Nitenpyram

Cat. No.: HY-B0820

CAS No.: 150824-47-8

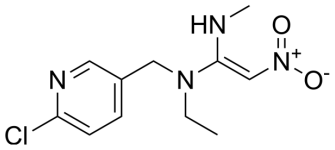
Molecular Formula: $C_{11}H_{15}ClN_4O_2$

Molecular Weight: 270.72

Target: nAChR; Parasite

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (461.73 mM; Need ultrasonic)
H_2O : ≥ 100 mg/mL (369.39 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6939 mL	18.4693 mL	36.9385 mL
	5 mM	0.7388 mL	3.6939 mL	7.3877 mL
	10 mM	0.3694 mL	1.8469 mL	3.6939 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: ≥ 2.08 mg/mL (7.68 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.68 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.68 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Nitenpyram is a calss of neonicotinoid and an insect nicotinic acetylcholine receptor (nAChR) agonist with an IC_{50} of 14 nM. Nitenpyram is an oral fast-acting insecticide used to suppress sucking insects on companion animals[1][2].

In Vivo

Nitenpyram is administered orally (1 mg/kg) for the short-term control of fleas in dogs and cats. Fleas start to fall from the animals 30 minutes post-administration and one dose can protect animals for 1-2 days[1].
Since Nitenpyram is highly lipophilic, it is administered orally after the meal in order to induce bile flow to help dissolve the chemical, thereby increasing GI absorption of the drug. It is rapidly and completely absorbed from the GI tract in less than 90

	minutes and is completely excreted in urine within 48 hours after oral administration to dogs and cats. Nitenpyram undergoes hydroxylation, followed by conjugation in the liver. The conjugates of Nitenpyram are excreted in the urine and Nitenpyram is not accumulated in body tissues. The plasma half-life of Nitenpyram in dogs and cats are 3 and 8 hours, respectively. It is likely that animals with liver and/or kidney problems may have longer plasma half-life of Nitenpyram[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Vo DT, et al. Insect nicotinic acetylcholine receptor agonists as flea adulticides in small animals. J Vet Pharmacol Ther. 2010 Aug;33(4):315-22.

[2]. Rust MK, et al. Efficacy and longevity of nitenpyram against adult cat fleas (Siphonaptera: Pulicidae). J Med Entomol. 2003 Sep;40(5):678-81.

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