THE SYLVESTER DIFFERENCE

2021 ACCOMPLISHMENTS REPORT

SYLVESTER COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

NCI Cancer Center
A Cancer Center Designated by the National Cancer Institute

2021 ACCOMPLISHMENTS REPORT
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IN PURSUIT OF *YOUR CURE.*®

DEAR COLLEAGUES AND SUPPORTERS,

AS I REFLECT ON 2021, I am humbled by Sylvester's impact on our community. The COVID-19 pandemic continued to shape us, but our resilience and adaptability allowed us to pursue our mission, conduct innovative science, and provide world-renowned cancer care.

Sylvester is focused on the "toughest to treat" cancers. In 2021, we laid the groundwork for the Sylvester Pancreatic Cancer Research Institute. Pancreatic cancer is the third leading cause of cancer-related death in the United States and is projected to become the second by 2030. Under the direction of Nipun Merchant, M.D., this center will combine our clinical strength with world-class research to discover, develop, and deliver novel, personalized treatments for pancreatic cancer.

Esophageal cancer is also difficult to treat, with poor survival outcomes. Wael El-Rifai, M.D., Ph.D., has assembled a team of researchers, including Alex Zaika, Ph.D., who are collaborating on a highly integrative project that brings together basic scientists and clinicians to investigate and identify therapeutic vulnerabilities in esophageal cancer. This work is slated for funding by the National Cancer Institute (NCI), which is itself an important accomplishment.

As an NCI-designated cancer center, Sylvester is the only center in South Florida that offers adult and pediatric patients access to groundbreaking, novel therapies, through its phase 1 clinical trial program directed by Jaime Merchan, M.D. In 2021, nearly 50 clinical trials were dedicated to the phase 1 program, and an additional 250 trials were also available to patients, giving hope to those who need more than the standard treatments.

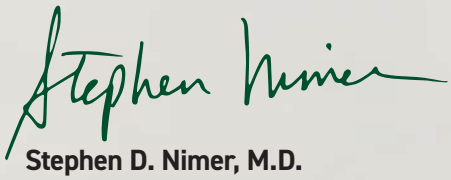
We are testing other promising new therapies, as in a phase 2 study led by Craig Moskowitz, M.D., a renowned lymphoma expert, which tested a new protocol that is now expected to improve outcomes for relapsed or refractory Hodgkin lymphoma patients.

Erin Kobetz, Ph.D., M.P.H., and the Office of Community Outreach and Engagement led Sylvester's initiatives to provide education and outreach programs to underserved populations to build healthier communities. In November, the World Health Organization (WHO) recognized our diligent efforts to address cervical cancer and named Sylvester the first WHO Collaborating Centre for Cervical Cancer Elimination.

Our faculty, staff, donors, and patients are what make Sylvester a place of innovation and distinction. Armed with leading-edge technology, we continue to advance cancer research and develop new and targeted therapies that improve outcomes and save lives.

Thank you for your ongoing support and commitment to excellence.

With gratitude,



Stephen D. Nimer, M.D.

Director, Sylvester Comprehensive Cancer Center

Oscar de la Renta Endowed Chair in Cancer Research

Executive Dean for Research, Miller School of Medicine

Professor of Medicine, Biochemistry and Molecular Biology

Professor of Chemical, Environmental and Materials Engineering

FROM THE DESK OF ADAM E. CARLIN

AS CHAIR OF SYLVESTER COMPREHENSIVE CANCER CENTER'S BOARD OF OVERSEERS, I am fortunate to be in a leadership position of an organization that truly makes a meaningful difference in the lives of so many, which is why I am passionate about sharing Sylvester's success with others. As the only National Cancer Institute (NCI)-designated cancer center in South Florida, Sylvester's dedication to excellence remained steadfast despite the challenges that the COVID-19 pandemic continued to present. This was never more evident than in 2021, as we welcomed 30 new cancer experts to our team. Sylvester also experienced an incredible outpouring of support last year, which allowed our world-renowned physicians and scientists to focus on what's most important — saving more lives!

Through our alliance with the Miami Dolphins, we reached new heights despite the pandemic when DCC XI raised a record-breaking $6.3 million to fund innovative cancer research. This brought the event's 11-year total to more than $45.5 million. Although parts of the event had to be slightly reimagined to ensure safety, the enthusiasm and commitment of the thousands of participants could not have been stronger.

We also gathered to honor three distinguished faculty members with endowed chairs, including The Pap Corps Champions for Cancer Research Endowed Chair in Solid Tumor Research, which was awarded to Sanoj Punnen, M.D., M.A.S., for his groundbreaking work in urologic cancers. Since its founding nearly 70 years ago, The Pap Corps has donated more than $110 million to Sylvester.

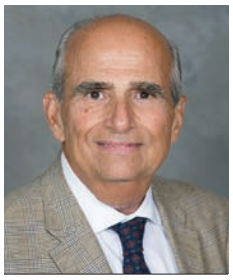
From creative fundraisers to generous individual gifts, Sylvester has shown that our community would simply not allow our pursuit of cancer cures to be deterred. As you read through the achievements on the following pages, please know how extremely valuable you are as a partner in our mission.

With gratitude,

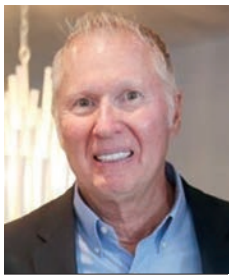
Adam E. Carlin
Chair, Board of Overseers
Sylvester Comprehensive Cancer Center

SYLVESTER BOARD OF OVERSEERS

Jayne S. Malfitano
President and Director
Harcourt M. and Virginia W. Sylvester Foundation



Jose Bared
Former Executive Officer
and Board Chairman
Farm Stores Corporation



Jon Batchelor
Trustee and Executive
Vice President
The Batchelor Foundation

Jennifer Stearns Buttrick
Of Counsel
Stearns Weaver

Susan Dinter
Chair
The Pap Corps

John Elwaw
Managing Director
The Elwaw/Cavalieri Group
at Morgan Stanley

Eric Feder
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FMSbonds, Inc.

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Osmopharm

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South Florida Tax Managing Partner,
BDO

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Emeritus Professor
Department of Otolaryngology

Jason Jenkins
Senior Vice President
Communications and
Community Affairs
Miami Dolphins

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Partner
Kluger, Kaplan, Silverman,
Katzen & Levine, P.L.

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Co-Trustee
Lampert Foundation

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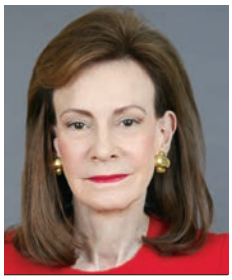
Managing Director
LeFrak

Marc Nachmann
Global Co-Head of
Global Markets Division
Goldman Sachs

James "Jim" Nelson
Chief Executive Officer
Global Net Lease

Craig Robins
Chief Executive
Officer and President
Dacra

Joan Scheiner
Community Organization and
Development Volunteer



Lally Weymouth
Senior Associate Editor
The Washington Post

EXECUTIVE LEADERSHIP

Stephen D. Nimer, M.D.

Director, Sylvester Comprehensive Cancer Center

Oscar de la Renta Endowed Chair in Cancer Research

Executive Dean for Research, Miller School of Medicine

Professor of Medicine, Biochemistry and Molecular Biology

Professor of Chemical, Environmental and Materials Engineering

Craig H. Moskowitz, M.D.

Physician in Chief and Interim Deputy Director, Oncology Service Line

Professor of Medicine

Desert Horse-Grant

Chief Transformation Officer

Lazara Pagan, M.S.N.

Chief Administrative Officer and Associate Vice President

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Vice President, Medical Development and Alumni Relations

Dorothy Graves, Ph.D.

Assistant Vice President and Associate Director, Administration

Mary Lanham

Chief Marketing and Communications Officer

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Associate Director, Education and Training

Professor and Chair of Molecular and Cellular Pharmacology

Sophia George, Ph.D.

Associate Director, Diversity, Equity, and Inclusion

Associate Professor of Obstetrics, Gynecology and Reproductive Sciences

George Grills

Associate Director, Shared Resources

Erin Kobetz, Ph.D., M.P.H.

Associate Director, Population Sciences and Cancer Disparity

Chief, Population Health, Oncology Service Line

John K. and Judy H. Schulte Senior Endowed Chair in Cancer Research

Vice Provost for Research and Scholarship, University of Miami

Professor of Medicine and Public Health Sciences

Nipun Merchant, M.D.

Associate Director, Translational Research

Vice Chair, Surgical Oncology Services

Chief Surgical Officer

Executive Director, Perioperative Services, University of Miami Health System

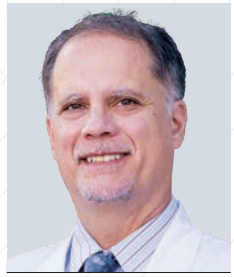
Professor of Surgery

Stephan C. Schürer, Ph.D.

Associate Director, Data Science

Interim Director, Drug Discovery, Center for Computational Science

Professor of Molecular and Cellular Pharmacology



Jonathan Trent, M.D., Ph.D.

Associate Director, Clinical Research

Co-Director, Musculoskeletal Center, Sarcoma Medical Research Program

Professor of Medicine

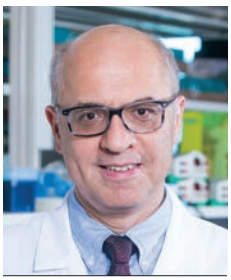
As of June 2022

PROGRAM LEADERS

Tracy Crane, Ph.D., RDN

Co-Leader, Cancer Control Research Program

Associate Professor of Medicine



Wael El-Rifai, M.D., Ph.D.

Associate Director, Basic Science

Co-Leader, Tumor Biology Research Program

Interim Co-Leader, Translational and Clinical Oncology Research Program

John and Judy Schulte Senior Endowed Chair in Cancer Research

Professor and Associate Vice Chair of Surgery

Professor of Biochemistry and Molecular Biology

Maria E. Figueroa, M.D.

Co-Leader, Cancer Epigenetics Research Program

Associate Professor of Human Genetics

C. Ola Landgren, M.D., Ph.D.

Chief, Myeloma Program

Paul J. DiMare Endowed Chair in Immunotherapy

Co-Leader, Tumor Biology Research Program

Co-Leader, Translational and Clinical Oncology Research Program

Professor of Medicine

Frank J. Penedo, Ph.D.

Associate Director, Cancer Survivorship and Translational Behavioral Sciences

Director, Cancer Survivorship and Supportive Care

Co-Leader, Cancer Control Research Program

Professor of Psychology and Medicine

Ramin Shiekhattar, Ph.D.

Co-Leader, Cancer Epigenetics Research Program

Chief, Division of Cancer Genomics and Epigenetics

Professor of Human Genetics

ONCOLOGY SERVICES LEADERS

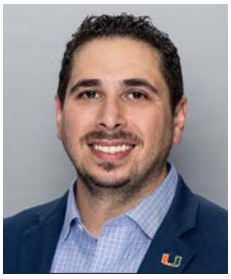
Alvaro J. Alencar, M.D.

Chief Medical Officer

Associate Professor of Medicine

Lauren Gjolaj, M.B.A., B.S.N., RN, AMB-BC, CCRP

Assistant Vice President, Oncology Services



Javier Milian

Assistant Vice President, Oncology Satellite Operations and Recruitment

Jesse Rodriguez, M.S., M.H.A.

Assistant Vice President, Medical Development and Alumni Relations

SITE DISEASE GROUP LEADERS

CUTANEOUS MALIGNANCIES

Lynn Feun, M.D.

Jose Lutzky, M.D.

Jennifer Tang, M.D.

THORACIC CANCERS

Gilberto Lopes, M.D., M.B.A.

Dao Nguyen, M.D.

Estelamari Rodriguez, M.D., M.P.H.

Raphael Yechieli, M.D.

MYELOMA

C. Ola Landgren, M.D., Ph.D.

LYMPHOMA

Izidore Lossos, M.D.

GYNECOLOGICAL

Marilyn Huang, M.D.

Aaron Wolfson, M.D.

GENITOURINARY

Matthew C. Abramowitz, M.D.

Jaime R. Merchan, M.D.

Sanoj Punnen, M.D.

Marijo Bilusic, M.D., Ph.D.

GI CANCER

Peter J. Hosein, M.D.

Nipun Merchant, M.D.

Lorraine Portelance, M.D.

NEURO-ONCOLOGY

Macarena Ines De La Fuente, M.D.

Michael E. Ivan, M.D.

Eric Mellon, M.D., Ph.D.

SARCOMA

Gina D'Amato, M.D.

Jonathan Trent, M.D., Ph.D.

PEDIATRIC

Julio Barredo, M.D.

Warren Alperstein, M.D.

ENDOCRINE

Josefina Farra, M.D.

Zeina Hannoush, M.D.

LEUKEMIA/ HEMATOLOGY

Justin Watts, M.D.

Gerald Soff, M.D.

BREAST

Susan Kesmodel, M.D.

Cristiane Takita, M.D.

HEAD AND NECK CANCER

Stuart Samuels, M.D., Ph.D.

Donald Weed, M.D.

TRANSPLANT AND CELLULAR THERAPY

Krishna Komanduri, M.D.

THE SYLVESTER DIFFERENCE:
DISCOVERING, DEVELOPING, AND DELIVERING WORLD-CLASS CANCER CARE

Sylvester's specialists are available across locations in South Florida, from south Miami-Dade to north Broward, to provide you with convenient access to our expert cancer care.

1 SYLVESTER AT DEERFIELD BEACH
THE PAP CORPS CAMPUS

2 SYLVESTER AT CORAL SPRINGS

3 SYLVESTER AT FT. LAUDERDALE

4 SYLVESTER AT PLANTATION

5 SYLVESTER AT HOLLYWOOD

6 SYLVESTER AT AVENTURA

7 SYLVESTER COMPREHENSIVE CANCER CENTER

8 THE LENNAR FOUNDATION MEDICAL CENTER

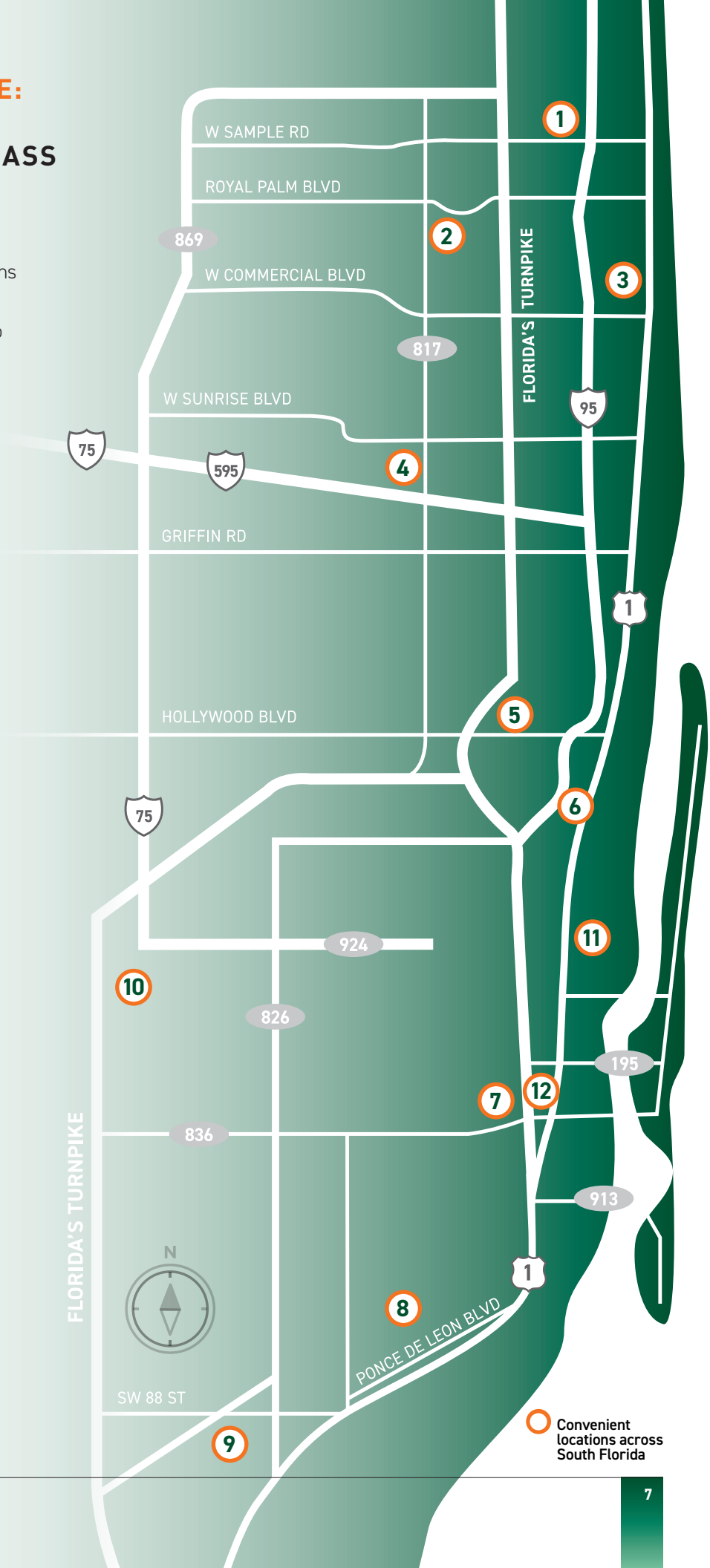
9 SYLVESTER AT KENDALL

COMING SOON

10 SYLVESTER AT DORAL

11 SYLVESTER AT SOLÉ MIA

12 SYLVESTER COMPREHENSIVE CANCER CENTER - TRANSFORMATIONAL CANCER RESEARCH BUILDING (TCRB)



SYLVESTER BY THE NUMBERS

71st
NCI-DESIGNATED CANCER CENTER
IN THE COUNTRY

1 of 2
NCI-DESIGNATED
CANCER CENTERS IN FLORIDA

33
NEW PHYSICIANS AND PHYSICIAN-SCIENTISTS

1,500+
PHYSICIANS, PHYSICIAN-SCIENTISTS AND SUPPORT STAFF
DEVOTED EXCLUSIVELY TO CANCER CARE AND RESEARCH

1,978
STEM CELL TRANSPLANTS AND T CELL THERAPIES
COMPLETED SINCE PROGRAM'S INCEPTION

4,102
PATIENTS PARTICIPATING IN 300 CLINICAL STUDIES
(INTERVENTIONAL AND NON-INTERVENTIONAL);
109 OF THE TRIALS BECAME AVAILABLE TO PATIENTS IN 2021

9
TREATMENT FACILITIES
ACROSS SOUTH FLORIDA

15
CANCER SITE DISEASE GROUPS

397
CANCER-RELATED, PEER-REVIEWED PUBLICATIONS,
213 WITH OTHER NCI-DESIGNATED CANCER CENTERS

12
CANCER SUPPORT SERVICES
AND **17** CANCER SUPPORT GROUPS

$56.3M
IN PEER-REVIEWED AND NON-PEER-REVIEWED FUNDING
FOR **480** ACTIVE CANCER PROJECTS; **$29.3M** IN PEER-REVIEWED FUNDING (OF WHICH **$9.8M** IS FROM NCI); **$3.6M** FOR TRAINING GRANTS (ADDITIONAL)

305
PATIENTS TREATED WITH PROTON THERAPY
(SINCE THE DWOSKIN PROTON THERAPY CENTER OPENED ON SEPTEMBER 11, 2020)

DRIVING PATIENT-FOCUSED RESEARCH: BENCH TO BEDSIDE

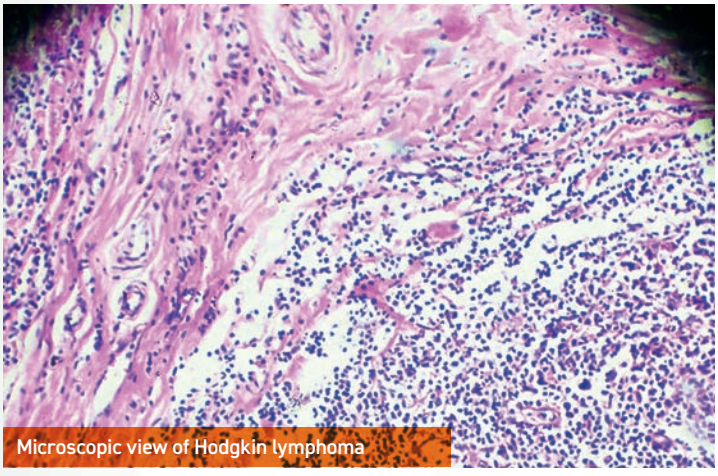
SYLVESTER INVESTIGATOR'S HODGKIN LYMPHOMA PROTOCOL COULD CHANGE CARE FOR RELAPSED, REFRACTORY PATIENTS

The results of a Phase 2 study looking at treating relapsed or refractory Hodgkin lymphoma with a new drug protocol were outstanding. They even surprised one of the world's leading lymphoma experts, **Craig Moskowitz, M.D.**, physician in chief of the Oncology Service Line at Sylvester Comprehensive Cancer Center.

"All the patients treated with our protocol are in remission. These are the best results reported in the literature in the setting of relapsed or refractory Hodgkin lymphoma," said Dr. Moskowitz, who cowrote the protocol and is senior author of the study, which was published in the Journal of Clinical Oncology. Sylvester hematologist and medical oncologist **Georgios Pongas, M.D.**, also is an author of the study.

Dr. Moskowitz collaborated with colleagues at Memorial Sloan Kettering Cancer Center to study the treatment, which included checkpoint inhibitor pembrolizumab along with chemotherapies gemcitabine, vinorelbine and liposomal doxorubicin. Investigators treated 36 transplant-eligible Hodgkin lymphoma patients who had not responded to frontline medications or relapsed within a year of treatment.

"We actually believe because of these results that a paradigm shift is possible in the next series of refractory Hodgkin lymphoma clinical trials," he added. In fact, the results of the trial are so promising that Dr. Moskowitz is convinced that using the protocol could eliminate the need for stem cell transplant in many cases. "Because so many of the patients achieved remission, it is possible that transplant may be able to be avoided," he said. "Rather, we could administer these four simple medications in our protocol, with maintenance pembrolizumab for another six months."



Microscopic view of Hodgkin lymphoma

DRIVING PATIENT-FOCUSED RESEARCH

SYLVESTER PHYSICIAN-SCIENTIST RECEIVES DORIS DUKE CHARITABLE FOUNDATION GRANT

Justin Taylor, M.D., an assistant professor with Sylvester Comprehensive Cancer Center at the Miller School of Medicine in the Division of Hematology, is among an elite group of 17 early-career physician scientists who will receive more than $8.4 million in grants to advance their clinical research.

The Doris Duke Charitable Foundation's 2021 Clinical Scientist Development Awards provide grants of $495,000 over three years to advance the recipients' research and support their transition to independent clinical research careers. Dr. Taylor, who is also a member of the Cancer Epigenetics Program, was recognized for his research, "Investigating Mechanisms of Resistance to Non-Covalent BTK Inhibition in Patients with B-Cell Malignancies."

"We are studying a new generation of drug that inhibits Bruton tyrosine kinase (BTK) in a different manner than the currently approved BTK inhibitors. This new generation inhibitor is more selective for BTK and can overcome one of the main resistance mechanisms to the older generation of inhibitors," Dr. Taylor said. "This means they are likely to be more effective and have fewer side effects. So far, they look really promising in clinical trials that are currently in Phase 1 and Phase 2."

Justin Taylor, M.D.

Since receiving the award, Dr. Taylor and colleagues have published their initial findings in the *New England Journal of Medicine* based on research funded by the award.

JUNIOR RESEARCHER LANDS COMPETITIVE GRANTS FOR PANCREATIC CANCER FOCUS

Pancreatic cancer is notoriously unresponsive to chemotherapy or immunotherapy. Early in his cancer research career, **Jashodeep Datta, M.D.**, is focused on finding out why.

In 2021, Dr. Datta, a hepatobiliary and pancreatic surgical oncologist at Sylvester, landed two highly competitive grants for his research.

He received the prestigious Joel J. Roslyn Faculty Research Award from the Association for Academic Surgery (AAS) — a one-year $50,000 grant. Later in the year, Dr. Datta received a $150,000 grant from the Elsa Pardee Foundation to advance his research suggesting that in Ras-p53 cooperative pancreatic cancer, myeloid-derived suppressor cells (MDSCs) are key in controlling inhibitory tumor-stromal-immune crosstalk, and MDSC-derived TNFa is a master regulator of immune exclusion and T cell dysfunction.

Dr. Datta and his team are now delving into the specific mechanisms that govern the cellular fate of MDSC-derived TNFa and how targeting these mechanisms might disrupt their inhibitory effects on T cell function and suppressive tumor-stromal-immune crosstalk in the pancreatic tumor microenvironment.

"We believe that unraveling and targeting these tolerogenic mechanisms in MDSCs is of paramount importance, since they can overcome immune exclusion, unleash anti-tumor immunity, overcome therapeutic resistance, and revolutionize treatment for pancreatic cancer patients," Dr. Datta said.


Jashodeep Datta, M.D.

DRIVING PATIENT-FOCUSED RESEARCH

SYLVESTER RESEARCHER CHOSEN FOR BRISTOL MYERS SQUIBB FOUNDATION'S CAREER DEVELOPMENT PROGRAM

The Bristol Myers Squibb Foundation and National Medical Fellowships selected Sylvester researcher **Kristin E. Rojas, M.D., F.A.C.S.**, for its inaugural Diversity in Clinical Trials Career Development Program, which includes a two-year, $240,000 grant for her research, "Effects of Perioperative Opioids on Gut Microbiome Composition in Breast Cancer Patients."

Dr. Rojas, assistant professor of surgical oncology in the Dewitt Daughtry Department of Surgery and Sylvester Comprehensive Cancer Center, is among a distinguished group of physicians selected for the foundation's initiative to strengthen partnerships between clinical investigators and communities and increase the diversity of patients enrolled in clinical trials.

Dr. Rojas's research on opioid-sparing strategies in breast cancer surgery has been published in the *Annals of Surgical Oncology* and other scientific journals.

"This award will give me the resources to take our work to the next step by providing a mechanism in which opioids may worsen cancer outcomes through translational research. The first leg was a proof-of-concept, to show that there are alternatives to opioids in breast cancer surgery; this next step is to show that minimizing or eliminating opioids should be done in breast cancer surgery because it may impact oncologic outcome," she said.

