

FOX CHASE Forward

BROADENING THE CONVERSATION ABOUT CANCER | WINTER/SPRING 2023

Mapping a Path to Clinical Trials

Bringing
Fox Chase's
Innovative Care
to the Temple
Community



FOX CHASE
CANCER CENTER

TEMPLE HEALTH



Jonathan Chernoff

Robert Uzzo

LEVELING THE PLAYING FIELD

Cancer does not discriminate. It can affect anyone, at anytime, anywhere. But not everyone connects with the life-changing treatment they need at the right time in the right place.

There are many variables that factor into one's experience: access to clinical trials, knowledge about available treatments, support resources to overcome barriers to care, a clear understanding of one's own risk factors, yet-to-be-discovered prevention strategies, and even the neighborhood where one lives.

In this issue of *Forward*, you will meet some key figures within our Fox Chase Cancer Center and Temple Health community who are working to level the field.

A patient who is living well with pancreatic cancer after a stage IV diagnosis nearly 10 years ago. Now, she is sharing her story to help others find courage and opportunity in clinical trials.

Clinicians and researchers who are “standing up to cancer” with funding and innovative ideas to learn how one’s neighborhood and other social determinants affect cancer incidence. They are using these resources and insights to reach even more people with world-class care through improvements to our clinical infrastructure, more personalized patient education, and greater community outreach.

Faculty members at both Fox Chase and Temple University’s Lewis Katz School of Medicine, who are advancing the Nobel Prize-winning legacy we have in liver cancer research to uncover the many facets of this complex disease. Their work is helping us to better understand its origins and progression, to develop more effective drugs, and to eliminate disparities that may arise from structural racism and discrimination among certain populations with liver cancer.

Researchers who are bringing discoveries from their basic science laboratories to the clinical work of our Risk Assessment Program to develop new strategies to both prevent cancer and to intercept early-stage cancers before they have a chance to grow. Their work is being funded by a \$6 million grant from the National Cancer Institute, with Fox Chase being one of only two places in the country to establish a special program to create a pipeline for the discovery of new cancer prevention agents.

These people are among many who dedicate themselves to cancer discovery and cancer delivery. While we are proud to call them ours, they also belong to a global community whose mission is to open our minds even further to the very real possibilities that lie ahead in cancer research.

When we are more connected to each other—including diversity of thought and representation from all—we can learn much more than we ever could alone.

Jonathan Chernoff, MD, PhD
CANCER CENTER DIRECTOR

Robert Uzzo, MD, MBA, FACS
PRESIDENT AND CEO



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A grant will fund an innovative program to expand access to oncology clinical trials being conducted at Fox Chase Cancer Center to other parts of the Temple Health system, especially Temple University Hospital.

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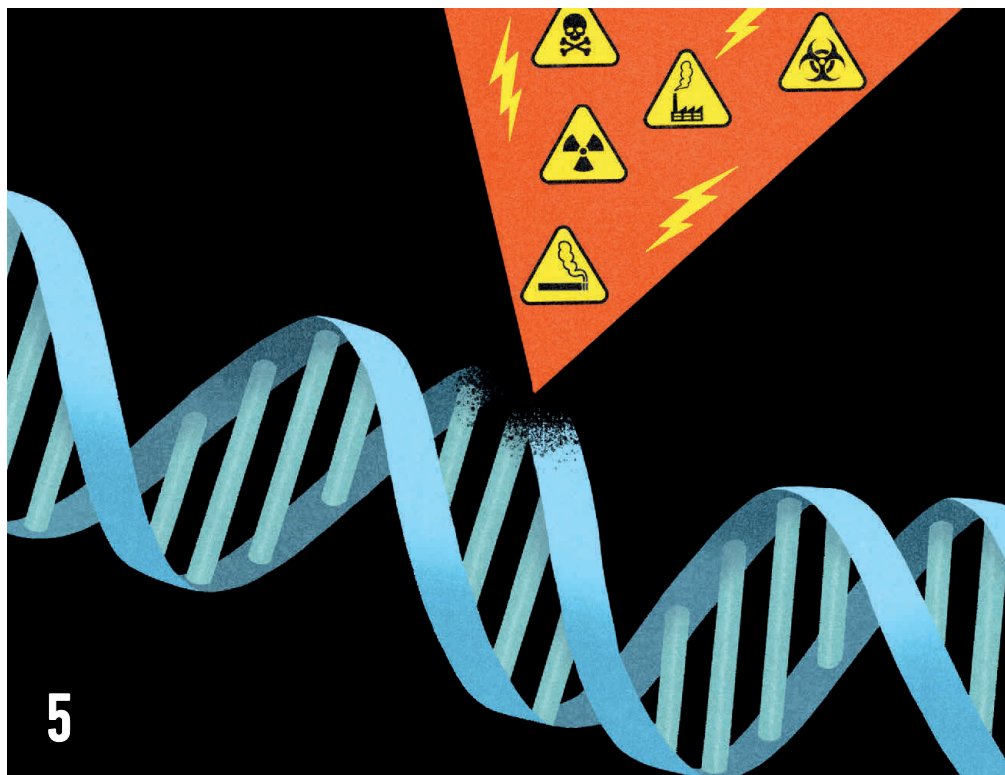
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Researchers in the lab and the clinic at Fox Chase and Temple Health are taking a comprehensive approach to liver cancer, making them a one-stop shop for fighting this devastating disease.

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Intercepting Cancer

A \$6 million grant from the National Cancer Institute will allow Fox Chase researchers to establish a pipeline for the discovery of new cancer-prevention agents. Fox Chase is one of only two institutions to receive this funding.



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A Fox Chase faculty member
and worldwide pioneer
in radiation oncology,
Gerald “Jerry” Hanks
revolutionized the field and
left a legacy for those who
followed.

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first institutions to be designated a National Cancer Institute
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DR. RICHARD GREENBERG MAKES HISTORIC GIFT

Richard Greenberg began his career at Fox Chase Cancer Center in 1983, and for nearly two decades he carried the torch of urologic oncology alone. Since 2000, when Robert Uzzo joined him from the Cleveland Clinic, the two of them led a rapid expansion of the program into a nationally recognized force. Now, Greenberg has shored up its future by pledging more than \$1.6 million to ensure that Fox Chase will continue to train the best and brightest urologic oncologists in perpetuity.

Greenberg's gift is the largest ever by a Fox Chase faculty member, and it will serve as the

"My legacy is all the great people who have built the urology program with me."

—RICHARD GREENBERG,
FOX CHASE PHYSICIAN AND
PHILANTHROPIST

foundational gift in establishing the Fox Chase - Temple Urologic Institute. There are now nearly twenty urologic providers at Fox Chase, treating cancer as well as benign urologic conditions. More than 100 residents and fellows have trained in the urology program.

"My legacy is all the great people who have built the urology program with me. I've supported Fox Chase philanthropically for as long as I have been able, and it's a thrill to see the money invested this way," Greenberg said. He made his gift as part of the estate planning process.



Dr. Richard Greenberg with Dr. Diana Magee (L) and Dr. Laura Bukavina (R), who will be the 24th and 25th graduates of the fellowship that he started.

The multidisciplinary fellowship that Greenberg helped found in 2008 will be renamed the Richard E. Greenberg, MD, Urologic Oncology Fellowship. Trainees in the two-year fellowship are immersed in all aspects of the management of urologic cancer, with the goal of becoming leaders in the field. One year provides in-depth clinical experience, and the second is devoted to research. The program is certified by the Society of Urologic Oncology.

Four fellows are currently in the

program, and 23 alumni have gone on to impactful careers across the country. Four alumni are Fox Chase faculty members.

Greenberg has earned many accolades over the years. For the past decade, he has held the Carol and Louis Della Penna Chair in Urologic Oncology. He is one of only two Fox Chase physicians to receive the honor of Master Clinician, and in 2016 he received the American Urologic Association Residents Committee Teacher of the Year Award.

LAPATINIB MAY BOOST EFFECTIVENESS OF DRUGS THAT DESTROY CANCER PROTEINS

Researchers at Fox Chase Cancer Center have discovered that the drug efflux pump MDR1 promotes resistance to a promising new class of drugs called PROTACs—proteolysis-targeting chimeras.

However, the researchers also found that in cultured cancer cells and mouse models, this resistance was prevented by combining PROTAC treatment with the drug lapatinib, which blocks MDR1 efflux pumps and also inhibits the epidermal growth factor receptor, a frequent oncogene and cause of resistance to cancer drugs.

“The hope is to have a double-pronged effect,” said James S. Duncan, an associate professor in the Cancer Signaling and Microenvironment research program at Fox Chase.

Cancer cells have an ability to eventually evade the effects of drugs, so targeted cancer therapies, no matter how effective they are initially, will likely encounter resistance.

“By combining lapatinib with a PROTAC drug we would have the ability to block MDR1-mediated resistance and the epidermal growth factor receptor with a single agent and allow patients to more fully benefit from treatment with PROTAC drugs.”

PROTACs are a promising new



class of drugs known as protein degraders because they destroy target proteins in cells using the proteasome degradation pathway. PROTACs have two functional ends. One end engages an E3 ubiquitin ligase and the other a disease-causing protein called a protein of interest or oncogene. By connecting to the ubiquitin ligase, the PROTAC marks the protein for destruction.

“You hijack the cancer cell’s own proteasome machinery to degrade the oncogene,” Duncan said. “This is important because there are a lot of protein targets that are

considered to be beyond treatment with traditional inhibitors.”

