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# Understanding Your Pathology Report: Lung Cancer In Situ

When your lung was biopsied, the samples taken were studied under the microscope by a specialized doctor with many years of training called a *pathologist*. The pathologist sends your doctor a report that gives a diagnosis for each sample taken. Information in this report will be used to help manage your care. The questions and answers that follow are meant to help you understand medical language you might find in the pathology report you received after your lung biopsy.

## What is the normal structure of the lung?

When you breathe in, air enters through your mouth or nose and goes into your lungs through the trachea (windpipe). The trachea divides into tubes called the bronchi (singular, bronchus), which divide into smaller branches called bronchioles. At the end of the bronchioles are tiny air sacs known as *alveoli* or *acini*.

Many tiny blood vessels run through the alveoli. They absorb oxygen from the air that you breathe into your blood and pass carbon dioxide from the body into the alveoli. This is expelled from the body when you breathe out. Taking in oxygen and getting rid of carbon dioxide are your lungs' main functions.

## What is in-situ carcinoma (carcinoma in situ)?

Carcinomas can start in the cells that line the inside of the bronchi, bronchioles, or alveoli. If the carcinoma cells are only in the top layer of cells of the bronchi, bronchioles, or alveoli, without growing into the deeper layers below, it is called *in-situ carcinoma* (also called *carcinoma in situ*, or CIS). This is considered a pre-cancer.

Once these cells have broken out of the inner lining of the bronchi, bronchioles, or

alveoli it is no longer in-situ and may then be referred to as *invasive or infiltrating carcinoma*. Invasive carcinoma is considered a true [lung cancer](#)<sup>1</sup> because the cells can spread (metastasize) outside the lung to lymph nodes and other parts of your body.

### **What does it mean if my pre-cancer is called squamous cell carcinoma in situ or atypical adenomatous hyperplasia?**

Squamous cell carcinoma in situ is the pre-cancer that can become invasive squamous cell carcinoma (a type of non-small cell lung cancer). Atypical adenomatous hyperplasia is the pre-cancer that can become adenocarcinoma (another type of non-small cell lung cancer). If either of these is present in a biopsy, it may mean that there is invasive carcinoma elsewhere in the lung that was not sampled on biopsy. If either of these was found in an excisional biopsy (where a tumor or other abnormal area was removed) or a lobe resection/lobectomy (where all or part of a lobe of the lung is removed), and no invasive cancer was found, the prognosis (likely outcome) is excellent. However, the lungs may still contain other areas of the pre-cancer that are not near the first (sometimes called *skip areas*).

### **What is squamous metaplasia?**

When an air passage is irritated (like from smoking or infection), the cells lining it can change from being like rectangles standing up next to each other, to being flatter and stacked on top of each other. This change is called *squamous metaplasia* because the cells now look like the type of cells called *squamous cells*. When the irritation disappears, for example when you stop smoking or the infection clears, the lining cells return to their normal appearance. Squamous metaplasia is not considered a pre-cancer, but if the irritation persists it can progress to squamous dysplasia.

### **What is squamous dysplasia?**

Dysplasia is an early form of pre-cancer. It is often separated into different categories based on how abnormal the cells and tissue appear under the microscope:

- When it is the least abnormal, it is called **mild dysplasia**.
- When it is most abnormal, it is called **severe dysplasia**.
- **Moderate dysplasia** is in between the other two.

The more severe the dysplasia is, the more similar it is to squamous cell carcinoma in situ, which is a pre-cancer. If squamous dysplasia is seen on a biopsy, it might mean that there is something more serious, like in-situ or invasive carcinoma, somewhere else

in the lung that wasn't sampled on this biopsy.

### **What if my biopsy report mentions margins or ink?**

When an entire tumor or abnormal area is removed, the pathologist coats the outer edges, or margins, of the tissue with ink, sometimes with different colored ink on different sides. If a cancer (and/or pre-cancer) is found, the pathologist can then tell if it goes up to the edges of tissue removed. This is known as a *positive margin*. If it does, it may mean that some cancer (or pre-cancer) has been left behind. Sometimes this is not a concern because the surgeon removed other tissue in that area. Still, if some cancer (or pre-cancer) has been left behind, you might need more treatment, such as radiation or more surgery. Talk with your doctor about the best approach for you if cancer (or pre-cancer) is found at the margins.

### **What does it mean if my report also says any of the following terms: scarring, emphysema, emphysematous changes, or inflammation?**

All of these are terms for non-cancerous changes that the pathologist may see under the microscope. They are usually not important when seen on a biopsy sample that also has pre-cancer or cancer.

### **What if my report mentions any of the following: granulomas, methenamine silver (GMS), acid fast bacilli (AFB), or Periodic Acid Schiff (PAS)?**

Granulomas are structures seen under the microscope that are often, although not always, caused by certain types of infections. Sometimes, the germs causing the infection can only be seen with special stains (such as GMS, stains for AFB, and PAS) that the pathologist applies to the microscopic slides. Most granulomas are caused by infections, but other things can cause them, too, such as a disease called sarcoidosis, allergic reactions, and dust-induced lung disease (pneumoconiosis).

## **Hyperlinks**

1. [www.cancer.org/cancer/lung-cancer.html](http://www.cancer.org/cancer/lung-cancer.html)
2. [www.cancer.org/treatment/understanding-your-diagnosis/tests/understanding-your-pathology-report/faq-initiative-understanding-your-pathology-report.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/understanding-your-pathology-report/faq-initiative-understanding-your-pathology-report.html)

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**Written by**

This series of Frequently Asked Questions (FAQs) was developed by the Association of Directors of Anatomic and Surgical Pathology to help patients and their families better understand what their pathology report means. These FAQs have been endorsed by the College of American Pathologists (CAP) and reviewed by the American Cancer Society.

Learn more about the FAQ Initiative ([www.cancer.org/treatment/understanding-your-diagnosis/tests/understanding-your-pathology-report/faq-initiative-understanding-your-pathology-report.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/understanding-your-pathology-report/faq-initiative-understanding-your-pathology-report.html))<sup>2</sup>

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