

Recombinant Human RIGI Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50846

Size: 10ug, 100ug

Protein Name: Antiviral innate immune response receptor RIG-I (ATP-dependent RNA helicase DDX58) (EC 3.6.4.13) (DEAD box protein 58) (RIG-I-like receptor 1) (RLR-1) (RNA sensor RIG-I) (Retinoic acid-inducible gene 1 protein) (RIG-1) (Retinoic acid-inducible gene 1 protein) (RIG-I)

Synonym: RIGI, DDX58

UniProt ID: O95786

UniProt Link: www.uniprot.org/uniprotkb/O95786/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 925 AA

Molecular Weight: 107 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MTTEQRRSLQAFQDYIRKTLDPITYILSYMAPWFREEEVQYIQAENKNGPMEATLFLKFLLELQEE
GWFRGFLDALDHAGYSGLYEAIESWDFKKIEKLEEYRLLKRLQPEFKTRIPTDIISDLSECLINQECE
EILQICSTKGMMAGAELVECLLRSDKENWPKTLKLALEKERNKFSELWIVEKGIKDVETEDLEDKME
TSDIQIFYQEDPECQNLSNSCPPSEVSDTNLYSPFKPRNYQLELALPAMKGKNTIICAPTGCCKTFV
SLICEHHLKKFPQGQKGKVVFANQIPVYEQQKSVFSKYFERHGYRVTGISGATAENVPVEQIVEN
NDIIILTPQILVNNLKKGTIPSLSIFTLMIFDECHNTSKQHPYNNMIMFNYLDQKLGGSSGPLPQVIGLTAS
VGVGDAKNTDEALDYICKLCASLDASVIATVKHNLEEEQVVKPQKFFRKVESRISDKFKYIIAQLMR
DTESLAKRICKDLENLSQIQNREFGTQKYEQWIVTVQKACMVFPMPDKDEESRICKALFLYTSHLRK
YNDALIISEHARMKDALDYLDKDFSNVRAAGFDEIEQDLTQRFEEKLQELSVSRDPSNENPKLEDLC
FILQEEYHLNPETITILFVKTRALVDALKNWIEGNPKLSFLKPGILTGRGKTNQNTGMTLPAQKCILDAF
KASGDHNIATSVADEGIDIAQC�NLVILYEVGNVIKMIQTRGRGRARGSKCFLLTSNAGVIEKEQINM
YKEKMMNDSILRLQTWDEAVFREKILHIQTHEKFIRDSQEKPKPVPDKENKLLCRKCKALACYTADV
RVIEECHYTVLGDAFKECFVSRPHPKPKQFSSFEKRAKIFCARQNCSDHWGIHVKYKTFEIPVİKIESF
VVEDIATGVQTLYSKWKDFHFEKIPFDPAEMSK



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 Antiviral innate immune response receptor RIG-I (ATP-dependent RNA helicase DDX58) (EC 3.6.4.13) (DEAD box protein 58) (RIG-I-like receptor 1) (RLR-1) (RNA sensor RIG-I) (Retinoic acid-inducible gene 1 protein) (RIG-1) (Retinoic acid-inducible gene I protein) (RIG-I) 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: Innate immune receptor that senses cytoplasmic viral nucleic acids and activates a downstream signaling cascade leading to the production of type I interferons and pro-inflammatory cytokines (PubMed:15208624, PubMed:15708988, PubMed:16125763, PubMed:16127453, PubMed:16153868, PubMed:17190814, PubMed:18636086, PubMed:19122199, PubMed:19211564, PubMed:24366338, PubMed:28469175, PubMed:29117565, PubMed:31006531, PubMed:34935440, PubMed:35263596, PubMed:36793726). Forms a ribonucleoprotein complex with viral RNAs on which it homooligomerizes to form filaments (PubMed:15208624, PubMed:15708988). The homooligomerization allows the recruitment of RNF135 an E3 ubiquitin-protein ligase that activates and amplifies the RIG-I-mediated antiviral signaling in an RNA length-dependent manner through ubiquitination-dependent and -independent mechanisms (PubMed:28469175, PubMed:31006531). Upon activation, associates with mitochondria antiviral signaling protein (MAVS/IPS1) that activates the IKK-related kinases TBK1 and IKKε which in turn phosphorylate the interferon regulatory factors IRF3 and IRF7, activating transcription of antiviral immunological genes including the IFN-α and IFN-β interferons (PubMed:28469175, PubMed:31006531). Ligands include 5'-triphosphorylated ssRNAs and dsRNAs but also short dsRNAs (<1 kb in length) (PubMed:15208624, PubMed:15708988, PubMed:19576794, PubMed:19609254, PubMed:21742966). In addition to the 5'-triphosphate moiety, blunt-end base pairing at the 5'-end of the RNA is very essential (PubMed:15208624, PubMed:15708988, PubMed:19576794, PubMed:19609254, PubMed:21742966). Overhangs at the non-triphosphorylated end of the dsRNA RNA have no major impact on its activity (PubMed:15208624, PubMed:15708988, PubMed:19576794, PubMed:19609254, PubMed:21742966). A 3' overhang at the 5' triphosphate end decreases and any 5' overhang at the 5' triphosphate end abolishes its activity (PubMed:15208624, PubMed:15708988, PubMed:19576794, PubMed:19609254, PubMed:21742966). Detects both positive and negative strand RNA viruses including members of the families Paramyxoviridae: Human respiratory syncytial virus and measles virus (MeV), Rhabdoviridae: vesicular stomatitis virus (VSV), Orthomyxoviridae: influenza A and B virus, Flaviviridae: Japanese encephalitis virus (JEV), hepatitis C virus (HCV), dengue virus (DENV) and west Nile virus (WNV) (PubMed:21616437, PubMed:21884169). It also detects rotaviruses and reoviruses (PubMed:21616437, PubMed:21884169). Detects and binds to SARS-CoV-2 RNAs which is inhibited by m6A RNA modifications (Ref.74). Also involved in antiviral signaling in response to viruses containing a dsDNA genome such as Epstein-Barr virus (EBV) (PubMed:19631370). Detects dsRNA produced from non-self dsDNA by RNA polymerase III, such as

Epstein-Barr virus-encoded RNAs (EBERs). May play important roles in granulocyte production and differentiation, bacterial phagocytosis and in the regulation of cell migration.

Subcellular Localization: Cytoplasm. Cell projection, ruffle membrane. Cytoplasm, cytoskeleton. Cell junction, tight junction. Note=Colocalized with TRIM25 at cytoplasmic perinuclear bodies. Associated with the actin cytoskeleton at membrane ruffles.

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.