TOTAL GRANTS
145
19 percent are held by primary investigators with R01 awards

TOTAL FUNDING
$89.0 million

OVER $8.8 million in NEW AWARDS IN FY2019

CLINICAL TRIAL REVENUE (FY2019)
$5.7 million

INCREASE IN TOTAL FUNDING (from FY2018 to FY2019)
2.5%

SUCCESS RECEIVING FUNDING (FY2019)
29%

IMAGE, FRONT COVER:
“Reflections”
The soft hues of the morning sun reflect some of the beautiful buildings on East Campus on the glass exterior of the beautiful CARE/Crawley building. Photo taken with an iPhoneX.
2019 Image Gallery awardee, Images in Medicine
CREDIT: Ameet Chimote, PhD, Division of Nephrology/Kidney CARE
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Since 2011, our strategic plan in the Department of Internal Medicine has prioritized our research mission.
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SUPPORTING AND FOSTERING RESEARCH THROUGH FUNDED INITIATIVES AND FORMAL PROGRAMS
Welcome to the 2018-2019 edition of the Department of Internal Medicine’s (DOIM) annual research report! In this report you will have the opportunity to read about our overall accomplishments as a department and some of the key achievements and successful collaborations of the nine divisions and faculty members, trainees and staff. We have set the bar high for our research mission of discovery, innovation, collaboration and impact. To assist our researchers, we have taken steps to promote and support research internally. We have carefully done so in an aligned fashion with our College of Medicine, Cincinnati Veterans Administration Medical Center, Cincinnati Children’s Hospital and the UC Health system.

As we have described previously, since June 2011, our strategic plan and vision have guided our steps towards accomplishing our mission in the nine divisions of the Department. By every measure we have succeeded in “becoming the leader in improving the health of our local and global community based upon our tripartite missions.” Our total research holdings are now over $89 million dollars. This remains at an all-time high year-to-year and leads any other geographic department in the College of Medicine. This is at least due to our Academic Research Services (ARS) construct, our internal medicine awards program for junior and senior investigators, our bridge funding process and our IM-STARS (scholarly training for academic research) program, along with RNAHR 38 funding currently under consideration.

At the end of FY 2019 we held a total of 145 grants. Approximately 19% percent of those were held by primary investigators with R01 awards. There were 44 new grants awarded in fiscal year 19 amounting to a direct award amount of $8.8 million. This data does not include the $5.6 million dollars in clinical trial revenue nor the research funding from our Cincinnati VAMC.

As always, we appreciate the commitment, work and service of all the faculty, investigators, researchers, trainees and staff engaging in basic, clinical, translational and healthcare outcomes research.

Our research initiatives have been successful in large part based upon our fiscal and executive governance model in the department. This is established and enduring. Thus, we are well served for future years for continued success with our research mission. Our associate chairs for basic and translational research, Carl Fichtenbaum, MD, and Sakthivel Sadayappan, PhD, MBA, continue to demonstrate extremely capable and innovative leadership. We are most grateful to them and all involved with our research mission. Most importantly we are extremely grateful to our ARS group who serve to both collaborate with and assist our scientists in their discovery work.

Sincerely,

GREGORY ROUAN, MD
CHAIR, DEPARTMENT OF INTERNAL MEDICINE

Our total research holdings remain at an all-time high year-to-year and lead any other geographic department in the College of Medicine.
How do we promote success and improve the culture of research in the Department of Internal Medicine?

Envisioning success requires the proper support and environment to allow individuals to thrive. Researchers in the DOIM are constantly seeking to create advances that help people live better lives. These talented individuals need a supportive environment that fosters their creativity and encourages them to take risks. The research environment consists of the physical, psychological, intellectual, economic and cultural spheres that intersect to form the fabric of discovery. We must attend to each of these spheres to create the proper environment for our faculty to grow.

The DOIM is committed to providing the necessary space and equipment that allow productive research. RISE-UC (See related story in this report) is the paradigm we have chosen to move our research mission forward. We must celebrate each success in small but important ways. This is why we announce the contributions that our faculty make in our Internal View newsletter. This is why we produce our annual research report highlighting the lives and successes of our research faculty and staff. As we look toward the next five years, we must foster a culture of collaborative research and team science. We must engage our researchers in the kinds of conversations that bring about change and improvement in their professional and personal lives. We must listen. We must discuss. We should debate. We should identify better ways to communicate. And then, we must act to bring the resources and support required to build our research mission.

Our specific goals are to enhance our research portfolio in clinical, translational and laboratory based scientific research. We need to grow our faculty and staff and increase our annual grant holdings by $2 million over the next 2 years. This will take investment from the College, the Department and the Divisions. This will require innovation and effort by our faculty and staff. This is why we are investing more in our trainees and created a regulatory operation within ARS. Together, this is a goal we can achieve.

As we look toward the next five years, we must foster a culture of collaborative research and team science. We must listen. We must discuss. And then, we must act to bring the resources and support required to build our research mission.
SAKTHIVEL SADAYAPPAN, PHD, MBA
ASSOCIATE CHAIR FOR BASIC RESEARCH

How has the Department promoted success and improved research culture at UC?
Research is one of the major pillars of any public academic institution. The Department is committed to advancing our understanding of the basic biology and etiology of human disease. Internal Medicine has been and continues to be a leader in basic and translational research. To accomplish this, we offer research training and workshops, travel awards, seminars, conferences, and opportunities for collaborations inside and outside the department. Consequently, we remain strong in cancer, heart failure, diabetes and obesity, rare lung diseases, digestive diseases, infectious diseases, and sickle cell studies. We have several long standing and well-established industry-sponsored research programs in place to bridge the gap between basic and translational research studies.

Describe how the Department has supported faculty researcher, staff, and trainees over the past year.
The Department has established various mechanisms to nurture trainees, fellows, and early career scientists, as well as junior, mid-career, and established faculty members to promote multidisciplinary research at all institutional levels. It funds early career scientists, trainees, and junior faculty through biannual intramural funding opportunities, providing over $200,000 in awards each year. These efforts have increased research output and the number of quality publications. A biostatistician is contracted to assist researchers and trainees with developing winning research strategies, study design and power calculations, statistical support, and more. The Academic Research Services (ARS) office is staffed to provide full service support for preparing, editing, and submitting basic and clinical research grant applications and start-up and maintenance of IRB protocols for translational and clinical studies. The ARS office also assists researchers and trainees in finding research funding and provides education on writing winning proposals, mentorship, and collaboration. They assisted with over 30 biosketches and 20 individual development plans (IDPs) last year. This service provides investigators with an opportunity to focus on their research studies, rather than administrative logistics. Additionally, the department’s annual research symposium offers opportunities for collaboration, networking, and mentoring through poster sessions, round tables, and meet and greet activities. Our annual research symposium is just one example of the many programs that are offered to foster the research careers of our faculty researchers and trainees.

As an associate chair of basic research for the Department, my responsibilities are to strengthen basic and translational research by advancing facilities and technologies, to encourage collaboration and teamwork to foster innovation and discovery and to advance the understanding of human biology and developing therapeutic strategies.
Research Initiative Supporting Excellence-UC (RISE-UC)

“The discovery of new knowledge requires a supportive environment that encourages researchers to take chances.”

CARL FICHENBAUM, MD

The DOIM created the Research Initiative Supporting Excellence-UC (RISE-UC) in 2012 to foster the development and success of our researchers. By listening to faculty needs, we created a platform of people and programs to support researchers and trainees and to assist them in reaching their research career goals. RISE-UC heralded the development of the Academic Research Service (ARS) in 2016.

Over the past year we supported research through funded initiatives and formal programs with intramural funding, providing seed money for garnering external awards, preliminary data, presentations and publications to foster innovation and impact. Through the ARS and DOIM leadership these seed-grants provide funding for innovative ideas with a 10:1 return on investment.
Year at a Glance

JULY 2018

George Deepe, MD, Carl Fichtenbaum, MD, Christy Holland, PhD, and Frank McCormack, MD, were recognized by the CoM Office of Research for each holding more than $5 million in UC-based awards.

Charuhas Thakar, MD presented Future of AKI Research at NIDDK

Mark Eckman, MD, was interviewed by US News and World Report, WCPO and other media outlets about his latest findings suggesting hepatitis C-infected kidneys may be a safe option for HCV-infected dialysis patients, based on a paper with Kenneth Sherman, MD, PhD, in Annals of Medicine.

Zhongyun Dong, MD, PhD, received a two-year grant of $383,398 from the National Cancer Institute to support the research project “Preclinical Safety and Efficacy Assessment of a Novel PCNA Inhibitor for Prostate Cancer Therapy.”

Silvi Shah, MD, was interviewed by Renal & Neurology News for her research on how women are less likely than men and Hispanics are less likely than whites to have arteriovenous access for hemodialysis.

Neha Reddy Sanagala, PhD candidate, received a $50,000 annual grant for two years for the project “Critical Health Assessment & Outcomes Study/Score in the Cardiovascular ICU.”

Carl Fichtenbaum, MD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more for the project “ACTG Core Funds.”

Michael Borchers, PhD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more for the project “Natural Killer Cell Phenotype and Function in Lymphangioleiomyomatosis.”

Atsuo Sasaki, PhD, was awarded the 2018 Research Innovation Grant in the value of $30,000 for his project “Targeting the metabolic Vulnerability of energy Metabolism in IDH Mutated Glioma.”

Wenhai Shao, PhD, was awarded the 2018 Research Innovation Grant in the value of $30,000 for his project “A Therapeutic Role of R428 in Glomerulonephritis.”

AUGUST 2018

Xiaoyang Qi, PhD, John Morris, MD, and Trisha Wise-Draper, MD, PhD, received prominent coverage in a front-page Cincinnati Enquirer story about the use of an experimental drug known as BXQ-350 at the UC Barrett Center.
Shailendra Patel, MD, received a two-year NIH grant of $249,435 for the research project “Role of Cholesterol Biosynthesis in Development.”

Jane Yu, PhD, received a $10,000 Patient Benefit Award Grant from the LAM Foundation for the proposal “Single-Cell-RNA Sequencing for Identifying Differential Responses to Sirolimus Therapy in LAM.”

Manoocher Soleimani, MD, was corresponding author for the research article “Thiazide Therapy in Chronic Kidney Disease: Renal and Extra Renal Targets” published in Current Drug Metabolism.

Jason Winnick, PhD, was invited to serve on an ad hoc subcommittee to assist in program development for the American Diabetes Association’s Scientific Sessions Meeting June 7-11, 2019, in San Francisco. Winnick was also invited by JDRF, a leading global organization focused on Type 1 diabetes research, to join the organization’s review panel for the FY19 Artificial Pancreas and Metabolic Control Training Awards Review.

Carol Mercer, PhD, lead a team of researchers who have discovered that cell metabolism plays an important role in the ability of cells to start a survival program called autophagy, an unwanted side effect of some anti-cancer drugs that helps some tumor cells dodge treatment and eventually regrow into new tumors. The research was published in Cell Reports.

Melanie Cushion, PhD, published the research article “A Quantitative Systems Pharmacology (QSP) Model for Pneumocystis Treatment in Mice” in the scholarly journal BMC Systems Biology.

SEPTEMBER 2018

Ameet Chimote, PhD, was featured by ThermoFisher Scientific in its Gibco Cell Culture Heroes Spotlight series for the month of September, for his impactful work in the field of cancer research, presenting a webinar on his latest research “Defects in Potassium Channels Contribute to Reduced Immune Surveillance in Cancers.”

Mark Eckman, MD, was interviewed by MedPage Today for his research on the cost effectiveness of hepatitis C screening for U.S. adults 18 years and older versus adults deemed among the Baby Boomer generation.

Phillip Owens, PhD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external grants of $100,000/year or more in direct costs for his project, “The Role of Protease-activated Receptor 2 in Atherosclerosis.”

