Product Data Sheet

Chemical Properties

Product Name: DMOG

Cas No.: 89464-63-1
M.Wt: 175.14
Formula: C6H9NO5

Chemical Name: methyl 2-[(2-methoxy-2-oxoethyl)amino]-2-oxoacetate

Canonical SMILES: COC(=O)CNC(=O)C(=O)OC

Solubility: ≥8.75 mg/mL in DMSO, ≥17.8 mg/mL in EtOH with ultrasonic, ≥34.47 mg/mL in H2O with ultrasonic

Storage: Store at -20°C

General tips: For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: Chromatin/Epigenetics
Pathways: HIF

Description:

IC50: 9.3 and 3.7 μM for hydroxyproline synthesis inhibition of embryonic chicken lung extracted from tissue and culture medium [1].

Dimethyloxalylglycine (DMOG) is an inhibitor of prolyl-4-hydroxylase domain (PHD) enzymes that regulate the stability of hypoxia-inducible factor (HIF). Localized tissue hypoxia is a feature of infection and inflammation, leading to the upregulation of the transcription factors HIF-1α and NF-κB via inhibition of oxygen sensing hydroxylase enzymes.
In vitro: DMOG acts to stabilize HIF-1α expression under normal oxygen tension in cultured cells at concentrations from 0.1 to 1 mmol/L [2].

In vivo: Pre-treatment with DMOG attenuates systemic LPS-induced activation of the NF-κB pathway. Furthermore, mice treated with DMOG had significantly increased survival in LPS-induced shock. In addition, in vivo DMOG treatment upregulates the expression of IL-10, specifically in the peritoneal B-1 cell population [3].

Clinical trial: Currently no clinical data are available.

Reference:

Protocol

Cell experiment:

Cell lines B1 cells
Preparation method The solubility of this compound in DMSO is >8.8mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37°C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Reacting conditions
Applications DMOG upregulated phosphorylated p50 (S337) in peritoneal M.

Animal experiment [3]:

Animal models BALB/c and C57BL/6 mice
Dosage form 8 mg/mouse, Intraperitoneal injection
Applications DMOG had significantly increased survival in LPS-induced shock. DMOG treatment upregulated the expression of IL-10, specifically in the peritoneal B-1 cell population. Mice receiving DMOG treatment
prior to surgery developed significant exacerbation of disease symptoms and significantly increased mortality rate.

Other notes

Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.