



RESEARCH for
cure
National Foundation
for Cancer Research
2016 Annual Report

MISSION STATEMENT

The National Foundation for Cancer Research (NFCR) was founded in 1973 to support cancer research and public education relating to prevention, early diagnosis, better treatments and ultimately, a cure for cancer. NFCR promotes and facilitates collaboration among scientists to accelerate the pace of discovery from bench to bedside. NFCR is about Research for a Cure — cures for *all* types of cancer.

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RESEARCH CURES CANCER

Dear Friends of NFCR,

Throughout the past 44 years, the National Foundation for Cancer Research has funded scientific discoveries and medical breakthroughs that have revolutionized the way doctors diagnose and treat cancer. NFCR serves as a catalyst for the discovery of successful new approaches to diagnose and treat all types of cancer.

Innovation is deeply embedded in all that our scientists are able to accomplish in their laboratories. Our focus has always been to provide scientists with what they call “adventure funding”— the early laboratory support used to discover and incubate novel ideas in support of research that will cure cancer. Since our founding by Nobel Laureate Dr. Albert Szent-Györgyi, NFCR is widely recognized for its vision and success in supporting high-risk/high-reward cancer research.

But research is more than just funding discoveries.

NFCR strives to shorten the time between laboratory discoveries and making new treatment options available to patients. As you will see in the following pages, NFCR-funded scientists are pioneering new approaches to preventing, diagnosing and treating all types of cancer using genomics, immunotherapy, precision medicine, anti-angiogenic therapies and more.

NFCR is focusing on the connections between basic and clinical research—giving more reasons for hope in the progress being made against cancer. By bringing smarter, more effective treatments into the clinic, more cures can be delivered and patients’ lives saved. This is **Research** for a **Cure**.

Thank you for your support,

Franklin C. Salisbury, Jr.
Chief Executive Officer

A close-up, profile view of a man with a beard and mustache, wearing a white lab coat over a blue shirt and a patterned tie. He is looking through the eyepiece of a black and white microscope. The background is slightly blurred, showing a laboratory environment with a computer monitor displaying a purple and white image. The text is overlaid on the top left of the image.

CANCER TERMINATOR VIRUS

Newly Engineered Immunotherapy for ALL Types of Cancer

A brave new world is emerging in the fight against cancer. After decades of research, we are on the cusp of delivering new therapeutic breakthroughs that kill or stop the growth of cancer. What was once heralded as a medical dream, harnessing the immune system to fight cancer is now becoming a reality. At the forefront of this reality is an approach that uses therapeutic viruses developed by NCFR-funded scientist **Paul B. Fisher, M.Ph, Ph.D.** at the Virginia Commonwealth University, School of Medicine, VCU Institute of Molecular Medicine and the VCU Massey Cancer Center. These therapeutic viruses are known as Cancer Terminator Viruses (*CTV*), and hold tremendous promise that we can effectively treat and destroy cancer without harmful side effects in the very near future.

Cancer Terminator Viruses: A One-Two Punch Against Cancer

CTV is a new approach to treating cancer. Like all viruses, CTVs infect and replicate in our body's cells, eventually destroying the host cells. What makes this virus different is that Dr. Fisher has genetically re-programmed it to replicate only in cancer cells, enabling the destruction of cancer cells without harming normal cells or tissues.

In addition, CTVs simultaneously produce tumor-killing molecules known as cytokines. Cytokines are small, secreted proteins that play important roles in cell signaling and modulating the immune system. In principle, Dr. Fisher's CTVs can produce any cytokine to help fight cancer. The current versions are capable of producing one of two types of cytokines: interferon gamma (IFN- γ) or interleukin-24 (MDA-7/IL-24). IFN- γ promotes and energizes the immune system to seek and destroy cancer cells — including those that have metastasized. And MDA-7/IL-24, a molecule discovered by Dr. Fisher, is another powerful immune modulating cytokine that eliminates metastatic tumor cells through selectively inducing apoptosis, or cell suicide, in cancer cells. The MDA-7/IL-24 molecule has displayed significant clinical efficacy in a phase 1 clinical trial when injected directly into advanced cancers. Recent research by Dr. Fisher's team also suggests that MDA-7/IL-24 may even prevent development of cancer including bone metastasis — a painful and often lethal condition that can happen in nearly all types of cancer.

Through extensive laboratory work using multiple human tumor models, Dr. Fisher's team has demonstrated that their "terminator" viruses have the potential to become effective treatments for a wide range of tumors such as prostate, brain, pancreatic, ovarian, breast, liver, skin (melanoma) and colon cancer. The effectiveness of the CTV can be enhanced further by combining it with drugs that target specific molecular pathways in cancer cells — many of which have

New Drug Agent to Treat the Deadliest Brain Cancer

With the support of NFCR, Dr. Paul Fisher and Dr. Webster Cavenee, Chairman of NFCR's Scientific Advisory Board, have discovered a new drug agent to treat glioblastoma multiforme (GBM), the most common and deadly form of brain cancer. Developed using a small molecule known as PDZ1i which targets MDA-9/Syntenin, a gene previously discovered by Dr. Fisher, this new pharmacological agent could — with additional chemistry — lead to a new drug to prevent radiation-induced invasion of GBM cells into normal healthy tissue. The team has tested their pharmacological agent in combination with radiation, with profound survival benefits in pre-clinical models.

now entered the clinic. This broadens the applications of the CTV for cancer therapy, since it permits combinatorial use with current therapeutics, significantly augmenting their anticancer activity.


Theranostics: A New Generation of CTV That Sees, Follows and Destroys Tumors

Dr. Fisher continues to make important advances in his research to develop more effective viral-based therapies for cancer. His research has now resulted in a next generation cancer terminator virus — the Tripartite Cancer Theranostic (TCT) virus. TCT treats local and metastatic cancers by both targeting the cancer cells and stimulating the immune system. What's more, these viruses are equipped with an agent that images the cancer, which allows simultaneous, non-invasive monitoring of therapeutic responses against cancer by making the virus visible with advanced imaging approaches such as BLI (bioluminescence imaging) and SPECT (Single-Photon Emission Computed Tomography). The dual functions of these "theranostic" viruses have been demonstrated using experimental models for human prostate and breast cancer. Additionally, these imaging improvements and combinations may also lead to earlier detection and treatment for cancer metastases originating from prostate cancer and other cancer types as well.

Next: Viral Delivery – Another Major Hurdle to Overcome

Our immune system is very efficient at fighting off intruders such as bacteria and viruses. Finding a way to deliver the Cancer Terminator Virus while avoiding the body's natural surveillance system is a major hurdle facing virotherapies. In addition, after multiple deliveries into a patient's bloodstream, therapeutic viruses frequently become trapped in the liver or become deactivated and eliminated by the patient's immune system. Dr. Fisher's team has created a number of innovative approaches to overcome this hurdle, and is now determining the best way to deliver CTVs so they better target the patient's cancer. One approach uses microbubbles and ultrasound to target viral and therapeutic protein delivery directly to the tumor and its surrounding blood vessels in a "stealth" manner that avoids trapping and clearing of the virus. A newer version of this approach uses specific molecules to coat the surface of the microbubbles, "decorated microbubbles", to enhance further delivery of therapeutic viruses and proteins directly to the tumor and its microenvironment.

From laboratory discovery to clinical testing to improved treatments for cancer patients, Dr. Fisher's research is delivering new hope to patients with cancer. NFCR has been supporting Dr. Fisher's pioneering and transformative research since 2008. His innovative research is what NFCR is about: **Research for a Cure.**

A conceptual image featuring a hand holding a glowing DNA double helix structure. The DNA is rendered in a blue and white pixelated style, with a bright yellow and orange glow emanating from the base where the hand is holding it. The background is a soft, out-of-focus blue.

