

EAST TENNESSEE STATE UNIVERSITY
QUILLEN COLLEGE OF MEDICINE
SUMMARY OF SCHOLARLY ACTIVITIES

Biomedical Science Graduate Program
Graduate Student Scholarly Activities

July 1, 2019 – June 30, 2020

I. PUBLICATIONS

Graduate students in bold

Alkhateeb T, Bah I, Kumbhare A, McCall CE, El Gazzar M. S100A9-Induced Reprogramming of Myeloid Cells During Sepsis. Abstract. *Critical Care Medicine*. (2020) 48(1):12, <https://doi.org/10.1097/01.ccm.0000618592.67319.a3>

Alkhateeb T, Bah I, Kumbhare A, Youssef D, McCall CE, El Gazzar M. HuR promotes miRNA-mediated upregulation of NFI-A protein expression during murine sepsis. Abstract. *The Journal of Investigative Medicine*. (2020) *June Issue*

Birchfield AS, McIntosh CA. The Effect of Recombinant Tags on *Citrus paradisi* Flavonol-Specific 3-O Glucosyltransferase Activity. *Plants (Basel)*. 2020;9(3):402. Published 2020 Mar 24. doi:10.3390/plants9030402

Cui K, Podolnikova NP, Bailey W, Szmuc E, Podrez EA, Byzova TV, Yakubenko VP. Inhibition of Integrin $\alpha\text{D}\beta\text{2}$ -mediated Macrophage Adhesion to End-product of DHA Oxidation Prevents Macrophage Accumulation during Inflammation. *J Biol Chem*. 2019 Aug 8. pii: jbc.RA119.009590. doi: 10.1074/jbc.RA119.009590

Xindi Dang, Stella C Ogbu, Juan Zhao, **Lam Ngoc Thao Nguyen**, Dechao Cao, **Lam Nhat Nguyen**, **Sushant Khanal**, **Madison Schank**, Bal Krishna Chand Thakuri, Xiao Y Wu, Zheng D Morrison, Jinyu Zhang, Zhengke Li, Mohamed El Gazzar, Shunbin Ning, Ling Wang, Zhengqiang Wang, Jonathan P Moorman, Zhi Q Yao Inhibition of topoisomerase IIA (Top2 α) induces telomeric DNA damage and T cell dysfunction during chronic viral infection. (2020). *Cell Death & Disease* 11 (3), 1-12

Zhang X, Wang X, **Fan M**, **Tu F**, Yang K, Ha T, Liu L, Kalbfleisch J, Williams D, Li C. Endothelial HSPA12B Exerts Protection Against Sepsis-Induced Severe Cardiomyopathy via Suppression of Adhesion Molecule Expression by miR-126. *Front Immunol*. 2020;11:566. Published 2020 Apr 29. doi:10.3389/fimmu.2020.00566.

Gill, W. D., Shelton, H. W., Burgess, K. C., & Brown, R. W. (2020). The effects of an adenosine A2A agonist on the rewarding associative properties of nicotine and neural plasticity in a rodent model of schizophrenia. *Journal of Psychopharmacology*, 34(1), 137-144.

Haq I and Kilaru A (2020). An endocannabinoid catabolic enzyme FAAH and its paralogs in an early land plant reveal evolutionary and functional relationship with eukaryotic orthologs. **Scientific Reports**. 10:3115

Haq I, Thakuri B, Hobbs T, Davenport M, and Kumar D (2020). Tobacco SABP2-interacting protein SIP428 is a SIR2 type deacetylase. **Plant Physiology and Biochemistry** (Approved).

