

PRODUCT INFORMATION



NAADP (sodium salt)

Item No. 25992

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

Synonym: Nicotinic Acid adenine dinucleotide phosphate

MF: C₂₁H₂₃N₆O₁₈P₃ • 4Na

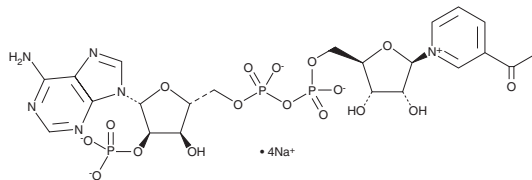
FW: 832.3

Purity: ≥95%

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years



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

Laboratory Procedures

NAADP (sodium salt) is supplied as a solid. A stock solution may be made by dissolving the NAADP (sodium salt) in water. The solubility of NAADP (sodium salt) in water is approximately 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Nicotinic acid adenine dinucleotide phosphate (NAADP) is a secondary messenger that induces calcium mobilization.^{1,2} It induces calcium release from endosomes and lysosomes via two-pore channel 2 (TPC2) and TPC1, which then stimulates large-scale calcium release from granules and the endoplasmic reticulum mediated by type 1 ryanodine receptors (RyR2s), RyR3s, and inositol-(1,4,5)-triphosphate receptors (IP₃Rs).^{1,3} NAADP induces calcium mobilization in sea urchin and starfish eggs post fertilization to block polyspermy and activate embryogenesis.³ NAADP-induced calcium mobilization induces VEGF-mediated angiogenesis in human umbilical vein endothelial cells (HUVECs). It also alkalizes lysosomal pH thereby inhibiting fusion between autophagosomes and lysosomes and arresting autophagic flux in mouse embryonic stem cells.⁴

References

1. Gerasimenko, J.V., Charlesworth, R.M., Sherwood, M.W., *et al.* Both RyRs and TPCs are required for NAADP-induced intracellular Ca²⁺ release. *Cell Calcium* **58(3)**, 237-245 (2015).
2. Lee, H.C. Mechanisms of calcium signaling by cyclic ADP-ribose and NAADP. *Physiological Reviews* **77(4)**, 1133-1164 (1997).
3. Parrington, J., Lear, P., and Hachem, A. Calcium signals regulated by NAADP and two-pore channels - their role in development, differentiation and cancer. *Int. J. Dev. Biol.* **59(7-9)**, 341-355 (2015).
4. Lu, Y., Hao, B., Graeff, R., *et al.* NAADP/TPC2/Ca²⁺ signaling inhibits autophagy. *Commun. Integr. Biol.* **6(6)**, e27595 (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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