

RESEARCH SAVES LIVES

Cancer care has moved away from a one-size-fits-all approach toward more individualized care called precision medicine. **Precision medicine**, sometimes called personalized medicine, refers to the tailoring of medical treatment to the individual characteristics of each person. It uses both genetic and clinical information to make accurate predictions about a person's susceptibility of developing disease, the course of disease, and its response to treatment. It includes the use of biomarkers—molecules found in the blood, other body fluids or tissues that are produced by the tumor or by the body's response to the tumor.

Biomarkers are key to precision medicine. They reflect changes in the body that can be used to identify disease in its earliest stages (early detection and

diagnostic biomarkers), predict disease progression (prognostic biomarkers) and identify which therapies will be most effective (predictive biomarkers).

Precision medicine is an important part of efforts to optimize outcomes for people with cancer. Breast cancer is not a single disease, but a complex set of different types of breast cancers with distinct causes. Finding individual differences in tumors is key to treating each person with the right drug at the right time.

What makes a good biomarker?

Because even normal cells can produce biomarkers, the most effective are those that are expressed at different levels in cancer cells compared to normal cells, and can help distinguish a cancer cell from a normal cell.

OUR RESEARCH INVESTMENT:

(1982-2021)

More than **\$320 million** in over **690 research grants** and more than **110 clinical trials** focused on precision medicine

What We're Investigating

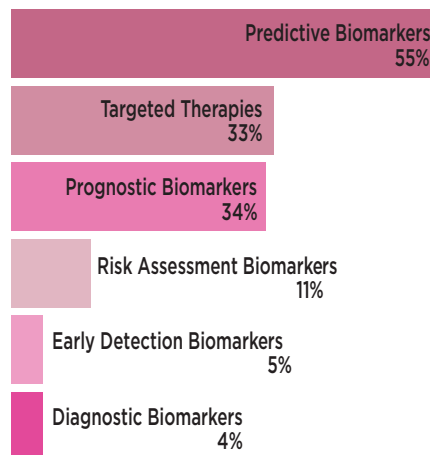
- Identifying biomarkers that can predict whether cancer will progress, recur, or spread (metastasize) to other parts of the body (prognostic).
- Discovering biomarkers that can predict whether a tumor will respond to or develop resistance to a particular therapy (predictive).
- Developing biomarkers and artificial intelligence algorithms that can identify people who are at high risk for developing breast cancer, such as those with dense breasts or certain genetic mutations (risk assessment).
- Identifying and developing new therapies and drug delivery methods that specifically target cancer cells or that target a specific type of breast cancer (targeted therapies).
- Developing biomarkers that can help in the early detection and diagnosis of breast cancer, or in the detection of metastatic breast cancer (early detection and diagnosis).



Learn more about precision medicine.

<https://ww5.komen.org/BreastCancer/TreatmentIntroduction.html#Personalized-medicine>

Topic Area of Total Investment (1982-2021)



*Total percent is greater than 100 as some grants are relevant to more than one category.



Read about how Komen grantee Dr. Svasti Haricharan is studying what molecular features cause some patients to develop resistance to ER+ breast cancer.

<https://blog.komen.org/blog/svastis-research/>