Doris Duke Charitable Foundation

Medical Research Program

10th Anniversary Report

Leslie Engel, editor
Kerstin Vogdes, designer

On cover from top to bottom: Friedhelm Hildebrandt, 2006 Distinguished Clinical Scientist, Harmony Reynolds, 2006 Clinical Scientist Development Awardee, and Brian Somoano, 2003-2004 Clinical Research Fellow.

Doris Duke Charitable Foundation

Medical Research Program

10th Anniversary Report

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:: Message from the President ::

Our mission at the Doris Duke Charitable Foundation is to improve the quality of people's lives. In our Medical Research Program, we seek to improve people's health by supporting physician-scientists conducting clinical research.

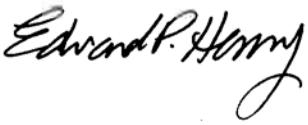
There is much to celebrate about the Medical Research Program's first 10 years. The foundation is proud to support the awardees listed on the following pages. Through their research, mentoring, leadership and patient care, they are helping build and sustain the kind of vibrant clinical research community that is essential for developing new and better treatments, preventions and cures for diseases.

There also is much to look forward to in the years ahead. In addition to the foundation's continuing support of physician-scientists, we will learn from the research of the four partnerships selected in 2009 to participate in our African Health Initiative. The partnerships will be working to strengthen health systems and improve population health in Ghana, Mozambique, Rwanda, Tanzania and Zambia.

The Medical Research Program has accomplished a great deal in a relatively short period, a reflection of Elaine Gallin's dedication and leadership in developing the program. Elaine has assembled a strong, creative staff and brought together an esteemed cadre of advisors whose ideas and feedback help us ensure the foundation's grantmaking is responsive and effective.

The future will undoubtedly bring new challenges and opportunities for clinical research, and we will continue reaching out to experts, leaders and grantees to inform our work. We will stay attuned to changes in the field, particularly at the federal level. We will remain flexible so we can change our processes or respond to needs and opportunities when appropriate.

Congratulations to the Medical Research Program's staff, advisors and grantees on all they have accomplished over the last decade. I look forward to what the next decade holds.



Edward P. Henry
President
Doris Duke Charitable Foundation
July 2009

Edward P. Henry, President

Elaine K. Gallin, PhD

Marking the 10th Anniversary of Our Grantmaking

Since 1998, the Medical Research Program staff and its advisors have had the extraordinary opportunity to create a new grantmaking program that contributes to biomedical research and to the legacy of Doris Duke, our benefactor. Duke's will instructed the foundation to support "medical research designed to effectuate cures" for human diseases, but also stipulated that animals not be used in the research. This led the foundation to focus on human subject or clinical research in order to speed the translation of basic research findings into new cures, therapies and preventions of human diseases.

Our grant portfolio aims to achieve three main objectives: first, to foster the careers of physician-scientists conducting clinical research; second, to promote interdisciplinary innovative clinical research; and third, to support clinical research on AIDS care and treatment in Africa. This third objective has recently morphed beyond AIDS into an African Health Initiative that will support implementation research on how to strengthen health systems to efficiently provide integrated primary health care. Over $180 million has been committed to more than 750 clinical investigators and research teams, and our family of awardees continues to grow.

Grantees range from established investigators to medical students working in clinical research for the first time. Mentoring is an important part of our programs. Our Clinical Scientist Development Award grantees have mentored medical students participating in the Doris Duke Clinical Research Fellowship program. Similarly, many of the Distinguished Clinical Scientist awardees have mentored fellows and junior faculty members who have competed successfully for Clinical Scientist Development Awards. All of our grantees are listed in the pages that follow along with the many scientists who have participated in our peer-review processes.

In October 2008, the Medical Research Program invited current and former grantees as well as our Scientific Advisory Council to participate in a 10th anniversary meeting in Newport, Rhode Island. The articles that follow summarize some of the grantee presentations from this meeting and highlight our core grantmaking strategies.

Special thanks and recognition go to Jim Wyngaarden and David Nathan, the first Chair and current Chair of our Scientific Advisory Council, respectively, and all our other sage advisors for their many contributions to the Medical Research Program.

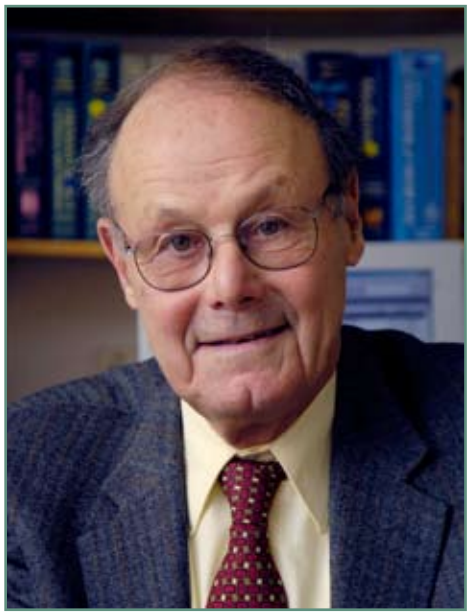
Finally, I want to express my gratitude to both Ed Henry, the current president of the Doris Duke Charitable Foundation and to Joan E. Spero, the foundation's first president serving from 1998 to 2008. Joan's leadership and unwavering support helped guide the Medical Research Program through its first decade.

We look ahead with excitement to future opportunities to contribute to improving health for all.

Elaine K. Gallin, PhD
Program Director for Medical Research

:: Message from the Scientific Advisory Council Chairman ::

Over a decade ago I received a phone call from Jim Wyngaarden, the former Director of the National Institutes of Health and distinguished former chairman of the Department of Medicine of the Duke University School of Medicine. Jim was about to form a Scientific Advisory Committee (SAC) for the Medical Program of the newly established Doris Duke Charitable Foundation and asked me if I would like to be a member. I accepted his invitation with almost unseemly alacrity. First of all, I knew that Jim is totally committed to my passion, clinical research. Second, I knew he has impeccable taste and third, he informed me that clinical research would be the sole beneficiary of the medical program because Doris Duke's will called for investigation of serious human diseases and precluded any expenditures on animal research.



David G. Nathan, MD

Jim established the first SAC and the major goals of our program, the support of young clinical investigators and their mentors. We have been devoted to those goals ever since. I have had the honor and the pleasure of working with Elaine Gallin and her fine staff, with my marvelous colleagues on the SAC and with the officers of the foundation since the inception of the Medical Research Program and the even greater honor of succeeding Jim as the Chair of the SAC in 2001. During my tenure we have made awards to young clinical investigators and to superb mentors. I know we have made a difference and have selected excellent recipients because many of our awardees have gone on to be recognized by other critical funders of medical research such as the Burroughs Wellcome Fund and the Howard Hughes Medical Institute.

Clinical research, defined very broadly, is the lifeblood of biomedical research. Clinical researchers carry the fruits of the wet or dry laboratory to the bedside and bring the fruits of careful patient study back to the laboratory or computer bench for further refinement. I have been a clinical researcher for over fifty years and wouldn't trade a minute of my academic life for any other discipline. I am deeply grateful to the Doris Duke Charitable Foundation for allowing me the privilege of working with such a fine organization that's sole goal is the improvement of our society. Thank you for the pleasure of your company.

David G. Nathan, MD
President Emeritus
Dana-Farber Cancer Institute

David G. Nathan, MD and James Wyngaarden, MD at the 2008 Clinical Scientist meeting in Newport, RI.

:: Acknowledgments ::

In addition to the many people mentioned in this report, we would like to acknowledge the important contributions of the first two program officers for the Medical Research Program: Sylvie LeBlancq, PhD and Jessica Fanzo, PhD, as well as three staff members from the American Institute of Biological Sciences who have served as our grant contractors: Jennifer Petitt, Jennifer O'Rourke and Cathy Plouzek, PhD. Special thanks also go to Leslie Engel, MPH and Reiko Fitzsimonds, PhD, who did much of the work on this report. Finally, we would like to thank Apoorva Mandavilli for her contributions to the Anniversary Highlights.

Doris Duke Charitable Foundation

:: About the Foundation

:: About the Medical Research Program

About Doris Duke

Born on November 22, 1912 in New York City, Doris Duke was the only child of James Buchanan Duke, who founded the American Tobacco Company, the Duke Energy Company and was a principal benefactor of Duke University. When J.B. Duke died in 1925, he divided his fortune between the Duke Endowment — a foundation he established to serve the people of the Carolinas — and his 12-year-old daughter.

Although Doris Duke lived a private life, she contributed to a number of public causes. She was an active supporter of medical research and child welfare throughout her life. When she was just 21, she established a foundation called Independent Aid, which later became the Doris Duke Foundation. It is estimated that she gave away more than $400 million in current dollars during her lifetime, often as anonymous contributions. Doris Duke died in October 1993 at the age of 80. In her will, she left the majority of her estate to the Doris Duke Charitable Foundation.

Foundation Overview

The Doris Duke Charitable Foundation seeks to improve the quality of people's lives through grants supporting the performing arts, environmental conservation, medical research and the prevention of child maltreatment, and through preservation of the cultural and environmental legacy of Doris Duke's properties.

In addition to its four national grantmaking programs, the foundation oversees three properties formerly owned by Doris Duke, which are now open to the public for tours and educational programs: Duke Farms, a 2,700-acre estate that Doris Duke's father created in the early 1900s in Hillsborough, New Jersey; Shangri La, the Honolulu home where Doris Duke paired Hawaiian landscapes with her extensive collection of Islamic art; and Rough Point, the Duke family mansion in Newport, Rhode Island, which features a large collection of European fine and decorative arts.

Created in 1996 and headquartered in New York City, the Doris Duke Charitable Foundation has an endowment of approximately $1.3 billion and is governed by an eleven-member Board of Trustees. More information about the foundation's properties and its Arts, Environment, Child Abuse Prevention and Medical Research Programs can be found at **www.ddcf.org**.

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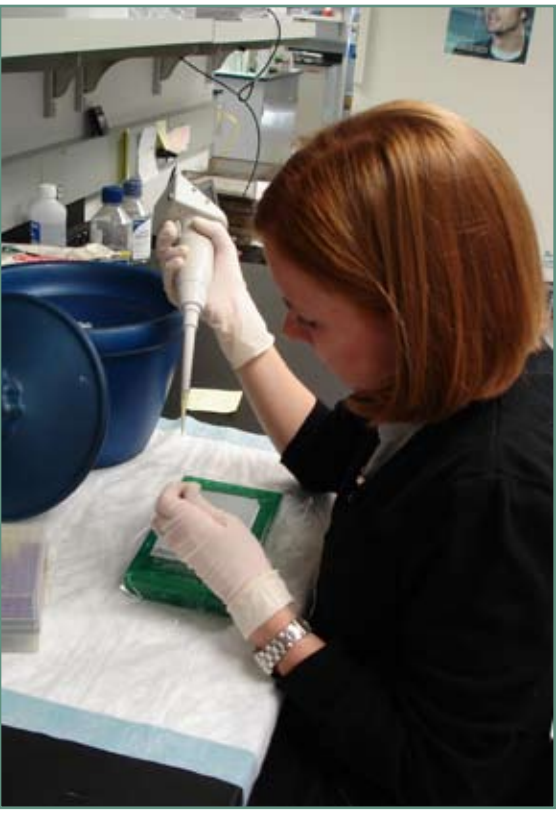


Katherine Steffen, 2005-2006 Clinical Research Fellow.

About the Medical Research Program

The goal of the Medical Research Program (MRP) is to support and strengthen clinical research in order to speed the translation of basic research findings into new cures, preventions and therapies for human diseases. To meet this goal, the Medical Research Program developed several grant programs that fit within four strategic objectives: *Building the Career Ladder of Physician-Scientists; Supporting Innovations in Clinical Research; Strengthening the Systems of Clinical Research; and Improving AIDS Care and Treatment in Africa*.

Grantmaking Process

The majority of the Medical Research Program's grants are awarded through formal requests for proposals. In developing and administering the Medical Research Program, the foundation relies on input from advisory councils of leading medical researchers and global health experts. All proposals under consideration for funding undergo rigorous peer review by several independent experts. See page 14 for names of the MRP's Scientific Advisory Council, and page 50 for a full list of past reviewers.

Medical Research Program Strategies

Building the Career Ladder of Physician-Scientists: *The following grant programs support physician-scientists at three different stages of their careers.*

Clinical Research Fellowship (CRF) for Medical Students: One-year fellowships provide medical students with support to take a year out from medical school to conduct mentored clinical research and receive didactic training at one of 12 participating medical schools. Students at any U.S. medical school can apply for Clinical Research Fellowships. Since its inception in 2000, the program has supported 625 fellows.

