Department of Neuroscience, Cell Biology, and Physiology

Annual Report:

January 1, 2019 – December 31, 2019

Eric Bennett, Ph.D.
Professor and Chair
Statement from the Chair/Associate Dean

[Highlights of the year]

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

A. Research: Established/maintained well-funded research programs (>3.0 M external funding) with a common focus on cell signaling in health and disease.
   1) Federal funding – Nearly all federal funding with >45% composite indirect rate (e.g., NIH, NSF, DARPA, AFRL)
   3) Peer-reviewed publications – At least 28 in high impact journals

B. Education:
   1) Medical student education - NCBP faculty are involved in the development, administration, and delivery of 85% and 100% of M1 and M2 of the BSoM Wright Curriculum, respectively! NCBP faculty members direct five and teach in six of seven basic science modules throughout these two years.
   2) Ph.D. education/training – NCBP faculty contribute significantly to the education/training of Ph.D. and M.D/Ph.D. students through mentoring students and delivery of core/ elective courses, with the Ph.D. and the M.D/Ph.D. Program Directors now NCBP faculty members. Four NIH-funded NCBP faculty members secured minority Ph.D. student supplemental funding for MD/PhD students working in their labs – these were the first NIH minority supplements ever funded at Wright State!
   3) M.S. degree programs – Direct/deliver three, self-paying M.S. programs training ~35% of CoSM M.S. students. M.S. Programs in Anatomy, Microbiology & Immunology, and Physiology & Neuroscience provide interactive education and/or research experiences designed to prepare graduates for careers in the biomedical sciences.
   4) Undergraduate education and programs
      a) NCBP faculty direct/deliver foundational “anatomy/physiology” courses annually to >1,000 undergraduates.
      b) The B.S. in Neuroscience program provides an innovative active learning educational experience designed to prepare graduates for careers in the biomedical sciences. In its third year, the program had ~100 majors.

C. Service: NCBP faculty are highly involved in service to their respective disciplines, the community, and within the University. Examples include: manuscript review, editorial board memberships, grant review panels, leadership roles in professional organizations, and membership/leadership roles in NCBP, CoSM, BSoM, and WSU committees.

D. Outreach: Examples include: Horizons in Medicine; STEMM; Women in Science Giving Circle; Destination Imagination; Neuroengineering Research for HS students.
   Of particular note: Interactive lab experiences for high school students – NCBP faculty developed two interactive laboratory experiences for high school students: 1) Human Anatomy and Physiology (HAPI lab) and 2) NeuroLab. The HAPI lab completed its 6th year and has received significant regional and national acclaim as an exemplary experiential program designed to excite and educate high school students about the biomedical sciences. The NeuroLab was similarly successful in its first two years. For their efforts, the leaders of each experience, Ms. Bridgett Severt and Dr. Patrick Sonner, received the 2019 College of Science and Mathematics Faculty Excellence Award - Spirit of Innovation.

E. Awards/Honors: NCBP faculty members received three teaching/mentoring/faculty awards, including Dr. Mark Rich being named “University Professor”. The 2019 President’s Awards were announced in 2020 with three of eight award recipients being NCBP faculty members including the Trustees’ Award for Faculty Excellence. NCBP faculty members won the Trustees’ Award for Faculty Excellence in two of the past three award cycles! At least six awards were received by graduate students/trainees working in NCBP labs, including two MD/PhD students receiving BSOM 2019 Medical Student Research grants; several undergraduate Neuroscience students receiving scholarships/awards. Two outstanding undergraduate Neuroscience majors received the inaugural “Robert W. Putnam Memorial Scholarship”. 

