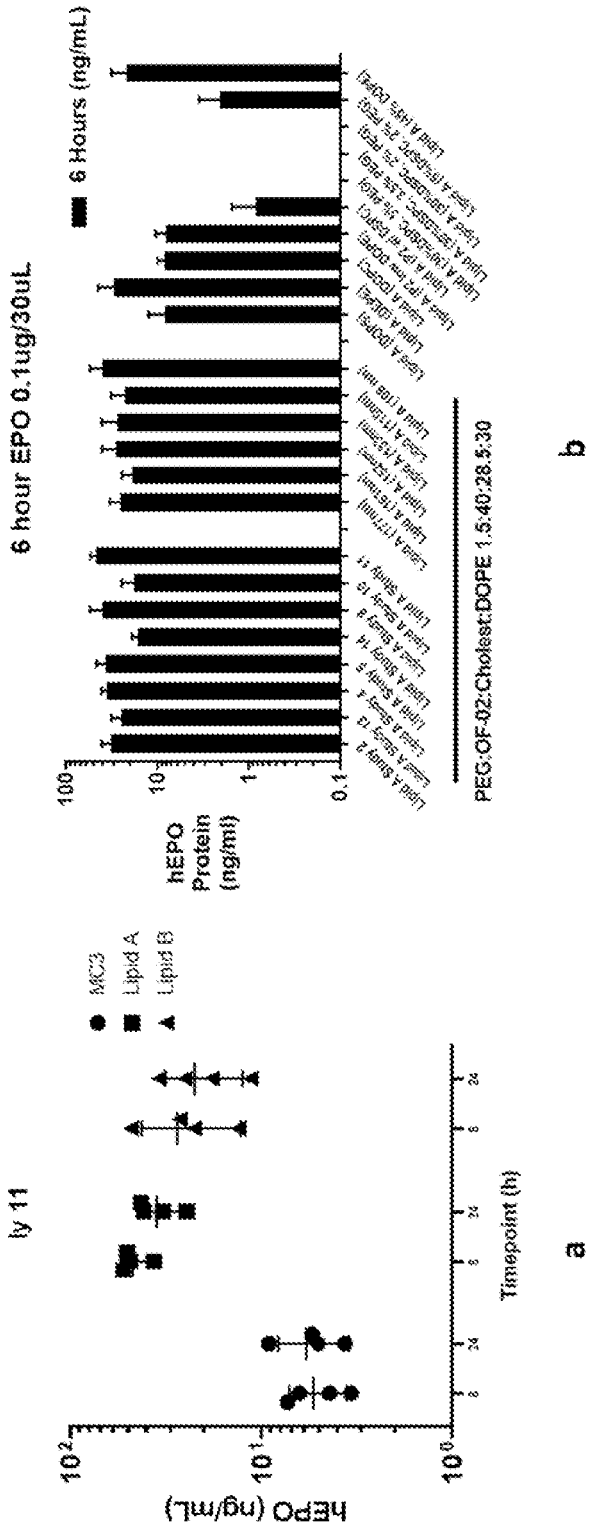
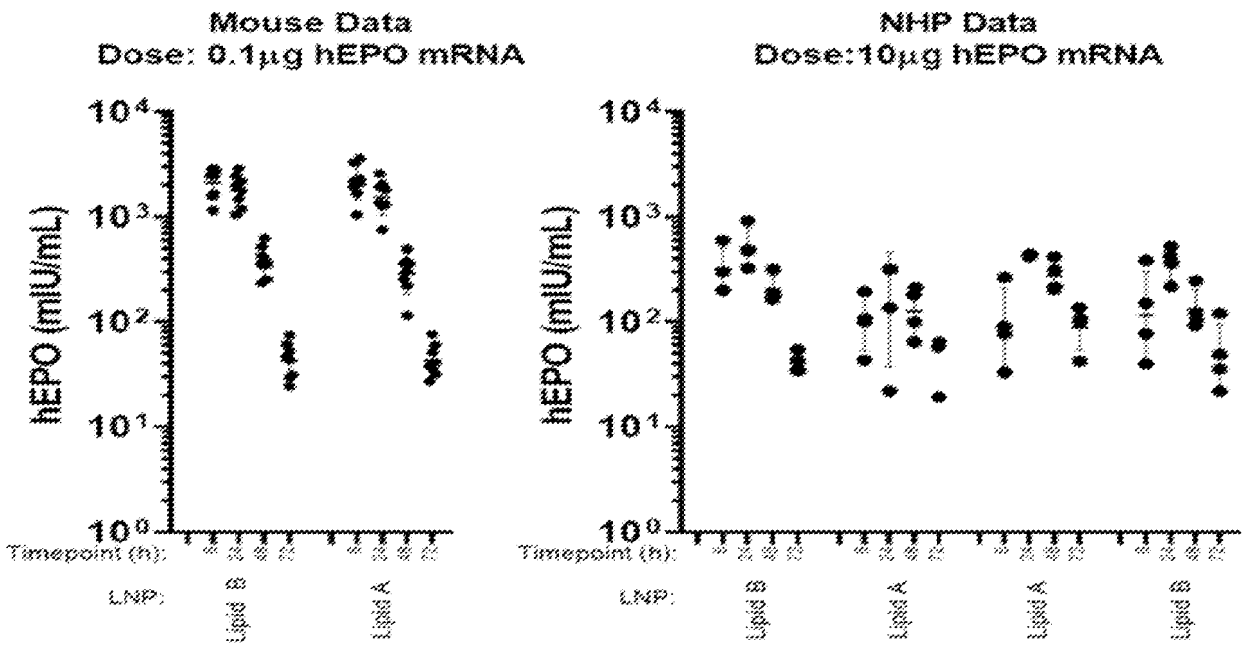
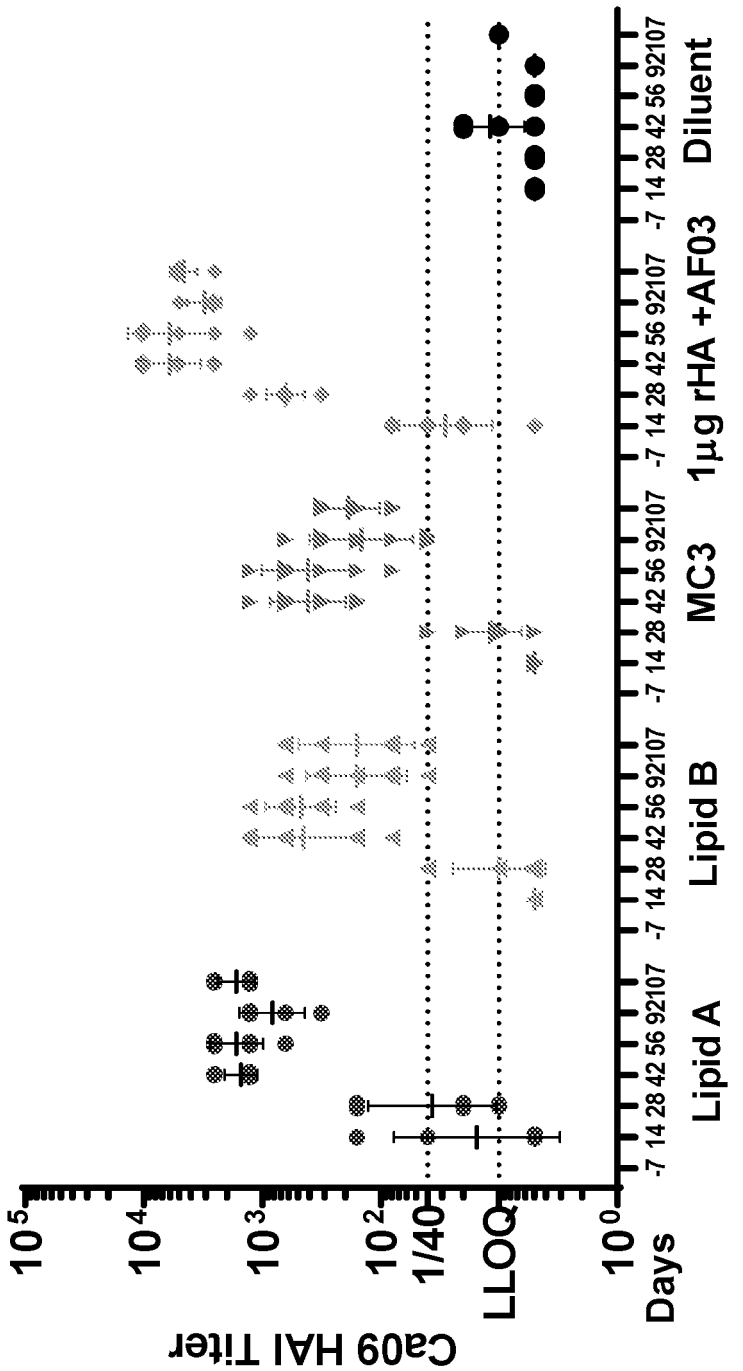

6 hour EPO 0.1ug/30uL
6 Hours (ng/mL)
hEPO Protein (ng/ml)
PEG:OF-02:Cholest:DOPE 1.5:40:28.5:30
b
ly 11
MC3
Lipid A
Lipid B
hEPO (ng/mL)
Timepoint (h)
a

FIG. 1A



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30
Lipid B	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 1B



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30
Lipid B	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 2A

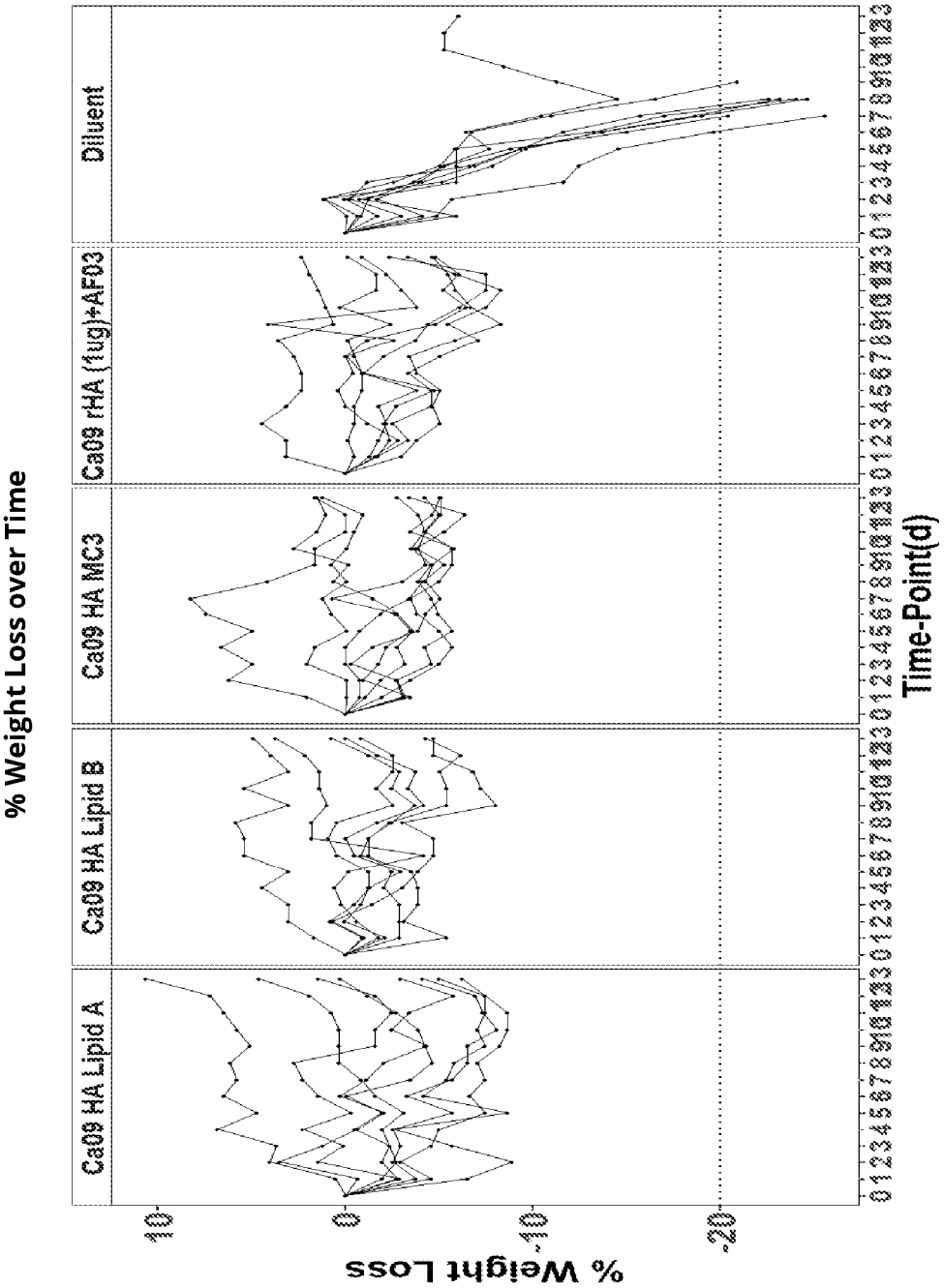
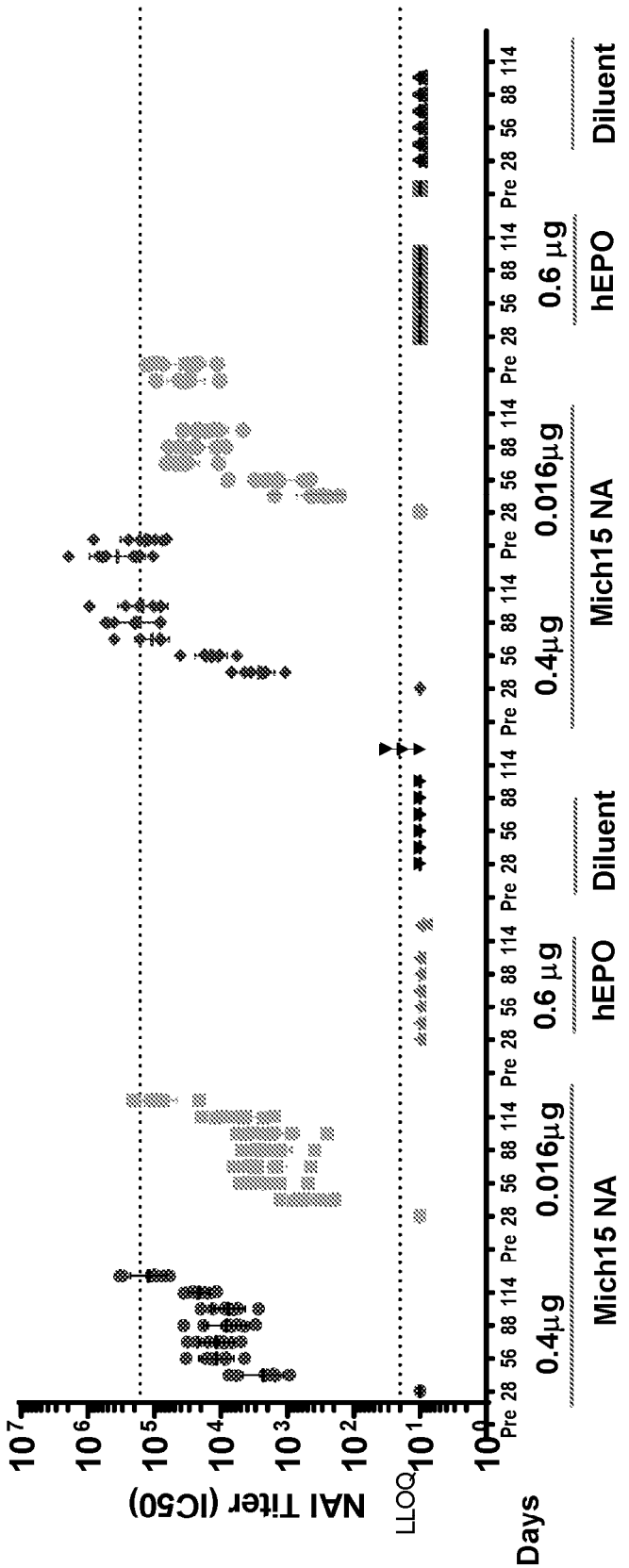

% Weight Loss over Time
Ca09 HA Lipid A
Ca09 HA Lipid B
Ca09 HA MC3
Ca09 rHA (1ug)+AF03
Diluent
% Weight Loss
10
0
-10
-20
Time-Point(d)

