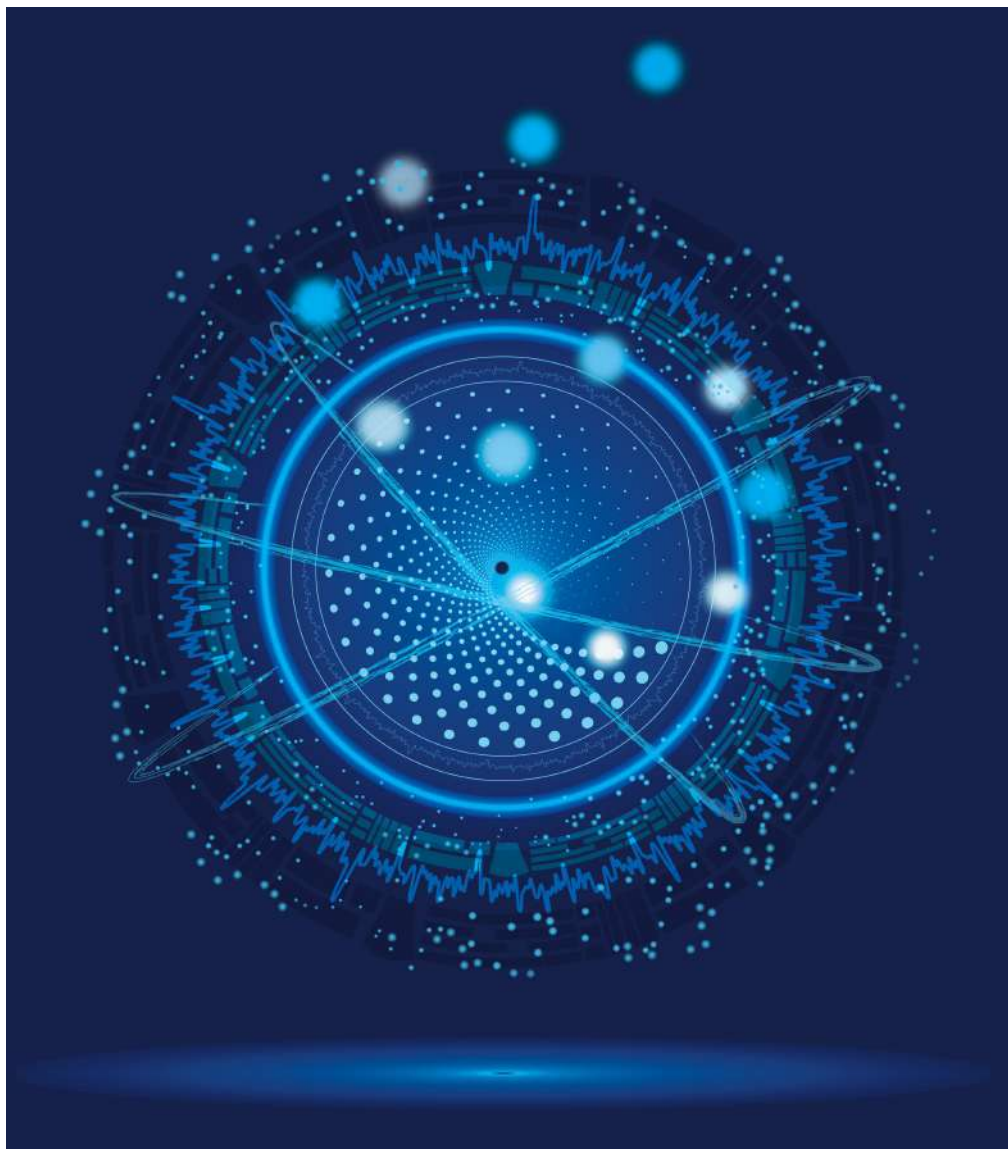


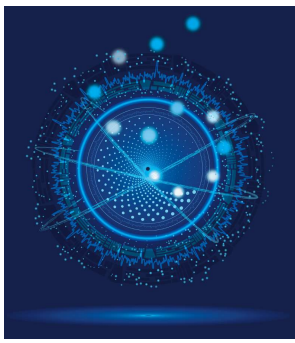
# Small New World 2.0

4-5 September 2023

## Abstract Book



Medical University Graz, Austria



# Small New World 2.0

4-5 September 2023., Graz, Austria

Joint Meeting of



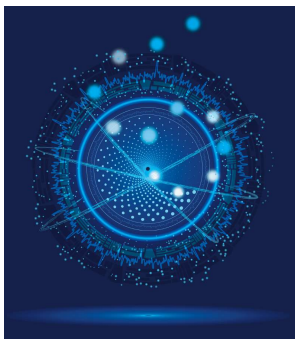
Austrian Society for Extracellular Vesicles - ASEV  
Hungarian Section for Extracellular Vesicles - HSEV  
Slovenian Network for Extracellular Vesicles - SiN-EV  
Serbian Society Extracellular Vesicles - SrbEVs

## Organizing committee:

Beate Rinner, ASEV  
Wolf Holnthoner, ASEV  
Edit Buzas, HSEV  
Metka Lenassi, SiN-EV  
Maja Kosanović, SrbEVs

## Scientific committee:

**Beate Rinner**, Medical University Graz, Austria;  
**Wolf Holnthoner**, Ludwig Boltzmann Institute for Traumatology, Austria;  
**Edit Buzas**, Semmelweis University, Hungary;  
**Metka Lenassi**, Faculty of Medicine, University of Ljubljana, Slovenia;  
**Maja Kosanović**, Institute for the Application of Nuclear Energy, INEP, Serbia;  
**Zoltan Giricz**, Semmelweis University, Hungary;  
**Bernd Giebel**, Institute for Transfusion Medicine, University Hospital Essen, Germany



# Small New World 2.0

4-5 September 2023., Graz, Austria

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# PROGRAM

## for Monday, 4th September 2023

8:30 - 10:00	Registration and poster placement												
10:00-10:15	Welcome note from the Presidents of ASEV, HSEV, SiN-EV, SrbEV Welcome note from the local organizers & organizational introduction												
