

## PhD position - The role of airway mucus in health and disease

In the laboratory of Prof. Marcus Mall  
Department of Pediatric Pulmonology, Immunology and Critical Care Medicine  
Charité - Universitätsmedizin Berlin

The group's main focus is the investigation of the disease mechanisms and the development of new therapeutic strategies for cystic fibrosis (CF) and for other chronic lung diseases (<https://www.bihealth.org/en/research/research-groups/marcus-mall>).

We offer an open, supportive, dynamic and motivating academic environment with excellent training opportunities, interdisciplinary collaboration in translational lung research, as well as support in professional qualification with the aim of obtaining a doctorate.

### The project

We are seeking a highly motivated and committed doctoral candidate for a research project that addresses the role of airway mucus in health and cystic fibrosis lung disease. A better understanding of the composition, structure and function the mucus hydrogel layer on airway surfaces is key for the development and preclinical evaluation of more effective therapies for cystic fibrosis and other chronic obstructive lung diseases such as asthma and COPD.

The project is integrated in the Collaborative Research Centre (CRC) / Sonderforschungsbereich (SFB) 1449 "Dynamic Hydrogels at Biointerfaces", where several research groups have teamed up to define the key physicochemical and biophysical parameters that determine hydrogel function at biological interfaces in health and disease for prospective development of novel therapeutic strategies.

- Methods include disease-relevant animal models to better understand the role of airway mucus in CF pathophysiology, testing of novel therapeutic strategies targeting mucus dysfunction, establishment and maintenance of primary human cell cultures, functional high content microscopy, as well as a wide variety of biochemical and rheological approaches in order to characterize the viscoelasticity properties of airway mucus in health and disease.
- The candidate will present results on national and international conferences and contribute to manuscript and grant writing
- We offer a structured graduation program and enrollment into PhD curriculum, provided by Charité and integrated in the Berlin University Alliance.

### Requirements

- Master's degree or equivalent in the fields of medicine, biology, biochemistry, biotechnology or similar is required
- High proficiency in written and spoken English is a prerequisite
- A strong interest in respiratory physiology and in learning the mechanisms underlying lung disease
- Experience with transgenic mouse models and willingness to work with them is an advantage
- Experience in handling biological specimens from patients is an advantage
- Experience in cell culture, especially previous work with human primary cell culture models is an advantage
- Knowledge in molecular biology, cell biology, and in transcriptional and epigenetic regulation
- Experience in fluorescence microscopy including confocal microscopy and image analysis is an advantage

### Application

We are looking forward to your application including: a one-page motivation letter indicating prior research experience and future goals, your curriculum vitae (including a list of publications if applicable), certificates and transcript of records, as well as names of two references. Review of applications will begin immediately. Please send all documents in one pdf to: Prof. Marcus Mall [marcus.mall@charite.de](mailto:marcus.mall@charite.de)