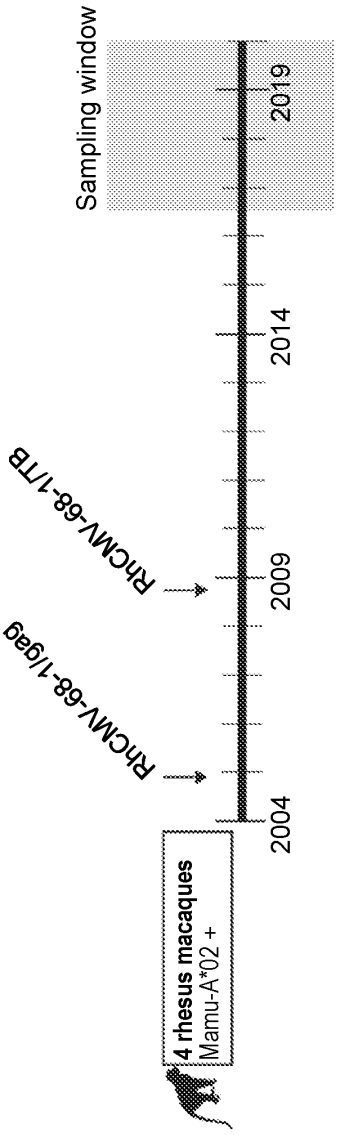

4 rhesus macaques
Mamu-A*02 +
2004
RhCMV-68-1/gag
RhCMV-68-1/TB
2009
2014
Sampling window
2019

FIG. 1A

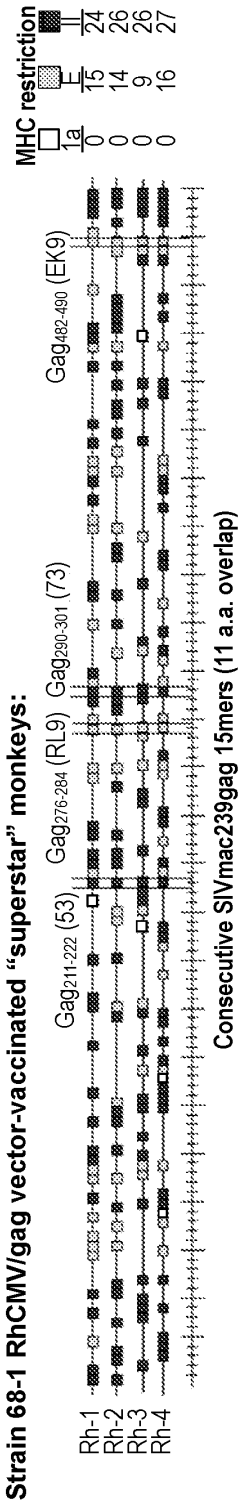

MHC restriction
1a
E
II
0 15 24
0 14 26
0 9 26
0 16 27
Gag482-490 (EK9)
Gag290-301 (73)
Gag276-284 (RL9)
Gag211-222 (53)
Rh-1
Rh-2
Rh-3
Rh-4
Strain 68-1 RhCMV/gag vector-vaccinated "superstar" monkeys:
Consecutive SIVmac239gag 15mers (11 a.a. overlap)

