



FENS Forum 2010 - Amsterdam

- Posters: to be on display from 8:00 to 13:15 in the morning and from 13:30 to 18:45 in the afternoon. Poster sessions run from 09:30 to 13:15 in the morning and from 13:30 to 17:30 in the afternoon. A one hour time block is dedicated to discussion with the authors (authors should be in attendance at their posters as from the time indicated.)
- For other sessions, time indicates the beginning and end of the sessions.

First author Mellace, Marco (poster)

Poster board C30 - Wed 07/07/2010, 11:15 - Hall 1

Session 197 - Parkinson's 3

Abstract n° 197.30

Publication ref.: *FENS Abstr.*, vol.5, 197.30, 2010

Authors Mellace M. (1, 2), De Heer R. C. (1, 2), Fekas D. (3), Van Stipdonk N. W. J. (1) & Spruijt B. M. (1, 2)

Addresses (1) Delta Phenomics BV, Utrecht, The Netherlands; (2) Department of Biology, Utrecht University, Utrecht, The Netherlands; (3) Noldus Information Technology, Wageningen, The Netherlands

Title Early behavioural signs of a Parkinson's disease transgenic mouse model automatically detected in a home cage situation

Text Parkinson's disease (PD) is the second most common neurodegenerative disorder. The presence of protein aggregates (Lewy bodies) in both the inherited and sporadic forms of PD suggests that a common pathway is affected. Alpha-synuclein is the major component of Lewy bodies and its dysfunction is a common feature of all forms of PD. Transgenic animals that over-express alpha-synuclein have been developed to study the role of this protein as well as its interactive proteins, such as synphilin-1, in the dopaminergic degeneration.

A complete behavioural characterization, especially of the earliest symptoms, of PD in these animal models is vital for future drug testing aimed to slow or stop the progression of the disease. Traditionally, behavioral studies on these models have been usually conducted by using a test battery investigating specific responses separately.

We present the possibility of using an integrated approach, based on a video tracking system, in which several aspects of the disease can be investigated without the confounding effects of stress, transportation, novelty and handling caused by human interference. The main objective of this work is to reveal early behavioural signs of PD both in locomotor activity and cognitive performance by using an instrumented home cage environment, fully automated.

Mice transgenic for alpha-synuclein and synphilin-1 have been singly housed in the home cage system and subjected to different tests. The spontaneous locomotor activity as well as the behavioural responses to the presence of shelter food, water and an aversive bright light for conditioning avoidance responses has been monitored.

The transgenic mouse models of PD present a significant reduction of spontaneous activity already at the age of 20 weeks as compared to the wildtype mice. Also changes in cognitive performance are detected suggesting that by integrating changes in cognition and locomotion early signs of PD can be revealed and used for testing the efficacy of therapeutic treatments.

Theme C - Disorders of the nervous system
Parkinson's disease - Animal models