

# *Section III.*

# *BREAST CANCER*

# *RESEARCH*

# *PROGRAM*



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# Breast Cancer Research Program

**Vision:** To eradicate breast cancer.

**Mission:** To foster new directions, address neglected issues, and bring new investigators into the field of breast cancer research.

## **Appropriations for Peer Reviewed Research**

\$868.3M in FY92–99, \$175M in FY00, and \$175M in FY01 in congressional funds

\$1.8M in FY99 and \$1.3M in FY00 from the Stamp Out Breast Cancer Act

## **Funding Summary**

2,290 awards from the FY92–99 appropriations

547 awards from the FY00 appropriation

~325 awards anticipated from the FY01 appropriation

## The Disease

*“The BCRP has focused its vision and resources on new research mechanisms and models that welcome new ideas, encourage innovation, and do not duplicate the efforts of other national programs. The BCRP has achieved many ‘firsts’ and attracted outstanding scientists to breast cancer research; but perhaps the greatest contribution of this unique partnership will ultimately be this willingness to selectively take risks and ask new questions that will hopefully hasten the eradication of breast cancer.”*

—Anna Barker, Ph.D.  
President and CEO, BIO-NOVA, Inc.  
FY00 Integration Panel Member



In 2001, breast cancer will account for one-third of all new cancer cases in women in the United States. Approximately 192,200 women in the United States will receive a diagnosis of invasive breast cancer and 46,400 women will be diagnosed with breast cancer in situ. Almost 25% of the women receiving a diagnosis of breast cancer will be under the age of 50. Additionally, about 1,500 new cases of breast cancer will be diagnosed in men. More than 40,200 individuals are projected to die from breast cancer this year. While black women in the United States have a lower incidence of developing breast cancer than white women, the mortality rate in black women is 24% higher than that of white women.

## History of the Breast Cancer Research Program

### —Program Background

The Department of Defense (DOD) Breast Cancer Research Program (BCRP) was established in fiscal year 1992 (FY92) by *Appropriations Conference Committee Report No. 102-328*, which provided \$25 million (M) for research on breast cancer screening and diagnosis for military women and family members. In 1993, grassroots advocates led by the National Breast Cancer Coalition (NBCC) influenced public policy, which led to a FY93 \$210M congressional appropriation for peer reviewed breast cancer research. After being assigned responsibility for administering the FY93 appropriation for breast cancer, the U.S. Army Medical Research and Materiel Command (USAMRMC) sought the advice of the National Academy of Sciences (NAS) to develop a sound investment strategy for the congressional appropriation. A NAS Institute of Medicine committee thoroughly studied the major considerations and, in 1993, issued a report<sup>1</sup> that outlined a

<sup>1</sup> Institute of Medicine, *Strategies for Managing the Breast Cancer Research Program: A Report to the U.S. Army Medical Research and Development Command, 1993.*

two-tier review process and investment strategy for the \$210M appropriation. (See Section I for more detail.)

The BCRP has challenged the research community to eradicate breast cancer. Instead of focusing on specific areas of research, the BCRP focuses on offering specific funding mechanisms to address unmet needs in the research community, as illustrated by the pyramid depicted in Figure III-1. The foundation of the pyramid is the training of investigators in breast cancer research. The next level of the pyramid is ideas; research starts with thousands of ideas, not all of which will lead to fruitful areas of investigation. Idea Awards have been and continue to be a major emphasis of the BCRP. The middle of the research pyramid is traditional research projects offered by other funding agencies; these projects are often the major emphasis of a laboratory. Approaching the pyramid's summit are Translational Awards. The BCRP focuses efforts at the critical juncture between bench and bedside research. Translational Awards have become an emphasis of the BCRP in recent years and are covered in the box story on the following page. Finally, the pinnacle of the pyramid represents the research studies that make it to a clinical trial. Awards have been made across all areas of laboratory, clinical, behavioral, and epidemiological research, including all disciplines within the basic, clinical, psychosocial, behavioral, sociocultural, and environmental sciences; nursing; occupational health; alternative therapies; public health and policy; and economics.

### —Congressional Appropriation and Funding History

From FY92-01, Congress appropriated more than \$1.2 billion (B) to fund peer reviewed breast cancer research through the BCRP. A total of 2,837 awards have been made across the categories of research, training/recruitment, and infrastructure. Each fiscal year's investment strategy is focused on the program's vision to eradicate breast cancer. Appendix B, Table B-1, summarizes the congressional appropriations and the investment strategy executed by the BCRP for FY00-01. Additional details of the FY92-99 programs may be found in the *DOD CDMRP Annual Reports* of September 1999 and of September 2000.

