Paraxanthine

Cat. No.: HY-W016498

CAS No.: 611-59-6

Molecular Formula: $C_7H_8N_4O_2$

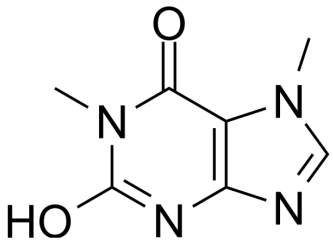
Molecular Weight: 180.17

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (138.76 mM; ultrasonic and warming and heat to 70°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	5.5503 mL	27.7516 mL	55.5031 mL
	5 mM	1.1101 mL	5.5503 mL	11.1006 mL
	10 mM	0.5550 mL	2.7752 mL	5.5503 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.56 mg/mL (8.66 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.56 mg/mL (8.66 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.56 mg/mL (8.66 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Paraxanthine, a caffeine metabolite, provides protection against Dopaminergic cell death via stimulation of Ryanodine Receptor Channels.

IC_{50} & Target			
	Microbial Metabolite	Ryanodine Receptor Channels	Human Endogenous Metabolite

In Vitro

When Paraxanthine (PX) is applied to the cultures for a prolonged period, the number of TH+neurons is augmented in a

dose-dependent manner. The effect of Paraxanthine, already significant at 100 μM, increases gradually and remains optimal between 800 and 1000 μM, at 10 DIV. Counts of TH+neurons performs at different stages of maturation of the cultures indicate that Paraxanthine most likely prevents DA cell loss. GDNF, a prototypical trophic factor for DA neurons, is only slightly more effective than 800 μM Paraxanthine in rescuing DA neurons after 10 and 16 DIV when used at an optimal concentration of 20 ng/mL. About 80% of caffeine is N3-demethylated to form Paraxanthine, Unlike Paraxanthine, caffeine is poorly effective in protecting DA neurons from death For example, at a concentration of 800 μM, caffeine produces only a modest 40% increase in the number of TH+ cells at 10 DIV, whereas the same concentration of Paraxanthine optimally promotes DA cell survival (169% increase)[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Chemosphere. 2019 Jun;225:378-387.

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REFERENCES

[1]. Guerreiro S, et al. Paraxanthine, the primary metabolite of caffeine, provides protection against dopaminergic cell death via stimulation of ryanodine receptor channels. Mol Pharmacol. 2008 Oct;74(4):980-9.

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