

Recombinant Rat DDX21 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52463

Size: 10ug, 100ug

Protein Name: Nucleolar RNA helicase 2 (EC 3.6.4.13) (DEAD box protein 21) (Gu-alpha) (Nucleolar RNA helicase Gu) (Nucleolar RNA helicase II) (RH II/Gu)

Synonym: Ddx21, Ddx21a

UniProt ID: Q3B8Q1

UniProt Link: www.uniprot.org/uniprotkb/Q3B8Q1/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 782 AA

Molecular Weight: 86 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MPGKLRSASKSESEGTEESMETLQKPSEKKTRKEKPKSKTDEATEGVVEEAASSKVKAVKKKGPS
DVGPPKSKKAKKQEEEPQDDPASKSKTSKKKKEPLEKKAPSAKTAKEMKAEPPSEEEADAPKPKKTK
KGKEANGDVGEKSPGLKNGLSHPKPDSSSTQAPGEESETEKEIPVEQKEGAFSNFPISEETVKLLKA
RGNVFLFPIQAKTFHHVYSGKDLIAQARTGTGKTFSAIPLIEKLQGGQLQERKRGRAPQVLVLAPTRE
LANQVSKDFSDITKKLSVACFYGGTPYGGQIERMRSGIDILVGTPGRIKDHLQNGKLDLTKLKHVVLD
EVDQMLDMGFADQVEEILCVAYKKDSEDNPQTLLFSATCPHWVFNVAKKYMKSTYEQVDLIGKKTQ
KAAITVEHLAIKCHWTERAAVIGDVIRVYSGHQGRTHFCETKKDAQELSQNTCIKQDAQSLHGDIPQK
QREITLKGFRNGNFGVLVATNVAARGLDIPEVDLVVQSCPPKDVESYIHRSGRTGRAGRTGVCICFY
QHKEEYQLAQVEQKAGIKFKRIGVPSATEIHKASSKDAIRLLDSVPPTAIGHFKQSAEKLIEEKGA
VEALAAALAHISGATSVDQRSLINSQAGFVTMILRCVEMPNIYAWKELKEQLGESIDAKVKGMVFLK
GKL GVCFDVRTEAVTEIKEKWHDSRRWQLTVATEQPELEGPPEGYRGGRGQRDGSRGSSFRGQRG
GSRNFRGQGQRGGSRNFRGQRPGGGNKS NRSPNKGQKRSFSKAFGQ

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 Nucleolar RNA helicase 2 (EC 3.6.4.13) (DEAD box protein 21) (Gu-alpha) (Nucleolar RNA helicase Gu) (Nucleolar RNA helicase II) (RH II/Gu) 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: RNA helicase that acts as a sensor of the transcriptional status of both RNA polymerase (Pol) I and II: promotes ribosomal RNA (rRNA) processing and transcription from polymerase II (Pol II). Binds various RNAs, such as rRNAs, snoRNAs, 7SK and, at lower extent, mRNAs. In the nucleolus, localizes to rDNA locus, where it directly binds rRNAs and snoRNAs, and promotes rRNA transcription, processing and modification. Required for rRNA 2'-O-methylation, possibly by promoting the recruitment of late-acting snoRNAs SNORD56 and SNORD58 with pre-ribosomal complexes. In the nucleoplasm, binds 7SK RNA and is recruited to the promoters of Pol II-transcribed genes: acts by facilitating the release of P-TEFb from inhibitory 7SK snRNP in a manner that is dependent on its helicase activity, thereby promoting transcription of its target genes. Functions as a cofactor for JUN-activated transcription: required for phosphorylation of JUN at 'Ser-77'. Can unwind double-stranded RNA (helicase) and can fold or introduce a secondary structure to a single-stranded RNA (foldase). Together with SIRT7, required to prevent R-loop-associated DNA damage and transcription-associated genomic instability: deacetylation by SIRT7 activates the helicase activity, thereby overcoming R-loop-mediated stalling of RNA polymerases. Involved in rRNA processing. May bind to specific miRNA hairpins (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 (By similarity).

Subcellular Localization: Nucleus, nucleolus . Nucleus, nucleoplasm . Cytoplasm, cytosol . Mitochondrion . Note=Present both in nucleolus and nucleoplasm. Interaction with JUN promotes translocation from the nucleolus to the nucleoplasm. Interaction with WDR46 is required for localization to the nucleolus. Colocalizes in the cytosol with DDX1, DHX36 and TICAM1. The multi-helicase-TICAM1 complex may translocate to the mitochondria upon poly(I:C) RNA ligand 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.