



Department of Neuroscience, Cell Biology, and Physiology

Annual Report:

January 1, 2022 – December 31, 2022

Eric S. Bennett, Ph.D.
Professor and Chair

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Statement from the Chair/Associate Dean

NCBP is a matrix department within the Boonshoft School of Medicine (BSoM) and the College of Science and Mathematics (CoSM), with most NCBP faculty members, including me, holding primary appointments in both colleges. 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. Despite significant decreases in faculty numbers, particularly over the past two years, NCBP faculty are over-performing at all missions - teaching, mentoring, service, and extramural research support were all at record high levels in 2022, as detailed below.

- A. Research - extramural research dollars (and expenditures) are at an all-time high** – NCBP extramural support, expenditures, and F&A generation in 2022 were all at record levels. Further, salary savings (faculty paying their academic/fiscal faculty from grants) also reached an all-time high in FY23. We are on track for even larger increases in all areas in 2023. Additional details of research productivity:
- 1) Federal funding** – 2022 was a really strong year for NCBP faculty, with several additional large federal grants and contracts awarded, with even more being awarded in 2023. In FY23, NCBP faculty generated at least 16% of the entire University's F&A returns, and more than 35% of BSOM returns – this, despite the significant decrease in faculty numbers. It is very likely that these percentages will increase in FY24.
 - 2) Core Facilities run by NCBP** that are 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** – ~30 peer-reviewed publications in high impact journals
- B. Education** – There has been a recent, dramatic increase in teaching effort and program direction. This occurred for two primary reasons - increased teaching/program direction responsibilities combined with the loss of five FTE over the past two years, thus forcing the remaining NCBP faculty members to teach significantly higher loads.
- 1) Medical student education** - NCBP faculty are involved in the development, administration, and/or delivery of all seven foundational modules in years 1 and 2 of the BSOM Wright Curriculum. NCBP faculty members directed six of seven basic science modules throughout these two years.
 - 2) Ph.D. education/training** – NCBP faculty members 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. In 2022, two MD/PhD students working in NCBP labs, Adaku Ume in Clintoria Williams' lab and Chris Dupont working in Mark Rich's lab, received an NIH F30, individual pre-doctoral fellowship, to join a third MD/PhD student, Jennae Shelby in Kei Susuki's lab, as the first ever F30 awardees at WSU.
 - 3) M.S. degree programs** – Direct/deliver three, self-paying M.S. programs training >40% 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. The Wright Bridge to UME program has proven successful, providing opportunities to the Bridge students. The recent approval of a non-thesis M.S. in Physiology and Neuroscience and M.S. in Microbiology & Immunology has already proven successful in growing our M.S. student body.
 - 4) Combined BS to MS in Physiology and Neuroscience Program created** – In 2021, NCBP created a combined BS to MS degree program in our Physiology and Neuroscience degree programs that has further enhanced the size and quality of our MS programs.
 - 5) Undergraduate education and programs**
 - a) NCBP faculty direct/deliver "anatomy/physiology" courses annually to ~800 undergraduates.
 - b) The B.S. in Physiology and 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
 - 6) NCBP faculty members mentor 60-70 students/year** – Undergraduate, MS, PhD, MD/PhD, and a few MD students each year.

- C. **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. Both labs are highly successful and have received significant regional and national acclaim as an exemplary experiential program designed to excite and educate high school students about the biomedical sciences. 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. Finally, Bridgett Severt, Pat Sonner, Nick Christian, and I worked together to formalize the NCBP high school outreach programs (HAPI and Neuro Labs) as bona fide recruitment efforts for which we received one of the inaugural Faculty Initiated Recruitment Program (FIIRP) awards (\$7,200). In 2022, we received a \$20,000 grant from the CareSource Foundation through the Wright State Foundation to support our efforts to include the development of a third program as well as enhance our outreach to and opportunities for students from regional urban and rural high schools.

D. **Awards/Honors**

- 1) Faculty Awards: In 2022, at least eight NCBP faculty members received awards for excellence in teaching, mentoring, and/or research, (with at least three additional awards to date in 2023):
 1. Four faculty members received the Wright State University Excellence in Grantsmanship Award **(Elbasiouny, Kozak, Rich, and Susuki)**
 2. BSOM Faculty Mentor Award – Basic Sciences **(Williams)**
 3. BSOM Medical Student Education Award **(Matott)**
 4. BSOM Teaching Excellence Award **(Rich)**
 5. Wright State University Women’s Center Gender Equity Award **(Engisch)**
- 2) Student Awards: Several NCBP students across all levels, received awards at the local and national levels. Some specific highlights include:
 1. NIH F30 Fellowship received by Adaku Ume (BSOM MD/PhD) **(C. Williams** laboratory)
 2. NIH F30 Fellowship by Christopher Dupont (BSOM MD/PhD) **(M. Rich** laboratory)
 3. Louis Stokes Alliance for Minority Participation (LSAMP) Scholars Kelia McMichael and Aston Waite, both Neuroscience Honor Students **(C. Williams** laboratory)

2 Programs/Divisions

Name of Division or Program	Director	Dates
Neuroscience Institute	Mark M. Rich, M.D., Ph.D.	2015-Present
BMS Ph.D. Program	David Ladle, Ph.D.	2020-Present
MI MS Program	Dawn Wooley, Ph.D.	2018-present
ANT MS Program	Barbara Kraszpulska, Ph.D.	2016-present
PN MD Program	Barbara Kraszpulska, Ph.D.	2016-present
PN BS Program	Patric Sonner, 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., Associate Dean Medical Education-Pre Clerkship Curriculum, 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., Full Professor		Cellular mechanisms regulating neuronal excitability and motor system output
Kathrin Englisch, Ph.D., Interim Dean, CoSM, Associate Professor		Neurotransmitter release

