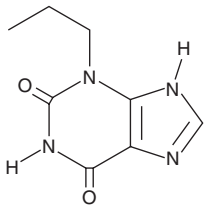
PRODUCT INFORMATION

3-Propylxanthine

Item No. 21746

CAS Registry No.: 41078-02-8
Formal Name: 3,9-dihydro-3-propyl-1H-purine-2,6-dione
Synonyms: D 4028, Enprofylline
MF: $C_8H_{10}N_4O_2$
FW: 194.2
Purity: ≥95%
UV/Vis.: λ_{max}: 271 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

3-Propylxanthine is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-propylxanthine in the solvent of choice, which should be purged with an inert gas. 3-Propylxanthine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 3-propylxanthine in these solvents is approximately 0.5, 30, and 20 mg/ml, respectively.

3-Propylxanthine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 3-propylxanthine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 3-Propylxanthine has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

3-Propylxanthine is a xanthine derivative that antagonizes adenosine receptors (K_is = 44, 32, and 6.3 µM for A_1, A_{2A}, and A_{2B}, respectively) and cAMP phosphodiesterase (K_i = 42 µM).[1-3] Through these actions, 3-propylxanthine induces smooth muscle relaxation, blocks smooth muscle contraction and VEGF secretion driven by adenosine receptor agonists, and reduces bronchial hyperresponsiveness.[2,4,5]

References

1. Linden, J., Thai, T., Figler, H., *et al.* Characterization of human A_{2B} adenosine receptors: Radioligand binding, western blotting, and coupling to Gq in human embryonic kidney 293 cells and HMC-1 mast cells. *Mol. Pharmacol.* **56(4)**, 705-713 (1999).
2. Ogawa, K., Takagi, K., and Satake, T. Mechanism of xanthine-induced relaxation of guinea-pig isolated trachealis muscle. *Br. J. Pharmacol.* **97(2)**, 542-546 (1989).
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. Høier, B., Olsen, K.M., Nyberg, M., *et al.* Contraction-induced secretion of VEGF from skeletal muscle cells is mediated by adenosine. *Am. J. Physiol. Heart. Circ. Physiol.* **299(3)**, H857-H862 (2010).
5. Koëter, G.H., Kraan, J., Boorsma, M., *et al.* Effect of theophylline and enprofylline on bronchial hyperresponsiveness. *Thorax* **44(12)**, 1022-1026 (1989).

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