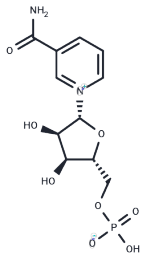
Data Sheet (Cat.No.T4721)

TargetMol

β-Nicotinamide mononucleotide

Chemical Properties



CAS No. : 1094-61-7

Formula: C11H15N2O8P

Molecular Weight: 334.22

Storage: Keep away from direct sunlight,Store at low temperature,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	β-nicotinamide mononucleotide (NMN) is a natural nucleotide and a key intermediate in the synthesis of coenzyme I (NAD+). β-nicotinamide mononucleotide is involved in a number of biochemical reactions in the human body, which are related to immunity and metabolism.
Targets(IC50)	Endogenous Metabolite
In vitro	**METHODS**: Human corneal epithelial cells HCECs were treated with glucose (25 mM) and β-nicotinamide mononucleotide (5-1000 μM) for 48 h. Cell viability was measured by Trypan blue staining. **RESULTS**: The effects of different concentrations of β-nicotinamide mononucleotide on HCEC damage induced by high glucose were analyzed. 125, 250 and 500 μM β-nicotinamide mononucleotide showed significant protective effects. [1] **METHODS**: Late passaged MSCs LP MSCs were treated with β-nicotinamide mononucleotide (100 μM) for 24 h and mitochondrial morphology was analyzed. **RESULTS**: The mitochondrial staining in LP-MSCs was more diffuse and less intense, while the distribution of mitochondria became concentrated after β-nicotinamide mononucleotide treatment. β-nicotinamide mononucleotide treatment could effectively normalize the mitochondrial morphology and improve the function of mitochondria in senescent MSCs. [2]
In vivo	**METHODS**: To study the effects on aging, β-nicotinamide mononucleotide (100-300 mg/kg) was administered in drinking water to normally aging wild-type C57BL/6N mice. The administration began at 5 months of age and continued for 12 months until the mice were 17 months old. **RESULTS**: β-nicotinamide mononucleotide effectively attenuated age-related physiological decline in mice. β-nicotinamide mononucleotide did not have any significant toxic or deleterious effects, inhibited age-related weight gain, enhanced energy metabolism, promoted physical activity, improved insulin sensitivity and lipid levels, and improved insulin resistance. sensitivity and lipid levels, and improved eye function and other pathophysiology. [3]

Solubility Information

Solubility	DMSO: Insoluble, H2O: 85.8 mg/mL (256.72 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.992 mL	14.9602 mL	29.9204 mL
5 mM	0.5984 mL	2.992 mL	5.9841 mL
10 mM	0.2992 mL	1.496 mL	2.992 mL
50 mM	0.0598 mL	0.2992 mL	0.5984 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Pu Q, et al. Nicotinamide mononucleotide increases cell viability and restores tight junctions in high-glucose-treated human corneal epithelial cells via the SIRT1/Nrf2/HO-1 pathway. Biomed Pharmacother. 2022 Mar;147: 112659.

Xu B, Zhang P, Tang X, et al. Metabolic Rewiring of Kynurenine Pathway during Hepatic Ischemia-Reperfusion Injury Exacerbates Liver Damage by Impairing NAD Homeostasis. Advanced Science. 2022: 2204697.

Wang H, et al. Nicotinamide Mononucleotide Supplementation Improves Mitochondrial Dysfunction and Rescues Cellular Senescence by NAD+/Sirt3 Pathway in Mesenchymal Stem Cells. Int J Mol Sci. 2022 Nov 25;23(23):14739.

Zhao S, Hong Y, Liang Y, et al. Compartmentalized regulation of NAD+ by Di (2-ethyl-hexyl) phthalate induces DNA damage in placental trophoblast. Redox biology. 2022, 55: 102414.

Mills KF, et al. Long-Term Administration of Nicotinamide Mononucleotide Mitigates Age-Associated Physiological Decline in Mice. Cell Metab. 2016 Dec 13;24(6):795-806.