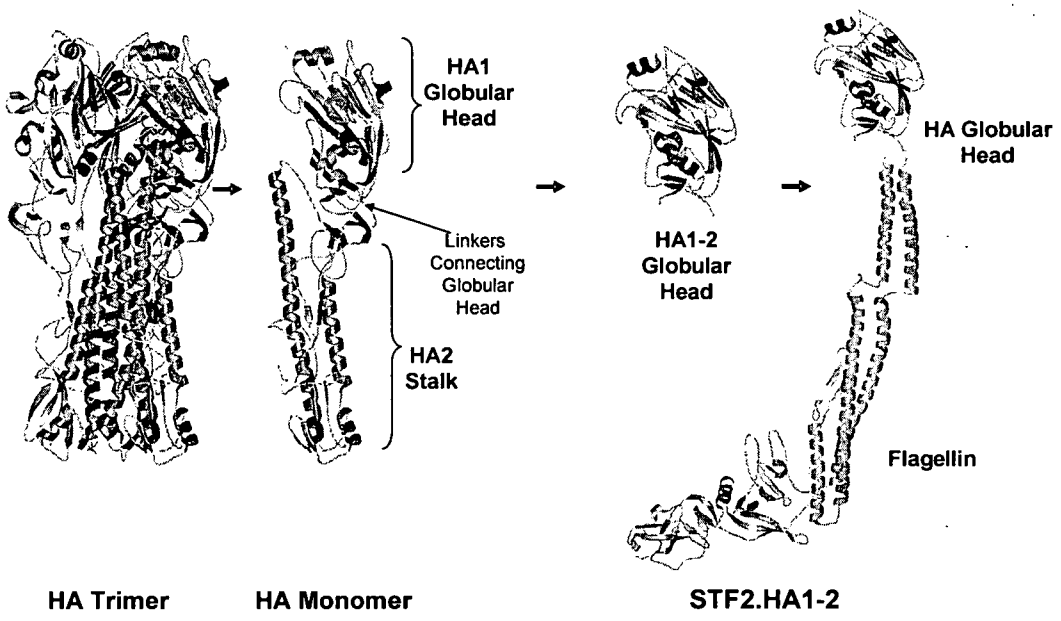

HA1
Globular
Head
Linkers
Connecting
Globular
Head
HA2
Stalk
HA1-2
Globular
Head
HA Globular
Head
Flagellin
HA Trimer
HA Monomer
STF2.HA1-2

Figure 1

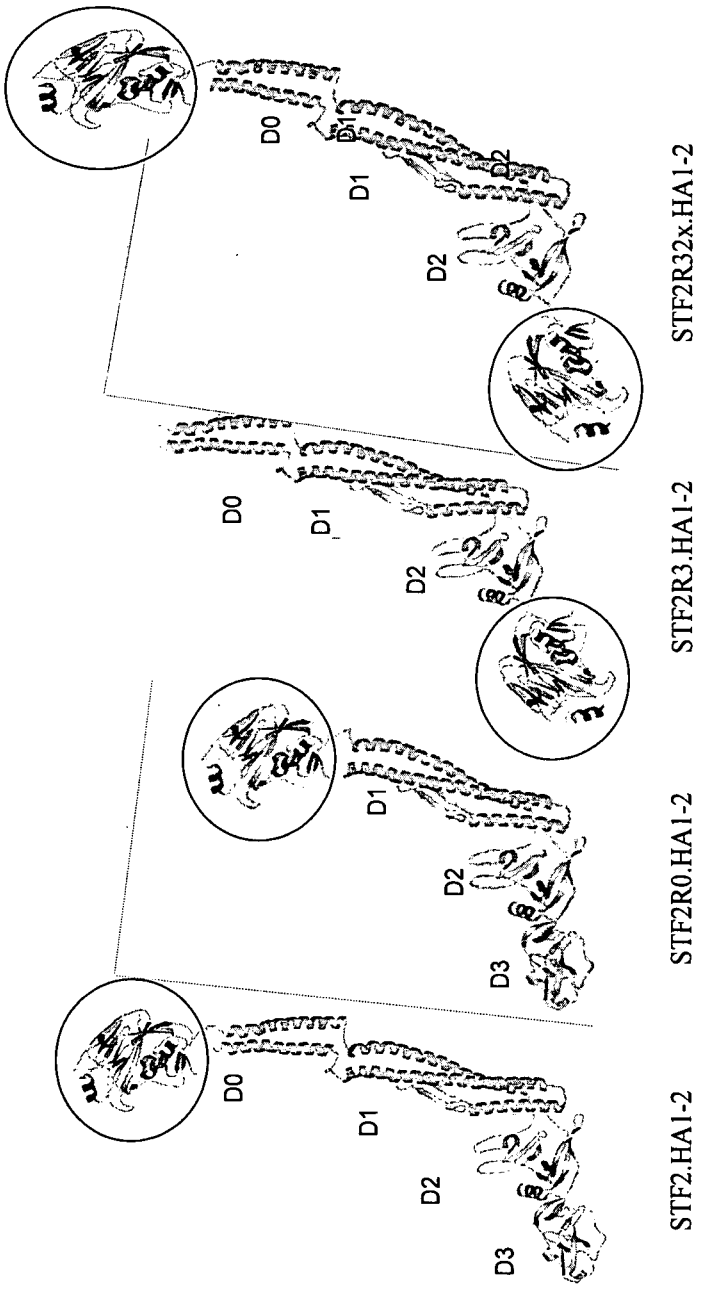


Figure 2

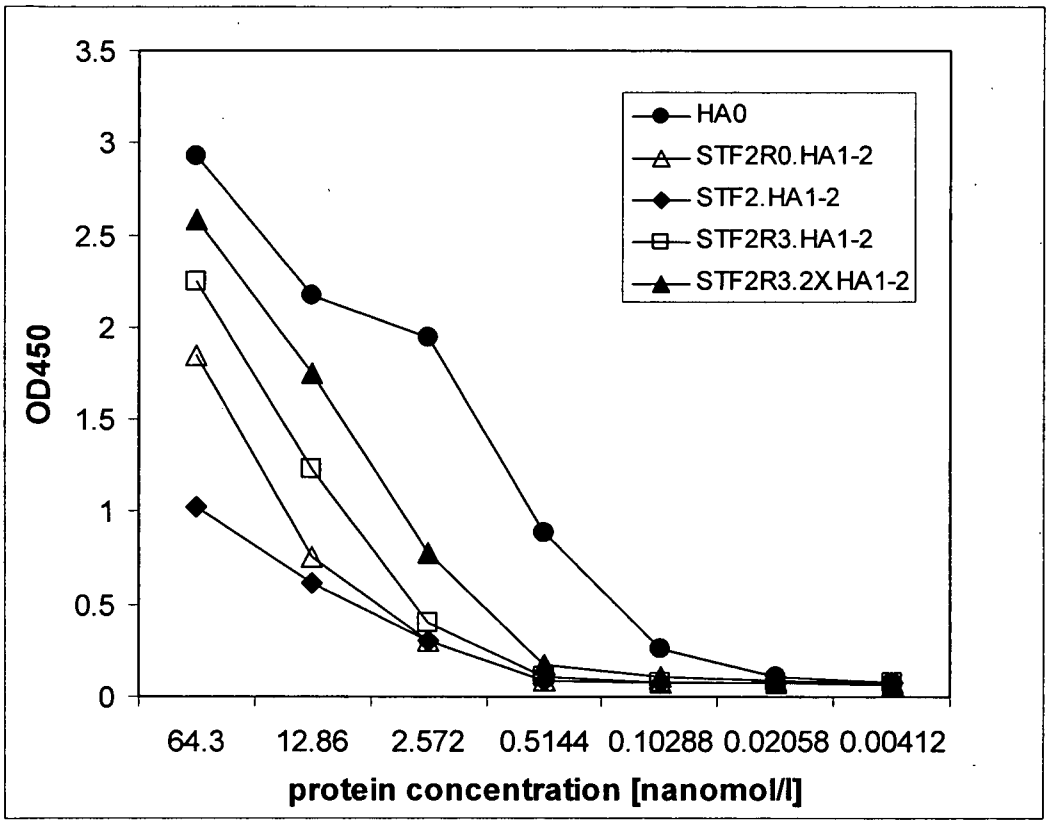

3.5
3
2.5
2
1.5
1
0.5
0
OD450
HA0
STF2R0.HA1-2
STF2.HA1-2
STF2R3.HA1-2
STF2R3.2X.HA1-2
64.3
12.86
2.572
0.5144
0.10288
0.02058
0.00412
protein concentration [nanomol/l]

Figure 3

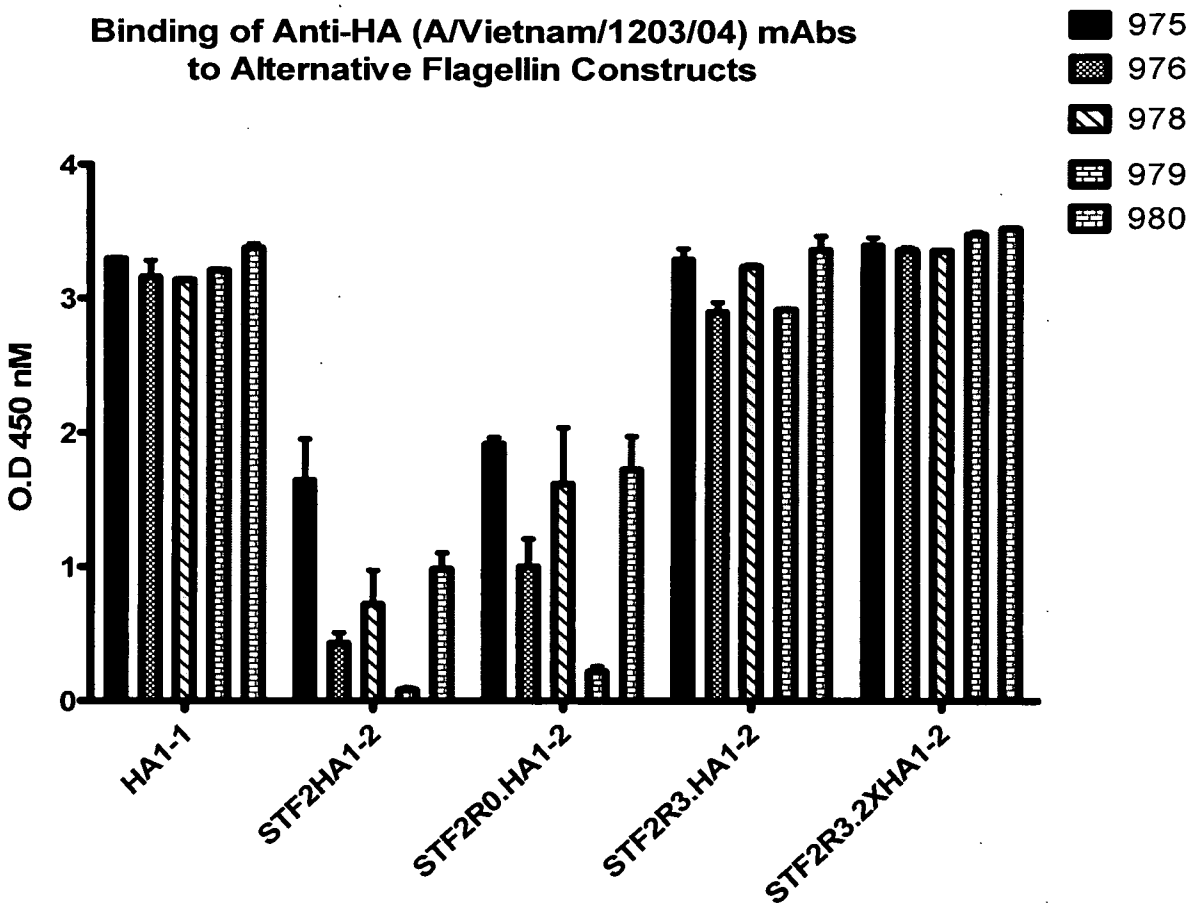

Binding of Anti-HA (A/Vietnam/1203/04) mAbs
to Alternative Flagellin Constructs
975
976
978
979
980
O.D 450 nM
0
1
2
3
4
HA1-1
STF2HA1-2
STF2R0.HA1-2
STF2R3.HA1-2
STF2R3.2XHA1-2

Figure 4

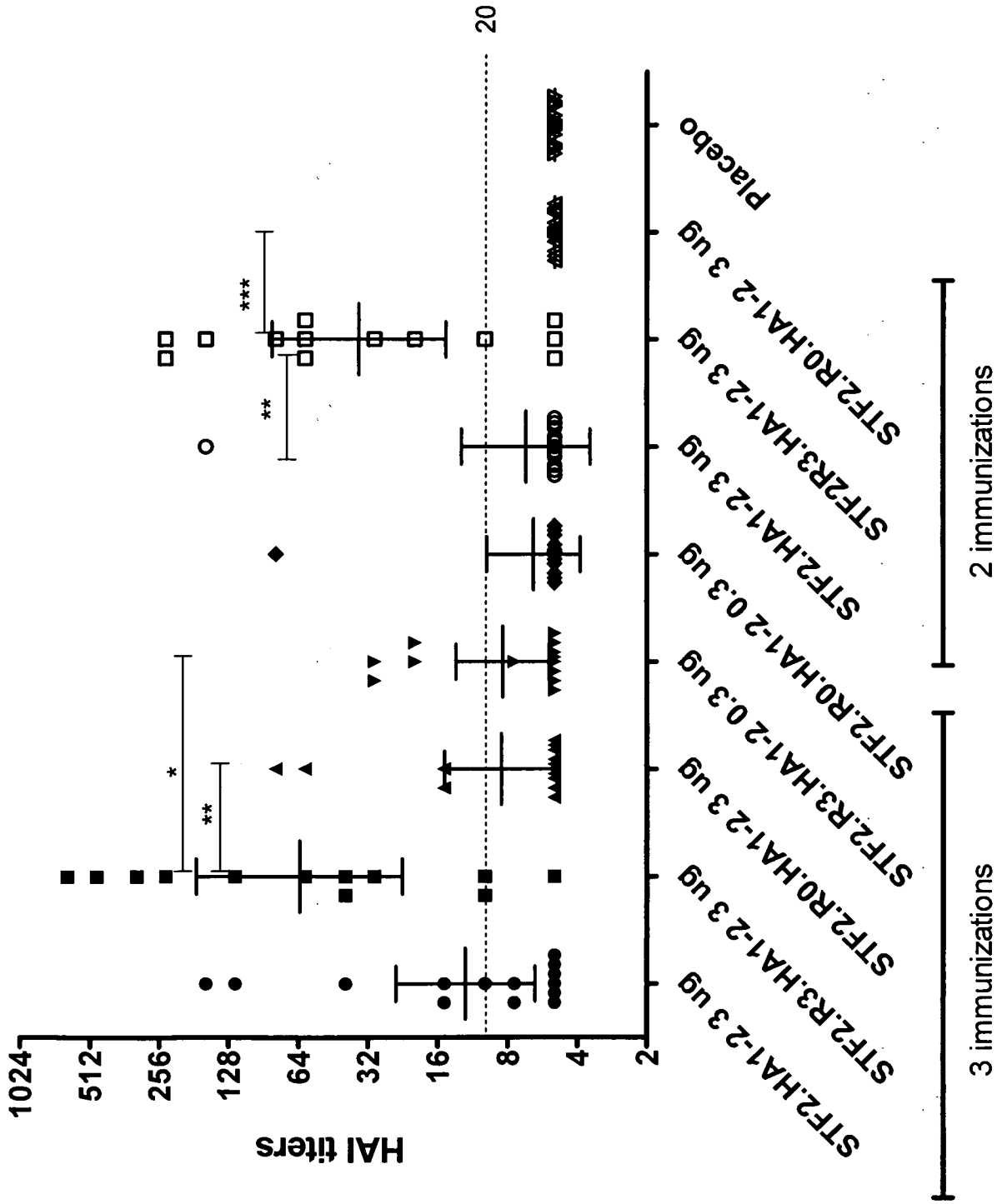

HAI titers
1024
512
256
128
64
32
16
8
4
2
20
***
**
**
*
Placebo
STF2.R0.HA1-2 3 ug
STF2R3.HA1-2 3 ug
STF2.HA1-2 3 ug
STF2.R0.HA1-2 0.3 ug
STF2.R3.HA1-2 0.3 ug
STF2.R0.HA1-2 3 ug
STF2.R3.HA1-2 3 ug
STF2.HA1-2 3 ug
2 immunizations
3 immunizations

Figure 5

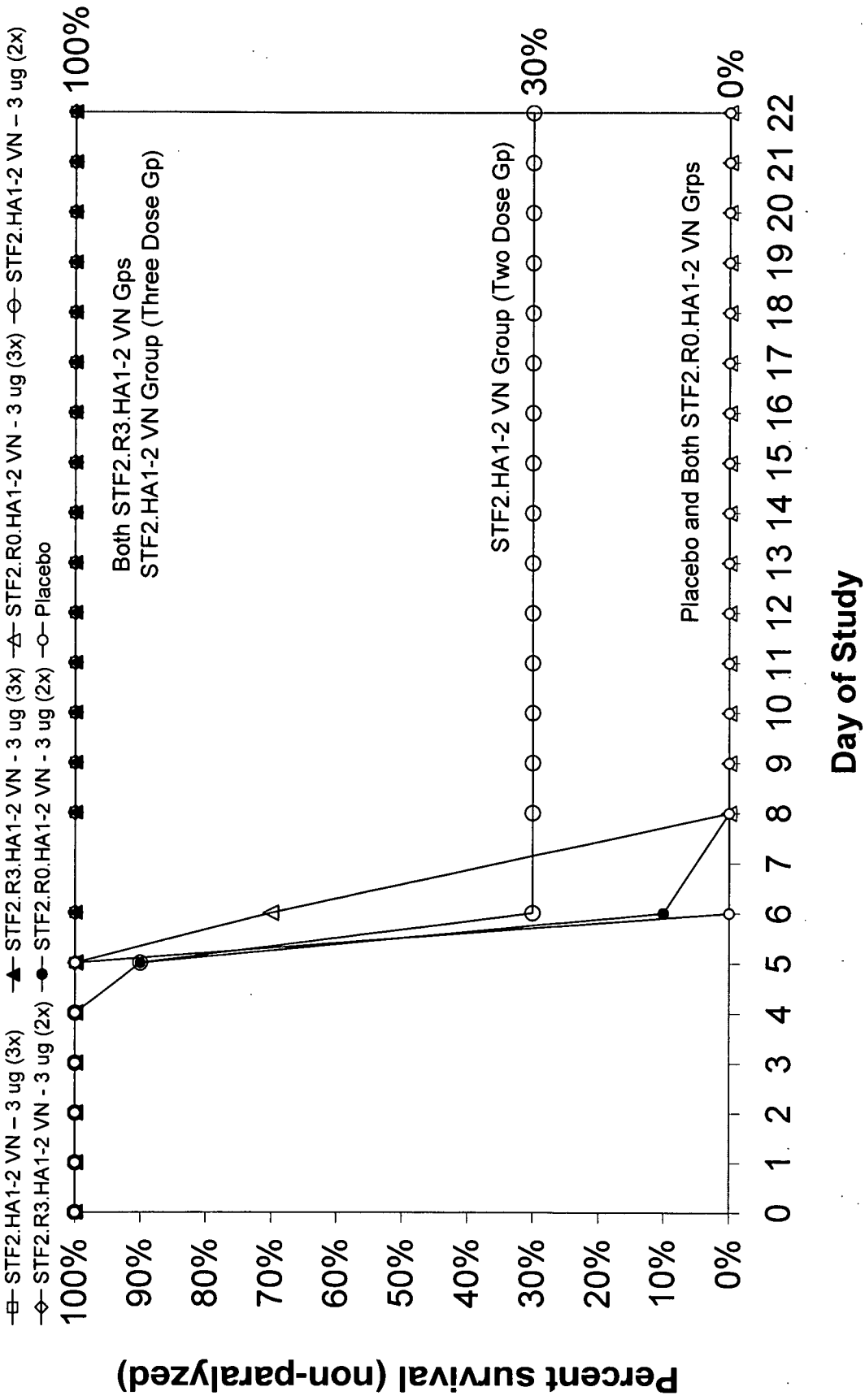

STF2.HA1-2 VN – 3 ug (3x)
STF2.R3.HA1-2 VN - 3 ug (3x)
STF2.R0.HA1-2 VN - 3 ug (3x)
STF2.HA1-2 VN – 3 ug (2x)
STF2.R3.HA1-2 VN - 3 ug (2x)
STF2.R0.HA1-2 VN - 3 ug (2x)
Placebo
Percent survival (non-paralyzed)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Day of Study
Both STF2.R3.HA1-2 VN Gps
STF2.HA1-2 VN Group (Three Dose Gp)
STF2.HA1-2 VN Group (Two Dose Gp)
Placebo and Both STF2.R0.HA1-2 VN Grps
100%
30%
0%

Figure 6A

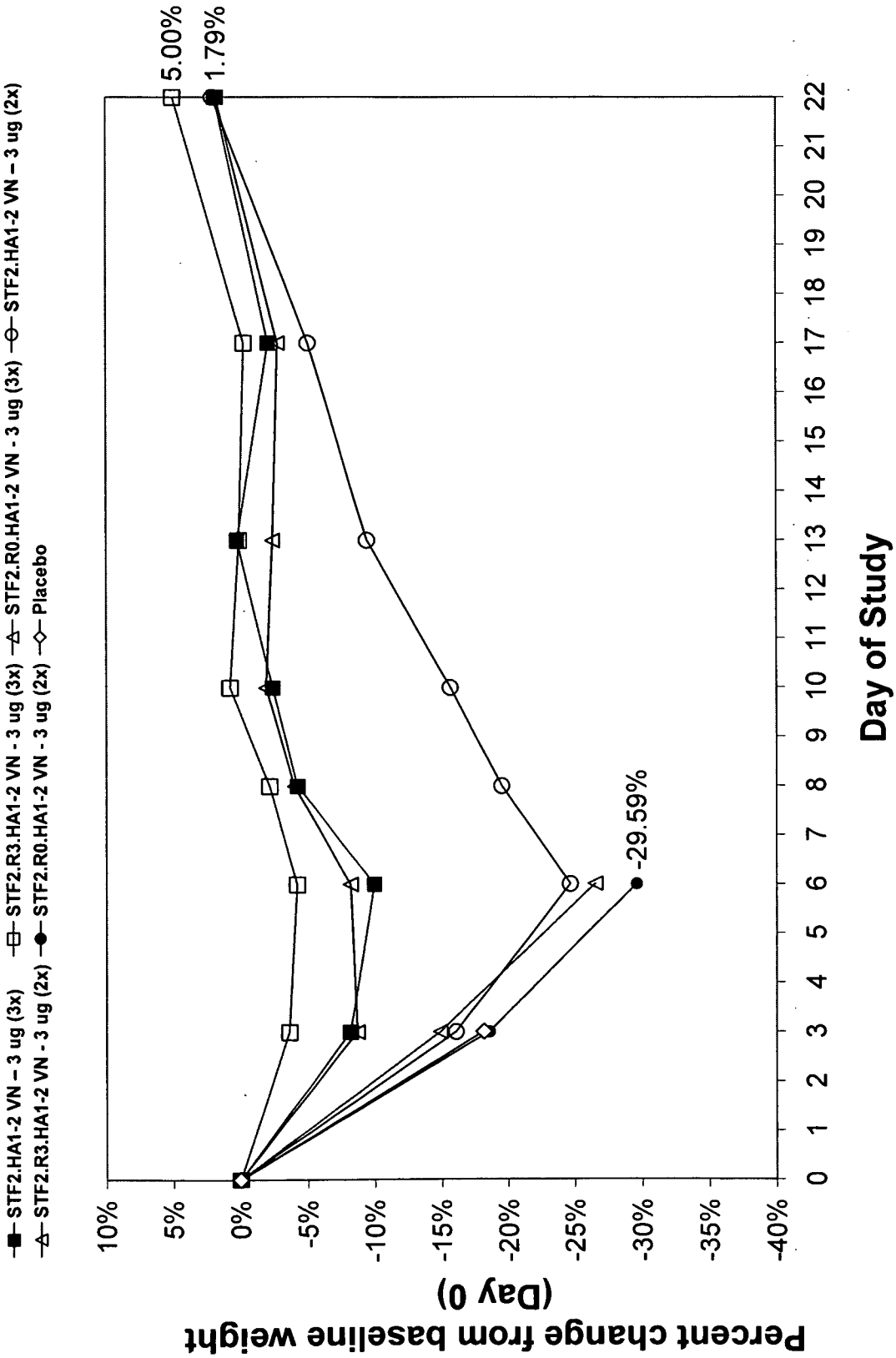

STF2.HA1-2 VN – 3 ug (3x)
STF2.R3.HA1-2 VN - 3 ug (3x)
STF2.R0.HA1-2 VN - 3 ug (3x)
STF2.HA1-2 VN – 3 ug (2x)
STF2.R3.HA1-2 VN - 3 ug (2x)
STF2.R0.HA1-2 VN - 3 ug (2x)
Placebo
5.00%
1.79%
-29.59%
10%
5%
0%
-5%
-10%
-15%
-20%
-25%
-30%
-35%
-40%
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Day of Study
Percent change from baseline weight (Day 0)

Figure 6B

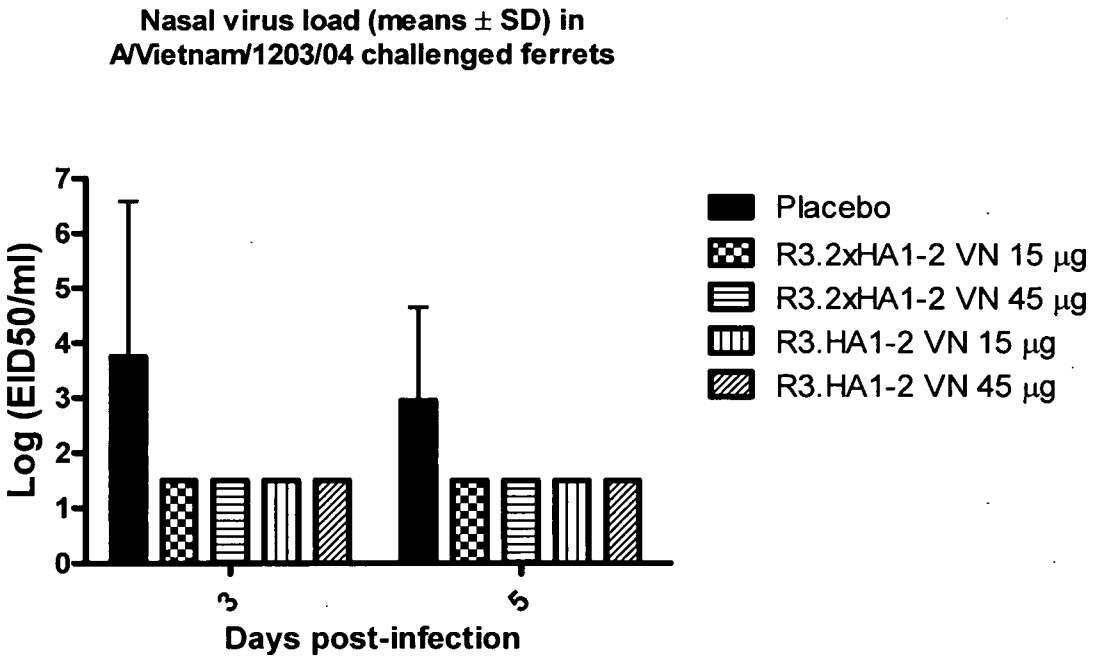

Nasal virus load (means ± SD) in
A/Vietnam/1203/04 challenged ferrets
Log (EID50/ml)
0
1
2
3
4
5
6
7
3
5
Days post-infection
Placebo
R3.2xHA1-2 VN 15 µg
R3.2xHA1-2 VN 45 µg
R3.HA1-2 VN 15 µg
R3.HA1-2 VN 45 µg

