Supplementary Materials for

Antibodies elicited by SARS-CoV-2 infection or mRNA vaccines have reduced neutralizing activity against Beta and Omicron pseudoviruses

Benjamin L. Sievers et al.

Corresponding authors: Taia T. Wang, t.aiawang@stanford.edu; Gene S. Tan, gtan@jcvi.org

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The PDF file includes:

Table S1

Other Supplementary Material for this manuscript includes the following:

Data file S1
MDAR Reproducibility Checklist
### Supplemental tables

#### Table S1. Variant spike protein mutations.

| Lineage | Spike protein amino acid substitutions versus WA1 |
|---------|----------------------------------------------------|
| B.1.351 | L18F, D80A, D215G, R246I, K417N, E484K, N501Y, D614G, A701V |
| B.1.617.2 | T19R, G142D, E156-, F157-, R158G, L452R, T478K, D614G, P681R, D950N |
| B.1.529 | A67V, H69-, V70-, T95I, G142D, V143-, Y144-, Y145-, N211-, L212I, ins214EPE, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H, N764K, D796Y, N856K, Q954H, N969K, L981F, |

#### Table S2. Primer sequences used for this study.

| Name       | Sequence                                                                 | Description                                                                 |
|------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| ConSR      | TTGTTTTTCTCTAATTATAAGTCTACCTTTTACTAAG AAGAGTAGGGATAACAGGGTAATCGGTTACC   | SARS-CoV-2 spike pCC1-his vector construction primers                         |
|            | GAATTCGATAGCAATTCAGGCTAATCGGTTACC                                       |                                                                             |
|            | GCTCAATTAGCTAATCGGTTACC                                               |                                                                             |
| ConSF      | AACTGTAACCTTGAAGCAAGGTAATCGGTTACC                                       |                                                                             |
|            | GCTACTATTACCCTGTATCCCTCTCTAGTGAAGAGGGTTAGCAAGTCCTCTAGG                 |                                                                             |
|            | GCTCGAATTC                                                             |                                                                             |
|            | S-F CTCTTCTTAGTAAAGGTAGACTTTAA                                          |                                                                             |
| SA_C21614T_R | GAGTTCTGGTTTGAATAATTAACACACTGACT                                       |                                                                             |
| SA_C21614T_F | AGTCAGTGTGAATTTCAACCAGAACCAC                                       |                                                                             |
| SA_A21801C_R | GGTAGGACAGGGTTAGCAAACCTCTTAGTAC                                         |                                                                             |
| SA_A21801C_F | GTACTAAGAGGTGCTTACCTGCTTACC                                             |                                                                             |
| SA_A22206G_R | AAACCTGAGGGAGACCAGCAGCAGCAATTTAA                                        |                                                                             |
| SA_A22206G_F | TTAATTTAGTGCGTGCTCCCTCAAGGGTTT                                       |                                                                             |
| SA_G22299T_R | GGAGTCAAATAACTTATATGTAAGCAAGTA                                         |                                                                             |
| SA_G22299T_F | TACTTGCTTTACATATAAGTTATTTGACTCC                                        |                                                                             |
| SA_G22813T_R | ATTATAATCAGCAATTTCCAGTTGGCCCT                                          |                                                                             |
| SA_G22813T_F | AGGGCAAACTGGAAATATGGCTGATTATAAT                                        |                                                                             |
| Primer Name | Sequence |
|-------------|----------|
| SA_G23012A_R | AACAATTTAACCTTTAACACCATTACAAGG |
| SA_G23012A_F | CCTTGTCAATGGTTAAAGGTTTTAATTGTT |
| UK&SA_A23063T_R | GGTAACCAACACCATAAGTGGGTGTTGGAACCC |
| UK&SA_A23063T_F | GGTCTCAAGTGGTTGAACCCATTTATGGGTGTTGTAAC |
| SA_A23403G_R | TCTGTGCAGTTAACACCCCTGATAAAGAACAG |
| SA_A23403G_F | CTGTTCTTTATCGGGGTTTTAATCTGCACAG |
| SA_C23664T_R | GCAACTGAATTTTCTACACCAAATGGACATAG |
| SA_C23664T_F | CTATGTCACCTGTGGTAGAAAATTCAGTTGC |
| S_3000_R | ATTTGCACCTCAGCCTCAAC |
| S_3000_F | TCCTTTCACGTCTTGGACAAA |
| S-R | AGTAGCATCCTTGATTTTCAGCTTG |
| S-F | CTCTTCTTAGTAAAGGTTAGACTTATAA |
| In_T19R_R | AATTGAGTTTCTGGTTCTAAGATTAACACT |
| In_T19R_F | AGTGTGTAAATCTTAGAAACCAAGACTCAAT |
| In_G142D_R | CACTTTCCATCCAACCTTTTGTTTTTGTGGTAATAAACATCCAAATGGATCAT |
| In_E156_R158G_F | ACAAAAAACACAAAAAGTTGGATGGAATGGGAG |
| In_L452R_R | GTTATATGTCG |
| In_T478K_F | TTTTGAGAGAGATATTTCAACTGAAATCTATCAGGCGGTAGCAAACCTTGTAATGCCCCC |
| In_T478K_F | TTTTGAGAGAGATATTTCAACTGAAATCTATCAGGCGGTAGCAAACCTTGTAATGCCCCC |
| SA_A23403G_R | TCTGTGCAGTTAACACCCCTGATAAAGAACAG |
| SA_A23403G_F | CTGTTCTTTATCGGGGTTTTAATCTGCACAG |
| In_L681R_R | CTACGTGACCACACACCCTGATAAAGAAGAC |
| In_L681R_F | CTCAGACTTATTCGTGGCGGGCAGCTAG |
| In_D950N_R | TTTGGTGGACCACTTTGGAATGGTTTCCAAG |
| In_D950N_F | CTGGAAAACCTTCAAATGTTGGTCAACCAAA |
| S-R | AGTAGCATCCTTGATTTTCAGCTTG |

