



United Nations Educational, Scientific and Cultural Organization  
Organisation des Nations Unies pour l'Éducation, la Science et la Culture

**ICRO** INTERNATIONAL CELL RESEARCH ORGANIZATION  
ORGANISATION INTERNATIONALE DE RECHERCHE SUR LA CELLULE

**Modern Approach in Genome Analysis for  
Medical Application**  
**Practical & Lecture Course**

**Riga, Latvia**  
**June 5-18, 2005**

**Sponsors:** International Cell Research Organization (ICRO-UNESCO)  
Federation of European Biochemical Society (FEBS)  
Latvian Council Science  
Applied Biosystems

**Objectives:**

The human genome holds an extraordinary trove of information about human development, physiology, medicine and evolution. The scientific progress made during last decade opens wide opportunities to find new disease genes of unknown biochemical function. The aim of Training Course is to acquaint participants with a theoretical basis and experimental methods of genome research. The Course includes a series of lectures about biological, evolutionary, medical and analytical aspects of investigations made in this field. These theoretical aspects will be complemented by laboratory work during which students become familiar with methods based on capillary electrophoresis and used for a sequencing, microsatellite mapping, single nucleotide polymorphism detection. The workshop focused to analytical approaches in genome study is also planned.

**Organizing Committee:** E. Grens (Chairman), Z. Shomsteine, E. Jankevics, V. Baumanis

**Lectures:**

Applications of gene expression analysis to studies of cancer and differentiation.  
*Eytan Domany, Weizmann Institute of Science, Rehovot, Israel*

Comparative genomic analyses of the mycobacteria with special focus on evolution and virulence. *Roland Brosch, Institut Pasteur, Paris, France*

In search for alleles predisposing for common traits: should you use family or population samples? *Aarno Palotie, Finnish Genome Center, Helsinki, Finland*

Perspectives in Gene Therapy. *David Klatzman, University Pierre et Marie Curie, Paris, France*

Design of the HIV1 vaccine. *Mart Ustav, Institute of Molecular and Cell Biology, Tartu, Estonia*

The contribution made by UK cohort studies to elucidation of genetic and environmental factors in disease. *Alan Doyle, The Wellcome Trust, London, UK*

Genetic history of European populations. *Richard Villems, Estbiocenter, Tartu, Estonia*

Chemokine receptor CCR5: From gene polymorphism to shedding of the protein. *Alexander Tsimanis, ZetiQ Technologies, Rehovot, Israel*

Protein Engineering: virus-like particles as models. *Pauls Pumpens, Biomedical Research and Study Centre, Riga, Latvia*

Molecular genetics of causative agents of tick-borne diseases. *Viesturs Baumanis, Biomedical Research and Study Centre, Riga, Latvia*

Hepatitis B virus – from the genome to the vaccine and back. *Wolfram Gerlich, University of Giessen, Giessen, Germany*

Immunology of Vaccines. *Martin Bachmann, Cytos Biotechnology AG, Zurich, Switzerland*

### **Workshops:**

1. Real Time PCR technique and application, *Applied Biosystems Inc.*
2. Statistical and conceptual principles underlying study design for genetic epidemiology of complex traits. *Joseph D. Terwilliger, Columbia University, New York, USA*

Twenty students will be divided in four groups A, B, C, D and four practical works and one tutorial will be proceeded:

1. Genotyping using ABI Prism<sup>®</sup> 310 Genetic Analyser.
2. Single-Strand Conformation Polymorphism mutation analysis on the ABI Prism<sup>®</sup> 310 Genetic Analyser.
3. Phylogenetic analysis of human mitochondrial DNA.
4. 5' and 3' RNA Ligase Mediated Rapid Amplification of cDNA Ends.
5. DNA sequencing using ABI Prism<sup>®</sup> 3100 Genetic Analyser.

### **Participants:**

Graduated students, research fellows, PhD students.

Participants will be restricted to 20 students plus 30 lecture course only. A limited number of travel grants and accommodations will be available for the students unable to obtain grants from local sources.

### **Venue:**

Application should be sent to: Professor Elmars Grens  
Biomedical Research and Study Centre  
University of Latvia  
Ratsupites 1  
LV 1076 Riga, Latvia  
Telephone: 371-7808003  
E-mail address: [grens@biomed.lu.lv](mailto:grens@biomed.lu.lv)

Application submission deadline: *March 1, 2005*

The accepted applicants will be notified by: *April 15, 2005*