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iPSZÜRICH

A Lecture Series Focused on Induced Pluripotent Stem Cells

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STEM CELL-DERIVED BRAIN ORGANOIDS: EMERGING HUMAN *IN VITRO* MODELS FOR THE STUDY OF INFECTIOUS DISEASES

The recent pandemics of Zika virus (ZIKV) and Coronavirus (SARS-CoV-2) underscore the threats posed by viruses and highlight the need to better understand their unique pathogenesis. Organoid models are emerging *in vitro* platforms that allow to functionally study viral pathogenesis in a human context and in a physiologically relevant environment. In particular, brain organoid systems derived from human pluripotent stem cells are of great interest for virology studies, as the human brain is complex and accurately reproducing the neurological defects caused by viruses using animal models is very difficult. In this talk I will discuss key features of human brain organoid systems and their advantages as virology platforms. Furthermore, I will present the use of human brain organoids as infection models for Herpes Simplex virus and Zika virus, two viruses that cause significant neurological morbidity worldwide, to highlight the ability of brain organoid models to uncover unique and novel aspects of viral pathogenesis.