Complementary automated patch clamp, extracellular field potential and impedance recordings of iPSCs: safety screening tool box for the future

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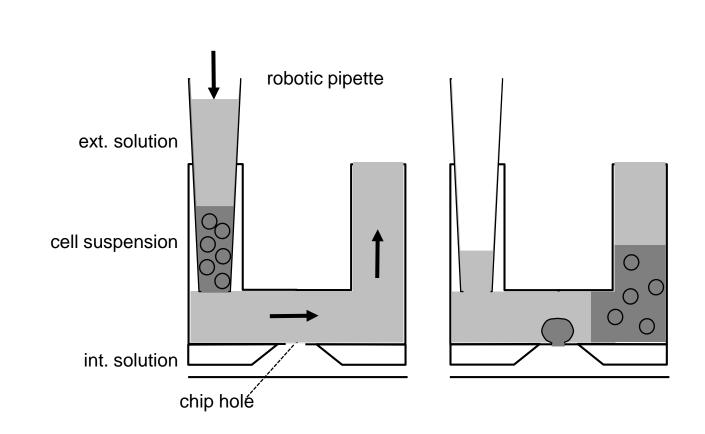


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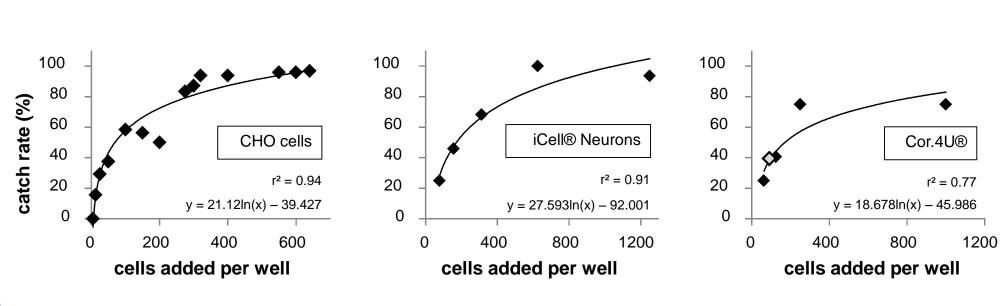
Patchliner



Minimized Cell Usage in Automated Patch Clamp



Becker, N., et al., Minimized cell usage for stem cell-derived and primary cells on an automated patch clamp system, Journal of Pharmacological and Toxicological Methods (2013)

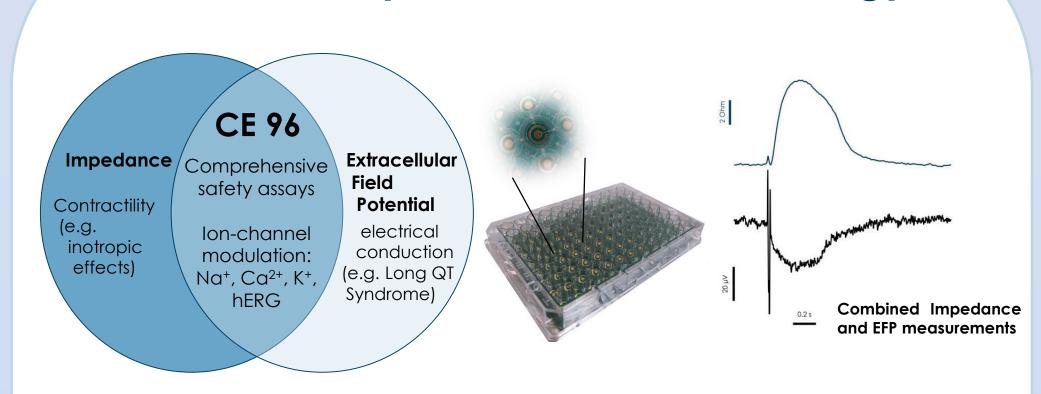


Catch-rate using cell-lines and stem cell-derived cells. Only about 400 cells per recording well are needed in order to perfom successfull automated patch-clamp measurements using the Patchliner.

