



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

January 2017 - April 2017

P News & Updates

M
I

Piper Wedman successfully defended her PhD dissertation on March 27, after 4 years in the Biomedical Science PhD program. Piper will continue her academic training as a post-doctoral fellow at Northwestern University Feinberg School of Medicine in the Division of Allergy-Immunology with Bruce Bochner, MD. Piper is the first PhD student graduating from the Oskeritzian Lab. Congratulations and best wishes, Dr. Wedman!

A recently published article (Role of MCP-1 on Inflammatory Processes and Metabolic Dysfunction Following High-Fat Feedings) from the Murphy lab was highlighted in the winter issue of *Nutrition Frontiers*, a newsletter from the Nutritional Science Research Group (NSRG), Division of Cancer Prevention (DCP), National Cancer Institute.

Dr. Berlin Londono-Renteria (Dr. Colpitts lab) started a tenure-track faculty position at Kansas State University.

Dr. Carole Oskeritzian served as a reviewer for American Heart Association (AHA) USC medical student summer research proposals, March 13, Columbia, SC.

Dr. Prakash Nagarkatti was interviewed by the local ABC TV station, WOLO, Columbia, SC. The article "Exclusive Series: Lab at USC Leading Field of Marijuana Research" was aired on Feb 24, 2017. <http://abccolumbia.com/2017/02/24/exclusive-series-lab-usc-leading-field-marijuana-research/>

Dr. Prakash Nagarkatti has been interviewed multiple times by local media concerning medical marijuana, including by the local NBC affiliate. <http://www.wistv.com/story/34900213/will-south-carolina-ever-get-the-green-light-on-medical-marijuana>

Dr. Mitzi Nagarkatti was interviewed by the local CBS TV station, News 19 (WLTX) on the Challenges for Medical Marijuana Bill based on the research on marijuana that is being conducted in the Nagarkatti labs at USC SOM. <http://www.wltx.com/news/local/opposition-to-the-push-for-medical-marijuana/409071207>.

Dr. Udai Singh and Dr. Ioulia Chatzistamou served as Judges for the undergraduate poster session at Discover USC Day (21st April 2017) at the Convention Center, Columbia, SC.

Dr. Colpitts was a reviewer for the Florida Department of Health Zika Research Review.

On March 22, 2017 Dr. James Catroppo, Dr. Robert Startz and Dr. Christine Wheeler completed the USC Center for Teaching Excellence (CTE) faculty development certificate course "Using the Science of Learning to Rethink How We Teach", facilitated over six sessions by Janet Hudson, PhD, Associate Director for Innovative Teaching at the CTE. Thematic pedagogical issues, such as spaced repetition, retrieval practice, interleaved practice, learning styles, "low-structure" versus "high-structure" classes, fluency illusion, mnemonic devices, etc., were discussed and examined, correlated with readings from Brown, Roediger and McDaniel's seminal *Make It Stick: The Science of Successful Learning* (Harvard University Press, 2014), as well as journal articles from the educational and medical educational literature.

Dr. Carole Oskeritzian served as a reviewer for the ASPIRE-I competition, USC Office of Research, Columbia, SC.

Dr. Chatzistamou also served as a reviewer of grant applications for ASPIRE -I Track I, March 23, 2017.

Dr. Mitzi Nagarkatti served on the National Institute of Environmental Health Sciences (NIH) Revolutionizing Innovative, Visionary Environmental Health Research (RIVER) Award Review Panel, April 2017.

Dr. Lucia Pirisi-Creek served on the COBRE review panel meeting: March 8, 2017, Bethesda, MD.

Dr. Carole Oskeritzian served as a reviewer for the South Carolina IDeA Networks of Biomedical Research Excellence (SC INBRE) Developmental Research Project (DRP) program, March 24, Columbia, SC.

Dr. Udai Singh served on the National Institutes of Health (NIH), Innate Immunity and Inflammation (III) Study Section as ad-hoc member on February 16-17, 2017 reviewing grants.

We extend a warm welcome to Dr. Chris Shidal, PhD, who joined Dr. Nagarkatti's lab as a postdoctoral fellow in March. He recently graduated from the University of Louisville with a Ph.D. in Pharmacology and Toxicology where he studied development of novel cancer therapeutics with a focus on non-small cell lung cancer and melanoma models. He also spent a few years in Bloomington, IN where he was a visiting research associate.

