

Recombinant SARS-CoV-2 (K417T, E484K, N501Y Mutant) Spike Glycoprotein (S1) RBD, His-tagged

Cat. No. S-309S Lot. No. (See product label)

SPECIFICATION

Product Overview	SARS-CoV-2 (B.1.1.28) RBD contains K417T, E484K, N501Y mutations relative to Wuhan Hu-1 with a C-terminus His was expressed in HEK293 and purified by affinity chromatography.
Species	SARS-COV-2
Source	HEK293
ProteinLength	1-223
Description	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus that causes coronavirus disease 2019 (COVID-19). The sequence WIV04/2019, belonging to the GISAID S clade / PANGOLIN A lineage / Nextstrain 19B clade, is believed to be the original sequence infecting humans. However, there are many thousands of variants of SARS-CoV-2 and subtypes of the virus can be placed into much larger groupings such as lineages or clades. In Brazil, a variant of SARS-CoV-2 known as P.1 (20J/501Y.V3, Variant of Concern 202101/02) emerged that was first was identified in four travelers from Brazil, who were tested during routine screening at Haneda airport outside Tokyo, Japan. The P.1 variant contains 17 non-synonymous mutations [L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I, and V1176F] in S protein, [S1188L, K1795Q, and E5665D] in ORF1ab, [E92K] in ORF8, and [P80K] in N protein; 1 deletion: [SGF 3675-3677del] in ORF1ab; and 4 synonymous mutations.

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P.1 is the SARS-CoV-2 variant that accumulates the highest number of mutations in the spike protein (12 mutations). The P.1 variant is found mainly in outbreaks in and around Manaus, the capital of the Brazilian state of Amazonas. A second Brazilian P.2 lineage (B.1.1.28.2 or VUI-202101/01) originated in Rio de Janeiro. This variant only carries the E484K mutation and does not have N501Y or K417T. The P.2 variant occurs throughout Brazil.

One of the most worrying mutations in terms of immune evasion is the E484K, which is shared by the P.1 and the B.1.351 variants. The effect of this mutation has been shown to reduce neutralization ability of sera from convalescent or vaccinated patients. However, sera with high anti-S IgG titers were still able to neutralize the virus with the mutation, suggesting that it is important to induce the highest possible levels of specific antibodies through vaccination to improve protection against emerging variants of SARS-CoV-2. There is evidence to suggest that some of the mutations in the P.1 variant may affect its transmissibility and antigenic profile, which may affect the ability of antibodies generated through a previous natural infection or through vaccination to recognize and neutralize the virus. This has important implications for transmission, reinfection rates, and evasion of antibody-mediated immunity.

Form	Liquid
Molecular Mass	Expected Molecular Weight: 26.5 kDa Observed Molecular Weight: 32 kDa
Purity	Greater than 95% purity.
Storage	Short Term Storage: -80 centigrade Long Term Storage: -80 centigrade Can be frozen

Storage Buffer DPBS

Shipping Dry Ice

GENE INFORMATION

Gene Name S surface glycoprotein [Severe acute respiratory syndrome coronavirus 2]

Official Symbol S

Synonyms S; surface glycoprotein; spike glycoprotein; surface glycoprotein; structural protein; spike protein

Gene ID 43740568

mRNA Refseq MN908947

Protein Refseq YP_009724390

SDS-PAGE Coomassie-stained SDS-PAGE showing purified SARS-CoV-2 RBD with K417T, E484K and N501Y mutations.

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