

Product Data Sheet

Product Name: NADP+
Cat. No.: GC44307

Chemical Properties

Cas. No. 53-59-8

Chemical Name adenosine 5'-(trihydrogen diphosphate), 2'-(dihydrogen phosphate), P'→5'-ester with 3-(aminocarbonyl)-1-β-D-ribofuranosylpyridinium, inner salt

SMILES O[C@H]1[C@@H](OP(O)(O)=O)[C@H](N2C=NC3=C2N=CN=C3N)O[C@@H]1COP(O)(OC[C@H]4[C@@H](O)[C@@H](O)[C@H]([N+]5=CC(C(N)=O)=CC=C5O4)([O-])=O)(O)=O

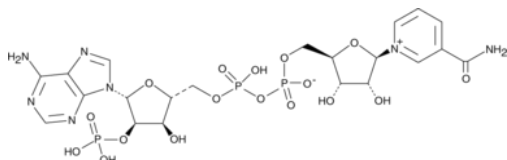
Formula C₂₁H₂₈N₇O₁₇P₃ M.Wt 743.4

Solubility Soluble in PBS, PH7.2, 10mg/mL Storage Store at -20°C, protect from light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

NADP+ is the oxidized form of the electron donor nicotinamide adenine dinucleotide phosphate. NADP+ together with its reduced form, reduced NADPH, is involved in maintaining redox balance and supporting the biosynthesis of fatty acids and nucleic acids [1].

NADP+, a structural analogue of NAD+, is synthesized by transferring a phosphate group from ATP to the 2'-hydroxyl group of the adenosine ribose moiety of NAD+. This reaction is catalyzed by NADKs [2]. NADP+ act as a cofactor in various biological reactions [3]. NADP+/NADPH is important in regulating the cellular redox state, energy metabolism, mitochondrial function, gene expression, and signaling pathways, NADP+/NADPH are essential for maintaining a large array of biological

Caution: Product has not been fully validated for medical applications. For research use only.

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processes^[3,4,5].

References:

- [1]. Yang, Yue, and Anthony A. Sauve. "NAD⁺ metabolism: Bioenergetics, signaling and manipulation for therapy." *Biochimica et Biophysica Acta (BBA)-Proteins and Proteomics* 1864.12 (2016): 1787-1800.
- [2]. Ying, Weihai. "NAD⁺/NADH and NADP⁺/NADPH in cellular functions and cell death: regulation and biological consequences." *Antioxidants & redox signaling* 10.2 (2008): 179-206.
- [3]. Jackson J B. A review of the binding-change mechanism for proton-translocating transhydrogenase[J]. *Biochimica et Biophysica Acta (BBA)-Bioenergetics*, 2012, 1817(10): 1839-1846.
- [4]. CantÓ, Carles, and Johan Auwerx. "NAD⁺ as a signaling molecule modulating metabolism." *Cold Spring Harbor symposia on quantitative biology*. Vol. 76. Cold Spring Harbor Laboratory Press, 2011.
- [5]. CantÓ, Carles, Keir J. Menzies, and Johan Auwerx. "NAD⁺ metabolism and the control of energy homeostasis: a balancing act between mitochondria and the nucleus." *Cell metabolism* 22.1 (2015): 31-53.

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