

DIVISION OF ENDOCRINOLOGY AND METABOLISM

ANNUAL REPORT

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DIVISION OF

ENDOCRINOLOGY

Our mission is to promote health and to combat disease in endocrinology, diabetes, and metabolism through exceptional clinical are, research, and education.

We continue to advance the research mission through ongoing recruitment of the most innovative scientists, investment in research infrastructure, growth of the Center for Metabolism and Mitochondria Medicine and associated metabolic phenotyping cores, restructuring and renovation of the Translational Research Center, and support of new multidisciplinary research programs. We continue to advance the clinical mission by implementing new, forward-thinking, value-based models of care and by leveraging clinical analytics and population management approaches. And when faced with the challenges of the COVID pandemic, the Division, which already had a robust foundation in telemedicine, rapidly and successfully adapted and continued to expand its telemedicine reach throughout the region and beyond. We continue to advance the educational mission by training the next generation of endocrinologists to adapt to the increasing demand for endocrine and diabetes care. These advancements continue to invigorate the Division's already strong commitment to excellence in the field of endocrinology, diabetes, and metabolism. This excellence is reflected the U.S. News & World Report rankings, in which UPMC is honored as one of the top programs in the country for endocrinology, diabetes, and metabolism.

Highlights of Our Year

The Division recruited several new research faculty:

- → Alison Kohan, PhD, was recruited from the Department of Nutritional Sciences at the University of Connecticut as a tenure-stream Associate Professor of Medicine. Her research program focuses on understanding the role of lipids, lipoproteins, and apolipoproteins in normal metabolism and disease. She joined the Division of Endocrinology in September 2019.
- + Yong Wang, PhD, was retained from the University of Pittsburgh Postdoctoral Fellowship Program. Dr. Wan's research focuses on understanding the molecular and cellular causes of ag-



Erin Kershaw, MD Chief

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In addition to new research faculty, the Division of Endocrinology and Metabolism hired new clinical faculty as well in FY20:

- Diana (Dee) Pinkhasova, MD, transitioned to a Clinical Assistant Professor of Medicine in August 2019 after completing her fellowwithin the Division. Her scholarly work focuses on improving the quality of care and education of patients, particularly in the inpatient setting and after hospital discharge. In addition to her clinical role, she will serve as the Division's Wellness Representative.
- Charity Kwamanakweenda, MD, MBA, was recruited from the University of Virginia as a Clinical Assistant Professor of Medicine, joining the Division in September 2019. Her scholarly work focuses on application of telehealth strategies for health education and medical care delivery.
- Pouneh Fazeli, MD, MPH, was recruited from Massachusetts General Hospital and Harvard Medical School as an Associate Professor of Medicine in September 2019. She is both a clinician and a researcher. Clinically, she serves as the Director of Neuroendocrinology and member of the Pituitary Center of Excellence. In addition, she serves as the Associate Director for the Center for Human Integrative Physiology. Her research program focuses on the neuroendocrine and metabolic responses to undernutrition.

Erin E. Kershaw, MD

Division Chief, Division of Endocrinology and Metabolism Associate Professor of Medicine

Archana Bandi, MD

Clinical Assistant Professor of Medicine Clinical Director, Telehealth Services, VAPHS

Alexandra N. Clark, MD

Clinical Assistant Professor of Medicine

Ronald A. Codario, Jr., MD Clinical Assistant Professor of

Medicine Associate Director, Endocrinology Clinical Fellowship Program

Frederick R. DeRubertis, MD

Professor of Medicine

Pouneh Fazeli, MD, MPH

Visiting Associate Professor of Medicine Director, Neuroendocrinology Unit

(rystle A. Frahm, Ph

Instructor of Medicine

Stephanie Hakimian, MD

Clinical Assistant Professor of Medicine

Mara J. Horwitz, MD

Associate Professor of Medicine

Michael J. Jurczak, PhD

Assistant Professor of Medicine

Esra Karslioglu-French, MD

Clinical Associate Professor of Medicine Medical Director, UPMC Center for Diabetes and Endocrinology

Visiting Associate Professor of Medicine

Mary T. Korytkowski, MD Professor of Medicine Director, Quality Improvement-Endocrinology

Charity M. Kwamanakweend

Clinical Assistant Professor of Medicine Medical Director of UPP Endocrinology, UPMC Passavant

Jeongkyung Lee, PhD

Assistant Professor of Medicine

Helena E. Levitt, MD

Clinical Assistant Professor of Medicine

Ruya Liu, MD, PhD

Research Instructor of Medicine

Milay Luis Lam, MD

Clinical Assistant Professor of Medicine

in Mahmud, MD

Clinical Assistant Professor of Associate Director, Endocrinology Clinical Fellowship Program

Pooja Manroa, MD

Clinical Assistant Professor of Medicine Associate Director, Quality Program, Division of Endocrinology

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Clinical Assistant Professor of Medicine Endocrinology Division Chief, UPMC McKeesport

Elena M. Morariu, MD

Clinical Assistant Professor of Medicine

Jason M. Ng, MD

Clinical Associate Professor of Medicine Clinical Lead, Diabetes Technology and Medical Home Unit

Robert M. O'Doherty, PhD

Professor of Medicine Co-Director, Center for Metabolic and Mitochondrial Medicine

Diana Pinkhasova, MD

Clinical Assistant Professor of Medicine

Sadeesh Ramakrishnan, DVM, hD

Assistant Professor of Medicine

R. Harsha H. Rao, MD

Professor of Medicine Endocrinology Division Chief, VAPHS

ederick Roepe

Clinical Instructor of Medicine

Clinical Assistant Professor of Medicine Clinical Lead, UPMC Center for Obesity Medicine

Wanda D. Ryan

Clinical Assistant Professor of Medicine

Yusuke Sekine, PhD

Assistant Professor of Medicine Principal Investigator, Aging Institute

Karen L. Selk, DO

Clinical Assistant Professor of Medicine

Linda M. Siminerio, RN, PhD

Professor of Medicine Executive Director, University of Pittsburgh Diabetes Institute

dra I. Sobel, MD

Clinical Assistant Professor of Medicine Clinical Chief of Endocrinology, UPMC Mercy

Maia 9 vic-Racic, MD, PhD

Assistant Professor of Medicine Director, Endocrinology Clinical Fellowship Program

rederico G. Toledo, Mi

Associate Professor of Medicine Director of Clinical Research, Center for Metabolic and Mitochondrial Medicine

Jagdeesh Ullal, MD, MS

Clinical Associate Professor of Medicine Clinic Lead, Inpatient and Subspecialty Diabetes

Yong Wan, PhD

Research Assistant Professor of Medicine Investigator, Aging Institute

Yunjiao Wang, MD Clinical Assistant Professor of Medicine

Lauren A. Willard, DOClinical Assistant Professor of Medicine Clinical Lead, Telehealth Unit, UPMC/ Division of Endocrinology

Vijay K. Yechoor, I

Professor of Medicine Director, Diabetes and Beta Cell **Biology Center**

Bokai Zhu, PhD

Assistant Professor of Medicine Principal Investigator, Aging Institute ing-related bone disease. He is also interested in exploring mitochondrial function involved in bone metabolism. He joined the UPMC Aging Institute and the Division of Endocrinology in January 2020.

Several Division faculty received promotions and/or expanded their academic roles (in addition to the new recruits above):

+ Ronald Codario, MD, expanded his academic role to Associate Program Director for the Clinical Fellowship Program in Endocrinology, Diabetes, and Metabolism.

Several Division faculty received recognition for their academic excellence:

- + Helena Levitt, MD; Mary Korytkowski, MD; and Susan Greenspan, MD, were honored as *Pittsburgh Magazine*'s Best Doctors in the field of endocrinology, diabetes, and metabolism.
- → **Sann Mon, MD**, Clinical Assistant Professor of Medicine, was awarded the UPMC McKeesport Resident Teaching Award for the fifth consecutive year. Her McKeesport Endocrinology Team was acknowledged with a UPMC Excellence in Patient Experience Award.
- → **Pouneh Fazeli, MD, MPH**, Associate Professor of Medicine, received the Frederick DeRubertis Golden Apple Teaching Award for excellence in teaching for the Clinical Fellowship Program in Endocrinology, Diabetes, and Metabolism.
- → **Jagdeesh Ullal, MD, MS**, Clinical Associate Professor of Medicine, received an "EnVision CF: Emerging Leaders in CF Endocrinology II Program Award" from the Cystic Fibrosis Foundation (CFF).

Several Division faculty received notable funding to support their scholarly work:

- → **Pouneh Fazeli, MD, MPH,** received an NIH R01 "Transdermal estrogen for the treatment of bone loss in women with anorexia nervosa" (2019-2024)
- + Alison Kohan, PhD, received an NIH R01 "Determining the Role of ApoC-III in the Immune System" (2019-2024)

Several Division members contributed to national meetings and or national academic service:

- ◆ 2020 Annual Meeting of the Endocrine Society (ENDO2020). The following faculty attended and/or presented at ENDO2020 virtually: Pouneh Fazeli, MD, MPH; Esra Karslioglu French, MD; Mary Korytkowski, MD; Milay Luis Lam, MD; Pooja Manroa, MD; Sann Yu Mon, MD; Linda Siminerio, RN, PhD; Maja Stefanovic-Racic, MD, PhD; and Jagdeesh Ullal, MD, MS.
- → 2020 Annual Meeting of the American Diabetes Association (ADA). The following faculty attended and/or presented at the ADA virtually: Erin Kershaw, MD; Mary Korytkowski, MD; and Diana Pinkhasova, MD.
- → The following faculty served on study sections for the National Institutes of Health, the American Diabetes Association, the Department of Defense, and/or other organizations: Erin E. Kershaw, MD; Robert O'Doherty, PhD; Vijay Yechoor, MD; Michael Jurczak, PhD; and Linda Siminerio, RN, PhD.

CLINICAL

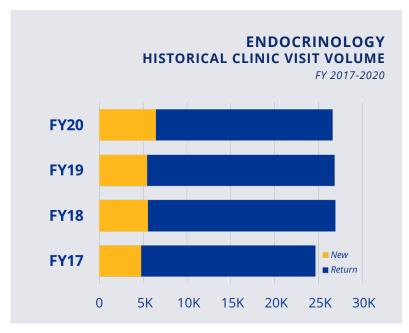
ACTIVITIES

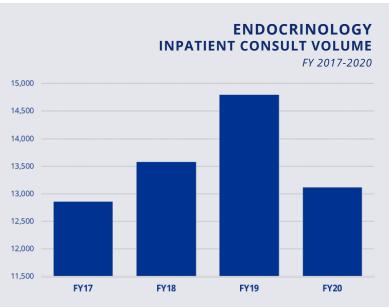
The clinical mission of the Division of Endocrinology is to provide comprehensive clinical care across the full spectrum of endocrine and metabolic disorders.

These disorders are wide-ranging, including diabetes, obesity, lipid disorders, thyroid and parathy-

roid disease, bone and mineral disorneuroendocrine/pituitary/adrenal disorders, reproductive/ ovarian disorders, andrology/male hormonal disorders, endocrine neoplasia, and other hormonal / metabolic conditions and needs. Due to continued increases in the prevalence of these disorders, the demand for endocrinologists is also increasing in the western Pennsylvanian region and across the nation. To address these demands, the Division continues to expand and improve patient access in our region by increasing provider availability in established areas, expanding current services, and developing new services.

Currently, the Division of Endocrinology includes multiple clinical faculty that provide outpatient and/or inpatient services in endocrinology, diabetes, and metabolism. Patient care is further enhanced by comprehensive, collaborative team-based care models that include advanced practice providers (PAs, CRNPs), certified diabetes educators, registered dieticians, nurse coordinators, licensed practical nurses, medical assistants, and numerous subspecialty and community partners. In the last year, the Division welcomed several new providers. In addition, several faculty members were honored as Pittsburgh's "Best Doctors" in Endocrinology, Diabetes, and Metabolism. The Division's endocrine faculty and staff





consistently provide high quality outpatient and inpatient care in accordance with published guidelines, best practices, and evidence-based recommendations for care. Compliance with standards of care as recognized by the Endocrine Society and the American Diabetes Association exceed national averages. The Division of Endocrinology also has a strong culture of continuous quality improvement and patient safety (See Quality Improvement Initiatives section).

Outpatient Services

The Division provides outpatient services for endocrinology, diabetes, and metabolism at the Center for Diabetes and Endocrinology at Falk Clinic in Oakland and community-based sites in Monroeville in the East, Bethel Park in the South, Wexford and Westgate in the North, as well as at UPMC Mercy, UPMC McKeesport, and the VAPHS. In addition, outpatient telehealth services are provided for diabetes and/or general endocrinology at UPMC Northwest, UPMC Bedford, UPMC Western Maryland, and remote sites affiliated with the VAPHS. The Division also offers same day video visits, dedicated urgent care clinics, and post hospital appointments to improve access. Outpatient services cover the full spectrum of endocrine disorders with an emphasis on endocrine issues that are best managed in the outpatient setting. An increasing proportion of outpatient care is provided by telemedicine services including telephonic, video, and electronic consults (e-consults), depending on patient need, with the remainder being traditional face-to-face visits. We also offer numerous "group" programs and "shared medical appointment," which are particularly effective for diabetes and weight management. A major Division goal is to work closely with our primary care and sub-specialty colleagues to provide value-based, integrated/coordinated, multidisciplinary care. Overall, outpatient clinic visits comprise approximately 50% diabetes and related disorders, 30% thyroid-related disorders, and 20% other endocrine disorders.

Inpatient Services

The Division provides inpatient services for endocrinology, diabetes, and metabolism at UPMC Presbyterian-Shadyside campuses in Oakland and Shadyside (including Magee Womens Hospital and Western Psychiatric Hospital), UPMC Mercy, UPMC McKeesport, UPMC Passavant, and the Veterans Administration Pittsburgh Health System. In addition, inpatient telehealth services are provided for diabetes and/or general endocrinology at UPMC Susquehanna. Inpatient services cover the full spectrum of endocrine disorders with an emphasis on those that have increased prevalence and/or severity in the hospital setting. A critical component of these services includes management of diabetes, particularly in ensuring patient safety across all UPMC-affiliated hospitals. Jagdeesh Ullal, MD, serves as the Clinical Lead for Inpatient and Subspecialty Diabetes (including serving on the TPIAP committee, Total Pancreatectomy Auto Islet Transplant) and partnering with Transplant services to address transplant-related diabetes and with the Pulmonary division to address diabetes related to cystic fibrosis and lung transplantation. Dr. Ullal, in collaboration with Esra Karslioglu-French, MD, and Amy Donihi, PharmD, co-lead the UPMC Inpatient Diabetes Patient Safety Committee. This committee is dedicated to implementing system-wide initiatives for evidence-based, rational, goal-directed processes to improve glycemic management and patient outcomes, minimize risk for hypoglycemia and other adverse events, and reduce lengths of stay and hospital readmissions. (See also Clinical Quality Improvement Initiatives section.) In addition, systemwide formulary decisions, diabetes related order set, and protocol management are addressed at this committee. Arley Henry, RN, who was hired in August 2019, leads the inpatient diabetes education and provides nurse and patient education. We have also created a Diabetes Best Practice Steering Committee to address diabetes related problems that are specific to UPMC Presbyterian Hospital. This committee is led by the Inpatient Diabetes educator with physician and pharmacy oversight.

Community Services

The Division is committed to improving care of diabetes, endocrinology, and metabolism in sur-

rounding communities through local, regional, and national efforts. The University of Pittsburgh Diabetes Institute has been a leader in national efforts to improve diabetes self-management education and support for decades. One of the largest networks of American Diabetes Association-recognized diabetes self-management education and support programs in the United States has been organized with 54 established sites in a variety of clinical settings where patients receive these educational sessions. These include all UPMC hospitals, primary care practices, and community-based clinics. Working with the University of Pittsburgh Diabetes Institute Registry and the network of Diabetes Care and Education Specialists (formerly referred to as the Certified Diabetes Educator Network), the Division of Endocrinology has launched large-scale quality improvement initiatives across the UPMC system and the UPMC Health Plan. A national self-management program database called Chronicle (http://www.chroniclediabetes.com/) has been developed and is being used as a national repository for the ADA Self-Management Education Recognition Program, Linda Siminerio, RN, PhD, has served on the National Standards for Diabetes Self-Management Standards Committee, co-author of the Diabetes Self-Management Education and Support in Adults with Type 2 Diabetes Consensus Report and Chair of the National Diabetes Education Program. Dr. Siminerio and Jodie Krall, PhD, also lead the Division's Community Outreach and Diabetes Education Unit, which focuses on integrating these broader national efforts to improve diabetes self-management education and support and to enhance collaboration among UPMC clinical practices. Notable accomplishments include the following collaborations:

- With Fran Solano, MD, President of UPMC Community Medicine Incorporated, and its network of primary care physicians, leveraged diabetes self-management education and support in an effort to improve diabetes outcomes in the primary care setting.
- → With **UPMC Health Plan**, leveraged diabetes self-management education and support to improve diabetes outcomes in its members across western Pennsylvania and beyond.
- → With adult and **pediatric endocrinology** and other key stakeholders at UPMC Presbyterian Shadyside Hospitals and the **Children's Hospital of Pittsburgh**, improved diabetes outcomes in youth transitioning from pediatric to adult care.
- → With UPMC Clinical Informatics and the UPMC Wolff Center for Quality, Safety, and Innovation, developed more efficient methods for tracking and managing diabetes quality measures and outcomes in patients with diabetes using clinical analytics platforms, as well as the development and validation of a database of more than 185,000 patients with diabetes who receive care in UPMC hospitals or associated outpatient facilities and clinics.
- → With the **Diabetes Technology Unit of the Division of Endocrinology** (below), explored new models of care and a "diabetes medical home" model to improve quality and value of diabetes care delivery.
- → With the Division's **Telehealth Unit**, promoted access to diabetes self-management education and support within and beyond the UPMC Health System and the VAPHS.

