



Duncan Family Institute 2014

Annual Report — Year 6

THE UNIVERSITY OF TEXAS
MDAnderson
Cancer Center
Making Cancer History®

The Duncan Family Institute at-a-glance 2014

83 Peer reviewed publications

\$49M In awarded grants
leveraging investments
in research resources
and strategic initiatives

60% Fellows who have been
appointed to tenure track
faculty positions

A Message from the Vice President

The Duncan Family Institute for Cancer Prevention and Risk Assessment (DFI) recently completed its sixth year of operation, working towards its mission of advancing the discovery and translation of new knowledge about cancer risk and prevention in the laboratory, clinic and community.

Recent accumulating evidence supports the importance of the Institute's mission. A number of large studies from the U.S. and Europe have demonstrated that living a healthy lifestyle in accordance with established cancer prevention recommendations leads to a reduced risk of cancer, as well as to a reduced risk of death from cancer and other causes. Such findings validate cancer prevention recommendations and provide significant motivation to the Institute to continue to pursue its mission.

Scientists supported by the DFI's research and clinical programs demonstrated that a home-based exercise program could improve quality of life in survivors of endometrial cancer (Center for Energy Balance), translated a novel liver risk prediction model into a point-of-care device (Center for Translational and Public Health Genomics), and also established a collaboration with the Jason's Deli restaurant chain to develop healthy menu items in accordance with cancer risk-reducing nutrition recommendations (Integrative Health). These accomplishments and others are described in detail within the report.

Science supported by the DFI Research Resources includes work to reduce childhood obesity through evidence-based interventions (Center for Community-Engaged Translational Research), trials examining new therapeutic agents to prevent colorectal and breast cancers (Clinical Cancer Prevention Research Core), and a text messaging system and smart phone app to support smoking cessation in high-risk populations (e-Health). More details of this work, as well as additional supported science, can be found on the following pages.

Our Seed-funding Research Program continued to support early career investigators as they seek to develop the preliminary data necessary to compete for peer-reviewed support for larger studies. This year, we received a total of 32 proposals. Three awards were made to projects focusing on the identification of molecular targets in the prevention of colorectal and pancreatic cancers, as well as on informed decision-making around fertility preservation in young women with cancer; and three awards were made in collaboration with the Survivorship Research Working Group addressing quality of life issues in cancer survivors.

Finally, we are pleased to report that we awarded a new Duncan Family Institute Mentored Junior Faculty Fellowship to Thanh C. Bui, M.D., Dr.P.H., a promising instructor in the department of Health Disparities Research. Dr. Bui's research seeks to determine if particular hygiene practices can help reduce the transmission of oral and genital HPV infection.

In closing, on behalf of the Executive Committee, I extend our deepest appreciation and gratitude to all those who make the work of the Duncan Family Institute possible. It is these individuals with their dedication to and passion for their work and prevention that enabled the past years' achievements. Finally, we offer our deepest admiration and respect to the Duncan Family, whose kindness and generosity made the Institute possible, and to all of our new and sustaining donors, whose support makes possible the Institute's work.



Sincerely,

A handwritten signature in black ink, reading "Ernest Hawk". The signature is fluid and cursive, with the first name "Ernest" being more prominent and the last name "Hawk" following in a similar style.

Ernest Hawk, M.D., M.P.H., on behalf of the Executive Committee
Duncan Family Institute for Cancer Prevention and Risk Assessment

Overview

Duncan Family Institute for Cancer Prevention and Risk Assessment (DFI)

Our Mission

Our mission is to advance the discovery and translation of knowledge regarding cancer risk and prevention in the laboratory, the clinic, and the community. Cancer prevention is a broad field encompassing multiple scientific disciplines, thus the Institute supports a wide range of research, supporting scientists from departments across MD Anderson.

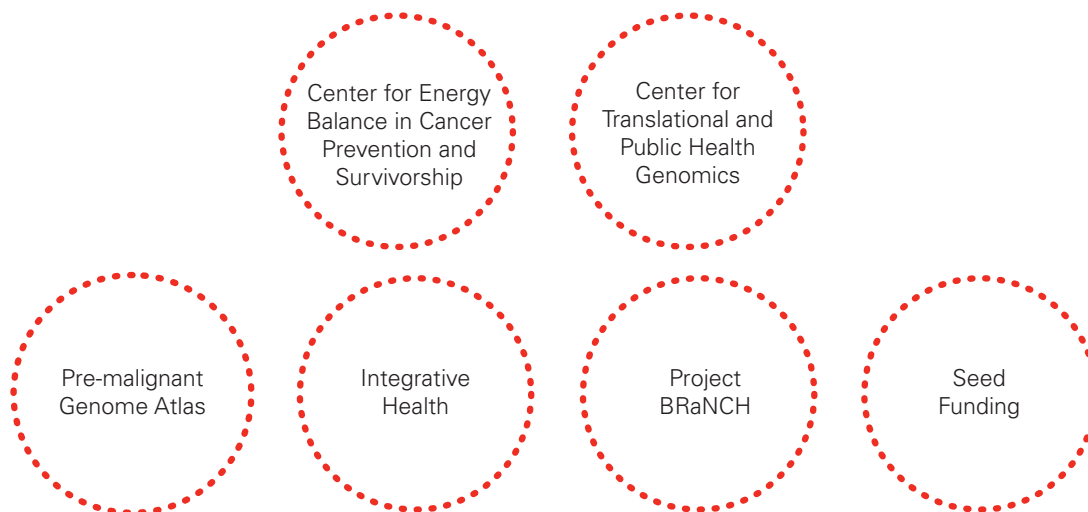
- **Research and Clinical Programs** encompass the Institute's Seed-Funding Program, its Centers, and its Strategic Initiatives, a set of high-priority research areas determined by the DFI's Executive Committee.
- **Research Resources** are the critical components of the scientific infrastructure necessary to carry out state-of-the-science research that are often not covered through traditional grant mechanisms or other funding sources.
- **Education** supports fellowships to develop future generations of cancer prevention researchers and also sponsors lectures and events to build the intellectual environment to engage the current generation.

The Institute's mission is accomplished through Three Components:



Duncan Family Institute

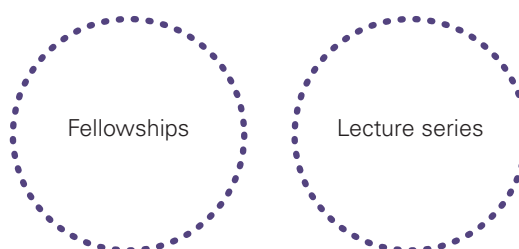
Research and Clinical Programs



Research Resources



Educational Resources

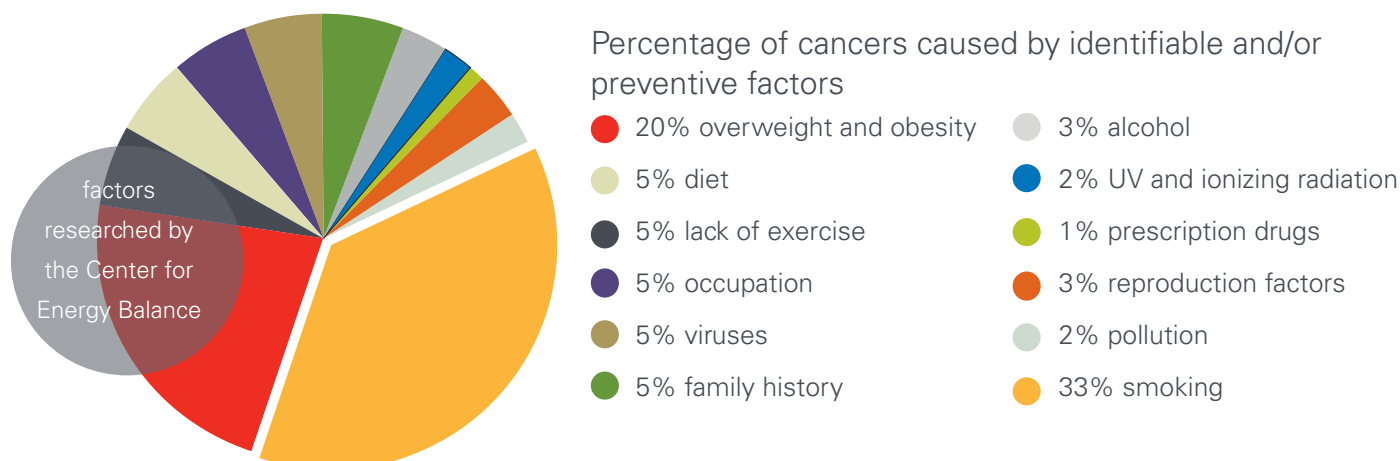


Duncan Family Institute programs have actively engaged with a number of the Moon Shots disease site programs as well as with the supporting Moon Shots platforms. For example, the Center for Translational and Public Health Genomics has worked collaboratively with both the Lung and Prostate Cancer Moon Shots to provide them with biospecimens to assist in identifying biomarkers predictive of cancer-related outcomes and the Center for Community Engaged Translational Research has joined with the Cancer Prevention and Control Platform to support a number of the Platform's projects. More details on how the DFI initiatives are interacting with the Moon Shots can be found throughout the report wherever the Moon Shot symbol appears.

Centers

The Center for Energy Balance in Cancer Prevention and Survivorship

Mission: The Center facilitates and conducts state-of-the-science research to understand the relationships among physical activity, nutrition, obesity, and cancer, and uses this knowledge to optimize interventions to decrease cancer risk and improve cancer outcomes.



Colditz, G.A., K.Y. Wolin, et al. (2012). "Applying What We Know to Accelerate Cancer Prevention." *Science Translational Medicine* 4(127): 127rv124-127rv124

Goals

1. To **develop** practice-changing research and data resources in five focus areas
2. To **increase transdisciplinary collaboration** among researchers conducting energy balance research at MD Anderson
3. To **improve** the infrastructure for conducting research on energy balance and cancer
4. To **increase awareness, knowledge, and skills** related to energy balance and cancer among researchers, health care professionals, trainees, and the community

Accomplishments

- Facilitated 10 pilot tests
- Submitted 20 grants to internal and external sources; two funded and 10 pending review
- 14 active projects; one Moon Shot-related
- Published five papers related to Center activities
- Recruited 163 members (90 faculty from 13 institutions)
- Sponsored events to develop energy balance research community
-  Engaged in advancing energy balance research in partnership with both the Women's Cancers and Colorectal Cancer

Moon Shots through Project MOST (Multiphase Optimization Strategy), which seeks to optimize energy balance interventions for high risk families affected by hereditary breast, ovarian and colorectal cancers