FIG. 1B

FIG. 2A

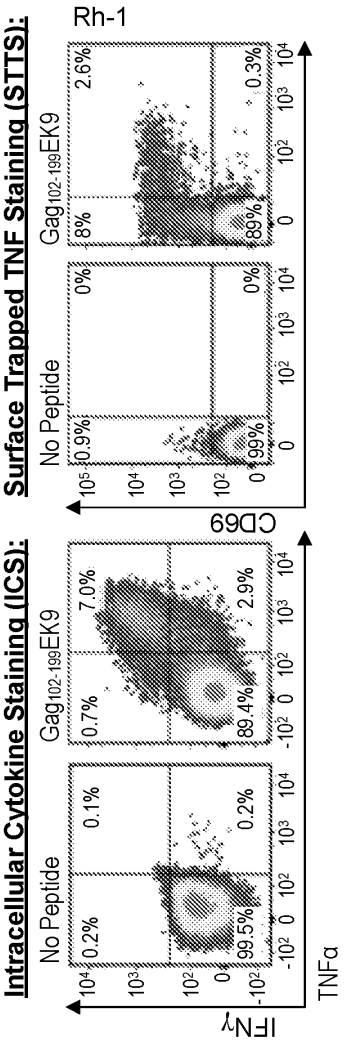


FIG. 2B

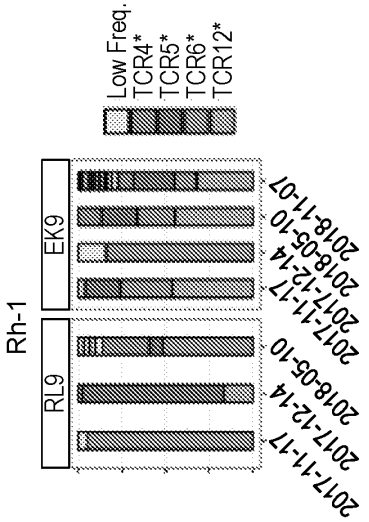


FIG. 2C

FIG. 2D

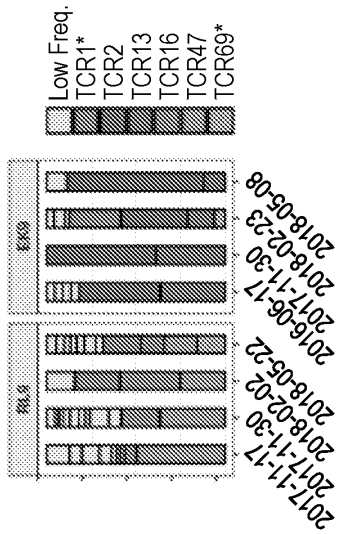


FIG. 2D

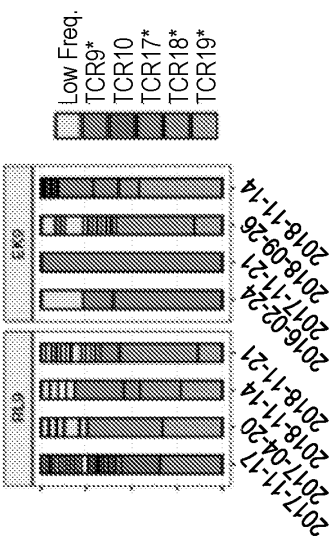


FIG. 2F

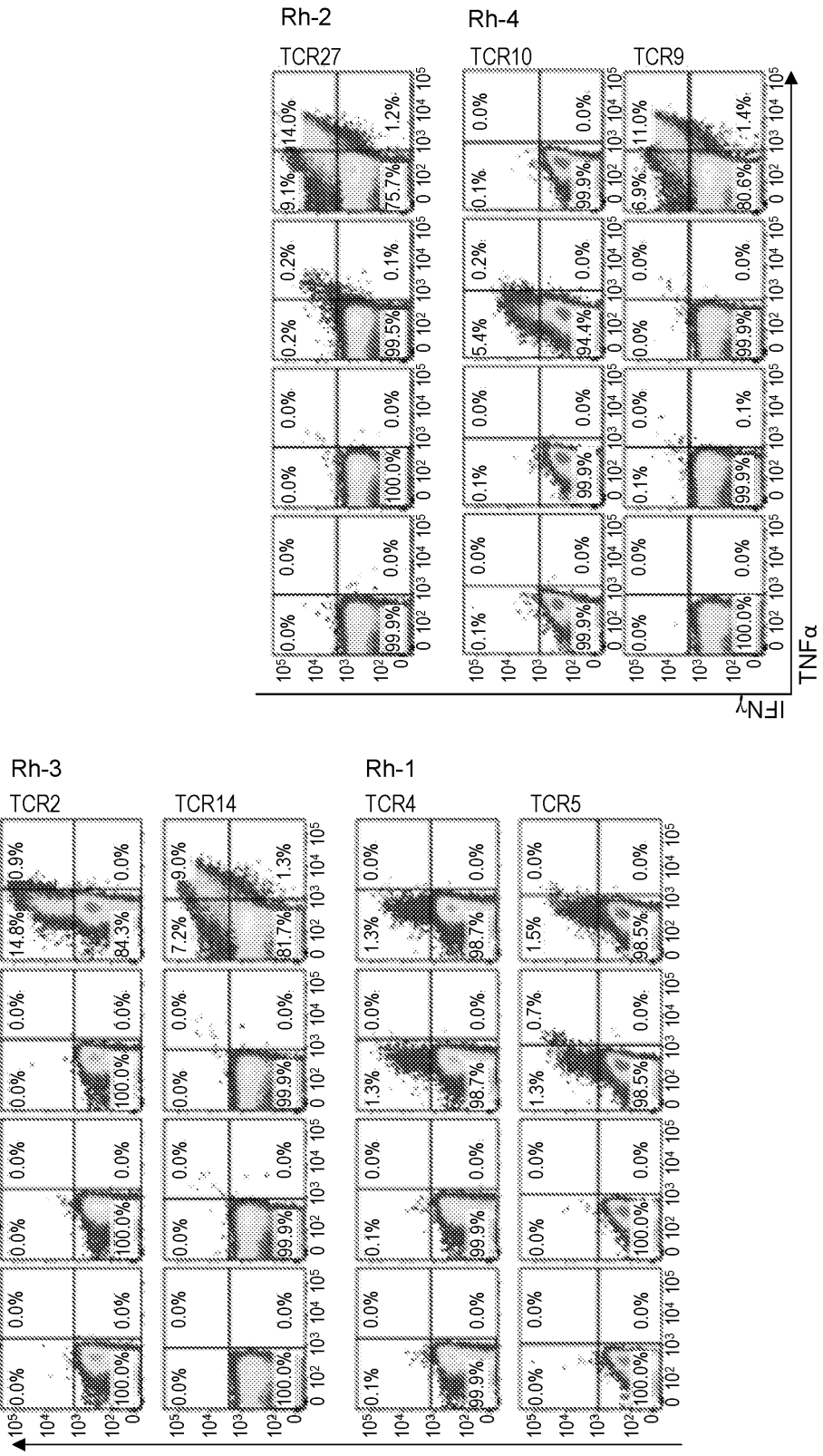

Rh-2
TCR27
Rh-4
TCR10
TCR9
Rh-3
TCR2
TCR14
Rh-1
TCR4
TCR5
No Peptide
Neg. Control
Gag276-284RL9
Gag482-499EK9
IFNγ
TNFα

FIG. 3A

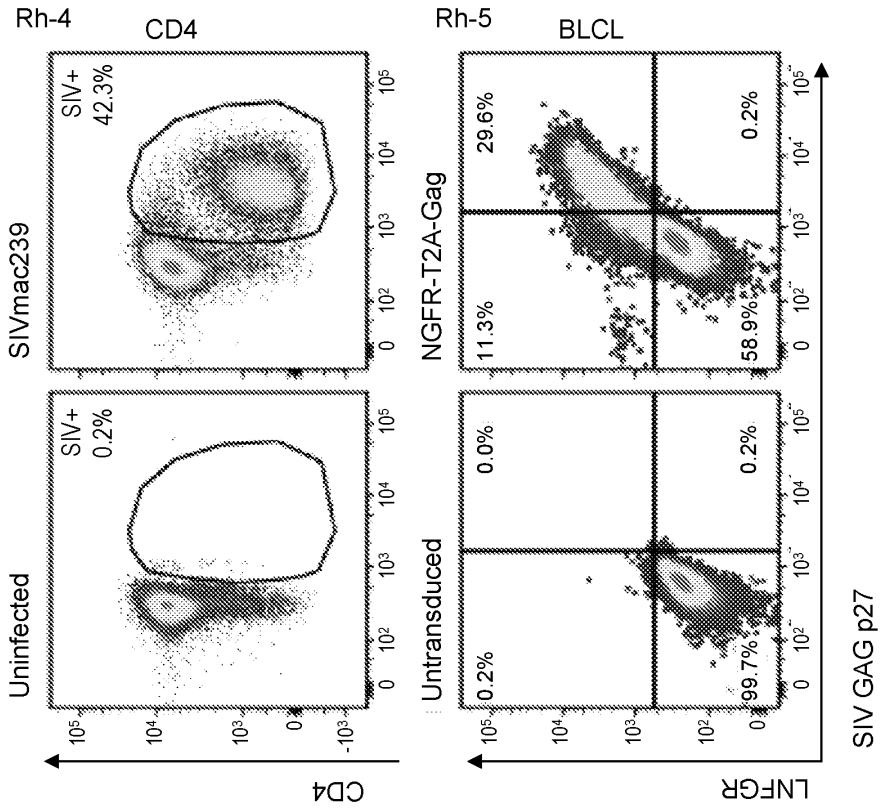

Rh-4
CD4
Rh-5
BLCL
SIVmac239
Uninfected
SIV+
42.3%
SIV+
0.2%
NGFR-T2A-Gag
Untransduced
29.6%
11.3%
0.2%
58.9%
0.0%
0.2%
0.2%
99.7%
CD4
LNFGR
SIV GAG p27

FIG. 3B

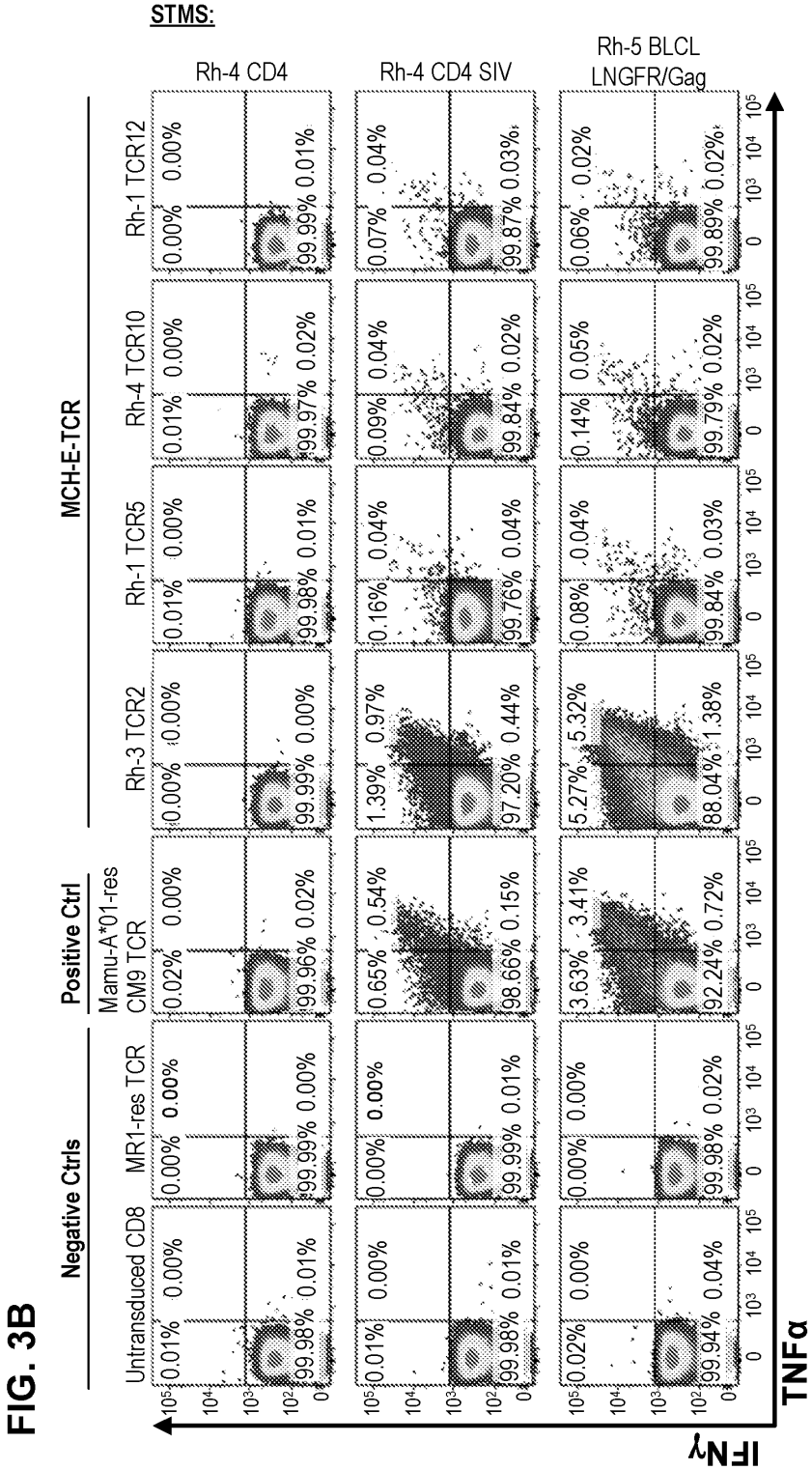

STMS:
Negative Ctrls
Positive Ctrl
MCH-E-TCR
Untransduced CD8
MR1-res TCR
Mamu-A*01-res CM9 TCR
Rh-3 TCR2
Rh-1 TCR5
Rh-4 TCR10
Rh-1 TCR12
Rh-4 CD4
Rh-4 CD4 SIV
Rh-5 BLCL LNGFR/Gag
IFNγ
TNFα

