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Einladung

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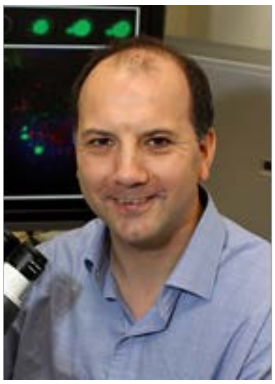
Physikalischen Kolloquium
Montag, 06.06.2016
16:15 Uhr in N24/H13

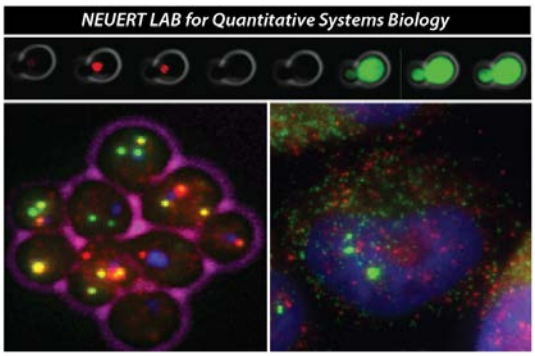


Professor Dr. Gregor Neuert

Assistant Professor
Department of Molecular Physiology and Biophysics, School of Medicine
Vanderbilt University, USA

Dynamic Temporal Control and Predictive Modeling of Signaling-Activated Gene Regulation

Signal transduction and gene regulatory pathways exhibit dynamic profiles that cause distinct cellular phenotypes. Manipulating these profiles required genetic and drug perturbations of known proteins. We propose an orthogonal approach to perturb and control dynamic signaling and gene regulatory pathways, without genetic or drug perturbations, using extracellular temporal concentration profiles. To demonstrate the feasibility of this approach we interrogate and control the osmotic stress response in yeast, enabling the manipulation of signaling intensity, duration, and shape. Combining quantitative single cell and single molecule experiments with predictive modeling, enables the quantification of thresholds for signal transduction activation, signal transduction saturation and gene expression activation. This approach is independent of the biological pathway or organism and presents a general methodology to interrogate and control signal transduction and gene expression pathways non-invasively.



Ab 16.00 Uhr Kaffee, Tee und Kekse vor dem Hörsaal H13
Organisation: Prof. Dr. F. Jelezko, Tel. 23750, Host: Prof. Dr. K. Gottschalk, Tel. 23012, off.: 23010