Cancer cells have an ability to eventually evade the effects of drugs, so targeted cancer therapies, no matter how effective they are initially, will likely encounter resistance.

Concurrent blockade of MDR1 will likely be needed to achieve a durable benefit from PROTACs. Future clinical trials should explore PROTACs in combination with lapatinib, particularly in those cancers that rely on epidermal growth factor receptor, Duncan said.

STUDY REVEALS MECHANISM FOR REPAIRING DNA DAMAGE CAUSED BY ENVIRONMENTAL TRIGGERS

It has long been known that DNA damage caused by environmental triggers, as well as other sources of oxidative stress, contribute to the development and progression of a wide variety of cancers. Now a study by a Fox Chase Cancer Center scientist provides new insight into how an enzyme called apurinic/apyrimidinic 1 (APE1) repairs this damage.

The study showed, for the first time, how APE1 binds to a common oxidative DNA lesion and sculpts the DNA to hold it in place for repair. It identified the key regions of the enzyme that are involved in the repair process, findings that could help lay the groundwork for future therapeutic treatments targeting this process.

“The more we understand how this enzyme works, the better we are able to design a drug or manipulate that mechanism to modulate its activity to enhance or decrease the effects of DNA damage,” said Amy Whitaker, an assistant professor in the Nuclear Dynamics and Cancer research program.

Oxidative stress is caused by a wide variety of environmental triggers, from smoking, to UV radiation, to the food that people eat. The human body is constantly repairing damaged DNA, but when it

is exposed to extra stressors like disease or environmental pollutants, that repair process may not be able to keep up with the damage and mutations can occur.

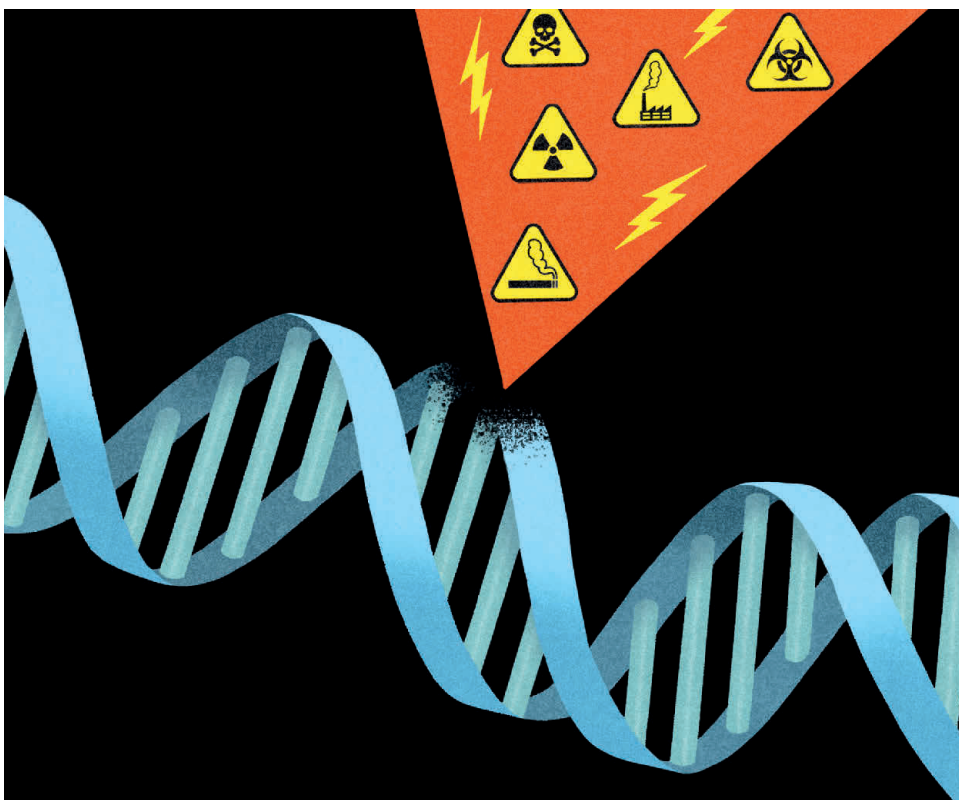
Oxidative stress is caused by a wide variety of environmental triggers, from smoking, to UV radiation, to the food that people eat.

Whitaker’s study, which was published in *Nucleic Acids Research*, looked at a type of DNA lesion caused by oxidative stress

called 8-oxoG. Scientists already knew that the APE1 enzyme repaired damage by removing this lesion from the end of a DNA strand. However, the exact mechanism it used to do this was not understood.

Whitaker and her team were able to generate images of the atomic structure of APE1 after binding damaged strands of DNA for repair that helped them to understand the whole process more clearly.

Whitaker said the findings could have implications not just for new treatments to improve DNA repair capacity, but also for potentially increasing damage from existing cancer treatments that intentionally attack DNA in order to disrupt tumor growth.



Mapping a Path TO Clinical Trials

Bringing Fox Chase's Innovative Care to the Temple Community

Clinical trials are among the most important resources when it comes to effectively treating challenging cases of cancer, but at Fox Chase Cancer Center, these trials encompass much more than just testing new drug candidates that may be more effective alternative treatments. They can also provide preventative screening and help determine ways to reduce drug side effects.

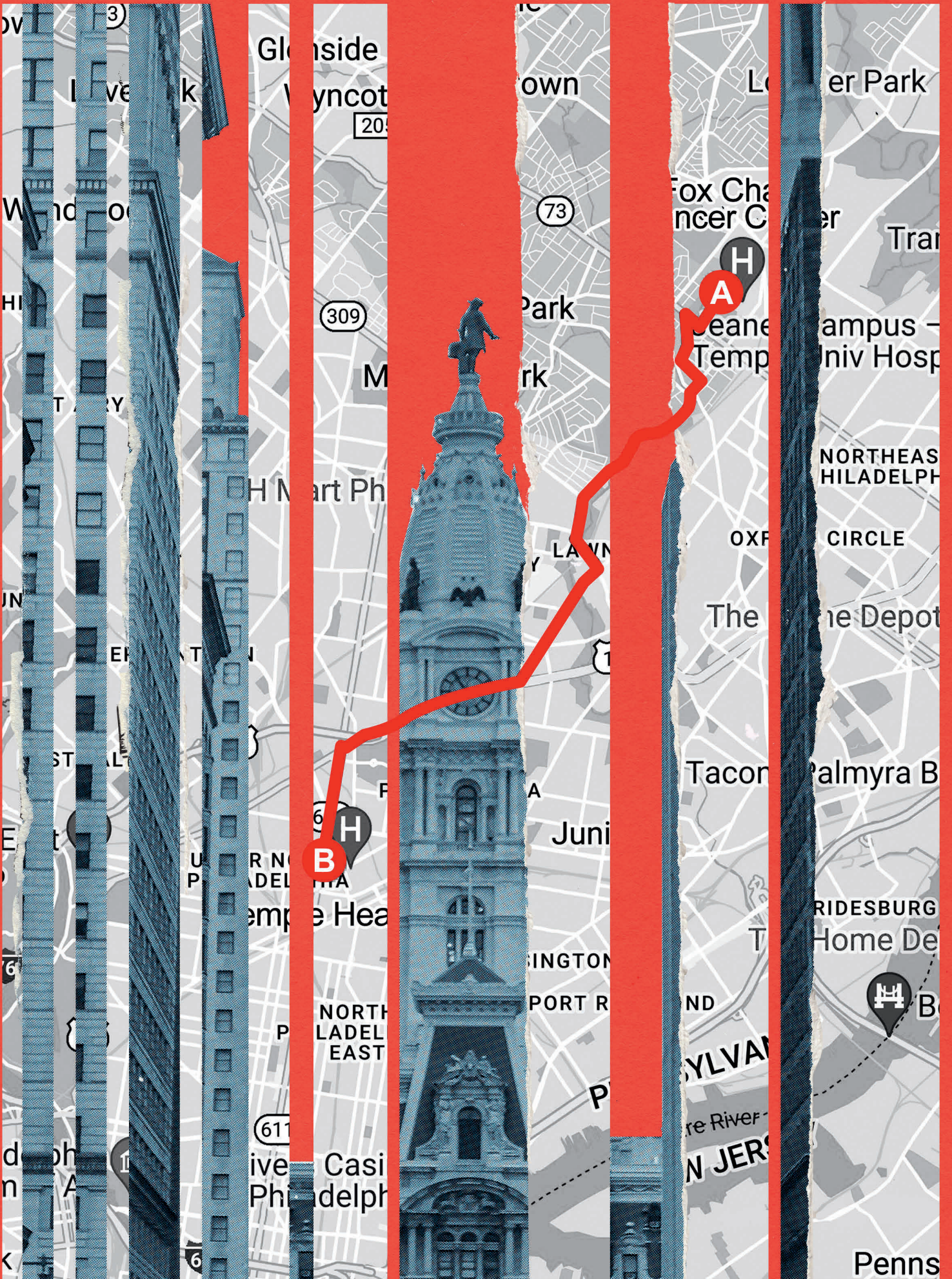
In many instances, however, helping patients map a path so they can enroll in clinical trials is challenging. Whether it's misconceptions or barriers to enrolling, there remain large populations that are lost when it comes to clinical trials, and as a result, are underserved by them. Fox Chase and Temple Health plan to change that, starting with a recent grant from Stand Up To Cancer (SU2C),

which raises funds to accelerate the pace of research to get new therapies to patients quickly and save lives. The principle investigators for the grant are Fox Chase researchers Martin J. Edelman, chair of the Department of Hematology/Oncology, and Linda Fleisher, a research professor in the Cancer Prevention and Control research program.

The funding, which is a part of the SU2C Diversity in Early Development Clinical Trials Research Grants Program, will finance a new project, "Accelerating and Diversifying Access to Clinical Trials" or ADACT, which will allow for a more efficient patient experience and also use innovative data analysis and technology to identify key populations in need of resources.

"The primary purpose of the grant is to increase enrollment of patients who have typically not had

By Marian Auriemma • Illustrations by Mark Harris



the opportunity to participate in clinical research into early phase clinical trials, which evaluate new drugs and approaches for the treatment of cancer before these new drugs are compared with the prior standard of care,” said Edelman. The effort will focus on expanding access to oncology clinical trials across Temple Health, especially at Temple University Hospital. In addition to supporting patients enrolling in clinical trials, community ambassadors will help educate the public by using the ambassador’s experiences to encourage more patients to consider and participate in what can be a life-changing treatment plan.

The \$550,000 grant will assist researchers in creating a clinical trial infrastructure that will identify and implement changes that more effectively reach patients in underrepresented communities reached by Temple Health. The main area that Temple serves, North Philadelphia, has higher rates of poverty and higher-than-expected rates of cancer mortality than the rest of the city. Michael Young, Temple Health’s CEO, has demonstrated the system’s strong support for the program by matching the grant dollar for dollar.

Temple has been recognized for its connection to its community, with Temple University Hospital being named the most racially inclusive hospital in Pennsylvania and one of the most racially inclusive in the United States by the Lown Institute, a healthcare think tank. But much work remains.

“We know there are lots of issues with clinical trials in terms of recruitment, and particularly among underrepresented populations. It’s even more exacerbated in early phase trials,” said Fleisher. “Part of the grant will be used to build infrastructure for increasing the number and breadth of early phase trials at Fox Chase and Temple.”

COMMUNITY AMBASSADORS

To address the major hurdle of reaching out to find clinical trial participants, Fox Chase’s Office of Community Outreach is working with the team and enlisting the community itself. Researchers have patient advocates who have firsthand experience with clinical trials and are relying on them to let prospective patients know what they can expect from trials and how they can help change lives.

If there’s one person who is familiar with this, it’s Lydia Henson, 58, of Philadelphia. In 2014 she was diagnosed with stage IV pancreatic cancer after struggling with fatigue and back pain. She came to Fox Chase for a second opinion and was started on an aggressive course of chemotherapy. Although the treatment was effective, she experienced challenging side effects that left her feeling sick for days at a time.

After a few years of this intense treatment, Henson agreed to genetic testing at the suggestion of her doctor,

Efrat Dotan, a medical oncologist. The testing showed that she had a PALB2 gene mutation, one of the major known susceptibility genes for pancreatic cancer. Having a mutation in this gene qualified Henson for the clinical trial she remains part of today.

“When I was first diagnosed I didn’t want to get the genetic testing because it just seemed like too much at the time. But after four years of dealing with difficult chemotherapy treatments, I finally decided to do it,” said Henson. “If I had never gotten tested I would have never known about this trial. People shouldn’t be afraid of genetic testing because it helps a great deal in being able to participate in clinical trials.”

Henson has been enrolled in the trial for three years now. Instead of spending five hours at the hospital every other week for conventional chemotherapy, she is able to take six pills a day at home, with monthly in-person scans. As an added bonus, the pills have fewer side effects than chemotherapy did.

Henson said she is looking forward to speaking with people about how clinical trials like hers can change a patient’s quality of life, just as they changed hers. Fox Chase and Temple researchers are continuing to define the roles of patient advocates like Henson.

“When I was first diagnosed, I never really thought about clinical trials. ... This trial has given me the outlook that my life isn’t necessarily over. You can live with cancer and have a normal life. In fact, I go along and take my medication and sometimes I even forget I have cancer,” said Henson. “I really want to be able to tell people my story so that they can be helped. Maybe if they could talk to me and see me, and hear a little bit of my story, it would give them the courage and the strength to go for a clinical trial if they qualify.”



**“This is a great integration
between Fox Chase and Temple.
We’re all very excited that
more of our patients at
Temple will have access to
cutting-edge care.”**

—AMY J. GOLDBERG, THE MARJORIE JOY KATZ DEAN,
LEWIS KATZ SCHOOL OF MEDICINE



An initiative to diversify the patient pool for cancer clinical trials will involve a number of researchers and clinicians from both Fox Chase and Temple Health. Clockwise from top left are Martin J. Edelman, Amy J. Goldberg, Linda Fleisher, and Shannon Lynch.

But before Henson can convince a patient to participate in a trial that meets their needs, researchers have to determine what those needs are. That's why Shannon Lynch, assistant professor in the Cancer Prevention and Control research program, has been harnessing the power of geospatial analytics, which uses computational tools to build a visual representation of specific locations and events in order to

identify communities affected by cancer. Lynch's team uses these tools to build maps and study which neighborhoods are impacted by cancer risk and cancer health disparities.

"We want to consider that when we're designing or evaluating our research studies we are really capturing people in our communities who are most impacted by cancer. This way we can make sure members of those

communities know more about clinical trials and how to access them,” said Lynch.

“Essentially, we map what neighborhoods have higher rates of cancer mortality or incidence, as well as what factors could be helpful to explain these higher rates,” she added. They found that many of the neighborhoods that are shown to have a higher cancer burden are also affected by unfavorable social drivers of health, the environment in which people are born, work, and live. These drivers, including economic stability, educational attainment, access to healthcare, and social context—including policies that have led to discriminatory practices that can affect a neighborhood’s built environment, such as housing—can collectively affect a person’s health.

“Reaching out to diverse racial and ethnic groups and individuals exposed to social drivers we know can impact cancer outcomes is important, not only to ensure representation in clinical trials, but to begin to address the barriers underserved populations face when diagnosed with cancer or deciding on a clinical trial,” said Lynch.

“We can use data-driven approaches to identify communities who might need to hear more about cancer and clinical trials, but it is critical to engage community partners and patients who have lived these experiences. They are experts in their communities. Only through the combined efforts of community, clinicians, and researchers can disparities begin to be addressed,” added Lynch, who is also co-director of the Center for Biostatistics and Epidemiology at the Lewis Katz School of Medicine at Temple.

EXPANDING ACCESS TO CARE

Community advocates and geospatial research are just a few of the puzzle pieces of Fox Chase and Temple Health’s plan to bolster clinical trial participation. “All of the pieces have been in place. What we’re doing now is bringing them together with Temple Health,” said Edelman. He and Fleisher are in the process of putting together



a multidisciplinary team that will help provide not only more access to patient care, but more supportive services for those participating in trials. They are working with Temple Health to expand these services and provide a more seamless experience for patient care in clinical trials. To begin creating this framework, Temple and Fox Chase will be focusing on three major pillars—infrastructure, patient education, and community outreach.

“At Temple Health, we have a fairly large number of patients, but we have not had adequate resources in terms of research and physician personnel. We also need to improve the infrastructure, which would include how to get people into clinical trials, how to retain them, and obtaining the specimens to perform these studies, among other things,” said Edelman.

To improve infrastructure, Amy J. Goldberg, The Marjorie Joy Katz Dean at the Lewis Katz School of

Medicine at Temple and surgeon-in-chief at Temple Health, has been working with Edelman on creating more physical space for these trials. Additionally, they are working toward creating an onsite biobank to further improve the efficiency of clinical trial studies. The biobanks are essential for collecting, storing, and analyzing biological samples for use in procedures that involve molecular-based assessments and pathology-related diagnoses.

“What I’m most excited about is that the same clinical trials that are ongoing at Fox Chase will now be open to our Temple community in North Philadelphia,” Goldberg said. “It will take all of us working together on both campuses to really be able to do this efficiently and ensure that our patients have the same access. This is a great integration between Fox Chase and Temple. We’re all very excited that more of our patients at Temple will have access to cutting-edge care.”

A HOLISTIC APPROACH

Fleisher said the most important part of this massive undertaking, and what the grant provides funding for, is a more holistic approach to these issues.

“It’s not just about the infrastructure or community education or supporting patients. It’s about all of the issues being addressed at once. That’s how you move the needle forward, and I think it’s incredibly exciting,” she said. “It’s important for every patient to have this option. It’s really going to open the door for them to consider participating in a clinical trial. It’s another avenue to getting state-of-the-art treatment.”

To make this all happen, Edelman said they are creating an integrated clinic to support patients, one that includes services such as palliative care, nutritional assistance, and an overall assessment of patient needs. This multidisciplinary effort will involve many others at Fox Chase and Temple who will be critical to the success of the initiative, including colleagues from community outreach like Evelyn González and clinicians Jessica Bauman and Alvaro Pereira-Rico.

And while infrastructure and patient education play a pivotal role, eliminating barriers to care remains a top priority as part of community outreach efforts. “We have to

help patients be open to considering a trial,” said Fleisher. “There’s the initial consideration of choosing the trial, but we also have to consider how we can support patients and minimize their barriers to staying in a trial. We will be building in transportation services so that patients in North Philadelphia who want to participate in a trial happening at Fox Chase can do that.”



“There’s the initial consideration of choosing the trial, but we also have to consider how we can support patients and minimize their barriers to staying in a trial.”

