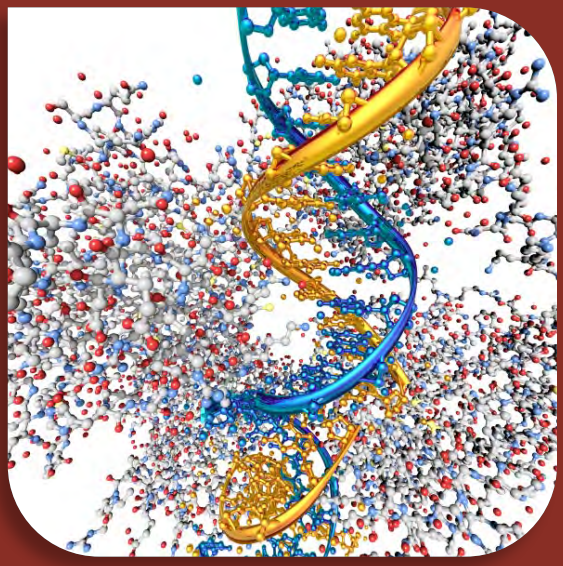
Annual Report | Bankhead-Coley Cancer Research Program

bankheadcoley
Florida Cancer Research Program



July 2010 – June 2011

William G. “Bill” Bankhead Jr. and David Coley Cancer Research Program

Fiscal Year Annual Report

July 1, 2010 – June 30, 2011

Submitted to

The Governor

The President of the Senate

The Speaker of the House of Representatives

and

The Florida Center for Universal Research to Eradicate Disease

by

Dr. Richard Bookman, Chair

Biomedical Research Advisory Council

Florida Department of Health

December 15, 2011

Bankhead-Coley Cancer Research Program

Offering Florida Researchers Merit-Based Grants Without Regard for Institutional Affiliation to Advance Progress Towards Cures for Cancer

The Bankhead-Coley Cancer Research Program Goals

The purpose of the Bankhead-Coley Cancer Research Program is to advance progress towards cures for cancer by awarding research grants using a peer-reviewed, competitive process.

Specifically, the Program seeks to:

1. Expand cancer research capacity in the state
2. Improve research and treatment through greater participation in cancer clinical trials networks
3. Reduce the impact of cancer on disparate groups
4. Foster collaborations among institutions, researchers, and community practitioners

For more information about the Program or to request additional copies of this report, please contact the Florida Department of Health Florida Biomedical Research Programs at FBRP@doh.state.fl.us or (850) 245-4527. To download a copy of this and prior years' reports, go to www.floridabiomed.com.

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A Strategic Investment

Every year 100,000 Floridians are diagnosed with cancer, 40,000 die, and patient health care costs alone exceed $4 billion.[1] The funding of the Bankhead-Coley Cancer Research Program represents a commitment by the state of Florida to dedicate resources to research efforts to facilitate medical breakthroughs that will address this devastating toll and reduce the state's cancer health care burden. The Bankhead-Coley grants focus on discoveries that will lead to effective diagnosis, prevention, and treatment of all forms of cancer.

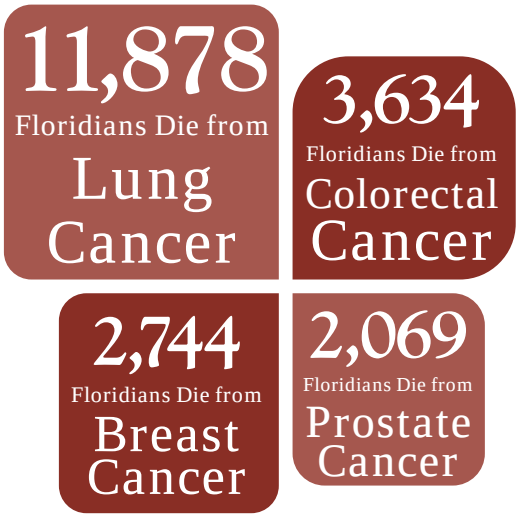
The Biomedical Research Advisory Council (Advisory Council), a group of eminent scholars and appointed representatives from throughout the state, recommends strategies that will lead to successful outcomes focused on addressing the state's greatest biomedical research needs and challenges. The Advisory Council recommends funding for only the most promising science in the state, utilizing a competitive, peer-reviewed evaluation process and oversees both the Bankhead-Coley Cancer Research Program and the James and Esther King Biomedical Research Program. These programs are referred to within this report as the "Florida Biomedical Research Programs" or "Programs."

Aside from the obvious benefits of improved health outcomes, supporting research through competitive grant programs stimulates Florida's economy, attracts research talent to Florida, and provides jobs. More than 744 researchers, lab personnel, and graduate students across the state have been able to dedicate time to research initiatives as a result of Program

Factors Influencing Strategic Decisions

- **Florida's Disease Burden** - Unique demographics and health disparities defining Florida's most urgent needs
- **Funding Variations** - Swings in Program funding from year-to-year requiring scope adjustments
- **Continuous Improvement** – Implementing best practices in program operations
- **Deficiencies in Research Capacity** - Florida's need for increased research capacity and momentum

Each Year in Florida[2]...



funding. Once research teams are established, continuous funding support is critical to maintain momentum and to accelerate translation of discoveries for the benefit of patients. These investments at a state level are fundamental to attracting and developing research talent who can compete for national funding and produce results worthy of national and international attention.

dedicating funds to research has a direct and significant impact on Florida's economics and research momentum.

This report demonstrates how the Bankhead-Coley Program shows responsiveness and flexibility to both opportunities and challenges in the quest to facilitate medical breakthroughs and advance the Program's statutory goals.

Core Strategies to Advance Research Goals

- Supporting new scientists establishing labs in Florida
- Providing time for established scientists by bridging federal funding gaps to maintain research momentum
- Jump-starting the transformation of research outcomes into patient applications
- Encouraging and supporting the formation of collaborative, multi-disciplinary teams to accelerate medical breakthroughs
- Providing access to shared, high-cost equipment to enhance researchers' capabilities

In Fiscal Year (FY) 2010-2011, the Bankhead-Coley Cancer Research Program received $20 million in appropriations and as a result made 41 grant awards. In stark contrast, FY 2011-2012 appropriations were reduced to $10 million. While the full effects of this reduction of 50 percent may not be evident for some time, the immediate impact is that funding is available for only 26 grants. Competing priorities for state funds are constant challenges, and the commitment made to

Implementation of chosen strategies is having a positive impact on discovering breakthroughs, developing treatments, advancing research, and improving grantees' successes at obtaining new federal grants based on the important work supported by the Bankhead-Coley Program. Protected research time and resources for scientists to become more competitive for federal research dollars is a shared component of all Program core strategies.

Bankhead-Coley Direct Support

Total Funds Awarded
$63.5 million

Received Follow-on Funding
51% of Grantees*

Total Grants Awarded
183

Total Follow-on Funding Received
$119 million*

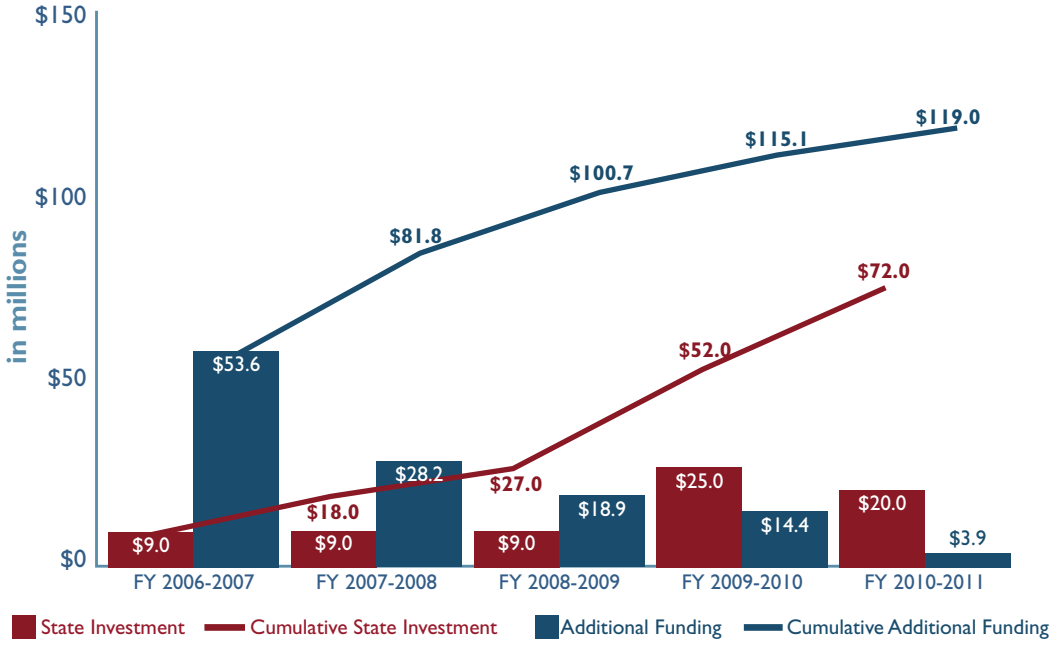
Impact of Leveraged Support

**Calculated based on grants at least one year old, currently 142 grants.*

Leveraging State Funding to Support Research Goals

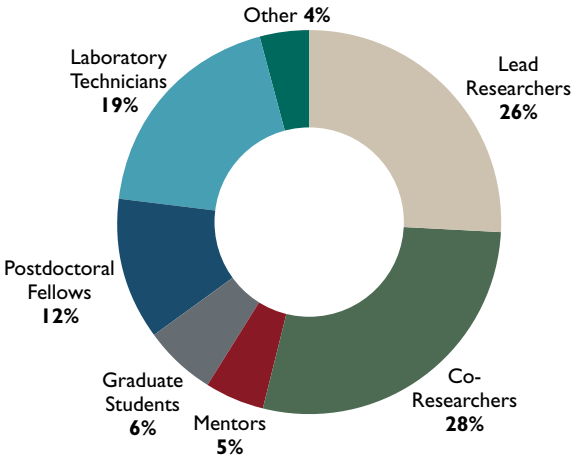
Grantees are more successful at attracting federal and private funds when provided the time and resources to generate initial research findings. The Bankhead-Coley Program provides funds for highly meritorious research projects with the anticipation that project results will attract federal funding for continuing related research. Follow-on funding from federal or private resources enables additional research and benefits for Floridians long after the initial grant has ended.

Additional Funding Resulting from Grants by Year Awarded

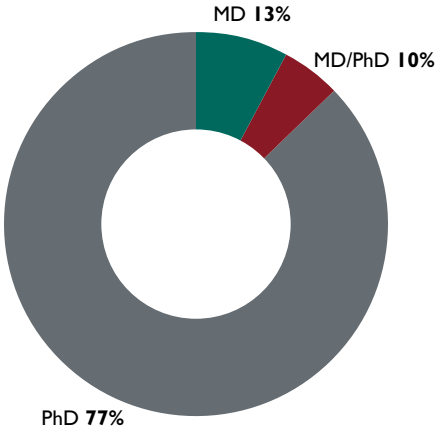


** It takes at least 1 1/2 years for grants to generate significant research findings and obtain additional funding: one year of research with Program funding and at least six months for a standard federal grant application review cycle.*

Number of Jobs Supported



Lead Researcher Qualifications



Funding the Best Science

A competitive peer review process, utilizing scientific experts from outside Florida to score scientific merit and compatibility with Program goals, is used as input in making funding recommendations. To avoid conflicts of interest, the Advisory Council is "blinded" to the identity of applicants or their institutional affiliations.

Only 19 funding programs nationwide in addition to the Florida Biomedical Research Programs are included on the National Cancer Institute's (NCI) list of organizations with approved funding systems. This distinction creates a competitive advantage for Florida research institutions seeking prestigious NCI Cancer Center designation and NCI Center Support Grants typically exceeding $1 million per year.

Supporting Florida's Economic Growth

Research programs attract high-impact businesses and high-wage jobs. The largest percentage of Bankhead-Coley research funding is allocated to salaries for highly skilled workers. When considering the impact of follow-on funding from federal sources made possible through direct support of the Program, the benefits extend far beyond the salaries provided by grants.

$32 million
In Program Funds Support Research Staff

744 Jobs
Supported by Program Funds

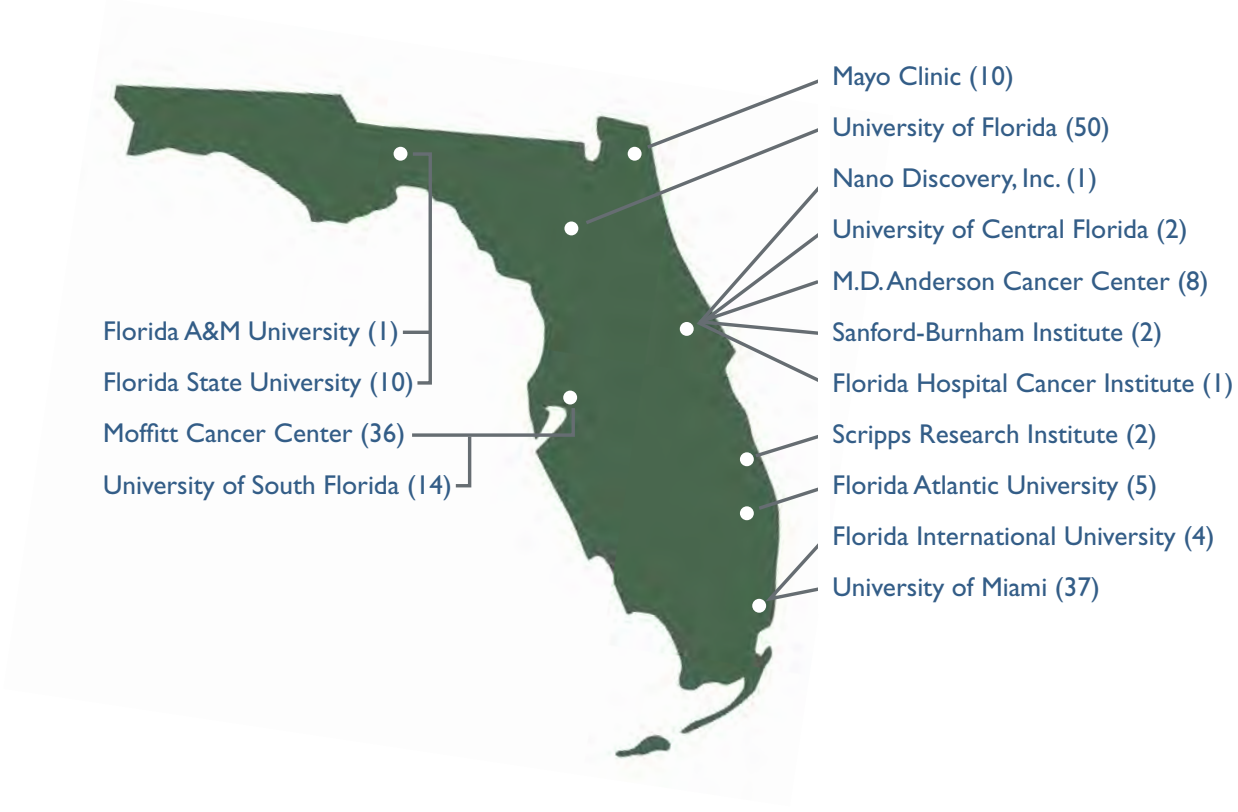
50%
Of Total Program Grant Dollars Fund Research Staff

1,577 New Jobs
For every research job in Florida, 2.12 new jobs are created[3]