FIG. 2B



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 3A

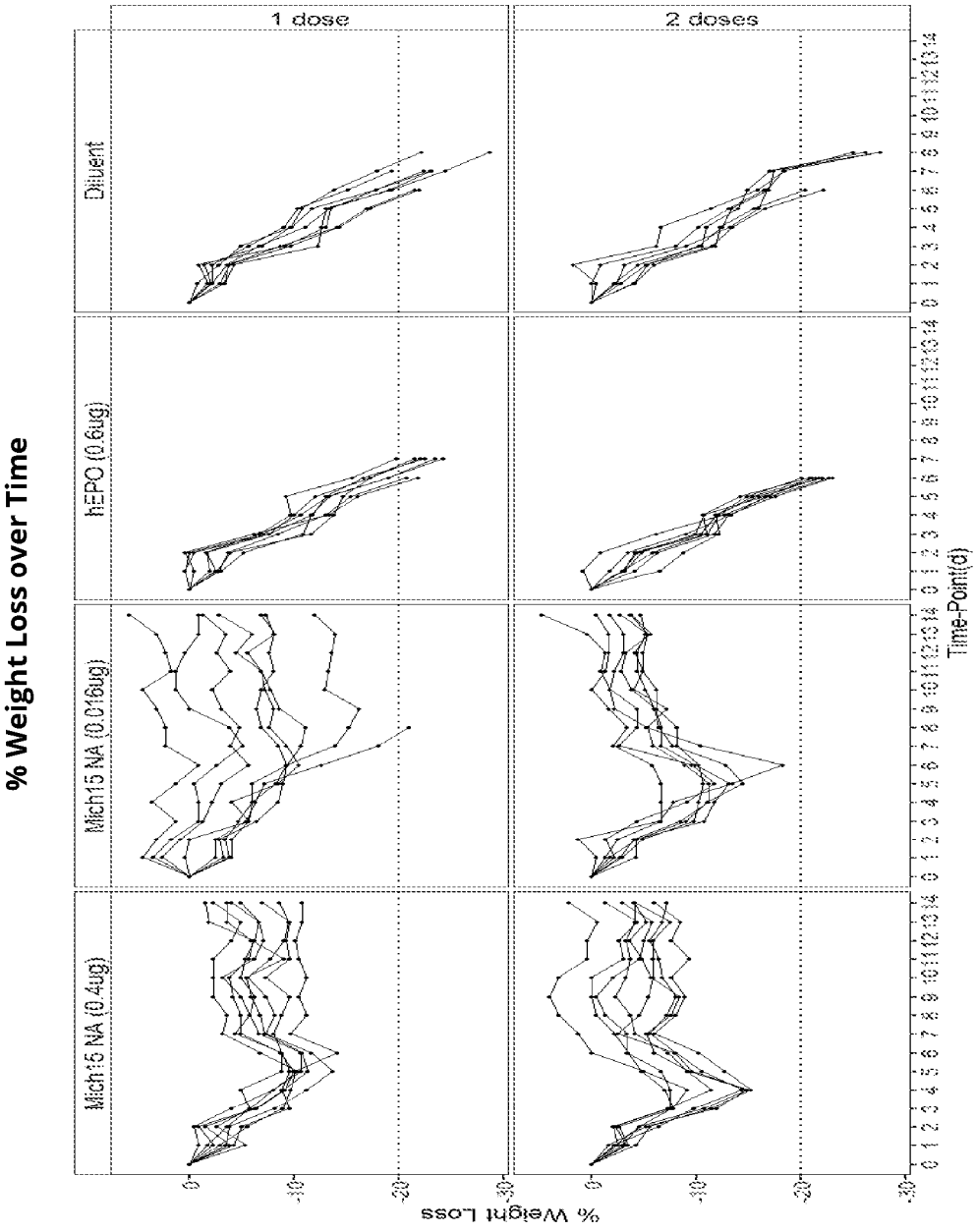
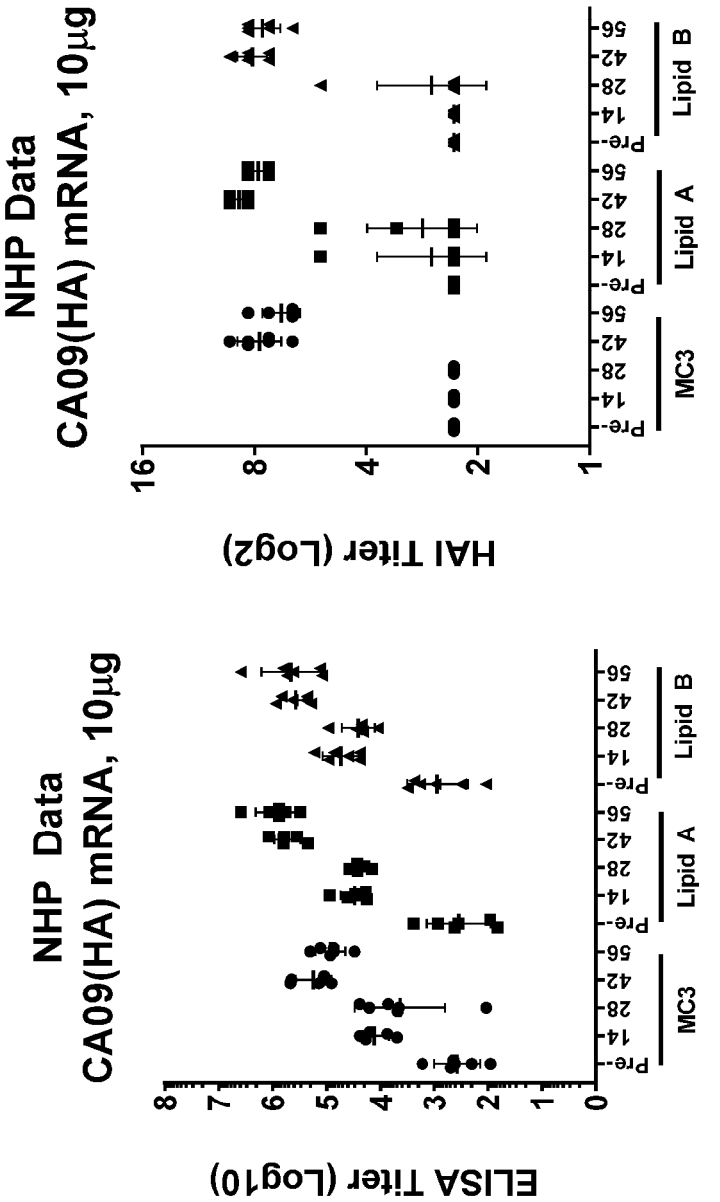

% Weight Loss over Time
1 dose
2 doses
Diluent
hEPO (0.6ug)
Mich15 NA (0.016ug)
Mich15 NA (0.4ug)
% Weight Loss
Time-Point(d)

FIG. 3B



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30
Lipid B	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 4

ATGAAAACCATAATCGCGCTCTCATACATACTTTGCCTGGTCTTTGCCCAAAAGATCCCTGGCAACGACAACTCAACCGCGACCCTTTGCCTCGGCCATCACGCCGTGCCGAACGG
CACTATCGTCAAGACCATCACAAACGACCGCATCGAAGTGACCAACGCGACTGAGCTAGTGCAGAACTCCAGCATTGGAGAGATTTGCGATTCTCCACACCAAATCCTGGACGGAG
AGAATTGTACCTTGATCGACGCGCTGCTGGGGGGATCCGCAGTGCGACGGATTCCAGAACAAGAAATGGGACCTTTTCGTGGAACGGAGCAAGGCATACTCGAATTGCTACCCCTAC
GATGTGCCCGACTACGCCTCGCTGCGGTCCTTGGTCGCTTCCTCCGGGACCCTGGAATTCAAAAACGAGAGCTTTAATTGGACCGGAGTGACCCAGAATGGCACCTCGAGCGCCTG
CATTCGGGGCTCCTCCTCGAGCTTCTTCAGCCGCCTGAACTGGCTCACTCACCTCAACTACACCTACCCGGCACTGAACGTGACCATGCCGAACAAGGAACAATTCGACAAGCTCT
ACATTTGGGGGGTGCATCACCCGGGTACCGATAAGGACCAGATCTTCCTCTACGCCCAATCCTCGGGCCGGATCACCGTGTCCACTAAGCGCTCGCAGCAGGCCGTGATCCCGAAC
ATTGGAAGCAGACCCCGCATTCGCGACATTCCATCGAGGATCTCGATCTACTGGACGATTGTCAAGCCTGGCGACATCCTCCTCATTAACTCCACCGGGAACCTCATCGCCCCTCG
GGGTTATTTCAAGATCCGCAGCGGGAAGTCCTCCATCATGAGAAGCGATGCCCCCATTGGAAAGTGCAAGTCCGAGTGTATCACACCTAACGGAAGCATTCCCAATGACAAGCCAT
TCCAGAACGTGAACAGAATTACCTACGGAGCTTGCCCTCGCTACGTCAAACATTCGACCCTCAAGTTGGCGACTGGAATGCGCAACGTGCCGGAGAAGCAAACCCGGGGGATCTTC
GGGGCTATCGCGGGATTCATCGAAAATGGATGGGAAGGAATGGTCGATGGTTGGTACGGTTTCAGACACCAGAACTCCGAGGGGCGGGGCCAGGCCGCAGACCTGAAGTCCACTCA
GGCCGCGATTGACCAGATCAACGGAAAGCTCAACAGACTCATTGGAAAGACCAACGAAAAGTTCCACCAAATCGAAAAGGAATTCTCCGAAGTGGAGGGCCGGGTGCAAGACCTGG
AGAAGTACGTGGAGGACACTAAGATCGACCTTTGGAGCTATAACGCAGAACTCCTTGTGGCCCTGGAAAACCAGCACACCATCGACCTGACCGATTCAGAGATGAACAAGCTCTTT
GAGAAAACTAAGAAGCAACTCCGGGAAAACGCTGAGGACATGGGAAATGGATGCTTTAAGATCTACCACAAGTGCGACAACGCCTGCATTGAGTCCATACGGAACGAAACTTACGA
CCATAACGTCTACCGGGATGAAGCCCTGAACAACAGATTCCAGATCAAGGGCGTGGAGCTGAAGTCCGGCTACAAAGATTGGATCCTGTGGATTTCCTTCGCGATTTCATGCTTCT
TGCTCTGCGTGGCCCTCCTGGGATTCATAATGTGGGCCTGTCAGAAGGGCAACATTAGGTGCAACATATGCATATAA

```
MRT10279        ATGAAAACCATAATCGCGCTCTCATACATACTTTGCCTGGTCTTTGCCCAAAAGATCCCT
H3_WT           ATGAAGACTATCATTGCTTTGAGCTACATTCTATGTCTGGTTTTCGCTCAAAAAATTCCT
                ***** ** ** ** **  *    ***** ** ** ***** ** ** ***** ** ***

MRT10279        GGCAACGACAACTCAACCGCGACCCTTTGCCTCGGCCATCACGCCGTGCCGAACGGCACT
H3_WT           GGAAATGACAATAGCACGGCAACGCTGTGCCTTGGGCACCATGCAGTACCAAACGGAACG
                ** ** *****    ** ** ** ** ***** ** ** ** ** ** ** ***** **

MRT10279        ATCGTCAAGACCATCACAAACGACCGCATCGAAGTGACCAACGCGACTGAGCTAGTGCAG
H3_WT           ATAGTGAAAACAATCACAAATGACCGAATTGAAGTTACTAATGCTACTGAGTTGGTTCAG
                ** ** ** ** ******** ***** ** ***** ** ** ** ****** * ** ***

MRT10279        AACTCCAGCATTGGAGAGATTTGCGATTCTCCACACCAAATCCTGGACGGAGAGAATTGT
H3_WT           AATTCCTCAATAGGTGAAATATGCGACAGTCCTCATCAGATCCTTGATGGAGAGAACTGC
                ** ***   ** ** ** ** *****   *** ** ** ***** ** ******** **

MRT10279        ACCTTGATCGACGCGCTGCTGGGGGATCCGCAGTGCGACGGATTCCAGAACAAGAAATGG
H3_WT           ACACTAATAGATGCTCTATTGGGAGACCCTCAGTGTGATGGCTTTCAAAATAAGAAATGG
                **  * ** ** ** **  **** ** ** ***** ** ** ** ** ** *********

MRT10279        GACCTTTTCGTGGAACGGAGCAAGGCATACTCGAATTGCTACCCCTACGATGTGCCCGAC
H3_WT           GACCTTTTTGTTGAACGAAGCAAAGCCTACAGCAACTGTTACCCTTATGATGTGCCGGAT
                ******** ** ***** ***** ** ***   ** ** ***** ** ******** **

MRT10279        TACGCCTCGCTGCGGTCCTTGGTCGCTTCCTCCGGGACCCTGGAATTCAAAAACGAGAGC
H3_WT           TATGCCTCCCTTAGGTCACTAGTTGCCTCATCCGGCACACTGGAGTTTAAAAATGAAAGC
```

FIG. 5A

```
                  ** ***** **  ****  * ** ** ** ***** ** ***** ** ***** ** ***

MRT10279          TTTAATTGGACCGGAGTGACCCAGAATGGCACCTCGAGCGCCTGCATTCGGGGCTCCTCC
H3_WT             TTCAATTGGACTGGAGTCACTCAAAACGGAACAAGTTCTGCTTGCATAAGGGGATCTAGT
                  ** ******** ***** ** ** ** ** **       ** *****  **** **

MRT10279          TCGAGCTTCTTCAGCCGCCTGAACTGGCTCACTCACCTCAACTACACCTACCCGGCACTG
H3_WT             AGTAGTTTCTTTAGTAGATTAAATTGGTTGACCCACTTAAACTACACATATCCAGCATTG
                  ** ***** **  *  * ** *** * ** *** * ******** ** ** *** **

MRT10279          AACGTGACCATGCCGAACAAGGAACAATTCGACAAGCTCTACATTTGGGGGGTGCATCAC
H3_WT             AACGTGACTATGCCAAACAAGGAACAATTTGACAAATTGTACATTTGGGGGGTTCACCAC
                  ******** ***** ************** *****  * ************** ** ***

MRT10279          CCGGGTACCGATAAGGACCAGATCTTCCTCTACGCCCAATCCTCGGGCCGGATCACCGTG
H3_WT             CCGGGTACGGACAAGGACCAAATCTTCCTGTATGCTCAATCATCAGGAAGAATCACAGTA
                  ******** ** ******** ******** ** ** ***** ** **  * ***** **

MRT10279          TCCACTAAGCGCTCGCAGCAGGCCGTGATCCCGAACATTGGAAGCAGACCCCGCATTCGC
H3_WT             TCTACCAAAAGAAGCCAACAAGCTGTAATCCCAAATATCGGATCTAGACCCAGAATAAGG
                  ** ** **  *    ** ** ** ** ***** ** ** ***   ****** * **  *

MRT10279          GACATTCCATCGAGGATCTCGATCTACTGGACGATTGTCAAGCCTGGCGACATCCTCCTC
H3_WT             GATATCCCTAGCAGAATAAGCATCTATTGGACAATAGTAAAACCGGGAGACATACTTTTG
                  ** ** **    ** **    ***** ***** ** ** ** ** ** ***** **  *

MRT10279          ATTAACTCCACCGGGAACCTCATCGCCCCTCGGGGTTATTTCAAGATCCGCAGCGGGAAG
H3_WT             ATTAACAGCACAGGGAATCTAATTGCTCCTAGGGGTTACTTCAAAATACGAAGTGGGAAA
                  ******  *** ***** ** ** ** *** ******* ***** ** ** ** *****

MRT10279          TCCTCCATCATGAGAAGCGATGCCCCCATTGGAAAGTGCAAGTCCGAGTGTATCACACCT
H3_WT             AGCTCAATAATGAGATCAGATGCACCCATTGGCAAATGCAAGTCTGAATGCATCACTCCA
                  *** ** ******   ***** ******** ** ******** ** ** ***** **

MRT10279          AACGGAAGCATTCCCAATGACAAGCCATTCCAGAACGTGAACAGAATTACCTACGGAGCT
H3_WT             AATGGAAGCATTCCCAATGACAAACCATTCCAAAATGTAAACAGGATCACATACGGGGCC
                  ** ******************** ******** ** ** ***** ** ** ***** **

MRT10279          TGCCCTCGCTACGTCAAACATTCGACCCTCAAGTTGGCGACTGGAATGCGCAACGTGCCG
H3_WT             TGTCCCAGATATGTTAAGCATAGCACTCTGAAATTGGCAACAGGAATGCGAAATGTACCA
                  ** **  * ** ** ** ***   ** ** ** ***** ** ******** ** ** **

MRT10279          GAGAAGCAAACCCGGGGGATCTTCGGGGCTATCGCGGGATTCATCGAAAATGGATGGGAA
H3_WT             GAGAAACAAACTAGAGGCATATTTGGCGCAATAGCGGGTTTCATAGAAAATGGTTGGGAG
```

```
                  ***** *****  * ** ** ** ** ** ** ***** ***** ******** *****

MRT10279          GGAATGGTCGATGGTTGGTACGGTTTCAGACACCAGAACTCCGAGGGGCGGGGCCAGGCC
H3_WT             GGAATGGTGGATGGTTGGTACGGTTTCAGGCATCAAAATTCTGAGGGAAGAGGACAAGCA
                  ******** ******************** ** ** ** ** *****  * ** ** **

MRT10279          GCAGACCTGAAGTCCACTCAGGCCGCGATTGACCAGATCAACGGAAAGCTCAACAGACTC
H3_WT             GCAGATCTCAAAAGCACTCAAGCAGCAATCGATCAAATCAATGGGAAGCTGAATAGGTTG
                  ***** ** **   ****** ** ** ** ** ** ***** ** ***** ** **  *

MRT10279          ATTGGAAAGACCAACGAAAAGTTCCACCAAATCGAAAAGGAATTCTCCGAAGTGGAGGGC
H3_WT             ATCGGAAAAACCAACGAGAAATTCCATCAGATTGAAAAAGAATTCTCAGAAGTAGAAGGA
                  ** ***** ******** ** ***** ** ** ***** ******** ***** ** **

MRT10279          CGGGTGCAAGACCTGGAGAAGTACGTGGAGGACACTAAGATCGACCTTTGGAGCTATAAC
H3_WT             AGAGTTCAAGACCTTGAGAAATATGTTGAGGACACTAAAATAGATCTCTGGTCATACAAC
                  * ** ******** ***** ** ** *********** ** ** ** ***   ** ***

MRT10279          GCAGAACTCCTTGTGGCCCTGGAAAACCAGCACACCATCGACCTGACCGATTCAGAGATG
H3_WT             GCGGAGCTTCTTGTTGCCCTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATG
                  ** ** ** ***** ******** ***** ** ** ** ** ** ** ** ***** ***

MRT10279          AACAAGCTCTTTGAGAAAACTAAGAAGCAACTCCGGGAAAACGCTGAGGACATGGGAAAT
H3_WT             AACAAACTGTTTGAAAAAACAAAGAAGCAACTGAGGGAAAATGCTGAGGATATGGGAAAT
                  ***** ** ***** ***** ***********  ******* ******** *********

MRT10279          GGATGCTTTAAGATCTACCACAAGTGCGACAACGCCTGCATTGAGTCCATACGGAACGAA
H3_WT             GGTTGTTTCAAAATATACCACAAATGTGACAATGCCTGCATAGAATCAATAAGAAATGAA
                  ** ** ** ** ** ******** ** ***** ******** ** ** *** * ** ***

MRT10279          ACTTACGACCATAACGTCTACCGGGATGAAGCCCTGAACAACAGATTCCAGATCAAGGGC
H3_WT             ACTTATGACCACAATGTGTACAGGGATGAAGCATTGAACAACCGGTTCCAGATCAAGGGA
                  ***** ***** ** ** *** **********  ******** * **************

MRT10279          GTGGAGCTGAAGTCCGGCTACAAAGATTGGATCCTGTGGATTTCCTTCGCGATTTCATGC
H3_WT             GTTGAGCTGAAGTCAGGATACAAAGATTGGATCCTATGGATTTCCTTTGCCATATCATGT
                  ** *********** ** ***************** *********** ** ** *****

MRT10279          TTCTTGCTCTGCGTGGCCCTCCTGGGATTCATAATGTGGGCCTGTCAGAAGGGCAACATT
H3_WT             TTTTTGCTTTGTGTTGCTTTGTTGGGGTTCATCATGTGGGCCTGCCAAAAGGGCAACATT
                  ** ***** ** ** **  *  **** ***** *********** ** ************
```