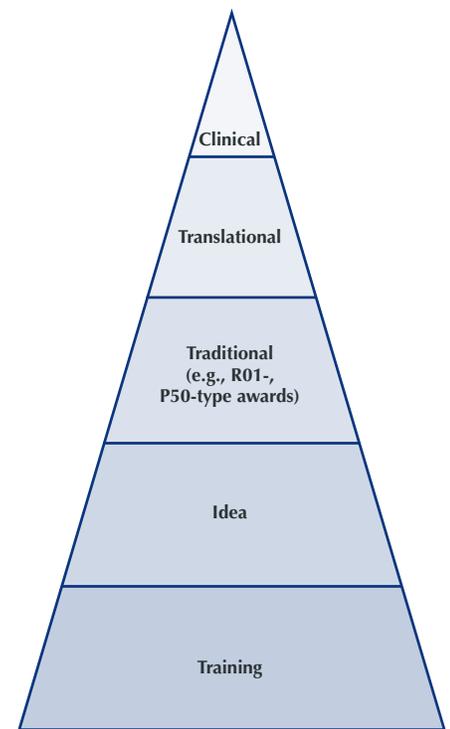


Figure III-1. BCRP Funding "Philosophy"

*"The collaboration among the Army, advocates, and scientists has worked remarkably well, and the program has had an incredible impact on the way science is done and the way scientists think about advocates."*

—Fran Visco, Esq.  
President, National Breast Cancer Coalition  
FY00 Integration Panel Chair



## Moving Research from the Bench to the Bedside

A major feature of the types of awards offered by the BCRP is that they are designed to fill niches that are not offered by other agencies. This was the case in 1996 when the BCRP first offered awards to support translational research performed by individual investigators. The BCRP considers translational research to be the application of well-founded laboratory or other preclinical insight into a clinical trial. To enhance this critical area of research, several award opportunities have been offered. Clinical Translational Research Awards, for investigator-initiated projects that involve a clinical trial within the lifetime of the award, make up the majority of the BCRP's translational research portfolio. The BCRP has also offered awards to train both postdoctoral fellows and assistant professors in translational research. The Collaborative-Clinical Translational Research Awards made in FY99 and FY00 are providing support for innovative methods to perform clinical trials. Finally, starting in FY00, the BCRP offered the Clinical Bridge Award to support research that is close, but not yet ready for clinical applications. After 2-3 years of support, the first BCRP Translational Awards made by the BCRP in FY96 and FY97 are entering the clinical trial phases of their work. For example, a vaccine that targets carbohydrate-based antigens is yielding early promising results in a Phase I clinical trial. ♦

## FY00 Program

In FY00, the DOD BCRP was continued with a congressional appropriation for \$175M for peer reviewed breast cancer research. Additionally, \$1.3M was received as a result of the Stamp Out Breast Cancer Act of 1997 (Public Law 105-

41). The programmatic vision was implemented by requesting proposals in three award categories: (1) research, (2) infrastructure, and (3) training/recruitment. Table III-1 provides a summary of the FY00 BCRP award categories and mechanisms in terms of dollars and number of awards.

As in previous years, a central theme of the BCRP was innovation. Emphasis was again placed on support of Idea Awards. A well-recognized backbone of the BCRP's portfolio, Idea Awards are intended to encourage innovative approaches to breast cancer

research. In FY00, 170 Idea Awards were funded totaling \$73.7M. Because of the innovative nature of the Idea Awards, the \$1.3M received as a result of the Stamp Out Breast Cancer Act<sup>2</sup> were used to fund an additional 3 Idea Awards.

