Standard Operating Procedure

Iain Fraser Cytometry Centre Resumption

Title: Iain Fraser Cytometry Centre Resumption and Code of Conduct

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By Signing this SOP, you are acknowledging that you understand the procedures and will abide by them. Failure to do so will result in the immediate revoking of your access to the IFCC.

Researcher

Name
Lab
Contact Nr/Contact e-mail
Signature Date

Received by Core Staff

Name
Date
Signature
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1.0 Purpose

The Iain Fraser Cytometry Centre (IFCC) is a multi-user research facility. All staff, whether laboratory-based workers or others, have a responsibility to work safely and in a safe environment. The facility is located on the Foresterhill campus, IMS, in lab 2.05 and lab 1.38.1 (ref: [https://www.abdn.ac.uk/ims/facilities/contact.php](https://www.abdn.ac.uk/ims/facilities/contact.php)). Both the main room (2.05) and the sort room (1.38.1) have sinks for handwashing at the entrance/exit and waste disposal.

Key to symbols

- (circle) = Important point to note
- ⚠️ (triangle) = Warning
2.0 Scope
To outline the procedures for the protection of the health and safety of the laboratory staff using the IFCC at the University of Aberdeen during the Covid-19 return to work until further notice.

3.0 Responsibilities
It is the responsibility of all flow cytometry staff and users to implement the requirements detailed in this document, and to keep themselves updated of the changes implemented through the University and its guidelines during this fluid time.

3.1.0 References
IFCC Biosafety & Exposure Control Manual.
IMS Health, Safety & Wellbeing
Working safely during COVID-19 in labs and research facilities 14 June 2020 UK Government
UK Coronavirus (COVID-19): guidance
University’s re-induction e-learning pack
WHO Guidelines
IMS Template Standard Operating Procedures for reopening of the Institute of Medical Sciences

4.0 Materials

1. Lab Coat - bring your own
2. Safety glasses - bring your own
3. FACS TUBES with lids - bring your own as much as possible
4. Nitrile gloves – provided by the core
5. Bleach – provided by the core
6. 70% Ethanol– provided by the core
7. 5% CHEMGENE– provided by the core
8. Kim Wipes– provided by the core
9. Blue paper wipes– provided by the core
10. Azo wipes– provided by the core
11. Keyboard and mouse plastic coverings– provided by the core
12. Peddle Bins– provided by the core
13. Sheath fluid– provided by the core
14. FACS Rinse– provided by the core
15. FACS Clean– provided by the core
16. Distilled water– provided by the core
5.0 Procedures

**IMPORTANT**

- You must book the instrument. The booking system allows bookings up to 12 hours before you need to use it and you can cancel it at any time free of charge.
- Sorting, assistance, and sample drop off should be booked 72 hrs beforehand.
- The core staff have fixed teams and partnering together with remote working via Teams. However, the facility is used by multiple labs with the ability to change shifts and partners. Thus fixed contact between the same people is not maintained.
- The core staff will do a deep clean between 13:00-14:00. This means you must vacate the labs.
- The core staff will empty the waste tanks at this time as need.
- Maintain the 2m social distancing. In circumstances where minimum distancing is not possible, for example, when passing each other, you should act to minimize the interaction.
- In an emergency, for example, a chemical spill or fire, people do not have to stay 2m apart if it would be unsafe.
- Walk-ins (i.e. users who did not make a reservation on iLab or visitors) will not be allowed.
- Users should not enter before their slot or remain in the lab after their slot.
- Only one person working at an instrument at any time and room-specific maximum occupancy; do not come in groups.
- In the event of an urgent engineer visit, all bookings will be cancelled to safeguard the 2m safety distance.
- A minimum of 20 minutes between consecutive instrument reservations, inclusive of cleaning time.
- If there are no further bookings after you, switch off the cytometer.
- Regularly and thoroughly clean your hands with an alcohol-based hand sanitiser or wash them with soap and water.
- Avoid touching eyes, nose and mouth. Hands touch many surfaces and can pick up viruses.
- Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately.
- Stay home if you feel unwell. Seek medical attention if you experience a fever, cough, loss of sense of smell/taste and/or difficulty breathing. Follow the directions from the NHS website.

