

SOP title: Collection and handling of samples while safeguarding the operator and ensuring the patient's well-being

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| SOP no. | 02 | | | |
| SOP title | SOP title: Collection and handling of samples while safeguarding the operator and ensuring the patient's well-being | | | |
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| Date | 19-05-2020 |
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1. PURPOSE

To provide information on safe sampling procedures and the work flows of biological samples of various kinds that are subject to veterinary investigation, with the aim of

- Guaranteeing the safety of staff involved in sample collection, identification, stockpiling, transportation and delivery.
- Guaranteeing that the materials are delivered within the required time and under optimal conditions in order to be analyzed, ensuring the reliability of diagnostic results.

2. LABORATORIES

Biological samples are collected in the following premises of the Campus of Agripolis:

- CLINICS no. 1, 2, 3, 4 and 5 (1000D 00 073, 074, 075, 096, 097)
- EMERGENCY DEPARTMENT (INPATIENT WARD)(1000L00 005, 016, 017, 018)
- ULTRASOUND ROOM (1000D 00 090)
- OPERATING THEATRES no. 1, 2 and 3 (1000D 00 079, 084, 120)
- NUCLEAR MAGNETIC RESONANCE ROOM (RMN) (1000D 00 083)
- CT AND RADIOLOGY ROOM (1000D 00 076, 095)
- STABLES - LARGE ANIMALS (10000)
- NECROPSY ROOM

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Samples may also be collected at the “Lucio Toniolo” Experimental Farm and on the field during external visits planned within Tirocinio.

Biological samples are sent for analysis to the following laboratories:

- ANATOMICAL PATHOLOGY LABORATORY (BCA) (1000D 02 013)
- CLINICAL DIAGNOSTIC LABORATORY (OVUD) (1000D 00 100)
- PHARMACOGENETIC AND TOXICOGENOMICS LABORATORY (BCA) (1000D 02 020, 021)
- MICROBIOLOGY & INFECTIOUS DISEASES LABORATORY (MAPS) (1000B 01 037, 038, 045, 047)
- PARASITOLOGY AND PARASITIC DISEASES LABORATORY (MAPS) (1000B 01 043, 044)
- REPRODUCTION LABORATORY (OVUD) (1000D 00 099)
- NECROPSY ROOM (BCA) (1000D 00 013)

3 TYPES OF BIOLOGICAL SAMPLES

The term “biological samples” shall include all materials deriving from patients that can be subject to laboratory investigation for diagnostic purposes. In particular, during their practicals/Tirocinio, students may participate/assist (under the supervision of a teacher) in the collection of the following samples:

1. Cytological samples of various organ
2. Histological samples of various organs
3. Carcasses
4. Faeces
5. Milk
6. Bronchoalveolar-tracheobronchial lavage
7. Joint effusions
8. Caphalo-rachidian liquid
9. Semen
10. Parasites
11. Peripheral blood

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12. Swabs (auricular, cutaneous, conjunctival, nasal, vaginal, etc.)

13. Urine

14. Cavitory effusions

4 DEFINITION OF “RESPONSIBILITY”

Operational instructions reported must be followed by all operators involved, during practicals and Tirocinio, as well as during the following procedures: sampling, identification, transportation and delivery of biological samples. The reference teacher must supervise so as to ensure provisions are correctly complied with.

5 SAMPLING METHOD

5.1 General rules:

- Use disposable, protective gloves, as per instructions given by the reference tutor
- Wear fabric coats
- Implement effective containment measures and/or patient positioning systems during medical examinations
- Use appropriate containment measures to avoid harm to the operator (muzzles and lining gloves)
- In case of non-cooperative and/or aggressive patients, ask for the support of an anesthesiologist if sedation is necessary

5.2 Specific procedures:

For sampling procedures, follow instructions given by the tutor during training.

6 PROCEDURES FOR THE IDENTIFICATION OF SAMPLES AND THE REQUEST FOR MEDICAL EXAMINATIONS

- Each sample (or multiple samples of the same patient) shall be complemented by a request for authorization of diagnostic examination.

