IntraCell

EASY, FAST and RELIABLE

RESHAPE THE WAY OF IN VITRO ELECTROPHYSIOLOGY

FORESEE BIOSYSTEMS

Long live the cells!

IntraCell is the first tool for **acute and long-term in vitro cardiac electrophysiology**. The system allows for **Action Potential (AP)** recordings from cardiac cells cultured on Multi Electrode Array (MEAs) devices.

Real time and label free

Use standard cell culture techniques to perform acute and chronic cardiac electrophysiology, with no need of cell markers, dyes or additional steps. No further sample manipulation is required.

Time saving and easy-to-use

Fully automated products with no need of extensive training or high-level users' skills. Detection of real-time AP from the same cell culture for more than 35 days with few clicks.

Multi parametric

Combining electrophysiology measurements and optical imaging from the same cell culture, IntraCell provides multiplexed capabilities, such as contractlity analysis in parallel with APs recordings.

Long term analysis at high resolution

Easy way to get multiple data-points from the same sample to follow long-term studies. Collect data from many cells on the same preparation in one single experiental cycle.

Electrophysiology of cardiac organoids

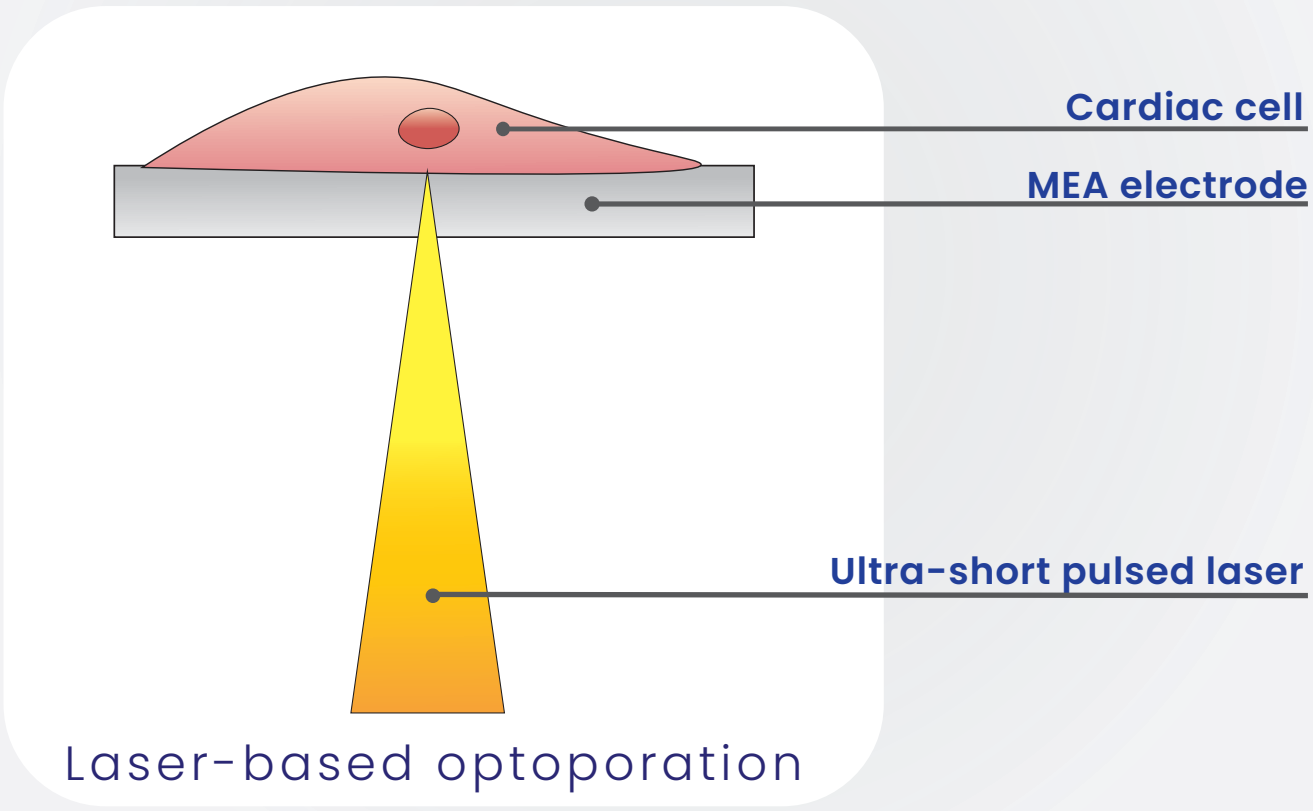
Thanks to its cuttig-edge technology, IntraCell is capable of detecting high-quality intracellular APs on both bidimensional monolyarer and three-dimensional organoids.

