Apply for membership at APS booth #448
Sunday, Monday, and Tuesday
10:00am–12:00pm
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# Content

## Program At-a-Glance

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## Oral Sessions

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## Late Breaking Posters

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#ExpBio

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## Program At-a-Glance

### SATURDAY, APRIL 22

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## WEDNESDAY, APRIL 26

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| **EEP FT: The Integrated Physiological Response to Heat Stress in Vulnerable Populations**  
Sawka |
| **CELL Symp: Multi-omics to Study the Cellular Pathophysiology of Neurodegenerative Diseases**  
Pimplikar |
| **Resp FT: Central Neuromodulation in the Control of Breathing**  
Garcia, Mitchell |
| **EM Symp: Central GLP-1 Receptors in the Regulation of Energy Homeostasis**  
Langhans |
| **Integrative Symp: Exercise Intolerance in Metabolic, Pulmonary and Cardiovascular Diseases: Did We Forget the Brain?**  
Brassard, Bailey |
| **CNS Symp: Role of CNS Osmosensory Networks in the Regulation of Cardiovascular Function in Health and Disease**  
Stern |
| **Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal and Liver Physiology Section**  
Wallace |
| **SEX Symp: Sex Differences in Diabetes, Obesity and Blood Pressure Control**  
Kararigas, Lindsey |
| **August Krogh Distinguished Lectureship of the APS Comparative and Evolutionary Physiology Section, Supported by Novo Nordisk Fonden**  
Burggren |
| **APS Business Meeting** |

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| **Nobel Prize Award Lecture**  
Ignarro |
| **Physoc/JP/APS Symp: The Modulation of Aging through Altered Proteostasis**  
Miller |
| **GIL/AJP-GIL Symp: Environmental, Microenvironmental and Nanoenvironmental Factors Which Drive Liver Disease Pathogenesis and Progression**  
Pritchard |
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<td>Resp FT: Organelle Dysfunction in Pulmonary Vascular Disease: Mitochondria, Endoplasmic Reticulum, Lysosomes and Beyond</td>
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<td>Cell Symp: Glial Cell Development, Migration, and Pathophysiology</td>
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<td>EEP FT: Exploiting Environmental Stressors to Improve Health and Performance</td>
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<td>Resp Symp: Mechanisms Preserving Breathing Stability</td>
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<td>CV FT: Mitochondrial Physiology in Cardiovascular Disease</td>
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<td>EM FT: Central and Peripheral Mechanisms Regulating Body Weight and Glucose Homeostasis</td>
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<td>Integrative Symp: The Impact of Exosomes on Muscle Atrophy, Hypertrophy and Myogenesis</td>
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<td>CEPS FT: Comparative Perspectives on Hypoxia Signaling and Tolerance</td>
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<td>TAC Symp: Kick Start your Funding: Looking beyond NIH and NSF</td>
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<td>TPIG Symp: Peptides and Metabolites in Cardiovascular Disease</td>
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<td>EEP/J Appl Physiol Symp: Blood Doping: Physiology, Pharmacology and Detection Challenges</td>
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**Renal FT: New Insights into the Regulation of Renal Blood Flow in Health and Disease**  
Polichnowski, Williams

**CV FT: Inflammation and Immunity and Heart Disease**  
Halade, Thorp

**CV/AJP-Heart Symp: MiRNA Regulation of the Mitochondrion in Cardiovascular Disease**  
Hollander, Thapa

**CV FT: Cardiovascular Control after Neurological Injury**  
Phillips, West

**WEH Symp: Mechanisms of Hypertension Risk**  
De Miguel, Abais-Battad

**EEP Symp: Patent Foramen Ovale: The Hole Story of Environmental and Exercise Physiology**  
Lovering, Wilmshurst

**ETG FT: New Insights into Epithelial Transport: Application of Genetic Models**  
Rieg, Fenton

**EM Symp: Fighting the Fat: Lifestyle Approaches to Protect Against Adipose Liver Dysfunction**  
Wright

**EM Symp: Novel Imaging Technologies in Reproductive Physiology Supported by FujiFilm VisualSonics, Inc.**  
Yamaleyeva, Lindsey

**TPIG Symp: Vasodilation in Human Microvessels: From Bed to Bench and Back**  
Kleinbongard, Ait-Aissa

**TPIG Symp: Leptin beyond Appetite Regulation**  
Singh

**PanAm Symp: New Concepts of the Renin-Angiotensin System in Cardiovascular Pathophysiology**  
Campagnole-Santos, Aiello

**CELL Symp: Omics Approaches to Understanding Muscle Biology**  
Burniston, Chen

**WEH Symp: Hydration and Vasopressin Beyond the Kidney Supported by Danone Research**  
Kavouras, Bankir
UNDERGRADUATE SUMMER RESEARCH FELLOWSHIPS
the-aps.org/summerresearch
Fellows conduct research for 10 weeks, receive a stipend, and travel to EB to present their research. More than 70 fellowships available; no prior lab experience needed!

PHUN WEEK
(Physiology Understanding Week)
www.PhUnWeek.org
PhUn Week is a nationwide outreach program building connections between scientists and their local schools. This program fosters grassroots partnerships between biomedical researchers and K-12 teachers and it is carried out into classrooms by “citizen scientists” composed of a senior researcher along with his or her undergraduate, graduate, or postdoctoral students.

PORTER FELLOWSHIPS
the-aps.org/porter
Celebrating 50 years at EB 2017!
The goal of the Porter Fellowship Program is to encourage diversity among students pursuing full-time studies toward the Ph.D. in the physiological sciences and to encourage their participation in the APS. The program provides 1-2 year full-time graduate fellowships at U.S. institutions. Apply and donate!
• **Esteemed Publishing Program**: Fair, robust peer review. Quick time to first decision and final publication. Articles published as they are ready!

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• **APSselect**: Access to a collection of the “best of the best” newly accepted original research articles from the APS journals.
Curricular Innovation in Sex and Gender Based Medical Physiology Education

SYMPOSIUM
SAT 8:00 AM-12:00 PM, McCormick Place Convention Center, W190A
Sponsored By: APS Education Committee · Chair: K. Scrogin and J. Sasser
Track: Education, Hypertension, Sex Differences and Women's Health

8:00 Why We Need It, Where We are Now and Where We Need to Go in Sex/Gender Difference Medical Education, Majorie Jenkins, Texas Tech Univ. Hlth. Sci. Ctr.
9:00 Sex and Gender Differences in Pain Perception, Todd Vanderah, Univ. of Arizona
10:00 Sex Differences in Fetal Programming: Consequences for Multiple Generations, Kent Thornburg, Oregon Hlth. and Sci. Univ.
11:00 Educating the Educators: Examples from Sex and Gender Differences in Cardiovascular Disease, Virgina Miller, Mayo Clinic

Pre-EB Meeting of the Epithelial Transport Group Young Investigators Symposium

SPECIAL SESSION
SAT 9:00 AM-5:00 PM, McCormick Place Convention Center, W196C
Sponsored By: Epithelial Transport Group

Microcirculatory Society President’s Symposium: (Not) Lost in Translation: Bridging the Gaps Between Microcirculatory Basic Science and Clinical Science

SYMPOSIUM
SAT 9:30 AM-11:30 AM, McCormick Place Convention Center, W196B
Sponsored By: Microcirculatory Society (MCS) · Chair: W. M. Chilian and R. E. Rumbaut

9:30 Microcirculation from Bench to Bedside and Beyond: Whither NHLBI? George Mensah, National Institutes of Health
10:00 Mechanisms of Vasomotor Control in Humans Change during Aging and Disease, David Gutterman, Medical College of Wisconsin
10:30 Molecular Programming of Arteries and Veins in Health and Disease: The Power of Mouse Genetic Approaches, Rong Wang, Univ. of California-San Francisco
Clinical Trials Need to Reflect Underlying Physiology: The Experience with Stable Ischemic Heart Disease, William Weintraub, Christiana Care Health System

Fourth Annual Physiological Genomics Group Conference

SPECIAL SESSION
SAT 1:00 PM-5:15 PM, McCormick Place Convention Center, W194B
Sponsored By: Physiological Genomics Group
Track: Genetics, Epigenetics, MicroRNA

Choosing the Right Diet for Your Animal Model

WORKSHOP
SAT 1:00 PM-3:00 PM, McCormick Place Convention Center, W196A
Cosponsored by: American Society for Nutrition · Supported By: Research Diets, Inc. · Chair: P. K. Lund and D. Ney
1:00 What’s Diet Got to Do with It? Laboratory Animal Primer for Researchers, Barbara Mickelson, Teklad Diets
1:30 Be a Control Freak: Why Control Diets Matter in Microbiota (and All) Studies, Matthew Ricci, Research Diets, Inc.
2:00 Determining the Role of Diet and Dietary Components in Modulating Gut Microbiota: Macro- and Micronutrient Dietary Composition. Vanessa Leone, Univ. of Chicago
2:30 Common Diet-Induced Confounds in Diet-Induced Obesity Studies. Susan K. Fried, Ichan Sch. of Med. at Mount Sinai

Small GTPases: Basic Science to Translational Research

SYMPOSIUM
SAT 1:00 PM-3:00 PM, McCormick Place Convention Center, W192B
Sponsored By: American Federation for Medical Research (AFMR) · Chair: Y. Zhao and A. Birukova
1:00 Rap1 and Its Related Proteins in Health, HoSup Lee, UCSD
1:25 The Role of ARF6 in Inflammatory Diseases and Cancer, Weiquan Zhu, Univ. of Utah
1:50 Rab GTPases in the Regulation of Endocytosis in Neurological Diseases, Guangpu Li, Univ. of Oklahoma College of Medicine
2:15 Ubiquitination and Degradation of Small G Proteins by SCF E3 Ligase, Yutong Zhao, Univ. of Pittsburgh
2:40 Microtubule-Associated Rac Regulation and Acute Lung Injury, Anna Birukova, Univ. of Maryland
Depression and its Effects on Microvascular Function and Vascular Adaptation

SYMPOSIUM

SAT 1:00 PM-3:00 PM, McCormick Place Convention Center, W196B
Sponsored By: Microcirculatory Society (MCS) · Chair: P. Chantler and M. Olfert

1:00 Interventional Approaches to Determining Links between Chronic Depression and Microvascular Dysfunction, Jefferson Frisbee, Univ. of Western Ontario

1:30 Interaction of Obesity and Nrf2 Deficiency Accelerates Cerebromicrovascular Aging and Impairs Neurovascular Coupling Responses, M.N. Valcarcel-Ares, S. Tarantini, P. Hertelendy, Z. Tucsek, T. Gautam, T. Kiss, R. De Cabo, E. Farkas, Kinter, W. Sonntag, A. Csiszar, Z. Ungvari, Univ. of Oklahoma Health Sciences Center - Reynolds Oklahoma Center on Aging Research, NIA, Univ. of Szeged, Hungary and Oklahoma Medical Research Foundation (681.5)

1:45 Stress and Depression: Its Role on Cerebral Vascular Dysfunction, Paul Chantler, West Virginia Univ. Sch. of Med.

2:15 Exercise Recovers Loss of Microvessel Density due to Lowered Nitric Oxide Bioavailability, K. Branyan, M. Ashman, C. Pitzer, P. Chantler, M. Olfert, West Virginia Univ. (678.3)

2:30 Effects of Obesity and Depression on Microvascular Angiogenesis, Mark Olfert, West Virginia Univ. Sch. of Med.

Why Scientific Rigor Matters and Ways to Improve It

SYMPOSIUM

SAT 1:00 PM-3:00 PM, McCormick Place Convention Center, W192C
Sponsored By: Science Policy Committee · Chair: R. L. Sutliff and A. M. Schiller
Track: Science Policy

1:00 TBD. Kristine Willis, NIH

1:25 The Art of Reproducible Science: A New Course for Graduate Student Training. Bradley K. Yoder, Univ. of Alabama at Birmingham

1:50 The APS Publications Response to Scientific Rigor and Transparency: Where Are We Today, Where Are We Going Tomorrow? Curt D. Sigmund, Univ. of Iowa

2:15 Data Visualization as a Means of Increasing Transparency and Reproducibility in Scientific Research. Tracey Weissgerber, Mayo Clinic

2:40 Questions and Answers
WEH Trainee Award Finalists and Data Diuresis

AWARD SESSION

SAT 2:15 PM-5:15 PM, McCormick Place Convention Center, W190A
Sponsored By: Water and Electrolyte Homeostasis Section

Trainee Award Finalists Competition Predoctoral Award Finalist Presentations
Sponsored by Portland Press, Chair: D. Pollock and E. George


2:30 Hypertension and Sodium Homeostasis in Aging: Impaired Natriuretic Responses to Alterations in Fluid and Electrolyte Balance Accompany Hypertension in Aged Sprague-Dawley Rats, A.A. Frame, A.N. Desai, J.D. Hai, R.D., Wainford, Boston Univ. Sch. of Med. (1026.4)

2:45 Role of Natural Killer Cells as Mediators of Mitochondrial Dysfunction Induced by Placental Ischemia in the Reduced Uterine Perfusion Pressure (RUPP) Rat Model of Preeclampsia, V. Vaka, K.M. McMaster, M.W. Cunningham, L.M. Amaral, T. Ibrahim, D.C. Cornelius, B. LaMarca, UMMC (851.3)

Postdoctoral Award Finalists Presentations
Sponsored by The Juan Carlos Romero Fund

3:00 Chronic Renal Medullary Infusion of Interleukin-1 Receptor Antagonist Delays the Onset of Salt Sensitive Hypertension in Uninephrectomized Dahl SS Rats, J. Dasinger, J.M. Abais-Battad, H. Lund, D.J. Fehrenbach, D.L. Mattson, Medical College of Wisconsin (1026.14)

3:15 Intrarenal Insulin Replacement Prevents Glucose-Induced Natriuresis in Conscious Rats, D.L. Irsik, A.R. Washington, R. Alaisami, M.W. Brands, Medical College of Georgia at Augusta Univ. (1027.3)

3:30 Smooth Muscle PPARγ Mutation Causes Salt-Sensitive Hypertension, J. Wu, L.N. Agbor, M. Mukohda, A.R. Nair, P. Nakagawa, J.L. Grobe, C.D. Sigmund, Univ. of Iowa (1026.11)

3:45 Mingle with Open Bar

Data Diuresis Brief
Chair: P. O’Connor and A. Polichnowski

4:15 Expansion of Regulatory T Cells Using Low-Dose Interleukin-2 Attenuates Hypertension in an Experimental Model of Autoimmune Disease, E.B. Taylor, M.J. Ryan, Univ. of Mississippi Med. Ctr. (1026.9)

4:20 Effect of Maternal Antioxidant MitoQ Treatment on Offspring Cardiovascular Function in a Rat Model of Intrauterine Growth Restriction (IUGR), M.M. Aljunaidy, J.S. Morton, R. Kirschchenman, P. Case, C. Cooke, S.T. Davidge, Univ. of Alberta, Canada and Univ. of Bristol, United Kingdom (852.1)

4:25 Sexual Dimorphic Responses of Renal Transporters to High Salt Diet Favor More Diuresis in Females, L.C. Veiras, H. Lisboa, Z. Khalil, D.L. Ralph, A.A. McDonough, Univ. of Southern California (850.2)
4:30 Relaxin Contributes to the Regulation of Atrial Pressure During Pregnancy, **K.M. Denton, K.M. Mirabito Collafella, C. Samuel**, Monash Univ., Australia and Erasmus Medical Centre, Netherlands (851.10)


4:40 Sympathetically Mediated α1-Adrenoceptor Regulation of the NCC During High Salt Intake to Drive Renal Sodium Retention: A New Therapeutic Anti-Hypertensive Target? **R. Wainford, K. Walsh, A. Frame**, Boston Univ. (1027.8)

4:45 Mingle with Open Bar

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**DATA NCARnation**

**AWARD SESSION**

**SAT 3:00 PM-5:00 PM, McCormick Place Convention Center, W193**

Sponsored By: Neural Control and Autonomic Regulation Section · Chair: A. Ross

Track: Neurophysiology

3:00 Impaired Dynamic Cerebral Autoregulation to Postural Stress Following Concussive Injuries in Adolescents, **M.E. Moir, K.C. Abbott, C.S. Balestrini, L.K. Fischer, D.D. Fraser, J.K. Shoemaker**, Western Univ., Canada and Children’s Health Research Institute, Canada (706.2)

3:10 Autonomic Dysregulation in Adolescent Concussion: Characterization and Temporal Resolution of Neurological Outcomes, **C.S. Balestrini, M.E. Moir, K.C. Abbott, M. Johnson, L.K. Fischer, D.D. Fraser, J.K. Shoemaker**, Western Univ., Canada and Children’s Health Research Institute, Canada (863.3)

3:20 Ablation of Astrocytes in the Paraventricular Nucleus Disrupts the Blood-Brain Barrier and Increases Blood Pressure in Rats, **A. Setiadi, C.N. May, S.T. Yao**, The Florey Institute of Neuroscience and Mental Health, Australia (1025.3)

3:30 Effect of Exercise Training on Neurovascular Control During Mental Stress in Patients with Acute Coronary Syndrome, **L. Ferreira-Santos, D.G. Martinez, J. Nicolau, H.G. Moreira, M.N. Alves, I.C. Trombetta, C.E. Negrão, M.P. Rondon**, Heart Institute, Univ. of Sao Paulo Medical School and School of Physical Education and Sport, Univ. of Sao Paulo, Brazil, Federal Univ. of Juiz de Fora, Brazil, Heart Institute, Univ. of Sao Paulo Medical School, Brazil, Universidade Nove de Julho, Brazil, School of Physical Education and Sport and Univ. of Sao Paulo, Brazil (847.9)

3:40 Diet and Exercise Training Improve Insulin-Glucose Metabolism and Sympathetic Hyperactivation in Obstructive Sleep Apnea and Metabolic Syndrome, **F.X. Cepeda, S. Rodrigues, A.C. Dutra-Marques, J.C. Carvalho, E. Toschi-Dias, M. Rondon, M.N. Alves, G. Lorenzi-Filho, I.C. Trombetta**, Heart Institute (InCor), Univ. of São Paulo Medical School, Brazil, School of Physical Education and Sports, Univ. of São Paulo, Brazil and Universidade Nove de Julho (UNINOVE), Brazil (1039.4)
3:50 Inspiratory Muscle Strength Training for Sleep-Related Breathing Disorders, G. Ramos Barrera, R. De Asis, E. Bailey, The Univ. of Arizona (848.14)

4:00 Sympathetic Function During Whole-Body Cooling Is Altered in Hypertensive Adults, J.L. Greaney, W. Kenney, L.M. Alexander, The Pennsylvania State Univ. (847.1)

4:10 Group III/IV Muscle Afferents Contribute to Carotid Baroreflex Resetting During Evoked Contractions in Humans, T.J. Hureau, J.C. Weavil, T.S. Thurston, R.M. Broxterman, A.D. Nelson, A.D. Bledsoe, J.E. Jessop, R.S. Richardson, D. Wray, M. Amann, Univ. of Utah (848.7)

4:20 Comparison Between Spectral Analysis and Symbolic Dynamics for Heart Rate Variability Analysis in the Rat, L.V. Silva, V.R. Geraldini, B.P. Oliveira, C.A. Silva, H.C. Salgado, R. Fazan Jr, Ribeirão Preto Medical School, Brazil (1071.7)

4:30 GABA and Glycine: Fine Tuning for Inhibitory Control of Brainstem RVLM Neurons, H. Gao, A. Derbenev, Tulane Univ. (718.9)

4:40 Effects of Catecholamines on Gastric Functions in Stressed Rats, Y. Jiang, K.N. Browning, L. Toti, R. Travaglì, Penn State College of Medicine (717.2)

4:50 Second Hand Smoke Exposure Depresses Excitability and SK Channel Function in Cardiac Vagal Neurons in the Nucleus Ambiguus, J.-Q. Sun, E. Karey, S. Pan, J.-Y. Chen, K.E. Pinkerton, C. Chen, Univ. of California, Davis. (864.3)

77 Creative Science Communications through Improv

**SYMPOSIUM**

SAT 3:00 PM-5:00 PM, McCormick Place Convention Center, W192A
Sponsored By: Communications Committee • Chair: B. E. Goodman and A. R. Crecelius
Track: Professional Development (#profdev)

3:00 Facilitator, Meagan O’Brien and Shad Kunkle, Second City Works, Chicago

78 Using Ultrasound to Teach Cardiovascular Physiology and Anatomy (Cosponsored by American Association of Anatomists)

**WORKSHOP**

SAT 3:15 PM-5:15 PM, McCormick Place Convention Center, W190B
Chair: D. Silverthorn, G. Guttmann and J. Laitman
Track: Education

3:15 Introduction of the Tables and Faculty
3:22 Introduction to the Concept of Doppler Imaging
3:35  Hemodynamic Imaging. Working with the model at the table, participants assess the ankle-brachial index and toe-brachial index to determine peripheral arterial disease; carotid and jugular pulses, and waves (includes the valsalva maneuver); bulk or plug, laminar, and disrupted or turbulent flows.

4:00  Introduction to the Application of Ultrasound in Cardiac Imaging

4:15  Each table will be set for participants to image the heart in a particular plane (PLAX, PSAX, Apical [4C and 5C] and Subcostal) used in echocardiography. Working with the model at the table, participants gain the experiences of imaging the heart in the various planes used by echocardiographers.

4:45  Each table will have an activity: two tables with models, who may have some discernable measurements; and one or two tables with laptops using Digisonics software allowing participants to calculate the ejection fraction. There will also be two to three tables with models available to allow participants to practice obtaining the images seen in the various planes used in echocardiography.

79  New Insights into Insulin Resistance-Molecular Mechanisms and Therapeutic Implications

SYMPOSIUM

SAT 3:15 PM-5:15 PM, McCormick Place Convention Center, W192B
Sponsored By: American Federation for Medical Research (AFMR) · Chair: S. Prabhakar and M. Hawkins

3:15  Role of Vitamin D and Neural Glycemic Control in Insulin Sensitivity, Meredith Hawkins, Albert Einstein College of Medicine

3:45  Novel Pleiotropic Effects of GLP1 Receptor Agonists on Beta Cell Function and Whole Body Insulin Sensitivity, Franco Folli, Univ. of Texas at San Antonio

4:15  Strategies to Prevent Diabetes by Targeting Insulin Resistance, Sreejayan Nair, Univ. of Wyoming, School of Pharmacy

4:45  Role of Adipose Tissue Inflammation in Insulin Resistance, Naima Moustaid-Moussa, Texas Tech Univ.

80  Investigating Microvascular Physiology and Pathophysiology using Novel Techniques

SYMPOSIUM

SAT 3:30 PM-5:30 PM, McCormick Place Convention Center, W196B
Sponsored By: Microcirculatory Society (MCS) · Chair: K. Y. Stokes and F. N. Gavins

3:30  Introduction by the Chairs

3:35  Using the Zebrafish to Dissect Vascular and Lymphatic Development, Nathan Lawson, Univ. of Massachusetts Med. Sch.

4:05  An Ischemia Model on a Chip, W. Yin, L. Abejar, D.A. Rubenstein, M.D. Frame, Stony Brook Univ. (685.2)
4:30 Microvascular Perfusion Heterogeneity Impairs Oxygenation and Contributes to Peripheral Vascular Disease in Metabolic Syndrome, P. McClatchey, F. Woo, I. Olfert, C. Ellis, D. Goldman, J. Reusch, J. Frisbee, Univ. of Colorado, Novartis, West Virginia Univ. and Univ. of Western Ontario, Canada (831.8)


5:20 Closing Remarks by the Chairs

81 Physiology in Perspective: The Walter B. Cannon Memorial Award Lecture

LECTURE

SAT 5:30 PM-6:30 PM, McCormick Place Convention Center, W375A
Supported By: Sucampo AG

5:30 Insights into the Pathogenesis of Cystic Fibrosis Lung Disease, Michael Welsh HHMI-Univ. of Iowa

82 MCS Poster Reception

POSTER DISCUSSION

SAT 6:00 PM-8:00 PM, McCormick Place Convention Center, W196B
Sponsored By: Microcirculatory Society (MCS) · Chair: D. N. Jackson

Oral Sessions - Sunday, April 23

198 APS President’s Symposium Series: Research Advances in Sex/Gender and Developmental Programming of Chronic Diseases: Sex Differences in Physiology and Pathophysiology

SYMPOSIUM

SUN 10:30 AM-12:30 PM McCormick Place Convention Center, W375A
Chair: M. C. Prieto
Track: Sex Differences and Women’s Health, Injury Repair and Regeneration, Hypertension

10:30 Sex Matters in the Lung, Y.S. Prakash, Mayo Clin.
11:00 Benefits and Risks of Testosterone Therapy in Men with Testosterone Deficiency, **Trish Abdulmaged**, Boston Univ. Sch. of Med.

11:30 Reactive Oxygen Species: Players in the Effects of Testosterone, **Rita Tostes** Med. Sch. of Ribeirao Preto, Univ. of Sao Paulo

12:00 Eliciting Estrogenic Cardioprotection via GPER, **Sarah Lindsey**, Tulane Univ. Sch. of Med.

