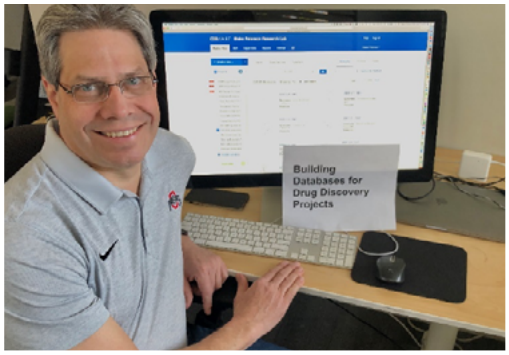
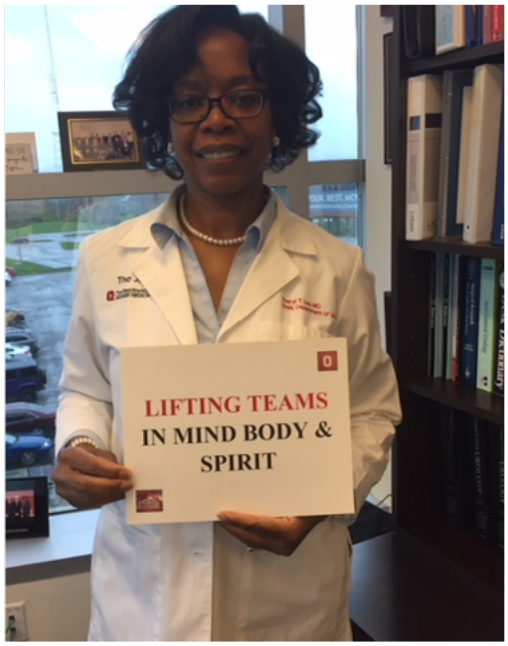
THE OHIO STATE UNIVERSITY COMPREHENSIVE CANCER CENTER – ARTHUR G. JAMES CANCER HOSPITAL AND RICHARD J. SOLOVE RESEARCH INSTITUTE

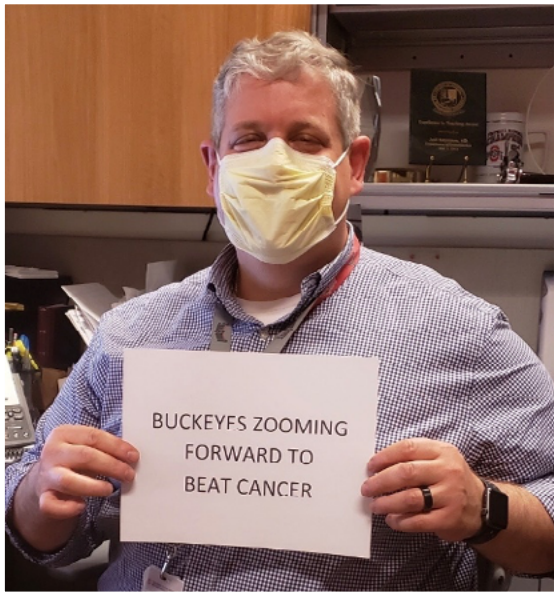
The James

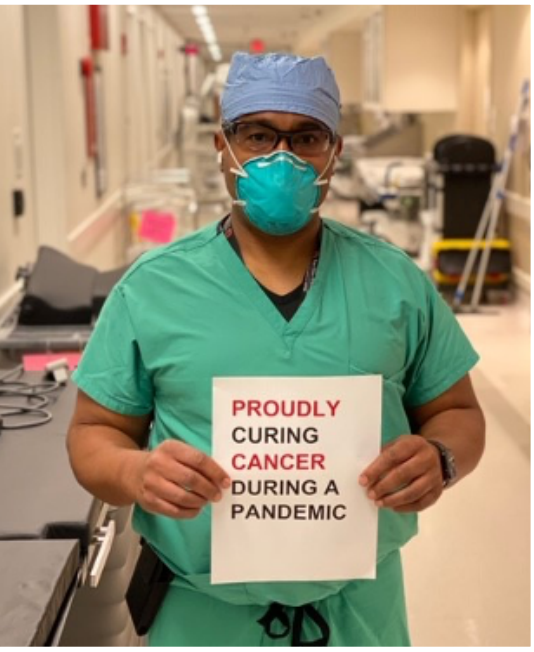
THE OHIO STATE UNIVERSITY
COMPREHENSIVE CANCER CENTER

2020 Accomplishments Report



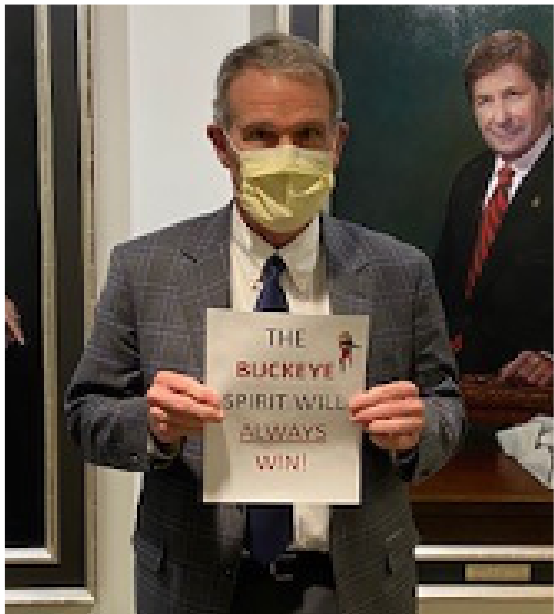






THE SIX-WORD CHALLENGE

In April 2020, amid the early days of the COVID-19 pandemic, Hal Paz, MD, MS, executive vice president and chancellor for Health Affairs at Ohio State, invited everyone at the university's academic medical center to share their "Day in the Life" stories in six words plus a photo of individuals or teams. His request stemmed from the globally renowned Six-Word Memoir project, which originated in 2006 when Larry Smith, founder of SMITH magazine, asked readers to describe their lives in just six words, similar to a challenge once reputedly presented to Ernest Hemingway. On this page are six-word samples and photos submitted by faculty and staff at the OSUCCC – James.



CONTENTS

A Year Like No Other 2

Celebrating Milestones 4

OSUCCC – James Updates 8

In Memoriam 12

Research 16

Recruits 26

Institutional Awards,
Honors & Achievements 28

Large Research Grants/Gifts 30

Individual/Team Awards,
Honors & Achievements 34

THE OHIO STATE UNIVERSITY COMPREHENSIVE CANCER CENTER – ARTHUR G. JAMES CANCER HOSPITAL AND RICHARD J. SOLOVE RESEARCH INSTITUTE (OSUCCC – JAMES) LEADERSHIP TEAM

(listed alphabetically)

JULIAN BELL, MHA, CPA
Chief Financial Officer

DAVID E. COHN, MD, MBA
Chief Medical Officer

WILLIAM B. FARRAR, MD
Chief Executive Officer,
James Cancer Hospital and
Solove Research Institute

DAVID GOSKY, MA, MBA
Executive Director for Research Administration

MELISSA HALL
Chief Communications Officer

KRIS KIPP, MSN, RN
Executive Director, Clinical Services and
Chief Nursing Officer

JENNIFER MCDONALD
Assistant Vice President, Development

JEFF PATRICK, PharmD
Director, Drug Development Institute

HAROLD PAZ, MD, MS
Executive Vice President and Chancellor for
Health Affairs at Ohio State

BECCA PETERSON, PhD
Senior Director, Strategic Initiatives

RAPHAEL E. POLLOCK, MD, PhD, FACS
Director, The Ohio State University
Comprehensive Cancer Center

PETER SHIELDS, MD
Deputy Director, The Ohio State University
Comprehensive Cancer Center

NANCY SINGLE, PhD
Director, Clinical Research Operations

R. MICHAEL TOWNSEND, PhD
Chief Information Officer

EMY TRENDE, JD
Assistant General Counsel, Legal Affairs

AMY WARE, MHA, MEd
Senior Adviser to the CEO

TED YANK, MHA
Senior Director for Research Administration

A Year Like No Other:

Pursuing a Cancer-Free World During a Viral Pandemic

2020 was a difficult year in which a viral pandemic presented life-changing challenges for everyone, but faculty and staff at The Ohio State University Comprehensive Cancer Center – James Cancer Hospital and Solove Research Institute (OSUCCC – James) heroically adapted to continue providing outstanding science-based cancer care.

OSUCCC – James physicians, nurses, allied medical personnel, researchers and support staff displayed remarkable resilience and an ability to work within extraordinary safety measures that were implemented throughout Ohio State's health care system to protect patients and caregivers alike from the COVID-19 threat that has claimed hundreds of thousands of lives in the United States alone.

Through such precautionary measures as universal masking of staff and patients, frequent sanitizing, continual temperature and symptom monitoring, restricting visitors, increasing the use of telemedicine or "virtual" appointments when possible, and testing all patients for COVID-19 before surgical, diagnostic and screening procedures, the OSUCCC – James diligently balanced quality cancer care and COVID-19 risk reduction.

Researchers and clinicians at the OSUCCC – James also led or participated in clinical trials or interdisciplinary studies aimed at quelling COVID-19. Here are examples:

In a pair of phase II clinical trials led by **Arnab Chakravarti, MD**, of the OSUCCC – James, patients undergo a single treatment of whole-lung radiation to target and reduce pulmonary inflammation associated with COVID-19 infection. And a phase II clinical trial led by **Jennifer Woyach, MD**, seeks to determine if an oral cancer drug called ibrutinib can also help patients with cancer or other immunocompromised conditions recover from COVID-19. *(Read about these trials in the Research section of this report.)*

The U.S. Food and Drug Administration approved solutions created by scientists at the Ohio State Wexner Medical Center that expanded and accelerated COVID-19 testing across Ohio. This involved creating a "recipe" for a liquid called viral transport media (VTM) that goes in vials contained in COVID-19 Test Kits. **Jacob Yount, PhD**, of the OSUCCC – James, led the project.

Before the pandemic, the Ohio State Wexner Medical Center used telehealth visits for less than 1% of patient visits. But within a few weeks of the outbreak in Ohio in March 2020, telehealth accounted for more than 60% of total visits. Caregivers logged over 2,500 telehealth visits per day while maintaining high patient-satisfaction levels. Ohio State researchers shared clinical and operations guidance gleaned from this transition in a paper published in the *JMIR Public Health and Surveillance.*

Syed Husain, MBBS, associate professor in the Division of Colorectal Surgery, developed an invention that doubles ventilator capacity to assist in the fight against the COVID-19 pandemic. Husain, an associate attending physician at The James, presented his invention at a COVID-19 Inventor Showcase at Ohio State.

To address the need for additional personal protective equipment for health care workers, Ohio State's College of Engineering and College of Nursing Innovation Studio implemented a system and method to provide 3-D printed visors with face shields to health care workers at the Wexner Medical Center and the OSUCCC – James. The initiative stemmed from a collaboration between **Karilyn Larkin, MD**, and **Carlos Castro, PhD**, both of the OSUCCC – James.

Ohio State's "White Coats for Black Lives" ceremony on June 5 represented a call for a renewed commitment to diversity, inclusion and equality throughout the nation.

Cancer control researchers at the OSUCCC–James received a $100,000 grant from the National Cancer Institute (NCI) to study how cancer prevention, screening, treatment and survivorship behaviors are impacted within the context of COVID-19 environmental constraints. The study, led by **Electra Paskett, PhD, MSPH**, associate director for population sciences at the OSUCCC – James, is a collaboration of faculty in Ohio State's College of Medicine and College of Public Health.

Electra Paskett, PhD, MSPH, and **Rebecca Jackson, MD**, director of Ohio State's Center for Clinical and Translational Science, are leading a project supported by a $5 million, two-year award from the NIH RADx-UP program to fund initiatives to implement COVID-19 testing strategies in populations disproportionately affected by the pandemic. *(See story in the "Large Research Grants/ Gifts" section of this report.)*

OSUCCC – James Activities Support National Anti-Racism Movement

Amid an escalating anti-racism movement and increasing calls for racial and social justice in the United States during 2020, the OSUCCC – James held or participated in activities supporting the cause.

- The OSUCCC – James joined efforts by the Ohio State Wexner Medical Center to address racism within the organizations—efforts that are embodied in an **Anti-Racism Action Plan (ARAP)** that was launched in summer 2020.
- **Darrell M. Gray II, MD, MPH**, associate professor in the Division of Gastroenterology, Hepatology and Nutrition at Ohio State, where he also is in the Cancer Control Program and serves as deputy director for cancer health equity at the OSUCCC – James, is a co-lead for ARAP and has played an important role in its development and initiatives.
- That plan has led to such actions as: assembling a diversified **Anti-Racism Oversight Committee** that widens representation across the Wexner Medical Center, the OSUCCC – James, health science colleges' deans, Diversity Council, Women in Medicine and Science (WIMS), and the Health Equity Steering Committee; creating **Anti-Racism Action Groups** focused on specific topics to develop initiatives for implementation across the medical center and health sciences colleges; selection of a cross-section of champions representing the various parts of the organization to lead the Anti-Racism Action Groups and outlining group charters with the more than 140 faculty and staff who were nominated to participate; establishing an **Anti-Racism Initiatives website** containing ARAP-related content along with educational materials and links about racism; and others.
- In addition, Ohio State's Diversity Council created a **21-Day Anti-Racism Challenge** for individuals, groups, units or departments. Participants take one action each day to further their understanding of power, privilege, supremacy, systemic racism, oppression and equity. OSUCCC – James leaders participated and encouraged others to do so.
- The OSUCCC – James leadership team organized a series of faculty and staff open forums on racial injustice and inequality within the workplace, and on actions that can be taken toward systemic change.
- In solidarity with health care providers and medical students across the country, students in Ohio State's College of Medicine brought faculty and staff from the OSUCCC – James and The Ohio State University Wexner Medical Center together on June 5 to kneel in honor of George Floyd and countless others who have suffered from racial injustice. The "White Coats for Black Lives" ceremony represented a call for a renewed commitment to diversity, inclusion and equality throughout the nation.