Dr. Prakash Nagarkatti published an article in The State newspaper titled "Clinical Evidence Supports Medical Marijuana." <http://www.thestate.com/opinion/letters-to-the-editor/article139688643>.

Dr. Prakash Nagarkatti was interviewed by the Post and Courier newspaper from Charleston, "Industrial Hemp May be Another Cash Crop in South Carolina."

Dr. Ray served as a grant reviewer in the NIH Study Section, ZEG1 OTC (03) on Radiation Therapeutics, on April 25, 2017.

Dr. Lorenzo Menzel, PhD joined Dr. Nagarkatti's lab as a postdoctoral fellow. He received his B.S. from UCLA, his Ph.D. from Florida International University, and was a postdoc at the University of Florida before joining Dr. Nagarkatti's lab. Lorenzo brings expertise in microscopy, analytical and protein chemistry, and innate immunity.

Dr. Angela Murphy served as a reviewer of Nutrition and Obesity Research Center (NORC) grants for NIDDK during March 2017.

Dr. Carole Oskeritzian served as a judge for medical scholar presentations at Discover USC, April 21, Columbia, SC.

Dr. Colpitts was a Scientist Reviewer for the 2018 Military Infectious Diseases Research Program (MIDRP), Flavivirus Vaccines Research Panel.

Alex Bo Liang was a visiting PhD student from The Chinese University of Hong Kong. His research is focused on developing potential therapeutics for endometriosis, a benign gynecologic disorder. He joined the Nagarkatti Lab in February and will be here until the end of May.

Dr. Prakash Nagarkatti gave testimony at the SC Senate Medical Affairs Subcommittee Hearing regarding comprehensive medical cannabis legislation allowing the growth and sale of hemp products in South Carolina. <http://www.scstatehouse.gov/video/videofeed.php> on Wednesday, March 8, 2017, 3:00 pm.

Dr. Ronald Wang, PhD, a Professor from The Chinese University of Hong Kong, Department of Obstetrics and Gynecology, visited the Nagarkatti lab during February.

Kathryn Miranda, Muthanna Sultan, Esraah Al-Harris, Zinah Al-Ghezi, Amira Mohammed, William Becker, and Wurood Neamah graduate students from the Nagarkatti lab, served as judges for undergraduate students' research at South Carolina Academy of Sciences (SCAS), Coastal Carolina University, Conway, SC, March 25, 2017.

Dr. Suneetha Yeguvapalli, Assistant Professor, Department of Zoology, Sri Venkateswara University, Tirupati, India visited the Nagarkatti labs in March.

Ahmed Aladhami, 3rd year PhD student, successfully passed his comprehensive examination in February. Congratulations, Ahmed!

In an early celebration of Medical Laboratory Professionals Week (23-29 April), sponsored by the American Society for Clinical Pathology (ASCP), and with the support and efforts of the USCSOM Medical Student Interest Group for Pathology, led by class officer Joshua Schoen and faculty advisor Dr. Catroppo, Krispy Kreme[®] doughnuts – as well as "SWAG" (promotional items) and literature from the American Society for Clinical Pathology and the Intersociety Council for Pathology Information (ICPI) – were offered to all of our "rising M3's" on 11-12 April in the M2 Classroom, where interactive clinical pathology/laboratory medicine sessions were held by three of the students' future attendings. Dr. B. James McCallum (Assistant Professor of Clinical Internal Medicine and clinical attending at the Wm. Jennings Bryan Dorn VA Medical Center) offered sessions on the CBC and on Lipid Profiles, while Dr. Allan Brett (the Orlando Benedict Mayer Professor of Medicine at USC, director of the Division of General Internal Medicine, and Vice Chair of the Department of Medicine) held an interactive session on Serum Enzyme Testing and Dr. Roy Mathew (Division of Nephrology at the Wm. Jennings Bryan Dorn VA Medical Center) followed with a session on Renal Function Testing.



Dr. Udai Singh served on the National Institutes of Health (NIH) "Cellular and Molecular Immunology A" Study Section on February 23-24, 2017 reviewing grants as ad-hoc member.

Dr. Carole Oskeritzian served as a judge in the Medicine/Pharmacology/Public Health Session at the 2017 South Carolina Academy of Science Annual Meeting on March 25 at Coastal Carolina University, Conway, SC.