Juan Zhao, **Lam Ngoc Thao Nguyen, Lam Nhat Nguyen, Xindi Dang**, Dechao Cao, **Sushant Khanal, Madison Schank**, Bal Krishna Chand Thakuri, Stella C Ogbu, Zheng D Morrison, Xiao Y Wu, Zhengke Li, Yue Zou, Mohamed El Gazzar, Shunbin Ning, Ling Wang, Jonathan P Moorman, Zhi Q Yao ATM deficiency accelerates DNA damage, telomere erosion, and premature t cell aging in HIV-infected individuals on antiretroviral therapy. (2019). *Frontiers in Immunology* 10

Cuihong Jia, **Hannah M. Malone**, Matthew P. Keasey, Chiharu Lovins, Theo Hagg. Vitronectin mitigates stroke-increased neurogenesis only in female mice and through FAK-regulated IL-6. *Experimental Neurology*. January 2020.
PMID: 31678139

Cuihong Jia, **Hannah M. Malone**, Matthew P. Keasey, Chiharu Lovins, Jacob Elam, Theo Hagg. Blood Vitronectin Induces Detrimental Brain Interleukin-6 and Correlates With Outcomes After Stroke Only in Female Mice. *Stroke*. May 2020.
PMID: 32312218

Qin Y, **Musket A**, Kou J, et al. Overexpression of HGF/MET axis along with p53 inhibition induces de novo glioma formation in mice. *Neurooncol Adv*. 2020;2(1):vdaa067. Published 2020 Jun 4. doi:10.1093/nojnl/vdaa067

Zhan Y, **Raza MU**, Yuan L, Zhu MY. Critical Role of Oxidatively Damaged DNA in Selective Noradrenergic Vulnerability. *Neuroscience*. 2019;422:184-201.
doi:10.1016/j.neuroscience.2019.09.036

Zhu MY, **Raza MU**, Zhan Y, Fan Y. Norepinephrine upregulates the expression of tyrosine hydroxylase and protects dopaminergic neurons against 6-hydrodopamine toxicity. *Neurochem Int*. 2019;131:104549. doi:10.1016/j.neuint.2019.104549

Tu Fei, Wang Xiaohui, Zhang Xia, Ha Tuanzhu, Wang Yana, **Fan Min**, Yang Kun, **Gill P. Spencer**, Ozment Tammy R., Dai Yuan, Liu Li, Williams David L., Li Chuanfu (2020). Novel Role of Endothelial Derived Exosomal HSPA12B in Regulating Macrophage Inflammatory Responses in Polymicrobial Sepsis. *Frontiers in Immunology*, 11, 825.

Wingard M, Frasier C, Singh M. Singh K. Heart failure and diabetes: role of ATM. *Current Opinion in Pharmacology*. 2020. In Press (Invited Review).

II. PRESENTATIONS

Graduate Student in bold

Tuqa Alkhateeb –Sepsis Induced Immunosuppression and Dysregulation of Myeloid Cell Development. Biomedical Sciences Internal Seminar, August 2, 2019

Tuqa Alkhateeb- Invited Speaker- Star Research Oral Presentation Alkhateeb T, Bah I et al. S100A9-Induced Reprogramming of Myeloid Cells during Sepsis. *Society of Critical Care Medicine, Critical Care Congress*. Feb 2020

Tuqa Alkhateeb- Dissertation Defense -Development, Expansion and Role of Myeloid-Derived Suppressor Cells in Post-Sepsis Immune Suppression, June 5, 2020

Jyoti Behera - Poster: " C-terminal region of Wrinkled1 is a potential target for oil enhancement in non-seed tissues " ; Phytochemical Society of North America (PSNA) annual meeting, Jul 20- Jul 24, East Tennessee State University, Johnson city, TN

Amy Berry-Determining the effects of the inhibition of Chlamydia muridarum host cell exit mechanisms. (Britton Huskey, Amy Berry, Jennifer Kintner, and Jennifer Hall.) (Presented by B. Huskey at the 2019 Medical Student Research Symposium)

Amy Berry - Departmental Seminar: Chlamydial interactions with the female sex hormones estrogen and progesterone and their receptors (September 2019)

