Physiological Genomics Group Spring 2016 Newsletter

Editor’s column:

In this Spring 2016 Newsletter issue, we provide the details of all the scientific activities of the PG group during EB 2016 as well as brief special notes from our Steering Committee members.

We are pleased to announce that the PG Group Steering Committee has selected Dr. Curt D. Sigmund, Ph.D., of the University of Iowa as the PG Group’s 2016 Distinguished Lectureship Awardee in Physiological Genomics Research. As 2016 PG Group Distinguished Lectureship Awardee, Dr. Curt D. Sigmund will deliver the Distinguished Lecture in Physiological Genomics Research at the PG Group Pre-EB 2016 Annual Research Conference at 1:00 PM to 1:30 PM on Saturday, April 2, 2016, and attend the PG Group’s Business/Awards Luncheon at Noon, Monday April 4, 2016, San Diego, CA. Please join the PG Group members to congratulate Dr. Sigmund for receiving the award in recognition of his outstanding contributions to and achievements in physiological genomics research.

We welcome comments from the broad scientific community and the PGG members to be included in subsequent newsletters.

Sincerely Yours,

Minolfa C. Prieto, MD, PhD
Editor

Tamas Alexy, MD, PhD
Co-Editor

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Dear Colleagues,

The Physiological Genomics (PG) Interest Group of the American Physiological Society (APS) is rapidly expanding in recent years with more than 700 members. To further promote the scientific exchange and collaboration for our members with the approval of the APS, the PG Interest Group will hold its 3rd Annual Physiological Genomics Interest Group Annual Research Conference on the afternoon of Saturday, April 2, 2016, immediately before 2016 Experimental Biology Meeting at Room 25A (1:00 PM - 5:15 PM), San Diego Convention Center, San Diego, CA. On behalf of the Physiological Genomics Group Steering Committee, we cordially invite you to join us at this exciting meeting. No registration fee is required.

The research conference will cover a wide-range of topics, including (but not limited to) genomics, epigenomics, transcriptomics, metabolomics, bioinformatics, gene regulation transcription, RNA interference and miRNAs, and transgenic animal models in physiological genomic research.

We are looking forward to seeing you in San Diego.

Sincerely,

Jia L. Zhuo, M.D., Ph.D., FAHA, FASN
PG Group Chair

Michael R. Garrett, Ph.D., MBA
Joint Program Committee Representative

Mark Olfert, Ph.D., FAHA
General Secretary
12:30 PM – 1:00 PM  ARRIVAL and WELCOME

1:00 PM – 1:30 PM  SESSION I: DISTINGUISHED LECTURE IN PHYSIOLOGICAL GENOMICS RESEARCH

Chairs: Jia L. Zhuo, M.D, Ph.D and Michael R. Garrett, Ph.D, MBA

Curt D. Sigmund, Ph.D
Chief and Professor
Department of Pharmacology, University of Iowa

Linking transcriptional regulation to vascular physiology through physiological genomics

1:30 PM – 2:30 PM  SESSION II: Non-coding RNA: miRNA, siRNA, and long ncRNA

Chairs: Mark Olfert, Ph.D and Utpal Sen, Ph.D.

1:30 – 2:00 Mingyu Liang, M.D., Ph.D., Medical College of Wisconsin
MicroRNA in physiological genomics: the next 10 years

2:00 – 2:15 Gregory Weber, Ph.D., University of Louisville School of Medicine
MicroRNA profiling and regulation in hypertensive kidney (Abstract #4973)

2:15 – 2:30 Tse-Shun Huang, Ph.D., UCSD School of Medicine
Role of LncRNAs in regulating endothelial function (Abstract #2434)

2:30 PM – 3:00 PM  COFFEE BREAK

3:00 PM – 4:00 PM  SESSION III: Genetics and Genomics of Exercise, Obesity, and Hypertensive Diseases

Chairs: Michael Massett, Ph.D.; Min Du, Ph.D.

3:00 – 3:30 Michael Garrett, Ph.D., University of Mississippi Medical Center
New insight into nephron number, hypertension, and CKD using the HSRA one-kidney rat model

3:30 – 3:45 Elaine Lee, Ph.D., University of Connecticut
RNAseq analysis of exercise, heat, and dehydration stress in a Kona Ironman World Championship (Abstract #7446)

3:45 - 4:00 Michael Massett, Ph.D., Texas A&M University
Variation in exercise capacity and responses to training in inbred mouse strains (Abstract #7786)

**SESSION IV: Translational Genomics: from model organisms to humans** Chairs: Zhongjie Sun, Ph.D.; Minolfa C. Prieto, M.D., Ph.D.

