

Recombinant Human OAS1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50747

Size: 10ug, 100ug

Protein Name: 2'-5'-oligoadenylate synthase 1 ((2-5')oligo(A) synthase 1) (2-5A synthase 1) (EC 2.7.7.84) (E18/E16) (p46/p42 OAS)

Synonym: OAS1, OIAS

UniProt ID: P00973

UniProt Link: www.uniprot.org/uniprotkb/P00973/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 400 AA

Molecular Weight: 46 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MMDLRNTPAKSLDKFIEDYLLPDTCFRMQINHAIIDICGFLKERCFRGSSYPVCVSKVVKGGSSGKGT
TLRGRSDADLVVFLSPLTTTFQDQLNRRGEFIQEIRRRQLEACQRERAFSVKFEVQAPRWGNPRALS
LSSLQLGEGVEFDVLPFDALGQLTGGYKPNPQIYVKLIEECTDLQKEGEFSTCFTTELQRDFLKQRPT
KLKSLIRLVKHWYQNCKKKLGLPPQYALELLTVYAWERGSMKTHFNTAQGFRTVLELVINYQQLCIY
WTKYYDFKNPIIEKYLRRLTKPRPVILDPADPTGNLGGGDPKGWRQLAQEAELNYPCKFNWDG
SPVSSWILLAESNSADDETDPRRYQKYGYIGTHEYPHFSHRPSTLQAASTPQAEEDWTCTIL

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions



Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant 2'-5'-oligoadenylate synthase 1 ((2-5')oligo(A) synthase 1) (2-5A synthase 1) (EC 2.7.7.84) (E18/E16) (p46/p42 OAS) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Interferon-induced, dsRNA-activated antiviral enzyme which plays a critical role in cellular innate antiviral response (PubMed:34581622). In addition, it may also play a role in other cellular processes such as apoptosis, cell growth, differentiation and gene regulation. Catalyzes the formation of 2'-5'-oligoadenylates (2-5A) from polymerization of ATP which then bind to the inactive monomeric form of ribonuclease L (RNase L) leading to its dimerization and subsequent activation. Activation of RNase L leads to degradation of cellular as well as viral RNA, resulting in the inhibition of protein synthesis, thus terminating viral replication (PubMed:34145065, PubMed:34581622, PubMed:40010341). Involved in intercellular immune signaling that limits local spread of RNA virus infection and protects against tumorigenesis (PubMed:40010341). Can generate high levels of 2',5'-oligoadenylates in transformed cells, targeting them to innate and adaptive immunosurveillance mechanisms (PubMed:40010341). Can mediate the antiviral effect via the classical RNase L-dependent pathway or an alternative antiviral pathway independent of RNase L. The secreted form displays antiviral effect against vesicular stomatitis virus (VSV), herpes simplex virus type 2 (HSV-2), and encephalomyocarditis virus (EMCV) and stimulates the alternative antiviral pathway independent of RNase L.; [Isoform p46]: When prenylated at C-terminal, acts as a double-stranded RNA (dsRNA) sensor specifically targeted to membranous replicative organelles in SARS coronavirus-2/SARS-CoV-2 infected cells where it binds to dsRNA structures in the SARS-CoV-2 5'-UTR and initiates a potent block to SARS-CoV-2 replication. Recognizes short stretches of dsRNA and activates RNase L. The binding is remarkably specific, with two conserved stem loops in the SARS-CoV-2 5'-untranslated region (UTR) constituting the principal viral target (PubMed:34581622). The same mechanism is necessary to initiate a block to cardiovirus EMCV (PubMed:34581622).; [Isoform p42]: Not prenylated at C-terminal, is diffusely localized and unable to initiate a detectable block to SARS-CoV-2 replication.

Subcellular Localization: Cytoplasm . Mitochondrion . Nucleus . Microsome . Endoplasmic reticulum . Secreted . Note=Associated with different subcellular fractions such as mitochondrial, nuclear, and rough/smooth microsomal fractions.; [Isoform p46]: Note=(Microbial infection) In SARS coronavirus-2/SARS-CoV-2 infected cells, prenylated form localizes to membranous perinuclear structures reminiscent of the endoplasmic reticulum rich in viral dsRNA which are SARS-CoV-2 replicative organelles.; [Isoform p42]: Note=(Microbial infection) In SARS coronavirus-2/SARS-CoV-2 infected cells, since its not prenylated, is diffusely localized and unable to initiate a detectable block to SARS-CoV-2 replication.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.