

PRODUCT INFORMATION



MERS-CoV Papain-like Protease (recombinant)

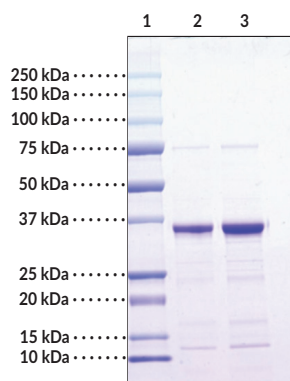
Item No. 40988

Overview and Properties

Synonyms:	MERS-CoV PL ^{pro} , Middle East Respiratory Syndrome Coronavirus PL ^{pro}
Source:	Active recombinant MERS-CoV PL ^{pro} expressed in <i>E. coli</i>
Amino Acids:	1,480-1,803
Molecular Weight:	35.7 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥80% estimated by SDS-PAGE
Supplied in:	50 mM Tris, pH 7.5, with 100 mM sodium chloride, 10% glycerol, and 1 mM DTT
Protein	
Concentration:	<i>batch specific</i> mg/ml
Activity:	<i>batch specific</i> U/ml
Specific Activity:	<i>batch specific</i> U/mg
Unit Definition:	One unit is defined as the amount of enzyme required to produce 1 nmol of AMC per minute at room temperature in 50 mM HEPES, pH 7.5, 0.01% Triton™ X-100, 5 mM DTT, and 0.1 mg/ml BSA in the presence of 10 μM Z-RLRGG-AMC substrate.

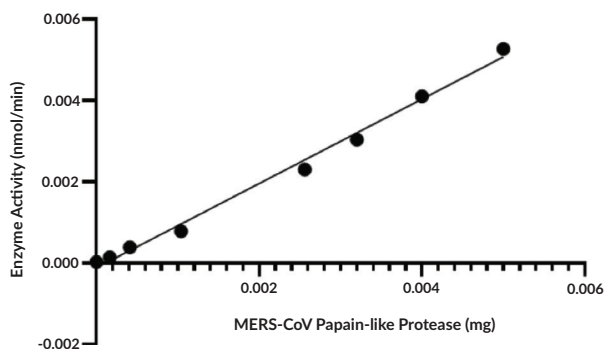
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: MERS-CoV Papain-like Protease (2 μg)
Lane 3: MERS-CoV Papain-like Protease (4 μg)

SDS-PAGE Analysis of MERS-CoV Papain-like Protease. This protein has a calculated molecular weight of 35.7 kDa.



MERS-CoV Papain-like Protease Activity Assay. MERS-CoV Papain-like Protease activity was determined by the measuring fluorescence (excitation = 350 nm, emission = 450 nm) using 10 μM Z-RLRGG-AMC.

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
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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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 the causative agent of MERS, an acute respiratory disease that often leads to pneumonia and renal failure.^{1,2} The MERS-CoV papain-like protease (PL^{pro}) is encoded by the non-structural protein 3 (nsp3) region of *ORF1a*.^{3,4} It cleaves non-structural proteins 1-3, which, together with non-structural proteins 4-16, form the replicase complex. In addition, it reverses certain post-translational modifications from host proteins, preferentially removing interferon-stimulated gene product 15 (ISG15) but also removing ubiquitin, with both actions leading to suppression of the host innate immune response.⁵ MERS-CoV PL^{pro} decreases MDA5-induced mRNA expression of *CXCL10*, *IFNB*, and *CCL5* and inhibits TNF- α -induced activation of NF- κ B *in vitro*. Cayman's MERS-CoV Papain-like Protease (recombinant) protein can be used for enzyme activity, surface plasmon resonance (SPR), and Western blot (WB) applications.

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. Clasman, J.R., Báez-Santos, Y., Mettelman, R.C., *et al.* X-ray structure and enzymatic activity profile of a core papain-like protease of MERS coronavirus with utility for structure-based drug design. *Sci. Rep.* **7**, 40292 (2017).
4. Li, Y.-H., Hu, C.-Y., Wu, N.-P., *et al.* Molecular characteristics, functions, and related pathogenicity of MERS-CoV proteins. *Engineering (Beijing)* **5**(5), 940-947 (2019).
5. Mielech, A.M., Kilianski, A., Baez-Santos, Y.M., *et al.* MERS-CoV papain-like protease has deISGylating and deubiquitinating activities. *Virology* **450-451**, 64-70 (2014).

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