Dr. Angela Murphy served as a judge for medical scholar presentations at Discover USC, April 21, Columbia, SC.

Dr. Tonya Colpitts served on an NIH NIAID Special Virology IRG Panel in February.

Dr. Lucia Pirisi-Creek served on two consecutive SPORE review panel meetings: February 8-9 and February 9-10, 2017, Bethesda, MD.

Dr. Mitzi Nagarkatti presented her research at the SC SmartState Centers of Economic Excellence Chairs Forum in Charleston, SC, April 26-28, 2017.

Honors & Awards

Dr. Mitzi Nagarkatti was a recipient of the 2017 Dean's Distinguished Service Award. The Dean's Awards recognize individuals who demonstrate excellence in service, leadership, advocacy, and professional accomplishment. Dr. Nagarkatti was awarded the Diversity and Inclusion Leadership Award by Dr. Hall at a dinner reception on Tuesday, April 18, 2017.



Dr. Berlin Londono-Renteria (Colpitts lab) received the Carl Storm Underrepresented Minority (CSURM) Fellowship to support her participation in the 2017 Tropical Infectious Diseases Gordon Research Conference.

Muthanna Sultan, PhD student in the Nagarkatti lab received the National Program Preparing Future Faculty Award at Discover Day, from USC Graduate School, University of South Carolina, Columbia, SC, April 21, 2017.

Dr. Carole Oskeritzian received the 2017 Breakthrough Star Award that recognizes USC Junior faculty who excelled in research and scholarly activity and developed a national/international reputation, with evidence of strong record of extramural funding while at USC.

Marpe Bam, PhD, Postdoctoral Fellow in the Nagarkatti lab was awarded "Best Paper Award by the Molecular and Systems Biology Specialty Section" and \$500 at the Society of Toxicology (SOT) Meeting, Baltimore MD, March 12-16, 2017 for the paper entitled "Dysregulated Immune System Networks in War Veterans With PTSD is an Outcome Of Altered Mirna Expression and DNA Methylation" authored by Marpe Bam, Xiaoming Yang, Elizabeth Zumbrun, Yin Zhong, Juhua Zhou, Jack Ginsberg, Quinne Leyden, Prakash Nagarkatti and Mitzi Nagarkatti, published in the Volume 6, August 2016 issue of Scientific Reports.

Katherine M. Castleberry, a Magellan Scholar in Dr. Carole Oskeritzian's laboratory, received First Place for her oral presentation "Novel morphometrics establish mast cell-dependent angiogenesis in atopic dermatitis pathogenesis" at the Science, Technology, Engineering and Math session at Discover USC, April 21, Columbia, SC.

Alix Faulkner (Biochemistry and Molecular Biology undergraduate student) received a Magellan Award. Her project is entitled "Identify and study the regulation of the promoter of chemoattractive cytokine CCL8 in mouse cells". Alix is working with Dr. Chatzistamou and Dr. Kiaris.

Dr. Ray's undergraduate research student Jacob Heuker received the Second Place prize for his poster presentation in the 'Biology and Biomedical Sciences B' section in the 2017 Discover USC Day (A forum for student ingenuity) meeting, on April 21, 2017.

Dr. Philip Busbee from Dr. Nagarkatti's lab, was the second place award winner at the Postdoctoral Scholar Poster at Discover USC Day (Session B) on April 21st 2017. His presentation was titled "Indole-3-carbinol ameliorates murine colitis symptoms through alterations in gut microbial composition and metabolomic pathways, particularly through decreasing disease-associated *Bacteroides acidifaciens* species".

Dr. Alexa Gandy from Dr. Nagarkatti's lab, was the second place award winner at the Postdoctoral Scholar Poster session at Discover USC Day on April 21st 2017. Her presentation was titled "The role of gut microbiota in shaping the immune response in relapse-remitting and chronic-progressive mouse models of multiple sclerosis".

Kathryn Miranda from Dr. Nagarkatti's lab was the award winner for the Graduate Student Poster Session J at Discover USC day. Her talk was titled "Cannabinoid receptor 1 blockade alters dysbiosis in gut microbiota contributing to its anti-obesity effects".

