



**FACULTY OF MEDICINE
IN PILSEN**
Charles University

Laboratory of Antibiotic Resistance and applications of Mass Spectrometry in Microbiology of Biomedical Center, Faculty of Medicine in Pilsen, Charles University, announces the selection procedure for:

Two Doctoral studentships in Microbiology in Charles University

Charles University was founded in 1348, making it one of the oldest universities in the world. Yet it is also renowned as a modern, dynamic, cosmopolitan and prestigious institution of higher education. It is the largest and most renowned Czech university, and is also the best-rated Czech university according to international rankings. There are currently 17 faculties at the University (14 in Prague, 2 in Hradec Králové and 1 in Plzeň), plus 3 institutes, 6 other centres of teaching, research, development and other creative activities, a centre providing information services, 5 facilities serving the whole University, and the Rectorate – which is the executive management body for the whole University.

Our team is established in the Biomedical center of the Faculty of Medicine in Pilsen. The Scientific activities of Laboratory of Antibiotic Resistance and Application of Mass spectrometry in Microbiology (ARAMM) are mainly focused on mechanisms of resistance to antibiotics, especially to expanded spectrum cephalosporins and carbapenems, in Gram-negative bacteria (Enterobacteriaceae, *Pseudomonas* spp.). The research projects aim to execute molecular epidemiology of factors affecting dissemination of multi-drug resistance among nosocomial pathogens. Methodological approaches, also, include analysis of genetic carriers of resistance determinants and whole-genome sequencing. The second main objective of the research projects is intending in the development of new techniques for the detection and study of resistance mechanisms using MALDI-TOF mass spectrometry and Raman spectroscopy. In 2011, the members of our group demonstrated that MALDI-TOF mass spectrometry can directly detect carbapenemase activity. Also, recently, we patented a method for the identification of β -lactamases in clinical isolates by MALDI-TOF mass spectrometry, based on their molecular weight.

The two PhD positions will address the topics below:

1. CRISPR / Cas Systems in Gram-negative bacteria: applications and role in antimicrobial resistance.
2. Exploring the Role of Quorum-Sensing systems in the Pathogenicity and Antimicrobial Resistance of Gram-negative bacteria.

Ideally, interested candidate should have completed their master's studies in Molecular Biology, Microbiology, or related fields.

Applications should be sent directly to the Supervisor Dr. Ibrahim Bitar Ph.D., ibrahimbitar5@gmail.com.

The application should have an up-to-date CV (including the list of publications, and the name and info for two references) and a cover Letter.

Submission of applications: 1 January – 30 April 2021