Figure 1A

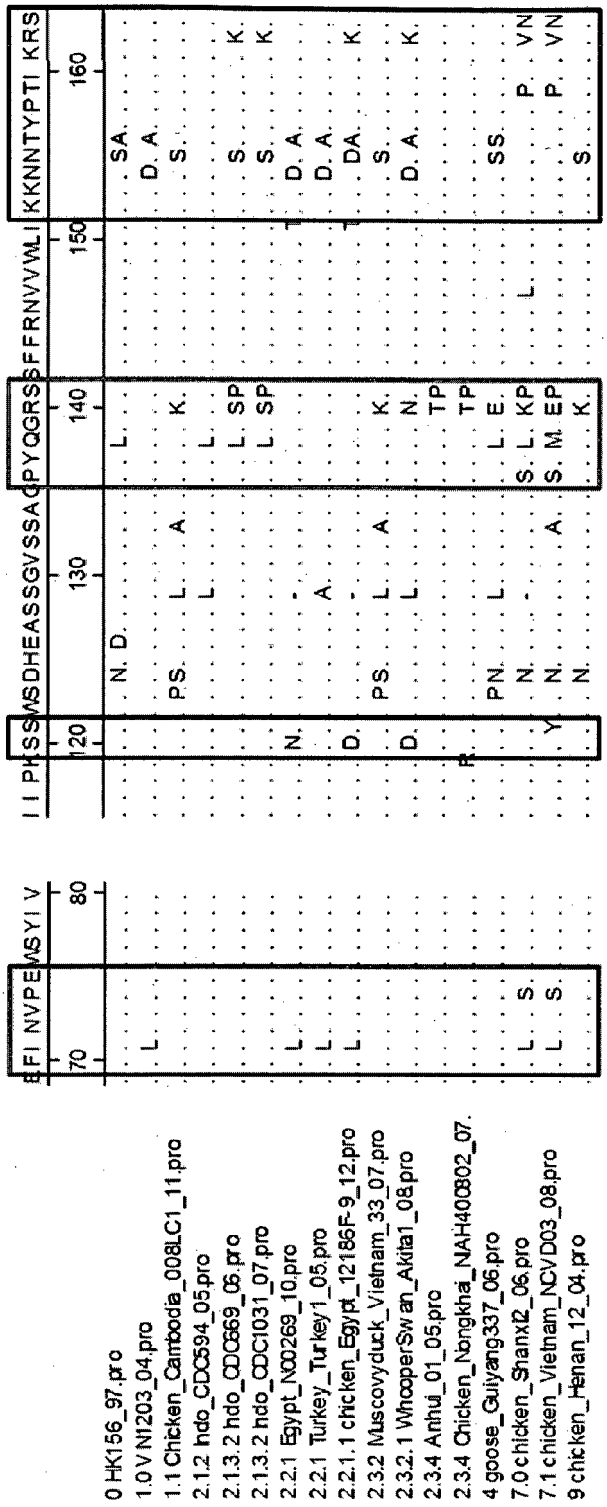

EFI NVPEMSYI V
70 80
I I PKSSMSDHEASSGVSSAGPYQGRSSFFRNVVWLI KKNNTYPTI KRS
120 130 140 150 160
0 HK156_97.pro
1.0 V NI203_04.pro
1.1 Chicken_Cambodia_008LC1_11.pro
2.1.2 hdo_CDC594_05.pro
2.1.3.2 hdo_CDC869_06.pro
2.1.3.2 hdo_CDC1031_07.pro
2.2.1 Egypt_N00269_10.pro
2.2.1 Turkey_Turkey1_05.pro
2.2.1.1 chicken_Egypt_12186F-9_12.pro
2.3.2 Muscovyduck_Vietnam_33_07.pro
2.3.2.1 WhooperSwan_Akita1_08.pro
2.3.4 Anhui_01_05.pro
2.3.4 Chicken_Nongkhai_NAH400802_07.
4 goose_Guiyang337_06.pro
7.0 chicken_Shanxi2_06.pro
7.1 chicken_Vietnam_NCVD03_08.pro
9 chicken_Henan_12_04.pro

