



Risk Assessment – VI-RA-019- IFN γ ELISPOT Assay

Scope

The interferon (IFN)- γ Elispot assay has been widely used as a general screening method for the quantification and characterization of the human immunodeficiency virus (HIV)-specific CD8+ T cell responses. This assays relies on the fact that T-lymphocytes from peripheral blood mononuclear cells (PBMC) will release IFN- γ when exposed to specific antigens, such as peptide-reactive T lymphocytes.

Carried out by:	Tiphaine Bouriez-Jones	Date carried out:	May 2015	Review Due:	May 2018	
Hazard (Cause and consequence)	Affected Groups	Existing controls			Risk	Further actions
Injury due to misuse or faulty equipment	Staff Students and visitors	All users are trained in the correct operation of instruments. Specialised equipment such as centrifuges and incubators are under maintenance service contract.			Low	Incubators and centrifuges serviced yearly
Infection from exposure to pathogens - Via direct contact with the pathogen (i.e. skin adsorption from splash) - Via spill of material - Via incorrect disposal of waste	Staff Students and visitors	<p>CL3 biological agents</p> <p>Only trained users who have shown evidence of their experience to the CL3 Safety Officer will have access to the CL3 suite out of hours.</p> <p>Each user is trained to adhere to the CL3 Code of Practice, they will follow the precautions involved with handling and storing pathogens.</p> <p>Every user must double glove, wear a leak-resistant disposable gown and wear safety spectacles whilst working in the suites.</p> <p>The use of sharps is forbidden in the CL3 suites.</p> <p>Out of hours workers must at least have a buddy system in place or work in pairs.</p>			Medium	Bi-yearly checks on the BSC within CL3 Yearly checks on BSC in CL2



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		<p>Users are familiar with emergency procedures and a spill drill is implemented as a check on measures.</p> <p>A telephone available in each CL3 suite, with up-to-date list of emergency contact details next to it.</p> <p>Waste is autoclaved within the suite, samples will be packaged in tertiary container if they need to be taken outside of the CL3 suite.</p> <p>No engineer is allowed to work out of hours in the CL3 suite.</p> <p>CL2 biological agents</p> <p>Users are trained to follow good microbiological practice. They must wear blue labcoat, nitrile gloves and safety spectacles at all time whilst working in CL2.</p> <p>Procedures in case of spill or exposure policies are explained at induction and the policies are displayed in the CL2 laboratories.</p>		
<p>Exposure to chemical: AEC: H301 Toxic if swallowed. H350 May cause cancer</p>	<p>Staff, students and visitors</p>	<p>Via Inhalation: AEC is available in tablet form to reduce the risk of inhalation.</p> <p>Via skin adsorption: User must wear gloves and labcoat at all time.</p> <p>Via instillation (eye): User must wear safety spectacles at all time.</p> <p>See specific COSHH risk assessment for each chemical.</p>	<p>Medium</p>	<p>None</p>
<p>Exposure to chemical: Acetic Acid: H226 Flammable liquid and vapour. H314 Causes severe skin burns and eye damage</p>	<p>Staff, students and visitors</p>	<p>Via Inhalation: stock available in solution, if using a highly concentrated stock, the bottle must be opened inside a fume cupboard.</p> <p>Via skin adsorption: User must wear gloves and labcoat at all time.</p> <p>Via instillation (eye): User must wear safety spectacles at all time.</p> <p>Fire hazard: Acetic acid stock must be stored in a flammable cupboard.</p>	<p>Medium</p>	<p>Checks on LeV</p>

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		See specific COSHH risk assessment for each chemical.		
Exposure to chemical: Dimethylformamide (DMF) H226 Flammable liquid and vapour. H312 + H332 Harmful in contact with skin or if inhaled H319 Causes serious eye irritation. H360D May damage the unborn child.	Staff, students and visitors	Via Inhalation: DMF is available as powder, weighing out must occur in a fume cupboard. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. Fire hazard: DMF solution must be stored in a flammable cupboard. See specific COSHH risk assessment for each chemical.	Medium	Checks on LeV
Exposure to chemical: Hydrogen Peroxide: H302 Harmful if swallowed. H318 Causes serious eye damage.	Staff, students and visitors	Via Inhalation: stock available in solution, if using a highly concentrated solution, the bottle must be opened in a fume cupboard. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. See specific COSHH risk assessment for each chemical.	Medium	Checks on LeV
Exposure to chemical: Staphylococcal Enterotoxin B (SEB) : H302 Harmful if swallowed. H332 Harmful if inhaled.	Staff, students and visitors	Via Inhalation: SEB is available as powder, weighing out must occur in a fume cupboard. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. See specific COSHH risk assessment for each chemical.	Medium	Checks on LeV
Exposure to chemical: Virkon H314 Causes severe skin burns and eye damage. H302 Harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects.	Staff, students and visitors	Via Inhalation: Where possible stock will only be available in solution. Virkon is available as powder due to the difficulty of dissolving and attaining the appropriate concentration, users must be careful when dispensing Virkon and always cover the lid of the stock pot. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. See specific COSHH risk assessment for each chemical.	Medium	None



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Exposure to chemical: Industrial Methylated Spirit (IMS): H225 Highly flammable liquid and vapour. H302 Harmful if swallowed.	Staff, students and visitors	Via Inhalation: stock available in solution. Via skin adsorption: User must wear gloves and labcoat at all time. Via instillation (eye): User must wear safety spectacles at all time. Fire hazard: IMS stock must be stored in a flammable cupboard. See specific COSHH risk assessment for each chemical.	Medium	None
Asphyxiation in oxygen deficient atmospheres.	Staff Students Visitors	Oxygen level sensors and air change extraction system.	High	Regular checks of oxygen sensor system and extraction system to reduce chance of failure
Over pressurisation from the large volume expansion of the liquid. If liquid nitrogen enters sample vials during storage, the vials when removed from the liquid nitrogen can become rapidly over pressurised and explode in the face of the user.	Staff Students	It is imperative that a face shield and safety glasses are worn when handling samples that have been stored in the cryostorage units. Storage racks are being modified to prevent the storage of samples in the liquid phase.	High	Regular checks on the integrity of the face shield. Monitoring use of face shield
Cold burns, frostbite and hypothermia from the intense cold	Staff Students	Eye protection, glasses or face shield (dependant on splashing risk), closed shoes, lab coats and cryo gloves must be worn when handling liquid nitrogen.	Medium	PPE are checked on a regular basis by Facilities

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).