Clinical Units

The Division continues to focus on enhancing its clinical leadership and team-based approaches to clinical care with an emphasis on improving existing successful models of care and developing new, innovative, value-based models of care. To achieve these goals, the Division is organized into clinical units that highlight these efforts.

The **Thyroid Unit**, under the leadership of **Elena Morariu**, **MD** (Clinical Leader), runs a very successful Multidisciplinary Thyroid Center in collaboration with other subspecialty partners. These partners include endocrine surgeons, otolaryngologists, ophthalmologists, radiologists, pathologists, radiation oncologists, oncologists, molecular medicine specialists, and others. The Thyroid Unit is known for its well-established, full service clinic for comprehensive evaluation of thyroid nodules (clinical evaluation by both endocrinologists and endocrine surgeons, diagnostic ultrasound by endocrinologists and radiologists, fine needle aspiration with on-site cytopathology, etc.) and for its

use of molecular genetic analysis of thyroid nodule aspirates for clinical decision-making. Indeed, UPMC is the leader in the development and use of molecular diagnostics (ThyroSeq®) for Precision Medicine for thyroid neoplasia, led by **Yuri Nikiforov**, **PhD**, from the Division of Pathology. Notable accomplishments include increasing the number of physicians with Endocrine Certification in Neck Ultrasound, expanding diagnostic ultrasound by endocrinologists at both central and peripheral UPMC locations, and implementation of an electronic telehealth ("econsult") service for low-risk thyroid disease.

The Obesity and Weight Management Unit, under the leadership of David Rometo, MD (Clinical Leader), continues to provide clinical care to promote health and treat/prevent disease related to overweight or obesity. Activities include programs on reversing diabetes and other metabolic complications of obesity (i.e. the Disease Remission in Obesity Program or "DROP"), a medically-supervised very low-calorie diet (OPTIFAST) program, meal replacement for weight maintenance (OP-TIMIZE) program, a Mediterranean diet (MD) program, and a novel personalized gradual behavior change program (Stepwise). The Unit and DROP will be the core clinical experience for the newly created Obesity Medicine Fellowship program starting July 2020. To achieve these goals, the Obesity and Weight Management Unit has partnered with the expanding network of American Board of Obesity Medicine (ABOM)-certified physicians in the UPMC network to leverage the full spectrum of weight and health management resources at UPMC. Notable accomplishments include 1) increasing the number of ABOM-certified physicians in the UPMC network, 2) expanding existing programs (listed above), 3) adding new programs, 4) transitioning to offer telehealth options for patients unable to physically attend visits, 5) expanding shared medical appointments for nutrition/ weight management and lifestyle intervention, 6) further developing partnerships with insurance providers to improve availability of therapeutic options for overweight and obesity, and 7) developing and expanding a clinical research team of physicians, registered dieticians, advance practice providers, clinical psychologists, fellows, residents, and medical students to continuously analyze, improve, and communicate the outcomes of the above processes and programs.

The Diabetes Technology and Medical Home Unit, under the leadership of Jason Ng, MD (Clinical Leader), aims to provide cutting-edge clinical care optimizing rapidly evolving technologies (i.e., insulin pumps, continuous glucose monitoring or "CGM," etc.) in the clinical care of diabetic patients. Dr. Ng and the diabetes team run a very effective multidisciplinary glycemic management clinic in collaboration with the Division's outstanding team of diabetes education specialists (DCES). The unit also collaborates with the Community Outreach and Diabetes Education Unit under the leadership of **Drs. Siminerio** and Krall to optimize care delivery models in diabetic care. Notable accomplishments this fiscal year include: 1) obtaining funding and initiation of the "Diabetes High Risk Initiative", a collaboration with UPMC Health Plan to assess telemedicine and the role of DCES in streamlining care; 2) partnering with clinical analytics to develop more efficient methods for tracking and managing diabetes patients using clinical analytics platforms of which findings were presented at international meetings; 3) partnership with industry to assess new diabetes apps to improve glycemic control via funded clinical research studies; 4) established educational program for emerging diabetes technology in the medical school and fellowship curriculum; 5) obtaining funding (NIH R34) to assess telemedicine technologies in delivering diabetes care in underserved areas; 6) published quality improvement metrics in medical journals and presented findings regarding use of the CGM practically in the clinical setting.

The Neuroendocrinology Unit, under the leadership of Pouneh K. Fazeli, MD, MPH (Director), operates a very successful multidisciplinary Pituitary and Adrenal Center in collaboration with other subspecialty partners. These partners include neurosurgery, endocrine surgery, neurologists, otolaryngologists, ophthalmologists, radiologists, interventional radiologists, pathologists, radiation oncologists, oncologists, and others. Notable accomplishments include: 1) the establishment of the Neuroendocrine Inpatient Service which provides consultative services for all pituitary surgery/EEA patients and any inpatients with pituitary disease, 2) unifying the pituitary conference series into an established monthly Multidisciplinary Pituitary Conference in collaboration with the Neurosurgery

Service, 3) working with the Neurosurgery Service and the UPMC Health Plan to establish a Pituitary Center of Excellence, and 4) working to establish a research presence within the Neuroendocrinology Unit through federally-funded mechanisms and through collaborations with industry.

The **Lipid Unit**, under the leadership of **Erin Kershaw**, **MD** (Clinical Leader), continues to provide clinical care for patients suffering from dyslipidemia with an emphasis on diabetic dyslipidemia, rare/severe dyslipidemias, and/or adipose tissue disorders. Notable accomplishments include: 1) continued efforts to improve quality of life and clinical outcomes in patients suffering from severe hypertriglyceridemia who are at increased risk for pancreatitis; and 2) participation in clinical trial to test new therapies for dyslipidemia.

The Telemedicine Unit, under the leadership of Lauren Willard, DO (Clinical Leader, UPMC), Esra Karslioglu-French, MD (Medical Director, UPMC), and Archana Bandi, MD (Clinical Co-Leader, VAPHS) experienced a rapid growth over the last quarter. Telehealth services were pivotal to our division assuring continued quality care and connection with our patients. Our division had recognized the importance of telehealth services early on and were on a trajectory to more broadly incorporate virtual visits. Because we had an existing platform for synchronous video visits and were engaging our providers pre-pandemic, we were prepared to widely implement synchronous video visits and phone consults for our outpatients rapidly with the onset of social distancing restrictions. Well-trained staff served as liaisons to patients, connecting them to necessary technology. Inpatient services also used HIPAA compliant video platforms to communicate with patients and provide effective inpatient consultations. Within weeks of the pandemic the division went from doing roughly 8 outpatient video visits a week to more than 500 per week - we had the most rapid expansion of all medicine subspecialties. Video visits will remain a vital means for ongoing care for our patients, and we anticipate more than half of visits moving forward will remain virtual. Patients feel this platform has allowed equivocal care as in-office visits with use of supporting data sharing applications such as Tidepool that communicate key data from their diabetes devices like insulin pumps to the office so these can be reviewed during the visit. Endocrine division started using 'econsults' in October 2019 and rapidly expanded this service to multiple UPMC PCP practices. Econsults empower PCPs by providing rapid answers to endocrine questions and triaging patients to correct subspeciality clinics in a timely manner. The data from endocrine econsults that were completed until now show that econsults prevented unnecessary endocrine office visits >80% of the time. We will continue to have ongoing telehealth diabetes programs at UPMC Bedford, UPMC Northwest, and other outlying site, aided by on site diabetes educators, as well as general endocrinology clinics. The division has continued to support inpatient endocrinology consult telehealth services at UPMC Susquehanna. Telehealth services were always a means for us to provide high quality endocrine care to rural areas, but the reach of these services and rapidly expanded to provide more accessible and safe care for all patients within our region and beyond.

The Bone Unit, under the leadership of **Mara Horwitz**, **MD**, in collaboration with **Susan Greenspan**, **MD**, from the Division of Geriatrics, continues to provide clinical care for patients suffering from disorders of bone and mineral metabolism including osteoporosis. Established programs include regular fellow participation in an active metabolic bone clinic, research opportunities, monthly meetings to review clinical and research advances in the field of bone and mineral metabolism, annual lectures on bone metabolism and osteoporosis, and training in reading bone densities.

The **Endocrine Genetics Unit**, led by **Helena Levitt**, **MD**, continues to provide risk assessment and clinical care for patients with both suspected and diagnosed endocrine genetic syndromes. The established program includes a multi-disciplinary endocrine genetics consensus conference that brings together endocrinologists, endocrine surgeons, and a certified genetic counselor. The conference is a lively educational discussion of clinical management issues related to endocrine genetic diagnoses. Notable accomplishments include improving recommendations for genetic testing and comprehensive disease management for a diverse set of endocrine genetic conditions.

The Transgender Unit, under the leadership of Ronald Codario, MD (VAPHS), Hussain Mahmud,

MD (UPMC), and Yovana Bontrager, PA-C (UPMC) continues to provide clinical care for patients seeking gender-affirming treatment and services. The established program includes coordinated care by multidisciplinary transgender treatment teams at VAPHS and UPMC. Notable accomplishments include: 1) increased utilization of the Transgender and Gender Care Coordination Consult Service at the VAPHS, 2) engaging in outreach efforts that include PrideFest, Veterans Leisure Expo, and Armed Forces Day, 3) leading and/or participating in educational efforts to improve awareness, and 4) expanding collaboration of primary care providers to create a transgender treatment network at UPMC to improve gender affirming care in the primary care setting. Additionally, a quality improvement initiative to assess the effectiveness of patient experiences with the multidisciplinary team at VAPHS has been started.

The Community Outreach and Diabetes Education Unit, led by Linda Siminerio, RN, PhD, and Jodi Krall, PhD, continues its mission to improve diabetes self-management and education in individuals with diabetes across the lifespan. (See also Community Services above.)

QUALITY IMPROVEMENT

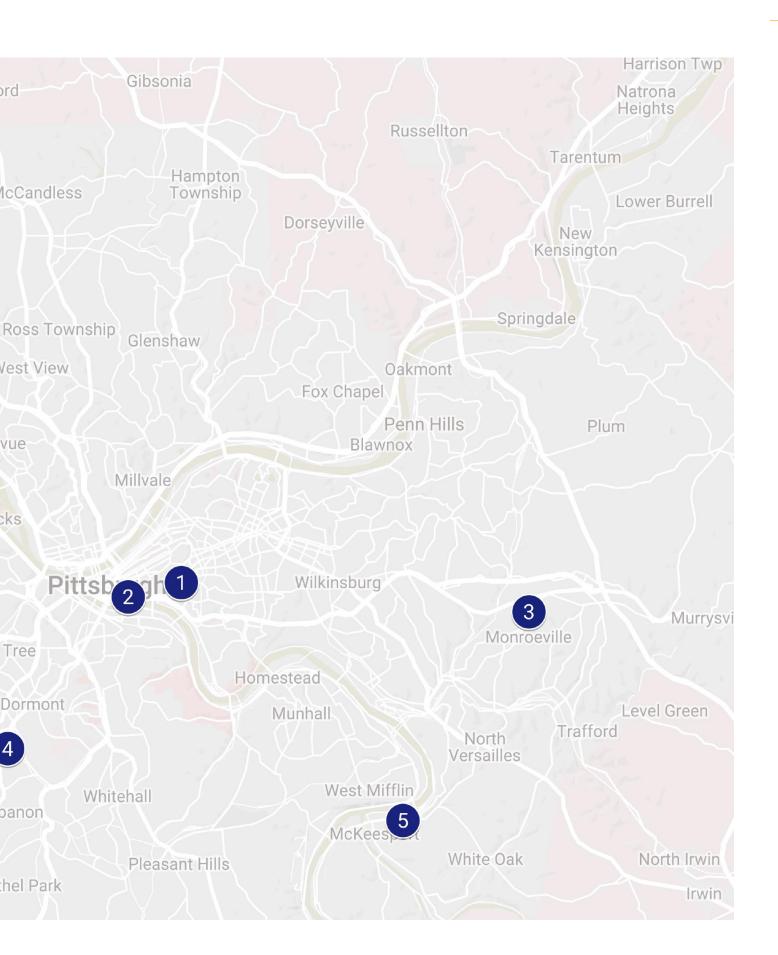
INITIATIVES

The Division of Endocrinology's quality mission is to promote the highest quality of care and to ensure patient safety. The Division has a long tradition of excellence in these areas. **Esra Karslioglu-French**, **MD**, served as a Clinical Leader of the Endocrinology Quality and Value Program and the Inpatient Diabetes Safety Committee, and **Jagdeesh Ullal**, **MD**, **MS**, served as a Clinical Co-Leader of the Inpatient Diabetes Safety Committee. These activities were further enriched by efforts at the VA Pittsburgh Health System, led by **Harsha Rao**, **MD**, Chief of Endocrinology at the VAPHS. Together, these programs create a culture of quality and value that permeates all aspects of the Division. Moreover, all members of the Division continue to work to improve the use of technology and electronic communication with patients using MyUPMC and other platforms and to develop new models of care to improve clinic access and efficiency. Other notable quality initiatives for FY19 include the following:

- → Jason Ng, MD, and the Diabetes Technology Unit implemented Tidepool and other diabetes technologies to simplify glycemic reporting and tracking. The Diabetes Technology Unit also collaborated with UPMC Clinic Analytics to generate predictive models to identify patients most in need of endocrine subspecialty care.
- → David Rometo, MD, and the Obesity Unit continued to improve programs to address health outcomes in patients with obesity and diabetes. Notably, they developed a collaboration with the UPMC Health Plan to leverage the Prescription for Wellness Program and medically supervised weight loss to promote more evidence-based and cost-effective use of obesity medications.
- ★ Esra Karslioglu-French, MD, and the Diabetes Unit expanded the use of retinal cameras to improve rates of retinal screening in diabetic patients. Dr. Karslioglu-French and second-year fellow Vrushali Shah received a Physician Thrive Grant this year to improve physician well-being and job satisfaction in relationship to diabetes technology. Vrushali Shah presented findings of this quality project at the annual American Diabetes Association Scientific Sessions.
- ◆ Archana Bandi, MD, and her team at the VAPHS evaluated and implemented processes for reducing fracture risk in veterans receiving hormonal modulators for prostate cancer and other conditions.
- → **Linda Siminerio**, **RN**, **PhD**, and her team continue to work to improve systems for diabetes self-management and education in the primary care setting as well as in youth with diabetes transitioning from pediatric to adult endocrine care.
- → Mary Korytkowski, MD, and her team evaluated and implemented processes for improving diabetes discharge instructions to reduce rates of hospital re-admissions.

In addition to these specific projects, members of the Division of Endocrinology (Mary Korytkowski, MD; Esra Karslioglu-French, MD; and Jagdeesh Ullal, MD, MS) co-chair the UPMC Diabetes Patient Safety Committee with Amy Donihi, PharmD. This committee has been actively engaged in promoting appropriate goal-directed inpatient glycemic management of patients with diabetes and newly recognized hyperglycemia as well as the safe transition of these patients to the outpatient setting at time of hospital discharge.





RESEARCH

ACTIVITIES

With research faculty that span the full spectrum of scientific investigation, ranging from very basic to clinical/translational research, the Division of Endocrinology continues to support its research mission: to improve the understanding and/or treatment of diseases in the field of endocrinology, diabetes, and metabolism.

Areas of basic research excellence include obesity, insulin resistance, diabetes, lipid metabolism, mitochondrial biology, beta cell biology, and thyroid molecular diagnostics; areas of clinical/translational research excellence include diabetes, obesity, calcium metabolism, osteoporosis, and thyroid cancer. Research faculty conduct their scholarly work in several locations, including the 10th floor of the Biomedical Science Tower, the Translational Research Center in Montefiore Hospital, the Center for Metabolism and Mitochondrial Medicine (C3M), and the UPMC Aging Institute at Bridgeside Point. Research is supported by faculty research grants, an NIH-funded T32 Training Grant (in place since 1975 and now in its 46th year), and by the NIH-funded CTSA Clinical Translational Research Center. Outstanding facilities for gene expression profiling, DNA and protein synthesis and sequencing, animal care, proteomics, cellular imaging, clinical informatics, and bioinformatics/ biostatistics are available. Overall, the Division of Endocrinology at the University of Pittsburgh is a strong environment for innovative and transformational research.

