



CovAb™

SARS-CoV-2 Ab Test

Does CovAb™  
detect Omicron  
variant antibodies?



## In Silico Analysis



S1 spike protein amino acid sequence comparison of SARS-CoV-2 Wild type and Omicron variant



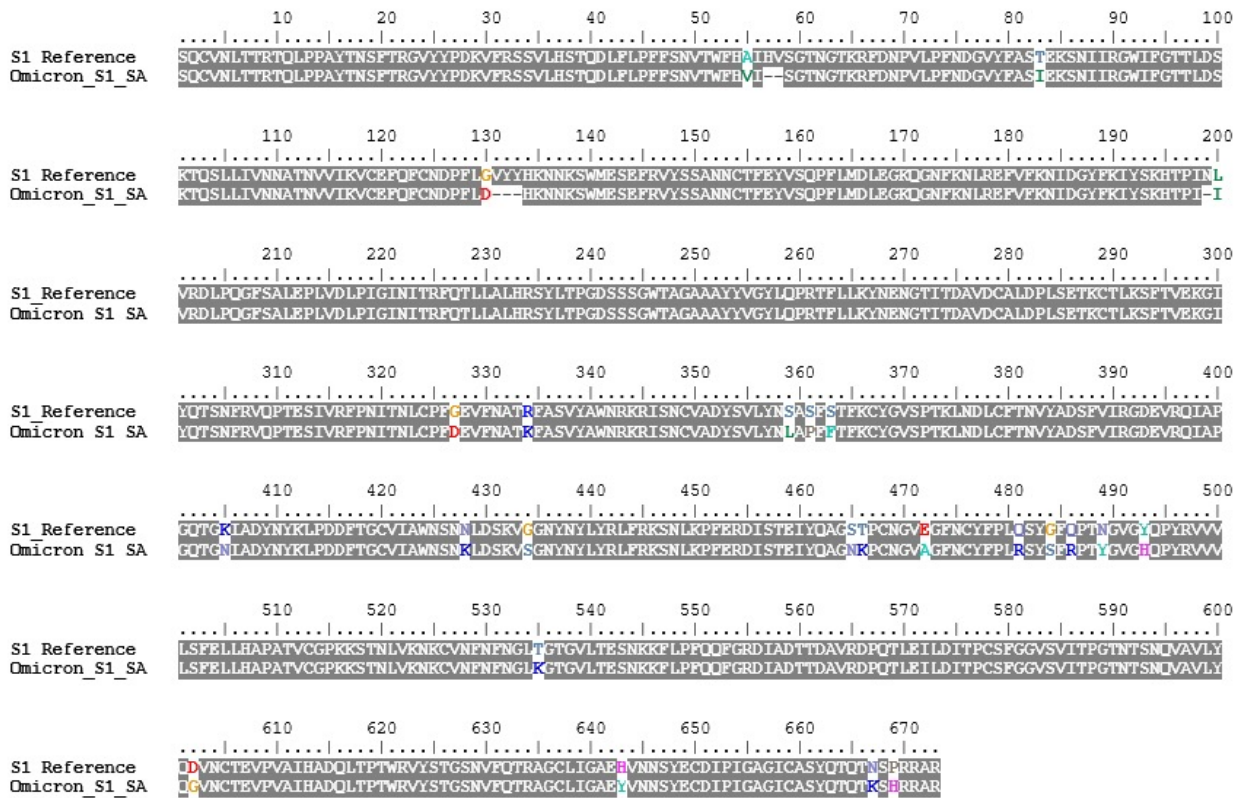
Epitope mapping of S1 spike protein using antibodies isolated from COVID-19 patients



Demonstration of specific epitopes on S1 protein binding to sera from Omicron variant



