Neural Plasticity

Hindawi

Special Issue on

Novel Techniques for Visualizing and Manipulating Neural Plasticity

CALL FOR PAPERS

It is crucial to understand how the nervous system develops and changes. Such knowledge can facilitate the development of proper diagnostics and treatments for neurological disorders, to enhance educational practices, and help individuals maintain lifelong cognitive health. Enormous progress has been made in the study of neural plasticity. The advent of novel technologies is of the utmost importance, as these breakthroughs generate new paths that enable great leaps forward in understanding the brain. Prominent examples contributing to the advancement of brain science include the development of the patch-clamp technique, which revolutionized the way we study ion channels and neuronal excitability; the invention of functional Magnetic Resonance Imaging (fMRI), which radically changed the way neuroscientists study brain functions; the most recently developed optogenetic techniques that have opened a brand new era for dissecting neuronal circuits; and lab-on-chip devices, applied nanomaterials and microelectronic biosensors which have provided new tools for assessing brain circuits at multiple scales. This special issue aims to provide a platform to systematically update novel methods for visualizing and manipulating brain plasticity from the molecular and cellular level to the whole brain network.

We invite investigators to contribute original research articles as well as review articles that will stimulate the continuing efforts to develop and utilize novel technologies to understand and modulate brain plasticity. The presented techniques shall be strictly applied to neural plasticity study.

Potential topics include, but are not limited to:

- Novel recording and imaging techniques to facilitate the study of plasticity mechanisms, including nanosensing techniques, CMOS-biosensors, and imaging and image processing methods, to visualize neural plasticity from synaptic-level activity to the whole brain functional connectivity
- Novel manipulation techniques to modify and probe the neural plasticity, including nano actuating techniques, microfluidic platforms and new material and substrates for cell culture and cell stimulation

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/np/ntv/.

Lead Guest Editor
Nan Li, Massachusetts Institute of Technology, Cambridge, USA
nli9@mit.edu

Guest Editors
Luca Berdondini, Istituto Italiano di Tecnologia, Genova, Italy
luca.berdondini@iit.it

Aviad Hai, Massachusetts Institute of Technology, Cambridge, USA
aviadhai@mit.edu

Shan Lou, Harvard University, Cambridge, USA
shanlou@fas.harvard.edu

Shanbao Tong, Shanghai Jiao Tong University, Shanghai, China
stong@sjtu.edu.cn

Manuscript Due
Friday, 3 June 2016

First Round of Reviews
Friday, 26 August 2016

Publication Date
Friday, 21 October 2016