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Sommario/riassunto	High-order executive tasks involve the interplay between frontal cortex and other cortical and subcortical brain regions. In particular, the frontal cortex, striatum and thalamus interact via parallel fronto-striatal “loops” that are crucial for the executive control of behavior. In all of these brain regions, neuromodulatory inputs (e.g. serotonergic, dopaminergic, cholinergic, adrenergic, and peptidergic afferents) regulate neuronal activity and synaptic transmission to optimize circuit performance for specific cognitive demands. Indeed, dysregulation of neuromodulatory input to fronto-striatal circuits is implicated in a number of neuropsychiatric disorders, such as schizophrenia, depression, and Parkinson's Disease. However, despite decades of intense investigation, how neuromodulators influence the activity of fronto-striatal circuits to generate the precise activity patterns required for sophisticated cognitive tasks remains unknown. In part, this reflects

the complexity of the cellular microcircuits in these brain regions (i.e. heterogeneity of neuron subtypes and connectivity), cell-type specific expression patterns for the numerous receptor subtypes mediating neuromodulatory signals, and the potential interaction of multiple signaling cascades in individual neurons. The scope of this Topic includes, but is not limited to, studies aimed at understanding: 1) the actions of neuromodulators on neural activity in the frontal cortex and other cortical regions, the striatum, thalamus, and other regions involved in executive function; 2) neural and behavioral responses in laboratory animals to genetic, molecular, and pharmacological manipulation of neuromodulatory transmission in these regions; 3) the involvement of neuromodulatory systems in facilitating higher-order executive tasks in humans (e.g. pharmacology, fMRI, and EEG studies); and 4) animal models of neurological and psychiatric disorders involving abnormal neuromodulation of areas important for executive function. Studies that focus on executive circuits as well as just one brain level (e.g. cerebral cortex, striatum, or thalamus) are welcome.