

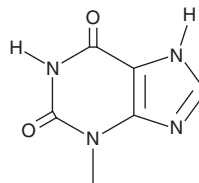
PRODUCT INFORMATION



3-Methylxanthine

Item No. 34288

CAS Registry No.: 1076-22-8
Formal Name: 3,9-dihydro-3-methyl-1H-purine-2,6-dione
Synonyms: 3-MTX, 3-MX, NSC 515466
MF: C₆H₆N₄O₂
FW: 166.1
Purity: ≥98%
UV/Vis.: λ_{max}: 272 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Description

3-Methylxanthine is a cGMP phosphodiesterase (PDE) inhibitor and a metabolite of theophylline (Item No. 23760) and caffeine (Item No. 14118).¹⁻³ It is formed from theophylline by the cytochrome P450 (CYP) isoform CYP1A2 and from caffeine via 6A5NF-1,3-dimethyluracil, 1,3,7-trimethyluric acid, or theobromine intermediates. 3-Methylxanthine inhibits cGMP PDE in isolated guinea pig trachealis muscle with an IC₅₀ value of 920 μM.¹ It is neurotoxic to mice, inducing convulsions with an ED₅₀ value of 1,107 nmol/kg.⁴

References

1. Tanaka, H., Ogawa, K., Takagi, K., *et al.* Inhibition of cyclic GMP phosphodiesterase by xanthine derivatives relaxes guinea-pig trachealis smooth muscle. *Clin. Exp. Pharmacol. Physiol.* **18(3)**, 163-168 (1991).
2. Camandola, S., Plick, N., and Mattson, M.P. Impact of coffee and cacao purine metabolites on neuroplasticity and neurodegenerative disease. *Neurochem. Res.* **44(1)**, 214-227 (2019).
3. Ha, H.R., Chen, J., Freiburghaus, A.U., *et al.* Metabolism of theophylline by cDNA-expressed human cytochromes P-450. *Br. J. Clin. Pharmacol.* **39(3)**, 321-326 (1995).
4. Yamamoto, K., Toyama, E., Kawakami, J., *et al.* Neurotoxic convulsions induced by theophylline and its metabolites in mice. *Biol. Pharm. Bull.* **19(6)**, 869-872 (1996).

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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