NCI Again Rates OSUCCC – James as 'Exceptional' and Renews CCC Status

For the third consecutive time, the National Cancer Institute (NCI) in 2020 rated Ohio State's cancer program as "exceptional"—the highest rating provided—following a review of the OSUCCC – James' application for re-designation as a Comprehensive Cancer Center and a virtual site visit by a team of NCI surveyors.

The OSUCCC – James thus retains a designation it has maintained since 1976 through a competitive peer-review process that includes both written and on-site evaluation of the research program and infrastructure. The re-designation will extend for five years and will provide the cancer program with an estimated $33 million Cancer Center Support Grant (CCSG) from the NCI. The CCSG supports research programs, community outreach and engagement, education and training, clinical trial infrastructure, center senior leadership and administration, shared resource facilities, and program development.

NCI designation as a Comprehensive Cancer Center is the most prestigious recognition a cancer program can receive, providing an external and expert validation of the breadth and depth of an institution's cancer research efforts and of how the institution translates those discoveries into excellent patient care.

NCI Designated Comprehensive Cancer Center

"This exceptional ranking from the NCI is a tribute to the dedication of our team of nearly 300 scientists and clinician-investigators working in laboratory, translational, clinical and population sciences to advance cancer discoveries that will improve care at the bedside," says OSUCCC Director **Raphael E. Pollock, MD, PhD, FACS**. "We are honored to continue this important work that will lead us toward a cancer-free world."

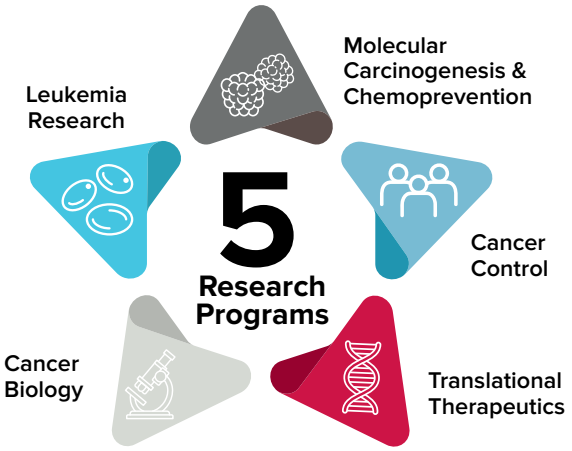
- **1971 – National Cancer Act signed into law and "War on Cancer" declared**
- **1976 – Ohio State receives its first CCC designation**
- **1990 – Opening of The James**
- **2014 – Opening of the new home of The James**
- **2021 – 50th anniversary of the National Cancer Act and most recent Ohio State CCC re-designation**

OSUCCC Cancer Center Support Grant by the Numbers, 2015-2020

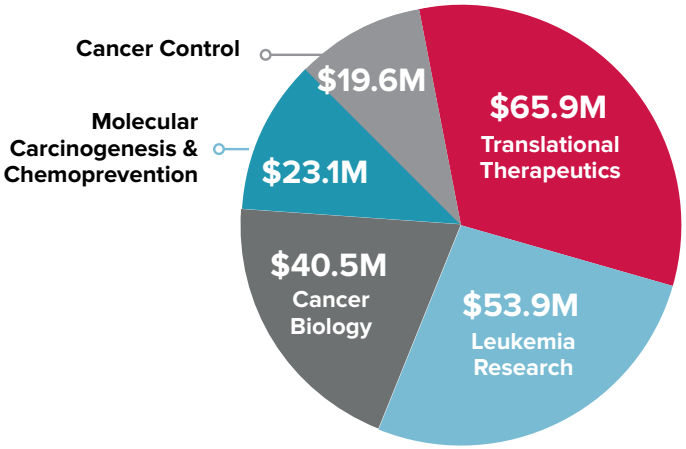
293 OSUCCC MEMBERS

48 DEPARTMENTS

11 COLLEGES



$203M OSUCCC Research Program Investment



Five-Year Funding, Grants & Philanthropy

2015-2020 vs. 2010-2015

$75.4M Total cancer funding from all sources, a +16.4% increase

559 Total active grants, a +21.5% increase

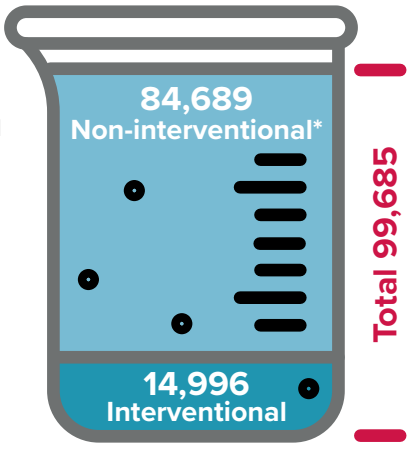
$338M Philanthropic support, a +46% increase

Clinical Trial Participation

Total Clinical Research Accruals 2015-2020

99,685 total clinical research accruals

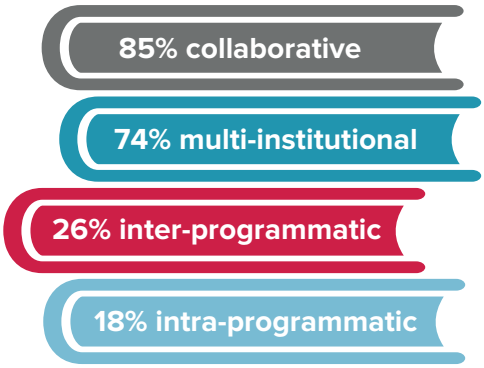
5,648 therapeutic accruals



*Includes 50,683 in ORIEN

Publications, 2015-2020

3,477 total publications



High Impact Factor Publications

497 publications with impact factor >10

+51% increase versus 2010-2015

The James Celebrates 30 Years of Exemplary Cancer Care

Ohio State's cancer program celebrated the 30th anniversary of the James Cancer Hospital and Solove Research Institute on July 9, for it was on that date in 1990 that Arthur G. James, MD, escorted the first patient into the original James and opened a new era of research-based and compassionate cancer care for people in central Ohio and beyond.

The hospital had only 17 inpatients on its first day, but the day marked the fulfillment of Dr. James' decades-old dream of establishing a freestanding cancer hospital at Ohio State—a dream that took root during his training years in the 1940s. After attending medical school at Ohio State, he spent four years as a surgeon overseas during World War II, and then completed his training at Memorial Sloan-Kettering Cancer Center in New York City (then known as Memorial Hospital).

Inspired by that hospital's focus on cancer treatment, Dr. James dreamed of bringing the same level of specialized care to central Ohio.

After returning to Columbus in 1947 to join The Ohio State University Hospitals medical staff, he spent the next 35 years convincing community leaders, the state of Ohio and The Ohio State University of the need for a cancer hospital here. After years of fundraising and campaigning, ground was broken in 1984 to build what would become the Arthur G. James Cancer Hospital and Research Institute—the adult patient care component of The Ohio State University Comprehensive Cancer Center (OSUCCC) that had been established via NCI designation in 1976.

Dr. James saw his vision become reality in 1990 when The James opened and treated its first patients. Another step in its evolution occurred in 1999 when the university acknowledged local businessman and philanthropist Richard J. Solove—a longtime friend of Dr. James—for his years of support for cancer research at Ohio State by renaming the hospital as the Arthur G. James Cancer Hospital and Richard J. Solove Research Institute. Dr. James died in 2001.

Solove died in 2011, but not before seeing the university break ground for construction of a new and much larger cancer hospital that opened in December 2014 bearing the same name. The

newer James is a transformational facility that integrates research with clinical care more closely than ever.

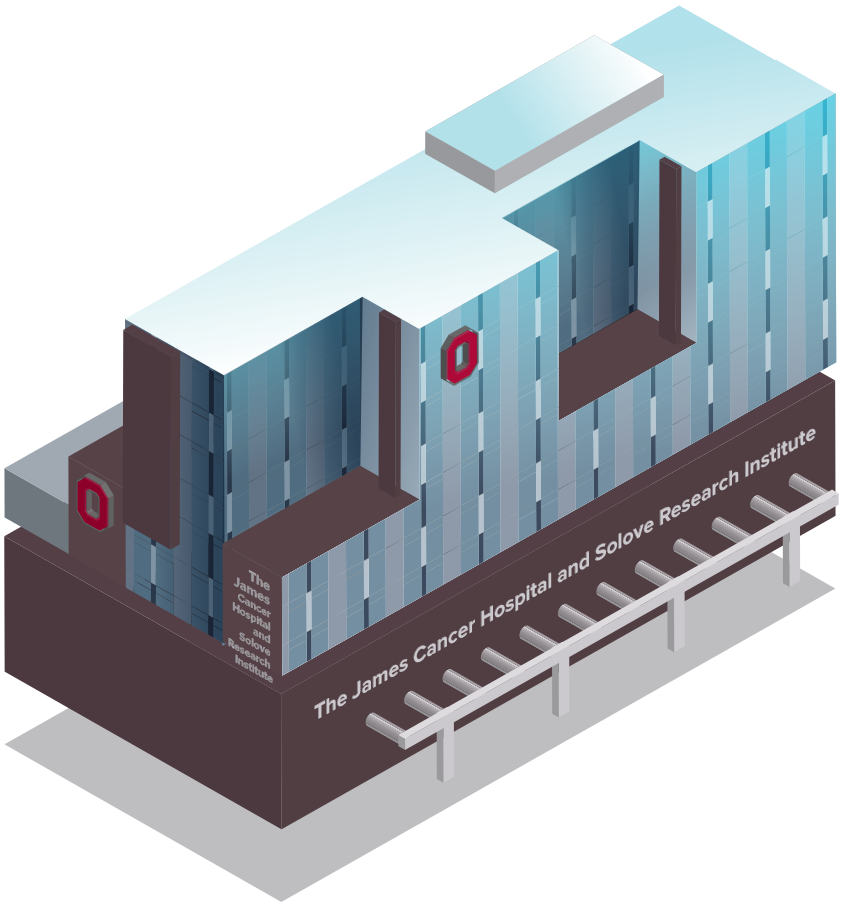
Realizing that there is no routine cancer and that every malignancy is uniquely driven by each patient's biological makeup, the nearly 300 cancer researchers and 200 cancer subspecialists within the OSUCCC – James are national leaders in rapidly developing and delivering treatments that target the molecules and biomarkers fueling individual cancers. Researchers and clinicians collaborate to provide even more targeted treatment options with fewer side effects—offering patients and families greater hope for faster responses and improved outcomes.

Dr. James' dream of establishing a cancer hospital in central Ohio represented a huge step toward realizing his ultimate vision of a world without cancer—a dream shared today by everyone at the OSUCCC – James.

"Dr. James' vision and persistence brought into being a hospital that offers hope to countless patients and families from around the world," says James CEO William B. Farrar, MD, who has been on The James' medical staff since the beginning. "I feel blessed to have trained with this man (as a resident) and to have worked alongside him for several years. The James is a stirring legacy for a doctor who dreamed of a world without cancer and never stopped believing it will someday come about."

"The James is a stirring legacy for a doctor who dreamed of a world without cancer and never stopped believing it will someday come about."

WILLIAM B. FARRAR, MD,



The OSUCCC – James strives to create a cancer-free world by integrating scientific research with excellence in education and patient-centered care, a mission that leads to better methods of prevention, detection and treatment.

Ohio State is one of 51 National Cancer Institute (NCI)-designated Comprehensive Cancer Centers, a designation that the university has competitively maintained since 1976. The NCI has ranked the OSUCCC – James as "exceptional"— the highest descriptor—following each of its last three reviews for five-year re-designation as a CCC. The OSUCCC – James is one of only a few centers that are funded by the NCI to conduct both phase I and II clinical trials on novel anticancer drugs provided by the NCI.

As the cancer program's 356-bed adult patient-care component, The James Cancer Hospital and Solove Research Institute is one of the top cancer hospitals in the nation as ranked by *U.S. News & World Report* and has achieved Magnet® designation, the highest honor an organization can receive for quality patient care and professional nursing practice. With 21 floors and more than 1.1 million square feet, The James is a transformational facility that fosters collaboration and integration of cancer research and clinical care. Visit cancer.osu.edu to learn more.

Research Grant Funding

The OSUCCC – James has nearly 300 full or introductory cancer researchers who collectively represent 11 of the 15 colleges at Ohio State. Each researcher is in one of five multidisciplinary research programs: Cancer Control (CC); Leukemia Research (LR); Cancer Biology (CB); Molecular Carcinogenesis and Chemoprevention (MCC); or Translational Therapeutics (TT). In fiscal year 2020, OSUCCC – James researchers received 37 new research grants totaling $14.3 million from the National Cancer Institute (NCI), bringing the cancer program's annual total NCI grant funding to $55 million. The OSUCCC – James ranks 15th among cancer institutions in the United States for total NCI funding.

Research Publications

In 2020, cancer researchers at the OSUCCC – James authored or co-authored 877 publications in peer-reviewed journals, including 178 that appeared in journals with impact factors of 10.0 or higher. Also, 94% of all articles published were collaborative among scientists within the five OSUCCC programs, and 90% of the publications were multi-institutional (involving collaboration with researchers at other institutions).

Patient Care

In 2020 the OSUCCC – James had an average daily occupancy rate of 80.7% and an average daily census of 278.5 inpatients. The institution also treated 99,509 patients in the outpatient setting and received 667,521 outpatient visits (including in-person and virtual via telemedicine).