MRT10279 AGGTGCAACATATGCATATAA (SEQ ID NO:2)
H3_WT AGATGCAACATTTGCATTTGA (SEQ ID NO:3)

** ******** ***** * *

FIG. 5A (cont.)

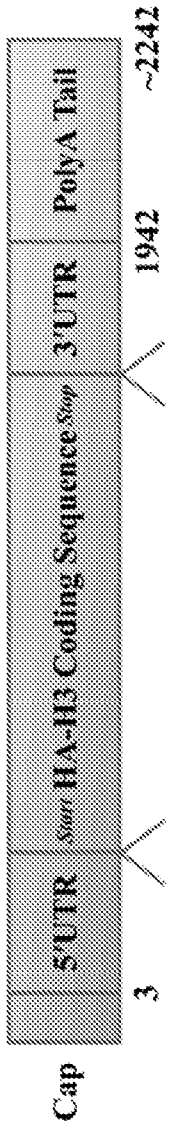


FIG. 5B

5′UTR

GGACAGAUCGCCUGGAGACGCCAUCCACGCUGUUUUGACCUCCAUAGAAGACACCGGGACCGAUCCAGCCUCCGCGGCCGGGAACGGUGCAUUGGAACGCGGAUUCCCCGUGCCAA
GAGUGACUCACCGUCCUUGACACG

CDS (coding Sequence)

AUGAAAACCAUAAUCGCGCUCUCAUACAUACUUUGCCUGGUCUUUGCCCAAAAGAUCCCUGGCAACGACAACUCAACCGCGACCCUUUGCCUCGGCCAUCACGCCGUGCCGAACGG
CACUAUCGUCAAGACCAUCACAAACGACCGCAUCGAAGUGACCAACGCGACUGAGCUAGUGCAGAACUCCAGCAUUGGAGAGAUUUGCGAUUCUCCACACCAAAUCCUGGACGGAG
AGAAUUGUACCUUGAUCGACGCGCUGCUGGGGGAUCCGCAGUGCGACGGAUUCCAGAACAAGAAAUGGGACCUUUUCGUGGAACGGAGCAAGGCAUACUCGAAUUGCUACCCCUAC
GAUGUGCCCGACUACGCCUCGCUGCGGUCCUUGGUCGCUUCCUCCGGGACCCUGGAAUUCAAAAACGAGAGCUUUAAUUGGACCGGAGUGACCCAGAAUGGCACCUCGAGCGCCUG
CAUUCGGGGCUCCUCCUCGAGCUUCUUCAGCCGCCUGAACUGGCUCACUCACCUCAACUACACCUACCCGGCACUGAACGUGACCAUGCCGAACAAGGAACAAUUCGACAAGCUCU
ACAUUUGGGGGGUGCAUCACCCGGGUACCGAUAAGGACCAGAUCUUCCUCUACGCCCAAUCCUCGGGCCGGAUCACCGUGUCCACUAAGCGCUCGCAGCAGGCCGUGAUCCCGAAC
AUUGGAAGCAGACCCCGCAUUCGCGACAUUCCAUCGAGGAUCUCGAUCUACUGGACGAUUGUCAAGCCUGGCGACAUCCUCCUCAUUAACUCCACCGGGAACCUCAUCGCCCCUCG
GGGUUAUUUCAAGAUCCGCAGCGGGAAGUCCUCCAUCAUGAGAAGCGAUGCCCCCAUUGGAAAGUGCAAGUCCGAGUGUAUCACACCUAACGGAAGCAUUCCCAAUGACAAGCCAU
UCCAGAACGUGAACAGAAUUACCUACGGAGCUUGCCCUCGCUACGUCAAACAUUCGACCCUCAAGUUGGCGACUGGAAUGCGCAACGUGCCGGAGAAGCAAACCCGGGGGAUCUUC
GGGGCUAUCGCGGGAUUCAUCGAAAAUGGAUGGGAAGGAAUGGUCGAUGGUUGGUACGGUUUCAGACACCAGAACUCCGAGGGGCGGGGCCAGGCCGCAGACCUGAAGUCCACUCA
GGCCGCGAUUGACCAGAUCAACGGAAAGCUCAACAGACUCAUUGGAAAGACCAACGAAAAGUUCCACCAAAUCGAAAAGGAAUUCUCCGAAGUGGAGGGCCGGGUGCAAGACCUGG
AGAAGUACGUGGAGGACACUAAGAUCGACCUUUGGAGCUAUAACGCAGAACUCCUUGUGGCCCUGGAAAACCAGCACACCAUCGACCUGACCGAUUCAGAGAUGAACAAGCUCUUU
GAGAAAACUAAGAAGCAACUCCGGGAAAACGCUGAGGACAUGGGAAAUGGAUGCUUUAAGAUCUACCACAAGUGCGACAACGCCUGCAUUGAGUCCAUACGGAACGAAACUUACGA
CCAUAACGUCUACCGGGAUGAAGCCCUGAACAACAGAUUCCAGAUCAAGGGCGUGGAGCUGAAGUCCGGCUACAAAGAUUGGAUCCUGUGGAUUUCCUUCGCGAUUUCAUGCUUCU
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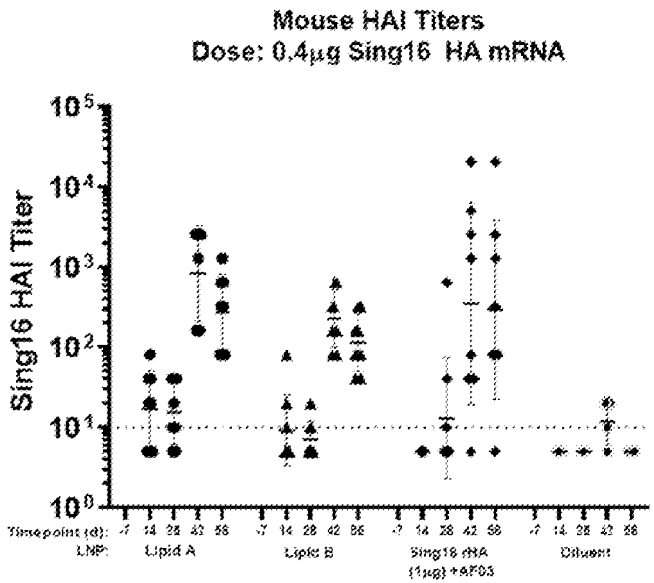
3′UTR

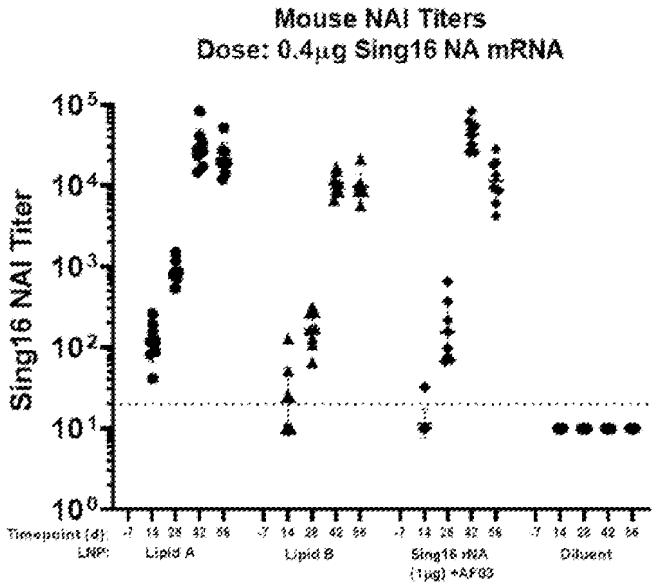
CGGGUGGCAUCCCUGUGACCCCUCCCCAGUGCCUCUCCUGGCCCUGGAAGUUGCCACUCCAGUGCCCACCAGCCUUGUCCUAAUAAAAUUAAGUUGCAUC

+ Poly A Tail

(SEQ ID NO:4)

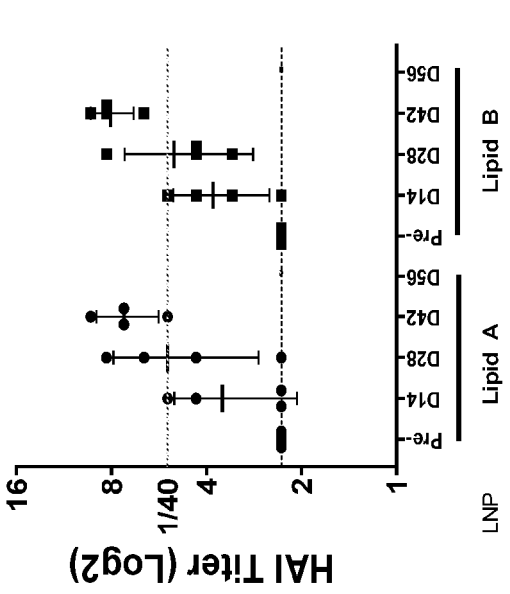
FIG. 5C





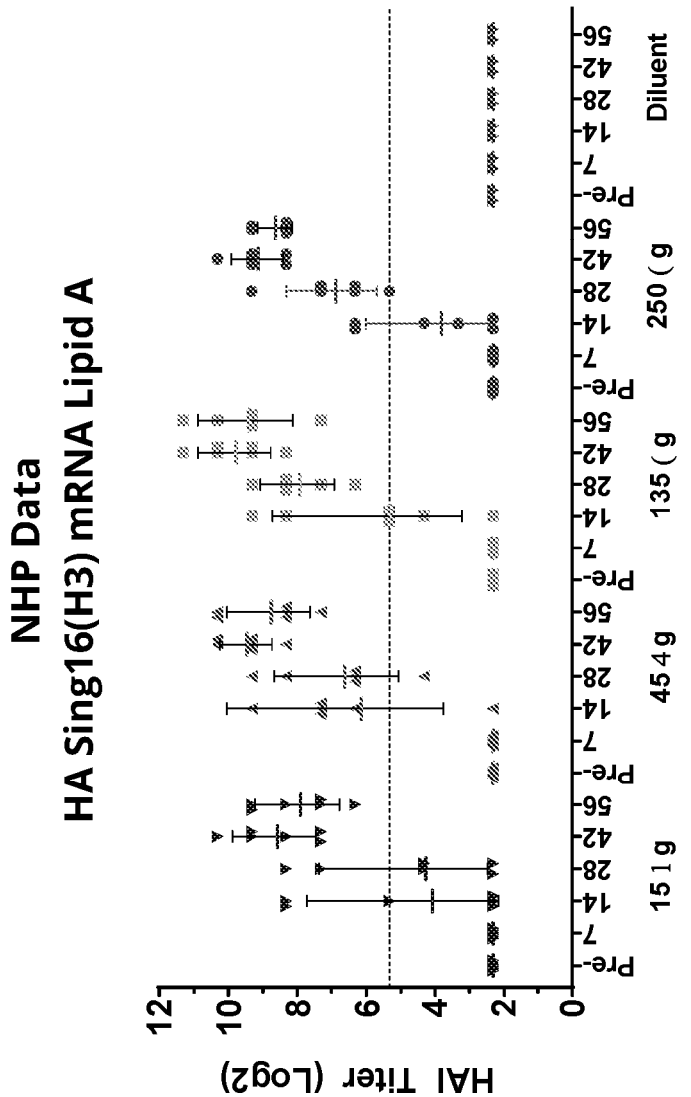
Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30
Lipid B	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 6



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30
Lipid B	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 7A