Kristin E. Rojas, M.D., F.A.C.S.

SYLVESTER PART OF GROUNDBREAKING NIH TRIAL PROVING ANAL CANCER CAN BE PREVENTED

Treating precursor anal cancer lesions significantly reduces anal cancer risk in people living with HIV, according to a groundbreaking study of nearly 4,500 people at elevated risk for the cancer.

"The ANCHOR study shows that what we can offer for anal canal cancer prevention is a similar algorithm to the standard of care for cervical cancer prevention," said **Isabella Rosa-Cunha, M.D.**, principal investigator of the ANCHOR study sites at Sylvester Comprehensive Cancer Center and Jackson Memorial Hospital and associate professor of infectious diseases at the University of Miami Miller School of Medicine.

"While anal cancer is not as common as other cancer types — it affects approximately 2% of the general population — it is much more common in some patient populations," she explained. "These include individuals living with HIV, women with a history of vulvar or cervical cancer, men who have sex with men who are HIV-negative, and men and women who have immunosuppression for reasons other than HIV infection."

ANCHOR changes the landscape of cancer prevention, offering a new opportunity to reduce the burden of anal cancer globally, according to **Erin Kobetz, Ph.D., M.P.H.**, vice provost for research and scholarship and associate director, population sciences and cancer disparity, at Sylvester.

"We are so proud of Sylvester's role in this trial, the leadership of Dr. Rosa-Cunha and the commitment of study participants to making this discovery possible," Dr. Kobetz said. "As a National Cancer Institute-designated cancer center, Sylvester prioritizes research studies, such as ANCHOR, where the focus of inquiry aligns with our local cancer burden and the unique needs of the multicultural community that we serve."

ANCHOR study leadership at Sylvester Comprehensive Cancer Center and Jackson Memorial Hospital.

DRIVING PATIENT-FOCUSED RESEARCH: CLINICAL TRIAL SUCCESS

> Finding the right cancer doctor is like walking through a path of a million black stones, and then you see a rare diamond. That was Dr. Trent.
>
> Joanna Segal

THE CHILDHOOD CANCER PROJECT FOCUSES ON CURES

When Joshua Segal was diagnosed in 2015 with osteosarcoma, a rare childhood cancer with no known cure, his parents wasted no time in contacting Jonathan Trent, M.D., Ph.D., a sarcoma specialist at Sylvester.

"Finding the right cancer doctor is like walking through a path of a million black stones and then you see a rare diamond. That was Dr. Trent," said Joanna Segal. "With any type of diagnosis, especially with a rare disease, it's important to go to a cancer center that specializes in that specific cancer. We are so lucky in South Florida that we have Sylvester."

Dr. Trent helped guide the family through Joshua's treatment regimen. Still, the chemotherapy was grueling, and the Segals were shocked to discover that treatments for osteosarcoma had not changed in more than 40 years. At just 11 years old, Joshua was being treated with a potent drug created for adults. Joanna Segal recalls her son suffering painful side effects, an agony made worse by her inability to take the pain away.

"Synovial sarcoma patients are often young adults or even teenagers," Dr. Trent explained. "This is a vulnerable population since they don't fit in with pediatric or adult cancer clinics."

A year later, as Josh celebrated his 12th birthday and the near completion of his treatment, he turned to his family and

said, "I want to make a wish: I wish that no other child should have to suffer through cancer, like me. We don't need presents. We need cures."

That was all the inspiration that Joanna and her husband, Scott Segal, M.D., a South Florida psychiatrist, needed: The Childhood Cancer Project was born, and the impact has been potentially lifesaving.

"We currently have three clinical trials for synovial sarcoma patients in South Florida and beyond," Dr. Trent said. "Our research lab published an important paper on synovial sarcoma in 2021. This research would not be possible without The Childhood Cancer Project."

"The Childhood Cancer Project is 100 percent volunteer-run," said Segal. "We are blessed to be in an extremely fortunate position. There is no overhead because nobody takes a salary. We have an amazing panel of volunteers, an incredible board, and every single penny we raise goes directly toward cancer research."

"Gratitude is something the Segal family does not take for granted. "Josh is a miracle," said Segal. "He didn't choose to have cancer, but he did choose to focus on making a difference for others."

SYNOVIAL SARCOMA CLINICAL TRIALS: 2021

STUDY OF ASP0739 ALONE AND WITH PEMBROLIZUMAB in Advanced Solid Tumors With NY-ESO-1 Expression Participants

FHD-609 in Subjects With Advanced Synovial

TESTING THE ANTI-CANCER DRUG, ROGARATINIB (BAY 1163877), for Treatment of Advanced Sarcoma With Alteration in Fibroblast Growth Factor Receptor (FGFR 1-4), and in Patients With SDH-deficient Gastrointestinal Stromal Tumor (GIST)

Jonathan Trent, M.D., Ph.D.

INNOVATING WITH TECHNOLOGY AND TEAMWORK: ENGINEERING CANCER CURES™

In 2021, Sylvester Comprehensive Cancer Center joined forces with the University of Miami College of Engineering for Engineering Cancer Cures™, an initiative that empowers the cancer center to work seamlessly with engineering to advance machine learning, artificial intelligence, tissue engineering and nanoparticles.

Sylvester's Director **Stephen D. Nimer, M.D.**, and **Pratim Biswas, Ph.D.**, Dean of the College of Engineering, co-created Engineering Cancer Cures™ to develop and deploy innovative technologies for early cancer detection, diagnosis, and treatment.

The initiative is being directed by **Shanta Dhar, Ph.D.**, assistant director for technology and innovation at Sylvester, and **Ashutosh Agarwal, Ph.D.**, associate professor of biomedical engineering. Sylvester scientists and engineering faculty are now working to advance 3D tissue printing and organ-on-a-chip technologies to mimic stages of tumorigenesis and evaluate the efficacy of cancer therapeutics. Cancer center members and engineering faculty are collaborating to optimize and develop new tissue modeling technologies for everyday research in Sylvester labs. In artificial intelligence (AI), a team of clinicians and mathematicians are using AI to integrate and analyze large datasets from genomic sequencing, tissue pathology, and radiologic tissue imaging. Still other projects include developing novel analytical algorithms that advance early detection and cancer cell diagnoses; creating ways to deliver cancer treatments with minimal toxicity to normal tissues and organs; and developing and optimizing drug delivery using nanoparticles.

Tour of the University of Miami Engineering facility (October 4, 2021)

Engineering Cancer Cures™ aims to find innovative ways to tackle this multidimensional disease which is heterogenous in biology and disease evolution.

"Through this collaborative partnership, we will be able to integrate cancer biology, clinical outcomes, and new pathways discovered with engineered therapeutics and diagnostics to advance cancer therapeutics and cures," said Dr. Dhar.

INNOVATING WITH TECHNOLOGY AND TEAMWORK: BRAIN TUMOR INITIATIVE

Michael Ivan, M.D. and Ricardo Jorge Komotar, M.D., co-directors of Sylvester's Brain Tumor Initiative at the University of Miami Miller School of Medicine, operate on a complex brain tumor.

The Brain Tumor Surgical Outcomes Research Lab is a comprehensive research initiative that seeks to improve neurosurgical technique and quality of life for brain tumor patients. The lab is adopting new technologies to identify at-risk patients, predict safer outcomes, preserve cognitive function, and generally improve care.

Sylvester neurosurgeons are using artificial intelligence to better understand the connections in patient's brains. Understanding deep neurological functions, and how they are connected, will guide surgeons and help them avoid functional areas.

A clinical trial will soon evaluate patients' neuropsychological status before and after surgery, comparing these findings to the subtle neural connection changes that happen after removing a tumor. These studies will help enable safer brain tumor procedures.

Sylvester is one of a handful of cancer centers in the world using both fluorescent-guided and pathology-guided surgical resection. Fluorescent-guided surgeries illuminate tumors. Pathology-guided approaches detect cancer cells during surgery. Each seeks to differentiate healthy brain from tumor tissue. Clinical trials are opening to understand how these technologies can lead to better outcomes.

In the last five years, the Brain Tumor Surgical Outcomes Research Lab has produced more than 100 scientific publications in peer-reviewed journals and has won multiple awards.

> Viral detection in wastewater can provide a 4- to-7-day lead indicator of the number of cases we're likely to see in hospitals.
>
> George Grills

INNOVATING WITH TECHNOLOGY AND TEAMWORK: COVID-19 OUTBREAK PREDICTOR

USING WASTEWATER TO DETECT COVID-19

Measuring viral levels in wastewater has become a powerful way to detect COVID before people start showing up in the emergency department. By sampling wastewater from campus buildings, UM researchers can identify outbreaks early. University leaders use the data to target COVID-19 testing, anticipate demand for Student Health Services and assess the need for more isolation and quarantine spaces.

A joint venture with Weill Cornell Medicine, the NIH-funded project is spearheaded at UM by Associate Dean for Research **Helene Solo-Gabriele, Ph.D.**, Associate Director of Shared Resources **George Grills** and Professor of Pharmacology **Stephan Schürer, Ph.D.**, associate director, data science; interim director, Drug Discovery, Center for Computational Science; and professor, molecular and cellular pharmacology.

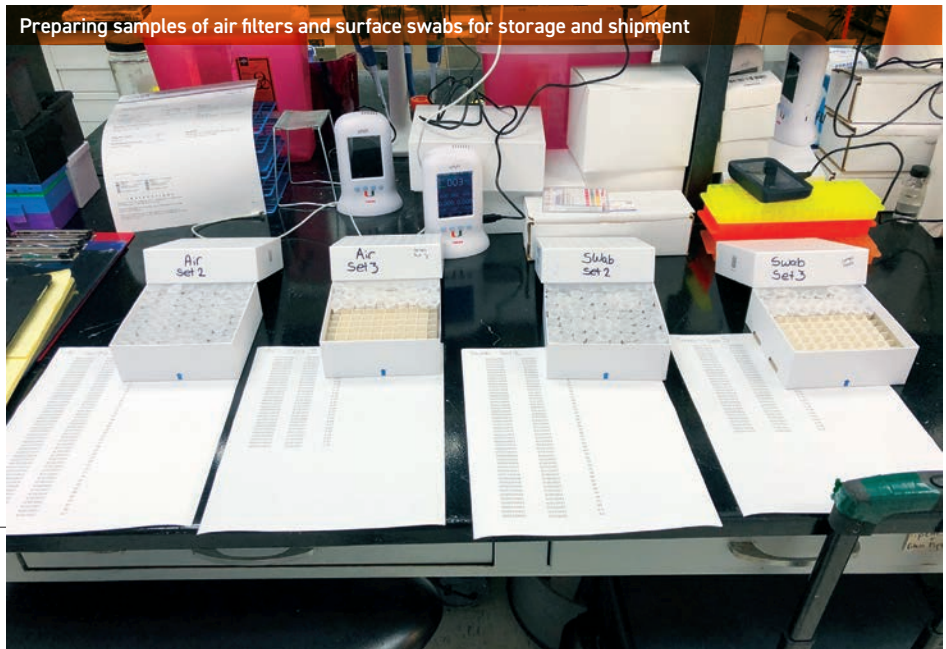
The research is coordinated through UM shared resources, which are centralized facilities that share equipment and expertise with labs throughout the University.

"A shared resource is a research laboratory that has equipment that's far too expensive for any individual investigator to afford," said Grills. "Because it's used on a shared basis, it plays a key role in many research projects for a large number of investigators."

Together, researchers from many disciplines sample air, surfaces and particularly wastewater to track COVID at all three UM campuses. The samples are sent to the Onco-Genomics Shared Resource at Sylvester and Assistant Research Professor **Mark Sharkey, Ph.D.**, who developed a faster analytical method to detect COVID in sewage.

These measurements can be used as "weather maps" to show viral prevalence and predict near-term consequences, a tremendous resource to inform public health decisions.

"If a student residence shows a large uptick in the virus, campus leadership can focus more on testing those students," said Grills. "Also, viral detection in wastewater can provide a 4- to-7-day lead indicator of the number of cases we're likely to see in hospitals."



Preparing samples of air filters and surface swabs for storage and shipment

Wastewater sample collection at a manhole draining a residential building

INNOVATING WITH TECHNOLOGY AND TEAMWORK

DATA PORTAL INFORMATICS PLATFORM LAUNCHES

Sylvester launched its Data Portal Informatics Platform in 2021 as part of the cancer center's commitment to leverage big data's value in research and patient care.

This novel multi-omics informatics platform facilitates the processing, management, analysis, sharing, and archival of pre-clinical and clinical datasets generated at the cancer center.

"Sylvester's data portal is being built using state-of-the-art cloud computing approaches to ensure its security for hosting clinical data in a HIPAA-compliant environment, modularity to support the diverse data types generated by the Sylvester Shared Resources and Sylvester labs, and scalability to support the continuous increase in the generation of new data and subsequent data analyses," said **Stephan Schürer, Ph.D.**, the newly named associate director of data science at Sylvester, who is charged with overseeing the buildout of the cancer center's data portal.

The Data Portal Informatics Platform facilitates long-term preservation and secure storage of high-value raw and processed data generated, including DNA and RNA sequencing, research histopathology imaging, and mass cytometry data. It provides a unified portal for Sylvester researchers to find and access raw and processed data, using rigorous data standards that ensure interoperability and reusability of that data and automated data processing.

Stephan Schürer, Ph.D.

