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Certificate of Analysis & Data Sheet

Catalog Number: 230-30166

Recombinant SARS-CoV-2 S1 subunit protein,
Host Cell Receptor Binding Domain (RBD)
with mouse IgG Fc-tag

Source

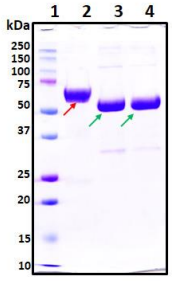
- **Species** SARS-CoV-2
- **Accession Number** QHD43416
- **Expressed Region** Arg319 - Phe541
- **Synonyms** Spike protein, S Protein, S1 Subunit, Host Cell Receptor Binding Domain (RBD).

Preparation

- **Expression System** Human embryonic kidney 293 (HEK293) cells
- **Tag** C-terminal mouse IgG Fc-tag
- **Purification** Protein G affinity purification
- **Purity** >95%
- **Purity determined** By SDS-PAGE under reducing conditions and visualized by Coomassie blue staining
- **Molecular Weight** Recombinant protein product has a calculated molecular mass of 50 kDa including 25 kDa mouse IgG Fc-tag. Due to the abundant glycosylation, it migrates as approximately ~65 kDa major protein band in SDS-PAGE under DTT, beta-mercaptoethanol reducing conditions. See deglycosylation analysis image below.

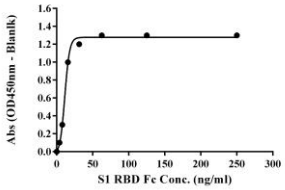
Protein Specifications

- **Format** Liquid
- **Formulation** Supplied as a 0.2 µm filtered solution in PBS (pH 7.4)
- **Concentration** Lot specific (see the label on the vial), determined by BCA protein assay.
- **SDS-PAGE Image** Deglycosylation analysis of the purified recombinant proteins. The purified proteins were untreated (*Lane 2, right*) or treated with deglycosylation under native (*Lane 3*) or reducing (*Lane 4*) conditions. Deglycosylation treatment resulted in a mobility shift of the protein to produce one major band at the expected size (~50 kDa), thus indicating that the untreated recombinant protein (*Lane 2*, ~65 kDa) was glycosylated. **Lane 1**: protein standard ladder (*kDa*). **Lane 2**: untreated protein (~65 kDa, *red arrow*) under reducing conditions. **Lane 3**: treated protein (~50 kDa, *green arrow*) with deglycosylation enzymes under native conditions. **Lane 4**: treated protein (~50 kDa, *green arrow*) with deglycosylation enzymes under reducing conditions.



Binding Function

The human ACE2 protein product (Raybio, Cat. 230-30165) was coated in 96-well plate and incubated with the serial diluted recombinant S1/RBD-Fc protein (Raybio, Cat. 230-30166). The bound S1/RBD-Fc was detected by HRP-conjugated anti-mouse IgG antibody using ELISA. The calculated EC_{50} is 9.85-13.46 ng/mL (*right*).



Shipping

The product is shipped with ice packs.

Storage/Stability

Upon arrival, the protein may be stored for 2 weeks at 4 °C. For long term storage, it is recommended to store at -20 °C or -80 °C in appropriate aliquots. Avoid repeated freeze-thaw cycles.

References

- M Hoffmann, et al. SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor. **Cell**. 181, 1–10 (2020).
- W Li et al. Angiotensin-converting enzyme 2 is a functional receptor for the SARS coronavirus. **Nature**. 426, 450–454 (2003).
- N Dong, et al. Genomic and protein structure modelling analysis depicts the origin and infectivity of 2019-nCoV, a new coronavirus which caused a pneumonia outbreak in Wuhan, China. **bioRxiv** (2020).