

IDEXX Quality Starts with Quality Samples

The quality and accuracy of results are very important to everyone at IDEXX.

IDEXX Tips for obtaining high quality samples:

Choose the correct sample and container

Read the collection guidelines on the following pages or in the Sample Requirements column by each test in the Reference Laboratory section of the current edition of the Directory of Products and Services. Improper choice of a collection vial can adversely affect results. Please check the expiry date included on containers before use.

Important information - Sample labelling. Please ensure samples that have been separated and decanted from their original collection tube are clearly labelled; e.g. Heparin plasma, Citrate plasma etc.

Did You Know? Using a serum gel tube is an easy way to collect a good serum sample for chemistry panels. However, for certain specialised tests, such as many endocrinology and drug tests, the gel can interfere with results.

Did You Know? Whole blood EDTA samples start to degrade as soon as the blood is outside of the animal.

To preserve cell morphology, include air-dried, unstained blood slides along with the EDTA tube. Slides should also be included with samples submitted for fluid analysis for accurate cytologic interpretation. Blood smears made at the time of blood collection help avoid platelet clumping problems and allow more accurate platelet interpretation.

Did You Know? Including slides with your Comprehensive Haematology can help with pathologist reviews of unusual cells, and with the identification of red blood cell parasites.

Did You Know? Unlabelled separated/decanted samples cannot

be correctly identified at the lab. Unlabelled (or unidentified) samples will be handled as being the correct sample type for the test requested

Use proper techniques

Filling syringes: When filling syringes, aim for a good free flowing stick from the largest accessible vein. Slow draws and difficult sticks can rupture red cells, adversely affecting CBC results and certain chemistries. The longer the blood stays in the syringe, the greater the risk of clumped platelets and clots that degrade test results.

Always fill the tubes without additives first. This prevents carry-over of tube additives. For example, if you are filling an EDTA tube and a serum gel tube, always fill the gel tube first. Even a small amount of EDTA can interfere with many chemistry results.

Fill EDTA or citrate tubes precisely. Overfilling and under-filling tubes causes the wrong ratio of additives. Excess EDTA in an under-filled tube will give inaccurate CBC results. Overfilling the EDTA tube may cause the sample to clot.

Centrifuging: Make sure samples are fully clotted before tubes are centrifuged.

Note that some samples may take longer to clot than others.

Did You Know? In tests that require serum, it is important to collect and centrifuge the sample properly. A sample must be allowed to clot for up to 20 minutes before spinning. If a tube is spun too soon after drawing the blood and not allowed to clot first, you will send plasma to the laboratory and not serum. Sample volumes quoted are for separated serum - please ensure you collect sufficient sample in order to obtain the required serum yield.

If you have any questions regarding submission of specimens, or if you require appropriate supplies, please call us on UK: +44 (0) 2037887508, Eire: +353 (0) 15621211.

Samples clotted during blood draw may result in...

- Platelet clumps
- Falsely decreased cell counts (platelets, red blood cells and white blood cells)
- Haemolysis (when forcing blood into tube)

Excess anticoagulant (under-filled tube) may result in...

- Decreased RBC count and HCT due to dilution
- Altered cell morphology
- Inaccurate MCV, MCH, MCHC and HGB
- Falsely prolonged clotting times

EDTA contamination may cause...

- Falsely decreased calcium
- Falsely increased potassium
- Interference with many specialised tests

Specimen Collection Guidelines

Don't Forget

Label all tubes and slides submitted with: Animals Name, Owners Name, Date of Sampling and Time of Sampling