Figure 1B

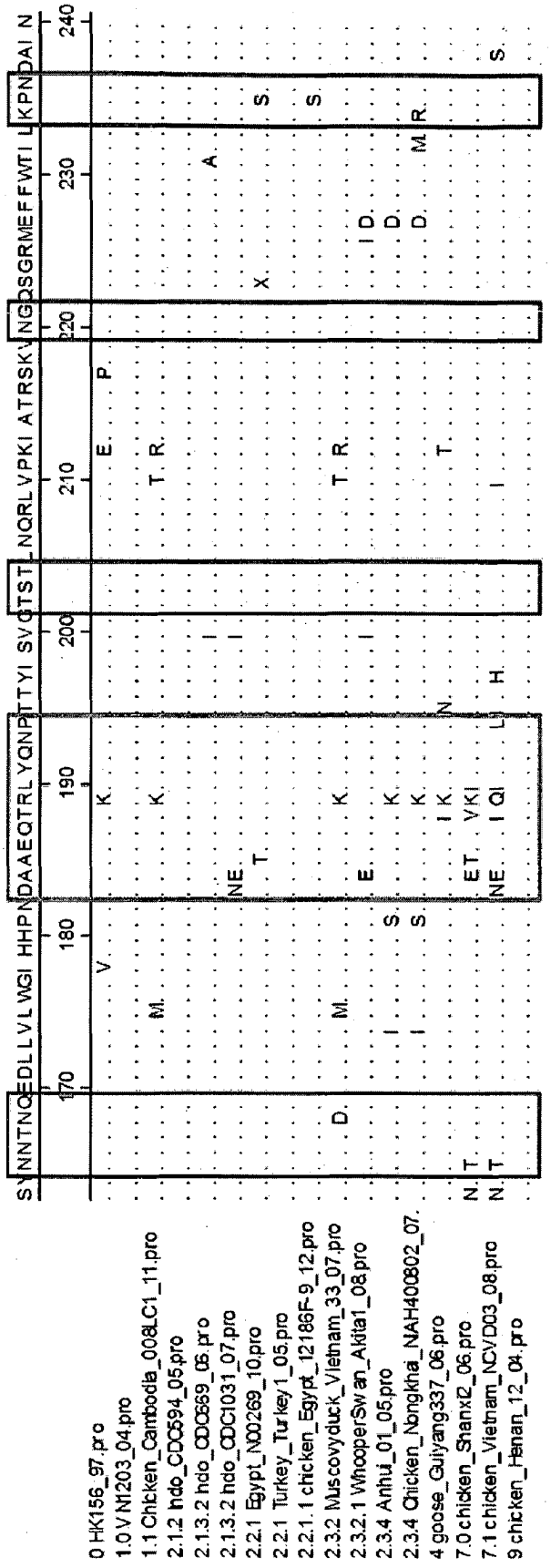

SYNNTNQEDLLVLWGI HHPNDAAEQTRLYQNPTTYI SVGTSTLNQRLVPKI ATRSKVNGQSGRMEFFWTILKPNDAI N
170 180 190 200 210 220 230 240
0 HK156_97.pro
1.0 VN1203_04.pro
1.1 Chicken_Cambodia_008LC1_11.pro
2.1.2 hdo_CDC594_05.pro
2.1.3.2 hdo_CDC669_06.pro
2.1.3.2 hdo_CDC1031_07.pro
2.2.1 Egypt_N00269_10.pro
2.2.1 Turkey_Turkey1_05.pro
2.2.1.1 chicken_Egypt_12186F-9_12.pro
2.3.2 Muscovyduck_Vietnam_33_07.pro
2.3.2.1 WhooperSwan_Akita1_08.pro
2.3.4 Anhui_01_05.pro
2.3.4 Chicken_Nongkhai_NAH400802_07.
4 goose_Guiyang337_06.pro
7.0 chicken_Shanxi2_06.pro
7.1 chicken_Vietnam_NCVD03_08.pro
9 chicken_Henan_12_04.pro

