Recombinant SARS-CoV-2 Spike (GCN4-IZ) His-tag Alexa Fluor® 647

Catalog Number: AFR10561

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived sars-cov-2 Spike protein

SARS-CoV-2 Spike (Val16-Lys1211) (R682S)(R685S)(K986P)(V987P) Accession # YP_009724390.1	GCN4-IZ	HHHHHH

N-terminus C-terminus

Includes trimerization domain GCN4-IZ

N-terminal Sequence Analysis	Val16
Structure / Form	Non-covalent trimer / multimer, Labeled with Alexa Fluor® 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Predicted Molecular Mass	138 kDa

SPECIFICATIONS

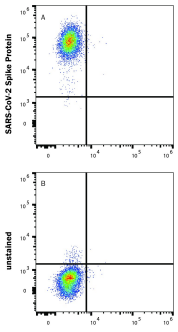
SDS-PAGE	144-175 kDa, under reducing conditions
Activity	Measured by flow cytometry for its ability to bind HEK293 human embryonic kidney cells transfected with human ACE-2 at 0.50-2.00 µg/mL (100 µL/well). Please Note: Optimal dilutions should be determined by each laboratory for each application.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Supplied as a 0.2 µm filtered solution in PBS with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Protect from light. Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 6 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after opening. • 3 months, -20 to -70 °C under sterile conditions after opening.

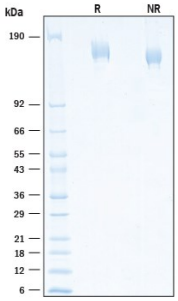
DATA

Flow Cytometry



Detection of ACE-2 on HEK293 Transfectants with Recombinant SARS-CoV-2 Spike (GCN4-IZ) His-tag Alexa Fluor® 647 by Flow Cytometry. HEK293 human embryonic kidney cells transfected with human ACE-2 were stained with (A) 1 µg/mL (100 µL/well) Recombinant SARS-CoV-2 Spike (GCN4-IZ) His-tag Alexa Fluor® 488 Protein (Catalog # AFG10561) or (B) unstained.

SDS-PAGE



Recombinant SARS-CoV-2 Spike (GCN4-IZ) His-tag Alexa Fluor® 647 SDS-PAGE. 2 µg/lane of Recombinant SARS-CoV-2 Spike (GCN4-IZ) His-tag Alexa Fluor® 647 Protein (Catalog # AFR10561) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 144-175 kDa.

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BACKGROUND

SARS-CoV-2, which causes the global pandemic coronavirus disease 2019 (Covid-19), belongs to a family of viruses known as coronaviruses that are commonly comprised of four structural proteins: Spike protein (S), Envelope protein (E), Membrane protein (M), and Nucleocapsid protein (N) (1). SARS-CoV-2 Spike Protein (S Protein) is a glycoprotein that mediates membrane fusion and viral entry. The S protein is homotrimeric, with each ~180-kDa monomer consisting of two subunits, S1 and S2 (2). In SARS-CoV-2, as with most coronaviruses, proteolytic cleavage of the S protein into the S1 and S2 subunits is required for activation. The S1 subunit is focused on attachment of the protein to the host receptor while the S2 subunit is involved with cell fusion (3-5). The S protein of SARS-CoV-2 shares 75% and 29% amino acid (aa) sequence identity with the S protein of SARS-CoV-1 and MERS, respectively. The S Protein of the SARS-CoV-2 virus, like the SARS-CoV-1 counterpart, binds Angiotensin-Converting Enzyme 2 (ACE-2), but with much higher affinity and faster binding kinetics through the receptor binding domain (RBD) located in the C-terminal region of S1 (6). Based on structural biology studies, the RBD can be oriented either in the up/standing or down/lying state with the up/standing state associated with higher pathogenicity (7). Polyclonal antibodies to the RBD of the SARS-CoV-2 protein have been shown to inhibit interaction with the ACE-2 receptor, confirming RBD as an attractive target for vaccinations or antiviral therapy (8). It has been demonstrated that the S Protein can invade host cells through the CD147/EMMPRIN receptor and mediate membrane fusion (9).

References:

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7. Yuan, Y. *et al.* (2017) Nat. Commun. **8**:15092.
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PRODUCT SPECIFIC NOTICES

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