Phosphorylation State-Dependent Regulation of SAPAP3 and mGluR5 Association

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This study aims to characterize the interaction between SAP90/PSD-95-associated protein 3 (SAPAP3) and metabotropic Glutamate Receptor 5 (mGluR5); specifically focusing on how SAPAP3 phosphorylation state modulates association. SAPAP3 is a scaffolding protein localized to the post-synaptic density (PSD) of striatal neurons and SAPAP3 knockout mice have Obsessive-Compulsive Disorder-like symptoms. Here, we hypothesize that spinophilin modulates SAPAP3 phosphorylation and alterations in SAPAP3 phosphorylation regulate SAPAP3 binding to mGluR5. We will use in vitro and ex vivo studies to characterize the interaction between spinophilin and SAPAP3 and to determine the functional implications of SAPAP3 phosphorylation on mGluR5 binding. These data will enhance our understanding of molecular mechanisms that regulate SAPAP3 and mGluR5 function, two proteins with known roles in obsessive-compulsive disorder.

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