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## Your Breast Pathology Report: Ductal Carcinoma In Situ (DCIS)

Biopsy samples collected from your breast are studied by a doctor with special training, called a **pathologist**. After testing the samples, the pathologist creates a report on what was found. Your doctors can then use this report to help manage your care.

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The information here is meant to help you understand some of the medical terms you might see in your pathology report after a [breast biopsy](#)<sup>1</sup>, which might be a needle biopsy or a surgical (open) biopsy.

In a **needle biopsy**, a hollow needle is used to remove samples from an abnormal area in your breast. In some situations, a surgical biopsy might be needed. This can be either

an **incisional biopsy**, in which only part of an abnormal area is removed, or an **excisional biopsy**, which removes the entire abnormal area, often with some of the surrounding normal tissue. An excisional biopsy is much like a type of [breast-conserving surgery](#)<sup>2</sup> called a lumpectomy.

## What is in-situ carcinoma (or carcinoma in situ) of the breast?

A **carcinoma** is a cancer that begins in the lining layer (epithelial cells) of organs like the breast. Nearly all breast cancers are carcinomas.

**In-situ carcinoma** (also known as **carcinoma in situ**, or **CIS**) is a term used for the earliest [stage](#)<sup>3</sup> of breast cancer, when it is still only in the layer of cells where it began.

The [normal breast](#)<sup>4</sup> is made of tiny tubes (ducts) that end in a group of sacs (lobules), which is where milk is made. Breast cancer typically starts in the cells lining the ducts or lobules, when a normal cell becomes a carcinoma cell. As long as the carcinoma cells are still confined to the breast ducts or lobules and do not grow into deeper layers, it is considered in-situ carcinoma (or CIS).

If the carcinoma cells have grown beyond the ducts or lobules, it is called an [invasive or infiltrating carcinoma](#)<sup>5</sup>. This is a true breast cancer, in which the tumor cells can spread (metastasize) to other parts of the body.

## Ductal carcinoma in situ (DCIS), intraductal carcinoma, or in-situ carcinoma with duct and lobular features

The 2 main types of in-situ carcinoma of the breast are:

- **Ductal carcinoma in situ (DCIS)**, also known as **intraductal carcinoma**
- [Lobular carcinoma in situ \(LCIS\)](#)<sup>6</sup>

Sometimes DCIS and LCIS are both found in the same biopsy.

**In-situ carcinoma with duct and lobular features** means that the in-situ carcinoma looks like DCIS in some ways and LCIS in some ways (under the microscope), so the pathologist can't call it one or the other.

If **DCIS** is left untreated, it can sometimes go on to become an invasive cancer, so it is often called **pre-cancer**. While it's not clear that all DCIS would go on to become invasive cancer, doctors can't tell which DCIS would be safe to leave untreated.

Therefore, [treatment](#)<sup>7</sup> is aimed at getting rid of all the DCIS, usually by surgery. In some cases, radiation (radiotherapy) or hormone therapy (like tamoxifen) is given after surgery to lower the chance that it will come back later (recur) or that invasive carcinoma will occur.

### If the report describes ductal carcinoma in situ (DCIS) as...

- Cribriform
- Micropapillary
- Apocrine
- Comedo
- With comedonecrosis
- Papillary
- Solid

These terms are used to describe certain ways that the DCIS might look under the microscope. Some of these are linked to a higher chance that the DCIS might come back after treatment, so finding them may change your treatment. Your doctor will discuss these findings with you.

### Ductal carcinoma in situ (DCIS) grades

When looking at the cancer cells under the microscope, the pathologist looks for certain features that can help predict how quickly DCIS is likely to grow and how likely it is to come back after surgery. This is known as the DCIS [grade](#)<sup>8</sup>. There are different ways to describe the 3 grades of DCIS:

- **Low grade or nuclear grade 1** DCIS has a low mitotic rate, tends to grow slowly and is less likely to come back after it is removed with surgery.
- **Intermediate grade or nuclear grade 2** DCIS has an intermediate mitotic rate, grows more quickly and is more likely to come back after surgery.
- **High grade or nuclear grade 3** DCIS has a high mitotic rate, grows the fastest and is most likely to come back after surgery. It is also more likely to turn into invasive breast cancer.