Members of the Division of Endocrinology are funded by external grant support from the National Institutes of Health, the American Diabetes Association or other private foundations, industry sponsors, and other sources. The Division recently received a substantial investment to expand its basic, translational, and clinical research. This investment includes resources to recruit several new inves-

tigators, expand and remodel research space, acquire state-of-the-art capital equipment, and invest in innovative new research programs. In the last fiscal year, progress was made toward renovating and reorganization of the translational research space in Montefiore Hospital (a traditionally strong Endocrine Metabolic Research Center). This exciting growth of the Division's research infrastructure complements existing research strengths in the Department of Medicine (currently ranked in the top 10 in the nation for NIH funding) and the University of Pittsburgh (currently ranked in the top 5 in the nation for NIH funding). Thus, the Division's research operations are undergoing strategic expansion and transformation to keep pace with rapidly evolving advances in science and technology in the field of endocrinology, diabe-

RESEARCH

BY THE NUMBERS

In FY20, the Division of Endocrinology and Metabolism received a total of \$5.1m in research funding from the Public Health Service, Veterans Administration, industry, and various societies and foundations. Research expenditures exceeded \$3.6m, a 15% increase from FY19.

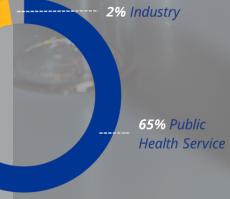
GRANTS & CON FY20

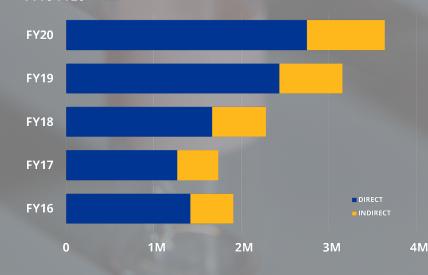
27% Society and Foundations

6% Veterans
Administration









tes, and metabolism.

New Research Initiatives

The research activities of the Division of Endocrinology are highly collaborative. Given the important role of metabolism in all cellular and systemic processes, the Division is well positioned to contribute to research and scholarly work across fields. One notable example is the **Center for Metabolism and Mitochondrial Medicine** (C3M, http://www.vmi.pitt.edu/c3m/), which includes investigators from the Division of Endocrinology, the Division of Cardiology/Heart and Vascular Institute, the Vascular Medicine Institute, the Department of Pharmacology, and other Division/Departments across the University. The C3M provides expertise and services related to cellular bioenergetics and mitochondrial biology (co-directed by Sruti Shiva, PhD, of the Department of Pharmacology), animal physiology (co-directed by **Robert O'Doherty, PhD**, and **Michael Jurczak, PhD**, of the Division of Endocrinology), and human physiology and metabolism (co-Directed by **Frederico Toledo, MD**, of the Division of Endocrinology). This initiative provides a hub for metabolic investigations throughout the University. Additionally, **Linda Siminerio, RN, PhD**; Jodie Krall, PhD; and **Jason Ng, MD**, oversee the The Diabetes Self-Management Education and Support High Risk Program in collaboration with UPMC Health Plan and the Community Medicine primary care network. Examples of new and ongoing collaborative research and scholarly work within our Division are provided below.

New research initiatives and grant funding include the following:

- Trainee funding
 - Meyer (**Kershaw**): Endocrine Society Summer Research Award (2019)
 - Ahrendt (Jurczak): T35 Dean's Summer Research Award (2019)
 - Moon (Jurczak): T35 Dean's Summer Research Award (2019)
- → Pilot and Bridge Funding
 - **Ramakrishnan**: Pittsburgh Liver Research Center P&F Grant "Role of zonal dysregulation of hypoxia signaling in NAFLD" (2019-2020)
- → NIH Funding
 - **Fazeli** (PI): NIH R01, "Transdermal estrogen for the treatment of bone loss in women with anorexia nervosa" (2019-2024)
 - Jurczak (PI): NIH R01, "Fbxo48-mediated AMPK proteostasis in NAFLD" (2019-2024)
 - Jurczak (Co-I): NIH R01, "Study of muscle, mobility and aging (SOMMA)" (2019-2021)
 - Jurczak (Co-I): NIH R01, "Targeting uric acid as a therapeutic for NASH" (2020-2024)
 - **Jurczak** (Co-I): NIH R01, "Novel strategies to resolve metabolic defects in the diabetic heart" (2020-2024)
 - Kershaw (MPI): NIH R56, "Study of Muscle Mobility and Aging-Adipose tissue (SOMMA-AT)
 - **Kohan** (PI): NIH R03, "Determining the Mechanism for ApoC-III Stimulation of IL-10 and Tregs in the Intestine: Is this Novel Effect Beneficial?" (2019-2021)
 - **Korytkowski** (Co-I): NIH R01, Developing and validating HER readmission risk prediction models for hospitalized patients with diabetes
 - **Siminerio** (PI): NIDDK R34 Telemedicine for Reach, Education, Access and Treatment-Ongoing (TREAT-ON) Study (2019-2021)
 - Toledo (Co-I/PI within DOM): NIH R01, "Study of Muscle Mobility and Aging" (2019-2024)
 - **Toledo** (Co-I): "Study of Muscle Mobility and Aging Additional Measures" (2019-2020)
 - Toledo (Co-I): NIH U01, "SPARX3 Clinical Trial" (2019-2024)
- → Foundation Funding
 - **Kershaw/Yechoor/Jurczak** (MPIs): Pittsburgh Foundation Award, "Overcoming insulin deficiency and resistance to reduce diabetes risk" (2019-2020)
 - **Kohan** (PI): Rainin Foundation Synergy Award, "Human and experimental animal studies to identify mechanisms governing lymph transport in Crohn's disease" (2020-2021)

- **Kohan** (PI): Cystic Fibrosis Foundation (CFF) Pilot Grant, "Is Chylomicron Synthesis and Secretion a Driver of Intestinal Disease in CF" (2019-2020)
- **Ullal** (PI): Cystic Fibrosis Foundation (CFF), "EnVision CF: Emerging Leaders in CF Endocrinology II Program Award" (2019-2021)
- Siminerio (PI): Sanofi, My Dose Coach and Connected Ecosystem Titration & Maintenance Study
- → Industry Sponsored Research
 - **Siminerio** (PI): Becton Dickinson, Insulin Start Therapy App with Resources and Training (I-START) Study (2019-2020)
 - Kershaw (PI): Regeneron, A Phase 2, Randomized, Placebo-Controlled Study of Safety and Efficacy, Following Repeat-Dose Administration of Evinacumab (anti-ANGPTL3) in Patients with Severe Hypertriglyceridemia (sHTG) at Risk for Acute Pancreatitis (2018-2020)

Ongoing and Planned Collaborations

Ongoing collaborative efforts among faculty within the Division, the Department of Medicine, the broader University of Pittsburgh, and outside the University include the following:

Michael Jurczak, PhD, has collaborations with Yuan Liu, PhD, and Bill Chen, PhD (Aging Institute/PACCM), to explore the potential to treat NAFLD with a novel small molecule AMPK activator that inhibits Fbox-mediated ubiquitination and proteasomal degradation of phosphorylated AMPK; Iain Scott, PhD (Cardiology), on a NIH-funded R01 titled, "Novel strategies to resolve metabolic defects in the diabetic heart" and another project to explore how the peptide adropin regulates cardiac metabolism; Toren Finkel, MD, PhD (Aging Institute/Cardiology), on an NIH/NHLBI-funded project titled "The role of mitochondrial calcium"; Gavin Arteel, PhD (Gastroenterology, Hepatology and Nutrition) exploring the metabolic side-effects of the atypical antipsychotic olanzapine; Anne Newman, MD (School of Public Health) on an NIH-funded proposal titled, "Study of muscle, mobility and aging (SOMMA)"; and Nick Khoo, PhD (Department of Pharmacology and Chemical Biology) on an NIH-funded proposal titled, "Targeting uric acid as a therapeutic for NASH."

Erin E. Kershaw, MD, has several collaborations with investigators at the University of Graz in Austria, University of Alberta in Canada, Dalhousie University in Canada, Charité Hospital in Germany, University of Heidelberg in Germany, Mayo Clinic, and other institutions to understand the impact of triacylglycerol hydrolysis on multiple physiological and pathophysiological processes; with investigators at the University of Pittsburgh (Human Genetics, Pharmacology, PACCM, Endocrinology), Brown University, Yale University, University of Guelph in Canada, and other institutions on studies funded by the NIH and the American Diabetes Association to understand the mechanisms by which a novel obesity/diabetes-risk variant influences energy and metabolic homeostasis; with investigators at multiple institutions across the country in the NIH-funded Molecular Transducers of Physical Activity Consortium (MoTrPAC)—a large multicenter collaborative initiative to understand the molecular basis for the health benefits of physical activity (see https://motrpac.org/ or https:// commonfund.nih.gov/moleculartransducers/overview); with investigators at multipile institutions across the country to Study Muscle Mobility and Aging (SOMMA, SOMM-AT) (https://www.sommastudy.com/); with Lans Taylor (Drug Discovery institute) as a Co-Investigator on a UG3/UH3 NIDDK grant for developing microphysiological systems to replicate human physiology and model T2D; and with Dr. David Whitcomb (GI) on a multicenter industry-sponsored clinical trial to improve outcomes and treatment of patients with severe hypertriglyceridemia who are at risk for pancreatitis.

Alison Kohan, PhD, collaborates with Dr. Gwendolyn Randolph (Washington University in Saint Louis) to determine the impact of inflammation on intestinal lymph flow, dietary fat absorption, and incretin hormone secretion. The goal is to determine how blockade of TNF-a (as in patients with IBD taking biologics) influences dietary fat absorption and incretin secretion. This collaboration resulted in an application to the Rainin Foundation (Rainin Innovation Award 2020-2021).

Mary Korytkowski, MD, has collaborations with Dr. John Jakicic (Health and Physical Activity) on the NIH-funded multicenter Look AHEAD (Action for Health in Diabetes) Study to understand the long-term outcomes of lifestyle intervention for weight loss; with Dr. Vicki Helgeson (Carnegie Mellon University) on an NIH-funded study to further understand the contribution of support from spouses and significant relationships over time on clinical and psychological outcomes in people with diabetes; and with Dr. Daniel Rubin on an NIH-funded study to examine variables available within an electronic medical record that can predict patients with diabetes who may be at high risk for potentially preventable hospital readmissions.

Robert O'Doherty, PhD, has collaborations with Dr. John Jones (University of Coimbra, Coimbra, Portugal) to study intermediary metabolism in the liver; with Dr. Eric Kelley (West Virginia University Medical School) on the role of Xanthine oxidase in the regulation of oxidative and metabolic homeostasis; with Dr. Don Scott (Mount Sinai Ichan School of Medicine) on gene methylation pattern alterations in the obese liver; with Dr. Adrian Morelli (Surgery) on extracellular vesicle signaling in the liver; with Dr. Gary Thomas (Microbiology and Molecular Genetics) on SIRT1 action in the liver; **Dr. Partha Dutta** (Cardiology) on bone marrow progenitor cell effects on inflammation and metabolic regulation; Dr. Allan Tsung (Surgery) on neutrophil traps and fatty acid metabolism; Dr. Tim Kensler (Pharmacology) on Nrf1 and metabolic dysregulation; and with Dr. Lisa Borghesi (Immunology) on bone marrow progenitor function in obesity.

Linda Siminerio, RN, PhD, has collaborated with investigators from across the country, multiple faculty from divisions and departments at the University of Pittsburgh and the UPMC Health Plan, and faculty at the Children's Hospital of Pittsburgh to develop, implement and evaluate programs to improve access and quality to diabetes care, self-management education and support through innovative care delivery models and technology. She has organized novel health care delivery models supported by the UPMC Health Plan and Community Medicine primary care network and telehealth studies funded by industry partners and the NIH.

Frederico Toledo, MD, has new and ongoing collaborations with **Dr. Marc Simon** (VMI/Cardiology) to study the effects of nitrates on metabolism and the effects of metformin/insulin resistance on muscle biochemistry and heart failure; with **Dr. Gladwin** and **Dr. Simon**, he initiated a collaboration to study CXA-10 in Pulmonary Arterial Hypertension. With the School of Public Health, he has a collaboration with Dr. Newman to study the role of mitochondria, muscle and adipose tissue physiology in the pathogenesis of aging. With the Division of Gastroenterology, Hepatology, and Nutrition, Dr. Toledo has ongoing collaborations with **Dr. Yadav** to study pancreatic diabetes and bone disease in GI disorders. Extramurally, Dr. Toledo collaborates as a member of the Study Protocol Committee of an international trial of a new therapy to prevent type 1 diabetes. With Oregon University, he collaborates as a site PI for a multi-center NIH study on the effects of bariatric surgery on diabetes.

Vijay Yechoor, MD, has collaborations with Dr. Ke Ma (City of Hope, Duarte, CA) on circadian clock regulation of metabolism in skeletal muscle, fat, liver, heart and islets – resulting in collaborative grant submissions to DOD and NIDDK; with Dr. Ben Shih (City of Hope, Duarte, CA) on Tead1 regulation of pancreatic progenitors; with Dr. Antoni Paul (Albany Medical Center, Albany, NY) on circadian regulation of atherosclerosis – resulting in grant submissions to AHA and DOD and R01; with Dr. Mariana Figuero (RPI, Troy, NY) on circadian regulation of metabolism – resulting in combined grant submissions to the NIH, CDC, DOD and AHA; with Dr. Lans Taylor (Drug Discovery institute) as a Co-Investigator on a UG3/UH3 NIDDK grant for developing microphysiological systems to replicate human physiology and model T2D; with Dr. Peter Rubin and Dr. Lauren Kokai (Plastic Surgery) to study the role of Tead1 in human adipocyte biology; with Dr. Mousumi Moulik (Pediatric Cardiology) on the role of Tead1 in heart function and adaptation; with **Dr. Randall Brand** (GI) to study pancreatic cancer biology.

Faculty Research Interests and Activities

Erin E. Kershaw, MD Division Chief

Dr. Kershaw's research interests focus on advancing the understanding and treatment of obesity and related metabolic disorders by combining basic and translational research with clinical expertise. Obesity is a global public health threat that is frequently associated with additional metabolic abnormalities, including insulin resistance, glucose intolerance, dyslipidemia, and hypertension (the metabolic syndrome). Together, these abnormalities contribute to diseases affecting virtually every organ system. Dr. Kershaw's laboratory focuses on defining the mechanisms by which intracellular lipid metabolism (synthesis, storage, hydrolysis, and oxidation) contributes to obesity and associated metabolic disorders. Most recently, Dr. Kershaw's research efforts have centered on pathways of triacylglycerol hydrolysis (lipolysis)—arguably one of the most fundamental processes in metabolism. Dr. Kershaw is working to define how tissue-specific triacylglycerol hydrolysis contributes to metabolic phenotypes, not only in the metabolic syndrome, but also in variety of other diseases ranging from infertility to cancer. Another major focus of her laboratory is to identify and characterize additional proteins and pathways that contribute to metabolic disease. These efforts fall into two main areas: 1) characterizing novel adipocyte-secreted factors (adipokines) and their relationship to metabolic disease in humans, and 2) characterizing novel genes/loci linked to metabolic disease in humans. Dr. Kershaw's laboratory uses a combination of molecular, cellular, physiological, and translational approaches. The ultimate goal is to develop more effective strategies for prevention and treatment of obesity and associated metabolic disorders.

