

PRODUCT DATASHEET

SARS-CoV-2 Spike Glycoprotein S1 RBD, CHO

Cat. No.: RN0007020

Type: Recombinant protein

Size: 0.02 mg

Source: CHO

Species: SARS-CoV-2

Description

Recombinant SARS-CoV-2 Spike protein S1 subunit, receptor-binding domain (RBD) (319-541) is expressed in CHO cells using a C-terminal His-tag to greater than 95% purity. These proteins can be used as diagnostic standard antigens, targets of neutralizing antibodies and in the development of antibodies to detect SARS-CoV-2 in patients. They are manufactured using a mammalian expression system as this is more immunogenic than proteins produced in *E. coli*.

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

Purity

Purified to greater than 95% purity.

Biological activity

Measured by its binding ability in a functional ELISA. Immobilized human ACE2 (19-740) protein at 2µg/ml can bind to SARS-CoV-2 Spike protein RBD.

Formulation:

Presented in 50mM sodium phosphate, pH7.5, 300mM NaCl, 150mM imidazole.

Reconstitution:

Defrost at ambient temperature

Shipping

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

Storage, Stability/Shelf Life

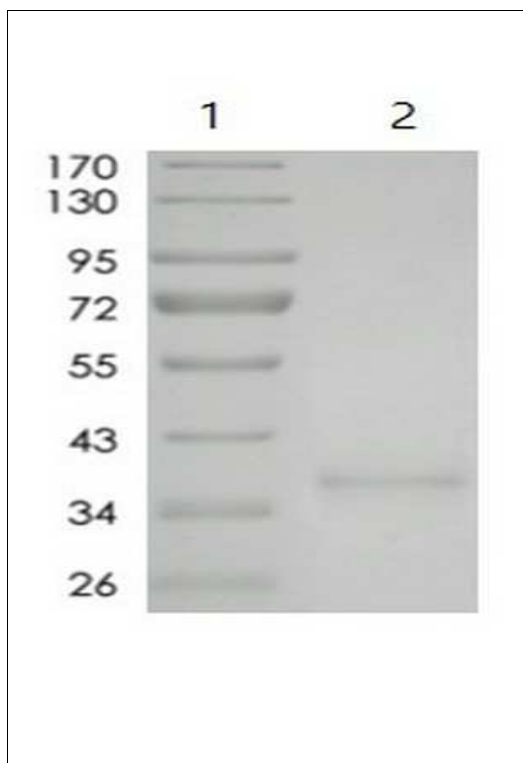
Store frozen protein at min. -70°C. The protein remains stable until the expiry date when stored at -70°C.

Applications

COVID-19, ELISA, Western blotting

Note

This product is intended for research use only.



SDS-PAGE: Spike RBD protein run on a SDS-PAGE showing greater than 95% purity.

1.MW marker

2. Spike protein RBD