Name and Academic Position	Clinical Interests	Research Interests
Dan Halm, Ph.D., Associate Professor		Epithelial physiology; Secretory signal transduction
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
Mark Rich, M.D., Ph.D., Full Professor	Neurology	Synaptic plasticity; Critical illness myopathy
Nick Ritucci, Ph.D., Senior Lecturer		Undergraduate and medical education; Physiology
Bridgett Severt, M.D., Lecturer		Undergraduate education; Anatomy
Patrick Sonner, Ph.D., Senior Lecturer		Undergraduate and graduate education; Neuroscience
Keiichiro Susuki, M.D., Ph.D., Associate Professor		Symptoms in a broad range of diseases including multiple sclerosis, traumatic brain injury, and various forms of neuropathy
Clintoria Williams, Ph.D., Associate 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 4000 Capstone
BIO 4900 Biology Internship
BIO 4990 Special Problems in Biology
EES 4750 Biological Safety
MI 4200 Neuro Immune System Cross-Talk in Hemostasis
MI 4260 Immunology
MI 4310 Virology
MI 4750 Pathogenic Mechanisms
NEU 1010 Introduction to the Neuroscience Program
NEU 1020 The Neuroscience of Learning
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 4500 Neuro-Glia Biology and Disease
NEU 4660 Computational Neuroscience
NEU 4990 Independent Research Neuroscience
PN 4880 Independent Reading in Physiology

PN 4990 Special Problems in Physiology
PSY 2910 Drugs and Behavior
PSY 3910 Behavioral Neuroscience
SM 1010 Scientific Literacy for the 21st Century

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 7900 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 8170 Biological Safety
BMS 8620 Human Physiology
BMS 9030 Human Neurobiology
BMS 9970 Lab Rotation
BMS 9900 Grant Writing Seminar
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 7770 Gene Therapy

MI 7890: Research in Microbiology & Immunology
MI 8000 Microbiology and Immunology Seminar
MI 8990 Microbiology Research
NEU 6400 Developmental Neuroscience
PN 6300 Medical Cell Biology & Physiology
PN 6550 Neuro-Glia Biology and Disease
PN 6600 Computational Neuroscience
PN 7010 Selected Topics in Physiology
PN 7050 Human Physiology
PN 7220 Ion Channels
PN 7750 Neuroscience and Physiology
PN 7760 Intercellular Communications
PN 7900 Physiology Seminar
PN 8600 Principles in Biomedical Research
PN 8990 Physiology Research

Undergraduate medical education [medical school]

SMD 8120 Human Architecture I
SMD 8220 Human Architecture II
SMD 8110 Origins
SMD 8140 Staying Alive
SMD 8210 Beginning to End
SMD 8220/8225 Balance, Control and Repair
Wright Q small group facilitators

Invited Lectures

T. Brown, EV and Nano's Disgnosis, Mechanisms, Treatments, WSU Partical Interest Group, 6/9/22.
T. Brown, Placenta, Preeclampsia, and Targeted Therapy, WSU, Department of Biochemistry and Molecular Biology, 10/27/22.
T. Brown, Placenta, Preeclampsia, and Targeted Therapy, University of Texas Medical Branch, Galvaston, TX, 5/2/22.
T. Brown, Placenta, Preeclampsia, and Targeted Therapy, WSU, BSOM, WSU, 12/13/22.
A. Ednie, O-GlcNAc Regulation of Cellular Physiology and Pathophysiology, The American Society for Biochemistry and Molecular Biology, Athens, GA, 7/7/22-7/10/22.
A. Kozak, TRPM 7 channel-kinase, magnesium and pH in immune cells, XVI INTERNATIONAL MEGNESIUM SYMPOSIUM Magnesium in Health and Disease, Glasgow, UK 6/23/22-6/24/22.
M. Rich, Muscle Dysfunction in Myotonia Congenita, Muscle Study Group, Italy, 9/29/22-10/2/22.
B. Severt, Edison State PTA Cadaver Workshop, WSU, 11/22/22.
P. Sonner, Low-Stakes Assessment Presentation, WSU Center for Faculty Excellence, 12/5/22.
P. Sonner, Metacognition and Mindsets, WSU Teaching for Student Success Symposium, 8/18/22.

K. Susuki, Roles of calpains in PNS injuries, 2022 Myelin Gordon Research Conference, Tuscany, Italy, 5/22/22-5/27/22.

K. Susuki, Structural alterations in the axon initial segment caused by methylglyoxal: association with cognitive impairment in type 2 diabetes. The 45th Annual Meeting of the Molecular Biology Society of Japan, Chiba, Japan, 11/30/22-12/2/22.

D. Wooley, Coronavirus infection: What You Need to Know, Wayne High School, Huber Heights, OH,

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Scholarly Activity

Funded and Active Grants

EXTRAMURAL COMPETITIVE

Bennett, ES, National Science Foundation, MCB-1856199, "Collaborative Research: Data-driven integration of biological with in silico experiments to determine mechanistic effects of N-glycosylation on cellular electromechanical functions"; Lead Principal Investigator, Eric S. Bennett, Total WSU Award: \$773,970; Total Award: \$1,094,595

Brown T, NIH NIDDK R01 1 R01 DK133698001, Mechanisms of the Renoprotective Properties of Zinc Supplementation in Mouse Models of Chronic Kidney Disease, P.I. Thomas L. Brown, Total \$2,036,134, Direct Current Year \$2036134.

Brown T, AMAG Pharmaceuticals, Placental exosomes induce pathophysiological symptoms of pre-eclampsia, P.I. Thomas L. Brown, (12/1/2020 to 11/30/2022) Total \$50000, Direct Current Year \$50000.

Brown T, NIH NIDDK 2R01DK095132-05A1, The maternal-fetal adiponectin differential and fetal fat deposition, P.I. J. Shao, Total \$1570000, Direct Current Year \$1570000.

Brown T, Nicholas J. Thompson Distinguished Professor Research Award, Translational Research in Preeclampsia, P.I. Thomas L. Brown, (01/01/2021 to 12/31/2022) Total \$10000, Direct Current Year \$10000.

Ednie A, National Science Foundation - MCB-1856199, 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, Ph.D.; co-Principal Investigator, AR Ednie.

Elbasiouny S, AFRL, Brain-Computer Interfaces for Assessment and Enhancement of Airman and Teams in Operational Environments (contract #: 671200), P.I. Sherif Elbasiouny, (06/01/2020 to 02/28/2022) Total \$150000, Direct Current Year \$100000, Indirect Current Year \$50000, Total cost for entire grant period \$150000, 22% salary for Dr. Elbasiouny.