Today's "data economy" demands that data is findable, accessible, interoperable and reusable (FAIR). Making Sylvester's data FAIR is a primary goal of the cancer center's data science initiative, which includes this platform, according to Dr. Schürer.

TO THE MOON AND BACK

Fulvia Verde, Ph.D., a Sylvester researcher, will soon be sending an array of fission yeast cells on a 60-day space mission. Called Artemis 1, the NASA project will take the yeast and other samples to the moon and back. Dr. Verde's cells will be joined by four other science payloads aboard the rocket.

Around 4,000 of Dr. Verde's yeast colonies are being sent into space. Each colony is missing a single gene, giving the team unique opportunities to identify which gene deletions protect the yeast in this hostile environment. These findings might eventually be translated into treatments that protect humans during long space flights.

After the yeast cells return, the researchers will study their response to ionizing radiation and microgravity and hopefully identify protective genes. The goal is to make long human space missions safer.

"The International Space Station is in the upper layer of the atmosphere, so it's quite protected from ionizing radiation," said Dr. Verde, who is also an associate professor of molecular and cellular pharmacology. "But then when you go further out, everything is blasted by particles, which can do a lot of cellular damage."

To pursue this project, Dr. Verde received a grant from the Miller School of Medicine's High Risk/High Reward Funding Opportunity, which supports innovative research that might otherwise be difficult to fund.

Fulvia Verde, Ph.D.

MY WELLNESS CHECK FOR QUALITY OF LIFE

LAUNCHED IN 2021, MY WELLNESS CHECK IS A PERSONALIZED CARE PROGRAM developed by **Frank J. Penedo, Ph.D.** and his Survivorship and Translational Behavioral Sciences team that uses the patient portal to assess symptoms and psychosocial needs to address survivors' physical, emotional, and practical needs.

My Wellness Check alerts clinicians about escalating symptoms, from depression and fatigue to barriers to care and nutritional needs, that if not addressed early on could greatly impact quality of life (QOL) or a patient's ability to continue treatment.

"*My Wellness Check* is an innovative approach to incorporate the patient's voice into cancer care," said **Patricia I. Moreno, Ph.D.,** lead of Evidence-Based Survivorship Supportive Care at Sylvester. "The science supports these types of routine assessments in cancer care. And Sylvester is the first center in the country to have implemented this kind of assessment in Spanish and English."

These routine assessments, which take patients only minutes to complete, go immediately into their health records, resulting in better informed and more productive visits with their providers.

My Wellness Check is opening the door to other QOL innovations, including a five-year grant funded by the National Cancer Institute to study the impact of *My Wellness Check* on Hispanics and Latinos who have metastatic cancer, by ensuring that they receive optimal care and are connected early to services like palliative medicine.

KNOW
before you go.

Before your next visit, you'll receive a reminder to fill out the My Wellness Check questionnaire.

LOG IN
to myuhhealthchart.com

Access the portal by using the MyChart app or visiting MyUHealthChart.com.

FIND
the health questionnaire.

Go to your message folder, search the menu, or click eCheck-In to find and complete the questionnaire.

ANSWER
the health questions.

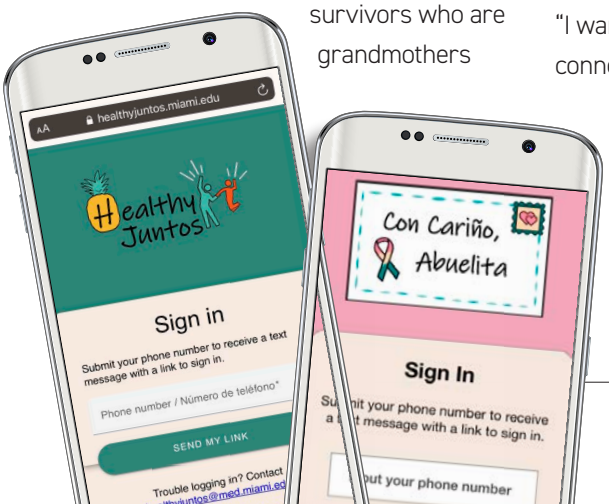
Your answers will help your care team determine the best possible care at your next scheduled appointment.

TALK
to your care team.

Go to your message folder, search the menu, or click eCheck-In to find and complete the questionnaire.

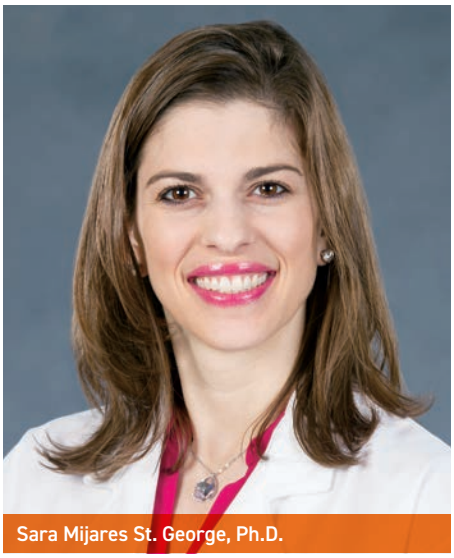
NEW APPS FOR CANCER SURVIVORS AND FAMILIES PROMOTE A LEGACY OF HEALTH

Many Hispanic American survivors of breast, endometrial or ovarian cancers will soon have a tool for potentially lowering their offspring's cancer risk by raising the "health value" of their families' choices. "Con Cariño, Abuelita" ("With love, Grandma") is designed for cancer survivors who are grandmothers and mothers. The app not only addresses lifestyle behaviors like healthy eating and physical activity, but also engages in culturally relevant stories and parenting skills.



A companion app, "Healthy Juntos" (Healthy Together), aims to improve lifestyle behaviors and prevent obesity among Hispanic adolescents and their parents.

"I wanted this to be something that connected them at many levels so that it became the venue for ongoing discussion, melding healthy eating and exercise into the larger context of family relationships," said **Sara Mijares St. George, Ph.D.**, assistant professor in the Department of Public Health Sciences at the Miller School, who is leading the development of both apps.

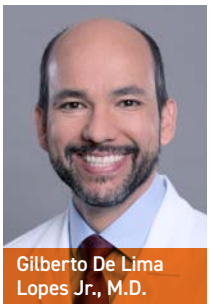

Sara Mijares St. George, Ph.D.

HEALTH ECONOMIST HEADS COMMISSION TO EXAMINE GLOBAL CANCER CARE INEQUITIES


Felicia Marie Knaul, Ph.D.

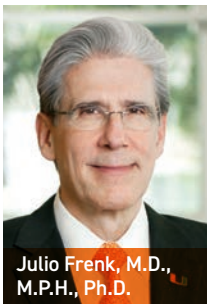
Felicia Marie Knaul, Ph.D., a member of the Cancer Control Program at Sylvester, director of the University of Miami Institute for Advanced Study of the Americas, and a professor at the Miller School of Medicine, has been tapped to co-lead a new commission at *The Lancet*, to examine how to simultaneously strengthen cancer care and health systems worldwide, especially in the wake of COVID-19.

"Our commission will explore how to harness the synergistic and mutually symbiotic relationships between cancer and health systems to improve outcomes," said Dr. Knaul. "COVID-19 can catalyze innovation and radiate new energy for systemic change. We are confronted with both a challenge and an opportunity to improve cancer control for everyone, everywhere, and to shake health systems out of an equilibrium of apathy through which some have access to ever-improving treatment and prevention, while many — mostly the poor — lack access to even the most basic treatment for pain relief and palliative care."


Gilberto De Lima Lopes Jr., M.D.

The commissioners also include **Gilberto De Lima Lopes Jr., M.D.**, associate director of global oncology at Sylvester and medical director of its international programs, who is working to develop new treatments for cancer and to improve access with a focus on Latin America.

"Cancer is one of the most complex of health problems," Dr. Lopes said. "To provide equitable care to all suffering with the disease, we need comprehensive action — spanning from prevention and early diagnosis to individualized treatment and palliative care."


Julio Frenk, M.D., M.P.H., Ph.D.

Joining them is University President **Julio Frenk, M.D., M.P.H., Ph.D.**, a distinguished global health leader and professor of public health. As Mexico's Minister of Health from 2000 to 2006, Dr. Frenk introduced health system innovations through the program Seguro Popular, to provide better access to cancer care and control for close to 50 million Mexicans. Dr. Frenk also believes that the that faculty and staff tat Sylvester will offer a wealth of knowledge to the commission.

DR. CHAD RITCH APPOINTED MEMBER OF AMERICAN COLLEGE OF SURGEONS COMMISSION ON CANCER


Chad R. Ritch, M.D., M.B.A.

Chad R. Ritch, M.D., M.B.A., urologic oncologist at Sylvester, has been confirmed as a member of the Commission on Cancer (CoC), a national consortium overseen by the American College of Surgeons that incorporates more than 50 professional cancer-related specialty organizations.

Dr. Ritch, who also is associate director of UHealth International, will serve on the CoC's Quality Committee, which oversees the National Cancer Database and quality metrics used to explore and compare quality of cancer care in the U.S.

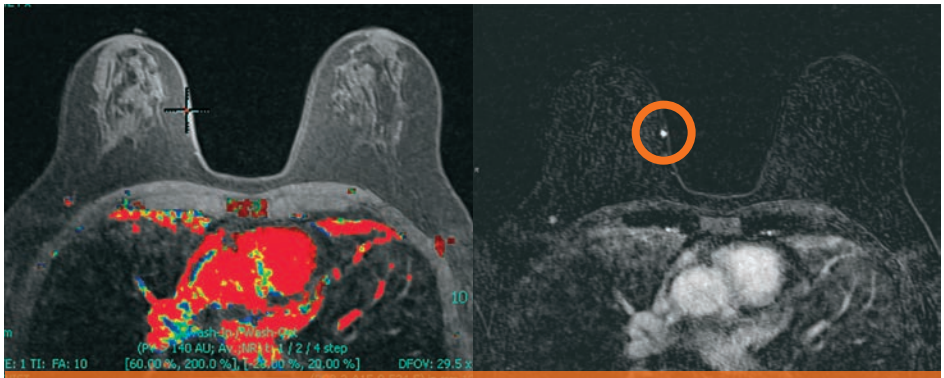
"As a member of the CoC focusing on quality metrics, I can suggest ways in which we assess and measure quality in urologic oncology, such as outcomes for prostate cancer and bladder cancer surgery," Dr. Ritch said. "From the viewpoint of Sylvester Comprehensive Cancer Center, I think it is very positive that we have faculty representation on the CoC, giving us a seat at the table when deliberating on the quality of cancer care."

TRANSFORMING PATIENT CARE:
HIGH RISK BREAST CANCER PROGRAM

SYLVESTER LAUNCHES NEW PROGRAM TO PREVENT BREAST CANCER IN THOSE AT HIGH RISK

In 2021, Sylvester at Plantation became the site for a new program that offers those at high risk for breast cancer access to a multidisciplinary care team focused on preventing cancer from ever occurring.

The Cancer Assessment Risk Evaluation (CARE) Clinic is a collaboration among radiology, genetics, surgical oncology, gynecologic oncology, medical oncology and supportive care services. People in the community can take an online breast cancer risk assessment to see if they may be eligible for the CARE Clinic. Those who might have a higher than 20% lifetime breast cancer risk based on the assessment are triaged and possibly referred to the appropriate specialist for preventive care.



The very small cancer (circled, at right) could only be seen on a high risk screening MRI

"These are patients that feel abandoned by the health care system," said **Alejandra T. Perez, M.D.**, director of Sylvester's Breast Cancer Program in Plantation. "They feel they do not belong in a cancer center because they don't have cancer but, on the other hand, they need the care."

In cancer, the ideal is to prevent it; not to treat it, according to Dr. Perez.

"That is why a formal prevention program for people at high risk for breast cancer is so important. This program is designed to set up the framework. We hope to apply the concept of cancer prevention in high-risk individuals to other cancer types in a Sylvester cancer prevention institute," Dr. Perez said.

Alejandra T. Perez, M.D.

TRANSFORMING PATIENT CARE

VA HONORS INVESTIGATOR FOR GASTRIC CANCER RESEARCH

In 2021, the U.S. Department of Veterans Affairs honored **Wael El-Rifai, M.D., Ph.D.**, co-leader, Tumor Biology Program and associate director of Program Development at Sylvester.

The award provides seven years of support to but a few scientists nationwide who are international leaders in their specialties and have established track records in cutting-edge research.

The same year, the VA awarded Dr. El-Rifai with its four-year Merit Award, which he will use to expand his research in *H. pylori* infection and gastric cancer.

"Understanding the tumorigenic mechanisms of *H. pylori* infection positions us to identify, develop and test novel therapeutics that are relevant to the biology of this disease. In this Merit Award, we will focus on studying the role of inflammation and fibroblast growth factors in the biology of gastric carcinogenesis, as well as test novel inhibitors that target these pathways," he said. "The Miami VA Health care system serves our veteran population in South Florida. Sylvester's catchment area is home for a highly diverse community, with 60% of the population originating from South America and the Caribbean, where *H. pylori* infection is endemic and gastric cancer incidence is the highest worldwide."

Wael El-Rifai, M.D., Ph.D.

The VA-funded research will be the first to investigate the role of *H. pylori*-induced inflammation in induction of fibroblast growth factors signaling in gastric tumorigenesis.

KEEPING CANCER IN ITS PLACE: KEY PROTEIN IDENTIFIED

In a new study, Sylvester researchers used mouse models to determine that promoting the activity of the p300 protein helps prevent myelodysplastic syndrome (MDS) from evolving into acute myeloid leukemia (AML). These findings could ultimately translate into new treatments that stall MDS progression. The study was published in the journal *JCI Insight*.

"Many MDS patients will progress to AML, which is more deadly, but we do not fully understand the mechanisms involved," said Sylvester Director **Stephen D. Nimer, M.D.**, senior author on the paper. "Now that we have identified an important role for p300 in preventing MDS progression, we can potentially manipulate its activity therapeutically."

Nimer Lab: Transcriptional & Epigenetic Regulation of Normal and Malignant Hematopoiesis

In the study, the researchers found that deleting or inhibiting p300 impairs the epigenetic machinery that controls gene expression triggering the development of AML. These findings indicated that losing p300 activity played a critical role in disease progression, increasing cell proliferation and giving the cells greater capacity to become increasingly malignant.

TRANSFORMING PATIENT CARE
PHASE 1 PROGRAM

PHASE 1 PROGRAM REMAINS ROBUST DURING PANDEMIC

Sylvester continued to offer phase 1 cancer trials during the pandemic in 2021, when many phase 1 programs across the United States shut down.

"We have a robust portfolio of phase 1 clinical trials that are testing new and promising treatments that are not available elsewhere in the region, and in some cases around the country," said oncologist **Jaime Rafael Merchan, M.D.**, director of Sylvester's Phase 1 Program.

Sylvester's portfolio, for example, includes multiple oncolytic virus trials, making Sylvester one of the few centers in the country with significant experience and expertise in translational oncolytic virotherapy research.

Sylvester staff enrolled patients for several early-phase trials in '21. The following three are among the most impactful for their novelty, promise and potential use in many cancer types, according to Dr. Merchan.

PHASE 1 CLINICAL TRIALS HIGHLIGHTS

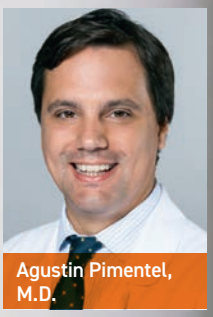
A phase 1/2 study of RTX-240 as a monotherapy and in combination with pembrolizumab, introduces an innovative approach for activating antitumor immune responses. The study will use engineered red blood cells designed to carry immune-modulatory proteins on the cell surface to reactivate inactive immune cells at tumor sites and where immune cells accumulate.

Lead: **Jaime Rafael Merchan, M.D.**

Janaki Sharma, M.D.

A phase 1 study, which is the first human dose titration and expansion trial to evaluate safety, immunogenicity, and preliminary efficacy of W_pro1 (BNT112) monotherapy and in combination with cemiplimab in patients with prostate cancer. This study is using mRNA vaccine technology to stimulate the immune response against prostate cancer antigens.

Lead: **Janaki Sharma, M.D.**



Agustin Pimentel, M.D.

A phase 1/2 multicenter, open-label trial of TBio6517, an oncolytic vaccinia virus, administered by injection alone and in combination with pembrolizumab in patients with advanced solid tumors.

This novel, promising virus been engineered to carry therapeutic weapons which, after administration into the tumors, not only attack tumor cells directly but also use the patient's own immune system to continue killing the tumor.

Lead:
Agustin Pimentel, M.D.

2021 PHASE 1 CLINICAL TRIALS

48 PHASE 1 CLINICAL TRIALS **AVAILABLE**, OFFERING NEW TREATMENTS FOR PATIENTS WITH ADVANCED CANCERS (AS OF DECEMBER 2021)

17 NEWLY OPENED PHASE 1 CLINICAL TRIALS

Jaime Rafael Merchan, M.D.

For years, we have worked diligently with our community partners and the WHO to create novel outreach programs that raise awareness and provide screening opportunities in marginalized communities that bear the largest burden of this preventable disease.

Stephen D. Nimer, M.D.

INVESTING IN THE FUTURE: WHO COLLABORATING CENTRE

On November 17, Sylvester accepts new role in front of virtual audience worldwide

WHO TAPS SYLVESTER IN GLOBAL FIGHT AGAINST CERVICAL CANCER

Recognizing Sylvester's enduring commitment to addressing the inequities that perpetuate cervical cancer in South Florida and beyond, the World Health Organization designated the University of Miami institution as the first WHO Collaborating Centre for Cervical Cancer Elimination.

As a collaborating center, Sylvester will work closely with the Pan American Health Organization, the WHO's regional office for the Americas, to identify practices that will accelerate the elimination of cervical cancer by 2030.

"The collaborating center will provide important opportunities to share the lessons that organizations and academic institutions have learned while working


Erin Kobetz, Ph.D., M.P.H.

independently to address the inequities in cervical cancer," said **Erin Kobetz, Ph.D., M.P.H.**, Sylvester's associate director for population sciences and cancer disparity and the University's vice provost for research and scholarship. "The most important lesson that we have learned at Sylvester, and working with the WHO, is to match our research priorities with the needs of communities and to engage local stakeholders in collaborative science and action that creates solutions to address gaps in cancer care, from screening to survivorship."

Other researchers and clinicians across the University have made addressing cervical cancer one of their top academic priorities.

GROUNDBREAKING RESEARCH

Marilyn Huang, M.D., an associate professor of clinical medicine and co-director of Translational Gynecologic Oncology Research, is developing new immunotherapies that show the promise of prolonging the survival of women living with recurrent or late-stage cervical cancer in South Florida and beyond.

Matthew P. Schlumbrecht, M.D., M.P.H., vice chair of Global and Community Health in the Department of Obstetrics, Gynecology, and Reproductive Science, is pursuing critical epidemiologic research demonstrating the global challenges in addressing persistent incidence of cervical cancer.

Sylvia Daunert, Pharm.D., M.S., Ph.D., the Lucille P. Markey Chair of Biochemistry and Molecular Biology, and **Sapna Deo, Ph.D.**, a professor in the same department, collaborated with Dr. Kobetz and research associate professor **Jean-Marc Zingg, Ph.D.**, to develop a rapid HPV test that will enable women anywhere in the world to administer their own detection tests.

GAME CHANGER PARTNER SITES/ORGANIZATIONS

1. **AVENTURA**
   Aventura Library
2. **LITTLE HAITI**
   Center for Haitian Studies
3. **MIAMI GARDENS**
   North Dade Public Library
4. **HIALEAH**
   JFK Library
5. **HOMESTEAD**
   Homestead Housing Authority
   N.E.T. Office

COMMUNITY OUTREACH

Sylvester's Office of Outreach and Engagement (SOOE) focuses on connecting with and serving the medically underserved counties surrounding its South Florida campus. SOOE's 10 full-time staff members mirror the area's racial diversity, including in languages spoken.

Especially when it comes to highly preventable cancers like cervical cancer, community education and engagement can go a long way to reduce cervical cancer rates and care inequities.

"Our aim is to reduce the burden of cervical and other cancers through cancer education, access to screenings and outreach," said **Dinah Trevil, M.P.A.**, director for Community Outreach and Engagement.

One of the primary ways in which Sylvester reaches people in the community is through its two Game Changer vehicles. The mobile Game Changer clinic on wheels travels throughout Miami-Dade and Monroe counties in South Florida to provide free cancer screenings to communities in need.

In 2021, the Game Changer vehicle program reached more than 40,000 people, providing free cervical and colorectal cancer screenings, along with Hep C and STD/STI screenings. Game Changer vehicles also provide educational information on topics such as cervical, colorectal, breast, prostate, and lung cancer.

INVESTING IN THE FUTURE: PEOPLE AND PROGRAMS

ORTHOPAEDIC SURGEON, RESEARCHER DR. FRANCIS HORNICEK RETURNS TO MIAMI

Francis Hornicek, M.D., Ph.D., has been named chair of the Department of Orthopaedics at the Miller School of Medicine and director of orthopaedic oncology at Sylvester. He will serve as a member of the Sylvester Clinical Research Advisory Board, the Scientific Steering Committee, and the Academic Advisory Council, among other leadership activities.

Dr. Hornicek, who completed his residency at University of Miami/ Jackson Memorial Hospital and began his academic career on the Miller School faculty, has served most recently as chair of the Department of Orthopaedic Surgery at the University of California, Los Angeles.

"We are excited to welcome Dr. Hornicek back to South Florida, where he will work with our outstanding orthopaedics faculty to identify areas for growth, to expand our research initiatives, and to help integrate services throughout the health system to better serve our growing population of patients and elevate our reputation," said **Henri R. Ford, M.D., M.H.A.**, dean and chief academic officer of the Miller School.

Francis Hornicek, M.D., Ph.D.

SARCOMA SPECIALIST'S RETURN ELEVATES SYLVESTER ORTHOPAEDIC ONCOLOGY

H. Thomas Temple, M.D., a sarcoma surgeon who treats cancers of the bone and soft tissue, has returned to Sylvester as the co-leader of the Sarcoma Site Disease Group and a mentor and educator who leads by example within the Department of Orthopaedics. He previously spent 17 years at the Miller School as an orthopaedic surgeon, clinician, and researcher.

"Dr. Tom Temple is a renowned sarcoma surgeon and researcher who will contribute greatly to our mission of building one of the strongest sarcoma programs in the world," said **Stephen D. Nimer, M.D.**, Sylvester director and the Oscar de la Renta Endowed Chair in Cancer Research.

Dr. Temple has studied the use of stem cells and other materials in regenerative medicine for more than two decades. He holds approximately 20 patents related to therapeutic strategies, such as combining stem cells with bone and cartilage allografts taken from cell and tissue donors. His research focus includes stem cell applications in regenerative medicine, tissue banking and developing targeted natural killer cell therapies for sarcomas.

H. Thomas Temple, M.D.

INVESTING IN THE FUTURE: PEOPLE AND PROGRAMS

DR. MARIJO BILUSIC JOINS SYLVESTER AS GENITOURINARY SITE LEADER

Marijo Bilusic, M.D., Ph.D., a board-certified medical oncologist who treats genitourinary tumors, has joined Sylvester as leader of the Genitourinary Cancers Site Disease Group.

Dr. Bilusic's current research interests focus on tumor immunology and development of novel immunotherapy approaches for genitourinary and other tumors using therapeutic cancer vaccines, antibodies, or immune modulators. He earned his medical degree at the University of Zagreb School of Medicine in Croatia and completed his Ph.D. training at the University of Split School of Medicine in Croatia. In addition, he completed a postdoctoral research fellowship in physiological genomics at the Medical College of Wisconsin's Human and Molecular Genetics Center in Milwaukee.

In 2017, Dr. Bilusic received the NIH Director's Award as a member of the NIH Hematology Oncology Fellowship Team, for extraordinary resourcefulness and initiative. His passion for teaching and mentoring has earned multiple awards at NIH and NCI. He is board certified in medical oncology, hematology, and internal medicine.

Marijo Bilusic, M.D., Ph.D.

CANCER CONTROL LEADER JOINS SYLVESTER

Tracy Crane, Ph.D., RDN, has joined Sylvester as co-leader of the Cancer Control Research Program and associate professor of medicine in the Division of Medical Oncology. She then took on the role of director of Lifestyle Medicine and Digital Health for Survivorship. Dr. Crane will oversee all cancer control research activities across Sylvester, including stimulating interdisciplinary research collaborations and evaluation of new research opportunities.

Dr. Crane is a distinguished leader in cancer control and is committed to reducing the burden of cancer for patients and the community. Her work sits at the intersection of lifestyle medicine and digital health, with a goal of developing targeted interventions, utilizing digital biomarkers to deliver the right intervention, at the right time and to the right person. She received her Ph.D. from the University of Arizona and is an R25 Transdisciplinary Research on Energetics and Cancer (TREC) NCI Fellow.

Dr. Crane joined Sylvester from the College of Nursing, Biobehavioral Health Sciences Division and Data Science Institute at the University of Arizona in Tucson, where she served as co-lead of the Behavioral Measurement and Interventions Shared Resource at the University of Arizona Cancer Center.


Tracy Crane, Ph.D., RDN

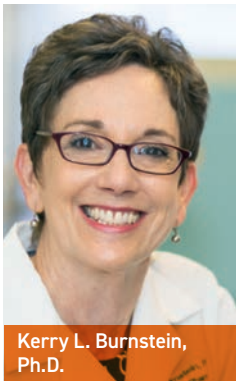
INVESTING IN THE FUTURE: EDUCATION AND TRAINING

EDUCATIONAL PATHWAYS FUEL ROBUST CANCER RESEARCH PIPELINE

Sylvester offers career stage-specific enhancement programs that promote oncology research for all levels of learning — from undergraduate students to oncology faculty and community-based clinicians that care for cancer patients.

In recent years, Sylvester has been expanding its capacity to train cancer researchers with the Cancer Research Training and Education Coordination Core. The Core's mission is to build and sustain a robust pipeline of exceptional, collaborative and interdisciplinary cancer researchers and health care professionals from diverse backgrounds.

"We facilitate collaborative and interdisciplinary cancer research through center-wide education and training, and, by doing so, we pave educational pathways to advanced concepts that researchers and trainees might otherwise never experience," said **Kerry L. Burnstein, Ph.D.**, chair of the Core's Cancer Education Leadership Council and associate director for Education and Training at Sylvester. "Ultimately, patients benefit from the practice-changing, high-impact cancer research conducted at Sylvester".