—LINDA FLEISHER, CANCER PREVENTION
AND CONTROL RESEARCH PROGRAM

NOVEL PATIENT TOOLS

Before a patient even begins to seek cancer care through a trial, they will likely have many questions regarding how to proceed, which can often be a major source of anxiety and a roadblock for enrollment.

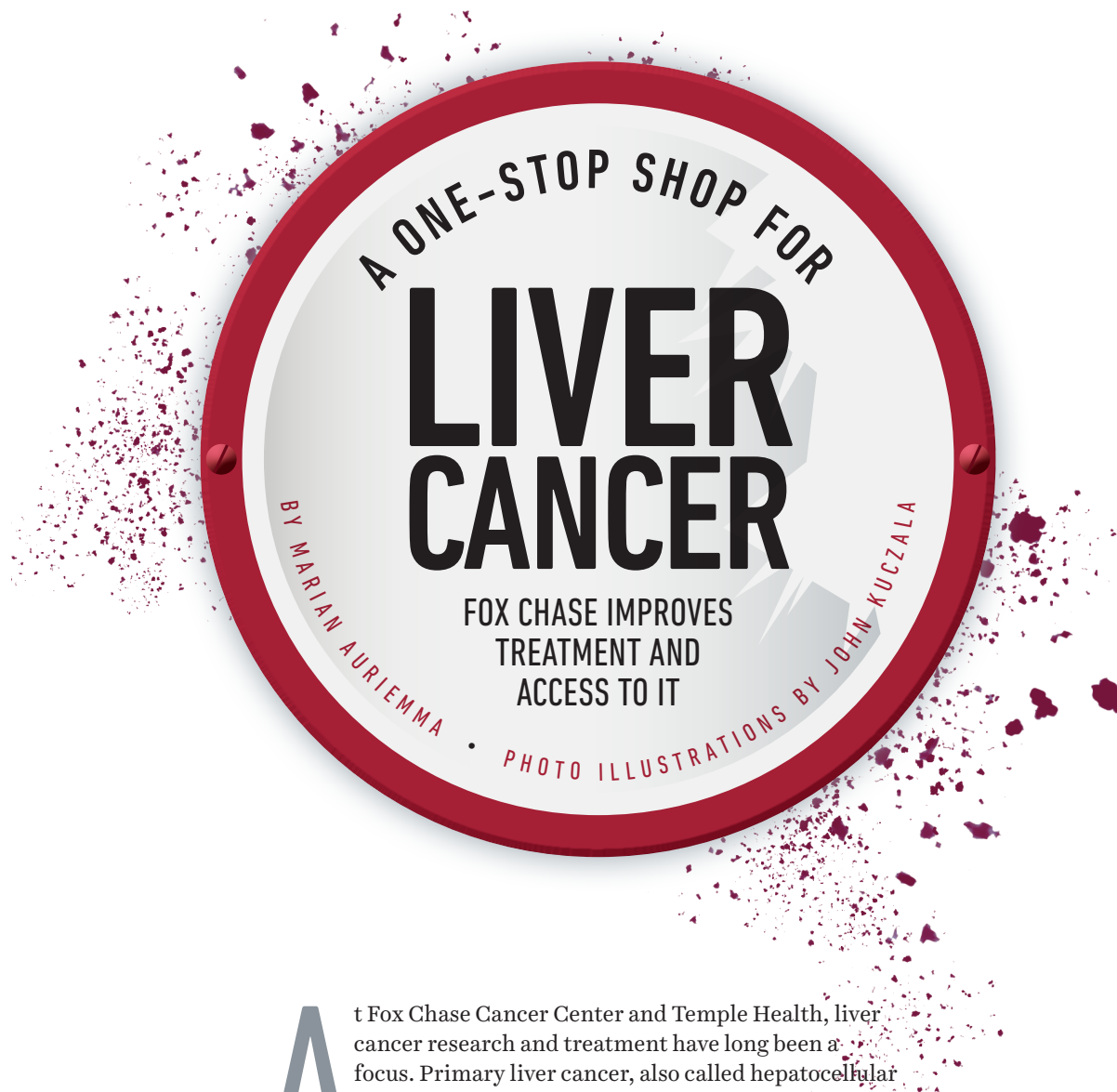
Fleisher, whose lab focuses on research and quality improvement initiatives, conducted a two-year study with her colleagues to explore some of these patient dilemmas. Through in-depth interviews with, and surveys of, African

American cancer patients, Fleisher and Temple colleague Sarah Bauerle Bass were able to gain a more holistic understanding of the common concerns of underrepresented cancer patients regarding clinical trials.

They found that many of those who did not participate felt that they were not given enough information about the availability of clinical trials or what the process entailed. Those findings helped the researchers develop an app called mychoice to provide a resource for cancer patients to help them address concerns and improve their discussions about clinical trials with their providers.

With this new tool, potential trial participants can watch video interviews with cancer patients who have made decisions about involvement in clinical trials. In addition, patients can select from a wide range of questions that Fleisher hopes they will use in discussions with their healthcare providers. Interview results showed patients felt more positive about the possibility of participating in clinical trials after receiving information through the app.

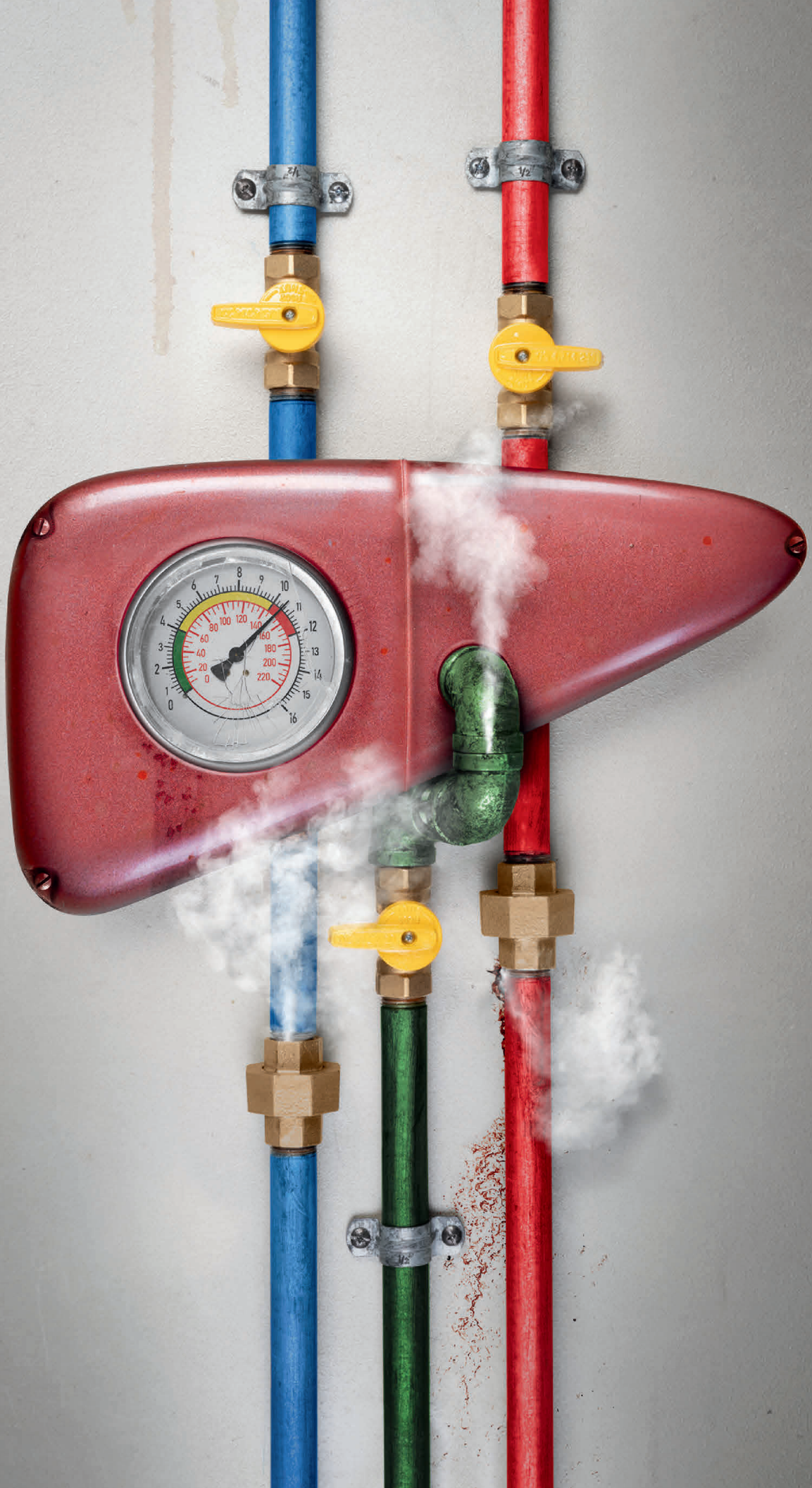
“The hope is that mychoice will empower patients to be proactive in their treatment protocols and feel comfortable discussing their concerns with healthcare providers,” said Fleisher. “Until patients understand and feel comfortable with their healthcare options, none of the other facets of care can work.” ♦



At Fox Chase Cancer Center and Temple Health, liver cancer research and treatment have long been a focus. Primary liver cancer, also called hepatocellular carcinoma (HCC), is the fifth most common cancer in the world. It is accompanied in most cases by underlying disease such as cirrhosis, which features extensive scarring of the liver. The most common causes of cirrhosis and HCC worldwide are viral hepatitis B and C.