Figure 7

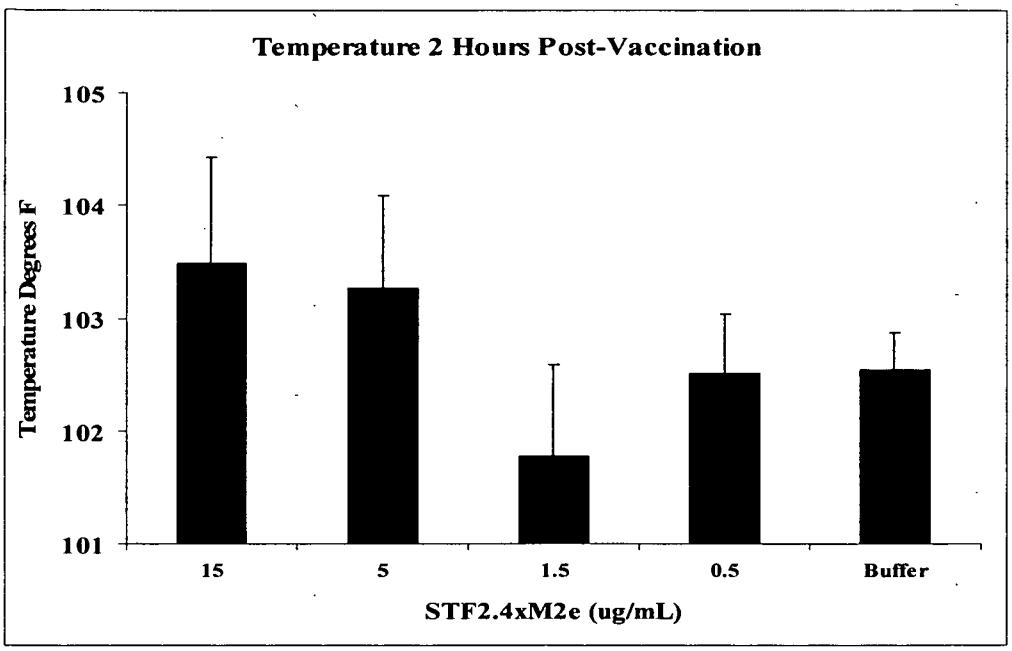


Figure 8A

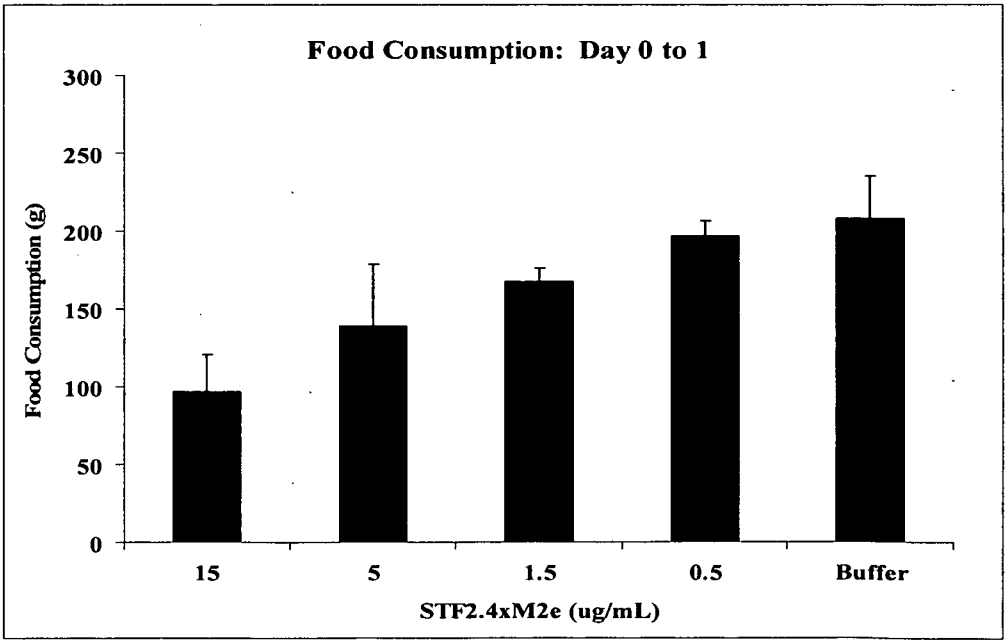


Figure 8B

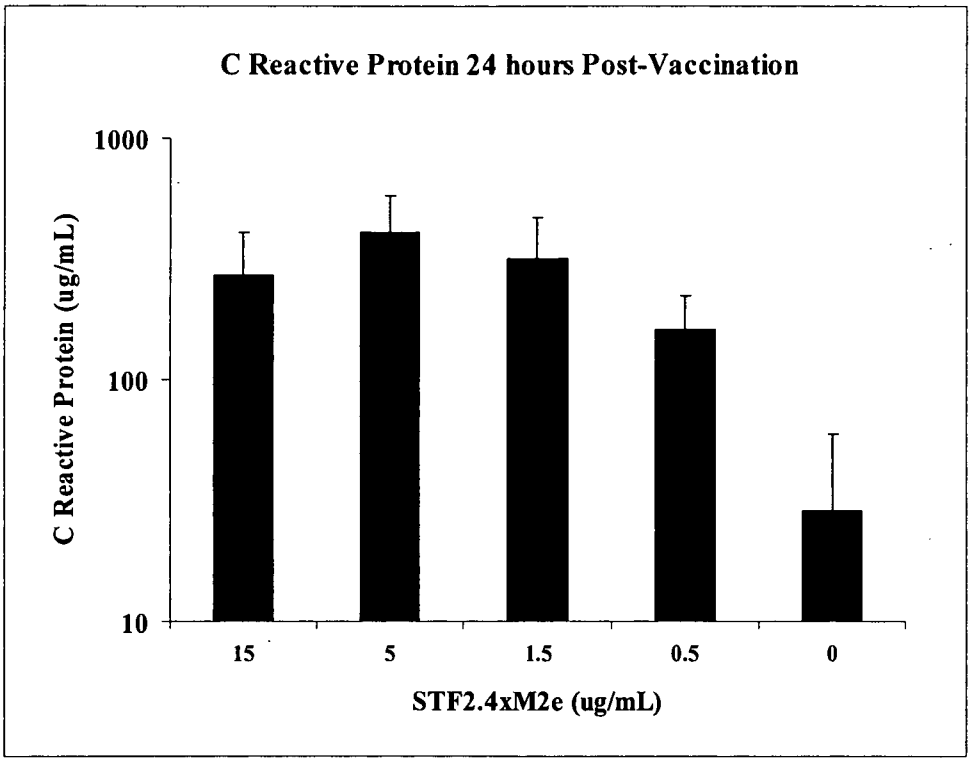

C Reactive Protein 24 hours Post-Vaccination
1000
100
10
C Reactive Protein (ug/mL)
15
5
1.5
0.5
0
STF2.4xM2e (ug/mL)

Figure 9

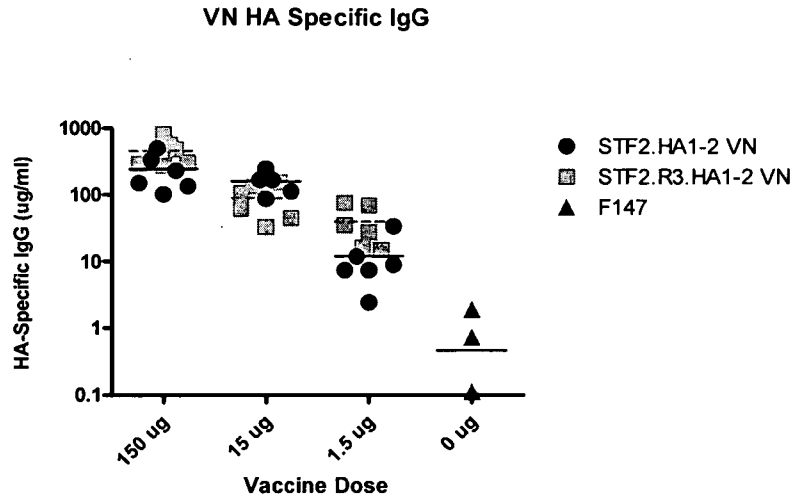


Figure 10A

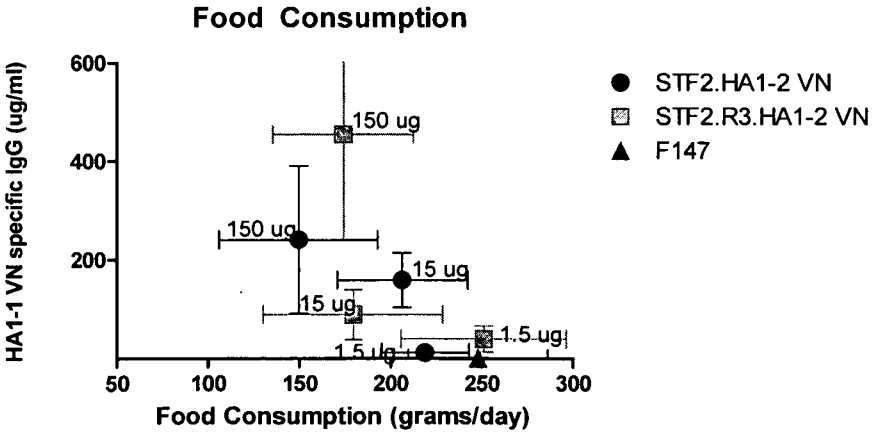


Figure 10B

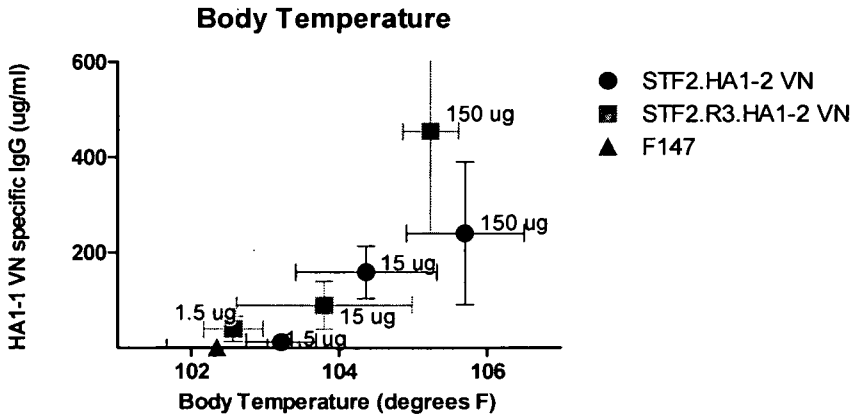


Figure 10C

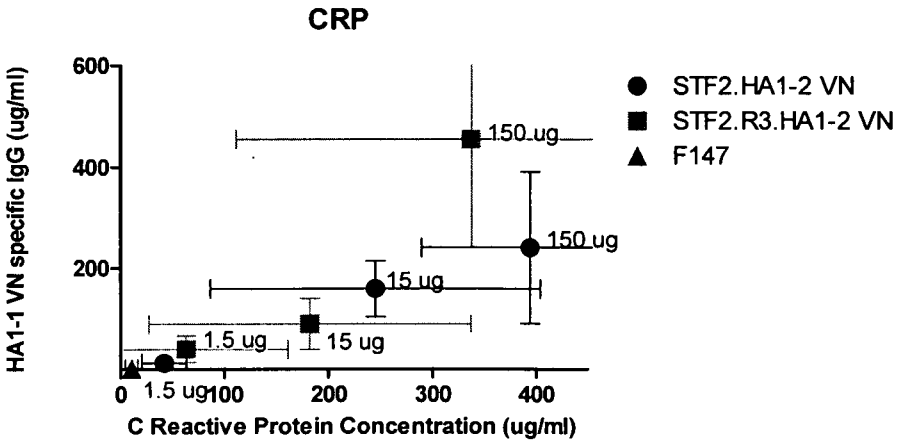


Figure 10D

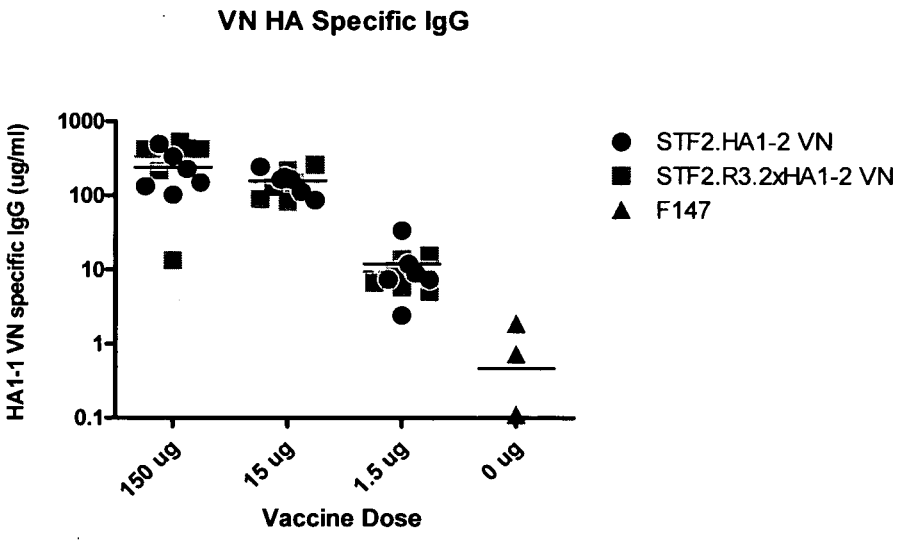


Figure 10E

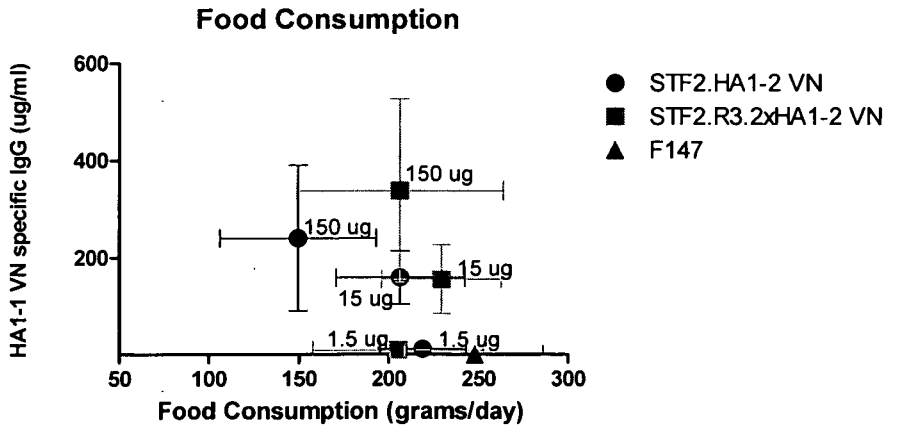


Figure 10F

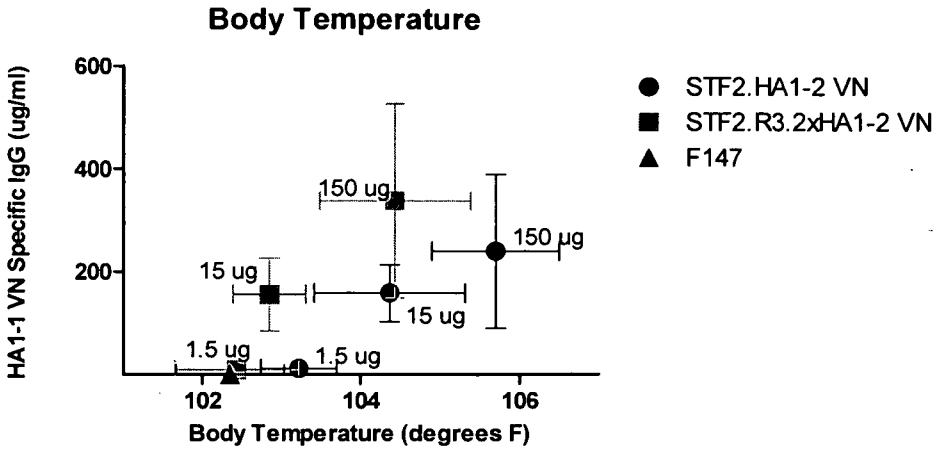


Figure 10G

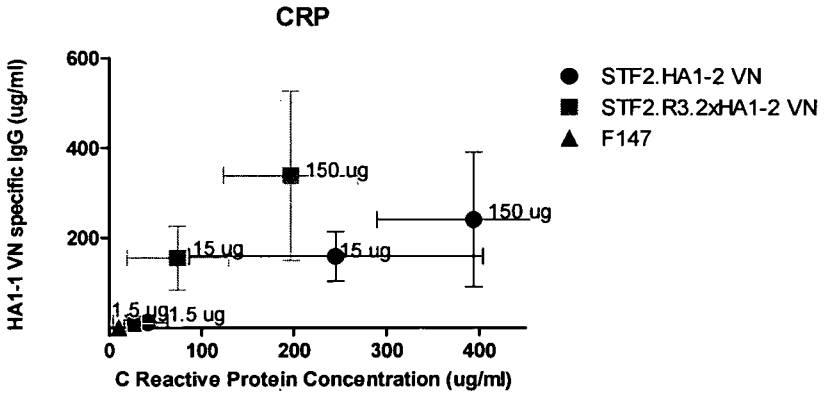


Figure 10H

Rabbit Food Consumption 0-24 Hours Post Vaccination. STF2.HA1-2 PR8 compared to STF2R3.HA1-2 PR8. Study No. 2008-0537.

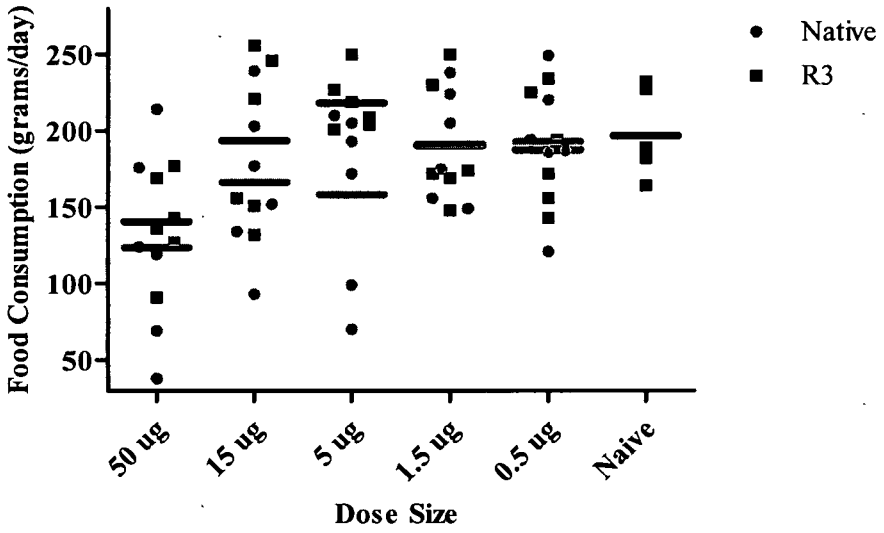


Figure 11A

Rabbit Body Temperature 10 Hours Post Vaccination. STF2.HA1-2 PR8 Compared to STF2R3.HA1-2 PR8. Study N0. 2008-0537.

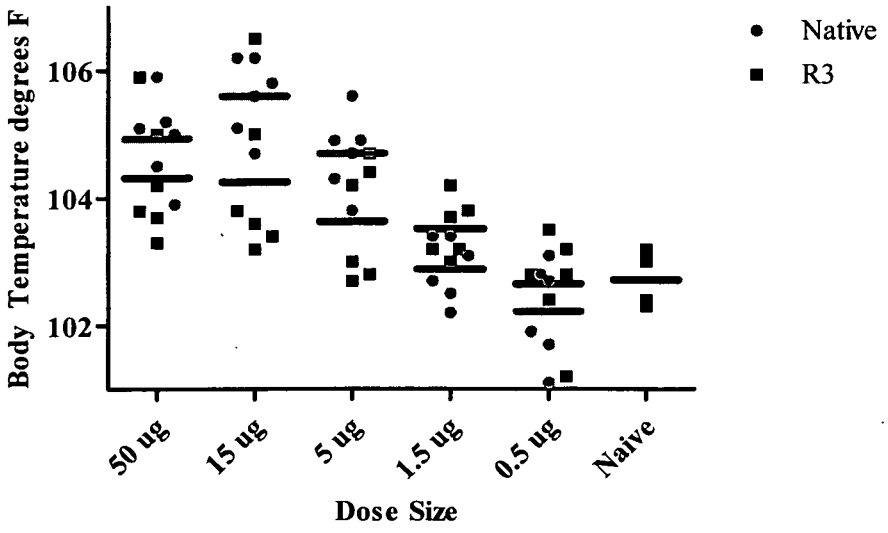


Figure 11B

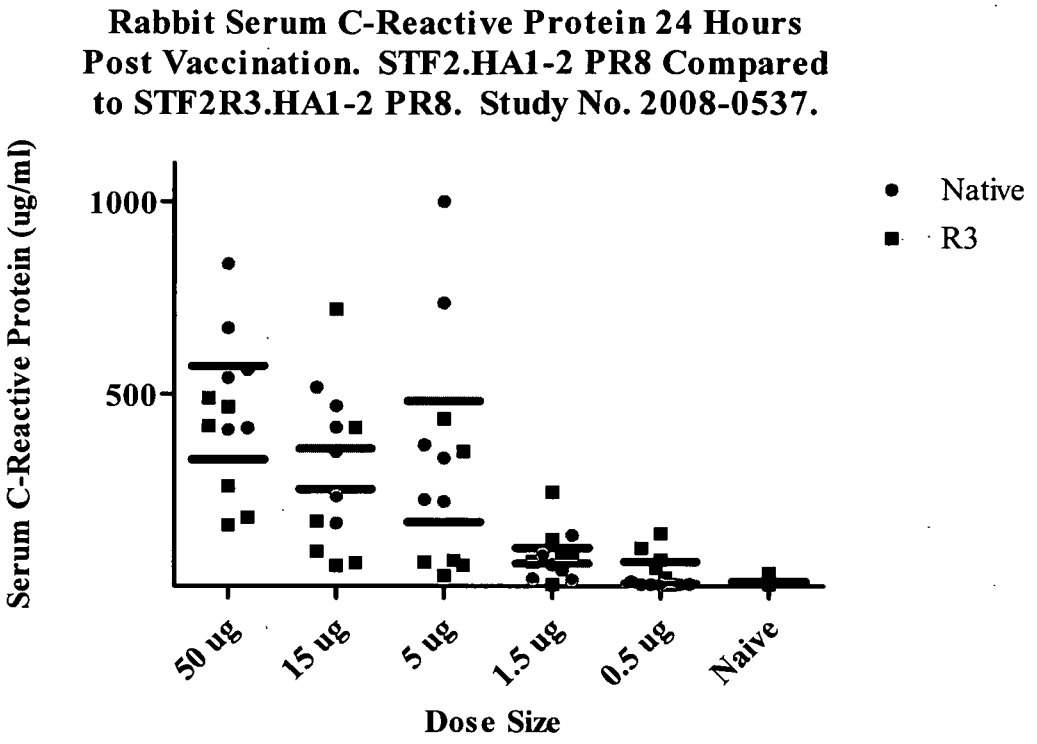

Rabbit Serum C-Reactive Protein 24 Hours Post Vaccination. STF2.HA1-2 PR8 Compared to STF2R3.HA1-2 PR8. Study No. 2008-0537.
Serum C-Reactive Protein (ug/ml)
1000
500
Native
R3
50 ug
15 ug
5 ug
1.5 ug
0.5 ug
Naive
Dose Size

Figure 11C

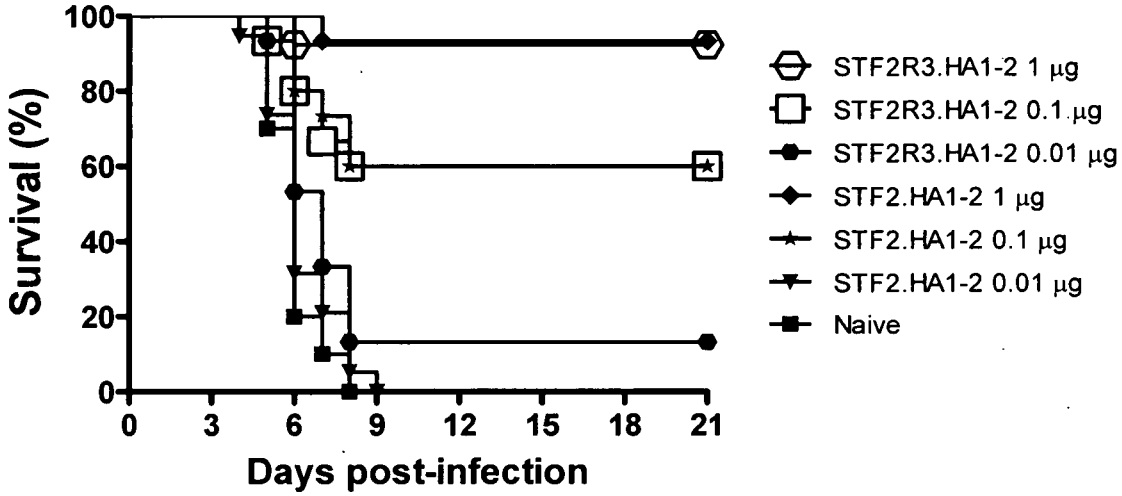

Survival (%)
100
80
60
40
20
0
0
3
6
9
12
15
18
21
Days post-infection
STF2R3.HA1-2 1 µg
STF2R3.HA1-2 0.1 µg
STF2R3.HA1-2 0.01 µg
STF2.HA1-2 1 µg
STF2.HA1-2 0.1 µg
STF2.HA1-2 0.01 µg
Naive

Figure 12

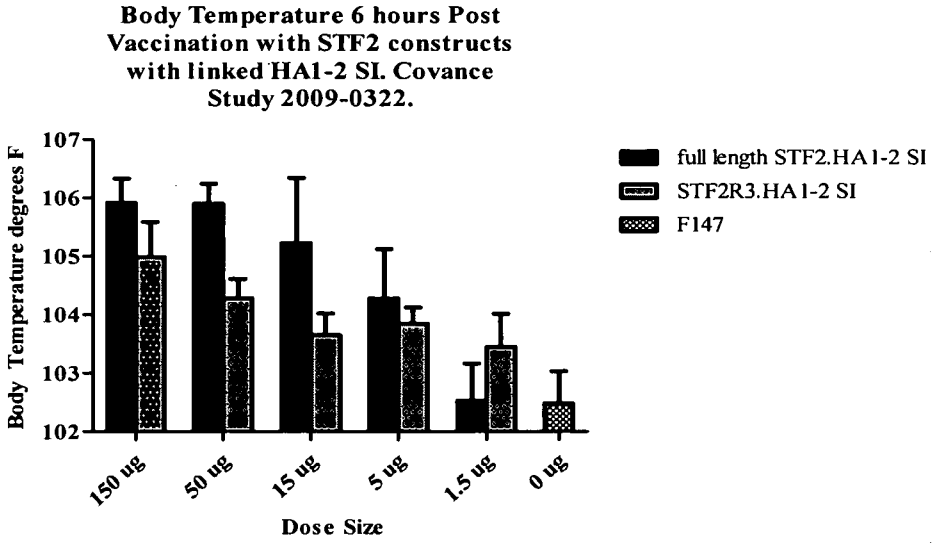


Figure 13A

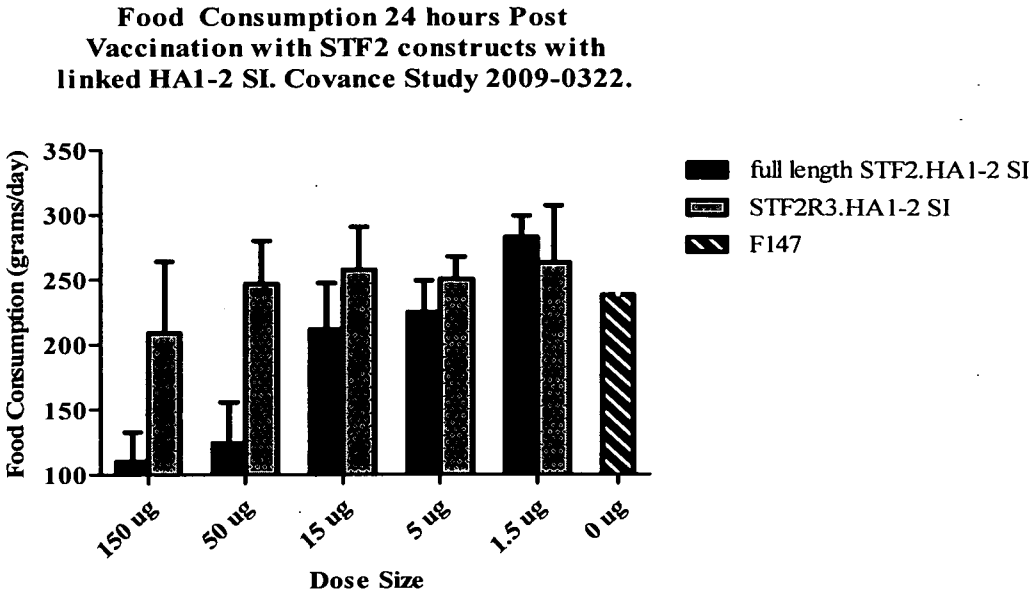


Figure 13B

Food Consumption in Rabbits Days 0 to 1 Post Prime with STF2R3.HA1-2 or STF2R3.2xHA1-2B/Florida

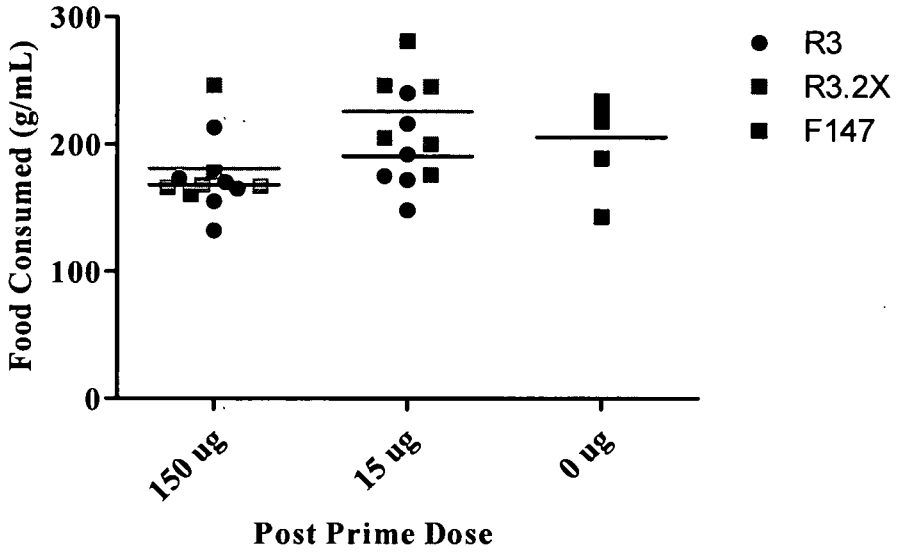


Figure 14A

Serum C-Reactive Protein in Rabbits 24 Hours Post Prime with STF2R3.HA1-2 or STF2R3.2xHA1-2B/Florida

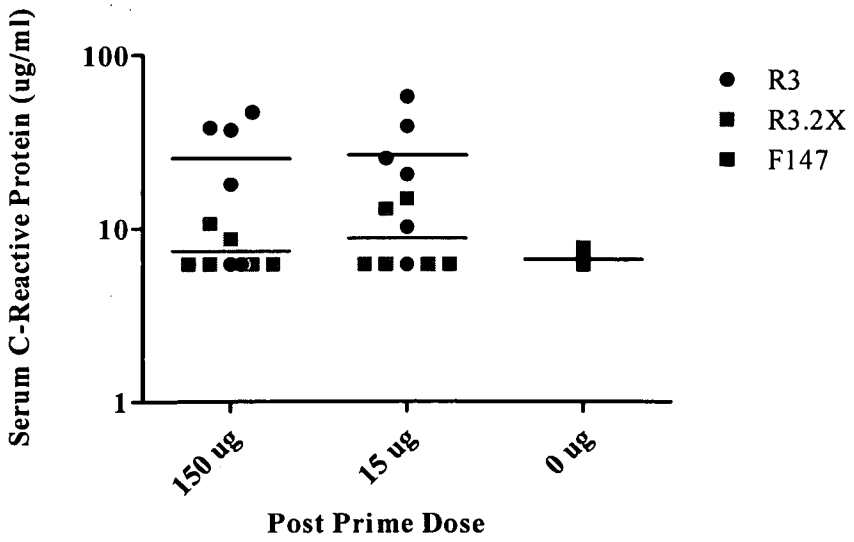


Figure 14B

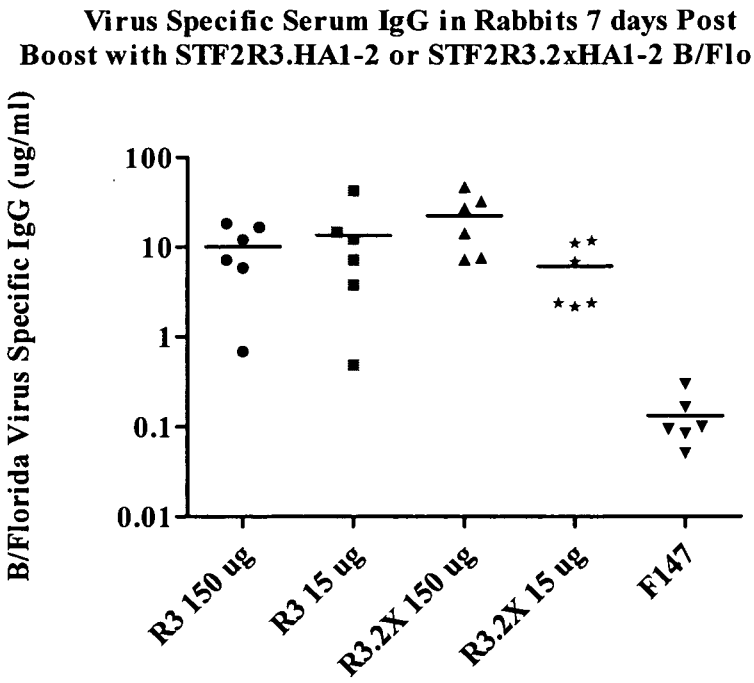

Virus Specific Serum IgG in Rabbits 7 days Post Boost with STF2R3.HA1-2 or STF2R3.2xHA1-2 B/Florida
B/Florida Virus Specific IgG (ug/ml)
100
10
1
0.1
0.01
R3 150 ug
R3 15 ug
R3.2X 150 ug
R3.2X 15 ug
F147

Figure 15

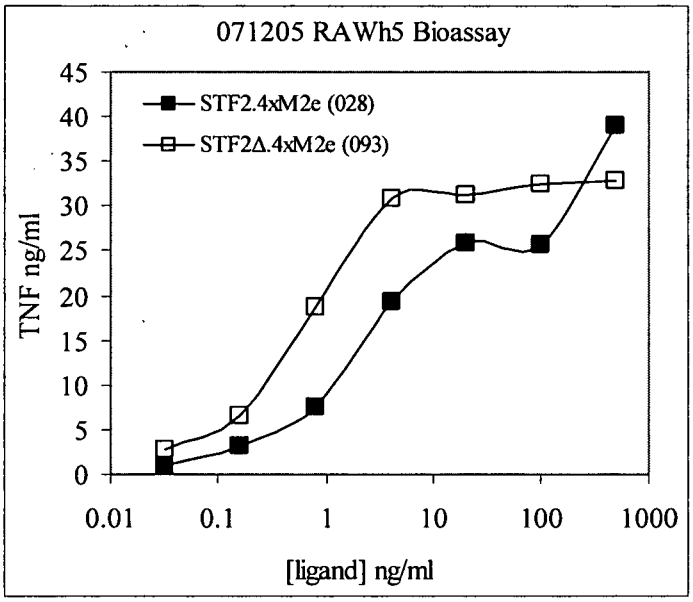


Figure 16A

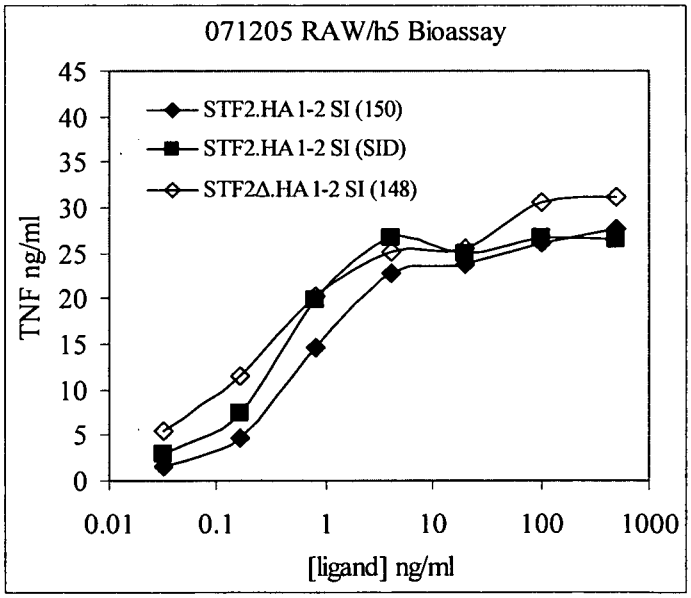


Figure 16B

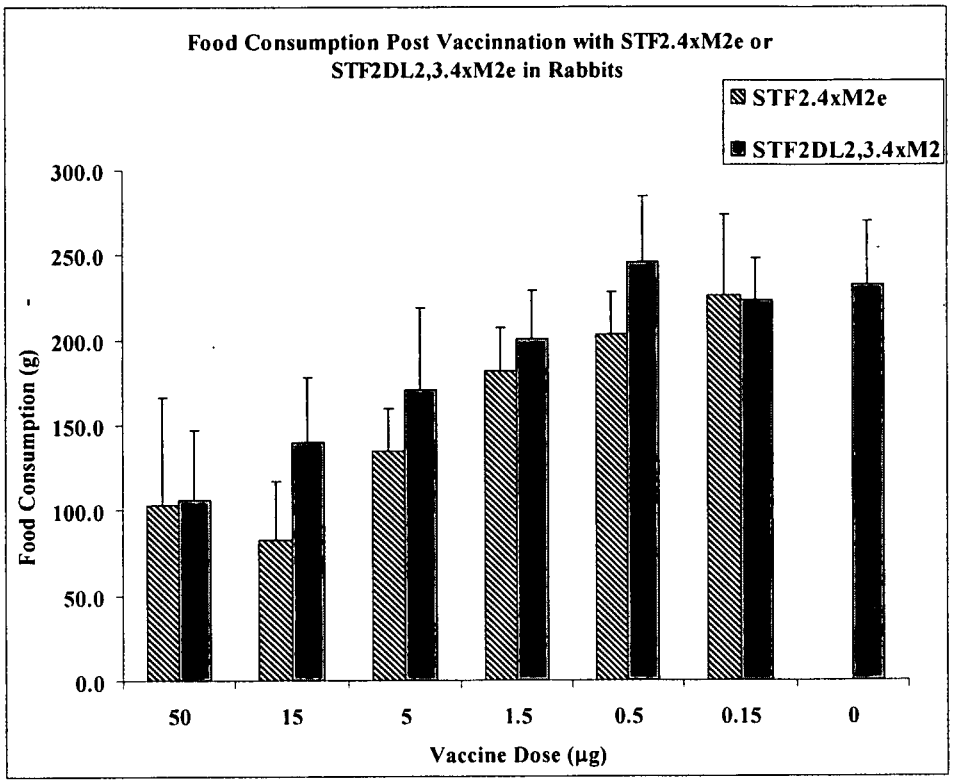


Figure 17A

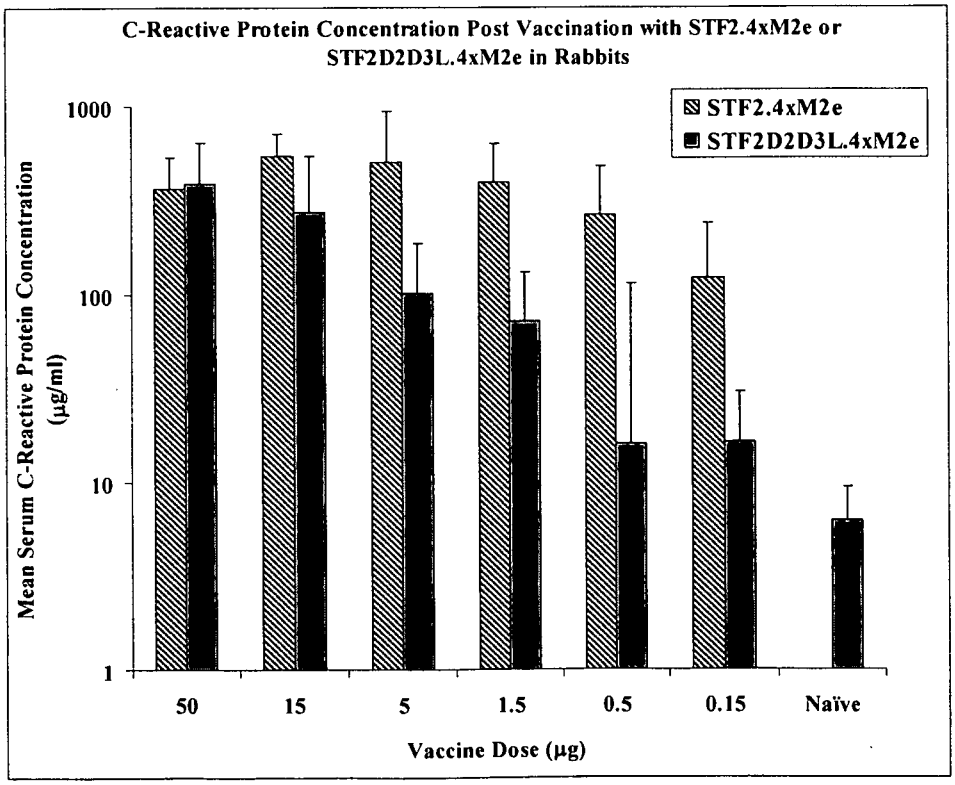


Figure 17B

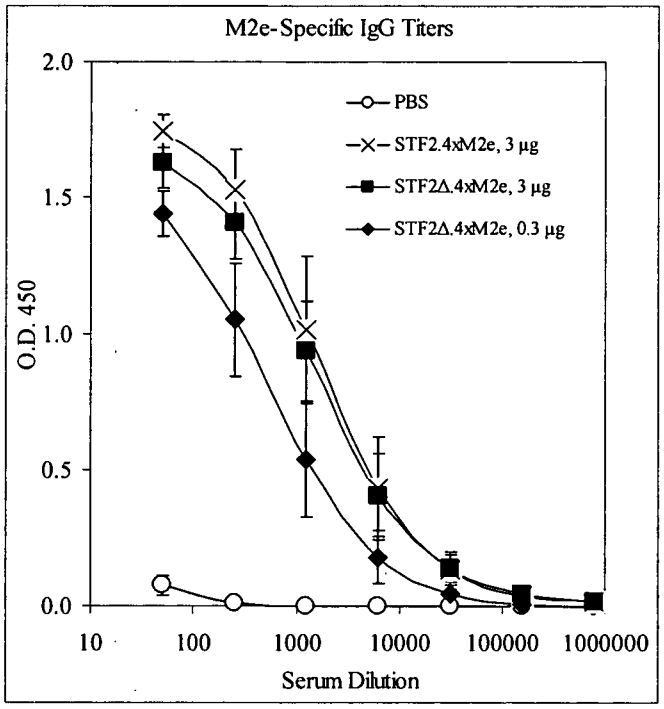


Figure 18A

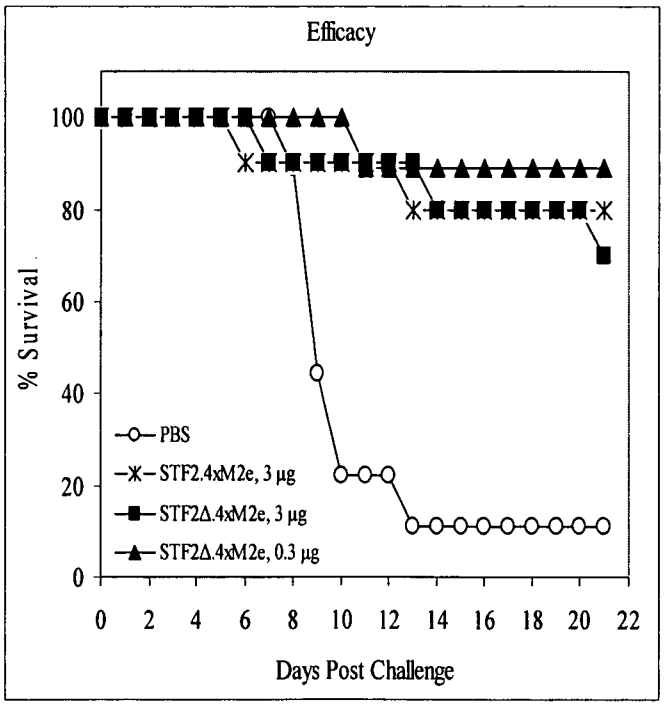


Figure 18B

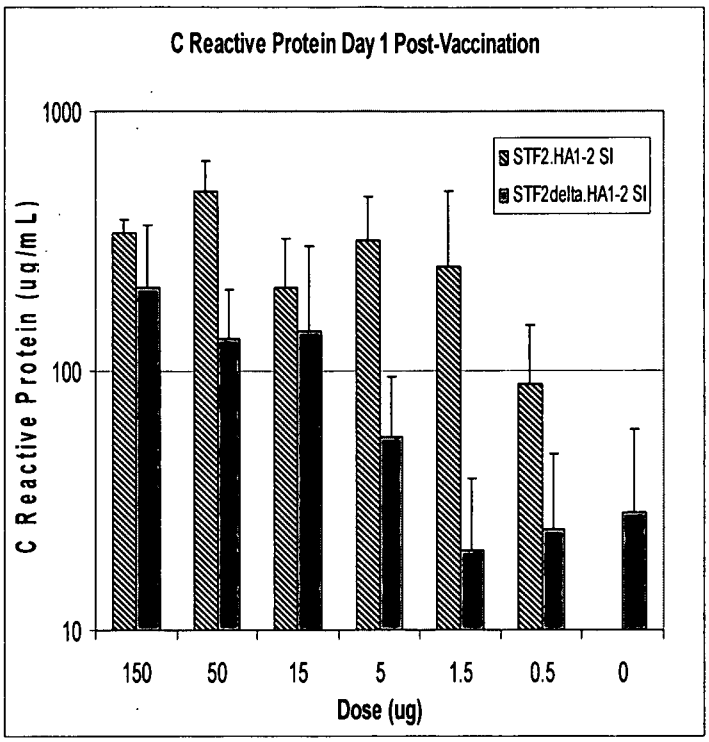


Figure 19A

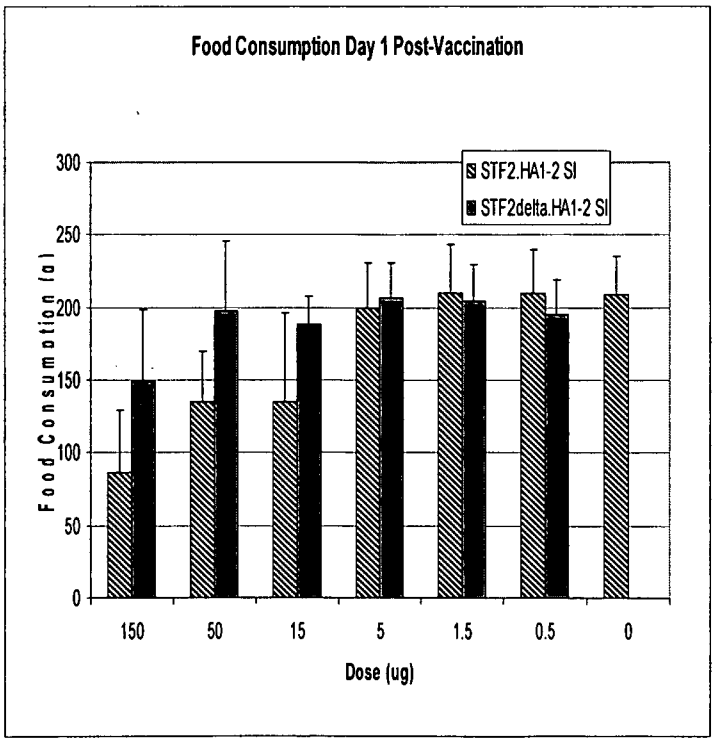


Figure 19B

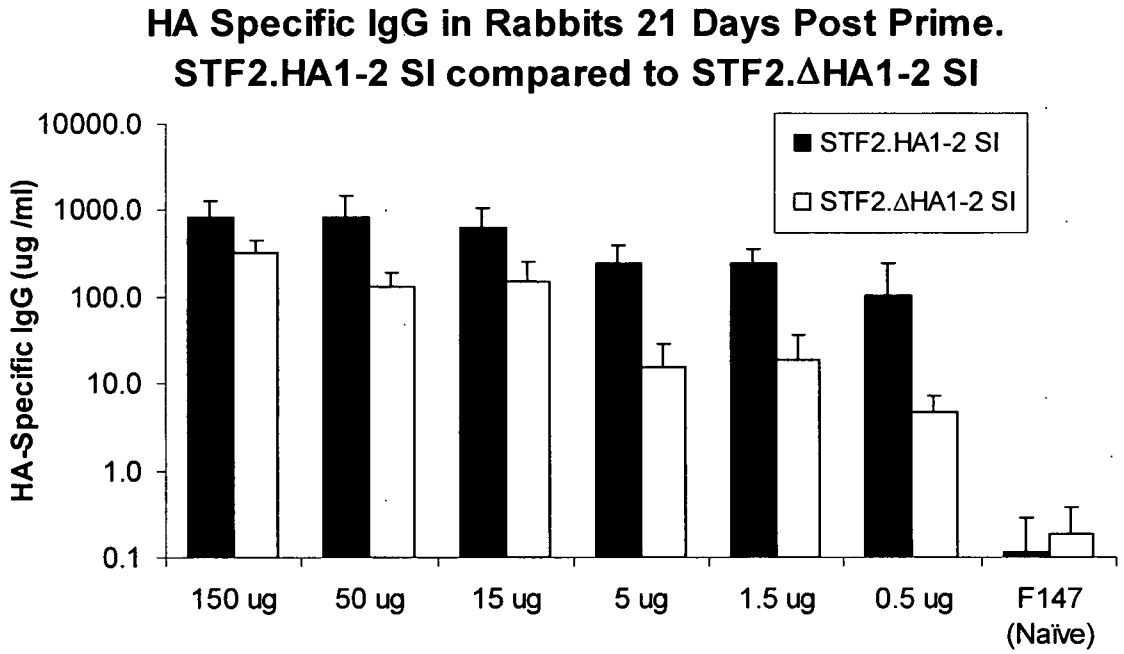
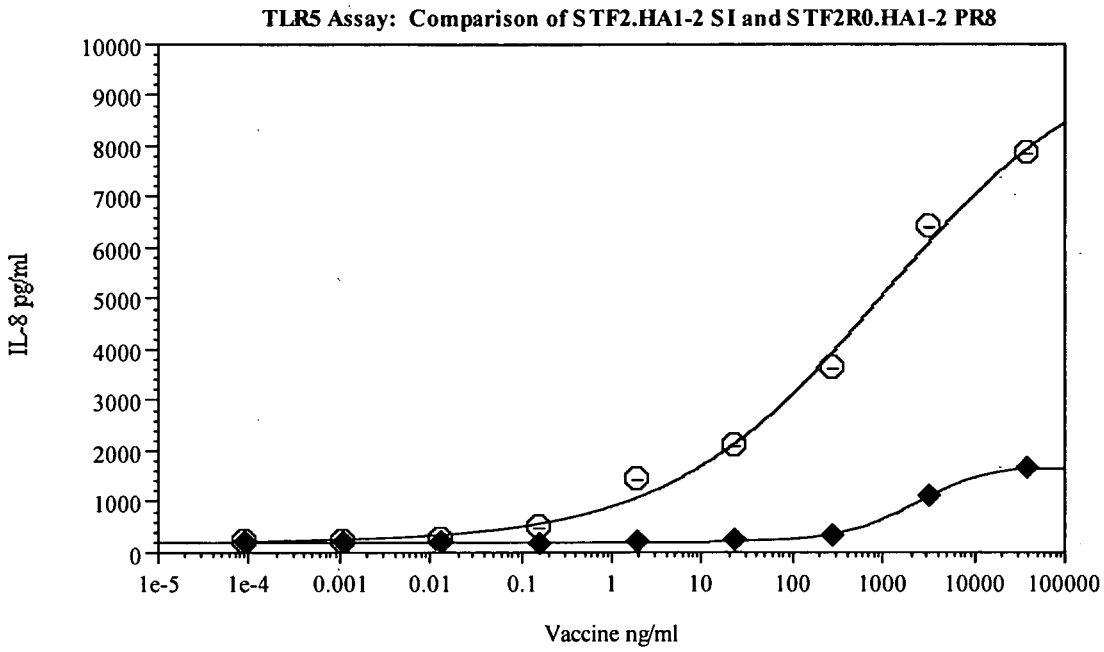

HA Specific IgG in Rabbits 21 Days Post Prime.
STF2.HA1-2 SI compared to STF2.ΔHA1-2 SI
HA-Specific IgG (ug /ml)
10000.0
1000.0
100.0
10.0
1.0
0.1
STF2.HA1-2 SI
STF2.ΔHA1-2 SI
150 ug
50 ug
15 ug
5 ug
1.5 ug
0.5 ug
F147 (Naïve)

Figure 20



4-P Fit: y = (A - D)/(1 + (x/C)^B) + D:	A	B	C	D	R^2
○ Plot#1 (SID008: Dilution vs MeanResult)	171	0.369	1.01e+03	9.95e+03	0.996
◆ Plot#4 (STF2R0.HA1-2 PR8: Dilution vs MeanRe...	190	1.06	2.35e+03	1.71e+03	1

Curve Fit Option - Fixed Weight Value

Figure 21

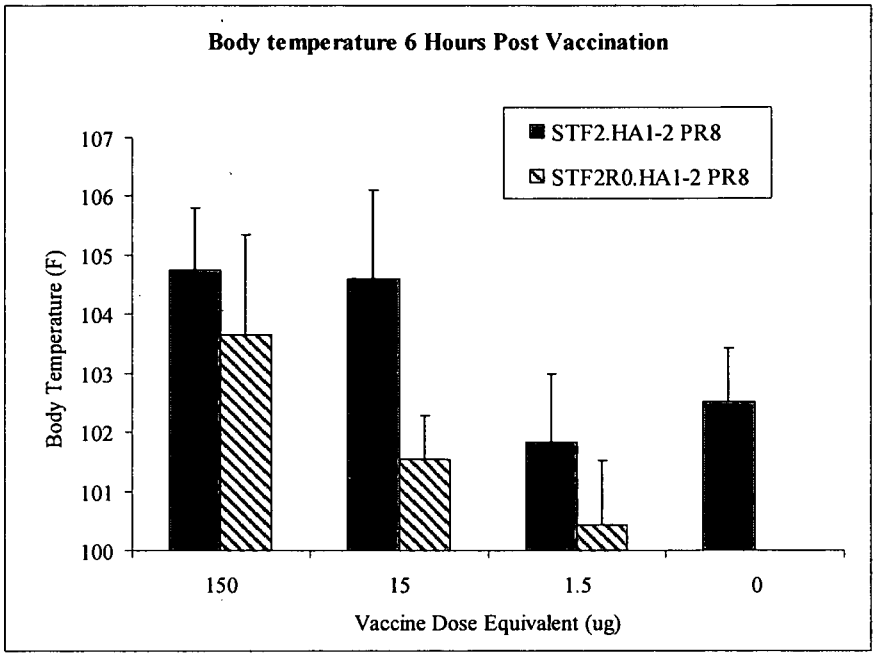


Figure 22A

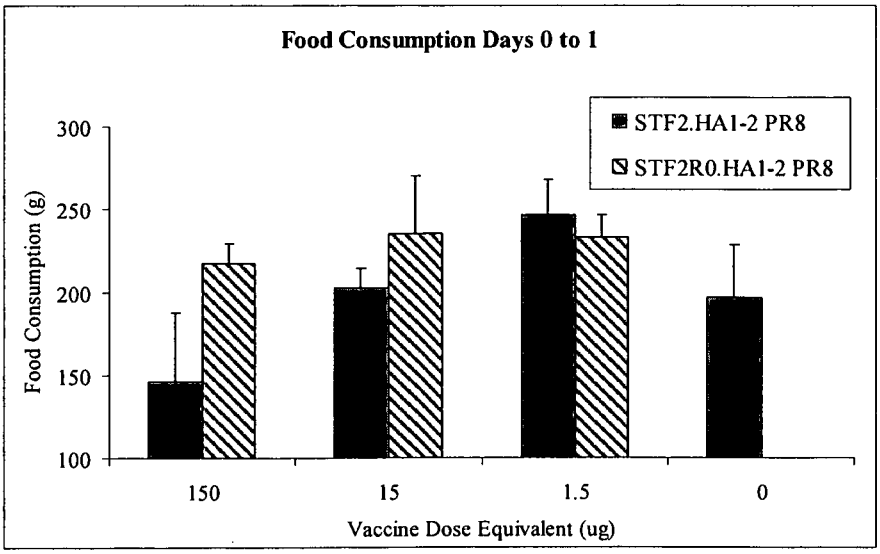


Figure 22B

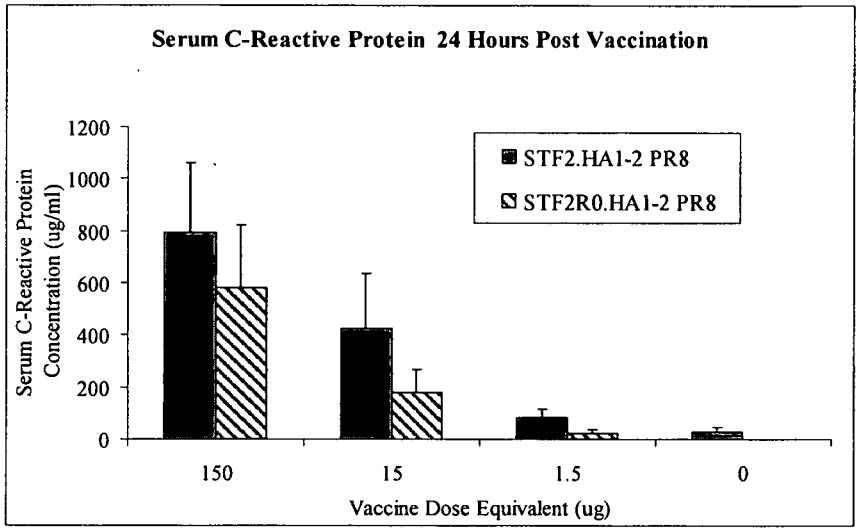

Serum C-Reactive Protein 24 Hours Post Vaccination
Serum C-Reactive Protein Concentration (ug/ml)
1200
1000
800
600
400
200
0
STF2.HA1-2 PR8
STF2R0.HA1-2 PR8
150
15
1.5
0
Vaccine Dose Equivalent (ug)