George Deepe, MD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external grants of $100,000/year or more in direct costs for his project, “GM-CSF-Induced Metal Sequestration and Histoplasma.”

Zhongyun Dong, MD, PhD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external grants of $100,000/year or more in direct costs for his project, “Preclinical Safety and Efficacy Assessment of a Novel PCNA Inhibitor for Prostate Cancer Therapy.”
OCTOBER 2018

Recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more are

Joseph Palascak, MD, for his project, “Hemophilia Foundation of Michigan Sub Award,” Kristin Hudock, MD, for her project “CLOVERS: Crystalloid Liberal or Vasopressors Early Resuscitation in Sepsis” and Melanie Cushion, PhD, for her project “The Role of Sex in the Life Cycle of Pneumocystis.”

Sakthivel Sadayappan, PhD, MBA, was named the new Associate Chair for Basic Research in the department. His appointment was effective Jan. 1, 2019.

Eejung Kim, MD, won the poster competition (basic research category) in the Ohio American College of Physicians annual meeting for her research project, “Comprehensive Look Up Table of KRAS Through Saturation Mutagenesis and Pooled Transformation Assay.”

Mark Eckman, MD, was quoted in Specialty Pharmacy Times, discussing his research which recommends universal screening of adults 18 years of age and older for hepatitis C.

NOVEMBER 2018

Christy Holland, PhD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external grants awards of $100,000 per year or more.

Gregory W. Rouan, MD, Chair, was recommended for Invited Fellowship in the Royal College of Physicians, London, England.

Daniel Schauer, MD, was interviewed by Reuters for a story about a recent study suggesting older women who lose weight may have a lower risk of developing invasive breast cancer than those who maintain or gain weight.

Jack Rubinstein, MD, was interviewed by WVXU-FM, 91.7 about his research on the potential cardiovascular benefits of wearing tefillin, a tight leather band strapped around the arm and worn during 30 minutes of prayer primarily by men in the Jewish community.

DECEMBER 2018

Michael Borchers, PhD, received a four-year grant of $1 million in direct costs from the National Heart, Lung and Blood Institute to study the research project “Natural Killer Cell Functions in Lymphangioleiomyomatosis.”

Dylan Steen, MD, was quoted discussing his research with the SuperWIN project in a web story published by the UC Office of Research.
Trisha Wise-Draper, MD, PhD, was interviewed by WKRC-TV, Local 12 for a story about a new experimental patch to treat head and neck cancer.

Deeptankar DeMazumder, MD, PhD, published an editorial in Circulation Research titled “The Path of an Early Career Physician and Scientist in Cardiac Electrophysiology.”

Veronica Indihar, MD, was awarded a grant of $26,260 in direct costs from the Cystic Fibrosis Foundation for the research project “TDN Principal Investigator Projected Effort (PIPE).”

Kenneth Sherman, MD, PhD, was quoted in Medical News Today discussing his research on a gene that may hold the key to new therapeutic approaches to tackling liver scarring in HIV patients co-infected with hepatitis C.

JANUARY 2019

Lisa Green, PhD candidate and Heather Evans, PhD, postdoctoral fellow each received awards of $5,000 as initial recipients of the Trainee Grant Award offered by the DOIM.

Heather Evans, PhD, postdoctoral fellow, also received a $1,250 Travel Award from the Department of Internal Medicine.

Mark Eckman, MD, was a co-author on the study “Effect of Variation in Published Stroke Rates on the Net Clinical Benefit of Anticoagulation for Atrial Fibrillation” published in the Annuals of Internal Medicine.

Research from Jack Rubinstein, MD, on the possible cardiovascular benefits of wearing tefilin, was cited among the top stories of 2018 chosen by the University of Cincinnati and Medical Xpress medical and health news service.

Nishant Gupta, MD, was invited to join the editorial board of CHEST, a peer-reviewed scholarly journal of the American College of Chest Physicians.

Melanie Cushion, PhD, received a four-year grant of $1.2 million in direct costs for the research project “The Role of Sex in the Life Cycle and Transmission of Pneumocystis.”

Robert Cohen, MD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more for the research “Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness Study.”

Hassane Amlal, PhD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more for the research “Mechanisms of Adenine-induced Fluid Loss in the Kidney.”

Pamposh Kaul, MD, was recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more for the research, “HIV Training for Professionals and Consumers-UC.”
Internal Medicine faculty honored for securing patents at the University’s inaugural Patent Recognition Awards at the 1819 Innovation Hub:
Jonathan Bernstein, MD, professor
Laura Conforti, PhD, associate professor
Zhongyun Dong, MD, PhD, professor
Fred Finkelman, MD, professor emeritus
Marat Khodoun, PhD, assistant professor
Suzanne Morris, PhD, associate professor
Xiaoyang Qi, PhD, professor
William Ridgway, MD, professor

Web of Science Most-Cited List Includes Two Internal Medicine Researchers

The Web of Science Group released its annual list of Highly Cited Researchers in November. The list identifies scientists and social scientists demonstrating significant research influence among their peers based on their ranking in the top 1% for publication citations.

The methodology draws on the data and analysis performed by bibliometric experts from the Institute for Scientific Information at the Web of Science Group. Says David Pendlebury, senior citation analyst at the Institute for Scientific Information, “The Highly Cited Researchers list contributes to the identification of that small fraction of the researcher population that significantly extends the frontiers of knowledge. These researchers create gains for society, innovation and knowledge that make the world healthier, richer, more sustainable and more secure.”

IM’s Highly Cited Researchers in the 2019 list are:
• Richard C. Becker, MD, Mabel Stonehill Endowed Professor of Medicine, College of Medicine; Chief, Division of Cardiovascular Health and Disease; Director and Physician-in-chief, UC Heart, Lung and Vascular Institute; Director of Cardiovascular Services, UC Health
• David I. Bernstein, MD, Emeritus Professor of Medicine and Co-director, Allergy Training Fellowship Program, College of Medicine.
APRIL 2019

Wenhai Shao, PhD, received a three-year R01 grant of $709,000 from the National Institute of Diabetes and Digestive and Kidney Diseases for the research project “Axl receptor tyrosine kinase, a potential therapeutic target in glomerulonephritis.”

David Bernstein, MD, was interviewed by WKRC-TV, Local 12, discussing a new vaccine in trial aimed at protecting babies against cytomegalovirus.

Carl Fichtenbaum, MD, received one of the Faculty Core Values Awards from the Office of Research at the Research + Innovation Week Awards Ceremony.

MAY-JUNE 2019

Five faculty members in the Department of Internal Medicine were recognized by the CoM Office of Research in the Gallery of Awardees for receiving external research grants of $100,000 per year or more:

Carl Fichtenbaum, MD, Division of Infectious Diseases;
Jason Blackard, PhD, Division of Digestive Diseases;
Shailendra Patel, PhD, Division of Endocrinology, Diabetes and Metabolism; Wenhai Shao, PhD, Division of Immunology, Allergy and Rheumatology; and Sakthivel Sadayappan, PhD, MBA, Division of Cardiovascular Health and Disease.

Phillip Owens, III, PhD, won a 2019 Research Innovation Grant of $30,000 for the research project “Role of the gut microbiota in abdominal aortic aneurysm.”

Jason Blackard, MD, was interviewed by The Cincinnati Enquirer about his research on the potential impact opioids and HIV have on each other. Blackard received a three-year $1.7 million grant from the National Institute on Drug Abuse to study the topic.

Senu Apewokin, MD, was part of a team of researchers who won the 2019 Hackathon from UC Cancer Institute and received a grant award of $100,000 to study: “Radiation-activated Bacteria as Drugs: Leveraging the Microbiome for Cancer Cures.” Their work was featured in a Cincinnati Enquirer story.

Kevin Haworth, PhD, received a five-year R01 grant of $2.6 million in direct costs from the National Heart, Lung and Blood Institute for the research project “Ultrasound-Mediated Controlled Hypoxemic Reperfusion for Inhibition of Reperfusion Injury.”

Shuchi Gulati, MD, IMSTAR Fellow, was accepted to participate in the 2019 American Society of Clinical Oncology American Association for Cancer Research Methods in Clinical Cancer Research Workshop in Vail, Colorado.
Research Funding FY18: $89,001,546

We currently hold 145 total grants in the department, 19% of which are held by primary investigators with R0-1 awards. The total award amount is $86,869,756. $8.8 million of these were new grants awarded in FY19.

**KEY**
- Federal Funding
- Non-Federal Funding

Nephrology, Kidney CARE Program
$2,497,977

Infectious Diseases
$23,240,447

General Internal Medicine
$235,318

Cardiovascular Health and Disease
$15,684,781

Office of the Chair
$191,840
Clinical Trial Revenue FY19: $5,672,741

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<th>Division</th>
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<th>FY 2016</th>
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<th>FY 2018</th>
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<td>TOTAL</td>
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Clinical Trial Revenue By Division

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Five Year Trend of Research Funding

- **2015**: $55.4 million
- **2016**: $64.9 million
- **2017**: $80.9 million
- **2018**: $86.8 million
- **2019**: $89.0 million

The graph shows a steady increase in research funding from 2015 to 2019.
New Department Funding Furthers Outcomes, QI Research

When Ashley Jenkins, MD first approached the Internal Medicine Research office about funding quality improvement projects, she did not realize she would permanently expand the department's research awards. Jenkins is finishing an Internal Medicine-Pediatrics hospital medicine research fellowship at Cincinnati Children’s Hospital Medical Center and has a voluntary appointment as an assistant professor of Internal Medicine. As a Meds-Peds hospitalist, she has a special interest in using a community-based participatory research approach to improve healthcare system navigation and communication amongst the healthcare team for patients across the lifespan. Jenkins said her initial request was about "being able to get food and some basic supplies to conduct an inclusive multi-stakeholder needs assessment about communication on the inpatient medicine teams.”

Kelly Niederhausen was the right person to appeal to. Niederhausen, Business Administrator in the Divisions of Nephrology and Infectious Diseases and Assistant Director of Research for Internal Medicine, is committed to the research mission of the department and directed effort into creating a new research award for outcomes and quality improvement research in Internal Medicine. This new award “furthers the commitment to improve safety and quality in health care and assist in determining what works and what does not work in health care delivery. Projects can incorporate clinical outcomes, financial impact, and functional measures and qualitative data collection methods and approaches.”

Jenkins applied for and received the first Internal Medicine Outcomes Research/Quality Improvement Award in fall 2018 for her proposal titled, “Interdisciplinary Communication Enhancement: Using Group Level Assessment to Guide Healthcare System Improvement.” She worked with a large team of organizers and researchers on her project, including the Internal Medicine Academic Research Services (ARS) office staff and the Patients and Family Advisory Council (PFAC) at UC Health.

The project aimed to understand how communication occurred between interdisciplinary internal medicine (IM) teams in the inpatient setting as efforts to enhance interdisciplinary collaborative teamwork within inpatient IM teams highlighted a critical need to address concerns related to communication.

Jenkins’s team conducted a single-center participatory mixed methods study using both group level assessment and concept mapping to examine current barriers and facilitators of effective communication. Their recruited stakeholders were IM faculty, residents, nurses and ancillary staff, patients/families, and care managers who work or have experienced care on inpatient IM teams. Over 100 stakeholders (17 care managers, 16 nurses/ancillary staff, 22 IM faculty, 19 patients/families, 30 residents) generated 97 unique ideas related to communication in the inpatient setting.

Ashley Jenkins, MD, received the first Internal Medicine Outcomes Research/Quality Improvement Award for her proposal titled, “Interdisciplinary Communication Enhancement: Using Group Level Assessment to Guide Healthcare System Improvement.”
A key step after initial idea generation and was to go back to participant groups for feedback. One patient commented, “People always ask us for information, but we never get to hear what the results were or how they were being used. Thank you for bringing this back to us.”

