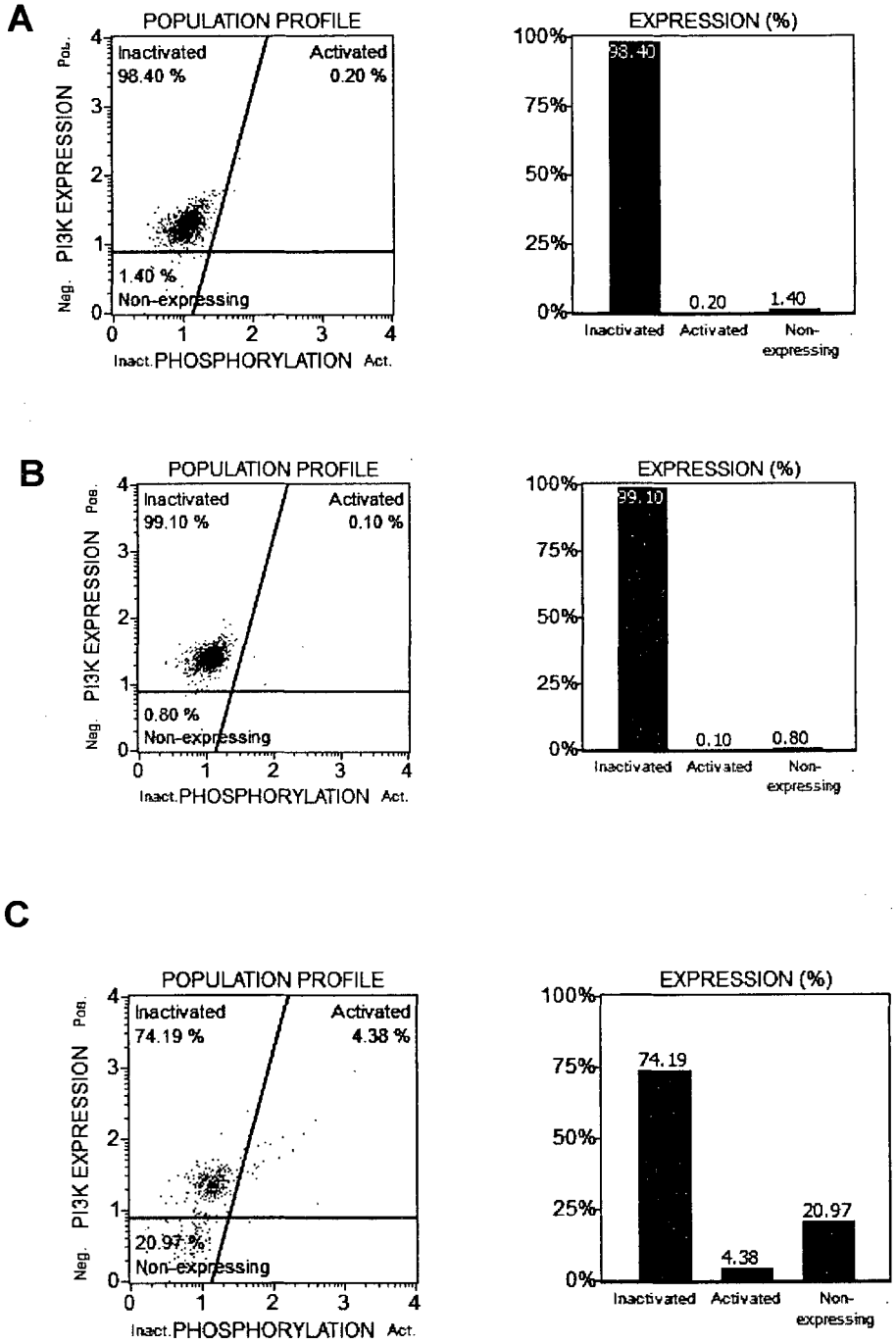

A
POPULATION PROFILE
Inactivated
98.40 %
Activated
0.20 %
1.40 %
Non-expressing
Neg. PI3K EXPRESSION Pos.
Inact. PHOSPHORYLATION Act.
EXPRESSION (%)
98.40
0.20
1.40
Inactivated
Activated
Non-expressing
B
POPULATION PROFILE
Inactivated
99.10 %
Activated
0.10 %
0.80 %
Non-expressing
EXPRESSION (%)
99.10
0.10
0.80
C
POPULATION PROFILE
Inactivated
74.19 %
Activated
4.38 %
20.97 %
Non-expressing
EXPRESSION (%)
74.19
4.38
20.97

