



# *The Microcirculatory Society* **NEWSLETTER**

## MESSAGE FROM THE PRESIDENT

Greetings!

**Experimental Biology is in 7 weeks!** Our program is listed in this Newsletter on page 3. In addition to our three symposia on Saturday, the Landis Award Lecture on Sunday afternoon, and the Kaley Lecture on Monday, we have two special events ([tickets required](#)): our traditional Saturday luncheon, and our Sunday evening Reception/Poster Discussion.

Congratulations to all travel awardees; they are named on pages 11 and 12. We had a number of excellent applications, and I apologize that we could not fund all of them. The Poster Discussion on Sunday evening will highlight our travel awardees, as well as other young investigators who are taking advantage of the opportunity to present their work. There will be four poster discussion groups led by Feilim Mac Gabhann, Fong Lam, Anjelica Gonzalez and W. Lee Murfee.

**As you purchase your luncheon and reception tickets** (and pay your dues), you will notice that LinkPoint is no longer an option. Without notice, LinkPoint's software changed and we lost access! Fortunately, Shayn

had PayPal set up. Due to higher costs with LinkPoint (vs. PayPal) we had planned to cancel LinkPoint after EB – LinkPoint pushed our decision sooner. You can pay using PayPal with your account, or use your credit card as a guest without a PayPal account. If you have any trouble, please contact Shayn ([treasurer@microcirc.org](mailto:treasurer@microcirc.org)) or Bernadette ([executivedirector@microcirc.org](mailto:executivedirector@microcirc.org)).



**The Communications Committee** is working double time to upgrade the MCS website. At the Business meeting at EB, they will present their suggestion. Meanwhile, if you have suggestions, please send them to me ([president@microcirc.org](mailto:president@microcirc.org)), Trevor ([secretary@microcirc.org](mailto:secretary@microcirc.org)), Chair of the Communications Committee, David Rubenstein ([david.rubenstein@stonybrook.edu](mailto:david.rubenstein@stonybrook.edu)) or Bernadette ([executivedirector@microcirc.org](mailto:executivedirector@microcirc.org)).

**The 10<sup>th</sup> World Congress for Microcirculation in Kyoto, Japan September 25-27, 2015.** At the MCS General Business Meeting in San Diego, we voted to sponsor ten Early Stage Investigator Travel Awards at \$1,500 (USD) each. The call for applications will be soon, and will coincide with the abstract deadline (to be announced). At that time, we will also issue the call for nominations for the Zweifach Award. The recipient of this award will give a lecture in Kyoto.

**Voting for new Officers and Councilors begins now.** Yes, it is time to vote for President-Elect, Secretary and Councilors. See page 13 for a list of candidates. A link to the web ballot is included there.

**Bylaws changes.** There are several suggested changes to the bylaws. This year's edition will reflect changes suggested by Past Presidents, Mike Hill and Jefferson Frisbee. You have already received two documents by email: one with the current text red-lined and new suggested text (as required by the current bylaws); and a table showing current

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text, suggested changes, and justification in separate columns. At the General Business meeting in Boston, regular members will vote on each item separately. I would like to take a moment to point out that bylaws, in general, are meant to be simple documents that reflect the governing regulations of a society's internal affairs. Our bylaws have evolved into more of a standard operating procedures document that legally binds us to a number of extra responsibilities as a society. Some of the changes you will see this

year are meant to simplify the document, an effort I will continue next year as Past-President. Any comments you have regarding future modifications to the bylaws would be appreciated.

I look forward to seeing you in March at Experimental Biology in Boston!

Respectfully,  
Molly Frame  
MCS President

## MCS BYLAWS AMENDMENTS

Please read the recommended changes to the bylaws prior to the March 29 Membership Business Meeting where Regular Members only, will vote on the changes. Each item will be voted on separately. If you have any comments please feel free to email MCS President, Molly Frame or Past Presidents: Michael Hill or Jefferson Frisbee.

A summary of the recommended changes is available on our web site at <http://microcirc.org/ANNOUNCE/Announce.html> - follow the links to the pdfs:

MCS Bylaws - Proposed 2015 Changes  
*shows the markup of the existing bylaws*

MCS Bylaws - Proposed Change Summary  
*outlines the changes and reasons in a table format*

## POSTER DISCUSSION

Be sure to attend the Poster Discussions at the MCS Reception

Discussion topics and leaders:

Oxygen/Blood Flow: Feilim Mac Gabhann, Johns Hopkins University

Inflammation: Fong Lam, Baylor College of Medicine

Signaling/Channels: Anjelica Gonzalez, Yale University

Other Microcirculation: W. Lee Murfee, Tulane University

Held in conjunction with the Society Reception on Sunday, March 29 from 5:30-7:00pm

Tickets on sale through our web site - <http://microcirc.org/registration.html>

## RENEW YOUR MEMBERSHIP!!



We now have PayPal to make the renewal process easier for you!

