

Update on The University of Kansas Cancer Center

2015 Report to the Kansas Legislature

December 16th, 2015

THE UNIVERSITY OF KANSAS

CANCER CENTER

Introduction

Overview

The University of Kansas Cancer Center operates as a matrix organization spanning cancer research, education and clinical care. Key entities include the KU Medical Center campuses in Kansas City, Wichita and Salina; the University of Kansas in Lawrence and its School of Pharmacy; The University of Kansas Hospital; and the Midwest Cancer Alliance (MCA). The MCA is the outreach arm of the cancer center and extends the latest cancer research and clinical trials across the state enabling patients to receive leading-edge care close to home.

Vision

- o The KU Cancer Center has established the following vision under the leadership of its Director, Roy Jensen, MD:
 - **Seek** new treatment advances to offer patients the greatest chance of survival
 - **Accelerate** cancer prevention and healthcare programs
 - **Provide** state-of-the-art cancer research
 - **Excel** in the discovery and advancement of new cancer therapies
 - **Reduce** the burden of cancer in our region

Our Challenge

- o During the next 10 years the incidence of cancer is projected to increase by 45-50%. Over our lifetime, 1 in 2 men and 1 in 3 woman will be diagnosed with cancer.
- o Cancer has surpassed heart disease as the leading cause of death in Kansas and Missouri due to:
 - Aging population
 - Obesity
 - Tobacco use
 - HPV
- o Individuals without health insurance at the time of cancer diagnosis face a 50% less chance of survival.

National Cancer Institute (NCI) Designation

- o Of the 5,000 cancer treatment centers nationally, only 1.3% or 68 centers have achieved the elite NCI designation recognizing scientific excellence.
- o NCI designation signifies that we are achieving the highest standards in cancer research leading directly to **improved patient care and treatment** right here in Kansas.
- o Most importantly, patient survival rates are 25% better at NCI-designated cancer centers.

Next Leg of the Journey

- o KU Cancer Center was successful in achieving initial designation as an **NCI cancer center** in July of 2012. Only 25% of first time applicants are successful.
- o Our ultimate goal is to achieve **NCI comprehensive cancer center** status. We will apply for comprehensive status in September of 2016.
- o Comprehensive status will require focus on **population-based health directly impacting Kansans:**
 - Enhance cancer prevention activities
 - Improve early detection and screening
 - Extend access to high-risk and underserved populations including rural areas
 - Offer highest level of treatment and survivorship

WHY CANCER RESEARCH MATTERS

By 2030, cancer cases are predicted to increase by as much as 45%.

Our NCI designation enables us to translate more discoveries into better treatment options for future cancer patients.

Promising cancer research leading directly to improved care and treatment is taking place right here in our community.

NCI designation recognizes leadership in:



Cutting edge
treatment options



Community
education



Translation of
discovery clinical trials



Research
innovation

Impact of NCI Designation:



Quality

State-of-the-art phase I clinical trials

Newly renovated research
labs house

115

cancer researchers.



Pace of Discovery

Move research discoveries to treatment faster

<2 years
at KU (vs. **6** to **10**)
national average

122

NEW clinical trials
since obtaining NCI
designation.



Increased Research Participation

2,240

people in
population
health trials.

Clinical trials participation

>40%

from 2012 to 2015.



More Funding = More Studies

of published papers rose to

430

Research funding has grown to

\$59.2 million.

Currently, researchers have been awarded:

72

NCI-funded
studies

\$69.8 million in
outside funding

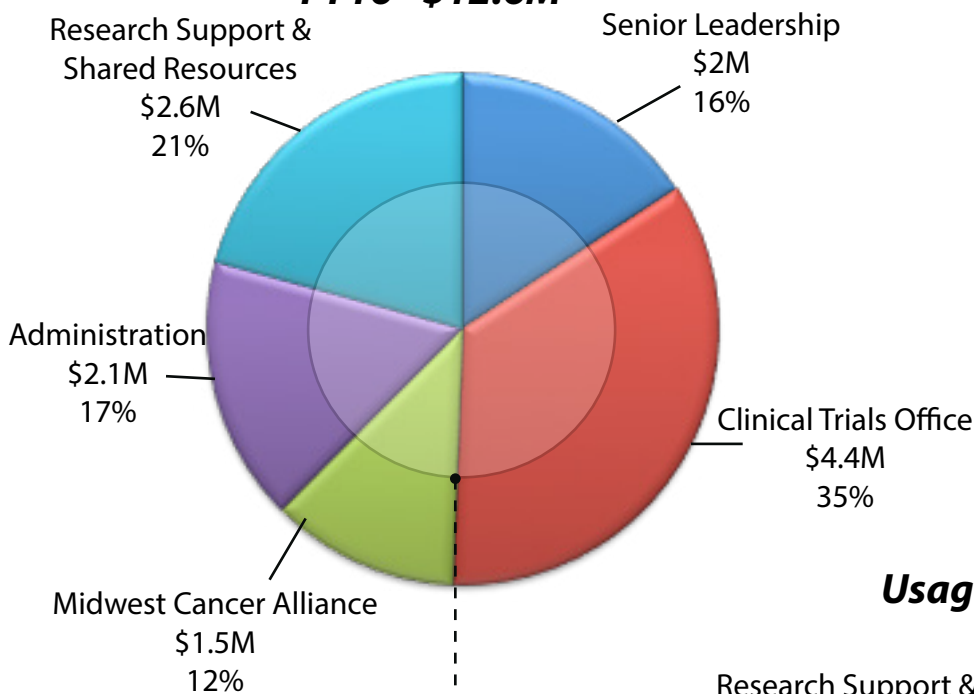
THE UNIVERSITY OF KANSAS
CANCER CENTER

Critical Role of the State Investment

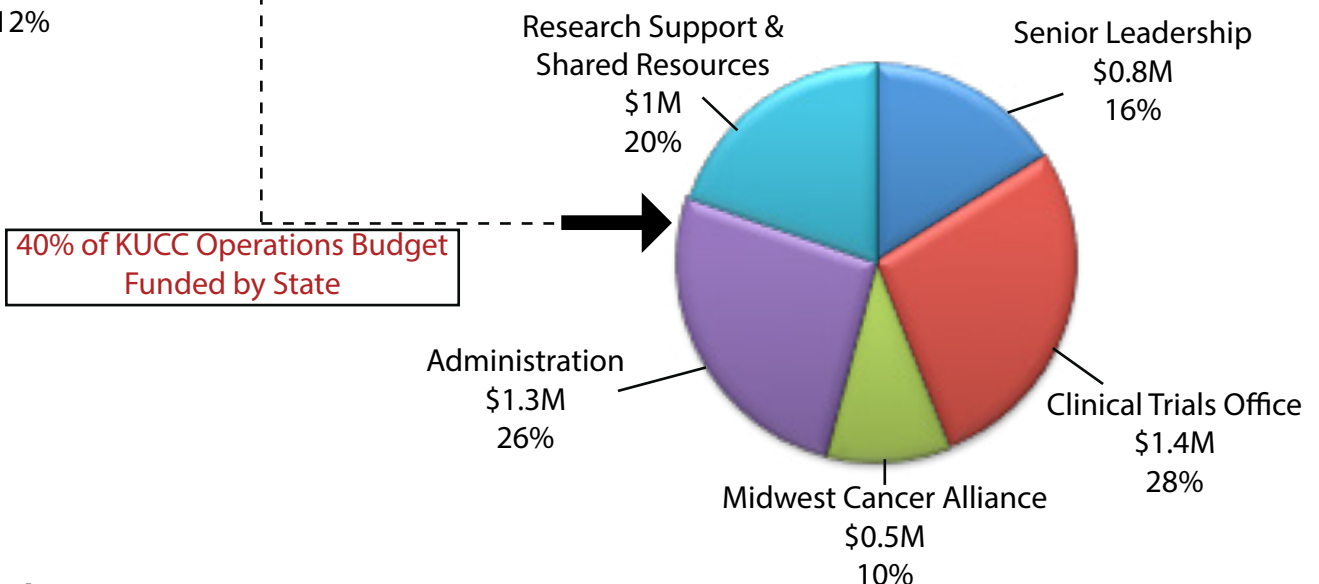
The state of Kansas, the legislature and the governor have been strong supporters of the quest for NCI since 2007. We simply would not have achieved NCI designation without the support of the state. The \$5 million in annual support funds activities that donors are unlikely to fund include:

- Salary support for Roy Jensen, MD and other key scientific leaders.
- Growing the cancer clinical trials office which supports 135+ trials to ensure leading-edge therapies and drugs are available to patients in this region.
- Supporting the Midwest Cancer Alliance collaboration network which started in 2008, now had 22 member sites across the region.
- Supporting operations and administrative infrastructure that is the backbone of the research enterprise

Total Cancer Center Operations Budget* **FY16 - \$12.6M**



Usage of State Budget* **FY16 - \$5M**



*See legend on page 4

Legend

Senior Leadership: Leadership of cancer center including research programs.

Clinical Trials Office: Research nurses, data coordinators and regulatory staff that support clinical trials.

Midwest Cancer Alliance: Links cancer research with member hospitals, medical professionals and their patients so the latest research and treatment options can be found close to home.

Administration: Operations and administrative infrastructure.

Research Support & Shared Resources: Direct support for cancer researchers, their laboratories and shared resources to support all cancer center members.

Cancer Research Grant Matching Funds

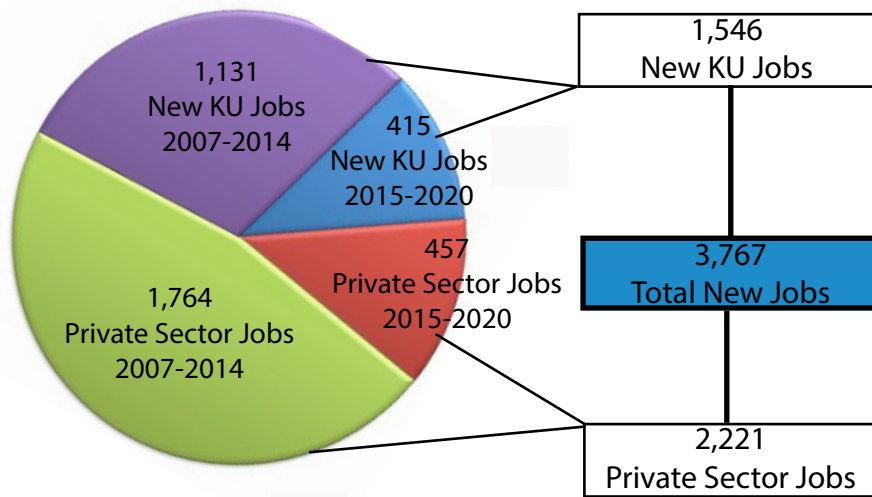
The cancer center continues to strive to diversify our funding sources. See the table below for our university research grant matching funds for FY16.

	FY 16 Funding Sources	Percentage
Shared Resource Service Fees	\$ 3,278,562	44%
NCI Cancer Center Support Grant	\$ 1,061,708	14%
Midwest Cancer Alliance Fees	\$ 2,250,000	30%
Philanthropy	\$ 868,323	12%
	\$7,458,593	100%

Jobs Created from Investment in Cancer Research

The state's substantial investments since 2007 in cancer research are providing better options for patients in this region **AND** are creating significant economic impact and new jobs creation

