10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Caspase-7 Antibody

Catalog # ASC10300

Product Information

Application	WB, E, IHC-P
Primary Accession	P55210
Other Accession	P55210, 1730092
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	34277
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Casp-7 antibody can be used for the detection of Caspase-7 by Western blot at 0.5 - 1 □g/mL. Antibody can also be used for immunohistochemistry starting at 10 □g/mL.

Additional Information

Gene ID	840
Other Names	Caspase-7 Antibody: MCH3, CMH-1, LICE2, CASP-7, ICE-LAP3, MCH3, Caspase-7, Apoptotic protease Mch-3, caspase 7, apoptosis-related cysteine peptidase
Target/Specificity	CASP7; Depending on cell lines or tissues used, other cleavage products may be observed.
Reconstitution & Storage	Caspase-7 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	Caspase-7 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CASP7 {ECO:0000303|PubMed:9070923, ECO:0000312|HGNC:HGNC:1508}
Function	Thiol protease involved in different programmed cell death processes, such as apoptosis, pyroptosis or granzyme-mediated programmed cell death, by proteolytically cleaving target proteins (PubMed:11257230, PubMed:11257231, PubMed:11701129, PubMed:15314233, PubMed:16916640, PubMed:17646170, PubMed:18723680, PubMed:19581639, PubMed:8521391, PubMed:8567622, PubMed:8576161, PubMed:9070923). Has a marked preference for Asp-Glu-Val-Asp (DEVD)

consensus sequences, with some plasticity for alternate non-canonical sequences (PubMed:12824163, PubMed:15314233, PubMed:17697120, PubMed:19581639, PubMed:20566630, PubMed:23650375, PubMed:23897474, PubMed:27032039). Its involvement in the different programmed cell death processes is probably determined by upstream proteases that activate CASP7 (By similarity). Acts as an effector caspase involved in the execution phase of apoptosis: following cleavage and activation by initiator caspases (CASP8, CASP9 and/or CASP10), mediates execution of apoptosis by catalyzing cleavage of proteins, such as CLSPN, PARP1, PTGES3 and YY1 (PubMed:10497198, PubMed:16123041, PubMed:16374543, PubMed:16916640, PubMed:18723680, PubMed:20566630, PubMed:21555521, PubMed:22184066, PubMed:22451931, PubMed:27889207, PubMed:28863261, PubMed:31586028, PubMed:34156061, PubMed:35338844, PubMed:35446120). Compared to CASP3, acts as a minor executioner caspase and cleaves a limited set of target proteins (PubMed:18723680). Acts as a key regulator of the inflammatory response in response to bacterial infection by catalyzing cleavage and activation of the sphingomyelin phosphodiesterase SMPD1 in the extracellular milieu, thereby promoting membrane repair (PubMed:21157428). Regulates pyroptosis in intestinal epithelial cells: cleaved and activated by CASP1 in response to S.typhimurium infection, promoting its secretion to the extracellular milieu, where it catalyzes activation of SMPD1, generating ceramides that repair membranes and counteract the action of gasdermin-D (GSDMD) pores (By similarity). Regulates granzyme-mediated programmed cell death in hepatocytes: cleaved and activated by granzyme B (GZMB) in response to bacterial infection, promoting its secretion to the extracellular milieu, where it catalyzes activation of SMPD1, generating ceramides that repair membranes and counteract the action of perforin (PRF1) pores (By similarity). Following cleavage by CASP1 in response to inflammasome activation, catalyzes processing and inactivation of PARP1, alleviating the transcription repressor activity of PARP1 (PubMed:22464733). Acts as an inhibitor of type I interferon production during virus-induced apoptosis by mediating cleavage of antiviral proteins CGAS, IRF3 and MAVS, thereby preventing cytokine overproduction (By similarity). Cleaves and activates sterol regulatory element binding proteins (SREBPs) (PubMed:8643593). Cleaves phospholipid scramblase proteins XKR4, XKR8 and XKR9 (By similarity). In case of infection, catalyzes cleavage of Kaposi sarcoma-associated herpesvirus protein ORF57, thereby preventing expression of viral lytic genes (PubMed:20159985). Cleaves BIRC6 following inhibition of BIRC6-caspase binding by DIABLO/SMAC (PubMed:36758104, PubMed:36758106).

Cellular Location

Cytoplasm, cytosol. Nucleus. Secreted, extracellular space {ECO:0000250|UniProtKB:P97864}. Note=Following cleavage and activation by CASP1 or granzyme B (GZMB), secreted into the extracellular milieu by passing through the gasdermin-D (GSDMD) pores or perforin (PRF1) pore, respectively {ECO:0000250|UniProtKB:P97864}

Tissue Location

Highly expressed in lung, skeletal muscle, liver, kidney, spleen and heart, and moderately in testis. No expression in the brain.

Background

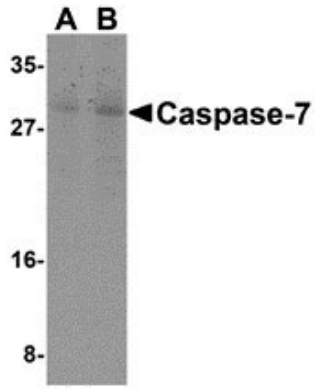
Caspase-7 Antibody: Caspases are a family of cysteine proteases that can be divided into the apoptotic and inflammatory caspase subfamilies. Unlike the apoptotic caspases, members of the inflammatory subfamily are generally not involved in cell death but are associated with the immune response to microbial pathogens. The apoptotic subfamily can be further divided into initiator caspases, which are activated in response to death signals, and executioner caspases, which are activated by the initiator caspases and are responsible for cleavage of cellular substrates that ultimately lead to cell death. Caspase-7 is an executioner

caspase that was identified based on its homology with caspases 1 and 3, as well as the C. elegans cell death protein CED-3. Alternative splicing of Caspase-7 mRNA results in the production of 3 distinct isoforms. Caspase-7 activity can be directly inhibited by XIAP expression.

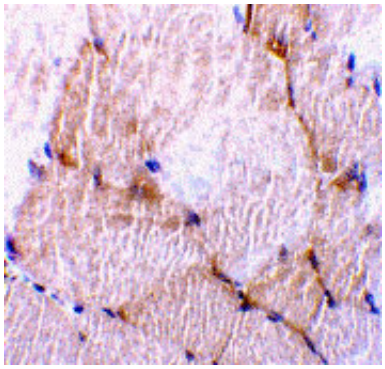
References

Martinon F and Tschopp J. Inflammatory caspases: linking an intracellular innate immune system to autoinflammatory diseases. Cell 2004; 117:561-74.
Zhivotovsky B and Orrenius S. Caspase-2 function in response to DNA damage. Biochim. Biophys. Res. Comm. 2005; 331:859-67.
Wolf BB and Green DR. Suicidal tendencies: apoptotic cell death by caspase family proteinases. J. Biol. Chem. 1999; 274:20049-52.
Juan TSC, McNiece IK, Argento JM, et al. Identification and mapping of Casp7, a cysteine protease resembling CPP32b, Interleukin-1b converting enzyme, and CED-3. Genomics 1997; 40:86-93.

Images



Western blot analysis of Caspase-7 in mouse skeletal muscle cell lysate with Caspase-7 antibody at (A) 0.5 and (B) 1 µg/mL.



Immunohistochemistry of caspase-7 in rat skeletal muscle tissue with caspase-7 antibody at 10 µg/mL.