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Synaptic Transmission: From Molecular to Neural Network Levels

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Deadline for manuscript submissions:
closed (31 January 2023)

Message from the Guest Editors

The communication between neurons is at the foundation of every neurophysiological activity, such as sensory perception, learning, and memory. It is well known that in the central nervous system, the number of neurons is around 1012, and the number of synapses can reach a thousand billion. Here comes the need for both bottom-up and top-down approaches to understand brain activity: how do the different components of neural machinery interact to generate such complex systems? How can the understanding of new pathways be used for pathologies' treatments? Investigations at these two levels are both needed to reach a comprehensive view of brain activity. While the microscale level has often been the leading actor of neuroscience research, the mesoscale-to-macroscale level has attracted more and more attention in the last decade.

This Special Issue aims to provide a broad picture of the latest discoveries on synaptic transmission and its impact on network activities. Both experimental and computational works are welcomed, unraveling new properties of specific synapses or how they affect neural networks activity, both in physiological and pathological conditions.

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Message from the Editor-in-Chief

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