Caspase-3/CASP3 Protein, Human

Cat. No.:	HY-P701341
Synonyms:	CASP3; Caspase-3; CASP-3; Apopain; Cysteine protease CPP32; CPP-32; Protein Yama; SREBP cleavage activity 1; SCA-1
Species:	Human
Source:	E. coli
Accession:	P42574 (S29-D175&S176-H277)
Gene ID:	836
Molecular Weight:	Approximately 12.6 kDa&16.6 kDa

PROPERTIES

Biological Activity	Measured by its ability to cleave the fluorogenic peptide substrate Ac-DEVD-AFC. The specific activity is ≥26570 pmol/min/μg, as measured under the described conditions.
Appearance	Solution
Formulation	Supplied as a 0.22 μm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol, 1 mM DTT.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	Caspase-3/CASP3 Protein functions as a pivotal thiol protease in the execution phase of apoptosis, serving as a major effector caspase. Upon cleavage and activation by initiator caspases (CASP8, CASP9, and/or CASP10), it orchestrates apoptosis by catalyzing the cleavage of numerous proteins. In the early stages of apoptosis, it proteolytically cleaves poly(ADP-ribose) polymerase PARP1, targeting the '216-Asp-|-Gly-217' bond. CASP3 also activates sterol regulatory element-binding proteins (SREBPs), cleaves and activates caspase-6, -7, and -9, participates in the cleavage of huntingtin, and induces cell adhesion in sympathetic neurons through RET cleavage. Additionally, CASP3 cleaves and inhibits serine/threonine-protein kinase AKT1 in response to oxidative stress. It acts as an inhibitor of type I interferon production during virus-induced apoptosis by cleaving antiviral proteins CGAS, IRF3, and MAVS, thus preventing cytokine overproduction. CASP3 is also involved in pyroptosis, mediating the cleavage and activation of gasdermin-E (GSDME). Furthermore, it cleaves XRCC4 and phospholipid scramblase proteins XKR4, XKR8, and XKR9, promoting phosphatidylserine exposure on the apoptotic cell surface.

Caution: Product has not been fully validated for medical applications. For research use only.

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