**Translation Physiology Showcase: Focus on Sex differences in Obesity and Blood Pressure, Developmental Programming, and Women's Health**

**FEATURED TOPIC**

*SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W192A*

*Sponsored By: Translational Physiology Interest Group · Chair: P. J. Marvar and R. Padmanabhan*

**Sex Contributions to Obesity and Hypertension**

8:00 Sex-Dependent Effects of a Low Carbohydrate Diet-Induced Weight Loss on Aortic Stiffness, **M. Syed Abdul, Q. Hu, J. Padilla, C.M. Manrique, C. Heimowitz, N. Le, K. Bingham, E.J. Parks**, Univ. of Missouri, Atkins Nutritionals and Inc (1015.9)

8:06 Sex Differences in Mesenteric Arterial Function at Pre-Diabetic and Diabetic Stage of UC Davis Type 2 Diabetic Mellitus Rats, **S. Shaligram, F. Akther, J.L. Graham, K.L. Stanhope, P.J. Havel, R. Rahimian**, Univ. of the Pacific, Univ. of California and Davis (691.6)

8:12 Influence of Gender on Blood Brain Barrier Permeability and Adenosine Receptor Signaling, **L. Torres, M.S. Bynoe**, Cornell Univ. (1042.3)

8:18 Renal Denervation Lowers Mean Arterial Pressure in Obese Female Schlager Mice but Adversely Affects Glucose Metabolism, **N. Asirvatham-Jeyaraj, C.T. Banek, M.M. Gauthier, R. Han, M. Razzoli, A. Bartolomucci, A. Panoskaltsis-Mortari, J.W. Osborn**, Univ. of Minnesota (720.6)

8:24 Leptin Role in Regulating Ovariectomized Induced Hypertension, **M.J. Barnes, S.M. Hackman**, Des Moines Univ. (1011.25)

8:30 Roundtable Discussion

**Developmental Programming: Contributions to Cardiovascular and Metabolic Disease**

8:40 Transgenerational Inheritance of Obesity and Hypertension: Hypothalamic Regulation in Leptin Mediated Sympathoexcitation, **K. Lim, S.L. Burke, K.L. Jackson, Y. Sata, G.A. Head**, Baker IDI Heart & Diabetes Institute, Australia and Monash Univ., Australia (1038.3)

8:46 Vascular Protein Lysine Acetylation: Potential Epigenetic Mechanisms Mediating Diabetic Vascular Dysfunction and Metabolic Memory, **M. Carrillo-Sepulveda**, NYIT College of Osteopathic Medicine (1014.19)
8:52 Maternal Hyperandrogenemia Causes Increased MAP and Proteinuria in Male Rat Offspring, C. Dalmasso, R.O. Maranon, C.N. Patil, J.F. Reckelhoff, Univ. of Mississippi Med. Ctr. (1026.30)

8:58 The Androgen Receptor Contributes to Hypertension in Ovariectomized IUGR but Not in Ovariectomized Control Rats, G.K. Davis, A.D. Newsome, B.T. Alexander, Univ. of Mississippi Med. Ctr. (852.5)

9:04 Effects of Endothelial-Specific Interference with PPARγ Activity in Offspring Born from AVP-Induced Preeclamptic Pregnancies, A.R. Nair, M. Mukohda, L.N. Agbor, J. Wu, J.A. Sandgren, J.L. Grobe, C.D. Sigmund, Univ. of Iowa (1033.2)

9:10 Roundtable Discussion

Preeclampsia: Before, During and After

9:20 Pre-Conception Leptin Resistance Characterizes the BPH/5 Mouse Model of Preeclampsia, E.F. Sutton, H.E. Lob, C. Liu, L.M. Redman, R.L. Davisson, J.L. Sones, Louisiana State Univ., Cornell Univ., Louisiana State Univ. School of Veterinary Medicine and Weill Cornell Medical College (692.5)

9:26 20-HETE Impedes Trophoblast Migration and Contributes to Hypertension in the RUPP Rat Model of Placental Ischemia, S. Murphy, N. Lee, J. Faulkner, S. Spencer, K. Wallace, B. LaMarca, Univ. of Mississippi Med. Ctr. (1033.6)

9:32 Role of Endothelin Type B Receptors in Microvascular Dysfunction Post-Partum in Women Who Have Had Preeclampsia, A. Stanheiwicz, L. Santhanam, L. Alexander, The Pennsylvania State Univ. and Johns Hopkins Univ. Sch. of Med. (1015.3)


9:44 Circulating Cell-Free DNA and Maternal Cardiovascular Responses in Healthy Pregnancy and Postpartum, S. Goulopoulou, M. Sprouse, N.R. Phillips, S.J. Jarvis, Y. Okada, Q. Fu, Univ. of North Texas Health Science Center, Texas Health Presbyterian Hospital Dallas, UT Southwestern Med. Ctr., Northern Arizona Univ. and Matsumoto Dental Univ., Japan (1033.5)

9:50 Roundtable Discussion

200 John Forte GIL Section Distinguished Abstract Plenary Session

SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W190A
Sponsored By: GI and Liver Physiology Section and AJP-Gastrointestinal and Liver Physiology · Chair: J. Uno and N. Bunnett

8:00 Xenobiotic Receptor Regulation of Clostridium difficile-Associated Tissue Damage and Inflammation, S.L. Erickson, K.L. Flannigan, L. Alston, S.A., Hirota Univ. of Calgary, Canada (1051.1)

8:15 An Inherent Defect in Tight Junction Structure and Permeability Is Apparent in Colonoids from Crohn’s Disease Patients, S. Gadeock, M. Schultz, G. Butt, Univ. of Otago, New Zealand (1043.3)
8:30 The Absence of MSP-Dependent Ron Receptor Tyrosine Kinase Signaling Promotes Unrestrained White Adipose Tissue Expansion, Exacerbated Hepatic Inflammation and Aberrant Hepatic Lipid Metabolism in ApoE⁻/⁻ Mice Fed a High Fat/High Cholesterol Diet, J.N. Allen, A. Dey, J. Zhang, L. Zhang, J. Fraser, M. Kennett, A. Patterson, P. Hankey-Giblin, The Pennsylvania State Univ. (887.9)

8:45 Intestinal Dysbiosis During Neonatal Development Alters the Microbiota-Gut-Brain Axis in Adulthood, C.H. Hennessey, J. Sladek, E. Miller, J. Kim, M. Kaur, M.G. Gareau, Univ. of California Davis (890.5)

9:00 G Protein-Coupled Receptor 30 (GPR30), a Novel Estrogen Receptor, Plays an Independent Role in the Pathogenesis of Estrogen-Induced Cholesterol Gallstones in Female Mice, D.Q. Wang, O. de Bari, H.H. Wang, Saint Louis Univ. Sch. of Med. (895.2)


201 Mathematical Modeling of Cardiac Excitability and Arrhythmias

SYMPOSIUM

SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W192B
Sponsored By: Cardiovascular Section · Chair: T. Hund and C. Ripplinger

8:00 Mathematical Modeling of Ion Channel Structure/Function, Jon Silva, Washington Univ. St. Louis

8:30 Dynamic Mathematical Models of Signaling Networks, Tamara Kinzer-Ursem, Purdue Univ.

9:00 Mathematical Modeling in Drug Design and Development, Colleen Clancy, Univ. of California-Davis

9:30 Population-Based Mathematical Modeling, Eric Sobie, Mount Sinai Hospital

202 Renal Section Young Investigator Award Featured Topic

FEATURED TOPIC

8:00 AM-10:00 AM McCormick Place Convention Center, W194B
Sponsored By: Renal Section · Chair: O. Pochynuk and J. Stockand
Track: Hypertension, Salt
8:00 Introduction, **James Stockand**, Univ. of Texas HLth. Sci. Ctr., San Antonio

8:05 Renal Section Young Investigator Award Lecture. Physiology of TRPV4 Function in the Kidney, **Oleh Pochynyuk**, Univ. of Texas HLth. Sci. Ctr., Houston

8:30 Effects of Dietary Sodium Content on Cysts Formation in ARPKD, **D. Ilatovskaya, V. Levchenko, T.S. Pavlov, A. Staruschenko**, Medical College of Wisconsin and Henry Ford Hospital (1032.1)


9:00 Withdrawn

9:15 Flow Stimulation of Endothelin-1 Production by the Collecting Duct: Role of Nitric Oxide and Reactive Oxygen Species, **D.E. Kohan, W. Wheatley**, Univ. of Utah (857.7)

9:30 Important Role for the Mammalian-Target-of-Rapamycin (mTOR) in the Collecting Duct as a Determinant of Transporter/Channel Profile and Function, **A.L. Brown, H. Lee, S. Tiwari, L. Li, C.M. Ecelbarger**, Georgetown Univ. and Sanjay Gandhi Post-Graduate Institute of Medical Sciences, India (857.11)


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**203 Cardiac Sensory Afferents: The Cornerstone for Autonomic Reflex Processing in Health and Disease**

**SYMPOSIUM**

**SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W196C**

Sponsored By: Neural Control and Autonomic Regulation Section - Chair: **K. Shivkumar and H. Wang**

Track: Neurophysiology, Neurobiology

8:00 Structure/Function Organization of Intrathoracic Reflexes, **Jeffrey Ardell**, UCLA

8:30 Structure/function Organization of Nodose afferents and Vago- Vagal Reflexes, **Stephen Liberles**, Harvard Medical School

9:00 Spinal Cord Processing of Visceral Afferent Activity, **Robert Foreman**, Oklahoma Health Sciences Center

9:30 Medullary Processing of Cranial Visceral Afferent Signals, **Michael Andresen**, Oregon Health and Science Univ.
Stress and Physiological Responses throughout Life

FEATURED TOPIC

SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W192C
Sponsored By: Water and Electrolyte Homeostasis Section • Chair: J. Pollock and E. B. Taylor
Track: Hypertension, Physiology of Extreme Environments, Developmental Programming

8:00 The Effects of Early Life Stressors on the Etiology of Cardiovascular Disease, Alan Johnson, Univ. of Iowa

8:30 Influence of Parental Dietary Protein Source on Dahl Salt-Sensitive Hypertension and Renal Disease, J.M. Abais-Battad, H. Lund, D.L. Mattson, Medical College of Wisconsin (859.8)

8:45 High sFlt-1 Concentrations During Pregnancy Modulate the Ppara Promoter Methylation in the Fetal Liver, V. Stojanovska, K. Holwerda, A. van der Graaf, M. Boekschoten, M. Faas, S. Scherjon, T. Plösch, Univ. Med. Ctr. Groningen, Netherlands and Univ. of Wageningen, Netherlands (859.1)

9:00 High Fat Diet Exacerbates Adipose Tissue-Derived Adipokines and Hypertension in Female C57BL/6 Mice Exposed to Early Life Stress (ELS), A. Loria, M.O. Murphy, J. Herald, D. Cohn, Univ. of Kentucky (859.3)

9:15 Sympathetic Nerves Promote Hypertension-Specific CD8+ Effector Memory T Cell Homing in the Bone Marrow of Mice with Angiotensin II Infusion, L. Xiao, H.A. Itani, J.D. Foss, D.G. Harrison, Vanderbilt Univ. Med. Ctr. (859.4)

9:30 Identification of a Stress-Inhibitory Pathway from the Nucleus of the Solitary Tract (NTS) to the Bed Nucleus of the Stria Terminalis (BNST), D. Scheuer, H. Hiller, M. McCowan, L. Wang, E.G. Krause, Univ. of Florida and Univ. of North Texas Health Science Center (859.5)

9:45 Central Angiotensin Type 2 Receptor (AT2R) Stimulation Promotes Enhanced Extinction of Fear Learning Independent of Cardiovascular Measures, A.P. Swiercz, J.P. Wiaderkiewicz, C. Moshfegh, L. Hopkins, P.J. Marvar, George Washington Univ. and Rosalind Franklin Univ. of Medicine and Science (859.12)

From Cancer-Causing Villain to Health-Promoting Hero: Taking a U-turn on Dietary Nitrite and Nitrate?

SYMPOSIUM

SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W196A
Sponsored By: Nutrition Physiology Interest Group and American Society for Nutrition, Supported By: The Hershey Company and Campbell Soup Company • Chair: C. Keen and A. Hast
Track: Microbiome

8:00 Is it Safe? Historical and Current Perspectives on the Risk for Disease Associated With Dietary Nitrite and Nitrate, Norm Hord, Oregon State Univ.

8:30 From Discovery of the Nitrite-Nitrate-Nitric Oxide Pathway to Current Perspectives and Future Directions, Rakesh Patel, Univ. of Alabama at Birmingham
9:00 Why Popeye was Right: Dietary Nitrate Improves Skeletal Muscle Function and Exercise Performance, Andrew Jones, Univ. of Exeter
9:30 Therapeutic Utility of the Nitrate-Nitrite-NO Pathway in Cardiovascular Disease, Amrita Ahluwalia, Queen Mary Univ. of London

206 SIRT1 in Muscle Health and Disease

SYMPOSIUM
SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W190B
Sponsored By: Environmental and Exercise Physiology Section - Chair: V. Ljubicic
8:00 The Role of SirT1 in Muscle Mitochondrial Adaptations to Exercise, David Hood, York Univ.
8:30 Understanding the Role of SIRT1 in Humans: What Can We Learn from Exercise, Nutrition and Resveratrol? Brendon Gurd, Queen’s University
9:00 The Role of SIRT1 in Skeletal Muscle Hypertrophy, Andrew Philp, Univ. of Birmingham
9:30 SIRT1 in Skeletal Muscle Repair, Stephen Alway, Univ. of West Virginia

207 A Roadmap for the Future of Exercise Science: Key Research Directions

SYMPOSIUM
SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W375A
Sponsored By: American College of Sports Medicine (ACSM) - Chair: C. Bouchard
8:00 Roadmap for Research on Exercise and Skeletal Muscle, P. Neufer, East Carolina Univ.
8:30 Roadmap for Research on Exercise and the Heart, Euan Ashley, Stanford Univ.
9:00 Physical Activity, Cognition and Brain Health, Arthur Kramer, Northeastern Univ.

208 Inclusive Practices for Diverse Student Populations

SYMPOSIUM
SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W193
Sponsored By: Teaching of Physiology Section - Chair: K. M. Johnson
Track: Education
8:00 Opening Remarks, Kathryn Johnson, Beloit Col.
8:05 Using Quantitative Data to Assess the Effectiveness of Inclusive Classroom Pedagogies, Amy Briggs, Beloit College
8:30 Using Qualitative Data to Assess Inclusion and Equity, Namoonga Mantina, Beloit College
9:00 Reflections of a Recent Graduate: What Worked for Me and Why, Christine Hawn, North Carolina Museum of Natural Sci.

9:30 How the Birdman and Alcatraz Led Me to Biology, Brett Woods, High Point Univ.

209 Sex Differences in Obesity and Cardiovascular Disease

FEATURED TOPIC

SUN 8:00 AM-10:00 AM, McCormick Place Convention Center, W196B
Sponsored By: Cardiovascular Section - Chair: E. Belin de Chantemele and A. Loria

Sex Differences and Women's Health

8:00 Sexual Dimorphism of Angiotensin II-Induced Vascular Disease, Lisa Cassis, Univ. of Kentucky

8:30 Obesity Amplifies the Sympathoexcitatory Response to Insulin in Male, but Not Female, Rats: Role of Neuropeptide Y Inputs Into the Paraventricular Nucleus, Z. Shi, P.A. Cassaglia, V.L. Brooks, Oregon Health & Science Univ. (691.9)

8:45 Sex Differences in Obesity-Associated Vascular/Perivascular Remodeling and Adipokine Production in Obese Patients Undergoing Roux-en-Y Bariatric Surgery, R.K. Mui, R.N. Fernandes, J.J. Galligan, G.D. Fink, C.N. Pereira-Hicks, R.E. Watson, M.K. Lane, H. Xu, Michigan State Univ. (691.3)

9:00 Sex Differences in Mechanisms of Resistance Vessel Endothelial Dysfunction Due to Cardiometabolic Risk Factors and the Role of Endothelial Mineralocorticoid Receptors, A.P. Davel, E. Moss, I. Anwar, Q. Lu, I.Z. Jaffe, Tufts Med. Ctr. and Univ. of Campinas, Brazil (691.10)

9:15 Sex Difference in the Patho-Physiological Consequences of Adipocyte PRR Deficiency, E. Gatineau, D. Cohn, Y. Liu, M. Gong, F. Yiannikouris, Univ. of Kentucky (691.7)

9:30 Suppression of Aldosterone Production Via High Salt Diet and Deficiency in Endothelial Mineralocorticoid Receptors Prevents Leptin-Mediated Endothelial Dysfunction Exclusively in Female Mice, J.L. Faulkner, T. Bruder-Nascimento, I. Jaffe, E. Belin de Chantemele, Augusta Univ. and Tufts Univ. (691.1)

9:45 Bardet-Biedl Syndrome 1 (BBS1) Protein Contributes to Vascular Endothelial Function, J. Jiang, J.J. Reho, K. Rahmouni, Univ. of Iowa (691.11)

210 Trainee Highlights in Physiological Genomics

AWARD SESSION

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W192C
Sponsored By: Physiological Genomics Group - Chair: M. Flister and C. Drummond
Track: Genetics, Epigenetics, MicroRNA

10:45  HNF1B as a New Transcriptional Activator of the Renal KIR4.1/KIR5.1 Potassium Channel, A. Kompatscher, J.H. de Baaij, K. Aboudehen, A.P. Hoefnagels, P. Igarashi, R.J. Bindels, G.J. Veenstra, J.G. Hoenderop, Radboud Institute for Molecular Life Sciences, Radboudumc, Netherlands, Univ. Minnesota Medical School, Radboud Institute for Molecular Life Sciences and Radboud Univ. Nijmegen, Netherlands (854.7)

11:00  The Relationship of miR-21-5p and PPARα in CKD-Related NAFLD and Dyslipidemia, V.L. Nasci, S. Miller, S. Chuppa, A.J. Kriegel, Medical College of Wisconsin (722.4)

11:15  A CRISPR/Cas9 Toolbox for the Rapid Generation of Intersectional Dual Recombinase Mouse Lines for Anatomical, Molecular, and Functional Neural Circuit Mapping, J. Sun, R.S. Ray, Baylor College of Medicine (722.1)

11:30  A Genome-Spanning Map of Chromatin Structure Near the Renin Proximal Promoter, T. Stodola, P. Liu, Y. Liu, A. Greene, M. Liang, Medical College of Wisconsin (854.1)

11:45  Gα12 Is Required for Renal Cystogenesis Through ADAM10 Dependent Junction Dysfunction Pathway, F. Xu, L. Ho, T. Kong, T. Lu, Brigham and Women’s Hospital and Harvard Medical School (884.10)

12:00  Loss of miR-146b-5p Exacerbates Pathological Left-Ventricular Remodeling in a Rat Model of CKD, M. Paterson, S. Chuppa, A.J. Kriegel, Medical College of Wisconsin (722.5)

12:15  CRISPR-Cas9 Gene Editing Yields a Novel Rat Model with Genetic Regulation of Obesity, K.C. Clark, J.M. Pettus, J.L. Grobe, A.E. Kwitek, Univ. of Iowa (884.1)

**NCAR Young Investigator Awards**

**FEATURED TOPIC**

**SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W196C**

Sponsored By: Neural Control and Autonomic Regulation Section · Chair: C. Young and R. Sabharwal

Track: Neurophysiology, Neurobiology

10:30  Reciprocal Inhibitory Integration and Respiratory Modulation of Arterial Chemoreceptor and Baroreceptor Inputs to Nucleus Tractus Solitarii, D.J. A. Moraes, M.P. da Silva, B.H. Machado, J.F. Paton, School of Medicine of Ribeirão Preto/USP, Brazil and Univ. of Bristol, United Kingdom (720.5)

10:45  Unintended Consequences: Renal Denervation Attenuates Hypertension Development But Impairs Glucose Metabolism in Female Fawn-Hooded Hypertensive Rats, C.T. Banek, M. Gauthier, D.A. Van Helden, N. Asirvatham-Jeyaraj, J.W. Osborn, Univ. of Minnesota (1056.2)

11:00  OVLT Neuron Responses to Hypertonic NaCl and Mannitol Differ: Implications for Neural Regulation of Blood Pressure by NaCl, B.J. Kinsman, K.N. Browning, S.D. Stocker, Penn State College of Medicine and Univ. of Pittsburgh (720.3)
11:15  Low-Dose Dopamine, but Not Acute Hyperoxia, Attenuates the Sympathoexcitatory Response to Hyperinsulinemia in Healthy Humans, J.K. Limberg, M.T. Mozer, W.W. Holbein, B.D. Johnson, N.R. Prabhakar, T.B. Curry, M.J. Joyner, Mayo Clinic, Univ. at Buffalo and Univ. of Chicago (867.4)

11:30  Elevated Sympathetic Nerve Activity Mediates Increases in Large Central Elastic Artery Stiffness Independent of Changes in Blood Pressure in Humans, S.W. Holwerda, D.P. Credeur, L.E. DuBose, R.E. Luehrs, C.E. Schwartz, P.J. Fadel, G.L., Pierce, Univ. of Iowa, Univ. of Southern Mississippi, Michigan Tech and Univ. of Texas at Arlington (847.10)


12:00  Black Adults Display Reduced Sympathetic Reactivity to Mental Stress Compared to Non-Hispanic White Adults, I.T. Fonkoue, C.E. Schwartz, B.M. Gervais, J.R. Carter, Michigan Technological Univ. (720.4)

212  Women in Physiology Committee Symposium 2017: Choosing the Right Lab and Personnel for Your Career

SYMPOSIUM

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W192A
Sponsored By: Women in Physiology Committee - Chair: K. L. Edelblum and B. Wynne
Track: Professional Development (#profdev)

10:30  Selecting Good Mentor and Lab for an Academic Postdoc, Karen Sweazea, Arizona State Univ.
10:50  Selecting a Good Lab for a Postdoctoral or Research Experience in Industry, Bryan Clay, Pfizer
11:10  Selecting a Postdoc for Your Laboratory, R. Webb, Medical College of Georgia at Augusta Univ.
11:30  How to Let Go and Make Go, Marshall Montrose, Univ. of Cincinnati
11:50  Panel Discussion

213  Ventilatory Control and Function Following Perinatal Insults

SYMPOSIUM

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W196A
Sponsored By: Respiration Section - Chair: E. F. Bailey and A. Revill
Track: Neurophysiology, Physiology of Extreme Environments, Inflammation/Immunity

10:30  Developmental Nicotine Exposure Alters Structure and Function of Hypoglossal Motoneurons, Ralph Fregosi, Univ. of Arizona


11:45 Acute and Chronic Effects of Neonatal Inflammation on Respiratory Stability and Plasticity, *Adrienne Huxtable*, Univ. of Oregon


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**214 Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section**

**LECTURE**

SUN 10:30 AM-11:30 AM, McCormick Place Convention Center, W190A

Supported By: ADInstruments

Track: Education

10:30 Retrieval-Based Learning: Simple Strategies for Helping Students Learn, *Jeffrey Karpicke*, Purdue Univ.

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**215 Nitric Oxide Pathway Modulation for Therapeutic Intervention and Exercise Enhancement**

**SYMPOSIUM**

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W192B

Sponsored By: Physiologists in Industry Committee - Chair: J. Mattson and K. Chhabra

Track: Energy Homeostasis, Muscle Metabolism, Injury Repair and Regeneration

10:30 Discovery and Development of Soluble Guanylate Cyclase Stimulators and Activators, *Johannes-Peter Stasch*, Bayer Healthcare

11:00 Development of Nitric Oxide-Soluble Guanylate Cyclase: Cyclic Guanosine Monophosphate Modulators for Medical Therapy, *Peter Sandner*, Bayer Healthcare

11:30 Nitric Oxide and Muscle Microvascular Oxygen Transport: Health and Heart Failure, *David Poole*, Kansas State Univ.

12:00 Effects of Nitrite Supplementation in Models of Physiological Dysfunction, *Amy Sindler*, Univ. of Iowa
216 **Mining Protein-Protein Interactions to Study Renal Transporter Regulation**

**SYMPOSIUM**

**SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W194B**

**Sponsored By: Renal Section · Chair: G. Chen and D. Brown**

**Track: Ion Channels and Transporters, Hypertension, Salt**

10:30 **Rab14 GTPase Down-Regulates UT-A1 Urea Transport Activity through Enhanced Clathrin-Dependent Endocytosis, Guangping Chen**, Emory Univ.

11:00 **Regulation of ENaC Trafficking by COMMD Proteins, Fiona McDonald**, Univ. of Otago, School of Medical Sciences

11:30 **Mining the NKCC2 Interactome to Study Thick Ascending Limb Function, Paulo Caceres**, Henry Ford Hospital

12:00 **AQP2: A Model Protein for Understanding The Role of Protein: Protein Interactions in Protein Trafficking, Hanne Moeller**, Department of Biomedicine

217 **Vascular-Mediated Mechanisms of Cognition and the Role of Exercise**

**FEATURED TOPIC**

**SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W190B**

**Sponsored By: Cardiovascular Section · Chair: T. Baynard**

**Track: Neurophysiology, Neurobiology**

10:30 **Aortic Stiffness and Cerebral Small Vessel Disease, Gary Mitchell**, Cardiovascular Engineering, Inc

11:00 **Elevated Aortic Stiffness Is Associated with Reduced Cerebrovascular Reactivity but Not Global Cerebral Blood Flow Among Middle-Aged/Older Humans, L.E. DuBose, L.L. Boles Ponto, E. Harlynn, D.J. Moser, G.L. Pierce**, Univ. of Iowa (842.3)

11:15 **Cerebral and Peripheral Circulation and Progression of Alzheimer’s Disease, A. Pedrinolla, M. Venturelli, C. Fonte, I. Boscolo Galazzo, L. Crispoltoni, M. Benetti, A. Stabile, A. Pistilli, M. Rende, F.B. Pizzini, N. Smania, F. Schena**, Univ. of Verona, Italy and Univ. of Perugia, Italy (842.2)


12:00 Knockout of Matrix Metalloproteinase-9 Rescues the Development of Cognitive Impairments in Hypertensive Dahl Salt Sensitive Rats, F. Fan, S. Wang, P.N. Mims, K.J. Maeda, L. Li, A.M. Geurts, R.J. Roman, Univ. of Mississippi Med. Ctr. and Medical College of Wisconsin (842.6)

12:15 Exercise Ameliorated Cognitive Dysfunction Through Mitochondrial Remodeling in Alcohol Administered C57BL/6 Mice, K.E. Kelly, A.K. George, J. Behera, N. Tyagi, Univ. of Louisville (842.7)

218 Cerebral Function of Permanent Residents of High Altitude: Problems and Solutions

SYMPOSIUM

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W196B
Sponsored By: Environmental and Exercise Physiology Section · Chair: E. Heinrich and J. B. West
Track: Oxygen Transport

10:30 Studies of Neuropsychological Function of High Altitude Residents, Xiaodan Yan, Harvard Univ.

