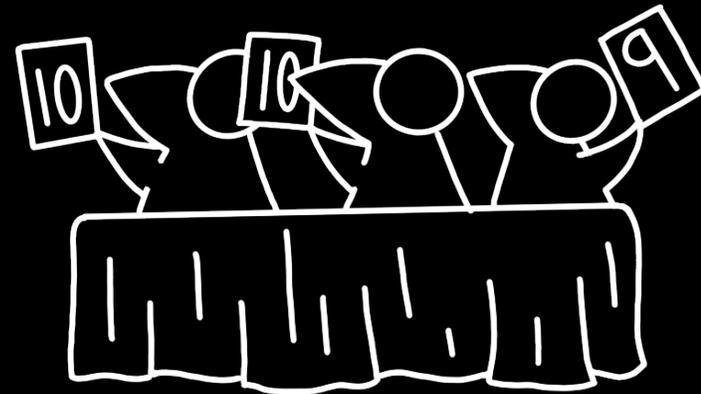


# Behaviour of Rats and Mice

Testing and Services Available in the Vernon Jansen Unit

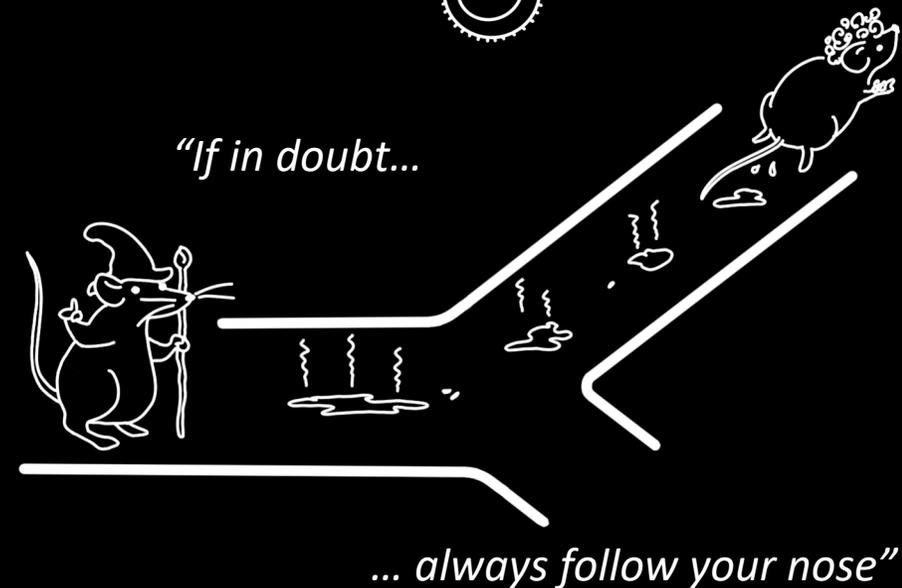




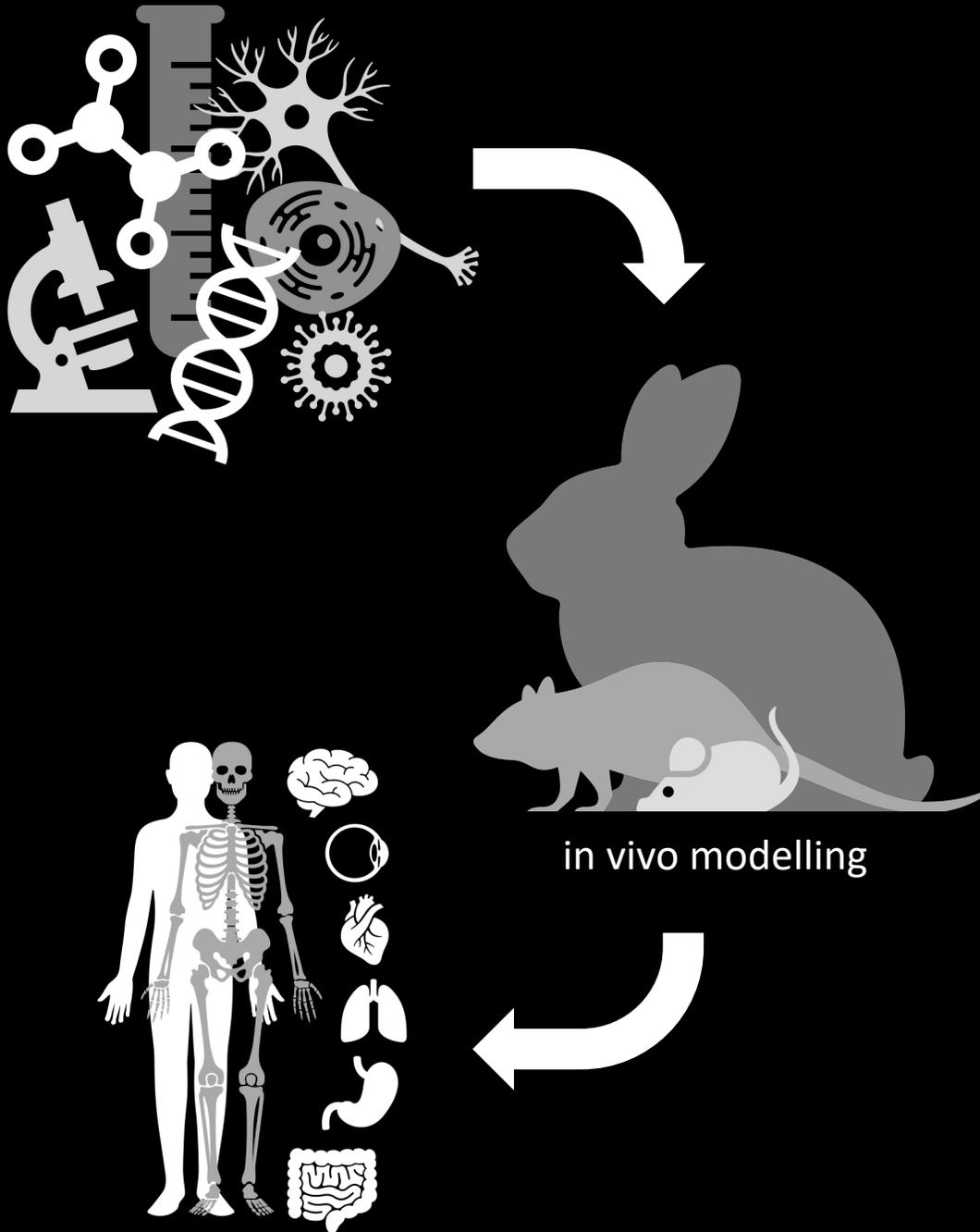
Erin Wood

[erin.wood@auckland.ac.nz](mailto:erin.wood@auckland.ac.nz)

- VJU Behavioural Technologist ~1 year
- PhD at Waikato Uni
- Nutrition and neuroscience, operant studies, rat autism model



# Why study behaviour?



## Behavioural effects

What effect does my drug, diet, other treatment have on:

- Motor and sensory function?
- Mood?
- Cognition?
- Sociability?

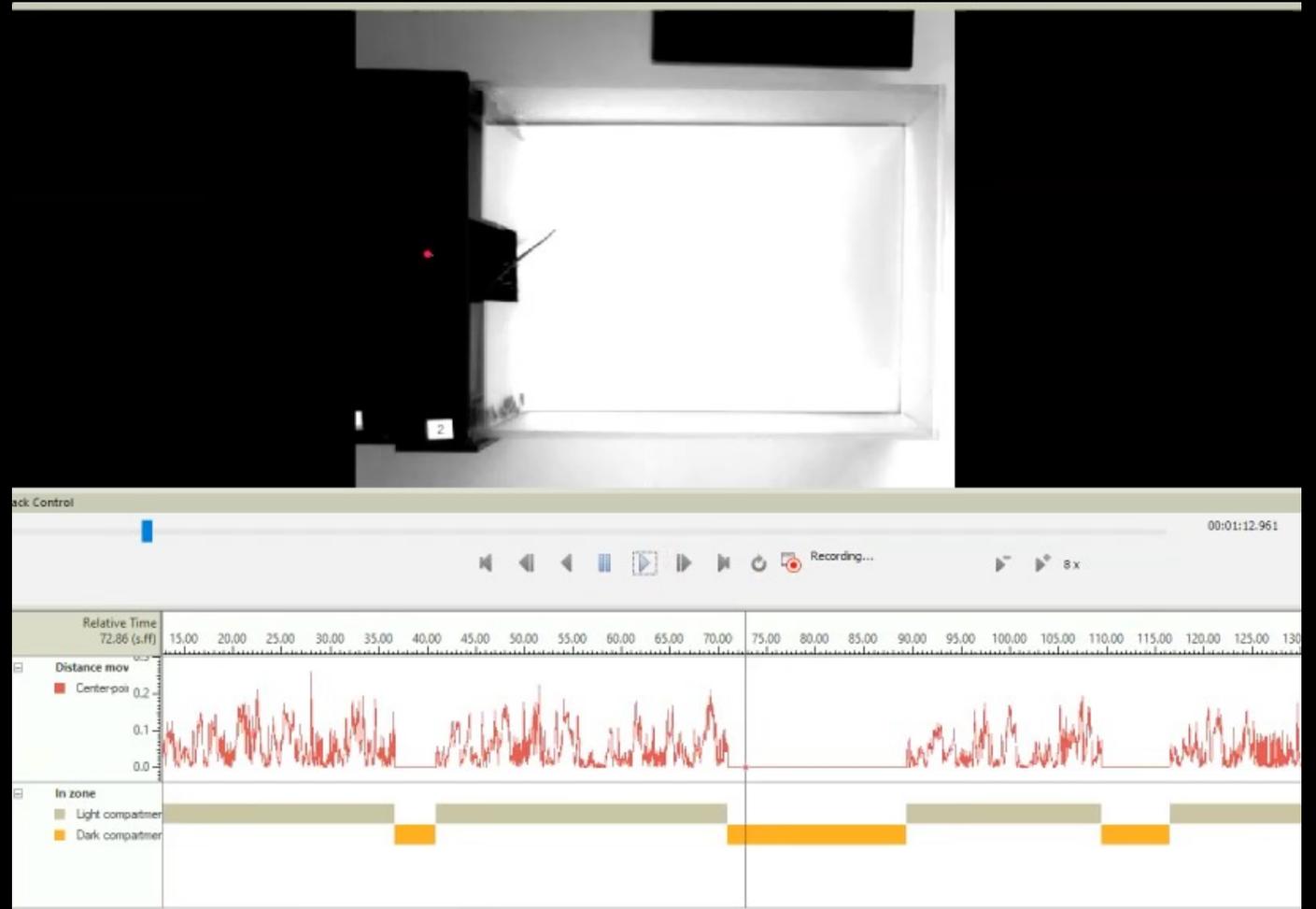
## Model phenotypes

Does my model accurately capture the behavioural phenotype of the condition?

Are there any unexpected behaviours that limit applicability or reveal more information about the disease condition?

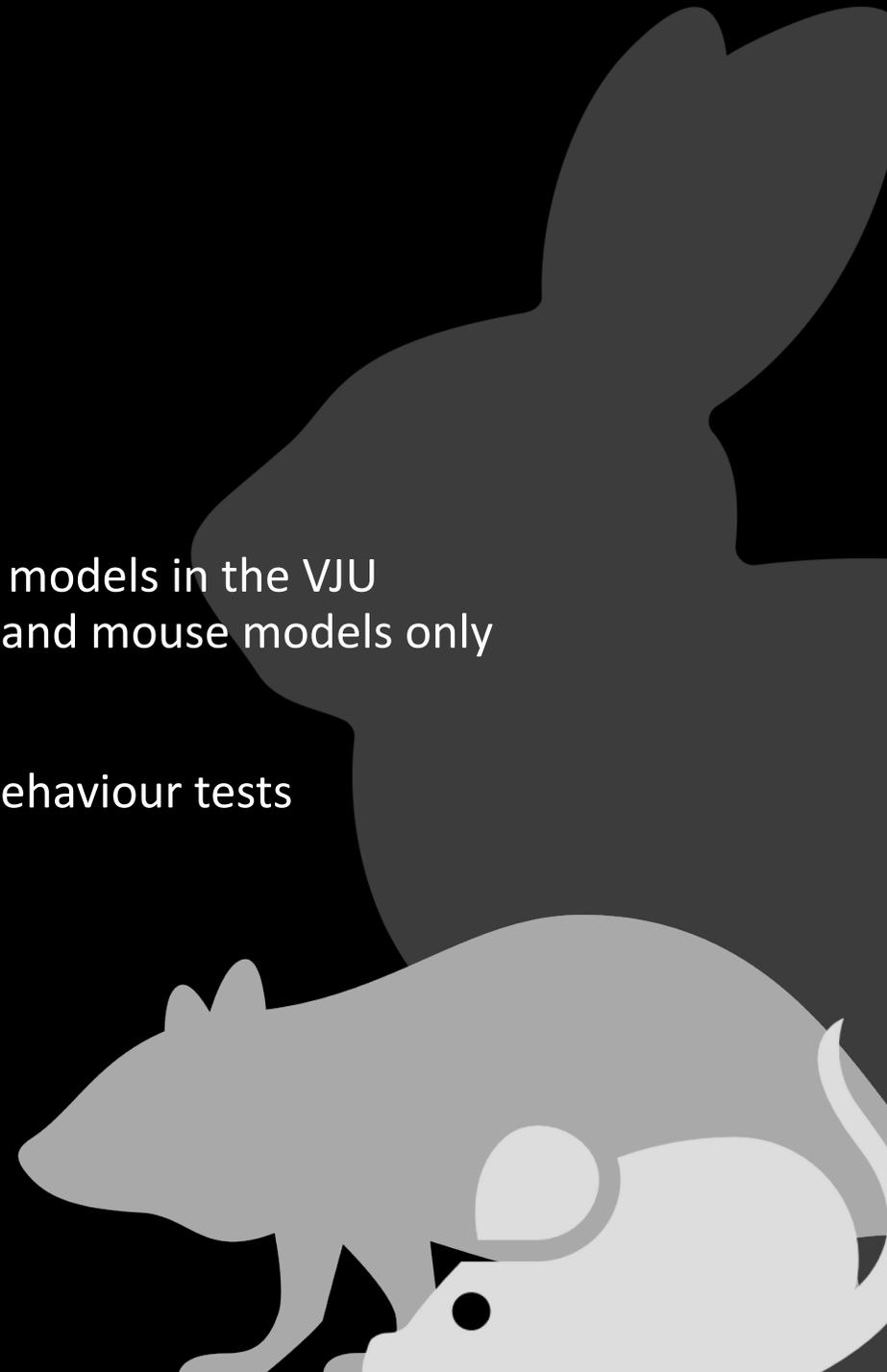
# How can the Behavioural Technologist help?

- Provision of SOPs
- New test development
- Experimental advice
- Piloting
- Training
- Equipment and room set up and optimisation
- Software analysis assistance (EthoVision XT)



# Behaviour Tests in the VJU

- Rat, mouse and rabbit models in the VJU  
Current testing for rat and mouse models only
- 30+ SOPs for various behaviour tests



# Behaviour Tests in the VJU

1344 SOPs include:

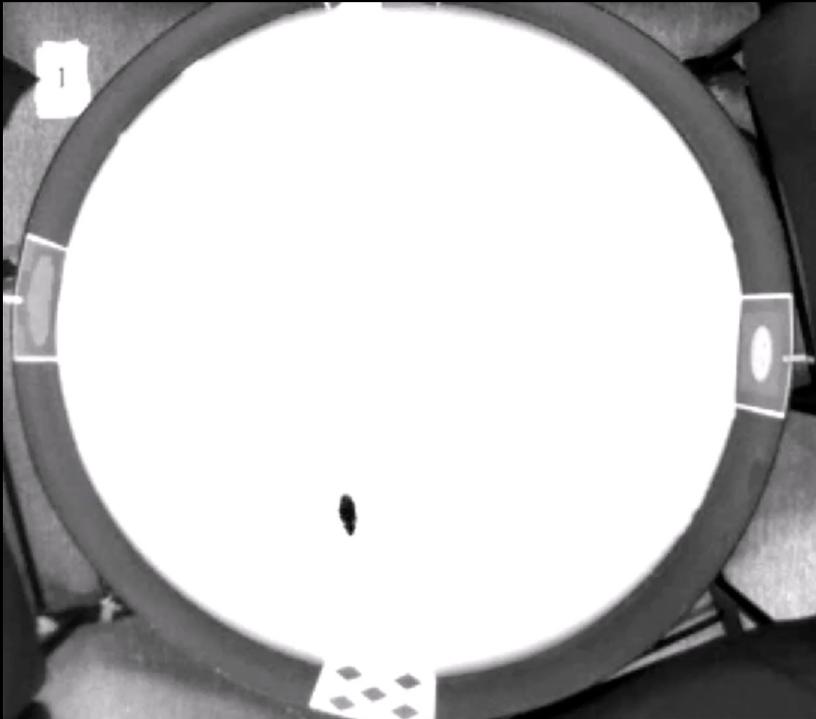
- Cognition tests
- Social tests
- Emotionality tests
- Sensorimotor tests



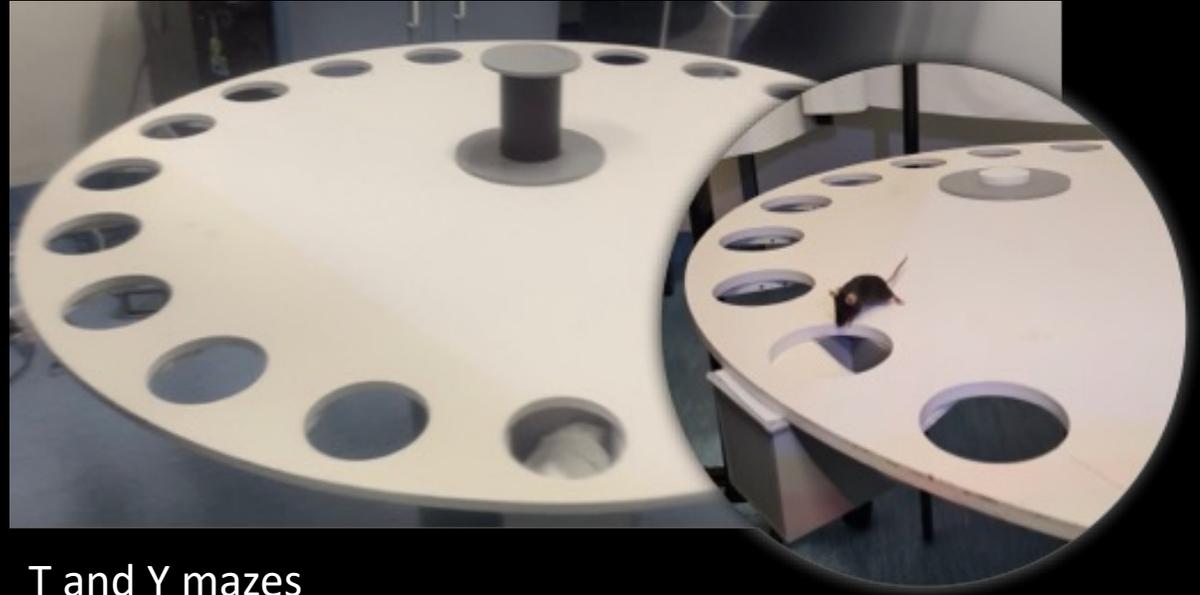
# Cognition testing

- Spatial memory

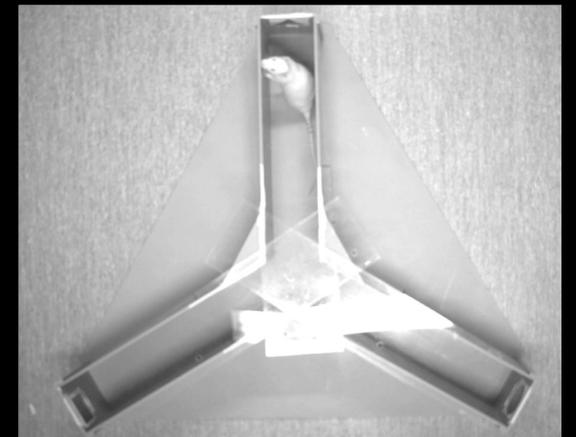
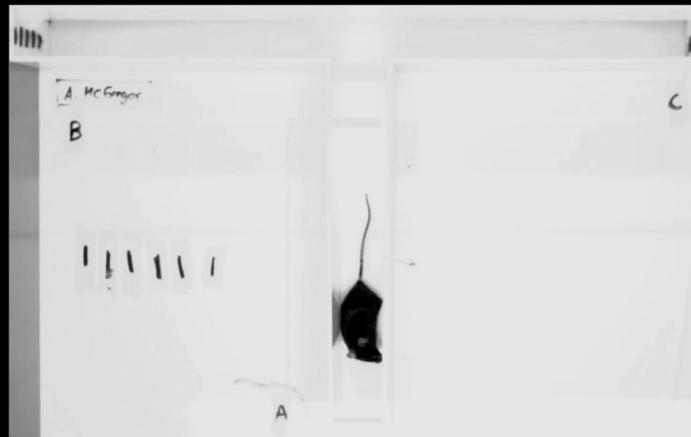
Morris water maze



Barnes maze

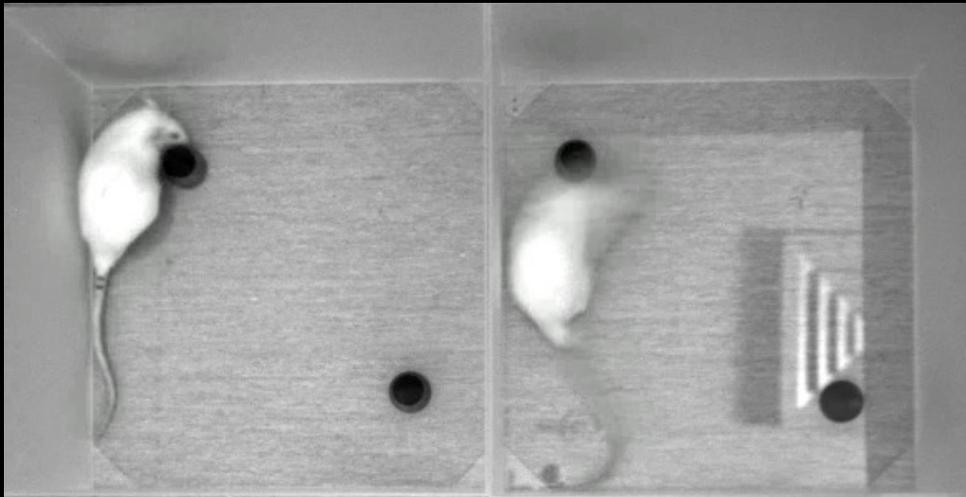


T and Y mazes

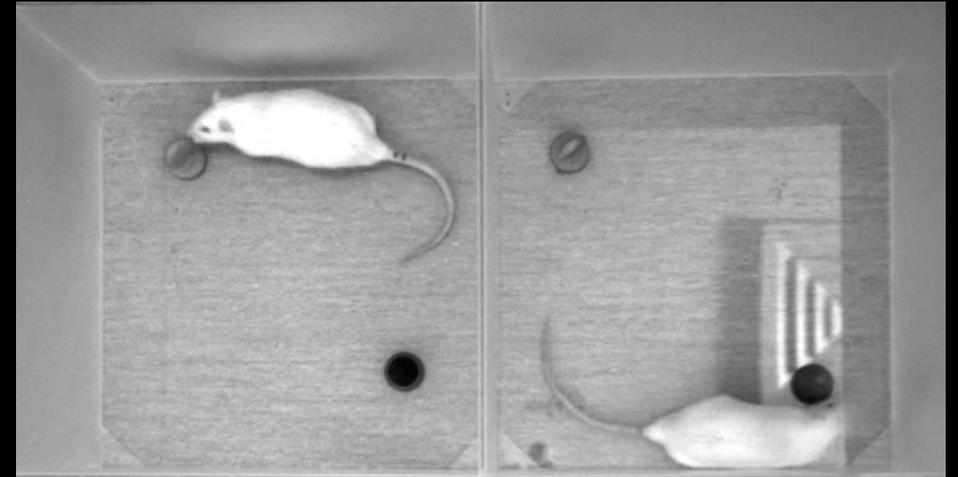


# Cognition testing

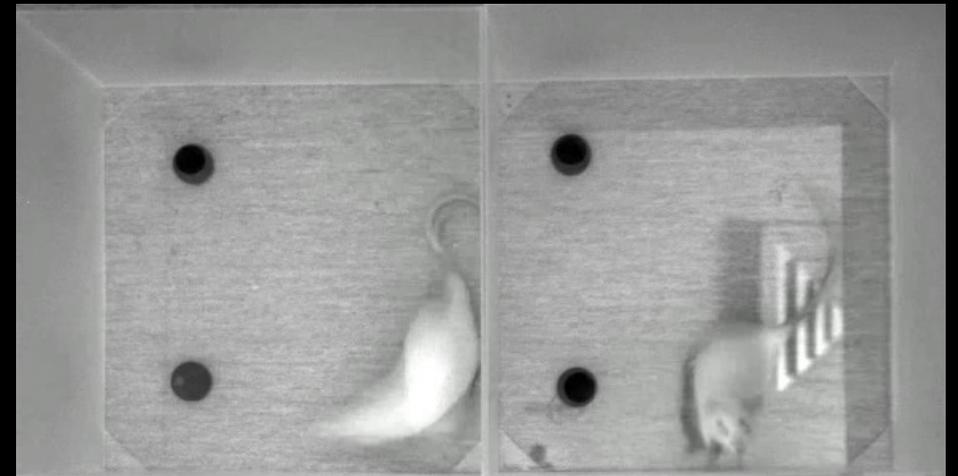
- Spatial memory
- Novel object tests



Novel object recognition



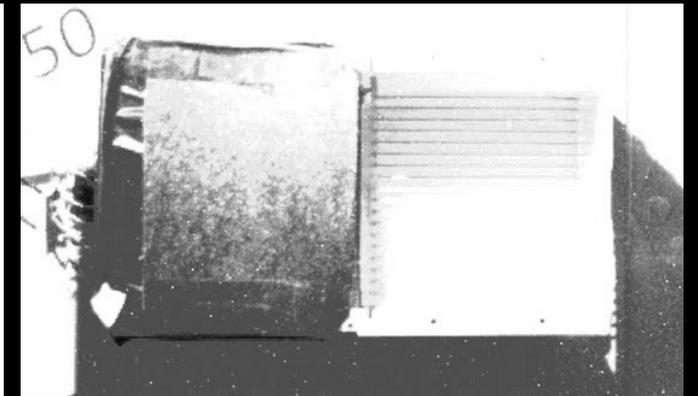
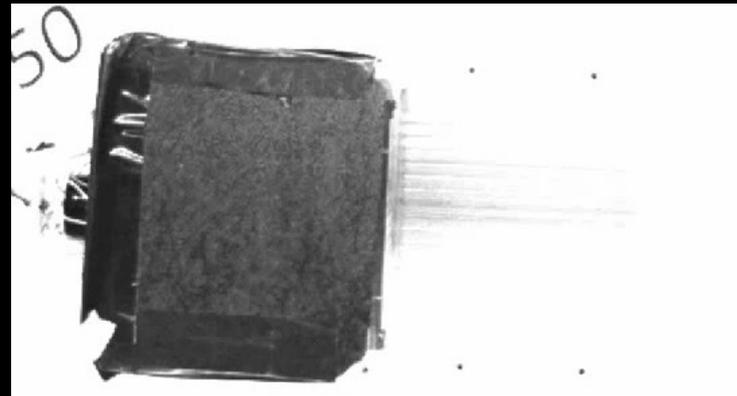
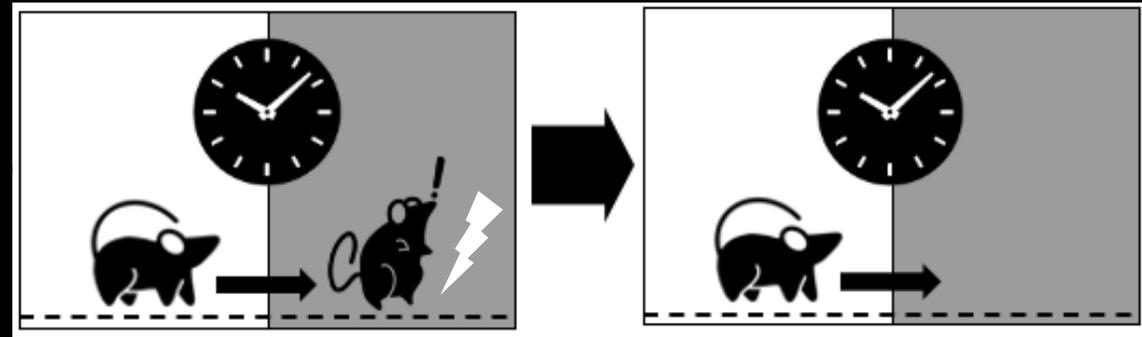
Novel object location



# Cognition testing

- Spatial memory
- Novel object tests
- Fear-based memory

## Passive avoidance



## Fear conditioning



# Social testing

Three chamber social test



- Sociability



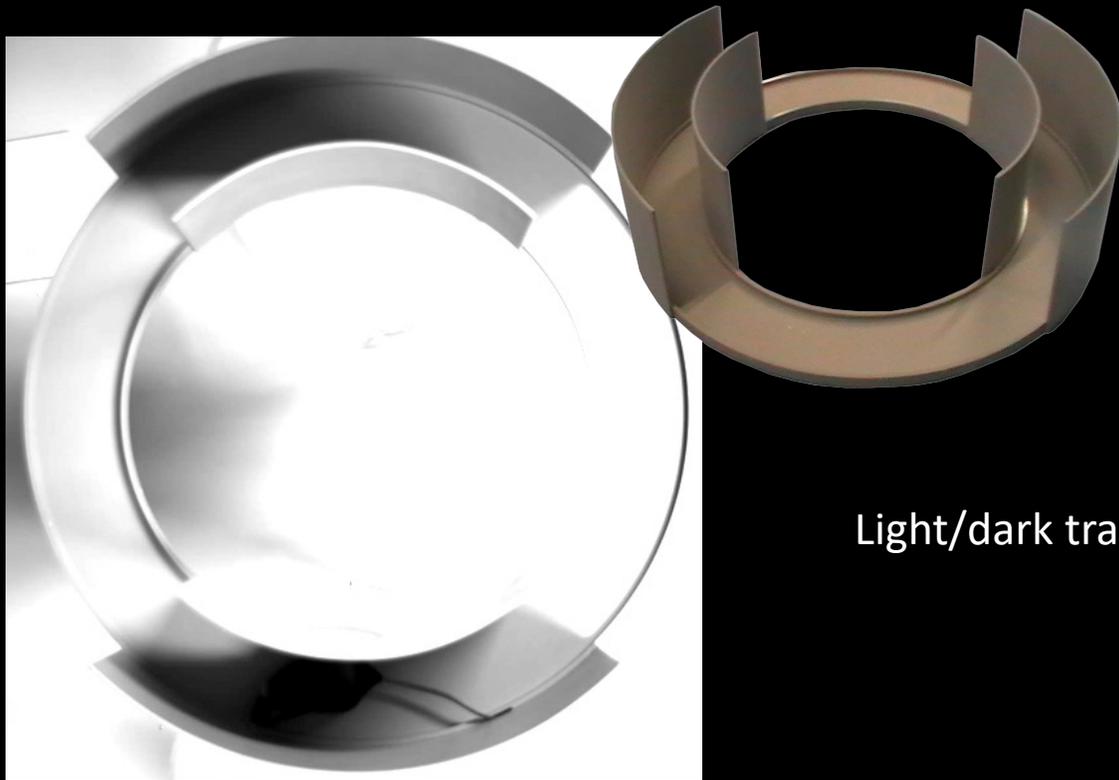
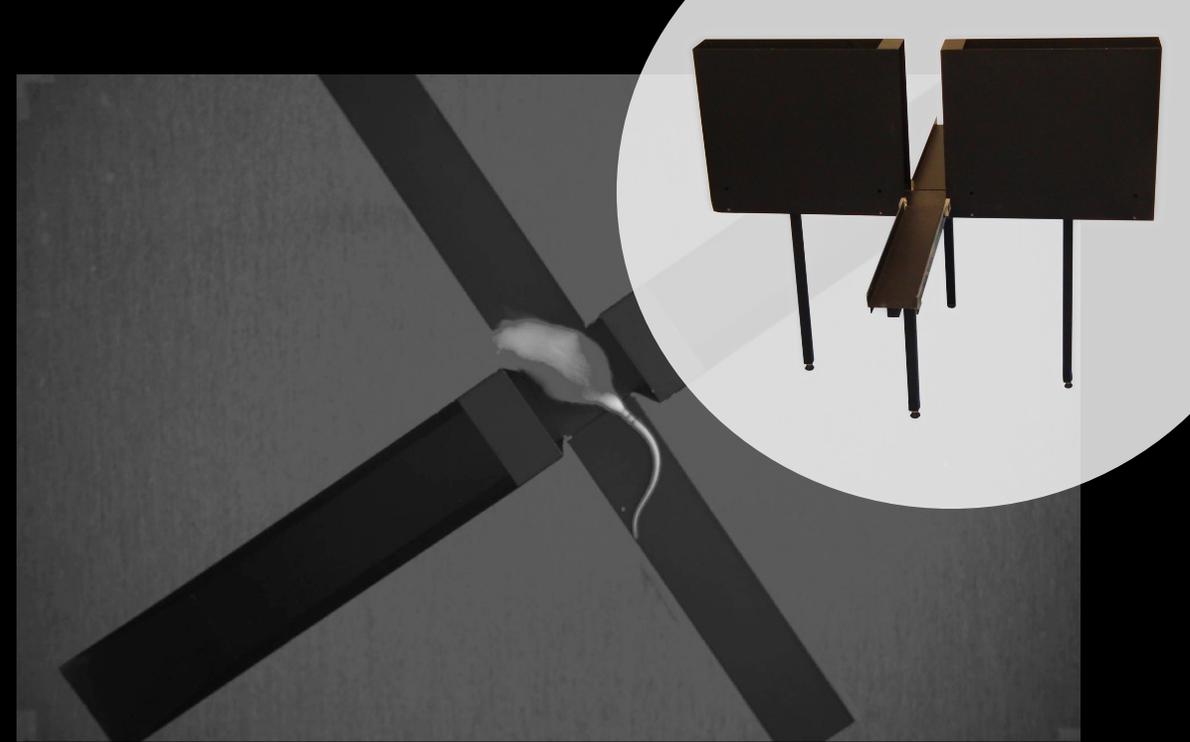
- Social novelty



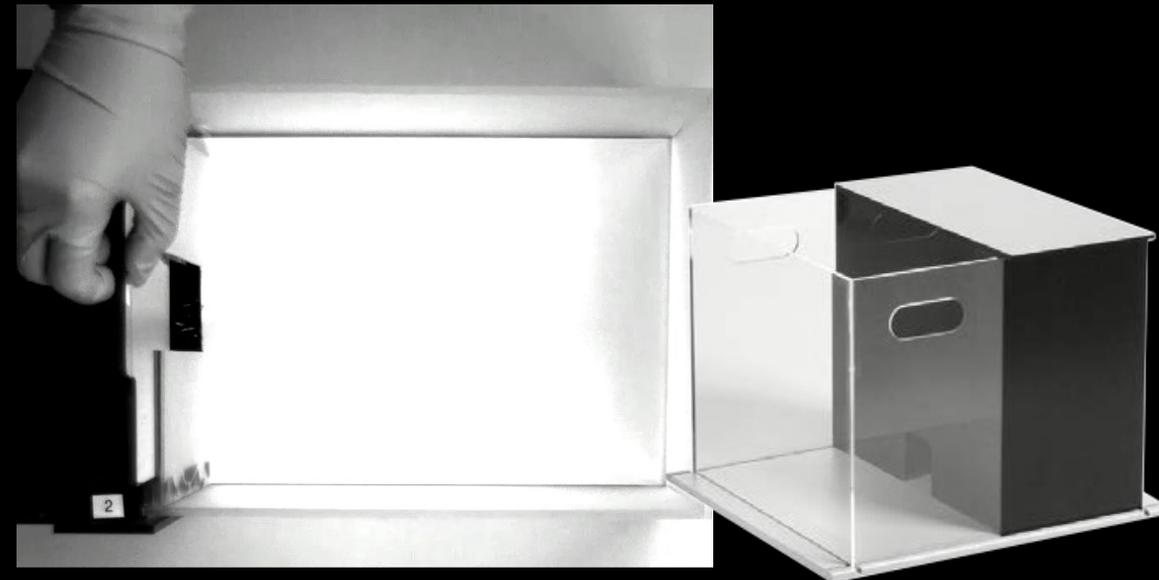
# Emotionality testing

- Anxiety

Elevated plus maze



Light/dark transition

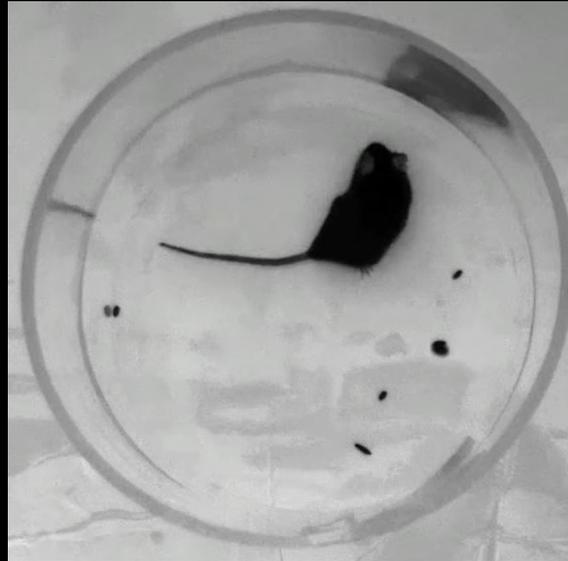


Elevated zero maze

# Emotionality testing

- Anxiety

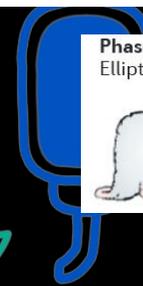
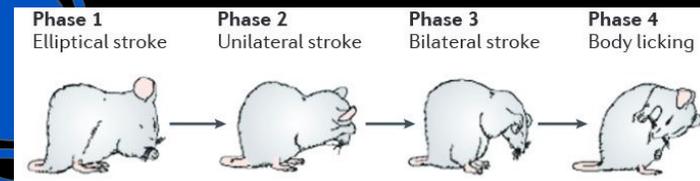
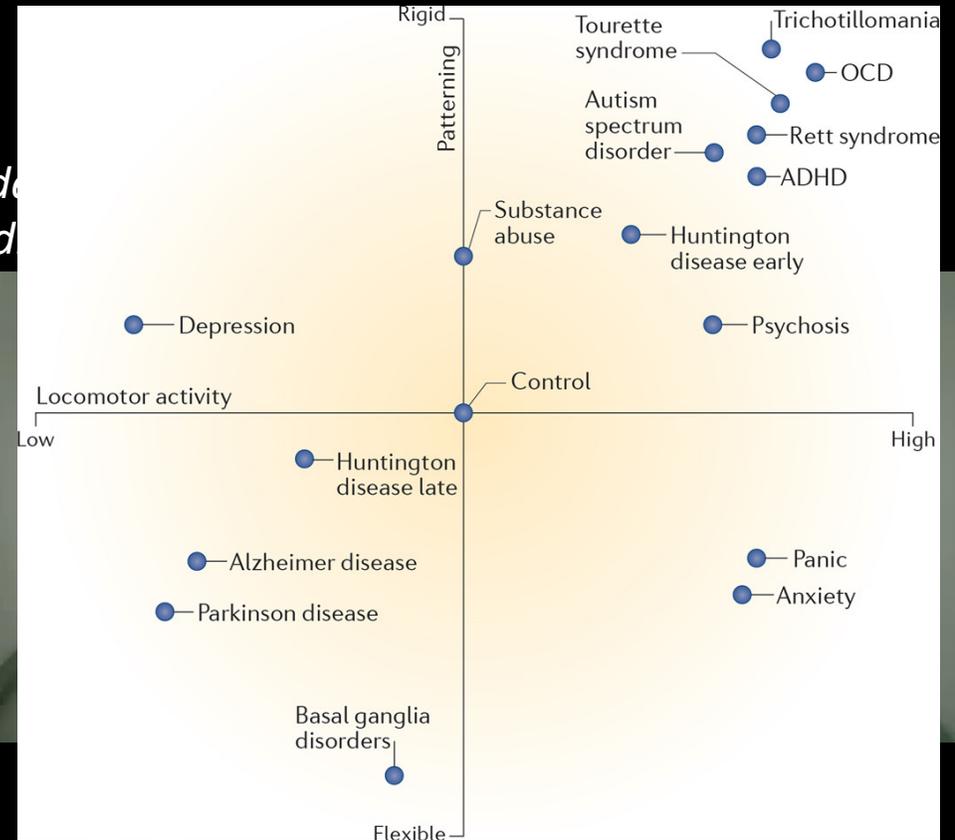
Grooming test  
(anxiety and patterns of stereotypic behaviours)



- Anhedonia/depression

*In development: Sucrose consumption test*

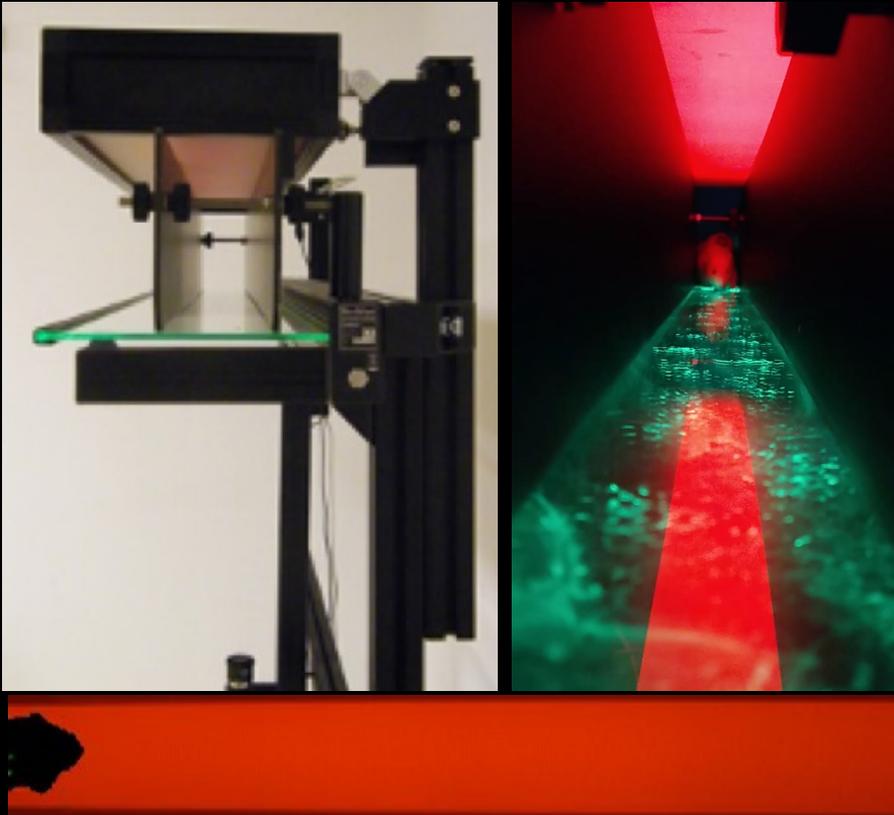
*In development:  
Auditory*



# Sensorimotor testing

- Coordination

CatWalk



Ladder rung walking error task



# Sensorimotor testing

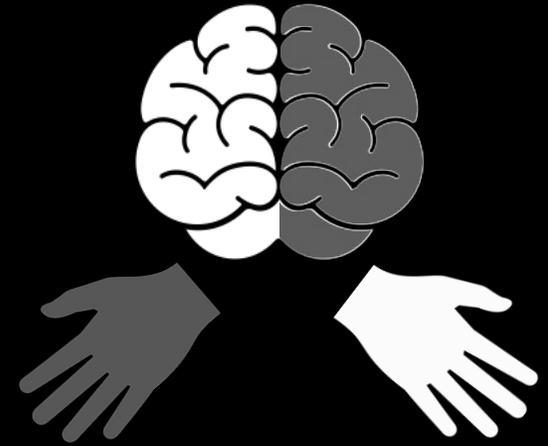
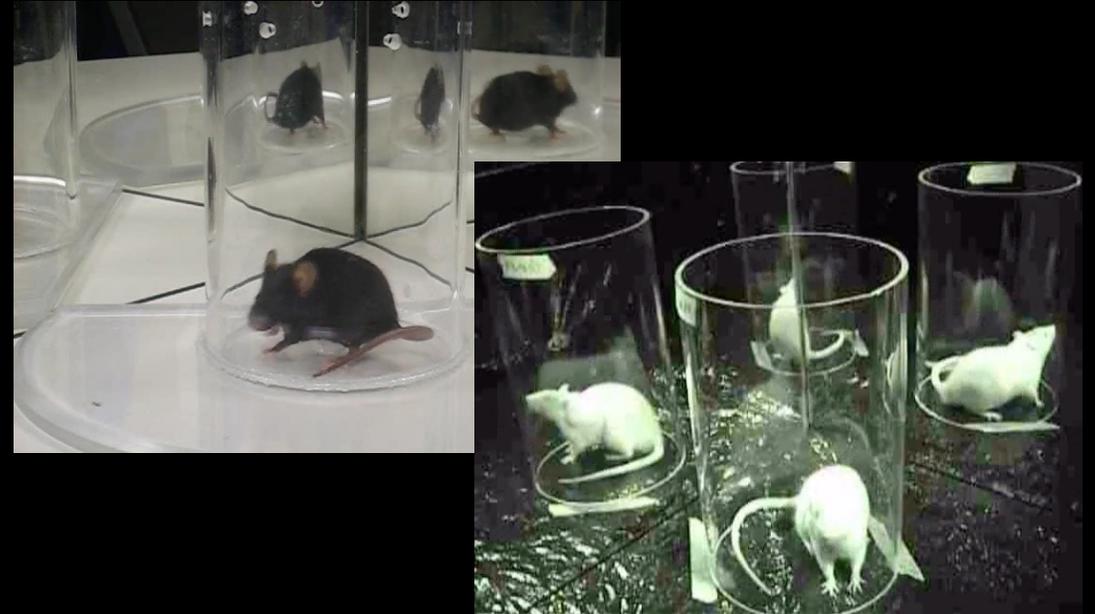
- Coordination

