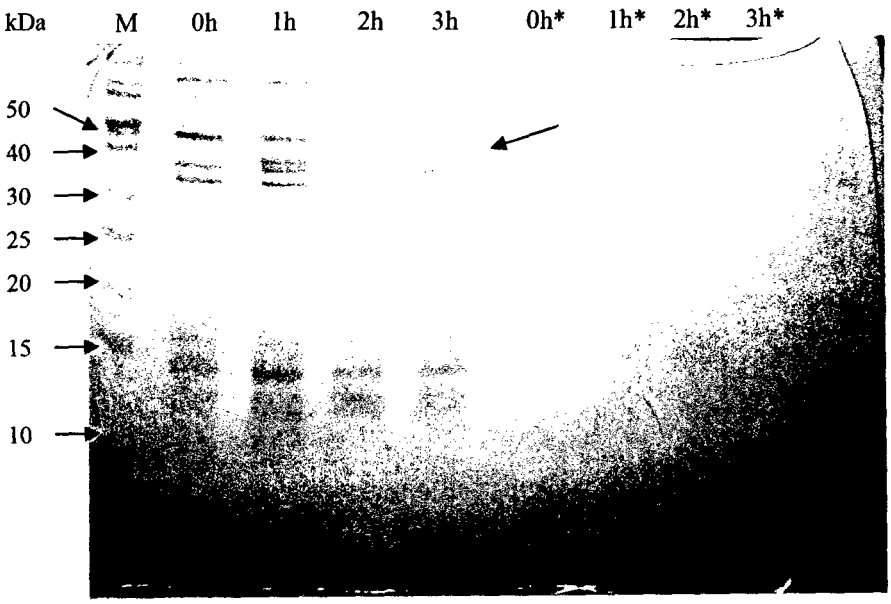
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   1 ATGAAATACCTGCTGCCGACCGCTGCTGCTGGTCTGCTGCTCCTCGCTGCCCAGCCGGCG
   1  M  K  Y  L  L  P  T  A  A  A  G  L  L  L  L  A  A  Q  P  A
  61 ATGGCCATGGGGCGTATTTGCCGTTGCATTTGCGGCCGTGGCATTTGCCGCTGCATCTGT
  21  M  A  M  G  R  I  C  R  C  I  C  G  R  G  I  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)

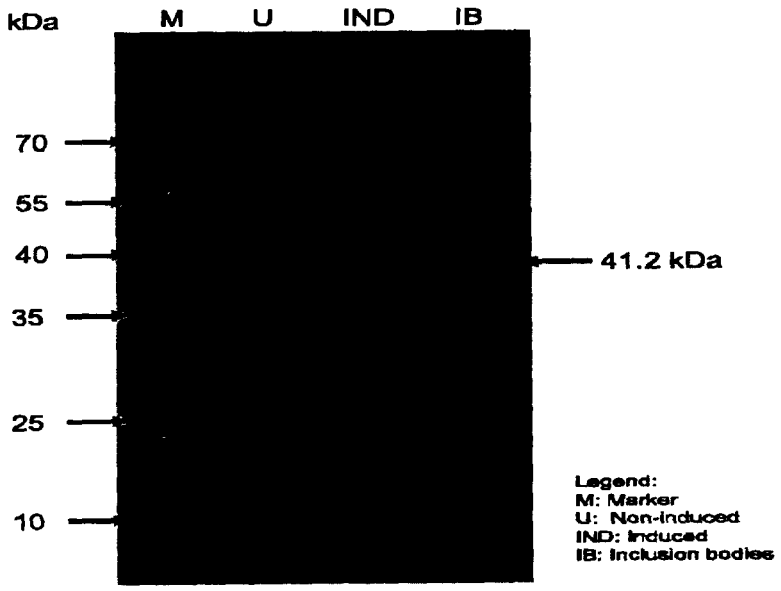
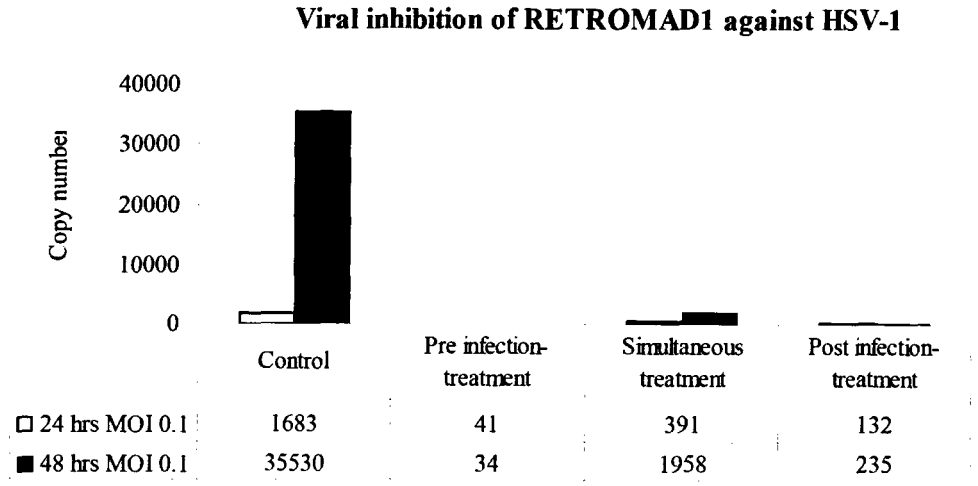

kDa
M
U
IND
IB
70
55
40
35
25
10
41.2 kDa
Legend:
M: Marker
U: Non-induced
IND: Induced
IB: Inclusion bodies

FIGURE 2

(A)


Viral inhibition of RETROMAD1 against HSV-1
Copy number
40000
30000
20000
10000
0
Control
Pre infection-treatment
Simultaneous treatment
Post infection-treatment
24 hrs MOI 0.1
1683
41
391
132
48 hrs MOI 0.1
35530
34
1958
235

(B)

