



We are hiring! PhD student in *Immunometabolism and Microbiota in Obesity*

Research Focus:

Obesity and diabetes, both rapidly increasing in prevalence worldwide, have a tremendous medical and socio-economic impact. Both are multifactorial in their etiology, influenced by genetic and environmental factors. Obesity and Diabetes also share the characteristic of a chronic low-grade inflammatory state, that indicates that altered metabolism may alter the immune system. The gut microbiota, and microbial metabolites in particular, have been described to play an important role in disease development. However, the underlying mechanisms are still ill-defined.

In our lab we will apply innovative gnotobiotic, metagenomic and metabolomic approaches to advance our mechanistic understanding of the complex pathophysiologic **interplay between gut microbiota, metabolism and inflammation driving obesity and diabetes**, with the ultimate goal to inspire novel and innovative strategies for prevention and therapy of these important diseases.

PhD project available:

Woundomics: Understanding the Microbiota-Immune-Axis in Diet-Induced Obesity

The mechanisms leading to immune dysfunction and increased infections (e.g. wound infections) in obesity and diabetes are unclear and the main focus of this proposal. We will use gnotobiotic animal models and characterize the metabolic wound microenvironment in skin infections to understand how the pathogen-immune interaction is disturbed in obesity and diabetes. We will further validate our findings in a human cohort of obese patients, suffering from chronic wound infections.

You have the chance to learn to work with gnotobiotic animals, establish a skin infection model in mice, learn to study immunometabolism ex vivo and in vitro, metabolomics, RNA-sequencing, transposon-sequencing and much more.

Apply now!

The newly established Microbiota-Immunometabolism-Lab offers a PhD position to work in our interdisciplinary team starting in January 2023 or flexible. The project will be carried out together with the group of Prof. Dominik Meinel at the FHNW in Muttenz and offers the possibility to learn from the expertise and use cutting edge infrastructure of two labs.

We are looking for a reliable, motivated and skilled person with a strong interest in immunology, microbiology and/or metabolism. Training and experience in work with laboratory animals (LTK1) is a prerequisite. The laboratory language is English. Applicants should be fluent in English.

Our commitment:

The lab wishes to create best possible conditions for young talents to network, be creative and develop their own ideas. You will be able to interact and train with highly skilled experts in the fields of immunology, cell biology, metabolism and microbiology. Our lab strives to having members with a diversity of backgrounds and identities. We strongly believe that diversity and interdisciplinarity fosters creativity and excellence and it is our priority to make all group members feel welcome, respected and supported.

How to apply:

Please send your full application consisting of a motivation letter, CV and grades from your bachelor/master by email to: maria.balmer@dbmr.unibe.ch

References:

1. Balmer ML et al. Memory CD8⁺ T cells balance pro- and anti-inflammatory activity by reprogramming cellular acetate handling at sites of infection. *Cell Metab.* 2020 Sep 1;32(3). DOI:10.1016/j.cmet.2020.07.004
2. Balmer ML et al. Memory CD8⁺ T cells require stress-levels of acetate for optimal function. *Immunity.* 2016 Jun 21;44(6):1312-1324. DOI:10.1016/j.immuni.2016.03.016
3. Lötscher J and Balmer ML: Sensing between reactions - how the metabolic microenvironment shapes immunity. *Clin Exp Immunol.* 2019 Aug, 197(2):161-169. DOI:10.1111/cei.13291

More information:

<https://pubmed.ncbi.nlm.nih.gov/?term=balmer%20ml>

<https://www.dcberne.com>

<https://www.udem.insel.ch>

<https://twitter.com/MariaLBalmer>