

PRODUCT INFORMATION



DNA Methyltransferase 3L (human recombinant)

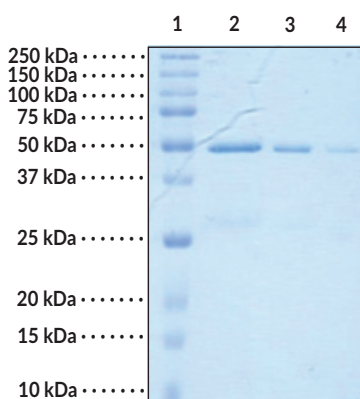
Item No. 10770

Overview and Properties

Synonyms: DNMT3L, DNMT3-Like Protein
Source: Recombinant N-terminal GST-tagged protein expressed in *E. coli*
Amino Acids: 160-387 (N-terminal truncation)
Uniprot No.: Q9UJW3
Molecular Weight: 53.2 kDa
Storage: -80°C (as supplied)
Stability: ≥9 months
Purity: ≥95% estimated by SDS-PAGE
Supplied in: *batch specific*
Protein
Concentration: *batch specific* mg/ml

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

Image



Lane 1: MW Markers
Lane 2: DNMT3L (4 μg)
Lane 3: DNMT3L (2 μg)
Lane 4: DNMT3L (1 μg)

Representative gel image shown; actual purity may vary between each batch but protein will be ≥95% pure.

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
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

The DNA methyltransferase 3 (DNMT3) family of DNMT proteins establish initial methylation of cytosines to form 5-methylcytosine at CpG (cytosine-phosphate-guanine) sites. Once methylation is established on DNA, DNMT1 protein is responsible for maintaining the CpG methylation pattern during chromosome replication. The DNMT3 family includes the two active members, DNMT3a and DNMT3b, and the regulatory factor DNMT3-like protein (DNMT3L). DNMT3L contains a cysteine-rich, DNMT3/ATRX homology or ATRX-DNMT3-DNMT3L (ADD) domain, however it lacks the proline-tryptophan-tryptophan-proline (PWWP) domain, required for non-specific DNA binding. The ADD domain of DNMT3L is responsible for specifically binding to unmethylated histone H3 lysine 4 (H3K4me0).¹ DNMT3L also lacks the conserved residues in the C-terminal DNA MTase domain of DNMT3a and 3b that are required for activity.² However, DNMT3L is required to stimulate the DNA methylation activity of DNMT3a and 3b through interactions with the catalytic domain of DNMT3a and 3b.³⁻⁵

References

1. Ooi, S.K., Qiu, C., Bernstein, E., *et al.* DNMT3L connects unmethylated lysine 4 of histone H3 to *de novo* methylation of DNA. *Nature Lett.* **448(7154)**, 714-7 (2007).
2. Cheng, X. and Blumenthal, R.M. Mammalian DNA methyltransferases: A structural perspective. *Structure* **16(3)**, 341-50 (2008).
3. Suetake, I., Shinozaki, F., Miyagawa, J., *et al.* DNMT3L stimulates the DNA methylation activity of Dnmt3a and Dnmt3b through a direct interaction. *J. Biol. Chem.* **279(26)**, 27816-23 (2004).
4. Chédin, F., Lieber, M.R., and Hsieh, C.-L. The DNA methyltransferase-like protein DNMT3L stimulates *de novo* methylation by Dnmt3a. *Proc. Natl. Acad. Sci. USA* **99(26)**, 16916-121 (2002).
5. Jia, D., Jurkowska, R.Z., Zhang, X., *et al.* Structure of Dnmt3a bound to Dnmt3L suggests a model for *de novo* DNA methylation. *Nature Lett.* **449(7159)**, 248-51 (2007).

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