Clinical Trials

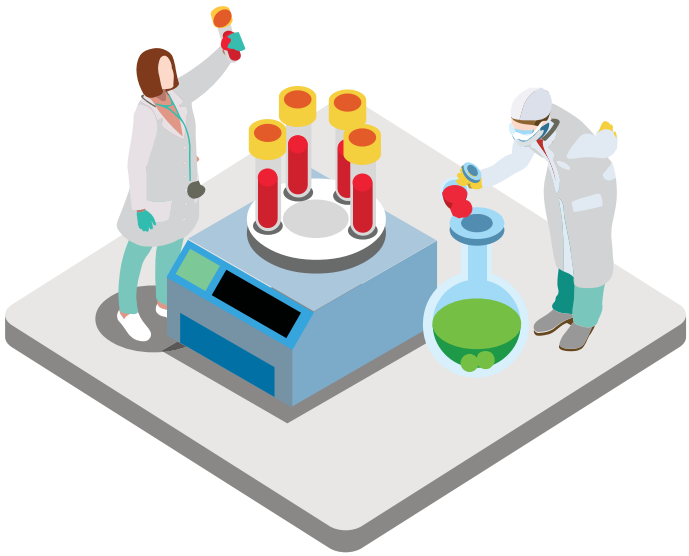
Patients at the OSUCCC – James have access to hundreds of clinical trials offering sophisticated treatments, including some that are available nowhere else. In 2020 researchers at the OSUCCC – James opened 151 clinical trials to bring the total number of available trials to 613, of which 488 are interventional. The 2020 accrual rate for interventional trials at the OSUCCC – James was 34%. The five-year average patient accrual to interventional clinical trials here is 17%—well above the national rate of about 3%—and the five-year average for non-interventional clinical trials is 46%.

Total Cancer Care® Protocol

Since 2014, the OSUCCC – James has enrolled more than 60,000 patients for a 94% accrual rate in a Total Cancer Care® (TCC) protocol for voluntarily sharing de-identified clinical data that moves cancer research forward and personalizes cancer care. The TCC protocol helps clinicians understand differences among cancer patients and find ways to individualize prevention, detection and treatment.

ORIEN Precision Medicine Collaboration

The TCC protocol referenced above has been adopted by all 18 member institutions across the nation that constitute the Oncology Research Information Exchange Network (ORIEN), a research collaboration co-founded and co-anchored by the OSUCCC – James and Moffitt Cancer Center in Tampa, Fla. Through ORIEN, more than 300,000 TCC-consented patients across the nation have agreed to donate their clinical data for research to help scientists understand cancer at the molecular level, making ORIEN one of the world's largest precision medicine collaborations to address this disease.



Drug Development Institute (DDI)

The DDI is a biotech-like institute embedded within the OSUCCC – James that employs a combination of targeted investments, strategic management and cutting-edge resources to drive projects from discovery to early-stage development of drugs for cancer therapy. Led by DDI Senior Director and Clinical Pharmacist **Jeff Patrick, PharmD**, the DDI is staffed by industry-trained scientists and employs a "dual-track" collaborative management process to ensure efficient advancement for all projects.

Project activities are divided between the DDI and investigators, and are executed in parallel to achieve this process. The desired outcome is to advance projects to the point of partnership with industry to ensure that translational research at the OSUCCC – James can benefit patients.

In 2020, the DDI received a $10 million gift from the Paula and Rodger Riney Foundation to establish the Riney Family Foundation Myeloma Center for Advanced Research Excellence (Myeloma CARE … *see story, page 30).* This support will enable the DDI and the OSUCCC – James myeloma program to advance multiple myeloma research. The Myeloma CARE programs will be led by **Don Benson, MD, PhD**. Benson will collaborate with the DDI's Senior Director of Biochemistry **Jerry Hilinski, PhD**, who will lead the DDI efforts to push new therapies from bench to bedside.

The DDI advances research through its Pipeline and Pilot Funding Programs. Pilot funding provides up to $50,000 of early validation support to determine if the project has drug-development potential and would be considered for inclusion in the DDI Pipeline Portfolio. For select projects that require unique support, the DDI may provide Ohio State investigators with funding for regulatory filing needs or to initiate a Request for Proposals Program to explore additional disease indications. A list of projects under development for 2021 includes:

DDI Pipeline Portfolio

Activated B Cells as a Therapeutic Cancer Vaccine Platform – A novel B cell-based therapeutic cancer vaccine, with the potential to be personalized to an individual's tumor signature, is being developed for use in treating a variety of cancer types.

DHODH Inhibitors for Treatment of Hematologic Malignancies – Recent proof-of-concept research has rekindled interest in targeting cancers through inhibition of dihydroorotate dehydrogenase (DHODH). The Ohio State University, in collaboration with Hendrix College, is developing a series of DHODH inhibitors for treating hematologic malignancies, including acute myeloid leukemia. Over the past year, preclinical studies have demonstrated that the lead molecule has best-in-class activity in cancer models. DDI scientists are positioning this molecule for Investigational New Drug (IND) submission to the FDA.

Selective Estrogen Receptor Modulator (ER-β Agonist) as a New Approach to Targeting Cancer – A novel series of selective non-steroidal estrogen receptor beta agonists is in development for treating cancer, precancerous conditions and potentially non-cancer indications. This project initiated the DDI's first RFP program to harness the power of the Ohio State network to explore additional applications in 11 cancer and seven non-cancer disease indications. Several of these indications have shown promising potential and are being pursued for drug development.

Selective RAL A GTPase Inhibitors as a Cancer Treatment – The Ral A protein has been shown to be a critical node in signaling pathways that allow growth of several types of cancer. This team is developing first-in-class, selective inhibitors of Ral A.

Myeloma CARE Program Pipeline

Aryl Hydrocarbon Receptor as a Target for Multiple Myeloma – The aryl hydrocarbon receptor (AHR) has been implicated as a sensor of environmental chemicals and as a critical regulator of B-cell development. This team is developing small molecule inhibitors of AHR that both disrupt cancer cell proliferation and also strengthen the body's antitumor immune response to address the significant unmet need in myeloma.

Mps1/TTK Kinase Inhibitor as a Treatment for Cancer – Mps1 is a protein that regulates cell division, and its overexpression is associated with poor outcomes in multiple myeloma as well as other hematologic and solid tumor types. This team is developing selective inhibitors of Mps1.

DHODH Inhibitors for Treatment of Hematologic Malignancies – As stated earlier, recent proof-of-concept research has rekindled interest in targeting cancers by inhibiting dihydroorotate dehydrogenase (DHODH). Because of compelling literature precedent and preliminary data at Ohio State, DHODH inhibitors developed as part of the DHODH program in the main DDI pipeline will be evaluated in multiple myeloma as a single agent and in combination with other multiple myeloma therapeutics.

Characterization of Multiple Myeloma Samples – Since 2011, the OSUCCC – James' multiple myeloma program has banked over 400 patient samples. The DDI will be harnessing the full potential of this myeloma registry by extensively characterizing these samples and obtaining invaluable insight into myeloma etiology and progression. This will further enable the development of bespoken multiple myeloma models to be used to enhance the power of the research being performed in Myeloma CARE.

Pilot Programs

Evaluating CD74 as a Target for CAR T-Cell Therapies.
Principal Investigator (PI): **Lapo Alinari, MD, PhD**

Testing the Ability of Fasnall to Block Coronavirus Replication. PI: **Jesse Kwiek, PhD**

Evaluating the Inhibition of Mitotic Proteins Mps1 and MKLp2 as a Therapeutic Strategy for Glioblastoma.
PIs: **Matthew Summers, PhD**, and **Morgan Shrock, PhD**

Evaluating Sumolyation Inhibition as a Promising Approach to Treat Acute Myeloid Leukemia.
PIs: **Bethany Mundy-Bosse, PhD**, and **Aharon Freud, MD, PhD**

Center for Leukemia Outcomes Research Will Extend Bloomfield Legacy at Ohio State

Clara D. Bloomfield, MD

The OSUCCC – James will maintain and expand the legacy of the late Clara D. Bloomfield, MD, by establishing a center devoted to furthering her decades of groundbreaking research in hematologic malignancies—work that revolutionized treatment for patients with acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL) via a science-based, risk-stratified therapeutic approach.

The new **Clara D. Bloomfield Center for Leukemia Outcomes Research** will continue the pursuit of studies at Ohio State in hematologic malignancies, including acute leukemias, myelodysplastic syndromes (MDS) and clonal hematopoiesis. Bloomfield, a Distinguished University Professor who held the William Greenville Pace III Endowed Chair in Cancer Research and also served as cancer scholar and senior adviser to the OSUCCC – James, was internationally renowned for her many discoveries and achievements relating to those diseases. Her research was sufficiently impactful to result in her election to the National Academy of Medicine, an honor that very few clinical researchers receive. Until her untimely death in March 2020 at age 77, she continued her research as ardently as ever.

Bloomfield's work over nearly half a century—including 23 years at Ohio State (1997-2020)—had tremendous worldwide impact, resulting in the incorporation of cytogenetic and molecular genetic findings in the diagnosis of acute leukemias for the first time in the 2001 World Health Organization (WHO) classification, and into patient management in hematologic malignancies, including selecting therapy in the most widely adopted clinical practice guidelines in oncology: those of the National Comprehensive Cancer Network (NCCN).

Earlier in her career, Bloomfield was the first to suggest and demonstrate that adults with acute leukemia, including the elderly, could be cured with chemotherapy, and to demonstrate that biomarkers, including chromosomal abnormalities, constitute independent prognostic factors that can be used to predict outcomes and to select treatment in adults with acute leukemia or lymphoma—a forerunner to personalized or precision medicine.

In the early 1980s, she was instrumental in establishing Central Karyotype Review for trials conducted by Cancer and Leukemia Group B, which not only ensured a high quality of data for

Left: Clara D. Bloomfield, MD, speaking at the 35th anniversary of the OSUCCC event in 2011; Center: Cover from the Winter 2006 edition of Frontiers featuring Clara D. Bloomfield, MD; Right: Clara D. Bloomfield, MD, in her lab.

clinical and translational studies but also became the model for other cooperative groups and contributed substantially toward improving the quality of leukemia karyotyping in this country. Bloomfield also first identified several now-classic chromosome changes with prognostic significance in leukemia and lymphoma, and she was considered by most to be the world's authority on how chromosome changes, certain gene mutations and gene expression changes influence treatment and outcomes in adults with leukemia.

work. She was a sage mentor for faculty and staff—even for senior staff.

The new center, which will be supported by a $5 million OSUCCC commitment, initially will be led by the team of **John C. Byrd, MD**, a Distinguished University Professor in the Division of Hematology at Ohio State and co-leader of the Leukemia Research (LR) Program at the OSUCCC – James, and **Ann-Kathrin Eisfeld, MD**, an assistant professor in the Division

> *"This center will be a worthy tribute not only to Dr. Bloomfield's achievements, but also to all who were privileged to be mentored by her or to work with her during her many years at Ohio State."*
>
> **RAPHAEL E. POLLOCK, MD, PHD, FACS**

The new center dedicated to her memory and lifework will build upon her prognostication research with the goal to better classify and risk-stratify leukemia and associated diseases, including the identification of personalized treatment options for individual patients.

Along with her pioneering research, one of Bloomfield's greatest attributes—and one that she was most proud of—was her endearing mentorship and fierce advocacy for junior faculty. The list of successful faculty whom she mentored is long. Justice by gender and race was a critical part of her

of Hematology and member of the LR Program. Byrd and Eisfeld both were mentees of Bloomfield.

"This center will be a worthy tribute not only to Dr. Bloomfield's achievements, but also to all who were privileged to be mentored by her or to work with her during her many years at Ohio State," says OSUCCC Director **Raphael E. Pollock, MD, PhD, FACS**. "She played an incalculable role in our shared vision of creating a cancer-free world, and we're honored to extend her legacy through a center bearing her name."

Renowned Human Cancer Genetics Pioneer Albert de la Chapelle Passes Away at 87

Albert de la Chapelle, MD, PhD

Albert de la Chapelle, MD, PhD, a Distinguished University Professor in the Department of Cancer Biology and Genetics, died of natural causes on Dec. 10 after a 23-year tenure at Ohio State in which he played a key role in developing and leading the university's human cancer genetics program to prominence.

An esteemed Finnish scientist who was recruited to Ohio State from the University of Helsinki in 1997, de la Chapelle died just nine months after the March 2020 passing of his wife, **Clara D. Bloomfield, MD**, also a Distinguished University Professor who for many years served as cancer scholar and senior adviser to the OSUCCC – James.

De la Chapelle was internationally renowned as a pioneer in the study of human cancer genetics. His research, which spanned more than half a century and included over 800 publications in scientific journals, led to important seminal discoveries about the molecular and genetic nature of cancer, setting the stage for the development of innovative treatments.

Considered one of the most prominent scientists in Finland when he was recruited to Ohio State, de la Chapelle received numerous accolades and awards during his career, including his election to the U.S. National Academy of Sciences (now the National Academy of Medicine) and a lifetime achievement award from the Collaborative Group of the Americas on Inherited Colorectal Cancer (CGA-ICC), which works to improve understanding of inherited colorectal cancer and the clinical management of affected families. The CGA president at that time described de la Chapelle as "truly a giant in the field of genetics and specifically in colorectal cancer genetics" whose discoveries "paved the way for identification, diagnosis and cancer prevention in patients with mismatch repair mutations."

After earning his MD and PhD from the University of Helsinki, de la Chapelle joined the faculty there and quickly rose to professor and chair of medical genetics, as well as physician-in-chief for clinical genetics at the University Hospital in Helsinki. In those roles, his achievements escalated.

His earliest work on the analysis of human X and Y sex-determining chromosomes identified the region of the Y chromosome responsible for maleness. He co-initiated the International Workshops on Chromosomes in Leukemia, which led to a series

Left: Albert de la Chapelle, MD, PhD, in his lab; Center L-R: Rachel Pearlman, MS, LGC; Albert de la Chapelle, MD, PhD; and Heather Hampel, MS, LGC, in the lobby of The James; Right L-R: Clara D. Bloomfield, MD, and Albert de la Chapelle, MD, PhD, at Pelotonia 11.

of discoveries. With the use of linkage disequilibrium as a tool to locate genes responsible for hereditary diseases in isolated populations, his laboratory discovered the region of chromosomes responsible for 14 human diseases. For seven of those, he found the gene responsible for the disease.

One of de la Chapelle's most important achievements in cancer genetics was helping to identify and map four genes (mismatch repair genes) that cause Lynch syndrome (LS), an inherited disorder that makes certain families susceptible to colorectal cancer. By discerning that this susceptibility results from a damaged cell's inability to repair its DNA, he discovered a cancer-causing mechanism.

