



FENS Forum 2008

For posters, morning sessions: 9:30-13:30; afternoon sessions 13:30-17:30.
Authors are expected to be in attendance at their posters at the time indicated.
For other sessions, time indicates the beginning and end of the sessions.

First author McAllister, Catherine J. (poster)

Poster board G15 - Mon 14/07/2008, 12:15 - Hall 1

Session 096 - Techniques 2

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Title Evaluating the efficacy of LABORAS and Intellicage for measuring circadian rhythms in the R6/2 transgenic mouse model of Huntington's disease.

Text Circadian rhythms in mice are typically evaluated by recording the sleep-wake cycle through patterns of locomotion, with the activity of animals housed in single cages within a sealed room or cabinet typically measured by passive infra-red (PIR) sensors or by running wheels. Using PIR, we have shown that the R6/2 mouse (a model of Huntington's disease (HD)) has a disintegrating circadian rhythm of activity. Circadian rhythms break down in R6/2 mice by around 16 weeks of age and is characterised by increased daytime activity and fragmented sleep bouts. In our laboratory we are currently using two automated open-cage systems for behavioural analysis; LABORAS (designed to measure home cage behaviours such as climbing, eating and drinking) and Intellicage (designed as an operant conditioning arena for groups of micro-chipped mice). We wondered if either of these two systems would also be useful for measuring circadian behaviours.

Here we present data using R6/2 transgenic mice and their wild type littermates measured by the three techniques (PIR, LABORAS and Intellicage). Results show that the circadian data complement each other well, with PIR locomotor activity patterns corresponding to rhythmic patterns of behaviours in the LABORAS and Intellicage systems. This indicates that both LABORAS and Intellicages could be useful for testing circadian rhythmicity. The advantage of using LABORAS is that multiple behaviours can be tested at the same time. Thus, not only can we extract circadian information about locomotion, but we can also evaluate rhythmicity in other common behaviours. The advantage of using Intellicage is that individual mice can be tested whilst housed in cohorts of up to ten. This enables us to look at circadian behaviour in mice that are not housed in social isolation. We hope that data gathered using the three different systems will help us to understand the nature of circadian rhythms in R6/2 mice.

Theme G - Techniques, history and teaching
Neurotechniques