

LOWY BIOREPOSITORY STANDARD OPERATING PROCEDURE: TISSUE HANDLING AND STORAGE

INTRODUCTION & SCOPE

The purpose of this Standard Operation Procedure (SOP) is to outline the standardised procedure for the handling and storage of malignant and non-malignant fresh (RNALater) or frozen tissue delivered to the Lowy Biorepository for processing and/or storage. This SOP does not cover detailed safety procedures for the handling of all tissue types or the data entry details for caTissue.

SAFETY CONSIDERATIONS

The Lowy Biorepository is a PC2 laboratory and correct PPE must be worn when handling all biological specimens. All tissue is treated as potentially infectious.

PROCEDURAL STEPS

1. Labelling

- a. Specimens are logged into the caTissue database and assigned specimen numbers and box/spot positions within the vapour phase tank prior to processing/storage.
- b. Cryovial labels are generated from the caTissue database and printed directly onto Brady labels.
- c. Minimum data on cryovial labels:
 - i. Specimen number
 - ii. caTissue Collection Protocol title
 - iii. Specimen type – tissue
 - iv. Tissue type – malignant/non-malignant
 - v. Lowy Biorepository box number & spot location

2. Tissue handling

- a. All handling and processing steps are carried out in a Class II biosafety cabinet and maintain the cold chain integrity of frozen tissue specimens.
- b. Tissue delivered in RNALater is left at 4°C for 24–48hrs prior to cut up for storage.
- c. Frozen tissue is stored at –80°C prior to cut up for storage and kept on dry ice after the cut up process until transfer to vapour phase storage.
- d. Every tissue cut up is carried out with a fresh disposable scalpel. A new scalpel is used between malignant and non-malignant tissue from each patient.
- e. Tissue stored in RNALater is completely drained just prior to cut up.
- f. Tissue obtained is cut up into 1–2mm in diameter and placed in a screw top cryovial.



- g. Malignant tissue is stored in a red top cryovial. Non-malignant tissue is stored in a blue top cryovial.
3. Storage
- a. Following cut up, tissue is transferred to the vapour phase tank.
 - b. Box/spot locations on the cryovials are cross checked prior to placement in the tanks.
4. Specimen annotation
- a. Annotation is carried out as per the caTissue collection protocol.

EQUIPMENT MONITORING

All banked biological specimens are stored in -80°C freezers and vapour phase tanks that are monitored and connected to the Lowy Cancer Research Centre alarm system.

Vapour phase tanks are monitored by staff on a weekly basis. Access is restricted if an anomaly is reported and normal access resumes when full function has been restored. Temperature can be maintained for 2–3 weeks if the tank is not opened. An additional -80°C back-up freezer is running continuously.

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