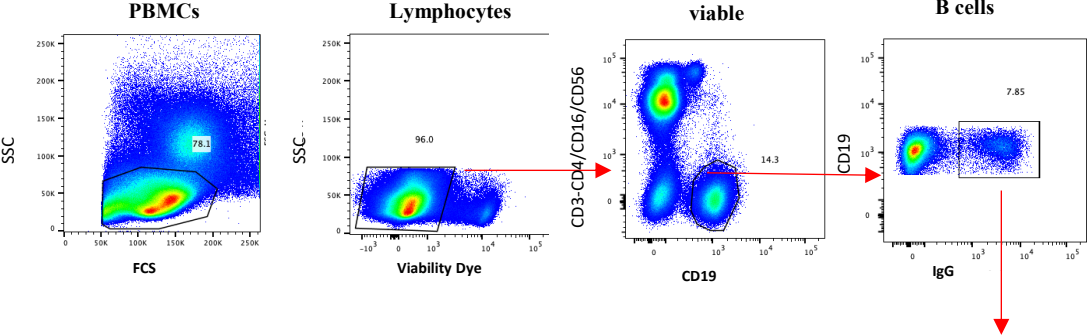
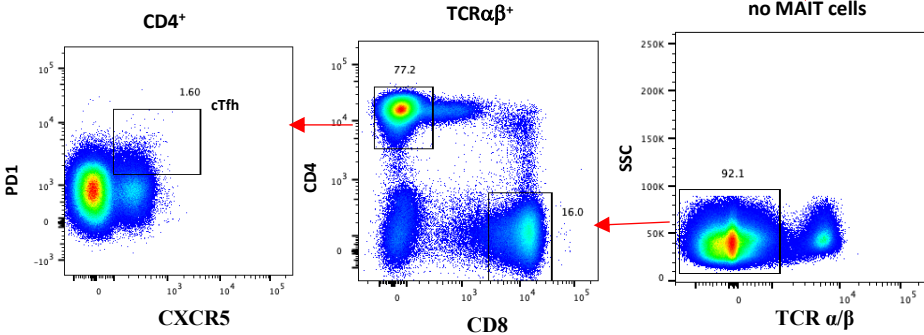
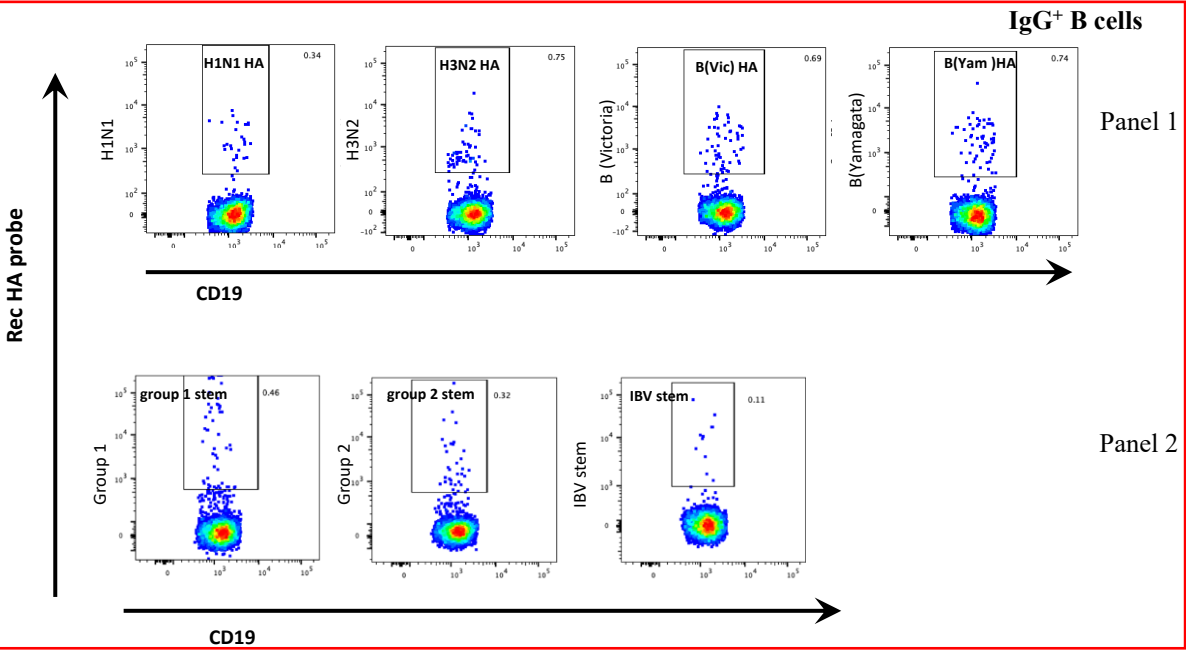
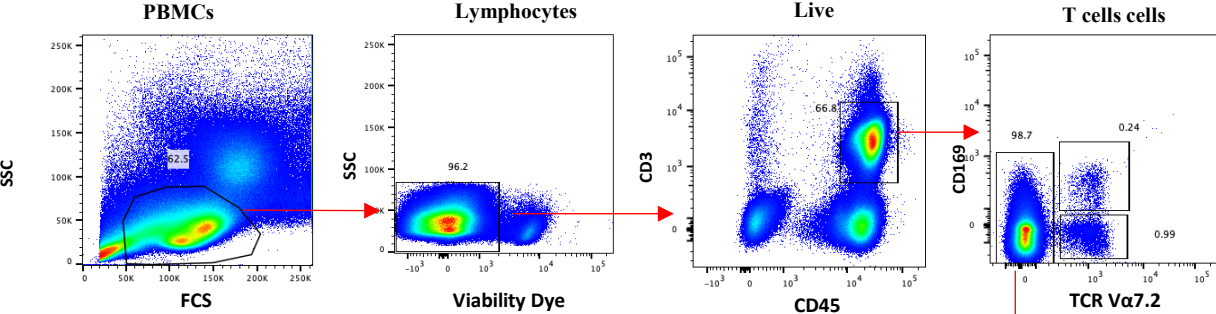