This subsequent feedback and analysis revealed eight concepts within three key domains related to enabling interdisciplinary medicine team communication: patient inclusion and engagement, institutional expectations and role clarity, and team dynamics and behaviors. By interpreting the relationship between ideas and the perspectives of other team members, this interdisciplinary team identified clear expectations as a central and prioritized area to target communication improvement efforts.

For Jenkins, the main indicator of success for this project is that the majority of the co-leads on this project now continue to work together on improvement work at UC Health. Jenkins said, “Having research coordinator time with Ms. Dobbs and the supplies we needed was imperative. Otherwise, I would not have had the time to lead a team of diverse members—many whom have never done research—in this work. As a junior investigator, developing skills early in study design, project management, data analysis, and team leadership have been instrumental as I move forward in my career as a clinician investigator.”

INTERNAL MEDICINE OUTCOMES RESEARCH/QUALITY IMPROVEMENT AWARD
This award “furthers the commitment to improve safety and quality in health care and assist in determining what works and what does not work in health care delivery. Projects can incorporate clinical outcomes, financial impact, and functional measures and qualitative data collection methods and approaches.”

Among those working with Dr. Jenkins on this project were:

Emily Dobbs, MS IM Academic Research Services
Danielle Weber, MD Assistant Professor of Medicine and Pediatrics, COM; University of Cincinnati Medical Center; Cincinnati Children’s Hospital Medical Center
Danielle Clark, MD Assistant Professor of Medicine, COM; University of Cincinnati Medical Center
Sana Rockwell Former Director of Patient Experience, UC Health
Brian May, MD Former Med-Peds Chief Resident, University of Cincinnati Medical Center; Cincinnati Children’s Hospital Medical Center
Jamie Tu Manager of Care Management, UC Health
Betian Lahbabi, RN UC Health
Andy Arken PFAC, UC Health
College of Medicine Research Professional Award Finalists

Many of our IM staff serve our research mission in a way that vastly transforms productivity and drives the research enterprise. They do so by contributing to publications and grant proposals; acquiring and managing clinical trials; designing and executing experiments; recruiting, educating, and protecting clinical research participants; analyzing data; maintaining regulatory compliance; engaging the community in the research enterprise; and mentoring future researchers.

They often serve with little recognition for the time and expertise they commit to improving the quality and rigor of laboratory and clinical research.

We are proud of all our Department's nominees. Two research staff were recognized as Research Professional Award Finalists by the College of Medicine's Office of Research and recognized at the annual Office of Research awards ceremony: Alan D. Ashbaugh (Infectious Disease Division) and Ameet Ajit Chimote (Nephrology Division). Each finalist received an award of $20 sponsored by Fisher Scientific.

Chimote says it was an honor to be nominated for this award and he is grateful to everyone who nominated him. “Working in an academic health center has enabled me to work with the best clinical and basic research teams and allows the research to be truly translational in nature,” he states. He is grateful to UC’s amazing cores and core managers who support the research and allow cutting-edge research to occur.

Ashbaugh states he is pleased to be nominated by Melanie Cushion, PhD and Michael Linke, PhD, and to become a finalist for the award, saying it is very important to recognize the staff that performs so much of the quality work done in basic and clinical research here at the University.

Nominations submitted to the Office of Research were reviewed by nine clinical and basic science faculty and senior researchers, the nominees were exceptional and the selection was difficult.

“I couldn’t have been nominated without the support of my amazing coworkers in the Conforti lab, Dr. Conforti and the wonderful folks in the Division of Nephrology who make coming to work a pleasure.”

Ashbaugh says it was an honor to be nominated by Melanie Cushion, PhD and Michael Linke, PhD, and to become a finalist for the award, saying it is very important to recognize the staff that performs so much of the quality work done in basic and clinical research here at the University.

Nominations submitted to the Office of Research were reviewed by nine clinical and basic science faculty and senior researchers, the nominees were exceptional and the selection was difficult.

We celebrate our Research Professional Award Finalists!

Alan D. Ashbaugh, BS
Internal Medicine,
Infectious Diseases Division.
Nominated by: Melanie T. Cushion, PhD and Michael J. Linke, PhD, CIP

Ameet Ajit Chimote, PhD
Internal Medicine,
Nephrology Division
Nominated by: Laura Conforti, PhD, Charuhas Thakar, MD, FASN, Edith Janssen, PhD, and Michael Arnold
Discover and Innovate
Division of Cardiovascular Health and Disease

ENDOWED CHAIR: Mabel Stonehill Endowed Chair

The Division of Cardiovascular Health and Disease is actively engaged in a full range of research programs. These include fundamental and translational science, clinical trials, population health, implementation science, artificial intelligence and machine learning. We are fully committed to preventing, treating and curing diseases of the heart and circulatory systems through biomedical research and scholarly undertakings at the highest levels, and aspire to positively impact the cardiovascular health of people in our community and beyond.

Richard C. Becker, MD, FAHA
DIVISION DIRECTOR

Research Focus Areas/Types:
Our research focuses on understanding the mechanisms of heart and vascular disease, the development of new drugs, devices, and diagnostic technologies and employs a programmatic, theme-based approach to research that is carefully and strategically aligned with UC Health, the learning health system and the UC College of Medicine. Current projects include:
- Structural heart disease
- Adult congenital heart disease
- Aortopathies
- Cardiovascular-oncology
- Ultrasound-based therapies
- Advanced heart failure and transplant
- Vascular medicine
- Cardiac imaging, thrombophilias and arrhythmias, including those causing sudden cardiac death

Investigators/Trainees:
Our researchers have been highly productive in securing extramural funding. Collectively they provided presentations at 30 national and international prestigious conferences and meetings. We have six MD investigators and eight PhD investigators. Among others, they received R01, K25, Precision Medicine, Leducq, Department of Defense and Acoustic Society of America funding. Our early and mid-career faculty, to include Kevin Haworth PhD, Michael Tranter PhD, Phillip Owens PhD, Deeptankar DeMazumder, MD, PhD and Dylan Steen, MD, MS, have been productive, conducting high-impact basic, translational and population-based research, starting new companies or licensing inventions.

Funding Types:
- National Institutes of Health
- American Heart Association
- UC Heart, Lung and Vascular Institute
- UC College of Medicine, Department of Internal Medicine
- Department of Veterans Affairs
- Industry, public-private partnerships and philanthropy
- Intramural grant awards designed specifically to support discovery, collective intelligence, collaboration and training the next generation of scientific researchers and clinician-investigators.

Mentoring:
We employ both single and team mentoring strategies, career development and scientific advisories and leadership training for senior faculty members who aspire to become department chairs. All of our senior and junior faculty provide mentoring to trainees. We have over 25 trainees that range from pre-doctoral to doctoral and post-doctoral students.

Collaborations:
Our research faculty have collaborations with most University of Cincinnati colleges. We also have collaborations with community retail and start-ups, the Office of Innovation-I-Hub and multiple federal and industry collaborations from scientific advisories for new drug development and innovative trial design in rare diseases to scientists in residency/exchange programs and development of AI platforms with large technology and device companies. Research initiatives will focus on point-of-purchase community health initiatives, AI, machine-based learning, predictive modeling and simulation among patients with cardiovascular conditions, the use of organoids and single-cell models of disease to understand genotype-phenotype relationships in myocardial and coronary vascular disease, and molecular associations of inflammation and thrombosis.
A. Philip Owens III, PhD
For Albert Phillip Owens III, PhD, his love of science can be traced back to his mom. So, not surprisingly his responses to the questions about his research at UC, while revealing his passion for discovery, innate curiosity and devotion to mentoring graduate students, also disclosed an inspiring underlying theme——the influence of his mother in shaping his career. This has recently been even more in the forefront of his mind as she passed away this year after an 8-year battle with cancer.

As an Assistant Professor in the Division of Cardiovascular Health and Disease, he has been an independent faculty member at UC for 5 years and is a member of a highly successful and robust cohort of primarily PhD investigators in his division pursuing both basic and translational projects. The long-term goals of his research are to increase the understanding of thrombosis and coagulation in cardiovascular diseases (CVD) with an emphasis on atherosclerosis and abdominal aortic aneurysm. He aims to translate these findings into more effective therapeutics to improve survival and quality of life for CVD patients.

He asserts that his motivation to contribute to the understanding of cardiovascular disease is somewhat akin to the pleasure of adding a “piece to a puzzle.”

“I don’t care about patents, start-up companies or being credited with designing a new drug. I think that is too self-serving,” says Owens. His minimal interest in the entrepreneurial side of science is in part the attitude bequeathed to him by his mother who worked as a Research Assistant for a now defunct Cincinnati company, Duramed. When Owens was in high school, his mom would come home from work and share her enthusiasm for new discoveries. In contrast, his dad, who is an accountant for a minority-owned local construction firm, came home with stories that were less inspiring to Phil, and more inspiring to Phil’s brother, who is a successful certified public accountant at a local insurance firm.

After obtaining a dual degree in Biology and Chemistry at Georgetown College, his decision to seriously pursue an academic career crystallized while working for a small Cincinnati biotech company, ApoLogic, Inc, located on the third floor of Hoxworth Building. Owens completed a PhD with Dr. Alan Daugherty at the University of Kentucky followed by a postdoctoral fellowship with Dr. Nigel Mackman at one of the meccas for the study of coagulation disorders, the University of North Carolina, Chapel Hill. When Dr. Richard Becker left Duke to become Chief of Cardiovascular Health and Disease at UC, his work but—like his mother—is devoted to his family. He and his wife have three kids: 8, 5 and 3 years of age. His wife is a research scientist at the EPA, and it goes without saying that time with his family...until they are all tucked into bed, and then he gets back to work pursuing his passion for science. He says this with a good-natured smile as he directs a productive cough into a tissue...an unsolicited gift from his youngest in daycare! ●
DISCOVER & INNOVATE
Cardiovascular Health and Disease

PUBLICATIONS

July 1, 2017 thru June 30, 2018


IMPACT PUBLICATION


IMPACT PUBLICATION


IMPACT PUBLICATION

Tefillin use induces remote ischemic preconditioning pathways in healthy men. 


45 Voora D, Becker RC. Unraveling the Genetic Basis of Recurrent Venous Thromboembolism. Circ Genom Precis Med. 2018;11:e002047. 10.1161/CIRC-GEN.117.002047


47 Voora D, Becker RC. Unraveling the Genetic Basis of Recurrent Venous Thromboembolism. Circ Genom Precis Med. 2018; 11:e002047, DOI: 10.1161/CIRC-GEN.117.002047


56 Finnian R. Mc Causland, MBBS, MMSc, Jim A. Tumlin MD, Prabir Roy-Chaudhury, MD, PhD, Bruce A. Koplan, MD, MPH, Alexandru I. Costea, MD, Vijaik Kher, MD, Don Williamson, MD, Saurabh Pokhariyal, MD, and David M. Charytan, MD. Intra-dialytic Hypotension and Development of Cardiac Arrhythmia – Results from the Monitoring in Dialysis Study. Submitted to American Journal of Kidney Disease. March 12, 2019

IMPACT PUBLICATION


59 Tina Baykaner, MD MPH, Ken Quadros, MD, Amit Thosani, MD, Babak Yasmeh, MD, Raman Mitra, MD PhD, Emerson Liu, MD, William Belden, MD, Zhigang Liu, Alex Costea, MD, Chad Brodt, MD, Paul Zei, MD PhD. Safety and Efficacy of Zero Fluoroscopy Transseptal Puncture with Multiple Different Approaches. Submitted to Journal of Cardiac Electrophysiology. JCE-19-0209.


