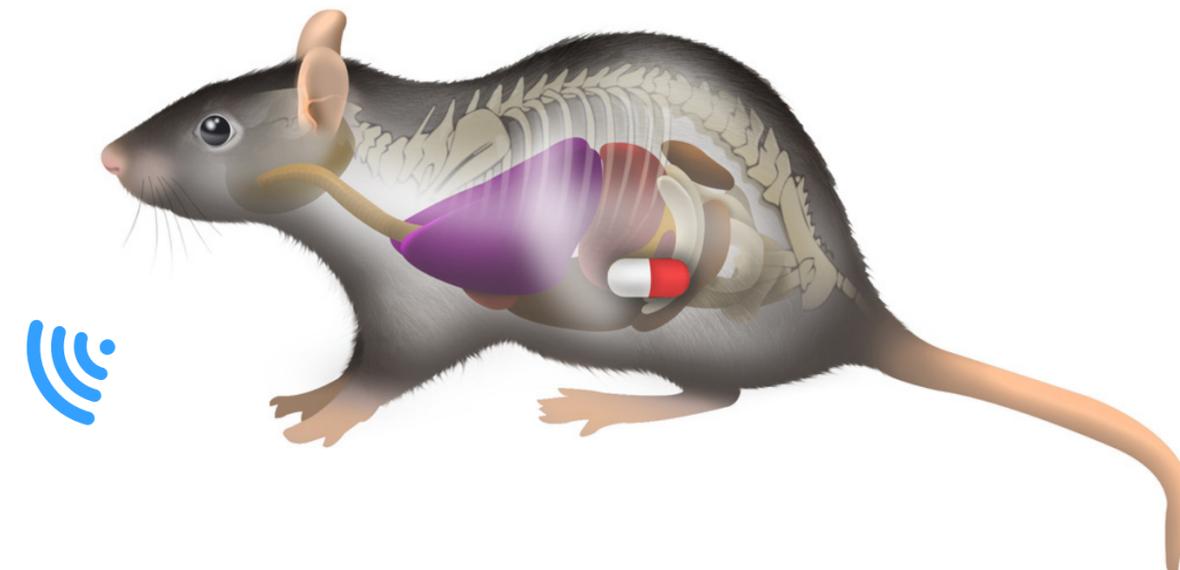




**ANIPILL[®]
SYSTEM**



Anipill[®] brochure

Innovative solution for reliable, accurate and continuous core temperature monitoring in many species.

Summary

1

Current animal field applications **slide 2**

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Anipill® specifications **slide 4**

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About Anipill®: To sum up **slide 5**

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Example of research studies **slide 6-8**

Current animal field applications

Few examples



ANIMAL PHYSIOLOGY

- Thermoregulation
- Chronobiology
- Sleep research



DISEASES MODEL, INFLAMMATION AND TOXICOLOGY



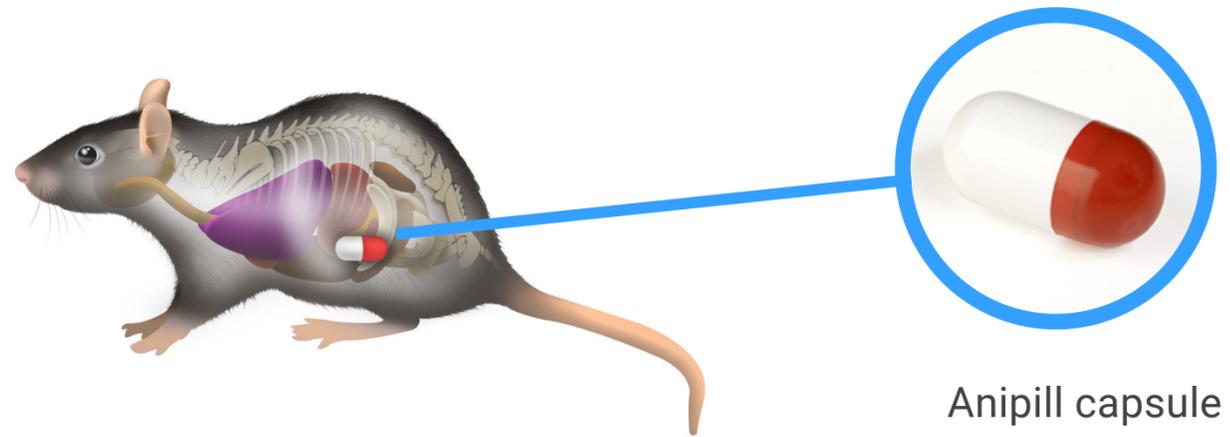
VIROLOGY, INFECTIOLOGY AND VACCINE DEVELOPMENT



