What a year it's been for cancer research! In my 39 years of experience, never have I witnessed such a leap in cancer knowledge and trailblazing therapies. These gains, as well as the American Cancer Society’s recent announcement that cancer death rates have declined 27 percent since 1991, give me a renewed hope.

Still, roughly 1.7 million people will be diagnosed with cancer this year in the United States. There is more to be done.

As the only National Cancer Institute (NCI)-designated cancer center in the region, we feel a deep personal obligation to cure all cancers. At The University of Kansas Cancer Center, researchers, physicians, nurses and educators work together, examining cancer from several perspectives. By increasing our understanding of cancer risk factors, developing new and improved screening methods for cancer prevention and early detection, as well as applying basic lab discoveries to create new and improved cancer therapies, we can make a difference.

A FOUNDATION BUILT ON COLLABORATION

Groundbreaking discoveries cannot occur in a vacuum. When you bring together experts, the possibilities are limitless. It is when a world without cancer becomes possible.

At KU Cancer Center, we are starting with our catchment area, which includes the entire state of Kansas and western Missouri.

We are collaborating with cancer care providers across this region, where more than a quarter of the population lives in rural areas.

The American Society of Clinical Oncology’s (ASCO) 2017 State of Cancer Care in America report found that about 19 percent of the U.S. population resides in rural areas, but only 7 percent of oncologists practice in rural areas, and cancer mortality rates certainly reflect those gaps in care. As we work towards the next (and highest) level of NCI designation, Comprehensive, we will continue to hone efforts that have the biggest effect on the populations we serve.

Not surprisingly, collaboration is also at the heart of a new initiative I am spearheading. As president of the Association of American Cancer Institutes (AACI), I am working with AACI’s 98 cancer center members to develop a comprehensive library of sample legislation that advances cancer research, treatment and prevention. By pooling resources, we can advance sound public policies that may save hundreds – if not thousands – of lives.

A CANCER-FREE KANSAS (AND BEYOND)

In terms of depth and breadth of cancer research occurring in our state, The University of Kansas Cancer Center stands alone. Our efforts are diverse and far-reaching. About 15,000 Kansans will be diagnosed with cancer this year. This motivates us at KU Cancer Center to work together to do more. There is no time to waste.
We are collaborating with cancer care providers across this region, where more than a quarter of the population lives in rural areas. The American Society of Clinical Oncology’s (ASCO) 2017 State of Cancer Care in America report found that about 19 percent of the U.S. population resides in rural areas, but only 7 percent of oncologists practice in rural areas, and cancer mortality rates certainly reflect those gaps in care. As we work towards the next (and highest) level of NCI designation, Comprehensive, we will continue to hone efforts that have the biggest effect on the populations we serve.

Not surprisingly, collaboration is also at the heart of a new initiative I am spearheading. As president of the Association of American Cancer Institutes (AACI), I am working with AACI’s 98 cancer center members to develop a comprehensive library of sample legislation that advances cancer research, treatment and prevention. By pooling resources, we can advance sound public policies that may save hundreds – if not thousands – of lives.

I am immensely proud of our team and the progress we have made in understanding cancer’s complexities and reducing its burden in our communities. I hope you enjoy learning about some of these efforts in this year’s issue of Beyond the Bench.

With gratitude,

ROY A. JENSEN, M.D.
Director, The University of Kansas Cancer Center
Director, Kansas Masonic Cancer Research Institute
A REVOLUTION IN CANCER THERAPY

Immunotherapy, a relatively new concept in cancer treatment, has picked up steam over the last three or so decades. In 1985, Steven Rosenberg, M.D., Ph.D., chief of surgery at the National Cancer Institute (NCI), pioneered the development of immunotherapy by removing a patient’s white blood cells, modifying them in the lab and infusing the cancer-fighting cells back into the patient. Since then, researchers have continued to look for ways to harness the immune system for the treatment of cancer.

More recently, the field made an unparalleled surge forward with the emergence of a novel treatment concept called CAR (Chimeric Antigen Receptor) T-cell therapy. CAR T-cells are engineered immune cells specially trained to identify and fight cancer. In 2017 and 2018, the U.S. Food and Drug Administration (FDA) approved the use of such therapies in two types of blood cancers.

According to Joseph McGuirk, D.O., division director of the hematologic malignancies and cellular therapeutics program at The University of Kansas Cancer Center, the advances validate immunotherapy’s place among cancer care’s original four pillars, which are chemotherapy, radiation, surgery and targeted therapy.

“We are in a remarkable and truly revolutionary time for cancer therapeutics,” McGuirk says. “Immunotherapy has made significant advances. Experts believe it has become a ‘fifth pillar’ among the other tried-and-true therapies.”

ARMING THE T-CELLS

White blood cells are required for good health and protection against disease. They flow through the bloodstream, finding and attacking foreign invaders like bacteria and viruses. To help the cells identify elusive cancer cells, CAR T-cell therapy involves taking T-cells from a patient, genetically modifying them with an artificial receptor that targets cancer cells and reinjecting them back into the patient. Once infused, they multiply and attack tumor cells.

Two CAR T-cell drugs have been approved by the FDA so far. YESCARTA™ is available to some adult patients with aggressive non-Hodgkin lymphoma that has relapsed after prior treatments or has not responded to other therapies. KU Cancer Center played an important role in the approval of the second drug, KYMRIAH™. The only National Cancer Institute (NCI)-designated center in the region, KU Cancer Center was the first of 27 sites around the world to enroll patients in the multi-national Phase 2 study, called the JULIET trial. KU Cancer Center treated more patients in the study than any other participating site. KYMRIAH is approved for patients up to 25 years old with relapsed or refractory acute lymphoblastic leukemia (ALL) and for adult patients with relapsed or refractory non-Hodgkin lymphoma.

The results, McGuirk says, are stunning. About 50 percent of KYMRIAH study participants with non-Hodgkin lymphoma achieved complete remission, and 85 percent of patients with ALL achieved 85 percent remission.

“The outlook is usually grim for patients who have relapsed and are chemo-resistant. Survival is expected to be quite short, numbered in months, not years,” McGuirk says. “The results are unprecedented.”

McGuirk adds that the majority of those who achieved complete remission are maintaining that remission with longer term follow-up.

SHAPING FUTURE TREATMENTS

Currently, KU Cancer Center is the only institution in Kansas to offer all available forms of CAR T therapy.

Administering CAR T-cell therapy is a complex endeavor, and providers are working to make these scientific advances more readily available to qualified patients. Closing the gap is of utmost importance, McGuirk says, but best practices must first be established.

“We are home to the largest and most experienced blood and marrow transplant and cellular therapeutics program in the region,” McGuirk explains. “You must have the expertise, accreditation and infrastructure to give this complex therapy safely and effectively.”

McGuirk and his team published a study to help centers set up the infrastructure to offer CAR T-cell therapy. In 2018, McGuirk was elected to lead a national initiative to advance the use of CAR T-cell therapies. Established by the Association of American Cancer Institutes (AACI), the goal is to develop and disseminate best practices for centers offering the therapy.

While blood cancers have been the catalyst for these advances, researchers and physicians hold the same hope for CAR T-cell therapy success in solid tumors. KU Cancer Center researchers in the lab are applying immunotherapy and CAR T-cell therapy concepts to the stomach, brain and other parts of the body. In the clinic, multiple cellular therapy-based trials are open for enrollment with several more in start-up.

“The fields of cancer research and care are on an incredible trajectory. It’s a remarkable time to be a doctor, nurse or researcher,” McGuirk says. “When we look back, I think we are going to see it as a turning point, when the very landscape of cancer medicine changed.”
We are home to the largest and most experienced blood and marrow transplant and cellular therapeutics program in the world at The University of Kansas Cancer Center. — Joseph McGuirk

We are in a remarkable and truly revolutionary time for cancer therapeutics. — Joseph McGuirk

According to Joseph McGuirk, D.O., division director of surgery at the National Cancer Institute (NCI), pioneered cancer therapeutics, “Immunotherapy has made significant advances. Experts believe it has become a ‘fifth pillar’ among the other tried-and-true therapies.”

CAR (Chimeric Antigen Receptor) T-cell therapy. CAR T-cell therapy involves taking T-cells, white blood cells, modifying them in the lab and infusing the cancer-fighting cells back into the patient. Since then, advances more readily available to qualified patients. Administering CAR T-cell therapy is a complex endeavor, and providers are working to make these scientific advances more broadly available.

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The outlook is usually grim for patients who have relapsed and providers are working to make these scientific advances more readily available to qualified patients. Administering CAR T-cell therapy is a complex endeavor, and providers are working to make these scientific advances more broadly available. McGuirk adds that the majority of those who achieved complete remission are maintaining that remission with longer term follow-up.