IMPACT PUBLICATION


64 Doytchinova A, Gerson M. 1$^{25}$I-meta-Liodobenzylguanidine Imaging in Patients with Cardiac Resynchronization Therapy: Results are Intriguing but Unknown remains. J Nucl cardiol. 2018 Aug 1. doi:10.1007/s12350-018-1381-x. [Epub ahead of print] PMID: 30069822


IMPACT PUBLICATION


ENDOWED CHAIR: Robert and Helen Gould Endowed Professorship in Internal Medicine

The Digestive Disease Division has an active research agenda across the spectrum of gastrointestinal disorders. This includes basic, translational and laboratory research studies in esophageal disorders including eosinophilic esophagitis and GERD, upper GI bleeding, pancreatobiliary disorders, inflammatory bowel disease, intestinal infections like C. difficile and liver disorders including viral hepatitis, NAFLD/NASH, PSC, PBC and liver transplantation. We anticipate even further expansion of our clinical trials program. Areas of clinical research include treatment of chronic viral hepatitis, NASH, eosinophilic esophagitis, upper GI bleeding, inflammatory bowel disease, and hepatic encephalopathy.

Kenneth E. Sherman, MD, PhD
DIVISION DIRECTOR

Research Focus Areas/Types:
Currently, the division has five active research laboratories/groups. These laboratories are nationally recognized for their contributions to the understanding of:
- New treatments of hepatitis C, and interaction of HIV and hepatitis C viruses
- Viral host immunology and hepatic fibrosis
- Pharmacoeconomics
- Hepatitis B clearance mechanisms
- Effects of cocaine on liver disease progression
- Hepatitis E in immunosuppressed hosts
- Inflammatory bowel diseases and C difficile infection
- Eosinophilic esophagitis
- Liver transplantation immunosuppression

Investigators/Trainees:
We have five MD investigators engaged in clinical and translational research, three PhD investigators engaged in basic research and one PharmD. The Division has one endowed Chair (Gould) that is currently filled.

Funding Types:
- National Institutes of Health
- CDC
- UC College of Medicine and Department of Internal Medicine
- Industry and public-private partnerships

Mentoring:
All division laboratories are available to medical residents interested in an elective experience in a basic/translational research. We have an extensive and well-developed clinical research program. In addition to GI fellows, participation in the programs is also available to house staff.

Collaborations:
A joint GI training grant with pediatric gastroenterology has recently been renewed and funded. This grant provides stipends for fellows interested in basic and translational laboratory research. The divisional faculty have active international collaborations in South Africa, Botswana, Ghana, and India and work with leading investigators at UCSF, University of Maryland, Florida International University, University of Florida, University of North Carolina, Duke University and Harvard University.
For Professor Nadeem Anwar, research is as much about equipping tomorrow’s investigators as it is about finding answers for patients today. “I consider my book chapter, which I worked on closely with my mentor Dr. Kenneth Sherman, to be one of my significant contributions in teaching hepatology to the next generation,” says Anwar, whose chapter on the topic of “Viral Hepatitis other than A, B or C” for the journal Scientific American Gastroenterology, Hepatology and Endoscopy, was published in September 2016. The chapter is available online for medical students, residents and fellows.

Anwar inherited his “pay-it-forward” attitude from Sherman, who is the Division Director for Digestive Diseases and frequently cited as a mentor by young researchers in the division. “Dr. Sherman takes personal interest in the development of his faculty and provides them with the help, guidance and opportunities to participate in clinical trials, as well as invites them to write review articles for national journals,” Anwar says. “With his extensive academic experience, he has helped numerous other faculty members besides me to develop and complete their research projects, too.”

As for his current work, Anwar has several ongoing clinical trials, some industry-sponsored, others investigator-initiated, and some nearing completion. In the next year, he hopes to submit a few more papers for publication in high-impact, peer-reviewed journals. His primary areas of interest are viral hepatitis and liver transplantation. A promising paper on HCV Ab positive organs being transplanted into non-HCV patients has been well recognized nationally.

“I feel that the research papers I have contributed to have helped make the right medical decisions for patients suffering from advanced liver diseases,” Anwar says. •
DISCOVER & INNOVATE

SPOTLIGHT Digestive Diseases
Discover & Innovate

Division of

Endocrinology, Diabetes and Metabolism

Endowed Chair: Albert W. Vontz, Jr. Chair in Diabetes

The Division of Endocrinology, Diabetes and Metabolism is committed to improving the health of our region by translating insightful findings from innovative research into impactful outcomes for the health of patients and our community. A few examples of how the division is making a difference include the outcome-based research that Robert M. Cohen, MD and Jason Winnick, PhD are conducting and the basic science that Vincent Fong, MD, PhD explores. Dr. Cohen’s work has great potential impact to inform on how best to treat patients with type 2 diabetes; Dr. Winnick’s work investigates how individuals with type 1 or type 2 diabetes respond to hypoglycemia and Dr. Fong is investigating how steroids like prednisone impact bone health as well as fat stores; Yufei Dai, MD is our IMSTAR faculty investigating how glucose metabolism is altered after weight loss surgery.

Research Focus Areas/Types:
Current research interests range from exploring the neuro-humoral integrated pathways using animal models of diabetes and obesity, lipid disorders affecting development and atherosclerosis to diabetes and metabolic clinical research. Examples are:
- Mechanisms by which the toxic proteins, causing Alzheimer’s disease, are excreted by the brain
- The relationship between bone and metabolism
- Comparative effectiveness of various therapies for improving the durability of type 2 diabetes treatment (beta cell preservation)
- Mechanisms underlying variation between people in the hemoglobin A1c-blood glucose relationship, including racial differences
- Clinical interventions to reduce diabetes and nonalcoholic fatty liver consequences after liver transplantation
- Hematologic mechanisms contributing to the relationship between diet-induced obesity and inflammation

Investigators/Trainees:
We have two MD PhD investigators (Drs. Patel and Fong), two MD investigators (Drs. Cohen and Dai) engaged in clinical and translational research, one PhD investigator (Dr. Winnick) engaged in basic research and clinical trials. We have two basic science laboratories (Drs. Patel and Fong). Dr. Cohen is a co-investigator in a National Institutes of Diabetes and Digestive and Kidney Disease sponsored multi-center trial called GRADE (Glycemia Reduction Approaches in Diabetes).

Funding Types:
- National Institutes of Health – Dr. Cohen GRADE study on diabetes, two R03s – Dr. Patel for Role of Cholesterol biosynthesis in development, and the Role of Abcg4 in Alzheimer’s Disease, R01 – Dr. Winnick to investigate responses to insulin-induced hypoglycemia in type 1 diabetes.
- UC College of Medicine and Department of Internal Medicine (Drs. Dai and Fong)

Mentoring:
Our faculty host two post-doctorate fellows in our research laboratories and have trained medical students for their research rotations. We also have two undergraduate interns for laboratory-based research.

Collaborations:
Our faculty has many collaborative research efforts with other disciplines including Adult and Pediatric Hematology; Digestive Diseases; Transplantation Surgery; Pediatric Gastroenterology, Hepatology and Nutrition; Pediatric Human Genetics; and the Department of Pathology and Laboratory Medicine.
Babunageswararao Kanuri, PhD
For post-doctoral research fellow Babunageswararao Kanuri, the thrill of research lies in uncovering the small-scale advances that have the potential to lead to big breakthroughs.

“Most of my doctoral and postdoctoral research projects were focused on understanding the importance of interactions between different biological systems at the organ and tissue scale during the progression of a disease,” Kanuri says. “These interactions affect both transcriptional and translational processes leading to complex integrated changes in the global picture of genes and proteins.”

Kanuri says it was his passion toward the development of multitargeted pharmacotherapy approaches as possible treatments for patients with complex lifestyle disorders—such as diabetes and rarer metabolic syndromes—that made him realize the importance of basic scientific research. He says that a variety of basic research activities are currently being pursued in the Division of Endocrinology, Diabetes and Metabolism that include development of mouse models and understanding pathophysiological mechanisms pertaining to diseases linked with endocrine dysfunction such as diabetes, obesity and rare genetic lipid disorders.

“Extensive understanding of different animal models could help us determine the possible pharmacological targets that can be tested for treatment purposes,” Kanuri says.

Kanuri credits some of his research success so far to his postdoctoral mentor, Dr. Shailendra Patel, whose experience, advice and support helped Kanuri overcome research challenges.

“I admire Dr. Patel for helping me become a better professional, one who can deliver any work with passion, patience and perseverance,” Kanuri says.

And it is that passion that drives him, both inside and outside the lab.

“I enjoy drenching the mind and body in research to investigate unique biological questions and find logical, evidence-based answers,” Kanuri says. “However, outside the lab, I’m a dreamer who wants to explore the possibility of designing multitargeted pharmacotherapies to treat complex metabolic diseases linked with lifestyle changes.”

The thrill of research lies in uncovering the small-scale advances that have the potential to lead to big breakthroughs.


Division of General Internal Medicine

ENDOWED CHAIRS: Posey Chair and Richard W. and Sue P. Vilter Chair

Research in our Division has impacted numerous stakeholders, from patients in our own health care system to national policy. Examples of impactful work include work funded by the Centers for Disease Control and Prevention that will contribute to updated national guidelines on screening recommendations for hepatitis C infection; NIH-funded research helping to elucidate associations between morbid obesity and the incidence of certain cancers and the impact of bariatric surgery on reducing these risks; and PCORI-funded research to determine optimal treatment for migraine headache patients with medication overuse.

Mark H. Eckman, MD
DIVISION DIRECTOR

Research Focus Areas/Types:
Primary areas of interest include the decision sciences, outcomes research, health services research, clinical informatics, performance improvement and innovations in medical education, and system redesign.

Impactful Publications
Our faculty have shared several significant findings in high impact journals. These findings are found in publications such as the Annals of Internal Medicine, describing the cost-effectiveness of using kidneys from donors with hepatitis C infection for transplantation in patients with end stage kidney disease and in another article, the effect of variations in published stroke rates on the net clinical benefit of anticoagulation for patients with atrial fibrillation; and the Annals of Surgery assessing bariatric surgery and the risk of cancer in a large multisite cohort and in another article, a study suggesting that bariatric surgery is associated with reduced risk of breast cancer in both premenopausal and postmenopausal women.

Investigators/Trainees:
We have eight MD investigators engaged in clinical and translational research; four senior faculty and four promising junior faculty (Ashley Jenkins, MD, Ben Kinnear, MD, Matt Kelleher, MD and Dana Sall, MD) and two endowed chairs, the Posey Chair and the Vilter Chair. Our faculty have received R01, UL1, Ryan White Foundation, other investigator-initiated industry and foundation, and Anthem Blue Cross Blue Shield Foundation award funding.

Mentoring:
Our researchers are currently mentoring 2 PhD candidates, 6 junior faculty researchers, and 15 internal medicine residents. We also are mentoring junior faculty in other institutions, including one K-award recipient at the Cleveland Clinic, and faculty at UCSF.

Collaborations:
Beyond a rich network of collaborations within the University of Cincinnati, our faculty collaborate on academic activities and research with colleagues at a number of institutions, including the Harvard Medical School, the Massachusetts General Hospital, UCSF, Kaiser Permanente, McMaster University (Ontario) and University of Birmingham (UK), among others.

Funding Types:
• National Institutes of Health
• Centers for Disease Control and Prevention
• PCORI
• UC College of Medicine and Department of Internal Medicine
• Industry and public-private partnerships
Decisions, Decisions, decisions! As the Posey Professor of Clinical Medicine, Professor of Environmental Health, Director of the Division of General Internal Medicine, Center for Clinical Effectiveness, and Co-Director of the Biomedical informatics Core for the University of Cincinnati’s Clinical and Translational Science Award (CTSA), Mark Eckman, MD makes multiple decisions every day. Adding to the scale of these responsibilities is a burgeoning hospitalist mission taken on by his Division of General Internal Medicine that staffs over 30 faculty and nurse practitioners that are critical to the functioning of UC Medical Center. When asked how he successfully manages these roles, he points smilingly to a framed drawing on his wall that depicts a homunculus-like cartoon of his head surrounded by multiple hats labeled: physician, husband, Director Clinical Effectiveness, Division Director, Posey Professor, and father. Though this is not unlike many overworked division directors, and, some might say, most academic physician scientists attempting to be the triple threat, Eckman may have a distinct advantage—his passion and indeed his career focus is on advancing the field of logical, evidenced-based decision making. This combined with a natural sense of organization and instinct to be proactive and timely creates an unusually “effective” physician, scientist and administrator.