Supplementary Figure 1.

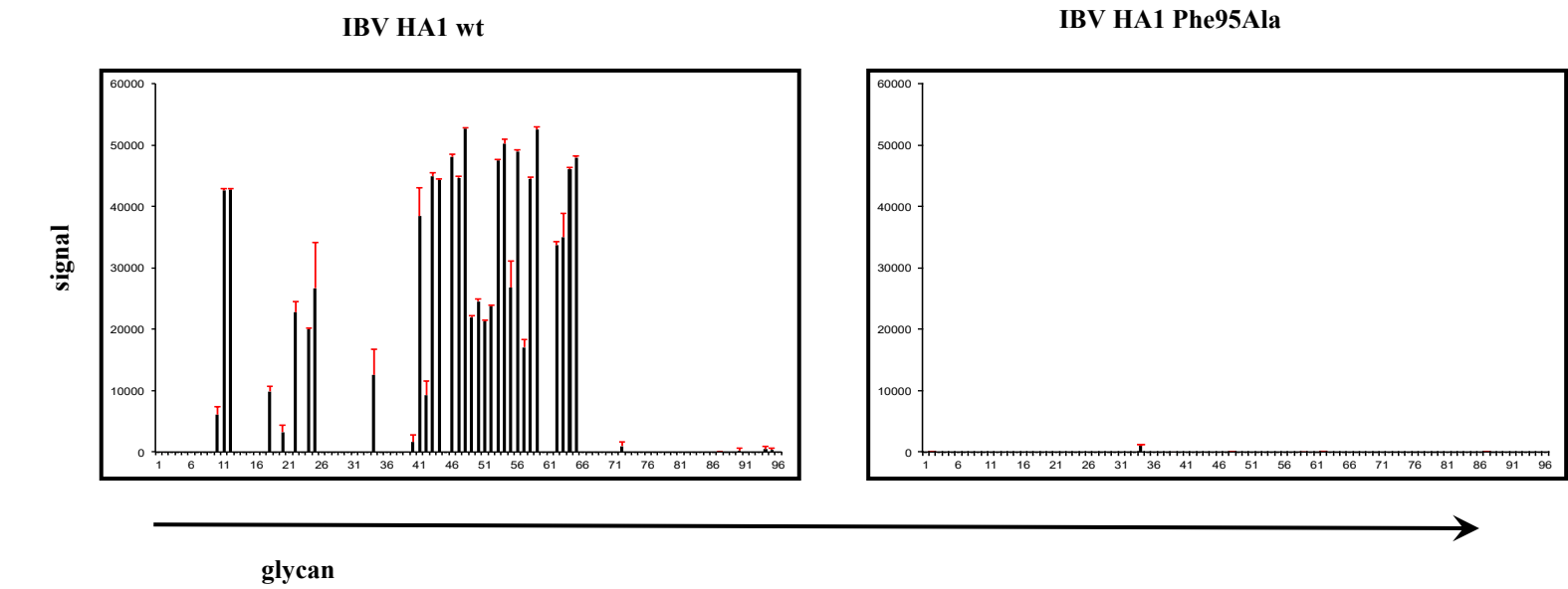
A.



