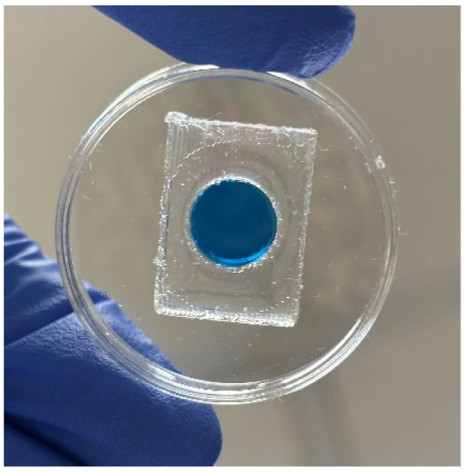
Biocircuits

UNIVERSITY OF SEVILLE

Biomedical circuits and sensors

We design instruments to measure bioimpedance in cells and tissues and to study how cell cultures respond to electrical stimulation.



PDMS culture chamber. Algarín et al., 2026. CC BY 4.0.

Research areas

Cell stimulation

E-CELL brought together all seven researchers under Alberto Yúfera and Paula Daza to study cell differentiation. Experiments in neuroblastoma cultures identified early responses to electrical stimulation.

E-CELL project · Scientific Reports, 2026

Wearable sensing

The VOLUM ankle-worn prototype uses bioimpedance spectroscopy to study leg-fluid accumulation in heart failure. The team works with clinicians to relate electrical measurements to physiological changes.

IEEE TIM, 2023

Instrumentation

We develop programmable current sources, oscillator-based readouts and microelectrode interfaces for impedance measurements in cells and tissues.

Frontiers in Electronics, 2022 · Electronics, 2024

Research team

Alberto Yúfera García, Gloria Huertas Sánchez, Pablo Pérez García, Alberto Olmo Fernández, Santiago Fernández Scagliusi, Daniel Martín Fernández and Antonio Algarín Pérez.

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