department of Systems Biology

HARVARD MEDICAL SCHOOL

Postdoctoral Positions in Quantitative Biology at Harvard Medical School

In January 2017, our quantitative biology lab will start up in the Department of Systems Biology at Harvard Medical School. Applicants are welcome from a broad spectrum of backgrounds ranging from the biological sciences to math / physics / engineering disciplines. The approach of our lab relies on the close coordination and mutual feedback between experimental and theoretical efforts. We are searching both experienced experimentalists, as well as theorists interested in starting to work in the wet lab. While not a prerequisite, experimental experience in either microbiology, fly genetics or molecular cloning will be considered very positively.

We are looking for creative, open-minded individuals, interested in venturing off the beaten track and possessing the determination required for withstanding the ups and downs of doing science and for bringing their ideas to fruition.

The start date of the position is flexible, but there is some preference for the beginning of 2017.

We offer competitive remuneration and are an equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, gender identity, sexual orientation or any other characteristic protected by law.

Our Research Interests

The complexity and heterogeneity of biological systems are fundamental obstacles that must be overcome for achieving a more quantitative and predictive understanding of physiology and phenotypes on the cellular or organism scale. Such a level of understanding has remained largely elusive in biology, despite the extraordinary level of detail to which molecular interactions have been characterized over the past decades, as it often remains unclear how to harness detailed molecular knowledge to achieve this goal.

In our lab, we try to tackle these challenges by identifying phenotypic patterns that can guide us in decoding the underlying molecular mechanisms and principles, which govern the behavior of complex biological systems. Our approach relies on the close coordination and mutual feedback between experimental and theoretical efforts and we combine careful characterization of physiology, genetic perturbations, omics technology and theoretical models.

Fundamental biological questions that we are interested in include the role of metabolic strategies during growth and adaptation, tradeoffs between competing evolutionary objectives of microorganisms and how cells achieve homeostasis of cell size, cell number and cellular composition, as well as the breakdown of these mechanisms in disease. We use the well-characterized model organisms *Escherichia coli* and *Drosophila melanogaster* to address such questions.

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