



Department of Neuroscience, Cell Biology, and Physiology

Annual Report:

January 1, 2019 – December 31, 2019

Eric Bennett, Ph.D.
Professor and Chair

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Statement from the Chair/Associate Dean

[Highlights of the year]

NCBP is a matrix department within the Boonshoft School of Medicine (BSOM) and the College of Science and Mathematics (CoSM). NCBP faculty and staff strive to sustain excellence in basic, translational, and clinical research, while also providing the best in undergraduate, graduate, and medical education. Specific examples of the many accomplishments of our faculty and staff this past year (2018) include the following:

- A. Research:** Established/maintained well-funded research programs (>\$3.0 M external funding) with a common focus on cell signaling in health and disease.
 - 1) **Federal funding** – Nearly all federal funding with >45% composite indirect rate (e.g., NIH, NSF, DARPA, AFRL)
 - 2) **Core Facilities** utilized by >30 faculty from 3+ colleges – a. Microscopy, b. “BioBank”, c. Small animal physiology, d. tissue/ cell culture/gel documentation.
 - 3) **Peer-reviewed publications** – At least 28 in high impact journals
- B. Education:**
 - 1) **Medical student education** - NCBP faculty are involved in the development, administration, and delivery of 85% and 100% of M1 and M2 of the BSOM Wright Curriculum, respectively! NCBP faculty members direct five and teach in six of seven basic science modules throughout these two years.
 - 2) **Ph.D. education/training** – NCBP faculty contribute significantly to the education/training of Ph.D. and M.D/Ph.D. students through mentoring students and delivery of core/elective courses, with the Ph.D. and the M.D/Ph.D. Program Directors now NCBP faculty members. Four NIH-funded NCBP faculty members secured minority Ph.D. student supplemental funding for MD/PhD students working in their labs – these were the first NIH minority supplements ever funded at Wright State!
 - 3) **M.S. degree programs** – Direct/deliver three, self-paying M.S. programs training ~35% of CoSM M.S. students. M.S. Programs in Anatomy, Microbiology & Immunology, and Physiology & Neuroscience provide interactive education and/or research experiences designed to prepare graduates for careers in the biomedical sciences.
 - 4) **Undergraduate education and programs**
 - a) NCBP faculty direct/deliver foundational “anatomy/physiology” courses annually to >1,000 undergraduates.
 - b) The B.S. in Neuroscience program provides an innovative active learning educational experience designed to prepare graduates for careers in the biomedical sciences. In its third year, the program had ~100 majors.
- C. Service:** NCBP faculty are highly involved in service to their respective disciplines, the community, and within the University. Examples include: manuscript review, editorial board memberships, grant review panels, leadership roles in professional organizations, and membership/leadership roles in NCBP, CoSM, BSOM, and WSU committees.
- D. Outreach:** Examples include: Horizons in Medicine; STEMM; Women in Science Giving Circle; Destination Imagination; Neuroengineering Research for HS students.
 - Of particular note: Interactive lab experiences for high school students** – NCBP faculty developed two interactive laboratory experiences for high school students: 1) Human Anatomy and Physiology (HAPI lab) and 2) NeuroLab. The HAPI lab completed its 6th year and has received significant regional and national acclaim as an exemplary experiential program designed to excite and educate high school students about the biomedical sciences. The NeuroLab was similarly successful in its first two years. For their efforts, the leaders of each experience, Ms. Bridgett Severt and Dr. Patrick Sonner, received the 2019 College of Science and Mathematics Faculty Excellence Award - Spirit of Innovation.
- E. Awards/Honors:** NCBP faculty members received three teaching/mentoring/faculty awards, including Dr. Mark Rich being named “University Professor”. The 2019 President’s Awards were announced in 2020 with three of eight award recipients being NCBP faculty members including the Trustees’ Award for Faculty Excellence. NCBP faculty members won the Trustees’ Award for Faculty Excellence in two of the past three award cycles! At least six awards were received by graduate students/trainees working in NCBP labs, including two MD/PhD students receiving BSOM 2019 Medical Student Research grants; several undergraduate Neuroscience students receiving scholarships/awards. Two outstanding undergraduate Neuroscience majors received the inaugural “Robert W. Putnam Memorial Scholarship”.

2 Programs/Divisions

Name of Division or Program	Director	Dates
Neuroscience Institute	Mark M. Rich, M.D., Ph.D.	2015-Present

3 Fully Affiliated Faculty (may be the same as #2 above for some depts)

Name and Academic Position	Clinical Interests	Research Interests
Eric Bennett, Ph.D., Full Professor and Chair		Control and modulation of cardiac and neuronal function by posttranslational modifications
Nancy Bigley, Ph.D., Full Professor		Herpes simplex virus, interferons and signaling pathways
Thomas Brown, Ph.D., Full Professor		Cell death; differentiation and development
Adrian Corbett, Ph.D., Associate Professor		Excitation-contraction coupling; Sodium channel subtypes; Brain neurogenesis
Andrew Ednie, Ph.D., Research Assistant Professor		Understanding the role of post translational modifications in regulating cardiac and neuronal function
Sherif Elbasiouny, Ph.D., Associate Professor		Cellular mechanisms regulating neuronal excitability and motor system output
Kathrin Engisch, Ph.D., Associate Professor, Interim Dean, CoSM		Neurotransmitter release
Robert Fyffe, Ph.D., Full Professor		Cellular and synaptic neuroscience
Dan Halm, Ph.D., Associate Professor		Epithelial physiology; Secretory signal transduction

Name and Academic Position	Clinical Interests	Research Interests
J. Ashot Kozak, Ph.D., Associate Professor		Ion transport pathways in T lymphocytes; Calcium signaling
Barbara Kraszpuska, Ph.D., Associate Professor		Medical and graduate education; Gross Anatomy
Michal Kraszpuski, Ph.D., Lecturer		Graduate education; Neuroscience
Michael Matott, Ph.D. Assistant Professor		Medical and graduate education; Physiology
Debra Mayes, Ph.D., Assistant Professor		Effects of junction proteins on stress, metabolism, and cell proliferation/death in vascular, cancer, and neurodegenerative disease models
Gary Nieder, Ph.D., Full Professor		Medical and graduate education; Educational technology
Mark Rich, M.D., Ph.D., Full Professor	Neurology	Synaptic plasticity; Critical illness myopathy
Nick Ritucci, Ph.D., Lecturer		Undergraduate and medical education; Physiology
Bridgett Severt, M.D., Lecturer		Undergraduate education; Anatomy
Patrick Sonner, Ph.D., Instructor		Undergraduate and graduate education; Neuroscience
Keiichiro Susuki, M.D., Ph.D., Assistant Professor		Symptoms in a broad range of diseases including multiple sclerosis, traumatic brain injury, and various forms of neuropathy
Clintoria Williams, Ph.D., Assistant Professor		Pathophysiology of kidney disease.
Dawn Wooley, Ph.D., Full Professor		Virology HIV-1; AIDS; Biosafety; Biodefense
Christopher Wyatt, Ph.D., Associate Professor		Cellular mechanisms of oxygen sensing

4 Teaching

Baccalaureate [any course for a bachelor's degree]

ANT 2100 Human Anatomy and Physiology I
ANT 2100L Human Anatomy and Physiology I Lab
ANT 2120 Human Anatomy and Physiology II
ANT 2120L Human Anatomy and Physiology II Lab
ANT 3100 Human Structure and Function I
ANT 3100L Human Structure and Function I Lab
ANT 3120 Human Structure and Function II
ANT 3120L Human Structure and Function II Lab
ANT 4340 Biological Safety
ANT 4880 Independent Reading Anatomy
ANT 4990 Selected Topics in Anatomy
BIO Animal Physiology-
BIO 4000 Capstone
BIO 4950 Senior Honors Research
BIO 4990 Special Problems in Biology
BME 4950 Independent Research Study
MI 4200 Neuro Immune System Cross-Talk in Hemostasis
MI 4260 Immunology
MI 4310 Virology
MI 4750 Pathogenic Mechanisms
NEU 1000 Introduction to Neuroscience Research
NEU 2000 Introduction to Undergraduate Neuroscience Program for Majors
NEU 3100 How the Nervous System Works I
NEU 3200 How the Nervous System Works II
NEU 3400 Advanced Techniques in Neuroscience: Microscopy
NEU 4020 HON: Senior Capstone Neuroscience Lab Research
NEU 4030 Neuroscience/Biomedical Review Article
NEU 4040 Senior Capstone: Neuroscience Grant Development
NEU 4200 Neuro Immune System Cross-Talk in Hemostasis
NEU 4400 Developmental Neuroscience
NEU 4990 Independent Research Neuroscience
PN 4420 Introductory Neurophysiology
PN 4880 Independent Reading in Physiology