Go to <http://www.microcirc.org/MEMBER/DuesOnlinePayPal.html>

and renew your membership today!!

## EXPERIMENTAL BIOLOGY 2015 MARCH 28 - APRIL 1, 2015

BOSTON CONVENTION AND EXHIBITOR CENTER  
SCIENTIFIC SYMPOSIA - MARCH 28

Jan/Feb 2015

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MCS Newsletter

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### President's Symposium: Oxygen/Blood Flow

9:30 - 11:30am, Room 205B Convention Center

Chair: Molly Frame, Stony Brook University

#### Invited Speakers:

*Oxygen's role in metabolic regulation of blood flow: A radical view from the microcirculation*

Roland Pitman, Virginia Commonwealth University

*Optical detection of brain function: Simultaneous image of cerebral blood flow, tissue oxygen metabolism and cellular activity in vivo*

Congwu Du, Stony Brook University

#### Abstract Presentations:

*Effect of gap junction blockade on renal autoregulation and phase synchronization of autoregulation dynamics*

Nicholas Mitrou, Simon Frasier University

*Resveratrol treatment reduces neurovascular coupling in aged mice: Role of improved cerebrovascular function and down-regulation of NADPH Oxidase*

Peter Toth, University of Oklahoma

*Microscopic study of PO<sub>2</sub> and V O<sub>2</sub> kinetics in contracting rat spinotrapezius muscle*

A S Golub, Virginia Commonwealth University

*Image-based characterization of function and structural heterogeneity of tumor xenografts using blood flow modeling*

Spyros Stamatelos, John Hopkins University

### Inflammation

1:30 - 3:00pm, Room 205B Convention Center

Chair: Anjelica Gonzalez, Yale University

#### Invited Speakers:

*The endothelial glycocalyx: a regulator of vascular injury and recovery*

Eric Schmidt, University of Colorado

*Monocyte recruitment from venules during arteriogenesis*

Shayn Peirce-Cottler, University of Virginia

#### Abstract Presentations:

*Platelet-endothelial association with fibrinogen/fibrin, coupled with oxidative stress, protein nitrosylation, and fibrosis may underlie pulmonary endothelial cell dysfunction in a mouse model of Type 1 diabetes*

Andrew Robert, University of Louisville

*miR155 expression is increased by inflammation and modulates the expression of CD11a in monocytes*

Safiya Syed, Albion College

### Signaling/Channels

3:30 - 5:00pm, Room 205B Convention Center

Chair: Joshua Butcher, University of Virginia

#### Invited Speakers:

*Calcium signaling regulation at the myoendothelial junction*

Jonathan LeDeaux, University of Montreal

*Novel Role for mitochondrial Telomerase in vascular stress response and maintenance of NO mediated dilatation*

Andreas Beyer, Medical College Wisconsin

#### Abstract Presentations:

*Recruitment of RGS5 protein to mechanically activated ATR in arteriolar VSMC*

Kwangseok Hong, University of Missouri

*Ca<sup>2+</sup> Dynamics and contraction of junctional pericytes in the retinal vasculature*

Albert Gonzales, University of Vermont





# MEETINGS

## SPECIAL SESSIONS AND EVENTS

### SOCIETY AWARD BANQUET

Saturday, March 28, 11:45am - 1:15pm  
Room TBD at the Westin Boston Waterfront Hotel  
Tickets available on line\*  
(\$35 for each attendee)

### LANDIS AWARD DR. DAI FUKUMURA

Lecture: *Targeting tumor microvasculature and microenvironment*  
Sunday, March 29, 3:30 - 4:30pm  
Room 205B in the Boston Convention and Exhibitor Center

### MEMBERSHIP BUSINESS MEETING

Sunday, March 29, 4:30pm - 5:30pm  
Room 205B in the Boston Convention and Exhibitor Center

### RECEPTION, AWARDS & POSTER DISCUSSIONS

Sunday, March 29, 5:30pm - 7:00pm  
Room TBD in the Boston Convention and Exhibitor Center  
*Forty posters will be presented in grouped poster discussions*  
Tickets available on line\*  
(\$25 for faculty; \$20 for young investigators)

### KALEY AWARD DR. MARK T. NELSON

Lecture: *Ion channel cross-talk in the microcirculation*  
Co-sponsored with the American Physiological Society  
Monday, March 30, 10:30am - 12:30pm  
Room 205B in the Boston Convention and Exhibitor Center