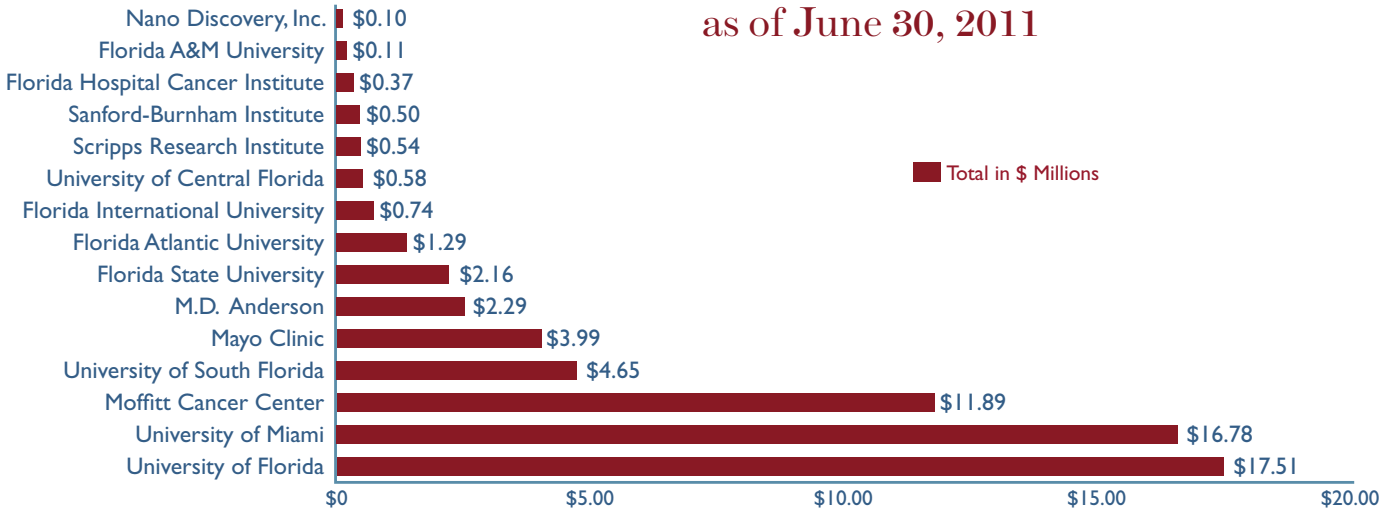
Dr. Santhi Konduri, 2009 Grantee,
M.D. Anderson Cancer Center

Statewide Research Support

The Bankhead-Coley Cancer Research Program has invested $63.5 million at 15 Florida institutions and qualified small businesses. Any university or established research institute in Florida may submit applications for biomedical research funding from the Bankhead-Coley Program. For a list of individual Grantees and award information for FY 2010-2011, please refer to Appendix A. For a complete list of all awards, see the Program's website at www.floridabiomed.com.



Total Bankhead-Coley Grant Funding by Institution as of June 30, 2011



Operating with Transparency

The Program's transparency and integrity are evidenced by:

- Full disclosure of how funds are spent
- Annual accounting of scientific progress and impact
- Open, publicly noticed Advisory Council meetings
- Conflict-of-interest safeguards to prevent undue influence

Guided by Experts

The Advisory Council is comprised of eminent scholars and appointed representatives from throughout the state who are well connected within Florida's research community. In addition to recommending strategies, the Advisory Council assists in developing guidelines to ensure fairness, neutrality, and adherence to the principles of merit and quality in the conduct of the Program.

Demonstrating Accountability

Scientific Progress: For multi-year grants, progress reports are peer reviewed annually against research aims and staff conducts site visits.

Financial Accountability: Every grant dollar awarded is tracked through quarterly and final financial reports. Additionally, multi-year grants undergo a detailed financial review during site visits.

Performance Measurement: Operations are continuously measured, and enhancements are applied regularly to improve the Program's responsiveness and overall performance.

Program Evaluation: Stakeholder feedback is collected to guide continuous improvement and strategic planning efforts.

Dr. Geoffrey Stone, 2010 Grantee, University of Miami

Program Funding History

After seeing an increase of funding for the Florida Biomedical Research Programs during FY 2009-2010 attributed to the commitment by the Legislature to allocate 2.5 percent of proceeds from the tobacco surcharge, appropriations have declined in the last two legislative sessions. At its peak, the Bankhead-Coley Program received $25 million. Over the last two fiscal years, appropriations for open, competitive funding through the Programs were reduced in favor of direct, institutional funding. Although Program allocations have decreased, the importance of conducting research to address Florida's health concerns and the need by the entire scientific community for stable research funding is high.

What Others Say about the Program . . .


Dr. John Copland

"We use the Bankhead-Coley Program continually for recruitment. During interviews, we let them know about opportunities for team research the Program provides. This is definitely a mechanism to attract researchers to Florida."

-Dr. John Copland,
2007 Grantee, Mayo Clinic

"As a member of an NIH [peer review] study section, I have perspective on the Program from outside Florida. My colleagues are jealous of our state funding [for Bridge Grants]. The Program has a good reputation based on the high-quality publications investigators produce."

-Dr. Jin Cheng,
2007 Grantee, Moffitt Cancer Center & Research Institute

"In this era of tough federal funding, researchers have to submit applications repeatedly to get funded, and my colleagues in other states are quite impressed by this program. The Florida Bridge Grant allows a researcher to keep going and generate the data requested for a resubmission. It's a clever strategy to help gain more research funding for the state. The state invested one year of funds and received three to five years of federal funding along with a strengthened biomedical research structure in return."

-Dr. George Sarosi,
2006 Grantee, University of Florida

Impacting Health Outcomes

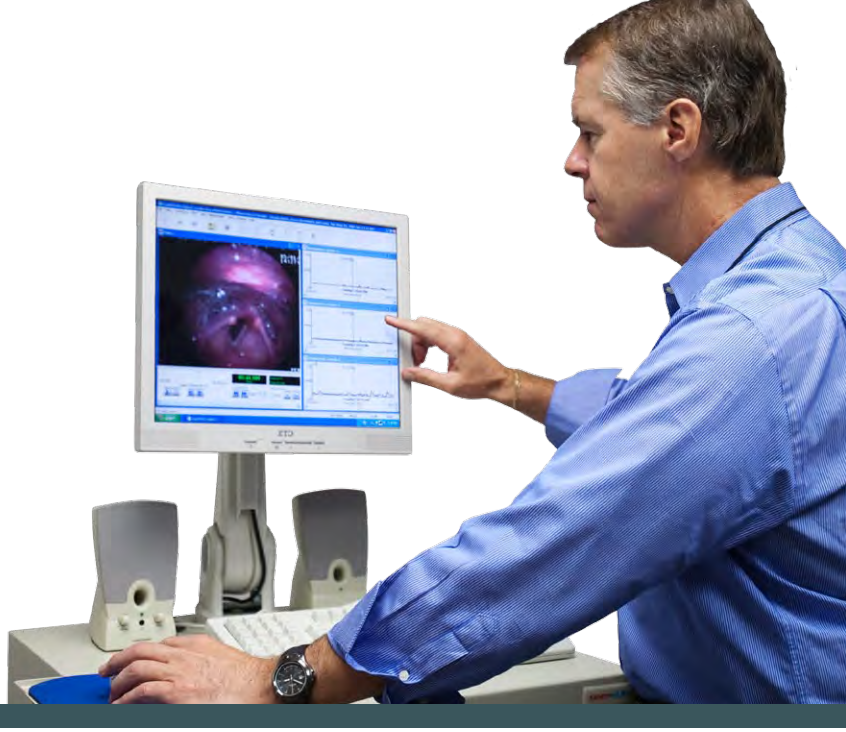
Dr. Alexander Parker, 2010 Grantee, Mayo Clinic, with research intern Lauren Hassan

A strong, consistent investment in the Florida Biomedical Research Programs allows researchers to continue working for advancements in diagnosing, preventing, and treating the diseases that afflict the greatest number of Floridians.

Quest for Cancer Breakthroughs

"Cancer is rapidly becoming the major cause of death in the world, and the cancer burden in Florida is among the greatest in the United States. The Florida Biomedical Research Programs address this problem by providing funding for innovative research that also helps attract and retain a scientific and clinical workforce to meet Florida's cancer challenges now and in the future."

Dr. Daniel Armstrong
Professor and Associate Chair, Pediatrics;
Director, Mailman Center for Child Development, University of Miami;
Florida Biomedical Research Advisory Council Member



Dr. Michael Crary, 2011 Grantee, University of Florida

Florida continues to record the second-highest numbers of new cancer diagnoses and deaths in the nation, a disproportionate cancer burden for the fourth most populous state.[4] This burden is influenced by state demographics, which include an aging population, access issues driven by socioeconomic status and rural health concerns, and an "emerging majority" population made up of racially and ethnicly diverse citizens. With the devastating toll on Florida's population and families as well as billions of dollars spent treating cancer patients, the Florida Legislature created the Bankhead-Coley Program to accelerate medical breakthroughs in cancer research.

The Advisory Council's awareness of the severity and impact of these health issues guides the strategies and ensures that research funding addresses the right things in the right way. As a result, scientists have the tools and resources needed for medical advances that will deliver health improvements to the people of Florida.

Working on the Right Things . . .

All funded projects are committed to researching cancer.

Research is dedicated to prevention, diagnosis, treatment, and cure as well as encourages the discovery of medical breakthroughs and cutting-edge treatments that target Florida's health demographics.

Funded grants support all stages of research from early discovery to testing in patients, which is necessary to meet the ultimate goal of improved patient health.

Doing it the Right Way . . .

Grants are awarded to only the most promising, scientifically rigorous projects, as determined by an independent scientific peer review process accredited and endorsed by the National Cancer Institute (NCI).

Guided by a well-respected Advisory Council and committed to the effective stewardship of funds, the Program regularly evaluates chosen strategies and incorporates widely accepted best practices in managing biomedical research programs.

Leads to Improvements…

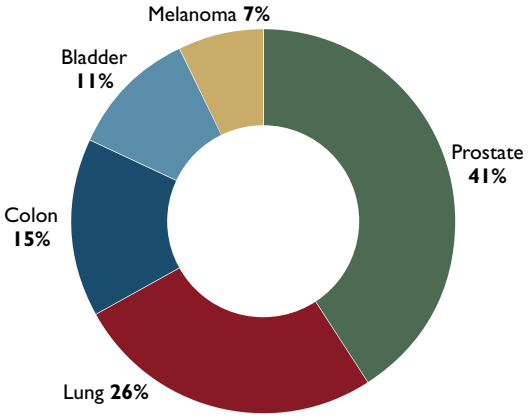
- Improved patient health care options and quality of life
- Identification of factors necessary to reduce the unequitable cancer burden in Florida's highly diverse and disproportionately affected populations
- Improved cancer outcomes through new solutions and treatments
- Reduced health care burden for Florida

A Profile of Cancer in Florida

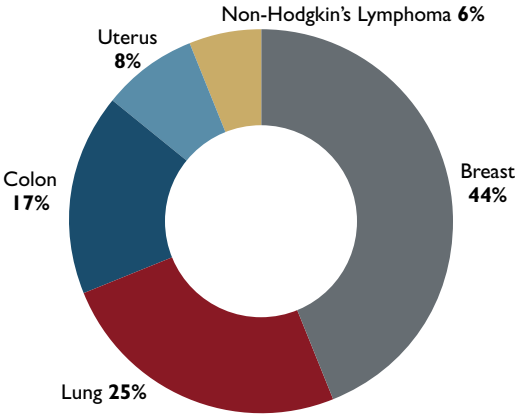
The Prevalence and Severity of Cancer in Florida[5]

Most Commonly Diagnosed Cancers in Florida

For Men

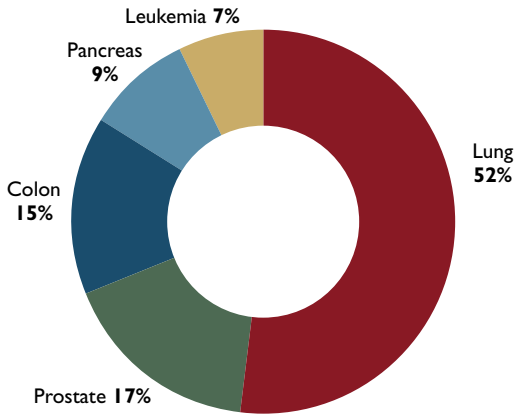


For Women

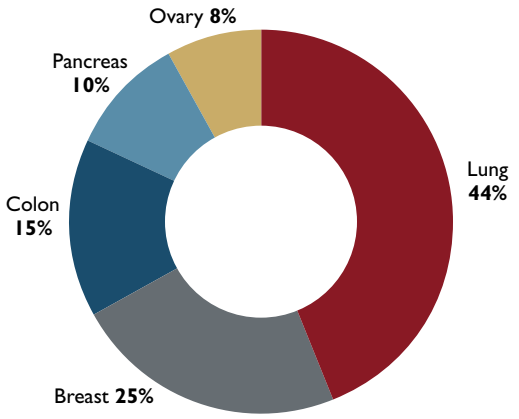


Most Common Causes of Cancer Death in Florida

For Men



For Women



Dr. Joyce Slingerland, 2009 Grantee,
University of Miami

40,817
deaths in Florida annually

Cancer is the second most common cause of death in Florida.[6] On average, 100,250 new cancer cases were diagnosed per year for the period 2004-2008 in Florida.[7]

$4 billion
spent on cancer health care annually

The direct cost of health care attributed to the treatment of cancer patients in Florida is staggering. Lung, breast, colon, and prostate cancer account for the highest costs, totaling $1.2 billion annually in Florida. The indirect cost associated with lost work days is $1.3 billion.[8]

30%
of all cancer deaths are due to smoking

Smoking causes more than 85 percent of lung cancers and can cause cancer almost anywhere in the body.[9] Lung cancer accounts for the highest number of all cancer deaths in the state of Florida for both men and women.[10]

32%
higher death rate in African American men than white men

Cancer disparities – demographic differences in morbidity and mortality rates – adds trillions of dollars to U.S. health care costs.[11] For instance, African Americans have the highest death rate and shortest survival of any U.S. racial and ethnic group for most cancers.[12] In 2008, approximately 7.4 percent of the nation's African American population resided in Florida, only surpassed by New York.[13]

$63.5 million
Program investment in Cancer Research

The Bankhead-Coley Program has funded 183 research projects, and Florida's scientists have leveraged the state's initial investment with follow-on funding of $119 million to continue cancer research.