Type of Testing	Specimen	Container	Protocol	Storage
Chemistry, Immunology, Endocrinology	Serum	Serum Gel Tube	Let specimen clot 15 – 30 minutes, centrifuge at 2,500 rpm for 10 – 15 minutes or using the serum/plasma guidelines provided by your centrifuge manufacturer. DO NOT use serum gel tubes for therapeutic drug monitoring (digoxin, phenobarbital), or Troponin HS I	Refrigerate
Chemistry (including Troponin HS I), Immunology, Endocrinology including progesterone and therapeutic drug-Monitoring (Digoxin, Phenobarbital)	Serum	Serum Tube	Let specimen clot 15 – 30 minutes, centrifuge at 2,500 rpm for 10 – 15 minutes or using the serum/plasma guidelines provided by your centrifuge manufacturer. Transfer the serum into a new plain serum tube.	Refrigerate
Chemistry Phenobarbital	Serum	Serum Tube	Let specimen clot 15 – 30 minutes, centrifuge at 2,500 rpm for 10 – 15 minutes or using the serum/plasma guidelines provided by your centrifuge manufacturer. Transfer the serum into a new plain serum tube. NOTE: Samples are stable for up to 7 days at 2-8° C; One day at room temperature. Ice pack(s) are recommended for delivery times >24h. Samples with prolonged storage outside what is specified can show increased phenobarbital results.	Refrigerate
Chemistry Cardiopet® proBNP	0.5 ml separated EDTA plasma	Plain tube	Collect blood in an EDTA tube and gently invert the tube to thoroughly mix with the EDTA. Centrifuge the sample - 10 minutes at 3000 rpm or using the serum/plasma guidelines provided by your centrifuge manufacturer. Transfer the supernatant (plasma) into a plain tube and label it as "EDTA plasma". NOTE: Samples for the Cardiopet® proBNP assay are stable for up to 48 hours at room temperature. Please submit samples by courier or Guaranteed Next day delivery Mail. If you anticipate a delay in transportation, please freeze the separated EDTA plasma and submit the sample with an icepack.	Keep frozen
Chemistry: Ionised Calcium	Serum Vacutainer		Ionised Calcium Protocol	Refrigerate, DO NOT freeze
Haematology	Whole blood	EDTA Tube and air-dried unstained slides	Filling tube to the line mark on the tube will allow to obtain the correct blood to anticoagulant ratio Invert gently several times after filling	Refrigerate DO NOT freeze

Type of Testing	Specimen	Container	Protocol	Storage
Coagulation (PT, APTT, fibrinogen, D Dimer, AntiThrombin III, Factor VII)	Citrated Plasma	Citrate Tube	Guide for the preparation and submission of Citrate Plasma Samples	Keep frozen
Avian Blood and Miscellaneous chemistries			See Avian and Exotic specimen submission guidelines in this section. Check individual test listing.	
Urinalysis (Chemistry and sediment)	Urine)	Plain sterile container	Collect a fresh urine sample and submit it in a plain sterile tube. Free catch, catheterised or cystocentesis samples are all acceptable for chemistry and sediment analysis.	Refrigerate and prevent UV / sunlight exposure
Urine Culture	Urine (Sterile collection)	Plain sterile tube OR Boric acid tube	For culture, a cystocentesis sample, collected and handled in a sterile way, is preferred. Urine collected via cystocentesis for culture can be submitted in a plain sterile tube. Urine samples collected by free-catch or catheterization are not ideal for culture as they are prone to contamination (e.g. from skin or lower urinary tract). For urine samples collected this way, if a culture is required, submit the urine in a boric acid tube. A plain urine tube is still required if other analysis in the urine are being performed (e.g. Chemistry, sediment, UPC).	Refrigerate
Urine Cytology	Urine	EDTA tube + fixe-EDTA + air-dried smear	EDTA: Place urine in an EDTA tube. Fixed-EDTA: Place urine in a EDTA tube and add 1-2 drops of formalin to this tube and label the tube, "Fixed-EDTA urine" Air-dried smear: prepare an air-dried smear from the fresh urine or from the urine sediment after gentle centrifugation. No cover slip.	EDTA and fixed-EDTA – refrigerate Air dried smears – room temperature in a slide container.
Urolith Analysis	Urolith	Plain sterile container	Do not place into formalin or other liquid as stones may dissolve.	Room temperature
Microbiology			See Microbiology Specimen Submission Guidelines	

Specimen Collection Guidelines

Microbiology

Normal Flora, Predictable Susceptibility Patterns and Non-pathogenic Organisms

IDEXX follows guidelines set by CLSI, combined with our years of experience in performing susceptibility testing. We believe these are “best practice” microbiology techniques, and would be happy to discuss the following policies with you.

