

DESCRIPTION

Species Reactivity	SARS-CoV-2
Specificity	Detects SARS-CoV-2 NSP10 in direct ELISAs.
Source	Monoclonal Mouse IgG ₁ Clone # 1049919
Purification	Protein A or G purified
Immunogen	<i>E. coli</i> -derived SARS-CoV-2 NSP10 protein Ala1-Gln139 Accession # YP_009725306.1
Conjugate	Alexa Fluor Plus 405 Excitation Wavelength: 404 nm Emission Wavelength: 455 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.

Western Blot	Optimal dilution of this antibody should be experimentally determined.
Immunocytochemistry	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 10 (NSP10), 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. NSP10 is a small 139 amino acid protein that forms independent dodecameric structures composed of four identical trimers where each monomer is capable of binding two zinc ions (2, 3) that are coordinated uniquely and has exposed basic residues on the protein's surface consequently allowing RNA-binding (3). The NSP10 sequence is conserved across coronaviruses (4) and is thought to serve as an important multifunctional cofactor in viral replication. NSP10 was shown to interact with other NSP proteins including NSP14 and NSP16 (5). The N-terminus of NSP10 has been shown to interact with NSP14 and proposed to stabilize and regulate the 3'-5' exoribonuclease domain activity while not directly impacting the methyltransferase activity of NSP14 (6,7). A similar region of NSP10 interacts with NSP16; this interaction is required for stabilization of NSP16 and stimulation of its 2'-O-methyltransferase activity (4,7). Consequently, NSP10 is critically involved in the formation of functional viral mRNA capping machinery in coronaviruses and a potential target to reduce viral replication and pathogenesis (8,9).

References:

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3. Su, D. *et al.* (2006) *J. Virol.* **80**:7902.
4. Rosas-Lemus, M. *et al.* (2020) *bioRxiv*. In press.
5. Pan, J. *et al.* (2008) *PLoS One* **3**:e3299.
6. Bouvet, M. *et al.* (2012) *Proc. Natl. Acad. Sci. U.S.A.* **109**:9372.
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8. Ma, Y. *et al.* (2015) *Proc. Natl. Acad. Sci.* **112**:9436.
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