A PhD Student position (65% E13) is available within the newly established Systems Biology group of Prof. Dr. Stefan Legewie at the University of Stuttgart. The appointment will be initially for three years.

The Systems Biology group combines mathematical modelling with state-of-the-art experimentation and is part of the Stuttgart Research Center Systems Biology (SRCSB), one of the largest German inter-faculty infrastructures for systems biological research (https://www.srcsb.uni-stuttgart.de/).

In our research, we closely collaborate with SRCSB groups working on cellular signaling and gene regulation to gain a better understanding of cell fate decisions in health and disease. One major focus is heterogeneity at the single-cell level with special emphasis on the TGFb/SMAD-signalling pathway. We study heterogeneous decision making using a combination of high-content imaging, single-cell RNA sequencing and quantitative modeling.

Based on our models, we gain mechanistic insights into cellular subpopulations and cell-specific gene expression programs in heterogeneous cell populations (e.g., Strasen et al., 2018; Fritzsche et al. 2018).

As a second focus, we reconstruct gene regulatory networks from experimental data based on perturbation screens and multi-layered genomics data. In particular, we focus on mechanisms of post-transcriptional gene regulation, and recently used kinetic modeling as well as machine learning approaches to uncover mechanisms of alternative splicing regulation in human cancers (e.g., Braun et al., 2018; Sutandy et al., 2018; Becker et al., 2018). Currently, we apply this expertise to better understand how cancer cells develop resistance against targeted therapies by expressing alternative splice variants, in which the modified protein lacks the target epitope. See also: https://www.imb.de/research/legewie/research

Activities and responsibilities

The successful applicant will closely collaborate with experimental partners within or outside the group to develop data-based models of biological processes. The work involves statistical data analysis, machine learning approaches and the derivation of quantitative kinetic models. Key model predictions will be tested experimentally to gain insights into cellular decision making, thereby contributing to a better understanding of cancer development and therapy resistance. The candidate will participate in teaching in systems biology and will benefit from interdisciplinary education within the SRCSB, the SimTech excellence cluster (https://www.simtech.uni-stuttgart.de/) and the Graduate Academy of the University of Stuttgart (https://www.gradus.uni-stuttgart.de/en/).

For any queries regarding the projects please contact: s.legewie@imb-mainz.de.

Qualification profile

In our group, we put special emphasis on a collaborative environment that fosters interdisciplinary education at the interface of theory and experiment. Therefore, excellent communication skills and good team spirit are required. The candidates should be fluent in English (spoken and written). Enthusiasm for basic research and preference in the case of equal qualifications. This reason, especially welcomes applications from women. Severely challenged applicants will be given special advantages.

The University of Stuttgart has been certified as a family-friendly university since 2012 (http://www.uni-stuttgart.de/unifamilie/index.en.html) and wishes to increase the share of female academic staff and, for this reason, especially welcomes applications from women. Severely challenged applicants will be given special consideration, including researchers holding a Master in molecular biology, engineering, physics, math or informatics. Experience in large-scale data analysis (RNA Seq), machine learning and/or mechanistic mathematical modelling of biological networks is beneficial.

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Application procedure (Berwerbungsunterlagen): Candidates must send a single PDF file containing a motivation letter including a description of previous research experiences, a full CV, a list of publications, scans of academic degrees (Germany: including copies of Abitur- & Diplom/Master Zertifikat) and contact details of two referees to tigg@iig.uni-stuttgart.de.

We offer

Teilzeit E13, 65%

Send application to

Ansprechpartner: Frau Michaela Moses-Endewardt
Einsatzort: Almandring 31, 70569 Stuttgart
Deutschland

Telefon: +49 711 68566970
E-Mail: tigg@iig.uni-stuttgart.de