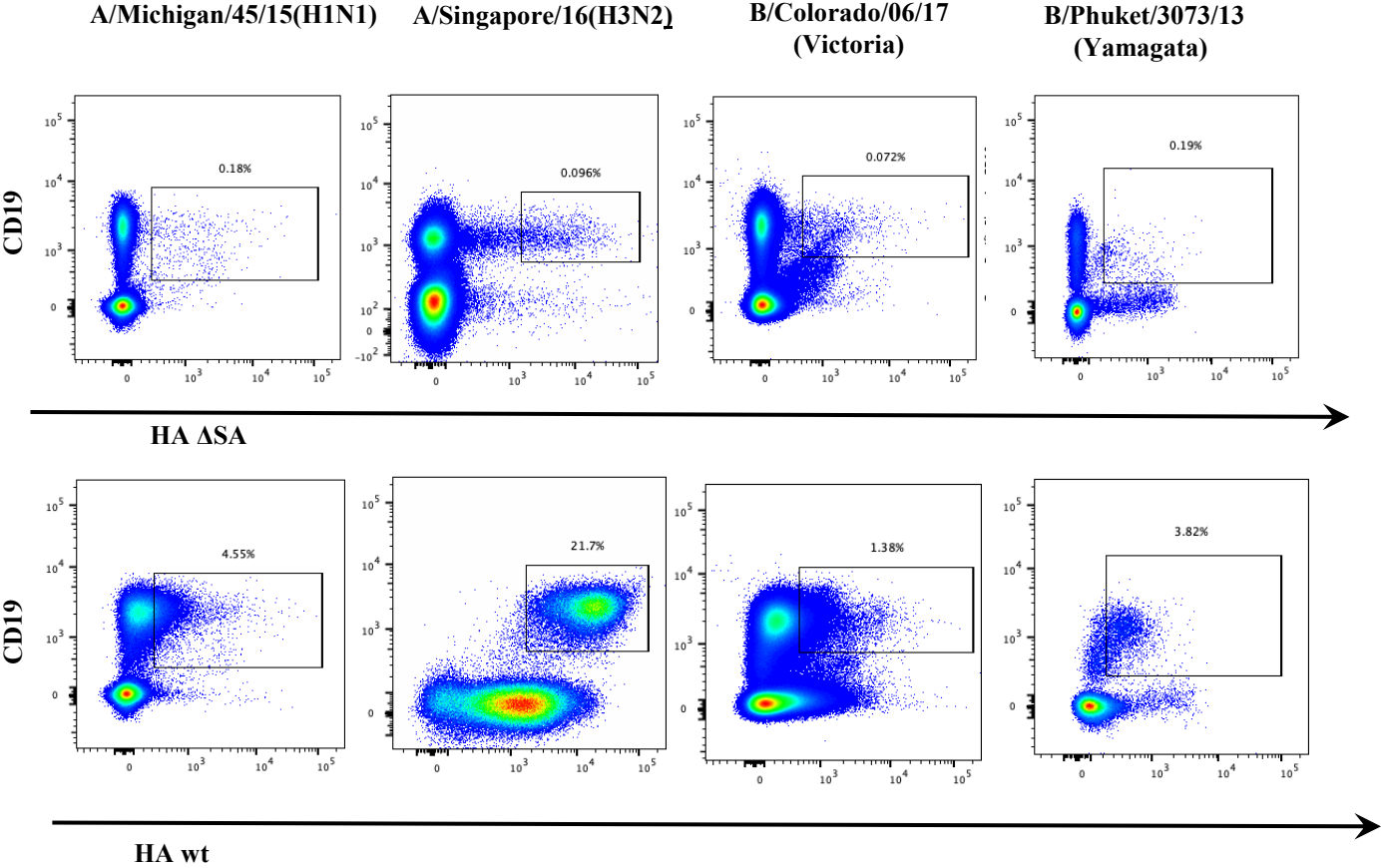
B.