At Ohio State, where he held the Leonard J. Immke Jr. and Charlotte L. Immke Chair in Cancer Research, de la Chapelle not only led the human cancer genetics program for the OSUCCC – James but also mentored students and continued his own groundbreaking basic research on molecular causes of cancer. His laboratory focus was on the mapping, cloning and characterization of high- and low-penetrance genes for cancer predisposition.

De la Chapelle was known for his compassionate approach to clinical research, always showing an interest in patients seen by his staff in clinic. He emphasized applying laboratory discoveries to the development of diagnostic procedures and treatments—including a test used to screen people for LS, and studies that led to recommendations for the universal screening of patients with colorectal cancer for LS so that, if they tested positive, their relatives could be screened for LS as well. His work helped lead to the Ohio Colorectal Cancer Prevention Initiative, a statewide project that involved 50 hospitals throughout Ohio and was funded in part by Pelotonia, the annual cycling event that raises money for cancer research at Ohio State.

He also made contributions in the areas of papillary thyroid cancer (PTC), acute myeloid leukemia and endometrial cancer. Some of his later work at Ohio State included the study of inherited gene mutations that predispose to PTC, including non-coding RNA genes.

> *"The OSUCCC – James benefited for nearly a quarter century from Dr. de la Chapelle's expertise and skills as a researcher, educator, administrator and friend."*
>
> **RAPHAEL E. POLLOCK, MD, PHD, FACS**

"The OSUCCC – James benefited for nearly a quarter century from Dr. de la Chapelle's expertise and skills as a researcher, educator, administrator and friend to all who had the privilege of working with him or being mentored by him," says OSUCCC Director **Raphael E. Pollock, MD, PhD, FACS**. "His recruitment to Ohio State more than 23 years ago along with Dr. Bloomfield, who arrived at the same time, was a momentous occasion for our cancer program."

Spotlight:
Pelotonia-Funded Initiatives

Funds from Pelotonia, the annual cycling event that raises millions of dollars for cancer research at Ohio State, continued to help the OSUCCC – James change the landscape of cancer care in 2020 by supporting the Pelotonia Institute for Immuno-Oncology (PIIO) that was established in 2019. Pelotonia funds have also supported four major statewide initiatives, including two that are well underway, one that is just beginning and one that is complete. Here's a look at the PIIO and the four statewide initiatives:

Pelotonia Institute for Immuno-Oncology (PIIO)

Zihai Li, MD, PhD

Since it was established in July 2019 with the support of a five-year, $102,265,000 pledge from Pelotonia, the PIIO—a bench-to-bedside research initiative focused on harnessing the body's immune system to fight cancer at all levels—has developed a strategic plan and recruited several staff members and scientists with expertise ranging from development of cancer vaccines to bioinformatic and statistical modeling for high-throughput immunogenomic screening. These scientists brought the total number of researchers working on immuno-oncology approaches to clinical trials at the OSUCCC – James in 2020 to over 60.

Moreover, PIIO members in 2020 had obtained $16 million in annual funding from new grants (including $13 million from the NIH), published more than 265 peer-reviewed articles, launched some 20 clinical trials, added 10 technologies to the institute's Immune Monitoring and Discovery Platform (IMDP), and entered research agreements with corporations such as Alphamab Oncology, Heat Biologics, Genentech and others. In addition, the PIIO initiated a cancer immunotherapy cohort database that will help scientists determine risk factors associated with efficacy and adverse drug events related to cancer immunotherapies.

"We are passionate, curious and driven in our pursuit of unleashing the potential of immunotherapy in cancer care," says PIIO Director **Zihai Li, MD, PhD**. "We have a strong framework and enhanced research capabilities that position our team to make big strides in the coming years. Now it is time to do the next phase of fundamental and translational work."

That work includes plans to open up to 130 immuno-oncology clinical trials over the next five years and to create a pipeline of novel cancer immunotherapeutics, many of them driven by Ohio State discoveries that will be tested at patient bedsides. To guide PIIO research efforts, the institute has organized into four interconnected centers of excellence: Cancer Immuno-Genomics, Cell Therapy, Systems Immuno-Oncology, and Translational Immuno-Oncology.

Ohio Colorectal Cancer Prevention Initiative (OCCPI)

Heather Hampel, MS, LGC

A five-year statewide initiative to screen newly diagnosed colorectal cancer (CRC) patients and their biological relatives for Lynch syndrome (LS) has been completed, but researchers were still analyzing data and publishing overall results.

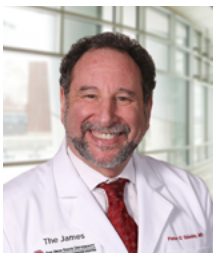
Funded over five years by $4.3 million from Pelotonia, the Ohio Colorectal Cancer Prevention Initiative (OCCPI) established a network of 50 community hospitals around the state to accommodate screenings for LS, an inherited genetic condition that predisposes to colorectal, endometrial, ovarian, stomach and other cancers. The LS screenings identify patients and family members who may be at risk for these cancers so they can take precautionary measures, such as heightened surveillance (e.g., colonoscopies) for early detection.

"While we are closed to enrollment, and all of the screening is done, we are still analyzing and publishing data from this study," says OCCPI Director **Heather Hampel, MS, LGC**, associate director of the Division of Human Genetics at Ohio State.

Hampel says the study enrolled over 3,300 newly diagnosed CRC patients, of whom 143 tested positive for LS. She says 204 of their relatives also tested positive, and another 101 CRC patients were found to have a hereditary cancer syndrome other than LS.

"Our study findings demonstrate the value of screening early-onset CRC patients for LS," Hampel says, noting that her team is working to help launch this screening approach nationally.

Beating Lung Cancer in Ohio (BLC-IO)



Peter Shields, MD

David Carbone, MD, PhD

Mary Ellen Wewers, RN, PhD, MPH

Barbara Andersen, PhD

Researchers are relying on the same network of Ohio community hospitals that was established for the OCCPI *(see story above)* for recruiting patients in a statewide clinical research initiative that takes aim at lung cancer, the No. 1 cancer killer among men and women in the United States.

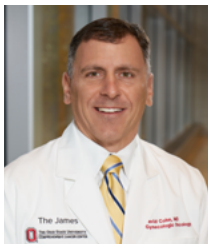
Supported by $3 million from Pelotonia, the Beating Lung Cancer – In Ohio (BLC-IO) initiative is led by **Peter Shields, MD**, deputy director of the OSUCCC; **David Carbone, MD, PhD**, director of the Thoracic Oncology Program at the OSUCCC – James; **Mary Ellen Wewers, RN, PhD, MPH**, member of the Cancer Control Program at the OSUCCC – James; and **Barbara Andersen, PhD**, also in the Cancer Control Program.

BLC-IO has two aims: to assess the impact of advanced gene testing and to provide expert advice to help each patient's treating physician determine the best therapy for stage IV lung cancer patients in hopes of prolonging survival; and to improve smoking-cessation rates among smokers with lung cancer and their family members (determine the impact of centralized telephone counseling and provider support on cessation).

Project leaders anticipate more than 2,000 newly diagnosed patients with stage IV non-small cell lung cancer will enroll in BLC-IO via the community hospital network. Enrollees receive free testing for more than 300 genes in their cancer specimens, and physicians who treat them receive expert support for interpreting test results and determining treatments. BLC-IO also provides smoking-cessation support for up to three years to all participating patients and family members.

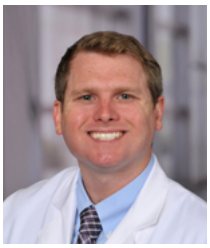
Spotlight:
Pelotonia-Funded Initiatives (continued)

Ohio Prevention and Treatment of Endometrial Cancer (OPTEC)



David E. Cohn, MD, MBA

Paul Goodfellow, PhD



Casey Cosgrove, MD

Elaine Mardis, PhD

Heather Hampel, MS, LGC

Supported by $1.5 million in Pelotonia funds, OPTEC aims to recruit up to 1,000 women with endometrial (uterine) cancer from partner hospitals across the state and screen them for Lynch syndrome (LS) and other inherited genetic conditions linked to greater risk of endometrial, colorectal, stomach and ovarian cancers.

Their tumor samples undergo molecular profiling to identify targeted treatments personalized to each patient's tumor characteristics. Patients with LS and their at-risk family members will be educated about the importance of genetic testing and cancer-prevention strategies based on their increased risk for LS-associated cancers. Women whose tumors have defective DNA mismatch repair will be considered for immunotherapy clinical trials for endometrial cancer.

OPTEC is led by **David E. Cohn, MD, MBA**, chief medical officer at the OSUCCC – James, and **Paul Goodfellow, PhD**, of the Molecular Carcinogenesis and Chemoprevention Program, and is assisted by multiple collaborators from Ohio State (e.g., **Casey Cosgrove, MD**, lead oncologist and member of the Translational Therapeutics Program) and from Nationwide Children's Hospital (NCH) Research Institute. OPTEC will conduct its LS screening with a one-step genetic sequencing technique developed by **Elaine Mardis, PhD**, a geneticist at the NCH Research Institute and also a member of the Translational Therapeutics Program. Genetic profiling will help identify patients who are most likely to benefit from new therapies, including immunotherapy drugs that target certain proteins.

OPTEC also is supported by a five-year grant awarded by the National Cancer Institute in 2018 to principal investigators Goodfellow, Mardis and **Heather Hampel, MS, LGC**, to study "Combined NGS Tumor-Based Detection of Germline Lynch Syndrome Mutations and Prognostic Classification of Endometrial Cancers." This grant extends research supported by Pelotonia and supports the study of additional tumors from women with endometrial cancer.

Turning the PAGE on Breast Cancer in Ohio

Electra Paskett, PhD, MSPH

Heather Hampel, MS, LGC

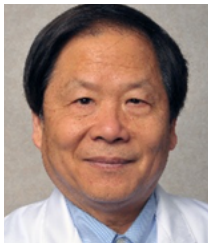
The newest statewide initiative supported by Pelotonia is Turning the PAGE on Breast Cancer in Ohio (Population-Level Precision Prevention Strategies for Preventing Aggressive Breast Cancer). Co-led by **Electra Paskett, PhD, MSPH**, associate director for population sciences and community outreach at the OSUCCC – James, and **Heather Hampel, MS, LGC**, this project will use a multi-level approach in 12 Ohio counties to provide breast cancer education and facilitate access to risk assessment, genetic counseling and testing, appropriate screening/surveillance, follow-up for abnormal tests, and prompt and proper treatment for African American women who are at greater risk of breast cancer mortality.

Collaborators with the OSUCCC – James include the Ohio Association of Community Health Centers, Susan G. Komen and the North Central Region American Cancer Society. Participating counties will include Franklin, Fairfield, Clark, Butler, Hamilton, Lake, Cuyahoga, Lorain, Trumbull, Summit, Stark and Mahoning. Several strategies (e.g., Facebook ads, referrals from providers or community organizations) will be used to direct interested women to a website where they can place information about themselves, after which their risk for breast cancer will be assessed and they will receive a personal prescription for breast health.

Paskett says this study will use geographic predictors (county) of aggressive disease to identify and target women who live in high-risk counties, train providers at Federally Qualified Health Centers (FQHCs) to facilitate breast health strategies and deliver personalized breast cancer prevention strategies to women based on their risk stratification, and help women adhere to these strategies via telephone patient navigation.

"We will determine whether there were significant increases in the percentage of women who are up-to-date with risk-appropriate breast cancer screening in the 12 counties, the number of referrals to genetic counseling/genetic testing within the FQHCs, any change in breast-health knowledge among FQHC providers, and the number of community organizations involved in breast health, community events and policy efforts," Paskett says.

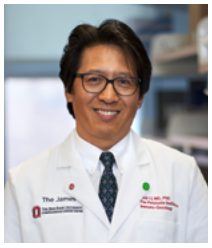
RNA Nanoparticles May Improve Solubility, Delivery and Safety of Cancer Chemotherapy



Peixuan Guo, PhD

Two studies led by researchers at the OSUCCC – James suggest that RNA nanoparticles may vastly improve the solubility, delivery and safety of two chemotherapeutic drugs. In one study, researchers used RNA nanoparticles to deliver the chemotherapeutic drug paclitaxel, commonly used to treat breast and many other cancers. That study is published in the journal *Nature Communications*. The second study used RNA nanoparticles that were engineered in a slightly different way to carry camptothecin in an animal model; the findings are reported in the journal *Advanced Science*. Both studies were published by **Peixuan Guo, PhD**, and colleagues in the OSUCCC – James Translational Therapeutics Program. The team established proof-of-concept for RNA nanotechnology more than two decades ago, describing how nano-meter scale RNA structures are assembled and opening a new pathway for research.

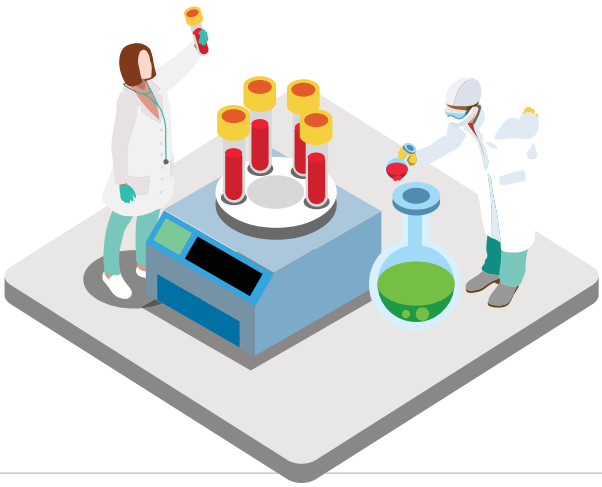
Researchers Identify Key Immune Checkpoint Protein That Operates Within T Cells



Zihai Li, MD, PhD

Ephraim Abrokwa Ansa-Addo, PhD

A study led by researchers at the OSUCCC – James has identified a protein within certain immune cells that is required for optimal immune responses to cancer. The findings, reported in the journal *Science Advances*, also suggest the protein might be useful for predicting which cancer patients are less likely to respond to immune checkpoint blockade therapy. The protein is PCBP1, or poly(C)-binding protein 1. The researchers found that it helps shape immune responses by ensuring that adequate numbers of activated immune T cells differentiate into cytotoxic T cells, which kill cancer cells. At the same time, PCBP1 prevents the development of too many regulatory T cells, which do not kill cancer cells. **Zihai Li, MD, PhD**, director of the Pelotonia Institute for Immuno-Oncology (PIIO), was principal investigator. **Ephraim Abrokwa Ansa-Addo, PhD**, also a member of the PIIO, was first author.