Sterile Tubes

Use glass or plastic tubes with no additives. Serum Gel tubes with clot activator are not acceptable for cultures because the clot activator binds bacteria, which inhibits growth.

Fluids, urine and tissue can be submitted in sterile containers (moisten tissue samples with sterile saline or water to prevent drying and loss of viability).

Faecal samples should be stored between 2 and 8°C if you anticipate a delay in submitting the sample.

Fluids

Make sure all collection devices containing fluids are sealed and leak proof before submitting. Note: Specimens that are >48 hours old are not suitable for culture, and loss of viability should be expected. If you are submitting a fluid for Culture and Cytology, in addition to a plain sterile tube for culture you also need to submit the fluid in an EDTA tube +/- fixed-EDTA. If the sample size does not allow for all 3, please contact the laboratory to clarify the priority of sample types for the specific fluid you are collecting.

Blood Culture

Aerobic and anaerobic cultures are performed on all blood cultures.

Source	Collection Device/Specimen	Specimen Preparation and Collection
Abscess or Wound	E-swab	Aseptically prepare collection site. Aspirate fluid or pus from pustules or vesicular wounds and abscesses
Blood	< 2 kg: 3 ml of blood 2 – 10 kg: 3 – 5 ml of blood > 10 kg: 10 ml of blood	Blood Culture
Bone Marrow	Plain sterile container	Aseptically prepare collection site.
Central Nervous System	Plain sterile container	Collect CSF fluid by an aseptic subdural tap, ventricular aspiration or lumbar puncture.
Ears	E-swab	NOTE: Posterior pharyngeal cultures may also reveal organisms causing otitis media
Eyes	E-swab	Use swab to collect suppurative material from cul-de-sac or medial canthus. NOTE: Topical anaesthetic may inhibit bacterial growth.
Faeces	In sterile container	Avoid contamination with urine and soil.
Nail, Skin or Hair Culture (Fungal)	Plain sterile container	Use sterile blade or swab to collect material from infected nail. Please do not include the scalpel blade in the container. Swab or scrape active border of skin lesions. Use an envelope for hair.
Sinus	Plain sterile container	Aspirate from maxillary, frontal or other sinuses. NOTE: Chronic sinusitis often involves anaerobic bacteria.
Tissue	Plain sterile container	Place tissue in a plain sterile container with small amount of sterile saline to keep specimen hydrated
Urine	Plain sterile container OR Boric acid container	For culture, a cystocentesis sample, collected and handled in a sterile way, is preferred. Urine collected via cystocentesis for culture can be submitted in a plain sterile tube. Urine samples collected by free-catch or catheterization are not ideal for culture as they are prone to contamination (e.g. from skin or lower urinary tract). For urine samples collected this way, if a culture is required, submit the urine in a boric acid tube. A plain urine tube is still required if other analysis in the urine are being performed (e.g. Chemistry, sediment, UPC).

Please DO NOT submit syringes with needles.

Cytology

**Accurate results depend on quality specimens.
Please follow these guidelines:**

Perform sampling by fine-needle aspiration or non-aspiration biopsy, scrapings or imprints. Prepare slides in-clinic using either a “squash” preparation or blood-smear technique.
Call if you have questions about slide preparation.
Please **DO NOT** submit syringes with needles.

Patient history and clinical findings contribute to an accurate result.