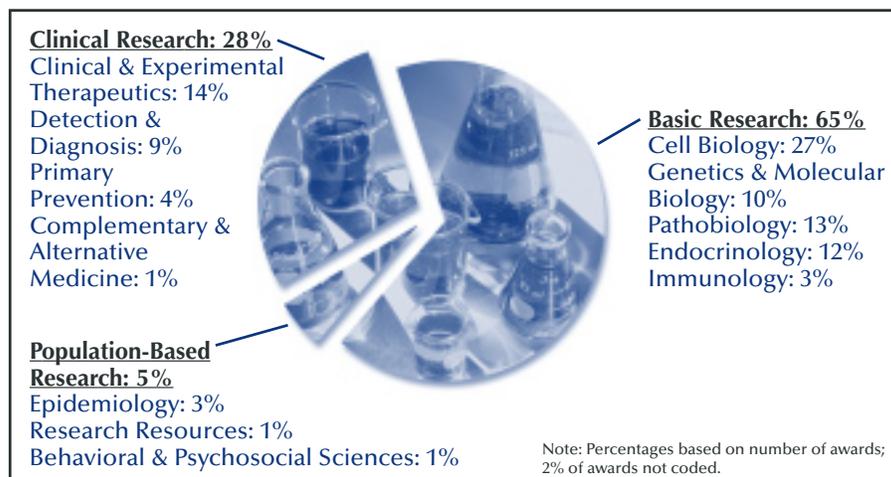


Figure III-2. FY00 BCRP Portfolio by Research Area

<sup>2</sup> The Stamp Out Breast Cancer Act led to the U.S. Postal Service's issuance of the breast cancer stamp. The DOD receives 30% of the net revenues from the sale of this stamp. To date, the DOD has received \$3.1M that has been used to support Idea Awards in FY99 and FY00.

The BCRP expanded its emphasis on translational research by offering 5 different types of awards that support work at the critical juncture between laboratory research and bedside applications. The Clinical Bridge Award mechanism was developed in FY00 to sponsor novel research focused around clinical trials. In FY00, 5 awards were made for this new mechanism. The BCRP continued its support for research that extends recent laboratory findings into the practice of breast cancer care through the Clinical Translational Research (CTR) Awards. Including the 5 CTR Awards made in FY00, the BCRP has made a total of 24

*“We put a face on breast cancer, but what was strong for me was putting a face on science, how smart the scientists are and how many avenues of expertise they have. I have a huge dose of appreciation for the research being done.”*

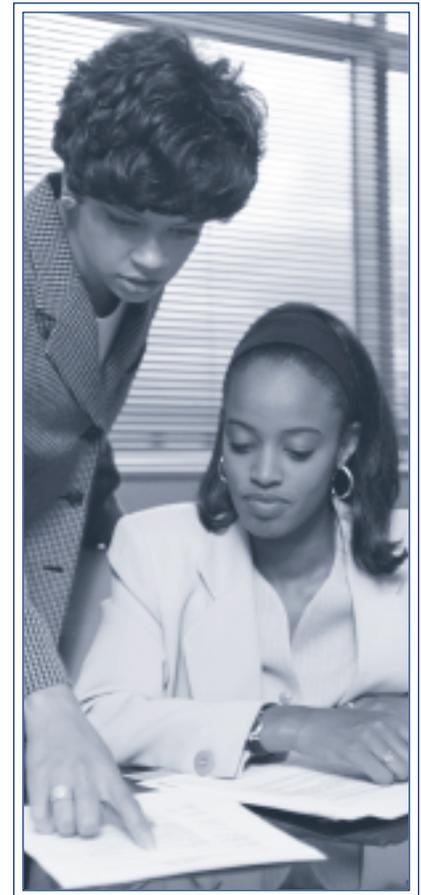
—Ms. Gayle Walker  
American Cancer Society, Great Lakes Division, Inc.  
Consumer Peer Reviewer

**Table III-1. Funding Summary for the FY00 BCRP**

<b>Category Mechanism</b>	<b>Number of Proposals Received</b>	<b>Number of Awards</b>	<b>Investment</b>
<b>Research</b>			
Idea	790	170	\$73.7M
Clinical Bridge	35	5	\$2.0M
CTR	18	5	\$9.3M
Concept	N/A <sup>1</sup>	203	\$15.6M
<b>Infrastructure</b>			
C-CTR	2	2	\$3.8M
Virtual Breast Cancer Center of Excellence	4	0	0
Behavioral Center of Excellence	8	4	\$22.7M
<b>Training/Recruitment</b>			
Undergraduate Summer Training Program	10	6	\$0.7M
Predocctoral	130	66	\$4.1M
Postdoctoral	158	65	\$9.8M
CTR Postdoctoral	4	2	\$0.3M
Career Development	65	14	\$3.9M
CTR Career Development	1	0	0
HBCU/MI <sup>2</sup> Focused Training	3	2	\$0.3M
HBCU/MI <sup>2</sup> Partnership Training	6	3	\$3.0M
<b>Total</b>	<b>1,234</b>	<b>547</b>	<b>\$149.2M</b>

<sup>1</sup> Not applicable. In response to an FY99 BCRP Program Announcement for Concept Awards, 1,774 proposals were received. A total of 301 Concept Awards were made, 98 in FY99 and 203 in FY00.

<sup>2</sup> Historically Black Colleges and Universities/Minority Institutions.



CTR Awards.<sup>3</sup> Two Collaborative-Clinical Translational Research (C-CTR) Awards were made in FY00 aimed at supporting clinical trials in community settings. Additionally, the CTR Fellowship and CTR Career Development Awards should increase the number of scientists focused on translational research by providing training opportunities for physicians in this critical area.

Recognizing a need for additional behavioral science research, the BCRP offered a new award mechanism to enhance research infrastructure for behavioral research. Four FY00 Behavioral Center of Excellence Awards were made to provide support to the behavioral research community by advancing investigations in behavioral breast cancer research and training new behavioral researchers:

- ◆ Center for Biobehavioral Research in Breast Cancer at the University of Pittsburgh, focusing on the study of biobehavioral pathways affecting breast cancer prevention and control
- ◆ Behavioral Center of Excellence at Fox Chase Cancer Center, focusing on understanding and evaluating psychosocial approaches for promoting psychological and physical adaptation to cancer risk, treatment, and survival
- ◆ Center for Interdisciplinary Biobehavioral Research at the Mount Sinai School of Medicine, focusing on understanding the impact of biobehavioral factors on genetic aspects of breast cancer in African American women
- ◆ Behavioral Center of Excellence at Wake Forest University School of Medicine, focusing on health-related quality of life and psychosocial issues for women with breast cancer

A mainstay of the BCRP portfolio has been to support training/recruitment awards that bring new investigators into breast cancer research. One-third of the portfolio is devoted to Training/Recruitment Awards. In addition to the six Training/Recruitment Awards that have been offered in previous years (see Table III-1), one new Training/Recruitment Award was implemented in FY00, the Undergraduate Summer Training Program. Recognizing the critical need to excite young investigators, the BCRP offered this award to expose talented undergraduate students to careers that focus on breast cancer research. Six awards were made to institutions across the country in FY00 for these new programs.



<sup>3</sup> In FY96, the CTR Award was called Research with Translational Potential Award.



## ***The BCRP: A Leader in Consumer Involvement***

Breast cancer consumers were responsible for the \$210M FY93 appropriation for peer reviewed breast cancer that provided the foundation for the BCRP. Consumers have been active partners in the BCRP from the onset and are included as voting members on all review panels. The goal for consumer participation is to involve breast cancer consumers from all backgrounds, thus ensuring that the perspectives of survivors are represented. This is consistent with the unique research agenda of the Congressionally Directed Medical Research Programs (CDMRP) to address disease-targeted research. Over the past 7 years, 530 breast cancer survivors have served on 257 review panels. Their vital role in the success of the BCRP has led to consumer inclusion in other programs managed by the CDMRP. In addition, the CDMRP now serves as a model to other funding agencies for consumer inclusion. For more information on consumer involvement in CDMRP, see Section I. ♦

## **FY01 Program**

In FY01, Congress appropriated \$175M for peer reviewed breast cancer research. The FY01 BCRP continues to emphasize innovation, training, and translational research. In addition to offering nine established award mechanisms, two new mechanisms designed to support areas underrepresented in breast cancer research were launched.

- ♦ Breast Cancer Center of Excellence Awards are intended to unite in a Center of Excellence environment the most highly qualified investigators to accelerate the solution of an overarching problem in breast cancer.
- ♦ Innovator Awards are intended to support visionary scholars/investigators from the academic, government, or private sectors with the funding and freedom to pursue creative, potentially breakthrough research that could ultimately accelerate the eradication of breast cancer.

In response to two FY01 BCRP Program Announcements, 1,500 proposals were received. Scientific peer review was conducted in August 2001, and programmatic review is scheduled for November 2001. More than 325 awards are anticipated.

## **Scientific Achievements**

The BCRP research portfolio comprises many different types of projects, including support for innovative ideas, infrastructure building to facilitate clinical trials, and training breast cancer researchers.

The outcomes of BCRP-funded research can be gauged, in part, by the number of resultant publications, abstracts/presentations, and patents/licensures reported by awardees to date. This information is summarized in Table III-2.

*“This is where personal relevance and good science come together to make good decisions about which protocols will be funded.”*

*—Lynn Murphy  
Connecticut Breast Cancer Coalition  
Consumer Peer Reviewer*



**Table III-2. FY93-98 BCRP Award Outcomes**

Number of Awards	1,780
Publications in Scientific Journals	>3,500
Abstracts/Presentations at Professional Meetings	>2,800
Patents/Licensures (including applications)	>100

The following projects represent a sample of the many exciting developments that are resulting from research funded by the BCRP. These examples represent the work of dedicated individuals from graduate students who are just beginning their careers through established breast cancer researchers.

***Fatty Acid Synthesis: A Novel Target for Breast Cancer Therapy. Francis Kuhajda, M.D., Johns Hopkins University:*** Normal tissues typically have low levels of fatty acid synthesis. However, breast cancer and some other cancers exhibit high levels of activity of fatty acid synthesis and a key enzyme involved in the process, fatty acid synthase (FAS). Recent studies suggest that increased FAS levels may serve as a marker for the presence and stage of breast cancer. With funding from the BCRP, researchers at Johns Hopkins University synthesized a chemically stable inhibitor of FAS. Blocking FAS causes cell death in human breast cancer cells both in vitro and when implanted in mice. Dose-related reversible weight loss due to reduced food intake was the only limiting toxicity observed. Although much work remains before such a drug could reach clinical trials, these promising studies establish a FAS inhibitor as a novel potential chemotherapeutic.

***The Iodide Transporter: A Potential Avenue for Breast Cancer Management. Orsolya Dohan, M.D., Albert Einstein College of Medicine:*** For years, the medical community has been diagnosing and treating thyroid ailments by radioactive iodine uptake mediated by the sodium/iodide symporter (NIS). Active transport of iodide has also been shown in lactating mammary glands, salivary glands, and the gastric mucosa. Investigators previously demonstrated that NIS mediates active transport of iodide in lactating mammary glands, but not in nonlactating glands. Significantly, these investigators also showed NIS mediated iodide transport in experimental adenocarcinomas in transgenic mice. Moreover, they observed that more than 80% of human breast cancer samples expressed the sodium/iodide transporter compared to none of the normal samples obtained from reductive mammoplasties. These results suggest exciting avenues for breast cancer diagnosis and treatment. Currently, these BCRP-supported investigators are assessing the roles that different hormones play in the regulation of the sodium/iodide transporter as well as developing a radioactive iodide therapeutic protocol and assessing its effectiveness in the treatment of breast cancer in animal models. Thus, this work is laying the groundwork for potential new avenues for the diagnosis and treatment of breast cancer.

***Exploiting HER2/neu as a Tumor Antigen from Vaccine for Relapse to Front-Line Immunotherapy. Keith Knutson, Ph.D., University of Washington:*** A BCRP-sponsored study at the University of Washington was designed to evaluate the safety and ability of a vaccine made from fragments of HER2/neu to elicit an immune response in patients. HER2/neu is a protein that is overexpressed in 20-40% of breast cancers and is associated with poor prognosis. HER2/neu is a tumor antigen and is thus able to generate an immune response in a cancer patient. Results indicated that, in most patients, the vaccine elicited an immune response. The vaccine was totally nontoxic and represents promising progress toward the goal of developing a vaccine that could be used routinely to prevent breast cancer recurrence. Building on these studies, a University of Washington BCRP postdoctoral trainee is working to develop an immunotherapy that could be used to treat an established breast cancer tumor. The basis for this immunotherapy, known as adoptive T cell therapy, is to give back to the patient breast cancer-specific human T cells that have been reproduced outside the body, in the hope that these T cells will attack and eradicate breast cancer tumors. Using a mouse model of breast cancer (transgenic HER2/neu mice), the investigator has been able to vaccinate mice and elicit an immune response to HER2/neu protein, has developed essential assays, and is optimizing conditions with various cytokines to expand peptide-specific T cells in vitro. Studies are currently under way to infuse T cell lines specific for HER2/neu into mice bearing implanted tumors to determine whether the T cells exhibit any antitumor effects in this model.

***RNA Polymerase II in the Act of Transcription. Averell L. Gnatt, Ph.D., University of Maryland:*** Although the sequence of the human genome has been disclosed, mechanisms of the reading of the genome are not fully understood. Transcription, which is the reading of the genome, and its regulation are fundamental processes that underlie cancer. Understanding the basic mechanisms of transcription is therefore crucial to understanding and combating the altered gene expression characteristic of cancer. A knowledge of mechanisms of transcription should lead to the design of a new generation of cancer drugs aimed at components of transcription that are directly involved in cancer. The work of a BCRP Postdoctoral Traineeship Award recipient and colleagues at Stanford University has led to a refined molecular structure of the “motor” of transcription, RNA polymerase II. The structure was devised from x-ray crystallography studies of an elongation complex that comprises RNA polymerase II, DNA, and RNA. To obtain the crystals for these studies, major obstacles had to be overcome. The structure defines regions of the protein and intermolecular interactions involved in unwinding the DNA template, the entry and addition of ribonucleotides to the newly transcribed RNA strand, binding of the DNA-RNA hybrid, and the separation and release of DNA and RNA strands. One striking finding was the closure of a “clamp” over the template and transcript in an active complex. The achievement of this structure will clearly facilitate future studies that can help explain the improper regulation of gene expression in breast cancer and other tumors as well as drug development.

