

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 lecture course



50th ADVANCES IN MOLECULAR BIOLOGY AND GENETICS 2026

Typical attendees are **the first and second year PhD students from Czech biomedical programmes**. 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. **The course is accredited [MPGS0034] at the Charles University.**

Time and place:

2–13 November 2026

in the Milan Hašek Auditorium of the Institute of Molecular Genetics of the Czech Academy of Sciences [IMG],
Václavská 1083, Praha 4 Krč.

Please follow <https://pokroky.img.cas.cz/> for possible changes.

Programme of the course

All lectures will be given **in English** by active scientists.

The course consists of ~ **43 lectures** organized into the following thematic blocks:

DNA/cell nucleus: nuclear compartmentalization and spatio-temporal organization, nuclear lamina, human and plant genome organization.

RNA: transcription and its regulation, non-coding RNAs, RNA caps, transcription and splicing during cell cycle, ribonucleoprotein complexes.

Proteins: eukaryotic protein synthesis, proteomics and proteomes, structural biology tools, CryoEM and CryoET, artificial protein evolution.

Cell biology and signaling: axon navigation via actin oxidation, circadian clock, mechanobiology of development, epithelial homeostasis and cancer, integrative biology of intermediate microfilaments, mitochondrial evolution, cellular logistics, cilia in health and disease.

Developmental biology: oocyte-to-embryo transition, evo-devo of vertebrate evolution, evolution of morphogenesis, zebrafish as a model system in developmental biology, Xenopus as a model for development and regeneration studies.

Biomedicine – genomics: rare genetic variants in Mendelian complex diseases, modeling genetic variants in mouse, nanobodies for therapy, therapeutic vector design and manufacturing, genome editing and beyond.

Biomedicine – cancer biology: cancer predisposition, p53 pathway, DNA strand breaks and human disease, metabolic determinants of metastasis, intestinal tumorigenesis.

Biomedicine – haematology & immunology: haematopoietic stem cells and the immune system formation, immune homeostasis, T-cell biology, haematopoietic disorders.

History of molecular biology in Czechia and at IMG – a minisymposium: history of molecular biology in Czechia, Milan Hašek and his immunogenetics research, Jan Svoboda and his research on retroviruses.

Career development: academic ecosystem, research ethics and scientific misconduct.

At the end of the course participants receive the credit.

Registration: If you wish to attend the course, please fill-in an online registration form at the address: <https://pokroky.img.cas.cz/> before **24 October 2026**. Any questions concerning the registration and payments, please, send to pokroky@img.cas.cz.

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

Course fee:

FREE

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

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