

Recombinant His tagged Spike S1 protein of SARS-CoV-2 (2019-nCoV) S1 (D614G) – Protein

Cat # NTSB-1001

Product Information

Synonyms: Novel coronavirus s1; Spike S1; ncov s1; cov spike; ncov spike; NCP-CoV s1; novel coronavirus s2; ncov s2; NCP-CoV s2; S2; novel coronavirus RBD; ncov RBD; NCP-CoV RBD

Protein Construction: The DNA sequence encoding recombinant SARS-CoV-2 (2019-nCoV) S1 (D614G) - Protein [His] (YP_009724390.1) (Val16-Arg685(D614G)) was expressed with a poly-histidine tag at the C-terminus

Source Species: Novel coronavirus (2019-nCoV) or SARS CoV-2

Expression system: Human embryonic kidney 293 cells (HEK293 Cells)

QC Parameters

Purity: > 98% based on SDS-PAGE determination

> 98% based on RP-HPLC determination

Biological Activity/Principle of detection: Measured by its binding ability in a functional ELISA. Immobilized human receptor protein ACE2 (Fc tag) at 2 µg/mL(100µL/well) can bind 2019-nCoV S1(D614G)-his tag, the EC₅₀ of 2019-nCoV S1(D614G) is 250-650 ng/mL.

Bacterial Endotoxin detection: < 1.0 EU/µg protein based on LAL method

Predicted N terminal: Val16

Molecular weight: The recombinant SARS-CoV-2 (2019-nCoV) Spike Protein (S1 Subunit, His tag) consists of 681 amino acids and predicts a molecular mass of 76.45 kDa.

Formulation: Lyophilized from Sterile Phosphate buffer saline (pH 7.4)

Prior to lyophilization, protectants such as mannitol, trehalose (at 5 % - 8 %), and Tween80 (at 0.01%) are usually added. The hardcopy of COA provides specific concentrations. For special requirements or any other concerns, please contact us on the given address or number.

Usage Guidelines

Storage & Stability: Recommended storage range is -20°C to -80°C at which the samples are stable for up to 12 months from date of receipt.

Note: Storage conditions must be sterile. Protein should be aliquoted in small quantity for optimal storage. Multiple freeze thaw cycles must be avoided.

Reconstitution Instructions: Detailed instructions for reconstituting protein are included in the product package. Please read the instructions carefully prior to starting the experiment.

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Protein Description:

The coronaviruses possess glycoprotein protrusions called spike (S) that interact with specific receptors present on the host cell. Some examples of these host receptors include ACE2, (angiotensin-converting enzyme 2), APN (aminopeptidase N), CEACAM (carcinoembryonic antigen-related cell adhesion molecule 1), DPP4 (dipeptidyl peptidase- 4), Sia (sialic acid), and O-ac Sia (O-acetylated sialic acid).

The club-shaped spike protein contains several functional regions and two subunits S1 and S2. S1 globular head region contains the N-terminal receptor-binding domain (RBD) and the S2 stem region contains the C-terminal fusion domain, two heptad regions, a transmembrane domain, and a cytoplasmic tail that are needed for membrane fusion (1,2). The viral spike protein is critical for attachment of the virus with the host cell, resulting in fusion and virus entry into the cell. Aside from infection, spike proteins are also responsible for inducing neutralizing of antibodies, T-cell responses, and protective immunity.

The spike proteins are the main target for vaccine design. They frequently mutate or undergo gene recombination of RBD allowing the virus to jump hosts, resulting in higher mortality rate.

References:

1. Pillay T. S. (2020). Gene of the month: the 2019-nCoV/SARS-CoV-2 novel coronavirus spike protein. *Journal of Clinical Pathology*. <https://doi.org/10.1136/jclinpath-2020-206658>
2. Malik Y. A. (2020). Properties of Coronavirus and SARS-CoV-2. *The Malaysian Journal of Pathology*.
3. Shen S, et al. (2007) Expression, glycosylation, and modification of the spike (S) glycoprotein of SARS CoV. *Methods Mol Biol*. 379: 127-35.
4. Du L, et al. (2009) The spike protein of SARS-CoV--a target for vaccine and therapeutic development. *Nat Rev Microbiol*. 7 (3): 226-36.
5. Xiao X, et al. (2004) The SARS-CoV S glycoprotein. *Cell Mol Life Sci*. 61 (19-20): 2428-30.