Clinical Scientist Development Award (CSDA): The CSDA provides grants to junior physician-scientists to facilitate their transition to independent clinical research careers. Currently this award provides $405,000 over three years to researchers during this critical stage of career development. Each grantee is expected to have a mentor and spend at least 75% of his/her time conducting clinical research. In the past decade, the foundation has funded 145 CSDA grants totaling more than $62 million.

Distinguished Clinical Scientist Award (DCSA): The DCSA recognizes outstanding mid-career physician-scientists who are applying the latest scientific advances to the prevention, diagnosis, treatment, and cure of disease, and enables them to support and mentor the next generation of physician-scientists conducting clinical research. This program currently provides $1.5 million over five to seven years. To date the foundation has made 40 awards totaling more than $65 million.

Supporting Innovations in Clinical Research: *Two grant programs were developed to push the frontiers of clinical research and stimulate innovative, interdisciplinary work.*

Clinical Interfaces Award Program (CIAP): In 2003 and 2005 five-year grants of up to $2.25 million were awarded to collaborative teams of researchers addressing important clinical problems requiring multidisciplinary approaches. The foundation awarded four full grants (of up to $2.25 million each) and five planning grants (for $80,000 each) for a total commitment of $9 million.

Innovation in Clinical Research Award (ICRA): This program provided two-year seed grants of up to $200,000 each to catalyze innovative breakthroughs and cross-disciplinary collaborations in targeted areas of clinical research. Between 2000 and 2003, four grant competitions yielded 39 grants in the target research areas of cardiovascular disease, blood disorders and the development of low-cost AIDS diagnostics.

Strengthening the Systems of Clinical Research: *This program sought to strengthen the regulatory processes and systems for clinical research, such as the protection of human subjects.*

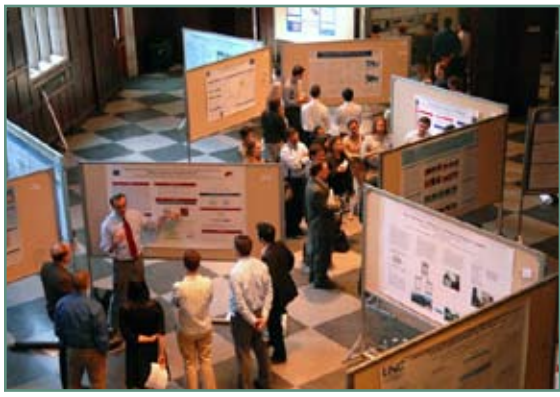
Consortium to Examine Clinical Research Ethics (CECRE): The increasing complexity and growth of today's clinical research enterprise have at times strained the existing support systems. From 2000 to 2005, the foundation supported CECRE, the first major non-government financed effort to collect primary data and examine data on human subjects' protection. CECRE investigators conducted a series of empirical and conceptual studies and published six papers that analyzed the protection of human subjects. This program, which provided $880,000 in grants, ended in 2006.

Improving AIDS Care and Treatment in Africa through Clinical Research

Operations Research on AIDS Care and Treatment in Africa (ORACTA): This program, offered in 2005 and 2007, supports operations research to help improve the care and treatment of AIDS patients in resource-limited settings, inform antiretroviral therapy (ART) policy and practice, and improve outcomes of the roll-out and scale-up of ART in sub-Saharan Africa. Through ORACTA, 30 teams of researchers have received two-year grants of up to $200,000, for a total commitment of $6 million.

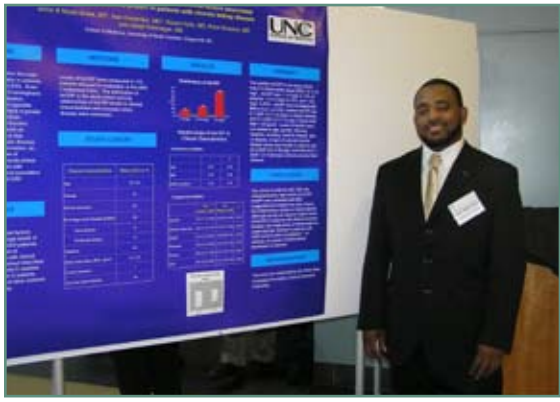
AIDS Research Grants: Between 2000 and 2006, the foundation awarded 31 grants totaling $7.3 million to support clinical research and related capacity-building projects focused on AIDS research in sub-Saharan Africa. These grants included individual, one-time grants to support clinical research, training and infrastructure; competitive grants to support the development of low-cost clinical diagnostics to improve the medical management of antiretroviral therapy; and competitive grants for young African investigators.

As of 2007, with the implementation of the African Health Initiative (described on the next page), the Medical Research Program is no longer offering AIDS Research or ORACTA grants.



Poster session at the 2008 Clinical Research Fellows meeting, at the University of Pennsylvania.

Bruce Walker, 1999 Distinguished Clinical Scientist and International AIDS grant recipient, with David Scadden, 2001 Innovation in Clinical Research Awardee, in South Africa.



JaVar Myatt-Jones, 2006-2007 Clinical Research Fellow.

Traditional dancers celebrating the opening of the DDCF-funded Rakai Health Sciences Laboratory in Uganda.

Michael Rich, recipient of a 2007 Operations Research on AIDS Care and Treatment Award, at a clinic in Rwanda.

African Health Initiative

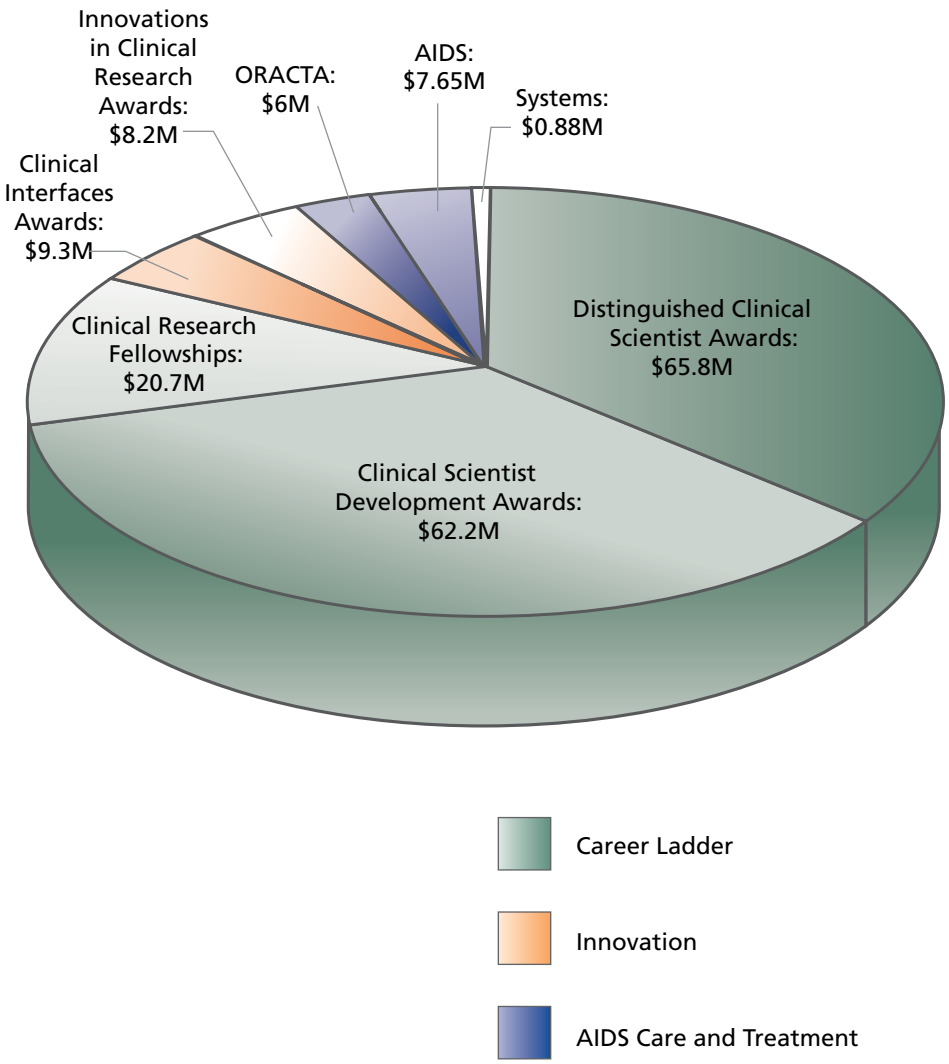
In 2007, the foundation launched a multi-year, multi-million dollar African Health Initiative to help catalyze a shift from the current public health focus on single-disease programs to an emphasis on strengthening health systems to effectively deliver integrated primary care to underserved populations. Over five to seven years, the initiative is designed to:

- **Provide integrated primary health care and achieve significant, measurable health improvements** for at least one million people in sub-Saharan Africa.
- **Strengthen health systems** in selected communities/districts in a manner that enables local and national governments to sustain those improvements beyond the grant period.
- **Increase the knowledge available for evidence-based health systems planning** by supporting implementation research.

Central to the initiative is the establishment of large-scale **Population Health Implementation and Training (PHIT) Partnerships** in sub-Saharan Africa. The Partnerships are designed to link implementation research and training directly to health delivery. It is expected that multi-year PHIT Partnerships will be awarded in mid-2009.

1998-2008 Medical Research Program Grant Allocations

From 1998 to 2008, the Medical Research Program awarded over 330 grants totaling approximately $180 million in its core grantmaking strategies (not including the President's Planning Fund). Because it has a separate budget from the rest of the Medical Research Program, the African Health Initiative is not included in this total.



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Anniversary Highlights

- Impacting Patient Care and Treatment Through Clinical Research
- Developing the Career Ladder for Physician-Scientists
- Stimulating Innovation in Clinical Research
- Supporting Clinical Research in Africa

Michael DeBaun

Michael DeBaun, MD, MPH
Professor of Pediatrics, Biostatistics and Neurology
Washington University School of Medicine in St. Louis
1999 Clinical Scientist Development Award

Dr. DeBaun's career as a physician-scientist exemplifies the Medical Research Program's commitment to developing the pipeline of clinical researchers. One of the earliest Clinical Scientist Development awardees in 1999, Dr. DeBaun was mentored by Dr. Alan L. Schwartz, a DDCF Scientific Advisory Council member. Since 2003, Dr. DeBaun has also been a Program Leader for the DDCF Clinical Research Fellowship program, providing guidance to medical students interested in pursuing careers in clinical research.

Screening for Stroke in Sickle Cell Disease

Sickle cell disease is the most common genetic disorder screened for in newborns. This painful disease affects 1 in 400 African Americans, and has intractable lifelong complications.

In the fall of 1991, Dr. Michael DeBaun's mother, a third-grade teacher, approached him with concerns about a student. An 8-year-old black girl in her class, with sickle cell anemia, had been forgetting skills learned just three months earlier. The lack of medical knowledge about that student's academic regression set Dr. DeBaun on a trail to understand the epidemiology and treatment of "silent" strokes.

The student in the classroom had been enrolled in an NIH clinical study in which children with sickle cell disease were followed from birth until 16 years of age. A 1989 MRI of her brain looked normal; so did another MRI taken in 1992. At that time, however, the MRI technology had just become available, and researchers had misidentified the signs of silent stroke as artifact.

> "One of the legacies of this trial will be the new group of junior investigators that will have an opportunity to explore the rich biological and clinical database of over 1,000 children with sickle cell anemia."

Dr. DeBaun, who received a DDCF Clinical Scientist Development Award in 1999, together with an international multidisciplinary team of neurologists, pediatric hematologists, radiologists and psychologists, demonstrated that these silent strokes are associated with attention, executive function, language, memory, and spatial or motor deficiencies. Further, the team provided evidence that the location and size of the strokes affects the severity of the cognitive deficits.

After completion of the pilot trial funded by DDCF, Dr. DeBaun and his colleagues launched an international clinical trial enrolling more than 200 children from 25 participating sites to determine whether blood transfusions can prevent the recurrence of silent strokes.

The NIH trial involves several DDCF Clinical Scientist Development Awardees, including Drs. Allison King and John Strauss as well as several medical students funded by the DDCF Clinical Research Fellowship program.

"One of the legacies of this trial will be the new group of junior investigators that will have an opportunity to explore the rich biological and clinical database of over 1,000 children with sickle cell anemia," said Dr. DeBaun.

"I do believe in spreading the wealth," stated Dr. DeBaun. "This has been an opportunity to share in the philosophy of working together for the greater good of the patients and the scientific community."

