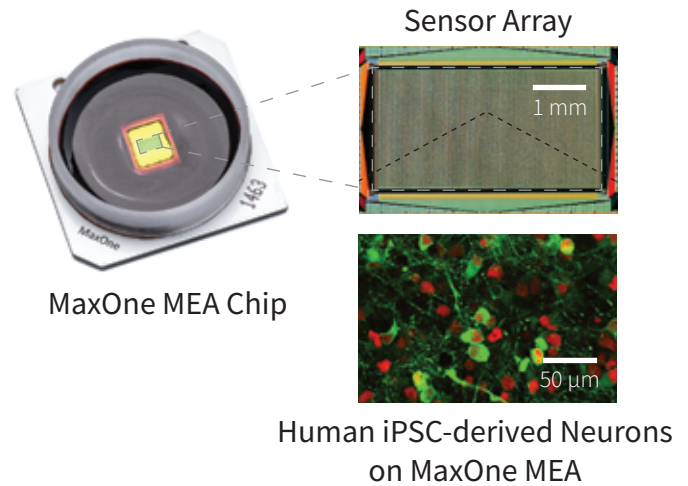
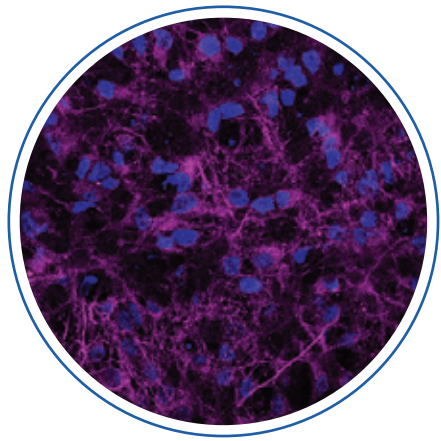


MaxOne for iPSC-derived Neurons



MaxOne, a high-resolution microelectrode array (MEA) system, is best suited for long-term and label-free analysis of induced pluripotent stem cell (iPSC) derived neurons.

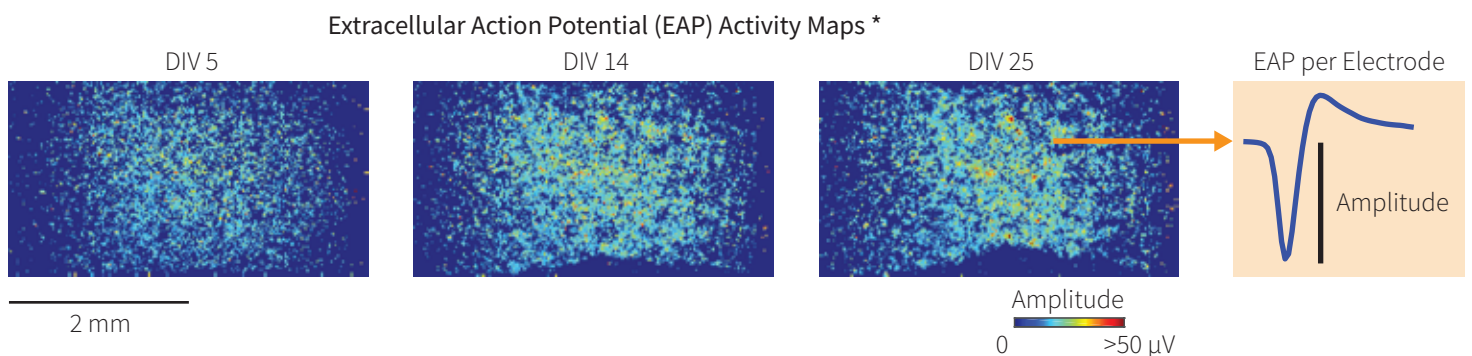
- ⚡ Mono-culture and co-culture (e.g., with astrocytes)
- ⚡ Disease model cells
- ⚡ Organoids

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

Evaluate Cell Function During Development

Track Cell Culture Activity Across Multiple Days



Obtain high-resolution activity maps of iPSC cultures using electrical activity.