The results, McGuirk says, are stunning. About 50 percent of KYMRIAH study participants with non-Hodgkin lymphoma achieved complete remission, and 85 percent of those patients maintained remission for over a year. Two CAR T-cell drugs have been approved by the FDA for cancer therapy-based trials are open for enrollment with several prospects.

In 1985, Steven Rosenberg, M.D., Ph.D., chief immunotherapy, a relatively new concept in cancer treatment, has picked up steam over the last three or so decades. In 2017 and 2018, the U.S. Food and Drug Administration has approved two CAR T-cell drugs for cancer therapy. While blood cancers have been the catalyst for these advances, researchers and physicians hold the same hope that CAR T-cell therapy concepts can be applied to solid tumors.

Currently, KU Cancer Center is the only institution in Kansas to offer all available forms of CAR T therapy. McGuirk was elected to lead a national initiative to advance and disseminate best practices for centers offering the therapy.
Healthy bacteria help resist infection by pathogens. An unhealthy diet lacking the nutrients necessary for bacteria to thrive may force it to become an opportunistic pathogen. When that happens, it is harder for your body to resist infection. This eventually leads to incredibly significant damage. Years later, you may get sick.

Younger and younger people are developing colon cancer. The role of bacteria in cancer development is not as well-established as the role of viruses. Compared to the relationship between viruses and cancer – the role of bacteria in cancer – the role of bacteria in cancer development is not as well-established. According to Umar, researchers have only just begun to scratch the surface when it comes to understanding the microbiome.

One arm of Umar's research involves studying dietary factors, primarily a group of compounds called short-chain fatty acids (SCFA) to prevent colon cancer. SCFAs are produced when gut bacteria ferment fiber in your colon. One type of SCFA, butyrate, plays a big role in colon health. Butyrate is delivered to the colon by the food we eat. A number of fruits and vegetables, including avocados and broccoli, have high amounts of soluble fiber that generate the short-chain fatty acid butyrate.

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Butyrate is delivered to the colon by the food we eat. A number of fruits and vegetables, including avocados and broccoli, have high amounts of soluble fiber that generate butyrate. In contrast, Tributyrin is not dependent on host digestion, butyrate. In contrast Tributyrin, is not dependent on host digestion, butyrate. In contrast Tributyrin. Tributyrin

Using plant-based approaches, Umar and his lab are focusing on two products: pectin, a soluble fiber found in ripe fruit and jellies, and tributyrin, a triglyceride and insoluble fiber naturally present in butter. Pectin is not digested in the upper gastrointestinal tract. Instead pectin goes into the colon where bacteria aid in converting it to the precursors of butyrate. Butyrate is delivered to the colon by the food we eat. A number of fruits and vegetables, including avocados and broccoli, have high amounts of soluble fiber that generate the short-chain fatty acid butyrate.

One of the hallmarks of colon cancer is the lack of butyrate in people's diet. Younger and younger people are developing colon cancer. The role of bacteria in cancer development is not as well-established. Cancer – the role of bacteria in cancer development is not as well-established. Compared to the relationship between viruses and cancer – the role of bacteria in cancer – the role of bacteria in cancer development is not as well-established. According to Umar, researchers have only just begun to scratch the surface when it comes to understanding the microbiome.

Research has shown that pectin is never converted to butyrate in germ-free mouse models – meaning mice raised without bacteria. When pectin is introduced to germ-free mouse models, pectin is never converted to butyrate. In these mice, pectin is never converted to butyrate. Other efforts led by Umar include studying the direct role of pectin butyrate. In these mice, pectin is never converted to butyrate. Butyrate is delivered to the colon by the food we eat. A number of fruits and vegetables, including avocados and broccoli, have high amounts of soluble fiber that generate butyrate. In contrast, Tributyrin is not dependent on host digestion, butyrate. In contrast, Tributyrin. Tributyrin is not dependent on host digestion, butyrate. In contrast, Tributyrin.

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**EXAMINING THE “FORGOTTEN ORGAN”**

Shahid Umar, Ph.D., researcher with The University of Kansas Cancer Center, has dedicated two decades of his scientific exploration to better grasp the connection between colon cancer and the human microbiome. Called the “forgotten organ,” the microbiome comprises trillions and trillions of microbes, including bacteria, fungi and viruses, in our body.

Each person has their own unique set of microbes, initially determined by our DNA and early years of life. These microbes set up shop in several areas throughout our body, including sex organs and skin, but the largest concentration by far is in our gut. And the gut, Umar theorizes, is where many diseases originate.

Compared to the relationship between viruses and cancer—such as the human papillomavirus (HPV) and cervical cancer—the role of bacteria in cancer development is not nearly as well-established. According to Umar, researchers have only just begun to scratch the surface when it comes to understanding the microbiome.

“People think that all bacterial infections can be resolved with an antibiotic. However, you may be oblivious to a microbial issue in your gut at the time it is active,” Umar says. “But the damage is done. Years later, you may get sick.”

Colon cancer, the third most common type of cancer in the United States, can be one such problem. About 85 percent of cases are deemed sporadic, or non-hereditary, meaning there is opportunity for prevention.

“That gives us a window to take proactive steps, like eating healthy and staying active, to reduce our risk of colon cancer,” Umar says.

Enter the significance of bacteria in the microbiome. In our bodies, an ecosystem exists in which the gut provides shelter and nutrients for bacteria, and bacteria returns the favor by making vitamins and essential amino acids and processing hard-to-digest foods like soluble fiber. In addition, healthy bacteria help resist infection by pathogens. An unhealthy diet lacking the nutrients necessary for bacteria to thrive may force it to become an opportunistic pathogen.

“When that happens, it is harder for your body to resist infection. This eventually leads to incredibly significant changes to your biology, which may surface as colitis, a precursor to colon cancer, or the cancer itself,” Umar says. “My lab has extensive experience in characterizing the role of bacterial infection in these diseases.”

**RESTORING WHAT IS LOST**

One arm of Umar’s research involves studying dietary factors, primarily a group of compounds called short-chain fatty acids (SCFA), to prevent colon cancer. SCFAs are produced when gut bacteria ferment fiber in your colon, and they are the main source of energy for the cells lining the colon.

One type of SCFA, butyrate, plays a big role in colon health. A number of fruits and vegetables, including avocados and broccoli, have high amounts of soluble fiber that generate butyrate and other SCFAs. Without butyrate, bacteria become unstable and hyperactive, searching for ways to survive. Subsequently, the starved bacteria start a chain of unhealthy events. They attack the body’s cells, including the mucous layers of the colon and its epithelial lining, and the immune system goes into overdrive, causing chronic inflammation. If these conditions persist long enough in one’s gut, the healthy bacteria may disappear forever.

“Younger and younger people are developing colon cancer sporadically, and we want to look at whether this may be related to a lack of butyrate in people’s diet,” Umar says. “We wanted to see if there was a way to replenish this crucial short-chain fatty acid in someone suffering from a gut disease like colitis.”

Using plant-based approaches, Umar and his lab are focusing on two products: pectin, a soluble fiber found in ripe fruit and jellies, and tributyrin, a triglyceride and insoluble fiber naturally present in butter. Pectin is not digested in the upper gastrointestinal tract. Instead pectin goes into the colon where bacteria aid in converting it to butyrate. In contrast Tributyrin, is not dependent on host bacteria to generate butyrate.

Germ-free (i.e., no bacteria) mouse models—meaning they lack short-chain fatty acid butyrate—received one of the two compounds. These mice therefore represent an excellent model system wherein to study the role of bacteria in colitis and colitis-associated colon cancer.

“I’ve always been fascinated by the world of microbes, and research increasingly shows that these play an integral role in our health.”

— Shahid Umar

“In these mice, pectin is never converted to that necessary butyrate.” Umar reports. “However, the tributyrl, because it does not require a microbiome to change to butyrate, protected the mice from developing colitis. Those mice seem to recover and appear less likely to develop colon cancer.”

Other efforts led by Umar include studying the direct relationship between the microbiome and intestinal stem cells in the gut, as well as a collaboration with Children’s Mercy studying necrotizing enterocolitis, a devastating disease that affects the intestine of premature infants, and how establishing a healthy microbiome early on influences their health.

“I’ve always been fascinated by the world of microbes, and research increasingly shows that these play an integral role in our health,” Umar says. “The microbiome is the new frontier.”
LYMPHEDEMA PREVENTION AND EARLY DETECTION
GO ARM IN ARM

To understand lymphedema, picture a highway construction project. Machinery and roadblocks interrupt the usual flow of traffic, so construction crew members divert drivers on to side roads to keep traffic moving. Without a detour, cars would continue to back-up, resulting in a jam.