*“We have increased our understanding of breast cancer and its treatment exponentially over the past decade, in part due to the efforts of researchers supported by the Breast Cancer Research Program. As the daughter of a breast cancer survivor, an oncology nurse specialist, and a nurse researcher, it is an honor and privilege to work with this program and be a part of the progress made to eradicate this disease.”*

*—LTC Stacey Young-McCaughan  
FY00 Program Manager and CDMRP  
Deputy Director*



## ***Era of Hope Multidisciplinary Breast Cancer Meetings***

The BCRP believes that one of the best approaches to eradicating breast cancer is to attack this disease from multiple fronts and that one way to accomplish this is to bring individuals from multiple disciplines together. Starting in 1997, the DOD BCRP held its first Era of Hope meeting that provided an opportunity to have researchers report their findings to the public. A second Era of Hope meeting was held in 2000. These meetings provided participants the means to share ideas with peers and a wide audience of stakeholders searching for new approaches for the prevention, detection, and treatment of breast cancer and enhanced quality of life for patients. The third Era of Hope meeting is scheduled for 2002. It will mark the 10th anniversary of the BCRP and provide a forum to review the BCRP accomplishments and look toward a cure in the future. For current information on the upcoming Era of Hope 2002, visit the CDMRP web site at <http://cdmrp/army.mil>. ♦



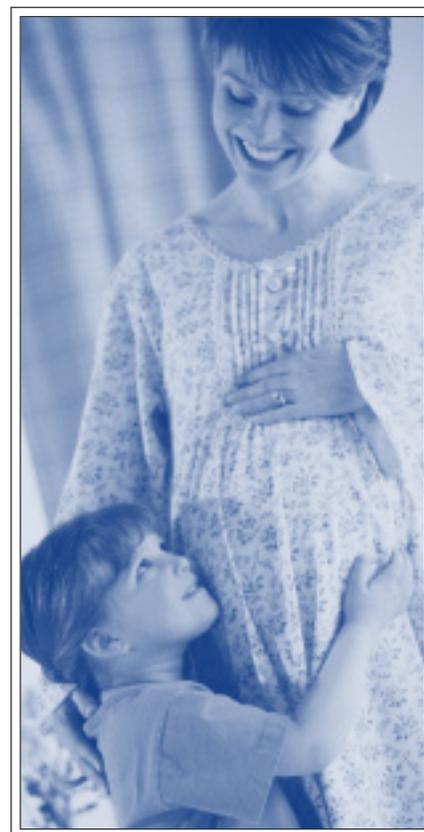
***Does Exercise Really Help during Chemotherapy? Anna L. Schwartz, Ph.D., University of Utah:*** Women who are undergoing chemotherapy for breast cancer often experience fatigue and weight gain. A BCRP grant recipient conducting research at the University of Utah enrolled 78 breast cancer patients in an 8-week, low-intensity exercise regimen. The study examined (1) the daily pattern of fatigue over the first three cycles of chemotherapy, and (2) the effect of exercise on body weight and fatigue. The results demonstrated that women who exercised as instructed experienced significantly less post-treatment fatigue than those who did not exercise. In addition, it was found that women who exercised did not gain weight while women who did not exercise experienced significant increases in weight. The investigator also determined that women who exercised experienced a 15% increase in functional ability while women who did not exercise demonstrated a 22.5% decrease in functional ability.

***Breast Cancer Patients Write Their Way to Improved Outcomes. Annette L. Stanton, Ph.D., University of Kansas:*** Increases in survival rates have led to the need for determining ways of improving the quality of life of breast cancer survivors. A BCRP grant recipient at the University of Kansas performed a randomized, controlled trial aimed at determining if coping through actively processing and expressing emotions and through finding benefits in the cancer experience enhances the quality of life for women with breast cancer. Women who had recently completed treatment for breast cancer were placed into one of three groups, in which each patient was instructed to write about (1) her most personal thoughts and feelings regarding her cancer experience (Emotional Approach), (2) positive thoughts and feelings regarding her cancer experience (Benefit Finding), and (3) facts regarding her cancer and its treatment (Fact Control). At defined intervals, participants completed standardized measures of positive and negative effect, somatic symptoms, and quality of life. The study revealed that women who engage in emotionally expressive coping or benefit finding regarding their experience with cancer have fewer negative physical symptoms and fewer medical appointments for cancer-related morbidities.