11:00 Measuring Adaptation to High Altitude in an Indigenous Population, Lorna Moore, Univ. of Colorado, Denver

11:30 The Potential of Oxygen Conditioning at High Altitude, John West, Univ. of California, San Diego

12:00 Genetic Changes in High Altitude Residents, Erica Heinrich, Univ. of California San Diego

219 The Role of Ribosome Biogenesis in Skeletal Muscle Hypertrophy

SYMPOSIUM

SUN 10:30 AM-12:30 PM, McCormick Place Convention Center, W193
Sponsored By: Muscle Biology Group · Chair: J. J. McCarthy
Track: Muscle Metabolism

10:30 Regulation of Ribosome Biogenesis during Skeletal Muscle Hypertrophy, Gustavo Nader, Penn State Univ.

11:00 The Role of mTORC1 Signaling in Ribosome Biogenesis in Response to a Hypertrophy Stimulus, Keith Baar, Univ. of California, Davis

11:30 The Effects of Diet and Exercise Mode on Markers of Ribosome Biogenesis in Rodents, Michael Roberts, Auburn Univ.

12:00 The Regulation of Ribosome Biogenesis in Humans following Resistance Exercise, Vandre Figueiredo, Univ. of Kentucky
**Tang Prize Award**

**LECTURE**

**SUN 1:00 PM-3:00 PM, McCormick Place Convention Center, W183AB**

Sponsored By: Tang Foundation

1:00  The Bacterial CRISPR-Cas9 System: A Game Changer in Genome Engineering, **Emmanuelle Charpentier**, Max Planck Inst. for Infection Biology

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**Hugh Davson Distinguished Lectureship of the APS Cell and Molecular Physiology Section**

**LECTURE**

**SUN 2:00 PM-3:00 PM, McCormick Place Convention Center, W190A**

2:00  Emerging Fluorescence Technology to Study Cell Architecture and Dynamics, **Jennifer Lippincott-Schwartz**, Howard Hughes Medical Inst. - Janelia Res Campus.

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**Ion Channel Modulation: Contributions to Autonomic Dysfunction in Cardiovascular and Metabolic Diseases**

**FEATURED TOPIC**

**SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W192B**

Sponsored By: Neural Control and Autonomic Regulation Section - Chair: Q. Chen and G. M. Toney

Track: Neurophysiology, Ion Channels and Transporters, Energy Homeostasis

3:15  The Role of TRPV1 Cardiac Sensory Afferents on Sympathetic Outflow and Remodeling in Heart Failure, **Irving Zucker**, Univ. Nebraska

3:45  Chronic Hypertension Switches Irritant-Induced Pulmonary-Cardiac Reflexes to Sympathoexcitation, **T. Taylor-Clark, J.S. Hooper**, Univ. of South Florida (718.1)

4:00  Neuronal Nitric Oxide Synthase Inhibits Store-Operated Ca$^{2+}$ Entry in Cardiomyocytes via S-Nitrosylation of Stromal Interaction Molecule-1, **Q. Feng, L. Gui, J. Zhu, X. Lu, S.M. Sims, W. Lu, P.B. Stathopulos**, Univ. of Western Ontario, Canada, Nantong Univ. Medical School, People’s Republic of China (718.2)

4:15  Hydrogen Peroxide Inhibits Neurons in the Paraventricular Nucleus of the Hypothalamus, **D.D. Kline, M.P. Matott**, Univ. of Missouri (718.3)

4:30  Correlation of Ventricular Arrhythmogenesis with Neuronal Remodeling in Cardiac Postganglionic Parasympathetic Neurons During the Progression of Heart Failure After Myocardial Infarction, **D. Zhang, H. Tu, C. Wang, R. Muelleman, M. Wadman, Y. Li**, Univ. of Nebraska Med. Ctr., First Affiliated Hospital of Xi’an Jiaotong Univ., People’s Republic of China (718.4)
4:45 Small-Conductance Ca\textsuperscript{2+}-Activated K\textsuperscript{+} (SK) Channels Regulate Pre-Sympathetic Neurons in the Hypothalamic Paraventricular Nucleus (PVN) and Parasympathetic Cardiomotor Neurons (CMN) in the Nucleus Ambiguus (NA): Pathological Changes, Z. Cheng, M. Lin, G.M. Toney, Q. Chen, College of Medicine, Univ. of Central Florida, Univ. of Texas Health Science Center at San Antonio and Michigan Technological Univ. (718.5)

5:00 Inflammation and Impaired \(\alpha\)2-Adrenergic Receptor-Mediated Inhibition of Ca\textsuperscript{2+} Channels Contribute to Hypertension in DOCA-Salt but Not Obese Dahl SS Rats, R.K. Mui, R.N. Fernandes, H.G. Garver, G.D. Fink, H. Xu, J.J. Galligan, Michigan State Univ. (718.6)

223 WEH New Investigator Award Lecture

LECTURE
SUN 3:15 PM-4:15 PM, McCormick Place Convention Center, W190A

Sponsored By: Water and Electrolyte Homeostasis Section
Track: Hypertension, Salt

3:15 Hypertension at the Intersection of Sodium Homeostasis and Inflammation, Meena Madhur, Vanderbilt Univ. Sch. of Med.

224 Immune Cells Involved in Cardiovascular Disease

FEATURED TOPIC
SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W196C

Sponsored By: Cardiovascular Section · Supported By: Clinical Science · Chair: B. Mitchell and M. Madhur
Track: Inflammation/Immunity

3:15 Immune Cells in Hypertension: The Good, the Bad, and the Ugly, Ernesto Schiffrin, SMBD-Jewish General Hospital


4:45 Natural Killer Cells Stimulated in Response to Placental Ischemia Mediate Hypertension, Intrauterine Growth Restriction, and Inflammation During Pregnancy, **D.C. Cornelius, M. McCalmon, L.M. Amaral, J. Elfarra, M.W. Cunningham; Jr., T. Ibrahim, J.D. Scott, B. LaMarca**, Univ. of Mississippi Med. Ctr. (875.5)

5:00 Role of Dendritic Cell Serum/Glucocorticoid Regulated Kinase 1 in Hypertension, **J.D. Foss, N.R. Barbaro, L. Xiao, D.G. Harrison, A. Kirabo**, Vanderbilt Univ. Med. Ctr. (875.1)

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225 Cellular Mechanisms of Stress and Inflammation

**FEATURED TOPIC**

**SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W192C**

**Sponsored By: Cell and Molecular Physiology Section - Chair: J. Bomberger and C. White**

**Track: Inflammation/Immunity**

3:15 Oxidative Protein Modifications, Inflammation and Hypertension, **Annet Kirabo**, Vanderbilt Univ. Sch. of Med.

3:45 Expression of a Pulmonary Fibrosis Associated Surfactant Protein C Mutant, SP-C<sup>I73T</sup>, in Alveolar Type 2 Cells Induces Lung Inflammation and Aberrant Parenchymal Remodeling, **A. Venosa, Y. Tomer, S. Jamil, M. Beers**, Univ. of Pennsylvania (694.5)


4:15 Contribution of Membrane Repair Defects to Skeletal Muscle Inflammation, **K.E. McElhanon, N. Young, J. Hampton, E.X. Beck, Z. Sahenk, R. Aggarewal, C.V. Oddis, W.N. Jarjour, N.E. Weisleder**, The Ohio State Univ., Research Institute at Nationwide Children’s Hospital and Univ. of Pittsburgh (694.9)

4:30 Inhibition of PDE7 Reduces Inflammatory Response Following Renal Ischemia/Reperfusion Injury, **W.R. Reis, M.A. Sun, T.A. Kronk, M.A. Blount**, Emory Univ. Sch. of Med. (694.2)

4:45 Inactivation of the PLA<sub>2</sub> Activity of Prdx6 Ameliorates Sepsis-Induced Acute Lung Injury, **J. Vazquez-Medina, J. Tao, P. Patel, C. Dodia, E. Sorokina, S.I. Feinstein, S. Chatterjee, A.B. Fisher**, Univ. of Pennsylvania (694.4)

5:00 Interferon Type II Increases Lipolysis and Fatty Acid Oxidation in Pancreatic β Cells, **N. Truong, J. Bazil, L. Olson**, Michigan State Univ. (695.5)
Single Cell Analysis and Genomic Approaches

**SYMPOSIUM**

**SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W194B**

Sponsored By: Physiological Genomics Group · **Chair: H. Coller**

Track: Genetics, Epigenetics, MicroRNA, Injury Repair and Regeneration, Developmental Programming

3:15  Introduction/Overview, **Hilary Coller**, UCLA

3:25  Cellular Variability and Information Flow in Signal Transduction Networks, **Roy Wollman**, Univ. of California, San Diego

3:50  Defining Cell Types and States with Single-Cell Genomics, **Cole Trapnell**, Univ. of Washington

4:15  Phase Separation Links to Regulation during Cell Stress, **D. Allan Drummond**, Univ. of Chicago

4:40  Single Complexity: Multiple-Omics from Single Cells, **Jim Eberwine**, Univ. of Pennsylvania

5:05  Conclusion, **Hilary Coller**, Univ. of California, Los Angeles

**MCS Landis Award Lecture**

**LECTURE**

**SUN 3:15 PM-4:15 PM, McCormick Place Convention Center, W196B**

Sponsored By: Microcirculatory Society (MCS) · Guest Society: Microcirculatory Society · **Chair: J. Loffing and H. Cai**

Track: Ion Channels and Transporters, Genetics, Epigenetics, MicroRNA, Hypertension

3:15  Leukocyte Integrin Activation under Flow, **Klaus Ley**, La Jolla Inst. for Allergy and Immunol.

**MicroRNAs in Kidney and Epithelial Transport Physiology, Development and Disease**

**SYMPOSIUM**

**SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W193**

Sponsored By: Epithelial Transport Group · **Chair: J. Loffing and H. Cai**

Track: Ion Channels and Transporters, Genetics, Epigenetics, MicroRNA, Hypertension

3:15  MicroRNAs in Diabetic Nephropathy, **Rama Natarajan**, Beckman Research Institute of City of Hope

3:45  MicroRNAs in Hypertension and Endothelial Dysfunction, **Mingyu Liang**, Medical College of Wisconsin

4:15  Small RNAs and Small Kidneys, **Jacqueline Ho**, Children’s Hospital of Pittsburgh

4:45  microRNAs and the Regulation of Epithelial Ion Transport, **Michael Butterworth**, Univ. of Pittsburgh
Hypoglycemia: Neural Pathways of the Glucose Counter-Regulatory Response, Hypoglycemia Unawareness and its Treatment

SYMPOSIUM

SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W375A
Chair: T. J. Verberne
Track: Energy Homeostasis

3:15  Clinical Impact of Impaired Awareness of Hypoglycemia in Diabetes, Elizabeth Seaquist, Univ. of Minnesota
3:45  Preserving Hypoglycemia Counter-Regulation in Diabetes: the Role of Anti-Oxidant Defense, Vanessa Routh, Rutgers Univ.
4:15  Perifornical Hypothalamic Orexin Neurons and the Counter-regulatory Response to Hypoglycemia, William Korim, Florey Institute of Neuroscience and Mental Health
4:45  Early Sympathetic Islet Neuropathy in Autoimmune Diabetes, Gerald Taborsky, Jr, Univ. of Washington

CEPS Trainee-Driven Featured Topic

FEATURED TOPIC

SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W192A
Sponsored By: Comparative & Evolutionary Physiology Section · Chair: C. E. Fanter and A. Hindle

3:15  Multi-Tissue Chromatin Modulation During Hibernation, R.S. Dhillon, K.A. Krautkramer, J.M. Denu, H.V. Carey, Univ. of Wisconsin-Madison (889.3)
3:30  Characterization of Aquaporin Expression and Function in the Malpighian Tubules of the Larval Mosquito, Aedes aegypti, L. Misyura, A. Donini, York Univ., Canada (889.8)
3:45  Autonomic Control of Thermogenic Capacity Is Optimized in Deer Mice Native to High or Low Altitudes, O.H. Wearing, K.B. Tate, G.R. Scott, McMaster Univ., Canada and Truman State Univ. (719.4)
4:00  FishResp: An R-Package for Filtering and Analyzing Raw Data in Aquatic Respirometry, S. Morozov, S.R. McCairns, J. Merilä, Univ. of Helsinki, Finland and Institut National de la Recherche Agronomique (INRA), France (719.13)
4:15  Methionine Sulfoxide Reductase as a Neuroprotective Mechanism in a Model of Anoxia Tolerance: Trachemys scripta, M. Reiterer, S.L. Milton, Florida Atlantic Univ. (1075.4)
4:30  Examination of the Physiological Effects of Ethylene Glycol Exposure on Muscle and Liver Tissue of the Leopard Frog, Rana pipiens, A.N. Funk, E.K. Stabenau, Bradley Univ. (874.4)
4:45 Involvement of Serotonergic Neurons in the Ventilatory Response to Hypercapnia in Birds (Chicken, Gallus gallus), K.M. Santos, S.B. Abreu, G.M. Garcia, K.C. Bicego, L.H. Gargaglioni, G.S. da Silva, Sao Paulo State Univ. UNESP-FCAV, Brazil (719.1)

5:00 Developmental Differences in Cardiac Transcriptome Suggest Gene Candidates Underlying Differences in Anoxia Tolerance in the Western Painted Turtle, C.E. Fanter, D.E. Warren, Saint Louis Univ. (1075.6)

231 Stressing the Beta Cell: The Good and The Bad

SYMPOSIUM

SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W190B
Sponsored By: Endocrinology and Metabolism Section · Chair: J. Corbett
Track: Energy Homeostasis

3:15 Islet Beta Cell Dysfunction in Diabetes: Too Much Hyp(e)? Raghu Mirmira, Indiana Univ. Sch. of Med.

3:45 The Many Inputs of CFTR into Beta Cells, Andrew Norris, Univ. of Iowa

4:15 Targeting Feedback Inhibitors in Beta Cell Stress, Patrick Fueger, City of Hope Med. Ctr.

4:45 Nitrosative Stress as a Regulator of Apoptosis in Beta Cells, John Corbett, Medical College of Wisconsin

232 Epigenetic Regulation of Lung Development, Injury, and Repair

FEATURED TOPIC

SUN 3:15 PM-5:15 PM, McCormick Place Convention Center, W196A
Sponsored By: Respiration Section · Chair: L. K. Rogers and T. Tipple
Track: Genetics, Epigenetics, MicroRNA, Developmental Programming

3:15 Epigenetic Basis of Evolving Bronchopulmonary Dysplasia, Kurt Albertine, Univ. of Utah

3:45 NADPH-Oxidase Signaling Is Dysregulated in Thromboxane Analog-Induced Intrauterine Growth Restricted Mice Versus Appropriately Grown Mice, M.E. Robbins, H.J. Cardona, J.M. Taylor, M. Perez, C. Fung, K.N. Farrow, Northwestern Univ. and Univ. of Utah (871.4)

4:00 Postnatal Growth Restriction Alters Lung Function and Structure in Juvenile Rats, C.R. Ballard, J. Zhou, K. Zuspan, A. Rebentisch, H. Wang, L. Joss-Moore, Colby College and Univ. of Utah (872.5)

4:15 Liposomal miR-29b Delivery Attenuates Increased Expression of Matrix Proteins and Improves Alveolarization in Mice Exposed to Maternal Inflammation and Neonatal Hyperoxia, S.S. Sugar, K.M. Heyob, T.E. Tipple, L.K. Rogers, The Research Institute at Nationwide Children’s Hospital, Univ. of Alabama, Birmingham and The Ohio State Univ. (871.2)

4:45 Epigenetic Regulation of Macrophage Lineage During Acute Lung Injury and Resolution, I. Rochford, J.C. Joshi, D. Mehta, Univ. of Illinois at Chicago (871.5)

5:00 Multipotent Myoepithelial Progenitor Cells Are Born Early During Airway Submucosal Gland Development, P. Anderson, T. Lynch, J. Engelhardt, Univ. of Iowa (725.1)

### 233 APS Undergraduate Poster Session and Research Awards Ceremony

**POSTER DISCUSSION**

**SUN 4:00 PM-5:30 PM, McCormick Place Convention Center, W375C**

### 234 Ernest H. Starling Distinguished Lectureship of the APS Water and Electrolyte Homeostasis Section

**LECTURE**

**SUN 4:15 PM-5:15 PM, McCormick Place Convention Center, W190A**

Track: Hypertension, Salt

4:15 Mechanisms of Sodium Balance, Peter Bie, Univ. of Southern Denmark-Odense

### 235 MCS Business Meeting

**BUSINESS MEETING**

**SUN 4:30 PM-5:30 PM, McCormick Place Convention Center, W196B**

Sponsored By: Microcirculatory Society (MCS)

### 236 Henry Pickering Bowditch Award Lecture

**LECTURE**

**SUN 5:45 PM-6:45 PM, McCormick Place Convention Center, W375A**

5:45 Coordinating Tissue Function through Heterocellular Communication, Brant Isakson, Univ. of Virginia Sch. of Med.
Oral Sessions - Monday, April 24

APS President’s Symposium Series: Research Advances in Sex/Gender and Developmental Programming of Chronic Diseases: Women’s Health Research

SYMPOSIUM

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W375A
Chair: H. Brooks
Track: Sex Differences and Women’s Health, Energy Homeostasis, Hypertension

10:30 Polycystic Ovary Syndrome: Cardiovascular and Metabolic Implications, Licy Yanes Cardozo, Univ. of Mississippi Med. Ctr.
11:00 Novel Mechanisms Responsible for Preeclampsia, Joey Granger, Univ. of Mississippi Med. Ctr.
11:30 A Woman is Not a Small Man: Sex Differences in the Heart, Leslie Leinwand, Univ. of Colorado
12:00 An Update on Hormone Replacement Therapy in Postmenopausal Women, Virginia Miller, Mayo Clin.

Advances in Renal Physiology I

FEATURED TOPIC

MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W192C
Sponsored By: Renal Section • Chair: P. Ortiz and I. Schiessl
Track: Hypertension, Salt

8:00 Loss of Bmal1 Impairs the Diurnal Rhythm in Sodium Excretion That Parallels the Loss of Circadian Blood Pressure Rhythm, D. Zhang, G. Najarro, D. Chen, I. Obi, C. Jin, J. Speed, J. Pollock, D. Pollock, Univ. of Alabama at Birmingham and Univ. of California at Merced (855.13)
8:15 Synergetic Effects of Hypokalemia and Volume Contraction Combine to Drive Paracrine Secretion of αKG, P.R. Grimm, P.A. Welling, Univ. of Maryland Sch. of Med. (855.17)
8:30 Renal Olfactory Receptor 1393 May Contribute to the Progression of Diabetic Nephropathy, B.D. Shepard, J.L. Pluznick, Johns Hopkins Univ. Sch. of Med. (716.4)
8:45 Deletion of ALMS1 (Alstrom Syndrome 1) Enhances Salt-Sensitive Hypertension and Induces Insulin Resistance and Obesity in Rats, A. Jaykumar, P. Caceres, E.L. Henson, W.H. Beierwaltes, P.A. Ortiz, Wayne State Univ. and Henry Ford Hospital (857.26)
9:00 Renal CUL3 Haploinsufficiency Is Not Sufficient to Cause Familial Hyperkalemic Hypertension, M.Z. Ferdaus, L. Agbor, C. Sigmund, J. McCormick, Oregon Health & Science Univ. (OHSU) and Univ. of Iowa (857.14)

9:15 Renal Interstitial Cells Support Proximal Tubular Regeneration in Response to Local Injury, I.M. Schiessl, A. Grill, D. Steppan, K. Fremter, H. Castrop, Univ. of Regensburg, Germany (1030.30)

9:30 Acute Aldosterone-Mediated Signaling Networks in Distal Convoluted Tubules, L. Cheng, Q. Wu, E.T. Olesen, L. Peng, T. Pisitkun, R. Fenton, Aarhus Univ., Denmark, Univeristy of Copenhagen, Denmark and Chulalongkorn Univ., Thailand (857.10)

9:45 Alternative Splice Variant of the Thiazide-Sensitive NaCl Cotransporter: The Dominant Role of the Novel Phosphorylation Site S811, O. Tutakhel, J.G. Hoederop, R.J. Bindels, Radboud Univ. Med. Ctr. (RUMC), Netherlands (857.32)

349 Publishing 101: How to Get Your Work Published and Avoid Ethical Minefields

SYMPOSIUM
MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W192A
Sponsored By: Publications Committee · Chair: C. D. Sigmund and R. Scheman
Track: Professional Development (#profdev)

8:00 Choosing a Journal: Authorship and Peer Review, Curt Sigmund, Roy J. and Lucille A. Carver Col. of Med., Univ. of Iowa

8:30 Ethical Minefields II: Image Manipulation, Christina Bennett, American Physiological Society

9:00 Speaker and Ethics Case Study Panelist, Irving Zucker, Univ. of Nebraska Med. Ctr.

9:30 Meet the Editor, André Marette, Faculty of Medicine, Laval Univ.

350 Post-Transcriptional Regulation of Intestinal Homeostasis: Stem Cells to Cancer

SYMPOSIUM
MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W194B
Sponsored By: GI and Liver Physiology Section and AJP-Gastrointestinal and Liver Physiology · Chair: K. Hamilton and P. Chatterji
Track: Genetics, Epigenetics, MicroRNA, Injury Repair and Regeneration, Inflammation/Immunity

8:00 IMP1 in Intestinal Regeneration and Autophagy, Kathryn (Kate) Hamilton, Univ. of Pennsylvania

8:30 Control of Extracellular Vesicle Secretion by HuR, Dan Dixon, Univ. of Kansas
351 Hypertension and Sodium Homeostasis-Developing Concepts

FEATURED TOPIC

MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W196C
Sponsored By: Water and Electrolyte Homeostasis Section • Chair: K. Sandberg, and E. Gohar
Track: Inflammation/Immunity, Hypertension, Salt

8:00 Storage of Sodium in the Skin, Jens Titze, Vanderbilt Univ.

8:30 Renal NPFF and Receptors NPFF-R1 and NPFF-R2: Novel Negative Regulators of Sodium Transport and Blood Pressure, M.D. Bishop, J. Gomes, M. Mazhar, L. Asico, P.A. Jose, V.M. Villar, George Washington Univ. Sch. of Med. & Health Sciences (1026.2)

8:45 Sex Differences in Skin Sodium Storage in Response to High Salt Diet in Sprague Dawley Rats, E.Y. Gohar, E.M. Daugherty, J.S. Speed, K.A. Hyndman, J.G. Johnston, C. Jin, J.S. Pollock, D.M. Pollock, Univ. of Alabama at Birmingham and Univ. of Evansville (1026.1)

9:00 A Novel CRISPR/Cas9 Knock-In Rat Model Defines a Polymorphic Variant of Secreted Phosphoprotein 2 as a Quantitative Trait Nucleotide Linked to the Heritability of Blood Pressure, S. Chakraborty, Y. Nie, X. Cheng, B. Mell, S. Galla, B. Joe, Univ. of Toledo College of Medicine and Univ. of Toledo College of Medicine (1026.19)

9:15 Sex-Dependent Regulation of Blood Pressure by the Circadian Clock Protein Per1, K. Solocinski, K. Cheng, I. Lynch, B.D. Cain, C.S. Wingo, M.L. Gumz, Univ. of Florida and North Florida/South Georgia Veterans Health System (1026.18)

9:30 Sodium Homeostasis and Bone, J.G. Verbalis, J. Barsony, N. Tominaga, Georgetown Univ. (1026.5)


352 Physiological Adaptation to Hypoxia and High Altitudes

FEATURED TOPIC

MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W190B
Sponsored By: Hypoxia Group • Chair: R. Iturriaga
Track: Oxygen Transport

8:00 High Altitude Adventures with Sukamay Lahiri, John West, UCSD
8:45 Ventilatory Acclimatization to Hypoxia in Deer Mice Native to High Altitudes, **C.M. Ivy, G.R. Scott**, McMaster Univ., Canada (841.4)

9:00 Hypoxic Preconditioning Improves Respiratory Muscle Function During Hypoxia by Regulating Mitochondria in COPD Mice, **L. Zuo, C. Chuang, T. Zhou**, Ohio State Univ. (841.2)


9:30 Perinatal Supplemental Oxygen Alters the Ventilatory and Pulmonary Vascular Responses to Hypoxia in Adult Rats, **M. Hoover, T.J. Greiner, D. Rotella, S. Vellookunnel, S. Chandrasekar, M. Bates**, Univ. of Iowa (841.6)


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**353 Innovation in Teaching**

**FEATURED TOPIC**

**MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W193**

Sponsored By: Teaching of Physiology Section · Chair: **D. Osborne**

Track: Education

8:00 Clinical Research 101: A Way to Showcase Healthcare Professions in High-School Students Using PhUn Week, **A.N. Gurovich, F. Morales, K. Terry**, Indiana State Univ. and South Vermillion High School (576.21)

8:15 Subways and Role-Plays: Using Analogies to Understand Matter and Energy Flow, **K. Hull, P. Marx, M. Jensen**, Bishop’s Univ., Canada and Univ. of Minnesota (576.53)

8:30 Clinical Scenario Videos Improve D.M.D Students, Perception of the Basic Sciences and Ability to Apply Content Knowledge, **C.J. Metz, M.J. Metz**, Univ. of Louisville (576.52)

8:45 The Clinical Reasoning Conference: A Flipped-Classroom, Case-Based Approach to Teaching and Learning in the Pre-Clerkship Medical Curriculum, **R.P. Sullivan, D.J. Karras, D.R. Schwartz, G. Sterling**, Lewis Katz Sch. of Med. at Temple Univ. (576.9)

9:00 Early Echocardiography Experience Assists in Improving and Retaining Knowledge of Cardiac Anatomy and Physiology for Medical Students, **A. Elmoselhi, M. Eladl, M. Seif, Univ. of Sharjah**, United Arab Emirates and Univ. Hospital Sharjah, United Arab Emirates (576.16)

9:30 The Use of a Case Study from Pop Culture Improves Student Test Scores and Evaluations in a Cardiovascular Physiology Class, R. Berg, Frederiksberg and Bispebjerg Hospitals, Denmark (576.51)

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354 Carl Ludwig Distinguished Lectureship of the APS Neural Control and Autonomic Regulation Section

**LECTURE**

MON 8:00 AM-9:00 AM, McCormick Place Convention Center, W190A
Track: Neurophysiology, Neurobiology

8:00 Mapping the Diversity of Central Autonomic Control, Robin McAllen, Florey Institute of Neuroscience and Mental Health

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355 Vascular Autophagy and Endothelial Cell Nitric Oxide Generation

**SYMPOSIUM**

MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W196B
Sponsored By: Cardiovascular Section · Chair: J. D. Symons and D. Gutterman

8:00 Autophagy Maintains Vascular Function through a Novel Glycolysis-Linked Pathway Regulating Enos, Leena Bharath, Boston Univ.

