



## **Veterinary Pathology Service**

### **Surgical Pathology**

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## Surgical Pathology Service Fees

### Histopathology (Price covers routine H&E staining and special histochemical stains)

Single tissue (1-3 slides)	£35 plus VAT
Two tissues, same animal or large sample > 5cm ø (or 4-10 slides/sample)	£45 plus VAT
For every additional tissue sample	£15 plus VAT
Urgent sample fee (please discuss with pathologist before submission) (Sample must be ≤5mm <sup>3</sup> and fixed on arrival)	£25 plus VAT
Samples requiring extensive dissection (e.g. leg, head)	£70 plus VAT
Professional interpretation of referral slides	£25 plus VAT

### Immunohistochemistry

Tumour phenotype markers (per antigen and block) (please discuss with pathologist before submission)	£25 plus VAT
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### Reporting times

Standard Histopathology – soft tissue: 3-5 working days

Urgent sample – soft-tissue: 1-2 working days

Histopathology – bone/mineralised tissue: variable dependent on time required for tissue decalcification

Immunohistochemistry – 7 working days

## Sampling Advice

### Sample collection – general advice points:

- Generally, samples should be no more than 1 cm in thickness, but long and wide enough to be representative of the tissue sampled.
- For tubular organs, samples with 2 to 3 cm in length can be collected.
- Samples should be taken from the lesion/abnormal areas and when possible, samples including lesion and adjacent normal tissue should also be included.
- Appropriate handling of the specimen from time of sampling until it arrives at the laboratory is very important to maintain adequate tissue preservation and prevent artifact or autolysis – try do handle tissues gently, avoid crush with forceps, and please do not wipe mucosal surfaces (e.g. intestinal lumen).
- The quality of the microscopic evaluation and interpretation also depends on the information provided by the clinician – including verbal information on the submission form and also images and tissue demarcation as appropriate (e.g. ink, sutures, other) adequately explained/labeled on the submission form.

### Sample fixation and packing – Important points

- Samples should be placed in 10% neutral buffered formalin (NBF) immediately following surgical excision (with exception of any time needed for tissue demarcation - no more than 30 minutes following surgical excision).

**Note:** At the present time our service is not able to process fresh frozen samples, which limits the evaluation of muscle biopsies. Muscle biopsy specimens that are fixed in formalin provide limited diagnostic information, other than allowing for morphologic characterization (e.g. evaluation of any cellular infiltrates present in the sample).

- Samples should be sent in an appropriately labeled wide-mouthed, plastic container containing no more than 1 litre of 10% NBF at a 1:10 tissue/formalin ratio. The lid should be secure and sealed to prevent leakage.
- The neck of the container should be wider than the specimen being submitted.
- The container should be placed in a secured sealed plastic bag and should be surrounded by absorbent packing material (please refer to packing instructions in separate document).

- For oversized specimens (e.g., amputated limbs, spleens), overnight shipping of the entire prerefrigerated fresh tissue sample using ice packs or other cooling materials will help to avoid autolysis. Do not freeze the specimen, and do not ship on dry ice, which may induce substantial artifact.
- Oversized items can also be prefixed for 48 to 72 hours, double-bagged, and shipped chilled without submersion in formalin. Partial parallel incisions approximately 1 cm apart (“bread loafing”) to facilitate fixation should be made through the mass without compromising tissue orientation or margins.
- Samples too large to fix on site as a whole can be sectioned into portions and submitted in separate appropriately labeled formalin pots. An image or drawing of the original specimen to illustrate sectioning and orientation should ideally accompany the samples, especially for mass lesions. A single portion of the specimen can be submitted for tumour diagnosis, but this will preclude margin evaluation. Remaining tissue should be held at the practice when possible, until the final pathology report is received.
- Very small samples, such as endoscopic or pinch biopsies, should be placed in screen cassettes labeled with a pencil, if necessary, and then put in a formalin container for posting. (We are happy to provide cassettes upon request.)
- For luminal organs (e.g., intestine, uterus), flush the intact lumen with formalin. For long sections of luminal tissues, either a partial longitudinal incision can be made while leaving areas of interest intact, or 3 labeled sections (e.g. cranial/proximal, mass and caudal/distal) can be submitted.
- Thin flat samples (e.g., urinary bladder, stomach) should be placed in a tissue cassette with a foam pad to minimize tissue curling. Larger samples can be tacked onto a flat piece of cardboard pre-soaked in formalin or water with suture through edges of tissue not needed for examination.
- Draining lymph nodes associated with limb amputations warrant microscopic evaluation but may be difficult to identify postoperatively. To ensure evaluation, the submitting clinician should consider dissecting the node perioperatively and submitting it with the limb in a separate, appropriately labeled container.
- Submission forms and any additional paper documents should be sent concurrently but should be placed in a separate plastic bag (or compartment) for protection from potential formalin leakage. All sample containers (not lids) should be labeled with a unique patient name/case number and site of the sample (or number, if submitting multiple samples from a single patient). The same information should also be included on the submission form.