Scientific Highlights

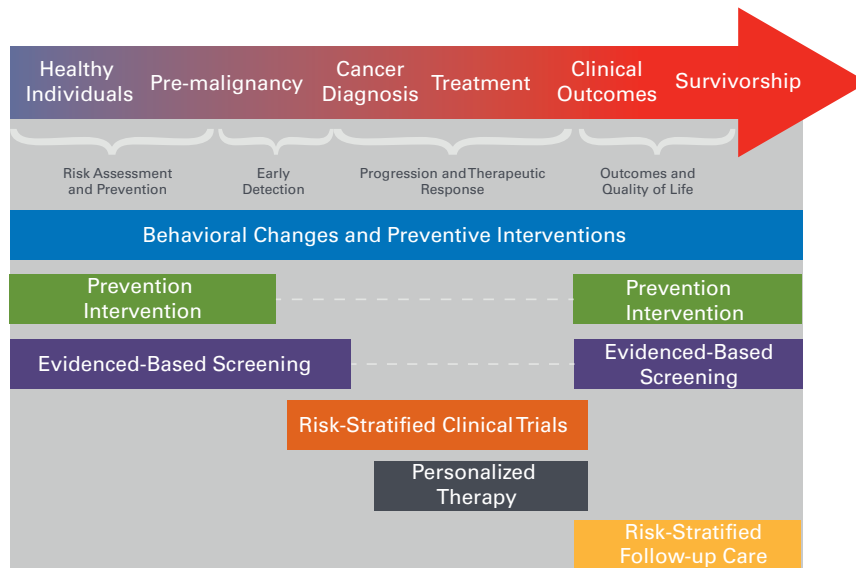
- The Center's Steps to Health project demonstrated that a home-based exercise program could significantly improve the quality of life of both obese and non-obese survivors of endometrial cancer, highlighting the importance of exercise in this group of cancer survivors
- Project LEAP (Lowering Endometrial Cancer Risk) is currently recruiting study participants to test the independent and combined effects of metformin, a drug for diabetes, and a lifestyle intervention on a surrogate endpoint for cancer (Ki-67, a marker for cell proliferation)

Future Plans

- Develop a research program project to study the role of visceral adiposity in the development of cancer
- Recruit additional energy balance faculty
- Explore leveraging the Surgeon General's Call to Action on Walking and Walkability to educate professionals and the public on the importance of physical activity to promote health

The Center for Translational and Public Health Genomics

Mission: To bridge the gap between epidemiologic discoveries and their translation into clinical and public health applications to benefit cancer patients, individuals at elevated risk for cancer, and the general population




Goals

1. **To develop** Blood Specimen Research Resource (BSRR) which includes the
 - Multi-ethnic Cancer Survivorship Cohort
 - Long-term Survivorship Cohort
 - Pediatric Patient Cohort
2. **To discover, develop and validate** blood-based biomarkers through
 - Genetic and “omic” analyses
 - Phenotypic assays
3. **To Develop** personalized risk prediction models
4. **To Build** research networks through
 - Collaborative Biospecimen Banks
 - Seminars and Symposia
 - International Training Program

Accomplishments

- Secured 5 grants, 4 from NCI totaling \$13M; 12 proposals totaling over \$39M are pending
- Published 39 manuscripts, 13 of which were published in high-impact journals, including Science and Nature Genetics
- Enrolled 6,438 patients in BSRR during reporting period
- Collected 547 biospecimens as part of Multi-ethnic Cancer Survivorship Cohort during reporting period
- Enrolled 365 participants in Pediatric Patient Cohort since July 2013

-  Engaged with both the Prostate and Lung Cancers Moonshots through the BSRR and Tobacco Treatment Program biobanks, respectively, to identify biomarkers predictive of various outcomes

Scientific Highlights

- Identified novel genetic and phenotypic biomarkers for predicting risk and outcomes in multiple cancers
- Developed risk prediction models for lung cancer risk and outcomes, esophageal cancer risk, and a CRC screening tool
- Translated liver risk prediction model into a point-of-care device

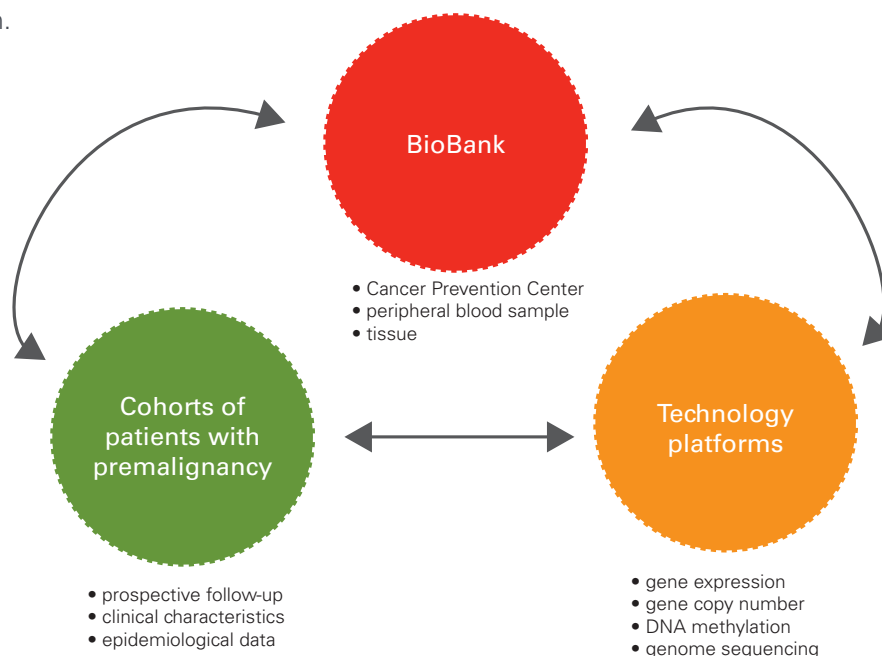
Future Plans

- Expand the Multi-ethnic Cancer Survivorship Cohort to 100,000 participants
- Enhance cohort infrastructure through use of eConsent, web- and mobile-friendly questionnaires, and a web-based portal
- Develop clinical prediction tools across the cancer continuum for patients and clinicians to more accurately assess individual risk to facilitate better health management and screening decisions
- Commercialize point-of-care diagnostic chips
- Continue to build the Center’s research network

Strategic Initiatives

Premalignant Genome Atlas

Mission/Goals: To assess the spectrum of risk factors contributing to the progression of healthy individuals to those with precancerous lesions to those with cancer AND to determine molecular differences among these patients. Such differences could potentially serve as markers of risk or preventive response and/or targets for cancer prevention.



