

A Message From Our Chair...



Dear Friends,

The legacy of our Physiology Department continues with 133 years and counting. This continues to be my favorite opening line because it reminds me of the amazing legacy that our department has established in the physiology field. I wish to take this opportunity to highlight some of our milestones in education, research, faculty and trainees. In terms of faculty (page 4), we were very fortunate to recruit Dr. Howard Crawford as Professor of Physiology and Medicine/Gastroenterology. Howard is an internationally renowned expert in the areas of pancreatic cancer and inflammation. Also joining us and the Department of Medicine/Gastroenterology as an Assistant Professor is Dr. Costas Lysoitis. Costas studies metabolic regulation of pancreatic cancer cell growth as a potential handle to devise novel therapeutics. In addition, Dr. Scott Leiser will be joining us as an Assistant Professor of Physiology and Medicine/Gerontology. Scott studies mechanisms of aging in *C. elegans* and mice. Please join me in welcoming them! Also, two postdoctoral fellows, Xiang Xue and Elise Demitrack, have been promoted to junior faculty positions as Research Investigators.

Our PhD, MS, and undergraduate summer programs continue to flourish. Sue Moenter and Dan Michele are gearing up for the recruiting season that will take place during late January and early February of 2016 (page 6). Of note, 7 of our PhD students have defended their PhD theses and will be pursuing postdoctoral fellowships (Jun Young Hong, Katherine Overmyer, Abigail Renoux, Maeran Uhm), working in technology transfer (Gail Gifford & Kristen Ruka) or returning to the clinic to complete an MSTP program (Margaret Allison). Congratulations are also in order to our PhD students who have secured a wide range of fellowships and other recognitions (page 7). The MS program is now in its fifth year and includes 29 students who are looking to become physicians, dentists or scientists. Four MS students from class IV (Jon Dean, Jared Elenbaas, Ryan Johnson and Kevin Kane) were selected for the Altshuler Scholarship (page 10). The undergraduate program continues to flourish, and we recently heard that the NIDDK R25 grant that supports the STEP program is likely to be renewed for 5 years (page 9). Kudos to Santiago Schnell, Jimo Borjigin, Ormond MacDougald and Dan Michele who oversee our robust undergrad programs.

Another cornerstone of our educational and research mis-

sions is postdoctoral training. MIPs Postdoctoral Society (overseen by Elise Demitrack, Nicole Bellefontaine and Mark Jimenez-Canet) has a new dimension that includes Dr. Yatrik Shah who will serve as its faculty advisor (page 8). This newly created department role will provide further mentoring, together with instituting postdoc recognitions and other opportunities such as teaching. We are very proud of three of our postdoctoral trainees who have secured independent positions in academia (Jason Bazil and Seung-Hyun Ro) and industry (Mark Whidden) (page 5).

I also wish to highlight other important events and benchmarks. Our NIH research portfolio rankings are projected to place us 2nd nationally for US physiology departments, that is the highest ranking we have received. While such ranking is nice and we hope to move to the top, our foremost priority is to provide a supportive and nurturing environment to all our students, trainees, faculty and staff. Other highlights featured in the Newsletter are the naming of Malcolm Low as the first David F. Bohr Collegiate Professor of Physiology and Sue Moenter as the first Fred J. Karsch Collegiate Professor of Physiology (page 7). Many of our faculty have also received numerous honors (page 4) including the selection of Santiago Schnell as the 19th President of the Society for Mathematical Biology (page 8). Santiago was also promoted to full professor of Physiology and of Computational Medicine and Bioinformatics, while Ken Inoki was promoted to Associate Professor of Physiology and of Medicine/Nephrology. In terms of events, the sixth annual symposium with our friends at Trinity College was held last month in Dublin (special thanks to Ed Stuenkel for leading this effort).

To our alumni and former co-workers and colleagues, I hope you will stay in touch and visit us or browse our website, medicine.umich.edu/dept/molecular-integrative-physiology. It is an honor and privilege for me to be part of MIP, and on behalf of our entire department I wish to thank everyone who has given so generously to our fund-raising efforts (page 11). Philanthropy provides critical resources to our research and educational efforts, be it making it possible to grant scholarships and travel awards to our students or to allow our faculty to take on risky or out-of-the-box experiments that standard support venues would not consider (see page 12 for gift opportunities). In closing, I am very thankful to Sarah Lawson for her hard and creative work in assembling this Newsletter and to all who have contributed to its sections.

With very best wishes for the holiday season and a healthy, happy and fulfilling New Year,

Bishr Omary

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Bishr Omary (Chair), Malcolm Low and James Woolliscroft (Dean)

Malcolm Low - Recipient of Bohr Collegiate Professorship:

On August 11, 2015 we celebrated the appointment of Malcolm Low, M.D., Ph.D., as the first recipient of the David F. Bohr Collegiate Professorship. Dean Woolliscroft opened the event to a full house in the Khan auditorium, delivering the welcoming address to the many friends, family members, and trainees gathered to mark this very special occasion. Malcolm was joined by his wife, Gaye, their sons, Malcolm's brothers and their spouses, and his Ph.D. mentor, Dr. Seymour Reichlin (Professor Emeritus at Tufts University School of Medicine). It was also extra special that Dr. David Bohr's daughter, Dr. Louise A Bohr, was able to attend the ceremony and make some remarks. Through the generous donations from family, former students and supporters, University of Michigan faculty, and matching funds from Dean Woolliscroft, the David F. Bohr professorship was created to honor the career of a dedicated and visionary UM physician scientist.