FIGURE 26

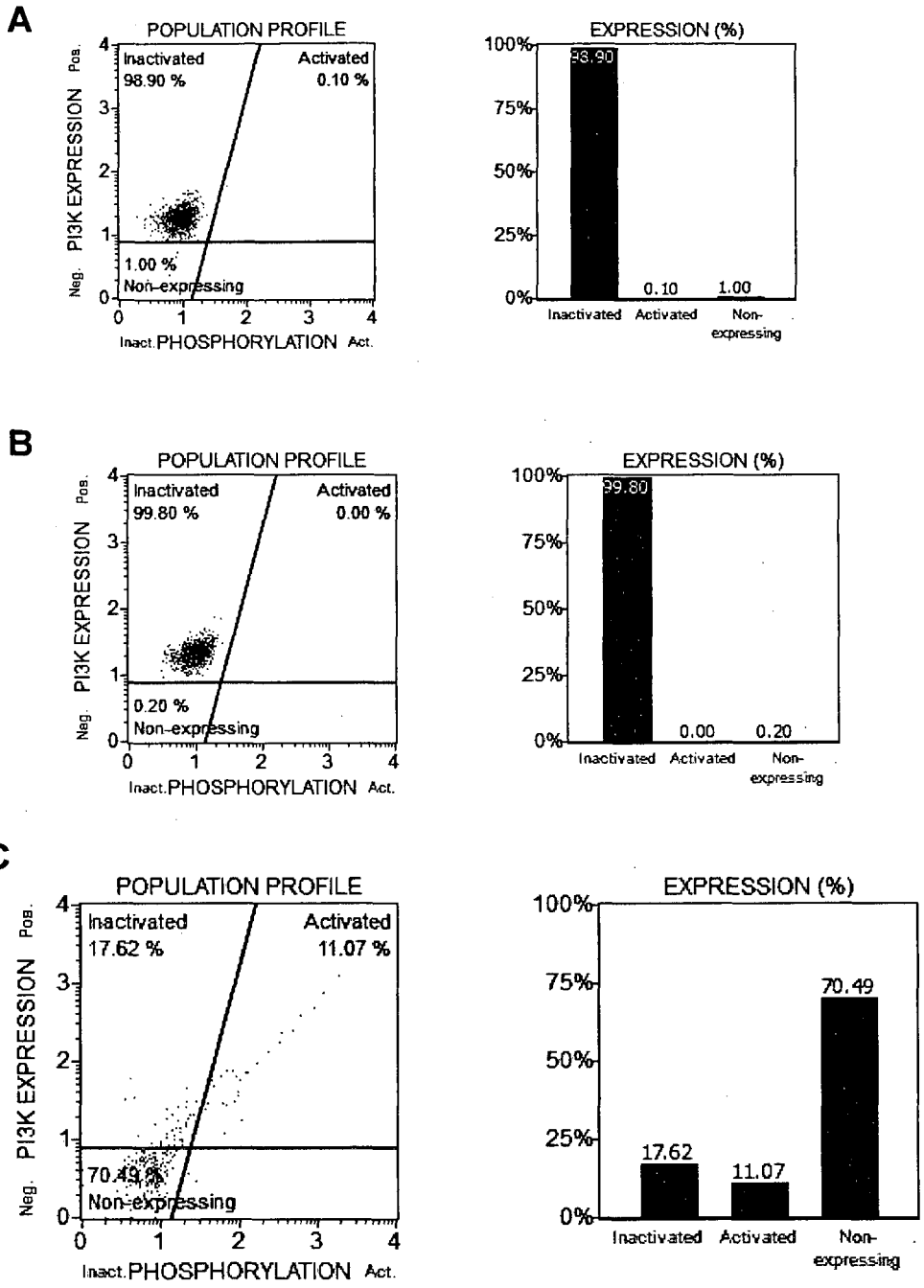

A
POPULATION PROFILE
Inactivated
98.90 %
Activated
0.10 %
1.00 %
Non-expressing
Neg. PI3K EXPRESSION Pos.
Inact. PHOSPHORYLATION Act.
EXPRESSION (%)
98.90
0.10
1.00
Inactivated
Activated
Non-expressing
B
POPULATION PROFILE
Inactivated
99.80 %
Activated
0.00 %
0.20 %
Non-expressing
EXPRESSION (%)
99.80
0.00
0.20
C
POPULATION PROFILE
Inactivated
17.62 %
Activated
11.07 %
70.49 %
Non-expressing
EXPRESSION (%)
17.62
11.07
70.49