Study Sections

Standing Member, NIH DDK-B Study Section, 2017-present

Advisory Committee Memberships and Leadership Positions

- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology and Metabolism, 2012-present
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology and Metabolism, 2012-present
- Member, Data Safety Monitoring Board, NIH/NCATS 1UH3TR001372-01, 2015-present
- Endocrine Clinical Champion, Path Towards a Learning Health System (PaTH) Network, component of PCORI Clinical Data Research Networks (CDRNs), 2016-present
- Member, Session Planning Committee, American Diabetes Association Scientific Sessions, 2016-present
- Representative for Diabetes/Endocrinology, UPMC Clinical Genomic Initiative Working Group, 2016-present
- Clinical Leader, Lipid Unit, UPMC / Division of Endocrinology, 2016-present
- Member, Pittsburgh Lipid Club, 2016-present
- Career Advisor, Physician Scientist Training Program, University of Pittsburgh, 2017-present
- Member, Internal Scientific, Enrichment, and Outreach Committee, Healthy Lifestyles Institute, University of Pittsburgh, 2017-present
- External Advisory Board Member, Austrian Science Foundation (FWF) Special Research Programs (SFB), 2019-present
- Session Chair, American Diabetes Association, American Diabetes Association Scientific Sessions, Virtual, 2020

Editorships

 Ad Hoc Reviewer, Multiple Journals (American Journal of Physiology-Endocrinology and Metabolism, Biochimica et Biophysica Acta-Molecular and Cell Biology of Lipids, British Journal of Nutrition, Diabetes, Endocrinology, Journal of Diabetes Research, Journal of Cellular Biochemistry, Journal of Clinical Endocrinology and Metabolism, Journal of Clinical Investigation, Journal of Endocrinology, Journal of Biological Chemistry, Journal of Lipid Research, Journal of Physiology), 2008-present

Alexandra N. Clark, MD

Dr. Clark's research interests focus on improving the understanding and treatment of endocrine disorders, particularly those that impact veterans and their families within the Veterans Administration Healthcare System. To address these important issues, Dr. Clark uses the rich data repository and unique features of the Veterans Administration Healthcare System to assess clinical outcomes, quality measures, and patient satisfaction resulting from different healthcare delivery models and medical approaches. Dr. Clark's scholarly work has included evaluation of the diagnosis and treatment of hypogonadism and how to standardize those practices and the impact of testosterone prescribing practices on cardiovascular outcomes. She also serves as a scholarly project mentor for trainees in the field of endocrinology and metabolism.

Advisory Committee Memberships and Leadership Positions

 Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2018-present

Frederick R. DeRubertis, MD

Dr. DeRubertis's academic/scholarly interests focus on medical education. Dr. DeRubertis taught medical students, medical residents, endocrine fellows, and practicing physicians via multiple venues. For more than 30 years, he co-directed the Endocrine Disorder Course for second-year medical students at the University of Pittsburgh School of Medicine. His excellence in teaching has been recognized by the Endocrine Fellows who selected him as teacher of the year for nine consecutive years. He has co-directed for more than 20 years the annual Update in Internal Medicine Course, which is the Department of Medicine's flagship Continuing Medical Education course for practicing physicians. He directed the twice-monthly Chief of Medicine Conference at VAPHS, a case-based grand rounds type of didactic sessions attended by medical students, residents, and staff physicians.

Advisory Committee Memberships and Leadership Positions

• Chairman, Committee for Promotion and Appointments, Department of Medicine, University of Pittsburgh, 1990-present

Professional Affiliations and Society Memberships

• Fellow, American College of Physicians, 1973-present

Pouneh Fazeli, MD, MPH

Dr. Fazeli is a clinical/translational researcher with a primary interest in understanding both the benefits and negative consequences of undernutrition. Her research program has focused primarily on studying women with anorexia nervosa and the hormonal adaptations that lead to profound bone loss in this population. She has performed clinical studies investigating therapies for the treatment of bone loss in women with anorexia nervosa and is currently investigating the effects of transdermal estrogen through an NIH-funded protocol. Dr. Fazeli's research has also focused on understanding the pathophysiology of bone loss in chronic undernutrition and the potential role and function of bone marrow adipose tissue, a fat depot which is paradoxically increased in states of starvation. Dr. Fazeli has a clinical interest in understanding the hormonal determinants of amenorrhea and infertility and has used large database methods to answer clinically relevant questions in this field.

Advisory Committee Memberships and Leadership Positions

- Data Safety Monitoring Board Member, Multiple studies (Translational Program in Kisspeptin Biology; Bariatric Surgery and Bone Study Group; Comparative Antiresorpive Efficacy of Alendronate or Raloxifene Following Discontinuation of Denosumab Study Group), 2015-present
- Associate Director, Center for Human Integrative Physiology, Aging Institute, Pittsburgh,

PA, 2019-present

- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology and Metabolism, Pittsburgh, PA, 2019-present
- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, UPMC, Pittsburgh, PA, 2020-present
- Pituitary Society, Professional Education Committee, Pittsburgh, PA, 2020-present

Editorships

- Ad Hoc Reviewer, Multiple journals (*NEJM*, *Diabetes*, *Osteoporosis International*), 2019-2020
- Major Lectureships and Seminars
- Clinical Endocrinology 2020, Harvard CME, Harvard Medical School, 2020
- Study Sections
- Abstract Reviewer, The Endocrine Society, 2015-present
- Abstract Reviewer, International Bone Marrow Adiposity Society, 2020-present

Honors and Awards

 Frederick DeRubertis Golden Apple Teaching Award, Clinical Fellowship in Endocrinology, Diabetes and Metabolism Program, 2020

Krystle A. Frahm, PhD

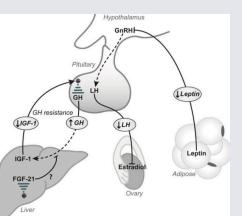
Dr. Frahm researches how endogenous and exogenous factors disrupt hypothalamic function resulting in physiological and behavioral consequences. Current studies are primarily focused on a novel human obesity risk variant and determining how it regulates energy homeostasis and stress responses in a sex-specific manner.

Mara J. Horwitz, MD

Dr. Horwitz focuses on metabolic bone disease with a primary interest in the interaction of parathyroid hormone (PTH) and parathyroid hormone-related peptide (PTHrP) on mineral homeostasis, the skeleton, and vitamin D metabolism. This work has evolved to include NIH-sponsored clinical studies in osteoporosis, humoral hypercalcemia of malignancy, and hyperparathyroidism, as well as lactation and its calcitropic/skeletal biology in both Caucasians and African Americans. Dr. Horwitz has also collaborated on numerous osteoporosis and epidemiology studies with epidemiologists at the University of Pittsburgh Graduate School of Public Health.

Advisory Committee Memberships and Leadership Positions

- Clinician in Residence, The Innovation Institute, University of Pittsburgh, 2014-2020
- Medical Monitor, Education and Compliance Office for Human Subject Research, University of Pittsburgh, 2014-present
- Member, Institutional Review Board Executive Committee, University of Pittsburgh, 2014-present
- Associate Director, Office for Investigator-Sponsored IND and IDE, University of Pittsburgh, 2016-present
- Associate Research Integrity Officer, University of Pittsburgh, 2016-present
- Clinical Leader, Bone Unit, UPMC / Division of Endocrinology, 2016-present
- Member, Research Data Management Committee, University of Pittsburgh, 2016-present
- Vice Chair, Conflict of Interest Committee, University of Pittsburgh, 2016-present
- Member, COI Disclosure Implementation Committee, University of Pittsburgh, 2020-present



Dhoto

Dr. Fazeli studies the physiology of starvation and the neuroendocrine adaptations to states of starvation with the goal of understanding the metabolic benefits, as well as negative consequences of starvation.

Editorships

- Editorial Board, Journal of Clinical Endocrinology and Metabolism, 2014-present
- Ad Hoc Reviewer, Multiple journals (*Bone, Journal of Bone and Mineral Research, Osteoporosis International*), 2018-2019

Michael J. Jurczak, PhD

Dr. Jurczak's research interests focus on the relationship between nutrient excess, mitochondrial overload and the pathogenesis of metabolic diseases, such as fatty liver, insulin resistance and type 2 diabetes. Mitochondrial dysfunction and ectopic lipid accumulation in liver are both associated with insulin resistance in human subjects, but the cause and effect nature of these associations remain unclear. Dr. Jurczak's lab focuses specifically on a mitochondrial repair mechanism called mitophagy that regulates the selective removal of damaged mitochondria via the autophagosomal pathway. Because autophagy is suppressed in mouse models of obesity and fatty liver disease, it is likely that mitophagy is similarly impaired and may contribute to the decline in mitochondrial function seen in human patients. Interestingly, a key component of the mitophagy pathway, a ubiquitin E3 ligase called Parkin, is upregulated in liver of obese mice. This change may represent a compensatory response to remove damaged mitochondria from hepatocytes or result directly from the loss of autophagy. Dr. Jurczak's group is using a genetic approach to test whether the loss of Parkin-mediated mitophagy in liver predisposes mice to mitochondrial dysfunction, ectopic lipid accumulation and insulin resistance. The lab utilizes in vivo and ex vivo approaches in transgenic mouse models and specializes in using radioactive and stable metabolic isotopes to measure substrate turnover and flux.

Study Sections

- Abstract Reviewer, Judge, Department of Medicine Research Day, 2016-present
- Member, Research Grant Review Committee, American Diabetes Association, 2016-present
- Ad Hoc Reviewer, Diabetes UK, Project Grants Award, 2019

Advisory Committee Memberships and Leadership Positions

- Co-Director, Animal Physiology Core, Center for Metabolism and Mitochondrial Medicine (C3M), 2015-present
- Director, Rodent Phenotyping, Center for Metabolism and Mitochondrial Medicine (C3M), 2018-present

Editorships

 Ad Hoc Reviewer, Multiple journals (Cell Reports, Journal of Physiology, Theranostics, Metabolism, Molecular and Cellular Biochemistry, Molecular and Cellular Endocrinology, Journal of Diabetes Research, Free Radical Biology and Medicine, Nature Communications), 2016-present

Esra Karslioglu-French, MD

Early in her career, Dr. Karslioglu-French's research focused on the fundamental cellular mechanisms controlling beta cell function and proliferation under the mentorship of Dr. Andrew Stewart. She simultaneously developed protocols for improving glycemic management in the hospital. More recently, she has expanded her scholarly work related to diabetes care by improving care protocols and medication use via her role on the Diabetes Patient Safety committee. She has also been instrumental in developing and evaluation electronic, teleheath, and other modern strategies for delivery of endocrine care.

Advisory Committee Memberships and Leadership Positions

- Co-Leader, UPMC Inpatient Diabetes Safety Committee, 2017-present
- Co-Leader, Endocrinology Quality and Value Program, 2017-present

Alison B. Kohan, PhD

Dr. Kohan is an expert in the field of intestinal lipoproteins and their metabolism, and the interaction between chylomicron metabolism and inflammation. The consequences of dysfunction in these physiological processes are inflammatory bowel disease and altered whole-body lipid metabolism. Dr. Kohan has made major contributions to understanding the role of chylomicron synthesis and secretion to metabolic and inflammatory disease. She has shown that apolipoprotein C-III, a significant cardiovascular risk factor, plays a critical role in regulating enterocyte cellular metabolism and chylomicron secretion. Dr. Kohan also discovered that the apoC-III content of chylomicrons has a significant role in regulating CD4+T cells and Foxp3+Treg metabolism. Dr. Kohan has also pioneered the primary murine organoid model to study lipoprotein synthesis and secretion by enterocytes. Dr. Kohan's long-term research goal is to identify and understand mechanisms of intestinal lipoprotein formation, intestinal lipoprotein regulation of immune cells during disease, and to determine how this intestinal lipoprotein/immune system interaction contributes to cardio-metabolic disease progression. Her specific academic mission is to identify and develop clinical treatments based on these findings.

Study Sections

- Ad Hoc Grant Review, NIDDK Rebuilding the Kidney (P30) Grant Review Panel, 2020-present
- Ad Hoc Grant Review, NIDDK Special Emphasis R01 Review Panel, 2020-present
- Editorships
- Ad Hoc Reviewer, Multiple journals (Journal of Clinical Investigation, JCI Insight, Journal of Lipid Research, PLOS ONE, Lipids, FASEB Journal, Journal of Nutrition, Journal of Visualized Experiments, Experimental Biology and Medicine, Biochem Biophys Acta), 2015-present

Major Lectureships and Seminars

- Presenter, University of Utah, Nutrition and Integrated Physiology Program Research Seminar Series, Salt Lake City, UT, July 2019
- Presenter, South East Lipid Research Conference, University of Cincinnati, Cincinnati, OH, September 2019
- Session Moderator and Presenter, American Heart Association Scientific Sessions, Philadelphia, PA, November 2019
- Presenter, Washington University of Saint Louis School of Medicine, Research Seminar in the Center for Cardiovascular Research and Department of Pathology and Immunology, St. Louis, MO, January 2020

Mary T. Korytkowski, MD

Dr. Korytkowski's research interests focus on improving inpatient and outpatient care and outcomes of people with diabetes. In the outpatient and hospital settings, Dr. Korytkowski serves as co-investigator and study physician for the NIH-sponsored Look AHEAD Study, which is examining long-term cardiovascular outcomes in individuals with type 2 diabetes who are randomly assigned to intensive versus conventional lifestyle intervention. She is co-investigator on an NIH-funded clinical trial investigating the efficacy of CPAP therapy for obstructive sleep apnea on outcomes in people with type 2 diabetes. She is also a co-investigator on studies being pursued collaboratively with Dr. Helgeson at Carnegie Mellon University that explore relationship dynamics in couples affected by diabetes. In the inpatient setting, Dr. Korytkowski has focused on initiatives that investigate specific glycemic management strategies in hospitalized patients with diabetes, such as those admitted with DKA. Recent studies have focused on investigating impaired hypoglycemia awareness in hospitalized patients as a risk for severe hypoglycemia, and on factors that may increase risk for early hospital readmission in patients with diabetes.

Advisory Committee Memberships and Leadership Positions

• Member, Subspecialty Board Committee for Endocrinology and Metabolism, American Board of Internal Medicine, 2014-present

- Member, UPMC Leadership Council, 2016-present
- Affiliated Faculty, Pitt Healthy Lifestyle Institute, 2018-present
- Member, UPMC Diabetes Patient Safety Committee, 2018-present
- Writing Group Chair, Endocrine Society Clinical Guideline Management of Hyperglycemia in Hospitalized Patients with Non-Critical Illness, 2018-present
- Chair, American Diabetes Association Clinical Centers and Programs Interest Group, 2019-2020
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2019-2020
- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology, Diabetes, and Metabolism, 2019-2020

Honors and Awards

- Honoree, Best Doctor (Endocrinology), Pittsburgh Magazine, 2000-present
- Honoree, Castle Connolly's America's Top Doctors—Endocrinology, 2005-present
- Honoree, Best Doctors in America, 2009-present

Editorships

• Editorial Board, Journal of Clinical Endocrinology and Metabolism, 2014-present

Helena E. Levitt, MD

Dr. Levitt's scholarly interests focus on clinical endocrine genetics. She is an expert in the evaluation and management of patients with endocrine disorders due to rare and common genetic mutations. She leads the multidisciplinary endocrine genetics clinic and supervises teaching activities in this area.

Advisory Committee Memberships and Leadership Positions

- Member, UPMC Health Plan Pharmacy and Therapeutics Committee, UPMC, 2012-present
- Program Director, Endocrine Clinical Genetics Program, 2016-present

Honors and Awards

• Honoree, Best Doctors, Pittsburgh Magazine, 2019-present

Ruya Liu, MD, PhD

Dr. Liu's research interests focus on understanding the role of the HIPPO pathway in the etiology of endocrine and metabolic diseases, with a current emphasis on cardiac muscle and pancreatic beta-cells.

Editorships

 Ad Hoc Reviewer, Multiple journals (Acta Oto-Laryngologica, Medicine (Baltimore), Apoptosis, Cellular and Molecular Biology, Cellular Physiology and Biochemistry), 2015-present

Hussain Mahmud, MD

Dr. Mahmud serves as the Associate Program Director of the endocrinology fellowship program and is actively involved in the division's educational activities and clinical training of endocrinology fellows and internal medicine residents. He also gives lectures to medical students as part of the Endocrine Disorders Course.

Advisory Committee Memberships and Leadership Positions

- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2016-present
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2016-present

Pooja Manroa, MD

Dr. Manroa's research interests focus on quality improvement initiatives and comparative effectiveness research in the field of endocrinology, diabetes, and metabolism.

Advisory Committee Memberships and Leadership Positions

- Associate Program Director, Quality Program, Division of Endocrinology, University of Pittsburgh, 2017-2020
- Co-Leader, Quality/Value Program, Division of Endocrinology, 2017-2020

Sann Yu Mon, MD

Dr. Mon's scholarly work focuses on the general medical and endocrine care of patients in underserved communities.

Advisory Committee Memberships and Leadership Positions

- Coordinator, Endocrinology Education, UPMC McKeesport Hospital, 2014-present
- Chair, Continuing Medical Education (CME) Committee, UPMC McKeesport Hospital, 2017-present
- Chair, UPMC McKeesport Inpatient Diabetes Safety Committee, 2020-present

Professional Affiliations and Society Memberships

- Member, Fellow of American College of Endocrinology, 2018-present
- Elected, Fellow of American College of Endocrinology, 2019

Honors and Awards

 Recipient, Outstanding Teaching Award, Internal Medicine Residency Program, UPMC McKeesport, 2017-present

Elena M. Morariu, MD

Dr. Morariu focuses on endorinopathies secondary to other medical disorders. She has been involved in the Diabetes Sleep Treatment Trial at University of Pittsburgh and the VAPHS investigating the impact of CPAP treatment on glycemic control in patients with type 2 diabetes and obstructive sleep apnea.

