

The PMI Times

Department of Pathology, Microbiology & Immunology
University of South Carolina ~ School of Medicine

The Communication Source for PMI Faculty, Staff & Students

Department Chair: Dr. Mitzi Nagarkatti, PhD

Editors: Mitzi Nagarkatti, PhD, Angela Murphy, PhD & Nicki Holt



September - December 2023

P **Honors & Awards**

M Christian Unger (Enos lab) successfully defended his dissertation titled, "*Impact of Steroid Receptor and Hormone Manipulation in Skeletal Muscle: Implications for Glucose Metabolism and Insulin Sensitivity in Male Mice*" October 25, 2023. He has joined Angela Murphy's lab as a Postdoctoral Fellow.

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Dr. Carole Oskeritzian was invited to deliver the Division of Allergy, Immunology & Rheumatology Virtual Grand Rounds, the University of Wisconsin-Madison, entitled: "Beyond skin- (and lung-) deep: unraveling novel pathogenic mechanisms of allergic responses", on December 13, 2023.

Dr. Swapan Ray's undergraduate research student Ahalya Muraleedharan, currently an Honor's College Junior, received the USC Magellan Scholar Award on the project "Bioflavonoids for inhibition of neuroinflammation and neurodegeneration in cell culture model of Alzheimer's disease".

News & Updates

Dr. Mitzi Nagarkatti and Dr. Prakash Nagarkatti were invited to interview by the Conversation titled, "CDC greenlights two updated COVID-19 vaccines, but how will they fare against the latest variants? 5 questions answered", September 12, 2023. <https://theconversation.com/cdc-greenlights-two-updated-covid-19-vaccines-but-how-will-they-fare-against-the-latest-variants-5-questions-answered-213341>

Dr. Prakash Nagarkatti chaired the Inflammation and Infectious Disease session at 2023 Southeast IDeA Meeting, SEIDeA23, Columbia, SC, September 15-17, 2023.

Dr. Prakash Nagarkatti hosted the EPSCoR/IDeA Coalition and Foundation Boards of Directors' Retreat, Hyatt Regency Lake Tahoe Resort, NV, September 19-21, 2023.

Dr. Angela Murphy served as a reviewer for NIH/NCI Transition to Independence awards on October 18-19, 2023.

The annual PMI Halloween potluck luncheon was a frightening success! It was held on campus in the Dean's Board room October 31, 2023. It was full of fun and creative costumes, laughter, & delicious cuisine prepared by our talented PMI faculty, students, and staff. All enjoyed a wonderful time talking, trying new dishes, & strengthening our friendships.



Dr. Carole Oskeritzian served as a grant reviewer (R01s and R21s) for the NIH/NIAID Hypersensitivity, Allergies and Mucosal Immunology (HAMI) - ZRG1 IIDB 57 virtual study section on November 2-3, 2023.

Dr. Carole Oskeritzian chaired the Cellular Mechanisms and Regulation in Allergies session of the 18th International Congress of Immunology, held in Cape Town, South Africa, November 27-December 2.

Dr. Swapan Ray continues to serve as Academic Editor for these peer-reviewed journals: *Cells*, *Brain Sciences*, *Journal of Food Biochemistry*, and *The Scientific World Journal*.

The “PMI Annual Recognition and Appreciation Luncheon Celebration” was held at Mad Platter, December 7, 2023. There was an abundance of talent and creativity displayed as we designed and painted coffee mugs while relaxing and enjoying one another’s company. A few budding artists were discovered and insights into favorite pets, hobbies, and attention to details, displayed on the impressive mugs. The festive Los Chicanos Mexican food truck was parked at Mad Platter for our delicious lunch. We enjoyed the day honoring all our faculty, postdocs, staff, and students who excelled and received monumental awards throughout the year!



Dr. Swapan Ray is serving as a member of the Liaison Committee on Medical Education (LCME) Faculty Committee, which is led by Gerald E. Harmon, MD, Interim Dean, USC SOMC. Dr. Ray is specifically serving in the LCME Standard 4 Committee. This committee will continue its work through the fall 2024. The Committee has already met several times and started self-study process in preparation for our LCME accreditation site visit in February 2025.

The Medical Student Interest Group for Pathology hosted a noon meeting on November 14, 2023, at which a barbecue lunch was offered to all attendees and videos of a day in the life of “Social Media Pathologist” Dr. Jerad Gardner were screened.