Put another way, Eckman espouses cognitive medicine. Eckman is a pioneer in what is now commonly known as “evidence-based” medicine. Is this not a misnomer - have not doctors always been evidence-based? Eckman stresses that as recently as the 1980s it remained typical on rounds for attending physicians to say when asked to justify their clinical decisions, “I do it this way because this what I know works best.” At medical school at Albany, the logic-based computer scientist in Eckman with a Masters in Biomedical Engineering from Northwestern recoiled at this anecdotal approach to medical decisions. Following an internal medicine residency at Albany, Eckman completed a highly prestigious two-year fellowship at Tufts University School of Medicine in Clinical Decision Making and Medical Informatics and learned under some of the masters in this young field including Dr. Stephan Pauker, and Dr. Jerome Kassirer, at the time editor of the New England Journal of Medicine. He stayed on at Tufts rising to Professor of Medicine, Chief of General Medicine, Division of Clinical Decision Making, Informatics and Telemedicine all the while being a Research Affiliate at the Laboratory for Computer Science at MIT. In 1999 he moved to UC as the director of the Institute for Health Policy and Health Services Research, Director of the Center for Clinical Effectiveness, and Chief of General Internal Medicine.

As he looks back on his career, he is most proud of his contributions to a publication in Chest in 2012 providing guidelines for antithrombotic therapy for atrial fibrillation. In this paper—with well over 1300 citations to date—evidence-based theory was applied to address the management of patients receiving anticoagulant or antiplatelet therapy. Eckman has published over 120 primary data papers and has an H index in the low 40s. Eckman remains excited about the prospects in his field. The need for evidenced-based medical decision making that also factors in cost and quality of life continues to be progressively more emphasized. One of the challenges, however, that is typical of most divisions in academic medicine, is the difficulty in garnering the resources to support and foster academic research careers. His strategy at UC has been to “grow his own” young faculty; Drs. Schauer, Warm, Zafar and Sall, to name a few, are examples of the wisdom of this approach. Increasingly, as Eckman finds that his expertise can be applied to many clinical domains, a large percentage of his research effort involves assisting others in the design of their research questions. At its core, it all comes back to how to make the right decision! ●


IMPACT PUBLICATION


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IMPACT PUBLICATION

12. Richard B. Lipton, Kristina M. Fanning, Dawn C. Buse, Vincent T. Martin, Lee B. Hohaia, Aubrey Manack Adams, Michael L. Reed, and Peter J. Goadsby Migraine Progression in Subgroups of Migraine Based on Comorbidities: Results of the CaMEO Study (accepted in Neurology)


IMPACT PUBLICATION


IMPACT PUBLICATION


The scientists and clinical investigators in the Division of Hematology Oncology strive to understand the molecular basis of cancer with the goal of developing novel cancer therapies. The research faculty is engaged in the design and execution of early phase clinical trials, laboratory, research and in teaching and training clinical and research trainees.

**Research Focus Areas/Types:**

**LABORATORY RESEARCH:** The Division has 7 independent laboratories pursuing the following research interests:

- Oncogene-depended intracellular signaling
- Cancer metabolism
- Cancer immunotherapy
- Role of tissue factor in cancer biology
- Identification of novel therapeutic targets
- Biology of primary and metastatic brain tumors.

**CLINICAL RESEARCH:** The interests of the clinical faculty span from the design and execution of early phase to later phase clinical trials clinical (phase I-III). The program has steadily increased the number and quality of clinical trials. We have a portfolio of 72 open trials for a wide array of cancer types. Our experimental therapeutic program is unique in the tristate region providing access to novel therapies that are tested in man for the first time. Several of our faculty have developed investigator-initiated trials that have attracted the financial support of government, non-profit or industry sponsors.

Over the past year, 566 patients were enrolled in interventional trials offered by the Division, which is the highest enrollment of any division in the University of Cincinnati Cancer Institute. Examples of exciting research programs are: Dr. Gulati's investigator-initiated trial aimed at assessing immune check point blockade in association with EGFR inhibition and Dr. Riaz's trial assessing the effect of pan-FGFR inhibition, both in head and neck cancer.

**Investigators/Trainees:**

Three clinical investigators dedicated to phase I and phase Ib trials staff the experimental therapeutic program; eight additional clinical faculty members contribute to our clinical research mission through clinical trials or outcome research. The Division has 12 Hematology and Oncology fellows, several of which are engaged in original research.

**Mentoring:**

Our researchers are mentoring 4 post-doctoral fellows in addition to 4 graduate and several undergraduate students. Educational activities include research seminars and Cancer Grand Rounds.

**Collaborations:**

We maintain close interactions with other clinical and basic science departments through the framework provided by the UC Cancer Institute and the Cincinnati Cancer Center within the UC Academic Health Center, Cincinnati Children's Hospital Medical Center and the Cincinnati VA Medical Center.

**Funding Types:**

- National Institutes of Health
- UC College of Medicine and Department of Internal Medicine
- Department of Veterans Affairs
- Industry and public-private partnerships
- Department of Defense
Atsuo T. Sasaki, PhD
Atsu T. Sasaki, PhD, has research interests and collaborators that span the globe. An Associate Professor in Hematology/Oncology at UC, he is also a Project Professor at the Institute of Advanced Biosciences at Keio University, and a Visiting Professor at Hiroshima University. Dr. Sasaki’s main focus of research is the function of guanosine-5’-trisphosphate (GTP) metabolism in human diseases, including brain tumors.

Sasaki and his team at UC are researching how cells identify and manage GTP levels. GTP is an energy source for cells, and tumor cells need an adequate supply of GTP in order to maintain their fast growth. In their work, Sasaki’s team successfully discovered the first GTP-sensing lipid kinase, P15P4Kβ, a major development in understanding the role of GTP in brain tumors. This work was published in *Molecular Cell* in 2016.

Sasaki and his team had another breakthrough resulting in a 2019 publication in *Nature Cell Biology*. Researchers have long known that enlarged nucleoli increase ribosome production, which can lead to cancerous growth. Sasaki’s team discovered that malignant brain tumors can hijack and reprogram GTP metabolism for nucleolar transcription, allowing them to maintain highly anabolic growth rates. Sasaki’s discovery reveals an important link between GTP biosynthesis, nucleolar enlargement, and malignant growth in brain tumors and fills a 120 year knowledge gap. According the Sasaki, “The nucleolus is the ‘eye’ of the cancer storm that ravages patients’ bodies. Being able to control the eye would be a true game-changer in cancer treatment.” This publication has received national attention and has been featured in articles, highlights, and television and radio shows.

Sasaki has had great success in GTP research. Since 2012, he has received over $3 million in competitive grants for his GTP sensor project. He has over 50 peer-reviewed publications which have been cited over 10,900 times as of February 2020, with an h-index of 40.

However, Sasaki does not spend all of his time in the lab. He is also the founder of three scientific societies, including UC-Tomorrow and United Japanese Researchers Around the World (UJA). Sasaki founded UJA while he was a post-doctoral scholar at Harvard. Sasaki describes UJA as a non-profit “designed to foster new generations of Japanese scientists who can work with their peers from around the globe to advance science.” UJA also organizes career development meetings for young students and established researchers, performs global surveys of Japanese researchers abroad, and publishes articles and books about career development and effective ways to research abroad. UJA is recognized by the Japanese government and is a great resource for networking.

When he is not in the lab or working with UJA, Sasaki can be found spending time with his wife and two children, doing hot yoga, or walking his dog, Cow-Cow.


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**IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma**

*IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma*.  IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma.  IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma.

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IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma.

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IMP dehydrogenase-2 drives aberrant nucleolar activity and promotes tumorigenesis in glioblastoma.


Baughman RP, Lower EE. Steroids for sarcoidosis: How much and for how long? Respir Med 2017;10


Our Division undertakes a wide range of research that is grounded in immunology and inflammation. Highlights of this year’s research include: publication of a novel genetic cause of a mouse model of primary biliary cholangitis (PBC), a paper on prevention of food allergy and suppression of established food allergy by neutralization of TSLP, IL-25 and IL-33, a publication using a novel way to suppress anaphylaxis by using an Anti-Fc receptor monoclonal antibody, a paper showing that house dust-mite allergy is independent of IgE and Fc–Riα, a paper on targeted inhibition of Axl receptor tyrosine kinase in nephritis, a paper on the genetic basis of house dust-mite allergy, and a paper on targeting innate immunity to reverse type 1 diabetes.

Research Focus Areas/Types:
The research in the division spans the spectrum of basic immunological research. Research projects include:
- Investigations to the pathogenesis of food allergy/hypersensitivity
- Anaphylaxis, new therapies for asthma and allergic diseases
- Mechanisms of occupational lung disease
- Pathogenesis of primary biliary cirrhosis and type 1 diabetes (organ specific autoimmunity)
- Pathogenesis of cutaneous systemic lupus erythematosus (SLE)
- Novel therapies for autoimmune disease

Investigators/Trainees:
We have five MD and three PhD researchers and three labs. We hired a new PhD investigator in Immunology, Dr. Wenhai Shao, who specializes in lupus mouse models and immune cell signaling. The Evelyn Hess Chair for Lupus Research is now officially established and we will start the search for the first occupant of the Hess chair. Overall, the division published over 50 articles this year.

Funding Types:
- National Institutes of Health
- Department of Veterans Affairs
- UC College of Medicine and Department of Internal Medicine
- Industry, public-private partnerships and philanthropy

Mentoring:
We have a T32 in Allergy/Immunology, one participant in the CSTP program, a participant in the young faculty mentored journal club, and two separate ACGME accredited fellowship programs whose goal is to produce academic Allergists and Rheumatologists.

Collaborations:
In the coming years, a major effort will be the development of the UC Lupus Center. There is now a critical mass of SLE researchers on campus, including basic and clinical research programs. This year we will organize seminars to encourage cross-disciplinary research in SLE that involves both basic investigators and clinicians.
Researc...h.Morris isn’t only interested in better understanding how the immune system works; she wants to utilize the knowledge to better treat the growing number of patients with severe food allergies and immune system disorders.

“We’re developing and using in-vivo models to understand how the immune system works; how the activation state of antigen presenting cells influences the development of immune responses and the potential application of these models in autoimmune disease and allergy,” Morris says.

Her current research is in two areas: studies with mouse models in food allergy (anaphylaxis), with the focus on developing new approaches to treat these disorders; and studies focused on autoimmune disorders of how IgG1 antibodies can suppress disease caused by more potent antibodies.

Morris has been interested in autoimmunity and lymphocyte tolerance since her early work and training at the University of North Carolina-Chapel Hill—research that led to her PhD thesis. After completing her undergraduate degree in biology, Morris’s first job before going to graduate school was in a cutting-edge laboratory using monoclonal antibodies made for very early clinical trials on patients with colon cancer.

“The excitement of where laboratory research could lead was a driving force in deciding to get my PhD,” Morris says.

Morris credits some of her success thus far to her relationship with her mentor and colleague in immunology, UC’s Fred Finkleman. “I have established an excellent working relationship for over 30 years (24 of those years while at UC) that provides benefits to each of us that allows us to be productive both individually and as a team,” says Morris, who believes the benefits of team research cannot be understated. “The team approach has allowed greater progress to be made,” she says. “We have taken advantage of serendipitous discoveries, and we are moving our findings from bench to bedside.”

