

Komen's Research Program plays a critical role in energizing science to find the cures by funding the discoveries, individuals, and resources essential to ending breast cancer. The Program supports research and training through many different types of grants and awards, each designed to meet specific objectives and optimize outcomes. One such award mechanism, the Promise Grant, was established in 2008 to encourage cross-disciplinary collaboration and the rapid translation of scientific discoveries into new or enhanced treatments and clinical tools with great potential to reduce breast cancer incidence and/or mortality within the next decade.

Promise Grants support teams of investigators (e.g., medical oncologists, basic and translational researchers, physician scientists, surgeons, pathologists, radiation oncologists, imaging specialists, etc.) to conduct several related research projects that converge to address a critical issue in breast cancer. The idea is that by bringing investigators from several disciplines and institutions together to focus their efforts on the same issues or questions, results will be achieved sooner than if each project were conducted by individual investigators.

In addition, breast cancer advocates—individuals who have been diagnosed with breast cancer or have a strong personal connection to breast cancer and are active in a breast cancer advocacy organization—must be involved in the project and their interactions with the research team members should be well-integrated and ongoing.

The clinical testing of promising interventions or strategies is a required component of the Promise Grants. In order to realize these ambitious goals, each grant may receive up to \$7.5 million in funding and may take up to 5 years to complete the research.

Progress is already being made through this relatively new mechanism:

- To date, Komen has funded 17 Promise Grants—totaling \$84,411,739—that are addressing a variety of problems in breast cancer, spanning prevention,

early detection, and treatment and focusing on many different types of breast cancer.

- Collectively, these Promise Grants are projected to lead to at least 20 new clinical trials.

- o More than 7 clinical trials are already underway, including early (Phase I or II) studies testing new targeted therapies for the more effective treatment of patients with ER-negative breast cancer, HER2-positive breast cancer, TNBC, and IBC.

- o Future clinical trials will include prevention studies using natural products such as flaxseed or pharmaceutical agents such as PARP inhibitors to prevent breast cancer.



These Promise Grants may also lead to the discovery and validation of a variety of biomarkers that will be used for early detection or to predict response to new and existing therapies including tamoxifen, aromatase inhibitors, and the anti-angiogenesis drug bevacizumab, among others.

In addition, the Promise Grant research will reveal new insights about the biology of breast cancer—the mechanisms, molecules and signaling pathways that the tumors use to grow, metastasize and form new blood vessels, and how they develop resistance to many cancer drugs—that will help identify new drug combinations, potential therapeutic targets and biomarkers that will be studied in Promise Grant projects and future research.

Promise Grants in Prevention

Using flaxseed to prevent breast cancer in high-risk, pre-menopausal women

The lignan SDG as a prevention strategy for pre-menopausal women at high risk for development of breast cancer

Carol Fabian, MD, and Brian Petroff, DVM, PhD, University of Kansas Medical Center, Kansas City, KS, and Stephen Hursting, PhD, MPH, University of Texas at Austin, Austin TX

Using PARP inhibitors to prevent breast cancer in BRCA1/2 mutation carriers

Preclinical and brief exposure early clinical evaluation of an oral PARP inhibitor for breast cancer prevention in BRCA mutation carriers

Judy Garber, MD, MPH, and Kornelia Polyak, MD, PhD, Dana Farber Cancer Institute, Boston MA

Using omega-3 fatty acids (fish oil) combined with low-doses of tamoxifen or raloxifen to prevent hormone-independent breast cancer

Combination of low-dose antiestrogens with omega-3 fatty acids for prevention of hormone-independent breast cancer

Andrea Manni, MD, and Karam El-Bayoumy, PhD, Pennsylvania State University College of Medicine, Hershey PA

Mimicking pregnancy by inducing mammary cell differentiation to prevent breast cancer

Chromatin remodeling as a preventive strategy in breast cancer

Jose Russo, MD, Fox Chase Cancer Center, Philadelphia PA, David Euhus, MD, University of Texas Southwestern Medical Center, Dallas, TX, Coral Lamartiniere, PhD, University of Alabama at Birmingham, Birmingham AL, and George Pfeiler, PhD, Vienna University Medical School, Vienna, Austria

