

Product Data Sheet

Product Name: Hydroxyurea

Cat. No.: GC16843

Chemical Properties

Cas. No. 127-07-1

Chemical Name hydroxyurea

SMILES C(=O)(N)NO

Formula CH4N2O2

M.Wt 76.05

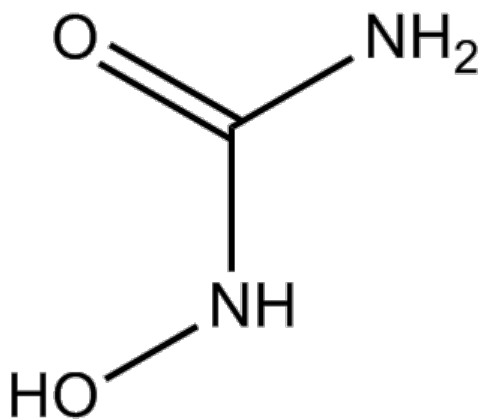
Solubility $\geq 3.7\text{mg/mL}$ in DMSO

Storage Store at 2-8°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.

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

Structure



Protocol

Animal experiment:

Mice: To determine whether hydroxyurea would improve anemia and/or prevent or diminish the development of organ damage in the absence of HbF induction, hydroxyurea, at doses of 25 mg/kg, 50 mg/kg, and 100 mg/kg, or vehicle is administered five days per week to SCD mice[4].

Caution: Product has not been fully validated for medical applications. For research use only.

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References:

- [1]. Kovacic P, et al. Hydroxyurea (therapeutics and mechanism): metabolism, carbamoyl nitroso, nitroxyl, radicals, cell signaling and clinical applications. Med Hypotheses. 2011 Jan;76(1):24-31.
- [2]. Watanapokasin Y, et al. In vivo and in vitro studies of fetal hemoglobin induction by hydroxyurea in beta-thalassemia/hemoglobin E patients. Exp Hematol. 2005 Dec;33(12):1486-92.
- [3]. Lori F, et al. Rationale for the use of hydroxyurea as an anti-human immunodeficiency virus drug. Clin Infect Dis. 2000 Jun;30 Suppl 2:S193-7.
- [4]. Lebensburger JD, et al. Hydroxyurea therapy requires HbF induction for clinical benefit in a sickle cell mouse model. Haematologica. 2010 Sep;95(9):1599-603.

Background

Hydroxyurea is a cell apoptosis inducer that inhibit DNA synthesis through inhibition of ribonucleotide reductase.

Hydroxyurea is used in a number of myeloproliferative, neoplastic, HIV, and non-hematological diseases[1]. Treatment of cells in primary culture with 30 μ M hydroxyurea for 96 hours significantly increases the fractional HbF content. The Gy: A γ -globin mRNA is induced 0.30- to 8-fold in vitro[2]. Hydroxyurea has been shown to block HIV-1 reverse transcription and/or replication in quiescent peripheral blood mononuclear cells and macrophages[3].

Hydroxyurea therapy produces consistent reductions in WBC and ANC without improvement in anemia over 17 weeks. Hydroxyurea at 50mg/kg produces a reduced white blood cell count, absolute neutrophil count and no improvement in anemia compared to vehicle treated sickle cell mice[4].

References:

- [1]. Kovacic P, et al. Hydroxyurea (therapeutics and mechanism): metabolism, carbamoyl nitroso, nitroxyl, radicals, cell signaling and clinical applications. Med Hypotheses. 2011 Jan;76(1):24-31.
- [2]. Watanapokasin Y, et al. In vivo and in vitro studies of fetal hemoglobin induction by hydroxyurea in beta-thalassemia/hemoglobin E patients. Exp Hematol. 2005 Dec;33(12):1486-92.
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