2019

REPORT

ACCOMPLISHMENTS

SYLVESTER
COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

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

SYLVESTER COMPREHENSIVE CANCER CENTER
UNIVERSITY OF MIAMI HEALTH SYSTEM

Julio Frenk, M.D., M.P.H., Ph.D., president of the University of Miami, announces Sylvester as South Florida's only NCI-designated cancer center.

RESEARCH LEADERSHIP

Stephen D. Nimer, M.D.
Director; Oscar de la Renta Endowed Chair in Cancer Research; Professor of Medicine, Biochemistry and Molecular Biology

Nipun Merchant, M.D.
Associate Director, Translational Research; Professor and Chief of the Division of Surgical Oncology

J. William Harbour, M.D.
Associate Director, Basic Science; Director of Ocular Oncology, and Vice Chair for Translational Research, Bascom Palmer Eye Institute; Professor of Ophthalmology

Kerry L. Burnstein, Ph.D.
Associate Director, Education and Training; 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

Erin Kobetz, Ph.D., M.P.H.
Associate Director, Population Science and Cancer Disparity; Chief, Population Health, Oncology Service Line, UHealth; Vice Provost for Research, University of Miami

Ramin Shiekhattar, Ph.D.
Co-Leader, Cancer Epigenetics; Professor of Human Genetics

Maria E. Figueroa, M.D.
Co-Leader, Cancer Epigenetics; Associate Professor, Human Genetics

Wael El-Rifai, M.D., Ph.D.
Tumor Biology Program Leader; Associate Director, Program Development; Professor and Associate Vice Chair, Academic Advancement, Department of Surgery

Craig H. Moskowitz, M.D.
Physician-in-Chief, Oncology Service Line; Professor of Medicine

Barbara A. Vance, Ph.D., CRA
Assistant Vice President and Associate Director, Administration

Frank J. Penedo, Ph.D.
Associate Director, Cancer Survivorship and Translational Behavioral Sciences; Professor of Psychology and Medicine

HOSPITAL LEADERSHIP

Kymberlee J. Manni, Ph.D., RCIS
Chief Executive Officer, University of Miami Hospital and Clinics

Tanira B. Ferreira, M.D.
Chief Medical Officer

Lazara Pagan
Chief Ambulatory Officer and Associate Vice President, Oncology Services

Javier Milian
Assistant Vice President, Oncology Satellite Operations and Recruitment

Lauren Gjolaj, M.B.A., B.S.N., R.N.
Assistant Vice President, Oncology Services

Elizabeth Smith, D.N.P., R.N.
Chief Nursing Officer, University of Miami Hospital and Clinics (Bascom Palmer Eye Institute/Sylvester Comprehensive Cancer Center/UHealth Tower)

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Vice President, Medical Development and Alumni Relations

Shawn McGee
Senior Director, Development

Lisa Worley
Assistant Vice President, Medical Communications and Media Relations, University of Miami Miller School of Medicine, University of Miami Health System

Current as of June 2020

DEAR COLLEAGUES AND SUPPORTERS,

It's 2020 and a global pandemic has changed everything. I have never been more inspired by the selfless dedication of everyone working together to ensure that our vulnerable cancer patients are protected while getting the treatments they need in the face of unprecedented challenges. I want to start this letter by acknowledging that and expressing my deepest gratitude.

I also welcome this opportunity to take a look back at 2019, a year in which we had much to celebrate.

In 2019, **Sylvester Comprehensive Cancer Center** became the **71st NCI-designated cancer center** in the country and the **only one** in South Florida. We are so proud to receive this important recognition from the National Cancer Institute. In this annual report you can read about how we earned this designation by conducting outstanding cancer research in our laboratories, increasing our reach to medically underserved communities with innovative prevention strategies, and training future physicians and scientists.

Sylvester's **Phase 1 Clinical Trials Program** continues to grow substantially with a significant increase in the number of patients participating in these studies of the newest investigational cancer treatments. You will find that important number and others in a new section in our Accomplishments Report - 2019: Sylvester by the Numbers.

We have established multidisciplinary molecular tumor boards that are used to assist Sylvester doctors and doctors in the region to identify effective targeted therapies based on the molecular makeup of a patient's tumor. Last year, Sylvester joined the **Precision Oncology Alliance**, an important affiliation of 26 centers that is advancing our precision medicine approaches to cancer. As part of this network, we are helping develop standards of care for molecular testing.

Our community outreach efforts have gained even more momentum. In 2019, Sylvester hosted the first **National Firefighter Cancer Symposium,** which drew hundreds of experts in the field from across the country. We also launched a second **Game Changer™ Vehicle** to bring free cancer screenings and innovative prevention strategies to Monroe County and the Florida Keys, to address health disparities there.

Sylvester's sarcoma team published practice-changing studies last year in ***The Lancet Oncology*** and ***Journal of ImmunoTherapy in Cancer***. They are among the first to suggest immunotherapy plays a key role in treating certain sarcomas. There are far too many examples of our excellence to print in this letter. In our Accomplishments Report you will find numerous research highlights and announcements about significant grants and awards received by members of our stellar Sylvester team.

More than ever, it is important to reflect on the work we have done to understand where we are today and to achieve our goals for the years ahead.

With gratitude,

Stephen D. Nimer, M.D.
Director, Sylvester Comprehensive Cancer Center
Oscar de la Renta Endowed Chair in Cancer Research
Professor of Medicine, Biochemistry and Molecular Biology

FROM THE DESK OF ADAM E. CARLIN

As chair of **Sylvester Comprehensive Cancer Center's Board of Overseers**, I am committed to preserving Sylvester's long tradition of excellence in research and clinical care. I am humbled to serve the Board and work alongside our dedicated team of world-renowned scientists and physicians, who deliver the best in cancer care.

This has been another remarkable year for our Cancer Center. In July 2019, Sylvester received the National Cancer Institute's NCI designation. This prestigious designation recognizes Sylvester among the top 71 cancer centers in the United States and the only NCI-designated cancer center in South Florida.

The NCI designation reflects Sylvester's long-standing commitment to outstanding research, excellence in clinical care, and outreach to medically underserved communities. This work ensures that patients in South Florida receive the most advanced cancer care without leaving the region. This commitment to providing advanced cancer care close to home was enhanced by the recent opening of a new facility in Aventura and the addition of four highly distinguished oncologists board-certified in medical oncology, hematology, and internal medicine.

Our accomplishments and highly regarded position within the cancer research community are due to the tireless efforts of our researchers, physicians, staff, leadership, and the unwavering support we receive from our community.

We are grateful to our partners who play a pivotal role in our growth and success. Our ninth year of partnership with the Dolphins Cancer Challenge continued to set the bar in fundraising and participation. We are inspired by organizations like The Pap Corps Champions for Cancer Research, Cancer Link, and the Woman's Cancer Association of the University of Miami that have raised millions of dollars for multiple decades. Corporate partners such as Sedano's Supermarkets have helped raise awareness for Sylvester in the community.

Additionally, Dr. Stephen D. Nimer, Director of Sylvester Comprehensive Cancer Center, was named the inaugural holder of the Oscar de la Renta Endowed Chair in Cancer Research, an honor that will help transform cancer research and care worldwide. This year also brought transformational gifts from the Dwoskin family in support of the forthcoming Proton Therapy Center, and from the late John Schulte, who served on the Sylvester Board of Overseers for more than 15 years. We stand on the shoulders of these and many more partners.

Sylvester continues to foster innovation and attract the brightest minds in medicine, all with bold aspirations of bringing an end to the human burden of cancer. On behalf of Sylvester's Board of Overseers, thank you for standing with us. Your support leads to life-saving cancer care for our current and future patients as well as our broader community.

Best regards,

Adam E. Carlin

Adam E. Carlin
Chairman, Board of Overseers
Sylvester Comprehensive Cancer Center
University of Miami Miller School of Medicine

SYLVESTER BOARD OF OVERSEERS VICE CHAIRS

Jayne S. Malfitano

Vice Chair, Sylvester Board of Overseers

President and Director
Harcourt M. and Virginia W. Sylvester Foundation

Jayne S. Malfitano's involvement with Sylvester dates back more than 30 years when her father, Harcourt Sylvester, Jr., pledged the first of several multimillion-dollar gifts to build a center in honor of his parents and support cancer programs at the University of Miami. Sylvester Comprehensive Cancer Center opened in 1992. Since then, Jayne has remained steadfast in her family's commitment to making exceptional cancer care available throughout South Florida. She is an active member of the University of Miami Board of Trustees, the UHealth Board of Directors, and serves as Vice Chair of Sylvester Comprehensive Cancer Center's Board of Overseers. Additionally, she is President of the Board of Directors for the Harcourt M. and Virginia W. Sylvester Foundation.

Miguel G. Farra, CPA, J.D.

Vice Chair, Sylvester Board of Overseers

Chairman of Tax and Accounting
Morrison, Brown, Argiz & Farra, LLC

Miguel G. Farra joined the Sylvester Board of Governors in 2010 and served on Sylvester's 20th anniversary gala committee in 2012. In 2017, Miguel was appointed as a member of the newly created Sylvester Board of Overseers and shortly after, in 2018, he became Vice Chair of the Board. Miguel is a tireless champion for Sylvester, dedicating countless hours and his decades of expertise to further the Cancer Center's mission.

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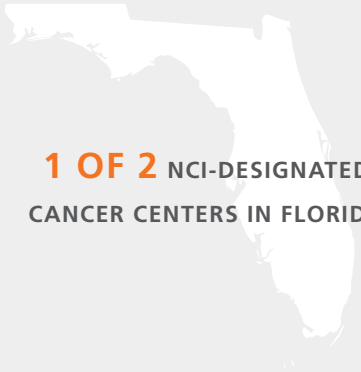
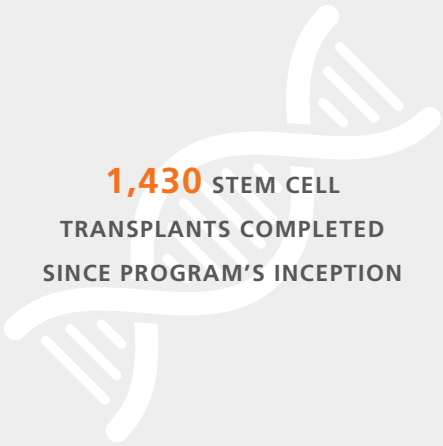
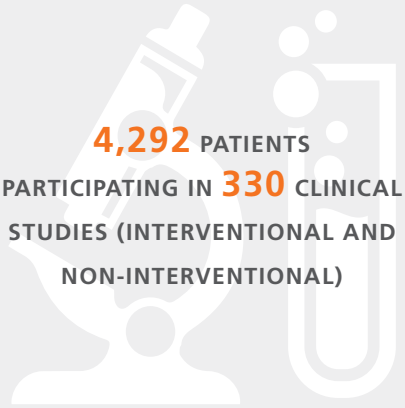


1 OF 2 NCI-DESIGNATED CANCER CENTERS IN FLORIDA

335 PHYSICIANS AND SCIENTISTS DEVOTED EXCLUSIVELY TO CANCER CARE AND RESEARCH



1,430 STEM CELL TRANSPLANTS COMPLETED SINCE PROGRAM'S INCEPTION



4,292 PATIENTS PARTICIPATING IN **330** CLINICAL STUDIES (INTERVENTIONAL AND NON-INTERVENTIONAL)

7 TREATMENT FACILITIES ACROSS SOUTH FLORIDA

2019: SYLVESTER BY THE NUMBERS

13 CANCER SITE DISEASE GROUPS

13 CANCER SUPPORT SERVICES AND **17** CANCER SUPPORT GROUPS

8,000 CANCER PATIENTS TREATED

5,803 NEW PATIENTS (ANALYTIC CASES - CY 2018)

297 CANCER RELEVANT PEER-REVIEWED PUBLICATIONS, **82** WITH OTHER NCI-DESIGNATED CANCER CENTERS

$42.9M IN PEER-REVIEWED AND NON-PEER-REVIEWED FUNDING FOR **384** ACTIVE CANCER PROJECTS

$25.5M IN PEER-REVIEWED FUNDING (OF WHICH **$10.4M** IS FROM NCI)

$2.2M FOR TRAINING GRANTS (ADDITIONAL)

Julio Frenk, M.D., M.P.H., Ph.D., president of the University of Miami, announces Sylvester as South Florida's only NCI-designated cancer center alongside Director Stephen D. Nimer, M.D. Senator Rick Scott and Congresswoman Donna Shalala were also present.

NCI DESIGNATION MAKES 2019 A PINNACLE YEAR

Sylvester Comprehensive Cancer Center earned the coveted National Cancer Institute (NCI) designation in 2019, becoming the only NCI-designated cancer center in South Florida and one of 71 cancer centers with the distinction nationwide.

"NCI centers are the crown jewels of the nation's war on cancer, and the standards are very high. It takes years of preparation and work, with strong leadership from the university, the state, and the community. We are looking forward to the new scientific advances and therapies you will provide," said NCI Director of Cancer Control and Population Sciences **Robert Croyle, Ph.D.**, commenting on Sylvester's achievement.

Stephen D. Nimer, M.D., huddling with the team that prepared the NCI application.

NCI recognizes U.S. centers that meet rigorous standards for transdisciplinary, state-of-the-art research focused on developing new and better approaches to preventing, diagnosing, and treating cancer.

In the six years of preparation to apply for NCI designation, Sylvester's team, led by Director **Stephen D. Nimer, M.D.**, focused on specific areas to meet NCI's high standards. Among those was changing the Cancer Center's basic science and clinical research culture from one where researchers worked in silos to putting the emphasis on collaboration. Sylvester recruited some of today's best and brightest researchers, clinicians, and educators, who continue to present important research findings at the major national meetings. And Sylvester focused on expanding its educational reach, including teaching and training oncologists throughout Latin America and the Caribbean.