PN 4990 Special Problems in Physiology
PSY 2910 Drugs and Behavior
PSY 3910 Behavioral Neuroscience
PSY 4060 Independent Research Study
PSY 4940 Animal Behavior Capstone
PSY 4941 Field Study
SM 1010 Scientific Literacy for the 21st Century
SM 2100 Scientific Inquire - ASK

Graduate students, including thesis supervision [master's, doctor's post-doctoral]

ANT 5100 Advanced Human Structure and Function I
ANT 5100L Advanced Human Structure and Function I Lab
ANT 5120 Advanced Human Structure and Function II
ANT 5120L Advanced Human Structure and Function II Lab
ANT 6030 Biomedical Review Article
ANT 6040 Biomedical Experimental Design
ANT 6340 Biological Safety
ANT 6990 Special Problems in Anatomy
ANT 7000 Human Anatomy Instruction
ANT 7010 Selected Topics in Anatomy
ANT 7020 Special Dissection
ANT 7110 Human Gross Anatomy
ANT 7150 Advanced Human Embryology
ANT 7210 Human Microanatomy
ANT 7310 Human Neurobiology
ANT 7550 Practicum Literature Review
ANT 8000 Anatomy Seminar
ANT 8600 Principles of Biomedical Research
ANT 8990 Anatomy Research
BME 7380 From Neurons to Behavior – In Health Disease
BME 7990 Independent Research Study
BMS 9970 Lab Rotation
BMS 9990 Dissertation Research
MI 6200 Neuro Immune System Cross-Talk in Hemostasis
MI 6340 Biological Safety
MI 6750 Pathogenic Mechanisms
MI 6990 Special Problems
MI 7260 Immunology
MI 7310 Virology
MI 7890: Research in Microbiology & Immunology

MI 8000 Microbiology and Immunology Seminar

PN 6100 Human Physiology

PN 6300 Medical Cell Biology & Physiology

PN 7010 Selected Topics in Physiology

PN 7220 Ion Channels

PN 7750 Neuroscience and Physiology

PN 7760 Intercellular Communications

PN 8000 Physiology Seminar

PN 8600 Principles in Biomedical Research

PN 8990 Physiology Research

Undergraduate medical education [medical school]

SMD 8130 Clinical Medicine

SMD 8170 Origins 2

SMD 8180 Human Architecture

SMD 8210 Beginning to End

SMD 8220/8225 Balance, Control and Repair

SMD 8590 Staying Alive

Wright Q small group facilitators

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Scholarly Activity

Funded/Active grants

Extramural

Extramural - Active, Dr. Bennett, NSF, Regulated sialylation modulates cardiac excitability and conduction, P.I. Eric Bennett, (10/01/2016 to 04/30/2019). Total \$354569, Direct Current Year \$247702, Indirect Current Year \$106867, Total cost for entire grant period \$1059259.

Extramural - Active, Dr. Bennett, NSF/USF, Regulated sialylation modulates cardiac excitability and conduction, P.I. Eric S Bennett, (09/01/2017 to 04/30/2020). Total \$15248.93, Direct Current Year \$10256, Indirect Current Year \$4992.93, Total cost for entire grant period \$15249.

Extramural - Active, Dr. Bennett, NSF, Collaborative Research: Data-driven integration of biological with in-silico experiments to determine mechanistic effects of N-glycosylation on cellular electromechanical functions, P.I. Eric Bennett, (08/01/2019 to 07/31/2023). Total cost, \$773,970.

Extramural - Active, Dr. Brown, NIH NIDDK 2R01DK095132-05A1, The maternal-fetal adiponectin differential and fetal fat deposition, P.I., J. Shao (UCSD). Total cost for entire grant period \$1570000.

Extramural - Active, Dr. Brown, Gala of Hope Foundation, Dayton Collaborative for Childhood Cancer, P.I. Rob Lober. Total cost for entire grant period \$198870.

Extramural - Active, Dr. Brown, Mayfield Education and Research Foundation, Role of repressed tumor suppressor genes in DIPG treatment resistance., P.I. Rob Lober. Total cost for entire grant period \$48500.

Extramural - Active, Dr. Ednie, NSF, co-PI. Collaborative Research: Data-driven integration of biological with in-silico experiments to determine mechanistic effects of N-glycosylation on cellular electromechanical functions, P.I. Eric Bennett, (08/01/2019 to 07/31/2023). Total cost, \$773,970.

Extramural - Active, Dr. Elbasiouny, National Academy of Sciences, Identification of Electrophysiological Markers for Early Diagnosis of Amyotrophic Lateral Sclerosis, P.I. Sherif Elbasiouny, (03/01/2018 to 02/28/2021) Total \$27904, Direct Current Year \$18854, Indirect Current Year \$9050, Total cost for entire grant period \$189769.

Extramural - Active, Dr. Elbasiouny, United States Air Force, ISAA (contract #: 670480), P.I. Sherif Elbasiouny, (01/26/2019 to 01/26/2020) Total \$180000, Direct Current Year \$120000, Indirect Current Year \$60000, Total cost for entire grant period \$180000, 22% salary for Dr. Elbasiouny.

Extramural - Active, Dr. Elbasiouny, National Institute of Neurological Disorders and Stroke, NIH, Mechanisms Underlying Excitability Regulation of Motoneuron Types in ALS, P.I. Sherif Elbasiouny, (02/01/2015 to 01/31/2020) Total \$323750, Direct Current Year \$105000, Indirect Current Year \$218750, Total cost for entire grant period \$1618750, 33% salary for Dr. Elbasiouny.

Extramural - Active, Dr. Elbasiouny, National Institute of Neurological Disorders and Stroke, NIH, Neurodegeneration mechanisms common to both ALS and AD, P.I. Sherif Elbasiouny, (08/01/2019 to 01/31/2020) Total \$286836, Direct Current Year \$191224, Indirect Current Year \$95612, Total cost for entire grant period \$1618750, 11% salary for Dr. Elbasiouny.

Extramural - Active, Dr. Elbasiouny, National Institutes of Health, The impact of neuromodulatory state on the excitability changes of motoneurons and the motor pool in ALS, P.I. Sherif Elbasiouny, (07/01/2018 to 01/31/2020) Total \$20055, Direct Current Year \$15850, Indirect Current Year \$4205, Total cost for entire grant period \$104636.

Extramural - Active, Dr. Elbasiouny, National Academy of Sciences, U.S.-Egypt S&T Visiting Lecture Series, P.I. Sherif Elbasiouny, (07/13/2018 to 02/28/2021) Total \$782, Direct Current Year \$522, Indirect Current Year \$260, Total cost for entire grant period \$2347.

Extramural - Active, Dr. Janson, National Institute on Aging, NIH, 1R01AG064226-01, DIFFERENTIAL CLEARANCE OF PYROGLUTAMATE ABETA THROUGH ARACHNOID AND MENINGEAL LYMPHATICS IN ALZHEIMER DISEASE, PI - Christopher G. Janson, (9/1/2020-6/30/2020). Total annual costs - \$389,263.

Extramural - Active, Dr. Kozak, National Institute of Allergy and Infectious Diseases, NIH, TRPM7 and Cellular pH, PI - J. Ashot Kozak, (12/10/2018- 11/30/2019), Total annual cost, \$370,000, 33% salary for Dr. Kozak.

Extramural - Active, Dr. Kozak, National Institute of Diabetes and Digestive and Kidney Diseases, NIH, Role of SLC12A5 in Insulin Secretion and Glucose Homeostasis, PI - M. DiFulvio, JA Kozak - consultant/collaborator. Total annual cost, \$131,250.

Extramural - Active, Dr. Kraszpulski, NAWA-PROM (Polish National Agency for Academic Exchange), Polish National Agency for Academic Exchange, P.I. Michal Kraszpulski.

Extramural - Active, Dr. Rich, MDA, Block of TRPV4 channels as a novel approach to therapy of myotonia congenita, P.I. Mark Rich, (2/1/2019 to 1/31/2022) Total \$100000, Direct Current Year \$91000, Indirect Current Year \$9000, Total cost for entire grant period \$300000.

Extramural - Active, Dr. Rich, NIH, Novel Approaches to Therapy of Muscle Ion Channelopathies, P.I. Mark Rich, (4/1/2019 to 3/30/2024) Total \$537978, Direct Current Year \$358652, Indirect Current Year \$179326, Total cost for entire grant period \$537978, 19% salary for Dr. Rich.

