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Quillen College of Medicine Scholarly Activity Report

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6-30-2019

## 2018-2019 Department of Biomedical Sciences Scholarly Activity Report

Quillen College of Medicine, East Tennessee State University

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EAST TENNESSEE STATE UNIVERSITY  
QUILLEN COLLEGE OF MEDICINE

**SUMMARY OF SCHOLARLY ACTIVITIES**  
**DEPARTMENT OF BIOMEDICAL SCIENCES**

JULY 1, 2018 – JUNE 30, 2019

I **PUBLICATIONS**

Note: \*Graduate student, \*\*Undergraduate student, \*\*\*Medical student

**1-A. Journal Publications**

Allen SA, Tran LH, Oakes HV, **Brown RW**, Pond BB (2019) Dopaminergic effects of major bath salt constituents 3,4-Methylenedioxypropylamphetamine (MDPV), Mephedrone, and Methylone are enhanced following co-exposure. *Neurotox Res.* Jul;36(1):132-143. PMID: 30879275.

Berry A\*, **Hall JV** (2019) The complexity of interactions between female sex hormones and Chlamydia trachomatis infections. *Curr Clin Micro Rpt.* Jun;6:2:67-75. Awaiting PMCID. Springer Link Online ISSN: 2196-5471. <https://doi.org/10.1007/s40588-019-00116-5>.

**Bradshaw PC** (2019) Cytoplasmic and mitochondrial NADPH-Coupled redox systems in the regulation of aging. *Nutrients.* Mar 11(3):504. Review. PMID:30818813.

Cao D, Zhao J, Nguyen LN\*, Nguyen LNT, Khanal S, Dang X, Schank M, Chand Thakuri BK, Wu XY, Morrison ZD, Elgazzar M, **Zou Y**, Ning S, Wang L, Moorman JP, Yao ZQ (2019) Disruption of telomere integrity and DNA repair machineries by KML001 induces T cell senescence, apoptosis and cellular dysfunctions. *Front Immunol.* May 22;10:1152. PMID:31191531.

Chen J, Hanna P, Ardell JL, **Hoover DB**, Vadigepalli R, Schwaber J, Shivkumar K, Cheng ZJ (2019) Intrinsic cardiac ganglionic neurons projecting to the SA node in the rat and pig hearts: Retrograde labeling and NeuroLucida 3-D reconstruction. *FASEB J* 33, 1\_Supplement:773.2.

Cui K\*, Ardell CL, Podolnikova NP, **Yakubenko VP** (2018) Distinct migratory properties of M1, M2 and resident macrophages are regulated by  $\alpha$ D $\beta$ 2 and  $\alpha$ M $\beta$ 2 integrin-mediated adhesion. *Front Immunol.* Nov 15;9:2650. PMID:30524429.

Delic V, Kurien C, Cruz J, Zivkovic S, Barretta J, Thomson A, Hennessey D, Joseph J, Ehrhart J, Willing AE, **Bradshaw P**, Garbuzova-Davis S (2018) Discrete mitochondrial aberrations in the spinal cord of sporadic ALS patients. *J Neurosci Res.* Aug;96(8):1353-1366. PMID:29732581.

Delic V, Noble K, Zivkovic S, Phan TA, Reynes C, Zhang Y, Phillips O, Claybaker C, Ta Y, Dinh VB, Cruz J, Prolla TA, **Bradshaw PC** (2018) The effects of AICAR and rapamycin on mitochondrial function in immortalized mitochondrial DNA mutator murine embryonic fibroblasts. *Biol Open.* Nov 16;7(11). PMID:30177551.

Dhabal S, Das P, Biswas P, Kumari P, **Yakubenko VP**, Kundu S, Cathcart MK, Kundu M, Biswas K, Bhattacharjee A (2018) Regulation of monoamine oxidase A (MAO-A) expression, activity and function in IL-13-stimulated monocytes and A549 lung carcinoma cells. *J Biol Chem.* Sep 7;293(36):14040-14064. PMID:30021838.

[Dong L](#), [Zhou H](#), [Zhao M](#), [Gao X](#), [Liu Y](#), [Liu D](#), [Guo W](#), [Hu H](#), [Xie Q](#), [Fan J](#), [Lin J](#), [Wu W](#) (2018) Phosphorothioate-Modified AP613-1 specifically targets GPC3 when used for Hepatocellular carcinoma cell imaging. *Mol* [HYPERLINK](#)

["https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets"](https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets) [HYPERLINK](#)

["https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets"](https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets) *Ther* [HYPERLINK](#)

["https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets"](https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets) *Nucleic Acids* [HYPERLINK](#)

["https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets"](https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets). [HYPERLINK](#)

["https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets"](https://www.ncbi.nlm.nih.gov/pubmed?term=Phosphorothioate-modified%20AP613-1%20specifically%20targets) Dec 7;13:376-386. PMID:30347351.

Fan Y, Chen P, Raza MU\*, Szebeni A, Szebeni K, **Ordway GA**, Stockmeier CA, **Zhu MY** (2018) Altered expression of Phox2 transcription factors in the locus coeruleus in major depressive disorder mimicked by chronic stress and corticosterone treatment *In Vivo* and *In Vitro*. *Neuroscience.* Nov 21;393:123-137. PMID:30315878.

Graus MS, Wester MJ, Lowman DW, Williams DL, **Kruppa MD**, Martinez CM, Young JM, Pappas HC, Lidke KA, Neumann AK (2018) Mannan molecular substructures control nanoscale glucan exposure in candida. *Cell Rep.* Aug 28;24(9):2432-2442. PMID:30157435.

Griffin JWD\*, **Bradshaw PC** (2018) In silico prediction of novel residues involved in amyloid primary nucleation of human I56T and D67H lysozyme. *BMC Struct Biol.* Jul 20;18(1):9. PMID:30029603.

Ji Y, Dang X, Nguyen LNT, Nguyen LN, Zhao J, Cao D, Khanal S, Schank M, Wu XY, Morrison ZD, **Zou Y**, El Gazzar M, Ning S, Wang L, Moorman JP, Yao ZQ (2019) Topological DNA damage, telomere attrition and T Cell senescence during chronic viral infections. *Immunity & Ageing.* Jun 24;16:12. PMID:31285747.

**Jia C**, **Brown RW**, Malone HM\*, Burgess KC, Gill WD\*, **Keasey MP**, **Hagg T** (2019) Ciliary neurotrophic factor is a key sex-specific regulator of depressive-like behavior in mice. *Psychoneuroendocrinology.* \*Corresponding author. Feb;100:96-105. PMID: 30299260.

**Jia C**, **Keasey MP**, Malone HM\*, Lovins C, Sante RR\*, Razskazovskiy V, **Hagg T** (2018) Vitronectin from brain pericytes promotes adult forebrain neurogenesis by stimulating CNTF. *Exp Neurol.* Nov 6;312:20-32. PMID:30408465.

**Jia C**, **Keasey MP**, Lovins C, **Hagg T** (2018) Inhibition of astrocyte FAK-JNK signaling promotes subventricular zone neurogenesis through CNTF. *Glia.* Nov;66(11):2456-2469. PMID:30500112.

