



# Tennessee Physiological Society Meeting

## ACKNOWLEDGEMENTS

### We wish to thank:

Dr. **Roger Cone** and the **Department of Molecular Physiology & Biophysics** at Vanderbilt for sponsoring the meeting.

Dr. **Michael Higgins** and the **Department of Anesthesiology** at Vanderbilt for financial support.

Dr. **Peter K. Lauf**, Professor Emeritus of Pathology and Physiology & Biophysics, Wright State University, Chair of the *American Society of Physiology's* Chapter Advisory Committee for his time and commitment.

**Dr. Martin Frank** and the *American Physiological Society*.

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<b>Colette Bosley,</b>	Assistant to the Chair, Department of Molecular Physiology & Biophysics
<b>Kelen F. Taylor,</b>	Program Coordinator, Department of Anesthesiology
<b>Jordan Carnell,</b>	Event Manager, Vanderbilt Student Life Center

# Tennessee Physiological Society Meeting

## Poster Presentations

### **P01**

#### **Bmp2 and Bmp4 exert opposing effects in hypoxic pulmonary hypertension**

Jonathan W. Lowery, Lynda Anderson, David Frank, Mark Jones, Mark deCaestecker  
Department of Cell & Developmental Biology, VUMC, Nashville

### **P02**

#### **The BMP target Inhibitor of Differentiation 1 (Id1) is not required for the development of hypoxic pulmonary hypertension**

Jonathan W. Lowery, Lynda Anderson, Mark Jones, Mark deCaestecker  
Department of Cell & Developmental Biology, VUMC, Nashville

### **P03**

#### **Hepatic HIF-2 regulates erythropoietic responses to hypoxia in renal anemia.**

Pinelopi P Kapitsinou, Qingdu Liu, Travis Unger, Jennifer Rha, Olena Davidoff, Connie L. Erickson Miller, Brian Keith and Volker H Haase.  
Departments of Medicine, Cancer Biology, Molecular Physiology and Biophysics, VUMC, Nashville

### **P04**

#### **The Rhesus Antigen Macromolecular Complex: Role as Potential Modulator of K-Cl Cotransport 'in Mice and Men'**

Peter K. Lauf, Norma C. Adragna, Dominique Goossens, and Jean-Pierre Cartron  
Departments of Pathology and Pharmacology & Toxicology, Boonshoft School of Medicine, Wright State University, Dayton, OH, and Institut National de la Transfusion, Paris, France

### **P05**

#### **Protein phosphatase 1 inhibits Na-K-2Cl cotransporter activity directly and indirectly**

Kenneth Gagnon and Eric Delpire  
Department of Anesthesiology, VUMC, Nashville

### **P06**

#### **Behavioral analysis of sterile 20 related proline alanine rich kinase (SPAK) knockout mice**

Yang Geng, Nellie Byun, and Eric Delpire  
Department of Anesthesiology, VUMC, Nashville

### **P07**

#### **De novo proteomics of the spinophilin interactome: spinophilin associates with alpha-actinin, densin and other postsynaptic proteins**

Anthony J. Baucum II, Nidhi Jalan-Sakrikar, Yuxia Jiao, Richard M. Gustin, Leigh C. Carmody, & Roger J. Colbran  
Department of Molecular Physiology & Biophysics, VUMC, Nashville

## Tennessee Physiological Society Meeting

### P08

#### **Investigation of the molecular mechanism of CaMKII- $\alpha$ -actinin interaction**

Nidhi N. Jalan and Roger Colbran

Department of Molecular Physiology & Biophysics, VUMC, Nashville

### P09

#### **Group III mGluR-induced depression of transmission in the BNST is mediated by mGluR8**

Heather B. Gosnell, Robert M. Duvoisin, Jacob Raber, and Danny G. Winder

Department of Molecular Physiology and Biophysics, VUMC, Nashville, and Oregon Health & Science University, Portland, OR

### P10

#### **IP3 receptors stimulate mitochondrial-dependent TRPC1 expression through NF- $\kappa$ B activation in arterial smooth muscle cells**

Damodaran Narayanan, Lawrence M Pfeffer, and Jonathan H Jaggar.

Departments of Physiology and Pathology, UTHSC, Memphis, TN 38163.

### P11

#### **The Cav1.2 $\alpha_1$ subunit N-terminus regulates cerebral artery contractility**

John P. Banister, Adebowale Adebisi, Xiaoyang Cheng, Guiling Zhao, and Jonathan Jaggars

Department of Physiology, UTHSC, Memphis

### P12

#### **Mice with altered serotonin 2c receptor editing display characteristics of Prader-Willi Syndrome**

M.V. Morabito, A.I. Abbas, R.A. Kesterson, J.L. Hood, M.M. Jacobs, D.S. Kump, B.L. Roth, R.B. Emeson

Department of Pharmacology, VUMC, Nashville.