Molecular Signatures Reveal Rational Treatment Targets in Diffuse Large B-cell Lymphoma

Margaret Shipp
Professor, Department of Medicine
Harvard Medical School
2001 Distinguished Clinical Scientist Award

Among the deadliest of cancers is diffuse large B-cell lymphoma — almost half of people diagnosed with this cancer succumb to the disease. Until recently, doctors had little clue about who would fail to respond to the available treatments or why.

Dr. Margaret Shipp has dedicated the past few years to solving this mystery and to developing therapies for diffuse large B-cell lymphoma. Winner of a 2001 Distinguished Clinical Scientist Award and leader of the Lymphoma and Myeloma Research Program at the Dana-Farber Cancer Institute, Dr. Shipp has used state-of-the-art molecular techniques to propel the field forward.

In the past, when doctors were confronted with patients who did not respond to therapy, the "response was simply to treat patients with more drugs and combinations of drugs — a largely unsuccessful strategy," Dr. Shipp said. Now she uses clinical prognostic models to identify patients with different likelihoods of being cured of their disease and determine the best treatment for them.

These prognostic models are based on clinical features that reflect the underlying biological heterogeneity of the disease. Knowledge of the actual cellular and molecular features of the disease would aid treatment decisions even more. In the laboratory, researchers have had some success pinning down the biological features of tumor subtypes.

In the past, when doctors were confronted with patients who did not respond to therapy, the "response was simply to treat patients with more drugs and combinations of drugs —a largely unsuccessful strategy."

One promising lead was that patients with intractable disease have increased expression of an enzyme called protein kinase C-beta, whose activity is known to be important for cell proliferation and death. Dr. Shipp and her colleagues quickly tested Enzastaurin, a drug that inhibits protein kinase C-beta, as a treatment for the disease. In a national trial, 4 of 42 fully treated patients remain cancer-free three to five years after treatment with this oral agent. A larger international trial of nearly 500 patients is now assessing how the drug fares in combination with traditional chemotherapy.

At the same time, Dr. Shipp and her colleagues also honed in on the "molecular signature" — the expression of a particular set of genes — in specific subsets of tumors. They found that some of the tumors have increased expression of molecules in a signaling pathway that begins with the B-cell receptor. In particular, one enzyme in this pathway appears to be crucial to the tumors' survival. Dr. Shipp reasoned that blocking this enzyme might disrupt tumor survival. Dr. Shipp and her colleagues are testing R406, an oral compound that inhibits this enzyme, as a treatment for refractory tumors. Results from the recently completed phase II trial are promising, and additional studies are planned.

Daniel Rader

University of Pennsylvania
Professor of Medicine, Pharmacology, and Pathology and Laboratory Medicine
University of Pennsylvania School of Medicine
2002 Distinguished Clinical Scientist Award

Translating Laboratory Advances into New Therapies for Atherosclerosis

There is often a wide chasm between research advances in the laboratory and their application in the clinic. One of the people determined to bridge this gap is Dr. Daniel Rader, Director of the Clinical and Translational Research Center and Director of the Preventive Cardiovascular Medicine and Lipid Clinic at the University of Pennsylvania.

Dr. Rader's 2002 Distinguished Clinical Scientist Award is trying to breach one such translational gap — developing a new drug to lower dangerously high levels of cholesterol in patients who do not respond adequately to the available drugs, based on mechanisms uncovered in the laboratory.

Statins, the most widely prescribed medicines, are generally used to lower levels of plasma low-density lipoprotein cholesterol (LDL-C), or the so-called bad cholesterol. But in some people, LDL-C levels remain high even after taking these drugs. "There is a significant unmet medical need, despite the benefits of statins and the available few other drugs," Dr. Rader noted.

As an investigator at the National Institutes of Health, Dr. Rader was part of a team that had discovered that people who lack a protein called microsomal transfer protein, or MTP, have undetectable levels of LDL-C in their blood. After years of drug development, he and his collaborators had successfully demonstrated that blocking MTP can lower plasma LDL-C levels. Unfortunately, people who took the drug also developed high levels of fatty acids in their liver, prompting the pharmaceutical company to abandon the drug.

> "He's always pushing the envelope, developing new methods, and trying to address important clinical questions."

But Dr. Rader reasoned that for a subset of people with a genetic and virtually untreatable form of high circulating LDL-C, the benefits of the drug might outweigh the side effects. With support from DDCF, he launched a clinical trial of MTP in patients with homozygous familial hypercholesterolemia and found that the drug cuts LDL-C levels in those patients by more than half. A larger trial is under way, and may result in the compound's approval as an "orphan drug" for this subset of patients.

"He is unusually broad in his skills," commented Dr. Helen Hobbs, a member of the DDCF Scientific Advisory Council. "He's always pushing the envelope, developing new methods, and trying to address important clinical questions — and he does that all at the same time as maintaining his clinical acumen."

In addition to running a robust and very productive cardiovascular/metabolic research laboratory at the university, Dr. Rader serves as Associate Director of the Institute for Translational Medicine and Therapeutics. "We are trying to develop a clear-cut career path for people who are interested in mechanistic research in humans, a path that we call Translational Medicine and Therapeutics," said Dr. Rader.

Supporting the Clinical Research Career Ladder from Medical Students to Senior Faculty

In the heart of rural Uganda is a small clinic, staffed by three generations of researchers supported by DDCF. These investigators, from the University of California, San Francisco (UCSF) are studying malaria, HIV/AIDS and the interaction between these two big global killers.

The UCSF research team includes Philip Rosenthal, a 2004 Distinguished Clinical Scientist Awardee; Grant Dorsey, a 2006 Clinical Scientist Development Awardee; and Lisa Bebell, who joined the team for one year as a 2006-2007 Clinical Research Fellow.

Recognizing the serious shortage in skilled translational researchers — and in particular, physician-scientists who can bridge the gap between laboratory discoveries and patient care and treatment — the Medical Research Program developed three core programs to support medical students and clinical investigators at different stages of their careers. All three "career ladder" programs emphasize the critical role that strong mentorship plays in helping young investigators build their careers and learn to balance the demands of clinical practice and research.

Joel Palefsky, MD has led the Clinical Research Fellows (CRF) program at UCSF since its inception in 2000. "What was particularly innovative at that time was the focus on training for clinical research… and the recognition that it's important to engage people very early in the course of their training," said Dr. Palefsky.

At UCSF, the CRF program is competitive, with more than 60 applicants applying for about 6 slots. With guidance from Dr. Palefsky, Dr. Bebell, who is now at UCSF as an intern in internal medicine, was matched with Drs. Rosenthal and Dorsey who both mentored her research in Uganda. Dr. Bebell spent time at both UCSF and in Uganda studying the interaction between HIV infection and malaria in children and adults in rural Uganda. Although her fellowship period was short, with the help of her mentors, she finished an independent project and published the results, all within that year.

"Because it was such a positive experience and so productive, it pushed me to think I wanted [research] to be part of my life," she said.

Dr. Bebell agrees that good role models are particularly important. "I think you'll find there are very few people out there who are willing to put in the time and dedicated effort to show you how to move up the [academic] ladder, which is very confusing from the outside," she noted. "That's one of the real benefits I've had working with this team."

Dr. Rosenthal has used the portion of his DCSA grant designated for mentoring activities to support the research activities of not only students, fellows and young faculty at UCSF, but also to train at least five Ugandan mentees. African trainees attend

Philip Rosenthal, MD

Professor of Medicine
University of California, San Francisco
2004 Distinguished Clinical Scientist Award

Grant Dorsey, MD, PhD, MPH

Associate Professor in Residence
University of California, San Francisco
2006 Clinical Scientist Development Award

Lisa Bebell, MD

2006-2007 Clinical Research Fellow
University of California, San Francisco

From left to right: Philip Rosenthal, Joel Palefsky, Lisa Bebell, and Grant Dorsey.

"Because it was such a positive experience and so productive, it pushed me to think I wanted [research] to be part of my life."

Children with bednets in Kampala, Uganda.

Children in Kampala, Uganda.

the Training in Clinical Research summer workshop at UCSF and participate in research projects in Uganda. Dr. Rosenthal expressed his concern that one of the biggest problems in Africa is mentorship, and he has been actively working on this issue.

Among the Rosenthal mentees was Grant Dorsey, who went on to receive a CSDA grant for his work on a randomized trial of combination anti-malarial therapy in 601 Ugandan children.

For Dr. Dorsey, the CSDA grant was instrumental in the transition from a junior investigator to an independent investigator. When Dr. Rosenthal approached him for the Uganda project in 1998, Dr. Dorsey had finished medical school, training in internal medicine and infectious diseases, and a Master's in Public Health in epidemiology. In 2000, he started receiving a few grants, but none as a principal investigator — until the 2006 CSDA from DDCF.

"That really enabled me to go out on my own if you will, with a lot of help from my mentors, and start my own work," he said.

It was this grant that allowed Dr. Dorsey and his colleagues to move their research from Kampala to Tororo, a small town in Uganda with a very high level of malaria transmission, and to renovate the research clinic, where they could compare the relative effectiveness of artemisinin-based combination therapies for malaria.

"That's probably the nicest thing the DDCF allowed us to do," Dr. Dorsey said. "For $15,000, we were able to completely renovate the clinic. That kind of flexibility is extremely useful."

Impressed with the study's initial results, the Centers for Disease Control and Prevention, which provided matching funds for the project, extended the study to all children under five, and gave Dr. Dorsey a new grant to set up a national surveillance system for malaria in Uganda. More recently, he has reached a critical landmark on the path to a successful career as an independent clinical investigator — successfully obtaining a five-year R01 grant from the NIH.

These studies have also spawned some additional DDCF-funded projects, notably with Neil Vora, a 2007-2008 Clinical Research Fellow, on the effect of breastfeeding on malaria risk; and with Sunil Parikh, who has a 2007 CSDA, on the pharmacogenetics of anti-malarial drugs. The newest Clinical Research Fellows on the team are Patrick Newman (UCSF, 2008-2009), who is looking at placental malaria in HIV-infected and uninfected women in Tororo, and Vinay Gupta (Columbia University, 2008-2009), who is performing laboratory studies at UCSF to optimize methods to culture malaria parasites and assess parasite complexity in clinical samples.

This network of mentors and mentees at UCSF is just one example of DDCF-funded "families" emerging from the Medical Research Program's competitive career ladder programs.

Tackling the Lack of Inexpensive Point-of-Care HIV Diagnostics

A device as simple as a pregnancy test to assess when HIV/AIDS patients need treatment could help millions of people in the poorest parts of the world. David Anderson and his international team of collaborators received a 2003 Innovation in Clinical Research Award to develop such a test.

Powerful antiviral medications mean that AIDS is no longer a death sentence. But to decide who needs the drugs and when, doctors first need to measure how many CD4+ T cells — specialized immune cells that HIV destroys — there are in a patient's blood. If you live in the U.S., a flow cytometer can accurately estimate the number of CD4+T cells. But most of the ~45 million HIV-positive people in low-resource regions do not have access to this sophisticated technology.

Dr. Anderson had previously worked on a simple diagnostic test for hepatitis E. Six weeks after he and his colleagues created the hepatitis E prototype, a Singapore company manufactured the test kits, and they are being used in remote places such as war-torn Darfur, Sudan. "I can guarantee that there's no greater satisfaction than when this sort of technology gets out into the field," Dr. Anderson said.

To tackle the lack of point-of-care diagnostics for HIV/AIDS, Dr. Anderson, Dr. Suzanne Crowe and colleagues at the Macfarlane Burnet Institute for Medical Research and Public Health in Melbourne, Australia, together with Dr. Alan Landay at Rush University and Dr. Thomas Denny at Duke University, have spent the past five years developing a simple, inexpensive and robust test for use in developing countries.

To be effective in low-resource areas, the test needs to accurately identify patients with fewer than 250 CD4+ T cells in a microliter of blood, be stable at ambient temperatures for long periods, be easy to use, and provide results quickly. Furthermore, it should be inexpensive — costing only a few dollars per test or less.

Two roadblocks made measuring the amount of CD4+ protein expressed by T cells challenging: first, a soluble CD4+ protein in the blood can confound the results; and second, monocytes, a different immune blood cell, also express the CD4+ protein.

> "I can guarantee that there's no greater satisfaction than when this sort of technology gets out into the field."

With DDCF funding, Drs. Anderson, Landay and their colleagues found ways to overcome these roadblocks, and with further support from the CD4+ Initiative (funded by the Bill and Melinda Gates Foundation), a prototype device has been developed. Subject to trial results, the device may be widely available in late 2010.