Outside the lab, Morris is just as busy—the single mother adopted two daughters from Kazakhstan in 2005 and 2007, respectively. “Both of my daughters came home at 9 months of age and have enriched my life tremendously,” she says. “My life is a juggle, and my household is two kids, two dogs, two cats and one bearded dragon. But when the time is available, I still enjoy watching a good game of Carolina basketball.”
1. Liver-resident NK cells suppress autoimmune cholangitis and limit the proliferation of CD4+ T cells. PMID 30874628
2. Proteomic analysis reveals distinctive protein profiles involved in CD8+ T cell-mediated murine autoimmune cholangitis. PMID 29375127
3. Understanding differences in allergen immunotherapy products and practices in North America and Europe. PMID 30850069
4. Identification of two early life eczema and non-eczema phenotypes with high risk for asthma development. PMID 30830718
5. The Effects of Air Pollution on the Development of Atopic Disease. PMID 30806950
7. Factors Associated with Rotavirus Vaccine Coverage. PMID 30565333
8. A Pediatric Asthma Risk Score to better predict asthma development in young children. PMID 30545722
9. Genetic variants with gene regulatory effects are associated with diisocyanate-induced asthma. PMID 2996634
10. SQ house dust mite sublingual immunotherapy subgroup efficacy and local application site reaction duration. PMID 29656145
11. Cephalosporin Allergy: Current Understanding and SQ house dust mite sublingual immunotherapy tablet. PMID 30775127
12. Tiotropium in asthma: From bench to bedside. PMID 31212121
13. Safety of recombinant human C1 esterase inhibitor for hereditary angioedema attacks during pregnancy. PMID 31170541
14. Duplumab improves asthma outcomes irrespective of frequency of previous asthma exacerbation history. PMID 31075309
15. Impact of omalizumab on patient-reported outcomes in chronic idiopathic urticaria: Results from a randomized study (XTEND-CIU). PMID 31034999
16. Development of a progestosterone-specific IgE assay for diagnosing patients with suspected progestogen hypersensitivity. PMID 30953782
17. Learnings from real-life experience of using omalizumab for chronic urticaria in Latin America. PMID 30937137
18. Tiotropium Is Efficacious in 6- to 17-Year-Olds with Asthma, Independent of T2 Phenotype. PMID 30922390
19. Indirect comparison of intravenous vs. subcutaneous C1-inhibitor placebo-controlled trials for routine prevention of hereditary angioedema attacks. PMID 30899278
20. Tiotropium reduces airflow obstruction in asthma patients, independent of body mass index. PMID 30898691
22. Long-Term Outcomes with Subcutaneous C1-Inhibitor Replacement Therapy for Prevention of Hereditary Angioedema Attacks. PMID 30772477
23. Fixed-Dose Subcutaneous C1-Inhibitor Liquid for Phylactic Treatment of C1-INH-HAE: SAHARA Randomized Study. PMID 30682573

25 Leveraging Multilayered “Omics” Data for Atopic Dermatitis: A Road Map to Precision Medicine. PMID 30631320 Ghosh D, Bernstein JA, Khurana Hershey GK, Rothenberg ME, Mersha TB.


27 Cyclical hypersensitivity, anaphylaxis, and related hormonal reaction. PMID 30468931 Lavery WJ, Bernstein JA.

28 Confounders of severe asthma: diagnoses to consider when asthma symptoms persist despite optimal therapy. PMID30459928 Gherasim A, Dao A, Bernstein JA.

29 Benefits and Harms of Omalizumab Treatment in Adolescent and Adult Patients With Chronic Idiopathic (Spontaneous) Urticaria: A Meta-analysis of “Real-world” Evidence. PMID 30427977 Tharp MD, Bernstein JA, Kavati A, Ortiz B, MacDonald K, Denhaerynck K, Abraham I, Lee CS.

30 Severity of hereditary angioedema, prevalence, and diagnostic considerations. PMID 30132643 Bernstein JA.

31 Chronic Rhinitis Is a High-Risk Comorbidity for 30-Day Hospital Readmission of Patients with Asthma and Chronic Obstructive Pulmonary Disease. PMID 30053594 Singh U, Wangia-Anderson V, Bernstein JA.


33 Step-up and step-down treatments for optimal asthma control in children and adolescents. PMID 29972079 Bernstein JA, Mansfield L.

34 Efficacy of recombinant human C1 esterase inhibitor across anatomic locations in acute hereditary angioedema attacks. PMID 29954477 Baker JW, Bernstein JA, Harper J, Relan A, Riedl MA.


36 Treatment of severe, uncontrolled eosinophilic asthma: Where we are heading. PMID 29718738 Bernstein JA, Panettieri R Jr.

37 The role of anxiety sensitivity-physical concerns in terms of quit day withdrawal symptoms and cravings: A pilot test among smokers with asthma. PMID 29482398 Johnson AL, O’Bryan EM, Kraemer KM, McLeish AC, Zvolensky MJ, Bernstein JA, Horning DR.


40 Hypersensitivity reactions to asparaginase in mice are mediated by anti-asparaginase IgE and IgG and the immunoglobulin receptors FcεRI and FcγRII. PMID 30237272 Rathod S, Ramsey M, Relling MV, Finkelmann FD, Fernandez CA.

41 Declining responsiveness to influenza vaccination with progression of human pregnancy. PMID 29941326 Schlaudecker EP, Ambroggio L, McNeal MM, Finkelmann FD, Way SS.

42 Targeted inhibition of Axl receptor tyrosine kinase ameliorates anti-GBM-induced lupus-like nephritis. PMID 29895432 Zhen Y, Lee IJ, Finkelmann FD, Shao WH.

43 The transcription factors GATA2 and microphthalmia-associated transcription factor regulate Hdc gene expression in mast cells and are required for IgE/mast cell-mediated anaphylaxis. PMID 29277702 Li Y, Liu B, Harmacek L, Long Z, Liang J, Lukin K, Leach SM, O’Connor B, Gerber AN, Hageman J, Roers 9, Finkelmann FD1, Huang H.

44 The vascular endothelial specific IL-4 receptor alpha-ABL1 kinase signaling axis regulates the severity of IgE-mediated anaphylactic reactions. PMID 29157947 Yamani A, Wu D, Waggoner L, Noah T, Koleske AJ, Finkelmann F, Hogan SP.


46 Age and early maternal smoking contribute to epithelial cell IL-13 responsiveness in a pediatric asthma population. PMID 31102477 McAlees JW, Baker T, Kaur D, McKnight C, Lindsley A, Strait RT, Zhang X, Biagini Myers JM, Butsch Kovacic M, Lewkowich IP.

47 Gas6/TAM Receptors in Systemic Lupus Erythematosus. PMID 31360267 Cohen PL1, Shao WH.
DISCOVER & INNOVATE
Immunology, Allergy and Rheumatology

PUBLICATIONS CONTINUED

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49 Targeted inhibition of Axl receptor tyrosine kinase ameliorates anti-GBM-induced lupus-like nephritis. PMID 29895432 Zhen Y, Lee JJ, Finkelman FD, Shao WH.

50 Association of Severe Atopic Dermatitis with month of birth in Armenian pediatric patients. PMID 2969852 Sargsyan A, Gupta J, Ghosh D.

51 Sweet Syndrome. PMID 28613704 Vashisht P, Hearth Holmes MP.

52 Kidney Biopsy From a Patient With Recurrent Scleroderma Renal Crisis During Pregnancy. PMID 30720700 Guo W, Siddiqi N, Khanna SA.

BOOKS


PATENTS

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Optical Sensor 14/920.942
The Division of Infectious Diseases has a long-standing reputation as a research focused division where 72% of the division's faculty members have active roles in clinical, translational, and basic science research. In total, the division has 13 MD investigators and 3 PhD investigators with over $20 million in research holdings.

**Research Focus Areas/Types:**
The focus of the division's basic science research remains fungal pathogens:
- *Histoplasma capsulatum*
- *Pneumocystis* spp.
- Host cellular response to *Clostridium difficile*

The clinical and translation research focus continues to be:
- HIV
- Diarrheal pathogens
- Respiratory pathogens

**Investigators/Trainees:**
The division has an international reputation as a mycology powerhouse based on the research programs of George Deepe in *Histoplasma capsulatum* and Melanie Cushion in *Pneumocystis* species. Kavitha Subramanian Vignesh, the division's newest basic science researcher, is expanding the division's *Histoplasma* research activities even further. Junior investigators such as Rajat Madan and Senu Apewokin are growing the basic and translational research programs of the division by examining the pivotal interface between host cellular, metabolism and *Clostridium difficile* in mouse models and in immunocompromised humans. Additionally, Moises Huaman and Carl Fichtenbaum have delved into a new area of exploration for the division by investigating the role of the host inflammatory response elicited by microbes in the pathogenesis of cardiovascular disease. The clinical research program under Dr. Fichtenbaum continues to conduct studies on persons with HIV infection; prevention of HIV infection; Hepatitis C; influenza and appropriate antibiotic usage.

**Funding types:**
- National Institutes of Health
- Health Resources and Services Administration
- Department of Veterans Affairs
- UC College of Medicine and Department of Internal Medicine
- Industry, public-private partnerships and philanthropy

**Mentoring:**
The divisional research program is committed to providing a structured mentoring environment to allow junior faculty and fellows to develop as independent investigators while sustaining the programs of established investigators.

**Collaborations:**
The division maintains close collaboration with the VA National Infectious Disease Program office based here in Cincinnati and benefits from access to the UC based fungal research on *Aspergillus* and *Candida* and international programs in *Paracoccidioides* and *Cryptococcus*.
DISCOVER & INNOVATE
Infectious Diseases SPOTLIGHT

Pamposh Kaul, MD

University of Cincinnati
INTERNAL MEDICINE

Annual Research Report 2019
Pamposh Kaul is not only a dedicated doctor and researcher; she is also the mother of twins—just one reason she considers her work in preventing mother-to-baby HIV transmission the most significant of her career.

This ongoing project consists of monthly perinatal meetings that allow for a formalized process of care coordination to prevent vertical transmission of the HIV virus from mother to infant.

“This process includes communication and coordination of services among nurses, physicians, pharmacists, obstetricians, pediatricians and case managers within our region,” says Kaul, “to achieve a goal of zero perinatal HIV infections transmitted from mother to baby.”

On a broader scale, Kaul’s research interests are focused on increasing the number of clinicians able to provide quality care for patients living with HIV through multiple grant-funded programs. The HIV Clinician Scholars Program is a yearlong mentorship program for a community provider. The HIPEP/ HIV Inter-Professional Education Program is a multi-disciplinary course that teaches students to provide integrated care for individuals with HIV. The Practice Transformation Project works with one primary care clinic over several years to expand their capacity to provide HIV care. And the MINHC project seeks to integrate the National HIV Curriculum into the curricula of health professions schools in Ohio. The goal of this project is to enhance HIV education among health profession programs throughout the Midwest.

Kaul says her research interests were also influenced by working with UC’s Dr. Peter Frame, who was a pioneer in HIV care, research and education in the region. “He introduced me to the educational grant and therefore quality improvement research,” she says. “I will be eternally grateful for his guidance.”

She’s also thankful for her division directors, the insights of her colleagues, Dr. Peter Grubbs and Dr. Carl Fichtenbaum, and all of the staff that make the research and work possible.

“I am very blessed to work with the Infectious Diseases Center,” says Kaul. “I owe a lot to the clinic staff, especially the nurses and educational research staff team who allow me to pursue these aspects of my work—and without whom I could not do any of the work. It takes an enormous amount of support.”

And for Kaul, who is primarily a clinician, seeing the real impact research has on patient lives is the biggest reward of all.

