FIGURE 1

A

M M M A S K D A T S S V D G A S G A G Q L V P E V N A S D P L A M
D P V A G S S T A V A T A G Q V N P I D P W I I N N F V Q A P Q G
E F T I S P N N T P G D V L F D L S L G P H L N P F L L H L S Q M
Y N G W V G N M R V R I M L A G N A F T A G K I I V S C I P P G F
G S H N L T I A Q A T L F P H V I A D V R T L D P I E V P L E D V
R N V L F H N N D R N Q Q T M R L V C M L Y T P L R T G G G T G D
S F V V A G R V M T C P S P D F N F L F L V P P T V E Q K T R P F
T L P N L P L S S L S N S R A P L P I S S M G I S P D N V Q S V Q
F Q N G R C T L D G R L V G T T P V S L S H V A K I R G **T S N G T**
V I N L T E L **D G T P F H P F E** G P A P I G F P D L G G C D W H I
N M T Q **F G H S S Q T Q** Y D V D T **T P D T** F V P H L G S I Q A **N G**
I G S G N Y V G V L S W I S P P **S H P S G S Q** V D L W K I P N Y G
S S I T E A T H L A P S V Y P P G F G E V L V F F M S K M P G P G
A Y N L P C L L P Q E Y I S H L A S E Q A P T V G E A A L L H Y V
D P D T G R N L G E F K A Y P D G F L T C V P N G A S S G P Q Q L
P I N G V F V F V S W V S R F Y Q L K P V G T A S S A R G R L G L
R R **(SEQ ID NO: 1)**

B

M K M A S S D A N P S D G S T A N L V P E V N N E V M A L E P V V
G A A I A A P V A G Q Q N V I D P W I R N N F V Q A P G G E F T V
S P R N A P G E I L W S A P L G P D L N P Y L S H L A R M Y N G Y
A G G F E V Q V I L A G N A F T A G K I I F A A V P P N F P T E G
L S P S Q V T M F P H I I V D V R Q L E P V L I P L P D V R N N F
Y H Y N Q S N D P T I K L I A M L Y T P L R A N N A G D D V F T V
S C R V L T R P S P D F D F I F L V P P T V E S R T K P F T V P I
L T V E E M T N S R F P I P L E K L F T G P S G A F V V Q P Q N G
R C T T D G V L L G T T Q L S P V N I C T F R G D V T H **I A G T Q**
E Y T M N L A S **Q N W N N Y D P T E E I** P A P L G T P D F V G K I
Q G V L T Q T **T R G D G S T R G** H K A T V S T **G S V H** F T P K L G
S V **Q F S T D T S N D F** E T G Q N T K F T P V G **V V Q D G S T T H**
Q N E P Q Q W V L P D Y S G R D S H N V H L A P A V A P T F P G E
Q L L F F R S T M P G C S G Y P N M N L D C L L P Q E W V Q H F Y
Q E A A P A Q S D V A L L R F V N P D T G R V L F E C K L H K S G
Y V T V A H T G Q H D L V I P P N G Y F R F D S W V N Q F Y T L A
P M G N G T G R R R A L **(SEQ ID NO: 2)**

FIGURE 2

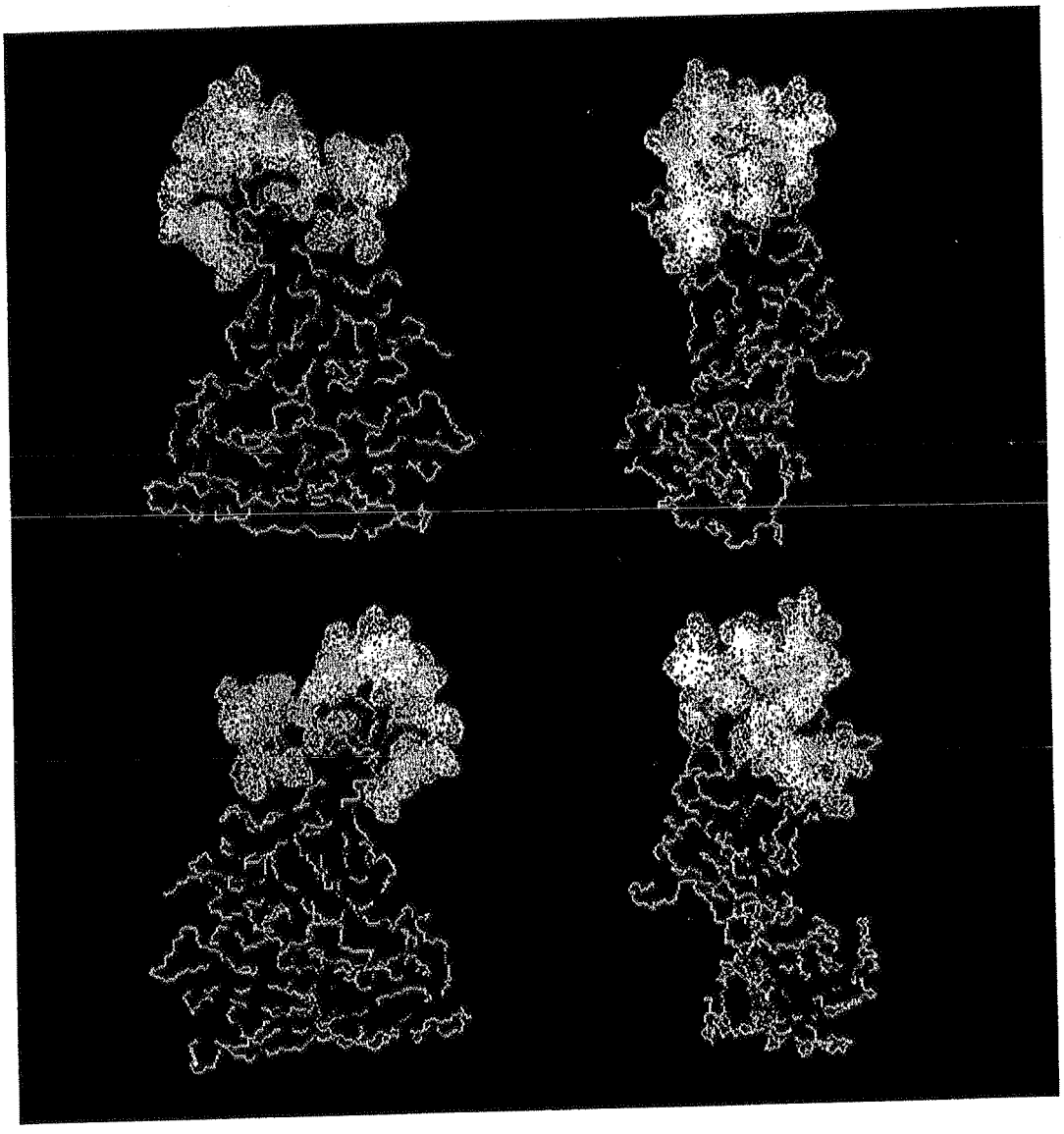
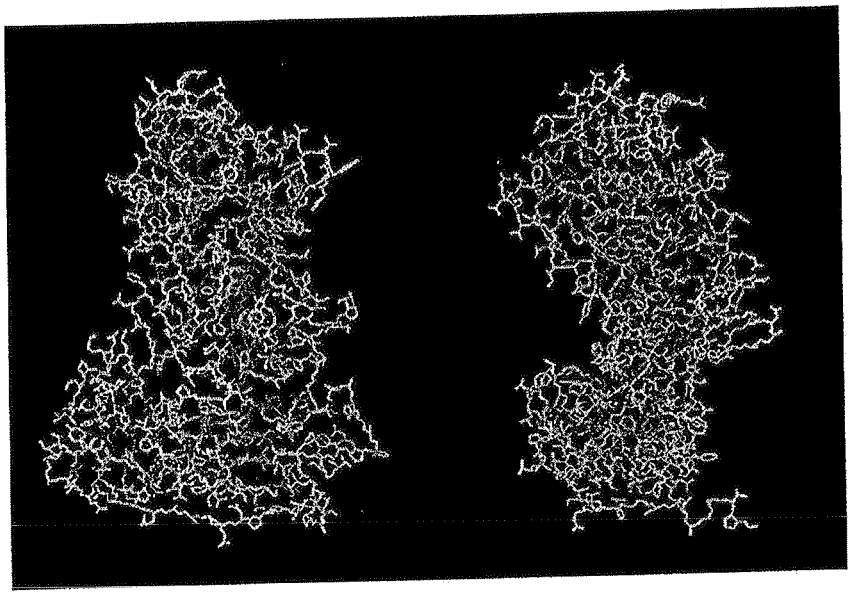