On containers and each individual slide, please write:

- Patient’s name
- Site / Source

Did you know? Staining processes in the laboratory can wash off most ink labelling from the slides so pencil is the preferred method for writing the details onto the slide(s)

On the requisition form, include:

- Patient details (owner’s name, patient’s name, age, sex, species, breed, etc.)
- Reference to any previous laboratory results (CBC, biochemistry profile, prior cytology / histology or serology) be sure to include our laboratory reference numbers
- Gross lesion description
- Specific anatomic location (e.g., cutaneous, subcutaneous, deep tissue, intra-thoracic, intra-abdominal)
- Size, shape, consistency, symmetry, definition of borders
- Clinical history – duration of lesion, progression of lesion, treatment and response to therapy
- Radiographic and ultrasonographic findings

When submitting aspirates and impressions:

- Submit one to three un-stained air-dried slides
- Store at room temperature
- **DO NOT** spray with hairspray or other fixatives
- **DO NOT** expose to formalin fumes
- **DO NOT** ship slides for cytology in the same bag as a formalin-containing biopsy jar.

When submitting fluids and washes:

- Enclose fluid in a plain EDTA Tube along with unstained air-dried slides.
- Prepare slides immediately after fluid collection to preserve cell morphology (most fluids are stable for only a few hours at room temperature).
- If volume allows, also supply fixed fluid in a EDTA Tube by adding two drops of 10% formalin (as supplied in our histology pot) per ml of collected fluid. Formalin fixation may improve cell preservation in fluids and is particularly indicated for the evaluation of cerebro-spinal fluid, respiratory specimens, and urine. If you are submitting a fluid for cytology and culture, in addition to fluid in an EDTA tube +/- fixed-EDTA, please also submit a plain sterile tube for the culture. If the sample size does not allow for all 3, please contact the laboratory to clarify the priority of sample types for the specific fluid you are collecting.
- **DO NOT** submit fluids in a gel tube, in a syringe, or as cover-slipped and wet preparations. Submission of fluid in a gel tube can interfere with accurate cytologic evaluation due to the presence of clotting activators.

When submitting urine samples:

- Please do not submit sedistain urine slides as these dry out and are non-diagnostic.

If you have any questions regarding submission of specimens or require supplies call us on

UK: +44 (0) 2037887508

Eire: +353 (0) 15621211

Specimen Collection Guidelines

Histology

Accurate results depend on quality specimens.
Please follow these guidelines:

Accurate results depend on quality specimens. Please follow these guidelines:

Turnaround Time

Most evaluations will be completed within 2 – 5 days of receipt in our laboratory (unless otherwise indicated). Additional fixation or decalcification will take longer. We will notify you if an unusually long delay is anticipated.

Collection Technique

Samples are collected for histological examination by standard surgical techniques or at post-mortem examination.

Labelling Criteria

Please ensure all specimen containers are labelled with

- Patients name, date
- Type of specimen, (Site / Source)

Requisition Information

A thorough clinical history and details of the physical examination are essential for the correct histological interpretation of tissue changes. Information required includes details (species, breed, age, sex), a description of the appearance and distribution of lesions, duration of the condition, biopsy sites or post-mortem tissue, response to prior treatments, current treatment regimes and any other relevant information. You may include any questions to be answered on your requisition form.

Fixation Guidelines

Tissue samples should be fixed in 10% neutral buffered formalin.

Did You Know? The 10:10:10 Rule? For optimum fixation and sectioning use 10% neutral buffered formalin; 10:1 ratio; and a biopsy size 10 mm cubed

- Place specimens in a biopsy pot supplied by IDEXX Laboratories, with the ratio of formalin to tissue > 10:1.
- Samples that are very tiny (less than 2 mm in diameter) and friable, haemorrhagic, mucoid or fatty in nature may not be suitable for histology processing and interpretation. If a biopsy of this size or nature is received the lab will proceed with testing but inform you if the sample submitted is potentially inadequate.
- If submitting multiple samples please use a separate pot for each specimen and label each with anatomical site. If submitting samples in the same pot absolutely cannot be avoided, please clearly indicate this on the request form, and refrain from small samples (under 1 cm) being submitted in the same container as larger ones.
- Submit entire lesions and tumours with adjacent excised tissue.
- For rapid fixation of larger lesions and tumours, cut a section 0.5 – 1 cm wide through the centre of the specimen. Where possible, cut the skin surface, so the deep surgical margin is not cut.
- Open hollow organs, such as intestine, prior to placing them in fixative.
- Small fragile specimens (bone marrow, Tru-cut liver or kidney) can be submitted in mesh cassettes, available from our supplies department.
- Please do not submit needles with samples. Large specimens can be labelled with suture material.
- Samples placed on card often fall off during transit. Smaller biopsies from different sites can be placed in individual labelled containers to denote the site.
- High priority samples can be dispatched on the day of collection as they will fix on their way to the laboratory. Samples of lower priority can be fixed for 24 hours at clinic prior to dispatch to the laboratory.

- **For very large specimens**, packaging supplies can be ordered online at www.idexx.co.uk/supplies or from your VetConnect PLUS account.
 - Prior to the receipt of your supplies, please pre-fix the sample, in the practice, by placing in a container to soak in 10% Neutral Buffered Formalin, at a 10:1 Formalin to Tissue ratio for at least 48 hours if possible.
 - For spleens with diffuse enlargement, it may be possible to cut into 4 or 5 labelled sections and submit in standard pots.
 - The bag we will provide for the sample is 30cm in height and 28cm wide – If the sample is too large, please contact anatomic pathology to discuss if the sample can be cut down and sent.
- Please take the necessary safety precautions when handling the samples and formalin.
 - Upon receipt of the supplies, remove the pre-fixed sample from the formalin pot and wrap the sample in formalin-soaked gauze/bandages, before placing the wrapped sample into the large pressure bag. Instructions will be included in the "large histology packaging" package supplied.
 - Please note: Do not wrap unfixed samples in soaked gauze as this will not provide adequate fixation for evaluation. Do not place large specimens in a container that has a narrow top.

Please observe the hazard information in the data sheet and implement the necessary arrangements for the safe use, handling, storage and emergencies (e.g. spillages).

Ocular Pathology Service

Service Includes:

- Automatically read by the ocular specialty team of pathologists.
- Includes special stain automatically.
- Detailed report and improved formatting.

Note: The HISTOC & HISTOCL codes are not required, but in order to receive the included services indicated above, the HISTOC (small animal eyes) or HISTOCL (large animal eyes) codes must be ordered. Otherwise, please order eyes under HISTLARGE.

Transport Guidelines

All samples should be placed in a well sealed leak proof bag containing enough absorbent material for the volume of formalin. For large histology shipping instructions and supplies please contact IDEXX customer support team.

Fixed tissue which is to be mailed may be placed in a leak proof plastic bag or container with a formalin soaked gauze to keep the tissue moist (ensure adequate fixation has occurred prior to transportation)*.

Necropsy Samples

IDEXX no longer offers in-laboratory necropsy service, but there are a variety of options for submitting necropsy samples. Please contact our Customer Support team on **UK: +44 (0) 2037887508**, **Eire: +353 (0) 15621211** for further advice.

Example of overfilled histology pot

If you have large specimens that will not fit into a standard histology pot, please contact us to request a large biopsy submission kit.



Avian and Exotic

Blood samples should be collected aseptically from veins, most commonly the jugular vein in companion birds. Ulnar veins or tibiotarsal veins can be used in some species. Nail clipping is NOT a suitable method for collecting blood samples.

Biochemistry Only

Submit sample in lithium heparin tubes. Gel separator tubes can be used. Gel tubes can be spun before submission, and this will reduce storage artefacts.

Plain serum tubes can also be used, but result in a smaller sample for analysis, and may reduce the number of measurements that can be performed.

Small sample volume may limit the number of biochemistry tests that can be performed. If submitting a small sample, please note your required tests in order of preference on the submission form.

