College of Medicine

Research Annual Report 2017

University of CINCINNATI

College of Medicine
OFFICE OF RESEARCH

Melanie T. Cushion, PhD
Senior Associate Dean for Research

Brett M. Kissela, MD
Senior Associate Dean for Clinical Research

Ken D. Greis, PhD
Associate Dean for Research Core Facilities

Brieanne Sheehan
Program Director

RANKED

No. 40

among research medical schools

—U.S. NEWS & WORLD REPORT

Cover photo:
Eric P. Smith, MD
Department of Internal Medicine

The University of Cincinnati College of Medicine—a Clinical and Translational Science Award (CTSA) institution—is **ranked No. 40 among research medical schools** by U.S. News & World Report. The college was founded in 1819 as the Medical College of Ohio. It was the first medical school in Ohio and today is the second oldest public medical school in the country.

In recent years, numerous research breakthroughs have been made at the College of Medicine, such as:

- **Identifying two genes that convey a risk** of heart failure 10 times greater **than that faced by people who do not c**arry the gene and that by far the **greater risk was in African-Americans.**
- **Demonstrating for the first time that a** response to a drug can be predicted **from an individual's own DNA using g**enomic markers called haplotypes.
- **Identifying a viral protein—VP16—as** the molecular key that prompts **herpes simplex virus to exit latency** and cause recurrent disease.
- **Determining that the drug sirolimus** could stabilize lung function in **people with Lymphangioleiomyoma**tosis, a rare, life-threatening lung **disease mostly affecting women.**
- **Identifying a genetic variant in a** calcium-binding protein— **histidine-rich calcium binding pr**otein—that can be linked to heart **rhythm dysfunction.**
- **Determining that the circulation** of cholesterol is regulated in the **brain by the hunger-signaling h**ormone ghrelin, pointing to a new **potential target for the pharma**cologic control of cholesterol levels.
- **Discovering SapC-DOPS, the c**ombination of a lysomal protein **saposin C (SapC) and a phosph**olipid known as dioleoylphos- **phatidylserine (DOPS), that a**ssembled into tiny cavities, or **nanovesicles, can target and k**ill many forms of cancer cells.

The college's Office of Research has made a commitment to:

- **Creating impactful and sust**ainable biomedical **research programs.**
- **Developing passionate and** innovative research teams.
- **Becoming a destination for** clinical trials.
- **Harnessing "big data" to** be not just evidence-based, but also **evidence-gathering.**

Three institutes—operated jointly with UC Health and focused on cancer, neurosciences and cardiovascular disease—with a center for metabolic health serve as the foundation for these commitments.

Research Annual Report 2017

From the Dean's Office

The University of Cincinnati College of Medicine was established in 1819 as the Medical College of Ohio by our pioneering physician founder, Daniel Drake, who incidentally was also the founder of what would go on to become the University of Cincinnati Medical Center. We are the second-oldest public college of medicine in the United States. Our research mission has been in our DNA since those early days and continues to provide groundbreaking discoveries in a myriad of diverse areas of medicine from cancer to cardiology to stroke and infectious diseases.

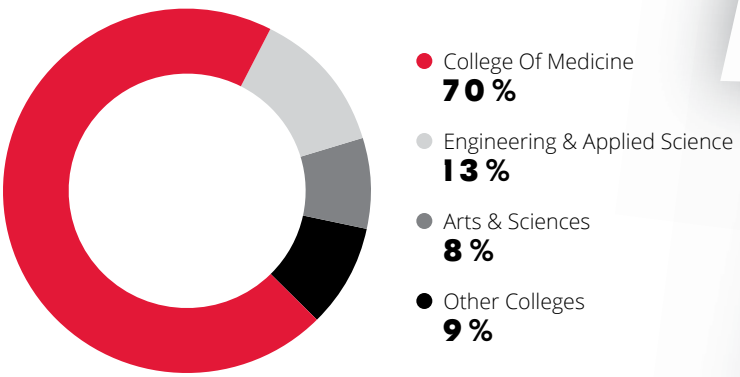
In 2017 we continue this proud heritage. The 2017 Research Annual Report of the UC's College of Medicine tracks our research progress, highlights our outstanding researchers and recognizes the successes of our research faculty during this past year. The accomplishments of our faculty reflect our commitment to career success of our investigators, investments in the renewal of our research commitment and the deployment of new knowledge, therapies, and devices that improve the lives of patients locally and globally. As the only academic healthcare research university in the region, the health of our community is our responsibility and an integral part of our mission.

The number of new research grants awarded in 2017 exceeded the last three years with 209 awards. Our faculty have risen to the challenges presented by the national research funding environment with success rates exceeding the national average of 19 percent compared to our 32 percent. These efforts have increased the new grants awarded during each of the last three years, from $68 million in 2014 to $93 million in 2017. This 37 percent increase is exemplary in an era of tight federal budgets. While we are on track to continue this growth in 2018, the College recognizes that sustainability will require new investments in research both from the College and through philanthropy, as well as the University.

Recognizing the critical role that core facilities play in the success of our researchers, we initiated core enhancement opportunities in 2016. These funds allow core directors to validate and offer new services to better sustain their cores. After just one year, the 2016 investment had produced a twofold return in recharge fees, but more importantly, it has provided our investigators with advanced capabilities to ensure that their works stand out in manuscripts and in grant applications. Consistent with our continued innovation in core technologies, our core investigators were also co-inventors on one issued patent and one new patent application over the past year. They also had the results of some of their work featured nationally on the covers of Cancer Research and the Journal of Mass Spectrometry.

FY2017 Research and Clinical Trial Award Revenue

Percentage of Revenue by College



The training and education of graduate students represents a critical part of our research mission, as we nurture the next generation of research scientists who can compete at the forefront of biomedical discovery regionally, nationally and globally. Considering our current corps of outstanding PhD students, several have garnered notable recognition this past year for their achievements and their high future potential. Among these awards were the Presidential Medal of Graduate Student Excellence, the Chateaubriand Fellowship of the Embassy of France in the United States, several individual F31 Fellowship awards from the National Institutes of Health, and the awarding of Ryan Fellowships to three of our students to participate in an annual symposium with their peers from Harvard Medical School and Dartmouth Medical School.

The Center for Clinical and Translational Science and Training (CCTST) remains the largest grant at the College of Medicine and serves as a platform to support all types of translational and clinical research across the entire academic health center. The CCTST provides support to researchers in many core areas such as Regulatory, Biostatistics/Epidemiology, Community Engagement, and Informatics. The CCTST has awarded 234 pilot grants since 2012 and 23 percent of these pilots have gone on to achieve additional external funding. In addition, the CCTST is closely aligned with the UC Health Office of Clinical Research, which is expanding both in scope and function. We are projecting clinical research revenue of $12,795,231 in FY2018 (9.5 percent growth versus FY2017) associated with a 14 percent growth in patient enrollment. Overall, clinical research has grown substantially and further growth is expected moving forward.

The College understands the importance of fundamental and translational research as the initial step in the bench-to-bedside pipeline and as the incubator of the research scientists of the future. To achieve these goals, a search for the chair of the newly formed Department of Pharmacology and Systems Physiology was initiated, as well as recruitment for two new faculty hires in the Department of Molecular Genetics, Biochemistry and Microbiology. The departments of Cancer Biology, Environmental Health and Biomedical Informatics are also in the search mode for additional faculty to complete their missions and visions.

The growth in basic research brought about by our scientists at the bench ultimately translates to innovations in clinical care at the bedside as testimony to the academic difference that we as a College at UC provide to the community. As a result of our increasing success, we are now closer than ever toward the realization of National Cancer Institute Comprehensive Cancer Center designation that will significantly enhance cancer care in the entire region through multiple provider networks. Our clinical faculty are increasingly sought after for their expertise in clinical trials, and we are leading several large federally funded trial networks.

We recognize what a remarkable accomplishment by our faculty that this has been, and we commend our research community on the significant effort this represents. Our pledge is to continue this transformation by investing in our people, innovating our educational programs and advancing scientific discovery through enhanced partnerships across the Academic Health Center, the University, our affiliates and globally. We especially value our growing research relationship with our faculty at Cincinnati Children's Hospital Medical Center. Finally, we also value our relationship with UC Health as a place in which the dreams of medical knowledge created in the College can be put into clinical practice at the bedside.

IN THIS NEXT YEAR, our goals are to exceed the 2017 funding levels, provide new training opportunities for our research trainees, continue to invigorate our Research Core Infrastructure under the direction of the new Associate Dean for Research Core Facilities, Ken Greis, PhD, and continue our upward trajectory in the clinical sciences under the guidance of the new Senior Associate Dean for Clinical Research, Brett Kissela, MD. The coming year will see broad implementation of the strategic plan's goals of new faculty hires to enhance our discovery sciences and facilitate translation of these discoveries to improve health and clinical care; foster scientific curiosity and investigation for students in our new undergraduate program; and create an environment of advanced clinical care that surpasses any in the region.

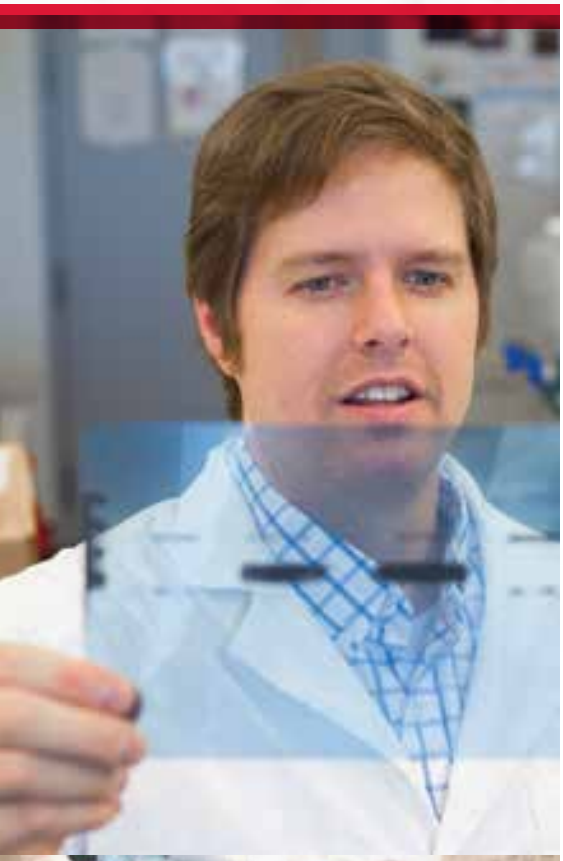
William S. Ball, MD
Senior Vice President for Health Affairs and Dean
College of Medicine

Melanie T. Cushion, PhD
Senior Associate Dean for Research
College of Medicine

Departments with Research Holdings FY2017

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE

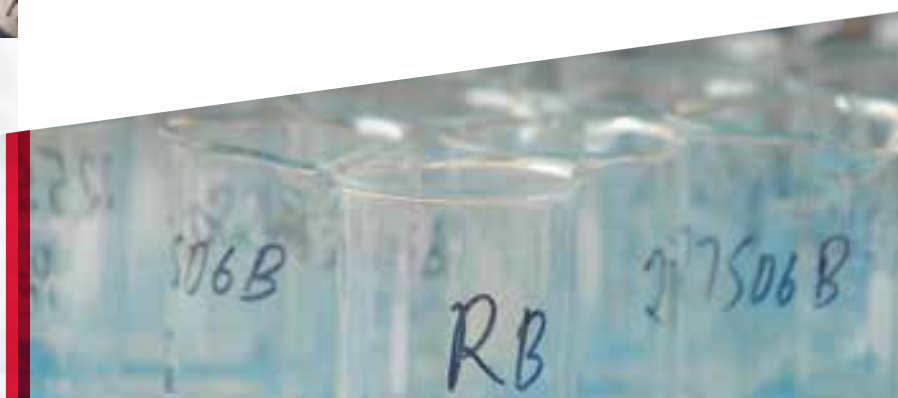
Anesthesiology	**$2,556,033**
Cancer Biology	**$4,519,196**
Dean Academic Affairs	**$191,784**
Dean Admin Operations	**$57,750**
Dean Office of Research	**$5,443,146**
Dermatology	**$368,263**
Emergency Medicine	**$1,633,237**
Environmental Health	**$14,422,983**
Family and Community Medicine	**$1,077,900**
Hoxworth Blood Center	**$1,211,722**
Internal Medicine	**$23,237,264**
Molecular and Cellular Physiology	**$1,944,920**
Molecular Genetics, Biochemistry and Microbiology	**$3,132,646**
Neurology and Rehabilitation Medicine	**$7,182,581**
Neurosurgery	**$1,227,029**
Obstetrics and Gynecology	**$813,809**
Ophthalmology	**$601,978**
Orthopaedic Surgery	**$11,300**
Otolaryngology-Head and Neck Surgery	**$795,786**
Pathology and Laboratory Medicine	**$6,190,312**
Pediatrics	**$2,201,357**
Pharmacology and Cell Biophysics	**$3,618,914**
Psychiatry and Behavioral Neuroscience	**$7,383,021**
Radiology	**$7,829**
Surgery	**$8,181,246**
Grand Total	**$98,012,005**



Departments with New Awards FY2017

Anesthesiology	3
Cancer Biology	10
Dean Academic Affairs	2
Dermatology	1
Emergency Medicine	5
Environmental Health	26
Family and Community Medicine	6
Hoxworth Blood Center	10
Internal Medicine	68
Molecular and Cellular Physiology	3
Molecular Genetics, Biochemistry and Microbiology	6
Neurology and Rehabilitation Medicine	7
Neurosurgery	1
Obstetrics and Gynecology	3
Ophthalmology	2
Orthopaedic Surgery	1
Otolaryngology-Head and Neck Surgery	3
Pathology and Laboratory Medicine	11
Pediatrics	1
Pharmacology and Cell Biophysics	1
Psychiatry and Behavioral Neuroscience	13
Surgery	26
Grand Total	**209**

For Department of Pediatrics data, please refer to Cincinnati Children's annual report available at: **cincinnatichildrens.org/research/cincinnati/annual-report/2017**



Industry Sponsored Clinical Trials Total Revenues FY2017

$12,638,777

College of Medicine

Highlighted Researchers FY2017

Steve Davidson, PhD

Assistant Professor

Departmental Research Details

Research faculty: **7**
New awards: **3**
Total research holdings: **$2,556,033**
Departmental publications: **34**
Research fellows: **4**

Primary focus of your research

Neural signaling of pain, itch and somatosensation.

FY2017 research highlights

For decades, research on pain and itch has relied on animal models to verify the efficacy of potential analgesics and anti-itch medications. This approach has yielded limited translational success, leaving patients to suffer with inadequate relief, unpleasant side-effects and a growing epidemic of pain medication abuse. We have pioneered a new strategy to recover the neural tissues that transmit pain and itch signals in the peripheral nervous system from human organ donors, and demonstrated that the viability of these recovered tissues can be maintained *in vitro* to investigate potential new therapeutics. Our research efforts to suppress pain and itch signals in human tissues before moving to clinical trials has been funded by an exploratory/developmental R21 research grant from the National Institutes of Health. We have demonstrated that hyperactive pain and itch-signaling human sensory neurons can be quieted by targeting specific proteins. This approach recently led to clinical benefits in a patient population with atopic dermatitis.

Most significant FY2017 publication

Oetjen LK, Mack MR, Feng J, Whelan TM, Niu H, Guo CJ, Chen S, Trier AM, Xu AZ, Tripathi SV, Luo J, Gao X, Yang L, Hamilton SL, Wang PL, Brestoff JR, Council ML, Brasington R, Schaffer A, Brombacher F, Hsieh CS, Gereau RW 4th, Miller MJ, Chen ZF, Hu H, Davidson S, Liu Q, Kim BS. Sensory Neurons Co-opt Classical Immune Signaling Pathways to Mediate Chronic Itch. Cell. 2017 Sep 21; 171(1):217-228.

Potential impact of this work

We have already seen that by testing new therapeutic agents — first in human neurons in a dish — we can make better predictions about the success of these agents when administered to patients. We expect that this approach will become standard practice for new candidate analgesics and anti-itch medications leading to cost and time savings by performing clinical trials only on those candidate therapies with the greatest chance of success. Our contribution has shown that maintaining the viability of human peripheral nervous system tissue in a laboratory setting is possible. This paves the way for the future possibility of investigating brain and spinal cord tissues *in vitro*, which could have implications for research into neurodegenerative and mental disorders.

FY2018 research goals

Our laboratory continues to be interested in how sensory neurons interact with the skin to produce sensations such as itch and pain. To this end, we are collaborating with researchers and clinicians at Shriners Hospitals for Children–Cincinnati and LifeCenter in Cincinnati to continue our efforts to produce a human model of skin-nerve interactions *in vitro*, including burn and wound healing models. Our hope is that we will be able to probe the relationship the skin has on producing enhanced signals in sensory neurons and glean new ways to suppress the unwanted neural activity producing chronic itch and pain conditions.

BIOMEDICAL INFORMATICS

Nathan Salomonis, PhD

Assistant Professor

Departmental Research Details

Research faculty: **1**
New awards: **0**
Total research holdings: **0**
Departmental publications: **61**
Research fellows: **0**

Primary focus of your research

Identifying discrete differences among single-cell populations that underlie cell fate decisions, such as multi-lineage progenitors and discerning novel splicing subtypes and splicing regulators in a number of different disease states.

The common theme for these projects are the application of RNA-Sequencing to define molecular heterogeneity that is not obvious from conventional computational approaches. For example, in cancer, we find that alternative splicing and associated splicing regulators often define new patient subsets with better or worse prognosis that cannot be identified by looking at gene expression, genetics or other metadata alone. To identify these subtypes, our group developed new advanced computational workflows, including unsupervised subtype detection methods, splicing algorithms and classification methods.

FY2017 research highlights

Over the last year we have been involved in a number of exciting research collaborations with members of Cincinnati Children's and outside research community. This has included the culmination of several years of work with dozens of laboratories in the Progenitor Cell Biology Consortium to understand differences among induced pluripotent stem cell reprogramming methods, helping to develop an improved understanding of discrete regulators of heart disease and hematological malignancies and working to define single-cell heterogeneity in diverse disease and developmental settings.

Most significant FY2017 publication

Olsson A, Venkatasubramanian M, Chaudhri VK, Aronow BJ, Salomonis N, Singh H, Grimes HL. Single-Cell Analysis of Mixed-Lineage States Leading to a Binary Cell Fate Choice. Nature. 2016 Sep 29; 537(7622):698-702.

Potential impact of this work

The impact of this work is quite significant, both in terms of new insights into the role of hematopoietic progenitor commitment and single-cell genomics. This work provides unprecedented insights into the hierarchical cellular and molecular regulatory states that govern myeloid cell fate decisions. Such insights were only possible by applying innovative new experimental and bioinformatics techniques in tandem by our collaborative scientific research team from the Salomonis, Grimes and Singh laboratories at the University of Cincinnati. In particular, we developed a new computational approach called Iterative Clustering and Guide-gene Selection (ICGS) to identify dynamic gene expression programs not identified by other popular approaches. This work is continuing to spawn a number of innovations and begun to have a significant impact on how researchers evaluate progenitor specification, with many research teams moving toward the use of ICGS with their single-cell data.

FY2018 research goals

We are engaging with new strategic partners within the department and at Cincinnati Children's to build more sophisticated computational research pipelines to handle extremely large datasets of tens or hundreds of thousands of cells, enable these analyses on the desktop computers of biologists and in the cloud, and develop focused research platforms to understand previously hidden molecular heterogeneity in pediatric disease datasets using integrative genomic approaches.

CANCER BIOLOGY

Xiaoting Zhang, PhD

Associate Professor

Departmental Research Details

Research faculty: **18**
New awards: **10**
Total research holdings: **$4,519,196**
Departmental publications: **66**
Research fellows: **29**

Primary focus of your research

Breast cancer, therapeutic resistance and RNA nanotechnology.

FY2017 research highlights

Breast cancer is one of the most frequent cancers and leading causes of death for women in the U.S. Most breast cancers are diagnosed as estrogen receptor (ER) positive, and anti-estrogens such as tamoxifen have been used in their treatment. Unfortunately, about 50 percent of these patients become resistant and fail to respond to therapies. Additionally, unwanted side effects on other estrogen-responsive tissues severely hinder their usage and effectiveness. Thus, development of new and improved target-specific treatments to overcome resistance and minimize side effects are urgently needed. We have recently established MED1 as a critical tissue-specific ER coactivator in mediating cellular resistance to anti-estrogen therapies. In the past year, our laboratory has developed an RNA nanotechnology-based targeted approach to specifically block MED1 production in breast cancers that are resistant to anti-estrogen therapies. We have constructed RNA nanoparticles that include an aptamer that specifically binds to membrane receptor HER2 for targeted delivery into breast cancer cells and two highly efficient MED1 targeting siRNA sequences to block the production of MED1. Remarkably, treatment with these highly stable and bio-safe RNA nanoparticles greatly inhibited tumor growth and led to more than 90 percent reduction of cancer stem cell formation and lung metastasis *in vivo* in preclinical models after systemic administration. These are critical because cancer stem cells and metastasis are known to be the main causes of therapy resistance and patient mortality.

Most significant FY2017 publication

Zhang Y, Leonard M, Shu Y, Yang Y, Shu D, Guo P, Zhang X. Overcoming Tamoxifen Resistance of Human Breast Cancer by Targeted Gene Silencing Using Multifunctional pRNA Nanoparticles. (2017) ACS Nano 11(1):335-346.

Potential impact of this work

There is currently no effective treatment approach available once breast cancer becomes resistant to therapies. Our development of a highly targeted approach to overcome tamoxifen resistance of breast cancer by multifunctional RNA nanoparticles provided a novel therapeutic for potential future treatment. Importantly, RNA-based nanotechnology has a number of advantages including its nanoscale size, high stability, controlled synthesis, multi-conjugation capability and inability to elicit immune response. With recent approvals of RNA-based therapies by the Food and Drug Administration, these RNA nanoparticles represent an especially promising new avenue for the development of next-generation, better and safer breast cancer therapies.

FY2018 research goals

We will continue to investigate the role of MED1 in breast cancer and expect to complete several key studies examining MED1 functions in breast tumorigenesis using newly generated animal models. Also, with the recent support of a UC accelerator award and a College of Medicine seed grant, we will continue developing our RNA nanoparticles and hopefully begin a start-up company. Our goal is to move this into clinical trials as soon as possible.

DERMATOLOGY

Zalfa Abdel-Malek, PhD

Professor

Departmental Research Details

Research faculty: **4**
New awards: **1**
Total research holdings: **$368,263**
Departmental publications: **27**
Research fellows: **0**

Primary focus of your research

The melanocortin 1 receptor (MC1R) gene.

FY2017 research highlights

The MC1R gene is a *bona fide* melanoma susceptibility gene. It is a central regulator of the diversity of human pigmentation, an important risk factor for sun-induced skin cancers, including melanoma. Loss of function allelic variants of the MC1R are strongly associated with red hair phenotype, fair skin, poor tanning ability and increased risk for melanoma. We have pioneered the research on MC1R and its ligands and their relevance to human pigmentation and melanoma. We discovered that activation of the MC1R by its agonist α-melanocyte stimulating hormone (α-melanocortin; α-MSH) not only stimulates pigmentation, but also reduces sun-induced DNA damage. Given the significance of the MC1R and α-MSH in maintaining the genomic integrity of melanocytes, we are developing a melanoma prevention strategy based on targeting the MC1R with highly selective tetrapeptide and tripeptide analogs of α-MSH that activate the MC1R and reduce the burden of sun-induced DNA damage. Our long-term goal is to develop these unique peptides as sunless tanning agents that can be topically applied. We recently obtained evidence that topical application of one of our tripeptides increases pigmentation of human skin *ex vivo.* The funding approved via an Established Investigator Award and a Department of Veterans Affairs Merit Award will allow us to develop appropriate topical formulation and conduct *in vivo* preclinical experiments that will lead to an Investigational New Drug application to the Food and Drug Administration (FDA).

Most significant FY2017 publication

We had two patent applications undergoing review, which prohibited us from publishing our extensive *in vitro* data with our peptides. These two patents have been approved, and we are now preparing a manuscript that will be submitted to Science Translational Medicine.

Potential impact of this work

More than 50 percent of all Caucasians are heterozygous for a MC1R variant that increases their risk for melanoma. Our peptides can reduce melanoma risk by activating two innate protective mechanisms in melanocytes: increased pigmentation and enhancement of repair of sun-induced DNA damage. Our peptides should benefit other high-risk individuals who have mutations in other melanoma-predisposition genes, such as in CDKN2A. Other indications for our peptides include reducing the painful episodes resulting from brief sun exposure in patients with polymorphic light eruption. Also, since α-MSH reduces stress response and enhances melanocyte survival, our peptides should be efficacious for treatment of vitiligo.

FY2018 research goals

In collaboration with UC colleagues, we will conduct preclinical studies to demonstrate the bioavailability of our peptides in human skin and determine their pharmacokinetic properties in animal models, as required by the Food and Drug Administration. We also will perform toxicological studies to demonstrate the safety of our peptides *in vivo*.

EMERGENCY MEDICINE

Jason McMullan, MD

Associate Professor

Director, Fellowship in Emergency Medical Services Medicine

Associate Director, Division of Emergency Medical Services

Departmental Research Details

Research faculty: **15**
New awards: **5**
Total research holdings: **$1,633,237**

Departmental publications: **86**
Research fellows: **0**

Primary focus of your research

Medical emergencies that occur in the prehospital setting, before a patient arrives at the hospital for care, including cardiac arrest, stroke, severe trauma and traumatic brain injury.

FY2017 research highlights

Prehospital identification and triage of severe stroke patients was a focus of FY2017, as our team validated the Cincinnati Stroke Triage Assessment Tool (C-STAT). C-STAT allows emergency medical technicians and paramedics to identify patients who may benefit from new endovascular therapies for stroke care or other services only available at a Comprehensive Stroke Center. C-STAT is specifically recommended by the American Heart Association/ American Stroke Association's newest guidance for prehospital care, and has been adopted by several Emergency Medical Services (EMS) agencies across the country.

Most significant FY2017 publication

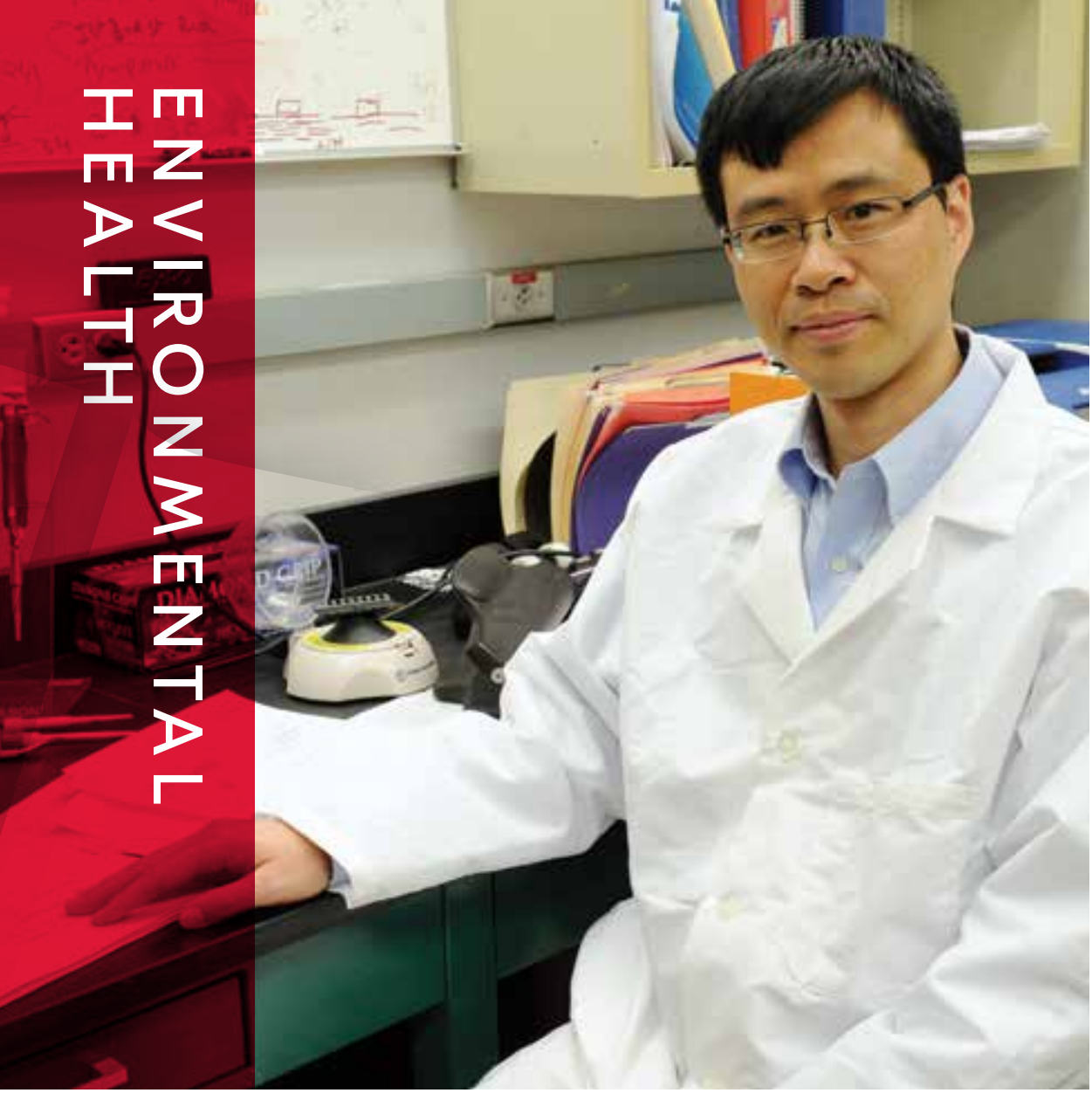
McMullan JT, Katz B, Broderick J, Schmit P, Sucharew H, Adeoye O. Prospective Prehospital Evaluation of the Cincinnati Stroke Triage Assessment Tool. Prehosp Emerg Care. 2017 Jul-Aug;21(4):481-488.

