Physiological Genomics Group 2015 Spring Newsletter

Editor’s column:

The Physiology Genomics Group (PGG) is a rapidly expanding group of scientists within the American Physiological Society with over 600 active members and counting. Based on its last year’s success, we are proud to organize the 2nd Annual PGG Research Conference at 2015 Experimental Biology Meeting in Boston, MA, in addition to a symposium, a feature topic, and a trainee highlight session.

In this 2015 Spring Newsletter, we provide details on all scientific activities of the PG group during EB 2015 as well as brief special notes from our Steering Committee members.

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

Sincerely Yours,

Minolfa C. Prieto, M.D., Ph.D.
Editor

Tamas Alexy, M.D., Ph.D.
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 600 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 2nd Annual Physiological Genomics Interest Group Research Conference on the afternoon of Saturday, March 28, 2015, immediately before 2015 Experimental Biology Meeting at Room 211 (12:00 PM - 5:00 PM), Boston Convention Center, Boston, MA. 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 Boston!

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
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<tr>
<th>Time</th>
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<td>12:00 PM – 12:30 PM</td>
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| 12:30 PM – 1:00 PM | DISTINGUISHED LECTURSHIP IN PHYSIOLOGICAL GENOMICS  
  *Chairs: Jia L. Zhuo, M.D, Ph.D and Michael R. Garrett, Ph.D, MBA*  
  *Mark A. Knepper, M.D., Ph.D*  
  Chief, Laboratory of Kidney and Electrolyte Metabolism  
  NIH, NHLBI, DHHS  
  *Vasopressin signaling in the renal collecting duct: Deep sequencing joins the fray* |
| 1:00 PM – 2:00 PM | SESSION I: Emerging Technologies: From Gene Editing to Bioinformatics  
  *Session Chairs: Mingyu Liang, M.D., Ph.D.; Mark Olfert, Ph.D.*  
  1:00 – 1:30  
  Aron Geurts, Ph.D., Medical College of Wisconsin  
  *Progress on engineering the rat genome: resources and strategies for creating novel disease models*  
  1:30 – 1:45  
  Romer A. Gonzalez-Villalobos, M.D., Ph.D.; Cedars-Sinai Medical Center  
  *Using the gene-targeting technology to uncover the role of renal ACE in blood pressure control*  
  1:45 – 2:00  
  Mindy Dwinell, Ph.D., Medical College of Wisconsin  
  *Genomic and phenotypic rat strain profiles for disease model identification* |
| 2:00 PM – 3:00 PM | SESSION II: Genetics and Genomic Investigation of Complex Diseases  
  *Session Chairs: Zhongjie Sun, M.D., Ph.D.; Min Du, Ph.D.*  
  2:00 – 2:30  
  Ron Korstanje, Ph.D., Jackson Laboratory  
  *Genetic and genomic analysis in aging mice identifies novel genes for kidney dysfunction*  
  2:30 – 2:45  
  Leah Solberg-Woods, Ph.D., Medical College of Wisconsin |
### SESSION III: Non-coding RNAs and Epigenetics in Disease Processes

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<th>Presenter</th>
<th>Title</th>
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<tr>
<td>3:15 – 3:45</td>
<td>Bina Joe, Ph.D., University of Toledo-Health Sciences Campus</td>
<td>Non-coding RNA, microbiota and the inheritance of hypertension</td>
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<tr>
<td>3:45 – 4:00</td>
<td>Lisa Pierce, D.Sc., Tripler Army Medical Center</td>
<td>Alterations in global DNA methylation/hydroxymethylation and microRNA expression in a rat model of gulf war illness</td>
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<td>4:00 – 4:15</td>
<td>H. G. Klemcke, Ph.D., U.S. Army Institute of Surgical Research</td>
<td>Cardiac mRNA expression in inbred rat strains divergent in survival time after hemorrhage</td>
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### SESSION IV: Publications in Physiological Genomics

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<tr>
<td>4:15 – 4:30</td>
<td>Andrew Greene, Ph.D., Editor-in-Chief, Physiological Genomics</td>
<td>Current Status of the journal Physiological Genomics</td>
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<tr>
<td>4:30 – 4:45</td>
<td>Bina Joe, Ph.D., Incoming Editor-in-Chief, Physiological Genomics</td>
<td>Future Perspectives of the journal Physiological Genomics</td>
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### GENERAL DISCUSSION AND CONCLUSIONS

