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SARS-CoV-2 (COVID-19) Spike 156-157EF Antibody

Infectious Disease, COVID-19
Catalog # ASC12209

Product Information

Application	WB, E
Primary Accession	P0DTC2
Other Accession	QHD43416
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Clone Names	S
Calculated MW	141178
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	WB: 1 µg/mL. Antibody validated: Western Blot in human samples. Anti-SARS-CoV-2 Spike 156-157EF antibody specifically does not detect SARS-CoV-2 Delta Variant (B.1.617.2) Spike S1 protein, but detects Spike S1 protein of WT and other variants by ELISA. All other applications and species not yet tested.

Additional Information

Gene ID	43740568
Alias Symbol	S
Other Names	SARS-CoV-2 Spike 156-157EF antibody: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), Surface Glycoprotein, Spike protein
Reconstitution & Storage	SARS-CoV-2 Spike 156-157EF antibody can be stored at 4˚C for three months and -20˚C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SARS-CoV-2 (COVID-19) Spike 156-157EF Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	S {ECO:0000255|HAMAP-Rule:MF_04099}
Function	[Spike protein S1]: Attaches the virion to the cell membrane by interacting with host receptor, initiating the infection. The major receptor is host ACE2 (PubMed:32142651, PubMed:32155444, PubMed:33607086). When S2/S2' has been cleaved, binding to the receptor triggers direct fusion at the cell membrane (PubMed:34561887). When S2/S2' has not been cleaved, binding to the receptor results in internalization of the virus by endocytosis using host

TFRC and GRM2 and leading to fusion of the virion membrane with the host endosomal membrane (PubMed:32075877, PubMed:32221306, PubMed:34903715, PubMed:36779763). Alternatively, may use NRP1/NRP2 (PubMed:33082294, PubMed:33082293) and integrin as entry receptors (PubMed:35150743). The use of NRP1/NRP2 receptors may explain the tropism of the virus in human olfactory epithelial cells, which express these molecules at high levels but ACE2 at low levels (PubMed:33082293). The stalk domain of S contains three hinges, giving the head unexpected orientational freedom (PubMed:32817270).

Cellular Location

Virion membrane {ECO:0000255|HAMAP-Rule:MF_04099, ECO:0000269|PubMed:32979942}; Single-pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF_04099, ECO:0000269|PubMed:34504087}. Host endoplasmic reticulum-Golgi intermediate compartment membrane {ECO:0000255|HAMAP-Rule:MF_04099, ECO:0000269|PubMed:34504087}; Single- pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF_04099}. Host cell membrane {ECO:0000255|HAMAP-Rule:MF_04099, ECO:0000269|PubMed:34504087}; Single-pass type I membrane protein {ECO:0000255|HAMAP-Rule:MF_04099}. Note=Accumulates in the endoplasmic reticulum-Golgi intermediate compartment, where it participates in virus particle assembly. Some S oligomers are transported to the host plasma membrane, where they may mediate cell-cell fusion (PubMed:34504087). An average of 26 +/-15 S trimers are found randomly distributed at the surface of the virion (PubMed:32979942) {ECO:0000255|HAMAP-Rule:MF_04099, ECO:0000269|PubMed:32979942, ECO:0000269|PubMed:34504087}

Background

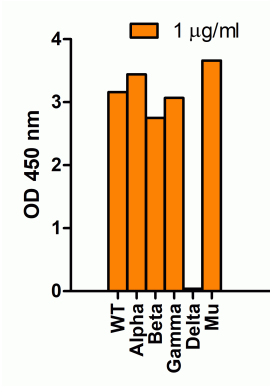
SARS-CoV-2 delta variant, a variant of concern (VOC), known as B.1.617.2, was detected in India in October of 2020. However, it rapidly spread all over of the world and now it is the dominant variant in the world, which account for more than 99% of the cases. This variant carries at least 13 mutations in spike protein across the sub lineages, including L452R, D614G, P681R and K417N, which can increase the affinity to the human ACE2 receptor. Enhanced transmission of the Delta variant was observed globally, which is at least 2.5 times more contagious as the other variants. The Delta variant affects the effectiveness of COVID19 vaccine and is resistant to neutralization to some extent.

References

Zhang et al. JAMA 2021, 325 (13): 1324-26.
Reardon. Nature 2021.
Delphine. Nature 2021, 596 (7871): 276-280.

Images

Figure 1 SARS-Cov-2 Spike 156-157EF Antibodies Specifically Do Not Recognize Delta Variant Spike S1 Protein in an ELISA
Coating Antigen: SARS-CoV-2 spike S1 proteins WT, alpha variant (B.1.1.7), beta variant (B.1.351), gamma variant (P.1), delta variant (B.1.617.2), and mu variant (B.1.621), 1 µg/mL, incubated at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 Delta Variant Spike antibody, ASC12209, 1



µg/mL,, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-rabbit HRP at 1:20,000, incubate at RT for 1 hr.

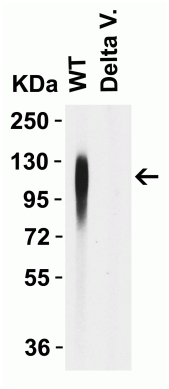


Figure 2 WB Validation of of Spike 156-157EF Antibodies with SARS-CoV-2 Delta Variant Spike S1 Protein
Loading: 50 ng of SARS-CoV-2 spike S1 proteins, including WT and Delta variant (B.1.617.2). Detection Antibodies: SARS-CoV-2 Spike 156-157EF antibody, ASC12209, 1 µg/mL, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-rabbit HRP at 1:20,000, incubated at RT for 1 hr. SARS-CoV-2 Spike 156-157EF antibody (ASC12209) detects spike S1 protein of WT, but not Delta variant.