

Field Board 02 – Biology and Pathology of the Cell List of Supervisors

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Research Program:

The eye research (cornea, retina) in normal and disease states at the cellular and molecular level, development of new therapy approaches for the treatment of damaged cornea and retina (cellular therapy). Huntington's disease research on the transgenic animal models.

Profile Publications:

Ardan T, Cejkova J (2012) Immunohistochemical expression of matrix metalloproteinases in the rabbit corneal epithelium upon UVA and UVB irradiation. *Acta histochemica* **114**: 540-546

Cejka C, Ardan T, Sirc J, Michalek J, Benes J, Brunova B, Rosina J (2011) Hydration and transparency of the rabbit cornea irradiated with UVB-doses of 0.25 J/cm² and 0.5 J/cm² compared with equivalent UVB radiation exposure reaching the human cornea from sunlight. *Current eye research* **36**: 607-613

Cejkova J, Ardan T, Cejka C, Luyckx J (2011) Favorable effects of trehalose on the development of UVB-mediated antioxidant/pro-oxidant imbalance in the corneal epithelium, proinflammatory cytokine and matrix metalloproteinase induction, and heat shock protein 70 expression. *Graefe's archive for clinical and experimental ophthalmology = Albrecht von Graefes Archiv fur klinische und experimentelle Ophthalmologie* **249**: 1185-1194

Cejka C, Luyckx J, Ardan T, Platenik J, Sirc J, Michalek J, Cejkova J (2010) The effect of actinoquinol with hyaluronic acid in eye drops on the optical properties and oxidative damage of the rabbit cornea irradiated with UVB rays. *Photochemistry and photobiology* **86**: 1294-1306

Cejkova J, Ardan T, Cejka C, Malec J, Jirsova K, Filipec M, Ruzickova E, Dotrelova D, Brunova B (2009) Ocular surface injuries in autoimmune dry eye. The severity of microscopical disturbances goes parallel with the severity of symptoms of dryness. *Histology and histopathology* **24**: 1357-1365

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Research Program:

The role of adhesion, migration, proliferation and differentiation of vascular smooth muscle cells in the genesis and development of vascular disease. The interaction of vascular and bone cells with artificial materials for tissue engineering.

Profile Publications:

Pamula E, Bacakova L, Filova E, Buczynska J, Dobrzynski P, Noskova L, Grausova L (2008) The influence of pore size on colonization of poly(L-lactide-glycolide) scaffolds with human osteoblast-like MG 63 cells in vitro. *Journal of materials science Materials in medicine* **19**: 425-435

Bacakova L, Filova E, Kubies D, Machova L, Proks V, Malinova V, Lisa V, Rypacek F (2007) Adhesion and growth of vascular smooth muscle cells in cultures on bioactive RGD peptide-carrying polylactides. *Journal of materials science Materials in medicine* **18**: 1317-1323

Bacakova L, Grausova L, Vacik J, Fraczek A, Blazewicz S, Kromka A, Vanecek M, Svorcik V (2007) Improved adhesion and growth of human osteoblast-like MG 63 cells on biomaterials modified with carbon nanoparticles. *Diam Relat Mater* **16**: 2133-2140

Bacakova L, Filova E, Rypacek F, Svorcik V, Stary V (2004) Cell adhesion on artificial materials for tissue engineering. *Physiological research / Academia Scientiarum Bohemoslovaca* **53 Suppl 1**: S35-45

Engler A, Bacakova L, Newman C, Hategan A, Griffin M, Discher D (2004) Substrate compliance versus ligand density in cell on gel responses. *Biophysical journal* **86**: 617-628

Prof. MUDr. Jiřina Bartůňková, DrSc.
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Research Program:

Biology of dendritic cells (DC), especially in relation to anti-tumor immunity, immunodeficiency and autoimmune reactions. The use of DC for immunotherapy of minimal residual disease in selected cancer patients.

Profile Publications:

Fucikova J, Moserova I, Truxova I, Hermanova I, Vancurova I, Partlova S, Fialova A, Sojka L, Cartron PF, Houska M, Rob L, Bartunkova J, Spisek R (2014) High hydrostatic pressure induces immunogenic cell death in human tumor cells. *International journal of cancer Journal*

international du cancer **135**: 1165-1177

Fialova A, Partlova S, Sojka L, Hromadkova H, Brtnicky T, Fucikova J, Kocian P, Rob L, Bartunkova J, Spisek R (2013) Dynamics of T-cell infiltration during the course of ovarian cancer: the gradual shift from a Th17 effector cell response to a predominant infiltration by regulatory T-cells. *International journal of cancer Journal international du cancer* **132**: 1070-1079

Minarik I, Lastovicka J, Budinsky V, Kayserova J, Spisek R, Jarolim L, Fialova A, Babjuk M, Bartunkova J (2013) Regulatory T cells, dendritic cells and neutrophils in patients with renal cell carcinoma. *Immunology letters* **152**: 144-150

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Research Program:

Chromatin organization, structure and function.

Profile Publications:

Scheffer MP, Eltsov M, Bednar J, Frangakis AS (2012) Nucleosomes stacked with aligned dyad axes are found in native compact chromatin in vitro. *Journal of structural biology* **178**: 207-214

Bednar J, Dimitrov S (2011) Chromatin under mechanical stress: from single 30 nm fibers to single nucleosomes. *The FEBS journal* **278**: 2231-2243

Meyer S, Becker NB, Syed SH, Goutte-Gattat D, Shukla MS, Hayes JJ, Angelov D, Bednar J, Dimitrov S, Everaers R (2011) From crystal and NMR structures, footprints and cryo-electron-micrographs to large and soft structures: nanoscale modeling of the nucleosomal stem. *Nucleic acids research* **39**: 9139-9154

Shukla MS, Syed SH, Goutte-Gattat D, Richard JL, Montel F, Hamiche A, Travers A, Faivre-Moskalenko C, Bednar J, Hayes JJ, Angelov D, Dimitrov S (2011) The docking domain of histone H2A is required for H1 binding and RSC-mediated nucleosome remodeling. *Nucleic acids research* **39**: 2559-2570

Shukla MS, Syed SH, Montel F, Faivre-Moskalenko C, Bednar J, Travers A, Angelov D, Dimitrov S (2010) Remosomes: RSC generated non-mobilized particles with approximately 180 bp DNA loosely associated with the histone octamer. *Proceedings of the National Academy of Sciences of the United States of America* **107**: 1936-1941

Syed SH, Goutte-Gattat D, Becker N, Meyer S, Shukla MS, Hayes JJ, Everaers R, Angelov D, Bednar J, Dimitrov S (2010) Single-base resolution mapping of H1-nucleosome interactions and 3D organization of the nucleosome. *Proceedings of the National Academy of Sciences of the United States of America* **107**: 9620-9625

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Research Program:

Molecular mechanisms of tumor cell invasiveness

Profile Publications:

Janostiak R, Brábek J, Auernheimer V, Tatarova Z, Lautscham LA, Dey T, Gemperle J, Merkel R, Goldmann WH, Fabry B, Rosel D (2014) CAS directly interacts with vinculin to control mechanosensing and focal adhesion dynamics. *Cell Mol Life Sci* **71**: 727-744

Kosla J, Pankova D, Plachy J, Tolde O, Bicanova K, Dvorak M, Rosel D, Brábek J (2013) Metastasis of aggressive amoeboid sarcoma cells is dependent on Rho/ROCK/MLC signaling. *Cell Commun Signal* **11**

Brábek J, Fernandes M (2012) Affordable cancer care. *Lancet Oncol* **13**: E2-E3

Pankova D, Jobe N, Kratochvilova M, Buccione R, Brábek J, Rosel D (2012) NG2-mediated Rho activation promotes amoeboid invasiveness of cancer cells. *Eur J Cell Biol* **91**: 969-977

Tatarova Z, Brábek J, Rosel D, Novotny M (2012) SH3 Domain Tyrosine Phosphorylation - Sites, Role and Evolution. *PloS one* **7**

Janostiak R, Tolde O, Bruhova Z, Novotny M, Hanks SK, Rosel D, Brábek J (2011) Tyrosine phosphorylation within the SH3 domain regulates CAS subcellular localization, cell migration, and invasiveness. *Mol Biol Cell* **22**: 4256-4267

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Institute of Cellular Biology and Pathology
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Research Program:

Integration of the processes of DNA replication and RNA synthesis, processing and transport into the context of a nuclear architecture.

Profile Publications:

Cmarko D, Ligasova A, Koberna K (2014) Tracking DNA and RNA sequences at high resolution. *Methods in molecular biology* **1117**: 343-366

Sehnalova P, Legartova S, Cmarko D, Kozubek S, Bartova E (2014) Recruitment of HP1 beta to UVA-induced DNA lesions is independent of radiation-induced changes in A-type lamins. *Biol*

Cell **106**: 151-165

Niedojadlo J, Perret-Vivancos C, Kalland KH, Cmarko D, Cremer T, van Driel R, Fakan S (2011) Transcribed DNA is preferentially located in the perichromatin region of mammalian cell nuclei. *Exp Cell Res* **317**: 433-444

Scassellati C, Albi E, Cmarko D, Tiberi C, Cmarkova J, Bouchet-Marquis C, Verschure PJ, van Driel R, Magni MV, Fakan S (2010) Intranuclear sphingomyelin is associated with transcriptionally active chromatin and plays a role in nuclear integrity. *Biol Cell* **102**: 361-375

Cmarko D, Smigova J, Minichova L, Popov A (2008) Nucleolus: The ribosome factory. *Histology and histopathology* **23**: 1291-1298

Raska I, Shaw PJ, Cmarko D (2006) Structure and function of the nucleolus in the spotlight. *Curr Opin Cell Biol* **18**: 325-334

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Research Program:

Wound healing and inflammatory mediators, the effect of reactive oxygen radicals on the eye as a biological system, local toxicity testing with the possibility of using changes in enzyme activities.

Profile Publications:

Cejka C, Holan V, Trosan P, Zajicova A, Javorkova E, Cejkova J (2016) The favorable effect of mesenchymal stem cell treatment on the antioxidant protective mechanism in the corneal epithelium and renewal of corneal optical properties changes after alkali burns. *Oxidative Medicine and Cellular Longevity* 2016, Volume 2016, Article ID 5843809
<http://dx.doi.org/10.1155/2016/5843809>

Cejka C, Cejkova J, Trosan P, Zajicova A, Sykova E, Holan V (2016) Transfer of mesenchymal stem cells and cyclosporine A on alkali-injured cornea using nanofiber scaffolds strongly reduces corneal neovascularisation and scar formation. *Histol Histopathol* 2016 Jan 22:11724. [Epub ahead of print]

Holan V, Trosan P, Cejka C, Javorkova E, Zajicova A, Hermankova B, Chudickova M, Cejkova J (2015) *Stem Cell Transl Med* 2015 Sep;4(9):1052-63. doi: 10.5966/sctm.2015-0039. Epub 2015 Jul 16.

Cejkova J, Cejka C (2015) The role of oxidative stress in corneal diseases and injuries. *Histol Histopathol* 30, 893-900.

Cejka C, Cejkova J (2015) Oxidative stress to the cornea, changes in corneal optical properties, and advances in treatment of corneal oxidative injuries. *Oxid Med Cell Longev* 2015;2015:591530. doi: 10.1155/2015/591530. Epub 2015 Mar 11.

Cejkova J, Trosan P, Cejka C, Lencova A, Zajicova A, Javorkova R, Kubinova S, Sykova E, Holan V (2013) Suppression of alkali-induced oxidative injury in the cornea by mesenchymal stem cells growing on nanofiber scaffolds and transferred onto the damaged corneal surface. *Exp Eye Res* 116, 312-323.

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Research Program:

Pathology of hematopoietic stem cells in relation to the development of clonal tumor proliferation, hematopoiesis, especially myelodysplastic syndrome. Studies on structural changes reflecting the changes in gene expression and the clinical significance of pathophysiological changes in the relationship to the possible therapeutic myelodysplastic syndrome influence.