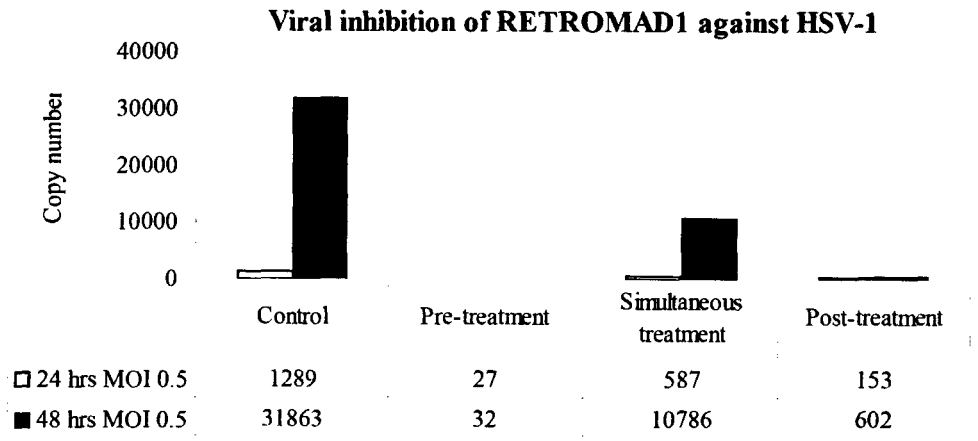
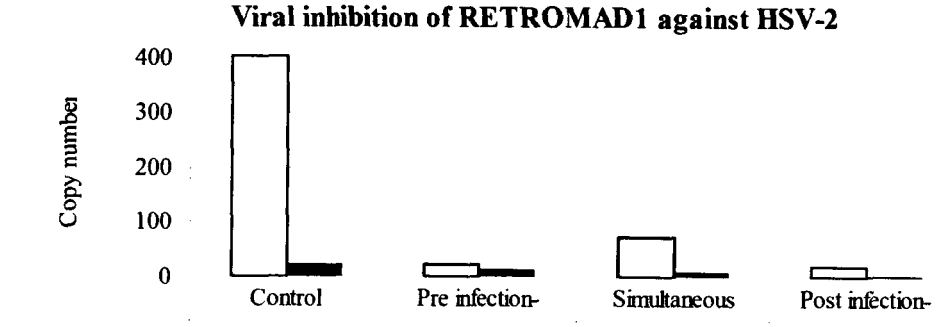

Viral inhibition of RETROMAD1 against HSV-1
Copy number
40000
30000
20000
10000
0
Control
Pre-treatment
Simultaneous treatment
Post-treatment
24 hrs MOI 0.5
1289
27
587
153
48 hrs MOI 0.5
31863
32
10786
602

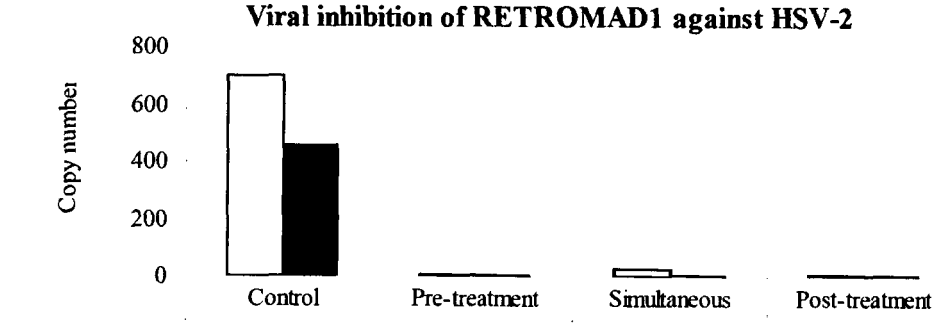
FIGURE 3

(A)



	Control	Pre infection-	Simultaneous	Post infection-
☐ 24 hrs MOI 0.1	404	22	73	19
■ 48 hrs MOI 0.1	23	13	7	4

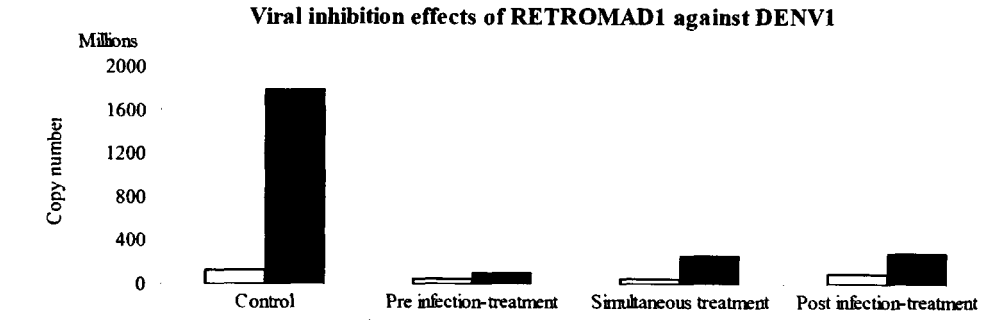
(B)



	Control	Pre-treatment	Simultaneous	Post-treatment
☐ 24 hrs MOI 0.5	700	6	24	5
■ 48 hrs MOI 0.5	458	6	4	6

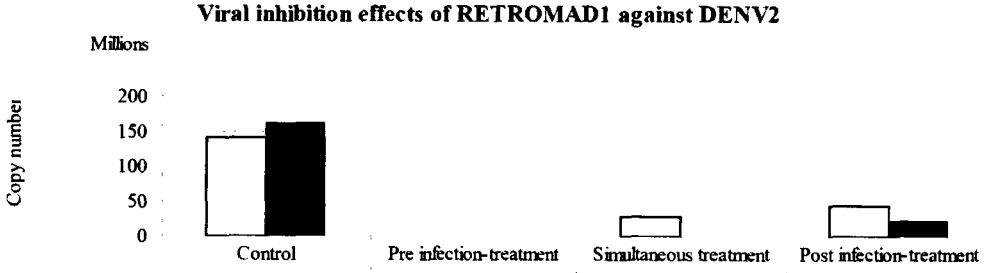
FIGURE 4

(A)

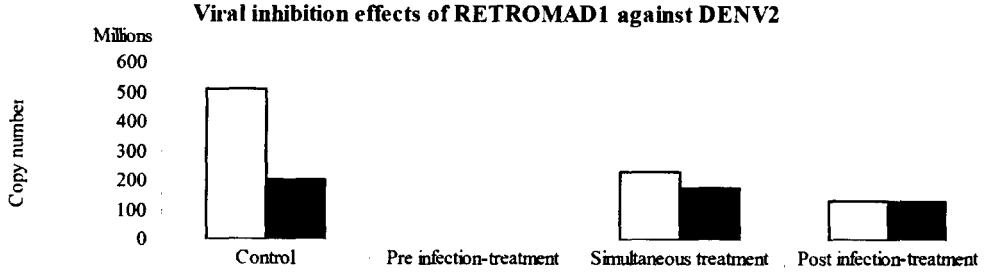


	Control	Pre infection-treatment	Simultaneous treatment	Post infection-treatment
□ 24hrs MOI 0.1	121502953	44829051	47244413	92070520
■ 48 hrs MOI 0.1	1792399919	106963962	266962634	285596629

(B)



