

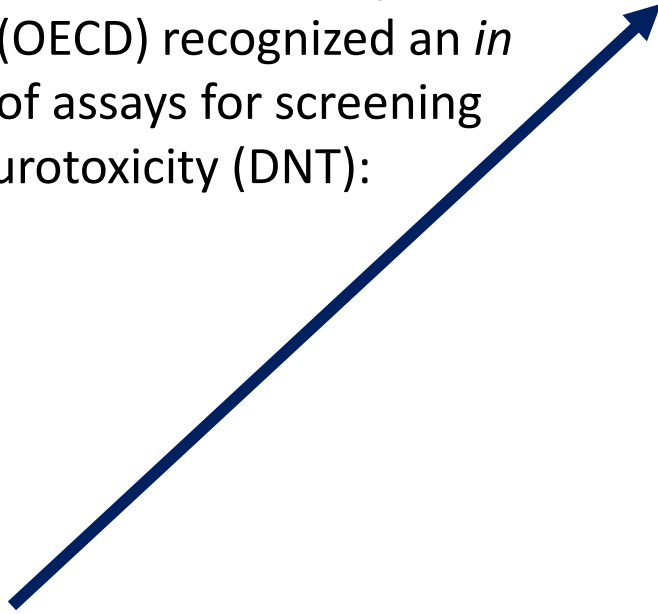
A New Approach Methodology (NAM) using 3D Human iPSC-Derived Neural Organoids to Screen for Developmental Neurotoxicity Hazard

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U.S. EPA

Developmental Neurotoxicity *in vitro* Battery

The Organisation for Economic Co-operation and Development (OECD) recognized an *in vitro* battery (IVB) of assays for screening developmental neurotoxicity (DNT):

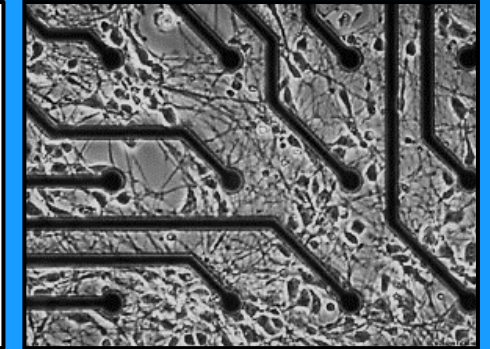
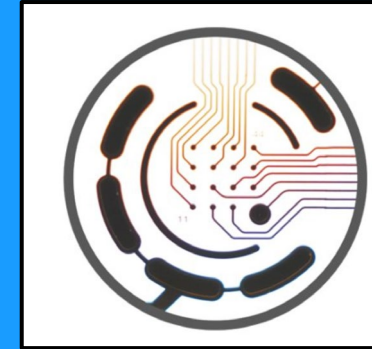
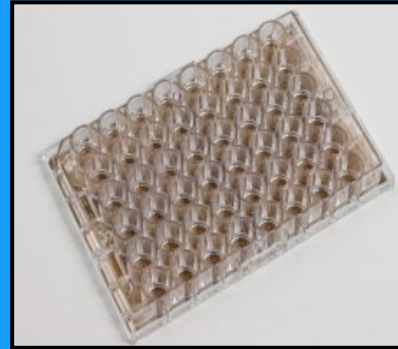
- Apoptosis
- Proliferation
- Migration
- Neurite outgrowth
- Synaptogenesis
- Network Formation



Existing Assay: Neural Network Formation Assay (NFA) Low Density Microelectrode Arrays

16 electrodes/well

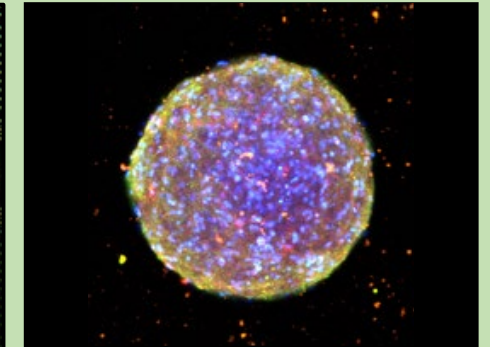
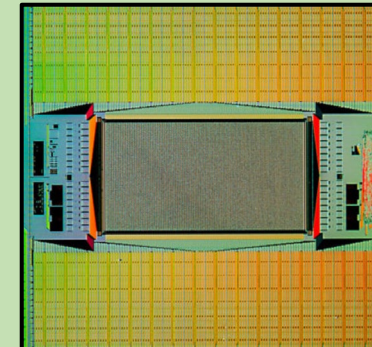
2D rat primary cortical neurons



