

Helmholtz Call for Chinese Applicants Interested in Running for CSC 2021 Fellowship

- Helmholtz Centre:** Forschungszentrum Jülich GmbH – www.fz-juelich.de
- Department/Institute:** Institute of Neuroscience and Medicine, Molecular Organization of the brain (INM-2)
- Supervising scientist:** PD Dr. David Elmenhorst, Prof. Dr. Björn Kampa
University for registration or for a future degree: RWTH Aachen University
- Research Field:** Neuroscience, Life Science
- Position open for:** **PhD Student X** **Sandwich PhD Student**
- Title of the research:** OPTOPET - In vivo neurotransmitter and synaptic density determination of optogenetically altered wakefulness

More description of research topic:

Why do we need to sleep and what are the regulating mechanisms behind the sleep-wakefulness cycle? Which factors influence synaptic plasticity and how is neuroreceptor expression influenced? These questions describe the main research interests of the hosting institute. The putative scholar will participate in a preclinical imaging project in which the impact of optogenetic excitation (Channelrhodopsin) of basal forebrain cholinergic neurons on cortical neurotransmitter release and synaptic density will be measured with in-vivo positron emission tomography (PET).

A special focus will lie on synaptic density, glucose metabolism, adenosine receptors and metabotropic glutamate receptors. We will seize the new methodological opportunity to explore the impact of the basal forebrain on the metabolism in neurons and glia during sleep and wakefulness.

Optogenetics and PET is multi-disciplinary, so that the scholar has the opportunity to experience collaborative research and teamwork among various disciplines from chemistry, physics, engineering and mathematics to biology and (pre)clinical research at the Forschungszentrum Jülich and the University of Aachen.

A successful PhD thesis will be defended at RWTH Aachen University.

Specific requirements:

The applicant should have a biological background, ideally with expertise in animal handling. He/she should be interested (or even be experienced) in in-vivo imaging methods and optogenetic techniques (no prerequisite).

He/she should be willing to participate in animal research in rodents and have a strong commitment to team work. Good knowledge of English language.

Working Place: Forschungszentrum Jülich, Germany (near Cologne)

Earliest Start: September 2021

Language Requirement: Very good knowledge of English language, written and spoken. German language courses are organised in the context of our in-house training program and are free of charge.

Name and Address of the Supervisor: Forschungszentrum Jülich, PD Dr. David Elmenhorst MD, Institute of Neuroscience and Medicine (INM-2) 52425 Jülich, Germany;
Email: d.elmenhorst@fz-juelich.de; b.kampa@fz-juelich.de