Sylvester's potential impact, commitment to excellence, collaborative culture, and expertise stood out to NCI.

A key element for NCI designation is a center's level of grant funding. Sylvester's research programs have received a growing level of support from competitive federal and state grants, research contracts, and philanthropic contributions.

"Today, we have more than $30 million in peer-reviewed funding, compared with $9.9 million in 2014," Dr. Nimer said.

Based on Sylvester's research strengths and the unique population diversity of its South Florida community,

the Cancer Center's team highlighted three areas in which Sylvester can apply its expertise and share that knowledge with NCI colleagues across the country.

One of those is Sylvester's Cancer Control Program, which aims to reduce the incidence of cancer and its impact on patients in the region.

"When I joined Sylvester, I wanted to understand why so many women from Haiti were dying from cervical cancer, a treatable disease," said **Erin Kobetz, Ph.D., M.P.H.**, one of the program's co-leaders and the University of Miami's vice provost for research. Dr. Kobetz, who also is professor of medicine and Sylvester's associate director for population science and cancer disparity, said, "That led me into community-based, participatory research aimed at improving the quality of life for the people who live here. South Florida is thought to represent the future demographic of the United States, and our cancer control programs can serve as models for the nation."

Another example with far-reaching effects, Sylvester's Firefighter Cancer Initiative is a state-funded program launched in 2015 that is looking at why firefighters are at increased risk of developing and dying of cancer. The initiative has inspired a national dialogue by reducing exposure to carcinogens through education and by implementing evidence-based methods. More than 4,000 decontamination kits are being used by firefighters across Florida to help them clean up after responding to a call.

Sylvester's Cancer Epigenetics Program studies modifications to gene structure that occur due to aging, the environment, nutrition, and other factors.

"Very few centers have programs dedicated to epigenetics," said **Maria E. Figueroa, M.D.**, one of the program's co-leaders and associate professor of human genetics. "We are just at the beginning stages of learning how to edit or reprogram that software to correct mutations or metabolic problems that can lead to cancer."

Sylvester's Tumor Biology Program takes a broad, integrated perspective into cellular interactions within the complex biological landscape of tumors.

"With our diverse minority populations, the incidence of some tumors is higher than average," said **Wael El-Rifai, M.D., Ph.D.**, one of the program's co-leaders, who is also professor of surgery and associate vice chair of the Department of Surgery. "We want to understand the mechanisms of tumor initiation and progression. This step is critical for developing a personalized treatment approach based on the characteristics of the tumor in each patient."

Dr. Nimer and the leadership team have identified new research, clinical care, and outreach initiatives for 2020 and beyond. The five-year strategic plan features goals to increase the social and translational focus of the center's research programs, develop and grow shared research resources, as well as launch a developmental therapeutics program.

"Giving new hope to the 7,000 to 8,000 new patients a year we see at Sylvester is incredibly rewarding," Dr. Nimer said. "We will never relent in our quest for cures. The best is yet to come." ■

Robert Croyle, Ph.D., NCI director of cancer control and population sciences, congratulates Sylvester on meeting the rigorous standards required to become an NCI-designated cancer center.

NCI FUNDS SYLVESTER RESEARCH AIMED AT IMPROVING SELECTION OF PATIENTS FOR PROSTATE BIOPSY

Multidisciplinary research at Sylvester Comprehensive Cancer Center, fueled by a five-year, $2.9 million National Cancer Institute grant, is designed to test the benefit of a novel quantitative MRI imaging algorithm developed at the University of Miami, in combination with blood biomarkers, in selecting patients who should or should not have a prostate biopsy.

Principal investigators **Alan Pollack, M.D., Ph.D.**, professor and chair of radiation oncology and interim deputy director of Sylvester Comprehensive Cancer Center; **Radka Stoyanova, Ph.D.**, professor and director of imaging and biomarkers, radiation oncology; and **Sanoj Punnen, M.D.**, a urologic oncologist at Sylvester and associate professor of urology at the Miller School of Medicine, are collaborating for the single-site study, doing what Dr. Punnen calls "team science."

Together, they are studying undiagnosed men using quantitative multiparametric MRI to determine if the technology developed by the group, when combined with blood biomarkers, improves the selection of patients who are at a very low risk of having a significant prostate cancer. "Our team has run several clinical trials that provided a framework for the development of software that automates the identification and risk classification of areas in the prostate that should be biopsied," Dr. Pollack said. Current methods for deciding where to place a needle in the prostate for sampling are much more subjective. "Our approach takes the guesswork out of needle placement for sampling."

Multiparametric MRI is rapidly becoming the cornerstone for whether to biopsy and where in the prostate to biopsy. The technology is evolving and Sylvester is at the forefront of these advances.

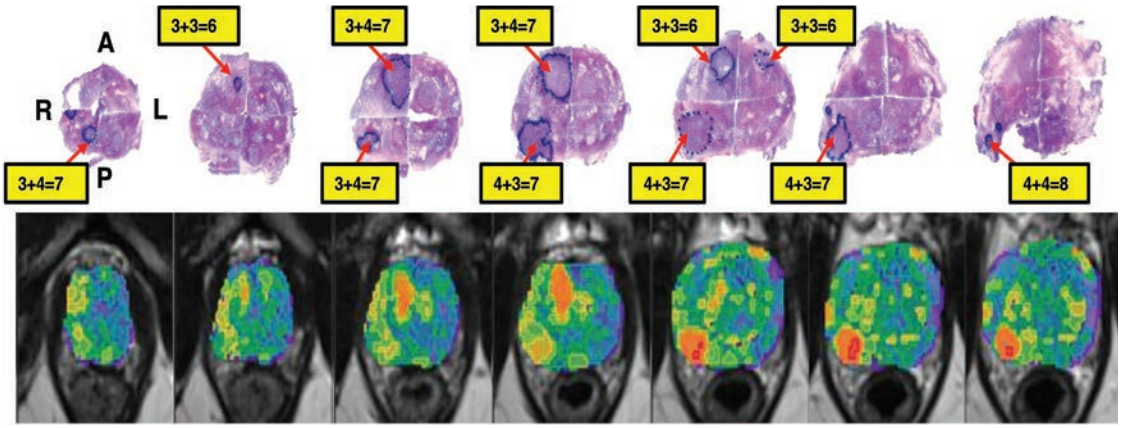
"If the MRI is positive, it suggests the man needs a biopsy. It can also help guide where you put the needle," Dr. Punnen said. "If the MRI is negative, the downside is there's still a 10% to 30% chance there could be a cancer that we just didn't see on the MRI."

The need for better detection and a series of studies and discoveries at Sylvester formed the basis of this latest grant, Dr. Punnen said.

Dr. Stoyanova's group built an image-analysis algorithm and found it did a better job of picking out significant prostate cancers than the standard-of-care system for scoring prostate MRI.

"We are now testing our scoring system, termed the habitat risk score, along with more sophisticated deep learning methods, for more accurate detection of significant prostate cancer and the decision of whether there is a need for biopsies," Dr. Stoyanova said.

In this study, the researchers will look at a collection of blood markers. They hypothesize that the 30% potential uncertainty with the current standard-of-care MRI at most academic institutions could fall to 16% uncertainty with the artificial intelligence algorithm. Adding blood markers could bring the level of certainty to more than 90% and uncertainty to less than 10%, according to Dr. Punnen. ■



Correlation of habitat risk score in MRI images (bottom row) with the radical prostatectomy surgical specimens histological images (top row) in a man with prostate cancer.

GRADUATE STUDENT IN CANCER BIOLOGY RECEIVES EARLY-CAREER RECOGNITION AND AWARDS

Supervised by faculty member **Priyamvada Rai, Ph.D.**, associate professor in the Department of Medicine's Division of Medical Oncology, third-year Ph.D. candidate **Clara Troccoli** received a fellowship grant from the National Institutes of Health's National Cancer Institute.

Troccoli, an investigator in Dr. Rai's Sylvester-affiliated cancer biology lab, is leading a research project to learn whether activation of a novel signaling pathway can be enhanced through repurposing non-cancer-related, FDA-approved drugs. The goal is to limit castration-resistant prostate cancer (CRPC), an incurable and terminal form of the malignancy. This pathway was identified in a novel cell-based screen developed in the Rai lab, which already yielded another validated CRPC target, thioredoxin-1. That previous research by Dr. Rai, Troccoli, and others appeared in 2017 in *Nature Communications*.

In addition, Troccoli won the 2018 Larry Oberley Young Investigator Award at the Society for Redox Biology and Medicine Annual Meeting in Chicago. Troccoli was awarded the highest-scored abstract/presentation in cancer biology research for her investigation of molecular drivers of androgen deprivation resistance and emergence of CRPC.

"I am humbled and honored to receive each of these national awards," Troccoli said. "The NIH fellowship allows me to continue investigating the molecular mechanisms that need to be either inhibited or promoted for optimal treatment of advanced prostate cancer and jump starts my career as a future independent researcher. And it's great to be recognized with the young investigator award from this national group of redox biology experts." ■

SYLVESTER RESEARCHERS RECEIVE GRANT FROM HYUNDAI HOPE ON WHEELS®

The $300,000 Hyundai Scholar Hope Grant is helping to fund the future of precision medicine in pediatric patients with metastatic sarcoma.

"This can be a very difficult cancer to control with current treatment options. The goal of our project is to be able to match the patient's specific tumor to the treatment that demonstrates the greatest response in real time," said the principal investigator, **Warren Alperstein, M.D.**, assistant professor of pediatrics.

The laboratory research will be conducted at the Center for Therapeutic Innovation led by **Claes Wahlestedt, M.D., Ph.D. Ines Lohse, Ph.D.**, is the co-principal investigator for the project. "We believe the multidisciplinary team of physicians and scientists will lay the foundation for the clinical implementation of our precision medicine platform for the treatment stratification of pediatric cancer patients at Sylvester," Dr. Lohse said.

Researchers will take a piece of each tumor, extract cancer cells, and test 215 FDA-approved drugs to see which ones efficiently kill the individual patient's cancer cells. They will be using a drug sensitivity testing platform developed at the University of Miami Miller School of Medicine and supported by Sylvester's Molecular Therapeutics Shared Resource. This platform has already successfully tested patients with acute myeloid leukemia and is now being applied to sarcoma.

Since 2010, Hyundai Hope On Wheels, a non-profit organization supported by Hyundai and its U.S. dealers, has given Sylvester $700,000 in total research grants. ■

Receiving the check are, from left, Shaun Brothers, Ph.D., Warren Alperstein, M.D., Ines Lohse, Ph.D., and Claes Wahlestedt, M.D., Ph.D.

TWO PANCREATIC CANCER RESEARCHERS AWARDED GRANTS FROM THE FLORIDA DEPARTMENT OF HEALTH

Cigarette smoking is one of the major risk factors for pancreatic cancer and a focus of study for researchers **Vikas Dudeja, M.D.**, and **Sulagna Banerjee, Ph.D.** Their individual research projects examine different tobacco-related mechanisms that promote or drive this aggressive cancer.

The Florida Department of Health's James and Esther King Biomedical Research Program awards peer-reviewed, competitive grants for cancer research. Among the goals for this program established by the Florida Legislature is to expand the foundation of biomedical knowledge relating to the prevention, diagnosis, treatment, and cure of diseases related to tobacco use. Out of 85 applicants for the grants this year, 10 were selected.

"Mechanism of Smoking Induced Promotion of Pancreatic Cancer" is the grant title for the research submitted by Dr. Dudeja, an associate professor of surgery. He has been awarded $805,393.

"Our research previously has demonstrated that gut microbiome promotes pancreatic and many other cancers," Dr. Dudeja said. "Our recent studies have suggested that changes in gut microbiome mediate many of the effects of smoking. We will be building on these findings and will define cigarette smoking induced changes in gut microbiome, how they promote cancer, and how we can counteract them to make lives better for our patients."

Dr. Banerjee, an associate professor of surgery, has been awarded $805,409. Her research will study the underlying molecular mechanism of the inter-conversion that pancreatic cancer cells undergo which makes them more aggressive and resistant to treatment.

"Carcinogens in tobacco smoke alter the cellular signaling pathways in the pancreatic cancer microenvironment, inadvertently selecting for a population of cells that are resistant to therapy," said Dr. Banerjee. "My project is geared toward understanding the mechanism of this selection and, more importantly, evaluating if these altered pathways can be targeted to prevent this enrichment of treatment resistant population and increase survival of pancreatic cancer patients." ■

From left, Vikas Dudeja, M.D., with researcher Harrys Jacob, Ph.D.

From left, Sulagna Banerjee, Ph.D., with research assistant Nikita Sharma.

AMERICAN CANCER SOCIETY AWARDS FIVE-YEAR GRANT TO UROLOGIC SURGEON

Ranjith Ramasamy, M.D., assistant professor in the Department of Urology, is among the first physician-scientists to receive a new grant from the American Cancer Society intended to foster the development of investigators licensed to practice patient care and trained to conduct research. Dr. Ramasamy was awarded a Clinician Scientist Development Grant in the amount of $729,000 for his research study, "Nitric Oxide Based Immunotherapy for Castration Resistant Prostate Cancer (CPRC)," which was published in the journal *Proceedings of the National Academy of Sciences*.

"The incidence of CRPC is continuing to increase, and some patients don't respond to available treatments," said Dr. Ramasamy. "It's important to identify new mechanisms of the disease and new drugs that can help these patients."

Dr. Ramasamy, along with research partner **Himanshu Arora, Ph.D.**, have shown in animal models that the S-nitrosoglutathione (GSNO) compound, which increases nitric oxide levels, suppresses CRPC and has a major impact on tumor microenvironments, the complex, inflammatory shell around which tumors grow. Specifically, GSNO reduced levels of tumor-associated macrophages, immune cells that cancers co-opt into their microenvironment.

"We are focusing on evaluating the efficacy of nitric oxide-based compounds in combination with currently available therapeutics – FDA-approved as well as pre-clinical – against CRPC," said Dr. Arora, a researcher in the Department of Urology.

The initial research on GSNO was funded through an internal pilot grant from the Miami Clinical and Translational Science Institute and departmental support from **Dipen Parekh, M.D.**, professor and chair in the Department of Urology, and chief clinical officer and chief operating officer of UHealth.

"Dr. Ramasamy's discovery has the potential to be tested in future clinical trials either alone or in combination with other immunotherapy in men with castration-resistant prostate cancer who are non-responsive to both abiraterone and enzalutamide," Dr. Parekh said.

Over the next five years, with support from this grant, Dr. Ramasamy and Dr. Arora anticipate uncovering the mechanistic as well as translational aspects of nitric oxide-based immunotherapy for treating CRPC. ■

Ranjith Ramasamy, M.D., with research partner Himanshu Arora, Ph.D.

A PARADIGM SHIFT FOR HARD-TO-TREAT SARCOMAS

Two studies by Sylvester Comprehensive Cancer Center researchers are the first to suggest that immunotherapy plays a key role in treating sarcomas, namely angiosarcoma and alveolar soft-part sarcoma.

The findings could change the treatment paradigm for sarcoma types that have few if any treatment options, according to an author on both studies, **Jonathan C. Trent, M.D., Ph.D.**, who leads Sylvester's sarcoma team.

In a study published May 8, 2019, in *The Lancet Oncology,* Dr. Trent and colleagues conducted a Phase 2 trial of 33 advanced sarcoma patients, including 12 with alveolar soft-part sarcoma, treated with the immunotherapy pembrolizumab and targeted therapy axitinib.

Sylvester researchers are the first in the world to study the drug combination in alveolar soft-part sarcoma — a cancer type that has no known effective chemotherapy options, according to Dr. Trent.

"We found at three months that 25% of patients overall had substantial regression of their tumors and in another 28% of patients, their tumors quit growing. So, more than half, 53%, of patients achieved benefit from the immunotherapy combined with targeted therapy treatment," Dr. Trent said. "Fifty-five percent of alveolar soft-part sarcoma patients had substantial reduction in their tumor size. Another 20% had stability of their tumors."

There were no treatment-related deaths and treatment was overall well tolerated with manageable toxicity, according to the authors.

"The gold standard treatment now is this combination. It seems to be the most effective treatment out there for alveolar soft-part sarcoma," Dr. Trent said.

In a paper published August 8, 2019, in the *Journal for ImmunoTherapy in Cancer*, Dr. Trent and colleagues used the combination therapy to treat another highly aggressive, rare malignancy: angiosarcoma.

They found tumors regressed in 71% of those patients, with only 29% experiencing tumor growth at three months.

"What's important about the angiosarcoma study is these are patients that were resistant to chemotherapy, so they had exhausted all chemotherapy options," Dr. Trent said.

Angiosarcoma starts as localized disease but is highly infiltrative, making treatment of the disease in its early stages challenging. ■

Jonathan C. Trent, M.D., Ph.D., associate director of clinical research and co-director of the Musculoskeletal Center, Sarcoma Medical Research Program.

RESEARCHER IDENTIFIES POTENTIAL TARGET FOR TREATING AGGRESSIVE BRAIN TUMORS IN CHILDREN

A researcher at Sylvester Comprehensive Cancer Center has identified a potential target for halting the unchecked cell division in medulloblastoma, the most common pediatric brain tumor. However, laboratory studies indicate that inhibiting cellular division must be done carefully during a relatively narrow window of time to avoid damage to a child's still-developing brain.

"Our work has significantly advanced understanding of neurogenesis, the cellular process that results in the creation of new neurons in the cerebellum, the last part of a child's brain to develop," said **Nagi G. Ayad, Ph.D.**, a Sylvester member and associate professor of psychiatry and behavioral sciences.

Dr. Ayad is the lead author of a collaborative study with other institutions, "Time Series Modeling of Cell Cycle Exit Identifies Brd4 Dependent Regulation of Cerebellar Neuro-genesis," published in *Nature Communications.* Funding was provided by the National Institute of Neurological Disorders and Stroke, Sylvester, and the Miami Project to Cure Paralysis.

Researchers focused on the role of the Brd4 protein in regulating how cerebellar granule cell progenitors (GCPs) divide a certain number of times before differentiating into neurons. "Dysfunction of this process underlies many neurological diseases, including medulloblastoma and ataxia, a degenerative disease of the nervous system," said Dr. Ayad. "We developed a statistical model identifying the pathways controlling cell cycle exit in GCPs."

While Brd4 is present during the cellular division process, it is deactivated as the GCPs become neurons, said Dr. Ayad. "By inhibiting Brd4 at the right time, it may be possible to halt the proliferation of brain cells in medulloblastomas," he added. "However, any potential treatment strategy needs to be done with caution, because children's brains are still growing and adding new neurons."

"Our work suggests another potential approach to treating brain cancers in children along with surgery, radiation, and chemotherapy," said Dr. Ayad. ■

From left, graduate student Marie E. Maloof with Nagi Ayad, Ph.D.

MAST CLINICAL TRIAL FOCUSES ON PROGRESSION RATE OF PROSTATE CANCER

The MRI-Guided Active Selection for Treatment of Prostate Cancer, or the Miami MAST Trial, headed by principal investigator **Sanoj Punnen, M.D.**, a board-certified urologic oncologist at Sylvester and associate professor of urology, focuses on the one-third of men with prostate cancer who have tumors that grow so slowly they are placed under "active surveillance" by their physicians. In collaboration with the National Institutes of Health and the National Cancer Institute, the Sylvester group is using the newest technologies to determine which tests most accurately predict the best candidates to observe and the best to treat.

The clinical trial involves multi-parametric MRI (MP-MRI) ultrasound or direct MRI-guided biopsies and tracks their relationship to historic transrectal ultrasound (TRUS)-guided biopsy rates. The research team is also trying to identify high-risk tumors early enough to reduce the proportionate number of patients who may have a poor response to delayed primary treatment.

In addition, researchers are investigating the impact of MRI and MRI-US fusion biopsy to identify higher grade or volume tumors early on for a better selection of patients for active surveillance, as well as improved outcomes for patients undergoing delayed treatment after an initial observation.

The focus is on achieving a more direct sampling of tumors from compartments that have distinct MP-MRI characteristics that increase the "progression" on early first or second surveillance biopsies and decrease the rate of "progression" on third and fourth surveillance biopsies.

"Prostate cancer takes a physical and emotional toll, and our greatest satisfaction is knowing that our research has real meaning and will make a difference in the lives of patients," said Dr. Punnen.

The study is expected to be completed in October 2020 and is being funded by grants from the National Institutes of Health. ■

Principal investigator Sanoj Punnen, M.D.

EPIGENETIC CHANGES MAY EXPLAIN HOW AGING INCREASES BLOOD CANCER RISKS

A study conducted by researchers at Sylvester Comprehensive Cancer Center sheds new light on the factors associated with cellular aging and cancer risk.

The study was led by **Maria E. Figueroa, M.D.**, cancer epigenetics program leader at Sylvester, and funded by the Leukemia & Lymphoma Society. It found that epigenetic changes in hematopoietic (blood forming) stem cells, as people age, may contribute to acute myeloid leukemia (AML) and possibly other blood cancers. The researchers' findings were published May 13, 2019, in the journal *Cancer Discovery.*

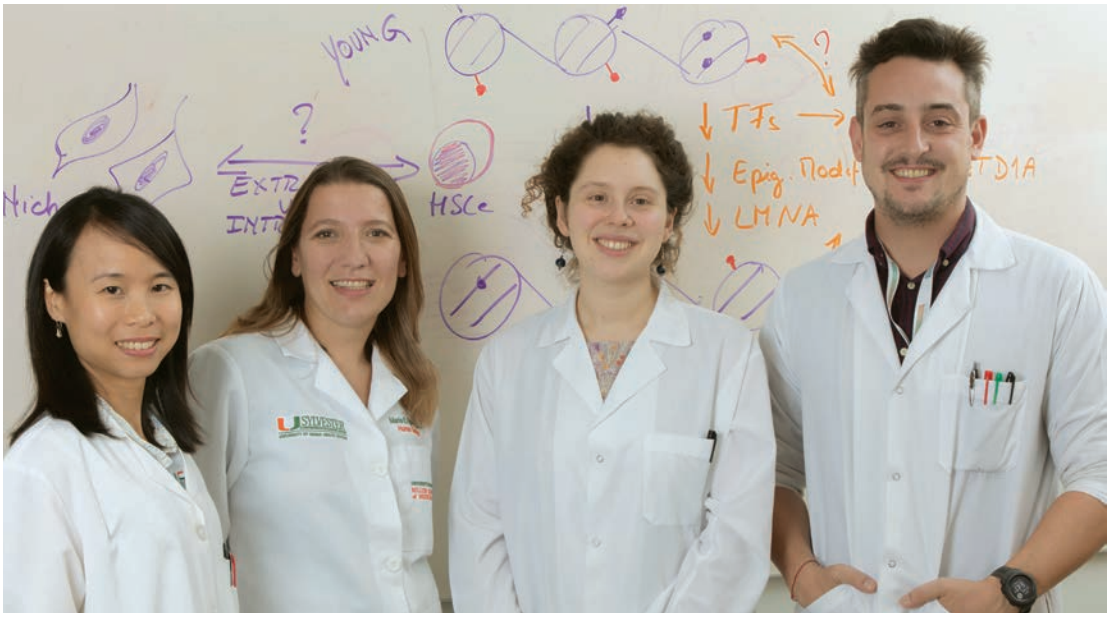
"If you think of all the genetic material as hardware, the epigenome is the software of the cell, responsible for determining the cell's behavior," Dr. Figueroa said. "We hypothesized that, with age, this epigenetic program is getting corrupted, which turned out to indeed be the case. As we age, there are significant changes, resulting in the epigenetic reprogramming of important regulatory components of the genome. Once this happens, they can't do their jobs as well as they could when they were young."

In the study, the investigators collected hematopoietic stem cells (HSCs) from 41 people between 18 and 30, and 55 people between 65 and 75, none of whom had cancer. From there, they looked at epigenetic markers and gene expression levels in 59 donors (27 young and 32 old). The results showed thousands of epigenetic changes as HSCs age, profoundly impacting gene expression. In particular, these variations altered several genes that are essential for the normal functioning and differentiation of HSCs.

"Most notably, there's a core set of changes that were reproducibly found among all individuals," Dr. Figueroa said. "When those epigenetic changes affect certain genes, they put us at risk for malignant transformation."

The researchers also found that many of the epigenetic and expression changes seen as HSCs aged were similar to those seen in cancer cells. Though ominous, that does not mean they will become cancerous.

"Not everyone who ages gets cancer," Dr. Figueroa said, "and not everyone who has these epigenetic changes, or even gene mutations, gets cancer, either. We hope this study will lead to further research into age-related changes to identify which of these changes and which co-existing factors are really critical to put us at risk for cancer, and if there is anything we can do to intervene and stop those changes." ■



From left, Hsuan-Ting (Emily) Huang, Ph.D., Maria Figueroa, M.D., first author Emmalee Adelman, Ph.D., and Alejandro Roisman, Ph.D., in front of the whiteboard on which they brainstormed the research project.

EYE CANCER RESEARCHERS AT SYLVESTER AND BASCOM PALMER IDENTIFY FUNCTION OF KEY TUMOR SUPPRESSOR

Cancer cells acquire mutations that allow them to reactivate early programs that allow them to metastasize throughout the body. In a paper published in the journal *Science Advances*, researchers at Sylvester Comprehensive Cancer Center, and the nation's No. 1 ranked Bascom Palmer Eye Institute at the University of Miami Miller School of Medicine have identified a master switch – the enzyme Bap1 – that plays a role in early fetal development and cancers such as uveal melanoma.

"Bap1 appears to be regulating cellular identity," said **J. William Harbour, M.D.**, professor of ophthalmology and director of the Ocular Oncology Service at Bascom Palmer. Dr. Harbour holds the Mark J. Daily Chair in Ophthalmology and leads Sylvester's Eye Cancer Site Disease Group. "When Bap1 is lost, cancer cells lose their identity and stop obeying the rules that the normal cell type follows. In uveal melanoma, the tumor cells missing Bap1 don't resemble melanocytes anymore, and they become more primitive. They stop obeying the signals saying stay put."

Bap1 loss has also been implicated in renal cell carcinomas, mesotheliomas, and other cancers, but there has been little agreement on how Bap1 works. To better understand Bap1's function, Dr. Harbour's team studied its role during development. They employed *Xenopus* frogs, which are commonly used to study early vertebrate development. They found that removing Bap1 caused major problems during development, especially in the neural crest lineage, which gives rise to uveal melanoma.

"When neural crest cells lack Bap1, they make the switch to differentiated melanocytes poorly," said Dr. Harbour. "It's similar to what we see in human uveal melanoma."

Further study showed Bap1 regulates H3K27 acetylation by inhibiting HDAC4 at differentiation genes that fail to turn on when Bap1 is missing.

"Bap1 is a master switch that causes pluripotent cells to differentiate," said Dr. Harbour.

Loss of Bap1 in cancer cells allows them to dedifferentiate and acquire primitive capabilities that result in metastasis.

Dr. Harbour's group is now pursuing potential therapies, such as HDAC4 inhibitors.

"We have identified a potent HDAC4 inhibitor that we'd like to move into the clinic."

Dr. Harbour's work on Bap1 was supported by the U.S. Department of Defense and the National Cancer Institute. ■

J. William Harbour, M.D., associate director of basic science, director of ocular oncology, and vice chair for translational research at Bascom Palmer Eye Institute.

SYLVESTER RESEARCHERS DISCOVER A POSSIBLE PATHWAY FOR IMMUNE THERAPY IN PANCREATIC CANCER

Immune therapy has not worked well in pancreatic cancer because of the cancer's inherent immune resistance. Scientists at Sylvester have discovered a way to outsmart the deadly cancer's ability to prevent immune checkpoint inhibitor therapy from killing pancreatic cancer cells.

The Sylvester research team targeted a long-ignored pancreatic cancer metabolic pathway, called the hexosamine biosynthesis. Their results were published October 15, 2019, in the *Journal of Clinical Investigation*.

"Pancreatic tumors are notoriously immune resistant, partly because there is a lot of heterogeneity within the tumor but mostly because of the dense stroma that acts as a barrier preventing cytotoxic immune cells to infiltrate the tumor and eradicate the cells," said study author **Sulagna Banerjee, Ph.D.**, associate professor of surgery.

Dr. Banerjee and colleagues found that targeting glutamine in the hexosamine biosynthesis metabolic pathway in pancreatic cancer weakens the wall-like stroma and allows immune cells to infiltrate. The tumor then becomes susceptible to immune therapy.

"The key finding is that by inhibiting this metabolic pathway inside the tumor cells, we were able to program the tumor microenvironment to let in cytotoxic immune cells. The inhibitor also inhibits cancer stem cells," Dr. Banerjee said. "To the best of my knowledge, this is the first time anyone has shown sensitization to immune therapy using a metabolic inhibitor in pancreatic cancer." ■

SYLVESTER RESEARCHERS UNCOVER WHY PARP INHIBITORS COULD BE A NEW TREATMENT OPTION FOR A COMMON LYMPHOMA

A study looking at PARP inhibition in diffuse large B cell lymphoma opens the door to a new way to treat this common type of cancer, according to study author **Izidore S. Lossos, M.D.**, endowed director of the Lymphoma Program at Sylvester Comprehensive Cancer Center and head of the Hematological Malignancies Site Disease Group.

Findings by Dr. Lossos and his team published in *Cancer Cell* suggest that inhibitors of the enzyme poly ADP ribose polymerase (PARPis) and chemotherapy could work well together to inhibit LMO2-positive diffuse large B cell lymphoma tumor growth.

Diffuse large B cell lymphomas expressing LMO2 protein have deficient homologous recombination DNA repair, and tumors expressing the protein are sensitive to PARPis.

PARP inhibitors are currently used in the treatment of solid tumors. This paper is the first to look at PARP inhibition in diffuse large B cell lymphoma. Dr. Lossos and study co-author **Ramiro E. Verdun, Ph.D.**, demonstrated a new function of LMO2.

"We demonstrated that, while in the cell, LMO2 regulates the choice between error-free and error-prone DNA repair pathways, allowing the introduction of normal B cell mutation," explained Dr. Lossos.

They went on to discover the potential role for PARPis, which can be used to impair specific DNA repair mechanisms or pathways.

"It was shown that cells in which homologous recombination is inhibited cannot tolerate the presence of PARPi and they die. So, PARPi can induce cell death in cells that express high levels of LMO2," he said. "We also demonstrated that if you combine PARPi with chemotherapy, you further increase cell death."

The research suggests a new way to treat diffuse large B cell lymphoma patients. The findings identify a biomarker which can alert providers as to which patients will respond to treatment with a PARP inhibitor. Dr. Lossos and colleagues also generated a specific monoclonal antibody that can be used to identify which patients' tumors express LMO2. ■

LIVER CANCER DISPARITIES: A COMPLICATED PICTURE

To better understand the problem, a group of researchers at Sylvester Comprehensive Cancer Center, and the Department of Gastroenterology, led by assistant professor **Patricia Jones, M.D.**, took a hard look at socioeconomic and other factors that may contribute to liver cancer outcomes. The results produced a mixed picture.

"Typically, when you talk about disparities, the easiest way to explain them is that minorities don't have access to health care – it's related to socioeconomic differences," said Dr. Jones. "But when you look at two minority groups in Florida, Hispanics and blacks, Hispanics live in neighborhoods that are the same, if not a little bit worse, based on the census data. Yet, that group has much better outcomes."

Published in the *Journal of Hepatocellular Carcinoma*, the study – "Socioeconomic and Survival Differences Among Minorities with Hepatocellular Carcinoma in Florida" – linked several databases to illuminate liver cancer disparities in Florida. These included the Florida Cancer Data System (2004-2013), the U.S. Census American Community Survey (2010-2014) and the Florida Behavioral Risk Factor Surveillance System (2013).

The research looked at nearly 11,000 patients and found that African Americans were younger, and had more widespread disease, when diagnosed. The percentages within the study sample who received transplants also showed wide variation by race: 9.3% of Hispanics, 7.5% of whites, 5.8% of Asians and 4.2% of African Americans.

The researchers also looked at patients' proximity to multidisciplinary cancer centers, particularly ones that offer transplant services. This geography, perhaps even more than race and socioeconomics, was an important contributor to these variations.

"One of the findings is that people who live closer to a place where they can get a transplant, or where they can get multidisciplinary cancer care, are going to have better outcomes," said Dr. Jones. "They have more access to surgeries and other treatments."

Liver cancer is a difficult problem to unwind because there are so many potential causes. While alcohol is often considered a primary culprit, it actually plays a relatively small part. Hepatitis C, particularly among baby boomers, has been a big cause, but new, highly effective treatments have reduced its contribution. The twin epidemics of diabetes and obesity are playing a larger role and may foreshadow future liver cancer increases.

While this study highlights how specific populations may be more vulnerable to liver cancer, it relies on retrospective registry data, which may offer an incomplete picture. For example, the data did not provide insights into whether some high-risk people were receiving regular liver cancer screenings or where they were being screened. Researchers inferred that African Americans were not being screened as aggressively because they tended to present with more widespread disease.

To better understand this and other issues, Dr. Jones and colleagues have begun prospective studies to follow patients through the process. The research team believes this will provide a more granular view to better inform policy.

"The goal is to figure out who we need to screen more intensely," said Dr. Jones. "We want to diagnose people earlier, so we can do more for them and improve their survival." ■

Patricia Jones, M.D., right, and Hayley McLean, master of science in public health student and Dr. Jones' graduate research assistant.

NEW TRIAL TARGETS LYMPHOMA FROM TWO DIRECTIONS

An innovative drug combination is now being tested in a Phase 1 clinical trial for patients with advanced non-Hodgkin lymphoma, when standard treatments have failed. **Craig H. Moskowitz, M.D.**, Sylvester physician-in-chief, is the principal investigator.

Oncology drug companies have been developing drugs that more effectively hunt down malignant cells and combining them with other treatments to cut off cancer's escape routes.

One of these new targeted therapies is an antibody drug conjugate (ADC) called ADCT-402. Developed by ADC Therapeutics, ADCT-402 harnesses the homing action of antibodies with the anti-cancer toxicity of a chemotherapeutic. The antibody attaches itself to a protein commonly found in B cells called CD19. Once they bind, the payload, a drug called PBD, is internalized by the cancer cell. PBD is designed to disrupt DNA and kill the cell.

"This is the second generation of antibody drug conjugates," Dr. Moskowitz said. "The drug has been given by itself to well over 100 lymphoma patients and the response rate is greater than 40 percent."

This study combines ADCT-402 with durvalumab, an immune checkpoint inhibitor, to test if together, there's an increased response.

Tumors often deceive a patient's immune system into thinking they are normal tissue, avoiding an immune response. Checkpoint inhibitors tell immune T cells not to be fooled. By inhibiting a protein checkpoint called PD-L1, durvalumab takes the brakes off T cells, allowing them to attack the cancer.

"The people in this study are some of the sickest cancer patients, having already been treated with anti-cancer drugs that are no longer, or were never, effective," Dr. Moskowitz said.

The hope is that these two therapies will provide a one-two punch against lymphoma, killing cancer cells directly and motivating the immune system to destroy even more. In addition, the combination could act synergistically.

"The concept is that the ADC releases super antigens when it kills cancers, which makes the checkpoint inhibitor much more active," said Dr. Moskowitz. ■

Craig H. Moskowitz, M.D., physician-in-chief at Sylvester Comprehensive Cancer Center.

CLINICAL TRIAL EXPLORES EFFECTIVENESS OF NEW TREATMENT FOR PATIENTS WITH BLADDER CANCER

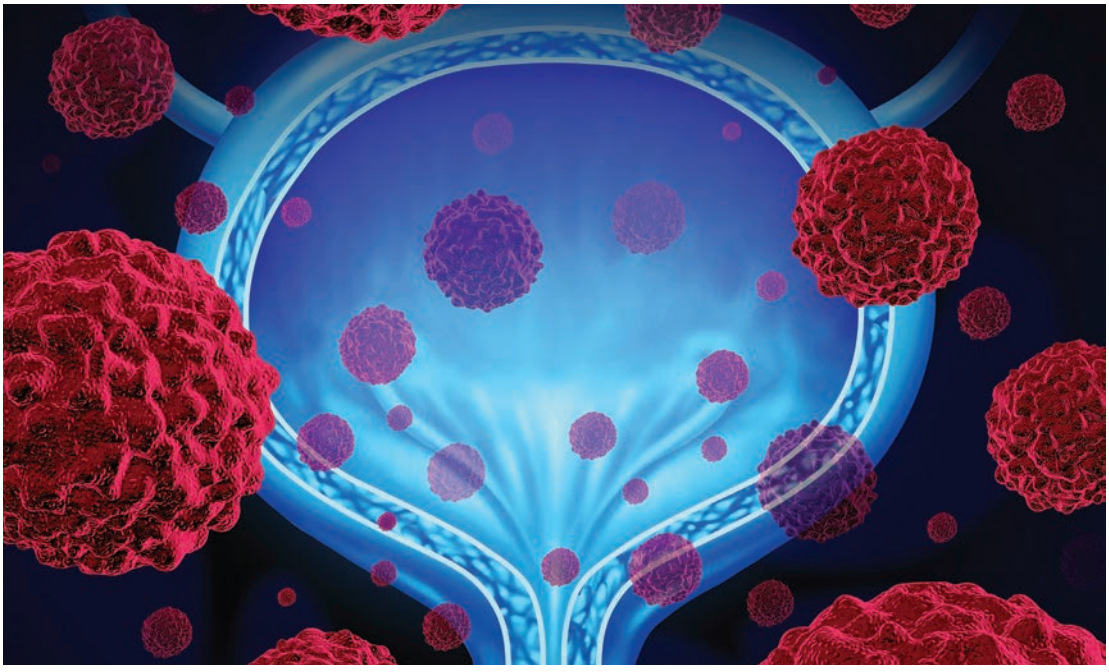
Urologic cancer experts at Sylvester Comprehensive Cancer Center are leading a clinical trial study for patients with non-muscle invasive bladder cancer (NMIBC) that has failed previous therapy. The Phase 2 trial examines whether the drug ALT-803, when added to the standard of care, the Bacillus Calmette-Guérin (BCG) vaccine, can enhance treatment outcomes for recurrent bladder cancer.

The research study is being led at Sylvester by principal investigator **Mark L. Gonzalgo, M.D., Ph.D.**, a urologic oncologist, professor, and vice chair of the Department of Urology at the Miller School. Sylvester is one of 30 sites in the U.S. for this trial.

Dr. Gonzalgo and his team are studying the safety, tolerance, and effectiveness of the ALT-803 agent, a cytokine-based immunotherapeutic investigational drug, for patients who have NMIBC and have not responded to first-line treatment with BCG. Both medications are given in combination via a catheter as an intravesical therapy modality that flows directly into the bladder.

BCG stimulates the immune response system, and over time has proven to be a valuable agent in the treatment of bladder cancer, as well as an effective immunization for patients with tuberculosis. BCG is a standard treatment option for patients with NMIBC, however there is a global shortage of the medication due to the growing use and need for this product worldwide.

The clinical trial is a pathway for patients to receive BCG in addition to a new agent, ALT-803, to create a potentially better treatment plan and long-term positive outcomes. The use of ALT-803 gains more significance in lieu of the shortage of BCG by allowing patients access to this promising treatment. ■



Patients with non-muscle invasive bladder cancer will receive a new combination therapy.

SYLVESTER RESEARCH IDENTIFIES NOVEL VULNERABILITY IN ACUTE LEUKEMIA CELLS

Researchers at Sylvester, working within several departments at the Miller School of Medicine, have identified another critical component of the AML1-ETO multi-protein complex that could point the way to more effective therapies for acute myeloid leukemia (AML). AML1-ETO (AE) is a protein generated by a chromosomal translocation that is relatively common in AML, a very aggressive cancer that remains difficult to treat effectively.

"AML1-ETO is an important driver of leukemia initiation and maintenance," said Sylvester Director **Stephen D. Nimer, M.D.**, who led this research, which was published October 29, 2019, in *Nature Communications*. "AML1-ETO has been difficult to directly target. It binds to DNA tightly, an interaction that is very difficult to block."

The Nimer lab has worked with other researchers at Sylvester, and researchers from Shanghai, for many years to identify all of the proteins that interact with AE, and then test in model systems which interacting proteins are important to the leukemia. They demonstrated a critical connection between AE, the methyltransferase enzyme p300, and a protein known as TAF1. They have elucidated that for TAF1 to bind AE, AE must be acetylated by p300. Binding of TAF1 to AE allows it to activate genes important for leukemogenesis; in their study they show that blocking the binding of TAF1 to AE, or reducing the level of TAF1 in cells that contain AE, blocks the growth of acute leukemia cells.

From a therapeutic standpoint, this could be a big deal, as keeping TAF1, and other critical interacting proteins, away from AE could mitigate its ability to influence gene expression and drive AML. In this instance, the region of TAF1 required for binding to AE was identified as its bromodomain, a common amino acid motif that governs protein/protein interactions. "TAF1 recognizes AE through its bromodomain, which is very promising," said Dr. Nimer. "There are numerous bromodomain inhibitors that are now being tested in cancer patients."

In the published study, the team tested a bromodomain inhibitor against TAF1 and found that it blocked TAF1-AE binding and prolonged survival in animal models of leukemia. Although the inhibitor used is not suitable for patients, these results suggest that more advanced molecules could be used therapeutically. ■

Stephen D. Nimer, M.D., in the lab.

PROMISING FINDINGS BY SYLVESTER RESEARCHERS POINT TO NEW THERAPEUTIC TARGET FOR ADVANCED PROSTATE CANCER

The Burnstein lab at Sylvester Comprehensive Cancer Center, along with collaborators at Moffitt Cancer Center and the University of Florida Cancer Center, recently discovered that arginine vasopressin receptor type 1a (AVPR1a) can promote aggressive prostate cancer growth. While arginine vasopressin receptors are normally associated with the regulation of blood pressure and body fluids, the Burnstein lab found that androgen receptor variants, which are one of the mechanisms proposed to underlie prostate cancer relapse, increase levels of AVPR1a in prostate cancer cells.

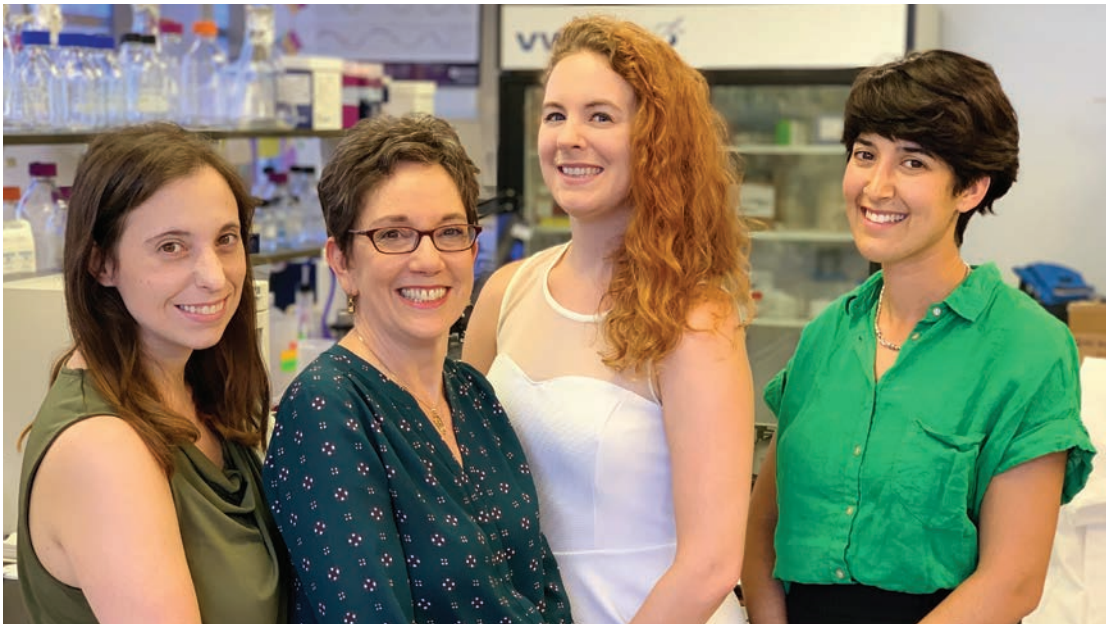
Their research article, "Arginine vasopressin receptor 1a is a therapeutic target for castration-resistant prostate cancer," was published June 26, 2019, in *Science Translational Medicine*.

Androgen deprivation therapy is the standard of care for advanced prostate cancer. When tumors recur despite androgen deprivation therapy, this incurable stage is termed castration-resistant prostate cancer (CRPC). An important goal in prostate cancer research is to identify new therapies to combat CRPC.

Kerry L. Burnstein, Ph.D., and the team of researchers demonstrated that blocking AVPR1a signaling pathways with relcovaptan, a selective antagonist of this receptor, which has been shown to be safe in humans, decreased growth of castration-resistant tumors in mouse prostates and in bone.

"While bone is the most common site of CRPC metastasis in men, growth in visceral tissues and other locations is also observed in patients. We plan to evaluate the effectiveness of AVPR1a antagonists in inhibiting metastatic prostate cancer growth at additional distal sites," said Dr. Burnstein, Sylvester's associate director for education and training and professor and chair of Molecular and Cellular Pharmacology at the Miller School of Medicine.

These impressive results support the potential of AVPR1a antagonists to be repurposed for treatment of castration-resistant prostate cancer. ■



From left, Valeria A. Copello, a graduate student in cancer biology, Kerry L. Burnstein, Ph.D., Laine Heidman, a graduate student in pharmacology, and Maria Julia Martinez, Ph.D., a postdoctoral associate at Sylvester.

DR. ERIN KOBETZ NAMED VICE PROVOST FOR RESEARCH

It was announced in September 2019 that **Erin Kobetz, Ph.D., M.P.H.**, the associate director for population science and cancer disparity at Sylvester Comprehensive Cancer Center, would assume the role of Vice Provost for Research for the University of Miami in June 2020.

In the interim, she served as co-vice provost for research, assuring a smooth transition in the critical mission of fostering the highest quality research and creative activities to advance knowledge and address regional, national, and global society needs.

"Dr. Kobetz played an integral role in Sylvester's efforts to develop interdisciplinary research and outreach initiatives, which helped the cancer center secure its recent National Cancer Institute designation, and I believe she is a natural fit to assume this role," said **Jeffrey Duerk, Ph.D.**, executive vice president for academic affairs and provost.

Dr. Kobetz has substantial experience with disparities-focused research, and has been involved in multiple community-based participatory research endeavors to understand racial differences in breast and cervical cancer outcomes. In 2004, Dr. Kobetz established Patné en Aksyon (Partners in Action), the campus-community partnership between Sylvester Comprehensive Cancer Center and key community-based organizations in Little Haiti. Dr. Kobetz also founded the Firefighter Cancer Initiative, which has been developing new prevention protocols and monitoring techniques to reduce the high risk of cancer among Florida's firefighters for the past five years. She also launched the Sylvester Game Changer™ Vehicle, taking cancer screenings and health information to underserved communities in South Florida.

"I am tremendously honored by this opportunity," Dr. Kobetz said. "The University of Miami is uniquely positioned to make inroads on global challenges through interdisciplinary research and collaboration, and I am eager to be a part of this work."

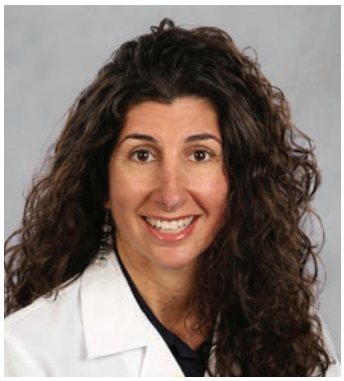
Dr. Kobetz received her Ph.D. from the Department of Health Behavior and Health Education at the University of North Carolina at Chapel Hill and her M.P.H. from the Rollins School of Public Health at Emory University. ■

Erin Kobetz, Ph.D., M.P.H., associate director for population science and cancer disparity at Sylvester Comprehensive Cancer Center.

NEW PHYSICIANS AND RESEARCHERS

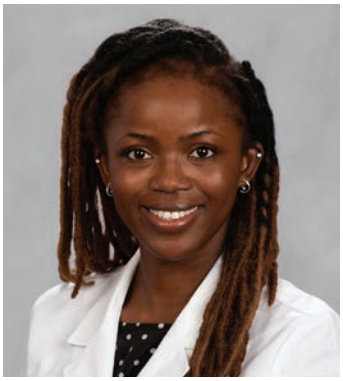
Himanshu Arora, Ph.D.
Assistant Professor, Research
Department of Urology

Namrata Chandhok, M.D.
Assistant Professor
Department of Medicine, Hematology



Gina D'Amato, M.D.
Associate Professor
Department of Medicine,
Medical Oncology

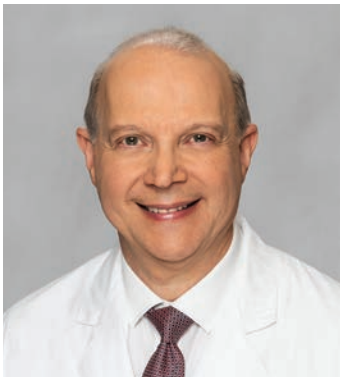
Jashodeep Datta, M.D.
Assistant Professor
Department of Surgery



Nkiruka Ezenwajiaku, M.D.
Staff Physician
Department of Medicine,
Medical Oncology

David Goldberg, M.D.
Associate Professor
Department of Medicine,
Hepatology

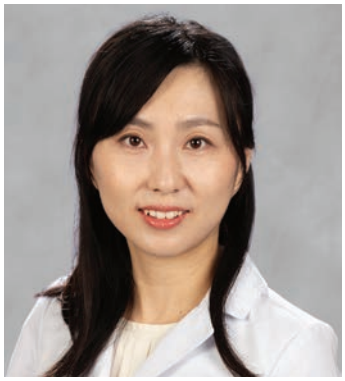
Elisa Krill-Jackson, M.D.
Staff Physician
Department of Medicine,
Medical Oncology



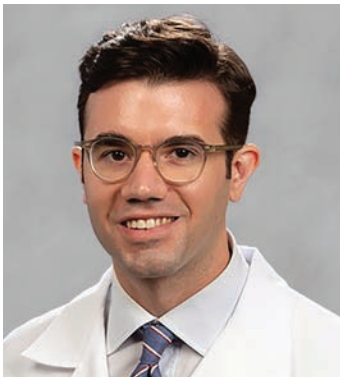
Jose Lutzky, M.D.
Professor
Department of Medicine,
Medical Oncology

Vinay Minocha, M.D.
Staff Physician
Department of Medicine,
Medical Oncology

Diana Molinares, M.D.
Assistant Professor
Department of Physical Medicine and Rehabilitation



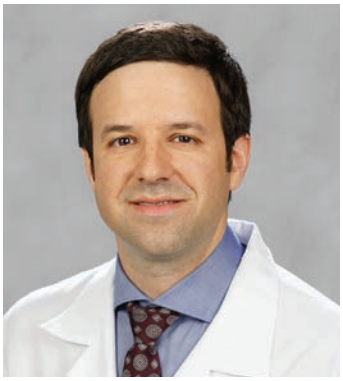
Akina Natori, M.D.
Assistant Professor, Research
Department of Medicine, Medical Oncology



Daniel O'Neil, M.D.
Assistant Professor
Department of Medicine, Medical Oncology

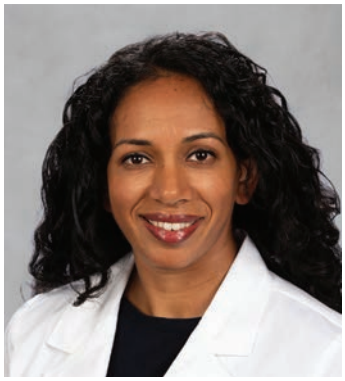
Joe Pizzolato, M.D.
Staff Physician
Department of Medicine, Medical Oncology

Cedric Pluguez-Turull, M.D.
Assistant Professor
Department of Diagnostic Radiology



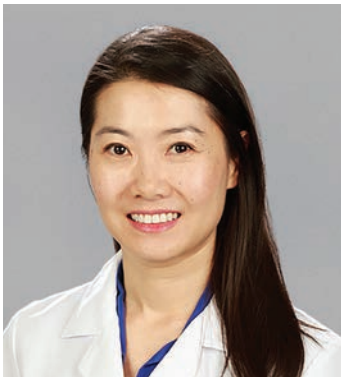
Georgios Pongas, M.D.
Assistant Professor
Department of Medicine, Hematology

Estelamari Rodriguez, M.D.
Staff Physician
Department of Medicine, Medical Oncology



Janaki Neela Sharma, M.D.
Assistant Professor
Department of Medicine, Medical Oncology

Abdulrahman Sinno, M.D.
Associate Professor
Department of Obstetrics and Gynecology, Gynecologic Oncology



Lora Wang, M.D.
Assistant Professor
Department of Radiation Oncology

Yi Zhou, M.D., Ph.D.
Associate Professor
Department of Pathology

NOT PICTURED:

Erietta Stelekati, Ph.D.
Assistant Professor, Research
Department of Microbiology
and Immunology

Jun Sun, Ph.D.
Assistant Professor, Research
Department of Medicine, Hematology

Alejandro Villarino, Ph.D.
Assistant Professor, Research
Department of Microbiology
and Immunology

DR. KRISHNA KOMANDURI NAMED NEW DIVISION CHIEF

Krishna Komanduri, M.D., has been appointed chief of the newly created Division of Transplantation and Cellular Therapy in the Department of Medicine. He will also be director of a soon-to-be established institute devoted to cellular therapy.

In these new roles, Dr. Komanduri works closely with Sylvester leadership to ensure the division develops and rapidly incorporates leading-edge technologies, including significant participation in translational, clinical, and outcomes research, as well as new novel device and treatment development. Dr. Komanduri has been with Sylvester for 12 years, is instrumental to the growth of the transplantation program, and has been a pioneer in establishing cellular therapies at Sylvester. ■

Krishna Komanduri, M.D., chief of the Division of Transplantation and Cellular Therapy.

DR. STEPHEN D. NIMER HONORED WITH ENDOWED CHAIR

The director of Sylvester Comprehensive Cancer Center, **Stephen D. Nimer, M.D.**, has been named the first holder of the **Oscar de la Renta** Endowed Chair in Cancer Research.

University of Miami President **Julio Frenk, M.D., M.P.H., Ph.D.,** made the announcement during an event at the Kislak Center in the Otto G. Richter Library, noting the generosity of the legendary fashion designer and his family, especially his widow, **Annette de la Renta.**

"This chair provides a tremendous legacy to not only Mr. de la Renta, but also the potential to transform research and cancer care worldwide," President Frenk said. "We are incredibly appreciative of the foresight and vision of the de la Renta family. Today is an extraordinary day for the entire University community, and especially Dr. Stephen D. Nimer."