4:00 - 4:30 Tianxin Yang, M.D., Ph.D., University of Utah School of Medicine
New insights into the role of (Pro)renin receptor as a new regulator of collecting duct Na+ transport and blood pressure

4:30 – 4:45 Anne Kwitek, Ph.D., University of Iowa
Independent and pleiotropic gene effects on hypertension and metabolic syndrome in Lyon Hypertensive Rats (Abstract #6236)

4:45 – 5:00 Danielle Lee, Ph.D. Graduate Student, Brigham and Women’s Hospital, Harvard Medical School
Transcriptomic profiling in cardiovascular disease with renal failure in human (Abstract #4601)

5:00 PM – 5:15 PM GENERAL DISCUSSION AND CONCLUSIONS

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**2016 Distinguished Lectureship Awardee in Physiological Genomics Research**

Dr. Curt Sigmund has been on the faculty of the University of Iowa since 1991. His research has focused on molecular, genomics and genetic mechanisms regulating arterial pressure and causing hypertension, using transgenic mice as the primary experimental model system. Between 1991 and 2010, Dr. Sigmund was the Director of the University of Iowa Transgenic Animal and Gene Targeting Core Facility. Dr. Sigmund currently holds the Roy J. Carver Endowed Chair in Hypertension Research, is the Director of the University of Iowa Healthcare (UIHC) Center for Hypertension Research, and is the Chairperson of the Department of Pharmacology. His research program has been dedicated to understanding the role of tissue renin-angiotensin systems in the kidney and brain, and more recently to explore the genomics and mechanisms by which the transcription factor PPARγ regulates vasomotor function and blood pressure. His currently active projects supported by NIH/NHLBI-sponsored Program Project Grant and R01 grants are focused on the mechanisms by which the brain renin-angiotensin system regulates cardiovascular and metabolic function, and how PPARγ in the endothelium and vascular smooth muscle regulate vascular function and arterial pressure. Dr. Sigmund has mentored numerous graduate students and postdoctoral fellows. Dr. Sigmund received the Excellence in Hypertension Research from the American Heart Association in 2009, and Ernest Starling’s Distinguished Lecturer of APS Water and Electrolyte Homeostasis Section in 2011. The PGG is honored to have him present the 2016 Physiological Genomics Research Distinguished Lecture.

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**PGG AWARD CEREMONY LUNCHEON**

WHERE: THE OLD SPAGHETTI FACTORY
275 5th Avenue
San Diego, CA 92101

WHEN: MONDAY, April 4, 2016
12:30 PM-1:30 PM

Min Du, Banquet Organizer: min.du@wsu.edu (509) 335-2744 or Ann Marie Bocus, APS Sections Administrator: abocus@the-aps.org; (301)634-7976
The PG Group would like to take the opportunity to invite you to our exciting programs planned for EB2016. A list of topics/presentations are below. In particular, we would like to call your attention to our pre-EB conference on Saturday, April 2, 1:00-5:15 pm, Room 25A.

The full schedule of EB2016 can be found here: [http://www.apsebmeeting.org/eb2016/schedule-day.cfm](http://www.apsebmeeting.org/eb2016/schedule-day.cfm)

**Overview of Physiological Genomics Group at EB2016**

**Saturday, April 2, 1-5 pm Room 25A**
Keynote Speaker Lecture & Invited Oral Presentations  
*Chair: The PGG Program Committee*

**Sunday April 3, 8:00-10:00am Room 28A**
Trainee Highlights in Physiological Genomics

**Sunday April 3, 10:30am-12:30pm Room 25B**
Symposium: “Omic Applications in Metabolic Physiology,” Chair- Mark Olfert, PhD, West Virginia University School of Medicine

**Monday April 4, 3:15-5:15pm Room 25A**
Featured Topic: “Environmental Regulators on Inflammation: Genetic and Epigenetic Implications,” Chair- Kate Claycombe, PhD, USDA ARS

**Tuesday April 5, 8:00-10:00am Room 20A**
PG Special Symposium: “Beyond GWAS: Attaching Physiology to the Genome”

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**Experimental Biology 2017**

Believe it or not it’s time to start planning for EB 2017, in Chicago, IL (April 22 - April 26, 2017). The PG group is currently soliciting suggestions and/or researchers interested in planning a Featured Topic (FT) or Symposia for EB 2017. Both FT and Symposia are extremely valuable platforms for promoting scientific interchange, sharing new research ideas and concepts, as well as, the chance for an early-stage/mid-career investigator to assume a leadership role and highlight their field of research. A more detailed description of FT and Symposia as well as submission forms has been posted to APS-Connect ([http://connect.the-aps.org/home](http://connect.the-aps.org/home)) or you can request this information directly from me (mrgarrett@umc.edu). Proposed FT and Symposium forms should be returned before March 25, 2016. The proposed topics/symposium will be reviewed and discussed by the PGG committee at EB2016. A final decision will be made on/or before when they are due to APS, ~May 1, 2016.

The APS Joint Program Committee (JPC) is seeking member input for the Integrative Symposia Series. The function of the Integrative Symposia Series is to cut across physiological research areas and be of interest to a broad audience. Suggestions on topics and speakers can be submitted here: [https://www.surveymonkey.com/r/QBP5WKQ](https://www.surveymonkey.com/r/QBP5WKQ). The deadline is March 18, 2016.

