

## Nicotinamide riboside malate

## Chemical Properties

CAS No. : 2415659-01-5

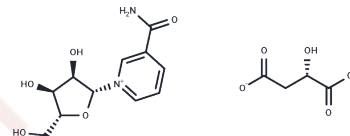
Formula: C<sub>15</sub>H<sub>20</sub>N<sub>2</sub>O<sub>10</sub>

Molecular Weight: 388.33

Keep away from moisture

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   | Nicotinamide riboside malate is a compound formed by the salt of nicotinamide riboside and malic acid. Nicotinamide riboside malate acts as a precursor to NAD <sup>+</sup> and promotes the elevation of NAD <sup>+</sup> levels within cells by supplementing the NR pathway, thereby participating in energy metabolism and the regulation of mitochondrial   |
| Targets(IC50) | Endogenous Metabolite,Sirtuin  |
| In vitro      | <p>Nicotinamide riboside malate (0.5 nM; 24 hours) reduces the acetylation status of Ndufa9 and SOD2[1].</p> <p>Nicotinamide riboside malate 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[1].</p> <p>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].</p> <p>Western Blot Analysis, Cell Line: HEK293T cells Concentration: 0.5 nM Incubation Time: 24 hours Result: Reduced the acetylation status of Ndufa9 and SOD2 [1].</p>        |
| In vivo       | <p>Chronic supplementation with Nicotinamide riboside malate (p.o.; 400 mg/kg/day; for 16 weeks) elevates plasma and intracellular NAD<sup>+</sup> levels in a tissue-specific manner[1]. This effect was observed in a study conducted on 10-week-old C57Bl/6j mice administered orally with a daily dosage of 400 mg/kg for a period of 16 weeks, leading to an increase in both plasma and intracellular NAD<sup>+</sup> content, highlighting the compound's potential for targeted therapeutic applications.</p> <p>Chronic Nicotinamide riboside malate (p.o.; 400 mg/kg/day; for 16 weeks) supplementation increases plasma and intracellular NAD<sup>+</sup> content in a tissue-specific manner[1].</p> |

## Solubility Information

|            |  |
|------------|--|
| Solubility | H <sub>2</sub> O: 116.67 mg/mL (300.44 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |
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### Preparing Stock Solutions

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|       | 1mg       | 5mg        | 10mg       |
|-------|-----------|------------|------------|
| 1 mM  | 2.5751 mL | 12.8756 mL | 25.7513 mL |
| 5 mM  | 0.515 mL  | 2.5751 mL  | 5.1503 mL  |
| 10 mM | 0.2575 mL | 1.2876 mL  | 2.5751 mL  |
| 50 mM | 0.0515 mL | 0.2575 mL  | 0.515 mL   |

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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

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.

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.

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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