**BIOENGINEERING SEMINAR**

**“Cell Geography: Organelles in their Natural Habitat”**

**Thursday – June 18, 2015 – 4:00 p.m.**

EPFL – room SV1717a

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*host: Prof. Félix Naef*

**Abstract**

Organelles are separate but not isolated intracellular compartments. Their positions within the cell establish a cellular geography that creates subcellular microdomains for localized intracellular signaling. In particular, interfaces between organelles are sites of information and metabolite exchange that play important roles in cellular physiology. They allow, for instance, the proper partitioning of lipids between the various cellular membranes. How are these subcellular territories established? How do organelles find and maintain their appropriate subcellular position? How and why do organelles come into contact with each other? How do they manage to do so harmoniously, without encroaching on each other’s territories and without clashes and entanglements?

We use mitochondria as a model organelle to tackle these questions. Mitochondria are neither able to synthesize lipids, nor to receive lipids by vesicular transport. The biogenesis of their membranes depends on contacts established with other organelles. Moreover, mitochondria form a dynamic network, that must maintain homeostasis in the constantly moving environment of the cytoplasm.

I will present our research showing how organelles form a plastic lipid exchange network, how mitochondria hitchhike on the cytoskeleton after mitosis, and how mitochondria avoid tying knots in the crowded and moving intracellular space.

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