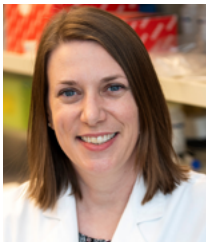


Two Clinical Trials Use Low-Dose Radiation to Treat COVID-19 Infections

Arnab Chakravarti, MD

Previous studies have shown that low-dose, whole-lung radiation in the form of X-rays can effectively treat severe pneumonia with minimal side effects. Two clinical trials are applying a modern version of this concept to test patients who have acute respiratory distress syndrome (ARDS) as a result of COVID-19 infection. In these phase II trials, patients undergo a single treatment of whole-lung radiation to target and reduce pulmonary inflammation associated with COVID-19 infection. The first trial, called PREVENT, is a national study for COVID-19+ pneumonic patients who do not yet require mechanical breathing intervention (ventilator) but are experiencing severe respiratory distress. **Arnab Chakravarti, MD**, chair of the Department of Radiation Oncology at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James, is the national principal investigator (PI). The second study, called VENTED, is for patients who are critically ill and on a ventilator. Chakravarti also is PI for this study, which is taking place only at Ohio State.

Clinical Trial Tests Oral Cancer Drug to Fight Respiratory Symptoms of COVID-19



Jennifer Woyach, MD

Researchers at the OSUCCC – James and The Ohio State University Wexner Medical Center launched a phase II clinical trial to determine if an oral cancer drug called ibrutinib can also help patients with cancer or other immunocompromised conditions recover from COVID-19. Physicians at the OSUCCC – James will enroll up to 78 patients with cancer or a precancerous condition who have been hospitalized as a result of a COVID-19 infection. Patients will be randomized to receive either 14 days of standard treatment plus the study drug ibrutinib, or standard treatment alone. **Jennifer Woyach, MD**, co-principal investigator of the study, says preliminary data suggested ibrutinib has the potential to reduce rates of respiratory failure and death in COVID-19-infected patients.

Blocking Fat Storage May Offer New Way to Treat Lethal Brain Cancer

Deliang Guo, PhD

Glioblastoma (GBM) is a lethal brain cancer that accumulates fats in lipid droplets and uses them as energy for rapid cell division. Blocking an enzyme that GBM cells use to form the lipid droplets might offer a way to treat this disease, according to a study led by principal investigator **Deliang Guo, PhD**, professor in the Department of Radiation Oncology at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James. In earlier work, this research team learned that GBM cells accumulate unusually high levels of fatty acids and use them as an energy source for rapid cell growth. Normally, excessive levels of fatty acids are deadly to cells. In this study, published in the journal *Cell Metabolism*, researchers looked at an enzyme called DGAT1 that GBM cells use to package fatty acids into lipid droplets.

Single Drop of Blood Could Help Rapidly Detect Radiation Sickness

Naduparambil Jacob, PhD

A proof-of-concept study reported evidence that a new testing method has the potential to rapidly identify radiation sickness based on biomarkers measured through a single drop of blood. Scientists at the OSUCCC – James say the test could help save lives through early and real-time identification of the condition to enable timely clinical interventions. "The test uses a drop of blood collected from a finger prick, and results are ready in a few hours. It is rapid, scalable and can serve as a point-of-care-type diagnostic tool for real-time evaluation to screen a large number of individuals in a short time," says corresponding author **Naduparambil Jacob, PhD**, associate professor in the Department of Radiation Oncology at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James. Jacob and colleagues reported their findings in the journal *Science Translational Medicine*.

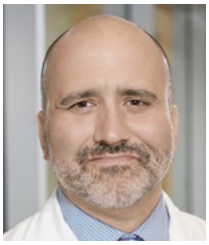
Study May Refine Predicted Survival Outcomes and Treatment in Younger People With Acute Leukemia

Clara D. Bloomfield, MD

Ann-Kathrin Eisfeld, MD

Findings from a retrospective study led by the OSUCCC – James could refine an important set of prognostic and treatment recommendations for younger adult patients with acute myeloid leukemia (AML). The study evaluated molecular characteristics and outcomes of 863 patients with AML who were treated according to 2017 LeukemiaNet (ELN) recommendations. The patients were under age 60 and had a median age of 45 years. ELN recommendations are internationally used for diagnosing and managing people with AML and other leukemias. This study, published in the journal *Leukemia*, found that 9% of favorable-risk and 53% of intermediate-risk patients should be reclassified as adverse risk, and 4% of favorable-risk and 9% of adverse-risk patients should be reclassified as intermediate risk. If verified, the findings may refine the ELN risk stratification of younger patients with AML. **Ann-Kathrin Eisfeld, MD**, of the Leukemia Research Program at the OSUCCC – James, was first author. The paper was dedicated to the memory of its senior author, **Clara D. Bloomfield, MD**, who died during completion of the manuscript.

Preliminary Results of Two Large Immune Therapy Studies Show Promise in Advanced Cervical Cancer



David O'Malley, MD

Preliminary results from two independent phase II clinical trials investigating a new PD-1 (programmed cell death protein 1)-based immune therapy for metastatic cervical cancer suggest potential new treatment options for a disease that currently has limited effective options and disproportionately impacts younger women. **David O'Malley, MD**, director of the Division of Gynecologic Oncology at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James, presented the results at the European Society for Medical Oncology Virtual Congress in September 2020. O'Malley was the lead presenter for both trials, which were sponsored by Agenus Inc. Each study involved more than 150 patients with recurrent or metastatic cervical cancer from cancer treatment centers across the United States and Europe. All were previously treated with platinum-based chemotherapy as a first-line therapy. The two independent but consecutive phase II trials tested a new immune-based agent called balstilimab given alone or in combination with a second monoclonal antibody drug called zalifrelimab.

Microbiome Could Reveal Whether Immune Therapy Can Benefit a Patient

Daniel Spakowicz, PhD

The intestinal microbiome might offer a window into whether cancer patients can benefit from immune therapy, according to a study by researchers at the OSUCCC – James. Immune therapy using drugs called checkpoint inhibitors has greatly improved survival for many cancer types, but not all patients with those cancers respond to the therapy, and biomarkers are needed to help doctors determine whether the treatment will be effective for a patient. Research has shown that the intestinal microbiome interacts with the immune system, but how that might affect immune checkpoint inhibitor (ICI) therapy is unknown. This retrospective modeling study was designed to help answer that question and to learn if the microbiome can serve as a biomarker for ICI therapy success. **Daniel Spakowicz, PhD**, of the Molecular Carcinogenesis and Chemoprevention Program at the OSUCCC – James, was first and corresponding author of the study, which was published in the journal *BMC Cancer.*

OSUCCC – James Physician Leads Team That Performs Life-Saving Surgery on Gorilla

Allan Tsung, MD

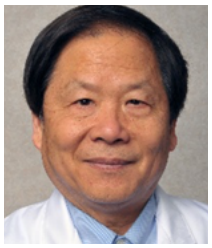
In November 2020, **Allan Tsung, MD**, director of the Division of Surgical Oncology at Ohio State, led a surgical team that successfully performed an intensive three-hour procedure on an endangered western lowland gorilla named Shaila at the Columbus Zoo & Aquarium. Tsung led a team of 10 medical professionals from the OSUCCC – James, Columbus Zoo & Aquarium, MedVet and OhioHealth Riverside Methodist Hospital. They removed a nearly six-inch liver tumor from Shaila to help reduce the risk of her developing liver cancer. It was a high-risk surgery, but gorilla and human anatomy are similar, so asking for help from a specialist in human liver surgery made sense. Caregivers said Shaila was doing well in her recovery.

National Clinical Trial Led by Ohio State Will Test Efficacy of Immuno-Therapy Plus Radiation in Reducing Endometrial Cancer Recurrence

Floor Backes, MD

The OSUCCC – James is leading a multi-institutional phase III clinical trial to determine whether combining targeted immunotherapy with radiation therapy will reduce cancer recurrence in women with high intermediate-risk endometrial (uterine) cancer. The randomized study will compare whether adding a monoclonal antibody called pembrolizumab—a form of immunotherapy—to radiation therapy is more effective than radiation therapy alone in reducing cancer recurrence in patients with newly diagnosed stage I-II endometrial cancer characterized by mismatch repair-deficient tumors. **Floor Backes, MD**, associate professor in the Division of Gynecologic Oncology at Ohio State and member of the Cancer Control Program at the OSUCCC – James, is national principal investigator.

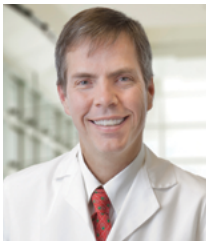
Rubbery Properties Help RNA Target Tumors Efficiently and Quickly Leave Body



Peixuan Guo, PhD

A study by researchers at the OSUCCC – James showed that RNA nanoparticles have elastic and rubbery properties that help explain why these particles target tumors so efficiently and why they possess lower toxicity in animal studies. RNA nanoparticles show great promise for the targeted delivery of anticancer drugs. Understanding their structure and behavior is essential for their possible future use. This study, published in the journal *ACS Nano*, revealed that, because of their special properties, RNA nanoparticles can stretch and return to their normal shape. These properties could help the particles target tumors by enabling them to slip through the poorly formed walls of tumor blood vessels and enter a tumor mass. Study leader and corresponding author was **Peixuan Guo, PhD**, professor in the College of Pharmacy at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James.

Study Shows AML Patients Who Participated in Upfront Genomic Testing Had Superior Treatment and Survival Outcomes



John C. Byrd, MD

Patients with acute myeloid leukemia (AML) who participated in the Leukemia & Lymphoma Society's (LLS) precision medicine Beat AML® Master Clinical Trial had superior treatment and survival outcomes compared to AML patients who opted for standard chemotherapy treatment, according to findings published in the medical journal *Nature Medicine*. The Beat AML Master Clinical Trial was launched in 2016 as a collaboration among top leukemia researchers, biopharmaceutical companies and a leading genomics information company aimed at advancing treatment for this disease. In this report, the Beat AML research team presented data demonstrating that genomic analysis of the leukemia cells to identify AML subtypes can be completed within seven days. **John C. Byrd, MD**, a Distinguished University Professor at Ohio State and co-leader of the Leukemia Research Program at the OSUCCC – James, is lead investigator of the Beat AML trial and corresponding author of the *Nature Medicine* study.

Therapeutic PD-1 Cancer Vaccine Shown to be Safe and Effective in Preclinical Studies

Pravin T.P. Kaumaya, PhD

A study led by researchers at the OSUCCC – James described a potential therapeutic anticancer vaccine that frees suppressed cancer-killing immune cells, enabling them to attack and destroy a tumor. Published in the journal *OncoImmunology*, the findings showed that the peptide called PD1-Vaxx, a first checkpoint inhibitor vaccine, was safe and effective in a colon cancer syngeneic animal model. The vaccine produced polyclonal antibodies that inhibit the programmed cell death receptor, PD-1, on cancer cells. The vaccine mimics the action of the PD-1 inhibitor nivolumab (marketed as Opdivo), but it avoids triggering the innate and acquired resistance associated with that and related agents, the researchers say. **Pravin T.P. Kaumaya, PhD**, a professor in the College of Medicine at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James, was first author and vaccine developer.

Study: Young Black Patients With AML Have Worse Treatment Outcomes

Bhavana Bhatnagar, DO

Ann-Kathrin Eisfeld, MD

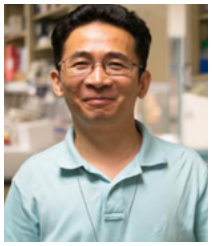
Despite advances in treating acute myeloid leukemia (AML), younger Black patients, below the age of 60, with this aggressive blood cancer have a 27% higher chance of dying compared with younger white patients. **Bhavana Bhatnagar, DO**, and **Ann-Kathrin Eisfeld, MD**, both of the Leukemia Research Program at the OSUCCC – James, explored factors that might contribute to this disparity and found that, even when Black patients received the same treatment and follow-up care as their white counterparts, they still fared worse. This remained true in Black patients whose cancer carried genetic mutations that typically predict better prognosis and survival. The researchers presented their findings at the Plenary Scientific Session during the virtual 62nd American Society of Hematology (ASH) Annual Meeting. Full findings were published in the journal *Cancer Discovery*.

Prominent Recruits Join OSUCCC – James Team

In 2020, several senior- and junior-level physician-scientists and researchers were recruited to Ohio State's cancer program, including a cancer surgeon/researcher who is now dean of The Ohio State University College of Medicine. Here are some of the senior recruits of the past year:

Carol R. Bradford, MD, MS, FACS, a physician-scientist in otolaryngology – head and neck surgery, was recruited from the University of Michigan to become dean of Ohio State's College of Medicine (COM) and vice president for Health Sciences at the Ohio State Wexner Medical Center. Bradford, who also holds the Leslie H. and Abigail S. Wexner Dean's Chair in Medicine, specializes in head and neck cancer surgery and reconstruction, cutaneous oncology and sentinel lymph node biopsy. At Michigan, she had been executive vice dean of Academic Affairs at the medical school and chief academic officer at Michigan Medicine for four years. Her research interests include identifying predictive biomarkers for response of head and neck tumors to chemotherapy and radiation, and developing novel therapeutics.

