

THE FIRST STEP TO MANAGING METASTATIC BREAST CANCER IS TO

KNOW YOUR TYPE

WHY IS **TYPE** SO IMPORTANT?

Knowing as much as possible about breast cancer, and in particular metastatic breast cancer, may help individuals diagnosed with the disease to work with health care professionals to better understand their diagnosis and optimize treatment. An important first step is to determine human epidermal growth factor-2 (HER2) and hormone receptor (HR) statuses of the breast tumour cells. This status of the HR and HER2 in a breast cancer tumour defines some of the four most common types of breast cancer. HR and HER2 can either be present, or positive (HR+, HER2+), or absent or negative (HR-, HER2-), in the tumour. The status of each can be treated differently.

HER2+

If the Breast Cancer is HR+ and HER2+

HER2+ breast cancer means your breast cancer has tested positive for the HER2 protein which promotes the growth of cancer cells. This happens in about 1 of every 5 breast cancers, when the cancer cells make an excess of HER2 due to a gene mutation. When breast cancer is HR+, this means the cancer can be treated with hormone therapies that block the hormones from the cancer cells. HER2+ cancer tends to be less responsive to hormonal treatment. This could be because HER2+ breast cancer tends to be more aggressive than other types of breast cancer. However, treatments that specifically target HER2 can be effective.

HER2-

If the Breast Cancer is HR+ and HER2-

HR+/HER2- breast cancer is the most common form of breast cancer. This type accounts for more than 70% of all breast cancers. HR+ cancer is usually treated with hormone therapies first that help stop tumour growth. These therapies help prevent the cancer cells from getting the estrogen they need to grow. HR+ tumours have a slightly lower chance of breast cancer recurrence than HR- tumours in the first five years after diagnosis. However, sometimes the cancer outsmarts the treatment and becomes resistant to hormonal therapy.

If the Breast Cancer is HR-/HER2+

HR- breast cancers, unlike HR+ ones, do not have receptors for the hormones estrogen or progesterone, while HER2+ breast cancers have too many copies of the HER2/neu gene, which make too much of the HER2 protein. When they appear together they can commonly be the characteristics of inflammatory breast cancer (IBC). That said, not every woman diagnosed with HR-/HER2+ breast cancer will also be characterized as having IBC. Most IBC cases are invasive ductal carcinomas, meaning that the cancer develops from cells that line the milk ducts of the breast, then spreads beyond the ducts, and tends to be initially diagnosed as advanced. IBC is an uncommon type of breast cancer, accounting for only 1-4% of all cases of breast cancer. HR- breast cancers do not respond to hormonal therapies, and HER2+ tumours tend to be more aggressive. Therefore, those diagnosed with this type are usually treated with multiple types of treatment, including chemotherapy and targeted HER2+ treatments, but not hormonal therapies.

If the Breast Cancer is HR-/HER2- or Triple Negative

HR-/HER2- breast cancer is referred to as Triple Negative Breast Cancer (TNBC), as the tumor is negative for both the hormones estrogen and progesterone receptors, and does not overexpress the gene HER2. About 10-20% of all breast cancers are TNBC. Anyone can get this type of breast cancer, but research shows that it occurs more often in women under the age of 40, women of African or Asian ancestry, and women who have BRCA1 mutation. Triple-negative tumours can be aggressive and may have a poorer prognosis (at least within the first 5 years after diagnosis) compared to HR+ forms of the disease. TNBC is usually treated with some combination of surgery, radiation therapy, and chemotherapy. These tumours cannot be treated with hormone therapies or HER2 targeted therapies because they are HR- and HER2-. Research is currently underway to learn how to target other pathways in triple-negative tumours.

HR+

HR-

OTHER THINGS TO KNOW ABOUT METASTATIC DISEASE:

Whenever breast cancer recurs or spreads, the cancer cells should be retested for HER2 and HR status, as these can change from the original cancer in up to 20 to 30% of cases. Researchers are beginning to explore how genetic profiling can help to guide decisions about which treatments are most appropriate. Personalized medicine, as it is referred to, works by assessing the genetic make-up of individual tumours and then tailoring therapy to be more targeted.

To learn more about metastatic breast cancer and to become part of the *Living Legacy*, visit:

www.cbcn.ca

The *Living Legacy* campaign is a collaboration between the Canadian Breast Cancer Network and one of Canada's leading research-based pharmaceutical companies.