RESEARCH HIGHLIGHTS OF NFCR-FUNDED SCIENTISTS

For more than 40 years, NFCR has provided outstanding researchers with the vital seed funding they need to pursue the next advancement in cancer research. NFCR is committed to fostering scientific creativity, investing in basic research, and helping scientists translate these promising cancer discoveries into cures.

From life-saving breakthroughs in immunotherapy to advances in metastasis research, cancer genetics, precision medicine, anti-angiogenic therapies and more, NFCR-funded scientists have led the way into a new era of cancer prevention, detection and treatment.

This is what NFCR means by ***Research*** for a **Cure**.

TARGETED CANCER THERAPIES



Daniel Von Hoff, M.D. and Laurence Hurley, Ph.D.

*NFCR Center for Targeted Cancer Therapies
Translational Genomics Research Institute, Phoenix, AZ
Research Focus: Personalized Treatments and Genomics*

At the NFCR Center for Targeted Cancer Therapies, Co-Directors Dr. Daniel Von Hoff and Dr. Laurence Hurley have been working together on a genetic structure-based approach to drug design. By combining Dr. Hurley's medicinal chemistry research with Dr. Von Hoff's clinical oncology program in cancer therapeutics, they've become a dynamic duo, pioneering new approaches to attack the so-called "undruggable" targets present in many tumors. They have identified multiple new compounds that selectively kill pancreatic cancer cells with mutations in the cancer-causing *K-ras* gene — which are present in more than 90% of pancreatic tumors. The leading compounds are being further developed for possible clinical translation.

The team at the Center has also been working on an entirely new approach to treating cancer by developing G-quadruplex drugs that block newly-recognized genetic structures called "super enhancers." These large clusters of DNA regulatory elements control the expression of a host of genes — including the critical cancer gene *c-Myc* — and offer a great opportunity for cancer disruption. This new approach may lead to improved treatments for many cancers, including lung cancer, pancreatic cancer, lymphoma, multiple myeloma and colorectal cancer.



COMBATING METASTASIS

Danny Welch, Ph.D.

*NFCR Center for Metastasis Research
University of Kansas Cancer Center, Kansas City, KS
Research Focus: Cancer Metastasis*

Metastatic cancer (any cancer that has spread from the area of its original site to other areas of the body) is responsible for 90% of all cancer-related deaths. Dr. Danny Welch has devoted his career to finding out what causes cancer to metastasize — and how the spread of cancer can be prevented or predicted. One area of focus is to understand how KISS1 proteins suppress metastasis so they can design molecules that mimic the proteins and either prevent metastasis from happening or maintain metastatic tumors in a dormant state. They have also identified genetic changes that predict whether patients will or will not develop metastasis. At least some of these changes occur in mitochondrial DNA, which is present in every cell and small enough to be rapidly analyzed. These results could mean that a simple blood draw and analysis of mitochondrial DNA could help doctors guide their strategy to treat patients.



PREVENTION & EARLY DETECTION

Helmut Sies, M.D.

Heinrich-Heine-Universität, Düsseldorf, Germany
Research Focus: Nutrition and Cancer Prevention

Dr. Helmut Sies has spent his career studying the role of micronutrients in cancer prevention, specifically focused on carotenoids and flavonoids. Much of his research has become the basis for many of today's nutritional strategies against cancer, cardiovascular disease and aging. Dr. Sies' recent research has been focused on selenium, a trace metal found in foods such as certain nuts, seafood and organ meats that is essential for good health. Selenium is required to repair oxidative damage in key antioxidant enzymes called seleno proteins. Dr. Sies discovered that not only are seleno proteins strongly decreased in colon cancer tumor cells, but they are also strongly expressed by immune cells in the stomach and gastro-intestinal tract. Moreover, he found that dietary selenium compounds stimulate colon cells to produce seleno proteins, which means that ingested foods could provide a potential mechanism for how selenium supports immune health and cancer prevention.



Robert Bast, M.D.

MD Anderson Cancer Center, Houston, TX
Research Focus: Early Detection of Ovarian Cancer

Ovarian cancer is a notorious “silent killer” with only about 15 percent of cases being diagnosed at an early stage. There is currently no reliable routine screening for ovarian cancer and symptoms often mimic common digestive issues, making misdiagnosis a common problem. Dr. Robert Bast and his team are working to identify the best combination of biomarkers that can be used together to produce the most sensitive signal possible for early detection of ovarian cancer. In addition, the team is employing a highly sensitive imaging technology called a Superconducting Quantum Interfering Device (SQUID). This device aims to improve the sensitivity to detect tiny, early-stage tumors over existing techniques, such as CT scans, MRIs and PET-CTs. Using more specific and sensitive biomarkers, in conjunction with the SQUID technology, could greatly increase early detection and diagnosis of ovarian tumors.



James Basilion, Ph.D.

*NFCR Center for Molecular Imaging
Case Western Reserve University, Cleveland, OH
Research Focus: Highly Sensitive Molecular Imaging for
Early Detection of Cancer*

Dr. James Basilion and his team at the NFCR Center for Molecular Imaging are developing new tools that can truly change the way doctors are looking at cancer. One newly-designed molecular probe allows researchers to view multiple molecular biomarkers simultaneously and see a tumor's genetic structure in real time. This visualization allows for very early detection of tiny tumors that can greatly improve treatment outcomes. Center researchers are now adapting another imaging probe used with a PET scan for early detection of liver cancer. Currently, there are detection limits with current clinical tests and the PMSA probe would fill the gap. Promising preliminary results show that the PMSA probe may also be used to concentrate the radioactivity in a tumor to destroy it, offering a potential new treatment for patients with liver cancer.

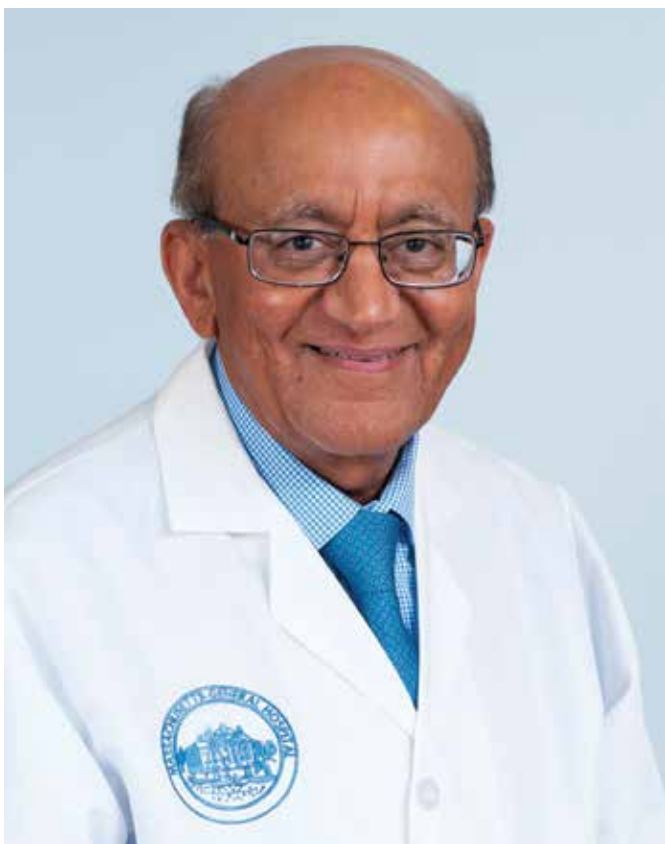


Paul Schimmel, Ph.D.

