



NAB-Sure™ SARS-CoV-2 Neutralizing Antibody Test Kit – Frequently Asked Questions (FAQ)

What is the Spear Bio technology?

Spear Bio uses proprietary SPEAR (Successive Proximity Extension Amplification Reaction assay) technology. The assay uses selected oligonucleotides conjugated to antibodies. These oligos can only be extended when they are in proximity, such as when the antibodies have bound to their target. Primer extended products are then detected by standard qPCR.

What is the principle of the NAB-Sure™ SARS-CoV-2 assay?

The NAB-Sure™ SARS-CoV-2 assay is a competitive binding assay that uses Spear Bio technology. It is a surrogate virus neutralization test (sVNT), which measures the ability of antibodies in a sample to block SARS-CoV-2 Spike Protein from binding to the ACE2 receptor protein in solution. The assay is accurate, and highly sensitive and compares favorably with existing neutralizing antibody assays.

What are SARS-CoV-2 Neutralizing Antibodies?

An immune response to SARS-CoV-2 generates an array of antibodies against the causative SARS-CoV-2 virus, but only a subset of these antibodies - called neutralizing antibodies - prevent viruses from infecting host cells. Studies show these neutralizing antibodies are correlated with reduced COVID-19 infections.

What are neutralizing antibody assays for SARS-CoV-2?

Neutralizing antibody assays specifically detect antibodies that block SARS-CoV-2 virus from entering host cells. Existing methods to detect these antibodies include cell-based assays and ELISA-based surrogate virus neutralization assays. Cell-based assays include plaque reduction neutralization test (PRNT), microneutralization assay (MNA), and pseudotyped virus neutralization assay (PVA).

How is the NAB-Sure™ SARS-CoV-2 assay different from other antibody tests?

NAB-Sure™ SARS-CoV-2 Assay is specific to neutralizing antibodies as opposed to total antibodies. Present ELISA and EIA immunoassays detect total antibodies against either SARS-CoV-2, the SARS-CoV-2 Spike Protein S1 subunit or the Receptor Binding Domain (RBD) on S1.

In addition, NAB-Sure™ SARS-CoV-2 Assay has many advantages over other neutralizing antibody tests. For example, cell-based assays take usually 3-4 days, have high inter-lab variations, and require Bio Safety Level (BSL) 2 - and above - laboratories due to the exposure



risk using a live virus. ELISA-based surrogate virus neutralization assays have low sensitivity to detect antibodies from a small sample size.

Which applications are appropriate for this assay?

The Spear Bio's NAB-Sure™ assay can be used to determine the portion of an individual's SARS-CoV-2 antibodies that can neutralize the SARS-CoV-2 virus after recent or prior infection or another immune event. Researchers can use the test to further understand the biology and epidemiology of COVID-19 infections. Neutralization assays are also used as surrogate clinical endpoints in vaccine trials.

Which systems are compatible with NAB-Sure™ SARS-CoV-2 assay?

NAB-Sure™ SARS-CoV-2 Kit is designed to work with standard thermocycler and qPCR systems for 96 and 384 well plates. The assay has been validated with both manual and Integra liquid handling automation systems. Please see the NAB-Sure™ datasheet for more information on specific systems used in development.

How long does this test take to run?

The test takes approximately 8 hours if includes processing of dried blood spot (DBS) samples and 6.5 hours if using plasma or serum samples.

Does this test indicate acute infection?

This test does NOT detect the SARS-CoV-2 virus. It should not be used to determine infection.

What sample types does this assay support?

The assay has been validated with DBS, plasma and serum samples.

What test result does this test produce?

NAB-Sure™ SARS-CoV-2 Assay is a surrogate virus neutralization assay and results are expressed as NT50, which refers to the sample dilution fold at which 50% of the interaction between S1 protein and ACE2 receptor is inhibited.

What is the sensitivity and specificity of the assay?

Studies performed with 96 subject samples determined that the sensitivity of the assay was 100% (95% CI, 95.35%-100%), and specificity of the assay was 100% (95% CI, 82.35%-100%).

What are the sample requirements?

DBS samples need to be properly collected and dried before shipment with desiccant. After receiving DBS samples, they should be stored at -20°C or less until use. Plasma and serum samples need to be properly collected and stored at -20°C or less until use.



For other inquiries, please contact as info@spear.bio