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Produktinformation



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PRODUCT INFORMATION



METTL3/14 Complex (human, recombinant)

Item No. 26342

Overview and Properties

Synonyms: hMETTL3/hMETTL14,
Methyltransferase-like Protein 3/Methyltransferase-like Protein 14,
N⁶-Adenosine-Methyltransferase Catalytic Subunit/N⁶-Adenosine-Methyltransferase
Non-catalytic Subunit

Source: Recombinant human N-terminal histidine-tagged METTL3 and recombinant human
N-terminal GST-histidine-tagged METTL14 expressed in insect cells

Amino Acids: 2-580 and 2-456 for METTL3 and METTL14, respectively

Uniprot No.: Q86U44 and Q9HCE5

Molecular Weight: 66.3 and 79.1 kDa for METTL3 and METTL14, respectively

Storage: -80°C (as supplied)

Stability: ≥1 years

Purity: *batch specific* (≥80% estimated by SDS-PAGE)

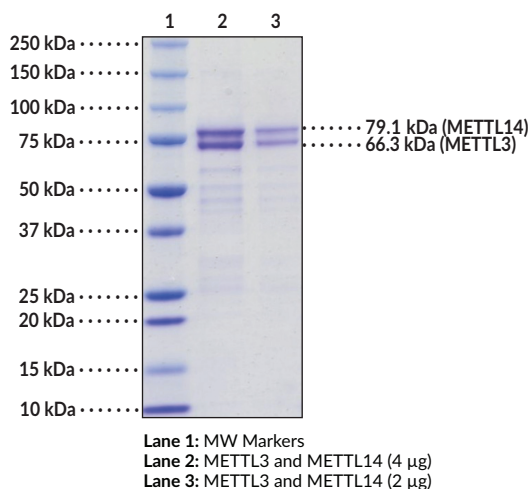
Supplied in: 10 mM Tris, with 500 mM sodium chloride, 1 mM DTT, and 5% glycerol

Protein

Concentration: *batch specific* mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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PRODUCT INFORMATION



Description

Methyltransferase-like protein 3 (METTL3) and METTL14 are m⁶A RNA methyltransferases encoded by the *METTL3* and *METTL14* genes, respectively, in humans.¹ METTL3 and METTL14 form a stable complex in the cytoplasm then localize to the nucleus via a METTL3 nuclear localization sequence. METTL3 contains an N-terminal leader helix domain that interacts with Wilms' tumor 1-associated protein (WTAP) in the nucleus, which confers localization of the complex to nuclear speckles. METTL14 contains a C-terminal arginine-glycine-glycine (RGG) sequence that contributes to the catalytic activity of the complex. METTL3 and METTL14 each contain methyltransferase domains but the METTL3 domain alone binds S-adenosylmethionine (SAM) or S-adenosylhomocysteine (SAH) while METTL14 interacts with RNA.² The METTL3/14 complex primarily binds to regions of RNA that correspond to intergenic and intron regions of DNA, and it preferentially methylates RNA substrates that contain the sequence GGACU, with little preference for secondary structural features of the substrates.³ METTL3 and METTL14 are involved in hematopoietic stem cell differentiation *in vitro* and are necessary for self-renewal and reconstitution of hematopoietic stem cells following bone marrow transplantation in mice.⁴ *Mettl3* knockdown or *Mettl14* knockdown increases radial glia cell cycle length in embryonic mouse brain, and *Mettl14* knockout extends cortical neurogenesis into the postnatal period.⁵ Knockdown of METTL3 or METTL14 also increases proliferation of glioblastoma stem cells (GSCs) *in vitro* and increases tumor size in a mouse orthotopic model using GSCs.⁶ The expression of METTL3 and METTL14 is reduced in juvenile patients with *ETV6/RUNX1(E/R)*-positive acute lymphoblastic leukemia (ALL).⁷

References

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3. Liu, J., Yue, Y., Han, D., *et al.* A METTL3-METTL14 complex mediates mammalian nuclear RNA N⁶-adenosine methylation. *Nat. Chem. Biol.* **10(2)**, 93-95 (2014).
4. Yao, Q.J., Sang, L., Lin, M., *et al.* *Mettl3*-*Mettl14* methyltransferase complex regulates the quiescence of adult hematopoietic stem cells. *Cell Res.* **28(9)**, 952-954 (2018).
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6. Cui, Q., Shi, H., Ye, P., *et al.* m⁶A RNA methylation regulates the self-renewal and tumorigenesis of glioblastoma stem cells. *Cell Rep.* **18(11)**, 2622-2634 (2017).
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