FIG. 4A

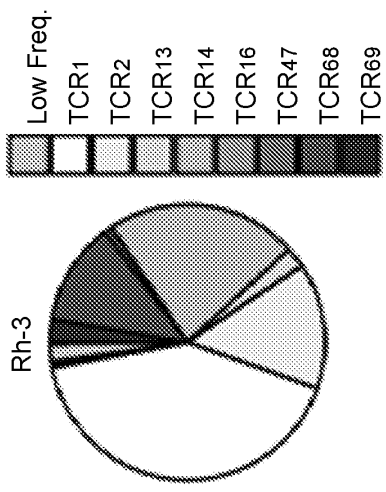


FIG. 4B

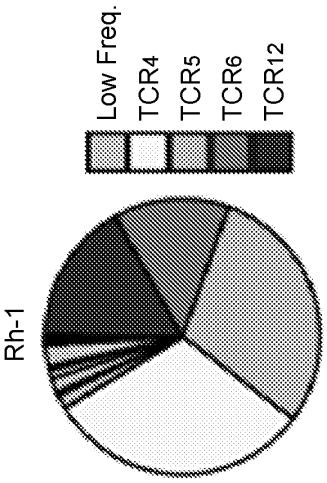


FIG. 4C

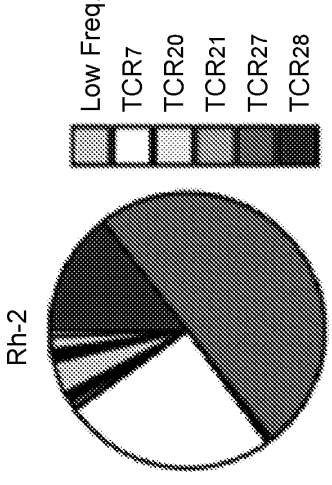


FIG. 4D

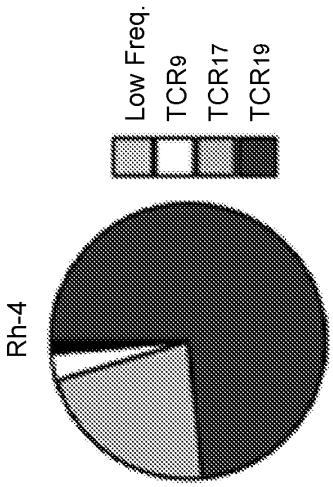


FIG. 5

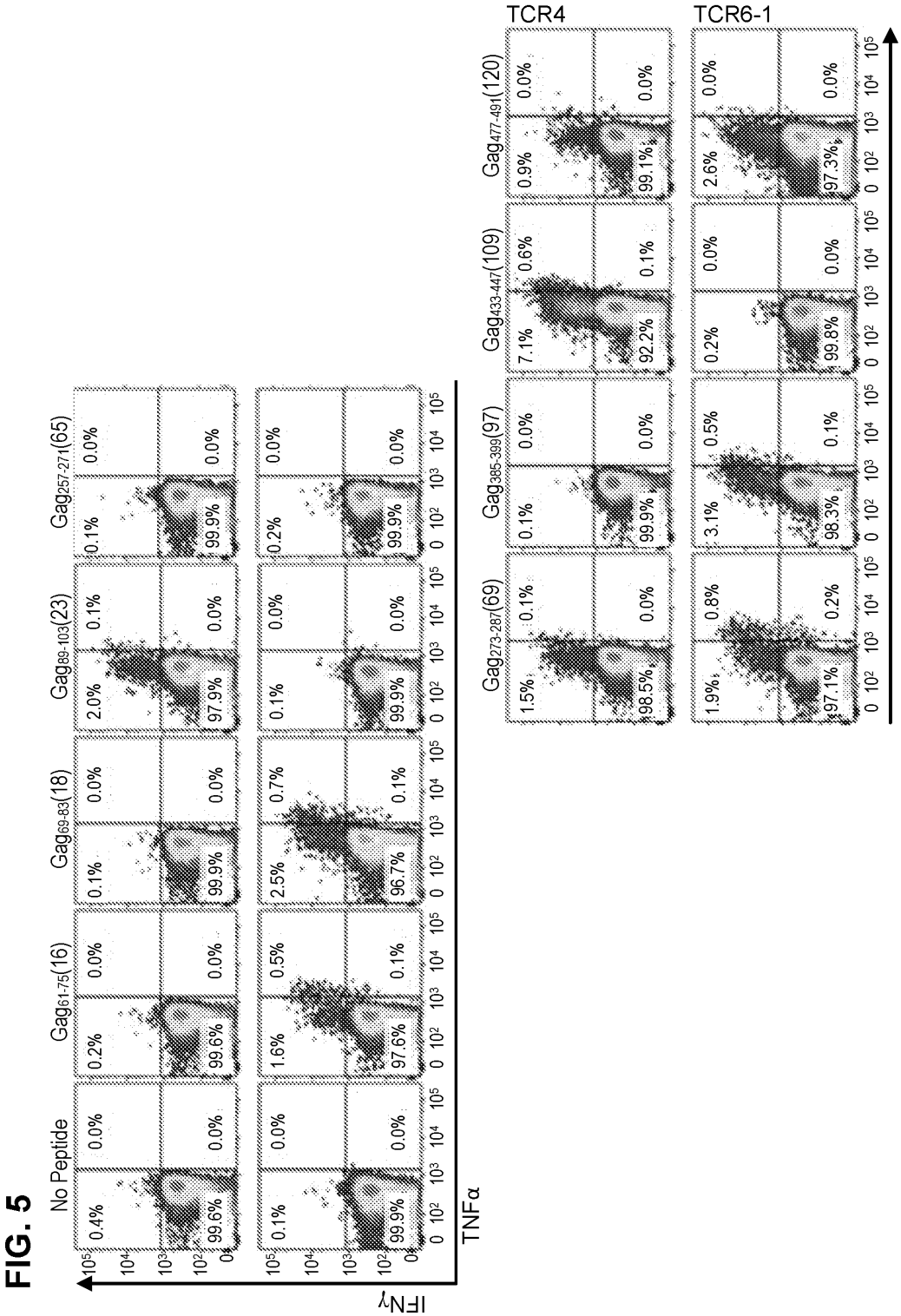

No Peptide
Gag61-75(16)
Gag69-83(18)
Gag89-103(23)
Gag257-271(65)
Gag273-287(69)
Gag385-399(97)
Gag433-447(109)
Gag477-491(120)
TCR4
TCR6-1
IFNγ
TNFα

