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MISSOURI PHYSIOLOGICAL SOCIETY
An independent chapter of APS

Quarterly mophys newsletter

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New faces of mophys



President-elect 2024

My name is Karyn Turla, and I am a teaching professor in the School of Science and Engineering at the University of Missouri-Kansas City. I am a physiologist. I work to perfect the teaching strategies that I use to teach physiology to both professional and undergraduate students. I have a true passion for the scholarship of teaching.

I am also the program coordinator for our MS and MA programs in Biology. I am so happy and honored to be serving and working with the Missouri Physiological Society, as I understand how important it is to provide opportunities and a safe place for collaboration between faculty members from other institutions and to provide opportunities and a safe place for our undergraduate, graduate, and professional students to present and talk about their research work.



Early Scientist Representative

Hello! My name is Yoko and I am a Postdoctoral Research Fellow at Dr. Carie Boychuk Lab. I am based at Dalton Cardiovascular Research Center at University of Missouri-Columbia. My research focuses on understanding the impact of high fat diet on cardiac vagal motor neurons plasticity. I am really excited to be part of mophys and looking forward to work with early scientists and members of the society.

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Message from the mophys president



Thank you to everyone who contributed to making our 2023 annual meeting, and our entire year for mophys, so successful. I would like to take this opportunity to thank our outgoing officers for their leadership and vast contributions to our organization. Darla Tharp did an amazing job as President last year and taught me a lot about effective leadership of this organization. I know Darla would say the same thing about David Kline, who now rotates off as “Past-President”. Lastly, thanks to Haley

Anderson who has served as the “Junior Scientist” on the executive committee for the past several years. And congratulations and welcome to new President-Elect: Karyn Turla, and new Junior Scientist: Yoko Wang.

The 2023 annual meeting was a tremendous celebration of the research and teaching activities that we perform across our state. Additionally, 2023 was a banner year for mophys in several ways. We grew our membership, both in terms of total numbers, as well as expanding the number of institutions that we derive our membership from. Lastly, we also did a phenomenal job fundraising to support our annual meeting, which of course is our largest budget expenditure. I look forward to working with all of our officers, committees, and membership to help continue the growth of mophys.

Lastly, please save the date for our 2024 meeting to be held Saturday September 14, at UMKC! More information will be provided later and we look forward to celebrating physiology in Missouri with you all again this fall!

A handwritten signature in dark ink, appearing to read "Kyle McCommis". The signature is fluid and cursive.

Kyle McCommis - mophys president

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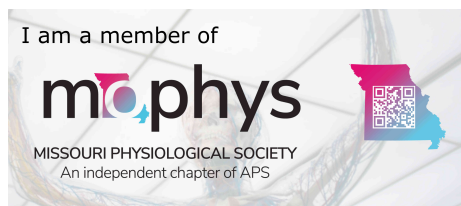
Upcoming APS summit 2024

MO Physiologists affiliated with APS are gearing up for a strong presence at the upcoming annual APS summit in Long Beach, CA (April 4-7, 2024). Mark your calendars for several key dates associated with this event: firstly, the [regular registration deadline for APS is on March 11th](#). After this date, costs for late registration will go up.



APRIL 4–7, 2024
LONG BEACH

Additionally, those considering last-minute contributions should note the [late-breaking abstract submission deadline on January 31st](#). It's highly recommended to arrange housing accommodations by January to ensure availability during the summit. Stay tuned as a comprehensive list of Missouri-based contributors set to participate in the APS summit will soon be uploaded. For detailed information on these deadlines and [summit-related queries](#), please refer to the provided hyperlinks or relevant resources to stay updated.



If you are presenting at the APS summit, consider printing out the [mophys logo](#), attach it to your poster, and show your affiliation with Missouri physiologists.

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News from MO schools



Gastrointestinal system for OMS I and Dermatology and Neuroscience for OMS II. First year medical students completed their foundational semester (Semester 1) in December 2023 and began their system-based medical education on January 8th 2024. Not even the 9 inches of snow stopped students to have a great start into the semester. They begin with the gastrointestinal system followed by the cardiorenal system. Second year medical students began Semester 4, starting with Dermatology and Neuroscience.

