Topcat Metrology Ltd

"Looking behind the measurement"

www.topcatmetrology.com www.mousemet.co.uk

MOUSEMET: a significant opportunity for the 3Rs

Topcat Metrology Ltd has, over the last 20 years, developed thermal and mechanical nociceptive threshold testing systems for companion, sport and farm animals. In the last 5 years this has extended to laboratory animals: MouseMet is a unique system which provides both stimuli in the same testing environment and which is available for both mice and rats.

The company, run by a leading veterinary anaesthetist, continually refines its products with the aim of providing systems that are in line with the 3Rs:

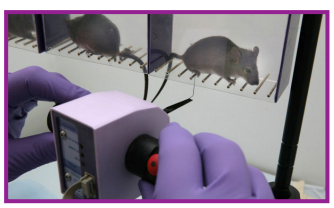
- The algometer range is a result of research by Topcat into the effect of tip size on mechanical threshold. Use of the Prod is now accepted as Recognised Veterinary Practice for clinical pain management.
- The thermal probes have been refined, part funded by NC3R, to minimise tissue damage. Topcat's thermal threshold system is commonly employed as a measure of analgesic efficacy in the preclinical studies required for drug registration.

MouseMet is a golden opportunity to apply the 3Rs in pain research: the Refinement of measurement technique and the improvement in welfare over traditional von Frey filaments and Hargreaves- style hotplates are considerable for both mice and rats.

MouseMet EvF

Developed for the University of Newcastle, who reported that the existing electronic systems were impractical for mice. They had reverted to von Frey filaments, requiring many tests and giving poor data.

- Topcat developed a novel, rotary transducer, with a force range specifically for mice (0.1 -7gf) and a probe tip that buckles (like a filament) to limit the force applied. This provides a single ramped stimulus and records the threshold force.



- A one-dimensional run was developed to ensure that the mouse sits sideways to the operator. This enhances the animals' well-being, compared with the traditional square and mesh-floored cage, as testing is quicker and easier.

Ten Mousemet EvF systems are now in use around the world. An experienced scientist from the USA reports that *"Mousemet EvF provided our behavioral endpoint to quantify tactile allodynia and its attenuation in this mouse CIN model. It is a terrific piece of instrumentation that has led us to a novel approach for treating CIN."*

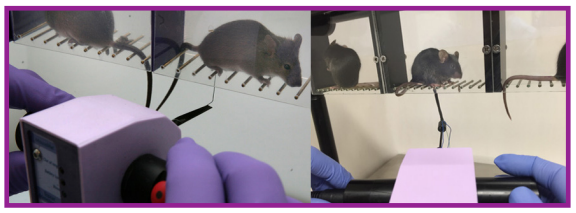
Mousemet Thermal

- Developed for a MouseMet EvF user, to replace the Hargreaves test (where a thermal stimulus is applied to the plantar surface through the glass floor of an enclosure. The mouse must be moved from the cage used for mechanical testing and given time to acclimate again).

Topcat mounted a 2mm thermal probe on the tip of the MouseMet EvF transducer. The probe heats automatically when touched onto the plantar surface and peak-holds the threshold temperature when withdrawn at the animal's response. A safety cut-out is incorporated at a preset temperature.

MouseMet is a Complete Solution

MouseMet is a unique, dual modality testing system with a considerable contribution to the 3Rs.
Both modalities can be applied in one environment - less handling, less stress and better data.



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