Focus on Cancer Research

Bankhead-Coley Support for Cancer Research

Funds Applied to Cancer Research
$63.5 million

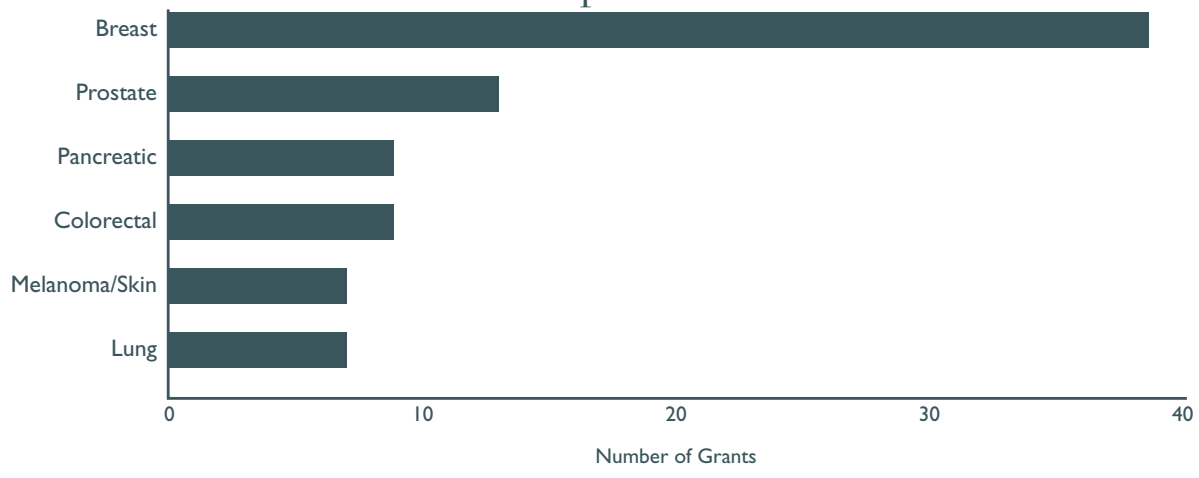
People Working on Cancer Projects
744

Cancer-Related Projects
183

Institutions Awarded Grants for Cancer Research
15

Cancer Types being Researched
21

Bankhead-Coley Grants Directed Toward Attacking the Top Florida Cancers



Dr. Krishna Komanduri, 2010 Grantee, University of Miami

Bankhead-Coley Research Offers New Hope for Patients

Early Detection of Ovarian Cancer

Most ovarian cancer goes undetected until it's too late; more than 70 percent of women are diagnosed after the disease has spread beyond the ovary, so prognosis is poor.[14] Dr. Rasim Guldiken is developing a prototype nanosensor to enable early detection of ovarian cancer by measuring urinary protein. He anticipates findings may significantly impact women worldwide.

-Dr. Rasim Guldiken
2010 Grantee, University of South Florida

How to Starve a Tumor

"Blood vessels are critical for a tumor's survival, growth, and spread." Dr. Jun Cai is researching how to cut off tumors' blood supplies in order to starve them and prevent cancer spread. "The results of our research will provide an alternative intervention strategy in the treatment of a range of cancers including breast cancer."

-Dr. Jun Cai
2009 Grantee, University of Florida

Personalized Cancer Treatment

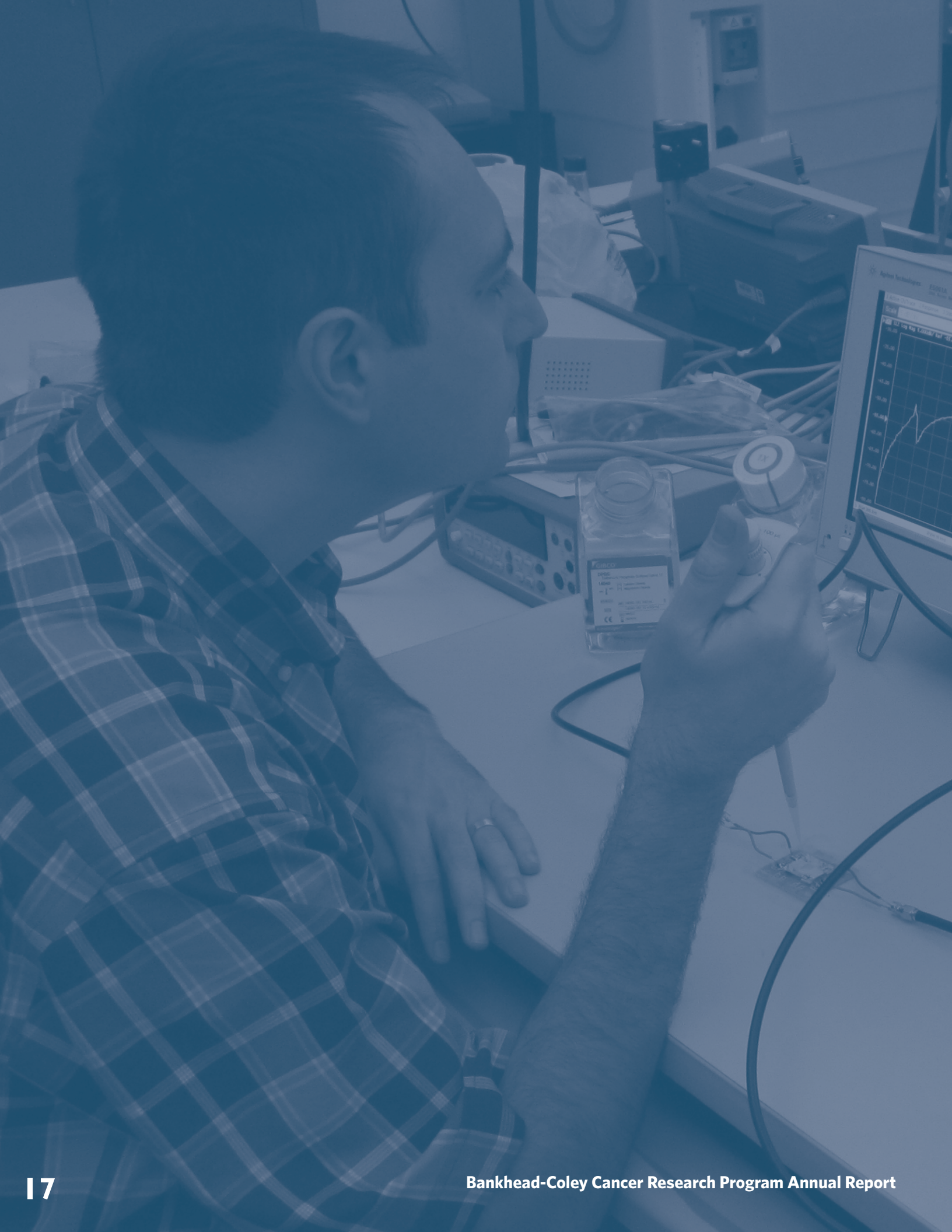
"Imagine a cancer treatment designed just for you. We are studying genetic changes in melanoma to develop personalized therapies that selectively kill melanoma cells while leaving normal cells unharmed. Currently, we cannot prolong survival of patients whose melanoma has spread."

-Dr. Keiran Smalley
2009 Grantee, Moffitt Cancer Center & Research Institute

Tests for New Melanoma Treatment

"This grant was critical, allowing me to gather data to support combining a vaccine with an antibody to treat patients with advanced melanoma. As a result, we received federal funding for testing in humans. This is one of the first trials of its kind in the U.S., giving Florida patients access to an exciting new immunotherapy. Out of 15 patients we followed for 5-18 months, there has not been one single progression of cancer."

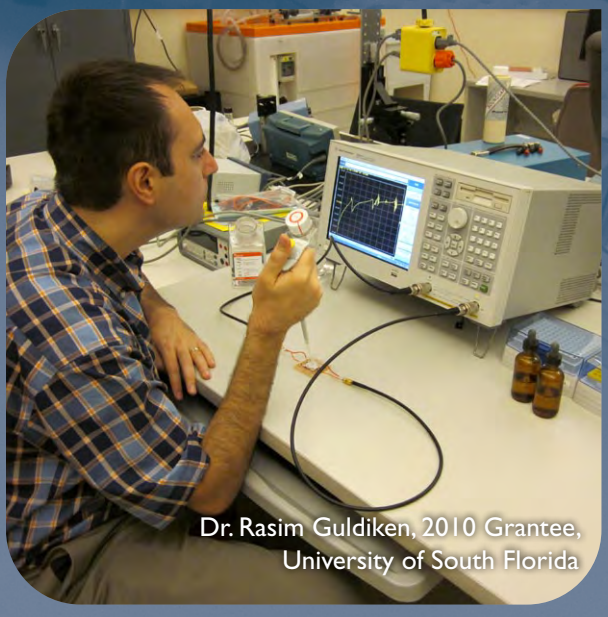
-Dr. Jeffrey Weber
2008 Grantee, Moffitt Cancer Center & Research Institute



Research Grant Funding Strategies

"This program is ideal because it funds the best science through a peer-reviewed competitive process. It's also expanding capacity at Florida's research institutions, laying the foundation for an even brighter future for our state."

–Paul Hull
Vice President, Advocacy and Public Policy,
American Cancer Society, Florida Division



Dr. Rasim Guldiken, 2010 Grantee,
University of South Florida

Supporting New Researchers

Voice of Florida's Researchers

Establishing New Research Careers and Labs in Florida

For those of us who have chosen a research career, achieving independence, leading our own research projects, and generating meaningful data worthy of attracting follow-on funding requires an investment of 12-17 years in education and lab training. We are, on average, 42 years old when we win our first federal, non-mentored grant.[15]

While establishing our own independently funded labs is an exciting journey, the start-up costs are staggering, including hiring and training personnel as well as purchasing advanced instrumentation and supplies. Many of our institutions do not allocate lab space for us until we have acquired our first grant. With few grants available exclusively to us as new researchers, there is a funding gap for the capital to establish new labs. Without seed money, it's challenging to generate significant preliminary data to compete successfully against experienced researchers for federal funding. The competition is intense – the success rate of all new researchers in acquiring NIH funding in 2009 was 18.5 percent.[16]

In recent years, the state of Florida has filled that gap through New Investigator Research Grants, allowing us to conduct

> "Without this initial investment, my cancer research program would not have happened."
>
> –Dr. Evette Radisky
> 2007 Grantee, Mayo Clinic

Dr. Jun Cai, 2009 Grantee, University of Florida

experiments and generate data. As a result, we not only have solid preliminary data, but can also publish and present our work, which is a combination that impresses federal grant peer review committees.

Pursuing follow-on funding is critical to continuing our research momentum. With an investment of three or more years in which to establish a lab and train personnel, follow-on federal funding maintains the continuity of our teams. Interruptions in funding can halt work and can mean the end of our projects. Without stable financial support, we may be forced to move our research efforts to states that can offer more opportunities or we may leave science altogether.

Bankhead-Coley grants have made it possible for us to establish our labs in Florida and launch independent research careers. New researcher funding fuels the cutting-edge science that yields breakthroughs and makes Florida an attractive state for new scientists.

"This is a difficult time in science and funding for research. The people who are cut out because of the funding problem are the new investigators. If we don't step up to the plate and fund them, we will lose a whole generation of scientists. This is Florida's future."

–Dr. Myra Hurt
Senior Dean,
Research, Graduate and Undergraduate Programs,
Florida State University College of Medicine
and Biomedical Research Advisory Council Member

New Researcher Program Facts

New Researcher Grant Statistics

Total Funds Requested
$50.5 million

Total Value of Awards
$16.1 million

Number of Institutions Awarded
12

Total Awards Made
43

Progress of New Researchers

Follow-on Funding Received
$15.5 million

Jobs Supported
167

Average Follow-on Funding
$443,555*
(per Grant Awarded)

Number of Publications
121

* The average follow-on funding is calculated based on grants that are one year or older, currently 35 grants.

Dr. Mary Zhang, 2009 Grantee,
University of South Florida

Support for New Researchers Provides Promise for Continuing Research

Bankhead-Coley Program Attracts New Faculty to State

"[New Researcher] Program Grants really set Florida apart from other states in terms of support available for junior faculty starting their careers, especially in the current tough funding climate. This in turn attracts scientists of higher caliber to the state. I am very pleased that I chose Florida to start up my own lab."

-Dr. Hengli Tang
2009 Grantee, Florida State University

Establishing Labs in Florida through Grant Support

"The grant has had an enormous impact on our research. It has allowed us to hire a technician to focus on this project, and our institution has committed over $100,000 in lab space and equipment to further support this project."

-Dr. Zhibin Chen
2009 Grantee, University of Miami

Funding Provides Opportunities for Promising Scientists

"[New Researcher] Program funding is an invaluable asset for young researchers at small institutions who are trying to establish research careers. It gives us the opportunity to be successful, to become established, and to get preliminary data. Without this funding, we could really lose out on a lot of young, promising scientists who wouldn't be able to get their start."

-Dr. Susan Blaydes Ingersoll
2009 Grantee, Florida Hospital Cancer Institute

New Researcher Uses Grant to Increase Opportunity to Obtain Competitive Federal Funding

"As a new investigator and assistant professor, it has been challenging to compete with established researchers who have ample resources and staff. The Bankhead-Coley Award has allowed me to increase my lab activity by hiring a postdoctoral fellow. The opportunity to generate more data has led to new research hypotheses and preliminary results for my future grant proposals."

-Dr. Quentin Felty
2009 Grantee, Florida International University

Building Bridges to Federal Funding

Voice of Florida's Researchers

Generating Data to Win First-Time or Renewal of Federal Grants

As scientists, we bear the responsibility for finding funding to conduct our research. While some of us may be fortunate enough to receive university support for lab start-up, most of us rely almost exclusively on the National Institutes of Health (NIH) and other major funding sources. Grant awards from the NIH are extremely competitive. As a result, many of our promising research projects are left unfunded.

Acquiring funding requires persistence and patience. Even with applications ranked very highly by our scientific peers, we may have to submit the same application many times to obtain funding. With each submission, we must strengthen the application with additional preliminary data and progressive research, all the while hoping we can maintain the momentum of the team we have in place.

Productive research requires the dedication of a highly educated and skilled team who will work with precision and accuracy. Recruiting, training, and developing a cohesive team that works well together and can anticipate and respond to the demands of research is not accomplished easily or overnight. The process is like powering a freight train. It requires a lot to get it going, but once it's up and running, it is most efficient to keep it moving.

> The Bankhead-Coley Program allows us to bridge gaps in federal funding and sustain our research momentum.

If breaks in funding occur, the time and energy invested in the project dissipates.

"One of the most precious qualities of any scientist's research program is momentum. It is the hardest thing to get, and the easiest thing to lose. When things are going well, that is the time to work even harder."

–Dr. Richard Bookman

Senior Advisor to the Dean, University of Miami Miller School of Medicine; Special Assistant to the Provost, University of Miami; Chair of the Florida Biomedical Research Advisory Council

Momentum is lost, people lose their jobs, and Florida loses good researchers.

With an awareness of the tough fight for federal research dollars, the Bankhead-Coley Program started offering the Bridge Grant. To qualify, we must have submitted a federal grant application that received a highly meritorious score (in the top 30th percentile) in a federal peer-reviewed competitive program such as the National Science Foundation, the Department of Defense, or the National Institutes of Health. In addition, our experimental aims must tie closely to Program goals.

For those of us who receive Bridge funding, we can keep our research teams together, generate data for our next federal grant application, and continue advancing our research until we can acquire additional funding. The success rate in subsequent submissions is very high. As a result, Florida's share of national funding increases and the work to improve the health and longevity of the people who live here can continue.

Dr. Steve Goodison,
2009 Grantee,
M.D. Anderson Cancer Center

Bridge Funding Program Facts

Bridge Grant Statistics

Total Funds Requested
$19.4 million

Total Value of Awards
$13 million

Number of Institutions Awarded
11

Total Awards Made
74

Impact of Bridging Research Funding

Follow-on Funding Received
$51.1 million

Jobs Supported
224

Return on Investment
$3.77 (per Dollar Awarded)

Number of Publications
123

* The return on investment is calculated based on grants that are one year or older, currently 70.

