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## **SOP- Generalized Tissue Collection where tissue microarchitecture must be preserved to protect the standard of care**

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**Division of Cancer Sciences**
**Standard Operating Procedure**
**(Version 1.0)**

**iMATCH: Generalized Tissue Collection**  
**Where tissue microarchitecture must be preserved to protect the standard of care**  
**(Adapted from iMatch WP2.2)**

Revision History		
Number	Date	Reason for Change
1.0	18/1/22	

<b>Prepared By:</b>	<b>Checked By:</b>	<b>Authorised by:</b>
<b>Signed:</b>	<b>Signed:</b>	<b>Signed:</b>
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<b>Date of next review:</b>		

**Division of Cancer Sciences****1. Introduction**

As part of iMATCH Work Packages 2.1 and 2.2, this standard operating procedure provides a basis for the standardised collection of solid tumour samples from cancer patients undergoing surgical treatment, where tumour architecture and boundaries must not be affected to protect the normal standard of care, using needle core biopsy to sample tissue. The purpose of tissue collection in these cases is for the extraction, expansion, and storage of tumour-infiltrating lymphocytes (TILs) from the patient's tumour to be used as a personalised advanced cell therapy (ACT) under the aims of iMATCH and the SAMPLE trial (TRIAL CODE). This protocol should be adaptable, both to new tumour sites, and other cancer centres. *[Relevant considerations to adapting this protocol are highlighted in this manner]*

**2. Purpose**

The purpose of this document is to provide clear guidance on the procedures to be followed during the acquisition of tissue for therapeutic purposes undertaken within the institute/trust as part of iMATCH Work Package 2.2 and the SAMPLE trial. Departmental standard operating procedures will already exist within the institute/trust. These must be read and followed in conjunction with a specific protocol adapted from this document.

**3. Location**

This document has been developed from collection of tissue and fluids in theatre (2<sup>nd</sup> Floor, St Mary's), its transport to the pathology department (Manchester Foundation trust), and subsequent processing in the 5<sup>th</sup> floor laboratories of St. Marys Hospital. Any adapted protocols should consider local rules and conditions

**4. Objective**

The aim of this document is to provide a basis for the development of a site specific protocol for the collection of tissue specimens in a sterile manner under appropriate consent, given appropriately labelled identifiers, and that the samples are in the custody of the personnel responsible for tissue collection or securely and temporarily stored before transport, processing and storage. In scenarios where tissue is limited, or the architecture of the specimen must be preserved, for assessment by pathology, or in other ways important to the current standard of care for the patient.

**5. Scope**

This document refers to the collection of tissue for iMATCH WP2.2 and the SAMPLE trial (undertaken jointly by the University of Manchester and Immetacyte Ltd.) for use in the production of ACTs for ovarian cancer patients treated at St. Mary's Hospital, Manchester, within the scope of the aims of the iMATCH consortium. The ultimate aims of this document are to ensure that tissue specimens are collected as quickly as possible under appropriate consent, sampled in such a manner as to ensure that there is no interference with or loss of information, placed into appropriately labelled containers, and that the samples are temporarily stored



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before processing and storage, so as to be usable in the production of a medical product, manufactured to good manufacturing practice standards.

### 6. Responsibilities

6.1. The collection of tissues and fluids containing material of interest from patients suffering from cancer is the responsibility of the clinicians operating on or caring for the patient.

6.2 All staff handling tissue are to undergo appropriate training by members of the iMATCH team in addition to conducting work under standard operating procedures developed from this document.

6.3. Following sampling of the tissues, the clinical team is responsible for contacting members iMATCH team (detailed on page 5) to ensure that samples are delivered as quickly as possible to the pathology for sampling *[In developing a protocol from this document for another site, this processing time may need to be considered]*

6.4. Clinical fellows, researchers and tissue collectors remain under the direct supervision of the institution / trust line management.

6.5 Clinical fellows, researchers and tissue collectors, in collaboration with the clinical care team for the following:

6.5.1. Patient identification and consent, specimen labelling, early storage, and transportation of the samples

6.5.2. Maintaining an appropriate chain of custody from sample collection, until transfer to laboratory staff or other appropriate team member.

6.5.3. Maintaining a sterile sampling field, and storage conditions until sample transfer, to ensure a medical product can be produced to GMP regulations

6.5.4. Ensuring that sampling and storage occurs within a timely manner once tissue is *ex vivo*.

6.5.5. Accurately completing any accompanying documentation

6.5.6. Investigation or being aware of back up procedures in the eventuality that a problem arises during sampling or transportation (e.g. blood spillage)

6.5.7. Liaising with other trust and DOCS staff.



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### 7. Related Documents

- 7.1. Guidelines for Good Clinical Practice (GCP)
- 7.2. Human Tissues Act 2004
- 7.3. COSHH regulations 1988
- 7.4. Local risk assessments / safe operating procedures
- 7.5. Local Standard operating procedures
- 7.6. National Blood service ([www.blood.co.uk](http://www.blood.co.uk))
- 7.7. MCRC Biobank list of SOPs and Guidance documents

