DUNCAN FAMILY INSTITUTE

for CANCER PREVENTION AND RISK ASSESSMENT

Annual Report | Year 4

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History®

Duncan Family Institute for Cancer Prevention and Risk Assessment

Advancing the discovery and translation of new knowledge about cancer risk and prevention in the laboratory, the clinic and the community.

A Message from the Vice President

On behalf of the Executive Committee, I am pleased to provide the fourth annual report of the Duncan Family Institute for Cancer Prevention and Risk Assessment. A core tenet of MD Anderson's mission is the prevention and early detection of cancer; and the Duncan Family Institute plays a pivotal role in translating the findings of cancer prevention research into clinical and community practice to achieve individual and population health benefits. The Institute is anchored by a strong leadership team and world-class clinical and research scientists dedicated to accelerating and translating the best of cancer prevention research.

Two new Strategic Research Initiatives were launched in FY12. The *Center for Energy Balance in Cancer Prevention and Survivorship*, led by Karen Basen-Engquist, Ph.D., M.P.H., will draw together faculty from across MD Anderson and other area institutions to create and sustain a shared vision of conducting and translating the best possible energy balance research for all cancer patients and those at-risk. *Navigating Familial Cancer Risk in Colorectal Cancer Syndromes*, led by Susan Peterson, Ph.D., M.P.H., addresses a significant gap in coverage of cancer prevention services at MD Anderson by allowing for the extension of cancer surveillance and prevention to at-risk families of patients with major hereditary colorectal cancer (CRC) syndromes. The six Duncan Family Institute initiatives and their latest research results can be found in the *Strategic Initiatives* section of this report.

Our Seed-funding Research Program continued to grow in FY12, with 81 proposals received, from which we made 11 awards to investigators across MD Anderson. We were pleased to note our Seed-funding Research Program was cited in a recent article published on-line January 23, 2013 in the prestigious scientific journal *Nature* as a supportive program for early career investigators as they seek to build the preliminary data necessary to compete for peer-reviewed larger grants.

We continued our collaboration with the Survivorship Research Working Group. With ever greater numbers of long-term cancer survivors and given the elevated risk of second cancers in survivors, this is an increasingly important research area, and one which the Duncan Family Institute is committed to supporting.

The Duncan Family Institute Research Resources focused this past year on supporting a number of research projects, including, for example, support by the Center for Community-Engaged Translational Research of increasing dissemination and use of Dr. Jennifer Irvin-Vidrine's enhanced smoking cessation intervention, *Ask-Advise-Connect,* to medically underserved populations. Additionally, the Personalized Risk Prediction Program transitioned into the Center for Translational and Public Health Genomics, a Strategic Research Initiative, in recognition of the economies of scale available through this consolidation. Details of this transition and progress and impact of the remaining four core resources can be found in the *Research Resources* section.

Finally, we are pleased to report that we awarded two new Duncan Family Institute Mentored Junior Faculty Fellowships to promising young investigators, one of whom has competed successfully for a faculty position within a year of her appointment. More details regarding all of the Institute's educational and training initiatives can be found in the *Education and Excellence* section of the report.

The coming year promises continued growth and the prospect of novel research findings as our new strategic research initiatives take root, and as our research programs and resources continue to support MD Anderson scientists.

In closing, on behalf of the Executive Committee, we sincerely thank all those affiliated with the Duncan Family Institute for their dedication to and passion for prevention. We extend our deepest appreciation and respect to the Duncan Family, whose vision and generosity made the Institute possible, and to all of our new and sustaining donors, whose support underlies all of the past year's advances.

Sincerely,

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

The Duncan Family Institute Gives Back

Figure 1. *Executive Director of the Duncan Family Institute Jennifer Tektiridis (right) and MD Anderson employees Cherry Sloan (left) and Renee Raizen (center) staff a Duncan Family Institute-sponsored cancer prevention education table at Enterprise Products.*

Figure 2.*Staff of the Mexican-American Cohort at a community health event.*

Philanthropic gifts have incredible power to transform a scientific idea into a scientific reality. They underlie the scientific discoveries of today that will become the life-saving treatments of tomorrow. The Duncan Family Institute (DFI) is founded upon such generous and transformative philanthropy. It would not exist without the visionary gift of the Duncan Family, and would not be able to accomplish all it does without the gifts of new and sustaining donors. The Institute enjoys widespread support from MD Anderson faculty who are deeply grateful for the opportunities it has provided, and will continue to provide, to translate their research into new standards of clinical practice and population health benefits.

Because the generous philanthropy of the Duncan Family has inspired such gratitude and appreciation in all those associated with it, we are committed to giving back and sharing our time, talent and expertise directly with the individuals and communities who inspire our work and make it all possible.

This year we visited Enterprise Products Partners, L.P., founded by Mr. Dan Duncan. MD Anderson public education staff provided cancer prevention education materials to employees of Enterprise Products, in conjunction with the company's annual employee flu shot event (Figure 1). Materials included information regarding the various types of cancers and their risk factors, screening recommendations, and the importance of healthy lifestyle choices in cancer prevention.

The DFI also had the opportunity this year to give back to members of one of our research resources – the Mexican-American Cohort (Figure 2). A community health worker from the resource staff is now dedicated to addressing the health concerns and questions of cohort members, and provides participants with information on accessing available health resources, including navigating cohort members to cancer screening exams and other appointments at MD Anderson as well as other locations.

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OVERVIEW

"Advancing the discovery and translation of new knowledge about cancer risk and prevention in the laboratory, the clinic and the community"

The Duncan Family Institute was established in 2008 through a generous gift from the Duncan Family to foster collaboration among scientists, clinicians and community practitioners committed to advancing the science and practice of cancer prevention (Figure 3). Cancer Prevention is a broad field and the Institute supports a wide range of research and engages scientists from multiple disciplines. The Institute is committed to the discovery and translation of new findings, and our research investments reflect this commitment. We currently allocate Duncan Family Institute funds to three areas: Research Programs (55%), Research Resources (35%), and Education and Excellence (10%).

Research Programs The Duncan Family Institute Research Programs consist of a Seed-funding program and a Strategic Research Initiatives program. The Seed-funding program is designed to provide financial support to innovative investigators working to develop preliminary data into full-fledged, hypothesis-driven investigations. Seed-funding through this program is available to all MD Anderson investigators and applications are accepted annually.

The Strategic Research Initiatives program supports a set of high-priority research areas determined by the Executive Committee of the Duncan Family Institute. Criteria include meeting a critical research or clinical need, scientific opportunity with great translational potential, future priority of patients and/or the population, little or no chance for support elsewhere, and opportunity for synergistic collaborations. There are currently six initiatives, one of which was established this past year. These research initiatives are: Integrative Health (IH), the Center for Translational and Public Health Genomics (CTPHG), the Premalignant Genome Atlas (PGA), Energy Balance, the Tobacco Transdisciplinary Research Program (TTRP); and the most recent, Navigating Familial Cancer Risk Hereditary Colorectal Cancer Syndromes.

Figure 3. *The Duncan Family Institute is based in MD Anderson's Dan L. Duncan Building but, as with all of MD Anderson's Institutes, it engages faculty from across the campus.*

Research Resources Critical to research progress is investigator access to cutting-edge scientific technologies, biospecimens, data, and expertise to enhance scientific interaction and productivity. These essential research infrastructure components are often not funded through traditional grant mechanisms or other sources of funding dedicated to research projects and programs, but are necessary for scientists to compete successfully for external funding from the National Institutes of Health (NIH), National Cancer Institute (NCI) and other peer-review funding agencies. There are currently four research resources: the Mexican-American Cohort; the Clinical Cancer Prevention Research Core; e-Health Technologies; and the Center for Community-Engaged Translational Research (CCETR).

Education and Excellence This program supports activities to develop future generations of cancer prevention researchers, support the current generation and assure quality of the Institute's programs through its governance and administrative management.

Under the guidance of the Executive Committee and Dr. Hawk's leadership, the Duncan Family Institute in FY12 continued to expand previous initiatives and begin new ones, branching out in innovative directions in our research and our patient care. Highlights of new and on-going DFI-supported basic and translational research studies and infrastructure investments are provided here and discussed in greater detail within the report.

Duncan Family Institute-Supported Basic and Translational Research Studies

- Novel risk prediction studies testing genetic and blood-based biomarkers to refine risk stratification in liver and colon cancers; and neurocognitive markers to predict risk of smoking and likelihood of relapsing among non-smokers and ex-smokers, respectively;

- Molecular and genomic studies of key aberrations in pathways leading to the development of various cancers, including skin, pancreas, and ER-negative breast cancers, in order to identify targets for the prevention of these diseases; and

- Studies of cancer survivors that seek to improve their care and quality of life after treatment by testing novel educational, psychosocial, social media, and mobile health applications and interventions, as well as through assessing health care provider needs to support these individuals.

Duncan Family Institute-Supported Investments in Research Infrastructure

- The Center for Energy Balance in Cancer Prevention and Survivorship, which will conduct and accelerate the translation of basic science discoveries in energy balance into clinical and population health benefits for all patients, supported by the Energy Balance initiative;

- The Patient Demographic Initiative (PDI), proposed by MD Anderson President Ronald DePinho to increase awareness of and access to MD Anderson among racial and ethnic groups, particularly Hispanics; supported by the Center for Community-Engaged Translational Research; and

- The continued support of the four DFI research resources: e-Health, the Mexican-American Cohort, the Clinical Cancer Prevention Core, and the Center for Community-Engaged Translational Research.

A Leading Scientific Journal Recognizes the Duncan Family Institute

A recent article (Figure 4) published on-line January 23, 2013 in the prestigious scientific journal *Nature* describes the complexities that early career investigators confront when conducting a clinical trial. The article, entitled "Clinical Research: Conducting a Trial", appears in the *Careers* section of the journal and highlights the Duncan Family Institute's Seed-funding Research Program as an example of a supportive program for early career investigators as they seek to build the preliminary data necessary to support applications for larger grants.


CAREERS

Early-career investigators might be able to get their own institutions or foundations to provide small start-up grants — typically ranging from US$20,000 to $50,000 — to fund collection of preliminary data. At the MD Anderson Cancer Center in Houston, Texas, for example, the Duncan Family Institute Seed Funding Research Program awards $50,000 per year for two years to support preliminary research on cancer prevention and risk, with the goal of improving the success of proposals submitted for larger grants. And some of the 60 institutions supported by US National Institutes of Health Clinical and Translational Science Awards (CTSAs) provide money for pilot

Figure 4. *Nature article and its text highlighting the Duncan Family Institute's Seed Funding Program.*

RESEARCH PROGRAMS

Studies to Understand and Reduce Cancer Risk

An Engine for Discovery – Seed-Funding Research Program

We competitively awarded seed funds to 11 new projects, six of which focused on primary prevention in topics ranging from molecular targets for colorectal and breast cancer prevention for high risk individuals to communications for those at genetic risk for the development of cancer. Five of the awards specifically target quality of life issues and prevention of secondary cancers in survivors. In keeping with the transdisciplinary and cross-cutting nature of an institute, the DFI awarded five of these 11 new awards to investigators residing in departments outside the Division of Cancer Prevention and Population Science. These investigators and their awards are indicated below with an asterisk (*).

All investigators receiving awards from the Institute are required to provide annual progress reports to the Duncan Family Institute Executive Committee. Updates on a selection of grants awarded in previous years are also included in the below list of project descriptions.

Videos on the DFI website (mdanderson.org/duncanfamilyinstitute) describe many of the projects in greater detail.

*Who will take care of gynecologic cancer survivors: you can't always get what you want

***Diane Bodurka**, M.D., FACOG, FACS, Professor, Department of Gynecologic Oncology*

This study focuses on the health care needs and expectations of gynecologic cancer survivors. As the number of cancer survivors continues to grow, it is critical to identify physicians who will take care of these patients after the surveillance period. In this mixed methods (quantitative and qualitative) study, Dr. Bodurka plans to evaluate the preferences of gynecologic cancer survivors for follow-up care (oncologists vs OB/GYNs) and identify the support and resources OB/GYNs need to broaden access for gynecologic survivorship care in the community. This study will be among the first to identify barriers and challenges to community-based survivorship care for women with a history of gynecologic cancer and will specifically evaluate age-related barriers to survivorship care from the perspectives of both health care providers and patients. This is an essential first step toward transforming the health care system to accommodate the growing ranks of long-term survivors.

Feasibility of a couple vs. an individual-oriented mood management intervention for distressed lung cancer patients

***Cindy Carmack,** Ph.D., Associate Professor, Department of Behavioral Science*

Psychosocial interventions are important to the care of cancer survivors because of the negative effects psychological distress can have on patient quality of life and health status. Including the spouse in the delivery of psychosocial interventions may have benefits for both the patient and the spouse. Patients may adopt new health behaviors and follow treatment recommendations more reliably, resulting in a positive impact on their health. Spouses may experience health benefits in the form of reduced caregiver burden, improved health behaviors (e.g., smoking) and promotion of a healthy bereavement following the patient's death. Using a web-based counseling approach to deliver psychosocial intervention may result in greater outreach for underserved couples, and may be easily integrated into cancer care. In this study, Dr. Carmack and colleagues will pilot test a web-based couple-oriented counseling intervention compared to a web-based patient only counseling intervention in 40 lung cancer patients who are experiencing psychological distress. Researchers will explore the effects of both interventions on patient psychological functioning, health behaviors, treatment adherence, and symptom burden and on spouse psychological functioning, health behaviors, and caregiver burden.

*REcovery of the left ventricular dysfunction in CAncer Patients' (RECAP trial) health status and health behaviors among cancer survivors: a population-based study

Anecita Fadol, *Ph.D.,R.N., FNP, FAANP, Assistant Professor, Department of Nursing*

The REcovery of left ventricular dysfunction in CAncer Patients (RECAP) trial is a pilot study about cancer survivors who developed heart failure while receiving cancer treatment. Some patients recover from heart failure with heart medicines. The current practice is for patients to take these heart medicines for life, because there is no data as to what will happen if patients stop taking the heart medicines after heart function improves. This study will examine if it is safe to stop these heart medicines in cancer survivors after the heart function returns to normal. The findings from this study will provide baseline information for a future large study to provide evidence to potentially change clinical practice and improve the cancer survivor's quality of life.

*Educational website for bone health in cancer survivors

Maria A. Lopez Olivo, *M.D., M.Sc., Ph.D., Instructor, Department of General Internal Medicine*

Bone health can prevent osteoporosis, one of the most frequent and potentially serious complications of cancer and cancer therapy. This project will develop an interactive web page containing bone health information tailored to the needs of breast and prostate cancer survivors. The goal of the project is to improve patients' knowledge, self-management and awareness of bone health issues, and ultimately reduce the risk of fracture in cancer survivors.

*Blocking a novel Wnt agonist for cancer prevention

Jae-Il Park, *Ph.D., Assistant Professor, Department of Experimental Radiation Oncology*

Dr. Park and his team will study a novel molecule that is only detected in colon cancer and positively controls the tumor-promoting Wnt signaling pathway. This research is relevant to public health because elucidating the fundamental mechanism of cancer development is expected to provide a valuable basic concept and new model for cancer prevention, diagnosis, and treatment. The proposed research addresses the central issues that are important to understanding the underlying mechanisms of colon cancer development. In this project, investigators will: (1) determine the role of a newly identified Wnt agonist in regulating tumor development and (2) further develop the efficient neutralizing methods.

A social network approach to improve genetic risk communication

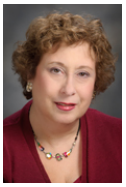
***Susan K. Peterson**, Ph.D., M.P.H., Associate Professor, Department of Behavioral Sciences*

Genetic testing for hereditary cancers is now part of standard oncology care, yet there are barriers to realizing its full benefits for patients and families. Studies consistently show that information about genetic risk may not be completely or accurately disseminated within families, and that families may grapple with the nuances and complexities of conveying genetic risk information. To address these issues, Dr. Peterson proposes an intervention, called My Family Garden, a web-based, secure social networking tool to enable the collection and sharing of family history and cancer risk information in families with hereditary cancer. Funding from the Duncan Family Institute will support the development, testing, and evaluation of a prototype system for My Family Garden. Long-term scientific goals include evaluating the efficacy of My Family Garden in enabling comprehensive communication of cancer risk information and adoption of cancer risk reduction strategies in high risk families.

Mobile health applications to improve survivorship self-management for cancer survivors

***Susan K. Peterson,** Ph.D., M.P.H., Associate Professor, Department of Behavioral Sciences*

The need for improved survivorship care to prevent the recurrence of cancer among survivors and to improve their quality of life has been widely recognized. The use of patient navigators is a promising approach to help survivors manage their survivorship care; however, relatively little is known about the efficacy of cancer survivorship navigation programs. This project will assess breast cancer survivors' navigation needs and preferences for a navigation program within the Survivorship Clinic at Lyndon B. Johnson Hospital in Houston. Dr. Peterson and her team will interview clinic stakeholders to get their perspectives on the integration of this kind of program without disrupting clinic flow. Because the degree to which clinical staff can take on navigator roles is limited due to time and patient care demands, researchers will also assess whether personal health information systems and e-Health Technology (specifically, the HealthATM platform) can be leveraged to increase the effectiveness and sustainability of navigator efforts.



Preventing sexual dysfunction in women on aromatase inhibitors

***Leslie Schover,** Ph.D., Professor, Department of Behavioral Science*

Aromatase inhibitors have become the hormone therapy of choice for postmenopausal women with estrogen-positive breast cancer and will increasingly be prescribed to prevent breast cancer after menopause. Yet, 10% to 25% of women discontinue aromatase inhibitors in the first year of treatment because of negative side effects. Sexual problems are among the most distressing symptoms. This study will survey women who began aromatase inhibitors in the past 12 to 18 months about changes in their sex lives. Their experiences will be compared to those of sexually active women assigned randomly when they start treatment to one of two groups: 1) usual care plus some brief, written brochures about sexual function; or 2) access to an internet-based sexual counseling program supplemented with phone counseling. Two new vaginal moisturizers will also be compared in the counseled group. Investigators want to see if staying sexually active and avoiding painful vaginal dryness will prevent more severe sexual problems and improve women's ability to keep taking their aromatase inhibitors.

