

Product data sheet



MedKoo Cat#: 330188 Name: Nicotinamide Mononucleotide CAS#: 1094-61-7 Chemical Formula: C ₁₁ H ₁₅ N ₂ O ₈ P Exact Mass: 334.0566 Molecular Weight: 334.22	
Product supplied as: Powder	
Purity (by HPLC): ≥ 98%	
Shipping conditions: Ambient temperature	
Storage conditions: Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Nicotinamide Mononucleotide, also known as ("NMN" and "β-NMN") is a nucleotide derived from ribose and nicotinamide. Like nicotinamide riboside, NMN is a derivative of niacin, and humans have enzymes that can use NMN to generate nicotinamide adenine dinucleotide (NADH). Because NADH is a cofactor for processes inside mitochondria, for sirtuins, and for PARP, NMN has been studied in animal models as a potential neuroprotective and anti-aging agent. Dietary supplement companies have aggressively marketed NMN products claiming those benefits, though there is no clinical study on humans published yet.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
PBS (pH 7.2)	10	29.92

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.99 mL	14.96 mL	29.92 mL
5 mM	0.60 mL	2.99 mL	5.98 mL
10 mM	0.30 mL	1.50 mL	2.99 mL
50 mM	0.06 mL	0.30 mL	0.60 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

Poddar SK, Sifat AE, Haque S, Nahid NA, Chowdhury S, Mehedi I. Nicotinamide Mononucleotide: Exploration of Diverse Therapeutic Applications of a Potential Molecule. *Biomolecules*. 2019 Jan 21;9(1):34. doi: 10.3390/biom9010034. PMID: 30669679; PMCID: PMC6359187.

In vivo study

Mills KF, Yoshida S, Stein LR, Grozio A, Kubota S, Sasaki Y, Redpath P, Migaud ME, Apte RS, Uchida K, Yoshino J, Imai SI. Long-Term Administration of Nicotinamide Mononucleotide Mitigates Age-Associated Physiological Decline in Mice. *Cell Metab*. 2016 Dec 13;24(6):795-806. doi: 10.1016/j.cmet.2016.09.013. Epub 2016 Oct 27. PMID: 28068222; PMCID: PMC5668137.

7. Bioactivity

Biological target:

Human Endogenous Metabolite

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In vitro activity

This particular molecule has demonstrated several beneficial pharmacological activities in preclinical studies, which suggest its potential therapeutic use. Mostly mediated by its involvement in NAD⁺ biosynthesis, the pharmacological activities of NMN include its role in cellular biochemical functions, cardioprotection, diabetes, Alzheimer's disease, and complications associated with obesity. The recent groundbreaking discovery of anti-ageing activities of this chemical moiety has added a valuable essence in the research involving this molecule. This review focuses on the biosynthesis of NMN in mammalian and prokaryotic cells and mechanism of absorption along with the reported pharmacological activities in murine model.

Reference: Poddar SK, Sifat AE, Haque S, Nahid NA, Chowdhury S, Mehedi I. Nicotinamide Mononucleotide: Exploration of Diverse Therapeutic Applications of a Potential Molecule. *Biomolecules*. 2019 Jan 21;9(1):34. doi: 10.3390/biom9010034. PMID: 30669679; PMCID: PMC6359187.

In vivo activity

NMN effectively mitigates age-associated physiological decline in mice. Without any obvious toxicity or deleterious effects, NMN suppressed age-associated body weight gain, enhanced energy metabolism, promoted physical activity, improved insulin sensitivity and plasma lipid profile, and ameliorated eye function and other pathophysiologies. Consistent with these phenotypes, NMN prevented age-associated gene expression changes in key metabolic organs and enhanced mitochondrial oxidative metabolism and mitonuclear protein imbalance in skeletal muscle. These effects of NMN highlight the preventive and therapeutic potential of NAD⁺ intermediates as effective anti-aging interventions in humans.

Reference: Mills KF, Yoshida S, Stein LR, Grozio A, Kubota S, Sasaki Y, Redpath P, Migaud ME, Apte RS, Uchida K, Yoshino J, Imai SI. Long-Term Administration of Nicotinamide Mononucleotide Mitigates Age-Associated Physiological Decline in Mice. *Cell Metab*. 2016 Dec 13;24(6):795-806. doi: 10.1016/j.cmet.2016.09.013. Epub 2016 Oct 27. PMID: 28068222; PMCID: PMC5668137.

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.