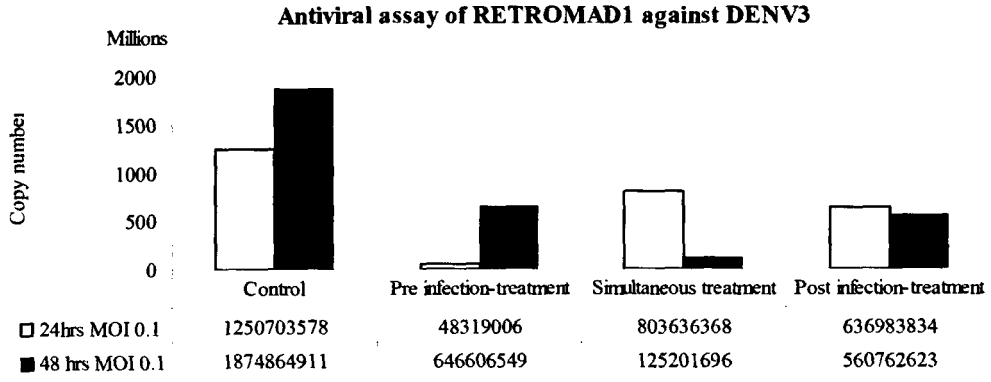
	Control	Pre infection-treatment	Simultaneous treatment	Post infection-treatment
□ 24 hrs MOI 0.1	141157422	144823	28164186	44829051
■ 24 hrs MOI 0.1	162766400	3904	5230	23003261



	Control	Pre infection-treatment	Simultaneous treatment	Post infection-treatment
□ 24 hrs MOI 0.5	512517770	4369	229791306	133940775
■ 48 hrs MOI 0.5	203816850	1212	178088096	132940395

FIGURE 5 (continued)

(C)


Antiviral assay of RETROMAD1 against DENV3
Millions
2000
1500
1000
500
0
Copy number
Control
Pre infection-treatment
Simultaneous treatment
Post infection-treatment
24hrs MOI 0.1
1250703578
48319006
803636368
636983834
48 hrs MOI 0.1
1874864911
646606549
125201696
560762623

(D)

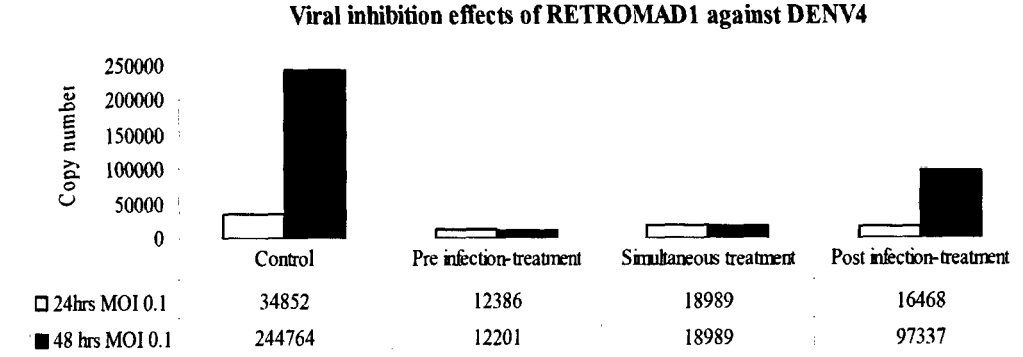

Viral inhibition effects of RETROMAD1 against DENV4
250000
200000
150000
100000
50000
0
Copy number
Control
Pre infection-treatment
Simultaneous treatment
Post infection-treatment
24hrs MOI 0.1
34852
12386
18989
16468
48 hrs MOI 0.1
244764
12201
18989
97337

FIGURE 5

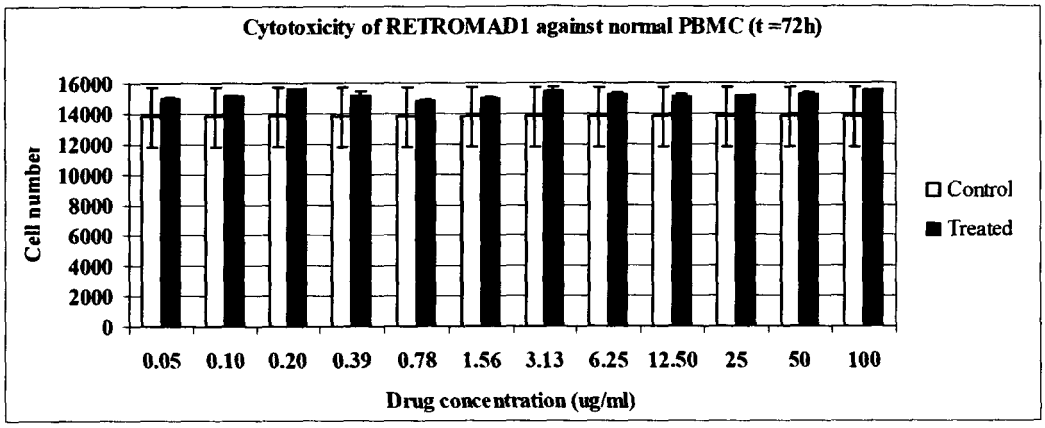


FIGURE 6

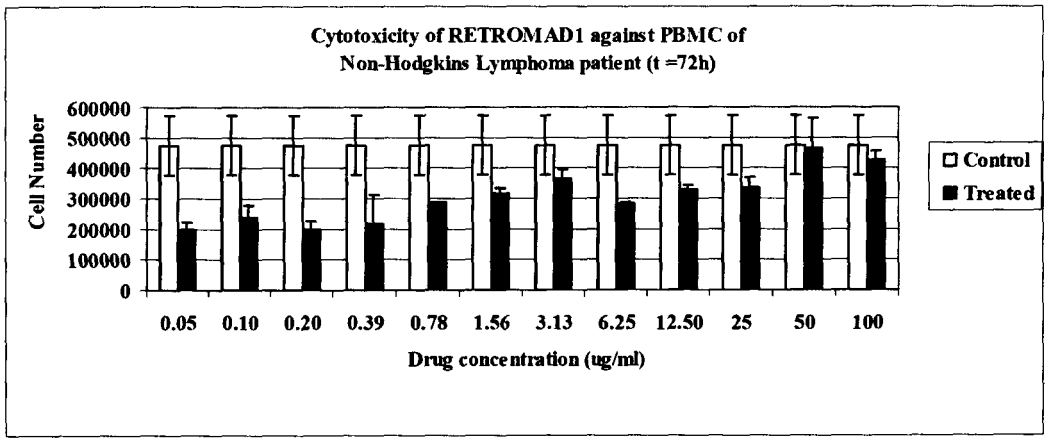
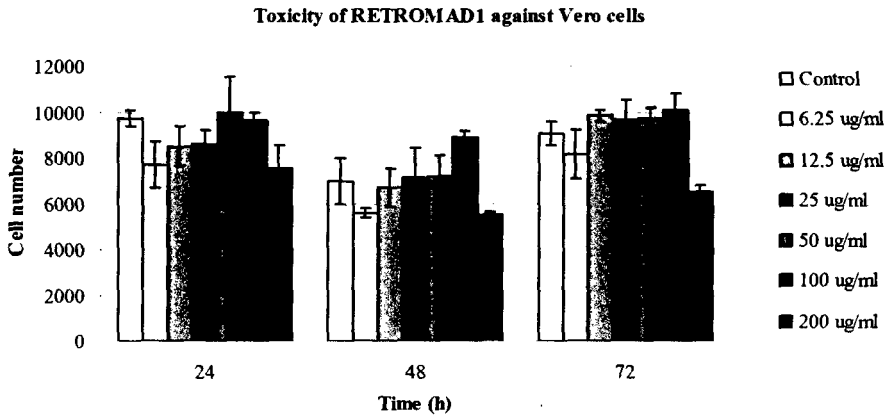
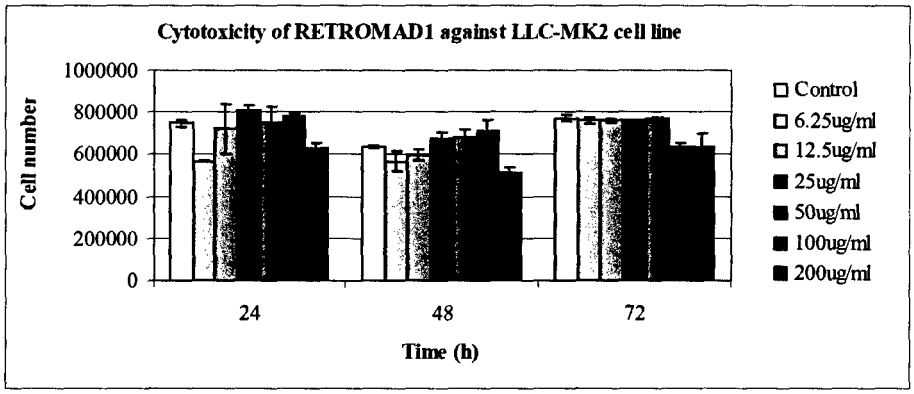