Kaestner CL, Smith EH, Peirce SG, **Hoover DB** (2019) Immunohistochemical analysis of the mouse celiac ganglion: An integrative relay station of the peripheral nervous system. *J Comp Neurol.* Apr 25. doi: 10.1002/cne.24705. [Epub ahead of print]

**Kostrzewa RM**, Wydra K, Filip M, Crawford CA, McDougall SA, **Brown RW**, Borroto-Escuela DO, Fuxe K, Gainetdinov RR (2018) Dopamine D2 receptor supersensitivity as a spectrum of neurotoxicity and status in psychiatric disorders. *J Pharmacol Exp Ther.* Sep;366(3):519-526. PMID:29921706.

Kou J\*, **Musich PR**, Staal B, Kang L, Qin Y, Yao ZQ, Zhang B, Wu W, Tam A, Huang A, Hao HX, Vande Woude GF, **Xie Q** (2018) Differential responses of MET activations to MET kinase inhibitor and neutralizing antibody. *J Transl Med.* Sep 12;16(1):253. PMID:30208970.

**Kruppa MD**, Jacobs J\*\*\*, King-Hook K\*\*\*, Galloway K, Berry A\*, Kintner J, Whittimore JD, Fritz R, **Schoborg RV**, **Hall JV** (2019) Binding of elementary bodies by the opportunistic fungal pathogen *Candida albicans* or Soluble  $\beta$ -Glucan, Laminarin, inhibits chlamydia trachomatis infectivity. *Front Microbiol.* Jan 14; 9:3270 PMID:30692972.

**Li Z**, Qi DL, Singh HP, **Zou Y**, Shen B, Cobrinik D (2019) A novel thyroid hormone receptor isoform, TR $\beta$ 2-46, promotes SKP2 expression and retinoblastoma cell proliferation. *J Biol Chem.* Feb 22;294(8):2961-2969. PMID:30643022.

Mehraban N, **Musich PR**, Freeman HS (2019). Synthesis and encapsulation of a new zinc phthalocyanine photosensitizer into polymeric nanoparticles to enhance cell uptake and phototoxicity. *Appl Sci.* Jan 24;9(3): 401-414; <https://doi.org/10.3390/app9030401>.

Murrell DE, Cluck DB, Moorman JP, Brown SD, Wang KS, **Duffourc MM**, Harirforoosh S (2019) HIV integrase inhibitor pharmacogenetics: An exploratory study. *Clin Drug Investig.* Mar;39(3):285-299. PMID:30623371.

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Nguyen LN\*, Zhao J\*, Cao D, Dang X, Wang L, Lian J, Zhang Y, Jia Z, Wu XY, Morrison Z, **Xie Q**, Ji Y, Zhang Z, El Gazzar M, Ning S, Moorman JP, Yao ZQ (2018) Inhibition of TRF2 accelerates telomere attrition and DNA damage in naïve CD4 T cells during HCV infection. *Cell Death Dis.* Sep 5;9(9):900. PMID:30185784.

Ngwa DN\*, **Agrawal A** (2019) Structure-function relationships of C-reactive protein in bacterial infection. *Front Immunol.* Feb 26;10:166. PMID:30863393.

Pathak A\*, **Agrawal A** (2019) Evolution of C-reactive protein. *Front Immunol.* Apr 30;10:943. PMID:31114584.

Peterknecht E, **Keasey MP**, Beresford MW (2018) The effectiveness and safety of biological therapeutics in juvenile-onset systemic lupus erythematosus (JSLE): A systematic review. *Lupus.* Nov;27(13):2135-2145. PMID:30336753.

Podolnikova NP, Hlavackova M, Wu Y, **Yakubenko VP**, Faust J, Balabiyev A, Wang X, Ugarova TP (2019) Interaction between the integrin Mac-1 and signal regulatory protein  $\alpha$  (SIRP $\alpha$ ) mediates fusion in heterologous cells. *J Biol Chem.* May 10;294(19):7833-7849. PMID:30910815.

**Polichnowski AJ** (2018) Microvascular rarefaction and hypertension in the impaired recovery of kidney disease following AKI in preexisting CKD states. *AJ Physiol Renal Physiol.* Dec 1;315(6):F1513-F1518. PMID: 30256130.

Pyrski M, Tusty M, Eckstein E, Oboti L, **Rodriguez-Gil DJ**, Greer CA, Zufall F (2018) P/Q type calcium channel Cav2.1 defines a unique subset of glomeruli in the mouse olfactory bulb. *Front Cell Neurosci.* Sep 4;12:295. PMID:30233329.

Scofield SLC\*, Daniels CR\*, Dalal S, Millard JA\*, **Singh M, Singh K** (2018) [Extracellular ubiquitin modulates cardiac fibroblast phenotype and function via its interaction with CXCR4.](#) *Life Sci.* Oct 15;211:8-16. PMID:30195032.

Scofield SLC\*, Dalal S, Lim K\*, Thrasher PR\*, Daniels CR\*, Peterson JM, **Singh M, Singh K** (2019) Exogenous ubiquitin reduces inflammatory response and preserves myocardial function 3 days post-ischemia-reperfusion injury. *Am J Physiol Heart Circ Physiol.* Mar 1;316(3):H617-628. (Article published with an editorial). The role of ubiquitin in cardiac ischemia-reperfusion injury. Kobayashi M, Higa JK, Matsui T. *Am J Physiol Heart Circ Physiol.* 316:H583-585. PMID:30681370.

**Singh SK, Agrawal A** (2019) Functionality of C-Reactive Protein for Atheroprotection. *Front Immunol.* Jul 16;10:1655. PMID:31379851.

Slade J, **Hall JV**, Kintner J, **Schoborg RV** (2018) The Type I interferon receptor is not required for protection in the Chlamydia muridarum and HSV-2 murine super-infection model. *Pathog Dis.* Nov. 1;76(8) PMID:30321322.

Slade J, **Schoborg RV** (2019) Human papilloma virus and chlamydia trachomatis, casual acquaintances or partners in crime? *Current Clinical Microbiology Reports*; Jun 6;2;76-87. Springer Link. <https://doi.org/10.1007/s40588-019-00117-4>.

**Smith JK**, Krishnaswamy G (2018) Selective IgE deficiency. *Allergy & Immunology* section of UpToDate2018. <https://www.uptodate.com/contents/clinical-significance-of-isolated-ige-deficiency>.

**Smith JK** (2018) Exercise, obesity and CNS control of metabolic homeostasis: A Review. *Front. Physiol.* 17;9:574. PMID:29867590. <https://doi.org/10.3389/fphys.2018.00574>.

**Smith JK** (2018) Transfer factor revisited: Treatment of chronic mucocutaneous candidiasis in a child with autoimmune polyendocrinopathy syndrome Type-1. *Clin Med Rev Case Rep.* Sept. 5(9):236; doi: 10.23937/2378-3656/1410236.

**Smith JK** (2018) IL-6 and the dysregulation of immune, bone, muscle, and metabolic homeostasis during spaceflight. *NPJ Microgravity* Dec 4;4:24; doi:10.1038/s41526-018-0057-9. eCollection 2018. Review. PMID:30534586.

**Smith JK** (2019) Transfer factor revisited: Treatment of congenital cytomegalovirus infection. *International J Case Reports (IJCR)* 4:61. DOI: 10.28933/ijcr-2019-02-2005.

**Smith JK** (2019) Subarachnoid hemorrhage due to a ruptured arteriovenous malformation. *Clin Med Img Lib.* Mar. 5:130. doi: 10.23937/2474-3682/1510130.

