Department of Neuroscience, Cell Biology, and Physiology

Annual Report:

January 1, 2021 – December 31, 2021

Eric Bennett, Ph.D.
Professor and Chair
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). 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 (2021) include the following:

A. Research: Established/maintained well-funded research programs with a common focus on cell signaling in health and disease.

1) Federal funding – 2021 was a really strong year for NCBP faculty, with several additional large federal awards granted, and more to be awarded in 2022. Nearly all federal funding with >40% composite indirect rate (e.g., NIH, NSF, DARPA, AFRL)


3) Peer-reviewed publications – ~30 peer-reviewed publications in high impact journals

B. Education:

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 direct 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. 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! In 2021, two of these MD/PhD students received additional national awards – Jennae Shelby, working in Dr. Susuki’s lab, received an NIH F30, individual pre-doctoral fellowship, and Adaku Ume received the American Physiological Society, Porter Development Fellowship – both, the first ever awarded 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, and provides opportunities that advantage students, our M.S. programs, and the BSOM UME program. Approval of a non-thesis M.S. in Physiology and Neuroscience should increase the size of our M.S. student body.

4) 4 + 1 BS to MS in Physiology and Neuroscience Program created – In 2021, NCBP created a 4 +1 BS to MS degree program in our Physiology and Neuroscience degree programs that has already generated significant interest and participation, further enhancing our already large MS programs.

5) 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 7th 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. 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). We recently also applied for a grant from the CareSource 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.

E. **Awards/Honors:** NCBP faculty members received five teaching/mentoring/faculty awards in 2021, (and three additional awards to date in 2022!). Several B.S., M.S., Ph.D., M.D., and M.D./PhD. NCBP students received awards at the local and national levels. Faculty awardees were:

1. President’s Award for Outstanding NTE Faculty: Teaching (B. Severt)
2. Fellow for the American Heart Association (C. Williams)
3. Young Investigator Research Award by the American Physiology Society – Renal (C. Williams)
4. Academy of Medicine Award for Outstanding Junior Faculty BSOM (C. Williams)
5. Academy of Medicine Award for Outstanding Senior Faculty BSOM (N. Bigley)
## Programs/Divisions