Our bodies have a network of lymph vessels and lymph nodes that function as part of the immune system. The vessels carry oxygen and other nutrients to the cells, and carry away waste like carbon dioxide that flows from the cells. The lymph nodes act as filters for the vessels content. Nodes that have been removed during cancer surgery can leave the vessel fluid with nowhere to go, a lymph fluid traffic jam. In breast cancer patients, the result is chronic, debilitating swelling of the arm.

Lymphedema occurs in up to 40 percent of breast cancer patients post-surgery. Between one and five lymph nodes are removed for a sentinel lymph node biopsy, and more than ten are typically removed for an auxiliary lymph node dissection. The condition often goes undiagnosed until it’s clinically apparent, when it cannot be reversed.

The Women’s Cancer Center at The University of Kansas Cancer Center focuses on breast and gynecologic cancers and improving the delivery of cancer care. Its Lymphedema Prevention Clinic, of which there are only a few in the country, centers on lymphedema prevention, early identification and treatment with routine surveillance. Every breast cancer patient is scheduled to visit with a lymphedema specialist. In 2017, the clinic’s specially trained nurses treated about 2,000 patients.

Jamie Wagner, D.O., FACOS, division chief, breast surgical oncology, points out that because lymphedema is a chronic, progressive disease, the patient population grows year-over-year. Despite its high incidence rate, it has been an understudied side effect of breast cancer treatment.

“When I started practicing surgery and treating breast cancer patients, my patients were more concerned about removal of lymph nodes than their breasts,” says Wagner. “It’s a huge patient concern that motivated me to better understand lymphedema from a scientific perspective.”

To start, Wagner and surgery chief resident Lyndsey Kilgore, M.D., looked at the outcomes model for mammograms, which emphasizes and demonstrates the importance of early detection. They also analyzed previous lymphedema studies and noticed that baseline measurements of the swelling were rarely taken. The team hypothesized that early identification of lymphedema would result in less extensive treatment and improved outcomes.

These factors became the pillars of a clinical trial aimed at identifying the earliest signs of lymphedema and then intervening and reducing progression. Using KU Cancer Center’s database, which contains the details of thousands of breast cancer patients treated at the center, the team narrowed down to a group of 146 women at highest risk for developing lymphedema.

**QUICK TEST, SIMPLE STRATEGY**

All participants were measured pre- and post-surgery using a bioimpedence spectroscopy, a tool that uses electrical current to detect tissue resistance to flow. Sticky electrode pads connected to a machine affix to the patient’s arm and leg. Minutes later, results are available. The team also took physical arm measurements, which is the current standard of care.

“The bioimpedence spectroscopy tool can detect subtle changes in patient’s extracellular fluid volume before it’s ever detectable via arm measurements,” Kilgore says. “It even senses build-up at the sub-clinical level, before the patient notices.”

Participants with altered measurements indicating lymphedema were prescribed easy at-home methods to reduce progression. This included wearing compression sleeves and patient-directed self-massage.

This intervention proved to be highly effective in preventing breast cancer-related lymphedema: 82 percent of the women diagnosed with early-stage lymphedema returned to their normal pre-treatment measurements. The results, which were presented at the 2018 annual American Society of Breast Surgeons (ASBrS) meeting, made national headlines.

The findings not only support interventions that are convenient and easy-to-follow, they also support the case for insurance companies to broaden lymphedema coverage. Compression sleeves, for example, are rarely fully insured and can cost a thousand or more dollars.

The team is already thinking about how to make this straightforward yet life-changing approach to a wider patient group. The second generation of the bioimpedence spectroscopy omits the sticky pads, eliminating the need for a one-on-one appointment with a specially trained nurse to administer the test. Nurses remain a critical part of the process as they interpret test results and follow-up with patients.

“The new detection devices are embedded in the machine. You literally stand on a pad with bare hands and the results are generated,” Kilgore says. “It provides so many opportunities in terms of making this technology available to rural parts of Kansas.”

One in eight women will develop breast cancer in her lifetime, and a large percentage of those with cancer will be at increased risk of developing lymphedema. That’s why Wagner continues to push research efforts that aim to increase our understanding of it.

“In clinical research, you’re always thinking of the next phase of your idea. I hope to take this beyond the walls of our own institution by developing a multi-center trial that can be conducted at sites across the country,” Wagner says. “This is cutting-edge research that could really make a difference in a patient’s quality of life. And it started here at KU Cancer Center.”
Our bodies have a network of lymph vessels and lymph nodes that function as part of the immune system. The lymph nodes act as filters for the vessels’ content. The lymph vessels carry oxygen and other nutrients to the cells, and carry away waste like carbon dioxide that flows from the cells. Lymphedema occurs in up to 40 percent of breast cancer patients treated at the center, the team of breast cancer specialists at The University of Kansas (U.K.) Cancer Center has learned from previous lymphedema studies and noticed that baseline measurements of the swelling were rarely taken. The team hypothesized that early identification of lymphedema would help prevent progression, which was the goal of a clinical trial led by Dr. Jamie Wagner, D.O., FACOS, division chief, breast surgical dissection. The condition often goes undiagnosed until it’s debilitating swelling of the arm. Every breast cancer patient is scheduled to visit with a specially trained nurse to administer the test. Nurses remain a critical part of the process as they interpret test results and follow-up patient notices.

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“GO ARM IN ARM”

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Dr. Wagner and surgery chief resident Lyndsey Kilgore, M.D., looked at the outcomes model for identifying the earliest signs of lymphedema and then intervening and reducing progression. Using KU Cancer Center’s bioimpedence spectroscopy, a tool that uses electrical current to detect tissue resistance to flow, they developed a model to quickly and easily determine which patients are at highest risk for developing lymphedema. This intervention proved to be highly effective in preventing those patients from ever developing lymphedema. The findings not only support interventions that are currently of your idea. I hope to take this beyond the walls of our own institution by developing a multi-center trial that can be conducted at sites across the country,” Wagner says.

“QUICK TEST, SIMPLE STRATEGY”

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The women’s cancer center at U.K. Cancer Center focuses on breast and gynecologic cancers and improving the delivery of cancer care. Its mission is to increase our understanding of it. One in eight women will develop breast cancer in her lifetime, and a large percentage of those with cancer will be at increased risk of developing lymphedema. That’s why Wagner continues to push research efforts that aim to increase our understanding of it.
The JUNTOS Contra el Cáncer team at the biospecimen donation drive.
OUTREACH AND EDUCATION

FILL MINORITY GAP

On a soggy Saturday morning in September, members of the University of Kansas Medical Center’s JUNTOS Center for Advancing Latino Health huddled under a tent, trying to stay dry. Nearby, a band, cheerleaders and community members marched in the Wyandotte Central Avenue Dotteversity parade.

The JUNTOS team had gathered to host a biospecimen donation drive for The University of Kansas Cancer Center Biobank, which supports cancer research by serving as a bank for human tissues and fluids. The drive was the product of months of planning, education and coordination with local Latino organizations and leaders.

“We had all been up late the night before preparing for this event. We were hoping some people would come despite the rain,” said Mariana Ramirez, LMSW, JUNTOS director. “At nine o’clock on the nose, our first participant showed up, paperwork complete and ready to donate!”

JUNTOS CONTRA EL CÁNCER

The drive is one prong in a multi-faceted, culturally relevant and linguistically tailored campaign to involve more members of Kansas City’s Latino community in cancer research. Called JUNTOS Contra el Cáncer (Together Against Cancer) and supported by a local foundation, researchers at KU Cancer Center and JUNTOS have partnered with the Hispanic Chamber of Commerce of Greater Kansas City to increase awareness of clinical trials and biospecimen collection to empower Latinos to make informed decisions about cancer treatment. A Community Advisory Panel, which includes Latino leaders from the Chamber, local community influencers and cancer survivors, aids in community outreach.

Latinos make up nearly 17 percent of the U.S. population. In Wyandotte County, part of KU Cancer Center’s catchment area and comprised of Kansas City, Kansas, Bonner Springs and Edwardsville, nearly 29 percent of the population is Latino. However, less than 3 percent of cancer clinical trial participants nationally are Latino, while cancer is the leading cause of death for Latinos.

“When Latinos and other minorities are underrepresented in clinical trials that means they may not benefit equally from breakthroughs in cancer treatment,” said Sally Maliski, Ph.D., RN, FAAN, associate director for health equity at KU Cancer Center and dean of the KU School of Nursing.

“By participating in cancer research, you are helping to find a future treatment.”

— Mariana Ramirez

In the case of the BioBank drive, researchers use these donated biospecimens—small amounts of blood, urine and tissue—to study how genes, lifestyles and our environments may lead to cancer. Collection of samples from all groups is critical because clinical research increasingly relies on the availability of appropriate genetic materials for the development of new, more targeted cancer therapies.

