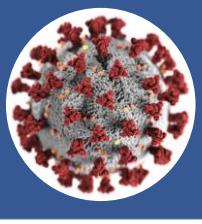
SALIVARY SARS-CoV-2 N-PROTEIN QUICK START GUIDE



BIOLOGICAL CONSIDERATIONS

Coronavirus antibody testing in saliva has shown utility as a sensitive and specific serum alternative for large-scale immune-surveillance studies. Importantly, IgG in saliva is derived from serum, so specificity and reactivity of salivary IgG directly reflects serum IgG reactivity, making saliva serology an attractive alternative. Each virion consists of four structural proteins: S (spike protein), E (envelope), M (membrane), and N (nucleocapsid). For this assay, the N protein was chosen to maximize the likelihood of antibody detection, since it is the most immunodominant protein in the coronavirus family. This also affords researchers the opportunity to identify naturally acquired viral infections (except for some attenuated vaccines). False negatives can be minimized by excluding low total IgG levels in saliva samples.

Biological Representation	Humoral Immunity
Serum-Saliva Correlation	1.0

SAMPLE TIMING AND DESIGN

Current research has shown that antibody levels decrease in the serum of COVID-19 patients over time and vary depending on disease severity. In fact, a higher number of asymptomatic participants become seronegative at 60 days indicating a true decline over a 2-month period rather than an artifact of assay performance. Salivary Total IgG is required as a companion assay to verify sample qualifiers.

FREQUENTLY STUDIED WITH

IgG, IgM, Cytokines

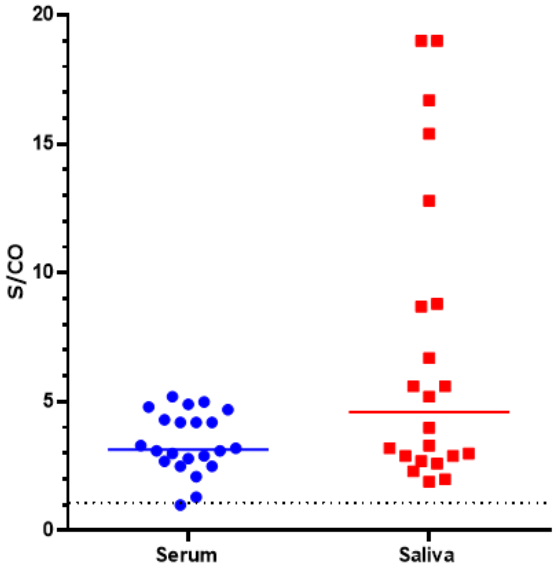
TECHNICAL SUMMARY

Sample Collection Methods & Volumes	
Passive Drool (Recommended)	✓
SalivaBio Swabs	✓
Optimum Collection Volume	200 µL*

*Add 300 µL to the total collection volume for all analytes of interest.

EXAMPLE DATA

SARS-CoV-2 N Protein IgG in Saliva vs Serum in COVID-19 confirmed PCR (+) patients.



*Salimetrics Validation Study

KEY RESOURCES

1. Granger, DA, Taylor, MK. (2020). Salivary Bioscience: Foundations of Interdisciplinary Saliva Research and Applications. Springer. https://springer.com/book/10.1007/978-3-030-35784-9
2. Randad, PR., et al. (2021). COVID-19 serology at population scale: SARS-CoV-2-specific antibody responses in saliva. J Clin Microbiol.
3. Hettegger, P., et al. (2019). High similarity of IgG antibody profiles in blood and saliva opens opportunities for saliva based serology. PloS one. 2019;14(6):e0218456.
4. Heaney, JLJ., et al. (2018). The utility of saliva for the assessment of anti-pneumococcal antibodies: investigation of saliva as a marker of antibody status in serum Biomarkers. 23(2):115-22.
5. Patel, M., et al. (2020). Change in Antibodies to SARS-CoV-2 Over 60 Days Among Health Care Personnel in Nashville, Tennessee. JAMA.
6. Vabret N. (2020). Antibody responses to SARS-CoV-2 short-lived. Nat Rev Immunol. 20(9):519.
7. Long QX., et al. (2020). Antibody responses to SARS-CoV-2 in patients with COVID-19. Nat Med. 26(6):845-8.