SARS-CoV-2 Antigens

Background

The single-stranded, plus-sense severe acute respiratory syndrome coronavirus 2 (SARS–CoV-2) genome encodes nonstructural replicase polyproteins as well as structural proteins such as spike (S), nucleocapsid (N), membrane (M) and envelop (E) proteins. N protein is abundantly expressed and highly immunogenic during SARS-COV-2 infection. The middle or C-terminal region of the N protein has been shown to elicit antibody production during the immune response. S protein is a transmembrane homotrimeric class I fusion glycoprotein; the S1 subunit binds to angiotensin-converting enzyme II (ACE2) and S2 subunit is involved in the fusion of viral and host cell membranes. The distal S1 subunit contains a receptor binding domain (RBD), whose hinge-like conformational movement is required for ACE2 receptor binding and refolding of S2 for membrane fusion. S and its RBD have been the targets for the design and development of vaccines to prevent SARS-CoV-2 infection and rechallenge.

Product Information

Protein Name	Description	Catalog No.	Molecular Weight	Host	Applications
N	Nucleocapsid Protein	VPN1	49 kDa	Insect cells	Western Blot
N	Nucleocapsid Protein	VPN2	49 kDa	*E. Coli*	Western Blot ELISA
S	Spike Protein	VPS1	27 kDa	HEK293 Cells	Western Blot ELISA
Human Nasopharyngeal Swab Lysates	Confirmed by EUA RT-PCR Tests	VCS1	Whole Virus	Human	Western Blot ELISA
Human Nasopharyngeal Swab Lysates with Ct Values	Confirmed by EUA RT-PCR Tests	VCS2	Whole Virus	Human	TBD

Product Features

- Purity >95% as determined by reducing SDS-PAGE
- Validated in Western Blot and ELISA
- Human specimens were lysed and safe to use

Validation Examples

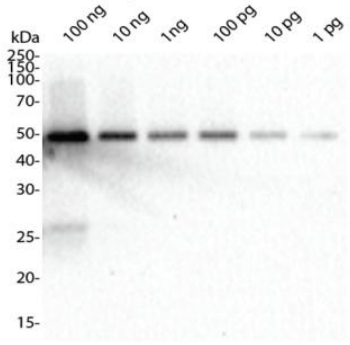

Figure 1. Serial dilutions of recombinant SARS-CoV-2 N protein (Cat# VPN2) in Viral Lysis Buffer (Cat# VL101) were separated by SDS-PAGE and blotted with rabbit monoclonal anti-N primary antibody (Cat# VY701, 1:2,000 dilution) and HRP-conjugated highly cross-adsorbed goat anti-rabbit IgG secondary antibody (Cat# 202), respectively. The blot was then incubated using PiQ™ ECL Substrate Kit (Cat# 639) and imaged using a chemiluminescence digital imager.

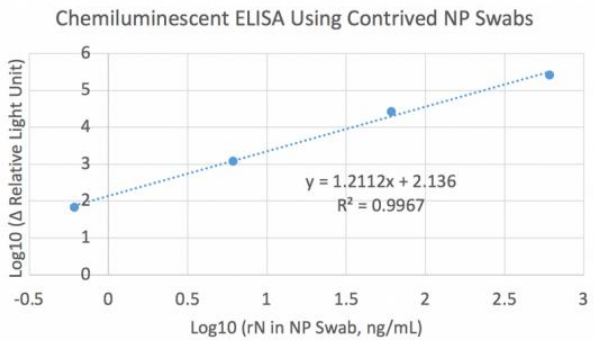

Figure 2. Chemiluminescent ELISA using contrived human nasopharyngeal (NP) swab specimens. Different concentrations of recombinant nucleocapsid protein (rN) (Cat# VPN1) were spiked in RT-PCR-confirmed negative human NP swabs and lysed in Viral Lysis Buffer (Cat# VL101). The lysates were coated on microplate wells, and rabbit monoclonal anti-N primary antibody (Cat# VYN4, 1:10,000 dilution) and HRP-conjugated highly cross-adsorbed goat anti-rabbit IgG secondary antibody (Cat# 202, 1:20,000) were used to detect SARS-CoV-2 N protein. ShQ™ ECL reagents (Cat# 707) were used to generate chemiluminescent signals. RLU, relative light unit.