

NDMRB-RA-031

## Risk Assessment: FACS facility

### Scope

Flow cytometry is a laser-based, biophysical technology employed in cell counting, cell sorting, biomarker detection and protein engineering, by suspending cells in a stream of fluid and passing them by an electronic detection apparatus. It allows simultaneous multiparametric analysis of the physical and chemical characteristics of up to thousands of particles per second.

Flow cytometry is routinely used in the diagnosis of health disorders but has many other applications in basic research, clinical practice and clinical trials.

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).

*This incorporates VI-RA-004*

<b>Name of assessor:</b>	Tiphaine Bouriez-Jones	<b>Date of Assessment:</b>	April 2015	<b>Review Date:</b>	Every 3 years
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**Risk Matrix:**

Risk Matrix		Likelihood			
		High	Medium	Low	Negligible
Consequence	Severe	High	High	Medium	Effectively Zero
	Moderate	High	Medium	Medium/low	Effectively Zero
	Insignificant	Medium/Low	Low	Low	Effectively Zero
	Negligible	Effectively Zero	Effectively Zero	Effectively Zero	Effectively Zero

**Risk Assessment:**

Hazard (Cause and consequence)	Affected Groups	Existing controls	Risk	Further Action
Release or exposure of biological pathogens (if cells are run unfixed)	Staff/students	<p>Users are required to fill a FACS Bioquestionnaire prior to commencing work in the FACS facility to assess the work planned.</p> <p>Samples coming from the CL3 suite are fixed prior to coming out of the CL3 suite. Unfixed cells are not allowed to leave the CL3 suite.</p> <p>If samples cannot be fixed, disinfectant will need to be added after each run in the waste tank: 200ml of CHEMgene.</p>	Medium	Training to be provided before anyone uses vacuum/peristaltic pumps
Exposure to laser beam	Staff/students	<p>The CyAn and Fortessa FACS system both contain Class 3B lasers.</p> <p>During normal operation of the CyAn and Fortessa system the lasers are enclosed and therefore no significant risk is associated. However during alignment, which occurs approximately once every 4-6 months, Room 664.20.32 (NDM-RB) is defined as a Laser Controlled Area. It is demarcated at the entry door, by a Laser Hazard Warning sign indicating the operation of Class 3B open beam lasers and a copy of these local rules.</p> <p>No specific risks exist with the normal operation of the CyAn or Fortessa, provided the covers and lids are in place. Therefore normal operating procedures of the CyAn are sufficient.</p>	Medium	None
Exposure to paraformaldehyde (PFA)	Staff, students and visitors	<p>Via inhalation: User must weight PFA in a fume hood. Powder stocks are being run down and will be replaced by solution stock only.</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><b>See specific COSHH risk assessment.</b></p>	Medium	Check on LeV

<p>Musculoskeletal injuries from Manual Handling Operation (20L sheeth fluid tank)</p>	<p>Staff/students</p>	<p>The CyAn and Fortessa system require a 20L (~20Kg) sheeth fluid tank to operate. Smaller tanks are not available from the company which provides the sheeth fluid. This weight is above the recommended threshold for arm length lifting for women.</p> <p>Staff are trained on the safe operation of the equipment. Waste tank are emptied by the FACS facility manager on a weekly basis.</p> <p>A trolley is available within the room to reduce the manual handling operation as much as possible.</p> <p>Tanks are stored nearby the machines and off the floor to reduce manual handling operation as much as possible.</p> <p>Users are encouraged to ask for help if there are not able to lift the sheeth fluid tank (20Kg approximatively).</p>	<p>Medium</p>	<p>Ensure that all relevant SOP and RA are read and signed off on training forms for anyone who is involved in manual handling.</p> <p>Manual handling training course is available from the Safety Office, users are encouraged to attend the manual handling course and is recommended for regular manual handlers</p>
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Signed By Author:

Approved by (sign and print):

Reviewed by:

Review date: