

Questions & Answers on Formalin, Pen-Fix, and IF Fixative (Michel's Medium)

What fixative (which type of specimen container) should I use?

All specimens should be placed in the appropriate fixative as soon as possible after surgery.

- For **most skin biopsies**, regular size containers (15 or 20 ml of formalin) are best.
- **Excisions and other large or fatty specimens** should be placed in large containers of Pen-Fix, which is a mixture of alcohols and formalin.
- Tissue for **direct immunofluorescence** studies should be placed in IF medium (Michel's medium), which we supply in clearly labeled tubes that have a yellow stopper.
- **Blood or serum IF (indirect immunofluorescence)** studies (pemphigus and pemphigoid titers, herpes gestationis factor assay) require a red top tube containing 8-10 ml of blood. If convenient, the tube can be spun down and serum sent instead of blood, but this is not strictly necessary. Be sure that the tube is protected from breakage and leakage. This can be done by poking a hole in a Styrofoam slide container, putting the tube in the container, and sealing the whole assemblage in a plastic biohazard bag. If drawn at a local laboratory such as a hospital laboratory, these can be sent direct to Beutner Labs (3435 Bailey Avenue, PO Box 26, Buffalo, NY 14215-0026, (800) 288 0549). Be sure that the laboratory includes filled in Rabkin Dermatopathology request slip explaining which test is desired.

How should fixatives be stored? Do fixatives require refrigeration before or after the specimen is added?

All fixatives including Michel's IF transport medium should be stored at room temperature. Our fixatives should not be refrigerated before or after the specimen is added.

What is the shelf life of fixatives before use?

Formalin and Pen-Fix evaporate very slowly. They have a recommended shelf life of about 18 months. Michel's is a simple, stable salt solution. Water in the medium evaporates over time, reducing the volume of fluid and changing the concentration of the components. We date our IF specimen containers and recommend replacement after one year. If all you have is overage fixative, it is probably OK to use it, but call and have us send you new fixative ASAP.

Can specimens stay in fixative for a few days before being shipped to the laboratory?

It does not hurt regular or IF specimens to stay in fixative for a few days, for example over a weekend.

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If we are out of IF fixative, can we use formalin instead?

No! If you are out of IF fixative, do not under any circumstances put the specimen in formalin - it will destroy IF reactivity. You can try putting the specimen in saline or in a piece of gauze wrapped in sterile water or saline and sending it with a note to transfer it into IF medium as soon as it is received. This sometimes works, but unfortunately there is no guarantee that reactivity will be preserved.

What if I have a very large specimen, too large to fit in a Pen-Fix container?

You can put the specimen in a urine cup, Tupperware container, etc. and fill the container with ideally Pen-Fix or less optimally formalin from smaller containers. The ratio of fixative volume to specimen volume should be at least 3:1. Be sure that the container does not leak, and that it is sealed in a leak-proof plastic bag. Very large specimens such as wide excisions are best handled by gross dissection and processing within a few hours of surgery, which usually can only be done by hospital laboratories. Formalin and even Pen-Fix simply do not penetrate large intact specimens fast enough to give good fixation.

What fixative do I use for specimens that require lymphocyte marker studies?

Many studies can be performed on specimens fixed in formalin and processed routinely. Some lymphocyte markers and molecular studies such as gene rearrangement studies require fresh or frozen tissue. These specimens are best obtained at medical centers where the specimen can be instantly frozen and directly transported to the relevant laboratory in frozen form. At the current time, it is generally not practical to perform these studies on specimens obtained at physician's offices.

Why must immunofluorescence specimens be sent in biohazard bags?

OSHA bloodborne pathogens regulations introduced under CLIA '88 (CFR 1910) require that laboratory employees must be warned when material represents a known or potential hazard. Formalin kills pathogens, so formalin fixed specimens do not require a biohazard label. However, Michel's transport medium (used for direct IF specimens) is a simple salt solution which does not kill many pathogens. Therefore, blood and tissue specimens sent for IF studies must be labeled as potential biohazards.