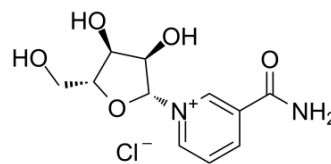


Nicotinamide riboside chloride

Cat. No.:	HY-123033A
CAS No.:	231111-00-4
Molecular Formula:	C ₁₁ H ₁₅ ClN ₂ O ₅
Molecular Weight:	290.7
Target:	Sirtuin
Pathway:	Cell Cycle/DNA Damage; Epigenetics
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

H₂O : 125 mg/mL (430.00 mM; Need ultrasonic)
DMSO : 50 mg/mL (172.00 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
	Concentration				
	1 mM		3.4400 mL	17.1999 mL	34.3997 mL
	5 mM		0.6880 mL	3.4400 mL	6.8799 mL
	10 mM		0.3440 mL	1.7200 mL	3.4400 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Nicotinamide riboside Chloride, an orally active NAD⁺ precursor, increases NAD⁺ levels and activates SIRT1 and SIRT3. Nicotinamide riboside Chloride is a source of vitamin B3 (niacin) and enhances oxidative metabolism, protection against high fat diet-induced metabolic abnormalities^[1]. Nicotinamide riboside Chloride reduces cognitive deterioration in a transgenic mouse model of Alzheimer's disease^[2].

IC₅₀ & Target

SIRT1	SIRT3
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In Vitro

Nicotinamide riboside Chloride (0.5 nM; 24 hours) reduces the acetylation status of Ndufa9 and SOD2^[1]. Nicotinamide riboside Chloride increases intracellular and mitochondrial NAD⁺ content in C2C12, Hepa1.6, and HEK293 cells in a concentration-dependent manner at concentrations ranging from 1-1000 μM^[1]. Nicotinamide riboside chloride boosts NAD to restore antiviral poly(ADP-ribose) polymerase (PARP) functions to support innate immunity for coronavirus (CoVs), a cause of COVID-19^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Western Blot Analysis^[1]

	Cell Line:	HEK293T cells
	Concentration:	0.5 nM
	Incubation Time:	24 hours
	Result:	Reduced the acetylation status of Ndufa9 and SOD2.
In Vivo	Chronic Nicotinamide riboside Chloride (p.o.; 400 mg/kg/day; for 16 weeks) supplementation increases plasma and intracellular NAD ⁺ content in a tissue-specific manner ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.	
	Animal Model:	10-week-old C57Bl/6J mice ^[1]
	Dosage:	400 mg/kg
	Administration:	PO; daily; for 16 weeks
	Result:	Increased plasma and intracellular NAD ⁺ content in a tissue-specific manner.

REFERENCES

- [1]. Cantó C, et al. The NAD(+) precursor nicotinamide riboside enhances oxidative metabolism and protects against high-fat diet-induced obesity. *Cell Metab.* 2012 Jun 6;15(6):838-47.
- [2]. Bing Gong, et al. Nicotinamide Riboside Restores Cognition Through an Upregulation of Proliferator-Activated Receptor-γ Coactivator 1α Regulated β-Secretase 1 Degradation and Mitochondrial Gene Expression in Alzheimer's Mouse Models. *Neurobiol Aging.* 2013 Jun;34(6):1581-8.
- [3]. Collin D Heer, et al. Coronavirus and PARP Expression Dysregulate the NAD Metabolome: A Potentially Actionable Component of Innate Immunity. *bioRxiv.* 2020 Apr 30;2020.04.17.047480.

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

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