Dr. Bohr graduated from U-M medical school in 1933. He interned at Henry Ford Hospital then joined the U.S. Army for three years as a laboratory officer and detachment commander. He then spent two years as a research fellow at the University of California at San Francisco before returning to the UM faculty in 1948. Here, Dr. Bohr embarked on a long and vibrant career in cardiovascular research. He earned international renown for his pioneering work on the role of the vasculature in the development of hypertension. Dr. Bohr was a superb mentor and role model with a wonderful sense of humor. The Bohr professorship honors the life and career of a dedicated and visionary UM physician scientist, whose many contributions to medicine were matched only by his kindness, humility and exemplary spirit.

Malcolm J. Low, is an international leader in the field of molecular neuroendocrinology, and has made essential contributions to our understanding of gene regulation and neuropeptide function in the hypothalamus and pituitary gland. His laboratory was among the very first to adopt genetic engineering in mice to develop animal models of neuroendocrine gene overexpression and dysfunction. He has published more than 150 peer-reviewed articles, numerous review articles and book chapters; and has received many honors including selection for membership in the prestigious American Association of Physicians, and election as Fellow of the American Association for the Advancement of Science.

Gary Hammer, now Professor of Medicine and of Physiology at the University of Medicine, who was Malcolm's first graduate student said of Malcolm: "I owe Malcolm much gratitude for launching the career of a naïve young and sloppy scientist...To this day, when I think of the definition of of mentor I think of Malcolm." In the spirit of discovery and generosity demonstrated by the work of Dr. Bohr we were thrilled that Malcolm J. Low was selected as the first recipient of the Bohr collegiate professorship. Heartfelt congratulations to Malcolm!



Xiao-Wei Chen

Dr. Xiao-Wei Chen received dual degrees in Biochemistry (BS) and Economics (BA) from the Peking University in 2002. He obtained his Ph.D. degree from the Department of Molecular and Integrative Physiology at the University of Michigan in 2008, where he studied insulin signaling and regulation of glucose transport. He subsequently conducted post-doctoral training at the Howard Hughes Medical Institute and the Life Sciences Institute at the University of Michigan, and was subsequently appointed as a research investigator in 2013. Dr. Chen currently heads the Laboratory of Molecular Metabolic Control at the Peking University. As a graduate student, he was a recipient of the Horace Davenport Research Award from the MIP department. His postdoctoral work on cholesterol regulation was cited in the 2013 Nobel lecture. He is also a recipient of elite scholar program "Young 1000 Talents" from the Chinese government. Currently, his lab at Peking University continues to explore the mechanisms of lipid transport and their implications in metabolic diseases such as diabetes and heart disease.

The spinal cord plays a critical role in processing somatosensory information—touch, temperature, pain and itch. University Alumna, Sarah Ross, is interested in characterizing these spinal microcircuits, with the long-term goal of developing better treatments for chronic pain and itch. To study how somatosensory information is integrated, the Ross lab records the activity of the spinal output neurons while providing natural stimulation of the skin and simultaneously modulating the activity of spinal interneuron populations using optogenetics. This approach is allowing them to address such questions as: how is itch distinguished from pain? how does scratching relieve itch? And what mechanisms cause the abnormal amplification of pain?



Sarah Ross

Recently, the Ross lab discovered a particular spinal interneuron population that functions to inhibit itch (Kardon et al., *Neuron*). Interestingly, it turns out that these cells make the kappa opioid dynorphin. This finding was significant because kappa agonists are the only clinically approved drug for the treatment of itch (in Japan, that is). The discovery that the spinal interneurons that inhibit itch release dynorphin suggested that one of the ways that these cells work is by activating kappa opioid signaling in the spinal cord. These findings raise the possibility that kappa agonists inhibit itch just as mu agonists, such as morphine, inhibit pain.

What's the next step? The central question in the field, says Sarah, is to understand the logic of the spinal output neurons. "We're working on this now, and it's going to be really fun to figure out."