Potential impact of this work

The focus of prehospital care is to get the patient to the right place in the right amount of time. Stroke is an extremely time-dependent disease, and the long delays that accompany inter-hospital transfer may prevent some patients from being treated at all. Giving EMS providers the ability to identify which patients do (and do not) need to come to a Comprehensive Stroke Center has significant benefit to individual patients and the entire system of care.

FY2018 research goals

We are pivoting to prehospital pain management in FY2018, with a federally funded randomized, blinded, placebo-controlled trial evaluating the benefit of intranasal ketamine (vs. placebo) as an adjunct to fentanyl, given by paramedics prior to hospital arrival. This trial moved beyond straight-forward short-term pain relief outcome and will follow subjects through 90 days to evaluate the rates of development of chronic pain and post-traumatic stress disorder. Additionally, this may be the first randomized controlled trial performed in the prehospital setting where paramedics will obtain informed consent from subjects.



Aimin Chen, MD, PhD

Associate Professor

Departmental Research Details

Research faculty: **41**
New awards: **26**
Total research holdings: **$14,422,983**
Departmental publications: **231**
Research fellows: **20**

Primary focus of your research

Environmental chemical exposure and impact on child development.

FY2017 research highlights

In 2017, we successfully completed an R01 project supported by the National Institute of Environmental Health Sciences investigating exposures to polybrominated diphenyl ethers (PBDEs), widely used as flame retardants, and polyfluoroalkyl substances, used as surfactants, for their impact on child neurobehavior. We have shown adverse impact on child cognitive function, reading skills and externalizing behavior at school ages from prenatal exposure to PBDEs. Subsequently, we also found postnatal exposure to PBDEs also may be harmful to child IQ and behavior.

Most significant FY2017 publication

Zhang H, Yolton K, Webster GM, Sjödin A, Calafat AM, Dietrich KN, Xu Y, Xie C, Braun JM, Lanphear BP, Chen A. Prenatal PBDE and PCB Exposures and Reading, Cognition, and Externalizing Behavior in Children. Environ Health Perspect. 2017; 125(4): 746-752.

Potential impact of this work

Two product mixes of PBDEs (pentaBDE and octaBDE) had been withdrawn from the U.S. market in 2004, and the last product mix (decaBDE) was phased out in 2013-2014. However, existing furniture, foam, carpet padding and electronics still contain PBDEs in homes and offices. Pregnant women and children are vulnerable to these toxic compounds. Our work, along with publications from colleagues in other institutions, have shifted scientific evidence toward banning PBDEs and reducing exposures in pregnant women and young children.

FY2018 research goals

In collaboration with colleagues at UC and Cincinnati Children's, we have received a new R01 grant to start an investigation of replacement flame retardants, including both organophosphate and other brominated compounds, for their potential toxicity to child neurological and behavioral development.

FAMILY AND COMMUNITY MEDICINE

Jeffrey Schlaudecker, MD

Associate Professor

Kautz Family Foundation Endowed Chair
of Geriatric Medical Education

Departmental Research Details

Research faculty: **13**
New awards: **6**
Total research holdings: **$1,077,900**

Departmental publications: **69**
Research fellows: **0**

Primary focus of your research

Equipping faculty scholars, family medicine residents and geriatric medicine fellows to become primary care "change agents" to lead and inspire transformation in their practices.

Our research group involves faculty scholars partnering with patients and families in our community to launch novel curricula in five content areas: Quality Improvement, Social Determinants of Health, Home-based Primary Care, Effective Communication Skills and Launching a Patient and Family Advisory Council. These are essential areas of study for residents and fellows in primary care. The status quo for primary care is not tenable, and our research team continuously finds creative and unique ways to adapt physician education to better reflect the realities of practice.

FY2017 research highlights

Working with an amazing group of clinician-educators and clinician-researchers has been a highlight. Chris White, MD, JD, Sandra Regan, PhD, Megan Rich, MD, Anna Goroncy, MD, Reid Hartmann, MD, Keesha Goodnow and Daniel Hargraves make an incredible team, and they are accomplishing a significant amount through this grant. Each of them has impacted the residents and fellows in unique ways. The team has developed a curriculum that will enable our residents and fellows to better meet the needs of their patients and communities.

Potential impact of this work

Our $1.75 million grant — Partnering with Underserved Patients – A Novel Health Transformation Curriculum (HRSA T0BHP28567) from the Department of Health and Human Services, Health Resources and Services Administration running from July 2015 until June 2020 — focuses on primary care trainees, and is developing and evaluating a new curriculum to enable them to transform their future practices. How will the primary care doctor three years from now communicate with patients? How does effective practice improvement really happen in a busy office? What tone and information is best suitable to provider-patient emails? How do we help doctors engage with patients to tackle the most challenging social determinants of health, like poverty, food insecurity and housing shortages? Is it possible to train physicians to care for our region's most vulnerable elderly in their own homes? These are among the questions we are tackling through our educational initiatives.

FY2018 research goals

The upcoming year will see our group adapt lessons learned to community underserved partner sites. Through this grant, each of our faculty researchers will transform one (different) aspect of primary care practice. We plan to continue to create and evaluate our novel curriculum. Additionally, in 2018 we will launch a new physician-education program that will help primary care doctors face our opioid epidemic with additional knowledge and skills. Online modules, skills sessions and peer-mentorship will help our primary care trainees help Cincinnatians living with opioid use disorders in new ways. It is certainly an incredibly exciting time to be a primary care clinician-educator. There is unprecedented need, as well as growing resources.

HOXWORTH

Jose Cancelas, MD, PhD

Director, Hoxworth Blood Center

Professor of Pediatrics

Departmental Research Details

Research faculty: **1**
New awards: **10**
Total research holdings: **$1,211,722**
Departmental publications: **85**
Research fellows: **4**

Primary focus of your research

Hematopoiesis and blood/cell transfusion/therapies.

Our group continues to be focused on understanding the mechanisms and translational opportunities of blood/stem cell signaling pathways controlling self-renewal, differentiation and cell-specific functions *in vitro* and *in vivo*. Our research activities use human, non-human primate and murine cells and analyzes signaling and biology *in vitro* and *in vivo*, in humans, in congenic transfusion/transplantation and in xenografts/xenotransfusion.

FY2017 research highlights

In our publications during FY2017, my clinical research group focused on the analysis of clinically usable methods to collect mobilized hematopoietic stem cells from humans, a new method for pathogen reduction of whole blood, and new methods to safely store red cells and track them *in vivo*, in humans. My basic biology group focused on understanding the mechanisms that control non-oncogenic addition in leukemia and signaling pathways used for stem cell self-renewal.

Most significant FY2017 publication

Worsham DN, Reems JA, Szczepiorkowski ZM, McKenna DH, Leemhuis T, Mathew AJ, Cancelas JA. Clinical Methods of Cryopreservation for Donor Lymphocyte Infusions Vary in Their Ability to Preserve Functional T cell Subpopulations. Transfusion. 2017 Jun;57(6):1555-1565.

Potential impact of this work

This paper is extremely relevant for the preservation of immunologically active T cell populations in the context of immunotherapies in humans. It demonstrates that the most frequently used procedure to cryopreserve T lymphocytes for immunotherapies in humans results in reduced potency, and provides at least two alternatives (commercial or not) which result in superior cryopreservation of functional cytotoxic T lymphocytes and regulatory T cells.

FY2018 research goals

Manuscripts will be submitted on at least four projects during the coming year. These include: a novel method to preserve refrigerated platelets while preserving them from cold-induced storage damage; a novel anatomical path to migration of myeloid-committed progenitors to lymphatic tissues in inflammation; identification of aPKC/SATB2 for lymphoid leukemic progenitor differentiation arrest; and identification of the role of polarization by the basolateral complex in hematopoietic stem cell activity.

Sakthivel Sadayappan, PhD

Professor

Director, Heart Branch of the UC Heart, Lung and Vascular Institute

Departmental Research Details

Research faculty: **128**
New awards: **68**
Total research holdings: **$23,237,264**
Departmental publications: **461**
Research fellows: **31**

Primary focus of your research

Discover novel therapies to treat hypertrophic cardiomyopathy, myocarditis and heart failure.

FY2017 research highlights

Heart failure affects more than 5.7 million Americans and contributes to more than 2.8 million deaths each year. Our ability to treat and improve outcomes for these patients is limited by our understanding of the cardiac pathogenesis of the disease. Specifically, there is a knowledge gap regarding the immunogenicity and inflammatory potential of cardiac-specific proteins, such as the cardiac myosin binding protein-C (cMyBP-C), which regulates the speed of muscle contraction. I have been systematically studying the role of cMyBP-C in heart failure at the molecular level throughout my academic career. Recently, my colleagues and I showed that plasma cMyBP-C levels are significantly elevated following damage to the myocardium by either procedures or heart attacks classified as myocardial infarction (MI) in patients. This suggests that cMyBP-C could be a sign of early cardiac damage in patients and may implicate circulating cMyBP-C levels as an early biomarker for MI.

Partial gene deletions result in the formation of a mutated protein. I have identified a 25-base pair (bp) deletion variant in the MYBPC3 gene, encoding for cMyBP-C. This specific mutation has a high prevalence among South Asians (5 percent or about 80 million South Asians worldwide). People carrying this variant are at high risk of developing hypertrophic cardiomyopathy (HCM), but exactly how this happens and who will develop the disease is not well understood. To investigate this further, I have secured funding from the American Heart Association to perform a limited cohort study, assessing the genome-phenome of MYBPC3 variant carriers among South Asians living in the United States.

Most significant FY2017 publication

Lynch TL IV, Kuster DWD, Gonzalez B, Balasubramanian N, Nair N, Day S, Calvino JE, Tan Y, Liebetrau C, Troidl C, Hamm CW, Güçlü A, McDonough B, Marian AJ, van der Velden J, Seidman CE, Huggins GS, Sadayappan S. Cardiac Myosin Binding Protein-C Autoantibodies are Potential Early Indicators of Cardiac Dysfunction and Patient Outcome in Acute Coronary Syndrome. JACC Basic Transl Sci. 2017 Apr;2(2):122-131.

Potential impact of this work

Acute MI remains a leading cause of morbidity and mortality worldwide, often as a result of prolonged, irreversible myocardial cell damage or death. The development of novel biomarkers to predict MI severity and cardiovascular function during the early stages of MI and damage may result in the opportunity for earlier therapeutic intervention for patients, which would translate to reductions in myocardial damage, preservation of cardiac function and improvements in patient outcomes.

FY2018 research goals

Working with the UC Division of Cardiovascular Health and Disease as well as the Heart Institute at Cincinnati Children's, we are developing a new diagnostic kit to determine the presence of MYBPC3 gene variants. In addition, we are screening small molecules for therapeutic intervention, as well as continuing to define the molecular mechanisms underlying HCM. Furthermore, we know that autoantibodies against host-specific proteins, in this case cMyBP-C, can result in inflammatory cardiomyopathy, or myocarditis, either directly through pathological effect on the heart or by aggravating the disease process after an initial cardiac insult, such as MI.

Laura Conforti, PhD

Professor

Division of Nephrology and Hypertension

Primary focus of your research

Cancer and autoimmunity.

FY2017 research highlights

Patients with solid malignancies and patients with autoimmune diseases like systemic lupus erythematosus (SLE) owe the progression of their diseases to a faulty immune system. In particular, in cancer, T lymphocytes function too little while in SLE they function too much. The limited ability of cytotoxic T cells to infiltrate a solid tumor and to attack and destroy the cancer cells is associated with poor prognosis and reduced response to cancer therapy. In my laboratory, we study the mechanisms by which the tumor microenvironment suppresses T cell effector functions, with a focus on ion channels and Ca^{2+} signaling, which are necessary for T cell activation and function. This line of work has been funded since 2003 by a R01 grant from the National Cancer Institute. Recently, in collaboration with Trisha Wise-Draper, MD, PhD, at the UC College of Medicine, and Edith Janssen, PhD, at Cincinnati Children's, we are expanding our work to define the mechanisms of resistance to immunotherapy in head and neck cancer patients. This work is supported by a U.S. Department of Defense grant. On the other side of the spectrum of T cell function, the hyperfunctionality of T lymphocytes in SLE contributes to the exacerbation of the disease and organ damage. My laboratory is working on the development of a nanotechnology-based immunosuppressive therapy that targets ion channels in a subset of T lymphocytes. This project is in collaboration with UC's Marat Khodoun, PhD, and Shashi Kant, MD, and it is supported by the Paul Teschan Research Fund of Dialysis Clinic, Inc.

Most significant FY2017 publication

Chimote AA, Hajdu P, Sfyris AM, Gleich B, Wise-Draper T, Casper K, Conforti L. Kv1.3 Channels Mark Functional Competent $CD8^+$ Tumor Infiltrating Lymphocytes in Head and Neck Cancer. Cancer Res Jan 1;77(1): 53-61.

Potential impact of this work

Novel immunotherapies are revolutionizing the way cancer is treated. The goal of these therapies is to boost the immune cells' anti-cancer efficacy. However, only a limited number of cancer patients respond to immunotherapy. Our research will highlight novel mechanisms that limit the function of T cells in cancer. This information will not only aid our understanding of the mechanisms of resistance to immunotherapies, but also will provide novel targets for combination therapies. Our studies on SLE aim to develop a new targeted immunosuppressive therapy with high efficacy and limited side effects. This therapy would be a much needed addition to the treatment of a disease where current therapies have limited efficacy and serious side effects.

FY2018 research goals

We are working in established and highly collaborative teams. The head and neck cancer group is composed of oncologists, surgeons, pathologists and immunologists from different departments. This interaction will expand our research field to new immune targets and develop new approaches to the treatment of solid tumors. The SLE group, comprised of nephrologists and immunologists, will test these novel nanoparticle-based immunotherapies *in vivo* in humanized mouse models of SLE.

William Ridgway, MD

Alice W. and Mark A. Brown Professor

Director, Division of Immunology, Rheumatology and Allergy

Primary focus of your research

The genetics of autoimmunity and autoimmune phenotypes.

The primary emphasis is on investigating mouse models of spontaneous polygenic autoimmune syndromes including Type 1 diabetes, primary biliary cirrhosis (PBC), systemic lupus erythematosus and relapsing polychondritis.

In one project, novel non-obese diabetic (NOD) congenic mice were constructed with autoimmune diabetes disease-protective intervals from B10 mice introgressed onto the NOD background. They are protected from diabetes, however, they develop a fatal autoimmune biliary disease, which represents the first spontaneous murine model of PBC. We are studying the immunogenetic mechanisms of this model in collaboration with labs around the world.

In another project, mice lacking effective TGFb signaling in CD4 and CD8+ cells develop a syndrome strongly resembling PBC with liver disease and autoantibodies. We are trying to dissect the mechanisms responsible for disease in these mice.

We are also analyzing the role of CD137 in the pathogenesis of Type 1 diabetes. Treatment of NOD mice with an anti-CD137 antibody prevents diabetes by specifically targeting CD137+ T regulatory cells. We are actively investigating the mechanism of CD137 mediated protection in Type 1 diabetes by an immunogenetic approach utilizing NOD congenic mice with a protective B10 CD137 allele. This project is funded by the American Diabetes Association (ADA 1-11-BS-131), and the National Institutes of Health (1R01DK107541-01A1).

Lastly we are investigating the role of TLR4 in Type 1 diabetes. We have used a monoclonal antibody to TLR4/MD-2 and have shown that it both prevents and reverses new onset Type 1 diabetes. This is an exciting result since it suggests that immune tolerance can be restored to the autoimmune adaptive immune system (i.e., CD4+ and CD8+ T cells) by targeting innate immunity. We are investigating the mechanisms of this novel finding. This project is funded by the National Institutes of Health (1R21AI120084-01A1).

FY2017 research highlights

We are most proud of receiving our R01 grant (NIH1R01DK107541-01A1, Mechanistic and Therapeutic Role of the CD137-CD137L Axis in Type 1 Diabetes) during FY2017.

Most significant FY2017 publication

Forsberg MH, Ciecko AE, Bednar KJ, Itoh A, Kachapati K, Ridgway WM, Chen YG. CD137 Plays Both Pathogenic and Protective Roles in Type 1 Diabetes Development in NOD Mice. J Immunol. 2017 May 15;198(10):3857-3868.

Potential impact of this work

This furthers our understanding of the complex role of CD137 in Type 1 diabetes pathogenesis. We continue to accrue evidence to support the role of sCD137 as an immunotherapy in humans.

FY2018 research goals

With the approval of our Veterans Affairs Merit grant, “Immunogenetic Mechanisms of Autoimmune Biliary Disease,” we look forward to continuing our mechanistic studies of both autoimmune biliary disease and Type 1 diabetes.

MEDICAL EDUCATION

Aaron Marshall, PhD

Associate Professor

Departmental Research Details

Research faculty: **0**
New awards: **0**
Total research holdings: **0**
Departmental publications: **5**
Research fellows: **0**

Primary focus of your research

Assessing student perceptions and attitudes regarding the importance of learning sex and gender medicine during preclinical coursework.

FY2017 research highlights

Working with colleagues from other departments, we developed a novel curriculum on transgender medicine. The two broad goals were to introduce or reinforce the appropriate terminology and basic principles of sex and gender and teach students about the physiological changes a transgender person could undergo and what impact those changes have on clinical care. Following implementation of this curriculum, we assessed the perceptions and attitudes of participant versus non-participant students. The results validated and provided feedback regarding our approach to teaching sex and gender medicine.

Most significant FY2017 publication

Marshall AM, Pickle S, Lawlis S. Transgender Medicine Curriculum: Integration Into an Organ-System Based Preclinical Program. MedEdPORTAL Publications. 2017;13:10536.

Potential impact of this work

Transgender patients are an example of a historically underserved population and sometimes experience cruelty from medical professionals in a clinical setting. More broadly, however, in the medical community the understanding of sex versus gender and the impact each has on one's health care is paltry. We aim to improve upon that history by introducing medical students early and often to the concept of sex and gender medicine. We will improve our offerings and tailor them to address the needs of the learner by continuously collecting data on student perceptions and attitudes. The curricular materials and the process used to create them are important items to publish because they can be replicated at other institutions. Transgender medicine is one specific area of sex and gender medicine which we choose to address. The publication on our transgender medicine curriculum has already served as foundational material at other institutions interested in improving either their sex and gender medicine curriculum and/or their curriculum on underserved patient populations.

FY2018 research goals

We will continue to refine our sex and gender medicine curriculum, seeking opportunities for rigorous assessment of performance and/or attitudes. In addition, other collaborations that employ a similar process are underway to improve our medical nutrition curriculum.

MOLECULAR GENETICS, BIOCHEMISTRY AND MICROBIOLOGY

Alison Weiss, PhD

Professor

Departmental Research Details

Research faculty: **17**
New awards: **6**
Total research holdings: **$3,132,646**
Departmental publications: **47**
Research fellows: **5**

Primary focus of your research

Understanding human intestinal pathogens.

While mice have proven useful for understanding human biology, several important human pathogens do not cause disease in mice. One of these is *E. coli* O157:H7, the "*hamburger E. coli*." There currently is no treatment for this potentially fatal disease. Furthermore, administration of antibiotics to patients has been associated with increased disease severity, likely due to the ability of antibiotics to cause the *E. coli* to increase production of a deadly toxin. We use stem cell derived human intestinal organoids, also called "mini-guts," to study human enteric diseases.

FY2017 research highlights

Remarkably, like the human intestinal tract, human intestinal organoids can be populated with millions of harmless *E. coli* without any evidence of tissue damage. However, introduction of fewer than 1,000 pathogenic *E. coli* O157:H7 causes severe tissue damage that mirrors human disease. We can introduce human neutrophils into the organoid cultures and can now study the role of the immune response to infection. This *in vitro* system affords an unprecedented approach to study human disease.

Most significant FY2017 publication

Karve SS, Pradhan S, Ward DV, Weiss AA. Intestinal Organoids Model Human Responses to Infection by Commensal and Shiga Toxin Producing *Escherichia Coli*. PLoS One. 2017 Jun 14;12(6):e0178966.

Potential impact of this work

Human intestinal organoids can be used to study the basic mechanisms of enteric diseases. This system also can be used to model the role of the intestinal microbiome in health and disease. One of the most exciting aspects of this simple experimental system is that we can quickly assess potential therapeutic interventions for safety and efficacy in humans. We hope organoids will supplant the use of expensive, and sometimes misleading, animal models.

FY2018 research goals

We are excited to begin evaluating possible therapeutic interventions. For example, while epidemiologic studies suggest that antibiotics can increase disease severity, whether this is always the case has not been rigorously tested. We will be able to directly determine if all antibiotics cause the *E. coli* to increase toxin production or whether some antibiotics might be able decrease bacterial load without increasing toxin production. We also will evaluate the ability of probiotics to mediate disease protection.

Brandon Foreman, MD

Assistant Professor

Departmental Research Details

Research faculty: **28**
New awards: **7**
Total research holdings: **$7,182,581**
Departmental publications: **107**
Research fellows: **1**

Primary focus of your research

Cortical dysfunction after brain injury.

FY2017 research highlights

Working with partners in the UC College of Engineering and Applied Science and Laura Ngwenya, MD, PhD, UC assistant professor of neurosurgery and director of neurotrauma, our group has made tremendous strides in standardizing, processing and visualizing intracranial neuromonitoring data recorded in patients who are undergoing clinically standard invasive brain monitoring after severe brain trauma. Under the leadership of Jed Hartings, PhD, UC associate professor of neurosurgery, we are participating in a unique and important observational trial examining spreading depolarizations in similar patients. Together, these efforts have positioned UC as a leader in the precision management of patients with acute brain injury.

Most significant FY2017 publication

Foreman B, Albers D, Schmidt JM, Falo CM, Velasquez A, Connolly ES, Claassen J. Intracortical Electrophysiological Correlates of Blood Flow After Severe SAH: A Multimodality Monitoring Study. J Cereb Blood Flow Metab. 2017 Jan 1:271678X17700433.

Potential impact of this work

The concept of neurovascular coupling is a fundamental physiologic principle governing the brain's ability to function. We have been recording similar signals in patients with severe brain trauma and hope to use similar principles to link cortical functioning, as recorded through the use of Food and Drug Administration-approved cortical electrodes, with intracranial pressure, autoregulation and blood flow.

FY2018 research goals

Through my K23 sponsored by the National Institute of Neurological Disorders and Stroke and under the primary mentorship of Daniel Woo, MD, UC professor of neurology and rehabilitation medicine, I will be enrolled in the Master's of Clinical and Translational Research program here at UC. I will be working with the multicenter, observational Transforming Research and Clinical Knowledge in Traumatic Brain Injury (TRACK-TBI; Site PI: Opeolu Adeoye, MD) and Spreading Depolarizations II (SDII; PI: Jed Hartings, PhD) studies to understand the role that intracranial pressure plays on cortical functioning and ultimately on cognitive recovery following severe brain trauma.

Laura Ngwenya, MD, PhD

Assistant Professor

Director, UC Gardner Neuroscience Institute Neurotrauma Center

Departmental Research Details

Research faculty: **4**
New awards: **1**
Total research holdings: **$1,227,029**
Departmental publications: **88**
Research fellows: **3**

Primary focus of your research

Clinical and translational efforts to improve recovery after traumatic brain injury (TBI).

FY2017 research highlights

During FY2017 we created the Collaborative for Research on Acute Neurological Injuries (CRANI) at UC. The purpose of CRANI is to discover why and how neuronal tissue becomes dysfunctional after acute neurological injury and how this knowledge can be used to facilitate recovery. Additionally, the purpose is to bring an academic mission to acute neurological injury at UC and to foster a collaborative translational research approach. The co-founders of CRANI are Jed Hartings, PhD, UC associate professor of neurosurgery, and Brandon Foreman, MD, UC assistant professor of neurology and rehabilitation medicine.

Most significant FY2017 publication

Ngwenya LB, Suen CG, Tarapore PE, Manley GT, Huang MC. Safety and Cost Efficiency of a Restrictive Transfusion Protocol in Patients With Traumatic Brain Injury. J Neurosurg. 2017 Jun 23:1-8.

Potential impact of this work

Treatment of patients utilizing advanced neuromonitoring techniques such as brain tissue oxygen monitoring can lead to improvements in patient care.

FY2018 research goals

I am involved in both clinical and basic science TBI research. Continued enrollment of patients in multi-center clinical trials, such as Transforming Research and Clinical Knowledge in Traumatic Brain Injury (TRACK-TBI), Spreading Depolarizations II (SD II) and Hypothermia for Patients Requiring Evacuation of Subdural Hematoma (HOPES), will allow improved patient outcomes after TBI. My basic science research, supported by a UC Gardner Neuroscience Institute Neurobiology Research Center pilot grant, will continue to focus on understanding the process of new neuron generation after TBI to enhance cognitive recovery.

OBSTETRICS AND GYNECOLOGY

Carri Warshak, MD

Associate Professor

Program Director, Maternal-Fetal Medicine Fellowship

Director of Perinatal Imaging, Hoxworth

Departmental Research Details

Research faculty: **3**
New awards: **3**
Total research holdings: **$813,809**

Departmental publications: **18**
Research fellows: **0**

Primary focus of your research

Complications of obesity in pregnancy.

I have done extensive work looking at both complications that are more common in obese women in pregnancy (for example, fetal growth abnormalities, induction abnormalities and complications of cesarean section) and interventions to prevent these morbidities. I also have done substantial research in the area of placental insufficiency, pre-eclampsia, fetal growth restriction, fetal anomalies, prenatal diagnosis and ability to use ultrasound for prenatal diagnosis and prognostic counseling.

FY2017 research highlights

A 10-year study, "Effect of Post-cesarean Delivery Oral Cephalexin and Metronidazole on Surgical Site Infection Among Obese Women: A Randomized Clinical Trial," was accepted as abstract #001 in the Oral Plenary session at the Society for Maternal-Fetal Medicine Annual Pregnancy Meeting, January 2017. In addition to being the top research abstract, I won the award for the best Oral Presentation for the plenary session.

In addition to the primary study, we had two other oral presentations and three other poster presentations resulting from this work. Of note, we did a cost-effective analysis and determined that the reduction in surgical site infections in obese women undergoing cesarean section expected, if given prophylactic antibiotics, would lead to an annual societal savings of $252 million and 246,000 additional Quality Adjusted Life Years with the intervention. While there are thousands of publications addressing the obesity epidemic in America, few establish concrete, effective management strategies to improve outcome and reduce morbidity.

