

Editorial: frontiers in synaptic plasticity: dendritic spines, circuitries and be...

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The Editorial on the Research Topic

Frontiers in Synaptic Plasticity: Dendritic Spines, Circuitries and Behavior

More than a century ago, in 1906, the Nobel Prize in Physiology or Medicine was awarded to Camillo Golgi and Santiago Ramón y Cajal “ in recognition of their work on the structure of the nervous system.” Using the Golgi technique, Cajal discovered and described dendritic spines, which, since then, have received considerable attention. Dendritic spines are the major targets of excitatory synapses within the brain. Their disparate morphologies appear to reflect cellular processes involved in neuronal and synaptic plasticity. Dendritic spines reach high levels of complexity in humans ([1](#)). Neuronal and synaptic plasticity are manifested by changes in structure (e. g., dendritic spine shape, size, density, and connectivity) and activity (e. g., long-term potentiation) leading to dynamic changes in circuitries for neuronal processing. Furthermore, some of these changes in the brain can translate into altered behavior and even can contribute to psychiatric disorders. Animal models have been key to the study of affective and social behaviors, as well as neurological and psychiatric disorders. They provide insight into mechanisms underlying basic to complex neural functions and disturbances in behavior. However, there is a paucity of compilations correlating alterations in synaptic structure with various physiological and behavioral paradigms. This Research Topic is a forum for the exchange of data and novel hypotheses about synaptic and brain plasticity. It comprises 10 articles with 3 original research articles, 3 reviews, 2 hypothesis and theory papers, 1 opinion, and 1 general commentary elaborated by 39 authors from various countries. These contributions present state-of-the art <https://assignbuster.com/editorial-frontiers-in-synaptic-plasticity-dendritic-spines-circuitries-and-behavior/>

approaches to the study of dendritic spines, circuitries, and behavior from animal models, including rodents and primates, to humans. The research strategies used range from classic techniques to cutting-edge technologies, including imaging techniques, electrophysiology, and experimental-based hypothetical approaches.