Dr. Steven Hochwald (center), 2010 Grantee; and Dr. Stephen Grobmyer (right), 2009 Grantee, University of Florida

Bridge Funding is Helping to Sustain Research Momentum for Florida's Scientists

Boosting Florida's Research Status

"The Bankhead-Coley Program is an excellent Program that will boost the national status of cancer research in Florida. The [$200,000] Bridge grant provided much-needed support to move an important project forward in my laboratory, and I received a $1.2 million award from the NCI based on this work. The research not only helped to bring more federal funds to Florida institutions but also will have an impact on the health of Florida women with ovarian cancer."

-Dr. Wenlong Bai
2006 Grantee, University of South Florida

Program Funding Increases Chances for Federal Funding Success in Florida

"Not having an interruption in the work makes an unbelievable difference. We gathered more data during our Bridge Grant, which is a key factor in NIH awards. At the end of my 2006 Bankhead-Coley Grant, our lab received funding from the NIH; it's brought $1.2 million in research funding to the state. The Bankhead-Coley [Program] certainly helped me get that second five years of funding."

-Dr. Dietmar Siemann
2006 Grantee, University of Florida

Bridge Funding is Critical to Research Productivity

"Bridge funding is critical for maintaining project productivity in an era of tight national research funding. Providing this opportunity will be beneficial in the long run for the state of Florida in the prestige of its research institutions and the amount of indirect benefits—new biotech companies, patents developed, and indirect income from subsequent grants. We received a $1.4 million NIH grant after one year [of Program funding]."

-Dr. Derek Radisky
2006 Grantee, Mayo Clinic

Maintaining Cutting-Edge Research in Florida

"When Florida researchers compete at the federal level, we are up against Harvard, Stanford, and very established research institutions. Bankhead-Coley funding allows researchers to breach gaps in support and is invaluable."

-Dr. Izidore Lossos
2006 Grantee, University of Miami

Encouraging Commercialization

Voice of Florida's Researchers

Moving Scientific Discoveries to Health Care Solutions

As researchers, our dream is to see our discoveries lead to transforming breakthroughs in new diagnostics and treatment methodologies. But the journey from our labs to commercial availability is often long—decades in some instances—and full of obstacles. Citizens have every right to expect results for their investment, but it can't happen overnight and we can't do it alone. Even with the best ideas, our expertise is science so we must form business partnerships with commercialization experts who understand

"It takes a champion—people with foresight and vision who will not let go regardless of the obstacles—to see a promising new compound from discovery to clinical stages to new therapeutic treatments."

–Dr. Amy Wright

2008 Grantee, Florida Atlantic University

"King and Bankhead-Coley Program funding is critical to translate an interesting idea from a lab finding into a possible commercial product. A small jump-start is sometimes all it takes to start the process. This initial start-up funding can make or break a commercial project."

–Dr. Herbert Weissbach

Distinguished Research Professor and Director, Center for Molecular Biology and Biotechnology, Florida Atlantic University and Biomedical Research Advisory Council Member

the business of transforming our research into the tools, treatments, and pharmaceutical solutions that will help patients.

Although the costs of commercialization are high, often the most challenging burden is finding the seed funding to get started. Developing partnerships with small businesses, protecting intellectual property, and conducting clinical trials take time and money. Since it takes an average of twelve years and millions of dollars to move a drug from the lab to the pharmacy shelf, we need startup funds to start the process.

The Florida Biomedical Research Programs provide funding at two critical stages of commercialization. For early stage efforts, feasibility grants enable us to hire personnel and generate solid preliminary data to market our ideas and form partnerships with small businesses. The data we generate at an early stage must demonstrate potential to attract the interest and investments of federal and private funding necessary to fully develop a drug or technology. Without the initial investment to explore the viability of commercialization, even the discoveries with the greatest potential may never make it out of the lab.

Once we have a commercial interest in our project, Bankhead-Coley grants allow our business partners to focus on the intricacies of commercializing our discoveries from protecting intellectual property to seeking investors to marketing the final product.[17]

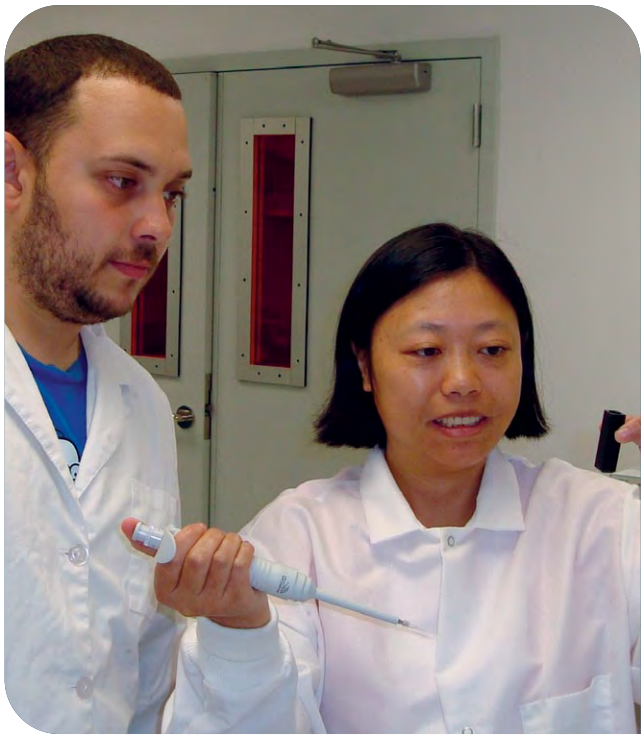
Commercialization Program Facts

Commercialization Progress in Two Short Years

Partnerships Created
8

Patents Filed
8

The first grants specifically designed to advance commercialization progress were offered by the Bankhead-Coley Program beginning in the 2009 Special cycle with the first awards made in June, 2010. While the impact of this offering is not yet realized, outstanding results are expected based on experience with similar King Program grants, which have proven to be highly successful both in terms of health advances and financial returns.



Dr. Qun Huo, 2009 Grantee, University of Central Florida with laboratory member Adam Cordero. Dr. Huo works with Mr. Mike Buffa, Nano Discovery, Inc., to commercialize a new diagnostic.

Dr. Peter Storz, 2010 Grantee, Mayo Clinic

Progressive Movement of Research Discoveries to the Marketplace

Cancer Detection Nanotechnology Prototype Completed

"The timely support from Bankhead-Coley allowed Nano Discovery, a medical research company, to pursue the most important step of commercialization by developing a prototype product based on nanotechnology for early cancer detection. The company hired several local engineers and has now successfully developed its first prototype, which we are ready to launch. The successful commercialization will create high-tech jobs and bring enormous benefits and financial returns to University of Central Florida and the State of Florida."

-Mr. Mike Buffa
2009 Grantee, Nano Discovery, Inc.

Grants Stimulate Interest from Pharmaceutical Companies

"The Bankhead-Coley Program provides infrastructure and support for successfully conducting clinical trials, which shows pharmaceutical companies that Florida researchers can accrue patients quickly, get good blood samples, and do a good job. As a result, they become very interested in doing clinical trials here. That's a big impact for Florida."

-Dr. Jeffrey Weber
2008 Grantee, Moffitt Cancer Center & Research Institute

Grant Leads to Establishment of New Business

"The funds provided by the Bankhead-Coley Program have supported the progress of my research, which has led to the filing of two patents and the establishment of my own small business opportunity. These funds have been crucial for our research findings, which have gained national attention."

-Dr. Cheryl Baker
2009 Grantee, University of Central Florida

Moving Technology to Industry

"Bankhead-Coley Technology Transfer Feasibility funding has allowed us to perform preclinical studies that will help us market our technology to industry partners. Using this funding we have shown that our novel cell cancer therapy technology can slow down cancer growth when compared to current protocols."

-Dr. Geoffrey Stone
2010 Grantee, University of Miami

Advancing Science through Collaborations and Synergies

Voice of Florida's Researchers

Forming Multi-Disciplinary Research Teams to Make Breakthroughs

As senior investigators leading large multi-disciplinary project teams, we face the leadership challenge and privilege of bringing together the right team of experts to accelerate our progress towards making key discoveries. Increasingly specialized technology and knowledge as well as an emphasis on teamwork from national funding agencies make collaboration a priority. Most importantly, we need diverse teams to achieve medical advances not attainable by researchers working independently.

Whether we are developing medical devices, creating new drug therapies, or implementing new treatment options, the strongest approach to making progress may require our teams to include experts in a wide variety of disciplines such as pathologists, physicians, cell biologists, biostatisticians, mechanical engineers, researcher scientists, and software engineers. Single labs can rarely afford to staff such diverse teams and manage complex research projects.

> "NIH prefers project experience with multiple principal investigators; the more we can show collaboration, the better chances we have of getting funding."
>
> –Dr. Mark McLean
> 2004 Grantee, University of South Florida

As essential as they are, collaborative teams just don't happen. Although forming new relationships and exchanging ideas to

(From left to right) Dr. Jong Park; Dr. James Mulé; Dr. Jane Messina; Dr. Thomas Sellers; and Dr. Vernon Sondak, Lead Researcher, 2007 Grant, Moffitt Cancer Center & Research Institute

achieve breakthroughs is a strong motivator, we have to invest a considerable amount of time, resources, and energy to pull together busy individuals who are not in close proximity to each other, unite them around a common vision, and identify sub-project leaders. We often need to draw on experts at several institutions to meet project skill and resource requirements.

Fortunately, we have the opportunity to apply for multi-disciplinary, large team grants through the Bankhead-Coley Program. These grants allow us to unite three to five project teams with diverse skill sets to address common research objectives. The result is something far greater than we could accomplish through our individual efforts. By combining research efforts of teams that may not normally interact with each other, we are able to address issues from many different angles and share information and results. These multi-project grants are established with a "core" team that facilitates communication and ensures continued focus on common objectives. The shared team objectives and constant communication flow allow us to advance our research more quickly and prepare teams for continued success.

For those of us who formed collaborations through Bankhead-Coley Grants, we have demonstrated our success by obtaining large-scale federal support and building long-lasting research partnerships.

> "It is not what people have in common but their differences that make collaborative work more powerful than working separately. A diverse group can arrive at a place no individual and no like-minded group would have reached."[18]
>
> –Dr. Celia Davies
> Professor of Health Care,
> The Open University, United Kingdom

Collaboration Program Facts

Collaboration Grant Statistics

Total Funds Requested
$26 million

Total Value of Awards
$9.5 million

Number of Institutions Awarded
4

Multidisciplinary Teams Funded
9

Impact of Collaborative Research

Follow-on Funding Received
$13.8 million

Jobs Supported
161

Average Follow-on Funding
$2.3 (per grant) million

Number of Publications
33

* The average follow-on funding is calculated based on grants that are one year or older, currently six grants.

Ms. Dorothy Smith, Senior Laboratory Technician on 2010 Grant led by Dr. Grant McFadden, University of Florida

The Power of Collaboration

Florida Collaboration Explores Head and Neck Cancer Disparities

"Our team of surgeons, scientists, oncologists, pathologists, epidemiologists, and basic scientists brings a new power to our head and neck cancer research that enables the acceleration of progress. We are exploring why African Americans have poorer survival rates from this disease. Both Moffitt Cancer Center & Research Institute and Sylvester Cancer Center are contributing tissue samples for the research. This combined effort will bring a composite picture of both Caucasian and African American tumors, enabling study and discovery otherwise not occurring."

-Dr. W. Jarrard Goodwin
2009 Grantee, University of Miami

Grants Result in Long-Term Teamwork

"The James & Esther King and Bankhead-Coley Programs are extremely important because they create a new opportunity that otherwise wouldn't exist for us to get the right teams together. We start working together and develop academic relationships that go on—it's not something that's short-term."

-Dr. Timothy Yeatman
2008 Grantee, Moffitt Cancer Center & Research Institute

Experts Unite to Tackle Aggressive Breast Cancers

"We have a team of more than 30 researchers who are concentrating their efforts on the most aggressive forms of breast cancer. In addition, another 70 researchers meet with the team monthly. We see an amplification of intellectual investment as we discuss the projects."

-Dr. Joyce Slingerland
2009 Grantee, University of Miami

Team Grant Results in Large Federal Grant

"You have to show considerable expertise with a proven track record to even come close to winning one of the large [federal] grants. We used the data from our Bankhead-Coley grant to kick-start our next project and grant application, and we won a $7.3 million award."

-Dr. Glen Barber
Dr. Lossos' 2007 Grant, University of Miami

Expanding Research Capacity

Voice of Florida's Researchers

Obtaining Necessary Shared Core Research Resources

If we want to stay at the forefront of biomedical research, it's necessary to invest in the equipment and other shared resources required to do the work. Without it, we lag behind others in our ability to deliver on the promise of research.

Aware of this need, the Bankhead-Coley Research Program offered equipment grants, stipulating use by multiple researchers and projects over the life of the equipment.

Availability and access to appropriate equipment improves our chances for successful outcomes, leads to potential collaborations with others using shared equipment, and allows us to conduct research more quickly and effectively. Consequently, we can generate the data

> "Our shared instrument grant significantly increased our capabilities and stimulated extensive research progress. We have published our data in prestigious journals, acquired $3.3 million in federal grants, and are developing new personalized treatments for patients."
>
> –Dr. John Koomen
>
> 2006 Grantee, Moffitt Cancer Center & Research Institute

Far from being "wish list items," we need the right technology to generate high-quality data that meets federal standards. According to scientific peer reviewers, the right instruments are "critical equipment – essential for the success of researchers."[19]

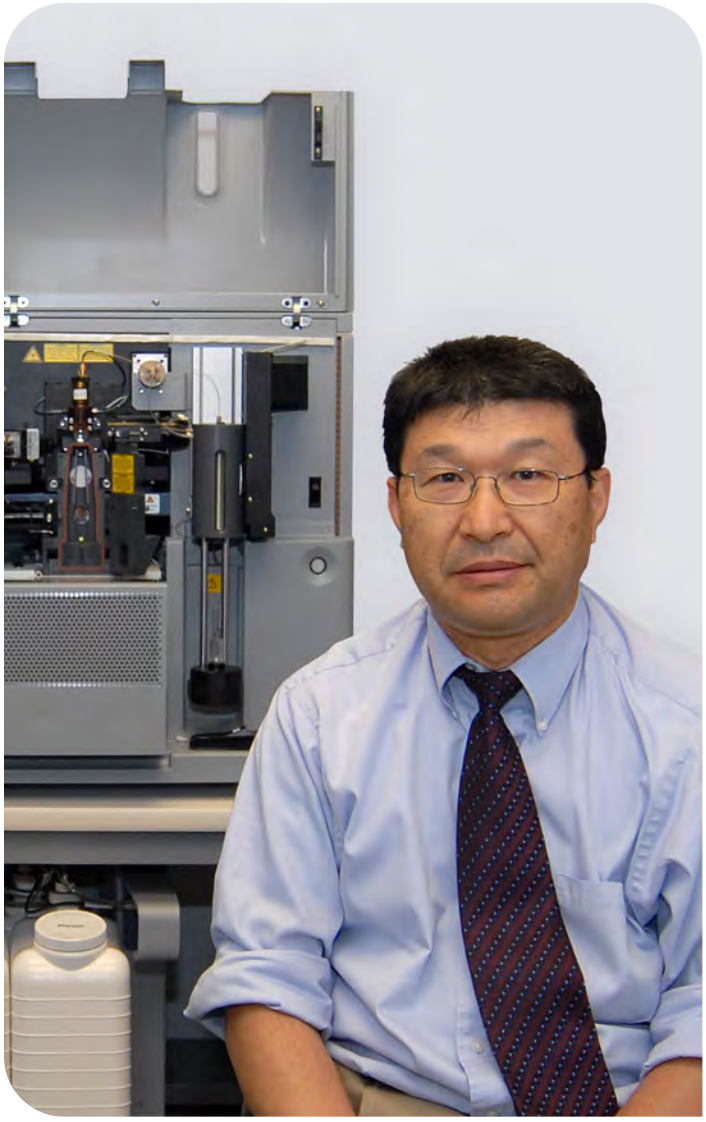
"States that invest in their biotechnology research base during this protracted federal funding drought will be able to maintain their research infrastructure, while those that do not will likely lose theirs. For this reason, these Programs are a wise investment, strengthening our state's biotechnology research capacity and, as a result, providing a vibrant economic base for our future."