Profile Publications:

Malcovati L, Hellstrom-Lindberg E, Bowen D, Ades L, Cermak J, Del Canizo C, Della Porta MG, Fenaux P, Gattermann N, Germing U, Jansen JH, Mittelman M, Mufti G, Platzbecker U, Sanz GF, Selleslag D, Skov-Holm M, Stauder R, Symeonidis A, van de Loosdrecht AA, de Witte T, Cazzola M, European Leukemia N (2013) Diagnosis and treatment of primary myelodysplastic syndromes in adults: recommendations from the European LeukemiaNet. *Blood* **122**: 2943-2964

Dostalova Merkerova M, Krejcik Z, Votavova H, Belickova M, Vasikova A, Cermak J (2011) Distinctive microRNA expression profiles in CD34+ bone marrow cells from patients with myelodysplastic syndrome. *European journal of human genetics : EJHG* **19**: 313-319

Vasikova A, Belickova M, Budinska E, Cermak J (2010) A distinct expression of various gene subsets in CD34+ cells from patients with early and advanced myelodysplastic syndrome. *Leukemia research* **34**: 1566-1572

Cermak J, Kacirkova P, Mikulenková D, Michalova K (2009) Impact of transfusion dependency on survival in patients with early myelodysplastic syndrome without excess of blasts. *Leukemia research* **33**: 1469-1474

Cermak J, Belickova M, Krejcova H, Michalova K, Zilovcova S, Zemanova Z, Brezinova J, Sieglova Z (2005) The presence of clonal cell subpopulations in peripheral blood and bone marrow of patients with refractory cytopenia with multilineage dysplasia but not in patients with refractory anemia may reflect a multistep pathogenesis of myelodysplasia. *Leukemia research* **29**: 371-379

Cermak J, Michalova K, Brezinova J, Zemanova Z (2003) A prognostic impact of separation of refractory cytopenia with multilineage dysplasia and 5q- syndrome from refractory anemia in primary myelodysplastic syndrome. *Leukemia research* **27**: 221-229

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Research Program:

Study of molecular mechanisms of genetic predisposition to autoimmune diseases with a special view to HLA system. Research in the field of epigenetic regulations, analysis of the role of DNA methylation and histone modifications in HLA class II alleles.

Profile Publications:

Zajacova M, Kotrbova-Kozak A, Cerna M (2016) HLA-DRB1, -DQA1 and -DQB1 genotyping of 180 Czech individuals from the Czech Republic pop 3. *Human Immunology* Accepted.

Cepek P, Zajacova M, Kotrbova-Kozak A, Silhova E, Cerna M (2016) DNA methylation and mRNA expression of HLA-DQA1 alleles in type 1 diabetes mellitus. *Immunology* Accepted.

Zajacova M, Kotrbova-Kozak A, Cepek P, Cerna M (2015) Differences in promoter DNA methylation and mRNA expression of individual alleles of the HLA class II DQA1 gene. *Immunology Letters* **167**: 147-154.

Cejkova P, Nemeckova I, Broz J, Cerna M (2015) TLR2 and TLR4 expression on CD14⁺⁺ and CD14⁺ monocyte subtypes in adult-onset autoimmune diabetes. *Biomedical papers of the Medical Faculty of the University Palacký, Olomouc, Czech Republic* Accepted.

Urbanová J, Rypáčková B, Procházková Z, Kučera P, Černá M, Anděl M, Heneberg P (2014) Positivity for islet cell autoantibodies in patients with monogenic diabetes is associated with later diabetes onset and higher HbA1C level. *Diabetic Medicine* **31**: 466-471.

Zeleznikova V, Vedralova M, Kotrbova-Kozak A, Zoubkova H, Cerna M, Rychlik I (2014) The intron 4 polymorphism in the calcium-sensing receptor gene in diabetes mellitus and its chronic complications, diabetic nephropathy and non-diabetic renal disease. *Kidney & Blood Pressure Research* **39**: 399-407.

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Research Program:

Physiology and pharmacology of cholinergic muscarinic neurotransmission. Role of cholinergic neurons in pathogenesis of Alzheimer's disease.

Profile Publications:

Dolejsi, E., Liraz, O., Rudajev, V., Zimcik, P., Dolezal, V. and Michaelson, D.M. (2016) Apolipoprotein E4 reduces evoked hippocampal acetylcholine release in adult mice. *J Neurochem* 136, 503-9.

Randakova, A., Dolejsi, E., Rudajev, V., Zimcik, P., Dolezal, V., El-Fakahany, E.E. and Jakubik, J. (2015) Classical and atypical agonists activate M1 muscarinic acetylcholine receptors through common mechanisms. *Pharmacol Res* 97, 27-39.

Janickova, H., Rudajev, V., Dolejsi, E., Koivisto, H., Jakubik, J., Tanila, H., El-Fakahany, E.E. and Dolezal, V. (2015) Lipid-Based Diets Improve Muscarinic Neurotransmission in the Hippocampus of Transgenic APPswe/PS1dE9 Mice. *Curr Alzheimer Res* 12, 923-31.

Jakubik, J., Zimcik, P., Randakova, A., Fuksova, K., El-Fakahany, E.E. and Dolezal, V. (2014) Molecular mechanisms of methoctramine binding and selectivity at muscarinic acetylcholine receptors. *Mol Pharmacol* 86, 180-92.

Santruckova, E., Dolezal, V., El-Fakahany, E.E. and Jakubik, J. (2014) Long-term activation upon brief exposure to xanomeline is unique to M1 and M4 subtypes of muscarinic acetylcholine receptors. *PLoS One* 9, e88910

Janickova, H., Rudajev, V., Zimcik, P., Jakubik, J., Tanila, H., El-Fakahany, E.E. and Dolezal, V. (2013) Uncoupling of M1 muscarinic receptor/G-protein interaction by amyloid beta(1-42). *Neuropharmacology* 67, 272-83.

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Research Program:

The function of cytoskeletal proteins in cells under normal and pathological conditions. Heterogeneity of tubulin and microtubule-associated proteins. Regulation of microtubule nucleation and dynamics by signaling molecules. The gamma-tubulin function regulation and its interaction with other components of organizational centers microtubules.

Profile Publications:

Černohorská M., Sulimenko V., Hájková Z., Sulimenko T., Sládková V., Vinopal S., Dráberová E., Dráber P.: GIT1/ β PIX signaling proteins and PAK1 kinase regulate microtubule nucleation. *BBA Mol. Cell Res.* **1863**: 1282-1297, 2016.

Sulimenko V., Hájková Z., Černohorská M., Sulimenko T., Sládková V., Dráberová L., Vinopal S., Dráberová E., Dráber P.: Microtubule nucleation in mouse bone-marrow derived mast cells is regulated by concerted action of GIT1/ β PIX proteins and calcium. *J. Immunol.* **194**: 4099-4111, 2015.

Dráberová E., D'Agostino, L., Caracciolo V., Sládková V., Sulimenko T., Sulimenko V., Sobol M., Maounis N.F., Tzelepis E.G., Mahera E., Křen L., Legido A., Giordano A., Mörk S., Hozák P., Dráber P.

Katsetos C.D: Overexpression and nucleolar localization of γ -tubulin small complex proteins GCP2 and GCP3 in glioblastoma. *J. Neuropathol. Exp. Neurol.* **74**: 723-742, 2015.

Hořejší B, Vinopal S, Sládková V, Dráberová E, Sulimenko V, Sulimenko T, Vosecká V, Philimonenko A, Hozák P, Katsetos CD, Dráber P. (2012) Nuclear gamma-tubulin associates with nucleoli and interacts with tumor suppressor protein C53. *Journal of cellular physiology* **227**: 367-382

Vinopal S, Černohorská M, Sulimenko V, Sulimenko T, Vosecká V, Flemr M, Dráberová E, Dráber P. (2012) γ -Tubulin 2 nucleates microtubules and is downregulated in mouse early embryogenesis. *PloS one* **7**: e29919

Hájková Z, Bugajev V, Dráberová E, Vinopal S, Dráberová L, Janáček J, Dráber Pe, Dráber P (2011) STIM1-directed reorganization of microtubules in activated mast cells. *Journal of immunology* **186**: 913-923

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Research Program:

Molecular pathology, immunohistochemistry, gynecopathology, neoplasms.

Profile Publications:

Dundr, P., Povýšil, C., Tvrđík, D.: Actin Expression in Neural Crest Cells Derived Tumors Including Schwannomas, Malignant Peripheral Nerve Sheath Tumors, Neurofibromas and Melanocytic Tumors. *Pathol. Int.* 2009; 59: 86-90

Staněk L, Rozkoš T, Laco J, Ryška A, Petruželka L, Důra M, Dundr P. Comparison of immunohistochemistry, four in situ hybridization methods and quantitative polymerase chain reaction for the molecular diagnosis of HER2 status in gastric cancer: a study of 55 cases. *Mol Med Rep.* 2014; 10:2669-74.

Němejcová K, Kenny SL, Laco J, Škapa P, Staněk L, Zikán M, Kleiblová P, McCluggage WG, Dundr P. Atypical polypoid adenomyoma of the uterus. An immunohistochemical and molecular study of 21 cases. *Am J Surg Pathol.* 2015; 39:1148-55.

Němejcová K, Cibula D, Dundr P. Expression of HNF-1 β in cervical carcinomas: an immunohistochemical study of 155 cases. *Diagn Pathol* 2015, 10(1):8

Němejcová K, Tichá I, Kleiblová P, Bártů M, Cibula D, Jirsová K, Dundr P. Expression, Epigenetic and Genetic Changes of HNF1B in Endometrial Lesions. *Pathol Oncol Res.* 2015 Dec 19. [Epub ahead of print]

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Research Program:

The main recent research fields are hemostasis and thrombosis, hemocompatibility of biomaterials, and the proteomics of cardiovascular and onco-hematologic disorders. The key methodologies are –omics: proteomics, interactomics, complexomics and metabolomics. Proteomic methods are being developed, particularly the construction of protein biochip arrays using surface plasmon resonance (SPR) optical detection. The study of protein expression in leukemic cells and changes of the proteome in relation to the leukemic process.

Profile Publications:

Riedelova-Reicheltova Z, Kotlin R, Suttnar J, Geierova V, Riedel T, Majek P, Dyr JE (2014) A novel natural mutation A alpha Phe98Ile in the fibrinogen coiled-coil affects fibrinogen function. *Thromb Haemostasis* **111**: 79-87

Stikarova J, Suttnar J, Pimkova K, Chrastinova-Masova L, Cermak J, Dyr JE (2013) Enhanced levels of asymmetric dimethylarginine in a serum of middle age patients with myelodysplastic syndrome. *J Hematol Oncol* **6**

Pimkova K, Bockova M, Hegnerova K, Suttnar J, Cermak J, Homola J, Dyr JE (2012) Surface plasmon resonance biosensor for the detection of VEGFR-1-a protein marker of myelodysplastic syndromes. *Anal Bioanal Chem* **402**: 381-387

Majek P, Reicheltova Z, Suttnar J, Maly M, Oravec M, Pecankova K, Dyr JE (2011) Plasma proteome changes in cardiovascular disease patients: novel isoforms of apolipoprotein A1. *J Transl Med* **9**

Riedel T, Suttnar J, Brynda E, Houska M, Medved L, Dyr JE (2011) Fibrinopeptides A and B release in the process of surface fibrin formation. *Blood* **117**: 1700-1706

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Research Program:

The childhood solid tumors - molecular genetics, late effects of childhood cancer, the experimental oncology - potential anticancer drug testing in vitro, the issue of chemoresistance of tumor cells.

Profile Publications:

Hrabeta J, Groh T, Khalil MA, Poljakova J, Adam V, Kizek R, Uhlik J, Doktorova H, Cerna T, Frei E, Stiborova M, Eckschlager T. Vacuolar-ATPase-mediated intracellular sequestration of ellipticine contributes to drug resistance in neuroblastoma cells. *Int J Oncol.* 2015;47(3):971-80

Prochazka P, Hrabeta J, Vicha A, Cipro S, Stejskalova E, Musil Z, Vodicka P, Eckschlager T. Changes in MYCN expression in human neuroblastoma cell lines following cisplatin treatment may not be related to MYCN copy numbers. *Oncol Rep.* 2013;29(6):2415-21

Procházka P, Libra A, Zemanová Z, Hřebačková J, Poljaková J, Hraběta J, Bunček M, Stiborová M, Eckschlager T. Mechanisms of ellipticine-mediated resistance in UKF-NB-4 neuroblastoma cells. *Cancer Sci.* 2012;103(2):334-41

Hrebackova J, Hrabeta J, Eckschlager T. Valproic acid in the complex therapy of malignant tumors. *Curr Drug Targets.* 2010;11(3):361-79

Eckschlager T, Adam V, Hrabeta J, Figova K, Kizek R. Metallothioneins and cancer. *Curr Protein Pept Sci.* 2009;10(4):360-75

Franek F, Holý A, Votruba I, Eckschlager T. Modulation of cell cycle progression and of antibody production in mouse hybridomas by a nukleotide analogue. *Cytotechnology.* 1998;28(1-3):65-72

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Research Program:

Cell participation, apoptosis, extracellular matrix in corneal graft rejection.

