Special Issue

Microfluidic Brain-on-a-Chip

Message from the Guest Editor

Microfluidic brain-on-a-chip entails research on in vitro mimicking and investigating brain organization and function by applying micro-and nanofabricated features. The chip format stands for integrated technologies that yield an understanding of all types of processes involved during interrogation of neurons either in a natural source of tissue or cultured from cells, keeping in mind the efficiency of the implementation of such techniques. The latter is particularly important for robust biomedical research and industrial applications. This Special Issue collects publications discussing the underlying design requirements, constraints, and preferences to fabricate, vascularize, and manipulate biohybrid constructs. Microfluidic brain-on-a-chip is motivated by a multi-disciplinary perspective shedding light on the complex neurophysiology encompassing perfusion and cell differentiation processes and includes the molecular and cellular neurobiology machinery responsible for creating neural circuits, networks of neurons, and hierarchical brain systems standing at the basis of actions that are central to cognition and behavior.

Guest Editor

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