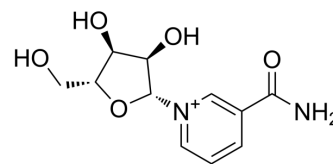


## Nicotinamide riboside

Cat. No.:	HY-123033
CAS No.:	1341-23-7
Molecular Formula:	C <sub>11</sub> H <sub>15</sub> N <sub>2</sub> O <sub>5</sub>
Molecular Weight:	255.25
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

<b>Description</b>	Nicotinamide riboside, an orally active NAD <sup>+</sup> precursor, increases NAD <sup>+</sup> levels and activates SIRT1 and SIRT3. Nicotinamide riboside is a source of vitamin B3 (niacin) and enhances oxidative metabolism, protection against high fat diet-induced metabolic abnormalities <sup>[1]</sup> . Nicotinamide riboside reduces cognitive deterioration in a transgenic mouse model of Alzheimer's disease <sup>[2]</sup> .										
<b>IC<sub>50</sub> &amp; Target</b>	SIRT1	SIRT3	Human Endogenous Metabolite								
<b>In Vitro</b>	<p>Nicotinamide riboside (0.5 nM; 24 hours) reduces the acetylation status of Ndufa9 and SOD2<sup>[1]</sup>.</p> <p>Nicotinamide riboside increases intracellular and mitochondrial NAD<sup>+</sup> content in C2C12, Hepa1.6, and HEK293 cells in a concentration-dependent manner at concentrations ranging from 1-1000 μM<sup>[1]</sup>.</p> <p>Nicotinamide riboside boosts NAD to restore antiviral poly(ADP-ribose) polymerase (PARP) functions to support innate immunity for coronavirus (CoVs), a cause of COVID-19<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>HEK293T cells</td> </tr> <tr> <td>Concentration:</td> <td>0.5 nM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Reduced the acetylation status of Ndufa9 and SOD2.</td> </tr> </table>			Cell Line:	HEK293T cells	Concentration:	0.5 nM	Incubation Time:	24 hours	Result:	Reduced the acetylation status of Ndufa9 and SOD2.
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Result:	Reduced the acetylation status of Ndufa9 and SOD2.										
<b>In Vivo</b>	<p>Chronic Nicotinamide riboside (p.o.; 400 mg/kg/day; for 16 weeks) supplementation increases plasma and intracellular NAD<sup>+</sup> content in a tissue-specific manner<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>10-week-old C57Bl/6J mice<sup>[1]</sup></td> </tr> <tr> <td>Dosage:</td> <td>400 mg/kg</td> </tr> <tr> <td>Administration:</td> <td>p.o.; daily; for 16 weeks</td> </tr> </table>			Animal Model:	10-week-old C57Bl/6J mice <sup>[1]</sup>	Dosage:	400 mg/kg	Administration:	p.o.; daily; for 16 weeks		
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Result:

Increased plasma and intracellular NAD<sup>+</sup> 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.
- Commun Biol. 2023 Mar 2;6(1):235.

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## 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- $\gamma$  Coactivator 1 $\alpha$  Regulated  $\beta$ -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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