



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: Dr. Angela Murphy, PhD & Nicki Holt

September 2017 - December 2017

P **Honors & Awards**

M Dr. Traci Testerman is the recipient of a two year research grant from the National Organization for Rare Disorders entitled, "Novel animal models for the study of PMP etiology and treatment". This work will focus on development of mouse models for studying the roles of bacterial species on growth and chemotherapy resistance in the peritoneal cancer, pseudomyxoma peritonei.

I Dr. Jason Kubinak was awarded a grant for \$50,000 from the Jeffrey Modell Foundation for his work on the disease consequences of antibody deficiency.

Dr. Reilly Enos, (Murphy Lab) was recently promoted to Research Assistant Professor. Reilly served as a postdoctoral fellow in Dr. Angela Murphy's lab from August 2013 to August 2017. Congratulations on the promotion Dr. Enos!

Congratulations to Christian Graves in Dr. Pirisi-Creek's lab who defended his Ph.D. thesis on November 16, 2017.

Fadi F. Abboodi was a recipient of 2017-2018 Support to Promote Advancement of Research and Creativity (SPARC) Graduate Research Grant for his project "Genetic/Epigenetic Changes in Human Papillomavirus (HPV) Infected Cells Can Preclude the Need for Continuous Expression of HPV Oncogenes in Developing HPV-Associated Cancers." Fadi is mentored by Dr. Lucia A. Pirisi-Creek.

Kathryn Miranda was also a recipient of 2017-2018 Support to Promote Advancement of Research and Creativity (SPARC) Graduate Research Grant for her project "Anti-Inflammatory Role of MicroRNA-30 in Adipose Tissue Macrophages." Her mentor is Dr. Mitzi Nagarkatti.

News & Updates

Dr. Mitzi Nagarkatti was invited to speak as a featured investigator in a special session at the 50th Annual Meeting of the Society of Leukocyte Biology held in Vancouver, Canada on October 5-7, 2017 in recognition of their paper published in the Journal of Leukocyte Biology which received the highest citations for 2016. The article titled " Δ^9 -Tetrahydrocannabinol attenuates allogeneic host-versus-graft response and delays skin graft rejection through activation of cannabinoid receptor 1 and induction of myeloid-derived suppressor cells," was coauthored by Dr. Jessica Sido and Dr. Prakash Nagarkatti.

Prakash Nagarkatti was invited to give a Keynote Address at the American Society of Pharmacognosy held in Portland, OR on July 29th to Aug 2. The title of his presentation was Understanding The Epigenetic Pathways of Regulation by Cannabinoids and their Use as Anti-Inflammatory Agents.

Mitzi Nagarkatti also presented an invited talk titled Indole-3-Carbinol Attenuates Colitis Through Alterations In Gut Microbiota And Metabolic Pathways in the Session on Dietary Supplements at this meeting.

Dr. James Catroppo attended the Association of Pathology Chairs (APC)/Undergraduate Medical Education Section (UMEDS) Webinar on "Pathology Competencies for Medical Education: Framework and Educational Case Application" in October.

Dr. Carole Oskeritzian served as a grant reviewer for the NIH/NIAID ZRG1 IMM-R(10) Innovative Immunology study section held on November 8-9, 2017 in Bethesda, MD.

We give a warm welcome to Amy Jolly who has joined Dr. Jason Kubinak's lab as a Research Assistant. Amy completed her Master's degree at MUSC where she worked on the role of the TLR2/Dectin1 signaling pathway on DC maturation and activation. We're excited to have her as part of the PMI team.

Dr. Swapan Ray served as an International Expert Reviewer for Huntington's disease grants submitted to the National Science Centre, Kraków, Poland.

Dr. Mitzi Nagarkatti serves as a standing member of the NIH Systemic Injury and Environmental Exposures Study Section and reviewed grants at the meeting held in Los Angeles, CA, October 25-29, 2017.

Dr. Catroppo, as Faculty Advisor for Ars Humanitas Et Medicus (AHM), the Medical Student Interest Group for the Humanities, was an invited speaker for the group's inaugural 2017-2018 meeting on 16 August with a lunch-hour talk entitled "Why The Humanities?", and on 13 October for a lunch-hour talk entitled "Diagnosing the Canvas: Using Art to Facilitate Medical Education".

Dr. Udai Singh served on the Congressionally Directed Medical Research Program (CDPRP), Department of Defense grant review committee in Urologic Disease panel held on December 8, 2017.

Dr. Prakash Nagarkatti was a panelist on Big Challenges and Big Solutions Session at the Southeast IDEA Regional Conference, October 11-13, 2017 and his presentation was entitled Program Sustainability.

With Dr. James Catroppo as Faculty Advisor and M2 student Nicole Carey as Medical Student Interest Group for Pathology class officer, the group was awarded for the 4th consecutive year an Intersociety Council for Pathology Information (ICPI) grant in support of their events and activities promoting pathology in the practice of medicine, in medical research, and as a career.

We welcomed Fulbright Visiting doctoral student, Miss Shahin Kauroo from the Republic of Mauritius. Shahin joined Dr. Mitzi Nagarkatti's lab in August 2017 and will be here until May 2018. Shahin's doctoral research project will unveil the molecular and biological profile of Mauritius endemic plants and aims at validating their anti-oxidant, anti-inflammatory and anti-cancer properties.

We welcomed Dr. Kun Ji, Ph. D., a visiting scholar from the Department of Pathophysiology, Shenyang Medical College, China. Dr. Ji joined Dr. Mitzi Nagarkatti's lab in September 2017 and will be here for a year. Dr. Kun is an Associate Professor and her research interests are in the area of cancer epigenetic and gene regulation. Dr. Kun has 2 grants funded by the Science and Technology Department of Liaoning Province and a grant funded by the Department of Education of Liaoning Province.

Dr. Mitzi Nagarkatti served as the USC representative on the Organizing Committee for the 2nd Southeast Cancer Immunology, Immunotherapy and Inflammation Research Retreat held in association with the Georgia Cancer Center and Medical University of South Carolina at Augusta University, September 21-22, 2017. She presented an Overview of Cancer Research at USC, chaired a scientific session and gave a talk entitled "Crosstalk between epigenome and microbiome in regulation of inflammation-driven cancer."

Dr. Ioulia Chatzistamou has begun a collaboration with the Peromyscus Genetic Stock Center (USC, Office of VP for Research) offering pathology consultation to USC and external investigators.

Dr. James Catroppo was appointed to the Executive Committee, University of South Carolina Beta Chapter, Alpha Omega Alpha National Honor Medical Society as of the Academic Year 2017-2018.

Zinah Al-Ghezi, a doctoral student in Nagarkatti Lab served as a judge for the SC INBRE Scientific Symposium, Columbia, S.C. held on October 28, 2017.

Dr. Swapan Ray delivered an invited talk in the South Carolina Autism and Neurodevelopmental Disorders (SCAND) Symposium on Monday, October 9, 2017, USC Alumni Center Ballroom, Columbia, SC 29201.

Dr. Angela Murphy served as a reviewer for the National Cancer Institute Clinical and Translational Omnibus Special Emphasis Panel, November 15 & 16, 2017.

Dr. James Catroppo served on the Search Committee for the Assistant Dean for Student Affairs from September through December 2017.

Dr. Swapan Ray served on the Congressionally Directed Medical Research Program (CDPRP), Department of Defense in Urologic Disease grant review panel December 8, 2017.

Dr. James Catroppo was elected to the University of South Carolina School of Medicine – Columbia Faculty Affairs Committee for a three-year term as of the Academic Year 2017-2018.

Dr. Mitzi Nagarkatti was an invited guest speaker at the Illumina Benchtop Sequencing Seminar, UNC, Chapel Hill, NC, November 15-16, 2017. She presented "Microbiome in Health and Disease."

Dr. Mitzi Nagarkatti was an invited speaker at the University of Cincinnati, College of Medicine, Cincinnati, Ohio, September 26-27, 2017. She presented "Effect of Marijuana Cannabinoids on Epigenome and Microbiome in Regulation of Immune Response".

The PMI Department hosted a pot-luck Fall Festival. As our faculty and students are represented by many cultures and diverse backgrounds, we love to get together to share food and friendships. Everyone brought delicious dishes to share and explore new tastes. We love learning about different cultures and sharing our traditions with one other. There is also the added bonus of costumes to add to our Fall Festival. We all enjoy the adventurous costumes of those in our PMI Department.



