BREAST CANCER RESEARCH STAMP PROGRAM

CDMRP
DEPARTMENT OF DEFENSE
CONGRESSIONALLY DIRECTED MEDICAL RESEARCH PROGRAMS

ABOUT THE PROGRAM

As a result of breast cancer advocacy efforts, the Stamp Out Breast Cancer Act (Public Law 105-41)[1] led to the U.S. Postal Service's issuance of a new first-class stamp, the Breast Cancer Research Stamp, or BCRS, in 1998. The BCRS became the first semipostal stamp in U.S. history.

The U.S. Postal Service provides the net revenues from sales of the BCRS, which currently costs 85 cents, to two designated funding agencies, the Department of Defense or DOD, and National Institutes of Health or NIH, to support breast cancer research. By law, the U.S. Postal Service allocates 30% of the total amount raised to the DOD and 70% to the NIH. The Breast Cancer Research Stamp Reauthorization Act of 2019 reauthorized the stamp through 2027.

The CDMRP Breast Cancer Research Program received BCRS funding between FY99-23 and used the two-tier review process to review and recommend applications for BCRS program funding. See the BCRS facts for FY99 through FY23 on the right.

RELEVANCE TO MILITARY HEALTH

For females 40-59 years of age, the incidence rate of breast cancer is higher in active-duty Service Members compared to the general population.[2] The incidence rates of breast cancer for active-duty females is **seven times higher** than the average incidence rate of 15 other cancer types across all Service Members.[3] The outcomes of BCRS-funded research ultimately benefit active-duty Service Members and their Families, Veterans, and the American public.

TOTAL CONGRESSIONAL APPROPRIATION SINCE INCEPTION

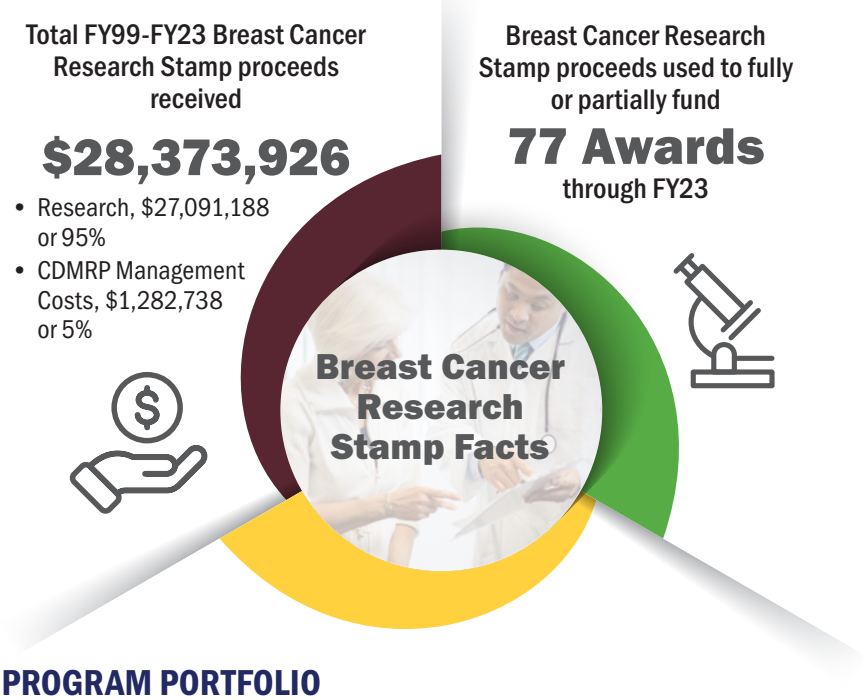
Total FY99-FY23 Breast Cancer Research Stamp proceeds received

$28,373,926

- Research, $27,091,188 or 95%
- CDMRP Management Costs, $1,282,738 or 5%

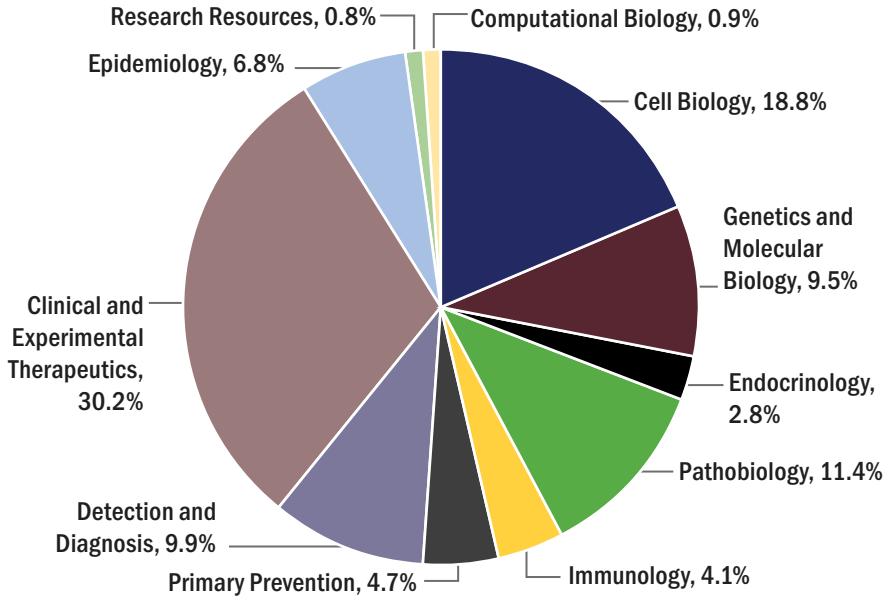
Breast Cancer Research Stamp proceeds used to fully or partially fund