# S1 spike protein sequences of SARS-CoV-2 WT (reference) and Omicron

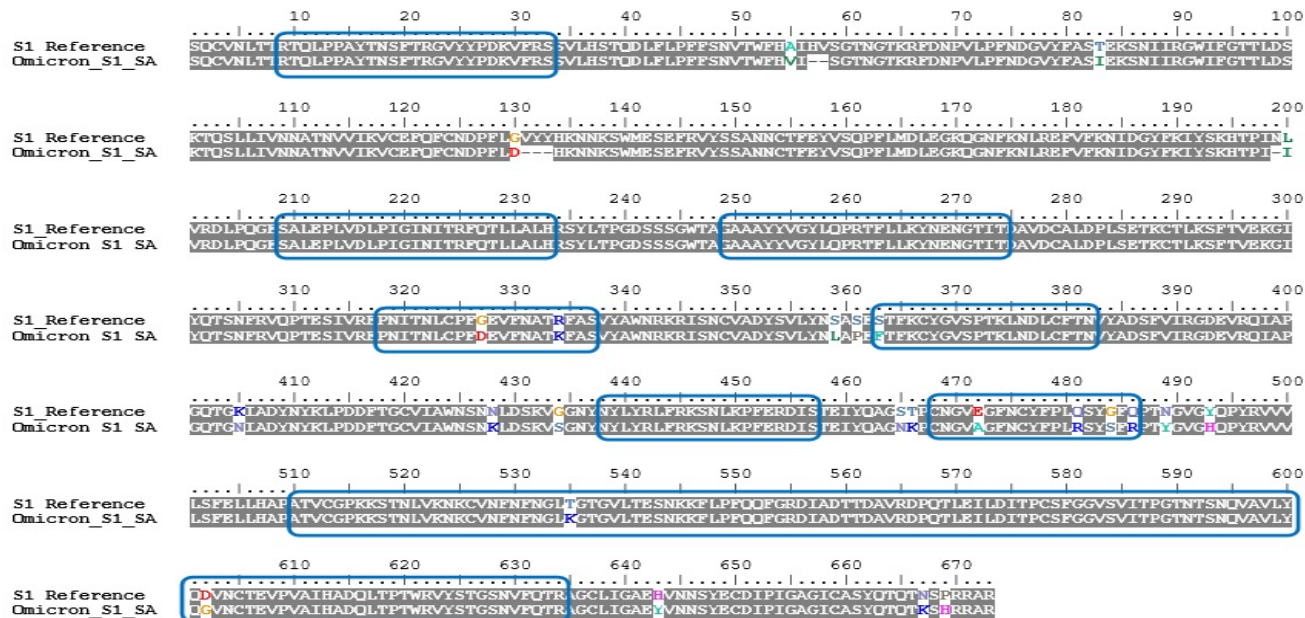


96.5% of sequence is conserved between the WT and Omicron variant



# Epitopes mapped on S1 spike protein from COVID-19 patients

Epitope mapping revealed nine linear sites on the S protein located at 21–45 (ID1), 221–245 (ID2), 261–285 (ID3), 330–349 (ID4), 375–394 (ID5), 450–469 (ID6), 480–499 (ID7), and 522–646 (ID8).