FIGURE 3

A



B

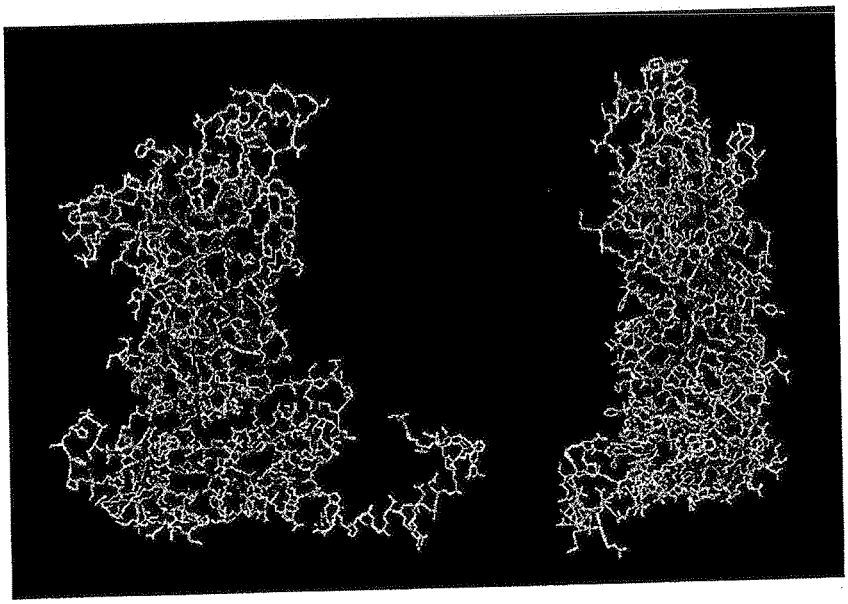
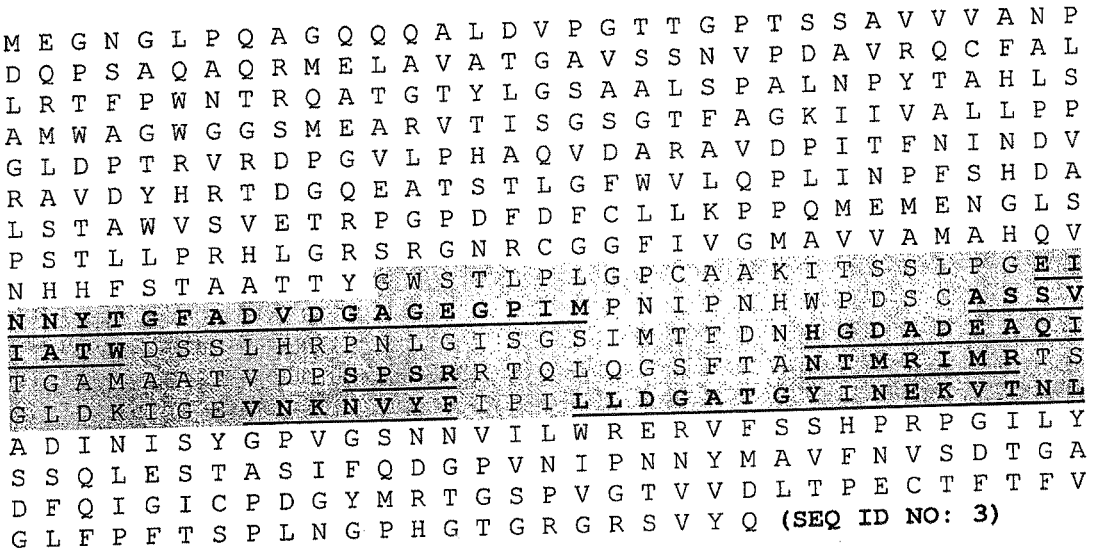


FIGURE 4

A


MEGNGLPQAGQQQALDVPGTTGPTSSAVVVANP
DQPSAQAQRMELAVATGAVSSNVPDAVRQCFAL
LRTFPWNTRQATGTYLGSAALSPALNPYTAHLS
AMWAGWGGSMEARVTISGSGTFAGKIIVALLPP
GLDPTRVRDPGVLPHAQVDARAVDPITFNINDV
RAVDYHRTDGQEATSTLGFWVLQPLINPFSHDA
LSTAWVSVETRPGPDFDFCLLKPPQMEMENGLS
PSTLLPRHLGRSRGNRCGGFIVGMAVVAMAHQV
NHHFSTAATTYGWSTLPLGPCAAKITSSLPGEI
NNYTGFADVDGAGEGPIMPNIPNHWPDSCASSV
IATWDSSLHRPNLGISGSIMTFDNHGDADEAQI
TGAMAATVDPSPSRRTQLQGSFTANTMRIMRTS
GLDKIGEVNKNVYFIPILLDGATGYINEKVTNL
ADINISYGPVGSNNVILWRERVFSSHPRPGILY
SSQLESTASIFQDGPVNIPNNYMAVFNVSDTGA
DFQIGICPDGYMRTGSPVGTVVDLTPECTFTFV
GLFPFTSPLNGPHGTGRGRSVYQ (SEQ ID NO: 3)