Elbasiouny S, NINDS, Mechanisms Underlying Excitability Regulation of Motoneuron Types in ALS, P.I. Sherif Elbasiouny, (02/01/2022 to 01/31/2027) Total \$570854, Direct Current Year \$409263, Indirect Current Year \$161591, Total cost for entire grant period \$2721621, 33% salary for Dr. Elbasiouny.

Elbasiouny S, NIA, Motoneuronal mechanisms underlying age-related muscle weakness, P.I. Sherif Elbasiouny, (6/1/2021 to 2/28/2026) Total \$308270, Direct Current Year \$205513, Indirect Current Year \$102757, Total cost for entire grant period \$2992298, 33% salary for Dr. Elbasiouny.

Elbasiouny S, NIA, Neuronal mechanisms involved in aging and AD, P.I. Sherif Elbasiouny, (04/01/2021 to

03/31/2023) Total \$299991, Direct Current Year \$199994, Indirect Current Year \$99997, Total cost for entire grant period \$299991, 22% salary for Dr. Elbasiouny.

Susuki K, 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 8/31/2022) Total cost for entire grant period \$150000.

Susuki K, 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.

Susuki K, NIH, NIA/NINDS, F30 NS124237, Unfolding the link between the endoplasmic reticulum, AIS shortening, and cognitive impairment in type 2 diabetes, P.I. Jennae N. Shelby, MD/PhD candidate in Biomedical Sciences , (08/01/2021 to 07/31/2025), Total cost for entire grant period \$188910.

Williams C, NIH/NIDDK, Impact of Calcineurin Inhibitors on Kidney Function, P.I. Clintoria Williams, Total \$117754, Direct Current Year \$117754.

Williams C, R01 National Institutes of Health, NIDK, Mechanisms of the Renoprotective Properties of zinc in mouse Models of CKD, P.I. Clintoria Williams, Total \$1942872, Direct Current Year \$1942872.

Williams C, American Physiological Society, Role NfκB Renal Damage, P.I. Clintoria Williams, Total \$56000, Direct Current Year \$56000.

Williams C, NIH/NIDDK, Role of Calcineurin Isoforms in Blood Pressure Regulation, P.I. Clintoria Williams, Total \$576040, Direct Current Year \$576040.

Williams C, NIH/NIDDK, Role of Calcineurin Isoforms in Blood Pressure Regulation of the Sodium Chloride cotransporter, P.I. Clintoria Williams, Total \$308000, Direct Current Year \$308000.

Williams C, F30 National Institutes of Health, NIDDK, The role of NFκB in calcineurin inhibitor-induced renal fibrosis, P.I. Clintoria Williams, Total \$191259, Direct Current Year \$191259.

Williams C, TransitionKidneyCure ASN, Renoprotective Properties of Zinc Supplementation in Chronic Kidney Disease, P.I. Clintoria Williams, Submitted , Requested Total \$200000, Direct \$200000 ().

INTERNAL

Kozak, AK, Boonshoft School of Medicine Seed Grant, TRPM7 channel kinase in smooth muscle and T cell proliferation, P.I. Kozak.

Brown T, Wright State University Foundation, Endowment for Research on Pregnancy Associated Disorders, P.I. Thomas Brown, (to).

Brown T, WSU and Premier Health Neuroscience Institute, WSU and Premier Health Neuroscience Institute, P.I. Thomas L. Brown, (to) Total \$209000, Direct Current Year \$209000.

SUBMITTED

Ednie A, NIH - R01HL 169609, Regulation of cardiomyocyte voltage-gated Ca²⁺ channels by intracellular O-linked glycosylation. NHLBI. The goal of this study is to determine the impact of intracellular O-linked glycosylation on cardiomyocyte Ca²⁺ channel function and myocyte EC coupling in health and disease, P.I. Andrew Ednie, Submitted , Requested Total \$ (Pending).

Kozak, AK, NIAID, Sodium Influx Assay for Measurement of TRPM7 Channel Activity in Intact Cells, P.I. Ashot Kozak, Submitted.

PRIVATE FOUNDATIONS

Hartke Family Gift - Five-Year Commitment of Support for Biobanking Operations (\$50,000)

Bev Parker Private Gift - Support of Biobanking Operations (\$5,000)

Hartzell Norris Charitable Trust - Equipment Support for Glioma Research at Dayton Children's (\$10,000)

Greg and Patti Atkinson Private Gift – Support of Biobanking Operations (\$2,500)

CareSource Foundation – Support for NCBP high school outreach/recruitment interactive laboratories – HAPI and Neuro Labs (\$20,000).

Publications

Papers in refereed journals

Ackerman W, Buchimschi, C, **Brown TL**, Zhao F, Summerfield T, and Buhimschi I. Transcriptomics-based subphenotyping of the human placenta enabled by weighted correlation network analysis in early-onset preeclampsia with and without fetal growth restriction. Hypertension (submitted).

Ackerman W, Buhimschi, C, **Brown TL**, Zhao G, Summerfield T and Buhimschi I. Transcriptomics-based subphenotyping of the human placenta enabled by weighted correlation network analysis in early-onset preeclampsia with and without fetal growth restriction. Hypertension (submitted).

Chen A, Phillips KA, Schaefer JE, and Sonner PM. The Development of Core Concepts for Neuroscience Higher Education: From Beginning to Summer Virtual Meeting Satellite Session. The Journal of Undergraduate Neuroscience Education (JUNE), 20, A160-A164, 2022.

Chen A, Phillips KA, Schaefer JE, **Sonner PM**. Community-derived core concepts for neuroscience higher education. CBE Life Sciences Education (submitted).

Cox CB, Castro M, **Brown TL** and **Bigley NJ**. Cardiac resident macrophages facilitate electrical conduction by interacting with cardiomyocytes via connexin-43 (cx43) hemichannels. Cx43 is critical for impulse propagation and coordination between muscle contractions, (submitted).

Cox CB, Castro M, **Brown TL** and **Bigley NJ**. IL-10 and TGF-beta Increase Connexin-43 Expression and Membrane Potential of HL-1 Cardiomyocytes Coupled with RAW 264.7 Macrophages. Immunohorizons, 6, 334-343, 2022.