Accomplishments

- Recruited 840 patients, and collected 797 normal tissues, and 219 adenomas as part of the Premalignant Genome Atlas (PGA) biobank
- Established a new collaboration with Ann Gillenwater, M.D., professor, department of Head and Neck Surgery, to collect biospecimens for oral premalignant lesions, precursors of oral cancer, to identify predictors of progression (76 patients enrolled)
- Submitted one grant and received one grant
- Published five papers

Scientific Highlights

- Demonstrated the feasibility of home and mail-based fecal sample collection from individuals undergoing screening colonoscopy at MD Anderson and performed pilot fecal microbiome profiling of the samples, which suggested that the microbiome may link obesity and colorectal cancer
- Performed a pilot microbiome study of oral samples taken from patients with oral premalignant lesions, with preliminary analyses

revealing differences in the types of bacterial species present within and among individuals

Future Plans

- Continue to build Cohort of patients with colorectal polyps
- Continue efforts in molecular and phenotypic profiling of premalignant lesions and neoplasms
- Discover new circulating biomarkers
- Follow-up patients with polyps who have specific mutations to observe incidence of colon cancer
- Test fecal samples collected to explore the potential of fecal DNA as a non-invasive surveillance target
- Link dietary patterns and microbiome with mutations in colon to identify novel associations and risk factors
- Prepare R01 and CPRIT grants, including a grant to study the gut microbiome in relation to obesity and colorectal cancer risk
- Develop personalized oral cancer risk classification system in patients with oral premalignant lesions through establishment of a cohort of 1,000 patients with oral premalignant lesions

Integrative Health

Mission: To optimize health, quality of life, and clinical outcomes of patients and families through exceptional clinical care, research, and education in integrative health services across the cancer continuum of prevention, active treatment and survivorship



Services are delivered in two locations: the Cancer Prevention Center and, for those undergoing active treatment, the Integrative Medicine Center.

Accomplishments

Cancer Prevention Center

- Re-branded the Integrative Health Clinic to the Healthy Living Clinic with funding supporting health education and assessments across nutrition, physical activity and psychosocial domains
- Completed 5,715 patient interventions
 - 2,136 provided by two health navigators
 - 1,566 provided by two exercise physiology technicians
 - 1,686 provided by two registered dietitians
 - 327 provided by one social work counselor
- Opened the Healthy Living Garden
- Developed a physical activity algorithm in conjunction with the Integrative Medicine Center and the Center for Energy Balance in Cancer Prevention and Survivorship, as well as other departments

Integrative Medicine Center

- Completed 1,460 patient interventions

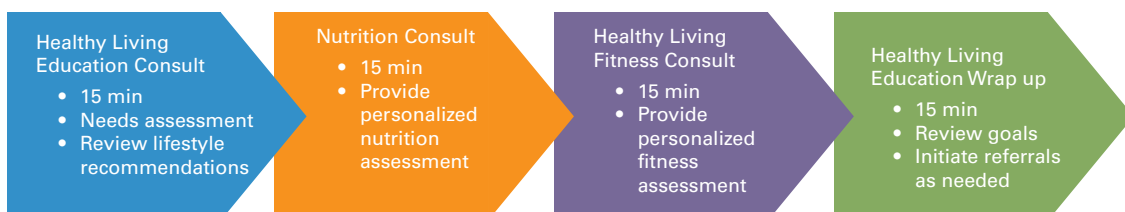
- Activity related to Integrative Health constituted 14% of the total activity in the Integrative Medicine Center

Scientific Highlights

- The Comprehensive Lifestyle Change Study, conducted within the IMC, is a randomized trial of women with Stage III breast cancer receiving radiotherapy to test the efficacy of an Integrative Health intervention in this population of patients

Future Plans

- Expand services in the Healthy Living Clinic to all new/consult breast survivorship patients next year, with expansion to other survivorship clinics to follow in the future
- Focus efforts on measuring the clinical impact of the Integrative Health program on patient care
- Continue to create custom videos and patient education materials focused on cancer prevention guidelines
- Continue to collaborate with Jason's Deli to develop healthy co-branded menu items
- Expand the Integrative Medicine Center's inpatient consultation service to the entire MD Anderson hospital
- Align and expand the Integrative Medicine Center's multiple mind-body programs




Project BRaNCH (Bridging Relatives and Navigators for Colorectal Health)

Mission: To establish an infrastructure that ensures high-risk family members of MD Anderson patients with hereditary colorectal cancer syndromes are identified, assessed, counseled, and treated, if necessary. Relies upon the use of trained clinical genetics patient navigators as well as the use of novel web-based and software tools to identify, recruit, track, and interact with family members.

Goals

1. **To implement** a cancer genetics navigator model to improve family uptake of genetic testing, adherence, surveillance, and comprehensive data collection
2. **To enhance** existing IT infrastructure of a linked family pedigree-based database to facilitate systematic identification and recruitment of family members of probands with hereditary CRC syndromes
3. **To build** a comprehensive eHealth toolbox to facilitate education, family communication, and psychosocial support

Accomplishments

- Enrolled 235 patients and 44 family members
- Established initial infrastructure for on-line registry recruitment and consent process for hereditary colorectal cancers
- Published one paper
-  Engaged with both the Womens' Cancer Moon Shot and the proposed Colorectal Cancer Moon Shot around developing and implementing family outreach programs for these cancers

Highlights

- As this Strategic Resource is still under development, scientific highlights will be reported in subsequent years

