V VANDERBILT SCHOOL OF MEDICINE | Basic Sciences

Gregor Neuert, PhD

Assistant Professor of Molecular Physiology and Biophysics
Assistant Professor of Pharmacology
Assistant Professor of Biomedical Engineering

gregor.neuert@vanderbilt.edu
615-343-6404
https://lab.vanderbilt.edu/neuert-lab

Biosketch

Gregor was born in Germany and educated interdisciplinary through a master degree in engineering from TU-Ilmenau in Germany, a Ph.D. in physics from LMU Munich, and postdoctoral research in biology at MIT through a Deutsche Forschungs Gemeinschaft fellowship. He joined the Vanderbilt faculty in 2012, received an NIH New Innovator Award, and is a member of the founding executive committee of the Vanderbilt Data Science Institute.

Key Publications

"Distribution Shapes Govern the Discovery of Predictive Models for Gene Regulation", *Proceedings of the National Academy of Sciences*, 115(29):7533-7538, 2018

"Finite state projection based bounds to compare chemical master equation models using single-cell data", *Journal of Chemical Physics*, 145(7):074101, 2016

"Integrating single-molecule experiments and discrete stochastic models to understand heterogeneous gene transcription dynamics", *Methods*, 85:12-21, 2015

"Understanding how an individual cell perceives and responds to its environment in healthy and disease conditions"

The Neuert lab combines quantitative single cell and single molecule experiments with dynamic cellular perturbations, genetics and computational biology to **explore the fundamental mechanism that enable cells to perceive and respond to physiologically relevant environmental changes**. Specific questions of interest are:

How do individual **cells perceive physiologically relevant environments**?

How do **proteins generate dynamic behavior** within a single cell?

How do **cells regulate genes** in physiologically relevant dynamic and stochastic environments?

How to computationally model and predict single cell behavior to gain novel biological insight?