The most reliable solution for acute and chronic in vitro cardiotoxicity

Unique results with IntraCell technology

IntraCell integrates an advanced **laser optoporation** technology that opens transient nanopores within the cell's membrane and allows for **Action Potential (AP) recordings** from cardiac cells cultured on Multi Electrode Array (MEAs) devices.

The combination of laser-based cell optoporation and MEAs provides a unique tool for shedding light on the chronic effects of xenobiotics on cardiac cells. The software FB_Alps guides the user with an interface for laser **autoalignment** and **autofocus** of the sample.

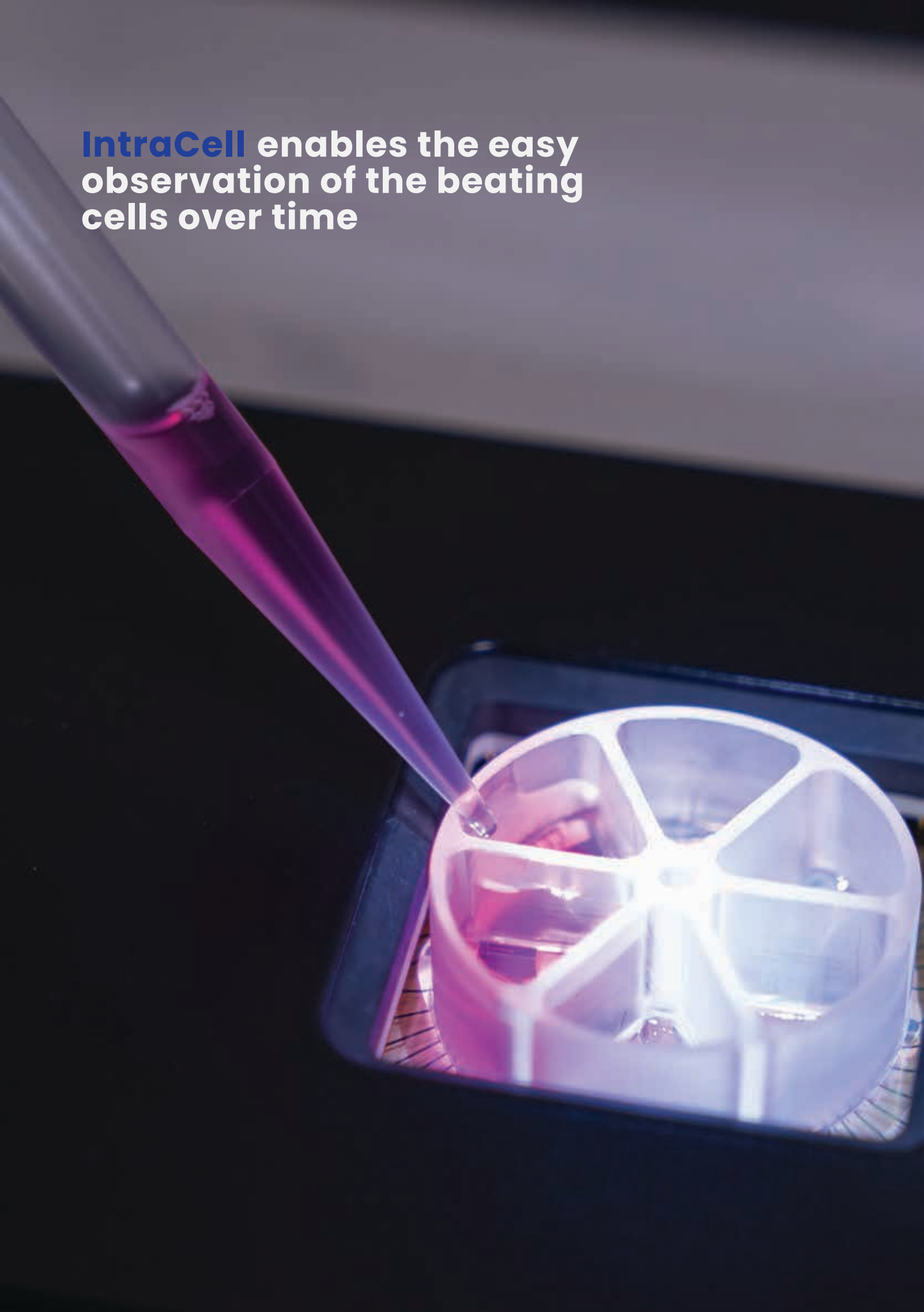


Laser-based optoporation

Choose the MEA layout, laser scan parameters and the electrodes you want to monitor. After a single mouse click, the **automated laser scan** will start cell optoporation for recording APs.

To perform a multiparametric analysis, FB_Alps and IntraCell allow you to record **real time videos** of the beating cells and to measure their **contractility speed** of either the entire culture or specific regions of interest.

IntraCell is compatible with MEA systems and enables high-quality AP recordings



IntraCell enables the easy observation of the beating cells over time

Real time and label free

IntraCell combines electrophysiology with microscopy.

Recording pictures and videos of your experiments in **real time** has never been so easy!
Thanks to the integrated microscope, you will be able to observe and record your beating cells at the same time, while recording their APs without the use of any dye.

You won't be blind anymore!

The laser shooting does not affect the beating rate and the health of your cardiomyocytes, giving your results a new unprecedented reliability!

