



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

2018 May ~ August

P Honors & Awards

M Congratulations to Dr. Carole Oskeritzian! Dr. Oskeritzian received her well-deserved promotion to the rank of Associate Professor with tenure, August 16, 2018.

I Ahmed Aladhami from the Oskeritzian Lab was a First Place Graduate Student Poster Award Winner for his presentation entitled "Potential angiogenic functions of mast cells in early stages of prostatic transformation" at the 2018 Center for Complementary and Alternative Medicine and COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting on May 17, 2018. Co-authors were Michael Hobensack, Nabihah Kumte, Alena Chumanevich, Taryn Cranford, Reilly Enos, Kandy Velázquez, Ioulia Chatzistamou, John Fuseler, Angela Murphy, and Carole Oskeritzian.

Osama Abdulla (Nagarkatti Lab) was a First Place Graduate Student Poster Award Winner for his presentation entitled "Role of Ahr ligands in microRNA-mediated Th17/T regulatory cell differentiation in Delayed Type Hypersensitivity" at the 2018 Center for Complementary and Alternative Medicine and COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting on May 17, 2018. Co-authors were Mitzi Nagarkatti and Prakash Nagarkatti.

Muthanna Sultan (Nagarkatti Lab) was a First Place Graduate Student Poster Award Winner for his presentation entitled "Endocannabinoids attenuate Staphylococcal enterotoxin B (SEB)-mediated acute lung injury through regulation of micro-RNA that target the induction of Myeloid Derived Suppressor Cells and T regulatory cells" at the 2018 Center for Complementary and Alternative Medicine and COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting on May 17, 2018. Co-authors were Mitzi Nagarkatti and Prakash Nagarkatti.

Zinah Al-Ghezi (Nagarkatti Lab) was a Second Place Graduate Poster Award Winner for her presentation entitled "Combination of cannabinoids, Δ^9 - tetrahydrocannabinol (THC) and cannabidiol (CBD), mitigate experimental autoimmune encephalomyelitis (EAE) by altering the gut microbiome" at the 2018 Center for Complementary and Alternative Medicine and COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting on May 17, 2018. Co-authors were Hassan Alghetaa, Mitzi Nagarkatti and Prakash Nagarkatti.

Naidu Chitrala (Nagarkatti Lab) was a First Place Postdoctoral Poster Award Winner for his presentation entitled "Impact of deleterious single nucleotide polymorphisms in Catechol O-Methyltransferase conferring risk to Post-traumatic stress disorder" at the 2018 Center for Complementary and Alternative Medicine COBRE External Advisory Committee Meeting on May 17, 2018. Co-authors were Prakash Nagarkatti and Mitzi Nagarkatti.

Marpe Bam (Nagarkatti Lab) was a Second Place Postdoctoral Poster Award Winner for his presentation entitled "Dysregulated WNT signaling in PTSD patients correlates with altered epigenetic marks and elevated inflammation" at the 2018 Center for Complementary and Alternative Medicine and COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting on May 17, 2018. Co-authors were Xiaoming Yang, Prakash Nagarkatti and Mitzi Nagarkatti.

Kathryn Miranda (Nagarkatti Lab) was an American Association of Immunologist Trainee Poster Award Winner for her presentation entitled "Cannabinoid receptor 1 blockade attenuates metabolic inflammation and gut microbial dysbiosis during high-fat diet-induced obesity" at the national American Association of Immunologists Annual Meeting, Austin, TX, May 4-8, 2018. Co-authors on the paper include William Becker, Brandon Busbee, Nicholas Dopkins, Lorenzo Menzel, Prakash Nagarkatti and Mitzi Nagarkatti.

Wurood Neamah (Nagarkatti Lab) was an American Association of Immunologist Abstract Poster Award Winner for her paper entitled “2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD)-induced myeloid derived suppressor cells (MDSC) have heightened metabolic activity which correlates with microRNA and gene expression involved in immunosuppression” at the American Association of Immunologists Annual Meeting, Austin, TX, May 4-8, 2018. Co-authors on the paper include Prakash Nagarkatti and Mitzi Nagarkatti.

Ahmed Aladhami from the Oskeritzian Lab received a travel award to present his work at the NIH/NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, June 24-26, 2018, entitled “Potential angiogenic functions of mast cells in early stages of prostatic transformation”. Co-authors were Michael Hobensack, Nabihah Kumte, Alena Chumanevich, Taryn Cranford, Reilly Enos, Kandy Velázquez, Ioulia Chatzistamou, John Fuseler, Angela Murphy, and Carole Oskeritzian.

News & Updates

Dr. Mitzi Nagarkatti and Dr. Prakash Nagarkatti received the Food and Drug Administration approval of cannabidiol (CBD), a nonpsychotropic compound found in cannabis, for orphan drug designation as a treatment for autoimmune hepatitis. Revive Therapeutics Ltd. licensed the Nagarkattis' patent to develop a novel cannabinoid-based therapy. CBD will be used in the treatment of diseases, such as liver fibrosis or cirrhosis, and even liver failure.

Dr. Lucia Pirisi-Creek directed a Professional Development Workshop on grant writing in the context of the 2018 SC INBRE Academic Leadership Workshop, held in Columbia, SC, June 14-15, 2018.

Dr. Angela Murphy served as a reviewer for the National Cancer Institute's Transition to Independence Awards (K99/R00 and K22 applications) on May 7th, 2018.

Dr. Carole Oskeritzian was invited to give a seminar entitled “A tale of two pathoses: mast cells and sphingosine-1-phosphate in acute-phase lung and skin inflammation” at the Department of Allergy and Immunology Seminar Series, Northwestern University Feinberg School of Medicine, June 22, 2018, Chicago, IL.

Dr. Ioulia Chatzistamou was invited to give a talk at the 1st Peromyscus Symposium on May 30, 2018 in Columbia, SC. The presentation was titled “Growth of human breast cancer in Peromyscus”.

Dr. Udai Singh chaired the National Institutes of Health (NIH) ZRG1 special emphasis panel DKUSN for SBIR grants on Digestive Disease Study Section on July 12th, 2018 in Washington DC.

Dr. Angela Murphy served as a reviewer for NIH Academic Enhancement Research Award (AREA) grants (R15) on June 13th 2018.

Dr. Prakash Nagarkatti and Dr. Mitzi Nagarkatti hosted the 2018 NIH Center for Epigenetic Regulation of Inflammation & NIH Center for Dietary Supplements and Inflammation (COBRE) First Joint Conference on Complementary and Integrative Medicine between the University of South Carolina, USA and China Medical University, Taiwan. The meeting was held Thursday, May 17, 2018. The dignitaries from China Medical University were Dr. Liang-Yo Yang, DVM, PhD, Dean, Office of Global Affairs, Dr. Hung-Rong Yen, MD, PhD, Director, Research Center for Chinese Herbal Medicine, and Dr. Pu-Wei Hou, PhD, Director, Graduate Institute of Chinese Medicine.

Dr. Angela Murphy served as a reviewer for the National Cancer Institute Special Emphasis Panel on Metabolic Reprogramming to Improve Immunotherapy on May 22nd, 2018.

Dr. Lucia Pirisi-Creek contributed to the submission of the competitive renewal for the Center for Targeted Therapeutics COBRE (Dr. Igor Roninson, PI) in the role of Chair of the Internal Advisory Committee and internal reviewer/editor of the proposal, which was submitted in late September, 2018.

Dr. Jason Kubinak served as a judge for the 2018 Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Dr. Swapan Ray also served as a judge for the 2018 Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

During June and July 2018 Dr. James F. Catroppo attended the University of South Carolina Center for Teaching Excellence (CTE) workshop “So You Think You Need To Lecture?” He also attended The University of South Carolina Center for Teaching Excellence (CTE) workshop series (5 sessions) “Learning Outcomes and Assessment of Learning” Dr. Catroppo was awarded 7.50 AMA PRA Category 1 credits under the auspices of the USCSOM-PH Continuing Medical Education (CME) Organization.

Dr. Mitzi Nagarkatti served as a grant reviewer on the NIH Systemic Inflammation and Environmental Exposures Study Section meeting held on June 28-29, 2018, in Arlington, VA.

