

A novel, automated method of measuring the mouse behavioural satiety sequence

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Introduction

The behavioural satiety sequence (BSS) is a useful method for the study of ingestive behaviour in mice. Ingestive behaviour is followed by a clear sequence of behaviour, progressing towards rest as the mouse becomes satiated. The BSS is traditionally scored by-hand following the introduction of a highly palatable mash meal. We demonstrate a novel method of measuring the BSS, using VER-23779 / RO-4590334 (a 5-HT_{2C} receptor agonist),

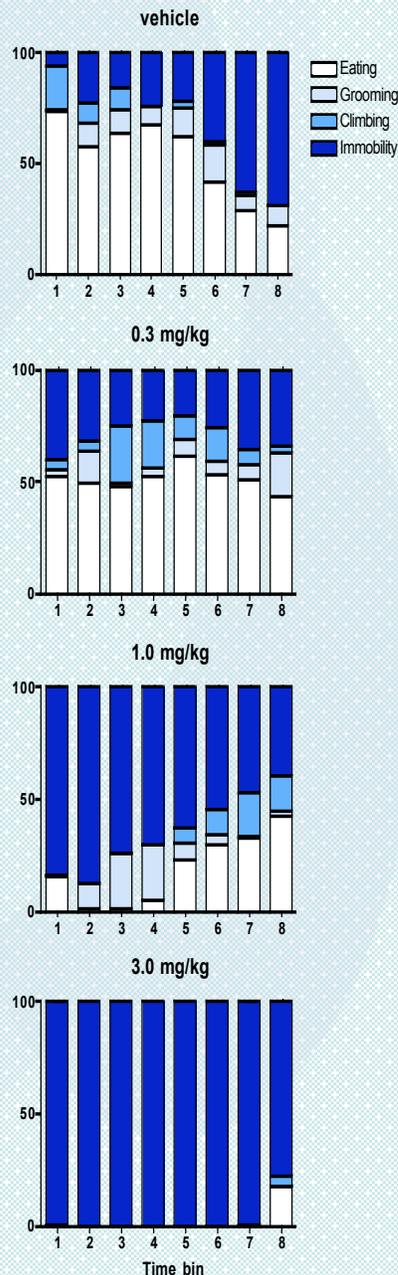
Methods

Mice were not food-deprived, but were habituated to receiving meals of their normal hard food pellets during the day and habituated to LABORAS^R equipment on days 3 & 4. On day 5 mice were injected with VER-23779 / RO-4590334 (0.3, 1.0, & 3.0 mg/kg i.p.) and placed in the LABORAS^R apparatus with their normal food and water for 40 min for behavioural measurement.

LABORAS^R

“Laboratory Animal Behaviour Observation Registration and Analysis System” manufactured by Metris BV, Netherlands, is an advanced system for the automatic recognition of behavioural elements of rodents, based on measurement of vibrations induced by activity of the animal.

Results



Summary

This sequence of behaviours is altered by the anorectic agent VER-23779, producing dose-dependent reductions in food intake associated with advancement of the behavioural sequence, suggesting enhancement of satiety. However, our study differed to another recent study (Clifton et al., 2005): 1) Percentage time feeding is higher in this study. This may be due to food-restriction; 2) Feeding efficiency is reduced at 3.0 mg / kg, in contrast to Clifton et al. This may be due to motor impairments picked up by this method of feeding (food in overhead hopper), that were not measured by the other study where wet-mash was presented in a dish on the floor. This could be a potential benefit of this system, i.e. assess induction of motor side-effects in parallel with anorectic activity.

Conclusions

In concordance with previous work, VER-23779 / RO-4590334 induced a dose-dependent alteration of the behavioural satiety sequence. These data demonstrate that LABORAS^R is a useful tool for the automated scoring of the BSS, using normal lab food.

References

Clifton PG, Kennett GA & Thornton-Jones ZD. The selective 5-HT_{2C} receptor agonist VER-23779 / RO-4590334 enhances satiety and C-FOS activation in the mouse. BAP abstract

Acknowledgments

With thanks to Vernalis and Roche for supply of VER-23779 / RO-4590334