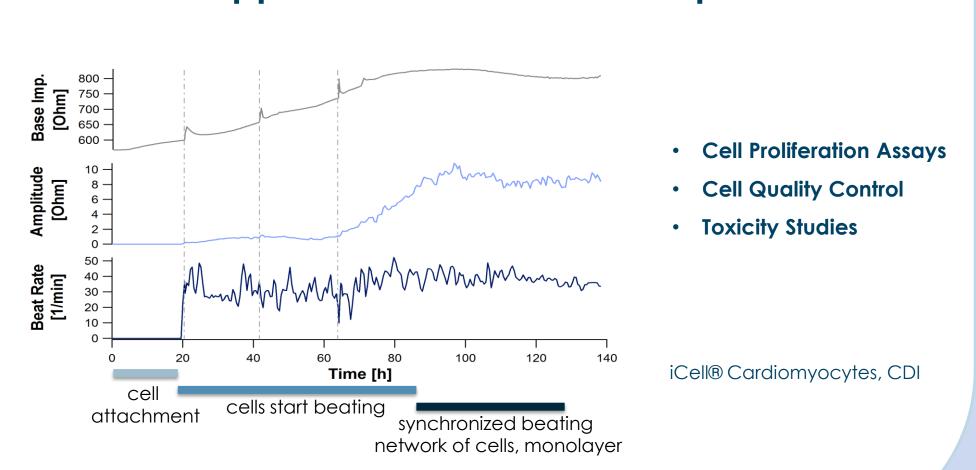
CardioExcyte 96



CardioExcyte 96 Sensor Technology



Extended Application: adhesion and proliferation



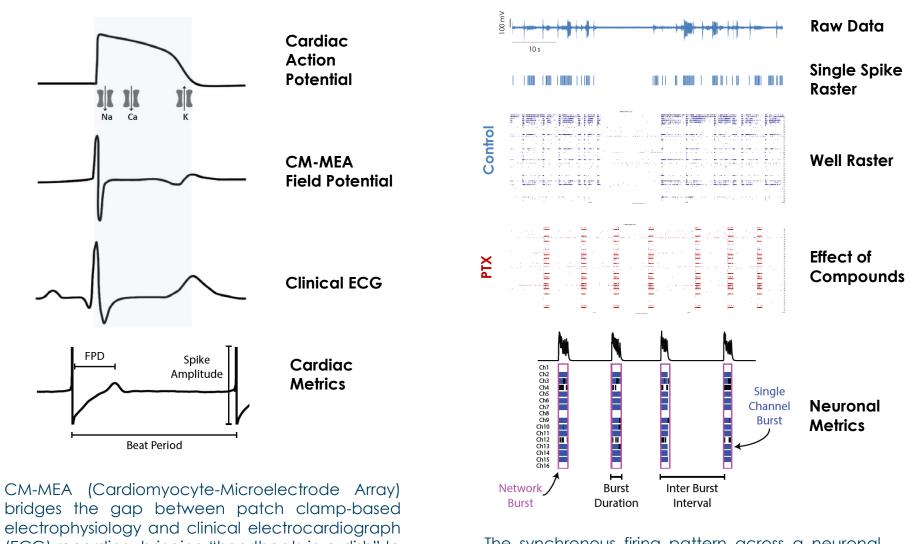
Axion Maestro



Axion Multi-well MEA Technology

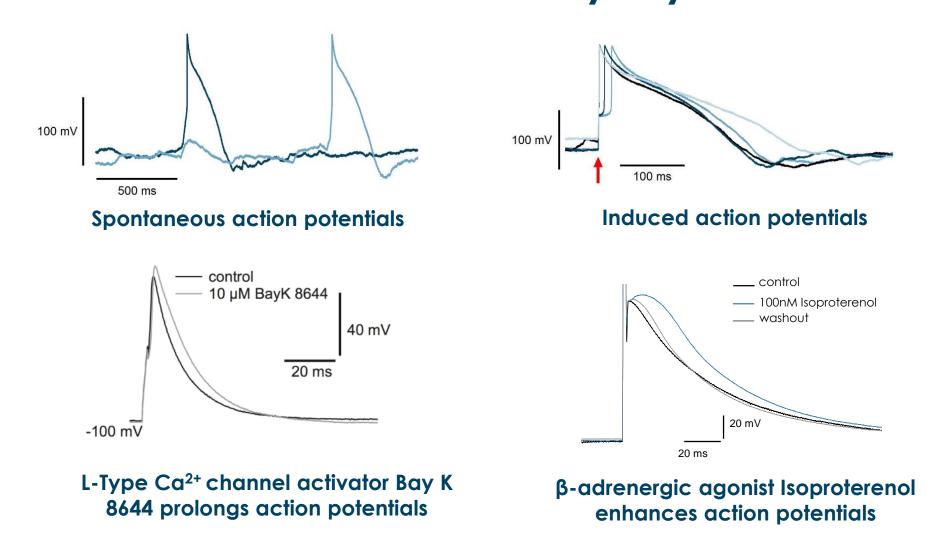


