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- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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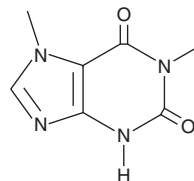
PRODUCT INFORMATION



Paraxanthine

Item No. 21068

CAS Registry No.: 611-59-6
Formal Name: 3,7-dihydro-1,7-dimethyl-1H-purine-2,6-dione
Synonyms: 1,7-Dimethylxanthine, NSC 400018
MF: C₇H₈N₄O₂
FW: 180.2
Purity: ≥98%
UV/Vis.: λ_{max}: 269 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

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

Paraxanthine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, paraxanthine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Paraxanthine 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

Paraxanthine is an inhibitor of phosphodiesterase 9 (PDE9) and an antagonist of adenosine receptors A₁ and A₂ (K_s = 35 and 22 μM, respectively in equine forebrain tissues).^{1,2} It is the main metabolite of caffeine (Item No. 14118) in humans, making up 80% of the three dimethylxanthine metabolites produced by caffeine demethylation.^{1,3} Paraxanthine increases locomotor activity and counteracts adenosine receptor agonist-induced motor depression in rats not habituated to caffeine.¹ At a dose of 30 mg/kg, paraxanthine induces a significant increase in striatal cGMP and extracellular striatal dopamine concentrations *in vivo*. It also promotes wakefulness and increases locomotor activity and core temperature in narcoleptic transgenic mice without increasing behavioral anxiety.³

References

1. Orrú, M., Guitart, X., Karcz-Kubicha, M., *et al.* Psychostimulant pharmacological profile of paraxanthine, the main metabolite of caffeine in humans. *Neuropharmacology* **67**, 476-484 (2013).
2. Chou, C.-C. and Vickroy, T.W. Antagonism of adenosine receptors by caffeine and caffeine metabolites in equine forebrain tissues. *Am. J. Vet. Res.* **64**(2), 216-224 (2003).
3. Okuro, M., Fujiki, N., Kotorii, N., *et al.* Effects of paraxanthine and caffeine on sleep, locomotor activity, and body temperature in orexin/ataxin-3 transgenic narcoleptic mice. *Sleep* **33**(7), 930-942 (2010).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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