

Recombinant Human IRAK1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50563

Size: 10ug, 100ug

Protein Name: Interleukin-1 receptor-associated kinase 1 (IRAK-1) (EC 2.7.11.1)

Synonym: IRAK1, IRAK

UniProt ID: P51617

UniProt Link: www.uniprot.org/uniprotkb/P51617/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 712 AA

Molecular Weight: 77 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAGGPGPGEPAAPGAQHFLYEVPWVMCRFYKVMDALEPADWCQFAALIVRDQTELRLCERSGQ
RTASVLWPWINRNARVADLVHILTHLQLLRARDIITAWHPPAPLPSPGTTAPRPSSIPAPAEAEAWSP
RKLPSSASTFLSPAFFPGSQTHSGPELGLVPSASLWPPPPSPAPSSSTKPGPESSVSLQGARPPFC
WPLCEISRGTNHFSEELKIGEGGFGCVYRAVMRNTVYAVKRLKENADLEWTAVKQSFLTEVEQLSR
FRHPNIVDFAGYCAQNGFYCLVYGFLPNGSLEDRLHCQTQACPPLSWPQRDLILLGTARAIQFLHQD
SPSLIHGDIKSSNVLLDERLTPKLGDFGLARFSRFAGSSPSQSSMVARTQTVRGTLAYLPPEYIKTGR
LAVDTDTFSGVVVLETLAQRAVKTHGARTKYLKDLVEEEAEEAGVALRSTQSTLQAGLAADAWA
APIAMQIYKKHLDPRPGPCPELGLGLGQLACCCLHRRAKRRPPMTQVYERLEKLQAVVAGVPGHS
EAASCIPPSPQENSYSSTGRAHSGAAPWQPLAAPSGASAAEQQLQRGPNQPVESDES LGGLSA
ALRSWHLTPSCPLDPAPLREAGCPQGD TAGESSWGS GPGSRPTAVEGLALGSSASSSSEPPQIIIN
PARQKMVQKLALYEDGALDSLQLLSSSSLPGLGLEQDRQGPEESDEFQS

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 Interleukin-1 receptor-associated kinase 1 (IRAK-1) (EC 2.7.11.1) 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-protein kinase that plays a critical role in initiating innate immune response against foreign pathogens. Involved in Toll-like receptor (TLR) and IL-1R signaling pathways. Is rapidly recruited by MYD88 to the receptor-signaling complex upon TLR activation. Association with MYD88 leads to IRAK1 phosphorylation by IRAK4 and subsequent autophosphorylation and kinase activation. Phosphorylates E3 ubiquitin ligases Pellino proteins (PELI1, PELI2 and PELI3) to promote pellino-mediated polyubiquitination of IRAK1. Then, the ubiquitin-binding domain of IKBKG/NEMO binds to polyubiquitinated IRAK1 bringing together the IRAK1-MAP3K7/TAK1-TRAF6 complex and the NEMO-IKKA-IKKB complex. In turn, MAP3K7/TAK1 activates IKKs (CHUK/IKKA and IKBKB/IKKB) leading to NF-kappa-B nuclear translocation and activation. Alternatively, phosphorylates TIRAP to promote its ubiquitination and subsequent degradation. Phosphorylates the interferon regulatory factor 7 (IRF7) to induce its activation and translocation to the nucleus, resulting in transcriptional activation of type I IFN genes, which drive the cell in an antiviral state. When sumoylated, translocates to the nucleus and phosphorylates STAT3.

Subcellular Localization: Cytoplasm . Nucleus . Lipid droplet . Note=Translocates to the nucleus when sumoylated. RSAD2/viperin recruits it to the lipid droplet (By similarity).

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.