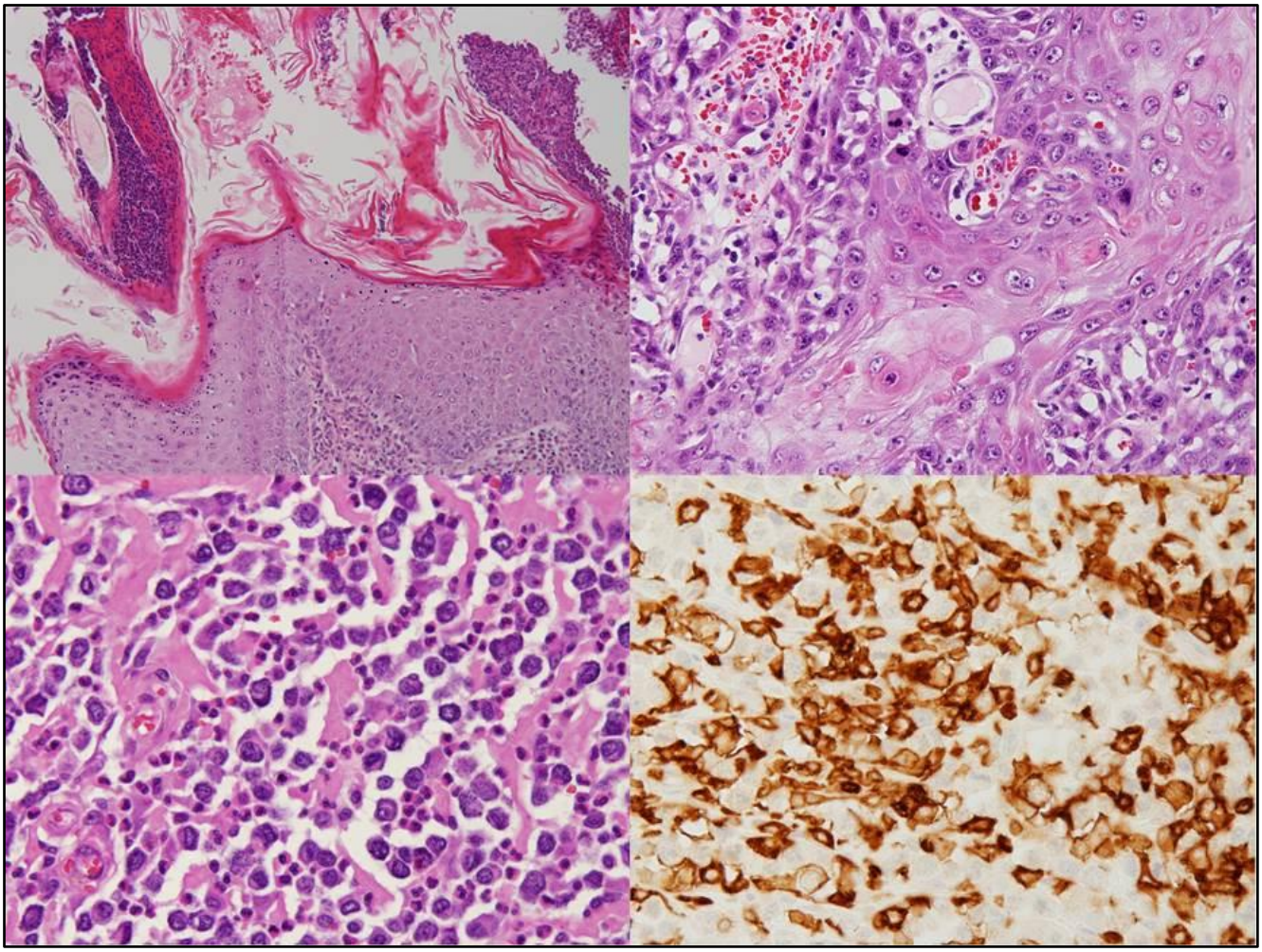
A*STAR Integrated Central Operations & Research Enablers (iCORE)
Pathology Laboratory
Veterinary Surgical Pathology Services



iCORE Pathology Laboratory

iCORE Pathology Laboratory is a GLP-certified histopathology facility with over a decade of experience, offering a broad range of histology services to the biomedical and pharmaceutical sectors. Our lab specialises in necropsy, histoprocessing (cryo and paraffin), immunohistochemistry, whole slide imaging, multiplexing, special stains, tissue microarrays, laser capture microdissection, and animal clinical pathology. It also offers expert pathology evaluation for both animal and human tissues.