Future Plans

- Implement software enhancements to enable the collection of research questionnaires online
- Identify and/or develop educational and informational resources to support family outreach efforts
- Continue the identification and recruitment of hereditary colorectal cancer probands and at-risk family members
- Continue efforts to enhance IT infrastructure



- Approximately 5% of colorectal cancer is attributable to gene mutations that are inherited
- These mutations occur predominantly in genes that play a role in repairing DNA
- These genes are known as mismatch repair genes, or MMR, for short
- Carriers of mutations in these genes are at a high lifetime risk of cancer, including colorectal cancer
- Communication of potential inherited risk to relatives of those with this form of colorectal cancer is critical to risk management and early detection efforts, but is currently deficient

Seed Funding

Supporting the Development of Preliminary Data for Innovative Research

The DFI's Seed-Funding Program provides financial support to investigators working to develop the preliminary data necessary to improve competitiveness for extramural support for larger and innovative hypothesis-driven studies. Funding is awarded through a peer review process that engages scientists from Texas Medical Center institutions to review early stage proposals.

Awards are available to those throughout MD Anderson and support work across the continuum of cancer prevention research, from early detection to survivorship.

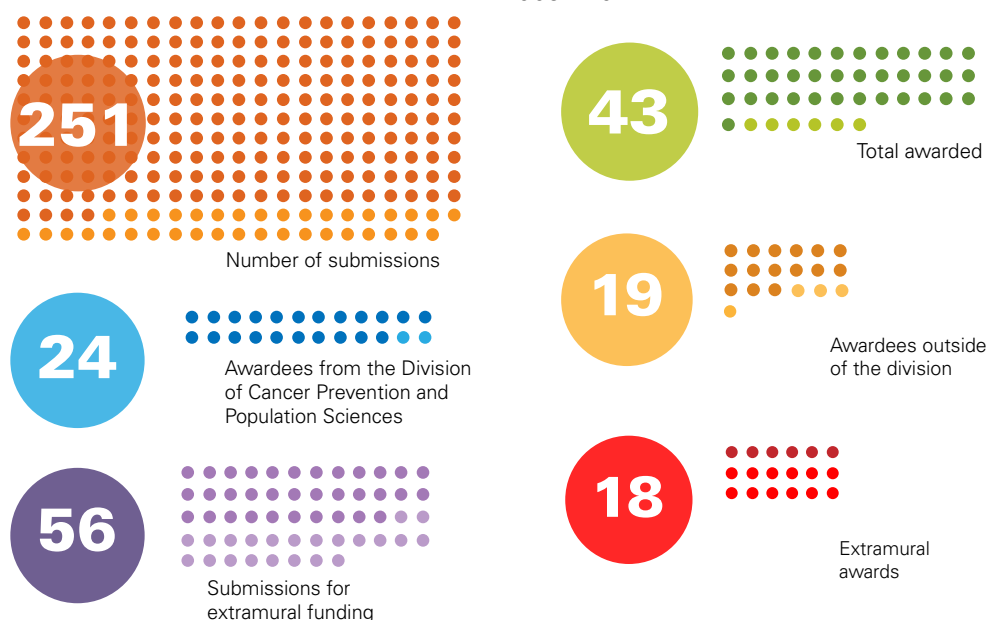
Seed Funds Awarded in Year 6

We competitively awarded seed funds to six new projects, two of which focus on primary prevention based on molecular targets for pancreatic and colorectal cancers; and four of which address quality of life issues in cancer survivors. In keeping with the transdisciplinary and cross-cutting nature of an institute, the DFI awarded four of these six new awards to investigators residing in departments outside the Division of Cancer Prevention and Population Sciences, realizing the Institute's promise of reaching across disciplinary boundaries to advance prevention research.

Leveraging Previously Awarded Seed Funds

A number of recipients of seed-funds awarded in previous years have reported progress in Year 6. In sum, these recipients have leveraged their seed-funding to publish 10 manuscripts and submit 24 grant applications. Topics studied by these scientists include molecular prevention of triple negative breast cancer, progression of premalignant skin lesions to skin cancer, and determining the molecular mechanism of action of potential preventive targets in colon cancer. Notably, work by Dr. Qiang Shen, initially funded in 2012, has resulted in a patent for novel inhibitors of an important molecule known to be active in the early stages of estrogen receptor-negative breast cancer.

Seed funding activity FY2009 - 2014



Seed-Funding Awardees

Carrie Daniel-MacDougall, Ph.D., M.P.H.

“Gut microbiome: integrating risk pathways in obesity and colorectal neoplasia”

Obesity increases the risk of colorectal cancer, but the responsible mechanisms for this remain unclear. Growing evidence suggests that the gut microbiome may play a role. This implies that the gut microbiome may serve as a modifiable biomarker of CRC risk. Dr. Daniel-MacDougall and her team propose an innovative study to test the hypothesis that the gut microbiome represents a key link between obesity and colorectal neoplasia via modulation of diet and energy balance.



Guang Peng, M.D., Ph.D.

“Targeting the threshold of replication stress as a novel approach for pancreatic cancer prevention”

Pancreatic cancer is one of the deadliest human cancers, which represents a major challenge in cancer patient care. There is an urgent need to identify an effective chemopreventive strategy that targets early genetic defects in precancerous pancreatic lesions. Dr. Peng’s research will focus on identifying chemical inhibitors of components of the DNA repair network, which precancerous cells depend upon for survival. She seeks to identify inhibitors that can specifically target premalignant cells and spare normal cells. Any new inhibitors identified as part of her work may enable us to conduct cancer prevention in a more personalized approach based on the genetic makeup of premalignant lesions and could be a significant advance for preventing pancreatic cancer.



Terri Woodard, M.D.