Dr. James F. Catroppo was elected to faculty membership in the National Honor Medical Society Alpha Omega Alpha (AQA) and was honored at an induction banquet held by the USCSOM Beta Chapter of the Society on March 16 at The Palmetto Club. Dr. Warren Lockette, senior associate dean for diversity and inclusion at the University of Missouri School of Medicine, was the keynote speaker for the event.



Dr. Tonya Colpitts was invited as a Research Topic Editor for the journal *Frontiers in Microbiology*.

Dr. Mitzi Nagarkatti was recently awarded a five-year National Institutes of Allergy and Infectious Diseases Grant (NIAID)/NIH for \$1.7 million, titled, "AhR Ligands in Epigenetic Dysregulation of T Cells".

Nabihah I. Kumte, a sophomore majoring in Public Health from the Honors College at USC, who joined Dr. Carole Oskeritzian's Laboratory in May 2016, was awarded a Magellan Scholarship. Dr. John W. Fuseler from the Oskeritzian Lab will serve as a secondary mentor to Nabihah. Nabihah will continue her exciting investigations on mast cell activation status and phenotype in the development of colorectal cancer.

Amira Mohammed, PhD student in Dr. Nagarkatti's lab, was invited to chair the poster session "Education, Ethical, Legal and Social Issues" at the 56th Annual Meeting of Society of Toxicology, (SOT) Baltimore, March 15, 2017.

Publications

Alhasson F, Das S, Seth R, Dattaroy D, Chandrashekar V, Ryan CN, Chan LS, Testerman T, Burch J, Hofseth LJ, Horner R, Nagarkatti M, Nagarkatti P, Lasley SM, Chatterjee S. Altered gut microbiome in a mouse model of Gulf War Illness causes neuroinflammation and intestinal injury via leaky gut and TLR4 activation. *PLoS One*. 2017 Mar 22;12(3):e0172914.

Bam M, Yang X, Sen S, Zumbun EE, Dennis L, Zhang J, Nagarkatti PS, Nagarkatti M. Characterization of Dysregulated miRNA in Peripheral Blood Mononuclear Cells from Ischemic Stroke Patients. *Mol Neurobiol*. 2017 Feb 6. doi: 10.1007/s12035-016-0347-8.

Chitralla KN, Nagarkatti P, Nagarkatti M. Prediction of Possible Biomarkers and Novel Pathways Conferring Risk to Post-Traumatic Stress Disorder. *PLoS One*. 2016 Dec 20;11(12):e0168404.

Cranford TL, Velázquez KT, Enos RT, Bader JE, Carson MS, Chatzistamou I, Nagarkatti M, Murphy EA. Loss of monocyte chemoattractant protein-1 expression delays mammary tumorigenesis and reduces localized inflammation in the C3(1)/SV40Tag triple negative breast cancer model. *Cancer Biol Ther*. 2017 Feb;18(2):85-93.

Chumanevich AA, Chaparala A, Witalison EE, Tashkandi H, Hofseth AB, Lane C, Pena E, Liu P, Pittman DL, Nagarkatti P, Nagarkatti M, Hofseth LJ, Chumanevich AA. Looking for the best anti-colitis medicine: A comparative analysis of current and prospective compounds. *Oncotarget*. 2017 Jan 3;8(1):228-237.

Seth RK, Das S, Dattaroy D, Chandrashekar V, Alhasson F, Michelotti G, Nagarkatti M, Nagarkatti P, Diehl AM, Darwin Bell P, Liedtke W, Chatterjee S. TRPV4 activation of endothelial nitric oxide synthase resists nonalcoholic fatty liver disease by blocking CYP2E1-mediated redox toxicity. *Free Radic Biol Med*. 2017 Jan;102:260-273.

Finnell JE, Lombard CM, Melson MN, Singh NP, Nagarkatti M, Nagarkatti P, Fadel JR, Wood CS, Wood SK. The protective effects of resveratrol on social stress-induced cytokine release and depressive-like behavior. *Brain Behav Immun*. 2017 Jan;59:147-157.

Shamran H, Singh NP, Zumbun EE, Murphy A, Taub DD, Mishra MK, Price RL, Chatterjee S, Nagarkatti M, Nagarkatti PS, Singh UP. Fatty acid amide hydrolase (FAAH) blockade ameliorates experimental colitis by altering microRNA expression and suppressing inflammation. *Brain Behav Immun*. 2017 Jan;59:10-20.