–Dr. Kevin Brown
2009 Grantee, University of Florida

necessary for preparing competitive federal grant applications.

Establishing core research resources is just as critical for us as having the equipment to conduct research. Core research resources are experts and equipment dedicated to one aspect of research that functions as a shared resource for our individual projects. With Bankhead-Coley Grants and matching funds from our institutions, we have been able to establish core research resources that serve our institutions and sometimes the region. The result is increased efficiency in terms of maximized research space and optimized equipment use. Cores also provide an effective way to collaborate with other research teams and to overcome obstacles we may face as individual researchers by providing access to critical resources.

Through the Bankhead-Coley Grants we now have access to equipment and core research resources including facilities, providing us with opportunities to develop new collaborative efforts to strengthen our research.



Dr. Yoshimi Shibata, 2006 Grantee, Florida Atlantic University

Research Capacity Program Facts

Shared Equipment Grant Statistics

Total Funds Requested

$11.7 million

Total Value of Awards

$4.8 million

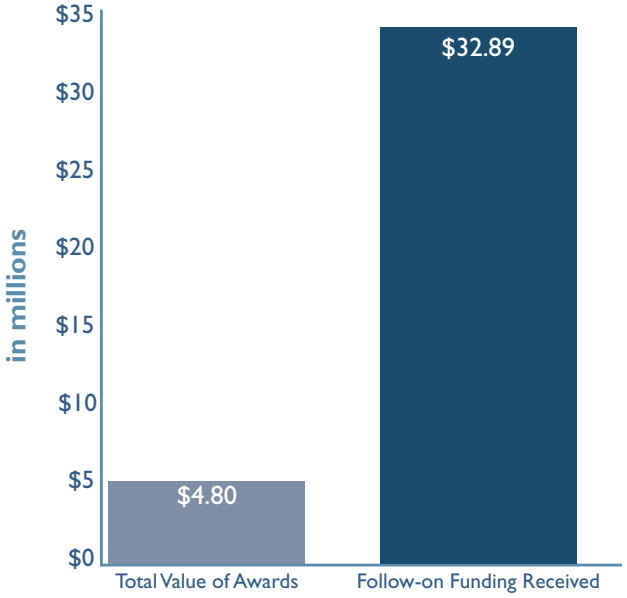
Number of Institutions Awarded

6

Total Awards Made

11

Impact of Availability of Shared Equipment



Mass spectrometer purchased through Dr. Gregory Roth's 2009 Grant, Sanford-Burnham Medical Research Institute

Long-Term Value Provided by Investments in Core Facilities and Shared Instrumentation

Establishing Core Facilities

"A full service fluorescence activated cell-sorter (FACS) Core Facility has been provided through our Bankhead-Coley Grant. The addition of FACS to the campus has a far-reaching impact on the biotech research community. Most importantly, it supports the development of strong interdisciplinary teams and is enabling competitive grant applications to federal agencies."

-Dr. Yoshimi Shibata
2006 Grantee, Florida Atlantic University

Access to Shared Equipment Results in New Collaborations

"Through our grant, we purchased a mass spectrometer, which is a highly accurate and cost-effective piece of the drug discovery process. As a result, two institutions and several in-house NCI-designated faculty are collaborating with us. Because of the interest we are getting, we expect to overwhelm the instrument's capacity quickly. We can offer self-sufficient research services with revenue generated to recover costs of consumables, instrument repairs, and 50 percent of a scientist's salary."

-Dr. David B. Terry
Research Scientist for Dr. Gregory Roth, 2009 Grantee, Sanford-Burnham Medical Research Institute

Instrument Speed and Capabilities Result in High Usage

"The new analytical flow cytometer purchased through our Bankhead-Coley Grant allows researchers in our cancer center to analyze combinations previously not possible and reduces time taken for measurements. These new features have opened significant novel avenues of research to 33 groups at our institution and have contributed to the further progress of cancer research here. Within the first year, the instrument reached 100 percent usage."

-Dr. Richard Riley
2009 Grantee, University of Miami

Instrument Enables "Giant Strides"

"In order to make giant strides, we need to get as much information as possible about how a drug works or a cancer thrives at a molecular level. With the confocal microscope acquired through our Bankhead-Coley Grant, we can observe high-speed, dynamic processes within cancer cells – a possibility that was unheard of a short time ago."

-Dr. Stephen Sugrue
2006 Grantee, University of Florida

Program Year in Review

"We could not have developed a new research technology, conducted experiments, or identified these mutations in triple negative breast cancer without Bankhead-Coley Program funding. The Grant enabled us to take the step from the lab to the clinic. My collaborators are extending this work to pancreatic, renal, liver, and thyroid cancers. This is the most exciting work I've done."

–Dr. E. Aubrey Thompson
2010 Grantee, Mayo Clinic

Competitive Requests for Grant Research Funding

Since 2006, the Bankhead-Coley Research Program has offered grant research funding competitions seeking proposals for cancer research from scientists of all experience levels. The Bankhead-Coley Program received a total of 483 applications requesting more than $254.9 million leading to 183 awards totaling $63.5 million. For a brief description of all grant types offered through the Program, refer to Appendix B.

Based on recommendations from the Biomedical Research Advisory Council, the Program releases requests for calls for grant applications, which detail the available grant types for that competitive cycle. Scientific peer reviewers evaluate and score all eligible and qualified applications for scientific merit and fit with Program objectives. The Advisory Council then reviews the scores and ranking of those proposals and makes funding recommendations to the State Surgeon General, who makes the final award determinations.

FY 2010-2011 Competitions for Grant Awards

Between July 2010 and June 2011, the Bankhead-Coley Program issued multiple calls for grants, resulting in the following interest and awards.

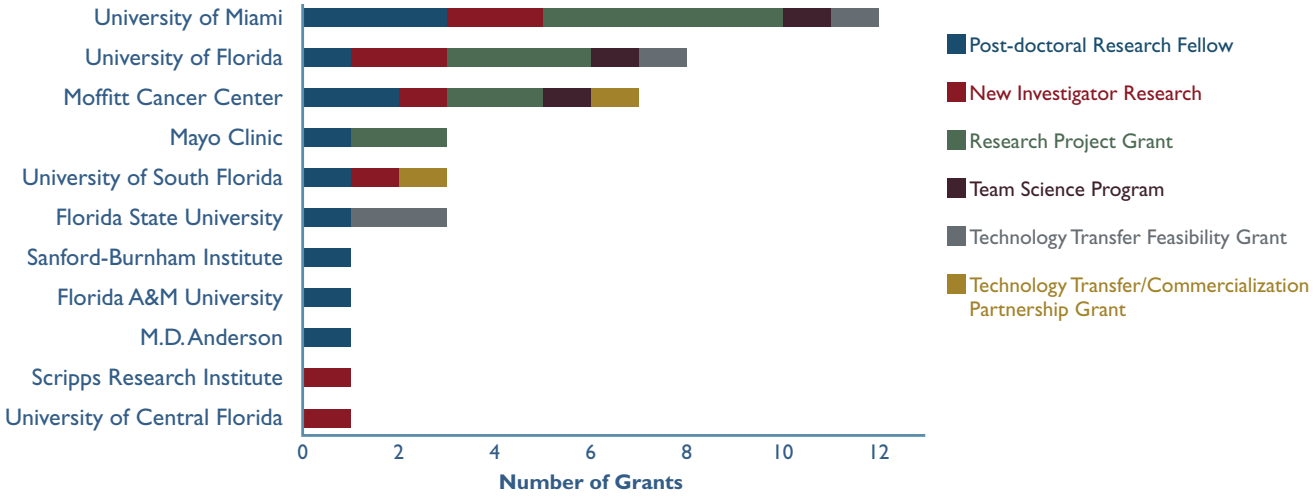
Grant Type	Applications Received	Applications Awarded	Percent of Applications Awarded	Awarded Funding Amount
New Investigator Research (NIR) Grant	53	8	15%	$ 3,182,143
Team Science Program (TSP) Grant	12	3	25%	$ 3,600,000
Research Project Grant (RPG)*	89	12	13%	$ 8,800,990
Postdoctoral Research Fellowship (PRF)	32	12	38%	$ 1,513,400
Technology Transfer Feasibility (TTF) Grant	30	4	13%	$ 399,999
Technology Transfer/Commercialization Partnership (TTCP) Grant	8	2	25%	$ 199,998
TOTAL	**224**	**41**	**18%**	**$17,696,530**

* Awarded amount of RPG grants does not include requested funding for Years 4 and 5, which will be allocated from FY 2013-2014 funds, subject to the availability of funds and scientific progress.

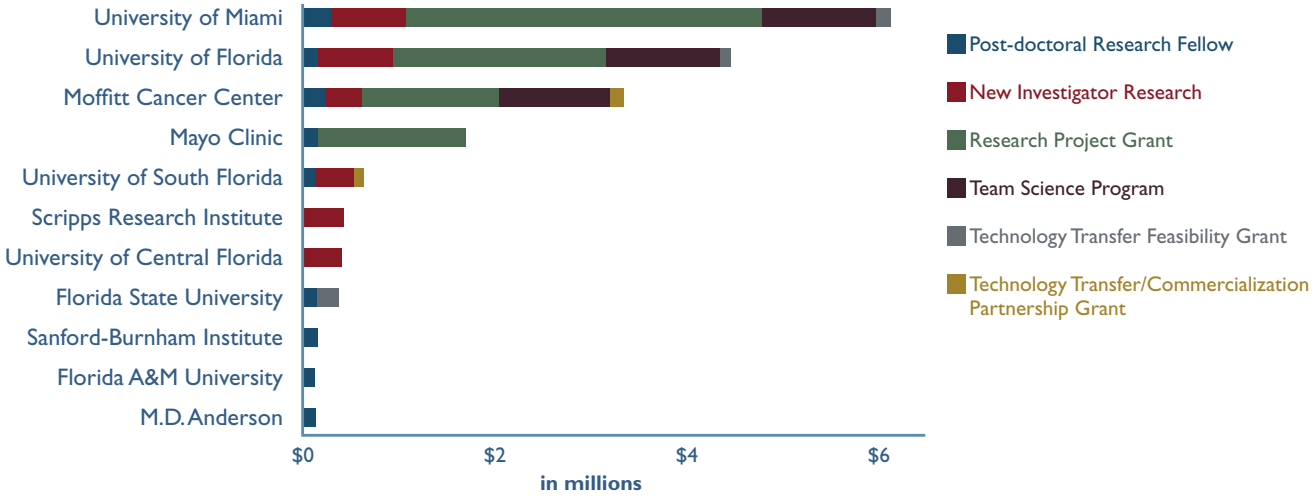
Awards Distributed throughout Florida

Eleven public and private research organizations throughout Florida benefited from grants received between July 2010 and June 2011. Information about all funded projects may also be accessed from the Florida Biomedical Research Program website, www.floridabiomed.com, by selecting the menu option "Funded Projects."

FY 2010-2011 Number of Grants Awarded by Institution



FY 2010-2011 Dollar Value of Awards by Institution



Advisory Council Membership

The Biomedical Research Advisory Council (Advisory Council), per section (s.) 215.5602 and 381.922, *Florida Statutes (F.S.)*, advises the Department of Health regarding the direction and scope of the Program and assists in developing guidelines to ensure fairness, neutrality, and adherence to the principles of merit and quality in operations and administrative matters. Although members are from institutions throughout Florida, they represent the seat as indicated below. The Advisory Council follows strict measures to avoid conflicts-of-interest in making funding recommendations.

Daniel Armstrong, Ph.D.

Professor and Associate Chair, Pediatrics
Director, Mailman Center for Child Development
University of Miami Miller School of Medicine

Seat: American Cancer Society Representative

Appointed: January 2010

Randal H. Henderson, M.D., MBA

Associate Medical Director, Proton Therapy Institute
Professor of Radiation Oncology
University of Florida, Jacksonville

Seat: House – Cancer Program (ACoS)

Appointed: April 2007

Richard J. Bookman, Ph.D.

Senior Advisor to the Dean,
University of Miami Miller School of Medicine
Special Assistant to the Provost, University of Miami

Seat: Advisory Council Chair and American Heart Association Representative

Appointed: July 2000

Myra Hurt, Ph.D.

Senior Dean, Research, Graduate, and Undergraduate Programs
Florida State University College of Medicine

Seat: Research University

Appointed: February 2006

Mark Brantly, M.D.

Chief, Division of Pulmonary and Critical Care Medicine
University of Florida
College of Medicine

Seat: American Lung Association Representative

Appointed: October 2010

Albert Latimer, B.B.A.

Senior Vice President
External Affairs & Investor Relations
Enterprise Florida, Inc.

Seat: General Public

Appointed: February 2006

Composition of the Advisory Council

The 11 appointees to the Advisory Council include:

- One representative of the Florida Division of the American Cancer Society
- One representative of the Greater Southeast Affiliate of the American Heart Association
- One representative of the American Lung Association of Florida
- Four members appointed by the Governor, two with expertise in biomedical research
- One member from a Florida research university
- One representing the Florida general population
- Two members appointed by the President of the Florida Senate: One with expertise in behavioral or social research and one from a cancer program approved by the American College of Surgeons (ACoS)
- Two members appointed by the Speaker of the Florida House of Representatives: One from a professional medical organization and one from a cancer program approved by ACoS

Edith Perez, M.D.

Professor of Medicine
Hematology/Oncology
Mayo Clinic, Jacksonville

Seat: Senate – Cancer Program (ACoS)

Appointed: August 2009

Claes Wahlestedt, M.D., Ph.D.

Professor and Vice Chair (Research), Department of Psychiatry and Behavioral Sciences
Associate Dean for Therapeutic Innovation
Director, Center for Therapeutic Innovation, Hussman Institute for Human Genomics
University of Miami Miller School of Medicine

Seat: Biomedical Research

Appointed: April 2010

Penny Ralston, Ph.D.

Director, Dean Emeritus and Professor
Center on Better Health & Life for Underserved Populations
Institute of Science & Public Affairs
Florida State University

Seat: Senate - Behavioral/Social Research

Appointed: July 2006

Herbert Weissbach, Ph.D.

Distinguished Research Professor and Director
Center for Molecular Biology and Biotechnology
Florida Atlantic University

Seat: Advisory Council Vice-Chair and Biomedical Research

Appointed: February 2006

Mary Lou Sole, R.N., Ph.D., CCNS, FAAN

College of Nursing Professor
College of Health & Public Affairs
University of Central Florida

Seat: House – Professional Medical Organization

Appointed: April 2007

Advisory Council Recommendations

To further the Bankhead-Coley Program's ability to pursue its goals, priorities, and strategies, the Advisory Council makes the following set of legislative recommendations:

Provide stable and significant year-to-year state funding. The demand for Program funding is very high, as evidenced by record-setting applications requesting a combined $286.6 million in FY 2009-2010 for the King and Bankhead-Coley Programs. With reduced state investments over the past two years, the impact to the research community is felt not only through the "opportunity cost" represented by unfunded but highly meritorious science that otherwise could lead to the next major medical breakthrough, but also an incremental stagnation of Florida's innovation economy, including job creation. A consistent, significant, "needle moving" investment is necessary to maintain Florida's momentum of the last ten years.