“Challenging Choices: Developing a decision aid to help women with cancer make good decisions about fertility preservation”

Most women with cancer want to have children despite their disease. However, many cancer treatments can lead to infertility. Recommended fertility preservation services are underutilized and many patients have a difficult time deciding whether to preserve fertility. Decision aids have been shown to improve patient knowledge and assist them with making choices that align with their beliefs and values. However, research on decision aids in the setting of fertility preservation and cancer treatment is lacking. The ultimate goal of Dr. Woodard’s work is to help young women considering fertility preservation make informed decisions that will decrease their long-term distress regarding cancer-related fertility. As part of this project, she will conduct a formal needs assessment of patients and healthcare providers and will design and produce a web-based decision aid that will improve the survivorship experience of young women with cancer.



Survivorship Seed-Funding

Robert Dantzer, Ph.D., D.V.M.

“Improving quality of life of cancer survivors through the identification of treatment targets for cancer-related fatigue”

Fatigue is a very common symptom in cancer survivors. However, the experience of fatigue is complex. It involves alterations in motivational and cognitive processes that still need to be characterized. It is the objective of Dr. Dantzer’s current research project to characterize these alterations in order to improve our understanding of how to treat fatigue.



Huifang Lu, M.D., Ph.D.

“Evaluation of risk factors in predicting fractures following hematopoietic stem cell transplantation in patients with underlying hematologic malignancies”

In the last decade, the number of long-term survivors of hematopoietic stem cell transplantation (HSCT) has increased, resulting in a large population experiencing effects from HSCT and its associated treatment. Rapid bone loss, which can lead to fractures, is common following HSCT. Fractures are associated with significant morbidity and mortality and worsen the quality of life of long-term cancer survivors. In spite of the high rate of fractures, the best way to identify HSCT recipients who are at high risk of fracture is unknown, but it is crucial in clinical practice when considering preventative treatment. Dr. Lu’s work seeks to close this research gap.



Benjamin Smith, M.D.

“Population-based assessment of patient outcomes in older breast cancer survivors”

In this project, Dr. Smith will partner with Centers for Medicare and Medicaid Services to survey a nationally representative, population-based sample of older women who are breast cancer survivors. The team will use validated instruments to determine how breast cancer and its treatment have impacted these survivors, both positively and negatively. The influence of treatment choices, for example, the choice of lumpectomy versus mastectomy, on long-term quality of life outcomes will also be assessed. The pilot data generated through this project will support grant applications to conduct a large scale survey of breast cancer survivors, with the ultimate goal of facilitating better treatment decision making geared toward optimizing patients’ long-term survivorship experience.



Research Resources

The Institute has created or expanded five research resources to support cancer prevention and risk assessment studies.

Center for Community-Engaged Translational Research (CCETR)

Mission: To bring communities and researchers together to create long-term solutions to prevent cancer and improve health.

Goals:


1. To **facilitate** research development and implementation between MD Anderson investigators and diverse communities
2. To **establish** and maintain equitable research partnerships
3. To **increase** the capacity of investigators to recruit and retain diverse patients to clinical studies

Accomplishments

- Provided assistance to 31 grant submissions totaling over \$80M
- Contributed to the National Cancer Institute Community Oncology Research Program grant submission (\$23M) and to the re-submission of the Tobacco TIPs grant (\$13M)
- Provided assistance to and/or served as collaborator on seven proposals to the Patient-Centered Outcomes Research Institute
- Initiated a patient navigation program for clinical trials
- Engaged over 30 external organizations to partner with MD Anderson investigators for grant submissions
- Published 14 papers

Science Supported by the Resource

- Project CHURCH – An ongoing prospective, longitudinal, community-based cohort study designed to investigate the role of behavioral, social, environmental, and genetic factors in cancer-related disparities among African Americans in Houston

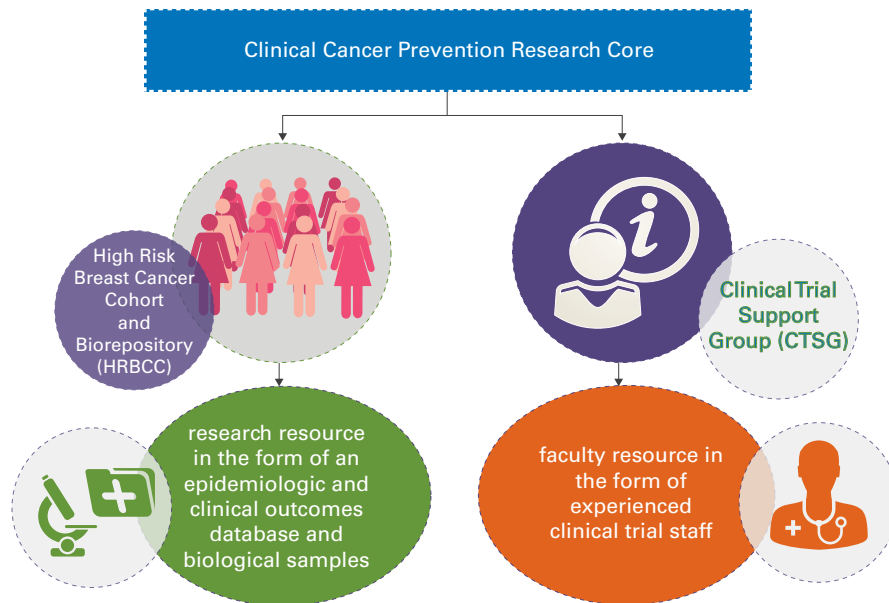
- o CCETR manages Project CHURCH, which includes developing and coordinating its cancer prevention programming, designing and supporting its database, and collaborating on writing and submitting associated grants
- Reducing Childhood Obesity Through the Implementation of Evidence-Based Obesity Programs (We Can!) – a collaboration with Harris Health to reduce obesity in children and supported by Medicaid’s Delivery System Reform Incentive Payment program
- o CCETR provides overall project management support and has been instrumental in convening and facilitating planning meetings with Harris Health System
- Cancer Prevention and Control Platform – The Platform seeks to develop and implement interventions in the domains of policy, public and professional education, and community-based clinical services to achieve a measurable and lasting reduction in the cancer burden, especially among underserved populations
- o  CCETR assists the Platform in developing and implementing proposals around creating Healthy Communities, furthering international tobacco control, and establishing a unique telementoring project

