

Recombinant Rat DHX36 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52189

Size: 10ug, 100ug

Protein Name: ATP-dependent DNA/RNA helicase DHX36 (EC 3.6.4.12) (EC 3.6.4.13) (DEAD/H box polypeptide 36) (DEAH-box protein 36) (G4-resolvase-1) (G4R1) (MLE-like protein 1) (RNA helicase associated with AU-rich element protein)

Synonym: Dhx36

UniProt ID: D4A2Z8

UniProt Link: www.uniprot.org/uniprotkb/D4A2Z8/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1000 AA

Molecular Weight: 114 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MSYDYHQSWSRDGGPRGSGQGSGGGGGGSRGSGGGGGGGRGGRGRHPAHLKGREIGLWYAKK
QTQKNKEAERQERAVVHMDERREEQIVQLLSVQAKNDKDSEAQISWFAPEDHGYGTEVSSEKKIN
SEKKLDNQEKKLLNQEKKTYRITDKSYIDRDSEYLLQQNEPNLGLDQQLLEDLQKKKTDPRYIEMQR
FRKKLPSYGMQKELVNLINNHQVTVISGETGCGKTTQVTQFILDNYIERGIGSACRIVCTQPRRISAI
VAERVAAERAESCGNGNSTGYQIRLQSRLPRKQGSILYCTTGILQWLQSDSRLSSVSHIVLDEIHER
NLQSDVLMTVIKDLLHFRSDLKVILMSATLNAEKFSEYFGNCPMIHIPGFTFPVVEYLLEDIIEKIRYFPE
QKEHRSQFKRGFMQGHVNRQEKEEKEAIYKERWPAYIKELQTRYASTIDVLEMMDDDKVDLNLIAA
LIRYIVLEEDGAILVFLPGWDNISTLHDLMSQVMFKSDRFLIPLHSLMPTVNQTQVFKKTPPGVRKI
VIATNIAETSITIDDVVYVIDGGKIKETHFDTQNNISTMSAEWVSKANAKQRKGRAGRVPQGHCHLY
NGLRASLLDDYQLPEILRTPLEELCLQIKILRLGGIAYFLSRLMDPPSDEAVVLSIKHLMELSALDKQEE
LTPLGVHLARLPVEPHIGKMILFGALFCCLDPVLTIAASLSFKDPFVIPLGKEKIADARRKELAKETRSD
HLTVVNAFEGWEEAKRRGFRYEKDYCWEYFLSSNTLQMLHNMKGQFAEHLLGAGFVSSRSPKDPK
ANINSDNEKIIKAVICAGLYPKVAKIRLNLGKKRKMVKVHTKSDGLVSIHPKSVNVEQTDHFYNWLIYH
LKMRTSSIIYLDCTEVSPYCLLFFGGDISIQKDKDQEIIAVDEWIVFQSPERIAHLVKGLRKELDILLQE
KIECPHPVDWNDTKSRDCAVLSAILDLIKTQEKAIPRNLPQRSQDGYYS

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 DNA/RNA helicase DHX36 (EC 3.6.4.12) (EC 3.6.4.13) (DEAD/H box polypeptide 36) (DEAH-box protein 36) (G4-resolvase-1) (G4R1) (MLE-like protein 1) (RNA helicase associated with AU-rich element protein) 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: Multifunctional ATP-dependent helicase that unwinds G-quadruplex (G4) structures (By similarity). Plays a role in many biological processes such as genomic integrity, gene expression regulations and as a sensor to initiate antiviral responses (PubMed:23651854). G4 structures correspond to helical structures containing guanine tetrads (By similarity). Binds with high affinity to and unwinds G4 structures that are formed in nucleic acids (G4-DNA and G4-RNA) (By similarity). Plays a role in genomic integrity. Converts the G4-RNA structure present in telomerase RNA template component (TREC) into a double-stranded RNA to promote P1 helix formation that acts as a template boundary ensuring accurate reverse transcription (By similarity). Plays a role in transcriptional regulation. Resolves G4-DNA structures in promoters of genes, such as YY1, KIT/c-kit and ALPL and positively regulates their expression (By similarity). Plays a role in post-transcriptional regulation. Unwinds a G4-RNA structure located in the 3'-UTR polyadenylation site of the pre-mRNA TP53 and stimulates TP53 pre-mRNA 3'-end processing in response to ultraviolet (UV)-induced DNA damage (By similarity). Binds to the precursor-microRNA-134 (pre-miR-134) terminal loop and regulates its transport into the synapto-dendritic compartment (PubMed:23651854). Involved in the pre-miR-134-dependent inhibition of target gene expression and the control of dendritic spine size (PubMed:23651854). Plays a role in the regulation of cytoplasmic mRNA translation and mRNA stability. Binds to both G4-RNA structures and alternative non-quadruplex-forming sequence within the 3'-UTR of the PITX1 mRNA regulating negatively PITX1 protein expression. Binds to both G4-RNA structure in the 5'-UTR and AU-rich elements (AREs) localized in the 3'-UTR of NKX2-5 mRNA to either stimulate protein translation or induce mRNA decay in an ELAVL1-dependent manner, respectively. Also binds to ARE sequences present in several mRNAs mediating exosome-mediated 3'-5' mRNA degradation. Involved in cytoplasmic urokinase-type plasminogen activator (uPA) mRNA decay (By similarity). 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. Required for the early embryonic development and hematopoiesis. Involved in the regulation of cardioblast differentiation and proliferation during heart development. Involved in spermatogonia differentiation. May play a role in ossification (By similarity).

Subcellular Localization: Nucleus . Cytoplasm . Cytoplasm, cytosol . Cytoplasm, Stress granule . Nucleus speckle . Chromosome, telomere . Mitochondrion . Perikaryon . Cell projection, dendrite . Cell projection, axon . Note=Predominantly localized in the nucleus. Colocalizes with SRSF2 in

nuclear speckles. Colocalizes with DDX5 in nucleolar caps upon transcription inhibition. Accumulates and colocalized with TIA1 in cytoplasmic stress granules (SGs) in an arsenite-, heat shock- and RNA-binding-dependent manner. Shuttles into and out of SGs in an ATPase-dependent manner (By similarity). Colocalizes in the cytosol with the multi-helicase-TICAM1 complex that translocates 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.