

Product Data Sheet

Product Name: Caffeine
Cat. No.: GN10350

Chemical Properties

Cas. No. 58-08-2

Chemical Name 1,3,7-trimethylpurine-2,6-dione

SMILES CN1C=NC2=C1C(=O)N(C(=O)N2C)C

Formula $C_8H_{10}N_4O_2$ M.Wt 194.19

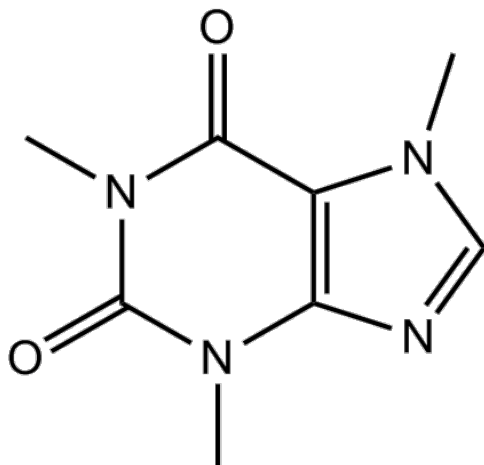
Solubility 0.2mg/mL in ethanol, 3mg/mL in DMSO, 10mg/mL in DMF; 33.3mg/ml in Water(Need ultrasonic)

Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Background

Caffeine is a methylxanthine alkaloid naturally found in various plant parts that acts as an antagonist at central adenosine receptors at relevant physiological concentrations ($IC_{50} = \sim 30 \mu M$).^{[1],2} It alters fatigue, mood, alertness, motor reaction time, vascular hemodynamics, and pain sensation.^{[2],[3],[4]}

Caution: Product has not been fully validated for medical applications. For research use only.

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Caffeine has also been implicated in carcinogenesis, although the concentrations used to affect cell cycling and apoptosis in the laboratory may not be commonly achieved in vivo.[5]

Reference:

- [1]. Snyder, S.H., Katims, J.J., Annau, Z., et al. Adenosine receptors and behavioral actions of methylxanthines. Proc. Natl. Acad. Sci. USA 78(5), 3260-3264 (1981).
- [2]. Fredholm, B.B., Bättig, K., Holmén, J., et al. Actions of caffeine in the brain with special reference to factors that contribute to its widespread use. Pharmacological Reviews 51(1), 83-133 (1999).
- [3]. Carrillo, J.A., and Benitez, J. Clinically significant pharmacokinetic interactions between dietary caffeine and medications. Clinical Pharmacokinetics 39(2), 127-153 (2000).
- [4]. Pelligrino, D.A., Xu, H.L., and Vetri, F. Caffeine and the control of cerebral hemodynamics. J.Alzheimers Dis. 20, S51-S62 (2010).
- [5]. Bode, A.M., and Dong, Z. The enigmatic effects of caffeine in cell cycle and cancer. Cancer Letters 247(1), 26-39 (2007).

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