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 7B

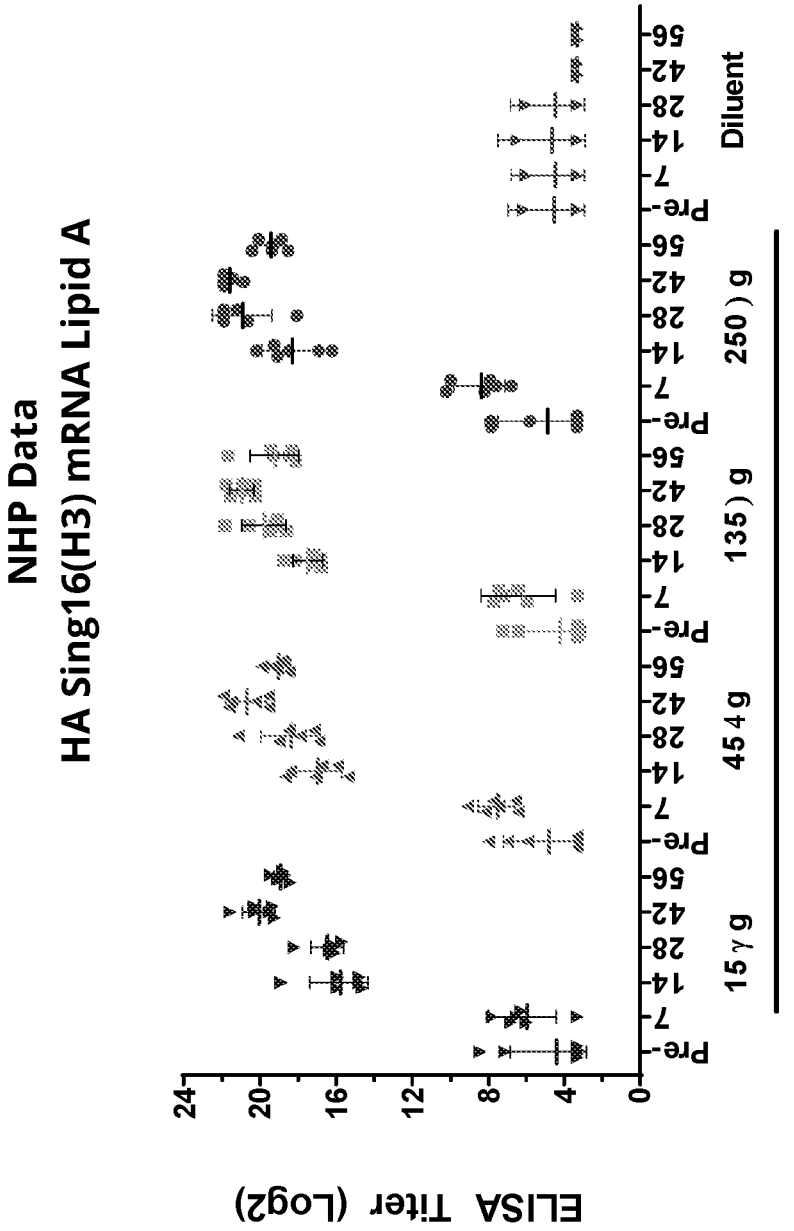
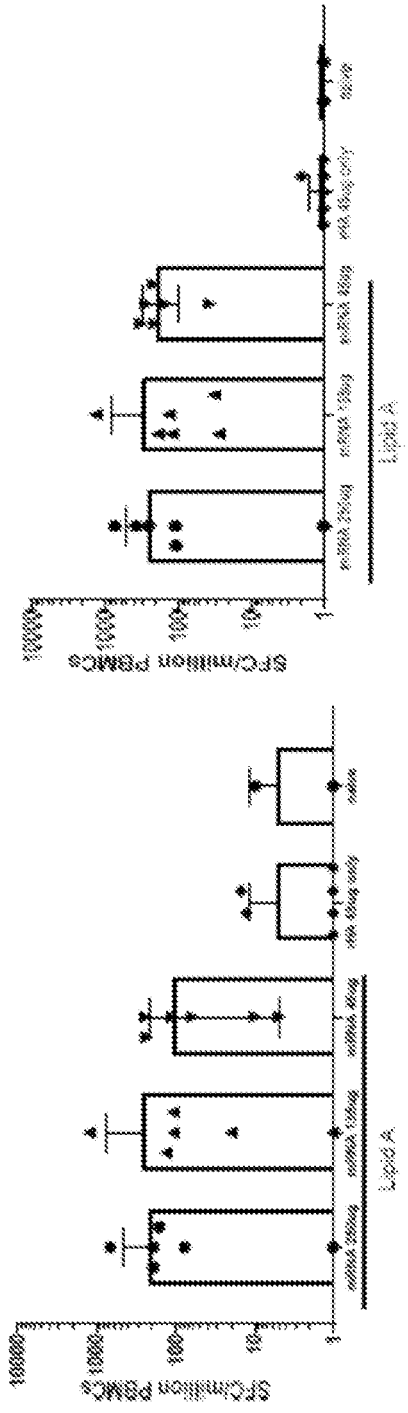
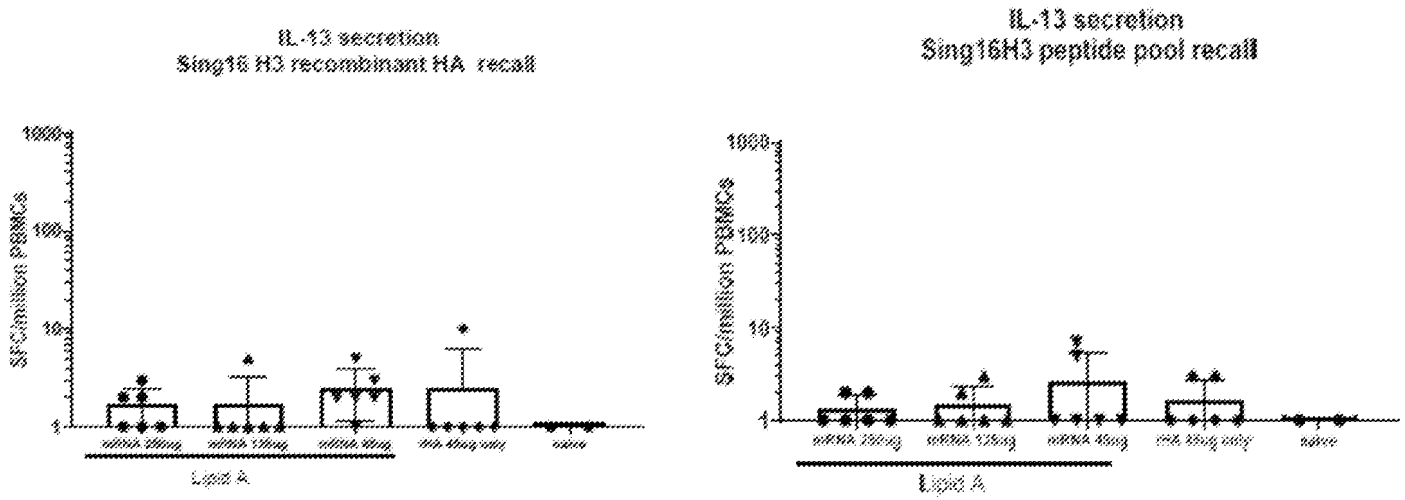

NHP Data
HA Sing16(H3) mRNA Lipid A
ELISA Titer (Log2)
24
20
16
12
8
4
0
Pre-
7
14
28
42
56
15γg
454g
135)g
250)g
Diluent
MRT5400

FIG. 7C



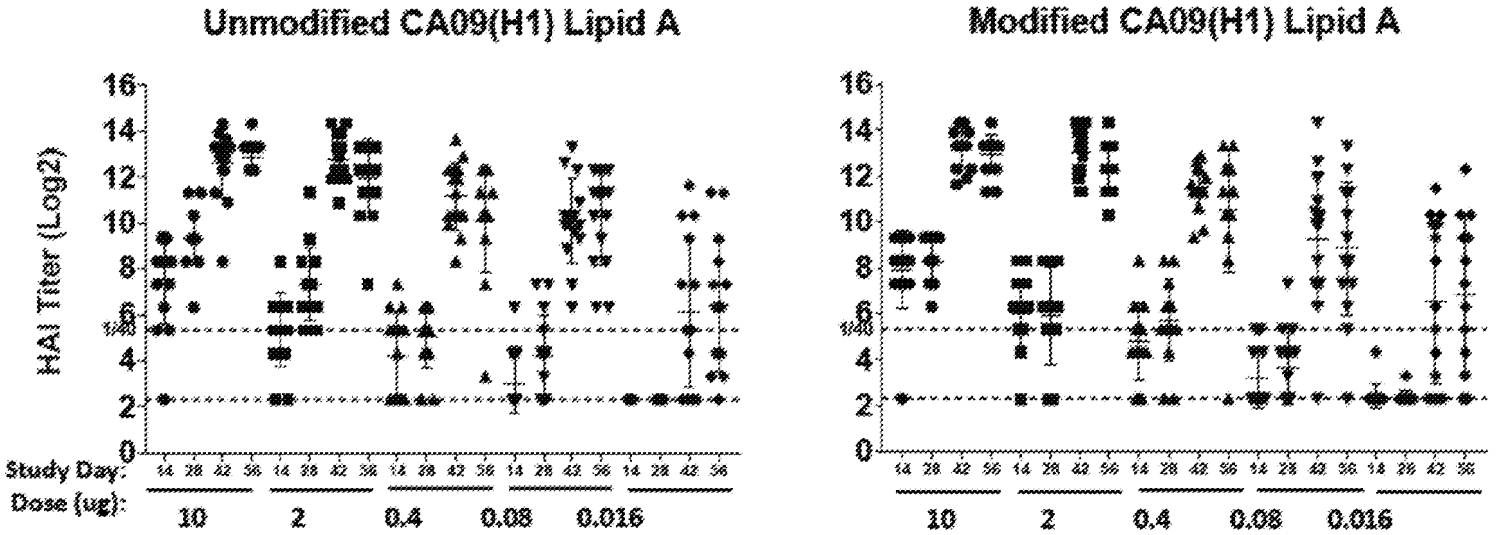
Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 8A



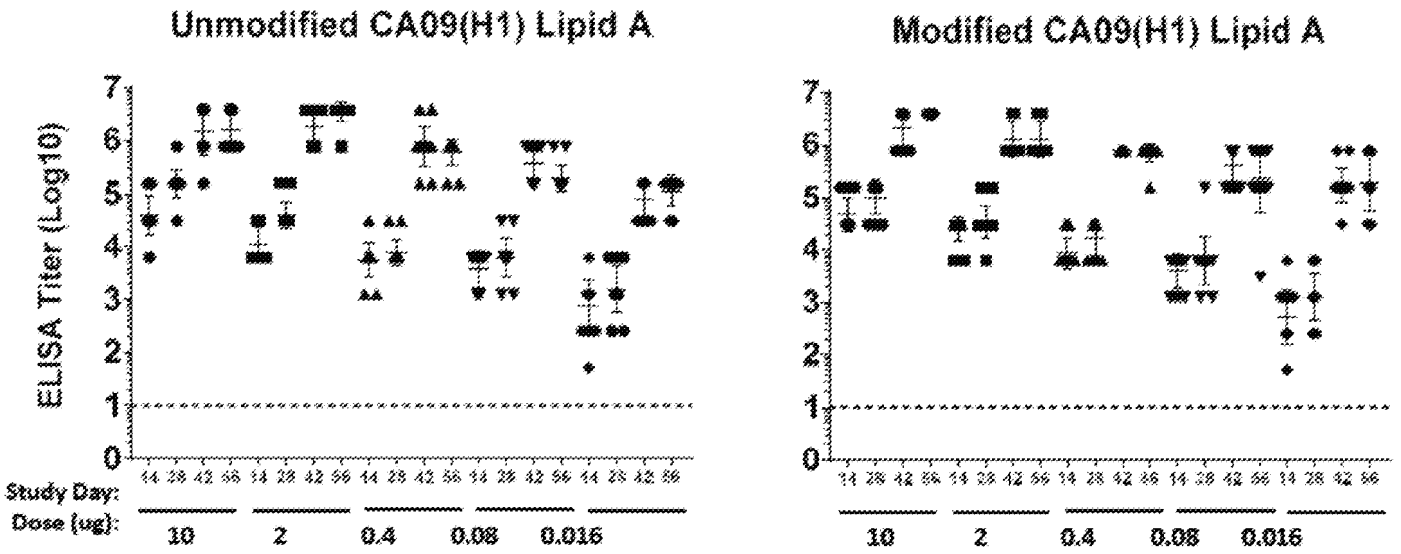
Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 8B



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 9A



Lipid	Composition (Molar Ratio)
Lipid A	Cationic lipid: DMG-PEG2000: Cholesterol: DOPE 40:1.5:28.5:30

FIG. 9B

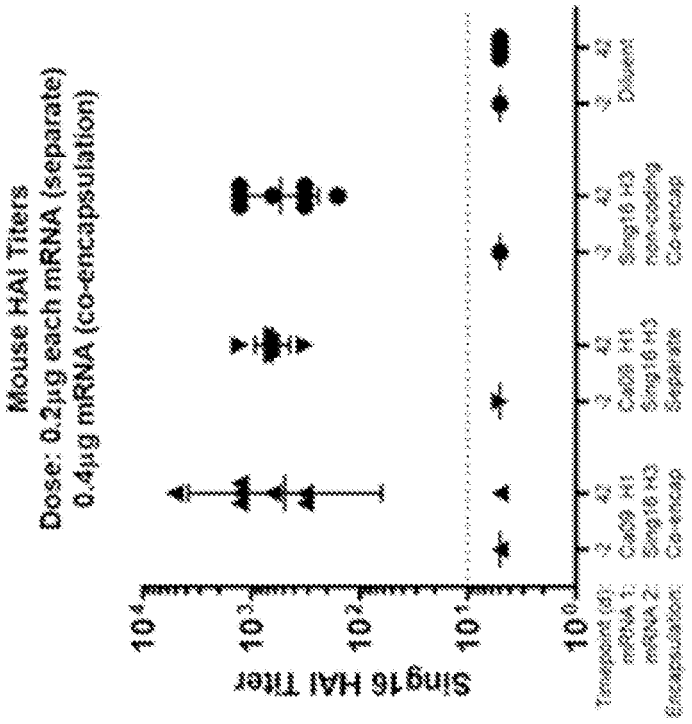


FIG. 10B

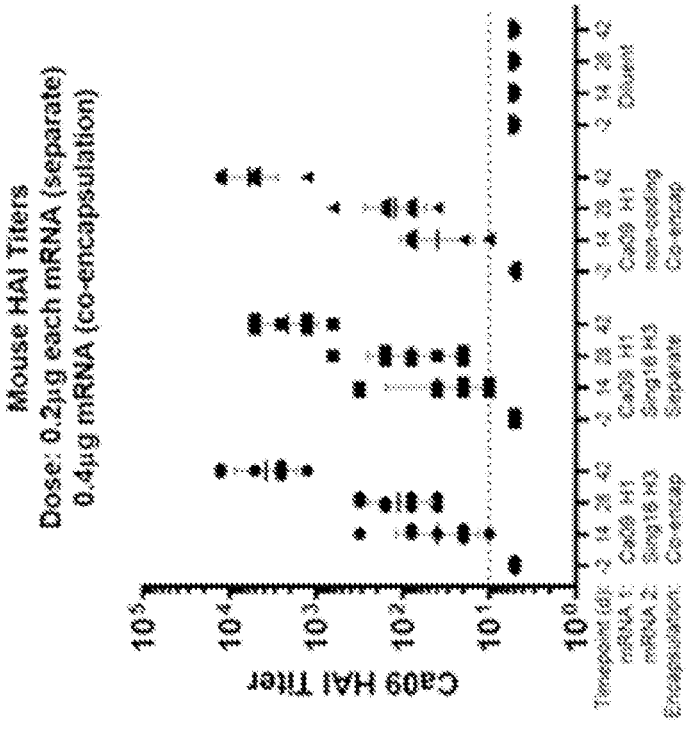


FIG. 10A

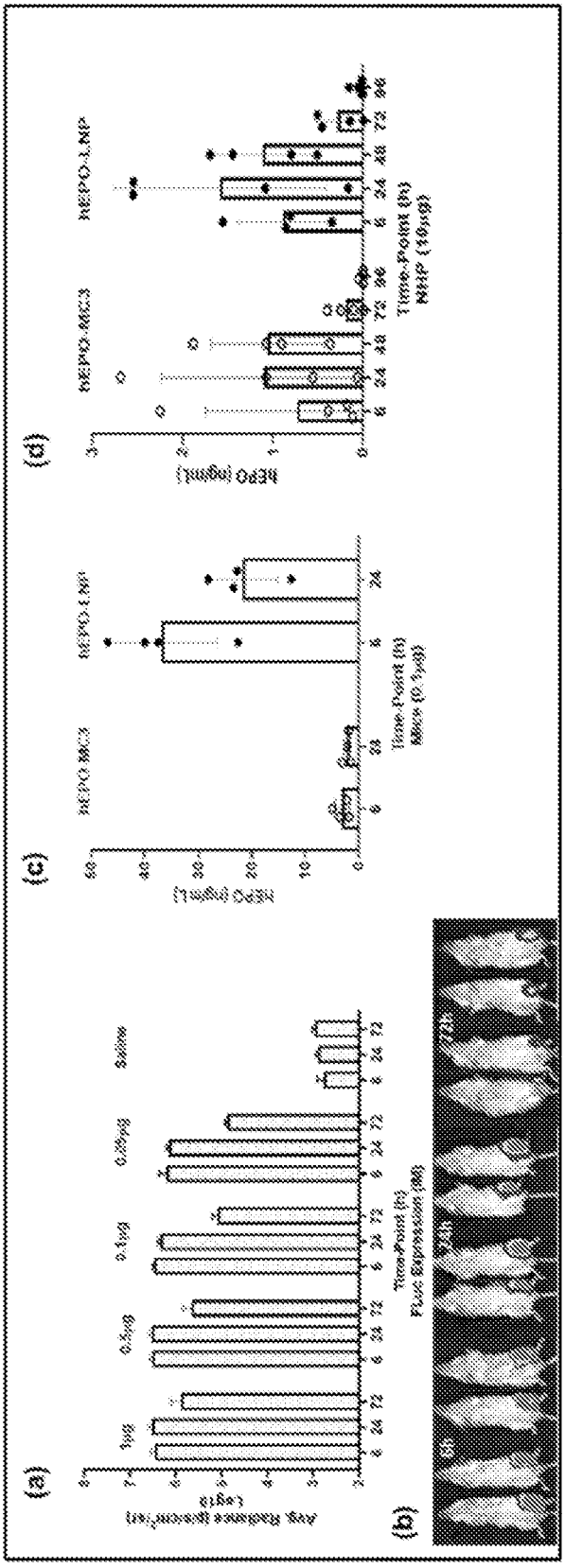

(a)
Avg. Radiance (p/sec/cm²/sr)
Time Point (h)
Fluc Expression (86)
(b)
(c)
hEPO (ng/mL)
Time Point (h)
Mice (0.1 mg)
(d)
hEPO (ng/mL)
Time Point (h)
NHP (10 mg)