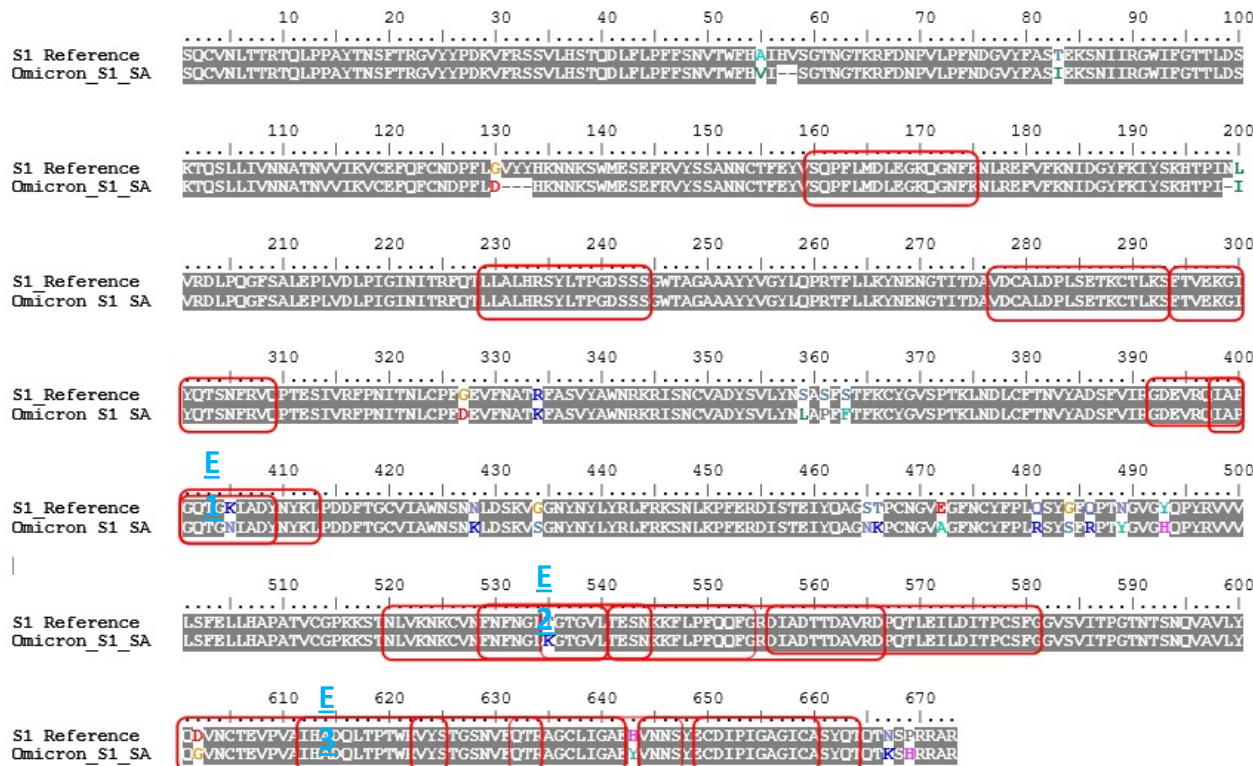


Epitopes are highly conserved across variants

- ID4: 90%
- ID5: 95%
- ID7: 79%
- ID8: 98%



# B-cell epitopes that bind to antibodies from COVID-19 patients are conserved



Antibodies isolated from patients bind to E1, E2 and E3 regions

Sequence conservation between WT and Omicron variant  
E1 95.5%  
E2 98.4%  
E3 96.9%

E2 is found to be highly conserved and reported in various studies

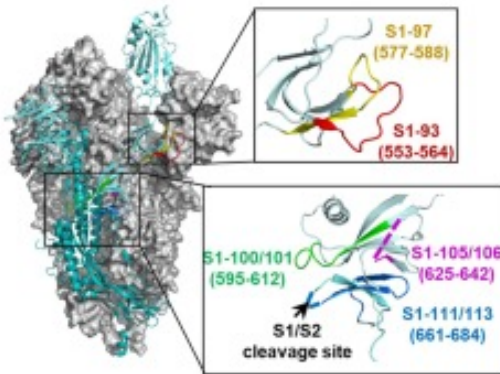
PMID: 33052349



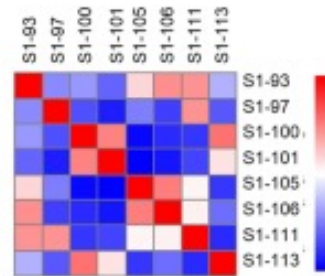


# “Hot” B-cell epitopes are conserved between S1 WT and Omicron variant

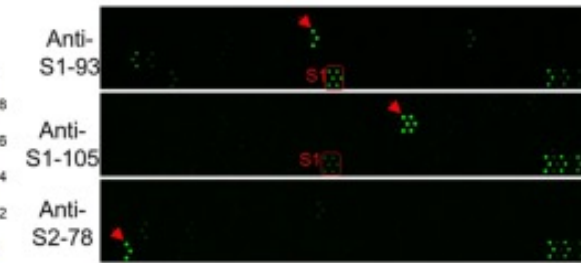
**C** The first hot region



**d** Signal correlations



**g** Validation of the enriched antibodies



**C.** Structural information of E2 epitope (S1-93). **D.** Correlations of the antibody responses among the peptides for the first hot areas. **G.** Peptide microarray results for the enriched epitope-specific antibodies.

