



## Risk Assessment – VI-RA-006- Use of HIV p24 Kit

### Scope

Immunodeficiency Virus (HIV) p24 is the 231<sup>st</sup> amino acid phosphorylated protein of the capsid forming the conical core of the virus that encapsulates the genomic RNA-nucleocapsid complex. p24 is a cleavage product of the p55 Gag polyprotein by viral proteases. HIV p24 and its 55 kDa precursor play a crucial role in the assembly, maturation, and disassembly of HIV. p24 can often be detected two weeks after infection. Subsequently, p24 antibody is produced and complexes with soluble p24 antigen, rendering it undetectable without first dissociating the antibody-antigen complex. Free antigen reappears later in the course of the illness as p24 antibody levels decline. p24 is frequently used for HIV detection in blood, serum samples, and other bodily fluids in acute HIV seroconversion, in neonatal infection, and for monitoring of responses to antiviral drug therapy.

AlphaLISA technology allows the detection of molecules of interest in buffer, cell culture media, serum and plasma in a highly sensitive, quantitative, reproducible and user-friendly mode. In an AlphaLISA assay, a Biotinylated Anti-Analyte Antibody binds to the Streptavidin-coated Donor beads while another Anti-Analyte Antibody is conjugated to AlphaLISA Acceptor beads. In the presence of the analyte, the beads come into close proximity. The excitation of the Donor beads provokes the release of singlet oxygen molecules that triggers a cascade of energy transfer in the Acceptor beads, resulting in a sharp peak of light emission at 615 nm (see figure below).

<b>Carried out by:</b>	Tiphaine Bouriez-Jones	<b>Date carried out:</b>	April 2015	<b>Review Due:</b>	April 2018
<b>Hazard (Cause and consequence)</b>	<b>Affected Groups</b>	<b>Existing controls</b>		<b>Risk</b>	<b>Further actions</b>
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>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>		Medium	Bi-yearly checks on the BSC



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		<p>Out of hours workers must at least have a buddy system in place or work in pairs.</p> <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>		
Being trapped in the CL3 suite out of hours (door release mechanism no longer functioning)	Staff, students and visitors	Emergency release of the door mechanism present on each door.	Low	Yearly maintenance service contract
Entering the suites under duress	Staff, students and visitors	There is a duress code which can be entered instead of the normal code which will raise the alarm directly to Security Services without the knowledge of the persons entering the suites.	Low	Tested yearly by Facilities
Loss of containment	Staff, students and visitors	<p>An audible alarm is triggered in case of loss of containment to alert users.</p> <p>All users are familiar with the emergency procedure in case of loss of containment: securing their work, leaving the facility without delay and alerting Facility as soon as possible to resolve the issue.</p>	Low	Pressure monitored weekly, yearly maintenance contract.
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



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Exposure to chemical included in the Kit (Tris: Irritant; Proclin: Harmful) or associated with the procedure (ethanol and Industrialised Methylated Spirit and Virkon)	Staff, students and visitors	Via inhalation: all stock are 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. <b>See specific COSHH risk assessment.</b>	Medium	None
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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).