A CULTURALLY CUSTOMIZED APPROACH

Mistrust, fear and misconceptions amongst Latinos have influenced their level of participation in cancer research. That is why education is a key ingredient in JUNTOS Contra el Cáncer’s efforts. Working closely with the Advisory Panel, team members hosted multiple interactive, bilingual presentations that addressed those misunderstandings and emphasized the benefits of participation. A survey administered before and after presentations assessed audience members’ knowledge and awareness of cancer clinical trials and biospecimen collection.

“This was our very first attempt to take something out into the community, and the community responded,” Ramirez says. “Our preliminary findings suggest that culturally tailored presentations and community-based biospecimen collection are feasible methods to increase Latino representation in cancer clinical research.”

Maliski adds that, though it can take time to shift Latinos’ perceptions, their efforts could lead to more Latinos participating in cancer research, and ultimately improved therapies. The team will seek additional funding to build on the relationships and trust that has been established thus far.

“This is our most important task,” she says. “We must continue these efforts working within the community, educating people about clinical trials, biospecimen donation, cancer prevention and symptom management.” Maliski says. “Now that JUNTOS Contra el Cáncer has been established in the community, we don’t want to pull out. We want to keep going.”
OUTSMARTING OSTEOSARCOMA

Researchers at The University of Kansas Cancer Center and Children’s Mercy Kansas City are joining forces to fight a cancer with a long history of low survival rates.

Osteosarcoma is the most common type of bone cancer found in children and teens. Nine out of 10 patients have “micro-metastasis,” meaning a small amount of the cancerous cells have spread from the original tumor site. Despite intensive chemotherapy, the survival rate for osteosarcoma has been stuck between 60 and 70 percent for the past four decades. Metastasized osteosarcoma reduces survival to less than 30 percent.

Through two projects, Tomoo Iwakuma, M.D., Ph.D., KU Cancer Center researcher and director of the Translational Laboratory Oncology Research program at Children’s Mercy, is working closely with Children’s Mercy medical oncologist Joy Fulbright, M.D., and other KU Cancer Center members to identify a therapy to inhibit osteosarcoma growth specifically for patients who have not responded well to other therapies. Children’s Mercy, an official National Cancer Institute Consortium partner of KU Cancer Center, lends robust clinical expertise that dovetails with KU Cancer Center’s strengths in basic research and drug discovery — a “dream” partnership, according to Iwakuma.

“We working together, we see both sides of research processes. I help ensure that what Dr. Iwakuma is doing in the lab translates to the clinic,” Fulbright adds.

LEVERAGING DRUG DISCOVERY TOOLS

Current treatment for osteosarcoma involves up-front chemotherapy for 12 weeks, then surgery, followed by more chemotherapy. The team’s goal is to discover and develop an effective new drug to improve treatment outcomes.

“Tumor cells are smart and become resistant to a single drug treatment very quickly. We need to discover and develop new drugs that attack osteosarcoma cells without affecting normal cells,” Fulbright says.

To filter through the hundreds of thousands of compounds in existence and identify which ones may specifically kill osteosarcoma cells, the team uses High-Throughput Screening (HTS), a robotic sifting system. The results provide starting points for discovering novel, new drug candidates. KU Cancer Center’s Lead Development and Optimization Shared Resource lends unique, fully integrated drug discovery capabilities including HTS, medicinal chemistry and drug synthesis to support researchers through the discovery process.

“We screened more than 150,000 compounds for activity against our osteosarcoma target, identifying ‘hits,’ or a focused set of potential active compounds,” Iwakuma says.

From there, the team conducted further tests and honed in on a single, novel compound that killed a particularly aggressive line of canine and human osteosarcoma cells. Compound activity in canine osteosarcoma cell lines were evaluated in parallel with human osteosarcoma cell lines. Biologically, the characteristics of the disease in dogs is remarkably like the disease in humans. Iwakuma explains that dogs are 15 times more likely to develop the disease, and studying the efficacy and safety of promising new treatments in already-sick dogs provides valuable insight into how humans may respond.

Iwakuma’s drug target is mutant forms of the p53 protein. In its normal state, the p53 protein, known as the “guardian of the genome,” regulates cell growth. When mutated, it can contribute to metastasis, drug resistance and cell growth.

“We all have active p53 in our genes. However, cancer cells can lose p53 activity. One of the active compounds we’ve identified only kills the cancer cells that lack p53 or contain mutated p53,” Iwakuma says. “In other words, this compound specifically targets cancer cells and does not affect normal cells. At that moment, I knew we had a promising drug discovery project.”

Initially supported by a grant from the Midwest Cancer Alliance and propelled forward with a follow-on grant from Braden’s Hope, a local nonprofit organization, the team is now studying the compound’s mechanisms of action in killing canine and human osteosarcoma cells.

“The loss of p53 protein makes cancer cells more sensitive to the compound. But why and how? So far, we know this compound somehow causes DNA damage that is not efficiently repaired in cells lacking p53. The damage accumulates over time, leading to death of cancer cells,” Iwakuma says.

Although the team is optimistic about the compound currently being studied, parallel efforts are focused on discovering and developing improved drug candidates.

“We have a strong starting point for discovering novel, new agents that target mutant p53 proteins,” Iwakuma says. “It’s a unique advantage to have a team encompassing so many skills, including drug discovery experts who bridge the critical gap between the lab and the clinic. I couldn’t be more excited.”

From the earliest nugget of an idea at the bench to drug development and clinical trials, the collaboration between KU Cancer Center and Children’s Mercy convenes the best from each institution, including biologists, oncologists and translational scientists.

“Working together, we see both sides of the research process,” Fulbright says. “It’s a good back-and-forth partnership that we hope will result in new treatment options for osteosarcoma patients.”
Tumor cells are smart and become resistant to a single drug very quickly. We need to discover and develop an effective new drug to improve treatment outcomes.

Working together, we see both sides of the research process. "Through two projects, Tomoo Iwakuma, M.D., Ph.D., KU Cancer Center, lends robust clinical expertise that dovetails with KU Cancer Center's strengths in basic research and drug discovery – a "dream" partnership, according to Iwakuma."

"Through High-Throughput Screening (HTS), a robotic sifting system, we screened more than 150,000 compounds for activity against our osteosarcoma target, identifying 'hits,' or a focused set of potential active compounds," Iwakuma says. "In other words, we have a strong starting point for discovering novel, new drug candidates."

"Biologically, the characteristics of the disease in dogs is remarkably like the disease in humans," Iwakuma explains. "We have a strong starting point for new drugs that attack osteosarcoma cells without affecting normal cells," Fulbright says. "It's a unique advantage to have a disease that dogs are 15 times more likely to develop than humans, and studying the efficacy and safety of promising new treatments in already-sick dogs provides valuable insight into how humans may respond."

"From the earliest nugget of an idea at the bench to drug optimization through the discovery process, we are working with Dr. Fulbright and the team at Children's Mercy to inhibit osteosarcoma growth specifically in on a single, novel compound that killed a particularly aggressive line of canine and human osteosarcoma cells."

"In its normal state, the p53 protein, known as the "guardian of the genome," plays a key role in eliminating damaged and cancerous cells. However, cancer cells can lose p53 activity. One of the active compounds we found in children and teens with osteosarcoma forbids cancer cells from competing with normal cells," Fulbright says. "We all have active p53 in our genes. However, cancer cells have "micro-metastasis," meaning a small amount of cancerous cells have spread from the original tumor site. Despite intensive chemotherapy, the survival rate for metastasized osteosarcoma is now stuck between 60 and 70 percent."

"Through the discovery process, we are able to test the efficacy and safety of promising new drugs that attack osteosarcoma cells without affecting normal cells," Iwakuma says. "Optimization Shared Resource lends unique, fully integrated chemistry and drug synthesis to support researchers evaluating in parallel with human osteosarcoma cell lines. From there, the team conducted further tests and honed in on a single, novel compound that killed a particularly aggressive line of canine and human osteosarcoma cells."

"We have a strong starting point for new drugs that attack osteosarcoma cells without affecting normal cells," Fulbright says. "It's a unique advantage to have a disease that dogs are 15 times more likely to develop than humans, and studying the efficacy and safety of promising new treatments in already-sick dogs provides valuable insight into how humans may respond."
Acid reflux symptoms include heartburn and acid regurgitation, and it affects approximately 15 percent of the adult population. One out of 10 adults with longstanding acid reflux can progress to a condition in which the normal tissue lining the esophagus, after constant exposure to acid from the stomach, changes to resemble the lining of the intestine. This condition, known as Barrett's esophagus, is now so common that people typically self-treat it with over-the-counter products. The condition, known as Barrett's esophagus, is a precursor to a subtype of esophageal cancer. Called PIB (Progression in Barrett's) scoring, the system determines Barrett's esophagus patients' progression to high-grade dysplasia and cancer. Nearly 4,600 patients have been evaluated for high-grade dysplasia or early cancer from a major surgery less invasive by operating via an endoscope. High-grade dysplasia or early cancer from a major surgery less invasive by operating via an endoscope.

