

Active Recombinant SARS-CoV-2 ORF1ab Protein

Cat. No. ORF1ab-01S **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant SARS-CoV-2 3CL Protease (Ser3264-Gln3569) without tag was expressed in E. coli.
Species	SARS-CoV-2
Source	E.coli
ProteinLength	3264-3569
Description	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an enveloped, positive-sense, single-stranded RNA virus that causes coronavirus disease 2019 (COVID-19). Virus particles include the RNA genetic material and structural proteins needed for invasion of host cells. Once inside the cell the infecting RNA is used to encode structural proteins that make up virus particles, nonstructural proteins that direct virus assembly, transcription, replication and host control and accessory proteins whose function has not been determined.~ ORF1ab, the largest gene, contains overlapping open reading frames that encode polyproteins PP1ab and PP1a. The polyproteins are cleaved to yield 16 nonstructural proteins, NSP1-16. Production of the longer (PP1ab) or shorter protein (PP1a) depends on a -1 ribosomal frameshifting event. The proteins, based on similarity to other coronaviruses, include the papain-like proteinase protein (NSP3), 3C-like proteinase (NSP5), RNA-dependent RNA polymerase (NSP12, RdRp), helicase (NSP13, HEL), endoRNase (NSP15), 2'-O-Ribose-Methyltransferase (NSP16) and other nonstructural proteins. SARS-CoV-2 nonstructural proteins are responsible for viral transcription, replication,

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proteolytic processing, suppression of host immune responses and suppression of host gene expression. The RNA-dependent RNA polymerase is a target of antiviral therapies.

Bio-activity

Recombinant SARS-CoV-2 3CL Protease is a cysteine protease that cleaves proteins with sequences including LQ[S/A/G). The cleavage occurs c-terminal to the glutamine residue. Reaction conditions will need to be optimized for each specific application. We recommend an initial SARS-CoV-2 3CL Protease concentration of 20-40 nM when using substrate.

Molecular Mass

34 kDa

Purity

>95% by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie® Blue stain.

Storage

Use a manual defrost freezer and avoid repeated freeze-thaw cycles.
100 months from date of receipt, -70 centigrade as supplied.
3 months, -70 centigrade under sterile conditions after opening.

Storage Buffer

1.7 mg/mL (50 µM) in 50 mM HEPES, pH 7.5, 150 mM NaCl, 1 mM DTT, 1 mM EDTA

Shipping

The product is shipped with dry ice or equivalent.

GENE INFORMATION

Gene Name

ORF1ab ORF1a polyprotein;ORF1ab polyprotein [Severe acute respiratory syndrome coronavirus 2]

Official Symbol

ORF1ab

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Synonyms

ORF1ab; ORF1a polyprotein; ORF1ab polyprotein; ORF1a polyprotein; ORF1ab polyprotein; leader protein; nsp2; nsp3; nsp4; 3C-like proteinase; nsp6; nsp7; nsp8; nsp9; nsp10; RNA-dependent RNA polymerase; helicase; 3'-to-5' exonuclease; endoRNase; 2'-O-ribose methyltransferase; leader protein; nsp2; nsp3; nsp4; 3C-like proteinase; nsp6; nsp7; nsp8; nsp9; nsp10; nsp11; pp1ab; translated by -1 ribosomal frameshift; pp1a

Gene ID

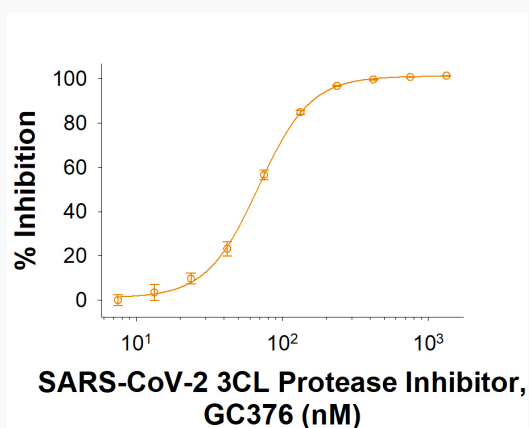
43740578

Protein Refseq

YP_009725301

UniProt ID

P0DTC1

Inhibition Activity


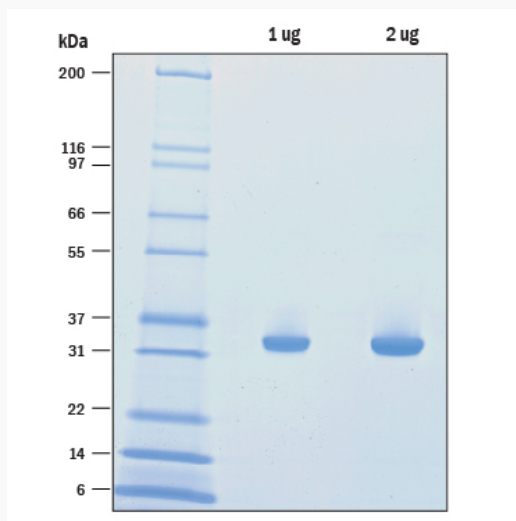
GC376 achieves 50% inhibition of 30 nM SARS-CoV-2 3CL Protease at a concentration of 54-71 nM.

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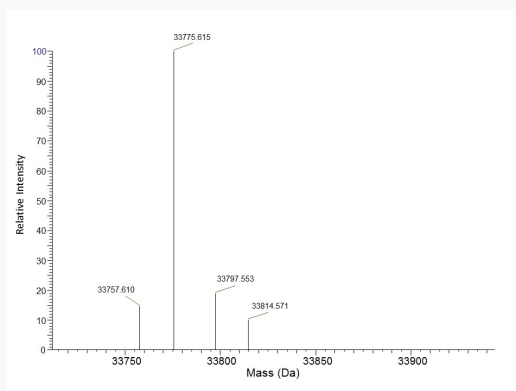
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SDS-PAGE



SDS-PAGE of Recombinant SARS-CoV-2 3CL Protease. 1 μ g and 2 μ g of Recombinant SARS-CoV-2 3CL Protease was resolved with SDS-PAGE under reducing conditions and visualized by colloidal Coomassie Blue staining, showing a band at 34 kDa.

Mass Spectrometry



LC-MS analysis of SARS-CoV-2 3CL Protease. SARS-CoV-2 3CL Protease was analyzed by a Thermo Q Exactive HF instrument then deconvoluted using Thermo

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BioPharma Finder software. The expected monoisotopic mass is 33774.478 Da.