

PRODUCT INFORMATION



MERS-CoV Nucleocapsid Protein (recombinant)

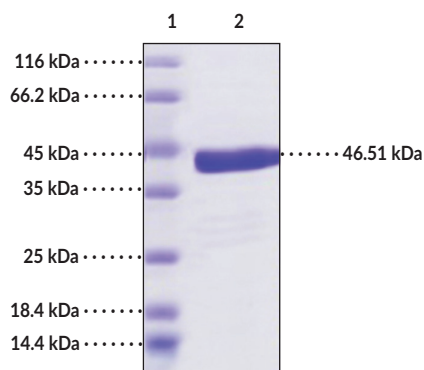
Item No. 40878

Overview and Properties

Synonym:	MERS-CoV Nucleoprotein, MERS-CoV N Protein
Source:	Recombinant MERS-CoV C-terminal His-tagged nucleocapsid expressed in insect cells
Amino Acids:	1-413 (full length)
Uniprot No.:	K0BVN3
Molecular Weight:	46.51 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 20 mM Tris, pH 8.0, with 500 mM sodium chloride and 10% glycerol
Endotoxin Testing:	<1.0 EU/μg, determined by the LAL endotoxin assay
Bioactivity:	See figure for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: MERS-CoV Nucleocapsid Protein

SDS-PAGE Analysis of MERS-CoV Nucleocapsid Protein. This protein has a calculated molecular weight of 46.51 kDa.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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Description

Middle East respiratory syndrome coronavirus (MERS-CoV) is an enveloped positive-stranded RNA virus, a member of the *Betacoronavirus* genus, and a causative agent of MERS, an acute respiratory disease that often leads to pneumonia and renal failure.^{1,2} The MERS-CoV nucleocapsid protein is composed of an intrinsically disordered region (IDR), an N-terminal domain that binds RNA, a flexible linker containing serine and arginine phosphorylation sites, a C-terminal domain that also participates in RNA binding and is responsible for dimerization, and another IDR.^{3,4} Coronavirus nucleocapsid proteins, including the MERS-CoV nucleocapsid protein, package the viral genome into a ribonucleoprotein (RNP) complex.⁴ In addition, the MERS-CoV nucleocapsid protein interacts with the ubiquitin ligase TRIM25 and inhibits the activation of retinoic acid-inducible gene I (RIG-I) and phosphorylation of IFN regulatory factor 3 (IRF3) and NF- κ B.⁵ It reduces IFN- β and IFN- λ 1 promoter activity induced by the RIG-I caspase activation and recruitment domain (RIG-I-CARD), but not MDA5-CARD, and reduces Sendai virus-induced increases in IFN- β and IFN- λ 1 mRNA levels. Cayman's MERS-CoV Nucleocapsid Protein (recombinant) consists of 424 amino acids and has a calculated molecular weight of 46.51 kDa.

References

1. Du, L., Yang, Y., Zhou, Y., *et al.* MERS-CoV spike protein: A key target for antivirals. *Expert Opin. Ther. Targets* **21**(2), 131-143 (2017).
2. Rabaan, A.A., Al-Ahmed, S.H., Haque, S., *et al.* SARS-CoV-2, SARS-CoV, and MERS-COV: A comparative overview. *Infez. Med.* **28**(2), 174-184 (2020).
3. Papageorgiou, N., Lichière, J., Baklouti, A., *et al.* Structural characterization of the N-terminal part of the MERS-CoV nucleocapsid by X-ray diffraction and small-angle X-ray scattering. *Acta Crystallogr. D. Struct. Biol.* **72**(Pt 2), 192-202 (2016).
4. Zhang, B., Tian, J., Zhang, Q., *et al.* Comparing the nucleocapsid proteins of human coronaviruses: Structure, immunoregulation, vaccine, and targeted drug. *Front. Mol. Biosci.* **9**, 761173 (2022).
5. Chang, C.-Y., Liu, H.M., Chang, M.-F., *et al.* Middle East respiratory syndrome coronavirus nucleocapsid protein suppresses type I and type III interferon induction by targeting RIG-I signaling. *J. Virol.* **94**(13), e00099-20 (2020).

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