

Title	TMA's from Paraffin Embedded Tissue Blocks
SOP Code	SOP122_01
Effective Date	01-Sep-2012

Site Approvals

Name and Title (typed or printed)	Signature	Date dd/Mon/yyyy

1.0 PURPOSE

This Standard Operating Procedure (SOP) outlines standardized procedures for biorepositories to follow when creating Tissue Micro Arrays (TMAs) from formalin-fixed paraffin embedded tissue blocks (FFPE). This SOP does not describe detailed safety procedures for handling Human Biological Materials (HBMs) or hazardous chemicals.

2.0 SCOPE

This procedure applies to all biorepository personnel responsible for creating TMAs from FFPE tissue blocks.

3.0 RESPONSIBILITIES

This procedure applies to all biorepository personnel responsible for creating TMAs from FFPE tissue blocks.

4.0 DEFINITIONS

See Glossary of Terms.

5.0 PROCEDURE**5.1 Collecting Blocks and Information**

5.1.1 Have materials and equipment ready before starting procedure.

- 5.1.2 Gather H&E slides for all cases for the pathologist to read.
- 5.1.3 Determine for every block if the depth of the tissue in the block is still sufficient for use in a TMA recipient block.
- 5.1.4 Collect information about the case and diagnosis from the archiving database as needed for the study.

5.2 Reviewing Blocks

- 5.2.1 The pathologist examines the slides/ tissue blocks and marks areas that are suitable to represent the tumour as per the basis of the research study the block is being designed for. Use a fine felt-tipped waterproof marker for marking the slides. Marking can also be done by digital imaging software, if available at the site.
- 5.2.2 Match the marked areas are matched to the corresponding paraffin blocks.
- 5.2.3 Mark the same areas on the paraffin block, using a medium tipped marker, taking care not to damage the surface of the block by applying excessive pressure. This marks the area where the core should be removed from the donor block.

5.3 Creating Template

- 5.3.1 Use spreadsheet software such as Microsoft Excel to map out the template of the TMA. Design map to best accommodate variety of cases, number of samples, matching normal tissue, purpose for array etc. A standard layout for a 0.6mm core array would be to use 10 x 6 core grid which can be repeated several times (sectors) to fit the available space in the recipient block.
- 5.3.2 Position all cases on the array randomly to avoid bias from IHC staining artifacts and biases introduced due to prior knowledge of case parameters.
- 5.3.3 It is good practice to insert recognizable cores at indicator positions. For example, use Mecurochrome-stained liver tissue cores at both the beginning (1 core) and end (3 cores) of the experimental cores to secure orientation and ensure correct case identification.
- 5.3.4 If possible, store the TMA template in the database and link with sample information.

5.4 Recipient Block

- 5.4.1 Make a large blank paraffin block (25 mm x 37 mm), using a cassette mould of 15mm in depth or more.
- 5.4.2 Check the newly made block for air bubbles and ensure that the block is firmly attached to the cassette.
- 5.4.3 Keep non-paraffin dipped/protected slides at 4° C for up to 2 months in a standard microslide box (this is sufficient for most antigens).
- 5.4.4 Record storage location.

6.0 REFERENCES

Health Canada, Food and Drug Regulations, Part C, Division 5, Drugs for Clinical Trials Involving Human Subjects, (Schedule 1024), June 20, 2001.

Health Canada, Guidance for Industry, Good Clinical Practice: Consolidated Guideline, ICH Topic E6, 1997.

2011 NCI Best Practices for Specimen Resources. Office of Biorepositories and Biospecimen Research, National Cancer Institute, Bethesda, MD.

<http://biospecimens.cancer.gov/bestpractices/2011-NCIBestPractices.pdf>

ISBER Best Practices for repositories: Collection, storage, retrieval and distribution of biological materials for research. Cell Preservation Technology 6(1), 3-58, 2008 <http://www.isber.org/Pubs/BestPractices2008.pdf>

CTRNET Standard Operating Procedures, Canadian Tumour Repository Network, <http://www.ctrnet.ca/operating-procedures>

**7.0 REVISION HISTORY**

SOP Code	Effective Date	Summary of Changes
SOP122_01	01-Sep-2012	Original version