Ednie AR, Paul-Onyia CDB, and **Bennett ES**. Reduced O-GlcNAcylation diminishes cardiomyocyte Ca²⁺ dependent facilitation and frequency dependent acceleration of relaxation. J Mol Cell Cardio. (in revision)

Elbasiouny SM. Motoneuron excitability dysfunction in ALS: Pseudo-mystery or authentic conundrum? J Physiol, 600, 4815, 2022.

Engisch KL, Wang X, **Rich MM**. Homeostatic Plasticity of the Mammalian Neuromuscular Junction. Adv Neurobiol. 111-130, 2022.

Fernandes SR, Pereira M, **Elbasiouny SM**, Dhaher Y, de Carvalho Y, M.Miranda PC. Interplay Between Electrical Conductivity of Tissues and Position of Electrodes in Transcutaneous Spinal Direct Current Stimulation (tsDCS). Brain and Human Body Modeling, 2, 2022.

Francis CE, **Williams CR**, Nguyen C, Mata L, Nguyen L and Bai Y. Regulatory Role of Epithelial Cell Crosstalk on Cyclosporine A-Induced MMP-9 Production and Actin Cytoskeleton Dynamics in Calcineurin Isoform-Specific Renal Fibroblasts. *International Journal of Molecular Sciences* (in press).

Gilman A and **Kraszpuska B**. Innovation surgical workshops targeting undergraduate, premedical, and medical students. *Med Sci Educ*, 32(4), 771-772, 2022.

Highlander MM and **Elbasiouny SM**. Non-Invasive Transcutaneous Spinal DC Stimulation as a Neurorehabilitation ALS Therapy in Awake G93A Mice: The First Step to Clinical Translation. *Bioengineering*, 9, 441, 2022.

Iwasawa E, Brown FN, Shula C, Kahn F, Lee SH, Berta T, **Ladle DR**, Campbell K, Mangano FT, Goto J. The Anti-Inflammatory Agent Bindarit Attenuates the Impairment of Neural Development through Suppression of Microglial Activation in a Neonatal Hydrocephalus Mouse Model', *Journal of Neuroscience*, 42, 1820-1844, 2022.

Kim H, Yang H, **Ednie AR**, **Bennett ES**. Simulation Modeling of Reduced Glycosylation Effects on Potassium Channels of Mouse Cardiomyocytes. *Front Physiol*, 13, 816651, 2022.

Koesters AG, **Rich MM**, and **Engisch KL**. Diverging from the Norm: Reevaluating What Miniature Excitatory Postsynaptic Currents Tell Us about Homeostatic Synaptic Plasticity. *The Neuroscientist*, ePub ahead of print, 1-22, 2022.

Koesters AG, **Rich MM**, **Engisch KL**. Diverging from the Norm: Reevaluating What Miniature Excitatory Postsynaptic Currents Tell Us about Homeostatic Synaptic Plasticity. *Neuroscientist*, 2022.

Kozak JA. Suppression of Store-operated Calcium Entry Channels and Cytokine Release by Cannabinoids. *Function (Oxf)*, 3, zqac044. , 2022.

Martinez D, Lima-Silveira L, **Matott MP**., Hasser EM, Kline DD. Gamma-Aminobutyric Acid Transporters in the Nucleus Tractus Solitarii Regulate Inhibitory and Excitatory Synaptic Currents That Influence Cardiorespiratory Function. *Frontiers in Physiology*, 12, 2022.

Miller JA, Drouet DE, Yermakov LM, **Elbasiouny SM**, Bensabeur FZ, Bottomley M, and Susuki K. Distinct changes in calpain and calpastatin during PNS myelination and demyelination in rodent models. *International Journal of Molecular Sciences*, 23, 15443, 2022.

Rakoczy RJ, Scheibrel C, and **Wyatt CN**. Acute Oxygen-Sensing via Mitochondria-Generated Temperature in Rat Carotid Body Type I Cells. *Frontiers in Physiology*, 13, 874039, 2022.

Rich MM, Housley SN, Nardelli P, Powers RK, Cope TC. Imbalanced Subthreshold Currents Following Sepsis and Chemotherapy: A Shared Mechanism Offering a New Therapeutic Target?', *Neuroscientist*. , 103-120, 2022.

Susuki K. Neurophysiology, biochemistry, and immunology in peripheral nervous system. *Textbook of Peripheral Nerve Diseases*. (Kanda T ed. Tokyo: Igaku Shoin), 28-37, 2022.

Ume AC, Wenegieme TY, Adams D, Adesina S and **Williams CR**. Zinc Deficiency: Potential Hidden Driver of the Detrimental Cycle of Chronic Kidney Disease and Hypertension. *Kidney360* (in press).

Ume AC, Wenegieme TY, Adams D, Shelby J and **Williams CR**. Tacrolimus Induces Fibroblast to Myofibroblast Transition via a TGF- β -Dependent Mechanism to Contribute to Renal Fibrosis. *Am J Physiol Renal Physiol*.

Wang X, Dupont C, Grant D, Voss AA, **Rich MM**. Plateau potentials contribute to myotonia in mouse models of myotonia congenital. *Exp Neurol*, 2022.

Wang X, Nawaz M, DuPont C, Myers JH, Burke SR, Bannister RA, Foy BD, Voss AA, **Rich MM**. The role of action potential changes in depolarization-induced failure of excitation contraction coupling in mouse skeletal muscle. *Elife*, 2022.