*The Scripps Research Institute, San Diego, CA
Research Focus: New Avenues for Cancer Treatment*

One of the most fundamental questions facing scientists today is how seemingly normal cells become cancerous. To better understand how this happens, Dr. Paul Schimmel has dedicated more than 40 years to examining the intricate functions of molecular biology. His laboratory identified the operational RNA code for amino acids, known as aminoacyl tRNA synthetases, which are essential for all forms of life and establish the rules of genetic code. Recently, they discovered that one type of tRNA synthetase—TyrRS—plays an important role in platelet production and maintenance. Platelets, the tiny blood cells responsible for forming blood clots, are often damaged during chemotherapy and can cause dangerous bleeding disorders. Dr. Schimmel's team is currently developing a TyrRS-based treatment that corrects this damaging side effect. His laboratory has also been making strides in cancer prevention. They have found that resveratrol, a natural ingredient found in foods including cacao and grape skins, may have potent preventative effects when combined with tRNA synthetases and a key protein—PARP-1.

ANGIOGENESIS



Rakesh Jain, Ph.D.

Massachusetts General Hospital, Boston, MA
Research Focus: Redefining Anti-Angiogenic Therapy for Brain Cancer

Dr. Rakesh Jain is a leader in the field of tumor biology — specifically in anti-angiogenic therapy, which looks at inhibiting certain types of blood vessel formation. Dr. Jain has been studying the role angiogenesis plays in glioblastoma multiforme (GBM), the deadliest form of brain cancer. Dr. Jain's research is helping doctors better customize the use of anti-angiogenic therapies by identifying the characteristics that cause resistance for GBM patients. Dr. Jain and his team have identified molecular resistance pathways that may direct the development of new drugs that target these pathways and could extend the benefits of anti-angiogenic therapies for patients. Since GBM invades healthy tissues near the tumor, Dr. Jain is currently testing inhibitors that could prevent invasion. Dr. Jain is identifying genes and pathways that facilitate vessel co-option — a process by which cancer cells migrate through and around nearby healthy tissue — in order to prevent invasion and improve GBM therapies.

Harold Dvorak, M.D.

Beth Israel Deaconess Medical Center, Boston, MA
Research Focus: Advancing Anti-Vascular Therapy

Dr. Harold Dvorak discovered that tumor cells secrete a vascular endothelial growth factor (VEGF), and this seminal discovery provided the molecular basis for the field of angiogenesis (meaning “blood vessel formation”). Angiogenesis makes it possible for tumors to grow and spread, and Dr. Dvorak's discovery helped pave the way for research on anti-angiogenesis treatments that can halt and even reverse tumor growth. Dr. Dvorak's recent research projects have led to the identification and characterization of at least six different kinds of blood vessels in tumors. While current anti-angiogenic therapies primarily act against only one of them, his research group has already discovered new therapeutic targets on the other five vessel types. They are aiming to improve the effectiveness of anti-angiogenic therapy by attacking the entire tumor environment, providing opportunities for new types of anti-cancer treatments.



INNOVATIVE THERAPIES

Yung-Chi Cheng, Ph.D.

Yale University School of Medicine, New Haven, CT
Research Focus: Using Traditional Chinese Medicine to Treat Cancer

While the therapeutic benefits of Traditional Chinese Medicine (TCM) have been recognized anecdotally for centuries, they have often been discounted as “alternative therapies” because there was little scientific proof of effectiveness. Dr. Yung-Chi Cheng’s laboratory is working to bring TCM into mainstream Western medicine, with hopes of reducing the side effects of chemotherapy, while enhancing the benefits.

Since the late 1990s, Dr. Cheng’s team has been exploring the therapeutic properties of PHY906, a Chinese herbal medicine formula. They have discovered that cancer treatment with PHY906, combined with chemotherapy, alleviates the unpleasant gastrointestinal side effects of chemotherapy for colon, rectal, pancreatic and liver cancer patients. Moreover, their research demonstrated that PHY906 also has its own, solo anti-tumor attributes. If there is continued success in three ongoing clinical trials, PHY906 could become one of the first FDA-approved oral herbal medicines for anti-cancer treatment. Dr. Cheng and his team are also evaluating other TCM herbal formulas that could be part of a new class of drugs. Additionally, the team is exploring the use of anti-viral drugs in preventing or delaying the onset of viruses such as Hepatitis B and C and HIV that can lead to liver and other cancers.



Curt Civin, M.D.

University of Maryland School of Medicine, Baltimore, MD
Research Focus: Repurposing Drugs to Advance Leukemia Treatment

Leukemia is a great success story for cancer research — one in which Dr. Curt Civin played an important role. His early work on bone marrow stem cell transplantation was partially responsible for the dramatic increase in the five-year survival for all types of leukemia over the past 20 years. For patients still suffering from certain leukemias that are difficult to treat and waiting for a cure, Dr. Civin’s current research may once again hold the key. Acute myeloid leukemia (AML) is the deadliest form of leukemia, and Dr. Civin recently discovered that artemisinins — a class of drugs with low toxicity used to successfully treat malaria — are also effective in killing AML cancer cells. Through research, he identified ART-838, a specific artemisinin compound that shows remarkable preliminary effectiveness against leukemia cells and works well in combination with established anti-leukemia drugs. In addition, the compound can be given orally and stays active in the bloodstream for a long time. Plus, it doesn’t appear to harm normal bone marrow cells, so it may prove to be an effective new treatment for AML patients.

GENOMICS



Daniel Haber, M.D., Ph.D.

Massachusetts General Hospital Cancer Center, Boston, MA
Research Focus: Circulating Tumor Cells

Dr. Daniel Haber's laboratory focuses on understanding the genetic abnormalities of cancer – from inherited mutations (with familial predisposition) to mutations that are acquired by tumors themselves – and the research aims to guide targeted drug therapies. Circulating tumor cells (CTCs) are tumor cells that have become detached from the primary tumor and enter blood circulation. Recently, Dr. Haber and his team found that cultured CTCs from women with advanced breast cancer can switch on and off the expression of a key tumor promoting gene *HER2*, which makes them resistant to many drugs. The research suggests that drugs combatting both gene expression states should be delivered simultaneously to effectively treat advanced breast cancer. The team is now developing technology to enable laboratory cultures of CTCs from patients with metastatic lung cancer, melanoma and other types of cancer. Success in this endeavor would open a new path toward predictive drug sensitivity and allow doctors to prescribe the most effective individualized regimen from the outset of treatment.

In another effort, Dr. Haber and his team linked EGFR mutations to lung cancer, making it possible to identify patients who will respond well to certain cancer-fighting drugs that block EGFR mutations. In July 2016, the FDA approved the drug Iressa® as a front-line treatment for patients with these specific tumor mutations that Dr. Haber identified.

Brian Leyland-Jones, M.B., B.S., Ph.D.