- Please note that the general biosafety, GMO and cytotoxic rules have not changed.
- Unfixed samples above a Biosafety level of 2 (BSL2, Category 2 Pathogens) cannot be processed or sorted in this facility.
- All cell samples brought into the laboratory, whether for acquisition & analysis or for sorting must be assessed for pathogenic and GM potential.
- Fixed samples can be sorted after the fixative is removed.
- Users that wish to run samples containing any agents above BSL2 must fix samples to inactivate the agent should get in contact before the first run of any such sample material. Failure to do so will result in immediate termination of all access rights.
- All samples must be brought to the laboratory in a secondary containment with securely fitted lid.
- We work on a Clean Desk policy. This means your work bench must be cleaned after use and no pens, paper etc to be left on the bench.
5.1 Space, Personnel, and Physical Environment

5.1.1 Access and Social Distancing
- Access is only permitted to core staff, trained researchers who have booked the instruments and authorised engineers. No other occupancy is permitted.
- IMS Building access is only granted if an IMS induction has been confirmed and undertaken. Contact David McKenzie or Lynne Lumsden in the first instance if this has not been done.
- No new users will be trained at this current time.
- No usage of the instruments is permitted without reading and signing this document.

5.1.2 Facility Signage
There is a variety of signage posted throughout the facility addressing several topics including, facility entrance requirements, PPE requirements, how to wash your hands and/or use hand sanitizer, and room occupancy limits. It is the responsibility of the occupant to read the signs and follow the provided instructions/information.

5.1.3 Incident and emergency procedures
Notify the relevant people as detailed in IMS Standard Operating Procedures for reopening of Institute of Medical Sciences (IMS induction).

5.1.4 Social Distancing
All occupants working in the facility should practice social distancing, i.e. maintain a 2m distance whenever possible. No face to face working is allowed, side by side and back to back is accepted.

If an instrument needs to be accessed by the core staff, the researcher must vacate the room if the 2 people occupancy limit would be reached. If close proximity (less than 2m distance) is needed both parties must wear a face mask and maintain as much distance as possible.

5.1.5 Floor Markings, Waiting, Entrance and Exit Points
The IFCC has a dual entrance and exit point. This should not be used as a waiting area.

**Entrance Procedure:**
- Knock at the door to signal your entrance to the occupant in the room
- Upon entry spray down any items you have with the provided 70% Ethanol
- Wash your hands and use the hand sanitiser provided at the sink
- Put on your PPE
- Take at least one pair of gloves for cleaning the instruments and work surfaces
- Move to your instrument, keeping to the left if possible, and no face to face contact

**Exit Procedure:**
- Check your exit route is clear
- Gather any items you have brought with you, spraying them down with the provided 70% Ethanol
- Move towards the exit, keeping to the left if possible, and no face to face contact
- Take off your PPE using good laboratory safe practices
- Clean sink touchpoints with the provided 70% Ethanol spray bottle
- Wash your hands and use the hand sanitizer provided at the sink
- Exit the lab
The floors are marked with hazard tape every 2 meter and signage of where to stand.

Handwashing instructions at the sink and WHO formulated alcohol hand rub is provided.

5.1.6. Maximum Lab Occupancy Limits
No more than 2 people at a time should be present in the lab 2.05.
No more than 1 person at any time in the sort room.

If you need to contact someone in the room, you can call them on the lab phone:
Lab 2.54: +44 (0)1224 43 7595
Lab 1.38: +44 (0)1224 43 7583
Emergency Security: 01224 273939

You can also write a note and hold it up to the glass window for them to read.
5.1.7. Room Scheduling
In an effort to promote social distancing, minimise contact and waiting time, the facility has online booking calendars through the iLab to schedule room and instrument space within the facility. (https://abdn.corefacilities.org/service_center/show_external/3348).

5.1.8. Instrument Schedule
Only single user for each piece of equipment and only by those specific users that have booked the instrument. No swapping or booking for other users is allowed. Should a user not be able to turn up on time they must immediately notify the core.

Users are required to book the instrument up to 12 hrs in advance and to include a no-charge 20-minute cleaning period after their use.

