10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

SARS-CoV-2 (COVID-19) Spike P681R Antibody [5H4C5] (Delta Variant)

Infectious Disease, COVID-19
Catalog # ASC12234

Product Information

Application	E
Primary Accession	P0DTC2
Other Accession	QHD43416
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Clone Names	S
Calculated MW	141178
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Anti-SARS-CoV-2 Spike P681R (Delta Variant) antibody specifically detects SARS-CoV-2 Delta Variant Spike S1 protein, but not SARS-CoV-2 WT and other variant Spike S1 protein by ELISA. All other applications and species not yet tested.

Additional Information

Gene ID	43740568
Other Names	Anti-SARS-CoV-2 Spike P681R (Delta Variant) antibody: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), Surface Glycoprotein, Spike protein, Delta variant
Target/Specificity	It can only detect SARS-CoV-2 Delta Variant Spike S1 protein and does not cross-react with the spike protein of other variants.
Reconstitution & Storage	SARS-CoV-2 Spike P681R (Delta Variant) 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 P681R Antibody [5H4C5] (Delta Variant) 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). Uses also ASGR1 as an alternative receptor in an ACE2-independent manner (PubMed:34837059). 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

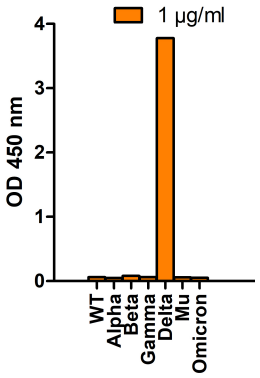
P0DTC2

References

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. ;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 P681R (Delta Variant) Antibodies Specifically Detect 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), mu variant (B.1.621), and omicron variant (B.1.1.529), 1 μg/mL, incubated at 4 ˚C



overnight. Detection Antibodies: SARS-CoV-2 Spike P681R (Delta Variant) antibody, ASC12234, 1 μg/mL, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-mouse HRP at 1:5,000, incubated at RT for 1 hr.

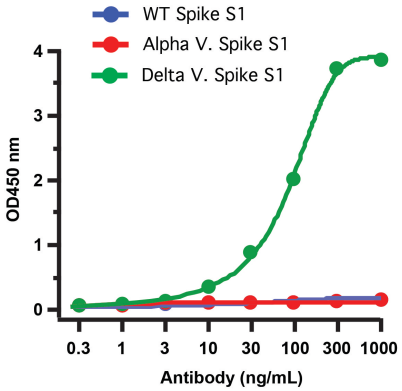


Figure 2 ELISA Validation of Delta Variant Spike S1 Antibodies with SARS-CoV-2 Delta Variant Spike S1 Protein Coating Antigen: SARS-CoV-2 spike S1 proteins, WT, Alpha and Delta variants, 1 μg/mL, incubated at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 Spike P681R (Delta Variant) antibody, ASC12234, dilution: 0.3-1000 ng/mL, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-mouse HRP at 1:5,000, incubated at RT for 1 hr. SARS-CoV-2 Spike P681R (Delta Variant) antibody specifically detects spike S1 protein of Delta variant, but not WT and Alpha variant.

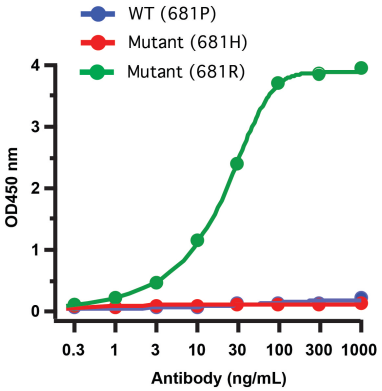


Figure 3 ELISA Validation of Delta Variant Spike S1 Antibodies with Mutant and WT Peptide
Coating Antigen: SARS-CoV-2 spike S1 peptides: WT (9091P), Alpha variant (9359P), and Delta variant (9673P), 1 μg/mL, incubated at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 delta spike P681R antibody, ASC12234, dilution: 0.3-1000 ng/mL, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-mouse HRP at 1:5,000, incubated at RT for 1 hr. SARS-CoV-2 Spike P681R (Delta Variant) antibody detects Delta variant spike S1 peptide (681R, 9673P), but not WT peptide (681P, 9091P) and Alpha variant spike S1 peptide (681H, 9359P).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.