See <http://microcirc.org/52ndPROGRAM/AnnualMeeting.html> for updates

\*To purchase tickets go to <http://microcirc.org/regISTRATION.html>





# 10<sup>th</sup> World Congress for Microcirculation

In conjunction with the 40th Japanese Society for Microcirculation

Date: **Sep. 25-27, 2015** Venue: **Kyoto International Conference Center**

President:

**Makoto Suematsu M.D. Ph.D.**

Keio University School of Medicine

President for 40th JSM:

**Toyotaka Yada M.D. Ph.D.**

Kawasaki University of Medical Welfare  
Kawasaki Medical school

Executive Advisers:

- **Toshikazu Yoshikawa**  
Kyoto Prefectural University of Medicine
- **Fumihiko Kajiya**  
Kawasaki University of Medical Welfare

Plenary Lectures:

- **Vascular metabolism: principles and strategies**  
Prof. **Peter Carmeliet**  
Katholieke Universiteit, Leuven, Belgium
- **Catching pathogens in the microcirculation**  
Prof. **Paul Kubes**  
University of Calgary, Alberta, Canada.
- **Imaging brain activity from capillaries**  
Prof. **Serge Charpak**  
Institut National de la Santé et de la  
Recherche Médicale, Paris, France

## Congress Secretariat

c/o Congress Corporation  
Kōsai-kaikan Bldg., 5-1 Kojimachi,  
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**KYOTO, JAPAN** <http://www.congre.co.jp/wcmic2015>



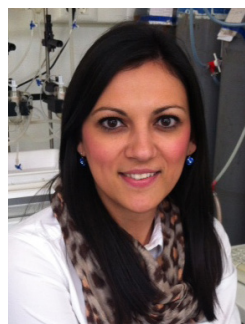
## FEATURED YOUNG INVESTIGATORS' RECENT STUDY IN *MICROCIRCULATION*\*

### VISCERAL ADIPOSE MICROVASCULAR FUNCTION IN MORBID OBESITY: A PATHWAY TO DISEASE

Featuring: **Austin Robinson** (Ph.D. student) and **Ivana Grizelj** (junior faculty) in the laboratory of Shane Phillips at the University of Illinois, Chicago.

from Volume 22, Issue 1 - January 2015

The importance of our study, Reduced Flow-and Acetylcholine-Induced Dilations in Visceral Compared to Subcutaneous Adipose Arterioles in Human Morbid Obesity, lies in that we found reduced endothelium-dependent, acetylcholine (AChID) and flow-induced (FID), vasodilator capacity in resistance arteries (RAs) derived from the visceral adipose tissue (VAT) of morbidly obese women in comparison to RAs obtained from their subcutaneous adipose tissue (SAT). In addition we found that usual mediators of dilation Nitric Oxide (NO), Prostaglandins (PGI<sub>2</sub>), and Hydrogen Peroxide (H<sub>2</sub>O<sub>2</sub>) did not regulate dilatory function in VAT RAs, while in SAT RAs they have very important role in endothelium-dependent dilation.



Ivana Grizelj

In order to assess vasodilator function we subjected microvessels to AChID and FID with and without pharmacological agents. We used fluorescent microscopy to quantify production of NO and H<sub>2</sub>O<sub>2</sub>. While the principal mediator of vasodilation is specific to the size and depot of the artery, it is generally NO.

However obesity is associated with greater cardiovascular risk due to increased production of reactive oxygen species (ROS) which can decrease bioavailability of NO. Therefore, we postulated that PGI<sub>2</sub> and H<sub>2</sub>O<sub>2</sub> may contribute to dilator function of RAs in morbidly obese subjects, since these compounds confer compensatory vasodilation in conditions of reduced NO bioavailability, e.g. in obesity.

As expected, VAT RAs demonstrated reduced sensitivity to AChID and FID compared to microvessels from SAT of the same patients. While SAT RAs were responsive to inhibition of either NO, PGI<sub>2</sub> or H<sub>2</sub>O<sub>2</sub>, VAT RAs were not responsive. A combined blockade of NO and PGI<sub>2</sub> did result in a significant reduction in dilatory function in VAT, suggesting that even in the impaired vasodilator state COX metabolites or NO may serve to partially compen-

sate when either of the other vasodilator pathways is blocked. These findings were corroborated by fluorescence experiments which indicated SAT RAs produce more NO and H<sub>2</sub>O<sub>2</sub> than VAT RAs under static and flow conditions.