Targeting STAT3 for the prevention of ER-negative breast cancer

Qiang Shen, *M.D., Ph.D., Assistant Professor, Department of Clinical Cancer Prevention*

Prevention of ER-negative breast cancer constitutes a clinical obstacle that greatly impedes the effort to reduce breast cancer incidence and mortality. In fact, all ER-negative breast cancers and a significant portion of ER-positive breast cancers are not preventable using currently available preventive drugs. This research chooses the STAT3 transcription factor as a new cancer prevention target based on the preliminary studies that STAT3 is activated in pre-cancer breast cells and mammary glands. Dr. Shen proposes to use newly created, orally active inhibitors to suppress STAT3 activation in transgenic mouse models that develop ER-negative mammary tumors highly representing human breast cancers. Thus, this project has significant potential to lead to a reduction in breast cancer incidence and/or mortality within the next decade. Successfully carried out, this project may bring 1-2 potent, well-characterized, highly optimized, orally active STAT3 inhibitors into advanced preclinical development as a new class of preventive agents for prevention of many types of human cancer, including ER-positive and ER-negative breast cancers.

*Developing quality measures for survivorship care in colorectal cancer

Y. Nancy You, *M.D., M.H.Sc.,F.A.C.S., Assistant Professor, Department of Surgical Oncology*

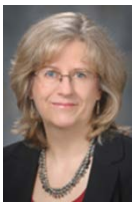
Providing high-quality care to cancer survivors represents a new challenge in cancer care. However, we know little about how patients do and what care they receive once they enter what is termed "the extended phase of survivorship". This project will help uncover these patient experiences with the goal of developing measures to determine the quality of survivorship care received by survivors.

*Prevention of ER-negative breast cancer by targeting P70S6K

Dihua Yu, *M.D., Ph.D., Professor, Molecular & Cellular Oncology*

Breast cancer is one of the most common women's cancers in the U.S. and one in eight women develops breast cancer during their lifetime. The most effective way to reduce breast cancer mortality is prevention of early disease; therefore, it is very important to develop early detection and intervention strategies. Tamoxifen has been successfully used in the prevention of estrogen receptor (ER) positive breast cancers. However, available preventive drugs are not effective against ER negative (ER-) breast cancer. Investigators have identified key molecular alterations in ER- breast lesions and will test whether ER- breast cancer can be prevented by targeting these alterations using specific targeting agents. If successful, these findings could be translated into the clinic to prevent ER- breast cancer in high risk women.

Updates on Previously Funded Projects



Pilot test of a lifestyle intervention arm in an endometrial cancer prevention trial: effects on endometrial proliferation and related biomarkers

Karen Basen-Engquist, *Ph.D., M.P.H., Professor, Department of Behavioral Science*

Women who are obese and have low levels of physical activity are more likely to develop endometrial cancer, but we do not yet know if losing weight and becoming more active will decrease a woman's risk of this disease. The goal of this research project is to answer this question. Due to helpful suggestions for improving the design of the initial study, Dr. Basen-Engquist and her team have made changes to the scientific plan over FY12. As originally planned, they will pilot test a lifestyle intervention based on the Diabetes Prevention Program in a funded trial of metformin vs. placebo for the prevention of endometrial cancer. However, this will now be carried out in a randomized manner, converting the trial to a 2 x 2 factorial design, comparing the lifestyle intervention in conjunction with metformin to metformin alone, metformin placebo + lifestyle intervention and metformin placebo + lifestyle placebo. Approximately 100 women will be recruited, allowing for 25 women per trial arm. Investigators have developed a recruitment flyer and have adapted all Diabetes Prevention Program materials for use in this trial. Recruitment is set to begin in FY13 and it is anticipated that the team will recruit approximately five patients per month. This pilot study will help determine whether there is enough evidence that changing diet and exercise behavior affects endometrial cancer risk to justify doing a larger, more definitive clinical trial.

A feasibility study for high-throughput application of a novel early detection and risk assessment biomarker

Randa El-Zein, *M.D., Ph.D., Associate Professor, Department of Epidemiology*

In this project, Dr. El-Zein and colleagues are testing the feasibility of automating a biomarker that comprehensively allows the measurement of cellular genomic instability. They have previously shown that the cytokinesis blocked micronucleus assay (CBMA) is a sensitive predictor of lung cancer risk. Automation of this powerful assay will provide a strong, rapid and unbiased quantitative analysis tool for cancer risk assessment. Phase I of this study, which sought to adapt the CBMA to a lab-on-a-chip (LOC) platform, has been completed and Phase II is now beginning. Phase II seeks to validate the LOC approach by testing for consistency, accuracy and turnaround time in 200 samples. Investigators expect the LOC approach to be superior to the visual method and thus suitable for screening programs. Timely progress with the studies proposed in this phase of the project is anticipated.

Identifying neurocognitive risk markers that differentiate smokers from never-smokers and ex-smokers

Jason Robinson, *Ph.D., Assistant Professor, Department of Behavioral Science*

This proposal is collecting pilot data to enable further research using state-of-the-art affective neuroscience techniques to distinguish former and never smokers from current smokers who have difficulty quitting. We previously identified a neural biomarker, using electroencephalography (EEG), that differentiates successful abstainers from relapsers, but the extent to

which these neural biomarkers are found among the never and ex-smoker populations is unknown. This study is collecting EEG event-related potential (ERP) data from never (n = 50) and ex-smokers (n = 50) and comparing them to our previously collected data from a currently smoking sample. Data collection began in February 2012. Seventy-nine individuals have been randomized and 77 have completed the experimental session. Analysis of ERP data has already been conducted on 58 of the participants. Preliminary results appear to support initial hypotheses. It is anticipated that study recruitment will be completed by March 2013 and the remaining time will be spent analyzing data and writing the results for publication.

*Integrative genomic analysis of actinic keratoses: using inter-lesional and cross-species analysis to predict progression to cutaneous squamous cell carcinoma

Kenneth Tsai, *M.D., Ph.D., Assistant Professor, Department of Dermatology*

Skin cancer is the most common malignancy in humans, of which there are over 3 million cases a year in the United States, costing an estimated $500 million in treatment-related costs and $2 billion in overall economic impact. Cutaneous squamous cell carcinoma (the 2nd most common skin cancer) has a well-ordered sequence of development beginning with chronically sun-exposed skin, progressing to the most common precancerous lesion in humans, the actinic keratosis (AK), and then ultimately to invasive cancer. The aim of this study is to identify genetic changes specific for progression of AKs to skin cancer. In initial studies, next-generation sequencing was performed on total RNA and miRNA in matched sets of normal skin, AKs and cancer in six patients. Various miRNAs have already been identified as having significant effects on the progression of normal skin to actinic keratosis to cancer. These data are currently being validated in a second sample set and functional studies are being performed in irradiated keratinocytes and cSCC cell lines. Dr. Tsai has applied for an R21 from the National Cancer Institute.

High-throughput search for a combination cancer preventive treatment

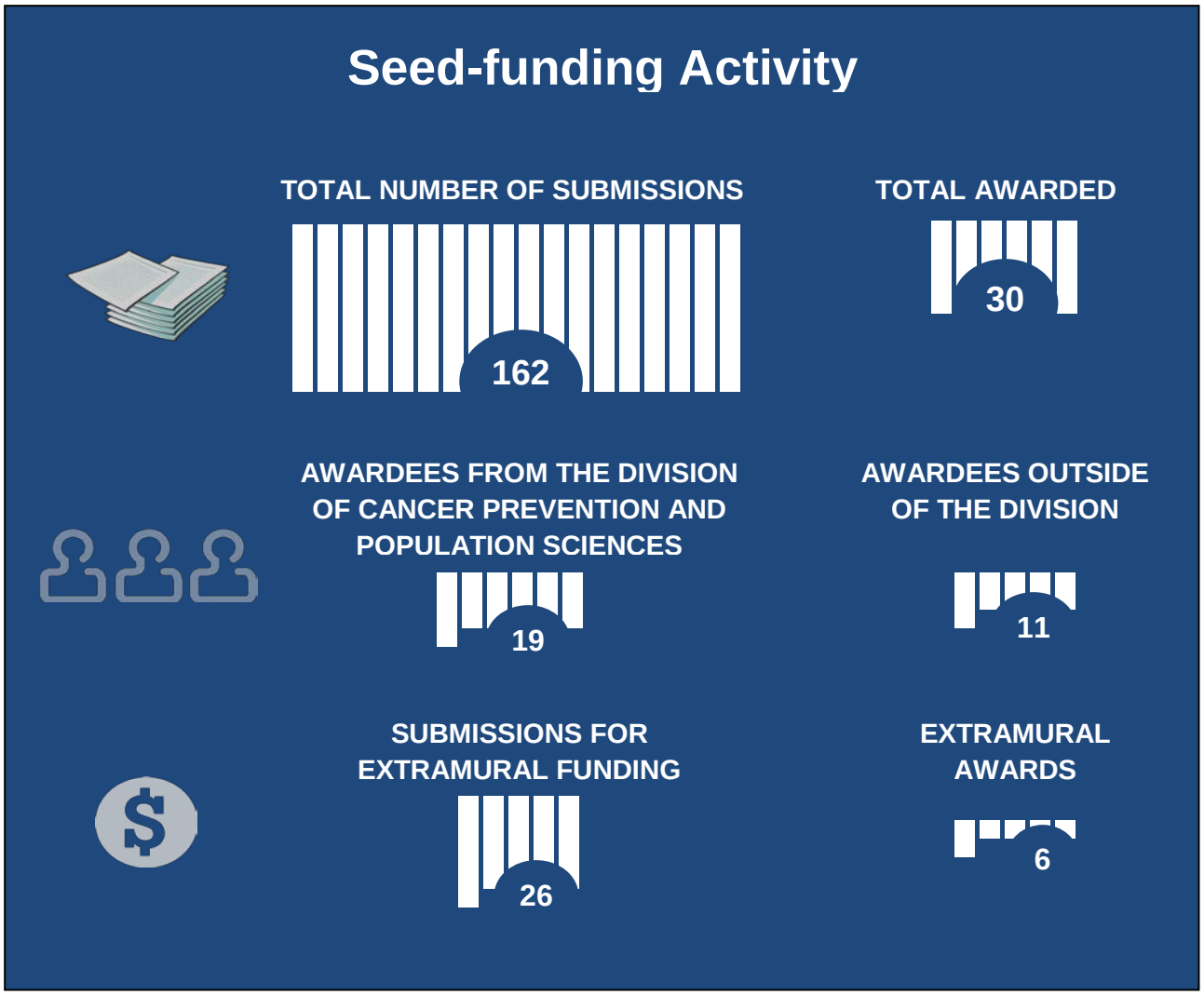
Ivan Uray, *M.D., Ph.D., Assistant Professor, Department of Clinical Cancer Prevention*

The two most fundamental criteria for the development of cancer preventive agents are achieving high effectiveness and low toxicities because chemopreventive medications are typically administered over a long period of time. This research addresses both issues. Its goal is to identify drug combinations which more effectively suppress cell growth and prevent cancer than either individual component alone. Investigators have developed and optimized a high-throughput assay to reliably measure even subtle changes in cell proliferation and to discriminate between live and dead cells. Nearly 7000 compounds have been screened thus far, and while the screening work is still in progress, validation of the most prominent candidate compounds has begun using analogues from independent sources. The most promising leads are now being investigated in secondary screens to determine the accurate dose-response relationships of the interacting pairs of compounds. These leads are also tested in other premalignant cell lines and additional assays are being performed to assess *in vitro* cellular toxicity and function. Dr. Uray reported preliminary data from these high-throughput screens in an AACR abstract presented at the Frontiers in Cancer Prevention Annual Meeting in October 2012.

Chemoprevention of pancreatic cancer by induction of synthetic lethality in mutant K-ras cells

Xiangwei Wu, *Ph.D., Associate Professor, Department of Clinical Cancer Prevention*

Pancreatic cancer is often diagnosed at an advanced stage and has a poor prognosis. Activating mutations of the K-ras oncogene are possibly the single most common genetic abnormality in pancreatic cancer. Therefore, mutant K-ras gene or its gene product represents an obvious target for the treatment and prevention of pancreatic cancer. In this study, Dr. Wu and his team are developing a novel method to specifically abolish oncogenic K-ras-expressing cells for pancreatic cancer prevention and treatment. They have performed preliminary testing on the synthetic lethal interaction between TRAIL (tumor necrosis factor (TNF)-related apoptosis-inducing ligand), Smac (a small molecule mimic of the mitochondrial protein) and oncogenic K-ras both *in vitro* and *in vivo* as proposed. Results support that TRAIL and Smac mimic are capable of targeting mutant K-ras pancreatic ductal cells *in vivo* and could be used for chemoprevention of pancreatic cancer. Dr. Wu has recently submitted an R01 based on these preliminary data.



Investment in Novel and High Priority Research Directions – *Duncan Family Institute Strategic Research Initiatives*

During FY12, we continued to provide support to the **Premalignant Genome Atlas**; the **Energy Balance** and **Tobacco Research** programs; the **Center for Public Health and Translational Genomics**; the **Integrative Health** initiative; and funded our newest program, **Navigating Familial Cancer Risk in Hereditary Colorectal Cancer Syndromes**.

Navigating Familial Cancer Risk in Colorectal Cancer Syndromes

Co-Directors: ***Susan Peterson,*** *Ph.D., M.P.H., Associate Professor, Department of Behavioral Science*
Y. Nancy You, *M.D., M.H.Sc.,F.A.C.S., Assistant Professor, Department of Surgical Oncology*

In FY12, the DFI funded its sixth strategic research initiative. This project addresses a gap in coverage of cancer prevention services at MD Anderson by extending cancer surveillance and prevention to at-risk families of patients with a major hereditary colorectal cancer (CRC) syndrome.

Background

Improved understanding of the genetic basis of major hereditary CRC syndromes has enabled the use of clinical genetic testing for guiding disease diagnosis, risk assessment, cancer surveillance and prevention interventions. The two most common hereditary CRC syndromes are familial adenomatous polyposis (FAP) and hereditary non-polyposis CRC syndrome (HNPCC or Lynch syndrome). The first individual, or proband, identified in a family that has a hereditary CRC syndrome requires coordinated cancer surveillance for all organs at risk and cancer prevention strategies that complement their cancer treatment. The dedicated Familial High Risk Gastrointestinal Cancer Clinic (FHRGICC) was established in May 2010 to help achieve these goals. However, a significant gap in our current program exists in our ability to reach greater numbers of at-risk family members due to a number of well-established barriers that hamper the extension of cancer genetic information to these groups. Our limited ability to reach and recruit family members represents a significant missed opportunity for cancer prevention.

Data show that effective navigation programs improve patient/family engagement, education and interaction with health care providers, thus improving adherence to prevention and risk management recommendations. To address the gaps in family recruitment, investigators leading this strategic research initiative will:

1) Implement and evaluate a novel approach, a navigator model to reach and recruit high risk families in the FHRGICC;
2) Enhance the existing informational technology infrastructure of a family pedigree database to enable the systematic identification and recruitment of high risk family members; and
3) Develop an e-Health resource for education and support that can be used by families and their health care providers under the coached guidance of the navigator.

This project will advance translational research through the implementation of a new care delivery model in cancer genetics and will also create a scalable platform for this delivery model that can be expanded across high risk families at MD Anderson and potentially adopted nationwide. It provides an opportunity for synergistic, multidisciplinary research encompassing clinical genetics, behavioral science and cancer prevention and establishes a model with the potential for long-term sustainability, given a robust electronic support system that may eventually allow for a “virtual patient navigator”.

Scientific Progress/Future Plans

Work is just now beginning on this newly-commissioned initiative, with the expectation that outcomes will begin to be realized over the next year, with milestones as follows:

1) ***Near-term (1-2 years):*** Implement a cancer genetics navigation model in the FHRGICC high risk clinic to increase outreach to and recruitment of high risk family members; complete enhancements to IT infrastructure, including development of an e-Health tool box of cancer genetics resources for families and health care providers;

2) ***Mid-term (3-5 years):*** Enroll at least 50% of high risk family members of hereditary CRC probands;

3) ***Long-term (5+ years):*** 80% enrollment rate of targeted family members which will result in the creation of a robust research resource comprising healthy persons from high risk families.

Energy Balance

Co-Directors: ***Powel Brown,*** *M.D., Ph.D., Chair and Professor, Department of Clinical Cancer Prevention*
Karen Basen-Engquist, *Ph.D., M.P.H., Professor, Department of Behavioral Science*

Background

Developing a program in energy balance remains a high priority for the Duncan Family Institute, as obesity increases the risk of cancer in numerous organ sites. The goals for this strategic research program are to:

- Increase our knowledge of how the factors that influence energy balance - principally nutrition and physical activity - are implicated in disease progression from healthy tissue to pre-cancer to cancer and how these factors interact with genetic and environmental influences in cancer development and progression; and

- Develop research studies of diet, exercise, psychosocial and medical interventions to determine how best to reduce an individual's cancer risk and thus improve our ability to prevent cancer.

Figure 5. Initial Focus Areas of the Center for Energy Balance in Cancer Prevention and Survivorship

(1) Trials in cancer survivors of the effect of physical activity and weight control interventions on biomarkers of prognosis and survival, as well as symptom management;

(2) Trials in people at risk of cancer (particularly high risk populations) to test the effect of physical activity/exercise, diet, and weight on biomarkers related to cancer initiation, alone or in combination with chemopreventive agents;

(3) Studies of the biological mechanisms underlying the relationships between physical activity, diet, weight status and cancer initiation, promotion, progression, and recurrence;

(4) Dissemination and implementation research on energy balance interventions for cancer survivors and at risk populations, including technology-based interventions delivered in health care settings; and

(5) Research on biobehavioral mechanisms underlying weight changes (gain, loss, and maintenance of loss), eating behavior, and physical activity.