77 Awards
through FY23



PROGRAM PORTFOLIO

Funded awards encompass a diversity of research areas, as shown in the portfolio pie chart below:



[1] https://www.congress.gov/105/plaws/publ41/PLAW-105publ41.pdf
[2] https://pubmed.ncbi.nlm.nih.gov/37725334/
[3] https://pubmed.ncbi.nlm.nih.gov/27501939/

High-Impact Research and Accomplishments Supported by the Breast Cancer Research Stamp

181 Publications

27 Patents

Environmental Exposures: Demonstrated a relationship between breast cancer incidence and outdoor concentrations of hazardous air pollutants, strongly suggesting that environmental exposure could contribute to an increased risk of breast cancer.[4]

Pregnancy-Associated Breast Cancer: Advanced understanding of the immune-modulated microenvironment of postpartum breast involution that promotes pregnancy-associated breast cancer, revealing new therapeutic strategies to target immunosuppression and enhance the anti-tumor immune response.[5]

Predicting Metastatic Disease: Development of a high-resolution imaging technique to measure the direction that second harmonic generation is emitted to analyze tumor structural changes and predict metastasis of breast cancer.[6]

Biomarkers to Predict Therapeutic Response: Identified predictive biomarkers for response of triple-negative breast tumors to current therapies, providing the opportunity for new targeted therapeutics.[7]

Recent Publications Resulting from Breast Cancer Research Stamp Funded Research

Sprenger A, Carr HS, Ulu A, et al. 2023. Src Stimulates Abl-Dependent Phosphorylation of the Guanine Exchange Factor Net1A to Promote Its Cytosolic Localization and Cell Motility. *Journal of Biological Chemistry* Jun 2:104887. doi: 10.1016/j.jbc.2023.104887. Epub ahead of print. PMID: 37271338.

Krishnakumar A, Kadian S, Heredia Rivera U, et al. 2023. Organ-on-a-Chip Platform with an Integrated Screen-Printed Electrode Array for Real- Time Monitoring Trans-Epithelial Barrier and Bubble Formation. *ACS Biomaterials Science & Engineering* Mar 13;9(3):1620-1628. doi: 10.1021/ acsbiomaterials.2c00494. Epub 2023 Feb 10. PMID: 36763005.

Karaayvaz-Yildirim M, Silberman RE, Langenbucher A, et al. 2020. Aneuploidy and a Deregulated DNA Damage Response Suggest Haploinsufficiency in Breast Tissues of BRCA2 Mutation Carriers. *Science Advances* 6(5):eaay2611.

Shivange G, Mondal T, Lyerly E, et al. 2020. Analyzing Tumor and Tissue Distribution of Target Antigen-Specific Therapeutic Antibody. *Journal of Visualized Experiments* May 16;(159).

Zareei A, Jiang H, Chittiboyina S, et al. 2020. A Lab-on-Chip Ultrasonic Platform for Real-Time and Nondestructive Assessment of Extracellular Matrix Stiffness. *Lab on a Chip* 20(4):778-788.

Beck AP, Li H, Ervin SM, et al. 2019. Inhibition of Microbial Beta-Glucuronidase Does Not Prevent Breast Carcinogenesis in the Polyoma Middle T Mouse. *bioRxiv* 746602.

Chhetri A, Chittiboina S, Atrian F, et al. 2019. Cell Culture and Coculture for Oncological Research in Appropriate Microenvironments. *Current Protocols in Chemical Biology* 11(2):e65.

Ervin SM, Li H, Lim L, et al. 2019. Gut Microbial Beta-Glucuronidases Reactivate Estrogens as Components of the Estrobolome That Reactivate Estrogens. *The Journal of Biological Chemistry* 294(49):18586-18599.

Parashar D, Geethadevi A, Aure MR, et al. 2019. miRNA551b-3p Activates an Oncostatin Signaling Module for the Progression of Triple-Negative Breast Cancer. *Cell Reports* 29:4389-4406.

Parashar D, Geethadevi A, Aure MR, et al. 2019. miRNA551b-3p Activates an Oncostatin Signaling Module for the Progression of Triple-Negative Breast Cancer. *Cell Reports* Dec 24;29(13):4389-4406.e10. doi: 10.1016/j. celrep.2019.11.085. PMID: 31875548; PMCID: PMC7380555.

Yin H, Xiong G, Guo S, et al. 2019. Delivery of Anti-miRNA for Triple Negative Breast Cancer Therapy Using RNA Nanoparticles Targeting to Stem Cell Marker CD133. *Molecular Therapy* Jul 27(7):1252-1261.

[4] Public and Technical Abstracts: Hazardous Air Pollutants and Breast Cancer: An Unexplored Area of Risk

[5] Public and Technical Abstracts: The Immune Modulatory Program of Post-Partum Involution Promotes Pregnancy-Associated Breast Cancer

[6] Public and Technical Abstracts: Prediction of Metastasis Using Second Harmonic Generation

[7] Public and Technical Abstracts: Stabilization of 53BP1 in Triple-Negative and BRCA-Deficient Breast Tumors: A Novel Therapeutic Strategy

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