FIGURE 27

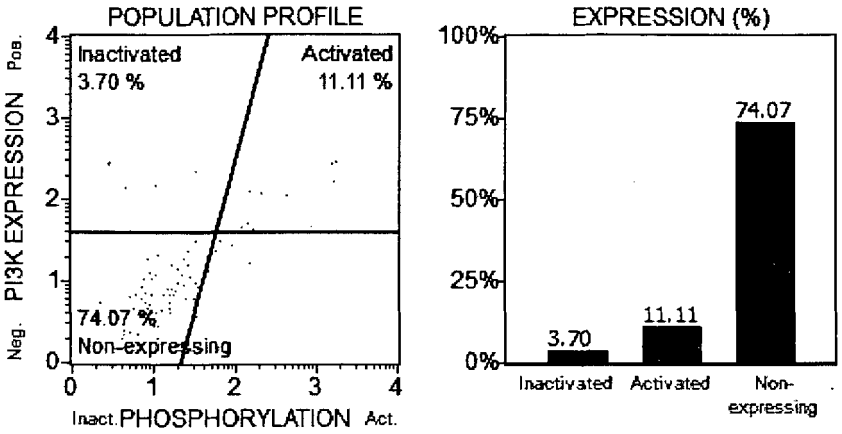


FIGURE 28

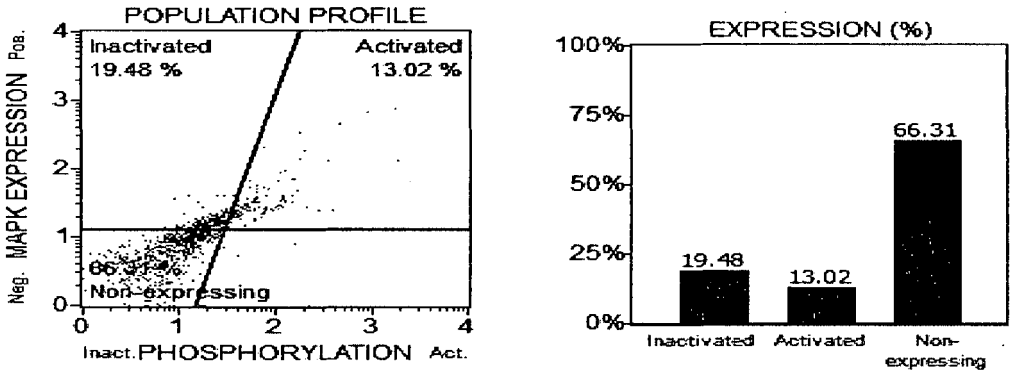


FIGURE 29