Kerry L. Burnstein, Ph.D.

1 UNDERGRADUATE STUDENTS

Priyamvada Rai, Ph.D.

The newly funded NCI R25 grant "Comprehensive Research Experiences to Advance Training and Education (CREATE)" will expand Sylvester's Summer Undergraduate Research Fellowship Program, a 10-week fellowship that inspires and educates undergraduates who are considering careers in biomedical and cancer research. Students get experience in individual lab projects, drug discovery, cancer disparities, computational approaches and outreach.

Program director and PI: **Priyamvada Rai, Ph.D.**

2 GRADUATE STUDENTS

Ralf Landgraf, Ph.D.

The Sheila and David Fuente Graduate Program in Cancer Biology (CAB) provides a multidisciplinary education in cancer biology. CAB exposes graduate students to novel concepts and state-of-the-art techniques of molecular biology, biochemistry, genetics, genomics, proteomics, structural biology, cell biology, pharmacology and molecular medicine, while integrating students into the extensive clinical and translational research programs at Sylvester.

Program director: **Ralf Landgraf, Ph.D.**

7 COMMUNITY PHYSICIANS

Jorge Antunez de Mayolo, M.D.

The Cancer Care for the Community Practitioner pathway is a lecture series offered at no cost and designed for practicing primary care, family medicine and internal medicine physicians, pediatricians, physician assistants, advanced registered nurse practitioners, nurses, and other allied health professionals. These ACCME-accredited continuing medical education opportunities are led via Zoom by experienced Sylvester faculty. In 2021, bimonthly lectures included "Breast Cancer Survivors in General Practice."

Program director: **Jorge Antunez de Mayolo, M.D**.

MEDICAL STUDENTS

Emmanuel Thomas, M.D., Ph.D., FAASLD

Gina D'Amato, M.D.

Sylvester sponsors the Oncology and Related Health Disparities Pathway, which offers medical students an appreciation for the many ways cancer manifests at the organism, tissue, cell, and molecular levels, and offers an understanding of how tumors are managed from a broad perspective. Sylvester faculty mentors lead this pathway, which focuses on issues pertinent to the cancer center's catchment area in South Florida.

Program directors: **Emmanuel Thomas, M.D., Ph.D., FAASLD,** and **Gina D'Amato, M.D.**

POSTDOCTORAL AND POST-M.D. STUDENTS

Nipun Merchant, M.D.

Several NCI and cancer-related T32 Training Grants support post-graduate level cancer researchers in areas including cancer epigenetics, translational immunology and cancer disparities. With five years of renewed NCI funding, Sylvester offers two- to three-year fellowships in surgical oncology to train M.D. investigators who are interested in independent cancer research careers. This T32 directed by **Nipun Merchant, M.D.** provides a broad range of opportunities in basic, translational, clinical and population-based cancer research.

JUNIOR FACULTY

Scott Welford, Ph.D.

Joseph Rosenblatt, M.D.

The Junior Faculty Development Program offers grant writing workshops (K- and R-type); Early Concept and full grant reviews; 1:1 mentoring; mentorship guidelines; peer mentoring; a quarterly "Lunch with the Leader;" professional development workshops; a lecture series; travel awards; and "Office Hours."

Program directors: **Scott Welford, Ph.D.**, and **Joseph Rosenblatt, M.D.**

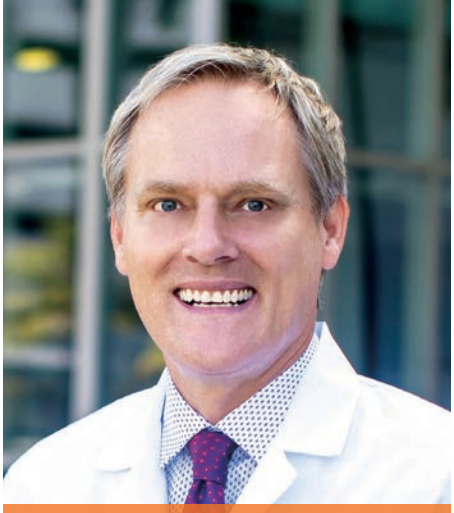
RESIDENTS AND FELLOWS

Matthew Schlumbrecht, M.D., M.P.H.

There are a variety of opportunities for residents and fellows to engage in cancer research. For example, the Gynecologic Oncology Fellowship is a four-year (two years of research and two years of clinical training) program dedicated to training obstetricians and gynecologists to become gynecologic oncologists. The program focuses on learning skills in clinical care, teaching and research for fellows who are committed to careers in academic medicine.

Program director: **Matthew Schlumbrecht, M.D., M.P.H.**

INVESTING IN THE FUTURE



C. Ola Landgren, M.D., Ph.D.

TARGET: MULTIPLE MYELOMA CURE

In 2021, world-renowned multiple myeloma researcher **C. Ola Landgren, M.D., Ph.D.**, spearheaded multiple impactful studies aimed at proving that multiple myeloma is a curable cancer.

Dr. Landgren, Paul J. DiMare Endowed Chair in Immunotherapy and chief of the Myeloma Program at Sylvester Comprehensive Cancer Center, led a study published in *Nature Communications* building on groundbreaking work he did years prior, identifying precursors in all patients with multiple myeloma. Later he found that many people have the precursors but very few go onto develop the cancer.

The new research, funded by a $2 million grant from The Tow Foundation, provides evidence that whole-genome sequencing recognizes the two biologically and clinically distinct myeloma precursor entities as progressive or stable.

"If we can identify someone who is genetically preprogrammed to develop the cancer before the patient gets sick, that could set the stage for curative intent," said Dr. Landgren, co-leader of the Tumor Biology and Experimental Therapeutics Programs at Sylvester and professor of medicine at the University of Miami Miller School of Medicine.

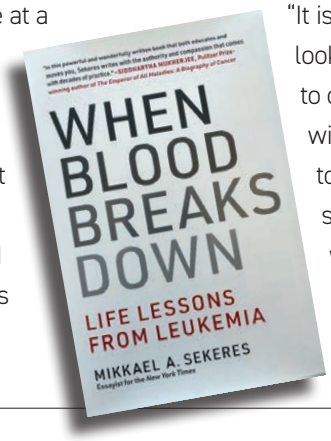
Dr. Landgren also is working on treating high-risk disease. In the MANHATTAN study, published in *JAMA Oncology*, Dr. Landgren and others found that use of immunotherapy with combination therapy achieved an unprecedented 71% minimal residual disease rate in high-risk multiple myeloma. A study published in *The Lancet Hematology* showed duration of response.

"In 2021, we also proved that we could achieve amazing results with a four-drug combination and sustain them in a high proportion of multiple myeloma patients," he said.

EDUCATOR

For more than 20 years, **Mikkael A. Sekeres, M.D., M.S.**, chief of the Division of Hematology, has been treating patients with leukemia and other blood cancers. He helps guide people who have received one of the most devastating diagnoses imaginable and does everything he can to help them understand their disease and hopefully overcome it.

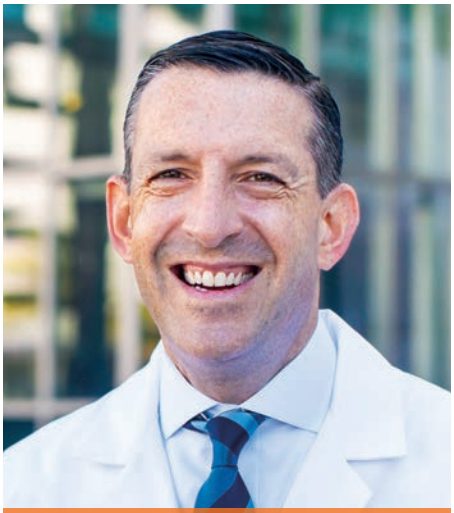
"I'm in this remarkably privileged position to meet people from all walks of life at a critical point in their life, when they have to make decisions no person should ever have to make," said Dr. Sekeres. "My job is to give hope, but not false hope, and to educate and reassure patients that my team and I are going to walk with them on this journey, wherever it leads."



Dr. Sekeres is the consummate investigator and educator. In addition to publishing in a variety of medical journals, he has shared his work in *The New York Times*, *Huffington Post* and *Salon.com*, as well as speaking at conferences and appearing on several podcasts.

In August 2021, Dr. Sekeres published a book on his experiences treating blood cancer patients, *When Blood Breaks Down: Life Lessons From Leukemia.*

"It is a behind-the-scenes look at what it's like to care for somebody with leukemia and to have leukemia," said Dr. Sekeres. "I wanted to humanize the experience, demystify it and provide examples of how people can be role models in how they live their lives."



Mikkael A. Sekeres, M.D., M.S.

The book has been well reviewed, and Dr. Sekeres recently read excerpts at the Miami Book Fair.

FOCUSING ON THE JOURNEY:
CANCER SURVIVORSHIP AND SUPPORTIVE CARE

COMMITTED TO SURVIVORS' QUALITY OF LIFE

To discover what weighs most on cancer survivors, Sylvester asked patients about their concerns, listened, developed solutions, then studied those solutions in a real-world setting, according to **Frank J. Penedo, Ph.D.**, co-leader of Sylvester's Cancer Control Research Program, associate director for Cancer Survivorship & Translational Behavioral Sciences and director of Cancer Survivorship & Supportive Care.

"A major concern with our survivors is care coordination after their cancer treatment for non-cancer-specific medical issues," Dr. Penedo said. "So our programs and care delivery research aim to make multidisciplinary care access easier and timelier."

Over the past several years, Dr. Penedo and colleagues created a program in which Sylvester patients who have completed initial cancer treatment receive a comprehensive survivorship care plan that provides not only a summary of their treatment and treatment team, but also guidelines for follow-up care. The plan also addresses other physical and mental health care needs and is provided to the patient and their primary health care provider.

Effectively addressing the ongoing needs of cancer patients and survivors is a key component of Sylvester's mission. As one example, Dr. Penedo and his colleagues developed a novel technology, *My Wellness Check*, to capture patients' experiences and communicate their needs and concerns to Sylvester's clinicians in real time, prior to scheduled visits, to help guide clinical encounters.

The positive impact of this asset and others is anchored in research and discovery. Sylvester's investigators have led groundbreaking studies centered around minorities, including Hispanic and Spanish-speaking populations, to better understand cancer disparities and how to overcome them.

"It's important that everyone who is treated for this disease can look forward to their best possible quality of life after treatment, and we are here to help them along their journey to achieve it," Dr. Penedo said.

CANCER SUPPORT BY THE NUMBERS

1,186 TOTAL ZOOM GROUPS FOR 2021

7,572 PARTICIPANTS IN ART AND MUSIC THERAPY

6,520 INDIVIDUAL PATIENT ENCOUNTERS IN NUTRITION INSTRUCTION

9,701 INDIVIDUAL PATIENT ENCOUNTERS IN ACUPUNCTURE, MASSAGE THERAPY, AND EXERCISE PHYSIOLOGY

318 WIGS, SCARVES, AND HATS DISTRIBUTED TO PATIENTS

308 PATIENTS BENEFITED FROM THE ADOLESCENT & YOUNG ADULT (AYA) PROGRAM

82 PATIENTS AND SURVIVORS PARTICIPATED IN THE BREAST CANCER PEER MENTORSHIP PROGRAM

ONCOLOGY SUPPORT SERVICES:

- ACUPUNCTURE
- ARTS IN MEDICINE
- CANCER SUPPORT GROUPS
- EXERCISE PHYSIOLOGY, INCLUDING YOGA
- INDIVIDUAL AND FAMILY COUNSELING
- MASSAGE THERAPY
- MUSIC THERAPY
- NUTRITIONAL COUNSELING
- PAIN MANAGEMENT
- PALLIATIVE CARE
- PASTORAL CARE
- PET THERAPY
- PSYCHIATRIC SUPPORT
- PSYCHOLOGICAL SUPPORT
- SOCIAL WORK

EDUCATION AND PATIENT SUPPORT SERVICES:

- DISEASE/MEDICATION THERAPY MANAGEMENT
- NURSE NAVIGATOR
- GENETIC COUNSELING

FOCUSING ON THE JOURNEY: MULTIDISCIPLINARY CLINIC

Carmen Calfa, M.D.

SYLVESTER LAUNCHED THE MULTIDISCIPLINARY SURVIVORSHIP CLINIC IN PLANTATION, FLORIDA, IN EARLY 2021 — a pilot program focused on helping breast cancer patients achieve physical, mental, and emotional well-being.

"Sylvester's Multidisciplinary Survivorship program takes into account evidence-based interventions that we know can help cancer patients have the best possible lives," said **Carmen Calfa, M.D.**, a breast medical oncologist and medical co-director of the Cancer Survivorship Program at Sylvester and associate director of Community Outreach at Sylvester's Plantation clinic.

Cancer treatments affect the way patients feel, their body image, body weight, skin and nail quality, emotions, and much more. The Multidisciplinary Survivorship Clinic offers each breast cancer patient a coordinated, integrated, and personalized survivorship care plan at one location, using a multidisciplinary approach that includes a medical oncologist, nurse practitioners, exercise physiologists, nutritionists, music therapists, art therapists, and acupuncturists.

"This program looks into identifying and treating the aftermath of cancer and cancer treatment," Dr. Calfa said.