Cardiac and Neuronal Applications

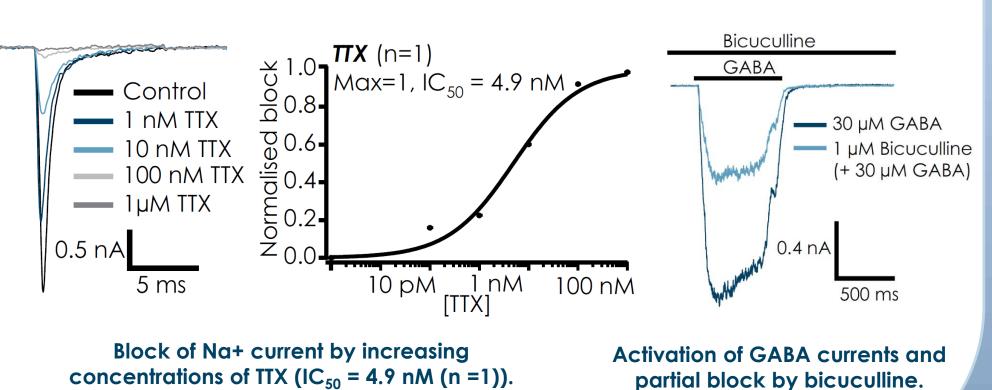


The synchronous firing pattern across a neuronal (ECG) recording, bringing "heartbeats-in-a-dish" to network of cells over MEA provides a phenotype the benchtop. for establishing "seizure-in-a-dish" models