***Determining Risk and Prognostic Factors for Breast Cancer. Mads Melbye, M.D., Ph.D., Statens Serum Institute:*** BCRP-funded researchers at the Statens Serum Institute in Denmark are examining breast cancer risk and prognostic factors in a large retrospective cohort consisting of over 1.5 million women. The cohort has been established by linking information from several high-quality national registries, including both exposure information as well as detailed information on stage of disease at time of breast cancer diagnosis, treatment, and survival. Among other things, they are studying the relationship between abortion, gestational age at delivery, age at first birth, number of births, other pregnancy-related markers and the risk of developing breast cancer. In contrast to earlier reports from case-control studies, the large prospective study in Denmark included more than 400,000 women with induced abortion and did not find an association between abortion and breast cancer. In another study, the researchers determined that childbirth contributed to reducing a woman's risk of breast cancer as long as the birth(s) took place at a young age. Thus, a woman who had all her children above 30 years of age did not reduce her risk of breast cancer compared to childless women. Thus, age at not only the first but any birth appears crucial to the influence on the risk of breast cancer. The researchers are also examining the relationship between breast cancer prognosis and age at diagnosis, use of chemotherapy, time between births and diagnosis, pregnancy after breast cancer treatment, and tumor location. In concordance with previous studies, they found that young women with breast cancer have an especially poor prognosis. Of note, however, they also found that the dismal prognosis among women under 35 was restricted to those with low-risk breast cancer who did not receive follow-up chemotherapy. This group of women was more than twice as likely to die from the disease than women with low-risk breast cancer who were 45-49 when diagnosed. Overall, this study is beginning to provide a wealth of information related to risk and prognostic factors in breast cancer.

## Summary

Since 1992, the BCRP has been responsible for managing \$1.2B in appropriations, which has resulted in 2,837 awards for FY92-00. The focus of the DOD BCRP spans a spectrum of research, including basic, clinical, behavioral, environmental sciences, and alternative therapy studies. The BCRP benefits Americans by maximizing resources. The program offers awards that benefit the current needs of the patient and research communities while not duplicating efforts of other agencies. Scientific achievements that are the direct result of DOD BCRP awards have contributed toward the eradication of breast cancer.



*“This collaborative effort combines sophisticated laboratory research with state-of-the art surgical management of breast cancer patients. Our clinical trial was initiated in 1996, supported only by small intramural grants. The DOD funds have been critical for the continuation and expansion of this important work that has the potential to improve the detection of occult breast disease and to better guide the selection of therapy.”*

*—Kathryn Verbanac, Ph.D.  
Associate Professor,  
East Carolina University  
BCRP Award Recipient*

## FY01 Integration Panel Members

**Chair, Dennis Slamon, M.D., Ph.D.:** Executive Vice-Chair for Research for the Department of Medicine, Professor of Medicine, and Chief of the Division of Hematology-Oncology, University of California at Los Angeles School of Medicine. Director of Clinical Research, Jonsson Comprehensive Cancer Center, University of California at Los Angeles.

**Chair-Elect, Lynn Matrisian, Ph.D.:** Professor and Chair, Department of Cancer Biology, Vanderbilt University School of Medicine, and Program Leader of the Host-Tumor Interaction Program of the Vanderbilt-Ingram Cancer Center. Served on the Board of Directors of the American Association for Cancer Research.

**Chair Emeritus, Fran Visco, Esq.:** Consumer; Attorney. President and Member of the Board of Directors of the National Breast Cancer Coalition. Member of the President's Cancer Panel. Co-Chair of the National Action Plan on Breast Cancer. Member of the National Cancer Policy Board.

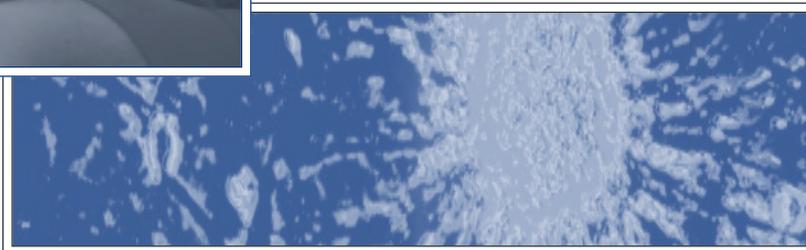
**Anna Barker, Ph.D.:** President and Chief Executive Officer, BIO-NOVA, Inc. Member of the Board of Directors and Chairperson of the Science Policy and Legislative Affairs Committee of the American Association for Cancer Research. Member of the Board of Directors, National Coalition for Cancer Research.