Most significant FY2017 publication

Valent AM, DeArmond C, Houston JM, Reddy S, Masters HR, Gold A, Boldt M, DeFranco E, Evans AT, Warshak CR. Effect of Post-Cesarean Delivery Oral Cephalexin and Metronidazole on Surgical Site Infection Among Obese Women: A Randomized Clinical Trial. JAMA. 2017 Sep 19;318(11):1026-1034.

Potential impact of this work

Cesarean delivery is the most common major surgical procedure performed in the U.S. Obesity affects approximately 30 percent of pregnant women, and obesity increases the risk of having a cesarean section for a myriad of reasons. Therefore, managing morbidity from cesarean delivery in obese women is a very common, significant occurrence. Despite the adequate experience, there have not been many management strategies proven to reduce this morbidity. My study provides evidence that there are ways to improve outcomes and that we can better care for these complicated patients. I expect with the recent publication many centers will consider their antibiotic protocols to determine if their patients are likely to have similar benefit seen by our subject population. I do believe this work is practice changing for a very common and significant medication situation.

FY2018 research goals

I have several smaller projects that are off-shoots from the Surgical Site Infection study. The most provoking project is the cost-benefit analysis that will demonstrate that not only are antibiotics effective, but they are cost-saving. I also hope to begin a study looking at whether giving obese women higher doses of misoprostol for cervical ripening will improve the induction success rate to that of normal weight women.

James Augsburger, MD

Professor

Dr. E. Vernon & Eloise C. Smith Chair

Departmental Research Details

Research faculty: **4**
New awards: **2**
Total research holdings: **$601,978**
Departmental publications: **68**
Research fellows: **3**

Primary focus of your research

Identifying prognostic factors for relevant clinical outcomes of various types of malignant and benign ocular tumors (principally primary uveal melanomas and retinoblastomas).

Virtually all of my research is clinical and funded by contributions to the James J. Augsburger Ocular Oncology Fund of the University of Cincinnati (established 2014).

FY2017 research highlights

Identification of the prognostic significance of the discriminant score associated with the gene expression profile class of primary posterior uveal melanomas determined using the DecisionDx-UM test on fine needle aspiration biopsy specimens.

Most significant FY2017 publication

Skinner CC, Augsburger JJ, Augsburger BD, Correa ZM. Comparison of Alternative Tumor Size Classifications for Posterior Uveal Melanomas. Invest Ophthalmol Vis Sci 2017; 58: 3335-3342.

Potential impact of this work

This work could lead to a reconsideration of the American Joint Commission on Cancer's tumor, node, metastasis (TNM) prognostic classification of primary posterior uveal melanomas. The current staging system is outdated, overly complex in terms of its input requirements and in need of replacement by an alternative staging system that is based on multiple concurrent gene expression by chromosomal abnormalities of the tumor cells.

FY2018 research goals

The principal goals of my research during FY2018 will be to demonstrate of the lack of any adverse effect of clinical fine needle aspiration biopsy of posterior uveal melanomas on the cumulative actuarial probabilities of metastasis and metastatic death using a retrospective comparative case series study design and to complete an analysis of the taxonomy of fine needle aspiration biopsies of solid intraocular tumors and the implications of that taxonomy for reporting and comparison of biopsy data based on a series of nearly 1,000 intraocular biopsies.

ORTHOPAEDIC SURGERY

Frank Avilucea, MD

Assistant Professor

Departmental Research Details

Research faculty: **0**
New awards: **1**
Total research holdings: **$11,300**
Departmental publications: **92**
Research fellows: **2**

Primary focus of your research

Pelvic fractures ranging from injuries that may be treated without surgery to those that require operative fixation.

While the surgical techniques used to treat these injuries have significantly advanced since the mid-1990s, there remains a paucity of data pertaining to which non-operative appearing injuries actually require fixation and what treatment strategies optimize fixation and reduce the potential for fracture displacement.

FY2017 research highlights

I have been engaged in developing an algorithm for the treatment of a sub-class of pelvic fractures amenable to percutaneous fixation. This research was recently presented at this year's annual meeting of the Orthopaedic Trauma Association.

Most significant FY2017 publication

Whiting PS, Auston D, Avilucea FR, Ross D, Archdeacon M, Sciadini M, Collinge CA, Sagi HC, Mir HR. Negative Stress Examination Under Anesthesia Reliably Predicts Pelvic Ring Union Without Displacement. J Orthop Trauma. 2017 Apr;31(4):189-193.

Potential impact of this work

Weight-bearing restrictions are often instituted to prevent fracture displacement. The aforementioned study demonstrates that in a subclass of pelvic fractures, a negative intra-operative stress exam under anesthesia (pelvis does not shift), non-operative treatment can be safely pursued and early weight-bearing may be initiated leading to bony healing without displacement. Such a finding helps several patients who would otherwise not be permitted to walk for several weeks.

FY2018 research goals

In a collaborative effort with colleagues at other institutions, we are further defining the role of intra-operative examination under anesthesia in the setting of open book pelvis fractures aiming to further define which injuries require posterior pelvic ring fixation.

OTOLARYNGOLOGY—
HEAD AND NECK SURGERY

Lisa Hunter, PhD
Professor

Departmental Research Details
Research faculty: **6**
New awards: **3**
Total research holdings: **$795,786**
Departmental publications: **182**
Research fellows: **0**

Primary focus of your research

Hearing loss at birth.

FY2017 research highlights

Hearing loss at birth is the most common congenital impairment. Fortunately, both temporary and permanent hearing loss can be treated with highly effective interventions. Knowing the type of hearing loss is crucial to determine the proper treatment. If hearing loss is not detected and treated within the first six months of life, lifelong impairment in speech, language, reading and social skills may result. Our multisite R01 from the National Institutes of Health has resulted in new technology to accurately detect the type of hearing loss. Working with Douglas Keefe, PhD, an acoustical physicist at Boys Town National Research Hospital in Omaha, and Patrick Feeney, PhD, at the U.S. Department of Veterans Affairs National Center for Rehabilitative Auditory Research in Portland, we pioneered wideband reflectance, acoustic reflex and otoacoustic emissions to detect middle ear, cochlear and neural forms of hearing loss at birth. We have completed several longitudinal studies in a wide range of otologic disorders.

Most significant FY2017 publication

Hunter LL, Keefe DH, Feeney MP, Fitzpatrick DF, Lin L. Longitudinal Development of Wideband Reflectance Tympanometry in Normal and At-risk Infants. Hear Res. 2016 Oct;340:3-14.

Potential impact of this work

Reflectance and otoacoustic emission technology assists audiologists and otolaryngologists to quickly diagnose the cause of hearing loss in infants, children and adults. Our group has published 19 peer-reviewed articles from this multisite study, and the technology is now available as a. Food and Drug Administration-approved clinical instrument. Studies in patients with congenital hearing loss, otosclerosis, Down syndrome and cystic fibrosis have already demonstrated the benefit of these results.

FY2018 research goals

We have launched new collaborations with physicians in pulmonary medicine and pharmacology at UC and Cincinnati Children's to study the effects of broad-spectrum antibiotics used in patients with cystic fibrosis. We have found that these life-saving medicines unfortunately cause hearing loss in 70 percent of children and adults. We have submitted a new R01 to the National Institute on Deafness and Other Communication Disorders to study high-frequency otoacoustic emissions to detect these toxic effects on the ear earlier, so that treatment can be personalized to the patient's needs to hopefully prevent permanent hearing loss.

PATHOLOGY AND LABORATORY MEDICINE

Yi-Gang Wang, PhD

Professor

Departmental Research Details

Research faculty: **21**
New awards: **11**
Total research holdings: **$6,190,312**
Departmental publications: **138**
Research fellows: **19**

Primary focus of your research

The development of an efficient and safe therapeutic paradigm to regenerate cells lost during myocardial infarction.

The search for regenerative therapies that can repair or replace cells lost during a heart attack remains a daunting challenge. One of the foremost issues is the difficulty in procuring viable replacement cells, whether due to ethical concerns or patient safety.

FY2017 research highlights

The exceptional progress we have made in FY2017 included the successful funding of an R56 and an R01 National Institutes of Health grant. Three additional grant proposals are pending for review. Nine manuscripts have been published and one of our poster presentations was awarded the "Best of Basic Science" at the 2017 American Heart Association meeting.

Most significant FY2017 publication

Liang JL, Huang W, Cai W, Wang L, Guo L, Paul C, Yu XY, Wang Y. Inhibition of MicroRNA-495 Enhances Therapeutic Angiogenesis of Human Induced Pluripotent Stem Cell-derived Endothelial Cells. Stem Cells. 2017 Feb;35(2):337-350.

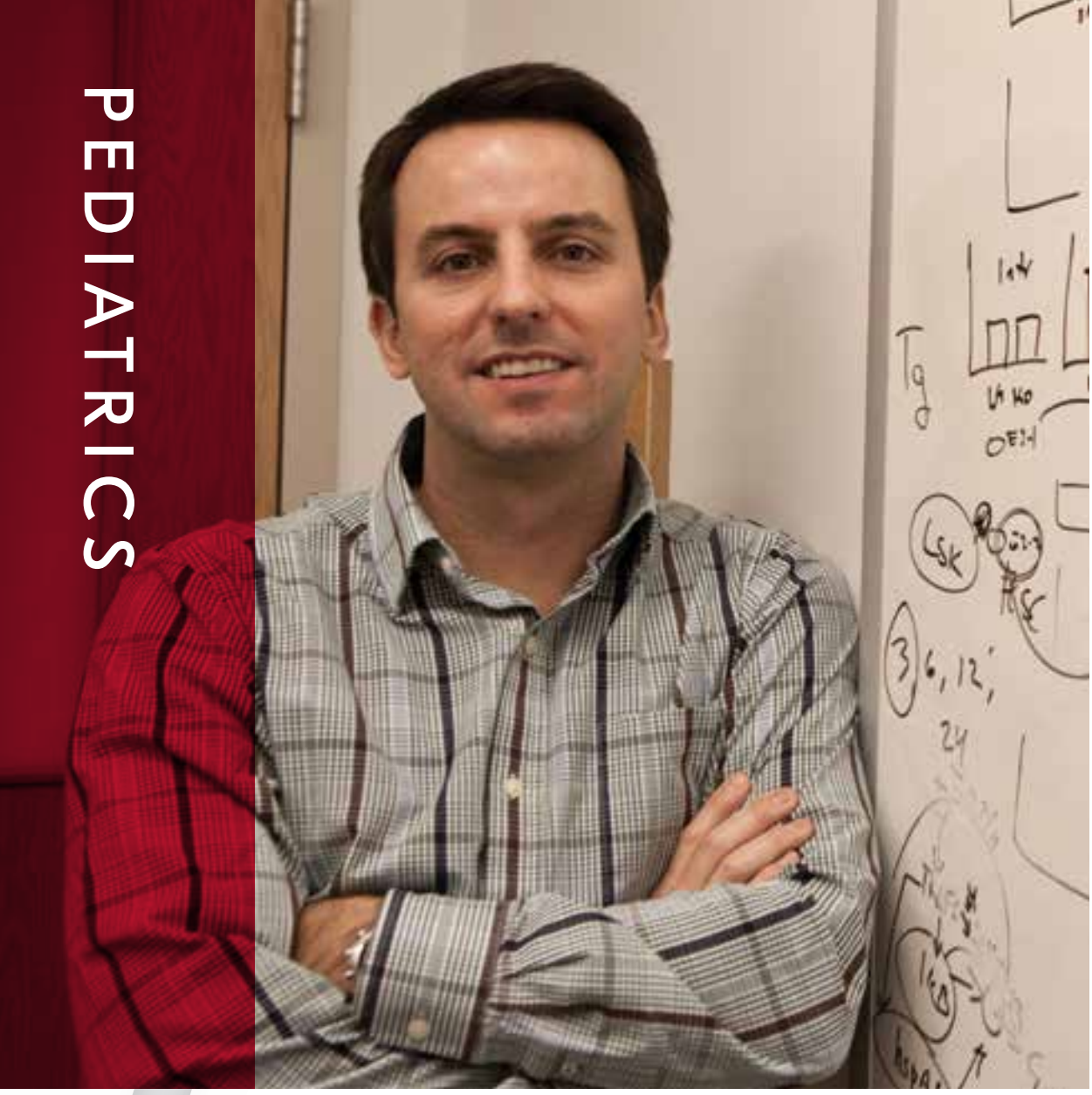
Potential impact of this work

Therapeutic angiogenesis has emerged as a promising strategy to regenerate the damaged blood vessels that result from ischemic diseases such as myocardial infarction (MI). However, the functional integration of implanted endothelial cells (ECs) in an infarcted heart remains challenging. We developed an EC generation approach by inhibiting microRNA-495 (miR-495) in human-induced pluripotent stem cells (hiPSCs) and assessed the angiogenic potential for MI treatment.

This research has significance across a wide spectrum of disciplines in both basic heart developmental biology and cell-based regenerative medicine. Our approach holds further promise for the emerging field of personalized medicine because the ability to derive patient-specific stem cells potentially avoids the common pitfalls of immunorejection and tumor formation.

FY2018 research goals

A number of major technical hurdles must be overcome before these regenerative strategies can transition from a basic science laboratory into a clinical research setting. Although we have established the feasibility of several techniques in our preliminary studies, we look forward to applying new gene editing techniques like CRISPR to further explore and optimize the approaches.



Daniel Starczynowski, PhD

Professor

Co-Leader, Hematologic Malignancies Program

Departmental Research Details

Research faculty: **992**
New awards: **1**
Total research holdings: **$218,957,457^**
Departmental publications: **2000+**
Research fellows: **177**

^ Funds flow through Cincinnati Children's

Primary focus of your research

The genetic, molecular, and cellular underpinnings of myelodysplastic syndromes (MDS).

There is an emphasis on the role of chronic activation of immune-related signaling. Our long-term goal is to use the knowledge gained by our basic research to develop novel therapeutic modalities for the treatment of MDS and acute myeloid leukemia.

FY2017 research highlights

Chronic innate immune pathway activation via Toll-like receptors (TLR) impairs hematopoiesis and contributes to premalignant conditions, such as MDS, for which the cellular and molecular basis is unknown. Multiple independent genetic mechanisms contribute to TLR activation in MDS hematopoietic cells, which converge on the central mediator of TLR signaling, TRAF6, a ubiquitin ligase. We unexpectedly identified a novel function of TRAF6 in MDS. Although TRAF6 normally functions as an immune sensor of pathogens, we found that TRAF6 also impairs blood cell formation and drives the onset of MDS through regulation of RNA splicing. As such, our findings not only reveal novel mechanisms underlying the pathogenesis of MDS, but also provide fundamental insights into how our immune system functions by uncovering a mechanism linking immune signaling and control of RNA processing through ubiquitin modification of RNA processing factors by TRAF6.

Most significant FY2017 publication

Fang J, Bolanos LC, Choi K, Liu X, Christie S, Akunuru S, Kumar R, Wang D, Chen X, Greis KD, Stoilov P, Filippi MD, Maciejewski JP, Garcia-Manero G, Weirauch MT, Salomonis N, Geiger H, Zheng Y, Starczynowski DT. Ubiquitination of hnRNPA1 by TRAF6 Links Chronic Innate Immune Signaling With Myelodysplasia. Nature Immunology. 2017 Feb;18(2):236-245.

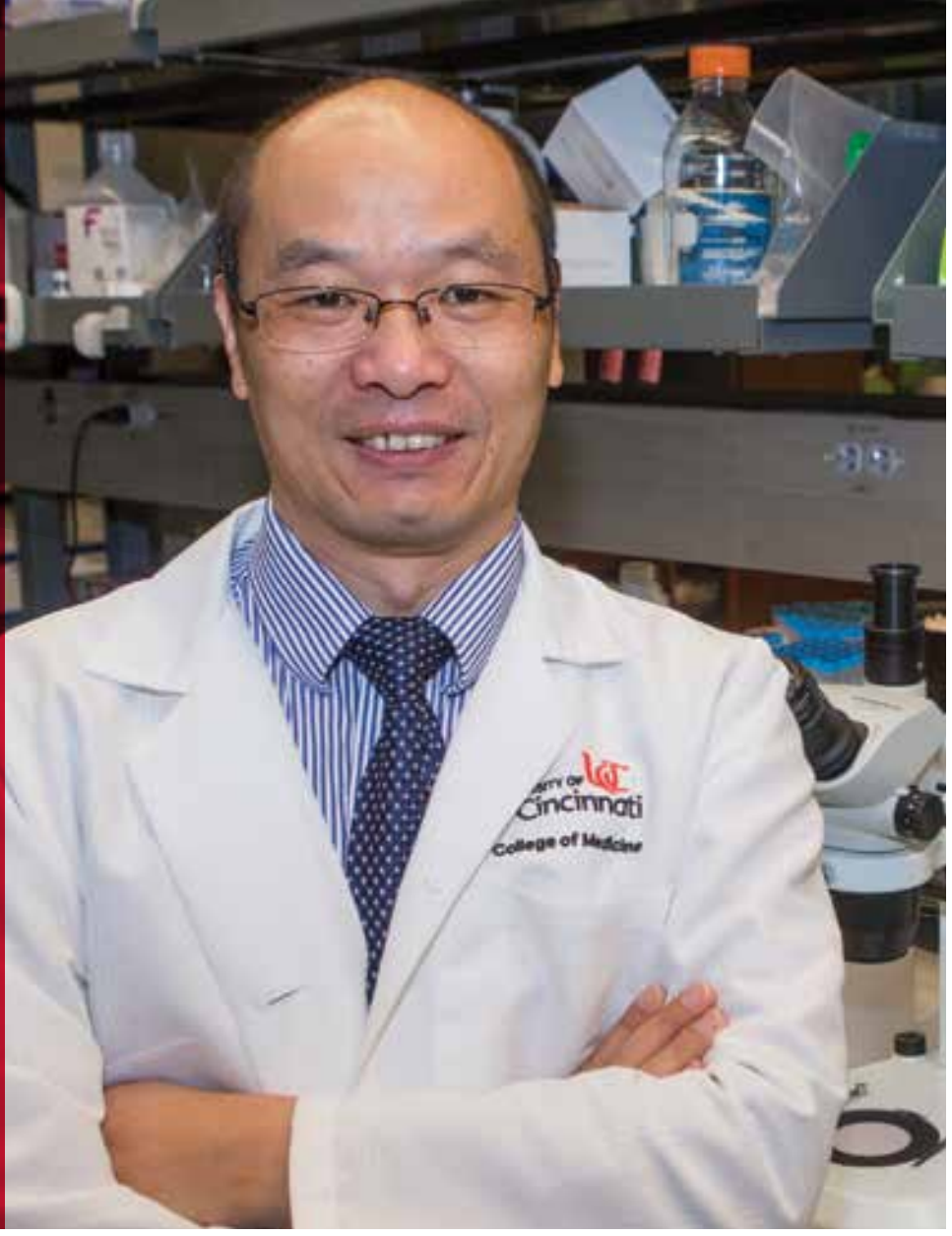
Potential impact of this work

Based on our findings on TRAF6, we anticipate that a number of therapeutic approaches can be tested and directed against TRAF6 and other related proteins responsible for MDS and acute myeloid leukemia.

FY2018 research goals

Our team has taken on bold ideas and concepts over the last few years addressing some of the most pressing questions in the biology and treatment of MDS. We hope to publish some of our findings revealing novel insights underlying the pathogenesis of MDS, but also unique therapeutic targets.

PHARMACOLOGY AND SYSTEMS PHYSIOLOGY



Guo-Chang Fan, PhD

Associate Professor

Departmental Research Details

Research faculty: **11**
New awards: **4**
Total research holdings: **$5,563,834**
Departmental publications: **66**
Research fellows: **6**

Primary focus of your research

To delineate the regulatory mechanisms underlying cardio-protection and cardiac injury upon stress/disease conditions.

My research primarily focuses on miRNAs, exosomes and endosomal recycling in cardiac remodeling upon stress/disease conditions. We have identified several miRNAs that are either beneficial (i.e., miR-494 and miR-223) or detrimental (i.e., miR-320) during stress-induced cardiac remodeling. We also have elucidated that exosomes released by disease conditions could spread "harmful" messages to neighboring cells; whereas exosomes released by healthy normal cells are critical to maintaining local homeostasis. Our studies are expected to provide novel insights for the treatment of cardiovascular disease.

FY2017 research highlights

A highlight of our research efforts is the identification of a novel mechanism associated with diabetes-induced cardiovascular disorder. For the first time, we observed that diabetic myocyte-derived exosomes have a negative impact on cardiac angiogenesis. This is in marked contrast to exosomes obtained from healthy myocytes, which have positive effects. Of interest, such diabetic exosomes contain higher levels of miR-320 and lower levels of Hsp20 than non-diabetic ones. Furthermore, we discovered that Hsp20, a chaperone protein from the HSP family that plays an important role in cellular intrinsic defense mechanisms, may enhance and reprogram the contents of exosomes in cardiac myocytes and consequently, make "bad" exosomes become "good" ones.

Most significant FY2017 publication

Wang X, Gu H, Huang W, Qin D, Yang L, Peng J, Li Y, Wang Y, Peng T, Fan GC. Hsp20-mediated Activation of Exosome Biogenesis in Cardiomyocytes Improves Cardiac Function and Angiogenesis in Diabetic Mice. Diabetes. 2016 Oct, 65(10):3111-28.

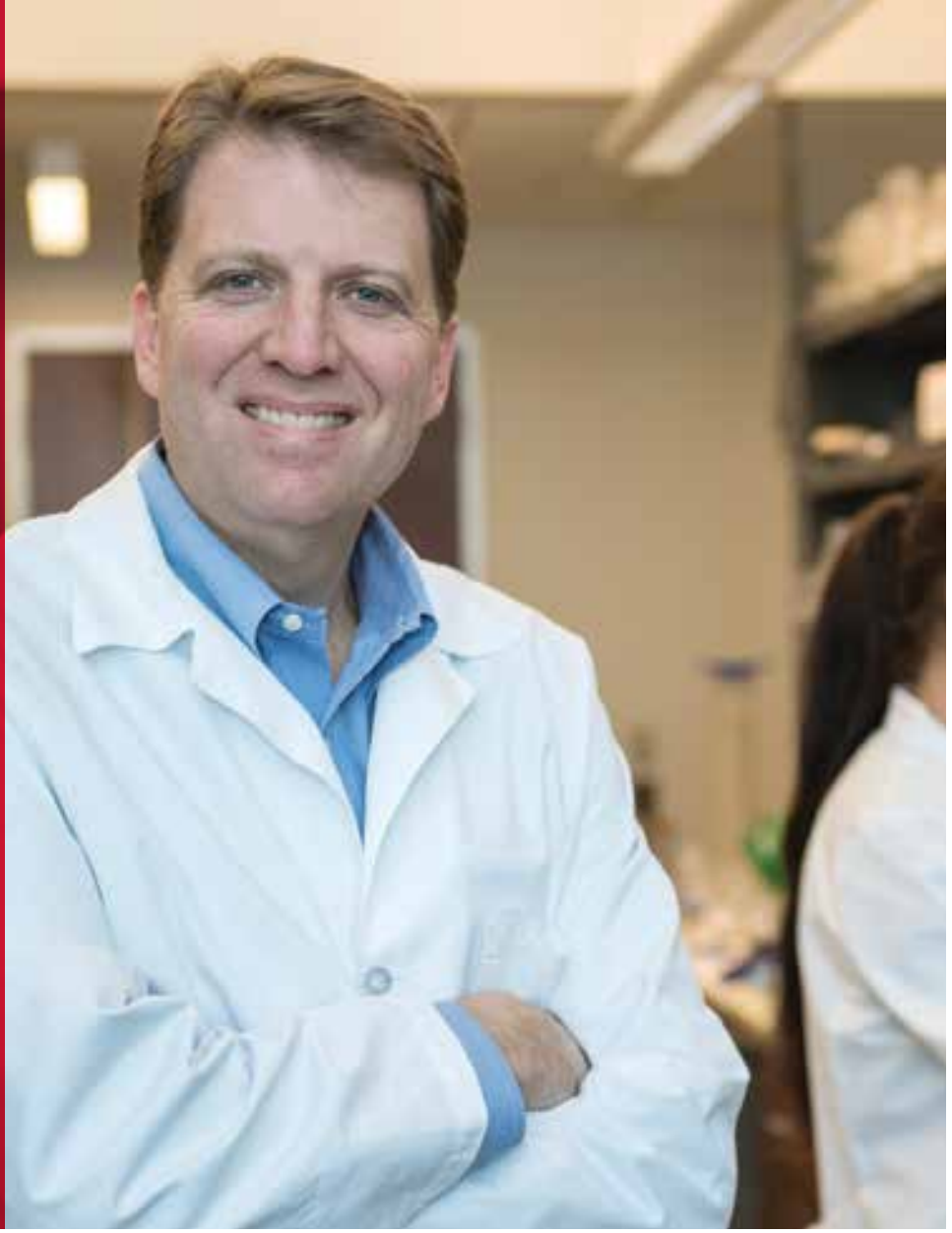
Potential impact of this work

This study provides novel insight that cardiac-specific overexpression of Hsp20 remarkably attenuated diabetes-induced cardiac dysfunction and adverse remodeling via modulating the cardiomyocyte exosome secretion. Our results add to the current understanding of the exosome-mediated microcommunication mechanisms in the setting of diabetic cardiomyopathy. Although this is a valuable proof-of-concept study using a mouse model, it will be significant to determine whether pathophysiological remodeling under diabetic cardiomyopathy in human hearts is regulated by similar mechanisms and whether Hsp20-mediated reprogramming of the myocardial exosomes can provide a novel platform for therapeutic strategies.

FY2018 research goals

During the exosome study, we unexpectedly observed that Tsg101, an upstream endosomal membrane transport protein known to promote the exosome biogenesis pathway, could regulate endosomal recycling of membrane receptors. At present, we have generated Tsg101 cardiac-specific overexpression and knockout mouse models. Using these mouse models, we interestingly observed that Tsg101-overexpressing hearts exhibited physiological cardiac hypertrophy. Currently, we are investigating which membrane receptors are modulated by Tsg101 in cardiomyocytes and its underlying mechanisms.

PSYCHIATRY AND BEHAVIORAL NEUROSCIENCE



Robert McCullumsmith, MD, PhD

Professor

Departmental Research Details

Research faculty: **72**
New awards: **13**
Total research holdings: **$7,383,021**
Departmental publications: **144**
Research fellows: **12**

Primary focus of your research

Understanding the pathophysiology of severe mental illnesses such as schizophrenia.

As the director of the Cognitive Disorders Research Laboratory, I am interested in asking and answering the largest possible questions in translational neuroscience research. We also work with several animal models of human diseases, including traumatic brain injury.

FY2017 research highlights

The highlight of 2017 is work that tested the effects of a repurposed Food and Drug Administration-approved drug (pioglitazone) on cognition in two different models of chronic cognitive deficits. The initial data are promising for this compound, which was identified based on bioinformatics and confirmation studies performed in our laboratory.

Most significant FY2017 publication

McGuire JL, Depasquale EA, Funk AJ, O'Donnovan SM, Hasselfeld K, Marwaha S, Hammond JH, Hartounian V, Meador-Woodruff JH, Meller J, McCullumsmith RE. Abnormalities of Signal Transduction Networks in Chronic Schizophrenia. NPJ Schizophr. 2017 Sep 12;3(1):30.

Potential impact of this work

Based on a novel application of a kinome array platform, this groundbreaking study involves identification of perturbed signaling networks in the anterior cingulate cortex in schizophrenia. This brain region is involved in decision-making and other core cognitive functions. Identification of "nodes" in these networks may permit development of precognitive therapies for this difficult to treat syndrome.

FY2018 research goals

We are moving forward with a large scale proteomics study of excitatory synapses in schizophrenia, as well as extending our kinome studies to the cellular level. These exciting studies utilize cutting-edge methodologies and will provide rich datasets that will provide molecular "signatures" that will be used to interrogate perturbagen (i.e., drug) databases to identify novel treatments for cognitive dysfunction in severe mental illness.

RADIATION ONCOLOGY

Ralph Vatner, MD, PhD

Assistant Professor

Departmental Research Details

Research faculty: **7**
New awards: **0**
Total research holdings: **0**
Departmental publications: **17**
Research fellows: **0**

Primary focus of your research

The effect of radiation therapy on the immune response to cancer.