But it was the DDCF's grant that got the project started and to a proof-of-concept stage, Dr. Anderson said. "Ultimately we might have got funding, but we'd be about four years from where we are now," he said. "That four years is going to make a big difference to a lot of people."

David Anderson, PhD

Associate Professor
Deputy Director, Burnet Senior Principal Fellow
MacFarlane Burnet Institute for Medical Research and Public Health
2003 Innovation in Clinical Research Award

Don Ganem, MD

Professor of Microbiology and Immunology; Professor of Medicine
University of California, San Francisco
2003 Clinical Interfaces Award Program

From left to right: Don Ganem, Elaine Gallin and Joe DeRisi at the 2004 Clinical Scientist Meeting.

Identifying New Viral Pathogens Using Genomics-Based Approaches

When emerging infections such as severe acute respiratory syndrome (SARS) and swine flu threaten to become global pandemics, identifying the responsible viral pathogens is an urgent priority. With a multi-disciplinary team at the University of California, San Francisco (UCSF), Don Ganem has been working to deploy a "ViroChip" to pinpoint the infectious viruses causing such outbreaks.

Scientists traditionally use techniques such as cell culture, genetic amplification or electron microscopy to identify infectious pathogens. But not every microbe can be cultured or visualized, and these methods require some prior knowledge of what you're looking for.

"The work we've been doing for the past five years is intended to bypass these limitations by developing more powerful methods to detect the genome of the pathogen," Dr. Ganem said.

Dr. Ganem, who is a Howard Hughes Medical Investigator at UCSF, received a 2003 grant through the Clinical Interfaces Award Program (CIAP) to develop genomics-based methods for new pathogen discovery.

The CIAP grant teamed Dr. Ganem, who provided the expertise in virology and infectious diseases, with molecular biologist Joseph DeRisi, who developed the ViroChip technology, and Homer Boushey, a pulmonologist with expertise in asthma and other lung disorders.

The ViroChip contains a comprehensive array of the most conserved and characteristic DNA sequences from known families of viruses. The resulting viral chip is designed to identify any new viruses that share homology with existing viruses. With the chip's latest upgrade, the UCSF team can identify the family, and perhaps even the sub-family, of a new virus.

Ganem and his research collaborators are using cutting-edge technology to identify the viral pathogens causing outbreaks of infectious diseases like SARS.

While the chip has the sensitivity to diagnose the common cold, its real use so far has been to discover new viruses, including a new cardiovirus that causes human respiratory and enteric infections and a new kobuvirus linked to gastroenteritis. Most recently the group has described a new virus that triggers a strange gastrointestinal motility disease in macaws, tropical birds native to Central and South America often kept as pets.

The bird disease, called proventricular dilation disease (PDD), causes macaws and other exotic birds to waste away. The disease resembles human achalasia, a little-understood disease of the esophagus characterized by difficulty swallowing and, as in the birds, wasting. Based on their findings in PDD, the UCSF team is now looking for novel viruses in human achalasia.

Identifying Smokers with an Increased Risk of Developing Lung Cancer

There is a lot of variability in how individuals respond at a genomic level to smoking — and this variability may account for why some smokers never develop lung cancer.

"It was a very simple, but very powerful hypothesis," said Dr. Avrum Spira, a 2002 Clinical Scientist Development Awardee. "The problem was that in 2001, there were very few who believed in it."

DDCF provided the necessary support to test his hypothesis: that smoking alters gene expression in the epithelial cells lining the entire respiratory tract, from the nose and mouth down to the bronchial airways and throughout the lungs.

With CSDA funding and DNA microarray chips provided by the manufacturer Affymetrix, Dr. Spira led a study of 23 non-smokers and 34 healthy smokers, and found that about 100 genes are differentially expressed in bronchial airway epithelium of these two groups, including a set of detoxification enzymes that are expressed at higher levels among smokers. One of the smokers who didn't turn on expression of these detoxification genes went on to develop lung cancer.

Between January 2003 and May 2005, Dr. Spira and his colleagues recruited 152 current and former smokers from four medical centers who were undergoing bronchoscopy, a diagnostic test for suspected lung cancer.

Gene expression data obtained on 129 of these patients identified an 80-gene signature that could classify those who have cancer with 83 percent accuracy. Smokers who developed cancer had elevated airway expression of known cancer genes, for instance, and had lower levels of expression of antioxidant defense genes.

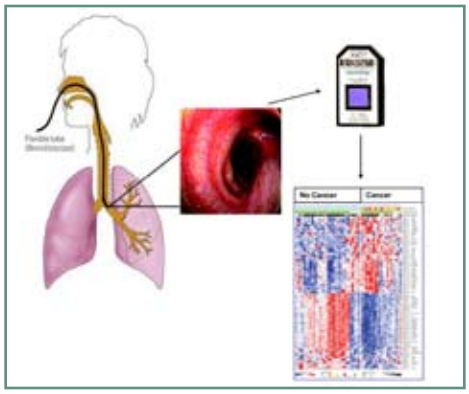
The sensitivity of bronchoscopy, the traditional diagnostic method, is only about 53 percent. But with the 80-gene signature added to the mix, cancer could be diagnosed with an impressive 95 percent accuracy. Based on these results, Dr. Spira has competed successfully for several NIH grants, including two very large grants totaling nearly $4 million awarded in the past two years.

"These (grants) are all means to an end, the point is not to get grants," Dr. Spira said. "There are certain things that are priceless." In this case, the end-goal is to develop an FDA-approved biomarker test for lung cancer that can predict who is most likely to develop lung cancer.

The biomarker that Dr. Spira and his colleagues have developed is being validated in a large independent clinical trial with the hope of achieving FDA approval and deployment in the clinic within the next couple of years. "None of this would have been possible without the foundation," Dr. Spira said. "I'm indebted to the foundation and always will be."

Avrum Spira, MD, MSc

Boston University School of Medicine
Associate Professor of Medicine, Pathology and Laboratory Medicine
Adjunct Associate Professor of Bioinformatics
Director, Translational Bioinformatics Program, Clinical and Translational Science Institute
2002 Clinical Scientist Development Award



This image depicts the process of gene expression analysis of bronchial epithelial cells collected from smokers at risk for lung cancer, in order to develop an early-diagnostic biomarker for lung cancer.

Anniversary Highlights

:: Supporting Clinical Research in Africa ::

Sub-Saharan Africa is struggling with plummeting life expectancies and an HIV epidemic that holds in its grip the majority of the 45 million or more people infected with HIV in the world.

Between 2000 and 2007, the Medical Research Program supported clinical research and related capacity building aimed at improving the care and treatment of HIV/AIDS patients in sub-Saharan Africa. These grants ranged from small pilot grants to support research on preventing the transmission of HIV from mothers to newborns to larger investments in improving clinical research infrastructure. Two foundation-funded projects are described here.

Tackling Tuberculosis and HIV Co-Infection in Rural South Africa

In sub-Saharan Africa the tuberculosis (TB) and HIV epidemics are deeply connected. More than 65 percent of all active TB patients are co-infected with HIV, and TB is the leading cause of morbidity and mortality among HIV-infected patients. Dr. Gerald Friedland, an infectious disease physician and director of the Yale University AIDS program, has been involved in the development of comprehensive HIV care programs in the U.S. since 1981.

From left to right: Gerald Friedland, Tony Moll and Neel Gandhi.

In 2000, with funding from DDCF, the Irene E. Diamond Foundation and the President's Fund of Yale University, Dr. Friedland traveled to rural South Africa to examine the best strategies to tackle the daunting problem of HIV/TB co-infection. The study, called Sizonq'oba, which is Zulu for "we shall overcome," examined the feasibility of integrating HIV and tuberculosis treatment among patients living in the province of KwaZulu-Natal, South Africa. The results of Dr. Friedland's research have demonstrated that HIV and TB treatment can be safely integrated in co-infected patients.

Now Dr. Friedland spends a good deal of time traveling between the U.S. and South Africa and working closely with Dr. Tony Moll, the Director of the Church of Scotland Hospital in Tugela Ferry, a rural area of KwaZulu-Natal where about one-third of the people living in the hospital's catchment area are HIV positive.

Most alarming is the observation that the mortality rate was over 85 percent in the extensively drug-resistant tuberculosis patients treated at the Church of Scotland Hospital.

While the initial findings of the Sizonq'oba study were quite encouraging, Dr. Friedland and his team of collaborators recently identified a cluster of TB patients resistant to both first and second line TB drugs. These patients represent the largest reported cluster of extensively drug-resistant (XDR) TB patients in the world. Between 2005 and 2007, 656 cases of XDR-TB were reported in KwaZulu-Natal. Most alarming is the observation that the mortality rate was over 85 percent in the XDR-TB patients treated at the Church of Scotland Hospital.

Patients demonstrating self-constructed monthly medication calendars for HIV and TB in KwaZulu-Natal, South Africa.

Developing public health interventions to limit the spread of this very dangerous pathogen and understanding how XDR-TB spreads continues to keep Dr. Friedland and his collaborators busy. His research group has expanded and now includes the husband and wife team of Sarita Shah and Neel Gandhi from the Albert Einstein College of Medicine, both of whom received 2007 Clinical Scientist Development Awards to support their work in South Africa.

Doris Duke Medical Research Institute

The foundation's first major international HIV/AIDS grantmaking efforts were focused at the Nelson R. Mandela School of Medicine at the University of KwaZulu-Natal — the only medical school in the South African province hardest hit by the AIDS pandemic.

In 2002, the foundation awarded grants totaling $1.8 million to help build the new Doris Duke Medical Research Institute (DDMRI), which was the first new building to be constructed at the medical school since its founding in 1950. DDCF also awarded a $2.25 million grant to provide four years of support for the HIV Pathogenesis Program led by Dr. Bruce Walker of Harvard University (also a 1999 Distinguished Clinical Scientist Awardee) and Drs. Philip Goulder and Hoosen Coovadia at the DDMRI.

The DDMRI has been a crucial component of the University of KwaZulu-Natal's commitment to expand research and training in AIDS and other diseases affecting the region.

The biomedical research community at the University of KwaZulu-Natal has continued to grow and the DDMRI will soon be linked to a new institute — the KwaZulu-Natal Research Institute for Tuberculosis and HIV supported by the Howard Hughes Medical Research Institute.

Pictured at right is the Rakai Project Clinical Laboratory and Training Center in Rakai District, Uganda. The construction of the lab was funded in part through a 2003 grant from DDCF. Opened in 2005, the facility allows for expanded research and training programs and provision of care in this rural area. The foundation also supported training stipends for African researchers working on Rakai Program grants.

1998-2008 DDCF Medical Research Program Grantees

- Clinical Research Fellowship for Medical Students
- Clinical Scientist Development Award
- Distinguished Clinical Scientist Award
- Innovations in Clinical Research Award
- Clinical Interfaces Award Program
- Clinical Research Systems
- AIDS Research Grants
- Operations Research on AIDS Care and Treatment in Africa
- President's Planning Fund

Clinical Research Fellowship for Medical Students

Participating Medical Schools

Columbia University College of Physicians and Surgeons
Program Leader: Donald Landry, MD, PhD
Associate Program Leader: Magdalena Sobieszczyk, MD

Harvard Medical School
Program Leader: Dennis Ausiello, MD
Co-Program Leader: Ravi Thadhani, MD, MPH
International Program Leader: Bisola Ojikutu, MD
International Co-Program Leader: Bruce Walker, MD

Johns Hopkins University School of Medicine
Program Leader: Vered Stearns, MD
Co-Program Leader: Edgar Miller, III, MD, PhD

Mount Sinai School of Medicine
Program Leader: Karen Zier, PhD
Co-Program Leader: Steven Itzkowitz, MD

University of California, San Francisco School of Medicine
Program Leader: Joel Palefsky, MD
Co-Program Leader: Peter Chin-Hong, MD

University of Iowa College of Medicine
Program Leader: Peg Nopoulos, MD
Co-Program Leader: Christie Thomas, MD

University of North Carolina at Chapel Hill School of Medicine
Program Leader: Paul B. Watkins, MD
Co-Program Leader: Susan Pusek, MPH
International Program Leader: Myron S. Cohen, MD

University of Pennsylvania School of Medicine
Program Leader: Joshua P. Metlay, MD, PhD
Co-Program Leader: Angela DeMichele, MD, MSCE
International Program Leader: Harvey Friedman, MD

University of Pittsburgh School of Medicine
Program Leader: Wishwa N. Kapoor, MD, MPH
Co-Program Leader: Amber E. Barnato, MD, MPH, MS

University of Texas Southwestern Medical Center at Dallas
Program Leader: Michael J. McPhaul, MD
Co-Program Leader: Abhimanyu Garg, MD

Washington University School of Medicine in St. Louis
Program Leader: Michael R. DeBaun, MD, MPH
Co-Program Leader: Jay F. Piccirillo, MD, FACS

Yale University School of Medicine
Program Leader: John Forrest, MD
Co-Program Leader: Harlan Krumholz, MD

2008 Clinical Research Fellows from Columbia University.

Reception at the 2008 Clinical Research Fellows Meeting at the University of Pennsylvania.