Future Plans

- Focus on building capacity to develop, write, and lead community-engaged research grants through faculty hiring

Clinical Cancer Prevention Research Core (CCPRC)

Mission: To provide an infrastructure for prevention research supporting the conduct of collaborative translational and clinical research investigating risk assessment, risk reduction interventions, cancer risk and early detection markers, and cancer screening




Goals

1. **To support** core prevention research activities by an infrastructure of experienced personnel in the form of the Clinical Trial Support Group (CTSG)
2. **To establish** a shared Research Resource for MD Anderson researchers in the form of a High Risk Breast Cancer Cohort and Biorepository (HRBCC)

Accomplishments

- Contributed to 16 submitted grants totaling \$2.8M (14 funded totaling \$939,600)
- Added 700 participants to the HRBCC
- Published four papers

Science Supported by the Resource

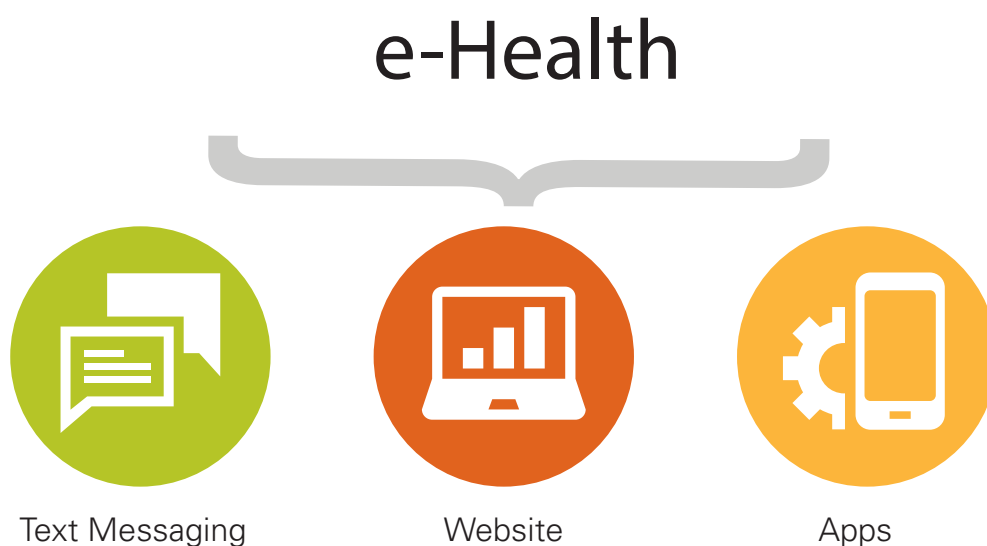
- The CTSG supported three protocols of trials examining naproxen, docosahexaenoic acid, and lapatinib to determine their effects on various biomarkers in colorectal and breast cancer patients
-  Engaged with the Womens' Cancer Moon Shot to support the development of a proposal to implement a decision-making tool among patients with precancerous lesions of the breast with the goal of maximizing the uptake of cancer preventive therapy

Future Plans

- Increase utilization of the High Risk Breast Cancer Cohort and Biorepository
- Promote availability of the CCPRC to site-specific Moon Shot Program teams
- Identify other future resources to further leverage Duncan Family Institute funding for the CCPRC

e-Health

Mission: The e-Health Technology Program focuses on the advancement of interactive interventions and data capture tools for research, patient care, and education



Goals

1. To develop, implement, and maintain web-based, mobile, and multimedia applications for cancer prevention and control projects
2. To support divisional and institutional technology-related collaborations
3. To assist with technology-related grant proposals
4. To serve as an institutional resource for technology-related initiatives

Accomplishments

- Submitted 20 grants totaling \$31.2M (10 funded totaling \$27.6M)
- Provided 36 consultations and developed 17 projects
- Published six papers

Science Supported by the Resource

- Developed a text messaging system and smart phone and web applications targeting different high-risk populations to assist in smoking cessation

- Created a website for cancer survivors regarding bone health and implemented a related text messaging system as well as a tracking tool for monitoring usage of both

Future Plans

- Expand the technical capabilities of the program and increase capacity of staff; focus on staff development and retention
- Create standard interfaces for web and mobile applications to connect with clinical and patient support systems
- Continue to implement marketing plan developed and initiated in previous year
- Pro-actively pursue opportunities to collaborate with Moon Shots and Platforms
- Include existing and new demos, videos and apps on Program's external website

Mexican-American Cohort Study (MACS)



Goals

1. **To identify** risk and protective factors for cancer and other cancer-predisposing chronic conditions in the largest and fastest growing minority population, who are underserved and under-represented in health research
2. **To develop** cancer prevention and screening strategies based on the identified lifestyle, environmental, and genetic risk factors
3. **To provide** an infrastructure to advance the mission of MD Anderson Cancer Center to eliminate cancer through collaborative research

Accomplishments

- Enrolled nearly 25,000 participants from 17,000 households with a total of 560 incident cancer cases
- Submitted eight grants totaling \$9.3M (two funded totaling \$1.7M)
- Supported six additional projects totaling \$2.7M
- Published 17 papers