FY2017 research highlights

This past year has been an exciting time for both my basic/translational and clinical research efforts. In September 2016 I joined the faculty of the Department of Radiation Oncology. In addition to my clinical work using proton and photon radiation for the treatment of pediatric cancers, I am developing a laboratory to study how proton and photon radiotherapy can modify the immune response to cancer and how these treatments might promote systemic tumor control. This past year I began to characterize the immune response to a pediatric sarcoma model in collaboration with Edith Janssen, PhD, UC associate professor of pediatrics at Cincinnati Children's. I am also collaborating with Brian Turpin, DO, assistant professor of pediatrics at UC and Cincinnati Children's, to initiate the first clinical trial combining immune checkpoint inhibition with immunogenic doses of radiation therapy for the treatment of children and young adults with metastatic and recurrent solid tumors.

Most significant FY2017 publication

Vatner RE, Janssen EM, STING, DCs and the Link Between Innate and Adaptive Tumor Immunity. Mol Imminol. 2017 Dec 20. pii: 50161-5890 (17) 30594-1.

Potential impact of this work

Our immune systems have the ability to selectively target and kill cancer cells that arise in our bodies, and cancer only becomes clinically detectable after they evade the immune system. One of the more exciting recent developments in oncology has been the success of immunotherapy that boosts the immune system's response to cancer, however, these treatments currently only benefit a minority of patients. Radiation directed at a tumor can act as a cancer vaccine by killing cancer cells in a way that teaches the immune system how to target the cancer. This research may help us to understand how to increase the efficacy of immunotherapy and improve the outcome for children and adults with cancer.

FY2018 research goals

Cincinnati Children's and UC Health have collaborated to build a state-of-the-art Proton Therapy Center with a dedicated research facility. I look forward to collecting data comparing the immune effects of proton and photon radiation, which will form the basis for research grant proposals in the coming year. I also hope to open our clinical trial combining radiotherapy with immunotherapy for the treatment of children and young adults with metastatic and recurrent solid tumors.

RADIOLOGY

Su-Ju Lee, MD

Associate Professor

Departmental Research Details

Research faculty: **2**
New awards: **0**
Total research holdings: **$7,829**
Departmental publications: **66**
Research fellows: **0**

Primary focus of your research

Topics on breast imaging that have significant impact on patient care.

FY2017 research highlights

I published a book chapter on "MRI and Preoperative Staging in Women Newly Diagnosed With Breast Cancer" and a series of five articles as lead author or co-author in the Journal of the American College of Radiology (ACR) concerning the appropriateness criteria of various breast imaging modalities in the evaluation of patients with specific clinical presentation, such as nipple discharge, palpable breast mass, workup and surveillance of stage 1 breast cancer, monitoring response to neoadjuvant systemic therapy for breast cancer and focal breast pain.

I am the lead author of "ACR Practice Parameter for the Performance of Stereotactic-Guided Breast Interventional Procedures" and co-author of three other ACR practice parameters for the performance of MRI-guided breast interventional procedures, ultrasound-guided percutaneous breast interventional procedures and breast ultrasound examinations.

I am the co-lead author of an invited paper titled "Multimodality Imaging of Fat Necrosis of the Breast" to be published by Contemporary Diagnostic Radiology. I co-authored an article titled "Idiopathic Granulomatous Mastitis: A Diagnostic and Therapeutic Challenge" accepted for publication by the American Journal of Surgery.

I also presented an exhibit titled "Multifaceted Diagnostic Role of Tomosynthesis" at the American Roentgen Ray Society 2017 annual meeting.

Most significant FY2017 publication

Lee SJ, Trikha S, Moy L, Baron P, DiFlorio RM, Green ED, Heller SL, Holbrook AI, Lewin AA, Lourenco AP, Niell BL, Slanetz PJ, Stuckey AR, Vincoff NS, Weinstein S, Yepes M, Newell MS. ACR Appropriateness Criteria® Evaluation of Nipple Discharge. J Am Coll Radiol 2017; 14(5): S138-S153.

Potential impact of this work

I led the effort of the ACR Appropriateness Criteria Committee in developing this criteria to educate referring physicians and radiologists on the appropriate use of imaging studies for their patients presenting with nipple discharge. Appropriate use of imaging studies are critical in optimal patient care and conservation of health care resources. This, and several other topics that I co-authored, will be used in a Clinical Decision Support system that will be mandated by the U.S. Health and Human Services to ensure appropriate use of imaging studies.

FY2018 research goals

I am investigating asymmetric ductal ectasia as an often overlooked sign of breast malignancy. I also plan to begin a feasibility study on whether the order of post-biopsy mammogram views obtained after a breast biopsy has an effect on the occurrence and frequency of biopsy marker migration.

Syed Ahmad, MD

Professor

Chief, Section of Surgical Oncology

Departmental Research Details

Research faculty: **34**
New awards: **26**
Total research holdings: **$8,181,246**
Departmental publications: **313**
Research fellows: **1**

Primary focus of your research

Clinical and translational pancreas cancer research.

On a national level, I head two clinical trials evaluating treatment options for resectable and borderline resectable pancreas cancer. Both of these studies have been endorsed by the National Cancer Institute (NCI) and other cooperative groups and are therefore considered Intergroup Studies. These are the only two national clinical trials available for surgically resectable pancreas cancer patients. I am also closely working with Vladimir Bogdanov, PhD, UC associate professor of internal medicine, evaluating the role of alternatively spliced tissue factors (asTF) as they relate to the metastatic ability of pancreas cancer. We were recently awarded a national Pancreatic Cancer Action Network (PanCan) grant to evaluate an antibody against asTF that we developed in a phase 2 clinical trial that will be opened at UC during the next year. Finally, I have established the Central Pancreas Consortium, a consortium of eight academic institutions, and together we conduct various clinical research projects.

FY2017 research highlights

I served as the national principal investigator on two Intergroup clinical trials. The first is SWOG 1505 FOLFIRINOX Versus Gemcitabine/nab-Paclitaxel as Neoadjuvant Therapy for Resectable Pancreatic Adenocarcinoma: A Randomized Phase 2 Study. This study will determine the value of newer multiagent chemotherapy in patients with pancreas cancer. These newer chemotherapies have not been evaluated in these patients. This study also establishes a newer paradigm of giving chemotherapy before and after surgery. The second is Alliance 021501 Preoperative Extended Chemotherapy Versus Chemotherapy Plus Hypofractionated Radiation Therapy for Borderline Resectable Adenocarcinoma of the Head of the Pancreas. This study evaluates whether radiation therapy is necessary in patients with locally advanced pancreas cancer.

Most significant FY2017 publication

Wilson GC, Maithel SK, Bentrem D, Abbott DE, Weber S, Cho C, Martin RC, Scoggins CR, Kim HJ, Merchant NB, Kooby DA, Edwards MJ, Ahmad SA. Are the Current Guidelines for the Surgical Management of Intraductal Papillary Mucinous Neoplasms of the Pancreas Adequate? A Multi-Institutional Study. J Am Coll Surg. 2017 Apr;224(4):461-469.

Potential impact of this work

Currently, the management of pancreas cancer requires a multimodality approach. The exact types of chemotherapy and sequencing of the different treatment regimen remains controversial. The SWOG 1505 and Alliance 021501 clinical trials address the different points of controversy. These studies will address which chemotherapy should be utilized, when they should be given with respect to surgery and if radiation needs to be utilized as part of the treatment schema. These studies have the potential to change the standard of care with respect to how patients with pancreas cancer are managed. These are the only two NCI-sponsored studies opened nationally, enrolling patients with resectable pancreas tumors.

FY2018 research goals

We hope to complete the SWOG 1505 and Alliance 0215011 studies and conduct the phase 2 study evaluating the role of asTF blockade in patients with advanced pancreas cancer. Additionally, we hope to establish with the laboratory of Yana Zavros, PhD, UC professor in the Department of Genetics, Biochemistry and Microbiology, an infrastructure at UC that is able to grow tumor organoids as a way to determine chemotherapy sensitivity.

Research Recognition 2017

College of Medicine

Research Awards 2017

CLINICAL TRIALIST OF THE YEAR

The Clinical Trialist of the Year award was created to acknowledge broad and sustained efforts to bring the most advanced care opportunities to patients through industry-funded clinical trials. The award is made to the investigator with the greatest revenue from industry-funded clinical trials during the year. This year's recipient is John Morris, MD, Department of Internal Medicine, with FY2017 revenue of $1,020,806.

John Morris, MD

Professor
Co-Director, Comprehensive Lung Cancer Center
Associate Director, UCCI Translational Research
Director, Experimental Therapeutics
Department of Internal Medicine, Division of Hematology and Oncology

Dr. Morris' efforts focus on early stage clinical trials of new anticancer agents. He directs the Phase 1/Experimental Therapeutics Program for the Division of Hematology and Oncology. Phase 1 trials are the early stage testing of new drugs or drug combinations in patients with advanced cancer. The goal of these trials is to determine a drug's safety, its side effects, the maximum tolerated dose of a new, often untested drug in patients, and its activity against the patient's cancer. In recent years, there have been numerous advances in the treatment of cancer that have greatly impacted patients' lives. The early phase testing of some of these drugs was carried out in a novel program at the University of Cincinnati (UC). Some studies have been first-in-human testing or a new agent as exemplified by the BQX-350 trial. BQX-350 is a new drug based on developments at UC by Xiaoyang Qi, PhD, that combines saponin C, a natural glycoside that activates cell death pathways and DOPS, a lipid that forms nanovesicles with the saponin C and targets saponin to tumor cells and blood vessels that feed tumors. The BQX-350 trial, sponsored by Bexion Pharmaceuticals and carried out at UC and three other cancer centers nationally, successfully completed patient safety testing in under a year and is now being expanded. Crucial to this was the rapid recruitment of patient volunteers at UC. Other early phase clinical trials carried out in the UC Phase 1/Experimental Therapeutics Program include testing of an oral form of 5-azacytidine for the treatment of myelodysplasia and acute leukemias; a dual mTOR inhibitor, BEZ235 in combination with everolimus, another mTOR inhibitor for treatment of refractory solid tumors; novel immuno-oncology drugs and vaccines that stimulate the immune system to attack cancers; and novel targeted agents, among others. Dr. Morris directs the only formal Phase 1/Experimental Therapeutics Program in the region offering new, novel and state of the art experimental drugs to Tristate residents. His personal research interests are development of cancer vaccines and an immunostimulatory cytokine—interleukin-15—for the treatment of cancer.

HEALTH RESEARCH RISING STAR AWARD

The Health Research Rising Star Award recognizes an instructor or assistant professor who demonstrates outstanding research accomplishments and impact at the early career stage. The nominee is well above the career benchmarks expected among peers.

Michael Tranter, PhD

Assistant Professor
Department of Internal Medicine
Division of Cardiovascular Health and Diseases

Dr. Tranter completed his PhD in Molecular, Cellular and Biochemical Pharmacology at the University of Cincinnati in 2010. He subsequently undertook a two-year postdoctoral fellowship in the Department of Pharmacology and Cell Biophysics at the UC College of Medicine and, based on his meticulous work, academic productivity and well-recognized scholarly potential, was invited to join the Division of Cardiovascular Health and Disease faculty in 2012. The primary goal of Dr. Tranter's research program is to determine the mechanistic role of Human Antigen R (HuR) during the development and progression of pathological cardiac hypertrophy. Since joining the faculty, Dr. Tranter has been highly productive with 10 publications (four senior-authored) in high-tiered journals that include the Journal of Cellular Signaling, the American Journal of Physiology, the Journal of Cardiovascular Pathology and the Journal of Molecular and Cellular Cardiology. Dr. Tranter has an outstanding record of research funding and is clearly on a rapid trajectory toward success as an independent investigator. A series of intramural grants paved the way for subsequent extramural grant funding. The intramural grants included: a UC Center for Clinical and Translational Science and Training Just-in-Time Core grant, UC Provost Pilot grant, a Rehn Family Research Foundation Award, a University Research Council Interdisciplinary Faculty Research grant and a UC Heart, Lung and Vascular Institute Near-Horizons grant award. In the past year, Dr. Tranter received an American Heart Association Scientist Development grant, an NIH-NCAI sub-award to potentially commercialize a bioassay for detecting RNA-protein binding, and an NIH-NHLBI R01 to study HuR as a novel mediator of cardiac hypertrophy. Dr. Tranter's work has garnered considerable recognition within the field. He has been invited to give oral presentations at a number of highly regarded academic medical centers and institutions across the country, including Johns Hopkins, UC, Loyola University and Northern Kentucky University. His presentations have focused on micro RNAs, cardiac preconditioning, cardioprotective gene expression, HuR-mediated regulation of beta-1 adrenergic receptors in cardiac hypertrophy and activation of HuR in the pathogenesis of cardiac fibrosis and pathological remodeling. He has presented 14 abstracts at national meetings, including the American Heart Association, Experimental Biology, the American Society of Cell Biology annual meeting and the International Society for Heart Research.

RESEARCH SERVICE AWARDS

The Research Service Award recognizes faculty who have committed their time and expertise to improving the quality and rigor of UC College of Medicine research. Award recipients have demonstrated their exceptional service to the College of Medicine.

During this past fiscal year, we honored two faculty members with the Research Service Award. The recipients are: Ken Greis, PhD, Department of Cancer Biology, nominated by Jun-Lin Guan, PhD; and Jerry Lingrel, PhD, Department of Molecular Genetics, Biochemistry and Microbiology, nominated by Michael Lieberman, PhD.

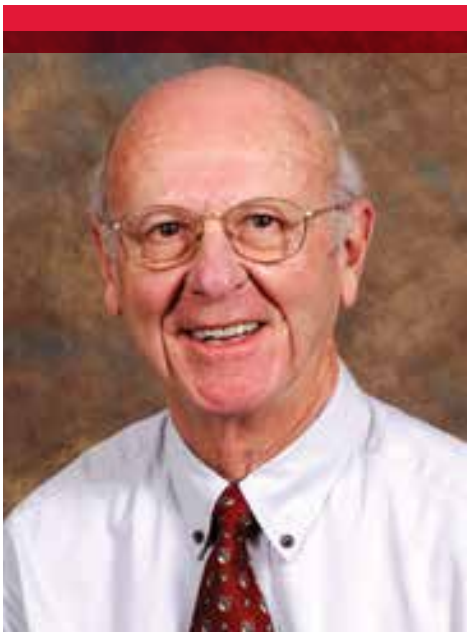
Ken Greis, PhD

Associate Dean for Research Core Facilities
Director, Proteomics Laboratory
Professor
Department of Cancer and Cell Biology

Dr. Greis is well known across the College of Medicine. His impact is well documented with 14 published reports and a patent just since 2015. In addition, Dr. Greis has also assumed an oversight role within the College's Office of Research for all cores. He has been instrumental in developing and integrating a variety of programs to both enhance the core capabilities and build the research infrastructure in the College.

In 2012, the Graduate Program in Cancer and Cell Biology (CCB) was rated as needing to be reorganized or phased out by the provost. At that time, Dr. Greis agreed to work to transform the program into a top-rated training program. Following a complete review for the Ohio Board of Regents last year, the CCB program was rated as "Outstanding." The report highlighted the outstanding program leadership, increased student diversity (16 percent vs 0 percent in 2012), and the student-centric emphasis of the program on career development. Much of this success is due to Dr. Greis' leadership in transforming and building the program with an expectation of research excellence such that eight of 16 eligible students are supported either by training grants or individual fellowships, with two others currently under review.

Dr. Greis also takes an active role in both student and faculty development. This has included completing mentoring training and now acting as a facilitator in mentoring workshops for faculty. In addition, Dr. Greis shares his training and experience as a facilitator for case studies in Ethics in Research, and in mock interviews and professional networking for the Careers in Biomedical Research class. Dr. Greis also has served the College in several other capacities this past year. These include co-chairing the committee charged with "modernizing" the College's ARPT guidelines, actively participating on the College process improvement team, leading a subcommittee for the organization and planning of Research Week, preparing recommendations for the core facilities needs for the Cincinnati Cancer Center/UC Cancer Institute retreat, and reviewing proposals submitted to the College's Office of Research and the UC vice president for research.



Jerry B. Lingrel, PhD

Professor

Department of Molecular Genetics, Biochemistry and Microbiology

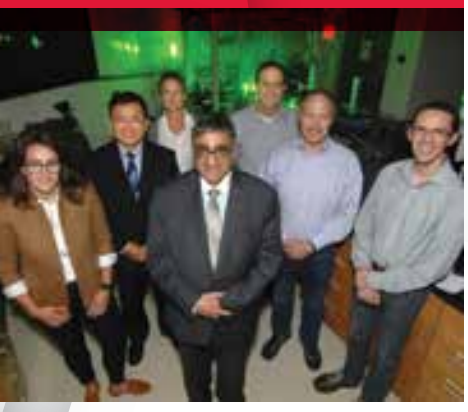
Dr. Lingrel has served the College of Medicine for over 50 years, beginning his faculty career in 1962 as an assistant professor of biological chemistry. Within 10 years, he had risen to the rank of professor. Dr. Lingrel has had an extraordinary record of continuous National Institutes of Health funding, dating from the early 1960s. Over the years, Dr. Lingrel has served as department chair of three departments on four different occasions.

In 1981, he agreed to chair the Department of Microbiology following a failed search for a new chair. He rapidly recruited young faculty, all of whom have had outstanding careers. In 1988, following the retirement of the chair of Biological Chemistry, he agreed to become chair of a combined department giving birth to the Department of Molecular Genetics, Biochemistry and Microbiology. Dr. Lingrel led the department for more than 20 years and guided it to national prominence. When he stepped down, the dean asked him to serve as interim chair of the Cancer Biology as that department searched for a permanent chair. He did so from 2010 to 2013 and revitalized a department once in disarray. He then returned to Molecular Genetics as a faculty member, but was soon again called upon by the dean to lead the department as interim chair which he did in admirable fashion.

His leadership raised the stature of his departments and increased nationally competitive grant holdings to a level comparable with the best departments in the country. He also led by example, usually being the individual with the largest grant holdings. Most importantly, his faculty have had outstanding academic careers. Three have been elected to the National Academy of Science and others have become leading scientists and research administrators. Dr. Lingrel has chaired numerous chair review committees, has served as chair of the space committee and has become an expert in conflict of interest as chair of both the College and University conflict of interest committees. One of Dr. Lingrel's attributes that sets him apart has been his foresight and vision for the departments and the College. That vision was evident when he recruited Tom Doetschman, PhD, to bring the technology for genetically engineering mice to mimic human disease to Cincinnati. This recruitment put the College at the very forefront of the biomedical arena and raised our visibility and prominence. He followed that coup by organizing several of our faculty to successfully compete for a major NIH-funded "Program of Excellence in Molecular Biology of the Heart and Lung," which further enhanced the visibility of our College. The establishment of a world-class Nuclear Magnetic Resonance facility also speaks to Dr. Lingrel's research vision for the department and College. Dr. Lingrel still works with medical students to increase their research opportunities within the College. These students will become the translational scientists of the future.

TEAM SCIENCE AWARD

The Team Science Award recognizes a team of College of Medicine faculty members who have successfully created and sustained a multidisciplinary research team that significantly contributes to the mission of the College.



Laryngeal Biomechanics Lab

Nominated by David Steward, MD, Director of Head and Neck Division, Department of Otolaryngology-Head and Neck Surgery

Members of this team include:

Sid Khosla, MD, Department of Otolaryngology-Head and Neck Surgery

Ephraim Gutmark, PhD, DSc Department of Aerospace Engineering, College of Engineering and Applied Science

Liran Oren, PhD, Department of Otolaryngology-Head and Neck Surgery

Jun Ying, PhD, Department of Environmental Health

Thematic Focus of the Team

The focus and uniqueness of this research group is the use of advanced modeling and simulation techniques (developed for aerospace engineering) to study mechanisms in airway and voice disorders.

Evidence of Team Successes

The success of any research program in academia is measured by both its level of extramural funding and volume of publications. First, the team was awarded several important grants: two R01 grants to determine how laryngeal diseases affect voice (2007–2018, $9 million, PI-Khosla); an R01 grant to study flow mechanisms during obstructive sleep apnea in children with Down syndrome (2010–2015, $4.5 million, PI-Gutmark); a K25 grant to study sound mechanisms in speech disorder caused by velopharyngeal insufficiency (2016–2020, $1.2 million, PI-Oren); and a foundation grant to develop computational tools to facilitate patient specific treatment of cardiovascular diseases (2015–2016, $80,000, PI-Gutmark). Second, they published more than 30 publications in scholarly journals since their collaboration started. Yearly, team members have also participated in an average of five conferences and one to two invited seminars.

Additional Attributes

Since the start of this multidisciplinary effort in 2006, the group has expanded across the University of Cincinnati campuses to now include collaborations with the College-Conservatory of Music, Department of Communication Sciences and Disorders in the College of Allied Health Sciences, and the departments of Otolaryngology, Pulmonology, Radiology, Anesthesiology and Endocrinology at Cincinnati Children's. They are now identifying new research projects and funding venues (e.g., working with the Department of Radiology on the modeling of brain aneurysms). Lastly, this team is also active with medical device innovation. They developed a new airflow technology with the potential to improve treatment of patients with obstructive sleep apnea or as a new way to ventilate neonates. Their technology was patented by UC in 2015.

David Askew, PhD

Professor, Department of Pathology and Laboratory Medicine

David Askew, PhD, received a National Institute of Allergy and Infectious Diseases RO1, "ER Stress and Calcium in Host Adaptation of A. Fumigatus." The award runs from Sept. 27, 2016 to Aug. 31, 2021 with total costs of $2,003,271. This study will establish how the UPR links to Ca2+ signaling during ER stress and the relationship it has to calcineurin activation and virulence and identify the mechanism by which cells of the innate immune system trigger Ca2+ influx into the fungus and elucidate the impact of these events on fungal survival. This study will use an unbiased approach to delineate the genome-wide transcriptional and translational responses to neutrophil attack, and their dependency upon Ca2+ signaling. The outcome of this study will reveal new mechanisms of host adaptation by this fungus, which will pave the way for future therapeutic strategies to augment host clearance mechanisms.

David Askew, PhD

Professor, Department of Pathology and Laboratory Medicine

David Askew, PhD, received a Cystic Fibrosis Foundation Award, "Neutrophils and ER Stress in Host Adaptation by Aspergillus Fumigatus." The award runs from Sept. 1, 2016 to Aug. 31, 2017 with total costs of $125,000. Research shows that AF responds to encounters with antifungal drugs or neutrophils by triggering a flood of calcium into the cytoplasm. Since calcium is a potent signaling molecule, researchers hypothesize that the released calcium is used by the fungus to activate protective responses. This research will use genetically modified strains of AF to determine the mechanism involved, with the long-term goal of using that information as a foundation to guide future therapies to clear the fungus from colonized airways.

George Babcock, PhD

Professor Emeritus, Department of Surgery
Section of Plastic, Reconstructive and Hand Surgery/Burn Surgery

George Babcock, PhD, received an Amicrobe, Inc. Award, "Antimicrobial Block Copolypeptides (A-Blocks): Innovative Therapeutics and Prophylacics for Wound Infection." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $517,802. Deep tissue safety studies will be performed by extension of the rat deep tissue (muscle) model to assess tissue biocompatibility and potential systemic changes. These targeted safety studies will add to our growing knowledge of A-Block safety profiles. Effects of high concentration and repeated deep tissue applications will be assessed. Endpoints will include tissue responses (histology) and systemic changes (e.g., fever, acute phase reactions, liver enzymes and coagulation). Separately, researchers will evaluate A-Blocks based on a variety of traditional safety studies, including rabbit dermal irritation, guinea pig sensitization, rat oral safety and murine intraperitoneal injection. The studies will inform product development strategy and timelines. If successful, Amicrobe anticipates accelerated product development for both Amicrobe AB-100L Surgical Hydrogel and Amicrobe AB-100RL Anti-Infective Solution. GLP toxicology and clinical trials would follow immediately.

Mark Baccei, PhD

Associate Professor, Department of Anesthesiology

Mark Baccei, PhD, received a National Institute of Neurological Disorders and Stroke R01, "Identification of Novel Analgesic Targets in Ascending Spinal Projection Neurons." The award runs from June 1, 2017 to May 30, 2019 with total costs of $438,937. The outcome of this research will be the discovery of new, cell type-specific markers of spinal projection neurons and the identification of potential genetic mechanisms by which peripheral injuries can amplify the "gain" of nociceptive transmission in the spinal cord. As a result, this research is significant because it will reveal novel molecular targets which could be manipulated to selectively silence ascending spinal projection neurons after injury, in order to evoke safe and effective analgesia while minimizing undesirable side effects.

Co-investigators:
Temugin Berta, PhD, Department of Anesthesiology
Kim Seroogy, PhD, Department of Neurology and Rehabilitation Medicine

Robert Baughman, MD

Professor, Department of Internal Medicine

Robert Baughman, MD, received a National Heart, Lung and Blood Institute (Sub Award), "Microbial Induction of Sarcoidosis CD4+ T Cell Dysfunction." The award runs from July 1, 2016 to June 30, 2018 with total costs of $111,840. This research rests upon the hypothesis that mycobacterial induction of CD4+ T cell anergy leads to loss of sarcoidosis pulmonary function. Use of antimycobacterial therapy normalizes expression of key mediators of CD4+ T cell function, such as p56Lck, leading to increased IL-2 and IFNy production and restoration of lung function. This multicenter, randomized, double-blind, placebo-controlled Phase 2 investigation explores the effects of CLEAR regimen on subjects with chronic, active pulmonary sarcoidosis.

Richard Branson, MS, RRT

Professor Emeritus, Department of Surgery

Richard Branson, MS, RRT, received an Air Force Research Laboratory Award, "Automated Decision-Assist/Closed Loop Control of Mechanical Ventilation." The award runs from May 23, 2017 to Sept. 22, 2021 with total costs of $2,432,917. Mechanical ventilation is a harbinger of the severity of illness in civilian prehospital and combat casualty care. When applied, mechanical ventilation is routinely conducted under the control of a physician or guided by physician-selected protocol. Autonomous control of mechanical ventilation and oxygenation have been attempted in the intensive care unit with varying levels of success. At present, there are a number of commercially available systems that can control a clinician set minute ventilation VE or facilitate weaning from mechanical ventilation in the ICU. However, none of these systems has been tested in emergency care. Closed loop control of oxygenation has been attempted in neonatal ICU, where both hyperoxemia and hypoxemia have significant consequences. However, there are currently no closed loop oxygen controllers for use during mechanical ventilation which are approved by the Food and Drug Administration. The manual control of Positive End Expiratory Pressure (PEEP) remains a significant controversy in the ICU and to date only decision assist systems for control of PEEP have been studied.

Co-Investigators:
Thomas Blakeman, MSc, RRT, Department of Surgery
Jay Johannigman, MD, Department of Surgery

Richard Branson, MS, RRT
Professor Emeritus, Department of Surgery

Richard Branson, MS, RRT, received an Air Force Research Laboratory Award, "Closed Loop Control Fluid and Ventilation/Oxygenation." The award runs from March 21, 2017 to March 20, 2019 with total costs of $847,625. This study aims to test SOC versus CLC in a model of acute lung injury and hemorrhage, test SOC versus CLC in a model of acute lung injury and burn induced hypovolemia, and development of dynamic indices and stop gates for CLC interactions.

Co-investigators:
Thomas Blakeman, MSc, RRT, Department of Surgery
Jay Johannigman, MD, Department of Surgery

Richard Branson, MS, RRT
Professor Emeritus, Department of Surgery

Richard Branson, MS, RRT, received an Air Force Research Laboratory Award, "Respiratory Mechanics in Traumatic Brain Injury (TBI) – The Effect of Inhaled Nitric Oxide." The award runs from Sept. 19, 2016 to Sept. 18, 2018 with total costs of $509,977. TBI is recognized as the signature injury of the wars in Iraq and Afghanistan. Morbidity and mortality from brain injury represent a significant burden to warfighters, their families and society at large. Preventing secondary brain injuries following the initial insult has become a major initiative for prehospital, emergency and aeromedical care providers.