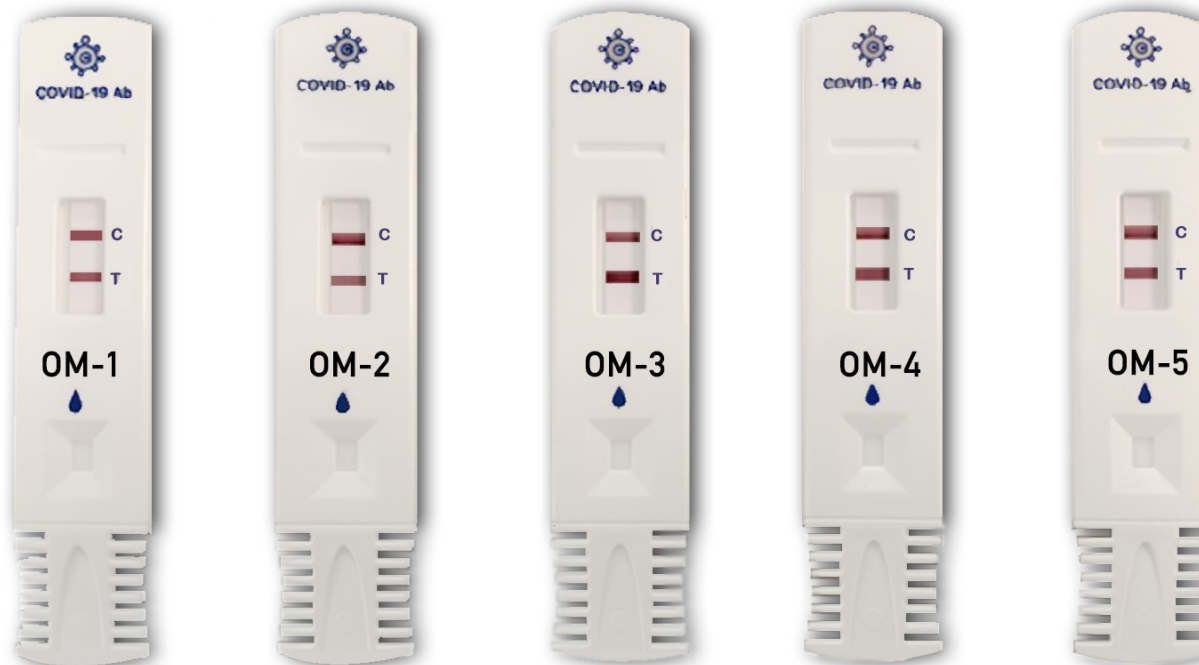
PMID: 32895485



# CovAb™ detects antibodies in patients who have been infected with Omicron variant



Patient results of antibodies with CovAb™ after Omicron infection



CovAb.com | 1.877.748.9355



## Summary



Epitopes on S1 Spike sequence that show reactivity with antibodies present in COVID-19 patient sera were mapped



Epitope corresponding to E2 region is highly conserved among the variants



Hot B-cell epitope “tesnkkflpfqqfgrdiad” is identical between SARS – CoV-2 Wild type and the Omicron variant



CovAb™ SARS-CoV-2 antibody test is designed with S1 spike protein to capture the antibodies in response to infection



CovAb™ detects antibodies in patients who have been infected with Omicron variant





## Conclusion

- The In Silico analysis and clinical testing showed CovAb SARS-CoV-2 antibody test binds to antibodies generated by Omicron variant

The background is a dark blue gradient with faint, stylized virus particles scattered throughout. A thick, rounded pink bar is positioned horizontally across the lower half of the image.

**CovAb**<sup>TM</sup>

SARS-CoV-2 Ab Test

**THANK YOU**