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SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11]

Infectious Disease, COVID-19
Catalog # ASC12213

Specification

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - Product Information

Application	**E, WB**
Primary Accession	P0DTC2
Other Accession	QHD43416
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Application Notes	**WB: 1 µg/mL. Antibody validated: Western Blot in human samples. Anti-SARS-CoV-2 Spike P26S (Gamma Variant) antibody specifically detects SARS-CoV-2 Gamma Variant (P.1) 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.**

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - 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

Target/Specificity
It can only detect SARS-CoV-2 Gamma Variant (P.1) Spike S1 protein and does not cross-react with the spike protein of other variants.

Reconstitution & Storage
SARS-CoV-2 Spike P26S (Gamma 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 P26S (Gamma Variant) Antibody [5G12G11] is for research use only and not for use in diagnostic or therapeutic procedures.

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - 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 leading to fusion of the virion membrane with the host endosomal membrane (PubMed:32075877, PubMed:32221306). 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}

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - Images

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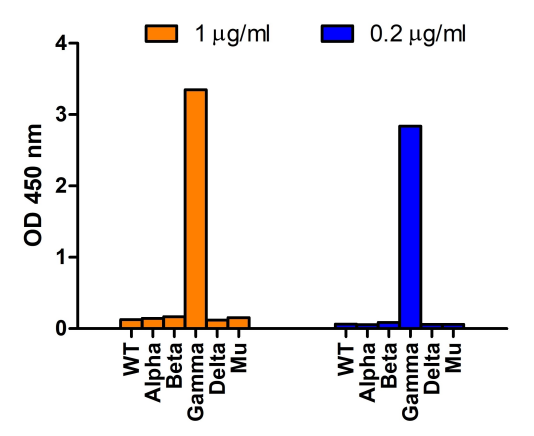

Figure 1 SARS-Cov-2 Spike P26S (Gamma Variant) Antibodies Specifically Detect Gamma Variant Spike S1 Protein in an ELISA

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 Spike P26S (Gamma Variant) antibody, PM-9590, dilution: 200 and 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.

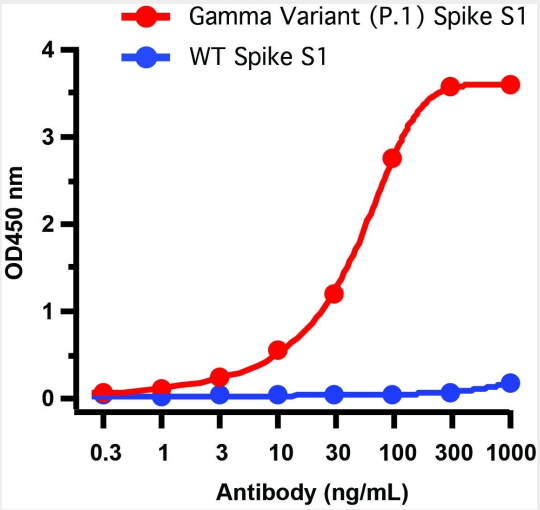

Figure 2 ELISA Validation of Gamma Variant Spike S1 Antibodies with SARS-CoV-2 Gamma Variant Spike S1 Protein

Coating Antigen: SARS-CoV-2 spike S1 proteins WT and Gamma variant (P.1), 1 µg/mL, incubated at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 Spike P26S (Gamma Variant) antibody, PM-9590, 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 P26S (Gamma Variant) antibody specifically detects Gamma variant spike S1 protein, but not WT spike S1 protein (10-300).**

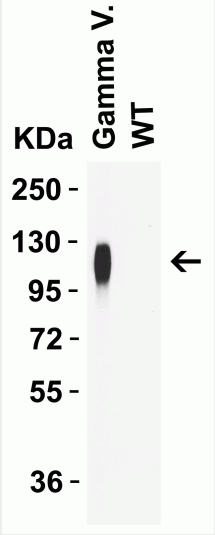

Figure 3 WB Validation of Gamma Variant Spike S1 Antibodies with SARS-CoV-2 Gamma Variant Spike S1 Protein
Loading: 50 ng of SARS-CoV-2 spike S1 proteins, including WT and Gamma variant (P.1). Detection Antibodies: Spike P26S (Gamma Variant) antibody, 9573, 1 µg/mL, incubated at RT for 1 hr. Secondary Antibodies: Goat anti-mouse HRP at 1:5,000, incubated at RT for 1 hr. **SARS-CoV-2 Spike P26S (Gamma Variant) antibody specifically detects Gamma variant spike S1 protein, but not WT spike S1 protein (10-300).**

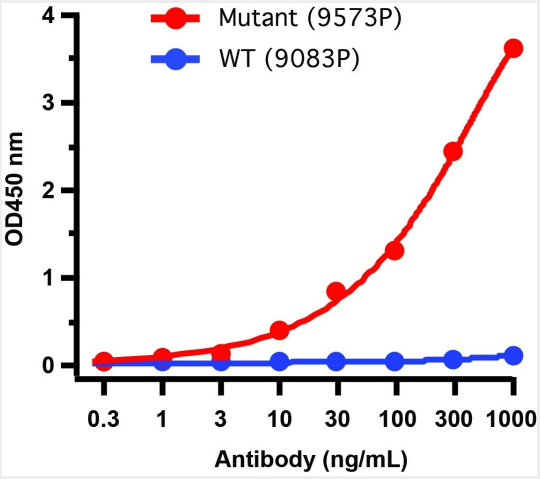

Figure 4 ELISA Validation of Gamma Variant Spike S1 Antibodies with Mutant and WT Peptide
Coating Antigen: SARS-CoV-2 spike S1 peptides: WT (9083P) and Gamma variant (P.1) (9573P), 1 µg/mL, incubated at 4 ˚C overnight. Detection Antibodies: SARS-CoV-2 26P antibody, PM-9590, dilution: 0.3-1000 ng/mL, 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 P26S (Gamma Variant) antibody detects Gamma variant spike S1 peptide (26S, 9573P), but not WT peptide (26P, 9083P).**

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - Background

In January of 2021 a new lineage of SARS-CoV-2, known as P.1 and named Gamma variant, was discovered in Japan and later spread in Brazil. It is considered a VOC (variant of concern). This variant carries 10 mutations in spike protein, including N501Y, E484K and K417T in RBD, which can increase the affinity to the human ACE2 receptor. Enhanced transmission of the Gamma variant (P.1 lineage) was observed globally, which is 3.5 times more contagious as the original one. The

Gamma variant affects the effectiveness of COVID19 vaccine and is resistant to neutralization to some extent due to the immune escape E484K mutation.

SARS-CoV-2 (COVID-19) Spike P26S (Gamma Variant) Antibody [5G12G11] - References

Voloch et al. Journal of Virology 2021, 95 (10): e00119-21.
Wang et al. Cell Host & Microbe 2021, 29(5): 747-751.
Wang et al. Nature 592, 616-622.