



FIRST WORLD CONGRESS ON

Targeting Extracellular Vesicles

Mitochondria and
Microbiota:
Crucial Impact

OCTOBER, 17TH & 18TH
2024

CORINTHIA PALACE,
MALTA

PROGRAM

First World Conference Targeting Extracellular Vesicle

Day 1 – Friday October 17, 2024

8h00 **Materials Distribution & Welcoming of Attendees**

8h50 **Welcome Note of Targeting Microbiota 2024**

Session 1: Extracellular Vesicles & Mitochondria

Presentations duration: 25 minutes + 5 minutes Q&A.

Moderators: Devika Manickam, Marvin Edeas



9h00 – Keynote Speech:

Mitochondria and Extracellular Vesicles: Recent Discoveries & Challenges

Devika S. Manickam, Duquesne University, USA



9h30 – **The Role of Mitovesicles in the Brain with Mitochondrial Dysfunction**

Efrat Levy, NYU Grossman School of Medicine, USA



10h00 – **Mitochondrial DAMPs in EVs: Triggering Early Neuroinflammation in Neurodegeneration**

Carla Lopes, University of Coimbra, Portugal

10h30 – 11h15 Coffee Break, Networking, & Poster Session



11h15 – **Liposomes & Exosomes: Lessons & Perspectives**

Volkmar Weissig, Midwestern University, College of Pharmacy Glendale, USA



11h25 – **Engineering Exosomes for Precise Mitochondrial Targeting in Brain Cells: Expanding the Frontiers of Cellular Communication and Therapeutics**

Lanrong Bi, Michigan Technological University, USA



11h55 – **Cancer-related Extracellular Vesicles in relation to Mitochondria, Microbiota and More**

Lorraine O'Driscoll, Trinity College Dublin and Trinity St. James's Cancer Institute, Ireland

12h25 – 14h00 Lunch Break, Networking, & Poster Session

Moderators: Efrat Levy, Carla Lopes



14h00 – **Extracellular Vesicle Release of Mitochondria in Response to Lysosomal Dysfunction**

Åsa B. Gustafsson, University of California San Diego, USA



14h30 – **Delivery of Mitochondria-Containing EVs to the Blood-Brain Barrier**
Devika S. Manickam, *Duquesne University, USA*



15h00 – **New strategies for the targeting of central regulation of obesity with a nanotechnology approach using engineered extracellular vesicles**
Ramaroson Andriantsitohaina, *University of Montpellier, France*

15h30 – 16h15 *Coffee Break, Networking, & Poster Session*



16h15 – **Exploring the Capabilities of Exosomes from Muscle-Derived Mesenchymal Stem Cells: Insights into Immunomodulation and Mitochondrial Transfer**
Didier Serteyn, *Université de Liège, Belgium*

16h45 – 17h45

A Crucial Debate on the Future of Extracellular Vesicles: Key Questions & What's Next?

After the presentations, speakers and scientific committee members will be invited for an in-depth debate and Q&A session, where we will address meticulously chosen, high-quality questions designed to focus on the most significant and impactful issues, rather than technical details.

Standardization and Protocols

- What are the main challenges preventing the standardization of EVs in research and clinical applications?
- What steps are being taken by the scientific community to develop standardized protocols for EV and exosome research?

Targeting and Delivery

- What are the current methods used to target EVs to specific organs or tissues?
- How can surface modifications on EVs enhance their targeting efficiency?
- What role do ligands and receptors play in the targeted delivery of EVs and exosomes?
- How does the microenvironment of specific tissues influence the uptake of EVs?

Mitochondrial Function, Dysfunction and Therapeutic Applications

- How do EVs contribute to the optimization of mitochondrial function through whole mitochondria, mitovesicles, protein, and genetic material transfer?
- What are the mechanisms by which EVs can spread damaged mitochondrial components, and how does this affect disease progression?
- How can mitochondrial dysfunction impact the EVs cargo loading and their impact on the target cells?
- How do we control the quality and quantity of mitochondria entrapped in cell-derived EV? Robust characterization of mitochondrial content in EVs: tools and technologies.
- How can EVs be used as vehicles for different cargo and drugs?