Mrs. de la Renta noted, "Tonight is all about Dr. Stephen Nimer. He's a wonderfully compassionate man, and the University is very lucky to have him here in Miami."

Jeffrey Duerk, Ph.D., executive vice president for academic affairs and provost, said the endowed chair provides the University the honor of having its name associated with one of the most respected leaders in the design and fashion industry.

"The ingenuity and creativity necessary to fight cancer, and the de la Renta chair name, are both symbolic and reflective of Dr. Nimer's approach to leading our cancer center," Provost Duerk said.

Humbled to be chosen as the inaugural chair, particularly given his close friendship with de la Renta, Dr. Nimer, professor of medicine, biochemistry, and molecular biology, paid tribute to the late fashion legend who "rapidly ascended to the top of the haute fashion world."

"An endowed chair is one of the highest academic honors for a faculty member and a tribute to their achievements," said **Henri R. Ford, M.D.**, dean and chief academic officer of the Miller School of Medicine. "It instills our sincere and utmost confidence that this individual is going to continue on a path of excellence."

Oscar de la Renta was a longtime supporter of Dr. Nimer's work, first at Memorial Sloan Kettering Cancer Center and then later at Sylvester. In 2014, de la Renta lent his expertise and time to help organize Sylvester's "Design for a Cure" fashion show in South Florida, which raised more than $1 million.

"Oscar's career is a source of inspiration for me and through his vision and generosity we will be able to fund more life-saving research," Dr. Nimer added. "I look forward to many more productive years of research, mentoring, leadership, and caring for patients." ■

From left, Julio Frenk, M.D., M.P.H., Ph.D., Edward Abraham, M.D., Stephen D. Nimer, M.D., Annette de la Renta, and Henri R. Ford, M.D.

CYCLOTRON ARRIVES AT SYLVESTER COMPREHENSIVE CANCER CENTER

The cyclotron, a novel technology that produces and delivers highly focused proton beams to treat tumors, was installed at Sylvester Comprehensive Cancer Center in 2019 and is expected to be available to treat oncology patients in fall 2020.

Installing the cyclotron was no easy task. Crews transported the cyclotron from Europe and loaded it via crane through Sylvester's roof. The device weighs 90 tons and produces a proton beam that travels two-thirds the speed of light, targeting cancerous tissue while minimizing radiation exposure to surrounding healthy tissue.

Many patients with solid malignancies are candidates for proton therapy. This includes tumors of the brain, head and neck, spine, eye, gastrointestinal tract, liver, lung, prostate, spine, and breast. Proton therapy can help re-treat cancer previously treated with radiation therapy, and is an important option for treating pediatric cancer.

"Proton therapy is a new and exciting component to Sylvester's commitment to using cutting-edge technology and research to improve patient outcomes and reduce complications," said **Alan Pollack, M.D., Ph.D.**, professor and chair of radiation oncology and interim deputy director of Sylvester. "We look forward to integrate this technology and others to offer new and better approaches for managing cancer." ■

Cyclotron installation through Sylvester's roof.

GRADUATE STUDENT WINS PRESTIGIOUS NCI TRANSITION AWARD

Cameron Bader, a graduate student at the University of Miami Miller School of Medicine, has won the National Cancer Institute Predoctoral to Postdoctoral Fellow Transition Award (F99/K00). Bader is the first Miller School student to receive this prestigious award, which he won for his dissertation project titled, "The regulation of innate immune sensors to control GVHD and GVL after allogeneic hematopoietic stem cell transplantation."

The NCI fellowships recognize outstanding graduate students with potential and interest in becoming independent cancer researchers. The F99/K00 award offers up to six years of financial assistance to students working on their Ph.D. dissertation and transitioning to postdoctoral work in cancer research.

Bader's interest in immunology started when he was in high school. "My brother had an autoimmune disease called polymyositis, and he actually had to be in a wheelchair for several years because of that," he said. "My mom also suffers from a few different autoimmune diseases, so growing up I was really interested in why these diseases came about and what we could do to try to prevent them."

Bader's research focuses on graft-versus-host disease (GVHD), which can develop in some individuals who receive allogeneic hematopoietic stem cell transplants. He is studying the role of the Stimulator of Interferon Genes (STING) protein in GVHD with the hope of developing novel therapeutic treatments for the disease. Bader is interested in seeing if it is possible to modulate STING to reduce GVHD severity.

Bader hopes to continue studying immunology and doing cancer research and plans to defend his thesis in the spring of 2021. ■

DR. CHARLES VOGEL WINS HEALTH CARE HEROES LIFETIME ACHIEVEMENT AWARD

Charles L. Vogel, M.D., director of the Women's Center at Sylvester Comprehensive Cancer Center at Deerfield Beach, received the AXA Advisors Lifetime Achievement Award at the annual Health Care Heroes Awards presented by the Greater Miami Chamber of Commerce.

Dr. Vogel, who is also professor of medicine at the Miller School of Medicine, has devoted most of his 53 years in medical oncology to researching and treating breast cancer.

At the awards luncheon he thanked his colleagues, his wife and family, and a table of patients "who have become friends after a decade or more of working together battling cancer. They represent the 800 women and a few men who are currently entrusting their care to me at Sylvester."

Dr. Vogel's career began in Uganda while working with the National Cancer Institute's Solid Tumor Service. Dr. Vogel became the world's leading expert in Kaposi's sarcoma. His early research also focused on the link between Hepatitis B and liver cancer, which eventually was recognized as the leading risk factor around the globe.

In 1975, **Charles Gordon Zubrod, M.D.**, the founding director of what was then the University of Miami Cancer Center, recruited Dr. Vogel to head the Division of Breast Cancer. That was not his area of expertise; in fact, he had never treated anyone with this disease. Dr. Vogel embraced the challenge and is now internationally renowned for his work in breast cancer and considered a key opinion leader.

After 11 years at the cancer center, Dr. Vogel left to conduct clinical research in private practice in South Florida. Based on his findings, he championed the use of Herceptin in metastatic breast cancer and led trials for many other treatments that have received FDA approval.

Dr. Vogel has been back at Sylvester since 2010. And while he has been published in a multitude of medical journals and involved in the development of medications that have advanced the treatment of breast cancer, those are not what he considers his greatest accomplishments.

"I am most proud of how I deal with patients. I am considered a warm, caring physician who will do anything to make his patients more comfortable physically and emotionally," Dr. Vogel said after learning that he would receive the award.

Dr. Vogel, now 80 years old, has no intention of retiring and is committed to continue working to improve people's lives. ■

From left, Luis G. Chiappy of AXA Advisors, Charles Vogel, M.D., Alfred Sanchez, president and CEO of the Greater Miami Chamber of Commerce, and Christopher Dudley of Advancement Associates.

DR. JUSTIN WATTS HONORED WITH THE PAP CORPS ENDOWED PROFESSORSHIP IN LEUKEMIA

In the battle to fight cancer, and to identify cures that not only save patients but also improve their quality of life, Sylvester and the Pap Corps Champions for Cancer Research have forged a remarkable partnership close to 70 years strong. This was evident on the evening **Justin Watts, M.D.**, received the Pap Corps Endowed Professorship in Leukemia.

Thanking his mentors, colleagues, staff, and family members, Dr. Watts, an assistant professor in the Department of Medicine, Division of Hematology-Oncology at the Miller School, talked about his ambitious goals. "My mission is to design and develop the next generation of drug therapies and precision medicine platforms that will be less toxic and cure more leukemia patients," he said.

It was at Memorial Sloan Kettering Cancer Center that Dr. Watts first came to the attention of **Stephen D. Nimer, M.D.**, who was then the Alfred P. Sloan Chair of Cancer Research and head of the division of hematologic oncology at Sloan Kettering. After Dr. Nimer became director of Sylvester Comprehensive Cancer Center, Dr. Watts' reputation as an "amazing, very hardworking, and very dedicated physician" prompted Dr. Nimer to recruit him in 2014.

At Sylvester, Dr. Watts has led robust clinical and translational research, focusing on acute leukemias, myelodysplastic syndromes, and myeloproliferative neoplasms. More than 240 patients have been treated through his clinical trials, and he has published and presented extensively. In addition, he has received numerous grants and awards for his research, including from the National Institutes of Health.

The Pap Corps was started by five visionary women in 1952, who were driven by a lack of early detection and treatment of cancer. Today, it is South Florida's largest volunteer fundraising organization with more than 22,000 members and 52 chapters, and it has raised more than $110 million for cancer research, including a historic $50 million pledge to Sylvester in 2016.

The endowed professorship will allow Dr. Watts to secure funding for his research and clinical trials. "Dr. Watts is a tenure-track investigator who has created a robust leukemia research program at the University of Miami," said **Linda Moses**, chair of the board of directors of the Pap Corps. "I enthusiastically applaud Dr. Watts for his appointment to the path of endowed professorship in leukemia." ■

From left, Henri R. Ford, M.D., Linda Moses, Justin Watts, M.D., Sara Iobst, M.D., and Stephen D. Nimer, M.D.

SEVEN SYLVESTER FACULTY MEMBERS RECEIVE AWARDS AT ZUBROD MEMORIAL LECTURE

The Zubrod Memorial Lecture, now in its 20th year, is named in honor of **Charles Gordon Zubrod, M.D.**, the founding director of what was originally called the University of Miami Cancer Center, and who is considered the "father of cancer chemotherapy."

Titia de Lange, Ph.D., a leading authority on telomeres and director of the Anderson Center for Cancer Research at The Rockefeller University, was the 2019 Distinguished Lecturer.

The day began with a poster competition where more than 100 clinical fellows, residents, postdoctoral fellows, medical students, and graduate students presented their research abstracts.

Sylvester Director **Stephen D. Nimer, M.D.**, recognized the top five posters before the lecture presentation. The overall first place winner was Siddarth Mehra, mentored by **Nipun Merchant, M.D.**, medical director of the Sylvester Pancreatic Cancer Research Institute.

In addition, Dr. Nimer presented this year's Lifetime Achievement Award to **Norman Altman, V.M.D.**, professor of pathology and laboratory science, and the Miller School's ombudsman, who has been a member of the faculty for 45 years.

"Dr. Altman continues to be a leader in a vigorous research program in comparative pathology," Dr. Nimer said. "His current collaborative studies include causes and treatments of breast and prostate cancers."

Dr. Altman also has held many significant leadership positions at UM, including vice provost for research and director of Sylvester from 1989 to 1992.

"The thing I'm most proud of is being a professor at the University of Miami Miller School of Medicine," Dr. Altman said after receiving his award.

From left, Titia de Lange, Ph.D., Peter J. Hosein, M.D., Robert B. Levy, Ph.D., Erin Kobetz, Ph.D., M.P.H., Hansel E. Tookes III, M.D., M.P.H., Gilberto Lopes, Jr., M.D., M.B.A., Wael El-Rifai, M.D., Ph.D., and Stephen D. Nimer, M.D.

ZUBROD MEMORIAL LECTURE AWARDEES:

BASIC SCIENTIST OF THE YEAR

Wael El-Rifai, M.D., Ph.D., for leading an NCI-funded research program in upper gastrointestinal cancers.

CLINICAL RESEARCHER OF THE YEAR

Gilberto Lopes, Jr., M.D., M.B.A., for the conclusion and presentation of the KEYNOTE 42 study comparing pembrolizumab to chemotherapy as initial treatment for the most common type of lung cancer.

COMMUNITY-BASED RESEARCHER OF THE YEAR

Hansel E. Tookes III, M.D., M.P.H., for behavioral interventions and innovative approaches to HIV prevention.

MENTOR OF THE YEAR FOR JUNIOR FACULTY

Erin Kobetz, Ph.D., M.P.H., for overseeing Sylvester-wide efforts to ensure overlap between scientific opportunity and local need, and prioritizing involvement of junior faculty.

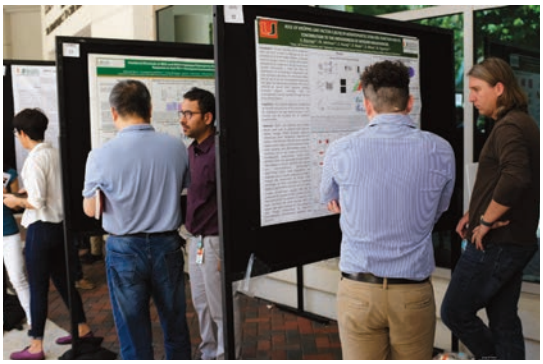
MENTOR OF THE YEAR FOR TRAINEES

Robert B. Levy, Ph.D., for mentoring many trainees who now have faculty positions at leading institutions and have become elite scientists and educators.

TEACHER OF THE YEAR

Peter J. Hosein, M.D., for coordinating the gastrointestinal portion of the core curriculum of hematology/oncology fellows and participating in clinical teaching. ■

From left, Titia de Lange, Ph.D., Norman Altman, V.M.D., and Stephen D. Nimer, M.D.



Poster presentation in the Schoninger Research Quadrangle.

SYLVESTER JOINS PRECISION ONCOLOGY ALLIANCE TO SHARE DATA, FURTHER CANCER RESEARCH

In 2019, Sylvester Comprehensive Cancer Center became the 26th member of the Precision Oncology Alliance of leading U.S. oncology centers.

The Precision Oncology Alliance, led by Caris Life Sciences, is a group of academic and community-based cancer institutions that have come together to share molecular data that is essential for modern cancer research. Access to larger data sets is especially important for rare cancers because single cancer centers might not have enough patient data to adequately power research, according to **Jonathan C. Trent, M.D., Ph.D.**, professor of medicine and director of the sarcoma oncology group at Sylvester.

"We have collected data on about 150 angiosarcoma patients with detailed molecular analyses thanks to the Alliance. The Sylvester database alone had 40 patients. The Alliance's data gave us more information to work with as we try to understand what's causing this cancer and whether there's a targeted therapy or an immunotherapy to treat it," said Dr. Trent, who is also associate director for clinical research at Sylvester.

