Diagnosing Breast Cancer: Human Epidermal Growth Factor (HER2) Testing

**HER2, or human epidermal growth factor 2, is a special protein on the surface of breast cells that controls the growth of cancer.**

The levels of HER2 in your tumor help your doctor plan your treatment options.

**When is HER2 testing done?**

- You have been newly diagnosed with breast cancer
- You have breast cancer that has come back after treatment
- Your cancer has spread to other parts of the body

**How is HER2 testing done?**

- **immunohistochemistry (IHC)** measures the levels of HER2 protein on the surface of the cancer cells.
- **in-situ hybridization (ISH)** measures the copies of the HER2 gene within one cancer cell.

**HER2 test results can be**

- **HER2 POSITIVE**
  - High levels of the HER2 protein and/or many copies of the HER2 gene are found in your tumor sample.
  - **Treatment Options**
    - HER2-targeted therapy, such as trastuzumab (Herceptin), lapatinib (Tykerb), pertuzumab (Perjeta), and ado-trastuzumab emtansine (T-DM1; Kadcyla)

- **HER2 NEGATIVE**
  - No or low levels of the HER2 protein and/or few copies of the HER2 gene are found in your tumor sample.
  - **Treatment Options**
    - HER2-targeted therapy is not recommended. Your doctor will suggest other treatment options.

- **Sometimes, retesting is needed**
  - The levels of the HER2 protein and/or the number of copies of the HER2 gene fall between the limits for HER2 positive and HER2 negative.
  - Testing may need to be done again, either on a different tumor sample or with a different test. Even then, results may not be conclusive. You and your doctor will discuss what this means for treatment.

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**RESOURCES**
- Guide to Breast Cancer (www.cancer.net/breast)
- Understanding a Pathology Report (www.cancer.net/pathology)
- After a Biopsy: Making the Diagnosis (www.cancer.net/afterbiopsy)

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