

12th Molecular, Cell and Immune Biology Winter Symposium



*organized by the
Molecular, Cell and Immune Biology Doctoral School,
University of Debrecen*

Debrecen, 10-11 January, 2019
Venue: Theoretical Building

12th Molecular, Cell and Immune Biology Winter Symposium

Programme:

January 10

9:00-9:15 **Opening**
József Tózsér

9:15-9:40 Istvan Szatmari:
Checkpoint inhibitor based cancer immunotherapy (2018 Nobel Prize in Physiology or Medicine)

9:40-11:00 **Section 1** **Chair: Zsolt Sarang**

Introductory lecture

9:40-10:00 János András Mótyán:
Development and applications of a recombinant protein substrate-based assay system

Regular talks

10:00-10:15 Zsófia Szojka:
Role of HIV-2 Vpx in HIV dual infection

10:15-10:30 Mórió Miczi:
Interaction of HIV and HTLV proteases with nucleic acids

10:30-10:45 Ádám Csőke:
Investigation of binding properties and kinetics of deamidated gliadin peptide (DGP)- specific antibodies of celiac disease patients

10:45-11:00 Zsuzsa Szabó:
In vitro characterisation of human transglutaminase 4 activity and biological stability

11:00-11:30 **Break**

11:30-12:55 **Section 2** **Chair: András Szabó**

Introductory lectures

11:30-11:50 Endre Kristóf:
Functional characterization and gene expression patterns of ex vivo differentiated, Irisin and BMP7-treated human adipocytes from the neck

11:50-12:10 Mária Szatmári-Tóth:
Thermogenic stimulus represses mitophagy in human primary beige adipocytes

Regular talks

- 12:10-12:25 Abhirup Shaw:
Role of autophagy/mitophagy in primary human white and browning adipocytes upon cAMP stimulus
- 12:25-12:40 Rini Arianti:
Identification of unique molecular signature of browning in human primary adipocytes from deep and subcutaneous neck fat
- 12:40-12:55 Csaba Bankó:
A new possibility from an Acridine derived world. Phototoxicity is in focus. diMICAAC as a new hazard in live cell imaging or could be an innovative anticancer agent

12:55-13:45 Break

13:45-15:30 Section 3

Chair: Endre Kristóf

Regular talks

- 13:45-14:00 Károly Jambrovics:
Role of transglutaminase 2 (TG2) in the differentiation and apoptotic processes of all-trans retinoic acid (ATRA) and arsenic trioxide (ATO) treated NB4 leukaemic cell lines
- 14:00-14:15 Tamas Molnar:
The role of caspase-9 in necroptosis
- 14:15-14:30 Varga Zsófia:
The supernatant of immature dendritic cells mediates RIP1-dependent apoptosis
- 14:30-14:45 Edina Erdős:
COUP-TFII-driven super-enhancers with chromatin interaction hubs are associated with copy number amplification in breast cancer
- 14:45-15:00 Dóra Bojcsuk:
Alternative super-enhancers result in similar gene expression in different cancer cell lines
- 15:00-15:15 Patrícia Kálmán:
In vitro investigation of rexinoid-based drug combinations for breast cancer prevention
- 15:15-15:30 Sham Jdeed:
The linkage of lipid metabolism and genomic stability to breast cancer chemoprevention by rexinoid- based drug combination

15:30-16:00 Break

16:00-17:45 Section 4

Chair: Mohamed Mahdi

Regular talks

- 16:00-16:15 Erik Czipa:
ChIPSummitDB: A comprehensive database of human transcription factor binding sites and the topological arrangements of transcription factor complexes on the DNA
- 16:15-16:30 Nikolas Giannakis:
Dynamic lipid mediator changes support macrophage subtype transitions during muscle injury and regeneration
- 16:30-16:45 Andrea Tóth:
Hypoxia triggers osteochondrogenic differentiation of vascular smooth muscle cells in HIF-1 and ROS dependent manner
- 16:45-17:00 Zsófia Budai:
The potential role of TG2 in skeletal muscle regeneration
- 17:00-17:15 Nour Al Zaeed:
Role of A2B receptor in muscle regeneration
- 17:15-17:30 Kinga Lénárt:
Beige cells of tissue transglutaminase knock-out mice possess attenuated response to adrenergic agonists
- 17:30-17:45 Vanda Toldi:
Misfolding of pancreatic lipase (PNLIP) mutants leads to endoplasmic reticulum stress and pancreatitis

January 11

9:00-10:35 Section 5

Chair: Kitti Pázmándi

Introductory lecture

- 9:00-9:20 Zsolt Czimmerer:
Prior IL-4 exposure induces chromatin remodeling and the rearrangement of LPS-activated p65 cistrome, leading to synergistic transcriptional activation of a specific gene set in macrophages

Regular talks

- 9:20-9:35 Máté Sütő:
Oxidized products generated by 8-oxoguanine DNA glycosylase 1-dependent base excision repair processes contribute to dendritic cell activation
- 9:35-9:50 Judit Erdei:
Induction of NLRP3 inflammasome activation by heme in human endothelial cells

