

Program: Biomedicínské vědy / Biomedical Sciences
Specializace: Biochemie a molekulární biologie / Biochemistry and Molecular Biology
Forma studia: prezenční
Školitel: doc. Lumír Krejčí

Research topic: Molecular mechanism of DSB repair and protection of stalled replication forks and their clinical relevance (Molekulární mechanismus opravy DNA a ochrany zastavených replikačních vidlic a jeho klinický význam)

Summary: DNA double-strand breaks (DSB) are among the most lethal forms of DNA damage. DSBs are induced by a large number of endogenous and exogenous agents, as genotoxic chemicals and ionizing radiation, or due to replication of damaged DNA as well as collapse of a replication fork. DSB can either be properly repaired, restoring genomic integrity, or miss-repaired resulting in cell death, genomic instability, and cancer.

Our group focuses on mechanisms of DSB repair using multi-disciplinary approach (biochemical, structural, computational, genetic, and single-molecule).

Laboratory of Recombination and DNA Repair (LORD)

Our laboratory focuses on molecular understanding of recombination and DNA repair processes. Using biochemical, structural, microscopic, bioinformatics, single/molecule and genetic approaches we wish to shed light onto mutation avoidance and development of cancer. Candidate can choose from many competitive projects (study of BRCA2 protein, Rothmund-Thomson syndrome helicase, Fanconi anemia proteins, Rad50/Mre11/Xrs2 complex, Srs2 helicase, DNA repair synthesis, Spo11 and meiotic breaks, role of structure specific nucleases etc.) Work in the team of young motivated people at the new campus of Masaryk University, financial bonus awarded every half a year, possibility of study stay at the laboratories of our collaborators.

Web page of the LORD lab: <http://www.med.muni.cz/lord/>

Requirements on applicants:

- MSc degree in cellular and molecular biology, biochemistry or similar field
- Basic training in modern molecular biology techniques
- Well-organized, motivated and passionate about research
- Speaks English

Short info on the supervisor: For the summarizing info on the Group leader Lumír Krejčí go to the Lab web <http://www.med.muni.cz/lord/>

Publications:

All research outcomes may be seen at <http://www.med.muni.cz/lord/index.php/publications/>

[General information on the PhD programme and a guide How to Apply](#)