Chumanevich AP, Wedman PA, Oskeritzian CA. Methods for analyzing *in vitro* S1P signaling in human and mouse primary mast cells. *Methods Mol Biol*. 2017 (in press).

Valarmathi MT, Fuseler JW, Davis JM, Price RL. A Novel Human Tissue-Engineered 3-D Functional Vascularized Cardiac Muscle Construct. *Front Cell Dev Biol*. 2017 Jan 30;5:2.

Fuseler JW, Valarmathi MT. Nitric Oxide Modulates Postnatal Bone Marrow-Derived Mesenchymal Stem Cell Migration. *Front Cell Dev Biol*. 2016 Nov 24;4:133.

Robichaux JP, Fuseler JW, Patel SS, Kubalak SW, Hartstone-Rose A, Ramsdell AF. Left-right analysis of mammary gland development in retinoid X receptor- α +/- mice. *Philos Trans R Soc Lond B Biol Sci*. 2016 Dec 19;371.

Seo SJ, Rawlinson D, Messersmith AR, Creek KE, Pirisi LA, Spiryda LB. Concurrent Infections With Human Papillomavirus and Cervical Intraepithelial Lesions: What Is the relationship? *Clin Gynecol Obstet*. 2017 (in press).

Taylor M, Ray SK (2017) Prospects of enhancing anti-cancer activities of quercetin in the treatment of glioblastoma. In: *Horizons in Cancer Research* (ed., Watanabe HS), Vol. 66, Nova Science Publishers, New York, NY, p. 173-192.

Miller Jr. LG, Young JA, Ray SK, Wang G, Purohit S, Banik NL, Dasgupta S. Sphingosine toxicity in EAE and MS: evidence for ceramide generation via serine-palmitoyltransferase activation. *Neurochem Res*. 2017 (In press).

Hetzler KL, Hardee JP, LaVoie HA, Murphy EA, Carson JA. Ovarian Function's Role During Cancer Cachexia Progression in the Female Mouse. *Am J Physiol Endocrinol Metab.* 2017 May 1;312(5):E447-E459.

Wirth MD, Murphy EA, Hurley TG, Hébert JR. Effect of Cruciferous Vegetable Intake on Oxidative Stress Biomarkers: Differences by Breast Cancer Status. *Cancer Invest.* 2017 Apr 21;35(4):277-287.

Macht VA, Vazquez M, Petyak C, Grillo CA, Kaigler K, Enos RT, McClellan JL, Cranford TL, Murphy EA, Nyland JF, Gertler A, Wilson MA, Reagan LP. Leptin resistance elicits depressive-like behaviors in rats. *Brain Behav Immun.* 2017 Feb;60:151-160.

Presentations

Abdulla O, Nagarkatti M, and Nagarkatti PS. Role of Ahr ligands in microRNA-mediated Th17/T regulatory cell differentiation in Delayed Type Hypersensitivity. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Alghetaa HF, Mohammed AK, Sultan M, Nagarkatti P, and Nagarkatti M. Protective role of resveratrol against lung dysbiosis in SEB-induced acute lung injury. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Al-Ghezi Z, Nagarkatti M, and 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. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Singh NP, Bam M, Yang X, Singh UP, Nagarkatti M, and Nagarkatti PS. AhR Ligands, TCDD and FICZ have contrasting effects mediated through epigenetic modifications on T cell differentiation and EAE development in mice. 56th Annual Meeting of Society of Toxicology, Baltimore, MD, March 12-16, 2017.

Sultan, M., Alghetaa, H., Nagarkatti, M., and Nagarkatti, P.S. Endocannabinoid as anti-inflammatory agent in acute lung injury: Role of Micro-RNAs. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Alharris E, Alghetaa H, Nagarkatti PS, and Nagarkatti M. Activation of PTEN mediates the apoptotic effects of Cannabidiol, a non-psychoactive cannabinoid, in neuroblastoma. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Alrafas HR, Busbee PB, Nagarkatti PS, and Nagarkatti M. Effect of resveratrol on gut microbiome in TNBS-induced colitis. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Bam M, Yang X, Nagarkatti PS, and Nagarkatti M. Inflammation in PTSD is an outcome of the dysregulated miRNA biogenesis pathway. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017. **Awarded best paper award and travel award by the Molecular and Systems Biology Specialty Section.**

Chitralla KN, Nagarkatti PS, Nagarkatti M. Molecular modeling and dynamic simulations of AhR ligand binding domain involved in interactions with ligands affecting T cell responsiveness. 56th Annual meeting of the Society of Toxicology, Baltimore, USA, March 12-16, 2017.