10:15-12:00	<b>EV therapeutics - regenerative medicine and beyond</b> Chairs: Wolf Holnthoner (Austria) + Zala Jan (Slovenia)												
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12:00-13:30      Lunch break / General assembly of ASEV													
13:30-15:00	<b>Methodology advances in EV analysis</b> Chairs: Beate Rinner (Austria) + Sofija Glamočlija (Serbia)												
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15:00-15:30      Coffee break													

# PROGRAM

## for Monday, 4th September 2023

15:30-16:40	<b>News from industry and development - "Rising projects"</b> Chairs: Dirk Strunk (Austria) + Pia Siljander (Finland)	
	<b>Clemens Helmbrecht</b> ParticleMetrix	NTA goes colocalization: Characterization of Multi-labelled bionanoparticles
	<b>Mehdi Madi and Quentin Lubart</b> Abbelight	Quantitative analysis of single EV and their subpopulations with super-resolution solutions
	<b>Core Facilities MedUni Graz</b>	EV technologies at the MedUni Graz
	<b>BioTechMed consortium "iNterAcD+"</b>	Extracellular vesicle in exercise: sporty messengers in interorgan communication
	<b>Christian Wadsack and Michaela Klaczynski</b>	Fetal immune priming by placenta-derived small extracellular vesicles
	<b>Beate Rinner and Mariangela Garofalo</b>	Patient-derived tumor models, EVs and oncolytic viruses
16:40-16:45	Short break	
16:45-17:30	Special guest lecture: Translation of EV into the clinics - Eva Rohde (Austria)	
17:30-23:00	Poster party and Social evening	

