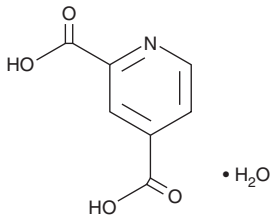
PRODUCT INFORMATION

2,4-Pyridinedicarboxylic Acid (hydrate)

Item No. 11138

CAS Registry No.: 207671-42-9
Formal Name: 2,4-pyridinedicarboxylic acid, monohydrate
Synonyms: 2,4-Dicarboxylpyridine, 2,4-PDCA
MF: $C_7H_5NO_4 \bullet H_2O$
FW: 185.1
Purity: ≥98%
UV/Vis.: λ_{max}: 204, 277 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

2,4-Pyridinedicarboxylic acid (2,4-PDCA) (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2,4-PDCA (hydrate) in the solvent of choice, which should be purged with an inert gas. 2,4-PDCA (hydrate) is soluble in DMSO at a concentration of approximately 1.4 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 2,4-PDCA (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2,4-PDCA (hydrate) in PBS, pH 7.2, is approximately 0.2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2,4-PDCA is a compound that structurally mimics 2-oxoglutarate (2-OG, also known as α-ketoglutarate) and chelates zinc, thus affecting a range of enzymes.[1-2] As a 2-OG mimic, it blocks the activity of 2-OG oxygenases, which include certain lysine demethylases and a variety of hydroxylases (*e.g.*, prolyl, collagen, lysyl).[2-3] 2,4-PDCA inhibits several Jumonji domain-containing lysine demethylases when used at low micromolar concentrations.[4-6] Through its effects on hydroxylases, including prolyl hydroxlase 1 (IC_{50} = 1.5 µM), 2,4-PDCA modulates hypoxia-inducible factor turnover, collagen synthesis, and plant cell wall formation.[2,7] It can inhibit zinc-dependent enzymes, like metallo-β-lactamase.[8] 2,4-PDCA also affects and is translocated by organic anion transporters.[9]

References

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