



**DATE:** April 6<sup>th</sup>, 2021

**TO:** UCM Medical Staff, Housestaff, Nursing Staff, Patient Care Centers, and Outpatient Clinics

**FROM:** KT Jerry Yeo, PhD, DABCC, FAACC  
Medical Director, Clinical Chemistry Laboratories

**RE:** Covid-19 Antibodies Tests: Nucleocapsid (N) vs Spike RBD (S) Antibodies

As of April 6<sup>th</sup> 2021, the Clinical Chemistry Laboratories will re-introduce the qualitative **anti-SARS-CoV-2 nucleocapsid antibodies (N-Ab) test** for the purpose of differentiating between individuals who develop an adaptive immune response from natural infection versus those with Covid vaccine-induced immune response. For individuals who have received spike protein-based Covid vaccines, typically they will show robust levels of anti-SARS-CoV-2 spike RBD antibodies (S-Ab) several weeks after the second vaccine dose; these same individuals will show negative N-Ab results unless they had recent or prior infection.

**Summary:**

- We have validated that the Roche N-Ab test shows very high specificity and typically would not cross-react with antibodies to spike RBD proteins. For example, a fully vaccinated, noninfected individual with extremely **high levels of S-Ab** (e.g. 1000 U/ml) will show **negative N-Ab** test.
- For clinical investigations involving vaccine-elicited immune response, please order the S-Ab test as the N-Ab test will be negative.
- For clinical investigations involving prior or recent natural SARS-CoV-2 infections (unvaccinated or vaccinated individuals), N-Ab test may be useful, used in conjunction with relevant clinical assessment.

**Note:**

- Antibody testing is not currently recommended by CDC to routinely assess immunity to Covid-19 following vaccination or to assess need for vaccination in an unvaccinated individual (1).

**Specimen requirements and Ordering Information:**

Test Name	Epic Order Code	Specimen
Anti-SARS-CoV-2 Nucleocapsid (N) Antibodies	<b>COVNAB</b>	Serum preferred. Collect 5 ml. blood in a gold serum separator tube (SST). Mint-green PST, EDTA tube acceptable. Separate serum or plasma from blood ASAP or within 2 hrs of collection.
Anti-SARS-CoV-2 Spike (S) Antibodies	<b>COVSPK</b>	Serum preferred. Collect 5 ml. blood in a gold serum separator tube (SST). Mint-green PST, EDTA tube acceptable. Separate serum or plasma from blood ASAP or within 2 hrs of collection.

If you have any questions, please contact me by email at [jyeo@bsd.uchicago.edu](mailto:jyeo@bsd.uchicago.edu)

### **Limitations and Additional Information:**

- The Roche Elecsys Anti-SARS-CoV-2 antibody tests (N-Ab and S-Ab) have not received US FDA approval.
- They have received US FDA Emergency Use Authorization (EUA) for the detection of nucleocapsid (N-Ab) and spike antibodies (S-Ab) to SARS-CoV-2 in human serum and plasma.
- These assays should not be used solely to diagnose or exclude acute SARS-CoV-2 infection.
- Results are for the detection of SARS-CoV-2 antibodies which are generally detectable in blood several days after initial infection.
- The duration of time the antibodies are present post-infection is not well characterized.
- Negative results do not rule out SARS-CoV-2 infection. If acute infection is suspected, follow-up testing with a molecular diagnostic assay should be considered to rule out infection in these individuals.
- False positive results for this assay may occur due to cross-reactivity from pre-existing antibodies or other possible causes.

### **Reference**

1. Interim Guidelines for Covid-19 Antibody Testing. <https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antibody-tests-guidelines.html>