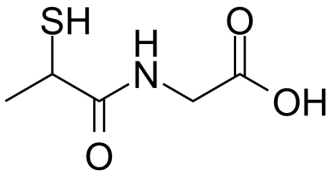
# Tiopronin

| | |
|---|---|
| **Cat. No.:** | HY-B0373 |
| **CAS No.:** | 1953-02-2 |
| **Molecular Formula:** | $C_5H_9NO_3S$ |
| **Molecular Weight:** | 163.19 |
| **Target:** | Others |
| **Pathway:** | Others |

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 2 years |
| | -20°C | 1 year |




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (612.78 mM)

$H_2O$ : 100 mg/mL (612.78 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Concentration \ Solvent \ Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 6.1278 mL | 30.6391 mL | 61.2783 mL |
| 5 mM | 1.2256 mL | 6.1278 mL | 12.2557 mL |
| 10 mM | 0.6128 mL | 3.0639 mL | 6.1278 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: PBS
   Solubility: 130 mg/mL (796.62 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (15.32 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (15.32 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (15.32 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Tiopronin is a diffusible antioxidant, an antidote to heavy metal poisoning and a radioprotective agent. Tiopronin can control the rate of cystine precipitation and excretion and has the potential for cystinuria, rheumatoid arthritis and hepatic disorders[1][2].

| | |
|---|---|
| **In Vitro** | In in vitro Von Hippel-Lindau protein binding assay, the inhibitory effect of Tiopronin (NMPG) on HPH-2 was attenuated by escalating dose of ascorbate but not 2-ketoglutarate, cofactors of the enzyme[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Tiopronin (NMPG) alleviates colonic injury and effectively lowered myeloperoxidase activity. Moreover, NMPG substantially attenuates expression of pro-inflammatory mediators in the inflamed colon. NMPG induces hypoxia-inducible factor-1α ( HIF-1α) in human colon carcinoma cells, leading to elevated secretion of vascular endothelial growth factor (VEGF), a target gene product of HIF-1 involved in ulcer healing of gastrointestinal mucosa. NMPG induces HIF-1α occurred by inhibiting HIF prolyl hydroxylase-2 (HPH-2), an enzyme that plays a major role in negatively regulating HIF-1α protein stability[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## REFERENCES


[1]. Pu Zhang, et al. Detection of tiopronin in body fluids and pharmaceutical products using red-emissive DNA-stabilized silver nanoclusters as a fluorescent probe. Mikrochim Acta. 2019 Aug 8;186(9):609.

[2]. Soohwan Yum, et al. N-(2-Mercaptopropionyl)-glycine, a diffusible antioxidant, activates HIF-1 by inhibiting HIF prolyl hydroxylase-2: implication in amelioration of rat colitis by the antioxidant. Biochem Biophys Res Commun. 2014 Jan 17;443(3):1008-13.





Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA