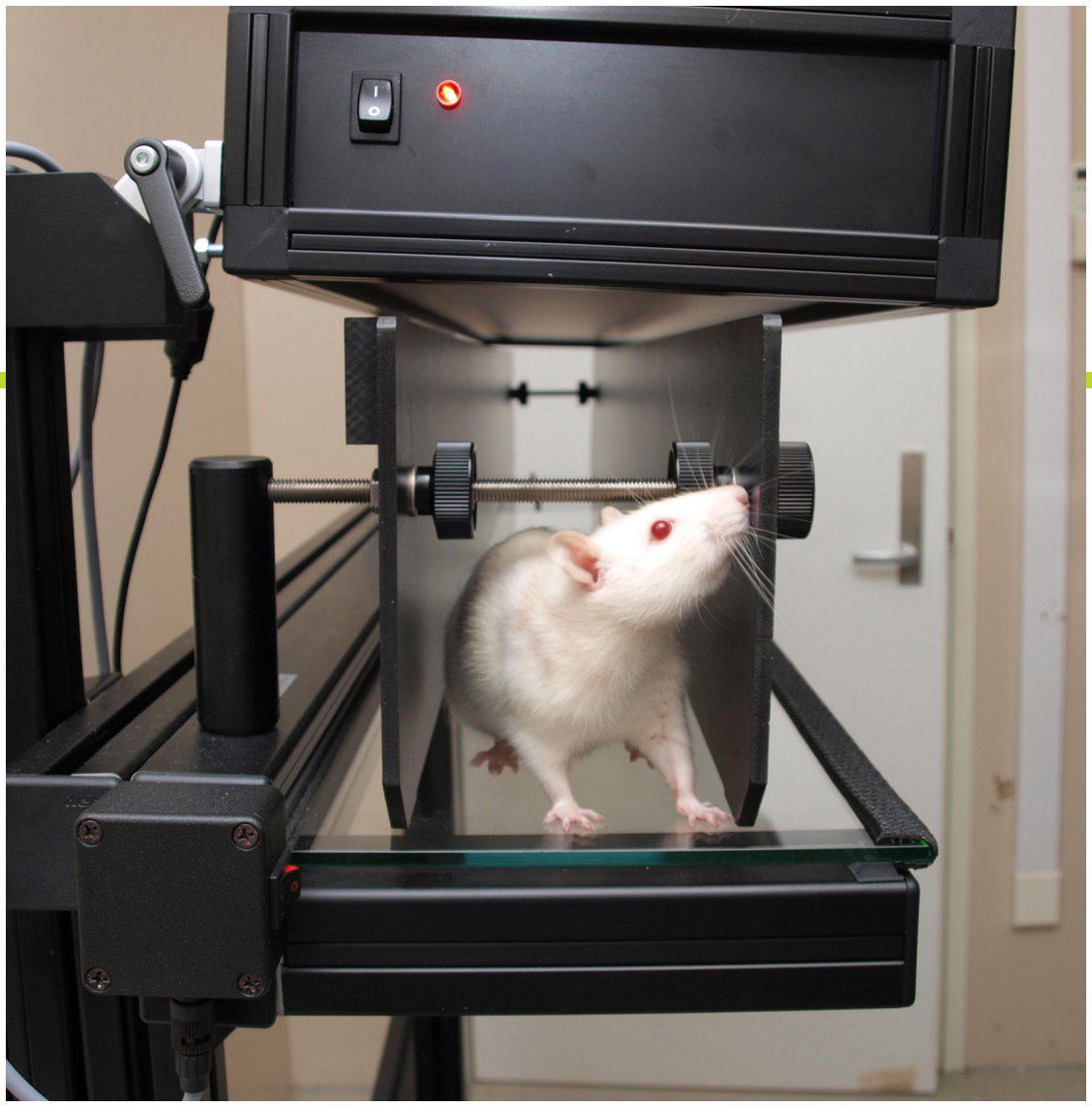


Getting the perfect runs

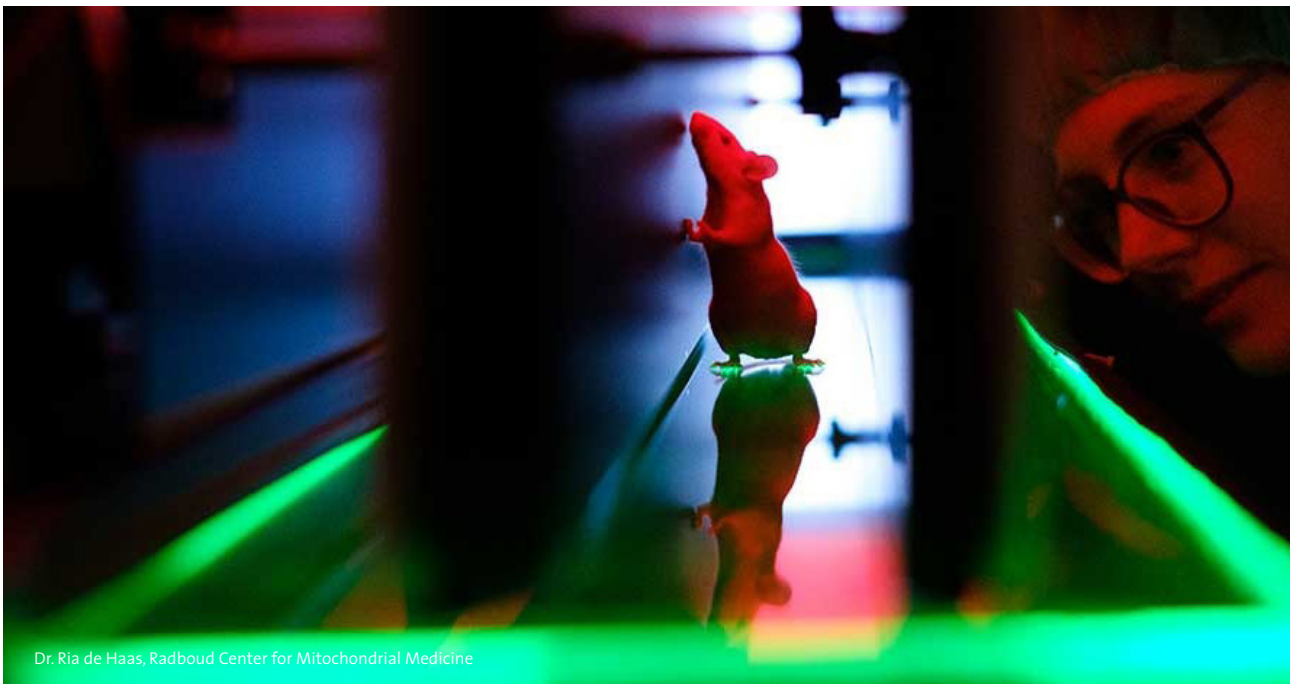
By Kristina Ängeby Möller

A white paper by Noldus Information Technology

HOW TO MOTIVATE YOUR RATS?

CatWalk™ XT is a gait analysis system based on the voluntary movement of rats or mice across a corridor, over a glass plate. Generally, animals quickly learn to cross in a consistent manner, especially rats. However, familiarizing them with the system before you start your experiment makes your job a lot easier.

So how do you familiarize and motivate your rats? Kristina Ängeby Möller has a lot of experience with pain research and gait analysis in rats, and shares some tips and tricks!



Dr. Ria de Haas, Radboud Center for Mitochondrial Medicine

5 TIPS

> It is vital to understand where rats come from – they are a prey species that mainly live underground and away from light.

1. GET RID OF STRESS

Perhaps the most important factor is to reduce the level of stress as much as possible. Stress will influence the testing but also the results. CatWalk XT helps by providing a relatively dark and save environment in which the animals can freely move. Stress relief starts with the care in the animal facility. It is vital to understand where rats come from – they are a prey species that mainly live underground and away from light. They are sensitive to threats from possible predators, including humans. As a researcher, you should always behave in a calm manner, habituate the rats to human handling, and never hold it too tightly. Also, never pick a rat up by the tail – it is one of the most sensitive parts of its body. Rats have a good hearing, so refrain from making any sudden sounds, especially sounds that are similar to squeaks from rats in distress. Having some background sound in the animal facility and in the experimental room, such as music from a radio, is an advantage.

2. FRIENDS ARE THE BEST MOTIVATORS

There are different kinds of stimuli one might consider, but a social one – using cage mates as a motivator – seems to work best. Recent versions of CatWalk XT are shipped including a goal box, if you are working with a previous version, try to acquire one. It really helps a lot to place all rats from a holding cage there and habituate them; 5 minutes is enough the first time which can then be reduced to 1 to 2 minutes. Once a

rat has crossed the walkway and discovered that there is an exit, it will remember that, and to go back to the cage mates is really all the motivation rats need to want to cross.

3. WHY FOOD DOES NOT WORK

In my experience, additional attempts to motivate rats with any rewards, like food, will not further improve their performance. In the context of a new surrounding this is not something rats will even willingly try, as it may be threatening to their health. Just keep in mind that rats are one of the most successful species that have spread across the globe and are very clever; they usually avoid trying anything new unless they can take the risk and can gain from the consequences.

4. DON'T FORCE THEM

Never try to "make" the rats walk by using sounds to startle them, by pushing them forward, or by any other technique you can think of. The more you try that, the more stressed they will get and the less they will want to walk. Instead, once you put them into the walkway, try to stay as silent and unnoticeable as possible. I myself put a limit at 20 minutes waiting for a rat to cross, but that rarely happens; only with one in two- or three hundred rats.

> Once you put them into the walkway, try to stay as silent and unnoticeable as possible.

5. DON'T LOOK DOWN ON THEM

Don't look down on them, or do anything else, from above. That will intimidate the rat tremendously, as it will probably interpret you as something threatening. The best would be to keep the walkway covered by the ceiling during the experiment, which is automatically the case in recent CatWalk XT versions. When a rat has become accustomed to crossing the walkway, then it can accept being lifted from it, looked at, and many other distractions.

ABOUT THE AUTHOR

Kristina Ängeby Möller has been setting up and validating in vivo behavioral models in the mouse, rat and guinea-pig for more than 35 years at AstraZeneca R&D Södertälje, R&D CNS Research Orion Corporation Orion Pharma Turku, and Karolinska Institutet. Models include Stereotypic behaviors, Catalepsy, Monoarthritis, and Neuropathy. Endpoints include spontaneous behavior, thermal and mechanical sensitivity, and gait analysis.

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