FIGURE 7

(A)


Toxicity of RETROMAD1 against Vero cells
Cell number
12000
10000
8000
6000
4000
2000
0
24
48
72
Time (h)
Control
6.25 ug/ml
12.5 ug/ml
25 ug/ml
50 ug/ml
100 ug/ml
200 ug/ml

(B)


Cytotoxicity of RETROMAD1 against LLC-MK2 cell line
Cell number
1000000
800000
600000
400000
200000
0
24
48
72
Time (h)
Control
6.25ug/ml
12.5ug/ml
25ug/ml
50ug/ml
100ug/ml
200ug/ml

(C)

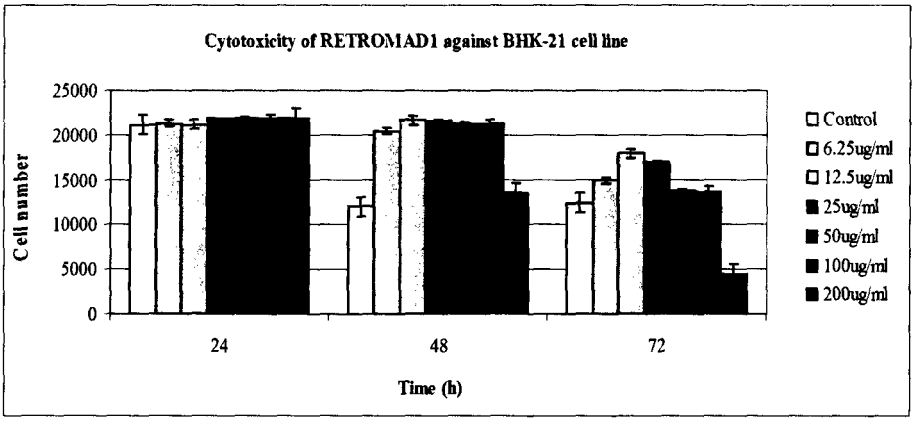
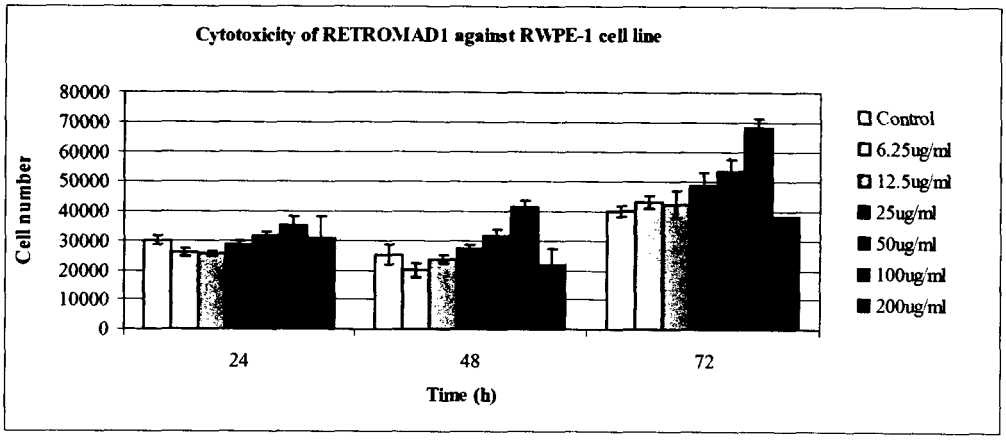
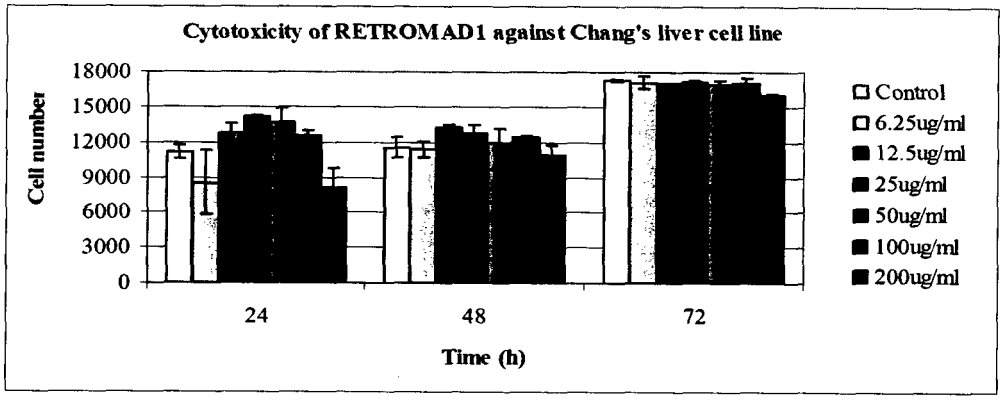

Cytotoxicity of RETROMAD1 against BHK-21 cell line
Cell number
25000
20000
15000
10000
5000
0
24
48
72
Time (h)
Control
6.25ug/ml
12.5ug/ml
25ug/ml
50ug/ml
100ug/ml
200ug/ml

FIGURE 8

(A)



(B)



(C)

