International Society for Extracellular Vesicles
2018 Workshop
Membranes and EVs

March 24-25, 2018
Johns Hopkins University
Baltimore, Maryland, USA

733 North Broadway
Entrance: Miller Research Building
Turner Concourse
Darner Conference Room (G007)
and G001 (breakout)

Organizing Committee
Chair: Kenneth W. Witwer, JHU
Norman Haughey, JHU
Steven M. Jay, University of Maryland
Alicia Martinez Llorente, Oslo University Hospital
Vasiliki Machairaki, JHU
Nicole Noren Hooten, National Institute on Aging
Jeanne Sisk, JHU
Marca Wauben, Universiteit Utrecht
Hang Yin, Tsinghua University

Thanks to our Sponsors
Departments of Molecular and Comparative Pathobiology and Neurology, JHU
Day 1: Saturday, March 24

8:00-9:00 Registration

9:00-9:30 Welcome, Introductions, Outline and the Value of ISEV Seminars and Outputs
Marca Wauben and local organizing committee

9:30-9:45 Why this Workshop? Addressing Big Questions in EV Membrane Biology
Kenneth Witwer

Topic #1: EV Release
Chairpersons: Vasiliki Machairaki and Ashley Russell

9:45-10:15 Exosome Biogenesis: an Overview
Steve Gould, Johns Hopkins, USA

10:15-10:30 Reflections on Biogenesis
Matias Ostrowski, University of Buenos Aires, Argentina

10:30-11:00 Networking Coffee Break and Sponsor Exhibition

11:00-11:15 Tracking exosome secretion in live cells and organisms
Frederik Verweij, Institut Curie, Paris, France

11:15-11:30 Choroid plexus-derived extracellular vesicles as an important player in neuroinflammation
Roosmarijn Vandenbroucke, VIB-UGent Center for Inflammation Research, Ghent, Belgium

11:30-11:45 Three dimensional visualization of extracellular vesicle release and uptake
Emanuele Cocucci, The Ohio State University, Columbus, USA

11:45-12:00 A Dynamic Scaling Model of Exosome Size Distributions
Michael Paulaitis, Johns Hopkins University, USA

12:00 to 1:00 Lunch Break and Sponsor Exhibition

Topic #2: EV fusion and uptake
Chairpersons: Steve Gould, Yiyao Huang

1:00-1:30 Overview: Uptake of Extracellular Vesicles in a Cell Free Extract
Gregory Lavieu, Institut Curie, INSERM, Paris, France

1:30-1:45 Viruses and fusion (Title TBA)
Jeanne Sisk, Johns Hopkins University, USA

1:45-2:00  **Dye another day – issues with EV-staining fluorescent dyes and studying vesicular uptake**
Dave Carter, Oxford Brookes University, United Kingdom

2:00-2:15 **Fusion of liposomal membranes and genetic modified extracellular vesicles**
Ana V. Villar, Institute of Biomedicine and Biotechnology of Cantabria (IBBTEC), University of Cantabria and Valdecilla Hospital Biomedical Research Institute (IDIVAL)

2:15-2:30 **Extracellular Vesicles and Cargo Transfer: Regulation by ESCRT Components and Membrane Fusion Modulators**
Tom Gallagher, Loyola University Chicago, USA

2:30-3:00 Coffee Break and Sponsor Exhibition

3:00-5:00 Roundtable #1
Biogenesis
Moderators
Matias Ostrowski, Hang Yin

3:00-5:00 Roundtable #2
Uptake
Moderators
Pieter Vader, Jeanne Sisk

Sponsor Presentations

5:00-5:15 **Label-Free Imaging for High Throughput Single Vesicle Sizing and Phenotyping**
George Daaboul, NanoView Biosciences

5:15-5:30 **SPONSORED PRESENTATION: TBA**

5:30-6:00 Wrap-up presentations from Roundtables 1 and 2
Discussion

7:00-9:00 Networking Dinner, Barcocina, Fells Point
1629 Thames St, Baltimore, MD 21231

*Please plan to carpool or take a taxi, Uber, or Lyft to the location.*
Day 2: Sunday, March 25

**Topic #3: Technologies to target EV membranes and membrane proteins**

*Chairpersons: Nicole Noren Hooten, Zhiwei Wu*

**8:25-8:30 Welcome and introduction to the second day**

**8:30-9:00 Overview: Membrane curvature and lipid composition sensors targeting extracellular vesicles**
Hang Hubert Yin, University of Colorado Boulder, USA

**9:00-9:30 Overview: Single-molecule detection technologies**
Taekjip Ha, Johns Hopkins University, USA

**9:30-9:45 Toward Building Physiologically Relevant Bilayers for More Accurate Membrane Protein Structure Determination**
Deanna Tesch, Shaw University

**9:45-10:00 Projecting extracellular vesicles in two dimensions**
Paulo Bergese, Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy. CSGI, Research Center for Colloids and Nanoscience, Firenze, Italy. INSTM, National Interuniversity Consortium of Materials Science and Technology, Firenze, Italy.

**10:00-10:15 Development of 3-Hexanoyl-NBD Cholesterol (3NBDC) as a biochemical tool to detect cholesterol in microparticle membranes**
Shuaishuai Hu, Dublin Institute of Technology, Dublin, Ireland

**10:15-10:30 Membrane-engineering approaches to develop targeted, siRNA-loaded EVs**
Pieter Vader, University Medical Center Utrecht

10:30-11:00 Coffee Break and Sponsor Exhibition

**Topic #4: EV transfer: function and functional assays**

*Chairpersons: Steve Jay, Amrita Datta Chaudhuri*

**11:00-11:15 Crucial controls in EV functional studies**
Marca Wauben, Utrecht University, The Netherlands

**11:15-11:30 Intracellular delivery via ARRDC1-mediated microvesicles (ARMMs)**
Quan Lu, Harvard University, Cambridge, USA

**11:30-11:45 Live imaging of degron-labeled EVs and the clearance of cell debris by LC3-associated phagocytosis**
Ann Wehman, University of Würzburg, Germany

**11:45-12:00 Opening and revesiculation of exosome membranes for loading purposes**
Jan Lötvall, University of Gothenburg, Sweden

12:00-1:00 Lunch Break and Sponsor Exhibition
1:00-1:15 Role of Cellular Organelles in Controlling Biogenesis of miRNPs in Mammalian Cells
Suvendra Bhattacharyya, CSIR-Indian Institute of Chemical Biology, Kolkata, India

1:15-1:30 Placenta-derived mesenchymal stem cells and their secreted exosomes exert therapeutic effects in Duchenne muscular dystrophy via the transfer of miR-29
Chaya Brodie, Faculty of Life Sciences, Bar-Ilan University, Bar-Ilan Israel and ExoStem Biotec, Israel

1:30-1:45 Glia-to neuron transfer of miRNAs via extracellular vesicles: a new mechanism underlying inflammation-induced synaptic alterations
Ilaria Prada, CNR-Institute of Neuroscience, Milan, Italy

1:45-4:00 Roundtable #3
Technologies and Strategies
Moderators
Marca Wauben, Paolo Bergese

1:45-4:00 Roundtable #4
Transfer and transfer assays
Moderators
Jan Lötvall and Daniel Anthony

4:00-4:30 Coffee break and Sponsor Exhibition

4:30-5:30 Wrap-up presentations from Roundtables 3 and 4
Discussion
Planning for Workshop product

5:30-6:00 Working groups, informal discussions, farewell