Sarah is currently an Assistant Professor in the Department of Neurobiology, Pittsburgh Center for Pain Research at the University of Pittsburgh

FACULTY & HONORS AWARDS

Gregory Cartee:
2015 Editorial Board Member *American Journal of Physiology*
2015 Editorial Board Member *Endocrinology and Metabolism*

2015 Editorial Board Member *Journal of Applied Physiology*

Christin Carter-Su:

2015 Organizer of FASEB Science Research Conference on Growth Hormone/Prolactin Family in Biology & Disease, Steamboat Springs, CO

Howard Crawford:

2015 Editorial Board Member *Gastroenterology*
2015 Scientific and Medical Advisory Board of the Pancreatic Cancer Action Network

Sharlene Day:

2015 Co-chair, American Heart Association, Basic Cell-Proteins and Crystallography Study Section

2015 Editorial Board Member *Journal of Cardiovascular Translational Medicine*

Elise Demitrack (Samuelson Lab):

2015 MICHR PTSP Fellowship

Thomas Gardner:

2014 3rd Annual Joseph Sassani Lecture, Penn State University
2015 Association for Research in Vision and Ophthalmology Fellow
2015 Charles Schepens Lecture, Award of Merit in Retina Research, Retina Society
2015-2018 A. Alfred Taubman Medical Institute Senior Scholar, University of Michigan Medical School

Gary Hammer:

2015 Associate Editor: *Hormones and Cancer*
2015 NCI Board of Scientific Counselors (BSC-CS&E: NIH)
2015 Keynote Speaker - Royal Australian College of Surgeons (Section of Endocrine Surgery)
2015 Keynote Speaker - American Association of Endocrine Surgeons
2015 Keynote Speaker - Endocrine Society Annual Meeting (Translational Workshop)
2015 Organizer - 5th International Adrenal Cancer Symposium

Jose Jalife:

2015 Awarded Doctor Honoris Causa, University of Valencia, Spain

Jun Hee Lee:

2015 Editorial Board Member *Autophagy*

Malcolm Low:

2015 David F. Bohr Collegiate Professor of Physiology

Carey Lumeng:

2015 Editorial Board Member *Diabetes*
2015 Chair of Obesity Week 2015

Costas Lyssiotis:

2015 Breakout Award for Junior Investigators

Christopher Mendias:

2015 Editorial Board Member *Journal of Orthopaedic Research*

Daniel Michele:

2014 EBS Teaching Award in Molecular & Integrative Physiology
2015 League of Educational Excellence, University of Michigan

Suzanne Moenter:

2015 Fred J. Karsch Collegiate Professorship
2015 League of Educational Excellence, University of Michigan

Richard Mortensen:

2015 League of Educational Excellence, University of Michigan

Bishr Omary:

2015 Jacobaeus International Prize
2015 American Gastroenterological Association, Distinguished Mentor Award

Scott Pletcher:

2015 League of Educational Excellence, University of Michigan

Linda Samuelson:

2015-2017 American Gastroenterological Association Section Leadership—Vice Chair of Regulatory Peptides, Cell Signaling and Molecular Biology Section
2015 R. Robert & Sally D. Funderburg Research Award in Gastric Cancer, The American Gastroenterological Association Research Foundation

Santiago Schnell:

2015 - 2017 President of the Society for Mathematical Biology

Susan Shore:

2015 Organizer of the 9th International Tinnitus Research Initiative Meeting, University of Michigan

Edward Stuenkel:

2015 American Association for the Advancement of Science Fellow

John Williams:

2015 League of Educational Excellence, University of Michigan

Jun Wu:

2015 Edward Mallinckrodt, Jr. Foundation Award

Welcome New Faculty



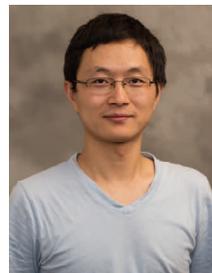
Howard Crawford, PhD
Professor,
Molecular & Integrative
Physiology
and Internal Medicine



Scott Leiser, PhD
Assistant Professor,
Molecular & Integrative
Physiology
and Internal Medicine



Costas Lyssiotis, PhD
Assistant Professor,
Molecular & Integrative
Physiology
and Internal Medicine



Xiang Xue, PhD
Research Investigator,
Molecular & Integrative
Physiology



Elise Demitrack, PhD
Research Investigator,
Molecular & Integrative
Physiology

Congratulations!

Career Moves:

Jason Bazil

Assistant Professor
Department of Physiology
Michigan State University



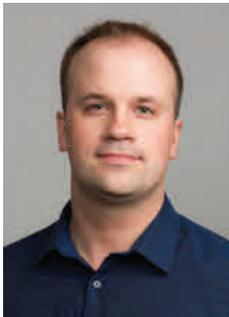
Seung-Hyun Ro

Assistant Professor
Department of Biochemistry
University of Nebraska



Mark Whidden

Research Scientist
Sequenom Laboratories



Promotions:

Ken Inoki

Associate Professor,
Molecular & Integrative Physiology,
Associate Professor,
Internal Medicine,
Nephrology
Associate Research Professor,
Life Sciences Institute

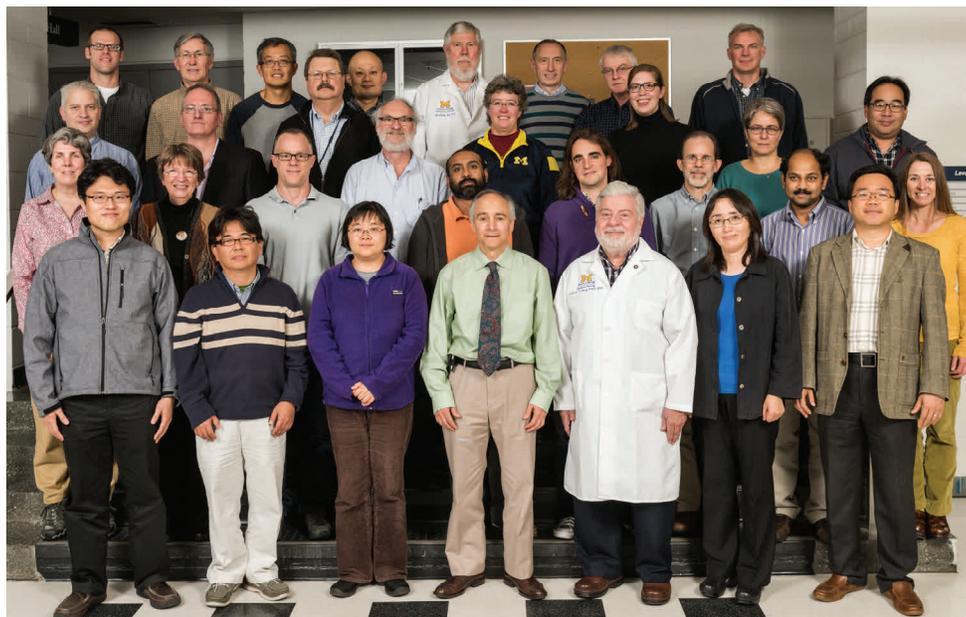


Santiago Schnell

Professor,
Molecular & Integrative Physiology,
Professor,
Computational Medicine and Bioinformatics



2015 Physiology Faculty



First Row: (L to R) Jun Hee Lee, Ken Inoki, Lei Yin, Bishr Omary, Louis D'Alecy, Jimo Borjigin, Pilhwa Lee **Second Row:** Suzanne Moenter, Christin Carter-Su, Richard DeFazio, Yatrik Shah, Costas Lyssiotis, Brian Carlson, Ranjan Pradhan, Sharlene Day **Third Row:** David Pinsky, Howard Crawford, Malcolm Low, Elizabeth Rust, Amy Oakley, Carol Elias, Carey Lumeng **Last Row:** Timothy Houchin, Gregory Cartee, Raymond Kwan, Richard Mortensen, Hiroyuki Mori, John Williams, Anatoli Lopatin, Dan Lawrence, Ormond MacDougald

PhD Program

“Education is the most powerful weapon which you can use to change the world.”

- Nelson Mandela

It has been a busy year for the graduate program. At the start of the term, we welcomed eight PIBS students with a primary interest in MIP along with two transfer students and a new MSTP student. Seven students defended this past year, and class size is holding steady in the mid 30's (not counting the first year students). A new area of activity was to make a series of three videos to help define physiology and provide insight into our departmental environment. You can enjoy (and like!) these on YouTube:

YouTube:

-University of Michigan Physiology: The Science Behind Medicine

-University of Michigan Physiology: Utterly Individual

-University of Michigan Physiology: Mentors for Life



Sue Moenter
Director

The graduate education fund has continued to grow thanks to the generous support of many of you. These funds are being used to help students travel to scientific meetings and also to meetings for professional development for the diverse career choices our students are now pursuing. As our faculty members reside in more and more buildings, we are striving to maintain our camaraderie. We have started a quarterly lecture series “A Night at the Academy” to provide students and faculty an opportunity to take advantage of the institution beyond the Medical Center in an informal social setting. Our first speaker was Anne Curzan, PhD, Professor of English and co-host of NPR’s “That’s what they say”. We are initiating this and other programs to maintain the sense of community that makes graduate education in our department so unique.



Daniel Michele
Associate
Director



Margaret Allison, PhD

Mentor: Martin Meyers MD, PhD

Thesis: “*Translational Profiling Reveals the Transcriptome of Leptin Receptor Neurons and its Regulation by Leptin*”

Current Position: Returned to third year clinical rotation at UM Medical School



Gail Gifford, PhD

Mentor: Linda Samuelson, PhD

Thesis: “*Notch1 and Notch2 Receptors Regulate Human and Mouse Gastric Epithelial Cell Homeostasis*”

Current Position: Technology Transfer, Hutchinson Cancer Institute, Seattle, Washington

Jun Young Hong, PhD

Mentor: Marc Hershenon, MD

Thesis: “*Potential Role of Early-Life Rhinovirus Infection in the Development of Asthma: IL-25, TSLP and Type II Innate Lymphoid Cells*”

Current Position: Postdoctoral Fellow, Yale University

Katherine Overmyer, PhD

Mentor: Charles Burant, MD, PhD

Thesis: “*Metabolomics and Proteomics to Understand Fuel Use in Rat Model of High and Low Exercise Capacity*”

Current Position: Postdoctoral Fellow, University of Wisconsin



Abigail Renoux, PhD

Mentors: Michael Sutton, PhD & Peter Todd, MD, PhD

Thesis: “*Neuronal Dysfunction in Fragile X Spectrum Disorders*”

Current Position: Postdoctoral Fellow, University of Michigan



Maeran Uhm, PhD

Mentor: Alan Saltiel, PhD

Thesis: “*TBK1 and the Regulation of Glucose Uptake in Adipocytes*”

Current Position: In process of accepting a position



Kristen Ruka, PhD

Mentor: Suzanne Moenter, PhD

Thesis: “*Neuropeptide and Gonadal Steroid Action on Arcuate Kisspeptin Neurons: Implications for Central Regulation of Fertility*”

Current Position: Regional Associate at WiSys Technology Foundation, University of Wisconsin

STUDENT & HONORS AWARDS

Caroline Adams (Schnell/Moenter Labs):
2015 NIH F30 NRSA

Tova Berg (Moenter Lab):
2015 Arthur J. Vander Award for
Excellence in Teaching

2015 NIH Loan Repayment Program for Contraception and Infertility
Research

David Bushart (Shakkottai/Murphy Lab):
2015 Rackham Travel Award

Jon Dean (Borjigin Lab):
2015 Rackham Graduate Student Research Grant
2015 Rackham Merit Fellowship

Amelia Glazier (Day Lab):
2015 AHA Predoctoral Fellowship

Jonathan Gumucio (Mendias Lab):
2015 Caroline Tum Suden/Francis A. Hellebrandt Profes-
sional Opportunity Award (American Physiological Society)
2015 Endowment for the Development of Graduate
Education (EDGE) Award (Endowment for the Basic
Sciences, University of Michigan)

Elizabeth Ronan (PIBS 1st Year):
2015 Bernard L. Maas Fellowship

Kristen Ruka (Moenter Lab):
2015 John Williams Service Award

Kristoffer Sugg (Mendias/Brooks Lab):
2015 Best Basic Science Research Presentation at the University of Michi-
gan Plastic Surgery Research Symposium

Surojit Sural (Hsu/Pletcher Lab):
2015 C. elegans Meeting in University of California, Los Angeles—
Honorable mention for poster presentation



PhD Students - First Row : (L to R) Ian Gonzalez, Elizabeth Ronan, Devika Bagchi, Tova Berg, Ally Cara, Margo Emont, Kevin Swift, Wendy Liang, Luhong Wang, Xi Chen, and Allison Ho

Second Row: Natalie Warsinger-Pepe, Jacob Johnson, Joanne Garbincius, Kristen Ruka, Eden Dulka, Surojit Sural and Francisco Alvarado **Third Row:** Thomas Vigil, Andrew Schwartz, Haocheng Lu, Daniel Triner, David Bushart, Jeff Phumsatitpong, and Jon Dean.

Suzanne Moenter - Recipient of Karsch Collegiate Professorship: On November 11, 2015, Dr. Suzanne M. Moenter was installed as the first recipient of the Fred J. Karsch Collegiate Professorship in Physiology. The celebratory ceremony was held at the Kahn auditorium. Welcome and opening remarks were given by Dr. Steve Kunkel, Senior Associate Dean for Research. Sue's colleague and close friend, Nancy L. Wayne, Professor of Physiology and Associate Vice Chancellor for Research at the David Geffen School of Medicine was able to attend, providing us with a closer look at Sue's career journey leading to this celebration and recapping their many world travels together. Both Nancy and Sue are past trainees of Dr. Karsch, which no doubt made it extra special for Fred and his family who were also in attendance.

This new endowment, made possible by a generous lead gift from Fred J. Karsch, Ph.D. and his wife, Nora Karsch – together with gifts from a host of family, friends, colleagues and supporters (including a very generous gift made by Dr. Robert Goodman), and matching funds by the Dean of the medical school, Dr. James Woolliscroft, will serve as a fitting and enduring legacy of this brilliant and dedicated researcher whose contributions to Michigan and to science in the area of reproductive endocrinology, are innumerable. Fred says "My greatest satisfaction has been promoting the development of dozens of students and trainees – witnessing their growth while in the lab, and then following their progression into productive careers of their own....Sue Moenter is the epitome of a scholar, educator and valued colleague – certainly a most worthy recipient of this recognition. To have one of my former students chosen as the inaugural holder of the professorship established in my name is satisfying beyond words. I consider this among the greatest honors of my professional career."

One of the many highlights of the event was a musical tribute to Sue, written by Nora and Fred Karsch and performed by Nora, Fred and Jessica Schwartz, sung to the tune of "You are My Sunshine." It was a delightful rendering of Sue's career and life accomplishments which kept everyone smiling (and Sue squirming a little bit!). Part of the Ode went as follows:



Verse 5 *You are a leader, you are a mentor
An instructor extraordinaire*

*You are a hiker, a chef, a gardener
You've a life with so much to share*

Verse 6 *Now this is, your day of glory*

*You're a very special one
You are our sunshine, our honored sunshine
The Karsch Professor you've become*

Chorus *You are our sunshine,
our honored sunshine
You have stood out in every way
You've met success with flying colors
And you get a medal today*



*Nora Karsch, Fred Karsch &
Suzanne Moenter*

We in physiology are grateful to the team effort for helping make this endowed professorship a reality. How beautiful it is for the PhD mentor to see his student succeed so well, return to the institution where she did her PhD as a leading investigator in her field, receive an endowed chair in the name of her mentor and have the mentor and his wife, who have been like second parents to her, serenade her as she become the first holder of the Karsch professorship. It's a story made for the movies. Our heartfelt congratulations go to the Karsch Family and to Sue Moenter and her family.

Post Docs

We are delighted to report that the MIP postdoctoral society has had another fruitful year. The addition of our new MIP postdoctoral society advisor, Dr. Yatrik Shah, has proven to be a wonderful asset to this organization. Dr. Shah has only recently started in this new position, but has already outlined several upcoming goals for our group, such as plans to bring in outside speakers from non-academic jobs, as well as a potential Physiology course that will allow our postdocs to gain valuable teaching experience that some of us have not had in the past. We are excited to work with Dr. Shah and are confident that he will be a valuable resource for us in the upcoming year.

This year, we have had several meetings that focused on academic skills such as CV and cover letter writing. These sessions were valuable in that we treated them like a mock "study section," bringing drafts of our own CVs and cover letters and passing them around in small groups for peer critique. It is always tough to receive criticism, but these sessions provided really valuable feedback for those of us who are in the midst of writing grants or applying for jobs. We also incorporated CV vs. resume writing in these sessions, for those postdocs who are leaning more towards pursuing a career in industry. We had outstanding participation in these "hands-on" sessions, which alludes to how valuable this group is for our career development.

In August, we were fortunate to have Beth LaPensee, Project Manager at the Research Development Core of MICHHR come and speak to us regarding how to refine our research ideas for successful grant applications. MICHHR is a tremendous resource for teaching career development skills, and Beth was able to impart several tips for successful grant writing that will no doubt benefit those of us who are currently preparing F and K applications. We continued our "career development" theme for our September meeting, where we had Drs. Costas Lyssiotis and Jun-Hee Lee join us for a panel discussion on applying for jobs, giving chalk talks, salary negotiation, hiring and starting up a lab. We are very grateful that these faculty members could join us and answer our questions regarding these topics, as we have several senior postdocs who will be on the job market in the near future. Their involvement also alludes to the wonderful MIP faculty and their continued support for the career development of trainees.

We would also like to take this opportunity to thank Dr. Omary for his continued support of the MIP postdoctoral society. We have seen our meeting attendance increase over this past year, and we all have benefitted greatly from Dr. Omary's encouragement and support for these monthly meetings. We would also like to thank Michelle Boggs and Angie Tucker and the rest of the MIP staff for their organizational help and support. Additionally, we would like to thank our predecessor Sebastian Parlee for his strong leadership of the group last year and his help as we transitioned to our "team" of leaders for 2015. We've had a fantastic year so far and are looking forward to the future of our society, especially with Dr. Shah as our faculty advisor.

POSTDOC & HONORS AWARDS

Aaron Burr (MacDougald Lab):
2015 Position on T32 Grant "Training Program in Organogenesis"

Kavaljit H. Chhabra (Low Lab):
2015 ABRCMS Judges' Travel Award to

evaluate oral and poster presentations by undergraduate students

Callie Corsa (MacDougald Lab):
2015 Position on T32 Training Grant "Multidisciplinary Training Program in Basic Diabetes Research"

Mark Jimenez-Canet (Rui Lab):
2015 Position on T32 Grant "Multidisciplinary Training in Basic Diabetes Research"

Sabastian Parlee (MacDougald Lab):
2015 K.M. Piafsky Trainee Presentation Award, The Canadian Society of Pharmacology and Therapeutics

2015 The Canadian Society of Pharmacology and Therapeutics Travel Bursary

2015 Endocrine Society ENDO2015 Presidential Poster Competition Winner

2015 15th Annual Rachmiel Levine Diabetes and Obesity Symposium Travel Award

Sadeesh Ramakrishnan (Shah Lab):
2015 American Heart Association Postdoctoral Fellowship

*Elise Demitrack
Nicole Bellefontaine
Mark Jimenez-Canet*



**Society for
Mathematical
Biology**

**Santiago Schnell, Professor of
Molecular & Integrative Biology, is
serving as the 19th President of the**

Society for Mathematical Biology. This is an international society that promotes the development and dissemination of research at the interface between the mathematical and biological sciences. It does so through its meetings, awards, and publications. The Society serves a diverse community of researchers and educators in academia, industry, and in government agencies throughout the world. Dr. Schnell is one of two faculty members of our department who have had this honor. Dr. John Jacquez served as the 4th President of the Society between 1985-1987. Dr. Schnell's term started in July 2015 and will end on July 2017.

**2015 Annual Departmental Softball Game
Hail, Hail to the Victors....The Faculty,
a MIRACLE!!**



Summer Undergraduate Research in Physiology

This year we received over 200 applications for our three undergraduate summer research programs: The Summer Undergraduate Research Fellowship program (SURF), the Short Term Educational Program (STEP) and the Summer Undergraduate Research in Physiology (SURP). Our programs engage students in a 12-week summer research experience, with a long-term goal of inspiring them towards a career in biomedical research and in the short term - recruiting them back to our graduate program. The laboratory hands-on research experience is complemented by a weekly noon lecture series with presentations on responsible conduct of research, several aspects of molecular and integrative physiology, how disorders of physiology lead to disease, and career advice. Students concluded their research experience by participating in undergraduate research forums, which were held in August 2015. Many of the students contribute substantially to research papers, and are included as authors.