### P13

#### **Calcium-Dependent Regulation of N-type (CaV2.2) Calcium Channels**

Lei Zhu, Sarah McDavid and Kevin P.M. Currie

Departments of Anesthesiology and Pharmacology, VUMC, Nashville

### P14

#### **Insulin Replacement Therapy Restores Glucokinase Regulation in Zucker Diabetic Fatty Rats**

Kuikwon Kim, Richard L. Printz, Gregory L. McCoy, Tracy P. Torres, Kiichiro Ueta, and Masakazu Shiota.

Department of Molecular Physiology & Biophysics, VUMC, Nashville

### P15

#### **PGC-1 $\alpha$ coactivates mouse glucose-6-phosphatase catalytic subunit transcription through a complex response unit**

Marcia M. Schilling, James K. Oeser, and Richard M. O'Brien

Department of Molecular Physiology & Biophysics, VUMC, Nashville

## Tennessee Physiological Society Meeting

### **P16**

#### **Dissection of Connective Tissue Growth Factor (CTGF) Function in Islet Development Using Conditional Gene Inactivation**

Michelle Guney, Andre Boustani, and Maureen Gannon

Departments of Molecular Physiology and Biophysics and Medicine, VUMC, Nashville

### **P17**

#### **The Role of Sostdc1 in Beta Cell Function**

Kathryn Henley, Aris Economides, and Maureen Gannon

Department of Cell and Developmental Biology, VUMC, Nashville

### **P18**

#### **FoxM1 is essential for Beta-cell compensation in pregnancy and functions downstream of placental lactogen**

Jia Zhang, Hongjie Zhang, Christine F Pope and Maureen Gannon

Departments of Medicine, Physiology and Biophysics, and Cell and Developmental Biology, VUMC, Nashville

### **P19**

#### **Glucose-mediated VLDL production requires impaired insulin signaling through FoxO1**

Ke Wu, MD PhD, David Cappel, Melissa Martinez, John Stafford MD PhD

Department of Molecular Physiology and Biophysics, VUMC, Nashville

### **P20**

#### **Understanding the role of estrogen in diabetic and post-menopausal dyslipidemia**

Melissa Martinez, Ke Wu, MD PhD, David Cappel, John Stafford, MD PhD

Department of Molecular Physiology and Biophysics, VUMC, Nashville

### **P21**

#### **Dissecting the glucose signal in diabetic dyslipidemia**

David Cappel, Ke Wu, MD PhD, Melissa Martinez, John Stafford

Department of Molecular Physiology and Biophysics, VUMC, Nashville

### **P22**

#### **TLR4 Deficiency Attenuates Free Fatty Acid-Induced Endoplasmic Reticulum Stress in Mouse Peritoneal Macrophages**

Emily Anderson and Alyssa Hasty

Department of Molecular Physiology & Biophysics, VUMC, Nashville

### **P23**

#### **Expression and Function of the Melanocortin-3 Receptor in the Ventral Tegmental Area**

Rachel N. Lippert, Kate L.J. Ellacott, Roger D. Cone

Molecular Physiology and Biophysics, VUMC, Nashville

## **Tennessee Physiological Society Meeting**

**P24**

### **The Mouse Neurobehavioral Laboratory**

John Allison, Gregg Stanwood & Danny Winder

Vanderbilt Kennedy Center and Center for Molecular Neuroscience, VUMC, Nashville

**P25**

### **Long-lasting Alterations in Cell Signaling and Behavior Following Neurodevelopmental Disruption of Dopamine D<sub>1</sub> Receptor Signaling**

Heather Hollis, Rachel Fogg, Joshua Parlamen, Duncan Leitch, Aliya Frederick & Gregg Stanwood

Dept. of Pharmacology, VUMC, Nashville

**P26**

### **Natural Accumulation of radium-226 in the human thyroid gland and health implications**

S.L. Simon, S.A. Ibrahim, A.O. Barden, and L. VanMiddlesworth

University of Tennessee School of Medicine, Memphis.

