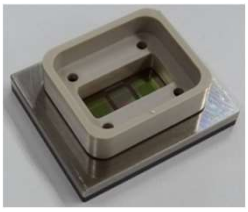
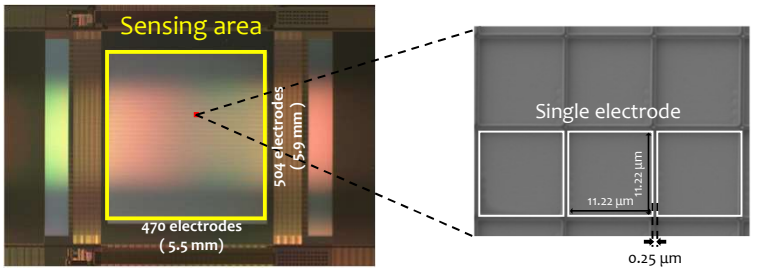
UHD-CMOS-MEA Services（CRO）

UHD-CMOS-MEA Chip

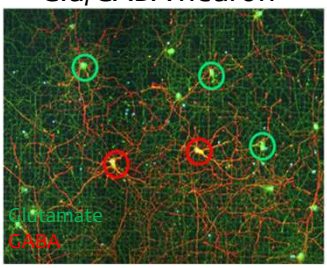


236,880 electrodes

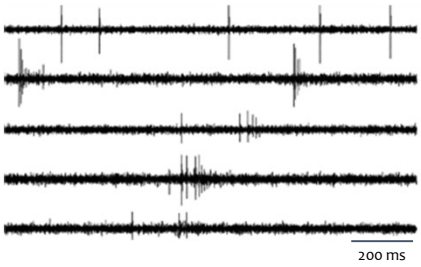


- Diverse set of cell types are available
  - CNS / PNS (human iPSC-derived, rat)
  - Brain organoids / slices
  - human iPSC-derived cardiomyocytes
- Advanced analysis available
- Feel free to contact for project consultation

Glu/GABA neuron



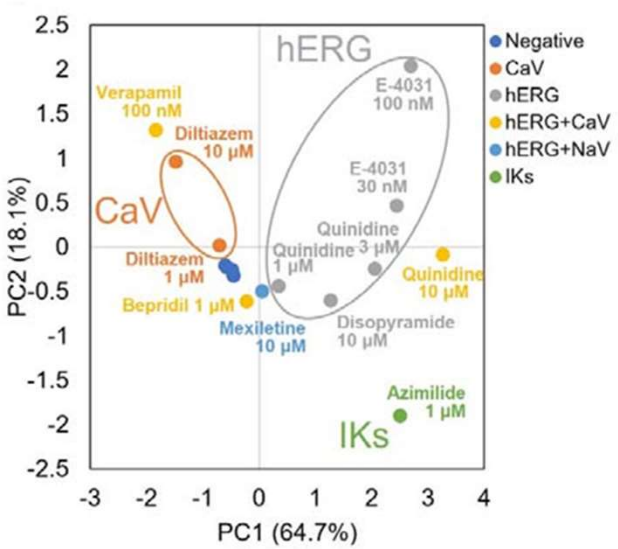
Firing patterns in a single neuron



Brain organoid

UHD-CMOS-MEA Advanced Analysis Support

Principle Component Analysis

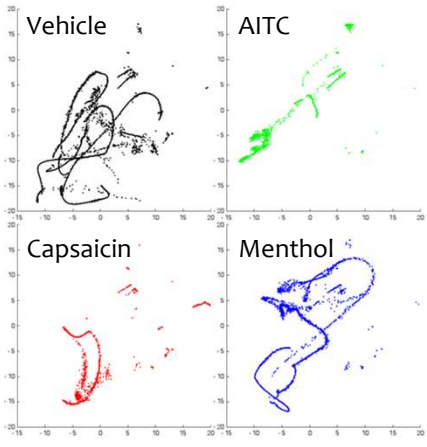


Fully leverage a diverse set of parameters from UHD-MEA to visualize disease-related differences and/or compound effects in simplified PCA space

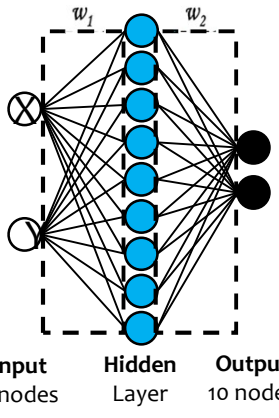
Matsuda, *et al*., 2025, *bioRxiv*

Machine Learning / AI

UMAP coordinate information



Neural network (pattern recognition)



An AI model could be trained with 160-dimensional time-series data to accurately predict attributes of untrained datasets. Custom model development available upon consultation

Unpublished

VitroVo
in vitro to in vivo extrapolation

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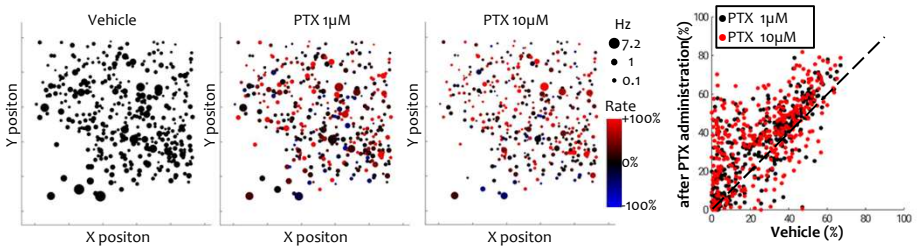
Website