Fox Chase has a unique history in this area. The late Baruch S. Blumberg received the 1976 Nobel Prize in medicine for identifying the hepatitis B virus as one of the major causes of liver cancer. His Fox Chase laboratory group created the first highly effective vaccine capable of preventing a human cancer, the hepatitis B vaccine, which was introduced in 1982.

The work on liver cancer treatment has not slowed since then. Researchers in both the lab and the clinic at Fox Chase and



A One-stop Shop for Liver Cancer

Temple Health are taking a comprehensive approach to liver cancer, making them a one-stop shop for fighting the disease as they continually work toward new and improved tools to tackle this devastating disease.

This work is particularly important, given that Temple Health's main campus is located in North Philadelphia, where higher rates of poverty and cancer overlap. Previous studies have shown that liver cancer patients from lower-income households are not only commonly diagnosed in later stages of tumor progression, but experience significantly higher rates of mortality as well. But the state-of-the-art care being developed and offered at Temple and Fox Chase can make a difference.

"Whatever situation you find yourself in, we have either standard-of-care options or cutting-edge clinical trials to offer. We offer a thoughtful approach, which I think makes a difference in long-term outcomes," said Jason Castellanos, a surgical oncologist at Fox Chase.

A COMPLEX DISEASE

Liver cancer is a complex disease with multiple risk factors. In addition to cirrhosis and viral hepatitis, other factors like inherited metabolic diseases caused by genetic defects, tobacco and heavy alcohol use, obesity, and type 2 diabetes can play a role in its development.

Another layer of complexity is added by the fact that many patients do not experience symptoms in the early stages of liver cancer. As a result, they are often diagnosed in intermediate or late stages and miss out on the opportunity for localized treatments. Fortunately, there are still options available to them, several of which Castellanos specializes in.

"Patients with more advanced liver cancer are often candidates for surgery and we can offer them open or minimally invasive operations. The most important thing in the clinical care of these patients is multidisciplinary collaboration and treatment, whether it's chemotherapy, radiation, interventional radiology, or complex surgery that are the methods selected for a particular patient."

Among some of the innovative techniques that Castellanos uses are hepatic arterial infusion (HAI) and robotic surgery. HAI is a treatment option for patients with colon cancer that has spread to the liver. It is a type of chemotherapy delivered directly into the blood supply of the liver, thus sparing the rest of the body from the drug's effects. It is a particularly useful approach for patients with

advanced disease whose cancer cannot be removed with surgery alone.

"Somewhere around 50% to 80% of patients with colon cancer that has spread to the liver have disease that cannot be treated surgically, so the hepatic artery pump is one of the most effective ways to get them to a point where they can undergo surgery," said Castellanos.

Robotic surgery is a minimally invasive approach that allows for the removal of tumors using mechanical arms with surgical instruments attached to them. It involves much smaller incisions and allows patients to recover more quickly, so it is especially helpful for patients who are older or may have difficulty recovering from an operation, said Castellanos.

MAKING DRUGS MORE EFFECTIVE

But if a patient's cancer is detected early enough, treatment with drugs alone may do the trick, and it is Ling Yang's job to make sure these drugs work as efficiently as possible. Yang, an assistant professor of medical genetics and molecular biochemistry at the Lewis Katz School of Medicine at Temple University, is investigating methods for improving current cancer drugs,



which she said are not always as effective as they could be.

Currently, the standard treatment for late-stage HCC is the chemotherapy drug sorafenib. However, more than 30% of patients treated with this drug have severe reactions like increased blood pressure, bleeding, and cardiac events that can often lead to dose reduction or the drug being stopped completely.

“Combination therapies, which could be given along with the drug sorafenib to improve its effect, are urgently needed. New therapeutic strategies with better treatment outcomes are also urgently needed,” said Yang. In their search for these new therapies, she and her colleagues have been focusing specifically on non-alcoholic fatty liver disease, one of the main risk factors for developing liver cancer. They found that a gene that contributes to the progression of non-fat liver disease can also slow its growth under certain conditions, so that is one avenue they are exploring.

Additionally, Yang is working on determining the role of long non-coding RNAs, a recent discovery that has been shown to act as central regulators in the development of cancer. Tumor protein 53 (TP53) is the second most frequently mutated gene in liver cancer. Her research has examined the role of a TP53-induced lncRNA called tumor protein 53 target gene 1 (TP53TG1) in liver cancer and investigated how it affects the performance of sorafenib in attacking HCC.


Their research found that by reducing the expression of TP53TG1, liver cancer cells became more responsive to treatment with sorafenib, suggesting that this method may be an improved form of therapy for HCC patients.

UNDERSTANDING LIVER CANCER PROGRESSION

While Yang and Castellanos are working to improve the treatment of liver cancer, Fox Chase researcher Joan Font-Burgada’s focuses on the earliest stages of the disease—how it develops and how to detect it.

“We know very little about how these tumors originate and how they evolve over time. Mouse models are very important for this because we can begin to understand all these steps,” said Font-Burgada. “Having new fundamental concepts of this disease and how we need to take into account underlying disease will allow us to understand whether treatments are suitable for a patient with chronic problems in the liver.”

In order to create a more accurate model of the



“Whatever situation you find yourself in, we have either standard-of-care options or cutting-edge clinical trials to offer.”

—JASON CASTELLANOS,
FOX CHASE SURGICAL ONCOLOGIST

molecular development of HCC, Font-Burgada’s lab is combining mouse genetics with the use of transposons, which are DNA sequences that can move from one location in the genome to another.

They are using these transposons to translate mutations that are found in human patients into the mouse liver so that they can generate tumors that have a similar genetic makeup. This allows them to study how these mutations interact with each other and with

the chronic underlying disease, Font-Burgada said.

His lab is also working on projects that apply findings on liver regeneration from mouse models to humans through the use of a specific kind of hepatocyte, the most common cells found in the liver. “Our recent identification of hybrid periportal hepatocytes has shown an important role in the regeneration of the damaged liver in mice. These findings form the basis for our next goal, which is to translate these results from our mouse models into human cell therapy.”

LIVER CANCER DISPARITIES

In addition to working to improve the treatment of liver cancer, researchers at Temple and Fox Chase are exploring the issue of disparities among liver cancer patients, particularly in the Asian American community. According to the American Cancer Society, Asian Americans and Pacific Islanders have the highest rates of liver cancer, followed by Hispanics/Latinos, American Indians/Alaska Natives, African Americans, and whites.

In an attempt to remedy this, researchers like Grace Ma have begun to expand research on structural racism and discrimination (SRD) to include Asian Americans. Ma is a founding director of the Center for Asian Health and a professor in the Department of Urban Health and Population Science at the Katz School of Medicine.

The research is being funded through a five-year, \$4 million grant from the National Institute on Minority Health and Health Disparities of the National Institutes of Health. The grant is the first of its kind to support research that addresses the impact of SRD on liver cancer and liver disease in general in high-risk Asian Americans.

“Our hope is that our first multilevel and longitudinal study will not only help us understand how structural racism drives disparities in hepatitis B virus infection and liver disease in Asian American populations, but will also help improve quality of care for those affected by the virus and advance hepatitis elimination initiatives,” she said. ♦

FOX CHASE IS ONE OF TWO CENTERS IN AN NCI INITIATIVE
TO CREATE DRUGS TO ATTACK CANCER EARLY

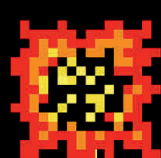
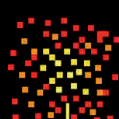
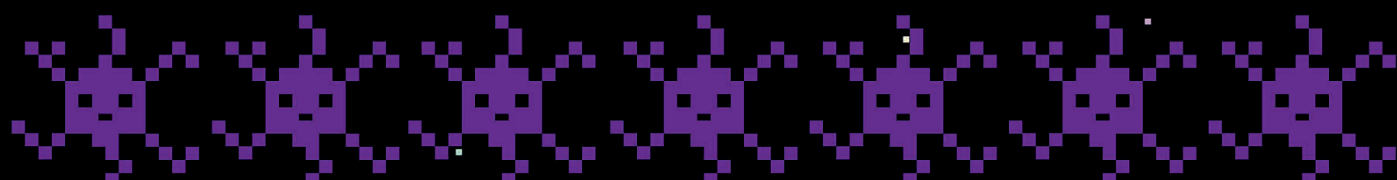


BY MARIAN AURIEMMA • ILLUSTRATION BY BROBEL DESIGN

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03 Three pill icons, each with a red and white half.

CREDIT 00

The rich history of Fox Chase Cancer Center has always been rooted in exploring new and innovative ways to prevent and treat cancer. The research being done today at the center is no exception. With a recent \$6 million grant from the National Cancer Institute, Fox Chase's impact in cancer prevention has the potential to be bigger than ever.

Over the course of five years, the NCI will provide funding to Fox Chase researchers to develop a new Cancer Prevention-Interception Targeted Agent Discovery Program (CAP-IT) to establish a pipeline for the discovery of new cancer-prevention agents. Fox Chase was one of only two institutions, along with Weill Cornell Medicine in New York, to receive a grant. As this project moves forward, it is expected to grow on a national scale.

Margie Clapper, the Samuel M.V. Hamilton Endowed Chair in Cancer Prevention and co-leader of the Cancer Prevention and Control research program at Fox Chase, led the successful grant application and will serve as the program's director.