8:30 Regulation of Vascular Smooth muscle Cell Migration by Autophagy, Ming Zou, Georgia State Univ.

9:00 Autophagy is a Novel Regulatory Mechanism in the Human Microcirculation, Andreas Beyer, Medical College of Wisconsin

9:30 Autophagy, Aging, and Arterial Function, Thomas LaRocca, Univ. of Colorado Boulder

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356 Ubiquitin and Ubiquitin-Like Proteins in Cardiovascular Physiology and Disease

**SYMPOSIUM**

MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W192B
Sponsored By: Cardiovascular Section · Chair: N. Weisleder and X. Wang

8:00 Ubiquitin and Ubiquitin-Like Proteins in the Heart: An Overview, Xuejun Wang, Univ. of South Dakota

8:20 Ubiquitin-Proteasome Malfunction in Human Heart Failure, Sharlene Day, Univ. of Michigan

8:45 Neddylation and Cardiac Function, Huabo Su, Augusta Univ.
9:10 SERCA2a SUMOylation for the Treatment of Heart Failure, **Roger Hajjar**, Icahn Sch. of Med. at Mount Sinai

9:35 Regulation of PI3K Signaling in Heart failure by E3 Ubiquitin Ligases, **Noah Weisleder**, The Ohio State Univ.

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**357 Brown Fat versus Skeletal Muscle as Metabolic Targets: Activation of Thermogenesis or Glucose Oxidation**

**FEATURED TOPIC**

**MON 8:00 AM-10:00 AM, McCormick Place Convention Center, W196A**

**Sponsored By:** Endocrinology and Metabolism Section - **Chair:** M. Symonds and A. Budge

**Track:** Muscle Metabolism, Energy Homeostasis

8:00 Brown Fat versus Muscle: To Thermogenesis and Beyond, **Michael Symonds**, The Univ. of Nottingham

8:30 Divergent Developmental Profiles between Skeletal Muscle and Brown Fat, **Yu-Hua Tseng**, Harvard Medical School

9:00 Brown Adipose Tissue Promotes Healthful Aging, **J.J. Guers**, J. Zhang, S. Yoon, D.E. Vatner, S.F. Vatner, Rutgers Univ. - New Jersey Medical School (886.16)

9:15 Cross Talk Between Skeletal Muscle and Brown Adipose Tissue During Cold and Diet Induced Thermogenesis, **M. Periasamy**, Sanford Burnham Prebys Medical Discovery Institute (886.13)

9:30 Prior Exercise Training Alters the Response of White and Brown Adipose Tissue to Cold Stress, **C.M. Knuth**, W.T. Peppler, S.K. Trottier, L.K. Townsend, D.C. Wright, Univ. of Guelph, Canada (886.15)

9:45 Brown Adipose Tissue Thermogenic Response in Children with Hypothyroidism, **J. Law**, L. Robinson, V. Astle, E. Finn, L. Denvir, T. Randell, A. Marshall, H. Sacks, M. Symonds, H. Budge, Univ. of Nottingham, United Kingdom, Monash Univ., Australia, Nottingham Univ. Hospitals NHS Trust, United Kingdom, Univ. of California and VA Greater Los Angeles Healthcare System (886.9)

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**358 Sympathetic Nerves and Inflammation: The Pro and the Anti**

**MINISYMPOSIUM**

**MON 9:00 AM-10:00 AM, McCormick Place Convention Center, W190A**

**Sponsored By:** Neural Control and Autonomic Regulation Section - **Chair:** R. McAllen and D. Bellinger

**Track:** Inflammation/Immunity

9:00 Distinguishing the Central Pathways of the Inflammatory Reflex from Those of Fever, **D. Martelli**, D.G. Farmer, S.T. Yao, M.J. McKinley, R.M. McAllen, Florey Institute of Neuroscience and Mental Health, Australia and Univ. of Bologna, Italy (697.3)
9:15 Beta_{2}-Adrenergic Receptor Regulates Inflammation in Autoimmune Arthritis: Inhibit or Promote? - Depends on Timing, Immune Organ and Posttranslational Receptor Modifications, D. Lorton, C.L. Lubahn, C. Molinaro, D.L. Bellinger, Kent State Univ., Banner Sun Health Institute and Loma Linda Univ. Sch. of Med. (863.5)

9:30 Local Innervation Modulates Lymph Node Cellularity, C. Chen, L. Ince, A. de Juan, S. Hergenhan, W. He, D. Druzd, K. Kraus, C. Scheiermann, LMU Munich, Germany (697.2)

9:45 Sympathetic Nerves Promote Hypertension-Specific CD8^{+} Effector Memory T Cell Homing in the Bone Marrow of Mice with Angiotensin II Infusion, L. Xiao, H.A. Itani, J.D. Foss, D.G. Harrison, Vanderbilt Univ. Med. Ctr. (859.4)

**359 Adipose Tissue and the Cardiovascular System: Interactions with Sleep and Cardiometabolic Risk Factors**

**SYMPOSIUM**

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W196B
Sponsored By: Cardiovascular Section - Chair: N. Covassin and M. Gollasch
Track: Inflammation/Immunity

10:30 Role of Adipose Tissue in Cardiometabolic Disorders: An Overview, Prachi Singh, Mayo Clinic

11:00 GPCR Signaling in Brown/Beige Adipose Tissue, Alexander Pfeifer, Univ. of Bonn

11:30 The Role of Perivascular Adipose Tissue in Atherosclerosis and Hypertension, Eugene Chen, Univ. of Michigan

12:00 Interactions between Sex, Sleep, and Body Composition, Marie-Pierre St. Onge, Columbia Univ.

**360 Circumventricular Organs: A Blood-Brain Interface for Modulation of Cardiovascular and Immune Function and Fluid and Electrolyte Balance**

**FEATURED TOPIC**

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W193
Sponsored By: Neural Control and Autonomic Regulation Section - Chair: S. Yao
Track: Neurophysiology, Inflammation/Immunity, Neurobiology

10:30 Role of the Area Postrema in Driving the Increase in Cardiac Sympathetic Drive and Cardiac Dysfunction in Heart Failure, Clive May, Howard Florey Institute

11:00 Tumor Necrosis Factor Alpha Increases Excitability in Subfornical Organ Neurons, N.J. Simpson, A.V. Ferguson, Queen’s Univ., Canada (868.1)
11:15 Brain Tumor Necrosis Factor-α Converting Enzyme Contributes to Sympathetic Activation in Heart Failure Rats, S. Wei, Y. Yu, R.M. Weiss, R.B., Felder, Univ. of Iowa Carver College of Medicine and VA Med. Ctr. (844.3)

11:30 Deletion of Secreted Form of Prorenin in the Subfornical Organ Attenuates the Development of DOCA-Salt Induced Hypertension, C.J. Worker, S.A. Buller, D. Jensen, C.D. Sigmund, Y. Feng, Univ. of Nevada, Reno, Sch. of Med., Roy J. and Lucille A. Carver College of Medicine and Univ. of Iowa (868.3)

11:45 Role of the OVLT in the Development of DOCA-Salt Hypertension, J.P. Collister, D.B. Nahey, C.T. Banek, J.W. Osborn, Univ. of Minnesota (868.4)

12:00 AT1aR Dependent GABAa Inhibition in the MnPO, G.E. Farmer, J.T. Little, M.E. Bachelor, J.T. Cunningham, UNT Health Science Center (866.6)

12:15 The Effect of Sodium Depletion with or Without Concomitant Dehydration on Fos Immunoreactivity in the Different Subregions of the Subfornical Organ and Organum Vasculosum of the Lamina Terminalis of the Rat, M.J. McKinley, M. Goga, Florey Institute of Neuroscience and Mental Health, Australia (868.6)

361 Steve Hebert Lecture Featured Topic

FEATURED TOPIC
MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W192A
Sponsored By: Epithelial Transport Group • Chair: I.M. Schiessl and S. Poulsen
Track: Ion Channels and Transporters, Hypertension, Salt

10:30 Vasopressin Signaling in the Kidney: New Insights from Genome Editing, Deep DNA Sequencing and Protein Mass Spectrometry, Mark Knepper, NHLBI, NIH

11:15 Importance of Adenylyl Cyclase 6 in Developing Lithium-Induced Nephrogenic Diabetes Insipidus, S.B. Poulsen, T.B. Kristensen, H.L. Brooks, T. Rieg, R.A. Fenton, Aarhus Univ., Denmark, VA San Diego Healthcare System, Univ. of Arizona and Univ. of California San Diego (703.1)

11:30 Molecular Basis of AVP-Regulated Calcium Signaling in the Collecting Duct, M. Mamenko, I. Dhande, V. Tomilin, O. Zaika, P.A. Doris, The Univ. of Texas Health Science Center at Houston, Medical College of Georgia and Augusta Univ. (703.15)

11:45 Altered Expression of Aquaporin Water Channels in a Rat Model of Chronic Diarrhea Due to Bile Acid Malabsorption, J. Yde, J. Borg, R.A. Fenton, H.B. Moeller, Aarhus Univ., Denmark (703.14)

12:00 Identification of ß-Catenin Interacting Proteins in the Nuclei of Native Rat Renal Inner Medullary Collecting Duct Cells, J. Hwang, H. Jung, C. Chou, M. Knepper, NHLBI and NIH (703.12)

Respiratory Control: Beyond the Diaphragm

**FEATURED TOPIC**

**MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W196A**

Sponsored By: Respiration Section • Chair: D. Fuller and S. Turner

Track: Neurophysiology, Muscle Metabolism, Neurobiology

10:30 Motor Control of Human Inspiratory Muscles: Beyond the Diaphragm, Simon Gandevia, Univ. of New South Wales

11:30 Respiratory Motor Deficit in Children with Spinal Cord Injury, G. Singh, S. Trimble, S. Aslan, A. Behrman, A. Ovechkin, Univ. of Louisville (873.21)

11:45 Contribution of Expiratory Abdominal Muscle Recruitment in the Perinatal Period Across Sleep Wake Cycles, J. Saini, S. Pagliardini, Univ. of Alberta, Canada (873.8)

12:00 Intraspinal Microstimulation Induced Respiratory Phase Resetting, M.D. Sunshine, C.N. Ganji, P.J. Reier, C.T. Moritz, D.D. Fuller, Univ. of Florida, Univ. of Washington and Center for Sensorimotor Neural Engineering (1055.9)

12:15 State-Dependent Expiratory Abdominal Activity During Hypercapnia in Adult Unanaesthetized Rats, I.P. Leirao, C.A. Silva Jr, L.H. Gargagliani, G.S. da Silva, Sao Paulo State Univ. UNESP-FCAV, Brazil (873.11)

The Many Facets of a Teaching Career

**SYMPOSIUM**

**MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W192C**

Sponsored By: Careers Opportunities in Physiology Committee • Chair: C. R. Williams and J. Brandauer

Track: Professional Development (#profdev), Education

10:30 How to Dissect a Job Announcement: Dirty Little Secrets, Erica Wehrwein, Michigan State Univ.

10:45 Educating the Teacher-Scholar for Successful Teaching, Carissa Krane, Univ. of Dayton

11:00 Teaching-Research Balance in the Changing Classroom, Dexter Lee, Howard Univ.

11:15 Perspectives from a Liberal Arts College, Lara Deruisseau, Le Moyne College

11:30 Educating the Educator in a Medical School, David Harris, Univ. of Central Florida

11:45 Panel and Roundtable Discussion

12:15 Break-Out Sessions
Cell Biology of Digestive Diseases

FEATURED TOPIC

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W194B
Sponsored By: GI and Liver Physiology Section · Chair: N. Snider and D. Toivola
Track: Inflammation/Immunity, Injury Repair and Regeneration

10:30 Dynamics and Function of the Actin Cytoskeleton in Polarized Cells of the Intestinal Tract, Matthew Tyska, Vanderbilt Univ.


11:15 Regulation of Pancreatic Beta Cell Function by Ankyrin-B, D.N. Lorenzo, J. Hostettler, V. Bennett, Univ. of North Carolina at Chapel Hill, Duke Univ. and Howard Hughes Medical Institute (893.5)


11:45 UDCA Treatment Reverses Biliary Proliferation and Hepatic Fibrosis in Mdr2-/- Mice and Human PSC by Decreasing Mast Cell Infiltration and Histamine Release, L.L. Kennedy, L. Hargrove, J. Demieville, F. Meng, P. Invernizzi, G. Alpini, H. Francis, Texas A&M HSC, VA, Baylor S&W and Univ. of Milan-Biocca, Italy (893.4)

12:00 The Neurokinin-2 Receptor Antagonist GR 159897 Protects Against Neuroinflammation in the Mouse Enteric Nervous System During Colitis, N.M. Delvalle, B. Gulbransen, Michigan State Univ. (893.2)

12:15 Apolipoprotein (apo)AV Deficiency Aggravates Ethanol-Induced Liver Injury, Promoting Progression from Simple Steatosis to Alcoholic Steatohepatitis and Then to Liver Fibrosis in Mice, D.Q. Wang, B. Gao, H.H. Wang, O. de Bari, P. Tso, Saint Louis Univ. Sch. of Med., The NIH-National Institute on Alcohol Abuse and Alcoholism and Univ. of Cincinnati (893.6)

Neural and Hormonal Modulation of Fluid Balance and Ion Homeostasis in Health and Disease

FEATURED TOPIC

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W196C
Sponsored By: Water and Electrolyte Homeostasis Section · Chair: A. Schiller and A. Polichnowski
Track: Neurophysiology, Hypertension, Salt

10:30 Hypertension-Induced Renal injury, Aaron Polichnowski, Hines VA Hospital
11:00 Effects of Intrarenal Afferent Stimulation by Bradykinin on Renal Sympathetic Nerve Activity: Tonic Inhibition Facilitating Sodium and Water Excretion, M. Hindermann, T. Ditting, K. Rodionova, S. Loosen, C. Ott, R.E. Schmieder, K. Amann, R. Veelken, Univ. of Erlangen, Germany (1027.2)

11:15 Intrarenal Insulin Replacement Prevents Glucose-Induced Natriuresis in Conscious Rats, D.L. Irsik, A.R. Washington, R. Alaisami, M.W. Brands, Medical College of Georgia at Augusta Univ. (1027.3)


12:15 Role of Renal Compensation and dDAVP in a Mouse Model of Hyponatremia and Brain Edema Induced by Water Intoxication, L. Bordoni, E.G. Jimenez, S. Nielsen, L. Østergaard, S. Frische, Aarhus Univ., Denmark, CFIN, Aarhus Univ., Denmark and Aalborg Univ., Denmark (1027.7)

366 Consequences of Physiological Stressors on the Development and Function of the Cardiovascular System

SYMPOSIUM

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W192B
Sponsored By: Comparative & Evolutionary Physiology Section · Chair: T. Gillis
Track: Developmental Programming

10:30 The Influence of Embryonic Hypoxia on the Development of the Cardiovascular System in Birds, William Milsom, Univ. of British Columbia

11:00 Cardiac Remodeling in Teleost Fish in Response to Physiological Stressors, Todd Gillis, Univ. of Guelph

11:30 Acclimatization of Cardiac Function to Cold Environments in Birds. Changes in Heart Size and Mitochondrial Activity Enhance Aerobic Scope, Jordi Altimiras, Linköping Univ.

12:00 Molecular Regulation of the Hibernating Heart, Matthew Andrews, Univ. Minnesota Duluth
367 Cardioprotection: The Carl J. Wiggers Award Featured Topic

FEATURED TOPIC

MON 10:30 AM-12:30 PM, McCormick Place Convention Center, W190B
Sponsored By: Cardiovascular Section • Chair: G. Heusch and G. Meininger

10:30 Wiggers Award Lecture: Remote Ischemic Conditioning and its Signal Transduction, Gerd Heusch, Univ. of Essen Med. Sch.

11:00 Increased CVD Risk Burden Diminishes the Protective Effect of Remote Ischemic Preconditioning Against Endothelial Ischemia-Reperfusion Injury in Humans, G.P. Van Guilder, T. Trachte, South Dakota State Univ. (845.1)

11:15 Infarct Size Reduction by Remote Ischemic Perconditioning and Humoral Transfer of Protection Across Species, P. Kleinbongard, H. Lieder, S. Gent, A. Skyschally, G. Heusch, Univ. of Essen Medical School, Germany (845.2)

11:30 Myocardial Vascular Protection in Hibernating Woodchucks, J. Zhang, D.E. Vatner, J. Guers, S.F. Vatner, Rutgers Univ. - New Jersey and Medical School (845.3)

11:45 Overexpression of SOD2 in Myocytes Protects Mitochondrial Function from Myocardial Ischemia and Reperfusion Injury, P. Lin, Y. Chen, Northeast Ohio Medical Univ. (845.4)

12:00 Telomerase Deficiency Predisposes to Heart Failure and Ischemia-Reperfusion Injury, K. Ait-Aissa, J.S. Heisner, J.L. Strande, L. Harmann, A.K. Camara, A.M. Beyer, Medical College of Wisconsin (845.5)

12:15 Insulin-Like Growth Factor 1 Preserves Cardiac Function After Myocardial Infarction Without Affecting Initial Ischemia and Reperfusion Injury, A. Heinen, R. Nederlof, A. Raupach, H. Reffelt, S. Gödecke, A. Gödecke, Heinrich-Heine Univ., Germany (845.6)

368 Solomon Berson Distinguished Lectureship of the APS Endocrinology and Metabolism Section

LECTURE

MON 10:30 AM-11:30 AM, McCormick Place Convention Center, W190A
Sponsored By: Endocrinology and Metabolism Section
Track: Energy Homeostasis

10:30 GLP-1 in Energy Homeostasis: There is More than Meets the Eye, Wolfgang Langhans, ETH, Zurich
369 Edward F. Adolph Distinguished Lectureship of the APS Environmental and Exercise Physiology Section

LECTURE

MON 2:00 PM-3:00 PM, McCormick Place Convention Center, W190A
2:00 Skin-Deep Insights into Vascular Aging, W. Kenney, Penn State Univ.

370 Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section

LECTURE

MON 3:15 PM-4:15 PM, McCormick Place Convention Center, W190A
Track: Ion Channels and Transporters, Hypertension, Salt
3:15 Protecting Potassium Balance at all Costs: Molecules to Man, Paul Welling, Univ. of Maryland Medical School

371 The Emerging Role of Lipids in Lung Physiology and Disease

SYMPOSIUM

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W196A
Sponsored By: Respiration Section · Chair: W. M. Kuebler, and E. Letsiou
Track: Injury Repair and Regeneration, Microbiome, Inflammation/Immunity
3:15 Resolvins and maresins in lung inflammation, Raja-Elie Abdulnour, Brigham and Women’s Hosp.
3:40 Cholesterol-Mediated Surfactant Dysfunction in Ventilator-Induced Lung Injury, Ruud Veldhuizen, Univ. of Western Ontario
4:05 Mechanisms of Ceramide-Induced Endothelial Barrier Failure and Acute Lung Injury, Stefan Uhlig, Univ. of Aachen
4:30 Sphingosine-1-Phosphate Signaling in Pulmonary Hypertension, Roberto Machado, Univ. of Illinois at Chicago
4:55 Source and Functional Relevance of Lysophosphatidic Acid in Pulmonary Fibrosis, Andrew Tager, Massachusetts General Hospital

372 Examining the Changing Landscape of Course Delivery and Student Learning

SYMPOSIUM

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W196C
Sponsored By: Teaching of Physiology Section · Chair: P. A. Halpin and C. Gopalan
Track: Education
3:15 A Brief History of Online Learning, Patricia Halpin, Univ. of New Hampshire at Manchester
3:30 Online Laboratories: Defining the Variables, Lynelle Golden, Bastyr Univ.
4:00 Online Teaching and Learning: Is the Power of the MOOC Moot? Karah Hagins, Univ. of Georgia
4:30 Ten Years of WebCasting at a Medical School, Steve Waller, Univ. of South Dakota
5:00 Summary and Wrap Up, Chaya Gopalan, Southern Illinois Univ. Edwardsville

Novel Genetic Risk Factors and Early-Pregnancy Mechanisms Contributing to Preeclampsia

FEATURED TOPIC

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W192C
Sponsored By: Physiological Genomics Group · Chair: J. L. Grobe and M. Santillan
Track: Sex Differences and Women’s Health, Genetics, Epigenetics, MicroRNA Hypertension

3:15 Preeclampsia 2017: What’s Next, James Roberts, Univ. of Pittsburgh
3:45 Inflammatory Mediators During the Pre-Implantation Period Play a Key Role in the Pathogenesis of Preeclampsia in the Spontaneous Preeclamptic-Like BPH/5 Mouse, J.L. Sones, A.A. Merriam, J. Grenier, N.A. Douglas, R.L. Davisson, Louisiana State Univ. School of Veterinary Medicine, Columbia Univ. Med. Ctr., Cornell Univ. and Weill Cornell Medical College (1033.9)
4:00 Gene Expression Changes in Uteroplacental Development Associated with Superimposed Preeclampsia in the Dahl Salt-Sensitive Rat Model, A.C. Johnson, M.R. Garrett, J.M. Sasser, Univ. of Mississippi Med. Ctr. (1033.8)
4:30 Expression of MEF2 Transcription Factors in Human Placenta and Involvement in Trophoblast Invasion and Differentiation, L. Li, X. Gong, L.P. Rubin, Texas Tech Univ. Health Sciences Center (692.8)
4:45 Altered Water Homeostasis in a Novel Non-Human Primate Model of Gestational Hypertension, C.C. Weaver, M.K. Rhoads, J.L. Grobe, J.L. Osborn, Univ. of Kentucky, Univ. of Iowa Carver College of Medicine and Biomedical Science Research Group (692.6)
5:00 Portfolio Analysis on Preeclampsia and Pregnancy-Associated Hypertension Research Funded by the National Heart, Lung and Blood Institute, C. Maric-Bilkan, Z. Galis, National Institutes of Health (1033.7)
5:10 Opportunities for Publishing Preeclampsia Research in Physiological Genomics, Bina Joe, Univ. of Toledo Col. of Med.
New Animal Models and their Utility for WEH Research

FEATURED TOPIC

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W193
Sponsored By: Water and Electrolyte Homeostasis Section • Chair: A. Sorokin and M. Mamenko
Track: Genetics, Epigenetics, MicroRNA, Hypertension, Salt

3:15 10 years of Manipulating the Rat Genome: Where Are We and What Have We Learned? Aron Geurts, Medical College of Wisconsin

3:45 βENaC is Required for Placental Vascular Remodeling in Mice, J.P. Warrington, F.T. Spradley, A.R. Chade, M.J. Ryan, J.P. Granger, H.A. Drummond, Univ. of Mississippi Med. Ctr. (1034.1)

4:00 RhoBTB1 Is a Novel Gene Protecting Against Hypertension, M. Mukohda, S.C. Ibeawuchi, C. Hu, K. Lu, A.R. Nair, L.N. Agbor, J. Wu, F.W. Quelle, C.D. Sigmund, Univ. of Iowa (1034.2)

4:15 Sex and Hypertension in the African Green Monkey, a Translational Model of Human Cardiovascular Disease, M.K. Rhoads, C.C. Weaver, J.L. Osborn, Univ. of Kentucky, Biomedical Science Research Group and LLC (1034.3)

4:30 Knock-Down of ADAM17 in Glutamatergic or Pre-Autonomic Neurons Attenuates Development of Neurogenic Hypertension, T.M. Basting, J. Xu, S. Sriramula, S. Murkerjee, E. Lazartigues, Louisiana State Univ. Health Sciences Center (1034.4)

4:45 The Hypertensive Xenograft Model (HXM)-A New Tool for Studying the Role of Hypertension in Cancer, M. Flister, C. Plasterer, M. Hoffman, D. Murphy, A. Lemke, A. Geurts, M. Dwinell, Medical College of Wisconsin (1034.6)

5:00 Treatment with Lisinopril Delays the Early Progression of Proteinuria in a Novel Model of Prepubertal Obesity, K.C. McPherson, A. Pennington, J.M. Williams, Univ. of Mississippi Med. Ctr. (1034.7)

Transport Proteins and Cellular Signaling in Choroid Plexus Epithelia

SYMPOSIUM

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W194B
Sponsored By: Cell and Molecular Physiology Section • Chair: B. Blazer-Yost and J. Praetorius
Track: Ion Channels and Transporters

3:15 Cerebrospinal Fluid Secretion and pH Regulation by the Choroid Plexus, Helle Hasager Damkier, The Panum Institute, Univ. of Copenhagen

3:45 Cation-Chloride Cotransporters and Aquaporins in CSF secretion and K+ Homeostasis by Choroid Plexus Epithelial Cells, Francisco Alvarez-Leefmans, Wright State Univ., Boonshoft Sch. of Med.

