AXION BIOSYSTEMS

MAESTRO™

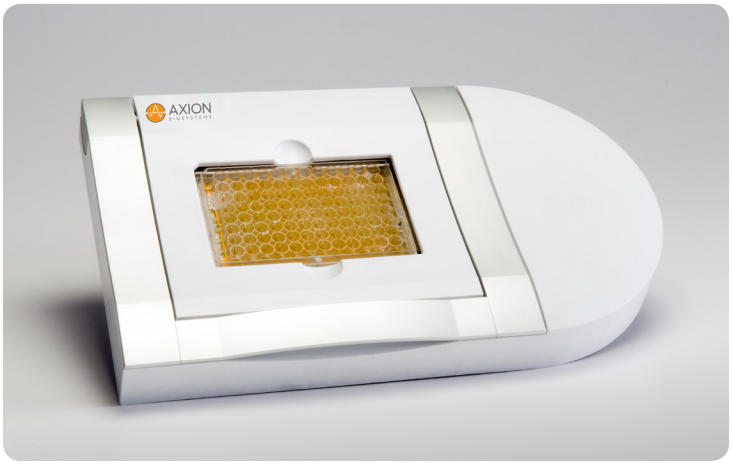
Multiwell microelectrode array for cellular network analysis

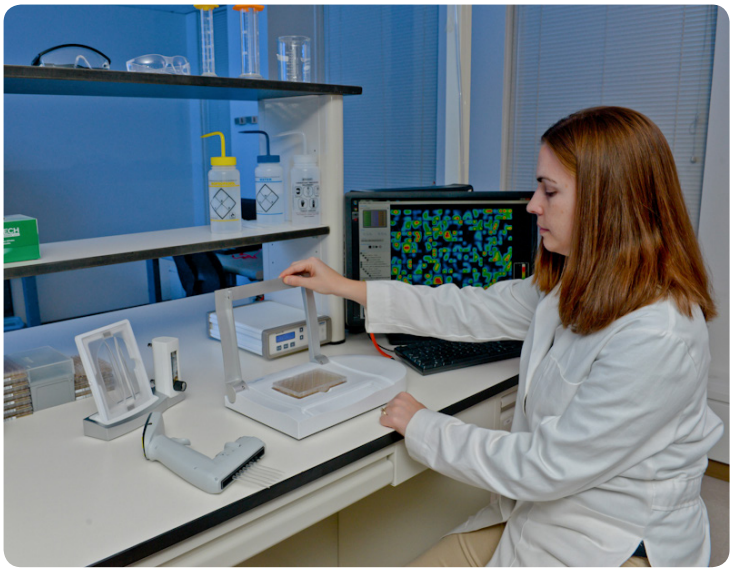
Decode life's circuitry

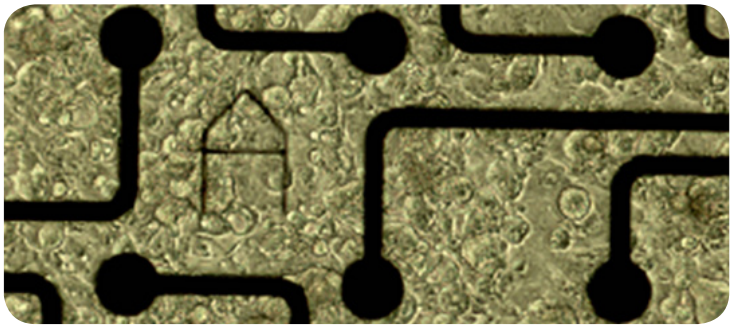
The Maestro multiwell MEA platform provides researchers with an easy to use, benchtop assay for the analysis of neural and cardiomyocyte network signaling. With an industry-leading 768 electrodes, data is recorded from multiple sites within each well providing insight into entire cell populations that can't be provided by other *in vitro* techniques. Additionally, the assay is label-free providing information on native signals and enabling data collection from the same culture over extended time courses of hours, days, or weeks.

How it works

The assay begins by plating cells onto grids of electrodes patterned on the bottom of a multiwell microplate. Once the cultures are established and intercellular connections that transmit electrical signals have been made, plates are placed in the Maestro system where extracellular voltage is recorded. Microvolt resolution and a fast data collection rate (12.5 kHz) ensures every action potential is captured in fine detail. Data is recorded simultaneously and non-invasively from all 768 electrodes across the plate. The high density of electrodes in each well provides an intricate assessment of not only the function of a single cell, but how the population of cells acts as a whole.







THE MAESTRO ADVANTAGE

Use 12-, 48-, or 96-well plates interchangeably for all throughput needs

Industry-leading electrode count in every plate

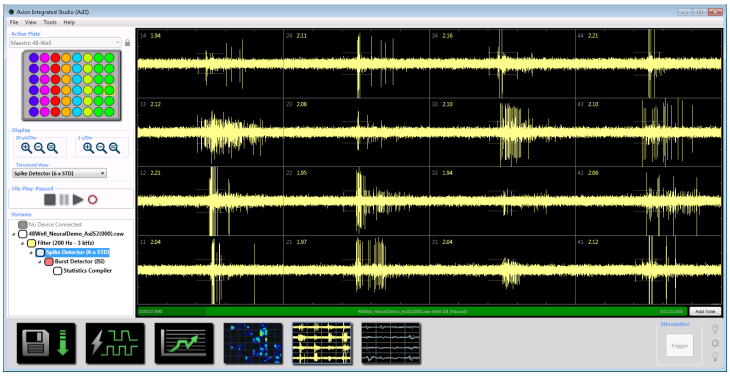
Each electrode can be used for recording or stimulation

Full environmental control for hassle-free bench-top experiments

Intuitive software for easy data collection and one-click data analysis

AxIS™ software suite

Powerful data doesn't have to mean complicated software. AxIS takes you from experimental set-up (complete with time-saving features such as plate maps) to real-time visual data analysis through to data export with an intuitive user interface. Data sets from single wells to hundreds of plates can be analyzed for simple activity measures such as beat rate or mean firing rate or perform advanced analyses with the click of a button.



APPLICATIONS

Disease-in-a-dish models

Alzheimer's · ALS · Autism
Parkinson's · Pain · Seizure/Epilepsy
Bipolar disorder · Schizophrenia

Drug Safety Screening

Pro-convulsant · Cardiac safety

Drug Discovery

Environmental Neurotoxicology

Personalized Medicine

Stem Cell Characterization

Stem Cell Validation/QC

Optogenetics

Maestro Accessories

Lumos™

Take control of cellular activity in the MEA plate while simultaneously recording functional response. Lumos is a 48-well optical stimulation device that stimulates opsin-transduced cells from above while Maestro records electrical activity from the bottom. With the ECmini™, full environmental control is maintained at all times during the experiment. Fully integrated with AxIS, all 48 wells can be independently controlled for wavelength, intensity, and duration of stimulation through an intuitive interface.