The National Cancer Institute has invested heavily in research aimed at uncovering causes of common and rare cancers, including understanding the specific mutations that turn normal cells into cancer cells.

"Many of these have been described now. But there remain many cancers for which we still don't know the driver mutations which are responsible for all the bad things a cancer cell does, including proliferating, thriving, and spreading. Sylvester is among the research institutions that have helped to develop new targeted therapies that take aim at driver mutations and shut them down, with little effect on normal cells. The pooled data from the Precision Oncology Alliance will help to further that research for all member institutions," said Dr. Trent. ■

SYLVESTER INVESTIGATOR WINS PRESTIGIOUS AWARD FOR ADVANCING UROLOGIC RESEARCH

The Society for Women in Urology and the Society for Basic Urological Research recognize a female scientist annually for advancing the field of basic science urological research. This year, the Excellence in Urologic Research Award went to **Kerry L. Burnstein, Ph.D.**, associate director for education and training at Sylvester and professor and chair of the Department of Molecular and Cellular Pharmacology at the University of Miami Miller School of Medicine.

The joint award from SWIU and the Society for Basic Urological Research (SBUR) recognizes career research achievements. In Dr. Burnstein's case, this means discoveries that combat therapeutic resistance in advanced prostate cancer. Aggressive prostate tumors become resistant to androgen-deprivation therapy. The Burnstein lab identifies and exploits vulnerabilities inherent in the intracellular signaling within these specific tumors, as well as their communication with cells in the tumor microenvironment. The findings could someday translate to more effective treatments for men with these advanced, treatment-resistant prostate tumors.

Dr. Burnstein said she would not be at this point in her career without the culture of interdisciplinary collaboration at Sylvester and the Miller School. "The success of my research in recent years has depended critically on interdisciplinary approaches – including yeast genetic screens and novel computational technologies to identify actionable targets for prostate cancer," she said.

"Collaboration is really the only way to address important biomedical problems."

Sylvester and the Miller School also facilitate Dr. Burnstein's research through "seed" funds. "The importance of such funding cannot be overestimated," she said. "In general, obtaining extramural grants requires significant amounts of preliminary data – having a good idea is not nearly enough!" ■

SYLVESTER'S RADIATION ONCOLOGY TEAM EARNS PRESTIGIOUS PRESS GANEY AWARD

The 2019 Pinnacle of Excellence Award from Press Ganey recognizes extraordinary achievement in patient experience. The Sylvester Comprehensive Cancer Center Radiation Oncology Medical Practice received this honor for achieving and maintaining consistently high levels of excellence in patient experience.

"The radiation oncology team, from leadership to faculty to nursing to therapy to dosimetry and to the administrative staff, are very patient-centric," said **Alan Pollack, M.D., Ph.D.,** chief of radiation oncology and interim deputy director of Sylvester. "There is a culture that permeates the department, which has clearly resulted in this strong acknowledgement from our patients. We are thrilled to share this recognition with our team."

Winners were identified based on performance over three full years, from May 2016 to April 2019. The award is earned by maintaining a quarterly ranking above the 95th percentile in patient experience measuring, likelihood to recommend the provider's office, teamwork, and "rate your provider on a scale of one to ten."

Sylvester radiation oncology staff collect their own feedback from patients about their experiences after they finish treatment, in an initiative known as "Ring the Bell." Patients often use the word "team" in describing the care they received.

"All of the team that participated in my treatment and care are extraordinary professionals with a warm heart," wrote one anonymous patient. ■

Radiation therapy at Sylvester.

SYLVESTER AGAIN RECOGNIZED FOR SETTING THE STANDARD IN CANCER DATA COLLECTION

The Florida Cancer Data System, located at Sylvester, recently received three important distinctions for the quality of its cancer registry data.

For the 17th consecutive year, the North American Association of Central Cancer Registries awarded Gold Certification to the Florida Cancer Data System (FCDS). This certification is reserved for central registries that meet the highest levels of data completeness, quality, and timeliness in cancer registry surveillance.

The Florida registry also was recognized as a 2018 Registry of Distinction and a 2019 U.S. Cancer Statistics Registry for Surveillance. These awards mean that FCDS met or exceeded national benchmarks established by the Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR) Program Standards 2017-2022.

As a Registry of Distinction, the FCDS – Florida's legislatively mandated, population-based registry – joins only 22 other state registries to merit this achievement. In addition, the cumulative state data from FCDS will be part of the Annual Report to the Nation on the Status of Cancer. This report is a collaboration by the Centers for Disease Control and Prevention, the North American Association of Central Cancer Registries, the American Cancer Society, and the National Cancer Institute.

"These data are a crucial part of cancer surveillance systems because they are used for research, planning, operating, funding, and evaluating cancer control programs," said **Gary Levin**, deputy project director for the FCDS. "Complete and accurate data are essential when assessing variations in and changes among population subgroups over time."

"None of the recent recognition and awards would be possible without the combined efforts of experts and staff at the FCDS, the Florida Department of Health, Sylvester Comprehensive Cancer Center, and the CDC NPCR program," Levin said. "Perhaps most importantly, we rely on the talented and dedicated people working across the state of Florida to bring high-quality data into the Florida Cancer Data System."

Established in 1978 as a joint endeavor between the Florida Department of Health and Sylvester, the FCDS began operation in 1979 with a pilot project for cancer registration. In 1981, it began statewide collection of cancer incidence data from all Florida hospitals.

The registry is now an industry leader in the automated data collection, analysis and curation of cancer data reported from hospitals, freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories, and private physician offices. ■

SYLVESTER RECEIVES TRAILBLAZER AWARD FROM MIAMI CHAMBER

The **Mary Brickell** Trailblazer Award, named after one of Miami's founders, is given by the Greater Miami Chamber of Commerce to those at the forefront of achieving something significant, a leader in their field. That award was presented to Director **Stephen D. Nimer, M.D.**, on behalf of Sylvester Comprehensive Cancer Center.

Sylvester was given this award after recently earning NCI designation, becoming the only cancer center in South Florida and the second in the state to receive this prestigious recognition from the National Cancer Institute.

As the featured speaker at the Chamber's Trustee Luncheon, Dr. Nimer said he was representing the hundreds of physicians, researchers, administrators, and staff who work tirelessly at Sylvester to discover a better understanding of cancer and find different ways to treat and prevent it.

He explained how accomplishing NCI designation is of great value to the community.

"We are now the only health system in South Florida able to provide cutting-edge treatments for our patients through the NCI's clinical trials program," said Dr. Nimer. "We have worked together in multidisciplinary teams to become one of the nation's great cancer centers." ■

From left, Alfred Sanchez, president and CEO of the Greater Miami Chamber of Commerce, Stephen D. Nimer, M.D., and Felipe F. Basulto, chair of the Greater Miami Chamber.

SYLVESTER HOSTS SYMPOSIUM ON PREVENTING CANCER AMONG FIREFIGHTERS

The inaugural State of the Science National Firefighter Cancer Symposium brought together more than 325 firefighters, scientists, researchers, and other stakeholders from seven countries to the Shalala Student Center on June 10 and 11, 2019.

Their two-day mission at the University of Miami: to develop a scientific roadmap for controlling and preventing cancer for the nearly 350,000 career firefighters and more than 814,000 volunteers in the U.S. Fire Service.

"I haven't seen the depth of this kind of science in one place," said symposium co-chair **Erin Kobetz, Ph.D., M.P.H.**, the director and principal investigator of Sylvester's Firefighter Cancer Initiative, which is documenting the excess burden of cancer among Florida firefighters and identifying methods for reducing the risks that, not long ago, were on the radars of few researchers or firefighters.

"We have leadership from across the globe, scientists and firefighters alike, here to help us think through the most challenging research questions," said Dr. Kobetz, professor of medicine and Sylvester's associate director for population science and cancer disparity.

Symposium co-chair **Alberto Caban-Martinez, D.O., Ph.D., M.P.H.**, assistant professor of public health sciences and deputy director of the Firefighter Cancer Initiative, expressed confidence that the collective knowledge and field expertise gathered for the first symposium of its kind will find answers.

"We are asking the bigger question of what is unknown, and what do we need to do in order to protect the men and women who come to our rescue when we need it most," he said. "What happens here can indeed change firefighter health and safety."

Over the past decade or so, multiple studies began showing that firefighters have higher rates of many cancers, including multiple myeloma, non-Hodgkin's lymphoma, and prostate and testicular cancer, than the general population, and the reasons began to emerge: Every time firefighters respond to a fire, whether in a house, a dumpster, a car, or in wild lands, they can be exposed to an ever-increasing array of known cancer-causing agents and often bring the contaminants back to the station or home with them.

"Think about a simple dresser," Dr. Caban-Martinez said. "Forty years ago it was probably built entirely from wood. Today it's made of all these fancy things with all these plastics and synthetics. We think that's part of the reason why we're seeing higher rates."

The other reason – the ingrained, tough-guy culture found in fire stations everywhere – brought Broward County Fire Rescue **Lt. Lysander Rostow** and **Captain Alex Arreola**, whose department recently lost two fellow firefighters to cancer, to the symposium. They came to learn the science that will help them convince their brethren to always wear their breathing masks and other safety equipment while fighting fires and to clean themselves, their truck, and their gear afterward, never storing it in their cabs, their sleeping quarters, or their homes.

"We are aggressively trying to change the culture of the fire service," said Rostow, who, like Arreola, is a member of his department's joint occupational safety and health committee. "Wearing dirty gear was a badge of honor. It showed you were a tough guy and worked hard. You would never wash your gear because you wanted everyone to see how salty you were."

Nathan J. Trauernicht, the fire chief for the University of California, Davis, and one of the symposium keynote speakers, said firefighters can no longer ignore the data and the data is changing the culture.

"It's making people have an aha! moment," Trauernicht said. "There's this really great movement now, and it's going to be propelled by events like this, where we say, 'This is not smart.' We're not any less because we clean stuff." ■

Alberto Caban-Martinez, D.O., Ph.D., M.P.H., addresses the attendees of the inaugural symposium.

SYLVESTER READIES SECOND GAME CHANGER™ VEHICLE FOR OUTREACH TO FLORIDA KEYS

Sylvester Comprehensive Cancer Center spent 2019 preparing its second Sylvester Game Changer vehicle to deliver much-needed cancer screenings and education. The mobile cancer screening and health information unit will reach underserved populations in Monroe County, in the Florida Keys.

Sylvester launched its first vehicle in 2018 to serve people in Miami-Dade. So far, the Miami-Dade Game Changer has reached more than 30,000 patients who might not have otherwise had access to cancer screenings and education. One-third, about 10,000, of those patients have been screened.

The second Sylvester Game Changer vehicle will deliver much-needed cancer screenings and education.

The new vehicle, funded in 2019 by Florida Blue, provides screenings for colorectal, cervical, and skin cancers, as well as HIV and other sexually transmitted infections. The Monroe vehicle will do its part to prevent cancers by prescribing pre-exposure prophylaxis (or PrEP) for people at high risk for HIV and offering young people the human papillomavirus (HPV) vaccine. Game Changer health care staff will help patients continue their care by providing navigation services to community partners for follow-up and other important services, such as low- or no-cost mammography and smoking cessation.

"The Game Changer is closing gaps in accessing cancer education, screenings, and breaking down historical skepticism about research. It's providing an avenue for people in the community to inform Sylvester investigators how this experience affects cancer risk and outcomes," said **Erin Kobetz, Ph.D., M.P.H.**, associate director of population science and cancer disparities at Sylvester. "A second vehicle provides a wider reach and shows South Florida that we are truly committed to being a cancer center worthy of NCI designation and to fulfilling our obligation to being a partner and working alongside our community to address and eliminate cancer disparities."

Sylvester's Game Changer program was born out of the NCI's requirement for NCI-designated cancer centers to emphasize community outreach and engagement, as well as feedback from Sylvester's community partners that if the Cancer Center really wanted to be on the front lines of health equity, it needed a physical presence in communities with high cancer incidence, morbidity, and mortality.

Florida Blue earmarked the Monroe Game Changer to meet what the insurer says is an important need in South Florida. Trained community health workers and an advanced practice nurse will start their journey on the Keys' Overseas Highway to provide cancer screenings and education in 2020.

The vehicle will serve Monroe County and was funded by Florida Blue.

"The focus in 2019 was on building the Game Changer to serve its purpose as a state-of-the-art mobile health care facility that takes cancer care to those who need it most. We established relationships with community partners in Monroe and hired and trained the team that's going to staff the Monroe Game Changer. We've identified clinical partners who are a necessary source of follow up and routine care for individuals who interact with the vehicle," Dr. Kobetz said. "Early cancer detection is crucial for improving outcomes in underserved areas. The Game Changers are helping us to do just that." ■

Cancer survivors celebrate with family and friends at the Sylvester Survivorship Celebration at Marlins Park.

HELPING CANCER SURVIVORS IN TRANSITION

Sylvester Comprehensive Cancer Center leads a survivorship program that currently serves more than 750 adult patients. Breast, colorectal, and gynecological cancers are among the most common diagnoses.

Frank J. Penedo, Ph.D., professor of psychology and medicine, and associate director for Cancer Survivorship and Translational Behavioral Sciences, has been interested in cancer survivorship for more than two decades.

"With unprecedented growth in the number of cancer survivors due to advances in early detection and treatment, a major objective is to help them live their best possible lives," Dr. Penedo said.

Dr. Penedo's vision for the survivorship program at Sylvester includes:

- Collaboration among clinicians and scientists across multiple disciplines to foster exceptional cancer survivorship care and research
- Implementation of evidence-based, state-of-the-art survivorship care that is informed by the latest research
- Provision of integrated multidisciplinary services across the University of Miami Health System to promote continuity of comprehensive care and avoid fragmentation of services

BENEFITS OF CANCER SURVIVORSHIP CARE

A 2005 report from the National Academy of Sciences highlighted the need for coordinated and comprehensive care for patients, following their completion of primary cancer treatment. The report stated that care should effectively address physical, psychosocial, and financial concerns. It also recognized that after treatment, many survivors were "lost in transition."

