

# BREAST CANCER RESEARCH PROGRAM

## VISION

A world without breast cancer

## MISSION

To end breast cancer for Service Members, Veterans, and the general public by funding innovative, high-impact research through a partnership of scientists and consumers

## PROGRAM HISTORY

The Department of Defense (DOD) Breast Cancer Research Program (BCRP) plays a leading role in the fight against breast cancer through its innovative approaches and its focus on research that addresses the overarching challenges to bring an end to this disease. The BCRP was established in 1992 as a result of the dedicated efforts of breast cancer advocates. Their continued efforts, in concert with the program's accomplishments, have resulted in congressional appropriations totaling \$4.241 billion through fiscal year 2023 (FY23). Research supported by the BCRP has led to the development of new standard of care treatments, diagnostic and imaging approaches, risk assessment tests, and resources for the breast cancer research and patient communities.

## RELEVANCE TO MILITARY HEALTH

Breast cancer is the most common non-skin cancer in women, and is the deadliest cancer in females under 40.<sup>1,2</sup> Female active-duty Service Members have a 20%-40% higher incidence rate of breast cancer than females in the general population.<sup>3</sup> The incidence rate of breast cancer for active-duty females is seven times higher than the average incident rate of 15 other cancer types across all Service Members.<sup>4</sup> The outcomes of BCRP-funded research will ultimately benefit active-duty Service Members, Veterans, military beneficiaries, and the American public.

<sup>1</sup> <https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/>

<sup>2</sup> <https://seer.cancer.gov/statfacts/html/aya.html>

<sup>3</sup> <https://pubmed.ncbi.nlm.nih.gov/19505907/>

<sup>4</sup> <https://pubmed.ncbi.nlm.nih.gov/27501939/>



## IMPACT IN THE MILITARY HEALTH SYSTEM

Preclinical research supported by the BCRP contributed to four Food and Drug Administration (FDA)-approved drugs: HERCEPTIN®, IBRANCE®, KISQALI®, and VERZENIO®. For these drugs, between 2007 through 2018 there were:

- Over **34,600** prescriptions written for more than **2,400** Military Health System patients including active-duty Service Members and DOD beneficiaries with TRICARE coverage.<sup>5</sup>

## HIGH-IMPACT ADVANCES RESULTING FROM BCRP-FUNDED RESEARCH

### TREATMENTS

- FDA-approved therapeutics: HERCEPTIN®, IBRANCE®, KISQALI®, and VERZENIO®
- Long-term (10 years) tamoxifen treatment for estrogen receptor-positive breast cancer
- Prone radiotherapy treatment to reduce harmful radiation to the heart and lungs

### DIAGNOSTICS AND IMAGING

- Sentinel lymph node biopsy for tumor staging
- Digital mammography and digital breast tomosynthesis for advanced breast imaging

- Molecular breast imaging for high-resolution functional images of the breast

### RISK ASSESSMENT

- OncoVue® and BROCA: genetic-based breast cancer risk tests
- Breast Cancer Index® for predicting disease recurrence
- Identification of breast cancer risk-associated mutations (BRCA2 617delT, PTEN, and PALB2)
- MetaSite Breast™ test to predict the metastatic potential of a primary breast cancer
- MenaCalc™ as a prognostic predictor of recurrence and metastasis

### RESOURCES

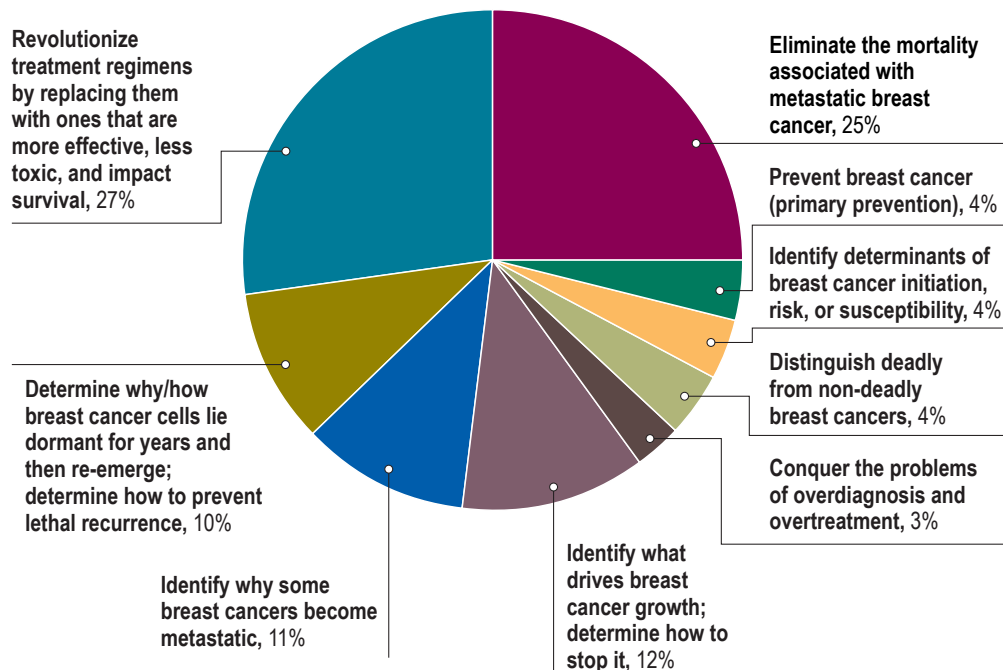
- Expression Arrest™: a research tool to identify therapeutic targets
- Patient-derived breast tumor models for tumor growth, metastasis, drug efficacy, and prognosis
- Dyson Family Risk Assessment Program, which provides counseling and risk analysis to individuals with a family history of breast or ovarian cancer
- BreastCancerTrials.org, a resource tool that informs patients about ongoing breast cancer clinical trials

<sup>5</sup> Source: Defense Health Agency Pharmacy Analytics Support Section

## OVERARCHING CHALLENGES

The BCRP recognizes that many overarching questions remain unanswered in breast cancer, and funding must be invested in critical areas of research to make breakthroughs that will save lives and lead to eradication of this disease. To meet this urgent need, the BCRP requires all applications to address at least one of nine overarching challenges within the Breast Cancer Landscape.<sup>6</sup> To date, the BCRP has supported over 7,200 research awards, resulting in over 19,200 publications and over 1,300 patents.

<sup>6</sup> <https://cdmrp.health.mil/bcrp/pdfs/BreastCancerLandscape2022.pdf>



BCRP Portfolio Investment by Overarching Challenge FY13-FY21

## CONSUMER REVIEWER QUOTES



“The DOD funded Dr. Dennis Slamon’s early work on Herceptin® and thus benefited me as an active duty Service Member and now as a Veteran. It is a full circle, with me giving 25 years of service to the DOD, and the DOD giving back to me as a breast cancer patient.”

SMSgt (Ret.) Sheila McGlown



“Reviewing for the DOD BCRP is my absolute favorite part of my advocacy. It is clear that the scientific community understands the myriad of challenges facing the breast cancer community – patient care, safety and efficacy, improving life expectancy, and working to eradicate disease. I strongly feel that, by participating in the DOD BCRP panel reviews, I can make a difference in ending cancer.”

Lori Petitti, Consumer Reviewer

## IN THE CLINICAL PIPELINE

The BCRP is currently funding numerous open clinical trials, including the following, funded since FY16 with a focus on immunotherapy and prevention:

**Alpha-Lactalbumin Vaccine** – George Budd, M.D., Vincent Tuohy, Ph.D., and Thaddeus Stappenbeck, M.D., Ph.D.

Determining safety and dosage of an alpha-lactalbumin vaccine in triple-negative breast cancer (TNBC) patients recovering from current standard-of-care therapy or administered to healthy subjects for use in a prophylactic setting (NCT04674306; phase 1)

**Ado-Trastuzumab Emtansine/Pertuzumab with HER2 HLA-DR Vaccine Therapy** – Keith Knutson, Ph.D., and Saranya Chumsri, M.D.

Determining whether a multi-epitope human epidermal growth factor receptor 2 (HER2) vaccine administered during anti-HER2 maintenance therapy in patients with residual disease post-neoadjuvant chemotherapy can block disease recurrence and progression to metastatic breast cancer (NCT04197687; phase 2)

**Denosumab** – Judy Garber, M.D., and Christian Singer, M.D.

Evaluating whether prophylactic administration of denosumab can prevent the development of breast cancer in women with a BRCA1 germline mutation (EudraCT Number: 2017-002505-35; phase 3)

**Novel Immunotherapy for Brain-Metastatic Breast Cancer** – Pawel Kalinski, M.D., Ph.D., and Brian Czerniecki, M.D., Ph.D.

Determining the safety and efficacy of dendritic cell (DC) vaccines against HER2/HER3 combined with pembrolizumab in patients with brain metastasis from TNBC or HER2+ breast cancer. (NCT04348747; phase 2); Determining the safety and dosage of a DC vaccine in patients with leptomeningeal disease from TNBC or HER2+ breast cancer (NCT05809752; phase 1)

**Neoadjuvant Endocrine Therapy (NET) + Radiotherapy** – Silvia Formenti, M.D., and Sandra Demaria, M.D.

Determining whether a combination of focal radiotherapy and letrozole NET will promote a response to immunotherapy in hormone receptor-positive breast cancer (NCT03804944; phase 2)

**Overcoming Immunotherapy Resistance Using RT-Mediated Immunomodulation** – Stephen Shiao, M.D., Ph.D., and Simon Knott, Ph.D.

Determining safety and efficacy of preoperative focal radiation combined with pembrolizumab in patients with early-stage TNBC (NCT03366844; phase 1/2)

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