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Short communication

Effects of the histamine $(H)_3$ receptor antagonist ABT-239 on acute and repeated nicotine locomotor responses in rats

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Abstract:
The addictive potential of nicotine is linked to psychomotor and cognition-enhancing effects. Histamine $(H)_3$ receptor antagonism has similarly received attention for a role in cognition, however, the role of H_3 receptors are far less studied for affects on nicotine-induced locomotor responses. In the present study we tested whether the H_3 receptor antagonist 4-(2-{2-[(2R)-2methylpyrrolidinyl]ethyl}-benzofuran-5-yl) benzonitrile (ABT-239) influenced the psychomotor responses to acute and repeated nicotine, including sensitization and conditioned locomotion. ABT-239 (0.3–3 mg/kg) did not alter basal, nicotine-evoked (0.4 mg/kg) locomotor responses, the expression of sensitization, or cue-conditioned locomotion. However, in combination studies rats pretreated with a separate dose of ABT-239 (1 mg/kg) prior to nicotine (0.4 mg/kg) for 5 days and then challenged with nicotine (0.4 mg/kg) after a 5-day withdrawal period, showed significantly higher locomotor hyperactivity in comparison with the effect observed in nicotine-pretreated and challenged rats. Our findings implicate a limited role for H_3 receptors in locomotor responses to nicotine.

Key words:
conditioned locomotion activity, histamine3 receptor, locomotor activity, nicotine, sensitization