Yeguvapalli S, Pamanji R, Chitralla KN, Nagarkatti P, Nagarkatti M. Machine learning and molecular modelling approach to predict novel therapeutic targets in breast and colon cancer for coumestrol. 56th Annual meeting of Society of Toxicology, Baltimore, MD, March 12-16, 2017.

Dattaroy D, Chandrashekar V, Seth RK, Alhasson F, Michelotti G, Fan D, Nagarkatti M, Nagarkatti P, Diehl AM, Chatterjee S. Sparstolonin B Attenuates Liver Fibrosis Induced By Cyp2e1 Mediated Redox Toxicity In Obese Liver. 56th Annual Meeting of Society of Toxicology, Baltimore, MD, March 12-16, 2017.

Miranda K, Nagarkatti PS, Nagarkatti M. Cannabinoid receptor 1 blockade alters dysbiosis in gut microbiota contributing to its anti-obesity effects. 56th Annual Meeting of Society of Toxicology, Baltimore, MD, March 15, 2017.

Mohammed AK, Nagarkatti PS, Nagarkatti M. Role of miR-34a in Amelioration of SEB-induced Lung Injury Treated with Tetrahydrocannabinol (THC). 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Neamah WH, Nagarkatti M, and Nagarkatti PS. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)-induced MDSCs mediate immunosuppressive activity through microRNA dysregulation. 56th Annual Meeting of Society of Toxicology, Baltimore, March 12-16, 2017.

Sultan M, Alghetaa H, Nagarkatti M, and Nagarkatti PS. Endocannabinoid as anti-inflammatory agent in acute lung injury: Role of Micro-RNAs. Discover USC Day, Columbia, S.C. April 21, 2017.

Al-Ghezi Z, Nagarkatti M, and Nagarkatti P. 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. Discover USC Day, Columbia, S.C. April 21, 2017.

Alharris E, Alghetaa H, Nagarkatti PS, and Nagarkatti M. Activation of PTEN mediates the apoptotic effects of Cannabidiol, a non-psychoactive cannabinoid, in neuroblastoma. Discover USC Day, Columbia, S.C. April 21, 2017.

Alghetaa HF, Mohammed AK, Sultan M, Nagarkatti P, and Nagarkatti M. Protective role of resveratrol against lung dysbiosis in SEB-induced acute lung injury. Discover USC Day, Columbia, S.C. April 21, 2017.

Abdulla O, Nagarkatti M, and Nagarkatti PS. Role of Ahr ligands in microRNA-mediated Th17/T regulatory cell differentiation in Delayed Type Hypersensitivity. Discover USC Day, Columbia, S.C. April 21, 2017.

Alrafas HR, Busbee PB, Nagarkatti PS, and Nagarkatti M. Effect of resveratrol on gut microbiome in TNBS-induced colitis. Discover USC Day, Columbia, S.C. April 21, 2017.

Bam M, Yang X, Nagarkatti PS, and Nagarkatti M. Inflammation in PTSD is an outcome of the dysregulated miRNA biogenesis pathway. Discover USC Day, Columbia, S.C. April 21, 2017.

Busbee PB, Nagarkatti M, and Nagarkatti PS. Indole-3-carbinol ameliorates murine colitis symptoms through alterations in gut microbial composition and metabolomic pathways, particularly through decreasing disease-associated *Bacteroides acidifaciens* species. Discover USC Day, Columbia, S.C. April 21, 2017.

Miranda, K., Nagarkatti, P.S., Nagarkatti, M. Cannabinoid receptor 1 blockade alters dysbiosis in gut microbiota contributing to its anti-obesity effects. Discover USC Day, Columbia, S.C. April 21, 2017.

Gandy KA, Nagarkatti M, and Nagarkatti P.S. The role of gut microbiota in shaping the immune response in relapse-remitting and chronic-progressive mouse models of multiple sclerosis. Discover USC Day, Columbia, S.C. April 21, 2017.

