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Participant 7: U.PRAGUE -Dr Ilona Hromadníková PhD, Scientist, Czech Transplant group, University Hospital, Prague

Dr Hromadníková is Head of the Cell Biology Laboratory, 2nd Paediatric Clinic, University Hospital, Motol, Prague and has 10 years experience in cell biology and immunology. She has established the skin explant model (4th Framework Demonstration Project 'predicting graft versus host disease in bone marrow transplants using *in vitro* techniques') and is the first to describe the use of the model for monitoring autoimmune disease (see Reference list). The Prague BMT Unit is currently involved in paediatric peripheral blood, bone marrow and cord blood transplants. **Current research**-Rheumatoid and juvenile idiopathic arthritis affect around 1% of the population and develop in genetically susceptible individuals under the influence of internal and external factors. Preliminary data (TRANSEUROPE project-not yet published) have showed significantly increased proliferation of peripheral blood mononuclear cells after stimulation with *M. bovis* hsp65, hsp65-derived peptide (amino acid sequence 180-188, known as T cell epitope inducing adjuvant arthritis in experimental animal models) and human recombinant Hsp70 in patients with JIA in comparison to healthy controls. The aim of TRANS-NET is to investigate if synovial cells derived from RA/JIA synovia express membrane-bound hsp 70 (similar to some human malignant cells as was described by Multhoff et al.) and compared to control synovia not affected with autoimmune disease. We aim to cleave recombinant human Hsp70 into fragments, identify which hsp-70 derived fragments give a positive reaction with patients' sera and sequence the Hsp70-derived peptide. These experiments may bring insight into the pathophysiology of JIA/RA with potential cross-reactivity to GvHD.

IDr Hromadníková **employs one experienced researcher** who will take part in the research in the Cell Biology Laboratory under the supervision of Dr. Hromadníková. The experienced researcher will be involved in Transfer of Knowledge activities and autoimmune disease educational seminars managed by Prof. Vavrinec, Head of 2nd Paediatric Clinic and Dr. Hromadníková, Head of Cell Biology Lab, which take place annually in the 2nd Medical faculty, Charles University Prague.

Network Team and percentage full time allotted to the project:

Dr Ilona Hromadníková, Dr., PhD. leads the research concerning the role of hsp in juvenile idiopathic arthritis pathogenesis;

Jan Vavrinec Prof. Head of 2nd Clinic of Paediatrics, 2nd Medical faculty, Charles University Prague;

Pavla Vavrinčova, Dr. PhD. Head of Outpatient Rheumatological department;

Karel Bezouska, Asoc. Prof. Assistant Professor, Department of Biochemistry, Faculty of Science, Charles University Prague, Head, Research Group "Molecular architecture of proteins";

Jiří Velek Ph.D. Head of Laboratory of Design and Synthesis of Biologically Active Peptides, Department of Protein Biochemistry, Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic

Relevant References:

- 1 Stechová K, Vavrinčova P, Chudoba D, Frantlova M, Reitzova H, Sosna A, Zimak J, Lednický L, Dickinson AM, Hromadníková I. In vitro autoreactivity against skin and synovial cells in patients with juvenile idiopathic and rheumatoid arthritis. **Pathobiology**. (2002-2003) 70(2):76-82.
- 2 Hanusova R, Tuckova L, Halada P, Bezouska K, Bilej M. Peptide fragments induce a more rapid immune response than intact proteins in earthworms. **Dev Comp Immunol**. (1999) 23(2):113-21.

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