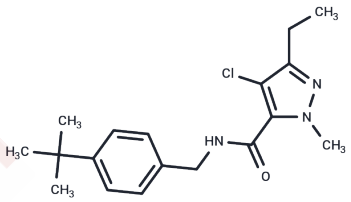
Data Sheet (Cat.No.T4446)

TargetMol

Tebufenpyrad

Chemical Properties



CAS No. : 119168-77-3

Formula: C18H24ClN3O

Molecular Weight: 333.86

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	Tebufenpyrad (Comanche) (mitochondrial complex-1 inhibitors) is an agro-chemically important acaricide that functions like the known mitochondrial toxicant rotenone.
Targets(IC50)	Mitochondrial Metabolism
In vitro	Exposing rat dopaminergic neuronal cells (N27 cells) to tebufenpyrad and pyridaben for 3 h induced dose-dependent cell death with an EC50 of 3.98 μM and 3.77 μM, respectively. Also, tebufenpyrad and pyridaben (3 μM) exposure induced reactive oxygen species (ROS) generation and m-aconitase damage, suggesting that the pesticide toxicity is associated with oxidative damage. Morphometric image analysis with the MitoTracker red fluorescent probe indicated that tebufenpyrad and pyridaben, as well as rotenone, caused abnormalities in mitochondrial morphology, including reduced mitochondrial length and circularity. Functional bioenergetic experiments using the Seahorse XF96 analyzer revealed that tebufenpyrad and pyridaben very rapidly suppressed the basal mitochondrial oxygen consumption rate similar to that of rotenone. Further analysis of bioenergetic curves also revealed dose-dependent decreases in ATP-linked respiration and respiratory capacity. The luminescence-based ATP measurement further confirmed that pesticide-induced mitochondrial inhibition of respiration is accompanied by the loss of cellular ATP [1].

Solubility Information

Solubility	DMSO: 60 mg/mL (179.72 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: 2 mg/mL (5.99 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	2.9953 mL	14.9763 mL	29.9527 mL
5 mM	0.5991 mL	2.9953 mL	5.9905 mL
10 mM	0.2995 mL	1.4976 mL	2.9953 mL
50 mM	0.0599 mL	0.2995 mL	0.5991 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

Charli A, Jin H, Anantharam V, et al. Alterations in mitochondrial dynamics induced by tebufenpyrad and pyridaben in a dopaminergic neuronal cell culture model[J]. Neurotoxicology, 2015, 53:302-313.