University of Stuttgart

Stuttgart Research Center Systems Biology (SRCSB)

Systems Biology Seminar Talk

„Computational Modeling of Morphogenesis“

Prof. Dr. Dagmar Iber
Computational Biology
ETH Zürich

Wednesday
June 28, 2023
10 a.m. – 11 a.m.

Lecture Hall 0.106
Allmandring 31
Stuttgart

Abstract:

Reproduction of complex life hinges on the reliable translation of the linear information that is contained in our DNA into complex 3D shapes and functions. My group is interested in uncovering the underlying chemical and biophysical principles. In my talk, I will focus on the development of the neural tube, the precursor of the central nervous system. I will discuss the mechanical principles that allow the neural tube to fold and close, the chemical principles that ensure the precise patterning of different neural progenitor domains along the neural tube, and the biophysical principles that govern the cellular organization in the neural epithelium. I will close with an overview of how these principles generalize to many other developmental phenomena, and how they can be harnessed in bioengineering approaches.

CV:

Dagmar Iber studied mathematics and biochemistry in Regensburg, Cambridge, and Oxford. She holds Master degrees and PhDs in both disciplines. After three years as a Junior Research Fellow in St John’s College, Oxford, Dagmar became a lecturer in Applied Mathematics at Imperial College London. Dagmar has joined ETH Zurich in 2008 after returning from an investment bank where she worked as an oil option trader for one year.

Dagmar Iber’s group develops data-based, predictive models to understand the spatio-temporal dynamics of signaling networks. Close collaborations with experimental laboratories permit a cycle of model testing and improving. Her recent work focuses on mouse organogenesis (limb and brain development, lung and kidney branching morphogenesis) and simpler patterning systems to address more fundamental questions regarding the control of organ growth and the robustness of signalling mechanisms to evolutionary change.

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