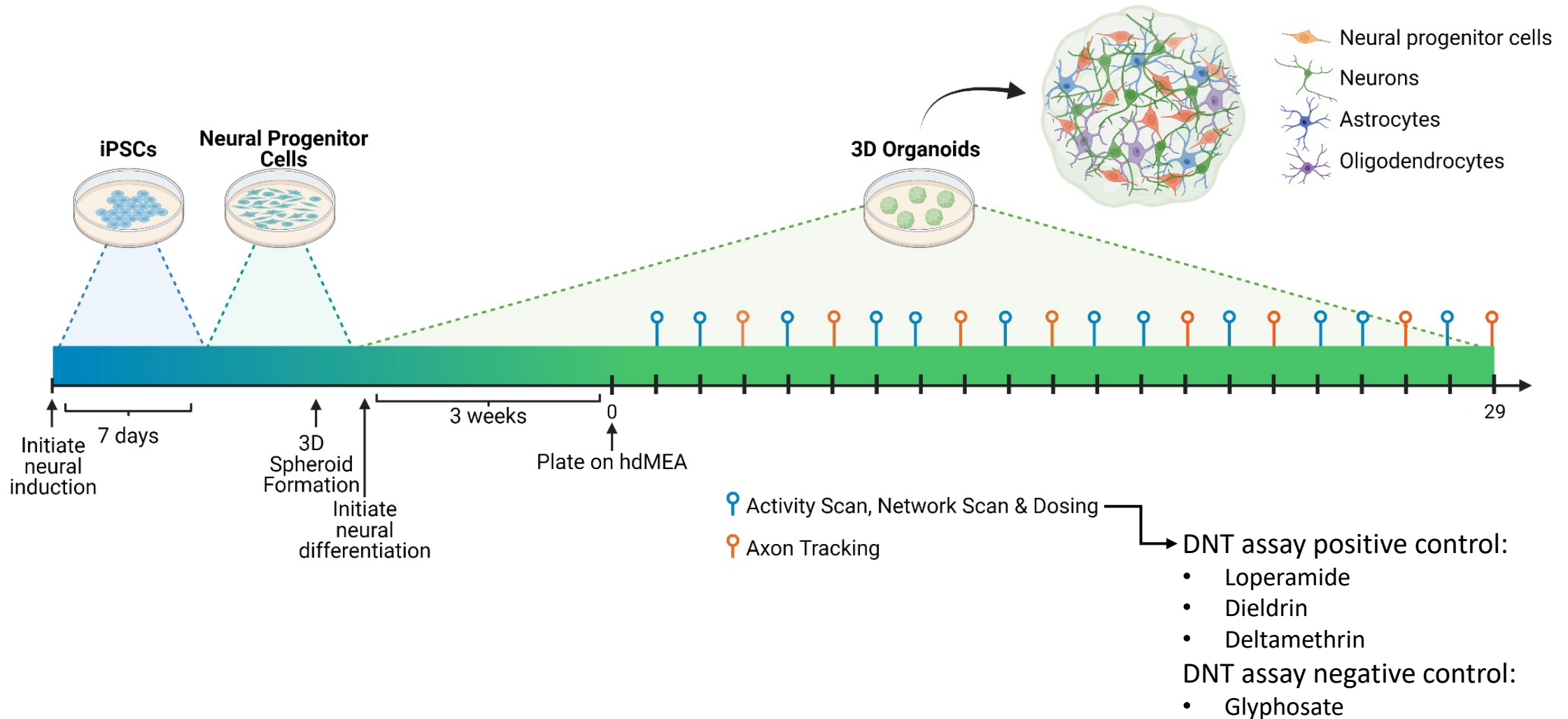
Assay in Development: 3D Organoid high-Density NFA High Density Microelectrode Arrays