B

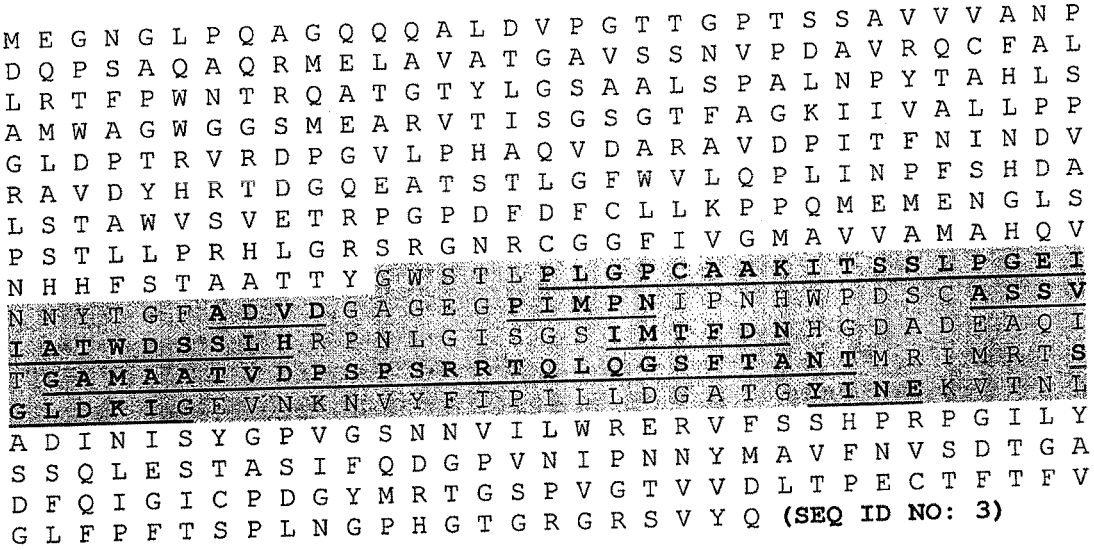

MEGNGLPQAGQQQALDVPGTTGPTSSAVVVANP
DQPSAQAQRMELAVATGAVSSNVPDAVRQCFAL
LRTFPWNTRQATGTYLGSAALSPALNPYTAHLS
AMWAGWGGSMEARVTISGSGTFAGKIIVALLPP
GLDPTRVRDPGVLPHAQVDARAVDPITFNINDV
RAVDYHRTDGQEATSTLGFWVLQPLINPFSHDA
LSTAWVSVETRPGPDFDFCLLKPPQMEMENGLS
PSTLLPRHLGRSRGNRCGGFIVGMAVVAMAHQV
NHHFSTAATTYGWSTLPLGPCAAKITSSLPGEI
NNYTGFADVDGAGEGPIMPNIPNHWPDSCASSV
IATWDSSLHRPNLGISGSIMTFDNHGDADEAQI
TGAMAATVDPSPSRRTQLQGSFTANTMRIMRTS
GLDKIGEVNKNVYFIPILLDGATGYINEKVTNL
ADINISYGPVGSNNVILWRERVFSSHPRPGILY
SSQLESTASIFQDGPVNIPNNYMAVFNVSDTGA
DFQIGICPDGYMRTGSPVGTVVDLTPECTFTFV
GLFPFTSPLNGPHGTGRGRSVYQ (SEQ ID NO: 3)

FIGURE 5

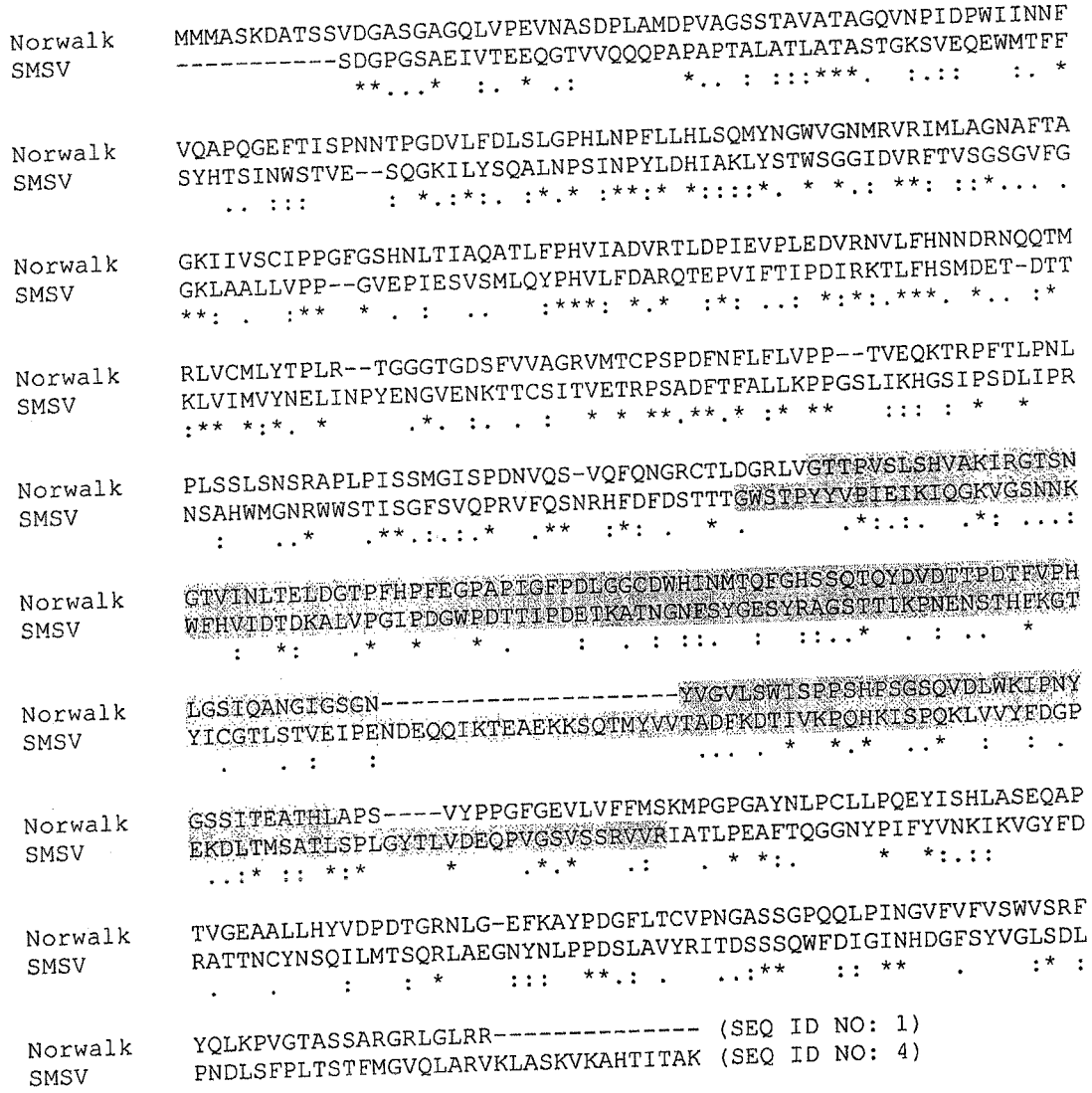

Norwalk MMMASKDATSSVDGASGAGQLVPEVNASDPLAMDPVAGSSTAVATAGQVNPIDPWIINNF
SMSV ----------SDGPGSAEIVTEEQGTVVQQQPAPAPTALATLATASTGKSVEQEWMTFF
Norwalk VQAPQGEFTISPNNTPGDVLFDLSLGPHLNPFLLHLSQMYNGWVGNMRVRIMLAGNAFTA
SMSV SYHTSINWSTVE--SQGKILYSQALNPSINPYLDHIAKLYSTWSGGIDVRFTVSGSGVFG
Norwalk GKIIVSCIPPGFGSHNLTIAQATLFPHVIADVRTLDPIEVPLEDVRNVLFHNNDRNQQTM
SMSV GKLAALLVPP--GVEPIESVSMLQYPHVLFDARQTEPVIFTIPDIRKTLFHSMDET-DTT
Norwalk RLVCMLYTPLR--TGGGTGDSFVVAGRVMTCPSPDFNFLFLVPP--TVEQKTRPFTLPNL
SMSV KLVIMVYNELINPYENGVENKTTCSITVETRPSADFTFALLKPPGSLIKHGSIPSDLIPR
Norwalk PLSSLSNSRAPLPISSMGISPDNVQS-VQFQNGRCTLDGRLVGTTPVSLSHVAKIRGTSN
SMSV NSAHWMGNRWWSTISGFSVQPRVFQSNRHFDFDSTTTGWSTPYYVPIEIKIQGKVGSNNK
Norwalk GTVINLTELDGTPFHPFEGPAPIGFPDLGGCDWHINMTQFGHSSQTQYDVDTTPDTFVPH
SMSV WFHVIDTDKALVPGIPDGWPDTTIPDETKATNGNESYGESYRAGSTTIKPNENSTHFKGT
Norwalk LGSIQANGIGSGN----------YVGVLSWISPPSHPSGSQVDLWKIPNY
SMSV YICGTLSTVEIPENDEQQIKTEAEKKSQTMYVVTADFKDTIVKPQHKISPQKLVVYFDGP
Norwalk GSSITEATHLAPS----VYPPGFGEVLVFFMSKMPGPGAYNLPCLLPQEYISHLASEQAP
SMSV EKDLTMSATLSPLGYTLVDEQPVGSVSSRVVRIATLPEAFTQGGNYPIFYVNKIKVGYFD
Norwalk TVGEAALLHYVDPDTGRNLG-EFKAYPDGFLTCVPNGASSGPQQLPINGVFVFVSWVSRF
SMSV RATTNCYNSQILMTSQRLAEGNYNLPPDSLAVYRITDSSSQWFDIGINHDGFSYVGLSDL
Norwalk YQLKPVGTASSARGRLGLRR---------- (SEQ ID NO: 1)
SMSV PNDLSFPLTSTFMGVQLARVKLASKVKAHTITAK (SEQ ID NO: 4)