Haematology Only

Submit slide(s) and whole blood. Make slides immediately after collection, using blood that has not been exposed to anticoagulant. Preferably make two slides, one by the usual slide-and-slide method, one by a coverslip-and-slide method. Air dry slides immediately, but do not fix or stain.

Submit the whole blood in lithium heparin.

EDTA can also be used for most birds (excluding ratites, crows and ravens), but is not the preferred sample. EDTA should not be used for reptile blood, use of lithium heparin is recommended.

Haematology and Biochemistry Required

Submit blood films (see haematology above) and blood in lithium heparin. Do NOT spin lithium heparin tubes if only a single tube is submitted. At least one unspun lithium heparin tube must be submitted. Small sample sizes may limit the number of biochemistry tests that can be performed. If submitting a small sample, please note your required tests in order of preference on the submission form.

Specimen Collection Guidelines

The following guidelines will allow our staff to process your specimens safely, efficiently and accurately.

They will also help to ensure your samples arrive with us in a satisfactory condition for testing.

Please:

- Do not use tubes or swabs that are past their expiry date.
- Do not send unlabelled tubes or slides.
- Do not stick labels onto tubes – we need to bar code all specimens on receipt and this is hindered by this practice.
- Do not cover the tubes with sticky tape – if the lids are screwed on tightly they will not leak.
- Do not send hypodermic needles.
- Do not send glass tubes or slides unless suitably packaged. Slide holders are available free-of-charge from our laboratory.
- Do not send any sample unless suitably packaged – specific packaging instructions are provided and packaging material is available from our laboratory. It is the sender's responsibility to ensure that all pathological specimens are packed in accordance with current Royal Mail or Courier regulations. Non - adherence to packaging instructions may result in sample return or disposal by the carrying company and the imposition of possible financial penalties.

Please note: We routinely retain blood and serum specimens for seven (7) days from receipt at the laboratory and histology blocks are retained for one (1) calendar year, after which the samples will be destroyed in an appropriate manner, so when the results of your initial sample submission point to the next step in your investigation, and we have the appropriate sample at our laboratory, simply call our Customer Support Team to discuss your requirements.

Spoiled Samples

When a sample is received in poor condition, e.g. clotted, lipaemic, or haemolysed, we will perform the requested tests wherever possible. Many spoiled samples can be avoided by the use of correct tubes. It is for this reason that we provide polypropylene, screw top tubes, free of charge.

Samples from patients on chemotherapy treatment

Please indicate clearly on the submission form if samples are from patients on chemotherapy treatment.

Cytotoxic drugs are eliminated by renal or faecal excretion within 48 hours of being administered, and all samples require special handling in order to comply with health and safety regulations.

Sample Tubes & Supplies

Sample tubes are provided free-of-charge by IDEXX Laboratories. These tubes are designed to be used with our analysers, and use of other tubes may cause delay in processing.

- EDTA Tubes
- Serum Tubes
- Serum Gel Tubes
- Citrate Tubes
- Heparin Tubes
- E-swabs
- Minitip E-Swabs
- CEM Swab
- Plain Universal Containers
- Boric Acid Universal Containers
- Faecal Universal Containers
- Histology Pots containing 10% Neutral Buffered formalin*
- Endoscopy Biopsy mesh Cassettes
- Slide Containers
- Packaging Supplies

All of these tubes are supplied free of charge to our clients. Please refer to our website for up-to-date shipping costs for UK mainland delivery: <https://www.idexx.com/en/about-idexx/terms-of-sale/uk-reference-laboratories-terms-of-sale/>

If you are not on the UK mainland, please contact our Customer Support team:

Telephone:

UK: +44 (0) 2037887508
Eire: +353 (0) 15621211
Fax: 01937 544 001
e-mail: labsupportUK@idexx.com

To order supplies, please visit idexx.co.uk/supplies and complete the online order form.