Exempt the Florida Biomedical Research Programs from rule making. For ten years these Programs have successfully operated without administrative rules. The original statute indicated the Department "may" promulgate rules, after consultation with the Advisory Council. It has been the recommendation of the Advisory Council to not promulgate rules so the Programs can operate nimbly in response to research policy changes at the federal level and the frequent changes in annual appropriations. Promulgating changes to a rule can delay operations by 60-90 days.

Replace "shall" with "may" in the statute to eliminate unnecessary expenses pertaining to the types of applications that must be solicited. Currently the statute states the Advisory Council "shall" consider three types of applications regardless of other factors. Doing so would drive up the cost of grant competitions and disingenuously solicits applications for types of grants that the Advisory Council does not intend to recommend for funding. Changing this word to "may" gives an appropriate level of flexibility to the Advisory Council consistent with their statutory responsibility of setting the program priorities and emphases.

Repeal the Advisory Council duties in statute to appoint, supervise or interact with peer review panels to strengthen protections against potential conflicts of interest. Historically the Department and its staff, not the Council, have recruited, selected, contracted and managed peer reviewers, who are paid vendors. Any interaction between Advisory Council members and peer review panels presents the potential for real or perceived conflict of interest. Therefore it is in the best interests of the Programs that the statute be updated to reflect current practices whereby these duties would be reassigned to the Department.

Additional Council Recommendations

- Provide authority to carry forward funds for up to five years.
- Clarify Advisory Council conflict of interest protections consistent with s. 112.311(4), F.S.
- Maintain an appropriate allowance for administrative expenses.

Program Operations

Minimizing Administrative Costs and Maximizing Quality

The Bankhead-Coley Program may use up to 10 percent of the appropriated funds for administrative expenses. Program staff have historically held administrative costs below this legislative limit. However, the increased number of grants awarded in FY 2009-2010 and FY 2010-2011 combined with substantially decreased allocations to the Program in FY 2011-2012, will necessitate the use of all administrative expense allowances in FY 2011-2012. Funds not used for administrative expenses are awarded as grants.

> "The Program is a great opportunity for new investigators to establish their careers to independence. The constant feedback from reviewers during the funding years is a key feature to guide you smoothly through this path."
>
> –Dr. Francisca Diaz
> 2008 Grantee, University of Miami

Incorporating Best Practices in Operational Program Management

Grant management involves active monitoring and includes review of a number of grantee deliverables including quarterly financial reports, yearly scientific progress reports, grant-specific deliverables, annual budgets, no-cost extension requests, and a site visit during multi-year grants to evaluate the scientific and financial health of the project.

The Bankhead-Coley Program uses industry best practices to ensure financial and research accountability, to support grantees, and to maintain compliance with grant terms and conditions. Reporting requirements are intended to ensure progress rather than add administrative burden, and grantees utilize a convenient web-based system for report submission. Annual continuation of multi-year grants depends on outcomes of scientifically peer-reviewed progress reports and site visits as indicators of satisfactory performance as well as the availability of funds.

Performance Indicators

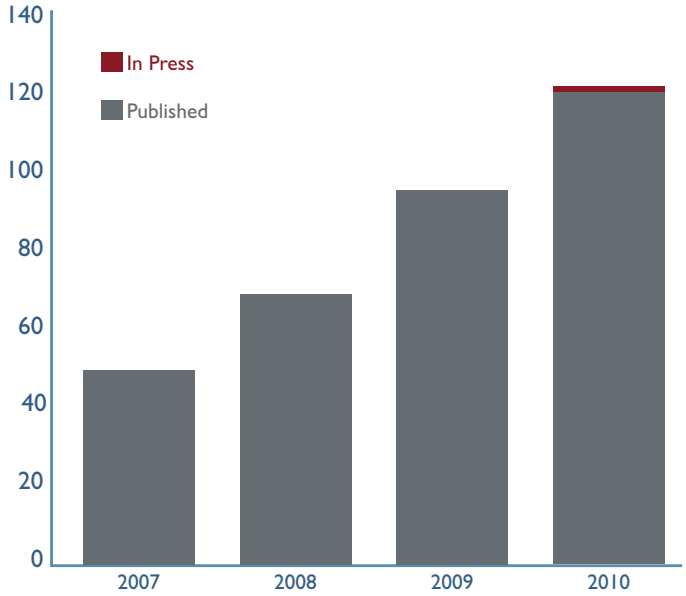
"The high quality of science in Florida maintained by this outstanding Program allows new discoveries that lead to novel therapies for cancer, with a direct benefit for Floridians in clinical trials. This also attracts biotech companies."

–Dr. Peter Storz
2007 Grantee, Mayo Clinic

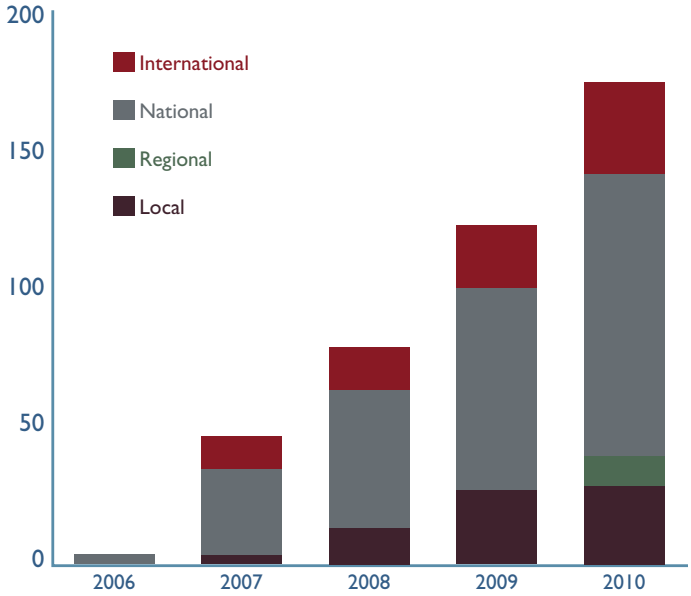
The Bankhead-Coley's cancer research findings are stimulating dialogue among Florida's own research community and helping to earn increasing national and international recognition for the quality of research conducted in Florida.

Increasing research impact is indicated by follow-on funding from federal sources, growth in the number of publications, and presentations at scientific meetings as demonstrated below. Refer to Appendix C for a list of Grantees' related awards and Appendix D for a list of Grantee publications.

Publications in Peer-Reviewed Journals by Year



Scientific Presentations by Year



Appendices

(From left to right) Top row, Dr. Awtar Ganju-Krishan; Dr. Geoffrey Stone; Dr. Thomas Sellers; Dr. Silvia Tornaletti; Dr. Justin Summy; Dr. Erin Siegel; Dr. Cheryl Baker; Dr. Suming Huang

Appendix A: FY 2010-2011 Grant Awards

New Investigator Research Grants

Grantee	Institution	Title	Award
Bannister, Thomas	The Scripps Research Institute	*Inhibition of the Transport of Glutamine, Essential Amino Acids, and Lactate as a Multi-targeted Strategy for Cancer Chemotherapy*	**$ 400,000**
Behnke, Bradley	University of Florida	*Is Exercise Bad for the Tumor Microenvironment?*	**$ 382,200**
Del Valle, Juan	H. Lee Moffitt Cancer Center & Research Institute	*Chemical and Biological Studies of Marine-derived Non-ribosomal Peptides*	**$ 399,999**
Guldiken, Rasim	University of South Florida	*A Novel, Low Cost, Ultra-sensitive Nanosensor for Early Detection of Ovarian Cancer*	**$ 399,946**
Iovine, Nicole	University of Florida	*The Role of Smoking in Promotion of Crohn's Disease, a Predisposing Condition to Colon Cancer*	**$ 400,000**
Ma, Liyuan	University of Central Florida	*A High Throughput Cell-based Metabolic Analysis of Anticancer Drugs using Nanostructure-enhanced Mass Spectrometry*	**$ 400,000**
Ning, Shunbin	University of Miami	*Regulation of miR-155 by Oncogenic IRFs in EBV Latency and Associated Tumors*	**$ 399,998**
Wright, Jean	University of Miami	*Molecular Genetics of Radiation-Induced Skin Toxicities in a Tri-Racial/Ethnic Post-Mastectomy Breast Cancer Cohort*	**$ 400,000**

Postdoctoral Research Fellowships

Grantee	Institution	Title	Award
Batra, Jyotica	Mayo Clinic	*Defining Binding Determinants of Tissue Inhibitor of Metalloproteinases-1 (TIMP-1) Responsible for Paradoxical Roles in Cancer*	**$ 159,750**
Chougule, Mahavir	Florida A&M University	*Nanoparticle Mediated Delivery of siRNA for Treatment of Lung Cancer*	**$ 111,300**
Nabilsi, Nancy	University of Florida	*Epigenomic Mapping of Mammary Epithelial Stem Cells and Tumor-initiating Cells*	**$ 159,750**
O'Donnell, Susan	University of South Florida	*Structural and Functional Characterization of the Ras Protein Acyl Transferase, DHHC9/Gcp16*	**$ 159,750**
Radhakrishnan, Rangasudhagar	H. Lee Moffitt Cancer Center & Research Institute	*Role of Histone Deacetylases in DNA Mismatch Repair*	**$ 111,300**
Schreiber, Taylor	University of Miami	*TNFRSF25 Agonists as Multifunctional Cancer Vaccine Adjuvants*	**$ 51,850**
Shan, Bing	Florida State University	*Structural Dynamics of Human MDM2 and MDMX Interactions with p53 and Antagonistic Ligands by Multidimensional NMR Spectroscopy*	**$ 159,750**

Postdoctoral Research Fellowships *cont'd*

Grantee	Institution	Title	Award
Sharma, Savitha	H. Lee Moffitt Cancer Center & Research Institute	*Identification of Oncogenic CDK-independent Functions of p27 in Regulating Acquisition/Proliferation of Cancer Stem-cell Populations*	**$ 107,900**
Sicard, Renaud	University of Miami	*Gangliosides as Organizing Elements of ERBB2(HER2) Signaling Platforms and Therapeutic Targets in Cancer*	**$ 56,550**
Tirpak, Olena	M. D. Anderson Cancer Center Orlando	*Proton Beam Dose Verification Using PET/CT Imaging in Conjunction with 3D Polymer Gel Dosimetry*	**$ 111,300**
Urakami, Takeo	Sanford-Burnham Medical Research Institute	*Novel Approach for Enhancing the Efficacy of Breast Cancer Chemotherapy by Vascular Normalization Effect of R-Ras*	**$ 164,450**
Yin, Ling	University of Miami	*Role of MicroRNA in Mediating Oncogenetic Effect of Notch Signaling in Melanoma*	**$ 159,750**

Research Project Grants*

Grantee	Institution	Title	Award
Curbow, Barbara	University of Florida	*Health Disparities in Colorectal Cancer Treatment Decision Making*	**$1,185,984**
Franzmann, Elizabeth	University of Miami	*Early Detection Markers for Smoking-induced HNSCC*	**$1,200,000**
Hochwald, Steven	University of Florida	*Design, Synthesis and Evaluation of Novel Selective Inhibitors of FAK and IGF-1R Function in Pancreatic Cancer*	**$1,200,000**
Hu, Jennifer	University of Miami	*Impact of Molecular Genetics on Disparities of Breast Cancer Risk and Prevention*	**$1,200,000**
Komanduri, Krishna	University of Miami	*Improving Cord Blood Transplantation Via Expansion of Myeloid and Regulatory T Cells*	**$1,200,000**
Lee, David	University of Miami	*Florida Cancer Health Disparities: The FCDS/NCHS Cancer Linkage*	**$ 719,998**
Luesch, Hendrik	University of Florida	*Chemistry and Biology of Apratoxins*	**$1,150,000**
Nishida, Seigo	University of Miami	*A Novel Immunotherapy for Liver Transplant Patients with Hepatocellular Carcinoma: Anti-tumor Effect of IL2-activated Donor Liver Natural Killer*	**$ 719,927**
Pal, Tuya	H. Lee Moffitt Cancer Center & Research Institute	*Inherited Cancer Registry (I CARE) Initiative*	**$1,069,292**
Pal, Tuya	H. Lee Moffitt Cancer Center & Research Institute	*Black Women: Etiology and Survival of Triple-negative Breast Cancers (BEST) Study*	**$1,199,864**
Storz, Peter	Mayo Clinic	*Protein Kinase D – A Marker and Target for Invasive Breast Cancer*	**$1,199,996**
Thompson, Aubrey	Mayo Clinic	*Translational Genomic of Triple Negative Breast Cancer*	**$1,199,996**

* Research Project Grants (RPGs) are awarded for 5 years: The first 3 years will be funded from the FY 2010-2011 budget, and remaining 2 years will come from FY 2013-2014 budget subject to the availability of funds.

Team Science Program Grants

Grantee	Institution	Title	Award
Antonia, Scott	H. Lee Moffitt Cancer Center & Research Institute	*Combination Immunotherapy for Soft Tissue Sarcomas*	**$1,200,000**
McFadden, Grant	University of Florida	*Exploiting Oncolytic Virotherapy to Selectively Target Human Hematopoietic Cancer Stem Cells*	**$1,200,000**
Pollack, Alan	University of Miami	*Integrated Biomarker Profiling for Individualized Prostate Cancer Therapy*	**$1,200,000**

Technology Transfer Feasibility Grants

Grantee	Institution	Title	Award
Gilbert, David	Florida State University	*Replication Profiling as a Diagnostic Tool in B-Cell Acute Lymphoblastic Leukemia*	**$ 99,999**
Guan, Jingjiao	Florida State University	*Million-Cell FISH Array for Evaluation of HER2 Amplification*	**$ 100,000**
Stone, Geoffrey	University of Miami	*Potent DC Therapies for Cancer Using Novel Immune-Stimulating Fusion Proteins*	**$ 100,000**
Wu, Lizi	University of Florida	*Evaluation of Novel Notch Inhibitors for in vivo Efficacy*	**$ 100,000**

Technology Transfer/Commercialization Partnership Grants

Grantee	Institution	Title	Award
Haynie, Donald	University of South Florida	*Use of Synthetic Biomatrix to Enhance Autologous Peripheral Stem Cell Transplantation*	**$ 99,998**
Torres-Roca, Javier	Moffitt Cancer Center & Research Institute	*Intervene XRT: A Novel Assay to Predict Radiation Therapy Therapeutic Benefit*	**$ 100,000**

Appendix B: Grant Types Offered

Grant Types Offered by the Bankhead-Coley Research Program for Cancer Research

Grant Type	Purpose	Maximum Amount & Duration	Years Offered by Program
Bridge Grant	*Provide interim support for research projects receiving scores in the top 30 percent in federal competitions that were not funded due to Federal budget constraints.*	Up to $200,000 for one year	2007-2010, 2012
Florida Research Challenge (RC1) Grant	*Provide support for high-risk, high-reward research proposals in the top four percent of all applications submitted by Florida researchers in response to NIH's 2009 Challenge Grant competition and not funded due to Federal budget constraints.*	Up to $1,000,000 over two years	2010
New Investigator Research (NIR) Grant	*Provide support to Florida-based researchers starting independent research careers and working under the guidance of an experienced Florida mentor.*	Up to $425,000 over three years	2008-2012
Postdoctoral Research Fellowship (PRF)	*Attract and provide support to promising postdoctoral researchers who have the potential to become productive and independent researchers.*	Up to $58,350 per year for one to three years	2011
Research Project Grant (RPG)	*Support experienced researchers who are conducting translational and/or health disparities research and who will submit a national application to continue the research.*	Up to $1.5 million over five years	2011
Shared Instrument Grant (SIG)	*Improve access to state-of-the-art research instruments that can only be justified on a shared-use basis to support Florida researchers.*	Up to $500,000 for a single instrument	2007, 2010
Special Emphasis Project (SEP)	*Identify specific factors contributing to Florida's very low cancer patient participation in clinical trials and to investigate policies, interventions, and incentives that may increase enrollment.*	Up to $500,000 over two years	2008
Specialized Program of Research Excellence (SPORE) Planning Grant	*Assemble, prepare, and equip strong interdisciplinary teams of Florida researchers to plan and compete successfully for NCI SPORE grants.*	Up to $1,000,000 over two or three years	2008-2010
Team Science Program (TSP) Grant	*Foster collaboration among three to five Florida researcher teams, supporting complex projects with the potential to secure large external grants.*	Up to $1,500,000 over three years	2011-2012
Technology Transfer/ Commercialization Partnership (TTCP) Grant	*Fund collaborations between academic researchers and small, Florida-based biomedical businesses to translate discoveries into new products and therapies.*	Up to $100,000 for one year	2010-2012
Technology Transfer Feasibility (TTF) Grant	*Offer early stage funding in order to develop intellectual property and improve a project's potential and competitiveness for further commercial development activities.*	Up to $100,000 for one year	2011-2012

* When referring to a grant within this report, the year indicates the fiscal year during which the grant started. For example, a grant that began July 1, 2010 is referred to as a 2011 grant.

