

**Diabetic beta cell failure: Deciphering the role of immune and tissue cell communication by imaging mass cytometry**

**Institute: Medical Immunology, Charite**

**Supervision:**

**Prof. Dr. Birgit Sawitzki**  
Institut für Medizinische Immunologie  
Campus Virchow-Klinikum  
Augustenburger Platz 1  
Birgit.sawitzki@charite.de

**Dr. Kerstin Mühle**  
Institut für Medizinische Immunologie  
Campus Virchow-Klinikum  
Augustenburger Platz 1  
kerstin.muehle@charite.de

**Your profil:**

**Academic course in biology/biochemistry (Master Thesis) or veterinary medicine (Dr. vet med. student)**  
**Basic Knowledge in cell biology and immunology**

**For this multi-disciplinary project we are looking for a highly motivated student from the field of biology / biochemistry to work on an experimentally challenging master's thesis or from the field of veterinary medicine to complete a doctorate. The selected candidate can start the project on the 1<sup>st</sup> of April 2020 at the Virchow-Klinikum campus and will be supervised by scientists from the Molecular Immunomodulation group.**

## **Project discription:**

Diabetes mellitus type 2 is the most common metabolic disorder worldwide with 380 million people. The highest risk factor for developing type 2 diabetes is a sedentary lifestyle such as lack of exercise and an unhealthy diet that lead to obesity. Due to the constant high-fat and sugar-rich food intake, the body develops an insulin resistance, whereby the body is no longer able to properly use the insulin produced by the islet cells resulting in a continuously increased blood sugar level. The concomitant effects and secondary diseases that arise as a result of type 2 diabetes significantly reduce the quality of life and life expectancy of the patients. In order to generate new therapeutic approaches, it is important to identify and characterize the processes involved in the development of type 2 diabetes. Therefore this project aims to analyze the role of immune cells and the interaction between immune cells and islet cells in the development of type 2 diabetes using a new imaging technology, the imaging mass cytometry.

## **Your tasks:**

- Production of paraffine blocks as well as the generation of paraffine sections and tissue micro arrays
- Preparation and measurement of paraffin sections by imaging mass cytometry
- Data analysis applying novel software and R-based tools in collaboration with bioinformaticians
- Presentation of your data in the internal group meeting and at conference calls with our cooperation partner in San Diego
- High-fat / high-sugar diet experiments in a mouse model for the induction of a metabolic syndrome / type 2 diabetes

**If you are interested, please contact:**

**Prof. Dr. Birgit Sawitzki**

**+49 30 450 524 136**

**[birgit.sawitzki@charite.de](mailto:birgit.sawitzki@charite.de)**