Profile Publications:

Cejkova J, Ardan T, Simonova Z, Cejka C, Malec J, Jirsova K, Fílipec M, Dotrelova D, Brunova B (2007) Nitric oxide synthase induction and cytotoxic nitrogen-related oxidant formation in conjunctival epithelium of dry eye (Sjogren's syndrome). *Nitric Oxide-Biol Ch* **17**: 10-17

Liskova P, Tuft SJ, Gwilliam R, Ebenezer ND, Jirsova K, Prescott Q, Martincova R, Pretorius M, Sinclair N, Boase DL, Jeffrey MJ, Deloukas P, Hardcastle AJ, Fílipec M, Bhattacharya SS (2007) Novel mutations in the ZEB1 gene identified in Czech and British patients with posterior polymorphous corneal dystrophy. *Human mutation* **28**: 638

Tavandzi U, Prochazka R, Usvald D, Hlucilova J, Vitaskova M, Motlik J, Vitova A, Fílipec M, Forrester JV, Holan V (2007) A new model of corneal transplantation in the miniature pig: Efficacy of immunosuppressive treatment. *Transplantation* **83**: 1401-1403

Gwilliam R, Liskova P, Fílipec M, Kmoch S, Jirsova K, Huckle EJ, Stables CL, Bhattacharya SS, Hardcastle AJ, Deloukas P, Ebenezer ND (2005) Posterior polymorphous corneal dystrophy in

Czech families maps to chromosome 20 and excludes the VSX1 gene. *Invest Ophth Vis Sci* **46**: 4480-4484

Plskova J, Kuffova L, Filipec M, Holan V, Forrester JV (2004) Quantitative evaluation of the corneal endothelium in the mouse after grafting. *Brit J Ophthalmol* **88**: 1209-1216

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Research Program:

Molecular and immunohistochemical analysis of migration and differentiation of neural crest cells, cellular and molecular characteristics of neonatal human skin: consequences for wound healing.

Profile Publications:

Hubka P, Nanka O, Martan A, Grim M, Zvarova J, Masata J (2011) TVT-S in the U position-anatomical study. *Int Urogynecol J* **22**: 241-246

Halata Z, Grim M, Baumann K (2010) Current understanding of Merkel cells, touch reception and the skin. *Expert Rev Dermatol* **5**: 109–116

Krejci E, Grim M (2010) Isolation and characterization of neural crest stem cells from adult human hair follicles. *Folia biologica* **56**: 149-157

Valasek P, Theis S, Krejci E, Grim M, Maina F, Shwartz Y, Otto A, Huang R, Patel K (2010) Somitic origin of the medial border of the mammalian scapula and its homology to the avian scapula blade. *Journal of anatomy* **216**: 482-488

Valasek P, Theis S, Krejci E, Grim M, Maina F, Shwartz Y, Otto A, Huang RJ, Patel K (2010) Somitic origin of the medial border of the mammalian scapula and its homology to the avian scapula blade. *Journal of anatomy* **216**: 482-488

Liska F, Snajdr P, Sedova L, Seda O, Chylikova B, Slamova P, Krejci E, Sedmera D, Grim M, Krenova D, Kren V (2009) Deletion of a conserved noncoding sequence in Plzf intron leads to Plzf down-regulation in limb bud and polydactyly in the rat. *Developmental dynamics : an official publication of the American Association of Anatomists* **238**: 673-684

United States Patent No.: US 8,030,072 B2 Date of Patent Oct. 4, 2011. Method of isolating of epidermal neural crst stem cells. Inventors: Maya Sieber-Blum, Brookfield, WI (US), Milos Grim, Prague (CZ)

Assoc. Prof. Ing. Jiří Hatina, CSc.,
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Research Program:

The basic research focus on the molecular biology of malignant transformation, especially in urothelial carcinoma. The current scientific orientation is focused on three main projects: identification and characterization of cancer stem cells, derivation and the establishment of new in vitro model of urothelium tumor transformation, analysis of interactions of tumor and stromal cells.

Profile Publications:

Hatina J, Fernandes MI, Hoffmann MJ, Zeimet AG (2013) Cancer stem cells – basic biological properties and experimental approaches Encyclopedia of Life Sciences. Chichester, John Wiley & Sons

Hatina J (2012) The dynamics of cancer stem cells. *Neoplasma* **59**: 700-707

Hatina J, Schulz WA (2012) Stem cells in the biology of normal urothelium and urothelial carcinoma. *Neoplasma* **59**: 728-736

Koch A, Hatina J, Rieder H, Seifert HH, Huckenbeck W, Jankowiak F, Florl AR, Stoehr R, Schulz WA (2012) Discovery of TP53 splice variants in two novel papillary urothelial cancer cell lines. *Cell Oncol* **35**: 243-257

Zeimet AG, Reimer D, Sopper S, Boesch M, Martowicz A, Roessler J, Wiedemair AM, Rumpold H, Untergasser G, Concini N, Hofstetter G, Mueller-Holzner E, Fiegl H, Marth C, Wolf D, Pesta M, Hatina J (2012) Ovarian cancer stem cells. *Neoplasma* **59**: 747-755

Sieron P, Hader C, Hatina J, Engers R, Wlazlinski A, Muller M, Schulz WA (2009) DKC1 overexpression associated with prostate cancer progression. *Brit J Cancer* **101**: 1410-1416

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Cellular and molecular mechanisms of pathogenesis of experimental autoimmune uveitis

Profile Publications:

Atan D, Heissigerova J, Kuffova L, Hogan A, Kilmartin DJ, Forrester JV, Bidwell JL, Dick AD, Churchill AJ (2013) Tumor necrosis factor polymorphisms associated with tumor necrosis factor production influence the risk of idiopathic intermediate uveitis. *Mol Vis* **19**: 184-195

Lee RWJ, Greenwood R, Taylor H, Amer R, Biester S, Heissigerova J, Forrester JV, Dick AD (2012) A Randomized Trial of Tacrolimus versus Tacrolimus and Prednisone for the Maintenance of Disease Remission in Noninfectious Uveitis. *Ophthalmology* **119**: 1223-1230

Svozilkova P, Heissigerova J, Brichova M, Kalvodova B, Dvorak J, Rihova E (2011) The role of pars plana vitrectomy in the diagnosis and treatment of uveitis. *Eur J Ophthalmol* **21**: 89-97
Atan D, Fraser-Bell S, Plskova J, Kuffova L, Hogan A, Tufail A, Kilmartin DJ, Forrester JV, Bidwell JL, Dick AD, Churchill AJ (2011) Punctate Inner Choroidopathy and Multifocal Choroiditis with Panuveitis Share Haplotypic Associations with IL10 and TNF Loci. *Invest Ophth Vis Sci* **52**: 3573-3581

Atan D, Fraser-Bell S, Plskova J, Kuffova L, Hogan A, Tufail A, Kilmartin DJ, Forrester JV, Bidwell J, Dick AD, Churchill AJ (2010) Cytokine Polymorphism in Noninfectious Uveitis. *Invest Ophth Vis Sci* **51**: 4133-4142

Plskova J, Greiner K, Forrester JV (2007) Interferon-alpha as an effective treatment for noninfectious posterior uveitis and Panuveitis. *Am J Ophthalmol* **144**: 55-61

Siepmann K, Biester S, Plskova J, Muckersie E, Duncan L, Forrester JV (2007) CD4(+)CD25(+) T regulatory cells induced by LPS-activated bone marrow dendritic cells suppress experimental autoimmune uveoretinitis in vivo. *Graef Arch Clin Exp* **245**: 221-229

Assoc. Prof. Ing. Karel Holada, Ph.D.

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Research Program:

Pathogenesis of prion diseases and other neurodegenerative proteinopathies. Function of cellular prion protein. Cellular toxicity of amyloid fibrils and synthetic nanoparticles.

Profile Publications:

Glier H, Simak J, Panigaj M, Gelderman MP, Vostal JG, Holada K.

Expression of the cellular prion protein affects posttransfusion recovery and survival of red blood cells in mice. *Transfusion*. 2015 Nov;55(11):2590-6

Orecna M, De Paoli SH, Janouskova O, Tegegn TZ, Filipova M, Bonevich JE, Holada K, Simak J. Toxicity of carboxylated carbon nanotubes in endothelial cells is attenuated by stimulation of the autophagic flux with the release of nanomaterial in autophagic vesicles. *Nanomedicine*. 2014;10(5):939-48.

Matej R, Olejar T, Janouskova O, Holada K. Deletion of protease-activated receptor 2 prolongs survival of scrapie-inoculated mice. *J Gen Virol*. 2012;93(Pt 9):2057-61.

Janouskova O, Rakusan J, Karaskova M, Holada K. Photodynamic inactivation of prions by disulfonated hydroxyaluminium phthalocyanine. *J Gen Virol*. 2012;93(Pt 11):2512-7.

Panigaj M, Glier H, Wildova M, Holada K: Expression of prion protein in mouse erythroid

progenitors and differentiating murine erythroleukemia cells. *PLoS One*. 2011;6(9):e24599.

Panigaj M, Brouckova A, Glierova H, Dvorakova E, Simak J, Vostal JG, Holada K: Underestimation of the expression of cellular prion protein on human red blood cells. *Transfusion*. 2011;51(5):1012-21.

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Research Program:

The role of post-translational ubiquitination in the degradation of model proteins of the yeast plasma membrane. Membrane ATPase and associated enzymes in various cell types and tissues.

Profile Publications:

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Research Program:

Pathology, neuroendocrine tumours

Profile Publications:

Senolt L, Housa D, Vernerova Z, Jirasek T, Svobodova R, Veigl D, Anderlova K, Muller-Ladner U, Pavelka K, Haluzik M (2007) Resistin in rheumatoid arthritis synovial tissue, synovial fluid and serum. *Ann Rheum Dis* **66**: 458-463

Tachezy R, Jirasek T, Salakova M, Ludvikova V, Kubecova M, Horak L, Mandys V, Hamsikova E (2007) Human papillomavirus infection and tumours of the anal canal: correlation of histology, PCR detection in paraffin sections and serology. *Apmis* **115**: 195-203

Cebecauerova D, Jirasek T, Budisova L, Mandys V, Volf V, Novotna Z, Subhanova I, Hrebicek M, Elleder M, Jirsa M (2005) Dual hereditary jaundice: Simultaneous occurrence of mutations causing Gilbert's and Dubin-Johnson syndrome. *Gastroenterology* **129**: 315-320

Jirasek T, Hozak P, Mandys V (2003) Different patterns of chromogranin A and Leu-7 (CD57) expression in gastrointestinal carcinoids: immunohistochemical and confocal laser scanning microscopy study. *Neoplasma* **50**: 1-7

Jirasek T, Mandys V, Viklicky V (2002) Expression of class III beta-tubulin in neuroendocrine tumours of gastrointestinal tract. *Folia Histochem Cyto* **40**: 305-309

Assoc. Prof. Mgr. Kateřina Jirsová, Ph.D.
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Research Program:

Biology and pathology of the eye surface, the pathogenesis of ocular diseases, dry eye syndrome, corneal dystrophy (rear polymorphous corneal dystrophy, Fuchs' corneal dystrophy), keratoconus, limbal stem cell deficiency, preparation of tissues for ophthalmology transplantation, graft rejection (rejection, keratolysis), cell biology and pathology

Profile Publications:

Jirsova K, Dudakova L, Kalasova S, Vesela V, Merjava S (2011) The OV-TL 12/30 Clone of Anti-cytokeratin 7 Antibody as a New Marker of Corneal Conjunctivalization in Patients with Limbal Stem Cell Deficiency. *Invest Ophth Vis Sci* **52**: 5892-5898

Merjava S, Brejchova K, Vernon A, Daniels JT, Jirsova K (2011) Cytokeratin 8 Is Expressed in Human Corneoconjunctival Epithelium, Particularly in Limbal Epithelial Cells. *Invest Ophth Vis Sci* **52**: 787-794

Merjava S, Malinova E, Liskova P, Filipec M, Zemanova Z, Michalova K, Jirsova K (2011) Recurrence of posterior polymorphous corneal dystrophy is caused by the overgrowth of the original diseased host endothelium. *Histochem Cell Biol* **136**: 93-101

Brejchova K, Liskova P, Cejkova J, Jirsova K (2010) Role of matrix metalloproteinases in recurrent corneal melting. *Exp Eye Res* **90**: 583-590

Jirsova K, Merjava S, Martincova R, Gwilliam R, Ebenezer ND, Liskova P, Filipec M (2007) Immunohistochemical characterization of cytokeratins in the abnormal corneal endothelium of posterior polymorphous corneal dystrophy patients. *Exp Eye Res* **84**: 680-686

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Research Program:

Pathology and molecular characterization of lymphoma, breast carcinoma and pediatric cancers.