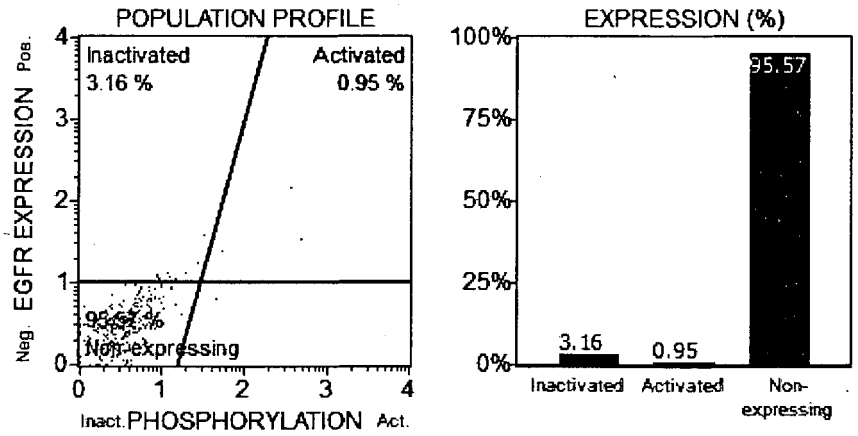


FIGURE 30

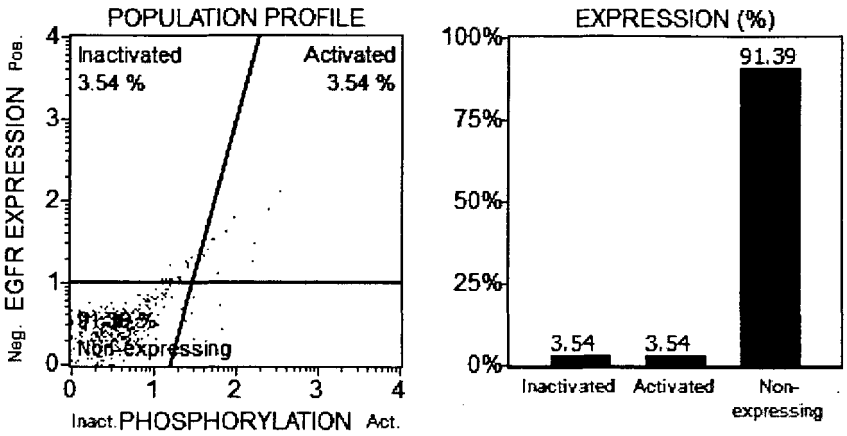
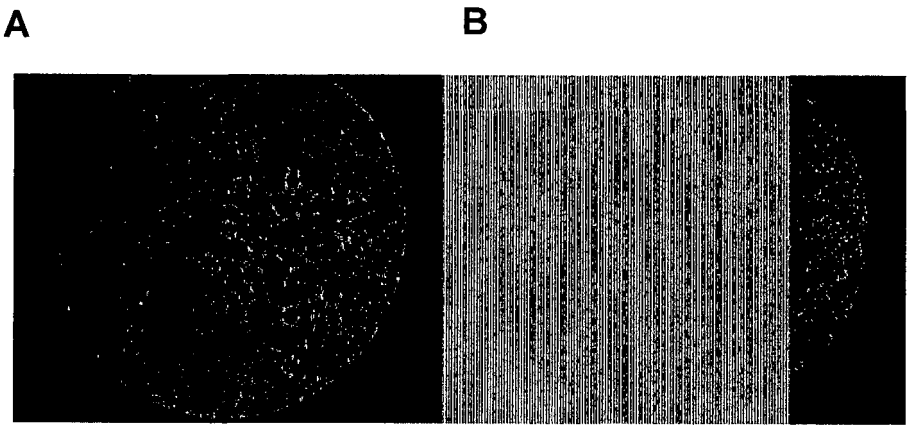