Matthew Kalady, MD, was recruited to Ohio State from the Cleveland Clinic to become director of the Division of Colon and Rectal Surgery in the Department of Surgery. He also is medical director of the Cancer Genetics Program at the OSUCCC – James, where he'll work with genetic counselors to expand the program in coordination with the Division of Human Genetics. Kalady has 15 years of clinical experience treating colon and rectal cancers and is an expert in minimally invasive surgery. He has a funded basic and translational science laboratory focusing on colorectal cancer genetics and has led clinical trials. At the Cleveland Clinic he served as co-director of the Comprehensive Colorectal Cancer Program and as director of the Hereditary Colorectal Neoplasia Center.



Xuefeng Liu, MD, was recruited to Ohio State from Georgetown University as a professor in the Department of Pathology. At Georgetown, Liu was a professor in the departments of Pathology and Oncology, co-director of the Center for Cell Reprogramming, and director of the Telomeres and Cell Immortalization Program. His research focuses on patient-derived cell models and the roles of papillomavirus oncoproteins and telomerase in cell immortalization, an early stage of cancer. Liu co-invented CR (Conditional Reprogramming) technology, which allows rapid and infinite propagation of patient-derived normal and tumor cells. The method is now the basis for cell culture facilities at several universities and the NCI. The American Type Culture Collection also uses the technology to biobank the NCI and Broad Institute cell culture repositories.

Ted Yank, MHA, was named senior director of research administration at the OSUCCC. He has operational and fiscal responsibility for cancer research at the OSUCCC and will work collaboratively with research and clinical senior leaders. Yank came to Ohio State from Baylor College of Medicine in Houston, where he had served since 2004 as associate director for administration at the Dan L. Duncan Comprehensive Cancer Center. He was instrumental in creating the center, helping it achieve NCI designation in 2007 and obtaining comprehensive status in 2015. Before working at Baylor, he helped create and achieve NCI recognition for the Holden Comprehensive Cancer Center at the University of Iowa and served as associate director for administration.

Uma Borate, MD, MS, was recruited to Ohio State from Oregon Health & Science University (OHSC) in Portland, Ore., where she was a hematologist/oncologist at the Knight Cancer Center. At Ohio State she is an associate professor in the Department of Internal Medicine, Division of Hematology. Her clinical specialty is blood cancers with a focus on myelodysplastic syndromes (MDS), myeloproliferative neoplasms (MPN) and acute myeloid leukemia (AML). Her research focuses on new therapies for these blood cancers and early detection of these myeloid malignancies. She is the leader for the MDS and MPN clinical trial disease group at Ohio State, and she also is the national lead and site investigator for several early-phase, industry-supported MDS and AML studies in both upfront and relapsed/refractory disease.

Bei Liu, MD, MPH, was recruited to Ohio State from the Medical University of South Carolina as a member of the Pelotonia Institute for Immuno-Oncology at the OSUCCC – James. She also is a professor in the College of Medicine, Department of Internal Medicine, Division of Hematology. Liu has an NIH-funded research program focused on cancer immunotherapy, mucosal and tumor immunology, and innate immunity. She is interested in understanding chaperone biology in B cells, plasma cells and dendritic cells in both normal and pathological conditions. Her lab team discovered that the chaperone grp94 is required for multiple myeloma cell survival, which is mediated in part by the Wnt target survivin. Her team also discovered that grp94 critically regulates dendritic cell function in the tumor microenvironment. Liu says her team's goal is to utilize knowledge learned from the immune system's responses to cellular stress and gut bacteria to develop novel cancer therapeutics.

New Center Accelerates Cancer Diagnosis, Provides Immediate Access

The James Cancer Diagnostic Center opened in June 2020 to give patients expedited access to diagnostic testing for cancer. The center provides immediate access to cancer providers for anyone with a suspected malignancy, which is especially beneficial to people in communities where access to health care is limited. The center offers expert evaluation and access to testing so that a timely and precise cancer diagnosis can be made in a low-risk environment. Patients may self-refer to the center or be referred by a physician, and visits can be virtual or in person.

Ohio State Breaks Ground on New West Campus Ambulatory Building

The OSUCCC – James, the Ohio State Wexner Medical Center and Nationwide Children's Hospital broke ground for a West Campus Ambulatory Building near the intersection of Kenny and Carmack roads. The building, projected for a phased opening in 2023, will increase OSUCCC – James clinical operations space by 26.4% with the addition of a 44-bed outpatient surgery center, including interventional radiology services, a diagnostic imaging center, a retail pharmacy, radiation oncology, infusion services, and hematology and genitourinary clinics. The building also will contain the region's first proton therapy treatment facility, offering treatment for adult and pediatric cancer patients in a single location. Proton therapy uses protons (highly charged particles) instead of X-rays to kill cancer cells. A highly targeted form of proton therapy known as FLASH will be investigated in clinical trials as part of the proton therapy center.

Ohio State and IntraOp Announce Collaboration in Flash Radiotherapy

In the summer of 2020, IntraOp Medical Corporation delivered its preclinical, high-dose-rate electron beam linear accelerator to the OSUCCC – James for the study of FLASH radiotherapy. The system was purchased by the OSUCCC – James and is the first IntraOp FLASH system delivered to a U.S institution with confirmed capabilities of delivering dose rates of over 600 Gy per second in 6 and 9 MeV. Preclinical testing has demonstrated that FLASH radiotherapy has several biological benefits and an improved therapeutic index by producing a protective effect for normal tissue. This technology, a highly targeted form of proton therapy, represents a paradigm shift in oncology and has the potential to expand and improve the role of radiation therapy for patients with cancer.

Academic Agreement Establishes Pathology Collaboration With Japanese Medical Center

An academic agreement between The Ohio State University and Kameda Medical Center in Japan will enable these institutions to share different perspectives on medical care and provide international experience for residents and fellows in their respective pathology departments. The university entered the academic memorandum of understanding (MOU) in August 2020 to facilitate educational and cultural exchange with Kameda Medical Center on behalf of Ohio State's College of Medicine, Department of Pathology and the OSUCCC – James. The academic MOU follows a clinical MOU between Ohio State and Kameda that was signed in February 2020. The clinical MOU, which enables Ohio State to provide pathology consultation services to Kameda for patients in Japan, is valid for two years with an option for renewal. The newer academic MOU has no end date.

Acute Leukemia Program Gains Prestigious Quality Designation From Joint Commission

The OSUCCC – James Acute Leukemia Program earned a disease-specific care certification in leukemia from The Joint Commission, the nation's top hospital-ranking organization. The OSUCCC – James Acute Leukemia Program is the third program in the United States to earn this advanced-level certification, validating the dedication and commitment of the doctors, nurses and staff at the OSUCCC – James.

OSUCCC – James Achieves Comprehensive Center of Excellence Designation for Lymphatic Disease Treatment

The OSUCCC – James was designated a Comprehensive Center of Excellence in the Diagnosis and Treatment of Lymphatic Diseases by the Lymphatic Education and Research Network (LE&RN). This designation is given to hospitals that meet stringent quality standards for medical care of lymphedema and lymphatic diseases (LD) in patient communities, including oncology. The OSUCCC – James was one of 11 hospitals nationwide and the only hospital in Ohio to achieve this quality designation. The Lymphatic Education and Research Network (LE&RN) is a nonprofit organization founded in 1998 to fight LD and lymphedema through education, research and advocacy.

Ohio State Colleges Receive Award for Excellence in Diversity

Ohio State's colleges of Medicine, Nursing, Optometry and Veterinary Medicine were honored with the 2020 Health Professions Higher Education Excellence in Diversity (HEED) Award by *INSIGHT into Diversity* magazine, the oldest and largest diversity-focused publication in higher education. This is the second consecutive year that four health science colleges at Ohio State have earned this honor, and the fifth year for the College of Nursing. Ohio State is the only academic institution in the country to have four colleges receive this 2020 designation.

Despite Pandemic, Pelotonia 2020 Raises Over $10.5 Million for Cancer Research at Ohio State

Participants, donors and volunteers in Pelotonia 2020 raised $10,502,362 for cancer research at the OSUCCC – James and boosted the 12-year total for this annual cycling event to $217,525,912—every dollar of which goes to research thanks to Pelotonia's major funding partners. Because the COVID-19 pandemic prevented the traditional weekend mass cycling ride in August, Pelotonia was redefined through a My Pelotonia platform that allowed participants of all ages to choose their own goals for raising money for cancer research. Pelotonia 2020 drew 11,274 participants from 47 U.S. states and seven countries who rose to the challenge in individualized or small-group outings and feats, including 822,362 miles logged via cycling, running, hiking or kayaking. Volunteers also contributed 4,715 hours to the cause.

Leukemia Research and Cancer Drug Development to Benefit From $10 Million Mangurian Foundation Gift

A $10 million gift to Ohio State from The Harry T. Mangurian, Jr. Foundation will support six diverse areas at the university, including leukemia research and cancer drug development. The Mangurian Foundation was established in 1999 by Harry and Dorothy Mangurian to support medical, educational and environmental organizations nationally and internationally. Mangurian, a Florida businessman, died of leukemia in 2008. His wife died in 2015 after being diagnosed with Lewy body dementia. The gift includes $5 million for a proposed five-story Interdisciplinary Research Facility in the West Campus Innovation District, a facility that will provide space for the OSUCCC and its Pelotonia Institute for Immuno-Oncology (PIIO). The remaining $5 million will be divided equally among: Drug Discoveries at the OSUCCC – James' **Drug Development Institute (DDI); leukemia research**, including clinical trials, developing synthetic microRNAs and purchasing equipment; **neurological disease research**; the **MBA program** at the Max M. Fisher College of Business; and **student-athlete health and wellness initiatives**.

$10 Million NCI Grant Helps Researchers Study Impact of COVID-19 in First Responders

Eugene Oltz, PhD

Researchers at The Ohio State University College of Medicine (COM) and the Ohio State Wexner Medical Center were awarded a five-year, $10 million grant from the National Cancer Institute (NCI) to study the long-term, longitudinal impact of COVID-19 on first responders, health care workers and the general population. The grant will fund the Center for Serological Testing to Improve Outcomes from Pandemic COVID-19 (STOP-COVID) at Ohio State, a new Serological Center of Excellence. With this funding, researchers will learn more about the interactions among exposure risks, transmission, immune responses, disease severity, protection and barriers to testing/vaccination, with the goal of improving population health and clinical outcomes in the face of COVID-19. Lead co-principal investigator for the study is **Eugene Oltz, PhD**, chair of the Department of Microbial Infection and Immunity in the COM and a member of the Cancer Biology Program at the OSUCCC – James.

$10 Million Gift Supports New Myeloma Research Center at Ohio State

Don Benson, MD, PhD

A $10 million gift from the Paula and Rodger Riney Foundation will help the OSUCCC – James establish the Riney Family Foundation Myeloma Center for Advanced Research Excellence (Myeloma CARE), a center that will focus on accelerating myeloma drug discovery and development projects. The center is a collaboration between the OSUCCC – James Drug Development Institute (DDI) and the Division of Hematology at Ohio State. The Riney gift, to be provided over two years, will boost drug discovery research designed to explore potential new treatments using specific molecular targets, including some identified by OSUCCC – James scientists. The center will be led by **Don Benson, MD, PhD**, a professor in the Division of Hematology at Ohio State, director of the Myeloma Program, and member of the Molecular Carcinogenesis and Chemoprevention Program at the OSUCCC – James.

NIH/NCI Renews Longest-Running P01 Program Project Grant at Ohio State

Patrick Green, PhD

The NCI renewed a longstanding Program Project Grant that will enable researchers at Ohio State's College of Veterinary Medicine (CVM), the OSUCCC – James and the Washington University CCC in St. Louis to keep studying retrovirus models of cancer. The $9.1 million, five-year grant renewal was awarded to principal investigator **Patrick Green, PhD**, associate director for basic research at the OSUCCC – James and director of the Center for Retrovirus Research in the CVM. Green also is a professor and associate dean for research and graduate studies in the CVM and holds the Robert H. Rainier Chair in Industrial Veterinary Medicine and Research. In addition, he is in the Leukemia Research Program at the OSUCCC – James. The goal of this PPG, which has been operational at Ohio State since 2003 and is the longest-running P01 PPG at the university, is to use a human T-cell leukemia virus type 1 (HTLV-1) T-cell immortalization model to gain an understanding of the microenvironmental, cellular and viral factors that lead to adult T-cell leukemia.

$7 Million NCI Grant Renewal Supports Cancer Drug Discovery Research Based on Compounds Found in Nature

A. Douglas Kinghorn, PhD, DSc

The OSUCCC – James and the Ohio State College of Pharmacy received a five-year, $7 million Program Project Grant (PPG) renewal from the NCI. The multidisciplinary grant will allow teams at Ohio State, the University of Illinois – Chicago and University of North Carolina – Greensboro to keep investigating potential anticancer drug leads based on compounds from tropical plants, coastal lichens, cultured cyanobacteria and filamentous fungi. The grant, which extends through 2025, is led by principal investigator **A. Douglas Kinghorn, PhD, DSc**, professor and Jack L. Beal Chair of the Division of Medicinal Chemistry and Pharmacognosy at Ohio State's College of Pharmacy. Kinghorn is a member of the OSUCCC – James Molecular Carcinogenesis and Chemoprevention Program. Since the grant was first funded in 2007, over 180 research and review articles have been published based on findings from the three collaborating institutions.

Ohio State Receives $5.5 Million Grant to Study Health Impact of Youth Vaping

Theodore Wagener, PhD

Loren Wold, PhD

Liz Klein, PhD, MPH

Megan Roberts, PhD

Peter Mohler, PhD

Ohio State researchers will study health effects of e-cigarettes and nicotine on youth and help develop vaping-cessation programs via a $5.5 million grant from the American Heart Association, which in April 2020 awarded nearly $17 million in grants as part of its End Nicotine Addiction in Children and Teens (ENACT) research initiative. Ohio State's trans-institutional work will be led by scientists in the **Center for Tobacco Research** at the OSUCCC – James, including: **Theodore Wagener, PhD**, **Loren Wold, PhD**, **Liz Klein, PhD, MPH**, and **Megan Roberts, PhD**, and by **Peter Mohler, PhD**, chief scientific officer for the Ohio State Wexner Medical Center, vice dean of research at the College of Medicine, and director of the Dorothy M. Davis Heart and Lung Research Institute. Wagener directs the Center for Tobacco Research and co-leads the Cancer Control Program, of which Klein and Roberts are members. They'll work with colleagues in the colleges of Medicine, Nursing, Public Health and Engineering on a two-year project called Vaping's End through Research and Innovation for Youth (VERIFY).