"This is a very promising initiative, and we are excited and honored to be one of the founding institutions chosen for this project. My lab is dedicated to developing new therapies for the prevention of cancer and has been for 30 years. The CAP-IT provides an opportunity for other scientists across Fox Chase to contribute to this mission in a meaningful way," said Clapper.

"The CAP-IT program relies upon a collaborative approach to stimulate novel scientific ideas within the CAP-IT network," said Shizuko Sei, director of the CAP-IT Program in the Division of Cancer Prevention for the NCI.

FOSTERING COLLABORATION IN CANCER PREVENTION

The goal of the CAP-IT program, which will be comprised of several research laboratories and shared resources within Fox Chase, is to coordinate the development of molecularly targeted therapies for precision cancer prevention and early interception in populations at high risk for cancer. While prevention aims to stop cancer before it even begins to develop, the goal of early interception is to disrupt the cancer at its initial stages, once it has begun to grow.

To meet the program's main objectives, a multidisciplinary team has been assembled that will consist of members with expertise in cancer biology, drug development, cancer

prevention, and clinical genetics. It will also include experts in the assessment of genetic risk for cancer, techniques for mimicking molecular behavior, and software development for understanding biological data.

"I thought we were well poised to be a founding member of the CAP-IT program, based on its focus on inhibiting tumors that arise in individuals who have inherited something that predisposes them to cancer. My goal for decades has been to develop therapeutic strategies to reduce the incidence of cancer in this high-risk population. I ultimately wanted those enrolled in the Risk Assessment program at Fox Chase to benefit from the novel discoveries we are making in our own basic research laboratories," said Clapper.

To do this, she recruited Michael Hall, chair of the Department of Clinical Genetics and director of the Gastrointestinal Risk Assessment program, which offers screening and counseling to individuals with cancer or those who are at risk for cancer. The team conducts research into

how cancer develops, how it can be prevented, and how it can be best treated, with the goal of reducing the risk of cancer for individuals, families, and communities.

Hall noted Fox Chase's long tradition of focusing on hereditary cancer risk and prevention. He added that research into family history data and familial relationships, risk factors, and the collection of biospecimens have been an important cornerstone of Fox Chase's mission since its inception. These

approaches have allowed investigators at Fox Chase to participate in collaborative, cutting-edge research.

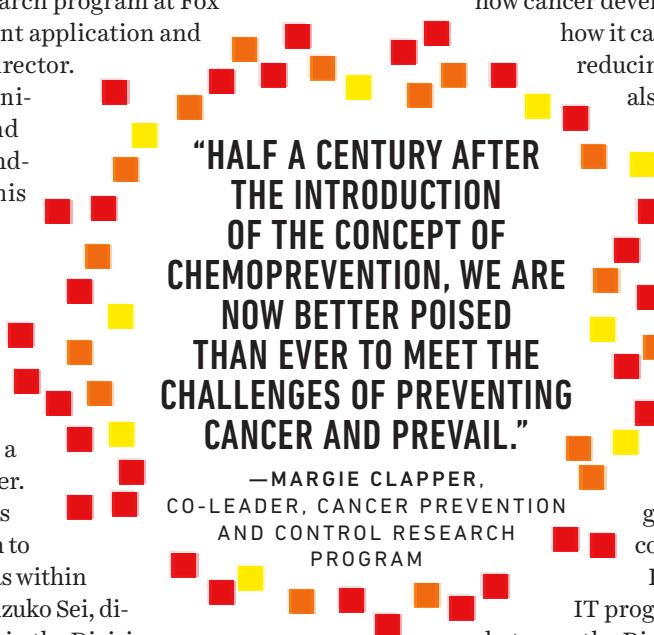
Hall said he believes the CAP-

IT program will foster collaboration between the Risk Assessment program and the many basic scientists both within Fox Chase and beyond who are focused on the same mission.

"Both of the projects proposed by our local Fox Chase investigators are incredibly relevant and true to the mission of the CAP-IT program," said Hall. "We are very excited to be undertaking this important endeavor and look forward to the difference it will make in patients' lives."

PROTEIN-FOCUSED CANCER PREVENTION

The CAP-IT projects at Fox Chase are also rooted in exciting preliminary data from the research into drug discovery and the microenvironment of the tumor, it's "neighborhood" of normal cells, molecules, and blood vessels. These projects will be led by John Karanicolas and Edna "Eti" Cukierman, co-leaders of the Cancer Signaling and



**"HALF A CENTURY AFTER
THE INTRODUCTION
OF THE CONCEPT OF
CHEMOPREVENTION, WE ARE
NOW BETTER POISED
THAN EVER TO MEET THE
CHALLENGES OF PREVENTING
CANCER AND PREVAIL."**

—MARGIE CLAPPER,
CO-LEADER, CANCER PREVENTION
AND CONTROL RESEARCH
PROGRAM



Margie Clapper will be the director of the new CAP-IT program.

Microenvironment research program.

Karanicolas, whose lab builds new chemical tools for regulating biological systems, will be using this work in a new way for the CAP-IT program. His project is focused on addressing mutations in patients with Li-Fraumeni syndrome, which predisposes an individual to cancer because of an inherited gene mutation that disrupts the normal function of a protein called p53. In its natural state, p53 is a tumor suppressor, but when it is mutated, it can spur cancer growth. “Rather than having a mutation that crops up spontaneously as we see in many cancers, these are individuals who start off with one mutated copy of the gene,” said Karanicolas.

His research group has been working on developing possible drugs to change the shape of mutant p53 so it will function as it does in its natural, non-mutated form. They have developed these compounds with the intention of finding a new drug candidate that can treat advanced cancer.

However, with funding for the CAP-IT project, Karanicolas said they now have the opportunity to explore using these compounds in the context of cancer prevention or early interception. One of the compounds that could potentially be used in this setting could help individuals with Li-Fraumeni syndrome. By treating patients with a drug that changes a mutant copy to a state in which it suppresses tumor growth, it could potentially stop the cancer before it begins. He added that the approach is a unique one given the few examples of reversing the action of a defective

tumor suppressor in cancer.

“This is one of the most devastating cancer syndromes we see clinically, with high risks of multiple cancers starting at early ages,” Hall said of Li-Fraumeni. “Here, the impact is enormous, as anything we can do to change the course of this disease for these patients and families will be incredibly valuable.”

CHANGING A TUMOR’S ENVIRONMENT

The tumor microenvironment has been at the center of Cukierman’s work for many years. Her lab focuses on desmoplasia, a unique microenvironment enriched in stromal fibroblasts and other cells that characterizes pancreatic cancer. She and her team study how to reprogram the desmoplastic microenvironment to return it to its natural state, in which it suppresses tumors.

Building on this work, Cukierman’s project under the CAP-IT program aims to target the pancreatic stroma, which is supportive tissue near the developing tumor, to intercept progression of precancerous tissue, thus preventing pancreatic cancer.

This project will focus on Netrin G1, a protein previously found by the Cukierman lab to play a key role in the development of pancreatic cancer. Their previous studies showed that Netrin G1 makes the

local cell neighborhood more supportive of tumor growth. The researchers also found that attacking Netrin G1 with antibodies can induce a state in which it suppresses tumor growth, Cukierman said.

She added that there is a preconceived notion that particular cellular environments are fertile soil for cancer growth and that these are to be eliminated, as opposed to being altered, but the grant will allow her team to put that to the test. “We’re using models where we know that cancer is accelerated and we’re trying to modify the neighborhood to suppress that by using the best agent out of the ones we’ll test. In doing so, we hope to have a prototype drug to take into the pipeline for the future,” said Cukierman.

“This grant provides a very unique opportunity for me because I have never worked in the prevention arena,” she said. “I don’t think there is a place better suited for this grant than Fox Chase because I don’t think there is any better-suited institution where basic scientists such as myself can make such a big impact in the clinical space.”

While Fox Chase is starting with the projects helmed by Karanicolas and Cukierman, the goal is to propose a third project soon, as well as develop and coordinate research collaborations across the CAP-IT program at the national level, said Clapper. “Half a century after the introduction of the concept of chemoprevention, we are now better poised than ever to meet the challenges of preventing cancer and prevail.” ♦

NO DAY AT THE BEACH

BY LEAH LAWRENCE

Around Labor Day 2022, Dr. Gary Oxenberg went to the emergency room near his home in Avalon, New Jersey, with severe symptoms from a stomach virus. The doctors there recommended that he undergo some imaging that revealed a lesion on his spleen. They were not sure what it was.

The doctors recommended follow-up imaging with an MRI, where the lesion showed up again. “The lesion could have been many different things. There were a lot of benign or malignant possibilities. As a practicing internal medicine physician, I was very concerned,” Oxenberg said.

He immediately scheduled a colonoscopy, which was negative. Then he saw a local hematologist/oncologist who recommended a PET scan, a type of imaging that looks at metabolic activity. The lesion lit up on the PET scan, so the hematologist/oncologist suggested repeating the imaging study in three months. He said the only way to truly identify the lesion would be to take Oxenberg’s spleen out.

A biopsy, where a sample of the lesion is taken, would not work because his lesion contained blood vessels. And even if the

biopsy was negative, it could not rule out cancer.

Oxenberg called his niece, Dr. Jacqueline Oxenberg, a surgical oncologist in Pennsylvania. She also recommended that he have his spleen taken out and that he have it done at Fox Chase Cancer Center.

