

Recombinant Rat DDX1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52511

Size: 10ug, 100ug

Protein Name: ATP-dependent RNA helicase DDX1 (EC 3.6.4.13) (DEAD box protein 1)

Synonym: Ddx1

UniProt ID: Q641Y8

UniProt Link: www.uniprot.org/uniprotkb/Q641Y8/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 740 AA

Molecular Weight: 82 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MAAFSEMGMPEIAQAVEEMDWLLPTDIAESIPLILGGGDVLMMAETGSGKTGAFSIPVIQIVYETLK
DQEQEGKKGKATIKTGASVLNKWQMPYDRGSAFAIGSDGLCCQSREVKEWHGCRATRGLLRGKH
YYEVSCHDQGLCRVGWSTMQASLDLGTDFGFGFGGTGKKSHNKQFDNYGEEFTMHDTIGCYLDI
DKGHVFKFSKNGKDLGLAFEIPAHIKNQALFPACVLKNAELKFNFGEFEFKFPPKDG FVALSKAPDSYV
VKSQHTGNAQVSQTKFLPNAPKALIVEPSRELAEQTLNNVKQFKKYIDNPKLRELLIIGGVAARDQLS
VLDNGVDIVVGTGRLDDLSTGKLNLSQVRFLVLDEADGLLSQGYSDFINRMHNPQITSDGKRL
QVIVCSATLHSFDVKKLSEKIMHFPTWVDLKGEDSVPTVHHVVVPVNPKTDRWLWERLGKNHIRTDD
VHAKDNTRPGANSPEMWSEAIKILKGEYAVRAIKEHKMDQAIIFCRTKIDCDNLEQYFMQQGGGPDK
KGHQFSCVCLHGDRKPKHERKQNLERFKKGDVRFICTDVAARGIDIHGVPPYVINVTLPDEKQNYVHRI
GRVGRAERMGLAISLVATEKEKVWYHVCSNRGKGCYNTRLKEDGGCTIWYNEMQLLSEIEEHLNCT
ISQVEPDIKVPVDEFDGKVTYGGKRAAGGGNYKGHVDILAPTQELAALEKEAQTSLHLGYLPNQL
FRTF

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 ATP-dependent RNA helicase DDX1 (EC 3.6.4.13) (DEAD box protein 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: Acts as an ATP-dependent RNA helicase, able to unwind both RNA-RNA and RNA-DNA duplexes. Possesses 5' single-stranded RNA overhang nuclease activity. Possesses ATPase activity on various RNA, but not DNA polynucleotides. May play a role in RNA clearance at DNA double-strand breaks (DSBs), thereby facilitating the template-guided repair of transcriptionally active regions of the genome. Together with RELA, acts as a coactivator to enhance NF-kappa-B-mediated transcriptional activation. Acts as a positive transcriptional regulator of cyclin CCND2 expression. Binds to the cyclin CCND2 promoter region. Associates with chromatin at the NF-kappa-B promoter region via association with RELA. Binds to poly(A) RNA. May be involved in 3'-end cleavage and polyadenylation of pre-mRNAs. It is also an accessory subunit of the tRNA-splicing ligase complex that acts by directly joining spliced tRNA halves to mature-sized tRNAs by incorporating the precursor-derived splice junction phosphate into the mature tRNA as a canonical 3',5'-phosphodiester. Cooperates with ZBTB8OS (also known as archease) for the guanylation of RTCB, a key intermediate step in activation of the tRNA ligase. Component of a multi-helicase-TICAM1 complex that acts as a cytoplasmic sensor of viral double-stranded RNA (dsRNA) and plays a role in the activation of a cascade of antiviral responses including the induction of pro-inflammatory cytokines via the adapter molecule TICAM1. Specifically binds (via helicase ATP-binding domain) on both short and long poly(I:C) dsRNA.

Subcellular Localization: Nucleus . Cytoplasm . Cytoplasmic granule . Cytoplasm, cytosol . Mitochondrion . Note=Localized with MBNL1, TIAL1 and YBX1 in stress granules upon stress. Localized with CSTF2 in cleavage bodies. Forms large aggregates called DDX1 bodies. Relocalized into multiple foci (IR-induced foci or IRIF) after IR treatment, a process that depends on the presence of chromosomal DNA and/or RNA-DNA duplexes. Relocalized at sites of DNA double-strand breaks (DSBs) in an ATM-dependent manner after IR treatment. Colocalized with RELA in the nucleus upon TNF induction. Enters into the nucleus in case of active transcription while it accumulates in cytosol when transcription level is low. Colocalizes in the cytosol with DDX21, DHX36 and TICAM1. Colocalizes in the mitochondria with TICAM1 and poly(I:C) RNA ligand. The multi-helicase-TICAM1 complex may translocate to the mitochondria upon poly(I:C) stimulation (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.