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# CASP4 / Caspase 4 Antibody (Internal)
**Rabbit Polyclonal Antibody**
**Catalog # ALS12966**

## Specification

### CASP4 / Caspase 4 Antibody (Internal) - Product Information

| | |
|---|---|
| Application | **IF, IHC** |
| Primary Accession | P49662 |
| Reactivity | **Human** |
| Host | **Rabbit** |
| Clonality | **Polyclonal** |
| Calculated MW | **43kDa KDa** |

### CASP4 / Caspase 4 Antibody (Internal) - Additional Information

**Gene ID** 837

**Other Names**
Caspase-4, CASP-4, 3.4.22.57, ICE(rel)-II, Protease ICH-2, Protease TX, Caspase-4 subunit 1, Caspase-4 subunit 2, CASP4, ICH2

**Target/Specificity**
15 amino acid peptide from near the center of human Caspase-4

**Reconstitution & Storage**
Short term 4°C, long term aliquot and store at -20°C, avoid freeze thaw cycles. Store undiluted.

**Precautions**
CASP4 / Caspase 4 Antibody (Internal) is for research use only and not for use in diagnostic or therapeutic procedures.

### CASP4 / Caspase 4 Antibody (Internal) - 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/34671164" target="_blank">34671164</a>, PubMed:<a href="http://www.uniprot.org/citations/32109412" target="_blank">32109412</a>, PubMed:<a href="http://www.uniprot.org/citations/37001519" target="_blank">37001519</a>). Also indirectly activates the NLRP3 and NLRP6 inflammasomes (PubMed:<a href="http://www.uniprot.org/citations/7797510" target="_blank">7797510</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/32109412" target="_blank">32109412</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/7797510" target="_blank">7797510</a>, PubMed:<a href="http://www.uniprot.org/citations/15326478" 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>). 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 and IL18 (PubMed:<a href="http://www.uniprot.org/citations/25121752" target="_blank">25121752</a>, 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/31268602" target="_blank">31268602</a>, PubMed:<a href="http://www.uniprot.org/citations/32109412" target="_blank">32109412</a>). In the non-canonical inflammasome, CASP4 is activated by direct binding to LPS without the need of an upstream sensor (PubMed:<a href="http://www.uniprot.org/citations/25121752" target="_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/25119034" target="_blank">25119034</a>, PubMed:<a href="http://www.uniprot.org/citations/29520027" target="_blank">29520027</a>). LPS-binding promotes CASP4 activation and CASP4-mediated cleavage of GSDMD, followed by pyroptosis of infected cells and their extrusion into the gut lumen (PubMed:<a href="http://www.uniprot.org/citations/25121752" target="_blank">25121752</a>, PubMed:<a href="http://www.uniprot.org/citations/25119034" target="_blank">25119034</a>). Also indirectly promotes secretion of mature cytokines (IL1A, IL18 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 and IL18 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 and IL18 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>). 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/26375003" target="_blank">26375003</a>, PubMed:<a href="http://www.uniprot.org/citations/25964352" target="_blank">25964352</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 (PubMed:<a href="http://www.uniprot.org/citations/15326478" target="_blank">15326478</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/7797592" target="_blank">7797592</a>, PubMed:<a href="http://www.uniprot.org/citations/7797510" target="_blank">7797510</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).

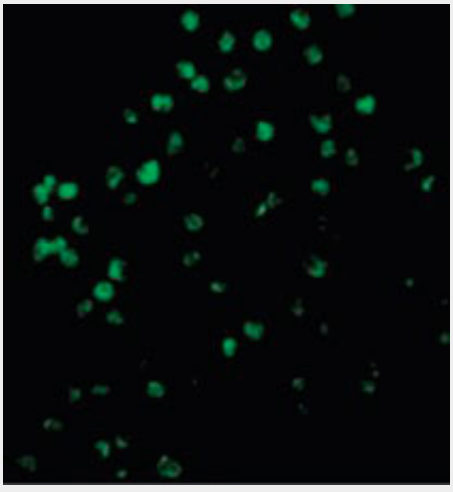
**Tissue Location**
Widely expressed, including in keratinocytes and colonic and small intestinal epithelial cells (at protein level). Not detected in brain.

## CASP4 / Caspase 4 Antibody (Internal) - Protocols

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

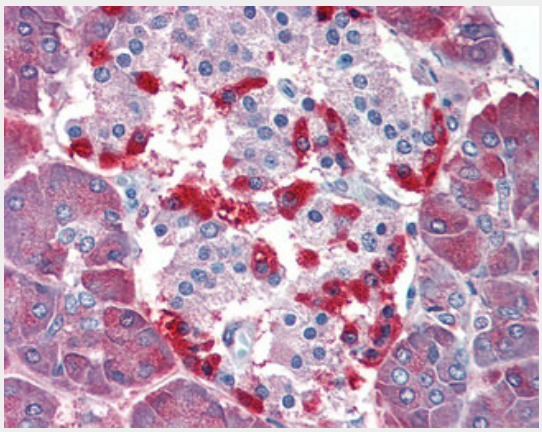
- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

## CASP4 / Caspase 4 Antibody (Internal) - Images



Immunofluorescence of Caspase-4 in A20 cells with Caspase-4 antibody at 10 ug/ml.

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Anti-CASP4 / Caspase 4 antibody IHC of human pancreas.

**CASP4 / Caspase 4 Antibody (Internal) - Background**

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

**CASP4 / Caspase 4 Antibody (Internal) - References**

Faucheu C.,et al.EMBO J. 14:1914-1922(1995).
Munday N.A.,et al.J. Biol. Chem. 270:15870-15876(1995).
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).