Profile Publications:

Kalinova M, Krskova L, Brizova H, Kabickova E, Kepak T, Kodet R (2008) Quantitative PCR detection of NPM/ALK fusion gene and CD30 gene expression in patients with anaplastic large

cell lymphoma - Residual disease monitoring and a correlation with the disease status. *Leukemia research* **32**: 25-32

Mrhalova M, Kodet R (2007) A modified approach for I-FISH evaluation of ERBB2 (HER-2) gene copy numbers in breast carcinomas: comparison with HER-2/CEP17 ratio system. *J Cancer Res Clin* **133**: 321-329

Krskova L, Mrhalova M, Sumerauer D, Kodet R (2006) Rhabdomyosarcoma: molecular diagnostics of patients classified by morphology and immunohistochemistry with emphasis on bone marrow and purged peripheral blood progenitor cells involvement. *Virchows Arch* **448**: 449-458

Capkova L, Kalinova M, Krskova L, Kodetova D, Petrik F, Trefny M, Musil J, Kodet R (2007) Loss of heterozygosity and human telomerase reverse transcriptase (hTERT) expression in bronchial mucosa of heavy smokers. *Cancer* **109**: 2299-2307

Kodet R, Mrhalova M, Krskova L, Soukup J, Campr V, Neskudla T, Szepe P, Plank L (2003) Mantle cell lymphoma: improved diagnostics using a combined approach of immunohistochemistry and identification of t(11;14)(q13;q32) by polymerase chain reaction and fluorescence in situ hybridization. *Virchows Arch* **442**: 538-547

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Research Program:

Profile Publications:

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Research Program:

Regulation of gene expression. Regulation of gene expression as a therapeutic target in cancer.

Profile Publications:

Hulkova H, Svojanovsky J, Sevela K, Krusova D, Hanus J, Vezda P, Soucek M, Marova I, Feit J, Zambo I, Kovacevicova M, Vlaskova H, Kostrouchova V, Novak P, Kostrouch Z, Elleder M (2014) Systemic AL amyloidosis with unusual cutaneous presentation unmasked by

carotenoderma. *Amyloid* **21**: 57-61

Kostrouch D, Kostrouchova M, Yilma P, Chughtai AA, Novotny JP, Novak P, Kostrouchova V, Kostrouchova M, Kostrouch Z (2014) SKIP and BIR-1/Survivin have potential to integrate proteome status with gene expression. *Journal of proteomics* **110C**: 93-106

Kostrouchova M, Kostrouch Z (2014) Nuclear receptors in nematode development: Natural experiments made by a phylum. *Biochimica et biophysica acta*

Mikolas P, Kollarova J, Sebkova K, Saudek V, Yilma P, Kostrouchova M, Krause MW, Kostrouch Z, Kostrouchova M (2013) GEI-8, a Homologue of Vertebrate Nuclear Receptor Corepressor NCoR/SMRT, Regulates Gonad Development and Neuronal Functions in *Caenorhabditis elegans*. *PloS one* **8**

Kouns NA, Nakielna J, Behensky F, Krause MW, Kostrouch Z, Kostrouchova M (2011) NHR-23 dependent collagen and hedgehog-related genes required for molting. *Biochem Biophys Res Commun* **413**: 515-520

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Research Program:

Regulation of gene expression and development by nuclear receptors and their cofactors.

Profile Publications:

Kostrouch D, Kostrouchova M, Yilma P, Chughtai AA, Novotny JP, Novak P, Kostrouchova V, Kostrouchova M, Kostrouch Z (2014) SKIP and BIR-1/Survivin have potential to integrate proteome status with gene expression. *Journal of proteomics* **110C**: 93-106

Kostrouchova M, Kostrouch Z (2014) Nuclear receptors in nematode development: Natural experiments made by a phylum. *Biochimica et biophysica acta*

Mikolas P, Kollarova J, Sebkova K, Saudek V, Yilma P, Kostrouchova M, Krause MW, Kostrouch Z, Kostrouchova M (2013) GEI-8, a Homologue of Vertebrate Nuclear Receptor Corepressor NCoR/SMRT, Regulates Gonad Development and Neuronal Functions in *Caenorhabditis elegans*. *PloS one* **8**

Kouns NA, Nakielna J, Behensky F, Krause MW, Kostrouch Z, Kostrouchova M (2011) NHR-23 dependent collagen and hedgehog-related genes required for molting. *Biochem Biophys Res Commun* **413**: 515-520

Vohanka J, Simeckova K, Machalova E, Behensky F, Krause MW, Kostrouch Z, Kostrouchova M (2010) Diversification of fasting regulated transcription in a cluster of duplicated nuclear hormone receptors in *C. elegans*. *Gene expression patterns : GEP* **10**: 227-236

MUDr. Jan Kříž, Ph.D.

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Research Program:

Morphological changes of the liver tissue after islet transplantation into the portal vein. Development of alternative sites for islet transplantation. Effect of islet transplantation on insulin resistance.

Profile Publications:

Kosinová L, Cahová M, Fábryová E, Týcová I, Koblas T, Leontovyč I, Saudek F, **Kříž J.** Unstable Expression of Commonly Used Reference Genes in Rat Pancreatic Islets Early after Isolation Affects Results of Gene Expression Studies. PLoS One. 2016 Apr 1;11(4):e0152664. doi: 10.1371/journal.pone.0152664. eCollection 2016. PubMed PMID: 27035827; PubMed Central PMCID: PMC4817981. **IF**

Kasoju N, Kubies D, Kumorek MM, **Kříž J.**, Fábryová E, Machová L, Kovářová J, Rypáček F. Dip TIPS as a Facile and Versatile Method for Fabrication of Polymer Foams with Controlled Shape, Size and Pore Architecture for Bioengineering Applications. PLoS One. 2014 Oct 2;9(9):e108792. **IF 3.534**

Kriz J., Jirak D., Berkova Z., Herynek V., Lodererova A., Girman P., Habart D., Hajek M., Saudek F. Detection of pancreatic islet allograft impairment in advance of functional failure using magnetic resonance imaging. Transplant International 2012 Feb;25(2):250-60. Epub 2011 Dec; **IF 3,211**

Kriz J., Vilk G., Mazzuca D.M., Toleikis P.M., Foster P.J., White D.J. A novel technique for the transplantation of pancreatic islets within a vascularized device into the greater omentum to achieve insulin independence. The American Journal of Surgery 2012 Jun;203(6):793-7. Epub 2011 Jun 17. **IF 2.363**

Saudek F, Jirak D., Girman P., Herynek V., Dezortova M., **Kriz J.**, Peregrin J., Berkova Z., Zacharovova K., Hajek M. Magnetic Resonance Imaging of Pancreatic Islets Transplanted Into the Liver in Humans. Transplantation 2010; 90(12):1602–1606 - **IF 3.498**

Kriz J., Jirak D., Girman P., Berkova Z., Honsova E., Lodererova A., , Hajek M., Saudek F. Magnetic resonance imaging of pancreatic islets in tolerance and rejection. Transplantation 2005 Dec 15;80(11):1596-1603. **IF 3,879**

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Research Program:

Morphological changes in the human myocardium during atrial fibrillation and heart failure, morphological and molecular aspects of vasculogenesis and angiogenesis, angiogenesis and vascular changes in metabolic disorders and inflammation (eye, adipose tissue, placenta).

Profile Publications:

Kučera T., Strilić B., Regener K., Schubert M., Laudet V., Lammert E.: Ancestral vascular lumen formation via basal cell surfaces. PLoS ONE 4 (1):e4132, 2009

Strilić B., Kučera T., Eglinger J., Hughes M. R., McNagny K.M., Tsukita S., Dejana E., Ferrara N., Lammert E.: Vascular lumen formation in the developing aorta. Developmental Cell 17(4):505-515, 2009

Kučera T., Vyletěl, I., Moravcová, M., et al. Pericyte Coverage of Fetoplacental Vessels in Pregnancies Complicated by Type 1 Diabetes Mellitus. Placenta, 2010, vol. 31, no.12, p. 1120-1122

Aldhoon, B., Kučera, T., Smorodinova, N., et al. Associations Between Cardiac Fibrosis and Permanent Atrial Fibrillation in Advanced Heart Failure. Physiological Research 2013; vol. 62, no.3 , pp. 247-255.

Smorodinova N, Lantova L, Blaha M, Melenovsky V, Hanzelka J, Pirk J, et al. Bioptic Study of Left and Right Atrial Interstitium in Cardiac Patients with and without Atrial Fibrillation: Interatrial but Not Rhythm-Based Differences. PLoS One. 2015;10:e0129124.

Klímová A., Seidler Štangová P., Heissigerová J., Svozílková P., Kučera T.: Mycophenolate mofetil and cyclophosphamide treatments suppress inflammation intensity in an experimental model of autoimmune uveitis. Folia Biologica (Praha) 2014; 60: 228-234

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Research Program:

Gene expression and the architecture of the cell nucleus in the model organism *Caenorhabditis elegans* and mammalian cell cultures.

Profile Publications:

Lanctot C, Meister P (2013) Microscopic analysis of chromatin localization and dynamics in *C. elegans*. *Methods in molecular biology* **1042**: 153-172

Korcekova D, Gombitova A, Raska I, Cmarko D, Lanctot C (2012) Nucleologenesis in the *Caenorhabditis elegans* Embryo. *PLoS one* **7**

Solovei I, Kreysing M, Lanctot C, Kosem S, Peichl L, Cremer T, Guck J, Joffe B (2009) Nuclear Architecture of Rod Photoreceptor Cells Adapts to Vision in Mammalian Evolution. *Cell* **137**: 356-368

Lanctot C, Cheutin T, Cremer M, Cavalli G, Cremer T (2007) Dynamic genome architecture in the nuclear space: regulation of gene expression in three dimensions. *Nat Rev Genet* **8**: 104-115

Lanctot C, Kaspar C, Cremer T (2007) Positioning of the mouse Hox gene clusters in the nuclei of developing embryos and differentiating embryoid bodies. *Exp Cell Res* **313**: 1449-1459

Assoc. Prof. MUDr. Petra Lišková, MD, Ph.D.

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Research Program:

Inherited ocular disorders and their molecular pathogenesis.

Profile Publications:

Davidson AE*, Liskova P*, Evans CJ*, *Dudakova L*, Nosková L, Pontikos N, Hartmannová H, Hodaňová K, Stránecký V, Kozmík Z, Levis HJ, Idigo N, Sasai N, Maher GJ, Bellingham J, Veli N, Ebenezer ND, Cheetham ME, Daniels JT, Thaug CM, Jirsova K, Plagnol V, Filipec M, Kmoch S, Tuft SJ, Hardcastle AJ. (2016) Autosomal-Dominant Corneal Endothelial Dystrophies CHED1 and PPCD1 Are Allelic Disorders Caused by Non-coding Mutations in the Promoter of OVOL2. *Am J Hum Genet* Jan 7;**98(1)**:75-89.

*Joint first authorship

Liskova P, Evans CJ, Davidson AE, Zaliova M, *Dudakova L*, Trkova M, Stranecky V, Carnt N, Plagnol V, Vincent AL, Tuft SJ, Hardcastle AJ. (2015) Heterozygous deletions at the *ZEB1* locus verify haploinsufficiency as the mechanism of disease for posterior polymorphous corneal dystrophy type 3. *Eur J Hum Genet* Oct 28. doi: 10.1038/ejhg.2015.232.

Dudakova L, Palos M, Jirsova K, Stranecky V, Krepelova A, Hysi PG, Liskova P. (2015) Validation of rs2956540:G>C and rs3735520:G>A association with keratoconus in a population of European descent. *Eur J Hum Genet* **23**:1581-3.

Liskova P, Dudakova L, Tesar V, Bednarova V, Kidorova J, Jirsova K, Davidson AE, Hardcastle AJ. (2015) Detailed assessment of renal function in a proband with Harboyan syndrome caused by a novel homozygous SLC4A11 nonsense mutation. *Ophthalmic Res* **53**:30-5.

Evans CJ*, Liskova P*, Dudakova L, Hrabcikova P, Horinek A, Jirsova K, Filipec M, Hardcastle AJ, Davidson AE, Tuft SJ. (2015) Identification of six novel mutations in ZEB1 and description of the associated phenotypes in patients with posterior polymorphous corneal dystrophy 3. *Ann Hum Genet* **79**:1-9.

*Joint first authorship

Kousal B, Skalicka P, Valesova L, Fletcher T, Hart-Holden N, O'Grady A, Chakarova CF, Michaelides M, Hardcastle AJ, Liskova P. (2014) Severe retinal degeneration in women with a c.2543del mutation in ORF15 of the RPGR gene. *Mol Vis* **20**:1307-17

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Research Program:

Functional morphology of the cell nucleus, the dynamics of nuclear compartments; lateral domains of plasma membrane - structure and function. Methods of fluorescence microscopy in cell biology.