Lilly JV, Rokita JL, Mason JL, Patton T, Stefankiewicz S, Higgins D, Trooskin G, Larouci CA, Arya K, Appert E, Heath AP, Zhu Y, Brown MA, Zhang B, Farrow BK, Robins S, Morgan AM, Nguyen TQ, Frenkel E, Lehmann K, Drake E, Sullivan C, Plisiewicz A, Coleman N, Patterson L, Koptyra M, Helili Z, Van Kuren N, Young N, Kim MC, Friedman C, Lubneuski A, Blackden C, Williams M, Baubet V, Tauhid L, Galanaugh J, Boucher K, Ijaz H, Cole KA, Choudhari N, Santi M, Moulder RW, Waller J, Rife W, Diskin SJ, Mateos M, Parsons DW, Pollack IF, Goldman S, Leary S, Caporalini C, Buccoliero AM, Scagnet M, Haussler D, Hanson D, Firestein R, Cain J, Phillips JJ, Gupta N, Mueller S, Grant G, Monje-Deisseroth M, Partap S, Greenfield JP, Hashizume R, Smith A, Zhu S, Johnston JM, Fangusaro JR, Miller M, Wood MD, Gardner S, Carter CL, Prolo LM, Pisapia J, Pehlivan K, Franson A, Niazi T, Rubin J, Abdelbaki M, Ziegler DS, Lindsay HB, Stucklin AG, Gerber N, Vaske OM, Quinsey C, Rood BR, Nazarian J, Raabe E, Jackson EM, Stapleton S, **Lober RM**, Kram DE, Koschmann C, Storm PB, Lulla RR, Prados M, Resnick AC, Waanders AJ. The children's brain tumor network (CBTN) - Accelerating research in pediatric central nervous system tumors through collaboration and open science. *Neoplasia*. 2023 Jan;35:100846. doi: 10.1016/j.neo.2022.100846. Epub 2022 Nov 3. PMID: 36335802.

Zhang M, Wong SW, Wright JN, Wagner MW, Toescu S, Han M, Tam LT, Zhou Q, Ahmadian SS, Shpanskaya K, Lummus S, Lai H, Eghbal A, Radmanesh A, Nemeika J, Harward S 2nd, Malinzak M, Laughlin S, Perreault S, Braun KRM, **Lober RM**, Cho YJ, Ertl-Wagner B, Ho CY, Mankad K, Vogel H, Cheshier SH, Jacques TS, Aquilina K, Fisher PG, Taylor M, Poussaint T, Vitanza NA, Grant GA, Pfister S, Thompson E, Jaju A, Ramaswamy V, Yeom KW. *Radiology*. 2022 Aug;304(2):406-416. doi: 10.1148/radiol.212137. Epub 2022 Apr 19. PMID: 35438562

Published abstracts

Posters

Bowman-Gibson S, Linkous B, Chandiramani C, Adkins E, Desouza J, Rackett T, Nolon K, Stone E, Maxwell R, Dhanraj D, **Brown TL**. Placental-specific transcriptomics of preeclamptic pregnancies with increased adiposity, BSOM Medical Student Research Symposium, Dayton, OH - (Poster).

Sun L, Ekkati A, Liardo E, Zhelay T, **Kozak JA**. Structure-activity relationship studies of indole-3-carboxamides as fast onset and reversible Orai channel blockers, 22nd Tetrahedron Symposium, Lisbon, Portugal 6/28/2022 - 7/1/2022 (Poster).

Sun L, Ekkati A, Liardo E, Zhelay T, **Kozak JA**. Discovery of indole-3-carboxamides as fast onset and reversible Orai channel blockers: Structure-activity relationship and inhibition of T cell activation, ACS Spring Meeting, San Diego, CA - (Poster).

Rockwood J, Beesetty P, Kaitsuka T, Matsushita M, **Kozak JA**. TRPM7 kinase inactivation results in macrophage alkalinization and increased phagocytic activity, 66th Biophysical Society Annual Meeting, San Francisco, CA 2/19/2022 - 2/23/2022 (Poster).

Gilman A, Hefelfinger D, Lundqvist K, **Kraszpulska B**. Innovative surgical workshops targeting undergraduate, premedical, and medical students, BSOM Research Symposium, Dayton, OH 03/29/2022 - 03/29/2022 (Poster).

Benedik L and **Matott M**. Predicting student success on summative exams using frequent formative assessment. , International Association of Medical Science Educators (IAMSE) Annual Conference, Denver 6/4/2023 - 6/7/2023 (Poster).

Grachan J, Stevens K, **Severt B**, Ostwald M, Halfpop E, Owens K, Wisco J. Dissection Mentorship Update, HAPS 36th Annual Conference, 05/27/2022 - 05/27/2022 (Poster).

Abstracts

Elbasiouny SM, Motoneuron excitability dysfunction in ALS: Pseudo-mystery or authentic conundrum? International Motoneuron Society Meeting, Banff, Canada - (Abstract).

Schaefer J, Lew A, Phillips K, **Sonner P**. Neuroscience Core Concepts: Implementation in Varied Courses at Varied Institution Types., Experimental Biology, Philadelphia - (Abstract).

Grant Reviews

E. Bennett, NSF Engineering Research Center Panel

E. Bennett, AHA Collaborative Sciences Award, Pre-proposal review panel

E. Bennett, AHA Collaborative Sciences Award review panel

T. Brown, NIH SEP-Endocrinology, Metabolism and Reproduction Biology

T. Brown, Boonshoft School of Medicine Seed Grant Research Committee WSU

T. Brown, University of Nebraska Medicine Center Great Plans Idea-CTR Pilot Grant Committee

S. Elbasiouny, Motor Neuron Disease Association (MNDA)

A. Kozak, FWF Der Wissenschaftsfonds, Austrian Science Fund

K. Susuki, Medical Research Council UK Research and Innovation

C. Wyatt, National Science Foundation

S. Elbasiouny, NIH Study Section Member

C. Williams, American Heart Association, Hypertension Fellowship Peer Review Committee

C. Williams, American Heart Association, Organ Studies 1 Fellowship Peer Review Committee

Manuscript Reviews

N. Bigley, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of Viral Immunology

N. Bigley, Journal Manuscript, As member of editorial board, Frontiers in Immunology

A. Corbett, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Nutritional Neuroscience

K. Engisch, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of General Physiology

K. Engisch, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of Neurophysiology

D. Halm, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, EMBO Molecular Medicine

D. Halm, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, The Journal of Physiology

A. Kozak, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Cells (MDPI)

A. Kozak, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Cellular and Molecular Life Sciences (Springer)

A. Kozak, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Function (Oxford Academic)

B. Kraszpuska, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Medical Science Educator

M. Matott, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Advances in Physiology Education

M. Matott, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Medical Sciences Educator

K. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Biomedicine

K. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Frontiers in Immunology

C. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, American Journal of Physiology, Cell Physiology

C. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, American Journal of Physiology, Renal Physiology

C. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of the American Society of Nephrology