Figure 22C

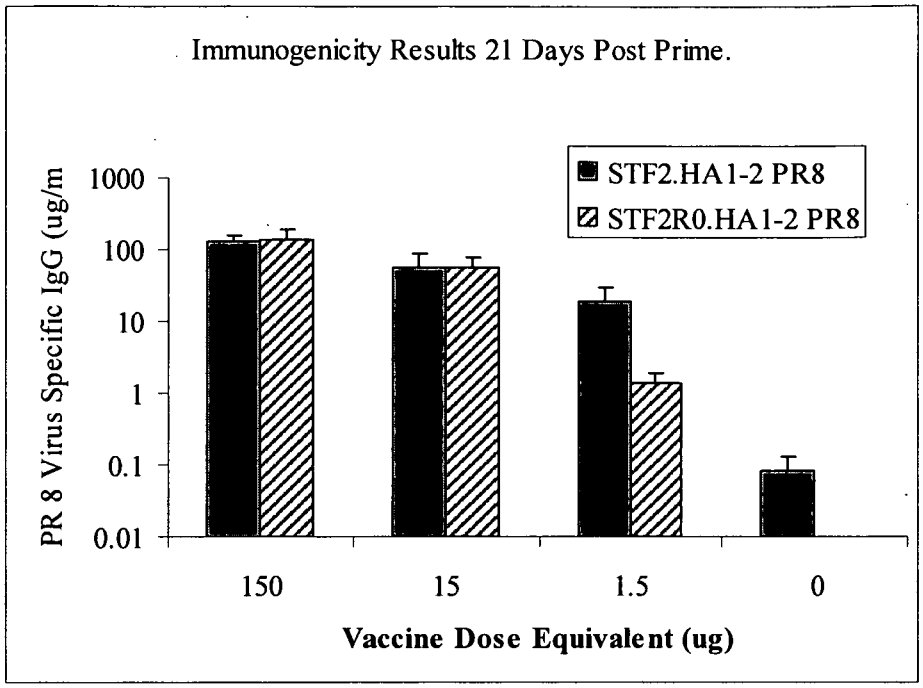

Immunogenicity Results 21 Days Post Prime.
PR 8 Virus Specific IgG (ug/m
1000
100
10
1
0.1
0.01
STF2.HA1-2 PR8
STF2R0.HA1-2 PR8
150
15
1.5
0
Vaccine Dose Equivalent (ug)

Figure 23

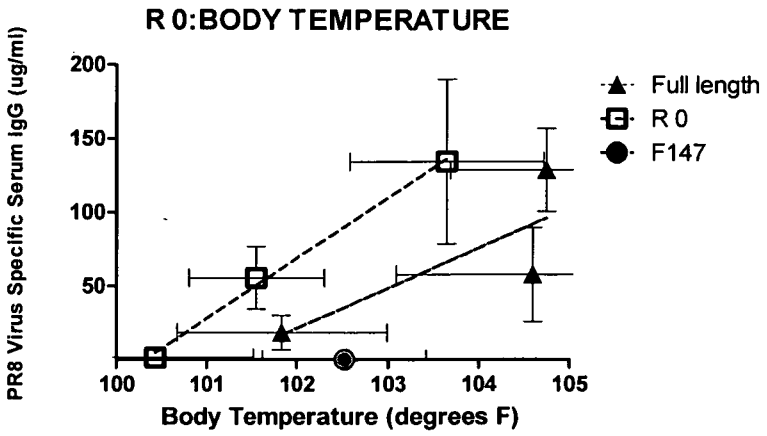


Figure 24A

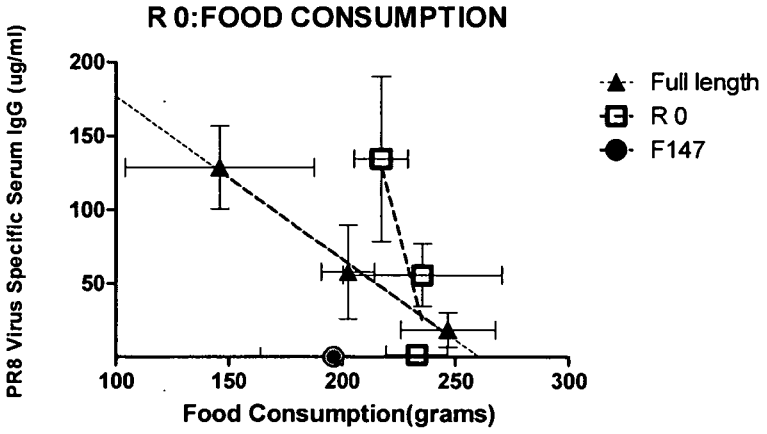


Figure 24B

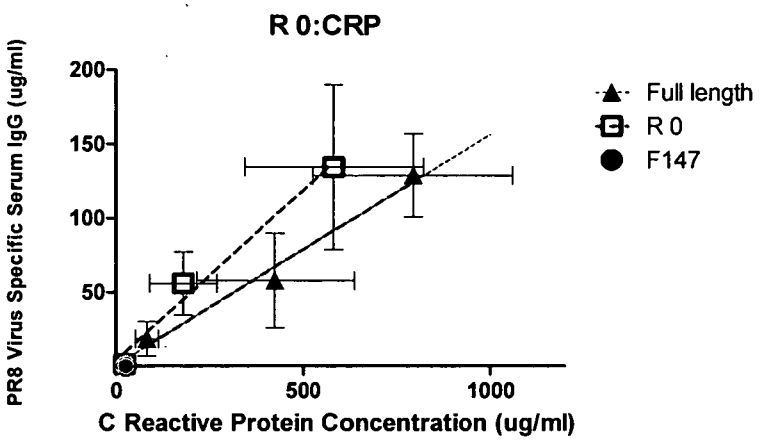

R 0:CRP
PR8 Virus Specific Serum IgG (ug/ml)
200
150
100
50
0
500
1000
C Reactive Protein Concentration (ug/ml)
Full length
R 0
F147

Figure 24C

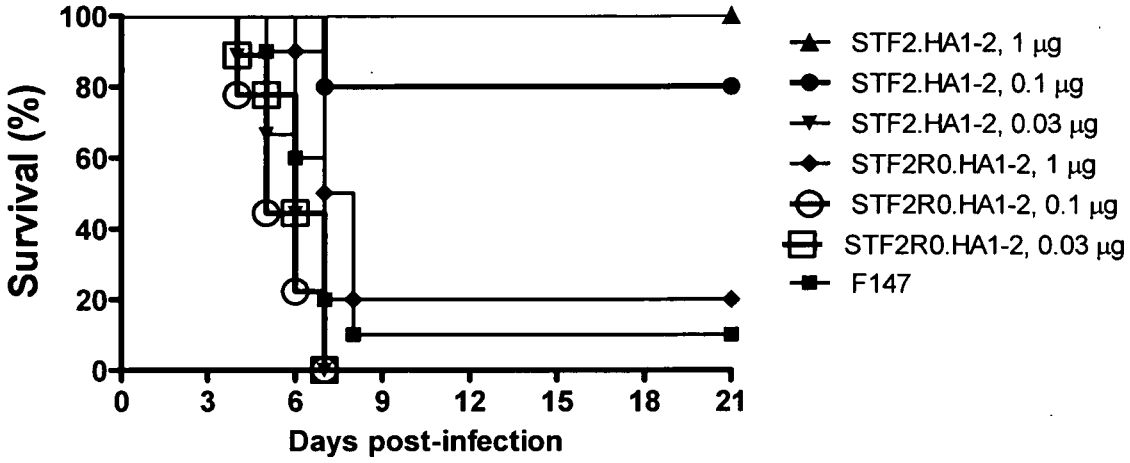

Survival (%)
100
80
60
40
20
0
0
3
6
9
12
15
18
21
Days post-infection
STF2.HA1-2, 1 μg
STF2.HA1-2, 0.1 μg
STF2.HA1-2, 0.03 μg
STF2R0.HA1-2, 1 μg
STF2R0.HA1-2, 0.1 μg
STF2R0.HA1-2, 0.03 μg
F147

Figure 25

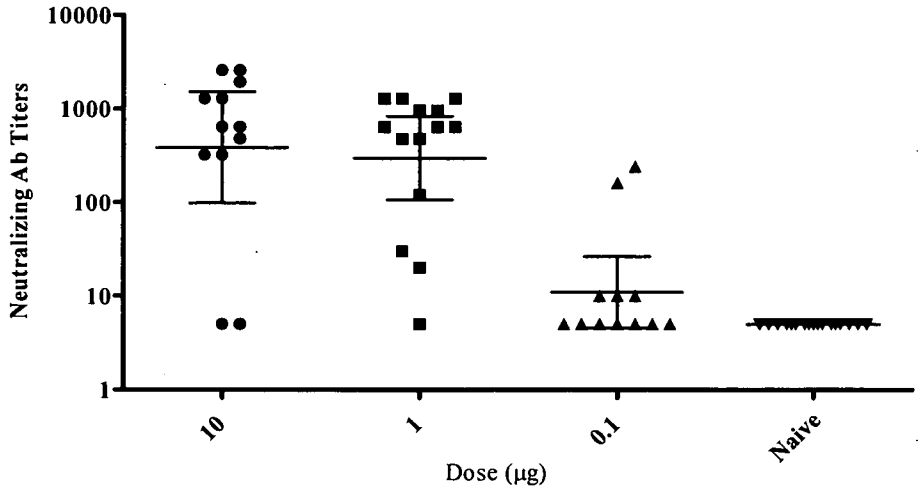


Figure 26

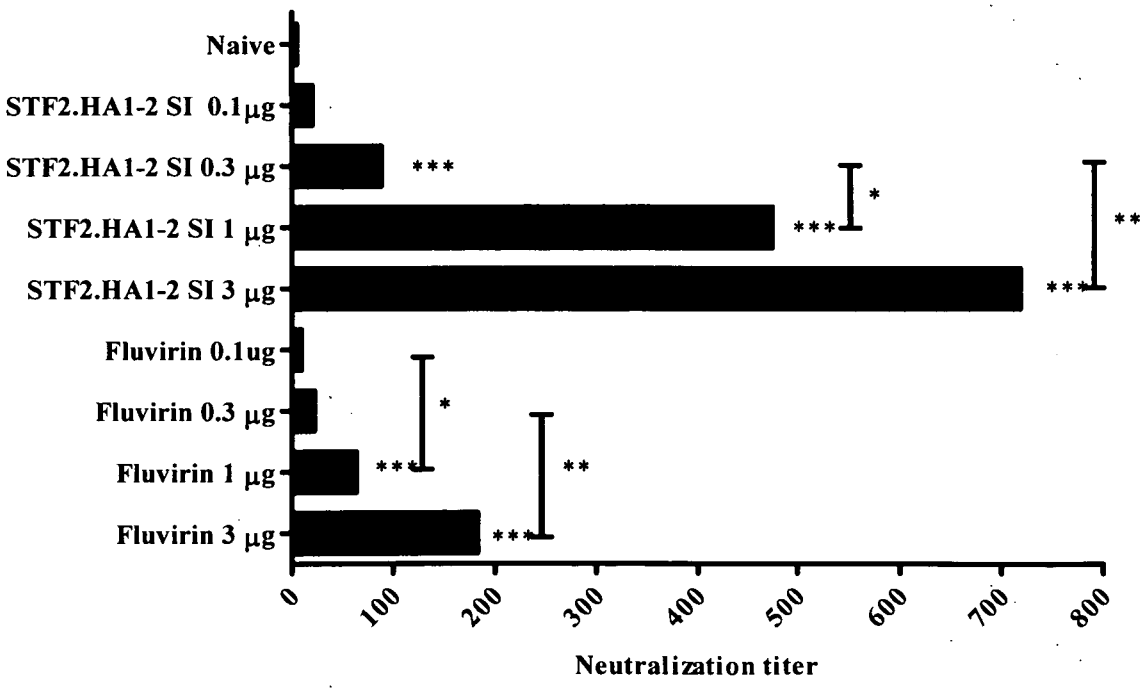


Figure 27

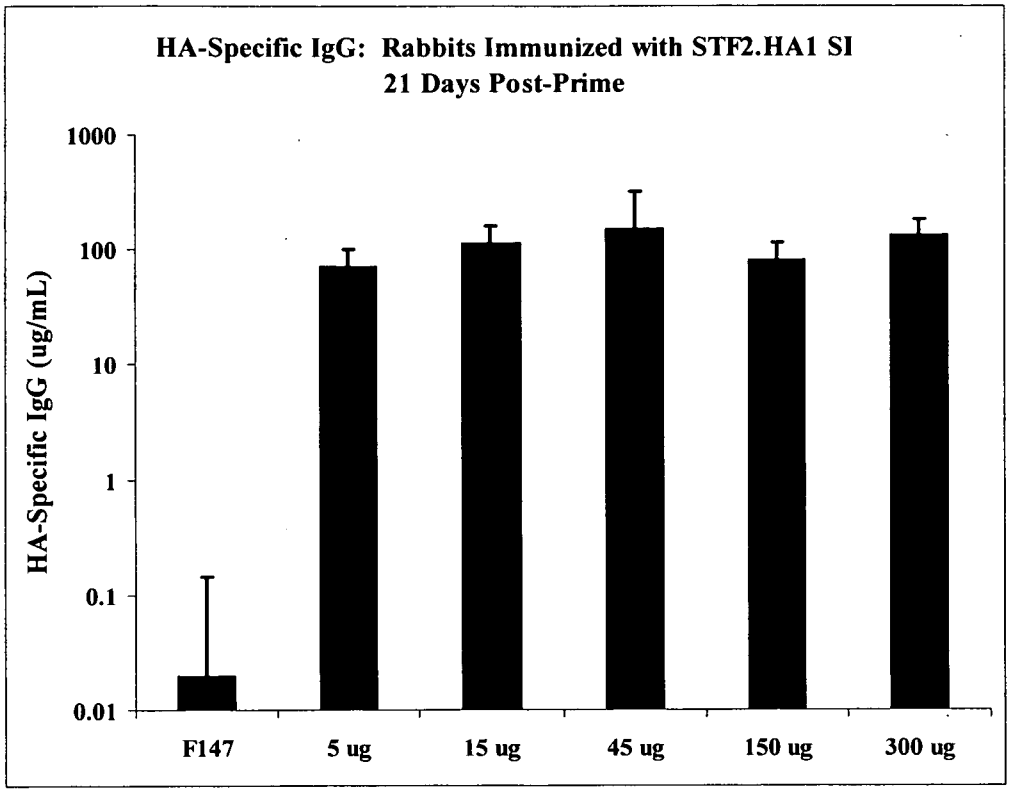

HA-Specific IgG: Rabbits Immunized with STF2.HA1 SI
21 Days Post-Prime
HA-Specific IgG (ug/mL)
1000
100
10
1
0.1
0.01
F147
5 ug
15 ug
45 ug
150 ug
300 ug

Figure 28A

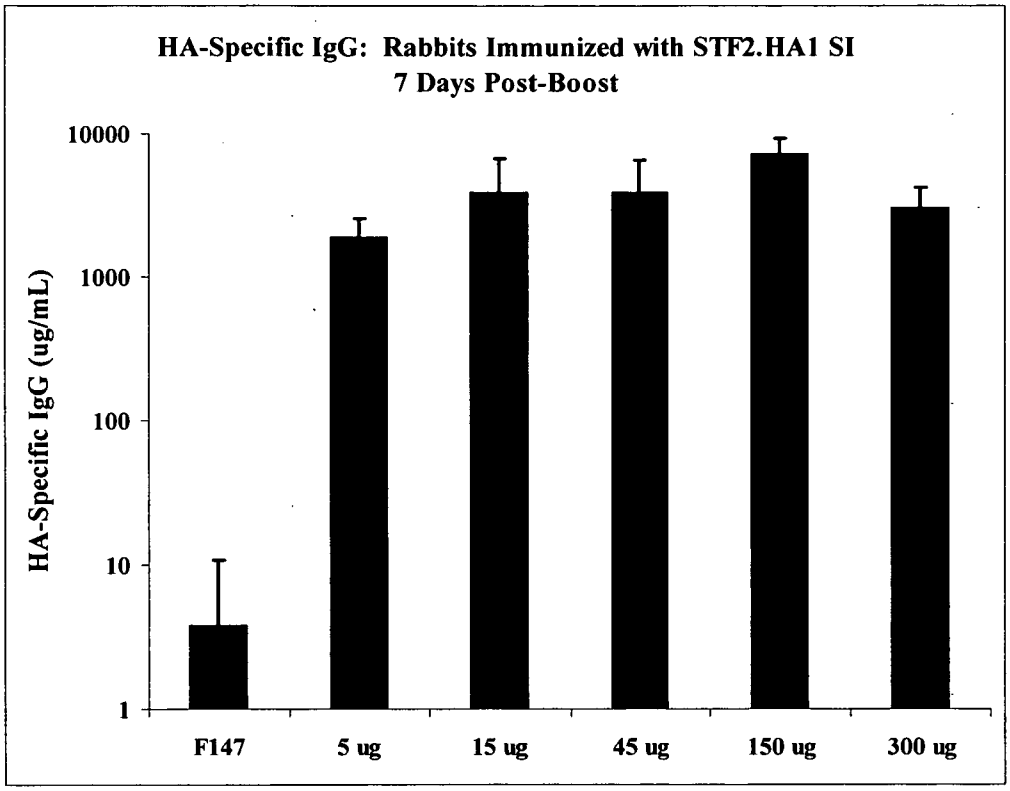

HA-Specific IgG: Rabbits Immunized with STF2.HA1 SI
7 Days Post-Boost
HA-Specific IgG (ug/mL)
10000
1000
100
10
1
F147
5 ug
15 ug
45 ug
150 ug
300 ug

Figure 28B

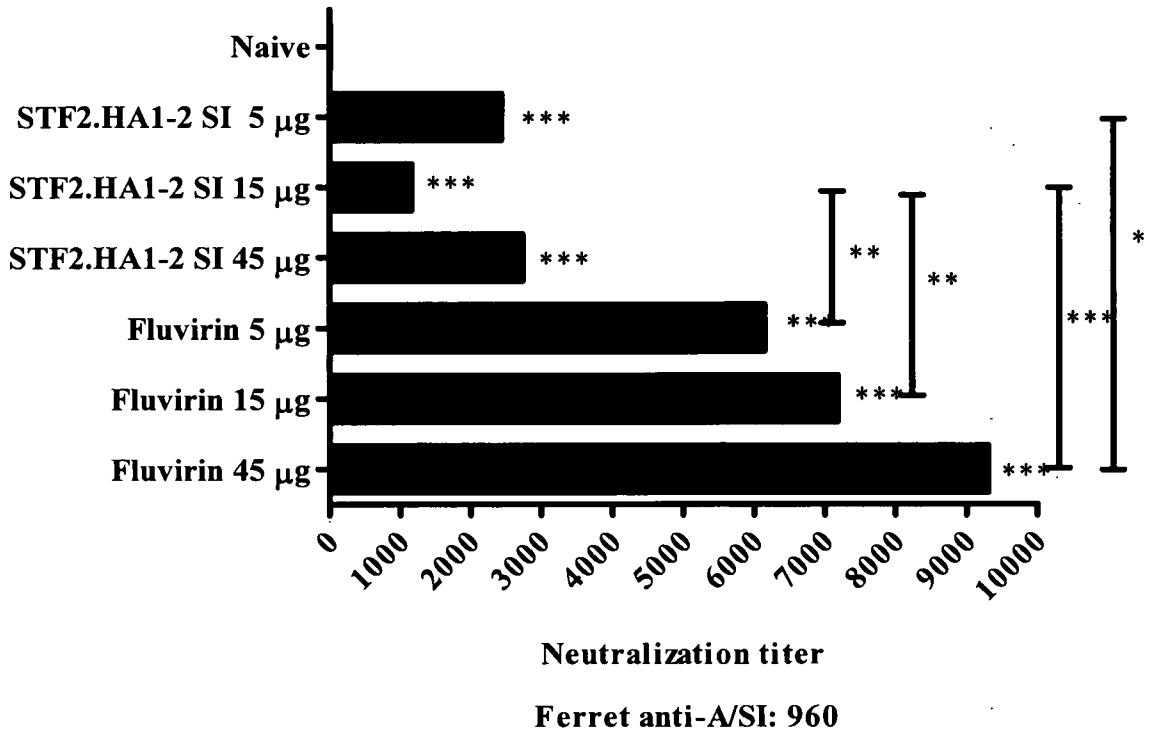

Naive
STF2.HA1-2 SI 5 μg
STF2.HA1-2 SI 15 μg
STF2.HA1-2 SI 45 μg
Fluvirin 5 μg
Fluvirin 15 μg
Fluvirin 45 μg
***
***
***
**
**
***
*
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
Neutralization titer
Ferret anti-A/SI: 960

Figure 29

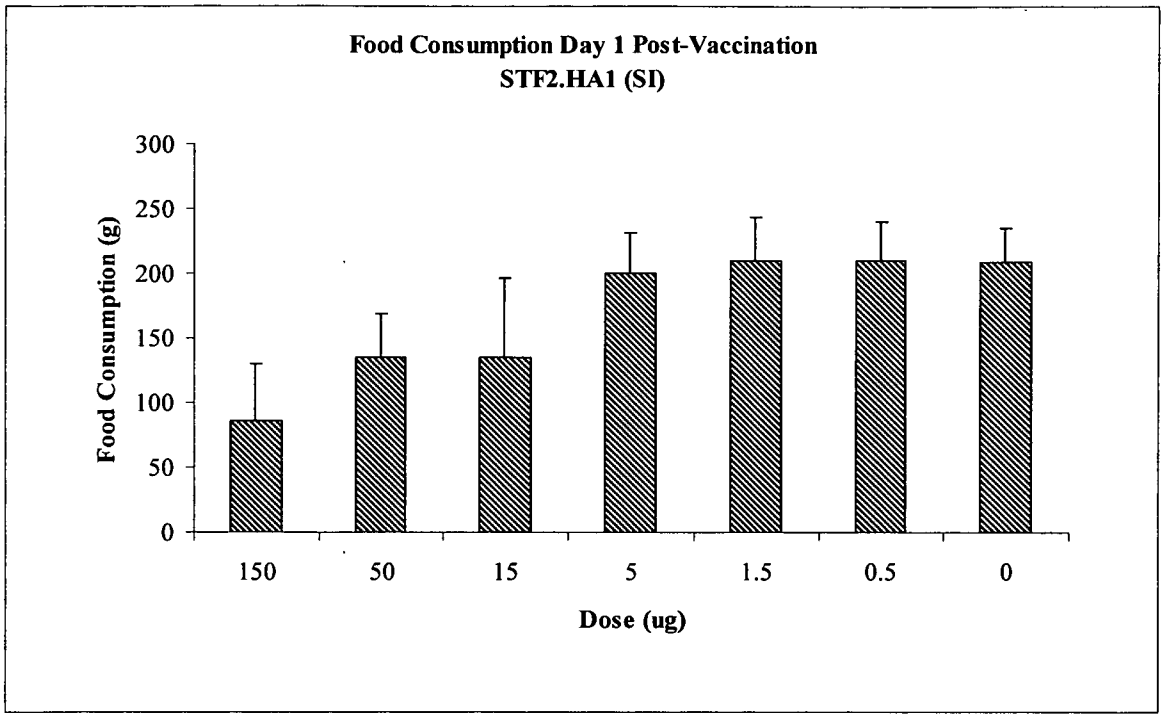


Figure 30

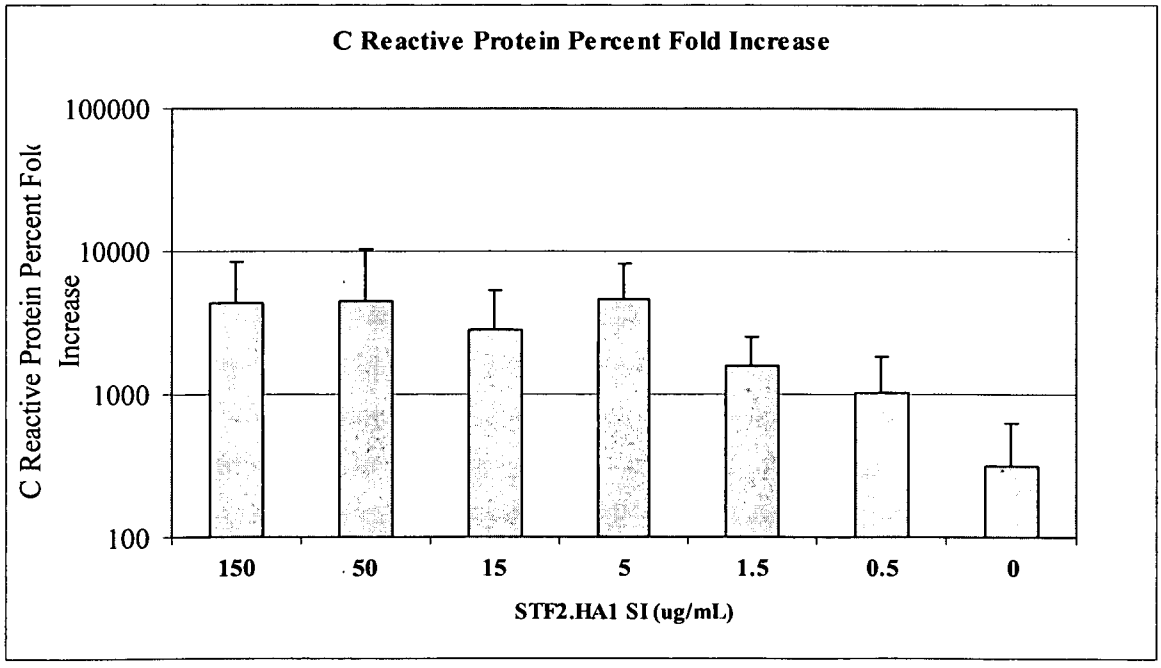


Figure 31

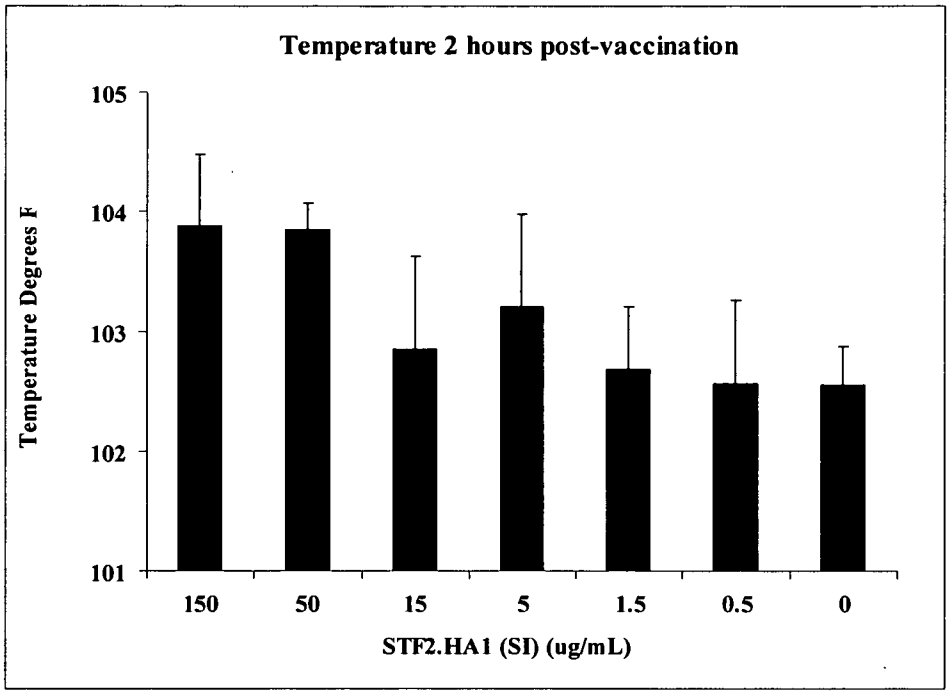

Temperature 2 hours post-vaccination
Temperature Degrees F
105
104
103
102
101
150
50
15
5
1.5
0.5
0
STF2.HA1 (SI) (ug/mL)