Our results support previous findings of impaired vasodilator function in VAT RAs relative to SAT<sup>1</sup> and that the microcirculation of visceral fat in obesity displays impaired vasodilator function compared to healthy weight adults<sup>2</sup>. It is also known that VAT accumulation is associated with heightened inflammation that may contribute to propensity for cardiovascular dysfunction. Taken together these findings suggest that morbid obesity is associated with reduced perfusion to the VAT which may evoke inflammatory and other deleterious paracrine factors associated with tissue hypoxia. As our patients in this study were morbidly obese women, what remains unknown is the level of obesity that must occur before these deleterious changes transpire, potential sex differences, and mechanistic underpinnings that cause microcirculatory dysfunction in VAT.



Austin Robinson



Shane Phillips

1) Farb MG, Ganley-Leal L, Mott M, Liang Y, Ercan B, Widlansky ME, Bigornia SJ, FISCAL AJ, Apovian CM, Carmine B, et al. Arteriolar function in visceral adipose tissue is impaired in human obesity. *Arterioscler Thromb Vasc Biol* 32: 467-473, 2012.

2) Virdis A, Santini F, Colucci R, Duranti E, Salvetti G, Rugani I, Segnani C, Anselmino M, Bernardini N, Blandizzi C, Salvetti A, Pinchera A, Taddei S. Vascular generation of tumor necrosis factor- $\alpha$  reduces nitric oxide availability in small arteries from visceral fat of obese patients. *J Am Coll Cardiol* 58: 238-247, 2011.

\*Featured Articles will appear in each MCS Newsletter and will be chosen from recent publications in *Microcirculation* our Official Journal. If you have a recent publication in *Microcirculation*, that includes young investigators as authors, and would like your study to be considered for this Featured Article, then send your study and reference to [executivedirector@microcirc.org](mailto:executivedirector@microcirc.org).

## Call for Papers 2015 - Special Issues

The Official Journal of the Microcirculatory Society, Inc., The British Microcirculation Society, the Australia & New Zealand Microcirculation Society and the Japanese Society for Microcirculation

[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1549-8719/homepage/call\\_for\\_papers\\_2015.htm](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1549-8719/homepage/call_for_papers_2015.htm)

### Metabolism and Tumor Microcirculation/Angiogenesis

The journal Microcirculation is pleased to announce that it will be publishing a Special Issue focused on Metabolism and Tumor Microcirculation/Angiogenesis to accompany the journal sponsored symposium at the World Congress for Microcirculation to be held in Kyoto in September 2015. This Special Issue will be Guest Edited by Dai Fukumura and Rakesh Jain from the Steele Laboratory for Tumor Biology Harvard Medical School, USA.

The following Invited Reviews will form part of the issue:

- Metabolic regulation of endothelial cells - Peter Carmeliet, Leuven Belgium
- EPR and others - Hiroshi Maeda, Sojo University Japan
- Metabolism and Cancer - Makoto Suematsu, Keio University Japan
- Metabolism and Anti-ang Therapy - Dai Fukumura, Harvard USA

Submit your primary research papers covering hot topics in these areas for your chance to be included. Following peer review, all papers will be published online as 'Accepted Manuscripts' as soon as they are accepted and published in the final version in the online issue in the spring of 2016.

Please send queries to: Guest Editor Dai Fukumura ([dai@steele.mgh.harvard.edu](mailto:dai@steele.mgh.harvard.edu)) and Deputy Editor in Chief Geraldine F Clough ([g.f.clough@soton.ac.uk](mailto:g.f.clough@soton.ac.uk))

**Submission Deadline: 1 July 2015**

**Publication Date: Early 2016**

### Microvascular Plasticity: Angiogenesis in Health and Disease

The journal Microcirculation is pleased to announce that it will be publishing a Special Issue focused on Microvascular Plasticity: Angiogenesis in Health and Disease to tie in with the World Congress for Microcirculation to be held in Kyoto in September 2015. This Special Issue will be Guest Edited by James B. Hoying, Cardiovascular Innovation Institute University of Louisville, USA.

The following Invited Reviews will form part of the issue:

- Preface on angiogenesis and the microcirculation- Axel Pries, Charité, Berlin, Germany; Tim Secomb, University of Arizona USA
- Macrophages: an inflammatory link between angiogenesis and lymphangiogenesis - Shayn Peirce-Cottler, University of Virginia USA; W. Lee Murfee, Tulane University USA
- NG2-dependent contributions of stromal cells to tumor vascularization and progression - William Stallcup, Sanford-Burnham Medical Research Institute, USA
- Perivascular cell dynamics in the vasculatures of the eye - Tailoi Chan-Ling, University of Sydney Australia
- Adaptation of the coronary microcirculation in aging - Amanda J. LeBlanc, Cardiovascular Innovation Institute, Louisville USA
- The role of H2S/NO in ischemic vascular remodelling - Chris Kevil, LSU Health Shreveport USA
- Role and regulation of VEGF in the adult- Patricia D'Amore, Schepens Eye Research Institute, Harvard Medical School USA

Submit your primary research papers covering hot topics in these areas for your chance to be included. Following peer review, all papers will be published online as 'Accepted Manuscripts' as soon as they are accepted and published in the final version in the online issue at the start of 2016.

