

Recombinant NSD1-SET protein

Catalog No: 31475

Expressed In: *E. coli*

Quantity: 50 µg

Concentration: 1.0 µg/µl

Source: Human

Buffer Contents: 50 µg of recombinant NSD1-SET peptide (aa 1852-2082) containing an N-terminal GST tag expressed in *E. coli* cells at a concentration of 1.0 mg/ml in 25 mM Tris, pH 7.4, 150 mM NaCl and 5% glycerol.

Background: NSD1 (Nuclear Receptor Binding SET Domain Protein 1) is a histone methyltransferase that preferentially methylates lysine 36 of histone H3 and lysine 20 of histone H4 *in vitro*. NSD1 is a transcriptional intermediary factor capable of both negatively or positively influencing transcription, depending on the cellular context. NSD1 protein contains a SET domain, 2 LXXLL motifs, 3 nuclear translocation signals (NLSs), 4 plant homeodomain (PHD) finger regions, and a proline-rich region. The encoded protein enhances androgen receptor (AR) transactivation, and this enhancement can be increased further in the presence of other androgen receptor-associated coregulators. This protein may act as a nucleus-localized, basic transcriptional factor as well as a bifunctional transcriptional regulator. Mutations of this gene have been associated with Sotos syndrome and Weaver syndrome. One version of childhood acute myeloid leukemia is the result of a cryptic translocation with the breakpoints occurring within nuclear receptor-binding Su(var), Enhancer of zeste (EZH2), and Trithorax Domain Protein 1 on chromosome 5 and Nucleoporin, 98 kd on chromosome 11.

NSD1-SET includes the SET domain of NSD1. The SET domain is a 130 to 140 amino acid, evolutionary conserved motif that was initially characterized in the *Drosophila* proteins Su(var)3-9, EZH2 and TrxG and plays a crucial role in substrate recognition and enzymatic activity.

Protein Details: Recombinant NSD1-SET peptide that includes amino acids 1852-2082 that contains the SET domain sequence of the human NSD1 protein (accession number NP_071900.2) was expressed in *E. coli* cells and contains an N-terminal GST tag with an observed molecular weight of 51 kDa. The recombinant protein is >95% pure by SDS-PAGE.

Application Notes: Recombinant NSD1-SET protein is suitable for use in the study of enzyme kinetics, inhibitor screening, and selectivity profiling.

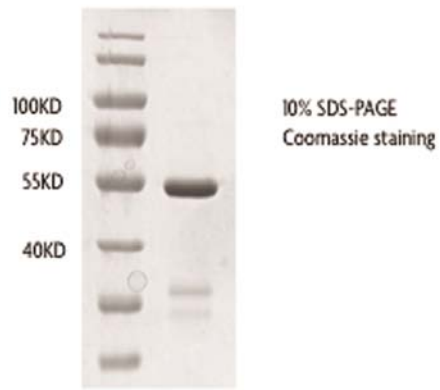
Specific Activity: H3K36 and H4K20 methyltransferase

HMT Assay Conditions:

30 ng/µl recombinant nucleosomes were incubated with 30 ng/µl recombinant NSD1-SET protein in reaction buffer including 50 mM TrisCl, pH 8.6, 0.02% Triton X-100, 2 mM MgCl₂, 1 mM TCEP, 9 nCi/µl 3H-SAM for 2 hours at room temperature. Activity was detected by fluorography.

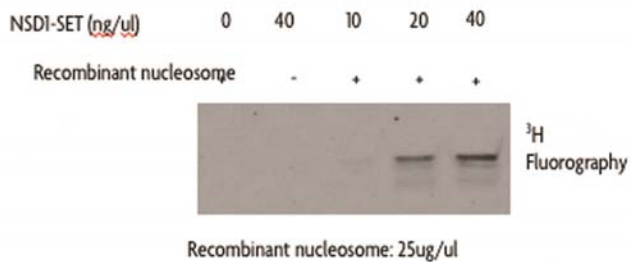
Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is for research use only and is not for use in diagnostic procedures. This product is guaranteed for 6 months from date of arrival.

NSD1-SET



Recombinant NSD1-SET protein gel.

Recombinant NSD1-SET run on an SDS-PAGE gel and stained with Coomassie blue.



NSD1-SET activity assay using Recombinant Nucleosomes as substrates.

Recombinant Nucleosomes were used as substrates in an assay measuring the methyltransferase activity of NSD1-SET. Activity was detected by fluorography.