RACING ANIMAL - RESCUE ANIMAL

Introduction

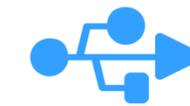
Anipill[®]: the essentials



RF 433Mhz



Anilogger
monitor



Activation box to turn on the pill



Anilogger Manager
software

Communication range in real time : from 1 to 3 m (animal size & environment depending)

About Anipill®

Specifications



ANIPILL® CAPSULE SPECIFICATION

Sterile device	Yes (via Ethylene oxide)
Size (diameter x length)	8.9mm x 17.7mm
Weight	1.7g
Temperature accuracy	+/- 0.2 °C (+/- 0.36°F)
Temperature resolution	0.01°C (0.03202°F)
Life duration	20 days to 10 months
Shelf life	2 years
Measurement period available	1min, 2min, 5min, 15min, 1h
Temperature range	25°- 45°C (77-113°F) below 25°C, consult us

The mean lifetime

Measurement period	Lifetime
1min	1 month
2min	3 months
5min	5 months
15min	8 months
1h	10 months

From 20g to 40kg, above consult us



Equipement



ANIPILL® ACTIVATOR: to turn on the pill

Size	69mm x 59mm x 31mm
Shelf life	2 years



ANILOGGER® MONITOR SPECIFICATION: to visualize and record the data collected

Size	120mm x 70mm x 15mm
Number of pills associated	Up to 8 pills
Storage	85 300 data per pill
Autonomy	24/36h



3 main parameters may impact the performance of the system

- Animal specie
- Metallic environment
- The use of real time vs synchronization

We can advise & help you to define the best configuration for your specific protocol.

About Anipill®: To sum up

Animal core temperature monitoring



Technical specifications:



PILL INTERNAL MEMORY

Embedded memory in the pill allows to continuously store the last 2000 collected data independently of the life duration.



MEASUREMENT PERIOD

The sampling period can be changed all along the experiment.



SIMPLE WAY OF WORKING

After the capsule activation and implantation (2min process), the capsule automatically collects and transmits accurate and reliable temperature data to the Anilogger monitor.

Other:



ADD MARKERS

Markers can be added all along the experiment to highlight a specific event.



LIGHTWEIGHT & TINY

Capsules are lightweight 1.7g and measure 17.7mm x 8.9mm



USED IN SEVERAL ANIMAL SPECIES

Designed for animals from 20g to 40kg. (above consult us)

Scientific advantages:



NO DATA LOSS

No data loss even if the animal is put out of the communication range for a while.



REAL TIME & A POSTERIORI DATA RECOVERY

If the monitor is in the communication range of the pill, you can collect real time data. If not the monitor will synchronize the missing data as soon as the pill and the monitor are in the same communication range.



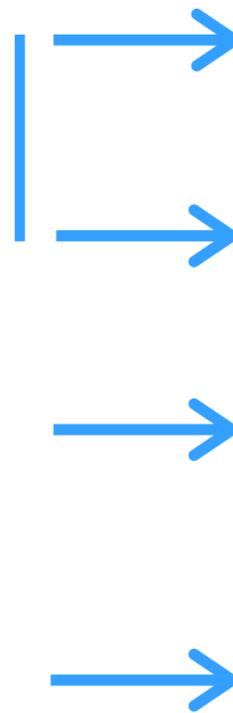
LONG TERM MONITORING

Anipill capsules have a 2-year shelf life and are able to monitor core temperature from 20 days to 10 months depending on the sampling period used.



TIME SAVER

Save time thanks to quick and easy implementation.