Advisory Committee Memberships and Leadership Positions

• Course Director, Multidisciplinary Thyroid Cancer Conference, 2017-present

lason M. Ng, MD

Dr. Ng's research interests focus on the improvement of care delivery and multidisciplinary models in diabetes mellitus management, as well as understanding the pathophysiology underlying insulin resistance in skeletal muscle and adipose tissue.

Advisory Committee Memberships and Leadership Positions

- Director, Multidisciplinary Diabetes Clinic, UPMC / Division of Endocrinology, 2013-present
- Member and Chair, Diabetes Task Force, UPMC / Division of Endocrinology, 2016-present
- Team Leader, UPMC Health Plan Insulin Pump and CGM Policy Review Committee, 2018-present
- Invited Expert Interviewee, Reuters, Experimental Phone Apps with Insulin Pumps, 2019-2020

Robert M. O'Doherty, PhD

For nearly 25 years, Dr. O'Doherty has focused on the association between states of over-nutrition and resulting metabolic disturbances, most notably obesity, NAFLD, and type 2 diabetes. In this arena, he utilizes metabolic, physiological, biochemical, molecular, and immunological approaches in a range of models, notably the mouse and rat, as well as primary tissue culture and immortal cell

lines. The main focus of his current research is immunometabolism, or the immune system's role in regulating metabolism.

Study Sections

• Ad Hoc Reviewer, NIH Study Section (Various), 2004-present

Advisory Committee Memberships and Leadership Positions

- Director, T32 Research Training in Diabetes, Endocrinology and Metabolism, 2013-present
- Member, Department of Medicine PhD Task Force, 2015-present
- Member, T32 External Advisory Board, Mayo Clinic, 2016-present
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology and Metabolism, 2016-present
- Mentor, Career Mentoring Program (CaMP), University of Pittsburgh School of Medicine, 2017-present

Editorships

Editorial Board, American Journal of Physics, Archives of Endocrinology and Metabolism,
 2010-present

Diana Pinkhasova, MD

Dr. Pinkhasova's current research focuses on improving the inpatient discharge process in patients with diabetes.

Advisory Committee Memberships and Leadership Positions

- Co-Chair, UPMC McKeesport Inpatient Diabetes Safety Committee, 2019-present
- Director, Division of Endocrinology Wellness Initiative UPMC Health Plan Insulin Pump and CGM Policy Review Committee, 2019-present

Sadeesh Ramakrishnan, DVM, PhD

Dr. Ramakrishnan is investigating how temporal expression of HIF regulates numerous pathways involved in physiological adaptive response required to survival under low oxygen conditions (the same mechanism can be detrimental if activated chronically). This interesting biology of HIF signaling in the pathophysiology of various disease made him choose his research area in investigating the role of HIF in NAFLD. Dr. Ramakrishnan has demonstrated that chronic activation of hepatic

hypoxia signaling induces dyslipidemia leading to steatohepatitis and liver-specific disruption of HIF, especially HIF-2 ameliorates diet-induced hepatic steatosis. Dr. Ramakrishnan's lab is investigating the mechanisms by which HIF-2 drives hepatic steatosis with a particular interest in the zonal steatosis in the pathogenesis of NA-FLD. Moreover, activation of HIF in the intestine improves glucose homeostasis in a GLP-1 dependent manner. Dr. Ramakrishnan is currently investigating how intestinal HIF signaling regulates enteroendocrine cells in the intestine. The overarching goal of his research program is to determine the therapeutic value of targeting HIF in a tissue-specific manner in promoting metabolic health.



Photo
One of the Division's newest faculty members, Dr.
Sadeesh Ramakrishnan investigates HIF signaling

Editorships

 Ad Hoc Reviewer, Multiple journals (Science Advances, Mediators of Inflammation, Liver Cancer International, Infection and drug resistance, Digestive Diseases and Sciences, Molecular Cancer Therapeutics), 2018-present

R. Harsha H. Rao, MD

Dr. Rao's research interests focus on improving the understanding and treatment of endocrine disorders, particularly those that impact veterans and their families within the VAPHS. His scholarly

work has included evaluation of 1) the clinical effectiveness of U-500 insulin in the inpatient and outpatient setting, 2) the impact of testosterone prescribing practices on cardiovascular outcomes, and 3) the benefits of an impatient IV bisphosphate therapy protocol for patient with hip fracture. Dr. Rao also serves as a scholarly project mentor for trainees in the field of endocrinology and metabolism.

David A. Rometo, MD

With an emphasis on generating effective programs for the "real world" clinical setting, Dr. Rometo seeks to improves the understanding and treatment of obesity and related metabolic disorders. He is currently the Clinical Leader for the Medically-Supervised Weight Loss and Obesity Medicine Program in the Division of Endocrinology. In this role, he has developed several innovative clinical programs intended to promote health and prevent disease in overweight or obese patients. Among these initiatives are a program focused on reversing diabetes and other metabolic complications of obesity (i.e., the Disease Remission in Obesity Program or "DROP"); a medically supervised very low calorie diet program, (i.e., Opti-fast Program); and a post-bariatric surgery diabetes and weight management program. To determine the overall effectiveness of these clinical care models, he assesses clinical outcomes, quality measures, cost effectiveness, and patient satisfaction. In addition, he has a significant role in training in the field of obesity medicine at UPMC.

Advisory Committee Memberships and Leadership Positions

- Clinical Leader, Obesity Medicine and Weight Management Unit, Division of Endocrinology, 2016-present
- Member, Board of Directors, Greater Pittsburgh Diabetes Club, 2017-present

Yusuke Sekine, PhD

Dr. Sekine's research interests focus on understanding molecular mechanisms that underlie cellular responses to a variety of stresses, including oxidative, endoplasmic, and metabolic stresses. Using biochemical and cell genetic approaches, his lab is studying acetyl-CoA fluctuation-dependent functional changes of organelles (including nucleoli, mitochondria, and lysosomes) and the activation of organelle-associated signaling pathways. His team is working to understand the sensing mechanisms of metabolite fluctuations in mammalian cells and to reveal their relevance to human diseases and aging.

Professional Affiliations and Society Memberships

- Member, The Molecular Biology Society of Japan, 2004-present
- Member, The Japanese Biochemical Society, 2005-present

Karen L. Selk, DO

Dr. Selk is researching how to improve the understanding and treatment of dyslipidemias. She is currently involved in industry-sponsored research to evaluate new therapies for severe hypertriglyceridemia in patients at high risk for pancreatitis.

Advisory Committee Memberships and Leadership Positions

- Participant, Pittsburgh Lipid Club, 2017-present
- Member, UPMC Mercy Diabetes Patient Safety Committee, 2018-present

Linda M. Siminerio, RN, PhD

Dr. Siminerio's research interests focus on the translation of evidence-based practice into clinical and community settings with a concentration on improving access and quality to diabetes self-management and care. Projects have spanned a broad array of initiatives that include, but are not limited to: (1) evaluating care models in primary care; (2) implementing telemedicine to deliver diabetes specialty care to underserved communities; (3) using technological approaches to enhance shared decision making; (4) developing initiatives to improve the care and education of the hospitalized patient with diabetes; and (5) interventions that address the behavioral and psychosocial needs as-

sociated with chronic disease management. Additionally, Dr. Siminerio has collaborated with other faculty to develop and validate diabetes databases, including a national registry to monitor diabetes behavioral and education outcomes for the American Diabetes Association. As a nationally-recognized expert on self-management education and care delivery models in both pediatric and adult populations, she serves as the Principal Investigator on numerous studies that have garnered the attention of both governmental and non-governmental organizations, nationally and internationally. Knowledge gained from this line of study has led to the implementation of diabetes quality efforts in underserved global communities and the U.S. military as well as policy changes affecting reimbursement practices.

Advisory Committee Memberships and Leadership Positions

- Member, UPMC Diabetes Patient Safety Committee, 2010-present
- Co-Chair, Type 1 Diabetes Program for Endocrine Fellows, Endocrine Society Annual Meeting, Chicago, IL, 2013-present
- Member, Leadership Group, DPP State-wide Coordinating Collaborative, Health Promotion Council's PA Community Clinical Integration Initiative, 2016-present
- Member, Promotions Committee, Department of Medicine, University of Pittsburgh,
- Member, Emeritus Council, American Diabetes Association, 2017-present
- Member, Heritage Council, American Diabetes Association, 2017-present
- Committee Member, Consensus Statement on Diabetes Self-Management Education, American Diabetes Association, 2019

Editorships

Associate Editor, Clinical Diabetes and Endocrinology, 2014-present

Sandra I. Sobel, MD

Dr. Sobel focuses on quality improvement through the use of diabetes technology, such as insulin pumps and continuous glucose monitoring devices. As part of a multidisciplinary team at the University of Pittsburgh, it was found that a peri-operative glycemic management protocol developed for same-day surgery procedures for individuals with insulin pumps was safe and effective for procedures less than 120 minutes long. In the outpatient setting, she is conducting a quality improvement study to see if a seven-day use of a continuous glucose monitoring device helps improve glycemic control in individuals with uncontrolled diabetes and reduce hypoglycemia in individuals with frequent hypoglycemia or hypoglycemic unawareness. In addition, she provides mentorship to several Internal Medicine residents and supports their interest in quality improvement initiatives, including the proper use of DKA protocol to utilization of the Certified Diabetes Educators in outpatient clinics.

Advisory Committee Memberships and Leadership Positions

- Member, UPMC Diabetes Patient Safety Committee, 2003-present
- Member, Selection Committee, Updates in Internal Medicine, Department of Medicine, University of Pittsburgh, 2016-present
- Member, Quality Improvement Committee, UPMC Mercy, 2016-present
- Member, DSMB for ONTx Study, 2016-present
- Member, UPMC Diversity Advisory Council, 2018-present
- Member, Resident Selection Committee, UPMC Mercy Internal Medicine Residency Program, 2018-present
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2018-present
- Chair, UPMC Mercy Bylaws Committee, 2018-present
- Member, UPMC Mercy Medical Executive Committee, 2018-present
- Course Co-Director, UPMC Updates in Internal Medicine, 2019-present

Major Lectureships and Seminars

• Invited Speaker, Endocrine Society Fellows Conference, Orlando, FL, 2015-present

Editorships

• Peer Reviewer, Journal of Diabetes Science and Technology, 2016-present

Maja Stefanovic-Racic, MD, PhD

Dr. Stefanovic's investigates the mechanisms involved in the development of non-alcoholic fatty liver disease (NAFLD), which is associated with obesity, insulin resistance and type 2 diabetes. More specifically, she has been focusing on the role of immune system, both innate and adaptive, in transitioning from simple liver steatosis (fatty liver) to liver inflammation (nonalcoholic steatohepatitis, or NASH). Results of experiments performed in animal models of obesity showed that one type of immune cell, called dendritic cells, plays a particularly important role in liver inflammation. The most intriguing question related to this finding is whether manipulation of dendritic cells could reduce inflammation in the liver and other tissues in obesity, thereby reducing the risk of developing insulin resistance and diabetes.

Advisory Committee Memberships and Leadership Positions

- Member, UPMC Diabetes Patient Safety Committee, 2003-present
- Scientific Advisor, Institutional Review Board Committee, 2013-present
- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2015-present
- Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology, Diabetes and Metabolism, 2015-present

Editorships

• Ad Hoc Reviewer, Multiple journals (*PLoS ONE, Biochemical Pharmacology, Postgraduate Medicine, Clinical Therapeutic, Pharmacology Journal, Diabetes*), 2017-present

Frederico G. Toledo, MD

Dr. Toledo's research interests focus on pathophysiology and treatment of insulin resistance and diabetes in humans. His clinical-translational lab employs state-of-the-art methods to measure metabolism *in vivo* in humans, such as clamps, IVGTTs, stable-isotope tracers, indirect calorimetry, controlled exercise testing, and tissue biopsies. His research program has been investigating the interplay between mitochondria, fuel metabolism, and insulin resistance in the context of diabetes and aging. Dr. Toledo pioneered studies that demonstrated for the first time that mitochondria change in response to lifestyle modifications in obesity and type 2 diabetes. He also researches novel treatments for diabetes and led an NIH-funded clinical study that demonstrated substantial beneficial effects of hydroxychloroquine on insulin resistance and beta cell function. His clinical research experience also includes agents such as rimonabant, vildagliptin, and AZD9668. He was a co-investigator in the TrialNet study consortium, and he participated in studies of type 1 diabetes prevention using immunomodulators.

Advisory Committee Memberships and Leadership Positions

- Member, TrialNet NIH Consortium, 2004-present
- Member, Internal Medicine Residency Subspecialty Education Committee, 2007-present
- Member, Training and Oversight Committee, T32 Training Program in Endocrinology and Metabolism, 2012-present
- Member, TN22 Protocol Commitee (NIH TrialNet Multi-Center Study), 2017-present
- Director, Endocrinology and Metabolism Research Core, TRC, 2018-present
- Member, Clinical Competency Committee, Clinical Fellowship in Endocrinology, Diabetes, and Metabolism, 2019-2020

Editorships

• Ad Hoc Reviewer, Multiple journals (Journal of Clinical Investigation, Nature Reviews, Diabetes, Diabetes Care, Diabetologia, Endocrine Reviews, Endocrinology, JCEM, FASEB J),

2017-present

• Editorial Board, Physiological Reports (Amer Phys Society), 2018-present

Jagdeesh Ullal, MD, MS

Dr. Ullal's is interested in the mechanisms of microvascular dysfunction in diabetic neuropathy and microvascular complication in diabetes. He examined the effects of nitric oxide and cyclic GMP on microvascular flow in diabetes. As the clinical director of diabetes inpatient services at UPMC, he has turned his attention to researching electronic management of diabetes in the hospital and various related inpatient diabetes programs. He is also interested in the use of diabetes technology, glycemic management programs, and system-wide glycemic management on diabetes outcomes.

Advisory Committee Memberships and Leadership Positions

- Co-Chair, UPMC Diabetes Patient Safety Committee, 2018-present
- Member, Fellow Confidential Committee, Clinical Fellowship in Endocrinology, Diabetes, and Metabolism, 2018-present
- Member, UPMC Presbyterian Diabetes Best Practice Committee, 2018-present
- Committee Member and Reviewer, ECNU Certification Committee, AACE, 2018-present
- Member, Board of Directors, Greater Pittsburgh Diabetes Club, 2019-present

Editorships

 Ad Hoc Reviewer, Journal of Diabetes Science and Technology, Journal of Clinical & Translational Endocrinology, 2018-present

Yong Wan, PhD

Dr. Wan's primary research interest is to understand the molecular and cellular causes of aging-related bone disease - osteoporosis. Additionally, he also researches the cellular, molecular and morphogenetic causes underlying the development of a newborn bone disease, craniosynostosis (CS). Dr. Wan is also interested in the function of Wnt/Planar Cell Polarity (PCP) signal involved in a rare bone disease, autosomal-dominant Robinow syndrome (ADRS).

Lauren A. Willard, DO

Dr. Willard researches the use of telehealth clinical care delivery models for endocrine disorders, such as diabetes and thyroid disease. As the Clinical Leader of the UPMC Endocrinology Telehealth Unit, she has successfully implemented telehealth programs across Western Pennsylvania. She has also contributed to the development of new models of care that utilize telehealth resources and new technology. To determine these models' overall effectiveness, Dr. Willard assesses their clinical outcomes, quality measures, cost effectiveness, and patient satisfaction. She also is active in training future generations of endocrinologists in the use of telehealth clinical care delivery models.

Vijay K. Yechoor, MD

Dr. Yechoor's research interests focus on developing therapies that target beta cell mass and function in the pathogenesis of diabetes. He has a long record of external funding from the National Institutes of Health, the Veterans Administration, Juvenile Diabetes Research Foundation, and the American Diabetes Association. His currently funded projects include 1) the role of the circadian clock in beta cell stress adaptation, and 2) the role of Tead1 in the transcriptional regulation of quiescence and proliferation of beta cells. More recently, he has extended his research into adipose tissue and cardiac muscle biology.

Study Sections

- Abstract Reviewer and Judge, Department of Medicine Research Day, 2016-present
- Standing Member, NIH CADO Study Section, 2017-present

Advisory Committee Memberships and Leadership Positions

Member, Fellow Selection Committee, Clinical Fellowship in Endocrinology and

Metabolism, 2018-present

Editorships

• Ad Hoc Reviewer, Multiple journals (Am J Physiol Endocrinol Metab, Diabetes, Diabetologia, Endocrinology, J Cell Biochem, J Clin Endocrinol Metab, J Endocrinology, J Biol Chem, J Physiology, Metabolism, Mol Cell Biochem, PLoS One), 2008-present

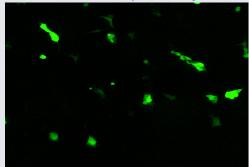
Bokai Zhu, PhD

Dr Zhu's lab discovered a cell-autonomous mammalian 12h-clock that runs independently from the

circadian clock to regulate 12h oscillations of gene expression and metabolism. Dr. Zhu's lab is currently investigating the regulation, as well as the physiological/pathological functions, of the 12h-clock, with an emphasis on its roles in maintaining hepatic metabolic homeostasis and preventing aging-associated diseases.