The Darwin Foundation, Sioux Falls, SD
Research Focus: Biomarker Profiling and Validation

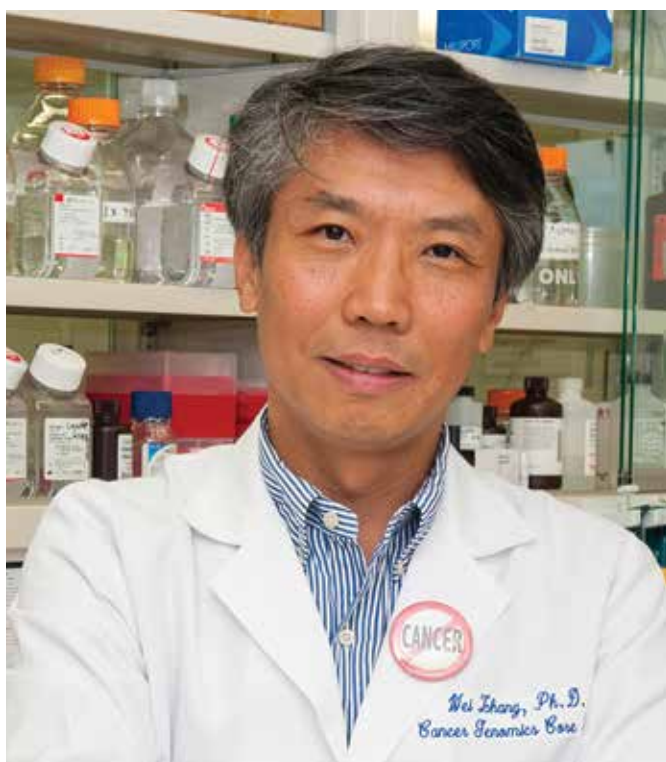
Dr. Brian Leyland-Jones is best known for leading major changes in breast cancer clinical trials and treatments, as well as his ongoing focus on how genomics play a vital role in the fight against breast cancer. Throughout his career, he helped develop drugs that are now mainstays of oncologic breast cancer treatment (such as the anthracycline, antimetabolite and platin families), as well as the targeted therapies trastuzumab (Herceptin®) and bevacizumab (Avastin®). Currently led by Dr. Leyland-Jones, the Darwin Foundation — a subsidiary of NCFR, formerly known as the Consortium for Clinical Diagnostics — provides centralized infrastructure and expertise in genomics and molecular imaging as well as translational medicine. The Darwin Foundation can identify and validate disease genes and genetic signatures, and allow for the development of medical response tests as well as new and improved diagnostic tests — especially in the area of cancer.



W. K. Alfred Yung, M.D.

University of Texas MD Anderson Cancer Center, Houston, TX
Research Focus: Identifying New Targets for GBM

Dr. Alfred Yung and his team study treatment options for patients with glioblastoma multiforme (GBM) — the most deadly type of brain cancer, with a mere 14.6 month average lifespan after diagnosis. Dr. Yung, who is on the Blue Ribbon Panel of experts selected to advise the National Cancer Moonshot Initiative being led by former Vice President Joe Biden, is focused on drugs that target a gene called PI3K. The gene is a key factor in about 30% of GBM cases. His team collects glioma stem cells (GSCs) from GBM patients and develops a special panel of cell lines to investigate patterns of resistance to PI3K inhibitors. The researchers are determining the molecular profile of these GSCs to identify potential targets for drug development. Results from the PI3K studies show that the molecular profile of GSCs contain increased levels of Wee-1, a protein that controls cell division and growth. Following these results, the team combined a PI3K inhibitor with a Wee-1 inhibitor and found there was a greater inhibition of cell growth and that cancer cells were induced into “cell suicide”. In addition, when the team tested the same inhibitors on complex GBM tumor models, they discovered similar benefits. These findings reveal molecular targets and designs for combination therapies that could lead to new treatments for GBM patients.

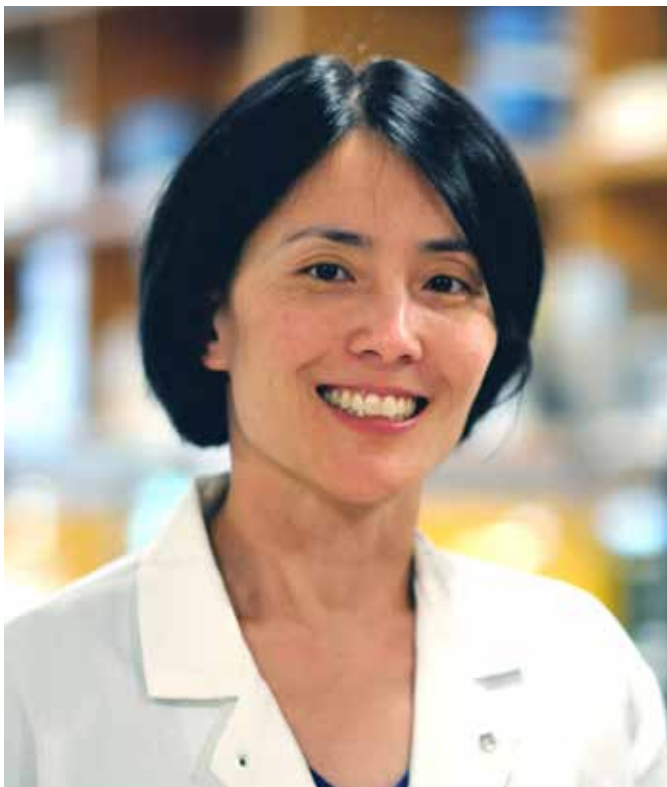


Wei Zhang, Ph.D.

Wake Forest Baptist Medical Center, Winston-Salem, NC
Research Focus: Cancer Genomics and Personalized Medicine

Dr. Wei Zhang has devoted his entire career to the pursuit of precision oncology — specifically the key molecular and genomic events that drive the development and progression of cancer. During the past 18 years, Dr. Zhang and his team have identified multiple novel cancer markers and oncogenic signaling molecules. These molecules are under extensive investigation to see how well they can predict the outcomes for stage IV colorectal cancer patients. Dr. Zhang has also been using microRNA molecules to make cancer cells more receptive to treatment. His research is uncovering defects in a *BRCA2* gene that might sensitize gastric cancer to chemotherapy. Collaborating with an international team of scientists from the U.S. and China, the team is looking to discover a key factor that may explain drug resistance in glioblastoma multiforme (GBM), the deadliest form of brain cancer. These findings could give oncologists new diagnostic tools to improve disease management and patient survival.

OVERCOMING DRUG RESISTANCE



Alice Shaw, M.D., Ph.D.

Massachusetts General Hospital, Boston, MA
Research Focus: Fighting Drug Resistance and Metastasis in Lung Cancer

Since 2014, Dr. Alice Shaw has been leading several clinical trials and translational efforts aimed at overcoming drug resistance for patients with non-small cell lung cancer that have mutations in the *ALK* gene (*ALK*-positive NSCLC). Her latest research focuses on the most common site of metastasis for *ALK*-positive NSCLC — the brain — and looks into why these tumor growths become resistant to the targeted therapy crizotinib (Xalkori®). Her team launched a clinical trial with the newest *ALK* inhibitor — lorlatinib — and they are using both tissue and liquid biopsies to identify genetic alterations that may be driving the resistance. Dr. Shaw is also researching the immune microenvironment and other mutations in tumors which may underlie the low response to the new therapies since the majority of *ALK*-positive NSCLC patients have no smoking history and do not respond to recently-approved immunotherapies like nivolumab (Opdivo®) or pembrolizumab (Keytruda®).

Jin Jen, M.D., Ph.D.

Mayo Clinic, Rochester, MN
Research Focus: Fighting Drug Resistance in Lung Cancer

Dr. Jin Jen and her team of scientists are developing a platform for rapid selection of personalized treatment options for lung cancer patients. They have worked to develop a new approach to treat patients whose *ALK*-positive lung cancer became resistant to crizotinib. The team took tumor biopsies from patients whose *ALK*-positive tumors had recurred and performed a next generation sequencing analysis to look for any new mutations that could be responsible for tumor resistance. Meanwhile, Dr. Jen's team is overcoming technical challenges to develop tumor models using the same patient's biopsies — these models, known as patient derived xenografts (PDX), will be used to test drug candidates and identify the most effective targeted treatments for that patient. This 21st century precision medicine approach allows Dr. Jen to optimize personalized therapy for patients with *ALK*-positive tumors and create individualized prescriptions for each patient based on their unique genetic profile.



Dr. Alice Shaw and Dr. Jin Jen's NFCR-funded research is made possible by

The Hillsberg Lung Cancer Translational Research Grant

Each year, about 8,000 patients in the United States and 40,000 worldwide are diagnosed with *ALK*-positive NSCLC. While patients typically respond well initially to targeted *ALK*-inhibitor therapy, unfortunately, almost all patients eventually develop resistance to these drugs and their disease then progresses.