Mohammed AK, Alghetaa HF, Nagarkatti PS, and Nagarkatti M. Protective effects of $\Delta 9$ -Tetrahydrocannabinol (THC) results from alteration in lung dysbiosis mediated by SEB-induced acute lung injury. Discover USC Day, Columbia, SC, April 21, 2017.

Neamah WH, Nagarkatti M, and Nagarkatti PS. 2,3,7,8-tetrachloridbenzo-p-dioxin (TCDD)-induced MDSCs mediate immunosuppressive activity through microRNA dysregulation. Discover USC Day, Columbia, S.C., April 21, 2017.

Mohammed AK, Nagarkatti PS, Nagarkatti M. Role of miR-34a in Amelioration of SEB-induced Lung Injury Treated with Tetrahydrocannabinol (THC). W. Morgan Newton Research Symposium, Biomedical Sciences School of Medicine, March 3, 2017.

Sultan M, Alghetaa H, Nagarkatti M, and Nagarkatti PS. Endocannabinoid ameliorates acute lung injury through regulation of Micro-RNAs. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Abdulla O, Nagarkatti M, and Nagarkatti PS. Role of Ahr ligands in microRNA-mediated Th17/T regulatory cell differentiation in Delayed Type Hypersensitivity. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Al-Ghezi Z, Nagarkatti M, and Nagarkatti PS. Combination of cannabinoids, $\Delta 9$ - tetrahydrocannabinol (THC) and cannabidiol (CBD), ameliorate experimental autoimmune encephalomyelitis by promoting cell cycle arrest and apoptosis in activated T cells through miRNA signaling pathways. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Alharris E, Alghetaa H, Nagarkatti M, Nagarkatti PS. Activation of PTEN mediates the apoptotic effects of Cannabidiol, a non-psychoactive cannabinoid, in neuroblastoma. South Carolina Academy of Sciences (SCAS), Coastal Carolina University, Conway, SC, March 25, 2017.

Alrafas HR, Busbee PB, Nagarkatti PS, and Nagarkatti M. Effect of resveratrol on gut microbiome in TNBS-induced colitis. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Becker W, Nagarkatti M, and Nagarkatti PS. Marijuana $\Delta 9$ -tetrahydrocannabinol induces unique changes in the murine gut microbiome through induction of myeloid-derived suppressor cells and T helper 17 cells. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Miranda K, Nagarkatti PS, Nagarkatti M. Micro-RNA-30 modulates metabolic inflammation by regulating Notch signaling in adipose tissue macrophages. South Carolina Academy of Science Annual Meeting, Conway, South Carolina, March 25, 2017.

Neamah WH, Nagarkatti M, and Nagarkatti P.S. 2,3,7,8-tetrachloridbenzo-p-dioxin (TCDD)-induced MDSCs mediate immunosuppressive activity through microRNA dysregulation. South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Mohammed AK, Nagarkatti PS, Nagarkatti M. Role of miR-34a in Amelioration of SEB-induced Lung Injury Treated with Tetrahydrocannabinol (THC). South Carolina Academy of Sciences, Conway, South Carolina, March 25, 2017.

Dr. Robert Startz presented a lecture at USC, Carolina Classroom, "Diseases of the 19th Century", February 15, 2017.

Chitrala K.N. Role of high performance computing molecular dynamic simulations in revealing the key residues of AhR ligand binding domain conferring mechanistic interactions with the ligands. Symposium on Research Computing Infrastructure, Lightning Talk, April 14, 2017, University of South Carolina, Columbia, SC, USA.

Aladhami A, Hobensack M, Kumte NI, Chumanevich AP, Cranford TL, Enos RT, Velázquez KT, Chatzistamou I, Fuseler JW, Murphy EA, and Oskeritzian CA. "Angiogenesis and mast cells in precancerous prostate". Poster presentation, Center for Colon Cancer Research Annual Retreat, Columbia, SC, January 5, 2017.

Dr. Carole Oskeritzian was invited to give a talk titled "Mast cell-based non-invasive screening for colorectal cancer" at the 2017 Center for Colon Cancer Research Annual Retreat, January 5, Columbia, SC.