9:50-10:05 Bogonko Benard Nyakundi:
Oxidized hemoglobin forms contribute to NLRP3 inflammasome-driven IL-1 β production upon intravascular hemolysis

10:05-10:20 Tibor Saghy:
Loss of transglutaminase 2 sensitizes for the development of inflammation, insulin resistance and hepatosteatosis in mice kept on high fat diet

10:20-10:35 Eva Fige:
Macrophage heme oxygenase-1 in the clearance of apoptotic cells

10:35-11:00 Break

11:00-12:05 Section 6

Chair: Janos Motyan

Introductory lecture

11:00-11:20 Gergely Nagy:
Dissecting PPREs in alternatively polarized macrophages and adipocytes

Regular talks

11:20-11:35 Attila Horvath:
Identification of transcription factor hierarchies that cooperate with PU.1 in establishing labelled enhancers controlling activation of classical and alternative macrophage polarization.

11:35-11:50 Lilla Ozgyin:
Extensive epigenetic and transcriptomic variability between genetically identical human B-lymphoblastoid cells with implications in pharmacogenomics research

11:50-12:05 Torny Ilona:
Comprehensive analysis of signal peptide prediction algorithms

12:05-13:00 Break

13:00-14:35 Section 7

Chair: Katalin Goda

Introductory lecture

13:00-13:25 Lorant Szekvolgyi:
Genome structure: a thoroughly modern view

Regular talks

13:25-13:50 Petros Tzerpos:
Chromatin state dynamics and gene regulation in macrophages during inflammatory response

- 13:50-14:05 Erfaneh Firouzi Niaki:
Effect of DNA targeted drugs on DNA topology
- 14:05-14:20 Rosevalentine Bosire:
Accessibility of DNA in native chromatin to intercalators
- 14:20-14:35 Beáta Boros-Oláh:
Examination of R-loops and chromatin loops with chromatin conformation capture techniques

14:35-15:30 Section 8 (Poster Viewing Session)

Chair: András Mádi

Orsolya Bába: Quantitative analysis of amino acids in tear samples from patients with glaucoma and diabetic retinopathy

Dóra Bencze: Human plasmacytoid and monocyte-derived dendritic cells display distinct metabolic profile upon RIG-1 activation

Nikolett Bertók: Quantitative analysis of tear proteins from patients with diabetic retinopathy with different mass spectrometry-based methods

Dóra Csige: Epitope Mapping of Mouse Monoclonal 885 Antibody on Transglutaminase 2 Enzyme

Noura Faraj: Characterization of individual components of ER α -driven super-enhancers in MCF-7 cells

Hajnalka Emese Halász: Histone acetylation affects monocyte-derived dendritic cell properties

Szilvia Horváth: An attempt to improve anti-transglutaminase 2 autoantibodies measuring kits for the precise prediction of coeliac disease

Zsuzsanna Kolostyak: Transcriptomic analysis of Egr2 transcription factor deficient mouse alveolar macrophages

Kinga Lénárt: Detection of metabolic parameters reveals increased sensitivity of tissue transglutaminase knock-out mice to the α 1-adrenergic agonist phenylephrine

Hung Mai: Immunogenic dendritic cell differentiation from embryonic stem cells with Ikzf1

Vivien Sánta: Enhanced LPS responsiveness of Ccl2, Ccl17, Edn1 and Il12a genes in alternatively polarized murine macrophages

László Sós: Investigation of decreased phagocytic function in mouse macrophages following sodium-palmitate treatment

Beatrix Tolvaj: Characterisation of exogenous transglutaminase 4 expression in AD-293 and PC-3 cells

Introductory lectures

- 15:30-15:50 Péter Brázda:
Single-cell transcriptomic profiling in primary samples (a methodological overview of CEL-seq2/SORT-seq)
- 15:50-16:10 Gergő Kalló:
New techniques and applications in the Proteomics Core Facility - opportunities offered by the high resolution Orbitrap Fusion mass spectrometry and Transcend II TLX-1 Turboflow systems

Regular talks

- 16:10-16:25 Gabriella Gellén:
Cholesterol-dependent epitope mapping in P-glycoprotein with mass spectrometry
- 16:25-16:40 Éva Márton:
Circulating miRNAs are promising candidate biomarkers in epithelial ovarian cancer
- 16:40-16:55 László Madar:
Application of next generation sequencing in the diagnosis of Marfan syndrome in a large Hungarian cohort
- 16:55-17:10 Gyula Hoffka:
Conformational heterogeneity propels enzyme evolution
- 17:10-17:25 Zsuzsanna Gyöngy:
Elucidation of the conformational changes of ABCG2 in permeabilized cells
- 17:25-17:40 Kuljeet Singh:
The Effect of Sour Cherry Flavonoids and Anthocyanins on Pgp activity

17:40 Concluding remarks

József Tózsér (Chair)
László Fésüs
Gábor Szabó
Szilvia Benkő
Sándor Bíró
Mónika Fuxreiter
László Nagy
Bálint Nagy
Zsuzsa Szondy