# PROGRAM

## for Tuesday, 5th September 2023

09:00–10:45	<b>EV numbers and cargo</b> Chairs: Maja Kosanović (Serbia) and Nicole Maeding (Austria)	
	<b>Keynote:</b> <b>Paolo Bergese</b> (Italy)	Extracellular vesicles by the numbers
	<b>Hargita Hegyesi</b>	Cardioprotective role of extracellular vesicle-mediated mir-sponge transfer
	<b>Christa Noehammer</b>	Small RNA biomarker profiling from extracellular vesicles in immune-mediated inflammatory diseases
	<b>Tasvilla Sonallya</b>	Systematic investigation and classification of membrane active peptides based on their affinity for interaction with extracellular vesicles
	<b>Ilona Barbara Csordás</b>	Extracellular Vesicles (EVs) miRNA-cargo loading and alterations after ionizing radiation induced cellular stress
	<b>Marija Holcar</b>	Characterization and Interindividual Variability of Plasma Extracellular Vesicles in Healthy Adults
10:45–11:30	Coffee break	
11:30–12:30	<b>NETWORK SESSION + MOVE</b> Chairs: Beate Rinner and Wolf Holnthoner	
	<b>Wolf Holnthoner</b>	ASEV - Austrian Society for Extracellular Vesicles
	<b>Edit Buzas/Zoltan Giricz</b>	HSEV - Hungarian Society for Extracellular Vesicles
	<b>Metka Lenassi</b>	SiN-EV - Slovenian Network for Extracellular Vesicles
	<b>Maja Kosanović</b>	SrbEVs - Serbian Society for Extracellular Vesicles
	<b>Johannes Oesterreicher</b>	MOVE news from Finland
	<b>Martin Wolf</b>	MOVE news from Sweden
12:30–13:30	Lunch break	

# PROGRAM

## for Tuesday, 5th September 2023

13:30-15:00	<b>Diversity of EV sources</b> Chairs: Edit Buzas (Hungary) + Djenana Vejzovic (Austria)	
	<b>Keynote:</b> <b>Pieter Vader</b> (The Netherlands)	Extracellular vesicle-mediated RNA delivery: from mechanistic insights towards therapeutic applications
	<b>Astrid Laimer-Digruber</b>	Unraveling the pathogenic and pro-inflammatory potential of extracellular vesicles secreted by <i>Bacillus cereus</i>
	<b>Vendula Pospíchalová</b>	Proteomic analysis of ascitic extracellular vesicles describes tumor microenvironment and predicts patient survival in ovarian cancer
	<b>Kaja Ujčič</b>	Effects of placental extracellular vesicles on maternal hematopoiesis
	<b>Veronika Kralj-Iglič</b>	Mechanisms of formation of extracellular particles in diverse samples from human, animal, plant and microalgae
15:00-15:30	<b>Coffee break</b>	
15:30-17:00	<b>Purity meets function</b> Chairs: Metka Lenassi (Slovenia) + Krisztina Nemeth (Hungary)	
	<b>Keynote:</b> <b>Saara Laitinen</b> (Finland)	To EV, or not to EV: that is the question
	<b>Martin Wolf</b>	Functional implications of protein EV corona
	<b>Johannes Grillari</b>	EV therapeutics - regenerative medicine and beyond
	<b>Maria Cavinato</b>	Alternative mechanisms of mitochondria quality control elicited by EVs in skin aging and disease
	<b>Irma Schabussova</b>	Outer membrane vesicles of the probiotic <i>E. coli</i> O83 activate innate immunity and prevent allergic airway inflammation in mice
17:00-17:15	<b>Awards: Best poster &amp; Best oral presentation</b> <b>Farewell notes</b>	
18:00	<b>City tour Graz</b>	



Dear friends and colleagues, working on these tiny bubbles which we call „EVs“,

Last autumn I was – as usually on Sundays – cycling along the Danube in Vienna. While riding my bike many thoughts came into my mind: I recently visited Edit Buzas in Budapest, I was invited by Metka Lenassi for a talk at the annual meeting of the Slovenian Network for Extracellular Vesicles, and I got acquainted and befriended with Maja Kosanović. Consequently I thought it would be a really nice idea to organize a joint annual meeting, bringing our communities from Austria, Hungary, Slovenia and Serbia together. So I asked the board members of the Austrian Society for Extracellular Vesicles, and of course Edit, Metka and Maja, and I was absolutely thrilled that everybody agreed enthusiastically.

So, here we are!

Extracellular Vesicles gained tremendous scientific interest in the last decade. From the basic understanding of the biology, the recent technological advances in the purification and characterization of EVs, straight to the application in diagnostic and therapeutic areas: Here at the Medical University in Graz we come together in the SmallNewWorld2.0 to exchange (and ignite) our thoughts on all these aspects of EVs.

This congress is the continuation of SmallNewWorld 2022, when our colleagues from Salzburg/Austria organized the recent annual meeting together with our sister society from Germany (GSEV). I am really thankful for their great experience, which helped us organizers in all the necessary steps to prepare our joint meeting in 2023 in Graz.