The lack of clinical development to address this issue caught the attention of **Sanford and Penny Hillsberg**, two long-time supporters of cancer research. They were determined to take action to solve this particular drug resistance problem. The Hillsbergs enlisted NFCR to establish a **donor-initiated research fund** in 2013 to support promising research in this critical field. Their biggest hope is that their partnership with NFCR will help accelerate the clinical development of new and effective treatments for those who have already run out of options for their resistant lung cancer.

If you are interested in establishing a donor-initiated research fund at NFCR, call us at **1-800-321-CURE (2873)**.

IMMUNOTHERAPY

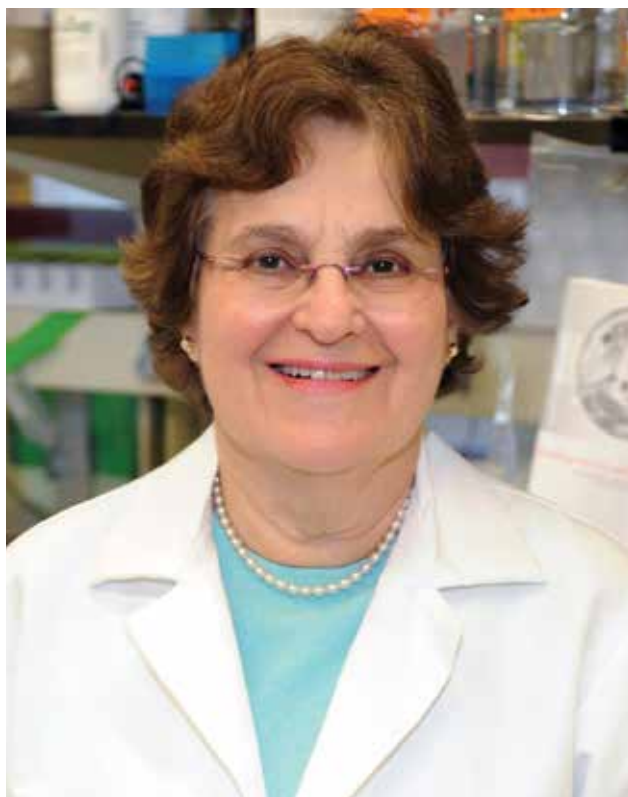


Wayne Marasco, M.D., Ph.D.

*NFCR Center for Therapeutic Antibody Engineering
Dana-Farber Cancer Institute, Boston, MA
Research Focus: Monoclonal Antibody Engineering*

Dr. Wayne Marasco is a world-renowned antibody engineering expert whose work is focused on infectious diseases and cancer immunotherapies. Dr. Marasco's laboratory has developed one of the largest human antibody phage display libraries ever made (with tens of billions of members). Most recently, his team at the NFCR Center for Therapeutic Antibody Engineering developed a combination immunotherapy treatment that holds promise for treating metastatic kidney cancer. The immunotherapy they have engineered not only includes the CAIX antibody that detects and binds to CAIX growth-promoting proteins on cancerous kidney cells, but also unblocks T-cells to enable more rigorous attacks against the cancer. Moreover, this double treatment approach could be adapted to treat advanced colon, breast, brain and other difficult-to-treat cancers using different antibodies.

OVERCOMING DRUG RESISTANCE



Susan Horwitz, Ph.D.

Albert Einstein College of Medicine, New York, NY

Research Focus: Naturally-Derived Hybrid Drug Development to Overcome Drug Resistance

Dr. Susan Horwitz is a molecular pharmacologist who studies how drugs work in the body. Finding new anti-cancer treatments and approaches to stop resistance is Dr. Horwitz's scientific passion. She has been instrumental in the development of Taxol®, an anti-cancer drug derived from the bark of the Pacific Yew tree, now commonly used to treat breast, ovarian and lung cancers. In recent years, Dr. Horwitz's team has been making significant strides in their Taxol drug resistance research. The beta tubulin protein is Taxol's cellular target that Dr. Horwitz discovered. Her team was able to show, for the first time, that Taxol binds less to a subtype of tubulin, which may contribute to drug resistance. Continued investigation in this area may help predict which patients would respond to Taxol and which would not. This would spare those who would not benefit from the drug any unnecessary side effects. With additional support from a special research grant, Dr. Horwitz is also collaborating with NFCR-funded scientist **Dr. Amos Smith** to develop new naturally-derived drugs to overcome taxol resistance in triple negative breast cancer.

Amos Smith III, Ph.D.

University of Pennsylvania, Philadelphia, PA

Research Focus: Microtubule Stabilizing Agents to Treat Brain Cancer and to Overcome Drug Resistance

Dr. Amos Smith's research interests include three diverse scientific areas: natural product synthesis, bioorganic chemistry and materials science. One research focus of his team is developing microtubule stabilizing agents (MSAs) that penetrate the brain and can be taken orally. (*Note: More than 95% of drug molecules are not orally active.*) These agents hold considerable promise for the treatment of brain cancer, specifically the deadliest type of brain cancer — glioblastoma multiforme (GBM). Dr. Smith was the first person to synthesize and enable large-scale production of an MSA called discodermolide — a natural agent that comes from a Caribbean Sea Sponge. Dr. Smith is also collaborating with NFCR-funded scientist **Dr. Susan Horwitz** to develop new hybrid molecules to overcome drug resistance to Taxol®. Initial results with two candidate molecules are very promising. With further development, these new hybrid molecules may turn into improved treatment for triple negative breast cancer, the deadliest form of all breast cancers. Taxol is also widely used for treating patients with ovarian and lung cancer and the new hybrid molecules may help improve treatment for these patients as well.



Collaborative Research Made Possible by Generous Legacy Gift

The collaborative work of Dr. Horwitz and Dr. Smith was made possible by the **NFCR Triple Negative Breast Cancer Research Grant**, established with a generous legacy gift from the Marilyn Hill Estate. Ms. Hill's Estate Trustees — Harriet Naschek, Stefanie Smith and Alan Phillipson — worked extensively with NFCR's Donor Relations team, enabling a new and dynamic research collaboration to find effective treatments for triple negative breast cancer (TNBC), the most lethal type of breast cancer.

"We are truly grateful that NFCR listened so very closely to the background and objectives for this donation," said Trustee Stefanie Smith. "In every possible way, NFCR has been dedicated to making this project truly matter not only today, but as a forward-looking and pivotal example of scientific innovation and collaboration."



From left to right: NFCR Donor Relations Officer Elaine Currie with Stefanie Smith, Dr. Susan Horwitz and Harriet Naschek.

INTERNATIONAL COLLABORATION

GBM AGILE



To take action over one of the world's deadliest diseases, over 150 researchers from more than 40 leading cancer institutions across three continents have joined forces to find cures for glioblastoma multiforme (GBM) by launching the first-ever global, adaptive clinical trial that will revolutionize how brain cancer treatments are tested and developed.

Dubbed GBM AGILE, which stands for Adaptive Global Innovative Learning Environment, this groundbreaking approach will test and develop new brain cancer treatments and will allow doctors and scientists to learn what works and apply those learnings to each patient in real time, ensuring that patients receive the most promising treatments as quickly as possible. As

a founding member and part of the executive steering committee, NFCR plays a key role in continuing to provide much needed funding and is helping to develop and manage the trial protocol.

Former Vice President Joe Biden who lost his son Beau to this deadly brain tumor is an enthusiastic supporter and acknowledges that, with GBM AGILE, patients will have the best chance to treat their disease. GBM AGILE will also serve as a model of global-scale, adaptive clinical trials for accelerated discovery and development of therapies and biomarkers for other cancers, including liver and stomach cancer. For more information, visit nfcr.org/gbm.

