Technische Universität Braunschweig

Bioinformatik & Biochemie

Inter-organ communication in muscle degeneration

Who are we?

The immuno-metabolism group (head: Prof. Karsten Hiller), located at the Braunschweig Integrated Centre of Systems biology (BRICS), investigates cellular and mitochondrial metabolism in health and disease context, with a focus on immune cells. The team has developed a strong expertise in stable-isotope assisted metabolomics and metabolic flux analysis in vivo and in vitro, in cells or in more advanced experimental models.

Project background

Metabolic regulation of the immune system plays a critical role in the pathogenesis and progression of numerous diseases, including cancer, autoimmune disorders, and metabolic diseases. Our current research focuses on how metabolic reprogramming of immune cells impacts the onset and progression of muscle degeneration in diseases context. Moreover, we are interested in understanding how metabolic vulnerabilities can be therapeutically targeted to counteract cellular dysfunction and decline across different disease contexts.

Thesis content

We are looking for motivated and proactive Master´s students who are enthusiastic about experimental research and interested in working closely with researchers in the laboratory.
We have several ongoing projects. Research activities can include:

1) to study of novel biomarkers in the context of muscle degeneration in patients samples

2) to develop a novel cell disease model to study inter-organ communication during muscle-degeneration

3) Evaluation of novel drug delivery systems for anti-inflammatory applications

Students will have the opportunity to learn and apply a range of molecular biology and analytical techniques, including qPCR, mass spectrometry, stable-isotope-assisted metabolomics, cell culture models, and cell isolation, as well as gain experience in data analysis.

Interested?

- Please contact us if you are interested in the metabolic regulation of cells. We are happy to receive your application
- English

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