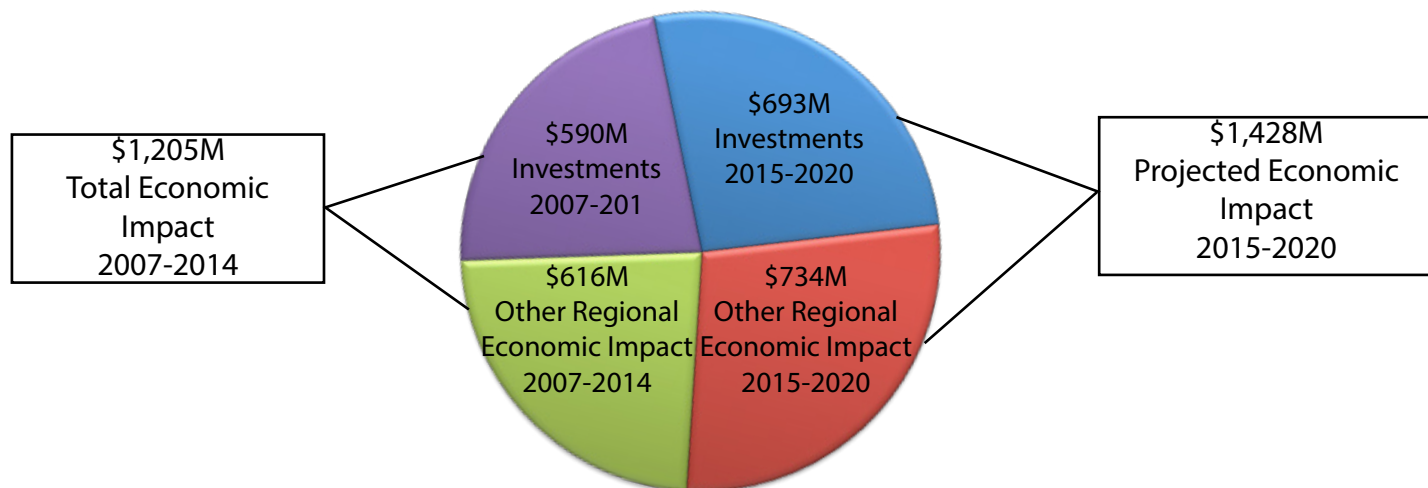
- From 2007-2020, we project a total of **3,767** new jobs will be created
 - 1,546 University jobs
 - 2,221 private sector jobs
- From 2007-2014, actual jobs creation of 2,895 jobs
 - 1,131 University jobs
 - 1,764 private sector jobs
- Average salary for new jobs of \$63,661 which is 40% higher than the state average salary



Economic Impact of Investments in Cancer Research

The economic benefits of the investments in cancer research are significant

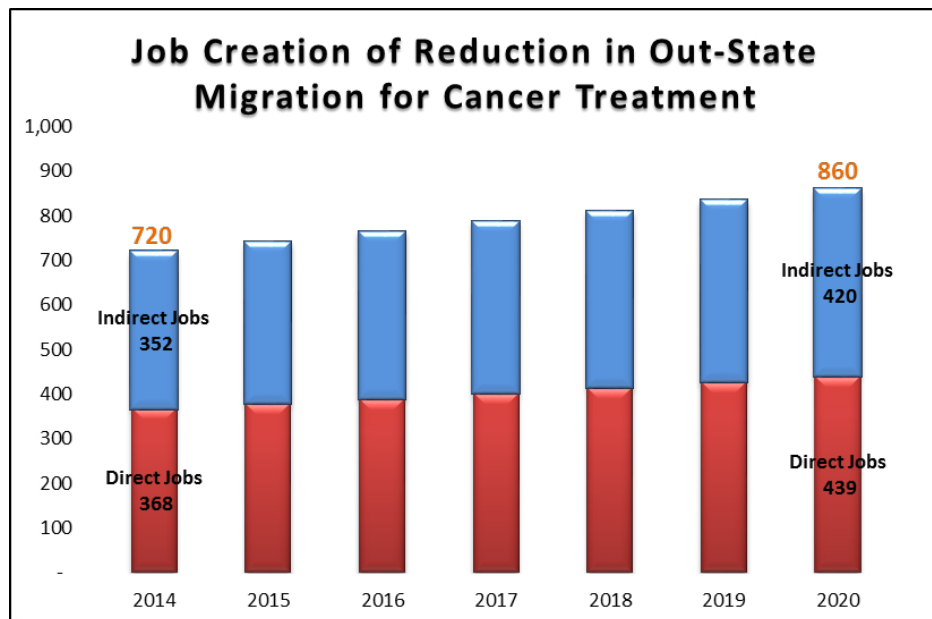
- From 2007-2014, total economic impact was \$1,205 million, with \$590 million of direct impact and \$611 million in additional indirect impact.
- For 2015-2020, we project an estimated impact of \$1,428 million, with \$693 million of direct impact and \$734 million in additional indirect impact.



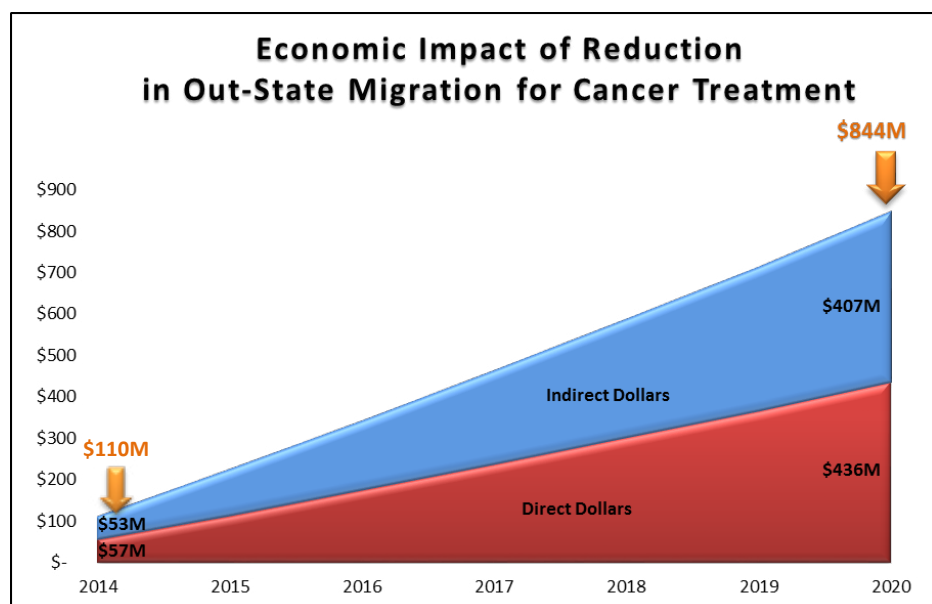
Retaining Cancer Patients in Kansas

Historically, some people chose to travel to Houston or Rochester to obtain world-class cancer care. Those with means would leave the state for care while average Kansans would go without access to leading-edge treatments. According to Kansas cancer registry data, patients leaving the state for care elsewhere has fallen by 20% in 2012. Ensuring Kansans have access to cutting-edge therapies close to home has been a key goal of the KU Cancer Center.

Retaining patients in the state also has significant economic impact as captured in the chart below. For example, in 2014, we estimate that a total of 720 private sector jobs were created by retaining cancer patients in Kansas.



