Ph.D. position at the Interface of Synthetic Biology, Transcriptional Regulation and Engineering

Laboratory of Biological Network Characterization
Institute of Bioengineering
School of Engineering
EPFL

Description:

The Laboratory of Biological Network Characterization aims to advance the field of transcriptional regulation by applying state-of-the-art technologies and synthetic biology approaches to systems level transcription factor biophysics and gene regulatory network engineering.

The project will focus on reverse engineering gene regulatory networks and developing a quantitative model of gene expression. Specifically we will focus on: i) the comprehensive characterization and modeling of the inorganic phosphate regulatory network, ii) developing approaches to precisely perturb native gene regulatory networks with engineered transcription factors and/or CRISPR/dCas9, iii) link expression levels to cellular fitness, and iv) engineer novel gene regulatory networks in yeast. These projects will involve extensive use of state-of-the-art microfluidic devices, computational analysis and molecular / synthetic biology techniques.

We currently have a position available for a graduate student to de novo engineer large-scale gene regulatory networks. The work will primarily involve promoter and genome engineering in the yeast S. cerevisiae. The successful candidate should have considerable prior experience in standard molecular biology techniques such as PCR, cloning, transformation and homologous recombination. Familiarity and prior experience with CRIPSР/Cas9 based genetic engineering is a plus. The project will be conducted in close collaboration with engineers and synthetic biologists.

The project will be carried out in the context of an ERC Consolidator Grant awarded to Prof. Maerkl.

Requirements:

Candidates should hold a masters degree in Biology, Bioengineering, Chemical Engineering, or related field. In exceptional circumstances candidates with a bachelor degree may also be considered.

Contact:

Exceptional candidates should send their curriculum vitae, a 1-page description of previous research experience, and contact information for two references to:

Prof. Sebastian Maerkl
Email: Sebastian.maerkl@epfl.ch

Evaluation will begin immediately and proceed until the position has been filled. Outstanding candidates will be asked to submit an official application package to the EDBB doctoral program for the April 15th deadline.