Bodenmiller Lab

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Postdoc in Type 1 Diabetes Single-Cell Biology at University of Zurich and ETH Zurich.

The position:
Type 1 Diabetes (T1D) results from immune-mediated destruction of insulin-producing beta cells. Current therapies have limited efficacy in preventing or halting the disease, in part due to a failure in understanding the interplay between immune cells, pancreatic islets and exocrine tissue. Studying how the pancreas tissue ecosystem evolves during T1D progression is essential for identification of novel therapeutic approaches.

Our group is among the pioneers in the development and application of single-cell approaches for the comprehensive analysis of tissue ecosystems (Nature 2020; Cell 2017, 2019), including T1D (Cell Metab 2019). Our imaging mass cytometry approach enables simultaneous visualization of over 50 proteins and transcripts in single cells in tissues (Nat Methods 2014, 2017). Thus, we can identify cell types and detect active signaling pathways and functional markers simultaneously in situ (Nat Biotech 2017; Mol Syst Biol 2020).

We are looking for a postdoctoral fellow to characterize the phenotypic and functional changes that occur in islets and their surrounding environment in the natural history of T1D. The project is embedded in an exciting multi-laboratory collaboration that will generate functional, single-cell genomics and imaging mass cytometry data from cultured pancreas slices. The selected candidate will use imaging mass cytometry (IMC) to analyze pancreas slices from human donors with T1D. Machine learning approaches and systems biology analyses will be used to integrate the different types of data and correlate phenotypic changes with functional measurements performed on the same slices. The ultimate goal is to link cellular function and phenotype in the pre-T1D and T1D conditions to obtain an integrated view of the alterations present in T1D and to identify potential therapeutic targets.

In this position you will:
- work in a collaborative and interdisciplinary team to study immune cells and pancreatic islet and exocrine cells in human pancreas slices.
- develop novel single-cell approaches to integrate functional, genomics and imaging mass cytometry data.
- follow up on T1D biological questions emanating from the experiments.

You must be:
- a highly motivated Ph.D. or M.D.-Ph.D. level researcher with a passion for science who would like to work in a collaborative multidisciplinary research environment that combines tissue biology, computational biology, systems biology and biomedicine.

Ideally, you have:
- acquired your Ph.D. recently (maximum of 4 years ago).
- experience in single-cell analysis and/or tissue imaging.
- expertise in (or strong motivation to learn) statistical and machine learning approaches for analysis of single-cell datasets.
- a desire to work in a collaborative environment.
- have proficiency in English.

To apply:
Send by email a cover letter (including an explanation of your motivation), your CV, and the contact information of at least two references to Prof. B. Bodenmiller (bernd.bodenmiller@uzh.ch). This position is available starting April 2022. Applications will be considered until the position is filled.