

## Spring 2021 Newsletter

### Notes from the Chair....

Welcome Physiological -Omics Group (POG) members! As we look forward to EB 2021, we have the opportunity to reflect upon a year of tremendous scientific progress made possible through the ingenuity, collaboration, and persistence of researchers and healthcare workers across the globe. Though we still face difficult challenges, we have seen the powerful role that -omics based technologies have played in rapidly responding to, what will likely be, one of the greatest public health challenges of our lifetime.



The POG is a community of researchers with a shared interest in advancing and implementing these -omics approaches to address wide-ranging questions in physiology. Whether you are new to the group or have been a member since it was established in 2000, this group serves as a collaborative community where physiologists can learn about and advance research in this rapidly evolving field.

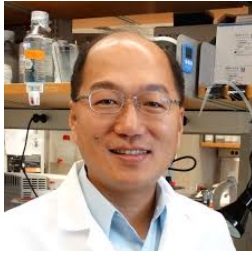
Please mark your calendars for Friday, April 30<sup>th</sup> for our exciting POG programming aimed at highlighting advancements in Physiological Omics research. We kick off the morning (10-11:30 am EDT) with our POG symposium: Insightful Multi-Omics Approaches: From Clinical Contexts to Extreme Environments. We will reconvene later in the day with the 8<sup>th</sup> Annual POG Conference (2-5pm) highlighting the work of our 2020 and 2021 New Investigator and Distinguished Lecturer Award winners, as well as several abstracts from POG trainee and principal investigators. We will end the day with the POG Awards and Virtual Social (5:15-7:15 pm) where we will celebrate award winners and meet to catch up/connect with others. We especially want to welcome new members and trainees to join this free event for this opportunity to network 'face-to-face'.

Finally, on behalf of the Steering Committee, I would like to our express sincere gratitude to Dr. Mark Olfert (Past Chair) and Dr. Leah Solberg-Woods (Past Treasurer) for their leadership and dedication to the POG. We are excited to welcome several new Steering Committee members, including Dr. Lauren Gerard Koch (Treasurer), Dr. Michael Tomasson (Awards Co-Chair), and Dr. Gary Mouradian (Trainee Advisory Chair). Several positions will be open in the upcoming months. If you are interested in joining, please reach out and let us know (details on Page 6).

Alison Kriegel, PhD, FAHA  
PO Group Chair

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## JOINT PROGRAM COMMITTEE

Tzong-Shi Lu, MD (*Chair*)

# Physiological -Omics Group Program at EB2021

### "Insightful Multi-Omics Approaches: From Clinical Contexts to Extreme Environments"

Friday, April 30, 2021, 10:00 - 11:30 pm,

*Physiological Omics Group* Chair: **Christian Delles**, Co-Chair: **James Yu**

**Description:** This symposium will focus on various uses of state-of-the-art –omic technologies in studies of unique clinical and environmental contexts, including evolutionary adaptations revealed through transcriptomes, developmentally and clinically relevant changes in the epigenome, and –omic differences that might become more commonplace with future environmental endeavors such as space travel. Each presentation brings insight from a different model, environmental context, and approach to provide a highly integrative physiological –omics perspective.