Time-saving and easy to use

3 - Action potential

Patented Laser protocol enabling recording of true action potentials

1 - Culture

hiPSC- cardiomyocytes plating on MEA plates

2 - Field potential

Recording of field potentials for characterizaton of the cardiac culture

Repeat the procedure to detect the chronic cardiotoxicity

4 - Administration

Drug administration at the desired concentration

5 - Action potential

Patented Laser protocol enabling recording of true action potentials

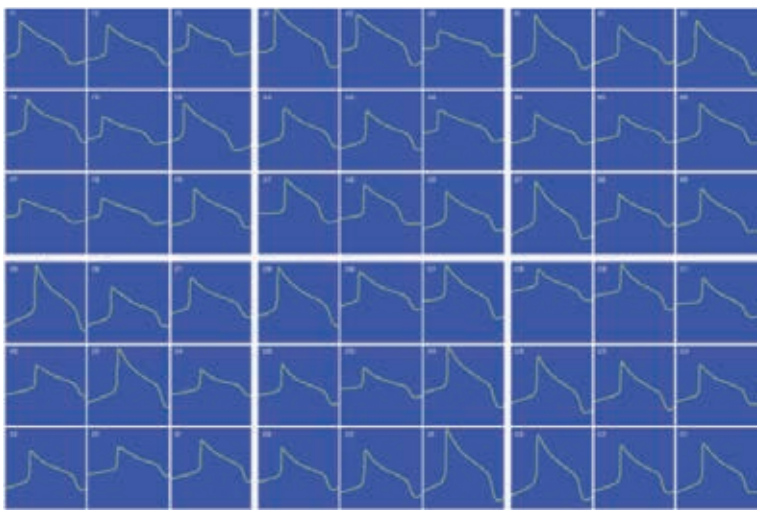
6 - Acute cardiotoxicity

Report about drug cardiotoxicity

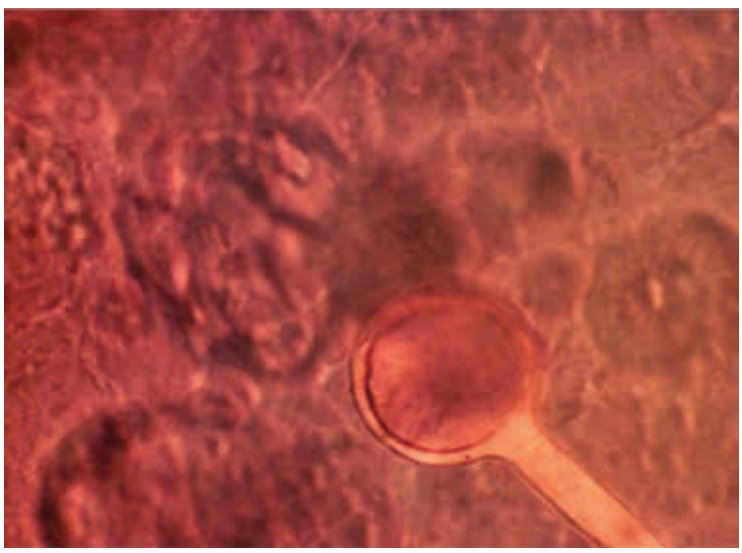
You can inject the molecule directly to the cardiac cells cultured on the MEA device and **record** Action Potentials (APs) **from several cells** using the automated procedure. IntraCell works in combination with MEA devices from Multi Channel Systems GmbH (MCS) and can be installed within any laboratory with no additional needs. The technology behind IntraCell allows for recording APs from all electrodes of MEAs, **up to 256 cells** on MCS-MEAs.