**Division of Cancer Sciences****STANDARD OPERATING PROCEDURE****iMATCH Tissue Collection using automatic core biopsy system WP2.2****A. Example tissue collection kit**

- **Sample collection checklist** [Example on page 8]
- **Automatic disposable core biopsy needle (Medax Caesar CS 14 100 00)** [Or equivalent 14-gauge normal tip biopsy needle. These should be provided or approved by the local surgical team]
- **Sample pot containing 10ml of culture medium (sterile, for primary containment)** [Culture medium may be tissue dependent. Ovarian TIL are cultured in RPMI 1640, supplemented with 10% Foetal Calf Serum, and 100U/ml]
- **Plastic biohazard bags (for secondary containment)**
- **Insulated bag or other appropriate container, which will contain any potential**

**B. Contact list**

**Courier / Transport team: Tel XXXXX XXX XXX, email: XXXXXX@XXXX**

**Laboratory contact: Tel XXXXX XXX XXX, email: XXXXXX@XXXX**

[Culture medium may be tissue dependent. Ovarian TIL are cultured in RPMI 1640, supplemented with 10% Foetal Calf Serum, and 100U/ml]

**1. Briefing**

- 1.1) Attend theatre briefing, if possible, on day of surgery. To set up any required equipment, and minimize disruption to normal theatre operation during the procedure
- 1.2) Request samples *being specific as possible with regards to the tissue being requested, and if possible, the manner in which it is sampled, and the responsible clinician:*  
i.e.
  - A – X volume of solid tumour tissue
  - C – X volume of blood in X number of vials containing X preservative
- 1.3) Write name and contact details on surgical board if not staying for duration of surgery. Ask to be called when tissues removed.



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### 2. Tissue collection

2.1) Team members who are not involved in the patients standard of care must not interfere with the source tissue which will be used for needle core. Clinicians responsible for the patients' care are to handle needle core sampling. *[This may be either the surgical team, or the pathology department, and should be carefully discussed amongst the local group when adapting this protocol]*

Using a 14-guage automated biopsy needle, extract biopsy tissue from as close to viable tumour tissue as possible.

A minimum of 3 needle cores should be taken and placed into a single sterile pot, containing approximately 5ml of culture medium. *[An alternative temporary storage solution may be acceptable, such as phosphate buffered saline or MACS tissue storage solution from Miltenyi Biotec. Core biopsies must not be allowed to desiccate]* Sourcing tissue may return to routine care pathway. Needle core samples are to continue through the protocol outlined below.

2.2) Example tissue to be collected (to be adapted for specific needs):

Sample type	Details	Amount required
Tissue from laparoscopy	Omental biopsy is preferred but peritoneal biopsies are acceptable, generally try to avoid ovarian biopsies.	1cm <sup>3</sup> , can comprise several smaller biopsies
Tissue from laparotomy	Omental biopsy is preferred but other sites are acceptable, try to avoid obviously necrotic ovarian tumours.	1-5cm <sup>3</sup> , can comprise several smaller biopsies
Blood	In EDTA tubes.	x2 7mL samples

2.3) Return whole tissue samples to pots and inform nurses that all tissue has been collected.

2.4) Ensure that all instruments are returned to a non-sterile nurse or that nurses are aware of the whereabouts of instruments.

2.5) Place all samples in plastic biohazard bags and tertiary containment bag/box.

2.6) Collect patient consent form and ensure NHS number (10 digits) is recorded. *[or other agreed patient identifier]*





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### **3. Tissue transport/collection**

3.1) Tissue to be taken directly to CT.L5.330 to be processed. Must be handed off directly to person in charge of processing, or securely stored appropriately (at 4°C) for later processing. *[If it has been determined prior, that a given sample type will be viable after a period of storage]*

*[In our example, surgery and subsequent processing takes place within the same building. In adapting this protocol for use in environments where the processing facility is further removed this section will need to be expanded upon, with some consideration to the following details;*

- *How will sample integrity be maintained in the event of mishandling?*
- *How will the sample be identified in the event of accident or loss?*
- *How will the patients' details be protected?*
- *Will a third party need to be involved, i.e., a commercial courier. If so, how will this affect the chain of custody*
- *How will the members of each site communicate, in order to ensure successful hand off and receipt of samples*
- *Will there be any cut off times in place (for example, due to lab closure or courier limitations). If so, what contingency steps may be inserted in order to preserve the viability of the samples.*



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4. Sample collection checklist

Processing Contact
XXXX XXXXX Tel XXXX XXXX XXX

Sample ID

Date

ITEM

Initial

Patient given appropriate consent for research

.....

Attended surgical briefing. Following samples requested:

.....

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.....
.....

Contact details confirmed with surgical team

.....

Samples Collected in sterile manner, and in tertiary containment

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Samples Collected

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.....

Collected copies of signed research consent forms, and other accompanying documentation

.....

Tissue handed off to:

.....

processing / courier / Storage (delete as appropriate)

Collection details logged and consent form securely stored

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