Dr. Lucia Pirisi-Creek participated in the effort to produce an application for the SC IDeA Clinical and Translational Research Center (SC-CTRC, Drs. Xiaoming Li and Souvik Sen, PIs) in the role of Director of the Professional Development Core of the SC-CTRC. The proposal was developed during the last months of the spring semester and over the summer, for submission in early October, 2018.

Dr. Mitzi Nagarkatti also participated in this grant submission by serving as Co-Leader of the Biomedical Informatics, Bioinformatics and Cyberinfrastructure Enhancement Core of the SC-CTR.

Dr. Udai Singh served as a Judge for the undergraduate poster session at the Discover Day on April 20, 2018.

Dr. Carole Oskeritzian served as a grant reviewer for the NIH/NIAID ZRG1 IMM-R(10) Innovative Immunology Special Emphasis Panel held on May 31, New Orleans, LA.

Dr. Angela Murphy served as a reviewer for the National Center for Complementary and Alternative Health (NCCIH) Special Emphasis Panel for R01 grants on Discovery and Biological Signatures of Diet-Derived Microbial Metabolites on July 12th and 13th, 2018.

Publications

Miranda, K, Yang X, Bam M, Murphy EA, Nagarkatti PS, Nagarkatti M. MicroRNA-30 modulates metabolic inflammation by regulating Notch signaling in adipose tissue macrophages. *Int J Obes (Lond)*. 2018 Jun;42(6):1140-1150.

Elliott DM, Singh N, Nagarkatti M, Nagarkatti PS. Cannabidiol Attenuates Experimental Autoimmune Encephalomyelitis Model of Multiple Sclerosis Through Induction of Myeloid-Derived Suppressor Cells. *Front. Immunol*. 2018 Aug 3;9:1782.

Nagarkatti M, Rieder SA, Nagarkatti PS. Evaluation of Cell Proliferation and Apoptosis in Immunotoxicity Testing. *Methods Mol Biol*. 2018;1803:209-230.

Seth RK, Kimono D, Alhasson F, Sarkar S, Albadrani M, Lasley SK, Horner R, Janulewicz P, Nagarkatti M, Nagarkatti P, Sullivan K, Chatterjee S. Increased butyrate priming in the gut stalls microbiome associated-gastrointestinal inflammation and hepatic metabolic reprogramming in a mouse model of Gulf War Illness. *Toxicol Appl Pharmacol*. 2018 Jul 1;350:64-77.

Alhasson F, Seth RK, Sarkar S, Kimono DA, Albadrani MS, Dattaroy D, Chandrashekar V, Scott GI, Raychoudhury S, Nagarkatti M, Nagarkatti P, Diehl AM, Chatterjee S. High circulatory leptin mediated NOX-2-peroxynitrite-miR21 axis activate mesangial cells and promotes renal inflammatory pathology in nonalcoholic fatty liver disease. *Redox Biol*. 2018 Jul;17:1-15.

Alghetaa HF, Mohammed AK, Sultan M, Busbee P, Murphy EA, Chatterjee S, Nagarkatti M. and Nagarkatti P. Resveratrol protects mice against SEB-induced acute lung injury and mortality by miR-193a modulation that targets TGF- β signalling. *Journal of Cellular and Molecular Medicine*. 2018 May;22(5):2644-2655.

Abron JD, Singh NP, Mishra MK, Price RL, Nagarkatti M, Nagarkatti PS, Singh UP. An endogenous aryl hydrocarbon receptor ligand, ITE, induces regulatory T cells and ameliorates experimental colitis. *Am J Physiol Gastrointest Liver Physiol*. 2018 Aug 1;315(2):G220-G230.

Abron JD, Singh NP, Price RL, Nagarkatti P, Nagarkatti M and Singh UP. Genistein induces macrophage polarization and systemic cytokine to ameliorate experimental colitis. *Plos One*. 2018 Jul 19;13(7):e0199631.