Extramural - Active, Dr. Susuki, NIH, NINDS, R03 NS112981-01, Cell type-specific roles of calpain-2 in formation of peripheral myelinated nerves, P.I. Keiichiro Susuki, (9/15/2019 to 8/31/2021) Total \$21987, Direct Current Year \$14658, Indirect Current Year \$7329, Total cost for entire grant period \$150000, 8.3% salary for Dr. Susuki.

Extramural - Active, Dr. Susuki, NIH, NINDS, R01 NS107398-01A1, Disruption of excitable axonal domains by glucose metabolite methylglyoxal, P.I. Keiichiro Susuki, (8/1/2019 to 7/31/2023) Total \$152376, Direct Current Year \$114479, Indirect Current Year \$37897, Total cost for entire grant period \$1344023, 26.7% salary for Dr. Susuki.

Extramural - Active, Dr. Williams, American Heart Association, Role of Calcineurin Isoforms in Regulation of the Sodium-Chloride Cotransporter, National Scientist Development Grant, P.I. Clintoria Williams, Total \$308000.

Extramural - Active, Dr. Williams, NIH/NIDDK, Role of Calcineurin Isoforms in Blood Pressure Regulation, P.I. Clintoria Williams, Total \$375000, Direct Current Year \$375000.

Extramural – NIH URM Supplements

Extramural – Active, Dr. Elbasiouny, NIH Diversity, NS091836 (PI, no co-investigators, \$104,636), The impact of neuromodulatory state on the excitability changes of motoneurons and the motor pool in ALS, Start 7/1/2018 - End 1/31/2021.

Extramural – Active, Dr. Rich, NIH, NIAMS, R01 Diversity supplement for AR074985 for PV Walker, Development of Novel Therapy for Hypokalemic Periodic Paralysis, (7/01/2019-3/31/2022). Total annual funding, \$62-64,000.

Extramural – Active, Dr. Susuki, NIH, NINDS, Diversity supplement 3 R01 NS107398-01, ER stress mediates methylglyoxal-evoked AIS shortening and neuronal dysfunction, (01/01/2020 - 07/31/2022, Jennae N. Shelby, supplementee. Direct costs: total \$133,768 for 3 years.

Extramural – Active, Dr. Williams, NIH, NIDDK, Diversity supplement for Adaku Ume, Role of Calcineurin Isoforms in Blood Pressure Regulation (02/02/2020 - 08/31/2021). Direct costs: \$112,486 for two years.

Internal

Internal - Active, Dr. Brown, PHP/WSU Neuroscience Institute Translational Human Stroke Research, Biomarker Analysis of Neuroinflammation and Impending Stroke in Humans, P.I. Thomas Brown, Total cost for entire grant period \$25900.

Internal - Active, Dr. Brown, Wright State University Foundation, Endowment for Research on Pregnancy Associated Disorders, P.I. Thomas Brown.

Internal - Active, Dr. Brown, Wright State University Obstetrics and Gynecology Translational Research Initiative, Molecular Genetic Analysis Predictive of Preeclampsia and Its Severity in Human Pregnancy, P.I. Thomas Brown, Total cost for entire grant period \$30000.

Internal - Active, Dr. Mayes, Wright State University Boonshoft School of Medicine, Assessment of Multwalled Carbon Nanotube's Effect on Astrocyte Growth and Proliferation, P.I. Jennae Shelby.

Internal - Active, Dr. Mayes, Wright State University Graduate School Award, Carbon Nanotube Scaffolds for Wound Healing, P.I. Soham Parikh.

Internal - Active, Dr. Mayes, Wright State University Boonshoft Medical School Research Grant, R- vs. S-Fluxetine Enantiomers Differentially Regulate Blood Brain Barrier, P.I. Christopher Evola.

Internal - Active, Dr. Susuki, Medical Student Research Grant, Boonshoft School of Medicine, Wright State University, Calpain gene expression during peripheral nerve myelination and demyelination: implications for pathophysiology of a hereditary polyneuropathy Charcot-Marie-Tooth disease, P.I. Fatima Bensabeur, (10/20/2019 to 6/30/2020) Total \$575, Direct Current Year \$575, Indirect Current Year \$0, Total cost for entire grant period \$2000.

Publications

Papers in refereed journals

Alsabri SG, Mari WO, Poon CS, Sunar U Simman R, **Mayes DA**. Extracellular Microvesicles as a Potential Novel Therapeutic Approach to Accelerate Wound Healing: An in Vitro Model, Wound Repair & Regeneration. (In press)

Ednie AR, Parrish AR, Sonner MJ, **Bennett ES**. Reduced hybrid/complex N-glycosylation disrupts cardiac electrical signaling and calcium handling in a model of dilated cardiomyopathy. J Mol Cell Cardiol. 2019 Jul;132:13-23. doi: 10.1016/j.yjmcc.2019.05.001. Epub 2019 May 6. PubMed PMID: 31071333.

Ednie AR, Deng W, Yip KP, **Bennett ES**. Reduced myocyte complex N-glycosylation causes dilated cardiomyopathy. FASEB J. 2019 Jan;33(1):1248-1261. doi: 10.1096/fj.201801057R. Epub 2018 Aug 23. PubMed PMID: 30138037; PubMed Central PMCID: PMC6355090.

Sulehria T, **Corbett AM**, Sharma N. Devipriyanka Nagarajan, Amani Abushamma, Alee Johnson and Samantha Gagle, Increasing Progenitor Cell Proliferation in the Sub-Ventricular Zone: A Therapeutic Treatment for Progressive Multiple Sclerosis?, Recent Patents in Drug Delivery & Formulation.

Albers RE, Kaufman MR, Natale BV, Keoni C, Kulkarni-Datar K, Min S, Williams CR, Natale DRC and **Brown TL**. Trophoblast-Specific Expression of Hif-1 Results in Preeclampsia-Like Symptoms and Fetal Growth Restriction, *Scientific Reports* <https://doi.org/10.1038/s41598-019-39426-5>, 9, 2742, 2019.

Mahrous AA, Mousa MH, and **Elbasiouny SM**. The Mechanistic Basis for Successful Spinal Cord Stimulation to Generate Steady Motor Outputs, *Frontiers in Cellular Neuroscience*, 13, 359-74, 2019.

Romer, SH, Deardorff, AS, **Fyffe REW**. A molecular rheostat: kv2.1 currents maintain or suppress repetitive firing in motoneurons, *Journal Physiology*, 597, 3769-378, 2019.

Walters MC, Sonner MJ, Myers JH, and **Ladle DR**. Calcium imaging of parvalbumin neurons in the dorsal root ganglia, *eNeuro*, 6, ENEURO.0349-18.2019 1-16, 2019.

Chen R, Keoni C, Waker CA, **Lober RM**, Chen YH, Gutmann DH. KIAA1549-BRAF Expression Establishes a Permissive Tumor Microenvironment Through NF κ B-Mediated CCL2 Production. *Neoplasia*, 2019 Jan;21(1):52-60. doi: 10.1016/j.neo.2018.11.007.

Quon JL, Kim LH, **Lober RM**, Maleki M, Steinberg GK, Yeom KW. Arterial spin-labeling cerebral perfusion changes after revascularization surgery in pediatric moyamoya disease and syndrome. *J Neurosurg Pediatr*. 2019 Feb 8;23(4):486-492. doi: 10.3171/2018.11.PEDS18498. PMID: 30738390

Waker CA, **Lober RM**. Brain Tumors of Glial Origin. *Adv Exp Med Biol*. 2019;1190:281-297. doi: 10.1007/978-981-32-9636-7_18. PMID: 31760651 Review.

Shpanskaya K, Quon JL, **Lober RM**, Nair S, Johnson E, Cheshier SH, Edwards MSB, Grant GA, Yeom KW. Diffusion tensor magnetic resonance imaging of the optic nerves in pediatric hydrocephalus. *Neurosurg Focus*. 2019 Dec 1;47(6):E16. doi: 10.3171/2019.9.FOCUS19619. PMID: 31786546.

Yu H, Huang GP, Yang Z, **Ludwig BR**. Numerical studies of hemodynamic alterations in pre- and post-stenting cerebral aneurysms using a multiscale modeling. *Int J Numer Method Biomed Eng*. 2019 Nov;35(11):e3256. doi: 10.1002/cnm.3256. Epub 2019 Oct 10. PMID: 31483953

El-Amouri S, Huang L, Ragas M, Waker C, Barrios E, Corbett A and **Mayes D**. R- vs. S- Fluoxetine Enantiomers Differentially Regulate Blood Brain Barrier Permeability. *PlosOne*. (In press)

Parkih S, Dave S, Huang L, Wang W, Mukhopadhyay S, **Mayes DA**. Multi-walled carbon nanotube carpets as scaffolds for U87MG glioblastoma multiforme cell growth, *Material Science & Engineering*, 108(110345), 1-10, 2019.