Richard Branson, MS, RRT
Professor Emeritus, Department of Surgery

Richard Branson, MS, RRT, received an Air Force Research Laboratory Award, "Retrospective Review: Incidence of Airway Injury/Complications as a Consequence of Prolonged Endotracheal Intubation in the Combat Casualty Versus Civilian Trauma Patients with No Altitude Exposure." The award runs from Sept. 19, 2016 to Sept. 18, 2018 with total costs of $388,498. The initiation of an endotracheal tube is often common practice in the critically injured/ill and poses potential hazards related to the management of the cuff pressure, position within the airway, movement during transport and length of time required. Existing literature contends that acute/long-term unintended consequences of intubation include, however are not limited to, direct injury to anatomical structures (oral/nasal cavity, oropharynx, larynx and trachea), laryngotracheal stenosis, tracheoesophageal fistula, tracheomalacia and tracheoinnominate. The incidence/impact of these maladies is relatively unknown within the combat casualty population. It is the intent of this research to determine the rate of occurrence/extent of sequelae in an attempt to better understand the impact of endotracheal intubation in the wounded, as well as, establish mitigating strategies if deemed appropriate.

Richard Branson, MS, RRT

Professor Emeritus, Department of Surgery

Richard Branson, MS, RRT, received an Air Force Research Laboratory Award, "Closed Loop Control of Oxygen Flow During Prehospital Care." The award runs from Aug. 26, 2016 to Aug. 24, 2018 with total costs of $354,518. The FreeO2 device is an innovative system to automate the administration of oxygen, developed by a team of researchers from Laval University, Quebec, Canada. This is a closed loop system for the automated adjustment of the gas flow as a function of pulse oximetry (SpO2), a carbon dioxide signal (EtCO2) and respiratory rate, based on a proportional-integral-derivative controller and the transfer of clinical knowledge with automatic application of rules (30). The theoretical indications are many (emergency, care, home, but also prehospital transport) and there are significant potential benefits for both patients and the health system (treatment according to the standards, limiting side effects of oxygen, reducing costs and processing times, gas consumption reduction and increased vehicle in gas autonomy during prehospital use). The first evaluations of the FreeO2 system among almost 400 subjects are encouraging.

Jennifer Brown, PhD

Associate Professor, Department of Psychiatry and Behavioral Neuroscience

Jennifer Brown, PhD received a Bill & Melinda Gates Foundation Award, "Understanding the Family Planning Needs and Contraceptive Practices of South African Adolescent Girls: A Cultural Consensus Modeling Approach." The award runs from Nov. 1, 2016 to April 30, 2018 with total costs of $100,000. This study will collect rich qualitative and quantitative data regarding culturally relevant factors associated with the contraceptive practices and dual protection use among South African adolescent girls.

Kelly Jo Brunst, PhD

Assistant Professor, Department of Environmental Health

Kelly Jo Brunst, PhD, received a National Institute of Environmental Health Sciences R00, "Mitochondrial Markers of Pollution, Stress and Neurobehavior." The award runs from June 1, 2017 to May 31, 2020 with total costs of $348,249. The goal of this research is to add to the growing research linking urban air pollutants, stress and poor neurodevelopment by identifying novel mitochondrial biomarkers through which in utero exposures may be operating to impact future neurodevelopment. Using state-of-the-art analyses of mitochondrial DNA (mtDNA), this study will be the first to investigate the impact of air pollution and stress on mitochondrial function and whether or not mitochondrial function is an important mechanistic pathway for early neurobehavioral development.

Jose Cancelas, MD, PhD

Director, Hoxworth Blood Center
Professor, Department of Pediatrics

Jose Cancelas, MD, PhD, received a Cerus Corporation Award, "A Prospective, Randomized, *In Vitro* Study of Apheresis Platelet Components in 100 Percent Plasma for Qualification of InterCept Blood System for Platelets." The award runs from Nov. 1, 2016 to Oct. 31, 2017 with total costs of $334,046. The main objective of this study is to evaluate the post-storage (up to five days post-donation) *in vitro* platelet function of apheresis platelets in 100 percent plasma prepared with the INTERCEPT Blood System for Platelets using IBS processing sets manufactured according to the proposed changes to the process and materials (alternate plastics). The intent is to qualify the alternate plastic processing sets for use as part of the IBS Blood System for Platelets.

Jose Cancelas, MD, PhD

Director, Hoxworth Blood Center
Professor, Department of Pediatrics

Jose Cancelas, MD, PhD, received a Department of the Army Medical Research Acquisition Activity Award, "*In Vitro* Comparison of Cryopreserved Platelets to Apheresis Platelets." The award runs from March 1, 2017 to Sept. 30, 2017 with total costs of $203,110.

Jose Cancelas, MD, PhD

Director, Hoxworth Blood Center
Professor, Department of Pediatrics

Jose Cancelas, MD, PhD, received a Cerus Corporation Award, "ATP and P-Selectin Testing for Cerus." The award runs from Dec. 1, 2016 to Dec. 1, 2021 with total costs of $175,000. This study intends to determine how modified pathogen reduction systems can affect the biochemical properties and activation of platelet products destined to human transfusion.

Jose Cancelas, MD, PhD

Director, Hoxworth Blood Center
Professor, Department of Pediatrics

Jose Cancelas, MD, PhD, received a Citra Labs LLC Award, "Evaluation (*in vitro*) of CPD/AS-1 and CP2D/AS-3 Liquid Preserved Red Blood Cells Treated with Rejuvesol Solution, Incubated Using Dry Air, and Washed." The award runs from July 22, 2016 to July 21, 2017 with total costs of $145,010. This study intends to determine how chemical rejuvenation of red blood cells may revert their biochemical, structural, viability and functional damage after long-term storage in current Food and Drug Administration-approved conditions.

Robert Cohen, MD

Professor, Department of Internal Medicine, Division of Endocrinology

Robert Cohen, MD, received a National Institute of Diabetes and Digestive and Kidney Disease Sub-Award, "Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness Study (GRADE) Progress Report - Year 4." The award runs from Aug. 1, 2016 to July 31, 2017 with total costs of $578,318. Investigators will work together in supervising recruitment, interacting with subjects, performing physical exams, directing medication titration, evaluating adverse reactions and reviewing and signing necessary case report forms.

Sian Cotton, PhD

Professor, Department of Family and Community Medicine
Director, Center for Integrative Health and Wellness

Sian Cotton, PhD, received an Interact for Health Award, "UC Center for Integrative Health and Wellness." The award runs from Jan. 1, 2017 to Dec. 31, 2019 with total costs of $350,000. The overall aim of the Student Mindfulness Program at UC is to proactively address mental and emotional health in students with a preventive integrative approach utilizing mind/body skills training in a group setting. This research will create an infrastructure and sustainability for the Student Mindfulness Program so the UC Center for Integrative Health and Wellness can offer mindfulness training to faculty facilitators from across the University, who in turn can reach an increased number of students in all 13 colleges.

Melanie T. Cushion, PhD

Senior Associate Dean for Research
Professor, Department of Internal Medicine, Division of Infectious Diseases

Melanie T. Cushion, PhD, received a National Institute of Allergy and Infectious Diseases (Sub Award), "Development of a New System for Scaled Up Culture and Propagation of *Pneumocystis*." The award runs from Aug. 1, 2016 to July 31, 2017 with total costs of $119,826. The lack of adequate culture methods has also greatly complicated definitive diagnosis of PCP, which is still reliant on microscopic detection of *Pneumocystis* organisms. Microscopic detection does not inform the clinician about the viability of *Pneumocystis* or whether treatment has been effective. Amplification of *P. jirovecii* RNA could determine whether there are live organisms present, but this is a specialized technique that is not widely available in hospitals or clinics. An *in vitro* system for *P. jirovecii* would allow drug susceptibility testing, which is now unavailable but becoming increasingly important, as drug resistance to standard therapies is emerging.

Melanie T. Cushiown, PhD

Senior Associate Dean for Research
Professor, Department of Internal Medicine, Division of Infectious Diseases

Melanie T. Cushion, PhD, received a National Institute of Allergy and Infectious Diseases (Sub Award), "Identification of New Compounds Against Fungal Microbes." The award runs from Aug. 1, 2016 to Nov. 30, 2020 with total costs of $99,815. Researchers design and analyze experiments testing the efficacy of the compounds against *Pneumocystis* in our immunosuppressed mouse model.

Sean Davidson, PhD

Professor, Department of Pathology and Laboratory Medicine

Sean Davidson, PhD, received a National Heart, Lung and Blood Institute (Sub Award), "Multidisciplinary Approaches to HDL Structure, Assembly and Functional Heterogeneity." The award runs from Sept. 15, 2016 to June 30, 2021 with total costs of $3,619,182. This research will magnify our molecular understanding of these enigmatic particles. The structure of apoA-I undoubtedly modulates HDL metabolism, and possibly mediates cardioprotective effects of some HDL subspecies. Thus, a molecular understanding of its structure and its interactions with other proteins, particularly those being explored as drug targets such as LCAT and CETP, is critical for the design of new therapies exploiting reverse cholesterol transport and the anti-inflammatory roles of HDL.

Emily DeFranco, DO

Professor, Department of Obstetrics & Gynecology
Director, Division of Maternal-Fetal Medicine

Emily DeFranco, DO, received a Centers for Disease Control and Prevention (Sub Award), "Enhanced Surveillance for New Vaccine Preventable Diseases." The award runs from Sept. 1, 2016 to Aug. 31, 2017 with total costs of $427,072. The significance of this research is expected to be an improved understanding of the natural history of both respiratory syncytial virus (RSV) and influenza in the first two years of life and the protection offered by maternal antibody via serum and human milk. This contribution is expected to have high public health impact by providing new, important and clinically useful information about protection against these highly prevalent diseases. This information could then be used to develop RSV vaccines and improve influenza vaccines to prevent significant disease in this vulnerable infant population.

Ranjan Deka, PhD

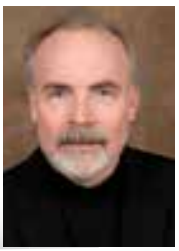
Professor, Department of Environmental Health

Ranjan Deka, PhD, received a National Heart, Lung and Blood Institute R56, "Integrated GWAS and EWAS of Cardiometabolic Traits in an Island Population." The award runs from Sept. 19, 2016 to Aug. 31, 2017 with total costs of $677,923. The project is innovative in its use of a unique population cohort, adjustment of cellular heterogeneity of peripheral blood samples, distinguishing "stable" and "dynamic" epigenetic marks based on a longitudinal design, and it will be among the first large-scale integrative EWAS and GWAS of cardiometabolic traits that will have broader impact on design and conduct of genetic and epigenetic epidemiological studies of complex traits.

Deeptankar DeMazumder, MD, PhD

Assistant Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease

Deeptankar DeMazumder, MD, PhD, received a National Heart, Lung and Blood Institute R00, "Autonomic Remodeling and Modulation Therapy in Heart Failure and Sudden Death." The award runs from Feb. 1, 2017 to Jan. 31, 2020 with total costs of $746,996. This research leverages a novel guinea pig model of hypertrophic heart failure (HF) that recapitulates many features of human non-ischemic dilated HF, including prolonged QT interval and a high incidence of spontaneous arrhythmic sudden cardiac death (SCD). Using this unique model, the principle investigator's novel findings and VNS, a promising new HF therapy, this research will test the hypothesis that time-dependent changes in parasympathetic signaling play a critical role in HF development and SCD incidence and that these are reversed by chronic VNS. The specific aims will explore new fundamental mechanistic information about how and when in the disease process parasympathetic remodeling may be beneficial or pathological, while testing exciting new therapies for HF/SCD. Changes in myocyte properties are manifested in transcriptome and proteome, contributing to the HF/SCD phenotype. Researchers will identify key proteins, pathways and biomarkers modified by chronic VNS using differential transcriptomics and proteomics ("omics"). Echocardiography, continuous ECG and *in vivo* hemodynamic studies will parallel the molecular/cellular studies. In *ex vivo* studies, antibodies and pharmacological agents will be used to test key signaling components.



Kim Dietrich, PhD

Professor, Department of Environmental Health

Kim Dietrich, PhD, received a National Institute of Environmental Health Sciences award, "Molecular Epidemiology in Children's Environmental Health Training Program (MECEH)." The award runs from July 15, 2016 to June 30, 2021 with total costs of $535,986. The Molecular Epidemiology in Children's Environmental Health (MECEH) training Program began July 14th 2001 and is in its training year. MECEH is defined as the use of biological, molecular and biostatistical measures in epidemiological research to determine how environmental exposures impact children's health at the physiologic, behavioral, cellula, and molecular levels. The MECEH's long- term objective is to continue increasing the number of cross-trained epidemiologists, physician epidemiologists, biostatisticians and molecular biologists who investigate high-impact issues related to environmental exposures and complex childhood diseases.

Eric Eisenhauer, MD

Associate Professor, Department of Obstetrics and Gynecology
Director, Division of Gynecologic Oncology and Advanced Pelvic Surgery

Eric Eisenhauer, MD, received a Centers for Disease Control and Prevention (Sub Award), "Ohio Breast and Cervical Cancer Early Detection Project." The award runs from Sept. 1, 2016 to June 29, 2017 with total costs of $171,353. The University of Cincinnati Breast and Cervical Cancer Project (UC/BCCP) staff will actively promote enrollment of eligible women for screening and diagnostic services throughout Hamilton, Butler, Warren, Clermont, Brown, Clinton, Highland and Adams Counties. Using evidence-based policies, the UC/BCCP will follow and promote the United States Preventive Services Task Force guidelines for breast and cervical cancer screening. Working with other contract and noncontract health care providers the UC/BCCP will work to identify ways to impact and improve health systems at the population level.

Carl Fichtenbaum, MD

Professor, Department of Internal Medicine, Division of Infectious Diseases

Carl Fichtenbaum, MD, received a National Institute of Allergy and Infectious Diseases award, "AIDS Clinical Trial Group Competitive Renewal." The award runs from Dec. 1, 2016 to Nov. 30, 2017 with total costs of $374,060. The major goals of this project are to design, conduct and analyze clinical trials to treat HIV disease and to treat/prevent its associated complications.

Carl Fichtenbaum, MD

Professor, Department of Internal Medicine, Division of Infectious Diseases

Carl Fichtenbaum, MD, received a National Institute of Allergy and Infectious Diseases (Sub Award), "Phase 2b/3 Double Blind Safety and Efficacy Study of Injectable Cabotegravir Compared to Daily Oral Tenofovir Disoproxil Fumarate/Emtricitabine (TDF/FTC), For Pre-Exposure Prophylaxis in HIV-Uninfected Cisgender Men and Transgender Women Who Have Sex with Men." The award runs from May 1, 2016 to Nov. 30, 2017 with total costs of $218,000. This study will evaluate the safety and efficacy of the injectable agent cabotegravir (CAB LA) for pre-exposure prophylaxis (PrEP) in HIV-uninfected cisgender men and transgender women who have sex with men (MSM and TGW).

Fred Finkelman, MD

Professor, Department of Internal Medicine, Division of Immunology, Allergy and Rheumatology

Fred Finkelman, MD, received a National Institute of Allergy and Infectious Diseases R01, "Wimpy Antibody Isotypes Protect Against Antibody-Mediated Disease." The award runs from Jan. 25, 2017 to Dec. 31, 2021 with total costs of $1,833,210. This proposal builds on previous studies from the researchers' laboratory that investigate the selective advantage of having IgG isotypes with limited ability to activate inflammatory effector mechanisms ("wimpy isotypes") by testing three hypotheses: 1) short hinge region length decreases the ability of mouse IgG to induce inflammation by limiting immune complex (IC) formation; 2) decreased ability to form ICs similarly limits the ability of human IgG to induce disease; and 3) inflammatory, antibody (Ab)-mediated disease can be inhibited and reversed in mice by an antigen (Ag)-specific IgG isotype that has limited ability to activate effector mechanisms.

Co-investigators:
Marat Khodoun, PhD, Department of Internal Medicine, Division of Immunology, Allergy and Rheumatology

Michael Goodman, MD

Assistant Professor, Department of Surgery

Michael Goodman, MD, received an Air Force Research Laboratory Award, "Making Tactical Practical—Pragmatic Solutions to Preventing Neurologic Effects of Early Aeromedical Evacuation in the Head Injured Patient." The award runs from April 13, 2017 to April 12, 2020 with total costs of $993,065. Traumatic brain injury (TBI) remains a major concern for the U.S. military because of the short-term disability, long-term cognitive and pain symptoms and the potential risk of prolonged neurologic injury. Previous studies have shown that early aeromedical evacuation after TBI can exacerbate the post-injury neuroinflammatory response, contributing to secondary brain injury. Hypoxia alone is known to worsen outcomes following TBI. Additional recent studies have demonstrated that hypobaric exposure after TBI can exacerbate post-injury cognitive deficits, hippocampal neuronal loss and microglial/astrocyte activation. To date, there has been no study, publication or recommendation to address whether pretreatment of the head injured patient prior to exposure to the hypobaric, hypoxic environment of aeromedical evacuation can mitigate the effects of this early post-traumatic environmental exposure. However, several commonly available therapeutics have been shown to prevent worsening neurologic injury after concussive or hypoxic insult to the brain. These drugs, however, have not been specifically applied to the setting of prevention of secondary brain injury from hypoxia.

Co-investigator:
Amy Makley, MD, Department of Surgery

Michael Goodman, MD

Assistant Professor, Department of Surgery

Michael Goodman, MD, received an Air Force Research Laboratory award, "Physiologic Impact of In-Flight Stress Following Traumatic Brain Injury." The award runs from July 5, 2016 to Jan. 4, 2018 with total costs of $347,009. The principal purpose of this research is to provide a comprehensive understanding of the physiologic and inflammatory responses to hypoxia and vibration stresses after concussive head injury. There are three primary aims for this research. The first will be to establish the physiologic and inflammatory effects of whole body vibration. The second is to define the effects of vibration following traumatic brain injury (TBI). The third is to establish the relationship of vibration to hypoxia following TBI and determine whether these two stresses of flight can independently or synergistically impart physiologic effects, exacerbate the post-injury systemic and cerebral inflammatory responses, and thereby worsen a TBI by increasing secondary brain injury. This is a novel project that will measure not only the effects of vibration, but also the interaction of vibration and hypoxia.

Jun-lin Guan, PhD

Professor and Chair, Department of Cancer Biology

Jun-lin Guan, PhD, received a National Cancer Institute R01, "Mechanisms of FIP200 Regulation of Breast Cancer Through Its Autophagy and Non-Autophagy Functions." The award runs from June 15, 2017 to May 31, 2022 with total costs of $1,831,813. This research will determine the mechanisms of FIP200 regulation of CD29hiCD61+ and ALDH+ BCSCs in PyMT and BRCA1-deficient mouse models of breast cancer, examine autophagy and non-autophagy functions of FIP200 in the regulation of BCSCs and breast cancer development and progression and explore the strategies of targeting FIP200 autophagy and non-autophagy functions in BCSCs for breast cancer therapy. Together, these studies will provide significant insights into the molecular and cellular mechanisms of breast cancer metastasis and relapse that may contribute to novel therapies for this devastating disease.

Nishant Gupta, MD

Assistant Professor, Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine

Nishant Gupta, MD, received a National Heart, Lung and Blood Institute R34, "Resveratrol and Sirolimus in LAM Trial (RESULT)." The award runs from July 1, 2017 to June 30, 2020 with total costs of $712,443. This research is highly significant as it proposes the trial of a remission inducing (cytotoxic) as opposed to a suppressive (cytostatic) treatment option for patients with LAM. Successful completion of this study will determine the optimal dose of resveratrol in LAM, and provide information that is both necessary and sufficient in order to design a definitive, multicenter, randomized, controlled clinical trial of combined resveratrol and sirolimus in LAM.

Co-investigator:
Francis McCormack, MD, Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine

Lynne Tracey Haber, PhD

Adjunct Associate Professor and Senior Toxicologist, Department of Environmental Health

Lynne Tracey Haber, PhD, received a Consumer Product Safety Commission Award, "Peer Reviews, Toxicological and Risk Assessments." The award runs from Nov. 1, 2016 to Oct. 31, 2021 with total costs of $1,798,265. Consumer Product Safety Commission has funded several related projects on nanomaterials. One is to summarize information on potential human health hazards of nanomaterials used in consumer products and the related bulk forms, as well as the available data on the characteristics/properties of those nanomaterials. Information on analytical methods to detect the presence of nanomaterials and to measure their releases from matrices in which they are embedded will also be collected. In the second project, researchers will prepare a market (or commercialization) report on nanomaterials in consumer products, and will compile and describe domestic and international nanotechnology research and development activities in a spreadsheet database.

Jed Hartings, PhD

Associate Professor, Department of Neurosurgery

Jed Hartings, PhD, received a Department of the Army Medical Research Acquisition Activity Award, "Hypothermia for Patients Requiring Evacuation of Subdural Hematoma: Effect on Spreading Depolarizations." The award runs from Sept. 30, 2016 to Dec. 29, 2020 with total costs of $1,034,649. Researchers hypothesize that inhibition of spreading depolarizations is a mechanism-of-action of the therapeutic benefit of hypothermia. The objective of this study is to determine whether very early induced hypothermia in traumatic brain injury patients undergoing evacuation of acute subdural hematoma decreases the incidence and severity of spreading depolarizations occurring post-operatively during intensive care, compared to standard care normothermia.

Daniel Hassett, PhD

Professor, Department of Molecular Genetics, Biochemistry and Microbiology

Daniel Hassett, PhD, received a National Science Foundation award, "Microbial Fuel Cell Optimization through Digital Microfluidic Electrochemistry in Single-Bacterial Drops." The award runs from Aug. 1, 2016 to July 31, 2019 with total costs of $152,000. The overall goal of this research is to develop an optimization and analysis platform for microbial fuel cells (MFCs) based on digital microfluidic (DMF) on-chip droplet cell cultures and micro electrochemistry sensing techniques. This platform will integrate two technologies the DMF chip fabricated with highly efficient actuation electrodes and nanostructured electrochemical electrodes, and isolated on-chip micro cell cultures for single-bacterium electron transfer detection and bacteria power generation characterization. MFCs have several components that will potentially affect the overall power generation efficiency. This project will focus on optimizing the bacterial communities in MFCs for a higher power density and also develop a next generation on-chip high throughput analysis platform for probing single bacterium electron transfer limitations in MFCs.

Kevin Haworth, PhD

Assistant Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease

Kevin Haworth, PhD, received a National Heart, Lung and Blood Institute K25, "Ultrasound-Mediated Oxygen Scavenging for Inhibition of Reperfusion Injury." The award runs from Aug. 1, 2016 to June 30, 2020 with total costs of $156,799. This career development award (CDA) takes advantage of the principal investigator's quantitative background in ultrasound physics, signal processing and cavitation to develop a novel approach to inhibiting reperfusion injury. The technique relies on acoustic droplet vaporization, where a liquid droplet is phase-transitioned into a gas microbubble when exposed to ultrasound. The microbubble acts as a sink for dissolved oxygen in whole blood, effectively sequestering the oxygen within the microbubble so that it cannot diffuse into the tissue. The central hypothesis is that ultrasound-mediated oxygen scavenging during reperfusion, following an ischemic event, increases cell and tissue viability. This will be tested through studies focusing on the efficiency and efficacy of oxygen scavenging *in vitro*, *ex vivo* and *in vivo*. The first aim of this CDA is to understand how the efficiency of oxygen scavenging varies based on the composition of the droplets. A series of experiments will measure the reactive oxygen species production and cell death in cell culture, isolated whole heart with Langendorff preparation, and finally *in vivo*.

Erin Haynes, DrPH

Associate Professor, Department of Environmental Health

Erin Haynes, DrPH, received a National Institute of Environmental Health Sciences R01, "Developmental Effects of Manganese Exposure in Rural Adolescents: The CARES Cohort Comes of Age." The award runs from Sept. 30, 2016 to Aug. 31, 2021 with total costs of $3,180,864. This well-characterized longitudinal cohort study of adolescents will advance our understanding of the impact of manganese on neurodevelopment, and brain anatomy and physiology using innovative MRI methodologies. These patterns may be useful in defining the lines of essential benefit and neurotoxicological harm from manganese. The findings from this study will have regional, national and global implications for advancement of neuroscience and will be used to inform policy related to manganese in gasoline and ambient air standards. This research leverages the only cohort available in the United States that can directly address these aims.

David Hui, PhD

Professor and Vice-Chair of Research, Department of Pathology and Laboratory Medicine
Director, Metabolic Diseases Institute

David Hui, PhD, received a National Institute of Diabetes and Digestive and Kidney Diseases R01, "Intestinal LPC/LPA Modulation of Gut Microbiota and Metabolic Disease." The award runs from Sept. 20, 2016 to June 30, 2021 with total costs of $1,796,625. This study will test the hypothesis that lipid nutrient metabolites generated by PLA2g1b hydrolysis of luminal phospholipids are responsible for the altered gut microbiota in response to HFD and identify the mechanism underlying the sustained metabolic benefits of VSG surgery. Additionally, this study will test the hypothesis that PLA2g1b inhibition reprograms the gut microbiota to reverse and improve obesity and diabetes. Completion of this study will fill a knowledge gap regarding how dietary nutrients modulate the gut microbiota and how modulating nutrient processing in the digestive tract may confer metabolic benefits.

Jay Johannigman, MD

Professor, Department of Surgery
Director, Institute for Military Medicine

Jay Johannigman, MD, received an Air Force Research Laboratory Award, "Hypoxemia During Aeromedical Transport of the Walking Wounded: Determining the Etiology and Incidence of Hypoxemia." The award runs from Aug. 15, 2016 to Aug. 14, 2019 with total costs of $1,022,448. Current Air Force aeromedical evacuation (AE) standards call for correction of anemia in patients with pre-flight hemoglobin of less than 8 g/dL. In addition, AE standards call for the administration of supplemental oxygen and oxygen saturation monitoring in patients demonstrating pre-flight hypoxemia (defined as SpO2 < 92 percent), hypoventilation secondary to narcotic use, or the diagnosis of traumatic brain injury. These observations and recommendations are based upon pragmatic experience within the AE community. There has never been a prospective, longitudinal observational study evaluating oxygen saturation during prolonged strategic AE/ERC. Previous trials provided data on the incidence of hypoxemia. This study will evaluate casualties during AE in a theater of opportunity. Current casualty rates are small and the study will have to be able to be conducted in a number of sites.

Previous trials only monitored oxygen saturation (SpO2) and pulse rate. This trial will monitor SpO2, heart rate, electrocardiogram, body position, blood pressure, minute ventilation including respiratory rate and skin temperature (VISI mobile, Sotera) and tidal volume with a non-invasive monitor (ExSpiron, Respiratory Motion Inc.).

Jay Johannigman, MD

Professor, Department of Surgery
Director, Institute for Military Medicine

Jay Johannigman, MD, received an Air Force Research Laboratory Award, "Closed Loop Control (CLC) of Oxygen Concentration." The award runs from May 18, 2017 to Aug. 17, 2020 with total costs of $831,404. This research will test interoperability of a closed loop control system with a concentrator with a ventilator in a multi-center trial. The objective of this study is to demonstrate that CLC is at least as safe and effective as manual control in keeping hemoglobin oxygen saturation (SpO2) within the target range of 92 percent to 96 percent.

Jay Johannigman, MD

Professor, Department of Surgery
Director, Institute for Military Medicine

Jay Johannigman, MD, received an Air Force Research Laboratory Award, "Point-of-Care Acute Kidney Injury Biomarker Testing for En Route Combat Casualty Care." The award runs from March 20, 2017 to March 19, 2019 with total costs of $496,189. The purpose of this research is to develop and validate a point-of-care assay for measuring novel biomarkers of renal function and injury for en route diagnosis of acute kidney injury in combat casualty settings.

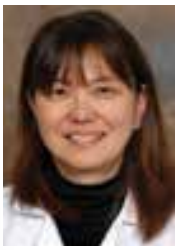
Co-investigator:
Dina Gomaa, BS, Department of Surgery

Jay Johannigman, MD

Professor, Department of Surgery
Director, Institute for Military Medicine

Jay Johannigman, MD, received an Air Force Research Laboratory Award, "Role of Sphingosine Coated Endotracheal Tubes (ETT) in Preventing Endotracheal Biofilm." The award runs from March 30, 2017 to March 29, 2019 with total costs of $461,999. This study aims to evaluate the effectiveness of sphingosine in the prevention of biofilm development in an animal model, compare the burden (presence of biofilm and the extent of the biofilm) on standard and sphingosine coated ETT after 24 hours of mechanical ventilation in an animal model using confocal microscopy, and to evaluate the local tissue reaction to standard and sphingosine-coated ETT after 24 hours of mechanical ventilation in an animal model. The reaction will be evaluated by injury, blood-material interactions, provisional matrix formation, acute inflammation, chronic inflammation, granulation tissue, and foreign body reaction fibrosis/fibrous capsule development.

