



Boston, MA
October 27-29, 2023

AAEV 2023

Annual Meeting

Sponsored by:



*"Breathing Life into Wellness through
Regenerative Science"*

2023 American Association of Extracellular Vesicles Annual Meeting

Meeting Co-Chairs



Saumya Das

Massachusetts General
Hospital/Harvard Medical
School
Boston, MA



Kate McAndrews

UT MD Anderson
Cancer Center
Houston, TX

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University of
California San Diego
San Diego, CA



Robert Raffai

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Shanghai University
Shanghai, China



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UT MD Anderson
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Invited Speakers



Clotilde Thery

Institut Curie
Paris, France



Daniel Chiu

University of Washington
Seattle, WA



Dolores Di Vizio

Cedars-Sinai Medical Center
Los Angeles, CA



Eduardo Marban

Cedars-Sinai Medical Center
Los Angeles, CA



Eduardo Reategui

The Ohio State University
Columbus, OH



Elena Aikawa

Brigham and Women's
Hospital/Harvard Medical School
Boston, MA



Fei Liu

Harvard Medical School
Boston, MA



Haotian Wu

Columbia University
New York, NY



Jae-Won Shin

University of Illinois
at Chicago
Chicago, IL

Invited Speakers



Janos Zempleni

University of Nebraska-Lincoln
Lincoln, NE



Joost Sluiter

University Medical Centre Utrecht
Utrecht, Netherlands



Junjie Xiao

Shanghai University
Shanghai, China



Junnan Tang

Zhengzhou University
Zhengzhou, China



Justus Ndukaife

Vanderbilt University
Nashville, TN



Kate McAndrews

UT MD Anderson Cancer Center
Houston, TX



Ke Cheng

Columbia University
New York, NY



Kendall Jensen

TGEN
Phoenix, AZ



Kirsty Danielson

University of Otago Wellington
Wellington, New Zealand

Invited Speakers



Kristopher Genschmer

University of Alabama
at Birmingham
Birmingham, AL



Louise Laurent

University of California
San Diego
San Diego, CA



Michiel Pegtel

University of Amsterdam
Amsterdam, Netherlands



Mohsin Khan

Temple University
Philadelphia, PA



Nicole Noren Hooten

NIH
Baltimore, MD



Nihal Altan-Bonnet

NIH
Bethesda, MD



Quan Lu

Harvard University
Boston, MA



Raghu Kalluri

UT MD Anderson Cancer
Center, Houston, TX



Robert Raffai

University of California
San Francisco
San Francisco, CA

Invited Speakers



Ronald Kahn

Harvard Medical School
Boston, MA



Samir El Andaloussi

Karolinska Institute
Stockholm, Sweden



Saumya Das

Massachusetts General
Hospital/Harvard Medical
School, Boston, MA



Shannon Stott

Massachusetts General
Hospital/Harvard Medical
School, Boston, MA



Stefan Momma

Goethe University
Frankfurt, Germany



Steve Gould

Johns Hopkins University
Baltimore, MD



Tijana Talisman

City of Hope
Duarte, CA



Patricia Labosky

NIH
Baltimore, MD



Wei Guo

University of Pennsylvania
Philadelphia, PA

Invited Speakers



Xandra Breakefield

Harvard Medical
School/Massachusetts General
Hospital
Boston, MA



Yong Tao

Capital Medical University
Beijing, China

2023 American Association of Extracellular Vesicles Annual Meeting

October 27-29, 2023 | Boston, MA

AAEV 2023 Program

All presentations are in-person at the dates and times indicated unless noted otherwise.

* Denotes short talk selected from abstracts

Friday, October 27th, 2023

Session 1: Cutting edge technologies to study EVs and their contents

Session 2: EVs in cardiovascular and metabolic diseases

Session 3: EVs as novel therapeutics I

Session 4: EV biogenesis and function

Saturday, October 28th, 2023

Panel: Advancing EV Research

Session 5: Immune system and EV-mediated intercellular communication

Session 6: EVs in disease I

Session 7: Emerging EV biomarkers in health and disease: pathways to therapies

Sunday, October 29th, 2023

Session 8: EVs in disease II

Session 9: EVs as novel therapeutics II

2023 American Association of Extracellular Vesicles Annual Meeting

October 27-29, 2023 | Boston, MA

Pre-Conference Day Thursday, October 26, 2023

4:00 pm - 8:00 pm Registration

Location: 4th Floor, Brewster Foyer
Renaissance Boston Waterfront Hotel

2023 American Association of Extracellular Vesicles Annual Meeting

October 27-29, 2023 | Boston, MA

Conference Day One Friday, October 27, 2023

All sessions take place in the Pacific Ballroom on the 3rd Floor

Breakfast
7:00 am - 8:00 am

Welcome and Introductions
8:00 am - 8:30 am

Welcome and Remarks from the AAEV President
Raghu Kalluri, UT MD Anderson Cancer Center, Houston, TX