There is a need. From March to September 2021, staff at the Multidisciplinary Survivorship Clinic saw 110 patients. A survey later revealed that more than nine in 10 patients were extremely or very satisfied, and nearly all were likely to recommend the services to their friends.

Patients have commented that they are grateful for the care and concern they feel in the program. They find value in the added emphasis on nutrition, massage, exercise, social work, acupuncture, music therapy and more.

One of those patients is Annie Masi, diagnosed with breast cancer at age 42. Masi began chemotherapy within weeks of finding a lump in her breast. While Masi is in remission, she continues to engage in the free services that have kept her spirits high.

"When I was in the chemo lounge, we always had someone come in and play some instruments. Then they taught me how to use the instruments," Masi said. "It just touched every aspect of my life."

All these services added to my mental, physical, and emotional well-being. I just feel happy and so blessed to have had such a great team taking care of me.

Annie Masi

FOCUSING ON THE JOURNEY:
TACKLING HISPANIC CANCER DISPARITIES


Frank J. Penedo, Ph.D.

THE NATIONAL CANCER INSTITUTE (NCI) HAS AWARDED SYLVESTER INVESTIGATORS MORE THAN $13 MILLION for two major research studies delving into disparities known to occur among Hispanic cancer patients.

Cancer is the leading cause of death for U.S. Hispanics. Yet Hispanics are more likely than non-Hispanic whites to be diagnosed with cancer at advanced stages, wait longer for cancer diagnoses and treatments, and have poorer quality of life during and after cancer treatment.

To better understand and address these disparities, NCI awarded Sylvester investigators a six-year, $9.8 million grant for "Avanzando Caminos (Leading Pathways): The Hispanic/Latino Cancer Survivorship Study." The study of about 3,000 cancer survivors will examine the potential influence of many factors on these patients' health outcomes. "The opportunity to comprehensively assess multiple constructs among Hispanic cancer survivors who are diverse in regard to country of origin and geographic location in the U.S. will help us better understand how social, cultural, behavioral, psychosocial, biological, and medical factors impact cancer outcomes. This insight will help guide interventions that promote equitable and optimal well-being," said the study's lead principal investigator **Frank J. Penedo, Ph.D.**, associate director of Cancer Survivorship and Translational Behavioral Sciences, director of Cancer Survivorship and Supportive Care and co-leader of the Cancer Control Research Program at Sylvester.


Lourna Marquez-Carrasquillo, program participant

Lourna Marquez-Carrasquillo saw the value in participating in the Avanzando Caminos study. "This study acknowledges that there are improvements that can be made to optimize patient communication, and some of it has to do with language and culture. It's important that the health care provider takes these factors into account, and perhaps a little bit of tailoring or tweaking can make that health care plan more meaningful and successful," Marquez-Carrasquillo said.

Participating has helped Marquez-Carrasquillo better navigate as a cancer survivor.

"The study has helped me better phrase and point out things that did not happen and perhaps would have helped streamline my care," she said.

NCI also awarded $3.5 million for the five-year Encuentros study to evaluate the effects of a 10-week, group-based, linguistically translated and culturally adapted cognitive-behavioral stress and self-management intervention to help Hispanic men treated for localized prostate cancer with symptom burden and health-related quality of life.

"While about 76% of prostate cancers in Hispanic males are diagnosed at an early stage, Hispanic prostate cancer survivors are more likely than other ethnic groups to report lower physical and social functioning, poorer emotional well-being and greater sexual and urinary dysfunction during and after cancer treatment," Dr. Penedo said. "Findings from this study may help guide future interventions that are culturally tailored and address the inequitable burden of cancer in Hispanics."

TRAINING THE NEXT GENERATION OF RESEARCHERS IN DISPARITIES, EQUITY

Fueled by the five-year, $2.3 million NCI T32 grant "Cancer Training in Disparities and Equity (C-TIDE)," Sylvester faculty are focused on ensuring that the next generation of cancer researchers continue the important work of addressing and reducing cancer disparities.

More specifically, C-TIDE focuses on using mentored post-graduate fellowships to train future researchers. Its co-principal investigators **Frank J. Penedo, Ph.D.**, associate director of Cancer Survivorship and Translational Behavioral Sciences, director of Cancer Survivorship and Supportive Care and co-leader of the Cancer Control Research Program at Sylvester, and **Erin Kobetz, Ph.D., M.P.H.**, associate director for population sciences and cancer disparity at Sylvester and vice provost for research and scholarship at the University of Miami, received supplemental NIH funding in 2021 to include artificial intelligence (AI), machine learning and other relevant, advanced methodologies.

RESEARCHER DRIVES EFFORTS TO EDUCATE YOUTH ABOUT E-CIGS, HOOKAHS


Taghrid Asfar, M.D., M.S.P.H.

The recent surge in electronic cigarette use among youth and young adults is alarming, dangerous and fueled by misinformation, according to Sylvester researcher **Taghrid Asfar, M.D., M.S.P.H.**

"This device provides nicotine and nicotine causes dependence and addiction, and we are very worried that the new generation will be hooked on nicotine because of using electronic cigarettes," said Dr. Asfar, who is leading two grants aimed at developing evidence-based health communication messages on warning labels to educate the public.

In 2021, Dr. Asfar began work as co-principal investigator of a $5.63 million R01 grant from the National Institute on Drug Abuse to study electronic cigarette health warning labels. She and a team of investigators also launched a five-year, $1.5 million grant by the Esther King Biomedical Research Program award from the Florida Department of Health, to study the impact of stronger health warning labels on waterpipes, or hookahs, in Florida.

SYLVESTER STUDIES CANCER PATIENT ADVOCACY GROUP'S IMPACT ON OUTCOMES

Fueled by a two-year, $460,000 grant by the Leukemia and Lymphoma Society, the world's largest advocacy organization for patients with blood cancers, Sylvester is conducting one of the first studies of its kind to evaluate the society's impact on patient outcomes.

An accomplished research team led by **Frank J. Penedo, Ph.D.**, is spearheading the research that includes other NCI-designated cancer centers also dedicated to assessing the society's impact on patients' access to care, quality of life, and financial burden. They also will assess if the effects of its services and programs vary by such things as patient age, race/ethnicity, education, and insurance.

CLINIC ADDRESSES SEXUAL DYSFUNCTION IN CANCER SURVIVORS

In cancer survivorship, patients face physical and psychosocial consequences of treatment that can profoundly impact body image and sexual function. The MUSIC (Menopause, Urogenital, Sexual Health and Intimacy Clinic) Program, led by **Kristin E. Rojas, M.D.**, assistant professor of Surgical Oncology at Sylvester, provides evidence-based, patient-centered guidelines to address the complex, distressing and underrecognized issue of female sexual dysfunction that often occurs with cancer treatment. Female patients with a history of any type of cancer experiencing vaginal dryness, painful sex, low desire, or other menopausal symptoms may be referred.

"We are offering patients cutting-edge therapies here at Sylvester. Survival is improving, and our patients are living longer, healthier lives. I am fortunate to be part of a fantastic multidisciplinary team that recognizes these quality-of-life concerns, and with the MUSIC program, we can now address the serious disruptions to women's sexual health that can occur with treatment," said Dr. Rojas. "Addressing patients' intimacy concerns is a dimension of cancer care that often goes unaddressed. Yet, more than 80% of female cancer survivors report these concerns, which can impact their quality of life and personal relationships. With the MUSIC program and other important survivorship programs offered here at Sylvester, we can change the conversation from 'Will you live?' to 'How will you live?'"

Given the aftermath of 9/11, we all assumed that when this type of major incident takes place, some sort of government environmental monitoring program would automatically go into play. But, after a couple of days, it became clear that was not the case, so knowing this was Miami, Alberto Caban-Martinez and Erin Kobetz were my first two phone calls.

Derek Urwin, IAFF Director for Science and Research

BUILDING HEALTHIER COMMUNITIES: COMMUNITY IMPACT

SYLVESTER RESEARCHERS EXPLORE CANCER RISKS AT SURFSIDE CONDO COLLAPSE

After the 12-story Champlain Towers South building suddenly crumbled in Surfside last June, Sylvester's Firefighter Cancer Initiative stepped up to protect rescue workers from health hazards.

Alberto Caban-Martinez, Ph.D., D.O., M.P.H.

"Prevention is key," said **Alberto Caban-Martinez, Ph.D., D.O., M.P.H.**, deputy director of the FCI. "You do not want to be marinating in these compounds that are circulating in the air." Within hours, Dr. Caban-Martinez was on the scene, delivering thousands of baby wipes and a dozen decontamination kits for search and rescue personnel.

Soon after, FCI founding director **Erin Kobetz, Ph.D., M.P.H,** ordered hundreds of air-filtering P-100 respiratory masks to replenish the supply at the collapse site.

Turning an unthinkable tragedy into a valuable learning opportunity, Drs. Kobetz and Caban-Martinez launched an environmental and exposure monitoring program that not only kept first responders safer on the ground but will inform future guidelines for protecting them from another occupational hazard likely to add to their risk profile. Conducted in partnership with Miami-Dade Fire Rescue and the Department of Science and Research at the International Association of Fire Fighters, the study found that rescue workers were exposed to high concentrations of polyaromatic hydrocarbons, a massive class of known and probable carcinogens.

Sylvester's Firefighter Cancer Initiative donated items to first responders to wipe away soot

Dr. Caban-Martinez, who is also an associate professor of public health sciences at the Miller School, also launched SAFE — for the Surfside Assessment of First-Responder Exposures study — which aims to collect two years' worth of toenail clippings from hundreds of firefighters who worked on the debris pile. Like slow-growing rings of a tree, Dr. Caban-Martinez said, toenail clippings can provide snapshots of a person's exposure to heavy metals.

"I'm always thinking about firefighters — like what they were doing after Hurricane Ida hit the Gulf Coast, what we could do to protect them from things like water contamination and infection," he said. "Because we know they will do whatever it takes to do their job, which is saving lives without considering the repercussions. But it's our job to make sure they know how to protect themselves from hazards and reduce their risks."

BUILDING HEALTHIER COMMUNITIES: FIREFIGHTER CANCER INITIATIVE

Sylvester's Firefighter Cancer Initiative ribbon-cutting event launches the mobile clinic at a Hialeah fire station

THE FIREFIGHTER CANCER INITIATIVE (FCI) AT SYLVESTER COMPREHENSIVE CANCER CENTER, designated by the NCI, aims to understand and address why firefighters are at increased risk of developing and dying of cancer relative to the populations that they serve and how it can be prevented. FCI addresses the cancer-related needs of the fire service. Our partnerships with the State of Florida, the State Fire Marshal's Office, the Firefighter Cancer Support Network, Florida Firefighter Safety and Health Collaborative, National Institute for Occupational Safety and Health (NIOSH), the International Agency for Research on Cancer (IARC) and International Association of Fire Fighters (IAFF) have allowed us to be at the forefront of the national effort to address the excess cancer risk in firefighters.

FCI MOBILE CLINIC

The FCI mobile clinic program, designed to improve health outcomes for firefighters, launched thanks to the support of The Salah Foundation. The mobile clinic travels to South Florida fire stations to create more convenient access to cancer prevention and education resources for first responders, to include comprehensive health exams and cancer screenings.

2021 NATIONAL FIREFIGHTER CANCER SYMPOSIUM (NFCS)

The NFCS brought together members from the scientific, academic, firefighting, government, and labor/management communities to support the reduction of cancer risk in the U.S. fire service. Five hundred registered participants from 39 states across the United States and 10 countries around the world were in attendance.

Fire departments across Florida support FCI through their participation in our

22	11	6
ACTIVE PROJECTS	COMPLETED PROJECTS	NATIONAL PROJECTS (funded outside of FCI)

FEMALE FIREFIGHTER CANCER STUDY

Sylvester researchers published a *Journal of Occupational and Environmental Medicine* study that found that female firefighters are concerned about cancer, particularly breast cancer, hazardous chemicals, shift work, fertility, and pregnancy. These findings could help guide public health policy and future research.

DISMANTLING STRUCTURAL RACISM IN CANCER RESEARCH

Sylvester researcher **Zinzi Bailey, Sc.D., M.S.P.H.**, continues to make an impact in her work focused on addressing medicine and public health's role in structural racism and the role of structural racism in driving racial/ethnic health inequities.

After years of authoring papers on the topic published in high-profile journals, including in 2021 the *New England Journal of Medicine*, Dr. Bailey has become a leading voice in this national conversation. She spent much of '21 presenting at such meetings as the Society for Epidemiologic Research, where among other topics, she addressed "Building a movement accountable research process: How can epidemiologists partner with activists to produce actionable research?"

As associate director of Research Leadership and Practice, Dr. Bailey also led the thematic focus on structural racism and health for a new cohort of Interdisciplinary Research Leaders, a leadership program funded by the Robert Wood Johnson Foundation.

As an invited speaker, Dr. Bailey addressed "Structural racism as a root cause of cancer care disparities," at the National Academies Workshop on Promoting Health Equity in Cancer Care, as well as at Boston University and the American Society for Preventive Oncology Annual meeting; "Racism and racial discrimination and its impact on the life course," at the Harvard T.H. Chan School of Public Health Alumni Week; and "Operationalizing structural racism for health equity research," during a National Cancer Institute Webinar.

In disparities-focused research that aims to help create evidence-based policy,

Zinzi Bailey, Sc.D., M.S.P.H.