Higher grade DCIS might require additional treatment.

### Ductal carcinoma in situ (DCIS) size

If the entire tumor or area of DCIS is removed (such as with an [excisional biopsy](#)<sup>9</sup> or [breast-conserving surgery](#)<sup>10</sup>), the pathologist will measure how long across it is (in greatest dimension), either by looking at it under the microscope or by gross examination (looking at it with the naked eye). Another way to measure DCIS is to note the number of microscopic slides that contain DCIS. For example, the report may say that DCIS was found on 3 slides.

Measurements of the area of DCIS are not often reported after a needle biopsy because this type of biopsy only samples a part of the tumor. Later, when the entire area of DCIS is removed (with surgery), an accurate measurement can be done.

The larger the area of DCIS, the more likely it is to come back (recur) after surgery. Doctors use information about the size of the DCIS when deciding whether to recommend further treatments.

## Paget disease

[Paget disease](#)<sup>11</sup> (also called Paget's disease, Paget disease of the nipple, or Paget disease of the breast) is a condition in which cells resembling those of ductal carcinoma in situ (DCIS) are found in the skin of the nipple and the nearby skin (the areola).

If Paget disease of the nipple is found, most often it means that there is DCIS or invasive carcinoma (cancer) in the underlying breast tissue.

When Paget disease is found on needle or punch biopsy, more tissue in that area usually needs to be removed. The goals of this are to remove the area of Paget disease completely, as well as to look for DCIS or cancer nearby.

Further treatment typically depends on if DCIS or cancer is found. Talk to your doctor about the best treatment for you.

## Atypical ductal hyperplasia (ADH) or atypical lobular hyperplasia (ALH)

about the best treatment for you.

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- Usual ductal hyperplasia
- Adenosis
- Sclerosing adenosis
- Radial scar
- Complex sclerosing lesion
- Papillomatosis
- Papilloma
- Apocrine metaplasia
- Cysts
- Columnar cell change
- Collagenous spherulosis
- Duct ectasia
- Fibrocystic changes
- Microcystic degeneration (CAPSS)
- Columnar alteration with prominent apical snouts and secretions (CAPSS)

The pathologist looks at slides of the DCIS to see how close the DCIS cells are to the ink (the edges or margins of the specimen). If DCIS is touching the ink (called **positive margins**), it can mean that some DCIS cells were left behind, and more surgery or other treatments might be needed. Sometimes, though, the surgeon has already removed more tissue (at surgery) to help make sure that this isn't needed.

If your pathology report shows DCIS with positive margins, your doctor will talk to you about what treatment is best.

## Estrogen receptor (ER) or progesterone receptor (PR)

Receptors are proteins on cells that can attach to certain substances, such as hormones in the blood. Normal breast cells and some breast cancer cells have receptors that attach to the hormones estrogen and progesterone. These 2 hormones often fuel the growth of the cancer cells.

Tests for [estrogen receptors \(ER\)](#)<sup>14</sup> and progesterone receptors (PR) are typically done to help predict whether [hormone therapy](#)<sup>15</sup> (such as tamoxifen) can help lower the risk of DCIS (or invasive cancer) coming back after treatment.

Cancer cells that contain estrogen receptors are referred to as **ER-positive** (or ER+), while those containing progesterone receptors are called **PR-positive** (or PR+).

Testing for ER is done for most cases of DCIS, although testing for PR might not be needed. Results for ER and PR are reported separately, and they might be reported in different ways:

- Negative, weakly positive, or positive
- Percent positive
- Percent positive and whether the staining is weak, moderate, or strong

Ask your doctor how these results might affect your treatment.

