

Virtual DANDRITE Lecture

Thursday 11 March 2021

15.00 – 16.00

Online via Zoom

Please find Zoom link via the Outlook calendar invitation. If you have not received this, please write an e-mail to Kathrine: kh@dandrite.au.dk



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Regulation of Neurotransmitter Receptors in the Brain in Health and Disease

Neurotransmitter receptors mediate signal transduction at synaptic connections between neurons in the brain. My laboratory has been elucidating the molecular mechanisms underlying the regulation of glutamate receptors, the major excitatory neurotransmitters receptors in the central nervous system. We have focused on AMPA-type glutamate receptors and have found that they are extensively posttranslationally modified by phosphorylation, palmitoylation and ubiquitination. We have shown that these posttranslational modifications of the receptor regulates its ion channel properties and membrane trafficking and are critical for several forms of synaptic plasticity and for learning and memory. We have also identified a variety of AMPA receptor interacting proteins, including GRIP1/2, PICK1, GRASP1, SNX27, KIBRA, and SynGAP, that interact with AMPA receptors and are necessary for their proper subcellular trafficking. This AMPA receptor complex is important for several forms of synaptic plasticity and learning and memory. These studies indicate that the modulation of receptor function is a major mechanism for the regulation of synaptic transmission and is a critical determinant of animal behavior. Recent evidence has indicated that AMPA receptor function may be disrupted in several neurological and psychiatric disorders. Specifically, mutations in SynGAP, GRIP1 and GRASP1 have been found to be associated with cognitive disorders including intellectual disability, autism, and schizophrenia.