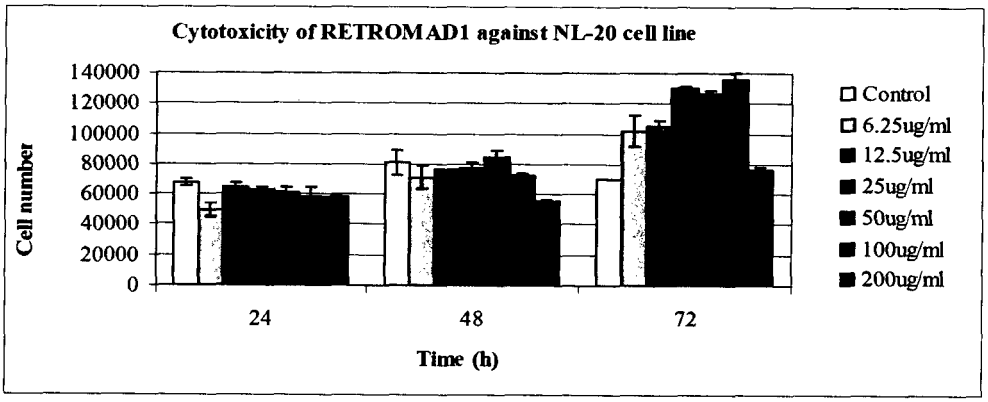
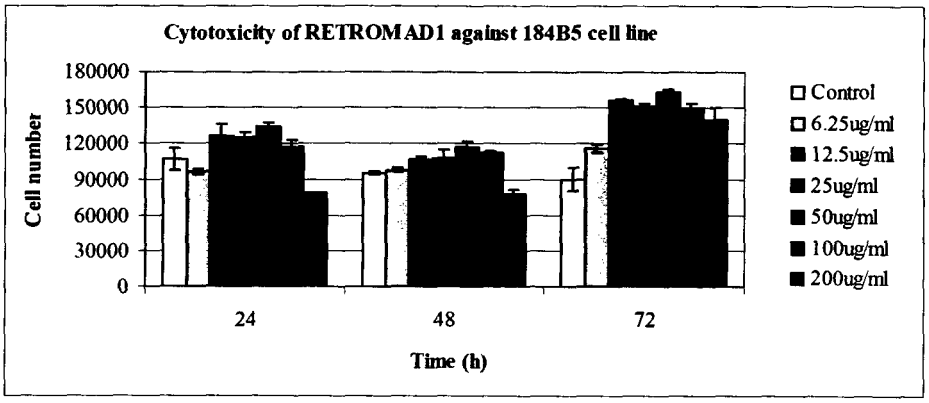


FIGURE 9 (continued)

(D)


Cytotoxicity of RETROMAD1 against 184B5 cell line
Cell number
180000
150000
120000
90000
60000
30000
0
24
48
72
Time (h)
Control
6.25ug/ml
12.5ug/ml
25ug/ml
50ug/ml
100ug/ml
200ug/ml

(E)

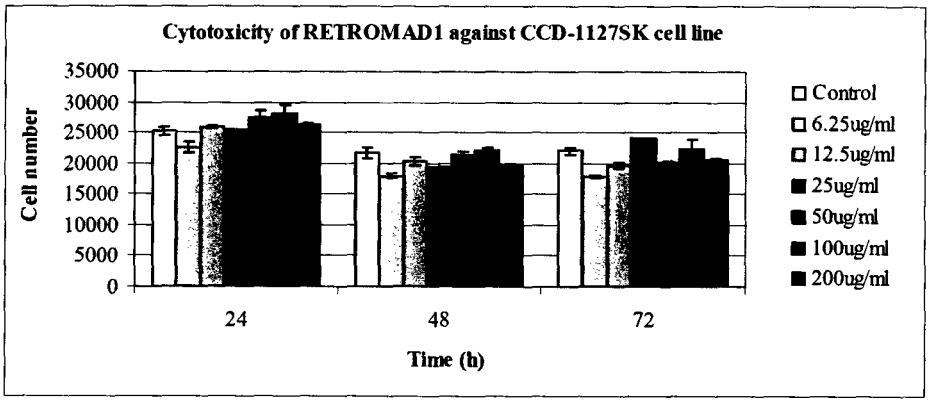

Cytotoxicity of RETROMAD1 against CCD-1127SK cell line
Cell number
35000
30000
25000
20000
15000
10000
5000
0
24
48
72
Time (h)
Control
6.25ug/ml
12.5ug/ml
25ug/ml
50ug/ml
100ug/ml
200ug/ml