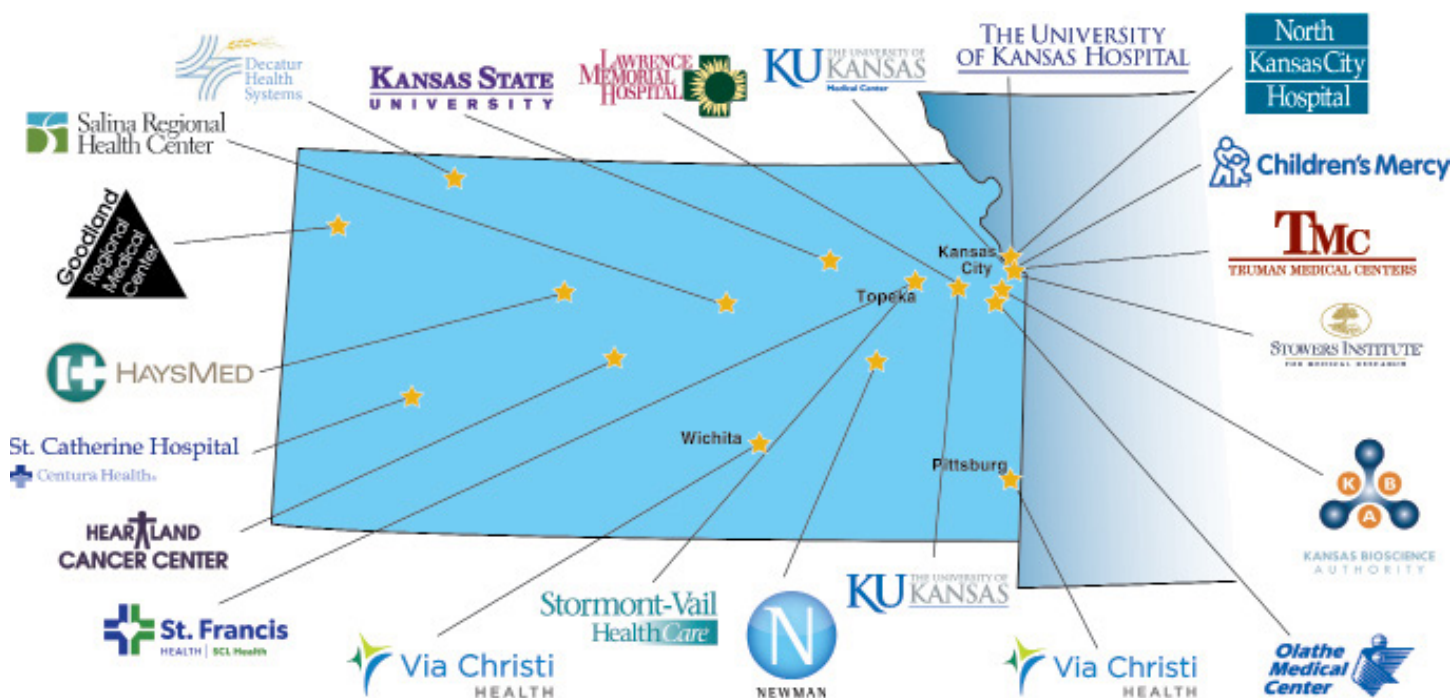
Achieving NCI designation in 2012 is beginning to correct the misperception that patients need to leave the state to obtain world-class care. In addition to better serving Kansans, retaining patients in the state has substantial economic benefits.



Midwest Cancer Alliance

The Midwest Cancer Alliance (MCA) is a membership-based organization that brings together cancer research, care and support professionals to advance the quality and reach of cancer prevention, early detection, treatment, and survivorship in the Heartland.

The MCA links The University of Kansas Cancer Center research and services with member hospitals, medical professionals and their patients so that the latest cancer research and care can be found close to home.



- **Tele-Oncology:** Tele-video based system for on-site patient consultations with oncology teams at KU Cancer Center and continuing education for professionals.
- **Patient Navigation:** Assistance from trained MCA Patient Navigator in developing a customized system by which trained health professionals proactively guide patients through community health resources to get the care they need.
- **Transitions Clinic:** To address the needs of adult survivors of pediatric cancers, Children's Mercy Hospitals and KU Medical Center will work with childhood cancer survivors entering young adulthood to facilitate communication with oncologists and primary care providers to address the impact of late effects of cancer care.
- **Clinical Trials:** Information about the latest research protocols including Phase I to III therapeutic and prevention trials.
- **Biobanking:** The MCA's Biobank Coordinator assists members to procure specimens for the purpose of research.
- **Outreach Programs and Events:** Individualized prevention, screening, early detection, and survivorship programs and events co-sponsored by the MCA and member institutions.

Clinical Trials



Clinical Trial Stages



Stage I

A drug is tested in a small group of people to determine safety, dosage and side effects.



Stage II

The drug is given to a larger group for further safety evaluations and effectiveness.



Stage III

The size of the group is significantly expanded to confirm drug effectiveness among a diverse population. The drug is compared to standard treatments.



Stage IV

After the drug is approved for consumer use, trials by the drug manufacturer determine more information about the drug's effectiveness compared to other treatments.