James Patients to Benefit From NCI Grant Renewal for Studying Experimental Therapeutic Agents

William Carson, MD

The NCI awarded a five-year, $5.3 million grant renewal to help a consortium of academic institutions led by the OSUCCC – James continue conducting phase I and II clinical trials involving targeted experimental agents that provide patients with the latest treatments. The consortium is led by principal investigator **William Carson, MD**, associate director for clinical research at the OSUCCC – James, and is staffed by the Clinical Trials Office. The award, called a UM1 grant, will allow the integration of Ohio State's experimental therapeutics efforts with three sub-site institutions: University of Kentucky, University of Utah and University of North Carolina. The entire grant amount will come to Ohio State. Distribution of funds to the sub-sites will be based on accrual of patients to the study.

$5 Million NIH Award to Address Disparities in COVID-19 Testing Among Vulnerable

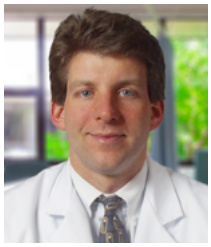
Electra Paskett, PhD, MSPH

Rebecca Jackson, MD

The Ohio State University received a $5 million, two-year award from the National Institutes of Health RADx-UP program to support projects designed to rapidly implement COVID-19 testing strategies in populations disproportionately affected by the pandemic. Ohio State was among 32 institutions to receive awards to help African Americans, American Indians/Alaskan Natives, Latinos/Latinas, Native Hawaiians, older adults, pregnant women, and people who are homeless or incarcerated. Multiple-principal investigators are **Electra Paskett, PhD, MSPH**, director of the Division of Cancer Prevention and Control, and associate director for population sciences at the OSUCCC – James; and **Rebecca Jackson, MD**, director of Ohio State's Center for Clinical and Translational Science, and associate dean for Clinical Translational Research in the College of Medicine.

Researchers Awarded Federal Grant to Lead Multi-Center Study of Stem Cell Transplant Complication

Sumithira Vasu, MBBS



Spero Cataland, MD

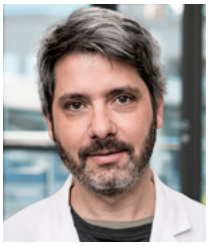
The National Heart, Lung and Blood Institute (NHLBI) awarded a $3.87 million, five-year grant to help OSUCCC – James researchers lead a multi-center study of thrombotic microangiopathy (TMA), a severe and life-threatening complication in patients undergoing hematopoietic stem cell transplant (HCT) as treatment for blood cancers. Principal investigator (PI) for the study, which is titled MIDAS: Microangiopathy, Endothelial Damage in Adults Undergoing Stem Cell Transplantation, is **Sumithira Vasu, MBBS**, an associate professor-clinical in the Division of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James. **Spero Cataland, MD**, a professor in the Division of Hematology, is co-PI.

NCI Grant Will Help Scientists Probe Mechanics of Metastatic Progressive Thyroid Cancer

Matthew Ringel, MD

The NCI awarded a $2.25 million, five-year grant to a team of OSUCCC – James researchers who identified a new pathway that inhibits thyroid cancer metastasis so that therapeutic targets and/or biomarkers can be devised. In previous studies the researchers, led by principal investigator **Matthew Ringel, MD**, co-leader of the Cancer Biology Program at the OSUCCC – James, identified a gene called regulator of calcineurin 1.4 *(RCAN1.4)* as a metastasis suppressor. They found that the loss of this gene results in cancer progression by inducing a transcription factor known as Nrf3 that promotes thyroid cancer cell growth and invasion, and is associated with poor prognosis. In their new project abstract, the researchers state that thyroid cancer provides an outstanding model to identify regulators of late-stage cancer progression due to its long latency and the often rapid pace of end-stage progression.

Researchers Land NCI Grant to Study Biology and Targeting of Noncoding RNAs in AML



Ramiro Garzon, MD

A five-year, $1.95 million grant from the NCI will help a research team at the OSUCCC – James study how a certain long non-coding RNA (lncRNA) contributes to a common form of cytogenetically normal acute myeloid leukemia (CN-AML) and determine whether blocking the lncRNA is a viable targeted therapy. Some 45-50% of AML cases are cytogenetically normal, meaning they have no chromosomal abnormalities. However, novel recurrent gene mutations recently have been identified in CN-AML. The most common among those are mutations in the nucleophosmin *(NPM1)* gene, and researchers at the OSUCCC – James have discovered that abnormally high levels of an lncRNA called HOXB-AS3 in the leukemic cells of patients with *NPM1*-mutated AML enables the rapid growth and proliferation of malignant blast (immature) cells. In this new study led by principal investigator **Ramiro Garzon, MD**, the scientists want to learn how this works and whether they can stop it.

Ohio State Leads National Consortium Coordinating Center to Boost Junior Faculty Cancer Research

Claire Verschraegen, MD

Rebecca Jackson, MD

OSUCCC – James scientists **Claire Verschraegen, MD**, and **Rebecca Jackson, MD**, are playing a lead role in establishing and coordinating a federally funded national consortium that will help junior faculty grant awardees maintain independent academic cancer research careers. The National Cancer Institute (NCI) has awarded a three-year grant of more than $1.63 million to support a new NCI Awardee Skills Development Consortium (NASDC) in a project titled "**Enhancing Cancer-Focused Education for Tomorrow's Workforce – Coordinating Center**." The NASDC coordinating center, to be located at Ohio State and overseen by Verschraegen and Jackson, will provide infrastructure enabling four other consortium institutions to offer courses designed to mentor junior faculty who have received NCI R-series (research) and K-series (career development) grants.

BRCP Grant Will Aid Study of Breast Cancer Initiation, Progress and Metastasis

Gina Sizemore, PhD

A three-year, $1.56 million grant from the U.S. Department of Defense Breast Cancer Research Program (BCRP) will help OSUCCC – James scientists study a component of the tumor microenvironment (TME) that promotes primary breast tumor growth and metastasis. Principal investigator **Gina Sizemore, PhD**, assistant professor in the Department of Radiation Oncology at Ohio State and a member of the Cancer Biology Program at the OSUCCC – James, says this project could change the way women with breast cancer are screened and treated for their disease.

Cohn Serves Term as President of Society of Gynecologic Oncology

David E. Cohn, MD, MBA

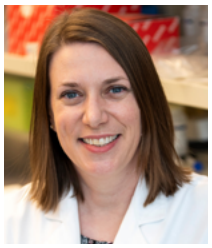
David E. Cohn, MD, MBA, chief medical officer at the OSUCCC – James, in May 2020 became the 52nd president of the Society of Gynecologic Oncology (SGO), a professional organization dedicated to advancing women's cancer care by encouraging research, providing education, raising standards of practice, advocating for patients and members, and collaborating with other domestic and international organizations. Cohn is a professor in the Division of Gynecologic Oncology at Ohio State and a member of the Translational Therapeutics Program at the OSUCCC – James. His term as SGO president ended in March 2021.

Bradford Assumes Presidency of American Academy of Otolaryngology

Carol R. Bradford, MD, MS, FACS

Carol R. Bradford, MD, MS, FACS, dean of the College of Medicine at Ohio State, became president of the **American Academy of Otolaryngology – Head and Neck Surgery (AAO–HNS) and its foundation**. Elected by AAO–HNS members, Bradford is serving a one-year term leading the academy's nearly 12,000 members, who specialize in the treatment of the ears, nose, throat and related structures of the head and neck. Bradford specializes in head and neck cancer surgery and reconstruction, cutaneous oncology and sentinel lymph node biopsy.

Woyach's CLL Research Named as a National 'Top Ten' Achievement



Jennifer Woyach, MD

Jennifer Woyach, MD, associate professor in the Division of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James, was among the 2020 recipients of the Top Ten Clinical Research Achievement Awards during the Clinical Research Forum's virtual awards presentation in April 2020. The forum provides leadership to the national clinical and translational research enterprise. The Top Ten Awards highlight innovative advances that have an impact on human disease. Although CLL is the most prevalent adult leukemia and has an average age at diagnosis of about 70 years, Woyach's study was one of the first trials targeting this patient population. It established the drug ibrutinib as a standard of care for the initial treatment of older patients with CLL, moving the paradigm of initial treatment away from chemotherapy and toward targeted therapy. Also in 2020, Woyach was elected to the **American Society for Clinical Investigation (ASCI)**, one of the nation's oldest nonprofit medical honor societies.

OSUCCC – James Report on E-Cig Pilot Study Among Most Cited Articles of 2019

Peter Shields, MD

Min-Ae Song, PhD

A report by OSUCCC – James researchers on data suggesting that even short-term e-cig use can cause cellular inflammation in never-smoker adults was one of the most highly cited articles published in 2019 in the journal *Cancer Prevention Research*. The American Association for Cancer Research (AACR) will highlight the 2019 most-cited research articles, also known as The Best of the AACR Journals, prior to the AACR Virtual Annual Meeting in May. **Peter Shields, MD**, deputy director of the OSUCCC, was senior and corresponding author of the article, titled "Effects of Electronic Cigarette Constituents on the Human Lung: A Pilot Clinical Trial." **Min-Ae Song, PhD**, a member of the Cancer Control Program at the OSUCCC – James and an assistant professor in Ohio State's College of Public Health, was first author. They and their colleagues reported the first evidence of biological changes correlated with e-cig users who had never previously smoked.

Jaglowski Plays Role in Study That Leads to FDA Approval of Therapy for MCL

Samantha Jaglowski, MD

Samantha Jaglowski, MD, associate professor in the Department of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James, participated in an international phase II study that led to FDA approval of the first chimeric antigen receptor (CAR) T-cell therapy for patients with relapsed or refractory mantle cell lymphoma (MCL). Study director Kite, a Gilead Company, announced in July 2020 that the FDA had granted accelerated approval of Tecartus™ based on results of ZUMA-2, a single-arm, open-label, multi-center study in which 87% of patients responded to a single infusion of Tecartus™, with 62% achieving a complete response. ALSO, Jaglowski was invited to serve on the American Society for Transplantation and Cellular Therapy (ASTCT) Finance Committee. The society has more than 2,200 member physicians, investigators and other health care professionals from over 45 countries.

Paskett and Grecula Gain State Appointments

Electra Paskett, PhD, MSPH

John Grecula, MD

Receiving state appointments from Ohio Gov. Mike DeWine were **Electra Paskett, PhD, MSPH**, and **John Grecula, MD**. Paskett, professor and director of the Division of Cancer Prevention and Control at Ohio State, was appointed to the Ohio Commission on Minority Health for a term extending to September 2021. Paskett also is associate director for population sciences and co-leader of the Cancer Control Program at the OSUCCC – James. Grecula, professor in the Department of Radiation Oncology at Ohio State and member of the Translational Therapeutics Program at the OSUCCC – James, was appointed to a five-year term on the Radiation Advisory Council of the Ohio Department of Health.

Backes Receives Mentored Clinician-Scientist Career Development Award

Floor Backes, MD

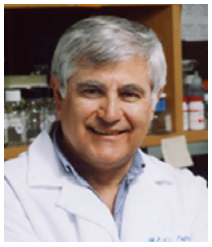
Floor Backes, MD, associate professor in the Division of Gynecologic Oncology at Ohio State and member of the Cancer Control Program at the OSUCCC – James, was selected to receive the 2020 GOG Foundation/AAOGF Mentored Clinician-Scientist Career Development Award. The two-year award is funded at $75,000 per year and is designed to support mid-career investigators with a focus on clinical trials in gynecologic oncology. The award will support Backes' research and project titled "Phase II Study With Safety Lead-in of Weekly Paclitaxel, Lenvatinib and Pembrolizumab for Recurrent Endometrial, Epithelial Ovarian, Fallopian Tube and Peritoneal Cancer."

Agarwal is President of American Society of Diagnostic and Interventional Nephrology

Anil Agarwal, MD

Anil Agarwal, MD, a professor in the Division of Nephrology at Ohio State and an associate attending physician at the OSUCCC – James, is president of the American Society of Diagnostic and Interventional Nephrology (ASDIN). The ASDIN promotes excellence in dialysis access care to improve outcomes for patients with kidney disease. Agarwal previously served as president-elect. His tenure as president will end in 2022.

Tsichlis Appointed as Chair of Cancer Biology and Genetics



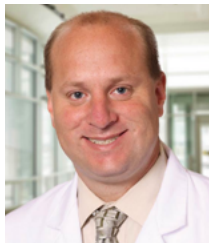
Philip Tsichlis, MD

Philip Tsichlis, MD, was named as chair of the Department of Cancer Biology and Genetics at Ohio State's College of Medicine. Tsichlis also is a professor in the department, co-leader of the Cancer Biology Program at the OSUCCC – James, and principal investigator for two NCI grants. He came to Ohio State in 2018 from Tufts University School of Medicine in Boston, where he had been executive director of the Molecular Oncology Research Institute for more than 15 years. Tsichlis has authored or co-authored more than 200 articles in prestigious scientific journals. His current research focuses on links among cell signaling, epigenetics and RNA processing, work that has significant applications in cancer medicine.

Physicians Named to Society of University Surgeons

John Phay, MD

Heena Santry, MD



Daniel Eiferman, MD

Ohio State physicians **John Phay, MD**, **Heena Santry, MD**, and **Daniel Eiferman, MD**, were named to the Society of University Surgeons. Phay is a professor in the Division of Surgical Oncology and an attending physician at the OSUCCC – James, where he also is in the Cancer Biology Program. Santry and Eiferman are associate professors in the Division of Trauma, Critical Care and Burn, and associate attending physicians at the OSUCCC – James. The SUS supports and advances leaders in academic surgery.

