



UNIVERSITÄT ZU LÜBECK

**Adipocyte  
Brain  
Crosstalk**



## **PhD Position in Neuroscience at Graduiertenkolleg “Adipocyte-Brain Crosstalk”**

### **Introduction**

The Graduiertenkolleg 1957 “Adipocyte-Brain Crosstalk” was established in 2014 with the funding from the German Research Foundation. It aims at providing structured doctoral training at the interface of neuroscience, biology and translational medicine. At GRK1957 we study the effects of adipose tissue hormones on CNS function and, in turn, the control of adipose tissue physiology by the brain. We are looking for highly motivated candidates for the following PhD project. Earliest start: **May 2020**, later start in 2020 is possible.

**Central regulation of CO<sub>2</sub>-induced metabolic changes of adipose tissue and its alterations in endothelial dysfunction**

**(Supervisors: Dr. Jan Wenzel & Prof. Markus Schwaninger**

**Institute of Experimental and Clinical Pharmacology and Toxicology)**

### **Project Description**

The project deals with the central regulation of CO<sub>2</sub>-induced metabolic changes of adipose tissue and its alterations in endothelial dysfunction. Endothelial dysfunction is a secondary effect of several diseases like diabetes, hypertension, dementia, or obesity. In our previous work (<https://www.pnas.org/content/117/3/1753.long>) we could show that a brain-specific endothelial dysfunction impairs different centrally regulated responses to CO<sub>2</sub> such as breathing or anxiety, but how metabolism is affected is unclear so far.

We could already show that the exposure to increased CO<sub>2</sub> levels leads to an impaired thermogenesis in brown adipose tissue (BAT) that subsequently led to a decrease of the body temperature. This effect was markedly potentiated in mice lacking a proper blood flow response to CO<sub>2</sub> in the brain.

The aim of the project is to figure out which mechanisms lead to the reduction of BAT activity upon CO<sub>2</sub> exposure and whether this has any effect on metabolism. In addition, we will use transgenic mice that lack a proper central blood flow response to CO<sub>2</sub> to examine the effects of an impaired removal of CO<sub>2</sub> from the brain tissue.

## Experimental Methods

- Working with genetically modified mice
- Brain area-specific modulation of activity by virus-mediated and chemical approaches
- Phenotyping of mice including measurement of thermogenesis, energy expenditure, and physical exercise
- Perfusion measurements in brain and brown adipose tissue
- Immunohistochemical and protein amount analyses
- Gene expression analyses

## Our Offer

- 3-year employment contract, salaries according to German civil service tariff (TV-L 13, 65%) with possible extension
- Excellent work environment at the [Center of Brain, Behavior and Metabolism](#) (CBBM) with state-of-the-art lab facilities incl. MRT scanner, metabolic core unit, LC-MS, microscopy
- Comprehensive academic support, e.g. project-specific courses, soft skills training, funding for research stays abroad and international conferences, individual career coaching
- Relaxed life style in city of Lübeck among many UNESCO World Heritage sites and directly on the Baltic Sea coastline and part of the Metropolitan area of Hamburg, Germany's second largest city and home to a wide range of cultural and leisure attractions

## Your Qualifications

- Research-based master's degree or equivalent (e.g. diploma) passed with an above-average grade in molecular life science, infection biology, neuroscience, biology, biomedicine, pharmacology or a related subject (if you are working on the master thesis and expect to graduate until late 2020, you can still apply)
- Excellent English language skills in speaking and writing
- Pro-active attitude, good communication skills and ability to work independently in an interdisciplinary team

## How to Apply

Applications will be accepted till the position is filled.

**Please send the required documents (English or German) in one PDF to Dr. Wenzel:**

- A detailed CV
- A letter of motivation
- Two letters of recommendation
- Degree certificates and grade transcripts (Master's and Bachelor's Degrees)
- An abstract of master thesis

## Contact

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For further information see <http://www.grk1957.uni-luebeck.de/grk-1957/> and [www.pharma.uni-luebeck.de](http://www.pharma.uni-luebeck.de)