Caslin HL, Taruselli MT, Paranjape A, Kiwanuka K, Haque T, Chumanevich AP, Oskeritzian CA*, Ryan JJ*. The use of human and mouse mast cell and basophil cultures to assess type 2 inflammation. *Methods Mol Biol.* 2018;1799:81-92. *co-corresponding authors.

Chatzistamou I, Farmaki E, Kaza V, Kiaris H. The Value of Outbred Rodent Models in Cancer Research. *Trends Cancer.* 2018 Jul;4(7):468-471.

Patel Y, Soni M, Awagulerwitsch A, Kern MJ, Liu S, Singh UP, and Chen H. Overexpression of miR-489 derails mammary hierarchy structure and inhibits HER2/neu-induced tumorigenesis. *Oncogene.* 2018 Aug 13. doi: 10.1038/s41388-018-0439-1. [Epub ahead of print].

Kumar S, Gurshaney S, Adagunodo Y, Gage E, Qadri S, Sharma N, Malik S, Manne U, Singh UP, Mishra MK. Hsp70 and gamma-Semino protein as possible prognostic marker of prostate cancer. *Front Biosci.* 2018 Jun 1;23:1987-2000.2018.

Taylor MA, Das BC, Ray SK (2018) Targeting autophagy for combating chemoresistance and radioresistance in glioblastoma. *Apoptosis.* 2018 (In press).

Yelton CJ, Ray SK (2018) Multiple mechanisms of drug resistance in glioblastoma and novel therapeutic opportunities. In: *Horizons in Cancer Research* (ed., Watanabe HS), Vol. 71, Nova Science Publishers, New York, NY (In press).

Khathayer F, Ray SK (2018) Rationale for using N-(4-hydroxyphenyl) retinamide (4HPR) for modulation of different molecular mechanisms for treatment of glioblastoma. In: *Horizons in Cancer Research* (ed., Watanabe HS), Vol. 71, Nova Science Publishers, New York, NY (In press).

Presentations

Tanis RM, Wedman PA, Chumanevich AP, Aladhami A, Fuseler JW, Oskeritzian CA. Lack of skin mast cell activation and sphingosine-1-phosphate elevation in male mice may explain gender disparity observed in pre-symptomatic atopic dermatitis. The International Investigative Dermatology Meeting, Orlando, FL, May 16-19, 2018.

Fuseler JW, Castleberry KM, Kumte NI, Wedman PA, Aladhami A, Chumanevich AP, Oskeritzian CA. Mast cells and microvasculature expansion in asymptomatic atopic dermatitis. The International Investigative Dermatology Meeting, Orlando, FL, May 16-19, 2018.

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. The Annual Southeastern Microscopy Society Meeting, Columbia, SC, May 16-18, 2018.

Al-Ghezi Z, Bahrami PM, Nagarkatti M, Nagarkatti PS. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) attenuates inflammatory response to pertussis toxin by induction of Tregs and immunosuppressive cytokine production via microRNA modulation. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Bader JE, Enos RT, Velazquez KT, Carson MS, Sougiannis AT, Nagarkatti M, Nagarkatti P, Robinson CM, Fan D, Murphy EA. Macrophage depletion results in anemia, neutrophilia, and is not an effective therapy for rescuing obesity-linked metabolic impairments. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018. **Selected for podium presentation and AAI travel awardee.**

Alghetaa HF, Mohammed AK, Nagarkatti M, Nagarkatti P. Gut dysbiosis and immunological profile in endometriosis. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Alharris E, Alghetaa HF, Busbee PB, Nagarkatti M, Nagarkatti PS. Resveratrol treatment alters lung microbiome in the murine OVA-induced asthma model by increasing mucus-degrading *Akkermansia muciniphila*. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Alrafas H, Busbee PB, Nagarkatti PS, Nagarkatti M. Effect of 3,3'-Diindolylmethane on Gut Microbiome in Colorectal Cancer. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Becker W, Nagarkatti M, Nagarkatti PS. Allograft transplantation provokes miRNA 297-669 cluster that reduces T regulatory cell generation through targeting TGF- β 2. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Busbee PB, Menzel L, Nagarkatti M, Nagarkatti PS. Indole-3-carbinol ameliorates murine colitis symptoms by regulating the release of colonic anti-microbial peptides which prevents disease-associated microbial dysbiosis. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Miranda K, Becker W, Busbee B, Dopkins N, Menzel L, Nagarkatti P, Nagarkatti M. Cannabinoid receptor 1 blockade attenuates metabolic inflammation and gut microbial dysbiosis during high-fat diet-induced obesity. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018. **AAI Trainee Poster Award**

