International shared PhD position – double PhD program between Osaka/Japan and Bonn/Germany

Summer 2026 entry

The University of Osaka and the University of Bonn are pleased to offer two fully funded PhD positions (duration 4 years), to support two exceptional students undertaking doctoral research in the following projects:

A) Regulation of transcription during immune activation. How DNA elements fine tune immune cells function and activation (Paeschke group Bonn (www.paeschkelab.de)),and Matsuoka-Nakamura group at iFREC Osaka (https://www.ifrec.osaka-u.ac.jp/en/laboratory/yumi_matsuoka/index.htm))

B) Molecular mechanisms of immune activation by endogenous retroelements. (https://www.ukbonn.de/ikckp/forschung/ag-behrendt/) and the Arase group at iFREC Osaka (https://www.ifrec.osaka-u.ac.jp/en/laboratory/hisashi_arase/)

Project descriptions

Project Paeschke: This project addresses fundamental mechanisms of gene regulation that shape immune cell activation, tolerance, and inflammatory responses. Understanding how DNA structures (e.g. G-quadruplexes) and MARylation control immune function will provide insights relevant to allergy, autoimmunity, cancer, and therapeutic immune modulation. In this project we will use Langerhans cells and dendritic cells in different experimental settings such as cell culture, primary human cells, and in vivo mouse models. We will combine immunological experiments with Cell biological and biochemical assays to address the question how gene regulation is affected and supports immune cell function and activation.

Project Behrendt: Endogenous retroelements have been implicated in the development of autoimmune condition, which involve activation of both, the innate and the adaptive immune system. So far, no mechanism explaining this dual activation has been uncovered. The project aims at testing if retroelement de-repression can connect innate immune activation with autoantigen recognition.

Information of program

The program is based at two world-leading centers for immunological research: the Immunology Frontier Research Center (IFReC- https://www.ifrec.osaka-u.ac.jp) at Osaka University, which is recognized globally as one of the leading institutions in this field, and the ImmunoSensation Cluster of Excellence at the University of Bonn (https://www.immunosensation.de). Through joint program, we aim to create an exceptional interdisciplinary training environment for young scientists. Both students will benefit from access to state-of-the-art technologies, mentorship from world-leading experts—including leading scientists in the field of innate and adaptive immunity—and a clear translational perspective that bridges basic research and clinical application.

Both PhD students will be admitted to a newly established 4- year *jointly supervised double degree PhD program* between the University of Bonn and the Graduate School of Medicine at

the University of Osaka. As part of this dual supervision it is mandatory that both students will stay one full year in the partner lab.

We are seeking for two highly motivated PhD candidate to work at the interface of molecular Immunology, Biochemistry, and Molecular Biology. Both projects combine cell based *in vitro* and *in vivo* assays with advanced imaging techniques and state-of-the-art genome wide mapping tools to provide a complete picture.

The applicant should hold a master degree (e.g. cell/molecular biology, genetics, immunology or biochemistry). We particularly look for applicants with a collaborative attitude towards research and who can combine high personal ambition and work ethics with eagerness to contribute to other projects.

Salary is paid according to German TV-L (E13 65%).

The University of Bonn is an equal opportunities employer.

Complete applications in English should include a CV, a one page maximum statement of research experiences and interests and addresses of two referees. Please submit your application as a single pdf file with a note for project A or B to either Prof. Katrin Paeschke (paeschke@uni-bonn.de) or Prof. Rayk Berendt (behrendt@uni-bonn.de) 25th of March 2026.