D. Wooley, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Pharmaceutical Nanotechnology

Editorial Board

T. Brown, Journal Manuscript, As member of editorial board, Journal of Developmental Biology

D. Halm, Journal Manuscript, As member of editorial board, American Journal of Physiology, Cell Physiology

M. Matott, Journal Manuscript, As member of editorial board, Frontiers in Cellular Neuroscience

C. Williams, Journal Manuscript, As member of editorial board, American Journal of Physiology, Renal Physiology

C. Williams, Journal Manuscript, As member of editorial board, Frontiers in Physiology, Renal and Epithelial Physiology

D. Wooley, Journal Manuscript, As member of editorial board, Applied Biosafety

C. Wyatt, Journal Manuscript, As member of editorial board, Frontiers in Physiology

C. Wyatt, Journal Manuscript, As member of editorial board, Science

Consultantships

T. Brown, Apoptrol, LLC (Cell Death Inhibitors)

T. Brown, Cureteq, Inc.

D. Wooley, Western Institutional Review Board/IBC Services

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Summary of Service Activities

Student advising

Student Research Committees

E. Bennett, John Karanja Kamau

E. Bennett, Haedong Kim (The Pennsylvania State University)

E. Bennett, Jess Myers

E. Bennett, Chiagozie Dawn Bede Paul Onyia

E. Bennett, Adaku Ume

E. Bennett, Anthony Young

N. Bigley, Jared Compaleo

N. Bigley, Lauren Krause

N. Bigley, Candra Lekha Koopari

N. Bigley, Bindu Madabattula

N. Bigley, Aala Quisha

N. Bigley, Durga Lalitha Sheetal

N. Bigley, Yamini Somanchi

N. Bigley, Sreepada Venkata

T. Brown, Clayton Patrick Allex-Buckner

T. Brown, Madison Stone

T. Brown, Miliben Bhatka

T. Brown, Scout Bowman-Gibson

T. Brown, Amy Hwang

T. Brown, Christopher Waker

A. Corbett, Joseph Hinkle

A. Ednie, Elton Nguyen

A. Ednie, Chiagozie Dawn Bede Paul Onyia

A. Ednie, Chris Dupont

A. Ednie, Anthony Young

S. Elbasiouny, Ibrahim Abdelhalim

S. Elbasiouny, Andrew Duetsch

S. Elbasiouny, Kalin Gerber

S. Elbasiouny, Shelby Ward

S. Elbasiouny, Justin Estep

S. Elbasiouny, Morgan Highlander

S. Elbasiouny, Mohamed Mousa

S. Elbasiouny, Maura Curran

A. Kozak, Venkata Konagalla

A. Kozak, Yakshkuman Rathod
A. Kozak, Jananie Rockwood
A. Kozak, Sarah Williams
M. Matott, Joseph Hinkle
M. Matott, Biorendra Sharma
K. Susuki, Alex Fischer
K. Susuki, Spencer Wilson
K. Susuki, Morgan Highlander
C. Williams, Kelsie Pyle
C. Williams, Danielle Adams
C. Williams, Adaku Ume
D. Wooley, Makda Gebrezgi
D. Wooley, Chandra Koopari
D. Wooley, Lauren Krause
D. Wooley, Bindu Madabattula
D. Wooley, Alaa Qishta
D. Wooley, Yamini Somanchi
D. Wooley, Sheetal Sreepada

Undergraduate Students

E. Bennett - 2
T. Brown -2
N. Ritucci – 50
B. Severt – 50
P. Sonner – 90 (Spring Semester); 100 (Fall Semester)
K. Susuki - 1
C. Williams - 5

Graduate Students

E. Bennett - 6
N. Bigley – 9
T. Brown – 5
A. Corbett - 3
A. Ednie - 4
S. Elbasiouny – 11
D. Halm - 3
A. Kozak – 3
B. Kraszpułska – 40
D. Ladle – 3
M. Matott - 2
N. Ritucci – 2
B. Severt – 5
K. Susuki – 7
C. Williams - 5
C. Wyatt – 3
D. Wooley – 12

Boonshoft School Medicine (M.D.)

T. Brown - 4
M. Rich - 2
K. Susuki - 1

GRADUATING STUDENTS IN 2022

ANATOMY (COURSE)

Privett, Rebecca
Loveing, Jessica
Miranda, Michael
Bartsch, Jaynee

ANATOMY (CERTIFICATE)

Caston, Bradley
Farmer, Asha
Fayiga, Flasade
Feron, Hermon
Galiber, Nicole
Hackett, Elinor
Jones, Jasmine
Montes, Gabrelle
Oteng, Bianca
Ruz, Patrick

PHYSIOLOGY AND NEUROSCIENCE (COURSE)

Young, Jordan
Deek, Feras

PHYSIOLOGY AND NEUROSCIENCE (THESIS)

Hinkle, Joseph, *Use of forelimb asymmetry in the analysis of CNS recovery from a demyelination event.* **Adrian Corbett**

Nguyen, Duc Van Minh, *The Mechanisms of Axon Initial Segment Alteration Due to Disrupted Glucose Metabolism: A Potential Link to Cognitive Impairment.* **Keiichiro Susuki**

Curran, Maura, *Evaluation of a Monosynaptic Spinal Circuit in Multiple Mouse Models of Amyotrophic Lateral Sclerosis.* **Sherif Elbasiouny**

Wilson, Spencer, *Microglia distribution in the lateral ventricles following treatment of lysolecithin model of Multiple Sclerosis.* **Adrian Corbett**

MICROBIOLOGY AND IMMUNOLOGY (NON-THESIS)

Krause, Lauren
Qishta, Alaa Yahia Mohmoud Ibrahim

MICROBIOLOGY AND IMMUNOLOGY (THESIS)

Koopari, Chandra Lekha, *Expression of SARS coV3 receptors influenced upon Cytokine polarizations (IL-4 and IFN γ) in Hemangioendothelioma Cells.* **Nancy Bigley**

Madabattula, Bindu Madhavi, *IFN- γ Increase the Expression of SARS-CoV-2 Receptors on Vero E6 cells.* **Nancy Bigley**

Committee membership/officer [indicate if committee chair]

