

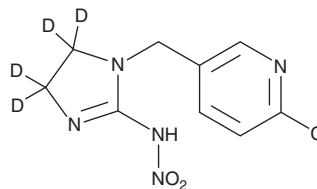
PRODUCT INFORMATION



Imidacloprid-d₄

Item No. 39549

CAS Registry No.: 1015855-75-0
Formal Name: 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-4,5-d₂-N-nitro-1H-imidazol-2-amine
MF: C₉H₆ClD₄N₃O₂
FW: 259.7
Chemical Purity: ≥98% (Imidacloprid)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Imidacloprid-d₄ is intended for use as an internal standard for the quantification of imidacloprid (Item No. 24130) 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).

Imidacloprid-d₄ is supplied as a solid. A stock solution may be made by dissolving the imidacloprid-d₄ in the solvent of choice, which should be purged with an inert gas. Imidacloprid-d₄ is slightly soluble in methanol and DMSO.

Description

Imidacloprid is a broad-spectrum neonicotinoid insecticide that is effective against sucking and biting insects and insects of the *Coleoptera* and *Lepidoptera* orders.^{1,2} It is an agonist of insect acetylcholine receptors (nAChRs) with K_i values of 1.9, 2.1, 290, and 50 nM for *M. persicae* and *D. melanogaster* receptors, rat brain membranes, and rat recombinant receptors containing α4β2 subunits, respectively.^{3,4} Imidacloprid is lethal to *M. persicae* with LD₅₀ values of approximately 2 and 160 pg/aphid via oral and topical administration, respectively.² It impairs aversive learning and memory retention in honey bees following chronic sublethal exposure of 20.8 ppb.⁵ In a mouse model of high-fat diet-induced obesity, imidacloprid (0.06-6 mg/kg per day) increases body weight gain and adiposity and impairs glucose metabolism without increasing total food intake.⁶ Formulations containing imidacloprid have been used as insecticides in residential, veterinary, and agricultural settings.

References

1. Elbert, A., Overbeck, H., Iwaya, K., et al. *Brighton Crop Protection Conference, Pests and Diseases* 21-28 (1990).
2. Elbert, A., Becker, B., Hartwig, J., et al. *Pflanzenschutz-Nachrichten Bayer (German Edition)* **44**(2), 113-136 (1991).
3. Kagabu, S., Maienfisch, P., Zhang, A., et al. *J. Med. Chem.* **43**(26), 5003-5009 (2000).
4. Tomizawa, M., and Casida, J.E. *Annu. Rev. Entomol.* **48**, 339-364 (2003).
5. Zhang, E. and Nieh, J.C. *J. Exp. Biol.* **218**(Pt 20), 3199-3205 (2015).
6. Sun, Q., Xiao, X., Kim, Y., et al. *J. Agric. Food Chem.* **64**(49), 9293-9306 (2016).

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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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM