# Supplemental Online Materials

**Supplemental Table 1: List of monoclonal antibodies for Spike protein of SARS-CoV**

**Supplemental Figure 1: Scheme of Spike proteins of 2019-nCoV, SARS-CoV and MERS-CoV.**

**Supplemental Figure 2: Structure-based alignment of 2019-nCoV and SARS-CoV Spike proteins.** The sequences are directly extracted from PDB 5X58 and 2019-nCoV homology model, and the sequence alignment was based on above two structures by ENDscript and ESPRIPT with default settings ( http://espript.ibcp.fr/ESPript/ENDscript/index.php ).

**Supplemental Figure 3: Accessible surface area profiling of Spike proteins of 2019-nCoV and SARS-CoV.** A) The epitopes predicted on the S protein structure for SARS-CoV, Epi (yellow) denotes the epitopes screened by simple ASA profiling (the same for nCoV), and EpiS (red) denotes the epitopes were calculated by excluding the glycosylation sites and the glyco-interacting amino acids; B) The epitopes predicted for nCoV. The values of Y axis means $nm^2$ of ASA.

**Supplemental Figure 4: Connecting region (CR) of 2019-nCoV and SARS-CoV Spike proteins.**

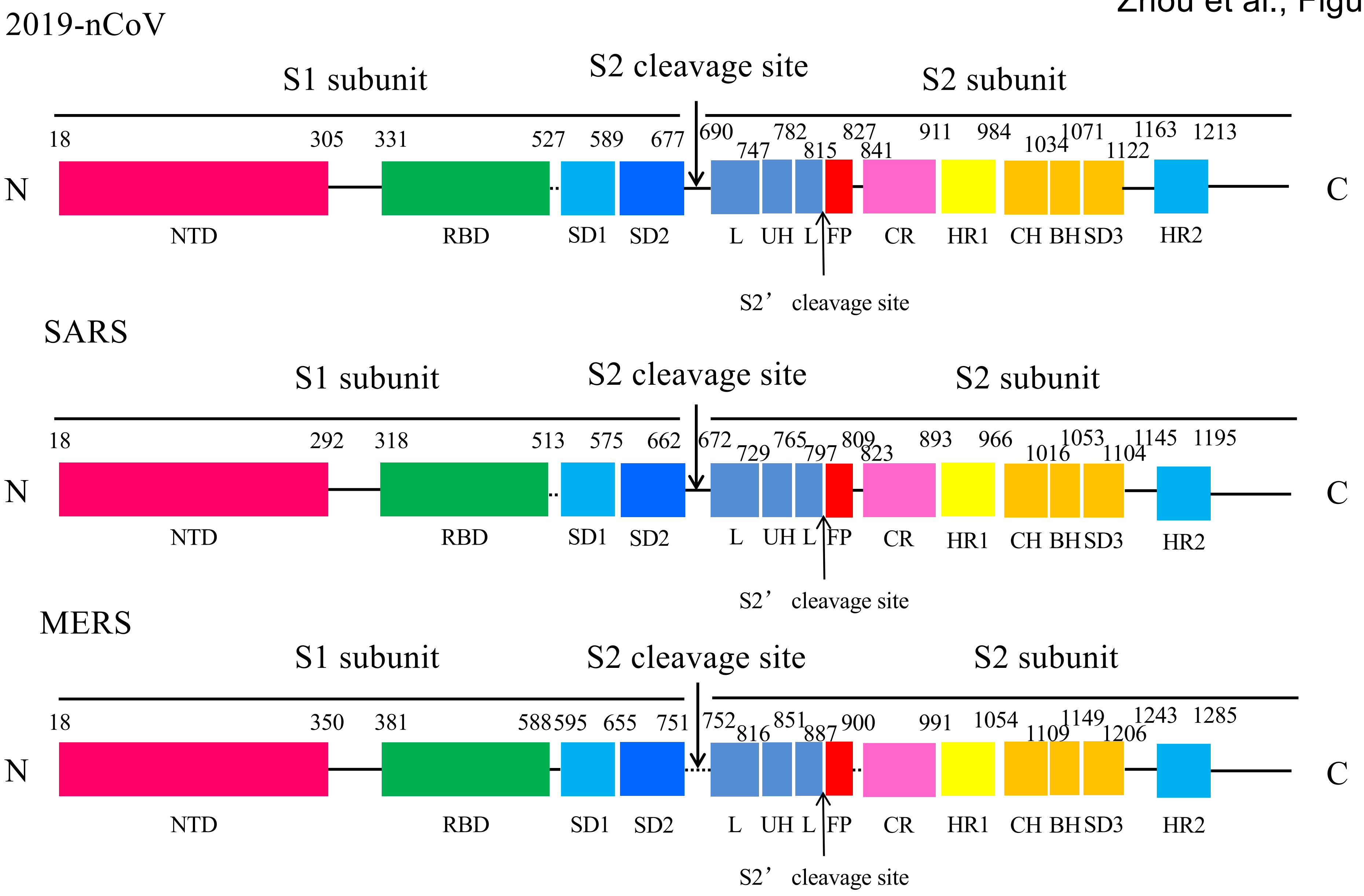
**Supplemental Figure 5: Furin recognition site of 2019-nCoV Spike protein.**

