

Nicotinamide N-Methyltransferase/NNMT Protein, Human (His)

Cat. No.:	HY-P79286
Synonyms:	Nicotinamide N-methyltransferase; NNMT
Species:	Human
Source:	E. coli
Accession:	P40261 (M1-L264)
Gene ID:	4837
Molecular Weight:	Approximately 25-30

PROPERTIES

AA Sequence	<pre> M E S G F T S K D T Y L S H F N P R D Y L E K Y Y K F G S R H S A E S Q I L K H L L K N L F K I F C L D G V K G D L L I D I G S G P T I Y Q L L S A C E S F K E I V V T D Y S D Q N L Q E L E K W L K K E P E A F D W S P V V T Y V C D L E G N R V K G P E K E E K L R Q A V K Q V L K C D V T Q S Q P L G A V P L P P A D C V L S T L C L D A A C P D L P T Y C R A L R N L G S L L K P G G F L V I M D A L K S S Y Y M I G E Q K F S S L P L G R E A V E A A V K E A G Y T I E W F E V I S Q S Y S S T M A N N E G L F S L V A R K L S R P L </pre>
Biological Activity	<p>1. Measured by its ability to methylate nicotinamide. The specific activity is >65 pmol/min/μg.</p> <p>2. Measured in a cell proliferation assay using A549 cells. The ED50 for this effect is 0.0488 μg/mL, corresponding to a specific activity is 2.049×10⁴ units/mg.</p>
Appearance	Solution
Formulation	Supplied as a 0.2 μm filtered solution of 50 mM Tris-HCL, 300 mM NaCl, pH 7.4, 10% Glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	Nicotinamide N-Methyltransferase (NNMT) is responsible for catalyzing the N-methylation of nicotinamide, utilizing the universal methyl donor S-adenosyl-L-methionine to produce N1-methylnicotinamide and S-adenosyl-L-homocysteine,
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representing a prominent pathway for nicotinamide/vitamin B3 clearance. This enzymatic activity plays a central role in cellular methylation potential regulation by consuming S-adenosyl-L-methionine, thus limiting its availability for other methyltransferases. NNMT actively orchestrates genome-wide epigenetic and transcriptional changes through the hypomethylation of repressive chromatin marks, such as H3K27me3, and contributes to the establishment of low levels of repressive histone marks in pluripotent embryonic stem cell pre-implantation state during development. Functionally, NNMT acts as a metabolic regulator impacting white adipose tissue energy expenditure, hepatic gluconeogenesis, and cholesterol biosynthesis. In white adipocytes, it regulates polyamine flux and controls NAD(+) levels through the salvage pathway. Additionally, NNMT, by producing N1-methylnicotinamide, influences protein acetylation in hepatocytes, repressing the ubiquitination and enhancing the stability of the SIRT1 deacetylase. Furthermore, NNMT exhibits versatility by N-methylating other pyridines structurally related to nicotinamide, suggesting a role in xenobiotic detoxification.

Caution: Product has not been fully validated for medical applications. For research use only.

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