Using anti-obesity therapies to prevent breast cancer or delay its progression in obese individuals

The impact of obesity and obesity treatments on breast cancer

Sai-Ching Yeung, MD, PhD, Francisco Esteva, MD, PhD, and Mong-Hong Lee, PhD, University of Texas MD Anderson Cancer Center, Houston TX

Promise Grants in Early Detection

Using biomarkers to predict the development of ER-negative breast cancer and resistance to tamoxifen

Development of novel early detection and prevention strategies for ER-negative breast cancer

Dihua Yu, MD, PhD and Banu Arun, MD, University of Texas MD Anderson Cancer Center, Houston TX, and Victoria Seewaldt, MD, Duke University School of Medicine, Durham NC

Promise Grants in Treatment

Developing targeted therapeutics for ER-negative breast cancer

Using genomics and proteomics to develop effective therapies for ER-negative breast cancer

Powel Brown, MD, PhD, and Gordon Mills, MD, PhD, University of Texas MD Anderson Cancer Center, Houston TX

Using novel drugs that target microphages/immune cells to enhance treatment of TNBC

Enhancing Efficacy of Chemotherapy in Triple Negative/Basal-like Breast Cancer by Targeting Macrophages

Lisa Coussens, PhD, Shelley Hwang, MD, and Hope Rugo, MD, University of California at San Francisco, San Francisco CA

Developing a new targeted therapy for TNBC

Targeting death receptors for the treatment of triple negative breast cancer

Andres Forero, MD, and Tong Zhou, MD, University of Alabama at Birmingham Comprehensive Cancer Center, Birmingham AL

Harnessing patients' immune systems to target unique tumor antigens to prevent recurrence

Personalizing Breast Cancer Vaccines Based on Genomic Sequencing

William Gillanders, MD, Ted Hansen, PhD, & Elaine Mardis, PhD, Washington University at Saint Louis, St. Louis MO

Developing the next generation of therapeutics against HER2

An integrated approach towards the eradication of HER2-driven breast cancer

Mark Moasser, MD, and James Wells, PhD, University of California, San Francisco, and John Kuriyan, PhD, University of California, Berkeley CA

Developing a new diagnostic approach and specific, targeted therapies for inflammatory breast cancer, based on the molecular profile of IBC tumor cells

Novel targets for treatment and detection of inflammatory breast cancer

Fredika Robertson, PhD, University of Texas M.D. Anderson Cancer Center, Houston, TX and Massimo Cristofanilli, MD, FACP, Fox Chase Cancer Center, Philadelphia PA

Using a panel of proteins to predict response to new and existing therapies

Therapy-relevant stratification of breast cancer patients: integrating pathology and biomarker analyses

Hallgeir Rui, MD, PhD, and Edith Mitchell, MD, Thomas Jefferson University, Philadelphia PA

Using biomarkers to predict who will respond to anti-angiogenic therapy

Comprehensive biomarker discovery project for bevacizumab in breast cancer

Bryan Schneider, MD, and David Flockhart MD, PhD, Indiana University, Indianapolis IN

Using microarray-based pharmacogenomic testing to predict the most effective adjuvant therapies

Prospective evaluation of molecular triaging with pharmacogenomic tests to select neoadjuvant treatment

William Symmans, MD, and Lajos Pusztai, MD, PhD, University of Texas MD Anderson Cancer Center, and Baljit Singh, MD, New York University, New York NY

Identifying predictors of response to tamoxifen or aromatase inhibitors

Optimizing endocrine therapies for the individual patient with breast cancer: identifying targets for tailored treatment

Giuseppe Viale, MD, and Olivia Pagani, MD, International Breast Cancer Study Group, Bern, Switzerland, and Meredith Regan, ScD, Dana-Farber Cancer Institute, Boston MA

Developing novel therapies that will attack and destroy the lethal seeds (cancer stem cells) driving TNBC

Targeting stem cells in triple-negative breast cancer in different racial populations

Max Wicha, MD, University of Michigan Comprehensive Cancer Center, Ann Arbor MI, Patricia LoRusso, D.O., Barbara Ann Karmanos Cancer Institute, Detroit MI, Jeffrey Trent, PhD, Van Andel Research Institute, Grand Rapids MI