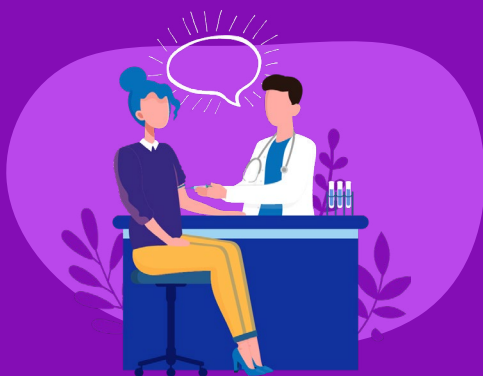


The role of biomarkers in planning treatment for **secondary breast cancer**



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What is a **biomarker**?



A biomarker is a substance found in blood, urine, or body tissue that can give your doctor useful information about a cancer. It helps your doctor know which treatments might work best for that specific cancer.^{1,2,3} Important biomarkers in breast cancer include hormone receptors (HRs) and the protein HER2.³

Biomarker testing may help your doctor determine and discuss with you the appropriate treatment plan for your type of cancer.^{3,4,5}



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HRs (hormone receptors)

Some breast cancer cells use hormones, such as oestrogen or progesterone, to grow and divide. These hormones bind to cells using docking stations known as receptors.⁶

- HR+ (hormone receptor-positive): hormone receptors are found in the breast cancer cell⁶
- HR- (hormone receptor-negative): hormone receptors are not found in the breast cancer cell⁶

HER2 (human epidermal growth factor receptor 2)

HER2 is a protein that helps cells grow and divide. When there is too much HER2, cancer cells may grow more quickly and be more likely to spread to other parts of the body.⁷

- HER2+ (HER2-positive): breast cancer cells that have high levels of HER2⁷
- HER2- (HER2-negative): breast cancer cells that do not have high levels of HER2⁷

Gene mutations

Genes carry instructions that tell cells what to do. When genes are changed (mutated), cells can grow in the wrong ways. This can lead to medical conditions, such as breast cancer.^{6,8}
The most common type of mutation to cause cancer is called “somatic.”⁹

Somatic mutations:

- Occur from damage to genes in a cell during a person’s life
- Are not passed down from parent to child (not inherited)

A far less common mutation to cause cancer is called “germline.”⁹

Germline mutations:

- Occur in a sperm cell or egg cell
- Are passed directly from parent to child (inherited)

BRAC1 and *BRAC2* are genes that help repair DNA (the genetic information inside cells). When a germline mutation affects the *BRAC1* and *BRAC2* genes their repair function can be altered. As a result, cancers including breast cancer are more likely to develop.^{6,10}

What treatment makes the most sense for me?

Biomarker testing may help your doctor gather as much information as possible about your specific type of breast cancer. You can work with your doctor to determine what tests and treatments will be the most helpful. By talking openly with your doctor, you can be more engaged in your treatment plan.^{4,6}

What questions should I ask my HCP at my next visit?

Below are questions that you may have about breast cancer, your biomarkers and/or your treatment. Insert a check mark (✓) next to each one you'd like to discuss with your doctor. That way, should you wish to do so, you can get the conversation started and take a more active role in your care.^{11,12,13}

Biomarkers and testing

- ☐ Where has the cancer spread?
- ☐ What is my biomarker status?
- ☐ What test can tell me if I have a biomarker or mutation?
- ☐ Where is this test available?
- ☐ What kind of sample is needed: blood or tumour tissue?
- ☐ How will you get tumour tissue for testing? What is involved in this procedure?
- ☐ If the test shows I have a biomarker or mutation, what does this mean for my treatment?

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