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Circadian Mechanisms in Synaptic Plasticity

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Message from the Guest Editor

Sleep is widely considered to play an important role in brain plasticity. Nevertheless, there are contradictory findings in the field, and there is no single universally accepted theory that explains this putative sleep function. One contributing factor to this impasse may be the influence of biological clocks. There is accumulating evidence that biological clocks (central and peripheral) independently alter synapse number, morphology, enzymatic activity, and strength. Therefore, some changes in synapses ascribed to sleep may in fact be caused by biological clocks. A more complete understanding of brain plasticity requires that the effects of experience, brain state, and circadian rhythms are better defined. In this Special Issue, we invite submissions addressing how circadian rhythms influence brain plasticity, or processes dependent upon brain plasticity (*e.g.*, learning and memory, and neurodevelopment). We also encourage submissions aimed at elucidating how brain states, experience, and clocks work together to produce adaptive plastic changes in the brain.



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Special Issue