Figure 32

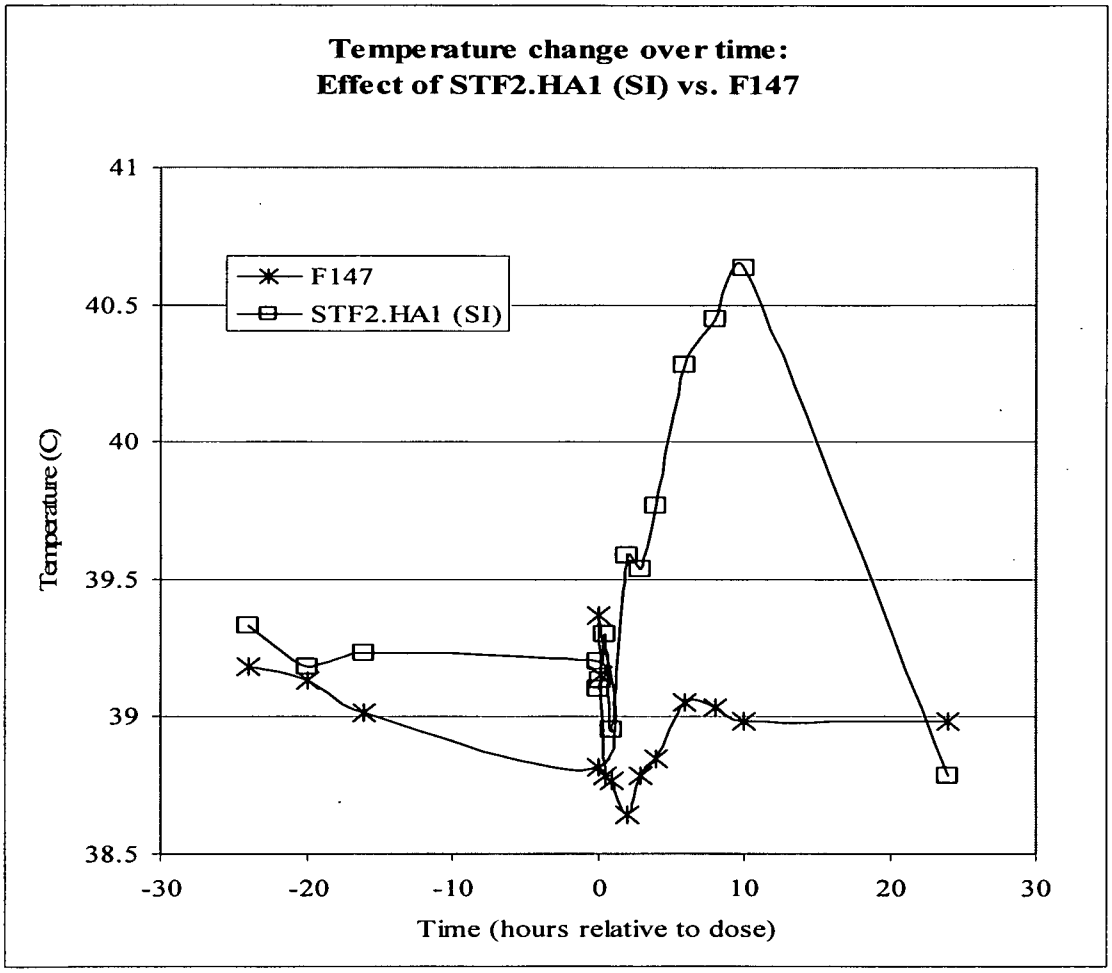

Temperature change over time:
Effect of STF2.HA1 (SI) vs. F147
F147
STF2.HA1 (SI)
Temperature (C)
41
40.5
40
39.5
39
38.5
-30
-20
-10
0
10
20
30
Time (hours relative to dose)

Figure 33

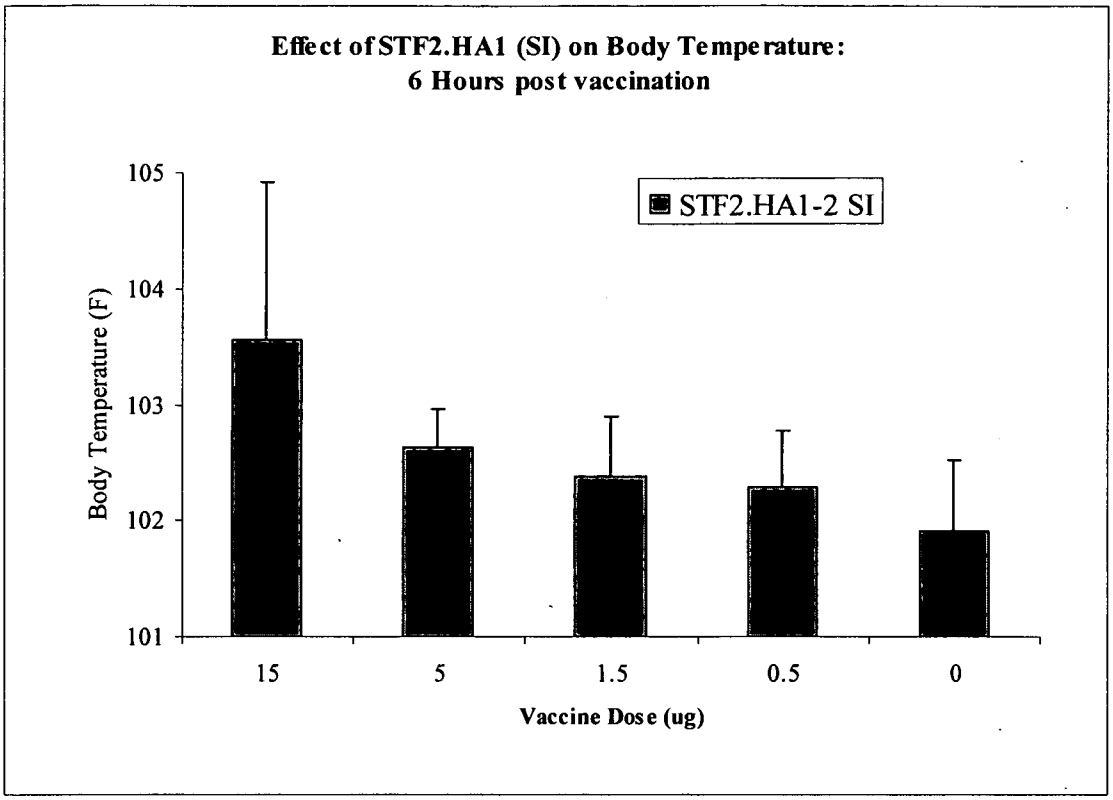

Effect of STF2.HA1 (SI) on Body Temperature:
6 Hours post vaccination
STF2.HA1-2 SI
Body Temperature (F)
105
104
103
102
101
15
5
1.5
0.5
0
Vaccine Dose (ug)

Figure 34

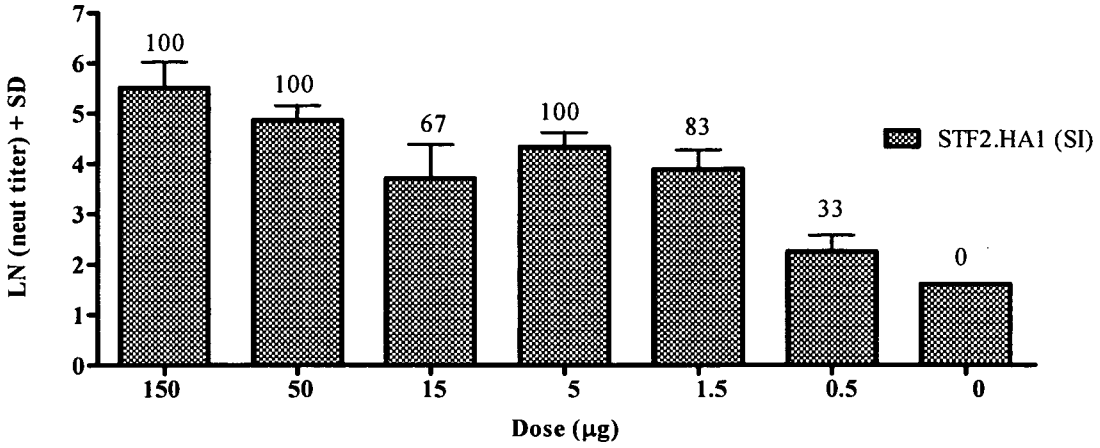

LN (neut titer) + SD
7
6
5
4
3
2
1
0
100
100
67
100
83
33
0
150
50
15
5
1.5
0.5
0
Dose (µg)
STF2.HA1 (SI)

Figure 35

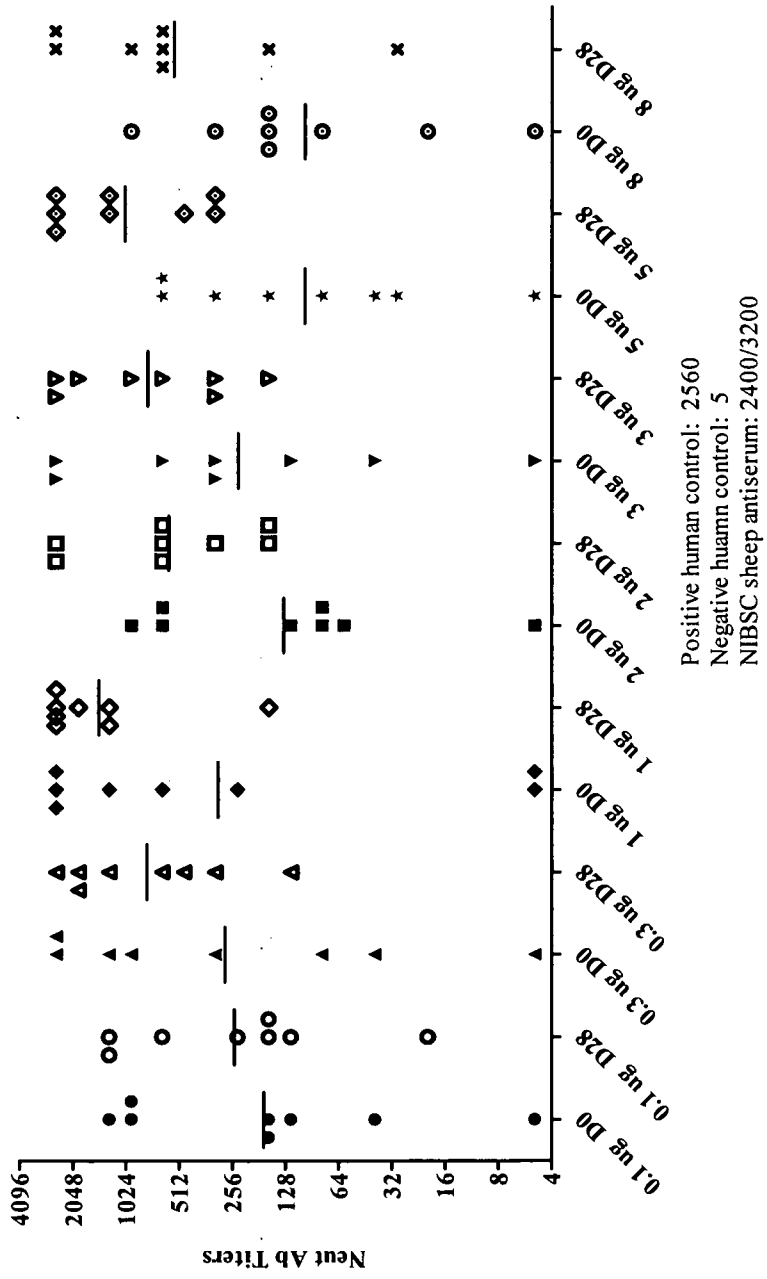

Neut Ab Titers
4096
2048
1024
512
256
128
64
32
16
8
4
0.1 ug D0
0.1 ug D28
0.3 ug D0
0.3 ug D28
1 ug D0
1 ug D28
2 ug D0
2 ug D28
3 ug D0
3 ug D28
5 ug D0
5 ug D28
8 ug D0
8 ug D28
Positive human control: 2560
Negative huamn control: 5
NIBSC sheep antiserum: 2400/3200

Figure 36

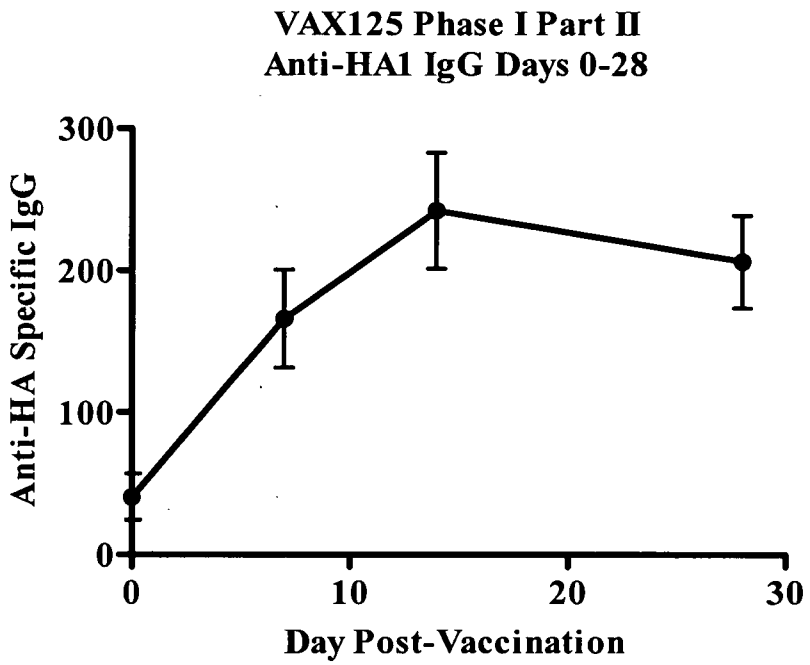

VAX125 Phase I Part II
Anti-HA1 IgG Days 0-28
Anti-HA Specific IgG
300
200
100
0
0
10
20
30
Day Post-Vaccination

Figure 37A

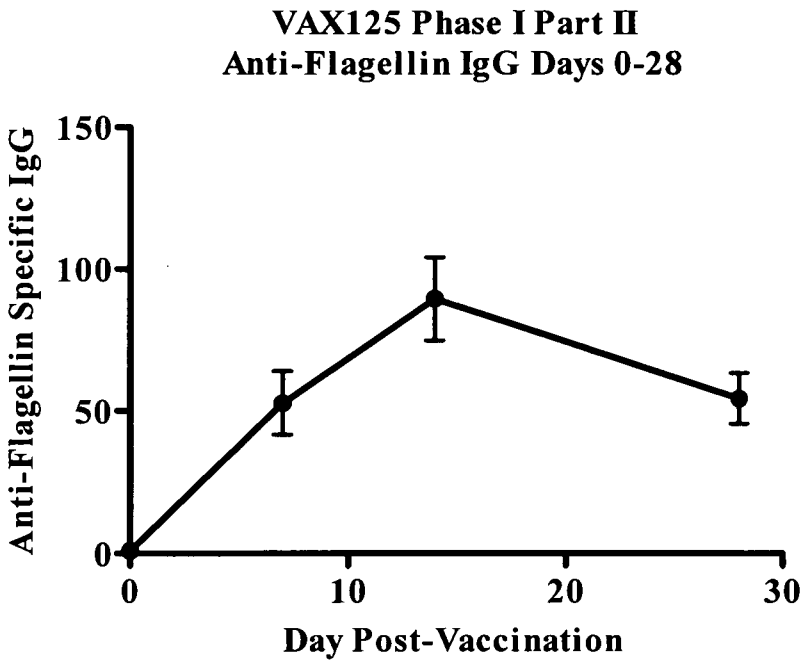

VAX125 Phase I Part II
Anti-Flagellin IgG Days 0-28
Anti-Flagellin Specific IgG
150
100
50
0
0
10
20
30
Day Post-Vaccination

Figure 37B

Group 2 0.3 ug Dose
Day 0 to Day 60

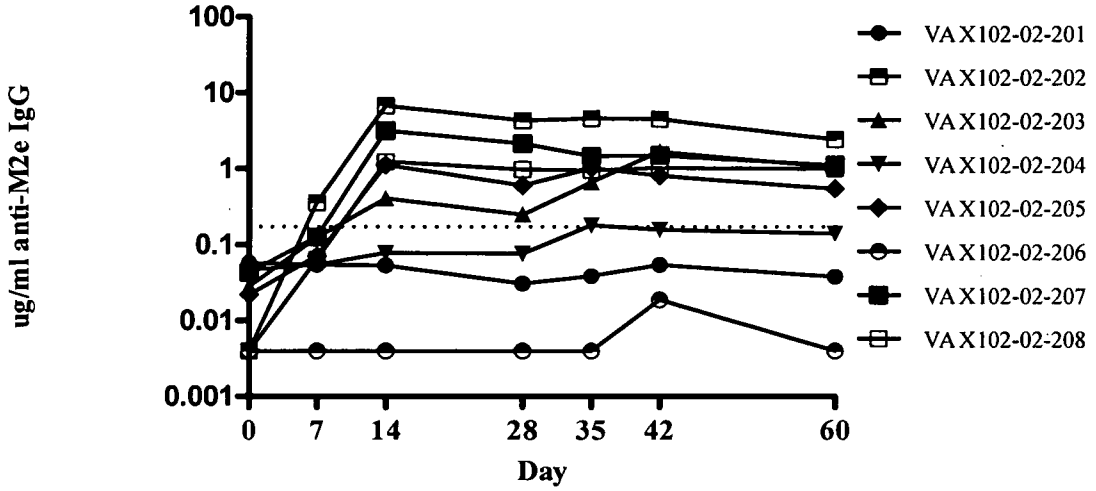


Figure 38A

Group 3 1.0 ug Dose
Day 0 to Day 60

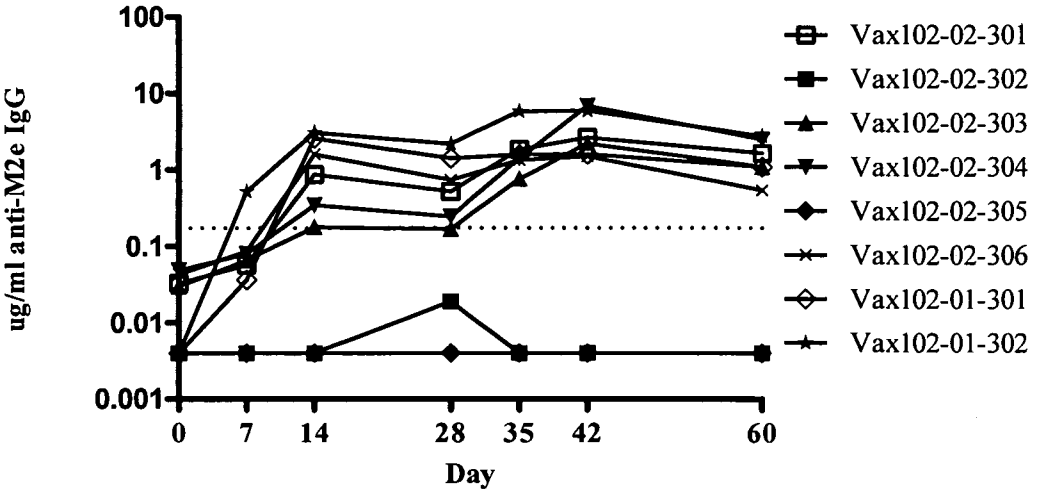


Figure 38B

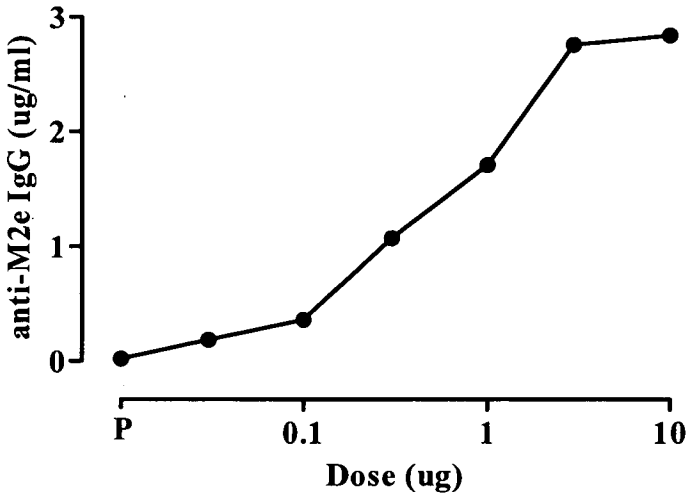


Figure 39

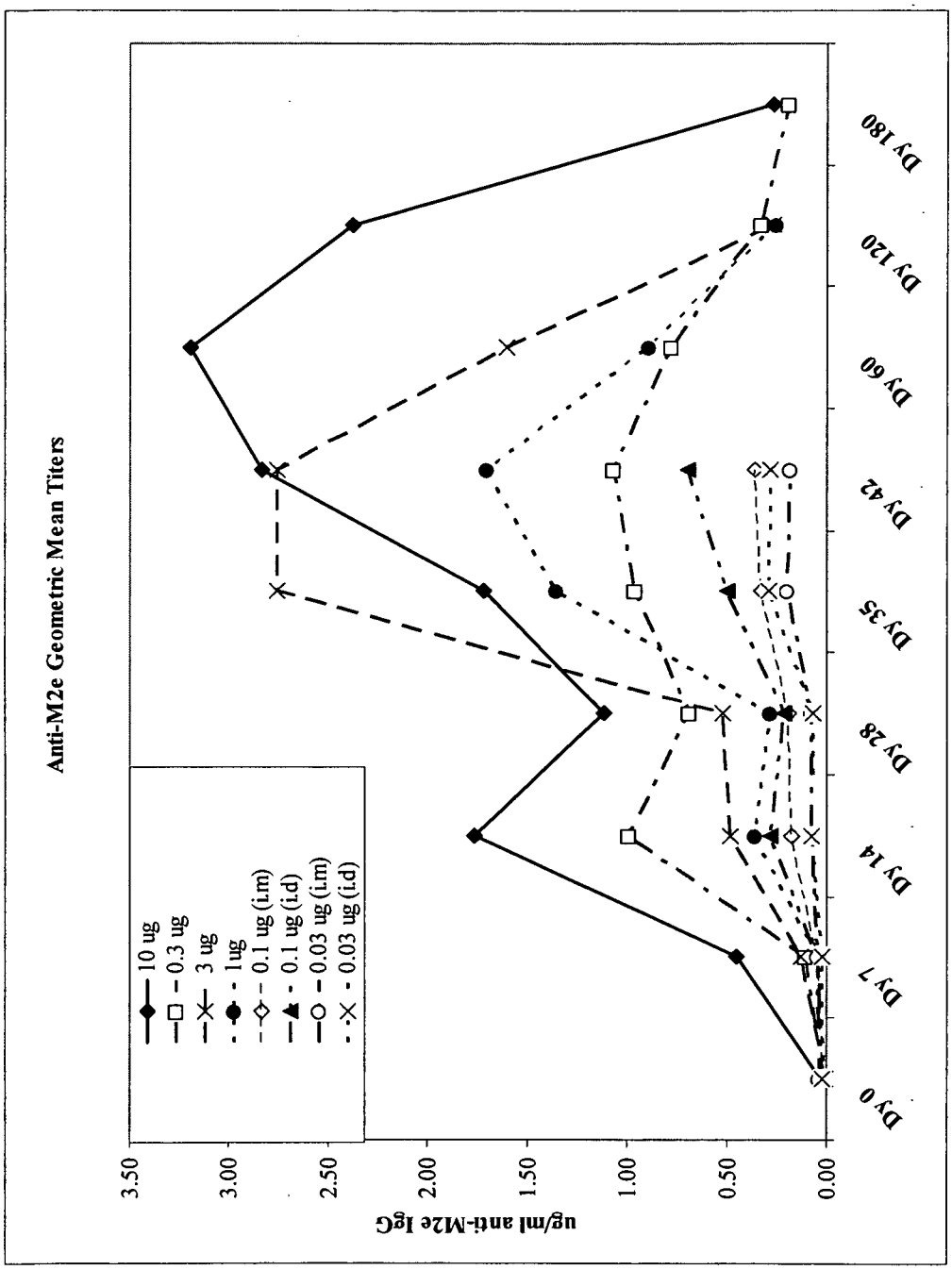

Anti-M2e Geometric Mean Titers
ug/ml anti-M2e IgG
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Dy 0
Dy 7
Dy 14
Dy 28
Dy 35
Dy 42
Dy 60
Dy 120
Dy 180
10 ug
0.3 ug
3 ug
1 ug
0.1 ug (i.m)
0.1 ug (i.d)
0.03 ug (i.m)
0.03 ug (i.d)

Figure 40

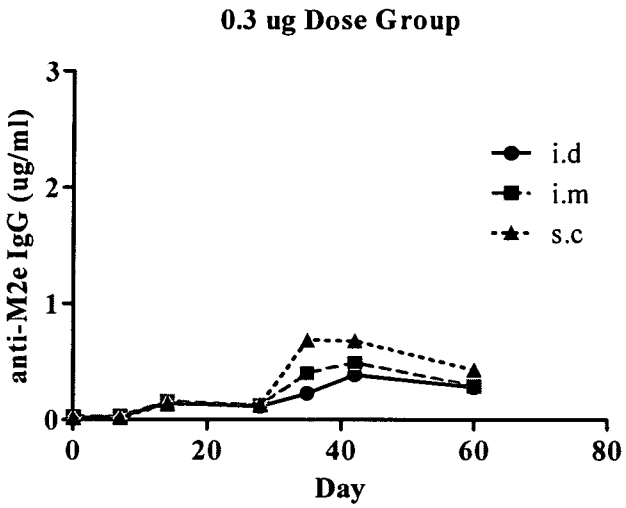


Figure 41A

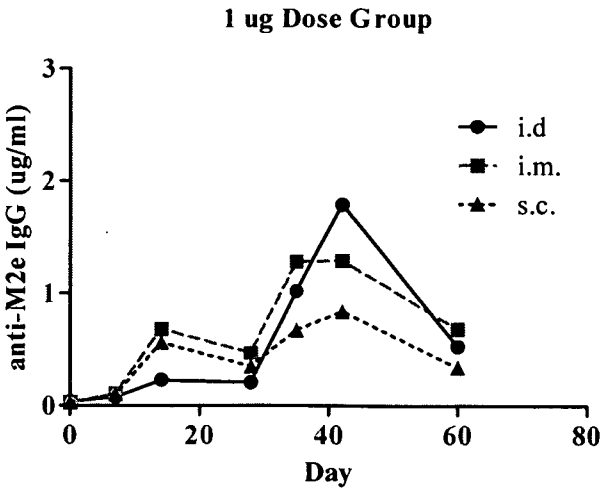


Figure 41B

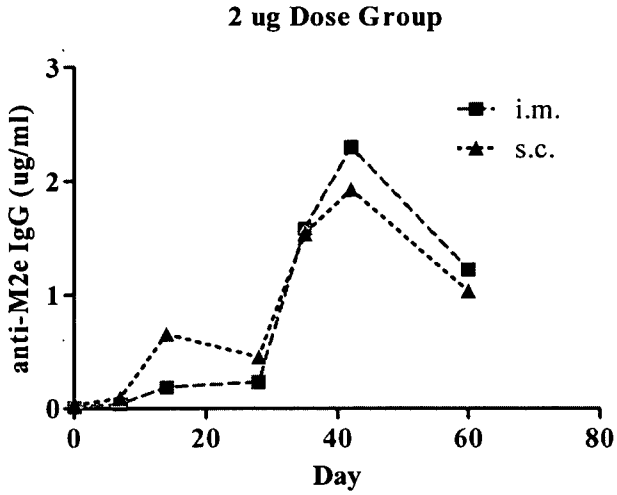


Figure 41C

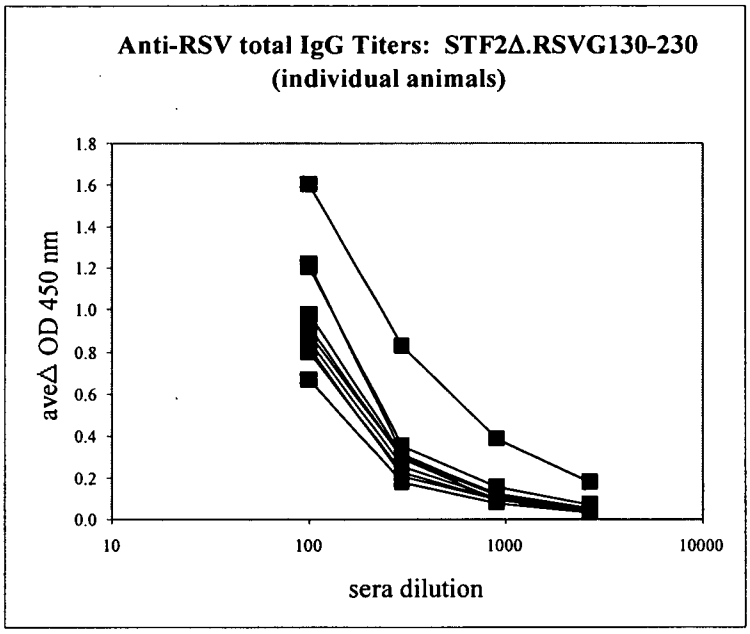


Figure 42A

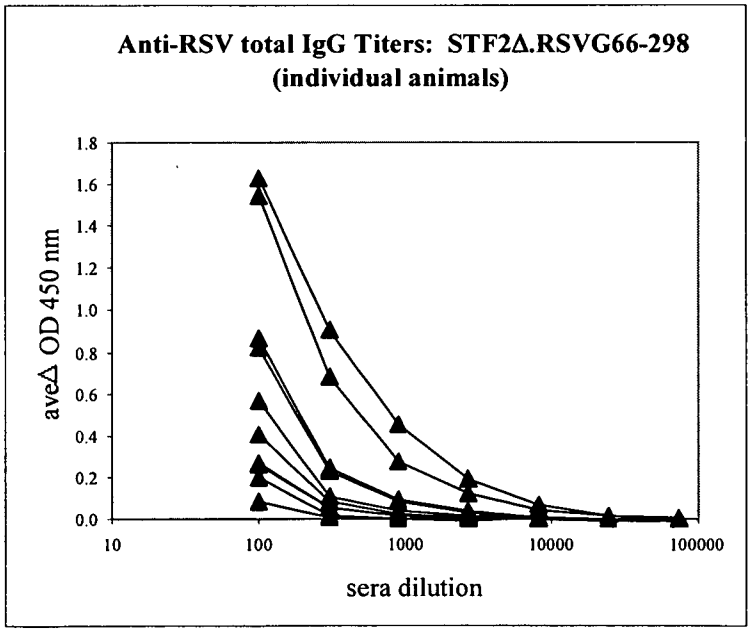


Figure 42B

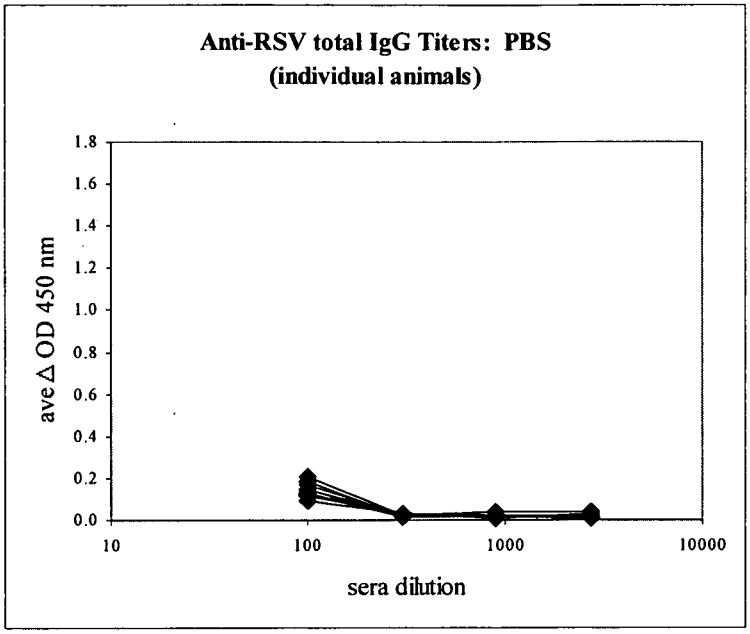

Anti-RSV total IgG Titers: PBS
(individual animals)
ave Δ OD 450 nm
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
10
100
1000
10000
sera dilution