4:15 Choroidal Influx and Efflux Transport Processes to Control Developing Brain Fluid Environment, Jean-Francois Ghersi-Egea, INSERM, France
**Intermittent Hypoxia: Molecular, Integrative, and Clinical Implications**

**SYMPOSIUM**

**MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W192A**

Sponsored By: Hypoxia Group - Chair: A. Svatikova and A. Schreihofer

Track: Physiology of Extreme Environments, Injury Repair and Regeneration

3:15 Gasotransmitters in Sleep Apnea: Roles of CO and H2S, Nanduri Prabhakar, The Ctr. for Systems Biol. of O2 Sensing, Univ. of Chicago

3:45 Vascular and Adipose Tissue Effects of Intermittent Hypoxia: Modulation of Insulin Signaling, Prachi Singh, Mayo Clinic

4:15 Intermittent Hypoxia and Oncogenesis, David Gozal, Univ. of Chicago

4:45 Intermittent Hypoxia in Humans: Implications for Cardiovascular Outcomes, Virend Somers, Mayo Clinic

**Sleep, Circadian Clocks and Metabolism**

**SYMPOSIUM**

**MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W190B**

Sponsored By: Endocrinology and Metabolism Section - Chair: E. Van Cauter and W. K. Samson

Track: Neurophysiology, Energy Homeostasis, Neurobiology


3:45 Photic, Behavioral and Dietary Synchronizers of the Circadian System: Implications for Successful Aging, Kathryn J. Reid, Northwestern Univ. Feinberg Sch. of Med.

4:15 Consequences of Sleep Deprivation and Circadian Misalignment on Sympathoneural and Adrenomedullary Control, Jason Carter, Michigan Tech

4:45 Interventions to Improve Sleep and Circadian Function: Do They Have Metabolic Benefits? Eve Van Cauter, Univ. of Chicago

**Emerging Concepts in the Local Regulation of Blood Flow**

**SYMPOSIUM**

**MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W192B**

Sponsored By: Cardiovascular Section - Chair: J. Freed and D. Duncker
3:15  The Critical Role of Kv1 Family Channels in Coronary Metabolic Dilation, Vahagn Ohanyan, Northeast Ohio Medical Univ.

3:40  Endothelial Dilator Mechanisms in Health and Disease, Julie Freed, Medical College of Wisconsin

4:05  Vascular Voltage-Gated Calcium Channels: New Perspectives from Human and Rodent Studies, Osama Harraz, Univ. of Vermont

4:30  Neurovascular Coupling in the Brain, David Busija, Tulane Univ. Sch. of Med.

4:55  Role of Vasoconstrictors In Control of Exercise Hyperemia in the Heart, Daphne Merkus, Erasmus Univ. Med. Ctr.

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379 Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section

**LECTURE**

MON 3:15 PM-4:15 PM, McCormick Place Convention Center, W196B
Track: Neurophysiology, Neurobiology


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380 Engineering for Health: Integrating Engineering and Physiology to Combat Disease

**SYMPOSIUM**

MON 3:15 PM-5:15 PM, McCormick Place Convention Center, W375A
Sponsored By: Integrative Physiology Symposium Series • Chair: G. L. Yosten
Track: Neurophysiology, Injury Repair and Regeneration, Neurobiology

3:15  Tissue Engineering for Modeling and Treating Skeletal Muscle Disease, Nenad Bursac, Duke Univ

3:45  Combining In Vivo Imaging and Computational Modeling to Understand and Manipulate Angiogenesis, Shayn Pierce-Cottler, Univ of Virginia

4:15  Development of a Human “Kidney on a Chip” Microphysiological System, Jonathan Himmelfarb, Univ. of Washington

4:45  Engineering Scaffolds to Dissect the Chemo-Mechanics of Immunological Processes Underlying Atherosclerotic Disease, Anjelica Gonzalez, Yale Univ.

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381 CNS Erlanger Minisymposium

**MINISYMPOSIUM**

MON 4:15 PM-5:15 PM, McCormick Place Convention Center, W196B
Sponsored By: CNS Section • Chair: J. Lichtman
Oral Sessions - Tuesday, April 25

APS President’s Symposium Series: Research Advances in Sex/Gender and Developmental Programming of Chronic Diseases: Developmental Programming of Diseases

SYMPOSIUM

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W375A
Chair: B. Alexander
Track: Sex Differences and Women’s Health, Developmental Programming, Hypertension

10:30 An Overview of the Concept of Developmental Programming, Kent Thornburg, Oregon Hlth. and Sci. Univ.

11:00 Actions of Bisphenol A (BPA) and Chemical Used in BPA-Free Products on the Reproductive Neuroendocrine System during Early Development, Nancy Wayne, UCLA Sch. of Med.

11:30 The Benjamin Button Approach to Understanding the Developmental Origins of Hypertension, Kate Denton, Monash Univ.

12:00 Epigenetic Consequences of Adverse Fetal Life, Torsten Plosch, Univ. of Groningen

Advances in Renal Physiology II

FEATURED TOPIC

TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W192C
Sponsored By: Renal Section • Chair: E. Inscho and A. Polichnowski
Track: Salt, Inflammation/Immunity, Hypertension

8:00 Transcriptional Regulation and Therapeutic Targeting of P2X7 Receptors in Diabetic Nephropathy, R.I. Menzies, J.W. Booth, J.J. Mullins, M.A. Bailey, F.W. Tam, J.T. Norman, R.J. Unwin, Univ. of Edinburgh, United Kingdom, UCL, United Kingdom and Imperial College London, United Kingdom (716.11)

8:15 Novel CRISPR/Cas9 Mouse Knock-In Model Containing an Alpha-Actinin 4 Mutation Associated with Focal Segmental Glomerulosclerosis Recapitulated Human Kidney Injury and Provides Insight Into How Aberrations in Cytoskeleton Lead to Podocyte Dysfunction, D. Feng, R. Krishnan, A. Benjamin, M.R. Pollak, Beth Israel Deaconess Med. Ctr. and Harvard Medical School (1031.1)

8:30 Nox 4 Null Mutation Attenuates Podocyte Calcium Regulation Dysfunction and Kidney Damage in Streptozotocin-Treated Dahl Salt-Sensitive Rats, G. Blass, D. Ilatovskaya, K. Winsor, V. Levchenko, O. Palygin, A.W. Cowley Jr., A. Staruschenko, Medical College of Wisconsin (716.9)

8:45 Imaging Renin Granule Exocytosis in Juxtaglomerular Cells by Total Internal Reflection (TIRF) Microscopy, M. Mendez, Henry Ford Hospital (701.3)
9:00 A New View of Macula Densa Cell Microanatomy, G. Gyarmati, J. Moon, A. Riquier Brison, J. Peti-Peterdi, Univ. of Southern California (701.12)

9:15 Administration of Tempol Improves Renal Autoregulation in Ischemia-Reperfusion Induced Acute Kidney Injury, Z. Guan, C. Ryoo, E.W. Inscho, Univ. of Alabama at Birmingham (1030.6)


9:45 Susceptibility to Pressure-Induced Renal Injury in DOCA-Salt vs. Angiotensin II Hypertensive Rats, A.J. Polichnowski, K. Griffin, P. Sethupathi, V. Patel, M. Patel, M. Picken, G. Williamson, A. Bidani, East Tennessee State Univ., Hines VA Hospital and Loyola Univ. Chicago and Illinois Institute of Technology (701.2)

490 Attaching Physiology to the Genome: Spotlight on Cardiovascular Genetics

SYMPOSIUM

TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W190A
Co-sponsored By: American Society for Human Genetics (ASHG) - Chair: E. Davis and B. Joe

8:00 Characterizing Functional Regulatory Variants in iPSC-derived Human Cardiomyocytes, Kelly Frazer, UCSD Sch. of Med.

8:25 From Genes to Function: Mechanistic Studies of Cardiometabolic Disorders in Mammalian Models, John Hall, Univ. of Mississippi Med. Ctr.

8:50 Modeling Cardiovascular Disease in Zebrafish for Pathway Annotation and Drug Discovery, Calum MacRae, Brigham and Women’s Hosp.

9:15 Leveraging GWA’s and Sequence Data from the Clinic in Basic Research, Howard Jacob, HudsonAlpha Inst. for Biotech.

9:40 Panel Discussion

491 Brain Secrets Revealed by Optogenetics/Chemogenetics Approaches

SYMPOSIUM

TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W196C
Sponsored By: Neural Control and Autonomic Regulation Section - Chair: K. Rahmouni and A. De Kloet
Track: Neurophysiology, Neurobiology

8:00 The C1 Cells Mediate the Protective Effect of Psychological Stress against Ischemic/Reperfusion Renal Injury, Patrice Guyenet, Univ. of Virginia

8:30 Dissection of the Role of the Lateral Hypothalamic Neurons in Physiological Regulation, Huxing Cui, Univ. of Iowa
**Exercise Training versus Metformin for the Treatment of Cardiometabolic Diseases**

**SYMPOSIUM**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W190B**

Sponsored By: Environmental and Exercise Physiology Section · Chair: W. G. Schrage and N. Jenkins

Track: Muscle Metabolism

8:00 Exercise and Metformin Interactions on Insulin Sensitivity and Glucose Metabolism, **Barry Braun**, Colorado State Univ.

8:30 Exercise and Metformin Interactions on CVD Risk Factors and Inflammation, **Steve Malin**, University of Virginia

9:00 Exercise-Metformin Effects on Adipose Tissue and Vasculature, **Nathan Jenkins**, Univ. of Georgia

9:30 Exercise Training versus Metformin on NAFLD-Related Outcomes and Hepatic Lipid Metabolism, **Scott Rector**, Univ. of Missouri-Columbia

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**Ion Channels and Transporters in Health and Disease**

**FEATURED TOPIC**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W192A**

Sponsored By: Cell and Molecular Physiology Section · Chair: K. L. Hamilton and E. Rodrigues

Track: Ion Channels and Transporters in Health and Disease

8:00 How the Thick Ascending Limb Works: An Update, **Jens Leipziger**, Aarhus Univ.

8:30 NKCC Regulates Circadian Rhythm via the Chloride-Sensing WNK Kinase, **A. Rodan, J. Schellinger, Q. Sun, A. Rothenfluh**, Univ. of Utah and Univ. of Texas Southwestern

8:45 Peter K. Lauf Travel Award Winner Abstract #2 for the Ohio Physiological Society, November 2016, **N. Weisleder, D. Halm**, Ohio State Univ. Wexner Med. Ctr. and Wright State Univ. Boonshoft Sch. of Med.

9:00 Calcium Oxalate (CaOx) Crystal Adhesion/Agglomeration Dependence of CLC-5 Expression in Renal Epithelial Cells, **R. Lorsung, P.C. Harris, J.C. Lieske, M. Chang**, Mayo Clinic College of Medicine, Univ. of Minnesota and Twin Cities

9:15 Reduced Expression of Down-Regulated in Adenoma (DRA) in Murine Enteroid-Derived Monolayers Following Infection with Salmonella, **R.R. Jayaratne, B. Lee, E. Lim, K. Barrett, S. Das**, Univ. of California, San Diego, Korea Univ., Republic of Korea (100715)
9:30 Functional Studies of TRPM7-A Candidate Gene for Stillbirth? J. Cartwright, Q. Aziz, S. Harmer, A. Tinker, P. Munroe, Queen Mary Univ. of London, United Kingdom (1007.21)

9:45 Overexpression of SERCA2a Alters Endoplasmic Reticulum Ca\(^{2+}\) Handling in WKY but Not SHR Cardiac Sympathetic Neurons. A Role for Altered Intracellular Ca\(^{2+}\) Handling in Hypertensive Sympathoexcitation? J. Shanks, N. Herring, D. Li, E. Johnson, D.J. Paterson, Oxford Univ., United Kingdom and UNMC (1007.19)

494 Autophagy: Driver of Microbiome Composition and Intestinal Homeostasis

FEATURED TOPIC
TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W194B
Sponsored By: GI and Liver Physiology Section · Chair: A. Theiss and J. Sun
Track: Microbiome, Inflammation/Immunity

8:00 *Lactobacillus reuteri* Modulates Dendritic Cells and the Immune Response in Vitro and in Vivo, M.A. Engevik, B.P. Ganesh, C. Visuthranukul, J. Versalovic, Baylor College of Medicine, Texas Children’s Hospital and King Chulalongkorn Memorial Hospital, Thailand (1041.1)


8:30 Autophagy Controls Epithelial Proteolytic Homeostasis of the Intestinal Mucosa, N. Vergnolle, N. Sola Tapias, C. Deraison, C. Blanpied, A. Edir, D. Gilles, B. Chrystelle, F. Barreau, Inserm U-1220, France (1041.3)

8:45 Lactic Acid Bacteria Isolated from Korean Kimchi Modulate the Vitamin D Receptor-Autophagy Signaling Pathways, M. Shang, Y. Zhang, R. Lu, Y. Jiao, Y. Xia, C. Kim, S. Kang, J. Sun, Sun Yat-sen Univ., People’s Republic of China, Univ. of Illinois at Chicago, Dankook Univ., Republic of Korea, and Georgia State Univ. (1041.4)


9:15 The Effect of a Western Diet on Hepatic Autophagy in Age Accelerated SAMP8 Mice, M.P. Harris, M.L. Schaller, D. Umbaugh, K. Sandoval, K.A. Witt, J.S. Wooten, Southern Illinois Univ. Edwardsville (1041.6)

9:30 Autophagy and ER Stress in the Pathogenesis of Inflammatory Bowel Diseases, Richard Blumberg, Brigham and Women’s Hospital
**Neuroglial Interactions in Health and Disease**

**FEATURED TOPIC**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W193**

Sponsored By: CNS Section · Chair: B. Gulbransen

Track: Inflammation/Immunity, Neurophysiology, Neurobiology

8:00 Regulation of CNS Inflammation, **Francisco Quintana**, Brigham and Women’s Hospital

8:30 High-Fat Diet Induced Modulation of Glutamatergic Currents in Neurons of the Dorsal Motor Nucleus of the Vagus, **C.E. Clyburn, K.N. Browning**, Penn State Hershey (1010.1)

8:45 Defective Microglia Alters Respiratory Control and Mitochondrial Function in Mice, **J. Rousseau, S. Laouafa, M. Tremblay, V. Joseph, R. Kinkead**, IUCPQ, Université Laval, Canada, CNRS, UMR 5023-LEHNA, Université Claude-Bernard Lyon1, France, CRCHUQ and Université Laval, Canada (1010.2)

9:00 Microglia Promote Age-Dependent Post-Synaptic GluR2 Insertion in the Nucleus Tractus Solitarii Following Neonatal Acute Lung Injury, **D.G. Litvin, C.B. Smith, F.J. Jacono**, Case Western Reserve Univ. and Louis Stokes Cleveland VA Med. Ctr. (1010.3)

9:15 Enteric Glial Cells Acutely Regulate Secretomotor Function in the Mouse Colon, **V. Grubisic, B.D. Gulbransen**, Michigan State Univ. (1010.6)

9:30 Maternal High Fat Diet Induces Myenteric Neuronal Loss and Upregulates Myenteric Glia Prior the Development of Obesity or Inflammation, **C. McMenamin, K. Browning**, Penn State College of Medicine (1010.7)

9:45 Auto-Immunity Targeting the Enteric Nervous System May Cause Constipation in Multiple Sclerosis, **E.T. Spear, M.M. Haag, B. Lavoie, A. Applebee, C. Teuscher, G.M. Mawe**, Univ. of Vermont (1010.8)

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**Embracing the Heterogeneity of Lung Injury: A Bedside to Bench to bedside Perspective**

**SYMPOSIUM**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W196B**

Sponsored By: Respiration Section · Chair: S. Dudek and C. Shaver

Track: Ion Channels and Transporters, Injury Repair and Regeneration, Inflammation/Immunity

8:00 Not a Single Disease State: Molecular Subphenotypes of Lung Injury in Human Trials, **Carolyn Calfee**, Univ. of California San Francisco

8:25 Insult-Specific Glycobiology Signatures of Critical Illness: Impact on Lung Injury, **Eric Schmidt**, Univ. of Colorado

8:45 Distinct Endothelial Responses to Lung Injury Insults: A Role for Apoptosis, **Mahendra Damarla**, Johns Hopkins Univ.
9:05 Distinct Roles of Tissue Factor in Direct and Indirect Acute Lung Injury, Julie Bastarache, Vanderbilt Univ.

9:25 An Individualized Approach to ARDS: Where Do We Go from Here? Steven Dudek, Univ. of Illinois Chicago

**497 Developmental Programming of Vertebrate Health and Disease by Hypoxia**

**SYMPOSIUM**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W192B**

Sponsored By: Comparative & Evolutionary Physiology Section · Chair: G. Galli

8:00 Heart Disease Links to Fetal Hypoxia in Mammals: An Intergenerational Perspective, Dino Giussani, Univ. of Cambridge

8:30 Hypoxic Developmental Programming of Cardiovascular Function in Avian Models, Isa Lindgre, Oregon Health and Science Univ.

9:00 Analyzing the Effects of Hypoxia on Fish Cardiovascular Development, Brian Bagatto, Univ. Akron

9:30 Hypoxic Programming of Fetal Sheep Coronary Development, Sonnet Jonker, Oregon Health and Science Univ.

**498 Novel Insights in Vascular Pathophysiology**

**FEATURED TOPIC**

**TUES 8:00 AM-10:00 AM, McCormick Place Convention Center, W196A**

Sponsored By: Cardiovascular Section · Chair: B. Isakson and P. Bagher

8:00 Revisiting Vascular Mineralocorticoid Receptors in the Coronary Circulation, Shawn Bender, Univ. of Missouri


8:45 Smooth Muscle-Specific Deletion of Cullin-3 Causes Severe Early Onset Hypertension, L.N. Agbor, A.R. Nair, J. Wu, D.R. Davis, H.L. Keen, F.W. Quelle, J.A. McCormick, J.D. Singer, C.D. Sigmund, Univ. of Iowa, Oregon Health and Science Univ. and Portland State Univ. (1015.7)

9:15 Depletion of Caveolin-1 in Lung Vasculature and Increase in Caveolin-1 Positive Circulating Extracellular Vesicles as Early Biomarkers of Endothelial Injury, **S. Santos Oliveira, M. Castellon, R.F. Machado, M.H. Elliott, M.G. Bonini, R.D. Minshall**, Univ. of Illinois at Chicago and Univ. of Oklahoma Health Sciences Center (1015.25)

9:30 Impaired Perivascular Nerve Function of Mesenteric Arteries in a Murine Model of Inflammatory Bowel Disease, **E.M. Boerman, M.L. Hart, C.L. Franklin, S.S. Segal**, Univ. of Missouri and Dalton Cardiovascular Center (1015.5)

9:45 Loss of Endothelial Fto Is Protective Against Metabolic Disease, **N. Krüger, L.A. Biwer, M.E. Good, U. Rüther, B.E. Isakson**, Heinrich Heine Univ. of Düsseldorf, Germany, Robert M Berne Cardiovascular Research Center, Univ. of Virginia and Univ. of Virginia (1015.15)

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**Sex, Stress and Epigenetic Contributions in Autonomic Regulation**

**FEATURED TOPIC**

**TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W193**

Sponsored By: Neural Control and Autonomic Regulation Section - Chair: S. Sriramula

Track: Neurophysiology, Genetics, Epigenetics, MicroRNA, Neurobiology

10:30 Epigenetic Regulation of Redox State Contributes to Cardio-Respiratory Pathologies in a Rodent Model of Sleep Apnea, **Nanduri Prabhakar**, Univ. of Chicago

11:00 Prenatal Exposure to Mild High Fat Diet Paradoxically Leads to Improvement in Cardio-Metabolic Function in the Offspring, **S. Mukerjee, Y. Zhu, J. Zhao, A. Zsombok, E. Lazartigues**, LSUHSC, Univ. of Florida and Tulane Univ. (1057.2)

11:15 Acute Inhibition of HDACs After MI Leads to Low Inflammatory Profile: Implications for Post-MI Angiogenesis, **S. Veeranki, S.C. Tyagi**, Univ. of Louisville (1057.1)

11:30 Presence of an Inhibitory Glycinergic Current in Dorsal Motor Nucleus of the Vagus Neurons Regulating Gastric Functions in Offspring of Maternal High Fat Diet Rats, **C. McMenamin, R. Travagli, K. Browning**, Penn State College of Medicine (864.2)

11:45 Glutamatergic Neurons in the Dorsal Hypothalamic Area Dissociate Thermogenesis from Heat Conserving Pathways During Stress Responses, N.L. Machado, S. Abbott, P. Fuller, M. Fontes, C. Saper, Beth Israel Deaconess Med. Ctr. - Harvard Medical School, Heart Research Institute, Sydney and Federal Univ. of Minas Gerais, Brazil (866.1)

12:00 Aerobic Fitness Influences Autonomic Support of Blood Pressure in Premenopausal, but Not Postmenopausal Women, S.E. Baker, J.K. Limberg, W.T. Nicholson, T.B. Curry, J.N. Barnes, M.J. Joyner, Mayo Clinic and Univ. of Wisconsin (1056.4)

12:15 Hypertensive Young Adult Female Obese Zucker Rats (OZR) Do Not Develop the Impaired Baroreflexes or Reduced Activation of the NTS Observed in Male OZR, P. Chaudhary, G. Fu, A. Schreinhofer, UNT Health Science Center (1056.6)
Mechanisms and Influences on Cell Signaling

FEATURED TOPIC

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W194B
Sponsored By: Cell and Molecular Physiology Section · Chair: R. Worrell
Track: Microbiome

10:30 Defining the Regulatory Role of Lipid Raft Microdomains During T Cell Receptor Activation, C.C. Osigwe, A.D. Levine, Case Western Reserve Univ. (1005.2)
10:45 ATP and Extracellular Calcium Regulates Differentially the Phagocytosis of S. aureus and C. gilbrata by Macrophages, G. Pérez, C. Hernandez-Silva, J. Arreola, P. Pérez-Cornejo, UASLP, Mexico (880.8)
11:00 The Host Engulfment Pathway in Enteroids Is Linked to Intestinal Inflammation Following Bacterial Infection, S. Das, E. Lim, K. Suarez, P.B. Ernst, K.E. Barrett, Univ. of California San Diego (695.2)
11:15 Show Me the Way: Ethanolamine Sensing is a Bacterial GPS for Navigating Host Niches, Melissa Kendall, Univ. of Virginia Sch. of Med.
12:00 Molecular Mechanisms Underlying Angiotensin II-Induced Angiotensin Converting Enzyme 2 Internalization and Degradation, B. Ogunlade, S. Sriramula, E. Lazartigues, J.J. Guidry, C.M. Filipneau, Howard Univ. and Louisiana State Univ. Health Sciences Center (1005.5)
12:15 Modulation of Lemur Tyrosine Kinase 2 (LMTK2) Expression by TPA Response Elements, I.A. Dey, N.A. Bradbury, Chicago Medical School (1005.4)

Impact of Dairy Based Nutritional Interventions on Cardiometabolic Health

FEATURED TOPIC

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W192B
Sponsored By: Environmental and Exercise Physiology Section · Chair: L. Alexander and B. Miller
Track: Microbiome

11:00 Whey Protein Improves Glucose Uptake Following Exercise via DPP-IV and IL-6, L.E. Neidert, H.A. Kluess, Auburn Univ. (1035.3)
11:15 High-Intensity Interval Training with or Without Post-Exercise Milk Consumption Improves Cardiovascular Function in Patients with Type 2 Diabetes, M.E. Francois, C. Durrer, J. Little, Univ. of British Columbia Okanagan, Canada (1035.2)
11:30 Effects of Whole Milk and Full-Fat Dairy Products on Blood Pressure in Patients with Elevated Blood Pressure, S. Roy, B. Baker, S. LaPierre, W. Geary, L. Delfausse, E. Pasha, H. Tanaka, The Univ. of Texas at Austin (1035.1)


12:00 Exercise and Dairy Protein Interactions in the Treatment of Obesity, S. Trottier, Univ. of Guelph, Canada (1035.5)

12:15 Dairy Protein and Sodium-Induced Vascular Dysfunction, Anna Stanhewicz, The Penn State Univ.

502 Sodium Homeostasis in Metabolic Syndrome: Sorting out New and Old Players

SYMPOSIUM

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W196C
Sponsored By: Water and Electrolyte Homeostasis Section · Chair: C. Ecelbarger and S. Tiwari
Track: Ion Channels and Transporters, Microbiome, Salt

10:30 The Renal Thick Ascending Limb and Obesity-Associated Sodium Retention: Culprit or Innocent By-Stander? Dexter Lee, Howard Univ.

11:00 Integrative Sodium Reabsorption along the Renal Tubule: Global Impact of Metabolic Syndrome, Carolyn Ecelbarger, Georgetown Univ.

11:30 Regulation of ENaC by Insulin and IGF1: Are They Distinguishable? Alexander Staruschenko, Medical College of Wisconsin

12:00 Metabolic Syndrome, Insulin, and Renal Sodium Handling, Vivek Bhalla, Stanford Univ. Sch. of Med.

