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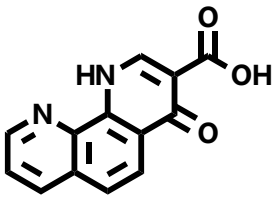
1,4-DPCA, Prolyl 4-hydroxylase (P4H) Inhibitor

Chemical Name: 4-oxo-1,4-dihydro-1,10-phenanthroline-3-carboxylic acid



Molecular Weight:	240.21
Formula:	$C_{13}H_8N_2O_3$
Purity:	≥98%
CAS#:	331830-20-7
Solubility:	DMSO up to 10 mM EtOH up to 20 mM
Storage	Powder: 4°C 1 year DMSO: 4°C 3 month -20°C 1 year

Biological Activity:

1,4-DPCA is a selective and cell permeable prolyl 4-hydroxylase (P4H) inhibitor. It inhibits α-prolyl 4-hydroxylase, an oxygen-sensing enzyme that targets the pro-angiogenic factor HIF-1α for destruction upon hydroxylation of a specific proline residue. It also inhibits asparaginyl-hydroxylase factor inhibiting HIF (FIH) and is useful for controlling excess collagen deposition in pathological fibrosis.

How to Use:

In vitro: 1,4-DPCA was used at 10 μM final concentration in vitro and in cellular assays.

In vivo: 1, 4-DPCA treatment suppresses connective tissue ingrowth in porous porous poly (lactic-co-glycolic acid) (PLGA) discs implanted in the peritoneal cavity for 28 days in mice. 1, 4-DPCA is found to be effective at inhibiting collagen deposition within and on the outer surface of the disc, and also limited connective tissue ingrowth, but not to the extent of glucocorticoid inhibition.

Reference:

1. Jaakkola P, et al. Targeting of HIF-alpha to the von Hippel-Lindau ubiquitylation complex by O2-regulated prolyl hydroxylation. (2001) Science. 292(5516):468-72.
2. Franklin TJ, et al. Inhibition of prolyl 4-hydroxylase in vitro and in vivo by members of a novel series of phenanthrolinones. (2001) Biochem J. 353(Pt 2):333-8.
3. Banerji B, et al. The inhibition of factor inhibiting hypoxia-inducible factor (FIH) by beta-oxocarboxylic acids. (2005) Chem Commun (Camb). (43):5438-40.

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