Figure 42C

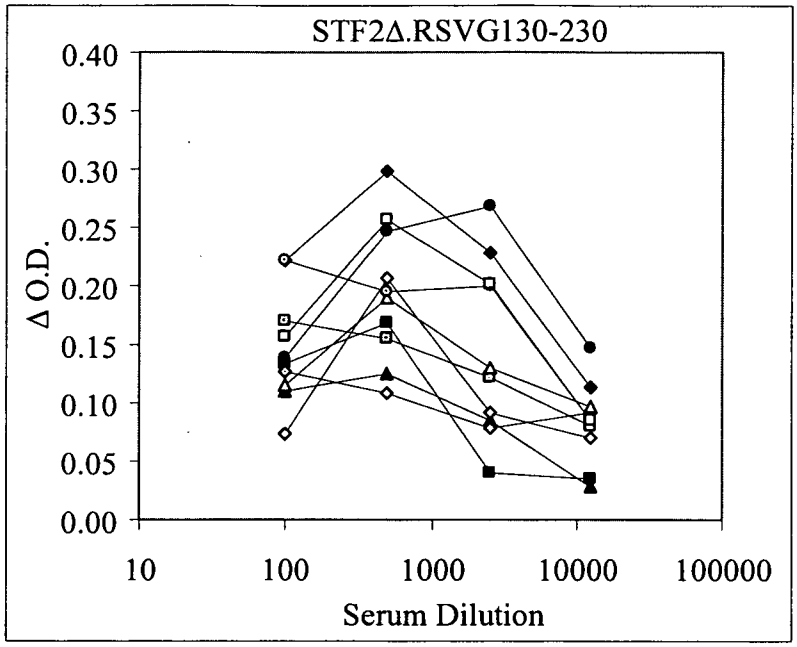


Figure 43A

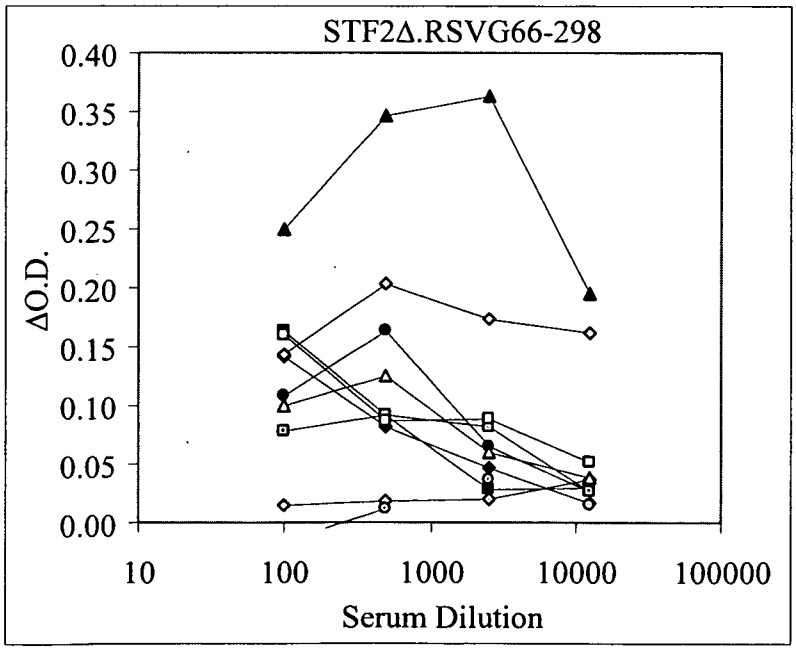


Figure 43B

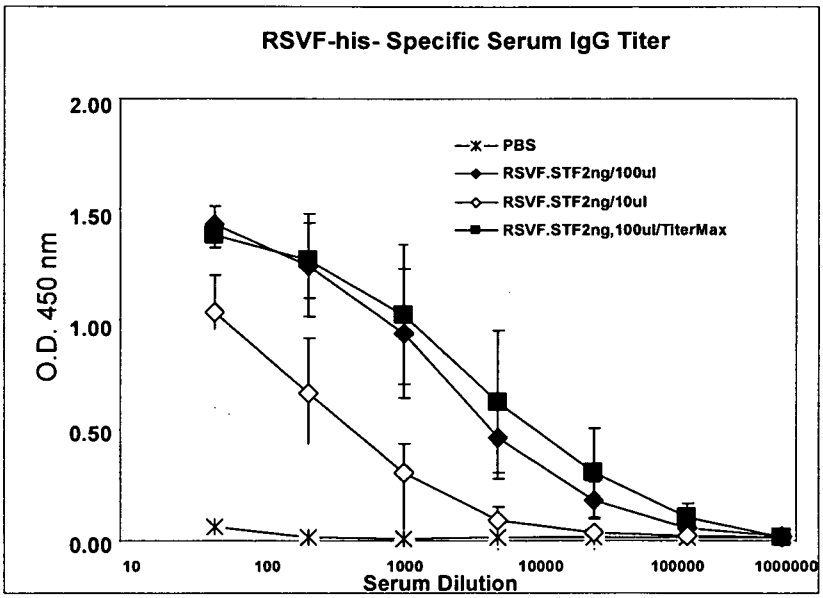


Figure 44A

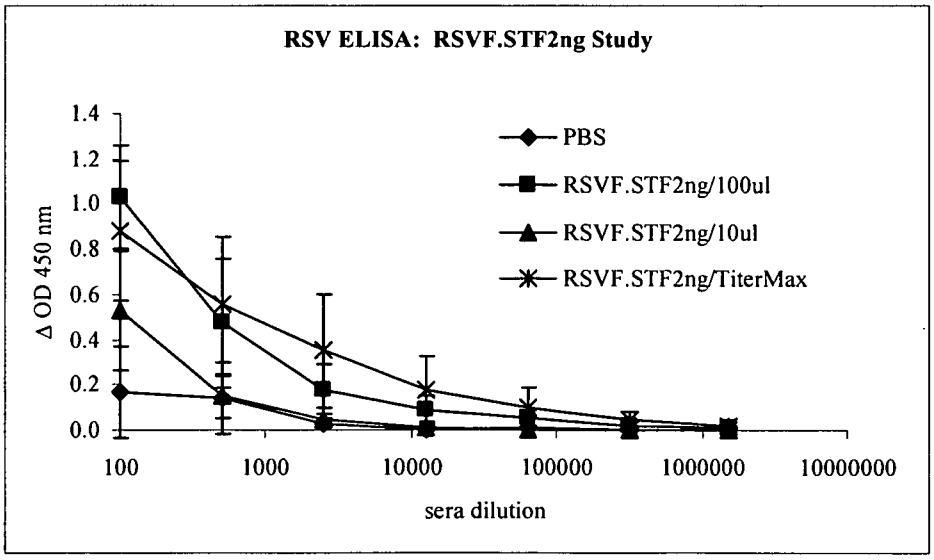


Figure 44B

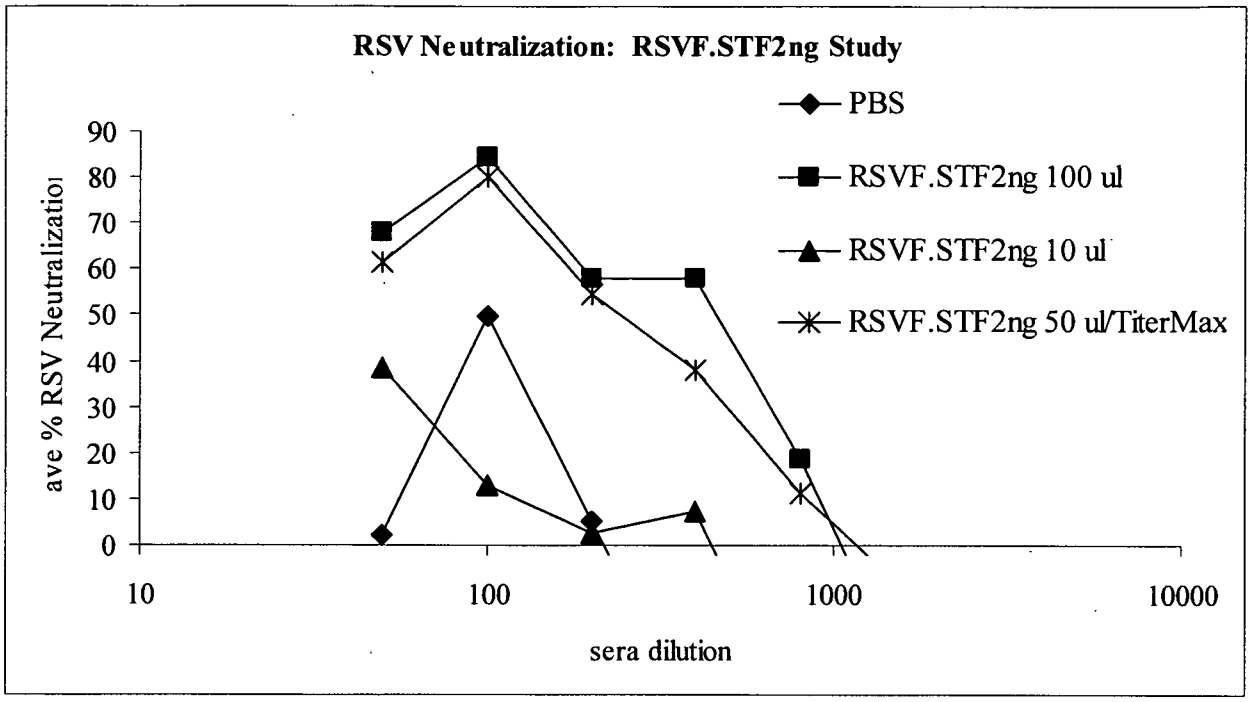

RSV Neutralization: RSVF.STF2ng Study
PBS
RSVF.STF2ng 100 ul
RSVF.STF2ng 10 ul
RSVF.STF2ng 50 ul/TiterMax
ave % RSV Neutralizatio
90
80
70
60
50
40
30
20
10
0
10
100
1000
10000
sera dilution

