

# Frozen Section Biopsy

**B**iopsies are small samples of tissue taken from a mass or tumor that are examined under a microscope to make a diagnosis. Biopsies are used most often to determine whether cancer cells are present, although certain infections and other diseases can be diagnosed as well. A specific type of biopsy procedure called the **frozen section** was developed in order to make a rapid diagnosis of a mass during surgery. The December 28, 2005, issue of *JAMA* includes an article about the origins of the frozen section technique.

## FROZEN SECTION PROCEDURE

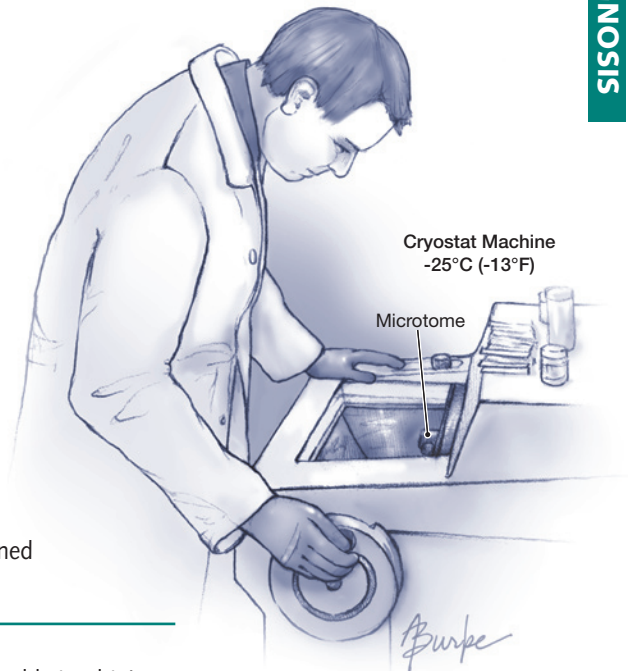
During the frozen section procedure, the surgeon removes a portion of the tissue mass. This biopsy is then given to a **pathologist** (a doctor who examines tissues and uses laboratory tests to make a diagnosis). The pathologist freezes the tissue in a **cryostat machine**, cuts it with a **microtome**, and then stains it with various dyes so that it can be examined under the microscope. The procedure usually takes only minutes.

## ADVANTAGES OF FROZEN SECTION BIOPSY

- If more tissue is needed to make an accurate diagnosis, the surgeon is able to obtain an additional sample, avoiding a second operation.
- If the tissue is determined to be cancerous and is amenable to surgery, the mass can be removed at that time.
- If the tissue is determined to be **benign** (not cancerous), then the mass may not always need to be removed and the surgery can end.
- The frozen section biopsy can help ensure that the mass being removed is the intended tissue for removal.
- It can help ensure that the entire mass and its surrounding borders are removed.
- It allows for the collection of proper tissue samples for further scientific research.
- The surgeon and pathologist are able to collaborate to care for the patient.

Sometimes pathologists are not able to determine the diagnosis based on the frozen section and instead must rely on the **permanent section**. In this procedure the tissue is not frozen but instead is placed in a fixative solution, embedded in wax, thinly cut, and then stained. Although this takes longer than a frozen section (usually 1 day), the permanent section leads to better-quality microscope slides. All biopsies are limited by the sample taken. Cancer or other diseases may be so small that they are not present in the tissue sample but may still be present elsewhere. Multiple biopsies may be needed to make a diagnosis.

Pathologist



## FOR MORE INFORMATION

- College of American Pathologists  
[www.cap.org](http://www.cap.org)
- American Society for Clinical Pathology  
[www.ascp.org](http://www.ascp.org)

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