Boonshoft School of Medicine
WRIGHT STATE UNIVERSITY

Department of Biochemistry & Molecular Biology

Annual Report:

January 2021 – December 2021

John Paietta, Ph.D.
Associate Professor and Interim Chair

1 Statement from the Chair/Associate Dean

The Department of Biochemistry and Molecular Biology is a matrix department with split roles between the Boonshoft School of Medicine and the College of Science and Mathematics. Faculty in BMB have a long tradition of excellence in teaching, research, and service. The past year continued that tradition of excellence and I have been honored to lead the department in the role of Interim Chair.

Undergraduate medical education continues as a major departmental activity. Faculty roles in the Origins module in the Foundations phase of the curriculum included co-directorship and teaching major sections of the course. Our faculty continued to make incremental improvements to the innovative WrightCurriculum based on careful evaluation and feedback. Peer instruction and Team-based Learning represent the major learning modalities in the Origins module. Our faculty also participate in the Staying Alive, Beginning to End, and Balance and Control modules in various roles, including that of WrightQ facilitators.

Our undergraduate B.S. in Biochemistry and Molecular degree program continues to develop. With the B.S. degree having been established only a few years ago, our initial cohorts are graduating and moving on to begin their careers primarily in academia, health professions and industry. Enrollment in the program continues to improve. The undergraduate degree program has provisional accreditation from the American Society of Biochemistry and Molecular Biology (ASBMB) and is working toward full accreditation which is expected in late 2023. Efforts to promote our new 4+1 program, an exciting option for our undergraduates are underway. Finally, we continued to strongly promote opportunities for undergraduate research.

Research programs had a substantial boost this year with funding received from sources such as the National Institutes of Health, American Lung Association and the Department of Defense. Grant submission continued at a high rate and we are expecting growth in this area. As we have come out of restrictions from the pandemic, presentations at scientific meetings increased. A substantial output of papers was also accomplished. Our graduate programs, a key to BMB research activities, continue to do well. Both our M.S. in Biochemistry and Molecular Biology and Biomedical Sciences Ph.D. students presented and published their work and those graduating generated high-quality dissertations in the past year.

2 Programs/Divisions

Name of Division or Program	Director	Dates
M.S. in Biochemistry and Molecular Biology	Dr. Weiwen Long	Jul 1, 2020 – present
B.S. in Biochemistry and Molecular Biology	Dr. Chad Campbell	Jan 1, 2017 – present

3 Fully Affiliated Faculty

Name and Academic Position	Research Interests
Campbell, Chad Instructor	This past year I have served as the Undergraduate Program Director and as such was responsible for program evaluation, development and administration. In the Spring, I was the course director for BMB 1010: Topics in Biochemistry, BMB 2100: Introduction to Biochemistry, BMB 3900: Scientific Communications and taught in BMB 4230: Biochemistry and Molecular Biology II. In the Fall, I was the course director for BMB 1000: Freshman Seminar, BMB 2000: Careers in BMB, BMB 3850: Biochemistry Laboratory, BMB 4100: Senior Reflection and BMB 4210: Biochemistry and Molecular Biology I. Additionally, I used BMB 3990 to "employ" successful students from previous BMB 4210 and 4230 semesters as learning assistants in the current semesters of BMB 4210 and 4230. I received very positive course evaluations from students in both the Spring and Fall semester. I have served as the BMB program advisor guiding students in our major and those transferring into our major towards successful graduation. Moreover, I have also participated on various different committees at the departmental (6) and college (3) level and worked with the department chair in efforts related to undergraduate program marketing and outreach and BMB major social gatherings. External to institutional service I was also active in the research community as a publication reviewer (4 reviews). Additionally, I was able to grow

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	as a professional through the attendance of a virtual SABER conference where I was able to review current trends in biology education research, verify my teaching pedagogies and interact with other biology education researchers in the U.S. Finally, I worked with Hideo Tsuchida to generate transfer agreement with surrounding 2-year universities to encourage students to matriculate to WSU to earn their 4-year degree.
Cho, Kwang-Jin Assistant Professor	The Ras GTPases comprising three main isoforms H-, N- and K-Ras operate at the plasma membrane as molecular switches in essential signaling pathways. Approximately 15% of all human carcinomas have activating point mutations in RASgenes. Oncogenic K-Ras mutants are found in 90 percent of pancreatic, 45 percent of colorectal and 35 percent of lung cancers. Despite significant efforts to directly target Ras activity, no anti-Ras drugs have been developed and taken into the clinic. Since Ras proteins must be anchored to the inner leaflet of the plasma membrane for full biological activity, inhibition of K-Ras plasma membrane interaction is a valid therapeutic approach to abrogate oncogenic K-Ras activity. My research investigates molecular mechanisms of K-Ras interaction with the plasma membrane, and discovery of compounds and proteins that regulate K-Ras plasma membrane interaction. Such compounds and/or proteins may be a starting point to develop novel anti-cancer therapies that specifically target K-Ras-driven cancers. From a high content cell-based screen of chemical and human siRNA libraries, I identified both exogenous and endogenous regulators of the K-Ras plasma membrane interaction. Three classes of compounds and a set of proteins that induce K-Ras dissociation from the plasma membrane were identified. The mechanisms, which reduced K-Ras signaling were: (1) Increased K-Ras phosphorylation by the AMPK/eNOS/PKG pathway, and (2) perturbation of cellular phosphatidylserine (PS) distribution. Characterization of these novel mechanisms will provide new insight into K-Ras plasma membrane interactions, and form the basis of a novel approach to inhibit K-Ras plasma membrane interaction.
Craig, Michael Research Assistant Professor	Dr. Craig utilizes next-generation sequencing of microRNA isolated from serum exosomes, tissue biopsies, and formalin-fixed archival samples to identify biomarkers of exposure and biomarkers of disease. He has developed collaborations with the Dayton VA Medical Center, from which he helped to identify miRNA biomarkers of Barrett's esophagus (BE) and

Name and Academic Position	Research Interests
	Esophageal adenocarcinoma (EAC) that has potential clinical value in improving detection of individuals at increased risk of progressing to EAC. He is a contributor on an Office of Naval Research MURI Initiative aimed at identifying microRNA biomarkers of athletic performance to aid in the optimization of physical training protocols.
Kadakia, Madhavi Vice Provost for Research and Innovation and Professor	My research program employs bench-based research that integrates clinical studies with the goal of translating biomedical research findings to the bed-side. My laboratory has focused on three areas of research. The first area is focused on identification of signaling pathways that play a role on cancer and development. We are studying the mechanism by which p53 family members, comprising of both oncogenes and tumor suppressors, are deregulated in non-melanoma skin cancer. Specifically, my laboratory has been studying the role of p53 family of proteins (p53, p63 and p73) either directly or via modulation of other proteins in development and progression of cancer. Our studies demonstrated that vitamin D receptor (VDR) is regulated by p63 and p73, another member of the p53 family and its biological significance. Our studies on examining the mechanism behind feedback regulation of p63 by VDR and VD3 demonstrated a dose dependent effect of VD3 on inhibition or promotion of cell survival which further provided an insight into its use as a chemotherapeutic adjuvant for anti-cancer therapy and fill the gap in the understanding of VD3 mediated regulation of ΔNp63α levels and its role in the development and progression of nonmelanoma skin cancer. We have identified the histone acetyltransferase TIP60 as a regulator of p63 stability and activity. Since TIP60 regulates the cellular response to DNA damage, we are investigating the potential implications of the TIP60/p63 axis in the DNA damage response and chemoresistance. Further, we have identified a novel mechanism by which p63 regulates cancer cell migration and invasion through regulation of the rho GTPase RAC1, thus providing key insights into the role that p63 plays in cancer progression and metastasis. Taken together, these studies will address the discrepancy whether VD3 inhibits or promotes cell survival and provide further insight into the role that p63 plays in its use as a chemotherapeutic adjuvant for anti-cancer therapy and fill the gap in the understanding of VD3 mediated regulation of ΔNp63α levels and its role in the development and progression of nonmelanoma skin cancer. Further, my laboratory is currently focused on

