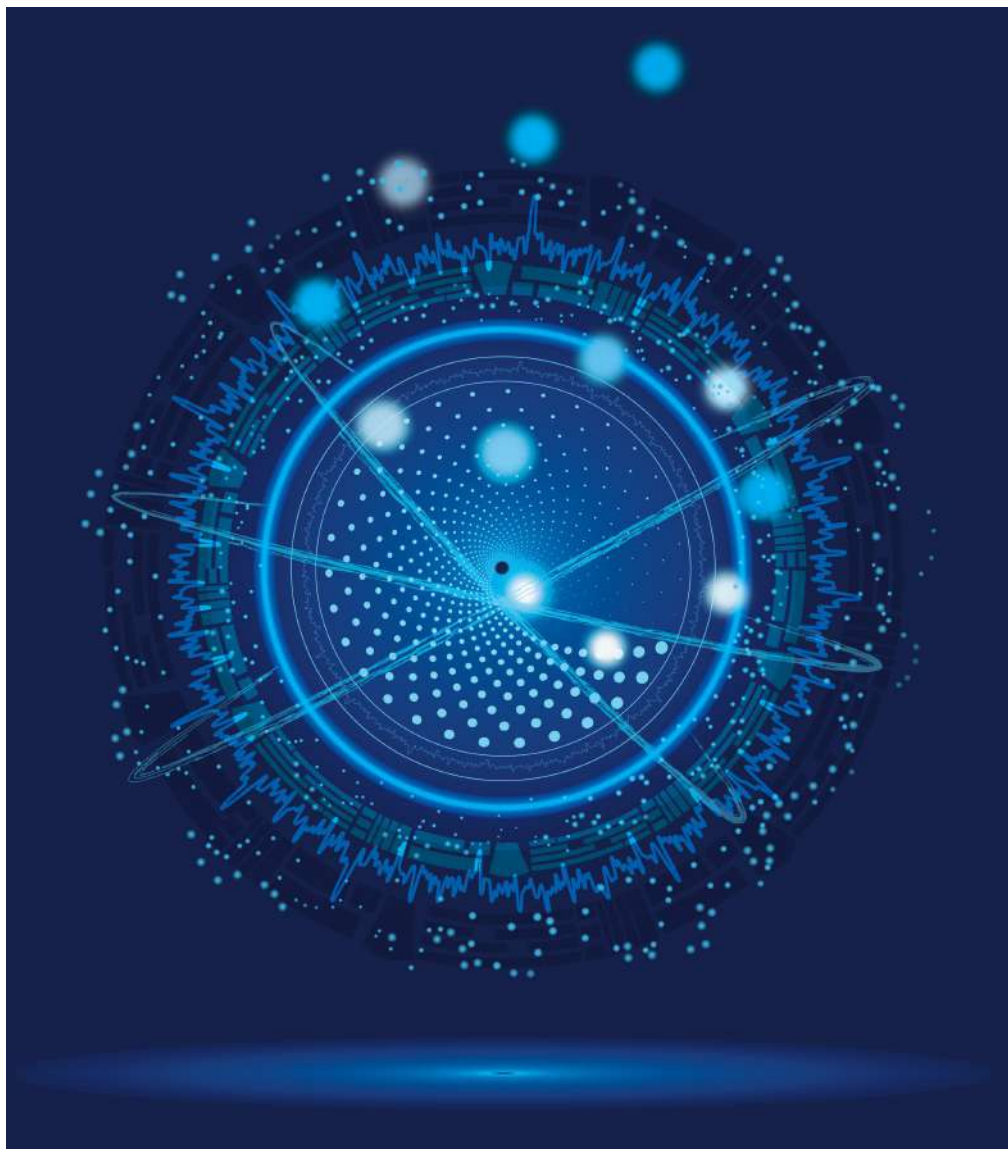


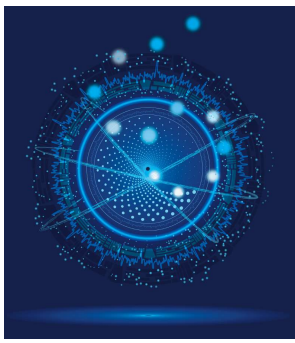
Small New World 2.0

4-5 September 2023

Abstract Book



Medical University Graz, Austria



Small New World 2.0

4-5 September 2023., Graz, Austria

Joint Meeting of



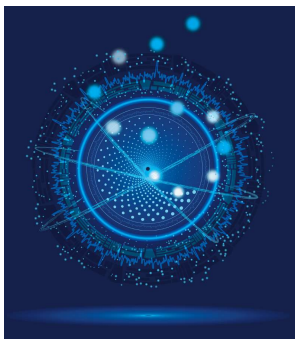
Austrian Society for Extracellular Vesicles - ASEV
Hungarian Section for Extracellular Vesicles - HSEV
Slovenian Network for Extracellular Vesicles - SiN-EV
Serbian Society Extracellular Vesicles - SrbEVs

