

Recombinant Mouse CARD9 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51106

Size: 10ug, 100ug

Protein Name: Caspase recruitment domain-containing protein 9

Synonym: Card9

UniProt ID: A2AIV8

UniProt Link: www.uniprot.org/uniprotkb/A2AIV8/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 536 AA

Molecular Weight: 62 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSDYENDDECWSTLESFRVKLISVIDPSRITPYLRQCKVLNPDDEEQVLSDPNLVIRKRKVGVLDDILQ
RTGHKGYVAFLESLELYYPQLYRKVTGKEPARVFMSIIDASGESGLTQLLMTEVMKLQKKVQDLTALL
SSKDDFIKELRVKDSLLRKHQERVQRLKEECESLSSAELKRCKDENYELAMCLAHLSEEKGAALMRNR
DLQLEVDRLRHSLMKAEDDCKVERKHTLKL RHAMEQRPSQELLWELQQEKDLLQARVQELQVSVQ
EGKLDNRNSPIYQVLEEDWRQALQEHQKQVSTIFSLRKDLRQAETLRARCTEEKEMFELQCLALRKDA
KMYKDRIEAILLQMEEVSIERDQAMASREELHAQCTQSFQDKDKLRKLVRELGEKADELQLQLFQTE
SRLLAAEGRKQQLDMLILSSDLEDSSPRNSQELSLPQDLEEDAQLSDKGV LADRESPEQPFMAL
NKEHLSLTHGMGPSSSEPPEKERRRLKESFENYRRKRALRKMQNSWRQGEGDRGNTTGSDNTDT
EGS

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 Caspase recruitment domain-containing protein 9 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: Adapter protein that plays a key role in innate immune response against fungi by forming signaling complexes downstream of C-type lectin receptors (PubMed:16862125, PubMed:20538615, PubMed:26679537, PubMed:29080677). CARD9-mediated signals are essential for antifungal immunity against a subset of fungi from the phylum Ascomycota (PubMed:16862125, PubMed:20538615, PubMed:24470469, PubMed:25621893, PubMed:26679537, PubMed:29080677, PubMed:32548948). Transduces signals in myeloid cells downstream of C-type lectin receptors CLEC7A (dectin-1), CLEC6A (dectin-2) and CLEC4E (Mincle), which detect pathogen-associated molecular pattern metabolites (PAMPs), such as fungal carbohydrates, and trigger CARD9 activation (PubMed:16862125, PubMed:20538615). Upon activation, CARD9 homooligomerizes to form a nucleating helical template that recruits BCL10 via CARD-CARD interaction, thereby promoting polymerization of BCL10 and subsequent recruitment of MAL11: this leads to activation of NF-kappa-B and MAP kinase p38 (MAPK11, MAPK12, MAPK13 and/or MAPK14) pathways which stimulate expression of genes encoding pro-inflammatory cytokines and chemokines (PubMed:16862125, PubMed:20538615, PubMed:22265677, PubMed:29080677). CARD9 signaling in antigen-presenting cells links innate sensing of fungi to the activation of adaptive immunity and provides a cytokine milieu that induces the development and subsequent of interleukin 17-producing T helper (Th17) cells (PubMed:17450144, PubMed:24470469, PubMed:32358020). Also involved in activation of myeloid cells via classical ITAM-associated receptors and TLR: required for TLR-mediated activation of MAPK, while it is not required for TLR-induced activation of NF-kappa-B (PubMed:17486093). CARD9 can also be engaged independently of BCL10: forms a complex with RASGRF1 downstream of C-type lectin receptors, which recruits and activates HRAS, leading to ERK activation and the production of cytokines (PubMed:25267792). Acts as an important regulator of the intestinal commensal fungi (mycobiota) component of the gut microbiota (PubMed:27158904, PubMed:33548172). Plays an essential role in antifungal immunity against dissemination of gut fungi: acts by promoting induction of antifungal IgG antibodies response in CX3CR1(+) macrophages to confer protection against disseminated C.albicans or C.auris infection (PubMed:33548172). Also mediates immunity against other pathogens, such as certain bacteria, viruses and parasites; CARD9 signaling is however redundant with other innate immune responses (PubMed:17187069, PubMed:26679537, PubMed:29080677). In response to L.monocytogenes infection, required for the production of inflammatory cytokines activated by intracellular peptidoglycan: acts by connecting NOD2 recognition of peptidoglycan to downstream activation of MAP kinases (MAPK) without activating NF-kappa-B (PubMed:17187069).

Subcellular Localization: Cytoplasm .

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.