Figure 2

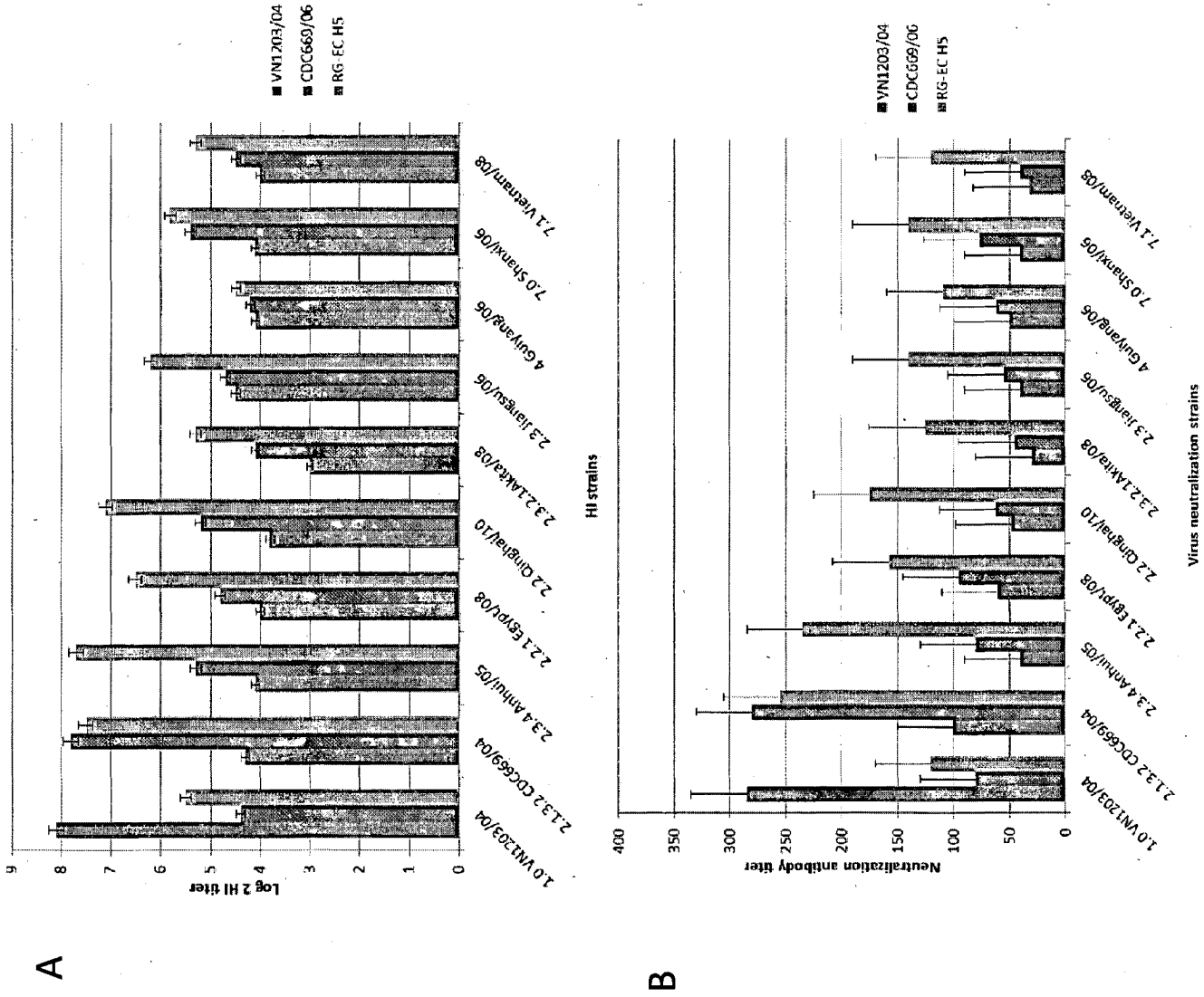

A
VN1203/04
CDC669/06
RG-EC H5
Log 2 HI titer
0
1
2
3
4
5
6
7
8
9
1.0 VN1203/04
2.1.3.2 CDC669/06
2.3.4 Anhui/05
2.2.1 Egypt/08
2.2 Qinghai/10
2.3.2.1 Akita/08
2.3 Jiangsu/06
4 Guiyang/06
7.0 Shanxi/06
7.1 Vietnam/08
HI strains
B
VN1203/04
CDC669/06
RG-EC H5
Neutralization antibody titer
0
50
100
150
200
250
300
350
400
1.0 VN1203/04
2.1.3.2 CDC669/04
2.3.4 Anhui/05
2.2.1 Egypt/08
2.2 Qinghai/10
2.3.2.1 Akita/08
2.3 Jiangsu/06
4 Guiyang/06
7.0 Shanxi/06
7.1 Vietnam/08
Virus neutralization strains