Sharma says. 

Prioritizing patients by risk is a crucial component of care. Most patients with Barrett's esophagus do not progress to high-grade dysplasia or early cancer. However, compared to localized breast cancer, 20 percent of Barrett's esophagus patients develop high-grade dysplasia and cancer. Nearly 4,600 patients with Barrett's esophagus have already shaped the way we diagnose and manage it.

In 2013, Sharma and his team introduced a global nomenclature system for these findings, called the Prague classification system. Sharma's contributions to the understanding of Barrett's esophagus in any part of the world is likely using some tool developed by Sharma and his team. It has been shown that the earlier a suspicious area (dysplasia) in the esophagus is spotted, the better. Ergo, the better the tool, the better the detection of dysplasia. In 2013, Sharma and his team introduced a global nomenclature system for these findings, called the Prague classification system.
Prateek Sharma, M.D., has dedicated his entire career to better understanding a specific complication that can arise from longstanding acid reflux, a condition now so common that people typically self-treat it with over-the-counter products.

Acid reflux symptoms include heartburn and acid regurgitation, and it affects approximately 15 percent of the adult population. One out of 10 adults with longstanding acid reflux can progress to a condition in which the normal tissue lining the esophagus, after constant exposure to acid from the stomach, changes to resemble the lining of the intestine.

Here is why Sharma has authored more than 350 papers about it: the condition, known as Barrett’s esophagus, is a precursor to a subtype of esophageal cancer. Called esophageal adenocarcinoma, this type of cancer is on the rise, and it comprises 80 percent of all esophageal cancer cases, up from 20 percent a few decades ago.

During the 1960s and 1970s, the esophageal cancer five-year survival rate was only 5 percent. Thanks to advances in treatment and earlier detection, it’s now 20 percent with at least 25 percent of localized cancers being diagnosed. However, compared to localized breast cancer and colon cancer, which each have a five-year survival rate exceeding 90 percent, there is more progress to be made.

**CHANGING THE TREATMENT LANDSCAPE**

Sharma’s contributions to the understanding of Barrett’s esophagus have already shaped the way we diagnose and treat the disease. In fact, a physician treating a patient with Barrett’s esophagus in any part of the world is likely using some tool developed by Sharma and his team.

About 12 years ago, Sharma, along with international experts, developed a categorization system that has since been adopted worldwide. Called the Prague classification system and utilized during endoscopy, the process helps determine the extent of Barrett’s esophagus, allowing the physician to then manage accordingly. It has been shown that the increasing area occupied by Barrett’s disease is linked with a higher risk of cancer, so careful grading of the extent is critical.

Patients with Barrett’s esophagus receive endoscopies every three to five years to watch for early signs of cancer development. The earlier a suspicious area (dysplasia) in the esophagus is spotted, the better. Ergo, the better the tool, the better the detection of dysplasia. In 2013, Sharma led a pivotal study that identified the optimal method to identify early signs of cancer.

“In our multi-center trial, we identified endoscopy methods that provide sharper contrast and better images, highlighting the superficial vessels of the tissue. It’s like upgrading your standard television to a new HD or 4K TV,” Sharma says.

He then led a group of experts to devise a global nomenclature system for these findings, called the BING classification system.

In 2017, Sharma led an investigator-initiated study that evaluated a two-sided camera capsule. About the size of a large multivitamin, the patient swallows the capsule and pictures are taken as it moves down the esophagus. Another capsule-related effort with Massachusetts General Hospital and funded by the National Cancer Institute is studying the effectiveness of optical coherence tomography (OCT), which uses light waves to take cross-sectional pictures of the esophagus layers.

“An endoscopy requires IV and sedation, and it can be costly in terms of money and time. The beauty of these newer methods is they are quick and non-invasive,” Sharma says.

Another endoscopic therapy saves patients with either high-grade dysplasia or early cancer from a major surgery in which some or most of the diseased esophagus is removed via an incision in the chest or stomach. The mortality rate is very high – about 20 to 30 percent. Over the last 15 years, Sharma has been working to make this surgery less invasive by operating via an endoscope.

**STRATIFYING RISK**

Prioritizing patients by risk is a crucial component of care. Most patients with Barrett’s esophagus do not progress to cancer, therefore it’s important to identify those at high-risk versus low-risk. Sharma is the architect behind the first system ever to categorize Barrett’s esophagus patients into risk-level groups.

Called PIB (Progression in Barrett’s) scoring, the system determines Barrett’s esophagus patients’ progression to high-grade dysplasia and cancer. Nearly 4,600 patients were enrolled in this 10-year, multi-center study. PIB factors in the extent of Barrett’s esophagus, health history, gender and if they have low-grade dysplasia.

Sharma adds that PIB will change the way Barrett’s esophagus patients are managed, including eliminating unnecessary, costly procedures for patients with low scores.

“People who receive low risks can sleep better at night knowing that their risk for developing this cancer is extremely low,” Sharma says. “On the flip side, we can identify the patients with high scores and treat them more aggressively.”

The list of Sharma’s contributions to Barrett’s esophagus goes on, and there are several more collaborations in the pipeline. For him, it is about gaining traction on this precancerous condition and ultimately reducing the incidence of esophageal cancer.

“We are in a time where we are gaining so much ground on other cancer types,” Sharma says. “I want to say we have done the same for esophageal cancer.”
A LIFE-CHANGING DIAGNOSIS

About the time of his retirement in 2011, Sears began experiencing flu-like symptoms that became progressively worse. His primary care doctor conducted exams and tests and ultimately referred him to a hematologist, who diagnosed him with stage 4b Hodgkin’s lymphoma.

“The doctors were shocked that I had progressed to that point. Within 24 hours, I was sitting down for my first round of chemotherapy,” Sears says.

At the time of his diagnosis, Sears and his husband, John, lived in Boston and had just bought a house in Kansas City. They opted to remain in Boston for his treatment, and after 12 rounds of chemotherapy, they moved to Kansas City and transitioned Steve’s care to KU Cancer Center. Sears experienced a difficult setback six months later when he relapsed with stage 4b lymphoma. Five years after a stem cell transplant, Sears is now in remission.

“Throughout the entire process, I educated myself about the treatments I was receiving,” Sears recalls. “I realized that it was research that was keeping me alive. I wouldn’t be here if it weren’t for the decades of research conducted by those who dedicated their careers to finding a way to treat and cure cancer.”

From his first brush with cancer, as well as a relapse in 2012, came Sears’ gratitude and appreciation for cancer research. And, as a man who is determined to live his best possible life, he has given himself fully to this newfound passion. One of the ways he has done this is by pledging a planned gift to The University of Kansas Cancer Center’s bone marrow transplant research program, led by Joseph McGuirk, D.O. This form of giving, sometimes also called estate planning or legacy giving, is a way for donors to leave money or assets to a nonprofit at the time of his or her death.

“As opposed to a traditional endowed fund, I chose planned giving so that KU Cancer Center would receive my support instantly. There is no time to waste if there is a research project that stands to save lives now,” Sears says.

GIVING FULLY

Before his diagnosis, when the source of his flu-like symptoms remained a mystery, Sears often ruminated about Marvin’s Grove, a parcel of historic green space located on the University of Kansas’ Lawrence campus. A KU alumnus and former Jayhawk mascot, Sears found respite crossing this quiet corner of campus on his way home from class.

The grove served as a calming visualization throughout his chemotherapy and subsequent stem cell transplant. As such, Marvin’s Grove will be another recipient of Sears’ generous estate planning.

Time is an additional asset that Sears gives to his passions. In 2018, he reprised his role as a mascot, this time creating and appearing as Parker, the huggable bear mascot for his primary school alma mater—Merriam Park Elementary. In addition, once a week, Sears employs his “broadcast” voice to read the Wichita Eagle newspaper to the blind through KU’s Audio Reader service.

As a Sigma Nu fraternity alumni officer, he also organized a Be the Match registration drive for the national bone marrow database. Ten registration events in January 2018, encompassing KU’s largest fraternities and sororities, generated 535 potential young, healthy, life-saving donors.

Ultimately, Sears says, it’s about finding ways to support people in need. Recently, he has found himself on the other side of cancer diagnoses, as a supporter to his family and friends fighting their own cancer battles. About one in three Americans will be diagnosed with cancer at some point in their life. Sears believes that’s why cancer research is needed more than ever.