Scientific Progress

The DFI's approach to developing an Energy Balance program include seeking longer-term, extramural support to enable a center or multi-project research program to be established. Such support became available in FY12, and the DFI established the Center for Energy Balance in Cancer Prevention and Survivorship, led by Karen Basen-Engquist, Ph.D., M.P.H. Dr. Basen-Engquist is the founding chair of MD Anderson's working group for cancer survivorship research and has been the chair of the Comprehensive Cancer Control Energy Balance Workgroup since 2010. During this past year, she also served on the Institute of Medicine's Committee on Living Well with Chronic Disease. This new DFI Center will draw together faculty from across the MD Anderson campus as well as other area institutions, combining financial, research and

intellectual assets to create and sustain a shared vision of conducting and translating the best possible energy balance research for all cancer patients, survivors and those at-risk, whether it be in the clinic or at the population level. It is expected that, over time, the research of faculty affiliated with the Center will lead to evidence-based changes in the clinical practice standards for clinical providers practicing at MD Anderson and its Regional Care Centers. Furthermore, given recent trends in modifiable energy balance-related risk factors and current estimates of a doubling of cancer cases over the next two decades, we envision the Center playing an important role in conducting research that will inform and advance local, state and national control initiatives directed at addressing these concerning trends. The Executive Committee of the Duncan Family Institute is confident that under Dr. Basen-Engquist's direction, the Center for Energy Balance in Cancer Prevention and Survivorship will lead to new insights into the role of physical activity, nutrition and obesity on cancer risk, progression and outcomes.

Future Plans

The Center will continue to take shape during FY13. Future plans will depend upon input the Center receives from its recently established Advisory Committee, which consists of 11 members from various departments across MD Anderson. The Center's initial focus will be in five areas (Figure 5). The Center is currently identifying gaps in its expertise, and once this is completed, it will recruit new faculty members to close these gaps. It will also serve to develop new and strengthen existing infrastructure needed for energy balance research. Finally, it aims to catalyze cross-disciplinary faculty collaborations and provide important and much-needed training opportunities in the area of energy balance. The above focus areas and aims may be refined in FY13 as Center leadership and its multi-disciplinary Advisory Committee steer the development of the Center.

The Premalignant Genome Atlas

Co-Directors: ***Xifeng Wu,*** *M.D., Ph.D., Chair and Professor, Department of Epidemiology*
Ernest Hawk, *M.D., M.P.H., Vice President for Cancer Prevention and Division Head, Cancer Prevention and Population Sciences*
Lopa Mishra, *M.D., Chair and Professor, Department of Gastroenterology, Hepatology and Nutrition*

Background

The best hope to improve the prognosis of cancer is early detection or, better yet, preventing a premalignant lesion from progressing into a malignant, or cancerous, one. One of the primary obstacles to earlier detection and better prevention strategies is our inability to effectively predict who will develop cancer among the many individuals who develop premalignant lesions. Through the Premalignant Genome Atlas (PGA) Program, researchers will systematically study premalignant lesions, with the goal of developing comprehensive, integrative risk prediction models for the different cancers and to then use these to personalize cancer prevention strategies.

Table 1. Overall Patient Recruitment and Data Collection Since Study Onset.

1077 cases recruited
816 non-Hispanic White
129 African American
69 Hispanic
51 Other (41 Asian, 9 American Indian, 1 Hawaiian)

540 Questionnaires

938 Blood Samples

1023 patient's provided tissue samples to date[a]
- 1016 Normal tissues
- 283 Abnormal tissues

[a] In some cases, more than one tissue sample per patient was collected.

Three specific aims established at the inception of this program in 2009 were to: (1) *establish a biobank* of tissues linked to epidemiologic data, clinical variables, and demographic information; (2) *construct a cohort* of patients with premalignant lesions and prospectively follow them, collecting additional information, such as exposure data, to comprehensively assess cancer risk; and (3) *perform molecular profiling* (genetic, epigenetic, and expression) of normal, premalignant and cancerous tissues to elucidate the best predictive markers of progression from normal tissue to premalignant lesions and these lesions to cancer.

Scientific Progress

The PGA made significant progress during FY12 regarding all three specific aims, as detailed below.

For Aim 1, PGA investigators expanded recruitment efforts of patients with colon polyps. Through a collaboration with the department of Gastroenterology, Hepatology, & Nutrition (GHN), investigators have expanded the number of clinicians currently recruiting patients to provide clinical specimens for the PGA from one to 12. This increased the number of samples the PGA was able to collect in FY12. At the end of calendar year 2012, 1077 normal and abnormal tissue samples (Table 1) had been collected under the PGA, with a noticeable uptick in the number of samples collected beginning in April, coinciding with the start of the PGA's newly expanded recruitment efforts in GHN (Figure 6). Lopa Mishra, M.D., Professor and Chair of the Department of Gastroenterology, Hepatology, & Nutrition, has been added as co-leader of the PGA in recognition of the critical role she and her faculty have in developing PGA resources.

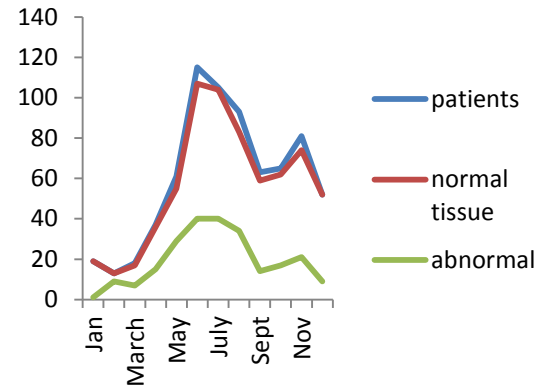


Figure 6. Accrual of patients and normal and adenoma tissue samples through collaboration with Gastroenterology, Hepatology, & Nutrition over calendar year 2012.

In relation to Aim 2, FY12 saw completion of the PGA's Oracle web-based database that allows for rapid and secure query of epidemiologic, demographic, clinical, and Patient History Database (PHDB) questionnaire information. In addition, to handle the increase in the number of patients with samples recruited during FY12, PGA investigators hired and trained one additional staff member to collect clinical data and biological specimens. Researchers also abstracted the medical records of 536 patients for cancer history and histology. Finally, investigators continued a productive collaboration with Jaffer Ajani, M.D., department of Gastrointestinal Medical Oncology, to recruit patients and develop the necessary resources to perform integrative molecular epidemiologic studies of Barrett's esophagus (BE) and oral premalignant lesions.

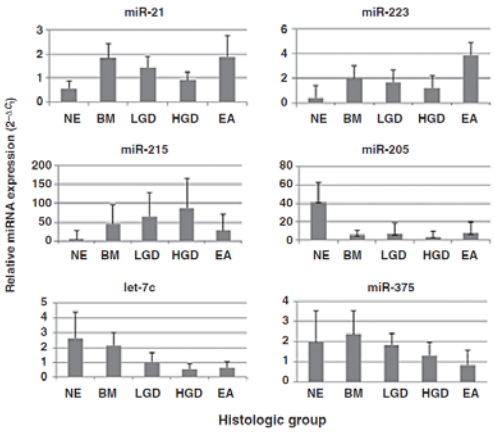


Figure 7. Expression patterns of the top differentially expressed miRNAs at different stages of tumor progression. NE- normal epithelium; LGD- low-grade dysplasia; HGD- high-grade dysplasia; EAC- esophageal adenocarcinoma.

Aim 3 has seen significant progress in FY12. The PGA has successfully completed and initiated several important whole-genome projects to identify molecular markers that are predictive of premalignant lesions and progression in esophageal and colorectal cancers. Below we highlight some of the results of these studies:

- *MicroRNA (miRNA) expression profiling in Barrett's esophagus and esophageal adenocarcinoma revealed a subset of miRNAs involved in the progression of low-grade dysplasia to cancer (Figure 7);*
- *Preliminary analysis of somatic mutations from whole-genome sequence data of four adenoma-normal pairs identified a statistically significant excess of somatic mutations in the HDAC7 gene in patients with colorectal adenomas (Figure 8);* and
- *Targeted genotyping of miRNA-related genes identified variants that may predict prognosis in patients with stage III colorectal cancer (Figure 9).*

In addition to its growing research accomplishments, the PGA's infrastructure was greatly enhanced during FY12 with the addition of essential technological platforms that facilitate large-scale, integrative, genome-wide molecular profiling studies.

These include an Ion Torrent next-generation sequencer that will allow for greater ease in probing the entirety of the human genome at a fraction of previous costs; a Fluidigm Biomark® machine, the newest real-time PCR system capable of single-cell analysis; and establishment of the Gamma-H2AX assay to probe DNA damage repair.

Publications – Study Results for Research Supported by the Premalignant Genome Atlas Strategic Research Initiative

Wu X, Ajani J, Gu J, Chang D, Tan W, Hildebrandt M, Huang M, Wang K, Hawk E. MicroRNA expression signatures during malignant progression from Barrett's Esophagus to Esophageal Adenocarcinoma. Cancer Prev Res Mar;6(3):196-205, 2013.

Lin M, Eng C, Hawk ET, Huang M, Lin J, Gu J, Ellis LM, Wu X. Identification of polymorphisms in ultraconserved elements associated with clinical outcomes in locally advanced colorectal adenocarcinoma. Cancer. Dec 15;118(24):6188-98, 2012.

Lin M, Gu J, Eng C, Ellis LM, Hildebrandt MA, Lin J, Huang M, Calin GA, Wang D, Dubois RN, Hawk ET, Wu X. Genetic Polymorphisms in MicroRNA-Related Genes as Predictors of Clinical Outcomes in Colorectal Adenocarcinoma Patients. Clin Cancer Res Jul 15;18(14):3982-91, 2012.

Dai J, Gu J, Huang M, Eng C, Kopetz ES, Ellis LM, Hawk E, Wu X. GWAS-identified colorectal cancer susceptibility loci associated with clinical outcomes. Carcinogenesis. Jul;33(7):1327-31, 2012.

Lin M, Eng C, Hawk ET, Huang M, Greisinger AJ, Gu J, Ellis LM, Wu X, Lin J. Genetic variants within ultraconserved elements and susceptibility to right- and left-sided colorectal adenocarcinoma. Carcinogenesis. Apr;33(4):841-7, 2012.

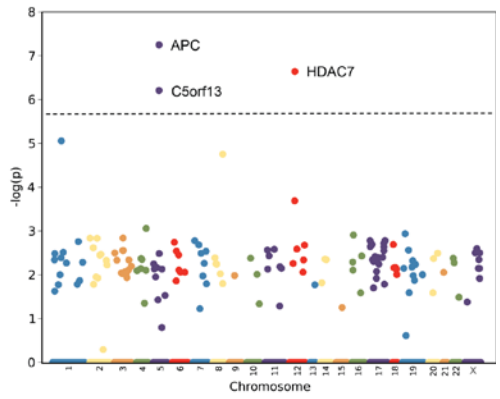


Figure 8. Preliminary Analysis of Somatic Mutations from Whole-Genome Sequence Data of Four Adenoma-Normal Pairs. Three genes were observed with a statistically significant excess of somatic mutations (*APC*, *HDAC7*, & *C5orf13*). The causative role of *APC* in adenomas/CRC is well-established; mutations lead to loss of β-catenin regulation. *HDAC7* modulates β-catenin activity.

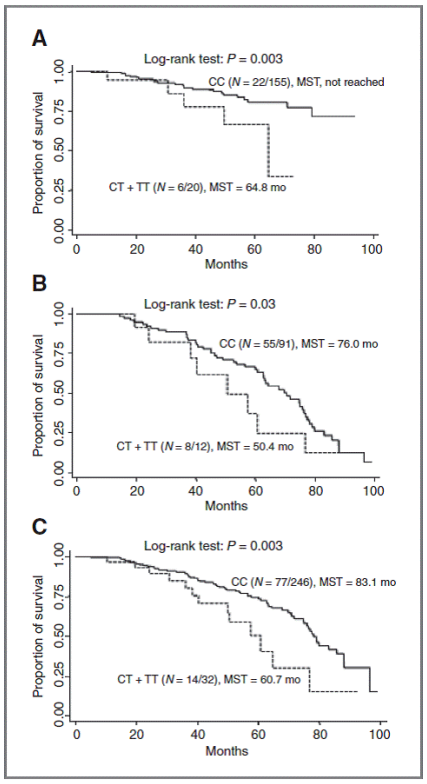


Figure 9. Kaplan–Meier Overall Survival curves of patients with stage III disease receiving fluoropyrimidine-based chemotherapy by genotypes of mir219-1:rs213210. Training set (A), replication set (B), and combined set (C).

Future Plans

During the past year, the PGA has made remarkable progress in building the program infrastructure, as evidenced by the significantly increased number of recruited patients and collected samples, as well as by the additional collaborations with various clinical investigators from different departments. Moreover, these efforts will provide the resources and foundation for further translation of these findings to benefit the patients in cancer treatment and prevention. Specific plans for next year include:

- Recruiting additional patients with colorectal polyps for collection of blood and tissue samples;
- Collaborating with Dr. Jaffer Ajani to collect additional Barrett's esophagus blood and tissues samples and questionnaire data;
- Exploring collaborations with internal or external investigators of other cancer sites (e.g. breast, cervix, liver, ovary, pancreas, and prostate) to identify markers of premalignant lesions;
- Continuing efforts in molecular and phenotypic profiling of premalignant lesions and neoplasms; and
- Engaging in the Moon Shot Program with the Melanoma and Colorectal groups.

Integrative Health

Co-Directors: ***Ernest Hawk,*** *M.D., M.P.H., Vice President for Cancer Prevention and Division Head, Cancer Prevention and Population Sciences*
Lorenzo Cohen, *Ph.D., Professor, General Oncology and Behavioral Science; Director, Integrative Medicine Program*
Therese Bevers, *M.D., F.A.A.F.P., Professor, Clinical Cancer Prevention; Medical Director, Cancer Prevention Center*
Richard T. Lee, *M.D., Assistant Professor, General Oncology; Clinical Director, Integrative Medicine Program*

Background

The Integrative Health (IH) initiative was established in FY11 and is distinct from the other five Strategic Research Initiatives of the DFI, as it is primarily focused on clinical service delivery. Based upon collaborative contributions from colleagues across the institution, the IH initiative provides evidence-driven, personalized services in five lifestyle-associated areas (Figure 10).

Figure 10. The 5 domains of care of the Integrative Health initiative.

These services are offered to at-risk and survivor populations in the Cancer Prevention Center (CPC). For patients undergoing active therapy, IH services will be provided in the Integrative Medicine Center. The IH initiative permits MD Anderson to provide a comprehensive model of cancer care and prevention, focused on broad patient needs and interests.

Clinical Operations Progress

Implementation of the IH initiative is being done in four phases. The initiative is currently nearing the end of phase 2, with implementation of pilot programs in the CPC for survivors and those at-risk. These pilot programs incorporate the new services of a dietician, an exercise physiologist, a physical therapist and two health education specialists into usual care algorithms, based upon specific needs. Two Integrative Health Navigators have also been hired to coordinate IH services in the CPC. Appointments are now being accepted for nutrition and exercise counseling. The Integrative Medicine Center has also expanded their services and has hired a dietician, a physical therapist for exercise counseling, and a Physician Assistant to expand the in-patient service.

Data from the Breast Survivorship Pilot, launched in January 2013, demonstrate that of the 136 women who were scheduled for an appointment in the CPC between January 1 and March 31 and who were approached for participation in the pilot, 93 had their survivorship needs prospectively identified via, mail, phone or secure electronic message. The best method for need identification utilizing a prepared survey was by telephone interview, with an average of an 85% survey completion rate over the 3 months of the pilot study. Analyses of data from the pilot demonstrated that prospectively contacting breast survivorship patients for referral services increases overall identification of needs, allows for time to coordinate referral appointments and increases adherence to referrals. Future work is needed to assess how to more efficiently address survivorship needs prospectively to improve quality of life for survivors and decrease cancer recurrence rates. The IH team is currently submitting several abstracts to share this work at national and international conferences.

An Energy Balance sub-group has been formed as part of the IH Working Group and will serve as a means to draw together patient and public education personnel, as well as nutrition and exercise experts, from across the institution to develop a consistent and cohesive message regarding integrative health services. Patient education materials will be developed based on the Tobacco Treatment Program model. The group is also developing materials for ambivalent patients who are meeting with a provider but do not want to meet with Integrative Health. The next project will be to develop materials for patients who are

ready to take action.

The IH team is currently exploring options for reimbursement of IH services. As federally-issued guidelines and recommendations often determine whether services are reimbursable by insurance companies and Medicare, the team is staying tuned to the evolving evidence regarding the type of services provided as part of this initiative.

Research Progress

In addition to supporting clinical services, the IH initiative also supports a research study aimed at developing and testing a novel comprehensive, standardized, clinic, home, and web-based, integrative oncology intervention program among women with stage III breast cancer. This study will include dietary recommendations, physical activity, stress management, social support, and control of environmental contaminants. Prior to starting radiotherapy, women will be randomized to either the Integrative Oncology group (IO) or a standard of care control group. Women in the IO group will participate in the program throughout radiotherapy and for the subsequent year.

The main outcome of the study will be cancer recurrence, but the team will also be examining a number of other outcomes including psychosocial measures (questionnaire data), dietary measures (telephone recalls), fitness measures (fitness log as well as cardiorespiratory fitness and strength testing, physical traits), biological measures (blood, breast tissue, and saliva samples), physiological measures (heart rate variability) and cost-benefit measures. The study team has finalized the protocol for the trial and hired a full time project director, dietitian, exercise trainer, and clinical psychologist.

The team is currently working with the *e-Health Technology* resource to finalize the interactive website for data collection and tracking of study participants. This in-house website has also been designed for secure electronic assessments, calendar access, email capability, etc. They have also teamed up with The Full Yield website (a pre-existing web-based lifestyle program) to have tracking tools for participants to record their physical activities, mind-body practices, food and nutrient intake, and overall eating patterns. The Full Yield website also maintains a library of helpful educational videos (i.e. cooking videos) and relevant information. The website will be used to gather information about the study participants' progress and to connect with them on an ongoing basis. The in-house website will be linked to The Full Yield website so as to help study participants schedule sessions, track their progress on major assessments due, and ensure quick and easy delivery of completed questionnaires. The research team plans to start recruiting patients this summer.