17h45 Short Oral Presentations & Innovations

18h35 End of Congress Day 1

20h00 Meet the Speakers Dinner (*Reserved for ticket holders only*)
 Summer Kitchen, Corinthia Palace, Malta

First World Conference Targeting Extracellular Vesicle

Day 2 – Friday October 18, 2024

8h00 **Materials Distribution & Welcoming of Attendees**

8h20 **Opening of Day 2**

Session 2: Microbiota & Extracellular Vesicles

Presentations duration: 25 minutes + 5 minutes Q&A.

Moderators: Justus Reunanen, Ramaroson Andriantsitohaina



8h30 – **Microbiota-Derived Extracellular Vesicles in Maternal-Fetal Communication: What We Know?**
Justus Reunanen, University of Oulu, Finland



9h00 – **Lactobacilli Extracellular Vesicles: Potential Postbiotics to Support the Vaginal Microbiota Homeostasis**
Carola Parolin, University of Bologna, Italy



9h30 – **Gut-Microbiome Derived Extracellular Vesicles in Cancer**
Surbhi Mishra, University of Oulu, Finland

10h00 – 10h45 Coffee Break, Networking, & Poster Session



10h45 – **Therapeutic Applications of Microbial Extracellular Vesicles**
Steven Jay, University of Maryland, USA



11h15 – **Modulation of Phage-Microbe interactions and Antimicrobial Resistance by Bacterial Extracellular Vesicles**
Meta Kuehn, Duke University, USA



11h45 – **The gut microbe-derived extracellular vesicles - mitochondria axis in mental disorders: Strengths and weaknesses of new studies**
Seyed Davar Siadat, Pasteur Institute of Iran, Iran

12h15 – 13h45 Lunch Break, Networking, & Poster Session



13h45 – **Role of Stem Cell-Derived Extracellular Vesicles to Promote Successful Aging**
Consuelo Borrás, University of Valencia, Spain



14h15 – **Bioinspired, Fully Synthetic Extracellular Vesicles to Optimize Wound Healing**
Joachim Pius Spatz, University of Heidelberg, Germany

14h45 – 15h45

A Crucial Debate on the Future of Extracellular Vesicles: Key Questions & What's Next?

General Feasibility and Challenges

- Why is using EVs as biomarkers still considered far from reality?
- What are the key challenges in isolating and identifying specific EVs as disease markers?

Technological and Methodological Advancements

- How can advances in high-throughput technologies improve the feasibility of using EVs as biomarkers?
- How can multi-omics approaches enhance the reliability of EVs as diagnostic tools?

Biological and Therapeutic Applications

- How can we best select cells for isolating EVs for therapies?
- What are the critical components of EVs that contribute to biological effects (proteins vs RNAs vs metabolites/other)?
- What are the potential advantages of using EVs over traditional biomarkers?
- What potential biomarkers can be identified from microbiota-derived EVs for immune modulation?

Microbiota and Microbial Interactions

- How can understanding microbiota-derived EVs lead to new therapeutic strategies for managing microbiota-related diseases?
- How do microbiota-derived EVs facilitate communication between microbial communities and host cells?
- How do we consider phage and viruses when developing EVs as therapeutics?
- How can we use our understanding of how EVs help bacteria adapt to antimicrobials in the environment to combat antimicrobial resistance?

Novel Hypotheses and Speculative Questions

- What if extracellular vesicles could orchestrate and revolutionize communication between mitochondria, human cells, and the microbiome?

15h45 Short Oral Presentations & Innovations

16h30 Targeting EVs 2024 Concluding Remarks & Awards

17h00 Networking Accompanied by Drinks and Appetizers