Neural Plasticity

Special Issue on
Neuroepigenetics and Neural Plasticity

Hindawi

CALL FOR PAPERS

Epigenetic mechanisms are key regulators of gene expression, cellular differentiation, and development in virtually all tissues including the brain. Epigenetic modifications, such as histone modifications and DNA methylation, reflect environmental influences which do not result from alterations in the DNA sequence and represent a central mechanism through which experience can modify brain development, synaptic strength, neural plasticity, and neural circuitry. In adulthood, changes in the epigenome are critical to higher cognitive functions such as learning and memory. New emerging evidence implicates dysregulation of epigenetic modifications in neurological disorders and diseases such as ischemia, Alzheimer's disease, and Huntington's disease. One possibility is that epigenetic mechanisms are corelated in these diseases by a common factor. For example, many of these diseases share a common feature in that each involves the dysregulation of the gene silencing transcription factor REST, which orchestrates epigenetic remodeling of genes during normal development and whose dysfunction is implicated in neuronal function, synaptic plasticity, and cell survival. During the late stages of neuronal differentiation, loss of REST is critical to the acquisition of the neuronal phenotype. In differentiated neurons, REST is normally quiescent but can be transiently activated during postnatal development in an experience-dependent manner to promote acquisition of the mature form of the NMDA receptor and in response to neuronal insults such as seizures and ischemic stroke.

Profiling the array of genes that are epigenetically regulated in normal and abnormal brain development or neurological disease is likely to advance our understanding of the cognitive function and molecular mechanisms underlying physiological and pathological conditions in the brain.

For this special issue, we elicit research as well as review articles on any topics related to the role of epigenetic modifications of genes involved in synaptic function, plasticity, and neuronal survival in normal and abnormal brain development and/or how dysregulation of these genes contributes to the pathophysiology of neurological disorders.

Potential topics include but are not limited to the following:

- DNA methylation or hydroxymethylation including regulation of the DNA methyltransferases (DNMTs) and the methylcytosine dioxygenases (TETs)
- Histone modification including regulation of histone acetyltransferase, methyltransferase, and histone deacetylase
- Noncoding RNAs such as microRNAs and long noncoding RNAs
- Transcription regulators that orchestrate epigenetic remodeling of genes such as REST and polycomb proteins
- The epigenetic machinery as a therapeutic target in neurological disease: DNMT or HDAC inhibitors

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/np/nnp/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor
Jee-Yeon Hwang, Albert Einstein College of Medicine, New York, USA
jee-yeon.hwang@einstein.yu.edu

Guest Editors
Alma Rodenas-Ruano, Fordham University, New York, USA
arodenasruano@fordham.edu

Jingqi Yan, Albert Einstein College of Medicine, New York, USA
jingqi.yan@einstein.yu.edu

Submission Deadline
Friday, 27 October 2017

Publication Date
March 2018