FIGURE 6

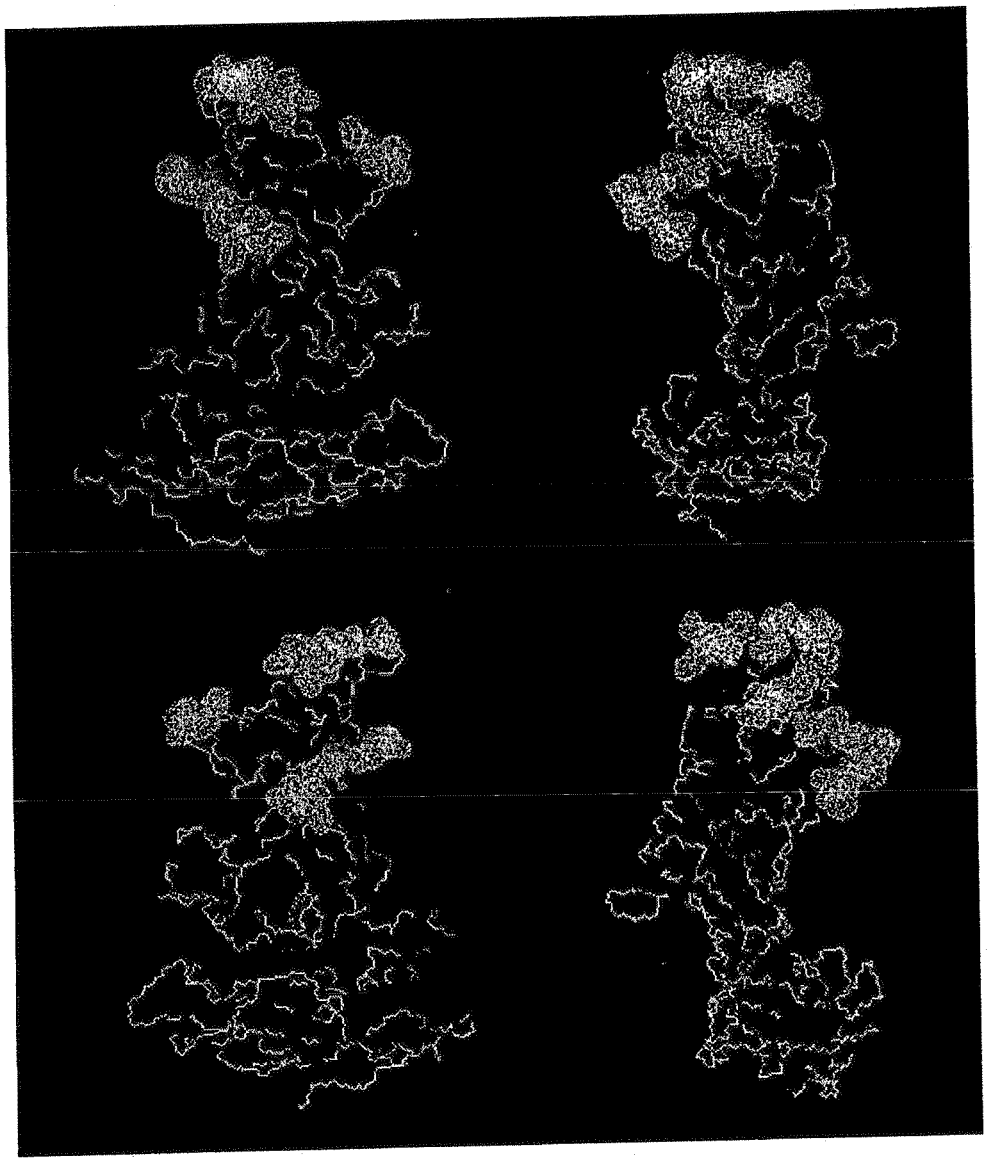


FIGURE 7

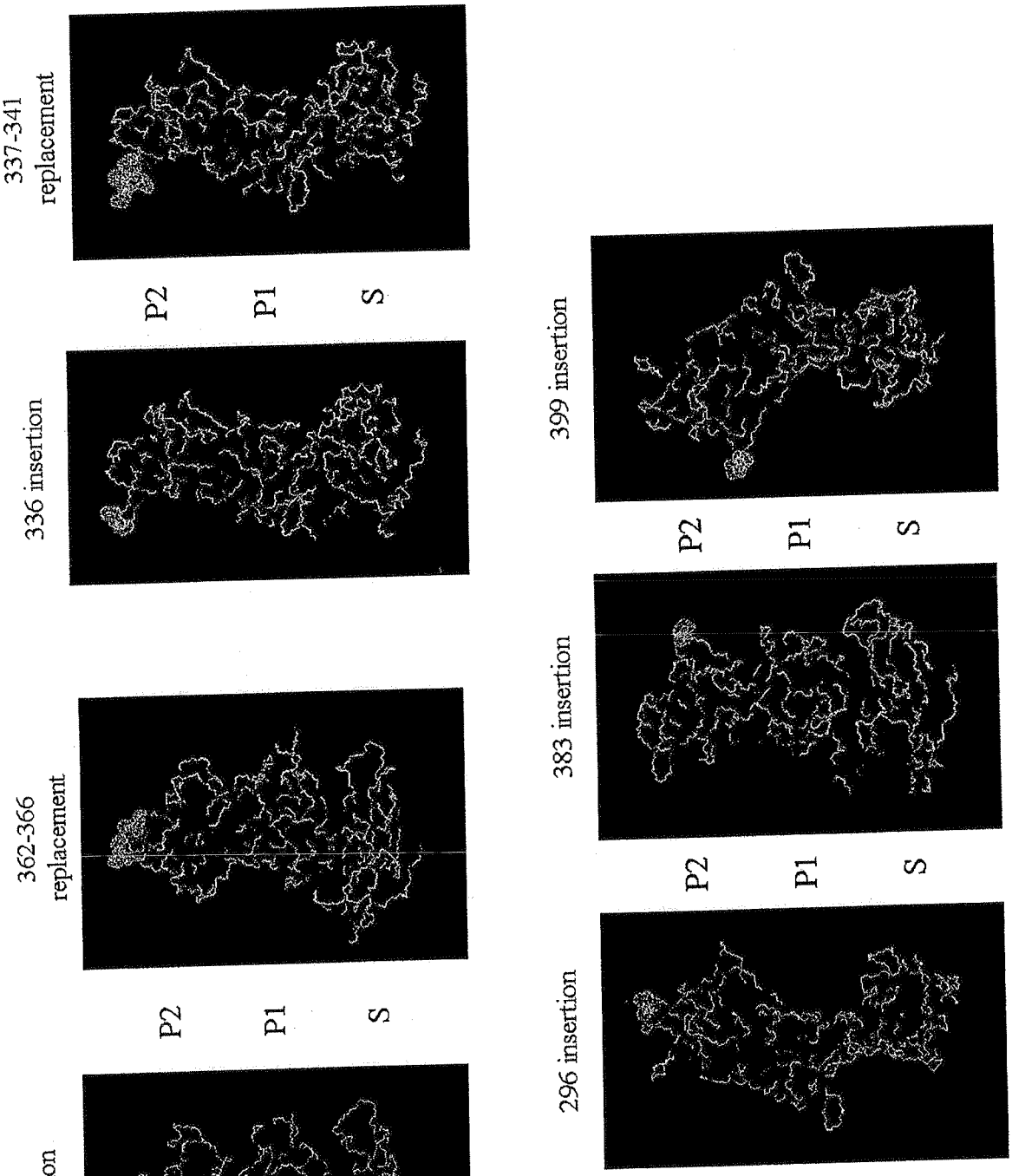

362 insertion
362-366 replacement
336 insertion
337-341 replacement
296 insertion
383 insertion
