

CASP4 Antibody (C-Term)

Purified Rabbit Polyclonal Antibody (Pab) Catalog # AP21430b

Specification

CASP4 Antibody (C-Term) - Product Information

Application WB,E
Primary Accession P49662
Reactivity Human
Host Rabbit
Clonality polyclonal
Isotype Rabbit IgG
Calculated MW 43262

CASP4 Antibody (C-Term) - 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 337-372 amino acids from 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 (C-Term) is for research use only and not for use in diagnostic or therapeutic procedures.

CASP4 Antibody (C-Term) - 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: <u>25119034</u>, PubMed: <u>26375003</u>,





Tel: 858.875.1900 Fax: 858.875.1999

PubMed:32109412, PubMed:34671164, PubMed:37001519, PubMed:37993712, PubMed: 37993714). 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: <u>28314590</u>, PubMed: <u>32109412</u>, PubMed: <u>37993712</u>, PubMed: <u>37993714</u>, PubMed: <u>7797510</u>). 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: <u>29520027</u>, PubMed: <u>32510692</u>, PubMed: <u>32581219</u>, PubMed: <u>37993712</u>). 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: <u>25119034</u>, PubMed: <u>25121752</u>, PubMed: <u>37993712</u>, PubMed: <u>37993714</u>). 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 inflammasomedependent 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.

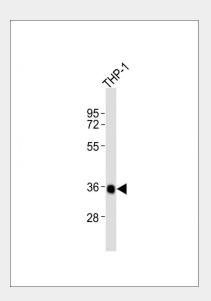


CASP4 Antibody (C-Term) - Protocols

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

- Western Blot
- Blocking Peptides
- Dot Blot
- <u>Immunohistochemistry</u>
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

CASP4 Antibody (C-Term) - Images



Anti-CASP4 Antibody (C-Term)at 1:2000 dilution + THP-1 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.

CASP4 Antibody (C-Term) - Background

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

CASP4 Antibody (C-Term) - 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).