

Note that this data sheet is not lot-specific. Please consult the vial label and the certificate of analysis for information on specific lots.

Recombinant SARS-CoV-2 Nucleocapsid Protein full length, His-tagged (PODTC9) NC_045512.2

Catalogue Number: 13 100 102

Package Size: 0.1 mg

Catalogue Number: 13 100 103

Package Size: 1.0 mg

1. Protein characteristics

1.1 Molecular form: SARS-CoV-2 Nucleocapsid protein is the main structural protein of SARS-associated coronavirus (CoV) that binds the viral RNA genome. It is a recombinant protein, expressed in *E. coli* cells. The protein consists of 419 amino acids and a C-terminal His₆-tag.

The calculated Mr of the His-tagged protein is 46.5 kDa. The protein is solubilized in 25 mM Na-Phosphat 6.8, 250 mM NaCl, 2 mM β-Mercaptoethanol.

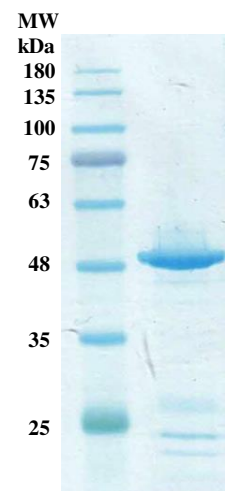
MSDNGPQNQRNAPRITFGGSPDSTGSNQNGERSGARSQRRPQGLPNNTASWFTALTQHGKEDLKFPRGQGVPIINTNSS
PDDQIGYYRRATRRIRGGDGKMKDLSRWYFYLLGTGPEAGLPYGANKDGIWVATEGALNTPKDHIGTRNPANNAIVLQ
LPQGTTLPKGFYAEGSRGGSQASSRSSSRNSSRNSTPGSSRGTSARMAGNGGDAALALLLLDRLNQLKESKMSGKQQQ
QGQTVTKKSAEASKKPRQKRTATKAYNVTQAFGRRGPEQTQGNFGDQELIRQGTQDYKHWPIAQFAPSASAFFGMSRIG
MEVTPSGTWLTYTGAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTPEPKDKKKKADETQALPQRQKKQQTVTLPAADLDDF
SKQLQQSMSSADSTQAHHHHHH

1.2 Purity: The recombinant Nucleocapsid protein appears under reducing conditions as a major band at about 50 kDa in SDS-PAGE. It represents more than 90% of total protein in the preparation.

1.3 Stability and storage: The protein is stable until the expiry date given on the label when stored at -70°C. The protein can be kept at -20°C for several weeks and on ice for several days. Repeated freezing and thawing should be avoided.

2. Applications

Expression of full-length or fragments of N protein in soluble form and relatively large quantity is desirable for study of viral invasion, construction of diagnostic kits (being one of the predominantly expressed proteins at the early stage of SARS-CoV infection) and potential application as subunit vaccines.



10% SDS-PAGE of
1.5 µg N-Sars2

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3. Introduction to Nucleocapsid protein SARS-CoV-2

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an enveloped, positive-strand RNA virus that causes the disease COVID-19 (Coronavirus Disease-2019) (1). The COVID-19 pandemic is a global problem among the world's population. The diagnosis is difficult due to its unspecific symptoms. In this context, rapid and easy to implement diagnostic tools are urgently needed.

SARS-CoV-2 has four major structural proteins, including nucleocapsid (N), spike (S), membrane (M), and small envelope (E). The N protein is the only one that binds to the RNA genome and is also involved in viral assembly and budding (2). The SARS-CoV-2 N is a highly immunogenic multi-functional protein that can be divided into five domains: a predicted intrinsically disordered N-terminal domain (NTD), an RNA-binding domain (RBD), a predicted disordered central linker (LINK), a dimerization domain, and a predicted disordered C-terminal domain (CTD) (3).

Detection of viral antigens can be a possible strategy to get an early diagnosis of SARS-CoV-2 infection. The nucleocapsid protein (NP) has been confirmed as the ideal target for the early detection of SARS-CoV infection (4, 5), which is genetically similar to SARS-CoV-2 (6), so that it could be detected up to 1 day before the appearance of clinical symptoms (7, 8).

4. References

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