Department of Biochemistry

RESEARCH SEMINAR

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“Fluorescent biosensors for cellular dynamics and discoveries in natural light sensing”

I will present our multi-faceted approach to sensing dynamics across scales, with emphasis on building new sensing methods and tools. Cell behavior is controlled by highly dynamic signaling networks wherein the activities of key signaling proteins are tightly regulated inside the cell. I will present the development of fluorescent biosensors based on engineered protein binders that recognize ‘active’ signaling proteins or conformations in live cells. I will describe how a new biosensor for a specific Src family kinase, Fyn shows how signaling systems are spatially-temporally regulated and is subject to cross-talk between cell adhesion receptors and growth factor receptors (receptor tyrosine kinases RTKs). Additionally, I will also present the development of novel mitochondrial probes and dyes help visualize unexplored patterns in mitochondrial activity and organization in live cells.

I will end my talk by showcasing our recent work where we have discovered new kinds of light sensing in nature. Our work reveals how organisms possessing simple eyes and brain can accomplish sophisticated gradient and spectral sensing, while also performing complex neural processing. I will also show how several planarian flatworm species have highly acute and sophisticated light sensing independent of the eye. These findings not only impact on our understanding of how light is sensed in nature but also allow us to study eye-brain regeneration using simple organisms in unprecedented ways.

Date & time: Monday, March 12, 2018 at 05:00 pm
Location: Lecture Hall Y44-H-11, UZH Irchel

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