Milan Reiniš
reinis@img.cas.cz

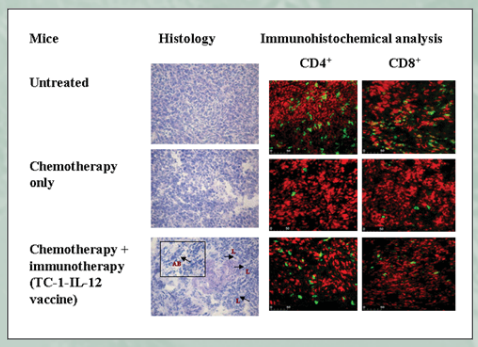
Laboratory of Tumour Immunology

Anti-tumour immunotherapy, immunoediting, immunoepigenetics

Milan Reiniš, PhD / Head of Laboratory
Jan Bubeník, Prof, MD, DSc / Research Scientist
Jana Šímová, PhD / Research Scientist
Marie Indrová, PhD / Research Scientist
Ivan Štěpánek / PhD Student
Jasper Manning Jr, MSc / PhD Student
Jana Bieblová / Research Assistant
Hana Přibylová / Research Assistant
Rodney Alexander Rosalia / Research Assistant
Marie Malečková / Technician
Renata Turečková / Technician
Simona Moravcová / Diploma Student
Romana Kalenská / Diploma Student
Jakub Novák / Diploma Student

Research topics

The long-term research programme of the Laboratory is focused on the mechanisms involved in induction, regulation and suppression of the anti-tumour immunity. The murine model for tumours associated with human papilloma virus (aetiologic agent of the cervical carcinoma) has been employed in most of our studies. Special attention has been paid to the clinically relevant setting of the minimal residual tumour disease treatment after primary tumour resection or chemotherapy. We have investigated mechanisms of immunosuppression in the course of the tumour growth, with the final goal to include the blockage of the negative signals into the immunotherapeutic schemes. We have also investigated the mechanisms of the anti-tumour immune responses against tumours mediated by MHC class I-restricted and unrestricted mechanisms, and immunologic cross-reactivity between tumours of the same aetiology but distinct MHC class I expression.
We have found that epigenetic agents induce expression of genes involved in antigen-processing machinery and surface expression of MHC class I molecules on the tumour cells, as well as selected co-stimulatory and co-inhibitory molecules.



Tumour-infiltrating leukocytes during TC-1/A9 tumour growth and chemo- and immunotherapy
In figures showing the immunohostochemical analysis, T helper ($CD4^+$) and cytotoxic T lymphocytes ($CD8^+$) are green while tumour cells are red.
Magnification: 400x or 630x

Current grant support

GA CR (GD310/05/H533, GA301/06/077, GA301/07/1410); GA AS CR (IAA500520605, IAA500520807); the European Clinical Gene Transfer Advisory Network (Clinigene, EC-NoE, FP6+7)

Selected recent papers

1. Reinis M, Simova J, Indrova M, Bieblova J, Bubenik J. CpG oligodeoxynucleotides are effective in therapy of minimal residual tumour disease after chemotherapy or surgery in a murine model of MHC class I-deficient, HPV16-associated tumours. **Int J Oncol.** 2007;30:1247-1251.
2. Reinis M, Simova J, Indrova M, Bieblova J, Pribylova H, Moravcova S, Jandlova T, Bubenik J. Immunization with MHC class I-negative but not -positive HPV16-associated tumour cells inhibits growth of MHC class I-negative tumours. **Int J Oncol.** 2007;30:1011-1017.
3. Manning J, Indrova M, Lubyova B, Pribylova H, Bieblova J, Hejnar J, Simova J, Jandlova T, Bubenik J, Reinis M. Induction of MHC class I molecule cell surface expression and epigenetic activation of antigen-processing machinery components in a murine model for human papilloma virus 16-associated tumours. **Immunology.** 2008;123:218-227.
4. Indrová M, Bieblová J, Bubeník J, Reinis M. IL-12 immunotherapy of minimal residual disease in murine models of HPV16-associated tumours: induction of immune responses, cytokine production and kinetics of immune cell subsets. **Int J Oncol.** 2008;32:499-507.
5. Bubenik J. Genetically modified cellular vaccines for therapy of human papilloma virus type 16 (HPV 16)-associated tumours. **Curr Cancer Drug Targets.** 2008;8:180-186.