Booking Procedure:
- You will need an active iLab account and access granted by the core to book and use the instrument.
- Occupancy records through iLab are maintained for contact tracing. Ensure you details are up to date.
- Log into your iLab account
- Navigate to the iLab Schedule Equipment tab
- Click on the timeline view button
- Filter the machines to show: BD LSR Fortessa, BD LSR II, Attune Nxt, Amnis ImageStream.
- Check that your desired slot does not cause an occupancy of more than 2 people in the lab.
Or navigate to Reservations to have a global overview.

- Check that your desired book slot does not cause an occupancy of more than 2 people in the lab
- You can drill down in the bookings by navigating to the individual instrument calendars under View Schedule for each machine.
Navigate to the instrument you want to reserve. Fill in the sample details and click the greyed out green button to save the sample information.

- In event notes put a contact e-mail and/or phone number
- You can modify the date and time by clicking on the pencil icon
- Click the save reservation on the bottom left.
Navigate back to the instrument scheduling calendar and book at least 20 minutes of cleaning time. In event note put Cleaning so we can apply a no charge. The cleaning gaps in scheduling ensure users do not overlap, provide time for cleaning between users, and allow sufficient air exchange.

5.1.9. Core Staff Support

5.1.9.1. Emergency Support
We understand that instrumentation and experiments do not always go according to plan.

☐ There is a phone next to the sink
☐ Wipe this down before and after use with the provided Azo Ethanol wipes and dispose of the wipes in the bins
☐ Call the core staff on duty. Their contact details are listed next to the phone

5.1.9.2 Planned Assistance
Staff are available via Microsoft Teams, WhatsApp, Slack, phone call (use lab phone or your own as appropriate) and email.

We ask that you submit an assistance request at least 72 hrs in advance. It can be cancelled at no cost.

If it is urgent and you have been unable to plan sufficiently in advance e-mail cytometry@abdn.ac.uk with a high priority flag or call the core staff on duty.

To facilitate this, we ask that you submit a consultation request through iLab. This will enable us to co-ordinate the required help for you and ensure support is provided. This may include installing a tablet which allows us to share the computer screen in real time in the lab, or a video call web cam and speakers.
The alternative is during booking scroll to add additional service charge> click on this> select technical staff time and then scroll down and invite a specific core staff you are working with or to e-mail cytometry@abdn.ac.uk. Remember to save the reservation and submit.
5.1.9.3 Sample Drop Off Point

A sample drop off service is available that can be book in advance. Label tubes and sample containers with sample, date, researcher’s name and purpose e.g. control and contact the core for organising sample drop off (fridge or bench).

To have the flow lab staff run your samples on an instrument on your behalf, go to Services, Training and Access Request >Sample Processing by Core Staff> fill out the Core Staff to Run Samples on the Analysers. No training is required.

1. For untrained users who have been delayed in being trained due to COVID19, we will run samples and charge instrument time.
2. If someone becomes unwell and has samples prepared, we will run their samples if needed and charge instrument time.
3. For samples that do not fall within 1 or 2, then instrument and technical time is charged.

5.1.9.4. New Users and Training

All group, individual training sessions and facility orientations are cancelled until further notice. This includes face to face new user training. Note new staff cannot obtain access to the facility without completing a facility orientation with a member of Core Facility staff and this service is unavailable until further notice.
If you a new lab member and wish to run their samples for them, this is allowed. We do need the Profile Registration of the new staff/student to be submitted so we can follow-up with the project, future training, sample risk assessment, and usage tracking for correct billing.

5.1.9.5 Visitors and student shadowing
Strictly no visitors are allowed - this includes showing new students or staff the machines. If there is an urgent need to have a visitor, the Core must be informed so we can take the other instruments off-line to safeguard the 2m safety distance.

5.1.9.6 Forms for Out of Hours Access
If you need the instruments between 07:00-09:00, 17:00-20:00 and/or at the weekend fill out the iLab Out of hours form under Services, Training and Access Request and submit them electronically via iLab and the signed form e-mailed to cytometry@abdn.ac.uk. You may already have out of hours access, but we need to update and keep the database relevant as we restart.

5.1.9.7 Project and Lab Changes
If you have changed labs, project or significantly modified a project, fill out the form Research Change Modification Request. We need to know what samples you have and where to find you.

