MaxOne, a high-resolution microelectrode array (MEA) system, is best suited for long-term and label-free analysis of beating cardiomyocytes in vitro.

- Cardiomyocytes cultured as monolayers
- Primary heart cells
- 3-dimensional microtissues

MaxOne’s large sensor array at high-resolution enables recording of every active cell across multiple areas of any biological sample.

- 26,400 electrodes
- 8 mm² sensor area
- 3,265 els. per mm²
- Low noise (2.4 μV rms)
- 20 kHz sampling rate
- Up to 78 dB amp. gain

Detect and track the functional differentiation of stem-cell spheroids into spontaneously beating cardiomyocytes.

MaxOne enables to detect the electrical activity of cardiomyocytes.

- Reveal spontaneous beating activity.
- Record field potentials from the entire sample at high-resolution.
- Analyze QT interval, sodium spike amplitude, and beat rate.

Detect beating cardiomyocytes in embryonic stem-cell spheroids
MaxOne

High-Density Microelectrode Array Platform

Assess the effects of cardioactive drugs and compounds

Quantify the effect of drugs on cardiomyocytes using high-resolution functional readouts.

MaxOne enables to extract electrophysiological properties such as amplitude, frequency, and wave propagation.

- Locate the origin (*) and the direction of wave propagation.
- Characterize wild-type cardiomyocytes with unprecedented details over days.
- Characterize responses of healthy cardiomyocytes to pharmacological manipulation during short-term and long-term application.

Electrophysiological properties

Response to pharmacological manipulation

Legend: Healthy cardiomyocytes (negative control, NC), phenylephrine hydrochloride (PE, α1-adrenergic agonist), isoprenaline (ISO, β-adrenergic agonist), lidocaine (LID, blocker of Na+ channels), 4-aminopyridine (4-AP, blocker of the K+ channels) Statistically significant differences relative to NC *p<0.05 and **p<0.01.[1]

References

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