

ECG and monophasic action potential analysis in isolated heart

Key features

- Automated ECG analysis
- Transmural repolarization index analysis
- Cardiac & neuronal action potential analysis
- Contractility studies
- Isolated heart analysis
- Tissue & organ bath experiments analysis
- Hardware compatibility

Isolated Heart

The Langendorff-perfused isolated heart model allows to observe the effect of a drug on the heart without the complications associated to *in vivo* experimentation, such as neuronal and hormonal effects from the living animal.

By using advanced high resolution data acquisition devices such as TMSi PORT1 and REFA systems, NOTOCORD-hem™ combines monophasic action potential, ECG, flow, pressures and video to perform state of the art *ex vivo* cardiovascular assays.

For atrial or ventricular stimulation experiments, our ECG module for isolated heart ISO10r detects and analyzes the PQRST points and marks spontaneous beat.

We also designed a Transmural Repolarization Index analyzer TRI10a to study repolarization heterogeneity in rabbit isolated perfused heart preparations.

Tissue/organ bath

Tissue or organ bath assays allow to monitor dose-responses while keeping flexibility in the experimental protocol.

Collecting organ's tension signals from 8, 16 or more channels is easy as NOTOCORD-hem™ can be interfaced with most organ bath systems from general purpose glassware to small form factors systems produced by DMT (Denmark).

Our pulsatile tissue analyzer PUL30a computes characteristic values of pulsatile tissue contractions such as start of contraction, minimum, maximum, maximum and minimum derivations, frequency, rise time, recover time and area under the curve, etc.

Our stimulated tissue contraction analyzer STT30a is designed to quantify the contractions affecting isolated organs: maximum and minimum contraction levels, magnitude and the area under the contraction curve.

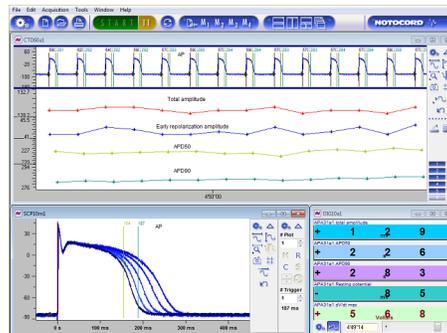
Action potential analysis

Cardiac action potential

Cardiac action potentials reflects the movement of **ions** through transmembrane channels of cardiac cells and participate in **coordinating** heart contractions. Changes in cardiac action potentials, due to drug adverse effects for example, can lead to arrhythmias.

For experiments with **Purkinje fibers**, you can use our cardiac action potential analyzer **APA31a** as well as our **ionic currents hERG analyzer HRG30a** that detects the different stimulation phases of hERG channels and calculates typical values.

Monophasic action potential recordings allow to assess changes in myocardial depolarization and repolarization. Our analyzer **MAP30a** detects monophasic action potential shapes and computes the resting potential, potential beginning, minimum, maximum and minimum, recovery time at different percentages of total magnitude.



Action potential analysis with APA31a

Neuronal action potential

Neuronal action potentials are sudden and transient **electrical changes** in the axon's membrane potential, responsible for the transmission of nerve impulse. Our dedicated analyzer **ARN30a** performs online analysis of neuronal extracellular action potential and extracts parameters such as action potential minimum and maximum, dV/dt min and max, latency etc.

Related products

APA31a	Cardiac Action Potential Analyzer with P1A parameter
ARN30a	Neuronal action potential analyzer
HRG30a	Ionic currents hERG analyzer
ISO10r	Rabbit isolated heart electrocardiogram analyzer
MAP30a	Monophasic action potential analyzer
PUL30a	Pulsatile tissue contraction analyzer
STT30a	Stimulated tissue contraction analyzer
TRI10a	Transmural Repolarization Index analyzer

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