FIG. 6A

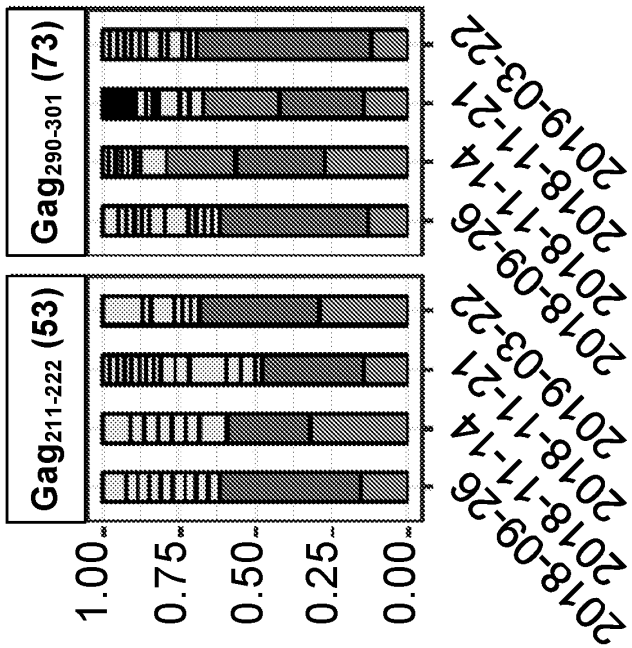

MHC-II Supertopes
Gag211-222 (53)
Gag290-301 (73)
1.00
0.75
0.50
0.25
0.00
2018-09-26
2018-11-14
2018-11-27
2019-03-22
2018-09-26
2018-11-14
2018-11-27
2019-03-22

FIG. 6B

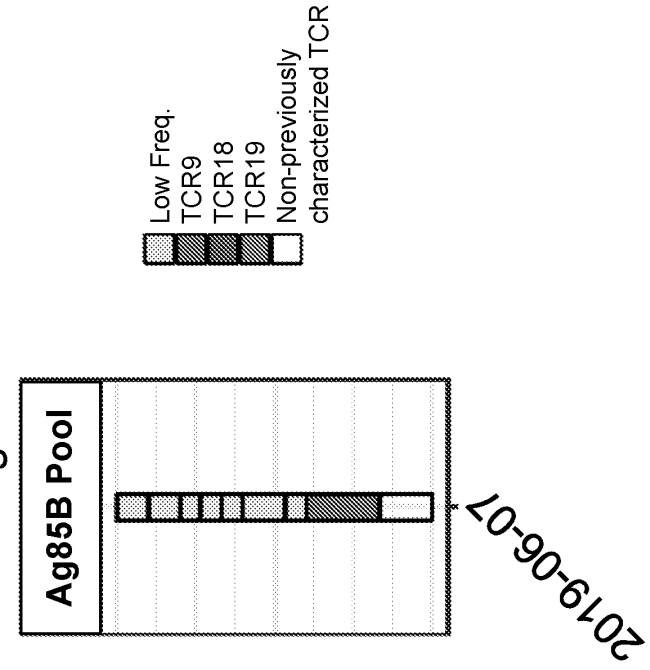

TB Antigen
Ag85B Pool
2019-06-07
Low Freq.
TCR9
TCR18
TCR19
Non-previously characterized TCR

FIG. 7A

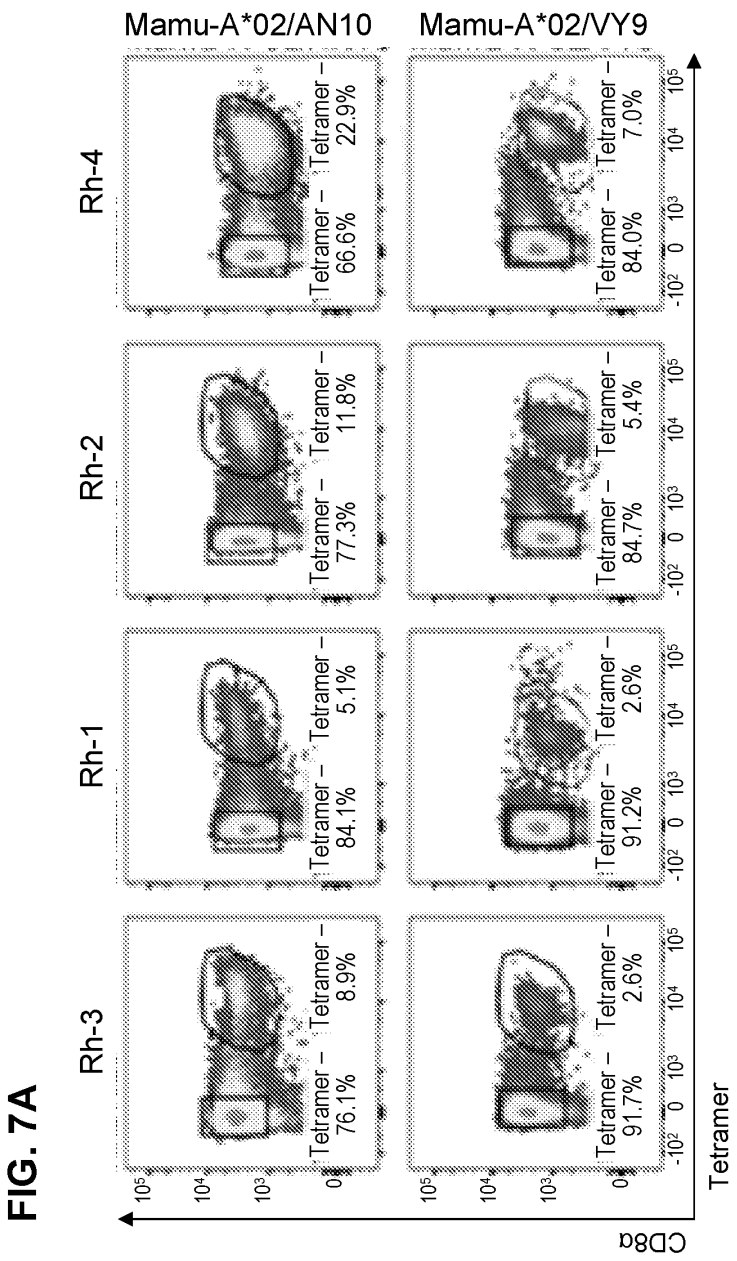

Mamu-A*02/AN10
Mamu-A*02/VY9
Rh-3
Rh-1
Rh-2
Rh-4
Tetramer – 76.1%
Tetramer – 8.9%
Tetramer – 91.7%
Tetramer – 2.6%
Tetramer – 84.1%
Tetramer – 5.1%
Tetramer – 91.2%
Tetramer – 2.6%
Tetramer – 77.3%
Tetramer – 11.8%
Tetramer – 84.7%
Tetramer – 5.4%
Tetramer – 66.6%
Tetramer – 22.9%
Tetramer – 84.0%
Tetramer – 7.0%
CD8α
Tetramer