#### PG GROUP AWARD LUNCHEON

**WHERE:**

**ATLANTIC BEER GARDEN**  
146 Seaport Boulevard  
Boston, MA 02210

**WHEN:**

**MONDAY, MARCH 30th, 2015**  
12:00 PM-1:30 PM

**Min Du, Banquet Organizer:** min.du@wsu.edu (304) 239-7597 or Ann Marie Bocus, APS Sections Administrator: abocus@the-aps.org; (301)634-7976
Joint Program Committee

Michael Garret (Chair)
Solberg Woods (Co-Chair)

We are very pleased to announce the various events sponsored by the PGG during the 2015 EB meeting in Boston, MA.

2nd Annual APS Physiological Genomics Group Conference

Saturday, March 28, 1-5 pm  Room 211
Keynote Speaker Lecture & Invited Oral Presentations
Chair: The PGG Program Committee

**Feature Topic:** Sunday, March 29, 8-10 am  (Room 207)
Physiologic effects of sex chromosome complementation and chromosome Y genetic variants
Chair: Christian F. Deschepper

**Highlight Symposium:** Sunday, March 29, 3:15-5:15 pm  (Room 207)
Revolutionary systems-medicine approaches to understand disease and drug response physiology
Chair: Brett Blackman, HemoShear

**Trainees Highlight Session:** Tuesday, March 31, 3:15-5:15 pm  (Room 211)
Chairs: Alison J. Kriegel & Hui Cai

Abstract categories for EB 2015:

**FEATURED TOPICS:**
1260-APS  Physiologic effects of sex chromosome complementation and chromosome Y genetic variants

**POSTERS:**
1261-APS  Systems biology, computational modeling, and bioinformatics
1262-APS  Genetically-engineered model organisms
1263-APS  Genetics, genomics, gene expression, and epigenetics
1264-APS  Ion transport: genes and function
1265-APS  Non-coding RNA: miRNA, siRNA, and long ncRNA
1266-APS  Genetics/genomics of exercise, obesity, and diabetes
1267-APS  Genetics/genomics of cardiovascular and kidney disease
1268-APS  Renin-angiotensin system: genes and function
1269-APS  Functional genomics: transcriptomics, proteomics and metabolomics
1270-APS  Vascular disease: genes and function
1271-APS  Translational Genomics: from model organisms to humans

Click the following link to visit the official EB 2015 website:
http://experimentalbiology.org/2015/Home.aspx

Request for Proposals for Featured Topics and Symposia at Experimental Biology 2016

The PG Group is currently soliciting suggestions and/or researchers interested in planning a Featured Topic (FT) or Symposia for Experimental Biology 2016 in San Diego, CA (April 2 - April 6, 2016). Both FT and Symposia are extremely valuable platforms for promoting scientific exchange, 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 is attached as well as the specific forms. Please submit the completed forms to Mike Garrett (mgarrett@umc.edu) or Joe Zhuo (jzhuo@umc.edu) before March 20, 2015. The proposed topics/symposia will be reviewed and discussed by the PGG committee at EB2015. A final decision will be made on/or before when they are due to APS, May 1, 2015.

We look forward to the exciting and novel research topics suggested by the PG group members.
The Awards and Trainee committee members reviewed 17 abstracts for the PG Trainee Highlights Session. The Kent Scientific Physiological Genomics Trainee Research Excellence Award will be presented following the Trainee Highlights in Physiological Genomics at EB 2015.

The Awards Committee welcomes our four new members: Yumei Feng, M.D., Ph.D (Colorado State University), Rajesh Kumar, Ph.D (Texas A&M Health Science Center), R. Brooks Robey, M.D. (Geisel School of Medicine at Dartmouth) and Claudia dos Santos, M.D (University of Toronto, St. Michael's Hospital).

Our responsibilities include reviewing the written abstracts and oral presentations of the Physiological Genomics Trainee Research Excellence Award applicants and presenting the Kent Scientific Award and other PG Group awards at the 2015 EB Meeting in Boston….see you then!