Clinical Trials at The University of Kansas Cancer Center

In addition to standard care and treatments, we offer clinical trials designed to identify safer and more effective approaches to prevention, screening, diagnosis and treatment of cancer.

232 Number of clinical trials KU Cancer Center opened in 2013.

3,413 Participants enrolled in clinical trials at KU in 2014.

KU Cancer Center offers clinical trials in **12** different cancer specialties.

The KU Clinical Research Center is a **82,400** sq. ft. facility

equipped with state-of-the-art features, resources and staff to best accommodate patients and researchers.

KU Cancer Center collaborates with **10** medical facilities in Kansas & Missouri through the Midwest Cancer Alliance to offer clinical trials close to home.

Recent Accomplishments

Since receiving NCI designation in 2012, The University of Kansas Cancer Center has made great strides in working towards a world without cancer. Below are our major milestones and accomplishments for the last four years:

2015

- Children's Mercy has joined The University of Kansas Cancer Center NCI Consortium forming an alliance that allows both organizations to collaborate with academic, scientific and research programs relative to pediatric oncology. Children's Mercy joins existing consortium partners, the Stowers Institute for Medical Research and the University of Kansas.
- KU Cancer Center is one of just 11 cancer centers in the U.S. selected to use IBM's new Watson technology to quickly translate DNA insights into personalized treatment options for patients. What typically takes doctors weeks to analyze each mutation and identify tailored treatment options can now be completed in only a few minutes.
- Through a SWOG Developmental grant and a Breast Cancer Research Foundation grant, Priyanka Sharma, MD, member of the Drug Discovery, Delivery and Experimental Therapeutics Program at The University of Kansas Cancer Center, is working to identify markers that would improve the treatment of triple-negative breast cancer.

2014

- A repurposed drug typically used to treat ovarian cancer saw positive results for patients with advanced peritoneal cancers during a Phase I clinical trial at The University of Kansas Cancer Center. The drug, known under the brand name Nanotax, was developed by Lawrence-based CritiTech, and the drug-testing and Phase I clinical trial were conducted by KU Cancer Center researchers, led by Stephen Williamson, M.D., medical director of Cancer Clinical Trials.
- Qi Chen, Ph.D., member of the KU Cancer Centers's Drug Discovery, Delivery and Experimental Therapeutics program and her team determined that high doses of vitamin C, administered in an IV with traditional chemotherapy, helped kill cancer cells while reducing the toxic effects of chemotherapy for some patients.
- Ed Ellerbeck, M.D., M.P.H., co-leader of the KU Cancer Centers's Cancer Control and Population Health Program, received \$1.5 million from the Patient-Centered Outcomes Research Institute (PCORI) for a trial that will examine the effectiveness of long-term nicotine replacement therapy for patients with chronic obstructive pulmonary disease.

2013

- The Blood and Marrow Transplant program at KU Cancer Center marked a number of major milestones. A record 303 BMT patients received transplants in 2013, up 31.7 percent from 2012. The total reflected a 700 percent increase over the past six years, making the program one of the nation's 10 largest BMT programs.
- The University of Kansas Cancer Center's Cancer Control and Population Health program was awarded a new \$2.7 million, five-year NCI grant. Won Choi, Ph.D., will lead the way in launching an Internet-based program to both prevent American Indian tribal college students from becoming addicted to smoking and to help current smokers quit.
- KU Cancer Center and the Department of Radiation Oncology earned a provisional full membership status in the Philadelphia-based Radiation Therapy Oncology Group (RTOG), funded by the National Cancer Institute.

2012

- Twenty-three peer reviewers from the National Cancer Institute spent a February day in Kansas City listening to scientific presentations and evaluating KU Cancer Centers's NCI grant application. National Cancer Advisory Board meets and recommends that KU Cancer Center's application be funded, resulting in National Cancer Institute designation in June 2012.

Funded Research Grants

The University of Kansas Cancer Center researchers were awarded millions of dollars in new grants to study cancers that affect the entire body. Here are some notable grants in progress:

