Human Tissue in Research

HTA-CORE-SOP-Storage

1. Purpose

This standard operating procedure (SOP) is based on the HTA Codes of Practice and Human Tissue Act (HT Act) legislation, describing the University's procedures and requirements for the storage of human tissue samples for the purpose of conducting research.

The Human Tissue Act (2004) (HT Act) is the legislative framework that governs the storage and use of relevant material from the living and the removal, storage and use of relevant material from the deceased, for a scheduled purpose such as research. The Human Tissue Authority (HTA) is the independent regulator of organisations that remove, store and use human tissue for research.

The HT Act requires organisations holding an HTA license to demonstrate effective and suitable quality and governance systems. This SOP forms part of Swansea University's (SU's) Quality Management System (QMS) for governance of the collection, storage, use and disposal of human samples for research.

2. Scope

All individuals, whether staff, student or visitor, involved in research projects intending to store human tissue considered relevant under the HT Act must follow the requirements set out in this SOP.

This SOP will ensure that all research involving relevant material is carried out in compliance with the licensing requirements of the HT Act and the licensing standards set out by the HTA.

For reference, a list of tissue considered relevant material can be found on the HTA website.

Although the procedures and policies outlined in this SOP are targeted at the storage of relevant material, they can be considered best practices and applied to the storage of all human tissue samples, including non-relevant human material, human DNA and RNA, human biological fluids, and human-derived cell lines.

3. Roles and Responsibilities

It is the responsibility of the Designated Individual (DI) to ensure that appropriate procedures and practices are in place for the storage of relevant material, that those involved are appropriately informed and trained and that the conditions of a HTA licence are complied with.

It is the responsibility of the Principal Investigator (PI), as custodian of the samples, to understand and follow the organisational procedures and practices for the storage of relevant material, attend training and comply with the conditions of the HTA licence, under the supervision of the DI.

The Human Tissue Act Governance Officer (HTGO) is responsible for ensuring that this SOP remains fit for purpose.

4. Principles

4.1 General Principles of Storage of Relevant Material for Research

The HT Act does not define the term storage in relation to relevant material for research. Neither does it give any minimum or maximum term for the storage of human tissue for research.

Therefore, the HTA considers ‘storage’ to be when relevant material is kept for any period of time for the purpose of research.

The HTA expects the collection, use, and storage of relevant material (i.e. any material consisting of or including human cells) from any past or present users of NHS and social care services -

- including participants recruited as healthy controls,
- those who have died within the last 100 years and
- tissue collected in the course of standard care, where research use is intended at the time of collection.

- to be held under the governance of ethical approval from a recognised committee or a HTA licence. The term ‘recognised ethics committee’ means a Research Ethics Committee (REC) recognised by the HRA’s UK Research Ethics Service (RES). University ethics committees are not considered to be recognised committees.

The HTA advises that researchers gain ethical approval before embarking on any research. HTA licences should not be viewed as alternatives to ethical approval by a recognised REC. An application for ethical approval is considered to be pending from the

point it has been submitted until the decision of the committee has been communicated to the applicant.

4.2 Existing Holdings

The consent requirements of the HT Act are not retrospective. This means that under the HT Act, it is legal under a HTA licence to store or use an 'existing holding' for a scheduled purpose and evidence of consent is not necessary.

An existing holding is a material from the living or deceased that was already held at the time the HT Act came into force on 1st September 2006. However, REC approval should be sought to use existing holdings in new studies and if the wishes of the donor are known, they must be respected.

Conversely, REC approval or HTA licence is not required to store human tissue for research if it is from a person who died over 100 years ago.

4.3 Storage of Relevant Material from the Living

Material from the living is defined as tissue that was collected when the donor was alive, whether or not they have died since. The HT Act makes it lawful to store relevant material taken from a living person provided that consent from an 'appropriate person' is obtained. Refer to the HTA-CORE-SOP-Consent for details of appropriate and valid consent.

Where it is not possible to obtain consent, it is lawful to store relevant material from the living for research if the study is approved by a recognised ethics committee and the material is anonymised. The researcher should not seek to identify a link between anonymised samples and patient information.