503 New Insights Into the Role of Hypothalamic Peptides in the Control of Appetite and Energy Balance

FEATURED TOPIC

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W196A
Sponsored By: CNS Section · Chair: J. Blevins and Z. Song
Track: Neurophysiology, Energy Homeostasis, Neurobiology

10:30 Role of Hypothalamic Oxytocin Signaling in the Control of Appetite and Energy Balance, Zhilin Song, Univ. of Colorado

11:00 The Effects of Glutamate on Oxytocin Release, Y.A. Badmus, R. Cantley, J.W. Hill, Univ. of Toledo College of Medicine (1038.7)
11:15  Medullary Reticular GABAergic Neurons That Mediate Hunger Responses Induced by Hypothalamic Neuropeptide Y, Y. Nakamura, Y. Yanagawa, S.F. Morrison, K. Nakamura, Nagoya Univ. Graduate Sch. of Med., Japan, Gunma Univ. Graduate Sch. of Med., Japan, Oregon Health & Science Univ. and JST, Japan (1040.4)

11:30  Endoplasmic Reticulum Stress in the Paraventricular Nucleus of the Hypothalamus During Diet-Induced Non-Alcoholic Fatty Liver Disease, K. Blackmore, J. Jeong, C.N. Young, George Washington Univ. and Sch. of Med. and Health Sciences (1038.5)

11:45  TNFα Exposure Induces Neuroinflammation and Insulin Resistance in a Rat-Derived Hypothalamic Cell Model, rHypoE-7, M.N. Clemenzi, M.E. Aljghami, L. Wellhauser, D.D. Belsham, Univ. of Toronto, Canada (1038.4)

12:00  Protein Tyrosine Phosphatase 1b (PTP1B) Deficiency in Proopiomelanocortin (POMC) Neurons Attenuates Body Weight, Fat Mass and Liver Lipid Accumulation in Mice Fed a High Fat Diet, N. Aberdein, Z. Wang, J.M. do Carmo, T. Fang, J.E. Hall, Univ. of Mississippi Med. Ctr. (1038.6)

12:15  AT1α Receptors in AgRP Neurons Disinhibit αMSH Neurotransmission, K.E. Claflin, D.A. Morgan, K. Rahmouni, J.L. Grobe (1038.1)

504 Regulation of Glomeruli Physiological Function: Podocytes and Beyond

SYMPOSIUM

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W192C
Sponsored By: Renal Section · Chair: D. Ilatovskaya and J. Reiser
Track: Ion Channels and Transporters, Hypertension, Salt

10:30  Glomerular Endothelium and its Interactions with Podocytes, Susan Quaggin, Northwestern Univ.

11:00  Using 2-Photon Microscopy to Understand Albuminuria, Bruce Molitoris, Indiana Univ.

11:30  Role of TRPC Channels in the Pathobiology of Podocytes, Oleg Palygin, Medical College of Wisconsin

12:00  Proteostatic Mechanisms in Glomerular Pathophysiology, Markus Rinschen, Univ. of Cologne

505 Mechanisms of Stiffening in Large and Small Vessels: From the Cytoskeleton to the Extracellular Matrix

SYMPOSIUM

TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W196B
Sponsored By: Cardiovascular Section · Chair: L. Martinez-Lemus and G. Meininger
10:30 Extracellular Matrix, Aortic Fibrosis and Hypertension, David Harrison, Vanderbilt Univ. Med. Ctr.
11:00 Aging and Arterial Stiffening, Stephen Vatner, Rutgers New Jersey Medical School
11:30 Diabetes and Microvascular Remodeling, Aaron Trask, Nationwide Children's Hospital
12:00 Mineralocorticoid Receptor Signaling and Arterial Stiffening, Jim Sowers, Univ. of Missouri

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506 Julius H. Comroe, Jr. Distinguished Lectureship of the APS Respiration Section

LECTURE
TUES 10:30 AM-11:30 AM, McCormick Place Convention Center, W190A
10:30 Lung and Muscle Heterogeneity: Consequences for Oxygen Transport Limitation, Peter Wagner, Univ. of California, San Diego

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507 Kaley Lecture Featured Topic: The Complications of Diabetes and the Role of Inflammation: Mechanisms and Therapeutic Opportunities

FEATURED TOPIC
TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W190B
Sponsored By: Cardiovascular Section and the Microcirculatory Society - Chair: A. M. Schmidt
Track: Inflammation/Immunity

11:30 Smooth Muscle Cells Are the Source of Heart Failure-Causing Methylglyoxal in Diabetes Mellitus, K.R. Bidasee, F. Alomar, R. Fang, J.L. Cox, G.J. Rozanski, J. Singh, Univ. of Nebraska Med. Ctr., Univ. of Dammam, Saudi Arabia, Shandong Univ. School of Medicine, People’s Republic of China, and Univ. of Central Lancashire, United Kingdom (1013.1)
11:45 Leptin Replacement Therapy Restores Endothelial Function in Mouse Models of Congenital and Acquired Lipodystrophy by Reducing NOX-1 and NOX-4-Derived Reactive Oxygen Species, T. Bruder do Nascimento, S. Kennard, W. Chen, E.J. Belin de Chantemèle, Augusta Univ. (1013.2)
12:00 Myeloid-Derived Suppressor Cells in Adipose Tissue Homeostasis, K.B. Stivers, P. Chilton, J. Beare, J. Dale, C.L. Kaufman, J.B. Hoying, Cardiovascular Innovation Institute, Univ. of Louisville and Christine M Kleinert Institute (1013.3)
12:15 Exercise Reverses Metabolic Syndrome Perivascular Adipose Tissue Impairment of Aortic Relaxation, **E. DeVallance, K. Branyan, K. Lemaster, S. Clayton, C. Killmer, J. Frisbee, P. Chantler**, West Virginia Univ. and Western Univ., Canada (1013.4)

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508 The Hot Zone: Skeletal muscle changes caused by hyperthermia and heat stress

**FEATURED TOPIC**

**TUES 10:30 AM-12:30 PM, McCormick Place Convention Center, W192A**

**Sponsored By:** Muscle Biology Group - **Chair: J. Selsby**

**Track: Muscle Metabolism**


11:00 A Single Bout of Heat Stress Treatment Increases Nrf2 and Its Target Genes in Mouse Skeletal Muscle, **Y. Tamura, Y. Kitaoka, K. Nakazato, H. Hatta**, York Univ., Canada, Nippon Sport Science Univ., Japan and The Univ. of Tokyo, Japan (1023.1)


11:30 Effect of Core Temperature During Exercise on Markers of Muscle Injury and Oxidative Stress, **J. Starnes, T. Herberg, K. Lee, L. Hixson, L. Vervaecke, A. Goldfarb**, UNC Greensboro (1023.3)


12:00 Integrity of Intestinal Mucosa and Serum Concentration of Some Metabolites in Pigs Exposed to Acute and Chronic Heat Stress, **A. Morales, N. Vásquez, T. Gómez, N. Ibarra, H. Bernal, L. Rodríguez, M. Cervantes**, Universidad Autónoma de Baja California, Mexico and Universidad Autónoma de Nuevo León, Mexico (1018.8)

12:15 A Single Bout of Cryotherapy Does Not Alter the Transcriptome or Metabolome of Human Skeletal Muscle, **D.C. Sarver, K.B. Sugg, N.P. Disser, E.R. Siblinsky Enselman, C.L. Mendias**, Univ. of Michigan (1023.5)
**History of Physiology Lecture**

**LECTURE**

**TUES 1:00 PM-2:00 PM, Hyatt Regency McCormick Place, Regency Ballroom A**

1:00 The XIIIth International Physiological Congress in Boston in 1929: American Physiology Comes of Age, **Jack Rall**, Ohio State Univ

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**Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section**

**LECTURE**

**TUES 2:00 PM-3:00 PM, McCormick Place Convention Center, W190A**

2:00 Astronauts, Athletes, and Aging. A TripTik Guide to the Cardiovascular Adaptation to Physical Activity, **Benjamin Levine**, Texas Health Presbyterian Hospital Dallas

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**Twenty Years of Physiological Genomics**

**SYMPOSIUM**

**TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W190B**

Sponsored By: History of Physiology Group - Chair: **M. R. Garrett and A. S. Greene**

Track: Genetics, Epigenetics, MicroRNA

3:15 Introductory Remarks, **Andrew Greene**, Med. Col. of Wisconsin

3:20 The Impact of Physiological Genomics on The American Physiological Society, **Martin Frank**, APS

3:30 The Impact of Physiological Genomics on CV/Renal Physiology, **Allen Cowley**, Med. Col. of Wisconsin


4:20 Physiological Genomic Approaches: From Rats to Humans, **Howard Jacob**, Hudson Alpha Inst. for Biotechnology

4:45 The Future Avatar of Physiological Genomics? **Bina Joe**, Univ. of Toledo

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**Hans Ussing Lecture Featured Topic**

**FEATURED TOPIC**

**TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W192A**

Sponsored By: Epithelial Transport Group - Chair: **J. Klein**

Track: Channels and Transporters, Hypertension, Salt
Hans Ussing Lecture: Imaging Renal and Intestinal Phosphate Transporter Dynamics, Moshe Levi, Univ. of Colorado


Intestine-Specific Dual Oxidase Deficiency Lacks ATP-P2Y-Mediated Luminal H₂O₂ Production in Mice, K. Maruta, Y. Akiba, I. Kaji, J.D. Kaunitz, UCLA & WLÄ VAMC (856.20)

Stimulation of Sweet Taste Receptors Expressed in the Kidney Enhance Surface NKCC2 Levels in Thick Ascending Limbs (TALs), G. Ares, P. Caceres, K.M. Kassem, P.A. Ortiz, Henry Ford Health System (856.16)

The Epithelial Sodium Channel (ENaC) α- and γ-Subunits Are Cleaved by Furin in Human Kidney, R.Z. Langkilde, M.K. Mikkelsen, K. Skjødt, R. Zamani, N. Marcussen, B. Jensen, P. Svenningsen, Univ. of Southern Denmark, Institute of Molecular Medicine, Denmark, Institute of Molecular Medicine, Denmark, Odense Univ. Hospital, Denmark, Univ. of Southern Denmark and Odense Univ. Hospital, Denmark (856.30)


The Integrated Physiological Response to Heat Stress in Vulnerable Populations

FEATURED TOPIC

TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W193

3:15 Neural and Cardiovascular Responses to Heat Stress in the Elderly, Daniel Gagnon, Univ. of Montreal


4:00 Impact of Air Temperature on Core Temperature Regulation During Exercise Using a Simulated Burn Injury Model, M.N. Cramer, G. Morales, K. Kouda, D. Gagnon, C.G. Crandall, Institute for Exercise and Environmental Medicine, Wakayama Medical Univ., Japan and Montreal Heart Institute and Université de Montréal, Canada (1018.9)
4:15 Preserved Tolerance to Lower-Body Negative Pressure During Heat Stress in Individuals with Multiple Sclerosis, M. Huang, D.R. Allen, D.M. Keller, P.J. Fadel, E.M. Frohman, S.L. Davis, Southern Methodist Univ., Univ. of Texas at Arlington and Univ. of Texas Southwestern Med. Ctr. (1018.11)

4:30 Exaggerated Hemodynamic Responses Upon the Initiation of Thermoregulatory Behavior in “At Risk” Older Adults, Z.J. Schlader, G.L. Coleman, J.R. Sackett, S. Sarker, C.L. Chapman, D. Hostler, B.D. Johnson, Univ. at Buffalo (1018.1)

4:45 Arginase Inhibition and Low-Dose Sodium Nitroprusside Administration Do Not Influence Heat Loss Responses During Exercise in Aged Humans, R.D. Meade, N. Fujii, L.M. Alexander, J.C. Louie, P. Boulay, R.J. Sigal, G.P. Kenny, Univ. of Ottawa, Canada, Univ. of Tsukuba, Japan, Pennsylvania State Univ., Univ. of Sherbrooke, Canada and Univ. of Calgary, Canada (1018.2)


514 Multi-Omics to Study the Cellular Pathophysiology of Neurodegenerative Diseases

**SYMPOSIUM**

**TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W194B**

Sponsored By: Cell and Molecular Physiology Section · Chair: S. Pimplikar

Track: Neurophysiology, Neurobiology

3:15 Genomic Approaches Toward a Greater Understanding of Alzheimer’s Disease, Alison Goate, Icahn Sch. of Med. at Mount Sinai

3:45 TBD

4:15 Multiscale Network Models of Alzheimer’s Disease, Bin Zhang, Icahn Sch. of Med. at Mount Sinai

4:45 Blood Metabolite Markers of Alzheimer’s Disease: Promise and Challenges, Madhav Thambisetty, National Institute on Aging, NIH

515 Central Neuromodulation in the Control of Breathing

**FEATURED TOPIC**

**TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W196C**

Sponsored By: Respiration Section · Chair: A. J. Garcia and G. Mitchell

Track: Neurophysiology, Ion Channels and Transporters, Neurobiology
3:15 Contribution of the Serotonin System in Respiratory and Autonomic Dysregulation in Premature Infants, Jean-Charles Viemari, CNRS-Aix Marseille Université

3:35 Kir5.1 Channel Disruption Alters Acute and Chronic pH Regulation, Central 5-HT, and Causes Audiogenic Seizures, Matthew Hodges, Medical College of Wisconsin

3:55 Questions for Invited Speakers


4:15 Genetic Deletion of Mu Opioid Receptors from Kölliker-Fuse Neurons Reduces Morphine-Induced Respiratory Depression, E.S. Levitt, J.M. Bissonnette, B. Kieffer, Univ. of Florida, Oregon Health & Science Univ., Douglas Research Centre and McGill Univ., Canada


4:45 5HT Depletion Blunts Arousal and Chemoreflex Responses Coupled with Breathing Instability and Cardiac Dysfunction in Mice, D. Komnenov, A. Pop, D. Kuhn, J. Mateika, Wayne State Univ. Sch. of Med. and John D. Dingell, VA Med. Ctr. (1053.6)

17:00 Thyroid Hormone Deficiency Potentiates GABAergic Inhibition of the Brainstem Respiratory Network in Newborn Rat, J. Rousseau, L. Tenorio, R. Kinkead, Université Laval, Canada (1053.10)

516 Central GLP-1 Receptors in the Regulation of Energy Homeostasis

SYMPOSIUM

TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W192B
Sponsored By: Endocrinology and Metabolism Section · Chair: W. Langhans
Track: Energy Homeostasis

3:15 Vagal Neuropeptide CART is Required to Mediate Physiological Effects of Gut GLP1, Guillaume De Lartigue, Yale

3:45 Emerging Role of Endogenous Central GLP-1 in Brown Adipose Tissue Thermogenesis, Shin Lee, ETH Zurich

4:15 Insights into the Cellular and Molecular Signaling Events of the Central GLP-1 Receptor, Matthew Hayes, Univ. of Pennsylvania

4:45 Neural Substrates Engaged by GLP-1 to Impact on Feeding and Reward: Unexpected Role of Interleukins and Sex Steroids, Karolina Skibicka, Univ. of Gothenburg
517 Exercise Intolerance in Metabolic, Pulmonary and Cardiovascular Diseases: Did We Forget the Brain?

SYMPOSIUM
TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W375A
Chair: P. Brassard and D. M. Bailey
Track: Neurophysiology, Oxygen Transport, Neurobiology

3:15 Cerebral Blood Flow and Oxygenation in Humans: Dynamic Evaluation and Regulation during Exercise, Damian Bailey, Univ. of South Wales

3:45 Cerebral Blood Flow and Oxygenation during Exercise in Patients with Heart Failure and Pulmonary Arterial Hypertension, Patrice Brassard, Université Laval

4:15 Cerebral Blood Flow and Oxygenation During Exercise in Patients With a Combination of Chronic Obstructive Pulmonary Disease and Heart Failure, Mayron Oliveira, Federal Univ. of São Paulo

4:45 Cerebral Blood Flow and Oxygenation during Exercise in Patients with Type 2 Diabetes, Johannes Van Lieshout, Univ. of Amsterdam

518 Role of CNS Osmosensory Networks in the Regulation of Cardiovascular Function in Health and Disease

SYMPOSIUM
TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W196A
Sponsored By: CNS Section · Chair: J. E. Stern
Track: Neurophysiology, Hypertension, Salt

3:15 Network Plasticity in Baroreceptor Control of Magnocellular Vasopressin Neurons, Charles Bourque, McGill Univ.

3:45 Interfacing Osmosensitive Sympathoexcitatory Neurons with the Brainstem Sympathetic Rhythm Generating Network, Glenn Toney, Univ. of Texas Helath Science Center

4:15 Mechanistic Insights into Purinergic Signaling at Hypothalamus Level in the Control of Salt-Induced Sympathoexcitation, Vagner Antunes, Univ. of Sao Paulo

4:45 Osmotically-Driven Dendritic Release of VP and Its Impact on Hypothalamic Sympathetic Outflow, Javier Stern, Georgia Regents Univ.
Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal and Liver Physiology Section

LECTURE
TUES 3:15 PM-4:15 PM, McCormick Place Convention Center, W190A
Track: Inflammation/Immunity
3:15  Why the GI Tract Does Not Digest Itself: A Davenport-Inspired Journey, John Wallace, Antibe Therapeutics and Univ. of Calgary

Sex Differences in Diabetes, Obesity and Blood Pressure Control

SYMPOSIUM
TUES 3:15 PM-5:15 PM, McCormick Place Convention Center, W192C
Sponsored By: Sex/Gender Research Interest Group · Chair: G. Kararigas and S. Lindsey
Track: Sex Differences and Women’s Health, Energy Homeostasis, Hypertension
4:15  Obesity-Induced Increases in Sympathetic Nerve Activity: Sex Matters, Virginia Brooks, Univ. of Oregon
4:45  Aging and Role of SNA in Blood Pressure Control in Women, Nishi Charkoudian, USARIEM, Natick

August Krogh Distinguished Lectureship of the APS Comparative and Evolutionary Physiology Section

LECTURE
TUES 3:15 PM-4:15 PM, McCormick Place Convention Center, W196B
Supported By: Novo Nordisk Fonden
3:15  Developmental Plasticity, Epigenetics and Evolution: A Comparative Physiologist’s Od(d)yssey, Warren Burggren, Univ. of North Texas

APS Business Meeting

BUSINESS MEETING
TUES 5:45 PM-7:30 PM, McCormick Place Convention Center, W375A
Oral Sessions - Wednesday, April 26

543 APS Nobel Prize Award Lecture

LECTURE
WED 4:45 PM-5:45 PM, McCormick Place Convention Center, W375A
Track: Sex Differences and Women's Health, Hypertension
4:45 The Road to Stockholm: A Nobel Mission, Louis Ignarro, UCLA Sch. of Med.

544 The Modulation of Aging through Altered Proteostasis

SYMPOSIUM
WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W196B
Co-sponsored by: The Physiological Society- (PHYSOC) and Journal of Physiology - Chair: B. Miller
8:00 ER Proteostasis and Aging: Insights from Long-Lived Mutant Mice, Colin Selman, Univ. of Glasgow
8:30 Evidence for Mitochondrial Proteostasis as a Shared Characteristic of Slowed Aging, Karyn Hamilton, Colorado State Univ
9:00 Role of Nerve-Muscle Interactions and ROS in Regulation of Muscle Proteostasis with Aging, Aphrodite Vasilaki, Univ. of Liverpool
9:30 Mitophagy's Role in Maintaining Mitochondrial Proteostasis and Metabolic Health, Josh Drake, Univ. of Virginia

545 Environmental, Microenvironmental and Nanoenvironmental Factors which Drive Liver Disease Pathogenesis and Progression

SYMPOSIUM
WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W194B
Sponsored By: GI and Liver Physiology Section and AJP: Gastrointestinal and Liver Physiology - Chair: M. T. Pritchard
Track: Genetics, Epigenetics, MicroRNA
8:00 Circadian Alterations in Alcoholic Liver Disease, Shannon Bailey, Univ. of Alabama at Birmingham
8:30 Role of the Hemostatic System in Experimental Liver Fibrosis, James Luyendyk, Michigan State Univ.
9:00 Adenosine-Mediated Regulation of Liver Tissue Repair and Regeneration, Michel Fausther, Univ. of Arkansas for Medical Sciences
9:30 Role of miRNA17-92 in Liver Injury, Laura Schrum, Carolinas HealthCare System Cannon Research Center
**Organelle Dysfunction in Pulmonary Vascular Disease:**
Mitochondria, Endoplasmic Reticulum, Lysosomes and Beyond

**FEATURED TOPIC**

**WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W196C**

Sponsored By: Respiration Section - Chair: L. Shimoda and J.R. Sheak
Track: Energy Homeostasis, Injury Repair and Regeneration, Inflammation/Immunity

8:00 Targeting the Mitochondria in Pulmonary Hypertension, Evangelos Michelakis, Univ. of Alberta

8:30 PKCβ Signals Through Mitochondrial Reactive Oxygen Species Production in Pulmonary Arterial Smooth Muscle Cells of Neonatal Rats, J.R. Sheak, N.L. Jernigan, B.R. Walker, T.C. Resta, Univ. of New Mexico (1073.7)


9:00 Apoptosis in Pulmonary Hypertension Is Regulated by the Sodium-Hydrogen Exchanger, J. Huetsch, X. Yun, K. Suresh, H. Jiang, L. Shimoda, Johns Hopkins SOM (1073.3)

9:15 TNFα Induces Endoplasmic Reticulum Stress in Human Airway Smooth Muscle Cells, J.Q. Yap, P. Delmotte, G.C. Sieck, Johns Hopkins Univ. and Mayo Clinic (726.4)

9:30 Sodium-Coupled Neutral Amino Acid Transporter SNAT2 Counteracts Edema Formation and Reduces Autophagy and Er Stress in Acute Lung Injury, S. Weidenfeld, C.J. Chupin, S. Rozowsky, W.M. Kuebler, Keenan Research Centre for Biomedical Science, St. Michael’s Hospital, Canada, Charité-Berlin, Germany and Univ. of Toronto, Canada (725.4)

9:45 Conditioned Media from Keratinocyte Growth Factor Modified Mesenchymal Stromal Cells Reduces Pulmonary Vascular Permeability, S. Pati, R. Croze, S. Gibb, D. Potter, X. Fang, M.A. Matthay, Blood Systems Research Institute, Univ. of California and San Francisco (1073.9)

**Glial Cell Development, Migration, and Pathophysiology**

**SYMPOSIUM**

**WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W192B**

Sponsored By: Cell and Molecular Physiology Section - Chair: K. Gagnon and H. Sontheimer
Track: Neurophysiology, Neurobiology

8:00 Inhibiting Glial Tumor Release of Glutamate Prevents Brain Tumor Malignancy, Harald Sontheimer, Virginia Tech
8:30 Glial Migration across Transition Zones, Sarah Kucenas, Univ. of Virginia
9:00 Genetic Analysis of Glial Development and Function in Zebrafish, William Talbot, Stanford Univ.
9:30 Microenvironmental Regulation of Glial Cells in Spinal Cord Injury, Sohelia Karima, Univ. of Manitoba Max Rady Col. of Med.

548 Non-Motor Dysfunctions in Parkinson’s Disease

SYMPOSIUM

WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W193
Sponsored By: CNS Section · Chair: R.A. Travagli

8:00 Modeling Non-Motor Aspects of Parkinson’s Disease in Alpha-Synuclein Overexpressing Mice, Marie-Francoise Chesselet, UCLA
8:40 Gastrointestinal Dysfunctions in Parkinson’s Disease, R Travagli, Penn State College of Medicine
9:20 The Heart of Parkinson’s Disease: Neurocardiologic Abnormalities and Their Relationships with Other Non-Motor Aspects, David Goldstein, NINDS, NIH

549 Exploiting Environmental Stressors to Improve Health and Performance

FEATURED TOPIC

WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W192A
Sponsored By: Environmental and Exercise Physiology Section · Chair: C. Minson and S. A. Romero
Track: Physiology of Extreme Environments

8:00 Opening Remarks, Steven Romero, Univ. of Texas Southwestern Med. Ctr.
8:07 Heat Therapy Alters the Expression of Myogenic and Angiogenic Factors and Accelerates Functional Recovery Following Exercise-Induced Muscle Damage in Humans, K. Kim, Y. Nie, D. Boersma, Q. Song, S. Kuang, T. Gavin, B. Roseguini, Purdue Univ. (1086.4)
8:22 Combined Effects of Remote Ischemic Preconditioning and Aerobic Exercise on Sympathetic and Cerebrovascular Responses: A Novel Adaptation of Blood Flow Restriction Exercise, J. Sprick, H. Colby, C.A. Rickards, Univ. of North Texas Health Science Center (1086.1)
8:37 Alterations of Mitochondrial Function and Metabolism in Skeletal Muscle, Liver, and White Adipose: Early Evidence for the Lactation Reset Hypothesis, H.W. Hyatt, Y. Zhang, W.R. Hood, A.N. Kavazis, Auburn Univ. (1086.7)
8:52 Effects of Gravity and Lower Body Negative Pressure on Intracranial Pressure: Implications for Astronauts and Patients on Earth, L.G. Petersen, A. Hargens, J. Petersen, A. Cyron, M. Juhler, Univ. of Copenhagen, Denmark, Univ. of California, San Diego, Rigshospitalet and Univ. of Copenhagen, Denmark (1086.3)
9:07  Mild Heat Pretreatment and Serum from Sedentary Humans Subjected to Passive Heat Therapy Protect Endothelial Cells Against Stress from Hypoxia-Reoxygenation, V.E. Brunt, K.W. Needham, L.N. Comrada, C.T. Minson, Univ. of Oregon and Univ. of Colorado Boulder (1086.2)


9:52  Closing Remarks, Christopher Minson, Univ. of Oregon

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**Mechanisms Preserving Breathing Stability**

**SYMPOSIUM**

**WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W190B**

Sponsored By: Respiration Section • Chair: J. Watters and K. Braegelmann
Track: Neurophysiology, Physiology of Extreme Environments, Neurobiology

8:00  Coordination of Breathing and Swallowing, Emily Plowman, Univ. of Florida

8:30  Fatal Instabilities in Cardio-Respiratory Control during a Critical Period of Development, Peter MacFarlane, Case Western Reserve Univ.