Clinical Scientist Development Award

Kavitha Gandhi (L), mentee to 2006 Distinguished Clinical Scientist Christopher Plowe, and 2008 Clinical Scientist Development Awardee Miriam Laufer (R) at the 2008 Clinical Scientist Meeting.

Thomas Wang (L) and Carl Novina (R), 2007 Clinical Scientist Development Awardees, at the 2008 Clinical Scientist Meeting.

1998

Andrew Badley, MD
Mayo Clinic Rochester
Anti-apoptitic Effects of HIV Protease Inhibitors

Alison Baird, MD, PhD, FRACP
Beth Israel Deaconess Medical Center
Multimodality Magnetic Resonance Imaging in Acute Stroke

Daniel Bloomfield, MD
College of Physicians and Surgeons of Columbia University
Prevalence and Prognostic Significance of T Wave Alternans

James Brooks, MD
Stanford University School of Medicine
Prostate Cancer Prevention through Induction of Phase Two Enzymes

William Cunningham, MD, MPH
University of California, Los Angeles
AIDS Health Outcomes and Access to Medical Care

Jonathan Drachman, MD
University of Washington School of Medicine
The Molecular Basis of Inherited Thrombocytopenia

Jennifer Griggs, MD
University of Rochester School of Medicine
Racial Variations in Chemotherapy for Breast Cancer

Michael Hagansee, MD, PhD
Louisiana State University School of Medicine
Predictors of Cervical Dysplasia in HIV-Infected Women

Marshall Horwitz, MD, PhD
University of Washington School of Medicine
Familial Leukemia

Howard Kaufman, MD
Albert Einstein College of Medicine
Clinical and Transgenic Models for Cancer Vaccines

Eleanor Pollak, MD
Children's Hospital of Philadelphia
Regulation of Expression of Procoagulant Proteins Prothrombin and Factor VII

Edmund Waller, MD, PhD
Emory University School of Medicine
Enhancing Immune Reconstitution in Cancer Patients

1999

Karen Alexander, MD
Duke University Medical Center
Preferences and Decision-Making for Cardiac Care in the Elderly

David J. Araten, MD
Memorial Sloan-Kettering Cancer Center
Somatic Mutations in Ataxia-Telangiectasia

Lisa A. Carey, MD
University of North Carolina at Chapel Hill
Molecular Markers Predicting Response to Breast Cancer Therapy

Michael R. DeBaun, MD, MPH
Washington University School of Medicine
Screening for Silent Stroke in Sickle Cell Disease

Theodore DeWeese, MD
Johns Hopkins Oncology Center
Detection of Biomarkers of Oxidative Damage in Prostatic Tissue DNA from Patients with Prostate Cancer

James M. Ford, MD
Stanford University School of Medicine
Molecular Basis of Drug Sensitivity in Upper GI Cancers

Roger Hajjar, MD
Maszsachusetts General Hospital
Targeting Genes and Modulating Contractile Function in Heart Failure

Edwin M. Horwitz, MD, PhD
St. Jude Children's Research Hospital
Transplantation of Bone Marrow Derived Mesenchymal Cells

Nancy Keating, MD, MPH
Harvard Medical School
The Effect of Physician Specialty on Quality of Breast Cancer Care

Michael McConnell, MD
Stanford University Medical Center
Noninvasive Magnetic Resonance Imaging of Human Coronary Plaque

Deborah Persaud, MD
Johns Hopkins University School of Medicine
Cellular Reservoirs for Human Innumodeficiency Virus (HIV-1) in Children

Peter Pertel, MD
Northwestern University School of Medicine
Processing and Function of HHV-8 Glycoproteins

Eric S. Rosenberg, MD
Massachusetts General Hospital
HIV-1-Specific T Cell Help: Does it Prevent Progression?

Matthew R. Smith, MD, PhD
Massachusetts General Hospital
Prevention of Skeletal Morbidity from Prostate Cancer

Robert H. Vonderheide, MD, DPhil
Dana-Farber Cancer Institute
Characterization and Therapeutic Utility of Telomerase Catalytic Subunit as a Widely Expressed Tumor-Associated Antigen

2000

Michael Ackerman, MD
Mayo Clinic
Molecular and Functional Basis of Cardiac Channelopathies

Richard Aplenc, MD
Children's Hospital of Philadelphia
Relapse Risk and Phase II Genotypes in Pediatric ALL

David Bangsberg, MD, MPH
University of California, San Francisco
Antiretroviral Outcomes Research in the HIV+ Urban Poor

Ramon Brugada, MD
Masonic Medical Research Laboratory
Molecular Genetic Basic for Familial Atrial Fibrillation

Mark Drazner, MD
University of Texas Southwestern Medical Center at Dallas
Gene-Environment Interactions and LV Hypertrophy

John Frangioni, MD, PhD
Beth Israel Deaconess Medical Center
Low-Molecular Weight Ligands for Bladder Cancer

William C. Hahn, MD, PhD
Dana-Farber Cancer Institute
New Models of Human Cancer

Carolyn Hoppe
Children's Hospital and Research Center Oakland
Genetic Predictors for Stroke in Children with Sickle Cell Anemia

Jennifer Jaroscak, MD
Case Western Reserve University
Placental Effects on Expansion of Umbilical Cord Blood

Pamela Jenkins, MD, PhD
Dartmouth Medical School
Health Outcomes of Hypoplastic Left Heart Syndrome

Dean H. Kedes, MD, PhD
University of Virginia
Growth and Pathogenesis of Kaposi's Sarcoma-Associated Herpesvirus

Sancy Leachman, MD, PhD
University of Utah
Regulatory Pathways in Papillomavirus-Induced Cancers

David Lyden, MD, PhD
Joan and Sanford I. Weill Medical College of Cornell University
Anti-Angiogenic Agents Down-Regulate Id Genes

Mary McNaughton-Collins, MD, MPH
Massachusetts General Hospital/Harvard Medical School
Impact of Suspicious Prostate Cancer Screening Tests

Philip Norris, MD
Blood Systems Research Institute
Analysis of HIV-1 Specific T Helper Cell Clones

Kathryn Rexrode, MD, MPH
Brigham and Women's Hospital/Harvard Medical School
Hormonal Predictors of CVD in Women

David Sweetser, MD, PhD
Massachusetts General Hospital
Tumor Suppressor Genes in Acute Myeloid Leukemia

2001

Amy Pickar Abernethy, MD
Duke University Medical School
Improving Pain Management in Palliative Care: A Randomized Controlled Trial of Academic Detailing for General Practitioners vs Patients

Marcus Altfeld, MD, PhD
Massachusetts General Hospital
CTL Responses Against Regulatory and Accessory HIV-1 Proteins

Thomas Darling, MD, PhD
Uniformed Services University of the Health Sciences
Tumorigenesis in Multiple Endocrine Neoplasia Type 1

Elizabeth Dees, MD
University of North Carolina at Chapel Hill
P450 Phenotype and Chemotherapy Toxicity in the Elderly

Shaffiq Essajee, BMBCh, MA
New York University School of Medicine
The Mechanisms and Clinical Importance of the Viral Disconnect Phenomenon in HIV-Infected Children Treated with HAART

Stephen Gottschalk, MD
Baylor College of Medicine
Therapy of Hodgkin Disease with LMPI Specific CTL

Priscilla Hsue, MD
University of California, San Francisco
Effect of Antiretrovirals on Atherosclerosis in HIV Patients

Stephen Huang, MD
Children's Hospital Boston
Type 3 Iodothyronine Deiodinase in Infantile Hemangiomas

Peter Kelly, MBBCh, MMedSc
Massachusetts General Hospital
Homocysteine and Oxidative Metabolism in Ischemic Stroke

Geoffrey Liu, MD
Massachusetts General Hospital
Gene-Environment Factors in Barrett's Adenocarcinoma

Hideho Okada, MD, PhD
University of Pittsburgh
Isolation of Glioma Antigens from IL-4 Vaccine Patients

John Pawloski, MD, PhD
Duke University Medical Center
Novel NO Function in Sickle Anemia

Bharat Ramratnam, MD
Miriam Hospital
Impact of Multi-Drug Resistant Proteins on HIV Treatment

Gottfried Schlaug, MD, PhD
Beth Israel Deaconess Medical Center
Using MRI to Guide Thrombolysis Decisions

Kalyanam Shivkumar, MD, PhD
University of California, Los Angeles
The Role of Cardiac Restitution in Sudden Cardiac Death

2002

Matthew L. Albert, MD, PhD
Institut Pasteur
Tumor Immunity versus Tumor Mediated Immunosuppression

Dan H. Barouch, MD, PhD
Beth Israel Deaconess Medical Center
Prophylactic and Therapeutic DNA Vaccines for HIV

Johann Sebastian de Bono, MD, PhD
CTRC Institute for Drug Development
Combined EGFR and HER2 Blockade for Advanced Breast Cancer

Seema R. Lalani, MD
Baylor College of Medicine
Genetic Etiology of CHARGE Syndrome

Linda M. McAllister-Lucas, MD, PhD
University of Michigan
Aberrant NF-kB Activation in MALT Lymphoma Pathogenesis

Julie M. Miller, MD
Johns Hopkins University
Identification and Significance of Microvascular Flow in Post-Ischemic Myocardial Injury

Avrum E. Spira, MD
Boston University
Tobacco, Cancer and Epithelial Gene Expression

Kevin G. Volpp, MD, PhD
University of Pennsylvania
Financial Stress and Hospital Quality of Care

Lisa L. Wang, MD
Baylor College of Medicine
The Molecular Basis of Rothmund-Thomson Syndrome

Catherine J. Wu, MD
Dana-Farber Cancer Institute
Non-ablative Transplantation for Hemoglobinopathies

2005

Michelle Asha Albert, MD, MPH
Brigham and Women's Hospital/Harvard Medical School
Black Women's Health Study and Cardiovascular Risk

Corey Casper, MD, MPH
University of Washington School of Medicine
HHV-8 Replication and Progression to Malignancy in Africa

Sekar Kathiresan, MD
Broad Institute of MIT and Harvard
Osteoprotegerin Pathway Biomarkers, Genes, and CVD

Jeffrey R. Keefer, MD, PhD
Johns Hopkins University School of Medicine
Pharmacological Modulation of Fetal Hemoglobin

Allison A. King, MD, MPH
Washington University School of Medicine
Cognition in Children with Sickle Cell Anemia

Matthew E. Mealiffe, MD
University of Washington School of Medicine
K7: A Gene for Hodgkin's Lymphoma Predisposition

William Pao, MD, PhD
Memorial Sloan-Kettering Cancer Center
Acquired Resistance to Targeted Therapy in Lung Cancer

Pavan R. Reddy, MD
University of Michigan
Immuno-modulation by Histone Deacetylase Inhibitors

Neil P. Shah, MD, PhD
University of California, San Francisco School of Medicine
Perfecting Targeted Therapy for Human Malignancies

John J. Strouse, MD
Johns Hopkins University School of Medicine
Cerebral Blood Flow in Sickle Cell Disease

Rochelle P. Walensky, MD, MPH
Massachusetts General Hospital/ Harvard Medical School
Impact and Value of Routine HIV Testing in South Africa

2006

Ferhaan Ahmad, MD, PhD
University of Pittsburgh
Identification of the Genetic Determinants of ARVD

Alessandro Cataliotti, MD, PhD
Mayo Clinic
Clinical Proteomics and Protein Therapeutics in Human Hypertension

Michael K. Cooper, MD
Vanderbilt University Medical Center
Monitoring and Manipulating Hh Signaling in Gliomas

Grant Dorsey, MD, PhD, MPH
University of California, San Francisco
Interactions between HIV and Malaria in African Children

Gianpietro Dotti, MD
Baylor College of Medicine
Chimeric T cells for Chronic Lymphocytic Leukemia

Matthew Freedman, MD
Dana-Farber Cancer Institute
Genetic Determinants of Prostate Cancer Aggressiveness

Mardi Gomberg-Maitland, MD, MSc
University of Chicago
Novel Therapeutics in Pulmonary Hypertension

Rosandra N. Kaplan, MD
Joan and Sanford I. Weill Medical College of Cornell University
VEGFR1 as a Novel Predictor of Metastasis

