UNIVERSITATEA „ALEXANDRU IOAN CUZA“ din IAŞI

TRANSCEND

Institutul Regional de Oncologie Iasi IRO

2nd International Summer School: “PROTEOMICS – from Introduction to Clinical Applications”

Programme

Monday, 9th July 2018 — **Ferdinand Room /UAIC**

16:00 – 17.00	**Registrations at Al. I. Cuza University of Iasi**
17:00 – 18:00	**Welcome & Opening Addresses**
	Short presentation of lecturers *Alina Petre, UAIC / TRANSCEND – IRO, Iasi, RO*
	Opening lecture: A journey through 20+ years of proteomics *Christoph Borchers, University of Victoria, Genome British Columbia Proteomics Centre, CA*
18:00– 19:00	**Guided tour - “Hall of the Lost Footsteps” at "Al. I. Cuza" University of Iasi**
19.30	**Dinner at “Berăria veche” restaurant**

Tuesday, 10th July 2018 — **Ferdinand Room /UAIC**

09:00 – 09:15	**Reviewing the week ahead: program, experimental part and examination procedure** *Alina Petre, UAIC / TRANSCEND – IRO, Iasi, RO*
09:15 – 11:00	**5 minutes talks – getting to know the students/ junior researchers and their area of research** *Laura Ion, UAIC, Iasi, RO*
11:00 – 11:15	*Networking with coffee, soda and sweets*

Session 1:	**Introductory lectures in Proteomics and related methods** *Chair: Michael Przybylski*
11:15 – 11:45	**Higher order structure of multi-domain proteins** *Michael O. Glocker, Proteome Center Rostock, DE*
11:45 – 12:15	**Separation methods: electrophoresis and liquid chromatography** *Robert Gradinaru, UAIC, Iasi, RO*
12:30	*Lunch at Gaudeamus student restaurant*
14:00 – 15:00	**Introduction in mass spectrometry: ionization techniques & mass analyzers** *Stefan Slamnoiu, Bruker –Daltonics, Breman, DE*
15:00 – 15:30	**MS strategies *I* topdown and bottom up approaches** *Costel Darie, Clarkson University, Potsdam, NY, USA*
15:30 – 15:45	*Networking with coffee, soda and sweets*
15:45 – 16:15	**Fragmentation in MS and MS data interpretation** *Igor Popov, Moscow Institute of Physics and Technology, Moscow, RU*
16:15 – 16:45	**MALDI - Imaging methodology and biomedical applications** *Christoph Borchers, University of Victoria, Genome British Columbia Proteomics Centre, CA*
16:45 – 17:15	**Introduction to protein molecular simulations** *Andrei Neamtu, TRANSCEND – IRO, Iasi, RO*
17:15 – 17:30	**Day in review** *Alina Petre**,** UAIC / TRANSCEND – IRO, Iasi, RO*
17:30	*Individual program/ dinner on your own*

Wednesday, 11th July 2018 **Ferdinand Room /UAIC**

Session 2: **Mass Spectrometry: instrumental development and novel analytical concepts**
Chair: Radu Iliescu

09:00 – 09:15 **Methods for studying affinity interactions by mass spectrometry: approaches and examples**
Alina Petre, UAIC / TRANSCEND – IRO, Iasi, RO

09:15 – 09:45 **Protein epitope identification by SPR Biosensor – Mass Spectrometry: clinical application for enzyme replacement therapy of lysosomal storage diseases**
Michael Przybylski, Steinbeis Centre for Biopolymer Analysis, Rüsselsheim, DE

09:45 – 10:15 **Intact Transition Epitope Mapping – Thermodynamic Weak-force Observation (ITEM-TWO)**
Michael O. Glocker, Proteome Center Rostock, DE

10:15– 10:45 **Utilising size exclusion chromatography & optimised Q-Tof instrumentation for routine native mass spectrometry**
Matt Kennedy, Waters MS Technologies, Wilmslow, UK

10:45 – 11:00 *Networking with coffee, soda and sweets*

11:00 – 11.30 **TimsTOF Pro powered by PASEF – the new standard for shotgun proteomics**
Stefan Slamnoiu, Bruker –Daltonics, Breman, DE

11:30 – 12.00 **Tissue proteomics analysis in a rat model with Obstructive Sleep Apnea and matched controls**
Costel Darie, Clarkson University, Potsdam, NY, USA

12:15 *Lunch at Gaudeamus student restaurant*

Session 3:	**Biomedical applications of Mass Spectrometry** Chair: Michael O. Glocker
14:00 – 14:30	**Orbitrap mass spectrometry applications in molecular biology** *Cristian Munteanu, Institute of Biochemistry of the Romanian Academy, Bucharest, RO*
14:30 – 15:00	**The diversity of amyloid-beta peptides revealed by high resolution mass spectrometry – on the way for early recognition of Alzheimer's disease.** *Alexey Kononikhin, V.L. Talrose Institute for Energy Problems of Chemical Physics RAS, Moscow, RU*
15:00 – 15:30	**Proteomic identification of potential biomarkers in pancreatic diseases** *Cristina Adela Iuga, University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj-Napoca, RO*
15:30 – 16:00	*Networking with coffee, soda and sweets*
16:00	**Guided Sightseeing Tour**
19:30	**Dinner – get together at Bistro Felix**