Stewart JR, Pyles RA, Mathis KA, **Ecaj TW** (2019) Facultative mobilization of eggshell calcium promotes embryonic growth in an oviparous snake. *J Exp Biol.* Feb 11;222(Pt 3). PMID:30630961.

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Trogen G, Bacon J, Li Y\*, **Wright GL**, Degroat A, Hagood KL, Warren Z, Forsman A, Kilaru A, Clark WA, Peterson JM (2018) Transgenic overexpression of CTRP3 prevents alcohol-induced hepatic triglyceride accumulation. *Am J Physiol Endocrinol Metab*. Nov 1;315(5):E949-E960. PMID:29763374.

Wang L, Cao D, Wang L, Zhao J, Nguyen LN, Dang X, Ji Y, Wu XY, Morrison ZD, **Xie Q**, El Gazzar M, Ning S, Moorman JP, Yao ZQ (2018) HCV-associated exosomes promote myeloid-derived suppressor cell expansion via inhibiting miR-124 to regulate T follicular cell differentiation and function. *Cell Discov*. Sep 11;4:51. PMID:30210805.

Wang Y, Xu E, **Musich PR**, Lin F (2019) Mitochondrial dysfunction in neurodegenerative diseases and the potential countermeasure. *CNS Neurosci Ther*. Jul;25(7):816-824. PMID: 0889315.

Veech RL, King MT, Pawlosky R, Kashiwaya Y, **Bradshaw PC**, Curtis W (2019) The great controlling nucleotide coenzymes. *IUBMB Life*. May;71(5):565-579. Review. PMID:30624851.

**Yakubenko VP**, Cui K\*, Ardell CL, Aziz M, Brown K, West Z, Salomon RG, Podrez EA, Byzova TV (2018) Oxidative modifications of extracellular matrix promote the second wave of inflammation via  $\beta_2$  Integrins. *Blood*. Jul 5;132(1):78-88. PMID:29724896.

**Zhu M-Y** (2018) Neuroprotective effects of agmatine and hippocampal neuron loss in the depression. *Biomed Res Rev. Review*. Oct; 2(3):1-3, doi: 10.15761/BRR.1000119. <https://www.oatext.com/pdf/BRR-2-119.pdf>

**Zhu M-Y** (2018) Noradrenergic modulation on dopaminergic neurons. *Neurotox Res*. Nov;34(4):848-859. PMID: 29572781.

## 1-B. Books or Book Chapters

### Books

Garcia D, Archer T, **Kostrzewa RM** (Eds.) Personality and Brain Disorders: Associations and Interventions, May 2019, Springer, New York. ISBN 978-3-319-90064-3.

Shinomiya N, Kataoka H, Xie Q (Eds.) Regulation of Signal Transduction in Human Cell Research - Current Human Cell Research and Applications. Springer, Singapore, ISBN: 978-981-10-7295-6.

### Book Chapters

Berry A\*, **Hall JV** (2019) The Complexity of Interactions Between Female Sex Hormones and Chlamydia trachomatis Infections. In Hudson AP (Ed.) Current Clinical Microbiology Reports, Jun, Vol. 6, Issue 2, pp. 67-75. Springer Link <https://doi.org/10.1007/s40588-019-00116-5>. Online ISSN: 2196-5471.

Garcia D, Archer T, **Kostrzewa RM** (2019) Personality, Neurodevelopmental, Neurodegenerative, and Affective Disorder. In: Garcia D, Archer T, Kostrzew RM (Eds.)

Personality and Brain Disorders: Associations and Interventions, May, Springer, New York. ISBN 978-3-319-90064-3.

Shinomiya N, **Xie Q**, Vande Woude GF (2018) MET Activation and Carcinogenesis. In: Shinomiya N, Kataoka H, Qian X (Eds.) Regulation of Signal Transduction in Human Cell Research. Current Human Cell Research and Applications. Ch. 8, pp 129-154, Springer, Singapore. [https://doi.org/10.1007/978-981-10-7296-3\\_7](https://doi.org/10.1007/978-981-10-7296-3_7). Online ISBN: 978-981-10-7295-6.

**Thewke DP**, Kou J, Fulmer ML\*, **Xie Q** (2018) The HGF/MET Signaling and Therapeutics in Cancer. In: Shinomiya N, Kataoka H, Qian X (Eds) Regulation of Signal Transduction in Human Cell Research. Current Human Cell Research and Applications. Springer, Singapore. Chapter 9, pp 155-181. Online ISBN: 978-981-10-7295-6. [https://doi.org/10.1007/978-981-10-7296-3\\_8](https://doi.org/10.1007/978-981-10-7296-3_8).

## II. PAPERS, ABSTRACTS AND/OR PRESENTATIONS

### II-A. Regional:

Alkhateeb H\*\*, **Ordway GA**, Gill WD, Coleman JB, Wang-Heaton H, et al. PARP1 inhibition produces unique antidepressant effects in an animal model of treatment-resistant depression. Undergraduate Student. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Beasley B\*\*, Sciara A, Carrasco T, **Ordway GA**, Chandley M. Laser capture microdissection analysis of inflammatory-related alterations in postmortem brain tissue of autism spectrum disorder. Undergraduate Student. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Berry A\*, Kintner J, **Hall JV**. Estrogen receptors affect Chlamydia muridarum infection in mice. Graduate Student-Doctoral. Oral Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Chapman RT\*, **Rodriguez-Gil DJ**. Engulfment of axonal debris after methimazole-induced injury. Graduate Student-Doctoral. Oral Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Coleman J.\*\*\* Analysis of a Poly-ADP Ribose (PARP) inhibitor in a Treatment-Resistant depression model in the rat. **Mentor: Dr. Russ Brown**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov. 2018; Johnson City, TN.

Cui K\*, Ardell C, Podolnikova N, **Yakubenko V**. The prevention of  $\alpha\text{D}\beta\text{2}$ -mediated macrophage adhesion to inflamed extracellular matrix thwarts macrophage retention during chronic inflammation. Graduate Student-Doctoral. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Gill WD\*, Shelton HW, Burgess KC, **Brown RW**. The effects of an Adenosine A(2A) agonist on the rewarding associative properties of nicotine and neural plasticity in a rodent model of schizophrenia. Graduate Student-Doctoral. Oral Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.



Goodlaxson J\*\*<sub>1</sub>, Gong H, Kumar A, **Bradshaw PC**. The two mitochondrial NAD<sup>+</sup> kinase genes in *C. elegans* regulate aging and reactive oxygen species production. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

James C\*\*, Dalal S, Singh M, **Singh K**. Lack of osteopontin decreases systolic and diastolic functional parameters of the heart following myocardial ischemia/reperfusion injury. Undergraduate Student. Poster Presentation. **Caytlin James awarded Second Place**. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.\*

Kihm C.\*\* Laser capture microdissection of hippocampal oligodendrocytes in patients with major depressive disorder. **Mentor: Dr. Greg Ordway**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov 2018; Johnson City, TN.

Lam F.\*\* Pericyte and endothelial cell distribution & behavior post injury. **Mentor: Dr. Cuihong Jia**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov 2018; Johnson City, TN.

Lawson S\*\*\*, Brown S, **Hoover D**. [Quantification of HYPERLINK "http://dc.etsu.edu/asrf/2019/schedule/121"acetylcholine release from splenocytes for exploration of the cholinergic anti-inflammatory pathway](http://dc.etsu.edu/asrf/2019/schedule/121). Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Ligon L.\*\* Effect of stress and antidepressant treatment on brain microglia. **Mentor: Dr. Greg Ordway**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov 2018; Johnson City, TN.

