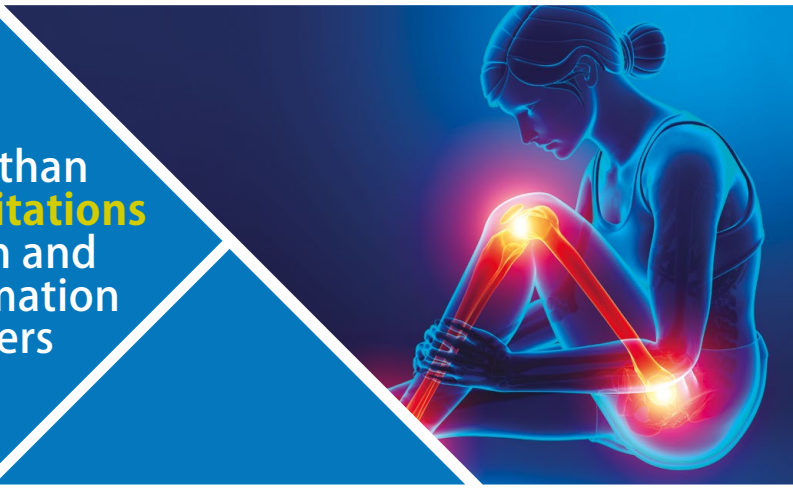
Pain and Inflammation

More than **15,000 citations** in pain and inflammation papers



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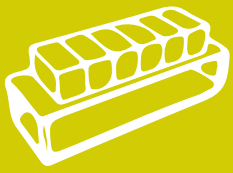

Estimates suggest that **20% of adults suffer from pain globally**[1]. Chronic pain is the most common cause of long-term disabilities.

From 1963 Ugo Basile's devices have had a prominent role in research on pain & inflammation, precious tools for researchers to achieve their experimental goals.

[1]D. S. Goldberg and S. J. Mcgee, "Pain as a global public health priority"

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NEW

THERMAL GRADIENT RING (Zimmermann's method)

An innovative device for Thermal Preference Phenotyping in Mice

The Thermal Gradient Ring is a novel device, which allows recording and analysis of Comprehensive Thermal Preference Phenotyping in Mice, according to Katharina Zimermann's method.

In recent years the cellular and molecular mechanisms of temperature sensing and thermoregulation subject of research. Some researchers have the limits of the two-temperature choice test. To overcome current limitations we have designed a novel circular thermal gradient assay for thermal preference phenotyping, based on the paper "Comprehensive thermal Preference Phenotyping in Mice using an innovative Automated Circular Gradient Assay", published by the University Erlangen-Nuernberg (see Zimmermann's paper). The new TGR (Thermal Gradient Ring) provides an high degree of freedom, i.e. thermal choice, and eliminates experimenter bias.

The TGR is suitable to test neuropathic pain, and allows discerning exploratory behavior from thermal selection behavior!

The advantages brought about by the circular design are duplicate values, no border effects and no spatial cues, guaranteeing bias-free, reproducible data. The TGR is more sensitive than previous methods: gradient setup is superior to two plate choice designs (reflects a more complex physiological environment, requires less time, less manpower and less mice).

FEATURES	BENEFIT
New circular design, ID 45cm, OD 57cm	Duplicate values, no border effects, no spatial cues
Thermal Insulated Ring-shaped Aluminum Runway	More sensitive than previous methods: bias-free, reproducible data and ability to dissect exploration-driven behaviour from temperatu-re-driven behaviour
Heater and cooler on opposite sides, to establish a symmetric gradient	Gradient setup superior to two-plate choice design
12 zones per side (specular), 40cm2each	Temperature Δ proportionally divided into 12 (in the method paper 15°C-40°C = 2.27°C per zone)
4 thermocouples embedded in the thermal gradient ring	The exact temperature gradient measured in real time
CCD-camera and ANYmaze video-tracking software	Temperature-driven, Behavior recorded automatically

THERMAL PLACE PREFERENCE
Two-Temperature choice, for mice and for rats

NEW

The Ugo Basile Thermal Place Preference Test, or Two-Temperature Choice Test, is an operator independent test which allows monitoring temperature preferences and nociceptive thresholds in rodents (mice and rats), by assessing the rodent's temperature preference.

An unrestrained animal (both rat and mouse) can move freely between two 2 compartments set at different temperatures, thus choosing its preferred position (comfort zone).

This behavioural protocol provides data about temperature preferences, nociceptive thresholds associated to both hot and cold stimulation.

The animal response can be visually observed by the user, and marked manually or on a manual scoring software. In alternative, more detailed information on the animal behaviour can be obtained and recorded automatically via a videotracking system.