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

Admissions Committee (**B. Kraszpulska**)
Assessment and Evaluation Subcommittee (**M. Matott**)
Basic Science Track Scholarly Projects Committee (**E. Bennett**)
Department of OB/Gyn Research Advisory Faculty Search Committee (**T. Brown**)
Executive Committee (**E. Bennett, M. Rich**)
Faculty Curriculum Committee (**E. Bennett, M. Matott**)
Foundations Curriculum Committee (**B. Kraszpulska, M. Matott**)
Human Architecture Steering Committee I & II (**B. Kraszpulska**)
LCME Continuous Quality Improvement Steering Committee (**E. Bennett**)
MD/PhD Program (**M. Rich, Director**)
Neuroengineering Education and Research (**S. Elbasiouny**)

Origins Steering Committee (**E. Bennett, M. Matott**)
Pathology Faculty Search Committee (**C. Williams**)
Research Committee (**C. Williams, A. Kozak**)
Small Animal Physiology Core Director (**E. Bennett, C. Williams**)
Staying Alive Steering Committee (**M. Matott**)

College of Science and Mathematics Committee Memberships

ASK Program Committee (**P. Sonner, C. Williams**)
Biomedical Sciences Graduate Program Nominations Committee (**C. Williams**)
Chairs and Directors Council (**E. Bennett, D. Ladle**)
Graduate Academic Policies Committee (**B. Kraszpulska**)
Graduate Curriculum Committee (**B. Kraszpulska, C. Wyatt**)
Information Technology Committee (**A. Kozak**)
Institutional Animal Care and Use Committee (**A. Corbett**)
LSAMP Program (**C. Williams**)
Neuroengineering Education and Research (**S. Elbasiouny, Director**)
Petitions Committee (**B. Severt, P. Sonner**)
Promotion and Tenure Committee (**D. Wooley**)
Scholarship Committee (**P. Sonner**)
Search Committee for CoSM Dean (**P. Sonner**)
Senator (**A. Corbett, D. Wooley, B. Severt [Substitute]**)
Steering Committee (**D. Wooley**)
Undergraduate Curriculum Committee (**P. Sonner, Vice Chair, N. Ritucci, C. Wyatt**)

Biomedical Sciences Committee Memberships

Academic Policies Committee (**E. Bennett, C. Wyatt**)
Curriculum Committee (**T. Brown**)
Nominating Committee (**K. Susuki**)
Program Curriculum Committee (**A. Kozak, K. Susuki**)

Neuroscience, Cell Biology and Physiology Committee Memberships

Advisory Committee (**A. Corbett, Chair, B. Kraszpulska, D. Ladle, P. Sonner, K. Susuki, C. Wyatt**)
Annual Evaluation and Assessment Subcommittee (**B. Kraszpulska Chair, N. Bigley, D. Wooley, D. Ladle, B. Severt**)
Education Committee (**B. Kraszpulska, M. Kraszpulski, M. Matott, B. Severt, N. Ritucci, P. Sonner, D. Wooley, C. Wyatt, Chair**)
Executive Committee (**T. Brown, Chair, B. Kraszpulska, P. Sonner, C. Williams**)
Promotion and Tenure Committee (**A. Corbett Chair, D. Halm, B. Kraszpulska, A. Kozak, D. Ladle, D. Wooley**)
Research Advisory Committee (**T. Brown, Chair, A. Kozak, K. Susuki, C. Williams**)
Seminar Series (**A. Kozak, Director**)
Small Animal Physiology Core (**C. Williams, Director**)

Microbiology and Immunology Committee Memberships

Microbiology and Immunology Program (**D. Wooley, Director**)
Microbiology and Immunology Graduate Program Admissions Committee (**D. Wooley, T. Brown, A. Kozak**)

College of Engineering and Computer Science

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

Wright State University

Academic Mediation Committee (**N. Ritucci**)
Center for Teaching and Learning Faculty Advisory Board (CTL FAB) (**P. Sonner**)
College Retention Committee (**N. Ritucci**)
Commencement Committee (**B. Severt, Chair**)

Compassion in Action Campus Club (**B. Severt, Advisor**)
 Core Alignment and Review Committee (**P. Sonner**)
 Graduate Academic Policies Committee (**M. Kraszpulski, D. Ladle**)
 Graduate Faculty Status Committee (**M. Matott**)
 Graduate Curriculum Committee (**D. Wooley, Chair**)
 Graduate Faculty Membership Committee (**C. Wyatt**)
 International Education Advisory Committee (**M. Kraszpulski**)
 Faculty Senate (**A. Corbett, D. Wooley, B. Severt**)
 Institutional Animal Care and Use Committee (**A. Corbett, Chair, A. Ednie, D. Ladle**)
 Institutional Biosafety Committee (**D. Ladle**)
 MRI Governing Board (**S. Elbasiouny**)
 OTC 36 Subcommittee Global Traditions and DEI (**K. Engisch**)
 Petitions Committee (**B. Severt**)
 Racial Equity Task Force (**K. Engisch**)
 Scholarship and Sponsored Research Committee (SSRC) (**K. Susuki**)
 Search Committee for Dean of CoSM (**P. Sonner**)
 Search Committee for Vice Provost of Academic Affairs (**P. Sonner**)
 Student Success Committee (**B. Severt**)
 Undergraduate Academic Policies Committee (**B. Severt**)