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- The person requiring the medical examination shall complete the request form correctly, besides ensuring proper labelling of samples collected (please attach the label to the container, not the lid).
- All **requests for diagnostic examinations** must contain the following information:
 1. Information identifying the patient (name, species, unique number provided by the clinical record management system or the computerized system)
 2. Information identifying the animal owner (full name)
 3. Information identifying the person requiring the medical examination (unit, full name and signature)
 4. Information on sample material (date of collection, type of sample, topographical location and sampling area)
 5. Sample storage conditions
 6. Number of sample containers. In case of multiple, differentiated sampling, an Arabic numeral corresponding to the one indicated in the request form shall be included.
- All **samples** must contain the following information:
 1. Information identifying the patient (name, species, unique number provided by the clinical record management system or the computerized system)
 2. Information identifying the animal owner (full name)
 3. Information on sample material, including date of collection
 4. Number of containers; in case of multiple, differentiated sampling, an Arabic numeral corresponding to the one indicated in the request form shall be included;
 5. The level of "biological risk" must also be reported.

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- **Requests for diagnostic examinations** to be performed at **OVUD LABORATORIES** shall be submitted using the *EasyVet* platform.
- **Requests for diagnostic examinations** to be performed at **MAPS NON-CLINICAL LABORATORIES** shall be submitted using the *EasyVet* platform. Samples must be submitted to the relevant laboratory together with the specific printed form (**Annex 1**: Accompanying form to be submitted to **MICROBIOLOGY AND INFECTIOUS DISEASES LABORATORY**, **Annex 2**: accompanying form to be submitted to **PARASITOLOGY AND PARASITIC DISEASES LABORATORY**)
Requests for diagnostic examinations to be carried out at the **PHARMACOGENETIC AND TOXICOGENOMICS LABORATORY** must be submitted to via e-mail to the Lab manager. Samples must be submitted to the relevant laboratory together with the specific printed form (**Annex 3**: Form for KIT mutation analysis in cats and dogs; **Annex 4**: Form for PARR assay for lymphoid clonality in cats and dogs; **Annex 5**: Form for MDR1 mutation testing)
- **Requests for diagnostic examinations** to be carried out at the **ANATOMICAL PATHOLOGY LABORATORY** can only be submitted by the reference teacher using the online anatomical pathology diagnostic services webpage (histopathology, cytopathology and necropsy) of BCA (<http://www.simbavet.org/user/login>).
- Carcasses to be submitted for necropsy must be identified and accompanied by the "**Carcass submission form for teaching purposes**" (**Annex 6**) or the "**Necropsy consent form**" (**Annex 7**). Forms must be signed by the pet owner. For carcass submissions, the name of the OVUD veterinarian must also be reported.

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7 STOCKPILING AND SAMPLE TRANSPORTATION

- Biological samples must be stored and transported to the laboratories according to the timing and modalities provided for in **Table 1**.
- Carcasses to be submitted for necropsy must:
 - Be transported using washable containers so as to prevent biological fluids from spilling.
 - Wrapped in non-returnable material (e.g. sealed plastic bags).
 - be delivered immediately; if this is not possible (e.g. animals that have died during the night), they must be refrigerated, but never frozen.

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Table 1. Type of samples, storage and transportation conditions, final destination

| Type of sample | Collection point | Main container | Storage | Transportation by means of a secondary container | Analysis | Receiving laboratory responsible for the analysis |
|---|---------------------------------------|---|---|--|--|---|
| Needle aspiration/biopsy specimens of tissues/organs | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples/preservative-containing collection tubes RNAlater | 4°C max 24h / -20°C | To be submitted directly to the pharmacogenetic and toxicogenomics laboratory (BCA) | KIT mutation analysis (cat, dog) | Pharmacogenetic and toxicogenomics laboratory (BCA) 1000D 02 020 |
| Specimens of tissues/organs | OVUD clinics; OVUD operating theatres | Pre-filled formalin container (hermetically-sealed) for the collection of biological samples | Room temperature | To be submitted directly to the anatomical pathology laboratory (BCA) | Histological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Specimens of tissues/organs | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples | 4°C max 24h in the fridge located in room 1000D09 3 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Parasitology and Parasitic Diseases Laboratory (MAPS) | Molecular detection and identification of parasites by sequencing | Parasitology and parasitic diseases laboratory (MAPS) 1000B 01 044) |
| Biopsy specimens of tissues/organs | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples/ | 4°C max 24h / -20°C | To be submitted directly to the pharmacogenetic laboratory and | PARR assay for lymphoid clonality (cat, dog) | Pharmacogenetic and toxicogenomics laboratory (BCA) 1000D 02 020 |