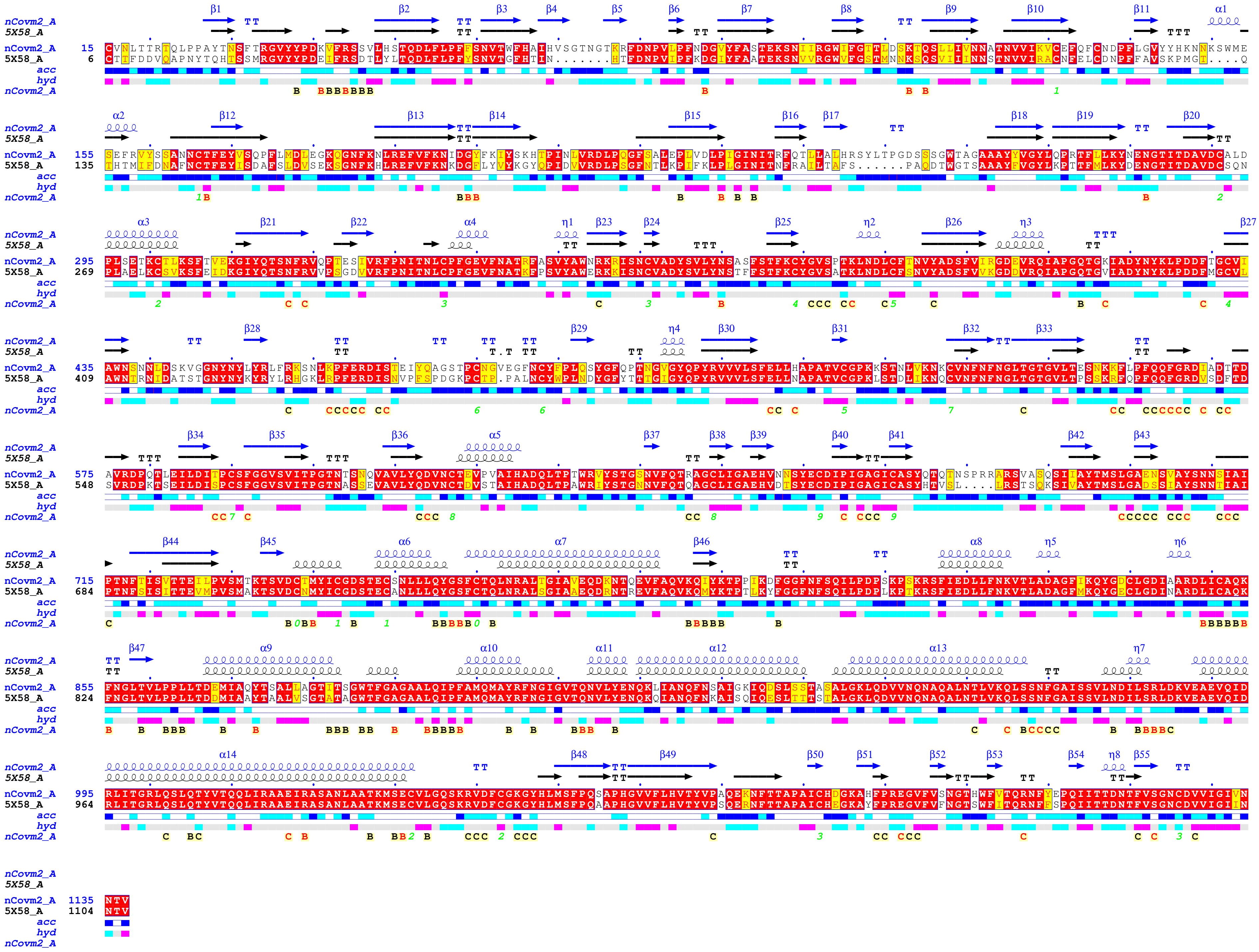
## Supplemental Table 1: List of monoclonal antibodies for Spike protein of SARS-CoV

