

**Caspase-4 Antibody**  
**Rabbit Polyclonal Antibody**  
**Catalog # ABV10020****Specification**

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**Caspase-4 Antibody - Product Information**

Application	WB
Primary Accession	<a href="#">P49662</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	43262

**Caspase-4 Antibody - Additional Information****Gene ID** 837**Application & Usage****Western blot analysis (0.5-4 µg/ml). However, the optimal conditions should be determined individually. The affinity purified antibody detects the 43 kDa proform of caspase-4.****Other Names**

CASP-4, ICH-2 protease, TX protease, ICH2

**Target/Specificity**

Caspase-4

**Antibody Form**

Liquid

**Appearance**

Colorless liquid

**Formulation**

100 µg (0.2 mg/ml) affinity purified rabbit polyclonal antibody in phosphate buffered saline (PBS), pH 7.2, containing 30% glycerol, 0.5% BSA, 0.01% thimerosal.

**Handling**

The antibody solution should be gently mixed before use.

**Reconstitution & Storage**

-20 °C

**Background Descriptions****Precautions**

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

procedures.

## Caspase-4 Antibody - Protein Information

**Name** CASP4 {ECO:0000303|PubMed:15123740, ECO:0000312|HGNC:HGNC:1505}

### Function

Inflammatory caspase that acts as the effector of the non-canonical inflammasome by mediating lipopolysaccharide (LPS)-induced pyroptosis (PubMed: [25119034](http://www.uniprot.org/citations/25119034), PubMed: [26375003](http://www.uniprot.org/citations/26375003), PubMed: [32109412](http://www.uniprot.org/citations/32109412), PubMed: [34671164](http://www.uniprot.org/citations/34671164), PubMed: [37001519](http://www.uniprot.org/citations/37001519), PubMed: [37993712](http://www.uniprot.org/citations/37993712), PubMed: [37993714](http://www.uniprot.org/citations/37993714)). Also indirectly activates the NLRP3 and NLRP6 inflammasomes (PubMed: [23516580](http://www.uniprot.org/citations/23516580), PubMed: [26375003](http://www.uniprot.org/citations/26375003), PubMed: [32109412](http://www.uniprot.org/citations/32109412), PubMed: [7797510](http://www.uniprot.org/citations/7797510)). Acts as a thiol protease that cleaves a tetrapeptide after an Asp residue at position P1: catalyzes cleavage of CGAS, GSDMD and IL18 (PubMed: [15326478](http://www.uniprot.org/citations/15326478), PubMed: [23516580](http://www.uniprot.org/citations/23516580), PubMed: [26375003](http://www.uniprot.org/citations/26375003), PubMed: [28314590](http://www.uniprot.org/citations/28314590), PubMed: [32109412](http://www.uniprot.org/citations/32109412), PubMed: [37993712](http://www.uniprot.org/citations/37993712), PubMed: [37993714](http://www.uniprot.org/citations/37993714), PubMed: [7797510](http://www.uniprot.org/citations/7797510)). Effector of the non-canonical inflammasome independently of NLRP3 inflammasome and CASP1: the non-canonical inflammasome promotes pyroptosis through GSDMD cleavage without involving secretion of cytokine IL1B (PubMed: [25119034](http://www.uniprot.org/citations/25119034), PubMed: [25121752](http://www.uniprot.org/citations/25121752), PubMed: [26375003](http://www.uniprot.org/citations/26375003), PubMed: [31268602](http://www.uniprot.org/citations/31268602), PubMed: [32109412](http://www.uniprot.org/citations/32109412), PubMed: [37993712](http://www.uniprot.org/citations/37993712), PubMed: [37993714](http://www.uniprot.org/citations/37993714)). In the non-canonical inflammasome, CASP4 is activated by direct binding to the lipid A moiety of LPS without the need of an upstream sensor (PubMed: [25119034](http://www.uniprot.org/citations/25119034), PubMed: [25121752](http://www.uniprot.org/citations/25121752), PubMed: [29520027](http://www.uniprot.org/citations/29520027), PubMed: [32510692](http://www.uniprot.org/citations/32510692), PubMed: [32581219](http://www.uniprot.org/citations/32581219), PubMed: [37993712](http://www.uniprot.org/citations/37993712)). LPS-binding promotes CASP4 activation and CASP4-mediated cleavage of GSDMD and IL18, followed by IL18 secretion through the GSDMD pore, pyroptosis of infected cells and their extrusion into the gut lumen (PubMed: [25119034](http://www.uniprot.org/citations/25119034), PubMed: [25121752](http://www.uniprot.org/citations/25121752), PubMed: [37993712](http://www.uniprot.org/citations/37993712), PubMed: [37993714](http://www.uniprot.org/citations/37993714)). Also indirectly promotes secretion of mature cytokines (IL1A

