

Recombinant Human CASP1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50106

Size: 10ug, 100ug

Protein Name: Caspase-1 (CASP-1) (EC 3.4.22.36) (Interleukin-1 beta convertase) (IL-1BC) (Interleukin-1 beta-converting enzyme) (ICE) (IL-1 beta-converting enzyme) (p45) [Cleaved into: Caspase-1 subunit p20; Caspase-1 subunit p10]

Synonym: CASP1, IL1BC, IL1BCE

UniProt ID: P29466

UniProt Link: www.uniprot.org/uniprotkb/P29466/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 404 AA

Molecular Weight: 45 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MADKVLKEKRKLFIRSMGEGTINGLLDELLQTRVLNKEEMEKVKRENATVMDKTRALIDSVIPKGAQA
CQICITYICEEDSYLAGTLGLSADQTSGNYLNMQDSQGVLSFPAPQAVQDNPAMPTSSGSEGNVK
LCSLEEAQRIWKQKSAEIYPIMDKSSRTRLALICNEEFDSIPRRTGAEVDITGMTMLLQNLGYSVDVK
KNLTASDMTTELEAFahrPEHKTSDSTFLVFMShGIREGICGKKHSEQVPDILQLNAIFNMLNTKNCP
SLKDKPKVIIQACRGDSPGVVWFKDSVGVSGNLSLPTTEEFEDDAIKKAHIEKDFIAFCSSTPDNVSW
RHPTMGSVFIGRLIEHMQEYACSCDVEEIFRKVRFSFEQPDGRAQMPTTERTVLTTRCFYLFPGH

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 Caspase-1 (CASP-1) (EC 3.4.22.36) (Interleukin-1 beta convertase) (IL-1BC) (Interleukin-1 beta-converting enzyme) (ICE) (IL-1 beta-converting enzyme) (p45) [Cleaved into: Caspase-1 subunit p20; Caspase-1 subunit p10] 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: Thiol protease involved in a variety of inflammatory processes by proteolytically cleaving other proteins, such as the precursors of the inflammatory cytokines interleukin-1 beta (IL1B) and interleukin 18 (IL18) as well as the pyroptosis inducer Gasdermin-D (GSDMD), into active mature peptides (PubMed:15326478, PubMed:15498465, PubMed:1574116, PubMed:26375003, PubMed:32051255, PubMed:37993714, PubMed:7876192, PubMed:9334240). Plays a key role in cell immunity as an inflammatory response initiator: once activated through formation of an inflammasome complex, it initiates a pro-inflammatory response through the cleavage of the two inflammatory cytokines IL1B and IL18, releasing the mature cytokines which are involved in a variety of inflammatory processes (PubMed:15326478, PubMed:15498465, PubMed:1574116, PubMed:32051255, PubMed:7876192). Cleaves a tetrapeptide after an Asp residue at position P1 (PubMed:15498465, PubMed:1574116, PubMed:7876192). Also initiates pyroptosis, a programmed lytic cell death pathway, through cleavage of GSDMD (PubMed:26375003). In contrast to cleavage of interleukin IL1B, recognition and cleavage of GSDMD is not strictly dependent on the consensus cleavage site but depends on an exosite interface on CASP1 that recognizes and binds the Gasdermin-D, C-terminal (GSDMD-CT) part (PubMed:32051255, PubMed:32109412, PubMed:32553275). Cleaves and activates CASP7 in response to bacterial infection, promoting plasma membrane repair (PubMed:22464733). Upon inflammasome activation, during DNA virus infection but not RNA virus challenge, controls antiviral immunity through the cleavage of CGAS, rendering it inactive (PubMed:28314590). In apoptotic cells, cleaves SPHK2 which is released from cells and remains enzymatically active extracellularly (PubMed:20197547).; [Isoform Delta]: Apoptosis inactive.; [Isoform Epsilon]: Apoptosis inactive.

Subcellular Localization: Cytoplasm . Cell membrane .

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.