

DESCRIPTION

Species Reactivity	SARS-CoV-2
Specificity	Detects SARS-CoV-2 NSP1 in direct ELISAs.
Source	Monoclonal Mouse IgG ₁ Clone # 1045413
Purification	Protein A or G purified from cell culture supernatant
Immunogen	<i>E. coli</i> -derived SARS-CoV-2 NSP1 protein Met1-Gly180 Accession # YP_009725297.1
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% 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.

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 1 (NSP1) 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. NSP1, also known as the host shutoff factor, is a small 180 amino acid highly conserved protein among the first to be expressed following cell entry. It is composed of an N-terminal domain, a linker region, and a C-terminal domain with a conserved KH motif that is required and sufficient for specific contacts with ribosomes (2, 3). The C-terminal domain binds tightly to and sterically occludes the entrance region of the mRNA channel in free 40S subunits, 43S pre-initiation complex, and empty, non-translating 80S ribosomes (2, 3) to inhibit translation. NSP1 blocks the innate immune response through suppression of host gene expression. By preventing translation of interferon and downstream signaling responses, it plays a key role in immune evasion (2, 4, 5). NSP1 also induces endonucleolytic cleavage of host mRNAs (6,7). Concomitant translation of more efficiently recognized untranslated regions (UTR) of viral mRNA along with resistance to endonucleolytic cleavage (7) is thought to lead to a switch to production of viral mRNA over host cell mRNA during an infection (3,8). Given the critical role NSP1 plays in virulence, it is an attractive target for small-molecule inhibition and vaccination development (9, 10).

PRODUCT SPECIFIC NOTICES

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