Professional Affiliations and Society Memberships

- Member, American Diabetes Association, 2018-present
- Member, Society for Research on Biological Rhythms, 2020



At the Aging Institute, Dr. Zhu uses time-lapse microscopy to study the mammalian 12h-clock.

Editorships

Ad hoc Reviewer, Journal of Molecular Cell Biology, 2019

Major Lectureships and Seminars

 Invited Speaker, DOME Research Seminar Series, University of Pittsburgh, September 2019

Honors and Awards

 Recipient, American Diabetes Association Junior Faculty Development Award, January 2018-December 2021

GRANTS AND CONTRACTS

AWARDED

July 1, 2019 to June 30, 2020

PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Fazeli, Pouneh	Transdermal estrogen for the treatment of bone loss in women with anorexia nervosa	NICHD	\$224,033	\$67,210
Frahm, Krystle	Impact of CREBRF and its Obesity-Risk Variant on Hypothalamic Glucocorticoid and Neuroendocrine Output Using Molecular, Cellular, and Physiologi- cal Approaches	NIDDK	\$137,034	\$10,963
Frahm, Krystle	The Role of a Novel Obesity-Risk Variant on Hypo- thalamic Regulation of Energy Homeostasis	NIDDK	\$125,000	\$70,625
Jurczak, Michael	Novel Strategies to Resolve Metabolic Defects in the Diabetic Heart	NHLBI	\$26,310	\$14,865
Jurczak, Michael	The Role of Calcium Entry Through the Mitochondrial Uniporter in Regulating Cardiac Metabolism and Physiology	NHLBI	\$37,942	\$21,437
Jurczak, Michael	Obesity-Associated Mitophagy Resistance	NIDDK	\$193,643	\$109,408
Jurczak, Michael	Park2, Lipid Malabsorption and Protection from Diet-Induced Obesity	NIDDK	\$22,469	\$12,601
Jurczak, Michael	Role of Fbxo48-mediated AMPK Proteostasis in the Pathogenesis and Treatment of NAFLD	NIDDK	\$48,756	\$27,547
Kershaw, Erin	Molecular Transducers of Physical Activity Clinical Centers	NIAMS	\$76,115	\$43,006
Kershaw, Erin	Human Microphysiology Systems Disease Model of Type 2 Diabetes Starting with Liver and pancreatic Islets	NIDDK	\$29,871	\$16,877
Kershaw, Erin	Impact of the Obesity-Risk CREBRF pArg457Ln Variant on Energy Expenditure, Intake, and Sub- strate Utilization in Samoans	NHLBI/Brown University	\$22,328	\$12,615
Kershaw, Erin	Integrated Cellular, Mouse and Human Research on a Missense Variant Influencing Adiposity in Samoans	NHLBI/Brown University	\$127,879	\$71,688
Korytkowski, Mary T.	Action for Health in Diabetes Extension (Look AHEAD)	NIDDK	\$6,368	\$3,598
Korytkowski, Mary T.	Links of Communal Coping in Couples with Diabetes to Diabetes Outcomes	NIDDK/ Carnegie-Mellon University	\$24,600	\$13,900
Liu, Ruya	Tead1 and Cardiac Adaptation	NHLBI	\$10,323	\$5,832
O'Doherty, Robert	Mechanisms of Myocardial Infarction-Induced Insulin Resistance	NHLBI	\$10,783	\$6,094
O'Doherty, Robert	Allosteric Regulation of SIRT1 by a PACS-2 and DBC1 Regulatory Hub	NIDDK	\$28,938	\$16,350
O'Doherty, Robert	Dendritic Cells and Obesity	NIDDK	\$233,659	\$126,176

PUBLIC HEALTH SERVICE

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
O'Doherty, Robert	Research Training in Diabetes and Endocrinology	NIDDK	\$304,793	\$20,591
Ramakrishnan, Sadeesh	The Role of Intestinal Hypoxia Signaling in Glucose Homeostasis	NIDDK	\$154,456	\$87,267
Siminerio, Linda	Telemedicine for Reach, Education, Access, Treatment and Ongoing Support (TREAT-ON)	NIDDK	\$72,571	\$41,002
Toledo, Frederico G. S.	A Phase II Trial of Metformin for Pulmonary Hypertension in Heart Failure with Preserved Ejection Fraction	NIA	\$33,446	\$18,897
Toledo, Frederico G. S.	Study of Muscle, Mobility and Aging (SOMMA)	NIA/California Pacific Medical Center	\$281,341	\$158,939
Yechoor, Vijay K.	Circadian Clock and Beta Cell Stress Adaptation	NIDDK	\$321,849	\$180,504
	TOTAL PUBLIC	HEALTH SERVICE	\$2,554,506	\$1,157,993

VETERANS ADMINISTRATION

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Lee, Jeong Kyung	Role of Tead1 in Proliferation and Mainte- nance-IPA	USDVA	\$44,453	\$0
Liu, Ruya	Role of Tead1 in Proliferation and Maintenance	VAMC	\$38,103	\$0
Siminerio, Linda	Effects of a Mindfulness Intervention Delivered within Diabetes Education on Diabetes-related Outcomes in Military Veterans	VAPHS	\$8,148	\$0
Yechoor, Vijay K.	IPA-Vinny Negi	VAMC	\$69,873	\$0
Yechoor, Vijay K.	IPA-Ping Yang	VAMC	\$65,604	\$0
TOTAL VETERANS ADMINISTRATION		\$226,181	\$0	

SOCIETY AND FOUNDATIONS

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Edmunds, Lia Rae	Reduced Parkin-mediated mitophagy contributes to hepatic insulin resistance in diet-induced obese mice	American Diabetes Association	\$64,579	\$0
Frahm, Krystle	The Role of a CREBRF on Hypothalamic Regulation of Energy Homeostasis	Samuel and Emma Winters Foundation	\$10,842	\$0
Jurczak, Michael	Overcoming Insulin Deficiency and Resistance to Reduce Diabetes Risk	Pittsburgh Foundation	\$200,000	\$0
Kershaw, Erin	Identifying Mechanisms by Which a Novel Human Obesity-Risk Variant Protects Against Diabetes Using Cell and Animal Models	American Diabetes Association	\$104,545	\$10,455
Kershaw, Erin	Summer Research Fellowship Program	Endocrine Fellows Foundation	\$4,000	\$0

SOCIETY AND FOUNDATIONS

INVESTIGATOR	TITLE	AGENCY	ANNUAL DIRECT COSTS	ANNUAL INDIRECT COSTS
Kershaw, Erin	Overcoming Insulin Deficiency and Resistance to Reduce Diabetes Risk	Pittsburgh Foundation	\$155,000	\$0
Kershaw, Erin	Overcoming Insulin Deficiency and Resistance to Reduce Diabetes Risk	Pittsburgh Foundation	\$200,000	\$0
Kowalski, Aneta	Howard Hughes Medical Institute Medical Research Fellow	Hughes Medical Institute	\$37,896	\$0
Liu, Ruya	TEAD1 as a Novel Regulator of Mitochondrial Function in Cardiomyocytes	American Heart Association	\$77,000	\$0
Yechoor, Vijay K.	Overcoming Insulin Deficiency and Resistance to Reduce Diabetes Risk	Pittsburgh Foundation	\$195,000	\$0
TOTAL SOCIETY AND FOUNDATIONS			\$1,048,862	\$10,455

INDUSTRY

INVESTIGATOR	TITLE	AGENCY	ANNUAL DI- RECT COSTS	ANNUAL INDI- RECT COSTS
Siminerio, Linda	Evaluation of Insulin Start Therapy Application with Resources and Training (I-START) to address barriers to insulin therapy and development of a predictive modeling approach to identify patients at high risk for diabetes-related problems	Becton, Dickinson, and Company	\$102,447	\$30,734
		TOTAL INDUSTRY	\$102,447	\$30,734
	PUBLIC I	HEALTH SERVICE	\$2,554,506	\$1,157,993
	VETERANS ADMINISTRATION SOCIETY AND FOUNDATIONS		\$226,181	\$0
			\$1,048,862	\$10,455
		INDUSTRY	\$102,447	\$30,734
	TOTAL		\$3,931,995	\$1,199,182

TEACHING

ACTIVITIES

The educational mission of the Division of Endocrinology is to 1) disseminate knowledge and provide training that will promote health and combat disease in endocrinology, diabetes, and metabolism, and 2) train the next generation of leaders in the field of endocrinology, diabetes, and metabolism. To achieve these goals, Division faculty contribute to teaching and mentoring of trainees at all levels, both locally and nationally.

The Division is dedicated to training the next generation of leaders in the field and, to achieve this goal, it has well-established clinical and research fellowship programs in endocrinology and metabolism. The clinical training program supports five fellows per year. These fellows were selected from a pool of more than 200 highly qualified applicants annually via the National Resident Matching Program. Recent clinical fellowship graduates have secured positions at top medical centers and private practices across the country, and many have been recruited to remain at UPMC. The research training program, led by Robert O'Doherty, PhD, supports four MD or PhD fellows per year and is funded by the NIH T32 mechanism (in place since 1975 and now in its 45th year). This program supports in-depth research training in the field of endocrinology and metabolism by mentors who are within or outside the Division. Division faculty also provide additional teaching and career training opportunities for the above fellows, including "Research in Progress", grant writing workshops, summer lecture series, journal clubs, and more.

Medical Students

Local educational activities include formal and informal teaching and mentoring at numerous locations throughout UPMC and the University of Pittsburgh. Many of these activities focus on undergraduate students, graduate, and medical students, residents, and fellows. One of the Division's flagship courses is the Endocrine Disorders Course (MED 5222) for second-year medical students, which is co-directed by Fred DeRubertis, MD, and Mary Korytkowski, MD. The majority of Division faculty contribute to this course, which covers the physiology and pathophysiology of endocrinology, diabetes, and metabolism. As in prior years, the course was very well received, as reflected by outstanding evaluations from the students. Other medical and graduate courses involving contribution from Division faculty included Fuel Metabolism, Integrated Systems Biology-Bench to Bedside, Research Basis of Medical Knowledge, Behavioral Medicine, Developmental Mechanisms of Human Disease, Cardiovascular Epidemiology, Clinical Pharmacology, Advanced Physical Examination, and others. Educational activities for residents included clinical precepting in the inpatient and outpatient setting, participating in a variety of resident lecture series, serving as subspecialty experts at intern/resident report, and other activities. Division faculty also mentored the trainees in the laboratory setting as part of the University of Pittsburgh Summer Undergraduate Research Program (Pitt SURP), the Pitt-Med Research Experience for Pre-matriculants Program (PREP), the Dean's Summer Research Program, the Resident Leadership and Discovery (LEAD) Program, First Experience in Research (FE-R), and the Physician Scientist Training Program (PSTP). Endocrine trainees were also supported by several extramural funding opportunities from the American Diabetes Association, the Endocrine Society, the American Heart Association, The Howard Hughes Medical Institute, the National Institutes of Health (T32, T35), and more.

Undergraduate Students

Endocrinology faculty served as research mentors to several undergraduate students over the past year:

- **Erin Kershaw, MD**, served as a research mentor for Anna Meyer who received an Endocrine Society Summer Research Award (2019).
- + Ruya Liu, MD, PhD, served as a research mentor for Leonie Finke, who participated in the First Experience in Research (FE-R) Program.
- **Michael Jurczak**, **PhD**, served as a research mentor for Moira Anderson who received an American Heart Association Summer Undergraduate Research Award (2019).
- + Robert O'Doherty, PhD, serves as research mentor for Xueyang Zhang who is part of the Xiangya Scholar Program.

Medical Students

Numerous divisional faculty contributed to courses in the School of Medicine. The Endocrine Disorders Course (MED 5222, MS2) was co-taught by Alexandra Clark, MD; Ronald Codario, MD; Fred DeRubertis, MD; Susan Greenspan, MD; Pouneh Fazeli, MD; Esra Karslioglu-French, MD; Mara Horwitz, MD; Mary Korytkowski, MD; Helena Levitt, MD; Hussain Mahmud, MD; Pooja Manroa, MD; Elena Morariu, MD; Jason Ng, MD; Diana Pinkhasova, MD; Harsha Rao, MD; David Rometo, MD; Sandra Sobel, MD; Maja Stefanovic-Racic, MD; Jagdeesh Ullal, MD; and Yunjiao Wang, MD. For the Advanced Physical Exam Course (MED5233, MS2), four divisional faculty—Jason Ng, MD; Diana Pinkhasova, MD; Jagdeesh Ullal, MD; and Yunjiao Wang, MD—collaboratively taught medical students.

Additionally, the following faculty served as research mentors to medical students over the past year:

- → **Michael Jurczak**, **PhD**, served as research mentor in the summers of 2019 and 2020, respectively, for Anjana Murali, a medical student in the Physician Scientist Training Program at the University of Pittsburgh.
- Michael Jurczak, PhD, serves as research mentor for Wesley Ramirez, a medical student participating in a longitudinal research project entitled "Evaluation of cardiac metabolic flexibility during sodium-glucose cotransporter type 2 (SGLT2) inhibition in a preclinical model of obesity-associated type 2 diabetes."
- → In the summer of 2019 and 2020, **Michael Jurczak**, **PhD**, served as a research mentor for medical students Gillian Ahrendt and MacKenzie Moon via T35 funding to study mitochondrial biology.
- → **Erin Kershaw, MD**, served as research mentor for Aneta Kowalski, a medical student in the Physician Scientist Training Program at the University of Pittsburgh. Under Dr. Kershaw's mentorship, Aneta received a Howard Hughes Medical Institute Student Research Fellowship in 2018, 2019, and again in 2020 for her project titled "Role of CREBRF and its metabolic-risk variant in cardiac metabolism and function."
- ◆ Erin Kershaw, MD, served as research mentor for the University of Pittsburgh Scholarly Project of medical student Matt Swatski. She was awarded a Medical Student Research Mentoring Merit Award for her work with Matt. It is a prestigious award initiated by medical student recommendations and is presented to a longitudinal research project mentor of a graduating

medical student.

Postdoctoral Fellows

- **Erin Kershaw, MD**, served as a research mentor for Vrushali Shah, MD, a Clinical Endocrinology Fellow at UPMC who was working on a project to understand the normal risk gene for obesity.
- → **Michael Jurczak**, **PhD**, served as a research mentor for Ramya Undamatla, MD, a Clinical Endocrinology Fellow at UPMC who was working on a project exploring the role of hepatic mitophagy in the pathogenesis of NAFLD.
- → Michael Jurczak, PhD, continues to serve as research mentor for Lia Edmunds, PhD, who is a former T32 Postdoctoral Scholar and is now a Postdoctoral Associate working in the Jurczak Lab. Under Dr. Jurczak's mentorship, Lia has been awarded a postdoctoral fellowship award and a Ruth L. Kirschstein postdoctoral individual national research service award (F32).
- → **Vijay Yechoor, MD**, serves as research mentor for Eliana Melissa Garcia Perez, MD, a Clinical Pediatric Endocrinology Fellow at UPMC Children's Hospital who is working on a project entitled "The role of TEAD1 in the maturation of the beta cell in the neonatal period."
- → UPMC Mercy and UPMC McKeesport faculty (Sandra Sobel, MD, Lauren Willard, DO, Diana Pinkhasova, MD, and Sann Mon, MD) continue to provide outstanding resident teaching at these hospitals through preceptorships, lectures, and mentoring. Dr. Mon received the Outstanding Teaching Award from the Internal Medicine Residency Program at UPMC McKeesport in recognition of her substantial contributions to education and training.

Other notable teaching activities

- Maja Stefanovic-Racic, MD, continues to serve as the Program Director for the Clinical Fellowship Program in Endocrinology and Metabolism. Hussain Mahmud, MD, continues to serve as the Associate Program Director for the Clinical Fellowship Program. Ronald Codario, MD, has joined the Clinical Fellowship Program as an Associate Program Director. Esra Karslioglu-French, MD, served as the (Interim) Director for Quality in 2019-2020. Erin Kershaw, MD, continues to serve as the Associate Program Director for Research.
- + **Robert O'Doherty, PhD**, continues to serve as the Principal Investigator/Director of the Research Training (T32) Program in Endocrinology and Metabolism.
- → **Frederico Toledo**, **MD**, continues to serve on the Subspecialty Education Committee for the Internal Medicine Residency Program where he coordinates endocrine-specific educational activities for internal medicine residents.
- → **Pouneh Fazeli, MD, MPH**, received the Dr. Frederick DeRubertis Division of Endocrinology Golden Apple Teaching Award. This award recognizes the faculty who provided exceptional teaching to clinical endocrine fellows.
- → The Division continues to build the Fred DeRubertis Educational Fund to promote education and training in the field of endocrinology, diabetes, and metabolism. The fund honors the exceptional academic contributions of Dr. DeRubertis, an outstanding clinician educator and academic leader who served the University of Pittsburgh, UPMC, and VA Healthcare System community for over four decades.