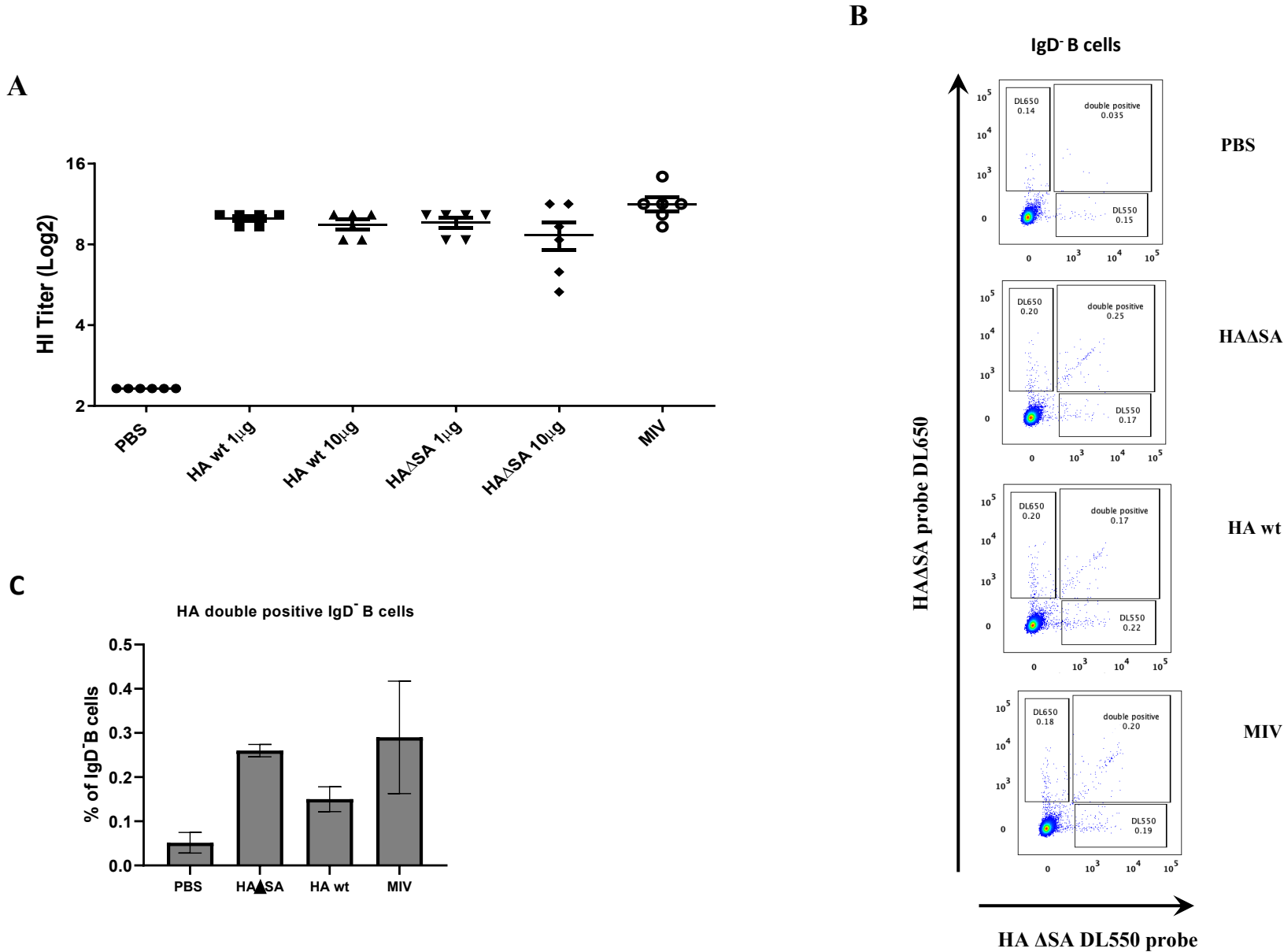
Supplementary Figure 2



Supplementary Figure 3.

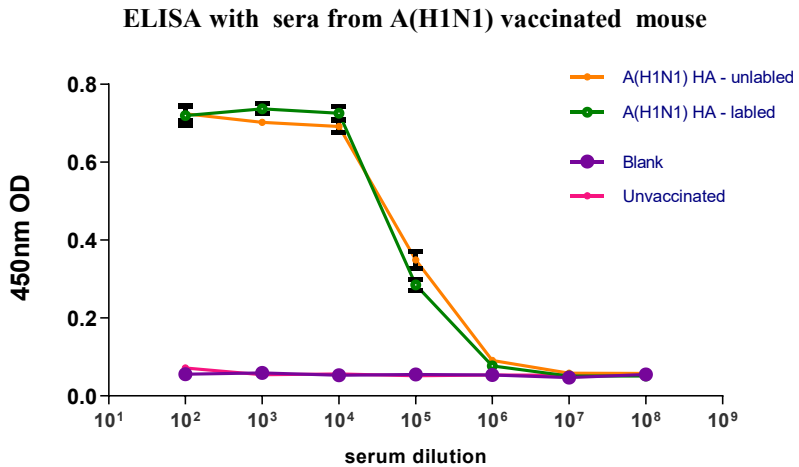