“I am deeply appreciative of the patients who help me understand their points of view and have allowed me the privilege to care for them,” she says.”
DISCOVER & INNOVATE
Infectious Diseases
PUBLICATIONS July 1, 2018 thru June 30, 2019


3. AHA Career development award 2019-2021 Kavitha Subramanian Vignesh American Heart Association Career Development Award for 3 years for the project "Metallothionein 3 shapes the polarization and metabolism of M2 macrophages:"


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University of Cincinnati
INTERNAL MEDICINE
Annual Research Report 2019
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Division of Nephrology, Kidney CARE Program

ENDOWED CHAIR: James Heady Endowed Chair

The division conducts basic and translational research alongside robust programs in clinical outcomes research and clinical trials within nephrology. First and foremost, we strive to impact the health of patients and our community through the delivery of excellent care. One of the ways we achieve this is by bringing the latest discoveries in the field of nephrology closer to the bedside. We are recognized regionally and nationally for leading and/or contributing to cutting-edge research, and advancing the knowledge about kidney diseases to patients, peers and trainees. This is achieved via a variety of mediums, including peer-reviewed publications, chapters and monographs, symposia, and focused learning sessions within the institution and the community. With our state-of-the-art laboratory facilities, we provide an academic home to our established research faculty and are committed to training graduate and post-doctoral students.

Investigators/Trainees:
The division is at the forefront of planning or participating in national and international clinical trials of new drug development, devices, and other technology. Promising Junior investigators are Silvi Shah, MD and Prakash Gudsoorkar, MD. More established investigators are Laura Conforti, PhD, Hassane Amlal, PhD, Rita Alloway, PharmD and Heather Duncan, PhD. In total we have 5 MD investigators and 4 PhD investigators and over 15 active clinical trials. Research publications by the Division of Nephrology investigators have appeared in the most prestigious medical journals over the last decade, including the Annals of Internal Medicine, Journal of Clinical Investigation, PNAS, Science, Translational Medicine, Journal of American Society of Nephrology, Kidney International, and Critical Care Medicine and Stroke.

Funding Types:
• National Institutes of Health (R01, U01, DOD)
• Department of Veterans Affairs

Research Focus Areas/Types:
BASIC AND TRANSLATIONAL
• Acute and chronic kidney injury
• Ion-channels and immune regulation
• Epithelial transport
• Vascular biology
• Phosphate metabolism, acid-base physiology

CLINICAL OUTCOMES
• Acute kidney injury, chronic kidney disease, dialysis, and transplantation

Mentoring:
Faculty provide mentoring to eight trainees and two post doctorate fellows. Realizing the importance of quality improvement research in the future of clinical medicine, the division continues to co-direct a program at the VA to develop and train a fellow in Quality and Safety.

Collaborations:
We continue to grow our outcomes research program, basic science program, and clinical translational research through strategic collaborations with the VA Medical Center, Cincinnati Children’s Medical Center, UC College of Engineering, Department of Surgery, Department of Family and Community Medicine, Department of Biomedical Informatics and the Department of Emergency Medicine. All of the above collaborations have resulted in scientific productivity: either scholarly work and grant funding.
Ameet Chimote, PhD

A meet Chimote’s passion for meaningful research started while he was a doctor in his native India. “I have seen up close how diseases, especially cancers, can affect individuals and families,” Chimote says. “I have always been motivated to do patient-centric translational research that has an impact on understanding a disease process and can lead to development of therapeutics to treat that disease.”

For almost a decade, Chimote has worked to that end as a Research Scientist in Dr. Laura Conforti’s laboratory in the Kidney CARE program, part of UC’s Nephrology Division. Chimote is part of a team that studies the role of ion channels in T lymphocyte function, primarily in the context of autoimmune kidney disease and solid tumors. In autoimmune Systemic Lupus Erythematosus (SLE), the T lymphocytes are hyperactive, and in 60 percent of patients, this hyperactivity leads to kidney damage, known as lupus nephritis. Targeting a specific ion channel in SLE T cells could lead to a new therapy to prevent the kidney damage in lupus nephritis.

In addition, immune cells, especially T lymphocytes, are required to kill cancer cells and protect the body from tumor formation.

“Unfortunately, the immune system is dysfunctional in cancers and fails to contain tumor growth and metastasis,” Chimote says. The tumor microenvironment contributes to this failure of the immune system to fight cancer cells. “Our laboratory studies how ion channels contribute to the ineffective T lymphocyte function in solid tumors. Specifically, my work focuses on the response and adaptation of ion channels in T lymphocytes to the tumor microenvironment. This work has the potential to lead to using drugs that target ion channels as possible cancer therapy agents.”

Chimote says the supportive and collaborative nature of Dr. Conforti’s lab have added to the sense of purpose and satisfaction he gets from his research work. Not only does he praise his mentor (“She has shaped me into the scientist that I am,” he says), and the division’s multidisciplinary team and cooperation with colleagues across UC’s Academic Health Center, but he also enjoys connecting with the undergraduate and graduate students, postdoctoral fellows and research staff who work alongside him.

“I know it sounds cliché, but truthfully, our laboratory and our division are like a close-knit family,” Chimote says. “I have the privilege to come to work every single day with a diverse and fantastic group of individuals who have both celebrated success with me and supported me in times of personal and professional tribulations.”

And each day, Chimote is driven not only by his desire to make a difference in the lives of real patients, but also by his unending quest for answers. “Research has taught me optimism. Even when experiments do not work, I do not lose hope.”

“Research has taught me optimism. Even when experiments do not work, I do not lose hope.”


32. Shah, S MD; Leonard, A. PhD; K Meganathan, MS; A Christianson, MS; C V Thakar. Pre-Dialysis Acute Care Hospitalizations and Clinical Outcomes in Dialysis Patients (PLOS One, Jan 2019) (Impact Factor: 2.76)

33. Shah, S MD; Leonard, A. PhD; K Meganathan, MS; A Christianson, MS; C V Thakar. Incident Mortality in Dialysis Patients : Focus on Sex and Racial Disparities (Am J Nephrol,2019;49(3):241-253) (Impact Factor: 3.16)
The Division of Pulmonary, Critical Care and Sleep Medicine conducts both basic and clinical research programs focused primarily on development of pathogenesis-driven molecular diagnostics and therapeutics for rare lung diseases.

Current clinical research focuses on:
- Investigator-initiated, multicenter, NIH supported, national and international randomized trials for lymphangioleiomyomatosis
- Investigator initiated phase II NIH combination therapy trial for lymphangioleiomyomatosis
- Pharmaceutical trials in pulmonary arterial hypertension, COPD, asthma, interstitial lung disease and critical care medicine
- Therapeutic Development Network and pharmaceutical trials in cystic fibrosis
- Phase 1 NIH trials of phosphate restriction and therapeutic EGTA lavage for pulmonary alveolar microlithiasis
- Safety and yield of cutting edge interventional and advanced diagnostic pulmonary procedures
- Investigator initiated study of the molecular pathogenesis of portopulmonary hypertension
- NIH funded federal network and pharmaceutical trials in Critical Care Medicine
- Investigator initiated home spirometry trials

**Funding Types for Investigator Initiated Research:**
- National Institutes of Health and other federal agencies—VA, NCATS, FDA, DOD
- Heart and lung societies, ALA, AHA, ATS
- Patient Advocacy Foundations
- Pharmaceutical companies—Pfizer, United Therapeutics

**Mentoring:**
We committed to the training of the next generation of basic scientists and clinician-investigators. We have a special interest in training physician-scientists who are comfortable both at the bench and in the clinic, and fully equipped with the skills, resources and personnel required to bring their research discoveries to trials.

**Collaborations:**
We are part of the Translational Pulmonary Science Center, a collaborative project between pulmonary groups at UC and Cincinnati Children’s Hospital Medical Center, and the Rare Lung Diseases Consortium.
Patricia Joseph, MD
When Professor Patricia Joseph, MD, started working in cystic fibrosis in the 1980s, average patient life expectancy was mid-20s. Today, patients with the disease typically live close to 40 years—and Joseph has been at the forefront of the research that led to such crucial improvements.

“Clearly the clinical trials have had a significant impact on disease progression,” says Joseph, who specializes in Pulmonary Diseases, Lung Disease, Cystic Fibrosis, Critical Care Medicine, Pulmonary and Critical Care Medicine. Joseph and her fellow researchers have been working on a series of CF modulatory therapies and the latest version, a triple combination therapy, was just approved by the FDA for about 90 percent of patients with CF. “These therapies significantly improve outcomes for patients with CF, extend life expectancy and improve quality of life. It is a game changer.”

Joseph is also involved in quality improvement studies to improve the transplant referral process for patients with end-stage CF lung disease and address patient engagement in self-care.

“The information gained from this research is readily adaptable to other disease processes,” she says. Having grown up at a time when girls who were interested in biology were only encouraged to become nurses, Joseph credits her father with her passion for research.

“He saw that I was a curious child, and he encouraged questioning and developing a systematic approach to obtain answers,” she says. “By the time I was in middle school, he had provided me with tools from microscopes and telescopes to a chemistry set and helped me with science projects. He was surprised when I became a doctor instead of a nurse and was clearly proud of everything that I did.”

While Joseph believes that the science and research fields have come along toward welcoming women over recent decades, she also knows there is still work to be done to improve access.

“For young women considering research: stick with it,” Joseph says. “You might have to work hard, and it is not always easy to find the time for research or to have a solid life-work balance, but it is worth it. I have been fortunate to work with mentors and colleagues who respected and supported my work. When you have that kind of support, take advantage of it.”

She also advises young doctors and researchers not to be afraid to ask for help along the way—and to hang tough for what can sometimes be a rough, but rewarding, ride. “There are many people who will be glad to help, if they know what you want and need. That has certainly been my experience in Internal Medicine and the Pulmonary Division at UC.

“And don't get discouraged. Grants and manuscripts will be rejected; learn from the experience. When the data supports the theory, it is so gratifying. When the data doesn't support the theory, the opportunity to think through why the results differ is the most interesting and intellectually stimulating part of research.”


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Mentor & Support
Fellowship Spotlight

Aradhna Seth, MD

University of Cincinnati Internal Medicine

Annual Research Report 2019
Non-alcoholic fatty liver disease is a leading indication for liver transplantation in the United States. “It is a disease that not only affects adults, but unfortunately also affects our youth, which will subsequently impact our future,” says Aradhna Seth, MD and clinical instructor in the Digestive Diseases Division.

During her fellowship, Aradhna Seth worked on a joint venture with Cincinnati Children’s Medical Center Gastroenterology Department to determine whether severity of obesity is associated with liver disease severity in children with fatty liver disease.

“We found that children with more obesity indeed have more severe liver disease,” says Seth, who considers the work among the most significant of her career so far. “Our hope is that this will not only lead to future studies, but more importantly, help physicians better risk stratify their patients. If these adolescents can receive more aggressive, earlier intervention, perhaps they avoid things such as liver cancer or liver transplantation as adults.”

Seth attributes her passion and success so far in part to supportive mentors. Dr. Marialena Mouzaki serves as her mentor at Children's and has been her partner in the critical liver disease research.

“She was incredibly patient as we picked through data for over 700 patients—even when it had to be reanalyzed!” Seth says. “Dr. Mouzaki was supportive throughout the tedious process of trying to publish. I could not have done that project without her guidance and encouragement.”

At UC, Seth credits Dr. Kenneth Sherman, head of the GI Division, with helping her secure opportunities to publish in the field and with providing professional guidance. “I have always loved reading and writing; therefore, the chance to blend that passion with medicine was an enjoyable experience,” Seth says. “Dr. Sherman’s wealth of knowledge has been an inspiration to me. It’s important to find a mentor who is also a friend and confidante for any project to be truly successful.”

In her downtime, Seth enjoys traveling and learning about other cultures. “When I’m not able to travel, my ideal day off includes bicycling in nature, cooking a nice meal with my husband and unwinding with a good book,” she says.

When the white coat is on, though, Seth’s focus is squarely on continuing to find breakthroughs that will make tangible differences to real people: “I hope to continue to try to make a positive impact on patients’ lives.”

Seth attributes her passion and success so far in part to supportive mentors.
8th Annual Research Symposium

The Department of Internal Medicine hosted its eighth annual research symposium Friday, April 5, 2019, in the CARE/Crawley Atrium. Trainees submitted 38 posters and each trainee had an identified mentor. The theme for the event was “Building and Fostering Research for Discovery, Innovation and Impact.”

