Colloquium

Information transmission across synapses: Controlling the efficacy and its diversity

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Synapses are the fundamental nodes of information transmission in the brain. The efficacy of synaptic transmission, called synaptic strength, and its use-dependent changes are crucial for how the brain perceives the environment, learns and stores memories. However, the basic principles underlying synaptic circuits, particularly how synaptic strengths are set and controlled in defined circuits remain to be clarified. We have addressed this question by examining the interaction between multiple synapses of hippocampal neurons using a combination of electrophysiology and imaging approaches. We provide evidence for a novel cellular mechanism involving glial cells in regulating the heterogeneity of synaptic strengths across inputs received by single hippocampal neurons. Our findings underscore the role for glia in integrating synaptic transmission properties across a synapse population.

Monday, April 16, 2018 04:00pm - 05:00pm
Raiffeisen Lecture Hall, Central Building

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