MaxOne enables recording of neuronal activity and label-free electrical imaging of whole samples. The extracellular action potential (EAP) activity map obtained using MaxOne provides information on:

- ⚡ Location of spontaneously active cells
- ⚡ EAP amplitude
- ⚡ Spike rate

*Data from iPSC-derived Dopaminergic Neurons

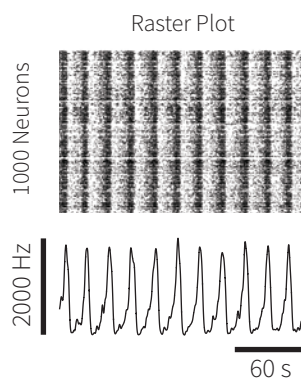
Characterize Network Connectivity and Synchrony

Analyze functional connectivity and synchrony of iPSC-derived neuronal cultures.

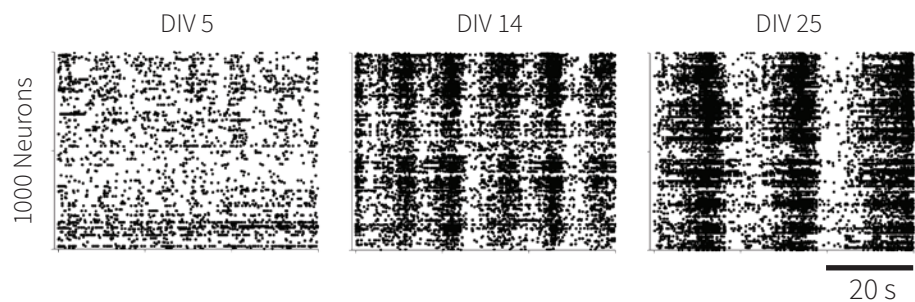
MaxOne allows long-term tracking of active neurons. Connectivity and synchrony can be extracted from:

- ⚡ Network burst features (burst frequency, length, amplitude, etc.)
- ⚡ Pairwise correlations in neuronal spike trains
- ⚡ Response to selective electrical stimulation

Network Activity*



Development of Network Connectivity*



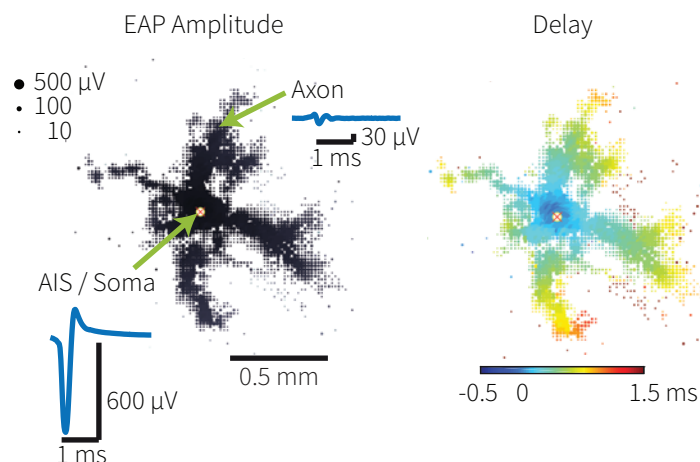
*Data from iPSC-derived Dopaminergic Neurons + Astrocytes

Investigate Cell Maturity and Excitability

Study propagation of action potentials along axonal arbors of hundreds of iPSC-derived neurons simultaneously. MaxOne captures the activity of neurons at high signal quality and unprecedented spatio-temporal resolution, allowing the detection of action potentials along axons.

- ⚡ Observe axonal action potential propagation of single neurons across multiple days.
- ⚡ Analyze axonal conduction velocity.
- ⚡ Compare axonal action potential propagation between healthy and disease model cells.

Axonal Action Potential Propagation



Axonal Tracking