In addition, material can also be collected from the living and stored without consent if it is for:

- Clinical audit
- Education or training relating to human health
- Performance assessment
- Public health monitoring
- Quality assurance

4.4 Storage of Relevant Material from the Deceased

It is an offence under the HT Act to store relevant material from the deceased for the purpose of research without consent.

4.5 Storage of Relevant Material Prior to Analysis

Where relevant material is being held for a short period prior to conducting analysis and subsequent disposal, this is considered as storage for a scheduled purpose (i.e. research). **Even if the storage and analysis happen in less than 7 days.**

Such storage **must** be held under a HTA licence or recognised REC approval for the specific project.

4.6 Storage of Specific Material

4.6.1 DNA

HT Act defines the term 'bodily material' as tissue from which DNA originates. Bodily material falls under the remit of the HT Act. It is an offence to be in the possession of any bodily material (including hair, nails and gametes) with the intention of analysing DNA for the purpose of research without consent.

4.6.2 Cell Cultures

Cell cultures are classed as relevant material if they contain original cells created inside the human body. e.g. if the culture contains original cells from a biopsy or blood sample. The HTA considers cells which have divided once outside the body to be non-relevant material. Individual researchers will need to make a judgment as to when cells in the culture no longer contain the original cells.

4.6.3 Processed Material

Material obtained from relevant material that has been treated, processed or lysed to render them acellular, can be stored without a HTA licence. This would include the freezing or thawing of cells only where that process is intended to render the material acellular. The process applied should be documented to evidence that it is sufficient to render the material acellular.

4.6.4 Bodily Waste

Bodily waste is considered relevant material reflecting the view that it may contain a single cell that could be subjected to research. Bodily waste includes secretions and fluids such as urine, saliva, sweat, stool, pus and lavages.

4.6.5 Cells and Tissues on Slides

Cells or tissues on slides which are intended to be representative of whole cells are considered relevant material. Staining of cells does not render them exempt from the definition.

4.7 Storage Exceptions

4.7.1 Storage Incidental to Transport

Under the HT Act, where human tissue is in storage pending transfer elsewhere, providing it is held for a matter of hours or days and certainly no longer than a week, the HTA takes the view that the storage is incidental to transportation and a HTA licence is not required.

4.7.2 Storage Incidental to Rendering Acellular

If relevant material is stored for less than 7 days so that processing can be carried out for the purpose of obtaining and storing research material which does not contain cells, then a HTA licence is not required.

If there is no intention to use or store human cellular material for research, and the holding of cellular material is only temporary and for the purpose of obtaining and storing research material which does not contain cells, then a HTA licence is not required.

4.8 Storage Following Expiry of Ethical Approval

Tissue stored for a specific research project which has been approved by a recognised REC does not need to be stored under a HTA licence. However, once the approval expires, or no further approval is pending, legally the tissue must be stored under a HTA licence or disposed of in line with HTA-CORE-SOP-Disposal. Where it is to be used for further research that does not have REC approval, the research must be in accordance with the initial consent obtained or, if appropriate, further consent should be obtained.

4.9 Storage in Research Tissue Banks

Some specific RECs have been authorised to give generic ethical approval for research tissue banks which will then be required to work under REC SOPs. This means that a specified programme of research is permitted without the need for further individual project-specific REC approval. The relevant material in these research tissue banks must be stored on HTA-licensed premises.

The recipients of tissue supplied by an HTA-licensed REC-approved bank do not need to store the material under a HTA licence during the period of the research project, subject to the condition that the research falls within the broad programme of work approved by REC. A tissue bank must have appropriate processes in place to review and approve applications for access to the tissue.

If tissue is stored in an HTA-licensed research tissue bank that does not have broader ethics approval, each researcher acquiring human tissue from the bank must apply for specific project approval by an HRA REC.

On completion of research using tissue from a REC-approved research tissue bank, the individual researcher must transfer any residual tissue back to the bank or apply to store the tissue under SU's HTA licence (or an alternative HTA-licensed establishment), apply for specific project approval by a REC or dispose of the human tissue.

5. Procedure

5.1 Storage Facilities & Compliance Requirements

Human tissue should be stored in line with good practice within facilities and able to maintain the integrity of any stored human tissue.

