

PRODUCT INFORMATION



SETDB1 (human, recombinant)

Item No. 37824

Overview and Properties

Synonyms: ERG-associated Protein With SET domain, ESET, H3K9-HMTase 4, Histone H3K9 Methyltransferase 4, Histone-lysine N-methyltransferase SETDB1, KMT1E, SET Domain Bifurcated 1

Source: Active recombinant human N-terminal His-GST-tagged SETDB1 expressed in insect cells

Amino Acids: 510-1,290

Uniprot No.: Q15047

Molecular Weight: 114 kDa

Storage: -80°C (as supplied)

Stability: ≥6 months

Purity: ≥80% estimated by SDS-PAGE

Supplied in: 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 20% glycerol, and variable glutathione

Protein

Concentration: *batch specific* mg/ml

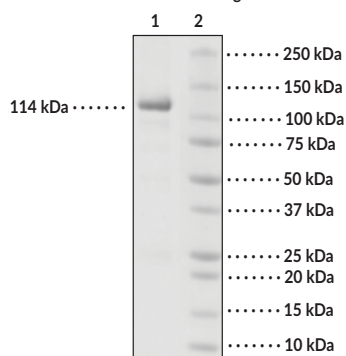
Activity: *batch specific* U/ml

Specific Activity: *batch specific* U/mg

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

Images

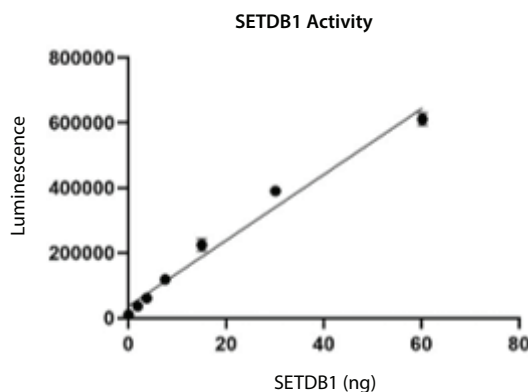
4-20% SDS-Page Coomassie Staining



Lane 1: SETDB1
Lane 2: MW Markers

SDS-PAGE Analysis of SETDB1.

Representative gel image shown; actual purity may vary between each batch.



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

Histone-lysine N-methyltransferase SETDB1 is a member of the SUV39-related protein lysine methyltransferase (PKMT) family and is involved in epigenetic regulation.¹ It is composed of an N-terminal domain that contains two nuclear export signals, two nuclear localization signals, three tudor domains that facilitate complexation with transcriptional regulators, and a methyl-CpG-binding domain (MBD), which binds to DNA, and a C-terminal domain that contains pre-SET, SET, and post-SET domains, which are responsible for the methyltransferase activity. Alternative splicing of *SETDB1* produces two shorter isoforms with either a truncated post-SET domain, which retains enzymatic activity, or a full C-terminal truncation, which lacks enzymatic activity. SETDB1 is ubiquitously expressed and localizes to the nucleus and cytoplasm.^{2,3} It induces gene silencing by di- and trimethylation of histone H3 at lysine 9 (H3K9) using S-adenosylmethionine as the methyl donor and regulates various cellular processes, including cell division and proliferation, retroelement suppression, immune cell function, X chromosome inactivation, nervous system development, and the formation of promyelocytic leukemia nuclear bodies (PML-NBs).¹ Overexpression of *SETDB1* increases the number of colon cancer cells in the S and G₂/M phases *in vitro* and promotes tumor growth *in vivo*.⁴ Increased SETDB1 protein levels are associated with schizophrenia, and mutations in *SETDB1* have been found in patients with inflammatory bowel disease (IBD).¹ Cayman's SETDB1 (human, recombinant) protein can be used for enzyme activity assays.

References

1. Markouli, M., Strepkos, D., and Piperi, C. Structure, activity and function of the SETDB1 protein methyltransferase. *Life (Basel)* **11**(8), 817 (2021).
2. Blackburn, M.L., Chansky, H.A., Zielinska-Kwiatkowska, A., et al. Genomic structure and expression of the mouse ESET gene encoding an ERG-associated histone methyltransferase with a SET domain. *Biochim. Biophys. Acta* **629**(1-3), 8-14 (2003).
3. Cho, S., Park, J.S., and Kang, Y.-K. Regulated nuclear entry of over-expressed Setdb1. *Genes Cells* **18**(8), 694-703 (2013).
4. Yu, L., Ye, F., Li, Y.-Y., et al. Histone methyltransferase *SETDB1* promotes colorectal cancer proliferation through the STAT1-CCND1/CDK6 axis. *Carcinogenesis* **41**(5), 678-688 (2020).

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