Dantzer HA, **Matott MP**, Martinez D, Kline DD. Hydrogen peroxide inhibits neurons in the paraventricular nucleus of the hypothalamus via potassium channel activation', *American Journal of Physiology: Regulatory, Integrative, and Comparative Physiology* , 317, R121-R133, 2019.

Metzger S, Dupont C, Voss AA, **Rich MM**. Central role of subthreshold current in myotonia. *Ann. Neurol*. doi: 10.1002/ana.25646. Epub 2019 Nov 27.

Chugh D, Iyer CC, Wang X, Bobbili P, **Rich MM**, Arnold WD. Neuromuscular junction transmission failure is a late phenotype in aging mice, *Neurobiology of Aging*, doi: 10.1016/j.neurobiolaging.2019.10.022 epub., Nov. 5, 2019.

Dupont C, Denman KS, Hawash AA, Voss AA, **Rich MM**. Treatment of myotonia congenita with retigabine in mice, *Experimental Neurology*, 315, 52-59, 2019.

Lorusso S, Kline D, Bartlett A, Freimer M, Agriesti J, Hawash AA, **Rich MM**, Kissel JT, David Arnold W. Open-label trial of ranolazine for the treatment of paramyotonia congenita, *Muscle Nerve*, 59(2), 240-243, 2019.

Yermakov LM, Hong LA, Drouet DE, Griggs RB, **Susuki K**. Functional domains in myelinated axons, *Adv Exp Med Biol*, 1190, 65-83, 2019.

Yermakov LM, Griggs RB, Drouet DE, Sugimoto C, Williams MT, Vorhees CV, **Susuki K**. Impairment of cognitive flexibility in type 2 diabetic db/db mice, *Behavioural Brain Research* , 371, 111978, 2019.

Griggs RB, Santos DF, Laird DE, Doolen S, Donahue RR, Wessel CR, Fu W, Sinha, GP, Wang P, Zhou J, Brings S, Fleming T, Nawroth PP, **Susuki K**, Taylor BK. Methylglyoxal and a spinal TRPA1-AC1-Epac cascade facilitate pain in the db/db mouse model of type 2 diabetes, *Neurobiol Dis* , 127, 76-86, 2019.

Albers RE, Kaufman MR, Natale BV, Keoni C, Kulkarni-Datar K, Min S, **Williams CR**, Natale DRC, **Brown TL**. Trophoblast-Specific Expression of Hif-1 Results in Preeclampsia-Like Symptoms and Fetal Growth Restriction, *Sci Rep*, 9(1), 2019.

Williams CR, Mistry M, Cheriyan MA, Williams JM, Naraine MK, Ellis CL, Mallick R, Mistry A, Gooch JL, Ko B and Hoover RS. Zinc Deficiency Induces Hypertension by Promoting Renal Sodium Reabsorption, *Am J Physiol Renal Physiol*, 316, F646-F653, 2019.

Zhai YJ, Wu MM, Linck VA, Zou L, Yue Q, Wei SP, Song C, Zhang S, **Williams CR**, Song BL, Zhang ZR, Ma HP. Intracellular cholesterol stimulates ENaC by interacting with phosphatidylinositol - 4,5 - bisphosphate and mediates cyclosporine A-induced hypertension, *Mol Basis Dis*, 1865, 1915-1924, 2019.

Wong V, Arumugam P, **Wrenshall LE**. Measuring Proliferation of Vascular Smooth Muscle Cells Using Click Chemistry. *J Vis Exp*. 2019 Oct 30;(152). doi: 10.3791/59930. PMID: 31736497.

Arumugam P, Carroll KL, Berceci SA, Barnhill S, **Wrenshall LE**. Expression of a Functional IL-2 Receptor in Vascular Smooth Muscle Cells. *J Immunol*. 2019 Feb 1;202(3):694-703. doi: 10.4049/jimmunol.1701151. PMID: 30598511.

Books, chapters, reviews

Halm D. Physiologic influences of transepithelial K secretion, Ion Channels and Transporters of Epithelia in Health and Disease, 2nd edition, 2nd edition, 53 pp, 2020.

Peterson DC and **Mayes DA**. Neuroanatomy, Mammillary Bodies, Book Chapter.

Published abstracts

Posters

Alexander KE, Estep JR, **Elbasiouny SM**, Visual blindness oscillating in phase with the EEG alpha rhythm, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Castro M, **Brown TL**, and **Bigley NJ**, Anti-Inflammatory M2c Macrophages and Cardiomyocytes in Co-Culture stained with Membrane Potentiometric Dye (Di-8-ANEPPS) suggests TGF-B and IL-10 enhance coupling via CX43 and raise resting membrane potential at points of contact, Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Draper CSI, Mahrous AA, **Elbasiouny SM**, Hypoexcitability and hyperexcitability in sacral motoneurons of SOD1G93A high copy ALS mice: Disease versus compensation, 2019 Society for Neuroscience conference, Chicago, 10/19/2019 – 10/23/2019 (Poster).

Drouet DE, Yermakov LM, Miller JA, **Susuki K**, Calpain-calpastatin system in peripheral nerve myelination and demyelination, The FASEB Science Research Conference, The Biology of Calpains in Health and Disease, Pacific Grove, CA 7/14/2019 - 7/19/2019 (Platform).

Estep JR, Piasecki AM, Alexander KE, Wintermute CL, **Elbasiouny SM**, Longitudinal observation of event-related potentials commonly used in brain-computer interfaces, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Evola C, Barrios E, Mellott A, Huang L, and **Mayes DA**, Temperature-Induced Heat Shock Protein Modification of Mitochondrial Signaling Can Alter Embryonic Chick Development, Wright State University D Medical Student Research Symposium, Dayton, OH 04/01/2019 (Poster).

Farid H, Gelford WB, Goss LL, Garrett TL, **Elbasiouny SM**, Fast blue vs. cholera toxin B: Which retrograde tracer is better for spinal motoneurons labeling?, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Garrett TL, Wintermute CL, Moran ME, **Elbasiouny SM**, Cell typing of mouse spinal motoneurons using immunohistochemistry markers, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Griggs RB, Jaber JM, Nguyen DVM, Yermakov LM, Drouet DE, **Susuki K**, Methylglyoxal disrupts the axon initial segment (AIS) and neuronal network activity, 34th Annual Meeting, Ohio Physiological Society, Dayton, OH 9/21/2019; (Poster).

Griggs RB, Jaber JM, Nguyen DVM, Yermakov LM, Drouet DE, **Susuki K**, Methylglyoxal disrupts the axon initial segment (AIS) and neuronal network activity, 16th Annual Neuroscience Day, Ohio Miami Valley Chapter, Society for Neuroscience, Cincinnati, OH 5/20/2019 (Poster).

Harris JC, Draper, CSI, Garrett TL, **Elbasiouny SM**, Contrasting changes in Kv2.1 channel expression level between disease-resistant and disease-vulnerable SOD1G93A motoneurons in ALS, 2019 Society for Neuroscience conference, Chicago, 10/19/2019 – 10/23/2019 (Poster).

Kaufman MR, Albers RE, Natale B, Keoni C, Kulkarni-Datar K, Min S, Williams CR, Natale DR, and **Brown TL**. Prolonged, Trophoblast-Specific Hif-1 alpha: A new mouse model early-onset preeclampsia, Wright State University College of Science and Math Research Day, Dayton, OH 9/20/2019 (Poster).

Kaufman MR, Albers RE, Natale B, Keoni C, Kulkarni-Datar K, Min S, Williams CR, Natale DR, and **Brown TL**, Prolonged, Trophoblast-Specific Hif-1 alpha: A new mouse model early-onset preeclampsia, Wright State University Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Mellott A, Rockwood J, **Kozak JA**, Role of TRPM7 channels in immunotoxicity of divalent metal cations. , Ohio Physiological Society 34th Annual Meeting, Dayton 9/20/2019 - 9/21/2019 (Poster).

Mousa MH, Mahrous AA, **Elbasiouny SM**, Simulations of SK2 and SK3 currents in spinal motoneurons, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Murphy MM, Garrett TL, **Elbasiouny SM**, CyPPA effects on SK channels in SOD1G93A mouse model, 2019 Society for Neuroscience conference, Chicago, IL 10/19/2019 – 10/23/2019 (Poster).