Please send queries to: Guest Editor James B. Hoying ([jay.hoying@louisville.edu](mailto:jay.hoying@louisville.edu)) and Deputy Editor in Chief Geraldine F Clough ([g.f.clough@soton.ac.uk](mailto:g.f.clough@soton.ac.uk)).

**Submission Deadline: 27 July 2015**

**Publication Date: Early 2016**

# Microcirculation

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[Hematocrit Distribution and Tissue Oxygenation in Large Microcirculatory Networks](#) (pages 1–18)

Ian G. Gould and Andreas A. Linninger

[Angiotensin-\(1-7\) Prevents Angiotensin II-induced Fibrosis in Cremaster Microvessels](#) (pages 19–27)

Kyle A. Carver, Thomas L. Smith, Patricia E. Gallagher and E. Ann Tallant

[Pretreatment of Human Cerebrovascular Endothelial Cells with CO-releasing Molecule-3 Interferes with JNK/AP-1 Signaling and Suppresses LPS-induced Proadhesive Phenotype](#) (pages 28–36)

Fukashi Serizawa, Eric Patterson, Richard F. Potter, Douglas D. Fraser and Gediminas Cepinskas

[Reproducibility of Microvascular Vessel Density Analysis in Sidestream Dark-Field-Derived Images of Healthy Term Newborns](#) (pages 37–43)

Victor J. van den Berg, Hugo A. van Elteren, Erik A. B. Buijs, Can Ince, Dick Tibboel, Irwin K. M. Reiss and Rogier C. J. de Jonge

[Reduced Flow-and Acetylcholine-Induced Dilations in Visceral Compared to Subcutaneous Adipose Arterioles in Human Morbid Obesity](#) (pages 44–53) (Featured article - see page 6 of this newsletter)

Ivana Grizelj, Ana Cavka, Jing-Tan Bian, Mary Szczurek, Austin Robinson, Shruti Shinde, Van Nguyen, Carol Braunschweig, Edward Wang, Ines Drenjancevic and Shane A. Phillips

[Human Microvascular Pericyte Basement Membrane Remodeling Regulates Neutrophil Recruitment](#) (pages 54–67)

Parid Sava, Ian O. Cook, Rajwant S. Mahal and Anjelica L. Gonzalez

[Adaptations of the Endothelin System After Exercise Training in a Porcine Model of Ischemic Heart Disease](#) (pages 68–78)

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[Effects of Oleuropein and Pinorelinol on Microvascular Damage Induced by Hypoperfusion and Reperfusion in Rat Pial Circulation](#) (pages 79–90)

Dominga Lapi, Martina Di Maro, Teresa Mastantuono, Laura Battiloro, Lina Sabatino, Espedita Muscariello and Antonio Colantuoni

[Krogh-Cylinder and Infinite-Domain Models for Washout of an Inert Diffusible Solute from Tissue](#) (pages 91–98)

Timothy W. Secomb



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[Heterogeneity in Kv7 channel function in the Cerebral and Coronary Circulation](#)

Sewon Lee, Yan Yang, Miles A. Tanner, Min Li and Michael A. Hill

[The Short-Term Effects of C-Peptide on the Early Diabetes-Related Ultrastructural Changes to the Podocyte Slit Diaphragm of Glomeruli in Rats](#)

Hiroshi Nakamoto, Kazuhiko Nakayama, Noriaki Emoto and Fumihiko Kajiya

[Restoration of cerebral and systemic microvascular architecture in APP/PS1 transgenic mice following treatment with Liraglutide™](#)

Patricia Kelly, Paula McClean, Maximilian Ackermann, Moritz A. Konerding, Christian Hölscher and Christopher A. Mitchell

[Impact of Blood Pressure on Retinal Microvasculature Architecture Across the Lifespan: the Young Finns Study](#)

Robyn J Tapp, S Monira Hussain, Josephine Battista, Nina Hutri-Kähönen, Terho Lehtimäki, Alun D Hughes, Simon A. McG Thom, Andrew Metha, Olli T Raitakari and Mika Kähönen

## MEET SOME OF OUR NEWEST MEMBERS



Evandro M. Neto Neves DVM, Ph.D is a Post-doctoral fellow in Emergency Medicine at Indiana University. His current research interests focus on the study of cardiovascular diseases, including pulmonary embolism (PE) and right ventricular dysfunction. His main

hypothesis is that activated proteases, such as matrix metalloproteinases (MMPs) may contribute for the right ventricular and lung vasculature damaged following PE. Interestingly, he and his colleagues have found that doxycycline (an MMP inhibitor) attenuates PE-induced pulmonary hypertension and also protects the heart against damage (prevents troponin I release and right ventricular dilation). In addition, he believes that MMP inhibition could be a useful strategy to decrease mortality and morbidity after PE in the future. Dr. Neves is a recipient of an MCS Pappenheimer Travel Award and will be presenting his poster at the MCS Reception/Poster Discussion session on Sunday, March 29 at 5:30pm in the convention center (room to be determined).