Co-investigators:
Michael Edwards, MD, Department of Surgery
Erich Gulbins, MD, PhD, Department of Surgery
Alex Lentsch, PhD, Department of Surgery



Ana Luisa Kadekaro, PhD

Assistant Professor, Department of Dermatology

Ana Luisa Kadekaro, PhD, received a Department of the Army Medical Research Acquisition Activity Award, "Exploring a New Paradigm in Melanoma Prevention." The award runs from Sept. 1, 2016 to Aug. 31, 2018 with total costs of $631,883. This study is of general public interest but results generated in this research may be particularly relevant to individuals who have fair skin. Among civilian population, individuals whose skin burns easily usually modify their behavior by avoiding excessive solar exposure. Service men and women, however, regardless of their skin phenotype, are more subjected to sun exposure because of their intrinsic activities. The results from this study may have an immediate impact on the current knowledge of melanoma biology and may provide the rationale for the design of future strategies for melanoma prevention.

Dawn Kleindorfer, MD

Associate Dean for Faculty Development and Women's Initiatives
Professor, Department of Neurology and Rehabilitation Medicine
Director, Division of Cerebrovascular Disease and Stroke

Dawn Kleindorfer, MD, received a National Institute of Neurological Disorders and Stroke (Sub Award), "Left Atrial abNormality, ThromboEmbolism, and Race: Novel Risk Factors for Stroke (LANTERN)." The award runs from June 1, 2016 to May 31, 2020 with total costs of $186,078. Researchers will determine temporal trends in stroke incidence and case-fatality rates in blacks and whites by measuring these within our population in 2015. Researchers will monitor similar trends in the young (age < 55). Researchers will generate long-term stroke recurrence rates by utilizing a population-wide health information exchange. Researchers measure post-stroke functional outcomes and ultimate discharge destinations across a population via information gained solely from electronic health records versus telephone follow-up. Lastly, this team will serve as a national resource for future stroke interventions by providing current epidemiology-derived data to prospective investigators regarding patient eligibility for proposed clinical trials, via a web-based portal. This data will allow investigators to determine the feasibility of acute treatment, prevention and stroke recovery trials given their proposed inclusion/exclusion criteria.

Robert Krikorian, PhD

Professor, Director of Psychiatry and Behavioral Neuroscience
Director, Division of Psychology

Robert Krikorian, PhD, received a Department of Agriculture (Sub Award), "Blueberry Supplementation and Early Intervention in Cognitive Aging." The award runs from July 1, 2016 to June 30, 2018 with total costs of $175,902. This human intervention trial will administer fruit blueberry powder to middle-aged individuals with risk for late-life dementia. Researchers will enroll overweight men and women with evidence of very early memory decline in a randomized, double-blind, placebo-controlled trial. Researchers will administer pre- and post-intervention assessments of metabolic function, anthropometrics, neurocognitive performance and mitochondrial function. This early intervention trial will determine the benefit of blueberry supplementation for individuals in midlife with signs of risk for late-life dementia and will investigate the association between risk factors and presumed mechanisms by which blueberry supplementation might confer benefit and protection.

Alex Lentsch, PhD

Senior Associate Dean for Faculty Affairs and Development
Professor, Department of Surgery

Alex Lentsch, PhD, received a Shriners Hospitals for Children—Cincinnati award, "Shriner's Hospital Consulting Agreements, Calendar Year 2017." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $1,041,636. Shriner's funding provided for ongoing consulting work provided in accordance with the research being conducted at Shriners Hospitals for Children and the University of Cincinnati.

Michael Lyons, MD

Associate Professor, Department of Emergency Medicine
Director, Early Intervention Program

Michael Lyons, MD, received a Centers for Disease Control and Prevention (Sub Award), "HIV Prevention Activities." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $152,087. UC Early Intervention Program (EIP) efficiently identifies those at highest risk for HIV transmission, not identified elsewhere. The linkage service capitalizes on the experience and infrastructure developed by the EIP to address the problem of linkage and ongoing transmission by individuals who are diagnosed but not in care. This program offers complementary but not duplicative services that expand testing through multiple programs, including physician-directed testing in the Emergency Department and testing in community-based organizations.

Vincent Martin, MD

Professor, Department of Internal Medicine, Division of General Internal Medicine

Vincent Martin, MD, received a Patient-Centered Outcomes Research Institute (Sub Award), "Determining the Optimal Treatment Strategy for Patients Who Have Chronic Migraine With Medication Overuse." The award runs from May 1, 2016 to April 30, 2021 with total costs of $212,364. This research will compare two real-world methods of treating patients who have chronic migraine with medication overuse: migraine prophylactic therapy with early discontinuation of the overused medication versus migraine prophylactic therapy without early discontinuation of the overused medication.

Co-investigator:
Lawrence Goldstick, MD, Department of Neurology and Rehabilitation Medicine

Francis McCormack, MD

Professor, Department of Internal Medicine
Director, Division of Pulmonary, Critical Care and Sleep Medicine

Francis McCormack, MD, received a National Heart, Lung and Blood Institute U01, "Multicenter Interventional Lymphangioleiomyomatosis Early Disease Trial (MILED)-CCC." The award runs from Sept. 20, 2016 to June 30, 2021 with total costs of $3,606,817. The Multicenter Interventional LAM Early Disease Trial (MILED) is a phase 3, randomized, placebo-controlled trial to determine if early, long-term (two year), low dose (1 mg/day) sirolimus treatment of patients with well-preserved lung function will safely prevent disease progression. This study will define the safety and efficacy of low-dose sirolimus in patients with normal lung function, and determine if sirolimus can be used to prevent disease progression to symptomatic stages.

Francis McCormack, MD

Professor, Department of Internal Medicine
Director, Division of Pulmonary, Critical Care and Sleep Medicine

Francis McCormack, MD, received a National Heart, Lung and Blood Institute (Sub Award), "The Molecular and Genetic Pathogenesis of LAM." The award runs from Sept. 21, 2016 to Aug. 31, 2019 with total costs of $331,800. This study seeks to develop strategies to find the lowest effective dose of mTOR inhibitors in patients with LAM. Researchers hypothesize that continuous suppression of key biomarkers over the entire 24-hour dosing cycle will correlate with stabilization of lung function. This principle will be used to guide titration to the lowest sirolimus dose that suppresses circulating cell and peripheral lymphocyte S6 phosphorylation.

Francis McCormack, MD

Professor, Department of Internal Medicine
Director, Division of Pulmonary, Critical Care and Sleep Medicine

Francis McCormack, MD, received a Shriners Hospitals for Children – Cincinnati Award, "Burn Induced Lung Injury and Infection - Year 5." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $278,500. Most clinically relevant complications in burn patients are due to infections. The goal of this research is to determine if targeting a molecule called STAT3 will enhance postburn resistance to infection thereby providing a novel therapeutic target.

Francis McCormack, MD

Professor, Department of Internal Medicine
Director, Division of Pulmonary, Critical Care and Sleep Medicine

Francis McCormack, MD, received a National Center for Advancing Translational Sciences (Sub Award), "Therapeutic Strategy for Lymphangioleiomyomatosis (LAM) and Tuberous Sclerosis." The award runs from Sept. 1, 2016 to Aug. 31, 2017 with total costs of $153,138. The central hypothesis of this research is that Src is activated in TSC2-null cells and that increased Src activation contributes to down regulation of E-cadherin and raises the oncogenic abilities of these cells. Thus, Src inhibition represents a potential therapeutic strategy to up-regulate E-cadherin in TSC2-null cells and reduce their oncogenic and metastatic potential. Researchers propose the use of Src tyrosine kinase inhibitor Saracatinib as a novel therapy for LAM and TSC. Researchers expect benefits in reduction of tumor size, circulating tumor cells and metastasis, which could also have significant effects on lung manifestations of LAM.

Robert McCullumsmith, MD, PhD

Associate Professor, Department of Psychiatry and Behavioral Neuroscience

Robert McCullumsmith, MD, PhD, received a National Institute of Mental Health R01, "Cell-Specific Analysis of Sub-Kinomes in Schizophrenia." The award runs from July 15, 2016 to April 30, 2021 with total costs of $1,975,000. This research will investigate abnormalities of signaling networks in pyramidal neurons in schizophrenia. Researchers hypothesize that abnormalities of pyramidal neurons extend well beyond simple measures of gene expression, and include disease- and lamina-specific changes in functionally related signaling networks. To address this problem, researchers have adapted a novel "omics" bioinformatics approach for analysis of serine/threonine sub-kinomes in postmortem brain tissue, and identified high-yield protein kinase targets for further study. In this study, researchers will focus on two high-yield "hits" from these hypotheses generating preliminary studies: AKT and PKA. Researchers will test the hypothesis that these kinases are differentially regulated in superficial and deep pyramidal neurons in schizophrenia. Researchers will use an innovative approach that combines standard techniques, including laser capture microdissection and biochemical kinase activity assays, to measure pyramidal neuron-specific kinase expression and activity in schizophrenia. These innovative studies will identify pyramidal neuron-specific signaling pathways disrupted in schizophrenia and provide new ideas regarding the pathophysiology and the development of novel treatment strategies for this often devastating illness.

William Miller, PhD

Associate Professor, Department of Molecular Genetics, Biochemistry and Microbiology

William Miller, PhD, received a National Institute of Allergy and Infectious Diseases, R56, "Mechanisms of vGPCR Mediated Cytomegalovirus Growth in the Salivary Gland." The award runs from Aug. 20, 2016 to July 31, 2017 with total costs of $395,000. This innovative research will lead to novel insights into the function of cytomegalovirus GPCRs and into mechanisms by which cytomegaloviruses persist and gain access to fluids important for horizontal transmission. Defining essential roles for cytomegalovirus GPCRs in promoting salivary gland replication and spread could ultimately lead to the development of unique antivirals designed to prevent cytomegalovirus transmission via saliva.

Liran Oren, PhD

Assistant Professor, Department of Otolaryngology—Head and Neck Surgery

Liran Oren, PhD, received a National Heart, Lung and Blood Institute Award, "The Application of Vortex Airflow to Continuous Positive Airway Pressure (CPAP) Therapy." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $119,059. The first goal of this research is to refine the design of the prototype device to be more ergonomic. The new prototype device will be easy to use by the patient and will keep secure in its position during sleep. Researchers envision that the vortex airflow will be delivered to the nares via small, flexible, polyurethane tubes placed on the upper lip (similar to nasal cannulas), or mounted at an offset from the nostrils. The second goal of this research is to verify that the prototype device is ready to be further developed toward a commercialized product.

Diego Perez-Tilve, PhD

Assistant Professor, Department of Internal Medicine, Division of Endocrinology, Diabetes and Metabolism

Diego Perez-Tilve, PhD, received a CohBar, Inc. Award, "Cohbar Agreement 2017." The award runs from Jan. 1, 2017 to Dec. 31, 2017 with total costs of $376,583. CohBar, Inc. is a biotechnology company focused on developing mitochondria-based therapeutics (MBTs) to treat diseases associated with aging. MBTs originated from the discovery of a novel group of peptides encoded within the genome of mitochondria. Until recently, the mitochondrial genome was believed to contain only 37 genes and it has been relatively unexplored as a basis for drug discovery efforts. Research by CohBar founders and their academic collaborators has revealed that the mitochondrial genome includes dozens of potential new genes encoding peptides that can influence cellular activities by acting as messengers between cells. These peptides have demonstrated disease-modifying properties including: metabolic, neuroprotective, cytoprotective, and anti-inflammatory effects. CohBar's efforts are focused on optimizing natural mitochondrial peptides into novel MBT drug candidates for the treatment of diseases associated with aging, such as Type 2 diabetes, cancer, atherosclerosis and neurodegenerative disorders.

Timothy Pritts, MD, PhD

Professor, Department of Surgery
Chief, Section of General Surgery

Timothy Pritts, MD, PhD, received an Air Force Research Laboratory Award, "Development of a Targeted Intravascular Therapy to Stop Non-Compressible Torso Hemorrhage." The award runs from Oct. 24, 2016 to Oct. 23, 2019 with total costs of $1,700,982. The overall goal of this research program is to develop a rapidly deployable targeted therapeutic that is easily administered intravenously and hones precisely to the site of active hemorrhage to stop bleeding. This therapeutic will be small, portable, lightweight, heat and cold stable, and easily administered intravenously. Development of this therapy requires three design components: the delivery vehicle, a guidance package that specifically targets sites of active hemorrhage and a pro-thrombotic agent.

Timothy Pritts, MD, PhD

Professor, Department of Surgery
Chief, Section of General Surgery

Timothy Pritts, MD, PhD, received an Air Force Research Laboratory Award, "Attenuation of the Red Blood Cell Storage Lesion to Allow Extended Use of Previously Cryopreserved pRBC Units in Austere Environments." The award runs from March 20, 2017 to March 19, 2020 with total costs of $949,974. The overall goal of this study is to attenuate the progression of the red blood cell storage lesion in previously cryopreserved packed red blood cell units. The central hypothesis is that novel post-thaw treatments of previously cryopreserved pRBC units will inhibit components of the storage lesion over the ensuing 14-day post-thaw storage period.

Co-investigator:
Amy Makley, MD, Department of Surgery

Timothy Pritts, MD, PhD

Professor, Department of Surgery
Chief, Section of General Surgery

Timothy Pritts, MD, PhD, received a Biomedical Advanced Research and Development Authority Award, "Phase 3, Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Study of AB103 as Compared to Placebo in Patients With Necrotizing Soft Tissue Infections (NSTI)." The award runs from Jan. 1, 2016 to Dec. 31, 2017 with total costs of $199,892. The objective of this study is to demonstrate the efficacy of AB103 as compared to placebo in patients diagnosed with NSTI using a clinical composite success endpoint.

Co-investigators:
Michael Goodman, MD, Department of Surgery
Amy Makley, MD, Department of Surgery

Tiina Reponen, PhD

Professor, Department of Environmental Health

Tiina Reponen, PhD, received a National Institute for Occupational Safety and Health T42 for the Education and Research Center (ERC). The award runs from July 1, 2016 to June 30, 2021 with total costs of $8,902,965. The Cincinnati ERC supports the development of research skills through Pilot Research Program and Targeted Research Training programs; conducts innovative and interdisciplinary research to identify causal relationships between exposure and illness or injury; designs control strategies and evaluates the effectiveness of interventions; delivers continuing education, consultation and outreach to address occupational safety and health needs through regional partnerships and advocates the translation of research findings into practice.

William Ridgway, MD

Professor, Department of Internal Medicine
Director, Division of Immunology, Allergy and Rheumatology

William Ridgway, MD, received a National Institute of Diabetes and Digestive and Kidney Disease (Sub Award), "Mechanistic and Therapeutic Role of the CD137-CD137L Axis in Type 1 Diabetes." The award runs from July 21, 2016 to May 31, 2017 with total costs of $253,461. Researchers will contribute to this study by assisting with CD8 sCD137 treatment and mechanisms of sCD137 induced T cell suppression.

Sakthivel Sadayappan, PhD

Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease
Director, Heart Branch of the UC Heart, Lung and Vascular Institute

Sakthivel Sadayappan, PhD, received a National Heart, Lung and Blood Institute R01, "Cardiac Myosin Binding Protein-C: Structure and Function." The award runs from April 7, 2017 to March 31, 2020 with total costs of $1,558,245. The ongoing study will understand the functional consequences of cardiac myosin binding protein-C on heart function. In particular, these studies will determine the specific role(s) of the amino terminal-region of cardiac myosin binding protein-C in regulating sarcomere structure and function at the cardiac sarcomeric and whole-heart levels, leading to the development of potential cardioprotective therapeutic approaches to improve cardiac function in heart failure.

Sakthivel Sadayappan, PhD

Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease
Director, Heart Branch of the UC Heart, Lung and Vascular Institute

Sakthivel Sadayappan, PhD, received a National Heart, Lung and Blood Institute R01, "Molecular Mechanism of Hypertrophic Cardiomyopathy in Populations of South Asian Descendants." The award runs from March 6, 2017 to Dec. 31, 2019 with total costs of $1,356,217. The ongoing study will determine the pathogenesis of a MYBPC3 genetic variant known to cause hypertrophic cardiomyopathy (HCM) in approximately 60 million South Asian descendants. In particular, these studies will determine the molecular mechanism underlying the pathogenicity of this mutation, leading to the discovery of cardioprotective agents to prevent or ameliorate HCM and heart failure.

Co-Investigator:
John Lorenz, PhD, Department of Pharmacology and Systems Physiology

Sakthivel Sadayappan, PhD

Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease
Director, Heart Branch of the UC Heart, Lung and Vascular Institute

Sakthivel Sadayappan, PhD, received an American Heart Association - National Chapter Award, "A Novel Polymorphic MYBPC3 Variant Causes Hypertrophic Cardiomyopathy (HCM) in U.S.-South Asian Descendants." The award runs from May 1, 2017 to April 30, 2018 with total costs of $250,000. Many different genes have been linked to HCM, and morbidity and mortality are highly variable and dependent on the particular gene mutation. Therefore, functional characterization of frequent mutations would help bring to light the more common mechanisms of pathogenesis. The long-term goal is to understand how gene mutations lead to cardiomyopathy, thereby laying a foundation for the development of novel therapeutic strategies.

Sakthivel Sadayappan, PhD

Professor, Department of Internal Medicine, Division of Cardiovascular Health and Disease
Director, Heart Branch of the UC Heart, Lung and Vascular Institute

Sakthivel Sadayappan, PhD, received a National Heart, Lung and Blood Institute K02, "Proteomic Approaches to Validate Novel Cardiac Biomarkers for Myocardial Infarcti." The award runs from April 1, 2017 to July 31, 2017 with total costs of $186,361. The ongoing study will determine the exact amount of cMyBP-C present in plasma at the earliest and subsequent time points based on the least amount of cMyBP-C present in the plasma sample. These data will help define whether cMyBP-C can be used as a stand-alone early biomarker for ischemic injury.

Atsuo Sasaki, PhD

Associate Professor, Department of Internal Medicine, Division of Hematology and Oncology

Atsuo Sasaki, PhD, received a National Institute of Neurological Disorders and Stroke R21, "Synthetic Lethal Combination of KRP203/Fingolimod with PI3K Signaling for Glioblastoma Multiforme Death by Catastrophic Vacuolization." The award runs from Sept. 1, 2016 to Aug. 31, 2018 with total costs of $448,208. Equilibrium of phosphoinositides balance is critical for cellular homeostasis and imbalance of phosphoinositides could be deleterious to rapidly growing cells. Glioblastoma multiforme (GBM), the most aggressive brain tumor with a median survival of 14.6 months, elevate PI(3,4,5)P3 to supra-physiological levels for their malignant growth. However, pharmacological reduction of PI(3,4,5)P3 have shown a limited success in clinical trials, partly due to its toxicity. This research proposes a reverse approach—synthetic lethal combination with the elevated PI(3,4,5)P3 in GBM. In the preliminary study, researchers have discovered two compounds—acronyms GBM-Blast1 and GBM-Blast2—that disproportionate phosphoinositides and led to catastrophic vacuolization via PI(3,4,5)P3-dependent fashion and cell death in GBM, but not in primary glia. Biochemical analysis reveals that GBM-Blast1 and GBM-Blast2 possess a novel activity against phosphoinositide kinases. Treatment of GBM-Blast1 and GBM-Blast2 with GBM cells dramatically changes in phosphoinositide balance. Interestingly, treatment of GBM-Blast1 and GBM-Blast2 diminished AKT activation and induce catastrophic vacuolization and cell death of GBM cells in PI(3,4,5)P3 dependent fashion. Importantly GBM-Blast1 and GBM-Blast2 did not affect primary glia. Researchers' pharmacodynamics and pharmacokinetics analysis showed that GBM-Blast1 has a superior penetration to the blood-brain-barrier, raising a potential of GBM-Blast1 and GBM-Blast2 for GBM therapeutic application. Based on these observations, researchers' hypothesize that GBM-Blast1 and GBM-Blast2 would be a novel, selective and safe approach to inhibit GBM progression with minimum impact on normal tissues.

Jason Schrager, MD

Assistant Professor, Department of Surgery

Jason Schrager, MD, received an Air Force Research Laboratory Award, "Pharmaceutical Degradation in Emergency Medical Service (EMS) Deployment and in Extreme Temperature Simulation." The award runs from April 13, 2017 to April 12, 2019 with total costs of $231,748. The study will evaluate the stability of ketamine in a simulated environment where large temperature fluctuations can be seen. This will be done by comparing the reduction in medication concentration from the control after one to six months of exposure. This study will also evaluate the stability of ketamine on active EMS units in Cincinnati during the spring and summer months. This will be done by comparing the reduction in medication concentration from the control after one to six months of exposure.

Co-investigator:
Jason McMullan, MD, Department of Emergency Medicine

Wenhai Shao, PhD

Assistant Professor, Department of Internal Medicine, Division of Immunology, Allergy and Rheumatology

Wenhai Shao, PhD, received a National Institute of Diabetes and Digestive and Kidney Disease K01, "A critical Role of TAM Receptors in Autoimmune Nephritis." The award runs from Dec. 1, 2016 to Nov. 30, 2017 with total costs of $129,319. Researchers will explore the mechanism of Mer and Axl in the antiGBM model of renal injury and in the spontaneous lupus nephritis mice. The expression pattern of Mer/Axl in the glomerulus and their role in the development of glomerulonephritis may reflect its known functions in regulating cytokine production and facilitating phagocytosis of cellular debris, but may also indicate new functions for these receptors. Further insights into the significance of Mer and its sister receptors not only will enhance our knowledge of inflammatory disease, but may also provide targets for therapeutic intervention.

Charuhas Thakar, MD

Professor, Department of Internal Medicine, Division of Nephrology and Hypertension

Charuhas Thakar, MD, received a BioPorto Diagnostics Award, "Stability Study for NGAL." The award runs from April 1, 2017 to March 31, 2019 with total costs of $215,467. Researchers will enroll patients admitted to ICU and have a spectrum of renal function to be assessed for stability of biomarkers. After assessment for eligibility and informed consent, patients will be enrolled in the study. Study procedures include collection of up to three samples of blood (up to 10 ml each), and up to three samples of urine (up to 10 ml each). Two of the three samples (blood and urine) will be collected within seven days of administering the informed consent and the third sample will be collected between seven and 30 days after the informed consent.

Charuhas Thakar, MD

Professor, Department of Internal Medicine, Division of Nephrology and Hypertension

Charuhas Thakar, MD, received a National Heart, Lung and Blood Institute Award, "ISCHEMIA Clinical Trial - CKD Study." The award runs from March 1, 2016 to Feb. 28, 2017 with total costs of $66,920. The University of Cincinnati will participate as an enrolling site in the ISCHEMIA Clinical Trial Main and CKD studies. This NHLBI-funded U01 is held at New York University. The majority of the work will be done off-site at Dialysis Clinics, Inc.

Patrick Tso, PhD

Professor, Department of Pathology and Laboratory Medicine
Director, Cincinnati Mouse Metabolic Phenotyping Center

Patrick Tso, PhD, received a National Institute of Diabetes and Digestive and Kidney Disease U2 for the Cincinnati Mouse Metabolic Phenotyping Center (MMPC). The award runs from Aug. 1, 2016 to June 30, 2021 with total costs of $5,983,933. The main goal of the University of Cincinnati MMPC is to continue providing phenotyping services related to diabetes and its complications in numerous transgenic and knockout mouse models to investigators from all over the United States, both young and established. To achieve this goal, the UC MMPC is comprised of two phenotyping Service Cores, plus one animal care Core to coordinate issues related to the health, shipping and husbandry of the mice.

Yi-Gang Wang, PhD

Professor, Department of Pathology and Laboratory Medicine
Director, Regenerative Medicine Division

Yi-Gang Wang, PhD, received a National Heart, Lung and Blood Institute R01, "Autologous Cardiomyocytes from Masseter Muscles to Repair Myocardial Infarction (MI)." The award runs from Feb. 6, 2017 to Jan. 31, 2021 with total costs of $1,792,614. These studies will provide new insights in both basic heart developmental biology and cell-based regenerative medicine. This approach holds great promise for the emerging field of personalized medicine and strongly supports the possibility that autologous MMP harvested from human masseter muscles and expanded *in vitro* will serve as a major source of cardiomyocytes that will be highly effective for treatment of patients after MI.

Co-investigator:
Sean Davidson, PhD, Department of Pathology and Laboratory Medicine

Yi-Gang Wang, PhD

Professor, Department of Pathology and Laboratory Medicine
Director of Regenerative Medicine Division

Yi-Gang Wang, PhD, received a National Heart, Lung and Blood Institute R56, "Autologous Cardiomyocytes from Masseter Muscles to Repair Myocardial Infarction." The award runs from Sept. 15, 2016 to Aug. 31, 2017 with total costs of $472,965. This study will provide new insights in both basic heart developmental biology and cell-based regenerative medicine. This approach holds great promise for the emerging field of personalized medicine and strongly supports the possibility that autologous MMP harvested from human masseter muscles and expanded *in vitro* will serve as a major source of cardiomyocytes that will be highly effective for treatment of patients after MI.

Alison Weiss, PhD

Professor, Department of Molecular Genetics, Biochemistry and Microbiology

Alison Weiss, PhD, received a National Institute of Diabetes and Digestive and Kidney Disease R21, "Shiga Toxin Activity in Human Intestinal Organoids." The award runs from Aug. 19, 2016 to July 31, 2018 with total costs of $434,500. Researchers have developed a new experimental model to study the effects of Stx and STEC on the human intestinal tract. Stem cell induced human intestinal organoids (iHIOs) faithfully represent differentiated human intestinal tissue. Preliminary studies show human intestinal organoids are sensitive to Stx injected into the lumen. Furthermore, while harmless *E. coli* can replicate in the lumen without causing damage, pathogenic *E. coli* O157:H7 destroy the intestinal epithelial barrier. In this study researchers will use human intestinal organoids as a novel model system to study the pathogenic processes associated with Stx and STEC. Researchers will compare infection by harmless *E. coli* and pathogenic O157:H7 strains, with or without the ability to produce Stx.

Theresa Winhusen, PhD

Professor, Department of Psychiatry and Behavioral Neuroscience
Director, Addiction Sciences Division

Theresa Winhusen, PhD, received a National Institute on Drug Abuse Award, "Phase 2, Multi-Center Trial of Lorcaserin for the Treatment of Cocaine Use Disorder." The award runs from June 1, 2017 to Feb. 28, 2019 with total costs of $728,149. The objective of this study is to evaluate the efficacy and safety of lorcaserin (trade name Belviq®), a serotonin receptor agonist, in the treatment of cocaine use disorder. Approximately 272 total subjects will be enrolled across 10 or more clinical sites.

Theresa Winhusen, PhD

Professor, Department of Psychiatry and Behavioral Neuroscience
Director, Addiction Sciences Division

Theresa Winhusen, PhD, received a National Institute on Drug Abuse R34, "A Tailored, Peer-Delivered Intervention to Reduce Recurring Opioid Overdoses." The award runs from Sept. 15, 2016 to June 30, 2019 with total costs of $680,319. The specific aims of this study are to finalize the Peer Interventionist training materials by creating training files and evaluating the inter-rater reliability of TTIP-PRO's competence assessment and conduct pilot testing in preparation for a full-scale clinical trial. Exploratory aims are to test the validity of two assessments developed for TTIP-PRO and to test the conceptual model of TTIP-PRO's mechanisms of change.