Future Plans

The multidisciplinary Integrative Health Working Group will continue to guide implementation of its workplan, focusing on fully implementing Phase 2 pilot activities and evaluating these, then planning for Phase 3, an expansion of the program, based on the experience of the pilot programs. The focus over the coming year will be on continued implementation of IH services in the CPC, expanding the Integrative Health model into one of the multidisciplinary clinical centers for patients undergoing active treatment, and on evaluating the pilot programs using a number of process and outcomes metrics. The Working Group will also explore ways to leverage the data collected on survivors and at-risk patients receiving IH services to incorporate into research studies examining the impact of such services. It is anticipated that the IH initiative will provide insights into Cancer Prevention Center expansion plans now in discussion and will also serve as a model for other centers within MD Anderson, and more broadly.

Tobacco Transdisciplinary Research Program

Co-Directors: ***Ellen R. Gritz,*** *Ph.D., Chair and Professor, Department of Behavioral Science*
David Wetter, *Ph.D., Chair and Professor, Department of Health Disparities Research*

Background

Building on MD Anderson's strength as a leader in tobacco research, the Tobacco Transdisciplinary Research Program (TTRP) is targeted to developing multi-disciplinary studies to understand the myriad of issues associated with tobacco as a risk factor for cancer – a "cells to society" approach. We still do not know all of the factors that explain why some people who use tobacco do not get cancer and others do; nor do we fully understand why some people can easily stop using tobacco products and others have great difficulty in doing so. The TTRP seeks to facilitate cross-disciplinary collaborations among investigators in order to develop novel research ideas and seek external funding for them.

Scientific Progress

In FY12, the TTRP successfully contributed to building and sustaining the cross-disciplinary intellectual environment needed to foster novel research ideas, as measured by the development, submission and award of a number of innovative grants and publications. These are highlighted below:

- Award of a CPRIT grant to Paul Cinciripini, Ph.D., professor in Behavioral Science and director of MD Anderson's Tobacco Treatment Program, to study whether or not certain genes influence both the ability to quit smoking, and the extent to which those attempting to quit experience symptoms of nicotine withdrawal. This research is one of the first studies to examine the possible correlation of genetic factors and individuals' smoking cessation experience; and if successful, could help identify new biological targets for medication development (*Using Deep Sequencing Technology to Study Genes & Behavioral Phenotypes Related to Smoking Cessation, Negative Affect & Nicotine Withdrawal*, total costs of $1,422,461).

- Submission of a large, multi-investigator P50 grant in response to several key questions posed by the U.S. Federal Drug Administration regarding the impact of tobacco product regulations and marketing on tobacco use. Specifically, TTRP investigators collaborated with MD Anderson colleagues and investigators at Dartmouth University in New Hampshire as well as with six other institutions across the U.S. to address the impact of tobacco marketing at the point of sale on key transitions in tobacco use behavior, such as on the transition of young adults from "experimental" to "established" users. The proposed study focuses on racial/ethnic minorities and low-income groups and will capitalize on state-of-the-science global positioning systems, geographic information systems, ecological momentary assessments, and real-time mobile physiologic monitoring systems to capture data. If awarded, this grant would support important late-stage translational research and facilitate making the Institute-supported science impactful within the broader community (*Point of Sale Marketing & Tobacco Use in Vulnerable Populations*, total costs of $19,976,197).

- Development of a P01 program project grant proposal to develop a novel intervention that uses the electronic health record to directly link smokers to evidence-based Quitline tobacco cessation treatment. This grant is an enhanced proposal of the Tobacco TIPS (Translation into Practice Systems) CPRIT application submitted last year that was not funded. Investigators seek to increase the reach, efficacy, adoption, implementation, and sustainability of evidence-based tobacco treatment services among the poor and underserved. The P01 will likely be submitted for funding to the National Institutes of Health in the spring or summer of 2013.

- Publication of a collaborative study (see next section) examining the association of menthol use with motivation and confidence to quit smoking. The lead author is TTRP member Lorraine Reitzel, Ph.D., assistant professor in Health Disparities Research.

Publications – Study Results for Research Associated with the Tobacco Transdisciplinary Research Program

Reitzel LR, Etzel CJ, Cao Y, Okuyemi KS, Ahluwalia JS. Associations of Menthol Use with Motivation and Confidence to Quit Smoking. American Journal of Health Behavior, *In press*.

Future Plans

The impetus of the TTRP was to generate interdisciplinary collaborations that would result in successful multi-investigator grant proposals and manuscripts. The TTRP Working Group has achieved those objectives and, therefore, will no longer continue to meet in FY13. Instead, members will focus their efforts on developing the projects that have resulted from this initiative and on developing programs catalyzed in part through TTRP interactions.

Center for Translational and Public Health Genomics

Co-Directors: ***Xifeng Wu,*** *M.D., Ph.D., Chair and Professor, Department of Epidemiology*
Alma Rodriguez, *M.D., Professor, Department of Lymphoma/Myeloma, and Vice President for Medical Affairs*

Background

The Center for Translational and Public Health Genomics (CTPHG) of the Duncan Family Institute was established in 2010 to bridge the gap between epidemiologic discoveries and their translation into clinical and public health applications to benefit individuals at elevated risk for cancer, cancer patients and the general population. With the rapid development of new high-throughput biomedical technologies that generate genomic information at an unprecedented pace, scientists are poised to make major breakthroughs in the pursuit of personalized risk prediction, prevention and therapy.

Scientific Progress

During FY12, the CTPHG underwent a number of changes and made much progress. First, Alma Rodriguez, M.D., professor in the department of Lymphoma/Myeloma, and Vice President for Medical Affairs, joined Dr. Wu as co-director of the Center. Dr. Rodriguez's clinical leadership role in numerous institutional initiatives, particularly as chair of the Cancer Survivorship Steering Committee and leader of the Cancer Survivorship initiative, gives her a wealth of experience in clinical data collection and oversight that will benefit the Center as it expands its patient recruitment activities to include survivors.

Secondly, as one of its main initiatives, the Center's Blood Specimen Research Resource (BSRR) has continued to systematically collect residual blood samples from all newly diagnosed patients seen at MD Anderson who sign the front door consent. To date, the BSRR has collected and banked blood samples from 42,476 unique patients. Of these patients, 31,161 are newly registered (i.e., collection date within one year of registration) and 15,147 samples have been collected since 2012. Patient distribution by cancer site is summarized in Table 2.

Table 2. Cancer Site	Percentage	Cancer Site	Percentage	Cancer Site	Percentage
BREAST	10.0%	OVARY	1.7%	MYCOSIS FUNGOIDES	0.3%
PROSTATE	7.4%	LIVER	1.3%	SMALL BOWEL	0.3%
LUNG	6.7%	ENDOMETRIUM	1.1%	ANAL	0.2%
LYMPHOMA	6.6%	MDS	1.1%	GALL BLADDER	0.2%
COLORECTAL	6.2%	BONE	1.0%	GE JUNCTION	0.2%
LEUKEMIA	5.8%	GASTRIC	0.9%	MYELOFIBROSIS	0.2%
HEAD/NECK	5.7%	THYROID	0.9%	PENIS	0.2%
MELANOMA	3.9%	CERVIX	0.8%	PERITONEUM	0.1%
PANCREAS	3.1%	UNKNOWN PRIMARY	0.8%	THYMOMA	0.1%
SARCOMA	3.1%	GLAND	0.7%	VAGINA	0.1%
KIDNEY	2.9%	HEME-OTHER	0.6%	VULVA	0.1%
BRAIN	2.7%	SKIN	0.6%	APPENDIX	0.04%
MULTIPLE MYELOMA	2.6%	TESTICLE	0.6%	MULTIPLE	0.5%
BLADDER	2.5%	BILE DUCT	0.5%	OTHER	3.5%
NON-NEOPLASTIC	2.4%	UTERUS	0.5%	UNCONFIRMED	6.6%
ESOPHAGUS	2.1%	MESOTHELIOMA	0.4%	TOTAL	100%

Thirdly, two grants totaling over $350,000 have been funded with use of samples from the BSRR. An additional eight grants, totaling over $24M have been submitted and are currently under review. On-going projects using BSRR samples include a study examining multiple factors contributing to the variation in quality of life of colorectal cancer patients, a project seeking to identify novel biomarkers for risk of sarcoma, and a study examining genetic variants in stem-cell proliferation pathways and risk of lymphoma.

Fourthly, utilizing the existing Cancer Prevention Center infrastructure, the CTPHG has recently expanded its operation to collect biospecimens from long-term cancer survivors who are currently or potentially visiting the survivorship clinics at MD Anderson. To date, residual blood has been stored on 892 survivorship clinic patients as part of the survivorship biospecimen banking efforts. Potentially, over 20,000 unique patients are expected to transition to the survivorship clinics. This Survivorship Cohort initiative seeks to expand the MD Anderson Cancer Patient Cohort to address the immediate need for biospecimens and patient data from current long-term cancer survivors.

Finally, the CTPHG expanded with its consolidation of the Personalized Risk Prediction Program (PRPP), a previously supported DFI Research Resource, into the Center. With the establishment and progress of the CTPHG over the last two years, and with the Center's goals closely complementing those of the PRPP, merging the PRPP into the CTPHG was a logical next step to achieve economies of scale. Projects previously funded through the PRPP, namely the Risk Prediction Program and various collaborative research projects with MD Anderson investigators, will benefit from the CTPHG infrastructure. Furthermore, the acquisition allows the CTPHG to serve as a centralized location for all researchers wishing to initiate and collaborate on projects involving the collection, storage, and eventual analysis of biospecimens and related patient data.

- **Risk Prediction Program:** One of the goals of the PRPP, when previously funded by the DFI, was to construct, test and implement risk assessment models across the full spectrum of cancer risk and to then disseminate the risk prediction information via web-based tools (i.e., CLEAR tool for lung cancer). These efforts require the integration of multiple layers of information, such as epidemiology, clinical variables, genetics, phenotypes, and molecular profiles, from a large patient population. The CTPHG provides the ideal infrastructure to support such work. The BSRR housed within the CTPHG is currently collecting and banking biospecimens from all newly registered patients at MD Anderson, and when combined with the ePHDB and PHDB projects, also housed within the CTPHG, an ideal research resource for constructing, validating, and enhancing risk prediction models is created. Consequently, the Risk Prediction Program from the PRPP will continue within the CTPHG, leveraging the Center members' significant research expertise in this area.

- **Collaborative Research Projects:** Previously, the PRPP had supported biospecimen collection for various other projects within the Division of Cancer Prevention and Population Science. These include collaborations with the Tobacco Treatment Program (TTP), Project Health (Low SES), the Community Network Program (CNP), Project STEPS, and Project CHURCH. These collaborations have been successful and have already generated several impactful publications in their short lifespan. Under the CTPHG, biospecimen collection and banking will continue for these projects, as well as future projects if appropriate, to support the research initiatives of investigators at MD Anderson. Furthermore, additional research support and guidance can be provided by the Center in order to continue the development of these existing projects, and to spur future collaborative research projects.

Publications – Study Results for Research Associated with the Center for Translational and Public Health Genomics

Wu X, Scelo G, Purdue MP, Rothman N, Johansson M, Ye Y, et al. A genome-wide association study identifies a novel susceptibility locus for renal cell carcinoma on 12p11.23. Hum Mol Genet 21: 456-62, 2012.

Pu X, Ye Y, Spitz MR, Wang L, Gu J, Lippman SM, et al. Predictors of survival in never-smokers with non-small cell lung cancer: a large-scale, two-phase genetic study. Clin Cancer Res 18: 5983-91, 2012.

Wen CP, Wu X. Stressing harms of physical inactivity to promote exercise. Lancet. 380: 192-3, 2012.

Wen CP, Tsai MK, Wai JP, Wu X. Promoting increased physical activity and reduced inactivity - Authors' reply: Lancet. Jan 12;381(9861):114-5. doi: 10.1016/S0140-6736(13)60046-X, 2013.

Shu X, Lin J, Wood CG, Tannir NM, Wu X. Energy Balance, Polymorphisms in the mTOR Pathway, and Renal Cell Carcinoma Risk. J Natl Cancer Inst February 2 [Epub ahead of print], 2013.

Wen CP, Lin J, Yang YC, Tsai MK, Tsao CK, Etzel C, Huang M, Hsu CY, Ye Y, Mishra L, Hawk E, Wu X. Hepatocellular carcinoma risk prediction model for the general population: the predictive power of transaminases. J Natl Cancer Inst Oct 17;104(20):1599-611, 2012.

D'Amelio AM, Jr., Monroy C, El-Zein R, Etzel CJ. Using haplotype analysis to elucidate significant associations between genes and Hodgkin lymphoma. Leuk Res 36: 1359-64, 2012.

Future Plans

Research priorities of the CTPHG will continue to be focused on studies that systematically assess epidemiological, environmental and genomic impact on cancer risk and treatment outcomes with the intent of providing an integrative view of cancer development, prognosis, therapeutic response, and long-term survivorship and quality of life. A prominent focus in FY13 will be on expanding the newly created Survivorship Cohort.

RESEARCH RESOURCES

Providing the Critical Infrastructure to Advance the Science of Cancer Prevention

Providing the Infrastructure for Cancer Prevention Research

During FY12, the Duncan Family Institute transitioned the Personalized Risk Prediction Program (PRPP), its previous fifth resource, into the Center for Translational and Public Health Genomics. This transition aligns the use of a critical resource with the needs of a closely related and expanding initiative, allowing optimal development of each. The Duncan Family Institute now supports four research resources:

- e-Health Technologies;
- Mexican-American Cohort;
- Center for Community-Engaged Translational Research; and
- Clinical Cancer Prevention Research Core.

Over the past year, the Institute's research resources contributed to 33 grant proposals totaling more than $33M and provided core services essential to conducting 43 actively funded research studies with total costs exceeding $45M.

e-Health Technology

Co-Directors: ***Alexander Prokhorov,*** *M.D., Ph.D., Professor, Department of Behavioral Science*
Ludmila Cofta-Woerpel, *Ph.D., Assistant Professor, Department of Behavioral Science*

Background

The e-Health resource supports the development and implementation of multi-media intervention and data capture tools for cancer prevention research in areas including health information, behavioral change, cancer symptoms, and quality of life. e-Health technology is relevant to the entire spectrum of cancer prevention research, from behavioral change that reduces the risk of cancer in healthy populations, to preventing second cancers and cancer recurrence, and to enhancing the health of cancer survivors. The incorporation of e-Health technologies into research studies allows for their extension to a broad range of participants in terms of geographic location, socioeconomic status and ethnicity. The Duncan Family Institute's e-Health Technology resource serves as a hub for technology-enabled research and draws investigators from across MD Anderson, contributing to the resource's role in fostering collaborations with the potential for researchers from diverse disciplines to design cancer prevention studies that address multiple risk factors with complementary strategies.

Scientific Progress

The e-Health Technology resource completed its second full year of operation. During FY12, the resource team developed technology platforms and tools to support 21 active and completed projects integral to nearly $19 million in research. A selection of projects is highlighted in the following section. In addition to these projects, FY12 saw the e-Health resource accomplish the following in FY12:

- Submitted a proposal for funding to the NCI Cancer Center Support Grant (CCSG) to become a shared resource;
- Updated its project pipeline to more clearly define the stages of project development and implementation;
- Extended its capability to include FLASH upgrade, mobile app, and widget development;
- Created the *New Technology Acquisition Process* to assist investigators with identifying, acquiring, and maintaining advanced technologies to support their research;
- Hired one additional programmer and one contractor (Sapien Mobile, LLC) to address growing work volumes;

- Instituted a team approach to project development by assigning two programmers for each project: a primary programmer and a secondary programmer;
- Participated in on-site and virtual training classes for programmers;
- Registered with local universities (Rice, University of St. Thomas, UH-Downtown) for intern recruitment; and
- Attended two e-Health /m-Health industry conferences:
  - *2011 Wireless Health*- Conference highlights included new initiatives and program opportunities in wireless health research; and
  - *2012 Rice University Electrical & Computational Engineering Annual Affiliates Day* - Conference highlights included scalable m-Healthcare and sensor technologies for collecting behavior data.

Resource Impact

Below is a selection of FY12 projects in various stages of development. All projects are reviewed and approved by the e-Health Advisory Board whose members are MD Anderson faculty leaders in e-Health-supported research. Projects are reviewed against specific prioritization criteria, including, relevance to DFI goals, resource demand, technological need, and funding source.

e-Cookbook for Pediatric Patients and Survivors - Joya Chandra, Ph.D., Pediatrics (Figure 11)

- *Project Goals:* The purpose of building this e-cookbook is to provide pediatric cancer patients and survivors with a resource that will meet their unique nutritional needs. Poor nutrition, lack of physical activity and being overweight has caused one-third of all cancer deaths among both adults and children. Amongst pediatric cancer survivors, obesity presents a serious co-morbid condition which may exacerbate treatment related cardiac dysfunction. Therefore, the development of a collection of healthy recipes that are targeted toward pediatric cancer patients and survivor populations is an important preventative health measure and may be used as part of a nutritional/healthy living counseling-based intervention in future research studies.
- *Project Status:* Part 1 in customer testing; Part 2 in development.
- *e-Health's Contribution:* Design and develop natural user interface to support keyword searchable recipes (ingredients, type of food, etc.). Embed interactive images photos and videos of cooking demonstrations to recipes, survey functionality to capture recipe rating and comments, chef's bio as well as a link to his/her restaurant. Lay the ground work for a mobile device version of the site.

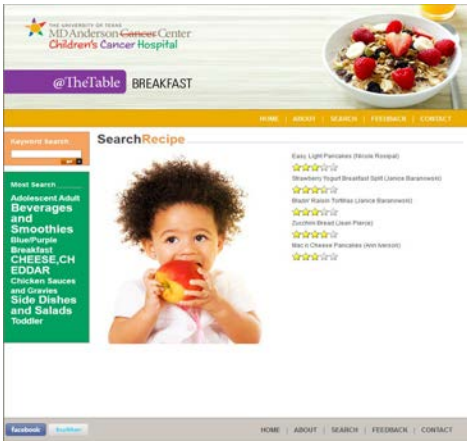


Figure 11. e-Cookbook, @TheTable, developed by e-Health in conjunction with Dr. Joya Chandra, associate professor in Pediatrics, for pediatric patients and their families.

