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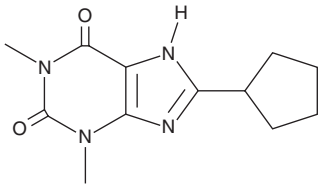
PRODUCT INFORMATION

8-Cyclopentyl-1,3-dimethylxanthine

Item No. 29870

CAS Registry No.:	35873-49-5
Formal Name:	8-cyclopentyl-3,9-dihydro-1,3-dimethyl-1H-purine-2,6-dione
Synonyms:	CPT, 8-Cyclopentyltheophylline, NSC 101806
MF:	$C_{12}H_{16}N_4O_2$
FW:	248.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 275 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

8-Cyclopentyl-1,3-dimethylxanthine (CPT) is supplied as a crystalline solid. A stock solution may be made by dissolving the CPT in the solvent of choice, which should be purged with an inert gas. CPT is soluble in the organic solvent dimethyl formamide at a concentration of approximately 1 mg/ml.

CPT is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, CPT should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. CPT has a solubility of approximately 0.04 mg/ml in a 1:20 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

CPT is an adenosine A_1 receptor antagonist (K_i = 10.9 nM).[1] It is selective for adenosine A_1 over A_2 receptors (K_i = 1,440 nM). CPT inhibits hypoxia-induced depression of evoked synaptic potentials in rat hippocampal slices in a concentration-dependent manner.[2] It increases secondary after-discharge duration in electrically induced seizures in rats when administered at doses of 2.5 mg/kg or higher.[3] CPT increases the response rate under a fixed-interval schedule of stimulus-shock termination in squirrel monkeys (ED_{50} = 2.5 µmol/kg), indicating psychomotor stimulant effects.[4]

References

1. Jacobson, K.A., Kiriasis, L., Barone, S., *et al.* Sulfur-containing 1,3-dialkylxanthine derivatives as selective antagonists at A_1-adenosine receptors. *J. Med. Chem.* **32(8)**, 1873-1879 (1989).
2. Gribkoff, V.K., Bauman, L.A., and VanderMaelen, C.P. The adenosine antagonist 8-cyclopentyltheophylline reduces the depression of hippocampal neuronal responses during hypoxia. *Brain Res.* **512(2)**, 353-357 (1990).
3. Dragunow, M. and Robertson, H.A. 8-Cyclopentyl 1,3-dimethylxanthine prolongs epileptic seizures in rats. *Brain Res.* **417(2)**, 377-379 (1987).
4. Spealman, R.D. Psychomotor stimulant effects of methylxanthines in squirrel monkeys: Relation to adenosine antagonism. *Psychopharmacology (Berl.)* **95(1)**, 19-24 (1988).

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