

PRODUCT DATASHEET

SARS-CoV-2 Nucleocapsid protein (NP)

Cat. No.: RI973598100

Type: Recombinant protein

Size: 0.1 mg

Source: E. coli

Species: SARS-CoV-2

Other names

Severe acute respiratory syndrome coronavirus 2 nucleocapsid, 2019 novel coronavirus nucleoprotein, SARS-CoV-2 NP, SARS-CoV-2 N protein, COVID-19

Introduction to the molecule

Coronaviruses (CoVs), within the order Nidovirales, are enveloped, single-strand, positive-sense RNA viruses with a large genome of approximately 30 kbp in length. A human infecting coronavirus (viral pneumonia) initially known as 2019 novel coronavirus (2019-nCoV) was found in the fish market at the city of Wuhan, Hubei province of China in December 2019. The virus is now named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

SARS-CoV-2 shares an 87% identity to the 2 bat-derived severe acute respiratory syndrome 2018 SARS-CoV-2 located in Zhoushan of eastern China. SARS-CoV-2 has an analogous receptor-BD-structure to that of 2018 SARS-CoV, even though there is a.a. diversity so thus the SARS-CoV-2 might bind to ACE2 receptor protein (angiotensin-converting enzyme 2) in humans.

While bats are possibly the host of SARS-CoV-2, researchers suspect that animal from the ocean sold at the seafood market was an intermediate host. RSCU analysis proposes that the SARS-CoV-2 is a recombinant within the viral spike glycoprotein between the bat coronavirus and an unknown coronavirus.

Coronaviruses contain at least four structural proteins: Spike (S) protein, envelope (E) protein, membrane (M) protein, and nucleocapsid (N) protein.

The primary function of the nucleocapsid (N) protein is to package the viral RNA genome within the viral envelope into a ribonucleoprotein (RNP) complex called the capsid. Ribonucleocapsid packaging is a fundamental part of viral self-assembly and replication. Additionally, the N-protein of the SARS-CoV-2 affects host cell responses and may serve regulatory roles during its viral life cycle.

Research topic

COVID-19, Immune Response, Infection and Inflammation

Amino Acid sequence

SDNGPQNQRN APRITFGGPS DSTGSNQNGE RSGARSKQRR PQGLPNNTAS WFTALTQHGK EDLKFPRGQG VPINTNSSPD
DQIGYYRRAT RRIRGGDGKM KDLSRWYFY YLGTGPEAGL PYGANKDGII WVATEGALNT PKDHIGTRNP ANNAIVLQL
PQGTTLPKGF YAEGSRGGSQ ASSRSSRSR NSSRNSTPGS SRGTSPARMA GNGGDAALAL LLLDRLNQL SKMSGKGGQQ
QGQTVTKKSA AEASKKPRQK RTATKAYNVT QAFGRRGPEQ TQGNFGDQEL IRQGTDYKHW PQIAQFAPSA SAFFGMSRIG
MEVTPSGTWL TYTAAIKLDD KDPNFKDQVI LLNKHIDAYK TFPPTPEPKD KKKKADETQA LPQRQKKQQT VTLPAADLD
DFSKQLQQSM SSADSTQA

Purity

>95%

Biological activity

Antigenicity Test

Antigenicity validated in 16 patient serum samples via ELISA by coating SARS-CoV-2 NP as capture antigen, with a detection rate of 93.75%.

Strong antigenetic response even in 70000-fold diluted patient serum.

Formulation:

As liquid with vials containing NP to 1.0mg/mL in 50mM Tris, 300mM NaCl, 10% Glycerol, PH8.0.

Reconstituion:

Defrost at ambient temperature

Storage, Stability/Shelf Life

Store vial at -20°C to -80°C . Please prevent freeze-thaw cycles.

Applications

COVID-19

Note

This product is intended for research use only.