Dr. James F. Catropo attended the following faculty development sessions:

- University of South Carolina Center for Teaching Excellence (CTE)/Anthology webinar “Grading and Managing the Gradebook in Blackboard Learn Ultra” (9 November 2023)
- University of South Carolina Center for Teaching Excellence (CTE) webinar “Blackboard Ultra Course View 101” (7 November 2023)
- Association of American Medical Colleges (AAMC) webinar "Away Rotations 101 for MD Advisors: Preparing Students for the 2024 Application Season" (26 October 2023)
- National Board of Medical Examiners (NBME) webinar session introducing the “Customized Assessment Services (CAS) Flexible Practice Option” (26 October 2023)
- University of South Carolina Center for Teaching Excellence (CTE) workshop “Best Practices for Producing Video Lectures” (17 October 2023)
- University of South Carolina Center for Teaching Excellence (CTE) webinar “Frustrated That Students Seem to Pay More Attention to Their Phones Than You? How Can We Help Their Brains?” (12 October 2023)
- International Association of Medical Science Educators (IAMSE) roundtable discussion “Professionalism in Medical Education” (3 October 2023)
- International Association of Medical Science Educators (IAMSE) roundtable discussion “Foundational Sciences vs. Basic Science Factoids” (5 September 2023)

Publications

Zhang Q, Chumanevich A, Nguyen I, Chumanevich AA, Sartawi N, Hogan J, Khazan M, Harris Q, Chatzistamou I, Buckhaults PJ, Banister CE, Hebert JR, Murphy EA, Hofseth LJ. The synthetic food dye, Red 40, causes DNA damage, causes colonic inflammation, and impacts the microbiome in mice. *Toxicology Reports*. 2023 Sep 6;11:221-232.

Barman S, Buzoglu Kurnaz L, Yang X, Nagarkatti M, Nagarkatti P, Decho AW, Tang C. Facially Amphiphilic Bile Acid-Functionalized Antimicrobials: Combating Pathogenic Bacteria, Fungi, and Their Biofilms. *ACS Infect Dis*. 2023 Sep 8;9(9):1769-1782.

Haque TT, Taruselli MT, Kee SA, Dailey JM, Pondicherry N, Gajewski-Kurdziel PA, Zellner MP, Stephenson DJ, MacKnight HP, Straus DB, Kankaria R, Jackson KG, Chumanevich AP, Fukuoka Y, Schwartz LB, Blakely RD, Oskeritzian CA, Chalfant CE, Martin RK, Ryan JJ. Fluoxetine restrains allergic inflammation by targeting an FcεRI-ATP positive feedback loop in mast cells. *Sci Signal*. 2023 Sep 12;16(802):eabc9089.

McDonald SM, Bullard BM, VanderVeen BN, Cardaci TD, Huss AR, Fan D, Hofseth LR, Murphy EA. Panaxynol alleviates colorectal cancer in a murine model via suppressing macrophages and inflammation. *Am J Physiol Gastrointestinal Liver Physiol*. 2023 Oct 1;325(4):G318-G333.

Gao J, Li Y, Guan X, Mohammed Z, Gomez G, Hui Y, Zhao D, Oskeritzian CA, Huang H. IL-33 priming and antigenic stimulation synergistically promote the transcription of proinflammatory cytokine and chemokine genes in human skin mast cells. *BMC Genomics*. 2023 Oct 6;24(1):592.

McDonald SM, Bullard BM, VanderVeen BN, Cardaci TD, Chatzistamou I, Fan D, Murphy EA. Emodin Reduces Surgical Wounding Accelerated Tumor Growth And Metastasis Via Macrophage Suppression In A Murine Triple Negative Breast Cancer Model. *Physiological Reports*. 2023 Oct;11(19): e15813.

Kurnaz LB, Barman S, Yang X, Fisher C, Outten FW, Nagarkatti P, Nagarkatti M, Tang C. Facial amphiphilic naphthoic acid-derived antimicrobial polymers against multi-drug resistant gram-negative bacteria and biofilms. *Biomaterials*. 2023 Oct; 301:122275.

Wirth MD, Turner-McGrievy GM, Murphy EA, Hebert JR. Interaction between Meal-timing and Dietary Inflammatory Potential: Association with Cardiometabolic Endpoints in a 3-month Prospective Analysis. *The Journal of Nutrition*. 2023 Dec 153: 3555-3564.

