eCelsius

Medical system

The FDA-Cleared Ingestible Capsule for Core Body Temperature monitoring

BodyCAP: Medical devices for accurate physiological data

2012

Founded in France, expertise in electronics & physiology

FDA Cleared

Ingestible capsule, class II medical device.

ISO 13485 & ISO 9001

Recognized standards for quality management.

100 000

Capsules sold worldwide over the last 7 years.

200

Our solutions feature in more than 200 peer-reviewed publications

Core Body Temperature monitoring is key in multiple Therapeutic Areas

Sleep, Circadian Rhythm

Identify temperature patterns linked to sleep and circadian misalignment.

Drug & Vaccine Development

Characterize immune response and validate safety/efficacy endpoints.

Infectious Disease

Enable early fever detection and improve treatment response monitoring.

Oncology

Track fever episodes in oncologic patients to reduce the risk of infection.

The unmet need in Core Body Temperature monitoring

Current practice: spot checks or invasive probes

Spot checks with oral or tympanic thermometers only give snapshots while probes are invasive and uncomfortable.

Unreliable & inaccurate data

Inconsistent methods across sites create bias, self-checking lacks accuracy.

Participant & clinical staff burden

Invasive tools or self-checking methods reduce participant compliance while frequent manual checks increase staff workload.

The ingestible capsule for Core Body Temperature monitoring

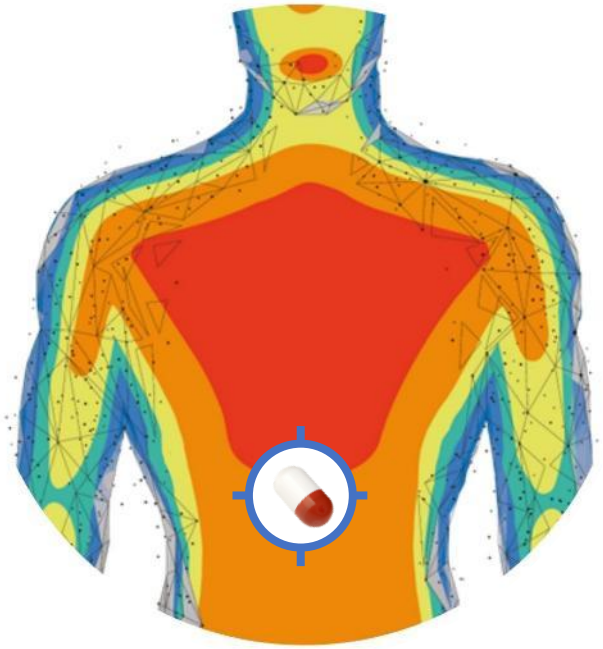
e Celsius
Medical system

Gastrointestinal temperature offers the most valid non-invasive measure of Core Body Temperature

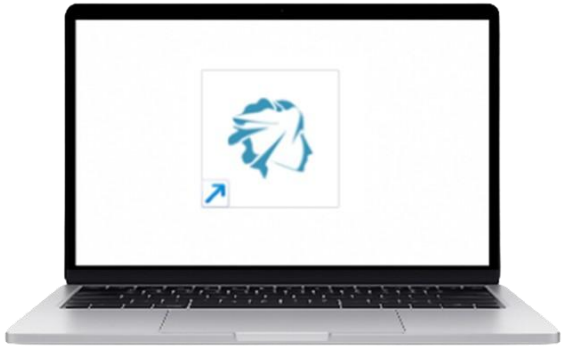
The capsule enables continuous, artifact-free data collection

It simplifies trial protocols reducing burden on staff and participants

Measure with capsule, view on monitor, access on computer



RF 433MHz



Ingestible Capsule

- Measures temperature every 30 seconds
- ±0.1°C accuracy
- Integrated memory ensures no data loss
- Single-use, sterile and with a unique ID

eViewer medical monitor

- Real-time data visualisation
- Capsule management
- Automatic synchronization
- Event marker

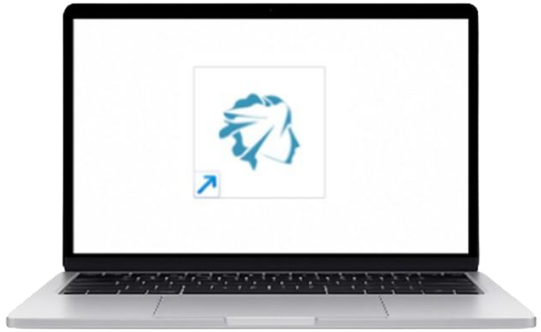
eCelsius Manager software

- Data transfer and visualisation
- Raw data export (.csv) for analysis
- PC/Mac compatible