Storage areas refer to the rooms and buildings, freezers, fridges and containers in which tissue is being held. The following information on each storage unit containing human tissue should be logged by the PI/Research group/Lab:

- Storage unit number/identifier (T-Scan number is valid)
- Location (building/room number/bay/side room)
- Manufacturer
- Model number
- Serial number or Asset number
- Description (e.g. -80°C freezer)
- Human tissue type(s)
- Person responsible

Storage areas for human tissue should be:

- Risk assessed, including the risks to the integrity of the tissues being stored and to staff/students.
- Secure and lockable.
- Maintained - routine and ad-hoc cleaning and maintenance of the storage area and units. Refer to HTA-CORE-SOP-Maintenance and Monitoring.
- Subject to contingency arrangements in the event of storage area failure. Refer to HTA-CORE-SOP-Risk Management.

5.1.1 Storage and Labelling

Human tissue must be stored using recognised methods and guidance and labelled accordingly (see HTA-Template-Storage Sign and HTA-SOP-QR code Labels). Human tissue must be stored in a locked area. Ideally, the storage container should also be lockable.

If a storage unit is used to store both human tissue and other material, the human tissue should be stored separately and be clearly labelled as such. Ideally, relevant material should not be stored with other materials, reagents or consumables.

Storage units with human tissue held under licence must also display a copy of SU's HTA licence.

Local or project SOPs should be developed and followed for the sample handling, processing, labelling and storage of all samples. Refer to HTA-CORE-SOP-SOP.

All human samples must be uniquely identifiable to ensure traceability. Where samples are further divided for storage, each individual sample should be labelled with a new unique identifier so that all parts of a primary sample may be traceable.

The label must describe the tissue sample type and be safely secured to the sample container. Each label should be legible and suitable for the storage conditions to which it will be exposed. Labels should not contain patient identifying information.

a) Sample Label:

Below is a suggested sample labelling format:

Anonymised donor number -Initials of Researcher- Sample type –Aliquot number e.g.

01-HT-PBMC-1

The above example format can be tailored to your study, the aliquot number could be replaced with the date collected if the same donor provides more than one sample.

b) Sample Boxes / Larger Containers

Larger sample boxes containing multiple smaller sample vials **must have** the Study Identifier and the responsible researcher's full name and date.

c) Sample Logs:

The tissue sample databases/logs must document the study identifier and the sample's:

- Unique identification
- Tissue type e.g. Plasma or PBMCs
- Date of collection
- Researchers name
- Detailed location of each sample in a storage unit. *e.g. If in a freezer the log should record the sample's location inside the freezer, details must include, the shelf, rack, sample box and position of each aliquot in the box.*
- Date of transfer / disposal
- Reason for transfer / disposal
- Consent restrictions (if applicable)
- Linked MTA agreement (if multiple MTAs are in place)

Below is a suggested sample log designed in Excel:

Sample ID	Aliquot	Type Type	Date	Researcher	Freezer ID	Shelf	Rack	Sample Box	Position	Date of Disposal/ Transfer	Reason
01-HT-PBMC-1	1	PBMC	10/10/2023	Hayden Tailor	1	Top	1	3	A1		
01-HT-PBMC-2	2	PBMC	10/10/2023	Hayden Tailor	1	Top	1	3	A2		
01-HT-PBMC-3	3	PBMC	10/10/2023	Hayden Tailor	1	Top	1	3	A3	24/10/2024	Transferred to collaborator
01-SJ-PI-1	1	Plasma	10/10/2023	Sarah Jones	2	Middle	1	6	C1		
01-SJ-PI-2	2	Plasma	10/10/2023	Sarah Jones	2	Middle	1	6	C2	11/10/2024	Accidental Damage
01-SJ-PI-3	3	Plasma	10/10/2023	Sarah Jones	2	Middle	1	6	C3	15/10/2024	Used up during analysis
01-TW-Urine-1	1	Urine	10/10/2023	Tom Williams	3	3	1	1	E1	11/10/2024	Processed to create daughter samples

As part of good record keeping, you should know what samples you have transferred to collaborators, if any samples had to be disposed of and if an aliquot has been completely utilised.