Mohammed AK, Alghetaa HF, Nagarkatti P, Nagarkatti M. Marijuana THC treatment led to decreased metabolic functions of Staphylococcal enterotoxin B-activated lymphocytes. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Neamah W, Nagarkatti PS, Nagarkatti M. 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD)-induced myeloid derived suppressor cells (MDSC) have heightened metabolic activity which correlates with microRNA and gene expression involved in immunosuppression. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018. **AAI Trainee Abstract Award**

Shidal C, Nagarkatti M, Nagarkatti PS. MicroRNA-92 expression in CD133+ melanoma stem cells regulates immunosuppression in the tumor microenvironment through integrin-dependent TGF- β activation. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Singh NP, Kadhim S, Singh U, Nagarkatti PS, Nagarkatti M. Resveratrol protects experimental Staphylococcus aureus enterotoxin B (SEB)-induced acute liver injury (ALI) by regulating microRNAs associated with myeloid-derived suppressor cells. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Sultan MS, Nagarkatti MN, Nagarkatti PS. The endocannabinoid anandamide ameliorates acute lung injury through regulation of micro-RNA pathway and modulation of both extracellular acidification rate and oxygen consumption rate. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Singh UP, Singh NP, Murphy EA, Mishra MK, Price RL, Nagarkatti M, Nagarkatti PS. Adipose T cell microRNAs influence the T cell expansion, microbiome and macrophage function during obesity. American Association of Immunologists Annual Meeting, Austin, Texas, May 4-8, 2018.

Singh UP, Singh NP, Murphy EA, Price RL, Nagarkatti M, Nagarkatti PS. High fat diet induces T cells microRNA mediate T cell expansion and macrophage function to maintain chronic inflammation. The NIH/NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, June 24-26, 2018.

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. The NIH/NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, June 24-26, 2018.

Jeanty M, Wedman PA, Chumanevich AP, Aladhami A, Tanis RM, Zumbun E, Nagarkatti P, Nagarkatti M, Oskeritzian CA. MicroRNA-34a regulation of mast cell activation by sphingosine-1-phosphate in pre-symptomatic atopic dermatitis. The NIH/NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, June 24-26, 2018.

Bader JE, Enos RT, Velazquez KT, Carson MS, Sougiannis AT, Nagarkatti M, Nagarkatti P, Robinson CM, Fan D, Murphy EA. Macrophage depletion results in anemia, neutrophilia, and is not an effective therapy for rescuing obesity-linked metabolic impairments. The NIH/NIGMS 7th Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, June 24-26, 2018. **Selected for podium presentation and travel awardee.**

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. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018. **Winner 1st Place Graduate Student Poster Award.**

Carlucci CD, Chumanevich AP, Aladhami A, Fuseler JW, Mathew M, Oskeritzian CA. Effect of resveratrol on the development of eczema. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Jeanty M, Wedman PA, Chumanevich AP, Aladhami A, Tanis RM, Zumbrun E, Nagarkatti P, Nagarkatti M, Oskeritzian CA. MicroRNA-34a regulation of mast cell activation by sphingosine-1-phosphate in pre-symptomatic atopic dermatitis. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Busbee PB, Nagarkatti M, Nagarkatti PS. Indole-3-carbinol ameliorates murine colitis symptoms by regulating the release of colonic anti-microbial peptides which prevents disease-associated microbial dysbiosis. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Mohammed A, Alghetaa H, Nagarkatti M, Nagarkatti PS. Role of microRNA in tetrahydrocannabinol (THC)-mediated amelioration of SEB-induced Acute Lung Injury. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Bam M, Yang X, Nagarkatti PS, Nagarkatti M. Dysregulated WNT signaling in PTSD patients correlates with altered epigenetic marks and elevated inflammation. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018. **Winner, 2nd Place Postdoc Poster Award.**

