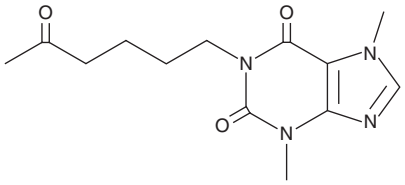
PRODUCT INFORMATION

Pentoxifylline

Item No. 18720

CAS Registry No.:	6493-05-6
Formal Name:	3,7-dihydro-3,7-dimethyl-1-(5-oxohexyl)-1H-purine-2,6-dione
Synonyms:	NSC 637086, Oxpentifylline
MF:	$C_{13}H_{18}N_4O_3$
FW:	278.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 273 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Pentoxifylline is supplied as a crystalline solid. A stock solution may be made by dissolving the pentoxifylline in the solvent of choice, which should be purged with an inert gas. Pentoxifylline is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of pentoxifylline in ethanol is approximately 2 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of pentoxifylline can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of pentoxifylline in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Pentoxifylline is a methylxanthine derivative. It has been shown to have anti-inflammatory activity, inhibiting LPS-induced TNF-α production in isolated peripheral blood mononuclear cells (IC_{50} = 85 µM) and suppressing LPS-induced leukopenia in mice.[1] Pentoxifylline weakly inhibits the generation of phosphatidic acid (IC_{50} = 500 µM) from LPS-activated lysophosphatidic acyl transferase, and weakly antagonizes A_1 and A_2 adenosine receptors.[2,3] It also inhibits human acidic mammalian chitinase, human chitotriosidase, and chitinase B1 from *Aspergillus fumigatus* (IC_{50}s = 49, 98, and 126 µM, respectively).[4]

References

1. Cottam, H.B., Shih, H., Tehrani, L.R., *et al*. Substituted xanthines, pteridinediones, and related compounds as potential antiinflammatory agents. Synthesis and biological evaluation of inhibitors of tumor necrosis factor a. *J. Med. Chem.* **39**, 2-9 (1996).
2. Rice, G.C., Brown, P.A., Nelson, R.J., *et al*. Protection from endotoxic shock in mice by pharmacologic inhibition of phosphatidic acid. *Proc. Natl. Acad. Sci. USA* **91**, 3857-3861 (1994).
3. Schwabe, U., Ukena, D., and Lohse, M.J. Xanthine derivatives as antagonists at A_1 and A_2 adenosine receptors. *Naunyn-Schmiedeberg's Arch. Pharmacol.* **330**, 212-221 (1985).
4. Rao, F.V., Andersen, O.A., Vora, K.A., *et al*. Methylxanthine drugs are chitinase inhibitors: investigation of inhibition and binding modes. *Chem. Biol.* **12(9)**, 973-980 (2005).

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