Hwang J, Barman S, Gao R, Yang X, O'Malley A, Nagarkatti P, Nagarkatti M, Chruszcz M, Tang C. Membrane-Active Metallopolymers: Repurposing and Rehabilitating Antibiotics to Gram-Negative Superbugs. *Adv Healthc Mater*. 2023 Dec;12(31):e2301764.

Oyler DL, Hulett J, Pratscher SD, Price-Blackshear MA, Murphy EA, Bettencourt BA. The Influence of Meditative Interventions on Immune Response: A Meta-Analysis. *Mindfulness*. 2023 14:1815–1851.

Presentations

Dr. Kandy Velazquez presented “*Improving Cancer Pain and Cachexia: Past, Present, and Future*” September 18, 2023, for her 3rd year review for tenure and promotion.

Nagarkatti, P., Yang, X., and Nagarkatti, M. Role of long noncoding RNA AW112010 in the regulation of IL-10 and consequently inflammation. 18th International Congress of Immunology Conference, IUIS/ ICI 2023, Cape Town, South Africa, November 27 – December 2, 2023.

Nagarkatti M, Busbee, PB, Palrasu, M and Nagarkatti, P. Ahr activation attenuates colitis through the induction of antimicrobial peptides and mucins leading to the enrichment of beneficial gut microbiota. 18th International Congress of Immunology Conference, IUIS/ ICI 2023, Cape Town, South Africa, November 27 – December 2, 2023.

VanderVeen BN, Cardaci TD, McDonald SJ, Bullard BM, Murphy EA. Introduction of chemotherapy to tumor-bearing mice reveals distinct changes to immune cells and autophagy without sparing muscle mass. Cancer Cachexia Conference, Sept 28-30, 2023, Edinburgh, UK.

Manea AJ, Ray SK. Evaluation of changes in therapeutic efficacy of temozolomide in human glioblastoma T98G and U87MG cells in culture containing a component of gut dysbiosis. Oral presentation. Meeting of the South Carolina branch of the American Society for Microbiology. USC Upstate, Spartanburg, SC, September 30th, 2023.

Muraleedharan A, Ray SK. Selective bioflavonoids epigallocatechin-3-gallate and genistein for blocking detrimental molecules from gut dysbiosis, inhibiting inflammasomes, and promoting autophagy in human cell culture model of Alzheimer’s disease. Oral presentation. Meeting of the South Carolina branch of the American Society for Microbiology. USC Upstate, Spartanburg, SC, September 30th, 2023.

Rayala N, Ray SK. Restraining inflammasomes and spinal cord neurodegeneration in a cell culture model of spinal cord injury having a component of gut dysbiosis. Oral presentation. Meeting of the South Carolina branch of the American Society for Microbiology. USC Upstate, Spartanburg, SC, September 30th, 2023.

Dr. Reilly Enos presented “*Unraveling Sex Steroid Physiology – Application to Obesity and Hormone Replacement Therapy*” October 9, 2023 for his 3rd year review for tenure and promotion.

Gandy H. (Mentor: Dr. Carole Oskeritzian). Pathogenic mechanisms of eczema: regulatory roles of mast cells and resveratrol. The 2023 SOAR Presentations, USC SOM, Columbia, SC, November 1, 2023.

Muraleedharan A, Ray SK. Evaluation of efficacy of epigallocatechin-3-gallate and genistein in inhibiting inflammasomes and stimulating autophagy in cell culture model of Alzheimer’s disease in absence and presence of a product of gut dysbiosis. Poster presentation. Drug Discovery and Development Retreat of Developmental Cancer Therapeutics Program of MUSC-Hollings Cancer Center & University of South Carolina, November 17, 2023, Marriott Hotel, Charleston, SC.

Rayala N, Ray SK (2023) Melatonin for attenuation of NLRP3 inflammasome and motoneuron degeneration in a spinal cord injury model in vitro in presence of lipopolysaccharide as a component of gut dysbiosis. Poster presentation. Drug Discovery and Development Retreat of Developmental Cancer Therapeutics Program of MUSC-Hollings Cancer Center & University of South Carolina, November 17, 2023, Marriott Hotel, Charleston, SC.

Fuseler JW, Kumte NI, Robia P A, Oskeritzian CA. Mast cells control pathogenic capillary-like small blood vessel network expansion in pre-lesional atopic dermatitis. Oral Presentation. 18th International Congress of Immunology, Cape Town, South Africa, November 27-December 2, 2023.