Appendix C: Follow-on Funding Awards Reported by Grantees

The following list represents $37.7 million in additional single and multi-year awards reported from July 2010-June 2011 by current and past grantees that are based directly on research findings from projects funded by the Bankhead-Coley Program. Grants are presented in alphabetical order by last name of the Grantee.

Abaffy, Tatjana. (2008 Bridge), "Detection of Melanoma by Canine Olfactory Receptors." National Cancer Institute, $516,375.

Bai, Wenlong. (2006 Bridge), "Vitamin D and Ovarian Cancer Prevention and Treatment." National Cancer Institute, $1,221,910.

Briegel, Karoline. (2008 Bridge), "Regulation and Function of Transcription Factor Lbh in Breast Cancer." Department of Defense, $291,000.

Brown, Kevin. (2008 Bridge), "ATM in Breast Tumor Suppression." National Cancer Institute, $439,500.

Buffa, Mike. (2009 TTCP), "Development of a New Bioanalytical Instrument for Biomolecular Research and Medical Diagnosis." Florida High Tech Corridor Matching Research Program, $10,000.

Buffa, Mike. (2009 TTCP), "Bioanalytical Platform for Cancer Diagnosis." State University System of Florida Board of Governors, $75,000.

Byrne, Margaret. (2007 SEP), "A Targeted Decision Aid to Improve Minority Participation in Clinical Trials." National Center on Minority Health and Health Disparities, $1,652,599.

Cheng, Jin. (2007 Bridge), "AKT2 Oncogene and Human Oncogenesis." National Cancer Institute, $228,571.

Cheng, Jin. (2008 Bridge), "MicroRNAs in Human Ovarian Cancer." National Cancer Institute, $2,087,500.

Copland, John. (2007 Bridge), "TGFβ Receptor Biology in Human Renal Cell Carcinoma." National Cancer Institute, $686,814.

Cress, W. Douglas. (2008 Bridge), "E2F's Impact on Therapeutic Efficacy." National Cancer Institute, $950,199.

Felty, Quentin. (2009 NIR), "Estrogen-induced Pyk2 Signaling in the Abnormal Growth of Vascular Cells." National Institute of General Medical Sciences, $325,125.

Grobmyer, Stephen. (2009 Bridge), "Center for Breast Cancer Nanotechnology Education and Service." Health Resources and Services Administration, $346,500.

Grobmyer, Stephen. (2009 Bridge), "Exploiting Altered Glucose Metabolic Pathways for Targeting Ultrasmall Therapeutic Nanoparticles to Breast Cancer." Congressionally Directed Medical Research Programs, $109,875.

Grobmyer, Stephen. (2009 Bridge), "Irradiated Autologous Tumor Cell-Mediated Nanotherapy for Breast Cancer." Congressionally Directed Medical Research Programs, $109,875.

Heller, Richard. (2006 Bridge), "Therapeutic Potential of IL-15 Plasmid Delivery to Tumors Using Electroporation." National Cancer Institute, $1,875,000.

Huang, Suming. (2007 NIR), "Regulation of Insulator Function and Globin Gene Expression by USF and Associated Co-factor." National Heart, Lung, and Blood Institute, $1,814,110.

Hughes, Jeffery. (2006 Bridge), "Gene Delivery Based on Microbes." National Institute of Neurological Disorders and Stroke, $468,462.

Kato, Yoichi. (2006 Bridge), "The Mechanism of Notch Signaling Pathway in Radial Glial Development." Eunice Kennedy Shriver National Institute of Child Health & Human Development, $294,000.

Kato, Yoichi. (2006 Bridge), "Novel Regulator of Notch Signaling in Determination of Left-right Asymmetry during Embryogenesis." National Institute of General Medical Sciences, $426,120.

Konduri, Santhi. (2009 NIR), "Inhibition of MGMT Impacts Triple Negative Breast Cancer Growth." Susan G. Komen Breast Cancer Research Foundation, $475,000.

Lokeshwar, Vinata. (2008 Bridge), "19th Annual SBUR Meeting: Molecular Targets for Diagnostic and Therapeutics." National Institutes of Diabetes and Digestive and Kidney Diseases, $10,000.

Luo, Jun-Li. (2009 Bridge), "Assay Development for Screening of Specific IKK– Kinase Inhibitors." National Institute of Neurological Disorders and Stroke, $198,000.

McFadden, Grant. (2010 TSP), "Myxoma Virus (mv) Oncolysis for Treating Human Cancer." National Cancer Institute, $1,215,952.

McFadden, Grant. (2010 TSP), "Virotherapy for Pancreatic Cancer with Wildtype and Armed Myxoma Virus." National Cancer Institute, $382,366.

Muir, David. (2009 Bridge), "Anti-Angiogenic Therapeutic Approaches to NF1 Tumors." Children's Tumor Foundation, $50,000.

Muir David. (2009 Bridge), "Photodynamic Therapy for Neurofibroma." STOP! Children's Cancer, Inc., $75,000.

Qiu, Yi. (2007 NIR), "The Role of HDAC1 Acetylation on Corepressor Complex Activity and Hematopoiesis." National Cancer Institute, $1,465,000.

Radisky, Evette. (2007 NIR), "Lana and Cellular Gene Expression in Kaposis Sarcoma." National Cancer Institute, $680,082.

Radisky, Evette. (2007 NIR), "Studying the Role of KSHV-encoded MicroRNAs." National Cancer Institute, $2,065,170.

Radisky, Evette. (2007 NIR), "Targeting Mesotrypsin-induced Prostate Cancer Progression." Department of Defense, $688,500.

Shibata, David. (2006 Bridge), "STAT1 Activation and HPP1 Tumor Suppression." National Cancer Institute, $1,732,625.

Slingerland, Joyce. (2009 SPORE), "Development of Novel Antibody-Endostatin Fusion Proteins for Breast Cancer Therapy." Department of Defense, $908,998.

Sondak, Vernon. (2007 SPORE), "Designing Lymph Nodes for Cancer Therapy." National Cancer Institute, $1,250,000.

Sorg, Brian. (2009 NIR), "Immunodelivery of Nanoparticles to Tumors for Photothermal Therapy." University of Florida Shands Cancer Center, $30,000.

Sorg, Brian. (2009 NIR), "Differential Laser-induced Perturbation Spectroscopy - A Novel Approach to Biosensing." University of Florida, $86,834.

Sotomayor, Eduardo. (2009 Bridge), "Targeting Negative Regulatory Pathways for Immunotherapy of B-cell Lymphomas." National Cancer Institute, $2,441,080.

Storz, Peter. (2007 NIR), "Protein Kinase D in Oncogenic Oxidative Stress Signaling." National Cancer Institute, $1,269,900.

Storz, Peter. (2007 NIR), "Role of Protein Kinase D in Actin Remodeling and Cell Motility." American Cancer Society, $720,000.

Storz, Peter. (2007 NIR), "Role of Protein Kinase D in Actin Remodeling and Cell Motility." National Institute of General Medical Sciences, $1,071,000.

Terada, Naohiro. (2006 Bridge), "Developing Male Contraceptives by Targeting ANT4." The Eunice Kennedy Shriver National Institute of Child Health and Human Development, $1,186,650.

Vieweg, Johannes. (2008 SPORE), "Elimination of Immature Myeloid Cells." National Cancer Institute, $463,500.

Weber, Jeffrey. (2008 Bridge), "Dendritic Cell Vaccination during Lymphoid Reconstitution." National Cancer Institute, $1,207,490.

Weber, Jeffrey. (2008 Bridge), "CD40 and TLR Agonists in Melanoma." National Cancer Institute, $663,164.

Wright, Amy. (2008 Bridge), "Creation of a Marine Natural Products Library to Enhance Life Science Research." National Center for Complementary & Alternative Medicine, $1,599,934.

Zhang, Yanbin. (2008 NIR), "Role of Fanconi Anemia Core Complex in the Incision of DNA Interstrand Crosslinks." National Heart, Lung, and Blood Institute, $1,879,980.

Indirect Follow-on Funding:

During the reporting period, current and past grantees reported nearly $9.7 million in awards that are indirectly related to research findings from projects funded by the Bankhead-Coley Program. Although not directly related, the Program's awards enhanced their competitiveness in earning this additional funding. Grants are presented in alphabetical order by last name of the Grantee.

Briegel, Karoline. (2008 Bridge), "Role of Transcription Factor TBX2 in Breast Cancer." Flight Attendant Medical Research Institute, $325,000.

Gabrilovich, Dmitry. (2006 Bridge), "P53 Based Vaccine for Small Cell Lung Cancer." National Cancer Institute, $486,846.

Gabrilovich, Dmitry. (2006 Bridge), "Mechanism of Dendritic Cell Differentiation in Cancer." National Cancer Institute, $2,055,032.

Goldberg, John. (2009 NIR), "Retinal Scaffolds: Synaptic and Stem Cell Integration." National Eye Institute, $764,972.

Jakymiw, Andrew. (2008 NIR), "RNA Silencing in the Oral Cavity." National Institute of Dental & Craniofacial Research, $941,400.

McFadden, Grant. (2010 TSP), "Studies in Poxvirus Host Range Genes and Tropism." National Institute of Allergy and Infectious Diseases, $1,793,425.

McFadden, Grant. (2010 TSP), "NAPPA Core." Southeast Regional Center for Excellence for Emerging Infections and Biodefense, $500,000.

Tan, Weihong. (2007 Bridge), "Real-time and Quantitative Determination of Biomolecules in Living Specimen." National Institute of General Medical Sciences, $805,704.

Tan, Weihong. (2007 Bridge), "Development of Molecular Probes for Biomedical Applications." National Institute of General Medical Sciences, $723,858.

Tan, Weihong. (2007 Bridge), "Enrichment and Detection of Exfoliated Cancer Cells." National Cancer Institute, $307,650.

Terada, Naohiro. (2006 Bridge), "iPSC Generation using Protein Injection and Site-selective HDAC Inhibition." National Institute of General Medical Sciences, $965,446.

Follow-on Funding for Shared Instrument Grants

During the reporting period, Florida researchers have reported a total of $24.7 million in additional funding made possible by access to equipment purchased with the Bankhead-Coley Program's Shared Instrument Grants. These awards are present in alphabetical order by last name of the grant recipient on the Shared Instrument Grant.

Hu, Jennifer. (2006), "The Role of SATB1 in Metastatic Breast Cancer." Suffolk County Community College, $60,000.

Hu, Jennifer. (2006), "Genetic and Dosimetric Determinants of Toxicity in Men Treated with Radiotherapy for Prostate Cancer." Suffolk County Community College, $60,000.

Hu, Jennifer. (2006), "Environmental Factors and Epigenetic Alterations in Head and Neck Cancer Disparities." Suffolk County Community College, $50,000.

Hu, Jennifer. (2006), "Molecular Genetics of Treatment Response in Lung Cancer Disparities." Suffolk County Community College, $50,000.

Hu, Jennifer. (2006), "Manipulation of STAT3 Signaling for Muscle Preservation in Cancer Preservation in Cancer Cachexia." National Cancer Institute, $1,901,650.

Hu, Jennifer. (2006), "Regulation of Innate Immune Response." National Cancer Institute, $1,637,038.

Hu, Jennifer. (2006), "Impact of Genomics on Disparities in Breast Cancer Radiosensitivity." National Cancer Institute, $2,440,308.

Koomen, John. (2006), "Quantitative Mass Spectrometry Assays to Detect Multiple Myeloma and Assess Relapse after Therapy." National Cancer Institute, $404,000.

Koomen, John. (2006), "Clonogenic Characterization of Myeloma Progenitor Cells." National Cancer Institute, $404,000.

Koomen, John. (2006), "ET-CURE: Leaders in New Knowledge-Emerging Technologies." National Institutes of Health, $332,943.

Koomen, John. (2006), "Modeling Efficacy of Chemotherapy in Multiple Myeloma using Quantitative Detection of Drug Targets and Apoptosis-related Proteins." Department of Defense, $160,884.

Koomen, John. (2006), "Phosphoproteomic Strategies to Evaluate Tyrosine Kinase Signaling Pathways in Lung Cancer." Department of Defense, $415,000.

Koomen, John. (2006), "Correction of Dendritic Cells Defects in Cancer." National Cancer Institute, $1,400,000.

Meeks, Sanford. (2006), "Incorporating 3D Lung Dynamics for Real-time Radiotherapy." Florida High Tech Corridor Matching Research Program, $331,179.

Meeks, Sanford. (2006), "Image-guided Focal Dose Intensification and Conformal Dose De-escalation of Radiotherapy for Localized Prostate Cancers." National Institutes of Health, $567,090.

Meeks, Sanford. (2006), "Effect of Target Motion on IMRT Plans Using Solid Compensators and MLCs." .decimal, Inc., $120,000.

Riley, Richard. (2009), "Selection of B Cell Repertoire in Senescence." National Institute on Aging, $1,530,000.

Riley, Richard. (2009), "Regulation of Immunoglobin Class Switch in Aged Mice." National Institute on Aging, $1,919,530.

Shibata, Yoshimi. (2006), "AR in Advanced Prostate Cancer." Florida Atlantic University Research Corporation, $400,000.

Shibata, Yoshimi. (2006), "Regulation of BimEL Phosphorylation in the Pathogenesis of Huntington's Disease." National Institutes of Health, $211,200.

Shibata, Yoshimi. (2006), "The Impact of Nicotine on Dendritic Cells and Host Immunity." Phillip Morris, $148,192.

Srivastava, Arun. (2006), "Protective CMI Mechanisms of a Dual-subtype FIV Vaccine." National Institutes of Health, $1,887,125.

Srivastava, Arun. (2006), "The Role of PKR in a Novel IL-3 Signal Transduction Pathway." National Institutes of Health, $1,465,000.

Srivastava, Arun. (2006), "Targets of Endocrine Disruptors in External Genitalia." National Institutes of Health, $2,087,605.

