

**Caspase 4 Antibody**  
**Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP51043****Specification**

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**Caspase 4 Antibody - Product Information**

|                   |                        |
|-------------------|------------------------|
| Application       | <b>WB, IHC-P, E</b>    |
| Primary Accession | <a href="#">P49662</a> |
| Reactivity        | <b>Human</b>           |
| Host              | <b>Rabbit</b>          |
| Clonality         | <b>Polyclonal</b>      |
| Calculated MW     | <b>45 KDa</b>          |

**Caspase 4 Antibody - Additional Information****Gene ID** 837**Other Names**

Caspase-4, CASP-4, ICE(rel)-II, Protease ICH-2, Protease TX, Caspase-4 subunit 1, Caspase-4 subunit 2, CASP4, ICH2

**Format**

0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50%

**Storage**

Store at -20 °C. Stable for 12 months from date of receipt

**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:<a href="http://www.uniprot.org/citations/25119034" target="\_blank">25119034</a>, 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>, PubMed:<a href="http://www.uniprot.org/citations/34671164" target="\_blank">34671164</a>, PubMed:<a href="http://www.uniprot.org/citations/37001519" target="\_blank">37001519</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>). Also indirectly activates the NLRP3 and NLRP6 inflammasomes (PubMed:<a href="http://www.uniprot.org/citations/23516580" target="\_blank">23516580</a>, 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>, PubMed:<a href="http://www.uniprot.org/citations/7797510" target="\_blank">7797510</a>). Acts as a thiol protease that cleaves a tetrapeptide after an Asp residue at position P1: catalyzes cleavage of CGAS, GSDMD and IL18 (PubMed:<a href="http://www.uniprot.org/citations/15326478" target="\_blank">15326478</a>)

target="\_blank">15326478</a>, PubMed:<a href="http://www.uniprot.org/citations/23516580" target="\_blank">23516580</a>, PubMed:<a href="http://www.uniprot.org/citations/26375003" target="\_blank">26375003</a>, PubMed:<a href="http://www.uniprot.org/citations/28314590" target="\_blank">28314590</a>, PubMed:<a href="http://www.uniprot.org/citations/32109412" target="\_blank">32109412</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>, PubMed:<a href="http://www.uniprot.org/citations/7797510" target="\_blank">7797510</a>). 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:<a href="http://www.uniprot.org/citations/25119034" target="\_blank">25119034</a>, PubMed:<a href="http://www.uniprot.org/citations/25121752" target="\_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/26375003" target="\_blank">26375003</a>, PubMed:<a href="http://www.uniprot.org/citations/31268602" target="\_blank">31268602</a>, PubMed:<a href="http://www.uniprot.org/citations/32109412" target="\_blank">32109412</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 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:<a href="http://www.uniprot.org/citations/25119034" target="\_blank">25119034</a>, PubMed:<a href="http://www.uniprot.org/citations/25121752" target="\_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/29520027" target="\_blank">29520027</a>, PubMed:<a href="http://www.uniprot.org/citations/32510692" target="\_blank">32510692</a>, PubMed:<a href="http://www.uniprot.org/citations/32581219" target="\_blank">32581219</a>, PubMed:<a href="http://www.uniprot.org/citations/37993712" target="\_blank">37993712</a>). 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:<a href="http://www.uniprot.org/citations/25119034" target="\_blank">25119034</a>, PubMed:<a href="http://www.uniprot.org/citations/25121752" target="\_blank">25121752</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>). 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

### Caspase 4 Antibody - Background

Involved in the activation cascade of caspases responsible for apoptosis execution. Involved in ER-stress induced apoptosis. Cleaves caspase-1.

### **Caspase 4 Antibody - References**

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Kamens J., et al. J. Biol. Chem. 270:15250-15256(1995).

Fernandes-Alnemri T., et al. Submitted (JUN-1995) to the EMBL/GenBank/DDBJ databases.

Taylor T.D., et al. Nature 440:497-500(2006).