

Combining immunocytochemistry, electrophysiology and molecular techniques, I am interested in the regulatory processes of synaptic vesicle (SV) protein production via calcium dependent feedback on transcription. Sustainable function of a potentiated presynaptic terminal requires mechanisms that augment the supply for increased SV release during normal activity regimes. So far, I have identified a novel regulatory mechanism by which activity dependent presynaptic calcium influx through voltage gated calcium channel (VGCC) Cav1 regulates the transcription of the vesicular glutamate transporter (vGlut). vGlut mediates glutamate uptake into SV lumen and controls the glutamate content of SVs. I am now scrutinizing the underlying molecular pathways in the context of normal development and presynaptic homeostatic plasticity.