10:00 AM – 10:05 AM EDT

#### **Introduction**

Christian Delles, MD – University of Glasgow

10:05 AM – 10:25 AM EDT

#### **Integrating Genomic and Physiologic Data to Uncover Mechanisms Regulating Fetal Growth at High Altitude**

Colleen Julian, PhD – University of Colorado Denver - Anschutz Medical Campus

10:25 AM – 10:45 AM EDT

#### **Combined Transcriptomics and Methylomics to Define Etiologies of Human Heart Failure**

Adam R. Wende, PhD – University of Alabama at Birmingham

10:45 AM – 11:05 AM EDT

#### **Linking the Development of Diving Ability to Regulatory RNA Expression in the Weddell Seal**

Allyson Hindle, PhD – University of Nevada, Las Vegas

11:05 AM – 11:25 AM EDT

#### **Insights from Twin Studies: Omic Effects of Pursuing the Final Frontier**

Brinda K. Rana, PhD – University of California San Diego Health

11:25 AM – 11:30 AM EDT

#### **Conclusion**

Christian Delles

### POG Poster Categories

1281-APS

Genetics, genomics, gene expression, and epigenetics in health and diseases

1283-APS

Functional -omics: genomics, transcriptomics, proteomics and metabolomics

# "8th Annual APS Physiological -Omics Group Conference"

Friday, April 30, 2021, 2:00 - 5:00 pm EDT

**\*ALL sessions will be LIVE!**

- 2:00 PM **2020 Distinguished Lecture in Physiological -Omics Research**
- Seeking the Program of the Renin Cell**
- R. Ariel Gomez, MD**  
University of Virginia
- 2:30 PM **Multi-Omic Analysis of the Microbiome and Fecal Metabolome in Mice with Experimentally Induced Chronic Colitis**  
Nathan Caldez, MS, University of Illinois at Chicago
- 2:42 PM **Keratinocyte-associated Protein 3, a Novel Adiposity Gene, May Act Through the Ileum**  
Alexandria Szalanczy, Wake Forest University School of Medicine
- 2:54 PM **Role of the Paternal Microbiome-Metabolome Axis in the Epigenetic Programming of Sperm**  
Alexis Roach, MSc, Texas A&M University
- 3:06 PM **Single Cell Transcriptomic and Genomic Characterization of Brugada Syndrome Associated Genes**  
Richa Tambi, PhD, Mohammed Bin Rashid University of Medicine and Health Sciences
- 3:18 PM **Sex Differences in Gene-Expression between Brain Arteries and Cortical Microvessels in Mice revealed by RNA-Sequencing**  
Sinisa Cikiric, MD, Tulane University School of Medicine
- 3:30 PM **New Investigator Award Lecture**
- Metabolic Rewiring of the Hypertensive Kidney**  
Markus Rinschen, MD, Aarhus University
- 4:00 PM **Multiomics Uncover Sexual Disparities in the Expression of Genes and Proteins in Rat Cerebral Microvessels**  
Partha Chandra, Tulane University School of Medicine
- 4:15 PM **Co-regulation of long non-coding RNAs and protein-coding genes during cell quiescence**  
Hilary Coller, PhD, UCLA
- 4:30 PM **2021 Distinguished Lecture in Physiological -Omics Research**
- Joao De Magalhaes, PhD**  
University of Liverpool

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## **POG Awards and Virtual Social**

Friday, April 30, 2021, 5:15 - :30 pm,

*Physiological Omics Group* Hosts: Alison Kriegel, PhD and Elaine Lee, PhD

\*This meeting is occurring outside of EB registration; Registration is free, but you must pre-register at: <https://zoom.us/meeting/register/tJcpcu-gpjwqHtEPnafICrznJkIwTcutcSz>

**Please join us to celebrate our award winners and reconnect in real-time!**

## APS Chat Lounge: Physiological Genomics

Friday, April 30, 2021  
1:30 PM – 2:00 PM EDT

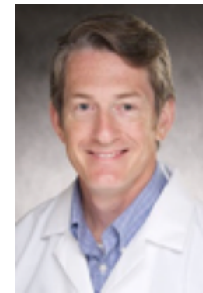
### Session Chair

Bina Joe, BS MS PhD  
Distinguished University Professor & Chair  
University of Toledo  
Toledo, Ohio, United States Friday, April 30, 2021



## AWARDS COMMITTEE

Elaine C. Lee, PhD (*Chair*)  
Michael Tomasson, MD (*Co-Chair*)