Figure 3

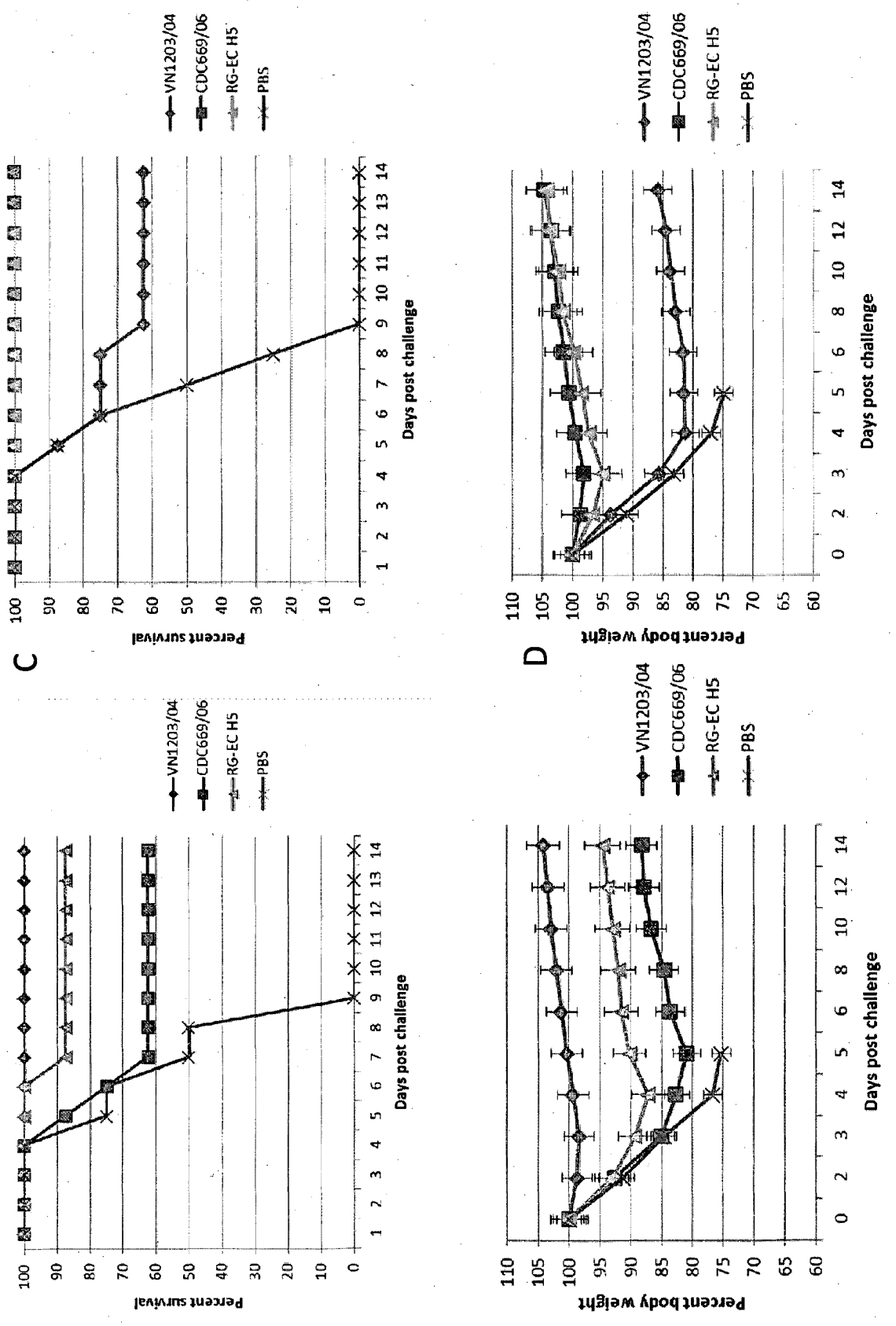
