Sample Collection and Submission Advice – Companion Animals

Sample submission

This guide provides information on sampling and sample requirements. If you have questions please check our website or call 0131 535 3130 and our professional technical staff will be pleased to assist. Package samples in accordance with Post Office regulations.

To enable us to handle samples efficiently please follow the guidelines below:

- Do not send unlabelled samples
- Do not cover tubes in sticky tape. If lids are screwed on tightly they will not leak. If there is a need to further seal tubes we recommend using electrical insulation tape.
- Do not send hypodermic needles.
- Sample from patients on chemotherapy drugs must be indicated on the submission form, as such samples require special handling in order to comply with health and safety regulations.
- Results will only be provided to the submitting veterinary surgeon, unless express written permission has been given to release them to the owner or other third party.
- Turnaround times are stated against each product. These are based on laboratory working days and are a guideline only.
- Litigation cases require specific procedures to ensure appropriate chain of custody; please advise in advance if this is the case.

Microbiology

Microbiology sample collection guidelines

- Ensure that sampling is from the lesion, avoiding contamination from surrounding tissue. This is particularly important for urine where a cystocentesis sample is recommended for bacteriology.
- Please use sterile plain tubes, containers or swabs for submission of all microbiology samples - boric acid containers are recommended for urine culture. Many additives in blood tubes are bacteriostatic and thus their use reduces isolation rates. If tissue samples are to be submitted please wrap in moist material to prevent drying out (do not immerse in fluid).
- When swabbing a lesion for bacteriology please use swabs that contain a transport medium as this preserves organism viability better than dry swabs.
- Faecal samples should be stored refrigerated until the sample is submitted.
- When submitting fluids for culture please ensure that the plain container is completely filled with the fluid so as to exclude air, as the presence of oxygen will potentially lead to loss of strict anaerobes from the sample.
- Generally samples that are >48 hours old are unsuitable for bacteriology due to reduced organism viability.

Origin of sample	Sample container	Sample preparation	Tests carried out
Abscess/wound	Sterile pot	Aseptically prepare the collection site	Aerobic, anaerobic & fungal culture
Blood	Blood culture media	Prior to obtaining the blood sample aseptically prepare the venipuncture site. Collect 2-10ml of blood depending upon animal size and inject into the liquid media.	Aerobic & anaerobic culture
Bone marrow	Sterile pot	Aseptically prepare the collection site	Aerobic & anaerobic culture
CSF	Sterile pot; Liquid media	Prior to obtaining the sample aseptically prepare the site. Isolation of organisms is improved if the sample is added to a liquid culture media.	Aerobic & anaerobic culture
Ear	Swab	Swab different regions of the ear, including deeper areas if possible	Aerobic & fungal culture
Eyes	Swab	Swab discharge material before applying any topical medication including local anaesthetic	Aerobic culture
Faeces	Sterile pot; Swab	Avoid contamination with soil or urine	Salmonella, Campylobacter, Yersinia, Clostridium
Nasal cavity, sinus	Sterile pot; Swab	Aspirate from sinus or swab/wash the nasal cavity.	Aerobic, anaerobic & fungal culture
Skin, nail, hair	Sterile pot; Swab	Swab/scrape lesion. Do not include the blade in the sample pot. Place hairs taken from the periphery of the lesion for fungal culture in a small envelope.	Aerobic & fungal culture
Synovial fluid	Sterile pot; Liquid media	Prior to obtaining the sample aseptically prepare the site Isolation of organisms is improved if the sample is added to a liquid culture media	Aerobic & anaerobic culture
Tissue	Sterile pot	Place tissue in a sterile pot with small amount of sterile saline to prevent drying out.	Aerobic, anaerobic & fungal culture
Trachea/bronchi	Sterile pot	Swab/wash the trachea/bronchi, swab the endotracheal tube	Aerobic & fungal culture
Urine	Sterile pot; Boric acid	Cystocentesis is recommended. For free catch samples use of Boric acid will restrict bacterial overgrowth. Refrigerate.	Aerobic culture

Urinary Tract Disease

Urine collection guidelines

Test	Sample	Container	Sample preparation	Storage	Comment
Urine culture	Urine	Sterile pot; Boric acid container	Obtain urine by cystocentesis to ensure sterility.	Seal and refrigerate. Prevent exposure to sunlight.	Boric acid is preferred where samples are not obtained by cystocentesis. Boric acid samples cannot be used for any chemistry tests including UP:C, or cytology. For these please submit urine in a plain tube.
Urinalysis	Urine	Plain pot	Obtain sample by cystocentesis, catheter or free catch into a clean container	Seal and refrigerate. Prevent exposure to sunlight	Do not collect urine from the floor/litter trays.
Urine cytology	Urine	Plain pot	Obtain sample by cystocentesis, catheter or free catch into a clean container	Refrigerate	
Urolith analysis	Urolith	Plain pot	None – do not add any liquid including formalin	Room temperature	

Clinical Chemistry, Endocrinology & Haematology

Blood sampling guidelines

Accurate and useful results are determined by the correct choice of tests and quality of the sample provided. If you are unsure what tests may be appropriate for your case please contact us for advice in advance. We store all surplus serum for 3 months enabling you to request further testing at a later date if your initial test choice is not diagnostic. Whole blood degrades over a few days and thus cannot be stored for longer than 7 days.

- Avoid lipaemia by taking samples after fasting.
- Reduce the risk of haemolysis. Haemolysis can be reduced by ensuring as wide a needle as possible is used, that a good free flow of blood is obtained and minimise the time blood is in the

syringe. Do not forcibly eject blood through a needle; remove the needle prior to transferring the sample in a blood tube

- When filling tubes, fill the plain tube first to avoid any risk of carry over of anticoagulants. In particular small amounts of EDTA can interfere with several biochemistry tests
- With serum gel tubes please centrifuge sample if possible to separate red cells from the serum.
- Ensure plain tubes are clotted and clot retraction has occurred before centrifuging. Note that the sample requirements indicate the volume of serum/plasma that is required, not the volume of whole blood.
- Ensure that the correct blood tubes are used for the tests required.
- Fill all tubes to the correct level to avoid any issues with high concentrations of anticoagulants. This is particularly important with EDTA as cellular morphology is affected by high concentrations of EDTA.
- We recommend submitting an air dried blood smear which we can then use for the differential count when cellular morphology in the EDTA sample is not preserved.
- In cases where blood clotting occurs rapidly in the syringe before the sample can be mixed with EDTA (hypercoagulable states), coating the inside of the needle and syringe barrel with liquid citrate may be helpful. Aspirate a small amount of citrate into the syringe ensuring all internal surfaces are coated and then eject surplus citrate prior to obtaining the sample.

Test	Sample	Container	Sample preparation	Comment
Chemistry (most), Immunology, Endocrinology	Serum	Serum gel or plain tube	Submit whole blood or separated serum. For a plain tube (no gel) transfer the serum to a new plain tube.	For therapeutic drug monitoring use plain serum tubes if possible.
Progesterone	Plasma	Heparin	Submit whole blood, or separated plasma	
Selenium, manganese, GSHPx, lead	Whole blood	Heparin	Do not centrifuge. Submit whole blood	
Vitamin A Vitamin E	Serum, plasma	Plain or Heparin	Keep samples in the dark as sunlight/UV light degrades vitamins A and E.	Wrap in foil to exclude light.
ACTH (endogenous)	Plasma	EDTA	Centrifuge sample at the earliest opportunity. Place the plasma into a plain tube.	Post immediately to arrive with us the next day
Haematology	Whole blood	EDTA	Fill tube to the mark mix well by inversion	
Coagulation tests (PT, APTT, fibrinogen)	Plasma	Citrate	Minimum 1ml of citrated plasma (c2ml of whole blood) is required for PT and APTT test. Mix adequately and ensure no clots are present. Submit whole blood or centrifuge and submit the plasma in a separate plain tube (plasma can be frozen pending submission)	Post immediately to arrive with us the next day. If the plasma has been frozen, submit with an ice-pack if possible.

