



## Molecular Logic of Neural Circuit Assembly in Health and Disease

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### Message from the Guest Editor

The understanding of the developmental program of synaptogenesis and circuit formation as well as their modification/refinement throughout the lifespan is crucial for our brain function and the neuroscience field in general. A myriad of synaptogenic factors promote synaptic formation, while anti-synaptogenic factors modulate this process, ensuring balanced circuit formation. Beyond these factors, transcriptional regulators of synaptogenesis exert significant control, orchestrating the expression of genes vital for synaptic development and maturation. Perturbations in these molecular mechanisms can lead to abnormalities in brain function, manifesting as deficits in cognitive, sensory, and motor processes. Therefore, understanding these molecular pathways offers invaluable insights into neural circuitry formation, shedding light on potential therapeutic strategies for addressing circuit-specific behavioral anomalies.

This Special Issue will bring together original research and review articles on the molecular mechanisms of neural circuit formation. It highlights new discoveries, approaches, and technical developments in molecular components of synapse and circuit formation.





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