Nguyen DVM, Vaughan PA, Steinbrunner JK, Yermakov LM, Griggs RB, **Ladle DR, Susuki K**, Methylglyoxal disrupts the nodes of Ranvier in the central nervous system, 34th Annual Meeting, Ohio Physiological Society, Dayton, OH 9/21/2019 (Poster).

Parikh S, Wang W, Huang L, Mukhopadhyay S, **Mayes DA**, Hierarchical hybrid carbon nano-structures as tissue engineering scaffolds: Understanding cell-scaffold interaction, Materials Science & Technology Next Generation Biomaterials Symposium, Portland, OR 09/29/2019 - 10/03/2019 (Poster).

Rakoczy RJ and **Wyatt CN**, Acute Oxygen-sensing by the Carotid Body: the Thermal Micro-Domain Model, Neuroscience Research Day, Western University, Ontario, Canada 5/14/2019 - 5/15/2019 (Poster).

Sandkhadip B and **Bigley NJ**. Enhanced expression of receptor tyrosine kinase Mer (MERTK) on SOCS3-treated polarized RAW 264.7 anti-inflammatory M2c macrophages, Ohio Physiological Society Meeting Program , Dayton, Ohio 9/20/2019 (Poster).

Sandkhadip B and **Bigley NJ**. Enhanced expression of receptor tyrosine kinase Mer (MERTK) on SOCS3-treated polarized RAW 264.7 anti-inflammatory M2c macrophages, College of Science and Mat Festival of Research , Dayton, Ohio 9/20/2019 (Poster).

Sandkhadip B and **Bigley NJ**. Enhanced expression of receptor tyrosine kinase Mer (MERTK) on SOCS3-treated polarized RAW 264.7 anti-inflammatory M2c macrophage, Boonshoft School of Medicine Central Research Forum 2019, Dayton, Ohio 10/17/2019 (Poster).

Severt B, Wingert C, and Gahman T, Connecting the CNS to PNS: Using Prosections to Teach Neuroanatomy, HAPS Annual Conference 2019, Portland, OR 5/22/2019 – 5/26/2019 (Poster).

Slyby J, Yaklic J, Maxwell R, and **Brown TL**, Placental hypoxia inducible factor-1 alpha in early onset preeclampsia as a predictor of future risk in maternal and fetal health, Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Spanbauer DL, Williams SD and **Brown TL**, Optimization of Lipid-Polymer Hybrid Nanoparticles for Cargo Delivery, Wright State University College of Science and Math Research Day, Dayton Ohio 9/20/2019 (Poster).

Spanbauer DL, Williams SD and **Brown TL**, Optimization of Lipid-Polymer Hybrid Nanoparticles for Cargo Delivery, Wright State University College of Science and Math Research Day, Dayton, Ohio 9/20/2019 (Poster).

Spanbauer DL, Williams SD and **Brown TL**, Optimization of Lipid-Polymer Hybrid Nanoparticles for Cargo Delivery, Ohio Physiological Society Annual Meeting, Dayton, Ohio 9/21/2019 (Poster).

Sulehria T, Williams D, Elliston R, Johnson-Richardson R, and **Corbett AM**, Non-addictive Drug Combination to Treat Chronic Pain and possible eliminate transition from Acute to Chronic Pain, Ohio Physiological Society Meeting, Dayton 9/20/2019 (Poster).

Waker CA, **Brown TL**, and **Lober RM**, Transketolase-like 1 inhibition as a therapeutic target for diffuse midline glioma, Wright State University College of Science and Math Research Day, Dayton, Ohio 09/20/2019 (Poster).

Waker CA, **Brown TL**, and **Lober RM**, Transketolase-like 1 inhibition as a therapeutic target for diffuse midline glioma, Ohio Physiological Society Annual Meeting, Dayton, Ohio 9/21/2019 (Poster).

Waker CA, **Brown TL**, and **Lober RM**, Transketolase-like 1 inhibition as a therapeutic target for diffuse midline glioma, Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Williams SD and **Brown TL**, Optimization of Lipid-Polymer Hybrid Nanoparticles for Cargo Delivery, Wright State University Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Williams SD, Doliboa SR and **Brown TL**, Trophoblast Giant Cell-Specific Gene Targeting, Ohio Physiological Society Annual Meeting, Dayton, Ohio 9/20/2019 (Poster).

Williams SD, Doliboa SR and **Brown TL**, Trophoblast Giant Cell-Specific Gene Targeting, Boonshoft School of Medicine Central Research Forum, Dayton, Ohio 10/17/2019 (Poster).

Wintermute CL, Estepp JR, Alexander KE, , **Elbasiouny SM**, The effects of mental workload on P300 amplitude for use in cognitive probing, 2019 Society for Neuroscience conference, Chicago, 10/19/2019 – 10/23/2019 (Poster).

Zhelay T, Szteyn K, Liardo E, Cheong JE, Koerner J, Ekkati A, Sun L, **Kozak JA**, Initial characterization of the indole-3-carboxamide BIC-154 as a fast onset and reversible ORAI channel blocker., Biophysical Society Annual Meeting, Baltimore, MD 3/2/2019 - 3/6/2019 (Poster).

Platform

Elbasiouny, SM, Motoneuron excitability regulation in ALS: hypo- and hyper-excitability face to face, finally!!, Pre-SfN Motor Symposium, Chicago, IL 10/18/2019 (Platform).

Halm D, BK gets a little help from its friends: a low conductance secretory assist from Kir7.1., Lake Cumberland Transport Group , Jamestown, Kentucky 6/16/2019 (Platform).

Beesetty B, Zhelay T, Kaitsuka T, Matsushita M and **Kozak JA**, Regulation of and by the murine TRPM7 channel-kinase., XV International Magnesium Symposium, Bethesda, MD 3/20/2019 – 3/22/2019 (Platform).

Parikh S, Wang W, Huang L, Mukhopadhyay S, **Mayes DA**, Hierarchical hybrid carbon nano-structures as tissue engineering scaffolds: Understanding cell-scaffold interaction, Materials Science & Technology Next Generation Biomaterials Symposium, Portland, OR 09/29/2019 - 10/03/2019 (Platform).

Consultantships

T. Brown, Medical Expert Consultant – Dalimonte, Reub, and Stoller, LLP

T. Brown, to Clintoria Williams, Assistant Professor, Wright State University, NCBP

T. Brown, to Courtney Sulentic, Associate Professor, Wright State University, Pharmacology & Toxicology

T. Brown to Hongmei Ren, Assistant Professor, Wright State University, Biochemistry & Molecular Biology

T. Brown, to Lucille Wrenshall, Professor, Wright State University, Surgery

B. Severt, to John Thomas' Science Olympiad Team

B. Severt, to Wright State University Boonshoft School of Medicine CAP Lab

D. Wooley, to Western Institutional Review Board/IBC Services

6

Summary of Service Activities

Student advising

Undergraduate Students

Abushamma, Hamza (P. Sonner)
Aleshire, Connor (P. Sonner)
Ali, Baraa Ali – (P. Sonner)
Armstrong, Olivia (P. Sonner)
Arnett, Thomas (P. Sonner)
Ashraf, Amin (P. Sonner)
Axiopoulou, Anastasia (P. Sonner)
Bailey, Cassius (P. Sonner)
Balon, Joe (P. Sonner)
Blackburn, Scott (P. Sonner)
Bogan, Ailis (P. Sonner)
Bohman, Victoria (P. Sonner)
Borden, Cammi (P. Sonner)
Boring, Leah (P. Sonner)
Brickey, Olivia (P. Sonner)
Brown, Nikita (P. Sonner)
Brunswick, Thomas (P. Sonner)
Cavanaugh, Chance (P. Sonner)
Chattopadhyay, (P. Sonner)
Chumley, Abby (P. Sonner)
Clark, Rebekah (P. Sonner)
Cochran, Carly (P. Sonner)
Cummings, Courtney (P. Sonner)
D'Andrea, Natalie (P. Sonner)
Davis, Collin (P. Sonner, A. Corbett)
Denman, Kirsten (P. Sonner, M. Rich)
Dewire, Luciana (P. Sonner)
Durst, Abigail (P. Sonner)
Edwards, Anjali (P. Sonner)
Edwards, Neysea (P. Sonner)
Eegan, Garcia (P. Sonner)
Egan, Vivian (P. Sonner)
Falkenshtern, Valeriya (P. Sonner)
Fugate, Alyx (P. Sonner)
Ghouse, Nailah (P. Sonner, T. Brown)
Golden, Skyler (P. Sonner)
Gomez, Julio (P. Sonner)
Greene, Lillian (P. Sonner)
Greene, Nicholas (P. Sonner)
Greene, Nick (P. Sonner)
Greenwood, Karen (P. Sonner)
Hart, Jimmy (P. Sonner, D. Ladle)
Hernandez, Gabriela (P. Sonner)
Himed, Lamia (P. Sonner)
Hinkle, Joey (P. Sonner)
Ho, Diem (P. Sonner)
Hoeflerlin, Mikayla (P. Sonner)
Holderby, Katherine (P. Sonner)
House, Krista (P. Sonner)
Iskandarani, Omar (P. Sonner)

