

## Recombinant SARS-CoV-2 NSP10 / NSP16 complex

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**Catalog No:** 81319, 81619

**Expressed In:** *E. coli*

**Quantity:** 50, 1000 µg

**Concentration:** 1 µg/µl

**Source:** SARS-CoV-2

**Buffer Contents:** Recombinant SARS-CoV-2 NSP10 / NSP16 complex is supplied in 25 mM Tris-HCl pH 8.0, 300 mM NaCl, 10% glycerol and 0.5 mM TCEP.

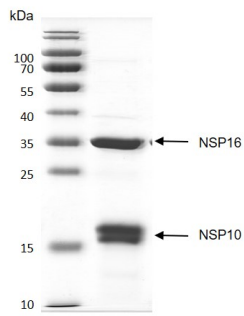
**Background:** The 5'-cap structure is a distinct feature of eukaryotic mRNAs, and eukaryotic viruses generally modify the 5'-end of viral RNAs to mimic cellular mRNA structure, which is important for RNA stability, protein translation and viral immune escape. SARS coronavirus (SARS-CoV) encodes two S-adenosyl-L-methionine (SAM)-dependent methyltransferases (MTase) which sequentially methylate the RNA cap at guanosine-N7 and ribose 2'-O positions, catalyzed by NSP14 N7-MTase and NSP16 2'-O-MTase, respectively. SARS-CoV NSP16 MTase methylated m7GpppARNA but not m7GpppG-RNA, which is in contrast with NSP14 MTase that functions in a sequence-independent manner. It was demonstrated that NSP10 is required for NSP16 to bind both m7GpppA-RNA substrate and SAM cofactor. Structural analysis revealed that NSP16 possesses the canonical scaffold of MTase and associates with NSP10 at 1:1 ratio. The structure of the NSP16/NSP10 interaction interface shows that NSP10 may stabilize the SAM-binding pocket and extend the substrate RNA-binding groove of NSP16, consistent with the findings in biochemical assays. These suggest that NSP16/NSP10 interface may represent a better drug target than the viral MTase active site for developing highly specific anti-coronavirus drugs.

The polyproteins of CoVs are cleaved by virus-encoded cysteine proteinases comprise papain- and chymotrypsin-like proteases into 16 nonstructural proteins including the expression of NSP1 to NSP11 by orf1a and encoding NSP12 to NSP16 by orf1b. According to BLAST analysis, the sequence identity of ORF1ab protein between SARS-CoV-2 and SARS-CoV is more than 90% with the query cover of about 100%.

**Protein Details:** Recombinant SARS-CoV-2 NSP10 / NSP16 complex that includes full length NSP10 (accession number YP\_009725306.1) with a C-terminal 6×His tag and full length NSP16 (accession number YP\_009725306.1) with no tag was expressed in *E. coli* cells. The molecular weight of the complex is 49.4 kDa.

**Application Notes:** Recombinant SARS-CoV-2 NSP10 / NSP16 protein complex is suitable for use in the study of SARS-CoV-2. Where possible, Active Motif has developed functional or activity assays for recombinant proteins. Additional characterization such as enzyme kinetic activity assays, inhibitor screening or other biological activity assays may not have been performed for every product. All available data for this product is shown.

**Storage and Guarantee:** Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of arrival.

**NSP10 / NSP16 complex****Recombinant SARS-CoV-2 NSP10 / NSP16 complex**

12.5% SDS-PAGE with Coomassie blue staining

MW: 49.4 kDa NSP10, C-His: 16 kDa

NSP16, no tag: 33.4 kDa

Purity: >90%