Faculty of Health and Wellbeing - Biosciences/BMRC

OPERATIONAL RISK ASSESSMENT FORM

PLEASE ENSURE ALL SECTIONS ARE COMPLETED.

No work covered by this assessment can be undertaken until it is logged by a senior member of the Technical Staff and a Risk Assessment code allocated.
It is the responsibility of the person supervising the work to ensure that risk assessments are carried out, remain valid through the review process and that the control measures are identified and applied. All forms must be generated electronically and not handwritten.

Risk Assessment code (*to be assigned by technical staff):*	**Date:**
044-Tech-01	**29/6/2015**

Documents referred to in this Risk assessment	
Code	**Type of document (SOP, RA, Process map)**
016-SOP	**SOP**
017-SOP	**SOP**

Author of this risk assessment.
Name: Karen Bailey-Smith
This procedure has been assessed and any control measures identified will be used by the person(s) carrying out this work.

Person carrying out this work. If multiple people are carrying out this work, signatures must be added to the sheet at the end of this assessment.			
Name: SHU - Bioscience and Chemistry staff and PhD students.			
Position of study/work (please tick appropriate box).			
Undergraduate.		**Post doctoral.**	✓
Post graduate.	✓	**Placement/studentship.**	✓
Technical staff.	✓	**Academic staff.**	✓

Title of practical (Overall project this Risk assessment relates to).
Transportation of human tissue samples

Detail of activity (Only one Risk Assessment covering the whole practical class is needed.)

Handling (including packing and unpacking) and transportation of human tissue samples between Sheffield Hallam University (Department of Biosciences and Chemistry, Department of Sport, Sheffield Business School and Faculty of Development and Society at Heart of the Campus) and the Sheffield Biorepository located at the Royal Hallamshire hospital, Sheffield. This risk assessment covers SHU staff and students but does not cover the use of a third party for transportation of tissues.

Review History - Operational Risk assessments are reviewed every 12 months by the technical team. Amendments are carried out by a member of the technical staff and details are logged on the shared H drive.

	Review 1		Review 2		Review 3		Review 4	
Due date								
Date conducted								
Conducted by								
Amendments made	Yes	No	Yes	No	Yes	No	Yes	No

1. Elimination & substitution

Can any of the hazardous substances be eliminated from the process?

Yes ☐	If Yes, give details:
No ☐	N/A

Can any of the hazardous substances be substituted for a safer alternative or a safer form of the same substance?

Yes ☐	If Yes, give details:
No ☐	N/A

Can the method of work be changed so that the operation giving risk to exposure is no longer necessary?

Yes ☐	If Yes, give details:
No ✓	

Are any additional security measures required to exclude non-essential personnel from the area? E.g. doors locked, controlled access via magna locks.

Yes ✓	If Yes, give current measures available.
No ☐	BMRC is secured with magna lock doors.

Can the quantities of the hazardous substances stored, used and produced as waste be reduced?

Yes ☐	If Yes, give details:
No ✓	

2. Identification of those at risk

In most cases, all boxes will be ticked, particularly if work is being carried out in teaching laboratories.
Who else may be at risk? (Click all boxes that apply).

Students (UG, PG, PhD). ✓	Academic/Research staff ✓	Cleaners ☐
Bioscience Technical staff ✓	SHU maintenance staff including IT staff. ☐	Visitors ☐

Control measures (Click all that apply);

Verbally inform personnel of the nature of the work being carried out	✓
Ask personnel to leave if necessary	✓
Restrict access (see section 1)	✓

Are there any hazardous substances that carry a risk to pregnant women? (H360FD, H362 Hazard phrases).

Yes ☐	If Yes, list the hazardous substance here:
No ✓	

3. Legislative control

Are there any hazardous substances that are explosive, flammable or oxidising? (DSEAR needs to be considered, please refer to the guidelines at the end of this form). Acetylene and Hydrogen cylinders are stored separately as they are flammable. A separate risk assessment has been carried out under DSEAR.

Yes ☐	Give details of how these substances will be stored and any compatibility issues.
No ✓	N/A

Are there any Radionuclides being used?

Yes ☐	If yes, then the faculty Radiation Protection Supervisor must be contacted for further details as a separate Radiological Risk Assessment must be undertaken.
No ✓	

Does this protocol involve any genetic modification or use cells/material that has been genetically modified?

Yes ☐	No ✓	If yes, please enter the project registration number(s) that cover this work;
The following practicals have been approved by the GM committee:		

4. Information, instruction and training/supervision

Describe the information, instruction and training requirements for those working with the hazardous substances, microorganisms, cells and equipment outlined in this assessment. If training is required, it must be complete prior to the work commencing.

Nature of work requiring training	**Training to be given by (outline which member of staff will provide training).**
Packaging and unpacking of tissue samples	Personnel must read, understand and sign this risk assessment and any associated standard operating procedures
	A detailed risk assessment must be carried out by the end user outlining the hazards associated with the particular tissue being transported. (This can be included in the body of the experimental risk assessment which includes all the hazardous substances).
	Personnel must be trained/supervised by Director of studies/experienced member of staff before receiving/sending tissue for transportation.
Additional information:	

Based on the competency of the individuals undertaking this work, please outline what level of supervision is required for the overall activity. Consider all workers individually. Refer to the guidelines at the end of the form for definitions.