Jaber, Leila (P. Sonner)
Jewell, Maddie (P. Sonner)
Johnson, Teshawn (P. Sonner)
Johnston, Blake (P. Sonner)
Jones, Jonah (P. Sonner)
Kahn, Ahmer (P. Sonner)
Kambarova, Salvi (P. Sonner)
Keefer, Nathan (D. Ladle)
Kim, Seara (P. Sonner)
Kodilah, Tagwa (P. Sonner)
Kressbach, Ben (P. Sonner)
Lauren Hecht (P. Sonner)
Longworth, Alisha (P. Sonner)
Loxley, Ashley (P. Sonner)
Lyumanova, Albina (P. Sonner)
Macnealy, Matthew (P. Sonner)
Makhmudov, Ozgyur (P. Sonner)
Malek, Alison (P. Sonner)
Matthews, Keith (P. Sonner)
Mawaz, Murad (P. Sonner)
McCubbins, Hunter (P. Sonner)
McMurray, Matt (P. Sonner)
McNeil, Arian (P. Sonner, D. Ladle)
Mcpeek, Deanna (P. Sonner)
Meriwether, Paige (P. Sonner)
Miller, Kaitlyn (P. Sonner)
Minge, Tyler (P. Sonner)
Moumkine, Zayneb (P. Sonner)
Murta, Cindel Lynn (C. Williams)
Nawaz, Murad (M. Rich)
Neriani, Sarah (P. Sonner)
Papaioannou, Peter (P. Sonner)
Powers, Camryn (P. Sonner)
Pyle, Kelsie (P. Sonner)
Ramesh, Viswanatan (P. Sonner)
Rheyne, Alexis (P. Sonner)
Ricker, Troy (P. Sonner, D. Ladle)
Ritchea, Erica (P. Sonner)
Rodriguez, Maria-Jose (P. Sonner)
Rousse, Jacob (P. Sonner)
Rucker, David (P. Sonner)
Sanner, Charlie (P. Sonner)
Schiebrel, Clay (P. Sonner)
Schindele, Dylan (C. Williams)
Schmidt, Abby (P. Sonner)
Shaffer, Grant (P. Sonner)
Shrader, Rebekah (P. Sonner)
Shulte, Olivia (P. Sonner)
Sivertsen-Kuhn, Hayden (P. Sonner)
Smith, Sophia (P. Sonner)
Spanbauer, Danielle (P. Sonner, T. Brown)
Spenny, Joel (P. Sonner)
Starcher, Olivia (P. Sonner)
Steinbrunner, Josef (P. Sonner, K. Susuki)
Stultz, Savannah (P. Sonner)
Sumit, Tanvi (P. Sonner)
Summers, Emma (P. Sonner)
Talib, Asha (P. Sonner)
Talkington, Dan (P. Sonner)
Taylor, Chas (P. Sonner)
Taylor, Kayla (P. Sonner)
Thirtyacre, Bailey (P. Sonner)

Thomas, Catherine (P. Sonner)
Thompson, Caleb (P. Sonner)
Tokasz, Edward (P. Sonner)
Tolias, Stamatina (P. Sonner, D. Ladle)
Tomlin, Erin (P. Sonner)
Truong, Mgcocminh (A. Kozak)
Truong, Ngocmih (C. Wyatt)
Ward, Jacob (P. Sonner)
Wells, Cherokee (P. Sonner)
Whorton, Amelia (P. Sonner)
Widener, Millie (P. Sonner)
Williams, Darnell (P. Sonner)
Williams, Teshawn (A. Corbett)
Wilson, Peyton (P. Sonner)
Wilson, Sydney (P. Sonner)

Undergraduate Researchers participating in funded programs

Elam, Ryan	NSF REU	(E. Bennett)
Waite, Aston	LSAMP	(C. Williams)
Wenegieme, Tara-Yesomi	ASK Program, LSAMP	(C. Williams)

Anatomy (Graduate)

Al-Anbari, Bahir (D. Ladle)
Alazmi, Mohammed (B. Kraszpulska)
Almadaoji, Asmaa (B. Kraszpulska)
Amurgis, Lillian (B. Kraszpulska)
Bello, Shola (D. Ladle)
Benedict, Valerie (N. Bigley)
Drummond, Lauren (B. Kraszpulska)
Duckett, Cassidy (B. Kraszpulska)
Forino, Andrew (B. Kraszpulska)
Greene, Graham (B. Kraszpulska)
Hefelfinger, Donald (B. Kraszpulska)
Huntsberger, Shana (B. Kraszpulska)
Issa, Yasmenn (B. Kraszpulska)
Johnson, Elise (B. Kraszpulska)
Johnston, Alex (B. Kraszpulska)
Jones, Brianne (B. Kraszpulska)
Kearfott, John (B. Kraszpulska)
Kilcrease, Brianna (B. Kraszpulska)
Krech, Joshua (B. Kraszpulska)
LaBello, Maria (B. Kraszpulska)
Laurent, Ashley (B. Kraszpulska)
Legan, Grace (B. Kraszpulska)
Loving, Jessica (B. Kraszpulska)
Muncrief, Matthew (B. Kraszpulska)
Nguyen, Alexander (D. Ladle)
Oxner, Alex (B. Kraszpulska)
Parks, Kaitlyn (D. Ladle)
Privett, Rebecca (B. Kraszpulska)
Theodore, Dominic (B. Kraszpulska)
Vaughan, Parker (D. Ladle)
Ward, Kenneth (B. Kraszpulska)
Williamitis, Joseph (B. Kraszpulska)
Zeidler, Andrew (B. Kraszpulska)
Zeidler, Andrew (B. Kraszpulska)

Physiology & Neuroscience (Graduate)

Ajayi, Oluwatobi (E. Bennett)
Arnett, Thomas (B. Kraszpulska)
Chumney, Jennel (S. Elbasiouny)

Etgen, Cami (**A. Corbett**)
Grant, Delany (**A. Corbett**)
Kamra, Kajal (**C. Wyatt**)
Luu, Charles Tuan (**A. Kozak**)
McDaniels, Cassandra (**A. Corbett**)
Mellott, Alayna (**A. Kozak**)
Molina, Andres (**K. Susuki**)
Nguyen, Duck Van Minh (**K. Susuki**)

Microbiology & Immunology (Graduate)

Abrefa, Darington (**D. Wooley**)
Alghanem, Nada (**N. Bigley**)
Alhazmi, Amani (**N. Bigley**)
Alkahlout, Amal (**D. Wooley**)
Alrabati, Hend (**D. Wooley**)
Amediavor, Rita (**N. Bigley**)
Bhadra, Sandkhadip (**N. Bigley**)
Bhadra, Sankhadip (**D. Wooley**)
Castro, Mike (**N. Bigley**)
Chareunsouk, Payachana (**N. Bigley**)
Cox, Cora (**N. Bigley**)
Kastle, Justine (**D. Wooley**)
Kastle, Justine (**N. Bigley**)
Madkhali, Tahirah (**N. Bigley**)
Mudayfin, Wedad (**D. Wooley**)
Mudayfin, Wedad (**N. Bigley**)
Murray, Romel (**N. Bigley**)
Norman, Iesha (**N. Bigley**)
Svetlova, Olena (**N. Bigley**)
Svitlova, Olena (**D. Wooley**)

Biomedical Sciences (Ph.D.)

Davies, Christopher (**K. Susuki**)
Gordon, Alex (**D. Halm**)
Miller, John (**K. Susuki**)
Miranda, Daniel (**D. Halm**)
Parkih, Soham (**D. Mayes**)
Rakoczy, Ryan (**C. Wyatt**)
Readler, James (**D. Halm**)
Rockwood, Jananie (**J.A. Kozak**)
Shelby, Jannae (**K. Susuki**)
Singh, Dharminder (**K. Susuki**)
Sulehria, Tahir (**A. Corbett**)
Waters, Marie (**D. Ladle**)
Williams, Sarah (**T. Brown**)
Yermakov, Leonid (**K. Susuki**)

Boonshoft School Medicine (M.D./Ph.D.)