Supplementary Figure 4.

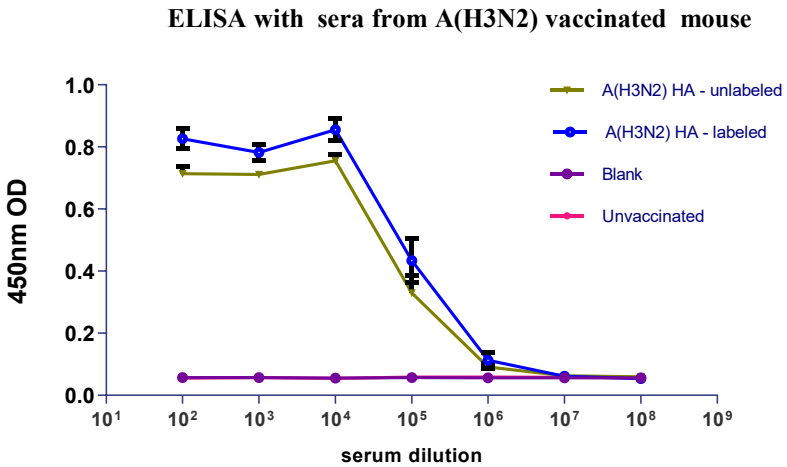


Supplementary Figure 5.

A

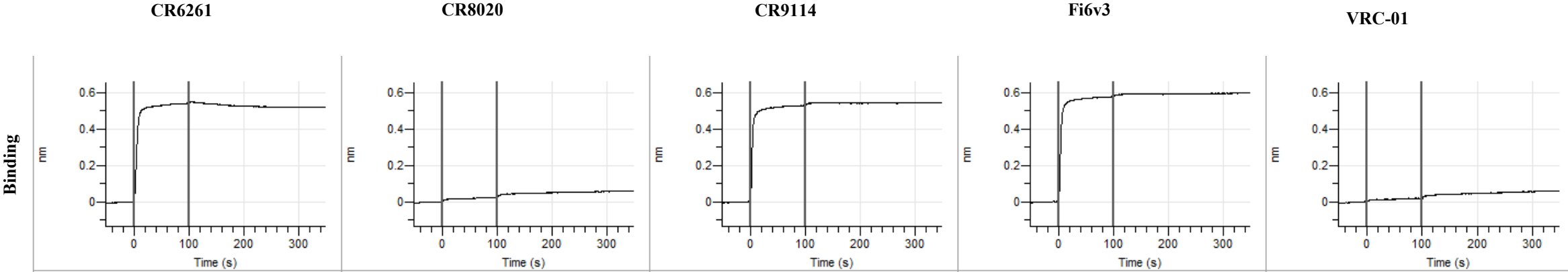


B

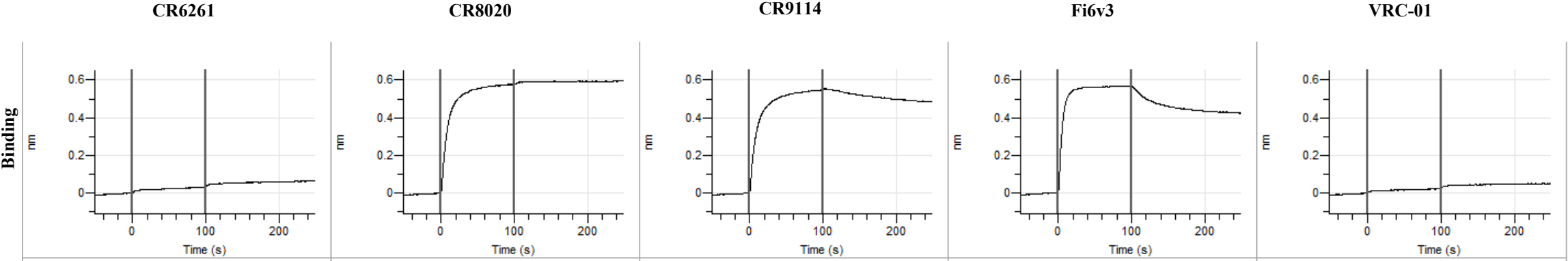


Supplementary Figure 6.

A.

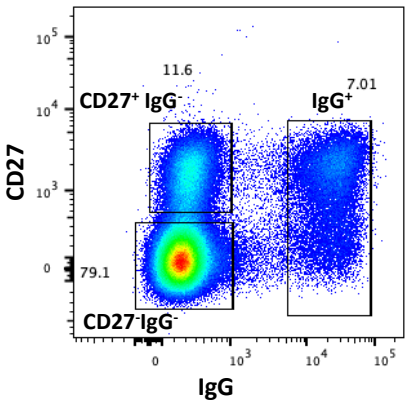


B.

