

ANDRE LEVCHENKO

"Decisions through Oscillation: Learning from Endothelial Cells"

Wednesday

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3:30 PM

Wu and Chen Auditorium

Levine Hall



John C. Malone Professor
Biomedical Engineering
Yale University

ABSTRACT

Blood vessels constitute one of the most complex and most essential biological systems, sometimes referred to as a separate organ. Endothelial cells, lining blood vessels are also one of the most 'plastic' cell types, capable of a wide range of responses to external stimuli, conditioned on their internal states and micro-environment. Strikingly, many of these responses are triggered by the same signal, the growth factor VEGF. Understanding how the same input can trigger a variety of cellular responses in a consistent and meaningful manner has been one of the key challenges of systems biology. In this talk, based on a series of recent studies at our lab, I will share the lessons we learned about encoding and decoding of the information in cellular signaling networks more generally and in endothelial cells more specifically. In particular, I will discuss the ubiquitous presence and importance of dynamically fluctuating biochemical signaling in these and other cellular networks controlling different response time scales and outcomes.

BIO

Andre Levchenko is a John C. Malone Professor of Biomedical Engineering at Yale University and the Director of Yale Systems Biology Institute. He graduated from Moscow Institute for Physics and Technology with MS and from Columbia University with the doctoral degrees. He completed his postdoctoral studies at Caltech, working in genetics and computer science. Thereafter, he spent 12 years on faculty of Johns Hopkins University BME department, rising through the ranks to Full Professor. In 2013, he was recruited to Yale as a founding director of the new systems biology institute. Prof. Levchenko has made foundational contributions to systems biology of cellular signaling, analysis of cell migration and development of novel micro- and nano-fabricated platforms for assaying cellular functions. He is a Fellow of the Biomedical Engineering Society, American Physical Society, American Institute for Medical and Biological Engineering and an elected member of Connecticut Academy of Science and Engineering.