Multi-parametric

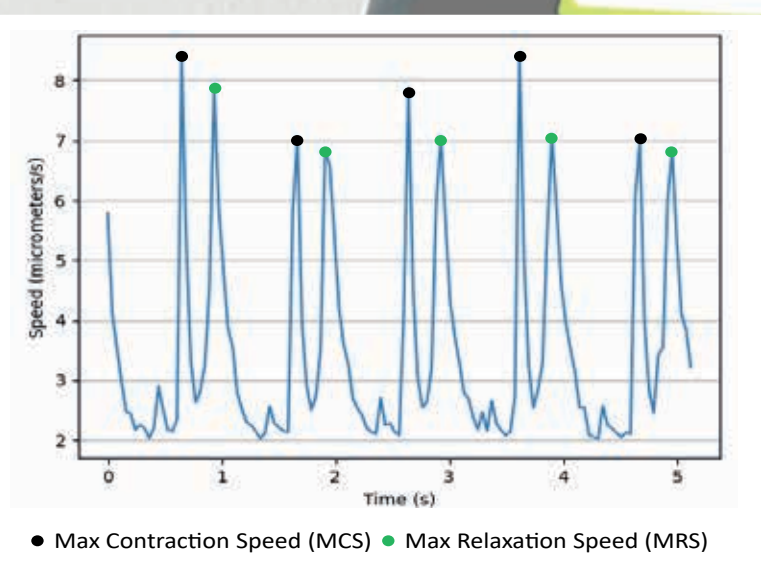
APs recordings



Real-time imaging



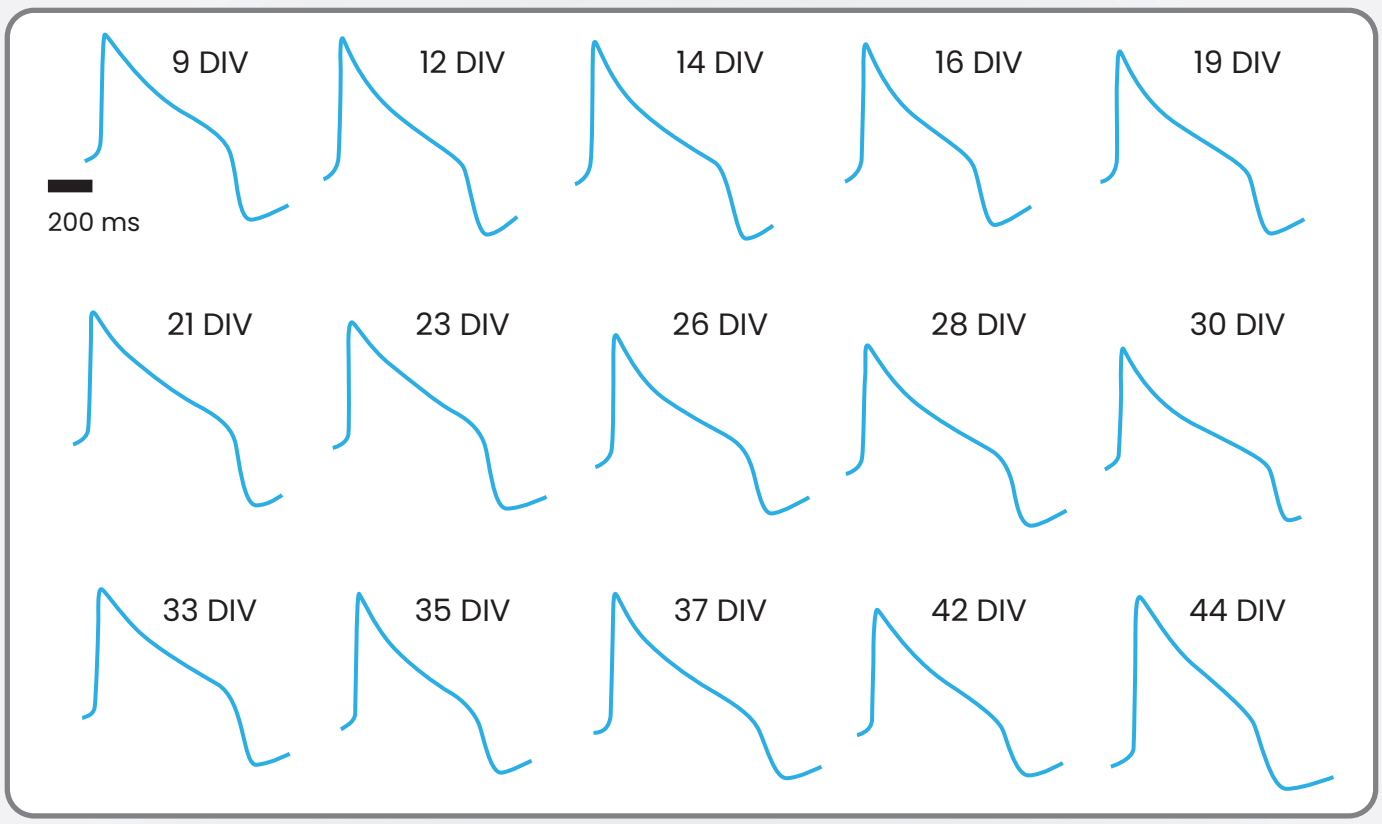
Contraction analysis



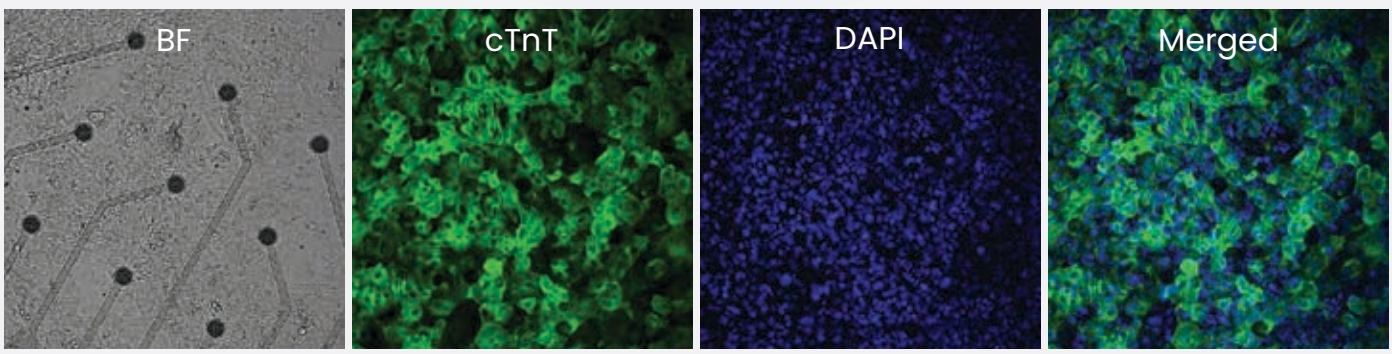
Customize the measurement procedure with FB_Alps

Long-term analysis at high resolution

Action potential from the same cell culture can be recorded over 44 days-in-vitro (DIV), for a total of **more than 30 monitoring days,** following cell's maturation and development.