FIGURE 9

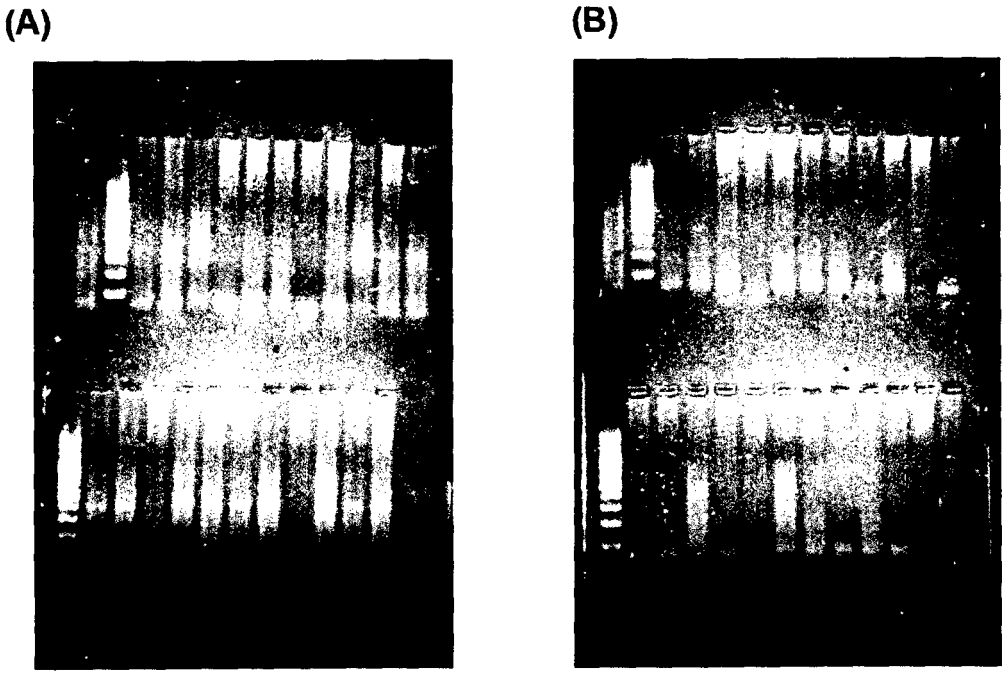


FIGURE 10

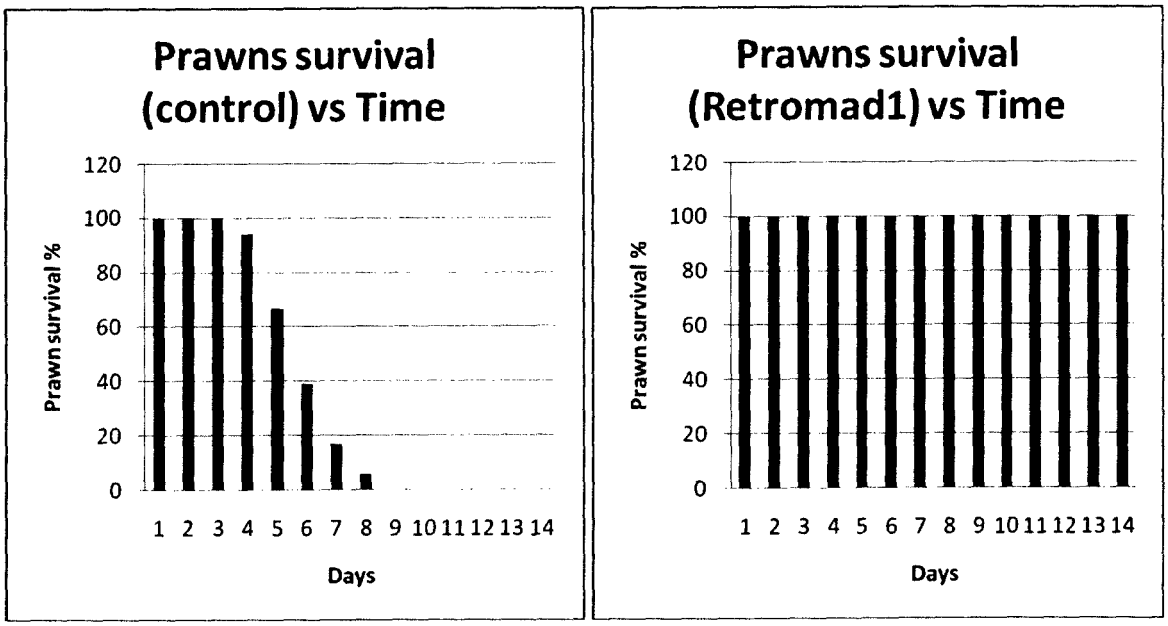
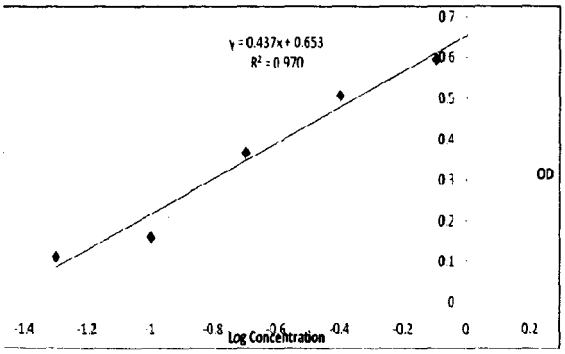


FIGURE 11

A



B

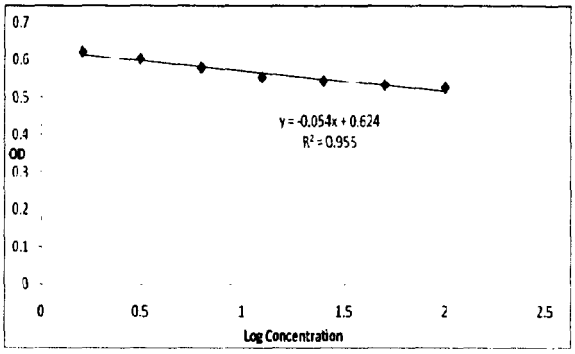
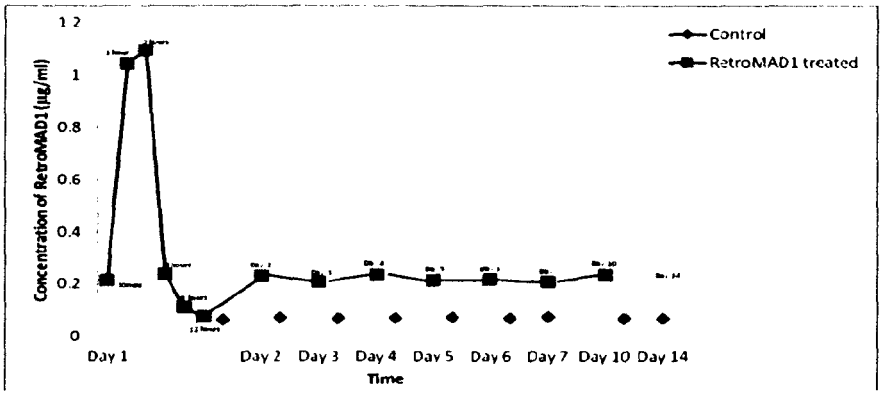


