

Volume 2

Date

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 **Washington University in St. Louis**
SCHOOL OF MEDICINE

**Department of Cell Biology & Physiology
Newsletter**

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A Message from the Chair

As the academic year comes to a close and we welcome warmer weather in St. Louis, it is always a good time to reflect on our successes and look forward to the next year. We have now returned to a new normal, post-pandemic world. Our labs are full, but many of our administrative staff are working remotely, which saves them time and money, and reduces our impact on the Earth's climate. This also allowed us to reconfigure the office to add a much-needed conference room. The School of Medicine took this time to recognize faculty members whose superior efforts during the COVID-19 pandemic have had lasting impact. We are proud of our colleague, Dr. Heather True, who won one of these 2023 Dean's Impact Awards for her work implementing the new Scientific Immersion curriculum for our entering DBBS students. This course started in the fall of 2020, when many were unable to travel to campus. The creativity and adaptability that she demonstrated was exemplary as well-deserving of this important award.

During the next academic year, we are looking forward to our two named lectureships. The Erlanger-Gasser Lecture will be presented by Jonathan Weissman this December, and the inaugural Mecham Distinguished Lecture will be given by Richard Hynes next April. We are continuing our fundraising efforts to establish a permanent endowment for the Mecham Lectureship, and welcome all contributions for his friends and colleagues!

Best wishes to all of you for summer and the rest of 2023!



Announcements

- Heather True received the 2023 Dean's Impact Award for her superior efforts in the face of the COVID-19 pandemic.
- Groundbreaking research from the Stewart Lab was recently highlighted in WUSM News.
- Courtney Jungers has been announced as the first winner of the Mercer Student Travel Award.
- Samantha Chin of the Jansen Lab and Geralle Powell of the Djuranovic Lab successfully defended their individual theses in March, completing their PhDs in Cell Biology.
- DeHaven McCrary of the Jansen Lab successfully passed his comprehensive exams in April and will remain with the Jansen Lab as a PhD candidate.
- Megan Goeckel of the Stratman Lab successfully defended her Master's thesis in April and will be attending UNMC to complete her PhD.



Upcoming Events

- The Pagliarini Lab will be participating in the annual United Mitochondrial Disease Foundation Energy for Life walk/run on June 17th in Tower Grove Park.
- The annual BMB vs. CBP Barbecue and Softball Game will be held July 19th in Tower Grove Park.
- The 2nd annual CB&P/MCB joint retreat will be held November 10-11, 2023 at Trout Lodge in Potosi, MO.
- The 2023 Erlanger-Gasser Lecture will be held at WUSM December 4, 2023 and will feature Jonathan Weissman, PhD of MIT as the keynote lecturer.
- The first annual Robert P. Mecham Distinguished Lectureship will be held in April 2024 and will feature Richard Hynes, PhD of MIT as the keynote lecturer.



Geralle Powell with faculty mentor Sergej Djuranovic



WUSM commencement speaker Dr. Anthony Fauci



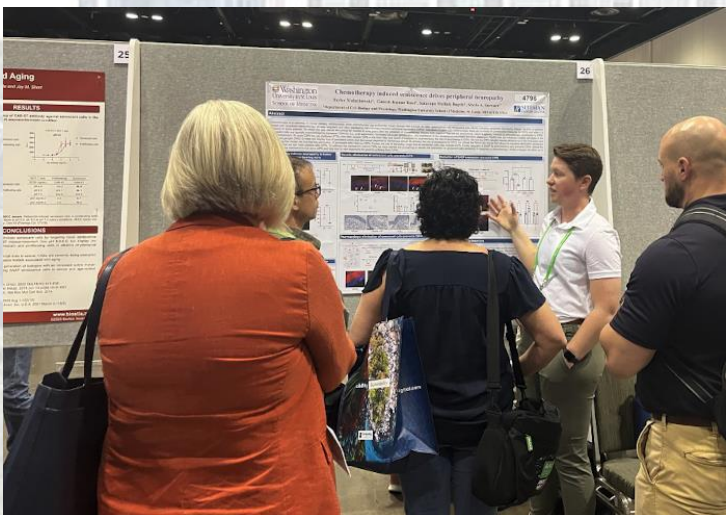
Recent Additions

- Deanna Mendez joined the Djuranovic Lab as a Staff Scientist (February 2023).
- Eric Lu joined the Pagliarini Lab as a Graduate Student (March 2023).
- Jihui Lee joined the Stratman Lab as a Postdoctoral Researcher (March 2023).
- Rosa Scala joined the Nichols Lab as a Postdoctoral Researcher (March 2023).
- Meg Schuetz joined the Kast Lab as a Graduate Student (March 2023).
- Anupama Melam joined the Stewart Lab as a Graduate Student (March 2023).
- Christopher Archer joined the Kast Lab as a Graduate Student (March 2023).
- Elisha Mugo joined the Pavlovic-Djuranovic Lab as a Postdoctoral Researcher (March 2023).
- Xiaoyu Yuan joined the Stewart Lab as a Graduate Student (April 2023).
- Carmela Unnold Cofre joined the Jansen Lab as a Graduate Student (April 2023).
- Alex Larkin joined the Chen Lab as a Research Technician II (May 2023).
- Geralle Powell joined the Pavlovic-Djuranovic Lab as a Postdoctoral Researcher (June 2023).

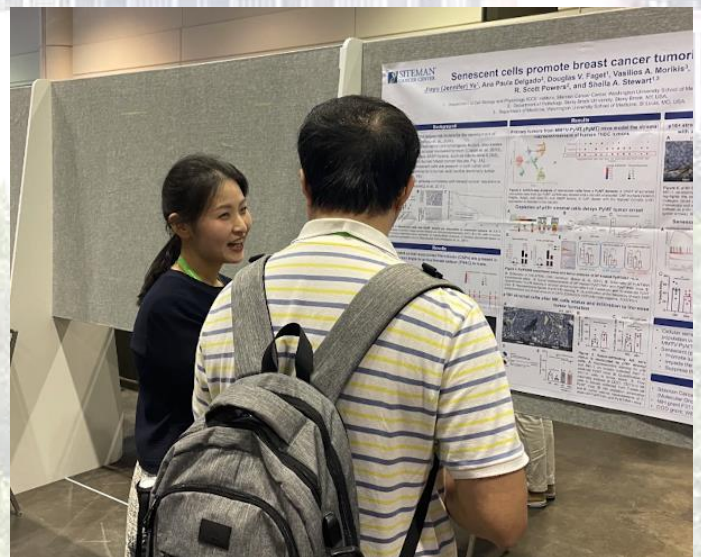


Accomplishments

- Geralle Powell of the Djuranovic Lab successfully defended her dissertation on March 1, 2023 and has completed her PhD in Cell Biology.
- Samantha Chin of the Jansen Lab successfully defended her dissertation on March 2, 2023 and has completed her PhD in Cell Biology.
- Heather True received the 2023 Dean's Impact Award, recognizing her as a faculty member whose superior efforts in the face of the COVID-19 pandemic delivered exceptional results across the missions of the School of Medicine.
- DeHaven McCrary of the Jansen Lab successfully passed his qualifying exams on April 10, 2023 and will remain with the Jansen Lab as a PhD candidate.
- Marcos Matamoros Campos received a prestigious K99 grant for his project "K+ channel structural dynamics landscape: From selectivity to gating."
- Courtney Jungers of the Djuranovic Lab was selected as the first recipient of the Bob Mercer Travel Award.
- Ilah Bok of the Major Lab has been named a Postdoctoral Fellow on the Siteman Cancer Center's Cancer Biology Pathway training program.



Taylor Malachowski presenting at 2023 AACR



Jennifer Ye presenting at 2023 AACR



Publications

- Schmitz JM, [...], and Pagliarini DJ: Aim18p and Aim46p are chalcone isomerase (CHI)-domain-containing mitochondrial hemoproteins in *Saccharomyces cerevisiae* (Journal of Biological Chemistry; February 2023).
- Li S, [...], and You Z: Cytosolic DNA sensing by cGAS/STING promotes TRPV2-mediated Ca²⁺ release to protect stressed replication forks (Molecular Cell; February 2023).
- Faget DV, [...], and Stewart SA: p38MAPKα stromal reprogramming sensitizes metastatic breast cancer to immunotherapy (Cancer Discovery; March 2023).
- Maksaev G, [...], and Nichols CG: Blockade of TRPV channels by intracellular spermine (Journal of General Physiology; March 2023).
- Lee S-J, [...], and Nichols CG: Oxidation driven reversal of PIP2-dependent gating in GIRK2 channels (Function; April 2023).
- Sabio JM, and Crewe C: Isolation of adipose tissue extracellular vesicles (Thermogenic Fat; April 2023).
- Davis MJ, [...], and Nichols CG: Lymphatic contractile dysfunction in mouse models of Cantú Syndrome with KATP channel gain-of-function (Function; April 2023).
- McClenaghan C, [...], and Nichols CG: Skeletal muscle delimited myopathy and verapamil toxicity in SUR2 mutant mouse models of AIMS (EMBO Molecular Medicine; May 2023).
- Malagon G, [...], and Klyachko VA: Two forms of asynchronous release with distinctive spatiotemporal dynamics in central synapses (eLife; May 2023).



Grants & Awards

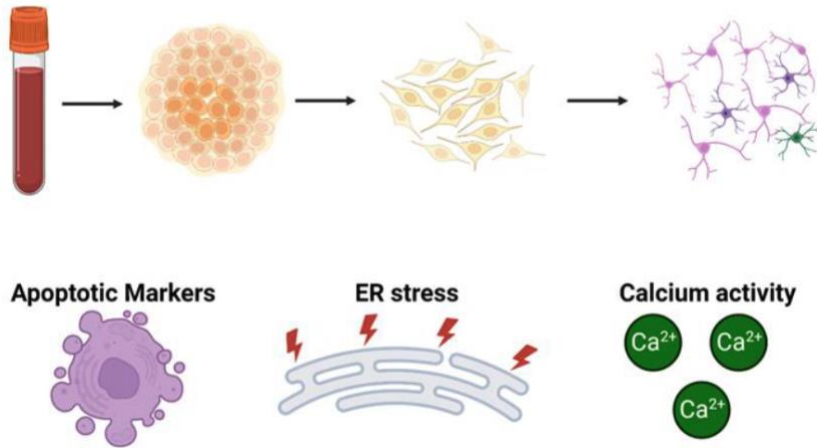
- Amber Stratman: The role of Piezo1 in regulating smooth muscle cell association with arteries in vivo; CIMED; April 2023-March 2024.
- Amber Stratman: LRRC8 complex regulation of endothelium; NIH/NHLBI; April 2023-January 2027.
- Marcos Matamoros Campos: K⁺ channel structural dynamics landscape: From selectivity to gating; NIH/NIGMS; April 2023-March 2025.
- Ben Major, Dave Piston, Colin Nichols: Diabetes Research Center: MS Core; NIH/NIDDK; April 2023-March 2028.
- Colin Nichols: Role of vascular KATP channels in Alzheimer's neurodegeneration and dementia; NIH/NHLBI; May 2023-December 2023.
- Clair Crewe: A synthetic ligand/receptor strategy for in vivo adipocyte extracellular vesicle depletion in cardiovascular disease; AHA; July 2023-June 2025.
- Dario Maschi: Neddylation-Dependent Modulation of Dopamine and Glutamate Co-Release: Implications for Neurotransmission and Psychiatric Disorders; McDonnell Center for Cellular and Molecular Neurobiology; July 2023-June 2024.



Postbaccalaureate Symposium

On May 30th, the departments of Developmental Biology, Cell Biology, and Regenerative Medicine proudly hosted the annual Research Symposium of the Inaugural Class (matriculated 2021) of the Postbaccalaureate Program. Seven recent graduates of the program presented the culmination of their hard work in labs throughout the School of Medicine. Among the presenters were Mason Schmidt of the Millman Lab who will be joining the MD/PhD program at Duke University, Brianna Carman of the Urano Lab who will be joining the MCB graduate program at Wash U as an Olin Scholar, and Julianna Determan of the Kroll Lab who will be joining the Developmental, Regenerative, and Stem Cell Biology graduate program at Wash U. We are so proud of the 2023 class, and we are looking forward to welcoming the 2024 cohort!

Characterizing AD *WFS1* pathogenic variants



Characterizing calcium mishandling in autosomal dominant WFS1 pathogenic variants (Brianna Carman)



Postdoc Highlight



Among Cell Biology's recent accomplishments is the award of a prestigious NIH K99 grant to postdoctoral researcher, Marcos Matamoros Campos of the Nichols Lab. Marcos will use the funds to study the motion of potassium channels, membrane proteins that allow rapid and exquisite selective flow of potassium ions across the cell membrane. This movement is crucial to generating the chemical and electrical activities in living cells, and their dysfunction can lead to many human diseases. The son of a high school biology teacher, Marcos' love for science began early in life. "I began to understand how complicated and fascinating life is, that how every life form develops different and very complex strategies (from nanometer to meter scale) to adapt and ultimately to survive." Marcos completed his PhD degree at Complutense University

in his native Spain and joined the Nichols Lab in 2018. Marcos was drawn to the Nichols Lab because it provided the opportunity to combine the studies of ion channel physiology and biophysics to understand the relationship between the structure and function of these proteins. Marcos is excited for the professional opportunities that will be available to him thanks to CB&P and the NIH K99 grant. While he didn't come to CB&P at Wash U expecting any life changing experiences, Marcos has gained immense professional experience, got married (he met his wife at a department happy hour!), and is expecting his first child. Marcos is so grateful to his friends and colleagues in the department, and his wife and family for their continued support on his professional journey. We can't wait to see what comes next for Marcos!



Faculty Highlight



Please meet CB&P's newest faculty member: Chun-Kan Chen! Chun-Kan joined CB&P earlier this year, establishing the Chen Lab which focuses on RNA biology and the regulatory and functional roles of RNAs in cell physiology and their associations with diseases when dysregulated. Chun-Kan's love of RNA biology stemmed from his early interest in technology and engineering. Originally interested in pursuing a career in software engineering, Chun-Kan's plans changed after learning about the Human Genome Project. "Fascinated the the idea that a mere 20,000 genes can coordinate ad control the countless cells in our complex bodies, I decided to unravel the mystery of our genetic blueprint by enrolling in the Life Science Department at National Taiwan University." While at NTU, Chun-Kan combined his childhood passion for programming

with his newfound love of cell biology, linking cellular dysfunction to "misprogrammed code" in the cell. Since joining CB&P at Wash U, Chun-Kan has focused on a unique class of RNA – circular RNA or CircRNA. Unlike commonly known linear RNAs (e.g., mRNAs), circRNAs are generated by covalently joining the head and tail, forming closed-loop RNA molecules that can serve as templates for protein production. The regulatory and functional roles of circRNA remain a mystery that the Chen Lab hopes to solve, potentially shedding light on diseases associated with circRNA dysregulation. Chun-Kan was drawn to CB&P at Wash U thanks to the diversity and innovation in the research topics pursued by the faculty members, and each lab's warm and supportive atmosphere. He feels that both junior and senior faculty members are incredibly helpful and contribute to an open, collegial, and collaborative work environment. And as a Bay Area transplant, Chun-Kan has enjoyed the more affordable cost of living and the abundant fun activities available to his young family. Chun-Kan is excited to continue on this CB&P journey and welcomes students and postdocs interested in technology development, RNA biology, proteomics, single-cell multi-omics and computational biology to him on the Chen Lab's exhilarating journey!



Department happy hour



Make an Impact

For over a century, the Department of Cell Biology & Physiology has led basic science research that has been the foundation of one the premier medical schools in the country. In these times when federal funding for discovery research is being questioned and cut, it is critical to have donors like you to help us sustain our research and education ventures. These activities are not only a part of our mission as an academic medical center but are essential for the translation of science into improved patient care. This year, we are especially welcoming funds to endow the new Robert P. Mecham Distinguished Lectureship.

Please consider giving today

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