Diphylline

Cat. No.: HY-B0128

CAS No.: 479-18-5

Molecular Formula: $C_{10}H_{14}N_4O_4$

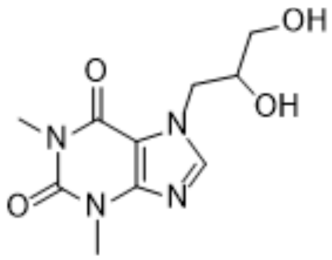
Molecular Weight: 254.24

Target: Adenosine Receptor; Phosphodiesterase (PDE)

Pathway: GPCR/G Protein; Metabolic Enzyme/Protease

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 : ≥ 50 mg/mL (196.66 mM)

H_2O : 20 mg/mL (78.67 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	3.9333 mL	19.6665 mL	39.3329 mL
	5 mM	0.7867 mL	3.9333 mL	7.8666 mL
	10 mM	0.3933 mL	1.9666 mL	3.9333 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (393.33 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 3 mg/mL (11.80 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 3 mg/mL (11.80 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 3 mg/mL (11.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Diphylline (Diprophylline) is a potent A1/A2 adenosine receptor antagonist and cyclic nucleotide phosphodiesterase inhibitor. Diphylline, a xanthine derivative, is a bronchodilator and vasodilator agent and has the potential for chronic bronchitis and emphysema[1][2].

In Vitro	Dyphylline (trade names Dilor, Lufyllin), also known as diprophylline, is a xanthine derivative with bronchodilator and vasodilator effects. It is used in the treatment of respiratory disorders like asthma, cardiac dyspnea, and bronchitis. It acts as an adenosine receptor antagonist and phosphodiesterase inhibitor. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Ther Nucleic Acids. 2018 Nov 20;14:90-100.

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REFERENCES

[1]. Schwabe U, et al. Xanthine derivatives as antagonists at A1 and A2 adenosine receptors. Naunyn Schmiedebergs Arch Pharmacol. 1985 Sep;330(3):212-21.

[2]. Yosry El-said, et al. In-vitro evaluation of sustained-release dyphylline tablets. Drug Development and Industrial Pharmacy. Volume 17, 1991 - Issue 2

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