Stage of the process	**Direct supervision**	**Indirect local supervision**	**Remote supervision**	**No supervision required.**
All stages	☐	☐	✓	✓
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

5. Hazardous substances (Chemicals)

Please refer to the guidelines at the end of this form before completing this table. (Add additional rows as necessary to this table).

Hazardous Substance	**Quantity (Volume or weight)** For the stock, outline the volume of the original container and then the amount that will actually be used.	**Hazards** Outline the hazard and precautionary phrases (H and P) with both numbers and description. Some precautionary phrases will be used here, some are for the emergency procedures column.	***Storage*** Outline the storage arrangements. Include the temp, the lab number and any special security measures. Consider compatibility (for example do not store glacial acetic acid in an acid cabinet as it is flammable and could react with nitric acid which is a strong oxidiser).	Does this substance need to be used in a **fume hood**? Please select from drop down menu	**Disposal** Please select from drop down menu	**Emergency procedures.** Outline the local procedures for accidental spillage or release and personal injury (contact with skin, in eyes, swallowed etc.) It may be that the original container has been spilt so consider the maximum volume of spillage that could occur.
As supplied. ***(If liquid state conc.)*** Dry Ice	Max 2kg	• Asphyxiation. In high concentrations sublimed vapour may cause asphyxiation. 10kg of dry ice sublimes into about 5.4 m^3 of carbon dioxide gas • Extreme cold. Contact with dry ice can cause cold burns and frostbite	Dry ice is purchased from an external supplier when necessary	No	Dry ice can be left in its polystyrene storage box to evaporate. Do not mix with water as this can increase the risk of asphyxiation.	If dry ice causes a skin burn, contact a first aider for assistance. If effects of reduction in breathable air occur, move the victim to a well ventilated area and seek medical help. Remove the dry ice to a well ventilated area to evaporate.

6. Microorganisms.

The Advisory Committee for Dangerous Pathogens (ACDP) categorises biological agents into four hazard groups. The laboratories within the department of Biosciences are only authorised to support work up to and including Hazard group 2 organisms. For further information please see the guidance notes at the end of this document.

Microorganism	***ACDP* Hazard Group**	**Source/origin e.g. hospital isolate, commercial strain**	**Type of media in which the organism will be cultured** (solid or liquid and include amount/volume)	**Hazard** e.g. Biohazard, antibiotic resistance, hazards to pregnant women.	**Control Measures** These are in addition to PPE and training. If there are no additional measures, please state 'None".	**Disposal** Please select from drop down menu	**Emergency procedures.** Outline the local procedures for accidental spillage or release**.** Please select from drop down menu
						Click here to select	Click here to select

7. Cell lines, Tissues and body fluids - Ethical approval must be obtained for patient/participant samples of tissues, blood, hair sweat etc. Please see section 10.

Cell line/ tissue type/body fluid type	**Source/origin (hospital, commercial strain, abattoir etc.)**	**Quantity or volume.**	**Hazard** e.g. biohazard, hazard to pregnant women, screened/unscreened	**Control Measures** These are in addition to PPE and training. If there are no additional measures, please state 'None'.	**Disposal** Please select from drop down menu	**Emergency procedures** Outline the local procedures for accidental spillage or release. Use P phrases where necessary.
Various types of human tissue	Hospital, Tissue bank, samples taken from participants onsite at SHU.	Various.	Biohazard. Potentially unscreened (Hep B, other infectious agents present).	Samples must be obtained through approved SHU routes and all logged on the electronic shared tissue log. Please see the BMRC administrator for access to this. Please refer to 043-Tech for obtaining venous blood from donors within the faculty of HWB.	Tissue disposal freezer - BMRC 713/-20/2	Please follow 016-SOP for the decontamination of biohazardous spillages. Follow 017-SOP for disposal of clinical waste bins.

Any additional information (e.g. Hep B immunisation for 'worker' required).	

8. Personal Protective Equipment – This is in addition to lab coats which must be worn at all times.

Stage of the process that PPE is required (outline each step, or state if PPE is only required in an emergency)	Gloves. Tick appropriate box					Eye/Face protection. Tick appropriate box				Clothing (In addition to lab coats) Tick appropriate box			
	Nitrile (EN374-2, EN374-3)	vinyl (EN455)	Cryo (EN511)	Heatproof (EN388, EN407)	Leather (EN388, EN511,EN420)	Goggles (D166 - 349B)	Safety glasses (EN166 1F)	Face visor (UV) EN166 1-F3, EN166 389 BTS	Face Visor (N_2) EN166 1-F3, EN166 389 BTS	Safety shoes (EN345-1)	Aprons (No BSEN number)	High vis coat/vest (EN471 class2)	Ear defenders (EN352)
All stages of tissue handling	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Storage in -80	☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Additional information:													

