

Product Information

β -Nicotinamide adenine dinucleotide 2'-phosphate reduced tetrasodium salt

Vial of 0.30-0.36 mg

N9910

Product Description

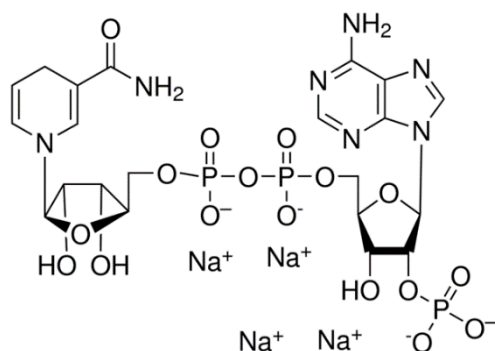
Synonyms: β -NADPH, Coenzyme II reduced tetrasodium salt, Triphosphopyridine nucleotide reduced tetrasodium salt, NADPH Na₄, 2'-NADPH, TPNH₂ Na₄, Dihydronicotinamide adenine dinucleotide phosphate tetrasodium salt

Molecular Formula: C₂₁H₂₆N₇Na₄O₁₇P₃

Formula Weight: 833.35

 E^{mM} (340nm) = 6.22 (pH >10) $A_{260nm} / A_{340nm} = 2.32$

Structure:



β -Nicotinamide adenine dinucleotide 2'-phosphate (β -NADPH) is a product of the pentose phosphate pathway, a multifunctional pathway whose primary purpose is to generate reducing power, in the form of β -NADPH. β -NADPH transfers H^+ and $2e^-$ to oxidized precursors in the reduction reactions of biosynthesis. Thus, β -NADPH cycles between catabolic and biosynthetic reactions, and serves as the carrier of reducing power in the same way that ATP serves as the carrier of energy.¹

Enzymes that use β -NADPH as a coenzyme include glutathione reductase, diacetyl reductase, dihydrofolate reductase, glutamic dehydrogenase, *p*-hydroxybenzoate hydroxylase, NADPH-FMN oxidoreductase, nitrate reductase and thioredoxin reductase. β -NADPH is also involved with cytochrome P450 electron transport systems.²

Product N9910 is prepared by the chemical reduction of β -Nicotinamide adenine dinucleotide phosphate. Product N9910 has been cited in the research literature.³

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Product N9910 may be stored at room temperature, desiccated and protected from light. The normal impurities and/or decomposition products are β -NADP and Monophosphoadenosine 5'-diphosphoribose.

It is suggested to prepare β -NADPH solutions fresh and use promptly, unless you are sure that this is an unnecessary precaution for your work. However, it has been reported that a 0.5 mM solution in 0.02 M NaOH (pH 12.3) showed no loss of purity in a week at 4 °C or -85 °C, but a 13% loss at -20 °C.⁴ One publication has investigated the solution stability of NADPH.⁵

Preparation Instructions

Product N9910 is tested for solubility in 0.01 N NaOH with the addition of 3 mL of 0.01 N NaOH to a vial of ~0.3 mg.

References

1. Wood, W.B. *et al.*, *Biochemistry: A Problems Approach*. W.A. Benjamin, Inc. (Menlo Park, CA), p. 195 (1974).
2. Berg, J.M. *et al.*, *Biochemistry*, 5th edition. W.H. Freeman and Co. (New York, NY), p. 564 (2002).
3. Serfőző, Z. *et al.*, *Cell. Signal.*, **30**, 67-81 (2017).
4. Passonneau, J.V., and Lowry, O.H., *Enzymatic Analysis. A Practical Guide*. Humana Press (Totowa, NJ), p. 15 (1993).
5. Wu, J.T. *et al.*, *Clin. Chem.*, **32(2)**, 314-319 (1986).

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