

The *PIK3CA* mutation, and why it may matter for your cancer care



#MyMBCType

Knowing what type of metastatic breast cancer (MBC) you have and what causes your cancer to grow is important. If you're living with MBC, you may already know your MBC type, often defined by your tumor's hormone receptor (HR+/-, also known as ER+/- or PR+/-) and HER2 protein (HER2+/-) status. But it's also important to know whether your cancer has a mutation, such as *PIK3CA*.

Like your HR and HER2 status, your tumor's *PIK3CA* mutation status may affect your cancer care.



Let's talk more about mutations in MBC.

What is a mutation?

MUTATIONS ARE LIKE TYPOS IN YOUR DNA
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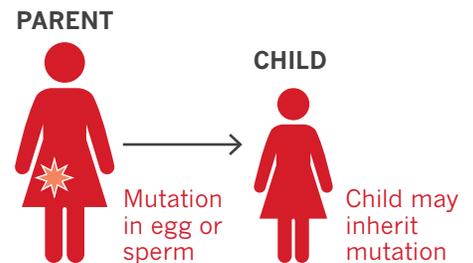
In cancer, mutations may affect how the tumor grows, leading to flawed or different instructions for a given cell.

What are the types of mutations?

Sporadic Mutations: occurs at random and is not passed down from parent to child. *PIK3CA* is a sporadic mutation.⁵



Inherited Mutations: passed down from parent to child. BRCA1/2 is an inherited mutation.¹



Understanding *PIK3CA*, and what it means for you



What it is

Mutations such as BRCA1/2 can be inherited or passed from parent to child. However, *PIK3CA* mutations are not inherited, but may occur sporadically. The *PIK3CA* gene is the most commonly mutated gene in HR+/HER2- breast cancer, affecting about 40% of people with that subtype.² *PIK3CA* mutations have been linked to cancer growth.³



Why it matters

Just as your tumor's HR and HER2 status inform your doctor whether certain proteins fuel your cancer, your tumor's mutation status tells your doctor whether a gene mutation may be contributing to the growth of your cancer.

- Your tumor's mutation status may affect how your doctor manages your cancer care.



What you can do

Talk to your doctor about how you can find out your tumor's mutation status.

- Identifying the *PIK3CA* mutation can help your doctor understand your disease better and plan your personalized care.



Questions you might want to ask your doctor include:

- How do I know my tumor has a mutation?
- At what stage in my patient journey is it appropriate to test for mutations?
- How long will it take to receive results from a mutation test?
- How does having a *PIK3CA* or BRCA1/2 mutation impact my cancer care?

MBC Mutation Myth vs. Fact

MYTH: I already know my MBC type – I do not need to know anything else about my cancer.

FACT: There may be mutations called *PIK3CA* or BRCA1/2 in your tumor that could impact your cancer care. Talk to your doctor to learn more about your tumor's mutation status.

MYTH: All MBC mutations are passed down from parent to child.

FACT: The *PIK3CA* mutation is not inherited, which means your tumor may have it regardless of your family history.

MYTH: Mutations in cancer do not affect the course of disease (or disease prognosis).

FACT: Biomarkers and mutations, such as *PIK3CA*, have been linked to cancer growth, and may be associated with poorer prognosis.^{3,4}

1. American Cancer Society. Breast Cancer Facts & Figures. 2018-2019. Available at: <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2017-2018.pdf>
2. Sabine V, Crozier C, Brookes C, et al. Mutational analysis of PI3K/AKT signaling pathway in tamoxifen exemestane adjuvant multinational pathology study. *Journal of Clinical Oncology*. 2014;32:2951-2958.
3. Miller TW, Rexer BN, Garrett JT, et al. Mutations in the Phosphatidylinositol 3-Kinase Pathway: Role in Tumor Progression and Therapeutic Implications in Breast Cancer. *Breast Cancer Res*. 2011.
4. Saal LH, Johansson P, Holm K. Poor prognosis in carcinoma is associated with a gene expression signature of aberrant PTEN tumor suppressor pathway activity. *PNAS*. 2007;104(18):7564-7569.
5. Sporadic Cancer: NCI Dictionary of Genetics Terms. Cancer.gov. <https://www.cancer.gov/publications/dictionaries/genetics-dictionary/def/sporadic-cancer>. Accessed October 28, 2019.

