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Caspase-1 Antibody

Catalog # ASC10297

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	P29466
Other Accession	NP_150634, 15431328
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	45159
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	Casp-1 antibody can be used for the detection of Caspase-1 by Western blot at 0.5 to 2 g/mL. Antibody can also be used for immunohistochemistry starting at 2 g/mL. For immunofluorescence start at 10 g/mL.

Additional Information

Gene ID	834
Other Names	Caspase-1 Antibody: ICE, P45, IL1BC, IL1BCE, Caspase-1, Interleukin-1 beta convertase, CASP-1, caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)
Target/Specificity	CASP1; Depending on cell lines or tissues used, other cleavage products may be observed.
Reconstitution & Storage	Caspase-1 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-1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CASP1
Synonyms	IL1BC, IL1BCE
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).
Cellular Location	Cytoplasm. Cell membrane
Tissue Location	Expressed in larger amounts in spleen and lung. Detected in liver, heart, small intestine, colon, thymus, prostate, skeletal muscle, peripheral blood leukocytes, kidney and testis. No expression in the brain.

Background

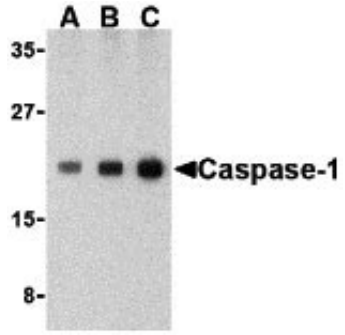
Caspase-1 Antibody: Caspases are a family of cysteine proteases that can be divided into the apoptotic and inflammatory caspase subfamilies. Unlike the apoptotic caspases, members of the inflammatory subfamily are generally not involved in cell death but are associated with the immune response to microbial pathogens. Members of this subfamily include caspase-1, -4, -5, and -12 and can activate proinflammatory cytokines such as IL-1β and IL-18. Caspase-1 was initially identified as an IL-1β-converting enzyme; later experiments revealed it to be a mammalian homolog of the C. elegans cell death gene ced-3 whose overexpression can induce apoptosis in fibroblasts.

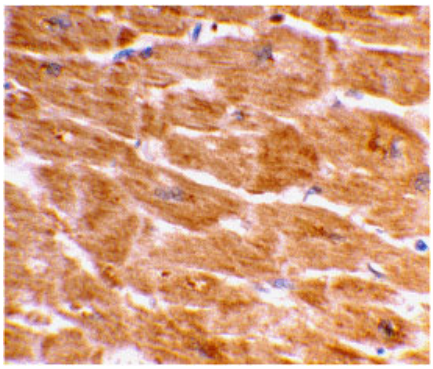
References

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.
Kuida K, Lippke JA, Ku G, et al. Altered cytokine export and apoptosis in mice deficient in interleukin-1 β converting enzyme. Science 1995; 267:2000-3.
Gracie JA, Robertson SE, and McInnes IB. Interleukin-18. J. Leukoc. Biol. 2003; 73:213-224.

Images

Western blot analysis of Caspase-1 in human heart cell lysate with Caspase-1 antibody at (A) 0.5, (B) 1, and (C) 2 µg/mL.





Immunohistochemical staining of human heart tissue using Caspase-1 antibody at 2 µg/mL.

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