Aaron Birchfield - Grapefruit flavonoid specific 3-O Glucosyltransferase: Effect of Tags on Activity and Preparation for Crystallization. Phytochemical Society of North America (July 2019)

Trevor Chapman - Investigating the proximate mechanisms of habitat constraints in two species of Plethodontid salamanders in the Southern Appalachian Mountains, Tennessee Herpetological Society, Gray, TN, September 2019

Kui Cui - Valentin Yakubenko, **Kui Cui**, Meghan Addorisio, David L. Williams, Valentin A. Pavlov. New insight into the role of the $\alpha 7$ nicotinic acetylcholine receptor in the neuro-immune dialogue and in mediating macrophage migration in murine endotoxemia. *Society for Neuroscience*, 10/19-23, Chicago, IL, USA, 2019

Xindi Dang- Seminar: March 17, 2020. Title: Inhibition of topoisomerase IIA induces telomeric DNA damage and T cell dysfunction during chronic viral infection

Min Fan- Fan M, Yang K, Wang Y, Tu F, Ha T, Liu L, Kalbfleisch J, Williams D, Li C. Endothelial HSPA12B and YAP cooperatively promote angiogenesis following myocardial infarction. Poster presentation at the AHA Scientific Sessions, November 16-18, 2019, Philadelphia, PA.

Min Fan- Wang Y, Yang K, Gill S, Fan M, Tu F, Ha T, Liu L, Kalbfleisch J, Williams D, Li C. Endothelial cell specific HSPA12B promotes macrophage polarization toward a regenerative phenotype following myocardial infarction. Oral presentation at the AHA Scientific Sessions, November 16-18, 2019, Philadelphia, PA.

Min Fan- Fan M. Endothelial HSPA12B and YAP cooperatively promote angiogenesis following myocardial infarction. Internal Seminar Series. March 3, 2020.

Drew Gill- Dissertation Defense-Epigenetic Transmission of Schizophrenia-Like Effects in the Neonatal Quinpirole Rodent Model of Schizophrenia, March 26, 2020

Spencer Gill - "Training the innate immune system reverses age related changes to the fecal microbiome"- Abstract submitted to be presented at the 4th International Conference on Innate Immune Memory in Nijmegen, the Netherlands in **October/November 2019**.

Spencer Gill - "Innate immune training modulates myeloid derived cell (MDSC) populations in polymicrobial sepsis"- Abstract submitted to be presented at the 4th International Conference on Innate Immune Memory in Nijmegen, the Netherlands in **October/November 2019**.

Henry Gong - Gong, H., Knisley, C., and Bradshaw, P.C. Examining the effects of two NAD kinases on oxidative stress in *C. elegans*. ETSU Quillen College of Medicine Medical Student Summer Research Forum. September 2019

Imdadul Haq- Haq I and Kilaru A (2019) Understanding endocannabinoid metabolism in a simple organism for therapeutic enhancement. 3 Minutes Thesis (3MT), East Tennessee State University, Johnson City, TN (Oral)

Imdadul Haq- Dissertation Defense- Understanding the Implications of Anandamide, an Endocannabinoid in Early Land Plant, *Physcomitrella patens*, March 30, 2020

Madeleine Miller- Biology department seminar - oral presentation, October 16th, 2019
Title: Lights, Clock, Action! Circadian Rhythms of Locomotor Activity in *Larinioides cornutus* Indicate Extreme Flexibility in Photo-entrainment. Authors: Madeleine K. Miller, Thomas C. Jones, Darrell Moore

Madeleine Miller - Society for Neuroscience Annual meeting - poster presentation, October 23rd 2019
Title: Lights, Clock, Action! Circadian Rhythms of Locomotor Activity in *Larinioides cornutus* Indicate Extreme Flexibility in Photo-entrainment. Authors: Madeleine K. Miller, Thomas C. Jones, Darrell Moore

Anna Musket- 3 Minute Thesis presentation: Glioblastoma: misregulation and therapeutic options, second place, Fall 2019

