

Recombinant Rat CARD9 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52568

Size: 10ug, 100ug

Protein Name: Caspase recruitment domain-containing protein 9 (rCARD9)

Synonym: Card9

UniProt ID: Q9EPY0

UniProt Link: www.uniprot.org/uniprotkb/Q9EPY0/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 536 AA

Molecular Weight: 63 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSDYENDDECWSALESFRVKLISVIDPSRITPYLRQCKVLNPDDEEQVLSDPNLVIRKRKVGVLDDIL
QRTGHKGYVAFLESLELYYPQLYRKVTGKEPARVFSMIIDASGESGLTQLLMTEVMKLQKKVQDLTA
LLSSKDDFIKELRVKDSLLRKHQERVQRLKEECESLSSAELKRCKDENYDLAMRLAHLSEEKGAALMR
NRDLQLEVDQLRHSLMKAEDDCKVERKHTLKL RHAMEQRPSQELLWDLQQERDLLQARVQELEVS
VQEGKLHRNSPYIQVLEEDWRQALQEHQEQASTIFSLRKDLRQAEALRTRCMEEKEMFELQCLALR
KDAKMYKDRIEAILQQMEEVSIERDQAMTSREELHAQCAQSFQDKDKLRKQVRELDEKADELQLQL
FQTESRLLAEGRLKQQQLDMLILSSDLEDSSPRNSQELSLPQDLEEDAQLSDKGVLADRESPEQPF
VVLNKKHLSQTHDTPSSSEPPEKERRRLKESFENYRRKRALRKMQNSWRQGEGDHGNTTGSDN
TDTEGS

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 (rCARD9) 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 (By similarity). CARD9-mediated signals are essential for antifungal immunity against a subset of fungi from the phylum Ascomycota (By similarity). 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:17936701). 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 MALT1: 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:17936701). 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 (By similarity). 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 (By similarity). 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 (By similarity). Acts as an important regulator of the intestinal commensal fungi (mycobiota) component of the gut microbiota (By similarity). 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 (By similarity). Also mediates immunity against other pathogens, such as certain bacteria, viruses and parasites; CARD9 signaling is however redundant with other innate immune responses (By similarity). 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 (By similarity).

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.