9:00  Ventilatory Pattern Variability Following Acute Lung Injury: Insights into Central Mechanisms, Frank Jacono, Case Western Reserve Univ.

9:30  Inactivity-Induced Phrenic Motor Facilitation Stabilizes Breathing in Rats, Tracy Baker, Univ. of Wisconsin-Madison

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**Satellite Cells: External and Systemic Influences**

**FEATURED TOPIC**

**WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W196A**

Sponsored By: Muscle Biology Group • Chair: N. Brooks and E. Dupont-Versteegden
Track: Muscle Metabolism

8:00  Introduction, Esther Dupont-Versteegden, Univ. of Kentucky

8:20  The Regulation of Muscle Satellite Cells during Stress and Aging, Andrew Brack, Univ. of California, San Francisco

9:00  Satellite Cell Activation by Voluntary Wheel Running Is Associated with Improved Recovery from Muscle Disuse in Mice, M.J. Brooks, J.S. Mohamed, S.E. Alway, West Virginia Univ. Sch. of Med. (1082.9)

9:15  The Impact of Disuse Muscle Atrophy on Perivascular Stem Cell Quantity and Function, M.R. Munroe, M.C. Dyle, C.M. Adams, M.D. Boppart, Univ. of Illinois at Urbana-Champaign and Univ. of Iowa (1082.8)

9:30  Implantable Biomimetic Niche for Satellite Cell Transplantation, Y.C. Jang, W. Han, E. Shin, A. Garcia, Georgia Institute of Technology (1082.1)

Mitochondrial Physiology in Cardiovascular Disease

FEATURED TOPIC

WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W190A
Sponsored By: Cardiovascular Section · Chair: J. Calvert and J. Elrod

8:00 Mitochondrial Calcium Exchange in Cardiac Physiology and Disease, Jonathan Lederer, Univ. of Maryland

8:45 Malignant Hyperthermia-Associated Mutation of RyR1 Induces mitochondrial Ca\textsuperscript{2+} Overload in the Cardiomyocytes, J. O-Uchi, J. Mishra, B. Jhun, S. Sheu, Rhode Island Hospital, Brown Univ. and Thomas Jefferson Univ. (1080.5)

9:00 Myocardin Regulates Mitochondrial Calcium Homeostasis and Prevents Permeability Transition in Cardiac Myocytes, J. Gordon, W. Mughal, J. Field, Y. Hai, D. Chapman, R. Keijzer, S. Rattan, I. Dixon, J. Huang, M. Parmacek, Univ. of Manitoba, Canada and Univ. of Pennsylvania (1080.6)

9:15 Mitochondria-Derived Small Non-Coding RNAs in Extreme Anoxia Tolerance, C.L. Riggs, J.E. Podrabsky, Portland State Univ. (1080.2)

9:30 Gcn5l1 Promotes Enhanced Cardiac Fatty Acid Oxidation Through Acetylation of Mitochondrial Proteins, D. Thapa, M. Zhang, D.A. Guimarães, M.W. Stoner, R.M. O’Doherty, S. Shiva, I. Scott, Univ. of Pittsburgh (1080.3)

9:45 The Role of Autophagy in Aged Cardiomyocyte Arrhythmogenesis, K.R. Murphy, Y. Lu, J. O-Uchi, D. Terentyev, G. Koren, Brown Univ. and Lifespan (1080.4)

Central and Peripheral Mechanisms Regulating Body Weight and Glucose Homeostasis

FEATURED TOPIC

WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W192C
Sponsored By: Endocrinology and Metabolism Section · Chair: A. Zsombok
Track: Energy Homeostasis

8:00 Developmental Actions of Leptin on CNS Pathways Involved in Body Weight and Glucose Regulation, Sebastien Bouret, Univ. of Southern California

8:30 The Role of Central Lipid Sensing in the Regulation of Hepatic Metabolism, Kimberley Bruce, Univ. of Colorado Sch. of Med.

9:00 Hepatic Sympathetic Denervation Reduces Non-Alcoholic Fatty Liver Disease in Diet-Induced Obese Mice, C. Hurr, H. Simonyan, C.N. Young, George Washington Univ. and Sch. of Med. and Health Sciences (1089.6)

9:15 Contribution of POMC and AgRP Neurons to the Control of Metabolic Autonomic Nerve Activity by Leptin, B. Bell, D. Morgan, K. Rahmouni, The Univ. of Iowa (1089.2)

9:30 Angiotensin-II Type 1a Receptor Present in Insulin Producing cells is Essential for Normal Islet Function, H. Chodavarapu, J. Xu, E. Lazartigues, Louisiana State Univ. Health Sciences Centre (1089.9)
9:45 Skeletal Muscle Integrin-Linked Kinase Contributes to Adipose Tissue Fibrosis and Adipogenesis in Diet-Induced Obese Mice, D. Lark, I. Williams, L. Kang, S. Shakir, C. Hughey, R. Zent, A. Pozzi, D. Wasserman, Vanderbilt Univ. and Univ. of Dundee, United Kingdom (1089.8)

The Impact of Exosomes on Muscle Atrophy, Hypertrophy and Myogenesis

SYMPOSIUM

WED 8:00 AM-10:00 AM, McCormick Place Convention Center, W375A
Chair: X. H. Wang and W. E. Mitch

8:00 Skeletal Muscle Exosome Responses to Acute and Chronic Exercise, Timothy Gavin, Purdue Univ.

8:30 Perpl-Exosomes: Elucidating the Complexity of Exosomes Released during Muscle Atrophy, Matthew Hudson, Temple Univ.

9:00 Satellite Cell-Derived Exosomes Regulate Skeletal Muscle Extracellular Matrix Remodeling during Muscle Hypertrophy, Christopher Fry, Univ. of Texas Med. Branch

9:30 Muscle-Kidney Crosstalk through Exosome, Xiaonan Wang, Emory Univ.

Neural Control of the Heart: New Tools, New Mechanisms

FEATURED TOPIC

WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W193
Sponsored By: Neural Control and Autonomic Regulation Section - Chair: M. Chapleau and R. A. Larson
Track: Neurophysiology, Neurobiology

10:30 Role of Acid-Sensing Ion Channels in Cardiac Sensory Neurons, Christopher Benson, Univ. of Iowa


11:15 At1 Receptor on Glutamatergic Neurons Regulate Cardiac Function Through Modulation of Excitability and Sympathetic Outflow, J. Xu, A. Molinas, A. Zsombok, E. Lazartigues, LSUHSC-New Orleans and Tulane Univ. Sch. of Med. (1071.2)

11:30 Altered Regulation of Cardiac Sympathetic Nerve Activity During Hypertension, R. Ramchandra, F. McBryre, B. George, J.F. Paton, D. Mahesh, The Univ. of Auckland, New Zealand and Univ. of Bristol, United Kingdom (1071.4)

11:45 Transcriptomic Analysis of the Stellate Ganglion After MI, R. Bayles, A. Olivas, R. Gardner, J. Burchard, B. Habecker, Oregon Health & Science Univ. (1071.5)
12:00  Reliability of Heart Rate Variability as an Assessment of Cardiac Sympathetic Activity in Humans, T.R. Wakeham, I.T. Fonkoue, J.J. Durocher, W.H. Cooke, J.R. Carter; Michigan Technological Univ. and Univ. of Texas at San Antonio (1071.6)

12:15  Newborn Body Fatness and Autonomic Function: Identification of Infants at Risk of Later Cardiovascular Disease, H. Dissanayake, R. McMullan, M. Phang, A. Gordon, J. Hyatt, C. Rains-Greenow, D. Celemajer, J. Polson, M. Skilton, Sydney Medical School, Univ. of Sydney , Australia, Boden Institute, Australia, Royal Prince Alfred Hospital , Australia and Bosch Institute, Australia (1071.8)

556  Sexual Dimorphism, Plasticity and Genomic Diversity of the Paraventricular Nucleus

SYMPOSIUM

WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W196A
Sponsored By: The Physiological Society-UK (PHYSOC) · Co-sponsored By: Experimental Physiology · Guest Society: The Physiological Society · Chair: G. L. Yosten and W. K. Samson
Track: Sex Differences and Women’s Health

10:30  Transcriptomic Responses, Alastair Ferguson, Queens Univ.
11:00  Stress Induced Sexually Dimorphic Plasticity in the Paraventricular Nucleus, Jaideep Bains, Univ. of Calgary
11:30  Sex Differences in Fluid Balance, Jessica Santollo, Univ. of Kentucky
12:00  Sex-Dependent Factors Regulating Pressure and Flow, Jill Barnes, Univ. of Wisconsin

557  Comparative Perspectives on Hypoxia Signaling and Tolerance

FEATURED TOPIC

WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W190B
Sponsored By: Comparative & Evolutionary Physiology Section · Chair: G. R. Scott
Track: Physiology of Extreme Environments, Oxygen Transport

10:30  Human and Animal Adaptation to Hypoxia: Lessons from High Altitude, Gabriel Haddad, Univ. of California San Diego
11:00  High-Altitude Adaptation and Hypoxia Signaling in Deer Mice, G.R. Scott, C.M. Ivy, K.B. Tate, J.P. Velotta, R.M. Schweizer, Z.A. Cheviron, McMaster Univ., Canada, Truman State Univ. and Univ. of Montana (1075.2)
11:15  HIF-1 Plays a Key Signaling Role in Physiological Responses to Acute Hypoxia in the African Naked Mole Rat, Heterocephalus glaber, M.E. Pamenter, Univ. of Ottawa, Canada and Univ. of Ottawa Brain and Mind Research Institute, Canada (1075.3)
11:30  Reactive Oxygen Species Signaling in the Hypoxia-Tolerant Turtle and Goldfish Stellate and Pyramidal Neurons Is Species Specific, L. Buck, N. Hossien-Javaheri, V. Pillai, P. Hawrysh, Univ. of Toronto, Cell and Systems Biology, Canada and Univ. of Toronto, Canada (1075.5)
11:45 Comparative Physiology of Hypoxia Tolerance in Intertidal Sculpins, J. Richards, G. Lau, The Univ. of British Columbia, Canada
12:15 From Field to Lab: Asking Questions About Hypoxia Regulation of Vascular Tone in Cell Culture Systems, A. Hindle, K. Allen, A. Batten, L. Wareham, E. Buys, W. Zapol, Massachusetts General Hospital and Colorado State Univ. (1075.1)

558 Kick Start Your Funding: Looking Beyond NIH and NSF

SYMPOSIUM
WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W192C
Sponsored By: Trainee Advisory Committee · Chair: J. Steiner and K. Streeter
Track: Professional Development (#profdev)
10:30 Seeking Funding Outside the Norm: Unique Opportunities within Military Research Programs, Lisa Leon, Thermal Mountain Medicine Division
11:00 Successfully Securing Funding and Collaborating with industry, Wai Man (Eugene) Shek, Lilly China Research and Development Co., Ltd
11:30 Cancer Funding from a Private Foundation, Charles Saxe, The American Cancer Society
12:00 Crowd Funding Your Science, Melissa Wilson Sayres, Arizona State Univ.

559 Peptides and Metabolites in Cardiovascular Disease

SYMPOSIUM
WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W192A
Sponsored By: Translational Physiology Interest Group · Chair: L. E. de Castro Brás and G. V. Halade
Track: Injury Repair and Regeneration
10:30 Small Molecules and Their Signaling Mechanisms on Heart Failure, Burns Blaxall, Cincinnati Children’s Hospital Med. Ctr.
11:00 Defining the Roles of Molecular Resolving and Non-Resolving Mediators in Heart Failure Pathology, Vasundhara Kain, The Univ. of Alabama at Birmingham
11:30 ECM-Generated Peptides Function in Post-MI Remodeling, Merry Lindsey, Univ. of Mississippi Med. Ctr.
12:00 Mitochondria-Targeting Peptides in Heart Disease, David Brown, Virginia Tech
560 **Blood Doping: Physiology, Pharmacology and Detection Challenges**

**SYMPOSIUM**

**WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W196C**

Sponsored By: Environmental and Exercise Physiology Section · **Chair: L. Bowers**

Track: Oxygen Transport


10:50 Physiology of Blood Doping and Challenges, *Yorck Schumacher*, Aspetar Orthopaedic and Sports Medicine Hospital


561 **New Insights into the Regulation of Renal Blood Flow in Health and Disease**

**SYMPOSIUM**

**WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W194B**

Sponsored By: Renal Section · **Chair: A. Polichnowski and J. Williams**

Track: Microbiome, Hypertension, Salt

10:30 The Physiological Significance of TGF Response in the Long-Term Control of Sodium Excretion and Blood Pressure, *Ruisheng Liu*, Univ. of South Florida


11:30 The Role of NADPH Oxidase Subunit p67phox in the Regulation of Renal Function in Dahl S Rats, *Louise Evans*, Medical College of Wisconsin

12:00 Renal Autoregulation and Dynamics of Glomerular BP Transmission in Conscious Rats: Novel Analysis Methods and Insights, *Karen Griffin*, Loyola Univ.

562 **Inflammation and Immunity and Heart Disease**

**FEATURED TOPIC**

**WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W190A**

Sponsored By: Cardiovascular Section · **Chair: G. Halade and E. Thorp**

Track: Inflammation/Immunity
10:30 Cardiac Macrophages in Steady-State and Disease, Matthias Nahrendorf, Harvard Medical School

10:50 Myeloid Cells and Cardiac Repair, Jean-Sebastien Silvestre, INSERM UMRS 970

11:15 Identification of Inflammatory Biomarkers for Hypertension From Isolated Human Monocytes, A.E. Norlander, C.L. Galindo, F. Elijovich, C.L. Laffer, K.R. Montaniel, J.S. Gnecco, M.S. Madhur, Vanderbilt Univ. (1079.1)


12:15 Inhibition of Allograft Inflammatory Factor-1 Attenuates B Cell Development and Infiltration to Cardiac Tissue During the Development of Diabetic Cardiomyopathy, A. Sarkar, S.K. Shukla, K. Sikder, A.Y. Tsygankov, K. Rafiq, Thomas Jefferson Univ. and Temple Univ. (1079.5)

563 MiRNA Regulation of the Mitochondrion in Cardiovascular Disease

**SYMPOSIUM**

**WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W196B**

Sponsored By: Cardiovascular Section and and J. Appl. Physiol. · Chair: J. Hollander and D. Thapa

Track: Genetics, Epigenetics, MicroRNA

10:30 MiRNA Regulation of the Mitochondrial Genome: Impact of Diabetes Mellitus

John Hollander West Virginia Univ.

11:00 MitomiRs: a New Player in Cardiovascular Health, Samarjit Das, Johns Hopkins Univ.

11:30 MiRNAs in Ischemic Injury: A Role for Mitophagy, Roberta Gottlieb, Cedars-Sinai Hospital

12:00 Impact of Anti-miR Strategies on Macrophage Mitochondria and the Development of Atherosclerosis, Katy Rayner, Univ. of Ottawa
**Cardiovascular Control after Neurological Injury**

**FEATURED TOPIC**

**WED 10:30 AM-12:30 PM, McCormick Place Convention Center, W192B**

Sponsored By: Cardiovascular Section · Supported By: Vancouver Coastal Health Res. Inst.

Chair: A. A. Phillips and C. R. West

Track: Neurophysiology, Neurobiology

10:30 Cardiovascular Control after Spinal Cord Injury, Andrei Krassioukov, International Collaboration on Repair Discoveries

11:00 Heart Rate and Blood Pressure Responses to Head-Up Tilt Following Autonomic Blockade in Persons with SCI and Intact Controls, J.M. Wecht, J.P. Weir, N. Nhuquynh, G.J. Schilero, W.A. Bauman, James J Peters VA Med. Ctr., Icahn Sch. of Med., Mount Sinai and Univ. of Kansas (1077.8)

11:15 Left Ventricular Contractile Function Is Critically Dependent on Descending Sympathetic Control and Can Be Restored with Minocycline After Spinal Cord Injury, J.W. Squair, J. Liu, R. Gopaul, A.V. Krassioukov, C.R. West, Univ. of British Columbia, Canada and GF Strong Rehabilitation Centre, Canada (1077.5)


11:45 A Triple Combination Approach Involving Nerve Transplantation, Glial Scar Digestion and Passive Exercise Promotes Cardiovascular Recovery After Spinal Cord Injury, R. Sachdeva, R. Gopaul, M. Jia, A. Monga, M. Ramer, A.V. Krassioukov, Univ. of British Columbia, Canada (1077.7)

12:00 Chronic, Complete Cervical 6-7 Cord Injury: Distinct Autonomic, Cardiac and Vascular Deficits, H.L. Lujan, R.A. Mulder, S.E. DiCarlo, Wayne State Univ. Sch. of Med. (1077.6)


**Mechanisms of Hypertension Risk**

**SYMPOSIUM**

**WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W196B**

Sponsored By: Water and Electrolyte Homeostasis Section · Chair: C. De Miguel and J. Abais-Battad

2:30 Pre-Eclampsia and Hypertension Risk Later in Life, Jennifer Sasser, Univ. of Mississippi Med Ctr

3:00 T Regulatory Cells and Sex Differences in Hypertension Risk, Jennifer Sullivan, Augusta Univ
3:30 SCFAs, Microbiome and Hypertension Risk, Jennifer Pluznick, Johns Hopkins Medical School
4:00 Histone Deacetylases, NO and Hypertension Risk, Jennifer Pollock, Univ. of Alabama at Birmingham

566 Patent Foramen Ovale: The Hole Story Environmental and Exercise Physiology

SYMPOSIUM

WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W190B
Sponsored By: Environmental and Exercise Physiology Section · Chair: A. Lovering and P. Wilmshurst
2:30 PFO: The “Hole” Story of Thermoregulation, James Davis, Indiana State Univ.
3:00 PFO: The “Hole” Story of Hypoxia/Altitude, Glen Foster, Univ. of British Columbia-Okanagan
3:30 PFO: The “Hole” Story of Exercise, Brett Fenster, National Jewish Health
4:00 PFO: The “Hole” Story of Diving, Peter Wilmshurst, Royal Stoke Univ. Hospital

567 New Insights into Epithelial Transport: Application of Genetic Models

FEATURED TOPIC

WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W192A
Sponsored By: Epithelial Transport Group · Chair: T. Rieg and R. Fenton
2:30 Chronic Loop Diuretic Treatment Mediates Segment-Specific Hypertrophy in the Nephron, A. Krauson, E. Walczak, S. Iyer, N. Velarde, J. Nizar, V. Bhalla, Stanford Univ. and BD Genomics (857.12)
2:45 Intestinal Adenylyl Cyclase 6 Mediates Cholera Toxin-Induced Diarrhea, T. Rieg, I. Kaji, Y. Akiba, J. Kaunitz, S.B. Poulsen, J.A. Dominguez Rieg, R.A. Fenton, UCSD & VASDHS, UCLA & Greater LAVAHS, Aarhus Univ., Denmark and Bastyr Univ. California (703.3)
3:00 AngII Hypertension Differentially Influences Sodium Transporters, Channels and Claudins in Female vs. Male FVB/N Mice, J.S. Manwani, K.M. Mirabito Collafella, D.L. Ralph, K.M. Denton, A.A. McDonough, Keck Sch. of Med. of USC, Cardiovascular Program, Monash Biomedicine Discovery Institute, Monash Univ., Australia and Erasmus Med. Ctr., Netherlands (1007.54)

4:00 A Cyclic-AMP Dependent Pathway Regulates Intestinal Oxalate Secretion, **J. Whittamore, M. Hatch**, Univ. of Florida (1007.30)

4:15 Deletion of Xenotropic and Polytropic Retrovirus Receptor 1 in Mouse Nephron Causes Renal Fanconi Syndrome and Hypophosphatemic Rickets, **C. Ansermet, M. Moor, G. Centeno, M. Auberson, D. Hu, R. Barron, S. Nikolaeva, B. Haenzi, N. Katananeva, I. Gautschi, V. Katanaev, S. Rotman, R. Koesters, L. Schild, S. Pradervand, O. Bonny, D. Firsov**, Université de Lausanne, Switzerland, Harvard School of Dental Medicine, Institute of Evolutionary Physiology and Biochemistry, Russian Federation, Univ. Hospital of Lausanne, Switzerland and Université Pierre et Marie Curie, France (857.9)

### Fighting the Fat: Lifestyle Approaches to Protect Against Adipose Tissue and Liver Dysfunction

**SYMPOSIUM**

**WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W192B**

Sponsored By: Endocrinology and Metabolism Section · Chair: D. Wright

2:30 Turn Down the Burn: How Exercise can Protect Against Liver and Adipose Inflammation, **Daivd Wright**, Univ. of Guelph

3:00 Heat Shock Proteins in the Treatment and Prevention of Disregulated Adipose and Liver Metabolism, **Paige Geiger**, Univ. of Kansas Med. Ctr.

3:30 Managing Nonalcoholic Fatty Liver Disease: Are All Lifestyle Interventions Created Equal, **R. Rector**, Univ. of Missouri, Columbia

16:00 Maternal Phytosterol Supplementation to a High Cholesterol Diet Modulates Hepatic Lipid Response in Offspring of ApoE Deficient Mice, **Todd Rideout**, SUNY Univ. at Buffalo

### Novel Imaging Technologies in Reproductive Physiology

**SYMPOSIUM**

**WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W193**

Sponsored By: Endocrinology and Metabolism Section · Supported By: Fujifilm VisualSonics, Inc. · Chair: L. M. Yamaleyeva and S. H. Lindsey

2:30 Placenta Imaging Project: Using MRI to Understand Development, **Antonio Frias**, Oregon Health and Science Univ.

3:00 Placental Vascular Patterning in the Mouse: Relating Hemodynamics to Vascular Architecture, **John Sled**, Univ. of Toronto
3:30 Contrast Enhanced Ultrasound/Microbubble Technology for Targeted Delivery of Genes and Quantification of Microvessel Flow in the Primate, Gerald Pepe, Eastern Virginia Medical School
4:00 Photoacoustic Imaging for in vivo Quantification of Placental Oxygenation, Liliya Yamaleyeva, Wake Forest Sch. of Med.

570 Vasodilation in Human Microvessels: From Bed to Bench and Back

SYMPOSIUM

WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W196A
Sponsored By: Translational Physiology Interest Group · Chair: P. Kleinbongard and K. Ait-Aissa

2:30 Vascular Effects of Exercise and Other Lifestyle Factors in Humans, Shane Phillips, Univ. of Chicago at Illinois
2:55 Ischemic Preconditioning as an Intervention to Improve Motor Function in Stroke Subjects: Vascular and Neural Considerations, Matt Durand, Medical College of Wisconsin
3:20 Remote Preconditioning Effect on Vasculature and Myocardium, Petra Kleinbongard, Univ. of Essen
3:45 Healthy Aging in the Human Vasculature Contributions of External Stressors on Endothelial Function, Anthony Donato, Univ. of Utah
16:10 Role of Autophagy in Endothelial Cell Function in Diabetics, Jessica Fetterman, Boston Univ. Sch. of Med.