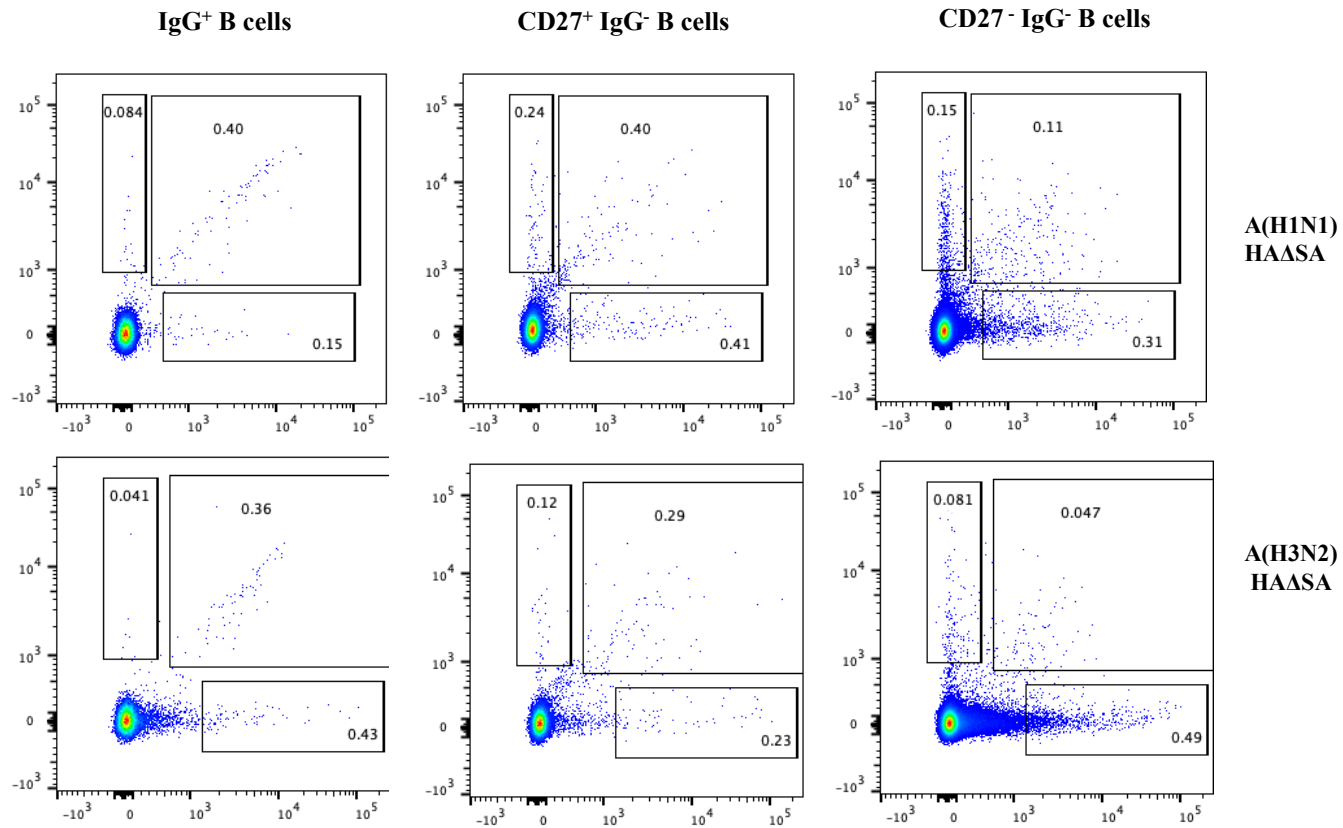


Supplementary Figure 7.