Name and Academic Position	Research Interests
	identification of microRNAs regulated by p63 and how it impacts its downstream signaling and its role in cancer progression. The second area of focus in my laboratory has been to identify biomarkers that can help differentiate different stages of cancer and in long term lead to personalized patient care. Towards this goal I have obtained grant funding to purchase state-of-the art, next-generation sequencing (NGS) tools as well as a high throughput, real time PCR machine which will aid in these studies. Developments in next generation sequencing (NGS) technology have revolutionized our understanding of the complexity of cellular gene expression. NGS provides a better understanding of the molecular mechanisms involved and is the most suitable approach to develop biomarker discovery pipelines. We will compare the differential expression of known microRNAs in tissue and plasma samples from patients with Barrett's esophagus (BE) and Esophageal adenocarcinoma (EAC) in order to identify circulating microRNA biomarkers for early detection of EAC. Endoscopy is currently the only way to diagnose BE and EAC, so identification of noninvasive biomarkers is critical for the improvement of current screening tools and for the identification of patients at high risk for progression to cancer who will benefit from surveillance. We have also used NGS to identify microRNAs and mRNAs regulated by both VD3 and p63. In addition, my laboratory has obtained funding from Ohio federal research network and Multi-university related research initiative from office of Naval research to study microRNA as biomarkers for motion disorders and High intensity training, respectively.
Leffak,Ira Professor	Leffak laboratory: The work in our laboratory is built on our discovery of the human c-myc origin of DNA replication. There are currently two major project directions underway. The first is the identification of proteins that bind to the c-myc replication origin and the mechanism by which they promote the initiation of DNA synthesis. The second is the use of the c-myc replication origin in the design and genetic engineering of human cell models of disease (myotonic dystrophy type 1, Huntington disease, spinocerebellar ataxia type 10, polycystic kidney disease) caused by the instability of short, microsatellite DNA sequences.

Name and Academic Position	Research Interests
Long, Weiwen Associate Professor	Below are the personnel who have worked in the lab during 2021. We have been actively performing research projects as described below. 1. Weiwen Long, Ph.D., the Lab PI, has been training and supervising students and postdoctoral fellow on their research projects. In addition, the PI has also been conducting experiments for developing new research projects in the lab. 2. Marion Morel, Postdoctoral Fellow, has been working on the role of FBXL16 in regulating the stability of oncoproteins in cancers, including ERK3, c-myc and ERK3. 3. Amanda Kaye Myers, a BMS Ph.D. student, has been working on a project about the role of ERK3 in regulating phospho-lipid signaling. 4. Krushangi Shah, a BMS Ph.D. student, has been working on a project about the role of FBXL16 in ER+ breast cancer. 5. Nicole Walters, a BMB Master student, worked on the role of FBW7 in regulating ERK3 protein stability 6. Madison Alexander: ASK program undergraduate, investigated the role of FBXL16 in promoting lung cancer cell resistance to KRasG12C inhibitor and MEK inhibitor.
Markey, Michael Research Associate Professor, Director of the Center for Genomics Research	My research also involves several projects through my role as Director of the Center for Genomics Research. These include collaborative proposals and projects with several other laboratories and small businesses. Current projects include genotyping of human specimens to understand the role of germline variation in athletic performance and response to physical training, and determining the role of genotype and microRNA expression on susceptibility to motion sickness. Another external project looks at epigenetic changes on the RNA of honeybees. We are also undertaking a survey of MDM4 splice variation in human skin and melanomas.
Paietta, John Interim Chair and Associate Professor	A newly developing area of research in my laboratory is the identification and study of novel gene control elements termed riboswitches. In particular, we are examining the regulation of eukaryotic gene expression by riboswitches. Riboswitches, which are non-coding RNAs that selectively bind target molecules and alter gene expression levels by a variety of mechanisms, offer new opportunities for a variety of medical and biotechnology applications. In addition, we are continuing our work on the molecular genetic study of fungal sulfur metabolism. Our work involves the study of a complex control network of regulatory proteins that

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	sense the level of sulfur and direct subsequent cellular responses.
Paliy, Oleg Associate Professor	The research in our laboratory is focused on the studies of complex microbial communities associated with human gastrointestinal system. We use a variety of research techniques including ribosomal gene sequencing, metagenomics, phylogenetic microarrays, and fluorescent in situ hybridization to gain knowledge of community composition and function, its changes in disease, and its response to diet perturbations. We also associate microbial dynamics to changes in lumenal and fecal metabolites in the same samples. We employ mathematical modeling to generate hypotheses of possible microbial and host-microbial interactions, that we then test in the in vitro human gut simulator system. We also study individual microbial species to gain insight into the specific roles these members play in our lives and how they interact with each other.
Ren, Hongmei Assistant Professor	Dr. Ren's research interests focus on lipid metabolism, its association with autophagic clearance of mitochondria (mitophagy) and homeostasis, and its effects on cardiac and skeletal muscle function. Dysfunctional mitophagy contributes to a number of human metabolic diseases, including aging, neurodegenerative disease, diabetes, obesity, cardiovascular disease, and cancer. Discovering pathways controlling clearance of damaged mitochondria is critical for developing treatments for these diseases. Dr. Ren's laboratory recently discovered that lipin1, which catalyzes the penultimate step in triglyceride synthesis, is critical for mitophagy. Her current study is exploring the role of dysfunctional mitochondrial clearance associated with lipin1 deficiency in skeletal muscle physiology and pathology.
Schmidt, Michael Assistant Professor	The work in my laboratory is focused on the biochemistry of plant secondary metabolites. The current project is based on a cooperative agreement with the USDA. The objective of this work is to understand how plant secondary metabolites such as small phenolic compounds are contributing to CO_2 efflux from soils.

4 Teaching

Dr. Campbell
Spring 2021
BMB 1010: Topics in Biochemistry, .5 credit hours, 11 students, total contact hours (lecture hours, non-contact hours), Seminar.

BMB 2100: Introduction to Biochemistry, 2 credit hours, 3 students, 30 total contact hours (28 lecture hours, 2 non-contact hours), Classroom course, Course Director: Chad Campbell, taught all “lectures” mostly in the active learning style to introduce the fundamental concepts of Biochemistry. Also created and graded all assessments in the course.

BMB 3900: Scientific Communications, 2 credit hours, 9 students, 30 total contact hours (28 lecture hours, 2 non-contact hours), Classroom course, Course Director: Chad Campbell, my role in this course was to facilitate the improvement of scientific writing through many drafts and revisions of a standard IMRaD style journal article. In addition, students learned about scientific grant proposals, alternative science writing genres and various scientific article reading strategies.

BMB 3990: Undergraduate Teaching Assistant, 1 credit hour, 3 students, total contact hours (lecture hours, non-contact hours), Seminar.

BMB 4230: Biochemistry and Molecular Biology II, 3 credit hours, 46 students, 23 total contact hours (20 lecture hours, 3 non-contact hours), Team taught, Classroom course, Course Director: Dr. Chad Campbell, it was my responsibility to teach 20 lectures about lipid and whole-body metabolism and run two review sessions and generate two exams and a portion of the Final exam. As the course director it was also my responsibility to work with other faculty as he course was taught online.

Fall 2021
BMB 1000: Freshman Seminar, 1 credit hour, 8 students, total contact hours (lecture hours, non-contact hours), Team taught, Seminar.

