



Analysis of biologically important molecular complexes

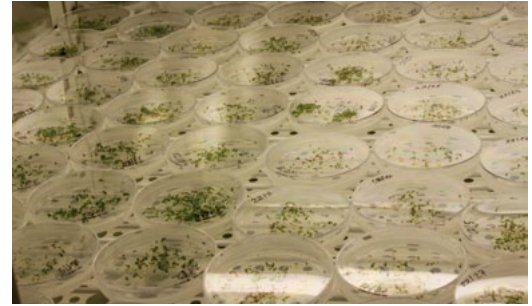
/ Department of Functional Genomics and Proteomics
/ Faculty of Science / Masaryk University

 **CEITEC**
central european institute of technology
BRNO | CZECH REPUBLIC

RESEARCH GROUP CONTACT >>

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THEMATIC RESEARCH FOCUS >

RESEARCH AREA

Structure and dynamics of chromosome domains, chromatin, epigenetics, telomere biology, genome stability

EXCELLENCE

- » Plant telomere biology
- » Genome stability
- » Plant cytogenomics

MISSION

Performing research at the world level quality and connecting it with education of undergraduate and graduate students.

DEVELOPED TECHNOLOGIES >

CONTENT OF RESEARCH

- » Telomere structure, function and maintenance
- » Chromosome structure and evolution
- » Structural proteins of eukaryotic chromosomes
- » Chromosome / genome stability
- » Epigenetic regulations in plant cells

MAIN CAPABILITIES

Our capabilities include construction of genetically modified plants and their use in basic and applied research or novel biotechnologies. Our team members have developed and use specific assays applied

in molecular biology, such as an assay for telomerase activity in plant cells, quantitative evaluation of telomerase activity in clinical (tumour) samples, plant chromosome painting for evolutionary studies of plant karyotype, analysis of nucleosome positioning in silico. Our know-how and equipment further includes all common molecular biology, biochemical, biophysical and microscopy methods.

We are capable of collaboration on development of novel molecular diagnostic techniques based on DNA, RNA and protein analyses. We are experienced in telomere and telomerase analysis for cancer diagnostics and follow-up of treatment. These techniques can also be applied for testing novel candidate compounds for inhibition telomerase activity in cancer cells.

FIELDS OF RESEARCH RESULTS APPLICATION

- » Medicine (mainly molecular diagnostic methods, new approaches and materials to treat cancer)
- » Biotechnology

ALUMNI PROFILE

Alumni are experts in telomere biology, chromatin structure, DNA damage response and repair.

NUMBER OF RESEARCH POSITIONS >

SENIOR RESEARCH STAFF

10

JUNIOR RESEARCH POSITIONS (INCL. PH.D. STUDENTS)

22



KEY RESEARCH EQUIPMENT ↘

LIST OF DEVICES

- » Special mass spectrometers
- » Automated microscope (allows monitoring of the parallel development of a large number of samples)

BUDGET ↘

TOTAL (MIL. CZK/ MIL. EUR)

40 / 1.6

PART OF THE TOTAL BUDGET FROM PRIVATE RESOURCES (%)

2

PART OF THE TOTAL BUDGET FROM FOREIGN RESOURCES (%)

5

MAIN PROJECTS ↘

2005–2011: Molecular basis of cell and tissue regulations (project MSM0021622415 financed by Ministry of Education, Youth and Sports)

2005–2009: Telomerase-independent mechanisms of telomere synthesis and loss in plants (project IAA600040505 financed by Academy of Sciences of the Czech Republic)

2005–2007: Molecular evolution and functional analysis of components of plant telomeres and telomerases (project GA521/05/0055 financed by Czech Science Foundation)

MAIN COLLABORATING PARTNERS ↘

COLLABORATION WITH ACADEMIC PARTNERS

- » Institute of Biophysics, Academy of Sciences of the Czech Republic (Brno, CZ)
- » University Hospital Brno (CZ)
- » IPK in Gatersleben (DE)
- » VIB Gent (BE)
- » Queen Mary University of London (GB)
- » Comenius University Bratislava (SK)
- » Institute of Experimental Botany, Academy of Sciences of the Czech Republic (Olomouc, CZ)

COLLABORATION WITH COMPANIES

Potato Research Institute Havlíčkův Brod (CZ)

EXPECTATIONS ↘

REQUIREMENTS

We are looking for commercial partners with a concrete research goal that could be achievable with our equipment and know-how.

OFFERS

The use of equipment and know-how of the research group