## E-cadherin

E-cadherin is a test that might be done to help determine if carcinoma in situ is ductal or lobular. If your report doesn't mention E-cadherin, it means that this test wasn't needed to make the distinction.

## Other lab tests that might be done

- High molecular weight cytokeratin (HMWCK)
- CK903
- CK5/6
- p63
- Muscle specific actin
- Smooth muscle myosin heavy chain
- Calponin
- Keratin

These are special tests that might be done to help diagnose DCIS. Not all biopsy samples need these tests. Whether or not your report mentions these tests has no bearing on the accuracy of your diagnosis.

## What if my doctor asks that a special molecular (genomic) test be done on my biopsy sample?

Some molecular tests (also known as **gene expression profiling** or **genomic tests**) can look at the activity of many different genes at once to learn more about a person's DCIS and which treatment options might be best.

For example, a test known as Oncotype DX can be done on DCIS cells to help predict the chances of the cancer coming back (recurring), and therefore if further treatment might be needed. But not everyone with DCIS needs this type of test.

If your doctor orders this test, they will discuss the results with you. The results don't affect your diagnosis, although they might affect your treatment options.

## Hyperlinks

1. [www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/breast-biopsy.html](http://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/breast-biopsy.html)
2. [www.cancer.org/cancer/types/breast-cancer/treatment/surgery-for-breast-cancer/breast-conserving-surgery-lumpectomy.html](http://www.cancer.org/cancer/types/breast-cancer/treatment/surgery-for-breast-cancer/breast-conserving-surgery-lumpectomy.html)
3. [www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/stages-of-breast-cancer.html](http://www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/stages-of-breast-cancer.html)

4. [www.cancer.org/cancer/types/breast-cancer/about/types-of-breast-cancer/dcis.html](http://www.cancer.org/cancer/types/breast-cancer/about/types-of-breast-cancer/dcis.html)
5. [www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/breast-cancer-pathology.html](http://www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/breast-cancer-pathology.html)
6. [www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/lobular-carcinoma-in-situ.html](http://www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/lobular-carcinoma-in-situ.html)
7. [www.cancer.org/cancer/types/breast-cancer/treatment/treatment-of-breast-cancer-by-stage/treatment-of-ductal-carcinoma-in-situ-dcis.html](http://www.cancer.org/cancer/types/breast-cancer/treatment/treatment-of-breast-cancer-by-stage/treatment-of-ductal-carcinoma-in-situ-dcis.html)
8. [www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-grades.html](http://www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-grades.html)
9. [www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/breast-biopsy/surgical-breast-biopsy.html](http://www.cancer.org/cancer/types/breast-cancer/screening-tests-and-early-detection/breast-biopsy/surgical-breast-biopsy.html)
10. [www.cancer.org/cancer/types/breast-cancer/treatment/surgery-for-breast-cancer/breast-conserving-surgery-lumpectomy.html](http://www.cancer.org/cancer/types/breast-cancer/treatment/surgery-for-breast-cancer/breast-conserving-surgery-lumpectomy.html)
11. [www.cancer.org/cancer/types/breast-cancer/about/types-of-breast-cancer/paget-disease-of-the-nipple.html](http://www.cancer.org/cancer/types/breast-cancer/about/types-of-breast-cancer/paget-disease-of-the-nipple.html)
12. [www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/atypical-hyperplasia.html](http://www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests/understanding-your-pathology-report/breast-pathology/atypical-hyperplasia.html)
13. [www.cancer.org/cancer/breast-cancer/non-cancerous-breast-conditions.html](http://www.cancer.org/cancer/breast-cancer/non-cancerous-breast-conditions.html)
14. [www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-hormone-receptor-status.html](http://www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-hormone-receptor-status.html)
15. [www.cancer.org/cancer/types/breast-cancer/treatment/hormone-therapy-for-breast-cancer.html](http://www.cancer.org/cancer/types/breast-cancer/treatment/hormone-therapy-for-breast-cancer.html)

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