FEATURES	BENEFIT
Two-environment temperature test	Easily monitor thermal place preference and nociceptive thresholds
Unrestrained animals	Less stress for the animal, less user errors, integrated learned responses to thermal painful and non-painful stimuli
Based on validated standard Ugo Basile devices	Can also be used as independent Hot/Cold Plate Device and Auxiliary Hot Plate
Optional Videotracking System for automatic scoring and behavioral tracking	Bias-free reproducible data
Versatile device	Allows flexibility of test and methods

NEW

TAIL FLICK NG
A classical device, redesigned

Ugo Basile has redesigned the Tail Flick, a classical device, which measures the latency of the avoidance response, i.e. the flicking of the tail, when pain is induced by radiant heat, according to the method described by D'Amour & Smith in 1941.

The rodent is held by the operator on the instrument unobstructed upper panel in such a way that its tail, placed over a flush mounted window, receives the I.R. energy. The operator starts the stimulus and the related reaction-time counter by the pedal switch provided.

When the animal reaches the threshold of pain and flicks its tail, a sensor detects the tail removal from the heat source and stops the reaction-time counter, simultaneously switching off the bulb. The reaction time of the animal is thus automatically determined to the nearest 0.1 second.

The main features of Ugo Basile model are:

- Adjustable I.R. Intensity
- Automatic detection of the animal response
- Comfortable, unobstructed working surface
- Excellent reproducibility, no stray radiation
- Automatic conversion from heat % to energy. **NEW!**

Mouse restrainer available: while rats submitted to Tail-Flick Test are normally not confined in a holder, when testing mice it might be convenient to use the inclined restrainers available as optional

FEATURES	BENEFIT
Tail-flick is scored automatically, by a fiber optic	Precise score, free of human variability
USB memory key and software are included	Works as a stand-alone or connected to the PC
No protruding elements and unobstructed surface	Work confortably and get excellent reproducibility
Automatic conversion of heat % to Energy	Easier reproducibility and data comparability

Plantar Test

The **Plantar Test** Instrument (Hargreave's Method) measures the response to infrared heat stimulus, applied to the plantar surface. Our **Plantar Test** is the original apparatus, designed in close cooperation with Prof. Ken Hargreaves, who devised the method. Latency to paw withdrawal and infrared intensity are recorded automatically (i.e.no manual scoring, as in other models available on the market!).

The **Plantar Test** represents a remarkable advance in methodology, as it combines some of the best features of all other methods pain sensitivity. Unique to the **Plantar Test**, the animal is unrestrained during experiments and time latency is recorded automatically

Dynamic Plantar Aesthesiometer

The **Dynamic Plantar Aesthesiometer** (DPA) was designed to automate the assessment of "touch sensitivity" and allodynia on the plantar surface of laboratory rodents and comes ready with all necessary accessories to work with both Mice and Rats. At each paw withdrawal, the DPA automatically detects and records latency time, and actual force at the time of paw withdrawal reflex.

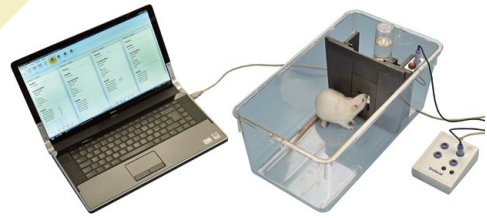
A movable force actuator is positioned below the plantar surface of the animal and the desired force and force speed (ramp) is applied, as preset by the operator. A Von Frey–type 0.5mm filament exerts increasing force, until the animal twitches its paw.

Hot/Cold Plate

The new **Hot/Cold Plate** NG offers a wide temperature range, presettable in the range -5°C to 65°C and is very quick and precise in reaching and keeping the desired temperature. It can be used as a conventional hot plate, to carry out a rapid precise screening of narcotic type analgesic drugs according to the well known test devised by N.B. Eddy and D. Leinbach, while as cold plate it is useful in studying cold receptors and cold allodynia, a phenomenon very frequently observed in chronic pain on humans.

Two working modes allow for testing at fixed temperature or at increasing/decreasing temperature (RAMP). Brand new, user friendly software, to set up the experiment and manage the results.

Orofacial Stimulation Test



The **Orofacial Stimulation Test** by Ugo Basile is a new method to measures hypersensitivity to thermal or mechanical stimulation of the trigeminal area in rats and mice; animals are trained & tested in standard home cages.

Rats voluntarily contact a thermal or a mechanical stimulator with their vibrissal pad in order to access a food reward. No shaving is required, thus making the test not invasive at all. This innovative approach permits the parallel measurement of highly integrated nociceptive responses to thermal or mechanical stimulation.

Metrics obtained are the duration of feeding and the number of feeding attempts, are collected by the **ORO-Software** from up to 16 cages.

Plethysmometer

The first and original device designed specifically to measure paw volume and its changes (swelling) in rodents. Almost 3000 bibliographic citations since the 1960s!

