Immunohistochemical Test for Estrogen and Progesterone Receptors

Does this test have other names?

ER/PR IHC testing

What is this test?

This test looks for several types of receptors on cells in a sample of breast cancer tissue.

From 60% to 75% of breast cancers depend on the hormone estrogen to grow. A few breast cancers can grow without estrogen. The cancer cells that depend on estrogen make many estrogen receptors (ER), progesterone receptors (PR), or both. These receptors grab onto the hormones that float freely in your blood and use them as fuel to help the cancer grow.

Cancers that contain ERs are called ER-positive (ER+). Cancers that contain PRs are called PR-positive (PR+). Cancers with these types of receptors are called hormone responsive cancers.

The immunohistochemical (IHC) test also looks for cell receptors that hold onto HER2, or human epidermal growth factor type 2. HER2 is a protein that is found in excessive amounts in about 1 in 5 breast cancers. HER2-positive cancers have many receptors that hold HER2 and are more aggressive than cancers that don't have a lot of HER2.

Before your healthcare provider can figure out what type of cancer treatment is best for you, they must look at your tumor cells in order to know the ER, PR, and HER2 status.

To do this, your provider sends a sample of your tumor to a lab. The sample usually comes from a biopsy. The pathologist runs tests on the sample and looks at the cells under a microscope.

Why do I need this test?

You may need this test if you have breast cancer and your healthcare provider needs more information about the type of breast cancer you have.

If you have a hormone responsive cancer, you will most likely be helped by treatments that will block estrogen from attaching to the receptors or that will lower total estrogens in your system. If you are hormone receptor-positive/HER2-negative or HER2-positive, you may be offered treatment with medicines known as targeted therapy. Targeted therapy medicines attack certain proteins or cell functions that help cancer cells grow.

What other tests might I have along with this test?

Your healthcare provider may also order other tests to help diagnose and treat your breast cancer. These tests include:

- **Blood tests.** A complete blood count, or CBC, will check to see whether your blood counts are normal. Chemical and enzyme tests will check to see whether your organs are working the way they should.
- **Fluorescent in situ hybridization (FISH).** A test that checks a sample of the tumor for genes that direct the cell to make HER2/neu protein.
- **Genetic testing of the tumor sample.** This test will help your healthcare provider decide whether you need chemotherapy.
- **Lymph node needle biopsy.** It's common for breast cancer to spread to nearby lymph nodes. If your healthcare provider feels that your lymph nodes are enlarged or different in any way, they will do a needle biopsy. Whether the nodes are positive for cancer will help your provider figure out or refine your treatment plan.

What do my test results mean?

Test results may vary depending on your age, gender, health history, and other things. Your test results may be different depending on the lab used. They may not mean you have a problem. Ask your healthcare provider what your test results mean for you.

If your results are positive for estrogen receptors, it means you are ER+. If your results are positive for progesterone receptors, it means you are PR+. In either case, hormone or endocrine therapy will likely decrease the chance that your cancer will grow or return. If your tumor, or tissue sample, does not show hormone receptors, you are ER-negative, PR-negative, or negative for both. In that case, hormone therapy will most likely not be helpful to you.

IHC results for HER2 are reported as 0, 1+, 2+, or 3+. A score of 0, 1+, means the tumor is HER2-negative. A score of 2+ means the results are unclear and another test is needed, such as FISH. A score of 3+ means the tumor is HER2-positive.

Your healthcare provider will review your results together to figure out the best therapy for you. It could be hormone therapy, chemotherapy, or targeted therapy.

How is this test done?

This test needs a sample of tissue. Most often the tissue is taken from the suspicious area of your breast during a biopsy procedure. A biopsy can be done in several ways:

- **Fine needle aspiration (FNA).** Your healthcare provider will use a needle thinner than those used for blood tests. They will guide the needle to the area and remove a small amount of the tissue or liquid. Because the needle is so fine, you won't need any local anesthetic.
- **Core needle biopsy.** Your healthcare provider will use a larger needle to remove a cylinder shape of tissue from the area. Usually, several samples will be removed. You will likely have a local anesthetic to ease any discomfort.
- **Vacuum-assisted biopsy.** Your healthcare provider will first numb the skin. They will then make a quarter-inch cut and insert a hollow probe. They will vacuum up a cylinder of tissue through a hole in the side of the probe while a rotating knife cuts the tissue. Several samples may be taken from the same cut. You won't need stitches.
- **Surgical open biopsy.** Under certain circumstances, your healthcare provider may use surgery to remove all or part of an abnormal area. This procedure is usually done under light sedation and with local anesthesia. But it can also be done under general anesthesia so you will sleep through the procedure.

Does this test pose any risks?

A biopsy carries a slight chance of infection afterward. Ask your healthcare provider about warning signs to look for, such as fever, pain, or swelling.

What might affect my test results?

Hormone therapy for birth control or as hormone replacement may affect your results.

How do I get ready for this test?

You may need to temporarily stop taking hormone medicine. Be sure your healthcare provider knows about all medicines, herbs, vitamins, and supplements you are taking. This includes medicines that don't need a prescription and any illegal drugs you may use.