Prevention Widget – Adelina Espat, Public Education Office (Figure 12)

- *Project Goals:* The goal of this project is to create a widget that can be used on MD Anderson's public website to deliver cancer prevention tips. A widget is an application that allows a user to perform a function or action on a website. This tool would also be shared with other websites that want to provide web visitors with cancer prevention and healthy living messages from MD Anderson. The widget would feature short messages and would cover topics such as nutrition, fitness and screening exams. Short messages would link back to a related article on MD Anderson's website, so that users could learn more.

Figure 12. The *Daily Health Tip* Prevention Widget (upper right corner) from the Public Education Office provides short messages regarding health lifestyle choices. The widget can be copied for use on other websites.

- *Project Status:* Customer testing.
- *e-Health Contribution:* Develop web based content management system to import, edit and export cancer prevention messages which serve as the data source for web widget. Design and develop a user friendly web browser widget to display daily short messages. Deploy web widget into MD Anderson's web management system and share scripts and data files with collaborative external websites that want to provide the same information to their web visitors.

Evaluation of Online Cancer Risk Check –Shelly Hovick, Ph.D., Behavioral Science (Figure 13)

- *Project Goals:* This project evaluates MD Anderson's Cancer Risk Check, the online cancer risk assessment tool developed by Public Education. The goal is to determine whether usage of this tool increases interest in seeking health information and intention to get cancer screenings among users. This project will conduct the evaluation as an online study, using an online consumer research panel. A baseline survey will be administered to participants and then show them either the cancer risk check tool or similar online information developed by MD Anderson. Participants will complete a follow-up survey immediately after and another one 6-months later.

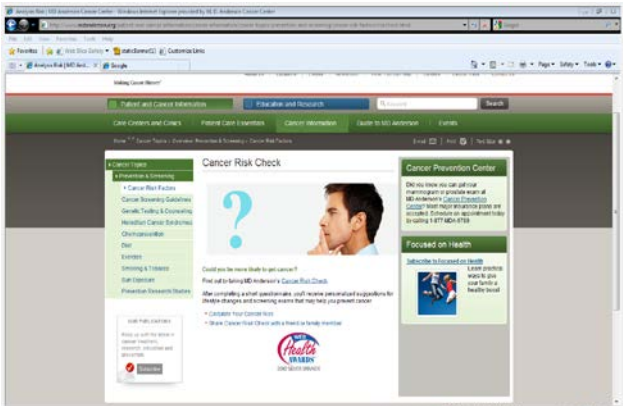


Figure 13. Screen shot of the On-line Cancer Risk Check tool available on the MD Anderson website.

- *Project Status:* Completed
- *e-Health Contribution*: Design and convert static PowerPoint slides into interactive, FLASH-based video that could be viewed across platforms, with new images, custom player buttons and playback options.

Future Plans

There are eight projects, with total budgeted costs of nearly $2.5M, currently slated for support by e-Health in FY13. In order to keep pace with technological trends, e-Health intends to focus on the development of new data collection and intervention tools. For the upcoming year, e-Health will expand its training opportunities, collaborations, and capacities in several crucial directions. Specifically, we plan to:

1) Expand program capabilities to include:
    a. Real-time data collection;
    b. New technology acquisition initiative;
    c. Social media platforms;
    d. Graphic design;
    e. Development of new research/educational/intervention tools (e.g., interactive avatars, mobile phone interventions, and motion sensing and tracking applications); and
    f. Internal website upgrade to include video testimonials.
2) Participate in Moon Shot opportunities, primarily through the Cancer Prevention and Cancer Control platform and the Lung Cancer Moon Shot;
3) Expand collaborations with internal (IS, IT, Patient Education, Communications, Public Education) and external cutting-edge IT groups (Ginger.io, ChaiOne, Sapien Mobile);
4) Identify innovative research funding for the program and researchers with the dual purpose to assist researchers with locating opportunities to fund their research and to facilitate project collaborations for e-Health; and
5) Organize program presentations to neighboring academic institutions with the ultimate goal of facilitating e-Health partnerships with these institutions.

Mexican-American Cohort Study

Co-Directors: ***Sara Strom,*** *Ph.D., Associate Professor, Department of Epidemiology*
Hua Zhao, *Ph.D., Associate Professor, Department of Epidemiology*

Background

The Mano a Mano Cohort Study was launched in 2001 by the Department of Epidemiology at MD Anderson Cancer Center with resources from Texas Tobacco Settlement and philanthropic funds (Figure 14). This study forms one of the first longitudinal comprehensive cohort studies of a census-based, representative population of Mexican Americans (MA), a traditionally understudied population. Data collection from primary and secondary participants focuses on the household level to provide contextual information about the environment, familial and social support systems, economic and other resources, barriers, family history of disease by nativity, and residency.

Figure 14. A family participating in the Mano a Mano Mexican-American Cohort Study.

The cohort has been designed specifically to:

- Understand cancer-related risk factors as they emerge in a population undergoing dramatic social change due to recent immigration and inter-generational acculturation within the construct of the family and community settings;
- Identify behavioral and genetic risk factors for cancer prevention strategies and to reduce cancer-related morbidity and mortality among MAs residing in Harris County and beyond; and
- Advance the mission of MD Anderson Cancer Center to eliminate cancer through outstanding programs that integrate patient care, research, prevention, and education.

Scientific Progress

In the summer of 2011, the cohort underwent a transition in leadership. After Drs. Bondy and Forman left MD Anderson for positions of leadership at other institutions, Sara Strom, Ph.D., associate professor in Epidemiology, took over as the new director. Later in 2012, Hua Zhao, Ph.D., associate professor in Epidemiology, joined the leadership team as co-director. A new Steering Committee was formed and one of its first tasks was developing a new mission for the Cohort: **"The mission of the Mexican-American Cohort is to provide a foundation for innovative research, to understand cancer and disease-related risk factors**." Additionally, the Steering Committee suggested ways in which the resource could develop external funding and implement a charge-capture mechanism in order to recoup costs. These suggestions are currently under investigation. Finally, a Mexican-American Cohort Study Data and Biospecimen Access Committee (MAC-DBAC) was established and charged with the responsibility of: 1) establishing and maintaining a process for data and biospecimen access; 2) establishing and maintaining criteria for evaluation, prioritization and approval of requests for Mexican-American Cohort Study data and biospecimen access; 3) reviewing, evaluating, prioritizing and approving requests for Mexican American Cohort Study data and biospecimens; and 4) resolving any conflicts that may arise regarding access and use of Mexican-American Cohort Study data and biospecimens.

Along with these administrative changes, the Cohort expanded through the enrollment of 389 additional households, as of August 31, 2012. This brings the total number of households to 15,844, for a total of 23,394 participants. As of March 2013, a total of 16,302 households have been enrolled, for a total of 24,028 participants. Below are brief descriptions of FY12 improvements to Cohort recruitment, infrastructure and analysis.

- Lost to Follow-up Study Participants (LFUP): Dr. Strom's first initiative was to concentrate on households that had never been followed-up or had not been contacted for a long period of time. The intent was to re-contact participants to invite them back into the study. Field staff was redirected to locate these "lost" participants. This process included calling all available phone numbers and informal re-visits to the last known addresses. Of the 5,000 households, Dr. Strom and her team was able to update information on 2,074. Of these, 1,691 (81.5%) of the follow-ups were completed, 302 (14.6%) have updated contact information and are pending follow-up, and 81 (3.9%) refused to continue in the study. This leaves 2,926 households for which contact information could not be updated and for which the team is using CLEAR, a new location information search engine, to obtain contact information.
- Implementation of a new questionnaire and data collection system: A new baseline questionnaire has been finalized. New sections include questions regarding screening practices, reproductive history, lifetime occupational history, and media usage. Additional questions have also been added to sections regarding smoking, physical activity and medical history. A new electronic wireless data collection system was launched simultaneously with the new questionnaire. This new configuration allows the interviewers to remotely transmit data directly to the cohort database which required an intensive re-training of the staff on various issues. The questionnaire was piloted in February 2012 and the team has since enrolled 206 participants.

- Analysis of Cancer Incidence: Investigators matched participants' information with the Texas Cancer Registry (TCR) database. This match resulted in the identification of 560 cancer cases diagnosed between 1995 and 2008. This process identified a number of Cohort participants whose self-reported cancers were not included in the TCR. Therefore, investigators contacted these individuals to obtain authorization to request copies of their medical records to verify diagnoses. Using the TCR data, standardized incidence ratios (SIR) were calculated in order to compare the total number of cancer cases in the cohort population (n=920) to those expected to occur based on Hispanic SEER data (n=799). Overall, the cohort population had 15% more cases than expected. This difference was statistically significant among women (SIR=1.23), especially for breast cancer in younger women (SIR= 3.08 for < 40 years of age and SIR= 1.58 for the 40-49 age group). Incident cases (n=162) reported at follow-up accounted for 18% of all cases. Going forward, the team plans to match data with the TCR on a regular basis.

- Data Enhancements: FY12 saw a number of enhancements to Cohort data. Efforts were made to increase the number of men and increase the mean age of the study population to better reflect the Mexican-American population within the Houston metropolitan area. Investigators geocoded all baseline and current addresses of all Cohort households and calculated acculturation scores for all participants. Finally, an audit by the Office of Protocol Research was requested to identify any potential IRB issues; and the recommendations provided were integrated into the data collection instruments and manual training.

- Community Support: A community health worker from the Cohort staff is now dedicated to answering questions from the participants and to provide information on resources available and how to access them. This community health worker also provides help in navigating the participants for cancer screening and appointments at MD Anderson or to other locations if they do not have health insurance.

Resource Impact

Science supported by the Mexican-American Cohort resource over FY12 includes eight publications, listed in the following section, and 12 grant proposals, three of which are currently active and one which was completed this past year. These four grants total more than $2.5M in costs and are described below.

Hypertension in Mexican Americans: Assessing Disparities in Air Pollutant Risks - Elaine Symanski, Ph.D., UT School of Public Health, Houston

- *Project Goals*: This project will assess the hypothesis that individual- and neighborhood-level psychosocial stressors exacerbate risks for hypertension associated with air pollution among Mexican Americans. Little is known about the modifying effects of nonchemical stressors on air pollutant risks for hypertension. Hypertension is a key risk factor for cardiovascular diseases (CVD) and CVD remains the leading cause of death among the U.S. Hispanic population.
- *Project Status*: Active
- *Mexican-American Cohort Contribution:* The Cohort staff has provided focus group participants for the first part of this study. Study staff will be developing data entry screens, contacting potential participants, consenting them to the study and interviewing study participants on questions developed from the focus groups, collecting the data elements, preparing reports, and transmitting data to the study investigator as needed.

Reducing Cancer Disparities among Latinos in Texas - David Wetter, Ph.D., MD Anderson Cancer Center

- *Project Goals:* The proposed study will evaluate the efficacy of a theoretically- and empirically-based, culturally-tailored *Motivation And Problem Solving* (MAPS) intervention, conducted within a community-based participatory research (CBPR) framework, for reducing cancer risk related to smoking, poor diet, and physical inactivity. High-risk Mexican-American (MA) individuals (i.e., smokers who are also overweight/ obese; N = 400) will be recruited from the Mexican-American Cohort Study or from the community, will be followed for a period of 18 months, and will be randomly assigned to one of two intervention groups: Health Education (HE) or MAPS.
- *Project Status:* Active
- *Mexican-American Cohort Contribution:* The Cohort staff will be providing support to Dr. Wetter according to the needs of his research, in most cases by identifying and screening potential participants.

Neighborhood and Individual Level Determinants of Smoking Cessation Among Hispanics (EXPORT) - David Wetter, Ph.D., MD Anderson Cancer Center

- *Project Goals:* This longitudinal cohort study examined the influence of neighborhood, individual, and acute intrapersonal and contextual determinants of smoking cessation among adult, Spanish-speaking, Hispanic smokers recruited from the Mexican-American (MA) Cohort Study (N=200). The goal was to identify determinants of tobacco use and cessation among a minority and historically understudied population.
- *Project Status:* Completed
- *Mexican-American Cohort Contribution:* The main role of the Cohort Staff was to recruit Cohort participants into the EXPORT study.

Socio-Demographic, Acculturation, and Psychosocial Factors Influence Mexican Americans to Provide Biologic Specimens for Biobanking in Houston, El Paso, and Brownsville, TX – David Lopez, Ph.D., UT School of Public Health

- *Project Goals:* The purpose of this study is to identify various types of factors that contribute to Mexican American's decisions to provide biologic specimens for biobanking or blood collection. This work will be performed in three cohorts, one from each of three Texas cities.
- *Project Status:* Active
- *Mexican-American Cohort Contribution:* The Cohort staff will assist in identifying variables, coding, and will provide the database. Staff will also select participants for focus groups.

Publications – Study Results for Research Supported by the Mexican-American Cohort

Palmquist AE, Wilkinson AV, Sandoval JM, Koehly LM. Age-related differences in biomedical and folk beliefs as causes for diabetes and heart disease among Mexican origin adults. J Immigr Minor Health 14(4):596-601, 2012.

Wilkinson AV, Bondy ML, Wu X, Wang JDong Q, D'Amelio AM Jr, Prokhorov AV, Pu X, Yu RK, Etzel CJ, Shete S, Spitz, MR. Cigarette experimentation in Mexican origin youth: Psychosocial & genetic determinants. Cancer Epidemiol Biomarkers Prev 21(1):228-38, 2012.

Ashida S, Wilkinson AV, Koehly LM. Social influence and motivation to change health behaviors among Mexican-origin adults: implications for diet and physical activity. Am J Health Promot 26(3):176-9, 2012.

Hernandez-Valero MA, Bustamante-Montes LP, Hernandez M, Halley-Castillo E, Wilkinson AV, Bondy ML, Olvera N. Higher risk for obesity among Mexican–American and Mexican immigrant children and adolescents than among peers in Mexico. J Immigr Minor Health 14(4):517-522, 2012.

Wilkinson AV, Okeke NL, Springer AE, Stigler MH, Gabriel KP, Bondy ML, Prokhorov AV, Spitz MR. Experimenting with cigarettes and physical activity among Mexican origin youth: A cross sectional analysis of the interdependent associations among sensation seeking, acculturation, and gender. BMC Public Health May 4;12(1):332, 2012.

Ashida S, Wilkinson AV, Koehly LM. Encouragement from social network members and Intention to screen among Mexican origin Americans: A cross-generational perspective. Am J Prev Med, *In press*.

Student and Post-Doctoral Support

Along with supporting the above manuscripts and grant proposals, the Mexican-American Cohort over FY12 supported the work of two post-doctoral associates and the dissertation research of three Ph.D. students and one masters-level student by providing datasets and assistance with writing and processing of IRB protocols.

Future Plans

The focus of the resource in FY13 will be to:

1) Expand accrual to replace those lost to follow-up;
2) Increase the accrual of men and older participants to the cohort to reflect the demographics of the Mexican-American population in the greater Houston metropolitan area;
3) Continue follow-up of all participant households every six months for the first 3 years and then for those who we consistently reach, contact them once a year;
4) Develop new research initiatives and continuing/expanding intra- and inter-institutional collaborations;
5) Determine genetic admixture of Cohort participants;
6) Select a collection instrument to obtain dietary information to be integrated with the Mexican-American Cohort infrastructure; and
7) Work with the Mexican-American community to develop health awareness programs for cancer and other relevant diseases.

Center for Community-Engaged Translational Research

Co-Directors: ***David Wetter,*** *Ph.D., Chair and Professor, Department of Health Disparities Research*
Lorna McNeill, *Ph.D., M.P.H., Associate Professor, Department of Health Disparities Research*

Background

To facilitate the translation of cancer prevention research into real-world settings, the Duncan Family Institute established the Center for Community-Engaged Translational Research (CCETR; Figure 15), formerly the Center for Community Implementation and Dissemination Research, to serve both the research community and the community at large with an explicit goal of integrating research and service into existing community infrastructure and social norms.

Figure 15. Members of CCETR staff: Linda Civallero (far left), Shanna Barnett (front left), Lynne Nguyen (rear), Cassandra Harris (front center), Dr. David Wetter (rear), Dr. Lorna McNeill (front, center), and Kamisha Escoto (far right).

Successful community-based implementation and dissemination research requires that projects and activities benefit both the community and the researchers. The mission of CCETR is to bring communities and researchers together to create long-term solutions to prevent cancer and improve health. In its two years of operations, CCETR has demonstrated successful facilitation and leadership in community-academic research collaborations that advance cancer prevention, control, and treatment in real-world public health and clinical practice settings.

Scientific Progress

During FY12, CCETR continued to clarify and refine Center goals and objectives and to identify measurable outcomes. The redesigned goals are more focused, with targeted strategies and performance metrics. These goals and progress towards them during the reporting period are described below.

Establish and sustain long-term equitable community research partnerships

Successful and robust research collaborations with the community are built on trust, common goals, mutual benefit, and shared control and resources. CCETR develops, cultivates and maintains supportive relationships with community partners with the goal of enhancing their capacity to engage in research that advances cancer prevention, control, and treatment. To streamline CCETR's focus and to facilitate resource allocation, community partners are now categorized as: 1) networking; 2) development; or 3) research partners. Throughout FY12, CCETR worked to establish and sustain partnerships across all three categories at the local, state and national levels.

