

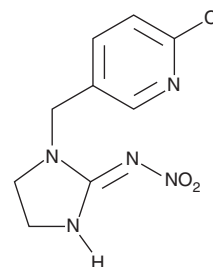
PRODUCT INFORMATION



Imidacloprid

Item No. 24130

CAS Registry No.: 138261-41-3
Formal Name: 1-[(6-chloro-3-pyridinyl)methyl]-N-nitro-2E-imidazolidinimine
MF: $C_9H_{10}ClN_5O_2$
FW: 255.7
Purity: $\geq 98\%$
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 is supplied as a solid. A stock solution may be made by dissolving the imidacloprid in the solvent of choice, which should be purged with an inert gas. Imidacloprid 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 $\alpha 4\beta 2$ subunits, respectively.^{3,4} Imidacloprid is lethal to *M. persicae* with LD_{95} values of approximately 2 and 160 $\mu\text{g}/\text{aphid}$ 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. Imidacloprid, a novel systemic nitromethylene analogue insecticide for crop protection. *Brighton Crop Protection Conference, Pests and Diseases* **1**, 21-28 (1990).
2. Elbert, A., Becker, B., Hartwig, J., et al. Imidacloprid - A new systemic insecticide. *Pflanzenschutz-Nachrichten Bayer (German Edition)* **44(2)**, 113-136 (1991).
3. Kagabu, S., Maienfisch, P., Zhang, A., et al. 5-Azidoimidacloprid and an acyclic analogue as candidate photoaffinity probes for mammalian and insect nicotinic acetylcholine receptors. *J. Med. Chem.* **43(26)**, 5003-5009 (2000).
4. Tomizawa, M. and Casida, J.E. Selective toxicity of neonicotinoids attributable to specificity of insect and mammalian nicotinic receptors. *Annu. Rev. Entomol.* **48**, 339-364 (2003).
5. Zhang, E. and Nieh, J.C. The neonicotinoid imidacloprid impairs honey bee aversive learning of simulated predation. *J. Exp. Biol.* **218(Pt 20)**, 3199-3205 (2015).
6. Sun, Q., Xiao, X., Kim, Y., et al. Imidacloprid promotes high fat diet-induced adiposity and insulin resistance in male C57BL/6J mice. *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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