Research symposium at ATSU. The 15th Annual Interdisciplinary Biomedical Research Symposium (IBRS) was a great success. This year's theme was "Reignite the Spark". At the heart of IBRS lies the commitment to nurturing the next generation of healthcare professionals and researchers by empowering students to develop their research presentation skills. Six oral presentations and 65 scientific posters were presented by ATSU graduate students, faculty, and staff, Still OPTI resident physicians, undergraduate students from Truman State University, and other biomedical researchers and students. Congratulation to Jonah Jerabek, Samantha DeLuca, Megan Rinkus, and Nivedita Biju (ATSU medical students) for the best oral presentation with the title "Improving Rural Access to Health with Community Health Needs Assessments". The keynote speaker Dennis Black, MD, James Dustin Buckman professor of pediatrics and professor of physiology at the University of Tennessee Health Science Center (UTHSC) in Memphis, gave a motivating presentation about how physicians can stay active in research. Not an easy task to balance clinicals and research, but important to advance medical science. After the conference, Dr. Black shared some Memphis rock 'n roll music from his vinyl-only record company (Black and Wyatt Records). Overall, it was a great day!



The undergraduate degree track in A&P has grown dramatically with new faculty on the way. The Biomedical Sciences Department reorganized the curriculum in 2021 to include an option in Anatomy and Physiology. The interest has been exciting and students have enrolled quickly. There are now 90 students in the program with continued growth expected. The core of the program is a one semester cadaver anatomy course and a two semester physiology sequence followed by elective courses in those areas. The department is in the process of hiring a new Human Physiologist ([link to job posting](#)) and a Clinical Anatomist to start this fall.

MISSOURI S&T

Missouri S&T was recently approved for three new academic programs that will support its continued growth in education and research related to physiology and related fields. Approved was a [new bachelor's degree in biomedical engineering](#), a [PhD program in biological sciences](#), and a PhD program in bioengineering. The PhD in biological sciences will include three tracks: biomedicine, bioinnovation, and environmental biology. The PhD in bioengineering will include faculty in 13 different departments. All three programs are set to start in Fall of 2024.



The Biomedical Sciences and Exercise Physiology majors, both focusing on Physiology, are growing!

An update on repeated exam attempts in Medical Physiology: it was a success! Students who did not earn a passing grade could repeat an exam attempt, which was an exam with similar content, but with new questions. In order to repeat the attempt, students had completed the homework quiz, attended all class periods, and filled out review sheets/notes prior to the exam. The trend was for students to re-take one exam, and then proceeded to perform well on later exams, no longer needing the second attempt option.

The DeRuisseau Labs have a new paper published in Function: [Breathing and Oxygen Carrying Capacity in Ts65Dn and Down Syndrome - PMC \(nih.gov\)](#).



Inaugural Bio-Chem Symposium. On December 9th, faculty, staff, and students from the Department of Biochemistry & Molecular Biology (Medical School campus), and the Departments of Biology, Chemistry, and Biomedical Engineering (Main campus) held an inaugural "Bio-Chem Symposium" to discuss and celebrate our respective research and better highlight opportunities for collaboration and usage of our outstanding resources and facilities. Talks were given by one faculty member from each of the four departments, as well as student presentations and a Keynote seminar by Dr. Krzysztof Palczewski from

UC-Irvine describing the promise for gene editing in the eye to cure vision disorders.



Informing the public about the risks of cannabis. The marijuana and cannabis industry is booming. In fact, industry research group New Frontier Data projects that annual sales will exceed \$72 billion by 2030. As the culture around cannabis expands, one University of Missouri researcher is working to ensure recreational users, or non-medicinal users, are aware of the possible risks of use. Despite being legal in many states, cannabis is still classified as an illegal substance by the federal government. This means regulations for warning consumers are left to each state to decide. Additionally, due to a lack of significant research on the impacts of the substance on the body, public polling has shown that people in the US often overestimate the drug’s therapeutic effects and underestimate its negative effects.

Full story: <https://showme.missouri.edu/2023/informing-the-public-about-the-risks-of-cannabis/>



UNIVERSITY OF MISSOURI-KANSAS CITY

In its third year, the UMKC Center for Advancing Faculty Excellence (CAFE)’s pillar leads and faculty fellows are developing and offering a variety of programs and resources to support faculty. While some programs will be single-session workshops, others will be semester- or year-long professional learning. One such program is a formative peer review process that is used by our faculty to improve student teaching. Now in its second year, faculty are using it to improve student learning and engagement in the classroom and to foster collaboration between faculty from different disciplines.

mophys will promote your local meetings, achievements, and other news to a chapter-wide audience. Just send us some basic information and we will display it on the mophys website and include it in the mophys newsletters. This is a great way to draw more attention to your school and your science!