“Cancer research has saved me twice,” Sears says. “Every day I am reminded that I’m one of the lucky ones. All the people over the decades who have gotten cancer treatment to this point – the doctors, patients, supporters – made it possible for me to live. Whether I get to help a close friend or someone I may never know, I want to help.”

Please consider making a donation to The University of Kansas Cancer Center today. Every gift—no matter the size—helps us prevent, treat and cure cancer. Your support moves us further down the path to discoveries that will end cancer.

To make a gift, contact Minda Mason at KU Endowment, 913-562-2721.

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A LIFE-CHANGING DIAGNOSIS

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A LEGACY OF GIVING BACK

And, as a man who is determined to live his best possible life, he has given himself fully to this newfound passion. One way Sears has given back is through planned giving, which encompasses giving made through the will or other estates. Sears believes that planned giving allows donors to make a significant impact on the University of Kansas Cancer Center's research and care.
AWARDS AND RECOGNITION

DINEO KHABELE, M.D.

Khabele, director of The University of Kansas Cancer Center’s gynecologic oncology division, is the recipient of the 2018 Ovarcome Hero Award for her contributions and commitment to the ovarian cancer patient community. The Ovarcome Foundation is committed to providing treatment support and options to underprivileged women suffering from ovarian cancer. In 2018, Khabele was also inducted into the American Gynecological and Obstetrical Society (AGOS) and American Society for Clinical Investigation.

ROBB KRUMLAUF, Ph.D.

Krumlauf, scientific director of the Stowers Institute for Medical Research, was awarded the Edwin G. Conklin Medal for his extraordinary contributions to the field of developmental biology and mentorship of the next generation of scientists. It is awarded annually by the Society for Developmental Biology. He is a renowned expert in mouse genetics and developmental biology. Krumlauf is a member of The University of Kansas Cancer Center, and Stowers is a National Cancer Institute-approved Consortium partner of KU Cancer Center.

SCOTT WEIR, Pharm.D., Ph.D.

Weir, associate director, translational research, and director, Institute for Advancing Medical Innovation (IAMI), was the recipient of Cures Within Reach’s 2018 Janet Davison Rowley Patient Impact Research Award. Cures Within Reach is a global nonprofit focused on repurposing research as a fast track to creating more effective therapies. Cures Within Reach selected Weir for his work in advancing 12 repurposed drugs for cancer patients into clinical trials, as the co-inventor of a repurposed antifungal therapy, called Ciclopirox Prodrug, to treat bladder cancer and as an acknowledged thought leader in the repurposing field.
STEVEN SOPER, Ph.D.
Soper was elected to the American Institute for Medical and Biomedical Engineering (AIMBE) College of Fellows. The AIMBE College of Fellows represents the top 2 percent of the medical and biological engineering community. Soper is one of 12 Foundation Distinguished Professors at KU and a leading researcher in the generation of novel biomedical devices, concentrating on in vitro cancer diagnostics based on lab-on-a-chip technologies. He focuses on the development of tools for the analysis of liquid biopsy markers, such as circulating tumor cells, cell-free DNA and extracellular vesicles. Soper is a Fellow of the Society for Applied Spectroscopy, the Royal Society of Chemistry and the American Association for the Advancement of Science.

JIM CALVET, Ph.D.
Calvet was named a University Distinguished Professor by the University of Kansas Medical Center. This honor is reserved for faculty who have made significant contributions to research, scholarship and teaching at the medical center. Calvet, a member of The University of Kansas Cancer Center, is a national authority on kidney research. He is the deputy director of the Kansas Polycystic Kidney Disease Research and Translation Core Center, which is one of only four centers nationally to receive this type of PKD research funding from the NIH. Examining the relationship between PKD and cancer is a major initiative of the Core Center.

ANDREW GODWIN, Ph.D.
Godwin, deputy director of The University of Kansas Cancer Center, was named vice chair of SWOG’s Breast Cancer Translational Medicine Subcommittee. The aim of the subcommittee is to help promote the basic and translational medicine research, including biomarker-drive trials. Godwin was selected for his international reputation in molecular biology/genetic studies of breast, sarcoma and ovarian cancers. He has been active in SWOG since 2013. Godwin is also the recipient of KU Endowment’s 2018 Chancellors Club Research Award.

PRIYANKA SHARMA, M.D.
Sharma, breast oncologist, was named vice chair of SWOG’s Breast Committee. SWOG is a global cancer research community that designs and conducts publicly funded clinical trials. Sharma, who has been a member of SWOG’s Breast Committee since 2013, was selected because of her heavy involvement in numerous clinical trials and translational research activities. Improving treatment outcomes for aggressive breast cancer subtypes, including triple-negative breast cancer, is her main research focus. Sharma has served as principal investigator of multiple investigator-initiated phase I and phase II clinical trials of novel targeted agents in breast cancer.
CANCER CENTER DIRECTOR’S AWARDS

The Cancer Center Director’s Awards program recognizes individuals who have made significant contributions in the past year to its mission of reducing the burden of cancer in our region. The 2018 award recipients are:

- **BASIC SCIENCE**
  Andrew Godwin, Ph.D.
  Deputy Director

- **WILLIAM JEWELL TEAM SCIENCE**
  Linheng Li, Ph.D.
  Co-leader, Cancer Biology Program
  Tara Lin, M.D.
  Medical Director, Clinical Trials Office

- **CIVIC LEADERSHIP & PHILANTHROPY**
  Charlie Sunderland
  Kent Sunderland
  The Sunderland Foundation

- **CLINICAL SCIENCE**
  Prateek Sharma, M.D.
  Medical Oncologist

SHRIKANT ANANT, PH.D.,
was named chair of the department of Cancer Biology. The Cancer Biology research program aims to enhance interdisciplinary collaboration among basic and clinical scientists and facilitate translational research involving the etiology, treatment and prevention of cancer. Anant was a key figure in the discovery and development of Ciclopirox Prodrug, KU Cancer Center’s first anticancer drug to go from bench to bedside. He currently serves as associate director for basic science and is the Tom and Theresa Walsh Professor for Cancer Prevention and the Kansas Mason Professor for Cancer Research.

JOAQUINA BARANDA, M.D.,
was appointed as director of KU Cancer Center’s Early-Phase program. Prior to Baranda, Stephen Williamson, M.D., served in this role for three years before his phased retirement. Baranda has more than 25 years of experience in clinical investigation, including early-phase trials. A gastrointestinal physician-scientist, Baranda’s contributions include clinical collaborations involving multiple other academic centers as well as pharmaceutical companies. Baranda led the planning for the Early-Phase Symposium’s second annual conference.

CHRISTIE BEFORT, PH.D.,
was named associate director of Cancer Prevention and Control and will help guide the Cancer Prevention and Survivorship Program and the Cancer Control and Population Health Program. These programs work synergistically to address translation of cancer prevention strategies, from precancerous biology to community-based implementation. For the past 14 years, Befort’s research has focused on developing and implementing behavioral weight control interventions to improve cancer prevention, survivorship and quality of life. Most of her research is targeted towards residents in rural communities and cancer survivors.

BEYOND THE BENCH

2018

The University of Kansas Cancer Center
JOAQUINA BARANDA, M.D., was appointed as director of KU Cancer Center’s Early-Phase program. Prior to Baranda, Stephen Williamson, M.D., served in this role for three years before his phased retirement. Baranda has more than 25 years of experience in clinical investigation, including early-phase trials. A gastrointestinal physician-scientist, Baranda’s contributions include clinical collaborations involving multiple other academic centers as well as pharmaceutical companies. Baranda led the planning for the Early-Phase Symposium’s second annual conference.

