

Special Issue on Neurogenesis in Physiological and Pathological Conditions

CALL FOR PAPERS

Neurogenesis is the process of the generation of new neurons from neural stem cells and progenitor cells. In the mammalian brain, neurogenesis occurs massively at embryonic stage and peaks at early postnatal ages. Neurons formed at these stages are necessary for establishing the neuronal connectivity that underlies complex behaviours. In adults, the formation of new neurons persists in the subgranular zone of the hippocampal dentate gyrus and in the olfactory bulbs, where new neurons mature after migration of neural stem/progenitor cells from the subventricular zone of lateral ventricles. Upon adult neurogenesis, new neurons integrate into pre-existing neural circuits of the hippocampus and olfactory bulb thereby contributing to adapting the organism to novel environments and situations and providing a neurobiological basis for memory and other cognitive functions. Numerous genes involved in Autism Spectrum Disorders (ASDs) exert regulatory control over neurogenesis, and increased neuronal proliferation has been associated with altered neuronal circuits development in autism syndromes. Failure of post-natal neurogenesis has been implicated in several neuropsychiatric disorders affecting the hippocampus including depression and schizophrenia. In ageing and Alzheimer's Disease, insults to hippocampal adult neurogenesis are involved in amnesic symptoms while deficits in olfactory bulbs neurogenesis have been associated with anosmia.

Factors including stress, anxiety, and depression can reduce neurogenesis while physical exercise and environmental stimuli represent potent triggers for the generation of new neurons. The recent discovery of massive adult neurogenesis in the hippocampal region of the human brain has greatly expanded the interest toward interventions aimed at potentiating neurogenic processes in neurological disorders, ageing, and neurodegenerative diseases.

This Special Issue aims to collect the latest studies exploring the role of neurogenesis in a temporal context ranging from pre- and post-natal development to adulthood, in order to provide a broad spectrum of molecular and cellular mechanisms as well as environmental stimuli that modulate the production of new neurons. Particular emphasis will be on studies that investigate the effects of altered neurogenesis in neural circuits rearrangement in neurodevelopmental syndromes, psychiatric disorders, and the progression of neurodegenerative diseases. Original research and review articles are welcome.

Potential topics include but are not limited to the following:

- Understanding the physiological role of neurogenesis: adult neurogenesis in the human hippocampus and olfactory bulbs; new evidence on the impact of adult hippocampal neurogenesis on learning, spatial memory, and cognitive flexibility; new studies on olfactory bulbs neurogenesis and implications for mammalian behaviour.
- Neurogenesis in pathological conditions: alterations of adult neurogenesis in Alzheimer's Disease and other neurodegenerative disorders; implications of neurogenesis in neurodevelopmental syndromes; neurogenesis in psychiatric disorders.
- Comparative studies: neurogenetic patterns between young and old ages; comparisons of age-related neurogenesis among different mammalian species.
- Factors that modulate neurogenesis: the impact of environmental stimuli and social interaction in adult neurogenesis; pharmacological tools to improve adult neurogenesis; the effect of stress on adult neurogenesis.

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?specialIssue=436598>.

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

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