Ross Levine, MD
Memorial Sloan-Kettering Cancer Center
JAK-STAT Signaling in Myeloproliferative Disorders

Rita Nanda, MD
University of Chicago
The Role of BRCA1 Methylation in Basal-like Breast Cancer

Sanjiv M. Narayan, MD, MB
University of California, San Diego
Regional Reentry in Atrial Fibrillation

Christopher Newton-Cheh, MD, MPH
Massachusetts General Hospital
Genetic Determinants of QT Interval, Sudden Death

Anju Nohria, MD
Brigham and Women's Hospital
Role of Rho/Rho Kinase in Human Atherosclerosis

W. Kimryn Rathmell, MD, PhD
University of North Carolina at Chapel Hill
Renal Cell Carcinoma: Biologic Indicators of Response to Targeted Therapy

Harmony R. Reynolds, MD
New York University School of Medicine
Study of Women with ACS and Non-Obstructive CAD (SWAN)

Kimberly Risma, MD, PhD
Cincinnati Children's Hospital Medical Center
Mechanisms of Altered Lymphocute Cytotoxicity

Michael B. Rothberg, MD, MPH
Tufts University Medical Center/Baystate Medical Center
VTE Prophylaxis in Medical Patients

Manish Sagar, MD
Brigham and Women's Hospital
Selection of HIV-1 Variants During Transmission

Catherine S. Todd, MD, MPH
University of California, San Diego
An Integrated Program of Needle Exchange and VCT in Kabul

Thomas D. Wang, MD, PhD
Stanford University
Peptide Targeted Imaging of Esophageal Dysplasia

Jonathan W. Weinsaft, MD, MA
Joan and Sanford I. Weill Medical College of Cornell University
DE-MRI Tissue Specific Detection of Post MI Thrombi

Mitchell D. Wong, MD, PhD
University of California, Los Angeles
Coronary Disease: Race, Prevention and Treatment

Xu Yu, MD, MSc
Massachusetts General Hospital
Tissue-specific Protective Immunity Against HIV-1

2007

Mary Armanios, MD
Johns Hopkins University
Telomerase and the Genetics of Idiopathic Pulmonary Fibrosis

David M. Aronoff, MD
University of Michigan
Misoprostol as a Risk Factor in Clostridial Endometritis

Elisabeth B. Binder, MD, PhD
Emory University School of Medicine
Molecular Predictors of Peripartum Depression

Christopher Breuer, MD
Yale University
Tissue Engineered Conduits for Congenital Heart Surgery

James Brugarolas, MD, PhD
University of Texas Southwestern Medical Center at Dallas
Targeting the mTOR Pathway in Renal-Cell Carcinoma

Benjamin H. Chi, MD
University of Alabama at Birmingham
Impact of HAART to Prevent Pediatric AIDS in Rural Zambia

Wendy Chung, MD, PhD
Columbia University
Identification of Novel Breast Cancer Susceptibility Genes

Jeffrey R. Curtis, MD, MPH
University of Alabama at Birmingham
Long Term Risks and Extra-Skeletal Benefits of Biologics

Utpal P. Dave, MD
Vanderbilt University
Insertional Mutagenesis in the Progression of ATLL

Dawn L. DeMeo, MD, MPH
Harvard Medical School
Aging and Longevity Genes in COPD

Neel R.Gandhi, MD
Albert Einstein School of Medicine
Early Identification of Drug-Resistant TB in South Africa

Kirsten E. Lyke, MD
University of Maryland, Baltimore
Schistosoma-Mediated Resistance to Malaria

Vinod K. Misra, MD, PhD
University of Michigan
Maternal Adiposity, Placental Development, and Fetal Growth

Carl Novina, MD, PhD
Dana-Farber Cancer Institute
RNAi Factor Function in Chronic Lymphocytic Leukemia

Sunil Parikh, MD, MPH
University of California, San Francisco
Pharmacogenomics of Antimalarial Drugs

Subramaniam Pennathur, MD
University of Michigan
HDL, Atherosclerosis, and Chronic Kidney Disease

Daryl A. Scott, MD, PhD
Baylor College of Medicine
Genetic Determinants of Tracheoesophageal Defects

N. Sarita Shah, MD, MPH
Albert Einstein School of Medicine
Rapid Diagnosis of Drug-Resistant TB in South Africa

Volney Sheen, MD, PhD
Harvard Medical School
Genetic Determinants of Disorders of Neural Stem Cell Proliferation

E. Alejandro Sweet-Cordero, MD
Stanford University
Novel Markers of Pediatric Sarcoma Aggressiveness

2008

Gregory P. Bisson, MD, MSCE
University of Pennsylvania School of Medicine
HAART and Clearance of C. Neoformans from CSF in Patients with Cryptococcal Meningitis

Sandeep Dave, MD, MS
Duke University
Targeted NF-kB Inhibition in Molecular Subgroups of Patients with Lymphoma

Jose C. Florez, MD, PhD
Harvard Medical School
Pharmacogenetic Evaluation of Insulin Resistance Genes in Humans

Christine K Garcia, MD, PhD
University of Texas Southwestern Medical Center at Dallas
Genetics of Adult-Onset Pulmonary Fibrosis

Timothy E. Graham, MD
Harvard Medical School
RBP4 Receptor Expression and Function in Human Adipose Tissue

Leigh Robert Hochberg, MD, PhD
Brown University
Neural Interfaces for Restoration of Function After Paralysis

Marion Hofmann-Bowman, MD, PhD
University of Chicago
The Role of the Pro-Inflammatory S100 Proteins in Acute Coronary Syndrome

Deborah T. Hung, MD, PhD
Harvard Medical School
Understanding Adaptive Mechanisms that Generate Drug Resistance in TB

Peter W. Hunt, MD
University of California, San Francisco
Immunologic Determinants of CD4+ T Cell Recovery in Treated HIV+ Africans

Miriam K. Laufer, MD, MPH
University of Maryland, Baltimore
The Molecular Epidemiology of Malaria During Pregnancy

Michelle A. Lowes, MD, PhD
Rockefeller University
Characterization of Inflammatory Dendritic Cells in Psoriasis

Arya Mani, MD
Yale University School of Medicine
The Genetic Etiology of Atherosclerosis and Metabolic Syndrome

Ingo Mellinghoff, MD
Memorial Sloan-Kettering Cancer Center
Determinants of Response to Targeted Therapy in Glioblastoma

Aanand Naik, MD
Baylor College of Medicine
Controlled Trial of Goal-Setting for Diabetes Control in Minority Communities

Sattva S. Neelapu, MD
University of Texas MD Anderson Cancer Center
Immunosuppression in Lymphoma Tumor Microenvironment

Christopher Pittenger, MD, PhD
Yale University
Glutamate in OCD: A Novel Perspective on Pathophysiology and Treatment

Dominic N. Reeds, MD
Washington University
Effect of Diet-Induced Weight Loss on HIV-Associated Metabolic Syndrome

Dorry Segev, MD
Johns Hopkins University
Frailty in Elderly Patients Considering Kidney Transplantation

Padmanee Sharma, MD, PhD
University of Texas M D Anderson Cancer Center
Blockade of CTLA-4 to Induce Effective Anti-Tumor Immune Responses in Cancer Patients

David Andrew Stevenson, MD
University of Utah
Effects of Germline Mutations within the Ras Pathway on Bone Remodeling

Distinguished Clinical Scientist Award

2001 Distinguished Clinical Scientist Awardee Charles Sawyers (center) and his research team at UCLA in 2005. To the right in the front row are Clinical Scientist Development Awardees Neil Shah (2005) and Ingo Mellinghoff (2008).

2006 Distinguished Clinical Scientist Christopher Plowe at a clinic in Malawi.

1999

Kenneth C. Anderson, MD
Dana-Farber Cancer Institute
Development of Novel Treatment Approaches for Multiple Myeloma

Alan M. Gewirtz, MD
University of Pennsylvania School of Medicine
Nucleic Acid Therapeutics for Human Leukemia

David A. Scheinberg, MD, PhD
Memorial Sloan-Kettering Cancer Center
Specific Immunotherapy of Cancer: Targeting Therapy Selectively to the Neoplastic Cell

Bruce D. Walker, MD
Harvard Medical School/Massachusetts General Hospital
Immune Reconstitution in HIV Infection

2000

Alan D. D'Andrea, MD
Dana-Farber Cancer Institute
Establishment of a Diagnostic and Treatment Center for Fanconi Anemia

Helen E. Heslop, MD
Baylor College of Medicine
Immunotherapy of Cancer

David A. Katzenstein, MD
Stanford University School of Medicine
Affordable Treatment and Intervention to Prevent Drug Resistance Among HIV Infected Women and Their Infants in Southern Africa

Donald B. Kohn, MD
Children's Hospital Los Angeles
Gene Therapy for Blood Diseases Using Hematopoietic Stem Cells

Andrew R. Marks, MD
Columbia University, College of Physicians and Surgeons
Novel Approaches to Treating Heart Disease

Olufunmilayo I. Olopade, MD
University of Chicago School of Medicine
Molecular Genetics of Aggressive Breast Cancer

Paul M. Ridker, MD, MPH
Brigham and Women's Hospital/Harvard Medical School
Molecular and Genetic Approaches to Cardiovascular Disease Prevention, Epidemiology, and Risk Assessment

2001

Nina Bhardwaj, MD, PhD
New York University School of Medicine
Enhancement of Anti-HIV Immunity

Robert Siliciano (L), 2001 Distinguished Clinical Scientist, with David Bangsberg (R), 2000 Clinical Scientist Development Awardee and 2007 Operations Research on AIDS Care and Treatment grant recipient.

Brooke Sylvester (L) and Chika Nwachukwu (R), mentees of Funmi Olopade, 2000 Distinguished Clinical Scientist.

Andrew Marks, 2000 Distinguished Clinical Scientist.

Brian J. Druker, MD
Oregon Health and Science University
Molecularly Targeted Therapies for Leukemia

Steven A.N. Goldstein, MD, PhD
Yale University School of Medicine
Cardiac Ion Channel Mutations in Sudden Childhood Death

Dianna M. Milewicz, MD, PhD
University of Texas Health Science Center at Houston
Genetic Basis of Aortic Aneurysms and Dissections

Charles L. Sawyers, MD
University of California, Los Angeles School of Medicine
Kinase Inhibitor Therapy for Cancers with Aberrant PTEN/Akt Pathway Signaling

Margaret A. Shipp, MD
Harvard University/Dana-Farber Cancer Institute
Rational Risk-Related Treatment Strategies in Diffuse Large B-Cell Lymphoma

Robert F. Siliciano, MD, PhD
Johns Hopkins University School of Medicine
Latent Reservoirs for HIV-1: Basic Mechanisms and Clinical Significance

2002

Charis Eng, MD, PhD, FACP
Cleveland Clinic Foundation
Genetics of PTEN and Molecular-Based Patient Care

James L.M. Ferrara, MD
University of Michigan Medical School
Novel Strategies to Improve Allogenic BMT

D. Gary Gilliland, PhD, MD
Brigham and Women's Hospital
Clinical Translational Approaches to Therapy of Myeloid Blood Diseases

Daniel A. Haber, MD, PhD
Harvard University
CHK2: A Common Low Penetrance Familial Breast Cancer Gene

Daniel J. Rader, MD
University of Pennsylvania School of Medicine
Genetics of Lipid Metabolism and Atherosclerosis

2004

David E. Fisher, MD, PhD
Children's Hospital of Boston /Harvard Medical School
Novel Strategies for Treatment and Prevention of Melanoma

Sanjiv S. Gambhir, MD, PhD
Stanford University School of Medicine
Molecular Imaging of Cancer with a Voltage Sensor

Robert S. Negrin, MD
Stanford University School of Medicine
Regulatory T Cells in Bone Marrow Transplantation

Philip J. Rosenthal, MD
University of California, San Francisco
Translational Studies of Antimalarial Drug Resistance

2006

David M. Altshuler, MD, PhD
Broad Institute of MIT and Harvard
Discovery and Clinical Application Type 2 Diabetes Genes

Friedhelm Hildebrandt, MD
University of Michigan
New Treatment of Childhood Genetic Kidney Diseases

William G. Kaelin, MD
Dana-Farber Cancer Institute
Translational Studies Based on Tumor Suppressor Proteins

Elizabeth M. McNally, MD, PhD
University of Chicago
Epigenetics and Genetics of Heart Failure

Christopher V. Plowe, MD, MPH
University of Maryland School of Medicine
Antigenic Diversity and Malaria Vaccine Efficacy

David Relman, MD
Stanford University
Microbial Ecology of the Human Intestinal Tract

Joyce Slingerland, MD, PhD
University of Miami Miller School of Medicine
Molecular Therapies for Hormone Resistant Breast Cancer

2008

Sunil K. Ahuja, MD
University of Texas Health Science Center at San Antonio
Immunogenetic Rheostats of HIV-1 Transmission, Keys for Vaccine Development

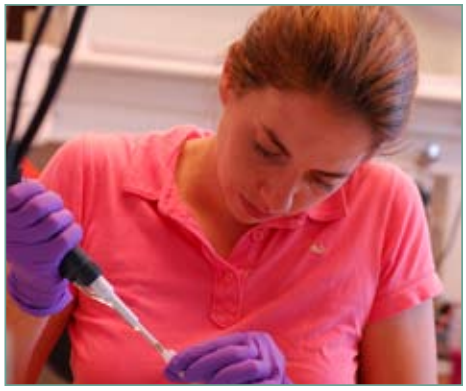
Marcus Altfeld, MD, PhD
Massachusetts General Hospital/Harvard Medical School
Innate Immunity in HIV-1 Infection

Jayakrishna Ambati, MD
University of Kentucky College of Medicine
Short Non-Interfering RNAs as Novel Therapies for Age-Related Macular Degeneration

Arul M. Chinnaiyan, MD, PhD
University of Michigan
Searching for Recurrent Gene Fusions and Translocations in Common Solid Tumors

Terrie Inder, MD, PhD
Washington University in St. Louis/ St. Louis Children's Hospital
Understanding Brain Injury and Development in At-Risk Infants to Improve Outcomes

Eric Vilain, MD, PhD
University of California, Los Angeles
Disorders of Sex Development



Christine Haggerty, mentee to Robert Siliciano, 2001 Distinguished Clinical Scientist.

