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PRODUCT INFORMATION



Nicotinamide riboside-d₄ (triflate)

Item No. 34311

Formal Name: 3-carbamoyl-1-((2R,3R,4S,5R)-3,4-dihydroxy-5-(hydroxymethyl)tetrahydrofuran-2-yl)pyridin-1-ium-2,4,5,6-d₄, trifluoromethanesulfonate

MF: C₁₁H₁₁D₄N₂O₅ • CF₃SO₃

FW: 408.3

Chemical Purity: ≥95% (Nicotinamide riboside)

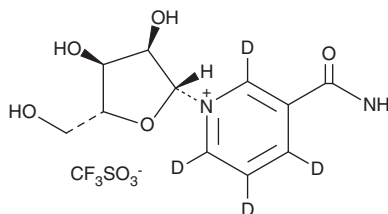
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀

Supplied as: A solid (hygroscopic)

Storage: -20°C

Stability: ≥4 years

Item Origin: Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Nicotinamide riboside-d₄ (triflate) is intended for use as an internal standard for the quantification of nicotinamide riboside (Item No. 23132) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Nicotinamide riboside-d₄ (triflate) is supplied as a solid (hygroscopic). A stock solution may be made by dissolving the nicotinamide riboside-d₄ (triflate) in the solvent of choice, which should be purged with an inert gas. Nicotinamide riboside-d₄ (triflate) is soluble in the organic solvent methanol.

Description

Nicotinamide riboside is a riboside form of nicotinamide (Item No. 11127) that is found in trace amounts in yeast-containing and milk-derived products.¹ It is a precursor of NAD⁺ (Item No. 16077) and a source of vitamin B₃ (niacin). Nicotinamide riboside increases intracellular and mitochondrial NAD⁺ content in C2C12, Hepa1.6, and HEK293 cells when used at concentrations ranging from 1-1,000 μM.² It also decreases acetylation of FOXO1 and SOD2, which are substrates of sirtuin 1 (SIRT1) and SIRT3, respectively, but not the SIRT2 substrate tubulin, indicating nicotinamide riboside selectively enhances SIRT1 and SIRT3 deacetylase activity. Nicotinamide riboside (400 mg/kg per day) increases NAD⁺ levels in liver and skeletal muscle and prevents body weight gain in mice fed a high-fat diet. It also increases NAD⁺ in the cerebral cortex and reduces cognitive deterioration in a transgenic mouse model of Alzheimer's disease.³

References

1. Chi, Y., and Sauve, A.A. Nicotinamide riboside, a trace nutrient in foods, is a vitamin B3 with effects on energy metabolism and neuroprotection. *Curr. Opin. Clin. Nutr. Metab. Care* **15**(6), 657-661 (2013).
2. Cantó, C., Houtkooper, R.H., Pirinen, E., *et al.* The NAD⁺ precursor nicotinamide riboside enhances oxidative metabolism and protects against high-fat diet-induced obesity. *Cell Metab.* **15**(6), 838-847 (2012).
3. Gong, B., Pan, Y., Vempati, P., *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* **34**(6), 1581-1588 (2013).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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