

Recombinant Human RIPK1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50847

Size: 10ug, 100ug

Protein Name: Receptor-interacting serine/threonine-protein kinase 1 (EC 2.7.11.1) (Cell death protein RIP) (Receptor-interacting protein 1) (RIP-1)

Synonym: RIPK1, RIP, RIP1

UniProt ID: Q13546

UniProt Link: www.uniprot.org/uniprotkb/Q13546/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 671 AA

Molecular Weight: 76 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MQPDMSLNVIMKSSDFLES AELDSGGFGKVS LCFHRTQGLMIMKTVYKGPNCIEHNEALLEEAKM
MNRLRHSRVVKLLGVIIIEEGKYS LVM EYMEKGNLMHVLKAEMSTPLSVKGRIILEIIEGMCYLHGKGV I
HKDLKPENILVDNDFHIKIADLGLASF KMWSKLNNEEHNELREVDGTAKKNGGTLYYMAPEHLNDVN
AKPTEKSDVYSFAVVLWAIFANKEPYENAICEQQ LIMCIKSGNRPDVDDITEYCPREIISLMKLCWEAN
PEARPTFPGIEEKFRPFYLSQLEESVEEDVKSLKKEYSNENAVVKRMQSLQLDCVAVPSSRSNSATE
QPGSLHSSQGLGMGPVEESWFAPSLEHPQEENEPSLQSKLQDEANYHLYGSRMDRQTKQQPRQN
VAYNREEERRRRVSHDPFAQQRPYENFQNT EGKGTAYSSAASHGNAVHQPSGLTSQPQVLYQNN
GLYSSHGFGTRPLDPGTAGPRVWYRPIPSHMPSLHNIPVPETNYLGNTPTMPFSSLPPTDESIKYTIY
NSTGIQIGAYNYMEIGGTSSSLDSTNTNFKEEPAKYQAIFDNTTSLTDKHLDPIRENLGKHWKNCA
RKLGF TQS QIDEIDHDYERDGLKEKVYQMLQKWVMREGIKGATVGKLAQALHQCSRIDLLSSLIYVS
QN

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 Receptor-interacting serine/threonine-protein kinase 1 (EC 2.7.11.1) (Cell death protein RIP) (Receptor-interacting protein 1) (RIP-1) 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: Serine-threonine kinase which is a key regulator of TNF-mediated apoptosis, necroptosis and inflammatory pathways (PubMed:17703191, PubMed:24144979, PubMed:31827280, PubMed:31827281, PubMed:32657447, PubMed:35831301). Exhibits kinase activity-dependent functions that regulate cell death and kinase-independent scaffold functions regulating inflammatory signaling and cell survival (PubMed:11101870, PubMed:19524512, PubMed:19524513, PubMed:29440439, PubMed:30988283). Has kinase-independent scaffold functions: upon binding of TNF to TNFR1, RIPK1 is recruited to the TNF-R1 signaling complex (TNF-RSC also known as complex I) where it acts as a scaffold protein promoting cell survival, in part, by activating the canonical NF-kappa-B pathway (By similarity). Kinase activity is essential to regulate necroptosis and apoptosis, two parallel forms of cell death: upon activation of its protein kinase activity, regulates assembly of two death-inducing complexes, namely complex IIa (RIPK1-FADD-CASP8), which drives apoptosis, and the complex IIb (RIPK1-RIPK3-MLKL), which drives necroptosis (By similarity). RIPK1 is required to limit CASP8-dependent TNFR1-induced apoptosis (By similarity). In normal conditions, RIPK1 acts as an inhibitor of RIPK3-dependent necroptosis, a process mediated by RIPK3 component of complex IIb, which catalyzes phosphorylation of MLKL upon induction by ZBP1 (PubMed:19524512, PubMed:19524513, PubMed:29440439, PubMed:30988283). Inhibits RIPK3-mediated necroptosis via FADD-mediated recruitment of CASP8, which cleaves RIPK1 and limits TNF-induced necroptosis (PubMed:19524512, PubMed:19524513, PubMed:29440439, PubMed:30988283). Required to inhibit apoptosis and necroptosis during embryonic development: acts by preventing the interaction of TRADD with FADD thereby limiting aberrant activation of CASP8 (By similarity). In addition to apoptosis and necroptosis, also involved in inflammatory response by promoting transcriptional production of pro-inflammatory cytokines, such as interleukin-6 (IL6) (PubMed:31827280, PubMed:31827281). Phosphorylates RIPK3: RIPK1 and RIPK3 undergo reciprocal auto- and trans-phosphorylation (PubMed:19524513). Phosphorylates DAB2IP at 'Ser-728' in a TNF-dependent manner, and thereby activates the MAP3K5-JNK apoptotic cascade (PubMed:15310755, PubMed:17389591). Required for ZBP1-induced NF-kappa-B activation in response to DNA damage (By similarity).

Subcellular Localization: Cytoplasm . Cell membrane .

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.