Gray Recognized as Philanthropist of the Year

Darrell Gray II, MD, MPH

Darrell Gray II, MD, MPH, associate professor in the Division of Gastroenterology, Hepatology and Nutrition at Ohio State, and a member of the Cancer Control Program at the OSUCCC – James, was recognized as Philanthropist of the Year as part of the 2020 Medical Mutual Pillar Awards for Community Service. This award recognizes individuals and businesses who make outstanding contributions to their communities. Gray also serves as director of Community Engagement and Equity in Digestive Health, and as deputy director of the Center for Cancer Health Equity.

Lee Receives ELAM Fellowship for Expanding Leadership Skills

Clara Lee, MD, MPP

Clara Lee, MD, MPP, associate professor in the Department of Plastic and Reconstructive Surgery at Ohio State and member of the Cancer Control Program at the OSUCCC – James, received a 2020 Executive Leadership in Academic Medicine (ELAM) Fellowship, a one-year program at Drexel University College of Medicine that supports the advancement of promising women leaders in their organizations. Lee will lead a college initiative while expanding her executive leadership skills for career advancement. She specializes in microsurgery and cancer reconstruction, including breast, extremity, and head and neck. Her research focuses on improving how patients and providers make decisions about cancer surgery, with an emphasis on breast cancer patients.

Postdoctoral Fellows, Medical Student Earn ASH Minority Awards

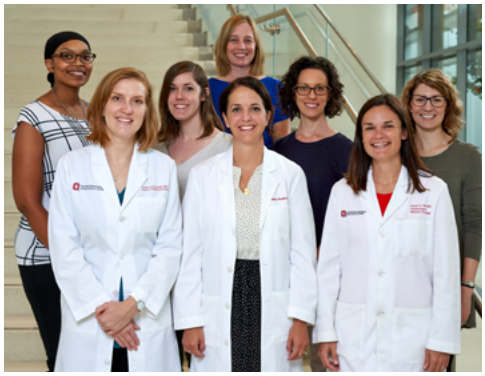
Postdoctoral fellows **Elshafa Ahmed, DVM, PhD**, and **Lynda Villagomez, MD**, were recipients of the 2020 American Society of Hematology (ASH) Minority Hematology Fellow Award, which encourages junior researchers to pursue careers in academic hematology by providing research funding and mentorship. Also, medical student **Selam Addissie** was selected as an ASH Minority FLEX recipient. All three are on the lab team of **Robert Baiocchi, MD, PhD**, a professor in the Division of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James. Ahmed's research involves development of a vaccine to help prevent cancers relating to the Epstein-Barr virus. Villagomez, who also is a fellow in pediatric oncology at Nationwide Children's Hospital, studies novel ways to treat refractory acute lymphocytic leukemia/lymphoblastic lymphoma.

Saad Chosen for ABIM Hematology Item-Writing Task Force

Ayman Saad, MD, MSc

Ayman Saad, MD, MSc, professor-clinical in the Division of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James, was selected to serve on the Hematology Item-Writing Task Force for the American Board of Internal Medicine (ABIM). The ABIM is a physician-led, nonprofit, independent evaluation organization driven by doctors who want to achieve higher standards for care. Its Item-Writing Task Forces help meet the increased demand for content that provides physicians with more flexible assessment options.

Oncogeriatric Team Gains National Recognition



The Oncogeriatric Program team of **Ashley Rosko, MD** (medical director); **Sarah Wall, MD, MPH**; **Carolyn Presley, MD, MPH**; **Edmund Folefac, MB/CHB**; and **Nicole Williams, MD**, received national recognition for their efforts with the OSUCCC – James Cancer and Aging Resiliency (CARE) Clinic, which Rosko co-directs. The CARE Clinic was recognized as a participant in Age-Friendly Health Systems, an initiative of The John A. Hartford Foundation and the Institute for Healthcare Improvement in partnership with the American Hospital Association and the Catholic Health Association of the United States. Established in 2018, the initiative developed an Age-Friendly Health Systems framework and set a goal of spreading it to 20% of U.S. hospitals and health systems by 2020.

Also in 2020, the Institute for Healthcare Improvement (IHI) recognized the CARE Clinic as an "Age-Friendly Health System – Committed to Care Excellence" for showing exemplary alignment with elements of the Age-Friendly Health Systems 4Ms Framework over at least a three-month period. (The 4Ms stand for What Matters, Medication, Mentation and Mobility.) The physicians shown above (in white coats from left) are Presley, Rosko and Wall. Behind them from left are CARE Clinic members **Kimberly Holt, BSN, RN, OCN (PCRM)**; **Amy Custer, AuD, ABAC**; **Elyse Redder, PT, CLT-LANA**; and **Amy Compston, PT, DPT, RT, CLT-LANA**. Above at center is **Wendy Ricketts, RN, BSN (PCRM)**.

Fowler Receives National Multidisciplinary Mentorship Award

Jeffrey Fowler, MD

Jeffrey Fowler, MD, a gynecologic oncologist at the OSUCCC – James, was recognized by the Society of Gynecologic Oncology (SGO) as one of three recipients of the 2020 Harry Long Multidisciplinary Award. Awardees are nominated by peers and selected by the SGO Honors and Awards Committee for their contributions to multidisciplinary mentorship, collegiality and/or teaching in the field of gynecologic oncology. Fowler is a professor and vice chair of the Department of Obstetrics and Gynecology in Ohio State's College of Medicine. He also is director of James Physician Wellness and a member of the Cancer Control Program at the OSUCCC – James. Fowler has been on the medical faculty at Ohio State since 1997.

Hanel and Collier Earn Young Investigator Award From ASCO Foundation

Walter Hanel, MD, PhD

Katharine Collier, MD, MS, MSc

Walter Hanel, MD, PhD, and **Katharine Collier, MD, MS, MSc**, research fellows in the Hematology Medical Oncology Fellowship Program at Ohio State, were among 81 recipients nationwide of the Young Investigator Award (YIA) from Conquer Cancer®, the American Society of Clinical Oncology (ASCO) Foundation. Hanel will use his grant for a project that involves targeting hypersumoylation in mantle cell lymphoma (MCL), a difficult-to-treat form of non-Hodgkin lymphoma with limited therapy options. He is pursuing the project in the lab of **Lapo Alinari, MD, PhD**, of the Leukemia Research Program at the OSUCCC – James. Collier will use her grant to study changes in circulating tumor DNA among patients with *BRCA*-mutated metastatic breast cancer following treatment with PARP inhibitors or platinum-containing chemotherapy. She is conducting this research in the lab of **Daniel Stover, MD**, of the Translational Therapeutics Program at the OSUCCC – James.

Barrington Awarded by SGO for Best Poster Presentation

David Barrington, MD

David Barrington, MD, a fellow and clinical instructor in the Division of Gynecologic Oncology at Ohio State, received a Buck & Betsy Peters Award for Best Poster Presentation from the Society of Gynecologic Oncology (SGO). The 2020 SGO awards recognized individuals who have made an impact on the prevention, care and treatment of gynecologic cancers. Barrington's poster, "Where You Live Matters: Medicaid Expansion is Associated with Earlier Stage of Diagnosis of Endometrial Cancer," demonstrated that, for women with this malignancy, Medicaid expansion resulted in improved insurance coverage, earlier stage at diagnosis and improved overall survival for a subset of patients.

Maddocks Elected as Clinical Mentoring Co-Chair in Lymphoma Research Program

Kami Maddocks, MD

The Lymphoma Research Foundation elected **Kami Maddocks, MD**, associate professor in the Division of Hematology at Ohio State, as clinical mentoring co-chair for the 2021-2022 cohort of the Lymphoma Scientific Research Mentoring Program. In this national role, she will direct curriculum and mentoring for LRF clinical track scholars for two years. Maddocks treats patients with B-cell malignancies, including non-Hodgkin lymphoma, Hodgkin lymphoma and chronic lymphocytic leukemia. She also researches new treatments for these malignancies, largely by evaluating targeted therapies in clinical trials.

Park Named Fellow of American College of Surgeons

Ko Un Clara Park, MD

Ko Un Clara Park, MD, assistant professor in the Division of Surgical Oncology at Ohio State and member of the Cancer Control Program at the OSUCCC – James, was named a fellow of the American College of Surgeons (ACS). Park is a surgical oncologist who specializes in the multidisciplinary treatment of breast cancer patients. The ACS is a scientific and educational association of surgeons dedicated to improving the quality of care for patients by setting high standards for surgical education and practice.

Arthur Is First Author of Article in *The Journal for Nurse Practitioners*

Elizabeth Arthur, PhD, APRN-CNP

Elizabeth Arthur, PhD, APRN-CNP, a research assistant professor in the College of Nursing at Ohio State and a certified nurse practitioner at the OSUCCC – James, where she is in the Cancer Control Program, was first author of "Supporting Advanced Practice Providers' Professional Advancement: The Implementation of a Professional Advancement Model at an Academic Medical Center" that appears in *The Journal for Nurse Practitioners*. The article describes the creation of a professional advancement model at the OSUCCC – James and the Ohio State Wexner Medical Center and shares early outcomes from the program's first three years. The co-authors, also from Ohio State, included: **Jennifer Browning, MS, ANP-C**; **Amy Schueler, MS, ANP-BCR**; and **Robin Rosselet, DNP, ANP-BC**.

ALSO, Arthur and **Daniel Spakowicz, PhD**, of the Molecular Carcinogenesis and Chemoprevention Program at the OSUCCC – James, received a $176,000 research grant as principal investigators for a project titled "Vaginal Microbiome as a Biomarker of Pelvic Health and Patient-Reported Outcomes in Women Receiving Pelvic Radiation." The two-year grant comes from Pelotonia and other funding sources. The rigorous review process included three focused study sections: basic, clinical/translational and population science.

Lee Elected as Trustee of American Board of Urology

Cheryl Lee, MD

Cheryl Lee, MD, professor and chair of the Department of Urology at Ohio State, and member of the Translational Therapeutics Program at the OSUCCC – James, was elected as a trustee of the American Board of Urology. The American Urological Association nominated Lee for the six-year term, which began in February 2020. The American Board of Urology establishes and maintains certification standards for urologists. Lee is a board-certified urologist at the Ohio State Wexner Medical Center and holds the Dorothy M. Davis Endowed Chair in Cancer Research. She also is vice president of OSU Physicians Inc. In addition, she has served the Bladder Cancer Advisory Network as president of the Scientific Advisory Board and is a member of its board of directors.

Ringel Appointed Editor-in-Chief for *Endocrine-Related Cancer*

Matthew Ringel, MD

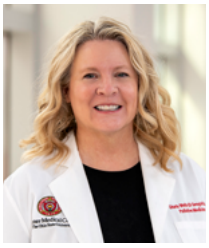
Matthew Ringel, MD, professor and director of the Division of Endocrinology, Diabetes and Metabolism at Ohio State, where he also co-leads the Cancer Biology Program at the OSUCCC – James, was appointed editor-in-chief of the journal *Endocrine-Related Cancer*. A specialist in thyroid cancer, Ringel holds the Ralph W. Kurtz Chair in Hormonology, serves as deputy director of Ohio State's Center for Clinical and Translational Science, and co-directs the Center for Cancer Engineering. His laboratory focuses on molecular mechanisms involved in thyroid cancer invasion and metastasis, with a special interest on pathways that regulate cancer progression.

Senter-Jamieson Presents Janus Lecture, Receives Other Honors

Leigha Senter-Jamieson, MS, CGC

Leigha Senter-Jamieson, MS, CGC, associate professor and associate director of the Division of Human Genetics in the Department of Internal Medicine at Ohio State, was selected to present the 2020 Janus Lecture for the National Society of Genetic Counselors (NSGC) Annual Conference. She delivered a virtual presentation on endometrial and ovarian cancer genetics. Also, Senter-Jamieson received the NSGC 2020 Strategic Leader Award, which goes to those who promote the genetic counseling profession as an integral part of health care delivery through education, research and public policy. In addition, she received the 2020 Pitt Public Health Distinguished Alumni Award for Teaching and Dissemination in recognition of her contributions to advancing public health.

Wells-Di Gregorio Selected for APOS Outstanding Education and Training Award



Sharla Wells-Di Gregorio, PhD

Sharla Wells-Di Gregorio, PhD, assistant professor in Ohio State's College of Medicine, Department of Internal Medicine, Division of Palliative Medicine, and a member of the Cancer Control Program at the OSUCCC – James, received the American Psychosocial Oncology Society (APOS) Outstanding Education and Training Award for 2021. The award is given to an APOS leader who has enhanced the field of psychosocial oncology through the education and training of new investigators and/or clinicians and fostered the professional development of psychosocial oncologists.

Paskett Is Director of NCI Alliance Cancer Control Program

Electra Paskett, PhD, MSPH

Electra Paskett, PhD, MSPH, associate director for population sciences and co-leader of the Cancer Control Program at the OSUCCC – James, was appointed as director of the NCI Alliance Cancer Control Program and as multiple principal investigator for the Alliance Community Oncology Research Program (NCORP) Research Base grant. Paskett, professor and director of the Division of Cancer Prevention and Control at Ohio State, has been deputy director of the Alliance Cancer Control Program since 2011, when the group was founded by the merger of the American College of Surgeons Oncology Group, Cancer and Leukemia Group B and the North Central Cancer Treatment Group. She has chaired the Alliance Health Disparities Committee and has led programs to improve cancer screening and prevention for underserved and minority populations.

Baiocchi Serves on Alliance for Academic Internal Medicine Research Committee

Robert Baiocchi, MD, PhD

Robert Baiocchi, MD, PhD, professor in the Division of Hematology at Ohio State and member of the Leukemia Research Program at the OSUCCC – James, was invited to serve on the Alliance for Academic Internal Medicine (AAIM) Research Committee. The AAIM promotes the advancement and professional development of its members, who prepare the next generation of internal medicine physicians and leaders through education, research, engagement and collaboration. The AAIM research committee sustains a community of research program directors to develop and share best practices designed to ensure the survival, growth and diversity of the physician-scientist workforce.

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Register as a Rider, Challenger or Volunteer at **pelotonia.org**.