

Neuroscience Seminar Series

Friday, October 13th, 2017 at 11:30

Salle des Conférences (R229)

Centre Universitaire des Saints-Pères

45 rue des Saints-Pères, 75006 Paris

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New optogenetic tools to visualize and control neural activity

Molecular engineering of improved fluorescent proteins (FPs) and innovative FP-based indicators has been a major driving force behind advances in cell biology and neuroscience for the past two decades. Among these tools, FP-based indicators (i.e., FP-containing proteins that change their fluorescence intensity or color in response to a biochemical change) have uniquely revolutionized the ability of biologists to visualize the otherwise invisible world of intracellular biochemistry. Similarly, light-activated protein-based actuators now enable researchers to control cellular activities with precise spatial and temporal resolution. In this seminar I will describe our most recent efforts to use protein engineering to make a new generation of versatile FP-based tools optimized for in vivo imaging and manipulation of cellular activity. Specifically, I will present our efforts to convert red and near-infrared FPs into indicators for calcium ion, membrane potential, and neurotransmitters, and describe our recent efforts to exploit FPs for optical control of protein activity and gene expression.

Those interested in meeting with the speaker please contact
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