Bidirectional modulation of locomotor sensitization to quinpirole by salvinorin A

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1. Previous studies have shown that behavioral sensitization to the dopamine D2/D3 receptor agonist quinpirole occurs after chronic administration in rats.
2. The present study was conducted to assess the effect of different doses (0.04, 0.4, 2.0 mg/kg) of the naturally occurring kappa opioid agonist salvinorin A, on the development of quinpirole-induced behavioural sensitization.
3. Salvinorin A modulated the development of behavioural sensitization and magnitude of locomotor effects in a bidirectional, dose-dependent fashion. A dose of 2.0 mg/kg of salvinorin A enhanced the speed of onset and magnitude of behavioural sensitization compared to quinpirole alone, whereas the dose of 0.04 mg/kg had the opposite effect.
4. These results might indicate opposite effects of kappa-opioid agonists on dopamine release as well as postsynaptic signalling in the mesolimbic dopamine pathway depending on the administered dose.