399 insertion
P2
P1
S

FIGURE 8

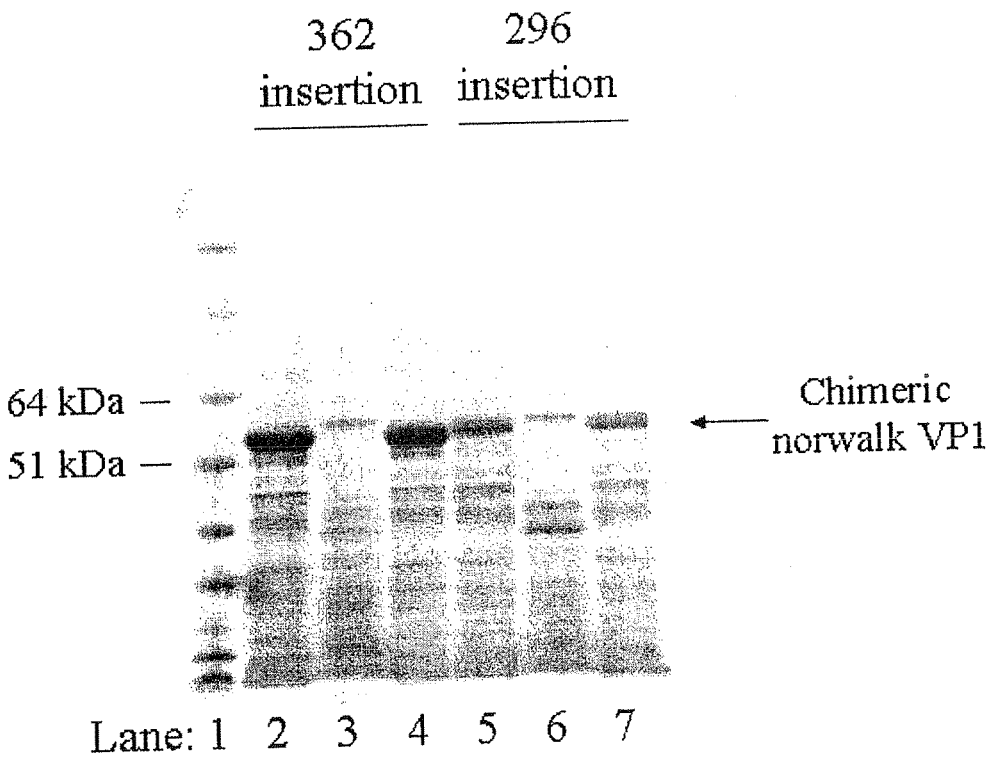
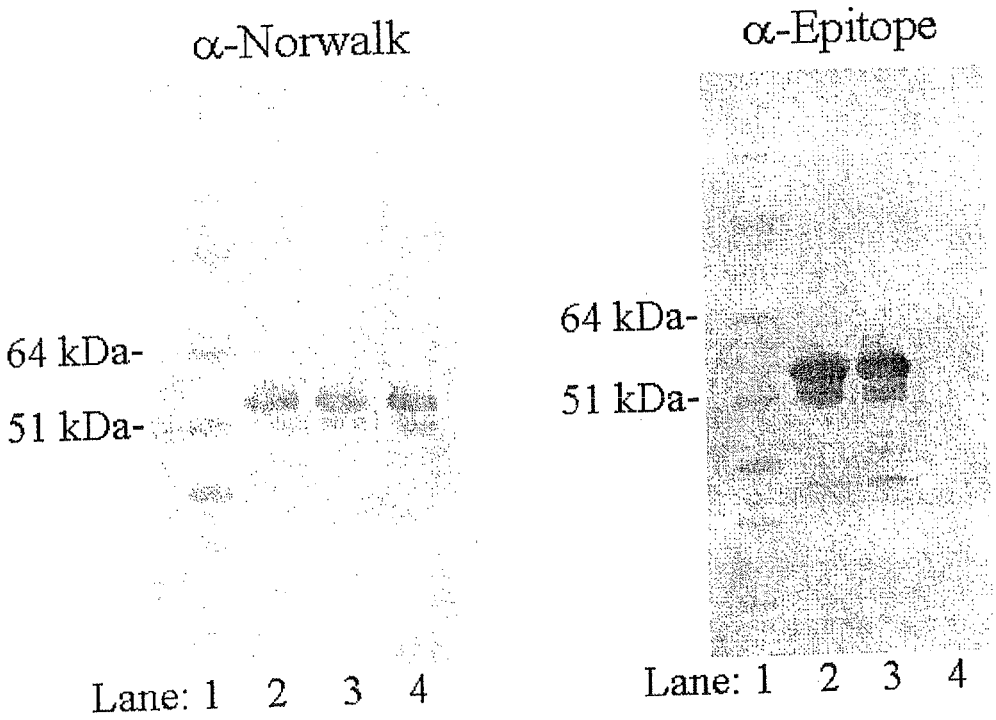

362 insertion
296 insertion
64 kDa
51 kDa
Chimeric norwalk VP1
Lane: 1 2 3 4 5 6 7