“This year’s symposium attracted overwhelming support from faculty and staff,” explains Gregory Rouan, MD, chair of the Department of Internal Medicine. “Forty-five faculty volunteered to judge trainee research posters while staff submitted seven posters in the basic and clinical research categories. Our keynote speaker offered a thought-provoking address that was well attended.”

Rouan also offered thanks to all symposium participants and attendees and to Carl Fichtenbaum, MD, associate chair for translational research, and Sakthivel Sadayappan, PhD, associate chair for basic research, both in the Department of Internal Medicine, for their roles in organizing the event. The keynote speaker was Robert Siliciano, MD, PhD, professor of medicine at John Hopkins Medicine in Baltimore, Maryland. Siliciano’s address was titled “Curing HIV Infection: Going Beyond N=1.”

Image Gallery Awardees

**BASIC RESEARCH IMAGES:**

**First place ($100)**
Kristen Engevik, Department of Pharmacology and Systems Physiology  
Mouse Gastric Glands

**Second place ($50)**
Andrew Dunn, PhD, Division of Digestive Diseases  
A Hole New World

**CLINICAL RESEARCH IMAGES:**

**First place ($100)**
Humna Abid Memon, MD, Division of Pulmonary, Critical Care and Sleep Medicine  
Piercing of the Aorta

**People’s Choice:**
Ameet Chimote, PhD, Division of Nephrology, Kidney CARE Program  
Fiery Sunset

**IMAGES IN MEDICINE:**

**First place ($100)**
Ameet Chimote, PhD, Division of Nephrology, Kidney CARE Program  
The Soldiers of the Immune System

**Second place ($50)**
Eric P. Smith, MD, Academic Research Services  
On top of old twister

**Second place ($50)**
Ameet Chimote, PhD, Division of Nephrology, Kidney CARE Program  
Reflections

Keynote speaker Robert Siliciano, MD, PhD
TRAINEE BASIC RESEARCH POSTER AWARDS:

First place (tie) ($500)
Hannah M Russell, Division of Cardiovascular Health and Disease
Mentor: A. Phillip Owens, III, PhD
Fibrinogen depletion attenuates Angiotensin II-induced Abdominal Aortic Aneurysm

First place (tie) ($500)
Mohit Kumar, PhD, Department of Pharmacology and Systems Physiology
Mentor: Saktivel Sadayappan, PhD
Cardiac myosin binding protein c phosphorylation regulates calcium homeostasis

Honorable Mention ($150)
Yiyang Lu, Department of Pathobiology and Molecular Medicine
Mentor: Jane Yu, PhD
Rapamycin associated pro-survival pathways that contribute to treatment refractory in Tuberous sclerosis complex (TSC)

TRAINEE CLINICAL RESEARCH POSTER AWARDS:

First place ($500)
Masaaki Yamada, MD, Division of Nephrology, Kidney C.A.R.E. Program
Mentor: Charuhas Thakar, MD
Incidence and Consequence of Hyperkalemia in Solid Organ Transplant: An analysis of over 14,000 organ transplant recipients

Second place ($250)
Nicole Wilson, PharmD, Division of Nephrology, Kidney C.A.R.E. Program
Mentor: Rita Alloway, PharmD
Early And Late Borderline Lesions Exhibit Differential Outcomes In Renal Transplant Recipients

Honorable Mention ($150)
Malik Khurram Khan, MD, Division of Pulmonary, Critical Care and Sleep Medicine
Mentor: Muhammad Ahsan Zafar, MD, MS-CTR
Reducing Delirium in the Medical ICU - Implementation of a sleep hygiene bundle and standardizing sedation in the Medical ICU

TRAINEE CLINICAL CASE REPORT POSTER AWARDS:

First place ($500)
Yufei Dai, MD, Division of Endocrinology, Diabetes and Metabolism
Mentor: Robert Cohen, MD
Prolonged glycosuria after Canagliflozin discontinuation in a patient with euglycemic diabetic ketoacidosis

Second place ($250)
Yazan Vwich, MD and Andrew Welch, DO, Division of Endocrinology, Diabetes and Metabolism
Mentor: Abid Yaqub, MD
Subclinical Cushing’s Syndrome with Bilateral Adrenal Adenomas in MEN1

Honorable Mention ($150)
Jillian Thompson, DO, Cardiovascular Health and Disease
Mentor: Tehmina Naz, MD
A Case of Isolated Cardiac Sarcoidosis

STAFF POSTER AWARDS:

First place ($150)
Caterina Bartolacci, PhD, Division of Hematology Oncology
Mentor/PI: Pier Paolo Scaglioni, MD
FASN as a novel Therapeutic Target in Mutant KRAS Lung Cancer

Second place ($100)
Begoña Campos-Naciff, PhD, Division of Nephrology, Kidney C.A.R.E. Program
Mentor/PI: Charuhas Thakar, MD
Kidney injury under oxidative stress release CD36 and CD47 microparticles

Honorable Mention ($50)
Ameet Chimote, PhD, Division of Nephrology, Kidney C.A.R.E. Program
Mentor/PI: Laura Conforti, PhD
Failure to upregulate calmodulin underlies the suppressed KCa3.1 function and enhanced sensitivity to adenosine in CD8+ T cells of head and neck cancer patients.

University of Cincinnati
INTERNAL MEDICINE
Annual Research Report 2019
Office of the Chair

Robert Baughman, MD
Professor
Office of the Chair

Our group has a registry to follow patients with advanced sarcoidosis. We are part of the Foundation for Sarcoidosis Research Clinical Studies Network, an eight center group focused on sarcoidosis.

Collaborators: Elyse Lower, MD

Keywords: Sarcoidosis; Pulmonary hypertension; Pulmonary fibrosis


MENTOR & SUPPORT

Research Governance Committee (RGC)
Academic Research Services (ARS)
Retrovirology Reference Laboratory (RRL)

Research Governance Committee 2018-19

- Bassam Abu Jawdeh, MD
- Rita Alloway, PharmD
- Hassane Amlal, PhD
- Richard Becker, MD
- Vladimir Bogdanov, PhD
- Peter Clayton, MPA
- Melanie Cushion, PhD
- Emily Dobbs, MS, BA
- Angela Duke
- Mark Eckman, MD
- Carl Fichtenbaum, MD
- Christy Holland, PhD
- Alison Kastl, BS
- Marat Khodoun, PhD
- Elizabeth Kopras
- Teresa Larkin
- Rajat Madan, MD, PhD
- Dennis McGraw, MD
- Suzanne Morris, PhD
- Kelly Niederhausen
- Phillip Owens, PhD
- Diego Perez-Tilve, PhD
- Gregory Rouan, MD
- Jack Rubinstein, MD
- Sakthivel Sadayappan, PhD, MBA
- Daniel Schauer, MD
- Arnold Schwartz, PhD
- Eric Smith, MD
- George Smulian, MD
- Manoocher Soleimani, MD
- Dylan Steen, MD
- Kavitha Subramanian, PhD
- Yolanda Wess, MEd, RN, BSN
- Jason Winnick, PhD
- Trisha Wise-Draper, MD, PhD
- Bruce Yacyshyn, MD

Academic Research Services

- Yolanda Wess, MEd, RN, BSN
- Eric Smith, MD
- Emily Dobbs, MS, BA
- Angela Duke, BS

Retrovirology Reference Laboratory

- Joshua Agee
- Molly Leibel
- Anissa Moussa
- Josette Robinson-Eaton
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† NQA Current Budget Period  
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* NOA Project Period Award Amount
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<td>1015197 /1014152 / 1012586 / Randomized trial to prevent vascular events in HIV (REPRIEVE)</td>
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<td>$ 50,444</td>
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<td>1013453 / HPTN 083 is a Phase 2b/3 Safety and Efficacy Study of Injectable Cabotegravir Compared to Daily Oral Tenofovir Disopropil Fumarate/Emtricitabine (TDF/FTC), for Pre-Exposure Prophylaxis</td>
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* NOA Project Period Award Amount
† NOA Current Budget Period

CONTINUED
### ACTIVE AWARDS JUNE 2019 CONTINUED

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<td>1014043 / EVADE - A Phase 2 Proof-of-Concept Study to Evaluate the Efficacy and Safety of MED13902 in Mechanically Ventilated Patients for the Prevention of Nosocomial Pneumonia Caused by Pseudomonas aeruginos</td>
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<td>1014965 / Metallothionein 3 shapes the polarization and metabolism of M2 macrophages</td>
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* NOA Project Period Award Amount
† NOA Current Budget Period
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<td>7/1/16 - 12/31/19</td>
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* NOA Project Period Award Amount
† NOA Current Budget Period
### Active Awards June 2019 Continued

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† NOA Current Budget Period
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<td>Defining Minimal Clinical Important Differences in Treatment Trials of Pulmonary Sarcoidosis</td>
<td>Foundation for Sarcoidosis Research -</td>
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<td>Bayer</td>
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<td>Hypertrophic cardiomyopathy in populations of South Asian descendents</td>
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<td>7/13/18 - 7/12/20</td>
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<td>A randomized, placebo-con-trolled pilot study of sulfasala-zine for the treatment of Primary Sclerosing Cholangitis</td>
<td>Brigham and Women's Hospital</td>
<td>1/1/19 - 12-31-19</td>
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<td>Patel, Shailendra</td>
<td>Role of Cholesterol Biosynthesis in Development</td>
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<td>Preclinical safety and efficacy assessment of a novel PCNA inhibitor for prostate cancer therapy</td>
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<td>Targeting the metabolic vulnerability of GTP-metabolism in IDH metated glioma</td>
<td>Ohio Cancer Research</td>
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### NEW GRANTS FY 2019

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<td>Genentech 10/1/18 - 3/31/24</td>
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<td>2019 ISRA-Predictional studies of BXQ-350</td>
<td>Bexion Pharmaceuticals 3/1/19-3/31/20</td>
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<td>ACS RSG-18-148-01 1/19/12 - 12/31/22</td>
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<td>Impact of Menstrual Cycle Related Variation in Lung Function on Disease Progression in LAM</td>
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<td>Single-Cell-RNA Sequencing for Identifying Differential Responses to Sirolimus Therapy in LAM</td>
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<td>Quantification of plasma levels of sphingolipids and ceramides in patients with TSC</td>
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**TOTAL** $ 8,809,959.39
**Annual Research Report Committee 2018-19**
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Angela Duke, BS (co-lead)  
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Christina Salyers

**IMAGE, FACING PAGE:**
“A Hole New World”
Development of the Yamanaka Factors revolutionized biology by somatic cell reprogramming into pluripotent stem cells (iPSCs), allowing for biological and medical investigation previously unattainable. Pictured here is a human liver organoid (HLO) created from a single, differentiated iPSC showing the characteristic lumen (hollow center). These organoids are potent platforms for research in fundamental biology and personalized medicine. Nuclei are shown in blue, fluorescently tagged polymers in green, mitochondria in red, and the structural protein F-actin in orange. This image was acquired on a Nikon A1R GaAsP Inverted Confocal Microscope. CCHMC Confocal Imaging Core.  
2019 Image Gallery awardee, Basic Research Images  
CREDIT: Andrew Dunn, PhD, Gastroenterology

**IMAGE, BACK COVER** (LOWER PORTION, PARTIAL IMAGE):
“Piercing of the Aorta”
54 year old male with history of chronic thromboembolic pulmonary hypertension and recurrent deep venous thrombosis, who was on therapeutic anti-coagulation and status-post inferior vena cava filter insertion, presented with abdominal pain 4 years after insertion of filter. Computed tomography angiography of abdomen and pelvis done on admission, demonstrated left lateral leg of filter extending into the lumen of the infra-renal abdominal aorta.  
2019 Image Gallery awardee, Clinical Research  
CREDIT: Humna Abid Memon, MD, Division of Pulmonary, Critical Care and Sleep Medicine
Department of
INTERNAL MEDICINE

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