Our Winter Holidays were celebrated together, as our PMI Department Faculty and students boarded the "Spirit of Lake Murray" for a lunch cruise, December 6, 2017. The luncheon was most enjoyable, with delicious food. Captain Andrew filled our minds with interesting facts and the history of Lake Murray as we viewed the beautiful scenery from 2 decks onboard. All enjoyed a delightful time talking, strengthening our friendships, laughing and enjoying an afternoon together.



Publications

Mehrpouya-Bahrami P, Chitrala KN, Ganewatta MS, Tang C, Murphy EA, Enos RT, Velazquez KT, McCellan J, Nagarkatti M, Nagarkatti P. Blockade of CB1 cannabinoid receptor alters gut microbiota and attenuates inflammation and diet-induced obesity. *Sci Rep*. 2017 Nov 15; 7(1): 15645.

Yang P, Bam M, Pageni P, Zhu T, Chen YP, Nagarkatti M, Decho AW, Tang C. Trio Act of Boronolectin with Antibiotic-Metal Complexed Macromolecules toward Broad-Spectrum Antimicrobial Efficacy. *ACS Infect Dis*. 2017 Nov 10; 3(11): 845-853.

Nimpong JA, Gebregziabher W, Singh UP, Nagarkatti P, Nagarkatti M, Hodge J, Liu C, Fan D, Ai W. Deficiency of KLF4 compromises the lung function in an acute mouse model of allergic asthma. *Biochem Biophys Res Commun*. 2017 Nov 4; 493(1): 598-603.

Karan D. Formulation of the bivalent prostate cancer vaccine with surgifoam elicits antigen-specific effector T cells in PSA-transgenic mice. *Vaccine*. 2017 Oct 13; 35(43): 5794-5798.

Dubey S, Yun H, Cohen M, Nagarkatti P, Nagarkatti M, Karan D. Withaferin-A associated differential regulation of inflammatory cytokines. *Frontiers in Immunology*. (In Press)

Wedman PA, Aladhami A, Chumanevich AP, Fuseler JW, Oskeritzian CA. Mast cells and sphingosine-1-phosphate underlie prelesional remodeling in a mouse model of eczema. *Allergy*. 2018 Feb; 73(2): 405-415.

Miller LG, Jr., Young JA, Ray SK, Wang G, Purohit S, Banik NL, Dasgupta S. Sphingosine toxicity in MS and EAE; Evidence for ceramide generation via serine-palmitoyltransferase activation. *Neurochem Res*. 2017; 42: 2755-2768.

Dasgupta S, Ray SK. Insights into abnormal sphingolipid metabolism in multiple sclerosis: targeting ceramide biosynthesis as a unique therapeutic strategy. *Ther Targets Neurol Dis*. 2017; 4: e1558.

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Dasgupta S, Ray SK. Diverse biological functions of sphingolipids in the CNS: Ceramide and sphingosine regulate myelination in developing brain but stimulate demyelination during pathogenesis of multiple sclerosis. *J Neurol Psychol*. 2017; 5: 7.

Bader JE, Enos RT, Velázquez KT, Carson MS, Nagarkatti M, Nagarkatti PS, Chatzistamou I, Davis JM, Carson JA, Robinson C, Murphy EA. Macrophage depletion using clodronate liposomes decreases tumorigenesis and alters gut microbiota in the AOM/DSS mouse model of colon cancer. *Am J Physiol Gastrointestinal Liver Physiol*. 2017 Oct 12: ajpgi.00229.2017.

Velázquez KT, Enos RT, Carson MS, Cranford TL, Bader JE, Sougiannis AT, Pritchett C, Fan D, Carson JA, Murphy EA. miR155 deficiency aggravates high-fat-diet induced adipose tissue fibrosis in male mice. *Physiological Reports*. 2017 Sep; 5(18).

Presentations

Al-Ghezi Z, Nagarkatti M, Nagarkatti PS. Combination of cannabinoids, Δ^9 - tetrahydrocannabinol (THC) and cannabidiol (CBD), ameliorate experimental autoimmune encephalomyelitis by promoting cell cycle arrest and apoptosis in activated T cells through miRNA signaling pathways. Carolina Women's Health Research Forum, Columbia, SC., November 2, 2017. The theme of this Forum was "Women's Mental Health".

Nagarkatti P, Yang X, Mohammed AK, Alghetaa H, Sultan M, Nagarkatti M. Epigenetic Regulation of immune Response by Marijuana Cannabinoids. 6th International Drug Abuse Research Society (IDARS) meeting, September 4-8, 2017, Dubrovnik, Croatia.

Nagarkatti M, Mohammed AK, Sultan M, Alghetaa H, Nagarkatti, P. Is there a cross talk between cannabinoids and microbiota that regulates inflammation? 6th International Drug Abuse Research Society (IDARS) meeting, September 4-8, 2017, Dubrovnik, Croatia.

Shidal C, Nagarkatti M, Nagarkatti P. miRNA cluster 297-669 and its associated gene networks may regulate CD133-positive cancer stem cell functions. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Hui Y, Mohammed AD, Alkarkoushi RR, Startz R, Testerman T. Indole-3-carbinol suppresses inflammatory markers and delays H. pylori-mediated gastric cancer in gerbils. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Alkarkoushi RR, Singh UP, Chatzistamou C, Hui Y, Mohammed AD, Nagarkatti M, Testerman TL. Enterohepatic Helicobacter Species Modulate DSS-Induced Colitis and the Response to Indole-3-carbinol. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Mohammed AD, Hui Y, Weinstock G, Alkarkoushi RR, Testerman TL. Bacteria isolated from peritoneal tumors alter cell growth and physiology. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Farnaki E, Kaza V, Hartman R, Chatzistamou I, Kiaris H. CCL8 in pregnancy-associated breastcancer and mammary gland development. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Aladhami A, Hobensack M, Kumte NI, Chumanevich AP, Cranford TL, Enos RT, Velázquez KT, Chatzistamou I, Fuseler JW, Murphy EA, Oskeritzian CA. Potential angiogenic functions of mast cells in early stages of prostatic transformation. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Kumte NI, Aladhami A, Chumanevich AP, Chatzistamou I, Davis T, Pena MM, Fuseler JW, Oskeritzian CA. Could mast cells be early diagnostic markers of colorectal cancer? 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Taylor MA, Ray SK. Molecular mechanisms for synergism of quercetin and sodium butyrate for inhibiting autophagy and increasing apoptosis in rat and human glioblastoma cells. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Khathayer F, Ray SK. Combination of 4HPR and SAHA control cell growth and induce differentiation in glioblastoma C6 and T98G cells. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Bader JE, Enos RT, Velázquez KT, Carson MS, Nagarkatti M, Nagarkatti PS, Chatzistamou I, Davis JM, Carson JA, Robinson C, Murphy EA. Macrophage depletion using clodronate liposomes decreases tumorigenesis and alters gut microbiota in the AOM/DSS mouse model of colon cancer. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Velázquez KT, Murphy EA, Carson JA. The role of macrophages in skeletal muscle of cancer cachectic mice. 2nd Southeast Cancer Immunology, Immunotherapy, & Inflammation Research Retreat; MUSC, Augusta University, USC, September 21-22, 2017, Augusta, GA.

Ahmed Aladhmi from the Oskeritzian Lab was selected to deliver an oral presentation entitled "Potential angiogenic functions of mast cells in early stages of prostatic transformation" in the "Lipids in Cancer" session at the 52nd Annual South Eastern Regional Lipid Conference, held in Cashiers, NC on November 8-10, 2017. Ahmed received a travel award to attend the conference. Co-authors were Michael Hobensack, Nabihah Kumte, Alena Chumanevich, Taryn Cranford, Reilly Enos, Kandy Velázquez, Ioulia Chatzistamou, John Fuseler, Angela Murphy, and Carole Oskeritzian.

Sougiannis AT, Enos RT, Velazquez KT, VanderVeen B, Bader JE, Pena MM, Carson JA, Murphy EA. Effects of 5 Fluorouracil Chemotherapy on Colon Inflammation, Gut Microbiota, and Adverse Physiological Outcomes. 5th World Congress on Targeting Microbiota. Berlin, Germany, October 26th-27th, 2017.

Alkarkoushi RR, Singh UP, Chatzistamou I, Hui Y, Mohammed AD, Bam M, Nagarkatti M, Testerman TL. Enterohepatic Helicobacter Species Modulate DSS-Induced Colitis and the Response to Indole-3-carbinol. 2017 Southeast regional IDeA Conference, Morgantown, West Virginia.