Welcome and Introduction from Co-Chairs
Saumya Das, Massachusetts General Hospital/Harvard Medical School,
Boston, MA
Kate McAndrews, UT MD Anderson Cancer Center, Houston, TX

Session I: Cutting edge technologies to study EVs and their contents

8:30 am – 10:20 am

Moderator: *Brian Li, UT MD Anderson Cancer Center, Houston, TX*

8:30 am–8:50 am

Single extracellular vesicle nanoscopy

Tijana Talisman, City of Hope, Duarte, CA

8:50 am–9:10 am

Next generation optical nanotweezers: A new era in extracellular vesicles and particles heterogeneity studies

Justus Ndukaife, Vanderbilt University, Nashville, TN

9:10 am–9:30 am

Cell-specific extracellular vesicle isolation in cancer and COVID

Shannon Stott, Harvard Medical School/Massachusetts General Hospital, Boston, MA

9:30 am–9:50 am

Digital flow cytometry for the high-throughput multiplexed analysis of single extracellular vesicles and particles

Daniel Chiu, University of Washington, Seattle, WA

9:50 am–10:10 am

Extracellular vesicles for diagnosis of diseases of the central nervous system

Kendall Jensen, TGEN, Phoenix, AZ

10:10 am–10:20 am

*Direct evidence for distinct domains on the surface of extracellular vesicles**

Dirk Dittmer, University of North Carolina, Chapel Hill, NC

Coffee Break

Sponsored by Qiagen

10:20 am – 10:40 am

Session 2: EVs in cardiovascular and metabolic diseases

10:40 am – 12:40 pm

Moderator: Vicky Yang, Tufts University, North Grafton, MA

10:40 am–11:00 am

Role of adipose secreted sEV miRNAs in insulin action, insulin resistance and control of metabolism

Ronald Kahn, Harvard Medical School, Boston, MA

11:00 am–11:20 am

Extracellular vesicles and cardiac injury

Junnan Tang, Zhengzhou University, Zhengzhou, China

11:20 am–11:40 am

Trans-cardiac gradient of EV-derived microRNAs in health and disease

Mohsin Khan, Temple University, Philadelphia, PA

11:40 am–12:00 pm

Extracellular vesicles in kidney disease: from bench to bedside

Junjie Xiao, Shanghai University, Shanghai, China

12:00 pm–12:20 pm

Extracellular vesicle subtypes for cardiac therapeutic application: challenges to overcome

Joost Sluijter, University Medical Centre Utrecht, Utrecht, Netherlands

12:20 pm–12:40 pm

Lightning talks

*Altered adipose tissue-derived extracellular vesicle miRNAs in different ages and diets**

Young-Eun Cho, University of Iowa, Iowa City, IA

*Minimally invasive delivery of mesenchymal stem cell-derived exosomes improves heart repair in pigs**

Yuan Li, University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC

*Proteomics identifies tissue-specific markers and aging-associated changes in heterogeneous populations of extracellular vesicles**

Zhi Qiao, Harvard University, Boston, MA

*Insulin regulates expression and secretion of exosomal microRNAs in adipocytes**

Marsel Lino, Harvard Medical School, Boston, MA

*Exosomes derived from impaired liver aggravate alveolar bone loss via shuttle of Fasn in type 2 diabetes mellitus**

Jiani Liu, Zhejiang University, Hangzhou, China

12:40 pm – 2:00 pm

Lunch

Session 3: EVs as novel therapeutics I

2:00 pm – 3:50pm

Moderator: Yuan Li, University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC

2:00 pm–2:20 pm

Exosome-based therapies for vitreoretinal diseases

Jiawei Zhao, Capital Medical University, Beijing, China

2:20 pm–2:40 pm

Adipose-derived stem cell EVs as a therapeutic to improve autologous fat grafting in breast cancer patients

Kirsty Danielson, University of Otago Wellington, Wellington, New Zealand

2:40 pm–3:00 pm

Engineering extracellular vesicles for functional ligand presentation to treat tissue injury

