

Dive Deeper into COVID-19 Research

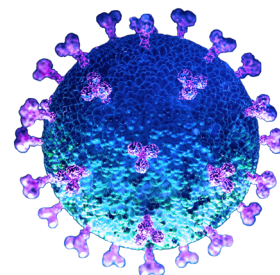
Harness SMC™ technology to precisely and thoroughly characterize SARS-CoV-2 antibody response

The unparalleled sensitivity and resolution of our new SMC™ SARS-CoV-2 RBD IgG kit can improve the value of data generated from crucial COVID-19 related vaccine development, epidemiology, and surveillance studies.

Immunoassay-based serology techniques play key roles in many SARS-CoV-2 research programs due to their ability to identify and characterize the immune response of individuals already infected by the virus through analysis of biomarkers such as immunoglobulins (Ig). However, the limited sensitivity and resolution offered by traditional assay platforms and their serology assays can leave unanswered crucial research questions.

We harnessed the power of the Single Molecule Counting (SMC™) ultrasensitive immunoassay platform for the development of new products to address the scientific community's needs including identifying low level SARS-CoV-2 mediated antibody response and resolving subtle differences in humoral immunity among individuals.

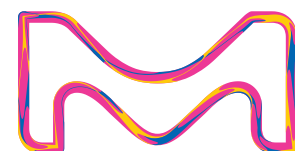
The new SMC™ SARS-CoV-2 RBD IgG kit can be used by researchers to accurately understand the extent of SARS-CoV-2 infection in society, thoroughly profile immune responses after vaccine challenge, and understand heterogeneous responses to infection among individuals and subpopulations.



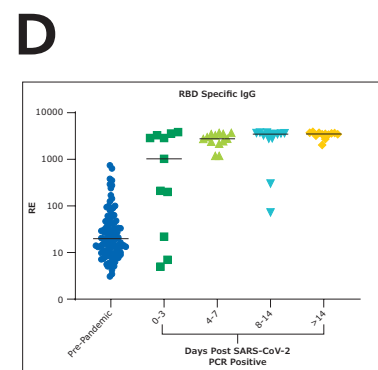
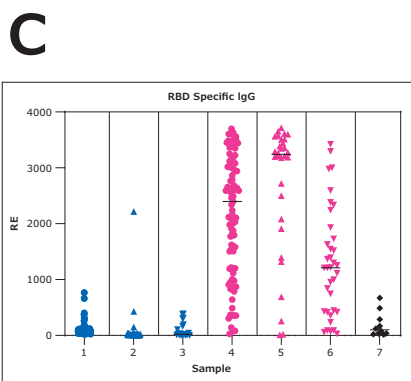
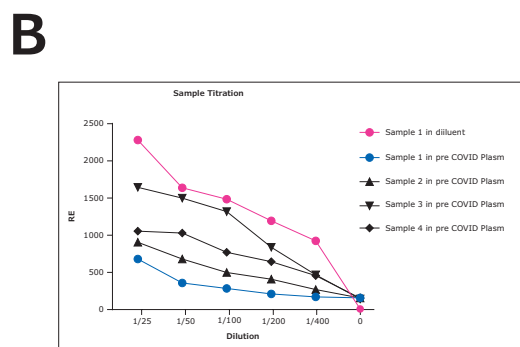
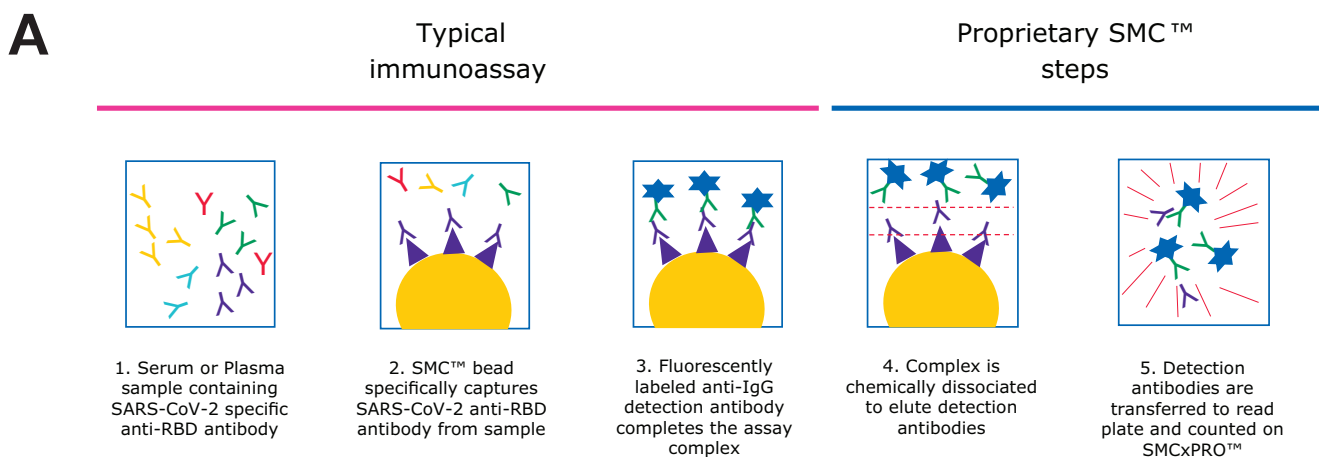
For Research Use Only. Not For Use In Diagnostic Procedures.

SMC™ SARS-CoV-2 RBD IgG Kit Characteristics:

- Developed for the user-friendly SMCxPRO™ ultrasensitive immunoassay system
- Qualitative assay; for Research Use Only (RUO)
- Enables detection of low level IgG host response against Receptor Binding Domain (RBD) of SARS-CoV-2 spike protein
- Able to detect antibodies in 2 µL of human serum or plasma samples (within three days of positive PCR test)
- Rigorously developed to maximize sensitivity and specificity, while minimizing cross-reactivity
- Simple assay protocol (one hour capture, 30 minute detection steps)
- Utility in vaccine development, epidemiology, and public health research



Assay Principle and Example Data



Cutoff	RE 400	RE 600
Sensitivity	0.881	0.849
Specificity	0.981	0.987
AUC	0.981	0.981

A) Proprietary elution and digital molecular counting steps enable the SMC™ SARS-CoV-2 RBD IgG kit to detect antigen specific IgG in human serum and plasma at much lower levels compared to traditional immunoassays.

B) Instrument response (RE) when measuring titrations of plasma belonging to five donors on the SMCxPRO™ ultrasensitive immunoassay system, diluted in either kit standard diluent or pre-COVID plasma; 0 condition indicates diluent or pre-COVID plasma alone.

C) Aggregate data is shown for in-house testing of ~300 donor plasma samples from seven training sample cohorts yielding high sensitivity and specificity by Youden's J Statistic when using instrument response (RE) of 400 and 600 as example cut-points. (1 = pre-pandemic, 2 to 3 = SARS-CoV-2 PCR negative, 4 to 6 = SARS-CoV-2 PCR positive, 7 = Influenza cross-reactivity control).

D) SARS-CoV-2 RBD-specific IgG detection in plasma from pre-pandemic and SARS-CoV-2 positive patients grouped chronologically, demonstrating ability of this assay to identify immune response within 3 days of a PCR positive result.

Product Description	Cat. No.
SMC™ SARS-CoV-2 RBD IgG Kit	03-0193-00

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Discover more at SigmaAldrich.com/smc