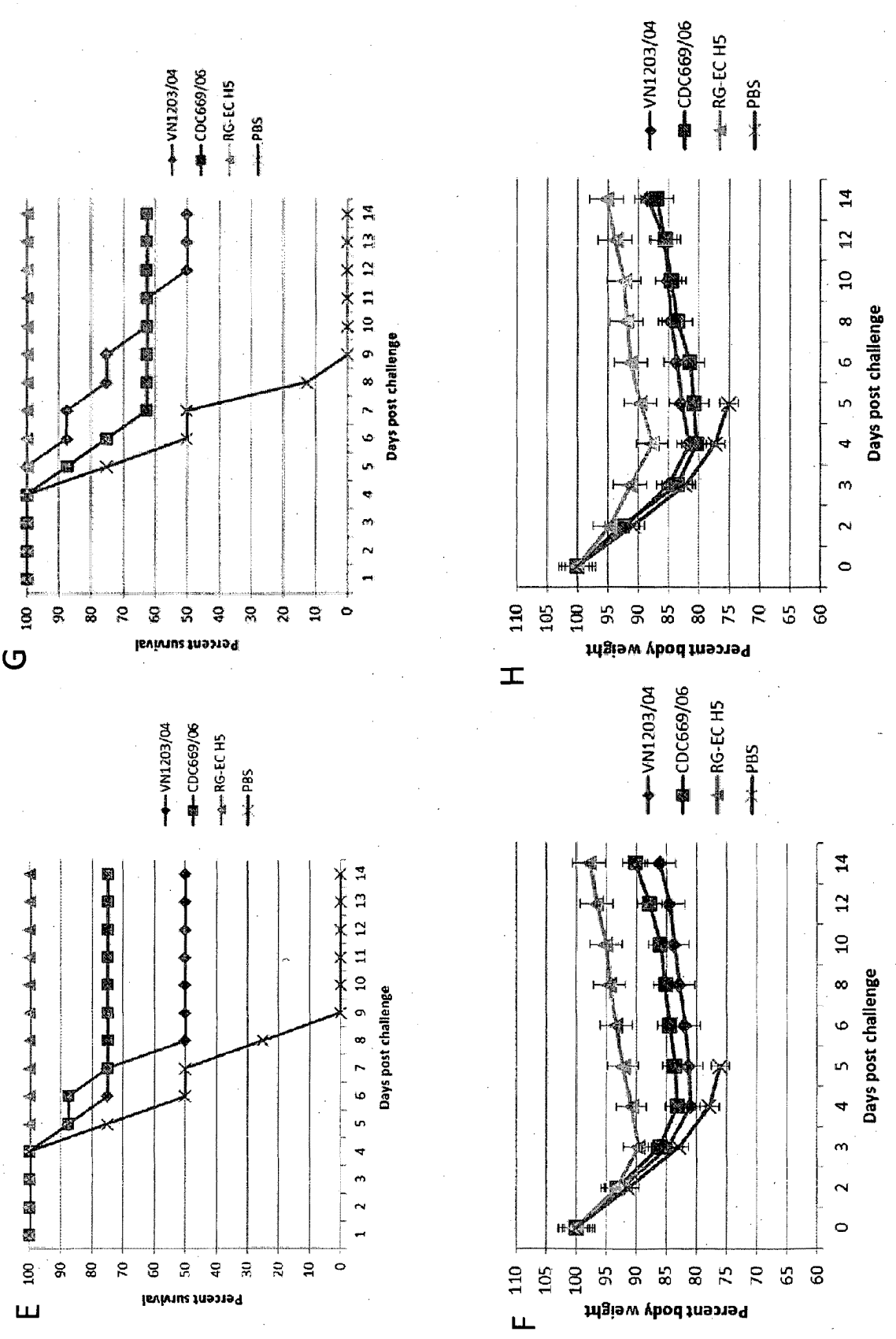

