Ph.D. position in Computational Systems Biology

Currently, building of new tissues requires inefficient, manual manipulation that is time-consuming, labor-intensive and introduces high variability in the finished products. Relieving this limitation has implications for both health and wealth. Control of tissue growth means control of biological self-organization and is one of the great challenges in modern regenerative medicine, biotechnology and synthetic biology. This Ph.D. project will be embedded in an international research consortium (CyGenTiG) with the aim to control tissue growth through optogenetics. CyGenTiG is an international collaborative scientific program to develop techniques for controlling living cells, including human cells, with light. Compared to drugs or physical interventions, light has huge advantages: it can be shone only when it is needed, it dose can be controlled with high accuracy, and it can be switched off the instant its work is done.

The successful Ph.D. candidate will develop multi-scale models for cellular tissue using and extending the agent-based simulation platform *PhysiCell.* In close collaboration with partners from the consortium he/she has to analyze experimental data and develop the corresponding models for *in silico* experiments.

Requirements

For this position we request a good background in mathematics, physics, programming, and an interest in molecular biology.
In particular:

- Master's degree in Physics or Applied Mathematics
- Experience in doing research in a multi-disciplinary team
- Experience in systems biology, mathematical biology, dynamic systems
- True interest in biological problems
- Strong interest in combining different scientific disciplines to develop new insights
- Excellent programming skills (C++, Python, etc.)
- Excellent command of the English language (German is not required)

We offer

Participation in an exciting project which may alter the tissue engineering
Monthly gross salary will be based on TV-L E13 (50%).

We are

Freiburg University
The Fleck group for Spatial Systems Biology is part of the Freiburg Center for Data Analysis and Modelling (FDM). Our research focus is on the analysis of dynamic biological networks. The position will be located at Freiburg University at the FDM.

Interested?

Please send a letter of motivation and a CV to: christian.fleck@fdm.uni-freiburg.de

Additional information

For more information about this position, please contact Christian Fleck who heads the Spatial Systems Biology Group at the FDM (christian.fleck@fdm.uni-freiburg.de).