Our team of highly skilled histo technicians and board-certified pathologists, equipped with advanced technologies, drive innovative contributions to both basic and translational research. We play a crucial role in therapeutic target validation and drug safety evaluation, delivering GLP-compliant, dependable results that are recognised by regulatory agencies.

Frequently Asked Questions:

1. What is Veterinary Surgical Pathology?

Surgical pathology is an important aspect of diagnosing animal diseases and involves examination of tissues both grossly and histologically. Typically, veterinarians, after performing clinical evaluation on a domestic animal (e.g. cat, dog etc) and having determined that it is appropriate to submit biopsy specimens, will obtain tissue specimens from lesions and organs with suspected pathology.

Depending on the site of specimen collection, the tissues are often obtained surgically while the animal is under general anaesthesia. Specimens are immersed into fixative in a container followed by submission to a veterinary diagnostic laboratory. The tissues will be put through routine processing to produce slides for microscopic examination. The slides should be examined by a veterinary pathologist who will provide histologic descriptions on the tissue sections, disease diagnosis and interpretation of findings. Biopsy results will be sent to the submitting clinical veterinarians who will then make an appropriate medical decision and provide necessary advice to the clients (e.g. pet owners).

While good quality histopathologic diagnosis is important for clinical veterinarians, it is also dependent on the quality of the specimens submitted. Additional tests such as special stains and immunohistochemistry may be recommended following the initial diagnosis.

2. How should specimens be submitted to iCORE Pathology Laboratory?

Good quality, adequate quantity and well-preserved specimens are essential for an accurate pathologic evaluation. Excised specimens should be placed in formalin as soon as possible to limit tissue autolysis.

Specimen preparation and fixation should be done as follows. A leak-proof, adequately sized container that is impermeable to formalin should be used for transport of the specimen. Tissues should be placed in fixative, with tissue to formalin ratio of 1:10, as soon as possible after removal from animal and fixed for 24-48 hours. 10% neutral buffered formalin is the preferred fixative. Never freeze specimens as this will cause freezing artefacts and reduces histological readability.

In cases where specimens are shipped from regions with very cold weather (e.g. winter in China, Japan), one-part isopropyl alcohol to ten parts formalin fixative could be used or specimen containers could be insulated to prevent freezing artefacts. Specimens may be incised to allow faster formalin permeation and fixation, but this should be done away from the surgical margins to

as to not hinder any margin evaluation by the pathologist. Tissue specimens may be annotated, with corresponding explanations communicated in the submission form that accompanies the specimen.

For small specimens, clinicians can put tissues within cassettes (to be annotated with pencil or cassette markers, NOT alcohol-based marker pen as ink from the latter will dissolve during processing). The cassettes should be submerged in a formalin container previously described. Small pieces of filter paper or sponges can be used to sandwich very small specimens within the cassettes to prevent specimens from escaping though the cassette.



Specimen labels should include information on:

- Species
- Organ
- Type of fixative

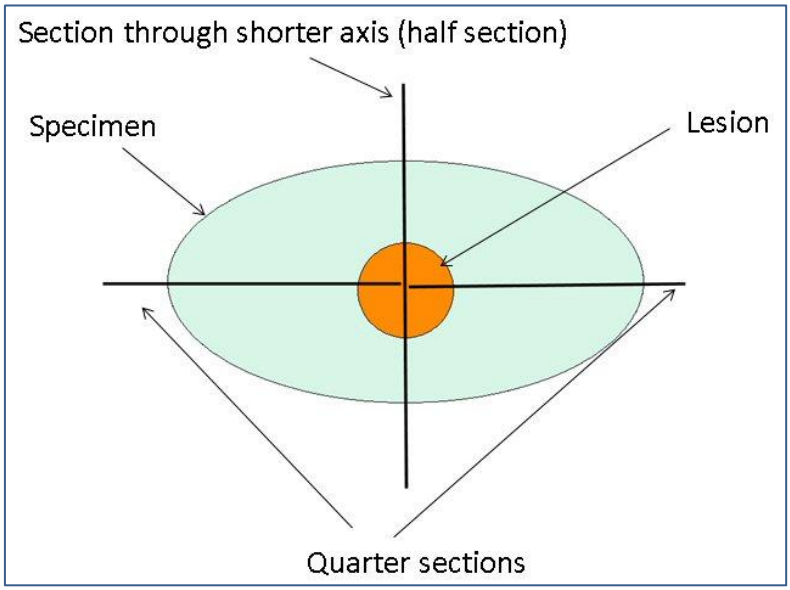
Patient information should be provided on the submission form and should include:

- Species
- Sex
- Breed
- Age
- Site and date of specimen collection
- Organ
- Number of specimens
- Appropriate and sufficient clinical history

Clinic information such as physical address, email address, phone and fax numbers, must be provided. Our veterinary pathologists may contact the referring veterinarian for discussion on the submitted cases, if necessary.

3. How are specimens trimmed for examination?

For a typical skin mass with a shorter diameter that will fit into a cassette, one section through the shorter axis (half section) and two sections (quarters) perpendicular to this axis will be examined.



When specimens are too large to fit into one cassette, representative sections through the lesion will be examined. Margins of these representative sections will be examined to help determine whether the lesion extend to the edge of specimens.

4. How will the biopsies be charged?

Biopsies will be charged a fee per single specimen or consolidated multiple specimens. A complete margin evaluation can be requested, with an associated fee.

Please see the pricelist for more information.

5. What if I have multiple specimens and tumours from the same animal for submission?

If an animal has multiple tumours, it is generally recommended that all the tumours be removed as histopathologic interpretation of one tumour may not be entirely representative of other tumours on the same animal. Please indicate on the submission sites where each of the samples is taken.

6. What is the expected turn-around time?

The expected turn-around time for delivery of biopsy reports is 4-5 working days from receipt of specimens. The turn-around time account for the processing of tissues to obtain diagnostically useful slides. If results are required urgently, please indicate “priority” on the form and cases will be processed for earlier availability of results, with an associated fee. Result for priority cases should be released within 2 days of receipt of specimen.

7. Who will read the specimens and how do I receive the biopsy results?

Veterinary surgical biopsies submitted to the iCORE Pathology will be read by ACVP board-certified veterinary pathologists (see below) and results will be emailed to the referring veterinary clinic once the biopsies are read. Hard copies of results may be requested. For challenging cases or cases with inferior tissue quality that require further examination, review, tissue processing and/or additional sectioning, the release of report may be delayed.

8. What is the opening time and contact of iCORE Pathology?

The laboratory is open from 9am to 5pm, Monday to Friday (closed on weekends, public holidays and on the eve of public holidays)

We are closed for lunch from 12-1pm.

Courier services are available, please contact us for further information and any other enquiries.

Our contact:

iCORE Pathology

61 Biopolis Drive, Proteos Building, Level 6 Singapore 138673

Telephone: 6586 9629

Email: iCOREPath@a-star.edu.sg

Our Veterinary Pathologist



Dr Ong Chee Bing, BVSc (Hons), MS, Diplomate ACVP

Director, BRC, A*STAR

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Dr Ong Chee Bing was awarded the National Science Scholarship by Agency for Science, Technology and Research (A*STAR) in 2002 and obtained his Bachelor of Veterinary Science (with first-class honours) from The University of Melbourne, Australia.

He worked as a laboratory animal veterinarian in Biological Resource Centre (A*STAR) after graduation. Thereafter, he pursued a residency in Veterinary Anatomic Pathology in the Diagnostic Centre for Population and Animal Health, Michigan State University, United States. During his residency, he gained extensive experience in veterinary pathology, necropsies, surgical histopathology of various animal species and completed a Master of Science in Pathobiology involving the study of respiratory toxicology in laboratory mice.

Dr Ong is the first Singaporean to be board certified in Anatomic Pathology by the American College of Veterinary Pathologists (ACVP). Since his deployment in A*STAR, he has been providing pathology evaluation service on research animal samples, veterinary clinical and exotic species samples, and maintained his expertise in both veterinary diagnostic pathology and toxicologic pathology.

Dr Ong is board certified in Anatomic Pathology by the American College of Veterinary Pathologists (ACVP) and is currently the Director (Veterinary Services) of Biological Resource Centre (BRC) in A*STAR.