Clinical Fellows

* Indicates departing fellow

*Hammam Alquadan, MD

Medical School: Jordan University of Science and Technology Faculty of Medicine, Jordan Residency: Universty of Arizona College of Medicine Current Position: RWJ Barnabas Health, West Orange, NJ

Emily Gammoh, MD

Medical School: RCSI - Medical University of Bahrain *Residency*: Houston Methodist Hospital, Houston, TX

Suraj Patel, MD

Medical School: St. George's University *Residency*: University of Tennessee College of Medicine

Anju Paul, MD

Medical School: Kottayam Medical College *Residency*: Jershey Shore University Medical Center, Neptune City, NJ

*Sindhura Ravindra, MD

Medical School: Kasturba Medical College Manipal, India Residency: University of Illinois College of Medicine Current Position: Camden Clark Medical Center at West Virginia University

Nami Safai Haeri, MD

Medical School: Iran University of Medical Sciences *Residency*: Brooklyn Hospital Center, Brooklyn, NY

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Medical School: Pramukhswami Medical College, India *Residency*: University of Tennessee College of Medicine

Current Position: University of Massachusetts Memorial Medical Center, Worcester, MA

Divya Sistla, MD

Medical School: Kamineni Institute of Medical Sciences *Residency*: UPMC McKeesport

*Ramya Undamatla, MD

Medical School: Kasturba Medical College Manipal, India

Residency: Rutgers New Jersey Medical School Current Position: Grace Clinic, Lubbock, TX

*Margaret Zupa, MD

Medical School: Jacobs School of Medicine, State University of New York at Buffalo

Residency: University of Pittsburgh

Current Position: T32 Postdoctoral Scholar, University of Pittsburgh

Clinical Fellow Activities

Hammam Alquadan, MD

Presentations and Abstracts

- A Case of Paraganglioma in Pregnancy, Endocrine Society Annual Meeting, Virtual, March 2020.
- A Case of Paraganglioma in Pregnancy, Update in Endocrinology, Pittsburgh, PA, April 2020.
- Machine Learning in Predicting Poor Glycemic Outcomes, American Diabetes Association Scientific Sessions 2020, Virtual, June 2020.

Honors and Awards

• Endocrine Society Early Career Travel Award, Endocrine Society Annual Meeting, San Francisco, CA, Virtual, March 2020.

Vrushali Shah, MD

Publications

• The Wellness Initiative - letter to highlight the division's commitment to wellness, Update in Endocrinology Newsletter, Pittsburgh, PA, April 2020.

Presentations and Abstracts

- Physician Wellbeing and Implementation of Tidepool to improve Clinic Workflow, American Diabetes Association Scientific Sessions 2020, Virtual, June 2020.
- Pregnant Thyroid Hyperemesis gravidarum induced thyrotoxicosis, Ridgeway Fellow Series, American Thyroid Association Annual Meeting, Chicago, IL, October 2019.
- Anchoring bias causing delayed diagnosis of Thyroid Lymphoma, American Thyroid Association Annual Meeting, Chicago, IL, October 2019.

Honors and Awards

- Focus on Fellows Program, American Diabetes Association Scientific Sessions 2020, Virtual, June 2020.
- Improving Clinic Workflow to Improve Physician Wellbeing, UPMC Physician Thrive Grant, Pittsburgh, PA, 7/19/2020

- Chief Fellow, Division of Endocrinology, Diabetes and Metabolism, UPMC, , Pittsburgh, PA. 7/19/2020
- Wellness Leader for Fellowship Program, UPMC Division of Endocrinology, Diabetes, and Metabolism Fellowship Program, Pittsburgh, PA, 7/19/2020

Ramya Undamatla, MD

Publications

• Edmunds LR, Xie B, Mills AM, Huckestein BR, **Undamatla R**, Murali A, Pangburn MM, Martin J, Sipula I, Kaufman BA, Scott I, Jurczak MJ. Liver-specific Prkn knockout mice are more susceptible to diet-induced hepatic steatosis and insulin resistance. Mol Metab. 2020 Nov;41:101051. Epub 2020 Jul 10.

Margaret F. Zupa, MD

Mentor: Ann-Marie Rosland, MD, MS

Dr. Zupa's research focuses on evaluating the impact of a patient and family supporter activation and engagement intervention on medication adherence, treatment intensification, and family support roles and how these interact with HbA1c in adults with uncontrolled diabetes mellitus and hypertension.

Publications

- **Zupa MF**, Sheth H, Aggarwal R, Ng JM. Improving Pneumococcal Vaccination Rates in Patients With Diabetes. Am J Med Qual. 2020;1062860620925545.
- **Zupa MF**, Arena VC, Johnson PA, Thearle MB, Siminerio LM. A Coordinated Population Health Approach to Diabetes Education in Primary Care. Diabetes Educ. 2019;45(6):580-585.

Presentations and Abstracts

• Effect of Family Support Intervention on Support Roles and Impact of Support on HbA1c Among Adults with Type 2 DM, American Diabetes Association Scientific Sessions 2020, Virtual, June 2020.

Honors and Awards

- Third place, Diagnosis of Adrenal Insufficiency Made Ridiculously Simple, Department of Medicine Fellow Teaching Competition, Pittsburgh, PA, May 2020.
- Focus on Fellows Program, American Diabetes Association Scientific Sessions 2020, Virtual, June 2020.

Postdoctoral Fellows and Activities

Brittany Durgin, PhD

Mentor: Adam Straub, PhD

Dr. Durgin's research focuses on CYB5R3 function in vascular smooth muscle cells in the context of systemic hypertension.

Publications

- **Durgin BG**, Hahn SA, Schmidt HM, Miller MP, Hafeez N, Mathar I, Freitag D, Sandner P, Straub AC. Loss of smooth muscle CYB5R3 amplifies angiotensin II-induced hypertension by increasing sGC heme oxidation. JCI Insight. 2019 Oct 3;4(19):e129183.
- Wood KC, **Durgin BG**, Schmidt HM, Hahn SA, Baust JJ, Bachman T, Vitturi DA, Ghosh S, Ofori-Acquah SF, Mora AL, Gladwin MT, Straub AC. Smooth muscle cytochrome b5 reductase 3 deficiency accelerates pulmonary hypertension development in sickle cell mice. Blood Adv. 2019 Dec 10;3(23):4104-4116.

Presentations and Abstracts

 CYB5R3 biases soluble guanylyl cyclase activation in resistance arteries, American Heart Association Joint Hypertension 2019 Scientific Sessions, New Orleans, LA, September 2020.

Honors and Awards

- Shark Tank Research Pitch Presentation Award, Vascular Medicine Institute Fellows Research Retreat, University of Pittsburgh, Pittsburgh, PA, February 2020.
- F32 Award, Physiological mechanisms governing soluble guanylyl cyclase redox regulation in resistance arteries, May 2020.
- Oral Presentation and Travel Award, Joint Meeting of European and International Societies of Hypertension (ESH-ISH), Glasgow, Scotland, May 2020.

Lia Edmunds, PhD

Mentor: Michael Jurczak, PhD

Dr. Edmunds's research examines understanding the relationship between mitochondrial autophagy (mitophagy), hepatic lipid metabolism, and mitochondrial dysfunction through the lens of the protein PARKIN, an E3 ubiquitin ligase that promotes mitophagy in times of damage or stress.

Publications

- **Edmunds LR**, Huckestein BR, Kahn M, Zhang D, Chu Y, Zhang Y, Wendell SG, Shulman GI, Jurczak MJ. Hepatic insulin sensitivity is improved in high-fat diet-fed Park2 knockout mice in association with increased hepatic AMPK activation and reduced steatosis. Physiol Rep. 2019 Nov;7(21):e14281.
- Argemi J, Latasa MU, Atkinson SR, Blokhin IO, Massey V, Gue JP, Cabezas J, Lozano JJ, Van Booven D, Bell A, Cao S, Vernetti LA, Arab JP, Ventura-Cots M, Edmunds LR, Fondevilla C, Stärkel P, Dubuquoy L, Louvet A, Odena G, Gomez JL, Aragon T, Altamirano J, Caballeria J, Jurczak MJ, Taylor DL, Berasain C, Wahlestedt C, Monga SP, Morgan MY, Sancho-Bru P, Mathurin P, Furuya S, Lackner C, Rusyn I, Shah VH, Thursz MR, Mann J, Avila MA, Bataller R. Defective HNF4alpha-dependent gene expression as a driver of hepatocellular failure in alcoholic hepatitis. Nat Commun. 2019 Jul 16;10(1):3126.

Honors and Awards

• American Diabetes Association Focus on the Fellows, American Diabetes Association Scientific Session 2020, Virtual, June 2020.

Jitendra S. Kanshana, PhD Mentor: Erin Kershaw, MD Dr. Kanshana's research assesses the role of CREBRF and its risk variant in obesity by using Crebrf knockout/knockin mice models.

Feng Li, PhD

Mentor: Vijay K. Yechoor, MD

Dr. Li's research focuses on Tead and novel cofactors and their function in different kinds of cells, including pancreatic beta and alpha cells and pancreatic tumor cells.

Presentations and Abstracts

• TEAD pathway regulates EMT and Stemness in Pancreatic Cancer cells, 18th Annual Department of Medicine Research Day, Pittsburgh, PA, April 2020.

Raja Gopal Reddy Mooli, PhD

Mentor: Sadeesh Ramakrishnan, DVM, PhD

Dr. Mooli's research is focused on how the liver-adipose tissue crosstalk drives the neonatal de novo beige adipogenesis via ketone bodies.

Publications

• **Mooli RGR**, Mukhi D, Watt M, Edmunds L, Xie B, Capooci J, Reslink M, Eze C, Mills A, Stolz DB, Jurczak M, Ramakrishnan SK. Sustained mitochondrial biogenesis is essential to maintain caloric restriction-induced beige adipocytes. Metabolism. 2020 Jun;107:154225.

Presentations and Abstracts

 Mitochondrial remodeling via fission and fusion plays a key role in cellular homeostasis and dysregulation of these mechanisms lead to aging-associated pathologies and other metabolic diseases, 2019 NHLBL Mitochondrial Biology Symposium, Maryland, September 2020.

Vinny Negi, PhD

Mentor: Vijay K. Yechoor, MD

Dr. Negi's research is focused on exploring the molecular mechanism of bromodomain containing protein (Brd2/4) in beta cell proliferation and insulin secretion.

Samantha Rosenthal, PhD

Mentor: Zsolt Urban, PhD

Dr. Rosenthal's research focuses on investigating the role of CREBRF on gene expression in adipose tissue and 3T3-L1 cells.

Publications

- Carlson JC, **Rosenthal SL**, Russell EM, Hawley NL, Sun G, Cheng H, Naseri T, Reupena MS, Tuitele J, Deka R, McGarvey ST, Weeks DE, Minster RL. A missense variant in CREBRF is associated with taller stature in Samoans. Am J Hum Biol. 2020 Nov;32(6):e23414.
- Hawley NL, Pomer A, Rivara AC, Rosenthal SL, Duckham RL, Carlson JC, Naseri T, Reupena MS, Selu M, Lupematisila V, Unasa F, Vesi L, Fatu T, Unasa S, Faasalele-Savusa K, Wetzel AI, Soti-Ulberg C, Prescott AT, Siufaga G, Penaia C, To SB, LaMonica LC, Lameko V, Choy CC, Crouter SE, Redline S, Deka R, Kershaw EE, Urban Z, Minster RL, Weeks DE, McGarvey ST. Exploring the Paradoxical Relationship of a Creb 3 Regulatory Factor Missense Variant With Body Mass Index and Diabetes Among Samoans: Protocol for the Soifua Manuia (Good Health) Observational Cohort Study. JMIR Res Protoc. 2020 Jul 23:9(7):e17329.
- Fan KH, Feingold E, **Rosenthal SL**, Demirci FY, Ganguli M, Lopez OL, Kamboh MI. Whole-Exome Sequencing Analysis of Alzheimer's Disease in Non-APOE*4 Carriers. J Alzheimers Dis. 2020;76(4):1553-1565.

Bingxian Xie, PhD

Mentor: Michael Jurczak, PhD

Dr. Xie's research is focused on elucidating the mechanism by which sodium/glucose co-transporter 2 (SGLT2) inhibitors reduce the risk of death related to cardiovascular disease, and he is specifically testing the hypothesis that SGLT2 inhibitors restore cardiac metabolic flexbility.

Ping Yang, MD

Mentor: Vijay K. Yechoor, MD

Dr. Yang's research is focused on establishing a human iPS in vitro differentiation model for generating beta cells from fibroblast/blood mono-nuclear cells from patients and study underlying mechanisms to optimize them.

ONE-YEAR

BIBLIOGRAPHY

July 1, 2019 to June 30, 2020

Non-original research publications are in italics. Endocrinology faculty are in **bold**.

Argemi J, Latasa MU, Atkinson SR, Blokhin IO, Massey V, Gue JP, Cabezas J, Lozano JJ, Van Booven D, Bell A, Cao S, Vernetti LA, Arab JP, Ventura-Cots M, Edmunds LR, Fondevilla C, Stärkel P, Dubuquoy L, Louvet A, Odena G, Gomez JL, Aragon T, Altamirano J, Caballeria J, Jurczak MJ, Taylor DL, Berasain C, Wahlestedt C, Monga SP, Morgan MY, Sancho-Bru P, Mathurin P, Furuya S, Lackner C, Rusyn I, Shah VH, Thursz MR, Mann J, Avila MA, Bataller R. Defective HNF4alpha-dependent gene expression as a driver of hepatocellular failure in alcoholic hepatitis. Nat Commun. 2019 Jul 16;10(1):3126.

Beck J, Greenwood DA, Blanton L, Bollinger ST, Butcher MK, Condon JE, Cypress M, Faulkner P, Fischl AH, Francis T, Kolb LE, Lavin-Tompkins JM, MacLeod J, Maryniuk M, Mensing C, Orzeck EA, Pope DD, Pulizzi JL, Reed AA, Rhinehart AS, Siminerio L, Wang J. 2017 National Standards for Diabetes Self-Management Education and Support. Diabetes Educ. 2020 Feb;46(1):46-61. Epub 2019 Dec 24.

Camporez JP, Lyu K, Goldberg EL, Zhang D, Cline GW, Jurczak MJ, Dixit VD, Petersen KF, Shulman GI. Anti-inflammatory effects of oestrogen mediate the sexual dimorphic response to lipid-induced insulin resistance. J Physiol. 2019 Aug;597(15):3885-3903. Epub 2019 Jul 4.

Chande S, Caballero D, Ho BB, Fetene J, Serna J, Pesta D, Nasiri A, Jurczak M, Chavkin NW, Hernando N, Giachelli CM, Wagner CA, Zeiss C, Shulman GI, Bergwitz C. Slc20a1/Pit1 and Slc20a2/ Pit2 are essential for normal skeletal myofiber function and survival. Sci Rep. 2020 Feb 20;10(1):3069.

De Carvalho FG, Justice JN, Freitas EC, Kershaw EE, Sparks LM. Adipose Tissue Quality in Aging: How Structural and Functional Aspects of Adipose Tissue Impact Skeletal Muscle Quality. Nutrients. 2019 Oct 23;11(11):2553.

de Oliveira C, Khatua B, Noel P, Kostenko S, Bag A, Balakrishnan B, Patel KS, Guerra AA, Martinez MN, Trivedi S, McCullough A, Lam-Himlin DM, Navina S, Faigel DO, Fukami N, Pannala R, Phillips AE, Papachristou GI, Kershaw EE, Lowe ME, Singh VP. Pancreatic triglyceride lipase mediates lipotoxic systemic inflammation. J Clin Invest. 2020 Apr 1;130(4):1931-1947.

DeVallance E, Li Y, Jurczak MJ, Cifuentes-Pagano E, Pagano PJ. The Role of NADPH Oxidases in the Etiology of Obesity and Metabolic Syndrome: Contribution of Individual Isoforms and Cell Biology. Antioxid Redox Signal. 2019 Oct 1;31(10):687-709.

Dubé JJ, Collyer ML, Trant S, Toledo FGS, Goodpaster BH, Kershaw EE, DeLany JP. Decreased Mitochondrial Dynamics Is Associated with Insulin Resistance, Metabolic Rate, and Fitness in African Americans. J Clin Endocrinol Metab. 2020 Apr 1;105(4):1210-

Edmunds LR, Huckestein BR, Kahn M, Zhang D, Chu Y, Zhang Y, Wendell SG, Shulman GI, Jurczak MJ. Hepatic insulin sensitivity is improved in high-fat diet-fed Park2 knockout mice in association with increased hepatic AMPK activation and reduced steatosis. Physiol Rep. 2019 Nov;7(21):e14281.

