

The effect of chronic administration of amphetamine on 8-OH-DPAT-induced hypophagia in fasted rats

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We have previously reported that the suppressant effect of the 5-HT_{1A} receptor agonist 8-OH-DPAT on feeding in food-deprived rats abolished following chronic treatment with a range of antidepressants, such as the 5-HT reuptake inhibitor fluoxetine, the dopamine reuptake inhibitor bupropion and the noradrenaline reuptake inhibitor reboxetine. (Tite *et al.*, 2003, Burki *et al.*, 2009a,b). We have proposed that this effect is due to desensitisation of central 5-HT_{1A} receptors and have suggested that the method used in these studies may be useful as a novel *in vivo* test to assess psychoactive compounds for potential antidepressant activity. Amphetamine increases extracellular levels of noradrenaline and dopamine but is not considered useful in the treatment of depression. It was therefore of interest to investigate the effect of chronic administration of amphetamine on 8-OH-DPAT-induced hypophagia in rats.

Male Wistar rats (b.wt. 220 – 330 g; n=12) were randomly divided into 2 equal groups and were deprived of food in their home cages for 22 h each day. Rats in Group 1 (Control Group) were injected i.p. once daily with physiological saline solution for 27 days, while rats in Group 2 (Treatment Group) were injected i.p. once daily with amphetamine (1 mg kg⁻¹). On day 29 the animals in both groups were injected s.c. with 8-OH-DPAT (100 µg kg⁻¹) and placed singly in experimental cages with free access to food and water (Ebenezer *et al.*, 2003) and food intake measured at 30 min. On day 28 a similar experimental protocol as described for day 29 was used except that the animals in both groups were injected with saline instead of 8-OH-DPAT in order to establish a control feeding baseline. The data was analysed by 2-way ANOVA and post-hoc t-tests.

The results are shown in Fig.1. 8-OH-DPAT significantly ($P < 0.01$ in each case) reduced food intake in rats treated chronically with saline or amphetamine. Furthermore, ANOVA revealed that there was no significant interaction between the two groups of rats and their responses to saline and 8-OH-DPAT ($F_{(1,10)} = 4.0912$, ns), indicating that chronic treatment with amphetamine does not reverse the hypophagic effect of 8-OH-DPAT in fasted rats. These data give further support to the suggestion that the method described here may be behaviourally selective in assessing psychoactive compounds for antidepressant activity (Tite *et al.*, 2003).

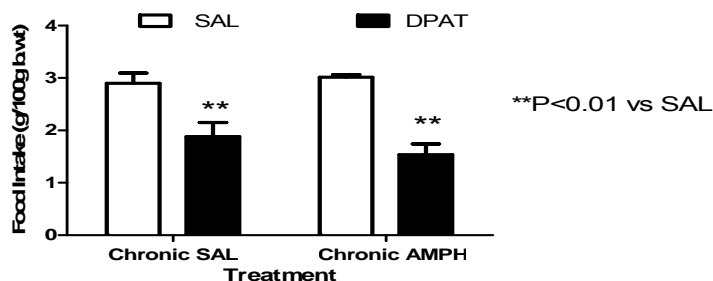


Fig. 1. Effects of chronic administration of amphetamine (AMPH) on 8-OH-DPAT-induced hypophagia in fasted rats. Vertical line rep. + s.e.mean. See text for details of statistical analysis.

Burki, U. & Ebenezer, I.S. (2009a) Proc. Br. Pharmacol. [Soc.@http://www.pA2online.org/abstract/Vol7Issue2abst051P](http://www.pA2online.org/abstract/Vol7Issue2abst051P)

Burki, U. & Ebenezer, I.S. (2009b) Proc. Br. Pharmacol. [Soc.@http://www.pA2online.org/abstract/Vol7Issue2abst101P](http://www.pA2online.org/abstract/Vol7Issue2abst101P)

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