Douglas Wallace, 2005 Clinical Interfaces Award Program grantee.

Elaine Gallin (L) and Gottfried Schlaug (R), 2001 Clinical Scientist Development Awardee.

Innovations in Clinical Research Award

2000

Endothelial Progenitors for Cardiac Valves
Joyce E. Bischoff, PhD
Children's Hospital Boston

Human Stem Cells: Therapy for Heart Failure
Daniel J. Garry, MD, PhD
University of Texas Southwestern Medical Center at Dallas

Heat Intolerance in Elderly Patients with CHF
Benjamin Levine, MD
University of Texas Southwestern Medical Center at Dallas

Craig G. Crandall, PhD
University of Texas Southwestern Medical Center at Dallas

Genetic Analysis of Mitral Valve Prolapse
Robert Levine, MD
Massachusetts General Hospital/Harvard Medical School

Susan A. Slaugenhaupt, PhD
Massachusetts General Hospital/Harvard Medical School

Robotics in Cardiac Surgery
Leslie Nifong, MD
East Carolina University- Brody School of Medicine

Transcriptional Analysis of Atrial Fibrillation
Ralph V. Shohet, MD
University of Texas Southwestern Medical Center at Dallas

Robert C. Kowal, MD, PhD
University of Texas Southwestern Medical Center at Dallas

Gene Expression in Mitral Regurgitation Patients
Mark R. Starling, MD
University of Michigan Medical Center

Bruce C. Richardson, MD, PhD
University of Michigan Medical Center

2001

Mechanisms of Unexplained Sudden Cardiac Death
Sumeet Chugh, MD
Oregon Health Sciences University

Novel Markers of Cardiac Injury
Robert E. Gerszten, MD
Massachusetts General Hospital

Familial Segregation of Venous Thromboembolism
John A. Heit, MD
Mayo Clinic

Mariza de Andrade, PhD
Mayo Clinic

Genomic Predictors of Homocysteinemia after Nitrous Oxide
Kirk Hogan, MD
University of Wisconsin Medical School

Novel Mechanisms for Fetal Globin Gene Expression
Tohru Ikuta, MD, PhD
Boston University School of Medicine

Novel Approaches for the Inhibition of Stent Restenosis and Arteriopathy after Cardiac Transplantation
Steven O.Marx, MD
Columbia University College of Physicians and Surgeons

Roxana Mehran, MD
Columbia University College of Physicians and Surgeons

Outcomes of Infants with Functional Single Ventricle: A Clinical Trial of Regional Cerebral Perfusion vs. Deep Hypothermic Circulatory Arrest
Richard G. Ohye, MD
University of Michigan

Caren S. Goldberg, MD, MS
University of Michigan

Stem Cell Expansion through Manipulation of p21Cipl
David T. Scadden, MD
Massachusetts General Hospital

Inflammation/Thrombosis Genomics and Acute MI
David Siscovick, MD, MPH
University of Washington

Deborah A. Nickerson, PhD
University of Washington

RNA Apatamers to Inhibit Sickle Red Cell Adhesion
Marilyn Telen, MD
Duke University Medical Center

Genetic Pathway for Pathogenesis of Coronary Artery Disease
Qing Wang, PhD
Cleveland Clinic Foundation

Eric Topol, MD
Cleveland Clinic Foundation

2002

Impact of CYP2C9 Genotype on Long-Term Warfarin Dose Requirement
Sherif Abdel-Rahman, PhD
University of Texas Medical Branch

SCN5A Gene Variants and Risk of Sudden Death
Christine M. Albert, MD, MPH
Massachusetts General Hospital

Calum A. MacRae, MBChB
Massachusetts General Hospital

Lewis Blood Group Antigens and the Severity of Sickle Cell Disease
Timothy Fisher, MBChB
University of Southern California Keck School of Medicine

Alan L. Hiti, MD, PhD
University of Southern California Keck School of Medicine

Gene Transfer into Hematopoietic Stem Cells
Patrick F. Kelly, MD
Cincinnati Children's Hospital Medical Center

David A. Williams, MD
Cincinnati Children's Hospital Medical Center

Franklin O. Smith, MD
Cincinnati Children's Hospital Medical Center

Role of the STRK1 Gene in Ischemic Stroke in the USA: The 'STRKUSA' Study
Allan Levey, MD, PhD
Emory University

Barney J. Stern, MD
Emory University

Vicki Hertzberg, PhD
Emory University

New Vectors for y-Globin Expression
Andre M. Lieber, MD, PhD
University of Washington

The Development of Novel Vascular Imaging Applications
Justin D. Pearlman, MD, ME, PhD
Dartmouth College

Mark A. Israel, MD
Dartmouth College

Interstitial Norepinephrine in Heart Failure
Lawrence I. Sinoway, MD
Pennsylvania State University

Laurence M. Demers, PhD
Pennsylvania State University

Arteriosclerosis as a T-Cell-Mediated Disease
Kendall A. Smith, MD
Joan and Sanford I. Weill Medical College of Cornell University

K. Craig Kent, MD
New York Presbyterian Hospital

Optimizing the Choice of Coronary Revascularization: Creating the Patient-Refined Expectations for Deciding Invasive Cardiac Treatments (PREDICT) Tool
John A. Spertus, MD, MPH
Mid American Heart Institute

Deepankar Medhi, PhD
University of Missouri-Kansas City

Malaria Transmission and the Human Immune Response
Joseph M. Vinetz, MD
University of Texas Medical Branch

Robert H. Gilman, MD, DTM&H
Johns Hopkins University School of Public Health

2003

ImmunoSensor for HIV Infections
P. Robert Beatty, PhD
University of California, Berkely

Eva Harris, PhD
University of California, Berkely

HIV RNA and CD4 Assays for Resource-Poor Countries
Angela M. Caliendo, MD, PhD
Emory University

Mark B. Feinberg, MD, PhD
Emory University

Silvija I. Staprans, PhD
Emory University

Frances Priddy, MD, MPH
Emory University

Carlos del Rio, MD
Emory University

A Portable, Visually-Read, Amplification-Boosted Test to Monitor HIV Viral Load
Neil T. Constantine, PhD
University of Maryland School of Medicine

Janet M. Barletta, PhD
University of Maryland

Maja Sommerfelt, PhD
BionorImmuno

Virologic Monitoring for the Malawian Antiretroviral Program
Mina C. Hosseinipour, MD
University of North Carolina at Chapel Hill

Susan A. Fiscus, PhD
University of North Carolina at Chapel Hill

Irving F. Hoffman, MPH
University of North Carolina at Chapel Hill

Rapid Mycobacterium Tuberculosis Drug Susceptibility Testing

Barry Kreiswirth, PhD
Public Health Research Institute

Novel and Improved Manual Low-Cost CD4 Tests

Alan L. Landay, BS, PhD
Rush University Medical Center

Suzanne Crowe, MD
MacFarlane Burnet Institute for Medical Research and Public Health

Tom N. Denny, MSc
Center for Laboratory Investigations

Development of Affordable HIV Diagnostics Using Microchips

William R. Rodriguez, MD
Massachusetts General Hospital

John T. McDevitt, PhD
University of Texas at Austin

Bruce D. Walker, MD
Harvard Medical School

Monitoring CD4 and HIV Viral Load with a Unique Low-Cost Mobile Flow Cytometer in AIDS Patients in Kinshasa, Democratic Republic of Congo

Robert W. Ryder, MD, MSc
University of North Carolina at Chapel Hill

Luc Kestens, PhD
Institute of Tropical Medicine

Rapid and Simple Semi-Quantitative Test Method for Monitoring CD4+ and Total Lymphocytes in Blood

Matthew Steele, PhD, MPH
Program for Appropriate Technology in Health

Electrical Detection of HIV DNA and RNA with Nanoparticle Probes

Steven Wolinsky, MD
Northwestern University

Chad A. Mirkin, PhD
Northwestern University

Yun-Wei Cao, PhD, MS
Northwestern University

Clinical Interfaces Award Program

2003

Full Grants

Genomics-based Approaches to New Pathogen Discovery in Chronic Human Diseases

Team Leader:
Donald E. Ganem, MD
Howard Hughes Medical Institute/University of California, San Francisco

Key Investigators:
Joseph R. DeRisi, PhD
University of California, San Francisco

Homer A. Boushey, MD
University of California, San Francisco

Planning Grants

Development of the First Test for Common Cancer Risk in the General Population

Team Leader:
Andrew P. Feinberg, MD, MPH
Johns Hopkins University

Key Investigators:
Francis M. Giardiello, MD, MBA
Johns Hopkins University School of Medicine

Elizabeth A. Platz, ScD, MPH
Johns Hopkins Bloomberg School of Public Health

Marcia R. Cruz-Correa, MD, PhD
Cleveland Clinic Foundation/ Johns Hopkins University School of Medicine

Ruth R. Faden, PhD, MPH
Johns Hopkins Bloomberg School of Public Health

A Multidisciplinary Approach to Understanding the Role of Social, Economic, and Immunological Factors in Cervical Cancer: Defining Parameters for an Innovative Cancer Control Strategy

Team Leader:
Sue J. Goldie, MD, MPH
Harvard University

Key Investigators:
Paul Farmer, MD, PhD
Harvard University

Thomas C. Wright, Jr., MD
Columbia University College of Physicians and Surgeons

Progenitor Cell Based Therapeutic Strategies for Atherosclerosis

Team Leader:
Pascal J. Goldschmidt, MD
Duke University

Key Investigators:
Joanne Kurtzberg, MD
Duke University

Jeremy Sugarman, MD, MPH, MA
Duke University Medical Center

Kenneth C. Land, PhD
Duke University

A Humanoid Robot as an Interactive Diagnostic Device in Autism

Team Leader:
Brian M. Scassellati, PhD
Yale University

Key Investigators:
Ami Klin, PhD
Yale University School of Medicine

Fred R. Volkmar, MD
Yale University School of Medicine

Fluorescent Probes for the Detection and Evaluation of Occult Ovarian Cancer

Team Leader:
Michael V. Seiden, MD, PhD
Massachusetts General Hospital

Key Investigators:
Arlan Fuller, MD
Massachusetts General Hospital

Richard Penson, MD
Massachusetts General Hospital

Debra Bell, MD
Massachusetts General Hospital

Neil Horowitz, MD
Massachusetts General Hospital

Ralph Weissleder, MD, PhD
Massachusetts General Hospital

2005
Full Grants

Clinical Application of Molecular Imaging to Oncology

Team Leader:
Michael V. Seiden, MD, PhD
Massachusetts General Hospital

Key Investigators:
Arlan Fuller, MD
Massachusetts General Hospital
Richard Penson, MD
Massachusetts General Hospital

Debra Bell, MD
Massachusetts General Hospital

Neil Horowitz, MD
Massachusetts General Hospital

Ralph Weissleder, MD, PhD
Massachusetts General Hospital

A Mitochondrial Basis for Metabolic Syndrome

Team Leader:
Douglas C. Wallace, PhD
University of California, Irvine

Key Investigators:
J. Jay Gargus, MD, PhD
University of California, Irvine

F. Sherwood Rowland, PhD
University of California, Irvine

Donald R. Blake, PhD
University of California, Irvine

Bruce J. Tromberg, PhD
Beckman Laser Institute/ University of California, Irvine

Clinical Research Systems

2001
Principal Investigator:
Jeremy Sugarman, MD, MPH, MA
Duke University Medical Center

Co-investigators:
Angela Bowen, MD
Western Institutional Review Board

Ezekiel Emanuel, MD, PhD
National Institutes of Health
Established the Consortium to Examine Clinical Research Ethics (CECRE)

2003
Principal Investigator:
Jeremy Sugarman, MD, MPH, MA
Johns Hopkins University

Co-investigators:
Angela Bowen, MD
Western Institutional Review Board

Ezekiel Emanuel, MD, PhD
National Institutes of Health
Enabled CECRE to conduct a series of empirical and conceptual studies and published six papers that analyzed the protection of human subjects.