Profile Publications:

Malinsky J, Opekarová M (2016) New insight into the roles of membrane microdomains in physiological activities of fungal cells. *Int. Rev. Cell Mol. Biol.* *In press*

Malinsky J, Tanner W, Opekarova M (2016) Transmembrane voltage: potential to induce lateral microdomains. *Biochim Biophys Acta* doi: 10.1016/j.bbaliip.2016.02.012

Malinsky J, Opekarova M, Grossmann G, Tanner W (2013) Membrane Microdomains, Rafts, and Detergent-Resistant Membranes in Plants and Fungi. *Annu Rev Plant Biol* **64**: 501-529

Stradalova V, Stahlschmidt W, Grossmann G, Blazikova M, Rachel R, Tanner W, Malinsky J (2009) Furrow-like invaginations of the yeast plasma membrane correspond to membrane compartment of Can1. *Journal of cell science* **122**: 2887-2894

Grossmann G, Opekarova M, Malinsky J, Weig-Meckl I, Tanner W (2007) Membrane potential governs lateral segregation of plasma membrane proteins and lipids in yeast. *Embo Journal* **26**: 1-8

Malinska K, Malinsky J, Opekarova M, Tanner W (2003) Visualization of protein compartmentation within the plasma membrane of living yeast cells. *Molecular biology of the cell* **14**: 4427-4436

Prof. MUDr. Václav Mandys, CSc.

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Research Program:

The importance of progenitor tissue cells alterations (adult tissues stem cells) in the development of precancerous lesions and early stages of human cancers.

Profile Publications:

Zajicek R, Mandys V, Mestak O, Sevcik J, Konigova R, Matouskova E (2012) Human keratinocyte growth and differentiation on acellular porcine dermal matrix in relation to wound healing potential. *TheScientificWorldJournal* **2012**: 727352

Heracek J, Hampl R, Hill M, Starka L, Sachova J, Kuncova J, Eis V, Urban M, Mandys V (2007) Tissue and serum levels of principal androgens in benign prostatic hyperplasia and prostate cancer. *Steroids* **72**: 375-380

Jirsova K, Mandys V, Gispen WH, Bar PR (2006) Cisplatin-induced apoptosis in cultures of human Schwann cells. *Neuroscience letters* **392**: 22-26

Cebecauerova D, Jirasek T, Budisova L, Mandys V, Volf V, Novotna Z, Subhanova I, Hrebicek M, Elleder M, Jirsa M (2005) Dual hereditary jaundice: simultaneous occurrence of mutations causing Gilbert's and Dubin-Johnson syndrome. *Gastroenterology* **129**: 315-320

Mandys V, Lukas K, Revoltella R (2003) Different patterns of cytokeratin expression in Barrett's esophagus--what is beyond? *Pathology, research and practice* **199**: 581-587

Assoc. Prof. RNDr. Jaroslav Mareš, CSc.

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Research Program:

Diagnosis or prognosis of bladder cancer and prostate cancer, genetics, and epigenetics of candidate genes of tumor transformation and progression.

Profile Publications:

Zajicek R, Mandys V, Mestak O, Sevcik J, Konigova R, Matouskova E (2012) Human keratinocyte growth and differentiation on acellular porcine dermal matrix in relation to wound healing potential. *TheScientificWorldJournal* **2012**: 727352

Heracek J, Hampl R, Hill M, Starka L, Sachova J, Kuncova J, Eis V, Urban M, Mandys V (2007)

Tissue and serum levels of principal androgens in benign prostatic hyperplasia and prostate cancer. *Steroids* **72**: 375-380

Jirsova K, Mandys V, Gispen WH, Bar PR (2006) Cisplatin-induced apoptosis in cultures of human Schwann cells. *Neuroscience letters* **392**: 22-26

Cebecauerova D, Jirasek T, Budisova L, Mandys V, Volf V, Novotna Z, Subhanova I, Hrebicek M, Elleder M, Jirsa M (2005) Dual hereditary jaundice: simultaneous occurrence of mutations causing Gilbert's and Dubin-Johnson syndrome. *Gastroenterology* **129**: 315-320

Mandys V, Lukas K, Revoltella R (2003) Different patterns of cytokeratin expression in Barrett's esophagus--what is beyond? *Pathology, research and practice* **199**: 581-587

MUDr. Iuri Marinov, CSc.

Institute of hematology and blood transfusion

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Research Program:

Immunophenotyping, immunological diagnosis, classification of blood malignancies. Diagnosis of non-malignant haematological disorders by flow cytometry. Detection and monitoring of minimal residual disease following chemotherapy and/or allogeneic transplantation

Profile Publications:

Marinov I: Průtoková cytometrie v klinické hematologii: 2. přepracované vydání. Praha: Triton, 2008. 152 s. ISBN 978-80-7387-143-7

Marinov J, Luxová A, Tkáčová V, Gašová Z, Pohlreich D, Cetkovský P (2011): Comparison of three single platform methods for CD34+ hematopoietic stem cell enumeration by flow Cytometry. *Clin Lab* **57**: 1031- 1035

I. Marinov, M Kohoutová, V Tkáčová, D Lysák, M Holubová, O Stehlíková, T Železníková, D. Žontar, A Illingworth (2013): Intra- and interlaboratory variability of paroxysmal nocturnal hemoglobinuria testing by flow cytometry following the 2012 practical guidelines for high sensitivity paroxysmal nocturnal hemoglobinuria testing, *Cytometry Part B, Clinical Cytometry* **84b**: 229-236

I Marinov, M Kohoutová, V Tkáčová, A Pešek, J Čermák and P Cetkovský (2013): Performance characteristics of consensus approaches for small and minor paroxysmal nocturnal hemoglobinuria clone determination by flow cytometry, *Clin Chem Lab Med* **51**: 2133-2139

I Marinov, M Kohoutová, V Tkáčová, A Pešek, J Čermák (2014): Evaluation and comparison of different approaches for detection of PNH clones by flow cytometry following the ICCS guidelines. *Clin Lab* **60**: 2017-224.

I Marinov, M Kohoutová, V Tkáčová, A Pešek, J Čermák, P Cetkovský: clinical relevance of CD157 for rapid and cost-effective simultaneous evaluation of PNH granulocytes and monocytes by flow cytometry (2015). *Int Jnl Lab Hem* **37**: 231-237

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Research Program:

Light and Electron Microscopy (including histo- and cytochemistry) focusing on functional morphology of the genital organs, hepatology and cardiovascular system.

Profile Publications:

Farghali H, Cerny D, Kamenikova L, Martinek J, Horinek A, Kmonickova E, Zidek Z (2009) Resveratrol attenuates lipopolysaccharide-induced hepatitis in D-galactosamine sensitized rats: role of nitric oxide synthase 2 and heme oxygenase-1. *Nitric oxide : biology and chemistry / official journal of the Nitric Oxide Society* **21**: 216-225

Pacova H, Astl J, Martinek J (2009) The pathogenesis of chronic inflammation and malignant transformation in the human upper airways: the role of beta-defensins, eNOS, cell proliferation and apoptosis. *Histology and histopathology* **24**: 815-820

Pacova H, Astl J, Martinek J (2010) The incidence of beta-defensin-1, 2, 3 in human healthy and chronically inflamed nasal and tonsillar mucosa. *J Appl Biomed* **8**: 81-86

Lekic N, Cerny D, Horinek A, Provaznik Z, Martinek J, Farghali H (2011) Differential oxidative stress responses to D-galactosamine-lipopolysaccharide hepatotoxicity based on real time PCR analysis of selected oxidant/antioxidant and apoptotic gene expressions in rat. *Physiological research / Academia Scientiarum Bohemoslovaca* **60**: 549-558

Sladkova J, Spacilova J, Capek M, Tesarova M, Hansikova H, Honzik T, Martinek J, Zamecnik J, Kostkova O, Zeman J (2015) Analysis of Mitochondrial Network Morphology in Cultured Myoblasts from Patients with Mitochondrial Disorders. *Ultrastr. Pathol.* 39, 5: 340-350.

Assoc. Prof. MUDr. Radoslav Matěj, Ph.D.

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Research Program:

The role of PAR-2 in the pathophysiology of human diseases
Molecular neuropathology of neurodegenerative diseases
Prion Diseases

Profile Publications:

Rohan Z, Matej R (2014) Current concepts in the classification and diagnosis of frontotemporal lobar degenerations: a practical approach. *Archives of pathology & laboratory medicine*

138: 132-138

van der Zee J, Van Langenhove T, Kovacs GG, Dillen L, Deschamps W, Engelborghs S, Matej R, et al. (2014) Rare mutations in SQSTM1 modify susceptibility to frontotemporal lobar degeneration. *Acta neuropathologica* **128**: 397-410

Vasakova M, Sterclova M, Matej R, Olejar T, Kolesar L, Skibova J, Striz I (2013) IL-4 polymorphisms, HRCT score and lung tissue markers in idiopathic pulmonary fibrosis. *Human immunology* **74**: 1346-1351

Matej R, Olejar T, Janouskova O, Holada K (2012) Deletion of protease-activated receptor 2 prolongs survival of scrapie-inoculated mice. *J Gen Virol* **93**: 2057-2061

Matej R, Botond G, Laszlo L, Kopitar-Jerala N, Rusina R, Budka H, Kovacs GG (2010) Increased neuronal Rab5 immunoreactive endosomes do not colocalize with TDP-43 in motor neuron disease. *Experimental neurology* **225**: 133-139

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Research Program:

Cell signaling in physiology and pathology. Computer modeling of cellular processes.

Profile Publications:

Mazel T, Biesemann A, Krejczy M, Nowald J, Muller O, Dehmelt L (2014) Direct observation of microtubule pushing by cortical dynein in living cells. *Molecular biology of the cell* **25**: 95-106

Blumer J, Rey J, Dehmelt L, Mazel T, Wu YW, Bastiaens P, Goody RS, Itzen A (2013) RabGEFs are a major determinant for specific Rab membrane targeting. *J Cell Biol* **200**: 287-300

Meng X, Matlawska-Wasowska K, Girodon F, Mazel T, Willman CL, Atlas S, Chen IM, Harvey RC, Hunger SP, Ness SA, Winter SS, Wilson BS (2011) GSI-I (Z-LLNle-CHO) inhibits gamma-secretase and the proteasome to trigger cell death in precursor-B acute lymphoblastic leukemia. *Leukemia* **25**: 1135-1146

Mazel T, Raymond R, Raymond-Stintz M, Jett S, Wilson BS (2009) Stochastic Modeling of Calcium in 3D Geometry. *Biophysical journal* **96**: 1691-1706

Means S, Smith AJ, Shepherd J, Shadid J, Fowler J, Wojcikiewicz RJH, Mazel T, Smith GD, Wilson BS (2006) Reaction diffusion modeling of calcium dynamics with realistic ER geometry. *Biophysical journal* **91**: 537-557

Sykova E, Vorisek I, Antonova T, Mazel T, Meyer-Luehmann M, Jucker M, Hajek M, Ort M, Bures J (2005) Changes in extracellular space size and geometry in APP23 transgenic mice: a model of Alzheimer's disease. *Proceedings of the National Academy of Sciences of the United*

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Research Program:

Examination of miRNAs in CSF, plasma, serum and lymph nodes of patients with non-Hodgkin's B cell lymphomas. The aim is to determine the appropriate miRNA clusters for diagnostic and prognostic purposes in lymphomas and their quantification for monitoring minimal residual disease.

Definition of clinical and laboratory prognostic factors for CNS relapse in patients with diffuse large B-cell lymphoma.

The impact of HL and its treatment on cognition, brain structure and function, results will be obtained by examination of cognitive functions, imaging techniques (GM and DTI) and functional analyses of neurotransmitters in the brain of animal models. Evaluation of regional concentration of neurotransmitters, neurodegeneration, oxidative stress and regional brain activity after delivery of chemotherapy.

Profile Publications:

Mocikova H, Pytlik R, Sykorova A, Janikova A, Prochazka V, Vokurka S, Berkova A, Belada D, Campr V, Burešová L, Trněný M. (2016) Role of rituximab in the treatment of patients with primary central nervous system lymphoma: a retrospective analysis of the Czech Lymphoma Study Group registry. *Leukemia & lymphoma*

Mocikova H, Pytlik R, Stepankova P, Michalka J, Markova J, Koren J, Buresova L, Raida L, Kral Z. (2015) Can Rituximab Improve the Outcome of Patients with Nodular Lymphocyte-Predominant Hodgkin's Lymphoma? *Acta Haematol* **134**(3):187-92

Kalinova M, Fronkova E, Klener P, Forsterova K, Lokvenc M, Mejstrikova E, Belada D, Mocikova H, Trneny M, Kodet R, Trka J. The use of formalin-fixed, paraffin-embedded lymph node samples for the detection of minimal residual disease in mantle cell lymphoma. (2015) *Br J Haematol* **169**(1):145-8.