Draper, Christina (**K. Susuki**)
Metzger, Sabrina (**M. Rich**)
Meyers, Jess (**M. Rich**)
Ume, Adaku (**C. Williams**)
Walker, Phillips (**M. Rich**)
Young, Anthony (**E. Bennett**)

College of Engineering and Computer Science (Masters)

Mardis, Aaron (**S. Elbasiouny**)

Pharmacology & Toxicology (Graduate)

Thanekar, Unmesha (**K. Susuki**)

GRADUATING STUDENTS

ANATOMY (COURSE)

Abdallah, Rashad
Brown, Nickaus
Buerschen, Emily
Dilley, Brooklynne
Dorsey, Kristin
Kaur, Avneet
Luton, Kevin
Mohamed, Sara
Ovenseri, Kennedy
Price, Mariama
Salhie, Haneen

ANATOMY (THESIS)

Awad, Mohammad Ahmad. *Assessment of Pseudo-Continuous Arterial Spin Labeling (pCASL) Inter-Session Reliability in the Quantification of Cerebral Perfusion.* **Katherin Engisch**

Bertke, Alexander. *Social Buffering by Unfamiliar Adult Males in Periadolescent Guinea Pigs: The Effects on HPA Axis Activity and Fos Induction in the Medial Prefrontal Cortex.* Michael Hennessy

Drouet Saltos, Domenica Elizabeth. *Calpain-Calpastatin System in Peripheral Nerve Myelination and Demyelination.* **Keiichiro Susuki**

Ethridge, Victoria Taryn. *Measuring Acute Effects of Aluminum Chloride Exposures on the Adult Male Rat Hippocampus Using Neuro-electrophysiology and Biochemical Assays.* Joyce G. Rohan

Parkes, Kaitlyn Louise. *Calcium Imaging of Developing Proprioceptive Dorsal Root Ganglion Neurons.* **David Ladle**

Parrish, Austin R. *Effect of hybrid/complex N-glycosylation on cardiac voltage-gated ion channel expression.* **Eric Bennett**

PHYSIOLOGY AND NEUROSCIENCE (THESIS)

Kamra, Kajal. *Effect of Administration of Somatostatin Analogue on Blood Pressure in Chronic Intermittent Hypoxic Rat.* **Christopher Wyatt**

Luu, Charles T. *TRPM7 channels as a bioassay of internal and external Mg^{2+} .* **J. Ashot Kozak**

MICROBIOLOGY AND IMMUNOLOGY (THESIS)

Abrefa, Darlington Osei. *Genetic Study of Checkpoint Defects of the *Mus81-1* Mutant in the Fission Yeast *Schizosaccharomyces Pombe*.* Yong-jje Xu

Alhazmi, Amani Mohammed. *The Response of M10, M1, and M2 RAW264.7 Macrophage Cell Line to HSV-1 Infection in vitro.* **Nancy Bigley**

Bhadra, Sankhdip. *Enhanced expression of receptor tyrosine kinase Mer (MERTK) on SOCS3-treated polarized RAW 264.7 anti-inflammatory M2c macrophages.* **Nancy Bigley**

Castro, Mike. *Cytokine Modulation of Cardiomyocyte-Macrophage Interaction.* **Nancy Bigley**

Kebe, Aicha R. *Characterization of Mechanisms for Suppressing Toxicity of ALS-Associated Protein FUS.* Shulin Ju

Madkhali, Tahirah M. *The Effects of SOCS1 and SOCS3 Peptide Mimetic on Macrophage Phagocytosis of Malignant Cells.* **Nancy Bigley**

Svitlova, Olena B. *Six-Nine Months Long Term Culture of Mouse Bone Marrow Cells Differentiated to Macrophages and Eosinophils.* **Nancy Bigley**

MICROBIOLOGY AND IMMUNOLOGY (NON-THESIS)

Kastle, Justine

Mudayfin, Wedad Abdullah H.

Murray, Romel

Committee membership/officer [indicate if committee chair]

Wright State University Boonshoft School of Medicine [or college name]

Admissions Committee (**G. Nieder, B. Kraszpulska**)

Balance, Control, and Regulation Steering Committee (**M. Matott, G. Nieder**)

Basic Science Track Scholarly Projects Committee (**E. Bennett**)

Beginning to End Steering Committee (**T. Brown, M. Matott**)

Boonshoft School of Medicine Dean Search Committee, Co-Chair (**E. Bennett**)

Boonshoft School of Medicine Leadership Academy (**C. Williams**)

Department of OB/Gyn Faculty Search Committee (**T. Brown**)

Executive Committee (**E. Bennett**)

Faculty Curriculum Committee Assessment and Evaluation Subcommittee (**B. Kraszpulska**)

Faculty Curriculum Committee Integration Subcommittee (**M. Matott**)

Faculty Curriculum Committee, Co-Chair (**E. Bennett**)

Faculty Promotions and Advancement Committee (**T. Brown, G. Nieder, M. Rich**)

Foundations Curriculum Committee (**M. Matott, G. Nieder**)

Human Architecture Steering Committee (**G. Nieder, B. Kraszpulska**)

LCME Continuous Quality Improvement Steering Committee (**E. Bennett**)

Origins Steering Committee (**E. Bennett, M. Matott**)

Peer Instruction Review Committee (**M. Matott**)

Small Animal Physiology Core Director (**C. Williams, E. Bennett**)

Staying Alive Steering Committee (**M. Matott**)

Student Appeals Committee (**G. Nieder**)

Task Force on Research (**E. Bennett**)

Team Based Learning Review Group Committee (**M. Matott**)

Wright Curriculum TBL Review Committee (**M. Matott, G. Nieder**)

Wright Q Review Committee (**M. Matott**)

College of Science and Mathematics Committee Memberships

ASK Program Committee (**P. Sonner, C. Williams**)

Chairs and Directors Council (**E. Bennett**)

Faculty Development Committee (**A. Corbett**)

All CoSM standing faculty committees (**C. Wyatt, as Associate Dean**)

Graduate Academic Policies Committee (**B. Kraszpulska**)

Graduate Committee (**K. Engisch, B. Kraszpulska**)

Graduate Studies Committee (**C. Wyatt**)

Petitions Committee (**B. Severt**)

Scholarship Committee (**P. Sonner, C. Wyatt**)

Steering Committee (**D. Wooley**)

Undergraduate Curriculum Committee (**P. Sonner, C. Wyatt**)

Biomedical Sciences Committee Memberships

Academic Policies Committee (**E. Bennett, C. Wyatt**)

Admission Committee (**S. Elbasiouny, Chair, K. Susuki**)

Curriculum Committee (**D. Halm**)

Nominating Committee (**K. Susuki, C. Williams**)

BMS Student Association (BMSS) (**A. Kozak**)

Neuroscience, Cell Biology and Physiology Committee Memberships

Advisory Committee (**A. Corbett, Chair, B. Kraszpulska, D. Ladle, G. Nieder, P Sonner**)
Annual Evaluation and Assessment Subcommittee (**B. Kraszpulska Chair, N. Bigley, A. Corbett, D. Ladle**)
Master's Program Revision Committee (**B. Kraszpulska, Chair, M. Kraszpulski, G. Nieder, M. Matott, B. Severt, N. Ritucci, A. Corbett, C. Wyatt**)
Promotion and Tenure Committee (**A. Corbett Chair, D. Halm, B. Kraszpulska, A. Kozak, D. Ladle, M. Rich**)

College of Engineering and Computer Science

BME Program Committee (**S. Elbasiouny**)
Graduate Advisor of BIE Students in Neuroengineering Focus (**S. Elbasiouny**)
Master's Program in Neuroengineering (**S. Elbasiouny Chair**)