FIGURE 9


α-Norwalk
64 kDa-
51 kDa-
Lane: 1 2 3 4
α-Epitope
64 kDa-
51 kDa-
Lane: 1 2 3 4

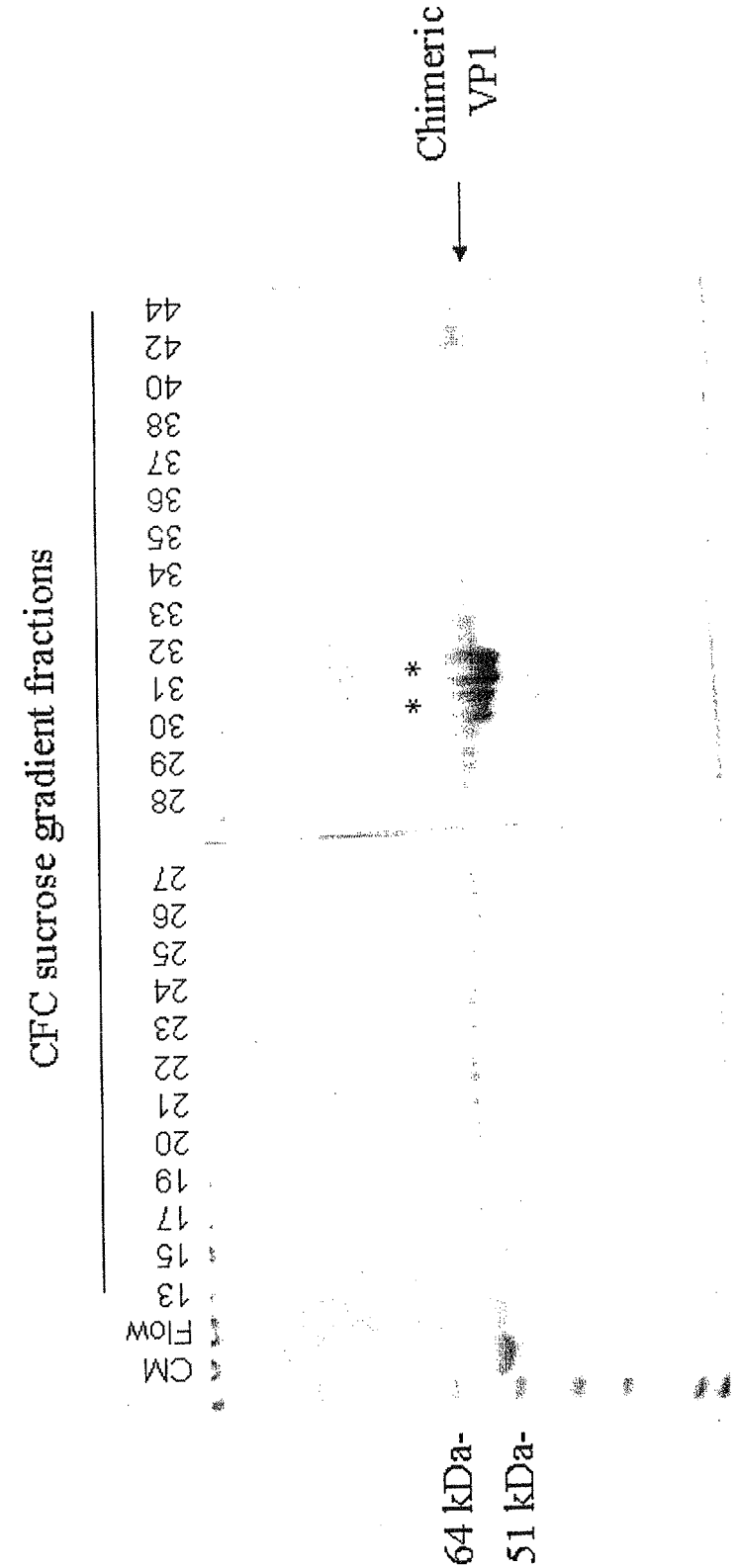
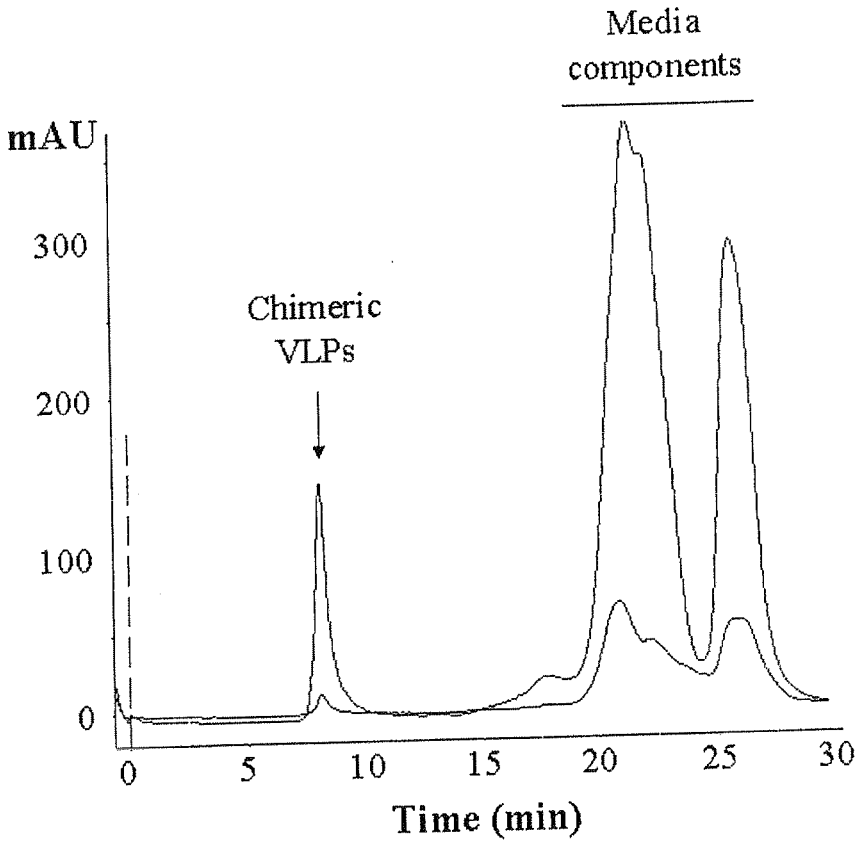

Chimeric VP1
CFC sucrose gradient fractions
CM
Flow
13
15
17
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
40
42
44
64 kDa-
51 kDa-

FIGURE 10

FIGURE 11


Media components
mAU
300
200
100
0
Chimeric VLPs
0
5
10
15
20
25
30
Time (min)