Hobensack M, Aladhami A, Kumte NI, Chumanevich AP, Cranford TL, Enos RT, Velázquez KT, Chatzistamou I, Fuseler JW, Murphy EA, and Oskeritzian CA. "Angiogenesis and mast cells in precancerous prostate". Poster presentation, Discover USC, Columbia, SC, April 21, 2017.

Ahmed Aladhami, PhD Candidate in Dr. Oskeritzian's laboratory gave a three-minute thesis presentation entitled "Differential mast cell subset and lipidomics profiling may explain disparity in prostate cancer susceptibility" at Discover USC, Columbia, SC, April 21, 2017.

Katherine M. Castleberry, a Magellan Scholar in Dr. Carole Oskeritzian's laboratory, received First Place for her oral presentation "Novel morphometrics establish mast cell-dependent angiogenesis in atopic dermatitis pathogenesis" at the Science, Technology, Engineering and Math session at Discover USC, Columbia, SC, April 21, 2017.

Dr. Carole Oskeritzian was invited to visit Augusta University/Medical College of Georgia on March 8-9, 2017 and gave a seminar entitled "Deciphering Inflammation: Mast Cells and Sphingosine-1-phosphate as Early Mechanistic Biomarkers and Immunomodulators of Trauma" at the Department of Physiology Seminar Series, Augusta University/Medical College of Georgia, Augusta GA.

Dr. Berlin Londono-Renteria (Colpitts lab) presented her research entitled "Skin and midgut: tissue barriers and cross-species battlegrounds" at the 2017 Tropical Infectious Diseases Gordon Research Conference in Galveston, TX.

Dr. Tonya Colpitts gave a presentation entitled "Transmission-blocking vaccines for vector-borne disease prevention" at the 2017 International Vaccines conference in Baltimore, MD.

Kiaris H, Farmaki E, Kaza V, Chatzistamou I. Chemokine gradients and breast cancer metastasis: the role of CCL8 in breast cancer metastasis. Oral presentation in the Annual Endocrine Society Meeting, Orlando, April 2-4, 2017.

Kiaris H, Kaza V, Farmaki E, Crossland J, Chatzistamou I. *Peromyscus Californicus* supports the growth of MCF7 human breast tumors without estrogen supplementation. Annual Endocrine Society Meeting, Orlando, April 2-4, 2017 (late breaking award).

Chatzistamou I, Mihailidou C, Kiaris H. Age-dependent modulation of the unfolded protein response is beneficial for the management of diabetes in the elderly. Annual Endocrine Society Meeting, Orlando, April 2-4, 2017.

Faulkner A, Cervino J, Farmaki E, Kaza V, Kiaris H, Chatzistamou I. Studies on the transcriptional regulation of the tumor-promoting chemokine. Discover USC Day, Convention Center, Columbia SC, April 21st, 2017.

Havighorst A, Farmaki E, Kaza V, Chatzistamou I, Kiaris H. Individual Variations in Unfolded Protein Response are Correlated with Glycemic Variation in *Peromyscus maniculatus bairdii*. Discover USC Day, Convention Center, Columbia SC, April 21st, 2017.

Heuker J, Ray SK. Flavonoid for prevention of calcium ionophore induced apoptosis in astroglial cells. Presented in the 2017 Discover USC Day (A forum for student ingenuity), April 21, Columbia Metropolitan Convention Center, Columbia, SC.

Khathayer F, Ray SK. Improvement of therapeutic effects by combination of SAHA and 4HPR in controlling growth of glioblastoma cells. Presented at the 2017 Discover USC Day (A forum for student ingenuity), April 21, Columbia Metropolitan Convention Center, Columbia, SC.

Raghava N, Ray SK. Retinoid for protection of astroglial cells from oxidative stress induced apoptosis. Presented at the 2017 Discover USC Day (A forum for student ingenuity), April 21, Columbia Metropolitan Convention Center, Columbia, SC.

Taylor M, Ray SK. Synergistic effect of quercetin and sodium butyrate in inhibition of autophagy and increase in apoptosis in rat and human glioblastoma cells. Presented at the 2017 Discover USC Day (A forum for student ingenuity), April 21, Columbia Metropolitan Convention Center, Columbia, SC.

Dr. Robert Startz presented at the Alumni Center for Carolina Classroom (Adult Education) "Diseases of Famous People" April 12, 2017. He received excellent reviews.