Wright State University

Academic Integrity Hearing Panel (**G. Nieder**)
Academic Mediation Committee (**N. Ritucci**)
Center for Teaching and Learning Faculty Advisory Board (CTL FAB) (**P. Sonner**)
Commencement Committee (**B. Severt**)
Graduate Policies Committee of the Senate (**K. Engisch, G. Nieder, D. Wooley**)
Master's Program in Neuroengineering at the College of Engineering and Computer Science (**S. Elbasiouny, Chair**)
Commencement Committee (**B. Severt**)
Faculty Governance, Faculty Senate Executive Committee (**D. Wooley**)
Faculty Senate (**E. Bennett, A. Corbett, P. Sonner, D. Wooley**)
Faculty Senate, Faculty Budget Priorities Committee (**E. Bennett**)
Faculty Senate Working Group (**P. Sonner**)
Graduate Council (**K. Engisch**)
Graduate Curriculum (**D. Wooley**)
Graduate Faculty Committee (**A. Corbett, D. Wooley**)
Institutional Animal Care and Use Committee (**A. Corbett, Chair, D. Ladle**)
Institutional Biosafety Committee (**D. Ladle**)
Let's Talk Forum on Wright State Research Institute (**E. Bennett**)
Outside Interest Committee (**D. Mayes**)
Radiation Safety Committee: Vice Chair (**A. Corbett**)
Summer Working Group OER Resolution (**B. Severt**)
Write It Up! (**C. Williams**)
Wright State University Outside Interest Group (**D. Mayes**)
University Faculty Senate, CoSM Representative (**A. Corbett**)
University International Education Advisory Committee (**M. Kraszpulski**)
University Petition Committee (**B. Severt**)
University Scholarship and Sponsored Research Committee (SSRC) (**T. Brown, Chair**)
University's Student Conduct Panel (**B. Severt**)
University's Student Success Committee (**B. Severt**)
University Undergraduate Curriculum Committee (**P. Sonner**)

National

American Biological Safety Association Scientific Program Committee (**D. Wooley**)
American Heart Association (**E. Bennett, A. Ednie, C. Williams**)
American Physiological Society, Chapter Advisory Committee (**D. Halm**)
American Physiological Society, Joint Programing Committee (**D. Halm**)
American Physiological Society, Cell Section Steering Committee (**D. Halm**)
American Physiological Society, Renal Section Awards Committee (**C. Williams**)
Biophysical Society, Bethesda, MD (**A. Kozak**)
American Physiological Society – Council on Kidney in CV Disease (KCVD) Leadership Committee (**C. Williams**)
American Physiological Society – Renal Section Committee (**C. Williams**)
American Society for Neurochemistry (ASN) YIEE Award Committee (**D. Mayes**)
American Society for Neurochemistry (ASN) YIEE Young Investigator (**D. Mayes**)
American Society of Nephropathy (**C. Williams**)

Biological Agent Containment Working Group – Centers for Disease Control and Prevention (**D. Wooley**)
Board of Scientific Counselors for the Centers for Disease Control and Prevention (**D. Wooley**)
Council on the Kidney in Cardiovascular Disease (KCVD) Leadership Committee (**C. Williams**)
International Alzheimer's & Dementia Conference Organizing Committee (**D. Mayes**)
March of Dimes Innovation and Novel Discovery Challenge Grants Committee (T.Brown)
March of Dimes Prematurity Research Center Ohio Collaborative, Molecular Developmental Biology of Pregnancy Group (T.Brown)
National Institutes of Health- Center for Scientific Review NIH CSR Anonymous Grant Review Committee (T.Brown)
National Institutes of Health/NICHD-Pregnancy & Neonatology Study Section [PN] (T.Brown)
NIH Recombinant DNA Advisory Committee (**D. Wooley**)
Human Anatomy and Physiology Society Committee – Cadaver Usage (**B. Kraszpulska, B. Severt**)
Wisconsin National Primate Research Center - Pilot Project Program Grant Committee (T. Brown)
Women in Science & Medicine Task Force (**C. Williams**)

Other

ALS Association (**S. Elbasiouny**)
Board of Trustees Glen Helen Association, Yellow Springs, Ohio (**D. Halm**)
Deutsche Forschungsgemeinschaft (DFG) – Project Grant Reviewer (**E. Bennett**)
Ohio Physiological Society, 2019 meeting Organizing Committee (**A. Ednie, D. Halm, A. Kozak**)
WSU Neuroscience Club, Faculty Advisor (**P. Sonner**)
Mouse Surgical Training, Data Sciences International (**C. Williams**)

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Patient Care Summary

Mark M. Rich, M.D., Ph.D. – 180 ambulatory visits in 2019

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Honors and awards [Faculty or staff]

Graduate Student GEMS Award (Soham Parkih **D. Mayes** Lab)
Wright State Academy of Medicine Outstanding Senior Faculty Achievement Award (**M.Rich**).
University Professor (**M. Rich**).
CoSM Faculty Excellence Award - Spirit of Innovation for HAPI Lab & Neuro Lab (**B. Severt, P. Sonner**).
President's Award for NTE Faculty: Outstanding Teaching (Nomination **B. Severt**).
Presidential Award for Outstanding NTE Faculty in Service (Nomination **P. Sonner**).
Wright State University Best Student Poster Award, 16th Annual Neuroscience Day, Ohio Miami Valley Chapter, Society for Neuroscience, Cincinnati, OH, USA, May 20th 2019 (JM. Jaber **K. Susuki** Lab).
Ohio Physiological Society Student Award winners
- Tara-Yesomi Wenegieme, undergraduate student, Wright State University, Kent Scientific Travel Award
- Jessica Myers, graduate student, Wright State University, Honorable Mention
- Dylan Schindele, undergraduate student, Wright State University, Honorable Mention

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Hosted events

February 22, 2019 – Andrew Ednie, Ph.D., Wright State University, Dayton, OH, Regulation of cardiac excitation-contraction coupling by intracellular O-linked glycosylation.

March 15, 2019 – Joyce Rohan, Ph.D., Wright State University, Dayton, OH, Assessments of Gulf War chemical toxicity in rats.

March 22, 2019 – Matthew McMurray, Ph.D., Wright State University, Dayton, OH, Trashcans and jello-shots: Unique animal models of drug consumption and addictive processes

March 29, 2019 – Tony De Falco, Ph.D., Wright State University, Dayton, OH, Exploring immune, vascular, and mesenchymal interactions in organogenesis and stem cell niches.

April 12, 2019 – Brian C. Clark, Ph.D., Wright State University, Dayton, OH, Neuromuscular mechanisms of aging and disuse-induced muscle weakness.

April 19, 2019 – Douglas C. Eaton, Ph.D., Wright State University, Dayton, OH, Lipid, MLP-1, and ENaC: a few cherry-picked experiments!

September 20, 2019 – Robert T. Dirksen, Ph.D., University of Rochester Medical Center, Rochester, NY, Why do Mice Run Better with SOCCs?

September 27, 2019 – Soumen Paul, Ph.D., Kansas University Medical Center, Kansas City, KS, Understanding Trophoblast Development and Placentation: From Signaling mechanisms to Chromatin Modification.

October 4, 2019 – Nihar Nayak, DVM, Ph.D., Wayne State University School of Medicine, Detroit, MI, Placental sFlt1: a friend or foe in the pathobiology of preeclampsia?

October 11, 2019 – Hongmei Ren, Ph.D., Wright State University, Dayton, OH, Roles of lipin 1 in pathogenesis of skeletal muscle disorders.

October 18, 2019 – F. Javier Alvarez-Leefmans, M.D., Ph.D., Wright State University, Dayton, OH, Debated role of apical Na-K-Cl cotransporter NKCC1 in choroid plexus epithelial cell function.

October 25, 2019 – Andrea Meredith, Ph.D., University of Maryland School of Medicine, Baltimore, MD, Big Time for BK: Mechanisms of Circadian Rhythms in Neural Activity.

November 8, 2019 – Assaf Harel, Ph.D., Wright State University, Dayton, OH, Seeing the world from above: uncovering the neural basis of aerial scene recognition.

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Other information

Outreach programs

HAPI Lab (**T. Brown, B. Kraszpuska, B. Severt**)

Horizons in Medicine (**G. Nieder**)

Neuro Lab (**T. Brown, C. Wyatt, K. Engisch, P. Sonner**)

STEMM: Exploring Human Anatomy an Interactive Anatomy Lab Experience (**B. Kraszpuska, B. Severt**)

STREAMS. This program is funded by the National Institutes of Health to encourage members of under-represented minority groups and students with disabilities to choose careers in cardiovascular-related research. (**S. Elbasiouny, P. Sonner.**)

Women in Science Giving Circle (**A. Corbett, K. Engisch, B. Kraszpuska, B. Severt**)

Destination Imagination (**D. Mayes**)

Special Interest Program – Exposing High School to Neuroengineering Research (**S. Elbasiouny**)

Anatomy Lab Tour, Engineering Summer Camp (**B. Severt**)

Student clubs and activities

Operation Smile Wright State University – WSU chapter of Operation Smile which works to provide life-saving cleft palate and cleft lip surgeries to children in need throughout the world. (**N. Ritucci**)

Ohio Summer Institute (**N. Ritucci, Co-Director**)

College of Science and Math Anatomy Club, (**B. Kraszpuska, Advisor**)

Boonshoft School of Medicine Gastronomy Club (**B. Kraszpuska, Advisor**)