

Doctoral candidate (PhD student) in the Field of Microbiological and Molecular Diagnostic of Prosthetic Joint Infection of the Hip and Knee

Location: Michael Ogon Laboratory for Orthopaedic Research, Orthopaedic Hospital Speising, Vienna, Austria

Project: “Combination of microbiological and molecular diagnostic approaches to identify microorganisms causing hip and knee prosthetic joint infections and predict their antimicrobial resistance profiles”

Funding agency: The PhD project is part of the European Commission and the UK Research and Innovation (UKRI) organization funded “DRAIGON” consortium grant entitled “Diagnosing Infections with Multi-Drug Resistant Microorganisms using AI-powered Genomic Antibiotic Susceptibility Prediction from Long-Read Sequencing Data”

Supervisors: Jochen J. Hofstätter, MD
Susana Gardete Hartmann, PhD

Project overview: Prosthetic joint infection (PJI) is a devastating clinical complication following total joint arthroplasty (TJA). Conventional culture methods are still the gold standard for identifying microorganisms in hip and knee prosthetic joint infection (PJI). However, they are known to be time-consuming and technically demanding. The proposed project aims to combine conventional microbiological and molecular strategies to rapidly identify PJI-causative microorganisms and predict their antibiotic resistance profiles. The experimental part of the project will involve the development of standardised optimal growth conditions and improvement of DNA extraction protocols for aerobic and anaerobic bacteria, the use of automated methods to identify pathogenic species and determine their antibiograms, as well as the analysis of the generated data. The outcome of this project will advance and accelerate the diagnosis and treatment of PJI. The potential PhD candidate will be expected to prepare scientific manuscripts describing the findings in relation to the conducted research.

The Group: The Michael Ogon Laboratory for Orthopaedic Research (MOLOR) comprises research areas such as prosthetic joint infection (diagnosis, evaluation of new PJI biomarkers, microbial spectrum identification and characterization, antibiotic resistance mechanisms, and epidemiology), imaging, bone mineralization and bone growth and degeneration, as well as regeneration of cartilage and the meniscus. Moreover, the MOLOR has been building up a clinically well-characterized musculoskeletal biobank of thousands of properly consented human biological specimens including periprosthetic synovial fluid and tissue. In parallel different clinical

and microbiological databases have been developed that contain all the relevant clinical and microbiological information related to patients diagnosed with PJI.

More information about the Michael Ogon Laboratory for Orthopaedic Research can be found at <https://www.oss.at/ueber-uns/the-michael-ogon-laboratory>

Required qualifications

- Master degree in medical or clinical microbiology
- Great enthusiasm for research and interest in publishing scientific papers and following an academic career
- Strong work ethics
- Very good English skills, written and spoken
- Collaborative, strong intrapersonal skills, enthusiastic for team work
- Capable of working independently
- Experience in working with pathogenic bacteria, and strong knowledge of basic microbiology techniques
- Skills in molecular biology such as DNA extraction and PCR is of advantage
- Proficient in Microsoft Office suite, with advanced skills in Excel
- In-depth knowledge of statistical analysis tools such as SPSS, further enhancing capabilities in data interpretation and research insights

Terms of employment

- The PhD study must be completed in accordance with the guidelines of the Medical University of Vienna on achieving the degree.
- The position as predoctoral fellow has an employment limit 4 years with a starting date on April 2, 2024.
- Salary package according to the Austrian Science Fund FWF (<https://www.fwf.ac.at/en/research-funding/personnel-costs/>) of EUR 2,464 gross (30h; 14x/year) and may possibly increase based on the collective agreement regulations.

Application procedure: your application, written in English, must be submitted electronically to researchlab@oss.at and should include the following documents in one PDF file:

- Letter of motivation
- Curriculum vitae
- Bachelor's degree transcript in the original language and an authorised English translation (the latest of which may be provided after candidate's selection)
- Master's degree transcript in the original language and an authorised English translation (the latest of which may be provided after candidate's selection)

- Summary of the Master's thesis
- List of publications (if applicable)
- List of technical expertise (laboratory methods in which you are confident)
- Letters of reference or contact details of two previous supervisors or employers

Our offer

- An exciting and promising research project in an inspiring and international environment
- An outstanding working atmosphere in a young and dynamic team
- Access to state-of-the-art infrastructure
- Discounted lunch and other great benefits
- Great location in Vienna, a capital of biomedical research in Europe with excellent quality of life

The deadline for applications is February 15, 2024. Candidates will be assessed and short listed for interviews. All candidates will be informed of the outcome of their application. For specific questions please contact **researchlab@oss.at** .