All it takes is an email to: contact@mophys.org

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A message from the mophys committees

Communications committee:

The communication committee likes to welcome Jose Viteri as the newest member. Joe will help with our quarterly newsletters and the news updates on our website.

Involvement in one of our mophys committees is a great way for professional activity and help further physiology in Missouri! If you are interested in serving on this committee, just send an email to contact@mophys.org.

Follow us on Twitter [@Mo_Phys](#) and on Instagram [@missouriphysiologicalsociety!](#)

Annual meeting committee:

Thanks to everyone who took part in our 2023 mophys meeting in St. Louis. It was a huge success and a ton of fun! This year, our new mophys President, Kyle McCommis, will take over as Annual Meeting Committee Chair and I'm confident will do a wonderful job leading the organization of the 2024 mophys meeting in Kansas City, MO in the Fall.

Membership committee:

Currently we have a total of 148 active members. Please keep recruiting via word of mouth! Help spread the news of mophys to

your friends and colleagues and let them know there are several ways to get involved, including volunteer and conference opportunities.

Membership options: [click here](#)
email: membership@mophys.org

Nominations committee:

After our meeting last fall, the ambassadors/nominations committee gathered nominations to fill our President-Elect and Junior Scientist positions within the executive committee. Congratulations to Karyn Turla, of UM-Kansas City, on election to the position of President-Elect. And congratulations to Woko Wang, of UM-Columbia, on election to the Junior Scientist position! Lastly, as of the new year, Karyn Turla will now chair the ambassadors/nominations committee, and surely help grow and support the ambassadors program which has been noted as a strength of our chapter.

Please contact nominations@mophys.org for nominations.

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mophys spotlight



Dr. Scott Zimmerman is an associate professor at Missouri State University in Springfield, MO. He received his Ph.D. in muscle biology from the University of Wyoming in 1997. Currently, Dr. Zimmerman serves as a faculty member in the department of Biomedical Sciences, where he teaches numerous classes regarding different areas of physiology.

At the mophys Annual Meeting in September of 2023, Dr. Zimmerman gave a talk about the different ways we can help to support retention of physiological

principles and the methods he uses with his students to promote their learning at the collegiate level. Dr. Zimmerman utilizes a "rules of physiology" approach in his teaching, where he uses core tenets of physiology to tie seemingly unrelated topics together.

"Rule #1 in physiology is, when a protein binds a ligand the protein changes shape. We can then apply this rule to a host of physiological phenomena, including skeletal muscle contraction, transporters, etc. I have several rules and am always thinking about trying to identify more". -Zimmerman

More information and additional 'Rules of Physiology' can be found [here](#).

Dr. Zimmerman's most recent publications can be found in *Frontiers in Endocrinology and Brain Science*. His current research interests involve the role of exercise in slowing Alzheimer's progression and how exercise can be used to prevent neurodegeneration.

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Special collection of AJP-Cell



American Journal of Physiology - Cell recently announced that its special collection for 2024 will include topics like "Cellular Signaling in Diseases of the Extracellular Matrix", "Cellular and Molecular Mechanisms in Cancer Drug Resistance", "Decoding Fibrosis", and "Mechanisms Underlying Diversity in Cancer Cachexia". If you are looking for a place to publish your own cell physiology work, you will be excited to hear that their review process has an average 12-day duration for the first decision, a 3-day period until ahead-of-print publication, and a 1.7-mo time frame to reach final publication. To learn more about AJP-Cell and expedited review, you can read this [editorial](#).

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Publications from mophys members

Here are the recent publications from our mophys members:

- **Colijn S, Nambara M, Malin G, Sacchetti EA, Stratman AN.** Identification of distinct vascular mural cell populations during zebrafish embryonic development.
- **Badran M, Puech C, Khalyfa A, Cortese R, Cataldo K, Qiao Z, Gozal D.** Senolytic-facilitated Reversal of End-Organ Dysfunction in a Murine Model of Obstructive Sleep Apnea.
- **Zawieja SD, Pea GA, Broyhill SE, Patro A, Bromert KH, Li M, Norton CE, Castorena-Gonzalez JA, Hancock EJ, Bertram CD, Davis MJ.** IP3R1 underlies diastolic ANO1 activation and pressure-dependent chronotropy in lymphatic collecting vessels. *J Gen Physiol* 155: e202313358, 2023. doi: [10.1085/jgp.202313358](https://doi.org/10.1085/jgp.202313358).
- **Hancock EJ, Zawieja SD, Macaskill C, Davis MJ, Bertram CD.** A dual-clock-driven model of lymphatic muscle cell pacemaking to emulate knock-out of Ano1 or IP3R. *J Gen Physiol* 155: e202313355, 2023. doi: [10.1085/jgp.202313355](https://doi.org/10.1085/jgp.202313355).
- **Lever TE, Kloepper A, Welby L, Haney M, Fudge S, Seiller C, Kington S, Ballenger B, Nichols NL.** Minimally Invasive Murine Laryngoscopy for Close-Up Imaging of Laryngeal Motion during Breathing and Swallowing. *J Vis Exp* , 2023. doi: [10.3791/66089](https://doi.org/10.3791/66089).
- **Ramirez-Navarro A, Lima-Silveira L, Glazebrook PA, Dantzler HA, Kline DD, Kunze DL.** Kv2 channels contribute to neuronal activity within the vagal afferent-nTS reflex arc. *Am J Physiol Cell Physiol* 2024 Jan 1;326(1):C74-C88. doi: [10.1152/ajpcell.00366.2023](https://doi.org/10.1152/ajpcell.00366.2023).
- **Burriss TP, de Vera IMS, Cote I, Flaveny CA, Wanninayake US, Chatterjee A, Walker JK, Steinauer N, Zhang J, Coons LA, Korach KS, Cain DW, Hollenberg AN, Webb P, Forrest D, Jetten AM, Edwards DP, Grimm SL, Hartig S, Lange CA, Richer JK, Sartorius CA, Tetel M, Billon C, Elgendy B, Hegazy L, Griffett K, Peinetti N, Burnstein KL, Hughes TS, Sitaula S, Stayrook KR, Culver A, Murray MH, Finck BN,**

Cidlowski JA. International Union of Basic and Clinical Pharmacology CXIII: Nuclear Receptor Superfamily-Update 2023. *Pharmacol Rev* 75: 1233–1318, 2023. doi: [10.1124/pharmrev.121.000436](https://doi.org/10.1124/pharmrev.121.000436).

- **Ferreira-Santos L, Ramirez-Perez FI, Foote CA, Augenreich MA, McMillan NJ, Williams MB, Gonzalez-Vallejo JD, Power G, Wheeler AA, Manrique-Acevedo C, Martinez-Lemus LA, Padilla J.** Neuraminidase-induced externalization of phosphatidylserine activates ADAM17 and impairs insulin signaling in endothelial cells. *Am J Physiol Heart Circ Physiol* 326: H270–H277, 2024. doi: [10.1152/ajpheart.00638.2023](https://doi.org/10.1152/ajpheart.00638.2023).
- **Mascone SE, Jacob DW, Eagan LE, Harper JL, Limberg JK, Ranadive SM.** Naturally menstruating women exhibit lower cardiovagal baroreflex sensitivity than oral contraceptive users during the lower hormone phase. *Experimental Physiology* 108: 1481–1489, 2023. doi: [10.1113/EP091394](https://doi.org/10.1113/EP091394).
- **Samson W “Rick,” Silverthorn D, Musch T.** Reflecting Back, Looking Ahead. *Physiology* 39: 2–3, 2024. doi: [10.1152/physiol.00026.2023](https://doi.org/10.1152/physiol.00026.2023).

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Open positions in Missouri

Missouri State University

- Human Physiologist ([link to job posting](#)) and a Clinical Anatomist with anticipated start in fall 2024.

Saint Louis University

- Chair of Molecular Microbiology & Immunology (MMI) department ([link](#))
- Tenure Track faculty position in Pharmacology & Physiology focused on pain research ([link](#))
- Tenure Track faculty position in Pharmacology & Physiology focused on Endocrinology/metabolism ([link](#))
- Tenure Track faculty position in Pharmacology & Physiology & the Center for Neuroscience ([link](#))

Please send us information to contact@mophys.org if you wish to announce open positions at your institution to a Missouri-wide audience.

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Upcoming Meetings at a Glance:

- **Mar. 5, 2024** Cardiovascular Day ([Columbia, MO](#))
- **Apr. 4-7, 2024** APS Summit ([Long Beach, CA](#))

[Click here](#) for full details.

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President: Kyle McCommis, Ph.D.
President-elect: Karyn Turla, Ph.D.

Secretary: Tim D. Ostrowski, Ph.D.

Treasurer: Jeffrey R. Henegar, Ph.D.

Early Sci. Rep.: Yoko Wang, Ph.D.

Past president: Darla L. Tharp, Ph.D.

Visit our website to learn more about how you can become involved with mophys; and perhaps apply for one of our many open positions.

You can do MO with mophys!

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