AIDS Research Grants

2000

Taha E. Taha, PhD
Johns Hopkins University School of Public Health
Support project on nevirapine/AZT at birth to reduce mother-to-child transmission of HIV in Blantyre, Malawi.

2001

Bruce Walker, MD
Harvard Medical School
Purchase flow cytometer for use at the Nelson R. Mandela School of Medicine at the University of Natal, Durban, South Africa.

J. Brooks Jackson, MD, MBA
Johns Hopkins University School of Medicine
Support a pilot project of universal nevirapine access to prevent HIV mother-to-child transmission in Kampala, Uganda.

Gerald Friedland, MD
Yale University
Support a pilot project study of implementing antiretroviral therapy in resource-constrained settings, Durban, South Africa.

2002

Bruce Walker, MD
Massachusetts General Hospital Corporation
Support construction of Phase One of the Doris Duke Medical Research Institute at the Nelson R. Mandela School of Medicine at the University of Natal, Durban, South Africa.

Bruce Walker, MD, Philip Goulder, MD and Hoosen Coovadia, MD
Massachusetts General Hospital Corporation
Support for the HIV Pathogenesis Program, a bilateral program between the Nelson R. Mandela School of Medicine and the Partners AIDS Research Center.

J. Brooks Jackson, MD, MBA
Johns Hopkins University School of Medicine
Provide support for a small grants program on AIDS Care Research in Africa (ACRIA) to support young African researchers and help build local research capacity in Africa.

Elizabeth Glaser Pediatric AIDS Foundation
Support for a 2003 International Leadership Award (Recipient: Tammy Meyers, University of Witwatersrand, South Africa).

Pangaea Global AIDS Foundation
Purchase antiretroviral drugs for a pilot HIV treatment access Initiative.

Lisa Spacek, MD, PhD
Johns Hopkins University
Support to work with Dr. Tom Quinn on clinical algorithms for HIV/AIDS treatment in Africa.

2003

Ron Gray, MD
Johns Hopkins University
Support construction of the Rakai Project Clinical Laboratory and Training Center in Rakai District, Uganda, and research training for Ugandan investigators at the Center.

Bruce Walker, MD
Massachusetts General Hospital Corporation
Support construction of Phase Three of the Doris Duke Medical Research Institute at the Nelson R. Mandela School of Medicine at the University of Natal, Durban, South Africa.

2004

Robin Wood, MD and Linda Gail Bekker, MD, PhD
University of Cape Town Fund, Inc.
Fund the expansion of the Desmond Tutu HIV Centre's training program for health care workers participating in clinical research on HIV/AIDS care and treatment.

Gerald Friedland, MD
Yale University
Support for project assessing the integration of antiretroviral therapy into existing tuberculosis treatment programs in Tugela Ferry, South Africa.

Operations Research on AIDS Care and Treatment in Africa

2005-2006

ART Adherance Among People in Rural Zambian Clinics

Principal Investigator:
Gretchen L. Birbeck, MD, MPH
Michigan State University

Co-Investigators:
Elwyn M. Chomba, MMed
University Teaching Hospital Zambia

Alexis M. Sinyama, MBChB
Zambia Sugar Plc.

Adherence Based Viral Load Triage in Botswana

Principal Investigator:
Gregory P. Bisson, MD, MSCE
University of Pennsylvania

Co-Investigators:
Ndwapi Ndwapi, MD
Botswana Ministry of Health Department

Gaolathe Tendani, MD
Botswana Ministry of Health Department

Robert Gross, MD
University of Pennsylvania

Peer Educators Impact on HIV Medication Adherence

Principal Investigator:
William A. Blattner, MD
University of Maryland Biotechnology Institute

Co-Investigators:
Maria K.L. Eng, DrPH
University of Maryland Biotechnology Institute

Do Peer Counselors Promote Adherence to ARVs?

Principal Investigator:
Patricia Bright, RN, MSPH, PhD
Johns Hopkins University School of Medicine

Co-Investigators:
Francis Mmiro, MBChB, MRCOG
Makerere University Medical School, Uganda

Philippa Musoke, MBChB, MMED
Makerere University Medical School, Uganda

Laura Guay, MD
Johns Hopkins School of Medicine

Evaluation of Antiretroviral Therapy Impact in Zambia

Principal Investigator:
Benjamin H. Chi, MD
University of Alabama at Birmingham

Co-Investigators:
Jeffrey J. S. Stringer, MD, MPH
University of Alabama at Birmingham

Moses Sinkala, MPH
Lusaka District Health Management Team, Zambian Ministry of Health

Models of Care for Antiretroviral Service Delivery

Principal Investigator:
David Coetzee, MBBS, BA, MS, DTM&H, FFCH(SA)
University of Cape Town

Co-Investigators:
Andrew M. Boulle, MD
University of Cape Town

Landon Myer, PhD
University of Cape Town

Susan M. Cleary, MA
University of Cape Town

Impact of ART on Sexual Behaviors in Kisumu, Kenya

Principal Investigator:
Craig R. Cohen, MD, MPH
University of California, San Francisco

Co-Investigators:
Stephan C. Shiboski, PhD, MS
University of California, San Francisco

Eliza A. Bukusi, MPH, MMED, MBChB
Center for Microbiology Research, Kenya Medical Research Institute

Anjali Sharma, ScD
Center for Microbiology Research, Kenya Medical Research Institute

HAART Delivery Models: A Quasi-Experimental Study

Principal Investigator:
Stephen S. Gloyd, MD, MPH
Health Alliance International

Co-Investigators:
Kenneth H. Gimbel-Sherr, MPH
University of Washington/ Health Alliance International

James T. Pfeiffer, PhD, MPH
University of Washington/ Health Alliance International

An Enhanced Adherence Support Programme for HAART

Principal Investigator:
Salim Abdool Karim, MBChB, PhD
Columbia University

Co-Investigators:
Francois van Loggerenberg, MA
University of KwaZulu-Natal

Kogieleum Naidoo, MBChB
University of KwaZulu-Natal

Therapeutic Options for Women Exposed to Single Dose Nevirapine

Principal Investigator:
Louise Kuhn, PhD, MPH
College of Physicians and Surgeons of Columbia University

Co-Investigator:
Wei-Yann Tsai, PhD
Columbia University

Cost-Effectiveness of Public-Private Partnerships

Principal Investigator:
Gary Maartens, MBChB, MMed
University of Cape Town

Co-Investigator:
Susan M. Cleary, MA
University of Cape Town

Establishing the Cost-Effectiveness of Different Models of Antiretroviral Treatment Programs Across Clinical Sites in Southern Africa in Urban and Rural Settings

Principal Investigator:
Richard Marlink, MD
Elizabeth Glaser Pediatric AIDS Foundation

Co-Investigators:
Robert A. Pawinski, MBChB
Nelson R. Mandela School of Medicine

Helga Holst, MD
McCord Hospital

Prevention of TB Mortality and HIV Related Hospitalization

Principal Investigator:
Neil Martinson, MBBCh, MPH, MFGP
Johns Hopkins University School of Medicine

Co-Investigators:
Charles Holmes, MD, MPH
Harvard Medical School

Richard E. Chaisson, MD
Johns Hopkins University School of Medicine

Directly Observed, Community-Based Treatment in Nigeria

Principal Investigator:
Robert Murphy, MD
Northwestern University

Co-Investigators:
John A. Idoko, MD
Jos University Teaching Hospital

Babefemi O. Taiwo, MD
Northwestern University

Improve HAART Adherence in an ARV Treatment Expansion Program in Kenya: Operational Evaluation and Cost Analyses

Principal Investigator:
D. Mkaya Mwamburi, MD
Tufts University School of Medicine

Co-Investigators:
Christine A. Wanke, MD
Tufts University School of Medicine

Ira Wilson, MD, MS
Tufts-New England Medical Center

David M. Kent, MD, MS
Tufts-New England Medical Center

Omu A. Anzala, PhD, MBChB
University of Nairobi

Identifying Optimal HIV Care Approaches in Africa

Principal Investigator:
Denis Nash, PhD, MPH
Columbia University Mailman School of Public Health

Co-Investigators:
Batya Elul, PhD, MSc
Columbia University Mailman School of Public Health

Wafaa El-Sadr, MD, MPH
Columbia University Mailman School of Public Health

HIV/AIDS in South Africa

Principal Investigator:
Sydney Rosen, MPA
Boston University

Co-Investigators:
Mary Bachman, DSc, MPH
Boston University
Ian M. Sanne, MBBCH, FCP (SA), DTM&H
University of Witwatersrand

Decentralization of Pediatric HIV Care and Treatment in Kampala, Uganda

Principal Investigator:
Heidi Schwarzwald, MD, MPH
Baylor College of Medicine

Co-Investigators:
Ezekiel Mupere, MD
PIDC Mulago Hospital

Addy Kekitiinwa, MD
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Pharmacy Based Monitoring of ART Programs

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Extending HIV Care Beyond the Rural Health Center

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2007

Transport Support to Improve ARV Treatment Outcomes

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Macronutrient Supplement for HIV-Infected Patients Initiating ART

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Impact and Value of Improving TB Control in Africa

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Combating MDR and XDR TB and HIV in Rural South Africa

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Impact of Peer Educators and Mobile Phones on HIV Care

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Trial of Strategies to Enroll Pregnant Women into ART

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Evaluating Two Models of ART Delivery in Rural Rwanda

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Mobile ARV Pharmacy at TREAT Sites in Rural Uganda

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Improving TB Diagnosis in High HIV Primary Care Settings

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Community-Based Case Finding of TB-HIV Patients

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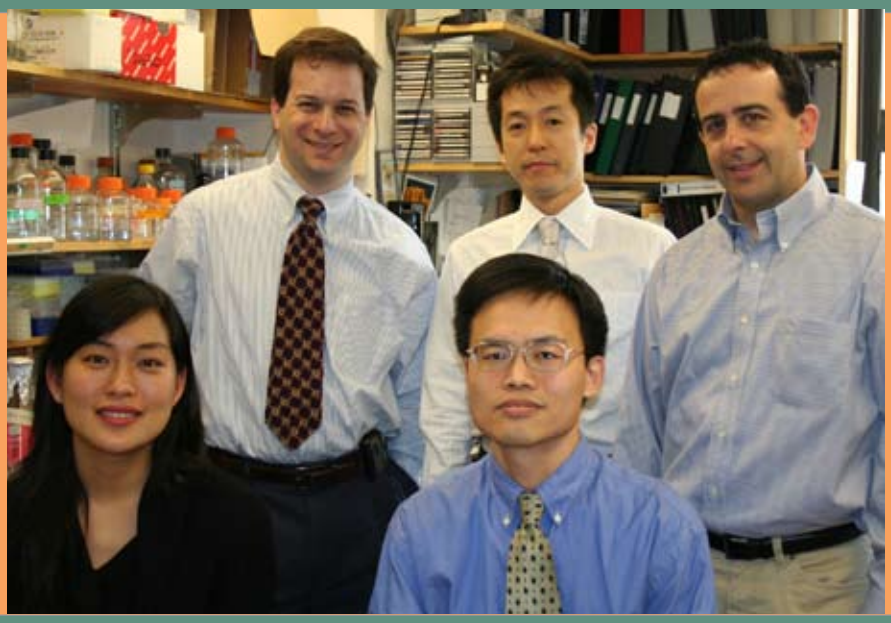
On back cover: Distinguished Clinical Scientist David Fisher (back row on R) with his research team (clockwise from L to R) Jennifer Lin, Andrew Wagner, Eiichi Makino and Rutao Cui.



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