Chitrala KN, Nagarkatti PS, Nagarkatti M. Impact of deleterious single nucleotide polymorphisms in Catechol O-Methyltransferase conferring risk to Post-traumatic stress disorder. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018. **Winner, 1st Place Postdoc Poster Award.**

Shidal C, Nagarkatti M, Nagarkatti PS. MicroRNA-92 expression in CD133+ melanoma stem cells regulates immunosuppression in the tumor microenvironment through integrin-dependent TGF- β activation. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Gummadidala PM, Becker W, Omebeyinje MH, Mitra C, Nagarkatti PS, Nagarakti M, Chanda A. Does delta-9-tetrahydrocannabinol alter the gut mycobiome? Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Sakar S, Dattaroy D, Alhasson F, Kimono D, Albadrani M, Seth RK, Nagarkatti M, Nagarkatti PS, Chatterjee S. Andrographolide attenuates fibrotic liver injury. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Kimono D, Alhasson F, Dattaroy D, Sarkar S, Albadrani M, Seth RK, Nagarkatti M, Nagarkatti, PS, Chatterjee S. SsnB improves outcomes in NAFLD induced glomerular nephritis. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Tashkandi H, Chaparala A, Zhang Q, Windust A, Cui T, Nagarkatti M, Nagarkatti PS, Hofseth L. Panaxynol from American Ginseng has Anti-Inflammatory and Chemopreventive Properties. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Zhang Q, Berger F, Nagarkatti M, Nagarkatti PS, Hofseth L. Understanding Early Onset Colorectal Cancer. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Kauroo S, Govinden-Soulange J, Sanmukhiya MR, Miranda K, Nagarkatti M, Nagarkatti PS. Molecular and functional profiling of extracts of select endemic plants from the Republic of Mauritius towards unveiling of their pharmacological properties. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Al-Ghezi Z, Alghetaa H, Nagarkatti M, Nagarkatti PS. Combination of cannabinoids, Δ^9 - tetrahydrocannabinol (THC) and cannabidiol (CBD), mitigate experimental autoimmune encephalomyelitis (EAE) by altering the gut microbiome. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018. **Winner, 2nd Place Graduate Students Poster Award.**

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Mohammed AD, Khan W, Chatzistamou I, Enos RT, Jolly A, Kubinak J. IgA-deficiency Drives Intestinal Malabsorption and Enhances Susceptibility to Lethal Sepsis. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Alghetaa HK, Mohammed AK, Nagarkatti M, Nagarkatti P. Resveratrol inhibits metabolism of SEB-activated T lymphocytes by epigenetic dysregulation. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Becker W, Nagarkatti M, Nagarkatti PS. Cannabinoid receptor activation induces unique changes in the murine gut microbiome associated with the induction of anti-inflammatory myeloid-derived suppressor cells and T regulatory cells. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Alkarhoushi RR, Singh UP, Chatzistamou I, Hui Y, Bam M, Nagarkatti PS, Nagarkatti M, Testerman T. Enterohepatic Helicobacter species modulate severity of DSS-induced colitis but do not prevent amelioration by indole-3-carbinol. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Dopkins N, Nagarkatti PS, Nagarkatti M. Role of the gut microbial metabolite Tryptamine in the amelioration of Experimental Autoimmune Encephalomyelitis. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Khathayer F, Ray, S. Combination of 4HPR and SAHA controls cell growth and induces differentiation in Glioblastoma C6 and T98G cells: Role of miR-34a in enhancement of efficacy of 4HPR and SAHA for induction of apoptosis. Center for Complementary and Alternative Medicine/COBRE External Advisory Committee Meeting, Columbia, SC, May 17, 2018.

Alrafas HR, Busbee PB, Nagarkatti M, Nagarkatti PS. Effect of 3,3'-Diindolylmethane on Gut Microbiome in Colorectal Cancer. Center for Complementary and Alternative Medicine/COBRE on Dietary Supplements and Inflammation External Advisory Committee Meeting, Columbia, SC, May 17, 2018.