Thursday, 12th July 2018	**Ferdinand Room / UAIC**
Session 4:	**New bioanalytical approaches to elucidate biomedical problems** *Chair: Cristina Adela Iuga*
09:30 – 09:50	**Instrumental techniques from Malvern Panalytical: Study of proteins and nano-particles** Cristian Macovei, Ronexprim, Bucharest, RO
09:50 – 10:10	**Cell-penetrating peptides: from design to medical applications** *Dana Copolovici, "Aurel Vlaicu" University of Arad, RO*
10:10 – 10:30	**IUGR risk prediction by LC-MRM/MS analysis of serum proteins from pregnant women** *Charles A. Okai, Proteome Center Rostock, DE*

10:30 – 11:15	**Past and present of high throughput RNA-binding proteome study** *Eneko Villanueva Verdejo, University of Cambridge, UK*
11:15 – 11:30	*Networking with coffee, soda and sweets*
11:30 – 11:45	**Application of MALDI-TOF/TOF-MS for relative quantitation of α- and β-Asp7 isoforms of amyloid-β peptide** *Daniil Ivanov, Moscow Institute of Physics and Technology, Moscow, RU*
11:45 – 12:00	**Enzyme activity determination of lysosomal storage disorders by novel analytic approaches** *Laura Ion, Faculty of Chemistry, UAIC, RO*
12:00 – 12:15	**Effect of legacy chemicals on the Great Lakes ecosystem: a proteomic approach** *Emmalyn Dupree, Clarkson University, Potsdam, NY, USA*
12:30	*Lunch at Gaudeamus student restaurant*
Session 5:	**Statistical analysis and bioinformatic tools in proteomics** *Chair: Andrei Neamtu*
14:00 – 14:20	**Introduction to biological interpretation of MS data** *Eneko Villanueva Verdejo, University of Cambridge, UK*
14:20 – 14:45	**Different strategies and proteomic tools for high throughput LC-MS/MS data analysis** *Maria Indeykina, Emanuel Institute for Biochemical Physics RAS, Moscow, RU*
14:45 – 15:00	*Networking with coffee, soda and sweets*
15:00 – 16:30	*Examination / Discussion, questions and exercises solving with lecturers*
16:30	*Individual program/ dinner on your own*

Friday, 13th July 2018 **TRANSCEND Centre**

Practical part – work plan

08:45 Meeting point at TRANSCEND str. General Henry Mathias Berthlot nr. 2-4, Iasi

No.	Time	Molecular Biology	Proteomics	Cell culture	Flow cytometry
Team 1	09:00 – 10:30				
Team 2	09:00 – 10:30				
Team 3	09:00 – 10:30				
Team 4	09:00 – 10:30				
15 minute short refreshment break and exchange laboratory					
Team 1	10:45 – 12:15				
Team 2	10:45 – 12:15				
Team 3	10:45 – 12:15				
Team 4	10:45 – 12:15				
12:30 Lunch at Gaudeamus student restaurant					
Team 1	13:30 – 15:00				
Team 2	13:30 – 15:00				
Team 3	13:30 – 15:00				
Team 4	13:30 – 15:00				
15 minute short refreshment break and exchange laboratory					
Team 1	15:15 – 16:45				
Team 2	15:15 – 16:45				
Team 3	15:15 – 16:45				
Team 4	15:15 – 16:45				
Closing remarks					

Proteomics laboratory will provide demonstration of:

I. Affinity – mass spectrometric approach for studying antigen -antibody interaction;

II. MALDI - Imaging experimental work flow;

Trainers: ***Dr. A. Petre, Dr. A. Neamtu and Dr. R. Iliescu***

Molecular Biology - the functioning principle of molecular biology techniques

I. Work flow and interpretation of Sanger sequencing data

II. CGH microarray work flow and data interpretation

Trainer: ***Dr. Iuliu Ivanov***

Cell culture laboratory will provide demonstration of:

I. 2D cell culture (handling procedure, preparation for future analysis)

II. SDS-PAGE and Western blot technique (sample preparation and migration, wet protein transfer, antibodies, chemiluminescent detection)

Trainer: ***Dr. Mihaela Mentel***

Flow cytometry laboratory will provide demonstration of:

I. Work flow of cell suspension samples in a patient diagnostic setup;

II. Immune phenotype data analysis;

Trainer: ***Dr Mihaela Zlei and Florin Zugun***