Fazeli PK, Faje AT, Meenaghan E, Russell ST, Resulai M, Lee H, Rosen Cl, Bouxsein ML, Klibanski A. IGF-1 is associated with estimated bone strength in anorexia nervosa. Osteoporos Int. 2020 Feb;31(2):259-265. Epub 2019 Oct 28.

Fazeli PK, Lee H, Steinhauser ML. Aging Is a Powerful Risk Factor for Type 2 Diabetes Mellitus Independent of Body Mass Index. Gerontology. 2020;66(2):209-210. Epub 2019 Sep

Fazeli PK. Low bone mineral density in an-

orexia nervosa: Treatments and challenges. Clin Rev Bone Miner Metab. 2019 Jun;17(2):65-76. Epub 2019 Apr 15.

Feeley CA, Sereika SM, Chasens ER, Siminerio L, Charron-Prochownik D, Muzumdar RH, Viswanathan P. Sleep in Parental Caregivers and Children With Type 1 Diabetes. | Sch Nurs. 2019 Jul 31:1059840519865942. Online ahead of print.

Frias AB Jr, Hyzny EJ, Buechel HM, Beppu LY, Xie B, Jurczak MJ, D'Cruz LM. The Transcriptional Regulator Id2 Is Critical for Adipose-Resident Regulatory T Cell Differentiation, Survival, and Function. J Immunol. 2019 Aug 1;203(3):658-664. Epub 2019 Jun 14.

Fu CP, Ali H, Rachakonda VP, Oczypok EA, DeLany JP, Kershaw EE. The ZJU index is a powerful surrogate marker for NAFLD in severely obese North American women. PLoS One. 2019 Nov 26;14(11):e0224942. eCollection 2019.

Gancheva S, Ouni M, Jelenik T, Koliaki C, Szendroedi J, **Toledo FGS**, Markgraf DF, Pesta DH, Mastrototaro L, De Filippo E, Herder C, Jähnert M, Weiss J, Strassburger K, Schlensak M, Schürmann A, Roden M. Dynamic changes of muscle insulin sensitivity after metabolic surgery. Nat Commun. 2019 Sep 13;10(1):4179.

Ganguli M, Beer JC, Zmuda JM, Ryan CM, Sullivan KJ, Chang CH, Rao RH. Aging, Diabetes, Obesity, and Cognitive Decline: A Population-Based Study. J Am Geriatr Soc. 2020 May;68(5):991-998. Epub 2020 Feb 4.

Gao Y, Chen L, Han Y, Wu F, Yang WS, Zhang Z, Huo T, Zhu Y, Yu C, Kim H, Lee M, Tang Z, Phillips K, He B, Jung SY, Song Y, **Zhu B**, Xu RM, Feng Q. Acetylation of histone H3K27 signals the transcriptional elongation for estrogen receptor alpha. Commun Biol. 2020 Apr 7;3(1):165.

Helgeson VS, Naqvi JB, Seltman H, Vaughn AK, **Korytkowski M**, Hausmann LRM, Gary-Webb TL. Links of communal coping to relationship and psychological health in type 2 diabetes: actor-partner interdependence models involving role, sex, and race. Ann Behav Med. 2020 Apr 20;54(5):346-359.

Lantz B, White C, Liu X, **Wan Y**, Gabriel G, Lo CWY, Szabo-Rogers HL. Finding the Unicorn, a New Mouse Model of Midfacial Clefting. Genes (Basel). 2020 Jan 11;11(1):83.

Lear TB, Lockwood KC, Larsen M, Tuncer F, Kennerdell JR, Morse C, Valenzi E, Tabib T, **Jurczak MJ**, Kass DJ, Evankovich JW, Finkel T, Lafyatis R, Liu Y, Chen BB. Kelch-like protein 42 is a profibrotic ubiquitin E3 ligase involved in systemic sclerosis. J Biol Chem. 2020 Mar 27;295(13):4171-4180. Epub 2020 Feb 17.

Lear TB, McKelvey AC, Evankovich JW, Rajbhandari S, Coon TA, Dunn SR, Londino JD, McVerry BJ, Zhang Y, Valenzi E, Burton CL, Gordon R, Gingras S, Lockwood KC, **Jurczak MJ**, Lafyatis R, Shlomchik MJ, Liu Y, Chen BB. KIAA0317 regulates pulmonary inflammation through SOCS2 degradation. JCI Insight. 2019 Oct 3;4(19):e129110.

Li D, Rodia CN, Johnson ZK, Bae M, Muter A, Heussinger AE, Tambini N, Longo AM, Dong H, Lee JY, Kohan AB. Intestinal basolateral lipid substrate transport is linked to chylomicron secretion and is regulated by apoC-III. J Lipid Res. 2019 Sep;60(9):1503-1515. Epub 2019 May 31.

Liu H, Zhang CH, Ammanamanchi N, Suresh S, Lewarchik C, Rao K, Uys GM, Han L, Abrial M, Yimlamai D, Ganapathy B, Guillermier C, Chen N, Khaladkar M, Spaethling J, Eberwine JH, Kim J, Walsh S, Choudhury S, Little K, Francis K, Sharma M, Viegas M, Bais A, Kostka D, Ding J, Bar-Joseph Z, Wu Y, **Yechoor V**, Moulik M, Johnson J, Weinberg J, Reyes-Múgica M, Steinhauser ML, Kühn B. Control of cytokinesis by β-adrenergic receptors indicates an approach for regulating cardiomyocyte endowment. Sci Transl Med. 2019 Oct 9;11(513):eaaw6419.

Liu J, Muturi HT, Khuder SS, Helal RA, Ghadieh HE, **Ramakrishnan SK**, Kaw MK, Lester SG, Al-Khudhair A, Conran PB, Chin KV, Gatto-Weis C, Najjar SM. Loss of Ceacam1 promotes prostate cancer progression in Pten haploinsufficient male mice. Metabolism. 2020 Jun;107:154215. Epub 2020 Mar 21.

Liu J, Zuo Z, Sastalla I, Liu C, Jang JY, **Sekine Y**, Li Y, Pirooznia M, Leppla SH, Finkel T, Liu S. Sequential CRISPR-Based Screens Identify LITAF and CDIP1 as the Bacillus cereus Hemolysin BL Toxin Host Receptors. Cell Host Microbe. 2020 Jun 9:S1931-3128(20)30294-8. Online ahead of print.

Liu R, Jagannathan R, Sun L, Li F, Yang P, **Lee J**, Negi V, Perez-Garcia EM, Shiva S, **Yechoor VK**, Moulik M. Tead1 is essential for mitochondrial function in cardiomyocytes. Am J Physiol Heart Circ Physiol. 2020 Jul 1;319(1):H89-H99. Epub 2020 Jun 5.

Liu R, Xiong X, Nam D, **Yechoor V**, Ma K. SRF-MRTF signaling suppresses brown adipocyte development by modulating TGF-β/BMP pathway. Mol Cell Endocrinol. 2020 Jun 27:110920. Online ahead of print.

Mady LJ, Grimes MC, Khan NI, **Rao RH**, Chiosea SI, Yip L, Ferris RL, Nikiforov YE, Carty SE, Duvvuri U. Molecular Profile of Locally Aggressive Well Differentiated Thyroid Cancers. Sci Rep. 2020 May 15;10(1):8031.

March CA, Nanni M, Kazmerski TM, **Siminerio LM**, Miller E, Libman IM. Modern diabetes devices in the school setting: Perspectives from school nurses. Pediatr Diabetes. 2020 Aug;21(5):832-840. Epub 2020 Apr 22.

Martin W, Graham C, Morrow L, Beysen C, **Toledo FGS**, Bajorunas D, Jiang Y, Silverman B, McDonnell D, Namchuk MN, Newcomer JW. 184 Insulin Sensitivity and Glucose Metabolism of Olanzapine and Combination Naqvi JB, Helgeson VS, Gary-Webb TL, Korytkowski MT, Seltman HJ. Sex, race, and the role of relationships in diabetes health: intersectionality matters. J Behav Med. 2020 Feb;43(1):69-79. Epub 2019 May 17.

Olanzapine and Samidorphan: A Phase 1 Exploratory Study in Healthy Volunteers. CNS Spectr. 2020 Apr;25(2):316.

Mooli RGR, Mukhi D, Watt M, Edmunds L, Xie B, Capooci J, Reslink M, Eze C, Mills A, Stolz DB, **Jurczak M**, **Ramakrishnan SK**. Sustained mitochondrial biogenesis is essential to maintain caloric restriction-induced

beige adipocytes. Metabolism. 2020 Jun;107:154225. Epub 2020 Apr 7.

Ohori NP, Landau MS, **Manroa P**, Schoedel KE, Seethala RR. Molecular-derived estimation of risk of malignancy for indeterminate thyroid cytology diagnoses. J Am Soc Cytopathol. 2020 Jul-Aug;9(4):213-220. Epub 2020 Apr 8.

Pan Y, Ballance H, Meng H, Gonzalez N, Kim SM, Abdurehman L, York B, Chen X, Schnytzer Y, Levy O, Dacso CC, McClung CA, O'Malley BW, Liu S, **Zhu B**. 12-h clock regulation of genetic information flow by XBP1s. PLoS Biol. 2020 Jan 14;18(1):e3000580. eCollection 2020 Jan.

Peters JM, Kim DJ, Bility MT, Borland MG, Zhu B, Gonzalez FJ. Regulatory mechanisms mediated by peroxisome proliferator-activated receptor-β/δ in skin cancer. Mol Carcinog. 2019 Sep;58(9):1612-1622. Epub 2019 May 6.

Polineni S, Resulaj M, Faje AT, Meenaghan E, Bredella MA, Bouxsein M, Lee H, MacDougald OA, Klibanski A, **Fazeli PK**. Red and White Blood Cell Counts Are Associated With Bone Marrow Adipose Tissue, Bone Mineral Density, and Bone Microarchitecture in Premenopausal Women. J Bone Miner Res. 2020 Jun;35(6):1031-1039. Epub 2020 Mar 23.

Powers MA, Bardsley JK, Cypress M, Funnell MM, Harms D, Hess-Fischl A, Hooks B, Isaacs D, Mandel ED, Maryniuk MD, Norton A, Rinker J, Siminerio LM, Uelmen S. Diabetes Self-management Education and Support in Adults With Type 2 Diabetes: A Consensus Report of the American Diabetes Association, the Association of Diabetes Care & Education Specialists, the Academy of Nutrition and Dietetics, the American Academy of Family Physicians, the American Academy of PAs, the American Association of Nurse Practitioners, and the American Pharmacists Association. Diabetes Educ. 2020 Aug;46(4):350-369/J Am Assoc Nurse Pract. 2020 Jun 9/ Diabetes Care. 2020 Jul;43(7):1636-1649.

Rachakonda VP, DeLany JP, **Kershaw EE**, Behari J. Impact of Hepatic Steatosis on Resting Metabolic Rate and Metabolic Adaptation in Response to Intentional Weight Loss. Hepatol Commun. 2019 Aug 21;3(10):1347-1355. eCollection 2019 Oct.

Reitz KM, Marroquin OC, Zenati MS, Kennedy J, **Korytkowski M**, Tzeng E, Koscum S, Newhouse D, Garcia RM, Vates J, Billiar TR, Zuckerbraun BS, Simmons RL, Shapiro S, Seymour CW, Angus DC, Rosengart MR, Neal MD. Association Between Preoperative Metformin Exposure and Postoperative Outcomes in Adults With Type 2 Diabetes. JAMA Surg. 2020 Apr 8;155(6):e200416. Online ahead of print.

Resulaj M, Polineni S, Meenaghan E, Eddy K, Lee H, **Fazeli PK**. Transdermal Estrogen in Women With Anorexia Nervosa: An Exploratory Pilot Study. JBMR Plus. 2019 Dec 10;4(1):e10251. eCollection 2020 Jan.

Schorr M, Fazeli PK, Bachmann KN, Faje AT, Meenaghan E, Kimball A, Singhal V, Ebrahimi S, Gleysteen S, Mickley D, Eddy KT, Misra M, Klibanski A, Miller KK. Differences in Trabecular Plate and Rod Structure in Premenopausal Women Across the Weight Spectrum. J Clin Endocrinol Metab. 2019 Oct 1;104(10):4501-4510.

Sebo ZL, Rendina-Ruedy E, Ables GP, Lindskog DM, Rodeheffer MS, Fazeli PK, Horowitz MC. Bone Marrow Adiposity: Basic and Clinical Implications. Endocr Rev. 2019 Oct 1;40(5):1187-1206.

Siminerio L, Hamm M, Kanter J, Cameron FA, Krall J. A Diabetes Education Model in Primary Care: Provider and Staff Perspectives. Diabetes Educ. 2019 Oct;45(5):498-506. Epub 2019 Aug 2.

Solanki S, Devenport SN, Ramakrishnan SK, Shah YM. Temporal induction of intestinal epithelial hypoxia-inducible factor- 2α is sufficient to drive colitis. Am J Physiol Gastrointest Liver Physiol. 2019 Aug 1;317(2):G98-G107. Epub 2019 Jun 26.

Sun R, Burke LE, Saul MI, **Korytkows-ki MT**, Li D, Sereika SM. Use of a Patient Portal for Engaging Patients with Type 2 Diabetes: Patterns and Prediction. Diabetes Technol Ther. 2019 Oct;21(10):546-556.

Suresh MV, Balijepalli S, Zhang B, Singh VV, Swamy S, Panicker S, Dolgachev VA, Subramanian C, Ramakrishnan SK, Thomas B, Rao TC, Delano MJ, Machado-Aranda D, Shah YM, Raghavendran K. Hypoxia-Inducible Factor (HIF)-1*α* Promotes Inflammation and Injury Following Aspiration-Induced Lung Injury in Mice. Shock. 2019 Dec;52(6):612-621.

Tong Y, Lear TB, Evankovich J, Chen Y, Londino JD, Myerburg MM, Zhang Y, Popescu ID, McDyer JF, McVerry BJ, Lockwood KC, **Jurczak MJ**, Liu Y, Chen BB. The RNFT2/IL-3Rα axis regulates IL-3 signaling and innate immunity. JCI

Insight. 2020 Feb 13;5(3):e133652.

Ullal J, Aloi JA. Subcutaneous Insulin Dosing Calculators for Inpatient Glucose Control. Curr Diab Rep. 2019 Nov 4;19(11):120.

Vats R, Liu S, Zhu J, Mukhi D, Tutuncuoglu E, Cardenes N, Singh S, Brzoska T, Kosar K, Bamne M, Jonassaint J, Adebayo Michael A, Watkins SC, Hillery C, Ma X, Nejak-Bowen K, Rojas M, Gladwin MT, Kato GJ, **Ramakrishnan S**, Sundd P, Monga SP, Pradhan-Sundd T. Impaired bile secretion promotes hepatobiliary injury in Sickle Cell Disease. Hepatology. 2020 Mar 19. Online ahead of print.

Wan Y, White C, Robert N, Rogers MB, Szabo-Rogers HL. Localization of Tfap2β, Casq2, Penk, Zic1, and Zic3 Expression in the Developing Retina, Muscle, and Sclera of the Embryonic Mouse Eye. J Histochem Cytochem. 2019 Dec;67(12):863-871. Epub 2019 Oct 22.

Weeks O, Bossé GD, Oderberg IM, Akle S, Houvras Y, Wrighton PJ, LaBella K, Iversen I, Tavakoli S, Adatto I, Schwartz A, Kloosterman D, Tsomides A, Charness ME, Peterson RT, Steinhauser ML, **Fazeli PK**, Goessling W. Fetal alcohol spectrum disorder predisposes to metabolic abnormalities in adulthood. J Clin Invest. 2020 May 1;130(5):2252-2269.

Weisel FJ, Mullett SJ, Elsner RA, Menk AV, Trivedi N, Luo W, Wikenheiser D, Hawse WF, Chikina M, Smita S, Conter LJ, Joachim SM, Wendell SG, **Jurczak MJ**, Winkler TH, Delgoffe GM, Shlomchik MJ. Germinal center B cells selectively oxidize fatty acids for energy while conducting minimal glycolysis. Nat Immunol. 2020 Mar;21(3):331-342. Epub 2020 Feb 17.

Yin H, Li W, Chatterjee S, Xiong X, Saha P, **Yechoor V**, Ma K. Metabolic-sensing of the skeletal muscle clock coordinates fuel oxidation. FASEB J. 2020 May;34(5):6613-6627. Epub 2020 Mar 24.

Zhu B. Decoding the function and regulation of the mammalian 12h-clock. J Mol Cell Biol. 2020 May 8:mjaa021. Online ahead of print.

Zupa MF, Arena VC, Johnson PA, Thearle MB, **Siminerio LM**. A Coordinated Population Health Approach to Diabetes Education in Primary Care. Diabetes Educ. 2019 Dec;45(6):580-585. Epub 2019 Oct 3.

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