Facilitate research development and implementation between MDACC investigators and the community

During the reporting period, CCETR staff facilitated three new investigator-community partnerships for grant proposal development and ongoing research work. Two partnerships have been with the HOPE Clinic in the form of grant proposals to enhance service delivery to Vietnamese Americans (smoking cessation, Hepatitis B screening and vaccination) and one has been to facilitate testing of an oral cancer screening technology at Good Neighbor Health Center. In addition, CCETR partnered with the Marketing department to develop a marketing and communications plan to attract MD Anderson faculty to CCETR. The first phase of the internal marketing plan, a website, was launched June 2012. And in response to an MD Anderson faculty needs assessment conducted by Gelb Consulting that revealed substantial interest in acquiring skills and knowledge to be more competitive for Cancer Prevention Research Institute of Texas (CPRIT) prevention grants and in identifying and connecting with community partners for prevention projects, CCETR partnered with the UT School of Public Health (UTSPH) and CPRIT to offer a CPRIT cancer prevention grantsmanship workshop that also included tips and considerations for partnering with community organizations.

Increase capacity of research teams to recruit and retain diverse patients to clinical trials

Assuring that minorities and women have equal access to clinical trials is a priority for MD Anderson and integral to CCETR's mission. However, MDACC's current patient base only partially reflects the demographics of the Texas cancer population, with Hispanics being the population most under-represented. To address this disparity, MD Anderson's president, Dr. Ronald DePinho, authorized the creation of the Patient Demographic Initiative (PDI), to increase minority Texans' awareness of, and access to, MDACC for cancer treatment. The PDI will specifically focus on Hispanics and will be led by CCETR co-director Dr. David Wetter and a multidisciplinary team of executive leaders throughout MD Anderson. CCETR is expected to play an integral role in this initiative through its expertise in building and sustaining community relationships and partnerships.

Resource Impact

CCETR is supporting 20 active studies that address smoking cessation, obesity, cancer screening, and service delivery to the community. CCETR has provided technical assistance to investigators for minority recruitment and retention for a wide variety of grants and programs, including SPORES (5), P01s, R01s, U10, U54s, R21, N01, CCOP, and CPRIT. Research studies with key community partners, including Harris County Hospital District (HCHD) and Kelsey Seybold, have reached 23,848 participants (Table 3).

Four projects are highlighted for which CCETR has played prominent roles since project inception:

Table 3. Individuals Impacted in CCETR-Supported Research Studies

Research Study	*No. Participants Reached*
Project CHURCH	1501
Project Health	450
Smoking Cessation Resources (Ask-Advise-Connect & Ask-Advise-Refer)	
Harris County Hospital District	17,959
Kelsey-Seybold	3663
Good Neighbor	275
TOTAL	23,848

Dissemination of a Smoking Quitline to the Underserved (Project Quitline) – Jennifer Irvin Vidrine, Ph.D., Health Disparities Research

- *Project Goals:* This study aims to increase dissemination and use of the state smoking Quitline among medically underserved and racially/ethnically diverse smokers, a population with limited access to smoking cessation resources using an enhanced dissemination approach (Ask-Advise-Connect). Harris County Hospital District (HCHD) is the community partner. This project extends a previous successful Quitline dissemination project (Kelsey Quitline) conducted at 10 Kelsey Seybold Clinics which ended within the past year.

- *Project Status:* Active

- *CCETR Contribution*: CCETR supports Project Quitline by assisting with budget development and justification, grant submission, shepherding the submission through the IRB, progress reporting, and developing training for HCHD personnel involved in recruitment and education of patients.

Reducing Tobacco Related Health Disparities (Project Health) – David Wetter, Ph.D., Health Disparities Research

- *Project Goals:* Project Health evaluates the efficacy of a theoretically- and empirically-based "Motivation and Problem Solving" (MAPS) intervention and proactive provision of nicotine replacement therapy (NRT) for promoting and facilitating smoking cessation among low income smokers who are not ready to quit. HCHD is the community partner.

- *Project Status:* Active

- *CCETR contribution*: CCETR's established relationship with HCHD facilitated the development and implementation of this study. HCHD personnel are involved in all planning stages of projects and provide critical input to study design decisions throughout the process. CCETR assists with recruitment from the clinics and with the design of the recruitment materials. This study provides future opportunities for new researchers, including junior faculty and postdoctoral fellows, to conduct community-based research.

Reducing Cancer Disparities Among Latinos in Texas (CNPC) – David Wetter, Ph.D., Lovell Jones, Ph.D., Health Disparities Research; and Maria E. Fernandez, Ph.D., Center for Health Promotion and Prevention Research, University of Texas

- *Project Goals*: The Texas Regional Community Networks Program Center, Latinos Contra El Cancer, is a combination of innovative research, extensive community outreach, and a multi-faceted training program, all conducted within a community-based participatory research (CBPR) context, to reduce cancer-related health disparities in Latinos and to build a cadre of competitive health disparities researchers trained in CBPR in three regions in Texas (Houston, El Paso, Lower Rio Grande Valley). Project investigators and trainees have leveraged CNPC research, outreach and training resources and have been awarded more than $17 million in grant funding and published 23 articles in peer-reviewed journals.

- *Project Status*: Active

- *CCETR contribution*: CCETR supported the work of the Administrative Core to manage communications, lead research teams on progress toward research aims, and coordinate the three regional Community Advisory Groups. Some of the major activities supported included the conduct of focus groups to test project materials and cultural messages for the research intervention on tobacco cessation, physical activity, and nutrition; monthly trainee seminar series on CBPR and health disparities research; the NCI Site Visit and Steering Committee meeting; and the annual partner meeting.

African American Cancer Prevention Study, Project CHURCH – Lorna McNeill, Ph.D., M.P.H., Health Disparities Research

- *Project Goals:* Project CHURCH is an ongoing prospective, longitudinal, community-based cohort study designed to investigate the role of behavioral, social, environmental and genetic factors on health and cancer-related disparities among African Americans in Houston. Windsor Village United Methodist Church is the community partner, with a community advisory board and 1,500 participants in the study. Project CHURCH is in its fourth year and plans to expand to include two additional churches to increase the sample to approximately 2500 participants. Within the reporting year, major accomplishments include continually high retention rates (90% or higher) and a co-authored publication in the journal Nature as well as a recently accepted paper in Nature Genetics (see Publications below).
- *Project Status:* Active
- *CCETR Contribution*: The CCETR co-director is the principal investigator of the study. CCETR staff members assist with various research tasks, communicate with the Community Advisory Board, and help coordinate cancer prevention programs for church members. CCETR staff also played a significant role in recruiting Crossroads Community church into the cohort, the newest church to join the study.

As CCETR's focus has been primarily in assistance with grant submission over the past year, many of CCETR's supported projects are only now yielding data for publication and dissemination. Several publications are in development; and CCETR will provide assistance with faculty publications as appropriate.

Publications – Study Results for Research Supported by the Center for Community-Engaged Translational Research

Reitzel LR, Nguyen N, Strong LL, Wetter DW, McNeill LH. Subjective social status and health behaviors among African Americans. American Journal of Health Behavior 37(1):104-11, 2013.

Strong LL, Reitzel LR, Wetter DW, McNeill LH. Associations of perceived neighborhood physical and social environments with physical activity and television viewing in African American men and women. American Journal of Health Promotion. Am J Health Promot 2013 Feb 11 [Epub ahead of print].

Vidrine, DJ , Vidrine JI. Active versus passive recruitment to quitline studies: public health implications. J Natl Cancer Inst 103(12):909-10, 2011.

Hinch AG, Tandon A, Patterson N,… McNeill LH, et al. The landscape of recombination in African Americans. Nature 476(7359):170-5, 2011.

Jacobs KB, Yeager M, Zhou W,…McNeill LH, et al. Detectable clonal mosaicism and its relationship to aging and cancer. Nat Genet 44(6):651-8, 2012.

Future Plans

CCETR actively seeks to leverage Duncan Family Institute funds by submitting grants that further CCETR's vision and goals. Major projects under development (and submitted by the time of this report) include a P01 proposal, an FDA Center of Excellence proposal, and a CPRIT MIRA proposal. All applications draw heavily upon CCETR expertise and resources. CCETR will also lead the new Patient Demographic Initiative in 2013 to increase Hispanic-patient market share.

CCETR will also continue to:

1) Develop its community partner categorization structure, specifically clarifying the extent of service across partnership levels and developing systems for tracking work with community partners;
2) Closely manage relationships with community partners, as several new community organizations are being prioritized for relationship development; and CCETR will continue to engage in activities to maintain relationships with its current research and development partners so as to make timely connections for MD Anderson faculty when the need arises;
3) Develop and implement trainings and workshops to increase MD Anderson investigators' ability to conduct community-engaged research;
4) Promote and support investigators' efforts to increase minority and women clinical trial recruitment and retention, and to improve tracking and monitoring of clinical trial participation; and
5) Create workshops to increase fellows and new faculties' ability to reduce barriers to participation and increase communications effectiveness.

Clinical Cancer Prevention Research Core

Co-Directors: ***Powel Brown,*** *M.D., Ph.D., Chair and Professor, Department of Clinical Cancer Prevention*
Therese Bevers, *M.D., Professor, Clinical Cancer Prevention; Medical Director, Cancer Prevention Center*

Background

The Clinical Cancer Prevention Research Core (CCPRC) was established to support core clinical cancer prevention research activities to strengthen the quality and impact of our basic, translational, clinical and population-based research. The CCPRC will serve the dual purpose of supporting the chemoprevention protocols developed and ready for implementation by Clinical Cancer Prevention faculty and collaborators, as well as building and maintaining a High Risk Breast Cancer Cohort and Biorepository (Figure 16).

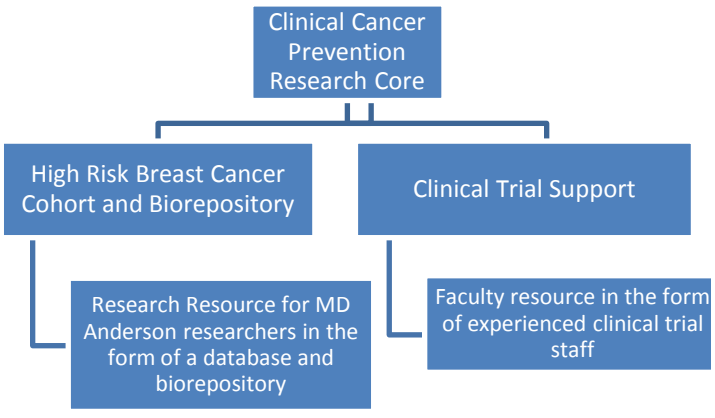


Figure 16. The CCPRC is building resources and sharing expertise to advance studies to deliver preventive therapies to patients at high risk for cancer.

Scientific Progress

FY12 marks the first full year for the CCP Research Core. In contrast to the inaugural year spent primarily on development programs and staff, the CCP Research Core made significant strides toward the execution of its objectives during this reporting period.

The High Risk Breast Cancer Cohort began collecting serial data and specimens in September 2011. To date, more than 700 high-risk individuals have been enrolled in the Cohort and data collection is on-going (Table 4). The development of a

database specifically designed to store the Cohort and Biorepository data has recently been completed. The database will provide patient and specimen tracking along with data capture and retrieval.

With assistance from the Division Research Planning and Development team, the CCP Research Core has developed an intranet web page for the promotion of resources and available clinical support services. The goal of the webpage is to increase awareness and utilization of the High Risk Breast Cancer Cohort resource. The resource is also in the process of creating and optimizing on-line application forms for investigators wishing to make use of Cohort samples. On-line forms will both facilitate the application process and expedite the review process of submitted projects.

Table 4. High Risk Breast Cancer Cohort

Clinical Characteristic	No. Participants with Characteristic
Accrual to date	744
Ductal Carcinoma in situ	146 (20%)
Proliferative Disease	233 (31%)
Elevated Gail Score	358 (48%)
BRCA1/2	5 (<1%)
Mantle Radiation	2 (<1%)

Resource Impact

During FY12, CCP Research Core staff has provided support for 12 projects represented by 12 faculty members within six departments.

High Risk Breast Cancer Cohort and Biorepository

The High Risk Breast Cancer Cohort prospectively follows cancer-free women at high risk of developing breast cancer with the serial collection of biological specimens, clinical and epidemiological data, and clinical outcomes. The High Risk Breast Cancer Cohort and Biorepository will provide a ready-access resource for both institutional and outside researchers interested in the investigation of biomarkers and lifestyle risk factors that can be used to predict risk of invasive breast cancer. Access to the archived biologic material and data requires a protocol approved by the MD Anderson IRB and approval by an oversight committee.

During FY12, the High Risk Breast Cancer Cohort and Biorepository actively served as a research resource in the conduct of three research protocols by providing the utilization of data and/or biological specimens. These projects are described below:

Blood Test for Breast Cancer Associated Auto Antibodies - Therese Bevers, M.D. (PI), Clinical Cancer Prevention

- *Project Status:* The objective of this research is to assess the effectiveness of a blood test for cancer-associated auto-antibodies in women with breast cancer. To date, no specific autoantibody has been found that distinguishes solely between healthy subjects and cancer patients. If successful, this testing could provide a non-invasive alternative to breast biopsies for resolution of suspicious screening mammography.
- *Project Status*: A subset of two hundred subjects who underwent breast biopsies was identified. The project is complete and analysis is pending.
- *CCP Research Core Contribution:* 250 (0.5ml) aliquots of plasma and corresponding data.

The Use of Stimulated Whole Saliva as a Diagnostic Test for the Detection of Breast Cancer in Women - Therese Bevers, M.D. (PI), Clinical Cancer Prevention

- *Project Goals:* The primary objective of this laboratory trial is to evaluate salivary breast cancer biomarkers (SBCBs) as a diagnostic tool by demonstrating sensitivity and specificity of detecting an intact breast cancer when compared to patients with no detectable breast cancer. If successful, this testing could pave the way to a low-cost, non-invasive screening device with high efficacy, creating the dual impact of more people being tested, while making other traditional diagnostic methods more efficient.

- *Project Status:* Study testing and preliminary analysis has been completed. Due to lack of a consistent group of proteins capable of discriminating among the groups, the decision was made to close this study.

- *CCP Research Core Contribution:* 400 (1ml) aliquots of stimulated saliva and corresponding data.

Association of Breast Stem Cells with High-Risk Lesions and Epidemiology Factors - Abenaa Brewster, M.D. (PI), Clinical Cancer Prevention

- *Project Goals:* The objectives of this laboratory study are to determine: 1) the prevalence of stem cell-related markers in benign tissue collected from mastectomy specimens; 2) the prevalence of stem cell-related markers in high-risk breast tissue of cancer-free patients; and 3) if epidemiological factors are correlated with the presence of stem cell-related markers in normal and high-risk breast tissue. Preliminary studies found an increase in the presence of stem cells within normal tissue of women who have developed triple-negative breast cancer.

- *Project Status*: Active

- *CCP Research Core Contribution:* 70 subjects identified providing clinical data and outcome data.

Clinical Trial Support

The CCP Research Core provides clinical trial support for prevention researchers and faculty who do not have sufficient funding to hire full-time staff to support their protocols. The Clinical Trials Support group includes a Research Nurse, Data Coordinator and Sr. Statistical Analyst. As new clinical faculty are hired to join the Department of Clinical Cancer Prevention and demand for utilization of the Clinical Trial Support staff increases, access to the staff will be determined by the Clinical Cancer Prevention Research Core Steering Committee. A selection of projects receiving support in varying degrees from the Clinical Trials Support group is highlighted below:

Neoadjuvant Trial of Lapatinib for the Treatment of Women with DCIS Breast Cancer - Powel Brown, M.D., Ph.D. (PI), Clinical Cancer Prevention, and Henry Kuerer, M.D., Ph.D. (Co-PI), Surgical Oncology

- *Project Goals*: LAPIS is a multi-institutional project, funded by the Breast Cancer Research Foundation. It is a two-arm, randomized, double-blinded, placebo-controlled biomarker modulation trial of lapatinib. In the proposed clinical trial, we will treat women who have newly-diagnosed ductal carcinoma *in situ* (DCIS) with laptinib at the 100 mg/day dose or with placebo for 2-6 weeks.

- *Project Status:* Active

- *CCP Research Core Contriubtion:* Recruitment and enrollment to the Lapis trial was re-initiated during this reporting period. Tremendous effort has gone into the planning, logistics and initiation of this multi-center study. During this reporting period 20 patients have been registered with four eligible patients randomized.

A Multicenter Phase II Study of Docosahexaenoic Acid (DHA) in Triple Negative Breast Cancer Survivors - Powel Brown, M.D., Ph.D. (PI), Clinical Cancer Prevention, and Banu Arun, M.D. (Co-PI), Breast Medical Oncology

- *Project Goals:* This is a multicenter project, funded by the National Cancer Institute Division of Cancer Prevention (NCI DCP) and administered through the MD Anderson Phase I/II Prevention Consortium. It is a Phase II, randomized, placebo-controlled, double-blinded clinical trial of PARP inhibitor ABT-888 (Veliparib) that will be administered for 8 weeks in triple negative breast cancer survivors.

- *Project Status:* Active

- *CCP Research Core Contribution:* Although funded, the protocol is currently being revised due to the lack of availability of the study drug. During this reporting period, researchers continued protocol planning and development by coordinating information for the purpose of submissions and fulfilling regulatory requirements.

Transcriptional Regulation of 15-Lipoxygenase-1 in Human Colorectal Cancers - Imad Shureiqi, M.D., M.S., Gastrointestinal Oncology

- *Project Goals:* 15-LOX-1 is a crucial molecular target for non-steroidal anti-inflammatory chemopreventive effects in the colon. 15-LOX-1 is transcriptionally suppressed in human colon cancer. The relevance of these findings to the *in vivo* setting, especially in patients with colorectal cancer, needs to be evaluated. The current study will allow examination of this important question by using freshly harvested residual surgical samples.

- *Project Status*: Active

- *CCP Research Core Contribution:* During this reporting period, CCP Research Core has contributed 11 evaluable subjects. The CCP Research Core contribution to this trial over the past two years totals 53% of the 34 evaluable subjects. The sample size for this project is 52 evaluable subjects.

Future Plans

The focus of the resource in FY13 will be on:

1) Increasing prevention research through participation or initiation of innovative new protocols;
2) Increasing utilization of the High Risk Breast Cohort and Biorepository through the conduct of a number of planned epidemiological studies;
3) Promoting availability of the CCP Research Core and Cancer Prevention Center to site-specific Moon Shot Program teams; and
4) Identifying future resources to further leverage Duncan Family Institute Funding for existing projects.

