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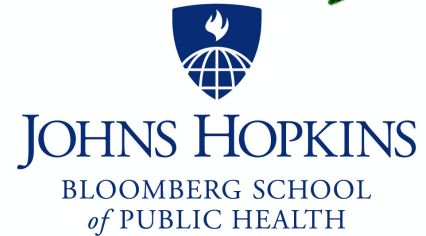
iPSZÜRICH

A Lecture Series Focused on Induced Pluripotent Stem Cells



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## iPSC-DERIVED BRAIN ORGANOID AS COGNITION-IN-A-DISH MODEL

Recent advances in brain organoids derived from human stem cells offer the potential to model learning and memory *in vitro*, offering the possibility of introducing more complex endpoints into the battery of tests for developmental neurotoxicity or neurological disease.

We introduce the term Organoid Intelligence (OI) to define this emerging multi-disciplinary field at the intersection of advanced micro physiological systems representing biology multielectrode arrays as sensor system and artificial intelligence (AI). OI aims at leveraging biological learning mechanisms, in *in vitro* brain computer interface. Our vision outlines a multidisciplinary R&D trajectory focused on scaling up organoid production and integrating them with novel electrode arrays. We are developing a pipeline of using OI to study neurodevelopmental disorders and rare diseases, such as autism, SYNGAP-ID and leukodystrophies. Challenges include developing models through stimulus-response training and creating organoid-computer interfaces. OI involves a collaborative effort from multiple disciplines.