<table>
<thead>
<tr>
<th>Name of Division or Program</th>
<th>Director</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroscience Institute</td>
<td>Mark M. Rich, M.D., Ph.D.</td>
<td>2015-Present</td>
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<tr>
<td>BMS Ph.D. Program</td>
<td>David Ladle, Ph.D.</td>
<td>2020-Present</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name and Academic Position</th>
<th>Clinical Interests</th>
<th>Research Interests</th>
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</thead>
<tbody>
<tr>
<td>Eric Bennett, Ph.D., Associate Dean Medical Education-Pre Clerkship Curriculum, Full Professor and Chair</td>
<td>Control and modulation of cardiac and neuronal function by posttranslational modifications</td>
<td></td>
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<tr>
<td>Nancy Bigley, Ph.D., Full Professor</td>
<td>Herpes simplex virus, interferons and signaling pathways</td>
<td></td>
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<tr>
<td>Thomas Brown, Ph.D., Full Professor</td>
<td>Cell death; differentiation and development</td>
<td></td>
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<tr>
<td>Adrian Corbett, Ph.D., Associate Professor</td>
<td>Excitation-contraction coupling; Sodium channel subtypes; Brain neurogenesis</td>
<td></td>
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<tr>
<td>Andrew Ednie, Ph.D., Assistant Professor</td>
<td>Understanding the role of post translational modifications in regulating cardiac and neuronal function</td>
<td></td>
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<tr>
<td>Sherif Elbasiouny, Ph.D., Full Professor</td>
<td>Cellular mechanisms regulating neuronal excitability and motor system output</td>
<td></td>
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<tr>
<td>Kathrin Engisch, Ph.D., Interim Dean, CoSM, Associate Professor</td>
<td>Neurotransmitter release</td>
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<tr>
<td>Dan Halm, Ph.D., Associate Professor</td>
<td>Epithelial physiology; Secretory signal transduction</td>
<td></td>
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<tr>
<td>J. Ashot Kozak, Ph.D., Associate Professor</td>
<td>Ion transport pathways in T lymphocytes; Calcium signaling</td>
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<tr>
<td>Name and Academic Position</td>
<td>Clinical Interests</td>
<td>Research Interests</td>
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<tr>
<td>Barbara Kraszpulska, Ph.D., Associate Professor</td>
<td>Medical and graduate education; Gross Anatomy</td>
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<tr>
<td>Michal Kraszpulski, Ph.D., Lecturer</td>
<td>Graduate education; Neuroscience</td>
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<tr>
<td>Michael Matott, Ph.D. Assistant Professor</td>
<td>Medical and graduate education; Physiology</td>
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<tr>
<td>Debra Mayes, Ph.D., Assistant Professor (Through July 31, 2021)</td>
<td>Effects of junction proteins on stress, metabolism, and cell proliferation/death in vascular, cancer, and neurodegenerative disease models</td>
<td></td>
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<tr>
<td>Mark Rich, M.D., Ph.D., Full Professor Neurology</td>
<td>Synaptic plasticity; Critical illness myopathy</td>
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<tr>
<td>Nick Ritucci, Ph.D., Senior Lecturer</td>
<td>Undergraduate and medical education; Physiology</td>
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<tr>
<td>Bridget Severt, M.D., Lecturer</td>
<td>Undergraduate education; Anatomy</td>
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<tr>
<td>Patrick Sonner, Ph.D., Senior Lecturer</td>
<td>Undergraduate and graduate education; Neuroscience</td>
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<tr>
<td>Keiichiro Susuki, M.D., Ph.D., Associate Professor</td>
<td>Symptoms in a broad range of diseases including multiple sclerosis, traumatic brain injury, and various forms of neuropathy</td>
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<tr>
<td>Clintoria Williams, Ph.D., Associate Professor</td>
<td>Pathophysiology of kidney disease.</td>
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<tr>
<td>Dawn Wooley, Ph.D., Full Professor</td>
<td>Virology HIV-1; AIDS; Biosafety; Biodefense</td>
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<tr>
<td>Christopher Wyatt, Ph.D., Associate Professor</td>
<td>Cellular mechanisms of oxygen sensing</td>
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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 1010 Introduction to the Neuroscience Program
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 7770 Gene Therapy
MI 7890: Research in Microbiology & Immunology
MI 8000 Microbiology and Immunology Seminar
MI 8990 Microbiology Research
NEU 6400 Developmental Neuroscience
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 8140 - Staying Alive
SMD 8130 - Host and Defense
SMD 8100 - Clinical Medicine: Foundations I
SMD 8210 - Beginning to End
SMD 8110 - Origins
SMD 8230 - Balance, Control & Repair
SMD 8120 - Human Architecture I
SMD 8220 - Human Architecture II
SMD 8121 - Human Architecture I Repeat
SMD 8221 - Human Architecture II Repeat
Wright Q small group facilitators
Funded and Active Grants

EXTRAMURAL COMPETITIVE

Dr. Bennett, PI - 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.

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


Dr. Ednie, co-PI - National Science Foundation - 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.

Dr. Elbasiouny, United States Air Force, Brain-Computer Interfaces for Assessment and Enhancement of Airman and Teams in Operational Environments (contract #: 671200), P.I. Sherif Elbasiouny, (06/01/2020 to 05/31/2021) Total $150000, Direct Current Year $100000, Indirect Current Year $50000, Total cost for entire grant period $150000, 22% salary for Dr. Elbasiouny.

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.

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 01/31/2022) Total $323750, Direct Current Year $105000, Indirect Current Year $218750, Total cost for entire grant period $1618750, 33% salary for Dr. Elbasiouny.

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 01/31/2022) Total $286836, Direct Current Year $191224, Indirect Current Year $95612, Total cost for entire grant period $1618750, 11% salary for Dr. Elbasiouny.

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 01/31/2022) Total $20055, Direct Current Year $15850, Indirect Current Year $4205, Total cost for entire grant period $104636.


Dr. Elbasiouny, 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.

Dr. Janson, NIH, National Institute on Aging, Differential clearance of pyroglutamate abeta through arachnoid and meningeal lymphatics in Alzheimer Disease, P.I. Christopher Janson, (09/01/2019 to 06/30/2024), Annual total cost - $376,763. Approx. Total Cost - $1, 900,000.
Dr. Kozak, NIH, Discovery of germline genes and regulatory networks in planarians, P.I. Labib Rouhana.

Dr. Kozak, National Institute of Allergy and Infectious Diseases, Sodium Influx Assay for Measurement of TRPM7 Channel Activity in Intact Cells, P.I. , (06/01/2020 to 05/31/2021), 25 salary for Dr. Kozak.

Dr. Lober, The Cure Starts Now / DIPG Collaborative Snap Grant Responses of distinct cell populations to PDGFRA inhibitors in diffuse intrinsic pontine glioma, Role: Principal Investigator ($69,900).


Dr. Susuki, PI - NIH, NINDS, R01 NS107398, Disruption of excitable axonal domains by glucose metabolite methylglyoxal, P.I. Keiichiro Susuki, (08/01/2019 - 07/31/2023) Direct costs: $240,800/year.

Dr. Susuki, PI - NIH, NINDS, R03 NS112981, Cell type-specific roles of calpain-2 in formation of peripheral myelinated nerves, P.I. Keiichiro Susuki, (09/15/2019 - 08/31/2021) Total $150,000.

Dr. Susuki, PI - NIH, NINDS, 3R01NS107398-01A1S1, ER stress mediates methylglyoxal-evoked AIS shortening and neuronal dysfunction, P.I. Keiichiro Susuki, (1/1/2020 to 7/31/2022) Total $40577, Direct Current Year $31817, Indirect Current Year $8760, Total cost for entire grant period $1707033.

Dr. Susuki, 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.

Dr. Susuki, Graduate Student Assembly, Wright State University, The involvement of the axon initial segment in abnormal network activity at the early stage of neurodegenerative disease, P.I. Duc Van Minh Nguyen, 2nd year master student in Physiology and Neuroscience, (4/26/2021 to 12/31/2021), Total cost for entire grant period $750.

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

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

Dr. Williams, NIH/NIDDK, Diversity supplement, Role of Calcineurin Isoforms in Blood Pressure Regulation, P.I. Clintoria Williams.

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, Direct Current Year $308000.

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)

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.

Dr. **Brown**, WSU and Premier Health Neuroscience Institute, Neuroscience Institute, P.I. Thomas Brown, Total cost for entire grant period $209000.

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, (10/20/2019 - 03/31/2021).

Dr. **Williams**, Wright State University, Impact of Preeclampsia on Neurocognition, Total cost for entire grant period $308000.

### Publications

**Papers in refereed journals**


**Government Policy**


**Published abstracts**

**Posters**


Mellott A, Rockwood J, Luu CT, **Kozak JA**. TRPM7 Permeant Divalent Metal Cytotoxicity During Magnesium Depletion and Loading, Biophysical Society 65th Annual Meeting, Virutal (Poster).

Miller JA, Drouet DE, Bensabeur FZ, Yermakov LM, **Susuki K**. Distinct changes in calpain-calpastatin during myelination and demyelination in the PNS., Neuroscience Day, Ohio Miami Valley Chapter, Society for Neuroscience, Dayton, OH (Poster).


Shelby JN, Griggs RB, Steinbrunner JK, **Susuki K**. Methylglyoxal shortens axon initial segment length via endoplasmic reticulum stress., Neuroscience Day, Ohio Miami Valley Chapter, Society for Neuroscience, Dayton, OH (Poster).


Stevens K, Grachan J, **Severt B**, Wisco J, Mattison K. Gross Anatomy Labs During the Pandemic and Beyond., HAPS Annual Conference, Virtual (Platform).

**Grant Reviews**

Dr. Bennett, NSF Engineering Research Center Panel
Dr. Bennett, Ad Hoc reviewer, NSF Integrative Organismal Systems Cluster
Dr. Elbasiouny, Department of Veterans Affairs
Dr. Elbasiouny, NIH
Dr. Ladle, NIH U19 BRAIN Initiative Special Emphasis Panel (P03)
Dr. Rich, NIH CNNT study section
Dr. Susuki, NIH, NINDS, Cellular and Molecular Biology of Glia (CMBG) Study Section (8)
Dr. Williams, American Heart Association, Organ Studies 1 Fellowship Peer Review Committee, 2021

**Manuscript Reviews**

Dr. Bennett, Journal of General Physiology
Dr. Bigley, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Dr. Bigley, Journal of Veterinary Immunology
Dr. Bigley, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of Viral Immunology
Dr. Bigley, Journal Manuscript, As member of editorial board, Frontiers in Immunology
Dr. Corbett, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Nutritional Neuroscience
Dr. Elbasiouny, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Frontiers in Cellular Neuroscience
Dr. Elbasiouny, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Frontiers in Neuroscience
Dr. Elbasiouny, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, International J. Molecular Sciences
Dr. Elbasiouny, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of Physiology
Dr. Elbasiouny, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Neuroscience
Dr. Halm, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Cells - MDPI
Dr. Halm, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, EMBO Molecular Medicine
Dr. Halm, Journal Manuscript, As member of editorial board, American Journal Physiology, Cell Physiology
Dr. Kozak, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Cellular and Molecular Life Sciences (Springer)
Dr. Kozak, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Frontiers in Pharmacology
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of Neuroimmunology
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Neurochemistry International
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Neuroscience Letters
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Phytomedicine
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Scientific Reports
Dr. Susuki, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, The Journal of Neuroscience
Dr. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, American Journal of Physiology, Cell Physiology
Dr. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, American Journal of Physiology, Renal Physiology
Dr. Williams, Journal Manuscript, Ad Hoc Reviewer/limited responsibility, Journal of the American Society of Nephrology
Dr. Williams, Journal Manuscript, As member of editorial board, American Journal Physiology, Renal Physiology
Dr. Williams, Journal Manuscript, As member of editorial board, Frontiers in Physiology, Renal and Epithelial Physiology
Dr. Wyatt, Journal Manuscript, Other, The Journal of Physiology
Dr. Wyatt, Frontiers in Physiology - Integrative Physiology Section

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 (14)
D. Mayes, Journal Manuscript, As member of editorial board, Anatomy & Physiology (1)
D. Mayes, Journal Manuscript, As member of editorial board, Cell & Molecular Biology (1)
D. Mayes, Journal Manuscript, As member of editorial board, Cell Biology & Cell Metabolism (1)
D. Mayes, Journal Manuscript, As member of editorial board, Clinical Psychiatry (1)
D. Mayes, Journal Manuscript, As member of editorial board, International Journal of Anatomy & Applied Physiology (IJAAP) (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Cell & Molecular Biology (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Cell Signaling (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Immunology (MJIM) (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Neurology & Experimental Neural Science (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Translational Biomarkers & Diagnostics (1)
D. Mayes, Journal Manuscript, As member of editorial board, J. Translational Diagnostics & Technology (1)
D. Mayes, Journal Manuscript, As member of editorial board, Neuro Immunology (1)
D. Mayes, Journal Manuscript, As member of editorial board, Physical Medicine & Rehabilitation Leaflets (1)
C. Williams, Journal Manuscript, As member of editorial board, Advances in Physiology Education (1)
C. Williams, Journal Manuscript, As member of editorial board, American Journal of Physiology, Renal Physiology (1)
C. Williams, Journal Manuscript, As member of editorial board, Frontiers in Physiology, Renal and Epithelial Physiology (1)
C. Wyatt, Journal Manuscript, As member of editorial board, Frontiers in Physiology (1)
C. Wyatt, Journal Manuscript, As member of editorial board, Science (1)

Consultantships

T. Brown, Apoptrol, LLC (Cell Death Inhibitors)
T. Brown, Clintoria Williams, Assistant Professor, WSU, NCBP
T. Brown, Courtney Sulentic, Associate Professor, WSU, Pharmacology & Toxicology
T. Brown, Tarun Goswami, Professor, WSU Biomedical, Industrial & Human Factors Engineering
D. Wooley, Western Institutional Review Board/IBC Services
Summary of Service Activities

Student advising

Student Research Committees

N. Bigley, Student Research Committee, Nada Abdullah I Alghanem
N. Bigley, Student Research Committee, Mazen Saaed S. Almahammd
N. Bigley, Student Research Committee, Katherine Bingham
N. Bigley, Student Research Committee, Bryce Anderson
N. Bigley, Student Research Committee, Katherine Bingham
N. Bigley, Student Research Committee, Cora Cox
N. Bigley, Student Research Committee, Alanoud Ghassan Y. Gohnaim
T. Brown, Student Research Committee, Thesis Advisory Committee - Christopher Waker
T. Brown, Student Research Committee, Thesis Advisory Committee: Clayton Patrick Allex-Buckner
T. Brown, Student Research Committee, Thesis Advisory Committee: John Miller
T. Brown, Student Research Committee, Thesis Advisory Committee: Mia Burnett
T. Brown, Student Research Committee, Thesis Advisory Committee: Miliben Bhakta
T. Brown, Student Research Committee, Thesis Advisory Committee: Venicia Alhawach
A. Corbett, Student Research Committee, Cameron Webb
S. Elbasiouny, Student Research Committee, Served as a candidacy exam committee member in the PhD in Engineering program for student Paul Stone
S. Elbasiouny, Student Research Committee, Served as a committee member in the PhD defense of the BME student Chein Poon
S. Elbasiouny, Student Research Committee, Served as a committee member on the MS thesis defense of Cameron Webb
D. Halm, BMS, Thesis Committee for Daniel Miranda
D. Halm, BMS, Thesis Committee for Jessica Myers
D. Halm, BMS, Thesis Committee for Yaksh Rathod
D. Ladle, Student Research Committee, M.S. in Anatomy thesis committee for Joshua Krech
D. Ladle, Student Research Committee, M.S. in Physiology and Neuroscience thesis committee for Delaney Grant
R. Lober, Student Research Committee, Christine KINSTEDT
P. Sonner, Student Research Committee, MS Thesis Committee for Delaney Grant
P. Sonner, Student Research Committee, MS Thesis Committee for Joshua Krech
K. Susuki, Student Research Committee, Committee member of an MD/PhD student Christiana Draper
K. Susuki, Student Research Committee, Committee member of Dharminder Singh Langri, PhD candidate in Biomedical Engineering
K. Susuki, Student Research Committee, Committee member of Sarah Williams, PhD candidate in Biomedical Sciences
D. Wooley, Student Research Committee, Alanoud Ghonaim, M.S. Student in the M&I Program
D. Wooley, Student Research Committee, Bryce Anderson, M.S. Student in the M&I Program
D. Wooley, Student Research Committee, Cora Cox, M.S. Program in the M&I Program
D. Wooley, Student Research Committee, Katherine Bingham, M.S. Student in the M&I Program
D. Wooley, Student Research Committee, Mark Calabro, M.S. Student in the M&I Program
D. Wooley, Student Research Committee, Rawan Alqahtani, M.S. Student in the BIO Program

Undergraduate Students

E. Bennett - 1
T. Brown – 4
A. Ednie - 1
D. Ladle – 5
N. Ritucci – 50
B. Severt – 50
P. Sonner – 93 (Spring Semester); 100 (Fall Semester)
C. Wyatt – 2
Graduate Students

E. Bennett - 2
N. Bigley – 12
T. Brown – 3
A. Ednie - 2
S. Elbasiouny – 5
A. Kozak – 3
B. Kraszpulska – 33
D. Ladle – 5
N. Ritucci – 4
B. Severt – 4
K. Susuki – 3
C. Wyatt – 3
D. Wooly – 6

Boonshoft School Medicine (M.D.)

M. Rich - 2
K. Susuki - 1

GRADUATING STUDENTS IN 2021

ANATOMY (COURSE)

Amurgis, Lillian
Babel, Adrian
Bello, Sholabomi
Bragg-Brock, Taylor
Chandiramani, Candni
Drummond, Lauren
Issa, Yasmeen
Johnston, Alexander
Khalilzadeh, Danielle
Muncrief, Matthew
Ragsdale, Victoria
Theodore, Dominic
Zeidler, Andrew

ANATOMY (THESIS)

Benedict, Valerie. The Effect of Endogenous Ligands of the Aryl Hydrocarbon Receptor on Antibody Expression in a Human B-Cell Model. Courtney Sulentic

Kinstedt, Christine. Using Functionalized Benzylidene Oxindoles to Determine an Improved Monoamine Oxidase-B Inhibitor as a Therapeutic Agent for Parkinson’s Disease. Daniel Ketcha

Krech, Joshua. Characterization of Inhbb, Heatr5a, & Cyp2s1 Expression in Dorsal Root Ganglia by In-Situ Hybridization. David Ladle

Williamitis, Joseph. Using fMRI BOLD Imaging to Motion-Correct Associated, Simultaneously Imaged PET Data. Robert Lober

PHYSIOLOGY AND NEUROSCIENCE (COURSE)

Ademhan, Devser
Molina, Andrea
Kinstedt, Christine
Vinston, Collin
PHYSIOLOGY AND NEUROSCIENCE (THESIS)

Grant, Delaney. A Novel Method for Analysis of Proprioceptor Sensory Neuron Subtypes in the Mouse Dorsal Root Ganglia. David Ladle

Webb, Cameron. Effects of Fluoxetine/Simvastatin/Ascrobic Acid Combination Treatment on Neurogenesis and Functional Recovery in a Model of Multiple Sclerosis. Adrian Corbett

MICROBIOLOGY AND IMMUNOLOGY (THESIS)

Alghanem, Nada Abdullah I. M1 Pro-inflammatory Macrophages Exhibit Increased Expression of ACE2. Nancy Bigley

Almohammdi, Mazen Saaed S. Factors contributing to lower susceptibility of children to covid-19. Nancy Bigley

Anderson, Bryce. Treatment of Apical Periodontitis via Combination Therapy Using Purified Lactobacillus plantarum Lipoteichoic Acid and Intracanal Calcium Hydroxide. Dawn Wooley

Bingham, Katherine. The War on Drugs: How R-Type Pyocins Could be Used to Fight Bacterial Resistance. Nancy Bigley

Calabro, Mark. Investigating Streptococcus pneumoniae and Adenvirus Co-infections of Lung Epithelial Cells. Dawn Wooley

Cox, Cora. IL-10 and TGF-beta Increase Connexin-43 Espression and Membrane Potential of HL-1 Cardiomyocytes Coupled with RAW 264.7 Macrophages. Nancy Bigley

Gohnaim, Alanoud Ghassan Y. Type III as an Effective Therpay for COVID-19 Infection. 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)
Balance, Control, and Regulation Steering Committee (M. Matott)
Basic Science Track Scholarly Projects Committee (E. Bennett)
Department of OB/Gyn Faculty Search Committee (T. Brown)
Executive Committee (E. Bennett, M. Rich)
Faculty Curriculum Committee, Co-Chair (E. Bennett)
Faculty Promotions and Advancement Committee (T. Brown, M. Rich)
Five Year Review Committee for Eric Bennett (C. Wyatt, B. Kraszpulska, D. Wooley)
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)
Microbiology Position Search Committee (M. Matott)
Neuroengineering Education and Research (S. Elbasiouny)
Origins Steering Committee (E. Bennett, M. Matott)
Pathology Faculty Search Committee (C. Williams)
Research Committee (C. Williams)
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)
Chairs and Directors Council (E. Bennett, D. Ladle)
Graduate Academic Policies Committee (B. Kraszpulska)
Graduate Committee (B. Kraszpulska)
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 (P. Sonner)
Promotion and Tenure Committee (D. Wooley)
Scholarship Committee (P. Sonner)
Senator (A. Corbett)
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)
BMS Student Association (BMSS) (A. Kozak)

Neuroscience, Cell Biology and Physiology Committee Memberships

Advisory Committee (A. Corbett, Chair, B. Kraszpulska, D. Ladle, P Sonner)
Annual Evaluation and Assessment Subcommittee (B. Kraszpulska Chair, N. Bigley, D. Wooley, D. Ladle, B. Severt)
Education Committee (B. Kraszpulska, M. Kraszpulska, 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, N. Bigley, T. Brown)

College of Engineering and Computer Science

BME Program Committee (S. Elbasiouny)
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)
Commencement Committee (B. Severt)
Compassion in Action Campus Club (B. Severt, Advisor)
Core Alignment and Review Committee (P. Sonner)
Graduate Academic Policies Committee (M. Kraszpulska)
Graduate Faculty Status Committee (M. Matott)
Graduate Faculty Membership Committee (C. Wyatt)
International Education Advisory Committee (M. Kraszpulska)
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 (D. Wooley, B. Severt)
Faculty Senator Representing COSM, 2015-present (D. Wooley)
Graduate Curriculum (D. Wooley, B. Kraszpulska)
Institutional Animal Care and Use Committee (A. Corbett, Chair, D. Ladle, M. Kraszpulska, A. Ednie)
Institutional Biosafety Committee (D. Ladle, M. Kraszpulska)
Let’s Talk Forum on Wright State Research Institute (E. Bennett)
Library Faculty Advisory Board (B. Severt)
RAPS Faculty Advisory Ad Hoc (B. Severt)
Scholarship and Sponsored Research Committee (SSRC) (K. Susuki)
Search Committee for Dean of CoSM (P. Sonner)
Student-Centered Data Action Team for the University Alliance for Recruitment, Retention, and Completion (UARRC) (P. Sonner)
Conduct Panel (B. Severt)
Student Success Committee (B. Severt)
Undergraduate Curriculum Committee (P. Sonner)
Undergraduate Academic Policies Committee (B. Severt)

National
American Biological Safety Association Scientific Program Committee (D. Wooley)
American Heart Association (C. Williams)
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)
Committee on Health Equity and Justice, Member (C. Williams)
External Tenure Reviewer, University of Chicago, Illinois (T. Brown)
Forum for Emerging Kidney Physiologist, Career Panelist (C. Williams)
Human Anatomy and Physiology Society’s Cadaver Use Committee (B. Severt)
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)
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)
Biophysical Society, Bethesda, MD (A. Kozak)
Board of Trustees Glen Helen Association, Yellow Springs, Ohio (D. Halm)
Ohio Miami Valley Society for Neuroscience (A. Corbett, P. Sonner)
Ohio Physiological Society (D. Halm, A. Kozak)
WSU Neuroscience Club, Faculty Advisor (P. Sonner)
Mouse Surgical Training, Data Sciences International (C. Williams)
Patient Care Summary

Mark M. Rich, M.D., Ph.D. – 180 ambulatory visits in 2021

Honors and awards [Faculty or staff]

Basic Science Faculty Mentor BSOM (T. Brown)
Faculty Development for Medical Student Education BSOM (M. Matott)
President’s Award for Outstanding NTE Faculty: Teaching (B. Severt)
Fellow for the American Heart Association (C. Williams)
Young Investigator Research Award by the American Physiology Society – Renal (C. Williams)
Academy of Medicine Award for Outstanding Junior Faculty BSOM (C. Williams)
Academy of Medicine Award for Outstanding Senior Faculty BSOM (N. Bigley)
Poster Award, Society of General Physiologists; Travel Award, Society of General Physiologists, received by Jananie Rockwood (JA Kozak).
Poster Award, Festival of Research, CoSM, received by Jananie Rockwood (JA Kozak).
Wright State University Best Student Poster Award in 2021 Annual Neuroscience Day, Ohio Miami Valley Chapter, Society for Neuroscience, received by Jennae N. Shelby (K. Susuki).
Podium Talk Award in 2021 Festival of Research, College of Science and Mathematics, Wright State University, received by Jennae N. Shelby (K. Susuki).

Hosted events

February 19, 2021 – Dorothy Schafer, Ph.D., University of Massachusetts Medical School, Worcester, MA, Microglia and immune signaling at the synapse.

February 26, 2021 – Pawel Swietach, Ph.D., Corpus Christi College, The University Oxford, Oxford, UK, Diffusion in biological systems: can it still surprise us?

March 12, 2021 – Sami Noujaim, Ph.D., Morsani College of Medicine University of Southern Florida, Tampa, FL, From the structure of a potassium channel to the heart of a patient: How an antimalarial became an antiarrhythmic.

April 2, 2021 – Cristina Caldari-Torres, Ph.D., Denison University, Granville, OH, Modulation of adipose tissue-derived meta-inflammation by essential fatty acids.

April 9, 2021 – Sandra Garraway, Ph.D., Emory University, Atlanta, GA, Pain after SCI “ What is happening in the periphery?

November 5, 2021 – Alfredo Garcia, Ph.D., University of Chicago, Chicago, IL, Breathing to learn and learning to breathe: Understanding the neurophysiological consequences of intermittent hypoxia and beyond.
November 12, 2021 – Matthew McMurray, Ph.D., Miami University, Oxford, OH, Behavioral effects and biological targets of psilocybin and its metabolites.

November 19, 2021 – Weiwen Long, Ph.D., Wright State University, Dayton, OH, A unique role of the F-box protein FBXL16 in proteosomal degradation and cancer development.

December 3, 2021 – Paola Leone, Ph.D., Rowan University, Glassboro, NJ, Gene therapy of neurodegenerative disorders.

Other information

Outreach programs
American Heart Association, Historically Black Colleges and Universities Scholars Program (E. Bennett, C. Williams)
HAPI Lab (T. Brown, B. Kraszpulska, 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. Kraszpulska, B. Severt, P. Sonner)
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. Kraszpulska, B. Severt)
Special Interest Program – Exposing High School to Neuroengineering Research (S. Elbasiouny)
Anatomy Lab Tour, Engineering Summer Camp (B. Severt)
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)