EDUCATION & EXCELLENCE

Developing the Next Generations

DEVELOPING THE NEXT GENERATIONS – *DUNCAN FAMILY INSTITUTE MENTORED JUNIOR FACULTY FELLOWSHIP*

In FY12, the Duncan Family Institute invested in the next generation of cancer prevention researchers through its Mentored Junior Faculty Fellowship and supported the current generation through various seminars in the Cancer Prevention Grand Rounds lecture series.

We awarded two new Duncan Family Institute Mentored Junior Faculty Fellowships to promising young investigators. These 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 Claire Adams, Ph.D., Instructor in Health Disparities Research (Figure 17), and Meng Chen, Ph.D., Instructor in Epidemiology (Figure 18), are this year's fellowship recipients.

Claire Adams, Ph.D., Instructor, Department of Health Disparities Research

A moderated mediation model of the effects of mindfulness on negative affect and health behavior

Figure 17. Claire Adams, Ph.D. is an FY12 Duncan Family Institute Mentored Junior Faculty Fellow.

Dr. Adams' research seeks to inform behavioral interventions to reduce unhealthy behaviors (i.e., smoking, at-risk alcohol use, and unhealthy eating) linked to cancer risk and cancer-related mortality. Specifically, her work focuses on mindfulness (paying attention to present-moment experience with an attitude of non-judgment and acceptance) as one promising avenue for targeting multiple health risk behaviors. Her proposed research for the fellowship centers on developing and testing a moderated mediation model of mindfulness, negative affect, and health behavior to integrate different lines of mindfulness and health behavior research, elucidate mechanisms of mindfulness, and apply these to racially/ethnically diverse populations. This research may help to identify shared mechanisms and causal pathways underlying effects of mindfulness on health behaviors relevant to cancer prevention and could also provide preliminary support for the use of mindfulness among racial/ethnic minorities.

Meng Chen, Ph.D., Instructor, Department of Epidemiology

Gene-set enrichment analysis of bladder cancer genome-wide scan

Figure 18. Meng Chen, Ph.D. is an FY12 Duncan Family Institute Mentored Junior Faculty Fellow.

Dr. Chen's study will be the first gene-set enrichment analysis (GSEA) performed for bladder cancer. GSEA is a statistical approach that allows for the detection of subtle effects of multiple SNPs in the same gene, or of multiple genes in the same pathway, that are often missed in traditional genome-wide association studies. Completion of this study may not only enhance the understanding of the overall gene networks involved in bladder cancer susceptibility, but may also offer additional etiologic insights, highlighting the specific genes and pathways involved. It may identify druggable targets for cancer prevention and treatment and potentially improve the risk prediction model of bladder cancer. Dr. Chen's long-term career goal is to become an independent investigator in molecular epidemiology and to significantly contribute to the personalized risk assessment and early detection of cancers.

We are also delighted to provide an update on Jian Wang, Ph.D., Instructor in Biostatistics, a current DFI fellow appointed in FY11 (Figure 19).

Jian Wang, Ph.D., Instructor, Department of Biostatistics

Risk modeling using mediation analysis and Bayesian Network Recovery with application to smoking cessation study

Figure 19. Jian Wang, Ph.D., the Institute's third Mentored Junior Faculty Fellow.

Dr. Wang seeks to develop and implement risk prediction models of nicotine addiction and smoking cessation using advanced statistical methods. Results of her studies have the potential to lead to the development of a risk model for smoking cessation that considers the interactions between genetic variants, negative affects and pharmacological treatments. Such a model could provide insights into the development and tailoring of both prevention strategies for individuals at risk for nicotine dependence and effective pharmacological interventions for current smokers who wish to quit. Her recent transition to the department of Biostatstics, within the division of Quantitative Sciences, complements both her strong background in statistical methodology and the specific aims of her DFI fellowship. Her work remains focused on cancer prevention and her three mentors continue to hold appointments within the Division of Cancer Prevention and Population Sciences. Dr. Wang has published three first-authorship papers and a book chapter within the first year of her fellowship.

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Wang J, Shete S. Analysis of the secondary phenotypes involving the interactive effect of the secondary phenotype and genetic variants on the primary disease. Annals of Human Genetics; 76(6): doi: 10.1111/j.1469-1809.2012.00725.x, e-Pub 8/12, 2012.

Wang J, Spitz MR, Amos CI, Wu X, Wetter DW, Cinciripini PM, Shete S. Method for evaluating multiple mediators: mediating effects of smoking and COPD on the association between the CHRNA5-A3 variant and lung cancer risk. PLoS One; 7(10): e47705, e-Pub 10/12, 2012.

Progress of Previously Funded Fellows

Larkin Strong, Ph.D., M.P.H., Assistant Professor, Department of Health Disparities Research

Dr. Strong was the DFI's second fellow, appointed in FY11. Her research focuses on how physical, social and cultural contexts influence health behaviors and outcomes in diverse populations. Subsequent to her fellowship, she successfully competed for a tenure-track position at the assistant professor level in FY12. Since her promotion, she has published one paper as first author and two papers as co-author. In addition, she continues to actively seek out and apply for external funding.

Francesco Versace, Ph.D., Assistant Professor, Department of Behavioral Science

Dr. Versace was the DFI's first fellow, appointed in FY10. His research focuses on understanding the role of emotional processes in smoking addiction and relapse, with the goal of using such knowledge to increase smoking cessation rates. He was promoted to a tenure-track assistant professor position in the department of Behavioral Science in FY11. Since then, he has published two papers as first author and an additional three papers as co-author. He has also been successful in competing for external funding, being awarded an R01 from the NCI and a GRAND grant from Pfizer in FY12.

INVESTING IN THE CURRENT GENERATION – *DUNCAN FAMILY INSTITUTE SUPPORTED SEMINARS*

The Institute contributed to enhancing the intellectual environment by providing support to five speakers in collaboration with Leonard Zwelling, M.D., UT System Health Fellow, and the Division of Cancer Prevention and Population Sciences' Cancer Prevention Research Training Program Grand Rounds lecture series.

Topics of the DFI-supported seminars addressed a range of real world issues relevant to cancer prevention and lectures were provided by internationally renowned experts. The five lectures in FY12 were:

- "Why Aren't We Preventing More Cancers? A View from ASCO" (Allen Lichter, M.D., CEO, American Society of Clinical Oncology);
- "The Role of Cancer Prevention in the Health Care Reform Act and other Health Policy" (Mark McClellan, M.D., Ph.D., Former Administrator, Centers for Medicare & Medicaid Services; Former Commissioner, Food and Drug Administration (FDA); Director, Engelberg Center for Health Care Reform; Senior Fellow, Economic Studies, and Leonard D. Schaeffer Chair in Health Policy Studies, Brookings Institution; Figure 20);
- "Flu-FOBT and Flu-FIT Programs: Addressing Colorectal Cancer Screening Disparities in Diverse Clinical Settings" (Michael Potter, M.D., Department of Family and Community Medicine at University of California, San Francisco);
- "The U.S. Preventive Services Task Force Recommendations on Cancer Screening: Who Are Those People and What Were They Thinking?" (Virginia Moyer, M.D., M.P.H., Chair, United States Preventive Services Task Force (USPSTF); Professor of Pediatrics & Head, Academic General Pediatrics, Baylor College of Medicine; Chief Quality Officer for Medicine, Texas Children's Hospital; Figure 21); and
- "Understanding Cancer Risk and Control Through International Collaborations" (Tim Rebbeck, Ph.D., Professor, University of Pennsylvania School of Medicine).

Figure 20. Dr. Mark McClellan (left), Director of the Engelberg Center for Health Care Reform, meets with Dr. Ernest Hawk (right), Executive Director of the Duncan Family Institute, before presenting at his DFI-sponsored seminar at the Cancer Prevention Grand Rounds.

Figure 21. Dr. Virginia Moyer, chair of the USPSTF, presented at a DFI-sponsored seminar at the Cancer Prevention Grand Rounds.

DUNCAN FAMILY INSTITUTE

SCIENTIFIC LEADERS

PLANNING FOR EXCELLENCE & BUILDING FOR THE FUTURE– *DUNCAN FAMILY INSTITUTE EXECUTIVE COMMITTEE*

The Duncan Family Institute continued to develop its programs and resources during FY12 and evolved in response to a number of changes.

In FY12, the Duncan Family Institute saw its strategic research initiatives expand from five to six with the addition of the *Navigating Familial Cancer Risk in Colorectal Cancer Syndromes* initiative. Additionally, the Energy Balance strategic research initiative progressed significantly with the establishment of the Center for Energy Balance in Cancer Prevention and Survivorship; and the Center for Translational and Public Health Genomics expanded through transition of the Personalized Risk Prediction Program, a former research resource, into the Center. To reflect these changes, two new members were added to the Executive Committee, bringing the total number of members to 11 (Figure 22). The new members are Karen Basen-Engquist, Ph.D., M.P.H., professor in the department of Behavioral Science and director of the new Center for Energy Balance in Cancer Prevention and Survivorship, and Hua Zhao, Ph.D., associate professor in the department of Epidemiology. The Executive Committee meets regularly to set research priorities in the areas of greatest promise, and monitors and evaluates the Institute's investments to assure they remain aligned with the intentions of those whose gifts made the Institute possible and that the productivity of these investments continues to be realized, ultimately in the form of real-world impact.

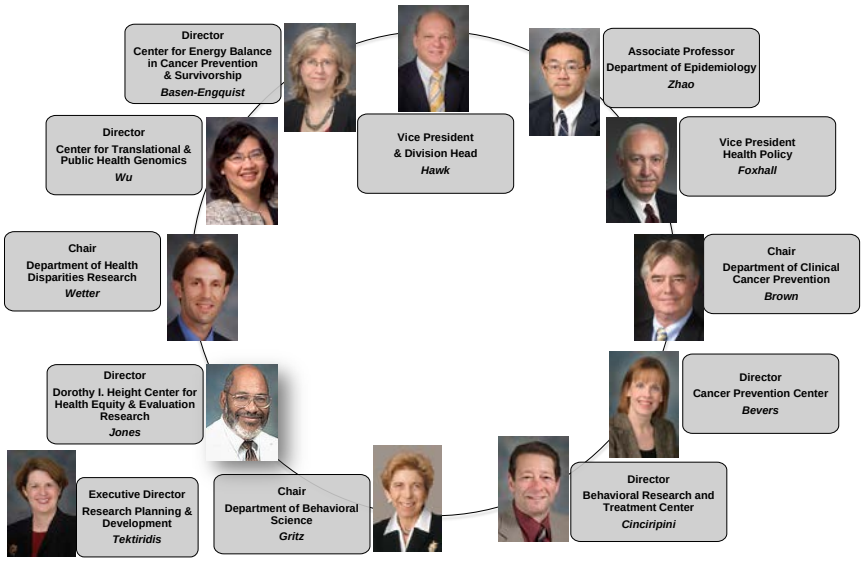

Figure 22. The Executive Committee of the DFI. Cancer Prevention research and clinical department chairs and center directors meet regularly to guide Institute investments and evaluate productivity. Karen Basen-Engquist, Ph.D., M.P.H. and Hua Zhao, Ph.D. are the most recent additions to the Executive Committee.

In the previous reporting year, FY11, the Executive Committee had defined potential new directions for development in areas that included cancer survivorship research, image-based screening and early detection, and global cancer prevention programs. Developments occurred in several areas, including expansion of the Center for Translational and Public Health Genomics to add a Survivorship Cohort and exploration of sister institution interest in expanding prevention collaborations during the May 2012 Global Academic Programs annual conference in Oslo, Norway, with further progress expected in FY13. Continued development of the energy balance, integrative health, and tobacco research initiatives were also planned at that time, as was investment in research resources and cohorts. Progress was made in all areas as described earlier in this report. What follows are summaries of the background and scientific accomplishments of Duncan Family Institute leadership, providing a snapshot of the breadth of leadership experience, research interests, national and international engagement, and contributions of those who are joined together to advance the science and practice of cancer prevention.

Ernest Hawk, M.D., M.P.H.

Ernest T. Hawk, M.D., M.P.H., is vice president and head of the Division of Cancer Prevention and Population Sciences at the University of Texas MD Anderson Cancer Center and holds the Boone Pickens Distinguished Chair for Early Prevention of Cancer. Prior to his appointment at MD Anderson in December 2007, Dr. Hawk held several positions at the National Cancer Institute (NCI) in Bethesda, MD, most recently director of the Office of Centers, Training and Resources.

Dr. Hawk leads one of the largest and most developed programs dedicated to cancer prevention in the nation. With nearly 500 full-time employees, over 80 faculty and 200 trainees, the work of the division focuses on the identification of factors that contribute to the risk, incidence and mortality of cancer as well as mitigation of their effects through laboratory, clinical and population research; provision of clinical screening and preventive services; education of trainees, patients, health care professionals and the public; and cancer control efforts.

He is the Executive Director of the Duncan Family Institute and has administrative responsibility for and oversight of all institute operations. Additionally, he is a member of the Cancer Center Support Grant Executive Committee and provides strategic and tactical direction to the center's work in cancer prevention research, education, and clinical services; with Dr. Lewis Foxhall he co-leads the institution's Comprehensive Cancer Control Program with the aim of employing a community-based, integrated, coordinated, prioritized and rigorous strategic approach to deliver a measurable impact on the cancer burden in the Houston metro area over a 10-year period and serves on numerous intramural and extramural committees.

Dr. Hawk has been involved in a wide range of preclinical and clinical chemoprevention research, including studies of nonsteroidal anti-inflammatory drugs, COX-2 inhibitors, and agent combinations in high-risk cohorts. In addition, he is interested in improving the participation of minority and underserved populations in clinical research, and in the integration of risk assessment, behavioral science, and preventive strategies in clinical trials.

He has published more than 140 articles, abstracts and book chapters, is the senior deputy editor for Cancer Prevention Research, serves on the editorial board of Cancer Medicine, and an ad hoc reviewer for numerous peer-reviewed journals, including JNCI, NEJM, Lancet and Lancet Oncology. He has earned numerous awards for his work, including the NCI Research Award for Distinguished Achievement in Cancer Prevention.

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Karen Basen-Engquist Ph.D., M.P.H.

Karen Basen-Engquist, Ph.D., M.P.H., is a Professor of Behavioral Science at The University of Texas MD Anderson Cancer Center and the Director of the Center for Energy Balance in Cancer Prevention and Survivorship. She received her Ph.D. in community psychology from the University of Texas at Austin in 1989, and her Masters in Public Health from The University of Texas – Houston Health Science Center in 1991. She served on the faculty of the University of Texas School of Public Health from 1991 to 1996, when she transitioned to a faculty position in the department of behavioral science at MD Anderson Cancer Center.

Her research focuses on cancer survivors and the role of health behavior interventions in decreasing the severity of late effects, improving physical functioning, optimizing quality of life, and reducing risk of chronic diseases. In addition, she studies intervention methods for behavior change and innovative real-time methods for assessing symptoms and behavior in cancer patients and survivors. She has an R01 study funded by the NCI to investigate the mechanisms of exercise adoption and maintenance in endometrial cancer survivors, using a social cognitive theory model that tests the social, physiological, and behavioral predictors of exercise adherence. Two NCI-funded pilot studies are evaluating the benefits of exercise for advanced colon cancer patients and cancer survivors with chemotherapy induced heart failure.

She is the Director of the Center for Energy Balance in Cancer Prevention and Survivorship. The mission of the center is to conduct state-of-the-science research in all areas relevant to physical activity, nutrition, obesity, and cancer outcomes. Additionally, she co-directs the Patient-Reported Outcomes, Survey, and Population Shared Resource (PROSPR), which provides technical assistance and support for investigators who conduct clinical, behavioral, and survivorship research that uses participant-reported outcomes.

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Therese Bevers, M.D.

Therese B. Bevers, M.D., is professor of Clinical Cancer Prevention and the medical director of the Cancer Prevention Center and prevention outreach programs at MD Anderson Cancer Center.

In her role as medical director, Dr. Bevers has overseen the growth and program development of the Cancer Prevention Center—the first comprehensive clinical cancer prevention service program in the country—since its opening in 1996.

Her clinical and research interests are in the area of breast cancer prevention, screening, diagnosis and survivorship. She was the MD Anderson co-principal investigator (PI) on the groundbreaking Breast Cancer Prevention Trial which demonstrated that tamoxifen reduced the risk of developing breast cancer by one half and the PI on the STAR trial which showed that raloxifene had similar benefits but fewer risks. She was the principal investigator at MD Anderson for a study investigating whether polyphenon E, an active substance of green tea, benefits women at increased risk for breast cancer. She is currently investigating the potential role of Vitamin D in breast cancer prevention. Dr. Bevers chairs the National Comprehensive Cancer Network's guideline panels on Breast Cancer Screening and Diagnosis and Breast Cancer Risk Reduction.

She is the recipient of many awards including the Julie and Ben Rogers Award for Excellence in Prevention in 2006, the Kathryn S. Stream Award for Excellence in Women's Health in 2011 and the Faculty Achievement Award in Prevention in 2011.

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Powel Brown, M.D., Ph.D.

Powel H. Brown, M.D., Ph.D., is a Professor of Medicine and breast medical oncologist and Chairman in the Department of Clinical Cancer Prevention at The University of Texas MD Anderson Cancer Center.

Prior to his appointment at MD Anderson in September, 2009, Dr. Brown was the Associate Director for cancer prevention at the Dan L. Duncan Cancer Center at Baylor College of Medicine. He has been caring for women with breast cancer for over 25 years and has focused his research on identifying critical signaling pathways in breast cancers that might be targeted for the prevention and treatment of breast cancer.

Dr. Brown has demonstrated that drugs related to vitamin A prevent ER-negative breast cancer in animal models and has conducted a human clinical trial testing the synthetic Vitamin A analog bexarotene for its ability to prevent cancer in women at high risk of breast cancer. He has also demonstrated that signal transduction inhibitors suppress the progression of non-invasive breast cancer in animal models and has developed a clinical trial to determine the ability of a receptor tyrosine kinase inhibitor to inhibit the growth and progression of DCIS breast cancer. He is now focused on using genomics and proteomics to identify safe and effective targeted drugs for the breast cancer prevention and treatment, particularly for the aggressive and difficult to treat "triple-negative" breast cancer.

