MCS since 1954

The Microcirculatory Society Newsletter

In this issue . . . .

Greetings!

I am delighted to serve as MCS President during a time of very exciting initiatives in our Society, many of them started under Molly Frame's able watch.

MCS Website: our newly launched website (http://microcirc.org) represents a tremendous improvement for MCS. It is more inviting and informative for visitors and provides numerous helpful features in the members-only section. The new website also facilitates administrative and financial management of our Society. Kudos to our Communications Committee, our Executive Director, Bernadette Englert, and our webmaster, Jerry Breslin!

MCS Logo: our modernized logo enhances our new website. This professionally drawn logo provides a number of improvements, including a better representation of the interests of our members by adding venules and lymphatics in addition to arterioles. MCS Council is planning some exciting ways to display our new logo, stay tuned.

MCS Trainee Committee: this member-driven initiative aims to enhance the involvement of trainees in our Society including a trainee representative on MCS Council (see page 2). I invite MCS trainees to participate in this very exciting new MCS group! Interested members may contact me (president@microcirc.org) and/or the new chair of this committee, Iain Lamb trainee@microcirc.org.

Strategic Planning: MCS Council and various other members have begun to develop a five-year strategic plan for our Society. This process intends to define strategies to achieve key goals for our society including membership numbers, financial stability, participation at annual meeting, and member submissions to the

New Committee

President's message continues

journal. The detailed strategic plan will be presented to the membership at the 10th World Congress for Microcirculation in Kyoto, Japan. MCS Council initiated two strategies in this regard:

1) Members-recruiting-members: MCS council members have pledged to recruit one new (or former) member to our Society this year. I invite you to follow Council's example and help promote our Society among your colleagues!

2) Members submitting manuscripts to *Microcirculation*: The journal *Microcirculation* is the official journal of our Society; high-quality submissions from our members will help strengthen the journal. MCS Council members have also pledged to submit at least one manuscript to the journal within the next year. I invite you to follow their lead!

MCS wants to hear from you! Please send me your suggestions, comments, criticisms or praises at president@microcirc.org.

Sincerely,
Rolando E. Rumbaut
MCS President

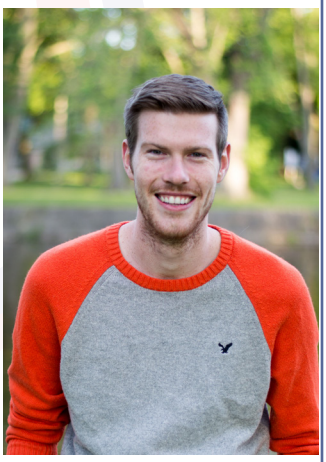
New MCS Trainee Committee

MCS Trainee Committee: this newly established committee aims to provide a forum for communication, networking and collaboration among MCS trainees. The trainee committee will collaborate with the Communications Committee to oversee the social media presence of Society and with the Programming Committee to oversee trainee events at meetings. It will consist of 5 trainees and 2 regular MCS members representing the Communications and Programming Committees. For membership in the committee, trainees will range from undergraduate students to faculty members within 3 years of their first faculty appointment. The trainee committee resulted from a proposal by Iain Lamb, a student member of MCS. Iain is Ph.D. Student at the University of Guelph.

MCS Council is very enthusiastic about this initiative and anticipates stimulating proposals from this group!

Rolando Rumbaut,
MCS President

Meet Iain Lamb



Growing up in Sydenham, Ontario I decided to pursue a degree in Biomedical Sciences at The University of Guelph. It was during this time I was fortunate enough to meet Dr. Coral Murrant during my 4th year research project. It was in her laboratory that I was exposed to the world of skeletal muscle microcirculation. Enamored with the complexity of the microcirculatory sciences I continued my studies under the advisement of Dr. Murrant into my Masters, where I studied the phenomena of redundancy during the active hyperaemic response in skeletal muscle tissue. Currently, I'm in my 1st year of my PhD in the Murrant laboratory and am continuing to characterizing the redundant response and its role in skeletal muscle blood flow during rest and exercise I am excited to be involved in the MCS community and hope to help facilitate the growth of this society.

10TH WORLD CONGRESS FOR MICROCIRCULATION

KYOTO, JAPAN SEPTEMBER 25-27, 2015

http://www.congre.co.jp/wcmic2015/index.html

Symposia

Pericytes and Microcirculation

Endogenous Mediators of Endothelial Barrier stability: Metabolism and Tumor Microcirculation/Angiogenesis

Recent Advances in Angiogenesis & Lymphangiogenesis

Structure and Function of the Endothelial Glycocalyx

New Insights into Immune Cell Regulation in Microcirculation*

Impact of Mitochondrial Function on Vascular Function and Disease

Microvascular Remodeling in the Coronary Circulation

Recent Advances in Cerebral Microcirculation

The role of EDRF (NO and EDHF), H2S and CO in Microcirculation

Young Investigators Symposium

What Can Mass Spectrometric Analysis Offer? -Bridge Between Local Metabolism and Microvascular Functions

Bone Microcirculation: A Potential Therapeutic Target

Metabolics, Flowmotion and Vascular Control

Microvascular Plasticity and Developmental Priming: Impact on Human Health

Inflammation, Oxidative Stress and microRNAs in Bascularization

TRP Channels and Vascular Disease

Myeloid Cell Trafficking in Disease

Microvascular Plasticity in Health and Disease

Mechanobiology: Roles of Cellular and Non-Cellular Elements*

Building Vascular Networks: Determination, Randomness and Functional Control

Platelets: Key Mediators of Inflammation in the Microcirculation

Disease Intervention: Targeting the Microcirculation

Plenary lectures

Targeting Endothelial Metabolism: Principles and Strategies

Peter Carmeliet
Katholieke Universiteit Leuven, Belgium

Catching Pathogens in the Microcirculation

Paul Kubes
University of Calgary, Alberta, Canada

Mapping Oxygen in the Brain of Awake Resting Mice

Serge Charpak
Paris Descartes University, Paris, France

Supported by The Microcirculatory Society, Inc.

Also, don't miss the Satellite Symposium on September 24

The 40th Annual Meeting of Japanese Society for Microcirculation

Theme: Frontline of Research on Organ Microcirculation

http://www.congre.co.jp/wcmic2015/html/satellite/satellite.html#Scientfic

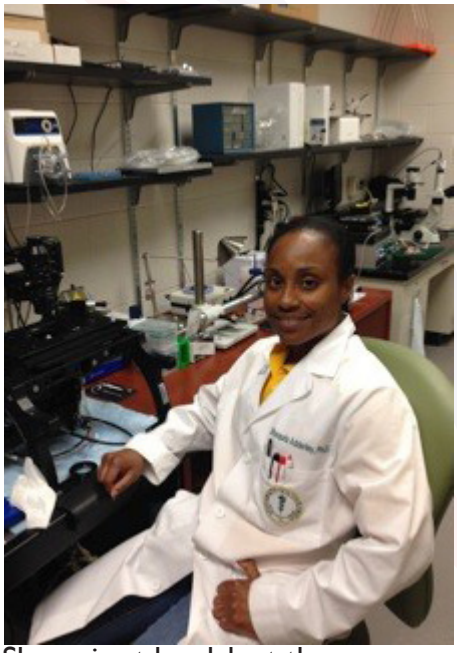
Journal News

Featured Young Investigator's Recent Study in *Microcirculation* *

Involvement of the H1 Histamine Receptor, p38 MAP Kinase, Myosin Light Chains Kinase, and Rho/ROCK in Histamine-Induced Endothelial Barrier Dysfunction

Featuring: ***Shaquria Adderley, Postdoctoral Fellow, University of South Florida***

from Volume 22 Issue 4 - May 2015



Shaquria at her lab at the University of South Florida

The microvascular endothelial barrier is essential for maintaining circulatory homeostasis and organ function. Abnormally increased endothelial permeability can lead to excessive loss of plasma proteins, leading to edema and tissue dysfunction. Moreover, elevated permeability is a hallmark of inflammatory tissue injury and is associated with many pathologies. Currently no specific therapies are available to ameliorate excessive microvascular leakage. Histamine is a principal mediator of inflammation and blood histamine levels increase during insult or injury. While it has been known for nearly a century that histamine can cause tissue edema, understanding of the molecular signals in the endothelium leading to histamine-induced hyperpermeability remains less well understood. In our recent Microcirculation article, we report that endothelial cells (EC) derived from the heart, skin, and umbilical veins have different responsiveness to histamine. We also showed that the H1 histamine receptor consistently mediates histamine-induced endothelial hyperpermeability. In contrast, the involvement of the H2, H3, or H4 depends on the tissue source of the EC. We also observed that the p38 MAPK signaling pathway mediates the response in all three of the cell types tested, whereas PKC and PI3K only appear to be involved in human dermal microvascular endothelial cells. In addition, inhibition of RhoA, ROCK, or MLCK also prevented the histamine-induced decrease in transendothelial electrical resistance (TER) in these cells. These studies are a step toward comprehensive understanding of the complex signaling mechanisms in EC that control the microvascular barrier.

**Note: Featured Articles by Young Investigators 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 MCS Secretary, W. Lee Murfee, at secretary@microcirc.org*

Journal News

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

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) and Deputy Editor in Chief Geraldine F Clough (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) and Deputy Editor in Chief Geraldine F Clough (g.f.clough@soton.ac.uk).

Submission Deadline: 27 July 2015
Publication Date: Early 2016

Microcirculation

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Original Articles

D. Neil Granger Named 2015 Zweifach Awardee

Dr. D. Neil Granger received his B.S. in Microbiology from the University of Southwestern Louisiana, and an M.S. and Ph.D. in Physiology and Biophysics from the University Of Mississippi School Of Medicine. After rising through the academic ranks at the University of South Alabama, he moved to LSU Health Sciences Center in 1986 to assume his current position as Boyd Professor and Head of the Department of Molecular and Cellular Physiology. Over the last four decades, Dr. Granger has built an international reputation as an innovative scientist and scholar whose groundbreaking research has provided valuable insight into not only the normal regulation of blood flow and microvessel permeability, but also inflammatory and prothrombogenic responses of the microcirculation in ischemia/reperfusion, hypercholesterolemia, obesity, stroke and inflammatory bowel disease. Dr. Granger's work in these areas has had a major impact on multiple disciplines, including physiology, pathology and immunology. He is the author of over 600 peer-reviewed articles, over 100 book chapters and 7 books. Dr. Granger has also served as founding Editor-in-Chief of the Microcirculatory Society's journal Microcirculation, as Associate Editor for the American Journal of Physiology (Gastrointestinal and Liver Physiology) and the journals Microcirculation and Pathophysiology, and on the editorial boards of over a dozen other journals. He has also served on more than 30 study sections and review groups for the NIH and other funding agencies, and his own research has been continuously funded by the NIH for over 30 years. Over the course of his career, Dr. Granger has been active in the leadership of numerous scientific societies, including serving on the Council of the Microcirculatory Society and as its President. He also served as the 77th President of the American Physiological Society (APS). Dr. Granger has received numerous prestigious awards for his scientific achievements, including the APS Bowditch Award, the Distinguished Research Award from the GI Section of the APS, the Landis Award from the Microcirculatory Society, the Dolph Adams Award from the Society for Leukocyte Biology, the Career of Distinction Award from the Oxygen Society, the Nishimaru-Tsuchiya International Award from the Japanese Society for Microcirculation, and the Robert Berne Award from the Cardiovascular Section of the APS. A tireless proponent for microvascular research, Dr. Granger's profound impact on the field extends beyond his own work to include the many students and fellows he has trained who have gone on to become scientific leaders in their own right.

Matthew A. Boegehold,
Awards Committee Chair

Last call for Nominations for the Eugene M. Landis Research Award –

Deadline is June 12 - see http://microcirc.info/Landis.html

Early Stage Investigator Travel Award Recipient

Over the past two and half years **Dr. Cam Ha Tran** has proven to be an outstanding postdoctoral fellow in the laboratory of Dr. Grant Gordon of the University of Calgary. Through an incredible effort that only top trainees can accomplish, she successfully pioneered a highly novel and exciting technique: fully awake mouse in vivo two-photon imaging of the cerebral microcirculation, a ground-up endeavor, as there are only a handful of labs using similar methods internationally. The method she arrived at was published as a large and detailed protocol paper so that other labs may benefit from her pursuits.

In addition, she had the idea to implement a tail artery cannula in the mouse to perfuse agents of interest, plus a fluorescent dye, into the systemic circulation so that we might image the arrival of drugs to the brain. This technique works surprisingly well and is part of her published protocol paper.

Cam Ha's first publication as a first author (coauthored by Dr. Gordon) was published in Frontiers Cellular Neuroscience. Her manuscript detailed how one can achieve sub-cellular level imaging of the brain of fully behaving mice, while also minimizing animal stress. Cam Ha demonstrates how behavioral data can be captured simultaneously with two-photon fluorescence signals. She also shows other possible applications of this technique by 1) monitoring dynamic changes to blood flow in response to sensory stimulation and 2) measuring Ca2+ signals from synthetic and genetically encoded Ca2+ indicators in astrocytes. The method she developed will facilitate acute two-photon fluorescence imaging in awake, active mice and help link cellular events within the brain's microcirculation to whole animal behavior.

In another project, she demonstrates the role of astrocytes in brain blood flow control. In vitro data clearly shows that Ca2+ elevations in astrocytes influence blood vessel diameter, yet in vivo data fails to observe such astrocyte Ca2+ signals during functional increases in blood flow. Notably, the in vivo data is collected under anesthesia or sedation, which reduces astrocyte Ca2+ signaling. Cam Ha's data clearly shows robust spontaneous and evoked astrocyte Ca2+ signals in her awake mouse preparation.

She spoke about this at a recent Smooth Muscle Underground (SMUG) meeting in San Diego and subsequently wrote an invited review that was recently published in Microcirculation. In the review, she highlighted the need for awake in vivo experiments to avoid the dramatic side effects of anesthesia, which can obscure the interpretation of data.

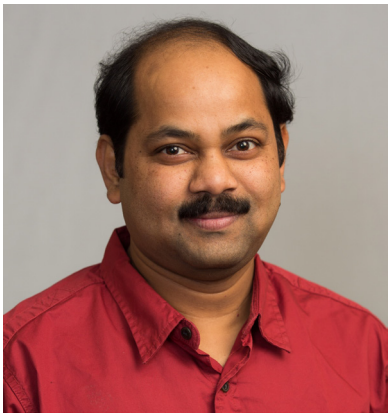
Finally, her data also revealed that astrocyte Ca2+ signals can follow, rather than precede blood flow increases. Cam Ha is planning to follow up on this observation by testing the hypothesis that vasodilation causes astrocyte Ca2+ signals via vessel derived messengers or vessel stretch that is detected by astrocytes. Towards this goal, she is now successfully using 'optogenetics' in the lab, whereby she is controlling brain blood flow using non-native light sensitive proteins that are expressed in the vascular endothelium.

We look forward to her presentation at the 10th World Congress entitled, "**Vascular Effects on Astrocytes Ca2+ Dynamics in Cerebral Cortex**."

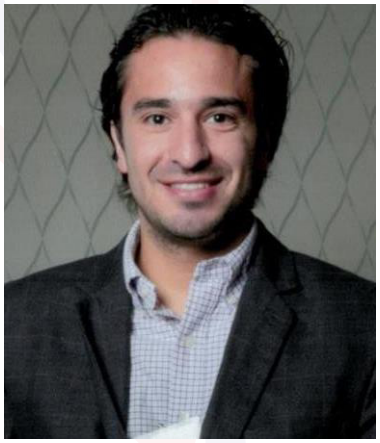
Membership News

Welcome our newest Members

Eric Schmidt, M.D., Ph.D. is a physician-scientist interested in the mechanisms underlying sepsis and septic organ injury. Specifically, his laboratory investigates the role of glycosaminoglycans (such as heparan sulfate, hyaluronic acid, and chondroitin sulfate) in the onset, propagation, and resolution of septic lung, kidney, and brain injury. They pursue these interests by employing multimodal in vitro, ex vivo (e.g. the isolated, perfused mouse lung), in vivo animal (e.g. intravital mouse lung microscopy), and translational human studies. When not in the laboratory at the University of Colorado Denver (Aurora, CO), Dr. Schmidt works as a pulmonary/critical care physician at Denver Health Medical Center (Denver, CO).



Ranjan K. Pradhan, Ph.D. is a Research Investigator in the Department of Molecular and Integrative Physiology at University of Michigan. His current research interests focus on the quantitative aspects of blood flow regulation in coronary microcirculation. He uses combined computational and experimental approaches to investigate how cellular level processes contribute to control of vascular tone, matching blood flow to metabolic demands of tissues, under rest, exercise, and pathological conditions.



Ernesto Lopez, M.D. is a Ph.D. Candidate at the University of Texas Medical Branch who conducts research in a translational intensive care unit investigating large animal models of sepsis and lung dysfunction. His research is focused on the pathophysiology of microvascular hyperpermeability in severe sepsis, particularly the role of vasopressin receptors as targets for pharmacological treatment. He is also interested in lung microvascular changes occurring after cutaneous burn and smoke inhalation injury. His novel therapeutic strategies for both burns and sepsis have been recognized internationally and have contributed to advancements in the field of critical care.

We would also like to welcome:

Postdoctoral Fellow
Jennifer B. Stott,
St. George's University of London

Assistant Professor
Matthew Ison,
University of Virginia

Encourage your colleagues to join!

Just send them to
http://microcirc.org
and push the button!

Join MCS

Society Business

MCS General Business Meeting (Minutes: Agenda + Minutes)
Friday, March 29th, 2015; Location: Boston, MA

1. Call to Order

2. Ascertain that a quorum is present (40 is necessary)
Quorum: Yes

3. Motion to approve minutes of last year's business meeting (Summer 2014 newsletter)
Minutes Approved

4. MCS Executive Director (Dr. Molly Frame)
Introduction of Ms. Bernadette Englert, Executive Director of MCS
Recruiting/retention efforts (Ms. Bernadette Englert)
New face of the newsletter (Ms. Bernadette Englert, Dr. Trevor Cardinal in absentia)
- Featured Articles
- New Member highlights

5. MCS Committee Reports (Chairs or Dr. Frame)
Treasurer's Report (Dr. Shayn Peirce-Cottler)
Long-Range Planning Prioritization (Dr. Rolando Rumbaut)
Communications Committee (Dr. David Rubenstein)
- Recognition of outgoing Web Master Dr. Robert Hester, and incoming Web Master Dr. Jerome Breslin
- The new website – unveiled

Action Item: email link to website
Action Item: email feedback request

Membership Committee
Other Committee Reports will be provided in the Newsletter

6. Journal Editor's Report (Dr. Jefferson Frisbee)
New contract with Wiley publishing is signed.
The good: ~ 7 days from decision to publication on Pubmed. And the editorial board is being turned over.
The bad: The number of manuscript submissions is low.

7. Update on 10th World Congress in Kyoto, 2015 (Drs. Gerry Meininger and Axel Pries)
Abstract deadline: April 15th.

8. Update on Kaley Award Lecture and Featured Topic for 2016 (Dr. Molly Frame)

9. Summary of Proposed Changes to MCS Bylaws (Dr. Molly Frame)
Vote to PASS items 1-9: Yes

1. Deleting Associate Members
2. Simplification of Membership Approval
3. Council voting does not have to be "written"
4. Presidential term increased to 2 years
5. Treasurer terms increased to ~2.25 years to overlap Treasurers through fiscal year-end
6. Adds recruitment of new members to the duties of the Membership Committee
7. Allows LRPC to include members nominated by president-elect
8. Eliminates the Development Committee
9. Eliminates the Publications Committee

DISCUSSION

Dr. Tim Secomb noted that the one-year presidency term is over in a flash and that he is supportive of the change.

Past Presidents were in strong support of 2 year term change.

Vote to DEFER Item 10: Yes

10. Adding Industry-Based to Purpose

DISCUSSION

Dr. Rolando Rumbaut notes that the intent is good, but the terminology is maybe not clear.

10. MCS Awards Recognition (Drs. Molly Frame and Rolando Rumbaut)

Landis Award, Dr. Dai Fukumura
Journal Awards
Post-doctoral Travel Awards
Graduate student Travel Awards

11. Other business

12. Recognition of outgoing officers:

Dr. Trevor Cardinal, Secretary
Dr. Brant Isakson, Councilor
Dr. W. Lee Murfee, Councilor
Dr. Jefferson Frisbee, Past President

13. Welcome to incoming officers

Dr. W. Lee Murfee, Secretary
Dr. Karen Stokes, Councilor
Dr. Mariappan Muthuchamy, Councilor
Dr. William Chilian, President-elect
Dr. Rolando Rumbaut, President

Dr. Frame passed the gavel to Dr. Rumbaut and the meeting adjourned

Current MCS Officers & Executive Council, 2015-2016

Title	Name	Term	Email
President	Rolando Rumbaut	2016	President@microcirc.org
President-elect	William Chilian	2016	PresidentElect@microcirc.org
Past-President	Mary (Molly) D. Frame	2016	PastPresident@microcirc.org
Secretary	W. Lee Murfee	2017	Secretary@microcirc.org
Treasurer	Shayn Peirce-Cottler	2016	Treasurer@microcirc.org
Councilor	Anatoliy A. Gashev	2016	gashev@tamu.edu
Councilor	Dwayne N. Jackson	2016	dwayne.jackson@schulich.uwo.ca
Councilor	Jerry Breslin	2017	jbreslin@health.usf.edu
Councilor	Kim Dora	2017	kim.dora@pharm.ox.ac.uk
Councilor	Mariappan Muthuchamy	2018	marim@tamu.edu
Councilor	Karen Stokes	2018	kstoke@lsuhsc.edu

The Rosters of all Committees can be found on our web site at:
http://www.microcirc.info/Committees.html

2015 Treasurer's Report

Income and Expenses 2014-2015

Total Income: $57,690.80
Total expenses: $101,208.81

INCOME:

Investment income - Vanguard		21,534.87
Interest Income – BMO Harris		119.48
Interest Income – Bank of America Savings		10.45
Membership Dues		
2013 Dues Payment	825.00	
2014 Dues Payment	18,520.00	
Total Dues Payment		19,345.00
Meeting Revenue:		
MCS Event Ticket Sales EB14	2,106.00	
MCS Event Ticket Sales EB15	575.00	
APS Contribution: EB2015	10,000.00	
Kaley Award Donation: EB2014	4,000.00	
Total Meeting Revenue		16,681.00
Total Income		**$57,690.80**

EXPENSES:

EB14 Meeting Expenses:		
Awards	23,000.00	
Other Meeting Expenses	12,776.62	
NIH Small Vessels Meeting Expenses:		
Awards	3000.00	
Other Meeting Expenses	469.71	
MCS/NAVBO Meeting Expenses:		
Awards	2,500.00	
Other Meeting Expenses	21,805.13	
Total Meeting Expenses		63,551.46
Membership Director		686.00
Executive Director		23,333.31
Microcirculation subscriptions		5,845.00
Legal fees		1,589.00
Online Transaction Expenses (for credit payments)		1,035.04
Tax Preparation Fees		1,744.00
Web Site Maintenance		1,900.00
New Web Site Development		1,525.00
Total Expenses		**$101,208.81**
TOTAL INCOME/EXPENSES		**$ 43,518.01**

Calendar

Upcoming Meetings

Basic Cardiovascular Sciences Scientific Sessions 2015
New Orleans, LA – July 13-16, 2015

Vasculata 2015 - Summer Course in Vascular Biology
Charlottesville, VA – August 3-6, 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

The Third Circulation: Lymphatics as Regulators in Health and Disease
Bethesda, MD - September 29-30, 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

19th International Vascular Biology Meeting
Boston, MA - October 30-November 3, 2016