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| Catalog Number: | MC11008 | Product Type: | Small Molecule |
| Bio-Activity: | Prolyl hydroxylase inhibitor | CAS #: | 89464-63-1 |
| Research Categories: | Neuroscience, cell death, oxidative stress, epigenetics | Chemical Name: | N-(2-Methoxy-2-oxoacetyl)glycine methyl ester |
| Solubility: | Soluble in DMSO (up to 25 mg/ml) or in Ethanol (up to 25 mg/ml). | Molecular Formula: | C6H9NO5 |
| Purity: | > 98% | Molecular Weight: | 175.14 |
| Format: | Powder | Ship Temp: | Ambient |
| Storage: | -20°C | | |

Application Notes

Description/Data:

DMOG is known for its ability to inhibit PHD (prolyl hydroxylase domain)-containing proteins, activating HIF1 α (1,2) and inhibiting JMJD2A (IC₅₀ = 2.5 μ M) (3). It also has been shown to offer neuroprotective effects and ameliorate neuronal cell death caused by neurotrophin deprivation (4). DMOG also inhibits the ATR/CHK1/p53 pathway and suppresses apoptosis induced by DNA damage (5).

References:

- 1) Asikainen et al. (2005), Activation of hypoxia-inducible factors in hyperoxia through prolyl 4-hydroxylase blockade in cells and explants of primate lung; *Proc. Natl. Acad. Sci. USA*, 102 10212
- 2) Jaakkola et al. (2001), Targeting of HIF-alpha to the von Hippel-Lindau ubiquitylation complex by O2-regulated prolyl hydroxylation; *Science*, 292 468
- 3) Hamada et al. (2009), Synthesis and activity of N-oxalylglycine and its derivatives as jumonji C-domain-containing histone lysine demethylase inhibitors; *Bioorg. Med. Chem. Lett.*, 19 2852
- 4) Lomb et al. (2009), Prolyl hydroxylase inhibitors depend on extracellular glucose and hypoxia-inducible factor (HIF)-2 α to inhibit cell death caused by nerve growth factor deprivation: evidence that HIF-2 α has a role in NGF-promoted survival of sympathetic neurons; *Mol. Pharmacol.*, 75 1198

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5) Xie et al. (2012), PHD3-dependent hydroxylation of HCLK2 promotes the DNA damage response; *J. Clin. Invest.*, 122 2827

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