SZENT-GYÖRGYI PRIZE PROGRESS IN CANCER RESEARCH



2016 SZENT-GYÖRGYI PRIZE

2016 Szent-Györgyi Prize recipient Mary-Claire King, Ph.D., along with Prize Selection Committee Co-Chair Sujuan Ba, Ph.D., and Committee Chair and 2015 Szent-Györgyi Prize winner Frederick W. Alt, Ph.D.

“Dr. King has been a true pioneer and world leader in the research that clearly demonstrated the genetic causes of breast and ovarian cancers by identifying the BRCA1 gene and its cancer-related mutations.”

– Frederick W. Alt, Ph.D., Director, Program in Cellular and Molecular Medicine at Boston Children’s Hospital

Mary-Claire King, Ph.D., Professor of Medicine (medical genetics) and Genome Sciences from University of Washington, was awarded the 2016 Szent-Györgyi Prize for Progress in Cancer Research. Dr. King’s pioneering research provided the first evidence of genetic predisposition to breast cancer.

NFCR’s selection committee was unanimous in its decision to recognize Dr. King, whose work has proved foundational to the genetic understanding of cancer. In particular, her proof of existence of *BRCA1*, and the identification of its location, made genetic screening for breast and ovarian cancers possible. Dr. King’s discoveries represent a fundamental step in the understanding of cancer and have changed the face of cancer prevention, screening, diagnosis and treatment.

“Dr. King’s work has opened a new field that allows scientists to investigate and understand breast and ovarian cancers and other types of genetic diseases with a much more effective approach,” said Dr. Fred Alt, Director, Program in Cellular and Molecular Medicine at Boston Children’s Hospital, winner of the 2015 Szent-Györgyi Prize and Chair of the 2016 Prize Selection Committee.

Dr. King’s brilliant research has led to the genotype-based breast cancer screening practice that can identify individuals who have inherited mutations in *BRCA1* and give them a chance to take preventive measures at an early stage of their lives.



2016 Szent-Györgyi Prize recipient Mary-Claire King, Ph.D.



Panel discussion (L to R) with Susan Horwitz, Ph.D., Craig Thompson, M.D., Mary-Claire King, Ph.D., Webster Cavenee, Ph.D., and moderator Frederick W. Alt, Ph.D.

“I am honored and proud to be selected by the National Foundation for Cancer Research to receive this prestigious award,” said Dr. King. “The research on *BRCA1* gene demonstrated that genetics plays a critical role in cancer. The benefits brought to women and their families by understanding the role of genetics in cancer have encouraged me to address ever more challenging genetic questions of complex diseases.”

“Dr. King’s work has saved the lives of many people who have higher risk of breast and ovarian cancers than the general population because of the inherited *BRCA1* mutations in their bodies,” said Sujuan Ba, Ph.D., Co-Chair of the 2016 Szent-Györgyi Prize Selection Committee and President of NFCR. “Thanks to Dr. King’s research, genetic screening methods are now available to identify people at high risk and preventive and therapeutic approaches have been developed to treat breast and ovarian cancer more effectively.”

The award ceremony was hosted at the National Press Club in Washington, D.C. on May 2, 2016. A packed room of scientists, past Szent-Györgyi Prize winners, NFCR donors and supporters gathered together to congratulate Dr. King on her remarkable achievements and winning of the Prize for 2016. The audience also enjoyed an insightful roundtable discussion moderated by Dr. Alt. The panel featured Dr. Webster Cavenee (University of California, San Diego), Dr. Susan Horwitz (Albert Einstein College of Medicine), Dr. Craig Thompson (Memorial Sloan Kettering Cancer Center), and Dr. King discussing the latest updates of their respective work and future direction of cancer research.

2016 FUNDRAISING EVENTS



Play4TheCure

In 2016, *Play4TheCure* continued to be a major fundraising platform, utilizing youth sports to help raise awareness and funds in support of cancer research. This year, NFCR partnered with more than 350 teams across 10 different sports and raised more than \$260,000.

- In alliance with the National FastPitch Coaches Association's "Strikeout Cancer" initiative, *Play4TheCure* softball teams raised more than \$14,000.
- *Play4TheCure*'s presenting sponsor, Massachusetts General Hospital's traveling truck (a grassroots vehicle used to promote cancer awareness), was able to attend several *Play4TheCure* events in the New England area to educate on trends in cancer research.
- In our second year of partnership with the New Hampshire Youth Lacrosse Association and New England Coastal Lacrosse, close to 10,000 youth athletes showcased their philanthropic skills and raised nearly \$5,000 at their summer tournaments.
- Delaney Snowden, a Key School sophomore, organized her first *Play4TheCure* "Marcella Yedid Athletic Week" in 2016 in honor of the school's headmaster who passed away from colon cancer. Snowden recruited four fall sports teams to participate and collectively they raised over \$6,000.
- In their eighth year of support, Upper Dublin High School's Field Hockey team was able to collect nearly \$13,000 at their *Corners for Cancer* tournament.

Cannons Fighting Cancer

NFCR **Play4TheCure** partnered with the Boston Cannons, a Major League Lacrosse professional team, to raise funds for the laboratory of NFCR-funded scientist Dr. Daniel Haber, Director of Massachusetts General Hospital Cancer Center and Professor of Oncology at Harvard Medical School. On the night of June 23, 2016, “Cannons Fighting Cancer” brought together the Boston business community, NFCR’s Boston-based scientists, corporate sponsors and lacrosse

fans to raise \$120,000 for cancer research. “This was a special night for our organization, our fans and the greater lacrosse community to step up and make a difference in the fight against cancer. The National Foundation for Cancer Research is a remarkable beneficiary and all of the funds raised through the Cannons Fighting Cancer will go directly toward researching a cure,” said Boston Cannons Team President, Ian Frenette.



Fans, players and cheerleaders gather on the field after the Cannons game to celebrate a successful cancer awareness and fundraising event



NFCR President Dr. Sujuan Ba presents research funding check to Dr. Daniel Haber

Daffodils and Diamonds

The 35th annual *Daffodils & Diamonds Luncheon and Fashion Show* was held on March 10, 2016 at the Columbia Country Club in Chevy Chase, Maryland. This yearly event has become a meaningful spring tradition for raising awareness and funds for cancer research. It was attended by more than 300 dedicated women from the Washington, D.C. area. Daffodils & Diamonds 2016 raised more than \$93,000 to support NFCR breast and ovarian cancer research programs.

This special event was emceed by Alison Starling, WJLA-TV ABC7 News Anchor, and included an upbeat and stylish fashion show presented by J. McLaughlin, Georgetown. The program also included a luncheon, raffle and a silent auction featuring exquisite clothing and jewelry, gift certificates to favorite area restaurants, spa and salon treatments, gorgeous paintings by local artists and premier tickets to sporting events.



Alice-Anne Birch (L) with event emcee Alison Starling (R)



2016 Daffodils & Diamonds Co-Chair Anne Muir (Center) entertains event guests

MEET OUR INSPIRATIONS

Meet Carmen Rice: A Courageous and Inspirational GBM Survivor

This year marks the 13th anniversary of Carmen Rice's survival from Glioblastoma Multiforme (GBM), the deadliest brain cancer that is widely regarded as incurable and universally fatal. In the cancer research world, too often stories do not have positive endings, which is why our work continues until we find cures.

