

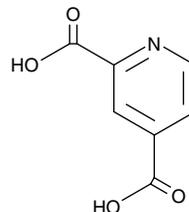
Product Information



2,4-Pyridinedicarboxylic Acid

Item No. 11138

CAS Registry No.: 499-80-9
Formal Name: 2,4-pyridinedicarboxylic acid
Synonyms: 2,4-Dicarboxypyridine, Lutidinic Acid, NSC 403248, 2,4-PDCA
MF: C₇H₅NO₄
FW: 167.1
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 204, 277 nm



Laboratory Procedures

For long term storage, we suggest that 2,4-pyridinedicarboxylic acid (2,4-PDCA) be stored as supplied at -20°C. It should be stable for at least two years.

2,4-PDCA is supplied as a crystalline solid. A stock solution may be made by dissolving the 2,4-PDCA in the solvent of choice. 2,4-PDCA 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 can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2,4-PDCA in PBS, pH 7.2, is approximately 0.2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

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 hydroxylase 1 (IC₅₀ = 1.5 μM), 2,4-PDCA modulates hypoxia inducing 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

1. Kidani, Y. and Hirose, J. *J. Biochem.* **81**(5), 1383-1391 (1977).
2. Koski, M.K., Hietä, R., Böllner, C., et al. *J. Biol. Chem.* **282**(51), 37112-37123 (2007).
3. Mackeen, M.M., Kramer, H.B., Chang, K.-H., et al. *J. Proteome Res.* **9**(8), 4082-4092 (2010).
4. Leurs, U., Clausen, R.P., Kristensen, J.L., et al. *Bioorg. Med. Chem. Lett.* **22**(18), 5811-5813 (2012).
5. King, O.N.F., Li, X.S., Sakurai, M., et al. *PLoS One* **5**(11), 1-12 (2010).
6. Kristensen, L.H., Nielsen, A.L., Helgstrand, C., et al. *FEBS J.* **279**(11), 1905-1914 (2012).
7. Hamada, S., Suzuki, T., Mino, K., et al. *J. Med. Chem.* **53**, 5629-5638 (2010).
8. Horsfall, L.E., Garau, G., Liénard, B.M.R., et al. *Antimicrob. Agents Chemother.* **51**(6), 2136-2142 (2007).
9. Hagos, Y., Schley, G., Schödel, J., et al. *Pflugers. Arch.* **464**(4), 367-374 (2012).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/11138

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY

Cayman Chemical Company makes no warranty or guarantee of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications at the time of delivery.

Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have any obligation or liability, whether in tort (including negligence) or in contract, for any direct, indirect, incidental or consequential damages, even if Cayman is informed about their possible existence.

This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees.

Buyer's exclusive remedy and Cayman's sole liability hereunder shall be limited to a refund of the purchase price, or at Cayman's option, the replacement, at no cost to Buyer, of all material that does not meet our specifications.

Said refund or replacement is conditioned on Buyer giving written notice to Cayman within thirty (30) days after arrival of the material at its destination. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by Buyer of all claims hereunder with respect to said material.

For further details, please refer to our Warranty and Limitation of Remedy located on our website and in our catalog.

Copyright Cayman Chemical Company, 09/04/2013

Cayman Chemical

Mailing address

1180 E. Ellsworth Road
Ann Arbor, MI
48108 USA

Phone

(800) 364-9897
(734) 971-3335

Fax

(734) 971-3640

E-Mail

custserv@caymanchem.com

Web

www.caymanchem.com