Storage records should be maintained and conform to HTA-CORE-SOP-Management of Records you can also use and amend the HTA-TEMPLATE-Sample Log.

5.1.2 Storage Unit Maintenance

Calibration and maintenance, including cleaning schedules of storage units, must be in line with the manufacturer's guidance and HTA-CORE-SOP-Maintenance and Monitoring.

Records of calibration, monitoring of storage conditions and maintenance should be kept following HTA-CORE-SOP-Management of Records.

5.1.3 Storage Risk Assessment

A risk assessment relating to the storage of human tissue should be made following HTA-CORE-SOP-Risk Management.

5.1.4 Adverse Events

Any adverse event or 'near-miss' involving the storage of human tissue should be reported following HTA-CORE-SOP-Adverse Event Reporting.

5.1.5 Appropriate Storage Period

The HTA does not define a time limit for the storage of tissues and organs for research, therefore tissue kept for any period is considered 'stored' (subject to exceptions detailed in 4.7). The HTA expects relevant material to be held under the governance of recognised REC approval or an HTA licence.

Tissue collections being held under the SU HTA licence must be audited every 2 years and details reported to the DI for submission.

5.1.6 Security and Keys

All storage units that contain human samples should be lockable and located in access-controlled rooms which are accessible only by authorised University personnel. All storage units containing human tissue held under a HTA licence must be locked. Contingency freezers should not be locked when on standby; however, once samples held under the licence have been transferred to them due to unit malfunction or an adverse event, they should be locked.

5.1.7 Storage Following Expiry of Ethical Approval

Once REC approval expires, or no further approval is pending, legally the tissue must be stored under a HTA licence or disposed of in line with HTA-CORE-SOP-Disposal.

5.1.8 Storage in Research Tissue Banks

Biobanks are biorepositories that collect, process, store, catalogue, and distribute human biological samples, and can record associated data. REC-approved RTBs offer benefits such as facilitating programmes of research without a need for individual project-based ethical approval.

All REC-approved RTBs must store their samples at a HTA licenced organisation such as SU and must register in the UKCRC Tissue Directory.

The directory may be a useful place to search if you need human tissue for your research but do not wish to apply for your own REC.

If you have a clinical collaborator and you wish to apply for REC approval to establish a RTB at SU you will need to implement all HTA-CORE-SOPs within the quality management system to ensure robust compliance with HTA standards.

6. References

HTA Code of Practice A: Guiding Principles and the Fundamental Principle of Consent

HTA Code of Practice E: Research; Code of Practice and Standards

7. Related documents

- HTA-Template-Storage Sign
- HTA-SOP-QR code labels
- HTA-CORE-SOP-Management of Records
- HTA-CORE-SOP-Risk Management.

- HTA-CORE-SOP-Equipment Maintenance.
- HTA-CORE-SOP-Adverse Event Reporting.
- HTA-CORE-SOP-Disposal.
- HTA-CORE-SOP-SOP

8. Risk Assessment

A risk assessment for this HTA governance SOP is not required.

9. Definitions

A list of useful definitions of technical terms used within SU's HTA Core SOPs can be found in the HTA-Research Quality Manual.

10. Document History

Document History				
Version	**Review Date**	**Comment**	**Replaces**	**Reviewed by**
2.0	21/09/2015	Update to front page, footer and hyperlinks. Minor text amendments	1.0	Lisa Wakeman
3.0	01/09/2016	Post-licence grant review, amendment from acting designated individual reference; minor text amendments	2.0	Lisa Wakeman
4.0	18/04/2018	Amendments to reflect revised HTA Codes of Practice and Standards	3.0	Lisa Wakeman
5.0	13/02/2024	Revised SOP to reflect the separation of the previous joint HTA licence between SU and SUHB and to establish new SU procedures moving forward.	4.0	Bethan R Thomas & DI

Author	**Name and role**	Dr Bethan Rhian Thomas Human Tissue Governance Officer (HTGO)	
	Signature and date	Signed copy held by HTGO	
Approver	**Name and role**	Professor Catherine Thornton Designated Individual (DI)	
	Signature and date	Signed copy held by HTGO	
Effective Date:	01/04/2024	**Next Review Date:**	13/02/2025