

## SARS-CoV PLPro (Papain-like Protease)

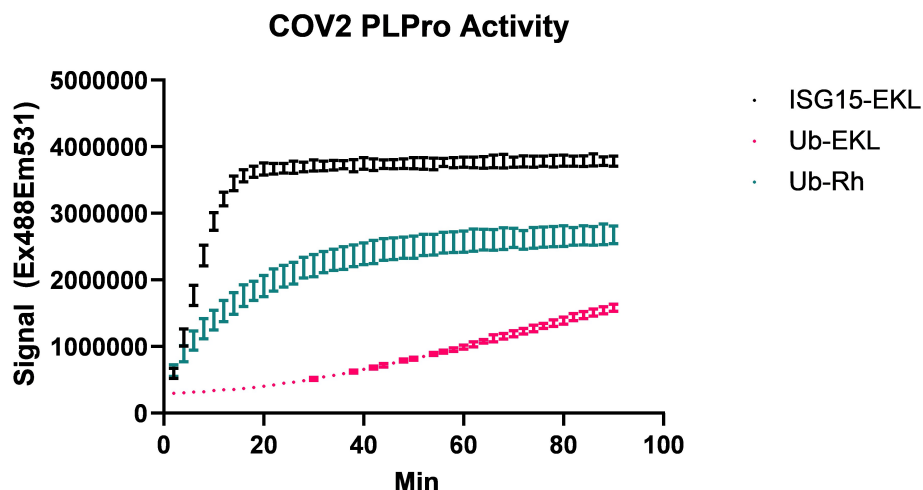
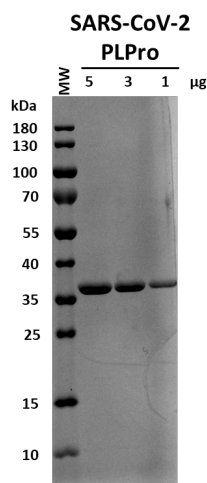
Cat. # DB602

**Background:** Within the last two decades, SARS and MERS coronaviruses emerged as global health concerns causing severe acute respiratory syndromes. In December 2019, a novel coronavirus (SARS-CoV-2) was identified in Wuhan, Hubei province in China. The SARS-CoV genome encodes several proteases including papain-like protease (PL2PRO; PLPro); this key enzyme along with 3CL-protease drives the early stage of infection by processing a large viral polypeptide into functional enzymes. SARS-CoV-2 PLPro shares 82% in protein sequence identity with PLPro from SARS-CoV. SARS-CoV-2 PLPro was shown to have a deubiquitinating activity in addition to being a deISGylase. PLPro cleaves ISG15-CHOP2 and Ub-CHOP2 substrates with high and low efficiency, respectively. PLPro represents an antiviral drug target for counteracting SARS-CoV-2 infections.

**Alternate names:** PL-PRO, PL2-PRO, nsp3

### Product Information

<b>Molecular Weight:</b>	37 kDa
<b>Quantity:</b>	100 µg
<b>Physical State:</b>	Liquid
<b>Species:</b>	SARS-CoV-2
<b>Tag:</b>	None
<b>Activity:</b>	This enzyme is active in the Ub-CHOP and ISG15-CHOP assays.
<b>Storage:</b>	-80° C. Avoid repeated freeze/thaw cycles.



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## References

1. Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China. *JAMA*. 2020;323(11):1061.
2. Zhou P, Yang X-L, Wang X-G, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*. 2020;579(7798):270–273.
3. Zhu N, Zhang D, Wang W, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N. Engl. J. Med.* 2020;382(8):727–733.
4. Hilgenfeld R. From SARS to MERS: crystallographic studies on coronaviral proteases enable antiviral drug design. *FEBS J.* 2014;281(18):4085–4096.
5. Lindner HA, Fotouhi-Ardakani N, Lytvyn V, et al. The Papain-Like Protease from the Severe Acute Respiratory Syndrome Coronavirus Is a Deubiquitinating Enzyme. *J. Virol.* 2005;79(24):15199–15208.
6. Lindner HA, Lytvyn V, Qi H, et al. Selectivity in ISG15 and ubiquitin recognition by the SARS coronavirus papain-like protease. *Arch. Biochem. Biophys.* 2007;466(1):8–14.
7. Békés M, van der Heden van Noort GJ, Ekkebus R, et al. Recognition of Lys48-Linked Di-ubiquitin and Deubiquitinating Activities of the SARS Coronavirus Papain-like Protease. *Mol. Cell.* 2016;62(4):572–585.
8. Ratia K, Kilianski A, Baez-Santos YM, Baker SC, Mesecar A. Structural Basis for the Ubiquitin-Linkage Specificity and deISGylating Activity of SARS-CoV Papain-Like Protease. *PLoS Pathog.* 2014;10(5):e1004113.
9. Nicholson B, Leach CA, Goldenberg SJ, et al. Characterization of ubiquitin and ubiquitin-like-protein isopeptidase activities. *Protein Sci.* 2008;17(6):1035–1043.

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