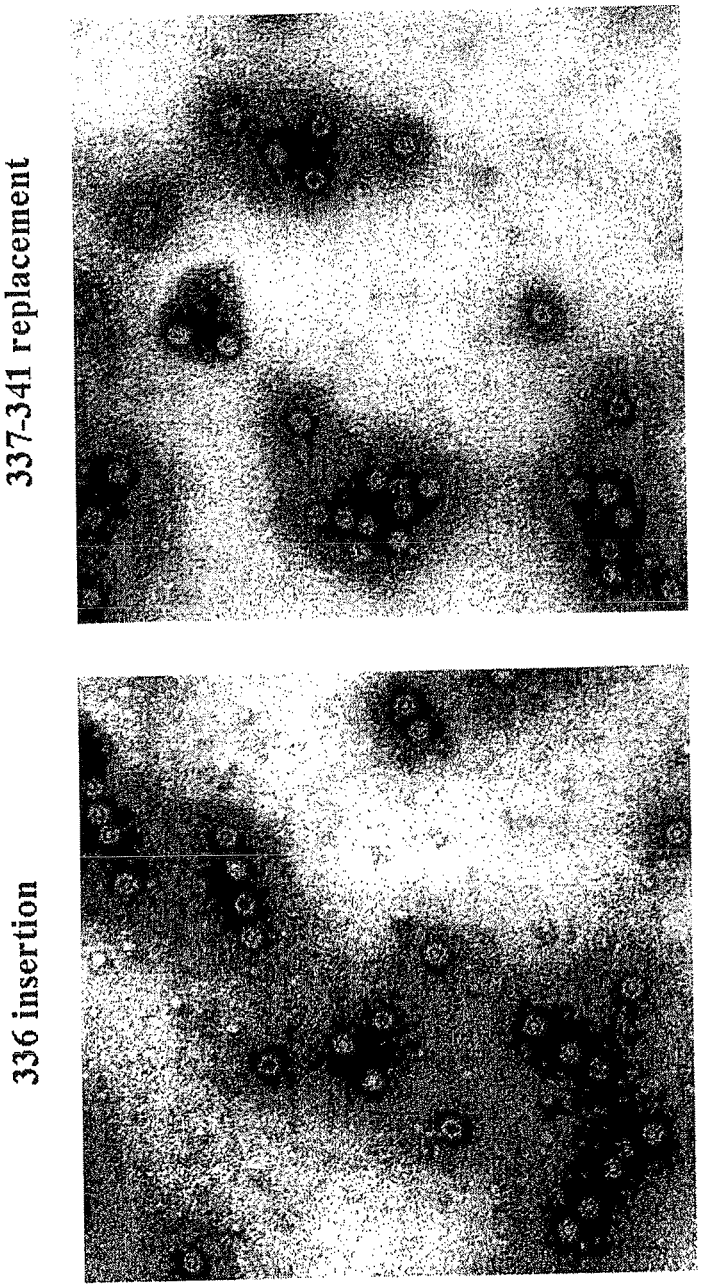


FIGURE 12

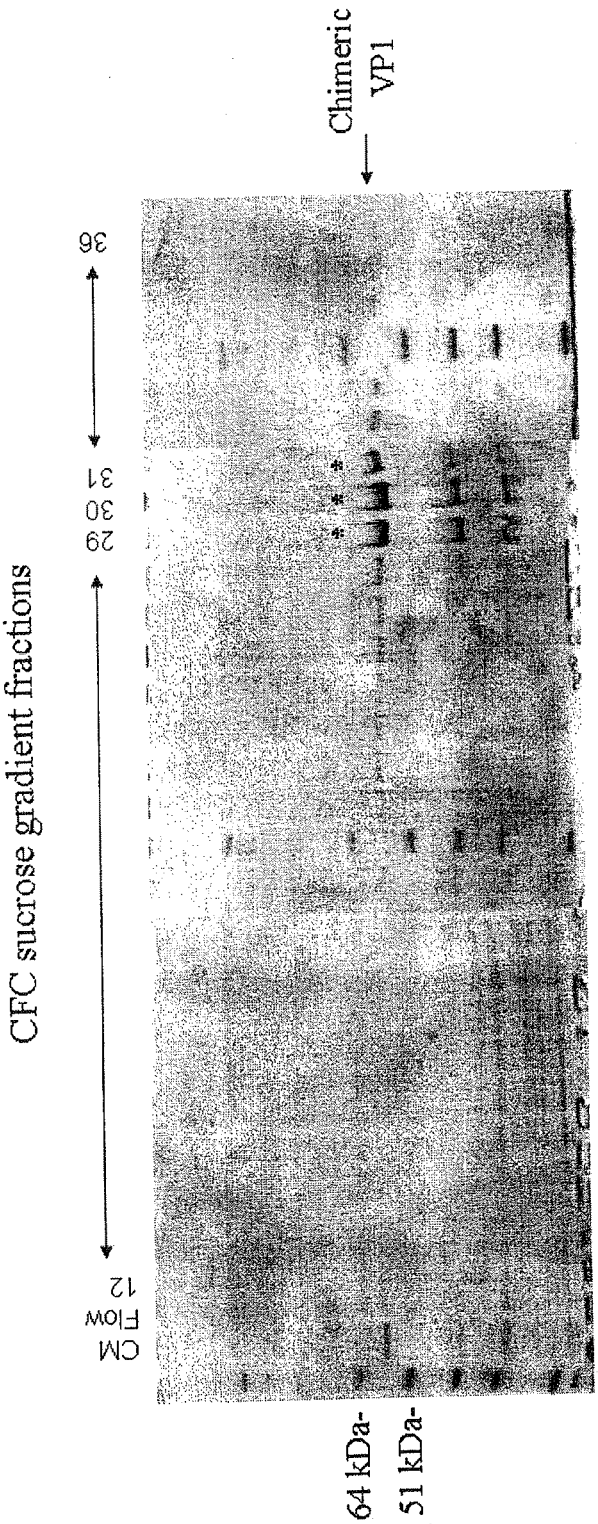
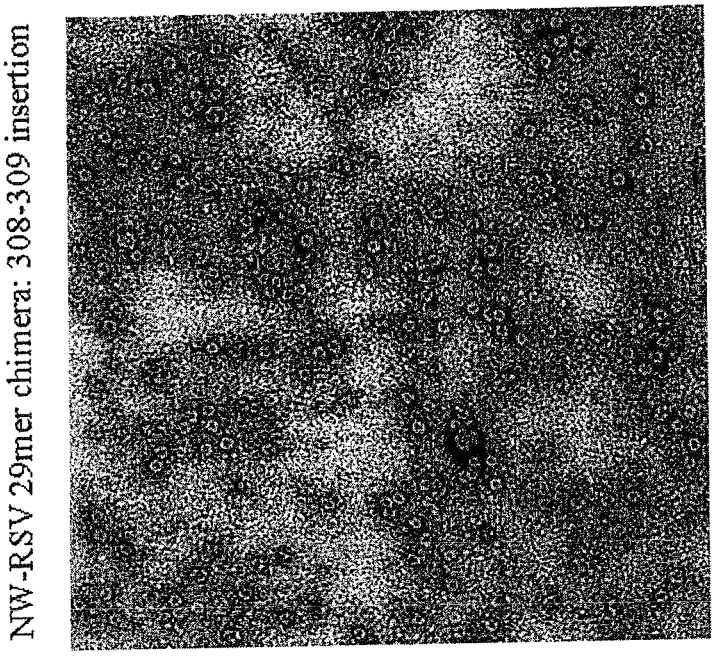

Chimeric VP1
36
31
30
29
CFC sucrose gradient fractions
CM Flow
12
64 kDa-
51 kDa-