FIG. 11

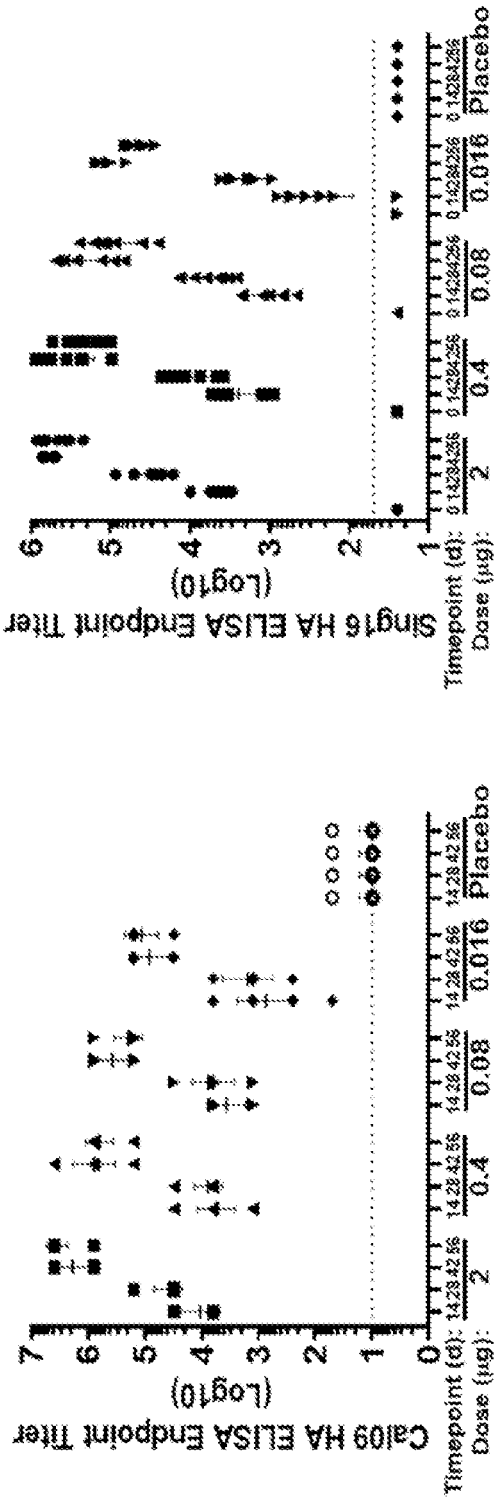

Sing16 HA ELISA Endpoint Titer
(Log10)
Timepoint (d): 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56
Dose (µg): 2 0.4 0.08 0.016 Placebo
Cal09 HA ELISA Endpoint Titer
(Log10)
Timepoint (d): 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56 1 14 28 42 56
Dose (µg): 2 0.4 0.08 0.016 Placebo

FIG. 12

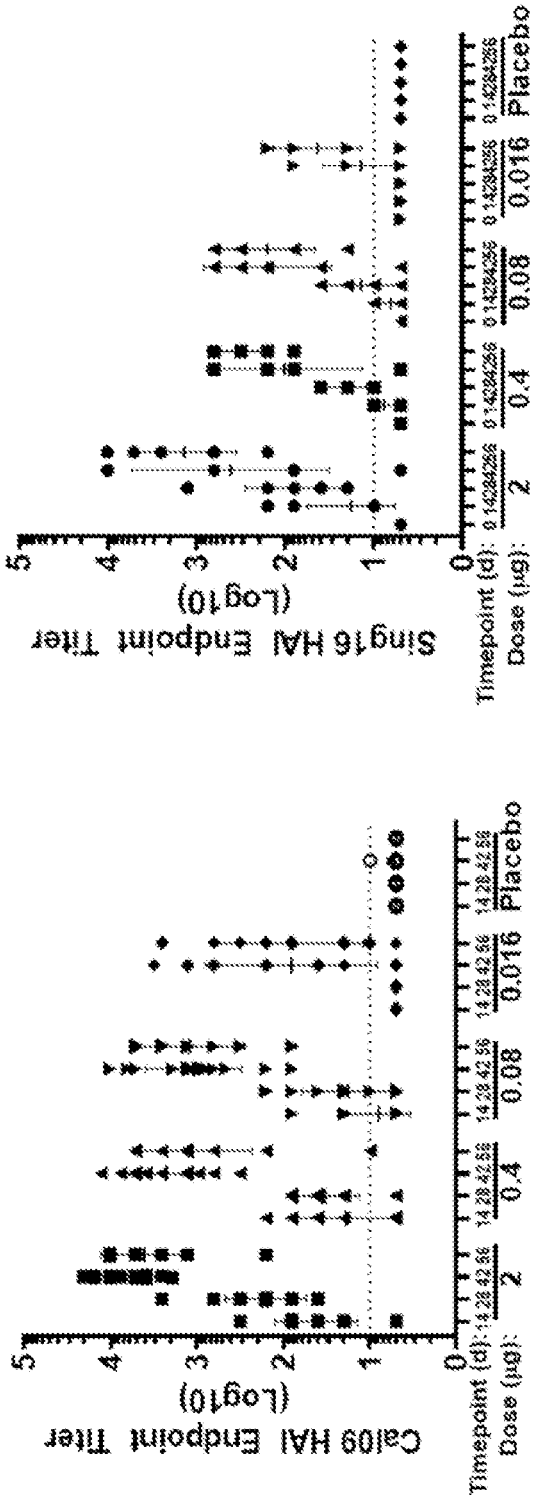
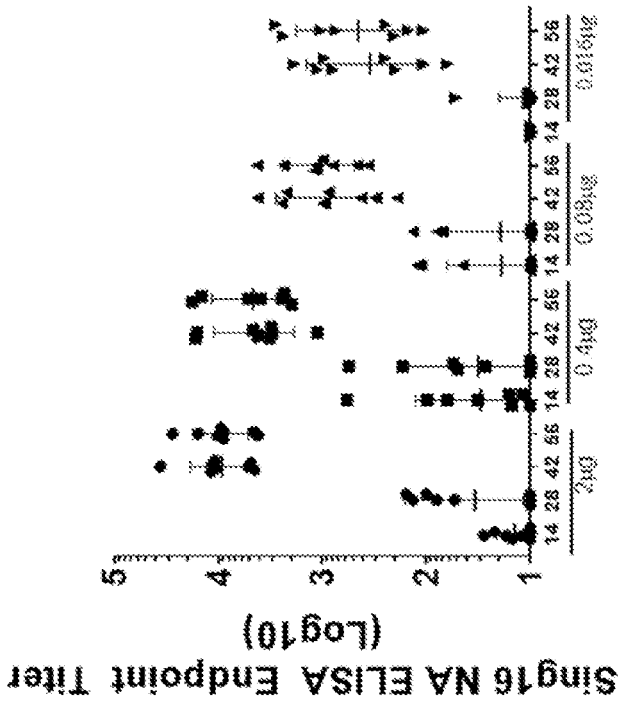

Sing16 HAI Endpoint Titer
(Log10)
Timepoint (d): 0 14 28 42 56
Dose (µg): 2 0.4 0.08 0.016 Placebo
Cal09 HAI Endpoint Titer
(Log10)
Timepoint (d): 0 14 28 42 56
Dose (µg): 2 0.4 0.08 0.016 Placebo

FIG. 13


Sing16 NA ELISA Endpoint Titer
(Log10)
5
4
3
2
1
14 28 42 56 14 28 42 56 14 28 42 56 14 28 42 56
2ug
0.4ug
0.08ug
0.016ug

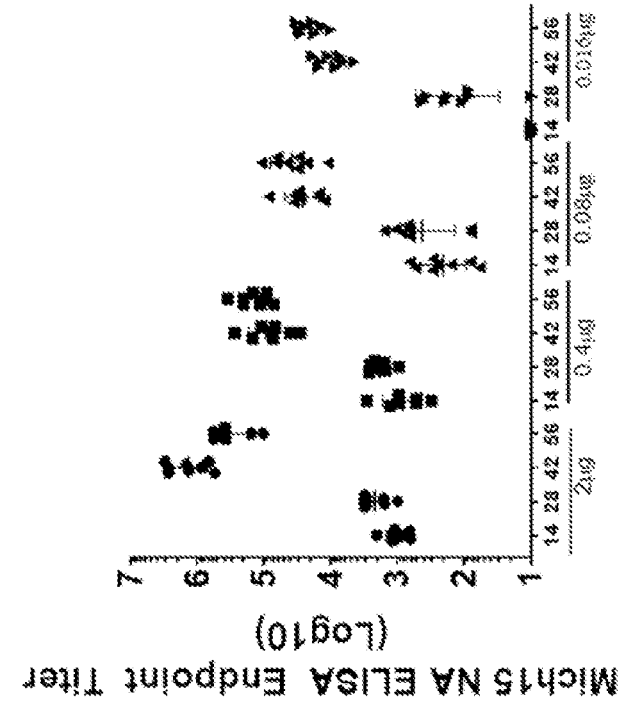

Mich15 NA ELISA Endpoint Titer
(Log10)
7
6
5
4
3
2
1
14 28 42 56 14 28 42 56 14 28 42 56 14 28 42 56
2ug
0.4ug
0.08ug
0.016ug

FIG. 14

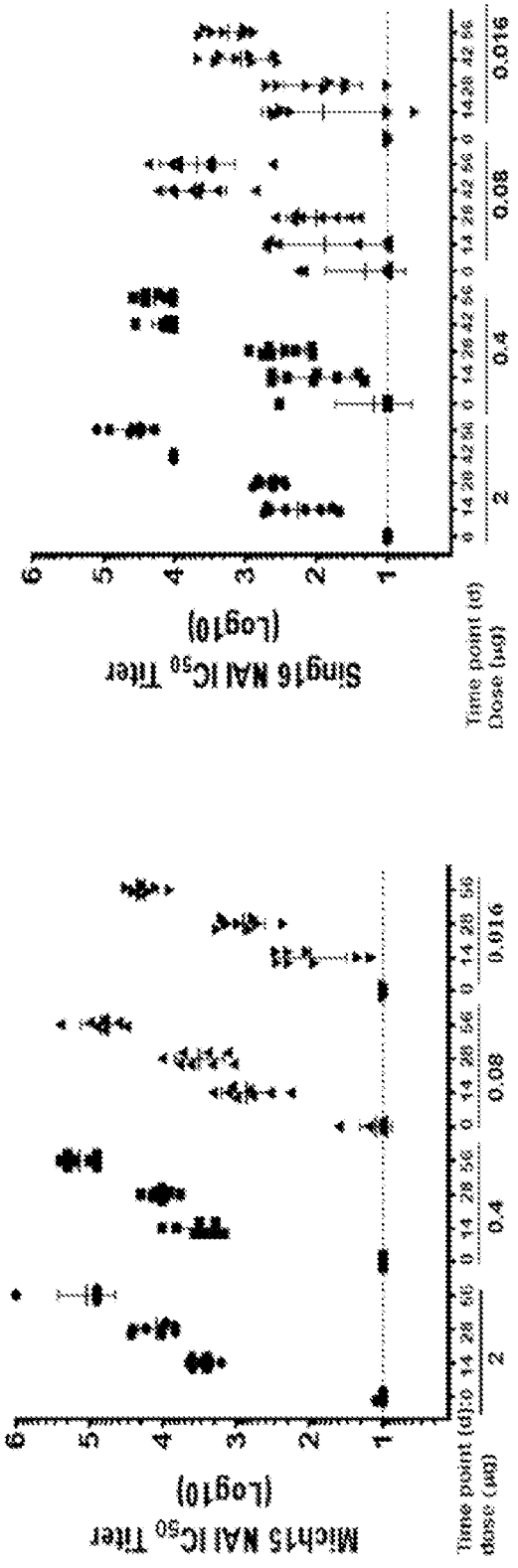

Sing16 NAI IC50 Titer
(Log10)
Mich15 NAI IC50 Titer
(Log10)
Time point (d)
Dose (µg)
2
0.4
0.08
0.016