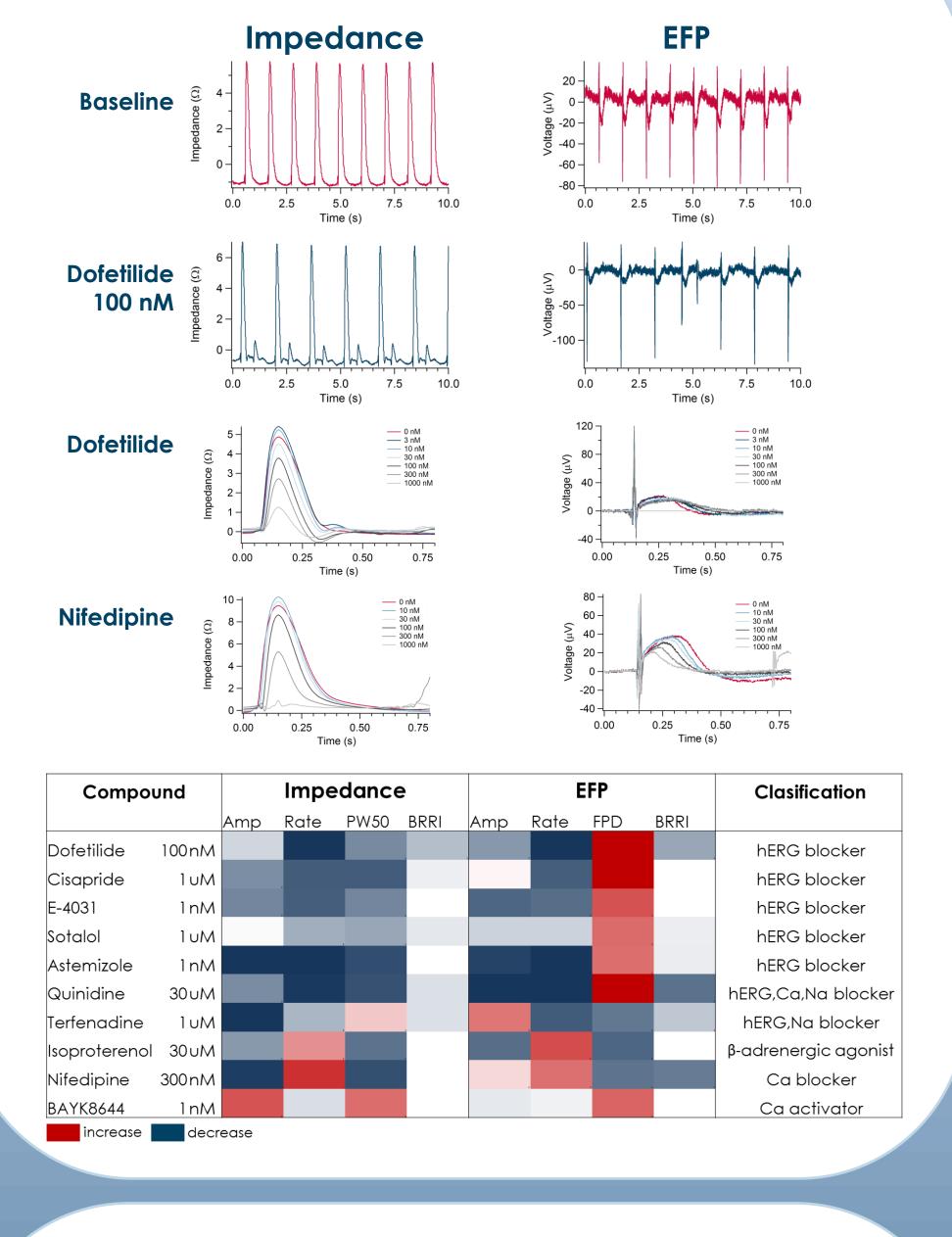
Action Potential Pharmacology of Cor.40 ® Cardiomyocytes



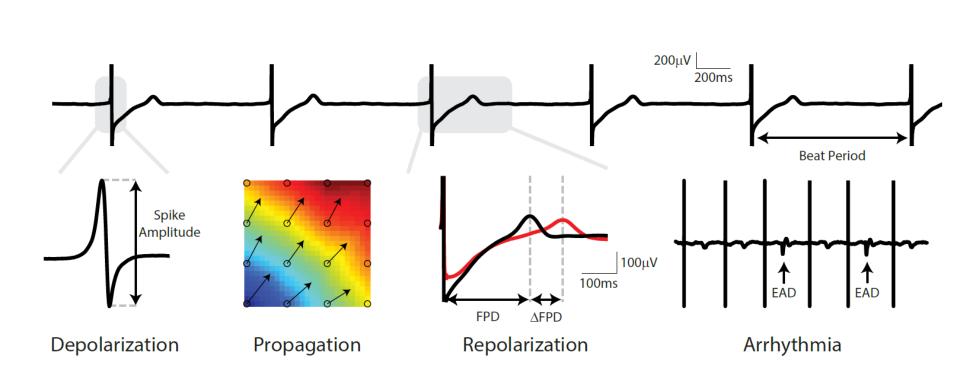
Voltage- and ligand gated currents recorded in iCell® neurons



