Caspase-1/CASP1 Protein, Human (GST)

Cat. No.:	HY-P72117
Synonyms:	CASP-1; CASP1; CASP1_HUMAN; Caspase 1; ICE; IL-1 beta-converting enzyme; IL-1BC; IL1 beta converting enzyme; IL1B convertase; Interleukin 1 beta convertase; Interleukin 1B converting enzyme; Interleukin-1 beta convertase; Interleukin-1 beta-converting enzyme; p45
Species:	Human
Source:	E. coli
Accession:	P29466 (N120-N269)
Gene ID:	834
Molecular Weight:	Approximately 43.8 kDa

PROPERTIES

AA Sequence	N P A M P T S S G S E G N V K L C S L E E A Q R I W K Q K S A E I Y P I M D K S S R T R L A L I I C N E E F D S I P R R T G A E V D I T G M T M L L Q N L G Y S V D V K K N L T A S D M T T E L E A F A H R P E H K T S D S T F L V F M S H G I R E G I C G K K H S E Q V P D I L Q L N A I F N M L N T K N
Biological Activity	Specific Activity is 4080.135 units/mg. Unit definition: One unit of the recombinant caspase-1 is the enzyme activity that cleaves 1 nmol of the caspase substrate YVAD-pNA (pNA: pnitroanaline) per hour at 37°C in a reaction solution containing 50 mM Hepes, pH 7.2, 50 mM NaCl, 0.1% Chaps, 10 mM EDTA, 5% Glycerol, and 10 mM DTT.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm solution of PBS, 6% Trehalose, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US;may vary elsewhere.

DESCRIPTION

Background	Caspase-1/CASP1 subunit p10 Protein, a thiol protease, intricately participates in various inflammatory processes by catalyzing the proteolytic cleavage of precursor proteins associated with inflammation. This includes interleukin-1 beta (IL1B) and interleukin 18 (IL18), pivotal inflammatory cytokines, as well as the pyroptosis inducer Gasdermin-D (GSDMD), converting them into active mature peptides. Functioning as a key initiator of cell immunity, Caspase-1 activates a pro-inflammatory response upon inflammasome complex formation, leading to the release of mature cytokines IL1B and IL18,

which play critical roles in diverse inflammatory pathways. Caspase-1's activity extends to initiating pyroptosis, a programmed lytic cell death pathway, by cleaving GSDMD. Notably, unlike its cleavage of interleukins, the recognition and cleavage of GSDMD depend on an exosite interface on CASP1, emphasizing its versatile and complex regulatory roles. Moreover, Caspase-1 activates CASP7 in response to bacterial infection, promoting plasma membrane repair, and controls antiviral immunity by cleaving CGAS upon inflammasome activation during DNA virus infection. In apoptotic cells, Caspase-1 cleaves SPHK2, which remains enzymatically active extracellularly. Despite its involvement in diverse cellular processes, Caspase-1 is apoptosis inactive.

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