

## PRODUCT DATASHEET

### SARS-CoV-2 Spike Glycoprotein S1, HEK293, HRP labelled

**Cat. No.:** RN0005100H

**Type:** Recombinant protein

**Size:** 0.1 mg

**Source:** HEK293

**Species:** SARS-CoV-2

#### Description

Recombinant SARS-CoV-2 Spike Glycoprotein S1 (NCBI accession number YP\_009724390.1, AA1-674), C-terminally tagged with a predominantly monomeric sheep Fc-tag. Protein was produced in HEK293 cells and purified from culture supernatant by Protein G chromatography, and then conjugated to Horseradish peroxidase (HRP).

#### Other names

Severe acute respiratory syndrome coronavirus 2 spike glycoprotein S1, 2019 novel coronavirus S1 protein, SARS-CoV-2 S1 subunit, COVID-19

#### Introduction to the molecule

Coronaviruses (CoVs), within the order Nidovirales, are enveloped, single-strand, positive-sense RNA viruses with a large genome of approximately 30 kbp in length. A human infecting coronavirus (viral pneumonia) initially known as 2019 novel coronavirus (2019-nCoV) was found in the fish market at the city of Wuhan, Hubei province of China in December 2019. The virus is now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

SARS-CoV-2 shares an 87% identity to the 2 bat-derived severe acute respiratory syndrome 2018 SARS-CoV-2 located in Zhoushan of eastern China. SARS-CoV-2 has an analogous receptor-BD-structure to that of 2018 SARS-CoV, even though there is a.a. diversity so thus the SARS-CoV-2 might bind to ACE2 receptor protein (angiotensin-converting enzyme 2) in humans.

While bats are possibly the host of SARS-CoV-2, researchers suspect that animal from the ocean sold at the seafood market was an intermediate host. RSCU analysis proposes that the SARS-CoV-2 is a recombinant within the viral spike glycoprotein between the bat coronavirus and an unknown coronavirus.

Coronaviruses contain at least four structural proteins: Spike (S) protein, envelope (E) protein, membrane (M) protein, and nucleocapsid (N) protein.

The spike (S) glycoprotein is a type I transmembrane glycoprotein that plays an important role in mediating viral infection and is common to all HCoVs. The S proteins consist of two subunits, S1 and S2. The S1 subunit binds the cellular receptor through its receptor-binding domain (RBD), followed by conformational changes in the S2 subunit, which allows the fusion peptide to insert into the host target cell membrane. The heptad repeat 1 (HR1) region in the S2 subunit forms a homotrimeric assembly, which exposes three highly conserved hydrophobic grooves on the surface that bind heptad repeat 2 (HR2). This six-helix bundle (6-HB) core structure is formed during the fusion process and helps bring the viral and cellular membranes into close proximity for viral fusion and entry. Thus, the S protein is an important target protein for the development of specific drugs.

#### Research topic

COVID-19, Immune Response, Infection and Inflammation

**Formulation:**

Dulbecco's phosphate buffered saline (DPBS) pH 7.4., 50mM tris, 1% BSA, 0.05% Proclin

**Reconstituion:**

Defrost at ambient temperature

**Shipping**

On ice. Upon receipt, store the product at the temperature recommended below.

**Storage, Stability/Shelf Life**

Store protein at  $-80^{\circ}\text{C}$ . Protein remains stable until the expiry date when stored at  $-80^{\circ}\text{C}$ . Avoid repeated freezing/thawing cycles.

**Applications**

COVID-19, ELISA, Western blotting

**Note**

This product is intended for research use only.