FIG. 15

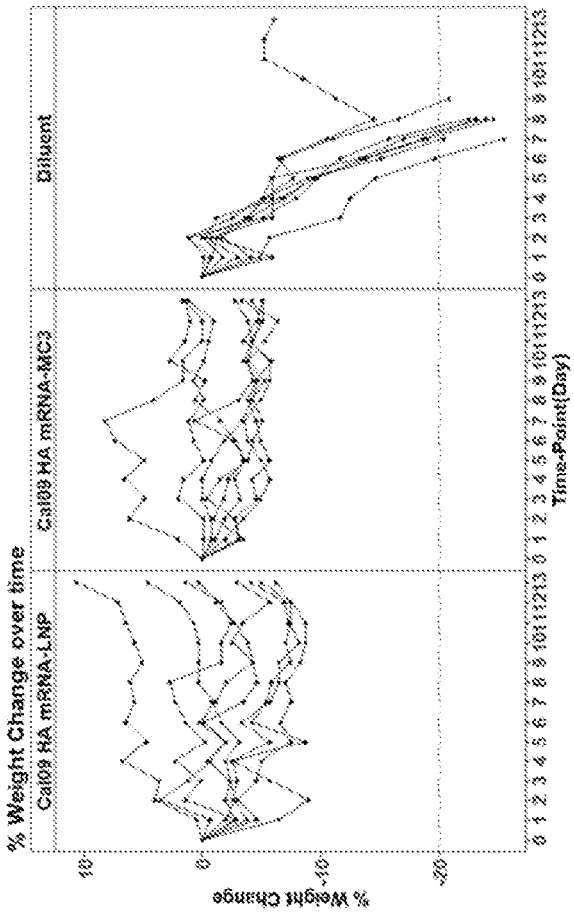


FIG. 16B

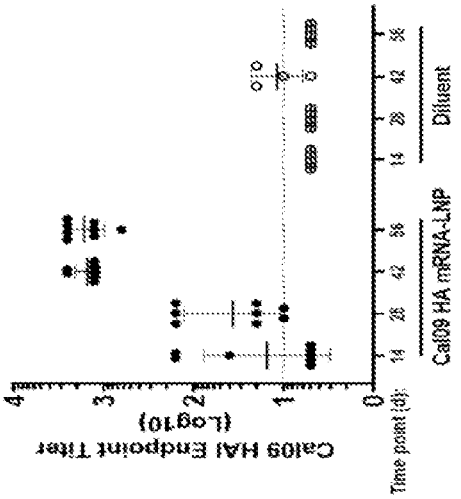


FIG. 16A

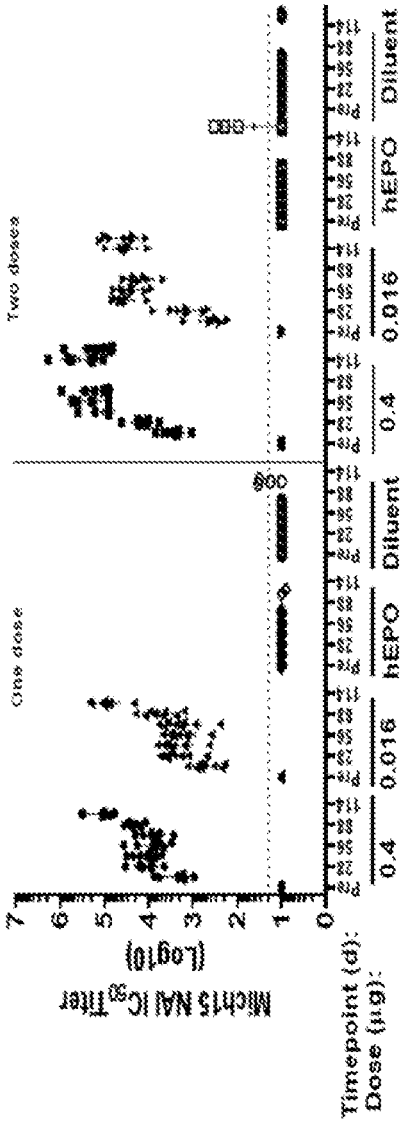


FIG. 17A

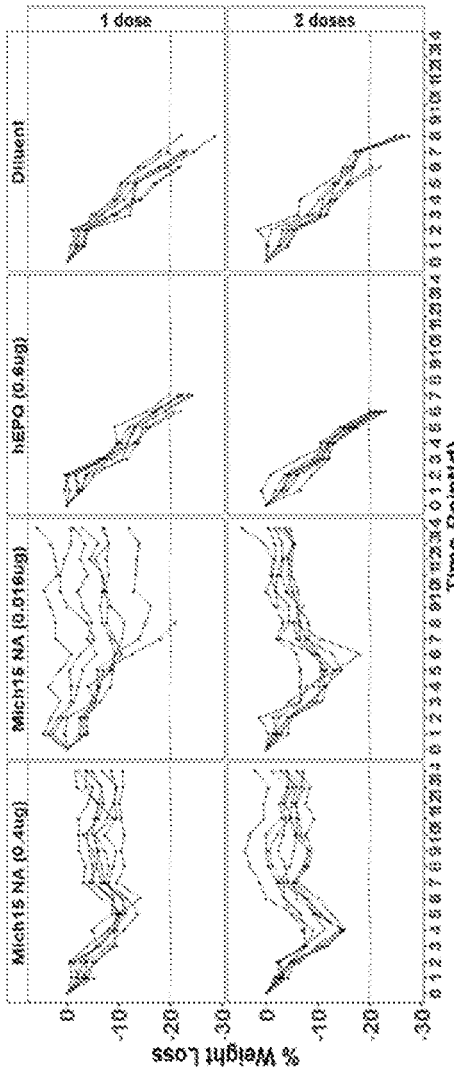


FIG. 17B

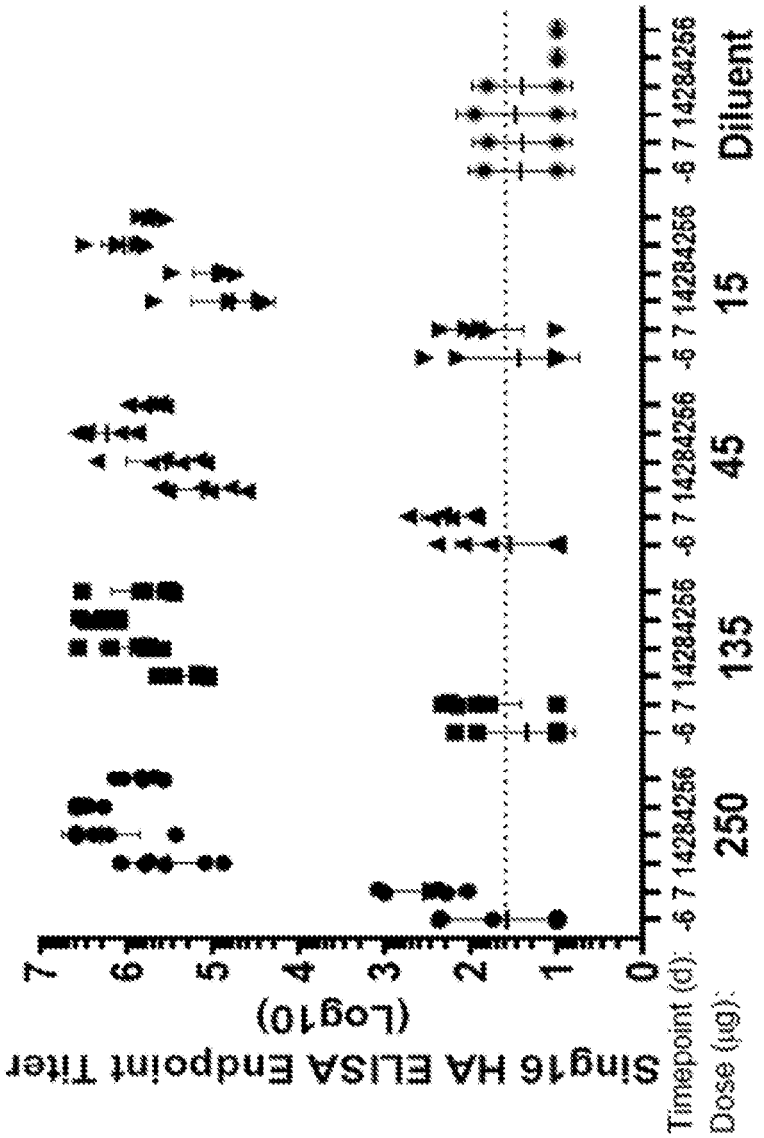

Sing16 HA ELISA Endpoint Titer
(Log10)
7
6
5
4
3
2
1
0
Timepoint (d): -6 7 14284256 -6 7 14284256 -6 7 14284256 -6 7 14284256 -6 7 14284256
Dose (µg): 250 135 45 15 Diluent

FIG. 18

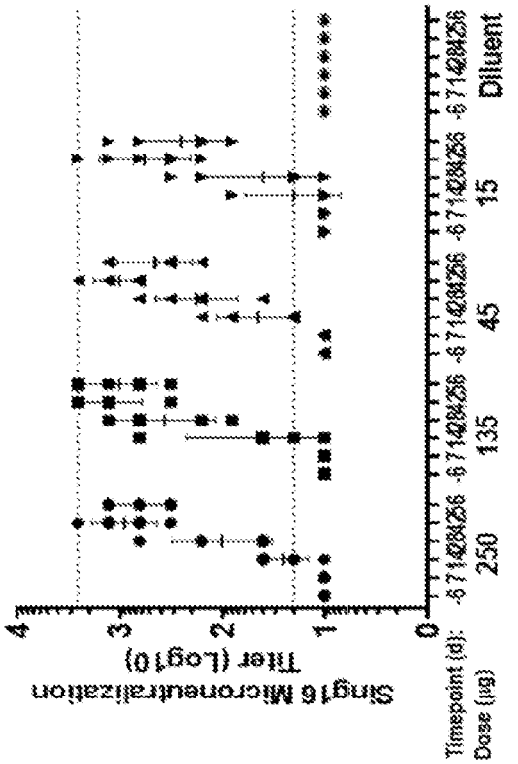


FIG. 19B

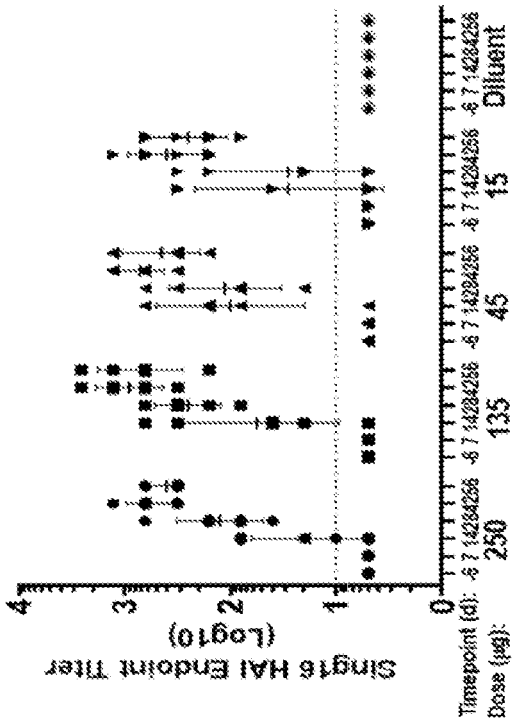


FIG. 19A

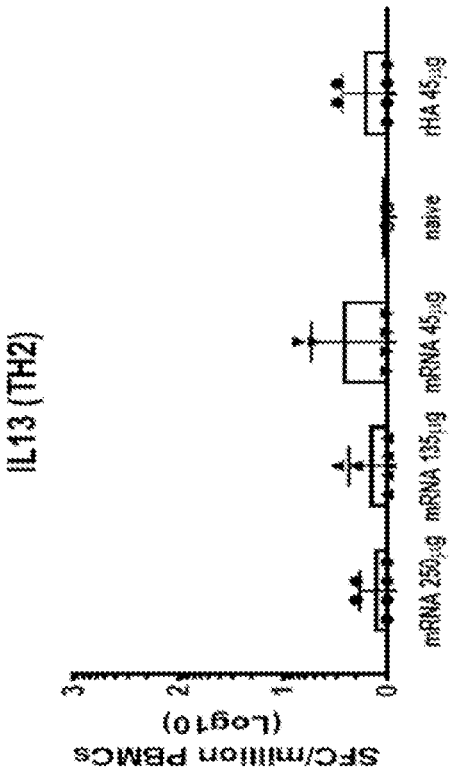


FIG. 20B

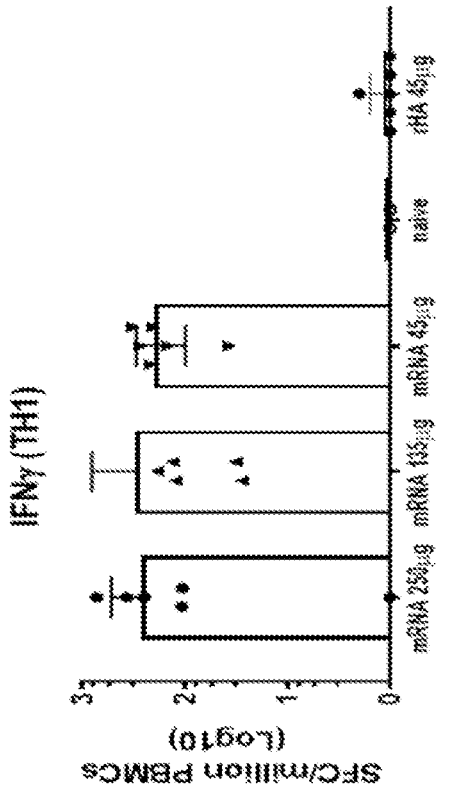


FIG. 20A

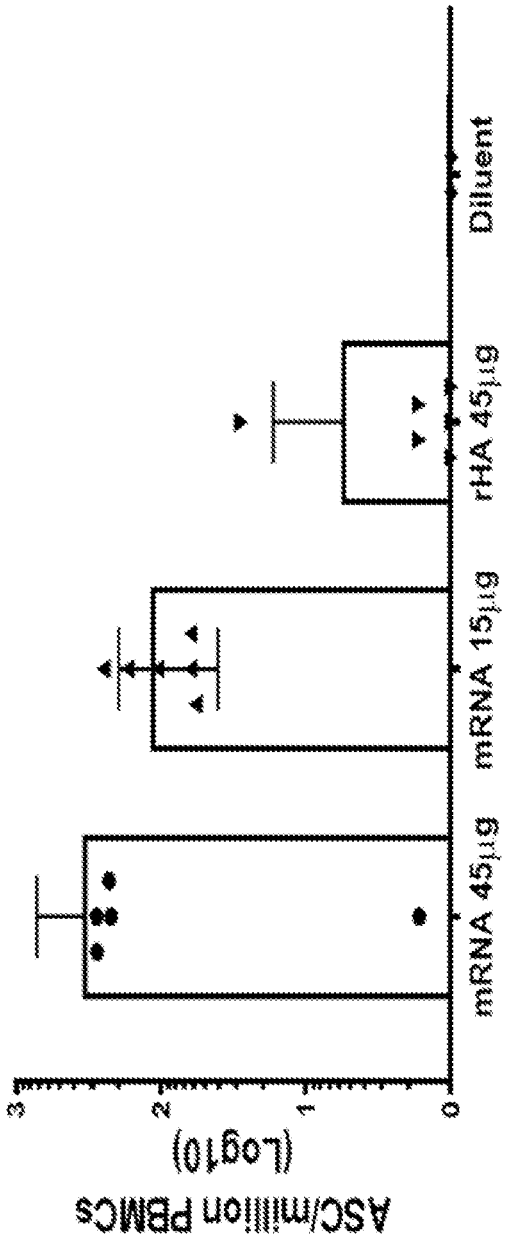

ASC/million PBMCs
(Log10)
3
2
1
0
mRNA 45µg
mRNA 15µg
rHA 45µg
Diluent

FIG. 21

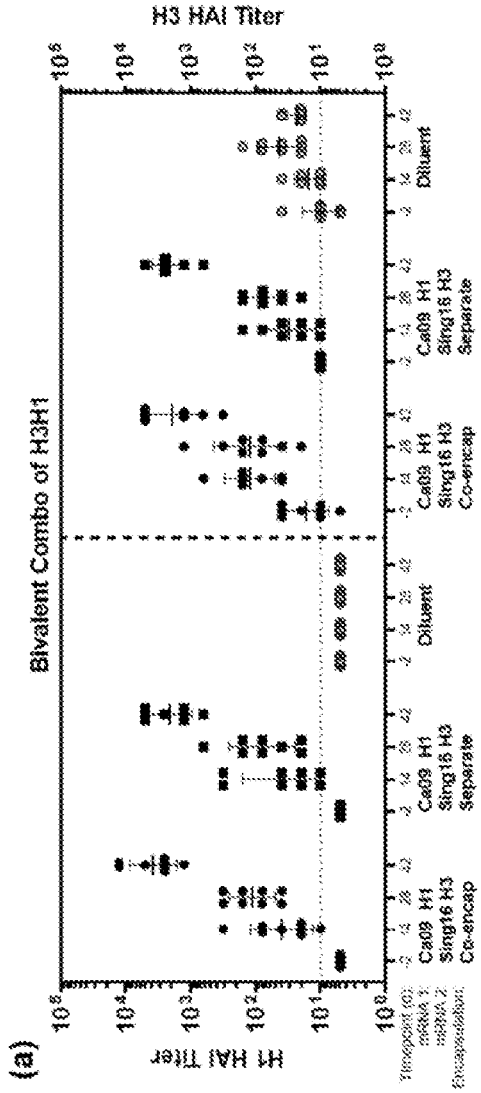

(a)
Bivalent Combo of H3H1
H1 HAI Titer
H3 HAI Titer
Diluent
Ca09 H1
Sing16 H3
Co-encap
Separate

FIG. 22

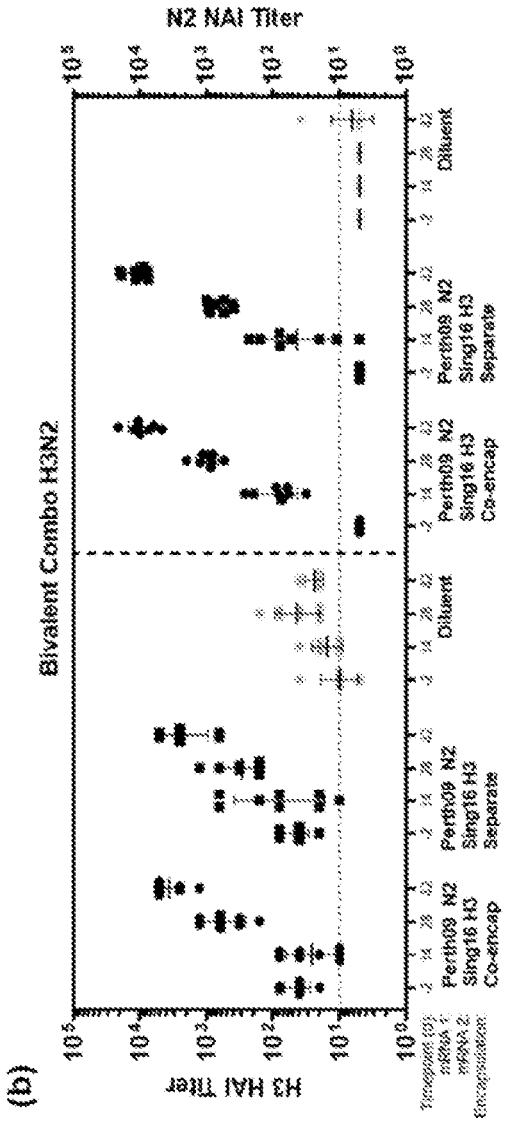

(b)
Bivalent Combo H3N2
H3 HAI Titer
N2 NAI Titer
Perth09 N2
Sing16 H3
Co-encap
Separate
Diluent

FIG. 22 (cont'd)

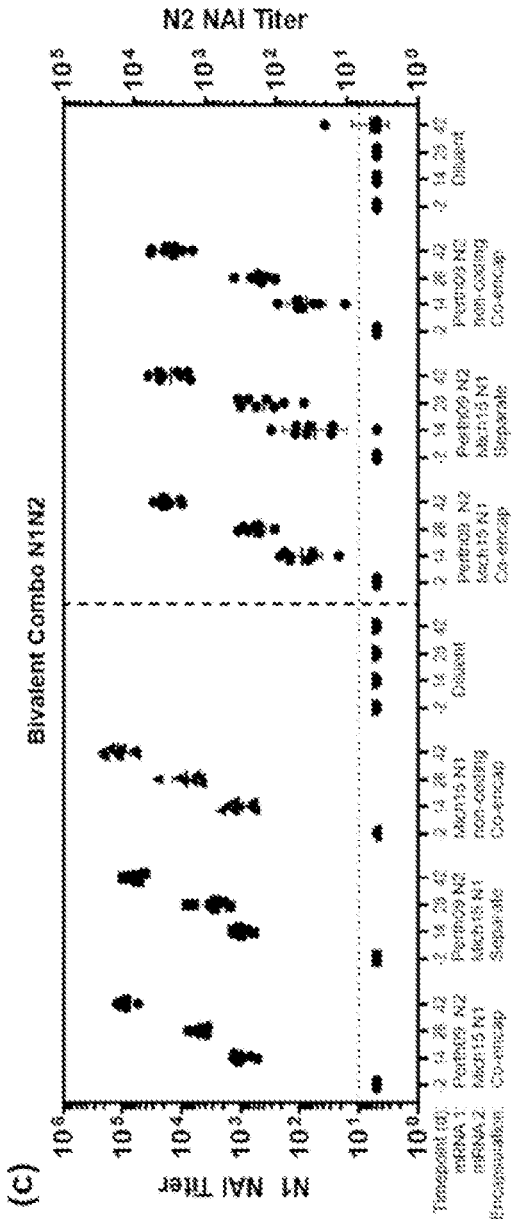

(C)
Bivalent Combo N1N2
N1 NAI Titer
N2 NAI Titer
10^6
10^5
10^4
10^3
10^2
10^1
10^0
Timepoint (d)
mRNA 1
mRNA 2
Immunization
2
14
28
42
Control
Prefusion N2
Mut15 N1
Co-encap
Prefusion N2
Mut15 N1
non-coding
Co-encap
Prefusion N2
Mut15 N1
Separate
Prefusion N2
Mut15 N1
Co-encap
Prefusion N2
Mut15 N1
non-coding
Co-encap
Control

