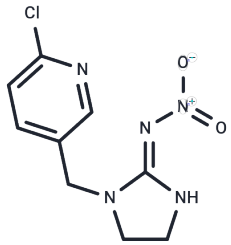
Data Sheet (Cat.No.T6969)

TargetMol

Imidacloprid

Chemical Properties



CAS No. : 138261-41-3

Formula: C9H10ClN5O2

Molecular Weight: 255.66

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Imidacloprid is a systemic chloronicotinyl insecticide, which can be effectively used in agriculture to control pests .
Targets(IC50)	Others
In vitro	Three different cell models were used;?adipocytes (3T3-L1), hepatocytes (HepG2), and myotubes (C2C12).?These cells were treated with imidacloprid (0, 10, and 20 μM) for 4-6 days followed by treatment with insulin for 15 min to determine responses.?Insulin stimulated glucose uptake was reduced by imidacloprid in all three cell culture models.? Treatment with imidacloprid reduced phosphorylation of protein kinase B (AKT), one of the major regulators of insulin signaling, without changing overall AKT expression.? Subsequently, imidacloprid reduced phosphorylation of ribosomal S6 kinase (S6K), which is a downstream target of AKT and also a feed-back inhibitor of insulin signaling.? Suggest that imidacloprid could induce insulin resistance by affecting the insulin signaling cascade, particularly up-stream of AKT, in adipocytes, liver, and muscle[1].

Solubility Information

Solubility	DMSO: 250 mg/mL (977.86 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (19.56 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.9114 mL	19.5572 mL	39.1144 mL
5 mM	0.7823 mL	3.9114 mL	7.8229 mL
10 mM	0.3911 mL	1.9557 mL	3.9114 mL
50 mM	0.0782 mL	0.3911 mL	0.7823 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Kim J , Park Y , Yoon K S , et al. Imidacloprid, a neonicotinoid insecticide, induces insulin resistance[J]. The Journal of Toxicological Sciences, 2013, 38(5):655-660.
Li Y, Sun H, Tian Z, et al. The determination of Plutella xylostella (L.) GSTs (PxGSTs) involved in the detoxification metabolism of Tolfenpyrad. Pest Management Science. 2020
Crosby E B , Bailey J M , Oliveri A N , et al. Neurobehavioral impairments caused by developmental imidacloprid exposure in zebrafish[J]. Neurotoxicology and Teratology, 2015, 49:81-90.
Li Y, Sun H, Tian Z, et al. The determination of Plutella xylostella (L.) GSTs (PxGSTs) involved in the detoxification metabolism of Tolfenpyrad[J]. Pest Management Science. 2020.