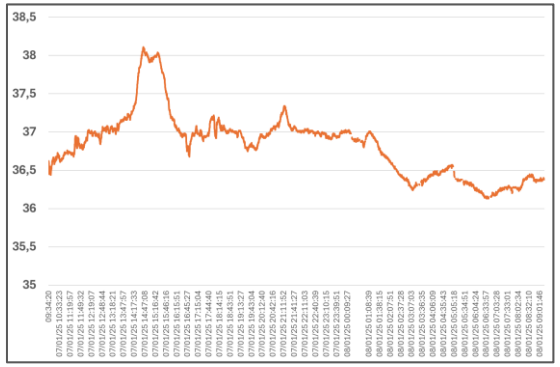
Complete access & Ownership of Unprocessed data

Data can be visualized and exported anytime during monitoring:

- CSV raw data – export for analysis
- PDF curve view – save, share and print



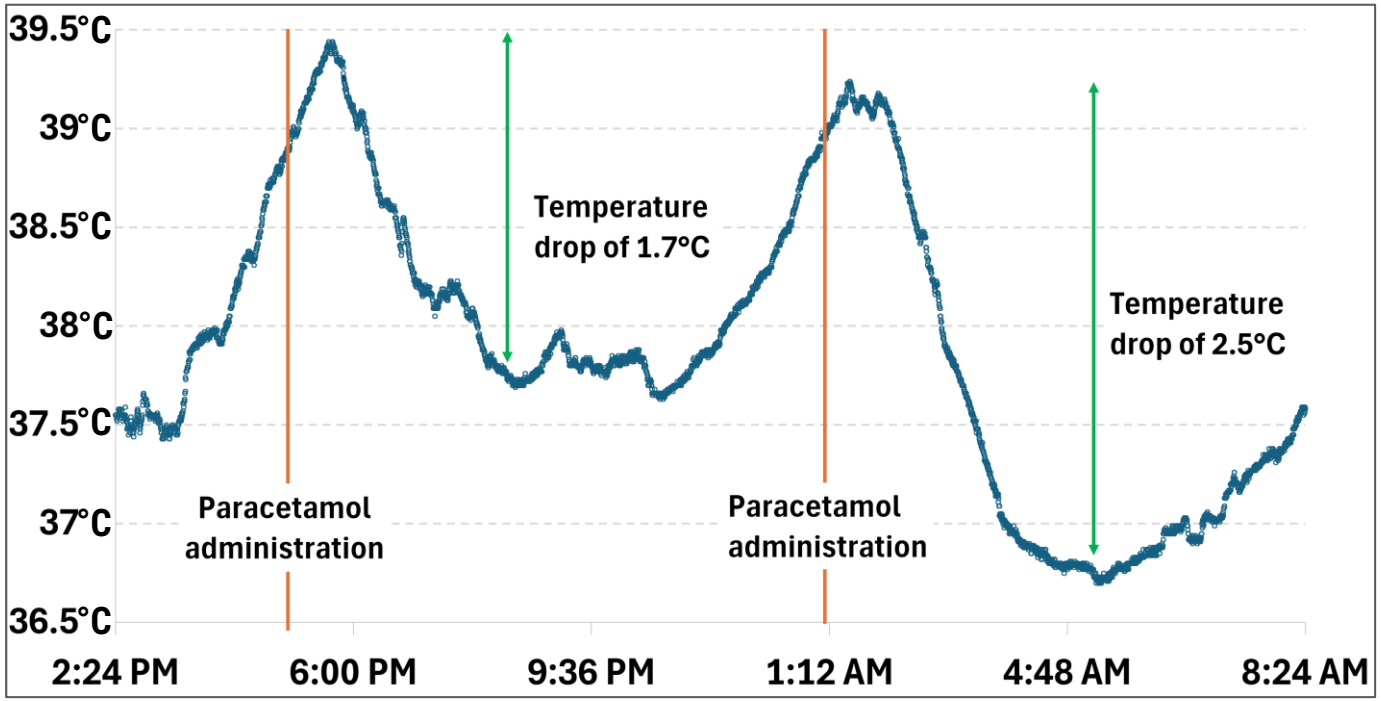
Experiment n°1				
Time Zone	UTC+1			
Pill n°1	00.00.40.94			
Sample number	DateDD/MM/YYYY	Hour	Temperature (°C)	Status
1	04/11/2020	09:48:12	22,8	
2	04/11/2020	09:48:43	25	Synchronized
3	04/11/2020	09:49:14	22,1	
4	04/11/2020	09:49:45	22	
5	04/11/2020	09:50:17	21,9	
6	04/11/2020	09:51:19	21,6	
7	04/11/2020	09:52:21	21,6	
8	04/11/2020	09:53:24	21,4	
9	04/11/2020	09:54:26	21,4	
10	04/11/2020	09:55:28	21,4	
11	04/11/2020	09:56:30	21,4	
12	04/11/2020	09:57:34	21,4	
13	04/11/2020	09:58:36	21,4	
14	04/11/2020	09:59:38	21,4	
15	04/11/2020	10:00:41	21,3	
16	04/11/2020	10:01:43	21,4	
17	04/11/2020	10:02:45	21,5	
18	04/11/2020	10:03:48	21,4	
19	04/11/2020	10:04:50	21,4	
20	04/11/2020	10:05:52	21,4	
21	04/11/2020	10:06:55	21,5	
22	04/11/2020	10:07:57	21,5	
23	04/11/2020	10:08:59	21,5	
24	04/11/2020	10:10:01	25,1	Synchronized



