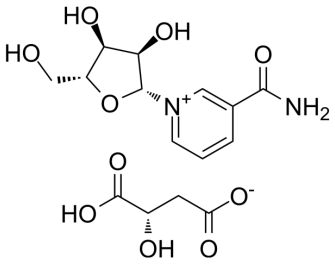
Nicotinamide riboside malate

Cat. No.:	HY-123033C
CAS No.:	2415659-01-5
Molecular Formula:	$C_{15}H_{20}N_2O_{10}$
Molecular Weight:	388.33
Target:	Sirtuin; Endogenous Metabolite
Pathway:	Cell Cycle/DNA Damage; Epigenetics; Metabolic Enzyme/Protease
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

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

IC_{50} & Target			
	SIRT1	SIRT3	Human Endogenous Metabolite

In Vitro

Nicotinamide riboside malate (0.5 nM; 24 hours) reduces the acetylation status of Ndufa9 and SOD2[1].
Nicotinamide riboside malate 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 malate 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 malate (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.

CUSTOMER VALIDATION

- Nat Commun. 2023 Jan 16;14(1):240.
- Mol Ther. 2022 Sep 21;S1525-0016(22)00567-6.
- Redox Biol. 2022 Oct 11;57:102507.
- Cell Biosci. 2021 Nov 10;11(1):192.
- Cells. 2023 Oct 2, 12(19), 2396.

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REFERENCES

[1]. Cantó C, et al. The NAD(+) precursor nicotinamide riboside enhances oxidative metabolism and protectsagainst 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.

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