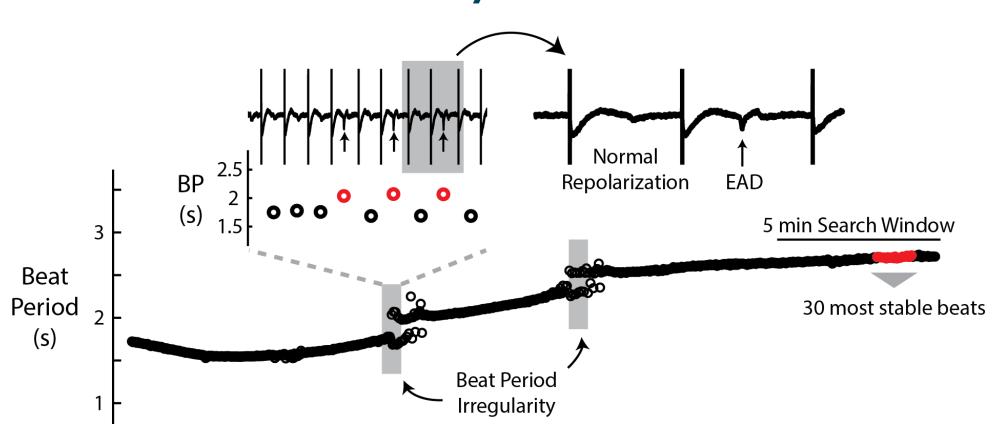
CardioExcyte 96 Compound Profiling



Comprehensive in vitro Proarrhythmia Assay (CiPA)

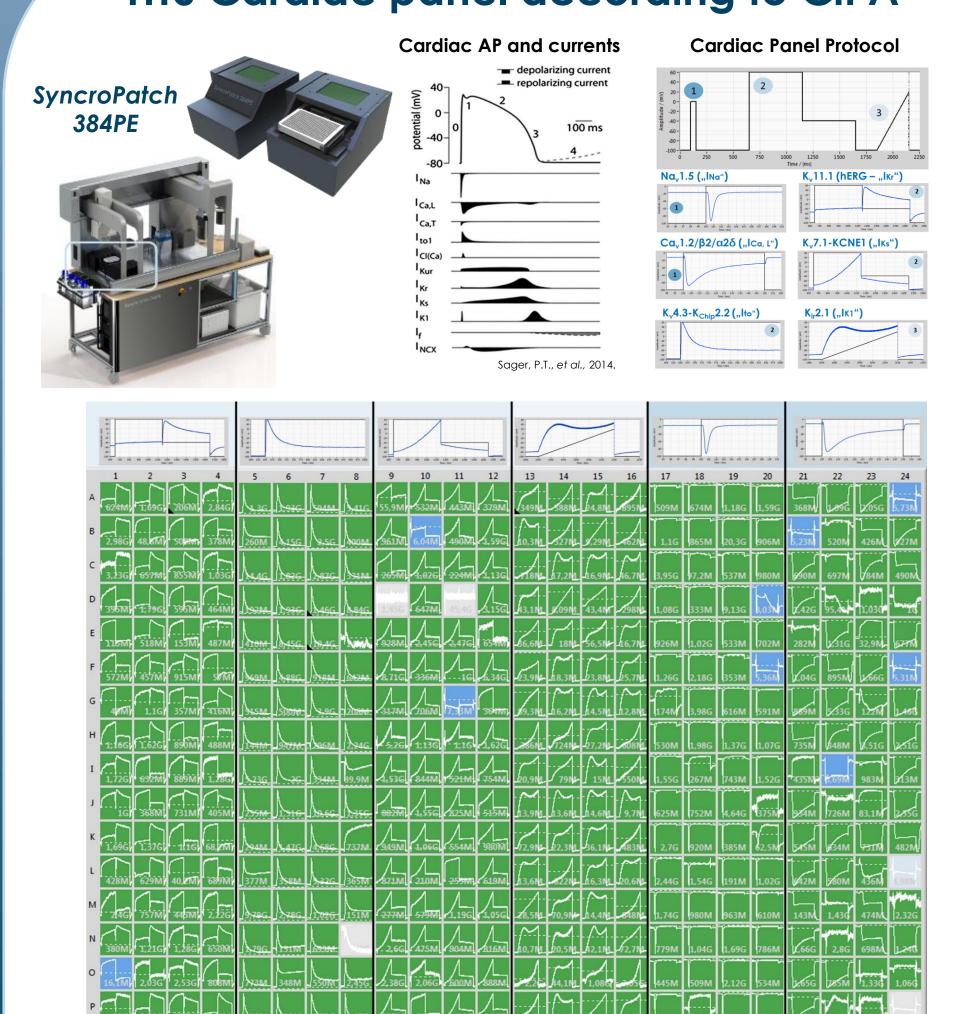


Continuous recording enables detection of rare arrhythmic events



Axion's software suite, AxIS, provides access to reliable measures of the four primary endpoints of CiPA protocol: (1) Depolarization, (2) Repolarization, (3) Beat Timing, and (4) Arrhythmia. Additional measures, such as conduction velocity and pacer orientation, are also computed to ensure data quality and enable further quantification of the functional response to compound addition.