BMB 2000: Careers in BMB, 1 credit hour, 12 students, total contact hours (lecture hours, non-contact hours), Seminar.

BMB 3850: Biochemistry Laboratory, 3 credit hours, 7 students, total contact hours (lecture hours, non-contact hours), Team taught, Classroom/Lab.

BMB 3990: Undergraduate Teaching Assistant, 2 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Seminar.

BMB 4100: Senior Reflection, 1 credit hour, 9 students, 16 total contact hours (14 lecture hours, 2 non-contact hours), Classroom course, Course Director: Chad Campbell, the purpose of this course is for BMB students to finalize their learning centered portfolios, generate career documents towards the application to a job or higher education degree, to evaluate the BMB program and produce and present a final senior project. I facilitated all the above objectives with one on one mentoring with each student.

BMB 4210: Biochemistry and Molecular Biology I, 3 credit hours, 45 students, 43 total contact hours (39 lecture hours, 4 non-contact hours), Classroom course, Course Director: Dr. Chad Campbell, It was my responsibility to cover all “lectures” in the course. I also generated four in class assessments on those lectures all of which I proctored. This course has been completely adapted to the active learning approach all of which was generated by myself. This included the incorporation of online homework and in class activities These activities ranged from pre-prepared workbook assignments, clicker sessions and self-prepared classroom activities. This course was taught with the help of 1 LA and 1 TA.

Dr. Cho

Spring 2021

BMB 4750: Molecular Biology of Cancer, 3 credit hours, 7 students, 6 total contact hours (6 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Michael Markey, I thought 3 lectures (6 teaching hours).

BMB 7520: Molecular Biochemistry II, 12 credit hours, 15 students, 12 total contact hours (12 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Michael Schmidt, I thought 12 lectures (12 teaching hours).

Fall 2021

BMB 4990: Special Problems in Biology, 3 credit hours, 11 students, total contact hours (lecture hours, non-contact hours), Team taught, Laboratory.

BMB 4020/6020: Research Perspectives, 1 credit hour, 12 students, 1 total contact hours (1 lecture hour, 0 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, we discussed on one of my research articles.

BMB 4444: Cell signaling, 3 credit hours, 9 students, 13.5 total contact hours (12 lecture hours, 1.5 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, I provided 8 classes (12 teaching hours).

BMB 8990: Biochemistry Research, 4 credit hours, 6 students, total contact hours (lecture hours, non-contact hours), Team taught, Laboratory.

BMB 9990: Dissertation Research, 5 credit hours, 15 students, total contact hours lecture hours, non-contact hours), Team taught, Laboratory.

Dr. Craig

Spring 2021

BMB 4870/8000: BMB Brown Bag Series, 1 credit hour, 11 students, total contact hours (lecture hours, non-contact hours), Seminar.

Fall 2021

BMB 4870/8000: BMB Brown Bag Series, 1 credit hour, 11 students, total contact hours lecture hours, non-contact hours), Seminar.

BMB 3850: Biochemistry Laboratory, 3 credit hours, 7 students, total contact hours (lecture hours, non-contact hours), Team taught, Laboratory.

Dr. Leffak

Spring 2021

BMB 8990: Biochemistry Research (Shanahan), 5 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 8990: Biochemistry Research (Zavada), 3 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 7030/BMS 7030: Research Ethics, .5 credit hours, 12 students, 16 total contact hours (8 lecture hours, 8 non-contact hours), Classroom course, Course Director: Leffak, Course director.

BMB 7670/BMS 7670: Molecular Basis of Inherited Disease, 3 credit hours, 11 students, 18 total contact hours (17 lecture hours, 1 non-contact hours), Team taught, Classroom course, Course Director: Leffak, Course director.

BMS 9990: Dissertation Research (Alhawach), 5 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9990: Dissertation Research (Gadgil), 2 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

Summer 2021

BMB 8990: Biochemistry Research (Damewood), 1 credit hour, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 8990: Biochemistry Research (Shanahan, Zavada), 6 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9950: Non-Dissertation Research (Shrestha), 6 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9990: Dissertation Research (Alhawach, Gadgil), 6 credit hours, 2 student, total contact hours (lecture hours, non-contact hours), Laboratory.

Fall 2021
BMB 4000: Biochemistry and Molecular Biology Seminar, 1 credit hour, 9 students, total contact hours (lecture hours, non-contact hours), Team taught, Seminar.

BMB 8990: Biochemistry Research (Zavada), 5 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 8990: Biochemistry Research (Damewood), 1 credit hour, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 7500/BMS 7500: Molecular Biochemistry I, 3 credit hours, 42 students, 24 total contact hours (20 lecture hours, 4 non-contact hours), Team taught, Classroom course, Course Director: Leffak, Course Director.

BMS 9000: Biochemistry and Molecular Biology Advanced Seminar, 1 credit hour, 13 students, total contact hours (lecture hours, non-contact hours), Team taught, Seminar.

BMS 9950: Non-Dissertation Research (Shrestha), 4 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9950: Dissertation Research (Alhawach, Gadgil), 5 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

Dr. Long
Spring 2021
BIO 4990: Special problems in Biology, 3 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 4750: Molecular Biology of Cancer, 3 credit hours, 7 students, total contact hours (lecture hours, non-contact hours), Team taught, Online.

BMB 7670: Molecular Biology of Inherited diseases, 3 credit hours, 10 students, total contact hours (lecture hours, non-contact hours), Team taught, Online.

BMB 8990: Biochemistry Research, 2 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9990: Dissertation Research, 5 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

Summer 2021
BMB 8990: Biochemistry Research, 6 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMS 9990: Dissertation Research, 6 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

Fall 2021
BIO 4990: Special problems in Biology, 3 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

BMB 4444: Cell Signaling, 3 credit hours, 9 students, 19.5 total contact hours (16.5 lecture hours, 3 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, I was the course director and taught 11 lectures (1 hr. and 30 min each) and 2 exams (3 hrs.).

BMB 4020: Research Perspectives, 1 credit hour, 8 students, 12 total contact hours (6 lecture hours, 6 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, Had 6 lectures hours and 6 hours of evaluating and grading assignments.

BMB 6020: Research Perspectives, 3 credit hours, 4 students, 12 total contact hours (6 lecture hours, 6 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, Had 6 lectures hours and 6 hours of evaluating and grading assignments.

BMS 9990: Dissertation Research, 5 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

Medical School Course: Origins II, credit hours, n/a students, 3 total contact hours (3 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: I taught Peer Instruction 18: Receptors and Signaling, which has 3 lecture hours.

Dr. Markey
Spring 2021
BMB 4750: Molecular Biology of Cancer, 3 credit hours, 7 students, 22.5 total contact hours (22.5 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Michael Markey, Directed the class. Taught 15 class periods including lectures, exams, and a review session.

SM 4990: ASK - Special Topics in Research, 6 credit hours, 1 student, total contact hours (lecture hours, non-contact hours), Laboratory.

SMD 8190: Staying Alive, 12 credit hours, 8 students, 48 total contact hours (48 lecture hours, 0 non-contact hours), Classroom course, Course Director: Irina Overman, M.D., Facilitated a group (8 students) throughout the semester.

Fall 2021
BMB 7660: Systems Biology, 3 credit hours, 8 students, 15 total contact hours (15 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Oleg Paliy, Covered 10 class periods, 15 hours of class. Assigned and graded papers to discuss, homework assignments, one exam, and TBL questions.

SMD 8110: Origins, 9 credit hours, 130 students, 12 total contact hours (9 lecture hours, 3 non-contact hours), Team taught, Classroom course, Course Director: John Paietta, Taught Peer Instruction and Team Based Learning sessions on cancer.

