University of Stuttgart

Stuttgart Research Center Systems Biology (SRCSB)

Systems Biology Seminar Talk

„Signaling rhythms that coordinate metabolism, growth, and inflammation in single cells “

Prof. Dr. John Albeck

University of California, Davis

Monday
November 14, 2022
2 p.m. – 3 p.m.

Online over Webex
https://unistuttgart.webex.com/unistuttgart/j.php?MTID=mbd3d1b07d3c1a97c5a0f8fd8afbddad8

Abstract:

Cell growth and proliferation are regulated by a network of kinases, including ERK, Akt, mTOR, and AMPK. These kinases have important complementary roles in maintaining tissue homeostasis and are frequently deregulated in cancers. While ERK, Akt, and mTOR stimulate the anabolic processes of cell cycle progression and protein translation, AMPK induces catabolic activity to balance the cellular energy budget. Using live-cell reporters for these kinases, we have uncovered an intricate interplay of activation kinetics that cannot be detected at the population level. These patterns integrate extracellular growth factor and nutrient signals within the cell and influence the gene expression and behavior of individual cells. By taking into account single-cell data, we are working toward therapeutic strategies that optimize both individual and population-level cellular responses to maximize the intended effects on cell behavior.

CV:

Ph.D. in Computational and Systems Biology, 2007
Massachusetts Institute of Technology (MIT), Department of Biology
B.A. in Biological Sciences, 2000, Cornell University, College of Arts & Sciences

Positions:

Associate Professor, 2019 to present
Assistant Professor, 2013 to 2019
University of California, Davis
Department of Molecular and Cellular Biology
Instructor in Cell Biology, 2011 to 2013
Post-Doctoral Fellow, 2007 to 2011
Laboratory of Joan Brugge, Harvard Medical School
Co-advisor: Gordon Mills, M.D. Anderson Cancer Center

Graduate Researcher, 2000 to 2007

Laboratory of Peter Sorger, Massachusetts Institute of Technology

Awards:

UC Davis Chancellor’s Fellow, 2022

American Lung Association Innovation Award, 2019

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