Our **Plethysmometer** 37140 displays the exact paw volume on the graphic LCD read-out with 0.01 ml resolution. Small differences are detected by a transducer of original design. The 37140 is provided with a pedal holding-command which freezes the reading, enabling the operator to concentrate its attention on the paw dipping. Measuring cells are available in different sizes.

P.A.M. (for Joint Pain)

The **PAM (Pressure Application Measurement)** device is a novel tool for measuring mechanical pain threshold. Specifically designed and validated for Arthritis research, it is especially suited to assess joint hypersensitivity in rodents knees or ankles.

The **PAM** device can also be used to measure mechanical sensitivity in mouse and rat paws and rats paw, by using a specific Paw Pressure Transducer (optional). The **PAM** applies a quantifiable force for direct stimulation of the joint and for automatic readout of the response.

Analgesy-Meter (Randal-Selitto)

The Ugo Basile original design of this classic device dates back to the 1960s. The **Analgesy-Meter** performs Paw Pressure experiments according to the Randall-Selitto method for a rapid and sensitive screening of analgesic and anti-inflammatory drug. The force is applied to the animal paw, by a cone-shaped pusher with a rounded tip, which does not hurt the animal. The 37215, originally designed for rats, is conveniently used also with mice.

The operator presses a pedal-switch to start the mechanism which exerts the force; when the rat struggles, the operator releases the pedal and reads on the scale the force at which the animal felt pain.

e-VF Electronic VonFrey

An **Electronic Von Frey** of original design, for automatic assessment of Hypersensitivity and Allodynia in rats and mice, automatically records the animal response to user-controlled application of force rate. A touch stimulator transducer is mounted on a Perspex handle, so that routine procedures may be employed to examine and test the animal skin sensitivity. A proprietary prism is of great help to localize the aimed stimulation area.

The display gives the operator a summary of the results of the test, i.e. force and time corresponding to the animal response.

VonFrey Filaments

The Aesthesio® set of 20 monofilaments is based on the Semmes Weinstein monofilament set, and features retractable head to protect the filament and allow the evaluator to carry a few around in a pocket. Used for evaluating cutaneous sensation levels, it's one of the most popular non-invasive techniques used.

The filaments are individually calibrated to deliver a target force, from 0.008 grams to 300 grams. Subsets of 5 and 6 filaments, as well as individual filaments are also available. The Aesthesio filaments can be used on the Plantar surfaces or the foot of a rat or mouse, walking on a laser-cut metal platform we offer as optional

Durham Holders for Orofacial Stimultion

The Durham Animal Holders are new rat holders for trigeminal stimulation, the newest accessory for use with the Plantar Test and Dynamic Plantar Aesthesiometer, manufactured by Ugo Basile.

These animal holders complete the scope of the infrared thermal stimulus of the Plantar Test, or the mechanical stimulus of the Dynamic Plantar Aesthesiometer, used for assessing hind paw withdrawal. This new invention allows the application of the same stimulus to the region innervated by the trigeminal nerve.

Heat-Flux I.R. Radiometer

The Heat-Flux Radiometer was designed to calibrate I.R. sources, in particular the Ugo Basile Tail Flick and Plantar Test, to make sure they deliver the same power flux (expressed in mW per square cm) and hence a nociceptive stimulus of the same intensity.

The 37300 Radiometer enables the experimenter to check (and adjust, if necessary) the I.R. emission. Knowing the I.R. energy (1mW for the duration of 1s corresponds to 1mJ) in absolute terms, is a useful datum to compare with any equal or different method/instrument described in the literature.

UGO BASILE offers the most comprehensive line of instruments for nociception and inflammation studies, all of original design:

NEUROPATHIC PAIN - HYPERALGESIA
ALLODYNIA - HYPERSENSITIVITY
JOINT PAIN - OROFACIAL PAIN
SOMATOSENSATION
INFLAMMATION
THERMAL PREFERENCE
on laboratory animals

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Behaviour, Mazes, Tracking
Tissue baths, Transducers, Recorders
Miscellaneous, ECT, LMD
Blood Pressure, Vital Functions
Metabolism, Feeding Behaviour
Muromachi Microwave Fixation

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UGO BASILE Inventions

Our roots trace back to the 60s at University of Milan, where our founder was appointed Chief Lab Technician. Ugo Basile was able to bring together expertise engineering and design to develop instruments for different applications.

His reputation as a clever inventor quickly spread beyond the local academic setting: researchers used his equipment and published in scientific papeers: reliability and innovation became the best advertisement.

Basile inventions received a warm welcome at the 1966 FASEB in Atlantic City! Quickly, even greater demand for his instruments and diversification of product line encouraged Ugo to found his own company. Born out of a three-man cottage-industry, the company grew fast and in 1973 relocated in a larger, well-equipped production facility on the Lake district.

Today, UGO BASILE is world leading manufacturer of instruments for Behavioral Research, providing classic and innovative instruments appearing in more than 25,000 hits in the major bibliographic search engines.