A
Percent survival
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
B
Percent body weight
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
C
Percent survival
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
D
Percent body weight
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS

Figure 3


E
Percent survival
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
F
Percent body weight
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
G
Percent survival
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS
H
Percent body weight
Days post challenge
VN1203/04
CDC669/06
RG-EC H5
PBS

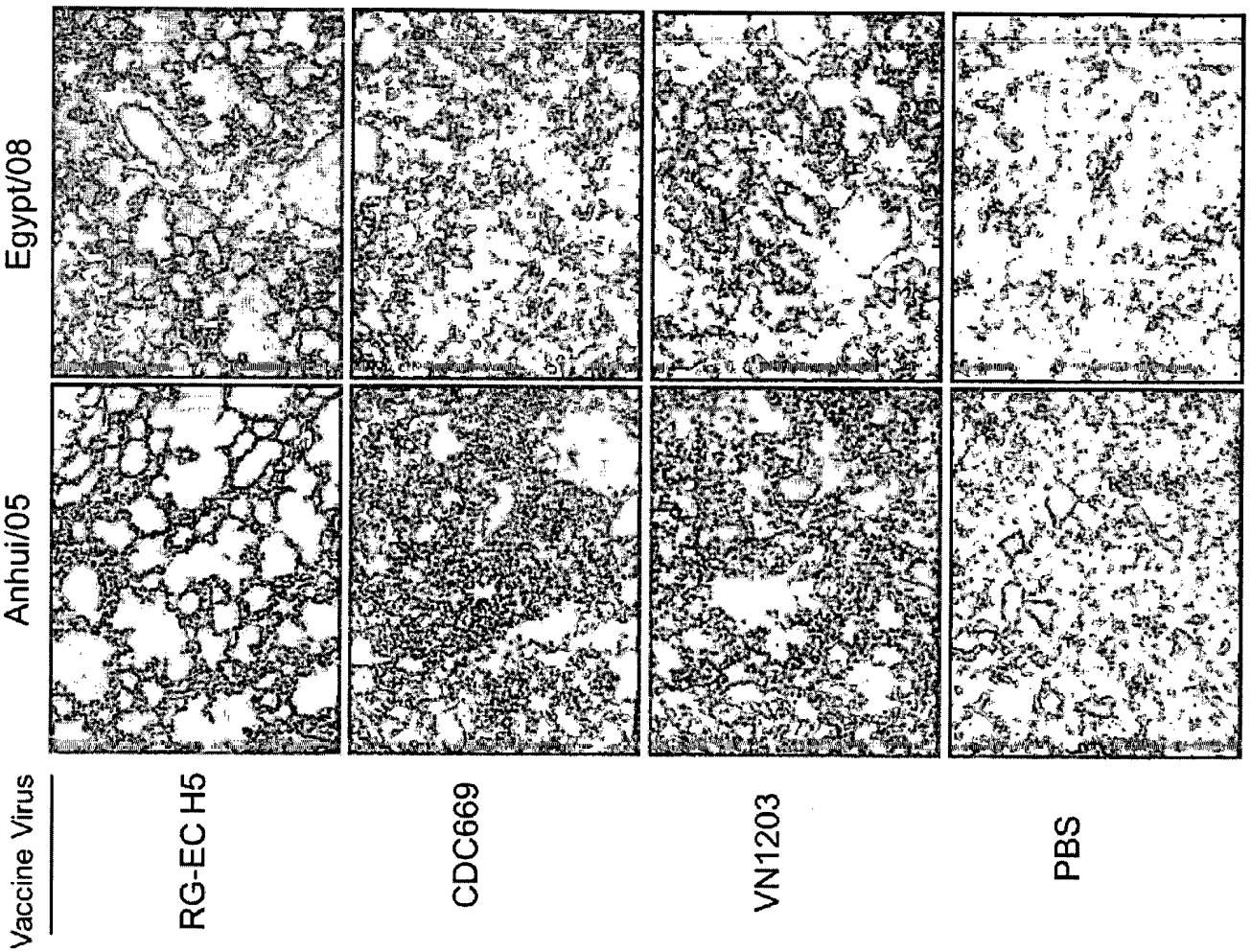

Challenge Virus
Anhui/05
Egypt/08
Vaccine Virus
RG-EC H5
CDC669
VN1203
PBS

Figure 4

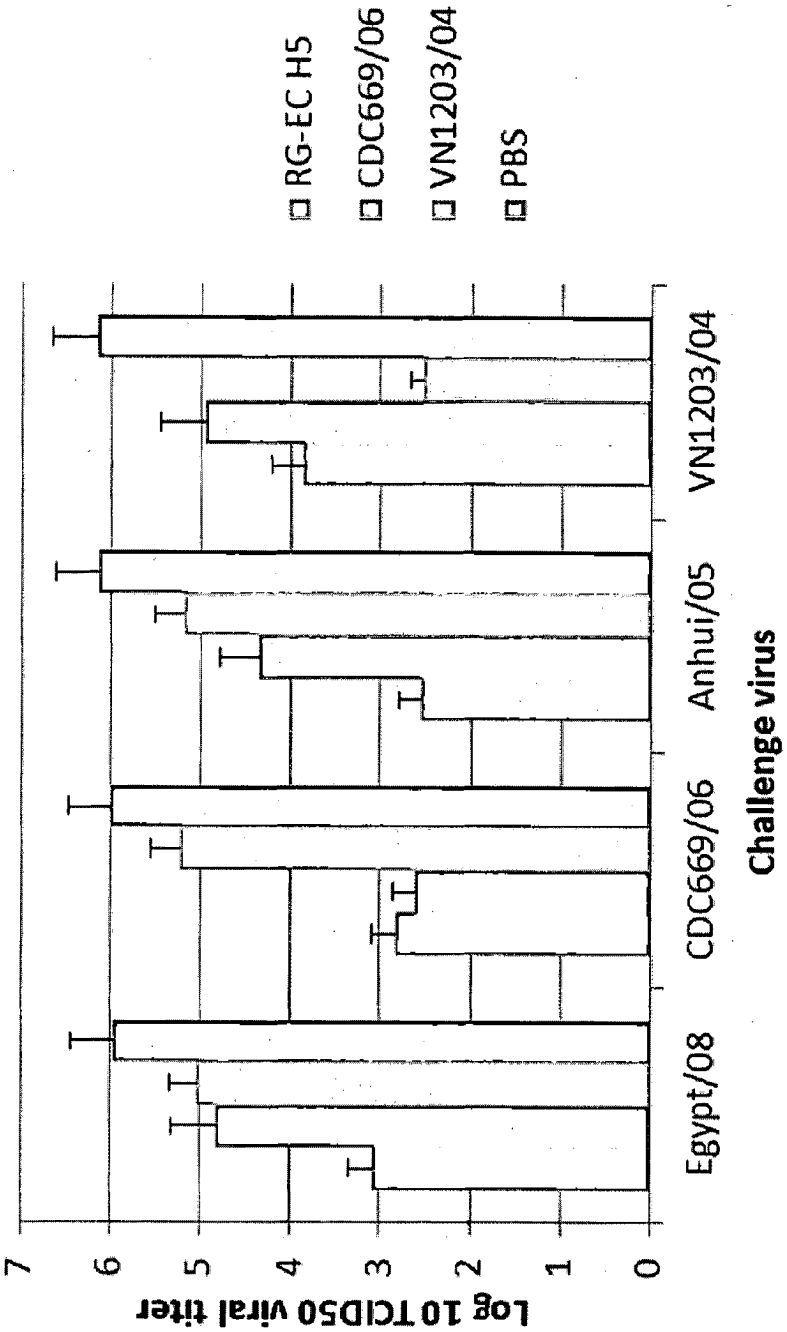

RG-EC H5
CDC669/06
VN1203/04
PBS
Log 10 TCID50 viral titer
0
1
2
3
4
5
6
7
Egypt/08
CDC669/06
Anhui/05
VN1203/04
Challenge virus

Figure 5