Primers to generate B.1.617.2 spike gene fragments
| Primers to generate B.1.1.529 spike gene fragments |
|--------------------------------------------------|
| **S-F**                                         |
| CTCTCTTAGTAAAGGTAGACTTATAA                      |
| **A67VH69V70del_R**                             |
| CCATTGGTCACGAGATAACATGGAAACAAAGTAA             |
| **A67VH69V70del_F**                             |
| TTTATGGTCTGTCTATGGTATATCTCTGCGACGTGGG          |
| **T95I_R**                                      |
| ATGTAGACCTTCTCAATGGAAAGCAAATAAAA               |
| **T95I_F**                                      |
| TTATTTTGTATTCCATGGAGATCTCTACAT                 |
| **G142DV143Y144Y14del_R**                      |
| TGTGTTTTTGTGGGTCAAAAATGGATCAT                 |
| **G142DV143Y144Y14del_F**                      |
| ATGATCCATTGTTGGACCACAAAAACAAAC                 |
| **N211del212ins214EP_R**                       |
| AAACCTGAGGGAGATCTTGTCAGCGACTA                 |
| **N211del212ins214EP_F**                       |
| TAATAGCGTGCTGCT                                 |
| **G339D_R**                                    |
| GCCGTTTTAAAACCTTCATCAAAGGCGACAGGT              |
| **G339D_F**                                    |
| ACTTGTCCTTACATTGCAGAGAGTTTTGCAGTC             |
| **S371LS373PS375F_R**                           |
| TAAACTAAAAAGTGAAAAATGTGCGAGATTAT               |
| **S371LS373PS375F_F**                           |
| ATAGGACAGA                                     |
| **SA_G22813T_R**                               |
| ATTATAATCAGCAATATTTCCAGTTTGCCCT               |
| **SA_G22813T_F**                               |
| AGGGCAAACCTGGAATATAGCTGATTATAA                 |
| **N440KG446S_R**                               |
| AATTATAATCAGCAGGAAATATAGCTGATTATA              |
| **N440KG446S_F**                               |
| TTGGAAATCAGCAGGAAATATAGCTGATTATA               |
| **S477NT478K_R**                               |
| TAAACCTGAACCTGCAACATTACAAGCCTG                |
| **S477N-Y505H_F**                              |
| ACACACCTTGTAATGGGTGGCAGGGTTTAAATTGT            |
| **TACTTTCTTTACAGCATATAGGTTTCTCGACCAC**         |
| **TTATGGTGTTGGTCACAAACCATACAGG**              |
| Primer ID   | Primer Sequence                  |
|------------|----------------------------------|
| T547K_R    | AGAACACCTGTGCCTTTTAACACCTGGAAGT |
| T547K_F    | ACTTCAATGGTTTTAAGGCACAGGTGTTCT |
| SA_A23403G_R | TCTGTGCAGTTAACACCTGATAAAGACAG  |
| SA_A23403G_F | CTGTCCCTTTATCAGGGTGTTAACTGCACAGA |
| H655Y_R    | ATGAGTGTGGACATATTCCAGGCCCCTATTAA |
| H655Y_F    | TTAATAGGGGGCTGAATATGTCAACAACCTCAT |
| N679KP681H_R | CTACGTGCCCGCCGATGAGCTTACTGCTCT |
| N679KP681H_F | TCAGACTCAGACTAAGTCTCTCAGGCGGGCAGT |
| N764K_R    | TCCAGTTAAAAACCGGTTTTAAATTGTGTAACAA |
| N764K_F    | TTGTACACAATTTAAAACGTGCTTTTAACCTGAAG |
| D796Y_R    | TAAAAACCACAAAAATATTTAATGTGGGTGTTG |
| D796Y_F    | ACACCAACAAATTTAATTGTGGTTTTA |
| N856K_R    | CAAAACAGTAAGGCCCTTTAAACTTTTGACAA |
| N856K_F    | TGCACACAAAAGTTAAAAGGCCTTACTGTGTTG |
| Q954H_R    | TTAACAAAGCCTGTTAAGCCTTTGTCATTATGTTGACCATCCT |
| Q954HN696KL981F_F | TAATGCACAAGCTTTAATGCTGTTACAAATTTGGTGCAATTTCAAGTGTTTTAAATGATATCTTTTCAGTCCTTGACAAAGTT |
| S-R        | AGTACGATCCTTAGGATTTGACACCTT |
| RCO495     | ACGACGGCCAGTGGAATTG |
| Hu1-24a-R  | TCTGTAATGGTCCATTTCATTTTC |
| Hu1-24b-F  | GGTGCTGCCCTTTATTATATG |
| Hu1-24b-R  | ACCGGCCTGATAGATTTCAG |
| S-1200-F   | TCAGACAAATCGCCTCAGGGA |
| S-2600-R   | CACAAATGAGGTCCTCTAGCA |
| Hu1-26-F   | GGCAGTTTTGTACACAAATT |
| Hu1-26-R   | GAAAGTGTTCTTTTCCATCA |

**Detection PCR primers to screen for positive clones:**

| Primer ID   | Primer Sequence                  |
|------------|----------------------------------|
| Hu1-24a-R  | TCTGTAATGGTCCATTTCATTTTC |
| Hu1-24b-F  | GGTGCTGCCCTTTATTATATG |
| Hu1-24b-R  | ACCGGCCTGATAGATTTCAG |
| S-1200-F   | TCAGACAAATCGCCTCAGGGA |
| S-2600-R   | CACAAATGAGGTCCTCTAGCA |
| Hu1-26-F   | GGCAGTTTTGTACACAAATT |
| Hu1-26-R   | GAAAGTGTTCTTTTCCATCA |