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    Co-leader, Cancer Biology Program
  - Tara Lin, M.D.
    Medical Director, Clinical Trials Office

- **CIVIC LEADERSHIP & PHILANTHROPY**
  - Charlie Sunderland
  - Kent Sunderlund
    The Sunderland Foundation

- **CLINICAL SCIENCE**
  - Prateek Sharma, M.D.
    Medical Oncologist

- **CLINICAL TRIAL ACCRUAL**
  - Qamar Khan, M.D.
    Medical Oncologist

- **COMMUNITY CLINICAL TRIAL ACCRUAL**
  - Manana Elia, M.D.
    Assistant Clinical Professor of Medicine
  - Marc Hoffman, M.D.
    Medical Oncologist

- **CLOSING DISPARITIES**
  - Nikki Nollen, Ph.D.
    Associate Professor

- **CLINICAL TRIAL ACCRUAL**
  - Sufi Thomas, Ph.D.
    Associate Professor

- **LEGISLATOR**
  - Vicki Schmidt
    Kansas Insurance Commissioner
    Former Kansas State Senator

- **MENTORING**
  - Danny Welch, Ph.D.
    Associate Director, Education

- **YOUNG SCIENTIST**
  - Suji Thomas, Ph.D.
    Associate Professor

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WEIJING SUN, M.D., director of the division of Medical Oncology and associate director for clinical research at The University of Kansas Cancer Center, was formally vested as the Sprint Professor of Medical Oncology. The professorship is an appointed position by Roy Jensen, M.D., director of The University of Kansas Cancer Center. Sun is an internationally renowned gastrointestinal (GI) oncologist who has played a key role in defining the current approach to treating a range of GI malignancies. The Sprint Professorship was established in 2014 by the Sprint Foundation and the Hall Family Foundation.
PREVENTING CANCER IN OUR RURAL/FRONTIER COMMUNITIES

People in rural areas get cancer less often, but die from it at higher rates. This is in part due to distance of care. The University of Kansas Cancer Center’s catchment area includes the entire state of Kansas and western Missouri, encompassing:

- **4.4 Million people**
- **92 Thousand square miles**
- **96 Rural or frontier counties (<=20 people per square mile)**

Through cancer control efforts, KU Cancer Center researchers seek to prevent cancer, diagnose it earlier, accelerate treatment and clinical trial access, increase survival rates and improve quality of life.

OUR RURAL OUTREACH PARTNERS:

**MCA (Midwest Cancer Alliance):** Network of hospitals, physicians’ groups and cancer support organizations advancing the quality and accessibility of cancer prevention, detection, clinical trials, treatment and survivorship in the Heartland through research and education.

**KPPEPR (Kansas Patients and Providers Engaged in Prevention Research):** Practice-based research network composed of groups of clinics or practices solving problems of health care delivery in their area.

NUMBER OF REGIONAL MCA CANCER SCREENINGS IN 2018:

- 1,673 people
- 292 abnormal findings (individuals referred to a physician)

LOCATIONS:

- MCA and KPPEPR

CANCER CONTROL EFFORTS:

- HPV/Cancer Screening
- Obesity
- Tobacco
The following are some of The University of Kansas Cancer Center’s currently open investigator-initiated trials, categorized by disease working group. To learn more about clinical trials offered at KU Cancer Center, visit kucancercenter.org/cancer-clinical-trials.

**BREAST**

**Study #00141224**
Feasibility Study of Moderate Dose Omega 3 Fatty Acid Supplement in Premenopausal Women at High Risk for Breast Cancer Considering Future Pregnancy / Principal Investigator: Lauren Nye, M.D.

**Study #00140798**
Selective Use of Observation after Lumpectomy and Sentinel Lymph Node Biopsy in HER2 Positive Patients with Pathologic Complete Response to Neoadjuvant Chemotherapy / Principal Investigator: Melissa Mitchell, M.D., Ph.D.

**Study #00142612**
Reducing Distress and Depressive Symptoms in Rural Women Using Caring Guidance After Breast Cancer Diagnosis: Randomized Controlled Pilot Study / Principal Investigator: Jamie Myers, Ph.D., RN

**Study #00142487**
Neoadjuvant Phase II Study of Pembrolizumab and Carboplatin Plus Docetaxel in Triple-Negative Breast Cancer (NeoPACT) / Principal Investigator: Priyanka Sharma, M.D.

**Study #00142203**
A Phase I/II Study of Palbociclib, Letrozole and T-DM1 in Trastuzumab Refractory Estrogen Receptor Positive and HER2 Positive Metastatic Breast Cancer / Principal Investigator: Lauren Nye, M.D.

**GI**

**Study #00141863**
A Phase II Study of Perioperative mFOLFOX (Fluorouracil, Leucovorin, and Oxaliplatin) Chemotherapy Plus Pembrolizumab (MK-3475) Combination in Patients with Potentially Resectable Adenocarcinoma of the Gastroesophageal Junction (GEJ) and Stomach (MISP #52216) / Principal Investigator: Weijing Sun, M.D.

**Study #00141879**
A Phase IB trial of Cabozantinib in Combination with Durvalumab (MEDI4736) in Previously Treated Patients with Advanced Gastroesophageal Cancer and Other Gastrointestinal (GI) Malignancies (CAMILLA) / Principal Investigator: Anwaar Saeed, M.D.

**GU**

**Study #00141963**
Pilot Trial of Ultra-Hypofractionated Radiation in Early Prostate Cancer / Principal Investigator: Xinglei Shen, M.D.

**LEUKEMIA/MYELOID**

**Study #00141671**
A Phase II trial of Pevonedistat and Azacitidine in Myelodysplastic Syndromes (MDS) or Myeloproliferative Neoplasms (MPN) Patients Who Fail Primary Therapy with DNA Methyl Transferase Inhibitors / Principal Investigator: Barry Skikne, M.D.

**Study #00140995**
A Phase I Study to Evaluate the Safety of Umbilical Cord-Derived, Ex-vivo Cultured and Expanded Wharton’s Jelly Mesenchymal Stem Cells for the Treatment of De Novo High-Risk Acute or Steroid Refractory Acute Graft Versus Host Disease / Principal Investigator: Joseph McGuirk, D.O.

**LYMPHOMA/MYELOMA**

**Study #00142508**
Biomarker Discovery in Patients Receiving Chimeric Antigen Receptor T-Cell Therapies / Principal Investigator: Neil Dunavin, M.D.

**SUPPORTIVE CARE**

**Study #00142039**
Intensive Preoperative Ostomy Education for the Radical Cystectomy Patient / Principal Investigator: Moben Mirza, M.D.

**Study #00142651**
Implementation of Nutrition Education Videos for Patients Undergoing Radical Cystectomy / Principal Investigator: Eugene Lee, M.D.

**OTHER**

**Study #00141107**
Phase I Study of Epacadostat (INCB24360) in Combination with Sirolimus in Advanced Malignancy / Principal Investigator: Chao Huang, M.D.

**Study #00142313**
A Pilot Trial of Atorvastatin in p53-Mutant and p53 Wild-Type Malignancies / Principal Investigator: Joaquina Baranda, M.D.

**Study #00141797**
Exosomal as Correlative Biomarker in Clinical Outcomes in Patients Undergoing Neoadjuvant Chemoradiation Therapy for Rectal Cancer / Principal Investigator: Andrew Hoover, M.D.

**Study #00142776**
Preoperative Optimization of Promotility / Principal Investigator: Eugene Lee, M.D.
HIGH-IMPACT PUBLICATIONS


David Volkin, Ph.D., member of the Drug Discovery, Development and Experimental Therapeutics program, received a $654,585 grant from the Bill and Melinda Gates Foundation. The grant will support work studying “HPV Preservatives.”

Nikki Nollen, Ph.D., member of Cancer Control and Population Health research program, received a $714,501 grant from the National Institutes of Health to study “Individualizing Pharmacotherapy: A Novel Optimization Strategy to Increase Smoking Cessation in the African American Community.”

Jill Hamilton-Reeves, Ph.D., member of Cancer Prevention and Survivorship research program, received $597,683 from the National Cancer Institute (NCI) to study “Effects of Immune-enhancing Nutrition of Radical Cystectomy Outcomes.”

Subhrajit Saha, Ph.D., member of Cancer Biology research program, received a $505,948 grant from the National Institute of Allergy and Infectious Diseases to study “Progenitor Cell-based Therapy to Mitigate Radiation-induced Gastrointestinal Syndrome.”

Ann Davis, Ph.D., MPH, member of Cancer Control and Population Health research program, received $468,963 from the National Institute of Child Health and Human Development, to study the “Safety and Efficacy of Megestrol as part of an Outpatient Feeding Protocol for Children with Chronic Medical Conditions.”

Bret Freudenthal, Ph.D., member of Cancer Biology program, received two grants each exceeding $380,000. The first, from the National Institute of Environmental Health Sciences, supports a study titled, “APE1 Cleavage Mechanisms during DNA Repair.” The other, from the National Institute of General Medical Sciences, supports a study titled “Structural and Mechanistic Studies of DNA Repair.”

Tomoo Iwakuma, M.D., Ph.D., member of Cancer Biology, received nearly $350,000 from the NCI to study “Control of Mutant P53 Stability via the Mevalonate Pathway-DNAJA1 Axis.”

Vargheese Chennathukuzhi, Ph.D., member of Drug Discovery, Development and Experimental Therapeutics program, received a multi-PI grant from the National Institute of Child Health and Human Development in the amount of $302,026 to advance research titled “Small Molecule GPR10 Antagonists for the Treatment of Uterine Fibroids.”

Carol Fabian, M.D., member of Cancer Prevention and Survivorship research program, received a $250,000 grant from the Breast Cancer Research Foundation for a “Randomized Clinical Trial of Duavee for Prevention of Breast Cancer.