Ronen Sumagin, Ph.D. is an Assistant Professor in the Department of Pathology at the Feinberg School of Medicine, Northwestern University. His principal research interests include identifying new therapeutical targets aiding in resolution of inflammatory disorders of

mucosal surfaces, particularly disorders of the gastrointestinal tract, by elucidating key molecules and mechanisms that regulate leukocyte trafficking and endothelial/epithelial homeostasis. He uses biochemical and molecular techniques, advanced intravital imaging approaches

and in-vivo tissue injury models to study the roles for leukocytes in the regulation of intestinal barrier function and wound healing during inflammation.

### **We would also like to welcome:**

#### Graduate Students

Stephanie Mutchler, University of Pittsburgh

Mohammed Al Tarhuni, University of Western Ontario

#### MD/PhD Students

Samira Darvishi, Stony Brook University

David A Hartmann, Medical University of South Carolina

#### Postdoctoral Fellows

Miranda Good, University of Virginia

Kerri-Ann Norton, Johns Hopkins University,

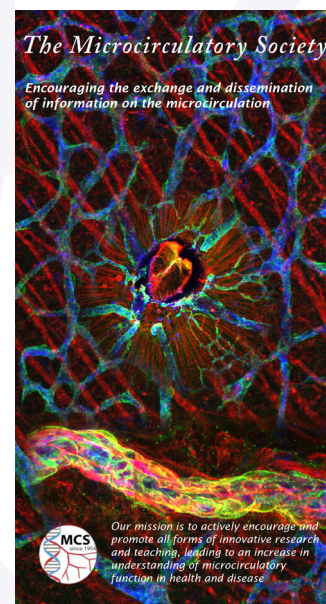
(see Kerri-Ann's bio on page 10)

#### Assistant Professors

Eric J Belin de Chantemele, Georgia Regents University

Souad Belmadani, Eastern Virginia Medical School

## Download the new MCS Brochure

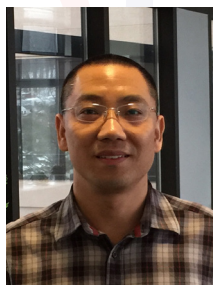




## 2015 PAPPENHEIMER POSTDOCTORAL TRAVEL AWARDS

Congratulations to this year's Pappenheimer award recipients!

Meet this year's recipients of the Pappenheimer Postdoctoral Travel Award.



**Qilong Feng**, Pennsylvania State, is interested in the cellular and molecular mechanisms regulating permeability in intact microvessels and uses single vessel perfusion techniques with fluorescence and electron microscopy to investigate circulating microparticles and their effects on microvessel function.

**Hemang Patel** of Wayne State University, is interested in endothelial dysfunction and uses a systems biology approach to investigate temporal changes of endothelial cell gene expression related to NO, ROS, and antioxidants during hyperglycemia and hydrogen peroxide stress.



**Kerri-Ann Norton**, PhD, one of our newest members, is a post-doctoral fellow in the Department of Biomedical Engineering at Johns Hopkins School of Medicine; she is part of the Systems Biology Laboratory under the mentorship of Dr. Popel. Her graduate studies were completed at Rutgers, the State University of

New Jersey, in Computational Biology and Molecular Biophysics, where she developed agent-based models of ductal carcinoma in situ (DCIS) progression and developed 3D reconstructions of human DCIS samples. Dr. Norton's current research is in computational modeling and experimental quantitative flow cytometry to study heterogeneity in breast cancer and its microenvironment, with a particular focus on tumor microvasculature and cell surface receptor composition. She has received several awards for her work such as the American Cancer Society Postdoctoral Fellowship and an NIH training grant in Nanotechnology for Cancer Medicine Fellowship.

**Amy Smith**, University of Arizona, is interested in employing mathematical models and computational simulations to investigate microcirculatory network hemodynamics and oxygen transport. These models use high-resolution data on microvascular anatomy, specifically in the rat myocardium and mesentery, the mouse brain, and the chick embryo chorio-allantoic membrane, in order to make predictions of physiological function.