FIG. 22 (cont'd)

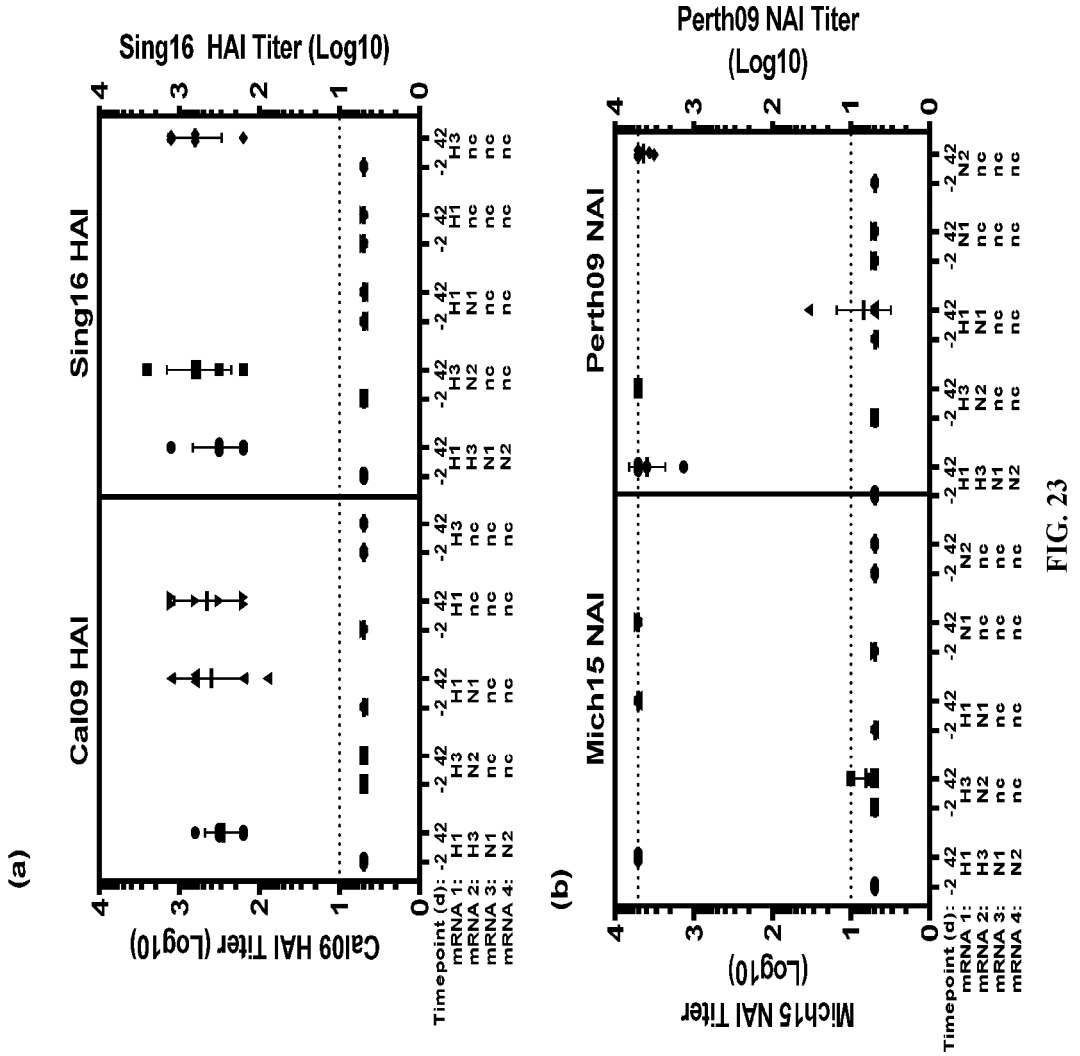

(a)
Sing16 HAI Titer (Log10)
Sing16 HAI
Cal09 HAI
Cal09 HAI Titer (Log10)
(b)
Perth09 NAI Titer
(Log10)
Perth09 NAI
Mich15 NAI
Mich15 NAI Titer
(Log10)
Timepoint (d): -2 42 -2 42 -2 42 -2 42
mRNA 1: H1 H3 H1 H3
mRNA 2: H3 N2 N1 N2
mRNA 3: N1 nc nc nc
mRNA 4: N2 nc nc nc

FIG. 23

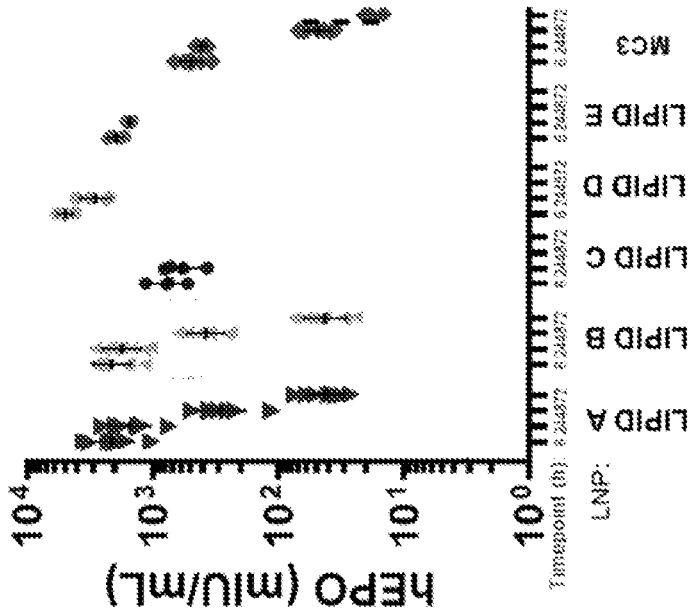

hEPO (mIU/mL)
10^4
10^3
10^2
10^1
10^0
LNP:
LIPID A
LIPID B
LIPID C
LIPID D
LIPID E
MC3

FIG. 24

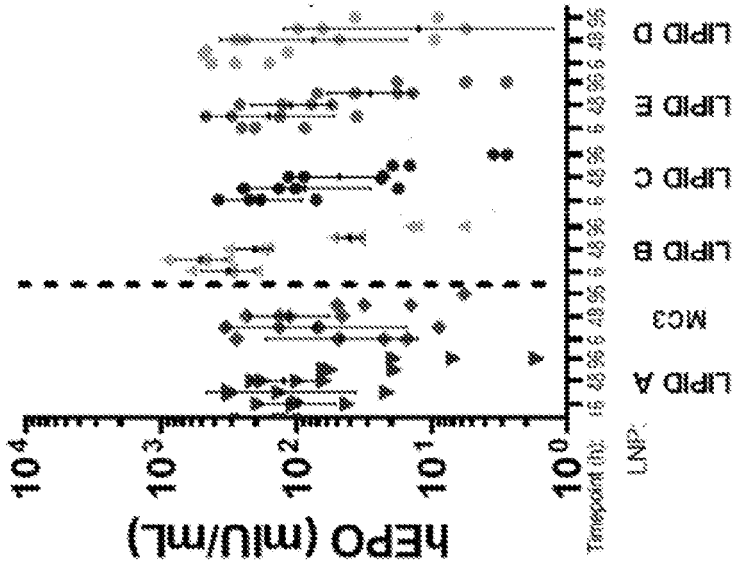

hEPO (mIU/mL)
10^4
10^3
10^2
10^1
10^0
Timepoint (h): 6 48 96 6 48 96 6 48 96 6 48 96 6 48 96
LNP:
LIPID A
MC3
LIPID B
LIPID C
LIPID E
LIPID D

FIG. 25

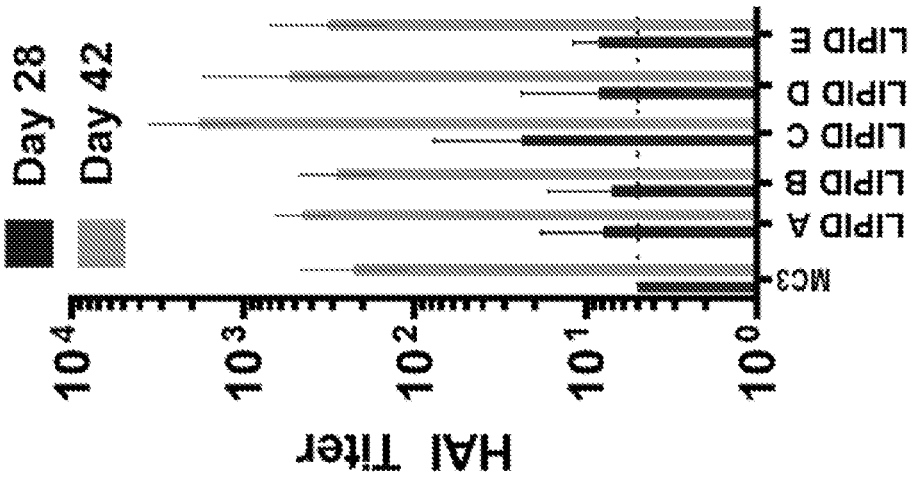

Day 28
Day 42
HAI Titer
10^4
10^3
10^2
10^1
10^0
MC3
LIPID A
LIPID B
LIPID C
LIPID D
LIPID E

FIG. 26

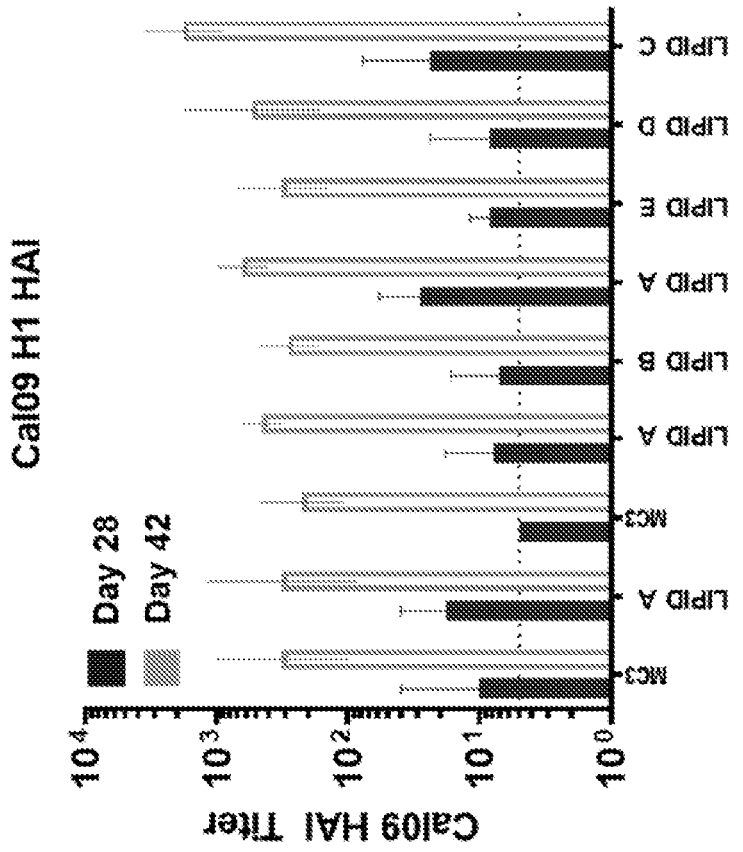

Cal09 H1 HAI
Day 28
Day 42
Cal09 HAI Titer
10^4
10^3
10^2
10^1
10^0
MC3
LIPID A
MC3
LIPID A
LIPID B
LIPID A
LIPID E
LIPID D
LIPID C

FIG. 27

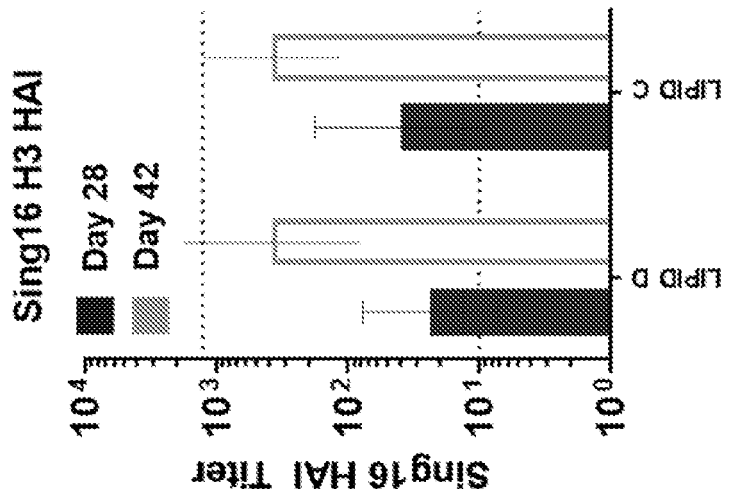

Sing16 H3 HAI
Day 28
Day 42
Sing16 HAI Titer
10^4
10^3
10^2
10^1
10^0
LPHD D
LPHD C

FIG. 28

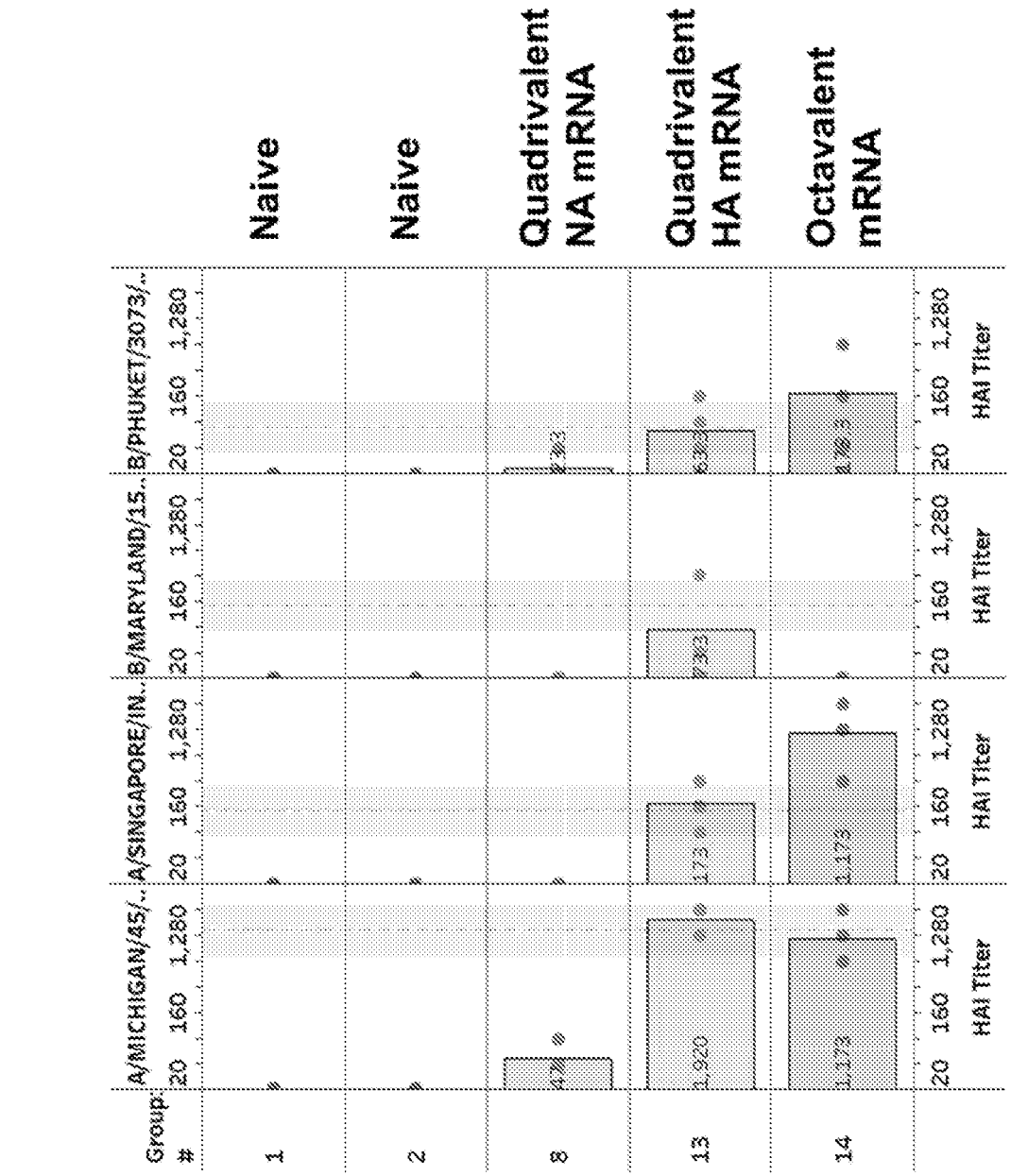

Group #
A/MICHIGAN/45/..
A/SINGAPORE/IN..
B/MARYLAND/15..
B/PHUKET/3073/..
20 160 1,280
1
2
8
13
14
Naive
Naive
Quadrivalent NA mRNA
Quadrivalent HA mRNA
Octavalent mRNA
1920
173
7363
6363
1173
2179
HAI Titer

