6-Aminonicotinamide

CAS Registry No.: 329-89-5
Formal Name: 6-amino-3-pyridinecarboxamide
Synonyms: 6-AN, NSC 21206, SR 4388
MF: C6H7N3O
FW: 137.1
Purity: ≥98%
UV/Vis.: λmax: 269 nm
Supplied as: A crystalline 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

6-Aminonicotinamide is supplied as a crystalline solid. A stock solution may be made by dissolving the 6-aminonicotinamide in the solvent of choice, which should be purged with an inert gas. 6-Aminonicotinamide is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of 6-aminonicotinamide in these solvents is approximately 1 and 2 mg/ml, respectively.

6-Aminonicotinamide is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 6-aminonicotinamide should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 6-Aminonicotinamide has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

6-Aminonicotinamide (6-AN) is a well-established inhibitor of the NADP⁺-dependent enzyme, 6-phosphogluconate dehydrogenase (Kᵢ = 0.46 μM).¹ Through this action, 6-AN interferes with glycolysis, resulting in ATP depletion and synergizes with DNA-crosslinking chemotherapy drugs, like cisplatin, in killing cancer cells (IC₅₀ = 0.5 mM).²,³ 6-AN also reduces cardiovascular oxidative injury following ischemia/reperfusion.⁴ In addition, 6-AN causes glial neurodegeneration.⁵

References


1. Editorial Note: The use of the term ‘6-phosphogluconate dehydrogenase’ is anachronistic and may be difficult for contemporary readers. It is preferable to refer to the enzyme as 6-phosphogluconate dehydrogenase, as it is now commonly known.

2. Editorial Note: The use of the term ‘IC₅₀’ is anachronistic and may be difficult for contemporary readers. It is preferable to refer to the IC₅₀ as the concentration of the inhibitor that results in 50% inhibition of the enzyme activity.

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