**Evandro M. Neto Neves** of Indiana University, another one of our newest members is also a Pappenheimer Award recipient. You can read more about Evandro and his studies on page 10 of this newsletter.

In addition, the **Award for Excellence in Lymphatic Research** will be given to **Walter Cromer**, Texas A&M Health Science Center. This award recognizes meritorious research of the lymph, lymphatics or interstitium by a young investigator.

Our last, but not least, recipient is **Karima Ait-Aissa**, in the Department of Physiological Sciences at Eastern Virginia Medical School. In addition to winning one of the Pappenheimer Postdoctoral Fellow Travel Awards, Karima has also received the **August Krogh Young Investigator Award** for her manuscript, "Enhanced p47phox NADPH sub-unit expression impairs conductance and resistance vascular function in obese mice."

All awardees, including Landis Award recipient, Dr. Dai Fukumura, will receive their awards at the MCS Awards Banquet on Saturday, March 28. Please join us to congratulate them. Tickets for the luncheon are available on our web site (<http://microcir.org/registration.html>).

**New this year**, both the Pappenheimer Postdoctoral Travel Award and Zweifach Student Travel Award Recipients will present their posters at a special poster discussion, which is being held in conjunction with our Sunday evening Reception. [Tickets are also available for this event.](#)

## 2015 ZWEIFACH STUDENT AWARDS

**Congratulations to this year's Zweifach award recipients!**

Zweifach Award recipients are: Stephanie Mutchler, University of Pittsburgh; Harrison Seidner, Stony Brook University and -



**Mohammed S. Azimi**, Tulane University is interested in microvascular dynamics, vascular tissue engineering, and drug delivery systems. Part of his current project is conducting stem cell lineage studies. More specifically, he uses rat mesentery culture models to track human adipose-derived stem cells (hASCs) and study their migration and differentiation dynamics in the presence of microvascular networks.

**Huijuan Dou**, Georgia Regents University, is working to elucidate aging-related pathological alterations in vascular endothelial signaling pathways that are primarily regulated by cell membrane caveolae compartmentalization. She is testing the general hypothesis that an age-related decline in endothelial caveolae function is the prime mediator of microvascular dysfunction in aging. In the work she submitted to EB2015, she is exploring the role of caveolae-related mechanisms that are responsible for the excess release of pro-inflammatory cytokine, TNF from the pericardial adipose tissue in patients with coronary artery disease.



**Kwangseok Hong**, University of Missouri-Columbia. The contractile activity of vascular smooth muscle cells is critical to the ability of small arteries to regulate blood flow in response to fluctuations in intraluminal pressure (the "Myogenic Response"). In regard to this, he is interested in the mechanotransduction processes which underlie how smooth muscle cells sense and respond to mechanical forces. In particular, whether the angiotensin II type 1 receptor (AT1R) can act as a mechanosensor in resistance arterioles and contribute to myogenic responsiveness. An additional interest relates to whether pressure-dependent vasoconstriction is modulated by negative regulation of AT1R signaling by RGS (Regulators of G-protein Signaling) proteins under physiological and pathophysiological conditions.

**Emmanuel Nwadozi**, York University - his research interest is understanding the role of the microvasculature in functional impairments associated with Obesity. He is particularly interested in microves-



sels within skeletal muscle and his lab has recently shown that the forkhead box O family of transcription factors (FoxO) are negative regulators of skeletal muscle microvasculature in both physiological and pathological contexts. His goal is to enhance the understanding of FoxO transcription factors within obese skeletal muscle and potentially use this information for the development of therapeutic tools against obesity related functional impairments.

**Richard Sweat**, Tulane University, is interested in the multicellular and multisystem dynamics of microvascular remodeling in health and disease and uses a novel ex vivo model of intact microvascular network growth to investigate the interrelationships between lymphangiogenesis, angiogenesis and plasticity.



**Stefano Tarantini**, Reynolds Oklahoma Center on Aging, is interested in the mechanisms and consequences of cerebrovascular aging, and in particular the age-dependent functional and phenotypic alterations of the cerebral microcirculation and the connected vascular cognitive impairment in the aging population.

**Sulei Xu**, Pennsylvania State University, is interested in understanding the mechanisms that contribute to microvessel dysfunction associated with various cardiovascular diseases and uses a HUVEC-seeded microfluidic device as a functional microvessel model to study the impact of shear stress on endothelial barrier function.



**Xun Zhang**, University of South Florida, focuses on how spatial temporal activation of different signaling molecules can protect the endothelial barrier. He is currently exploring the role of localized RhoA activation in SIP mediated endothelial barrier enhancement.

