

PRODUCT INFORMATION



Nicotinamide N-Methyltransferase (human, recombinant)

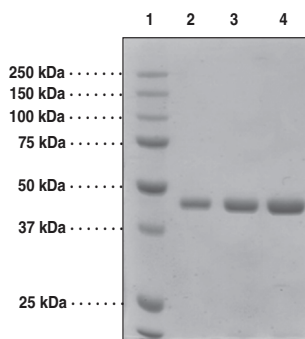
Item No. 15138

Overview and Properties

Synonym:	NNMT
Source:	Recombinant human N-terminal His- and SUMO-tagged protein expressed in <i>E. coli</i> . The SUMO Pro tag is used under non-exclusive license from LifeSensors, Inc., www.lifesensors.com .
Amino Acids:	2-264 (full length)
Uniprot No.:	P40261
Molecular Weight:	42.6 kDa
Storage:	-80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
Stability:	As supplied, 6 months from the QC date provided on the Certificate of Analysis, when stored properly
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	50 mM Tris, pH 8.0, containing 500 mM sodium chloride, 5% glycerol, and 1 mM DTT
Protein Concentration:	<i>batch specific</i> mg/ml
Activity:	<i>batch specific</i> U/ml
Specific Activity:	<i>batch specific</i> U/mg
Unit Definition:	One unit is defined as the amount of enzyme required to transfer 1 μmol of a methyl group per minute at 37°C using 100 μM nicotinamide, as described in the Methyltransferase Colorimetric Assay Kit from Cayman (Item No. 700140).

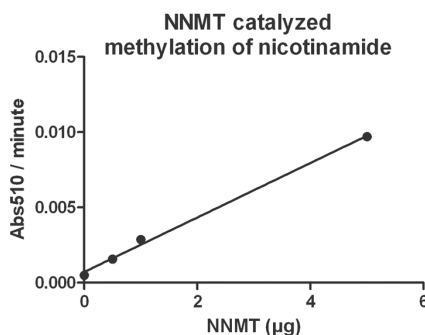
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: NNMT (2 μg)
Lane 3: NNMT (4 μg)
Lane 4: NNMT (6 μg)

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

Nicotinamide N-Methyltransferase (NNMT) methylates nicotinamide and other pyridine containing compounds.¹ NNMT transfers a methyl group from S-adenosylmethionine (SAM) to nitrogen N1 of nicotinamide to produce 1-methylnicotinamide (MNA) and S-adenosylhomocysteine. MNA is a messenger molecule that increases neurite branching, serves as an anti-thrombotic, and has anti-inflammatory properties.²⁻⁴ The role of NNMT overexpression in cancers may be to alter epigenetic methylation patterns in two ways: by lowering the intracellular concentration of SAM, required by methyltransferase enzymes, and by depleting the available NAD⁺ by transforming nicotinamide to MNA.^{4,5} Sirtuins use NAD⁺ as a substrate to alter protein acetylation and ribosylation, including histone targets.⁴

References

1. Alston, T.A. and Abeles, R.H. Substrate specificity of nicotinamide methyltransferase isolated from porcine liver. *Arch. Biochem. Biophys.* **260(2)**, 601-608 (1988).
2. Thomas, M.G., Saldanha, M., Mistry, R.J., *et al.* Nicotinamide N-methyltransferase expression in SH-SY5Y neuroblastoma and N27 mesencephalic neurones induces changes in cell morphology via ephrin-B2 and Akt signalling. *Cell Death Dis.* **4**, e669 (2013).
3. Chlopicki, S., Swies, J., Mogielnicki, A., *et al.* 1-Methylnicotinamide (MNA), a primary metabolite of nicotinamide, exerts anti-thrombotic activity mediated by a cyclooxygenase-2/prostacyclin pathway. *Br. J. Pharmacol.* **152(2)**, 230-239 (2007).
4. Shlomi, T. and Rabinowitz, J.D. Cancer mistunes methylation. *Nat. Chem. Biol.* **9(5)**, 293-294 (2013).
5. Ulanovskaya, O.A., Zuhl, A.M., and Cravatt, B.F. NNMT promotes epigenetic remodeling in cancer by creating a metabolic methylation sink. *Nat. Chem. Biol.* **9(5)**, 300-306 (2013).

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