The SURF is the longest running program for undergraduate education in our department, with students supported in part by the department, from research grants, and philanthropy. This year we supported 13 undergraduate students: seven students from the University of Michigan, two students from Calvin College, and one student for each of the following institutions: John Hopkins University, Hope College, University of Maryland, and University of Washington. The STEP program is funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). It is specifically targeted to encourage students from quantitative backgrounds to apply their training to research relevant to digestive and metabolic diseases. This year the STEP program supported seven undergraduate students representing the following institutions: John

Hopkins University, Dartmouth College, Columbia University, University of Pennsylvania, Georgia Tech University, University of Pittsburgh, Northern Michigan University, and Canisius College. Fortunately the NIH renewal of the STEP program received an outstanding score, and we are optimistic that it will receive funding for another five years. The SURP Program is supported by the National Heart, Lung and Blood Institute (NHLBI). Its goal is to attract students from underrepresented groups to pursue research in heart, lung and blood diseases. The recruitment of the SURP students and selection of the summer seminar speakers were conducted in collaboration with the summer program at the Cardiovascular Center directed by Daniel Michele. We supported 10 students through the SURP program this year.

Our summer programs show our department's commitment to encourage and foster the success of students from all backgrounds to attain advanced degrees, research careers, and positions of leadership in physiology and biomedical sciences. We have continued to increase the proportion of underrepresented undergraduate students participating in the SURF and STEP programs thanks to the generous support of the University of Michigan Rackham Faculty Allies for Diversity in Graduate Education, which provided support for two additional underrepresented students. Feedback on these programs from our undergraduate researchers has been extremely positive, and we are all looking forward to next summer's programs.

Ormond, Santiago and Jimo

medicine.umich.edu/dept/molecular-integrative-physiology/education/undergraduate-opportunities

Master's Program

The Class of 2015 in the Master of Science in Physiology program graduated, with twenty-three coursework track students finishing

in June 2015 and five research track students finishing by August. The fourth annual Graduation dinner was held at Palmer Commons on June 27th to share the gift of good food, good drink, and very short speechifying by the Program Director Beth Rust, Associate Program Director Amy Oakley, and MIP Department Chair Bishr Omary.

The primary objective of the M.S. program is to enhance students' preparedness and credentials to successfully compete for positions in (1) academic, pharmaceutical or other research positions, (2) basic science doctoral programs, (3) medical school or dental school or (4) other health related professional programs. So how are our students doing? Success is defined as a student having matriculated to their desired graduate program (i.e., medical, dental, PA or other program) or having found a job in their career field of choice. Our first class graduated in 2012 and the success rate for the 2012 through 2014 graduates is 75% with a few still applying to medical school, particularly from the 2014 graduates. The Class of 2015 saw 50% of the graduates immediately enter another program while 50% are in the application process now! We are pleased to have alumni attending many excellent schools across the country, but focusing on close

to home, we have an M1 at University of Michigan Medical School, a D2 and two D1's at University of Michigan Dental School and two 2nd year PIBS students and two 1st year PIBS students at the University of Michigan likely to stay in MIP for their PhD research. Feedback from our graduates continues to be very positive regarding the relevance of the M.S. program as preparation for admission to and successful completion of their next programs.

The class of 2016 consists of 29 students, 22 in coursework track and 7 in research track. Research students are in the labs of the following mentors: Dan Beard, Jimo Borjigin (2 students), Carol Elias, Lisa Larkin, Ormond MacDougald and Dan Michele. The curriculum is relatively unchanged, and more details are available on our website. Dr. Tim Houchin is developing an upper level laboratory, Physiol 505, for students who have already taken Physiol 404. Drs. Rust and Oakley determined in Winter 2015 that many topics and lectures in Physiol 600 (Pathophysiology) and Physiol 610 (Translational Physiology) overlapped, so are combining them into one class which will be listed as Physiol 610 (Pathophysiology and Translational Physiology) for the Winter 2016. We have increased our focus on critical analysis of papers and writing skills through Physiol 605 (Professional Development Seminar) and all students were required to take PIBS 503 (Bioethics) this Fall. The class of 2016 is well on its way to great success and we look forward to another outstanding application cycle this Spring for the class of 2017!

MASTER'S & HONORS AWARDS

Altshuler Scholarship Recipients:

Jon Dean
Jared Elenbaas
Ryan Johnson
Kevin Kane

**Thank you to the Altshuler family for making this scholarship possible*



Front Row: Angela Tucker, Erin Spencer, Zaid Mohsen, Kehinde Ogunseye, Hinali Patel, Veronica Lee, Manell Aboutaleb **Second Row:** Sarah Saenz, Alexander Mikhail, Elizabeth Norton, Stephanie Sanchez, Allison Fedewa, Zainab Hammoud **Third Row:** Dr. Amy Oakley, Michael Fayad, Chayson Hurst, Daniel Tanbakuchi, Christopher Schaitkin, Ilinca Caluser **Back Row:** Dr. Timothy Houchin, Andrew McLeod, Kyle Sartelle, Will McClure, Dr. Elizabeth Rust

Not Pictured: Carmen-Agnes Bilbao, Bradley Iott, Brian Johnides, Shaima Khandaker, Samuel Kosinski, Alina Krewing, Alexie Larson, Matthew Shuler and Lance Valls.

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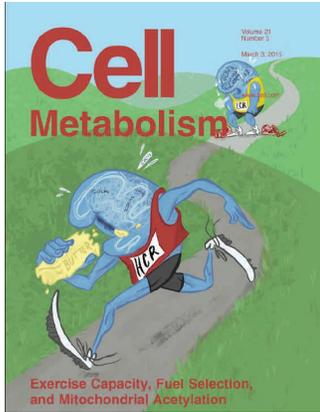
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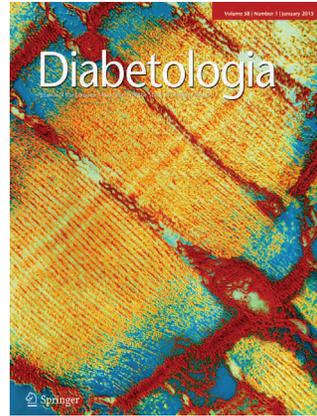
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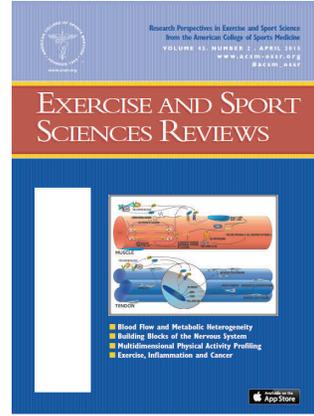
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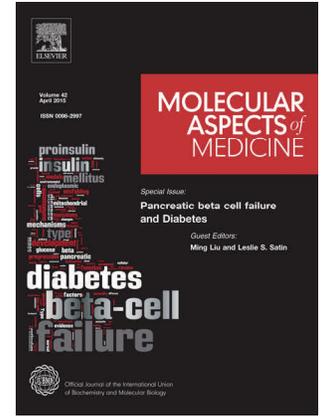
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Gift Opportunities

John and Margaret Faulkner Lectureship & Education Fund

This fund will go towards supplementing the Graduate Education Fund as well as establishing an annual lectureship whereby a prominent invited speaker will be selected by students and faculty in honor of John and Margaret Faulkner. Currently this fund has \$38,000 of our goal of \$100,000. The 2015 speaker is Dr. Tony Hunter from the Salk Institute.

Graduate Education Endowment Fund

The Graduate Education Fund was established in the Fall of 2008 to support PhD education and research. This fund will provide financial support in perpetuity for graduate education in Molecular & Integrative Physiology and will be used to propel the development of future generations of biomedical researchers. Your donations have been instrumental during the past six years to create the endowment. Your donations are matched 1:1 by the Dean of the Medical School up to \$500,000 to allow us to reach our ultimate goal of a \$1,000,000 endowment. The return on this endowment is now being used to help subsidize attendance by our PhD students at scientific meetings. The current balance of \$593,000 includes \$247,000 in matching funds.

Christin Carter-Su Collegiate Professorship

As many of our faculty and alumni know, Christin Carter-Su has been an extraordinary colleague and mentor for decades, and the quality of her research is well-known and highly respected worldwide. We hope to raise \$250,000 to meet an equal match from the Carter and Carter-Su families and the Medical School – once this goal is achieved, Dr. Carter-Su will be the first of our female faculty to have a named Collegiate Professorship in her honor. If you're a colleague, friend or former trainee of Dr. Carter-Su, we hope that you'll join us in supporting this important effort.

Master's In Physiology Education Fund

This new Master's in Physiology Education Fund will provide scholarship support toward tuition for future M.S. students. A donation at any level would be welcomed and greatly appreciated – and if you are interested in establishing a named, endowed scholarship, we would be happy to provide you with information on the Michigan Matching Initiative (MMI). The MMI is designed to establish endowed scholarship funds, and the University will match 25% of qualifying donations for this purpose.

If you would like to make a contribution, you please visit medicine.umich.edu/dept/molecular-integrative-physiology. Click on the Giving link in the menu on the left hand side. From there click on the "Give Online" button to go to the development site and choose one of the above funds to make a gift. If you prefer to write a check, please make it payable to the University of Michigan and indicate the fund you would like to contribute to and address to Anne Many, Dept. of Physiology, 1137 E. Catherine St., 7744 MS II, Ann Arbor, MI 48109-5622. If you have any questions regarding the above funds, please contact the Director of Development, The Endowment for Basic Sciences, Greg Witbeck, at germaine@med.umich.edu or Bishr Omary at mbishr@umich.edu. We thank you for your generous support!