Company Details

Website: visit <https://neuome.com> or contact contact@neuome.com

Contact No: +91 6363955164

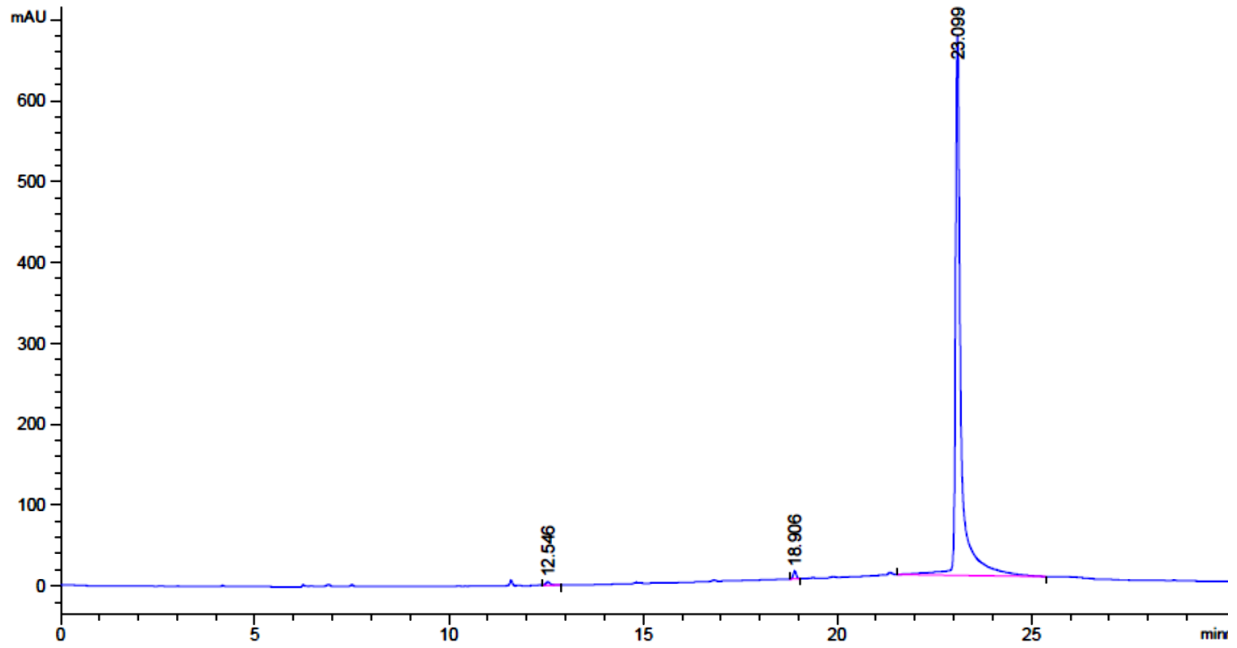
Contact Address: Neuome Technologies Pvt Ltd, Helix Biotech Park, Bangalore Bioinnovation Centre, Electronics City Phase-I, Bengaluru, Karnataka 560100, India.

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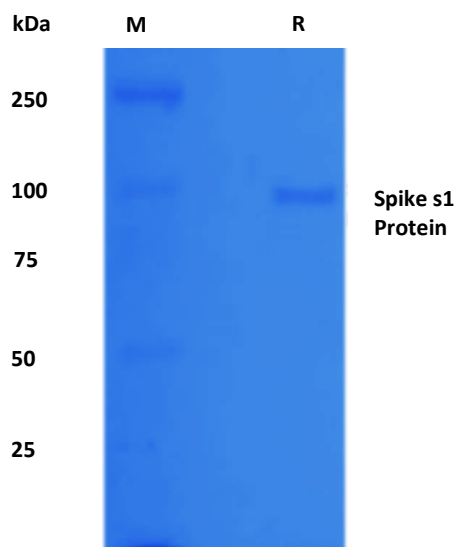
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Data Images

Reverse Phase HPLC



SDS-PAGE



WB