Science Supported by the Resource

- The MACS serves as the foundation to a CPRIT application seeking to identify biological and lifestyle drivers of weight gain and obesity in Mexican-Americans with the goal of building an integrative risk assessment model in this population
- MACS is being used to prospectively verify previously identified metabolic markers that may inform breast cancer risk in Mexican-American women

Future Plans

- Expand recruitment to the entire Houston area
- Implement cloud-based data collection, management, and study coordination

Health Services Research Core Data Resource

Mission: to create a core data resource consisting of large datasets to promote health services research studies at MD Anderson, as such data are one of the most important resources for studying health care delivery, economics of care, cost-effectiveness, quality of care, and treatment outcomes



Goals

1. To **purchase, maintain, and update** large databases to be used by MD Anderson researchers
2. To **maintain** licenses, data use agreements, and confidentiality agreements to ensure regulatory compliance with the use of such databases
3. To **provide** guidance and analytic support on studies using these databases

Accomplishments

- Submitted 10 grants totaling \$3.2M (seven funded totaling \$734K)
- Purchased or licensed data from three large databases (Marketscan, SEER-Medicare American Medical Association physician data, and the National Inpatient Sample) and identified a fourth database of interest (Health Care Cost Institute(HCCI) database)
- Published six papers

Science Supported by the Resource

- Contributed to a population-based cohort study examining the impact of physicians on the management of low-risk prostate cancer with treatment versus observation, which found that 16% of the variation in treatment versus observation was due to the diagnosing urologist, and that 7.9% could be attributed to patient and tumor characteristics
- Provided preliminary data for a proposal examining the role of inappropriate medication use in elderly patients receiving adjuvant chemotherapy for breast and colorectal cancers. Upon analysis, this study demonstrated that 30% of these cancer patients receive high-risk prescription medications.

Future Plans

- Acquire data from the HCCI, a non-profit research institute with claims data from Aetna, Humana, and United, covering over 50 million insured lives annually

Investing in the Next Generation of Cancer Prevention Researchers

Mentored Junior Faculty Fellowship

The Duncan Family Institute's competitively awarded fellowships are designed to bridge the gap in funding between postdoctoral training and independent researcher status. They provide the mentoring and financial support for instructor-level faculty to focus on developing their research questions, generating preliminary data, and enhancing their publication record to compete successfully for peer reviewed extramural grants — an early and critical milestone on the path to research independence.

We are pleased to report that Thanh C. Bui, Dr.PH., M.D., instructor in Health Disparities Research, is this year's fellowship recipient.



Thanh C. Bui, M.D., Dr.PH.

Dr. Bui is interested in researching the effects of hygiene practices and their interactions with sexual practices on oral and genital HPV infection. HPV infection is the most common sexually transmitted disease in the world. Long-term infection with certain types of the HPV virus is responsible for more than 30,000 cancer cases each year in the U.S., including cervical, ano-genital and oral cancers. Recent increases in the number of oral cancers resulting from HPV infection highlight the importance of Dr. Bui's work.

Progress of Previously Funded Fellow



Diana Stewart, Ph.D.

Dr. Stewart's research focuses primarily on promoting health behavior change, particularly smoking cessation, to eliminate cancer-related health disparities in underserved populations. She was awarded the DFI Mentored Junior Faculty Fellowship in Year 5. Her progress to date demonstrates significant promise. She was a co-investigator on an R01 grant from the National Institutes of Health, signaling she is on a trajectory towards research independence. She has published three first-author manuscripts, with additional grants and manuscripts under review or in preparation.

The Institute contributed to enhancing the intellectual environment in support of the current generation of scientists by co-sponsoring speakers in collaboration with the Division of Cancer Prevention and Population Sciences' Cancer Prevention and Control Grand Rounds lecture series.

- **“Pharmacogenetics of Smoking Cessation: Pharmacodynamic and Pharmacokinetic Candidate Gene Studies Motivated by Genome-wide Association and Linkage”** by Andrew Bergen, Ph.D., Senior Director of Molecular Genetics Program, Center for Health Sciences, SRI International
- **“Obesity, Cancer Prevention and Health Reform: Opportunities for Change”** by Jeffrey Levi, Ph.D., Executive Director, Trust for America’s Health; Professor of Health Policy, George Washington University, School of Public Health and Health Services
- **“The Inflammatory Residue of Childhood Socioeconomic Adversity”** by Greg Miller, Ph.D., Professor, Department of Psychology; Faculty Fellow, Cells to Society: The Center on Social Disparities and Health at The Institute for Policy Research, Northwestern University



Governance and Oversight

The Duncan Family Institute for Cancer Prevention and Risk Assessment is guided by the Executive Committee. Members include the Vice President for Cancer Prevention and Head, Division of Cancer Prevention and Population Sciences, the chairs of the five departments within the Division, the directors of the Institute and Division centers, and the Vice President for Health Policy. Changes in membership in the past year include the addition of Dr. Lorna McNeill, associate professor in the department of health disparities research, representing the Center for Community Engaged Translational Research, and Dr. Jennifer Irvine Vidrine, associate professor in the department of Health Disparities Research, representing the department and replacing Dr. David Wetter. The Executive Committee continued its focus on ensuring excellence through annual reviews of its initiatives and in exploring ideas to sustain the Institute's diverse programs spanning MD Anderson's four mission areas: research, education, clinical services, and cancer control.



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Your Impact

The DFI is primarily supported by a generous gift from the Duncan Family. We extend our sincere appreciation and deepest gratitude to them for making the Institute possible, as well as to all our new and sustaining donors who contribute to our mission. The philanthropy of all has been and will continue to be critical to the efforts of the DFI as we seek to advance the discovery and translation of new scientific knowledge about cancer risk and prevention in the laboratory, clinic and the community.

Contact Us

To learn more about the work of the DFI, visit us on the web at www.mdanderson.org/duncanfamilyinstitute or contact us at:

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