| Antibody binding site | Nearby N-glycosylation | Clone | Ref |
|---|---|---|---|
| N-terminal domain (NBD) | | | |
| 130 FELCDNPFFAVSKPMGTQTHT 150 | 158NCT | 68 | 3 |
| 236 TAFSPAQDIWGTSAAAYF 253 | 227NIT | 114E3,115H2,116F8,112F9,120D9 | 14 |
| Receptor binding domain (RBD) | | | |
| W423,N424 | | S-9-11,N-176-15 | 7 |
| 435 NYNYKYRYLRHGKLRPF 451 | | 4D5 | 8 |
| 442 YLRHGKLRPFERDISNVPFSPDGK 465 | | 17H9 | |
| 460 FSPDGKPCTPPALNCYW 476 | | F26G18 | 9 |
| Unknown sites in SARS RBD | | F26G9,F26G10,F26G19 | |
| F360,Y442, L472, D480, T487 | 357NST | CR3006 | 10 |
| Unknown sites in SARS RBD | | CR3013 CR3014 | |
| L472,N479,D480 | | 80R | 11 |
| N479 | | CS5、CS84、FM6 | |
| R395, R426, F483, Y484,I489, Y491, Q492 | | m396 | |
| T332,N479, D463 | 330NAT | FM39 | 12 |
| P462,N479 | | CR3014 | 13 |
| Unknown sites outside of SARS RBD | | CR3022 | |
| T359,G391,D392,N424,R426,N427,T486,488 GIGYQ 492 | 357NST | F26G19 | 16 |
| T359,T363,K365,390 KGD 392,V394,R395,R426,S432, Y436,G482,484 YTTTGIGYQ 492 | 357NST | m396 | 17 |
| R426,S432,T433,Y436,N437,K439,Y440,Y442, 470 PALNCYWPLND 480,484 YTTTGI 489, Y491,Q492 | | 80R | 18 |
| 490 GYQPYRVVVLSFELLNAPATV 510 | | 201 | 3 |
| S1 (non-RBD) and S2 subunits | | | |
| 536 GVLTPSSKRFQPFQQFG 552 | | 114G5 | 14 |
| 612 ADQLTPAWR 620 | 602NCT | F26G8 | 9 |
| 549 QQFGRDVSDF 558 | | 101F10,103F2,104D4,111A7, 121B8 | 14 |
| 731 CANLLLQYGSFCTQL 745 | | 65B3,63B10 | 6 |
| 791 PLKPTKRSFIEDLLF 805 | 783NFS | 5H10* | 6 |
| 814 GFMKQYGECL 823 | | 102D7 | 14 |
| 1125 PELDSFKEELDKYFKNH 1141 | 1116NNT | 119F6 | 14 |