FIGURE 13



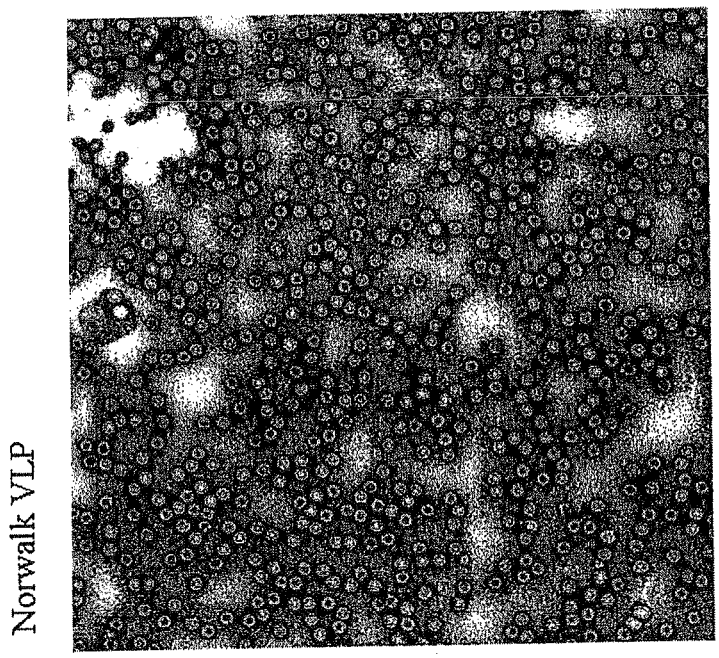


FIGURE 14

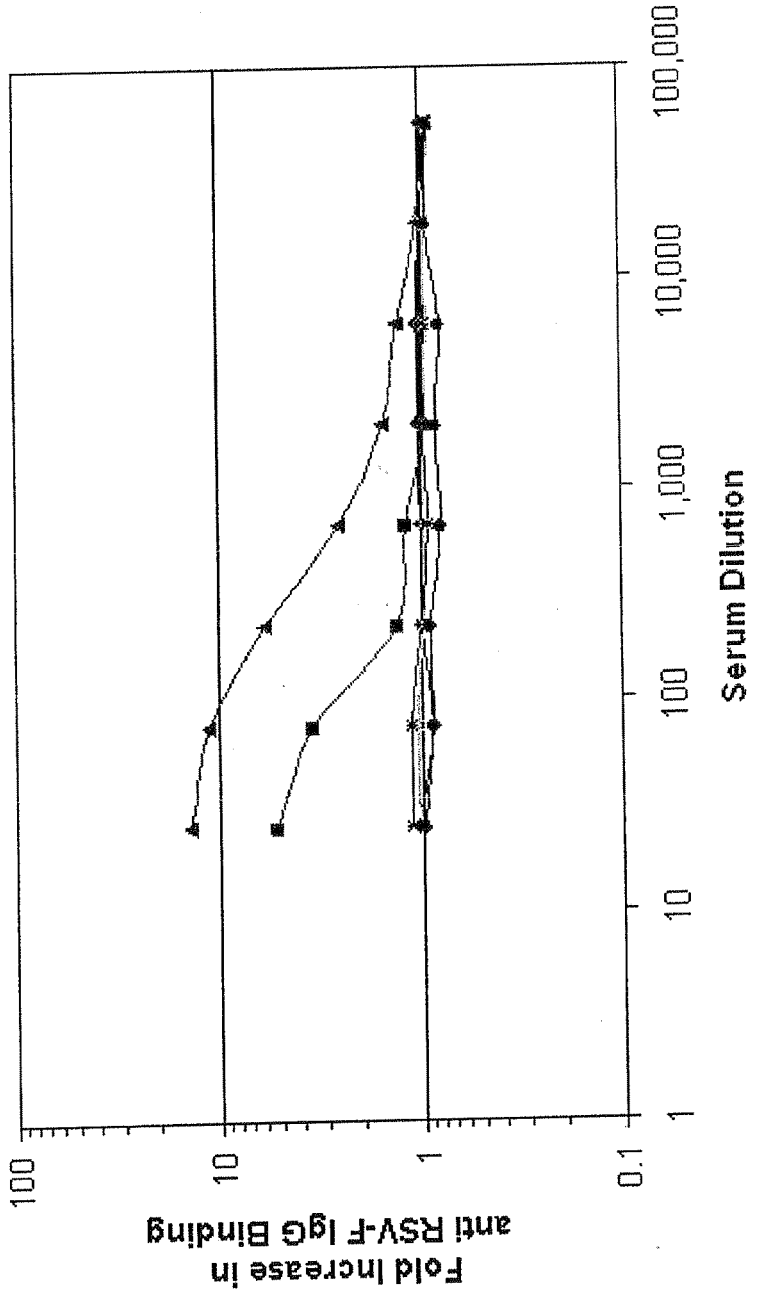

Fold Increase in
anti RSV-F IgG Binding
100
10
1
0.1
1
10
100
1,000
10,000
100,000
Serum Dilution

FIGURE 15

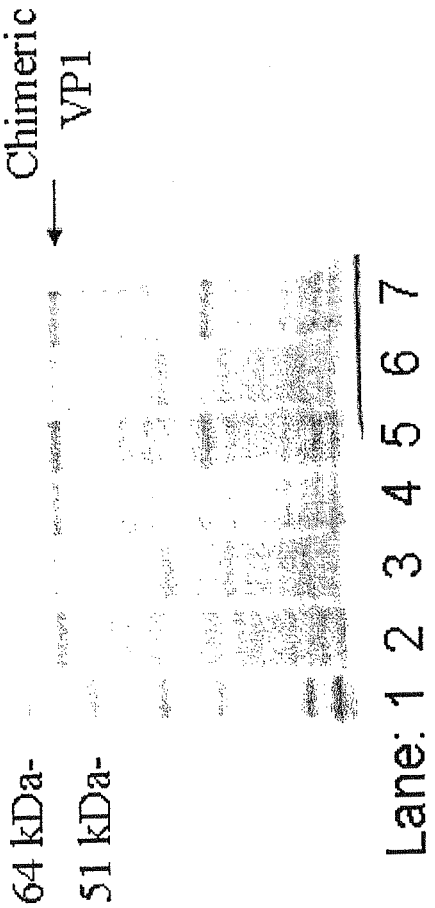


FIGURE 16

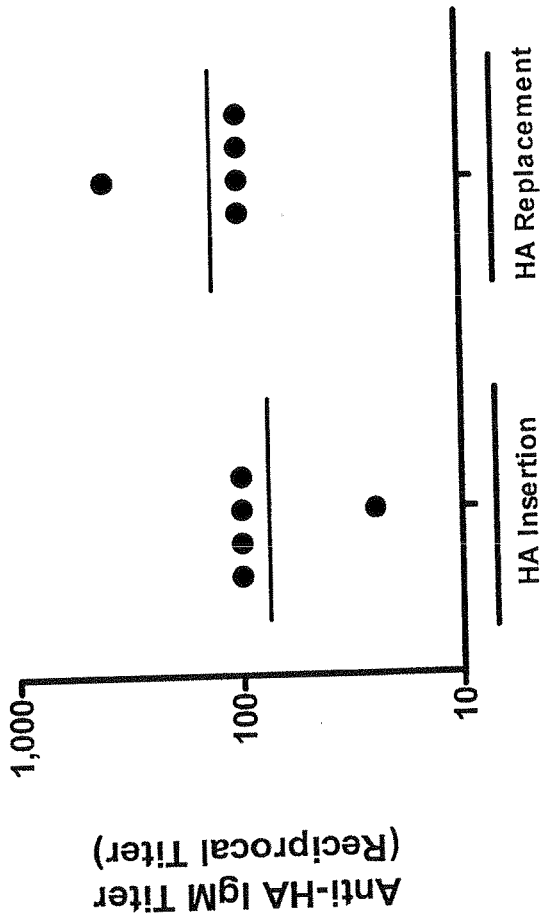

Anti-HA IgM Titer
(Reciprocal Titer)
1,000
100
10
HA Insertion
HA Replacement

FIGURE 17

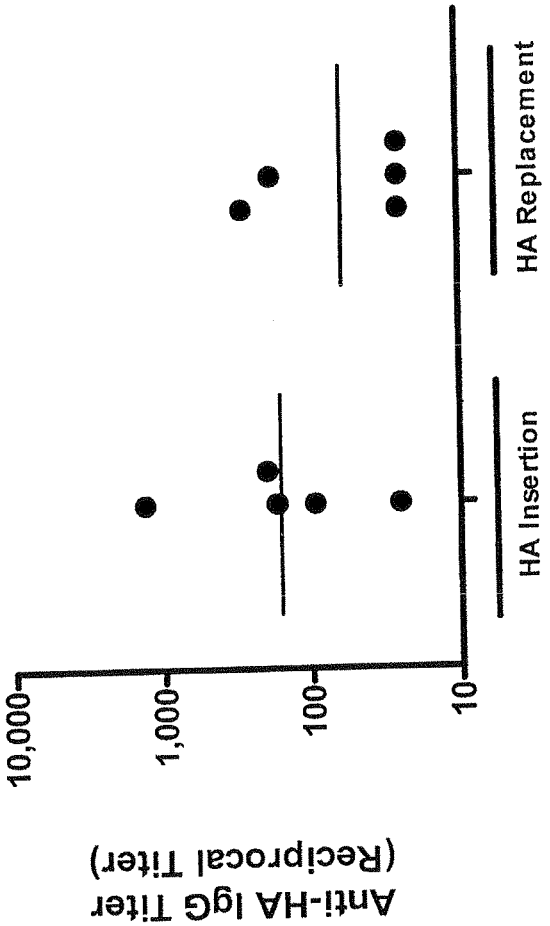

Anti-HA IgG Titer
(Reciprocal Titer)
10,000
1,000
100
10
HA Insertion
HA Replacement

FIGURE 18