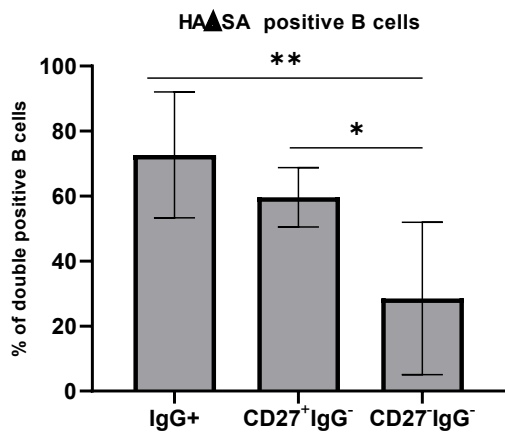
A



HAΔSA probe DL650

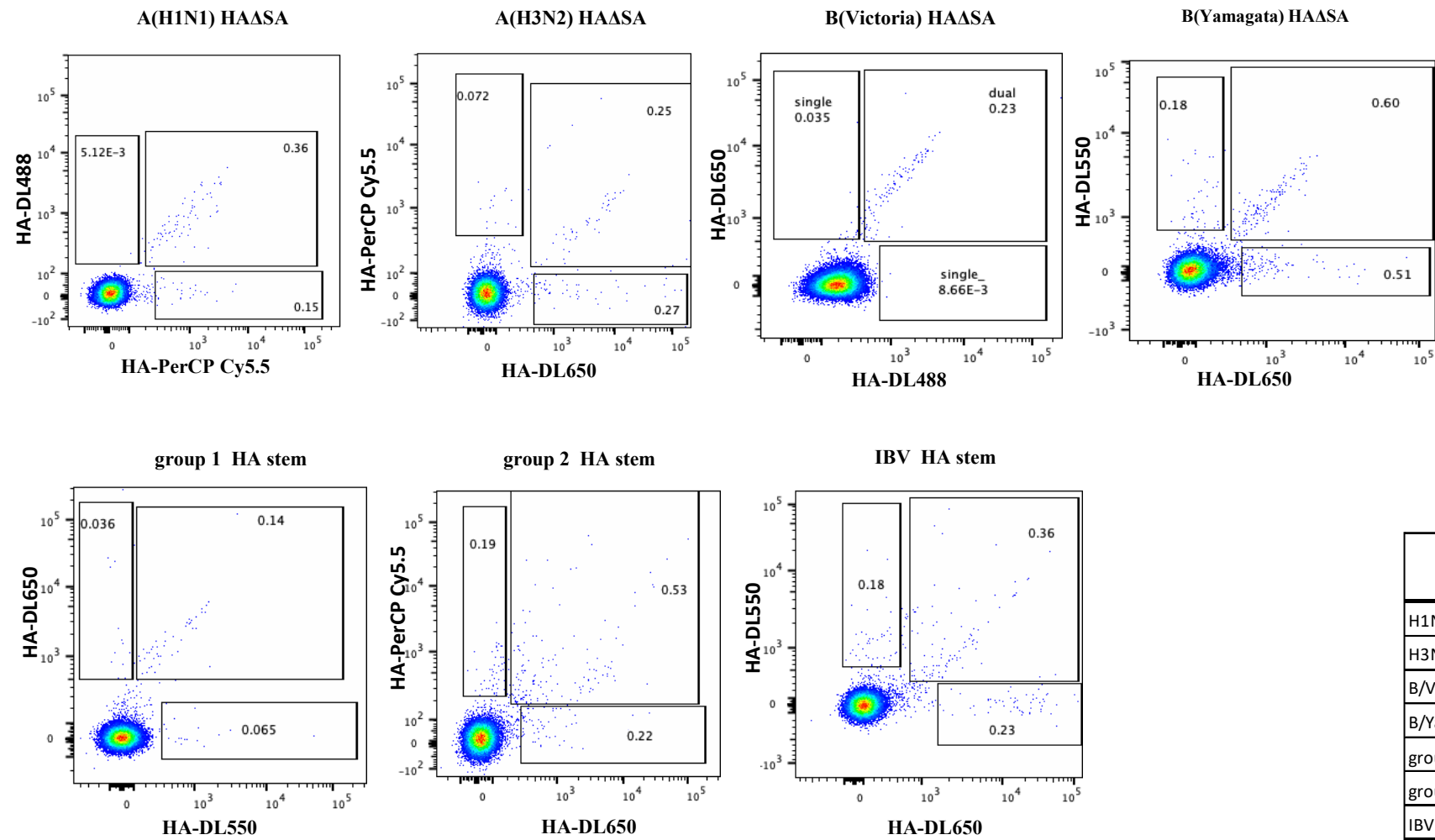


B



HAΔSA probe DL550

Supplementary Figure 8.



Probe	IgG ⁺ B cells, double stained, AV, SDEV, %	
H1N1 HA ΔSA_DL488	89.7	14.2
H3N2 HAΔSA_PerCP Cy5.5	76	2
B/Victoria HAΔSA_DL650	79.2	10.7
B/Yamagata HAΔSA_DL550	76.5	1.4
group 1 HAstem_DL650	78.8	1
group 2 HAstem_PerCP Cy5.5	69	4.1
IBV HAstem_DL550	87.5	12.0