HTS Cardiac panel according to CiPA



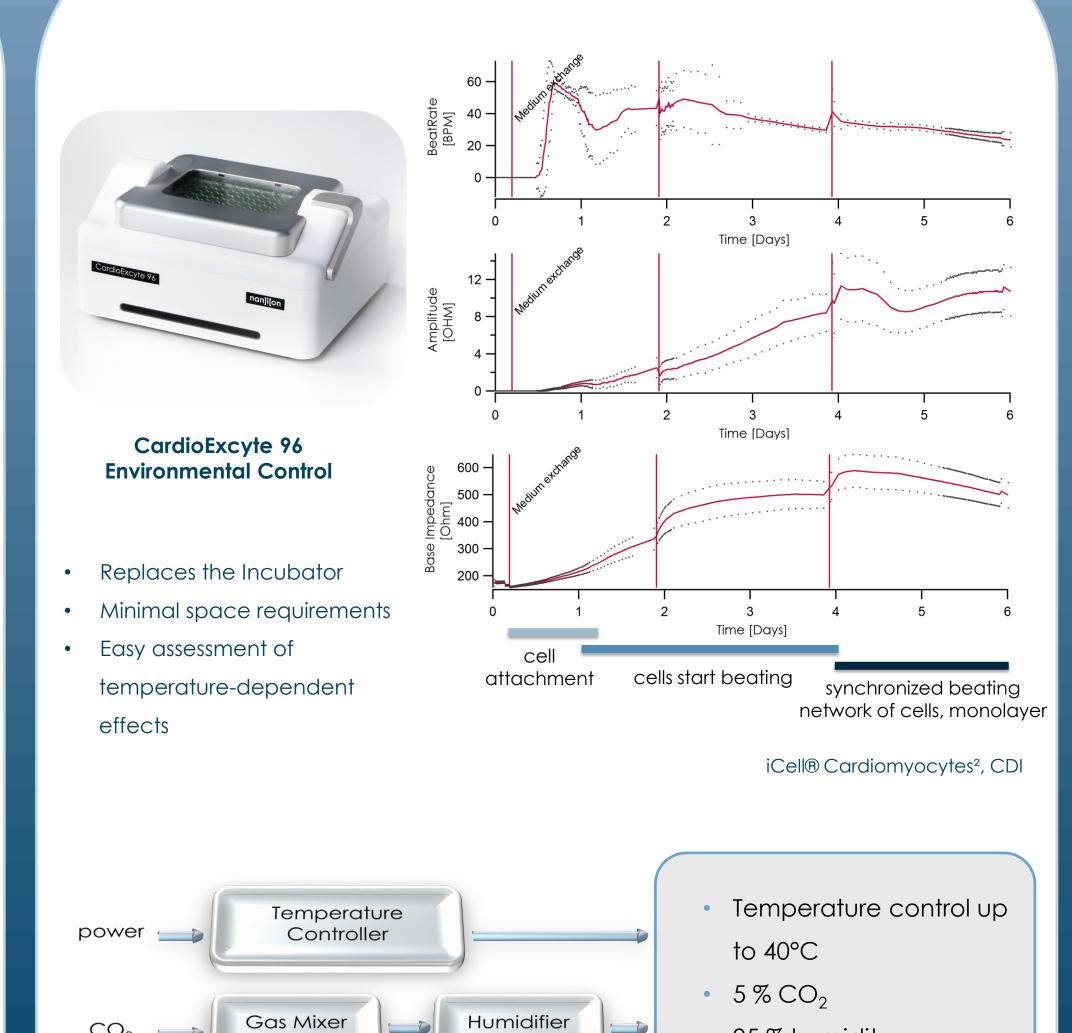
Six different cardiac channels recorded simultaneously on the SyncroPatch® 384PE. Screenshot shows data acquisition and analysis software performing recordings from HEK or CHO cells expressing the CiPA stipulated ion channels (ChanTest) activated within one single experiment on the SyncroPatch® 384PE.