Fox Chase is just under two hours from Oxenberg’s home at the Jersey shore, where he relaxes

Fox Chase and confident in the care he would receive there.

His niece spoke with colleagues at Fox Chase and they recommended he see Andrea Porpiglia, a surgical oncologist. When Oxenberg met with Porpiglia, she recommended that all his imaging studies be reviewed by the radiology/oncology team at Fox Chase.

After about 10 days, they con-

“Dr. Porpiglia’s outstanding surgical skills and all the staff at Fox Chase — the physicians, nurses, and support staff—all delivered excellent care with compassion.”

—DR. GARY OXENBERG, SANT LESION SURVIVOR

by taking walks on the beach. And he was already a patient there being monitored for elevated levels of prostate-specific antigen by urologic oncologist Alexander Kutikov.

In addition, his older brother was successfully treated at Fox Chase for diffuse large B-cell lymphoma and for prostate cancer by Kutikov, who had performed a robotic removal of his prostate. So Oxenberg felt familiar with

tacted him with a diagnosis: the lesion was a sclerosing angiomatoid nodular transformation, otherwise known as a SANT lesion, a benign growth in the spleen. Although these lesions are rare, Porpiglia and the team at Fox Chase were familiar with them. She recommended that Oxenberg still have his spleen removed so they could confirm the diagnosis.

At the time, Oxenberg was supposed to leave on a three-week



trip to Southeast Asia. Porpiglia said the surgery could wait until he got back, but Oxenberg decided to cancel the trip. The spleen is an important part of the immune system, so before surgery, he had to receive several vaccinations. Porpiglia performed surgery to remove his spleen right before Halloween.

It was the first time Oxenberg had major surgery, but everything went well. “Still, the process shook me up a bit. I was a bit depressed after the procedure. I was a healthy, active person and after the surgery I couldn’t even stand up,” he said.

The staff recommended he

speak with a psychiatrist, who was very helpful. Overall the care that he received was top notch, Oxenberg said. “Dr. Porpiglia’s outstanding surgical skills and all the staff at Fox Chase—the physicians, nurses, and support staff—all delivered excellent care with compassion.”

After about two weeks, his pathology results came back and confirmed the SANT lesion. Even though SANT lesions are benign they can be dangerous because they contain blood vessels that can cause them to rupture and result in a medical emergency. “I have a twin brother and I

encouraged him to look into it. I was lucky to find mine as an incidental finding on a CT scan,” Oxenberg said.

About three weeks after his surgery, Oxenberg was back at work as a practicing physician. Without his spleen, he is considered immunocompromised, so he is very careful at work, wearing both a mask and gloves at all times. He also tries to stay away from crowds and take other commonsense precautions.

“I highly recommend Fox Chase to anyone who is in a situation similar to mine. The level of care was outstanding,” Oxenberg said.

BLAZING A PATH IN GERIATRIC ONCOLOGY

BY SARAH JAYNE HUGHES

Traveling has always been a huge part of Efrat Dotan's life. She grew up in Israel, then spent the beginning of her teen years in Canada before moving back to Israel. She eventually landed in the United States, where she has been for over 20 years. Many of those years have been spent at Fox Chase Cancer Center, where Dotan is chief of the Division of Gastrointestinal Medical Oncology.

"Honestly, I didn't even think I wanted to be a doctor until I served in the Israeli army after high

time, her family assumed that since she was going to medical school she would become a pediatrician. "But it was very clear early on that I should not be a pediatrician," Dotan said, laughing.

She was drawn, however, by oncology, a fascination that has never left her. Throughout residency, internship, and other training, she was always drawn to oncology cases because they were the ones that left her feeling the most connected to patients.

Throughout medical school, Dotan participated in a number

They thought the move would be temporary, but now it is home and they have raised three children here. Dotan and her family love to travel together and their favorite trip was to Japan. "It was the first time we took our kids to a place that was very different culturally."

And when she is not traveling, she has other outside interests, including baking: "It's my calm place. Every time I need to not think about things, I need to bake a cake."

That warm feeling that she gets when baking is reflected in how she feels about Fox Chase, where Dotan started as a fellow. "I came here for a tour and left saying, 'This is the only place I want to be.'" She knew she wanted both a clinical and academic career, but had yet to see it be done successfully—until she came to Fox Chase.

When she was finishing her fellowship, Dr. Robert Beck, who is now a professor emeritus, had just received a National Institutes of Health grant to initiate a program in geriatric oncology at Fox Chase. "He was really ahead of the times because there were only a handful of people in the country who were doing this at the time," she said. Beck recognized Dotan's love for the academic side and offered her a full-time position to build the program.

"Nobody here was focused on geriatric oncology, so I ended up reaching out to other

"A big part of my career is focused on how to make the treatments that we already have more manageable for older patients."

—EFRAT DOTAN, CHIEF, DIVISION OF GASTROINTESTINAL MEDICAL ONCOLOGY

school," said Dotan. She thought she only wanted to study chemistry, until someone suggested she apply to medical school. "When you grow up in a Jewish country that wants all kids to be doctors and you get into medical school, you have to go," she said with a chuckle.

She attended the Technion-Israel Institute of Technology and was skeptical at first, unsure if she would like it. She vividly remembers that, like most women at the

of research projects that sought to bridge the gap between the lab and the clinic. One of the things that drew her to oncology was the role that research plays in it. "It doesn't matter what you do in oncology. Even if you are only in the clinic, you are still so immersed in research and the advances that it brings," she said.

When Dotan was applying for residency programs, her husband got a job in the United States.



investigators around the country. I got in touch with the late Dr. Arti Hurria, who was the head of the geriatric oncology community at the time. She took me under her wing and helped me become what I am today,” said Dotan. Among other positions, she now chairs the National Comprehensive Cancer Network’s Older Adult Oncology Panel and the ECOG-ACRIN Geriatric Oncology Working Group.

“A big part of my career is focused on how to make the treatments that we already have more manageable for older patients,” Dotan said. She does this through adjustment of available therapies and appropriate personalization of treatment to the patient’s health

and wishes. She launched the first-ever national clinical trial to study the management of pancreatic cancer specifically in vulnerable elderly patients. “It’s such a huge achievement because only in recent years has there been any acceptance of the idea that maybe we should have trials for patients who are not so robust,” she said. She also conducts research into the biomarkers of aging.

Aside from her interest in geriatric oncology, Dotan is an established clinical investigator in GI oncology and oversees the clinical trial operations for GI oncology at Fox Chase. She leads many studies that are testing new drugs for the treatment of GI malignancies, including ones targeting specific

tumor mutations, as well as immunotherapy and new chemotherapy regimens.

Education and mentorship also play a key role in Dotan’s work experience. She has been part of the fellowship program at Fox Chase ever since she participated in it herself and even served as its director for five years in an effort to give back to the institution that she respects so much. She believes that is simply representative of the commitment of many faculty and staff at Fox Chase.

“That is one of the things that is so special about Fox Chase—everybody is here with the same goal and the same passion: To take amazing care of patients and move oncology research forward.”

STRIKING THE RIGHT CHORD

BY ANDREW BECKER

Over the course of nearly a decade of charitable giving to Fox Chase Cancer Center, Diane and Chris Martin supported breast cancer research, the purchase of surgical equipment, a new mobile screening unit, nursing education, a music therapy program, and more. The initiatives are varied, but the intention is laser-focused: The Martins like bringing things to life.

“It was Diane’s idea to focus our philanthropy that way, and I will keep investing in these programs to honor her memory,” said Chris, who retired as CEO of the famed Martin Guitar Company last year. Diane died in early 2022 from a recurrence of metastatic breast cancer.

Diane was a former Northampton County district judge who first sought treatment at Fox Chase in 2013. Within a year, Fox Chase had become one of their philanthropic priorities. As Diane’s care continued over the ensuing years, Chris would also briefly seek treatment at Fox Chase for bladder cancer. They experienced firsthand the singular blend of expertise and community that permeates the cancer center, and they became integral

to opening new paths for it to flourish.

In 2014 the Martins helped purchase new imaging equipment for the reconstructive plastic surgery team. In 2016 they supported the launch of a clinical trial in triple negative breast cancer that changed the standard of care. Diane’s own breast cancer was not

attributed the good years after her diagnosis to advances that others made possible, and she thought we should do our part to help future patients live better and longer.”

Throughout thirty-plus years together, the Martins supported various causes through their own giving, while also directing the philanthropic efforts of the

The Martin Guitar Charitable Foundation recently began funding a music wellness program at Fox Chase that is run in partnership with the Boyer School of Music at Temple University.

triple negative, but another feature of her approach to philanthropy was a focus on accelerating good work without regard for whether it would benefit her directly. In 2017 they supported the *In Vino Vita* Benefit and Wine Auction Special Pledge, which funded research at the earliest stages, enabling scientists to test new ideas and pursue major funding.

“Diane was diagnosed in her early 50s and enjoyed several healthy years before cancer returned,” Chris said. “She

Martin Guitar Company and its charitable foundation. In addition to Fox Chase, other organizations dear to the Martins include Outward Bound, the Allentown Art Museum, which Chris served as a board member, and Northampton Community College, where Diane was chair of the foundation board. The college recently named its culinary program’s dining room in memory of Diane.

The Martin family founded their namesake guitar company in 1833. Part of Chris’ legacy



at the company is establishing the Martin Guitar Charitable Foundation, which funds music, arts, education, and environmental groups. Diane was its vice president. Since its inception more than 25 years ago, the foundation has donated more than \$4 million to dozens of organizations.

