

Caspase-4 Antibody
Catalog # **ASC10294**

Specification

Caspase-4 Antibody - Product Information

Application	WB, IHC, IF
Primary Accession	P49662
Other Accession	AAA86890 , 886050
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Application Notes	Casp-4 antibody can be used for the detection of Caspase-4 by Western blot at 1 and 2 µg/mL. Antibody can also be used for immunohistochemistry starting at 2 µg/mL. For immunofluorescence start at 10 µg/mL.

Caspase-4 Antibody - Additional Information

Gene ID **837**
Other Names
 Caspase-4 Antibody: TX, ICH-2, Mih1/TX, ICEREL-II, ICE(rel)II, ICH2, Caspase-4, Protease ICH-2, CASP-4, caspase 4, apoptosis-related cysteine peptidase

Target/Specificity

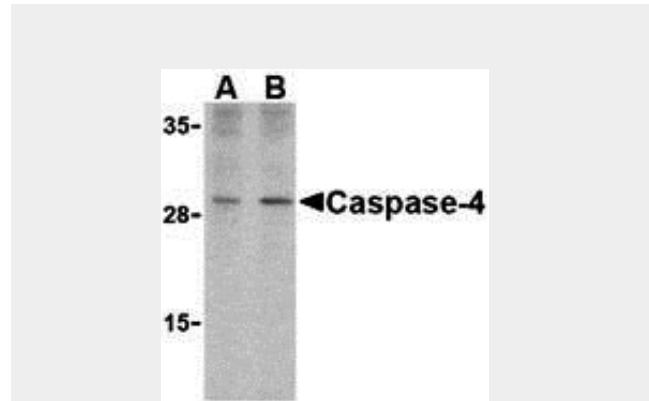
CASP4; Depending on cell lines or tissues used, other cleavage products may be observed.

Reconstitution & Storage

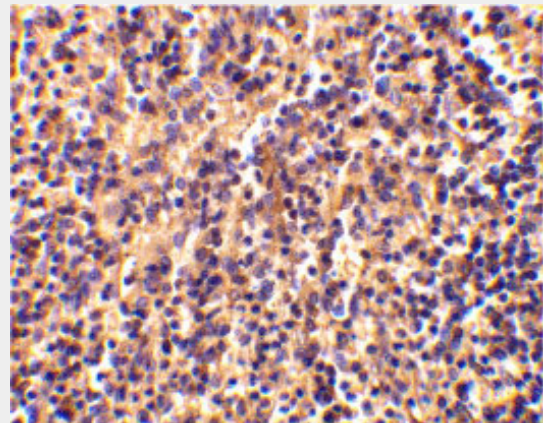
Caspase-4 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.

Precautions

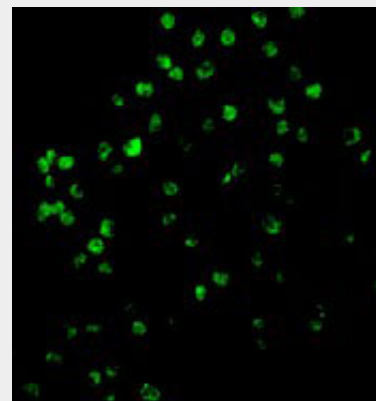
Caspase-4 Antibody is for research use only and not for use in diagnostic or therapeutic



Western blot analysis of caspase-4 in human spleen cells with caspase-4 antibody at (A) 1 and (B) 2 µg/mL.



Immunohistochemical staining of human spleen tissue using caspase-4 antibody at 2 µg/mL.



Immunofluorescence of Caspase-4 in A20 cells with Caspase-4 antibody at 10 µg/mL.

procedures.