Figure 45

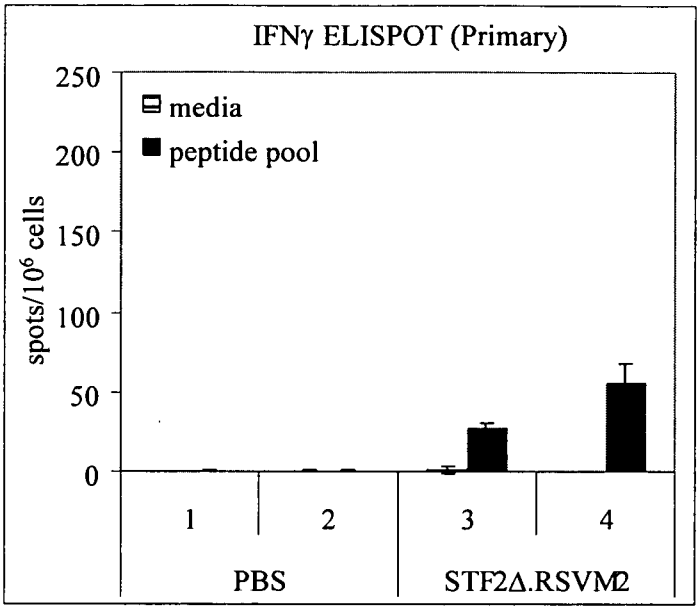


Figure 46A

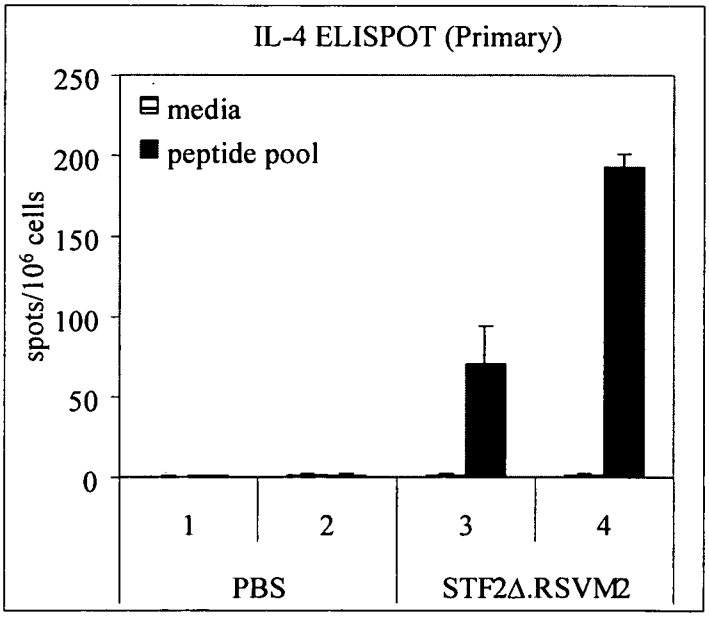


Figure 46B

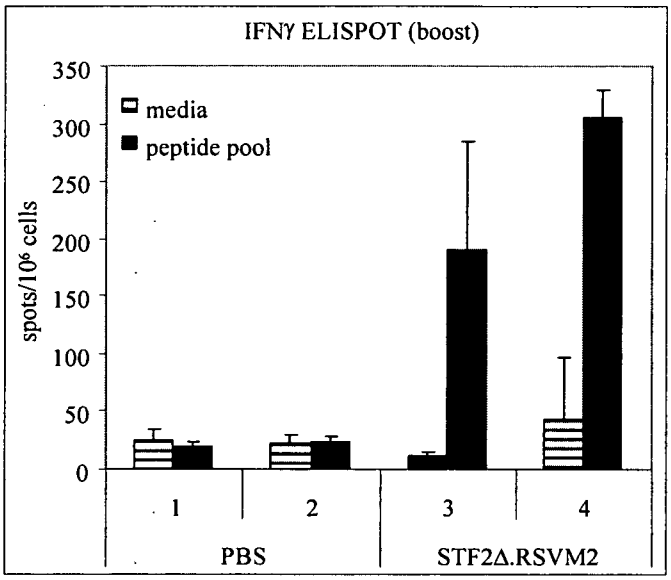


Figure 46C

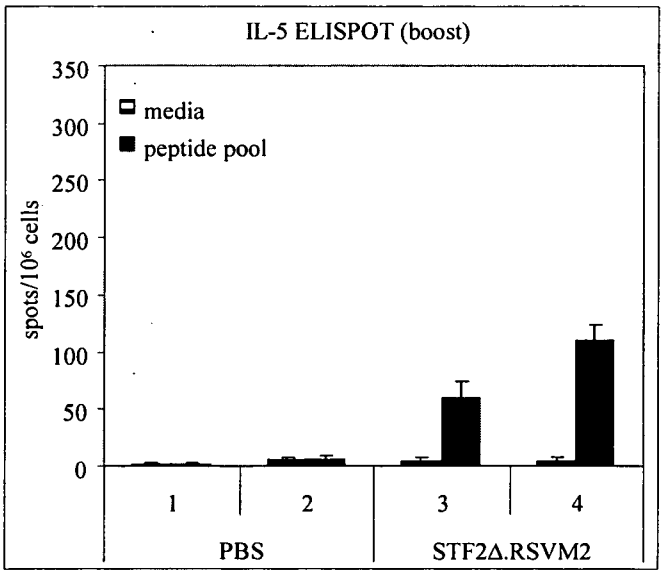


Figure 46D

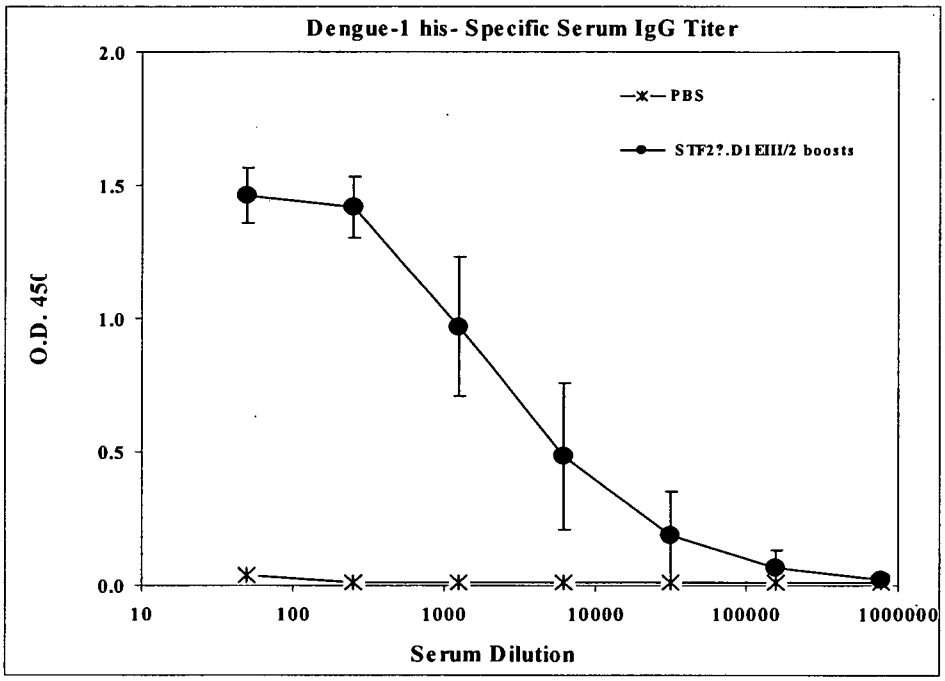


Figure 47A

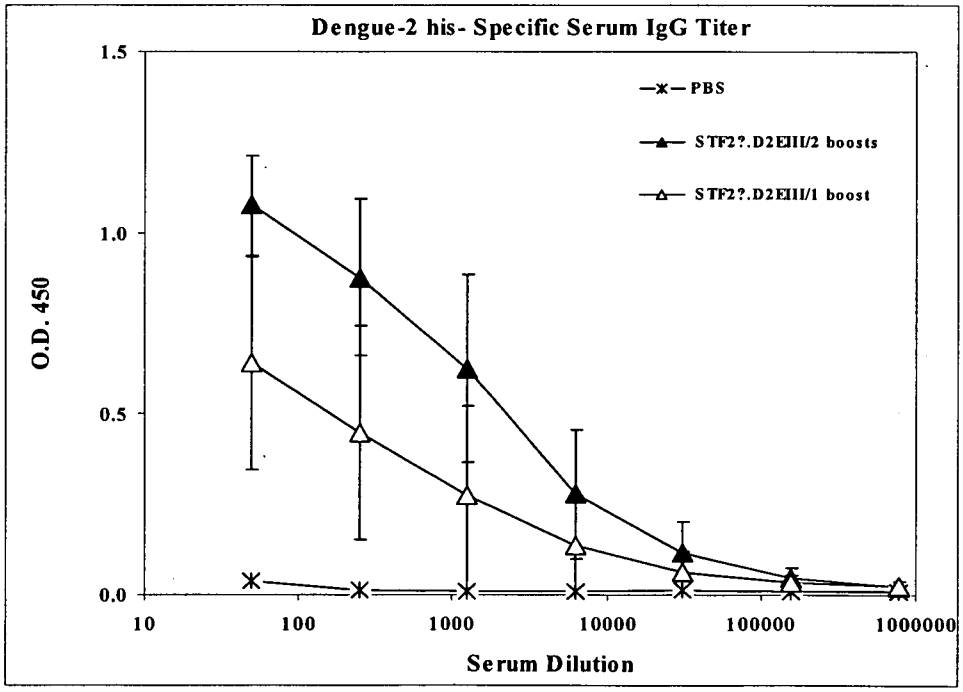


Figure 47B

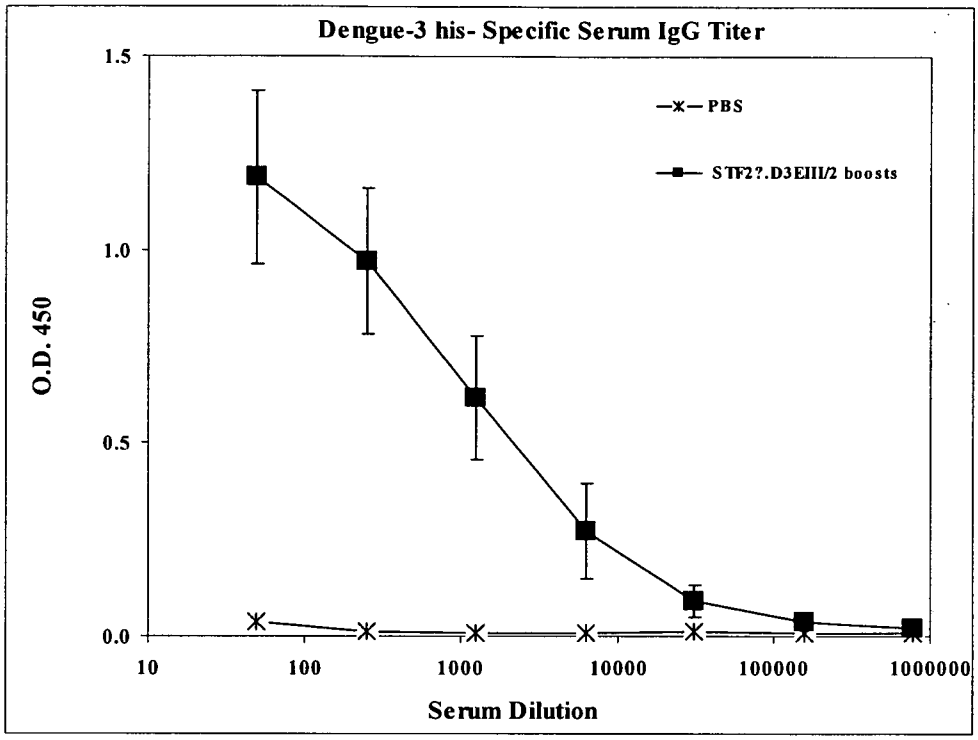


Figure 47C

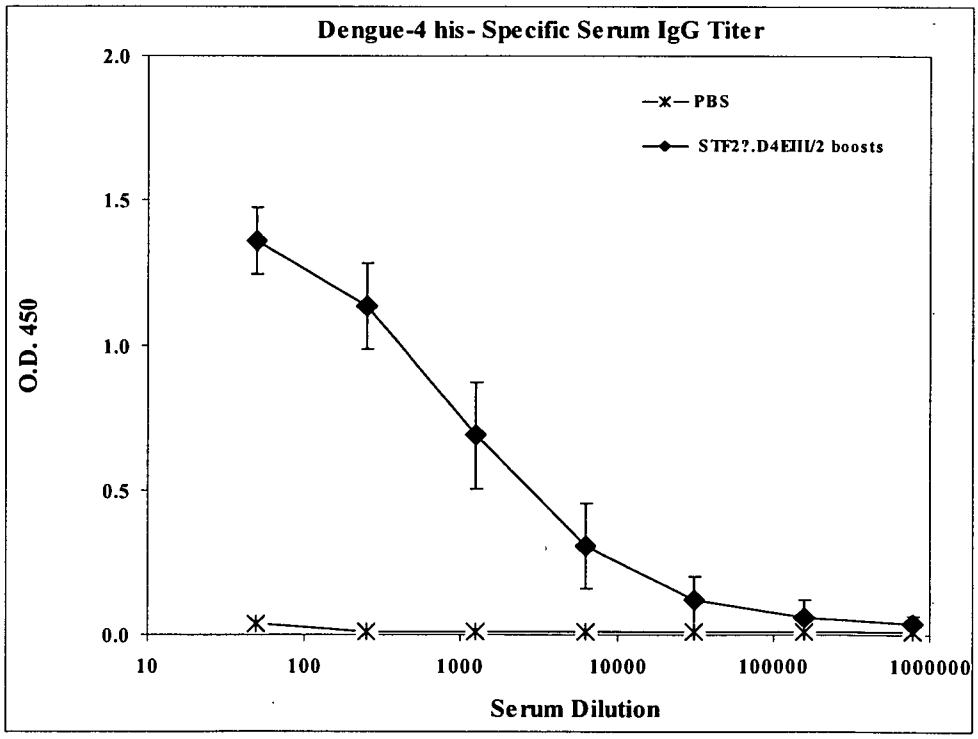


Figure 47D

DEN1

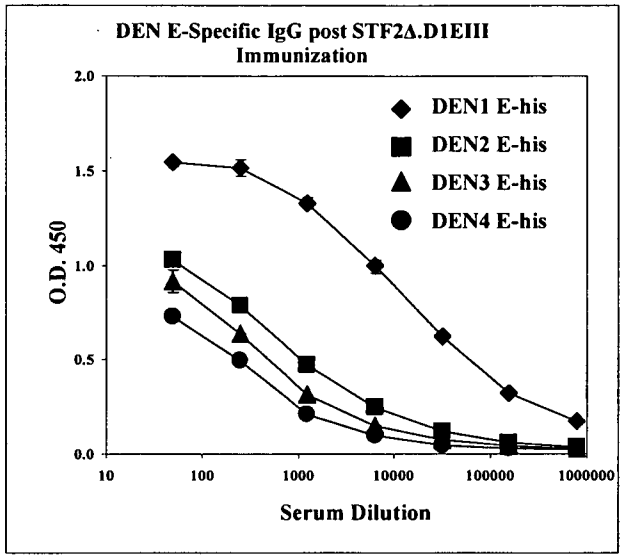


Figure 48A

DEN2

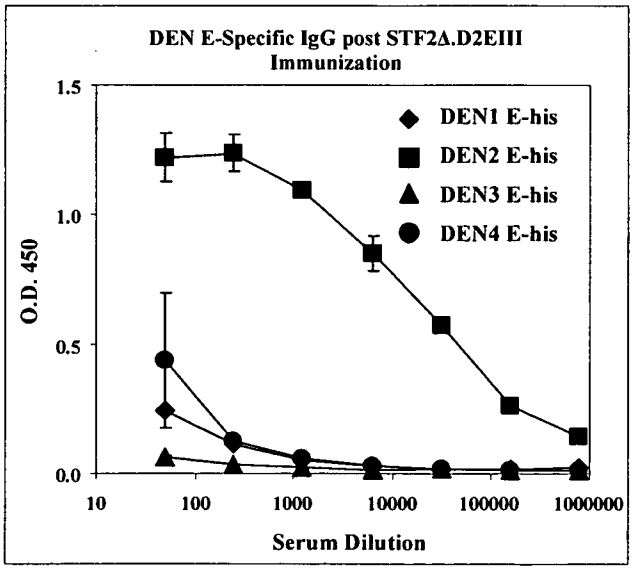


Figure 48B

DEN3

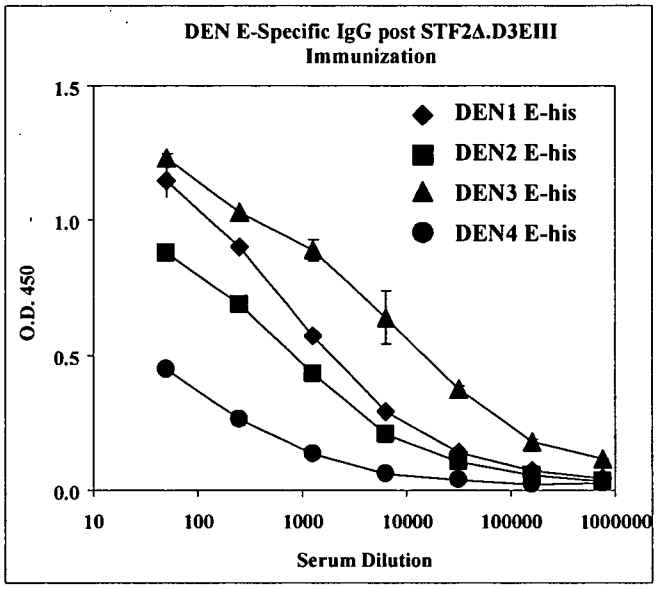


Figure 48C

DEN4

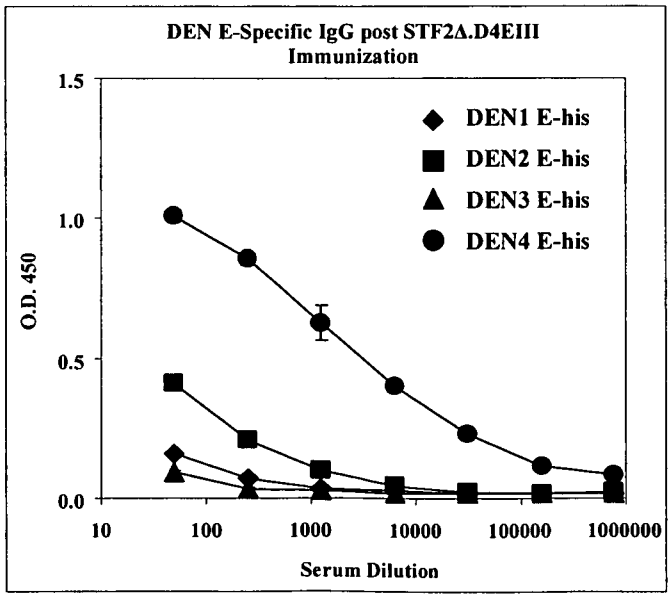


Figure 48D

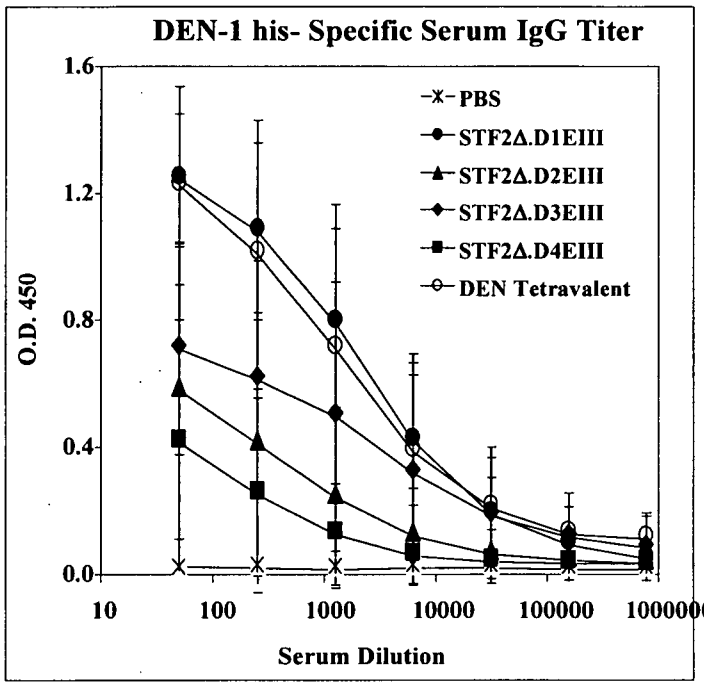


Figure 49A

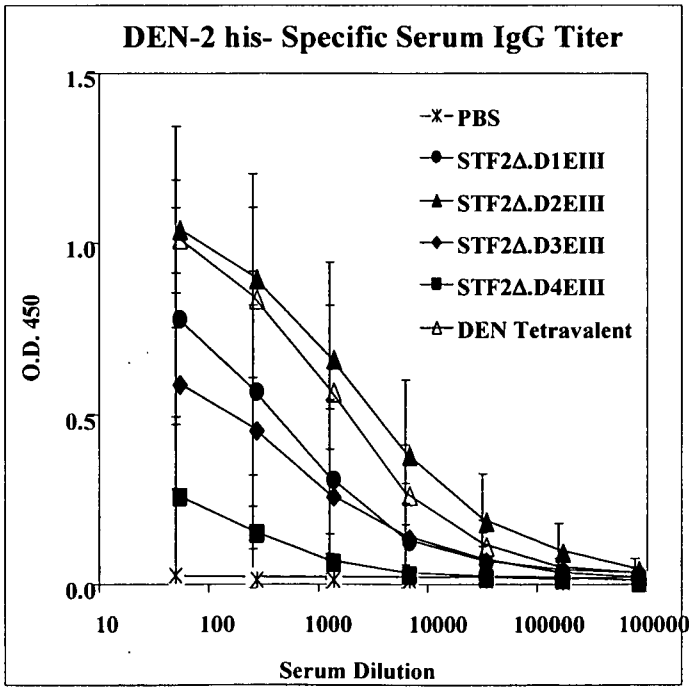


Figure 49B

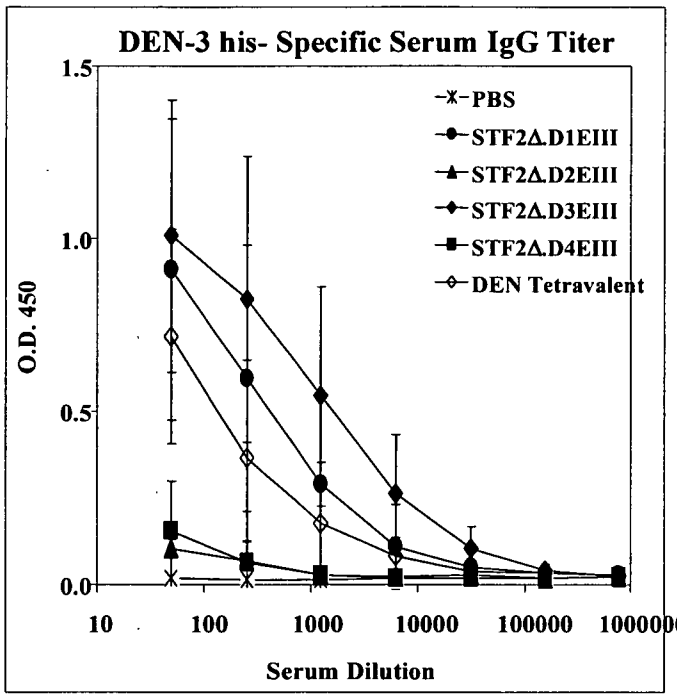


Figure 50A

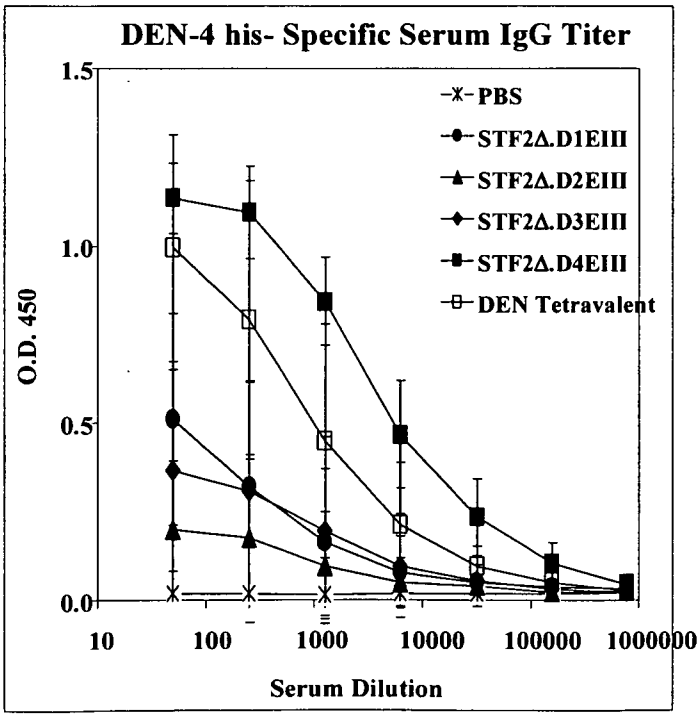


Figure 50B

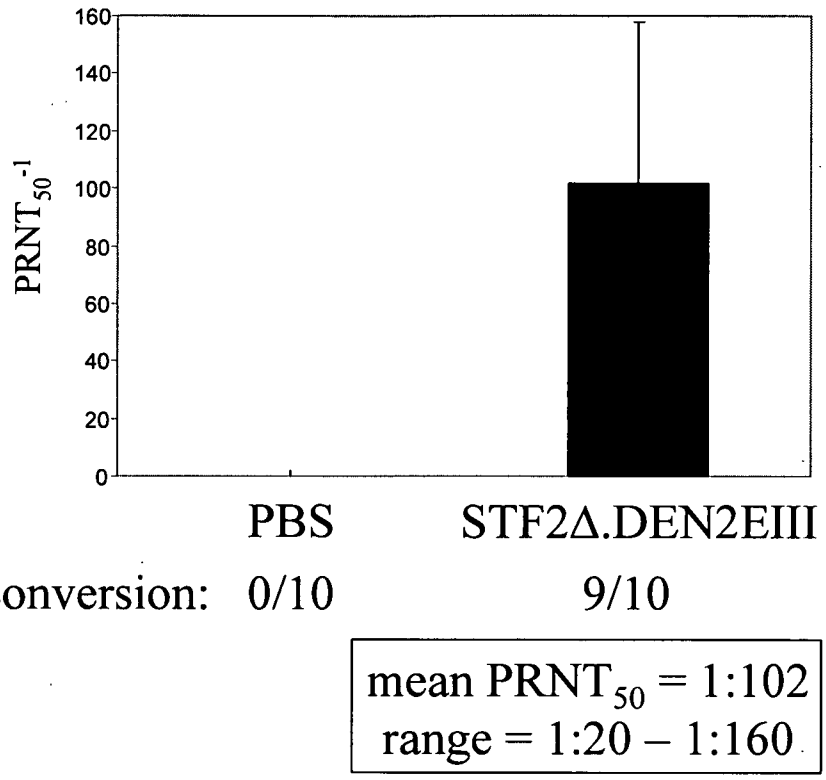

160
140
120
100
80
60
40
20
0
PRNT50-1
PBS
STF2Δ.DEN2EIII
seroconversion: 0/10 9/10
mean PRNT50 = 1:102
range = 1:20 – 1:160

Figure 51

IFN-γ ELISPOT

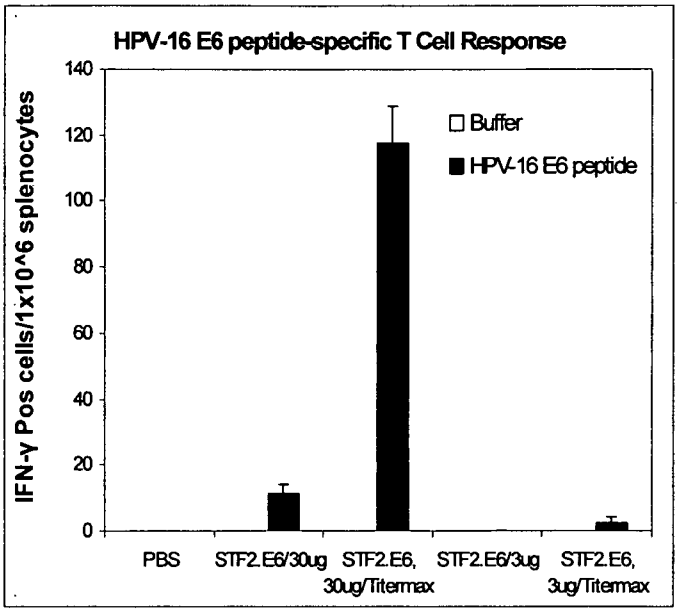


Figure 52A

IL-5 ELISPOT

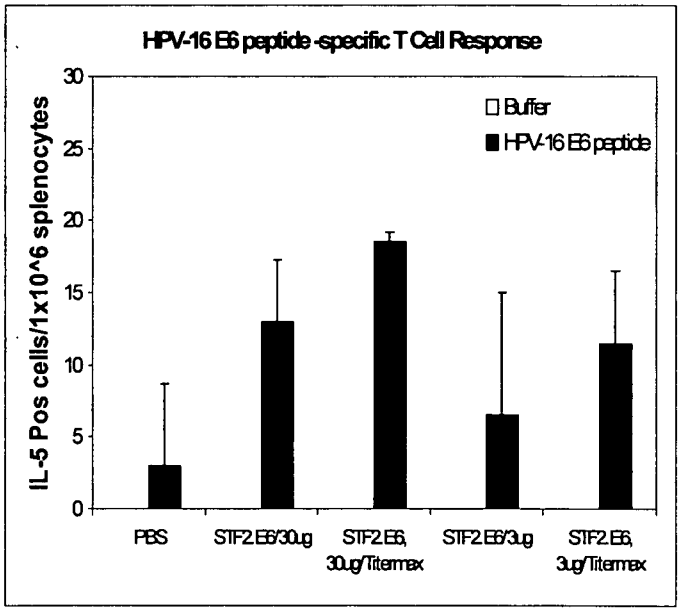


Figure 52B

IFN-γ ELISPOT

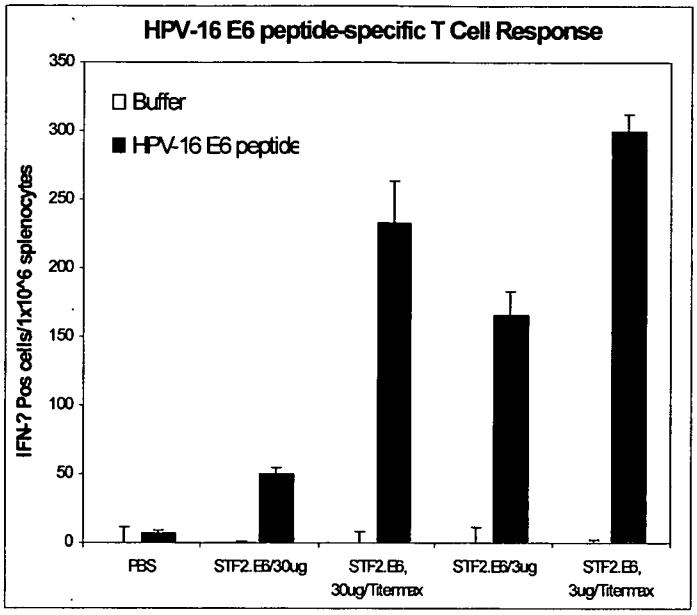


Figure 53A

IL-5 ELISPOT

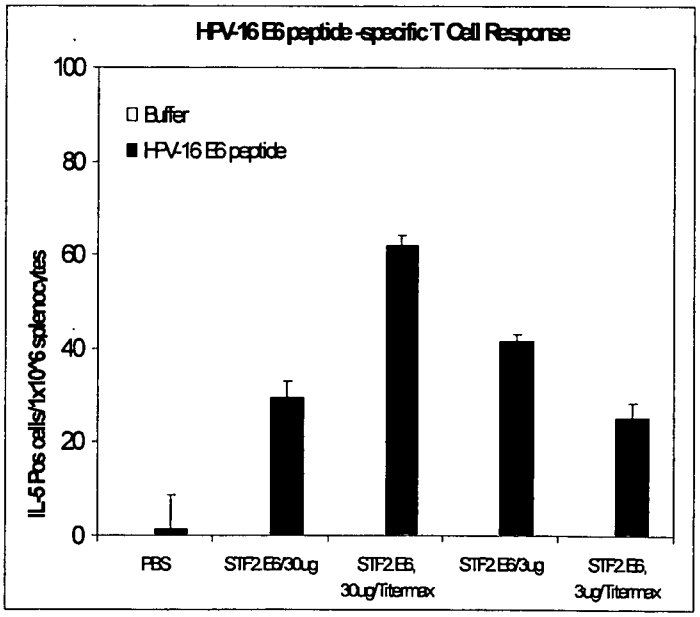
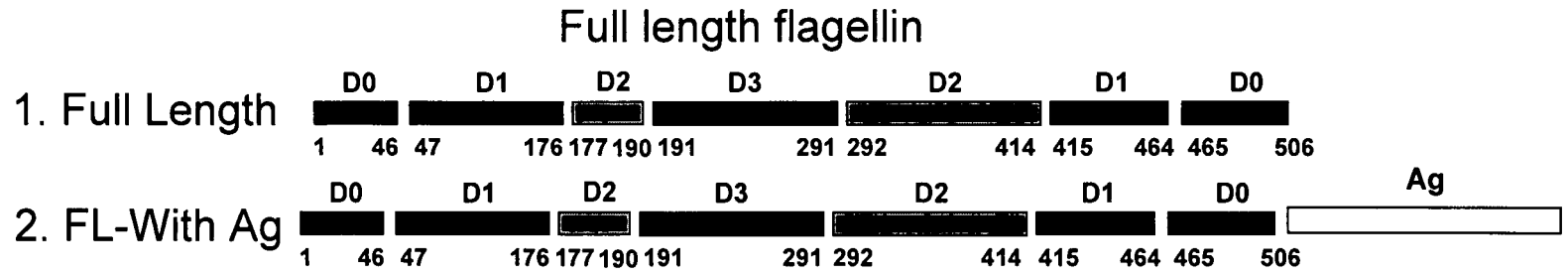


Figure 53B



Full Length

MAQVINTNSLSLLTQNNLNKSQSALGTAIERLSSGLRINSAKDDAAGQAIA
NRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAVQSANS
TNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQVGANDG
ETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKAYANNGTTLDVSGLD
DAAIKAATGGTNGTASVTGGAVKFDADNNKYFVTIGGFTGADAAKNGDYEV
NVATDGTVTLAAGATKTTMPAGATTKTEVQELKDTPAVVSADAKNALIAGG
VDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKYYAADYDEATGAIKAK
TTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYNASKAAGHDFKAQPEL
AEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRFNSAITNLGNTVNNLS
EARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQANQVPQNVLSLLA-Ag

D0

MAQVINTNSLSLLTQNNLNKSQSALGTAIERLSSGLRINSAKDDAAIEDSD
YATEVSNMSRAQILQQAGTSVLAQANQVPQNVLSLLA

D1

GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQTTENPLQKIDAALAQVDALRSDL
GAVQNRFNSAITNLGNTVNNLSEARSR

D2

KAYDVKDTAVTTKAAVVSADAKNALIAGGVDATDANGAELVKMSYTDKNGK
TIEGGYALKAGDKYYAADYDEATGAIKAKTTSYTAADGTTKTAANQLGGVD
GKTEVVTIDGKTYNASKAAGHDFKAQPELAEAAAK

D3

YANNGTTLDVSGLDDAAIKAATGGTNGTASVTGGAVKFDADNNKYFVTIGG
FTGADAAKNGDYEVNVATDGTVTLAAGATKTTMPAGATTKTEVQELKDTP

Figure 54

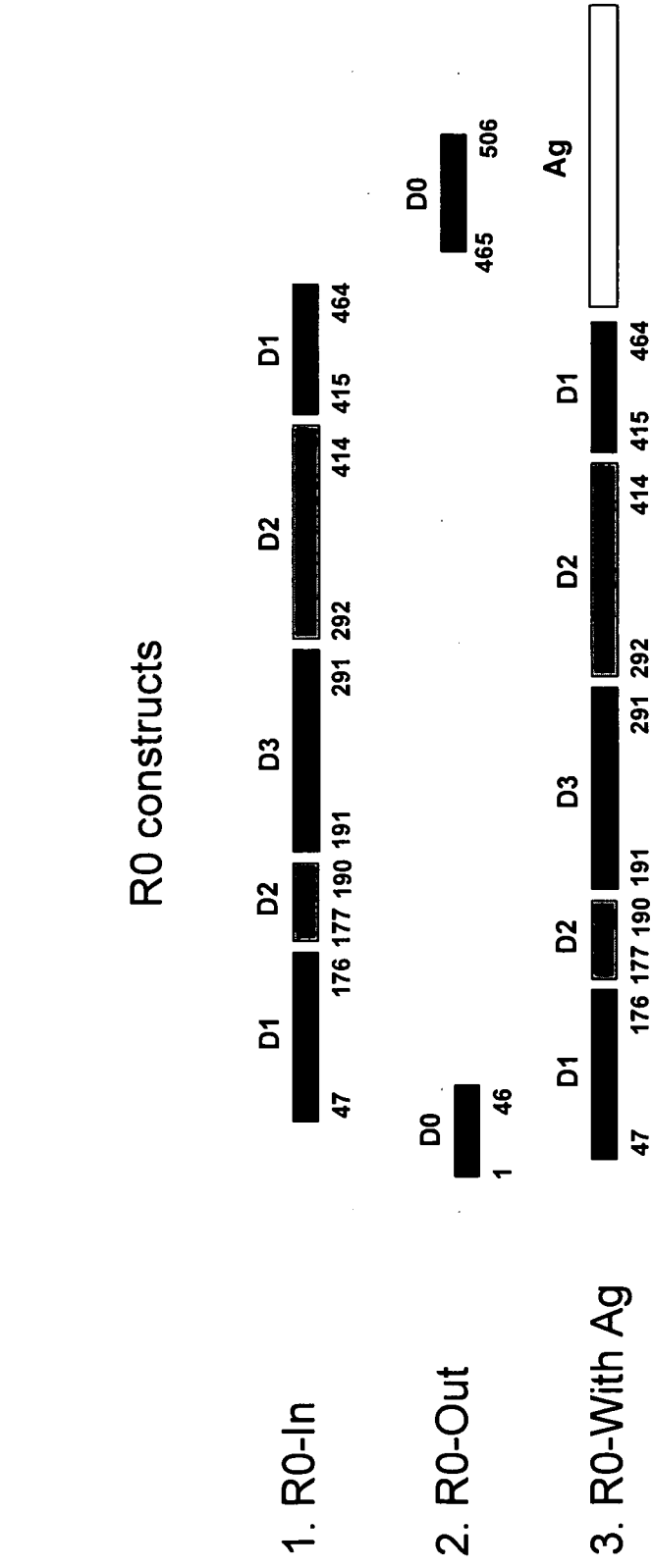
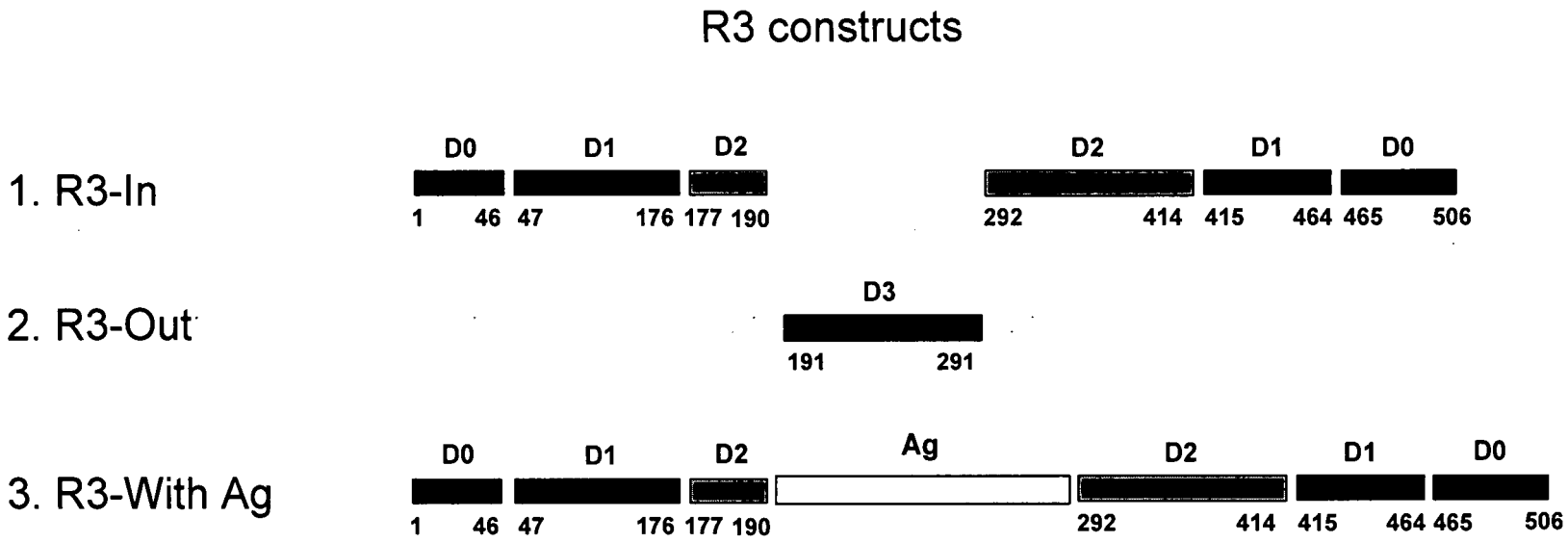
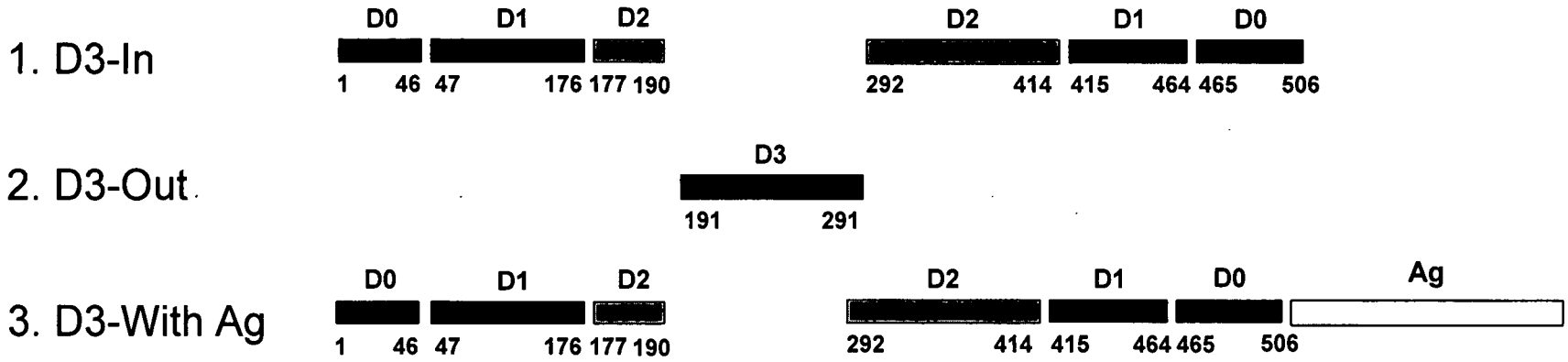

R0 constructs
1. R0-In
D1
D2
D3
D2
D1
47
176 177 190 191
291 292
414 415 464
2. R0-Out
D0
1 46
D0
465 506
3. R0-With Ag
D1
D2
D3
D2
D1
Ag
47
176 177 190 191
291 292
414 415 464
GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKAYANNGTTLD
VSGLDDAAIKAATGGTNGTASVTGGAVKFDADNNKYFVTIGGFTGADAAKN
GDYEVNVATDGTVTLAAGATKTTMPAGATTKTEVQELKDTPAVVSADAKNA
LIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKYYAADYDEATG
AIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYNASKAAGHDFK
AQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRFNSAITNLGNT
VNNLSEARSR-Ag