SMD 8210: Beginning to End, 12 credit hours, 6 students, 24 total contact hours (24 lecture hours, 0 non-contact hours), Classroom course, Course Director: Irina Overman, Taught a section of medical students through Wright.

SMD 8230: Balance Control and Repair, 12 credit hours, 6 students, 24 total contact hours (24 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Irina Overma, taught using Wright.

SMD 8230: Balance, Control and Repair, 12 credit hours, 130 students, 3 total contact hours (3 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Mark Rich, Bethany Harpe, TBL 1 - Neoplastic and Pre-neoplastic Skin Lesions.

SMD 8300: Clinical Medicine Doctoring, 12 credit hours, 8 students, 6 total contact hours (6 lecture hours, 0 non-contact hours), Classroom course, Course Director: Amanda Bell, Wright.

Dr. Paietta
Spring 2021
BMB 4700: Molecular Biology of RNA. 3 credits. 7 students. Taught entire course. 42 contact hours. Course is a comprehensive look at multiple aspects of RNA structure and function.

Fall 2021
SMD 8170: Origins, 132 students, Role: Course Co-Director and Instructor. 28 contact hours. Classroom course. Taught Peer Instruction (PI) and Team based learning (TBL) sessions on amino acid and nucleotide metabolism, DNA structure and replication, DNA repair, RNA, transcription, gene regulation, protein synthesis and recombinant DNA in medicine.

Dr. Paliy
Spring 2021
BMB 3030: Research Ethics, 1 credit hour, 10 students, 14 total contact hours (14 lecture hours, 0 non-contact hours), Classroom course, Course Director: Dr. Oleg Paliy, Course director, taught 100% of the course.

BMB 4000: Advanced seminar for undergraduate students, 1 credit hour, 14 students, total contact hours (lecture hours, non-contact hours), Seminar.

BMB 4230: Biochemistry II, 3 credit hours, 44 students, 22 total contact hours (20 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: Oleg Paliy, Course director, taught sections on carbohydrate metabolism.

BMB 7670: Molecular Basis of Inherited Diseases, 3 credit hours, 7 students, 10 total contact hours (9 lecture hours, 1 non-contact hours), Team taught, Classroom course, Course Director: Michael Leffak, taught a section of the class focused on the inheritance of human microbiota
The class was cross-listed with BMS 7670.

BMB 9000: Advanced seminar, 1 credit hour, 2 students, total contact hours (lecture hours, non-contact hours), Seminar.

Fall 2021
BMB 7660: Systems Biology, 3 credit hours, 6 students, 23 total contact hours (21 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: Oleg Paliy, Course director, developed and oversaw the course, taught sections on microbial ecology, metabolomics, and multivariate statistics, ran team-based learning exercise.

Dr. Ren
Spring 2021
BMB 4750: Molecular Biology of Cancer, 6 credit hours, 7 students, 6 total contact hours (6 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Michael Markey, I taught Chapter 6 and 7.

BMB 7520: Molecular Biochemistry II, 6 credit hours, 5 students, 8 total contact hours (6 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: Michael Schmidt, I taught metabolic syndrome, lipids, fatty acid, triglycerides and phospholipid biosynthesis.

BMB 7670: Molecular Basis of Inherited Disease, 6 credit hours, 8 students, 6 total contact hours (6 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Michael Leffak, I taught topics covering obesity and type 2 diabetes.

BMS 9990: Dissertation Research, 115 credit hours, 2 students, total contact hours (lecture hours, non-contact hours), Laboratory.

Fall 2021
BMB 1000: Freshman seminar in BMB, 5 credit hours, 8 students, 5 total contact hours (5 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: Chad, I taught 5 lectures.

BMB 4020/6020: Research Perspective, 1 credit hour, 12 students, 2 total contact hours (1 lecture hour, 1 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, I taught 1 lectures hour for this course, and helped out Dr. Long's one lecture.

BMB 4444: Cell Signaling, 11 credit hours, 9 students, 13 total contact hours (11 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: Weiwen Long, I taught 11 lectures hours for this course.

BMS 9990: Dissertation Research, 115 credit hours, 3 students, total contact hours (lecture hours, non-contact hours), Laboratory.

BSoM Origins 1: TBL-6, 3 credit hours, 135 students, 3 total contact hours (3 lecture hours, 0 non-contact hours), Team taught, Classroom course, Course Director: John Paietta, I taught metabolic syndrome section.

Dr. Schmidt
Spring 2021
BMB 4001: Fundamentals of Biochemistry, 3 credit hours, 17 students, 48 total contact hours (40 lecture hours, 8 non-contact hours), Classroom course, Course Director: Michael Schmidt, I was the course director and taught the entire course.

BMB 6001: Fundamentals of Biochemistry (grad), 3 credit hours, 1 student, 48 total contact hours (40 lecture hours, 8 non-contact hours), Classroom course, Course Director: Michael Schmidt, I was the course director and taught the entire course.

BMB 7520: Molecular Biochem II, 3 credit hours, 15 students, 25 total contact hours (19 lecture hours, 6 non-contact hours), Team taught, Classroom course, Course Director: Michael Schmidt, I taught 19 lectures and was the course director.

Wright Q First Year, credit hours, 6 students, 25 total contact hours (24 lecture hours, 1 non-contact hours), Team taught, Classroom course, Course Director: Amanda Bell, I was trained and conducted Wright sessions.

Summer 2021

BMB 4001: Fundamentals of Biochemistry A, 3 credit hours, 8 students, 42 total contact hours (40 lecture hours, 2 non-contact hours), Classroom course, Course Director: Michael Schmidt, I was the course director and taught the entire course.

BMB 4001: Fundamentals of Biochemistry B, 3 credit hours, 10 students, 42 total contact hours (40 lecture hours, 2 non-contact hours), Classroom course, Course Director: Michael Schmidt, I was the course director and taught the entire course.

Fall 2021
BMB 3850: Biochem Lab, 3 credit hours, 7 students, total contact hours (lecture hours, non-contact hours), Team taught, Laboratory.

BMB 4001: Fundamentals of Biochemistry, 3 credit hours, 12 students, 48 total contact hours (40 lecture hours, 8 non-contact hours), Classroom course, Course Director: Michael Schmidt, I was the course director and taught the entire course.

BMB 7500: Molecular Biochemistry 1, 3 credit hours, 22 students, 23 total contact hours (19 lecture hours, 4 non-contact hours), Team taught, Classroom course, Course Director: Michael Leffak, I taught the first half of this course. Covering the introductory information along with the material about proteins and enzymes.

WQC8102.2019 Origins, credit hours, 130 students, 45 total contact hours (39 lecture hours, 6 non-contact hours), Team taught, Classroom course, Course Director: John Paietta, I was responsible for the first 4 weeks of the course.

Wright Year 2, credit hours, 6 students, 28 total contact hours (26 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: N/A, I was a facilitator for year 2 students.

Wright Year 3, credit hours, 6 students, 8 total contact hours (6 lecture hours, 2 non-contact hours), Team taught, Classroom course, Course Director: N/A, I was a facilitator for year 2 students.

5 Scholarly Activity

Extramural – Active (funded or submitted)

Dr. Cho

NIH NIGMS, Phosphatidylinositol 4-phosphate at the Golgi Complex: New Roles in Lipid Transport and K-Ras Signaling, P.I. Kwang-jin Cho, submitted 7/2/2021, Requested Total $2323105, Direct $1642850, Indirect $680255 (Not Funded).

Dr. Craig

Office of Naval Research, Precision High-Intensity Training through Epigenetics (PHITE), P.I. Dr. Timothy Broderick, (9/1/2016 to 8/31/2021) Total $242026, Direct Current Year $163531, Indirect Current Year $78495, Total cost for entire grant period $1425008.