We look forward to the exciting and novel research topics suggested by the PG group membership.
The Physiological Genomics Group is honored to have Dr. Jeremy W. Prokop, senior scientist at HudsonAlpha as the recipient of the 2016 New Investigator Award. The New Investigator Award recognizes an outstanding young investigator pursuing research in Physiological Genomics. The awardee must be the first author or a senior author of a Physiological Genomics publication in the previous 5 years, not be above the rank of Assistant Professor (or academic/industry equivalent) at the time of nomination or application, and have earned his/her Ph.D. degree within the last 15 years.

The Awards and Trainee committee members reviewed 25 abstracts for the PG Trainee Highlights Session. The most outstanding trainee will be awarded The DSI Physiological Genomics Trainee Research Excellence Award.

Awards will be presented at the Experimental Biology 2016 Physiological Genomics Group Luncheon and Awards Ceremony. The luncheon and awards ceremony will be on Monday, April 4, 2016 from 12:30-1:30 PM at The Old Spaghetti Factory.

Physiological Genomics Group New Investigator Award

The PG Group, with generous support from *Physiological Genomics*, is proud to present the **2016 PG Group New Investigator Award** (with a value of $500) at EB’2016, and now calls for nominations for EB2017. The objective of the PG Group New Investigator Award is to stimulate innovative research in physiological genomics and to recruit young scientists to the field of physiological genomics. Each year, the PG group invites nominations from young investigators who have authored publications in *Physiological Genomics* between January and December from the previous year.

The criteria of nominees for the PG Group New Investigator Award include: a) the first author or a senior author of a *Physiological Genomics* publication in the previous year; b) not be above the rank of Assistant Professor (or academic/industry equivalent) at the time of nomination; and c) have earned their Ph.D. degree within the last 10 years.

Nominations for 2017’s award will be due January 31, 2017 and included:

1) A letter of nomination (~1 page) describing the significance and quality of the nominee’s refereed article in Physiological Genomics; the innovation and relevance of the nominee’s current area of physiological genomics research; and the merit of the nominee in scholarly and research efforts (self-nominations will be accepted).

2) A recent CV

3) A reprint or link to the nominee’s article in *Physiological Genomics*

Nomination letters and nominee’s CVs should be submitted to michael_massett@tamu.edu (as the Chair of the PG Group’s Award Committee) and include the subject line, “PG Group New Investigator Award Nomination.” Applications will be reviewed by the Awards Committee of the PG Group. The awardee will be recognized at the 2017 Annual Experimental Biology meeting in Chicago, IL at the PG Group Business Luncheon. A complementary ticket to the luncheon will be provided for the winner.

For correspondence, please contact: Michael Massett, Ph.D. Chair of the APS/PG Group Award Committee. Department of Health and Kinesiology Texas A&M University, 213F Heldenfels Hall, TAMU 4243 College Station, TX 77845-4243 Phone: (979) 862-4687 Fax: (979) 847-8987
Please join the PG Group for EB2016 Trainee Highlights in Physiological Genomics Session to be held on Sunday, April 3 from 8:00-10:00 AM in Room 28A, San Diego Convention Center. This year 8 trainees will be presenting their work on interesting and diverse topics. Outstanding presentations will be recognized in a brief awards ceremony at the Physiological Genomics Luncheon on Monday, April 4.

8:00 AM–8:15 AM # 2795 Jianglei Chen
Deficiency in the Anti-Aging Gene Klotho Promotes Aortic Valve Fibrosis through AMPKα-mediated Activation of RUNX2

8:15 AM -8:30 AM # 5236 Evan Devallance
Exercise Training in the Metabolic Syndrome Improves Perivascular Adipose Gene Expression

8:30 AM-8:45 AM # 616 Di Feng
Phosphorylation of α-actinin-4 (ACTN4) at serine 159 mimics the biochemical and cellular effects of human kidney disease mutations

8:45 AM -9:00 AM # 4305 Joshua Gaudette
MiR9 is increased in Rheumatoid Arthritis Monocytes and Regulates Monocyte Migration

9:00 AM -9:15 AM # 6167 Alice Mathews
Fruit and Vegetable Intervention Lowers Circulating Ceramide Levels and Improves Estimated Insulin Sensitivity in Young Adults at Risk of Developing Metabolic Syndrome: A FRUVEDomic Pilot Study

9:15 AM -9:30 AM #3575 Amelia Mazzone
The Micro-RNA let-7f Regulates Expression of the Voltage-gated Mechanosensitive Ion Channel NaV1.5 in Human Gastrointestinal Smooth Muscle

9:30 AM -9:45 AM # 5773 Jolyane Meloche
Altered DNA-Damage/BRD4 Signaling Pathways in the Lungs of Patients with Pulmonary Hypertension Can Propagate to the Coronary Vasculature and Induce Coronary Artery Disease

9:45 AM -10:00 AM #6684 Virginia Reverte Ribo
Deletion of the Prorenin Receptor in the Collecting Duct Impairs Renal Function and Attenuates Blood Pressure in Chronic Angiotensin II-infused Mice.

Acknowledgements to Donors to Physiological Genomics Group
The PG Group’s Steering Committee would like to thank the following corporations and individuals for their generous contributions to support the PG Groups during last couple of years:

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