Jae-Won Shin, University of Illinois at Chicago, Chicago, IL

3:00 pm–3:10 pm

*An organ on chip model to characterize extracellular vesicles as functional biomarkers in cardiorenal syndrome**

Emeli Chatterjee, Massachusetts General Hospital, Boston, MA

3:10 pm–3:15 pm

*Discovering the secret of exosomes for diagnostics and therapeutics**

Fei Liu, Harvard Medical School, Boston, MA

3:15–3:25 pm

Prevention of atrial fibrillation after open chest surgery with extracellular vesicle therapy

Darryl Davis, University of Ottawa Heart Institute, Ottawa, Canada

3:25 pm–3:50 pm**Lightning talks**

*Surface engineered exosomes enhance pancreatic cancer (PDAC) targeted therapy**

Shi-He Liu, University of Toledo, Toledo, OH

*Exosomes carrying IL-10 protein facilitate proinflammatory macrophage reprogramming**

Najla Saleh, Michigan State University, East Lansing, MI

*Highly efficient delivery of CRISPR-Cas9 using miniARMs**

Zunwei Chen, Harvard University, Boston, MA

*Nanoengineering extracellular vesicles with metallic nanoparticles**

Victor Sebastian, University of Zaragoza, Zaragoza, Spain

*An adjuvant-free spike-display exosome vaccine protects against SARS CoV-2 disease at nanogram amounts of antigen**

Chenxu Guo, Johns Hopkins University, Baltimore, MD

Coffee Break

Sponsored by Particle Metrix

3:50 pm – 4:20 pm

Session 4: EVs biogenesis and function

4:20 pm – 6:55 pm

Moderator: *Guoping Li, Massachusetts General Hospital/Harvard Medical School, Boston, MA*

4:20 pm–4:40 pm

CD63 and other exosome marker proteins bud primarily from the plasma membrane

Steve Gould, Johns Hopkins University, Baltimore, MD

4:40 pm–5:00 pm

Plasma EV-miRNAs report disease activity in patients with multiple myeloma undergoing immunotherapy

Michiel Pegtel, University of Amsterdam, Amsterdam, Netherlands

5:00 pm–5:20 pm

Hijacking secretory autophagy for en bloc viral transmission

Nihal Altan-Bonnet, NIH, Bethesda, MD

5:20 pm–5:40 pm

Biology and application of non-exosomal EVs

Quan Lu, Harvard University, Boston, MA

5:40 pm–6:00 pm

A phosphoinositide switch mediates exocyst recruitment to multivesicular endosomes for exosome secretion

Wei Guo, University of Pennsylvania, Philadelphia, PA

6:00 pm-6:20 pm

Extracellular vesicles in cardiovascular calcification

Elena Aikawa, Brigham and Women's Hospital/Harvard Medical School, Boston, MA

6:20 pm-6:25 pm

Advances in sample preparation through NGS & dPCR detection from liquid biopsy samples

Karen Rodland, Qiagen

6:25 pm-6:35 pm

*The ESCRT-0 complex HRS/STAM selects ubiquitinated Smoothed for ectocytosis from primary cilia**

Maxence Nachury, University of California San Francisco, San Francisco, CA

6:35 pm-6:45 pm

*Dynamic size and association profiles of tumour-derived DNA during pancreatic cancer progression**

Daniel Hagey, Karolinska Institute, Stockholm, Sweden

6:45 pm-6:55 pm

*A magneto-activated nanoscale cytometry platform for molecular profiling of small extracellular vesicles**

Kangfu Chen, Northwestern University, Evanston, IL

Reception + Poster Session #1

7:00 pm - 9:00 pm

2023 American Association of Extracellular Vesicles Annual Meeting

October 27-29, 2023 | Boston, MA

Conference Day Two Saturday, October 28, 2023

Breakfast

7:00 am - 8:00 am

Forum: Advancing EV Research

8:00 am - 9:00 am

Moderator: Raghu Kalluri, UT MD Anderson Cancer Center, Houston, TX

Historical Perspectives on EV Research: from ASEM to AAEV

Michael Graner, University of Colorado Anschutz, Aurora, CO

ExRNA Communication Common Fund Program: What have we learned?

