



Risk Assessment – VI-RA-021- Dissecting Human Tissue

Scope

Dissection of solid tissue samples collected from the human body in order to prepare explant tissues and primary cells in CL2.

We intend to use freshly isolated solid human tissues samples from screened healthy patients. The preparation of human tissue samples will involve processing and dissection of solid tissues for use in cells culture and other experiments.

Explant tissue models are a form of *ex vivo* culture model designed as a bridge between cell cultures and *in vivo* models. They are prepared as blocks/cubes of tissue which range in size from 3*3*2 to 5*5*3 mm³ from a sample of an organ of interest removed from the body through biopsy or resection, which is then dissected free of underlying musculature. The remaining tissue, which comprises mucosal and submucosal components, form an explant model. Inherently, they comprise epithelium suspended on the rest of the mucosa and stroma. They have proved to be useful models to identify early targets of infection, and they permit the evaluation of HIV-1 infection and its replication *ex vivo*. Their greatest strength is that they do not disrupt the natural organization of the tissues, and they preserve the interactions between the epithelial cells and the underlying stromal cells. Furthermore, tissue explants do not require the use of proteolytic enzymes, which could alter expression of HIV-1 receptors and coreceptors. Consequently, predictions for situations in living tissues can be inferred from them and as such, they remain an ideal method to study as they are more representative of *in vivo* conditions in that they allow for studies on morphology and function as normal interactions of all immune cells with each other and with the extracellular matrix in this tissue are preserved.

Carried out by:	Sengesiwe Sibeko	Date carried out:	October 2015	Review Due:	October 2018
Hazard (Cause and consequence)	Affected Groups	Existing controls		Risk	Further actions
Skin lacerations and abrasions from handling and dissecting tissue with sharp instruments	Staff, students and visitors	All human tissue samples will be handled and stored at containment level 2 (CL2). Personal protective equipment must be used throughout procedures involving human tissue.		Medium	Annual checks on BSC



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		<p>The use of sharps will be avoided unless there is no suitable alternative in which case safe work practices will be used to prevent sharps injuries which might lead to exposure to pathogens. We will use the following control measures to reduce the risks of sharps accidents and injuries.</p> <ul style="list-style-type: none"> • The use of sharps will be avoided unless they are essential. • Safe techniques will be used when using sharps. Work will be carefully planned to reduce the risks of exposure and sharps injuries. • Alternative safety sharps will be used where feasible. • Forceps will be used to hold tissues or materials rather than gloved fingers and hands where feasible. • Needles will not be re-sheathed. • Blunt instead of sharp needles, scissors and forceps will be used where feasible. • Core borers will be used instead of scalpels where feasible. Personal protective equipment will be used (lab coat, gloves, specs, goggles or face shield etc) to protect against exposure. • Double gloves will be used. • The distance of the hand without the sharp instrument will be kept as as s far apart as possible from the hand holding and using the sharp. This reduces the risks of a stab or cut injuries. The further apart your two hands are the less likely workers are to injure themselves in a sharps accident. 		
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		<ul style="list-style-type: none"> • Waste materials and used sharps will be disposed of carefully and using the correct route. • Puncture resistant sharps bins will be used to dispose of used sharps. • Used sharps will be disposed of immediately after use. • The sharps bin will be taken to the sharps not the other way around. The sharps bin will be located where the sharps will be used. • The lid onto the sharps bin must be locked in place before use and the sharps bins must not be overfilled. • Equipment and work surfaces will be disinfected or sterilised after use as appropriate. • Sharps will be properly stored or disposed of after use and not left lying around for other people to have an accident and injure themselves. <p>Hands will be washed after the work activity is completed.</p> <p>Disposal/Decontamination routes</p> <ul style="list-style-type: none"> • Sharps (needles, scalpel blades, etc). will be disposed of in the dedicated yellow sharps bin followed by incineration. • Blood sample bottles will be decontaminated with Virkon, autoclaved and then disposed of in the glassware route. • Excess human material (tissue, blood, etc) will be disinfected with 1% Virkon then disposed of in the clinical waste bins (yellow labelled bin liners) for incineration. 		
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		<p>In the case of personal injury:</p> <ul style="list-style-type: none"> • Department Procedures explained at induction and the policies governing CL2 laboratories are to be followed promptly. • Remove contamination from skin, eyes and mouth by thorough washing with water • Any puncture wound must be treated immediately by encouraging bleeding and gently washing with soap and water. • Seek help where necessary – first aider’s list displayed in key area in the laboratory. • Dress wounds • Puncture wounds or contamination of mucous membranes or broken skin must be reported promptly to the Safety Officer. • Occupational Health feedback will be sought if necessary. 		
<p>Infection from exposure to pathogens - Via direct contact with the pathogen (i.e. skin adsorption from fluid splash) - Via spill of material - Via incorrect disposal of waste</p>	<p>Staff, students and visitors</p>	<p>Human tissues will be sampled from hospital patients. None of the patients will have been diagnosed as having any infectious disease. However, human tissues have the potential to contain adventitious pathogens.</p> <ul style="list-style-type: none"> • All human tissue samples will be handled and stored at CL2 unless if they will be exposed to infectious virus in the laboratory in which case they will be shipped to CL3. • All users of CL3 have been trained as per the CL3 Code of Practice, training records are kept up-to-date.. 	<p>Medium</p>	<p>Yearly checks on CL2 BSC Bi-yearly checks on CL3 BSC</p>



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		<ul style="list-style-type: none">• Human tissue samples will be transported from the hospital to the CL2 laboratory inside a primary leak proof container with a secure lid. The primary container will then be placed inside a cooler box closed securely.• All work will be carried out inside a microbiological safety cabinet. The surfaces of the microbiological safety cabinet will be disinfected with 1% Virkon. The cabinet will be fumigated where a major spillage has occurred in CL3.• Every user must double glove, wear a protective coat and safety spectacles whilst working in the suites.• Existing cuts and abrasions and other skin lesions are properly protected and accidental self-inoculation and splashing of mucous membranes be avoided.• All tissue samples will be properly stored using suitable containers for all tissues and their products. Samples and sample tubes will be stored inside suitable containers or boxes inside fridges and freezers.• Department Procedures in case of spill or exposure policies are explained at induction and the policies are displayed in the CL2 laboratories.• Disinfection and autoclaving will be carried out where required. All waste materials will be disposed of into the yellow clinical waste bags or sharps bins as required.		
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		<p>Human Tissue Sample Disposal On completion of any procedure, sample bottles and any remaining sample from the patient must be first decontaminated in 1% Virkon Solution.</p> <p>Decontaminated samples can then be bagged yellow labelled bins and treated as clinical waste.</p> <p>Contaminated glassware will be autoclaved prior to been disposed via the glassware disposal route.</p> <p>Disinfection Procedure 1% Virkon will be used for disinfection. Disinfection of samples/materials associated with Human Tissue should be decontaminated with 1% Virkon solution overnight. The surfaces of the microbiological safety cabinet will be disinfected with 1% Virkon after use.</p> <p>Autoclaving All contaminated materials, including waste destined for incineration, will be inactivated by autoclaving (100% kill) prior to disposal of waste or cleaning and recycling of reusable laboratory equipment, such as glassware.</p>		
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It is the users responsibility to ensure what controls are needed to ensure that the health of themselves and others around them. It is imperative that you **DO NOT** start any work until you are absolutely sure of the appropriate precautions that need to be employed. If you are unsure seek advice from your line/laboratory manager or your departmental safety officer (DSO).