Liu C.\*\* The anti-retroviral drug dolutegravir inhibits chlamydial development? **Mentor: Dr. Rob Schoborg**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov 2018, Johnson City, TN.

Malone HM\*, **Jia C, Hagg T**. Therapeutic potential of FAK Inhibitor after stroke in neuroprotection and neurogenesis. Graduate Student-Doctoral. Oral Presentation. **Hannah Malone awarded Second Place**. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

McCuiston P\*\*, Daniel LL\*, Foster CR, **Singh K**. The role of the ataxia telangiectasia mutated kinase on diastolic and systolic function in diabetic cardiomyopathy. **First place winner in Undergraduate Student Research Category**. Boland Undergraduate Research Symposium, ETSU; Apr 2019; Johnson City, TN.

Mitchell M.\*\* Renal hypoxia as a potential contributor to impaired recovery from AKI in rats with preexisting CKD. **Mentor: Dr. Aaron Polichnowski**. 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Nov 2018, Quillen COM; Johnson City, TN.

Musick A\*\*, Shipley MM, Tu F, Li C, **Yakubenko V**, Peterson J. Effect of Sepsis on Circulating CTRP3 Levels. Undergraduate Student. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Ongtengco W\*\*, **Ordway G**. Modeling the white matter pathology of major depressive disorder using rats exposed to social defeat and chronic unpredictable stress. Boland Undergraduate Research Symposium, ETSU; Apr 2019; Johnson City, TN.

Patterson K.\*\* The effect of PD2024 on the olfactory bulb of an alzheimer's disease mouse model. **Mentor: Dr. Diego Rodriguez-Gil**. 17<sup>th</sup> Annual Medical Student Health Sciences



Research Symposium, Quillen COM; Nov 2018; Johnson City, TN.

Paul N\*\*, **Kruppa M.** Isolation and analysis of an inhibitor of neisseria gonorrhoeae. Boland Undergraduate Research Symposium, ETSU; Apr 2019; Johnson City, TN.

Peters JD\*\*, Gong H, **Bradshaw PC.** Effects of vitamin B3 and a ketone body on *C. elegans* lifespan. Undergraduate Student, Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019, Johnson City, TN.

Rauhuff HE\*\*, Gill WD, Shelton HW, Kerns CW, Gabbita P, **Brown R.** The effects of a novel anti-inflammatory on behavioral tests of cognition and anxiety in a mouse model of Alzheimer's disease. Undergraduate Student. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Reed J.\*\*\* Defining the amyloid- $\beta$ -binding site of C-Reactive protein. **Mentor: Dr. Alok Agrawal.** 17<sup>th</sup> Annual Medical Student Health Sciences Research Symposium, Quillen COM; Nov 2018; Johnson City, TN.

Seaton H\*, **Singh K,** Foster CR. The role of estrogen deficiency on cardiovascular disease following chronic sympathetic stimulation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Shelton HW\*, Gill WD, Gabbita P, **Brown RW.** The effect of two novel anti-inflammatory drugs on sensorimotor gating and microglial activation in the Poly I:C rodent model of schizophrenia. Graduate Student-Masters. Oral Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Steele R\*, Elmore C, Wilson R, Moore DJ, Schubert BW, Jones TC. Chronoecology of the cave dwelling orb-weaver spider, meta ovalis (Araneae: Tetragnathidae). Graduate Student-Masters. Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Wingard M\*, Dalal S, Thrasher P, Daniel L, **Singh M, Singh K.** Ataxia-telangiectasia mutated kinase deficiency alters the autophagic response during chronic myocardial infarction. Graduate Student-Doctoral. Poster Presentation. **Mary Wingard Awarded First Place.** Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

Yarid CR\*\*, Chapman RT\*, **Rodriguez-Gil DJ.** Maturation and synapse formation of olfactory sensory neurons after injury. Undergraduate Student, Poster Presentation. Appalachian Student Research Forum, ETSU; Apr 2019; Johnson City, TN.

## II-B National:

Ardell CL, Ozment TR, Cui K\*, Bailey WP, Williams DL, **Yakubenko VP.** The anti-sepsis mechanism of macrophage integrin  $\alpha_D\beta_2$  is mediated via regulation of macrophage migration and bacterial phagocytosis. 42nd Annual Conference on Shock; Jun 2019, Coronado, CA.

**Berry A\***, Kintner J, **Hall JV.** Estrogen receptors affect chlamydia muridarum infection in mice. 9th Biennial Chlamydia Basic Research Society Meeting; Mar 2019; Seattle, WA. **Amy Berry, Graduate Student, received a CBRS Trainee Travel Award.**

**Chapman RT\***, **Rodriguez-Gil DJ**. Methimazole-Induced injury alters levels of expression of engulfment proteins. Graduate Student Poster Presentation, XLI Association for Chemoreception Sciences (AChemS) Meeting; Apr 2019; Bonita Springs, FL.

Cui K\*, Ardell C, Podolnikova N, Ugarova T, Podrez E, Byzova T, **Yakubenko V**. Blockade of macrophage adhesion to end-product of DHA oxidation prevents macrophage accumulation during chronic inflammation. Atherosclerosis. Gordon Research Conference; Jun 2019; Newry, ME.

**Frasier CR**, Simpson J, Isom LL. *Scn8a* epileptic encephalopathy mice exhibit cardiac arrhythmias and altered autonomic tone *In-Vivo*. American Epilepsy Society Annual Meeting; Nov 2018; New Orleans, LA.

Gill WD\*, Chandley MJ, Hernandez LJ\*, Whicker WS\*\*, Kaestner CL\*, Burgess KC, **Brown RW**. Epigenetic transmission of enhanced response to nicotine in the neonatal quinpirole model of schizophrenia. Society for Neuroscience (SfN); Nov 2018; San Diego, CA.

Hubbard CS, **Beaumont E**, Sclocco R, Garcia RG, Jung C, Napadow V, Ay I. Neuromodulatory effects of auricular vagal nerve stimulation on caudomedial neurons in the nucleus tractus solitarius of the rat. Society for Neuroscience (SfN); Nov 2018; San Diego, CA.

**Hoover DB**, Polichnowski AJ, Blair TE. Donepezil, a centrally-acting cholinesterase inhibitor with known anti-inflammatory actions, activates vagal and sympathetic efferent pathways. 42nd Annual Conference on Shock, Jun 2019; San Diego, CA.

**Jia C**. Neurotrophic factor is a key sex-specific regulator of depressive-like behavior in mice. Society for Neuroscience (SfN); Nov 2018; San Diego, CA.

**Kostrzewa R**. Attended the Society for Neuroscience (SfN); Nov 2018; San Diego, CA.

**Kostrzewa R**. Attended the International BMAA Conference; Apr 2019; Salt Lake City, UT.

**Kruppa M**, Lowman D, Ma Z, Jiao YN, Graves B, Rice P, Meis JF, Netea MG, Williams DL. The emerging fungal pathogen *Candida Auris* contains cell wall mannans that exhibit unique structural features that are not found in other fungi. International Conference on Emerging Infectious Diseases; Aug 2018; Atlanta, GA.

