Effects of the gut hormone ghrelin and the $GABA_B$ agonist baclofen on food intake and the microstructure of feeding behaviours in the rat

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Introduction: Both baclofen (bac) and ghrelin (grh) increase food intake in rats after systemic or central administration[1,2]. The present study, which was ethically approved, was undertaken to examine the effects of low doses of ghr, bac and the possible interaction between ghr and bac on food intake and the microstructure of feeding behaviours in rats.

Methods: Non-deprived male Wistar rats (n=8, body weight: 260 - 350g) were placed individually in experimental cages with free access to food and water immediately after receiving single bolus i.p. injections of either saline, ghr (0.1 mg kg^{-1}), (-)bac (0.5 mg kg^{-1}) or ghr+bac for 60 min in a repeated measures design[1]. Behaviour was recorded using a video camera, and food consumption was measured at 60 min. The video recordings were analysed off-line on a computer based data logging system to assess the microstructure of feeding behaviours (latency, duration and number of bouts of feeding). The results were analysed by repeated measures ANOVA and the *post hoc* Fisher's LSD test.

Results: The results are illustrated in Table 1. All treatments increased food intake; but the combination treatment (ghr+bac) significantly increased food consumption compared with either drug treatment on its own. Moreover, the data indicate that (i) ghr increased food intake by increasing the amount of food eaten per feeding bout, (ii) bac increased food intake by increasing duration of feeding, and (iii) ghr+bac increased food intake by decreasing latency, increasing duration and bouts of feeding, and increasing the amount of food eaten per feeding bout.

***Conclusions*.** The data confirm and extends previous findings[1,2] and suggest that the effects of ghr and bac interact synergistically to mediate their effects on feeding behaviours and food consumption.

References:

1. Ebenezer IS.*et al*. (2011) Eur J Pharmacol **635**: 129 - 1342. 2. Wren AM *et al* (2000) Endocrinology **141**: 4325 - 4328

Table 1. Effects of ghr, bac and ghr+bac on food intake and the microstructure of feeding behaviours. *P<0.05, **P<0.01 vs saline, $^{+}$P<0.05 vs bac, ^{0}P<0.05 vs ghr.

	Saline	Ghr (0.1 mg kg^{-1})	Bac (0.5 mg kg^{-1})	Ghr+Bac
Food intake (g)	0.8 ±0.2	1.6±0.4*	2.2±0.1**	2.8±0.2**$^{+0}$
Duration of feeding (min)	3.8 ±0.7	5.2±1.2	6.8±0.6**	7.7 ±0.7**
Number of Feeding bouts	10.1±3.9	10.5±3.3**	15.3±2.2	16.1 ±0.3**^{0}
Mean intake/bout (g)	0.09±0.06	0.19±0.13*	0.16±0.07	0.22±0.11**
Latency to feed (min)	14.9±6.0	16.1±3.7	7.9±2.4	5.5±2.1*