Cheah CY, George A, Giné E, Chiappella A, Kluin-Nelemans HC, Jurczak W, Krawczyk K, Mocikova H, Klener P, Salek D, Walewski J, Szymczyk M, Smolej L, Auer RL, Ritchie DS, Arcaini L, Williams ME, Dreyling M, Seymour JF; European Mantle Cell Lymphoma Network. (2013) Central nervous system involvement in mantle cell lymphoma: clinical features, prognostic factors and outcomes from the European Mantle Cell Lymphoma Network. *Ann Oncol* **24**(8):2119-23.

Mocikova H, Pytlik R, Markova J, Steinerova K, Kral Z, Belada D, Trnkova M, Trneny M, Koza V, Mayer J, Zak P, Kozak T (2011) Pre-transplant positron emission tomography in patients with relapsed Hodgkin lymphoma. *Leukemia & lymphoma* **52**: 1668-1674

Mocikova H, Obrtlíkova P, Vackova B, Trnety M (2010) Positron emission tomography at the end of first-line therapy and during follow-up in patients with Hodgkin lymphoma: a retrospective study. *Annals of oncology : official journal of the European Society for Medical Oncology / ESMO* **21**: 1222-1227

Prof. MUDr. Luboš Petruželka, CSc.

Department of Oncology

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Research Program:

Molecular biological treatment and molecular prediction of breast cancer, lung cancer, kidney cancer.

Profile Publications:

Chan A, Martin M, Untch M, Gil MG, Guillem-Porta V, Wojtukiewicz M, Kellokumpu-Lehtinen P, Sommer HL, Georgoulas V, Battelli N, Pawlicki M, Aubert D, Bourlard T, Gasmi J, Villanova G, Petruželka L, Navelbine Herceptin P (2006) Vinorelbine plus trastuzumab combination as first-line therapy for HER 2-positive metastatic breast cancer patients: an international phase II trial. *Br J Cancer* **95**: 788-793

Zatloukal P, Petruželka L, Zemanova M, Havel L, Janku F, Judas L, Kubik A, Krepela E, Fiala P, Pecen L (2004) Concurrent versus sequential chemoradiotherapy with cisplatin and vinorelbine in locally advanced non-small cell lung cancer: a randomized study. *Lung Cancer* **46**: 87-98

Zatloukal P, Petruželka L, Zemanova M, Kolek V, Skrickova J, Pesek M, Fojtu H, Grygarkova I, Sixtova D, Roubec J, Horenkova E, Havel L, Prusa P, Novakova L, Skacel T, Kuta M (2003) Gemcitabine plus cisplatin vs. gemcitabine plus carboplatin in stage IIIb and IV non-small cell lung cancer: a phase III randomized trial. *Lung Cancer* **41**: 321-331

L. Petruželka, B.Konopásek (2003) *Klinická onkologie*, Karolinum

Petruželka L, Betka J, Zatloukal P (1997) Combined Radiotherapy and Intra-Arterial Chemotherapy for Advanced Cancer of the Oropharynx *In: Infusion Chemotherapy-Radiotherapy Interaction: Its Biology and Significance for Organ Salvage and Prevention of Second Primary Neoplasms* ed. C.J.Rosenthal, Elsevier Science Publishing Co.

Prof. MUDr. Ctibor Povýšil, DrSc.

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Research Program:

A comprehensive research program for cancer and non-malignant diseases of the musculoskeletal system using immunohistochemistry, electron microscopy, molecular diagnostics, image analysis and tissue cultures.

Profile Publications:

Povysil C, Kana R, Dundr P, Tvrdik D, Horak M, Vaculik J, Podskubka A, Kubes R (2008) Distribution of chondrocytes containing alpha-smooth muscle actin in human normal, osteoarthrotic, and transplanted articular cartilage. *Pathology Research and Practice* **204**: 883-890

Dundr P, Povysil C, Tvrdik D, Mara M (2007) Uterine leiomyomas with inclusion bodies: An immunohistochemical and ultrastructural analysis of 12 cases. *Pathology Research and Practice* **203**: 145-151

Latos-Bielenska A, Marik I, Kuklik M, Materna-Kirylyuk A, Povysil C, Kozlowski K (2007) Pachydermoperiostosis-critical analysis with report of five unusual cases. *Eur J Pediatr* **166**: 1237-1243

Tvrdik D, Dundr P, Povysil C, Pytlik R, Plankova M (2006) Up-regulation, of p21(WAF1) expression is mediated by Sp1/Sp3 transcription factors in TGFbeta1-arrested malignant B cells. *Med Sci Monitor* **12**: Br227-Br234

Povysil C, Kohout A, Urban K, Horaak M (2004) Differentiated adamantinoma of the fibula: a rhabdoid variant. *Skeletal Radiol* **33**: 488-492

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Research Program:

Structural and functional organization of the cell nucleus.

Profile Publications:

Farkas R, Datkova Z, Mentelova L, Low P, Benova-Liszekova D, Beno M, Sass M, Rehulka P, Rehulkova H, Raska O, Kovacik L, Smigova J, Raska I, Mechler BM (2014) Apocrine secretion in *Drosophila* salivary glands: subcellular origin, dynamics, and identification of secretory

proteins. *PloS one* **9**: e94383

Juda P, Smigova J, Kovacik L, Bartova E, Raska I (2014) Ultrastructure of Cytoplasmic and Nuclear Inosine-5'-Monophosphate Dehydrogenase 2 "Rods and Rings" Inclusions. *The journal of histochemistry and cytochemistry : official journal of the Histochemistry Society*

Kovacik L, Kereiche S, Hoog JL, Juda P, Matula P, Raska I (2014) A simple Fourier filter for suppression of the missing wedge ray artefacts in single-axis electron tomographic reconstructions. *Journal of structural biology* **186**: 141-152

Popov A, Smirnov E, Kovacik L, Raska O, Hagen G, Stixova L, Raska I (2013) Duration of the first steps of the human rRNA processing. *Nucleus* **4**: 134-141

Smigova J, Juda P, Bartova E, Raska I (2013) Dynamics of Polycomb chromatin domains under conditions of increased molecular crowding. *Biol Cell* **105**: 519-534

RNDr. Jan Řičný, CSc.,

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Research Program:

Chemical principles of synaptic transmission, neurobiology, neurochemistry.

Profile Publications:

Korabecny J, Dolezal R, Cabelova P, Horova A, Hrubá E, Ricny J, Sedlacek L, Nepovimova E, Spilovska K, Andrs M, Musilek K, Opletalova V, Sepsova V, Ripova D, Kuca K (2014) 7-MEOTA-donepezil like compounds as cholinesterase inhibitors: Synthesis, pharmacological evaluation, molecular modeling and QSAR studies. *European journal of medicinal chemistry* **82**: 426-438

Kolarova M, Garcia-Sierra F, Bartos A, Ricny J, Ripova D (2012) Structure and pathology of tau protein in Alzheimer disease. *International journal of Alzheimer's disease* **2012**: 731526

Kristofikova Z, Ricny J, Ort M, Ripova D (2010) Aging and lateralization of the rat brain on a biochemical level. *Neurochemical research* **35**: 1138-1146

Hegnerova K, Bockova M, Vaisocherova H, Kristofikova Z, Ricny J, Ripova D, Homola J (2009) Surface plasmon resonance biosensors for detection of Alzheimer disease biomarker. *Sensor Actuat B-Chem* **139**: 69-73

Kristofikova Z, Kozmikova I, Hovorkova P, Ricny J, Zach P, Majer E, Klaschka J, Ripova D (2008) Lateralization of hippocampal nitric oxide mediator system in people with Alzheimer disease, multi-infarct dementia and schizophrenia. *Neurochemistry international* **53**: 118-125

Ricny J, Simkova L, Vincent A (2002) Determination of anti-acetylcholine receptor antibodies in myasthenic patients by use of time-resolved fluorescence. *Clinical chemistry* **48**: 549-554

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Research Program:

Immunology, microbiology, immunopharmacology, immunotherapy. Preparation, and mechanism of specifically directed polymeric drugs.

Profile Publications:

Sirova M, Strohalm J, Subr V, Plocova D, Rossmann P, Mrkvan T, Ulbrich K, Rihova B (2007) Treatment with HPMa copolymer-based doxorubicin conjugate containing human immunoglobulin induces long-lasting systemic anti-tumour immunity in mice. *Cancer Immunol Immun* **56**: 35-47

Rihova B (2004) Polymer therapeutics - Sixth International Symposium: from laboratory to clinical practice. *IDrugs : the investigational drugs journal* **7**: 114-117

Rihova B, Strohalm J, Prausova J, Kubackova K, Jelinkova M, Rozprimova L, Sirova M, Plocova D, Etrych T, Subr V, Mrkvan T, Kovar M, Ulbrich K (2004) Cytotoxic and immunomodulatory activities of polymer-bound drugs. *Nato Sci Ser II-Math* **180**: 67-78

Rihova B, Kubackova K (2003) Clinical implications of N-(2-hydroxypropyl)methacrylamide copolymers. *Current pharmaceutical biotechnology* **4**: 311-322

Rihova B, Strohalm J, Prausova J, Kubackova K, Jelinkova M, Rozprimova L, Sirova M, Plocova D, Etrych T, Subr V, Mrkvan T, Kovar M, Ulbrich K (2003) Cytostatic and immunomobilizing activities of polymer-bound drugs: experimental and first clinical data. *J Control Release* **91**: 1-16

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Research Program:

Biology of Langerhans islets, experimental and clinical treatment of diabetes using insulin-producing tissue transplants, immunological aspects of diabetes, in vivo imaging of pancreatic beta cells.

Profile Publications:

Kosinová L, Cahová M, Fábryová E, Týcová I, Koblas T, Leontovyč I, Saudek F, Kříž J. (2016) Unstable Expression of Commonly Used Reference Genes in Rat Pancreatic Islets Early after Isolation Affects Results of Gene Expression Studies. *PLoS One*. 2016 Apr 1;**11**(4):e0152664. doi: 10.1371/journal.pone.0152664

Havrdova T, Boucek P, Saudek F, Voska L, Lodererova A, Üçeyler N, Vondrova H, Skibova J, Lipar K, Sommer C (2016) Severe epidermal nerve fiber loss in diabetic neuropathy is not reversed by long-term normoglycemia after simultaneous pancreas and kidney transplantation. *Am J Transplant*. 2016 Jan 11. doi: 10.1111/ajt.13715

Alán L, Olejár T, Cahová M, Zelenka J, Berková Z, Smětáková M, Saudek F, Matěj R, Ježek P (2015) Delta Cell Hyperplasia in Adult Goto-Kakizaki (GK/MolTac) Diabetic Rats. *J Diabetes Res*.2015:385395. doi: 10.1155/2015/385395

Choudhary P, Rickels MR, Senior PA, Vantuyghem MC, Maffi P, Kay TW, Keymeulen B, Inagaki N, Saudek F, Lehmann R, Hering BJ (2015) Evidence-informed clinical practice recommendations for treatment of type 1 diabetes complicated by problematic hypoglycemia. *Diabetes Care* **38**(6):1016-29. doi: 10.2337/dc15-0090. Review

Zacharovová K, Berková Z, Jiráček D, Herynek V, Vancová M, Dovolilová E, Saudek F (2012) Processing of superparamagnetic iron contrast agent ferucarbotran in transplanted pancreatic islets. *Contrast Media Mol Imaging*. **7**(6):485-93. doi: 10.1002/cmim.1477

Saudek F, Jiráček D, Girman P, Herynek V, Dezortová M, Kríz J, Peregrin J, Berková Z, Zacharovová K, Hájek M (2010) Magnetic resonance imaging of pancreatic islets transplanted into the liver in humans. *Transplantation* **90** (12):1602-6

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Research Program:

Structure, dynamics and function of the chromatin in mammalian cells. Epigenetics and the regulation of the gene expression. The relationship between rRNA and rDNA synthesis.

Profile Publications:

Smirnov E, Hornáček M¹, Kováčik L¹, Mazel T¹, Schröfel A¹, Svidenská S¹, Skalníková M¹, Bartová E^{1,2}, Cmarko D¹, Raška I. Reproduction of the FC/DFC units in nucleoli. *Nucleus*, 2016, in press.

Sorokin D. V. Stixová L., Sehnalová P. Legartová S., Suchánková J., Šimara P., Kozubek S., Matula P., Skalníková M., Raška I., and Bártošová E. Localized movement and morphology of UBF1 – positive nucleolar regions are changed by g-irradiation in G2 phase of the cell cycle. *Nucleus*, 2015 6(4): p. 301-313

Smirnov E., Borkovec J., Kovacik L., Svidenska S., Schrofel A., Skalníková M., Svindrych Z., Krizek P., Ovesny M., Hagen G. M., Juda P., Michalova K., Cardoso M. V., Cmarko D., and Raska I. Separation of replication and transcription domains in nucleoli. *Journal of Structural Biology*, 2014. 188(3): p. 259-266.