**Physiological Genomics Group New Investigator Award**

The PG Group, with generous support from the journal Physiological Genomics, is seeking nominations for the PG Group New Investigator Award with a value of $500. The objective of the PG Group New Investigator Award is to actively stimulate innovative research in physiological genomics and to recruit talented young scientists to the field of physiological genomics. The PG group invites nominations from young investigators who have authored publications in Physiological Genomics between January and December 2014.

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 2014; 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 are now extended to March 10, 2015 and should include:

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 2015 annual Experimental Biology meeting in Boston, MA at the PG group business luncheon (Monday, March 30, 2015, 12:00-1:30 pm, 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 us for this year’s Trainee Highlights in Physiological Genomics Session at EB2015 to be held on Tuesday, March 31 from 3:15-5:15pm in BCEC Room 211. We are fortunate to have 8 trainees presenting their exciting work on interesting and diverse topics. Outstanding presentations will be recognized in a brief awards ceremony following the final presentation.

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| 3:15 PM–3:30 PM | **#1090 Amanda Marie James**  
Seven Encapsulated and Nonencapsulated (iso)microRNAs in Human Samples Predict Coronary Atherosclerosis and Cardiac Events |
| 3:30 PM-3:45 PM | **#2481 Christopher A Drummond**  
MicroRNA 29b and Cardiotonic Steroid-Induced Cardiac Fibrosis in Adult Cardiac Fibroblasts |
| 3:45PM-4:00 PM  | **#5549 Elaine C Guedes**  
Analysis of MicroRNA-22 on Cardiac Hypertrophy Induced by High Fat Diet |
| 4:00 PM-4:15 PM  | **#7571 Ramona Krauss**  
Heart and Lung bta-miR-22-3p Decrease and bta-miR-125a Increase in Growth-restricted Fetal Lambs with Sustained in utero Stress |
| 4:15 PM-4:30 PM  | **#6344 Xi Cheng**  
A CRISPR/Cas9 System Based Targeted Disruption of a Novel Rat Long Non-coding RNA in a Rat Genetic Model of Hypertension |
| 4:30 PM-4:45 PM  | **#5993 Alex Dayton**  
Simulation Studies Informed by RNA-seq Data Suggest the Utility of a Multi-network Bayesian Graphical Model Algorithm for the Study of Hypertension in the Dahl S Rat |
| 4:45 PM-5:00 PM  | **#6474 Xiaochen He**  
SIRT3 Deficiency Impairs Hypoxic Signaling, Reprograms Basal Glycolytic Metabolism and Exacerbates Myocardial Ischemic Injury |
| 5:00 PM-5:15 PM  | **#6684 Jixiang Xia**  
GABA A Receptor Gamma 3 is a New Candidate Gene for Cardiovascular and Behavioral Disorders |

A Note from Bina Joe, New Editor-in-Chief of Physiological Genomics

The PG Group is excited to congratulate Dr. Bina Joe as the incoming Editor-in-Chief of *Physiological Genomics*. Bina Joe is a Professor of Physiology and Pharmacology and the founding Director of the Center for Hypertension and Personalized Medicine at the University of Toledo. Over the past 15 years, she has been instrumental in leading the Research Program on the Physiological Genomics at the University of Toledo. Her research centers on the Genetics of Hypertension, which is continually funded through multiple grants from the NHLBI/NIH. She is the recipient of several Research Awards including the Young Scholar Award from the American Society of Hypertension and the Lewis K. Dahl Memorial Lecture Award from the AHA Council on Hypertension. Her research work is published in several top journals including *PNAS, Cell and Nature Communications*. Bina is member of the APS and has served on the Editorial Board of *Hypertension* and been Associate Editor for *Physiological Genomics*.

**Call for Papers: Cellular Plasticity**

The Systems Biology of Cell State Regulation section of *Physiological Genomics* is issuing a call for primary manuscripts and reviews on the topic of cellular plasticity, including the roles of signaling pathways and metabolism in plasticity. We anticipate that the papers in this theme will be investigating the mechanisms regulating cell plasticity, and may involve the use of systems biology approaches including genome-wide transcriptome analysis, epigenetics or metabolomics to dissect the mechanisms underlying the commitment to specific cell fates during the differentiation of stem cells or in other examples of cellular plasticity. **Manuscripts will be accepted until April 31, 2015.** Please direct all queries regarding this Call for Papers to Prof. Hilary Coller, PhD (hcoller@ucla.edu).
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See you at

EB 2015
BOSTON