National

American Biological Safety Association Scientific Program Committee (**D. Wooley**)
 American Heart Association (**E. Bennett, A. Ednie, C. Williams**)
 American Physiology Society (**C. Wyatt**)
 American Physiological Society, Chapter Advisory Committee (**D. Halm**)
 American Physiological Society, Joint Programming Committee (**D. Halm**)
 American Physiological Society, Cell Section Steering Committee (**D. Halm**)
 American Physiological Society, Renal Section Awards Committee (**C. Williams**)
 American Physiological Society – Council on the Kidney in Cardiovascular Disease (KCVD) Leadership Committee (**C. Williams**)
 American Physiological Society – Renal Section Committee (**C. Williams**)
 American Society of Nephropathy (**C. Williams**)
 Biological Agent Containment Working Group – Centers for Disease Control and Prevention (**D. Wooley**)
 Biophysical Society, Bethesda, MD (**A. Kozak**)
 Board of Scientific Counselors for the Centers for Disease Control and Prevention (**D. Wooley**)
 Black in Physiology (National) - Communication Committee, (**C. Williams**, Chair)
 Black in Physiology (National) - Executive Board ((**C. Williams**, President)
 Black in Physiology (National) - Programming Committee, (**C. Williams**, Co-chair)
 Center for Disease Control, Poliovirus Containment Working Group (**D. Wooley**)
 Committee on Health Equity and Justice, Member (**C. Williams**)
 Frontiers in Medical Engineering (clinical Engineering Section) Review Editor and Editorial Board Member (**S. Elbasiouny**)
 Frontiers in Neuroscience Engineering, Review Editor and Editorial Board Member (**S. Elbasiouny**)
 Human Anatomy and Physiology Society's Cadaver Use Committee (**B. Severt**)
 International Society for Arterial Chemoreception, Organizing/Scientific Committee (**C. Wyatt**)
 KCVD Leadership Committee (**C. Williams**)
 Louis Stokes Alliances for Minority Participation Summer Bridge - Sinclair Community College (**C. Williams**)
 Member of the BME program committee - BIE Department (**S. Elbasiouny**)
 Neuroscience Advisory Board (**K. Susuki**)
 Ohio Physiology Society (**C. Wyatt**)
 Professional, Chapter Advisory Committee, American Physiological Society (**D. Halm**)
 Professional, Joint Programming Committee, American Physiological Society (**D. Halm**)
 Professional, Steering Committee, Cell and Molecular Section, American Physiological Society (**D. Halm**)
 Women in Science & Medicine Task Force (**C. Williams**)
 Young Investigator Education Enhancement Committee, American Society for Neurochemistry (**K. Susuki**)

Other

ALS Association (**S. Elbasiouny**)
 Board of Trustees Glen Helen Association, Yellow Springs, Ohio (**D. Halm**)

Ohio Miami Valley Society for Neuroscience (**A. Corbett, Treasurer P. Sonner, President**)
Ohio Physiological Society (**D. Halm, A. Kozak**)
WSU Neuroscience Club, Faculty Advisor (**P. Sonner**)
Mouse Surgical Training, Data Sciences International (**C. Williams**)

7 Patient Care Summary

Mark M. Rich, M.D., Ph.D. – 180 ambulatory visits in 2022

8 Honors and awards [Faculty or staff]

NIH Certificate of Completion: Eliminating Bias in Peer Review (**T. Brown**)
Excellence in Grantsmanship (**S. Elbasiouny, JA Kozak, MM Rich, K. Susuki**)
BSOM Faculty Mentor Award – Basic Sciences (**Williams**)
BSOM Medical Student Education Award (**Matott**)
BSOM Teaching Excellence Award (**Rich**)
Gender Equity Award (**K. Engisch**)
F30 Fellowship from the NIH received by Adaku Ume (BSOM MD/PhD) (**C. Williams** laboratory)
F30 Fellowship from the NIH received by Christopher Dupont (BSOM MD/PhD) (**M. Rich** laboratory)
Louis Stokes Alliance for Minority Participation (LSAMP) Scholars Kelia McMichael and Aston Waite, both Neuroscience Honor Students (**C. Williams** laboratory)

9 Hosted events

January 21, 2022 – Patrick Sonner, Ph.D., Wright State University, Dayton, OH, Ohio Miami Valley Chapter of the Society for Neuroscience Winter Meeting.

February 11, 2022 – Mark Rich, M.D., Ph.D., Wright State University, Dayton, OH, Muscle Dysfunction in Myotonia Congentia.

March 11, 2022 – Christine Peinelt, Ph.D., Institute for Biochemistry and Molecular Medicine, Bern, Switzerland, TRPM4 in Cancer: Yes, I CAN.

March 25, 2022 – Rodrigo LaCruz, MSc., PhD., College of Denistry, New York University, New York, NY, Calcium signaling in specialized dental epithelia.

April 8, 2022 – Nicole Nichols, Ph.D., University of Missouri-Columbia, Columbia, MO, Potential therapeutic strategies of harnessing neuroplasticity to preserve breathing and swallowing over the course of motor neuron loss.

April 15, 2022 – James W. Geddes, Ph.D., University of Kentucky College of Medicine, Lexington, KY, Calpain 5: an atypical calpain active at membranes.

June 3, 2022 – Dr. Margaret McCarthy, University of Maryland School of Medicine, Baltimore, MD, Immune Origins of Sex Differences in the Brain. Ohio Miami Valley Society for Neuroscience, Patrick Sonner, President.

October 7, 2022 – Michael Decker, Ph.D., Center for Aerospace Physiology, Case Western Reserve University, Cleveland, OH, Increased serum levels of proinflammatory cytokines and fatigue emerge in aviators following repetitive exposure to aggressive flight maneuvers.

October 21, 2022 – Stephanie Warner, Ph.D., Naval Medical Research Unit, Dayton, OH, Hypoxia and physiologica episodes in tactical aviation.

October 28, 2022 – Vinicia Biancardi, Ph.D., Auburn University, Auburn, AL, Angiotensin II- driving mechanisms of neuroinflammation during hypertension.

November 18, 2022 – Susy Kohout, Ph.D., Cooper Medicine School of Rowan University, Camden, NJ, How do cells use both electricity and chemistry to communicate with one another.

December 2, 2022 – Dr. Lara do Amaral Silva, University of North Carolina at Greensboro, Greensboro, NC, Running on Fumes: Comparative insights to overcome neuronal metabolic stress.

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Other information

Outreach programs

CareSource Foundation HAPI and NeuroLabs (E. Bennett, B. Severt, P. Sonner, C. Wyatt)

HAPI Lab (T. Brown, B. Kraszpulska, B. Severt)

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

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

University of Gdansk, Poland exchange program with WSU (M. Kraszpulski)

The ASK Program (S. Elbasiouny)

Student clubs and activities

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

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

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

Annual Ohio Miami Valley Brain Bee (**P. Sonner**)

Undergraduate Physiology Club (**N. Ritucci, Advisor**)

BSOM Fitness Club (**N. Ritucci, Advisor**)

Compassion in Action Campus Club (**B. Severt, Advisor**)