



A fluorinated quinuclidine benzamide named LMA 10203 acts as an agonist of insect nicotinic acetylcholine receptors

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Titre	A fluorinated quinuclidine benzamide named LMA 10203 acts as an agonist of insect nicotinic acetylcholine receptors
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Résumé en anglais	<p>In the present study, we take advantage of the fact that cockroach dorsal unpaired median neurons express different nicotinic acetylcholine receptor subtypes to demonstrate that simple quinuclidine benzamides such as the 2-fluorinated benzamide LMA 10203, could act as an agonist of cockroach alpha-bungarotoxin-insensitive nicotinic acetylcholine receptor subtype, called nAChR2. Indeed, 1 mM LMA 10203 induced ionic currents which were partially blocked by 0.5 μM alpha-bungarotoxin and methyllycaconitine and completely blocked by 5 μM mecamylamine. Moreover, the current-voltage curve revealed that the ionic current induced by LMA 10203 increased from -30 mV to +20 mV confirming that it acted as an agonist of alpha-bungarotoxin-insensitive nAChR2. In addition, 1 mM LMA 10203 induced a depolarization of the sixth abdominal ganglion and this neuroexcitatory activity was completely blocked by 5 μM mecamylamine. These data suggest that nAChR2 was also expressed at the postsynaptic level on the synapse between the cercal afferent nerve and the giant interneurons. Interestingly, despite LMA 10203 being an agonist of cockroach nicotinic receptors, it had a poor insecticidal activity. We conclude that LMA 10203 could be used as an interesting compound to identify specific insect nAChR subtypes.</p>
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