Kuratli J\*, Marti H\*, Blenn C, **Schoborg R**, Leonard CA, Borel N. Effects of cytokine inhibitors on *Chlamydia Trachomatis* development *In vitro*. Poster presentation, 9<sup>th</sup> Biannual Chlamydia Basic Science Research Society Meeting; Mar 2019; Seattle, WA.

Liberia T, **Rodriguez-Gil DJ**, Greer CA. Olfactory sensory neuron maturation in the young adult. Poster presentation, XLI Association for Chemoreception Sciences (AChemS) Meeting; Apr 2019; Bonita Springs, FL.

Murrell D, Wang K-S, Cluck D, Moorman JP, **Duffourc M**, Harirforoosh S. Associations of *ABCB1* polymorphisms with adverse events stratified by HIV integrase inhibitor. American College of Clinical Pharmacy Global Conference on Clinical Pharmacy; Oct 2018; Seattle, WA.

Murrell D, Wang K-S, Cluck D, Moorman JP, **Duffourc M**, Harirforoosh S. Pharmacogenetic analysis of the gastrointestinal adverse effect profiles in HIV integrase inhibitor-based regimens.

American College of Clinical Pharmacy Global Conference on Clinical Pharmacy; Oct 2018; Seattle, WA.

**Musket A.\*** HGF-Autocrine activation of MET receptor tyrosine kinase induces de novo glioma formation in mice. Graduate student and postdoctoral fellow poster presentation. 1<sup>st</sup> Southeastern Brain Tumor Research meeting, University of Alabama; May 2019; Birmingham, AL.

Ozment TR, Wright J, Adkins J, **Kruppa MD**, Gill PS, Williams DL. Neutrophils from septic patients have higher expression of Toll-Like Receptor 2 (TLR2) and increased uptake of *Candida albicans*. Joint Meeting of the Society for Leukocyte Biology and the International Endotoxin and Innate Immunity Society; Oct 2018; Chandler, AZ.

Ozment TR, Wright J, McGlothlin M, Adkins J, **Kruppa M**, Williams DL. Neutrophils from septic patients show lower expression of Dectin-1 and increased expression of TLR2. 42<sup>nd</sup> Annual Conference on Shock; Jun 2019; Coronado, CA.

Polichnowski AJ, Potter J, Allen S, Dykes R, **Duffourc M**, Williamson GA. Abstract P378: Dahl salt-sensitive rats exhibit aberrant renal hemodynamic responses to a high salt diet and salt-sensitive hypertension as compared to consomic SS.BN1 Rats. In Proceedings of the American Heart Association Annual Meeting 2018. 10.1161/hyp.72.suppl\_1.P378. *Hypertension* 72; Nov.10-Nov 14, 2018; Chicago, IL.

Potter J, Allen S, Miles C, **Polichnowski AJ**. Female rats with preexisting CKD exhibit impaired recovery from AKI and subsequent development of proteinuria. American Physiological Society Cardiovascular, Renal and Metabolic Diseases: Sex-Specific Implications for Physiology Meeting; Sept 2018; Knoxville, TN.

**Potter J**. Cardiovascular, renal and metabolic diseases:Sex-specific implications for physiology. Oral and Poster Presentations, American Physiological Society Conference; Sep 2018; Knoxville, TN.

Potter J, **Polichnowski AJ**. Female rats with preexisting CKD exhibit impaired recovery from AKI and subsequent development of proteinuria. American Society of Nephrology Meeting; Nov 2018; San Diego, CA.

Qin Y, Musket A\*, Kou JQ, Preiszner J, Johnson J, Tschida B, Staal B, Kang L, Tanner K, Schweitzer J, Largaespada D, **Xie Q**. HGF-autocrine activation of MET receptor tyrosine kinase induces de novo glioma formation in mice. Poster presentation, 1<sup>st</sup> Southeastern Brain Tumor Meeting, University of Alabama; May 2019; Birmingham, AL.

Rice PJ, Graves B, **Kruppa M**, Lowman D, Ma Z, Jiao YN, Ensley H, Ozment T, Williams D. The human macrophage scavenger receptor class A (CD204) differentially recognizes fungal cell wall pathogen associated molecular patterns. Joint Meeting of the Society for Leukocyte Biology and the International Endotoxin and Innate Immunity Society; Oct 2018; Chandler, AZ.

Rice P, **Kruppa M**, Graves B, Lowman D, Ma Z, Jiao YN, Meis JF, Netea MG, Williams DL. *Candida auris* mannans are recognized and bound by rhDectin-2 and rhMannose receptor, but with lower affinity than mannans derived from other *Candida* species. Gordon Research Conference on Fungal Immunology; Jan 2019; Galveston, TX.

Shelton HW, Gill WD\*, Burgess KC, Gabbita SP, **Brown RW**. Tumor necrosis factor-alpha modulation results in alleviation of prepulse inhibition deficits and reduction in microglial cell

activation from neonatal polyinosinic:Polycytidylic acid treatment in rats. Society for Neuroscience (SfN); Nov 2018; San Diego, CA.

**Xie Q.** HGF/MET Signaling and therapeutics in glioblastoma. Oral Presentation, Stem Cell 2019 - Global Experts Meeting on Frontiers in Cell & Stem Cell Research; Apr 2019; New York, NY.

Yakoob H.\*\*; Liu C.\*\*\*; Grimm M,\*\*; Slade J\*; Berry A\*, Leonard C, Kintner J, **Schoborg RV.** The Human Immunodeficiency Virus (HIV) drugs dolutegravir, elvitegravir, and bictegravir inhibit chlamydia trachomatis and C. Muridarum development in culture. Poster presentation, 9<sup>th</sup> Biannual Meeting of the Chlamydia Basic Science Research Society; Mar 2019; Seattle, WA.

**Yakubenko VP.** Neutrophil-mediated DHA oxidation promotes  $\beta$ 2 integrin-dependent macrophage migration. Oral presentation. Tennessee Physiology Society Meeting; Nov 9, 2018; Memphis, TN.

**Yakubenko VP,** Cui K\*, Addorisio M, Williams DL, Pavlov VA. A new role for the  $\alpha$ 7 nicotinic acetylcholine receptor in macrophage migration to liver, lung, and spleen during murine endotoxemia. 42<sup>nd</sup> Annual Conference on Shock; Jun 2019; Coronado, CA.

Zalewski AS, Potter J, Miles C, Hoover D, **Polichnowski AJ.** Increased severity of renal ischemia reperfusion injury in male vs. female mice is associated with greater expression of choline acetyltransferase in tubules. American Physiological Society Cardiovascular, Renal and Metabolic Diseases: Sex-Specific Implications for Physiology Meeting; Sept 2018; Knoxville, TN.

### II-C. International:

Bruno JM, **Kruppa MD,** Zuchao M, Jiao YN, Lowman DW, Giamarellos-Bourboulis EJ, Williams DL, Chowdhary A, Meis JF, Netea MG. Candida Auris: Understanding the mechanisms of host immune response. 20th Congress of the International Society for Human and Animal Mycology; Jun 30-Jul 4, 2018; Amsterdam, The Netherlands.

Murrell DE, Wang K-S, Cluck D, Moorman JP, **Duffourc M,** Harirforoosh S. *ABCB1* polymorphism and adverse event association stratified by HIV Integrase inhibitor. 22nd International AIDS Conference (AIDS 2018); Jul 23-27, 2018; Amsterdam, The Netherlands.

