

What is Breast Cancer?

Every day, cells in your body divide, grow and die in an orderly manner. Breast cancer is a disease where cells in the breast tissue grow and divide without normal control. This kind of growth of cells forms a mass or lump called a tumor. Tumors are either *benign* or *malignant*.

Benign [be-NINE] tumors

Benign tumors are not cancerous. The cells of a benign tumor do not invade nearby tissue or spread to other parts of the body. When these tumors are removed, most of the time they do not come back.

Malignant [ma-LIG-nant] tumors

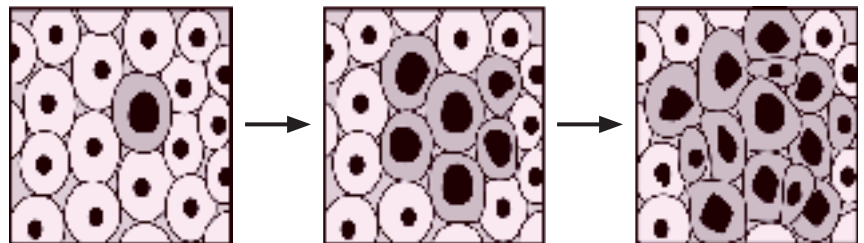
Malignant tumors are cancerous. These tumor cells can invade nearby tissue and spread to other parts of the body. A malignant tumor that develops in the breast is called breast cancer.

How does breast cancer grow and spread?

To grow, malignant breast tumors need to be fed. They form new blood vessels in a process called angiogenesis. The new blood vessels supply the tumor with nutrients that promote growth. As the breast tumor grows, it can spread into nearby tissue. This process is called invasion. Cells can also break away from the primary, or main tumor, and spread to other parts of the body. The cells spread by moving through the bloodstream and/or lymphatic system. This process is called metastasis. When malignant breast cells appear in a new location, they begin to divide and grow out of control again and form other tumors. Even though the new tumor is growing in another part of the body, it is still called breast cancer.

Breast cancer growth

The light circles show normal breast cells. The dark-shaded circles represent cancerous breast cells. As the cancerous cells grow and multiply, they form a malignant tumor within the breast.



What causes breast cancer?

We all have genes that control the way our cells divide and grow. When these genes do not work like they should, a genetic error, or *mutation*, occurs. Mutations may be inherited or spontaneous. Inherited mutations are those you were born with — abnormal genes from one of your parents. *BRCA1* and *BRCA2* gene mutations increase a person’s risk of breast cancer and other cancers. Inherited mutations account for about five to 10 percent of all breast cancer cases in the U.S. Note that *BRCA1* and *BRCA2* when unmutated are tumor suppressor genes.

Spontaneous mutations occur at anytime during your lifetime and account for about 90-95 percent of all breast cancer cases in the U.S. What causes these mutations remains unknown. Researchers have identified two types of genes that are vital to cell growth. Errors in these genes turn normal cells into cancerous ones. The table below provides a description of each.

Type of gene	How it should work	How it works when mutated
Oncogene	It “turns on,” or starts, normal cell division and growth.	The gene does not stop cell growth when it should and the cell grows out of control.
Tumor suppressor gene	It “turns off,” or stops, normal cell division and growth.	The gene does not stop cell division and growth continues out of control.

But remember...

Cells can grow out of control before any symptoms of the disease appear. That is why breast cancer screening is so important. Screening tests can find breast cancer early, when the chances of survival are highest. If you have a history of breast cancer in your family, talk with your doctor about your risk, when to start getting mammograms or other tests and how often to have them.

Resource

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Related fact sheets in this series:

- Ductal Carcinoma in Situ
- Genetics & Breast Cancer
- Types of Breast Cancer Tumors

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