James Hogg iCAPTURE Centre for Cardiovascular and Pulmonary Research

STANDARD OPERATING PROCEDURE

Title:	**Biospecimen Storage: -80°C Storage**		
Procedure:	BB.013.01	**Supercedes:**	none
Originator and Date:	Lise Matzke 23OCT2008	**Effective Date:**	23OCT2008
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Revision History		
Date	**Reviewer**	**Summary of revision**
20Apr2009	Crystal Leung	Reformatted to iCAPTURE format

Purpose

Storage of biospecimens at -80° is of paramount importance to biobanking and other research activities. It is, therefore, important that specimens are stored in a safe, methodological, consistent and organized manner to ensure integrity of the sample thus promoting ease in retrieval and ultimately aid in research endeavors.

Responsibilities

This procedure is applicable to:

- iCAPTURE personnel working with biospecimens

Safety

- All unfixed human biospecimens, even frozen, must be treated as biohazardous and potentially infectious.
- All injuries, such as cuts, that occurs while working with biohazardous materials must be reported to the Laboratory Manager, Supervisor and Safety Officer.
- Lab coats and gloves must be worn. Nitrile gloves are recommended because they have far fewer pinholes in them compared to latex gloves. Gloves must be removed when touching non-contaminated items such as phones, door handles, faucets etc.

- Glasses, goggles or face shields must be worn when necessary to protect the eyes and face from splashes or impacting objects such as ice chips.
- All equipment and work areas used for processing biohazardous materials must be clearly marked and have restricted access.
- Biological safety cabinets can be vented into a lab if the exhaust is first HEPA-filtered, except if using radioactive and/or carcinogenic materials.
- Hand washing is necessary after removing gloves, before leaving the lab and at any time after handling materials known or suspected to be contaminated.
- Work surfaces must be cleaned and decontaminated at the end of the day and after any spill of potentially dangerous material.
- An emergency plan for handling spills of infectious material must be developed and be ready for use whenever needed. Lab workers must be educated and drilled in the emergency plan.
- To avoid freezer burn, thick gloves are recommended when working in -80°C freezers.

Definitions

Accessioning number	Unique identifier that links a specific piece of clinical data or sample to a patient
Biohazardous materials	Human tissue, cells, body fluids, or culture materials that may contain infectious or other hazardous materials
Biosafety Level 2	Work involving agents of moderate potential hazard to personnel and the environment and has several specific advisements: (1) laboratory personnel have specific training in handling pathogenic agents and are directed by competent scientists; (2) access to the laboratory is limited when work is being conducted; (3) extreme precautions are taken with contaminated sharp items; and (4) certain procedures in which infectious aerosols or splashes may be created are conducted in biological safety cabinets or other physical containment equipment.
Hard Tissue Biospecimen	All biological material of human origin, including organs, tissues, teeth, hair and nails
Dry Data	Data as it exists on paper or in a database. This may include patient data.
Other Materials	Any other product/tangible material that is not covered under the definition of biospecimen or dry data.

Materials and Equipment

Yellow garbage bags	Aluminum foil/ cryovial
Bleach	OCT molds
70% ethanol	Freezer boxes (recommended)
Nitrile gloves	Freezer racks
Bleach	Sharpie
Lab coats	Log book/spread sheet
Glasses	
Goggles or face shields	

Procedures

1. Packaging

    a. Before archiving of specimens, prepare the container into which specimen will be placed.

        i. Cryovial: write the specimen number onto the vial with an appropriate writing implement such as a sharpie

        ii. Aluminum foil: cut a square of aluminum foil and write the specimen number onto the vial with an appropriate writing implement such as a sharpie

            1. fold each side over the specimen, and fold down each end such that the entire specimen is covered and all labeling can be seen. If the sample is used repeatedly, make a new foil package as the old one becomes unreadable – this will ensure appropriate specimen tracking

        iii. OCT molds: write the specimen number onto the vial with an appropriate writing implement such as a sharpie. Specimen may then be further wrapped in foil with the same information on the foil

        iv. If using specialized freezer labels, prepare labels ahead of time and attach to cryovial, aluminum foil or OCT mold

    b. Place labeled specimen into a labeled freezer box.

    c. Place freezer box into a freezer rack within the 80°C freezer

2. Cataloguing and Tracking of Hard Tissue Biospecimens

    a. Freezer inventory software

        i. The use of software such as Freezer Works® helps to ensure accurate cataloguing of biospecimens

    b. Paper or spread sheet based sample tracking (iCAPTURE Biobank)

        i. After samples are labeled, samples should be placed into a box/container and logged into a spread sheet or paper based log-on system.

        ii. This cataloguing system should record the specimens:

            1. Specimen number or ID code
            2. Box number
            3. Rack number
            4. Shelf number
            5. Freezer number

        iii. Example:

        A box in the first box of rack one, on the first shelf of freezer 27 may be denoted as: 1-1-1 and subsequent boxes in the same rack 1-1-2, 1-1-3, and so on up to 1-1-16

iCAPTURE Biobank Storage

1) Retrieve the next available freezer box number from the “Freezer Log-in” book.

2) Write this number on the lid and side of the box.

3) Place specimens into the freezer box.

4) Replace into freezer in appropriate rack on appropriate shelf.

Record in the “Freezer Log-in” book the CRS or pathology accessioning number of the specimens as well as the format of the material – e.g. OCT, flash frozen (FF), RNAlater etc.