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

Platinum sponsors



Silver sponsors



Bronze sponsors



Company package



Media cooperation



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	EV therapeutics - regenerative medicine and beyond Chairs: Wolf Holnthoner (Austria) + Zala Jan (Slovenia)												
	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Keynote: Bernd Giebel (Germany)</td> <td>Clinical potential of MSC-EVs and translational challenges</td> </tr> <tr> <td>Beáta Szebeni</td> <td>Origin of extracellular vesicles from peritoneal dialysate and their immunomodulatory effect</td> </tr> <tr> <td>Mateja Manček Keber</td> <td>Therapy for cancer-specific MyD88L265P signaling based on exon skipping using LNP-mediated ASO delivery</td> </tr> <tr> <td>Katharina Schallmoser</td> <td>A protein corona around human platelet-derived EVs promotes regenerative functions</td> </tr> <tr> <td>Maximilian Haertinger</td> <td>Small extracellular vesicles derived from multipotent adipose stromal cells in peripheral nerve regeneration: jack of all trades, master of none?</td> </tr> <tr> <td>Alexander Otahal</td> <td>Hoffa-derived MSCs primed with IL1β in bioreactor culture yields extracellular vesicles hindering chondrocyte recovery</td> </tr> </table>	Keynote: Bernd Giebel (Germany)	Clinical potential of MSC-EVs and translational challenges	Beáta Szebeni	Origin of extracellular vesicles from peritoneal dialysate and their immunomodulatory effect	Mateja Manček Keber	Therapy for cancer-specific MyD88L265P signaling based on exon skipping using LNP-mediated ASO delivery	Katharina Schallmoser	A protein corona around human platelet-derived EVs promotes regenerative functions	Maximilian Haertinger	Small extracellular vesicles derived from multipotent adipose stromal cells in peripheral nerve regeneration: jack of all trades, master of none?	Alexander Otahal	Hoffa-derived MSCs primed with IL1 β in bioreactor culture yields extracellular vesicles hindering chondrocyte recovery
	Keynote: Bernd Giebel (Germany)	Clinical potential of MSC-EVs and translational challenges											
	Beáta Szebeni	Origin of extracellular vesicles from peritoneal dialysate and their immunomodulatory effect											
	Mateja Manček Keber	Therapy for cancer-specific MyD88L265P signaling based on exon skipping using LNP-mediated ASO delivery											
	Katharina Schallmoser	A protein corona around human platelet-derived EVs promotes regenerative functions											
	Maximilian Haertinger	Small extracellular vesicles derived from multipotent adipose stromal cells in peripheral nerve regeneration: jack of all trades, master of none?											
Alexander Otahal	Hoffa-derived MSCs primed with IL1 β in bioreactor culture yields extracellular vesicles hindering chondrocyte recovery												
12:00-13:30 Lunch break / General assembly of ASEV													
13:30-15:00	Methodology advances in EV analysis Chairs: Beate Rinner (Austria) + Sofija Glamočlija (Serbia)												
	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Keynote: Pia Siljander (Finland)</td> <td>Methods to study EVs - what do we (need to) look for?</td> </tr> <tr> <td>Jaroslav Jacak</td> <td>Tracking individual extracellular vesicles: from purification analysis to intracellular co-localization using atomic force- and single-molecule fluorescence microscopy</td> </tr> <tr> <td>Pietro Parisse</td> <td>Substrate stiffness modulates extracellular vesicles' release in triple-negative breast cancer models</td> </tr> <tr> <td>Maria Jaritsch</td> <td>Quantitative serum pharmacokinetics of EVs from diverse sources using high content single vesicle imaging</td> </tr> <tr> <td>Anna Lischnig</td> <td>Quantitative proteomics and nFCM analysis of subpopulations of immune cell-derived EVs</td> </tr> </table>	Keynote: Pia Siljander (Finland)	Methods to study EVs - what do we (need to) look for?	Jaroslav Jacak	Tracking individual extracellular vesicles: from purification analysis to intracellular co-localization using atomic force- and single-molecule fluorescence microscopy	Pietro Parisse	Substrate stiffness modulates extracellular vesicles' release in triple-negative breast cancer models	Maria Jaritsch	Quantitative serum pharmacokinetics of EVs from diverse sources using high content single vesicle imaging	Anna Lischnig	Quantitative proteomics and nFCM analysis of subpopulations of immune cell-derived EVs		
	Keynote: Pia Siljander (Finland)	Methods to study EVs - what do we (need to) look for?											
	Jaroslav Jacak	Tracking individual extracellular vesicles: from purification analysis to intracellular co-localization using atomic force- and single-molecule fluorescence microscopy											
	Pietro Parisse	Substrate stiffness modulates extracellular vesicles' release in triple-negative breast cancer models											
	Maria Jaritsch	Quantitative serum pharmacokinetics of EVs from diverse sources using high content single vesicle imaging											
Anna Lischnig	Quantitative proteomics and nFCM analysis of subpopulations of immune cell-derived EVs												
15:00-15:30 Coffee break													

