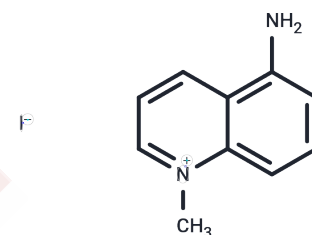


NNMTi

Chemical Properties

CAS No. :	42464-96-0
Formula:	C ₁₀ H ₁₁ N ₂
Molecular Weight:	286.11
Storage:	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	NNMTi (5-Amino-1-methylquinolinium) is a substrate site-targeting, selective nicotinamide N-methyltransferase (NNMT) inhibitor (IC ₅₀ = 1.2 μM; 50 μM SAM, 100 μM NCA) that reduces 3T3-L1 lipogenesis (EC ₅₀ = 30μM) and adipocytes 1-methylnicotinamide level (EC ₅₀ = 2.3 μM) without affecting related methyltransferases & enzymes in the NAD ⁺ salvage pathway
Targets(IC ₅₀)	Others
In vivo	NNMTi treatment will rescue age-related deficits in muSC activity to promote superior regeneration post-injury in aging muscle. 24-month old mice were treated with saline (control), and low and high dose NNMTi (5 and 10 mg/kg) for 1-week post-injury, or control and high dose NNMTi for 3-weeks post-injury. All mice underwent an acute muscle injury (barium chloride injection) locally to the tibialis anterior (TA) muscle, and received 5-ethynyl-2'-deoxyuridine systemically to analyze muSC activity. In vivo contractile function measurements were conducted on the injured TA muscle and tissues collected for ex-vivo analyses, including myofiber cross-sectional area (CSA) measurements to assess muscle recovery. Results revealed that muscle stem cell proliferation and subsequent fusion were elevated in NNMTi-treated mice, supporting nearly 2-fold greater CSA and shifts in fiber size distribution to greater proportions of larger sized myofibers and fewer smaller sized fibers in NNMTi-treated mice compared to controls. Prolonged NNMTi treatment post-injury further augmented myofiber regeneration evinced by increasingly larger fiber CSA. Importantly, improved muSC activity translated not only to larger myofibers after injury but also to greater contractile function, with the peak torque of the TA increased by 70% in NNMTi-treated mice compared to controls. Similar results were recapitulated in vitro with C2C12 myoblasts, where NNMTi treatment promoted and enhanced myoblast differentiation with supporting changes in the cellular NAD ⁺ /NADH redox states[1].

Solubility Information

Solubility	DMSO: 33.3 mg/mL (116.39 mM), Sonication is recommended. H ₂ O: 33.3 mg/mL (116.39 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (6.99 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.4952 mL	17.4758 mL	34.9516 mL
5 mM	0.699 mL	3.4952 mL	6.9903 mL
10 mM	0.3495 mL	1.7476 mL	3.4952 mL
50 mM	0.0699 mL	0.3495 mL	0.699 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

Harshini Neelakantan, et al. Small molecule nicotinamide N-methyltransferase inhibitor activates senescent muscle stem cells and improves regenerative capacity of aged skeletal muscle. *Biochem Pharmacol.* 2019 May; 163:481-492.

Benjamin Trinité, Hongtao Zhang, David N Levy ,et al.NNRTI-induced HIV-1 protease-mediated cytotoxicity induces rapid death of CD4 T cells during productive infection and latency reversal.*Retrovirology.* 2019 Jun 26;16(1):17.

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Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481