FIG. 7B

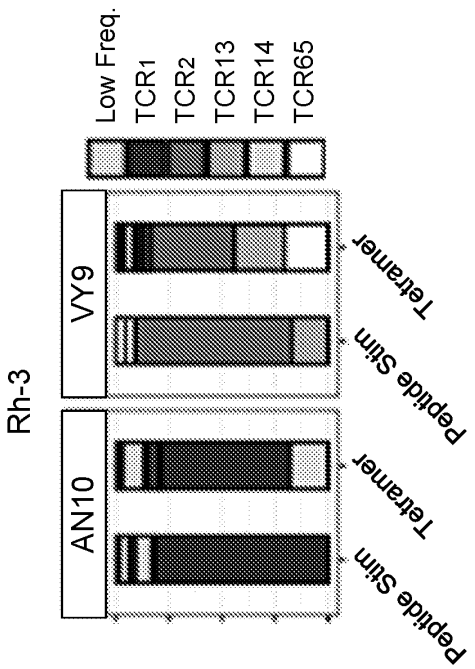


FIG. 7C

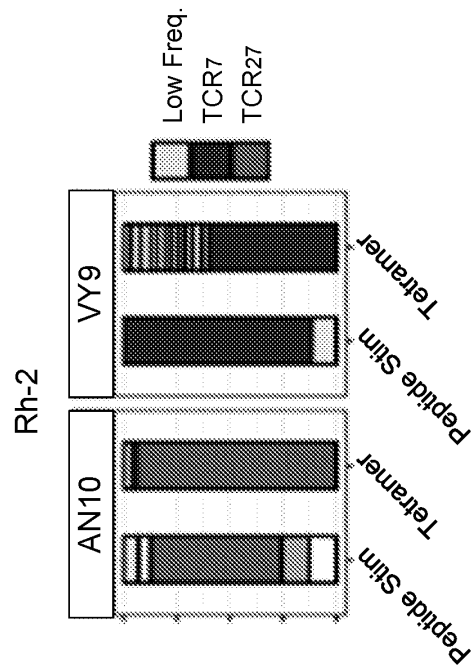


FIG. 7D

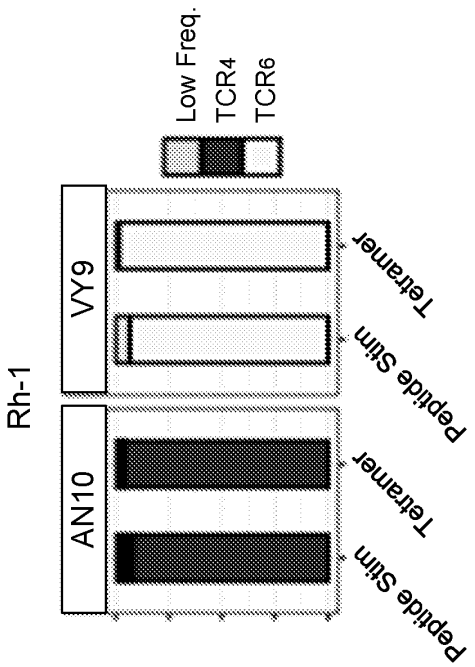


FIG. 7E

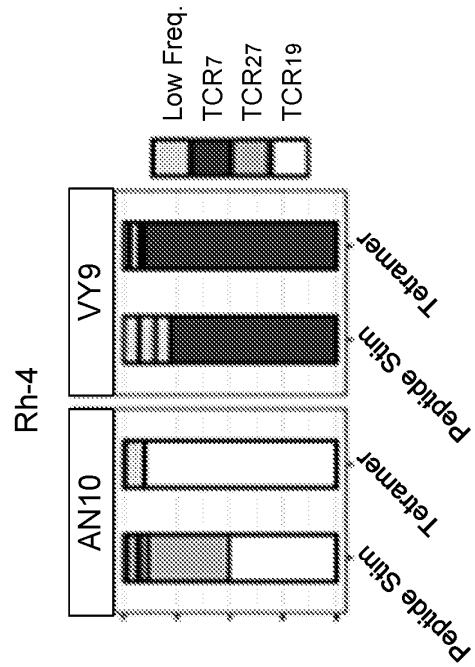


FIG. 7F

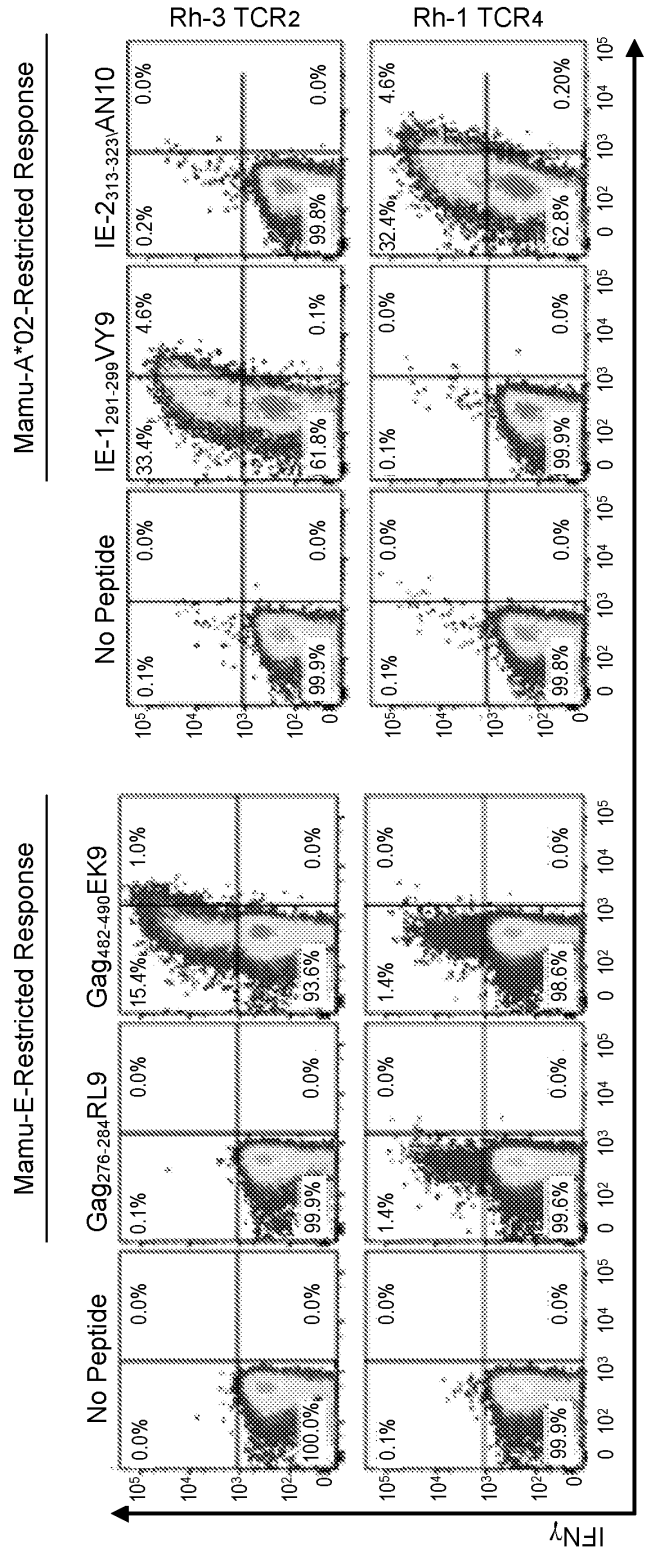

Mamu-E-Restricted Response
Mamu-A*02-Restricted Response
No Peptide
Gag276-284RL9
Gag482-490EK9
No Peptide
IE-1291-299VY9
IE-2313-323AN10
Rh-3 TCR2
Rh-1 TCR4
IFNγ
TNFα