Srivastava, Arun. (2006), "UF/Moffitt Collaborative Research Grant." University of Florida/Moffitt Collaboration Grant Mechanism, $100,000.

Srivastava, Arun. (2006), "Targeting Leukemia Hemangioblast Activity." Leukemia and Lymphoma Society, $1,800,000.

Srivastava, Arun. (2006), "Function of Daxx in Mitosis that Determines Paclitaxel Sensitivity in Breast Cancer." National Institutes of Health, $1,391,750.

Srivastava, Arun. (2006), "Intra-tumoral Heterogeneity in Osteosarcoma: Implications for Tumorigenicity and Malignant Reversion." National Cancer Institute, $1,250,000.

Srivastava, Arun. (2006), "Single-molecule Epigenomic Profiling of Mammary Stem Cells and Progenitor Cells." Department of Defense, $111,375.

Srivastava, Arun. (2006), "Single-molecular MAPit Analysis of the Epigenome of Mammary Epithelial Stem and Tumor-initiating Cells." Department of Defense, $111,375.

Appendix D: Publications Reported by Grantees

The following list represents new publications in peer-reviewed journals and books reported between July 2010 and June 2011 based on funded research from Bankhead-Coley Program Grant research. Publications are presented in alphabetical order by last name of the Grantee, shown in bold type.

Kuchma MH, Komanski CB, Colon J, Teblum A, Masunov AE, Alvarado B, Babu S, Seal S, Summy J, **Baker CH**. Phosphate ester hydrolysis of biologically relevant molecules by cerium oxide nanoparticles. *Nanomedicine*, 2010;6(6):738-44.

Babu S, Cho JH, Dowding JM, Heckert E, Komanski C, Das S, Colon J, **Baker CH**, Bass M, Self WT, and Seal S. Multicolored redox active upconverter cerium oxide nanoparticle for bio-imaging and therapeutics. *Chem Commun (Camb)*, 2010;46(37):6915-7.

Bogdanovic J, Colon J, **Baker C**, and **Huo Q**. A label-free nanoparticle aggregation assay for protein complex/aggregate detection and study. *Anal Biochem*, 2010;405(1):96-102.

Colon J, Hsieh N, Ferguson A, Kupelian P, Seal S, Jenkins DW, and **Baker CH**. Cerium oxide nanoparticles protect gastrointestinal epithelium from radiation-induced damage by reduction of reactive oxygen species and upregulation of superoxide dismutase 2. *Nanomedicine*, 2010;6(5):698-705.

Darst RP, Pardo CE, Ai L, **Brown KD**, and Kladde MP. Bisulfite sequencing of DNA. *Curr Protoc Mol Biol*, 2010;Chapter 7:Unit 7.9:1-17.

Pardo CE, Carr IM, Hoffman CJ, Darst RP, Markham AF, Bonthron DT, and Kladde MP **(Brown KD)**. MethylViewer: computational analysis and editing for bisulfite sequencing and methyltransferase accessibility protocol for individual templates (MAPit) projects. *Nucleic Acids Res*, 2011;39(1):e5.

Huo Q, Colon J, Cordero A, Bogdanovic J, Baker CH, Goodison S, and Pensky MY **(Buffa M)**. A facile nanoparticle immunoassay for cancer biomarker discovery. *J Nanobiotechnology*, 2011;9:20.

Cai J, Han S, Qing R, Liao D, Law B, and Boulton ME. In pursuit of new anti-angiogenic therapies for cancer treatment. *Front Biosci*, 2011;16:803-14.

Berndt N, Yang H, Trinczek B, Betzi S, Zhang Z, Wu B, Lawrence NJ, Pellecchia M, Schonbrunn E, **Cheng JQ**, and Sebit SM. The Akt activation inhibitor TCN-P inhibits Akt phosphorylation by binding to the PH domain of Akt and blocking its recruitment to the plasma membrane. *Cell Death Differ*, 2010;17(11):1795-804.

Garrett CR, Coppola D, Wenham RM, Cubitt CL, Neuger AM, Frost TJ, Lush RM, Sullivan DM, **Cheng JQ**, Sebti SM. Phase I pharmacokinetic and pharmacodynamic study of tricirbine phosphate monohydrate, a small-molecule inhibitor of AKT phosphorylation, in adult subjects with solid tumors containing activated AKT. *Invest New Drugs*, 2010;[Epub ahead of print].

Shu SK, Liu Q, Coppola D, and **Cheng JQ**. Phosphorylation and activation of androgen receptor by Aurora-A. *J Biol Chem*, 2010;285(43):33045-53.

Zhang CZ, Zhang JX, Zhang AL, Shi ZD, Han L, Jia ZF, Yang WD, Wang GX, Jiang T, You YP, Pu PY, **Cheng JQ**, Kang CS.. MiR-221 and MiR-222 target PUMA to induce cell survival in glioblastoma. *Mol Cancer*, 2010;9:229.

Tan W, Zhang W, Strasner A, Grivennikov S, **Cheng JQ**, Hoffman RM, and Karin M. Tumour-infiltrating regulatory T cells stimulate mammary cancer metastasis through RANKL-RANK signalling. *Nature*, 2011;470(7335):548-53.

Marlow LA, D'Innocenzi J, Zhang Y, Rohl SD, Cooper SJ, Sebo T, Grant C, McIver B, Kasperbauer JL, Wadsworth JT, Casler JD, Kennedy PW, Highsmith WE, Clark O, Milosevic D, Netzel B, Cradic K, Arora S, Beaudry C, Grebe SK, Silverberg ML, Azorsa DO, Smallridge RC, and **Copland JA**. Detailed molecular fingerprinting of four new anaplastic thyroid carcinoma cell lines and their use for verification of RhoB as a molecular therapeutic target. *J Clin Endocrinol Metab*, 2010;95(12):5338-47.

Sun L and **Fang J**. Writer meets eraser in HOTAIR. Acta *Biochim Biophys Sin (Shanghai)*, 2011;43(1):1-3.

Kokura K, Sun L, Bedford MT, and **Fang J**. Methyl-H3K9-binding protein MPP8 mediates E-cadherin gene silencing and promotes tumour cell motility and invasion. *EMBO J*, 2010;29(21):3673-87.

Felty Q. Proteomic 2D DIGE profiling of human vascular endothelial cells exposed to environmentally relevant concentration of endocrine disruptor PCB153 and physiological concentration of 17β-estradiol. *Cell Biol Toxicol*, 2011;27(1):49-68.

Gunjan A and Singh RK. Epigenetic therapy: targeting histones and their modifications in human disease. *Future Med Chem*, 2010;2(4):543-48.

Singh RK, Liang D, Gajjalaiahvari UR, Kabbaj MH, Paik J, and **Gunjan A**. Excess histone levels mediate cytotoxicity via multiple mechanisms. *Cell Cycle*, 2010;9(20):4236-44.

Hollis F, Wang H, Dietz D, **Gunjan A**, and Kabbaj M. The effects of repeated social defeat on long-term depressive-like behavior and short-term histone modifications in the hippocampus in male Sprague-Dawley rats. *Psychopharmacology (Berl.)*, 2010;211(1):69-77.

Ucar DA and **Hochwald SN (Sondak VK)**. FAK and interacting proteins as therapeutic targets in pancreatic cancer. *Anticancer Agents Med Chem*, 2010;10(10):742-6.

Smith TR, Liu-Mares W, Van Emburgh BO, Levine EA, Allen GO, Hill JW, Reis IM, Kresty LA, Pegram MD, Miller MS, and **Hu JJ**. Genetic polymorphisms of multiple DNA repair pathways impact age at diagnosis and TP53 mutations in breast cancer. *Carcinogenesis*, 2011;[Epub ahead of print].

Huo Q. Protein complexes/aggregates as potential cancer biomarkers revealed by a nanoparticle aggregation immunoassay. *Colloids Surf B Biointerfaces*, 2010;78(2):259-65.

Ingersoll SB, Ahmad S, Stoltzfus GP, Patel S, Radi MJ, Finkler NJ, Edwards JR, and Holloway RW. Functional characterization of a fluorescent highly tumorigenic ovarian cancer line to test cellular therapy in experimental models. *Int J Gynecol Cancer*, 2011;21(3):457-65.

Basha R, **Ingersoll SB**, Sankpal UT, Ahmad S, Baker CH, Edwards JR, Holloway RW, Kaja S, and Abdelrahim M. Tolfenamic acid inhibits ovarian cancer cell growth and decreases the expression of c-Met and survivin through suppressing specificity protein transcription factors. *Gynecol Oncol*, 2011;122(1):163-70.

Katz J, **Jakymiw A**, Ducksworth MK, Stewart CM, Bhattacharyya I, Cha S, Chan EK. CIP2A expression and localization in oral carcinoma and dysplasia. *Cancer Biol Ther*, 2010;10(7):694-9.

Bobustuc GC, Baker CH, Limaye A, Jenkins WD, Pearl G, Avgeropoulos NG, and **Konduri SD**. Levetiracetam enhances p53-mediated MGMT inhibition and sensitizes glioblastoma cells to temozolomide. *Neuro Oncol*, 2010;12(9):917-27.

Konduri SD, Medisetty R, Kaipparettu BA, Srivastava P, Brauch H, Fritz P, Swetzig WM, Gardner AE, Khan SA, Das GM. Mechanisms of estrogen receptor antagonism toward p53 and its implications in breast cancer therapeutic response and stem cell regulation. *Proc Natl Acad Sci USA*, 2010;107(34):15081-6.

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Publications Reported by Grantees with Access to Shared Equipment

The following list represents new publications in peer-reviewed journals and books reported during the reporting period made possible by access to equipment purchased with the Bankhead-Coley Program's Shared Instrument Grants. Publications are presented in alphabetical order by last name of the Lead Researcher on the Shared Instrument Grant, shown in bold type.

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Appendix E: Statute Authorizing Bankhead-Coley Cancer Research Program

Section 381.922, *Florida Statutes* – William G. "Bill" Bankhead, Jr., and David Coley Cancer Research Program

(1) The William G. "Bill" Bankhead, Jr., and David Coley Cancer Research Program, which may be otherwise cited as the "Bankhead-Coley Program," is created within the Department of Health. The purpose of the program shall be to advance progress towards cures for cancer through grants awarded through a peer-reviewed, competitive process.

(2) The program shall provide grants for cancer research to further the search for cures for cancer.

(a) Emphasis shall be given to the following goals, as those goals support the advancement of such cures:

1. Efforts to significantly expand cancer research capacity in the state by:

a. Identifying ways to attract new research talent and attendant national grant-producing researchers to cancer research facilities in this state;

b. Implementing a peer-reviewed, competitive process to identify and fund the best proposals to expand cancer research institutes in this state;

c. Funding through available resources for those proposals that demonstrate the greatest opportunity to attract federal research grants and private financial support;

d. Encouraging the employment of bioinformatics in order to create a cancer informatics infrastructure that enhances information and resource exchange and integration through researchers working in diverse disciplines, to facilitate the full spectrum of cancer investigations;

e. Facilitating the technical coordination, business development, and support of intellectual property as it relates to the advancement of cancer research; and

f. Aiding in other multidisciplinary research-support activities as they inure to the advancement of cancer research.

2. Efforts to improve both research and treatment through greater participation in clinical trials networks by:

a. Identifying ways to increase adult enrollment in cancer clinical trials;

b. Supporting public and private professional education programs designed to increase the awareness and knowledge about cancer clinical trials;

c. Providing tools to cancer patients and community-based oncologists to aid in the identification of cancer clinical trials available in the state; and

d. Creating opportunities for the state's academic cancer centers to collaborate with community-based oncologists in cancer clinical trials networks.

3. Efforts to reduce the impact of cancer on disparate groups by:

a. Identifying those cancers that disproportionately impact certain demographic groups; and

b. Building collaborations designed to reduce health disparities as they relate to cancer.

(b) Preference may be given to grant proposals that foster collaborations among institutions, researchers, and community practitioners, as such proposals support the advancement of cures through basic or applied research, including clinical trials involving cancer patients and related networks.

(3) (a) Applications for funding for cancer research may be submitted by any university or established research institute in the state. All qualified investigators in the state, regardless of institutional affiliation, shall have equal access and opportunity to compete for the research funding. Collaborative proposals, including those that advance the program's goals enumerated in subsection (2), may be given preference. Grants shall be awarded by the State Surgeon General, after consultation with the Biomedical Research Advisory Council, on the basis of scientific merit, as determined by an open, competitive peer review process that ensures objectivity, consistency, and high quality. The following types of applications shall be considered for funding:

1. Investigator-initiated research grants.
2. Institutional research grants.
3. Collaborative research grants, including those that advance the finding of cures through basic or applied research.

(b) In order to ensure that all proposals for research funding are appropriate and are evaluated fairly on the basis of scientific merit, the State Surgeon General, in consultation with the council, shall appoint a peer review panel of independent, scientifically qualified individuals to review the scientific content of each proposal and establish its priority score. The priority scores shall be forwarded to the council and must be considered in determining which proposals shall be recommended for funding.

(c) The council and the peer review panel shall establish and follow rigorous guidelines for ethical conduct and adhere to a strict policy with regard to conflicts of interest. A member of the council or panel may not participate in any discussion or decision with respect to a research proposal by any firm, entity, or agency with which the member is associated as a member of the governing body or as an employee or with which the member has entered into a contractual arrangement. Meetings of the council and the peer review panels are subject to chapter 119, s. 286.011, and s. 24, Art. I of the State Constitution.

(4) By December 15 of each year, the Department of Health shall submit to the Governor, the President of the Senate, and the Speaker of the House of Representatives a report indicating progress towards the program's mission and making recommendations that further its purpose.

(5) The William G. "Bill" Bankhead, Jr., and David Coley Cancer Research Program is funded pursuant to s. 215.5602(12). Funds appropriated for the William G. "Bill" Bankhead, Jr., and David Coley Cancer Research Program shall be distributed pursuant to this section to provide grants to researchers seeking cures for cancer and cancer-related illnesses, with emphasis given to the goals enumerated in this section. From the total funds appropriated, an amount of up to 10 percent may be used for administrative expenses. From funds appropriated to accomplish the goals of this section, up to $250,000 shall be available for the operating costs of the Florida Center for Universal Research to Eradicate Disease.

History.—s. 11, ch. 2004-2; ss. 7, 8, ch. 2006-182; s. 32, ch. 2008-6; s. 2, ch. 2009-5; s. 4, ch. 2009-58; s. 6, ch. 2010-34; s. 14, ch. 2010-161.

Note.—Subparagraphs (2)(a)1.-3. former s. 381.921.

Endnotes

1 Florida State Cancer Plan 2010. Florida Department of Health. Available at http://www.doh.state.fl.us/Family/cancer/ccc/plan/Florida_Cancer_Report.pdf. Accessed October 27, 2011.

2 The source for the statistics in the following boxes is Florida Department of Health, Florida CHARTS, Major Causes of Death for 2009. Available at http://www.floridacharts.com/charts/DisplayHTML.aspx?ReportType=7226&County=69&year=2009. Accessed September 9, 2011.

3 For every new job in research, testing, and laboratories in Florida, the jobs multiplier of 2.12 represents the number of new jobs. Source available at: http://www3.bio.org/local/battelle2010/FLORIDA_profile.pdf. Employment Multipliers source: U.S. Bureau of Economic Analysis RIMS II Employment Multipliers, available at http://www.bea.gov/scb/pdf/regional/perinc/meth/rims2.pdf. Accessed on September 26, 2011.

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