Figure 55



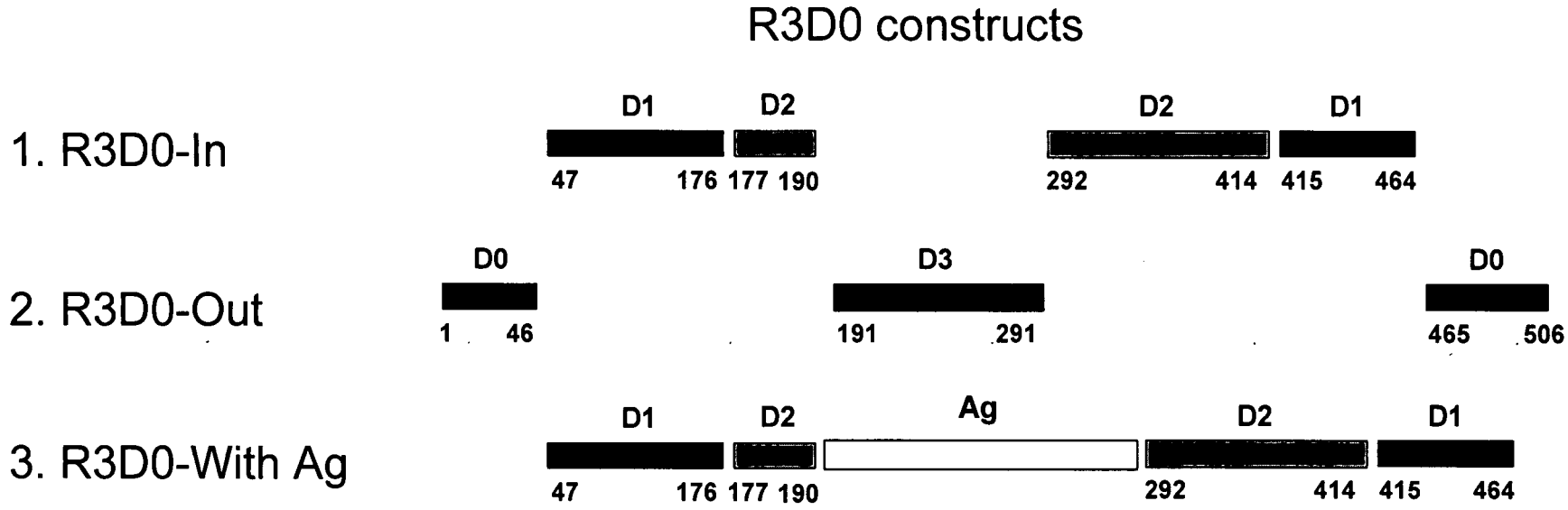
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NRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAVQSANS
TNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQVGANDG
ETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKA-Ag-
AVVSADAKNALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKY
YAADYDEATGAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYN
ASKAAGHDFKAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRF
NSAITNLGNTVNNLSEARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQAN
QVPQNVLSLLA

Figure 56



MAQVINTNSLSLLTQNNLNKSQSALGTAIERLSSGLRINSAKDDAAGQAIA
NRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAVQSANS
TNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQVGANDG
ETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKAAVVSADAKNALIAG
GVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKYYAADYDEATGAIKA
KTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYNASKAAGHDFKAQPE
LAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRFNSAITNLGNTVNNL
SEARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQANQVPQNVLSLLA-Ag

Figure 57



GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKA-Ag-
AVVSADAKNALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKY
YAADYDEATGAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYN
ASKAAGHDFKAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRF
NSAITNLGNTVNNLSEARSR

Figure 58



GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKA-Ag-
AVVSADAKNALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKY
YAADYDEATGAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYN
ASKAAGHDFKAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRF
NSAITNLGNTVNNLSEARSR-Ag

Figure 59

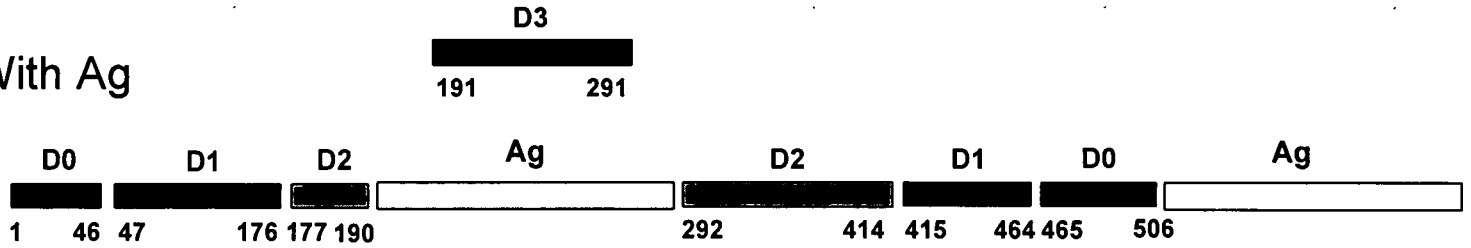
R3-2×Ag constructs

1. R3-2×Ag -In



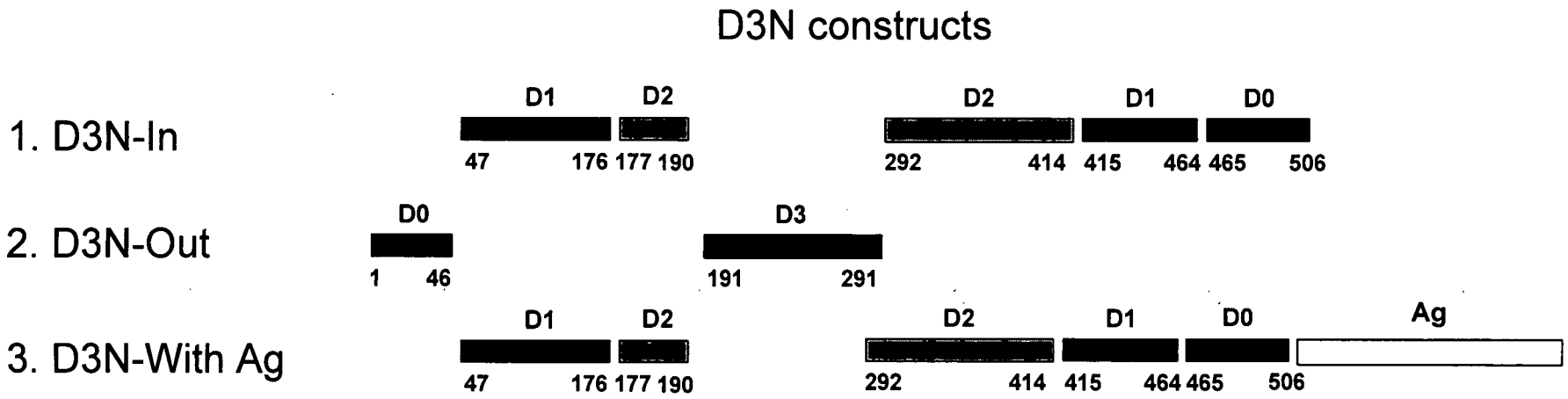
2. R3-2×Ag -Out

3. R3-2×Ag -With Ag



MAQVINTNSLSLLTQNNLNKSQSALGTAIERLSSGLRINSAKDDAAGQAIA
NRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAVQSANS
TNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQVGANDG
ETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKA-Ag-
AVVSADAKNALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKY
YAADYDEATGAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYN
ASKAAGHDFKAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRF
NSAITNLGNTVNNLSEARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQAN
QVPQNVLSLLA-Ag

Figure 60



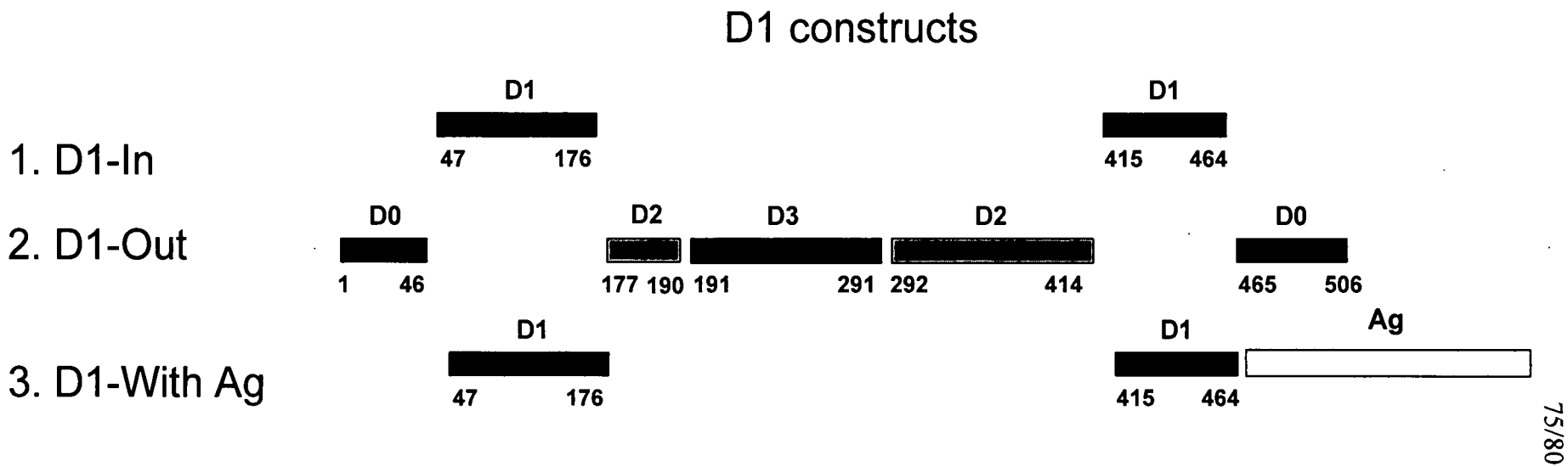
GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKAAVVSADAKN
ALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKYYAADYDEAT
GAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYNASKAAGHDF
KAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRFNSAITNLGN
TVNNLSEARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQANQVPQNVLSL
LA-Ag

Figure 61



GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQKAYDVKDTAVTTKAAVVSADAKN
ALIAGGVDATDANGAELVKMSYTDKNGKTIEGGYALKAGDKYYAADYDEAT
GAIKAKTTSYTAADGTTKTAANQLGGVDGKTEVVTIDGKTYNASKAAGHDF
KAQPELAEAAAKTTENPLQKIDAALAQVDALRSDLGAVQNRFNSAITNLGN
TVNNLSEARSRIEDSDYATEVSNMSRAQILQQAGTSVLAQANQ-Ag

Figure 62



GQAIANRFTANIKGLTQASRNANDGISIAQTTEGALNEINNNLQRVRELAV
QSANSTNSQSDLDSIQAEITQRLNEIDRVSGQTQFNGVKVLAQDNTLTIQV
GANDGETIDIDLKQINSQTLGLDSLNVQTTENPLQKIDAALAQVDALRSDL
GAVQNRFNSAITNLGNTVNNLSEARSR-Ag

Figure 63

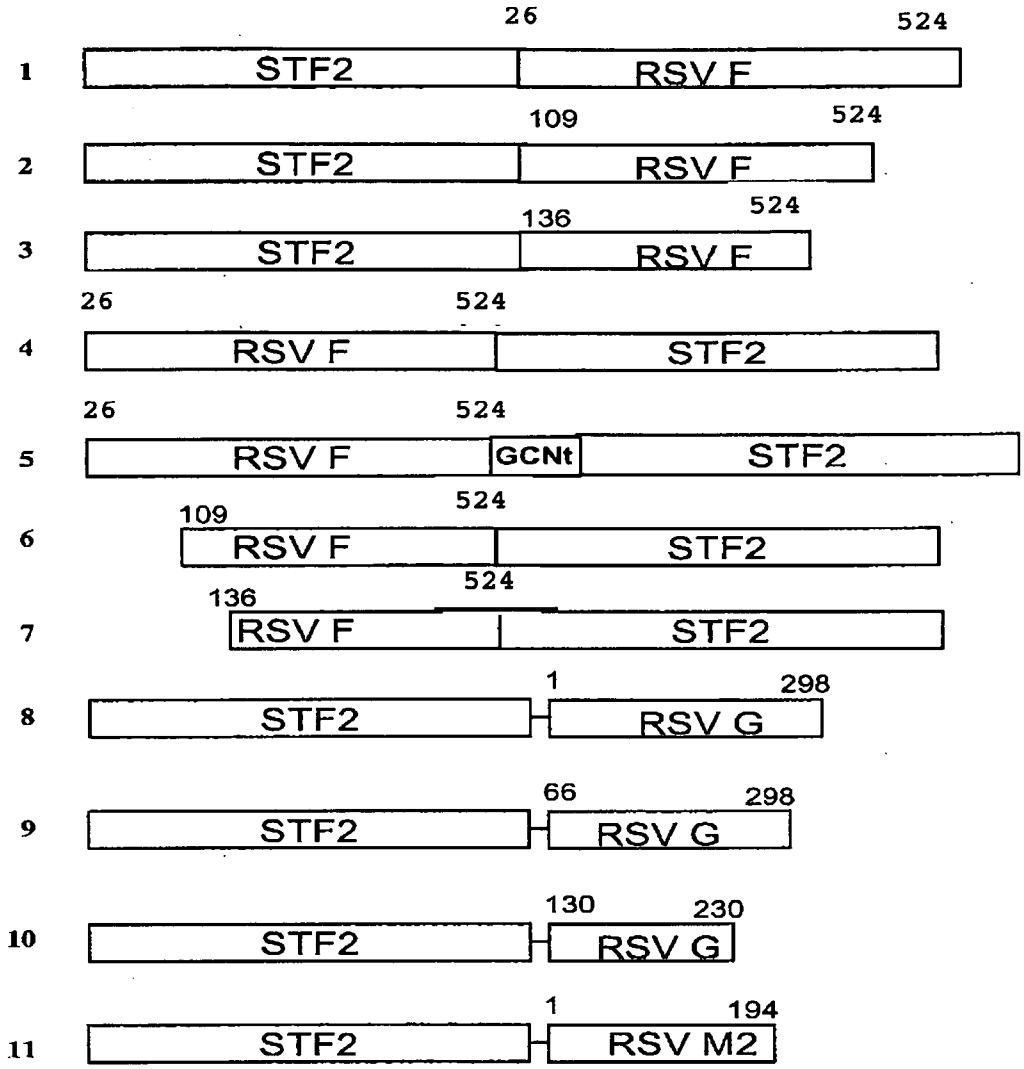

1
26
524
STF2
RSV F
2
109
524
STF2
RSV F
3
136
524
STF2
RSV F
4
26
524
RSV F
STF2
5
26
524
RSV F
GCNt
STF2
6
109
524
RSV F
STF2
7
136
524
RSV F
STF2
8
1
298
STF2
RSV G
9
66
298
STF2
RSV G
10
130
230
STF2
RSV G
11
1
194
STF2
RSV M2

Figure 64

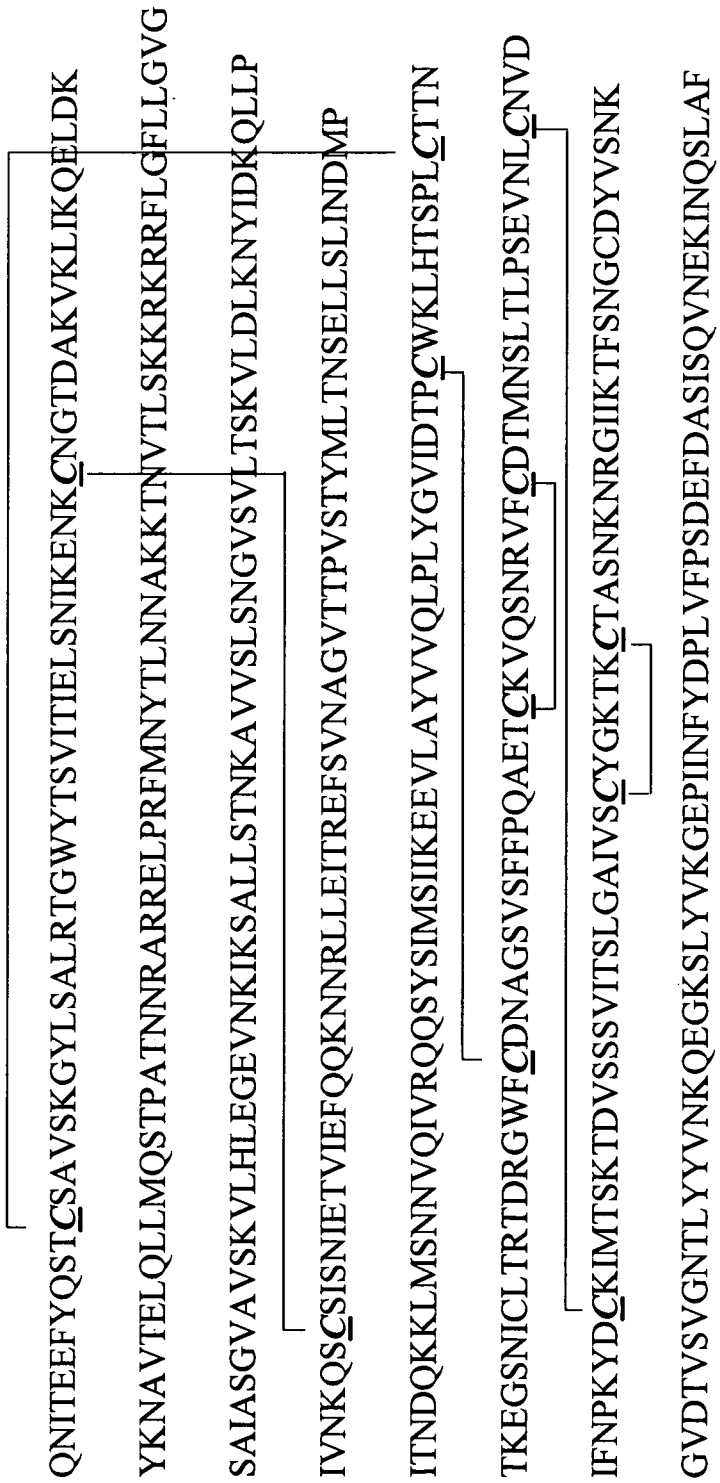

RSV-F disulfide bond assignments
QNITEEFYQSTCSAVSKGYLSALRTGWYTSVITIELSNIKENKCNGTDAKVKLIKQELDK
YKNAVTELQLLMQSTPATNNRARRELPRFMNYTLNNAKKTNVTLSKKRKRRFLGFLLGVG
SAIASGVAVSKVLHLEGEVNKIKSALLSTNKAVVSLSNGVSVLTSKVLDLKNYIDKQLLP
IVNKQSCSISNIETVIEFQQKNNRLLEITREFSVNAGVTTPVSTYMLTNSELLSLINDMP
ITNDQKKLMSNNVQIVRQQSYSIMSIIKEEVLAYVVQLPLYGVIDTPCWKLHTSPLCTTN
TKEGSNICLTRTDRGWFCDNAGSVSFFPQAETCKVQSNRVFCDTMNSLTLPSEVNLCNVD
IFNPKYDCKIMTSKTDVSSSVITSLGAIVSCYGKTKCTASNKNRGIIKTFSNGCDYVSNK
GVDTVSVGNTLYYVNKQEGKSLYVKGEPIINFYDPLVFPSDEFDASISQVNEKINQSLAF
IRKSDELLHNVNAGKSTTN

Figure 65

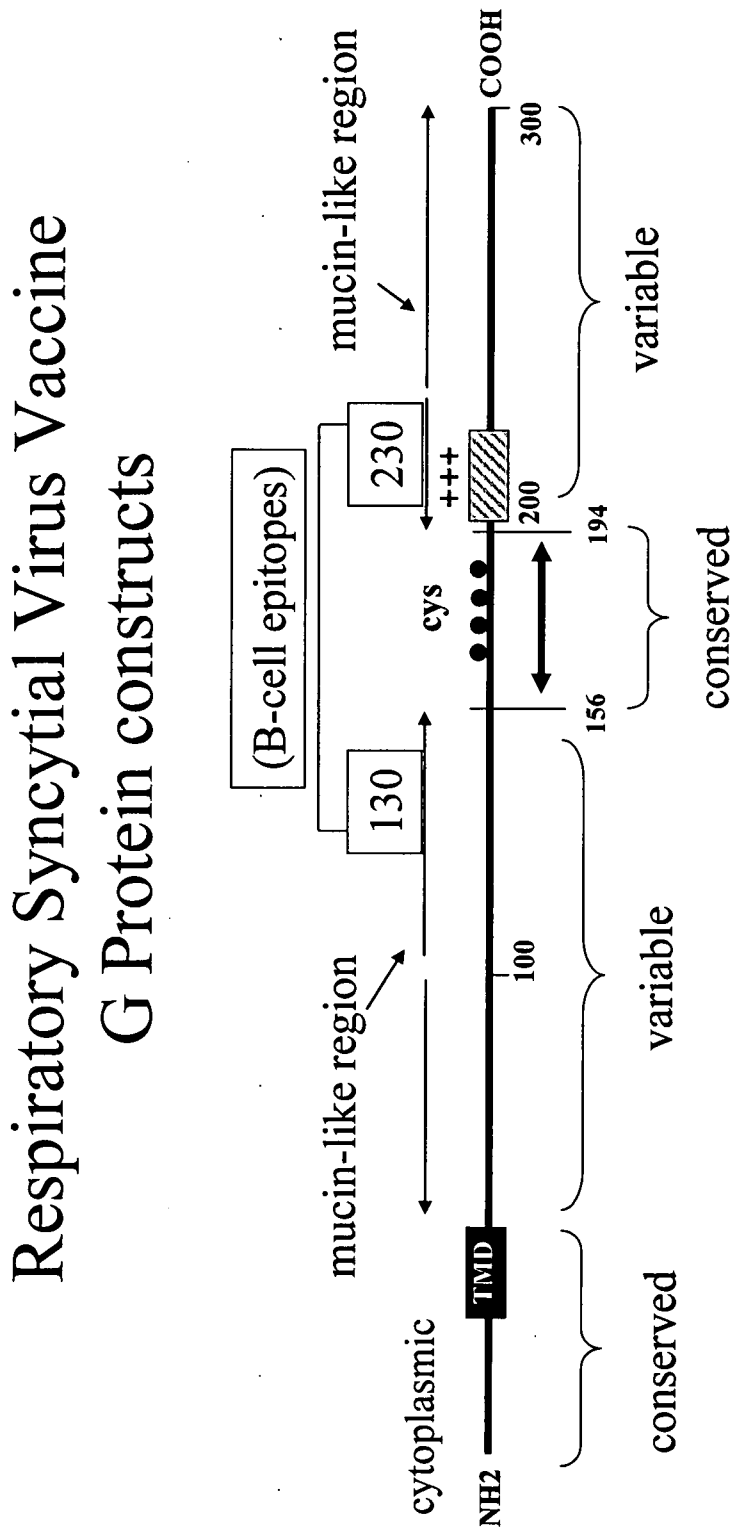

Respiratory Syncytial Virus Vaccine
G Protein constructs
(B-cell epitopes)
mucin-like region
mucin-like region
cytoplasmic
TMD
NH2
COOH
130
230
cys
+++
100
156
194
200
300
variable
conserved
variable
conserved

Figure 66

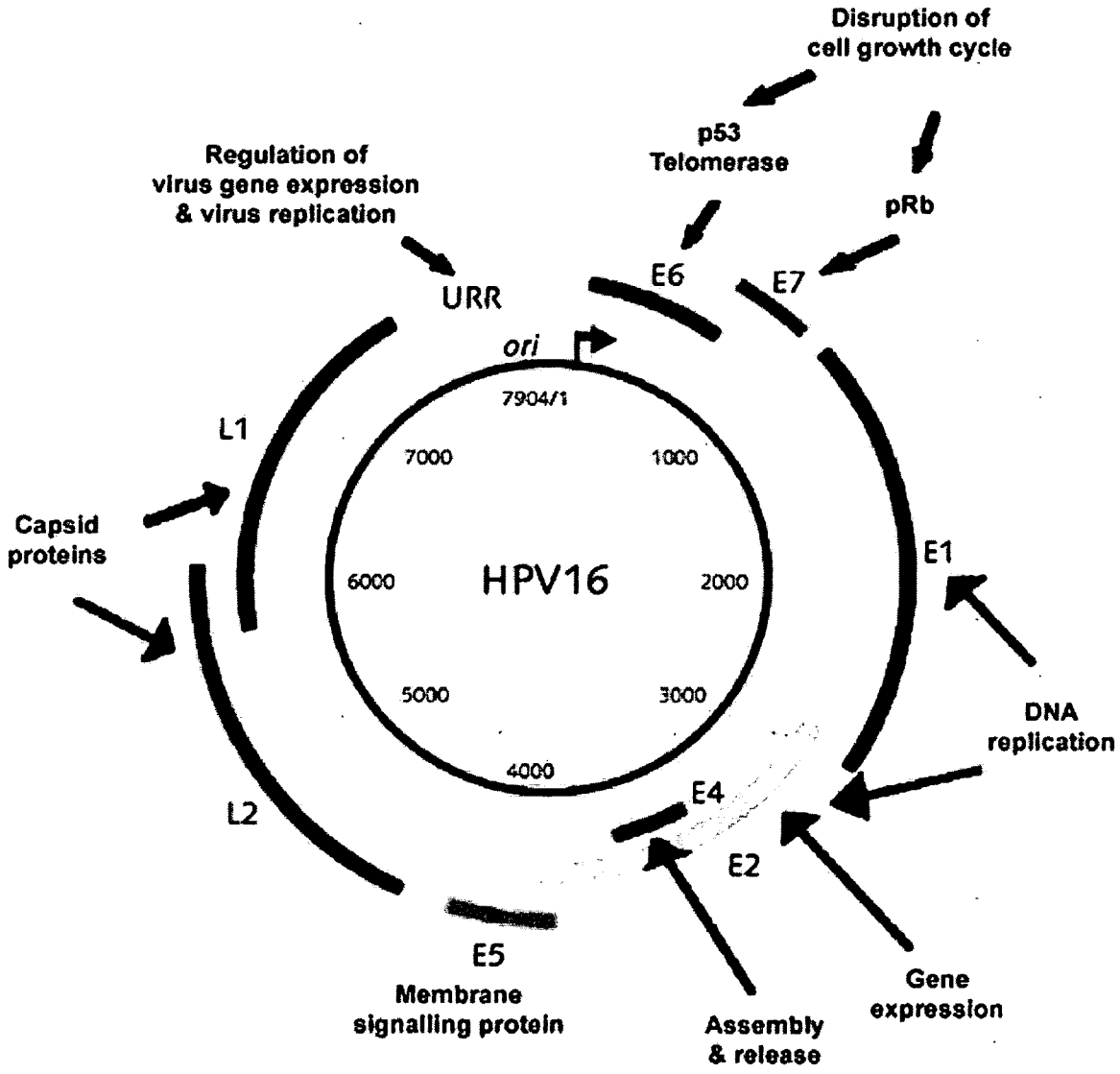

Disruption of
cell growth cycle
p53
Telomerase
pRb
Regulation of
virus gene expression
& virus replication
URR
E6
E7
ori
7904/1
1000
2000
3000
4000
5000
6000
7000
HPV16
L1
L2
Capsid
proteins
E1
DNA
replication
E4
E2
E5
Membrane
signalling protein
Assembly
& release
Gene
expression

Figure 67

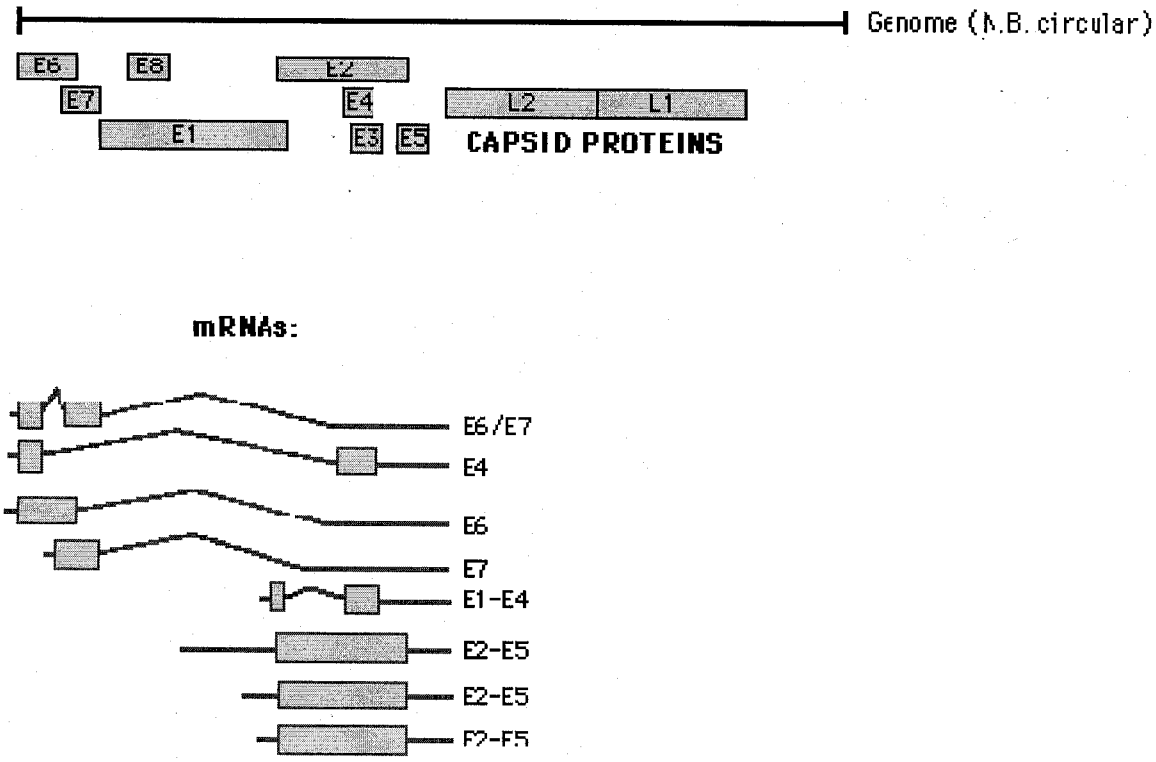

Genome (N.B. circular)
E6
E8
E2
E7
E4
L2
L1
E1
E3
E5
CAPSID PROTEINS
mRNAs:
E6/E7
E4
E6
E7
E1-E4
E2-E5
E2-E5
E2-E5

Figure 68