

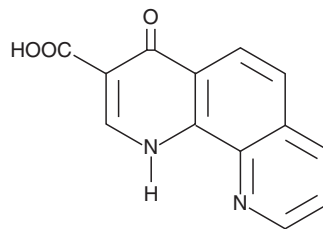
# Product Information



## 1,4-DPCA

Catalog No. 71220

**CAS Registry No.:** 331830-20-7  
**Formal Name:** 4,4 $\alpha$ -dihydro-4-oxo-1,10-phenanthroline-3-carboxylic acid  
**Synonym:** 1,4-dihydrophenanthroline-4-one-3-Carboxylic acid  
**MF:** C<sub>13</sub>H<sub>8</sub>N<sub>2</sub>O<sub>3</sub>  
**FW:** 240.2  
**Purity:**  $\geq$ 98%  
**Stability:**  $\geq$ 2 years at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

For long term storage, we suggest that 1,4-DPCA be stored as supplied at -20°C. It should be stable for at least two years.

1,4-DPCA is supplied as a crystalline solid. A stock solution may be made by dissolving the 1,4-DPCA in an organic solvent purged with an inert gas. 1,4-DPCA is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of 1,4-DPCA in these solvents is approximately 3 mg/ml.

1,4-DPCA is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 1,4-DPCA should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 1,4-DPCA has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

The pro-angiogenic factor HIF-1 $\alpha$  is targeted for destruction in non-hypoxic environments by the hydroxylation of a specific proline residue, P564, by the oxygen-sensing enzyme HIF- $\alpha$  prolyl hydroxylase (HIF-PH).<sup>1</sup> Inhibitors of prolyl 4-hydroxylase are potentially useful in controlling excess collagen deposition in pathological fibrosis. 1,4-DPCA is a competitive inhibitor of prolyl 4-hydroxylase in embryonic chick tendon cells and of collagen hydroxylation in human foreskin fibroblasts with IC<sub>50</sub> values of 3.6 and 2.4  $\mu$ M, respectively.<sup>2</sup>  $\beta$ -oxocarboxylic acids such as 1,4-DPCA have also been found to inhibit the asparaginyl-hydroxylase, factor inhibiting HIF (FIH), with an IC<sub>50</sub> value of 60  $\mu$ M.<sup>3</sup>

### References

1. Jaakkola, P., Mole, D.R., Tian, Y.-M., *et al.* Targeting of HIF- $\alpha$  to the von Hippel-Lindau ubiquitylation complex by O<sub>2</sub>-regulated prolyl hydroxylation. *Science* **292**, 468-472 (2001).
2. Franklin, T.J., Morris, W.P., Edwards, P.N., *et al.* Inhibition of prolyl 4-hydroxylase *in vitro* and *in vivo* by members of a novel series of phenanthrolinones. *Biochem. J.* **353**, 333-338 (2001).
3. Banerji, B., Conejo-Garcia, A., McNeill, L.A., *et al.* The inhibition of factor inhibiting hypoxia-inducible factor (FIH) by  $\beta$ -oxocarboxylic acids. *Chem. Commun.* 5438-5440 (2005).

### Related Products

2,4-DPD - Cat. No.71200 • Dimethylallyl Glycine - Cat. No. 71210

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

#### MATERIAL 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 Material 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, 12/08/2009

### 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