



INSTITUTE OF MOLECULAR GENETICS OF THE CZECH ACADEMY OF SCIENCES  
and DOCTORAL STUDY PROGRAMS IN BIOMEDICINE  
at CHARLES UNIVERSITY and THE CZECH ACADEMY OF SCIENCES in PRAGUE

invite you to the seminar course

# 43<sup>rd</sup> ADVANCES IN MOLECULAR BIOLOGY AND GENETICS 2019

Typical attendees are **the first and second year PhD students from biomedical programs.**

The main aim of the two-week course is to inform the participants about the recent progress in the fields of molecular biology, genetics and biomedicine together with selected new biotechnology approaches.

Time and place:

**November 4th - November 15th, 2019**

in the M. Hašek Lecture Hall of the Institute of Molecular Genetics of the Czech Academy of Sciences (IMG CAS),  
Vítěňská 1083, Praha 4 Krč

## Program of the course

All lectures will be held **in English** by outstanding Czech and foreign scientists.

The course is composed of ~ 40 lectures organized into the following thematic blocks:

**Genomics:** human genome-structure and evolution, nuclear microstructure and function, chromatin structure-enhancers, sterility of mouse hybrids and PRDM9 histone methyltransferase, CRISPR-based mutation screen, retroviruses and mobile elements, analysis of complex plant genomes;

**Epigenetics:** vs. genetics in leukemogenesis;

**RNA:** RNA polymerase function, alternative splicing regulation, RNA metabolism, RNA modification and degradation;

**Proteins:** eukaryotic protein synthesis, protein structure determination by X-ray crystallography, proteomics and proteomes, protein degradation and ubiquitin ligases, prions;

**Cell biology and signaling:** microtubules and signal transduction, membrane microdomains, cellular iron-oxygen radicals-DNA damage-antioxidation defense, signaling pathways mapping by small molecules, intramembrane proteolytic systems, DNA damage response and cellular checkpoints, DNA repair, cellular organelles specific to eukaryotic pathogens, eukaryotic flagella and cilia;

**Development:** oocyte-to-embryo transition, ectoderm-endodermal interactions in the developing vertebrate head, *Drosophila* as a model system to study developmental processes, reprogramming;

**Biomedicine:** tumor immunology and immunotherapy, adaptive immunity, genetics of unsolved rare diseases, genetics of autism and intellectual disability, molecular and genetic bases of the bacterial virulence.

**Workshops:** English in academic writing. Career paths in science-research and alternatives. Decision points: postdoc selection and postdoc interview. Scientific misconduct.

**Discussion panel:** PhD talks by selected PhD students.

**Registration:** All interested persons have to fill-in an online registration form on the address:

<https://pokroky.img.cas.cz/> and to cover the course fee before October 25, 2019.

All the questions concerning the registration and payments direct, please, to [pokroky@img.cas.cz](mailto:pokroky@img.cas.cz).

Professor Jiří Jonák, M.D., D.Sc. and Professor Petr Svoboda, Ph.D. [organizers of the course]

Course fee:

**2 900 Kč**

[incl. VAT / participant]

More information about the course, including transport and accommodation, can be found on the course website:

<https://pokroky.img.cas.cz/>