ZeNCure

Abstract Book

BeCELS 2025: Belgrade Conference for Early-Career Life Scientists

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Institute of Molecular Genetics and Genetic Engineering, University of Belgrade

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	Morning Session Program
08:15 – 09:15	***Registration & coffee***
09:15 – 09:30	**Welcome Address: ZeNCure - Building Excellence in Zebrafish Research** **Dr. Aleksandra Divac Rankov**, ZeNCure PI, IMGGE, University of Belgrade, SRB
09:30 – 10:15	**After the PhD: Building Careers, Collaborations, and EU Projects** **Dr. Erna Karalija**, Faculty of Science and Mathematics, University of Sarajevo, BIH
10:15 – 10:45	**My Erasmus Experience in Sweden** **Sofija Dunjić Manevski**, IMGGE, University of Belgrade, SRB
10:45 – 11:00	***Coffee break***
11:00 – 11:25	**Selected talks – Immunity, Inflammation and Oxidative Stress**
	Agmatine modulates metabolism and redox status in Lps-stimulated BV-2 microglia **Katarina Tešović**, IBISS, University of Belgrade, SRB
	Short-term exposure to perfluorooctanoic acid induces oxidative stress and necrotic cell death in human HepG2 hepatocytes **Katarina Borković**, Faculty of Sciences, University of Novi Sad, SRB
11:25 – 11:50	**Selected talks – Disease Models and Developmental Biology**
	Mapping gene expression in developing zebrafish embryo using spatial transcriptomics **Nevena Vezmar**, IMGGE, University of Belgrade, SRB
	Generation of cardiomyocyte-specific ANKRD1 overexpression zebrafish models to investigate pathogenic variants in cardiomyopathy **Anđela Milićević**, IMGGE, University of Belgrade, SRB
11:50 – 12:00	**Selected talks – Environmental Biology and Toxicology**
	Quantification of volatile fatty acids to safeguard reclaimed water quality **Filip Živković**, Vinča Institute of Nuclear Sciences, University of Belgrade, SRB

	Afternoon Session Program
12:00 – 12:45	**Life After PhD: Postdoc Insights** **Dr. Jelena Grahovac**, Institute for Oncology and Radiology of Serbia, SRB
12:45 – 13:45	***Lunch***
13:45 – 14:30	**How to communicate your research clearly and confidently** **Tamara Čolić Milosavljević**, Research Support Officer, University of Belgrade, SRB
14:30 – 15:00	**Selected talks – Microbial Interactions and Natural Products**
	Hydrogen cyanide-producing Pseudomonas endophytes enhance disease suppression and defence responses in pepper **Aleksandra Mesaroš**, Faculty of Biology, University of Belgrade, SRB
	Investigation of novel clusters of bacterial head-to-tail cyclized peptides from the Bacillus pumilus genome **Emilija Đukanović**, Faculty of Technology and Metallurgy, University of Belgrade, SRB
15:00-15:30	**Selected talks – Cancer Research and Therapeutic Innovation**
	An angiogenesis-independent mechanism of action for anti-VEGFA therapies **Cátia Alexandra Rebelo de Almeida**, Champalimaud Foundation, PRT
	A simple alginate-based 3D in vitro model for preclinical anticancer drug evaluation **Jelena Petrović**, Faculty of Technology and Metallurgy, University of Belgrade, SRB
	Development and characterization of a temozolomide-resistant human glioblastoma cell line **Milica Pajović**, IBISS, University of Belgrade, SRB
15:30-16:30	***Coffee break & Poster session***
16:30 – 17:00	**COST Actions – Opportunities for Networking and Training** **Dr. Jovana Despotović**, IMGGE, University of Belgrade, SRB
17:00 – 18:30	**Open Discussion and Networking**
20:00 – 24:00	***Complimentary dinner***

Contents

Correlation between the expression of proinflammatory cytokine genes and immunomodulatory microRNAs miR-27a, miR-222 and miR-340 in peripheral blood mononuclear cells of women with gestational diabetes

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Abstract

Continuous low-level inflammation (IFM) is a major contributory factor to development of severe pregnancy complications associated with gestational diabetes mellitus (GDM). Presence of IFM throughout the hyperglycemic pregnancy associates with disturbances in microRNA-related mechanisms, while inflammatory pathway-related genes are known targets of microRNAs dysregulated in GDM. Our aim was to evaluate the correlation between the expression of GDM-related microRNAs (miR-27a, miR-222 and miR-340) and mRNA encoding proinflammatory cytokines IL-1β, IL-8, TNFα and IL6 in peripheral blood mononuclear cells (PBMCs) from women with GDM and healthy controls. PBMCs were isolated from blood samples during pregnancy weeks 24-30 (n=50 per group). Relative quantification of relevant microRNAs and mRNAs was conducted by quantitative real-time PCR, while Pearson correlation test was used for statistical evaluation of the obtained results. The expression of all three selected microRNAs showed negative correlation with the level of *IL-8* and *TNFα* mRNA in PBMCs of GDM patients (negative *r* ranging 0.318–0.375), while such findings lacked for the control group. Additionally, miR-340 demonstrated correlation with the expression of *IL-1β* (r=-0.333). None of the microRNAs correlated with the expression of *IL-6*, which was the only mRNA with a statistically significant upregulation in GDM, compared to controls. The presented results illustrate the relation between the dysregulation of GDM-associated microRNAs and the expression of immune system modulators in GDM. The direction of correlation was negative and in accordance with the hypothesised regulatory mechanisms. Additional findings on circulatory levels of proinflammatory cytokines are required for further interpretation of IFM-related properties of selected microRNAs.

Keywords: IL-1β, IL-8, IL-6, TNFα, miRNA

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