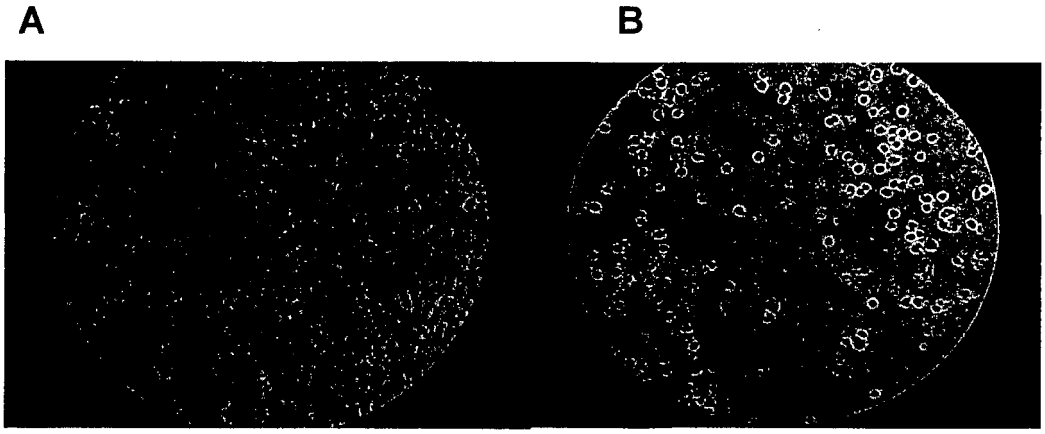
FIGURE 31



HepG2 Control

HepG2 treated with 6 microgram/ml of RetroGAD1

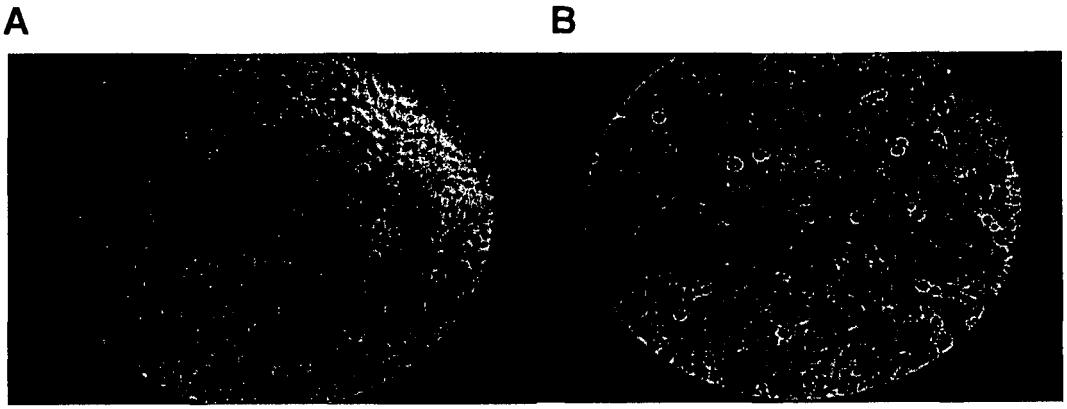
FIGURE 32



PC3 Control

PC3 treated with 5 microgram/ml Tamapal1

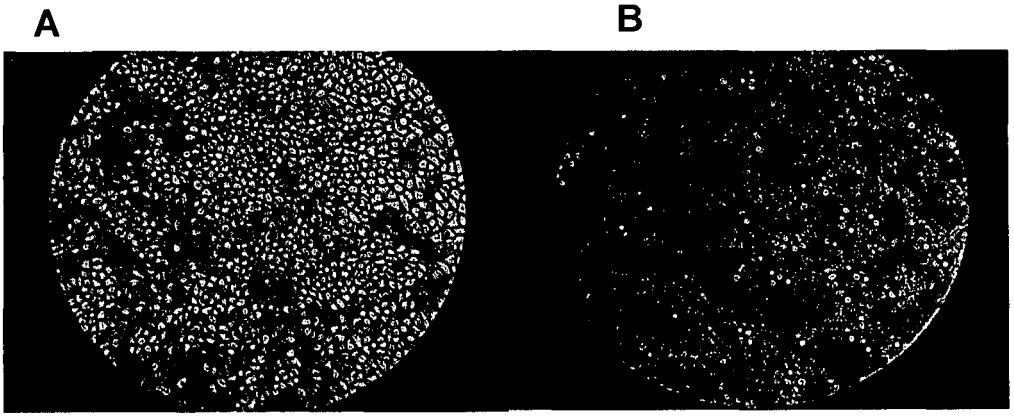
FIGURE 33



Vero Control

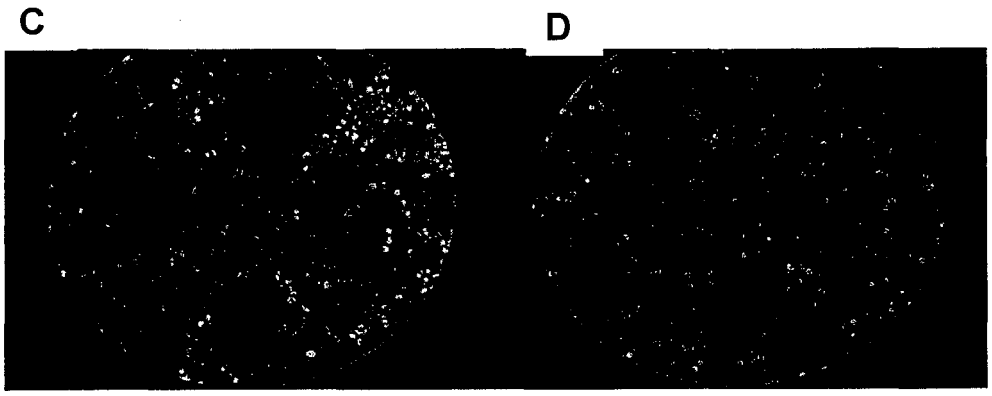
Vero treated with 20 microgram/ml Tamapal1

