**BIOENGINEERING SEMINAR**

"Mechanical Signaling and Cell Fate"

Friday, October 6, 2017, 14h00

EPFL – room SV1717

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host: Prof. Andy Oates

**Abstract**

The role of mechanical signaling in cell fate choice has been largely overlooked; however, it plays a significant role in tuning cellular response to signals. My lab is investigating the interplay between biochemical signaling and mechanical signaling in cell fate choice.

I will show first in the mouse embryo that biochemical signaling modulates cytoskeletal contractility to influence spatial positioning and solidify cell fate choice. I will then show that mechanics tunes the response of the cell to biochemical signaling to steer fate choice. This hypothetical feedback loop between mechanics and biochemical signaling likely has significant impact on cellular plasticity both in development and stem cells.

I will also present an example demonstrating the functional impact of mechanics on stem cell function. In this example, we have shown that we can reverse the loss of plasticity associated with ageing by controlling the mechanical microenvironment.

Ultimately, I will advance the hypothesis that mechanical sensing acts as a switch to modulate growth factor signaling to modulate cell fate choice.

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