Bartova E, Pachernik J, Harnicarova A, Kovarik A, Kovarikova M, Hofmanova J, Skalnikova M, Kozubek M, Kozubek S (2005) Nuclear levels and patterns of histone H3 modification and HP1 proteins after inhibition of histone deacetylases. *Journal of cell science* 118: 5035-5046

Bartova E, Kozubek S, Jirsova P, Kozubek M, Gajova H, Lukasova E, Skalnikova M, Ganova A, Koutna I, Hausmann M (2002) Nuclear structure and gene activity in human differentiated cells. *Journal of structural biology* 139: 76-89

Kozubek M., Skalniková M., Matula Pe., Bártová E., Rauch J., Neuhaus F., Eipel H., Hausmann M., Automated micro axial tomography of cell nuclei after specific labelling by fluorescence in situ hybridisation, *Micron*, 33 (2002), 655-665

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Research Program:

Cellular and developmental biology of the epithelium, glycobiology, tissue engineering and cell therapy.

Profile Publications:

Jarkovska K, Dvorankova B, Halada P, Kodet O, Szabo P, Gadher SJ, Motlik J, Kovarova H, Smetana K (2014) Revelation of fibroblast protein commonalities and differences and their possible roles in wound healing and tumorigenesis using co-culture models of cells. *Biol Cell* **106**

Mifkova A, Kodet O, Szabo P, Kucera J, Dvorankova B, Andre S, Koripelly G, Gabius HJ, Lehn JM, Smetana K, Jr. (2014) Synthetic polyamine BPA-C8 inhibits TGF-beta1-mediated conversion of human dermal fibroblast to myofibroblasts and establishment of galectin-1-rich extracellular matrix in vitro. *ChemBiochem : a European journal of chemical biology* **15**: 1465-1470

Kopitz J, Fik Z, Andre S, Smetana K, Jr., Gabius HJ (2013) Single-site mutational engineering and following monoPEGylation of the human lectin galectin-2: effects on ligand binding, functional aspects, and clearance from serum. *Molecular pharmaceutics* **10**: 2054-2061

Smetana K, Jr., Dvořánková B, Szabo P, Strnad H, Kolář M (2013) Role of stromal fibroblasts in cancer originated from squamous epithelia. In Bai, X. (ed) *Dermal Fibroblasts: Histological Perspectives, Characterization and Role in Disease*. Nova Sciences Publishers, New York, pp. 83-94

Valach J, Fik Z, Strnad H, Chovanec M, Plzak J, Cada Z, Szabo P, Sachova J, Hroudova M, Urbanova M, Steffl M, Paces J, Mazanek J, Vlcek C, Betka J, Kaltner H, Andre S, Gabius HJ, Kodet R, Smetana K, Gal P, Kolar M (2012) Smooth muscle actin-expressing stromal fibroblasts in head and neck squamous cell carcinoma: Increased expression of galectin-1 and induction of poor prognosis factors. *International Journal of Cancer* **131**: 2499-2508

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Research Program:

The influence of genetic and environmental factors on normal and abnormal development and adaptation of skeletal and cardiac muscles.

Profile Publications:

Soukup T (2014) Effects of long-term thyroid hormone level alterations, n-3 polyunsaturated fatty acid supplementation and statin administration in rats. *Physiological research / Academia Scientiarum Bohemoslovaca* **63 Suppl 1**: S119-131

Soukup T, Smerdu V (2014) Effect of altered innervation and thyroid hormones on myosin heavy chain expression and fiber type transitions: a mini-review. *Histochem Cell Biol*

Bacova B, Vincenzova C, Zurmanova J, Kašparová D, Knezl V, Radosinska J, Benova T, Pavelka S, Soukup T, Tribulova N (2013) Susceptibility of rats with altered thyroid status to malignant arrhythmias is primarily related to myocardial levels of connexin-43 and can be partially ameliorated by supplementation with red palm oil. *Exp Clin Cardiol* **18 Suppl A**: 41A-45A

Radosinska J, Bacova B, Knezl V, Benova T, Zurmanova J, Soukup T, Arnostova P, Slezak J, Goncalvesova E, Tribulova N (2013) Dietary omega-3 fatty acids attenuate myocardial arrhythmogenic factors and propensity of the heart to lethal arrhythmias in a rodent model of human essential hypertension. *Journal of hypertension* **31**: 1876-1885

Rauchova H, Vokurkova M, Pavelka S, Behuliak M, Tribulova N, Soukup T (2013) N-3 polyunsaturated fatty acids supplementation does not affect changes of lipid metabolism induced in rats by altered thyroid status. *Hormone and metabolic research = Hormon- und Stoffwechselforschung = Hormones et metabolisme* **45**: 507-512

Zurmanova J, Soukup T (2013) Comparison of myosin heavy chain mRNAs, protein isoforms and fiber type proportions in the rat slow and fast muscles. *Physiological research / Academia Scientiarum Bohemoslovaca* **62**: 445-453

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Research Program:

Formation of complexes essential for pre-mRNA splicing

Regulation of alternative pre-mRNA splicing Diseases caused by mutation in splicing machinery
Diseases caused by mutation in splicing machinery

Selected publications:

Novotný I., Malinová A., Stejskalová E., Matějů D., Klimešová K., Roithová A., Švéda M., Knejzlík Z. & Staněk D. (2015) SART3-dependent accumulation of incomplete spliceosomal snRNPs in Cajal bodies. *Cell Reports* 10:429–440

Stejskalová E. & Staněk D. (2014) Splicing factor U1-70K interacts with the SMN complex and is required for nuclear gem integrity. *Journal of Cell Science* 127:3909-15

Cvackova Z, Mateju D, Stanek D (2014) Retinitis pigmentosa mutations of SNRNP200 enhance cryptic splice-site recognition. *Human mutation* 35: 308-317

Hnilicova J, Hozeifi S, Stejskalova E, Duskova E, Poser I, Humpolickova J, Hof M, Stanek D (2013) The C-terminal domain of Brd2 is important for chromatin interaction and regulation of transcription and alternative splicing. *Molecular biology of the cell* 24: 3557-3568

Hnilicova J, Hozeifi S, Duskova E, Icha J, Tomankova T, Stanek D (2011) Histone deacetylase activity modulates alternative splicing. *PLoS one* 6: e16727

Hnilicova J, Stanek D (2011) Where splicing joins chromatin. *Nucleus* 2: 182-188

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Research Program:

G protein coupled receptors (GPCR, 7TM receptors); opioid receptors, desensitization of hormone action, drug dependency, application of fluorescence spectroscopy and microscopy techniques for analysis of plasma membrane structure and dynamics (FRAP, RICS, FRET).

Profile Publications:

Ujcikova H, Vosahlikova M, Roubalova L, Svoboda P (2016) Proteomic analysis of protein composition of rat forebrain cortex exposed to morphine for 10days; comparison with animals exposed to morphine and subsequently nurtured for 20days in the absence of this drug. *Journal of Proteomics* pii: S1874-3919(16)30041-0. doi: 10.1016/j.jprot.2016.02.019. [Epub ahead of print]

Brejchová J, Sýkora J, Ostašov P, Merta L, Roubalová L, Janáček J, Hof M, Svoboda P (2015) TRH-receptor mobility and function in intact and cholesterol-depleted plasma membrane of HEK293 cells stably expressing TRH-R-eGFP. *Biochimica et biophysica acta* **1848**:781-796

Vosahlikova M, Jurkiewicz P, Roubalova L, Hof M, Svoboda P (2014) High- and low-affinity sites for sodium in delta-OR-Gi1alpha (Cys (351)-Ile (351)) fusion protein stably expressed in HEK293 cells; functional significance and correlation with biophysical state of plasma membrane.

Naunyn-Schmiedeberg's archives of pharmacology **387**: 487-502

Ostasov P, Sykora J, Brejchova J, Olzynska A, Hof M, Svoboda P (2013) FLIM studies of 22- and 25-NBD-cholesterol in living HEK293 cells: plasma membrane change induced by cholesterol depletion. *Chemistry and physics of lipids* **167-168**: 62-69

Brejchova J, Sykora J, Dlouha K, Roubalova L, Ostasov P, Vosahlikova M, Hof M, Svoboda P (2011) Fluorescence spectroscopy studies of HEK293 cells expressing DOR-Gi1alpha fusion protein; the effect of cholesterol depletion. *Biochimica et biophysica acta* **1808**: 2819-2829

Ujcikova H, Dlouha K, Roubalova L, Vosahlikova M, Kagan D, Svoboda P (2011) Up- regulation of adenylylcyclases I and II induced by long-term adaptation of rats to morphine fades away 20 days after morphine withdrawal. *Biochimica et biophysica acta* **1810**: 1220-1229

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Research Program:

Experimental model of autoimmune uveitis – the study of immunopathological mechanisms of intraocular inflammation and possibilities of their regulation

Profile Publications:

Klimova A, Seidler Stangova P, Heissigerova J., Svozilkova P., Kucera T. (2014) Mycophenolate mofetil and cyclophosphamide treatment suppress inflammation intensity in an experimental model of autoimmune uveitis. *Folia Biologica*, accepted.

Svozilková P. a kol. (2014) Diagnostika a léčba očních zánětů. Praha: Maxdorf Jessenius

Strofova H, Svozilkova P., Hosova A, Fialova V (2014) Idiopatické střevní záněty a záněty oka. *Interní medicína pro praxi* **16**: 70-72

Svozilkova P., Heissigerova J, Brichova M, Kalvodova B, Dvorak J, Rihova E (2013) A possible coincidence of cytomegalovirus retinitis and intraocular lymphoma in a patient with systemic non-Hodgkin's lymphoma. *Virology journal* **10**: 18

Svozilkova P., Heissigerova J, Brichova M, Kalvodova B, Dvorak J, Rihova E (2011) The role of pars plana vitrectomy in the diagnosis and treatment of uveitis. *European journal of ophthalmology* **21**: 89-97

Heissigerova J, Rihova E, Svozilkova P., Brichova M, Jenickova D (2009) [Current therapeutic approach in non-infectious uveitis]. *Ceska a slovenska oftalmologie : casopis Ceske oftalmologicke spolecnosti a Slovenske oftalmologicke spolecnosti* **65**: 162-166

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Research Program: Experimental hematology. Interaction of hematopoietic stem cells with microenvironment. Hematopoietic tissue regeneration. Stem cell transplantation, homing, engraftment, migration, proliferation, differentiation, and apoptosis.

Profile Publications:

Forgacova K, Savvulidi F, Šefc L, Linhartova J, Necas E (2013) All hematopoietic stem cells engraft in submyeloablatively irradiated mice. *Biology of blood and marrow transplantation : journal of the American Society for Blood and Marrow Transplantation* **19**: 713-719

Hofer M, Pospisil M, Hoferova Z, Komurkova D, Paral P, Savvulidi F, Šefc L (2013) The pharmacological activation of adenosine A1 and A3 receptors does not modulate the long- or short-term repopulating ability of hematopoietic stem and multipotent progenitor cells in mice. *Purinergic signalling* **9**: 207-214

Hlobenova T, Šefc L, Chang KT, Savvulidi F, Michalova J, Necas E (2012) B-lymphopoiesis gains sensitivity to subsequent inhibition by estrogens during final phase of fetal development. *Developmental and comparative immunology* **36**: 385-389

Michalova J, Savvulidi F, Šefc L, Faltusova K, Forgacova K, Necas E (2011) Hematopoietic stem cells survive circulation arrest and reconstitute hematopoiesis in myeloablated mice. *Biology of blood and marrow transplantation : journal of the American Society for Blood and Marrow Transplantation* **17**: 1273-1281

Michalova J, Savvulidi F, Šefc L, Forgacova K, Necas E (2011) Cadaveric bone marrow as potential source of hematopoietic stem cells for transplantation. *Chimerism* **2**: 86-87

Hofer M, Pospisil M, Šefc L, Dusek L, Vacek A, Hola J, Hoferova Z, Streitova D (2010) Activation of adenosine A(3) receptors supports hematopoiesis-stimulating effects of granulocyte colony-stimulating factor in sublethally irradiated mice. *International journal of radiation biology* **86**: 649-656

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Research Program:

Dermatohistopathology, dermosclerosis and connective tissue disease, microenvironment of skin tumors.

