

ISEV Workshop
EXTRACELLULAR VESICLES BIOMOLECULAR CORONA

27th-28th February 2025
Brescia, Italy

Co-Chairs:
Annalisa Radeghieri
Edit Buzas

**International Organizing
Committee (IOC):**

Sara Busatto
Aled Clayton
Metka Lenassi
Andreas Moeller
Lucia Paolini
Ganesh Shelke



UNIVERSITY
OF BRESCIA



**INTERNATIONAL SOCIETY for
EXTRACELLULAR VESICLES**



Program

Co-Chairs:

- Edit Buzas, Semmelweis University, Budapest, (Hungary).
- Annalisa Radeghieri, University of Brescia and Center for Colloid and Surface Science, (Italy)

International Organizing Committee (IOC):

- Sara Busatto, University of Groeningen, (The Netherlands)
- Aled Clayton, Cardiff University (UK)
- Metka Lenassi, University of Ljubljana (Slovenia)
- Andreas Moeller, The Chinese University of Hong Kong
- Lucia Paolini, University of Brescia and Center for Colloid and Surface Science, (Italy)
- Ganesh Shelke, National institute of Health (USA)

Scientific Secretariat

- Valentina Mangolini, University of Brescia (Italy)
- Angelo Musicò, SCITEC, CNR, Milan (Italy)
- Selene Tassoni, University of Brescia (Italy)
- Lorenzo Zarini, University of Brescia (Italy)

Description:

The goal of the workshop is to bring together experts from synthetic and biogenic nanoparticle worlds, in order

to gather inspiration and share tools to foster studies on biomolecular corona of extracellular vesicles.

The workshop will feature a dialogue between an outstanding and diverse group of academic research scientists, clinicians and industrial partners involved in EV corona studies.

Introductory invited talks, short talks selected from abstracts, posters and roundtable discussions will revolve around four highly interrelated themes related to EV biomolecular corona.

Topics:

- 1) Fundamentals of Biomolecular Corona: origin, thermodynamics and colloidal properties.**
- 2) EV corona biogenesis, biological significance and molecular composition**
- 3) Tools for the separation and characterization of biogenic nanoparticle corona**
- 4) Biomolecular corona potential applications (e.g., clinics/diagnostics).**

27th of February 2025

7.30 AM-8:30 AM Registration

8:30-8:40 AM Welcome (Edit Buzas, Annalisa Radeghieri)

Institutional welcome to be defined

Prof. Massimo Gennarelli, Director of the Dept. of Molecular and Translational Medicine, University of Brescia

Prof. Nicola Latronico, Director of the Dept. of Medical and Surgical Specialties, Radiological Sciences, and Public Health

8:40-8:50 AM Overview of ISEV-EV corona workshop and products (Andreas Moeller)

8:50-9:20 AM Opening talk – Kenneth Dawson,

Chairs: Annalisa Radeghieri and Edit Buzas

9:20-11:10 AM Topic 1 - Fundamentals of Biomolecular Corona: origin, thermodynamics and colloidal properties.

Plenary sessions

- Paolo Bergese, University of Brescia and Center for Colloid and Surface Science, (Italy) "The

corona couloir within the physicochemical landscape of extracellular vesicles”

- Anna Salvati, University of Groeningen, (The Netherlands) “Impact of corona on nanoparticle interaction with cell receptors, mechanism of uptake and intracellular behavior: lesson learned and latest findings”

Selected Oral presentations

- ✓ Valentina Castagnola, Italian Institute of Technology (Italy) “Sources of biases in the biomolecular corona analysis and in vitro screening of nano-objects”.
- ✓ Shan Wang, Huazhong University of Science and Technology (China) “Unraveling the impact of protein corona on the size-based heterogeneity of mesenchymal stem cell-derived extracellular vesicles”.
- ✓ Pietro Parisse, National Research Council of Italy, Institute of Officina dei Materiali (Italy) “Biomolecular corona and EVs: an Atomic Force Microscopy point of view”.

Gold Sponsor talk-Particle Metrix- “NTA - More than just size and concentration - Next generation particle characterization with Particle Metrix ZetaView®”

11:10-11:40 AM Networking coffee break with posters
(Chair: Lucia Paolini)

**11:40-1:30 PM Topic 2 - EV corona biogenesis,
biological significance, molecular composition**

Chairs: Metka Lenassi and Andreas Moeller

Plenary sessions

- Sara Busatto, University of Groningen, (The Netherlands) "Extracellular vesicles and lipoproteins: interacting nanoparticles with a potential role in human pathogenesis"
- Edit Buzas, Semmelweis University, Budapest, (Hungary)"Formation and removal of the EV corona"

Selected Oral presentations

- ✓ Heikki Kyykallio, University of Eastern Finland (Finland) "Hyaluronic acid surface-decoration alters the protein corona of extracellular vesicles"
- ✓ Cristina Grange, University of Turin (Italy) "Analysis of protein corona expressed by different biofluid derived-Evs using Super Resolution Microscopy"
- ✓ Roberto Frigerio, ETH Zurich (Switzerland) "Single-particle analysis of extracellular vesicle-

lipoprotein interactions by combining ultramicroscopy and single molecular arrays (SiMoA)“

Gold Sponsor talk- Izon. “qEV Isolation: An Izon Approach for Diagnostics”.