Dr. Bailey is principal investigator for a NIH K01 grant-funded study to assess factors in tobacco/e-cigarette use in Florida youth, overall and by county-level sociodemographic characteristics and racial/ethnic segregation.

"Racism is not an isolated ideological event, it's a system or culture of inequity. So, it's important that we are able to recognize that in ourselves and our institutions," said Dr. Bailey. "The more that we are able to recognize our history, the more we can learn from it."

DR. BRANDON MAHAL JOINS WHITE HOUSE ROUNDTABLE

Brandon Mahal, M.D., assistant professor of radiation oncology and assistant director of Community Outreach and Engagement at Sylvester Comprehensive Cancer Center, is joining the White House's newly formed Health Equity Leaders Roundtable Series.

The series features 14 accomplished clinicians representing medical specialties, nursing, social work, public health, and medical education, who will offer perspectives on access to care and how to ensure all people get equitable care regardless of such factors as race, insurance, and immigration status.

"The White House wants to learn about best practices nationwide so they can use the lessons and themes to inform policy at the highest level," Dr. Mahal said.

Dr. Mahal, who is nationally known for his research in cancer disparities and community outreach and engagement, is the only participant to represent oncology and the only one practicing in Florida.

"We have a voice directly in the White House and can express what we need to improve cancer outcomes in our own community," he said.

Brandon Mahal, M.D.

BUILDING HEALTHIER COMMUNITIES

SYLVESTER LEADS MASSIVE EFFORT TO STUDY BLACK GENOMES

Cancer often manifests differently in the Black community, leading to thousands of early deaths. Unfortunately, cancer among Black people has been woefully understudied. But researchers at Sylvester are leading an international effort to decode Black genomes and investigate the genetic drivers behind breast, ovarian and prostate cancer. The African-Caribbean scNetwork — comprising a dream team of researchers from the U.S., the Caribbean and Africa — hopes to provide new insights into why Black people are at higher risk for aggressive cancers and often develop them at younger ages. The project is being funded through a $1.65 million award from the Chan Zuckerberg Foundation.

Sophia George, Ph.D.

"I study early events in breast and ovarian cancers, particularly what happens to cells before a woman develops cancer," said **Sophia George, Ph.D.**, associate director of diversity, equity and inclusion at Sylvester, and associate professor in the Department of Obstetrics, Gynecology and Reproductive Sciences, who is the lead investigator on the project. "I also have a strong interest in the African diaspora and why we are more vulnerable to highly aggressive cancers. This grant will help our team combine these interests and dissect the genetic and cellular underpinnings that can lead to poor cancer outcomes."

GLOBAL ONCOLOGY PROGRAM

Sylvester's Global Oncology and International Programs initiative is working to alleviate cancer control inequalities in low- and middle-income countries. The program addresses health care disparities, studies regional differences in cancer biology, prevention and education and seeks to improve care and public policy.

Though the COVID-19 pandemic has often closed borders over the past two years, the initiative continues to be active through virtual programs and other means. **Alvaro Alencar, M.D.**, Global Oncology's hematology lead, chairs a malignant hematology meeting that has become one of the most important hematology educational events in Brazil. The fourth annual meeting was held virtually from Sao Paulo in March 2021, with more than 1,500 registrants.

Virtual preceptorships have allowed international health care providers to continue learning from our experts. One of the most important events last year focused on next generation sequencing (NGS), a technology that screens tumors for genetic mutations that could potentially be treated with targeted therapies. While expensive, NGS helps clinicians choose drugs more likely to be effective and avoid toxicity.

In Brazil, access to the these diagnostic tools is limited due to cost and the technology's availability. Dr. Alencar and **Gilberto Lopes, M.D.**, associate director for Global Oncology, met with Brazilian medical oncology leaders, government agencies, and health insurance companies to share Sylvester's experience, help the nation overcome economic barriers and expand NGS help more cancer patients.

Alvaro Alencar, M.D.

PARTNERING FOR ONE MISSION: DCC XI

DOLPHINS CHALLENGE CANCER 2021 marked another record-breaking year for the Dolphins Challenge Cancer (DCC). On April 10, thousands of participants came together — both virtually and in person — to ride, walk and run to raise funds for innovative cancer research at Sylvester Comprehensive Cancer Center. It was a day of unparalleled inspiration, as the DCC marked the first major live event for our community since the pandemic began. In 2020, the Miami Dolphins announced a transformational $75 million commitment to Sylvester, the largest known philanthropic pledge in sports history. To date, the DCC has raised over $45.5 million dollars for innovative cancer research. Together, we are **one team, one fight!**

Stephen D. Nimer, M.D., with Stuart Miller, Chair UHealth Board of Directors and Executive Chairman, Lennar Corporation

Patricia D. Jones, M.D.

> The DCC began 11 years ago with one goal in mind: to unite the community against one of the most insidious diseases of our generation. Today, the DCC is a year-round movement focused on the challenge the cancer community faces every day, reminding us that you don't have to have cancer to fight cancer.
>
> **Tom Garfinkel, vice chairman, president and CEO of the Miami Dolphins and Hard Rock Stadium.**

DCC IMPACT 2021

#1 TEAM FUNDRAISING EVENT IN THE NFL

ALMOST **1,000,000 MILES** CONQUERED

$6.3 million RAISED AT DCC XI

3,390 PARTICIPANTS AT DCC XI

200 CANCER SURVIVORS PARTICIPATED IN DCC XI

PARTNERING FOR ONE MISSION:
ENDOWED CHAIRS

STEEPED IN TRADITION AND CEREMONY, endowed chairs are the highest accolade a university can bestow upon a professor. Endowed chairs represent prestige and honor for the chairholders and the people and organizations whose names they carry. They help us advance research, provide exceptional patient care, and attract and retain world-class talent. In 2021, Sylvester awarded endowed chairs to three outstanding faculty members who have distinguished themselves through their groundbreaking bodies of work.

"The endowed chair is really about the future. It's about supporting your research so it can lead to even better things... The way we look at this is teamwork with Sylvester providing the support and the infrastructure, the researchers providing the science that moves the field, and organizations like The Pap Corps providing their generosity and support to transform discoveries into practices that provide real patient impact."

— Sanoj Punnen, M.D.

"This is a time of great hope and promise for cancer patients and their families. The development of novel immunotherapies, partnered with improved biological understanding of the immune system, is already dramatically reshaping what we can achieve through cancer therapy. It is an incredible honor to be the recipient of the Paul J. DiMare Endowed Chair in Immunotherapy, and I look forward to honoring the DiMare family's generosity in return through my work."

— C. Ola Landgren, M.D., Ph.D.

"I'm honored to be able to carry forth their legacy by doing important research to move the dial to advance health equity for South Florida and beyond. I intend to use the Schultes' investment to catalyze important, locally relevant research that focuses on South Florida's unique, multicultural diversity and cancer burdens. This chair will also allow me to continue collaborating with the World Health Organization (WHO) and other partners to make progress on articulated targets to eradicate cervical cancer."

— Erin Kobetz, Ph.D., M.P.H.

SANOJ PUNNEN, M.D.

The Pap Corps Champions for Cancer Research Endowed Chair in Solid Tumor Research

For nearly 70 years, The Pap Corps Champions for Cancer Research has been a vital partner in support of the University of Miami and Sylvester Comprehensive Cancer Center. In acknowledgement of his innovative research in prostate cancer, Dr. Punnen was awarded The Pap Corps Champions for Cancer Research Endowed Chair in Solid Tumor Research. The prestigious designation allows Dr. Punnen and his team to expand the scope and influence of their work, which focuses on prostate cancer detection and risk assessment.

C. OLA LANDGREN, M.D., PH.D.

Paul J. DiMare Endowed Chair in Immunotherapy

Throughout the years, Paul and Swanee DiMare's philanthropic support has made a lasting impact across the University of Miami. The DiMares' most recent philanthropic pledge, the Paul J. DiMare Endowed Chair in Immunotherapy, will allow Dr. Landgren — a world-renowned expert in multiple myeloma and early drug development — to continue his groundbreaking research integrating immunotherapy into the development of curative treatment strategies for multiple myeloma and other cancers.

ERIN KOBETZ, PH.D., M.P.H.

John K. and Judy H. Schulte Senior Endowed Chair in Cancer Research

John and Judy Schulte were steadfast supporters of Sylvester Comprehensive Cancer Center. While the couple gave generously during their lifetimes, they arranged to have much of their estate given to Sylvester in support of research and education. John passed away in 2018 and Judy in 2016. The Schultes' endowment will allow Dr. Kobetz to continue her lifesaving research, which has dramatically reduced cancer disparities in South Florida and contributed to Sylvester being named the first WHO collaborating Center for Cervical Cancer Elimination.

PARTNERING FOR ONE MISSION: IN THEIR OWN WORDS

PHILANTHROPY PLAYS A PIVOTAL ROLE IN OUR PURSUIT OF CANCER CURES. As we work diligently to overcome cancer's biggest challenges, Sylvester is thankful for the support of our extraordinary community. Through your valuable partnership, we can continue to bring new hope to our patients and their families.

WHO ARE OUR DONORS?

LAST YEAR, SYLVESTER HAD:

3,907
DONATIONS FROM INDIVIDUALS, FOUNDATIONS, AND CORPORATIONS

996
DONORS MADE THEIR FIRST GIFT IN CALENDAR YEAR 2021

365
DONORS WERE UM ALUMNI

327
DONORS INCREASED THEIR GIVING (FROM CALENDAR YEAR 2020 TO 2021)

357
DONORS MADE TWO OR MORE DONATIONS

28%
OF DONORS MADE ONLINE GIFTS

DONATIONS CAME IN FROM ALL **50 STATES** AND **13 COUNTRIES** AROUND THE WORLD

"It is an honor to partner with a landmark institution in our community such as Sylvester Comprehensive Cancer Center at the University of Miami. It carries a lot of weight with our paddlers to be able to witness the impact of our efforts so close to home."

ERIC PINO, captain of Castaways Against Cancer, a Christopher Columbus High School-affiliated kayaking team that has raised funds for cancer research for 22 years.

Castaways Against Cancer at the send-off for The Blackjack Tour, June 2021. Photo by JC Diaz

Castaways Against Cancer supported cancer research at Sylvester for their second year in a row, funding critical research of rare pediatric brain cancers, and most recently toward early cancer prevention strategies and new therapies for aggressive, treatment-resistant lymphomas.

"Cancer Link has always offered a festive way to raise funds for a meaningful cause. Every event produced by our organization reminds us that we are saving lives, as well as celebrating them. Though COVID-19 changed our original plans, we were determined it would not dampen our spirits or distract us from our mission."

MARLENE BERG Founder, Cancer Link

From left, Meredith Wolf, Ilyssa Ettelman, Jodi Kurzweil, Cheryl Ettelman, Laurie Nuell, and Amy Deutch.

For more than 30 years, **Cancer Link** has increased awareness about the importance of raising funds for breast cancer research at Sylvester. This past year, the volunteer organization got creative to raise funds in a safe, socially distanced way, with an online appeal and a Royal High Tea, celebrated in small private gatherings. All proceeds went to support the innovative work at the labs of five breast cancer researchers.

"Our goal is to save a life so at least one family does not have to hear there are no more treatment options for their child. There is no better way for me to honor my son."

OSCAR ORTIZ
Founder and President, SebastianStrong

Oscar Ortiz

Mr. Ortiz founded **SebastianStrong**, a nonprofit that funds innovative research for childhood cancers, in memory of his son, Sebastian, who lost his battle with cancer when he was just 16 years old.

SebastianStrong has raised over $1 million through sport-focused initiatives to help Sylvester researchers find less toxic, more targeted treatments for children with cancer. SebastianStrong has partnered with the Miami Dolphins Foundation and is raising funds year-round through the Dolphins Challenge Cancer.

"One of the things I appreciate about giving to Sylvester is how versatile my options are to help as many people as possible. Not only do I give to research, but the experts at Sylvester know about the best treatment options and latest techniques on every aspect of the cancer journey... I believe proton therapy is going to cure a lot of cancers right now that simply cannot be cured."

STEVEN DWOSKIN
Benefactor, Sylvester Comprehensive Cancer Center

Danny Dwoskin, Debbie Mays, Steven Dwoskin, and Lisa Dwoskin at the opening of the Dwoskin Proton Therapy Center

Mr. Dwoskin funds several research programs annually at Sylvester. The **Dwoskin Proton Therapy Center** is named after Mr. Dwoskin and his family for their generous gift to support the innovative facility.

"The Garden of Hope offers a place of tranquility and peace for patients, family, and all who visit the campus. The Pap Corps is honored to spearhead this important project, which welcomes donors to create an enduring legacy while supporting the next survivor."

SUSAN DINTER
Chair, The Pap Corps Champions for Cancer Research

Susan Dinter and Stephen D. Nimer, M.D. cut the ribbon to The Garden of Hope, November 2021.

The Pap Corps Champions for Cancer Research inaugurated its eagerly anticipated Garden of Hope at The Pap Corps Campus of Sylvester Comprehensive Cancer Center in Deerfield Beach. The space provides comfort and serenity to cancer patients while supporting cancer research by selling the opportunity to engrave bricks that pave the garden. The Pap Corps is comprised of more than 22,000 individuals located primarily in Broward and Palm Beach Counties. For 70 years, their mission has been to enable and support the vital research programs at Sylvester.

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Find out more at **sylvester.org**