

# **Mechanistic Studies of Synaptic Scaffold Proteins in Neuronal Signaling and Development**

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## **Abstract**

Synaptic scaffold proteins dictate the architecture of postsynaptic density (PSD) and therefore play critical roles in synaptic strength and plasticity. Numerous human genetic and genomic studies in recent years have revealed that mutations of genes encoding synaptic scaffold proteins are frequently associated with various psychiatric disorders, although the underpinning biological mechanisms are poorly understood. Detailed biochemical and structural dissections of scaffold protein-mediated complex organizations have been offering valuable insights in understanding the underlying mechanisms of PSD formation and function. These studies have also been providing some clues to why mutations of synaptic scaffolding proteins can lead to psychiatric disorders such as autisms, schizophrenia, and depressions. In this talk, I will discuss our systematic efforts in biochemical, structural and functional characterizations of PDZ domain scaffold protein-mediated signaling complex organization and regulation.