

Recombinant Mouse TUT4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51114

Size: 10ug, 100ug

Protein Name: Terminal uridylyltransferase 4 (TUTase 4) (EC 2.7.7.52) (Zinc finger CCHC domain-containing protein 11)

Synonym: Tut4, Kiaa0191, Zcchc11

UniProt ID: B2RX14

UniProt Link: www.uniprot.org/uniprotkb/B2RX14/entry

Species Source: Mouse

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1644 AA

Molecular Weight: 185 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MEEKPKTSKNENHEPKKNIICEESKAVKIISNQTLKPRNDKSEIGTSSLNRNSSKKTQNDICIEKTEAKS
CKVNAASVPGPKDLGLVHRDQSHCKMKKLPNSPMKAQKGSSQTKLEKTPSLQTKAEKVPKSPNLP
VKA EKAPCTTAEATTEKALNSQRKEENTPTSQMKLQKTPRSPLEPENVPSLLLKENVKQTESQQTG
KKLTSSFVSMDKRKSEALQGEKSALENSSLSQKQQTQTDNIADSDDASGIEDTADDLSKMKSEES
NKENSSEMDYLENATVIDESALTPEQRLGLKQAEERLERDHIFRLEKRSPEYTNCRYLCKLCLIHINI
QGAHKHIKEKRHKKNILEKQEESELRLSPSPSSAHLAALSVAVVELAKEQGITDDDLRIRQDIVEEMSK
VIMTFLPECSRLRYGSSSLTKFALKSSDVNIDIKFPPKMNHDPDLLIQVLGILKKSALYIDVESDFHAKVPV
VVCKDRKSALLCRVSAGNDMACLTTDLLAALGKVEPVFTPLVLAFRYWAKLCYIDSQTDGGIPSYCF
ALMVMFFLQQRKPPLLPCLLGSWIEGFDPKRMDDFQKGVIEEFVKWEYNSSSATEKNLIADENKA
KADEPKDDTKKTETDNQSNAAKAHGKSPLTLEAPNQVPLGQLWLELLKFYTLDFALEEYVICVRIQD
ILTRENKNWPKRRIAIEDPFSVKRNVARSLNSQLVYEVVERFRAAYRYFACPQKKGGNKSTMDPKK
KEGKLSSKKPVKSDCSATNCCILGESAEKIHMERGQPAKHDETEFTSQRCIVDNDLSLLVNELGLAN
HGQDSSSLSTASGGSDLKQKSAEKQGDLPSETSLKKELSQCICIGTPDGAESAGTDCRSNLEMDS
SHQIVCNNVSATSCNCKATEVTSDLVDEDNLPSQELYYVFDKFILTSKGKPTIVCSICKKDGHSKNDC
PEDFRKIDLKPLPPMTNRFREILDVCKRCFDELSPPCSEQHNREQILIGLEKFIQKEYDEKARLCLFG
SSKNGFGFRDSDLICMTLEGHENAELNCKEIIENLAKILKRHPGLRNILPITTA KVPIVKFEHRRSGL
EGDISLYNTLAQHNRMLATYAAIDPRVQYLGTYMKVFAKRCDIGDASRGLSSYAYILMVLYFLQQR
KPPVIPVLQEIFDGKQIPQRMVDGWNAFFFDKTEELKKRLPSLGKNTESLGELWLGLLRFYTEEFDFK



EYVISIRQKKLLTTFEKQWTSKCI AIEDPFDLNHN LGAGVSRKMTNFIMKAFINGRKLFGTFPFYPLIGRE
AEYFFDSRVLT DGELAPNDRCCRVC GKIGHYMKDCPKRRLKKKDSEEEKEGNEEEKDSRDLLDSR
DLRCFICGDAGHVRRECPEVKMARQRNSSVAAAQLVRNLVNAQQVAGSAQQQSDQSIRTRQSSEC
SDSPSYSPQPQPFQNSPQPSALPPPPSQPGSQPKLGPPQQGGQPPHQVQMPLYNFPQSPPAHY
SPMHSMGLLP MHPLQIPAPSWPIHGPM LHSAPGSTPSNIGLNDPSIIFAQPAARPM AIPSPSHDGHW
PRTVAPNSLVNNGAVGNSEPRFRGLNPPIPWEHAPRHFPLVPASWPYGLHQNFMHQGNPRFQPKP
FYAQADRCATRRCRERCPHPPRGNVSE

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 Terminal uridylyltransferase 4 (TUTase 4) (EC 2.7.7.52) (Zinc finger CCHC domain-containing protein 11) 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: Uridylyltransferase that mediates the terminal uridylation of mRNAs with short (less than 25 nucleotides) poly(A) tails, hence facilitating global mRNA decay (PubMed:28792939). Essential for both oocyte maturation and fertility. Through 3' terminal uridylation of mRNA, sculpt, with TUT7, the maternal transcriptome by eliminating transcripts during oocyte growth (PubMed:28792939). Involved in microRNA (miRNA)-induced gene silencing through uridylation of deadenylated miRNA targets. Also functions as an integral regulator of microRNA biogenesis using 3 different uridylation mechanisms (By similarity). Acts as a suppressor of miRNA biogenesis by mediating the terminal uridylation of some miRNA precursors, including that of let-7 (pre-let-7), miR107, miR-143 and miR-200c. Uridylated miRNAs are not processed by Dicer and undergo degradation. Degradation of pre-let-7 contributes to the maintenance of embryonic stem (ES) cell pluripotency (By similarity). Also catalyzes the 3' uridylation of miR-26A, a miRNA that targets IL6 transcript. This abrogates the silencing of IL6 transcript, hence promoting cytokine expression (PubMed:19703396). In the absence of LIN28A, TUT7 and TUT4 monouridylate group II pre-miRNAs, which includes most of pre-let7 members, that shapes an optimal 3' end overhang for efficient processing (PubMed:28671666). Add oligo-U tails to truncated pre-miRNAs with a 5' overhang which may promote rapid degradation of non-functional pre-miRNA species (By similarity). May also suppress Toll-like receptor-induced NF-kappa-B activation via binding to T2BP (By similarity). Does not play a role in replication-dependent histone mRNA degradation (By similarity). Due to functional redundancy between TUT4 and TUT7, the identification of the specific role of each of these proteins is difficult (PubMed:22898984, PubMed:28671666, PubMed:28792939). TUT4 and TUT7 restrict retrotransposition of long interspersed element-1 (LINE-1) in cooperation with MOV10 counteracting the RNA chaperone activity of L1RE1. TUT7 uridylates LINE-1 mRNAs in the cytoplasm which inhibits initiation of reverse transcription once in the nucleus, whereas uridylation by TUT4 destabilizes mRNAs in cytoplasmic ribonucleoprotein granules (By similarity).

Subcellular Localization: Nucleus . Cytoplasm . Cytoplasm, Cytoplasmic ribonucleoprotein granule .
Note=Mainly cytoplasmic (PubMed:19703396). Translocates into the cytoplasm following treatment of the cell with LPS. Co-enriched in cytoplasmic foci with MOV10.

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.