

**RESEARCH
INVESTMENT
AT A GLANCE:**
(1982-2026)Over **\$92 million** in over **200** research grants
and more than **40** clinical trials focused on
hereditary and/or *BRCA* breast cancers**ABOUT HEREDITARY
BREAST CANCER**

Most breast cancers occur by chance. But, in [hereditary breast cancer](#), the cancer is caused by a changed or damaged gene inherited from your parents. Around 5-10% of all breast cancers in the U.S. are thought to be hereditary. Identification of inherited gene mutations is a crucial step in determining individual risk for people with a high risk of having an inherited gene mutation related to breast cancer, or when genetic testing would help guide breast cancer treatment, empowering people to take charge of their health and to take measures that may reduce their risk of breast cancer.

WHAT WE'RE INVESTIGATING

Studying how inherited gene mutations in *BRCA1* cause changes to DNA in normal breast cells, “priming” them to form hereditary breast cancers. This may help identify new drug targets for treating these breast cancers.



Investigating the potential for using the body's own immune system to prevent breast cancer in people who carry inherited *BRCA* gene mutations.



Testing new strategies using genetic testing technology to empower women with *BRCA1* and *BRCA2* inherited gene mutations to make informed decisions about breast cancer screening and risk-reducing surgery.

INHERITED *BRCA* GENE MUTATIONS AND CANCER RISK**Lifetime risk of developing
breast cancer in women:**MORE
THAN
55%*BRCA1/2 Mutation*

13%

*General Population*

While everyone has the *BRCA1* and *BRCA2* genes (Breast Cancer susceptibility genes 1 and 2), those who have an inherited mutation in one or both genes have an increased risk of inherited, or hereditary, breast cancer. Learn more about *BRCA1* and *BRCA2* mutations and breast cancer risk in women [here](#) and men [here](#).

SPOTLIGHT

Komen Career Catalyst Research grantee Dr. Carman Li is studying how inherited *BRCA* gene mutations alter DNA in breast cells before cancer develops. By understanding these early changes, her research aims to uncover new ways to prevent or treat hereditary breast cancer at very early stages to improve outcomes. Learn more about *BRCA* mutations and hereditary breast cancer [here](#).

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FROM KOMEN-FUNDED RESEARCH**

- A new study found that inherited mutations in genes like *PALB2*, combined with a family history of breast cancer, can significantly increase breast cancer risk. The findings may help identify women who could benefit from more intensive screening and prevention efforts.
- Young Black women who received *BRCA* genetic testing at diagnosis were more likely to choose preventative bilateral mastectomy compared to those who were tested later, highlighting the importance of [timely genetic testing](#), especially in populations with historically lower testing rates.
- A recent study suggests that [risk-reducing double mastectomies](#) may be overused in women who carry certain genetic mutations in the *ATM* and *CHEK2* genes and who are likely at lower risk for breast cancer.