PROGRAM

for Monday, 4th September 2023

15:30-16:40	News from industry and development - "Rising projects" Chairs: Dirk Strunk (Austria) + Pia Siljander (Finland)	
	Clemens Helmbrecht ParticleMetrix	NTA goes colocalization: Characterization of Multi-labelled bionanoparticles
	Mehdi Madi and Quentin Lubart Abbelight	Quantitative analysis of single EV and their subpopulations with super-resolution solutions
	Core Facilities MedUni Graz	EV technologies at the MedUni Graz
	BioTechMed consortium "iNterAcD+"	Extracellular vesicle in exercise: sporty messengers in interorgan communication
	Christian Wadsack and Michaela Klaczynski	Fetal immune priming by placenta-derived small extracellular vesicles
	Beate Rinner and Mariangela Garofalo	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	EV numbers and cargo Chairs: Maja Kosanović (Serbia) and Nicole Maeding (Austria)	
	Keynote: Paolo Bergese (Italy)	Extracellular vesicles by the numbers
	Hargita Hegyesi	Cardioprotective role of extracellular vesicle-mediated mir-sponge transfer
	Christa Noehammer	Small RNA biomarker profiling from extracellular vesicles in immune-mediated inflammatory diseases
	Tasvilla Sonallya	Systematic investigation and classification of membrane active peptides based on their affinity for interaction with extracellular vesicles
	Ilona Barbara Csordás	Extracellular Vesicles (EVs) miRNA-cargo loading and alterations after ionizing radiation induced cellular stress
	Marija Holcar	Characterization and Interindividual Variability of Plasma Extracellular Vesicles in Healthy Adults
10:45–11:30	Coffee break	
11:30–12:30	NETWORK SESSION + MOVE Chairs: Beate Rinner and Wolf Holnthoner	
	Wolf Holnthoner	ASEV - Austrian Society for Extracellular Vesicles
	Edit Buzas/Zoltan Giricz	HSEV - Hungarian Society for Extracellular Vesicles
	Metka Lenassi	SiN-EV - Slovenian Network for Extracellular Vesicles
	Maja Kosanović	SrbEVs - Serbian Society for Extracellular Vesicles
	Johannes Oesterreicher	MOVE news from Finland
	Martin Wolf	MOVE news from Sweden
12:30–13:30	Lunch break	

PROGRAM

for Tuesday, 5th September 2023

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



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)

Hybridosomes from spruce needle homogenate

Spasovski Vesna^{1,2}; Romolo Anna^{1,3}; Kisovec Matic⁴; Zagorc Urška⁵; Arrigler Vesna⁵; Arko Matevž¹; Bedina Zavec Apolonija⁴; Igljč Aleš^{3,6}; Kogej Ksenija⁵; Kralj-Igljč Veronika¹

¹University of Ljubljana, Faculty of Health Sciences, Ljubljana, Slovenia; ²Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Belgrade, Serbia; ³University of Ljubljana, Faculty of Electrical Engineering, Laboratory of Physics, Ljubljana, Slovenia; ⁴National Institute of Chemistry, Department of Molecular Biology and Nanobiotechnology, Ljubljana, Slovenia; ⁵University of Ljubljana, Faculty of Chemistry and Chemical Technology, Chair of Physical Chemistry, Ljubljana, Slovenia; ⁶University of Ljubljana, Faculty of Medicine, Laboratory of Clinical Biophysics, Ljubljana, Slovenia

Introduction: Being of compatible structure with biomembranes, lipid-based nanoparticles are considered as convenient platforms for drug delivery systems. In the proposed work we considered formation of lipid nanovesicles associated with bioactive phytochemicals from spruce needle homogenate (here called hybridosomes). We formed hybridosomes by mixing appropriate amounts of lecithin, supernatant of isolation of extracellular particles from spruce needle homogenate and glycerol.

Methods: We visualized hybridosomes by light microscopy and cryogenic transmission electron microscopy and assessed them by flow cytometry, dynamic light scattering, ultraviolet-visual spectroscopy and interferometric microscopy.

Results: We found that the particles consisted of a bilayer membrane and a fluid-like interior. Flow cytometry and interferometric light microscopy measurements showed that the majority of the particles were nano-sized. Dynamic light scattering and interferometric light microscopy measurements agreed well with the determined average hydrodynamic radius of the particles R_h (between 140 and 180 nm) while their number densities were in the range between 10^{13} and 10^{14} /mL indicating that hybridosomes present about 2/3 of the mixture, excluding solvent and other small molecules.

Discussion: Simple and low-cost preparation method, non-demanding saving process and efficient formation procedure suggest that large scale production of hybridosomes from lipids and spruce needle homogenate is feasible.

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
of their abstracts and warrant that their abstract is original.