Carmen's 13-year survival is nothing less than miraculous and we are truly honored to share her incredible story with you. In 2004, Carmen Rice began experiencing severe headaches, nausea and dizziness. She remembers having lunch in a local restaurant and later waking up in a hospital bed not knowing what happened or how she got there. She had a grand mal seizure. Soon, scans revealed a small brain tumor which then proved to be GBM, a very aggressive, malignant tumor. Carmen was told she had only six months to live. Terrified, yet determined to beat this, she began her treatment right away.

Fast forward to today — Carmen continues to live a happy, healthy and active life. She treasures every moment and is an enthusiastic speaker within the cancer community, inspiring others with her positive outlook and message of hope. During her remarks, Carmen always talks about how grateful she is to NFCR for the groundbreaking research done in the GBM field and her support of our work — specifically in regard to **GBM AGILE**, which stands for Adaptive Global Innovative Learning Environment.

Expected to begin patient enrollment in the first quarter of 2018, GBM AGILE re-engineers the way clinical trials are conducted to develop more effective treatments faster than ever before. To learn more about GBM AGILE, visit nfc.org/gbm. Carmen is confident — as are we — that together we will find a cure for GBM.



Carmen Rice

Meet Pete and Sherri Kimbell: Shining a Light on Cancer Research

Pete and Sherri Kimbell have a holiday tradition in Indian Trail, NC that lights up their community while raising money for NFCR. Their story begins in 2012, when Pete's mother, Joan, was diagnosed with pancreatic cancer. The family was fortunate — a drug was available to arrest the growth of Joan's tumor.

After conducting their own research, the Kimbells learned that an NFCR-funded scientist made significant contribution to the development of this drug. Because of this, the couple decided 100% of the money collected during their annual light display would support NFCR. Now in its fifth year, Pete and Sherri's holiday display includes more than 45,000 individual LED lights and uses nearly 140,000 channels of electricity. The Kimbells' beautifully illuminated home attracts thousands of people from miles away. Local nursing homes bring residents in buses and these seniors often get out for a closer look and share stories about how cancer has affected their families.

Donations like this enable NFCR to continue funding cancer research and find the most effective treatments for patients like Joan. The local tradition created by Pete and Sherri also shines a light on NFCR's new nationwide **Arts4TheCure** program — a fundraising platform that raises awareness and funds life-saving cancer research through fine and performing arts. This program enables those who have a passion for the arts, like Pete and Sherri, to showcase their talents while supporting cancer research. The icing on the cake? Nobody enjoys the light display more than Joan, the original inspiration for this fundraising effort. To see the light show online, visit goholidaylights.com. To learn more about **Arts4TheCure**, visit nfc.org/arts4thecure.



Kerri, Joan and Pete Kimbell

Meet Betty Locke: A Traveler Determined to Make a Difference

After losing both her father and husband to cancer, Betty Locke has become a champion of cancer research. By partnering with NFCR's *Fly to Find a Cure* program, Betty takes great comfort in knowing she is funding life-saving cancer research so that one day, no other family loses a loved one to cancer again.

"I've loved to travel since I was a little girl. Sadly, my father passed away from liver cancer when I was 12 years old. Then, my husband died in 2001 from the same type of cancer," says Betty. "Donating to *Fly to Find a Cure* makes me feel like I'm helping people everywhere, including myself. It's always wonderful to get the extra mileage to visit the places I want to go."

From enjoying the beach at the Hotel del Coronado in Southern California to spending time with family and friends in Boston, Betty has combined two of her greatest passions — traveling and helping others through funding cancer research.

Fly to Find a Cure raises funds with the help of frequent fliers to accelerate vital cancer research. In return for a donation to NFCR, donors earn airline miles from American Airlines AAdvantage®, United MileagePlus®, Delta SkyMiles® and most recently, Alaska Airlines Mileage Plan®. This is a great way to keep a mileage account active, and as in Betty's case, earn airline miles to go somewhere special — all while supporting NFCR's mission to find a cure for all cancers. For more information, visit nfc.org/miles.



Betty Locke

Meet Dorothy Elicker: A Mother Carrying on Her Daughter's Legacy

Dorothy Elicker will never forget April 1, 2008 as that was the day her daughter, Lucy Stanovick, was diagnosed with Stage IV metastatic breast cancer — she was just 42 years old.

Lucy was a beacon of light to all who knew her. While fighting her own health battles and raising two young children, Lucy worked tirelessly to educate the public about metastasis and became involved in initiatives aimed to stop the spread of cancer. She was determined to help find a cure so that when another mother or daughter walks into a doctor's office and gets told they have metastatic cancer, the prognosis will not be terminal.

Metastasis causes more than 90% of cancer-related deaths, yet it receives less than 5% of the funding. To change this paradigm, Lucy and her family created the **Lucy Fund for Metastatic Cancer Research** to support NFCR-funded scientist Dr. Danny Welch, whose research is focused on stopping the metastatic spread of cancer.

Just four short years later in 2012, Lucy passed away, but her legacy does not end there. With the help of family and friends, the Lucy Fund has raised more than \$330,000. "Lucy selflessly fought for future generations. Her passion lives on and the generous support from those inspired by her helps keep her spirit alive," says Dorothy. "We will continue to raise money for the Lucy Fund in memory of my daughter. To me, the Lucy Fund personifies hope that other mothers will not have to experience the heartache of watching one of her children die — leaving so much of life unfinished. We cannot stop until we put an end to cancer. That's why the Lucy Fund is still necessary today — for the future." For more information, visit nfc.org/lucy.



Dorothy Elicker with Lucy's son Nick Stanovick, NFCR Vice President of Development Joe Gillmer and Donor Relations Associate Pete Dohan

NFCR SCIENTIFIC ADVISORY BOARD



Webster K. Cavenee, Ph.D., Chairman

Director of Strategic Alliances in Central Nervous System Cancers, Ludwig Institute for Cancer Research, San Diego, and Distinguished Professor at the University of California, San Diego

Dr. Cavenee's pioneering research in cancer genetics has fundamentally changed our understanding of tumor initiation and progression. His research on the most common and deadly form of brain cancer, glioblastoma multiforme (GBM), is illuminating the mechanisms of growth and survival of GBM and identifying potential new therapeutics. He is an Executive Director and Co-Investigator of GBM AGILE, a global effort to defeat GBM through an adaptive clinical trial platform. He is a member of the National Academy of Sciences and the National Academy of Medicine. Among his more than 100 awards and honors, Dr. Cavenee was the recipient of the 2007 Szent-Györgyi Prize for Progress in Cancer Research and the 2016 Feldman Founder's Award for Adult Brain Tumor Research from the National Brain Tumor Society.



Frederick W. Alt, Ph.D.

Director of the Program in Cellular and Molecular Medicine at Boston Children's Hospital, Charles A. Janeway Professor of Pediatrics at Boston Children's Hospital, and Professor of Genetics at Harvard Medical School

Dr. Alt's groundbreaking work in cancer genetics and his seminal discovery of gene amplification has proved foundational to the modern understanding of how cancer forms and how it can become resistant to treatment. Equally important is Dr. Alt's work on the critical DNA repair mechanism called "non-homologous end joining" (NHEJ). He has made fundamental contributions to our understanding of B-cell development and function, and the mechanisms underlying B-cell lymphomas. Dr. Alt was the recipient of the 2015 Szent-Györgyi Prize for Progress in Cancer Research, the Lewis S. Rosenstiel Award for Distinguished Work in Basic Medical Research and numerous other awards. The Cancer Research Institute (CRI) of New York annually presents the Frederick W. Alt Award for New Discoveries in Immunology. He is a member of the National Academy of Sciences and the National Academy of Medicine.



Ruggero De Maria, M.D.