Example of research studies

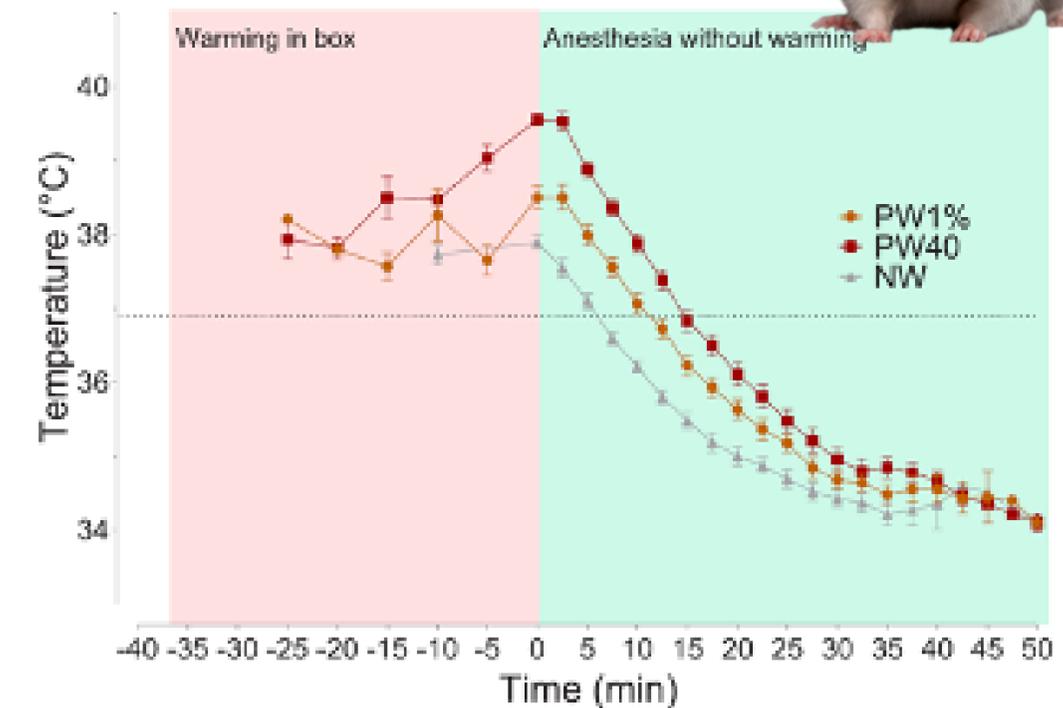
Animal physiology - Thermoregulation

CORE TEMPERATURE CHANGES IN RATS PRE-WARMED TO 40°C (PW40, N = 17), 1% ABOVE BASELINE TEMPERATURE (PW1%, N = 17) OR WITHOUT WARMING (NW, N = 17).



ANIPIILL® ADDED VALUE

- 1 Continuous core temperature control
- 2 Real time AND *a posteriori* data recovery
- 3 Define individual thermoregulatory profile



Publications:

Laperrousaz et al., (2018) Lipoprotein Lipase Expression in Hypothalamus is involved in the Central Regulation of Thermogenesis and the Response to Cold Exposure

Meyer et al., (2017) Body Temperature Measurements for Metabolic Phenotyping in Mice

Rufiange et al., (2020) Pre-warming before general anesthesia with isoflurane delays the onset of hypothermia in rats

Example of research studies

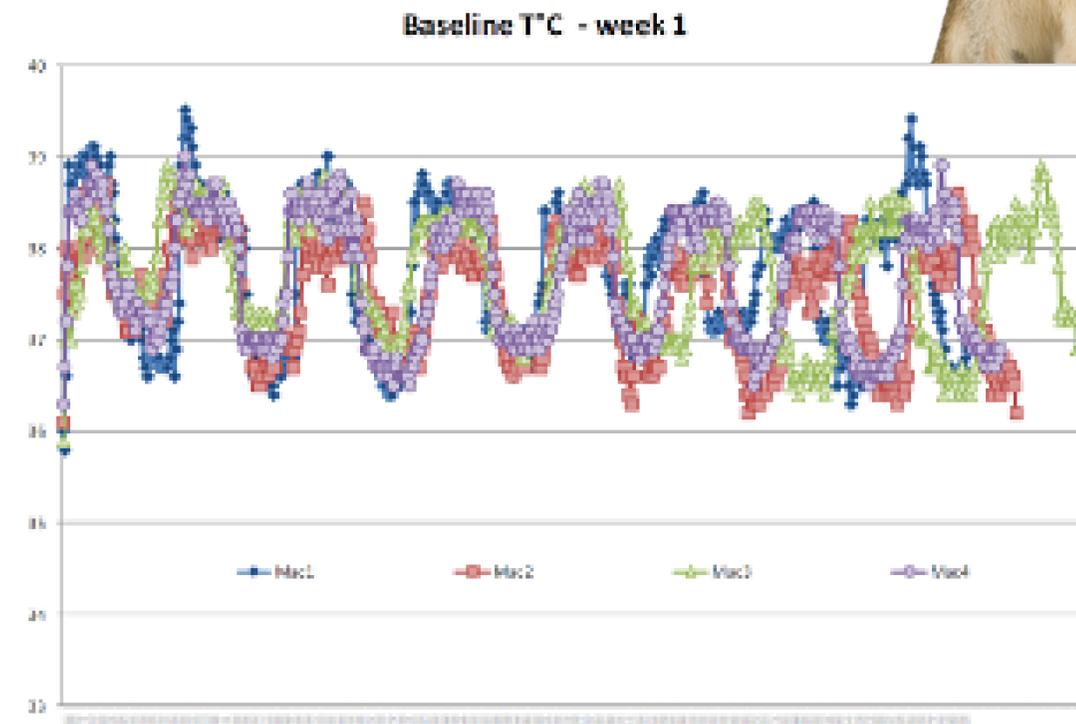
Animal physiology - Chronobiology & Sleep research