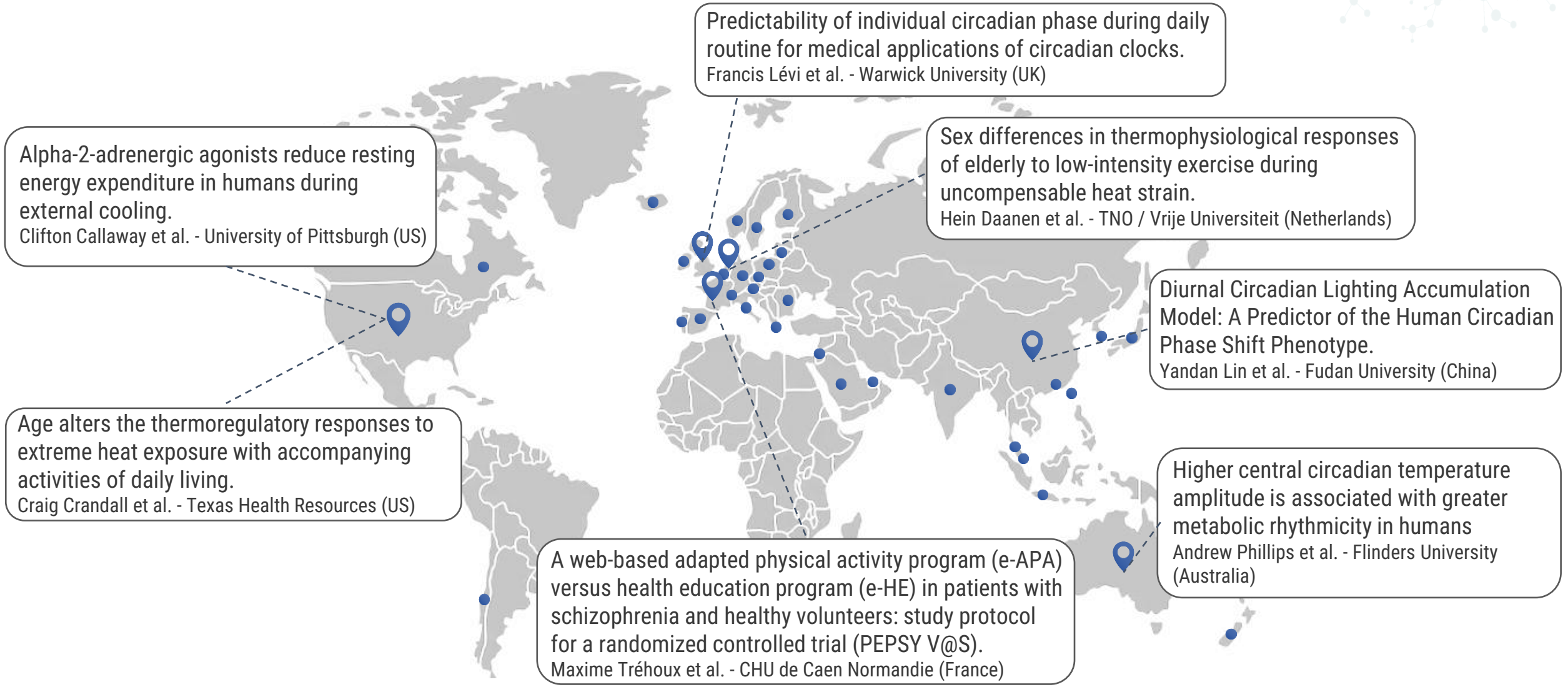
Case study: Fever Kinetics in Infectious Disease

Monitoring a single patient with one ingestible capsule reveals complete fever dynamics and treatment response during an infectious episode.

