mGluR5 Knockout mice exhibit normal conditioned place-preference to cocaine

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Metabotropic glutamate receptor 5 (mGluR5) null mutant (-/-) mice have been reported to totally lack the rein- forcing or locomotor stimulating effects of cocaine. We tested mGluR5 -/- and +/+ mice for their locomotor and conditioned place- preference response to cocaine. Unlike the previous finding, here we show that compared to mGluR5 +/+ mice, -/- mice exhibit no difference in the locomotor response to low to moderate doses of cocaine (10 or 20 mg/kg). A high dose of cocaine (40 mg/kg) resulted in a blunted rather than absent locomo- tor response. We tested mGluR5 -/- and +/+ mice for conditioned place-preference to cocaine and found no group differences at a conditioning dose of 10 mg/kg, suggesting normal conditioned rewarding properties of cocaine. These results differ substantially from Chiamulera et al. (2001) and replicates Olsen et al., (2010), who found normal cocaine place-preference in mGluR5 -/- mice at 5 mg/kg. Our results indicate mGluR5 receptors exert a modulatory rather than necessary role in cocaine-induced locomotor stimulation and exert no effect on the conditioned rewarding effects of cocaine.

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