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Neonicotinoids and Derivatives: Effects in Mammalian Cells and Mice

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Abstract:

Neonicotinoids are the only major new class of insecticides introduced in the past three decades. They act as selective agonists at the insect nicotinic acetylcholine receptor and are therefore highly toxic towards important insect pests but relatively safe to mammals. However, the excellent selective toxicity may not be evident with their metabolites or analogous compounds. The aim of this paper is to consider the effects of neonicotinoids and derivatives in mammalian cells and mice involving up-regulation of nicotinic receptor levels and activation of the intracellular signal integration cascade elicited by chronic or sustained exposure and analgesic and toxic effects in mice.

Keywords:

analgesia, extracellular signal-regulated kinase cascade, neonicotinoids, nicotinic receptors, toxicity, up-regulation

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