Donald Ngwa-Dissertation Defense- A novel mode of action of C-reactive protein in protecting against *Streptococcus pneumoniae* infection and synergy with antibiotics , March 24, 2020

Asmita Pathak-Dissertation Defense- Protection against atherosclerosis by a non-native pentameric CRP that shares its ligand recognition functions with an evolutionarily distant CRP, March 30, 2020

Amelia Pearson- Oral presentation - SEEPEG 2019 - Diurnal variation in the heat tolerance of locally adapted genotypes of *Daphnia magna*

Fei Tu-Dissertation Defense-Roles of Endothelial Cell Heat Shock Protein A12B and β -glucan, a reagent for trained Immunity in the Regulation of Inflammation in Sepsis, June 25, 2020

Mary Wingard- Student seminar- Role of Ataxia-Telangiectasia Mutated Kinase in Western-type Diet-induced Cardiac Outcomes; May 12, 2020

III. EXTERNAL GRANTS SUBMITTED

Min Fan-

American Heart Association

2020 AHA Predoctoral Fellowship

Title of Project: HSPA12B and YAP cooperatively regulate endothelial cell proliferation and angiogenesis after myocardial infarction.

The Award begins , and has been approved at the level of funding indicated below:

Period 1 Start Date: 1/1/2020, End Date: 12/31/2020, Total: \$31,016

Period 2 Start Date: 1/1/2021, End Date: 12/31/2021, Total: \$31,016

Madison Schank-

NIH / NIAID NRSA (F31)

Title: Coordination of HIV-infection and ART-treatment to induce mitochondrial dysfunction in CD4+ T cells

Mary Wingard-

AHA Predoctoral Fellowship

NIH NRSA (F31)

Title: ATM: Role in Western-type diet-induced cardiac dysfunction

IV. GRANTS/TRAVEL/OTHER AWARDS

Tuqa Alkhateeb- Trainee Travel Award Midwest Clinical and Translational Research Meeting. Apr 2020

Tuqa Alkhateeb- Star Research Achievement Award Society of Critical Care Medicine. Feb 2020

Jyoti Behera- Award: Recipient of 'School of Graduate Studies Research Grant' Award 2020 Understanding the Structural Domains of Oil Biosynthesis Regulator Protein in Avocado

Min Fan- 2019 BCVS Abstract Travel Grant at AHA Scientific Sessions, November 16-18, 2019, Philadelphia, PA.

Min Fan- 2020 AHA Predoctoral Fellowship (1/1/2020-12/31/2021).

Anna Musket- 3 Minute Thesis presentation: Glioblastoma: misregulation and therapeutic options, second place, Fall 2019

Anna Musket

Recipient of 'School of Graduate Studies Research Grant' Award 2020

Characterization of MET Alteration using Glioblastoma Patient Derived Xenograft Models

V. STUDENT TEACHING EXPERIENCES

Jyoti Behera

1. Fall 2019: BIOL-4157, Biochemistry of macromolecules lab (4 hours per week)

2. Spring 2020: BIOL-4177, Biochemistry of Metabolism lab (4 hours per week)

For both labs, my duties include teaching the lab, grading the lab report, conduct quizzes, grade the midterm and endterm exams.

Amy Berry

Fall 2019: Medical Microbiology and Immunology Laboratory Instructor, 2-6 contact hours/week. Assisted faculty in the medical microbiology laboratory.

Trevor Chapman

Biochemistry of Macromolecules lab, Fall 2019, 4 hours/week. Prepare short lectures for lab instruction, supervise lab activities; prepare, administer, and grade homework, exams, and manuscripts.

Madeleine Miller

Biochemistry Lab (20 hours/week)- macromolecules, Fall 2019 and Spring 2020
Teaching lab techniques including TLC, SDS PAGE, Western blot, PCR, photospectrometry

Mary Wingard

Biomedical Science I- Teaching a lecture on working with laboratory mice.