Dr. Kadakia

Office of Naval Research, Precision High-Intensity Training through Epigenetics (PHITE), P.I. Dr. Timothy Broderick, (9/1/2016 to 8/31/2021) Total $242026, Direct Current Year $163531, Indirect Current Year $78495, Total cost for entire grant period $1425008.

Dr. Leffak

NIGMS, Break-Induced Replication at Microsatellite Repeats, P.I. Leffak, submitted 10/7/2021, Requested Total $2412644, Direct $1684904, Indirect $727740 (Pending).

NIGMS, Mechanisms of Replication-Dependent Microsatellite Instability in Human Disease, P.I. Leffak, (9/1/2021 to 8/31/2022). No cost continuation.

NIGMS, Mechanisms of Replication-Dependent Microsatellite Instability in Human Disease, P.I. Leffak, submitted 5/4/2021, Requested Total $4048871, Direct $2841553, Indirect $1207318 (Not Funded).

Dr. Long

NCI, FBXL16 as a novel factor in promoting endocrine therapy resistance and metastasis of ER+ breast cancer , P.I. Weiwen Long, submitted 2/5/2021, Requested Total $1814598, Direct $1250000, Indirect $564598 (Not Funded).

American Lung Association Discovery Award, Role of FBXL16 in lung adenocarcinomas with activating KRAS mutations, P.I. Weiwen Long, (7/1/2021 to 06/30/2022) Total $100000, Direct Current Year $100000, Indirect Current Year $0, Total cost for entire grant period $100000, 25% salary for Dr. Long.

National Cancer Institute, Role of ΔNp63α and TIP60 in Skin SCC Progression and Chemoresistance, P.I. Weiwen Long, submitted 07/05/2021, Requested Total $1875006, Direct $1250000, Indirect $625006 (Not Funded).

Dr. Markey

Central State University, Bioanalyzer comparison of insect RNA by different isolation methods, P.I. Hongmei Li-Byarlay, (2/22/2021 to 4/21/2021) Total $1280, Direct Current Year $1280, Total cost for entire grant period $1280.

NSF, CAREER: Role of RNA Methylation in the Phenotypic Plasticity of Social Insect, P.I. Hongmei Li-Byarlay, submitted 7/14/2021, Requested Total $791000, Direct $568000, Indirect $223000 (Not Funded).

NIH NINDS, Changes in proprioceptive afferents after peripheral nerve injury, P.I. David Ladle, submitted 6/1/2021, Requested Total $1875000, Direct $1250000, Indirect $625000 (Pending).

Department of the Army, defining a Temporal Map of RNA Splicing Throughout Malignant Transformation in Melanoma, P.I. Michael Markey, submitted 11/10/2021, Requested Total $242212, Direct $161474, Indirect $80738 (Not Funded).

NSF, Excellence in Research: Sex Determination through Epigenetics: The Influence of m6A RNA Modification on Social Insect, P.I. Hongmei Li-Byarlay, submitted 9/24/2021, Requested Total $500000, Direct $500000, Indirect $0 (Not Funded).

NSF, NSF MRI: PacBio Third Generation Sequencing at Wright State University, P.I. Michael Markey, submitted 12/29/2021, Requested Total $597025.91, Direct $597025.91, Indirect $0 (Not Funded).

Central State University, Third-generation direct sequencing of mRNA in Bee, P.I. Hongmei Li-Byarlay, (2/15/2021 to 5/13/2021) Total $5149, Direct Current Year $5149, Indirect Current Year $0, Total cost for entire grant period $5149.

Central State University, Third-generation direct sequencing of mRNA in Bee, P.I. Hongmei Li-Byarlay, (2/15/2021 to 11/16/2021) Total $7799, Direct Current Year $7799, Indirect Current Year $0, Total cost for entire grant period $7799.

Central State University, Third-generation direct sequencing of mRNA in Bee, P.I. Hongmei Li-Byarlay, (2/15/2021 to 5/3/2021) Total $7867, Direct Current Year $7867, Indirect Current Year $0, Total cost for entire grant period $7867.

Dr. Paliy

USAID, Detection and novel approach to reduction of the prevalence of enteric pathogens in Egypt, P.I. Dr Oleg Paliy, submitted 12/7/2021, Requested Total $200000, Direct $139862, Indirect $60138 (Pending).

DoD PRMRP, Diet influences gut microbial interactions and bioactivity of metal nanomaterials, P.I. Dr. Karen Mumy, submitted 9/1/2021, Requested Total $996912, Direct $689421, Indirect $307491 (Pending).

World Learning Fulbright Program, Diet supplementation with prebiotics to improve gut health in Egyptian children, P.I. Oleg Paliy, submitted 8/1/2021, Requested Total $17070, Direct $17070, Indirect $0 (Pending).

University of Granada, Spain, Metabolization of melanoidins by individual gut bacteria and anti-inflammatory response, P.I. Dr. Sergio Perez Burillo, (1/1/2021 to 12/31/2021) Total $20400, Direct Current Year $20400, Indirect Current Year $0, Total cost for entire grant period $20400.

USDA, Prebiotic effects of dietary fiber isolated from food waste on human gut microbiota, P.I. Dr Oleg Paliy, submitted 6/5/2021, Requested Total $650000, Direct $502364, Indirect $147636 (Not Funded).

Dr. Ren

DoD, Lipin1 Improves dystrophic pathology and muscle function, P.I. Hongmei Ren, (8/15/2021 to 8/14/2023) Total $262500, Direct Current Year $175000, Indirect Current Year $87500, Total cost for entire grant period $525000, 17% salary for Dr. Ren.

NIH, The Role of Lipin1 in Myofiber Stability and Integrity, P.I. Hongmei Ren, (7/22/2021 to 5/30/2026) Total $369890, Direct Current Year $259679, Indirect Current Year $110211, Total cost for entire grant period $1849454, 25% salary for Dr. Ren.

Internal - Active

Dr. Long

BSoM CTRG initiative, Defining the roles of SRC-3 and SOX2 in diffuse instrinsic pontine glioma (DIPG), P.I. Weiwen Long, (7/1/0201 to 06/30/2022) Total $15000, Direct Current Year $15000, Indirect Current Year $0, Total cost for entire grant period $15000.

Dr. Markey

WSU, Differential gene expression with dexamethasone treatment, P.I. Rob Lober, submitted 4/2/2021, Requested Total $11962.11, Direct $11962.11, Indirect $0 (Pending).

WSU, Gene expression study of Lipin1 mouse model, P.I. Hongmei Ren, submitted 2/3/2021, Requested Total $2895, Direct $2895, Indirect $0 (Pending).

Wright State University Students First Fund, Genomics in Real Time (GREAT) Lab: Real-time DNA sequencing to engage high school students in biochemistry and molecular biology, P.I. Michael Markey, submitted 2/25/2021, Requested Total $7400, Direct $7400, Indirect $0 (Not Funded).

WSU, Microarrays for gene expression study, P.I. Kwang-jin Cho, submitted 11/17/2021, Requested Total $5846.55, Direct $5846.55, Indirect $0 (Not Funded).

Published

Dr. Cho

K.H. Henkels, K.M. Rehl and K.J. Cho, Blocking K-Ras interaction with the plasma membrane is a tractable therapeutic approach to inhibit oncogenic K-Ras activity, Frontiers in Molecular Biosciences, 8, 673096, 2021.

Dr. Kadakia

E.S. Alshammari, A.A. Aljagthmi, A.J. Stacy, M Bottomley, H.N. Shamma, M.P. Kadakia and W Long, 'ERK3 is transcriptionally upregulated by ΔNp63α and mediates the role of ΔNp63α in suppressing cell migration in Non-Melanoma Skin Cancers', BMC Cancer.