FIG. 7H

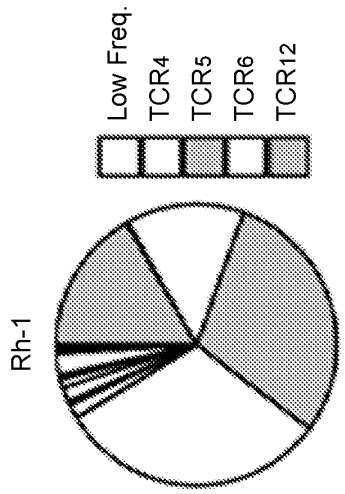


FIG. 7J

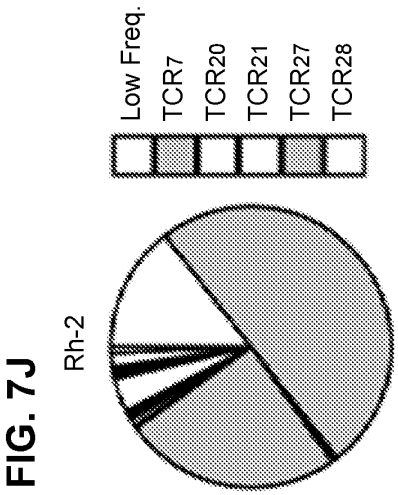


FIG. 7G

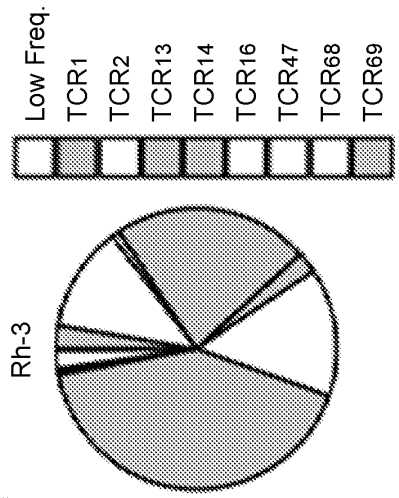


FIG. 7I

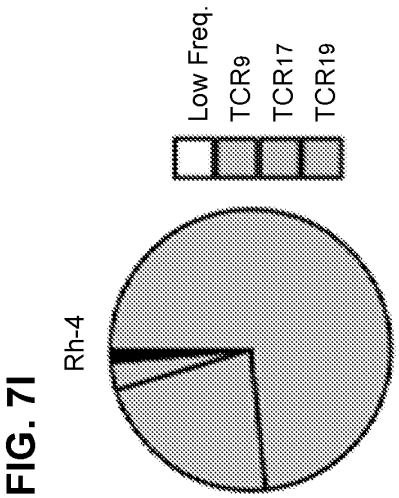


FIG. 8A

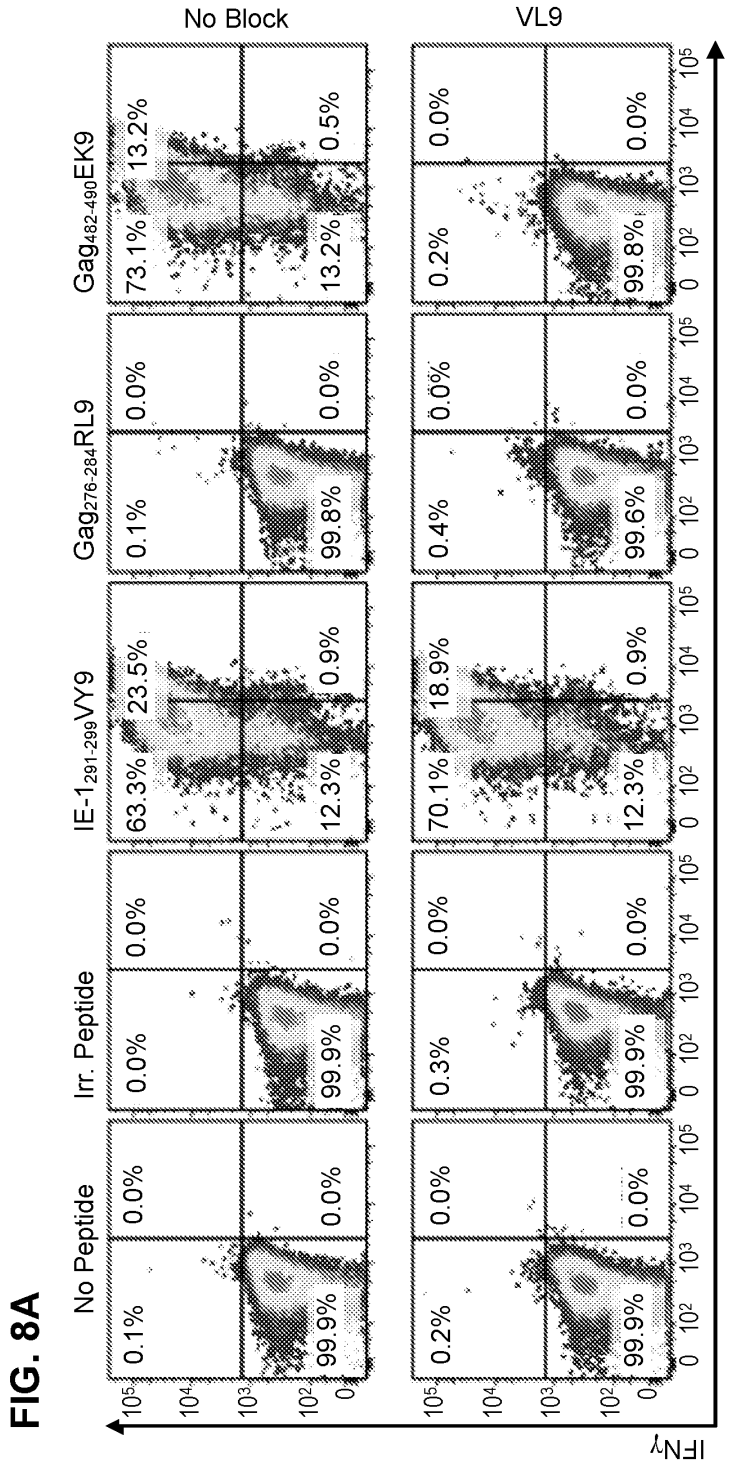

No Block
VL9
No Peptide
Irr. Peptide
IE-1291-299VY9
Gag276-284RL9
Gag482-490EK9
0.1%
99.9%
0.0%
0.2%
0.3%
63.3%
12.3%
23.5%
0.9%
70.1%
18.9%
0.4%
99.6%
73.1%
13.2%
99.8%
IFNγ
TNFα

FIG. 8B

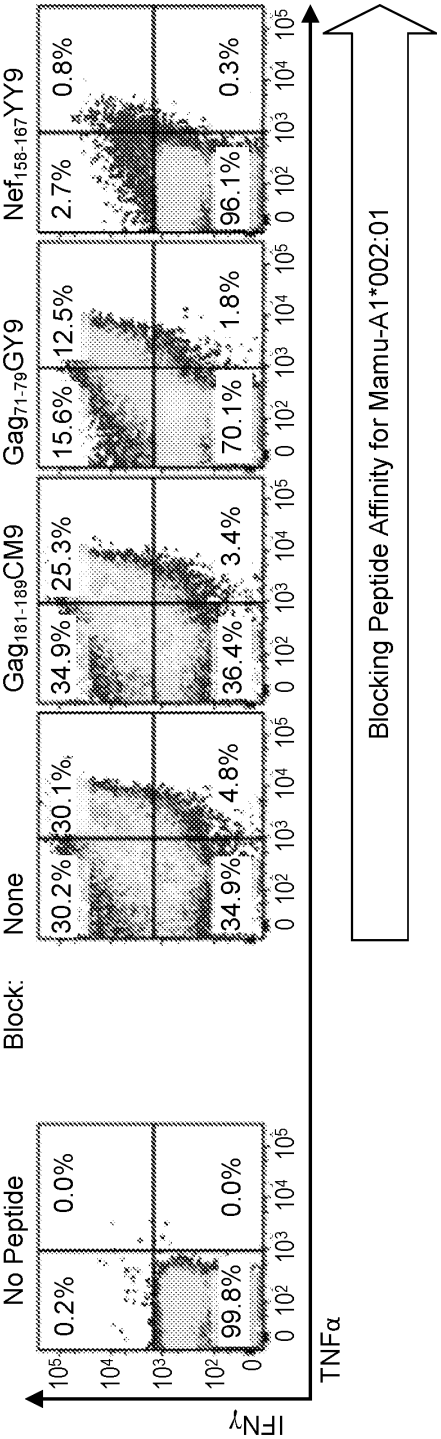

Stimulation: IE-2313-323AN10
Block:
No Peptide
None
Gag181-189CM9
Gag71-79GY9
Nef158-167YY9
0.2%
0.0%
99.8%
0.0%
30.2%
30.1%
34.9%
4.8%
34.9%
25.3%
36.4%
3.4%
15.6%
12.5%
70.1%
1.8%
2.7%
0.8%
96.1%
0.3%
IFNγ
TNFα
Blocking Peptide Affinity for Mamu-A1*002:01