The Physiological Omics Group with generous support from our sponsors offers awards for physiologists at all levels. The **Physiological -Omics Interest Group Distinguished Lectureship Award** recognizes a distinguished lecturer in the area of physiological -omics (e.g., genomics, proteomics, metabolomics, etc.). The awardee will be invited to present the distinguished lecture at the APS Physiological -Omics Group Conference. The **Physiological -Omics Group New Investigator Award** recognizes outstanding early career investigator(s). Each year, the PO Group invites nominations from young investigators who have made meritorious contributions to the scientific areas represented by the Physiological -Omics Group of the APS. The **Physiological -Omics Interest Group Trainee Research Excellence Award** recognizes outstanding trainees who have the potential to make meritorious contributions to the scientific areas represented by the Physiological -Omics Group of the APS.

## 2021 Distinguished Lectureship Awardee in Physiological -Omics Research

**Dr. João Pedro de Magalhães** is currently Professor at the Institute of Ageing and Chronic Disease, University of Liverpool, UK. The goal of his research is to help understand the genetic, cellular, and molecular mechanisms of ageing. As leader of the Integrative Genomics of Ageing Group, Dr. de Magalhães is utilizing genomics to study ageing and longevity manipulations. As part of his research, he has sequenced and analyzed the genomes of long-lived mammals such as the naked mole rat and the bowhead whale. His group has also developed genomics tools and resources to study aging. He is the author of over 100 publications and has given a TED-Ed lesson on aging with over 5 million views. He is an editorial board member for *Ageing Cell* and a Board of Trustees member of the British Society for Research on Ageing.

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## 2020 New Investigator Award Awardee

**Markus Rinschen, MD**, Associate Professor,  
Department of Biomedicine, Aarhus University

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## 2020 Distinguished Lectureship Awardee in Physiological -Omics Research

**Dr. R. Ariel Gomez** is currently the Harrison Distinguished Professor of Pediatrics at the University of Virginia School of Medicine. Research in Dr. Gomez's lab focuses on renin-synthesizing cells and kidney vascular development. He showed that renin cells are progenitor cells that appear early in life and are necessary for kidney development. His research has revealed that renin cells are also precursors for multiple cell types, including renal vascular smooth muscle, mesangial and tubular epithelial cells as well as extrarenal cells such as Leydig and adrenal cells. Current studies aim at defining the determinants of renin cell identity and the mechanisms that govern the development of the kidney vasculature. His laboratory is using epigenetic approaches to identify key transcriptional factors/gene-gene interactions characteristic of the renin cell. Through his research, Dr. Gomez hopes to develop treatments for hypertension and kidney and vascular diseases. Dr. Gomez has served as Chief of Pediatric Nephrology, and Vice President for Research and Graduate Studies at the University of Virginia. He received the 2017 Distinguished Alumni Award for Achievement by the University of Iowa Carver College Medical Alumni Association and the University of Virginia Distinguished Scientist Award.

### **Physiological -Omics Group** *Call for Donations*

The PO Group's Steering Committee would like to call for donations from our PO Group members and other APS members to support the PO Group's activities. With your generous support, we are going to present the Distinguished Lectureship Award in Physiological Omics Research, New Investigator Award in Physiological Omics Research, and several Trainee Awards in Physiological Omics Research at the Experimental Biology Meeting. If you are willing to support the PO Group, please go to the APS website, find "Supporting the APS", and select "**the PO Group Fund**" to make a donation. Any amount of \$25 or more will be appreciated. Alternatively, just cut the following link and paste it to your browser. All contributions from corporations and individuals who have made a donation to the PO Group will be acknowledged in the PO Group Newsletters.

<http://ebus.the-aps.org/PersonifyEbusiness/Default.aspx?TabID=1515&ProductId=2469846>

## Meet our newest members

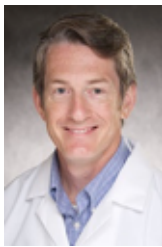
The Physiological -Omics Group would like to welcome the newest members of our steering committee. We thank them for their willingness to serve and to support and promote the Physiological -Omics Group and the American Physiological Society.