"It is a time where they need the most direction. Our cancer survivorship program is tailored to meet the needs of each individual patient and keep them connected to Sylvester and the resources we provide to support them during this time," explained **Jessica MacIntyre, APRN**, executive director of clinical operations at Sylvester.

Dr. Penedo cited a number of issues that may create stress and anxiety for patients, both during and after treatment: symptom burden like fatigue, treatment- and cancer-related side effects, fear of cancer recurrence, strain on interpersonal relationships, and intimacy issues, especially with reproductive cancers.

To make cancer care for patients as seamless as possible, multiple disciplines will come together monthly to coordinate programmatic efforts for the care of cancer survivors. Disciplines include psychology, psychiatry, physical medicine and rehabilitation, physical therapy, nutrition, palliative care, geriatrics, and others.

"We are also in the process of creating specialized interdisciplinary clinics that provide evidence-based care, including lifestyle and wellness needs, to address

issues such as diabetes and obesity, geriatric oncology, physical rehabilitation, cardio-oncology, and others in close collaborations with multiple disciplines that address unique needs of our survivors," said Dr. Penedo. "We will also be expanding other existing programs that are well aligned with our survivorship care vision, such as the Stem Cell Survivorship Clinic."

The clinic provides comprehensive evaluation, treatment, and follow up for cancer recurrence, new or subsequent cancers, and intervention for other illnesses caused by cancer and its treatment with coordination of care among health care providers.

RESEARCH DRIVES CARE IMPROVEMENTS

Since Dr. Penedo's arrival in 2018, Sylvester has expanded its translational behavioral research in cancer survivorship, including systematic screening of symptoms and toxicities, and coordination with supportive oncology programs such as psychology and nutrition services that can assist patients with managing challenges of their survivorship journey.

"Our survivorship clinical programs also provide opportunities for research that, in turn, will inform and improve clinical care," Dr. Penedo said. "It's kind of like a feedback loop where we can evaluate the added value of survivorship care to patient-reported outcomes, such as quality of life and treatment satisfaction, while optimizing efficiencies within care delivery."

Examples of new programs delivering improvements are:

- **My Wellness Check.** A new program being piloted with gynecologic oncology patients seeks patient input before a scheduled visit. Patients complete assessments on a smartphone or computer via UChart, the patient health management portal. This program, called My Wellness Check, allows the cancer team to track and triage patients as they complete the assessment and report issues including emotional distress; pain, fatigue, or other physical symptoms; nutritional needs; and practical needs, such as assistance with transportation or finances.
- **Patient Portal Tool Box.** Using technology to assess symptoms and needs and to identify patients who would benefit from psychosocial interventions such as those offered by Sylvester's supportive oncology services is another focus for the survivorship program. Initiatives are also being developed to provide education and support conveniently to patients using their patient portal.

Further, Dr. Penedo and his research team are testing the utility of cultural adaptations that deliver counseling and tools to different ethnic groups in a sensitive and culturally informed manner. "We want to culturally tailor the tool kit to address the unique needs and experiences of our communities," he explained. ■

Frank J. Penedo, Ph.D., addresses cancer survivors, providers, and family and friends at the Sylvester Survivorship Celebration.

THE DOLPHINS CANCER CHALLENGE REACHES NEW HEIGHTS WITH $32.5 MILLION RAISED FOR RESEARCH

More than 5,000 cancer fighters turned out on April 6, 2019, to participate in the ninth annual Dolphins Cancer Challenge (DCC) at Hard Rock Stadium. Together, the South Florida community rode, ran, and walked 62,136 miles to fight cancer. The impact of the DCC's contributions to Sylvester's researchers and patient caregivers to date is extraordinary, reaching a record total of $32.5 million this year.

"The Dolphins Cancer Challenge funds all of our early-stage research, including global oncology research, through which we are trying to improve cancer care around the world," said **Gilberto de Lima Lopes, Jr., M.D., M.B.A.**, Sylvester's associate director of global oncology. "This is one of our most important days of the whole year, and that's how we keep our mission going. We do this for our patients, we do this for our community, we do this for all of those who have been affected by cancer in any way."

Dr. Lopes joined the race among hundreds of cancer patients, cancer survivors, and their supportive friends and families who showed up to celebrate victories, as well as honor loved ones who have been lost in the battle. It was an emotional day for all involved, with all proceeds going directly toward cancer research. One of DCC IX's biggest draws this year came from Sylvester's four-year-old Firefighter Cancer Initiative.

"I DCC because as the associate director of Sylvester I see firsthand how the contribution of the Dolphins Cancer Challenge accelerates our ability to fulfill our mission," said **Erin Kobetz, Ph.D., M.P.H.** "And I DCC with firefighters because I believe some of the most important work that Sylvester does is determining why firefighters are at increased risk of developing and dying of cancer. Our partnership with the Dolphins allows us to pursue that kind of innovative research that has a real impact on getting us closer to a cancer-free tomorrow."

At the end of the 5K, the firefighters presented special awards to Dr. Kobetz and the Sylvester team. **Sam Eaton**, the battalion chief from Palm Beach Fire Rescue, discussed the important partnership in saving firefighters' lives.

"We thank the Miami Dolphins 100% for this opportunity," Eaton said. "We want to support Sylvester, and this is a fantastic way to do it. We have a special presentation for Dr. Kobetz: this is a fire ax — in the fire service, the fire ax is used to force entry and save lives." Eaton read the inscription: "For helping the fire service break through the cancer stronghold, with the power of science, innovation, prevention and education, to save the lives of our firefighters, we thank you, Dr. Erin Kobetz." Two more axes were presented to **Alberto Caban-Martinez, D.O., Ph.D., M.P.H.**, co-director of the Firefighter Cancer Initiative, and **Natasha Solle, Ph.D.**

This year also marked a record turnout for Team Hurricanes. **W. Jarrard Goodwin, M.D.**, chief medical officer at Sylvester, has participated in all nine DCC events.

"It's a very special event for me, and it has been a huge part of my life," Dr. Goodwin said. "I participate for the friends and family that we've lost to cancer, as well as for my patients and my colleagues. And the Dolphins have been such incredible partners – thanks to them and to all of our sponsors, every nickel raised goes directly to funding research at Sylvester."

Fresh off the Hurricane Hundred bike ride, Sylvester Director **Stephen D. Nimer, M.D.**, took to the stage on that unforgettable Saturday afternoon with Miami Dolphins owner **Steven Ross**, Miami Dolphins CEO **Tom Garfinkel**, and new head coach **Brian Flores**, along with **Stuart Miller**, chairman of Lennar and a University of Miami trustee, and other DCC supporters. Dr. Nimer thanked the crowd for participating in the event, which raised $6 million this year alone.

"It is unbelievable to see the support of so many people for Sylvester's cancer research programs," Dr. Nimer said. "I can't tell you the number of cancer survivors who've come up to me since I crossed the finish line to tell me their stories. Each and every person has a story to tell, of how the work we do at Sylvester impacts people's lives. Thanks to the DCC, and all of your efforts, people now have more hope, and they don't have to leave South Florida to get world-class cancer care." ■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SYLVESTER AT PLANTATION PATIENT SUPPORT SERVICES OPENED

There's a new type of healing space adjacent to the waiting area in the Braman Family Breast Cancer Institute inside Sylvester at Plantation.

"A very important part is not just the discussion about chemotherapy, radiation, and surgery. It's also that discussion about what else can we do to make you feel better," said director and breast oncologist, **Alejandra Perez, M.D.** "We don't want to treat just cancer – we want to treat every single aspect."

On October 3, 2019, doctors, nurses, staff members, and patients celebrated the pink ribbon cutting for the "Not My Daughter … Find a Cure Now!" Patient Support Services. It's named after the non-profit organization that generously supported the creation of this space.

"I was diagnosed at age 40 with an extremely aggressive form of breast cancer. My friends and I got together to develop an organization to raise money for research," said **Denyse Hostig**, founder of Not My Daughter. "It wasn't long before we realized that research was important but so were ancillary services for patients and survivors."

As a result, Sylvester at Plantation patients will have convenient access to services that address sexual health, hair loss, nutrition, exercise counseling – all with the goal of enhancing the medical care they receive and improving quality of life. ■

"Not My Daughter … Find a Cure Now!" Patient Support Services ribbon cutting.

CARDS FOR A CURE: SPREADING LOVE AND SAVING LIVES

One of Sylvester's most beloved fundraising programs was reborn in 2019. Cards for a Cure, formerly known as Coupons for a Cure, was launched with a new name, look, and website.

CardsforaCure.net allows anyone to easily make a donation toward life-saving cancer research at Sylvester by simply sending a card. The program offers five exclusive designs, and one special holiday edition, with messages of hope and positivity that can be sent to anyone, anywhere. Now everyone can go online and choose a card that truly makes a difference for any occasion. Since its launch, the cards have grown in popularity and have been spreading love to the community in recognition of birthdays, anniversaries, holidays, graduations, in honor or memory of loved ones, or even simple messages of encouragement.

The program was originally created by the late **Denny Feinsilver** after her husband Paul was diagnosed with cancer. Because he received life-saving treatment at Sylvester, the advancement of cancer research became Denny's passion. A former member of the Sylvester Board of Governors, Denny and her family generously supported a number of Sylvester programs, helping more people living with cancer to lead longer and happier lives – even before her own breast cancer diagnosis. Although Denny lost her battle with cancer in 2013, her legacy continues today thanks to the passion and determination of Denny's daughter, **Corey Feinsilver**.

Sylvester is truly grateful for devoted partners like the Feinsilver family. Like Denny, Cards for a Cure is the unique combination of optimism, positivity, and meaningful service to the community. ■

Paul Feinsilver and daughter Corey at Cards for a Cure launch.

A TRUE FRIEND TO SYLVESTER NAMES THE DWOSKIN PROTON THERAPY CENTER

Sylvester Comprehensive Cancer Center finished off the year on a high note with a generous gift made by **Steven Dwoskin** to support a new cutting-edge radiation facility, which will be known as The Dwoskin Proton Therapy Center.

Mr. Dwoskin has a long partnership with the Cancer Center, having first been introduced 20 years ago by his good friend, **Jay Weiss**, a prominent philanthropist who left behind an incredible legacy and an indelible mark on Sylvester.

"When I started a foundation in 2002, Jay asked me to come and see the operation and meet some of the doctors," said Dwoskin. "When I originally started, it was mainly in honor of my father and brother, who both died of cancer. But then, I got to know the people at Sylvester. They have always been there for me and my family. That means so much and I want to be loyal to them."

Slated to begin treating patients in fall 2020, the new Proton Therapy Center at UHealth Tower houses Sylvester's Varian ProBeam Compact proton therapy system, the most advanced cancer-fighting technology available to patients.

Proton therapy is an advanced type of radiation that allows doctors to directly target tumors with extreme precision, destroying deadly cancer cells while sparing nearby healthy tissues and organs. The machine's sub-millimeter precision allows the proton beam to enter the body with a low radiation dose, conforming to the shape and depth of the tumor. As a result, patients may experience fewer side effects during and after treatment.

"The unique properties of protons will allow us to design novel approaches to treating cancer that build on the expertise of our physicians in conjunction with our exceptional medical physicists and biologists," said **Alan Pollack, M.D., Ph.D.**, professor and chair of radiation oncology. "Proton therapy is another important option in our armamentarium of sophisticated tools with which to fight cancer at Sylvester."

In addition to patient treatment, Sylvester will also use proton therapy for clinical research to find new ways to conquer and prevent cancer. Dwoskin is pleased to be at the forefront of this exciting time in cancer treatment at Sylvester because he is confident that many more lives will be saved.

"I think proton therapy is going to cure a lot of cancers right now that simply can't be cured," said Dwoskin. "The name of the building is a nice legacy, but really the recognition is not that important to me. Seeing somebody alive because they received the right treatment: that's really special."

"Putting this precise technology in the hands of our radiation oncology experts demonstrates our commitment to transforming the way we treat each patient's unique cancer," said Sylvester Director **Stephen D. Nimer, M.D.** "We are grateful for friends like Steven, who are the enablers of our mission to find new cancer cures." ■

Steven Dwoskin and Stephen D. Nimer, M.D.

ONE CHANGE MAKES ALL THE DIFFERENCE

Palmer Trinity School students **Olivia Bacardi**, **Attie Crews**, **Callie Crews**, and **Megan Keller** are making a significant impact in the effort to prevent melanoma, the most serious type of skin cancer — and it all started with a bracelet.

"When my mother was diagnosed with melanoma, we wanted to come up with a way to help educate people our age about protecting themselves from one of the most preventable cancers," said Attie Crews. "So we created a bracelet with a bead that changes color when exposed to UV rays and it acts as a reminder to put on sunscreen."

Crews' mother is a patient of **Lynn G. Feun, M.D.**, co-leader of Sylvester Comprehensive Cancer Center's Melanoma Site Disease Group. After learning about the discoveries happening at Sylvester, the girls launched a non-profit organization called One Change in January 2018 and started selling their bracelets to raise both money and awareness for melanoma research. "We want our funds to drive breakthrough research," said Bacardi.

The One Change team devotes weekends and school holidays toward their project, fitting the beading of their bracelets in with a packed schedule of school-work and extracurricular activities. On December 18, 2019, they presented Sylvester physicians with a check for $7,500, bringing their total to date to $30,000 to support leading-edge research.

"The One Change team serves as a true inspiration for how even a small group can motivate so many to give to a worthy cause," said Dr. Feun. "Their continued support helps us improve the quality of patient care, while increasing survival rates for patients with advanced melanoma." ■

Megan Keller, Olivia Bacardi, Lynn G. Feun, M.D., Attie Crews, and Callie Crews.

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