FIG. 9

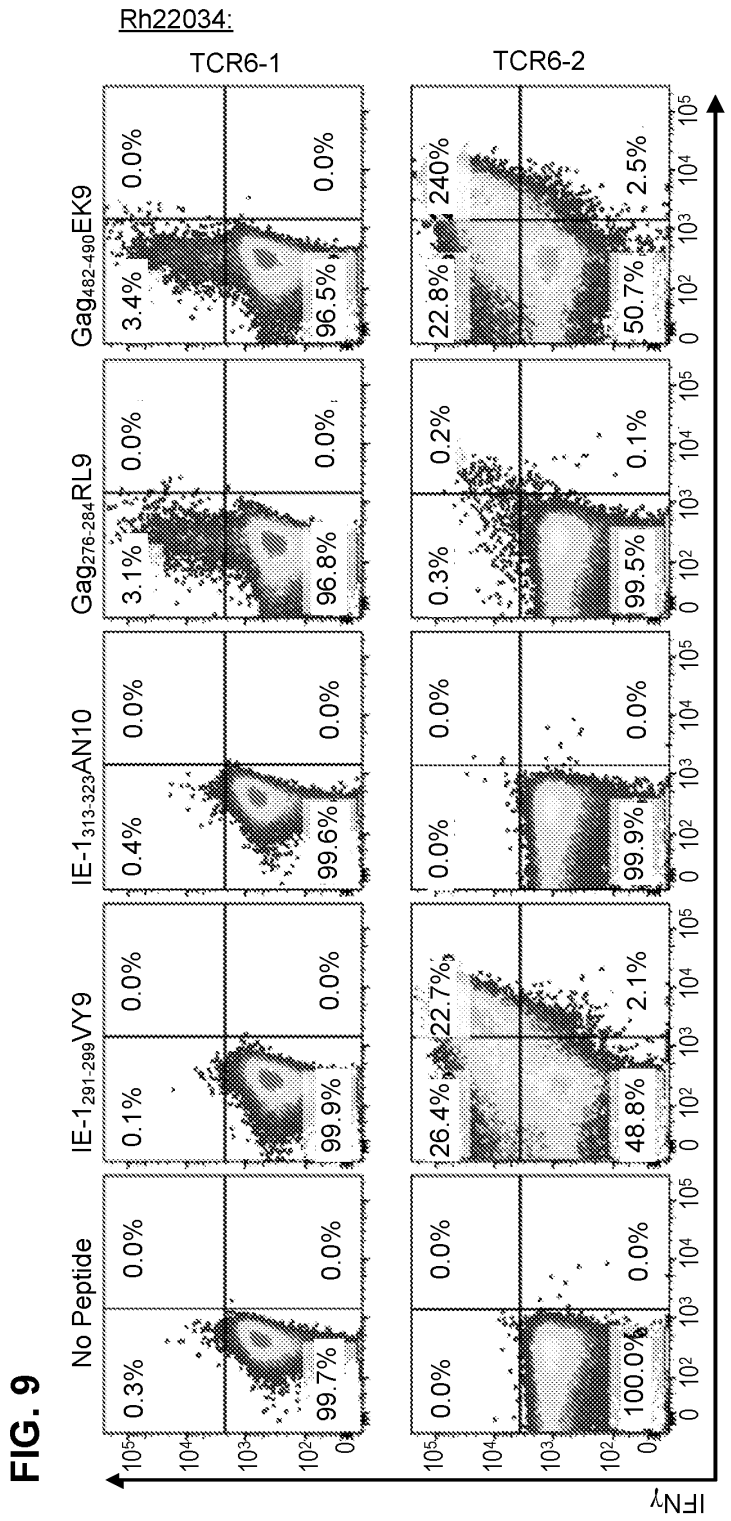
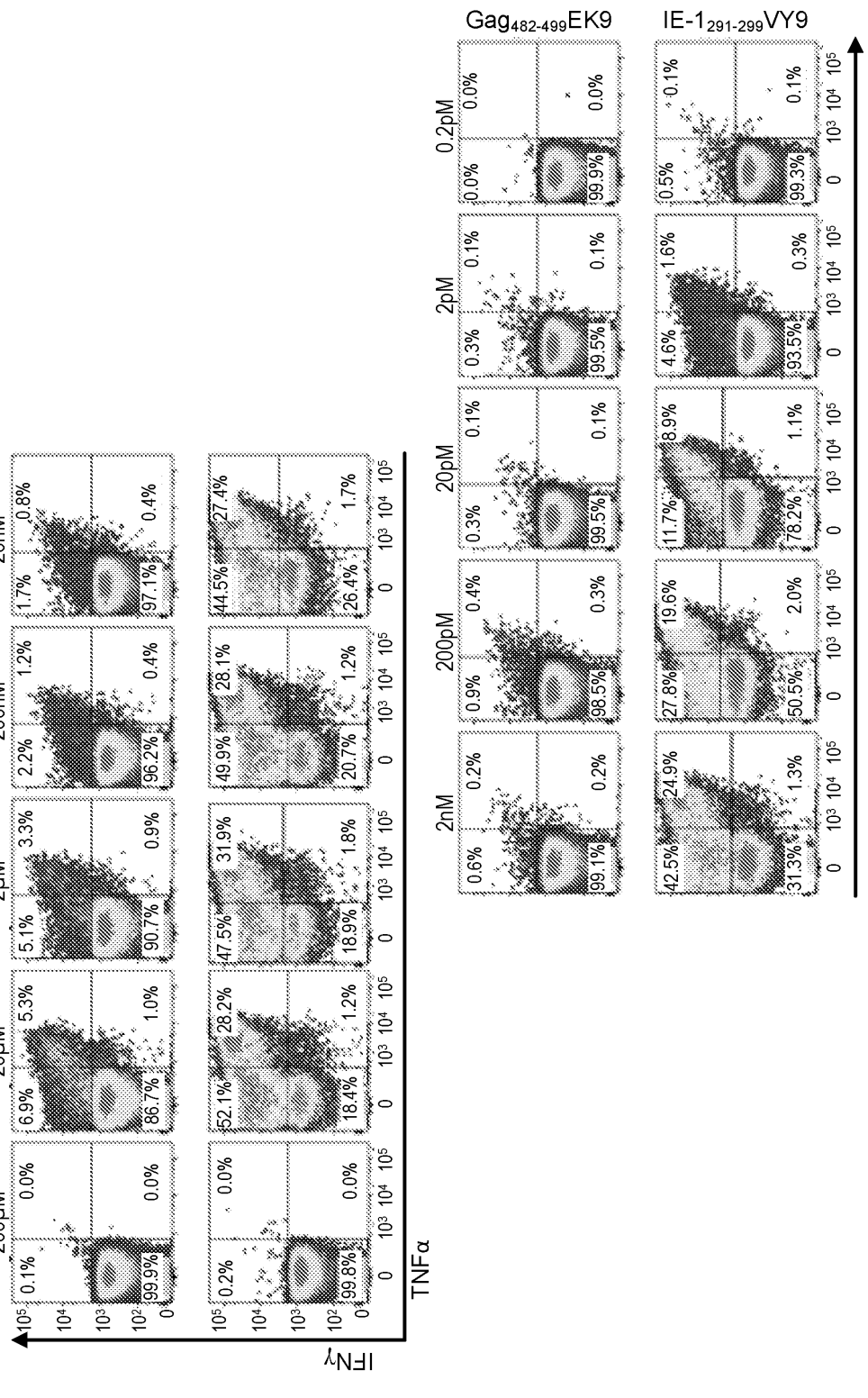

Rh22034:
TCR6-1
TCR6-2
No Peptide
IE-1291-299VY9
IE-1313-323AN10
Gag276-284RL9
Gag482-490EK9
0.3%
0.0%
99.7%
0.0%
0.1%
0.0%
99.9%
0.0%
0.4%
0.0%
99.6%
0.0%
3.1%
0.0%
96.8%
0.0%
3.4%
0.0%
96.5%
0.0%
0.0%
0.0%
100.0%
0.0%
26.4%
22.7%
48.8%
2.1%
0.0%
0.0%
99.9%
0.0%
0.3%
0.2%
99.5%
0.1%
22.8%
240%
50.7%
2.5%
IFNγ
TNFα

FIG. 10A

Peptide Concentration on Pulsed BLCL:



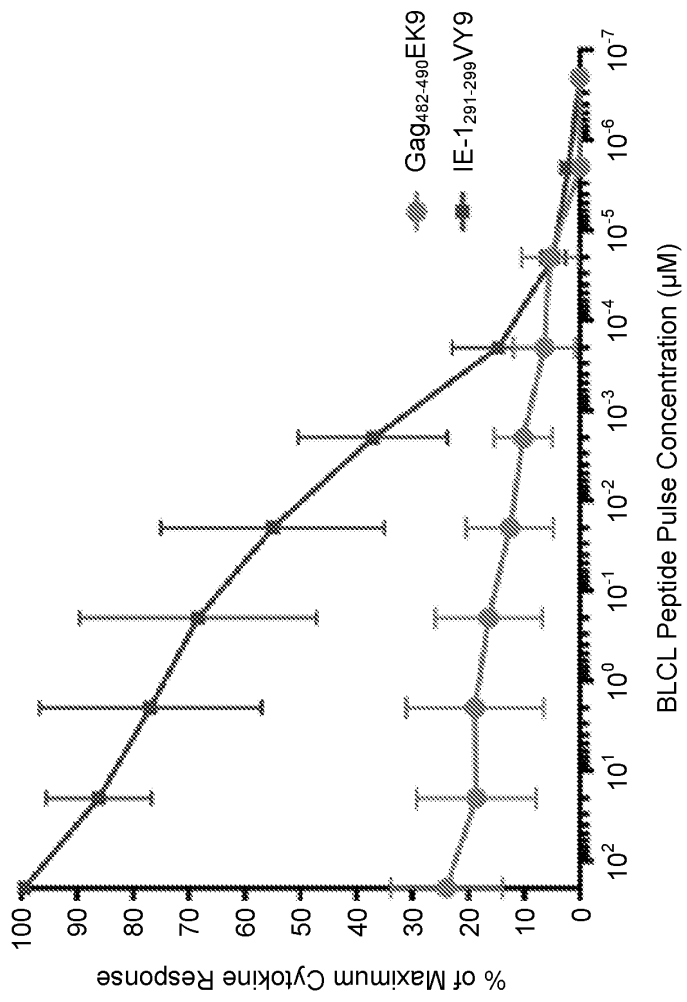

% of Maximum Cytokine Response
100
90
80
70
60
50
40
30
20
10
0
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
BLCL Peptide Pulse Concentration (μM)
$Gag_{482-490}EK9$
$IE\text{-}1_{291-299}VY9$

FIG. 10A

FIG. 11A

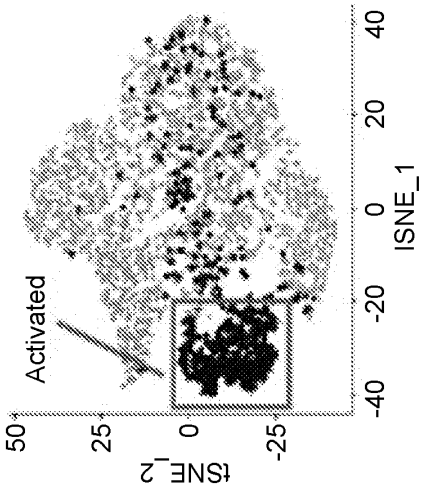


FIG. 11B

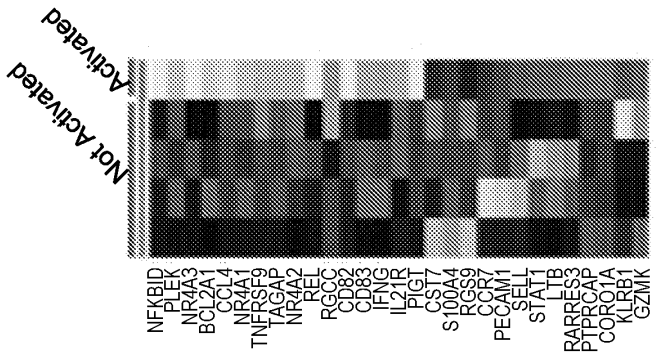
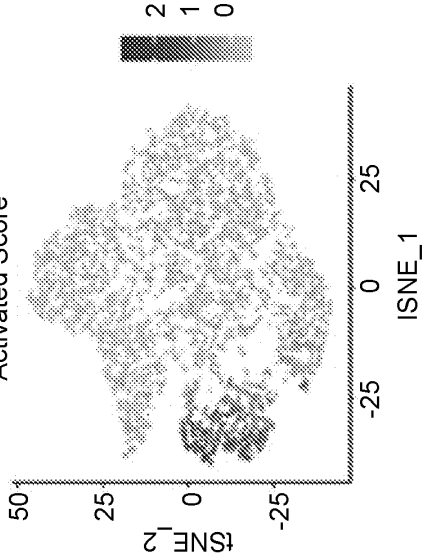
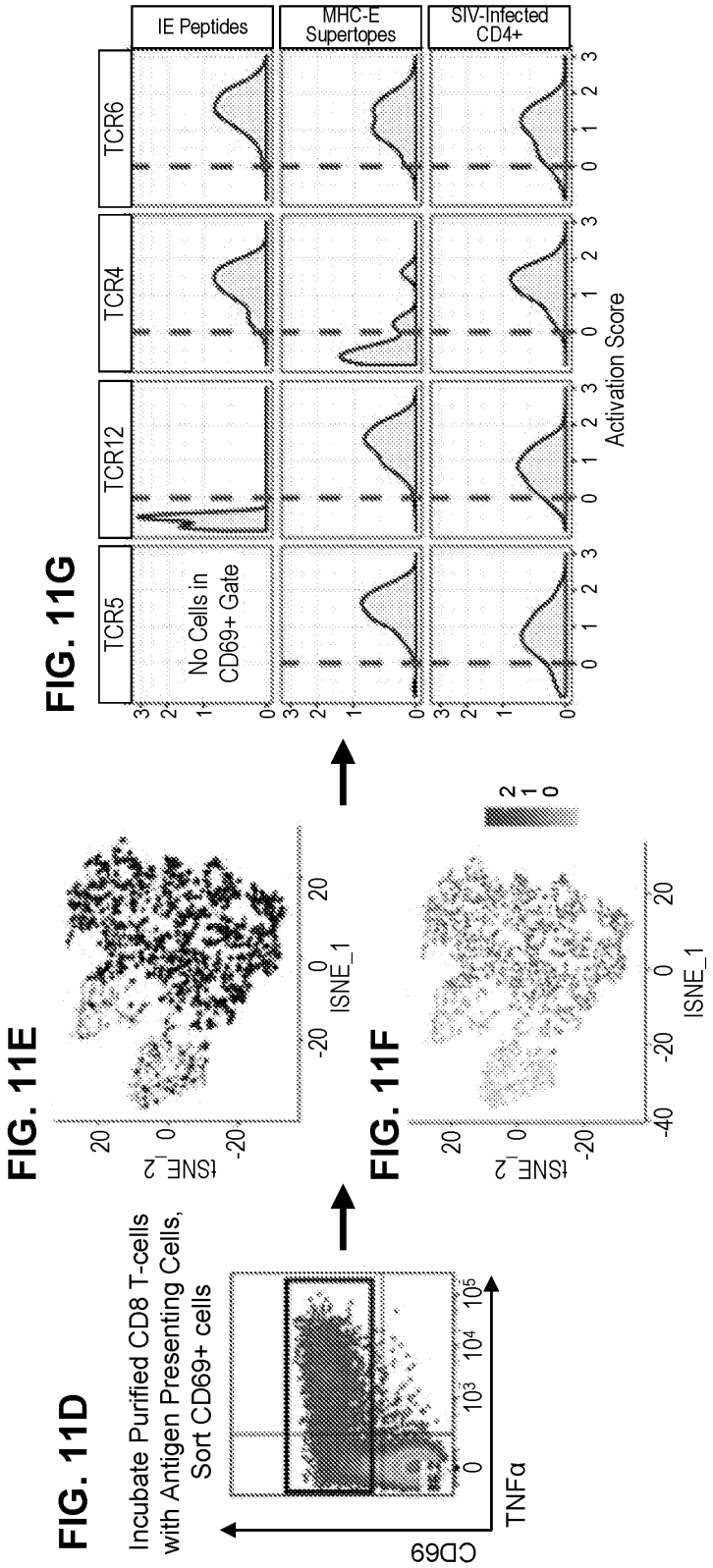


FIG. 11C




FIG. 11D
Incubate Purified CD8 T-cells with Antigen Presenting Cells, Sort CD69+ cells
CD69
TNFα
FIG. 11E
tSNE_2
tSNE_1
FIG. 11F
tSNE_2
tSNE_1
FIG. 11G
IE Peptides
MHC-E Supertopes
SIV-Infected CD4+
TCR5
TCR12
TCR4
TCR6
No Cells in CD69+ Gate
Activation Score