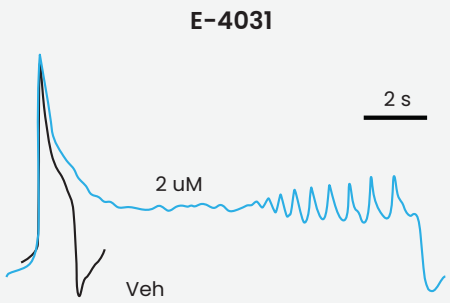


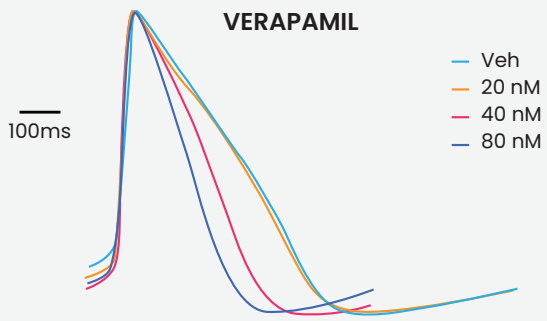
No significant effects on the cell health

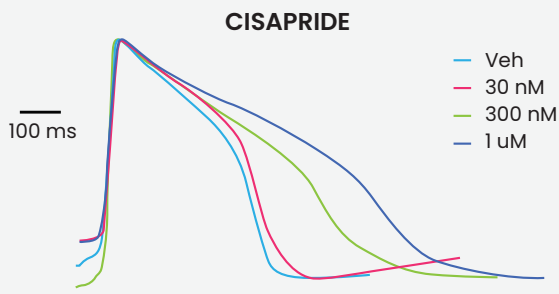


Detection of drugs' effects on ionic channel currents

IntraCell combined with MEA technology is a revolutionary platform to accurately **detect cardiotoxicity** caused by drugs or other molecular entities. The technology has been already validated with several compounds from the CiPA list.

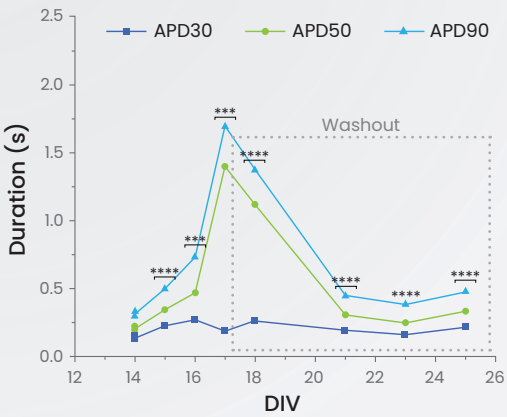


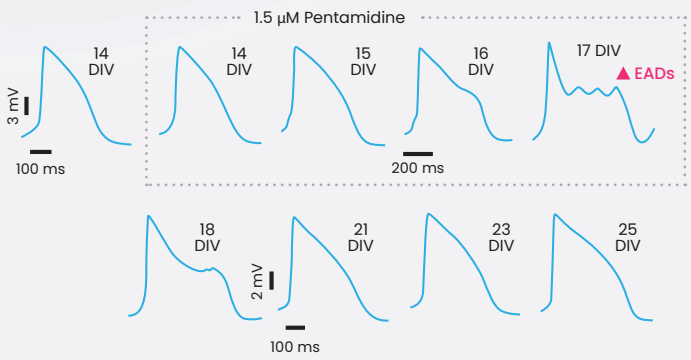




Chronic cardiotoxicity of pentamidine and recovery after wash out from the same cell