FIGURE 12

A



B

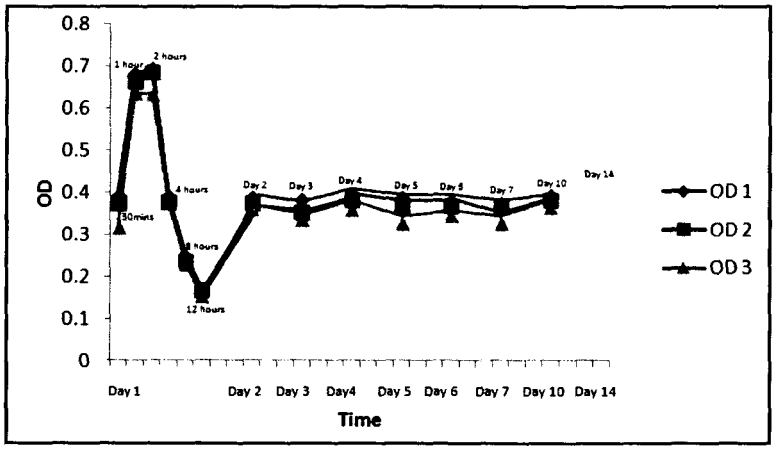


FIGURE 13

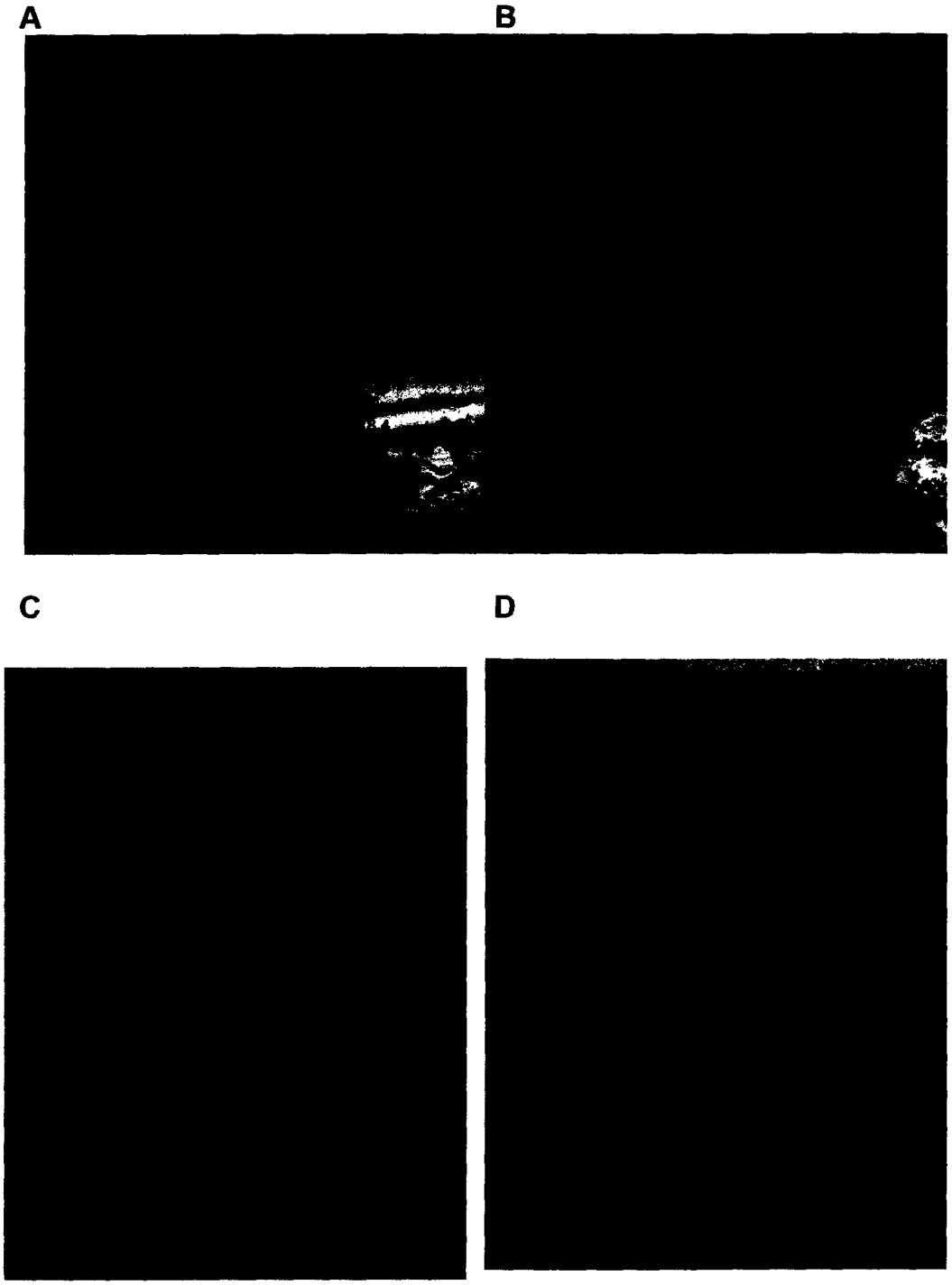


FIGURE 14

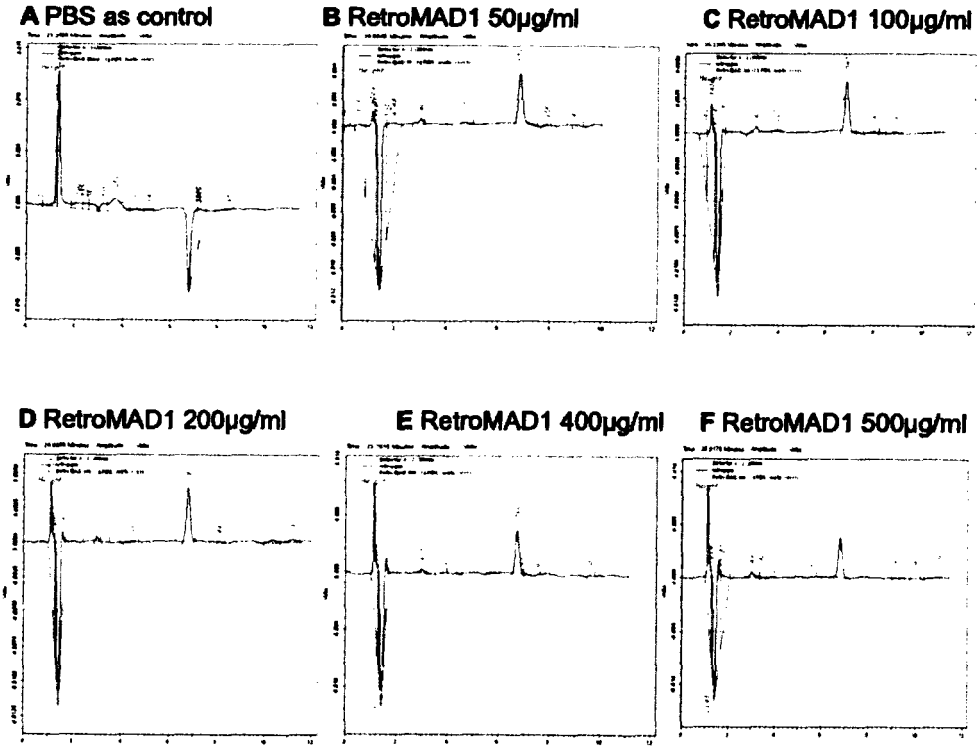


FIGURE 15

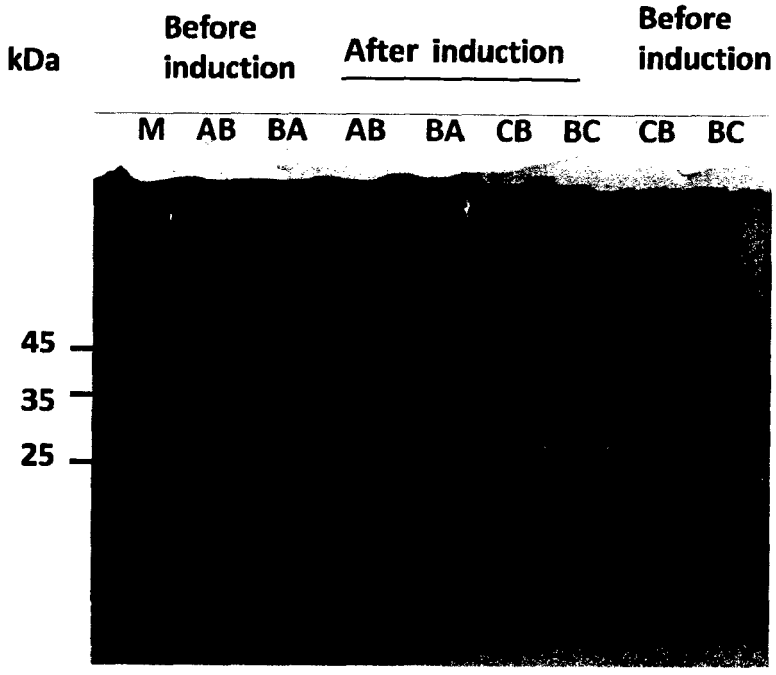


FIGURE 16

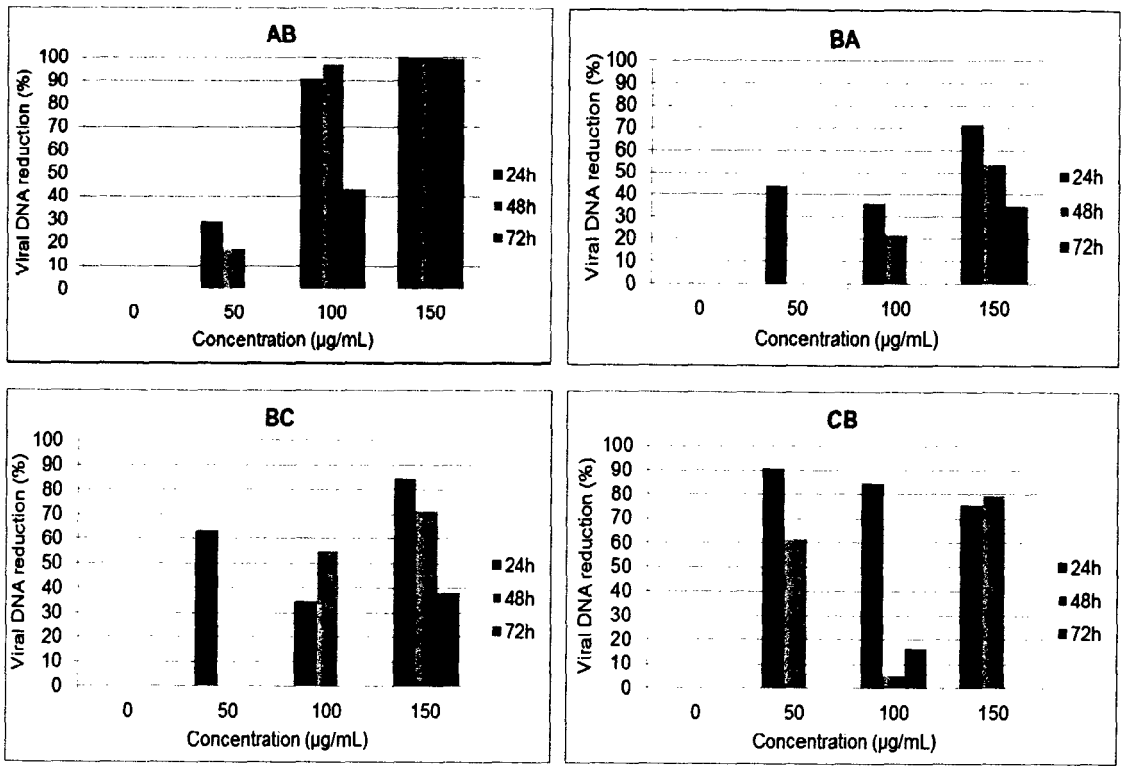


FIGURE 17

	24h		48h	
	Control (pfu/mL)	Treated (pfu/mL)	Control (pfu/mL)	Treated (pfu/mL)
Post	$8.6x10^4$	$9.0x10^3$	$1.4x10^6$	$2.0x10^4$
Simultaneous	$1.0x10^5$	$8.0x10^4$	$1.6x10^6$	$1.6x10^6$

