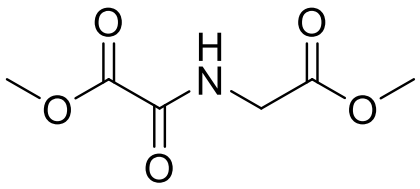
Echelon Biosciences Inc.

Dimethyloxalylglycine (DMOG)

Catalog number: F-0010



Molecular Formula: $C_6H_9NO_5$

MW: 175.14

CAS: 89464-63-1

Solubility: PBS < 10 mg/mL, Ethanol, DMSO and DMF > 30 mg/mL

Storage and Handling: DMOG is stable for at least one year when stored as a solid, protected from moisture, at -20 °C. When preparing stock solutions reconstitute DMOG in ethanol, DMSO or DMF. Do not store DMOG reconstituted in PBS or equivalent aqueous buffer for more than 1 day.

Background: Hypoxia Inducible Factor (HIF) regulates responses to hypoxia and is comprised of two subunits α and β. Upon cellular exposure to hypoxic conditions, the HIF complex (α and β subunits) is stabilized and binds to DNA transcriptionally activating genes linked to the cellular processes of angiogenesis and glucose metabolism[1]. Under normal conditions, the HIF α subunit is hydroxylated by the enzyme HIF-α prolyl hydroxylase (HIF-PH) leading to ubiquitylation of HIF-α and subsequent destruction[2]. DMOG is a cell permeable competitive inhibitor of HIF-α prolyl hydroxylase (HIF-PH) leading to the stabilization of HIF and subsequent angiogenesis and glucose metabolism at concentrations between 0.1 and 1 mM[3, 4]

References: 1. Ivan, M.; Kondo, K.; Yang, H.; Kim, W.; Valiando, J.; Ohh, M.; Salic, A.; Asara, J. M.; Lane, W. S.; Kaelin, W. G., Jr. HIFalpha targeted for VHL-mediated destruction by proline hydroxylation: implications for O2 sensing. *Science* 2001, 292, 464-8. 2. Jaakkola, P.; Mole, D. R.; Tian, Y. M.; Wilson, M. I.; Gielbert, J.; Gaskell, S. J.; Kriegsheim, A.; Hebestreit, H. F.; Mukherji, M.; Schofield, C. J.; Maxwell, P. H.; Pugh, C. W.; Ratcliffe, P. J. Targeting of HIF-alpha to the von Hippel-Lindau ubiquitylation complex by O2-regulated prolyl hydroxylation. *Science* 2001, 292, 468-72. 3. Cummins, E. P.; Seeballuck, F.; Keely, S. J.; Mangan, N. E.; Callanan, J. J.; Fallon, P. G.; Taylor, C. T. The hydroxylase inhibitor dimethyloxalylglycine is protective in a murine model of colitis. *Gastroenterology* 2008, 134, 156-65. 4. Glassford, A. J.; Yue, P.; Sheikh, A. Y.; Chun, H. J.; Zarafshar, S.; Chan, D. A.; Reaven, G. M.; Quertermous, T.; Tsao, P. S. HIF-1 regulates hypoxia- and insulin-induced expression of apelin in adipocytes. *Am J Physiol Endocrinol Metab* 2007, 293, E1590-6.

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