### **Treasurer**

**Lauren Gerard Koch, PhD**

Department of Physiology and Pharmacology  
University of Toledo



### **Awards Committee Co-Chair**

**Michael Tomasson, MD**

Internal Medicine - Hematology, Oncology and Blood and Marrow Transplantation  
University of Iowa Carver College of Medicine



### **Trainee Representative**

**Gary Mouradian, PhD**

Department of Physiology  
Medical College of Wisconsin

## Join the Physiological -Omics Steering Committee!

The Physiological -Omics Group seeks nominations for the following steering committee positions:

Secretary  
Awards Committee Co-Chair  
Group Science & Program Committee Co-Chair  
Industry Foundations Committee Chair and Co-Chair  
Treasurer Co-Chair  
Newsletter Editor and Associate Editor

All appointments are 3 years and begin at the close of the Experimental Biology Meeting. Co-Chairs are eligible to become sub-committee chair following the term as co-chair. If you are interested, please submit a self-nomination/letter of interest (1 page) and a brief biosketch by e-mail to Alison J. Kriegel, POG Chair, [akriegel@mcw.edu](mailto:akriegel@mcw.edu). All applicants will be notified after review by the POG steering committee.

# Special Thanks to our Sponsors!

## Physiological Genomics Group Awards

made possible in part by

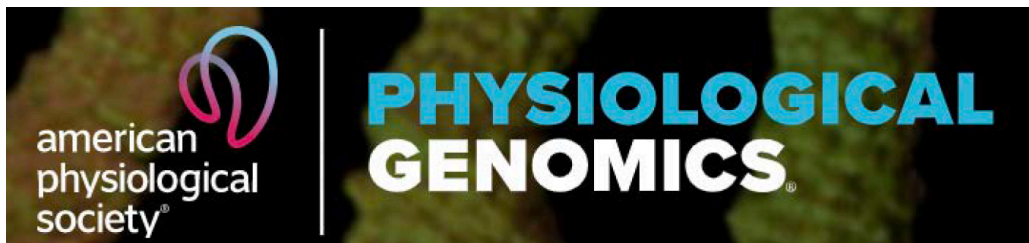
Our Strategic Partner



&



*Integrating the Life Sciences from Molecule to Organism*



## Calls for Papers

[Extracellular Vesicles: Role in Physiology and Pathophysiology](#)

Deadline: June 30, 2021

[Precision Medicine and Complex Disease](#)

Deadline: June 30, 2021

[Physiological Genomics of Cell States and Their Regulation and Single Cell Genomics](#)

Deadline: June 30, 2021

[Comparative Physiological Genomics](#)

Deadline: July 1, 2021

[Deconstructing Organs: Single-Cell Analyses, Decellularized Organs, Organoids, and Organ-on-a-Chip Models](#)

Deadline: December 31, 2021

## PO GROUP STEERING COMMITTEE

### Chair

Alison J. Kriegel, Ph.D., FAHA  
Medical College of Wisconsin  
[akriegel@mcw.edu](mailto:akriegel@mcw.edu)

### Immediate Past-Chair

Ivan Mark Olfert, Ph.D., FAHA, FAPS  
West Virginia University School of Medicine  
[imolfert@hsc.wvu.edu](mailto:imolfert@hsc.wvu.edu)

### Secretary

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### Treasurer

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### Joint Program Comm Rep & Program Comm Chair

Tzong-Shi Lu, M.D.  
Harvard Medical School  
[tlu1@rics.bwh.harvard.edu](mailto:tlu1@rics.bwh.harvard.edu)

### Group Science & Program Comm Co-Chair

*Open Position*

### Awards Comm Chair

Elaine Choung-Hee Lee, Ph.D.  
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### Awards Comm Co-Chair

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### Trainee Representative

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### Industry Foundations Comm Co-Chair

*Open Position*

### International Relation Comm Chair

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### Newsletter Associate Editor

*Open Position*