FIGURE 34



HepG2 Control

HepG2 treated with 20 microgram/ml Tamapal1



HepG2 Control

HepG2 treated with 20 microgram/ml of K5

FIGURE 35

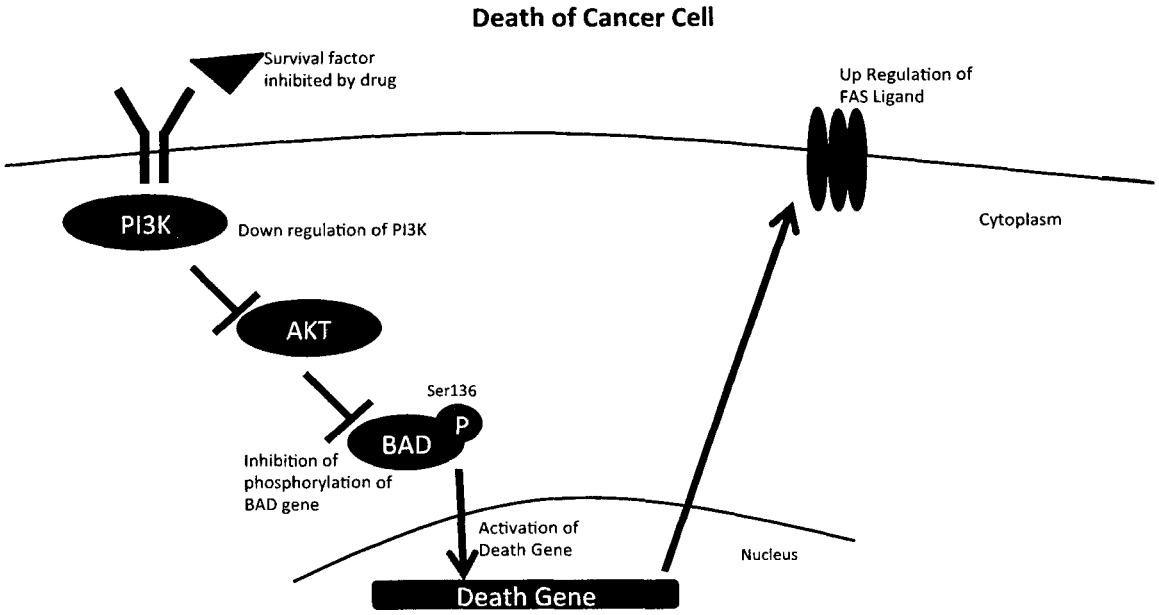


FIGURE 36

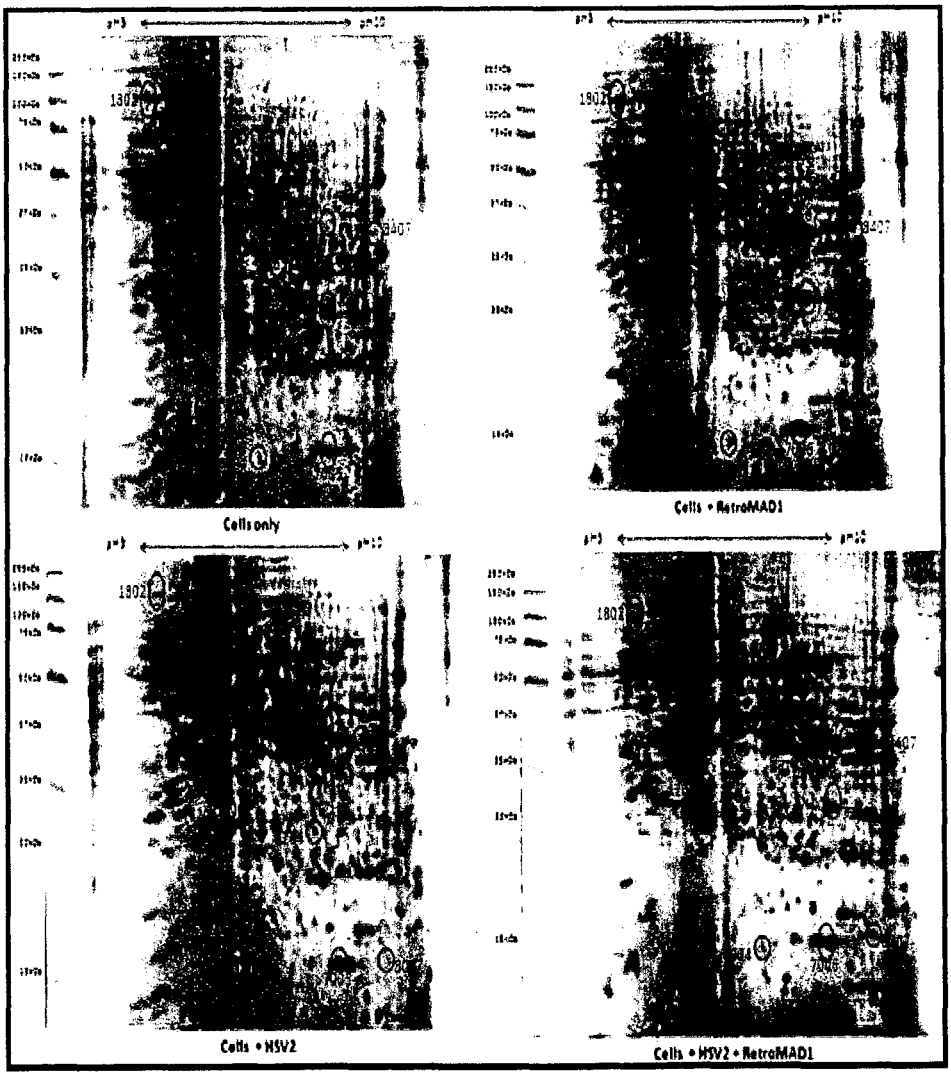