Jason Joseph Winnick, PhD

Assistant Professor, Department of Internal Medicine, Division of Endocrinology, Diabetes and Metabolism

Jason Joseph Winnick, PhD, received a National Institute of Diabetes and Digestive and Kidney Disease R01, "Effect of Liver Glycogen Content on Hypoglycemic Counterregulation." The award runs from Dec. 1, 2016 to May 31, 2021 with total costs of $1,653,352. Latrogenic hypoglycemia is the most prominent barrier to the safe, effective management of blood sugar in people with Type 1 diabetes due to periodic over-insulinization. During insulin-induced hypoglycemia, both epinephrine and glucagon secretion are impaired in Type 1 diabetes which, in turn, reduces hepatic glucose production and increases the depth and duration of the hypoglycemic episode. Researchers have observed that an increase in liver glycogen content can increase the secretion of both epinephrine and glucagon during hypoglycemia and increase hepatic glucose production; the experiments in this study will shed light on the significance of this finding to the human.

Trisha Wise-Draper, MD, PhD

Assistant Professor, Department of Internal Medicine, Division of Hematology and Oncology

Laura Conforti, PhD

Associate Professor, Department of Internal Medicine, Division of Nephrology and Hypertension

Edith Janssen, PhD

Associate Professor, Department of Pediatrics

Trisha Wise-Draper, MD, PhD, Laura Conforti, PhD, and Edith Janssen, PhD, received a Department of the Army Medical Research Acquisition Activity Translational Team Award, "Ionic Mechanisms of Resistance to Immunotherapy in Head and Neck Cancer." The award runs from July 1, 2017 to June 30, 2020 with total costs of $532,944. These studies are highly innovative as they assess a new model by which the TME (adenosine) and ion channels contribute to resistance to anti-PD1 therapy, and assess the contribution of CD244 as a novel pathway in anti-PD1 resistance. Moreover, this research directly tests the hypotheses in humanized PDX mouse models as well as novel genetically modified mouse models.

E. Steve Woodle, MD

Professor, Department of Surgery

E. Steve Woodle, MD, received a National Institute of Arthritis, Musculoskeletal and Skin Disease (Sub Award), "PEARL - Pathway Exploration and Analysis in Renal Lupus." The award runs from June 1, 2015 to May 31, 2017 with total costs of $126,107. The University of Cincinnati will be providing kidney biopsy, blood and urine samples from normal subjects for analysis in the AMP pearl project to Cincinnati Children's lab for processing. Regulatory activities related to collection of these human samples and baseline demographic data will be conducted. Coordinator services will be provided to complete these activities.

Changchun Xie, PhD

Associate Professor, Department of Environmental Health

Changchun Xie, PhD, received a National Institute of Diabetes and Digestive and Kidney Disease Award, "Continuation of Teen Longitudinal Assessment of Bariatric Surgery (Teen-LABS), Biostatistics Research Center." The award runs from Sept. 1, 2016 to Aug. 31, 2021 with total costs of $4,666,076. This multicenter, prospective, observational study evaluates the risks and benefits of bariatric surgery in 242 consecutively recruited adolescents undergoing bariatric surgery at the participating five clinical centers. This study will provide an opportunity to collect and examine long-term outcomes of Roux-en-Y gastric bypass and sleeve gastrectomy, the most commonly used operations today.

Jun-Ming Zhang, MD

Professor and Vice Chair for Research, Department of Anesthesiology

Jun-Ming Zhang, MD, received a National Institute of Arthritis, Musculoskeletal and Skin Disease R01, "Steroids and Steroid Receptors in Low Back Pain." The award runs from July 15, 2016 to June 30, 2021 with total costs of $1,730,344. The long-term goal of this research is to establish the preclinical basis for clinical trials testing our hypothesis that mineralocorticoid antagonists may improve the response to locally injected steroids commonly used for low back pain treatment. Such trials are made more feasible by the fact that a selective mineralocorticoid antagonist, eplerenone, is already approved for use in the United States for heart failure and hypertension.

Other Faculty Awards

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Joseph Palascak, MD	Department of Internal Medicine, Division of Nephrology and Hypertension	$99,161	2017–2018 Cascade	Cascade Hemophilia Consortium
Andrew Filak Jr., MD	Department of Medical Education	$98,659	AHEC Point of Service Maintenance & Enhancement Awards	Health Resources and Services Administration (Sub Award)
Kenneth Sherman, MD, PhD	Department of Internal Medicine, Division of Digestive Diseases	$96,149	Timing of Treatment for Chronic Hepatitis C Infection in Patients With End Stage Renal Disease Awaiting Transplantation	Merck Sharp & Dohme Corp
Robert Krikorian, PhD	Department of Psychiatry and Behavioral Neuroscience	$96,000	Early Intervention in Cognitive Aging with Strawberry Supplementation	California Strawberry Commission
Carl Fichtenbaum, MD	Department of Internal Medicine, Division of Infectious Diseases	$88,600	A Randomized Double-Blind, Phase 3 Study Comparing the Efficacy and Safety of High-Titer versus Low-Titer Anti-Influenza Immune Plasma for the Treatment of Severe Influenza A	National Institute of Allergy and Infectious Diseases (Sub Award)
Rita Ramkaran Verma	Department of Cancer Biology	$80,000	Selective Autophagy Regulates Membrane Signaling in Renal Cell Carcinoma	American Urological Association
Patricia Joseph, MD	Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine	$79,800	A CF C3N Care Model of the Future: Proposal for Piloting a Learning Health System	Cystic Fibrosis Foundation (Sub Award)
Charles Caldwell, PhD	Department of Surgery	$76,632	The Effect of Hypobaria on Muscle Inflammation and Regeneration after Injury and Hemorrhagic Shock	Department of the Army Medical Research Acquisition Activity (Sub Award)
Jose Cancelas-Perez, MD, PhD	Hoxworth Administration	$76,025	Validation of the Preparation Steps Preceding the Radiolabeling of Apheresis Platelets in 100% Plasma for Survival and Recovery Studies	Cerus Corporation
Sakthivel Sadayappan, PhD	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$75,156	A Polymorphic MYBPC3 Variant as a Major Risk Factor of Cardiomyopathy in South Asian Descendants	American Heart Association - National Chapter
Thomas Blakeman, MSc	Department of Surgery	$71,177	ETT Cuff Pressure Assessment – Feel versus Measurement	Air Force Research Laboratory
Kenneth Sherman, MD, PhD	Department of Internal Medicine, Division of Digestive Diseases	$70,546	Prevalence and Significance of PNPLA3 Gene Polymorphisms in HCV/HIV Infected Persons	National Institute of Allergy and Infectious Diseases (Sub Award)
Eric Steven Wohleb, PhD	Department of Psychiatry and Behavioral Neuroscience	$70,000	Microglia-mediated Synapse Elimination in Stress-induced Depressive-like Behavior	Brain & Behavior Research Foundation

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Charuhas Thakar, MD	Department of Internal Medicine, Division of Nephrology	$70,000	Hyponatremia, Congestive Heart Failure, and Kidney Disease: A Vital Connection	Otsuka Pharmaceutical Development & Commercialization, Inc.
Amy Makley, MD	Department of Surgery	$67,580	Ohio Federal Research Network	Ohio Department of Higher Education (Sub Award)
Sakthivel Sadayappan, PhD	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$65,757	Skeletal Myosin-Binding Protein C (MyBP-C): Molecular Structure and Function	National Institute of Arthritis, Musculoskeletal and Skin Diseases (Sub Award)
Ahmed Obeidat, MD, PhD	Department of Neurology and Rehabilitation Medicine	$65,000	Clinical Fellowship	National Multiple Sclerosis Society
Hani Kushlaf, MD	Department of Neurology and Rehabilitation Medicine	$62,125	Patient Assisted Intervention for Neuropathy: Comparison of Treatment in Real Life Situations (PAIN-CONTRoLS)	Patient-Centered Outcomes Research Institute (Sub Award)
Amy Makley, MD	Department of Surgery	$61,686	Development and Validation of a Novel Assessment Tool for CCATT Advanced Training	Air Force Research Laboratory
Richard Becker, MD	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$61,576	Translational Research Centers in Thrombotic and Hemostatic Disorders - Project 2, Year 4	National Heart, Lung and Blood Institute (Sub Award)
Laura Conforti, PhD	Department of Internal Medicine, Division of Nephrology and Hypertension	$60,000	Targeted Nanoparticle-Based Therapy in SLE	Dialysis Clinic, Inc.
Jose Cancelas-Perez, MD, PhD	Hoxworth Administration	$59,984	RAD-A-A-I. Comparison of Three Radiolabeling Protocols on 6-Day and 7-Day Stored Apheresis Platelets With and Without Intercept Treatment	Cerus Corporation
Sean Davidson, PhD	Department of Pathology and Laboratory Medicine	$56,850	Direct Interactions With HDL Promote Regulatory T Cells Survival	National Institute of Allergy and Infectious Diseases (Sub Award)
Sean Davidson, PhD	Department of Pathology and Laboratory Medicine	$56,507	Rapid and Absolute Quantitation of Mouse Plasma Apolipoproteins	National Institute of Diabetes and Digestive and Kidney Disease (Sub Award)
Shailendra Patel, PhD	Department of Internal Medicine, Division of Endocrinology, Diabetes and Metabolism	$55,000	Identifying Novel Drug Targets for Obesity and Metabolic Diseases	Greater Cincinnati Foundation
Mohit Kumar	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$53,688	Role(s) of Myosin Binding Protein-C Phosphorylation in Cardiac Arrhythmias	American Heart Association - Great Rivers Affiliate

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Carol Rice, PhD	Department of Environmental Health	$50,053	Hazardous Materials Worker Health and Safety Training (U45) (HWWT)	National Institute of Environmental Health Sciences (Sub Award)
Vanessa Nomellini, MD	Department of Surgery	$50,000	The Role of Sphingosine in the Susceptibility of Pneumonia in the Elderly	American Association for the Surgery of Trauma
Michael Lyons, MD	Department of Emergency Medicine	$50,000	HIV Testing in Ohio Emergency Departments	Centers for Disease Control and Prevention (Sub Award)
John MacLennan, PhD	Department of Pharmacology and Systems Physiology	$50,000	Novel ALS Treatments Targeting Muscle Ciliary Neurotrophic Factor Receptor Signaling	Mayfield Education & Research Fund
William Miller, PhD	Department of Molecular Genetics	$48,582	The Role of US28 During HCMV Latency	National Institute of Allergy and Infectious Diseases (Sub Award)
Alberto Espay, MD	Department of Neurology and Rehabilitation Medicine	$45,500	Clinician-Input Study: How the Fox Insight Mobile Application Can Influence Treatment and Care	Michael J. Fox Foundation for Parkinson's Research
Gregory Fermann, MD	Department of Emergency Medicine	$44,557	Longitudinal Assessment of Post-traumatic Syndromes (U01)	National Institute of Mental Health (Sub Award)
Jun-lin Guan, PhD	Department of Cancer Biology	$43,200	Therapeutic Targeting of mTORC1 for Lymphangiosarcoma Using a Novel Mouse Model	Angiosarcoma Awareness Inc.
Hala Elnakat, PhD	Department of Internal Medicine, Division of Hematology and Oncology	$41,470	Synergistic Interactions of CC90009 With Rapalogs in Pancreatic Neuroendocrine Tumors	Celgene Corporation
Andrew DiStasio	Department of Pediatrics	$41,320	A Novel Function of Nubp2 in Craniofacial Development Through Regulation of Ciliary Signaling	National Institute of Dental and Craniofacial Research
Michael Maier, PhD	Department of Environmental Health	$40,000	ISEAS (Independent Systems Engineering and Acquisition Support)	Department of the Air Force (Sub Award)
Kenneth Sherman, MD, PhD	Department of Internal Medicine, Division of Digestive Diseases	$40,000	Liver Disease and HIV	National Institute of Allergy and Infectious Diseases
Douglas Mossman, MD	Department of Psychiatry and Behavioral Neuroscience	$40,000	ODMHAS Educational Grant to UC Forensic Psychiatry Fellowship	Ohio Department of Mental Health and Addiction Services
Yong Yuan, PhD	Department of Ophthalmology	$40,000	Characterization of a Mouse Model of Glaucoma With Exfoliation Syndrome	The Glaucoma Foundation

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Francis McCormack, MD	Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine	$38,371	Integrative Analysis of Multi-Omics Data to Target Fibroblast Activation in IPF	National Heart, Lung and Blood Institute (Sub Award)
Brandon Foreman, MD	Department of Neurology and Rehabilitation Medicine	$37,280	The Epilepsy Bioinformatics Study for Antiepileptogenic Therapy (EpiBioS4Rx)	National Institute of Neurological Disorders and Stroke (Sub Award)
Jeanelle Marie Martinez	Department of Environmental Health	$35,956	Intergovernmental Personnel Act Agreement for Jeanelle Marie Martinez	National Institute for Occupational Safety and Health
Carl Fichtenbaum, MD	Department of Internal Medicine, Division of Infectious Diseases	$35,425	Effect of Pitavastatin on Kidney Function in HIV-infected Person (R01DK108438-02) - REPRIEVE Kidney Study	National Inst of Diabetes and Digestive and Kidney Disease (Sub Award)
Carl Fichtenbaum, MD	Department of Internal Medicine, Division of Infectious Diseases	$35,068	Case Western Equipment Supplement	National Institute of Allergy and Infectious Diseases (Sub Award)
Michael Maier, PhD	Department of Environmental Health	$32,995	TERA Center's Dose-Response Assessment Boot Camp	U.S. Army Public Health Center
Molly Smith	Department of Cancer Biology	$32,357	Aberrant Ubiquitin-Editing in the Pathogenesis of Myeloid Malignancies	National Heart, Lung and Blood Institute (Sub Award)
Mark Andrew Castleberry	Department of Molecular Genetics	$32,260	Understanding Cardiovascular Disease Mechanisms	National Heart, Lung and Blood Institute (Sub Award)
Jessica Ross	Department of Psychiatry and Behavioral Neuroscience	$31,836	Linking Sex Differences in Cardiovascular Reflexes and Pain Perception	National Institute of Arthritis, Musculoskeletal and Skin Disease (Sub Award)
Francis McCormack, MD	Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine	$30,615	RLDC: Multicenter International Durability and Safety of Sirolimus in LAM Trial (MIDAS)	National Heart, Lung and Blood Institute (Sub Award)
Aimin Chen, PhD	Department of Environmental Health	$29,788	Impact of PBDE and PFC Exposures	National Institute of Environmental Health Sciences (Sub Award)
David Fleck, PhD	Department of Psychiatry and Behavioral Neuroscience	$29,271	IPA for David Fleck	Department of Veterans Affairs Office of Research & Developm
Bruce Yacyshyn, MD	Department of Internal Medicine, Division of Infectious Diseases	$25,800	Comparative Effectiveness of Specific Carbohydrate and Mediterranean Diets to Induce Remission in Patients With Crohn's Disease	Patient-Centered Outcomes Research Institute (Sub Award)

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Emily DeFranco, DO	Department of Obstetrics and Gynecology	$25,083	CISA Maternal Tdap and IIV Study Logical Follow On	Centers for Disease Control and Prevention (Sub Award)
Robert McCullumsmith, MD, PhD	Department of Psychiatry and Behavioral Neuroscience	$25,000	A Single-Arm, Open-Label Biomarker Development Clinical Trial of Ketamine for Non-Psychotic Unipolar Major Depression and Bipolar I or II Depression	University of Michigan (Sub Award)
Hassane Amlal, PhD	Department of Internal Medicine, Division of Nephrology and Hypertension	$25,000	Possible Role of Glutamine Transport and Metabolism in the Development of Diabetic Nephropathy	Dialysis Clinic, Inc.
Francis McCormack, MD	Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine	$25,000	2016 LAM Foundation International Lymphangioleiomyomatosis Research Conference	National Heart, Lung and Blood Institute
Bassam Abu Jawdeh, MD	Department of Internal Medicine, Division of Nephrology and Hypertension	$25,000	Investigating Complement-Split Products as Potential Biomarkers for Antibody-Mediated Rejection in Renal Allografts	Dialysis Clinic, Inc.
Jose Cancelas-Perez, MD, PhD	Hoxworth Administration	$24,958	Central Lab Testing Work Order #3	Cerus Corporation
Alberto Espay, MD	Department of Neurology and Rehabilitation Medicine	$24,000	Natural History and Biospecimen Repository for Dystonia U54 TR0014	National Center for Advancing Translational Sciences (Sub Award)
Michael Tranter, PhD	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$23,700	Development of a HuR Inhibitor for the Treatment of Cardiac Hypertrophy	National Heart, Lung and Blood Institute (Sub Award)
Mark Baccei, PhD	Department of Anesthesiology	$22,776	A Novel Combinatorial Approach to Restore Motor Function After Spinal Cord Injury	National Institute of Neurological Disorders and Stroke (Sub Award)
Jose Cancelas-Perez, MD, PhD	Hoxworth Administration	$20,960	Central Lab Testing-Statement of Work #2	Cerus Corporation
Carol Rice, PhD	Department of Environmental Health	$20,206	Worker Training Program (WTP) Ebola Biosafety and Infectious Disease Response Training (UH4)	National Institute of Environmental Health Sciences (Sub Award)
Scott Langevin, PhD	Department of Environmental Health	$20,000	Efficacy of an LSD1 Inhibitor (GSK2879552) for Treating Sinonasal Squamous Cancer	Brandon C. Gromada Head and Neck Cancer Foundation
Michael Maier, PhD	Department of Environmental Health	$20,000	Support for OEL Development - Assessment for Permethrin (CAS 52645-53-1)	Department of the Army (Sub Award)

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Alexander Musser	Department of Surgery	$19,823	Third Molar Autotransplantation in the Pediatric Patient: A Pilot Study	Osteo Science Foundation
Daniel Woo, MD	Department of Neurology and Rehabilitation Medicine	$19,244	Metabolomic Predictors of Stroke in REGARDS	National Institute of Neurological Disorders and Stroke (Sub Award)
David Hui, PhD	Department of Pathology and Laboratory Medicine	$19,083	Perivascular Adipose Tissue and Vascular Remodeling	National Heart, Lung and Blood Institute (Sub Award)
Joseph Palascak, MD	Department of Internal Medicine, Division of Nephrology and Hypertension	$18,000	2016-2017 CDC/HFM Community Counts: Public Health Surveillance for Bleeding Disorders	Centers for Disease Control and Prevention (Sub Award)
David Plas, PhD	Department of Cancer Biology	$16,323	Metabolic Alterations in Age-Associated Dendritic Cell Dysfunction	National Institute on Aging (Sub Award)
Richard Becker, MD	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$15,394	Translational Research Centers in Thrombotic & Hemostatic Disorders-ACC, Year 4	National Heart, Lung and Blood Institute (Sub Award)
David Norton, MD	Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine	$13,006	Prevention and Early Treatment of Acute Lung Injury PETAL Network: LOTUS FRUIT	National Heart, Lung and Blood Institute (Sub Award)
Opeolu Adeoye, MD	Department of Emergency Medicine	$13,000	TBI Biomarker Program	Abbott Laboratories (Sub Award)
Teresa Reyes, PhD	Department of Psychiatry and Behavioral Neuroscience	$12,854	PNIRS 2017 Annual Meeting	National Cancer Institute
Katherine Burns, PhD	Department of Environmental Health	$12,500	The Environmental Contaminant di-(2-ethylhexyl) phthalate (DEHP) Induces Endometriosis	Endometriosis Foundation of America
Jaroslaw Meller, PhD	Department of Environmental Health	$12,008	Pharmacogenetics of Opioids, Reducing Persistent Postoperative Pain and Opioid Dependence	National Institute of Child Health and Human Development (Sub Award)
Ravi Samy, MD	Department of Otolaryngology-Head and Neck Surgery	$12,000	HERMES Data Entry Program	Auditory Implant Initiative
Amit Bhattacharya, PhD	Department of Environmental Health	$11,989	The Impact of Thermal Load on PFD Use Among Shrimp Fishermen	National Institute for Occupational Safety and Health (Sub Award)
Fred Finkelman, MD	Department of Internal Medicine, Division of Immunology, Allergy and Rheumatology	$11,634	IL-9-Producing Mast Cell Precursors and Food Allergy	Department of the Army Medical Research Acquisition Activity (Sub Award)

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Michael Archdeacon, MD	Department of Orthopaedic Surgery	$11,300	The Impact of Topical Tranexamic Acid on Pre- & Post-Operative Hemoglobin/ Hematocrit in Isolated Operative Posterior Wall Acetabular Fractures: A Prospective, Randomized, Double-Blinded, Multi-Center Study	Foundation for Orthopedic Trauma
Joseph Palascak, MD	Department of Internal Medicine, Division of Nephrology and Hypertension	$11,000	2016–2017 Maternal and Child Health Bureau (MCHB) Contract	Maternal and Child Health Bureau (Sub Award)
Roy McKay, PhD	Department of Environmental Health	$10,534	Development of Cartridge Change Out Schedules	Department of Energy (Sub Award)
Winston Kao, PhD	Department of Ophthalmology	$10,000	Ohio Lions Eye Research Fellowship Application FY2017	Ohio Lions Eye Research Foundation
Susan Kasper, PhD	Department of Environmental Health	$10,000	Urologic Biology: Cell Actions and Reactions in Normal and Disease Niches	National Inst of Diabetes and Digestive and Kidney Disease
Nancy Elder, MD	Department of Family and Community Medicine	$10,000	Collaborative Ohio Inquiry Network (COIN) Research Center	Agency for Healthcare Research and Quality (Sub Award)
Khurram Bari, MD	Department of Internal Medicine, Division of Digestive Diseases	$10,000	A Pilot Study to Evaluate the Safety and Efficacy of Budesonide as an Alternative to Prednisone for Liver Transplant Immune Suppression	American College of Gastroenterology
Gregory Fermann, MD	Department of Emergency Medicine	$8,586	Longitudinal Assessment of Post-traumatic Syndromes (U01)	National Institute of Mental Health (Sub Award)
Christopher White, MD, JD	Department of Family and Community Medicine	$8,400	Leroy A. Rodgers, MD Preceptorship Program	Ohio Academy of Family Physicians Foundation
Susan Pinney, PhD	Department of Environmental Health	$8,000	Extreme Exposure Biomarker Levels: Guidance for Investigators	National Institute of Environmental Health Sciences
Keith Wilson, MD	Department of Otolaryngology-Head and Neck Surgery	$7,850	Role and Regulation of the Human DEK Proto-Oncogene	National Cancer Institute (Sub Award)
Nancy Elder, MD	Department of Family and Community Medicine	$5,000	Pilot Testing of an Integrative Chronic Pain Group Visit for Homeless Adults With Chronic Pain	CCTST Partnership Development Grant

INVESTIGATOR	INVESTIGATOR UNIT	TOTAL FUNDING	STUDY TITLE	AGENCY
Joseph Kiesler, MD	Department of Family and Community Medicine	$5,000	Exploring the Efficacy of a Resource Map for Persons Experiencing Homelessness and the Agencies that Serve Them	CCTST Partnership Development Grant
Carl Fichtenbaum, MD	Department of Internal Medicine, Division of Infectious Diseases	$4,900	Women's Ancillary Study - Cardiovascular Disease Risk in HIV-infected Women: Sex-Specific Mechanisms of Risk and Risk Reduction Among REPRIEVE Trial Participants	National Institute of Allergy and Infectious Diseases (Sub Award)
Carol Rice, PhD	Department of Environmental Health	$4,400	Worker Health and Safety Training Cooperative Agreement DOE	National Institute of Environmental Health Sciences (Sub Award)
Christopher White, MD, JD	Department of Family and Community Medicine	$3,600	Leroy A. Rodgers, MD, Preceptorship Program 2016	Ohio Academy of Family Physicians Foundation
Fred Finkelman, MD	Department of Internal Medicine, Division of Immunology, Allergy and Rheumatology	$3,465	Food Allergy and Goblet Cell Antigen Passages	National Institute of Allergy and Infectious Diseases (Sub Award)
Bruce Yacyshyn, MD	Department of Internal Medicine, Division of Infectious Diseases	$2,800	Gene Discoveries in Subjects With Crohn's Disease of African Descent (GENESIS)	National Institute of Diabetes and Digestive and Kidney Disease (Sub Award)
Carol Rice, PhD	Department of Environmental Health	$2,200	Hazardous Materials Worker Health and Safety Training (U45) (HDPTP)	National Institute of Environmental Health Sciences (Sub Award)
Mercedes Falciglia, MD	Department of Internal Medicine, Division of Endocrinology, Diabetes and Metabolism	$2,000	The Stroke Hyperglycemia Insulin Network Effect (SHINE) Trial	National Institute of Neurological Disorders and Stroke (Sub Award)
Austin Wanek	Department of Internal Medicine, Division of Cardiovascular Health and Disease	$500	Investigation of the Relationship Between Hemolysis and Acoustic Droplet Vaporization	Acoustical Society of America

Opeolu Adeoye, MD

Associate Professor
Co-Director, UC Stroke Team
Department of Emergency Medicine
$128,221

Dr. Adeoye works with a prospective observational study to enroll a planned 250 subjects with suspected stroke symptoms who present to the Emergency Department within 12 hours of symptom onset. Blood samples are collected and processed for subsequent analyses using high throughput genomic and proteomic techniques to identify novel biomarkers for distinguishing ischemic stroke from hemorrhagic stroke and stroke mimics. Future work will aim to confirm and validate findings from this study.

Caleb Adler, MD

Professor
Department of Psychiatry and Behavioral Neuroscience
$229,163

Dr. Adler's clinical trial work has focused on the treatment of mood and other psychiatric disorders, including bipolar disorder, schizophrenia and ADHD. In addition to sponsored clinical trials, he recently completed a dual-site investigator-initiated study of bipolar depression and has contributed to the dissemination of research findings for other bipolar medications.

Rita Alloway, PharmD

Research Professor
Department of Internal Medicine, Division of Nephrology and Hypertension
$294,385

Dr. Alloway has served as director of the Transplant Clinical Research Program for over 17 years. The Transplant Clinical Research Program collaborates with several departments and divisions within the College of Medicine and Cincinnati Children's to study kidney and liver transplantation. Dr. Alloway is an investigator on several industry-sponsored and investigator-initiated clinical trials focusing on transplant immunosuppression. She currently serves as the director of the coordinating center for a large multicenter investigator-initiated calcineurin inhibitor and corticosteroid-free immunosuppressant trial in kidney transplant recipients. This study completed enrollment in December 2017 when two similar National Institutes of Health-sponsored trials were halted. During the past year, she has published the results of her U01 grant titled "Bioequivalence Between Innovator and Generic Tacrolimus in Liver and Kidney Transplant Recipients: A Randomized, Crossover Clinical Trial" in PLoS Medicine, and completed the second Food and Drug Administration contract titled "Pharmacokinetics of Generic Tacrolimus in High Risk Transplant Recipients." In November 2017, she was awarded the Distinguished Service to Pharmacy Award by her alma mater, the University of Tennessee, for her ongoing excellence in research.

Lesley Arnold, MD

Professor
Director, Women's Health Research Program
Department of Psychiatry and Behavioral Neuroscience
$387,693

Dr. Arnold focuses on research studies of health problems that are of particular concern to women and are at the medicine-psychiatry interface. The Women's Health Research Program is a leading research center in the study of chronic pain disorders, including fibromyalgia, migraine, chronic low back pain, osteoarthritis pain and neuropathy. She has over 25 years experience leading medication trials in chronic pain, designing clinical trial protocols and developing patient-reported outcome measures. As part of the effort to discover new non-opioid medical treatments for chronic pain and improve the assessment of pain for clinical trials, Dr. Arnold is conducting functional neuroimaging studies of chronic pain mechanisms.

Robert Baughman, MD

Professor
Department of Internal Medicine
$424,904

Dr. Baughman's major research interest is sarcoidosis. Along with his long-time collaborator Elyse Lower, MD, he has been awarded industry funding to study several novel treatments for sarcoidosis, including methotrexate, thalidomide, leflunomide, infliximab, rituximab, corticotropin, aprelimast and placental-derived mesenchymal cells. He is currently funded for evaluating novel anti-inflammatory treatments of sarcoidosis. Other studies include treatments for sarcoidosis-associated comorbidities including pulmonary fibrosis, pulmonary hypertension and fatigue. He has received funding for evaluation of quality of life in sarcoidosis. He also heads two multi-center, multi-national registries for sarcoidosis: the Registry for Sarcoidosis Associated Pulmonary Hypertension and Registry for Advanced Sarcoidosis.