Central Nervous System

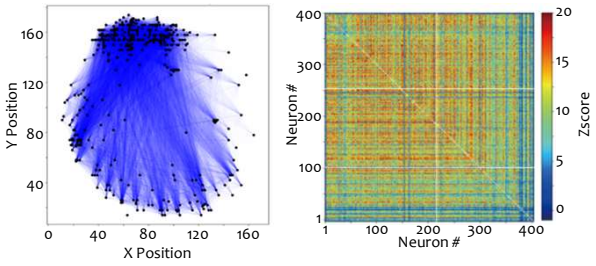
Cell Identification



- Provide individual neuron-based parameters instead of electrode-based metrics

Suzuki *et al.*, 2023, *Adv. Sci.*

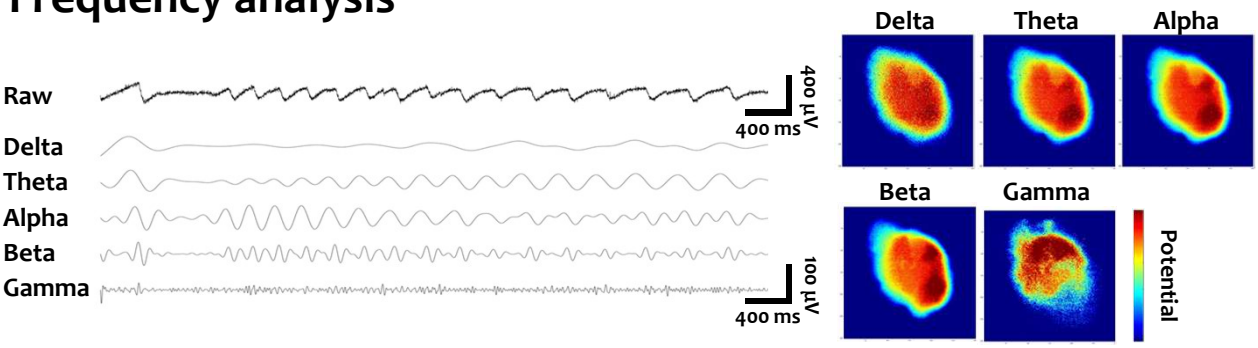
Connection analysis



- Quantify excitatory and inhibitory connections between identified neuron pairs using Z-score analysis
- Capture parameter modulation in response to compound treatment or disease state

Yokoi, *et al.*, 2025, *bioRxiv*

Frequency analysis



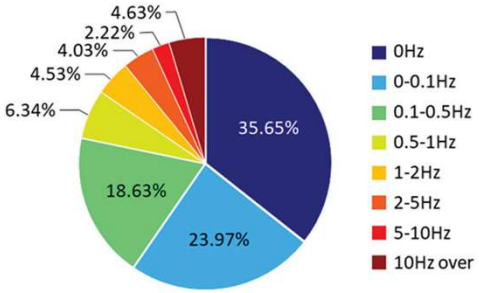
- Obtain brain waves from organoids to compare clinical observations

Yokoi, *et al.*, 2025, *bioRxiv*

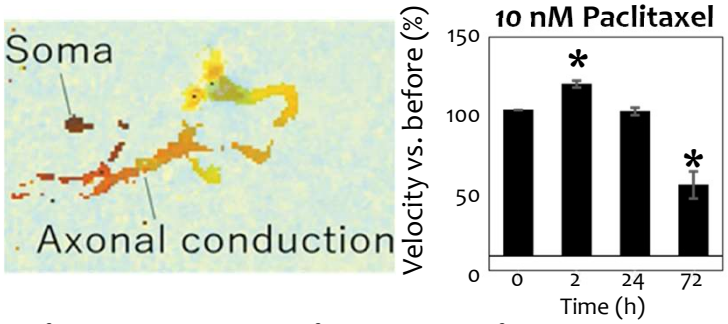
Peripheral Nervous System

Suzuki *et al.*, 2023, *Adv. Sci.*

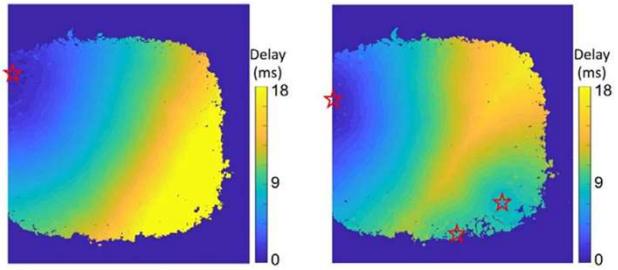
Cell Identification



Axon Conduction Verocity



Cardiomyocytes: Origin points, Conduction velocity , Propagation area



- Offer an original UHD-MEA parameter: the number of distinct excitation origin points, conduction velocity and propagation area

Matsuda, *et al.*, 2025, *bioRxiv*

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in vitro to in vivo extrapolation

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