Dr. Long

S Vallabhaneni J Liu, M Morel, J Wang, F J DeMayo, W Long, Conditional ERK3 overexpression cooperates with PTEN deletion to promote lung adenocarcinoma formation in mice, Molecular Oncology, 2021.

E.S. Alshammari, A.A. Aljagthmi, A.J. Stacy, M Bottomley, H. N. Shamma, M.P. Kadakia, W Long, ERK3 is transcriptionally upregulated by ΔNp63α and mediates the role of ΔNp63α in suppressing cell migration in Non-Melanoma Skin Cancers', BMC Cancer, 21, 155, 2021.

Dr. Markey

A. Alatawi, S. Kho, M. Markey, MDM4 isoform expression in melanoma supports an oncogenic role for MDM4-A, Journal of Skin Cancer, 2021, 1-7, 2021.

D.F. Spandau, R. Chen, J. Wargo, C. Rohan, D. Southern, A. Zhang, M. Loesch, J. Weyerbacher, S. Tholpady, D. Lewis, M.J. Kuhar, K.Y. Tsai, M.G. Kemp, M. Markey, E. Cates, A. Williams, C. Knisely, S. Bashir, R. Gabbard, R. Hoopes, J.B. Travers, Randomized controlled trial of fractionated laser resurfacing to aged skin as prophylaxis against actinic neoplasia, Clinical Investigation, Aug 24, 15097, 2021.

Dr. Ren

Klionsky et al., Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition), Autophagy 17, 1-382, 2021.

In Press

Dr. Markey

Dufour JS, Reiter A, Cox C, Weston EB, Markey M, Turner A, Le P, Aurand AM, Simmons S, Altman L, Mageswaran P, Davis K, Huber D, Bhattacharya A, Marras W, 'Motion sickness decreases low back function and changes gene expression of military aircrew', Aerospace Medicine and Human Performance.

Dr. Paliy

O. Paliy and S. Rajakaruna, 'Development of Microbiota - Is the Process Continuing Through Adolescence', Elsevier Reference Module in Food Science.

Submitted

Dr. Kadakia

Miryoung Lee, Ph.D.; James R Ebert; Madhavi P Kadakia; Jin Zhang; Stefan A Czerwinski, 'Inverse associations between cardiometabolic risk factors and 25-hydroxyvitamin D in obese American children and adolescents', American Journal of Human Biology.

Reilly Clark, Michael Craig, Andrew Stacy, Sangeeta Agrawal, Madhavi Kadakia, 'microRNA Involvement in the Onset and Progression of Barrett's Esophagus (in preparation)', RNA biology.

Dr. Leffak

S. Dean Rider 1, 3, Jr., Rujuta Yashodhan Gadgil1, 3 David C. Hitch1, French J. Damewood IV1, Nathen Zavada1, Matilyn Shanahan1, Venicia Alhawach1, Resha Shrestha1, Kazuo Shin-ya2, and Michael Leffak1*, 'Replication-dependent genome instability is induced by stable G quadruplex structures', Journal of Biological Chemistry.

Dr. Markey

A. Turner, M. Markey, P. Le, A. Reiter, C. Cox, S. Simmons, M.B. Rao, L. Altman, K. Davis, D. Huber, J.S. Dufour, W. Marras, A. Bhattacharia, 'Disorientation Effects, Circulating Small RNA, and Genetic Susceptibility on Static Postural Stability', Clinical Biomechanics.

J.S. Dufour, A. Reiter, C. Cox, E.B. Weston, M. Markey, A. Turner, P. Le, A.M. Aurand, S. Simmons, L. Altman, P. Mageswaran, K. Davis, D. Huber, A. Bhattacharya, W.S. Marras, 'Motion sickness decreases low back function and changes gene expression of military aircrew', Clinical Biomechanics.

Dr. Paietta

J.V. Paietta, 'Sulfur regulated expression of the homoserine O-acetyltransferease gene in Neurospora crassa', BMC Research Notes.

Dr. Paliy

L.M. Ketelboeter, A. Gordon, S.U. Welmillage, V. S. Sreevidya, O. Paliy and P. Gyaneshwar, 'Transcriptomic and physiological responses of Rhizobium sp. IRBG74 to Sesbania cannabina and Rice (Oryza sativa L) rhizosphere', Environmental Microbiology.

Dr. Ren

Abdulrahman Jama, Dengtong Huang, Abdullah Ali A Alshudukhi, Karim Nadra, Roman Chrast, Hongmei Ren, 'Lipin1 regulates skeletal muscle differentiation through the PKC/HDAC5/MEF2c: MyoD-mediated pathway', The FASEB Journal.

Significant Presentations

Dr. Craig

J. Zhang, M. Craig, A. Hira, T. Broderick, and M. Kadakia, Differential MicroRNA Biomarker Expression in Response to Moderate and High Intensity Exercise Regimen, CoSM Festival of Research, Wright State University - (Poster).

Dr. Leffak

Rider Jr., S.D., Gadgil, R.Y., Alhawach, V., Damewood, F.J., Hitch, D., Shrestha, R., and Leffak, M., Microsatellite instability initiates gross chromosomal rearrangements at SINEs and High Frequency Mutagenesis, DNA Replication and Genome Stability, Cold Spring Harbor, NY - (Poster).

Dr. Long

Krushangi Shah, Weiwen Long, DGKζ interacts with ERK3 and counteracts the promoting role of ERK3 in lung cancer migration, COSM Festival of Research, Wright State University, Dayton 10-08-2021 - 10-08-2021 (Poster).

Weiwen Long, Marion Morel, Krushangi Shah, Adrian Lee, Differential roles of F-Box proteins in protein degradation and cancer development: FBXL16 as an antagonist of others, CELL AND EXPERIMENTAL BIOLOGY, Houston, TX 07-12-2021 - 07-14-2021 (Platform).

Krushangi Shah, Marion Morel, Weiwen Long, Stabilization of ERα by the F-box protein FBXL16 promotes ER+ breast cancer cell growth and endocrine therapy resistance, San Antonio Breast Cancer Symposium 2021 SABCS, San Antonio, TX 12-07-2021 - 12-10-2021 (Poster).

Krushangi Shah, Marion Morel, Adrian Lee and Weiwen Long, Stabilization of ERα by the F-box protein FBXL16 promotes ER+ breast cancer cell growth and endocrine therapy resistance, CoSM Festival of Research, Wright State University, Dayton 10-08-2021 - 10-08-2021 (Poster).

Krushangi Shah, Weiwen Long, The F-box protein FBXL16 upregulates IRS1 signaling in lung adenocarcinomas with KRAS mutation, COSM Festival of Research, Wright State University, Dayton 10-08-2021 - 10-08-2021 (Poster).

Differential roles of F-Box proteins in protein degradation and cancer development: FBXL16 as an antagonist of others, 2nd International Conference on CELL AND EXPERIMENTAL BIOLOGY, Virtual, 07-12-2021 - 07-14-2021.

FBXL16, a unique F-Box protein, stabilizes oncoproteins and promotes cancer cell growth and drug resistance, NCBP department Seminar series, Wright State University, Wright State University, Dayton, Ohio, 11-19-2021.

Dr. Markey

R. Zeiler, M. Markey, A. Turner, P. Le, A. Reiter, C. Cox, S. Simmons, M.B. Rao, K. Kessler, L. Altman, K. Davis, D. Huber, J.S. Dufour, W. Marras, A. Bhattacharya, Disorientation Effects, Circulating Small RNA, and Genetic Susceptibility on Dynamic Gait Function, Military Health Research Symposium, Orlando, FL 8/23/2021 - 8/23/2021 (Poster).

M Markey, Next generation sequencing and other technologies at the WSU Center for Genomics Research, Wright Brothers Day, Dayton, OH 10/5/2021 - 10/5/2021 (Poster).

