SARS-CoV-2 NSP8 Alexa Fluor® Plus 594-conjugated Antibody

Monoclonal Mouse IgG_{2B} Clone # 1044767

Catalog Number: FAB10993AFP594

100 µg

DESCRIPTION

Species Reactivity	SARS-CoV-2
Specificity	Detects SARS-CoV-2 NSP8 in ELISA.
Source	Monoclonal Mouse IgG_{2B} Clone # 1044767
Purification	Protein A or G purified
Immunogen	E. coli-derived SARS-CoV-2 NSP8 protein Ala1-Gln198 Accession # YP_009725304.1
Conjugate	Alexa Fluor Plus 594 Excitation Wavelength: 590 nm Emission Wavelength: 618 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

ELISA	Optimal dilution of this antibody should be experimentally determined.

DATA

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

Non-structural protein 8 (NSP8) is one of several functional proteins released by ORF1a-encoded protease cleavage of the pp1a and pp1ab replicase polyproteins expressed from the coronavirus (CoV) genome (1). The NSPs are involved in the replication and transcription of the viral RNA and not incorporated within the virion particles. Coronaviruses include various highly pathogenic strains such as SARS-CoV, MERS-CoV and SARS-CoV2 that have had significant impact on humans as well as strains that have negatively impacted livestock. NSP8 is a small 198 amino acid protein that forms a dimer with NSP7 and subsequently assembles into a large hexadecameric structure (2). The NSP8 sequence is highly conserved across coronaviruses (2). The NSP8 monomers in each of two asymmetric units can adopt two different conformations: a "golf-club like" structure with the N-terminal shaft and C-terminal head or a bent N-terminal shaft and C-terminal head domain (2). The units stack to form a supercomplex like bricks with layers of NSP7 filling the spaces in between. The supercomplexes are stacked to form a channel with electrostatic properties that would allow RNA to pass through the channel, likely to facilitate efficient replication and transcription. NSP8 was also shown to be able to polymerize small oligomers in a sequence-specific fashion and was consequently proposed to act as an RNA primase for the viral RNA-dependent RNA polymerase (RdRp), NSP12, in SARS-CoV (3). In SARS-CoV- 2, RdRp has been shown to have little activity without NSP8/7 acting as cofactors to form a complex (4) making NSP8 critical for viral polymerase activity. NSP8 was shown to interact with several other viral NSP proteins, including NSP2 and NSP9, (5) as well as multiple host cell proteins (6). NSP8 showed interaction with 3 different signal recognition particle (SRP) host cell proteins suggesting the virus hijacks the SEC61-mediated protein translocation pathway for entry into the endoplasmic reticulum and NSP8 may be involved in targeting (6).

References:

1. Snijder, E.J. *et al.* (2016) Adv. Virus Res. **96**:59.
2. Zhai, Y. *et al.* (2005) Nat. Struct. Mol. Bio. **12**:980.
3. Subissi, L. *et al.* (2014) Antiviral Res. **101**:122.
4. Yin, W. *et al.* (2020) Science **368**:1499.
5. von Brunn, A. *et al.* (2007) PLoS One **2**:e459.
6. Gordon, D.E. *et al.* (2020) Nature **583**:459.

PRODUCT SPECIFIC NOTICES

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