571 Leptin Beyond Appetite Regulation

SYMPOSIUM

WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W196C
Sponsored By: Translational Physiology Interest Group · Chair: P. Singh and P. Cohen

2:30 Leptin and Leptin Resistance: Implications for Cardiovascular Disease, Virend Somers, Mayo Clinic
3:00 Mechanistic Role of Leptin in Modulating Hyperglycemia in Poorly-Controlled Diabetes, Rachel Perry, Yale Univ. Sch. of Med.
3:30 Adipose Tissue Dynamics during Weight Gain: The Leptin Story, Prachi Singh, Mayo Clinic
4:00 Peripheral Actions of Leptin: From Metabolism to Oncogenesis, Philipp Scherer, The Univ. of Texas Southwestern Med. Ctr.
New Concepts of the Renin-Angiotensin System in Cardiovascular Pathophisiology

SYMPOSIUM
WED 2:30 PM-4:40 PM, McCormick Place Convention Center, W192C
Sponsored By: Pan-American Societies (SFiB) · Chair: M. J. Campagnole-Santos and E. A. Aiello
2:30 Cardioprotective Role of Angiotensin-(1-9) in the Cardiovascular System, Sergio Lavandero, Univ. of Chile and P. Univ. Catolica de Chile
3:00 Pathophysiological Role of the Aldosterone G-Protein Coupled Receptor GPER in the Heart, Alejandro Orlowski, Univ. Nacional de la Plata, Argentina
3:30 New Insights into Alamandine Signaling in Cardiac Myocytes, Silvia Guatimosim, Univ. Fed. de Minas Gerais, Brazil
4:00 Alamandina and Heart Failure, Robson Santos, Univ. Fed. de Minas Gerais, Brazil

Omics Approaches to Understanding Muscle Biology

SYMPOSIUM
WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W194B
Sponsored By: Cell and Molecular Physiology Section · Chair: J. G. Burniston and Y-W. Chen
2:30 DamID Profiling during Myogenesis Defines Heterochromatin Flux at the Nuclear Envelop, Jelena Perovanovic, National Institutes of Health, Bethesda
3:00 Beyond Timekeeping, the Transcriptional Landscape of the Molecular Clock in Skeletal Muscle, Karyn Esser, Univ. of Florida
3:30 Proteomics Insights in to Insulin Resistance in Muscle, Lawrence Mandarino, Mayo Clinic
4:00 Metabolomics and Fluxomics Reveal Pathways underlying Enhanced Muscle Performance in Exercise, Charles Burant, Univ. of Michigan Medical School

Hydration and Vasopressin Beyond the Kidney

SYMPOSIUM
WED 2:30 PM-4:30 PM, McCormick Place Convention Center, W190A
Sponsored By: Water and Electrolyte Homeostasis Section · Supported By: Danone Research · Chair: S. Kavouras and L. Bankir
2:30 Central Effects of Vasopressin in the Brain, Daniel Bichet, Univ. of Montreal
3:00 The Vasopressin Paradox: Not a Vasoconstrictor? Georges Bakris, Univ. of Chicago
3:30 Vasopressin as a Stress Hormone, Ivan Tack, CHU Toulouse, Hospital Rangueil
4:00 From (De)Hydration Science towards Biomarkers for Hydration for Health, Jeanne Bottin, Danone Nutricia Research
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- Cardiovascular Aging: New Frontiers and Old Friends, Aug. 11-14, 2017
- Physiological Bioenergetics: Mitochondria from Bench to Bedside, Aug. 27-30, 2017
- Physiological and Pathophysiological Consequences of Sickle Cell Disease, Nov. 6-8, 2017
- Experimental Biology 2018, San Diego, CA, April 21-25, 2018

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### Sunday, April 23

- **Sarah Mellor** • Comprehensive Physiology
  (at the Wiley Booth #527)
  9:00am–4:00pm

- **Douglas Curran-Everett** • Advances in Physiology Education
  10:00am–11:00am

- **Sadis Matalon** • AJP-Lung Cellular and Molecular Physiology
  11:00am–12:00pm

- **Rory Morty** • AJP-Lung Cellular and Molecular Physiology
  11:00am–12:00pm

- **Josephine Adams** • AJP-Cell Physiology
  1:00pm–2:00pm

- **Bill Yates** • Journal of Neurophysiology
  2:00pm–3:00pm

### Monday, April 24

- **Sarah Mellor** • Comprehensive Physiology
  (at the Wiley Booth #527)
  9:00am–4:00pm

- **Nigel Bunnett** • AJP-Gastrointestinal and Liver Physiology
  10:00am–11:00am

- **Susan Wray** • Physiological Reports
  (at The Physiological Society Booth #541)
  10:00am–11:00am

- **P. Darwin Bell** • AJP-Renal Physiology
  1:00pm–2:00pm

- **Dee Silverthorn** • APS Books, Chair
  2:00pm–3:00pm

### Tuesday, April 25

- **Sarah Mellor** • Comprehensive Physiology
  (at the Wiley Booth #527)
  9:00am–4:00pm

- **Irving Zucker** • AJP-Heart and Circulatory Physiology
  9:00am–10:00am

AJP stands for American Journal of Physiology. Schedules are subject to change. When the Editor is unavailable there may be another representative such as an Associate Editor or an Assistant present. Visit http://bit.ly/EB17-MTE for schedule updates.
<table>
<thead>
<tr>
<th>SESSION #</th>
<th>SESSION TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>677</td>
<td>Atherosclerosis/Thrombosis/Platelets</td>
</tr>
<tr>
<td>678</td>
<td>Angiogenesis/Microvascular Remodelling/Injury and Repair</td>
</tr>
<tr>
<td>679</td>
<td>Inflammation/Leukocyte-Endothelium Interactions</td>
</tr>
<tr>
<td>680</td>
<td>Ischemia-Reperfusion/Free Radical Biology</td>
</tr>
<tr>
<td>681</td>
<td>Microvascular Cell Signalling Pathways</td>
</tr>
<tr>
<td>682</td>
<td>Tissue Microvessel Interactions/Extracellular Matrix</td>
</tr>
<tr>
<td>683</td>
<td>Lymphatic and Venular Function</td>
</tr>
<tr>
<td>684</td>
<td>Microcirculation</td>
</tr>
<tr>
<td>685</td>
<td>Instrumentation, Methodology, and Experimental Models</td>
</tr>
<tr>
<td>686</td>
<td>Cardiac Electrophysiology</td>
</tr>
<tr>
<td>687</td>
<td>Heart Failure</td>
</tr>
<tr>
<td>688</td>
<td>Physiology of Cardiac Muscle</td>
</tr>
<tr>
<td>689</td>
<td>Endothelial Cell Biology I</td>
</tr>
<tr>
<td>690</td>
<td>Physiology of Smooth Muscle</td>
</tr>
<tr>
<td>691</td>
<td>Sex Differences in Obesity and Cardiovascular Disease</td>
</tr>
<tr>
<td>692</td>
<td>Genetic Factors and Mechanisms of Preeclampsia I</td>
</tr>
<tr>
<td>693</td>
<td>Neuroinflammation/Neuroprotection/Ischemia</td>
</tr>
<tr>
<td>694</td>
<td>Cellular Mechanisms of Stress and Inflammation</td>
</tr>
<tr>
<td>695</td>
<td>Cellular Responses to Inflammation</td>
</tr>
<tr>
<td>696</td>
<td>Oxidative Stress, Mitochondrial Metabolism and Redox Changes in Health and Disease</td>
</tr>
<tr>
<td>697</td>
<td>Inflammation and Autonomic Regulation</td>
</tr>
<tr>
<td>698</td>
<td>Renal Oxidative Stress and Hypoxia</td>
</tr>
<tr>
<td>699</td>
<td>Cellular Response to Hypoxia</td>
</tr>
<tr>
<td>700</td>
<td>Cellular and Integrated Responses to Hypoxia</td>
</tr>
<tr>
<td>701</td>
<td>Renal Hemodynamics, Glomerular Filtration and Renal Vasculature</td>
</tr>
<tr>
<td>702</td>
<td>pH Homeostasis and Acid-Base Transport</td>
</tr>
<tr>
<td>703</td>
<td>Epithelial Transport Group I</td>
</tr>
<tr>
<td>704</td>
<td>Prokaryotic Transport, Metabolism, and Cell Signaling in Nutrition, Health, and Disease</td>
</tr>
<tr>
<td>705</td>
<td>Blood Brain Barrier, Brain Blood Flow and Metabolism</td>
</tr>
<tr>
<td>SESSION #</td>
<td>SESSION TITLE</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>706</td>
<td>Autonomic Control and Autoregulation of the Cerebral Circulation</td>
</tr>
<tr>
<td>707</td>
<td>Acute Exercise Responses</td>
</tr>
<tr>
<td>708</td>
<td>Autonomic Adjustments to Exercise</td>
</tr>
<tr>
<td>709</td>
<td>Altitude and Hypoxia and Respiratory Responses to Exercise</td>
</tr>
<tr>
<td>710</td>
<td>Muscle Physiology: Regulation of Contraction, Oxidative Stress and Oxygen Delivery</td>
</tr>
<tr>
<td>711</td>
<td>Reduced Gravity and Hyperbaric Environments</td>
</tr>
<tr>
<td>712</td>
<td>Neural Control of the Circulation during Exercise</td>
</tr>
<tr>
<td>713</td>
<td>The Effects of Aging on Muscle Function</td>
</tr>
<tr>
<td>714</td>
<td>Neuroendocrinology, Hypothalamus and Pituitary</td>
</tr>
<tr>
<td>715</td>
<td>Pancreatic Hormones, Glucose Homeostasis, and Diabetes</td>
</tr>
<tr>
<td>716</td>
<td>Diabetic Renal Disease</td>
</tr>
<tr>
<td>717</td>
<td>Autonomic Adjustments to Behavioral Stress and Neuroendocrine Activation</td>
</tr>
<tr>
<td>718</td>
<td>Ion Channel Modulation: Contributions to Autonomic Dysfunction in Cardiovascular and Metabolic Diseases?</td>
</tr>
<tr>
<td>719</td>
<td>Scholander Poster Session</td>
</tr>
<tr>
<td>720</td>
<td>NCAR Young Investigators Award Posters</td>
</tr>
<tr>
<td>721</td>
<td>microRNAs in Health and Disease</td>
</tr>
<tr>
<td>722</td>
<td>Gene Editing, Non-coding RNA, and Systems Biology</td>
</tr>
<tr>
<td>723</td>
<td>Reproduction, Sex Hormones, and Gestational Biology</td>
</tr>
<tr>
<td>724</td>
<td>Autonomic and Respiratory Interactions</td>
</tr>
<tr>
<td>725</td>
<td>Airway Epithelium in Health and Disease</td>
</tr>
<tr>
<td>726</td>
<td>Airway Responsiveness and Smooth Muscle Cell Biology</td>
</tr>
<tr>
<td>727</td>
<td>Control of Breathing: Development</td>
</tr>
<tr>
<td>728</td>
<td>Control of Breathing: Integrated Responses</td>
</tr>
<tr>
<td>729</td>
<td>Rhythm Generation</td>
</tr>
<tr>
<td>730</td>
<td>Lung Biomechanics, Surfactant and Gas Exchange</td>
</tr>
<tr>
<td>731</td>
<td>Regenerative Medicine</td>
</tr>
<tr>
<td>SESSION #</td>
<td>SESSION TITLE</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>830</td>
<td>Microvascular Development and Aging</td>
</tr>
<tr>
<td>831</td>
<td>Microvascular Flow Regulation/Oxygen Delivery/Networks</td>
</tr>
<tr>
<td>832</td>
<td>Microvascular Mechanics/Hemodynamics/Rheology</td>
</tr>
<tr>
<td>833</td>
<td>Microvascular Pathophysiology-Pharmacology/Therapeutics and Translational Aspects</td>
</tr>
<tr>
<td>834</td>
<td>Permeability/Fluid and Solute Exchange/Glycocalyx</td>
</tr>
<tr>
<td>835</td>
<td>Vasomotor Control: Endothelium/Smooth Muscle/Nerves</td>
</tr>
<tr>
<td>836</td>
<td>Control of Blood Flow</td>
</tr>
<tr>
<td>837</td>
<td>Endothelial Cell Biology II</td>
</tr>
<tr>
<td>838</td>
<td>Cardiac Responses to Exercise</td>
</tr>
<tr>
<td>839</td>
<td>Exercise Training Responses</td>
</tr>
<tr>
<td>840</td>
<td>Vascular Responses to Exercise and Environmental Stress</td>
</tr>
<tr>
<td>841</td>
<td>Hypoxia and High Altitudes</td>
</tr>
<tr>
<td>842</td>
<td>Vascular Mechanisms of Cognition</td>
</tr>
<tr>
<td>843</td>
<td>Cardiac Function and Dynamics</td>
</tr>
<tr>
<td>844</td>
<td>Sympathetic Regulation in Heart Failure</td>
</tr>
<tr>
<td>845</td>
<td>Cardioprotection</td>
</tr>
<tr>
<td>846</td>
<td>Myocardial Ischemia</td>
</tr>
<tr>
<td>847</td>
<td>Sympathetic Control of the Circulation</td>
</tr>
<tr>
<td>848</td>
<td>Arterial Baroreflex Function and Blood Pressure Regulation</td>
</tr>
<tr>
<td>849</td>
<td>Central Regulation of Body Fluid Homeostasis</td>
</tr>
<tr>
<td>850</td>
<td>Sex Differences in Blood Pressure and Fluid Volume Homeostasis</td>
</tr>
<tr>
<td>851</td>
<td>Blood Pressure and Fluid Volume Regulation in Pregnancy</td>
</tr>
<tr>
<td>852</td>
<td>Developmental Programming and Cardio-Renal Function in adults</td>
</tr>
<tr>
<td>853</td>
<td>Cardiovascular and Renal Mechanisms in Diabetes and Metabolic Syndrome</td>
</tr>
<tr>
<td>854</td>
<td>RAS, Ion Transport, and Vascular Disease: Genes and Function</td>
</tr>
<tr>
<td>855</td>
<td>The Kidney in Hypertension</td>
</tr>
<tr>
<td>856</td>
<td>Epithelial Transport Group II</td>
</tr>
<tr>
<td>857</td>
<td>Renal Tubular Transport, Biology, and Regulation</td>
</tr>
<tr>
<td>858</td>
<td>Cell Volume, Osmoregulation, and Water Transport</td>
</tr>
<tr>
<td>SESSION #</td>
<td>SESSION TITLE</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>859</td>
<td>Stress and Physiological Responses throughout Life</td>
</tr>
<tr>
<td>860</td>
<td>Mathematical models of organ systems, tissues or cells</td>
</tr>
<tr>
<td>861</td>
<td>Neuroexcitability, Neurotransmission and Neuroplasticity</td>
</tr>
<tr>
<td>862</td>
<td>Autonomic Balance: Sympathetic and Parasympathetic</td>
</tr>
<tr>
<td>863</td>
<td>Sympathetic and Parasympathetic Regulation in Disease</td>
</tr>
<tr>
<td>864</td>
<td>Central Regulation of Autonomic Control: Brain Stem</td>
</tr>
<tr>
<td>865</td>
<td>Central Regulation of Autonomic Control: CNS</td>
</tr>
<tr>
<td>866</td>
<td>Central Regulation of Autonomic Control: Hypothalamus</td>
</tr>
<tr>
<td>867</td>
<td>Chemoreflex Function and Autonomic Regulation</td>
</tr>
<tr>
<td>868</td>
<td>Circumventricular Organs: A Blood-Brain Interface for Modulation of Cardiovascular and Immune Function and Fluid and Electrolyte Balance (Posters)</td>
</tr>
<tr>
<td>869</td>
<td>Central Nervous System: Other</td>
</tr>
<tr>
<td>870</td>
<td>Alveolar Epithelial Cell Biology</td>
</tr>
<tr>
<td>871</td>
<td>Epigenetics and the Lung</td>
</tr>
<tr>
<td>872</td>
<td>Lung Development and Plasticity</td>
</tr>
<tr>
<td>873</td>
<td>Respiratory Motor Neurons and Muscles</td>
</tr>
<tr>
<td>874</td>
<td>Comparative Cardio Respiratory Topics</td>
</tr>
<tr>
<td>875</td>
<td>Immune Cells Involved in Cardiovascular Disease</td>
</tr>
<tr>
<td>876</td>
<td>Apoptosis, Cell Stress and Cell Death</td>
</tr>
<tr>
<td>877</td>
<td>Stem Cells, Cell Growth, Development, Differentiation, and Autophagy</td>
</tr>
<tr>
<td>878</td>
<td>GI and Liver Stem Cells</td>
</tr>
<tr>
<td>879</td>
<td>Cell and Molecular Processes in Cancer Metastasis</td>
</tr>
<tr>
<td>880</td>
<td>Cell Migration, Contractility, Cytoskeleton, and Adhesion</td>
</tr>
<tr>
<td>881</td>
<td>Extracellular Matrix, Cell Interactions, and Tissue Organization</td>
</tr>
<tr>
<td>882</td>
<td>Neuroendocrinology/Neuroimmunology</td>
</tr>
<tr>
<td>883</td>
<td>Diabetes, Insulin Resistance, and Obesity I</td>
</tr>
<tr>
<td>884</td>
<td>Genomics of Obesity, Diabetes, Cardiovascular, Kidney and Beyond</td>
</tr>
<tr>
<td>885</td>
<td>Cardiovascular Endocrinology</td>
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<tr>
<td>886</td>
<td>Adipocyte Function and Metabolism</td>
</tr>
<tr>
<td>887</td>
<td>Alcoholic and Nonalcoholic Fatty Liver Diseases</td>
</tr>
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<td>SESSION TITLE</td>
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<tr>
<td>888</td>
<td>GI Hormones, Peptides and Receptors</td>
</tr>
<tr>
<td>889</td>
<td>Comparative Metabolic and Nutritional Topics</td>
</tr>
<tr>
<td>890</td>
<td>Microbiome of the GI Tract</td>
</tr>
<tr>
<td>891</td>
<td>Microbes and Nutrition</td>
</tr>
<tr>
<td>892</td>
<td>Prebiotics, Probiotics and Gut Function</td>
</tr>
<tr>
<td>893</td>
<td>Cell Biology of Digestive Diseases</td>
</tr>
<tr>
<td>894</td>
<td>Effects of Diet on GI and Liver Physiology</td>
</tr>
<tr>
<td>895</td>
<td>Liver Physiology and Pathophysiology</td>
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</tbody>
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**Poster Sessions - Tuesday, April 25**

<table>
<thead>
<tr>
<th>SESSION #</th>
<th>SESSION TITLE</th>
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<tbody>
<tr>
<td>1003</td>
<td>History of Physiology</td>
</tr>
<tr>
<td>1004</td>
<td>Tissue Engineering</td>
</tr>
<tr>
<td>1005</td>
<td>Mechanisms and Influences on Cell Signaling</td>
</tr>
<tr>
<td>1006</td>
<td>Signal Transduction Physiology: Proteins, Pathways and Cells</td>
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<tr>
<td>1007</td>
<td>Ion Channels and Transporters in Health and Disease</td>
</tr>
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<td>1008</td>
<td>Transporters for Transmitters, Nutrients, Metabolites, and Drugs</td>
</tr>
<tr>
<td>1009</td>
<td>Metal Ion Transport</td>
</tr>
<tr>
<td>1010</td>
<td>Neuroglial Interactions in Health and Disease</td>
</tr>
<tr>
<td>1011</td>
<td>Hypertension</td>
</tr>
<tr>
<td>1012</td>
<td>Blood Pressure Regulation</td>
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<tr>
<td>1013</td>
<td>The Complications of Diabetes and the Role of Inflammation: Mechanisms and Therapeutic Opportunities</td>
</tr>
<tr>
<td>1014</td>
<td>Diabetes, Insulin Resistance, and Obesity II</td>
</tr>
<tr>
<td>1015</td>
<td>Novel Insights in Vascular Pathophysiology</td>
</tr>
<tr>
<td>1016</td>
<td>Pulmonary Hypertension: Models and Mechanisms</td>
</tr>
<tr>
<td>1017</td>
<td>Vascular Smooth Muscle in Health and Disease</td>
</tr>
<tr>
<td>1018</td>
<td>The integrated physiological response to heat stress in vulnerable populations</td>
</tr>
<tr>
<td>1019</td>
<td>Exercise and Nutrition</td>
</tr>
<tr>
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<td>Exercise, Health, and Disease</td>
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<td>SESSION TITLE</td>
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<tr>
<td>1021</td>
<td>Muscle Atrophy and Hypertrophy</td>
</tr>
<tr>
<td>1022</td>
<td>Physiology of Muscle Sarcopenia and Regeneration</td>
</tr>
<tr>
<td>1023</td>
<td>The Hot Zone: Skeletal Muscle Changes Caused by Hyperthermia and Heat Stress</td>
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<td>1024</td>
<td>Intermittent Hypoxia/Oxidative Stress</td>
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<tr>
<td>1025</td>
<td>Sympathetic Regulation in Hypertension</td>
</tr>
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<td>1026</td>
<td>Hypertension and Sodium Homeostasis Developing Concepts</td>
</tr>
<tr>
<td>1027</td>
<td>Neural and Hormonal Modulation of Fluid Balance and Ion Homeostasis in Health and Disease</td>
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<td>Renin-Angiotensin-Aldosterone System in Regulation of Blood Pressure and Renal Function</td>
</tr>
<tr>
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<td>Translational physiology in water and electrolyte homeostasis research</td>
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<td>1030</td>
<td>Acute and Chronic Kidney Disease</td>
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<tr>
<td>1031</td>
<td>Glomerular Function and Podocyte Biology/Pathology</td>
</tr>
<tr>
<td>1032</td>
<td>Polycystic Kidney Disease and Cilia Function</td>
</tr>
<tr>
<td>1033</td>
<td>Genetic Factors and Mechanisms of Preeclampsia II</td>
</tr>
<tr>
<td>1034</td>
<td>New Animal Models and Their Utility for WEH Research</td>
</tr>
<tr>
<td>1035</td>
<td>Impact of Dairy Based Nutritional Interventions on Cardiometabolic Health</td>
</tr>
<tr>
<td>1036</td>
<td>Exercise, Muscle, Bone, and Nutrition</td>
</tr>
<tr>
<td>1037</td>
<td>Obesity and Satiety</td>
</tr>
<tr>
<td>1038</td>
<td>New Insights into the Role of Hypothalamic Peptides in the Control of Appetite and Energy Balance</td>
</tr>
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<td>1039</td>
<td>Sympathetic Regulation in Diabetes and Obesity</td>
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<tr>
<td>1040</td>
<td>Autonomic Circuitry in Thermoregulation or Metabolism</td>
</tr>
<tr>
<td>1041</td>
<td>Autophagy: Driver of Microbiome Composition and Intestinal Homeostasis</td>
</tr>
<tr>
<td>1042</td>
<td>Physiology and Pathophysiology of Barriers in Endothelia, Epithelia, and the Blood Brain Barrier</td>
</tr>
<tr>
<td>1043</td>
<td>Barrier Function and Repair</td>
</tr>
<tr>
<td>1044</td>
<td>Effects of Diet and Metabolites on Mucosal Immunology</td>
</tr>
<tr>
<td>1045</td>
<td>Gastric Physiology and Pathophysiology</td>
</tr>
<tr>
<td>1046</td>
<td>Gastrointestinal Cancer and Metastasis</td>
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<td>1047</td>
<td>Gastrointestinal Motility</td>
</tr>
<tr>
<td>1048</td>
<td>Immunology and Microbiology of the Gut</td>
</tr>
<tr>
<td>1049</td>
<td>Intestinal Inflammation and Pathophysiology</td>
</tr>
<tr>
<td>1050</td>
<td>Metabolic Disease: GI and Liver Function</td>
</tr>
<tr>
<td>1051</td>
<td>Nuclear Receptors in the Liver and GI Tract</td>
</tr>
<tr>
<td>1052</td>
<td>Pancreatic Physiology and Pathophysiology</td>
</tr>
<tr>
<td>1053</td>
<td>Central Neuromodulation in the Control of Breathing</td>
</tr>
<tr>
<td>1054</td>
<td>Connectivity, Neuromodulation and Neurotransmission</td>
</tr>
<tr>
<td>1055</td>
<td>Plasticity</td>
</tr>
<tr>
<td>1056</td>
<td>Differences in Autonomic Regulation in Aging or Sex</td>
</tr>
<tr>
<td>1057</td>
<td>Epigenetic Modifications and Autonomic Regulation</td>
</tr>
<tr>
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<td>Genetics and Epigenetics</td>
</tr>
</tbody>
</table>

**Poster Sessions - Wednesday, April 26**

<table>
<thead>
<tr>
<th>SESSION #</th>
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<tbody>
<tr>
<td>1071</td>
<td>Neural Control of the Heart: New Tools, New Mechanisms</td>
</tr>
<tr>
<td>1072</td>
<td>Control of Breathing: Chemoreception</td>
</tr>
<tr>
<td>1073</td>
<td>Mechanisms of Pulmonary Vascular Regulation</td>
</tr>
<tr>
<td>1074</td>
<td>Pulmonary Endothelial Cell Biology</td>
</tr>
<tr>
<td>1075</td>
<td>Comparative Perspectives on Hypoxia Tolerance</td>
</tr>
<tr>
<td>1076</td>
<td>Cognition and Behavior</td>
</tr>
<tr>
<td>1077</td>
<td>Cardiovascular Control after Neurological Injury</td>
</tr>
<tr>
<td>1078</td>
<td>Extracellular Matrix and Cardiac Remodeling</td>
</tr>
<tr>
<td>1079</td>
<td>Inflammation and Immunity and Heart Disease</td>
</tr>
<tr>
<td>1080</td>
<td>Mitochondrial Physiology in Cardiovascular Disease</td>
</tr>
<tr>
<td>1081</td>
<td>Mitochondrial Function</td>
</tr>
<tr>
<td>1082</td>
<td>Satellite Cells: External and Systemic Influences</td>
</tr>
<tr>
<td>1083</td>
<td>Muscle Plasticity, Gene Regulation/Expression, Signaling Among Cells and Tissues, and Responses of Bone and Connective Tissue</td>
</tr>
<tr>
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<td>Metabolism and Energetics of Muscle and Related Tissue</td>
</tr>
<tr>
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<td>Temperature Regulation and Biological Timekeeping</td>
</tr>
</tbody>
</table>
### Exploiting Environmental Stressors to Improve Health and Performance
- Fluid Balance, Blood Volume and Trauma
- Stress and Trauma
- Central and Peripheral Mechanisms Regulating Body Weight and Glucose Homeostasis
- Gastrointestinal Nutrient Sensors
- GI and Liver Epithelial Junctions

### Late Breaking Posters - Wed, April 26
- Cell and Molecular Physiology
- Central Nervous System (CNS)
- Comparative and Evolutionary Physiology
- Biomedical Engineering
- Endocrinology and Metabolism
- Environmental and Exercise Physiology
- Epithelial Transport
- Gastrointestinal and Liver Physiology
- History of Physiology
- Hypoxia
- Microcirculation
- Muscle Biology
- Neural Control and Autonomic Regulation
- Nutrition Physiology
- Physiological Genomics
- Renal Physiology
- Respiration
- Sex Differences in Physiology
- Teaching of Physiology
- Translational Physiology
- Water and Electrolyte Homeostasis
Manage your EB17 schedule and view up-to-date information on the EB app, www.experimentalbiology.org, or www.apsebmeeting.org. #EXPBIO
Congress faces an April 28 deadline to finalize 2017 budgets for government agencies — including proposed increases for several research funding agencies. Members of Congress listen to their constituents. Tell them to support research funding. Use the URL below to ask your Representative and Senators to vote in favor of robust funding increases for biomedical research at the National Institutes of Health, National Science Foundation, Veterans Administration, and the Departments of Agriculture and Energy.

www.experimentalbiology.org/speakup or scan this QR code to go to the alert

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APS Conference: Cardiovascular Aging: New Frontiers and Old Friends
August 11–14, 2017 • Westminster, Colorado

APS Conference: Physiological Bioenergetics: Mitochondria from Bench to Bedside
August 27–30, 2017 • San Diego, California

APS Conference: Physiological and Pathophysiological Consequences of Sickle Cell Disease
November 6–8, 2017 • Washington, DC

APS is also participating in the following meeting
IUPS 38th World Congress: Rhythms of Life
August 1–5, 2017 • Rio de Janeiro, Brazil

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