and HMGB1) downstream of GSDMD-mediated pyroptosis via activation of the NLRP3 and NLRP6 inflammasomes (PubMed:<a href="http://www.uniprot.org/citations/26375003" target="\_blank">26375003</a>, PubMed:<a href="http://www.uniprot.org/citations/32109412" target="\_blank">32109412</a>). Involved in NLRP3-dependent CASP1 activation and IL1B secretion in response to non-canonical activators, such as UVB radiation or cholera enterotoxin (PubMed:<a href="http://www.uniprot.org/citations/22246630" target="\_blank">22246630</a>, PubMed:<a href="http://www.uniprot.org/citations/23516580" target="\_blank">23516580</a>, PubMed:<a href="http://www.uniprot.org/citations/24879791" target="\_blank">24879791</a>, PubMed:<a href="http://www.uniprot.org/citations/25964352" target="\_blank">25964352</a>, PubMed:<a href="http://www.uniprot.org/citations/26173988" target="\_blank">26173988</a>, PubMed:<a href="http://www.uniprot.org/citations/26174085" target="\_blank">26174085</a>, PubMed:<a href="http://www.uniprot.org/citations/26508369" target="\_blank">26508369</a>). Involved in NLRP6 inflammasome- dependent activation in response to lipoteichoic acid (LTA), a cell- wall component of Gram-positive bacteria, which leads to CASP1 activation and IL1B secretion (PubMed:<a href="http://www.uniprot.org/citations/33377178" target="\_blank">33377178</a>). Involved in LPS- induced IL6 secretion; this activity may not require caspase enzymatic activity (PubMed:<a href="http://www.uniprot.org/citations/26508369" target="\_blank">26508369</a>). The non-canonical inflammasome is required for innate immunity to cytosolic, but not vacuolar, bacteria (By similarity). Plays a crucial role in the restriction of S.typhimurium replication in colonic epithelial cells during infection (PubMed:<a href="http://www.uniprot.org/citations/25121752" target="\_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/25964352" target="\_blank">25964352</a>). Activation of the non-canonical inflammasome in brain endothelial cells can lead to excessive pyroptosis, leading to blood-brain barrier breakdown (By similarity). Pyroptosis limits bacterial replication, while cytokine secretion promotes the recruitment and activation of immune cells and triggers mucosal inflammation (PubMed:<a href="http://www.uniprot.org/citations/25121752" target="\_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/25964352" target="\_blank">25964352</a>, PubMed:<a href="http://www.uniprot.org/citations/26375003" target="\_blank">26375003</a>). May also act as an activator of adaptive immunity in dendritic cells, following activation by oxidized phospholipid 1- palmitoyl-2-arachidonoyl- sn-glycero-3-phosphorylcholine, an oxidized phospholipid (oxPAPC) (By similarity). Involved in cell death induced by endoplasmic reticulum stress and by treatment with cytotoxic APP peptides found in Alzheimer's patient brains (PubMed:<a href="http://www.uniprot.org/citations/15123740" target="\_blank">15123740</a>, PubMed:<a href="http://www.uniprot.org/citations/22246630" target="\_blank">22246630</a>, PubMed:<a href="http://www.uniprot.org/citations/23661706" target="\_blank">23661706</a>). 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:<a href="http://www.uniprot.org/citations/32109412" target="\_blank">32109412</a>). Catalyzes cleavage and maturation of IL18; IL18 processing also depends of the exosite interface on CASP4 (PubMed:<a href="http://www.uniprot.org/citations/15326478" target="\_blank">15326478</a>, PubMed:<a href="http://www.uniprot.org/citations/37993712" target="\_blank">37993712</a>, PubMed:<a href="http://www.uniprot.org/citations/37993714" target="\_blank">37993714</a>). In contrast, it does not directly process IL1B (PubMed:<a href="http://www.uniprot.org/citations/7743998" target="\_blank">7743998</a>, PubMed:<a href="http://www.uniprot.org/citations/7797510" target="\_blank">7797510</a>, PubMed:<a href="http://www.uniprot.org/citations/7797592" target="\_blank">7797592</a>). 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.uniprot.org/citations/28314590" target="\_blank">28314590</a>).

### 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

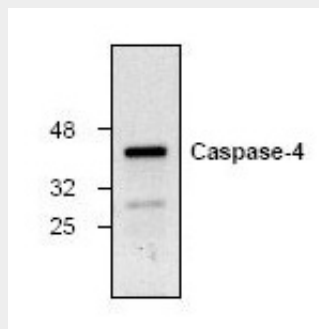
Widely expressed, including in keratinocytes and colonic and small intestinal epithelial cells (at protein level). Not detected in brain.

### 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](#)

### Caspase-4 Antibody - Images



Western blot analysis of caspase-4 expression in HeLa cell extract.

### Caspase-4 Antibody - Background

Apoptosis occurs during normal cellular development and involves dramatic changes in cellular structure. Disruption of apoptosis may contribute to cancer as well as other autoimmune diseases. Caspase family of cysteine proteases has been shown to play a key role in apoptosis. Caspase-4 is also known as Ich-2, TX, and ICERel-II and can be proteolytically processed by granzyme B. Overexpression of caspase-4 induces apoptosis in Rat-1 and HeLa cells, which can be inhibited by CrmA and Bcl-2.