



Preclinical Phenotyping

What we do

Neurodegenerative processes in brain – a new role for tRNAs

Together with researchers from the Medical University of Vienna, we have investigated the role of an enzyme that is involved in the processing of tRNAs and ultimately the production of proteins. We have found that if this enzyme is missing from principal neurons in the central nervous system, mice show progressive neurodegeneration and deficits in learning and memory, hyperactivity and changes in metabolic functions, by using a battery of behaviour tests and indirect calorimetric measurements using the TSE PhenoMaster system.

Balance of gene expression is important for cognition

Together with researchers from the Institute of Molecular Biotechnology (IMBA) in Vienna, we have found that mice lacking a specific histone-modifying enzyme in the central nervous system, show deficits in spatial learning and aberrant acoustic information processing, thus indicating that this enzyme's function in regulating the accessibility of specific DNA stretches plays an important role in these specific behaviour functions of the mouse.

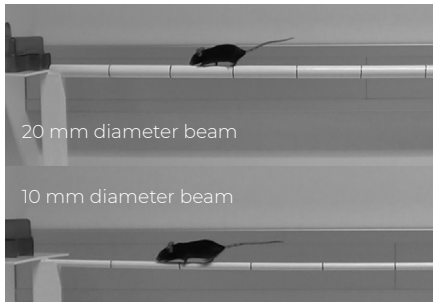
Preclinical Phenotyping Vienna Biocenter Core Facilities (VBCF)

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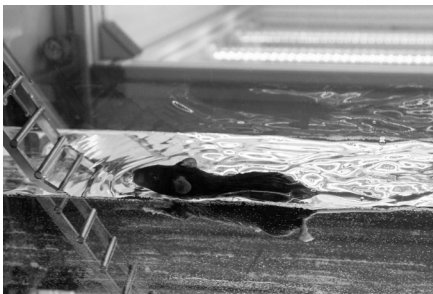
TSE PhenoMaster System

Metabolic measurements in the home cage.



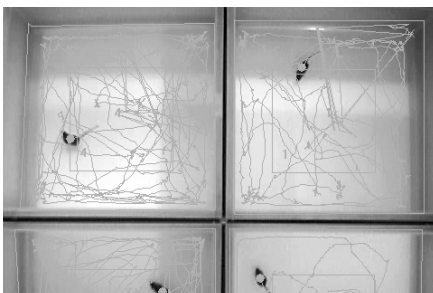
Beam walk Test

Test for motor and coordination functions. Suitable e.g. to detect Parkinson's Disease-like phenotypes.



TSE MotoRater System

Detailed kinematographic gait analysis.



Open field test

Videotracking of mice in open arena. Different levels of anxiety, motivation and locomotor drive lead to different behaviour patterns in this test.



Services and Methodologies Provided

After training under expert supervision, researchers can perform their experiments alone or make use of our services, ranging from the planning and performing of the experiments to final data analysis and interpretation.

Methodologies:

- Metabolic analysis using the TSE PhenoMaster System (feeding/drinking behaviour, running wheels, circadian activity measurements, calorimetric tests in climate chamber)
- Motor function assays (TSE MotoRater system, beam walk, rotarod, grip strength, wire hanging, Noldus CatWalk system)
- Tests for anxiety-like behaviour (open field, elevated plus maze, light-dark test)
- Tests for depression-like behaviour (forced swim test, tail suspension test)
- Learning and Memory tests (Morris water maze, Barnes maze, fear conditioning, inhibitory avoidance test, Ymaze, Intellicage system)
- Nociception tests (hot/cold plate, automatic von Frey test, shock threshold)
- Vision/olfaction tests
- Acoustic startle/pre-pulse inhibition test
- Implantable telemetry for core body temperature measurements for core body temperature, ECG and blood pressure measurements
- Surgical services

Equipment

- TSE PhenoMaster system: home cage monitoring of metabolism and circadian activity
- TSE MotoRater system
- Intellicage system
- Noldus CatWalk system
- DSI implantable telemetry for core body temperature, ECG and blood pressure measurements

Contact and Location

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