The Center for Genomics Research at WSU, BMB MS Student Orientation, Dayton, OH, 8/19/2021.

Genetic and small RNA contributions to motion sickness susceptibility and physical training response, BMB Brown Bag Seminar, Dayton, OH, 3/9/2021.

Ischemia Care, LLC
Discussed use of gene expression microarrays in the clinical laboratory environment. Resulted in donation of a hybridization oven and computer to CGR for our Affymetrix platform.

BioFluidica, San Diego, CA
Series of discussions on collaborative development of method for isolation of rare cells, primarily for capturing cancer cells or fetal cells from circulation. Discussed options for very low input anneuploidy testing. Currently the company is reviewing their options for integration of the technology into various downstream workflows; potential for a collaborative grant application.

Dr. Paliy

S. Rajakaruna, S. Perez-Burillo, J.A. Rufian-Henares, and O. Paliy, Fermentation of melanoidins by human gut microbiota promotes short chain fatty acid production, 12th International Symposium on Gut Microbiology, Virtual Conference 10/13/2021 - 10/15/2021 (Poster).

Changes in human gut microbiota during intestinal disease, Lviv National University, Lviv, Ukraine, 4/22/2021.

Uprising Foods
Consulted on the gut microbiota participation in degradation of consumed foods

Dr. Ren

John Karanja Kamau, Hongmei Ren, Cardiomyopathy characterization of the mdx: lipin1 transgenic mice model., COSM Festival of Research, Wright State University - (Poster).

Abdullah Alshudukhi, Hongmei Ren, Lipin1 overexpression ameliorates the dystrophic phenotype in mdx mice by enhancing myofiber membrane integrity, COSM Festival of Research, Wright State University - (Poster).

Abdulrahman Jama, Hongmei Ren, The Role of Lipin1 in Skeletal Muscle of MDX mice, COSM Festival of Research, Wright State University - (Poster).

Lipin1 as a potential therapeutic target for Duchenne Muscular Dystrophy, Boonshot School of Medicine Dean's town Hall meeting, Virtual, 03/11/2021.

Dr. Schmidt
J.J Halvorson, V.L. Jin, M.A. Liebig, R. Luciano, A.E. Hagerman. M.A. Schmidt, Rapid Formation of Abiotic CO2 Results from Additions of a Simple Phenolic, Gallic Acid, to Soil, Soil Science Society of America, - (Poster).

6 Summary of Service Activities

Committee Membership/Officer

BMB Committee Service

Dr. Campbell
BMB, 4+1 committee
BMB, BMB Curriculum Committee - Chair
BMB, BMB Undergraduate Oversight Committee
BMB, Departmental Honors Committee - Chair
BMB, Program Assessment Committee - Chair

Dr. Cho
BMB, Thesis Committee Director, Master's committee meeting for Parisa Sadrpour
BMB, Admission Committee for BMB Master's Program

Dr. Craig
BMB, Thesis Committee Member, Kourtney Sprague, M.S. Committee Member

Dr. Leffak
BMB, Thesis Committee Member, A. Brown thesis committee
BMB, Thesis Committee Member, A. Compean thesis committee
BMB, Thesis Committee Member, R. Thaker thesis committee
BMB, Thesis Committee Director, F. Damewood thesis committee
BMB, BMB FDC Chair

Dr. Long
BMB, BMB P & T committee

Dr. Markey
BMB, Thesis Committee Member, Andrew Browder M.S. Committee
BMB, Thesis Committee Member, French Damewood M.S. Committee
BMB, Thesis Committee Member, Monica Christian M.S. Committee

BMB, Thesis Committee Member, Monica Christian M.S. Committee
BMB, Thesis Committee Member, Nicole Waters M.S. Committee

Dr. Paliy
BMB, BMB FDC committee

Dr. Ren
BMB, Master's student recruitment committee

Dr. Schmidt
BMB, Departmental Curriculum Committee

BSOM Committee Service

Dr. Craig
BSOM, Strategic Planning Research Committee

Dr. Leffak
BSOM, BSoM Research Committee
BSOM, BSoM Strategic Planning Committee - Research

Dr. Long
BSOM, Executive committee

Dr. Paietta
BSOM, Faculty Curriculum Committee (FCC)
BSOM, Executive Committee
BSOM, Foundations Subcommittee
BSOM, Basic Science Chairs Committee

Dr. Ren
BSOM, Thesis Committee Member, Nominating Committee

Dr. Schmidt
BSOM, Center for Teaching and Learning Faculty Advisory Board
BSOM, Graduate Curriculum Committee

Science and Math Committee Service

Dr. Campbell
Science and Math, ASK Scholarship Committee
Science and Math, College of Science and Math Undergraduate Curriculum Committee - Chair
Science and Math, CoSM Steering Committee (Fall)
Science and Math, Scholarship Committee

Dr. Leffak
Science and Math, CoSM Dean Search
Science and Math, CoSM Promotion and Tenure Committee
Science and Math, CoSM Scholarship Committee

Dr. Long
Science and Math, COSM Academic Mediation Committee member

Dr. Ren
Science and Math, CoSM Petition Committee Member

BMS Committee Service

Dr. Cho
BMS, Thesis Committee Member, PhD defense for Amjad Ahmed Aljagthmi
BMS, Thesis Committee Director, PhD Committee meeting for Kristen Rehl

Dr. Leffak
BMS, Thesis Committee Member, A. Myers thesis committee
BMS, Thesis Committee Member, C. Alex-Buckner thesis committee
BMS, Thesis Committee Member, D. Miranda thesis committee
BMS, Thesis Committee Member, H. Shows thesis committee
BMS, Thesis Committee Member, J. Abdulrahman thesis committee
BMS, Thesis Committee Member, M. Ward thesis committee
BMS, Thesis Committee Member, S. Bhadra thesis committee
BMS, Thesis Committee Member, W. Cvammen thesis committee
BMS, Thesis Committee Director, R. Gadgil thesis committee
BMS, Thesis Committee Director, R. Shrestha thesis committee

Dr. Long
BMS, BMS Academic policies committee, elected
BMS, BMS curriculum committee, elected.

Dr. Markey
BMS, Thesis Committee Member, Akshay Hira Ph.D. Committee
BMS, Thesis Committee Member, Alex Gordon PhD Committee
BMS, Thesis Committee Member, Andrew Stacy PhD Committee
BMS, Thesis Committee Member, Clayton Alex-Bruckner Ph.D. Committee
BMS, Thesis Committee Member, John Miller Ph.D. Committee
BMS, Thesis Committee Member, Restha Shrestha Ph.D. committee
BMS, Thesis Committee Member, SoonJye Kho Ph.D. Committee
BMS, Thesis Committee Member, Venicia Hawach Ph.D. Committee
BMS, Thesis Committee Member, William Cvammen Ph.D. Committee
BMS, BMS Admissions Committee

Dr. Paietta

BMS, Academic Policies Committee

Dr. Paliy
BMS, BMS Curriculum committee

Dr. Ren
BMS, Thesis Committee Member, Nominating Committee

Wright State University Committee Service

Dr. Long
Wright State University, IACUC member

Dr. Paliy
Wright State University, WSU Institutional Biosafety committee

Student Research Committee Service

Dr. Long
Student Research Committee, As a research committee member for the following graduate students:
Miliben Anandbhai Bhakta, Ph.D. student, Pharmacology and Toxicology
Amjad Aljagthmi, Ph.D. student, BMB
Christopher A. Waker, BMS PhD student, NCBP
Melissa J. Ward, BMS PhD student, Biology
Rujuta Yashodhan Gadgil, PhD student, BMB
Jananie Rockwood, PhD student, BCBP
Abdulrahman Jama, PhD student, BMB
Abdullah Ali Alshudukhi, PhD student, BMB.
Akshay Hira, PhD student, BMB
Abdullah Alatawi, MS. student, BMB
Alexandra Sue Brown, MS. student, BMB
Rajsi Thaker, MS. student, BMB
Alexander Compean, MS. student, BMB