 $Ca_v 1.2/\beta 2/\alpha 2\delta$

("ICa, L")

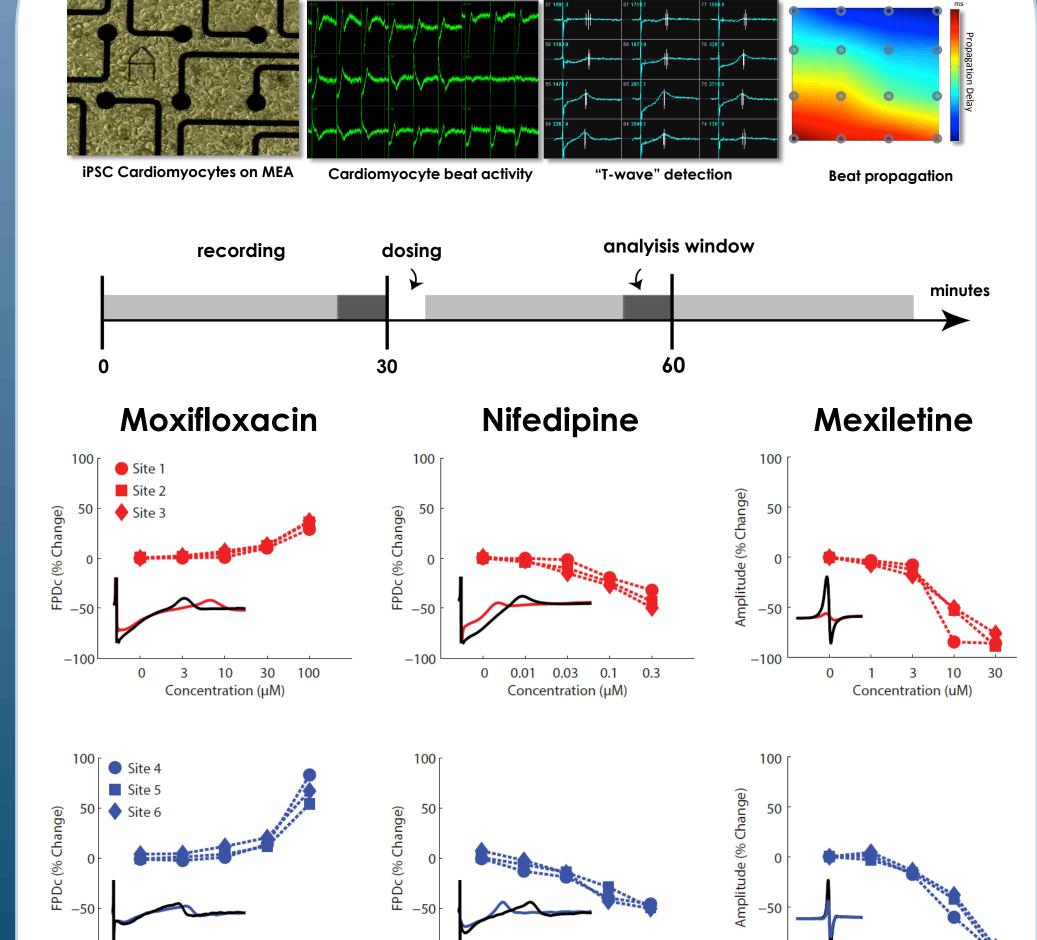
K,7.1 - KCNE1

CardioExcyte 96 Environmental Control



• 95 % humidity

CiPA pilot study on the Maestro Platform



A snapshot of CiPA MEA pilot study results on the Maestro platform: top (red) and bottom (blue) row graphs reflect data from cell lines "A" and "B", respectively, when treated with the compound indicated. Each of the 6 sites are independent testing locations.

0 0.01 0.03 0.1 0.3

Concentration (µM)

0 1 3 10 30

Concentration (uM)

0 3 10 30 100

Concentration (µM)