MEASUREMENTS RETRIEVED FROM ANIPILL® CAPSULES IMPLANTED IP IN NON HUMAN PRIMATES



ANIPILL® ADDED VALUE

- 1 Easy access to a long-term core temperature monitoring
- 2 Real time AND *a posteriori* data recovery
- 3 Assessment of individual CBT rhythm



Publications:

Tattersall et al., (2016) Novel energy-saving strategies to multiple stressors in birds: the ultradian regulation of body temperature

Schulze et al., (2018) Body temperature of bitches in the first week after parturition measured by ingestible loggers

Guisle et al., (2020) Circadian and sleep/wake-dependent variations in tau phosphorylation are driven by temperature

Example of research studies

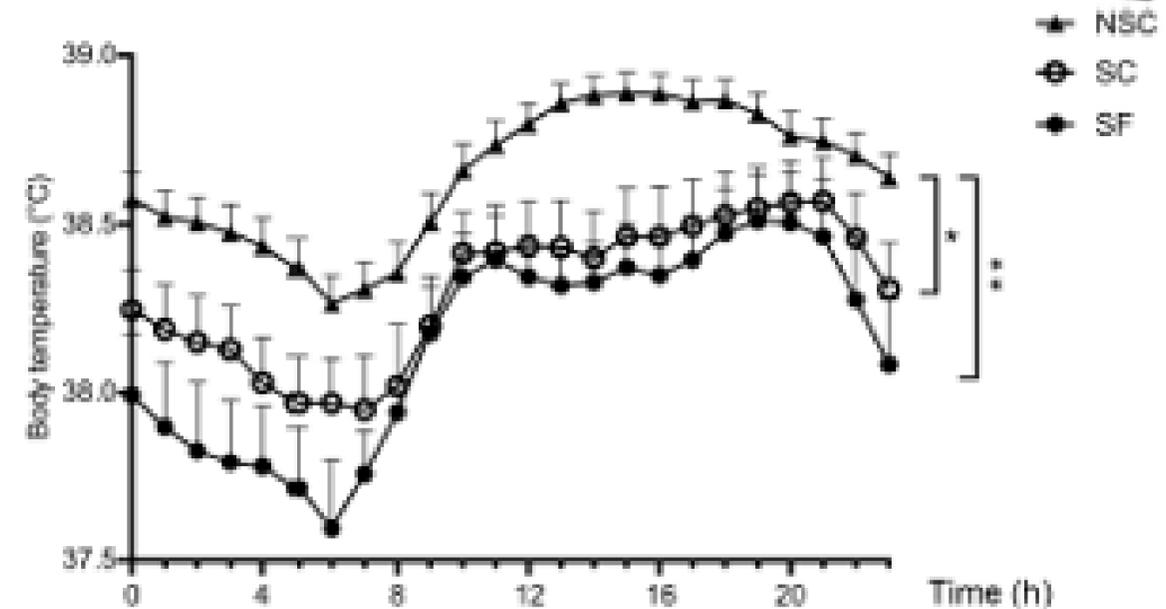
Diseases model, Inflammation and toxicology

BODY TEMPERATURE WAS SIGNIFICANTLY HIGHER IN NON-STRESSED (NSC) THAN IN STRESSED (SF AND SC) ANIMALS. (N = 12/GROUP)



