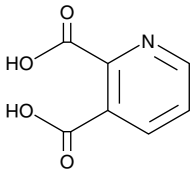
Product Information

Quinolinic Acid

Item No. 14941

CAS Registry No.:	89-00-9
Formal Name:	2,3-pyridinedicarboxylic acid
Synonyms:	NSC 13127, NSC 18836, NSC 403247
MF:	$C_7H_5NO_4$
FW:	167.1
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max}: 216, 264 nm



Laboratory Procedures

For long term storage, we suggest that quinolinic acid be stored as supplied at -20°. It should be stable for at least two years.

Quinolinic acid is supplied as a crystalline solid. A stock solution may be made by dissolving the quinolinic acid in the solvent of choice. Quinolinic acid is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of quinolinic acid in these solvents is approximately 16 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of quinolinic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of quinolinic acid in PBS, pH 7.2, is approximately 0.5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Quinolinic acid is an endogenous agonist at NMDA receptors that is generated through the metabolism of tryptophan in the kynurenine pathway.[1] By overactivating NMDA receptors, quinolinic acid produces neurotoxicity, which has been implicated in certain neurodegenerative disorders.[2] Quinolinic acid can also generate reactive oxygen species, has immunomodulatory actions, and promotes the formation of hyperphosphorylated tau proteins.[3-5]

References

1. Heyes, M.P., Achim, C.L., Wiley, C.A., *et al.* Human microglia convert L-tryptophan into the neurotoxin quinolinic acid. *Biochem. J.* **320(2)**, 595-597 (1996).
2. Stone, T.W., Forrest, C.M., and Darlington, L.G. Kynurenine pathway inhibition as a therapeutic strategy for neuroprotection. *FEBS J.* **279(8)**, 1386-1397 (2012).
3. Santamaría, A., Santamaría, D., Díaz-Muñoz, M., *et al.* Effects of Nω-nitro-L-arginine and L-arginine on quinolinic acid-induced lipid peroxidation. *Toxicol. Lett.* **93**, 117-124 (1997).
4. Moffett, J.R., Espey, M.G., and Namboodiri, M.A.A. Antibodies to quinolinic acid and the determination of its cellular distribution within the rat immune system. *Cell Tissue Res.* **278**, 461-469 (1994).
5. Stone, T.W., Stoy, N., and Darlington, L.G. An expanding range of targets for kynurenine metabolites of tryptophan. *Trends Pharmacol. Sci.* **34(2)**, 136-143 (2013).

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