Dr. Paliy
Student Research Committee, Thesis Committee Member, BMS representative on BMS PhD committee for: Xiu-Huan Yap
Student Research Committee, Thesis Committee Member, Committee member for BMS PhD student: Angela Campo
Student Research Committee, Thesis Committee Director, BMB MSc thesis co-director for: Monica Christian
Student Research Committee, Thesis Committee Director, BMB MSc thesis director for: Kourtney Sprague
Student Research Committee, Thesis Committee Director, ES PhD thesis director for: Sumudu Rajakaruna

Dr. Paietta
Student Research Committee, Thesis Committee member, ES Ph.D. Program, Sumudu Rajakaruna

Dr. Ren
Student Research Committee, Member in Amanda Kaye Myers's PhD Dissertation Committee
Student Research Committee, Member in Anthony Milard Young's PhD Dissertation Committee
Student Research Committee, Member in Jananie Rockwood's PhD Dissertation Committee
Student Research Committee, Member in Kourtney Lee Sprague's Master's Dissertation Committee
Student Research Committee, Member in Krushangi Nirav Shah's PhD Dissertation Committee
Student Research Committee, Member in Parisa Sadrpour's Master's Dissertation Committee
Student Research Committee, Mentor in Rajsi Yogeshkumar Thaker's Master's Dissertation Committee
Student Research Committee, Mentor in Abdullah A Alshudukhi's PhD Dissertation Committee
Student Research Committee, Mentor in Abdulrahman Jama 's PhD Dissertation Committee
Student Research Committee, Mentor in Alexandra Sue Brown's Master's Dissertation Committee
Student Research Committee, Mentor in Ayat Azzam's Master's Dissertation Committee
Student Research Committee, Mentor in John Karanja Kamau 's PhD Dissertation Committee

Other Committee Service

Dr. Campbell
Other, Sinclair Biotech Advisory Board

Grant and Manuscript Review

Grant Proposal, Ad Hoc Reviewer
Dr. Ren, NIH SMEP study section (2)
Dr. Ren, WSU WISGC grant review (1)

Grant Proposal, As Study Section Member
Dr. Cho, National Institute of General Medical Sciences (3)
Dr. Leffak, NIH - MGA study section (8)
Dr. Leffak, NIH NST-2 study section (1)

Dr. Long, MBG-3 Panel of Breast Cancer Research Program, CDMRP/DOD in November (8)

Grant Proposal, Ad Hoc Reviewer
Dr. Markey, Czech Science Foundation (Grantové agentura České republiky) (2)

Journal Manuscript, Ad Hoc Reviewer
Dr. Campbell, Cell Biology Education (CBE) Lifesciences (4)
Dr. Cho, BMC Cancer (1)
Dr. Craig, Journal of Biological Chemistry (1)
Dr. Leffak, American Journal of Human Genetics (2)
Dr. Leffak, Molecular and Cellular Biology (2)
Dr. Leffak, Nucleic Acids Research (4)
Dr. Leffak, PLOS Genetics (3)
Dr. Long, Breast Cancer Research (2)
Dr. Long, Cancer Drug Resistance (1)
Dr. Long, Cancer Letters (2)
Dr. Long, Cells (1)
Dr. Long, Experimental Molecular Medicine (1)
Dr. Long, Frontiers in Oncology (2)
Dr. Long, Journal of Cellular Physiology (1)
Dr. Long, Molecular Oncology (2)
Dr. Markey, Cancer (1)
Dr. Markey, International Journal of Biological Sciences (1)
Dr. Paliy, American Journal of Preventive Medicine (1)
Dr. Paliy, Biomedicine & Pharmacotherapy (1)
Dr. Paliy, Environmental Microbiology (1)
Dr. Paliy, Food & Function (1)
Dr. Paliy, Frontiers Microbiology (1)
Dr. Paliy, Journal of Functional Foods (1)
Dr. Paliy, PeerJ (1)
Dr. Ren, Cell Death & Disease (1)
Dr. Ren, Current Molecular Pharmacology (1)
Dr. Ren, JCI Insight (1)
Dr. Ren, Mitochondrion (1)
Dr. Ren, Molecular Medicine (2)

Journal Manuscript, As member of Editorial Board
Dr. Leffak, JBC (10)
Dr. Long, Cancer Drug Resistance (2)
Dr. Paliy, Microorganisms (2)
Dr. Paliy, Scientific Reports (1)

Other, Ad Hoc Reviewer
Dr. Paliy, Princeton University Press (1)
Dr. Paliy, Wiley (1)

Other, As member of Editorial Board
Dr. Cho, Frontiers in Molecular Biosciences (11)

Personnel

M. S. Student

Dr. Cho
Parisa Sadrpour, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Dr. Dennis
Alexander Compean, graduated.

Dr. Harshman
Andrew Browder, graduated.

Dr. Leffak
French Damewood, Faculty role: Thesis/Dissertation Director, graduated.

Matilyn Shanahan, 4+1 M. S. Program.

Nathen Zavada, 4+1 M. S. 8Program.

Dr. Long
Nicole Waters, Faculty role: Thesis/Dissertation Director, graduated.

Dr. Paliy
Brant Barlow, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Kourtney Sprague, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Dr. Ren
Alexandra Brown, graduated.
Rajsi Thaker, graduated.

Medical Student

Dr. Markey
Tongfan (Tia) Wu, Lab participation: 2,

Ph.D. Student

Dr. Cho
Kristen Rehl, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Dr. Leffak
Resha Shrestha, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Rujuta Gadgil, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Venicia Alhawach, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Dr. Long
Amanda Myers, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Krushangi Shah, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Dr. Paliy
Resha Shrestha, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Sumudu Rajakaruna, Faculty role: Thesis/Dissertation Director, this student did not graduate this year.

Post Doctorate

Dr. Leffak
S. Dean Rider, Part Time (87.5%) Research Assistant Professor

Dr. Long
Marion Morel, Full Time

Technician

Dr. Cho
Karen Henkels, Full Time

Undergraduate

Mckenzie Duff, Lab participation: 10hr/week for 20 weeks, this student is ASK program. Completed research during Fall 2021 on course BIO 4990 (3 credit hours).

Dr. Long
Madison Olivia Alexander, Lab participation: 8 hrs. per week for 15 weeks, this student is a STEM student. Completed research during Spring and Fall 2021 on course Bio 4990 (3 credit hours).

Visiting Researcher

Dr. Leffak
David Hitch,

Dr. Paliy
Dr Sergio Perez Burillo,

7 Patient Care Summary

[If applicable. Include number of ambulatory visits, hospitalizations, surgeries, new techniques or programs developed; new collaborations.]

Not applicable.

8 Honors and awards [Faculty or staff]

Honors

Awards

Dr. Paliy
World Learning Fulbright Specialist
received by Dr. Paliy.

Outreach programs
Dr. Markey
Lebanon High School Career Experience Class
11/5/2021
This program is located at WSU.

Career Experiences End of Course Presentations
12/10/2021
This program is located at Lebanon, OH.

Special interest programs
Dr. Markey
Precision Genomics Midwest
10/8/2021
This program is located at Cincinnati, Ohio.

Every Learner Everywere
2/5/2021
This program is located at Online.

9 Hosted events [CME, etc.]

Not applicable.

10 Other information

[Other information that represents your department's contribution to the academic mission of the Boonshoft School of Medicine.]

Not applicable.