Murrell DE, Wang K-S, Cluck D, Moorman JP, **Duffourc M,** Harirforoosh S. Exploratory pharmacogenetic association with gastrointestinal adverse event occurrence in three HIV integrase inhibitors. Paper presentation, 22nd International AIDS Conference (AIDS 2018); Jul 23-28, 2018; Amsterdam, The Netherlands.

Liu C\*\*\*; Grimm M\*\*; Slade J\*; Berry A\*; J. Kintner J, Whittimore J, **Schoborg RV,** Yakoob H\*. The human immunodeficiency virus (HIV) drugs dolutegravir and elvitegravir inhibit chlamydia trachomatis and C. muridarum development in culture. Oral and Poster Presentation, 5th European Meeting on Animal Chlamydiosis; Oct 2018; Odessa, Ukraine.

Kruppa MD, Jacobs J\*\*\*, King-Hook K\*\*\*, Berry A\*, Kintner J, Whittimore J, Fritz R, **Schoborg RV,** Hall J. Binding of elementary bodies to the opportunistic fungal pathogen candida albicans inhibits chlamydia trachomatis infectivity. Oral presentation, 5th European Meeting on Animal Chlamydiosis; Oct 2018; Odessa, Ukraine.

**Polichnowski AJ,** Potter J, Miles C, Eagan D, Youngberg G, O'Connor P, Picken M, Williamson G. Aberrant renal and mesenteric responses to a high salt diet and blood pressure

salt-sensitivity are abolished in consomic SS.BN1 vs. Dahl SS rats. ISN World Congress of Nephrology Meeting; Apr 2019; Melbourne, Australia.

Yakoob H\*\*; Liu C\*\*\*; Grimm M\*\*; Slade J\*; Berry A\*; J. Kintner J, Whittimore J, **Schoborg RV**. The Human Immunodeficiency Virus (HIV) drugs dolutegravir, elvitegravir, and bictegravir inhibit *Chlamydia trachomatis* and *C. muridarum* development in culture. Oral and poster presentation, 5<sup>th</sup> European Meeting on Animal Chlamydiosis; Oct 2018; Odessa, Ukraine.

### III. INVITED PRESENTATIONS

#### II-A. Regional:

**Agrawal A**. Defensive role of C-reactive protein in murine models of inflammatory diseases. ETSU Biomedical Sciences Seminar Program; Mar 8, 2019.

**Bradshaw P**. Redox coenzyme levels regulate aging and proteostasis in *C. elegans*. ETSU Biomedical Sciences Seminar Program; Sept 28, 2018.

**Bradshaw P**. Redox coenzyme levels regulate aging and proteostasis in *C. elegans*. Department of Biological Sciences & Department of Health Sciences Seminar program; ETSU; Oct 24, 2018.

**Gill S\***, Biomedical Sciences Graduate Student. The impact of trained immunity in sepsis, aging, and the microbiome. ETSU Biomedical Sciences Seminar Program; Apr 5, 2019.

**Hayman R**. Understanding the mechanism of infection of Microsporidia: An opportunistic fungal pathogen. ETSU Biomedical Sciences Seminar Program; Apr 12, 2019.

**Keasey M**. What regulates sex specific vitronectin upregulation after stroke? ETSU Biomedical Sciences Seminar Program; Sept 14, 2018.

**Li Z**. DNA damage signaling and oncogenic cell cycle regulation underlying human genetic diseases. ETSU Biomedical Sciences Seminar Program; Aug 31, 2018.

**Malone H\***. Biomedical Sciences Graduate Student. Therapeutic potential of FAK inhibitor in neuroprotection and neurogenesis in preclinical study in rodent stroke model. ETSU Biomedical Sciences Seminar Program; Nov 30, 2018.

**Makinwa Y\***. Biomedical Sciences Graduate Student. Regulation of ATR Anti-apoptotic functions at mitochondria by phosphatase;. ETSU Biomedical Sciences Seminar Program; Dec 14, 2018.

**Polichnowski AJ**. Pathogenesis of kidney disease and salt-sensitive hypertension in the Dahl rat. ETSU Biomedical Sciences Seminar Program; Oct 12, 2018.

**Rodriguez-Gil D**. Characterizing olfactory sensory neuron differentiation. ETSU Biomedical Sciences Seminar Program; May 3, 2019.

**Schoborg R**. When pathogens don't share well: Chlamydia/Herpes Simplex Virus co-infection in Cell Culture and In Vivo. ETSU Biomedical Sciences Seminar Program; Sep 21, 2018.

**Schoborg R.** The Human Immunodeficiency Virus (HIV) drugs dolutegravir and elvitegravir inhibit chlamydia infection. Featured speaker at ETSU Academic Health Center Community of Scholars Inaugural Meeting; Nov 16, 2018.

**Thewke D.** Function of the Type 2 cannabinoid receptor in vascular calcification. ETSU Biomedical Sciences Seminar Program; Mar 29, 2019.

**Wright G.** Remodeling metabolism in the hypoxic heart. ETSU Biomedical Sciences Seminar Program; Feb 22, 2019.

**Yakubenko V.** New mechanism for neutrophil-mediated macrophage recruitment to the site of inflammation. ETSU Department of Biological Sciences; Feb 15, 2019.

**Yakubenko V.** What is the contribution of macrophages to the sepsis development? The surprising role of integrin  $\alpha$ D $\beta$ 2 in endotoxemia and cecal ligation and puncture models. ETSU Biomedical Sciences Seminar Program; May 10, 2019.

**Zhu M-Y.** Critical role of oxidative DNA damage in selective noradrenergic vulnerability in Parkinson's disease. ETSU Biomedical Sciences Seminar Program; Oct 26, 2018.

**Zou Y.** Genome stability, cancer, and premature aging. ETSU Biomedical Sciences Seminar Program; Feb 8, 2019.

## **II-B National:**

**Duffourc M.** Integrated Grand Rounds: An Innovative Method to Link Basic Science and Clinical Science Reasoning. ASPET Teaching Blitz at Experimental Biology Annual Meeting; Apr 8, 2019; Orlando, FL.

**Duffourc M.** Connecting for Success. Part of the Symposium on Surviving and Extential Crisis: Creating a Niche for Basic Science Educators. ASPET (Division of Pharmacology Education Symposium) Annual Meeting at Experimental Biology; Apr 8, 2019; Orlando, FL.

**Duffourc M.** Connecting for Success. Career Central at Experimental Biology Annual Meeting; Apr 9, 2019; Orlando, FL.

**Ferslew K.** The effects of depressant drugs on the human body, as part of the 24th Annual International Association of Chiefs of Police Training Conference on Drugs, Alcohol and Impaired Driving (DAID). Seminar presentation/Invited Speaker, 2 hours. Opryland Hotel and Convention Center; Aug 14, 2018; Nashville, TN,

**Ferslew K.** Chemical testing, alcohol & signs of impairment and chemical testing, drugs & signs of impairment, as part of the Protecting Lives, Saving Futures Program for the Tennessee District Attorneys' General Conference. Seminar presentation/Invited Speaker, 3 hours. Shelby County Sheriff's Training Academy; Feb 12-13, 2019; Memphis, TN.

**Hoover D.** Neurochemical anatomy of cardiac regulation. Invited presentation, Laboratory of Cardiovascular Science at the National Institute on Aging, May 13, 2019; Baltimore, MD.

