

## SPECIFIC TISSUE GUIDELINES FOR BIOPSY SUBMISSION

### Submission of specific tissues for biopsy

- **Eyes** – Submit whole; remove eyelids if not needed for the diagnosis.
- **Limbs** – For limbs where a formalin container is not available due to size, wrap limb wrapped in formalin-soaked gauze and place within a leak proof bag/container. Send to the lab overnight.
- **Brain or Heart** – Submit whole.
- **Spleen** – If possible, submit whole. For spleens that are too large to submit whole, take multiple wedge samples which include the mass and adjacent normal tissue (the center of the masses often consists of only hemorrhage and necrosis). Alternatively, wrap the spleen in formalin-soaked gauze and place within a leak proof bag/container. Send to the lab overnight. If the spleen is diffusely enlarged (no masses), submit several slices from different regions of the spleen.
- **Liver** – Liver biopsy specimen collection is influenced by several factors. Indications may include persistent elevations in leakage or induced enzymes, persistent bile acids elevations in the absence of an identified portosystemic vascular anomaly, radiographic changes including microhepatic, hepatomegaly, mottling, and/or nodular or mass lesions, and lesions found during abdominal exploratory surgery. Biopsy is not advised in patients that are poor surgical candidates or who have coagulation abnormalities.
  - For diffuse disease where the liver appears uniformly affected, collect samples from different lobes. Note: Fine needle aspiration cytology can be diagnostically useful when diffuse disease is present. For lesions that are not diffuse, sample both normal and abnormal areas, and identify samples as normal vs. abnormal in these instances. Cytology can also provide diagnostic in focal lesions.
  - Small samples and Tru-cut and needle biopsy samples: These are easily fragmented in transport, especially if the liver is diseased, so these biopsy samples should be submitted either in small vials or mesh cassettes. Avoid the use of plastic sponges, which tend to crush the samples. For ultrasound-guided liver biopsies, multiple samples from different lobes can usually be obtained in animals over 10 Kg. In smaller patients or patients with reduced liver size, sampling is usually limited to one window. In these patients, the biopsy needle can be inserted in different directions from the same window to sample different areas of the same lobe. The biopsy sample should be flushed off the biopsy needle with saline into a vial containing an adequate volume of formalin. Again, label normal vs. abnormal sampled areas. Fragmented samples may be submitted for culture, or frozen for PCR or toxicology as needed; intact samples are submitted for histopathology.
  - Surgical liver biopsies: Diffuse/uniform liver lesions - Obtain at least two samples from different lobes; avoid sampling mainly from the periphery of a lobe. Samples may be

divided for culture, frozen sections, PCR, or routine histopathology processing; snap frozen samples are needed for metabolic testing. For focal liver lesion(s), the affected lesion is generally submitted as part of a partial or completely resected lobe. Label location and margins on the submission form. For vascular abnormalities (e.g. portosystemic shunts), at least one wedge biopsy of the liver should be obtained as there can be variability of histopathologic findings from different lobes.

- Feline liver biopsies - Consider submitting small intestinal biopsy samples because of the association between cholangitis and feline inflammatory bowel disease or to rule-out small cell lymphoma.
- For toxicology testing of the liver, contact the Toxicology Laboratory at 610-444-5800 ext. 6244 for specific guidelines for individual tests.
  - 100 mg wet weight of liver = 1 good Tru-cut. This should be sufficient for most metal analyses such as copper or iron.
  - Liver can also be screened for pesticides, various human and veterinary drugs, vitamin E, and other substances, though a minimum of one gram of fresh tissue is required.
  - Although anticoagulant rodenticides can also be detected in liver, blood samples are the better antemortem specimen.