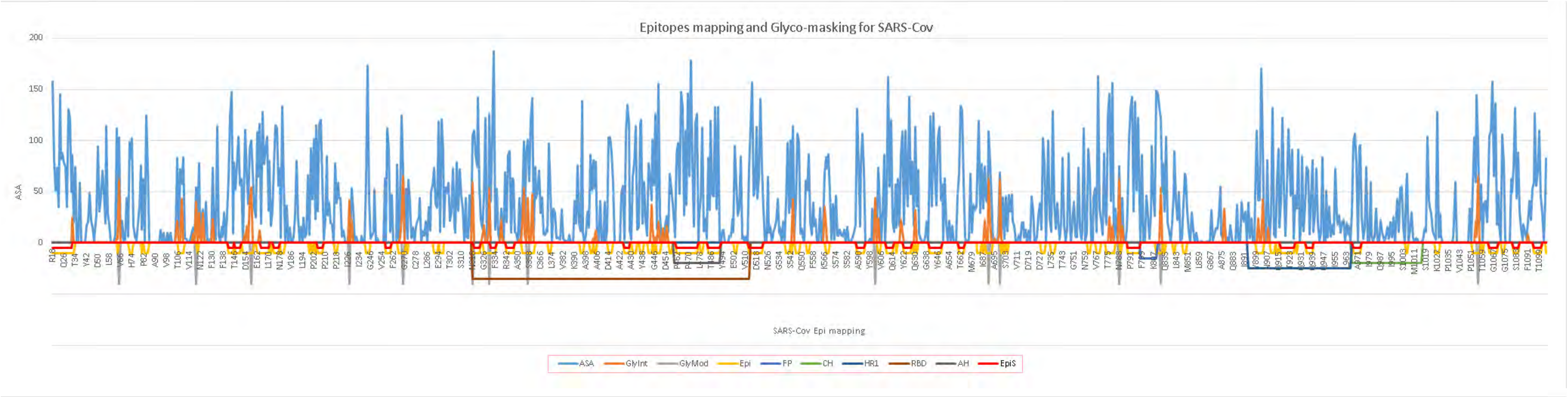
*Generated by immunizing mice with recombinant Spike protein produced in *Escherichia coli.*