**Musket A.\*** HGF-Autocrine activation of MET receptor tyrosine kinase induces de novo glioma formation in mice. Invited MentorTrainee Oral Presentation, 1<sup>st</sup> Southeastern Brain Tumor Research meeting, University of Alabama; May 2019; Birmingham, AL.

**Polichnowski AJ.** New Insights into the pathogenesis of CKD and salt-sensitive hypertension



in Dahl SS rats. Invited seminar presentation, Department of Physiology, Augusta University; May 2019; Augusta, GA.

**Robinson M.** Incorporating team-based learning into a flipped classroom. Biochemistry Course. Invited talk. International Conference of the Association of Biochemistry Educators; May 2019; Tucson, AZ.

**Rusinol A.** Incorporating team-based learning into a flipped classroom. Biochemistry Course. Invited talk. International Conference of the Association of Biochemistry Educators; May 2019; Tucson, AZ

**Xie Q.** HGF/MET Signaling and therapeutics in glioblastoma. Invited Mentor/Trainee Oral Presentation. 1st Southeastern Brain Tumor Meeting, University of Alabama; May 2019; Birmingham, AL

**Zou Y.** DNA Damage Responses, Cancer and Premature Aging, University of Toledo College of Medicine and Life Sciences; Feb 7, 2019; Toledo, OH.

### II-C. International:

**Kostrzewa RM.** Dopamine D2R Supersensitivity: Relevance to Psychiatric Disorders as an Invited Speaker in the XX Polish Pharmacological Congress; Jun 2019; Lublin, Poland.

**Polichnowski AJ.** Donepezil, a centrally-acting cholinesterase inhibitor, activates vagal and sympathetic efferent pathways. Invited speaker at the Florey Institute of Neuroscience and Mental Health; Apr 2019; Melbourne, Australia.

**Polichnowski AJ.** Does a tubulopathy explain renal disease and dysfunction in Dahl salt-sensitive rats? Invited speaker in the Department of Physiology, Monash University; Apr 2019; Melbourne, Australia.

**Schoborg RV.** Binding of elementary bodies to the opportunistic fungal pathogen candida albicans inhibits chlamydia trachomatis infectivity. 5th European Meeting on Animal Chlamydiosis; Oct 2018; Odessa, Ukraine.

**Schoborg RV,** Slade J\*; Hall J, Sun J\*; Deka S\*; J. Kintner J, Phillips-Campbell R\*, Duffourc M, Dessus-Babus S, Raulston J, Wyrick PB. When pathogens don't share well: Chlamydia/herpes simplex virus co-infection in cell culture and *In Vivo*." Dr. Rob Schoborg was Invited Keynote Speaker. 5<sup>th</sup> European Meeting on Animal Chlamydiosis; Oct 2018; Odessa, Ukraine.

**Schoborg RV.** When pathogens don't share well: Chlamydia/herpes simplex virus co-infection in cell culture and *In Vivo*. Invited research presentation, Institut für Veterinärpathologie, Vetsuisse, University of Zurich; Oct 8, 2018; Zürich, Switzerland.

**Zou Y.** DNA Damage and Repair in Cancer, Premature Aging and Aging. Invited talk, Guangzhou Medical University; Oct 22, 2018; Guangzhou, China.

## V. VISITING PROFESSORS

Name:	J. Gary Meszaros, PhD
Title:	Associate Professor, Department of Integrative Medical Sciences

Institution: Date: Event: Topic:	Northeast Ohio Medical University, Rootstown, OH August 27, 2018 External Seminar Series Type 6 Collagen—Friend or Foe? Improving cardiac remodeling after a myocardial infarction
Name: Title:  Institution: Date: Event: Topic:	Valentin A. Pavlov, PhD Professor, Center for Biomedical Science, Center for Bioelectronic Medicine The Feinstein Institute for Medical Research Northwell Health, Manhasset NY October 16, 2018 External Seminar Series Cholinergic regulation of inflammation and metabolism
Name: Title:  Institution: Date: Event: Topic:	John H. Zhang, MD, PhD, FAHA Director, Center for Neuroscience Research Professor of Anesthesiology, Neurosurgery, Neurology and Physiology Loma Linda University School of Medicine, Loma Linda, CA December 3, 2018 External Seminar Series Stroke strategic changes: Delayed recanalization?
Name: Title:  Institution: Date: Event: Topic:	Paul Michael O'Connor, PhD Associate Professor & Program Director Department of Physiology Graduate Program Augusta University, Augusta, GA December 17, 2018 External Seminar Series A basic solution to stimulate splenic anti-inflammatory pathways: A new role for the mesothelium?
Name: Title:  Institution: Date: Event: Topic:	Li Zhang PhD Professor Center for Vascular and Inflammatory Disease University of Maryland School of Medicine, Baltimore, MD March 18, 2019 External Seminar Series Integrin CD11b on resident microglia in neurological disease
Name: Title:  Institution: Date: Event: Topic:	Bennett VanHouten, PhD Professor and Associate Director Aging Institute Coleader, Hillman Cancer Center University of Pittsburgh School of Medicine, Pittsburgh, PA April 1, 2019 External Seminar Series Watching the confluence of two DNA repair pathways at the single molecule level
Name: Title: Institution:	Ivan Zanoni, PhD Assistant Professor of Pediatrics Harvard Medical School,

Date:	Staff Scientist of Immunology & Division of Gastroenterology, Boston Children's Hospital April 26, 2019
Event:	External Seminar Series
Topic:	Innate immune responses against fungal infections

Name:	Bhavya Voleti, PhD
Title:	Principal Scientist
Institution:	Merck Discovery Neuroscience
Date:	May 2, 2019
Event:	External Seminar Series
Topic:	Enabling target identification and validation for neurodegenerative diseases

## VI. EXTRAMURAL FUNDING

### Extramural Funding Awards:

Total New Extramural Funding Awarded to Biomedical Sciences PI: \$7,286,985

Total Amount of New Funding FY2019 Distribution: \$2,087,631

"The role of adenosine A(2A) receptor activation on the behavioral and plasticity response to nicotine in a rodent model of schizophrenia." NIH; Russell Brown, PI; project funding period 4/1/19 to 3/31/22

Total Direct: \$300,000; Total Indirect: \$135,008; Total Award: \$435,008

Year Direct: \$100,000; Total Indirect: \$45,002; Year Total: \$145,002

"Hippocampal Poly (ADP-ribose) Polymerase-1 (PARP1) in Depression and suicide." AFSP; Greg Ordway, PI; project funding period 10/1/18 to 9/30/20

Total Direct: \$125,000; Total Indirect: \$0; Total Award: \$125,000

Year Direct: \$125,000; Year Indirect: \$0, Year Award: \$125,000

"Afferent Mechanisms of Vagal Neuromodulation Therapy." NIH; Eric Beaumont, PI; project funding period 8/1/18 to 6/30/19

Total Direct: \$1,877,573; Total Indirect: \$562,074; Total Award \$2,439,647

Year Direct: \$467,111; Year Indirect: \$148,423; Year Total \$615,534

"Vagal Nerve stimulation mitigates alteration of the intestinal environment to limit the progression of heart failure." AHA; Eric Beaumont, PI; project funding period 7/1/18 to 6/30/20

Total Direct: \$140,000; Total Indirect: \$14,000; Total Award \$154,000

Year Direct: \$70,000; Year Indirect: \$7,000; Year Total: \$77,000

"Application of novel anti-inflammatory drugs towards Alzheimer's Disease." P2D (Via NIH); Russell Brown, PI; project funding period 8/1/18 to 5/31/19

