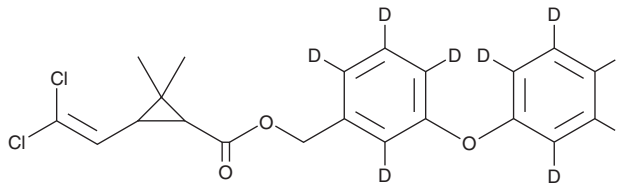


PRODUCT INFORMATION



Permethrin-d₉ Item No. 39585

Formal Name: 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylic acid, (3-phenoxyphenyl)methyl ester-d₉
MF: C₂₁H₁₁D₉Cl₂O₃
FW: 400.3
Chemical Purity: ≥98% (Permethrin; mixture of isomers)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₉); ≤1% d₀
Supplied as: A 10 mg/ml solution in acetonitrile
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Permethrin-d₉ is intended for use as an internal standard for the quantification of permethrin (Item No. 23821) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Permethrin-d₉ is supplied as a solution in acetonitrile. To change the solvent, simply evaporate the acetonitrile under a gentle stream of nitrogen and immediately add the solvent of choice. Permethrin-d₉ is slightly soluble in methanol.

Description

Permethrin is a modulator of voltage-gated sodium channels (Na_v) that is used as an insecticide.¹ It delays channel deactivation of the Na_v1.8 channel expressed in *X. laevis* oocytes. It is at least 100-fold more potent at insect than mammalian sodium channels, leading to slow deactivation of *D. para*/TipE, but not rat brain IIA or β1, sodium channels expressed in *X. laevis* oocytes when used at a concentration of 500 nM.² Permethrin (5 μM) increases sodium influx in BV-2 and primary microglial cells by approximately 28 and 29%, respectively, and activates microglia.³ Long-term application of permethrin leads to dose- and time-dependent intracellular sodium accumulation and TNF-α release in microglia *in vitro*. Formulations containing permethrin have been used for the treatment of head lice and scabies infestations.

References

1. Choi, J.S. and Soderlund, D.M. Structure-activity relationships for the action of 11 pyrethroid insecticides on rat Na_v1.8 sodium channels expressed in *Xenopus* oocytes. *Toxicol. Appl. Pharmacol.* **211**(3), 233-244 (2006).
2. Warmke, J.W., Reenan, R.A., Wang, P., *et al.* Functional expression of *Drosophila para* sodium channels. Modulation by the membrane protein TipE and toxin pharmacology. *J. Gen. Physiol.* **110**(2), 119-133 (1997).
3. Hossain, M.M., Liu, J., and Richardson, J.R. Pyrethroid insecticides directly activate microglia through interaction with voltage-gated sodium channels. *Toxicol. Sci.* **155**(1), 112-123 (2017).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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