Caspase-4 Antibody - Protein Information

Name CASP4

{ECO:0000303|PubMed:15123740,
ECO:0000312|HGNC:HGNC:1505}

Function

Inflammatory caspase that acts as an essential effector of NLRP3 inflammasome-dependent CASP1 activation and IL1B and IL18 secretion in response to non-canonical activators, such as UVB radiation, cholera enterotoxin subunit B and cytosolic LPS (PubMed:23516580, PubMed:24879791, PubMed:25119034, PubMed:22246630, PubMed:26174085, PubMed:26173988, PubMed:26508369, PubMed:25964352). Thiol protease that cleaves a tetrapeptide after an Asp residue at position P1 (PubMed:7797510, PubMed:23516580). Independently of NLRP3 inflammasome and CASP1, promotes pyroptosis, through GSDMD cleavage and activation, followed by IL1A, IL18 and HMGB1 release in response to non-canonical inflammasome activators (PubMed:26375003, PubMed:32109412).

Caspase-4 Antibody - Background

Caspase-4 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. Activation of these caspases results in the cleavage and activation of proinflammatory cytokines such as IL-1 β and IL-18. Caspase-4 was initially identified as a homologous protein to Caspase-1 and the *C. elegans* Ced-3 which could induce apoptosis in transfected cells. More recent studies have shown that it can be activated by ER stress and has been suggested to be involved in multiple neuronal pathologies such as Alzheimer's disease.

Caspase-4 Antibody - References

Martinon F and Tschopp J. Inflammatory caspases: linking an intracellular innate immune system to autoinflammatory diseases. *Cell* 2004; 117:561-74.
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.
Kamens J, Paskind M, Hugunin M, et al. Identification and characterization of ICH-2, a novel member of the interleukin-1 β -converting enzyme family of cysteine proteases. *J. Biol. Chem.* 1995; 270:15250-6.

target="_blank">32109412). Plays a crucial role in the restriction of Salmonella typhimurium replication in colonic epithelial cells during infection: in later stages of the infection, LPS from cytosolic Salmonella triggers CASP4 activation, which catalyzes cleavage of GSDMD, resulting in pyroptosis of infected cells and their extrusion into the gut lumen, as well as in IL18 secretion (PubMed:25121752, PubMed:26375003, PubMed:25964352, PubMed:32109412). Cleavage of GSDMD is not strictly dependent on the consensus cleavage site but depends on an exosite interface on CASP4 that recognizes and binds the Gasdermin-D, C- terminal (GSDMD-CT) part (PubMed:32109412). Pyroptosis limits bacterial replication, while cytokine secretion promotes the recruitment and activation of immune cells and triggers mucosal inflammation (PubMed:25121752, PubMed:26375003, PubMed:25964352). Involved in LPS- induced IL6 secretion; this activity may not require caspase enzymatic activity (PubMed:26508369). Involved in cell death induced by endoplasmic reticulum stress and by treatment with cytotoxic APP peptides found Alzheimer's patient brains (PubMed:15123740, PubMed:22246630, PubMed:23661706)

target="_blank">23661706).
Activated by direct binding to LPS without
the need of an upstream sensor
(PubMed:<a href="http://www.uniprot.org/c
itations/25119034"
target="_blank">25119034). Does not
directly process IL1B (PubMed:<a href="htt
p://www.uniprot.org/citations/7743998"
target="_blank">7743998,
PubMed:<a href="http://www.uniprot.org/ci
tations/7797510"
target="_blank">7797510,
PubMed:<a href="http://www.uniprot.org/ci
tations/7797592"
target="_blank">7797592). During
non-canonical inflammasome activation,
cuts CGAS and may play a role in the
regulation of antiviral innate immune
activation (PubMed:<a href="http://www.un
iprot.org/citations/28314590"
target="_blank">28314590).

Cellular Location

Cytoplasm, cytosol. Endoplasmic reticulum
membrane; Peripheral membrane protein;
Cytoplasmic side. Mitochondrion
Inflammasome. Secreted
Note=Predominantly localizes to the
endoplasmic reticulum (ER) Association with
the ER membrane requires TMEM214
(PubMed:15123740) Released in the
extracellular milieu by keratinocytes
following UVB irradiation
(PubMed:22246630).

Tissue Location

Widely expressed, including in
keratinocytes and colonic and small
intestinal epithelial cells (at protein level).
Not detected in brain.

Caspase-4 Antibody - Protocols

Provided below are standard protocols that you
may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)