## Recommendations for Skin Biopsy Samples

A considerable number of diagnoses of skin conditions are made by interpreting the history and clinical and histopathological features altogether and relying in one without the other may reduce the chance of getting a final diagnosis. Results of skin biopsies frequently do not state a simple diagnosis such as "histiocytoma" but the information that it can give is very useful to narrow the list of differential diagnoses, to direct treatment and clinical work up and to achieve a final diagnosis in conjunction with clinical information and history.

For the reasons mentioned above, it is very important to include a **complete but succinct clinical history** when submitting a sample. Please include:

- **Lesion(s) description, duration and location.**
- **Therapy** or prophylaxis (please consider that pathologists may not be able to interpret drug dosages but need to know the previous and/or current treatment for better interpretation of findings). If possible, withdraw immunosuppressive and immunomodulatory drugs for at least two weeks before sampling, but please sample without withdrawal if a life-threatening condition exists or if there are animal welfare concerns.
- **Photographs** of the lesions, when available.

Note: Please consider that for some cases/conditions repeat biopsies may be needed as the diagnostic lesions may not be present at the time of initial presentation.

- Basic skin biopsy technique
  - Please do not scrub the skin surface.
  - Submit four 6mm punch biopsies per case except in focal lesions. 4 mm punches can be used for nasal planum, footpad or very small lesions.
  - If using local anaesthesia, please try to inject it in the subcutis and not in the dermis (it can cause artifact and oedema at this location).
  - Please handle the fresh specimen gently and try not to squeeze with forceps (squeezing causes compression artifact in the tissue).
  - Place samples in 10% buffered formalin immediately after collection. Consider keeping some tissue frozen for any eventual molecular testing.

Note: A histologic section of the skin should allow the examination of all anatomic regions of the hair follicle. If the section is perpendicular to the hair growth, this will not be possible. Especially in areas of alopecia it may be quite difficult to determine the direction of hair growth following sampling. So please consider using an indelible marker pen to draw a line on your sample showing the growth direction of the remaining hair.

For any specific query, please feel free to contact the pathology department.

## Packaging instructions

**Packing instructions for sending biological samples** (according to IATA packing instructions 650 interpretation, <https://www.gov.uk/government/publications/packaging-and-transport-requirements-for-patient-samples-un3373/packaging-and-transport-requirements-for-patient-samples-un3373> ).

The packaging must be of good quality, and strong enough to withstand the shocks and loadings normally encountered during transport.

Packaging must be well constructed and closed to prevent any loss of contents that might be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure.

The packaging must consist of at least three components:

1. Primary receptacle(s)
2. Secondary packaging
3. Outer packaging

of which either the secondary or the outer packaging shall be rigid.

Primary receptacles typically consist of plastic slide holders or histopathology pots. These must be shatter-proof and leak-proof (glass, old pill containers and food jars, etc. are not appropriate). These must be packed into the secondary packaging (sealed plastic bag) in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents into the secondary packaging.

Absorbent material must be placed between the primary receptacle and the secondary packaging. The absorbent material, such as cotton wool, swabs, paper towel, must be in sufficient quantity to absorb the entire contents of the primary receptacles so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging.

Secondary packaging must be leak-proof and shatterproof. It will generally consist of a sealed biohazard bag or similar and it should contain absorbent material as described above.

Outer packaging: A cardboard box suitably closed and with at least one of the surfaces of the outer packaging having a minimum dimension of 100mm x 100mm.

For transport, the mark illustrated below must be displayed on the external surface of the outer packaging. "Biological Substance, Category B" must be marked on the outer packaging adjacent to the square box containing the code UN3373.



### **Submitting glass slides for histopathology**

If you would like to submit glass slides for histopathology, please contact the service in advance to discuss this submission. When preparing slides for shipping, please follow the following steps for safe shipping:

1. Use a slide carrier.
2. Ensure that all slides are clearly labelled.
3. Position the slides firmly in the slide carrier and use extra padding (e.g. tissue or small sponge) if needed to limit the movement of slides inside the carrier during transport.
4. Use a piece of tape to secure the lid of the container.
5. Put the sealed slide carrier(s) inside a padded envelope or box.
6. For added security, wrap the container with bubble wrap before placing it in the envelope or box.
7. Secure the envelope or box with tape.
8. Make sure the envelope has your details (as the sender) and the details of the recipient (UoN point of contact – name/surname of the pathologist).
9. Ensure that any documentation required by the shipper is easily accessible.

Submission forms can be found in our website:

<https://www.nottingham.ac.uk/vet/service-for-business/veterinary-pathology-service/companion-and-equine-pathology/index.aspx>

## Contacts

For any further enquiries please contact

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