The modern facilities at the Medical University of Graz will for sure be the perfect surrounding and sparkle exchange of the EV research of our communities in Austria, Hungary, Slovenia, Serbia and participants from over 15 countries. Especially young scientists are encouraged to get in contact with experienced researchers and of course with our international keynote speakers. I cordially invite you all to learn from each other.

Together we will not only have fun and learn to know all of us better on a personal level, but also extend our knowledge of these fascinating tiny bubbles.

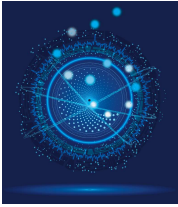
On behalf of the organizing committee I heartily welcome you here in Graz, and I wish us all an inspiring great time!

A handwritten signature in blue ink, appearing to read 'Wolf Holnthoner'.

Wolf Holnthoner

President of the Austrian Society for Extracellular Vesicles (ASEV)





## Extracellular vesicles from blood plasma as mediators of anti-inflammatory effects, oxidative stress and angiogenesis in HUVEC

Zala Jan<sup>1</sup>; Romolo Anna<sup>1</sup>; Arko Matevž<sup>1</sup>; Spasovski Vesna<sup>1,2</sup>; Igljč Aleš<sup>3,4</sup>; Drobne Damjana<sup>5</sup>; Kralj-Igljč Veronika<sup>1</sup>

<sup>1</sup>University of Ljubljana, Faculty of Health Sciences, Laboratory of Clinical Biophysics, Ljubljana, Slovenia; <sup>2</sup>Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Belgrade, Serbia; <sup>3</sup>University of Ljubljana, Faculty of Electrical Engineering, Laboratory of Physics; <sup>4</sup>Faculty of Medicine, Laboratory of Clinical Biophysics, Ljubljana, Slovenia; <sup>5</sup>University of Ljubljana, Biotechnical Faculty, Research Group for Nanobiology and Nanotoxicology, Ljubljana, Slovenia

**Introduction:** Blood plasma is used in regenerative medicine for more than 30 years as it was found to have impact on angiogenesis and proliferation of endothelial cells. This effect was initially ascribed to growth factors and cytokines, however, particularly in the last decade researchers are focusing on platelet-derived extracellular vesicles (PEVs) that are also present in the platelet rich plasma.

**Methods:** We prepared platelet and extracellular vesicles-rich plasma (PVRP) by centrifugation of the human blood, and differential (ultra) centrifugation of PVRP to isolate PEVs. We exposed Human Umbilical Vein Endothelial Cells (HUVEC) to 5% PEVs for 24 hours and assessed inflammation markers (Interleukin(IL)-1beta, IL-6 and Tumor necrosis factor (TNF)-alpha using ELISA tests), oxidative stress markers (Cholinesterase (ChE) and glutathione S-transferase (GST) activity by spectrophotometry, as well reactive oxygen species (ROS) and lipid droplets (LD) by flow cytometry). We observed morphological changes in HUVEC indicating angiogenesis by using optical microscopy.

**Results:** We found that after 24 hours caused a decrease of the concentration of IL-6, IL-1beta and TNF-alpha. Also, ChE and GST activity and ROS count were decreased. LD production, which is triggered in need to protect the cells from free radicals and oxidative stress damage, was however higher. Treatment of the cells had impact on cell morphology with progressed formation of the tubes and cell connecting, which is regarded as the beginning of HUVEC angiogenesis process.

**Discussion:** Beneficial effect of PVRP in healing and regeneration may include suppression of inflammation and oxidative stress by PEVs.

**Publishers:**

Serbian Society for Extracellular Vesicles (SrbEVs) with  
Austrian Society for Extracellular Vesicles (ASEV),  
Hungarian Society for Extracellular Vesicles (HSEV), and  
Slovenian Network for Extracellular Vesicles (SiN-EV)

**Editors:**

Wolf Holnthoner, ASEV;

Edit Buzas, HSEV;

Metka Lenassi, SiN-EV;

Maja Kosanović, SrbEVs

**Technical Editor and Design:**

Maja Kosanović

**ISBN** 978-86-905626-0-2

**Year:** 2023.

**Disclaimer:** The authors are responsible for the contents  
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