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## Programs/Divisions

<table>
<thead>
<tr>
<th>Name of Division or Program</th>
<th>Director</th>
<th>Dates</th>
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</thead>
<tbody>
<tr>
<td>Neuroscience Institute</td>
<td>Mark M. Rich, M.D., Ph.D.</td>
<td>2015-Present</td>
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</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>
</tr>
</thead>
<tbody>
<tr>
<td>Eric Bennett, Ph.D., 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., Research Assistant Professor</td>
<td>Understanding the role of post translational modifications in regulating cardiac and neuronal function</td>
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<tr>
<td>Sherif Elbasiouny, Ph.D., Associate 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., Associate Professor, Interim Dean, CoSM</td>
<td>Neurotransmitter release</td>
<td></td>
</tr>
<tr>
<td>Robert Fyffe, Ph.D., Full Professor</td>
<td>Cellular and synaptic neuroscience</td>
<td></td>
</tr>
<tr>
<td>Dan Halm, Ph.D., Associate Professor</td>
<td>Epithelial physiology; Secretory signal transduction</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Name and Academic Position</th>
<th>Clinical Interests</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Ashot Kozak, Ph.D., Associate Professor</td>
<td></td>
<td>Ion transport pathways in T lymphocytes; Calcium signaling</td>
</tr>
<tr>
<td>Barbara Kraszpulska, Ph.D., Associate Professor</td>
<td></td>
<td>Medical and graduate education; Gross Anatomy</td>
</tr>
<tr>
<td>Michal Kraszpulski, Ph.D., Lecturer</td>
<td></td>
<td>Graduate education; Neuroscience</td>
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<tr>
<td>Michael Matott, Ph.D. Assistant Professor</td>
<td></td>
<td>Medical and graduate education; Physiology</td>
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<tr>
<td>Debra Mayes, Ph.D., Assistant Professor</td>
<td></td>
<td>Effects of junction proteins on stress, metabolism, and cell proliferation/death in vascular, cancer, and neurodegenerative disease models</td>
</tr>
<tr>
<td>Gary Nieder, Ph.D., Full Professor</td>
<td></td>
<td>Medical and graduate education; Educational technology</td>
</tr>
<tr>
<td>Mark Rich, M.D., Ph.D., Full Professor</td>
<td>Neurology</td>
<td>Synaptic plasticity; Critical illness myopathy</td>
</tr>
<tr>
<td>Nick Ritucci, Ph.D., Lecturer</td>
<td></td>
<td>Undergraduate and medical education; Physiology</td>
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<tr>
<td>Bridgett Severt, M.D., Lecturer</td>
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<td>Undergraduate education; Anatomy</td>
</tr>
<tr>
<td>Patrick Sonner, Ph.D., Instructor</td>
<td></td>
<td>Undergraduate and graduate education; Neuroscience</td>
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<tr>
<td>Keiichiro Susuki, M.D., Ph.D., Assistant Professor</td>
<td></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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<td>Clintoria Williams, Ph.D., Assistant Professor</td>
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<td>Pathophysiology of kidney disease.</td>
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<tr>
<td>Dawn Wooley, Ph.D., Full Professor</td>
<td></td>
<td>Virology HIV-1; AIDS; Biosafety; Biodefense</td>
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<tr>
<td>Christopher Wyatt, Ph.D., Associate Professor</td>
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<td>Cellular mechanisms of oxygen sensing</td>
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Teaching

**Baccalaureate** [any course for a bachelor’s degree]

ANT 2100 Human Anatomy and Physiology I
ANT 2100L Human Anatomy and Physiology I Lab
ANT 2120 Human Anatomy and Physiology II
ANT 2120L Human Anatomy and Physiology II Lab
ANT 3100 Human Structure and Function I
ANT 3100L Human Structure and Function I Lab
ANT 3120 Human Structure and Function II
ANT 3120L Human Structure and Function II Lab
ANT 4340 Biological Safety
ANT 4880 Independent Reading Anatomy
ANT 4990 Selected Topics in Anatomy
BIO Animal Physiology-
BIO 4000 Capstone
BIO 4950 Senior Honors Research
BIO 4990 Special Problems in Biology
BME 4950 Independent Research Study
MI 4200 Neuro Immune System Cross-Talk in Hemostasis
MI 4260 Immunology
MI 4310 Virology
MI 4750 Pathogenic Mechanisms
NEU 1000 Introduction to Neuroscience Research
NEU 2000 Introduction to Undergraduate Neuroscience Program for Majors
NEU 3100 How the Nervous System Works I
NEU 3200 How the Nervous System Works II
NEU 3400 Advanced Techniques in Neuroscience: Microscopy
NEU 4020 HON: Senior Capstone Neuroscience Lab Research
NEU 4030 Neuroscience/Biomedical Review Article
NEU 4040 Senior Capstone: Neuroscience Grant Development
NEU 4200 Neuro Immune System Cross-Talk in Hemostasis
NEU 4400 Developmental Neuroscience
NEU 4990 Independent Research Neuroscience
PN 4420 Introductory Neurophysiology
PN 4880 Independent Reading in Physiology
PN 4990 Special Problems in Physiology
PSY 2910 Drugs and Behavior
PSY 3910 Behavioral Neuroscience
PSY 4060 Independent Research Stdy
PSY 4940 Animal Behavior Capstone
PSY 4941 Field Study
SM 1010 Scientific Literacy for the 21st Century
SM 2100 Scientific Inquire - ASK

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

Funded/Active grants

Extramural

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

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

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

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

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

Extramural - Active, Dr. Brown, Mayfield Education and Research Foundation, Role of repressed tumor suppressor genes in DIPG treatment resistance., P.I. Rob Lober. Total cost for entire grant period $48500.
Extramural - Active, Dr. Ednie, NSF, co-PI. Collaborative Research: Data-driven integration of biological with in-silico experiments to determine mechanistic effects of N-glycosylation on cellular electromechanical functions, P.I. Eric Bennett, (08/01/2019 to 07/31/2023). Total cost, $773,970.

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

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

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

Extramural - Active, Dr. Elbasiouny, National Institutes of Health, The impact of neuromodulatory state on the excitability changes of motoneurons and the motor pool in ALS, P.I. Sherif Elbasiouny, (07/13/2018 to 02/28/2021) Total $20055, Direct Current Year $15850, Indirect Current Year $4205, Total cost for entire grant period $104636.

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

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


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

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

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

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

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

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

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

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

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

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

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

Internal

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

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

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

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

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

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

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

Publications

Papers in refereed journals


Books, chapters, reviews

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

Published abstracts
Posters

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


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


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

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


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

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

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


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

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

Spanbauer DL, Williams SD and Brown TL, Optimization of Lipid-Polymer Hybrid Nanoparticles for Cargo Delivery, Ohio Physiological Society Annual Meeting, Dayton, Ohio 9/21/2019 (Poster).
Sulehria T, Williams D, Elliston R, Johnson-Richardson R, and Corbett AM, Non-addictive Drug Combination to Treat Chronic Pain and possible eliminate transition from Acute to Chronic Pain, Ohio Physiological Society Meeting, Dayton 9/20/2019 (Poster).


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

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

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


Platform

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

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


Consultancies

T. Brown, Medical Expert Consultant – Dalimonte, Reub, and Stoller, LLP
T. Brown, to Clintoria Williams, Assistant Professor, Wright State University, NCBP
T. Brown, to Courtney Sulentic, Associate Professor, Wright State University, Pharmacology & Toxicology
T. Brown to Hongmei Ren, Assistant Professor, Wright State University, Biochemistry & Molecular Biology
T. Brown, to Lucille Wrenshall, Professor, Wright State University, Surgery
B. Severt, to John Thomas’ Science Olympiad Team
B. Severt, to Wright State University Boonshoft School of Medicine CAP Lab
D. Wooley, to Western Institutional Review Board/IBC Services
6

Summary of Service Activities

Student advising

Undergraduate Students
Abushamma, Hamza (P. Sonner)
Aleshire, Connor (P. Sonner)
Ali, Baraa Ali – (P. Sonner)
Armstrong, Olivia (P. Sonner)
Arnett, Thomas (P. Sonner)
Ashraf, Amin (P. Sonner)
Axiopoulou, Anastasia (P. Sonner)
Bailey, Cassius (P. Sonner)
Balon, Joe (P. Sonner)
Blackburn, Scott (P. Sonner)
Bogan, Alis (P. Sonner)
Bohman, Victoria (P. Sonner)
Borden, Cammi (P. Sonner)
Boring, Leah (P. Sonner)
Brickey, Olivia (P. Sonner)
Brown, Nikita (P. Sonner)
Brunswick, Thomas (P. Sonner)
Cavanaugh, Chance (P. Sonner)
Chattopadhyay, (P. Sonner)
Chumley, Abby (P. Sonner)
Clark, Rebekah (P. Sonner)
Cochran, Carly (P. Sonner)
Cummings, Courtney (P. Sonner)
D’Andrea, Natalie (P. Sonner)
Davis, Collin (P. Sonner, A. Corbett)
Denman, Kirsten (P. Sonner, M. Rich)
Dewire, Luciana (P. Sonner)
Durst, Abigail (P. Sonner)
Edwards, Anjali (P. Sonner)
Edwards, Neysea (P. Sonner)
Eegan, Garcia (P. Sonner)
Egan, Vivian (P. Sonner)
Falkenshtern, Valeriya (P. Sonner)
Fugate, Alyx (P. Sonner)
Ghouse, Nailah (P. Sonner, T. Brown)
Golden, Skyler (P. Sonner)
Gomez, Julio (P. Sonner)
Greene, Lillian (P. Sonner)
Greene, Nicholas (P. Sonner)
Greene, Nick (P. Sonner)
Greenwood, Karen (P. Sonner)
Hart, Jimmy (P. Sonner, D. Ladle)
Hernandez, Gabriela (P. Sonner)
Himed, Lamia (P. Sonner)
Hinkle, Joey (P. Sonner)
Ho, Diem (P. Sonner)
Hoeferlin, Mikayla (P. Sonner)
Holderby, Katherine (P. Sonner)
House, Krista (P. Sonner)
Iskandarani, Omar (P. Sonner)
<table>
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<th>Name</th>
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<td>Jaber, Leila</td>
<td>(P. Sonner)</td>
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<td>Jewell, Maddie</td>
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<td>Johnson, Teshawn</td>
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<td>Lauren Hecht</td>
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<td>Longworth, Alisha</td>
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<td>Loxley, Ashley</td>
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<td>Lyumanova, Albina</td>
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Thomas, Catherine (P. Sonner)
Thompson, Caleb (P. Sonner)
Tokasz, Edward (P. Sonner)
Tolias, Stamatina (P. Sonner, D. Ladle)
Tomlin, Erin (P. Sonner)
Troung, Ngocminh (A. Kozak)
Ward, Jacob (P. Sonner)
Wells, Cherokee (P. Sonner)
Whorton, Amelia (P. Sonner)
Williams, Darnell (P. Sonner)
Williams, Teshawn (A. Corbett)
Wilson, Peyton (P. Sonner)
Wilson, Sydney (P. Sonner)

Undergraduate Researchers participating in funded programs
Elam, Ryan NSF REU (E. Bennett)
Waite, Aston LSAMP (C. Williams)
Wenegieme, Tara-Yesomi ASK Program, LSAMP (C. Williams)

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

Physiology & Neuroscience (Graduate)
Ajayi, Oluwatobi (E. Bennett)
Arnett, Thomas (B. Kraszpul ska)
Chumney, Jennel (S. Elbasiouny)
Etgen, Cami (A. Corbett)  
Grant, Delany (A. Corbett)  
Kamra, Kajal (C. Wyatt)  
Luu, Charles Tuan (A. Kozak)  
McDaniels, Cassandra (A. Corbett)  
Mellott, Alayna (A. Kozak)  
Molina, Andres (K. Susuki)  
Nguyen, Duck Van Minh (K. Susuki)  

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

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

Boonshoфт School Medicine (M.D./Ph.D.)  
Draper, Christina (K. Susuki)  
Metzger, Sabrina (M. Rich)  
Meyers, Jess (M. Rich)  
Ume, Adaku (C. Williams)  
Walker, Phillips (M. Rich)  
Young, Anthony (E. Bennett)  

College of Engineering and Computer Science (Masters)  
Mardis, Aaron (S. Elbasiouny)
GRADUATING STUDENTS

ANATOMY (COURSE)
Abdallah, Rashad
Brown, Nickaus
Buerschen, Emily
Dilley, Brooklyne
Dorsey, Kristin
Kaur, Avneet
Luton, Kevin
Mohamed, Sara
Ovenseri, Kennedy
Price, Mariama
Salhieh, Haneen

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

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

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


Parkes, Kaitlynn Louise. Calcium Imaging of Developing Prparison Dorsal Root Ganglion Neurons. David Ladle

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

PHYSIOLOGY AND NEUROSCIENCE (THESIS)
Kamra, Kajal. Effect of Administration of Somatostatin Analogue on Blood Pressure in Chronic Intermittent Hypoxic Rat. Christopher Wyatt

Luu, Charles T. TRPM7 channels as a bioassay of internal and external Mc2+. J. Ashot Kozak

MICROBIOLOGY AND IMMUNOLOGY (THESIS)
Abrefa, Darlington Osei. Genetic Study of Checkpoint Defects of the Mus81-1 Mutant in the Fission Yeast Schizosaccharomyces Pombe. Yong-ji Xu

Alhazmi, Amani Mohammed. The Response of M10, M1, and M2 RAW246.7 Macrophage Cell Line to HSV-1 Infection in vitro. Nancy Bigley

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


Kebe, Aicha R. Characterization of Mechanisms for Suppressing Toxicity of ALS-Associated Protein FUS. Shulin Ju
Madkhali, Tahirah M.  *The Effects of SOCS1 and SOCS3 Peptide Mimetic on Macrophage Phagocytosis of Malignant Cells.*  Nancy Bigley

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

**MICROBIOLOGY AND IMMUNOLOGY (NON-THESIS)**

Kastle, Justine  
Mudayfin, Wedad Abdullah H.  
Murray, Romel

**Committee membership/officer** [indicate if committee chair]

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

- Admissions Committee (G. Nieder, B. Kraszpulska)
- Balance, Control, and Regulation Steering Committee (M. Matott, G. Nieder)
- Basic Science Track Scholarly Projects Committee (E. Bennett)
- Beginning to End Steering Committee (T. Brown, M. Matott)
- Boonshoft School of Medicine Dean Search Committee, Co-Chair (E. Bennett)
- Boonshoft School of Medicine Leadership Academy (C. Williams)
- Department of OB/Gyn Faculty Search Committee (T. Brown)
- Executive Committee (E. Bennett)
- Faculty Curriculum Committee Assessment and Evaluation Subcommittee (B. Kraszpulska)
- Faculty Curriculum Committee Integration Subcommittee (M. Matott)
- Faculty Curriculum Committee, Co-Chair (E. Bennett)
- Faculty Promotions and Advancement Committee (T. Brown, G. Nieder, M. Rich)
- Foundations Curriculum Committee (M. Matott, G. Nieder)
- Human Architecture Steering Committee (G. Nieder, B. Kraszpulska)
- LCME Continuous Quality Improvement Steering Committee (E. Bennett)
- Origins Steering Committee (E. Bennett, M. Matott)
- Peer Instruction Review Committee (M. Matott)
- Small Animal Physiology Core Director (C. Williams, E. Bennett)
- Staying Alive Steering Committee (M. Matott)
- Student Appeals Committee (G. Nieder)
- Task Force on Research (E. Bennett)
- Team Based Learning Review Group Committee (M. Matott)
- Wright Curriculum TBL Review Committee (M. Matott, G. Nieder)
- Wright Q Review Committee (M. Matott)

**College of Science and Mathematics Committee Memberships**

- ASK Program Committee (P. Sonner, C. Williams)
- Chairs and Directors Council (E. Bennett)
- Faculty Development Committee (A. Corbett)
- All CoSM standing faculty committees (C. Wyatt, as Associate Dean)
- Graduate Academic Policies Committee (B. Kraszpulska)
- Graduate Committee (K. Engisch, B. Kraszpulska)
- Graduate Studies Committee (C. Wyatt)
- Petitions Committee (B. Severt)
- Scholarship Committee (P. Sonner, C. Wyatt)
- Steering Committee (D. Wooley)
- Undergraduate Curriculum Committee (P. Sonner, C. Wyatt)

**Biomedical Sciences Committee Memberships**

- Academic Policies Committee (E. Bennett, C. Wyatt)
- Admission Committee (S. Elbiaiouny, Chair, K. Susuki)
- Curriculum Committee (D. Halm)
- Nominating Committee (K. Susuki, C. Williams)
- BMS Student Association (BMSS) (A. Kozak)
Neuroscience, Cell Biology and Physiology Committee Memberships

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

College of Engineering and Computer Science

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

Wright State University

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

National

American Biological Safety Association Scientific Program Committee (D. Wooley)
American Heart Association (E. Bennett, A. Ednie, C. Williams)
American Physiological Society, Chapter Advisory Committee (D. Halm)
American Physiological Society, Joint Programing Committee (D. Halm)
American Physiological Society, Cell Section Steering Committee (D. Halm)
American Physiological Society, Renal Section Awards Committee (C. Williams)
Biophysical Society, Bethesda, MD (A. Kozak)
American Physiological Society – Council on Kidney in CV Disease (KCVD) Leadership Committee (C. Williams)
American Physiological Society – Renal Section Committee (C. Williams)
American Society for Neurochemistry (ASN) YIEE Award Committee (D. Mayes)
American Society for Neurochemistry (ASN) YIEE Young Investigator (D. Mayes)
American Society of Nephropathy (C. Williams)
Biological Agent Containment Working Group – Centers for Disease Control and Prevention (D. Wooley)
Board of Scientific Counselors for the Centers for Disease Control and Prevention (D. Wooley)
Council on the Kidney in Cardiovascular Disease (CKVD) Leadership Committee (C. Williams)
International Alzheimer’s & Dementia Conference Organizing Committee (D. Mayes)
March of Dimes Innovation and Novel Discovery Challenge Grants Committee (T. Brown)
March of Dimes Prematurity Research Center Ohio Collaborative, Molecular Developmental Biology of Pregnancy Group (T. Brown)
National Institutes of Health - Center for Scientific Review NIH CSR Anonymous Grant Review Committee (T. Brown)
National Institutes of Health/NICHD-Pregnancy & Neonatology Study Section [PN] (T. Brown)
NIH Recombinant DNA Advisory Committee (D. Wooley)
Human Anatomy and Physiology Society Committee – Cadaver Usage (B. Kraszpulska, B. Severt)
Wisconsin National Primate Research Center - Pilot Project Program Grant Committee (T. Brown)
Women in Science & Medicine Task Force (C. Williams)

Other

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

Patient Care Summary

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

Honors and awards [Faculty or staff]

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Outreach programs
HAPI Lab (T. Brown, B. Kraszpulsk, 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. Kraszpulsk, B. Severt)
STREAMS. This program is funded by the National Institutes of Health to encourage members of under-represented minority groups and students with disabilities to choose careers in cardiovascular-related research. (S. Elbasiouny, P. Sonner.)
Women in Science Giving Circle (A. Corbett, K. Engisch, B. Kraszpulsk, B. Severt)
Destination Imagination (D. Mayes)
Special Interest Program – Exposing High School to Neuroengineering Research (S. Elbasiouny)
Anatomy Lab Tour, Engineering Summer Camp (B. Severt)

Student clubs and activities
Operation Smile Wright State University – WSU chapter of Operation Smile which works to provide life-saving cleft palate and cleft lip surgeries to children in need throughout the world. (N. Ritucci)
Ohio Summer Institute (N. Ritucci, Co-Director)
College of Science and Math Anatomy Club, (B. Kraszpulsk, Advisor)
Boonshoft School of Medicine Gastronomy Club (B. Kraszpulsk, Advisor)