Dr. Brown earned his bachelor's degree at the University of North Carolina and his medical degree and Ph.D. from New York University. He completed an internal medicine internship and residency at Duke University, a medical oncology clinical fellowship at the National Cancer Institute (NCI) and a Research Fellowship, at the Navy Medical Oncology Branch, National Cancer Institute.

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Paul Cinciripini, Ph.D.

Paul M. Cinciripini, Ph.D., is Professor and Deputy Chair of the Department of Behavioral Science, and Director of the Tobacco Treatment Program, at the University of Texas MD Anderson Cancer Center. He has over 30 years' experience conducting basic and clinical research in the area of smoking cessation and nicotine psychopharmacology.

Dr. Cinciripini's major research have included studies developing novel behavioral and pharmacological treatments for nicotine dependence, studies of nicotine titration and compensation, psychophysiological effects of nicotine during stress, individual differences in the effects of nicotine on EEG and cardiovascular activity, genetic factors treatment outcome, pharmacogenetic effects of antidepressants during smoking cessation, and recent studies using startle probe and EEG/ERP methodology to examine the relations between genetics, emotional reactivity, nicotine exposure and nicotine withdrawal. He has also studied the effects of depression, coping behavior and self-efficacy as well as genetic factors related to nicotine dependence and in response to both behavioral and pharmacological interventions.

In addition to his sponsored research Dr. Cinciripini also serves as the Director of a large clinical service — the Tobacco Treatment Program, which offers in-person behavioral counseling and tobacco-cessation pharmacological treatment to all MD Anderson patients and employees.

Dr. Cinciripini has been the recipient of several NIH, extramural and industry sponsored research grants and is the author of over 125 articles and book chapters. Dr. Cinciripini is the PI/site PI on 4 NIH sponsored clinical trials and 3 subcontracts evaluating smoking cessation medications, treatment of psychiatric co-morbid disorders, pharmacogenetics, and differences between smokers and nonsmokers in specific brain area associated with reward sensitivity, neural modulation of craving, and attentional bias. Over the last 10 years, Dr. Cinciripini has served as the PI, for 18 clinical trials, both NIH and industry sponsored, and he has participated as Co-Investigator in an additional 13 clinical trials for smoking cessation as well as studies of behavioral and neuropsychopharmacology of nicotine.

Publications

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Lewis Foxhall, M.D.

Lewis E. Foxhall, M.D., is MD Anderson's vice president for health policy and professor in the Department of Clinical Cancer Prevention. His work focuses on community-based cancer prevention and early detection, access and quality of care for low-income populations. He received his medical degree from Baylor College of Medicine and his clinical background is in family medicine.

Dr. Foxhall is responsible for coordination of MD Anderson's charity care program as well as administrative coordination of the MD Anderson/Harris County Hospital District oncology program. He is board member and past chair of the Harris County Healthcare Alliance, an umbrella organization for safety-net medical provider organizations in Houston and Harris County.

He currently co-leads efforts to advance comprehensive cancer control at MD Anderson. He directs the institution's cancer survivorship efforts in policy outreach and education. He supported an effort to update the Texas Cancer Plan and served as chair of the Texas Comprehensive Cancer Control Coalition. He is director of the Texas Cancer Information website project and chairs the Texas Medical Association's Physician Oncology Education Program. He serves on the Texas Department of State Health Services Advisory Council.

Dr. Foxhall supports policy development and outreach programs in collaboration with government agencies, voluntary health organizations and organized medical groups. He serves as liaison to community physicians and is medical director of the Office of Physician Relations. He is past-president of the Harris County Medical Society, member of the Board of Trustees of the Texas Medical Association, an officer of the American Cancer Society High Plains Division Board of Directors and an officer of the National American Cancer Society Cancer Action Network.

He has won numerous awards, including the St. George National Award, American Cancer Society 2011 Presidential Award of Merit, and the Texas Academy of Family Physicians 2012.

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12. Wood, M, Vogel, V, Ng, A, **Foxhall, L,** Goodwin, P, Travis L. Second Malignant Neoplasms: Assessment and Strategies for Risk Reduction. Journal of Clinical Oncology, 9/2012.

Ellen R. Gritz, Ph.D.

Ellen R. Gritz, Ph.D., is professor and chair of the Department of Behavioral Science and holds the Olla S. Stribling Distinguished Chair for Cancer Research at MD Anderson. She is an established leader in cancer prevention and control research and internationally known investigator. Dr. Gritz has published extensively on cigarette smoking behavior: prevention, cessation, pharmacologic mechanisms, and special issues of concern to women and high-risk groups, including ethnic minorities, youth, cancer patients and persons living with HIV/AIDS. Other research includes skin cancer prevention in children and high-risk individuals, genetic testing and counseling for hereditary cancers, and cancer survivorship.

Dr. Gritz has served on several cancer center and other advisory boards. She is a member of the Institute of Medicine (IOM), and currently serves as Chair, Section 11 (Social Sciences, Humanities and Law). Dr. Gritz is a member of The Academy of Medicine, Engineering and Science of Texas (TAMEST) and sits on the Board of Directors. From 2002-2008, Dr. Gritz served on the Board of Directors of the American Legacy Foundation, the large, non-profit public health foundation established in 1998 as part of the Master Settlement Agreement, and was vice-chair of the board (2005-2008). Dr. Gritz was president of the Society for Research on Nicotine and Tobacco (2006-2007), and president of the American Society of Preventive Oncology (ASPO) (1993-1995).

Dr. Gritz has received numerous honors, including the American Society of Preventive Oncology's (ASPO) Joseph W. Cullen Memorial Award for outstanding research in smoking, ASPO's Distinguished Achievement Award, and MD Anderson's Margaret and James A. Elkins, Jr. Faculty Achievement Award in Cancer Prevention. Dr. Gritz was the 2008 recipient of both the Alma Dea Morani Renaissance Woman Award, which honors an outstanding physician or scientist, and the Society of Behavioral Medicine, Cancer Special Interest Group's Outstanding Biobehavioral Oncology Award. She was the 2009 recipient of the Distinguished Professional Woman's Award, presented by UT Health Science Center at Houston. She received the Angel Award from the Be An Angel Fund in 2011.

Dr. Gritz is a fellow of the Society of Behavioral Medicine and the American Psychological Association, and is senior editor for Behavioral Sciences of the journal, *Cancer Epidemiology, Biomarkers, and Prevention.* She has more than 278 publications to her credit, including numerous journal articles, books, book chapters, and teaching aids. Dr. Gritz holds a Ph.D. in psychology from the University of California at San Diego.

Publications

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Lovell Jones, Ph.D.

Lovell Jones, Ph.D., is a professor in the Department of Health Disparities Research and Director of the joint UT MD Anderson Cancer Center/University of Houston Dorothy I. Height Center for Health Equity & Evaluation Research.

Dr. Jones has more than 35 years of experience in addressing minority health and the health of the underserved. As a scientist, he has also done extensive research into the relationship between hormones, diet and endocrine responsive tumors and has presented his work both nationally and internationally. He has edited one of the few comprehensive textbooks on this subject: Minorities & Cancer. Dr. Jones has either chaired or co-chaired numerous major events regarding the underserved and cancers, including the American Cancer Society South Central U.S. Regional Hearings on Cancer and the Poor and the 1st National African Cancer Education meeting in Abuja, Nigeria. Dr. Jones is co-author of the congressional resolution designating the third full week in April as "National Minority Cancer Awareness Week." For his work, the NIH/National Center on Minority Health and Health Disparities was awarded him its Director's Award for Excellence in Health Disparities. Dr. Jones has also received the Ruth Kirschstein Diversity in Science Award and was selected as one of the top African American Scientist in America by the National Science Foundation "The HistoryMakers".

Dr. Jones' research work also involves determining the mechanism by which natural and environmental estrogenic agents may initiate cancers in hormonally responsive tissue. He has served as the PI on a number of NIH grants, including "The Women's Health Eating and Living Study", an NCI grant studying the role of diet on prevention recurrence of second primaries in breast cancer survivors. The other grant was awarded was the Centers of Excellence for Community Partnership, Outreach, Research & Training from the National Center on Minority Health & Health Disparities and the Centers for Medicare and Medicaid Cancer Prevention and Treatment Demonstration grant titled: " Facilitated Assistance, Research, & Outreach Services".

In January 2000, Dr. Jones was named the first director of the congressionally mandated Center for Research on Minority Health (CRMH), a multidisciplinary center which aims to a) foster research that addresses the causes of health disparities and translates scientific results back to the communities affected by those disparities; b) encourage minority students to pursue careers in the biomedical sciences; and c) increase recruitment and retention of minority and medically underserved populations into clinical trials. Dr. Jones received his Ph.D. from the University of California, Berkeley.

Publications

1. **Jones LA**, King DW. 1–4 Serum Sex Steroids in Premenopausal Women and Breast Cancer Risk Within the European Prospective Investigation Into Cancer and Nutrition (EPIC). Breast Diseases: A Year Book Quarterly 17(1):35-36, 4/2006.

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David W. Wetter, Ph.D.

David W. Wetter, Ph.D., is the Cullen Trust for Health Care Chair in the Department of Health Disparities Research at the University of Texas MD Anderson Cancer Center. His work is targeted at eliminating disparities in health-related behavior through translational research. Specific research foci include: theoretical models of addictive and cancer risk behaviors; the development and evaluation of theoretically-based interventions; and translational research to implement and disseminate those interventions in real world settings.

In the last five years, Dr. Wetter has mentored 10 postdoctoral fellows, 8 of whom are now faculty members. During that same time period, his fellows won 3 institution-wide awards and 2 divisional awards for outstanding research accomplishments, and 6 current mentees have NIH or ACS funded career development awards. He was the inaugural winner of the Leading Mentor in Cancer Prevention at MD Anderson and winner of the Robert M. Chamberlain Outstanding Mentor Award.

His has held a wide variety of leadership responsibilities at MD Anderson, including Chair of the Department of Health Disparities Research, Director of the Center for Community-Engaged Translational Research, Director of the Minority and Women Clinical Trials Recruitment Program, Director of the Tobacco Disparities Training Program, Associate Director for Health Disparities Research for the Cancer Center Support Grant, and as a member of the Duncan Family Institute Executive Committee.

His professional service includes serving as chair of the Community Level Health Promotion study section at the National Institutes of Health, contributing to the 2000 Report of the Surgeon General on Reducing Tobacco Use, member of the editorial board for Health Psychology, scientific consultant for two U.S. Public Health Service tobacco treatment guidelines, program chair for two annual meetings of the Society for Research on Nicotine and Tobacco, chair of the Cancer Forum of the American Public Health Association, and invited participant in numerous NIH workgroups.

He has an extensive NIH-funded grant portfolio and over 130 peer-reviewed publications. His research program has received awards from the Society of Behavioral Medicine, American Society for Preventive Oncology, the Health Psychology Division of the American Psychological Association, and MD Anderson. Dr. Wetter earned his Ph.D. in Clinical Psychology and a M.S. in Epidemiology from the University of Wisconsin – Madison. He has a joint appointment in the Department of Behavioral Science at MD Anderson and an adjunct appointment at The University of Texas School of Public Health.

Publications

1. Kendzor DE, Businelle MS, Costello TJ, Castro Y, Reitzel LR, Cofta-Woerpel LM, Li Y, Mazas CA, Vidrine JI, Cinciripini PM, Greisinger AJ, **Wetter DW**. Financial strain and smoking cessation among racially/ethnically diverse smokers. Am J Public Health 100(4):702-706, 2010.

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Xifeng Wu, M.D., Ph.D.

Xifeng Wu, M.D., Ph.D., is a Professor and Chair of the Department of Epidemiology, Director of the Center of Translational and Public Health Genomics, and Epidemiology Program Leader for the Cancer Center Support Grant at MD Anderson. She also holds the endowed Betty B. Marcus Chair in Cancer Prevention. She earned her medical degree from Shanghai Medical University in 1984 and her Ph.D. from The University of Texas School of Public Health in 1994.

Dr. Wu's multifaceted, highly interactive and multidisciplinary molecular epidemiology program bridges field epidemiology, laboratory study and clinical research. Her team has developed or adapted an array of phenotypic and genotypic assays to identify, study, and validate inherited susceptibility biomarkers for cancer risk assessment and clinical outcome prediction. Her vision is to incorporate epidemiological, clinical and genetic information to develop personalized risk prediction models for cancer etiology, prevention, clinical outcomes, and survivorship. She constructed the first risk prediction model for bladder cancer, and most recently published a hepatocellular carcinoma risk prediction model that can be used for the general population.

Dr. Wu is a highly productive cancer epidemiologist with more than 281 publications, many in highly acclaimed journals. She consistently maintains a high level of funding from the NCI, holds a CPRIT grant, and is co-Director of or leads projects on four SPORES. Dr. Wu supervises a 44-member research team and serves as mentor or advisor for several junior faculty, pre-and post-doctoral trainees, and clinical fellows, many of whom have received prestigious awards from both inside and outside of the institution.

Dr. Wu has received many awards, including MD Anderson's Faculty Scholar Award, The University of Texas Ashbel Smith Professorship, the Margaret and James A. Elkins Jr. Faculty Achievement Award in Cancer Prevention, the Julie and Ben Rogers Award for Excellence in Research, and the Robert M. Chamberlain Distinguished Mentor Award. She is frequently invited to present at workshops, deliver lectures and seminars, and chair conference sessions. She serves on study sections including NCI and the American Cancer Society, and is the current Chair of the International Bladder Cancer Consortium, Texas School of Public Health.

Publications

1. **Wu X**, Lin J, Grossman HB, Huang M, Gu J, Etzel CJ, Amos CI, Dinney CP, Spitz MR. Projecting individualized probabilities of developing bladder cancer in white individuals. J Clin Oncol. 25(31):4974-81, 2007.

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Dr. Zhao's research focuses on the influence of genetic factors as well as gene, environment, and behavior interactions in the context of human cancers and other chronic diseases. He is particularly interested in carrying out research in underserved populations. As the co-Director of Mexican American Cohort, Dr. Zhao is interested in studying obesity, physical inactivity, and cancer outcomes in Mexican Americans. He is particularly interested in conducting exercise and dietary based interventions to reduce cancer risk and improve cancer outcomes. He is also interested in studying obesity and energy-balance - related biomarkers which can not only assess the intervention efficacy, but also provide targets for future molecular-tailored interventions. Dr. Zhao is also interested in how psychological stress might affect the health of Mexican Americans.

Dr. Zhao is a very productive cancer epidemiologist with more than 40 publications in highly acclaimed journals. He is the principal investigator of several studies funded by the NIH and the Department of Defense and a collaborator on many other projects.

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Jennifer Tektiridis, M.S., C.P.A.

Jennifer H. Tektiridis, M.S., C.P.A., is the Executive Director, Research Planning and Development in the Division of Cancer Prevention and Population Sciences at The University of Texas MD Anderson Cancer Center. In this role, she is responsible for leading the development and implementation of division research initiatives with a focus on programs of the Duncan Family Institute for Cancer Prevention and Risk Assessment, including its Integrative Health clinical services program. She is engaged with MD Anderson's cancer control initiatives as a member of the Cancer Prevention and Control Platform and as a past co-leader of the Energy Balance Comprehensive Cancer Control Workgroup.

Prior to her current role, Ms. Tektiridis was the administrative leader for the NCI-funded Cancer Center Support Grant, which supports 19 research programs and 24 core laboratory resources, and was renewed with a 15% increase in funding, for a five-year total of more than $52.7 million, following an "Outstanding" peer review rating. She was recognized as a 2008 finalist for the Rogers Award for Excellence in Research.

Ms. Tektiridis joined MD Anderson in 2002 as the first Executive Director for the Gulf Coast Consortia, responsible for developing and administering this six-institution collaborative's interdisciplinary bioscience research and training programs. Prior to joining MD Anderson, she held various executive leadership positions with responsibility for business operations, information technology and quality management functions in organizations ranging from a laboratory supplies distributor to a retail energy start-up. She spent several years with a major consulting firm, providing process and IT planning and implementation expertise to companies in consumer and commercial service industries.

Ms. Tektiridis earned her B.S. in Geology and Spanish from Dickinson College, an M.S. degree in Business with a concentration in Accounting from Rollins College and has been admitted to candidacy in the Ph.D. program in Health Management at The UT School of Public Health - Houston campus. She is a State of Texas licensed C.P.A.

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1. Zhao, H, **Tektiridis, J**, et al. "Cancer Prevention Health Services Research: An Emerging Field." Journal of Cancer Education 27(0): 149-156, 2012.

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3. Denton, KA., Smith, CR, Scroggs, S, and **Tektiridis, JH**, "A Lean Survivorship Program" UT MD Anderson Cancer Center Clinical Safety & Effectiveness Program, July 2011 (recognized with a Gold award).

4. "Cancer Prevention and Health Services Research Future Directions," (co-author), poster for the American Society of Preventive Oncology Annual Meeting, Washington, DC, 2010.

5. "Collaboration – Challenges and Opportunities," (co-presenter), Research Centers in Minority Institutions Annual Conference, Houston, TX, 2005.

6. "The Gulf Coast Consortia," poster for the National Academies Convocation on Facilitating Interdisciplinary Research, Washington, D.C., 2004.

7. "Total Quality Management – Tools and Techniques," Workshop Co-facilitator, Pre-conference Workshop, Clinical Laboratory Management Association – National Conference, 1993.

8. "The Team Approach to Quality Improvement" Tech Sample – Management and Education No. MGM-4, American Society of Clinical Pathologists (co-author), 1993.

9. Total Quality Management in Environmental Laboratories – Module 1 and 2 (Curtin Matheson Scientific, Inc., internal publication), 1991.

10. Total Quality Management in Healthcare – Module 1 and 2 (Curtin Matheson Scientific, Inc., internal publication), 1990.

LOCATION

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