**P27**

### **Developmental expression of carbonic anhydrase II in oviparous and viviparous snake eggs.**

Tom W. Ecy, Santiago Fregoso, and James R. Stewart

Departments of Physiology and Biological Sciences, ETSU, Johnson City

# Tennessee Physiological Society Meeting

## List of Participants

Peter Lauf	Chair APS Committee	WSU, OH	Poster 4
Norma Adragna		WSU, OH	Poster 4
Alan Verkman	Keynote Speaker	UCSF, CA	
Thomas Ecay	TPS Treasurer	ETSU	Poster 27
Rebecca Steagall		ETSU	
Carole Williams	Speaker	ETSU	
Xinping Chen		MMC	
Zhongmao Guo	Speaker	MMC	
Xinhua Lin		MMC	
Emmanuel Okoro		MMC	
Fang Yang		MMC	
Lichun Zhou		MMC	
Yanfeng Zhao		MMC	
Hong Yang		MMC	
John Bannister		UTHSC	Poster 11
Charles Leffler	Speaker	UTHSC	
Damodaran Narayanan		UTHSC	Poster 10
Donald Thomason	TPS President-Elect	UTHSC	
Lester VanMiddlesworth		UTHSC	Poster 26
S.L. Simons		NIH	Poster 26
Emily Anderson		Vanderbilt	Poster 22
Joseph Antoun		Vanderbilt	
Anthony J. Baucum II		Vanderbilt	Poster 7
David Cappel		Vanderbilt	Poster 19-21
Roger Colbran		Vanderbilt	Poster 7, 8
Roger Cone	MP&B Department Chair	Vanderbilt	Poster 22
Kevin Currie		Vanderbilt	Poster 13
Jinlong Ding		Vanderbilt	
Eric Delpire	TPS President	Vanderbilt	Poster 5, 6
Mark deCaestecker		Vanderbilt	Poster 1, 2
Kenneth Drake		Vanderbilt	
Ron Emeson	Speaker	Vanderbilt	Poster 12
Kate Ellacott		Vanderbilt	Poster 23
Kevin Erreger	Speaker	Vanderbilt	
Sharron Francis		Vanderbilt	
Kenneth Gagnon		Vanderbilt	Poster 5
Maureen Gannon		Vanderbilt	Poster 16-18
Yang Geng		Vanderbilt	Poster 6

Maria Golson	Vanderbilt	
Heather Gosnell	Vanderbilt	Poster 9
Marnie Gruen	Vanderbilt	
Uma Gunasekaran	Vanderbilt	
Michelle Guney	Vanderbilt	Poster 16
Alyssa Hasty	Vanderbilt	Poster 22
Kathryn Henley	Vanderbilt	Poster 17
Nidhi Jalan-Sakrikar	Vanderbilt	Poster 7, 8
Pinelopi Kapitsinou	Vanderbilt	Poster 3
Arion Kennedy	Vanderbilt	
Kuikwon Kim	Vanderbilt	Poster 14
Jonathan Lowery	Vanderbilt	Poster 1
Rachel Lippert	Vanderbilt	
Melissa Martinez	Vanderbilt	Poster 19-21
Renuka Menon	Vanderbilt	
Genie Moore	Vanderbilt	
Michael Morabito	Vanderbilt	Poster 12
Louis Muglia	Vanderbilt	
Richard O'Brien	Vanderbilt	Poster 15
Richard O'Neil	Vanderbilt	
Chris Olsen	Vanderbilt	
Jeb Orr	Vanderbilt	
Jacques Pantel	Vanderbilt	
Al Powers	Vanderbilt	
Richard L. Printz	Vanderbilt	Poster 14
Ben Renquist	Vanderbilt	
Marcia M. Schilling	Vanderbilt	Poster 15
Masakazu Shiota	Vanderbilt	Poster 14
John Stafford	Vanderbilt	Poster 19-21
Gregg Stanwood	Vanderbilt	Poster 24, 25
Bonnie Surmi	Vanderbilt	
Kiichiro Ueta	Vanderbilt	Poster 14
Amanda Vanhooose	Vanderbilt	
Saraswathi Viswanathan	Vanderbilt	
Corey Webb	Vanderbilt	
Ke Wu	Vanderbilt	Poster 19-21
Jia Zhang	Vanderbilt	Poster 18
Lei Zhu	Vanderbilt	Poster 13



**BYLAWS**  
**TENNESSEE PHYSIOLOGICAL SOCIETY**  
Adopted 10/23/2009

**ARTICLE I. NAME**

The name of this organization shall be the Tennessee Physiological Society, hereinafter referred to as "The Society."

**ARTICLE II. PURPOSE**

The Society is organized exclusively for scientific and educational purposes under section 501 (c)(3) of the Internal Revenue Code, or corresponding section on any future federal tax code.

The Society is organized as a professional association of Tennessee Physiologists whose purpose is to enhance and advance the field of physiology with all its molecular, cellular, organ and organismal basic and applied disciplines of research and education and unite the Physiologists for this purpose within the State of Tennessee. At least one annual scientific meeting shall be held.

**ARTICLE III. MEMBERSHIP**

Membership in The Society shall be open to all persons interested in physiology and/or biophysics working or residing in the state of Tennessee, independent of National or international affiliation. Application shall be made on a prescribed form and must be accompanied by payment of a small annual membership fee (dues). To be a member, annual dues must be paid in full. Undergraduate Student members shall not pay dues; however only dues-paying members shall be voting members.