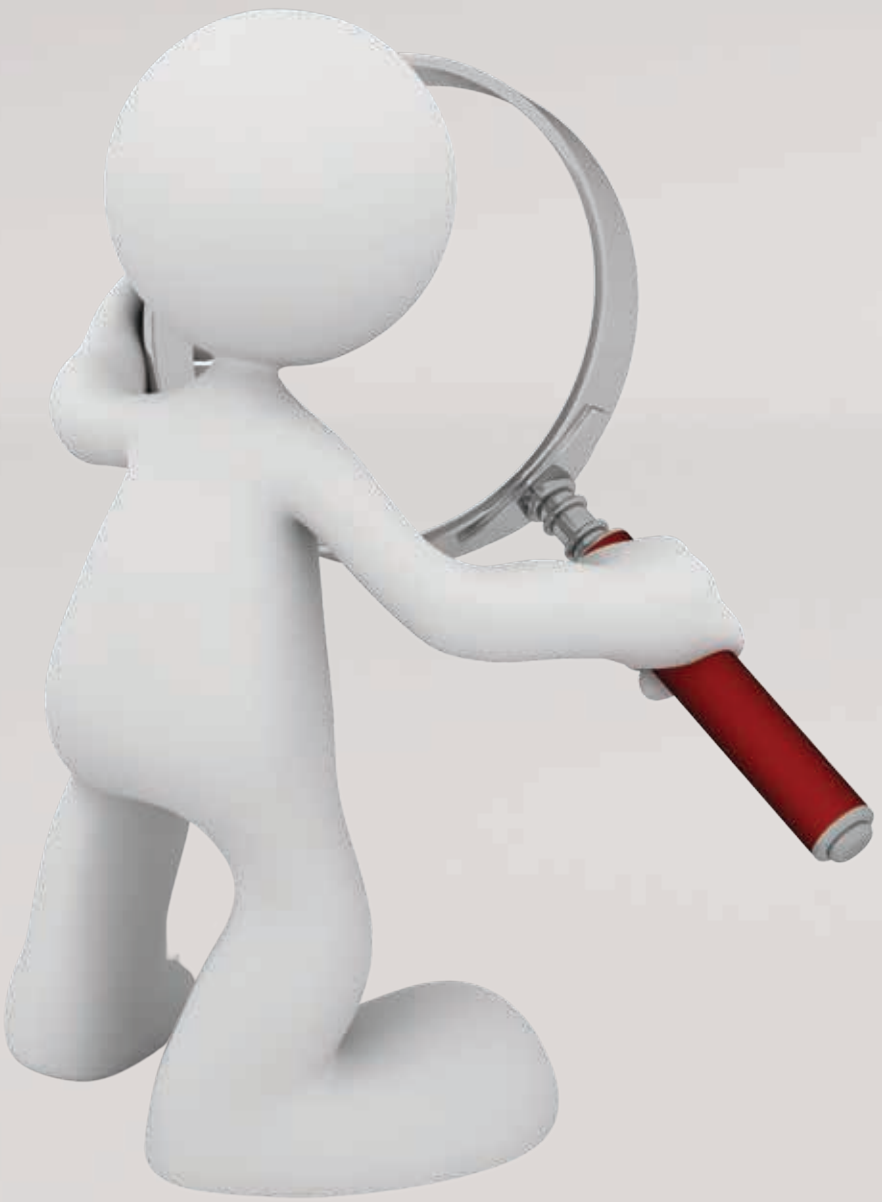
The non-invasive cell poration method allows for **repeating Action Potential recordings** from the same cells over a long period of time, from few hours up to several weeks. Thus, the long-term effects of new chemical entities can be monitored accurately.





Electrophysiology of cardiac organoids

IntraCell enables the detection of intracellular APs not only on 2D monolayers but also on **3D human cardiac organoids.** The technology offers the opportunity to gather more significant insights into the behavior of your cells by assessing their electrical activity within complex 3D structures. Follow the **electrical activity** of 3D organoids over time and assess **in vitro toxicological effects of drugs** on reliable human cellular constructs.



IntraCell also operates on a three-dimensional level

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