Patricia Labosky, Program Leader, NIH Common Fund

Extracellular Vesicle: an open and inclusive forum for your EV research and voice

Ke Cheng, Columbia University, Editor-in-chief, Extracellular Vesicle

Session 5: Immune system and EV-mediated intercellular communication

9:00 am - 10:40 am

Moderator: Mengrui Liu, Columbia University, New York, NY

9:00 am-9:20 am

ApoE expression in macrophages communicates immunometabolic signaling that controls inflammation and atherosclerosis via exosomes

Robert Raffai, University of California San Francisco, San Francisco, CA

9:20 am-9:40 am

Proteolytic enzymes associated with immune cell derived extracellular vesicles and their role in inflammatory lung disease

Kristopher Genschmer, University of Alabama at Birmingham, Birmingham, AL

9:40 am-10:00 am

Association of extracellular vesicle inflammatory proteins with age-related conditions and mortality

Nicole Noren Hooten, NIH, Baltimore, MD

10:00 am-10:20 am

EVs in the brain and beyond

Xandra Breakefield, Harvard Medical School/Massachusetts General Hospital, Boston, MA

10:20 am-10:40 am

Lightning talks

*Candida albicans extracellular vesicles trigger type I IFN signaling via cGAS and STING**

Hannah Brown Harding, Harvard Medical School, Boston, MA

*Nano plasmonic detection of M. tuberculosis-specific extracellular vesicles in peripheral blood for pediatric TB diagnosis**

Wenshu Zheng, Tulane University, New Orleans, LA

*Extracellular vesicle secreting cancer cells are the major contributors to breast cancer metastasis**

Xiao Cheng, University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC

*Nanotopographical cues tune the therapeutic potential of extracellular vesicles for the treatment of aged skeletal muscle injuries**

Kai Wang, Harvard Medical School, Boston, MA

*Stable trapping of nanoscale extracellular vesicles and supermeres using optical anapole states**

Ikjun Hong, Vanderbilt University, Nashville, TN

*Mechano-electronic microplate with self-cooling for parallel exosome isolation**

Hanyu Fu, Duke University, Durham, NC

Coffee break

Sponsored by Exodus

10:40 am - 11:00 am

Session 6: EVs in disease I

11:00 am - 1:25 pm

Moderator: Leonora Balaj, Massachusetts General Hospital/Harvard Medical School, Boston, MA

11:00 am-11:20 am

Lessons learned by unraveling the basic and applied biology of EVs and exosomes

Raghu Kalluri, UT MD Anderson Cancer Center, Houston, TX

11:20 am-11:40 am

Extracellular vesicles in inter-organ and microbe-host communication in vivo

Stefan Momma, Goethe University, Frankfurt, Germany

11:40 am-12:00 pm

Tissue-specific EV-RNAs: high fidelity probes for disease states and pathways

Saumya Das, Massachusetts General Hospital/Harvard Medical School, Boston, MA

12:00 pm–12:20 pm

EV subtypes and co-isolated factors in tumor-immune system cross-talk

Clotilde Thery, Institut Curie, Paris, France

12:20 pm–12:25 pm

Single vesicle flow cytometry (vFC) resolves EV compositional and structural heterogeneity

John Nolan, Cellarcus

12:25 pm–12:45 pm

*Sex differences in the profile of extracellular bioactive lipids from conjunctival goblet cells during allergic inflammation**

Changrim Lee, Harvard Medical School, Boston, MA

12:45 pm–1:05 pm

*Neuroinflammation and painful peripheral neuropathy: role of Schwann cell extracellular vesicles**

Wendy Campana, University of California San Diego, La Jolla, CA

1:05 pm–1:25 pm

*Modular safeEXO platform: advanced exosome-based delivery for targeted CRISPR gene editing and therapeutic RNAi applications**

Fatemeh Momen-Heravi, Columbia University, New York, NY

Lunch

1:25 pm – 2:30 pm

Session 7: Emerging EV biomarkers in health and disease: pathways to therapies
2:30 pm – 4:30 pm

Moderator: Michail Spanos, Massachusetts General Hospital/Harvard Medical School, Boston, MA

2:30 pm–2:50 pm

New ncRNA drugs bioinspired by EV cargo

Eduardo Marban , Cedars-Sinai Medical Center, Los Angeles, CA

2:50 pm–3:10 pm

Mapping the heterogeneity of EVs and their cargo using immunoaffinity separation and molecular analysis

Louise Laurent, University of California San Diego, San Diego, CA

3:10 pm–3:30 pm

Characterization of proteins and extracellular RNAs in vesicles and viruses for disease detection

Eduardo Reatugui, The Ohio State University, Columbus, OH

3:30 pm–3:50 pm

Measuring environmental exposures in extracellular vesicles – potential insight for organ specific exposures

