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Caspase-3 Antibody

Catalog # ASC10291

Product Information

Application	E, IHC-P
Primary Accession	P42574
Other Accession	NP_004337, 14790119
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	31608
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Caspase-3 antibody can be used for detection of Caspase-3 by immunohistochemistry at 5 □g/mL.

Additional Information

Gene ID	836
Other Names	Caspase-3 Antibody: CPP32, SCA-1, CPP32B, CPP32, Caspase-3, Apopain, CASP-3, caspase 3, apoptosis-related cysteine peptidase
Target/Specificity	CASP3; At least two isoforms of Caspase-3 are known to exist.
Reconstitution & Storage	Caspase-3 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-3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CASP3
Synonyms	CPP32 {ECO:0000303|PubMed:7983002}
Function	Thiol protease that acts as a major effector caspase involved in the execution phase of apoptosis (PubMed:18723680, PubMed:20566630, PubMed:23650375, PubMed:35338844, PubMed:35446120, PubMed:7596430). Following cleavage and activation by initiator caspases (CASP8, CASP9 and/or CASP10), mediates execution of apoptosis by catalyzing cleavage of many proteins (PubMed:18723680, PubMed:20566630, PubMed:23650375, PubMed:7596430). At the onset of apoptosis, it proteolytically cleaves poly(ADP-ribose) polymerase PARP1 at a

	'216-Asp-|-Gly-217' bond (PubMed:10497198, PubMed:16374543, PubMed:7596430, PubMed:7774019). Cleaves and activates sterol regulatory element binding proteins (SREBPs) between the basic helix-loop-helix leucine zipper domain and the membrane attachment domain (By similarity). Cleaves and activates caspase-6, -7 and -9 (CASP6, CASP7 and CASP9, respectively) (PubMed:7596430). Cleaves and inactivates interleukin-18 (IL18) (PubMed:37993714, PubMed:9334240). Involved in the cleavage of huntingtin (PubMed:8696339). Triggers cell adhesion in sympathetic neurons through RET cleavage (PubMed:21357690). Also involved in axon pruning during brain development (By similarity). Cleaves DSG2 in response to apoptosis resulting in a loss of full length DSG2 at desmosome cell junctions and subsequent loss of cell-cell adhesion (PubMed:17559062). Also cleaves JUP in response to apoptosis (PubMed:17559062). Cleaves and inhibits serine/threonine-protein kinase AKT1 in response to oxidative stress (PubMed:23152800). 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 (PubMed:30878284). Also involved in pyroptosis by mediating cleavage and activation of gasdermin-E (GSDME) (PubMed:35338844, PubMed:35446120). Cleaves XRCC4 and phospholipid scramblase proteins XKR4, XKR8 and XKR9, leading to promote phosphatidylserine exposure on apoptotic cell surface (PubMed:23845944, PubMed:33725486). Cleaves BIRC6 following inhibition of BIRC6-caspase binding by DIABLO/SMAC (PubMed:36758104, PubMed:36758106).
Cellular Location	Cytoplasm.
Tissue Location	Highly expressed in lung, spleen, heart, liver and kidney. Moderate levels in brain and skeletal muscle, and low in testis. Also found in many cell lines, highest expression in cells of the immune system.

Background

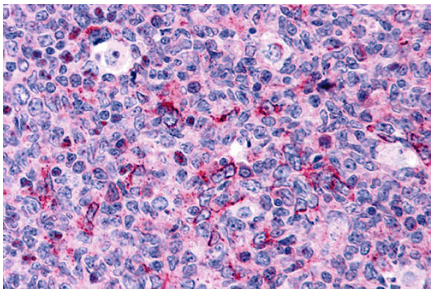
Caspase-3 Antibody: Caspases are a family of cysteine proteases that can be divided into the apoptotic and inflammatory caspase subfamilies. Unlike the apoptotic caspases, members of the inflammatory subfamily are generally not involved in cell death but are associated with the immune response to microbial 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-3 is synthesized as an inactive proenzyme that undergoes proteolytic cleavage by caspases 8, 9 and 10 to produce 2 subunits, termed p20 and p11. These subunits dimerize to form the active enzyme. Caspase-3 proteolytically cleaves and activates other proteins such as caspases 6, 7 and 9.

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.
Slee EA, Adrain C, and Martin SJ. Serial killers: ordering caspase activation events in apoptosis. Cell Death Diff. 1999; 6:1067-74.

Images

Immunohistochemistry of Caspase-3 in human tonsil



tissue with Caspase-3 antibody at 5 µg/mL.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.