Rotarod



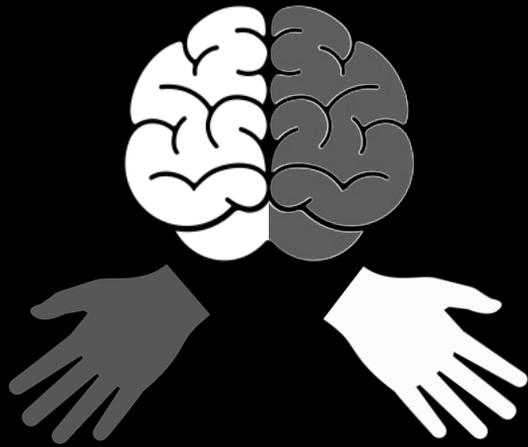
- Motor asymmetries

Cylinder test

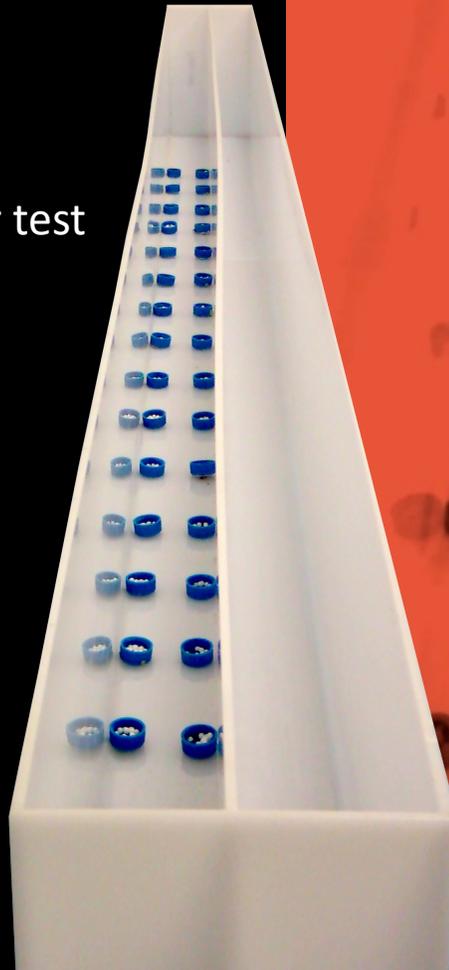


# Sensorimotor testing

- Coordination
- Motor asymmetries



Corridor test



Drug induced rotation



Adhesive removal



# Sensorimotor testing

- Coordination
- Motor asymmetries
- Fine motor skills

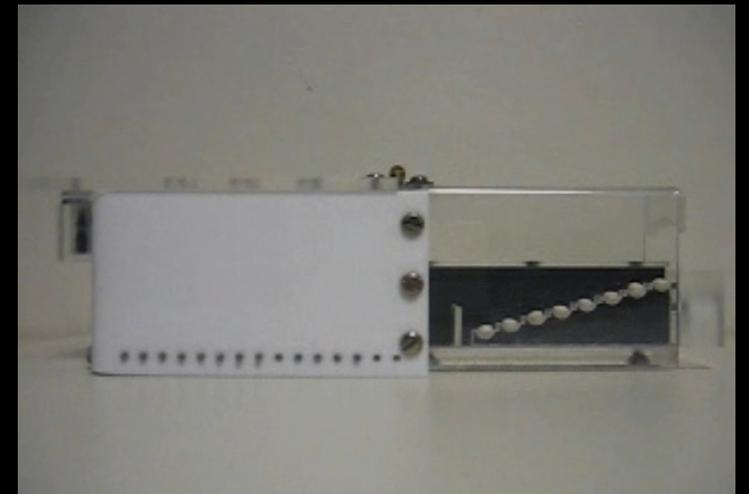
Pasta handling



Pasta matrix reaching test

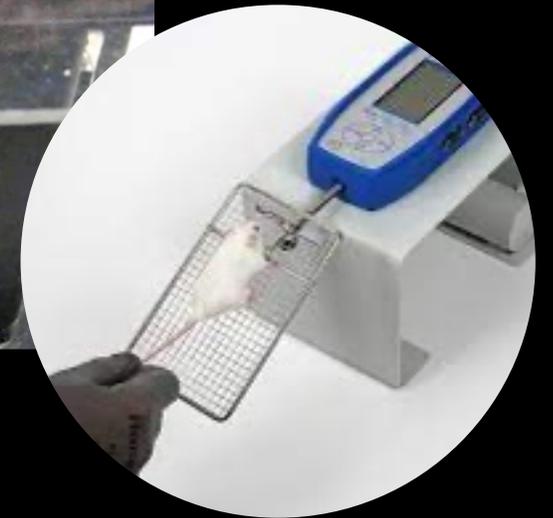
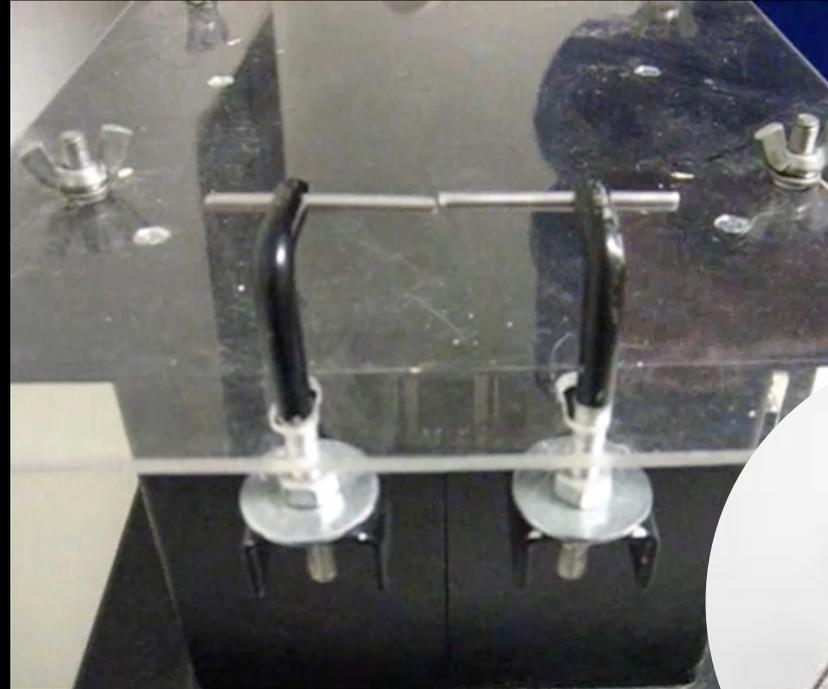


Montoya staircase reaching test



# Sensorimotor testing

- Coordination
- Motor asymmetries
- Fine motor skills
- Grip strength



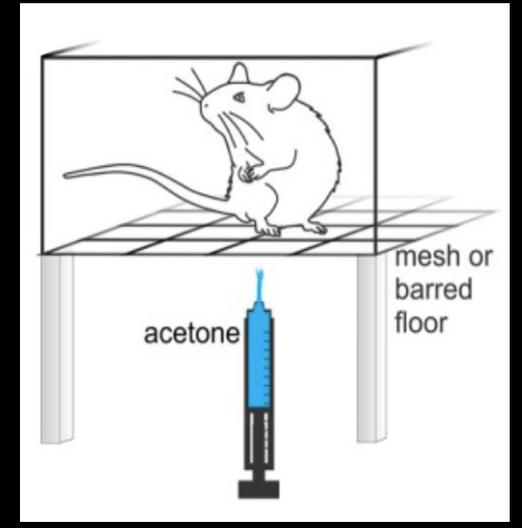
# Sensorimotor testing

- Coordination
- Motor asymmetries
- Fine motor skills
- Grip strength
- Tactile sensitivity

Plantar test for thermal sensitivity



Acetone allodynia for cold sensitivity



Dynamic plantar aesthesiometer for tactile sensitivity



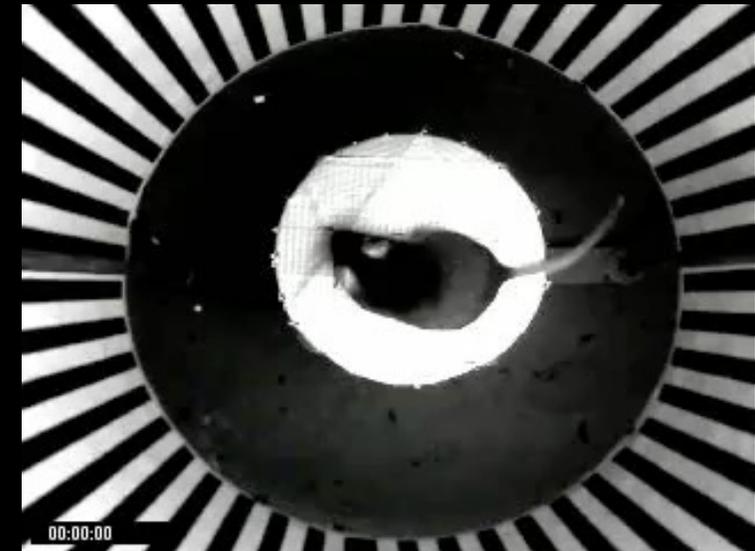
# Sensorimotor testing

- Coordination
- Motor asymmetries
- Fine motor skills
- Grip strength
- Tactile sensitivity
- Visual reflexes

Visual field test



Visual placing test



*In development: Optomotor response test*

- Home
- Announcements
- Discussions
- Files
- Syllabus
- Modules
- Collaborations
- Chat
- Pages**
- Recordings
- Learning Essentials
- Panopto Video

View all pages

# Behaviour Testing

Behavioural testing allows us to assess changes in motor function, cognition, memory, mood and sociability in rat and mice models of disease and recovery.

The Neurobehavioral Unit is integrative part of the CBR and operates in the Faculty of Medical and Health Sciences. We provide coordination & support for students looking to conduct behavioural testing in the VJU throughout a project. We have Standard Operating Procedures (SOPs 1344) available to browse, and for consultation with the Behavioural Technologist, that ensure validity and reliability of behavioural work.

**Erin Wood**, VJU Behavioural Technologist, is your point of contact for behavioural testing. Services provided include:

- Recommendations on suitable AEC-approved tests for your projects
- Development of new behavioural SOPs for AEC review
- Design/adaptation of equipment to fit your specific test criteria
- Co-ordination room bookings and equipment set-up
- Training and follow-up guidance
- Testing

Contact: [erin.wood@auckland.ac.nz](mailto:erin.wood@auckland.ac.nz)

To conduct behavioural testing you must complete "Module 2a: Handling rats and/or mice" (contact [christine.masters@auckland.ac.nz](mailto:christine.masters@auckland.ac.nz) ).

## Reference materials

▶ Newsletters

# Canvas

## SOP and resource repository

Located in Animal Health and Welfare at the University of Auckland course

### AEC-Approved Behavioural Test SOPs

These SOPs can be used in your ethics applications. Users must comply with the tests as described or detail and justify any variations in procedure in their ethics applications.

Many of these SOPs are up for their three year renewal:

- check the expiry date in the top right
- if out of date, contact the VJU Behavioural Technologist to find out the status of the SOP or check the latest newsletter

Don't see a test here that you want to use? Contact the Behavioural Technologist to discuss new SOP development.

▶ [All tests](#)

Tests by category

▶ [Anxiety and Stress Assessments](#)

▶ [Sensorimotor Assessments](#)

▼ [Memory and Cognition Assessments](#)

<p><a href="#">Morris Water Maze 1344/02 SOP 2021</a> ↓</p>	<p>Assessment of spatial learning and memory where animals are place in a pool and must use spatial cues to navigate to the hidden platform.</p>	
---	--	---

# *“In development”*

Drafting, piloting and AEC approvals for novel tests

Expanding on an existing SOP or adding a new test to repertoire



Consultation



Drafting



Equipment



Piloting



AEC guidance



Canvas



Questions,  
Comments,  
Existential crises?