

Recombinant Human TUT4 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP51029

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: Q5TAX3

UniProt Link: www.uniprot.org/uniprotkb/Q5TAX3/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 1644 AA

Molecular Weight: 185 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MEESKTLKSENHEPKKNVICEESKAVQVIGNQTLKARNDKSVKEIENSSPNRNSSKKNKQNDICIEKT
EVKSCKVNAANLPGPKDLGLVLRDQSHCKAKKFPNSPVKAEKATISQAKSEKATSLQAKAEKSPKSP
NSVKAEKASSYQMKSEKVPSSPAEAEKGPSLLLKDMRQKTELQQIGKKIPSSFTSVDKVNIEAVGGE
KCALQNSPRSQKQQTCTDNTGDSDDASGIEDVSDDL SKMKNDESNKENSSEMDYLENATVIDESA
LTPEQRLGLKQAEERLERDHIFRLEKRSPEYTNCRYLCKLCLIHENIQGAHKHIKEKRHKKNILEKQE
ESELRLPPPSPAHLAALSVAVIELAKEHGITDDDLRVRQEIVEEMSKVITTFLEPCSLRLYGSSLTRFA
LKSSDVNIDIKFPPKMNHPDLLIKVLGILKKNVLYVDVESDFHAKVPVVVCRDRKSGLLCRVSAGNDM
ACLTDDLTLALGKIEPVFIPLVLAFRYWAKLCYIDSQTDGGIPSYCFALMVMFFLQQRKPPLLPCLLGS
WIEGFDPKRMDDFQLKGIVEEKFKVKECNSSSATEKNSIAEENKAKADQPKDDTKKTETDNQSNAM
KEKHGKSPLAETPNRVSLGQLWLELLKFYTLDFALEEYVICVRIQDILTRENKNWPKRRIAIEDPFSV
KRNVARSLNSQLVYEVVERFRAAYRYFACPQTKGGNKSTVDFKKREKGKISNKKPVKSNNMATNG
CILLGETTEKINAEREQPVQCDEMDCTSQRCIIDNNLLVNELDFADHGDSSSLSTSKSSEIEPKLD
KKQDDLAPSETCLKKELSQCNCIDLKSPDPDKSTGTDCRSNLETESHSQSVCTDTSATSCNCKATE
DASDLNDDDLNPTQELYVFDKFILTSKGPPITVCSICKKDGHSKNDPCPEDFRKIDLKPLPPMTNRFR
EILDVCKRCFDELSPPCSEQHNREQILIGLEKFIQKEYDEKARLCLFGSSKNGFGFRDSDL DICMTLE
GHENAELNCKEIIENLAKILKRHPGLRNILPITAKVPIVKFEHRRSGLEGDISLYNTLAQHNTMLAT
YAAIDPRVQYLYGTMKVFAKRCDIGDASRGSLSYAYILMVLYFLQQRKPPVIPVLQEIFDGKQIPQR
MVDGWNAAFFFDKTEELKKRLPSLGKNTESLGELWLGLLRFYTEEDFKEYVISIRQKLLTTFEKQW



TSKCI AIEDPFDLNHN LGAGVSRKMTNFIMKAFINGRKLFGT PPFYPLIGREAEYFFDSRVLT DGELAPN
DRCCRVC GKIGHYMKDCPKRKSLLFRLKKKDSEEEKEGNEEEKDSRDVLDPRDLHDTRDFRDPRDL
RCFICGDAGHVRRECPEVKLARQRNSSVAAAQLVRNLVNAQQVAGSAQQQGDQSIRTRQSSECSE
SPSYSPQPQFPQNSSQSAAITQPSSQPGSQPKLGPPQQGAQPPHQVQMPLYNFPQSPPAQYSP
MHNMGLLPMHPLQIPAPSWPIHGPIHSAPGSAPSNIGLNDPSIIFAQPAARPV AIPNTSHDGHWPRT
VAPNSLVNSGAVGNSEPGFRGLTPPIPWEHAPRPHFPLVPASWPYGLHQNFMHQGNARFQPNKPF
YTQDRCATRRRCRERCPHPPRGNVSE

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:25480299, PubMed:31036859). Essential for both oocyte maturation and fertility. Through 3' terminal uridylation of mRNA, sculpts, with TUT7, the maternal transcriptome by eliminating transcripts during oocyte growth (By similarity). 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 (PubMed:25979828). 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:25979828). Adds oligo-U tails to truncated pre-miRNAs with a 5' overhang which may promote rapid degradation of non-functional pre-miRNA species (PubMed:25979828). May also suppress Toll-like receptor-induced NF-kappa-B activation via binding to T2BP (PubMed:16643855). Does not play a role in replication-dependent histone mRNA degradation (PubMed:18172165). Due to functional redundancy between TUT4 and TUT7, the identification of the specific role of each of these proteins is difficult (By similarity) (PubMed:16643855, PubMed:18172165, PubMed:19703396, PubMed:25480299, PubMed:25979828). 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 (PubMed:30122351).

Subcellular Localization: Nucleus . Cytoplasm . Cytoplasm, Cytoplasmic ribonucleoprotein granule .
Note=Mainly cytoplasmic (PubMed:19703396, PubMed:25480299). Translocates into the cytoplasm following treatment of the cell with LPS (PubMed:16643855). Co-enriched in cytoplasmic foci with MOV10 (PubMed:30122351).

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.