

Pharmacological manipulations of neuronal network excitability impacts information transmission



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The brain is a unique complex dynamical system. Not only does its emergent properties stem from the complex interactions between its fundamental unit, the neuron, but also the individual neurons themselves are also complex systems. Emergent activity, detectable in the form of collective rhythmic dynamics, arises from networks of neurons and these dynamics are vital for cognitive functions such as attention, memory formation, learning and sleep. A major challenge for the brain is to maintain a stable operating state while retaining sufficient adaptability to grow while experiencing the requisite plasticity to response to external stimuli. These two opposing constraints define the boundary conditions for neuronal network dynamics. I will discuss studies performed in our lab that investigated how pharmacological perturbations influence these constraints and facilitate information transmission within in vitro hippocampal networks.

Tuesday

April 11

4:00 P.M.

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