Total Direct: \$41,667; Total Indirect: \$3,333; Total Award: \$45,000

Year Direct: \$41,667; Year Indirect: \$3,333; Year Total: \$45,000

“Targeting blood-derived integrin signaling after stroke.” NIH; Theo Hagg, PI; project funding period 7/15/18 to 4/30/2023

Total Direct: \$1,093,750; Total Indirect: \$519,508; Total Award: \$1,613,258

Year Direct: \$218,750; Year Indirect: \$102,385; Year Total: \$321,135

“Cardioprotective Role of Extracellular ubiquitin in Myocardial Ischemia/Reperfusion Injury and Myocyte Apoptosis.” NIH; Krishna Singh, PI; project funding period 8/1/18 to 7/31/21

Total Direct: \$300,000; Total Indirect: \$125,447; Total Award: \$425,447

Year Direct: \$100,000; Year Indirect: \$41,816; Year Total: \$141,816

“Restoration of noradrenergic and dopaminergic functions in the brain of aged rats.”

NIH; Meng-Yang Zhu, PI; project funding period 7/1/18 to 6/30/21

Total Direct: \$300,000; Total Indirect: \$144,000; Total Award: \$444,000

Year Direct: \$100,000; Year Indirect: \$48,000; Year Total: \$148,000

“Met-Targeting CAR T-cell therapy in Hepatocellular Carcinoma.” Gilead Sciences, Inc.;

Qian Xie, PI; Project funding period 7/27/18 to 7/26/20

Total Direct: \$118,200; Total Indirect: \$11,800; Total Award: \$130,000

Year Direct: \$59,100; Year Indirect: \$5,900; Year Award: \$65,000

“Testing the NADPH redox theory of aging in *C. elegans*.” NIH; Patrick Bradshaw, PI; project funding period 9/15/18 to 8/31/21

Total Direct: \$300,000; Total Indirect: \$122,849; Total Award: \$422,849

Year Direct: \$100,000; Year Indirect: \$40,950; Year Award: \$140,950

“Investigation of therapeutic potential of exogenous ubiquitin following myocardial ischemia/reperfusion injury,” Dept. of Veterans Affairs; Krishna Singh, Ph.D., PI; Project funding period 04/01/2019 to 3/31/2023;

Total Direct: \$; Total Indirect: \$; Total Award: \$1,052,776

Year Direct: \$263,194; Year Indirect: \$0; Year total: 263,194.

Continued Extramural Funded Grant Awards:

Total Amount of Continued Funding FY2018 Distribution: \$3,140,630

“Determining the importance of in vivo estrogen receptors and invitro hormone modulation of Wnt/ $\beta$ -catenin on Chlamydial inf.” NIH; Jennifer Hall, PI; project funding period 8/22/17 to 7/31/19

Year Direct: \$69,627; Year Indirect: \$33,421; Year Total \$103,048

“Comprehensive structural and Functional Mapping of the Mammalian Cardiac Nervous System” UCLA (Via NIH); Donald Hoover, PI; project funding period 9/20/17 to 6/30/19

Year Direct: \$160,000; Year Indirect: \$76,800; Year Award \$236,800

“Deleterious effects of TNF- $\alpha$  on the AKI-CKD Nexus” ASN Foundation; Aaron Polichnowski, PI; project funding period 7/1/17 to 6/30/19;  
Year Direct: \$90,159; Year Indirect: \$10,016; Year Total: \$100,175

“The Renal Cholinergic System and the AKI-CKD Nexus” AHA-SE; Aaron Polichnowski, PI; project funding period 7/1/17 to 6/30/19;  
Year Direct: \$73,711; Year Indirect: \$7,371; Year Total \$81,082

“ATR Isomerization in cellular Responses to UV Damage of DNA” NIH; Yue Zou, PI; project funding period 8/1/17 to 7/31/2022;  
Year Direct: \$309,988; Year Indirect: \$115,716; Year Total \$425,704

“Oxidative damage and base excision repair in white matter oligodendrocytes in major depressive disorder” NIH; Greg Ordway, PI; project funding period 4/1/2018 to 3/31/2020;  
Year Direct: \$274,326; Total Indirect: \$119,905; Year Total \$394,231

“Microsporidia Spore Adherence to Integrin Ligands” NIH; James Hayman, PI; project funding period 6/8/18 to 5/31/19;  
Year Direct: \$287,095; Year Indirect: \$119,875; Year Total \$406,970

“Lazaro J. Mandel Young Investigation Award” American Physiological Society; Aaron Polichnowski, PI; project funding period 6/1/18 to 5/31/19;  
Year Direct: \$9,500; Year Indirect: \$0; Year Total: \$9,500

“Characterization of hormonal influences on Chlamydia development” NIH; Jennifer Hall, PI; project funding period 8/20/16 to 7/31/19;  
Year Direct: \$160,909; Year Indirect: \$77,236; Year Total: \$238,145

“C-reactive protein in rheumatoid arthritis” NIH; Alok Agrawal, PI; project funding period 7/13/15 to 7/31/20;  
Year Direct: \$589,597; Year Indirect: \$193,457; Year Total: \$783,054

“Unrestricted funds transfer for research” Van Andel Research Institute; Qian Xie, PI; project funding period 2/1/16 to 6/30/19;  
Year Direct: \$10,480; Year Indirect \$0; Year Total: \$10,480

“Targeting CNTF to increase adult forebrain neurogenesis” NIH R01, Theo Hagg, PI; project funding period 4/15/14 to 3/31/19  
Year Direct: \$240,713; Year Indirect: \$110,728; Year Total: \$351,441

Continued Extramural Funded Grant Extensions:

“Osteopontin: role in myocyte apoptosis and myocardial function” Dept. of Veterans Affairs; Krishna Singh, Ph.D., PI; project funding period 07-01-14 to 3-31-2019

“Role of ATM in myocardial remodeling following myocardial infraction” NIH; Krishna Singh, PI; Project funding period 8/1/15 to 7/31/19

“Cholinergic anti-inflammatory mechanisms in sepsis and septic shock” NIH; Donald Hoover, PI; project funding period 9/1/14 to 8/31/18;

“Complement-mediated anti-pneumococcal functions of C-reactive protein” NIH; Alok Agrawal, PI; project funding period 9/1/15 to 8/31/18

“Role of B2 integrins in macrophage retention and egress during inflammation” NIH; Valentin Yakubenko, PI; project funding period 1/15/16 to 4/30/19;

#### Intramural Grant Awards:

Total Internal Grants Awarded to Biomedical Sciences PI: \$32,000

“Brown RDC.” ETSU RDC Russell Brown, PI; project funding period 7/1/18 to 6/30/19;  
Total Award: \$10,000

“Gene expression profile of sensory neuron differentiation.” ETSU RDC Diego Rodriguez-Gil, PI; project funding period 7/1/18 to 6/30/19; Total Award: \$10,000

“Role of Cannabinoid Receptor type 2 in Medical Calcification.” ETSU RDC Douglas Thewke, PI; project funding period 7/1/18 to 6/30/19; Total Award: \$10,000

“Understanding the Mechanism of Mitochondrial DNA Replication.” ETSU RDC Zhengke Li, PI; project funding period 3/13/19 to 6/30/19; Total Award: \$2,000