26,400 electrodes/well

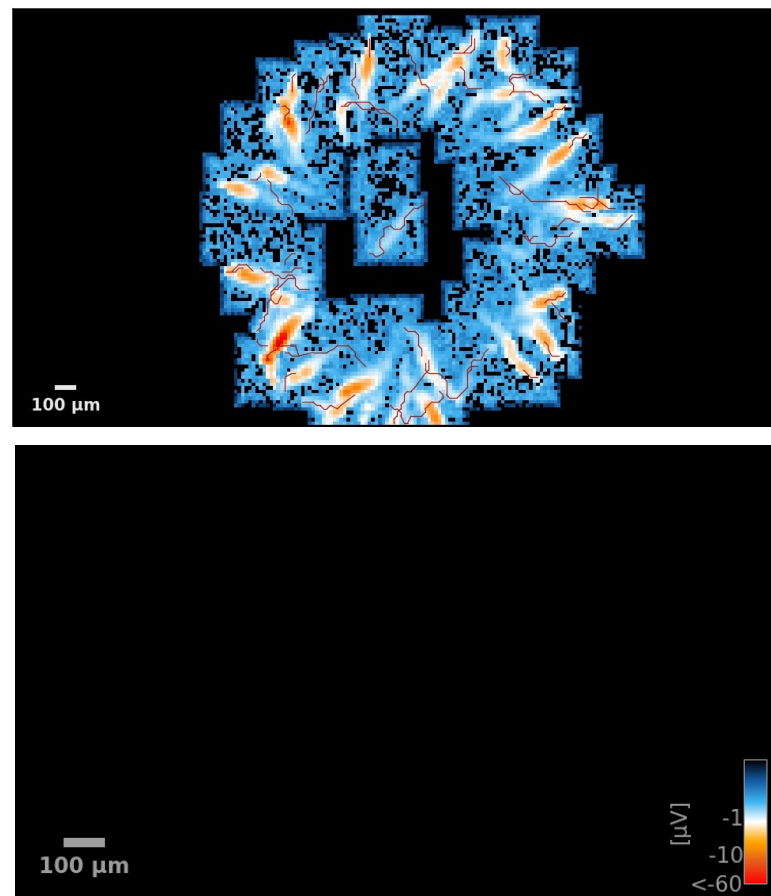
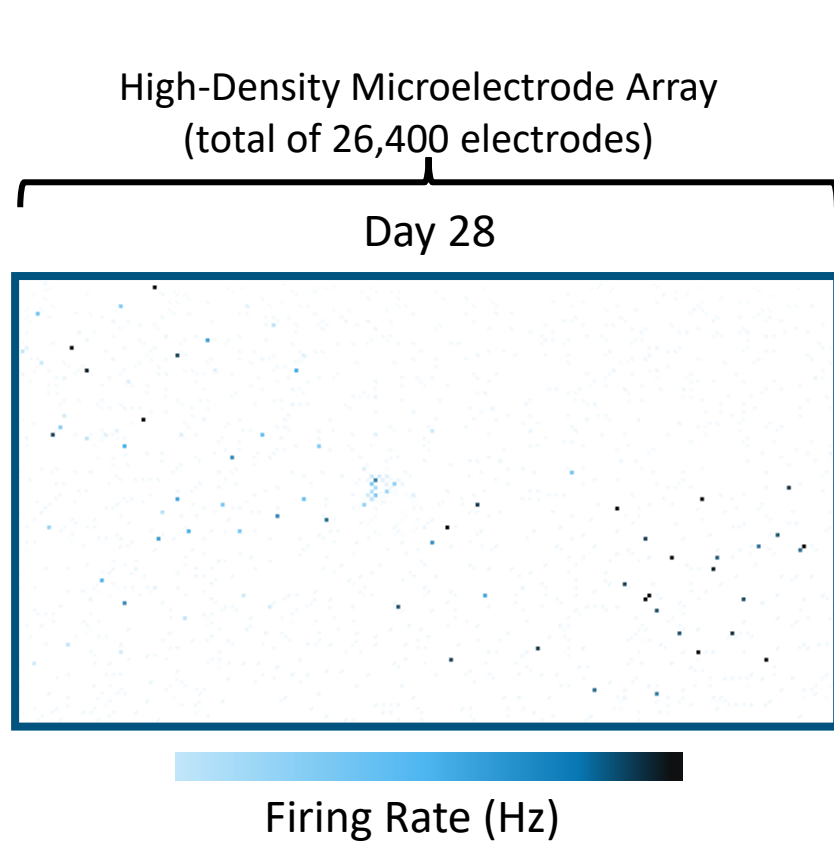
3D Human iPSC-derived cells



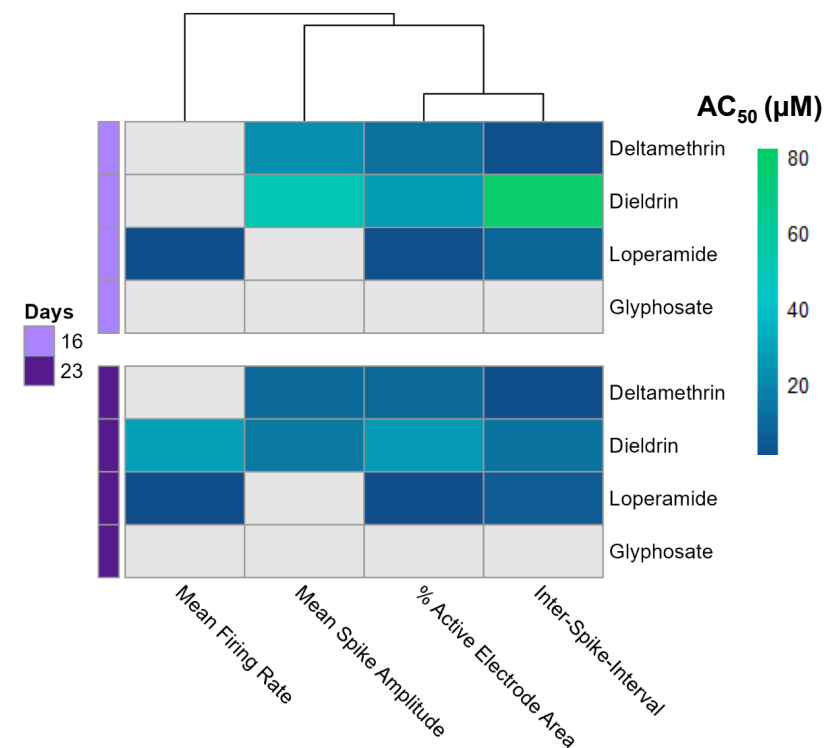
Experimental Design



The Organoid/hdMEA Assay Responds as Predicted to Assay Positive and Negative Controls



AC_{50} Values for Activity Analysis





Thank you!

Visit my poster here:
Monday, October 28th
Poster Session 1
Poster No. 8