The Martin Guitar Charitable Foundation recently began funding a music wellness program at Fox Chase that is run in partnership with the Boyer School of Music at Temple University. The Integrative Care program at Fox Chase offers a series of expressive music classes (participatory drumming,

chanting, singing), as well as receptive classes (music-guided breathing and relaxation) to help cancer patients and caregivers. There are long-term plans to expand the offerings to include ukulele sessions. Research has shown that patients with robust mindfulness practices, including these kinds of regular relaxation strategies, have fewer adverse events following chemotherapy.

With Diane and her approach to philanthropy on his mind, Chris made his first gift to Fox Chase in her memory by supporting the 2022 *In Vino Vita* Special Pledge with the Martins' largest gift yet.

Chris Martin (left) and his wife Diane (top) have supported Fox Chase for over a decade. Diane, who was treated at Fox Chase, died in early 2022 from a recurrence of metastatic breast cancer. Chris and Diane with their daughter Claire (bottom).

It will help to establish a nursing education simulation lab on campus.

"I experienced a lot of change this past year, losing Diane, becoming a single parent, retiring," Chris said. "But what won't change is my commitment to bringing new things to life at Fox Chase, because that was so important to Diane."

PAWS FOR THE CAUSE RAISES \$85,000 FOR RESEARCH

On September 18, 2022, the Board of Associates hosted the 23rd Annual Paws for the Cause dog walk. More than 600 friends of Fox Chase registered for a morning that included local vendors, entertainment, children's activities, and contests, in addition to the mile-long walk.

The record crowd raised more than \$85,000 for research at Fox Chase Cancer Center. Paws for the Cause has now raised \$800,000 since its inception.

Gina Mantia-Smaldone, associate professor in the Department of Surgical Oncology, was the event's physician ambassador, and Felicity Beideman, a lymphoma survivor, served as patient ambassador. Lori Giampaolo, a breast cancer survivor who has been a top fundraiser, served as event chair.



Beideman was successfully treated for non-Hodgkin lymphoma at Fox Chase. She underwent chemotherapy and was also inspired by the pet visitors to the center, so much so that her family decided to get a new puppy to celebrate her first year cancer-free.

The 24th Annual Paws for the Cause will be held on Sunday, September 10, 2023. Registration and sponsorship information are available at foxchase.org/paws.



NEW APPOINTMENT FOR COMMUNITY OUTREACH AND ENGAGEMENT

Charnita Zeigler-Johnson has joined Fox Chase as Associate Director of Community Outreach and Engagement.

"A dynamic leader with expertise in community-engaged research, Dr. Zeigler-Johnson

"A dynamic leader with expertise in community-engaged research, Dr. Zeigler-Johnson will work collaboratively with our community partners as well as our cancer center leadership."

— JONATHAN CHERNOFF,
CANCER CENTER DIRECTOR

will work collaboratively with our community partners as well as our cancer center leadership and clinical chairs to identify and address the needs of the communities we serve and to integrate community-engaged research across our scientific programs at

Fox Chase and throughout Temple University Health System," said Jonathan Chernoff, Cancer Center Director.

Zeigler-Johnson joins Fox Chase from Thomas Jefferson University, where she was an associate professor in the Division of Population Science, Department of Medical Oncology since 2013 and an associate professor in the College of Population Health since 2021. She also served as an adjunct scholar in the Center for Clinical Epidemiology and Biostatistics at the University of Pennsylvania since 2014.

She earned both her doctoral degree in epidemiology and a master's of public health with a focus on epidemiology from the University of Pittsburgh.

A well-funded investigator with more than 50 peer-reviewed publications to her credit, Zeigler-Johnson's research interests focus on the relationship between community history and prostate cancer disparities, as well as increasing lung cancer screening access and adherence in vulnerable populations.



SIXTH CONSECUTIVE MAGNET DESIGNATION FOR NURSING

Fox Chase has achieved Magnet designation for nursing excellence from the American Nurses Credentialing Center for the sixth consecutive time. Fox Chase has held Magnet status continuously since 2000, when it became the first hospital in Pennsylvania and the first specialty hospital in the United States to achieve Magnet designation.

“Earning Magnet status once is a great honor, but to earn it six consecutive times truly speaks to the level of nursing care that Fox

Chase offers its patients,” said Anna Rodriguez, Chief Nursing Officer and Vice President of Nursing and Patient Services at Fox Chase. “We are truly honored to be among an elite group of institutions who have received this distinction.”

A Magnet designation is used as the gold standard for quality of care and recognizes hospitals that exemplify excellence in nursing. Only about 10% of hospitals nationwide have attained this designation. Fox Chase has achieved it six times, which places it among only about 2% of hospitals nationwide.

IN VINO VITA RAISES \$1.5 MILLION

On October 1, 2022, the Fox Chase Cancer Center community came together for the Ninth Annual *In Vino Vita* Benefit and Wine Auction. The event raised more than \$1.5 million to establish a Nursing Simulation and Innovation Lab at Fox Chase. The experiential learning space will enable nurses and advanced practice providers to continuously train on new techniques and equipment, develop research, and maintain overall excellence in patient care. This new Simulation and

Innovation Lab will enhance the delivery of care throughout Fox Chase and beyond. *In Vino Vita* has now raised nearly \$10 million for cancer research and patient care since it began in 2014.



Pooja Ghatalia was awarded one of six \$75,000 Kidney Cancer Association Trailblazer Awards, which funds young-to mid-career investigators to foster innovative kidney cancer research.



Shelly Hayes received an inaugural Earth Angel Award from Pine2Pink, which honors individuals who have been

active in helping the breast cancer community. The Pine2Pink Foundation is a community nonprofit that works to aid local breast cancer patients across Bucks County.



Shannon Lynch was awarded a \$1.4 million Department of Defense Prostate Cancer Health Disparity Research Award for New Investigators.



Camille Ragin was awarded a \$250,000 grant to investigate methods of improving the cardiovascular management of

patients with prostate cancer being treated with androgen deprivation therapy. Her co-principal investigator on the grant is Daniel Geynisman.



Erin Tagai was awarded a \$75,000 grant as part of the new Kidney Cancer Association Psychosocial

Award, which seeks to address acute unmet needs in the kidney cancer community.

GERALD 'JERRY' HANKS: A REVOLUTIONARY IN RADIATION ONCOLOGY

BY MARIAN AURIEMMA

An influential faculty member at Fox Chase Cancer Center and a worldwide pioneer in radiation oncology, Gerald “Jerry” Hanks revolutionized the field and left a legacy for those who followed.

“His overarching goal in his career was essentially to figure out how to take technology and better treat cancer patients by integrating it into our radiation oncology practice. He was also a huge fan of using data to shape how you make treatment decisions,” said Eric Horwitz, chair of the Department of Radiation Oncology at Fox Chase and the Lewis Katz School of Medicine at Temple University, and one of Hanks’ former mentees.

Hanks received his medical degree from Washington University in St. Louis before radiation oncology became a separate medical specialty. By the 1960s, he became one of the first three residents in the United States to be trained specifically as a radiation oncologist at Stanford University. After completing his residency, he held academic faculty appointments not only at Fox Chase but at Stanford, the University of North Carolina, and the University of Pennsylvania.

After working in private practice from 1971 to 1985, Hanks assumed the chair of the Department of Radiation Oncology at Fox Chase, a position he held for 16 years.

While there, his advances included the first routine use in the United States of CT and MRI in planning radiation treatment and the use of ultrasound to improve the accuracy of each daily treatment.

“Jerry basically developed and put into practice the way to safely deliver higher doses of radiation more precisely, thereby curing more cancers with fewer side effects. This technique was called 3D conformal radiation therapy, and it revolutionized the practice of radiation oncology in the 1980s and 1990s,” said Horwitz.

First used for prostate cancer, this therapy has become routine for many cancer sites and is now used globally. For men at high risk of prostate cancer, Hanks established the Prostate Cancer Risk Assessment Program at Fox Chase in 1996. It offers not only screening but also education about risk factors and how to reduce them, genetic counseling, and the opportunity to take part in prevention-oriented research.

But his accomplishments in the use of new technology for treatment and decision-making are not Hanks’ only legacies. He is remembered by colleagues as an effective collaborator with an eye for selecting the best and brightest.

“He was a truly influential radiation oncologist on the international stage and gathered a great group of younger people at this

institution, most of whom also became markedly influential. To put it simply, he knew how to pick ‘em and was an exceptional mentor,” said John Ridge, professor emeritus and Louis Della Penna Family Chair in Head and Neck Cancer at Fox Chase.

“Thirty years ago, when I joined the institution, he was instrumental not only in supporting the multidisciplinary team that we developed here, but in addition he was attentive to supporting the careers of many young people, even when they were not radiation oncologists,” said Ridge.

To those mentees, including Horwitz, he is remembered as a kind person and innovative clinician who could make patients secure in the care they were receiving and colleagues feel assured in the care they were offering.

“He was very good at explaining things to people and translating complicated subjects with understandable explanations. He just had a way of instilling confidence in people. In that way I’ve tried to channel him in how I take care of patients,” said Horwitz.

Hanks retired from medicine in 2001 and was honored for his contributions with the creation of the Gerald E. Hanks Chair in Radiation Oncology at Fox Chase, which is now held by Horwitz. He passed away on December 20, 2017, at the age of 83.





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