

LLU PATHOLOGY SPECIMEN HANDLING/FIXATIVE GUIDELINES

STAT SPECIMENS: All requests for STAT specimen processing require direct communication between an Anatomic Pathologist and the clinician who is performing the procedure to relay the following information:

1. Patient information: Name, MRN, biopsy site, expected/actual date and time of procedure
2. Relevant clinical information with indication for STAT processing
3. Name and contact information of clinician who will be notified of results

The Anatomic Pathologist can be contacted via the following methods (use in this order):

- **X44398** - direct extension to Surgical Pathology department (M-F, 0800 → 1700 hours)
- APCALL pager # **4491** (weekends, weeknights) - Resident pass-around pager
- Last resort - contact Jeremy Deisch, MD (LLU AP Director of Operations), pager # **4742**

LYMPHOMA: The most important component of the biopsy/resection for lymphoma workup is the portion that goes into formalin; nearly all diagnostic studies (histology, immunohistochemistry, molecular, FISH) are now performed on the formalin-fixed tissue. However, flow cytometry remains a useful adjunct study (particularly if a preliminary assessment is needed STAT). If sufficient tissue is available, submission of tissue in both formalin and RPMI is ideal. Vials of RPMI are available in the refrigerator in the accessioning room in surgical pathology. Below are some key points to consider:

- If submitting tissue for flow cytometry, 1) **submit the majority of the tissue/cores in formalin** for routine histology, 2) submit one (or two if very small) cores of tissue in RPMI for flow cytometry
- RPMI is not a fixative, so cells will slowly continue to degenerate; tissue in RPMI should be brought to the pathology laboratory ASAP for refrigeration and processing. Do not leave tissue in RPMI unattended.
- Tissue *cannot* be transferred from formalin into RPMI; formalin is an irreversible fixative, and flow-cytometric studies on formalin-exposed tissues will fail
- Flow cytometry is largely restricted to lymphoma/leukemia workup - if lymphoma is only one possibility in a long differential diagnosis and only limited tissue can be obtained, it is best to put all tissue into formalin, as essentially any class of disease can be adequately diagnosed on the formalin-fixed tissues

INFECTIOUS DISEASE: Tissue *must* be split within the sterile procedural environment and submitted separately for microbiologic and anatomic pathology studies. These are two separate laboratories, and the assumption that tissue automatically transfers from one lab to the next is false. Tissue that goes to microbiology first is frequently not submitted for pathology after cultures, and tissue biopsies have been discarded by the microbiology lab because they did not know that histopathology/cytopathology was also needed. Conversely, the anatomic pathology laboratory is not a sterile environment, and microbiologic culture studies are not performed on specimens sent to the AP department. For tissue biopsies/aspirations that also need culture studies, do the following:

1. Submit a small portion of the biopsy directly to the microbiology lab and place an order in EPIC
2. Submit the remainder of the tissue in formalin to the anatomic pathology laboratory with an appropriate EPIC order *and* requisition

BRIEF FIXATIVE/MEDIUM OVERVIEW:

- **FORMALIN:** Irreversible fixative, used for most applications in surgical pathology. Cultures, flow cytometry, IF studies cannot be performed once tissue is formalin-fixed. Avoid prolonged exposure to fumes
- **RPMI:** Used for flow cytometry and cytogenetics. Cells slowly degenerate (not a fixative!), needs refrigeration.
- **GLUTARALDEHYDE:** Fixative for electron microscopy; used primarily for kidney and muscle biopsy (AP staff only)
- **ZEUSS/MICHEL'S:** Fixative for immunofluorescence; used primarily for kidney and skin biopsies (blistering disorders)
- **FRESH:** Muscle biopsy specimens and biospecimen (tumor banking) only; pathology staff must be notified so that tissue can be appropriately triaged, as tissue degeneration progresses quickly. Needs to be refrigerated!