

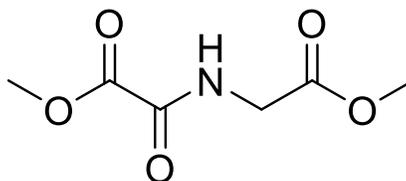
## Dimethyloxalyglycine (DMOG)

Catalog number: F-0010

Molecular Formula: C<sub>6</sub>H<sub>9</sub>NO<sub>5</sub>

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  $\alpha$  and  $\beta$ . Upon cellular exposure to hypoxic conditions, the HIF complex ( $\alpha$  and  $\beta$  subunits) is stabilized and binds to DNA transcriptionally activating genes linked to the cellular processes of angiogenesis and glucose metabolism<sup>1</sup>. Under normal conditions, the HIF  $\alpha$  subunit is hydroxylated by the enzyme HIF- $\alpha$  prolyl hydroxylase (HIF-PH) leading to ubiquitylation of HIF- $\alpha$  and subsequent destruction<sup>2</sup>. DMOG is a cell permeable competitive inhibitor of HIF- $\alpha$  prolyl hydroxylase (HIF-PH) leading to the stabilization of HIF and subsequent angiogenesis and glucose metabolism at concentrations between 0.1 and 1 mM<sup>3,4</sup>.

**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. HIF $\alpha$  targeted for VHL-mediated destruction by proline hydroxylation: implications for O<sub>2</sub> 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 O<sub>2</sub>-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 dimethyloxalyglycine 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.

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

**Warranty and Disclaimer:** Echelon warrants the product conforms to the specifications stated herein. In the event of nonconformity, Echelon will replace products or refund purchase price, at its sole option, and Echelon shall not be responsible for any other loss or damage, whether known or foreseeable to Echelon. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Echelon assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.