**ARTICLE IV. DUES**

Annual dues shall be \$25.00 per year for Faculty, \$15.00 per year for Postdoctoral Fellows, and \$10.00 per year for Graduate Students. Modifications to the Annual Dues (due to inflation, state of the economy, etc) are allowed and are at the discretion of the Executive Committee. Dues are payable on July 1. Any member whose dues have not been paid within six months of the due date shall be dropped from membership. Reinstatement shall be accomplished by reapplication and submission of the annual dues required. There shall be no proration of any dues for membership in The Society for a partial year.

**ARTICLE V. OFFICERS AND DUTIES**

SECTION 1. The officers of The Society shall be the President and President Emeritus, President Elect, and Secretary-Treasurer. The President shall not be from the same university for two consecutive terms. In addition, a Graduate Student or Postdoctoral Fellow will be elected by his/her peers for a one year term.

SECTION 2. The duties of the officers shall be those customary to such office; in addition:

A. The President shall call meetings, determine the theme of the annual meeting and serve as the annual meeting coordinator as required to conduct The Society's business. The President shall serve a one year term after which he/she serves as President Emeritus.

B. The officer who is the President-Elect shall serve together with the President for one year and then become President to work together with the new President Elect and the President Emeritus. The President Elect shall act as Chair in the absence of the President and shall call an annual meeting to be held in the Fall of 2009 and at least once a year thereafter.

C. The Secretary-Treasurer shall serve three years, be responsible for the preservation of The Society's funds, shall report on financial status and shall disperse funds as authorized by the Executive Committee, the unanimous consensus of the Executive Committee, or as contained in the budget prepared by the Executive Committee. The Treasurer shall also be responsible for any income tax filings. It is the duty of the Treasurer to obtain the list of Tennessee membership on an annual basis.

## **ARTICLE VI. COMMITTEES**

SECTION 1. The Executive Committee shall be composed of the President, the President Emeritus, the President Elect, the Secretary-Treasurer, the graduate student or postdoctoral representative, and the Chairpersons of any standing Committees. All officers shall serve a term of 1 year except the Secretary-Treasurer, who shall serve three years, and shall commence each term January 1. All Executive Committee members will hold one vote on the committee.

### SECTION 2.

A. One member from each research or educational institution (i.e., university/college/research facility/ business and industry) shall make up an Inter-Institution Liaison Committee. The role of the Inter-Institution Liaison Committee is to help plan and integrate Society functions and activities among institutions.

B. The Inter-Institution Liaison Committee Chairperson shall appoint members of the committee. Members of the committee shall serve for a term of 2 years, commencing January 1.

SECTION 3. The Annual Meeting Committee shall be chaired by the President Elect.

SECTION 4. Special Committees, necessary for the development of The Society, may be appointed by the President.

## **ARTICLE VII. NOMINATIONS AND ELECTIONS**

SECTION 1. Elections shall coincide with the annual meeting.

SECTION 2. The Executive Committee shall solicit from the membership nominees for officers.

SECTION 3. The list of nominees shall be presented to the membership in a form of a paper and/or an electronic ballot. The paper ballot shall be anonymous.

## **ARTICLE VIII. MEETINGS**

SECTION 1. The entire Society shall meet for presentation of scientific information during the fall of each year. The meetings shall be held at a location determined by the Executive Committee.

SECTION 2. The Executive Committee shall meet as called by the President, but at least two times each year. Executive Committee meetings may be held by telephonic or video conferencing if necessary.

SECTION 3. A quorum to conduct business at a meeting of The Society shall consist of a plurality of the voting members present.

SECTION 4. A quorum of the Executive Committee shall consist of 75% of its membership. In addition, either the President or President elect must be present.

SECTION 5. Special meetings may be called by the President or the Executive Committee.

#### **ARTICLE IX. DISSOLUTION**

SECTION 1. In the event of the dissolution of The Society, funds remaining after the payment of all obligations shall be donated to the American Physiological Society.

SECTION 2. Funds returned to the American Physiological Society may be designated for a specific purpose by a simple majority of the members present.

SECTION 3. Written notice of a meeting called for the distribution of funds must be sent by the President at least four weeks prior to the meeting. The time and place of the meeting will be set by the President.

#### **ARTICLE X. AMENDMENTS**

SECTION 1. These Bylaws may be amended at any regular meeting, or any special meeting duly called for the purpose by a 2/3 vote of the voting members present.

SECTION 2. A notice of such amendments must be sent with a notice of such meetings at least four weeks prior to the date of the meeting.

SECTION 3. The proposed amendment must be an acceptable parliamentary form and must not conflict with or nullify un-amended sections of the Bylaws.

#### **ARTICLE XI. PARLIAMENTARY AUTHORITY**

The rules contained in Robert's Rules of Order Newly Revised, Tenth Edition shall govern meetings where the rules are not in conflict with the bylaws, rules of order, or other rules of The Society.