Sadia Benzaquen, MD

Associate Professor
Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine
$104,215

Melissa DelBello, MD

The Dr. Stanley and Mickey Kaplan Professor and Chair
Department of Psychiatry and Behavioral Neuroscience
$269,734

Dr. DelBello investigates risk and resilience factors associated with the development of mood disorders in children and adolescents. Additionally, her group examines novel short- and long-term intervention and prevention strategies for youth with and at risk for mood disorders and attention deficit hyperactivity disorder by combining outcome studies, clinical trials and neuroimaging research.

Andrew Duker, MD

Associate Professor
Clinical Director, Movement Disorders Division
Associate Director, Neurology Residency Program
Co-Program Director, Movement Disorders Fellowship
Department of Neurology and Rehabilitation Medicine
$242,472

Dr. Duker is a fellowship-trained neurologist with a keen interest in improving our understanding of and treatments for movement disorders, including Parkinson's disease, Huntington's disease and others. As a primary investigator in numerous multicenter clinical trials run by the team at the Gardner Center for Parkinson's Disease and Movement Disorders at the University of Cincinnati Gardner Neuroscience Institute, he is working to bring cutting-edge therapies to patients of the Greater Cincinnati area and beyond. He is a member of the Huntington Study Group and Parkinson Study Group, and is currently a site primary investigator for a new treatment for Huntington's disease through the NeuroNEXT consortium, a National Institutes of Health initiative to conduct exploratory trials in neurological conditions.

Mahmoud El Khatib, MD

Professor
Department of Internal Medicine, Division of Nephrology
$106,927

Jean Elwing, MD

Associate Professor
Director, Pulmonary Arterial Hypertension
Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine
$133,387

Dr. Elwing is the principal investigator for several clinical trials, evaluating existing and novel therapies for pulmonary arterial hypertension (PAH). Currently, there are multiple ongoing phase 2 and 3 clinical trials or registries available to PAH patients, with the main focus of examining therapeutics and treatment regimens with hopes of determining optimal strategies. The UC Pulmonary Hypertension Program follows a large cohort of patients affected by PAH. All patients seen in clinic are evaluated for possible participation in clinical trials or registries; the goal is to offer every patient an opportunity to participate in clinical research. Many patients actively participate in clinical trials at some point in their care. The UC Pulmonary Hypertension Program actively collaborates with Cincinnati Children's and several other divisions at UC on various research projects. The pulmonary research unit consists of five staff members and two clinical investigators who are focused on pulmonary hypertension. Funding sources include National Institutes of Health and industry contracts. The program also participates in investigator-initiated projects and often collaborates with trainees who are interested in clinical research.

Alberto Espay, MD

Professor
Director and Chair
James J. and Joan A . Gardner Family Center for Parkinson's Disease
Department of Neurology and Rehabilitation Medicine
$353,839

Dr. Espay's clinical trial work has focused on the treatment of motor and non-motor complications in Parkinson's disease. He coordinated the team that enrolled the first patient into the pivotal study of a levodopa infusion system (now marketed as Duopa™) and has contributed to the development and execution of clinical trials of other dopaminergic therapies, such as IPX066 (now marketed as Rytary™). His investigator-initiated, industry-funded randomized clinical trials at the UC have included methylphenidate for gait impairment in Parkinson's disease and botulinum toxin type A for levodopa-induced cervical dyskinesias, also in Parkinson's disease.

Gregory Fermann, MD

Professor and Vice Chair
Department of Emergency Medicine
$732,797

Dr. Fermann's clinical trial work focuses on the risk stratification and treatment of patients with acute coronary syndrome, acute heart failure, atrial fibrillation and venous thromboembolic disease. The common thread in these diseases is that patients often arrive at the Emergency Department with undifferentiated chest pain and/or dyspnea and are found to have one of the above conditions. His clinical trial programs have focused on enrolling patients with these conditions to evaluate the use of novel biomarkers and assays. For instance, the TACIT trial uses high-sensitivity cTnT in the risk stratification of patients with acute heart failure. He also studies novel therapeutics, such as Serelaxin, a NO-mediated vasodilator, in the RELAX-AHF 2 trial. He is the principal investigator on the multicenter ANNEXA 4 trial, which is enrolling subjects with intracranial and gastrointestinal hemorrhage while taking a direct-acting oral anticoagulant.

Carl Fichtenbaum, MD

Professor
Department of Internal Medicine, Division of Infectious Diseases
$284,449

Dr. Fichtenbaum's clinical trials program is meant to supplement National Institutes of Health-funded activities by providing access to medications and technologies that would otherwise not be available to the Cincinnati

community. The focus of this group has been on persons living with or at risk for HIV infection. Dr. Fichtenbaum and his team conduct studies aimed to treat and prevent HIV infection; explore reducing the HIV reservoir; and evaluate therapies to reduce or eliminate inflammation or the long-term complications of chronic HIV infection (e.g., cardiovascular disease, cancers, infections). In addition, Dr. Fichtenbaum and his team have trials that evaluate other infections such as influenza, clostridium difficile and resistant bacterial infections. This group provides support to faculty of the Division of Infectious Diseases to help them develop and execute human clinical trials.

Lawrence Goldstick, MD

Associate Professor
Department of Neurology and Rehabilitation Medicine
$546,735

Dr. Goldstick's research group has been active in phase 2 through phase 4 studies of all therapies for multiple sclerosis (MS) that have come to market within the last five years as well as treatment with monoclonal antibodies (e.g., solenuzemab, crenezumab) and beta secretace inhibitors (LY3202626) for Alzheimer's type dementia. Studies have included pharmaceutical-sponsored studies and National Institutes of Health studies. Other studies have included evaluation of new anticonvulsants, headache and Parkinson's disease. Recent MS studies have included: use of ocrelizumab as early treatment in MS and utilization for breakthrough disease; alemtuzumab and safety issues related to IV infusion; use of Acthar® for MS relapses after failure of Solu-Medrol®; tolerability and efficacy of ALKS 8700, a monomethyl fumarate, versus Tecfidera®; and use of BII0033 (remyelinating RX) as an add-on therapy to disease-modifying agents in MS.

Michael Goodman, MD

Assistant Professor
Associate Program Director, General Surgery Residency Program
Director, Division of General Surgery Research
Department of Surgery, Division of Trauma and Critical Care
$145,755

Dr. Goodman's clinical studies focus on improving the care of the injured or critically ill surgical patient. Collaborative efforts with industry partners allow access to emerging and point-of-care technologies to enhance the efficacy of bedside patient care. Dr. Goodman and his team continue to pursue cutting-edge diagnostics and therapeutics along the continuum of care to minimize discomfort and morbidity while optimizing patient recovery.

M. Veronica Indihar, MD

Associate Professor
Department of Internal Medicine, Division of Pulmonary, Critical Care and Sleep Medicine
$101,699

Dr. Indihar's clinical research program focuses on cystic fibrosis (CF), with an emphasis on clinical trials and patient-centered outcomes. She and her team are working on creating a non-CF bronchiectasis clinic with special attention to airway clearance support and clinical trials, given the paucity of specific therapies available for this population. Clinicians with an interest in this should contact Dr. Indihar. These trials are funded by the Cystic Fibrosis Foundation Therapeutics Inc. and industrial partners. Dr. Indihar and team also have Cystic Fibrosis Foundation funding for a quality improvement program. They are part of the CF learning network with a goal to improve CF care. Dr. Indihar collaborates with other CF clinicians including Patricia Joseph, MD, Bruce Trapnell, MD, Lisa Burns, MD, Cheryl McCullumsmith, MD, PhD, and Mark Eckman, MD.

Nagla Abdel Karim, MD

Associate Professor
Associate Director of Experimental Therapeutics
Department of Internal Medicine, Division of Hematology and Oncology
$175,837

Dr. Karim's clinical trial work has focused on the treatment of lung cancer, phase 1 clinical trials, genitourinary tumors and malignant melanoma. She coordinated the team that enrolled and has contributed to the development of clinical trials and has ongoing investigator-initiated, partially industry-funded clinical trials at UC that bring in the concept of adding an SRC inhibitor to a Thymidylate inhibitor in patients with selected advanced solid tumors.

Dawn Kleindorfer, MD

Associate Dean for Faculty Development and Women's Initiatives
Professor
Department of Neurology and Rehabilitation Medicine
$120,651

Natalie P. Kreitzer, MD

Assistant Professor
Department of Emergency Medicine
$108,335

Dr. Kreitzer's clinical trial work has focused on the diagnosis of concussion in the Emergency Department. She has worked closely with the Jan Medical team to determine if the BrainPulse, a non-invasive neuromonitoring device, is able to recognize differences between patients who are concussed and non-concussed. Her industry-funded study at UC is a non-blinded study to design an algorithm for the device for use as an aid in the diagnosis of concussion.

Michael Lyons, MD

Associate Professor
Director, Early Intervention Program
Department of Emergency Medicine
$129,766

Dr. Lyons' clinical trial work has focused on implementation of HIV and hepatitis C screening and linkage to care by the Early Intervention Program in the UC Medical Center Emergency Department. Emergency departments are primarily focused on acute care and do not conventionally endorse a prevention mission. The Early Intervention Program was created in 1998 to expand the Emergency Department's focus to include public health and prevention services. Recent goals include: building infrastructure to more fully integrate HIV/HCV screening into usual practice; bolstering linkage to care support for newly and previously diagnosed patients; and using the electronic health record to target patients who have not been linked or have fallen out of care.

Robert McNamara, PhD

Professor
Department of Psychiatry and Behavioral Neuroscience
$198,398

Erik Nelson, MD

Associate Professor
Department of Psychiatry and Behavioral Neuroscience
$262,206

Michael Privitera, MD

Professor
Director, Epilepsy Center
Department of Neurology and Rehabilitation Medicine
$294,961

Dr. Privitera began his career at UC in 1987 and established the Epilepsy Center when there were few antiepileptic drugs (AEDs) available, and no new drug had been approved for 10 years. More than 1 million people in the U.S. have epilepsy with incomplete response to AEDs, creating an enormous need for new treatments. In 1988, he was awarded a National Institutes of Health master agreement for the clinical evaluation of investigational AEDs. Subsequently, he has been principal investigator or co-principal investigator on trials of 21 different investigational compounds (13 are now on the market). In 2015, his Food and Drug Administration-funded study demonstrated striking equivalence of generic AED products and was published in Lancet Neurology. His team recently completed a randomized controlled trial of Epidiolex®, purified cannabidiol, for epilepsy. The first study of this compound in children with Dravet syndrome was published in the New England Journal of Medicine; publication of the adult study from UC is under review. This is the only trial at UC using rigorous clinical trial methodology to study marijuana or a derivative.

Kenneth Sherman, MD, PhD

Professor
Director, Division of Digestive Diseases
Department of Internal Medicine
$144,737

Dr. Sherman's clinical research efforts are focused on viral hepatitis and steatohepatitis-associated liver disease. His group has been among the nation's leading enrollers in PRIORTIZE, a Patient Centered Outcomes Research Institute-sponsored trial of HCV treatment, and has published multiple articles regarding HCV treatments and treatment outcomes related to hepatitis B, hepatitis C and liver transplantation.

Alan George Smulian, MD

Professor
Director, Division of Infectious Diseases
Department of Internal Medicine
$144,960

Dr. Smulian's clinical research program focuses on appropriate and novel antibiotic use particularly with respect to prevention and management of Staphylococcal infections. They currently have an investigator-initiated clinical trial examining a novel agent for perioperative surgical prophylaxis for high-risk surgical procedures, such as joint replacement and cardiac surgery with sternotomy.

Jeffrey Strawn, MD

Associate Professor
Director, Anxiety Disorders Research Program
Department of Psychiatry and Behavioral Neuroscience
$149,249

Dr. Strawn's clinical trial work focuses on the treatment of anxiety and related disorders in children and adolescents. His clinical trials work led to the first Food and Drug Administration approval of a pharmacologic treatment (duloxetine) for pediatric anxiety. Additionally, his clinical trials program evaluates medications with novel mechanisms of action in youth with depressive and anxiety disorders and explores the pharmacokinetics of these medications in pediatric patients. Finally, with his collaborators, Dr. Strawn frequently publishes on clinical trial design, predictors of placebo response, signal detection and novel analytic strategies for pediatric clinical trials.

Michael Thomas, MD

Professor
Director, Division of Reproductive Endocrinology and Infertility
Department of Obstetrics and Gynecology
$224,296

Dr. Thomas' clinical research has focused on the development of new and innovative contraceptive devices. Dr. Thomas has been involved with contraceptive clinical trials at the UC College of Medicine since 1988. He became one of the first principal investigators in the National Institutes of Health's Contraceptive Clinical Trials Network (CCTN) when it was first awarded in 1995. Since that time, he has continued to competitively renew this contract. Over the years, the CCTN has studied intrauterine devices, emergency contraceptives, vaginal rings, patches and various pill formulations. In addition, Dr. Thomas has worked on clinical trials in the area of menopause, polycystic ovary syndrome, endometriosis and amenorrhea.

Trisha Wise-Draper, MD, PhD

Assistant Professor
Medical Director of the UC Cancer Institute Clinical Trials Office
Department of Internal Medicine, Division of Hematology and Oncology
$140,782

Dr. Wise-Draper's clinical research program has largely focused on immunotherapy for head and neck cancer as well as experimental therapeutics. She developed one of the first therapeutic window studies for a PD-1 inhibitor (pembrolizumab) in head and neck cancer which is now an industry-funded, investigator-initiated multi-site phase 2 study showing great promise for new therapeutic strategies in surgically resectable patients. Samples from this study will help several researchers understand how patients both respond and become resistant to immunotherapy with the goal of better combinations in the future. In addition, Dr. Wise-Draper has contributed to clinical studies using other novel targets in head and neck cancer, including CDK inhibitors, STAT3 antisense molecules, CTLA inhibitors and PD-L1 inhibitors, as well as new phase 1 targets in multiple tumors, such as antibody conjugated drugs to HER2, CD73 antibody and a Wee1 inhibitor.

E. Steve Woodle, MD

Professor
Director, Solid Organ Transplantation
Director, Israel Penn Center for Transplant Oncology
Department of Surgery, Division of Transplantation
$573,037

Clinical research has been conducted in organ transplantation at UC for four decades. During the past two decades alone, more than 20 new agents have been investigated in clinical trials. A considerable proportion of transplant clinical trials are investigator initiated, and funding consists of both federal and corporate sponsorship. The UC Transplant Clinical Research program also conducts early-phase clinical trials, with particular expertise in pharmacokinetics and pharmacodynamics. Dr. Woodle and his team have also designed and been the leading institution and investigators on several large multicenter clinical trials that have included reports in the New England Journal of Medicine. Currently, more than 15 active clinical trials are in progress in this program. More recently, Dr. Woodle and his team established a transplant translational research program that is actively collaborating with a basic immunobiology program consisting of UC and Cincinnati Children's faculty investigators. Finally, these clinical research programs have produced technologies that have resulted in UC patent applications.

Bruce Yacyshyn, MD

Professor
Department of Internal Medicine, Division of Digestive Diseases
$179,659.81

The objective of the gastroenterology intestinal clinical research group is to evaluate innovative intestinal therapeutics and targets. Dr. Yacyshyn and his team's experience in intestinal translational research has contributed to their ability to focus on phase 1 to 3 clinical trials in inflammatory bowel diseases, Crohn's and ulcerative colitis. As well, they have significant experience and interest in related conditions: Clostridium difficile colitis, celiac disease, irritable bowel syndrome and gastrointestinal motor-function disorders. Dr. Yacyshyn and his team's translational research includes arteriovenous malformations and organoid-enteroid research. Their work in irritable bowel disease includes biomarker evaluation and use of big data to identify therapeutic drug candidates. They are experienced in the use of proteomics and metabonomics. They work with students at various levels of training in their research laboratory as well as on clinical projects.

Aram Zabeti, MD

Assistant Professor
Division Director, Waddell Center for Multiple Sclerosis
Department of Neurology and Rehabilitation Medicine
$144,094

Dr. Zabeti's research group has been active in different clinical trials during the last few years including a National Institutes of Health-sponsored Phase 2b study of ibudilast for progressive multiple sclerosis (MS) and multiple pharma-sponsored phase 3 studies, including ocrelziumab and siponimod for relapsing MS and phase 4 for fingolimod safety data. They are also involved in a phase 2/3 study for neuromyelitis optica. Other studies in start-up process include a Patient Centered Outcomes Research Institute study focusing on the role of high-efficacy MS treatment in outcome of disease and a R01 study about the genetics of MS.

FACULTY RESEARCH HONORS

David Bernstein, MD, professor internal medicine, was elected chair of the American Board of Allergy and Immunology for 2017–2018.

Jordan Bonomo, MD, associate professor of emergency medicine, was elected to serve a four-year term as an at-large director on the Neurocritical Care Society Board of Directors. Board members are chosen on their ability to demonstrate commitment to improving the health care and outcomes of patients with life-threatening neurological illnesses by promoting quality patient care, professional collaboration, research, training and advocacy.

Melanie T. Cushion, PhD, senior associate dean for research and professor of internal medicine, was named recipient of the Antimicrobial Research Award from the American Society for Microbiology (ASM). The honor was presented at the 2017 ASM Microbe meeting on June 4 in New Orleans.

Kermit Davis, PhD, associate professor of environmental health, was a co-winner of the Best Ergonomics in Design Article Award at the Human Factors and Ergonomics Society 2016 International Annual Meeting. The article is a literature review of various alternatives to conventional office seating for preventing musculoskeletal disorders, providing succinct summaries of the research, along with concrete "take-home messages."

Jiajie Diao, PhD, assistant professor of cancer biology, was awarded the 2017 International Union of Pure and Applied Physics Young Scientist Prize in Biological Physics for his significant contributions to the area of single-molecule biophysics. Dr. Diao "pioneered the development of single vesicle fusion assays based on FRET, which enables addressing many fundamental questions about biological systems involving membranes."

Alberto Espay, MD, associate professor of neurology and rehabilitation medicine, was honored with the Cotzias Award by the Spanish Society of Neurology's Movement Disorders Study Group. Dr. Espay, medical director of the Gardner Center for Parkinson's Disease and Movement Disorders, was honored for "outstanding clinical and research work."

James Herman, PhD, Donald C. Harrison Endowed Chair of Medicine and director of the UC Neurobiology Research Center, was named to a four-year appointment on the Neuroendocrinology, Neuroimmunology, Rhythms and Sleep Study Section at the Center for Scientific Review at the National Institutes of Health.

Shuk-mei Ho, PhD, Jacob G. Schmidlapp Professor and chair of environmental health, was named to a four-year term on the National Advisory Environmental Health Sciences Council (NAEHSC). NAEHSC is a congressionally mandated body that advises the secretary of the Department of Health and Human Services, the director of the National Institutes of Health and the director of the National Institute of Environmental Health Sciences (NIEHS) on matters relating to the direction of research, research support, training and career development supported by the NIEHS. An important function of the council is secondary review of research grant applications with a focus on NIEHS scientific program priorities and program balance.

Litsa Kranias, PhD, Hanna Professor and Distinguished University Research Professor in the Department of Pharmacology and Systems Physiology and co-director of the Cardiovascular Center of Excellence, has been appointed chair of the Cardiac Contractility, Hypertrophy and Heart Failure study section of the National Institutes of Health. She also was named the 2016 George E. Brown Memorial Lecturer by the American Heart Association's Council on Basic Cardiovascular Sciences. The award was presented at the American Heart Association's Scientific Sessions annual conference in New Orleans, Nov. 12-16, 2016.

Hani Kushlaf, MD, assistant professor of neurology and rehabilitation medicine and pathology and laboratory medicine, received the President's Research Initiative Award at the 2017 annual meeting of the American Association of Neuromuscular and Electrodiagnostic Medicine. The prize is awarded for a research manuscript which enhances the understanding, diagnosis and management of painful neuromuscular conditions.

Vincent Martin, MD, professor of internal medicine and co-director of the Headache and Facial Pain Center at the UC Gardner Neuroscience Institute, was elected president of the National Headache Foundation (NHF). Martin has been on NHF's board of directors for the past seven years, serving as vice president since 2011.

Robert McCullumsmith, MD, PhD, associate professor of psychiatry and behavioral neuroscience, was appointed as a member of the Neural Basis of Psychopathology, Addictions and Sleep Disorders study section of the National Institutes of Health. Members are selected on the basis of their competence and achievement in their scientific discipline and by the quality of their research accomplishments, publications in scientific journals and other significant scientific activities, achievements and honors. His term of appointment is July 2016 to 2019.

Sadhna Verma, MD, associate professor of radiology and a member of the UC Cancer Institute, was awarded the first Mischell Family Prostate Cancer Pilot Grant Award, given to a UC researcher who is dedicated to finding new treatments and eradicating prostate cancer. The award, $47,500 for a period of one year, will help Dr. Verma develop a novel imaging method for improved and early detection of aggressive prostate cancer.

Carri Warshak, MD, associate professor of obstetrics and gynecology, received the award for "Best Oral Presentation" for the Oral Plenary Session at the 37th Annual Meeting of the Society of Maternal-Fetal Medicine, Jan. 23-28, 2017.

Lee Zimmer, MD, PhD, associate professor of otolaryngology-head and neck surgery and director of the Rhinology and Anterior Cranial Base Surgery Program, was named to the board of the North American Skull Base Society (NASBS). Founded in 1989, NASBS is a professional medical society that facilitates communication worldwide between individuals pursuing clinical and research excellence in skull base surgery.

University of Cincinnati
College of Medicine

COLLEGE LEADERSHIP

William S. Ball, MD
Senior Vice President for Health Affairs and Dean

Melanie T. Cushion, PhD
Senior Associate Dean for Research

Andrew T. Filak Jr., MD
Senior Associate Dean for Academic Affairs

Brett M. Kissela, MD
Senior Associate Dean for Clinical Research

Alex B. Lentsch, PhD
Senior Associate Dean for Faculty Affairs & Development

Lori A. Mackey
Senior Associate Dean for Operations and Finance
Chief Financial Officer

Myles L. Pensak, MD
Senior Associate Dean for Clinical Programs

FACULTY

Tenure/Tenure Track	**367**
Clinical Track	**1,242**
Research Track	**165**
Field Service Track	**47**
Educator Track	**19**
Volunteer/Adjunct/Visiting	**473**

ALL FUNDS OPERATING REVENUE* FY2017 (IN MILLIONS)

Clinical Practice	**$595.5**
Federal/Non-Federal Research	**264.6**
Hospitals	**253.7**
State Appropriations	**46.3**
Gift and Endowment Income	**27.3**
Other Income	**134.0**
Tuition	**35.3**
Total Operating Revenue	**$1,356.7**

** From LCME 1-A*

COLLEGE OF MEDICINE FACILITIES

Buildings	**16**
Research Space (net square feet)	**420,951**
Total Space (gross square feet)	**2.31 million**

DEVELOPMENT

Total Dollars Raised (fund year 2017) **$39,362,449**
College of Medicine Endowments **$463,088,806**
(market value as of 6/30/2017)

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The University of Cincinnati does not discriminate on the basis of disability, race, color, religion, national origin, ancestry, medical condition, genetic information, marital status, sex, age, sexual orientation, veteran status or gender identity and expression in its programs and activities.

The university does not tolerate discrimination, harassment or retaliation on these bases and takes steps to ensure that students, employees and third parties are not subject to a hostile environment in university programs or activities.

The university responds promptly and effectively to allegations of discrimination, harassment and retaliation. It promptly conducts investigations and takes appropriate action, including disciplinary action, against individuals found to have violated its policies, as well as provides appropriate remedies to complainants and the campus community. The university takes immediate action to end a hostile environment if one has been created, prevent its recurrence, and remedy the effects of any hostile environment on affected members of the campus community.

UC is committed to the ideal of universal Web accessibility and strives to provide an accessible Web presence that enables all university community members and visitors full access to information provided on its websites. Every effort has been made to make these websites as accessible as possible in accordance with the applicable guidelines.

The following person has been designated to handle inquiries regarding discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, medical condition, genetic information, marital status, age and veteran status:

Tamie Grunow
Senior Associate Vice President
& Chief Human Resources Officer
Section 504, ADA, Age Act Coordinator
340 University Hall, 51 Goodman Drive
Cincinnati, OH 45221-0039
513-556-6381; grunowtl@ucmail.uc.edu

The following person has been designated to handle inquiries regarding discrimination, harassment or retaliation based on sex, sexual orientation, gender and gender identity or expression:

Karla Phillips
Interim Title IX Coordinator
3115 Edwards 1, 45 Corry Blvd.
Cincinnati, OH 45221
513-556-3349; karla.phillips@uc.edu

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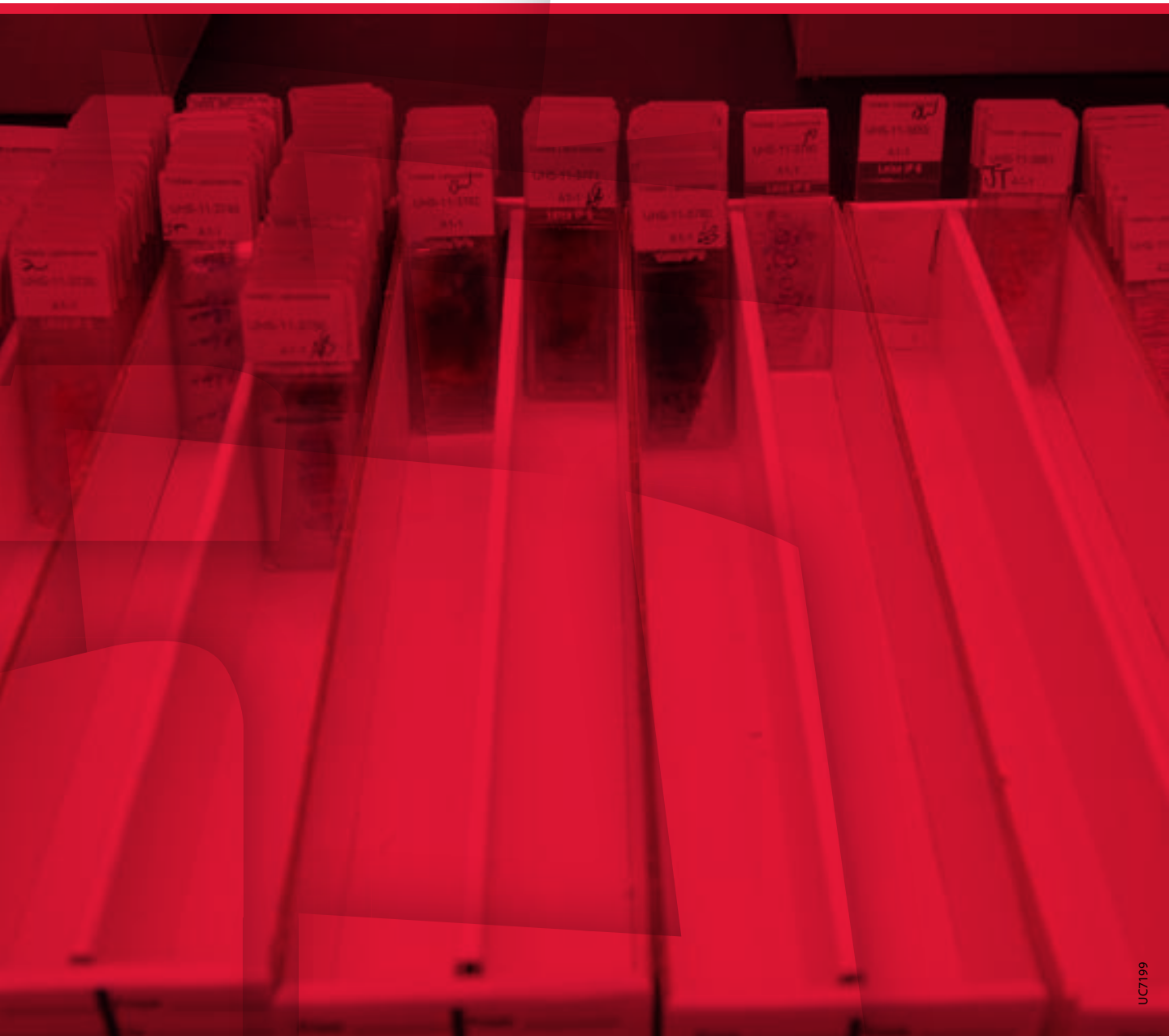

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