Look to our [web site](#) for information about  
**Early Stage Investigator Awards**  
 to the  
**10th World Congress for Microcirculation**



## 2015 BALLOT

<http://microcirc.org/voting.html>

### MEET THE CANDIDATES

#### President-elect:



[Willaim M. Chilian, Ph.D.](#)  
Northeastern Ohio Medical University

[Tara L. Haas, Ph.D.](#)  
York University

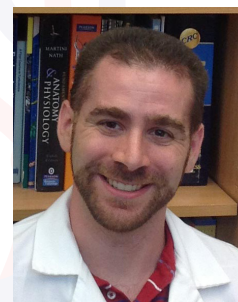


#### Secretary:



[Walter Lee Murfee, Ph.D.](#)  
Tulane University

[David A. Rubenstein, Ph.D.](#)  
Stony Brook University



#### Councilor:



[Andreas M. Beyer, Ph.D.](#)  
Medical College of Wisconsin



[Feilim C. MacGabhann, Ph.D.](#)  
Johns Hopkins University



[Mariappan Muthuchamy, Ph.D.](#)  
Texas A&M HSC



[Karen Y. Stokes, Ph.D.](#)  
Louisiana State University HSC

**Place your vote by February 27**

### CURRENT MCS OFFICERS & EXECUTIVE COUNCIL, 2014-2015

TITLE	NAME	TERM	EMAIL
President	Mary (Molly) D. Frame	2015	<a href="mailto:President@microcirc.org">President@microcirc.org</a>
President-elect	Rolando Rumbaut	2015	<a href="mailto:PresidentElect@microcirc.org">PresidentElect@microcirc.org</a>
Past-President	Jefferson C. Frisbee	2015	<a href="mailto:PastPresident@microcirc.org">PastPresident@microcirc.org</a>
Secretary	Trevor R. Cardinal	2015	<a href="mailto:Secretary@microcirc.org">Secretary@microcirc.org</a>
Treasurer	Shayn Peirce-Cottler	2016	<a href="mailto:Treasurer@microcirc.org">Treasurer@microcirc.org</a>
Councilor	Brant E. Isakson	2015	<a href="mailto:bei6n@virginia.edu">bei6n@virginia.edu</a>
Councilor	Anatoliy A. Gashev	2016	<a href="mailto:gashev@tamu.edu">gashev@tamu.edu</a>
Councilor	Dwayne N. Jackson	2016	<a href="mailto:dwayne.jackson@schulich.uwo.ca">dwayne.jackson@schulich.uwo.ca</a>
Councilor	Jerry Breslin	2017	<a href="mailto:jbreslin@health.usf.edu">jbreslin@health.usf.edu</a>
Councilor	Walter Lee Murfee	2017	<a href="mailto:wmurfee@tulane.edu">wmurfee@tulane.edu</a>
Councilor	Kim Dora	2017	<a href="mailto:kim.dora@pharm.ox.ac.uk">kim.dora@pharm.ox.ac.uk</a>

The Rosters of all Committees can be found on our web site at:  
[http://www.microcirc.org/ABOUT/MCS\\_Committees1a.htm](http://www.microcirc.org/ABOUT/MCS_Committees1a.htm)

# CALENDAR

## UPCOMING MEETINGS

### [International Stroke Conference](#)

Nashville, TN – February 11-13, 2015

### [The Microcirculatory Society Annual Meeting](#)

Boston, MA - March 28-29, 2015 at Experimental Biology

### [Experimental Biology 2015](#)

Boston, MA – March 28-April 1, 2015

### [Angiogenesis World Congress](#)

Boston, MA – April 11-12, 2015

### [Microcirculation in Acute Infections: A Symposium in honor of David H. Walker, MD](#)

Galveston, TX – April 27-29, 2015

### [Arteriosclerosis, Thrombosis and Vascular Biology/Peripheral Vascular Disease 2015](#)

San Francisco, CA – May 7-9, 2015

### [Basic Cardiovascular Sciences Scientific Sessions 2015](#)

New Orleans, LA – July 13-16, 2015

### [The Fourteenth International Conference on Endothelin](#)

Savannah, GA – September 2-5, 2015

### [Physiological Bioenergetics: From Bench to Bedside](#)

Tampa, FL – September 9-12, 2015

### [Hypertension Scientific Sessions 2015](#)

San Francisco, CA – September 9-12, 2015

### [10th World Congress for Microcirculation](#)

Kyoto, Japan – September 25-27, 2015

### [Biomedical Engineering Society Annual Meeting](#)

Tampa, FL – October 7-10, 2015

### [Vascular Biology 2015](#)

Hyannis, MA – October 18-22, 2015

### [AHA Scientific Sessions](#)

Orlando, FL - November 7-11, 2015

Jan/Feb 2015

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MCS Newsletter

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