Zhou et al., Figure S1

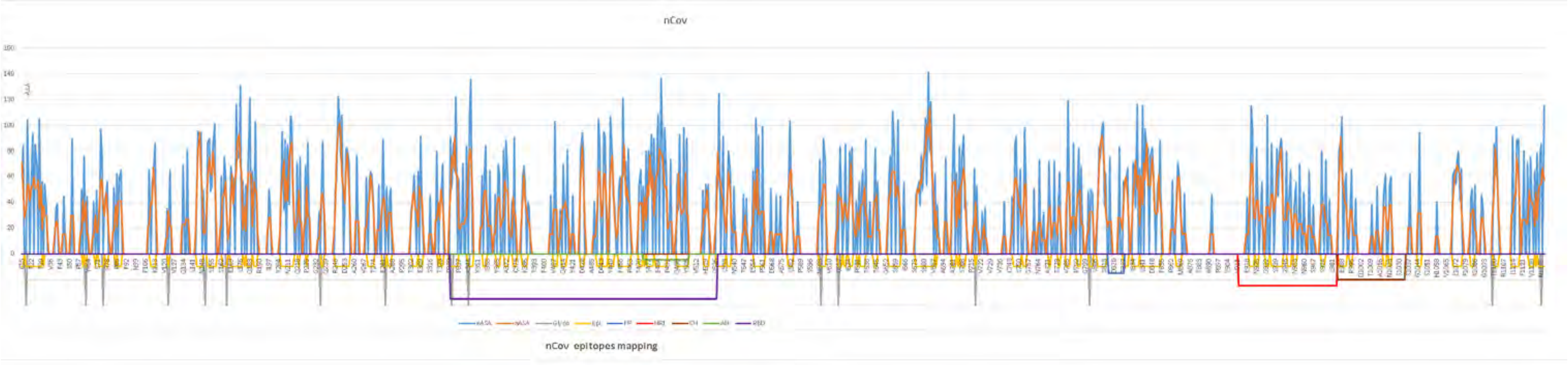



nCovm2_A
5X58_A
acc
hyd

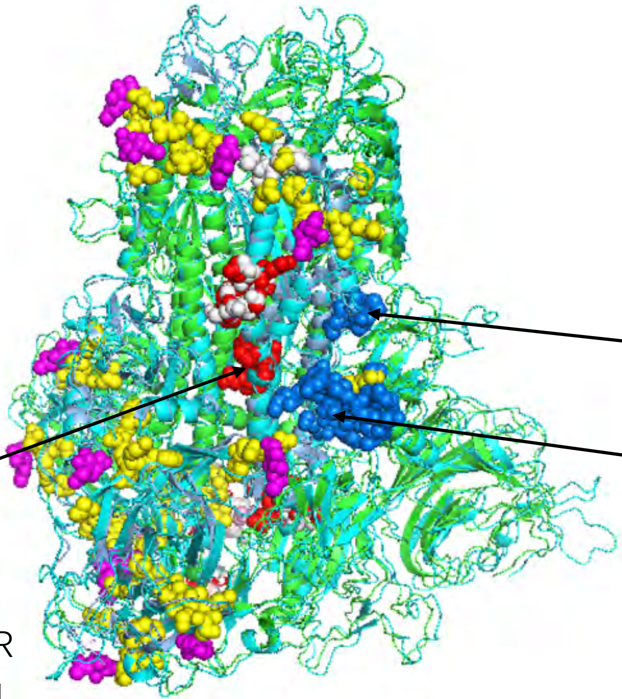
## SARS RBD



## 2019-nCoV



Zhou et al., Figure S4



**HR1(S3)**
N935-39:
NQNAQ

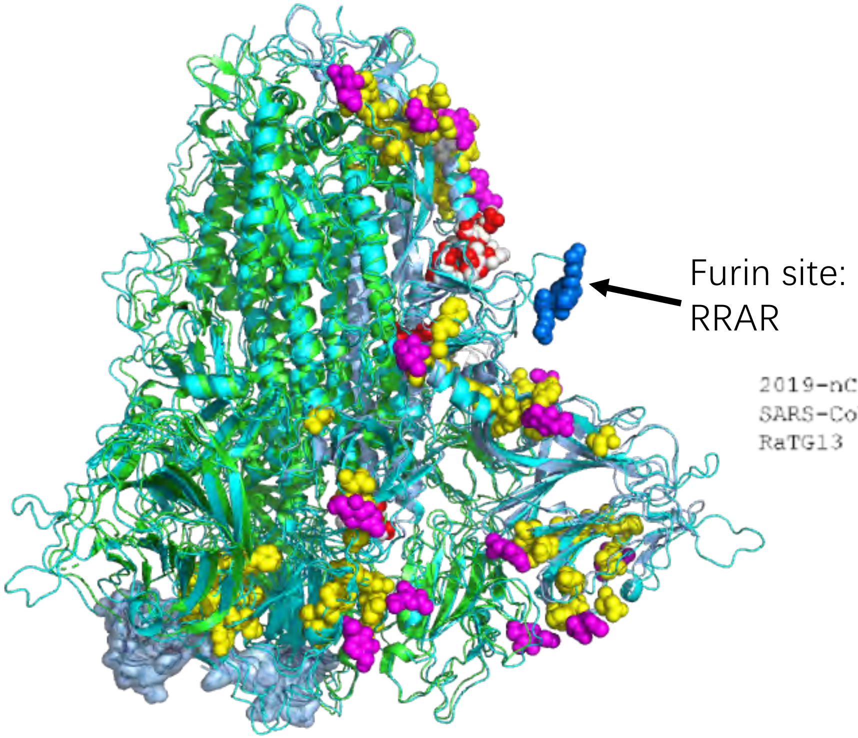
The fragment of CR for SARS is missing, thus the buried HR1(S3) fragment is exposed

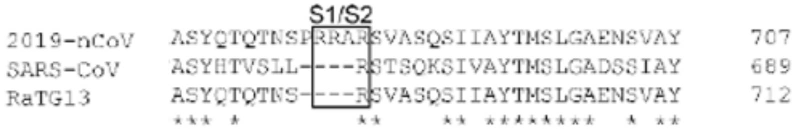
CR nCoV(close epitope)
T866-69:
TDEM

CR nCoV(n3)
I834-54:
IKQYGCLGDIAARDLICAQK

CR(n3) is exposed, and located exactly outside of S3

Zhou et al., Figure S5

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              S1/S2
2019-nCoV     ASYQTQTNSPRRARSVASQSIIAYTMSLGAENSVAY     707
SARS-CoV      ASYHTVSLL----RSTSQKSIVAYTMSLGADSSIAY     689
RaTG13        ASYQTQTNS----RSVASQSIIAYTMSLGAENSVAY     712
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