ANIPIILL® ADDED VALUE

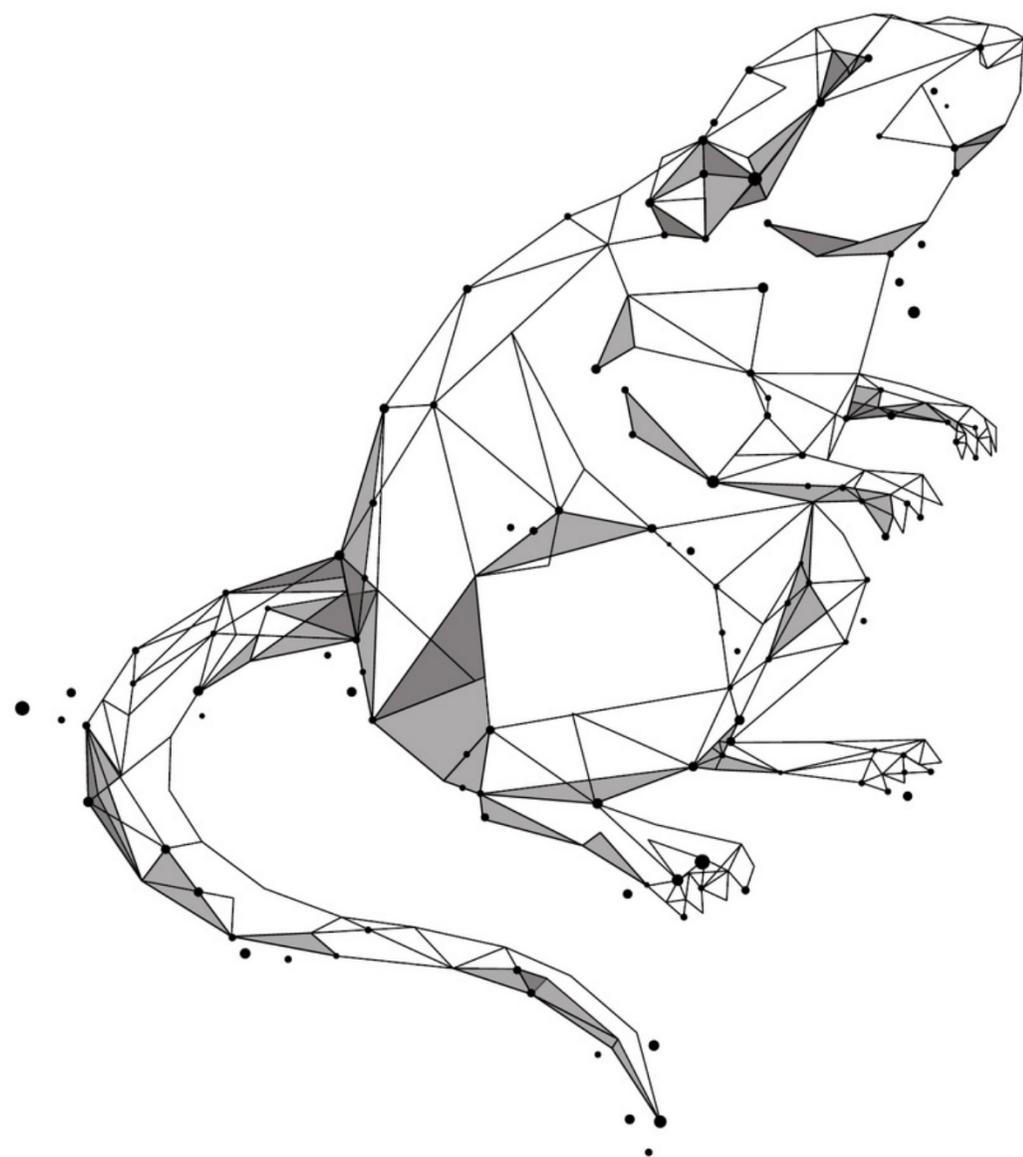
- 1 Continuous core temperature monitoring
- 2 Possibility to monitor several animals at the same time
- 3 Define individual thermoregulatory profile



Publications:

Grusenmeyer et al, (2018), Heat Stress Mitigation Strategies for Boars and Impact of Most Effective on Sperm Parameters

Menneson et al., (2019). Validation of a Psychosocial Chronic Stress Model in the Pig Using a Multidisciplinary Approach at the Gut-Brain and Behavior Levels



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