**Wendie Berg, M.D., Ph.D.:** Associate Professor of Diagnostic Radiology and Director of Breast Imaging, University of Maryland.

**Leslie Bernstein, Ph.D.:** AFLAC, Inc.; Chair in Cancer Research and Professor, Department of Preventive Medicine, Senior Associate Dean for Faculty Affairs, Scientific Director, Cancer Surveillance Program of Los Angeles County, Keck School of Medicine of the University of Southern California.

**Edward Bresnick, Ph.D.:** Professor Emeritus of Pharmacology and former Vice-Chancellor for Research, University of Massachusetts Medical School and current Adjunct Professor of Biochemistry, Dartmouth Medical School. Served as President of the American Association for Cancer Research.

**Mary Lenora Disis, M.D.:** Associate Professor, Division of Oncology, University of Washington and Affiliate Investigator, Fred Hutchinson Cancer Research Center. Chair, Molecular Therapeutics Committee, Southwest Oncology Group.



**Kunio Doi, Ph.D.:** Ralph W. Gerard Professor of Biological Sciences, Professor and Associate Chair for Research, Department of Radiology, and Director, Kurt Rossman Laboratories of Radiologic Image Research, the University of Chicago.

**Henry Fuchs, M.D.:** Vice President, Clinical Affairs, IntraBiotics Pharmaceuticals, Inc.

**Barbara Given, F.A.A.N., Ph.D.:** Professor, School of Nursing, Senior Research Scientist, Institute for Managed Care, College of Human Medicine, Michigan State University and Research Scientist for the Walther Cancer Institute, Indianapolis, Indiana.

**William Hait, M.D., Ph.D.:** Professor of Medicine and Pharmacology and Director, The Cancer Institute of New Jersey, and Associate Dean for Oncology Programs, University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School.

**M. Carolina Hinestrosa:** Consumer; Co-Founder and Director of Programs, Nueva Vida, the first Spanish-language support and referral network for Latinas with breast cancer in the Washington, DC, metropolitan area.

**Laurence Kolonel, M.D., Ph.D.:** Professor of Public Health, Deputy Director and Director of Cancer Etiology Program, Cancer Research Center of Hawaii, University of Hawaii.

**Lawrence Kushi, Sc.D.:** The Ella McCollum Vahlteich Professor of Human Nutrition, Columbia University.

**Ngina Lythcott, Dr.PH.:** Consumer; Breast Cancer Liaison, National Black Women's Health Project; Associate Dean, Mailman School of Public Health, Columbia University. Former Dean of the College, Swarthmore College and former Assistant Professor of Community and Family Medicine at Dartmouth Medical School and Morehouse School of Medicine. Member, Steering Committee, National Cancer Action Plan for Breast Cancer.

**Daniel Medina, Ph.D.:** Professor, Department of Molecular and Cellular Biology, Baylor College of Medicine.

**Abram Recht, M.D.:** Associate Professor of Radiation Oncology, Harvard Medical School.



**William Redd, Ph.D.:** Professor, Mount Sinai School of Medicine, New York. Associate Director, Rutenberg Cancer Center, Mt. Sinai-NYU Medical Center.

**Rosemary Rosso, J.D.:** Consumer; Senior Attorney at the Federal Trade Commission. Member of the National Breast Cancer Coalition and the Baltimore/Washington Breast Cancer Group.

**George Sledge, M.D.:** Professor of Medicine and Pathology at Indiana University School of Medicine and Ballvé-Lantero Professor of Oncology (Endowed Chair). Vice-Chair of the Breast Cancer Committee. Editor-in-Chief of *Clinical Breast Cancer*.

**Patricia Steeg, Ph.D.:** Chief, Women's Cancers Section, Laboratory of Pathology, National Cancer Institute, National Institutes of Health.

**Geoffrey Wahl, Ph.D.:** Professor, The Salk Institute for Biological Studies. Adjunct Professor, Biology Department, University of California, San Diego.

❖ *For more information about the BCRP and other programs managed by the CDMRP, visit <http://cdmrp.army.mil>* ❖