Roy Jensen, M.D., and Shrikant Anant, Ph.D., Cancer Prevention and Survivorship research program members, received a $510,000 grant from the Department of Defense for their work, “Prevention of Triple-Negative Breast Cancer by Natural Compounds.”


GUIDING THE NEXT GENERATION

Last summer at The University of Kansas Cancer Center, high school students and faculty mentors participated in the center’s first-ever summer research program for underrepresented minority high school juniors and seniors. The five-week program, called ACE (Accelerate Cancer Education), was developed with support from the University of Kansas Medical Center’s Health Careers Pathways Programs and the NIH-funded Kansas Idea Network of Biomedical Research Excellence (K-INBRE) program.

“I wanted to open doors for students underrepresented in the biomedical community so that everyone has a chance to learn about the vastness of cancer research. With the help of the University of Kansas Medical Center’s Marcia Pomeroy and Todd Moore, as well as support from Dr. Doug Wright and K-INBRE, we created an opportunity specifically for high school students,” says Lisa Harlan-Williams, Ph.D., ACE program director. “The students were a joy to interact with, they were so eager to learn and I loved seeing them experience and learn new things.”

MENTOR LAURA MARTIN, PH.D., AND STUDENT BRIANA AYALA-RAMIREZ

“Regardless of what Briana does in life, researcher or not, I hope she takes what she learned from the program and applies that critical thinking to other parts of her life.” – Laura Martin

“This experience will shape my future. I’m not sure how yet but I have met so many people with so many different areas of focus. I have learned that I can do anything.” – Briana Ayala-Ramirez

MENTOR GUOQIN YU, PH.D., AND STUDENT JESUS GONZALEZ-MORALES

“The next generation of scientists will need to continue our quest to cure and treat cancer. It is our responsibility to spark that passion and pass on knowledge.” – Guoqin Yu

“I hope to apply to medical school. Meeting so many doctors and nurses is mind-blowing, and it’s helped me realize there are so many opportunities out there.” – Jesus Gonzalez-Morales

MENTOR DHARMALINGAM SUBRAMANIAM, PH.D., AND STUDENT DOMI SALINAS

“I participated in this program because I have been fortunate to have great mentors in my career. This time, I wanted to be on the other side to motivate students.” – Dharmalingam Subramaniam

“Before this, I’d never been in a lab. My project focused on looking at cranberry’s effect on bladder cancer. Working with cancer cells is the coolest thing.” – Domi Salinas

MENTOR MEGHA RAMASWAMY, PH.D., MPH, AND STUDENT JAMES WALKER

“We asked James to create a story around HPV and cervical cancer. The end product – an educational comic book – is beautiful, perfect for the target audience and unlike anything else we’ve done.” – Megha Ramaswamy

“When I was a kid, my dad would draw his own comic books for me and my brother. From this experience, I was able to make something actually helpful to the community.” – James Walker

MENTOR DOUG WRIGHT, PH.D., AND STUDENT CAROLINA BUENO

“Carolina is the 65th student we’ve had in my lab via the K-INBRE program. In the lab, students can experience the excitement of a new finding, as well as the challenges and potential failures.” – Doug Wright

“When conducting an experiment, I am not the only one learning in the lab – everyone is. We are in it together. That’s part of the process, not always finding what you expected while still gaining insight.” – Carolina Bueno
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JENSEN NAMED PRESIDENT OF ASSOCIATION OF AMERICAN CANCER INSTITUTES

Roy Jensen, M.D., director of The University of Kansas Cancer Center, has been named president of the Association of American Cancer Institutes (AACI), an organization of 98 leading academic cancer centers in North America, which includes the 70 National Cancer Institute (NCI)-designated centers.

For his presidential initiative, Jensen plans to spearhead the development of a comprehensive clearinghouse of cancer-specific model legislation for AACI cancer centers to utilize when developing their own public policy initiatives. Members of KU Cancer Center are deeply engaged in a broad range of public policy initiatives, such as state funding for biomedical research, increasing tobacco taxes and banning indoor tanning for minors. Through cancer-focused education and partnerships with key stakeholders, KU Cancer Center has helped advance legislation that has positively affected the state’s economy and the health of its citizens. AACI cancer centers across the country are engaged in similar advocacy activities to advance cancer research, treatment and prevention. Jensen will launch a web-based hub of model legislation on state-level issues with the goal of establishing a resource library of thoroughly vetted, “off-the-shelf” proposals that can be customized according to a cancer center’s unique needs.

“Cancer centers are an enormous force for good and collectively have worked to lower cancer incidence and mortality rates for over four decades,” Jensen says. “Good public policy that limits carcinogen exposures or promotes the adoption of healthy behaviors can save hundreds—if not thousands—of lives and represents a critical tool in our efforts to lower cancer mortality.”

Jensen’s two-year term began October 2018.

“I am deeply honored to have been elected as the President of AACI. It is humbling to follow in the footsteps of such great center directors as Stan Gerson, George Weiner, Ed Benz and, of course, my mentor, Hal Moses. I look forward to continuing this organization’s exceptional legacy of service.”

Left to right: Stanton Gerson, M.D., AACI immediate past president, Roy Jensen, M.D., KU Cancer Center director and AACI president, Barbara Duffy Stewart, AACI former executive director, Ned Sharpless, M.D., National Cancer Institute director, Jennifer Pegher, AACI executive director, and Karen Knudsen, Ph.D., AACI president-elect

BENCH TO BEDSIDE ON FACEBOOK LIVE

In January 2018, The University of Kansas Cancer Center launched its first weekly Facebook Live series, called Bench to Bedside. The series, which airs every Wednesday at 10 a.m. (CT), features Roy Jensen, M.D., host and KU Cancer Center director, as well as experts and friends of KU Cancer Center including doctors, researchers and patients.

Seasons one and two aired in 2018 and featured 36 episodes encompassing a broad set of topics including tobacco cessation, childhood cancer survivorship, advances in immunotherapy and CAR-T, as well as sun safety tips to prevent skin cancers. Combined, the videos reached more than 58,000 people and garnered more than 2,300 positive reactions and 500 shares on Facebook.

Season 3 launched in early 2019.

KU CANCER CENTER SLATED TO HOST MAJOR CONFERENCE IN 2021

The University of Kansas Cancer Center has been selected to host the NACCDO-PAMN 2021 annual conference. NACCDO (National Association of Cancer Center Development Officers) and PAMN (Public Affairs and Marketing Network) host an annual joint conference that brings together philanthropic, public affairs and marketing colleagues from cancer centers across the nation. KU Cancer Center was selected via a competitive proposal process that included highlighting the unique features of the center as well as Kansas City.

Left to right: Jennifer Klemp, Ph.D., Lauren Nye, M.D., and Anne O’Dea, M.D.
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1. **COLON CANCER AWARENESS DRESS IN BLUE DAY**
   On March 2, Kristi Neufeld, Ph.D., co-leader of the Cancer Biology program, far right, and her team donned blue to bring awareness to their research area of focus, colorectal cancer.

2. **PATIENT RESEARCH ADVOCACY WORKSHOP**
   KU Cancer Center’s patient research advocacy program, PIVOT (Patient and Investigator Voices Organizing Together), aims to bring greater community and patient engagement to cancer research. More than 40 people participated in its first educational workshop.

3. **NOAH’S CROWN TOWN 5K**
   KU Cancer Center researchers ran in the annual Noah’s Crown Town 5k, which raises funds for pediatric sarcoma research at Children’s Mercy. Children’s Mercy is a formal National Cancer Institute consortium partner of KU Cancer Center.

4. **BICYCLES AND BARBECUE: TOUR DE BBQ**
   Funds raised support KU Cancer Center’s Survivorship Transition Clinic, a program for young adult survivors of pediatric cancer. The clinic was developed through a research partnership with Children’s Mercy and the Midwest Cancer Alliance.

5. **NACCDO-PAMN ANNUAL CONFERENCE IN SEATTLE**
   KU Cancer Center fund development and communications team members took part in the National Association of Cancer Center Development Officers (NACCDO) and Public Affairs and Marketing Network (PAMN) conference, hosted by Fred Hutchinson Cancer Research Center.

6. **V FOUNDATION MATCH FOR CANCER**
   KU Cancer Center researcher and recipient of the 2017 V Foundation Match for Cancer grant, Mary Markiewicz, Ph.D., was honored during a Kansas City Chiefs game in October. Markiewicz was chosen to be the Tony DiPardo Spirit Leader and led Arrowhead Stadium in “The Chop.”

7. **HISPANIC CHAMBER MEETING**
   KU Cancer Center and the Hispanic Chamber of Commerce of Greater Kansas City hosted a meeting with Hispanic business and community leaders to discuss the importance of Latino engagement in cancer prevention and clinical research.
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