Recombinant Mouse Mettl3 Protein, Myc/DDK-tagged

Cat. No. Mettl3-4048M **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Purified recombinant protein of mouse full-length methyltransferase like 3 (Mettl3), with C-terminal MYC/DDK tag, expressed in HEK293T cells.
Species	Mouse
Source	HEK293
Description	The METTL3-METTL14 heterodimer forms a N6-methyltransferase complex that methylates adenosine residues at the N6 position of some RNAs and regulates various processes such as the circadian clock, differentiation of embryonic and hematopoietic stem cells, cortical neurogenesis, response to DNA damage, differentiation of T-cells and primary miRNA processing. In the heterodimer formed with METTL14, METTL3 constitutes the catalytic core. N6-methyladenosine (m6A), which takes place at the 5'-[AG]GAC-3' consensus sites of some mRNAs, plays a role in mRNA stability, processing, translation efficiency and editing. M6A acts as a key regulator of mRNA stability: methylation is completed upon the release of mRNA into the nucleoplasm and promotes mRNA destabilization and degradation. In embryonic stem cells (ESCs), m6A methylation of mRNAs encoding key naive pluripotency-promoting transcripts results in transcript destabilization, promoting differentiation of ESCs. M6A regulates the length of the circadian clock: acts as an early pace-setter in the circadian loop by putting mRNA production on a fast-track for facilitating nuclear processing, thereby providing an early point of control in setting the dynamics of the feedback loop. M6A also regulates circadian regulation of hepatic lipid metabolism. M6A regulates spermatogonial differentiation and meiosis and is essential for male

Tel: 1-631-559-9269 1-516-512-3133
Email: info@creative-biomart.com Fax: 1-631-938-8127
45-1 Ramsey Road, Shirley, NY 11967, USA

	fertility and spermatogenesis. Involved in the response to DNA damage: in response to ultraviolet irradiation, METTL3 rapidly catalyzes the formation of m6A on poly(A) transcripts at DNA damage sites, leading to the recruitment of POLK to DNA damage sites. M6A is also required for T-cell homeostasis and differentiation: m6A methylation of transcripts of SOCS family members (SOCS1, SOCS3 and CISH) in naive T-cells promotes mRNA destabilization and degradation, promoting T-cell differentiation. Inhibits the type I interferon response by mediating m6A methylation of IFNB. M6A also regulates cortical neurogenesis: m6A methylation of transcripts related to transcription factors, neural stem cells, the cell cycle and neuronal differentiation during brain development promotes their destabilization and decay, promoting differentiation of radial glial cells. M6A also takes place in other RNA molecules, such as primary miRNA (pri-miRNAs). Mediates m6A methylation of Xist RNA, thereby participating in random X inactivation: m6A methylation of Xist leads to target YTHDC1 reader on Xist and promote transcription repression activity of Xist. METTL3 mediates methylation of pri-miRNAs, marking them for recognition and processing by DGCR8. Acts as a positive regulator of mRNA translation independently of the methyltransferase activity: promotes translation by interacting with the translation initiation machinery in the cytoplasm.
Molecular Mass	64.6 kDa
Purity	> 80% as determined by SDS-PAGE and Coomassie blue staining
Stability	Stable for 12 months from the date of receipt of the product under proper storage and handling conditions. Avoid repeated freeze-thaw cycles.
Storage	Store at -80 centigrade after receiving vials.
Concentration	>50 μg/mL as determined by microplate BCA method

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Storage Buffer	25 mM Tris.HCl, pH 7.3, 100 mM glycine, 10% glycerol.

GENE INFORMATION

Gene Name	Mettl3 methyltransferase like 3 [Mus musculus (house mouse)]
Official Symbol	Mettl3
Synonyms	Mettl3; methyltransferase like 3; S; M6; M6A; Spo8; 2310024F18Rik; N6-adenosine-methyltransferase subunit METTL3; MT-A70; N6-adenosine-methyltransferase 70 kDa subunit; m6a methyltransferase; methyltransferase-like protein 3; EC 2.1.1.348
Gene ID	56335
mRNA Refseq	NM_019721
Protein Refseq	NP_062695
UniProt ID	Q8C3P7

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