1:30-2:30 PM Networking lunch break with posters + picture time (Chair: Lucia Paolini)

2:30-3:30 PM Parallel round table discussions
(participants divided in 2 groups)

- **Round table on Topic 1 - First session (group 1) (Room Aula 1)**, Moderators: chairs and experts and
- **Round table on Topic 2 - First session (group 2) (Room Aula 4)**, Moderators: chairs and experts

3:30-4:00 PM Networking with posters (Poster Chair: Lucia Paolini)

4:00-5:10 PM Parallel round table discussions (2 groups divided over 2 topics)

- **Round table on Topic 1 - Second session (group 2) (Room Aula 1)** Moderators: chairs and experts and

- **Round table on Topic 2 - Second session (group 1) (Room Aula 4)** Moderators: chairs and experts

5:10-5:45 PM Networking coffee break with posters
(Poster Chair: Lucia Paolini)

5:45-6:30 PM Wrap up round table Topic 1 and 2
(Room Aula 1)

8:00 PM Social Dinner at Trattoria Caprese.
Piazza Loggia 11, Brescia

28th of February 2025

9:00-10:50 AM Topic 3 - Biogenic nanoparticle corona separation and characterization tools

Chairs: Ganesh Shelke, Lucia Paolini

Plenary sessions

- Ben Boyd, University of Copenhagen (Denmark) and Monash University (Australia) "Milk extracellular vesicles and the gastrointestinal environment"
- Xavier Banquy, University of Montreal, (Canada) "Shinning a new light on nanoparticles and EVs's fate in biological media"

Selected Oral presentations

- ✓ Imola Szigyarto, HUN-REN Research Centre for Natural Sciences (Hungary). "The modulating effect of short, cationic peptides on EV's protein corona"
- ✓ Camille Vandenbroucke, Aarhus University (Denmark) "What the Cell "Sees" in Extracellular Vesicle Biology".
- ✓ Aled Clayton, Cardiff University (UK) "Heparan sulphate regulates surface tethering and functional".

Gold Sponsor talk- Alfatest "Fluorescence NTA: the role of the new Nanosight PRO in characterizing EVs and protein corona"

10:50-11:20 AM Networking coffee break with posters
(Chair: Lucia Paolini)

11:20-1:10 PM Topic 4 - Biomolecular corona potential applications (e.g., clinics/diagnostics).

Chairs: Aled Clayton, Sara Busatto

Plenary sessions

- Khoulood Al Jamal, King's College London (UK)
"Modulating protein corona on EVs when they are born for effortless cell targeting"
- Samir El Andaloussi, Karolinska Institutet, (Sweden) "Genetic engineering of EV membrane proteins; surfaceome analysis and therapeutic applications "

Selected Oral presentations

- ✓ Martina Gabrielli, National Research Council of Italy, Institute of Neuroscience (Italy) "Surface proteins on extracellular vesicles isolated from tissues: implication in brain health and disease"
- ✓ Charles Ramassamy, INRS-Centre Armand-Frappier Santé-Biotechnologie (Canada) "Role of protein corona on plasma-derived EVs in the pathophysiology of Alzheimer's disease".
- ✓ My Mahoney, Thomas Jefferson University (USA) "Extracellular vesicles derived from intravenous immunoglobulin replacement therapy serving as decoys to suppress IFN γ -activation of JAK/STAT1 signaling".

1:10-2:10 PM Networking lunch break with posters

2:10-3:10 PM Parallel round table discussions

(participants divided in 2 groups)

- **Round table on Topic 3 - First session (group 1), (Room Aula 1),** Moderators: chairs and experts

and

- **Round table on Topic 4 - First session (group 2), (Room Aula 4)** Moderators: chairs and experts

3:10-3:40 PM Networking coffee break with posters

(Poster Chair: Lucia Paolini)

3:40-4:40 PM Parallel round table discussions (2

groups divided over 2 topics)

- **Round table on Topic 3 - Second session (group 2), (Room Aula 1)** Moderators: chairs and experts
and
- **Round table on Topic 4 - Second session (group 1), (Room Aula 4)** Moderators: chairs and experts

4:40-5:10 PM Networking coffee break with posters

(Poster Chair: Lucia Paolini)

5:10-6:00 PM Wrap up round table Topic 3 and 4 + decision on possible workshop product(s). (Room Aula 1)

Farewell

Plenary sessions and selected oral presentations will take place in Room "Aula 1".

Roundtables will take place in Rooms "Aula 1" and "Aula 4".

Networking coffee breaks and lunches will be served at "Galleria delle Sfingi".



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