- Captures the full fever kinetics
- Quantifies the effect of paracetamol administration
- Identifies best therapeutic windows for antipyretic timing



Our solutions feature in 200+ peer reviewed publications



Predictability of individual circadian phase during daily routine for medical applications of circadian clocks.
Francis Lévi et al. - Warwick University (UK)

Alpha-2-adrenergic agonists reduce resting energy expenditure in humans during external cooling.
Clifton Callaway et al. - University of Pittsburgh (US)

Sex differences in thermophysiological responses of elderly to low-intensity exercise during uncompensable heat strain.
Hein Daanen et al. - TNO / Vrije Universiteit (Netherlands)

Diurnal Circadian Lighting Accumulation Model: A Predictor of the Human Circadian Phase Shift Phenotype.
Yandan Lin et al. - Fudan University (China)

Age alters the thermoregulatory responses to extreme heat exposure with accompanying activities of daily living.
Craig Crandall et al. - Texas Health Resources (US)

Higher central circadian temperature amplitude is associated with greater metabolic rhythmicity in humans
Andrew Phillips et al. - Flinders University (Australia)

A web-based adapted physical activity program (e-APA) versus health education program (e-HE) in patients with schizophrenia and healthy volunteers: study protocol for a randomized controlled trial (PEPSY V@S).
Maxime Tréhoux et al. - CHU de Caen Normandie (France)

Ingestible capsules: the only solution combining Accuracy, Comfort, Continuous & Artifact-free monitoring

	Ingestible Capsule	Rectal probe	Skin patch	Oral / Tympanic thermometry
Accuracy	✓	✓	✗	✗
Comfort	✓	✗	✓	✓
Continuous Monitoring	✓	✓	✓	✗
Artifact-Free Monitoring	✓	✓	✗	✗

Why eCelsius Medical makes a difference

Continuous monitoring & Reliable

Measures temperature every 30 seconds. Capsule memory safeguards against data loss, even when out of range from the monitor.

Accurate & Secure

±0.1°C accuracy

Full ownership and access to raw data.

Effortless Integration

Simple workflow for patients and researchers, guaranteeing protocol compliance.

Let's discuss how eCelsius Medical can support your next trial

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BodyCAP

Your e-health partner

Annex

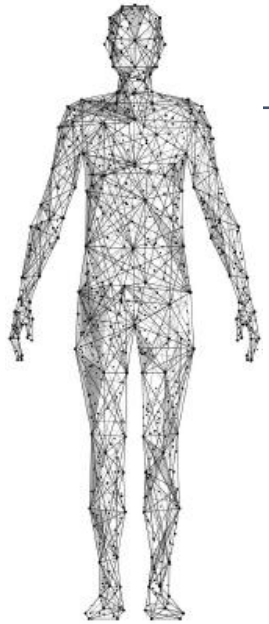
Target population & Contraindications

Target population

18+ yo

80+ lbs / 40+ kg

To be used in hospitals, clinics and under the supervision of heath care professionals



Main contraindications

Outside ‘target population’

Pregnant women

Not compatible with MRI

Swallow / digestive disorders

Detailed system specifications

Capsule	
Cleaning and sterilization	Cleaned and sterilized with ethylene oxide (EtO)
Size (diameter x length)	17.7mm x 8.9mm
Weight	1.7g
Temperature accuracy	+/- 0.1°C for subject physiological range 36-41°C +/- 0.13°C outside of the physiological range
Temperature resolution	0.01°C
Temperature range	25° - 45°C (77 - 113°F)
Battery duration once activated	20 days
Measurement frequency	30 seconds
Internal memory size	~16.5 hours (2000 measurements)
Shelf life	2 years

Monitor	
Size	120mm x 70mm x 15mm
Number of capsule associated	Up to 3 capsules
Storage	150 000 data per capsule
Battery life	24/36h

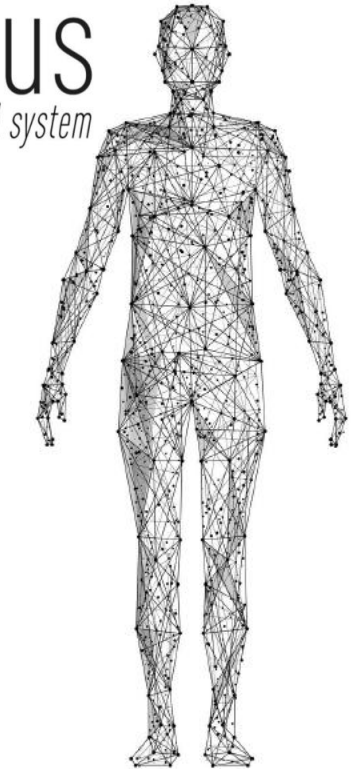
Activator	
Size	69mm x 59mm x 15mm
Capability	Able to activate a very large number of capsules

BodyCAP: a complete suite of sensors for Temperature monitoring

Implantable | Ingestible capsule for Animal & Human use

ANIPILL® SYSTEM

eCelsius Medical system



Surface Temperature sensors

eTemp Performance