9. Physical and Equipment hazards

Equipment name or physical environment.(e.g. scene of crime set up, SDS electrophoresis apparatus)	**Hazard** (Electrocution, pressure, weight, manual handling, trip hazards)	**Disposal** Please select from drop down menu	**Control measures** (refer to guidelines)
-80 Freezer	Skin burns. Extreme cold may also lead to gradual loss of awareness of risk. Release of CO_2 back up gas if temperature rises when door is open, could result in oxygen depletion within the vicinity of the freezer.	N/A	Wear cryo gloves. Work quickly and efficiently to minimise the chance of the internal temperature rising. Regular breaks should be taken when handling. Ensure there is good ventilation where the freezer is located.
Leakage of packaged tissue	Exposure to potentially infectious tissue, general biohazard.	Not applicable	The attached appendix must be followed when packaging or unpacking animal and human tissue.

10. Additional risks.

Does the work require materials to be obtained by non-standard procurement routes? For example, patient samples donated from hospitals, purchase of animal tissue from the abattoir.

Yes ✓	If Yes, give details:
No ☐	Samples will come from NHS laboratories, tissue banks or could be donated directly within the Faculty.

Does the work involve out of hours or lone working?

Yes ✓	If Yes, give details:
No ☐	Research staff and students may work out of hours as long as the local safe systems of work are adhered to.

Does the work require ethical approval (e.g. involves the use of human tissue, or human participants)

Yes ✓	If Yes, please insert the project registration number here:
No ☐	Ethics will be provided in different ways depending on the source of the tissue sample.

11. Risk Evaluation of the Overall Process. *Select the most hazardous Chemical/Biohazard or activity to use as the basis for determining the Risk Index (Be aware that certain combinations of hazardous substances may have synergistic/antagonistic hazardous effects and should be considered when completing this section.)*

			LIKELIHOOD				
			1	2	3	4	5
			Highly unlikely or impossible that incident will occur	Not likely that incident will occur	Possible that incident could occur	Likely that incident will occur	Incident will definitely occur or occurs frequently
SEVERITY	1	Injury/illness not requiring first aid	LOW	LOW	MEDIUM	MEDIUM	HIGH
	2	Injury requiring medical attention	LOW	MEDIUM	MEDIUM	HIGH	EXTREME
	3	Injury/illness resulting in less than 7 days absence from work/study	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME
	4	Injury/illness requiring more than 7 days absence or resulting in a fatality.	MEDIUM	HIGH	EXTREME	EXTREME	EXTREME
	5	Injury/illness causing multiple fatalities.	HIGH	HIGH	EXTREME	EXTREME	EXTREME

	Low- Monitor the risks and the control measures.
	Medium- Monitor the risks and maintain strict control measures
	High - Review and introduce additional controls to lower the level of risk. Activity not to be carried out if worker will be working alone (see the university's lone working policy https://staff.shu.ac.uk/HealthandSafety/documents/Lone%20working%20policyv-1.pdf)
	Extreme - **DO NOT PROCEED**. Immediately review the activity and introduce further control measures to lower the risk. Re-assess before proceeding.

What is the Risk Index for this procedure?	LOW
If the Risk index is high then review the activity and control measures. **Do not carry out this activity under conditions of lone working**	**If the Risk Index is extreme, DO NOT PROCEED. Review the activity and fully re-asses the procedure.**

Risk Assessment number: 044-TECH-01

Declaration:
I have read, understood and will comply with the Risk Assessment outlined above.

Name	Staff/Student number	Position/course of study	Signature

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Appendix - Safe transportation of exempt animal/human tissue specimens

Definitions and identification.

Where there is a minimal likelihood of pathogens being present, animal/human tissue samples are not subject to the provisions of the various dangerous goods regulations apart from packaging and labelling requirements.

Packing, marking and labelling requirements

- Exempt specimens must be packed in a way that prevents leakage.
- There are no quantity limits for complete packages.
- There should be a leak proof primary receptacle and secondary packaging. For liquids there should be sufficient absorbent material (e.g. cotton wool) to absorb the entire contents placed between the primary and secondary packaging
- The primary receptacle should be positively sealed.
- Multiple primary receptacles must be individually wrapped or otherwise protected from breakage through contact
- Any leakage of the contents must not compromise the integrity of the cushioning material or of the outer packaging.
- At least one surface of the outer packaging must be 100mm x 100mm
- The outer packaging (e.g. fibreboard) must be strong enough to hold the contents and to withstand all handling and changes in temperature and pressure experienced during transport
- Packages must be marked with the appropriate labels as in Figure 1. This includes, the shipper's and receiver's contact details and the mark "EXEMPT ANIMAL/HUMAN SPECIMEN".
- An overpack may be used to combine several triple packages into one large package; it may also be used to contain dry ice if this designed and tested for purpose. If an overpack is used then the words "OVERPACK" must be marked on it and all other markings must be reproduced on the overpack.