FIGURE 37

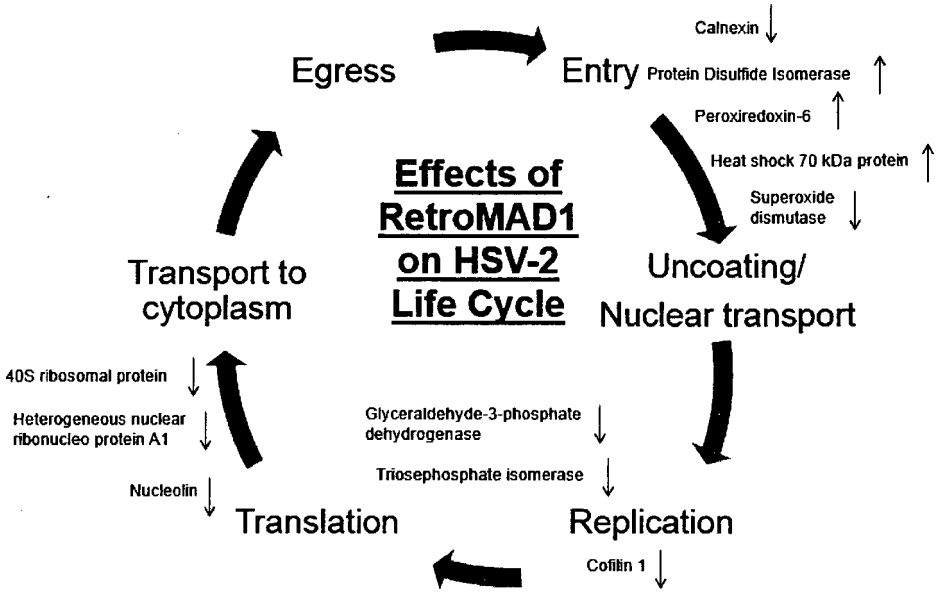


FIGURE 38

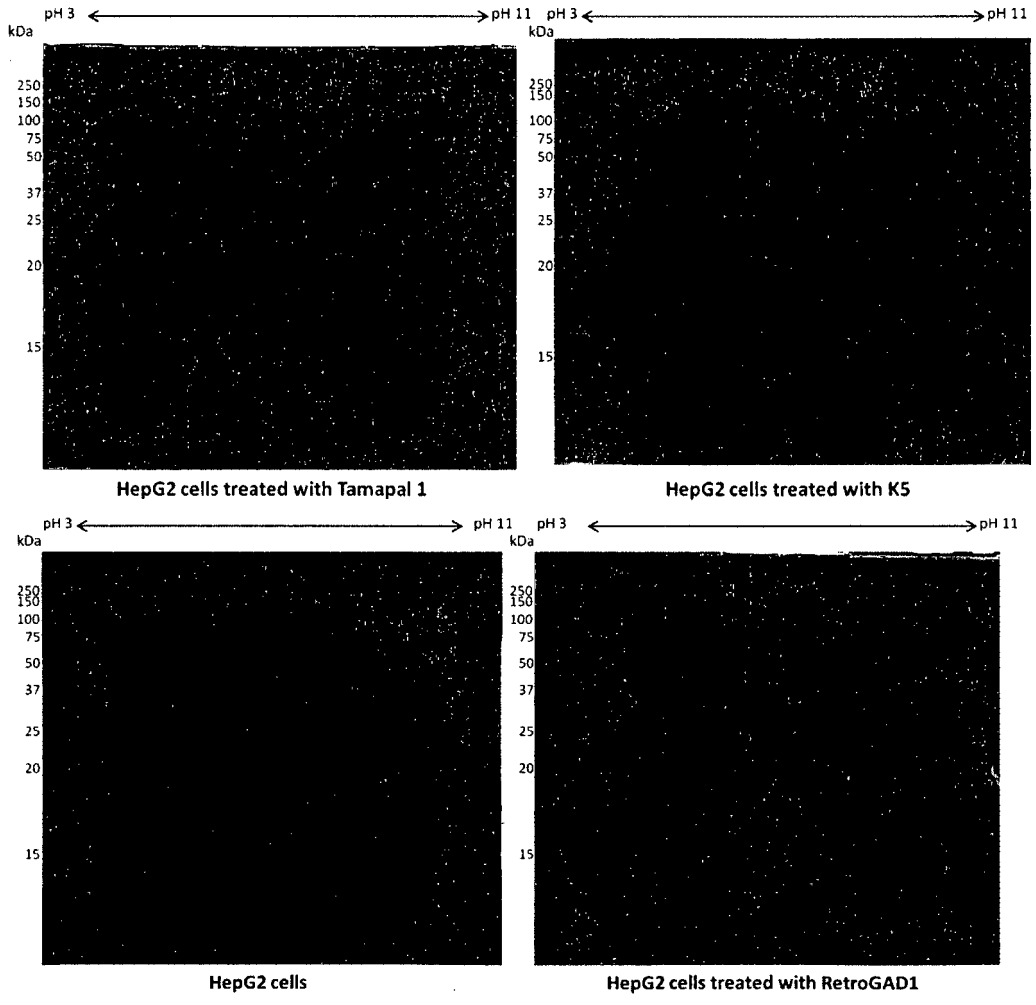


FIGURE 39