Container types

Blood tubes show the name of the tube on its label – please check before adding blood and do not rely on the lid colour as this varies. The letters shown for each tube type are used in the assay lists below:

- Serum gel/plain tubes (S) (red or white lids): Serum tubes contain no anticoagulant and thus blood clots in these tubes. The serum gel tubes should be centrifuged prior to submission to prevent haemolysis affecting the serum. The resulting serum is used for biochemistry and endocrinology tests.
- Lithium heparin tube (H) (green or orange lids): Contains an anticoagulant that prevents clotting. Plasma can be used for biochemistry and endocrinology. The whole blood can be used for haematology, and for exotic species it is preferred to blood taken in to EDTA. It is also used for some molecular tests. Ensure the tube is filled to the appropriate level.
- Potassium EDTA tube (E) (red or pink lids): Contains a chelating agent which acts as anticoagulant and preserves cellular morphology. It is used for haematology and for fluid aspirates (e.g. pleural/peritoneal effusion, synovial fluid etc). It is important that the tube is filled to the correct level to preserve cellular morphology.
- Separated EDTA plasma (ES): This is required for endogenous ACTH estimation. Centrifuge the EDTA sample and place the plasma into a plain tube (not serum gel tube).
- Fluoride-oxalate tube (F) (yellow or grey lids): Oxalate is an anticoagulant whilst fluoride prevents glucose metabolism by cells. This tube is required for glucose estimation.
- Citrate tube (C) (lilac or green lids): Citrate is in anticoagulant and tubes contining this are used for clotting factor and fibrinogen assay, and may be used for haematology.

Histopathology & Cytology service

Histopathology sample collection guidelines

- Provision of a full history, patient details and description of the lesion enables more accurate interpretations.
- For adequate fixation samples fix in 10% neutral buffered saline (10:1 ratio of formalin to tissue). For large biopsies it is appropriate to fix the tissue in a large pot in the practice for a few days. Completely fixed tissue can be submitted in a sealed bag or small pot with formalin soaked gauze to keep it moist. To allow formalin to penetrate large biopsies make 0.5-1cm wide incisions through the lesion; do not extend to the deep margin or through the full thickness of the tissue. For very large tissues remove 1cm cubed representative pieces, fix separately.
- Samples that are very small (<2mm) and friable, haemorrhagic, fatty or mucoid may not survive processing in which case an interpretation will not be possible.
- Multiple biopsies from different sites should be placed in separate pots and clearly labeled.
- Open hollow tissues e.g. intestine to allow formalin access to the mucosa.
- Small bone marrow, tru-cut liver or kidney should be submitted in mesh bags (available on request)
- Samples requiring extended fixation or decalcification have a longer turn-around time.

Cytology sample collection guidelines

- Cytology sample may be obtained by aspiration, scraping or imprints. Slides may be made by smearing the aspirate or making a squash preparation. When making smears please ensure a thin film is created. Islands of material on the slide will be too thick for examination.
- Provision of a full history, patient details and description of the lesion enables more accurate interpretations.
- Submit labelled air-dried, unstained smears. Smears may be fixed in methanol for 5 minutes, but if unavailable, do not fix.
- Keep smears away from formalin fumes and avoid submitting slides in the same bag as formalin containing pots.
- Submit fluids and washes in EDTA pot for cytology and a plain sterile pot for culture along with unstained smears. Prepare smears immediately after taking the fluid/wash.
- Do not supply fluids in gel tubes or syringes.

Post Mortem (necropsy) service

Post mortem guidelines

The cost of the postmortem is for the necropsy only. All other tests will incur charges as shown in this service guide. Disposal charges apply unless separate arrangements are made; carcases cannot be released to owners for burial. For litigation cases extra charges will be incurred if discussions with legal representatives or attendance at court are required – please contact us for an estimate of costs. Smaller carcases can be posted to us. A full history is required. We must be informed in advance if a case is to be submitted for necropsy, and the body should be submitted at the earliest opportunity. Smaller carcases should be kept refrigerated, whilst larger bodies should be kept as cool as possible. Avoid freezing a body unless the time between death and submission is likely to be >72 hours, in which case freezing is preferred.