The research efforts of the group focus on genes and molecular mechanisms involved in:

1)  fate determination in multipotent haematopoietic and neural cells and terminal differentiation of haematopoietic, neural and myogenic cells;
2)  malignant transformation of haematopoietic cells, melanocytes, nephrogenic blastema and lung cells;
3)  apoptosis induced by photoactivation of specific porphyrins;
4)  epithelial to mesenchymal and mesenchymal to epithelial transitions.

In studies on cell fate determination, differentiation and malignant transformation of haematopoietic and neural cells (collaboration with the Institute of Anatomy, Prague), c-myb and v-myb genes are used as tools to modulate development of avian cells and tissues. In studies on the nephrogenic blastema transformation and lung tumour formation, MAV retroviruses serve as tumour inducers in experimental chicks. Porphyrin derivatives synthesized by the cooperating group (Institute of Chemical Technology, Prague) are used for experiments with targeted drug delivery and induction of cell death in cancer cells and tissues. Finally, genes of the egr family serve as tools to affect epithelial and mesenchymal cell phenotypes.

Selected recent papers


Search for factors causing disintegration of bone marrow microenvironment in experimental acute monoblastic leukaemia. The growth plate regions of long bones (femur) in healthy (left) and leukaemic (right) experimental animals.

Identification of plag1, twist, and foxP1 genes as oncogenes in experimental nephroblastomas. The exon-intron structure of chicken genes and sites of proviral integrations. Arrows indicating gene-activating integration sites and orientation of transcription are marked by code numbers of tumours in which they were found.