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| | | preservative-containing collection tubes RNAlater | | Toxicogenomic (BCA) | | |
| Carcasses of companion animals | OVUD clinics; OVUD operating theatres | Specific washable containers that prevent biological fluids from spilling. They must be placed in non-returnable materials (e.g. sealed plastic bags). | Submit immediately; 4°C | To be delivered immediately to the Necropsy room | Necropsy examination | Necropsy Room 1000D 00 013 |
| Faeces | OVUD clinics; OVUD operating theatres | Sterile, hermetically-sealed container for the collection of biological samples/ AMIES transport medium | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Bacteriological examination + antibiogram (if needed) | Parasitology and parasitic diseases laboratory (MAPS) 1000B 01 044) |
| Faeces | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Parasitology and Parasitic Diseases Laboratory (MAPS) | Qualitative and quantitative copro-microscopic examination | Parasitology and parasitic diseases laboratory (MAPS) 1000B 01 044) |
| Milk | OVUD clinics; OVUD | Sterile, hermetically-sealed container | 4°C max 24h in fridge located in | Approved, hermetically-sealed container | Bacteriological examination + | Microbiology and Infectious Diseases |

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| | operation theatres | for the collection of biological samples / sterile tubes | room 1000D092 | for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | antibiogram (if needed) | Laboratory (MAPS) 1000B 01 045 |
| Bronchoalveolar - tracheobronchial lavage | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h in fridge located in room 1000D092 | To be submitted directly to the anatomical pathology laboratory (BCA) | Cytological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Joint effusions | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h in fridge located in room 1000D092 | To be submitted directly to the anatomical pathology laboratory (BCA) | Cytological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Joint effusions | OVUD clinics; OVUD operating theatres | Hermetically sealed containers for the collection of biological samples / sterile tubes | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Bacteriological examination + antibiogram (if needed) | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |
| Cephalorachidian liquid | OVUD clinics; OVUD | Sterile container for the collection of | 4°C max 24h in fridge located in | Approved, hermetically-sealed container | Bacteriological examination + | Microbiology and Infectious Diseases |

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| | operating theatres | biological samples / sterile tubes | room 1000D092 | for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | antibiogram (if needed) | Laboratory (MAPS) 1000B 01 045 |
| Cephalorachidian liquid | OVUD clinics; OVUD operating theatres | anticoagulant-free tubes | 4°C max 8h in fridge located in room 1000D092 | To be submitted directly to the anatomical pathology laboratory (BCA) | Cytological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Semen | OVUD clinics; OVUD operating theatres | Hermetically sealed containers for the collection of biological samples / sterile tubes | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Bacteriological examination + antibiogram (if needed) | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |
| Semen | OVUD clinics; OVUD operating theatres | Hermetically sealed containers for the collection of biological samples / sterile tubes | Room temperature / 4°C | To be submitted directly to the Reproduction Laboratory (OVUD) | Semen analysis | Reproduction Laboratory (OVUD) 1000D 00 099 |
| Parasites | OVUD clinics; OVUD | Hermetically-sealed containers for the collection of | 4°C max 24h in fridge located in | Approved container for the transportation of | Microscopic examination | Parasitology and Parasitic Diseases |

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| | operating theatres | biological samples | room 1000D092 | biological samples; to be submitted to the Parasitology and Parasitic Diseases (MAPS) | | (MAPS) 1000B 01 044 |
| Preparation of histological specimens | OVUD clinics; OVUD operating theatres | n.a. | Room temperature | To be submitted directly to the anatomical pathology laboratory (BCA) | Cytological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Blood | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h | To be submitted directly to the Clinical Diagnostic Laboratory (OVUD) | Complete blood count; blood smear; blood type | Clinical Diagnostic Laboratory (OVUD) 1000D 00 100 |
| Blood | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Pharmacogenetics and Toxicogenomics Laboratory (BCA) | MRD1 canine genotyping; PARR assay for lymphoid clonality in cats and dogs | Pharmacogenetic and toxicogenomics laboratory (BCA) 1000D 02 020 |
| Sangue | OVUD clinics; OVUD | K3-EDTA tubes | 4°C max 24h | Approved, hermetically-sealed container for the transportation of | Serological examinations; detection | Microbiology and Infectious Diseases |

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| | operating theatres | | | biological samples; to be submitted to the Parasitology and Parasitic Diseases Laboratory (MAPS) (MAPS) | of pathogens by molecular biology and pathogen identification by sequencing | Laboratory (MAPS) 1000B 01 045 |
| Blood | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Parasitology and Parasitic Diseases Laboratory (MAPS) | Fresh parasitological examinations ; serological examination; biomolecular examinations | Parasitology and Parasitic Diseases Laboratory (MAPS) 1000B 01 044) |
| Blood | OVUD clinics; OVUD operating theatres | Sodium citrate tubes | immediate centrifugation; plasma storage at -20°C | To be submitted directly to the Clinical Diagnostic Laboratory (OVUD) | Coagulation parameters (pT-pTT-fibrinogen) | Clinical Diagnostic Laboratory (OVUD) 1000D 00 100 |
| Blood | OVUD clinics; OVUD operating theatres | Syringe 1 ml | perform analysis within ten minutes of sampling | To be submitted directly to the Clinical Diagnostic Laboratory (OVUD) | Emogas | Clinical Diagnostic Laboratory (OVUD) 1000D 00 100 |
| Serum | OVUD clinics; OVUD | Tubes with clot | -20°C | To be submitted directly to the Clinical | Clinical chemistry ; Hormone | Clinical Diagnostic Laboratory |

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| | operating theatres | accelerator | | Diagnostic Laboratory (OVUD) | parameters ; Pancreas-specific lipase | (OVUD) 1000D 00 100 |
| Serum | OVUD clinics; OVUD operating theatres | Tubes with clot accelerator | 4°C max 24h / -20°C | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Serological examination ; detection of pathogens by molecular biology and pathogen identification by sequencing | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |
| Serum | OVUD clinics; OVUD operating theatres | Tubes with clot accelerator | 4°C max 24h / -20°C | to be submitted directly to the Reproduction Laboratory Riproduzione (OVUD) | Hormone levels (progesterone and testosterone) | Reproduction Laboratory (OVUD) 1000D 00 099 |
| Specimens of various anatomical structures, organs or tissues | OVUD clinics; OVUD operating theatres | Sample in AMIES transport medium | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically-sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Bacteriological examination + antibiogram (if needed) | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |
| Urine | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples / sterile tubes | 4°C max 4h | To be submitted directly to the Clinical Diagnostic Laboratory (OVUD) | Chemical and physical examination of sediment | Clinical Diagnostic Laboratory (OVUD) 1000D 00 100 |

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| Urine | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples / sterile tubes | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically- sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Urine culture + antibiogram (if needed) | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |
| Cavitary effusions | OVUD clinics; OVUD operating theatres | K3-EDTA tubes | 4°C max 24h in fridge located in room 1000D092 | To be submitted directly to the anatomical pathology laboratory (BCA) | Cytological examination | Anatomical pathology laboratory (BCA) 1000D 02 013 |
| Cavitary effusions | OVUD clinics; OVUD operating theatres | Hermetically-sealed containers for the collection of biological samples / sterile tubes | 4°C max 24h in fridge located in room 1000D092 | Approved, hermetically- sealed container for the transportation of biological samples; to be submitted to the Microbiology and Infectious Diseases Laboratory (MAPS) | Bacteriological examination + antibiogram (if needed) | Microbiology and Infectious Diseases Laboratory (MAPS) 1000B 01 045 |