Profile Publications:

Slany M, Jezek P, Fiserova V, Bodnarova M, Stork J, Havelkova M, Kalat F, Pavlik I (2012) Mycobacterium marinum infections in humans and tracing of its possible environmental sources. *Canadian journal of microbiology* **58**: 39-44

Szabo P, Kolar M, Dvorankova B, Lacina L, Stork J, Vlcek C, Strnad H, Tvrdek M, Smetana K, Jr. (2011) Mouse 3T3 fibroblasts under the influence of fibroblasts isolated from stroma of human basal cell carcinoma acquire properties of multipotent stem cells. *Biol Cell* **103**: 233-248

Pock L, Stork J (2010) Two case reports of columnar dyskeratosis, an unusual keratinisation disorder. *Dermatology* **220**: 274-279

Lacina L, Smetana K, Jr., Dvorankova B, Pytlik R, Kideryova L, Kucerova L, Plzakova Z, Stork J, Gabius HJ, Andre S (2007) Stromal fibroblasts from basal cell carcinoma affect phenotype of normal keratinocytes. *The British journal of dermatology* **156**: 819-829

Lacina L, Smetana K, Jr., Dvorankova B, Stork J, Plzakova Z, Gabius HJ (2006) Immunocyto- and histochemical profiling of nucleostemin expression: marker of epidermal stem cells? *Journal of dermatological science* **44**: 73-80

Becvar R, Stork J, Pesakova V, Stanova A, Hulejova H, Rysova L, Zatloukalova A, Zatloukal P, Jachymova M, Pourouva L (2005) Clinical correlations of potential activity markers in systemic sclerosis. *Annals of the New York Academy of Sciences* **1051**: 404-412

RNDr. Ruth Tachezy, Ph.D.

*Faculty of Sciences UK Prague, Department of Molecular Biology and Genetics and
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Research Program:

Tumor virology, molecular epidemiology of the virus, human papillomavirus infection markers with clinical significance in diagnosis and treatment of cancer. MiRNA in tumors associated with viruses. Immunoprofiling of patients with tumors associated with viruses.

Profile Publications:

Vojtechova Z, Sabol I, Salakova M, Turek L, Grega M, Smahelova J, Vencalek O, Lukesova E, Klozar J, **Tachezy R**. Analysis of the integration of human papillomaviruses in head and neck tumours in relation to patients' prognosis. *Int J Cancer*. 2016 Jan 15;138(2):386-95. doi: 10.1002/ijc.29712. Epub 2015 Aug 13.

Lukesova E, Boucek J, Rotnaglova E, Salakova M, Koslabova E, Grega M, Eckschlager T, Rihova B, Prochazka B, Klozar J, **Tachezy R** (2014) High level of Tregs is a positive prognostic marker in patients with HPV-positive oral and oropharyngeal squamous cell carcinomas. *BioMed research international* 2014: 303929

Koslabova E, Hamsikova E, Salakova M, Klozar J, Foltynova E, Salkova E, Rotnaglova E, Ludvikova V, **Tachezy R** (2013) Markers of HPV infection and survival in patients with head and neck tumors. *International journal of cancer Journal international du cancer* 133: 1832- 1839

Tachezy R, Smahelova J, Kaspirkova J, Salakova M (2013) Human papillomavirus type-specific prevalence in the cervical cancer screening population of Czech women. *PloS one* 8: e79156

Rotnaglova E, **Tachezy R**, Salakova M, Prochazka B, Kosl'abova E, Vesela E, Ludvikova V, Hamsikova E, Klozar J (2011) HPV involvement in tonsillar cancer: prognostic significance and clinically relevant markers. *International journal of cancer Journal international du cancer* 129: 101-110

Tachezy R, Smahelova J, Salakova M, Arbyn M, Rob L, Skapa P, Jirasek T, Hamsikova E (2011) Human papillomavirus genotype distribution in Czech women and men with diseases etiologically linked to HPV. *PloS one* 6: e21913

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Research Program:

Study of molecular mechanisms of nuclear processes involved in regulation of gene expression and nuclear architecture.

Profile Publications:

Slavotinek AM, Chao R, Vacik T, Yahyavi M, Abouzeid H, Bardakjian T, Schneider A, Shaw G, Sherr EH, Lemke G, Youssef M, Schorderet DF (2012) VAX1 mutation associated with microphthalmia, corpus callosum agenesis and orofacial clefting the first description of a VAX1 phenotype in humans *Hum Mutat* 33 (2):364-8.

Vacik T and Lemke G (2011) Dominant negative isoforms of Tcf/Lef proteins in development and disease. *Cell Cycle* 10(24):4199-200

Vacik T, Stubbs JL, Lemke G (2011) A novel mechanism for the transcriptional regulation of Wnt signaling in development. *Genes Dev* 25(17):1783-95

Machon O, Kreslova J, Ruzickova J, Vacik T, Klimova L, Fujimura N, Lachova J, Kozmik Z (2010) Lens morphogenesis is dependent on Pax6-mediated inhibition of the canonical Wnt/beta-catenin signaling in the lens surface ectoderm. *Genesis* 48(2):86-95

Machon O, Backman M, Machonova O, Kozmik Z, Vacik T, Andersen L, Krauss S (2007) A dynamic gradient of Wnt signaling controls initiation of neurogenesis in the mammalian cortex and cellular specification in the hippocampus *Dev Biol* 311(1):223-37

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Research Program:

Changes caused by acute and chronic hypoxia in the vascular system of the lung and placenta expressed by histochemical and immunohistochemical methods using morphometry with the image analyzer. The distribution and activity of mast cells in relation to the vascular bed, wall remodeling of pulmonary and placental vessels. Search for sources of reactive oxygen species in the lungs and placenta. Related changes of the extracellular matrix.

Profile Publications:

Novotný T, Krejčí J, Malíková J, Švehlík V, Wasserbauer R, Uhlík J, Vajner L (2015) Mast-cell stabilization with sodium cromoglycate modulates pulmonary vessel wall remodeling during 4-day hypoxia in rats. *Experimental Lung Research* **41**: 283–292.

Uhlík J, Šimůnková P, Žaloudíková M, Partlová S, Jarkovský J, Vajner L (2014) Airway wall remodeling in young and adult rats with experimentally provoked bronchial asthma. *International Archives of Allergy and Immunology* **164**: 289-300.

Filová E, Rampichová M, Litvinec A, Držík M, Míčková A, Buzgo M, Košťáková E, Martinová L, Usvald D, Prosecká E, Uhlík J, Motlík J, Vajner L, Amler E (2013) A cell-free nanofiber composite scaffold regenerated osteochondral defects in miniature pigs. *International Journal of Pharmaceutics* **447**: 139–149.

Hvizdošová-Kleščová A, Uhlík J, Malina M, Vulterinová H, Novotný T, Vajner L (2013) Remodeling of fetoplacental arteries in rats due to chronic hypoxia. *Experimental and Toxicologic Pathology* **65**: 97–103.

Wilhelm J, Ošťádalová I, Vytášek R, Vajner L (2011) Generation of hydrogen peroxide in the developing rat heart. The role of elastin metabolism. *Molecular and Cellular Biochemistry* **358**: 215-220.

Wilhelm J, Vytášek R, Ošťádalová I, Vajner L (2009) Evaluation of different methods detecting intracellular generation of free radicals. *Molecular and Cellular Biochemistry* **328**: 167-176.

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Research Program:

Pathology, nephropathology

Profile Publications:

Vernerova Z, Kramer HJ, Backer A, Cervenka L, Opocensky M, Huskova Z, Vanourkova Z, Eis V, Chabova VC, Tesar V, Maly J, Vaneckova I (2008) Late-onset endothelin receptor blockade in hypertensive heterozygous REN-2 transgenic rats. *Vascular pharmacology* **48**: 165-173

Filková M, Vernerová Z, Hulejová H, Prajzlerová K, Veigl D, Pavelka K, Vencovský J, Šenolt L (2015) Pro-inflammatory effects of interleukin-35 in rheumatoid arthritis. *Cytokine* **73**: 36-43.

Senolt L, Housa D, Vernerova Z, Jirasek T, Svobodova R, Veigl D, Anderlova K, Muller-Ladner U, Pavelka K, Haluzik M (2007) Resistin in rheumatoid arthritis synovial tissue, synovial fluid and serum. *Ann Rheum Dis* **66**: 458-463

Housa D, Housova J, Vernerova Z, Haluzik M (2006) Adipocytokines and cancer. *Physiological research / Academia Scientiarum Bohemoslovaca* **55**: 233-244

Opocensky M, Kramer HJ, Backer A, Vernerova Z, Eis V, Cervenka L, Certikova Chabova V, Tesar V, Vaneckova I (2006) Late-onset endothelin-A receptor blockade reduces podocyte injury in homozygous Ren-2 rats despite severe hypertension. *Hypertension* **48**: 965-971

Čertíková Chábová V, Vernerová Z, Kujal P, Husková Z, Škaroupková P, Tesar V, Kramer HJ, Kompanowska-Jeziarska E, Walkowska A, Sadowski J, Červenka L, Vaněčková I (2014) Addition of ET(A) receptor blockade increases renoprotection provided by renin-angiotensin system blockade in 5/6 nephrectomized Ren-2 transgenic rats. *Life Sci.* 118: 297-305.

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Research Program:

Cell behaviour *in vitro* by digital holographic and confocal microscopies. Quantitative phase contrast imaging and measurement for analysis of dynamics of cell reactions and interactions with biomaterials. Assessment of chemoresistance/sensitivity of *ex vivo* cells from individual human solid tumours. Development of complex methodology of application of coherence controlled holographic microscope to *in vitro* cell biology and pathology.

Profile Publications:

Rosel D, Brabek J, Vesely P, Fernandes M (2013) Drugs for solid cancer: the productivity crisis prompts a rethink. *OncoTargets and therapy* **6**: 767-777

Scobie L, Padler-Karavani V, Le Bas-Bernardet S, Crossan C, Blaha J, Matouskova M, Hector RD, Cozzi E, Vanhove B, Charreau B, Blancho G, Bourdais L, Tallacchini M, Ribes JM, Yu H, Chen X, Kracikova J, Broz L, Hejnar J, Vesely P, Takeuchi Y, Varki A, Soulillou JP (2013) Long-term IgG response to porcine Neu5Gc antigens without transmission of PERV in burn patients treated with porcine skin xenografts. *Journal of immunology* **191**: 2907-2915

Tolde O, Rosel D, Janostiak R, Vesely P, Brabek J (2012) Dynamics and morphology of focal adhesions in complex 3D environment. *Folia biologica* **58**: 177-184

Brabek J, Mierke CT, Rosel D, Vesely P, Fabry B (2010) The role of the tissue microenvironment in the regulation of cancer cell motility and invasion. *Cell Commun Signal* **8**: 22

Tolde O, Rosel D, Mierke CT, Pankova D, Folk P, Vesely P, Brabek J (2010) Neoplastic progression of the human breast cancer cell line G3S1 is associated with elevation of cytoskeletal dynamics and upregulation of MT1-MMP. *International journal of oncology* **36**: 833-839

Tolde O, Rosel D, Vesely P, Folk P, Brabek J (2010) The structure of invadopodia in a complex 3D environment. *Eur J Cell Biol* **89**: 674-680

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Research Program:

Colorectal cancer, selected problems of gastroenterology.

Profile Publications:

Seifert B, Zavoral M, Fric P, Bencko V (2008) The role of primary care in colorectal cancer screening: experience from Czech Republic. *Neoplasma* **55**: 74-80

Salek C, Benesova L, Zavoral M, Nosek V, Kasperova L, Ryska M, Strnad R, Traboulsi E, Minarik M (2007) Evaluation of clinical relevance of examining K-ras, p16 and p53 mutations along with allelic losses at 9p and 18q in EUS-guided fine needle aspiration samples of patients with chronic pancreatitis and pancreatic cancer. *World journal of gastroenterology: WJG* **13**: 3714-3720

Arber N, Eagle CJ, Spicak J, Racz I, Dite P, Hajer J, Zavoral M, Lechuga MJ, Gerletti P, Tang J, Rosenstein RB, Macdonald K, Bhadra P, Fowler R, Wittes J, Zauber AG, Solomon SD, Levin B, Pre SAPTI (2006) Celecoxib for the prevention of colorectal adenomatous polyps. *The New England journal of medicine* **355**: 885-895

Zavoral M, Zavada F, Salek C, Fric P (2006) Czech Society of Gastroenterology: Colorectal cancer screening in the Czech Republic. *Endoscopy* **38**: 550-551

Minarik M, Minarikova L, Hrabikova M, Minarikova P, Hrabal P, Zavoral M (2004) Application of cycling gradient capillary electrophoresis to detection of APC, K-ras, and DCC point mutations in patients with sporadic colorectal tumors. *Electrophoresis* **25**: 1016-1021

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Research Program:

Ultrastructural changes of the macroorganism cells and tissues when interacting with microorganism - natural and artificial – experimental infections of organisms using various methods of optical and electron microscopy.

Study of primary fluorescence of cells and tissues of different species of fungi and its changes under the effect of various external factors including changes in cell morphology using various methods of optical and electron microscopy.

Profile Publications:

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