



PhD Position (Genome Stability & DNA Repair): The molecular basis for chromosome end protection

Institute of Molecular Biology gGmbH
Mainz
Biology & Life Sciences
Research & Development, Research & Education

The IPP Mainz summer call 2019 is open.

Thinking of doing your PhD in Molecular Biology? The International PhD Programme (IPP) on "Epigenetics, Gene Regulation & Genome Stability" is offering **talented, young scientists** the chance to work at the **cutting edge of research**. The IPP has a **community of exceptional scientists** working on diverse topics. These range from how organisms age or how our DNA is repaired, to how epigenetics regulates cellular identity or neural memory. This means that no matter where your PhD project takes you, there is always someone to go to for advice or collaborations.

As part of the IPP, you will be given **advanced training**, covering skills needed for both research and industry. Access to our **state-of-the-art Core Facilities** and their technical expertise ensures that you are supported no matter how challenging or expansive your project becomes. Importantly, as an IPP student, you are offered a fully funded position with financing until the completion of your thesis. To help you integrate and settle in Mainz, IPP students organise and run a lively **social programme** with activities to suit everyone.

The IPP is coordinated by the Institute of Molecular Biology (IMB) —a modern research centre located on the bustling campus of Mainz University in Germany. The IPP currently has over 120 energetic students from **30 countries** working on innovative research at IMB, Mainz University and its University Medical Centre.

Are you an ambitious, young scientist looking to push the boundaries of science while interacting with colleagues from multiple disciplines and cultures? Then the IPP is your opportunity to give your scientific career a flying start!

Activities and responsibilities

In the field of "*Chromosome dynamics and meiosis*" the IPP research group of **Prof. Peter Baumann** offers the following PhD project:

The molecular basis for chromosome end protection

Progressive telomere shortening and defects in telomere maintenance lead to genome instability, and are in part responsible for the gross chromosomal rearrangements that typify many cancers. The overarching research goals of the Baumann lab are based on the firm belief that a better understanding of the dynamic interactions that occur at telomeres will ultimately enable them to identify compounds that modulate telomere length. Such reagents will have therapeutic use, either to limit the life span of tumour cells or to boost the proliferative potential of cell populations needed to maintain a healthy physiological homeostasis. The project described here is guided by the group's fundamental interest in how chromosome ends are normally distinguished from DNA double-strand breaks.

The Baumann lab has identified a region in the telomeric protein Rap1 from fission yeast that is important for end protection. Complementing the work in fission yeast, they have developed a protein-nucleic acid complex capture assay to analyze the composition of human DNA repair complexes at telomeric versus non-telomeric DNA ends. As a PhD student in the Baumann lab, you will identify proteins that are specifically enriched at non-telomeric ends and assess their post-translational modification status in collaboration with the groups of Falk Butter and Petra Beli at the IMB, Mainz. You will then investigate whether their absence at telomeres is indicative of a critical distinction between protected and unprotected ends. By varying the in vitro assay conditions, you can examine the three double-strand break repair pathways (classical and alternative NHEJ and homologous recombination). This will allow you to define the mechanisms by which each repair pathway is inhibited at telomeres.

Qualification profile

Required qualifications

- Master or equivalent
- Motivation to work at the forefront of science
- Interactive personality & good command of English
- 2 letters of reference

Benefits

We offer

- The possibility to work on exciting, multidisciplinary projects using state-of-the-art technology in highly motivated research teams
- To be part of a lively and international community of about 120 IPP students from 30 countries
- Numerous opportunities for advanced professional training in scientific knowledge, techniques and professional skills
- Fully funded positions until completion of thesis

Starting date: 1 August 2019 – 1 February 2020

Duration of stipend/salary: 3 years, with the possibility of extension

Deadline for registration (exclusively online via web form): **22 May 2019**