

# CASP4 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP21390c

## Product Information

---

|                   |                        |
|-------------------|------------------------|
| Application       | WB, E                  |
| Primary Accession | <a href="#">P49662</a> |
| Reactivity        | Human                  |
| Host              | Rabbit                 |
| Clonality         | polyclonal             |
| Isotype           | Rabbit IgG             |
| Clone Names       | RB52883                |
| Calculated MW     | 43262                  |

## 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                                                           |
| Target/Specificity | This CASP4 antibody is generated from a rabbit immunized with a KLH conjugated synthetic peptide between 163-197 amino acids from the Central region of human CASP4.         |
| Dilution           | WB~~1:2000 E~~Use at an assay dependent concentration.                                                                                                                       |
| Format             | Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification. |
| Storage            | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.                                      |
| Precautions        | CASP4 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.                                                                    |

## 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="#">25119034</a> , PubMed: <a href="#">26375003</a> , PubMed: <a href="#">32109412</a> , PubMed: <a href="#">34671164</a> , PubMed: <a href="#">37001519</a> , PubMed: <a href="#">37993712</a> , PubMed: <a href="#">37993714</a> ). Also indirectly activates the NLRP3 and NLRP6 |

inflammasomes (PubMed:[23516580](#), PubMed:[26375003](#), PubMed:[32109412](#), PubMed:[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](#), PubMed:[23516580](#), PubMed:[26375003](#), PubMed:[28314590](#), PubMed:[32109412](#), PubMed:[37993712](#), PubMed:[37993714](#), PubMed:[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](#), PubMed:[25121752](#), PubMed:[26375003](#), PubMed:[31268602](#), PubMed:[32109412](#), PubMed:[37993712](#), PubMed:[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](#), PubMed:[25121752](#), PubMed:[29520027](#), PubMed:[32510692](#), PubMed:[32581219](#), PubMed:[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](#), PubMed:[25121752](#), PubMed:[37993712](#), PubMed:[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:[26375003](#), PubMed:[32109412](#)). Involved in NLRP3-dependent CASP1 activation and IL1B secretion in response to non-canonical activators, such as UVB radiation or cholera enterotoxin (PubMed:[22246630](#), PubMed:[23516580](#), PubMed:[24879791](#), PubMed:[25964352](#), PubMed:[26173988](#), PubMed:[26174085](#), PubMed:[26508369](#)). 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:[33377178](#)). Involved in LPS-induced IL6 secretion; this activity may not require caspase enzymatic activity (PubMed:[26508369](#)). 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:[25121752](#), PubMed:[25964352](#)). 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:[25121752](#), PubMed:[25964352](#), PubMed:[26375003](#)). 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:[15123740](#), PubMed:[22246630](#), PubMed:[23661706](#)). 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](#)). Catalyzes cleavage and maturation of IL18; IL18 processing also depends of the exosite interface on CASP4 (PubMed:[15326478](#), PubMed:[37993712](#), PubMed:[37993714](#)). In contrast, it does not directly process IL1B (PubMed:[7743998](#), PubMed:[7797510](#), PubMed:[7797592](#)). During non-canonical inflammasome activation, cuts CGAS and may play a role in the regulation of antiviral innate immune activation (PubMed:[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.

## Background

---

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

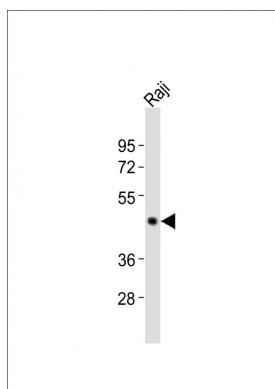
## References

---

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).

## Images

---



Anti-CASP4 Antibody (Center)at 1:2000 dilution + Raji whole cell lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 43 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

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