Haotian Wu, Columbia University, New York, NY

3:50 pm–4:30 pm

Lightning talks

*Developing an automated high-throughput RNA isolation pipeline for extracellular RNAs from various biofluids for small-RNA sequencing**

Abbas Hakim, University of California San Diego, La Jolla, CA

*Tracking human neurologic disease status in mouse brain and plasma using reporter-tagged EV-associated biomarkers**

Katia Maalouf, Massachusetts General Hospital, Harvard Medical School, Boston, MA

*Detection of gene editing of the Dystonia (DYT1) mutant allele with extracellular vesicles**

Koen Bryne, Massachusetts General Hospital, Harvard Medical School, Boston, MA

*Optimization of extracellular RNA extraction in maternal urine for transcriptomic profiling of preeclamptic pregnancies**

Cassandra Wauer, University of California San Diego, San Diego, CA

*Identification novel regulators of exosome biogenesis and uptake in cancer cells through whole-genome CRISPR screening**

Phuong Thao Tran, UT MD Anderson Cancer Center, Houston, TX

*Endocytosis inhibits the exosomal secretion of exosome cargo proteins and triggers their lysosomal destruction**

Laura Sanchez, Johns Hopkins University, Baltimore, MD

Poster Session #2 + Coffee break
4:30 pm – 6:30 pm

2023 American Association of Extracellular Vesicles Annual Meeting

October 27-29, 2023 | Boston, MA

Conference Day Three Sunday, October 29, 2023

Breakfast

7:00 am - 8:00 am

Session 8: EVs in disease II

8:00 am - 9:35 am

Moderator: *Vasily Yakovlev, VCU School of Medicine, Richmond, VA*

8:00 am-8:20 am

Early transfer of cancer cell derived CD9+ extracellular vesicles reprograms the pancreatic tumor microenvironment

Kate McAndrews, UT MD Anderson Cancer Center, Houston, TX

8:20 am-8:40 am

The role of standardization of ontology/measurement standards

Jennifer Jones, NIH, Bethesda, MD

8:40 am-9:00 am

Molecular and functional heterogeneity of cancer-derived extracellular vesicles

Dolores Di Vizio, Cedars-Sinai Medical Center, Los Angeles, CA

9:00 am-9:10 am

*Extracellular vesicle exchange is favored by cell proximity**

Emanuele Cocucci, Ohio State University, Columbus, OH

9:10 am-9:15 am

Next generation of NTA - fluorescence colocalization measurements

Christina Klasen, Particle Metrix

9:15 am-9:25 am

Activated T cells secrete extracellular vesicles in the allergic airway and enhance

*eosinophil viability**

Heather Pua, Vanderbilt University, Nashville, TN

9:25 am-9:35 am

*Role of liver-derived extracellular vesicles and RNA cargos in the regulation of immunometabolism**

Takahisa Nakamura, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

Coffee break

Sponsored by TheraXyte

9:35 am - 9:50 am

Session 9: EVs as novel therapeutics II

9:50 am - 11:45 am

Moderator: Ke Huang, University of North Carolina at Chapel Hill and North Carolina State University, Raleigh, NC

9:50 am-10:10 am

Biopharming: Engineering EVs in milk for delivering therapeutics

Janos Zemleni, University of Nebraska-Lincoln, Lincoln, NE

10:10 am-10:30 am

Extracellular vesicles for lung regeneration and drug delivery

Ke Cheng, Columbia University, New York, NY

10:30 am-10:50 am

Bioengineering extracellular vesicles

Samir El-Andaloussi, Karolinska Institute, Stockholm, Sweden

10:50 am-11:10 am

Engineered extracellular vesicles for gene therapy

Zhaogang Yang, Jilin University, Changchun, China

11:10 am-11:15 am

Scale EV isolation workflow through the qEVPurepath

Botai Xuan, Izon Science, Boston, MA

11:15 am-11:25 am

Extracellular vesicles as a novel therapeutic modality

Scott Bonner, Evox Therapeutics

11:25 am-11:35 am

*Small extracellular vesicles encapsulating muscle-specific miRNAs in Myotonic Dystrophy type 1**

Leonidas Phylactou, The Cyprus Institute of Neurology and Genetics, Nicosia, Cyprus

11:35 am-11:45 am

*Engineered CRISPR extracellular vesicles for targeted gene therapy**

Mei He, University of Florida, Gainesville, FL

Closing Remarks

11:45 am - 12:00 pm

Notes



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2024

AAEV

ANNUAL MEETING

Houston, TX

