

Doctoral study program: Biomedical Sciences

Form: *doctoral (present)*

Department: Department of Biology, Faculty of Medicine

Supervisor: Mgr. Júlia Bohošová, Ph.D.

Ph.D. position:

Tumor Heterogeneity as a Determinant of Precision Therapy Effectiveness

Annotation:

Tumor heterogeneity plays a pivotal role in shaping the effectiveness of precision therapies, yet the underlying mechanisms of the interplay between the development of genotypic and phenotypic variations and targeted therapy response remain poorly understood. Besides sporadic mutations, complex chromosomal aberrations and aneuploidy are the major symptom of chromosomal instability driving the generation of many different cancer phenotypes within a single tumor. This dissertation aims to provide a comprehensive mechanistic understanding of how intratumoral and intertumoral variations impact targeted treatment outcomes in cancer patients. Advanced structural and functional techniques, and high-throughput genomic analyses will be employed to elucidate the molecular basis tumor heterogeneity and its downstream effects on tumor behavior. Functional studies will explore how these changes alter cellular responses to targeted treatments. By providing mechanistic insights into the role of tumor heterogeneity in therapeutic outcomes, this dissertation aspires to uncover novel targets and strategies to enhance precision oncology approaches, ultimately contributing to overcoming treatment resistance in cancer.

Funding of the research:

AZV ČR/GA ČR/NÚVR

Information on funding PGS positions:

The program requires that all PhD students have some means of financial support of min. 25 000 CZK per month. This is often a combination of various sources (grants, scholarship etc.)

Requirements for the student according to the Doctoral Board:

The student's minimum publication activity within the course of study is one first-author publication with an IF value above the median in the field or 2 first-author publications in journals with an IF value in the 3rd quartile in the field (Q3). A condition for successful completion of the studies is also a foreign internship of at least 1 month, which is an inseparable part of the studies. As part of their studies, students will also participate in the teaching.

Information about supervisor:

The supervisor is a postdoctoral fellow in Ondřej Slabý Research Group, more info here <https://slabylab.ceitec.cz>

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