FIG. 29

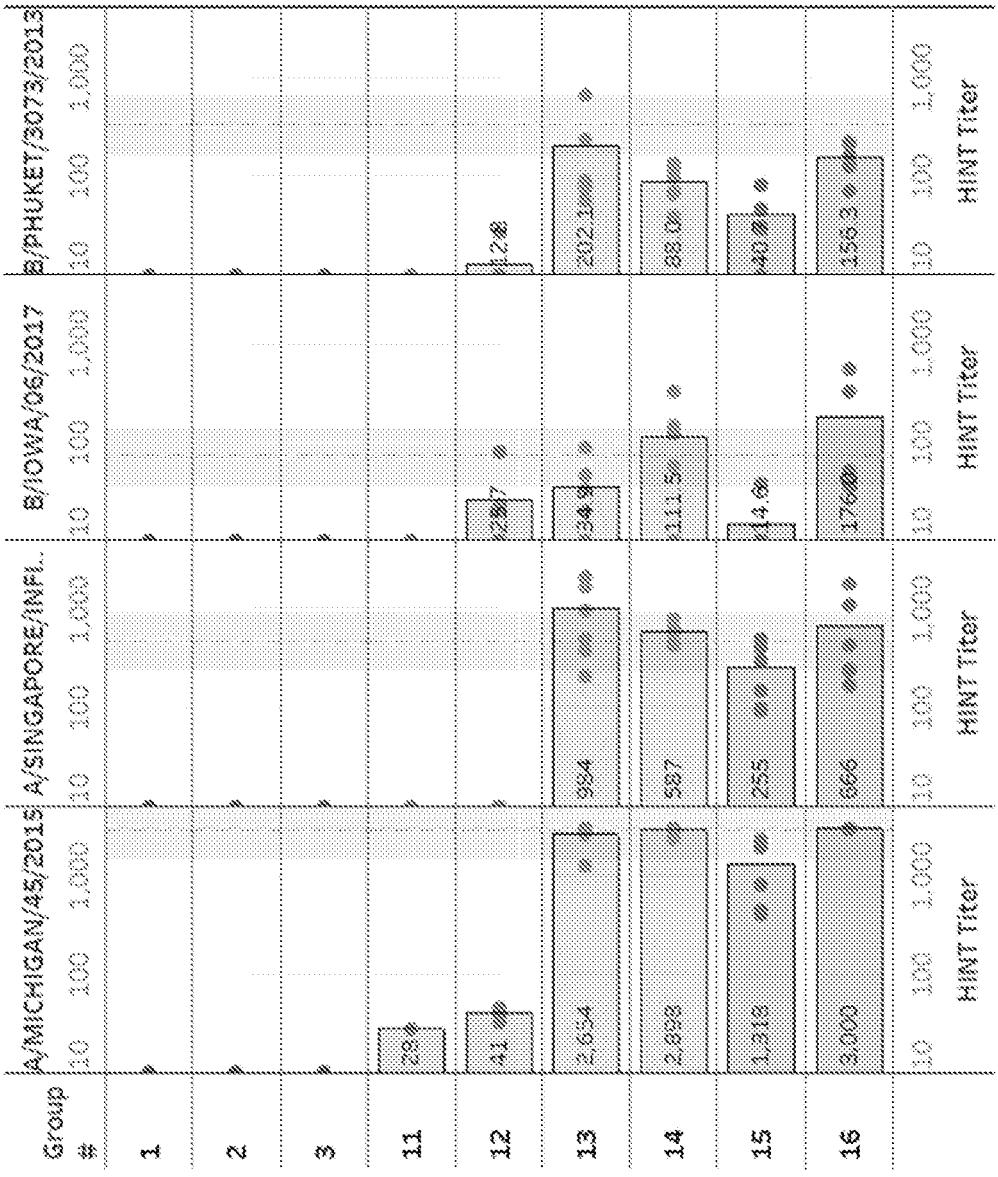

Group #
A/MICHIGAN/45/2015
A/SINGAPORE/INFL..
B/IOWA/06/2017
B/PHUKET/3073/2013
10
100
1,000
HINT Titer
1
2
3
11
12
13
14
15
16
28
41
2,654
2,828
1,318
3,000
994
587
255
666
202.1
68.0
40.8
156.3

FIG. 30

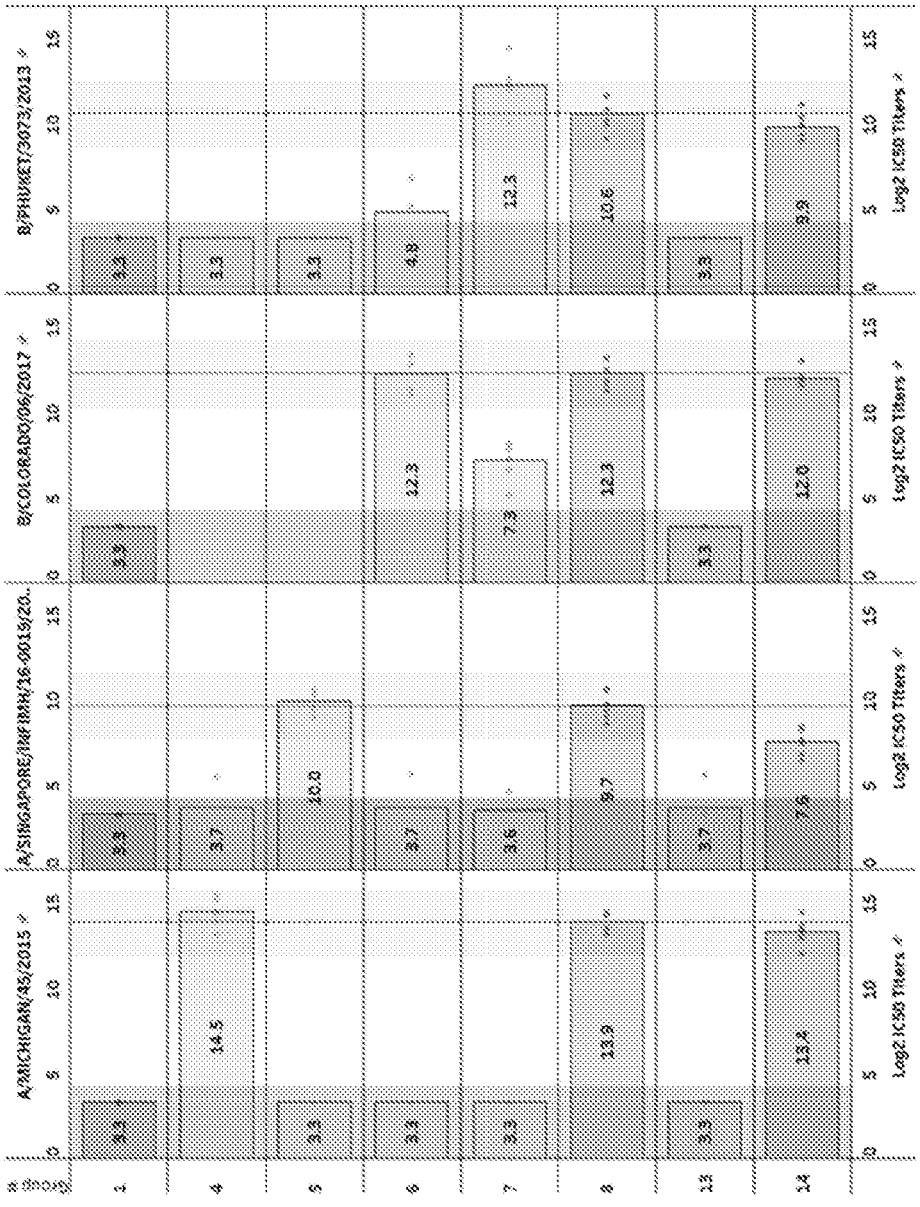

A/MICHIGAN/45/2015
A/SINGAPORE/INFIMH/16-0019/20..
B/COLORADO/06/2017
B/PHUKET/3073/2013
Log2 IC50 Titers
1
4
5
6
7
8
13
14

FIG. 31

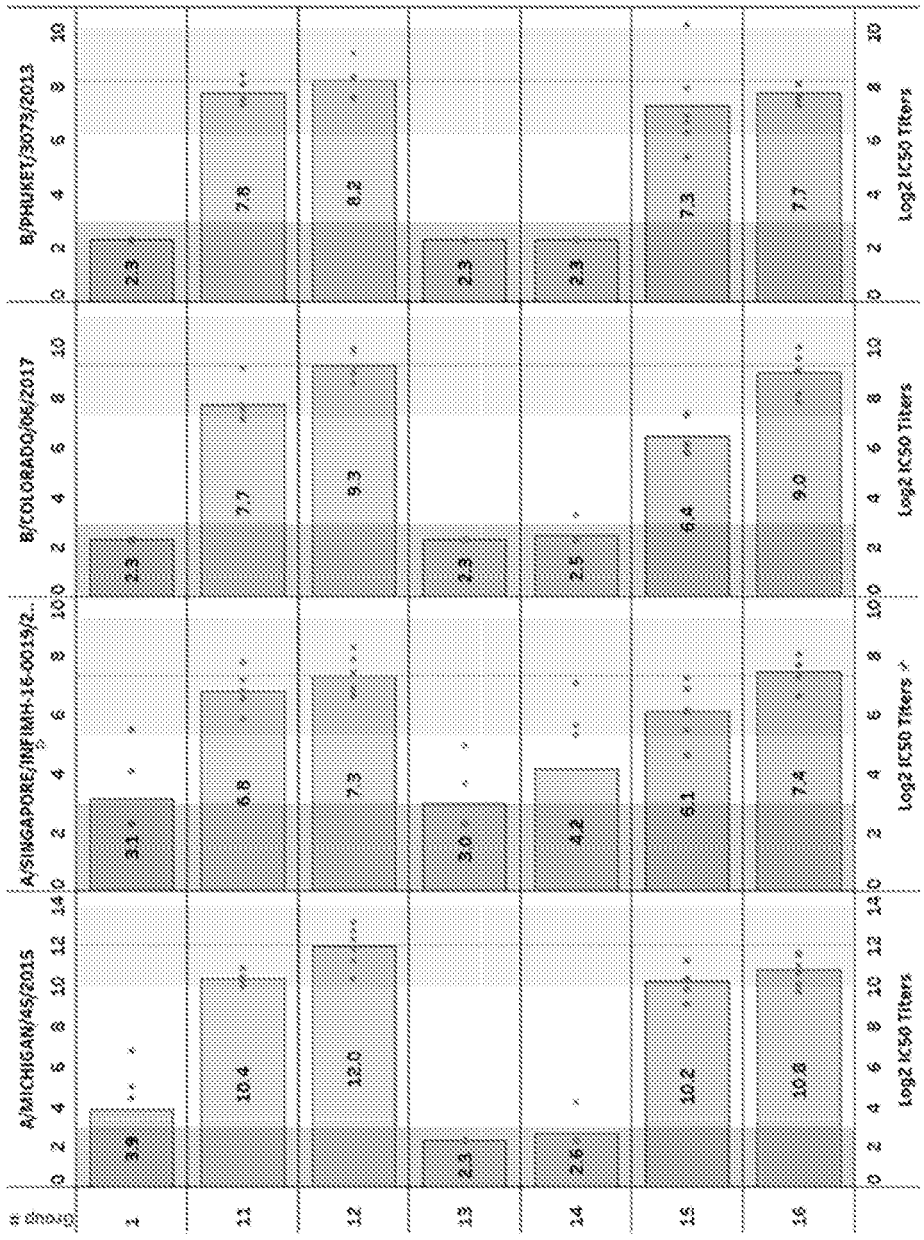

A/MICHIGAN/45/2015
A/SINGAPORE/INFIMH-16-0019/2..
B/COLORADO/06/2017
B/PHUKET/3073/2013
Log2 IC50 Titers
1
11
12
13
14
15
16
3.9
10.4
12.0
2.3
2.6
12.2
10.8
3.3
6.8
7.3
3.0
4.4
8.1
7.4
2.3
7.7
9.3
2.3
2.5
8.4
9.0
2.3
7.8
8.2
2.3
2.3
7.3
7.7

FIG. 32

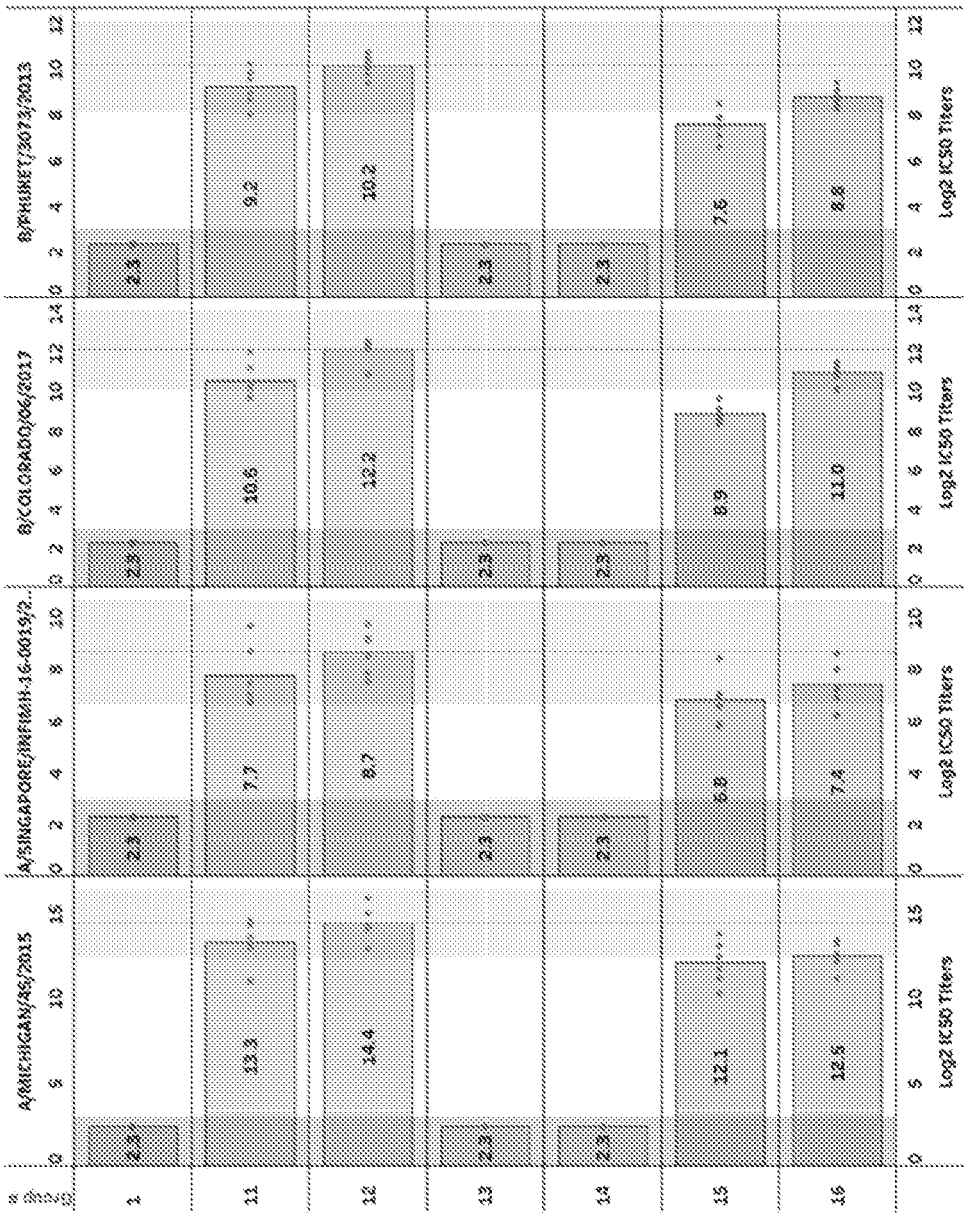

A/ARKANSAS/45/2015
A/SINGAPORE/INFIMH-16-0019/2...
B/COLORADO/06/2017
B/PHUKET/3073/2013
Log2 IC50 Titers
1
11
12
13
14
15
16
2.3
13.3
14.4
12.1
12.5
7.7
8.7
6.3
7.4
10.6
12.2
8.9
11.0
9.2
10.2
7.6
8.8

FIG. 33