FIGURE 18

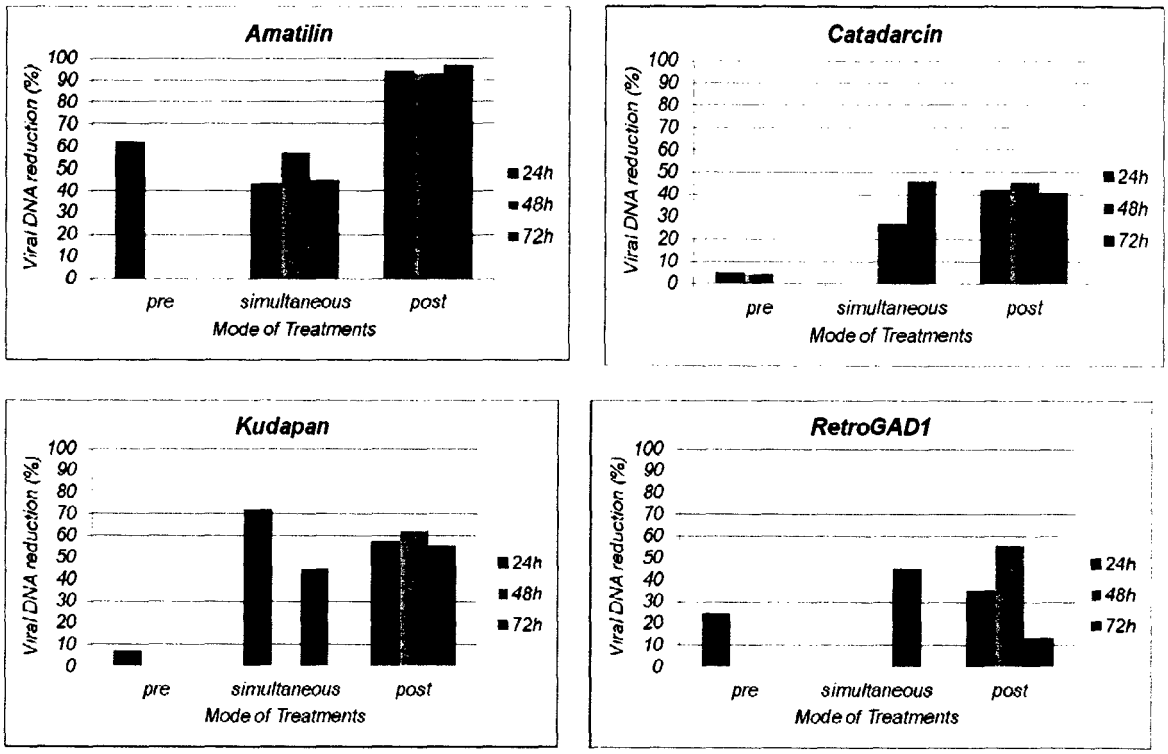

Amatilin
Viral DNA reduction (%)
100
90
80
70
60
50
40
30
20
10
0
pre
simultaneous
post
Mode of Treatments
24h
48h
72h
Catadarcin
Viral DNA reduction (%)
pre
simultaneous
post
Mode of Treatments
24h
48h
72h
Kudapan
Viral DNA reduction (%)
pre
simultaneous
post
Mode of Treatments
24h
48h
72h
RetroGAD1
Viral DNA reduction (%)
pre
simultaneous
post
Mode of Treatments
24h
48h
72h

FIGURE 19