President of the Alliance Against Cancer and Director of the Institute of Pathology at Catholic University, Rome, Italy, and former Scientific Director of the Regina Elena National Cancer Institute, Rome, Italy

Dr. De Maria's research team was the first to isolate cancer stem cells (CSCs), a rare population of cells responsible for tumor initiation and growth, from colon and lung cancers and develop innovative CSC-based preclinical models of these tumors. Dr. De Maria's current research characterizes innovative biomarkers and molecular targets in CSCs to develop novel cancer therapies and improve cancer management. His research also includes microRNA and the microenvironment in solid tumors. He is currently a member of the Pezcoller Foundation–AACR Innovator Scientific Advisory Board.



Kanaga Sabapathy, Ph.D.

Head of Division of Cellular & Molecular Research and Director of Planning & Strategy at The National Cancer Center Singapore, Professor of Cancer & Stem Cell & Biology Program at Duke-National University of Singapore (NUS) Graduate Medical School, and Director of the Academic Clinical Program in Oncology, SingHealth

Dr. Sabapathy's research focuses on the molecular mechanisms of cancer formation and therapeutic resistance, with the goal of generating novel therapeutic strategies. Another major effort in his laboratory is to develop tumor models that would best represent the human cancer condition using state-of-the-art genetic engineering technology. In 2015, Dr. Sabapathy received Singapore's inaugural National Research Foundation Investigatorship for his research in identifying targets for therapy and designing of better treatment approaches.



Peter K. Vogt, Ph.D.

Executive Vice President, Chief Science Officer, and Professor in Department of Molecular and Experimental Medicine at The Scripps Research Institute in La Jolla, California

Dr. Vogt's seminal discovery of src, the first cancer-causing gene or oncogene, contributed to our present understanding of many critical molecular mechanisms of cancer. His contributions include the identification of other oncogenes such as myc, jun and PI3-kinase — some of today's most promising cancer targets. Dr. Vogt has received numerous awards including the 2010 Szent-Györgyi Prize for Progress in Cancer Research and the Institute of Human Virology Lifetime Achievement Award for Scientific Contributions. He is a member of the National Academy of Sciences, the National Academy of Medicine, as well as other prestigious scientific organizations.

REPORT OF INDEPENDENT AUDITORS

Board of Directors
National Foundation for Cancer Research, Inc.
Bethesda, MD

Report on the Financial Statements

We have audited the accompanying consolidated financial statements of National Foundation for Cancer Research, Inc. and affiliates, which comprise the consolidated statements of financial position as of December 31, 2016 and 2015 and the related consolidated statements of activities, functional expenses and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of National Foundation for Cancer Research, Inc. and affiliates as of December 31, 2016 and 2015, and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.



A Professional Corporation

Bethesda, Maryland
May 8, 2017

NATIONAL FOUNDATION FOR CANCER RESEARCH, INC.

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

DECEMBER 31, 2016 AND 2015

ASSETS

ASSETS	<u>2016</u>	<u>2015</u>
Cash	\$4,315,431	\$2,820,551
Accounts receivable	133,972	286,488
Prepaid expenses and other assets	367,657	389,623
Fixed assets, net of accumulated depreciation and amortization	47,474	54,121
Investments	7,953,489	7,547,216
Amounts held in trust by others	<u>2,398,467</u>	<u>2,376,158</u>
TOTAL ASSETS	<u>\$15,216,490</u>	<u>\$13,474,157</u>

LIABILITIES AND NET ASSETS

LIABILITIES		
Accounts payable	\$976,226	\$848,870
Research contracts and grants payable	1,061,614	967,837
Accrued compensation and benefits	<u>137,451</u>	<u>120,775</u>
TOTAL LIABILITIES	<u>2,175,291</u>	<u>1,937,482</u>
NET ASSETS		
Unrestricted		
Designated for research contracts	4,812,470	4,420,930
Undesignated	<u>4,706,167</u>	<u>3,738,277</u>
	9,518,637	8,159,207
Temporarily restricted	1,539,542	1,418,289
Permanently restricted	<u>1,983,020</u>	<u>1,959,179</u>
TOTAL NET ASSETS	<u>13,041,199</u>	<u>11,536,675</u>
TOTAL LIABILITIES AND NET ASSETS	<u>\$15,216,490</u>	<u>\$13,474,157</u>

For more information, please visit nfcr.org.

NATIONAL FOUNDATION FOR CANCER RESEARCH, INC.

CONSOLIDATED STATEMENTS OF ACTIVITIES

FOR THE YEARS ENDED DECEMBER 31, 2016 AND 2015

	2016				2015			
	Unrestricted	Temporarily Restricted	Permanently Restricted	Total	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
REVENUE AND SUPPORT								
Public support	\$9,141,065	\$887,809	\$ —	\$10,028,874	\$10,012,371	\$706,343	\$ —	\$10,718,714
Bequests	3,294,286	—	—	3,294,286	1,721,327	—	—	1,721,327
Mailing list rental	357,786	—	—	357,786	358,032	—	—	358,032
Investment income (loss)	495,730	—	—	495,730	(3,850)	—	—	(3,850)
Change in value of split-interest agreements	(23,882)	(1,532)	23,841	(1,573)	(57,754)	(7,620)	(151,148)	(216,522)
Other revenue	6,095	—	—	6,095	23,327	—	—	23,327
Non-cash research support	644,515	—	—	644,515	590,028	—	—	590,028
Net assets released from restrictions	<u>765,024</u>	<u>(765,024)</u>	<u>—</u>	<u>—</u>	<u>750,374</u>	<u>(750,374)</u>	<u>—</u>	<u>—</u>
TOTAL REVENUE AND SUPPORT	<u>14,680,619</u>	<u>121,253</u>	<u>23,841</u>	<u>14,825,713</u>	<u>13,393,855</u>	<u>(51,651)</u>	<u>(151,148)</u>	<u>13,191,056</u>
EXPENSES								
Program Services								
Research	4,749,049	—	—	4,749,049	3,950,277	—	—	3,950,277
Public education and information	<u>5,214,010</u>	<u>—</u>	<u>—</u>	<u>5,214,010</u>	<u>5,729,242</u>	<u>—</u>	<u>—</u>	<u>5,729,242</u>
Subtotal	<u>9,963,059</u>	<u>—</u>	<u>—</u>	<u>9,963,059</u>	<u>9,679,519</u>	<u>—</u>	<u>—</u>	<u>9,679,519</u>
Supporting Services								
Fundraising	2,385,338	—	—	2,385,338	2,654,129	—	—	2,654,129
Management and general	<u>972,792</u>	<u>—</u>	<u>—</u>	<u>972,792</u>	<u>839,173</u>	<u>—</u>	<u>—</u>	<u>839,173</u>
Subtotal	<u>3,358,130</u>	<u>—</u>	<u>—</u>	<u>3,358,130</u>	<u>3,493,302</u>	<u>—</u>	<u>—</u>	<u>3,493,302</u>
TOTAL EXPENSES	<u>13,321,189</u>	<u>—</u>	<u>—</u>	<u>13,321,189</u>	<u>13,172,821</u>	<u>—</u>	<u>—</u>	<u>13,172,821</u>
CHANGE IN NET ASSETS	1,359,430	121,253	23,841	1,504,524	221,034	(51,651)	(151,148)	18,235
NET ASSETS AT BEGINNING OF YEAR	<u>8,159,207</u>	<u>1,418,289</u>	<u>1,959,179</u>	<u>11,536,675</u>	<u>7,938,173</u>	<u>1,469,940</u>	<u>2,110,327</u>	<u>11,518,440</u>
NET ASSETS AT END OF YEAR	<u>\$9,518,637</u>	<u>\$1,539,542</u>	<u>\$1,983,020</u>	<u>\$13,041,199</u>	<u>\$8,159,207</u>	<u>\$1,418,289</u>	<u>\$1,959,179</u>	<u>\$11,536,675</u>

For more information, please visit nfcrr.org.



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