

Recombinant Mouse ASC Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51887

Size: 10ug, 100ug

Protein Name: Apoptosis-associated speck-like protein containing a CARD (mASC) (PYD and CARD domain-containing protein)

Synonym: Pycard, Asc

UniProt ID: Q9EPB4

UniProt Link: www.uniprot.org/uniprotkb/Q9EPB4/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 193 AA

Molecular Weight: 21 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MGRARDAILDALENLSGDELKKFKMKLLTVQLREGYGRIPRGALLQMDAIDLTKLVSYYLESYGLEL
TMTVLRDMGLQELAEQLQTTKEESGAVAAAASVPAQSTARTGHFVDQHRQALIARVTEVDGVLDAL
HGSVLTEGQYQAVRAETTSQDKMRKLFSFVPSWNLTKDSSLQALKEIHPYLVMDLEQS

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Apoptosis-associated speck-like protein containing a CARD (mASC) (PYD and CARD domain-containing protein) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Functions as a key mediator in apoptosis and inflammation (PubMed:32424362, PubMed:34678144). Promotes caspase-mediated apoptosis involving predominantly caspase-8 and also caspase-9 in a probable cell type-specific manner (By similarity). Involved in activation of the mitochondrial apoptotic pathway, promotes caspase-8-dependent proteolytic maturation of BID independently of FADD in certain cell types and also mediates mitochondrial translocation of BAX and activates BAX-dependent apoptosis coupled to activation of caspase-9, -2 and -3 (By similarity). Involved in innate immune response by acting as an integral adapter in the assembly of various inflammasomes (NLRP2, NLRP3, NLRP6 and AIM2) which recruit and activate caspase-1 leading to processing and secretion of pro-inflammatory cytokines (PubMed:15190255, PubMed:15507117, PubMed:21892172, PubMed:22555457, PubMed:32424362, PubMed:34678144). Caspase-1-dependent inflammation leads to macrophage pyroptosis, a form of cell death (By similarity). The function as activating adapter in different types of inflammasomes is mediated by the pyrin and CARD domains and their homotypic interactions (By similarity). Clustered PYCARD nucleates the formation of caspase-1 filaments through the interaction of their respective CARD domains, acting as a platform for caspase-1 polymerization (By similarity). In the NLRC4 inflammasomes seems not be required but facilitates the processing of procaspase-1 (By similarity). In cooperation with NOD2 involved in an inflammasome activated by bacterial muramyl dipeptide leading to caspase-1 activation (By similarity). May be involved in RIGI-triggered pro-inflammatory responses and inflammasome activation (By similarity). In collaboration with AIM2 which detects cytosolic double-stranded DNA may also be involved in a caspase-1-independent cell death that involves caspase-8 (PubMed:22555457). In adaptive immunity may be involved in maturation of dendritic cells to stimulate T-cell immunity and in cytoskeletal rearrangements coupled to chemotaxis and antigen uptake may be involved in post-transcriptional regulation of the guanine nucleotide exchange factor DOCK2; the latter function is proposed to involve the nuclear form (By similarity). Also involved in transcriptional activation of cytokines and chemokines independent of the inflammasome; this function may involve AP-1, NF-kappa-B, MAPK and caspase-8 signaling pathways (By similarity). For regulation of NF-kappa-B activating and inhibiting functions have been reported (By similarity). Modulates NF-kappa-B induction at the level of the IKK complex by inhibiting kinase activity of CHUK and IKBK (By similarity). Proposed to compete with RIPK2 for association with CASP1 thereby down-regulating CASP1-mediated RIPK2-dependent NF-kappa-B activation and activating interleukin-1 beta processing (By similarity). Modulates host resistance to DNA virus infection, probably by inducing the cleavage of and inactivating CGAS in presence of cytoplasmic double-stranded DNA (PubMed:28314590).

Subcellular Localization: Cytoplasm . Inflammasome . Endoplasmic reticulum . Mitochondrion . Nucleus . Note=Upstream of caspase activation, a redistribution from the cytoplasm to the aggregates occurs. These appear as hollow, perinuclear spherical, ball-like structures. Upon NLRP3 inflammasome activation redistributes to the perinuclear space localizing to endoplasmic reticulum and mitochondria. Localized primarily to the nucleus in resting monocytes/macrophages and rapidly redistributed to the cytoplasm upon pathogen infection (By similarity). Localized to large cytoplasmic aggregate appearing as a speck containing AIM2, PYCARD, CASP8 and bacterial DNA after infection with *Francisella tularensis* (PubMed:22555457).

6. Notes



- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.