5.1.9.8 COVID-19 related Projects
If you are using the Core Facility for COVID-19 projects discuss your sample preparation, viral inactivation and decontamination with the core staff before you start.

5.1.9.9 Cell Sorting
The sorter will be available as usual, but only one person at any one time is allowed in the room and it must be booked at least 72 hr in advance. You must put in a sort request using the FACS Cell Sorting (BD Influx)>FACS Sorting Request so we have all the details for the sort.

Drop off the samples and leave (after short consultation), and give clear written instructions to the staff in advance. Decide if you or your backup person are to collect your sorted samples and inform the core at the start of the sort.

5.1.9.10. Bringing Samples into the Lab
The samples should be brought to the lab already filtered, in FACS Tubes preferably with lids, and contained within a sealable shatter resistant container. This should be clearly labelled with the researcher’s name, lab and...
contact number. 96 well plates should be sealed with a PCR seal lid and clearly labelled. All labelling should be carried out using an alcohol resistant pen. An example of the containers and a capped FACS tube are given below:

The containers must be wiped down with 70% Ethanol upon entrance and exit.

5.1.9.11 Vortexing
It is highly advisable to cap your tubes - this prevents aerosols escaping during vortexing and prevents loss and spillages if you knock over your sample. Any GMO, infectious, pathogenic, or primary human tissue must be capped. Remember to clean the vortexes after use.

5.1.10 Transfer and Management Policy
It is the responsibility of each user to properly safeguard the data. The server and acquisition computers are not designed as safe storage space. Many peer-reviewed journals and grants require that data to be made available. Online repositories such as Flow Repository can be used to store published data.

- The data generated on any instrument will remain on the acquisition computer for 1 month.
- Older data will be deleted.
- Data generated on any instrument in the facility needs to be transferred using the provided USB sticks or via an internet connection. Use of Personal storage devices on the instrument is strictly not allowed.
- The provided USB stick is waterproof and can be wiped with disinfected before and after use.
- Ensure you safely eject the USB stick after use to prevent corruption of the data.
- Data preservation is ultimately the responsibility of the user.
- Microsoft OneDrive (1 TB of storage for staff) with your Microsoft university account is an option for data storage or the H Drive.

5.1.10.1 Remote Data Analysis
To support remote working from home, the IFCC has provide access to the following data analysis software; FCS Express 7 Plus, FlowJo dongles, and the Amnis ImageStream IDEAS.

If you need remote access to the FlowJo dongle/computer/FCS Express 7 e-mail cytometry@abdn.ac.uk as soon as possible so we can set this up for you.

Process to book and use the Remote Computer(s)
- In iLab navigate to the Schedule Equipment> Remote Access for Data Analysis Tools. Book the Computer and software you need.

- To access MD-052831 you will need to follow the steps below:
NOTE: If you are using a University Laptop you can jump to step 4.

1. Login to https://remote.abdn.ac.uk (Guide)
2. Once logged in click User Apps
3. Click on your RDP – MD-053834.uoa.abdn.ac.uk this will open a direct connection to your University Desktop

(Note: the screenshot shows a different computer)

4. Once logged in to your compute, Open Remote Desktop Connection

5. Enter MD-052831 in to the “Computer:” field and click Connect

Note: When you are finished with the remote session do not shutdown or put MD-052831 to sleep as this will stop other users being able to access the system. You can either close the Remote Desktop Connection or use the Sign Out option on MD-052831.

It’s worth noting there will be a bit of latency and this will vary depending on the demand of the VPN.

5.2 PPE and Cleaning Touch Surfaces

5.2.1 PPE requirements for entering facilities

When conducting any work, the minimum protective equipment includes:

- Lab coats (lab coats or gowns to protect the worker from splashes)
- Gloves (disposable gloves which must be discarded if contaminated or damaged)
- Safety Eyewear as needed by your risk assessment
- No open toe shoes
- Sleeve protection as needed.

To note:

- Unfortunately, we will no longer be able to provide lab coats or eyewear - please bring your own (this could be your normal lab coat brought in a bag).
- For cleaning the instrument after use, it is highly encouraged that you bring your own FACS tubes to minimise contact to contact handling. We will provide three tubes per bag in the event you have not been able to do so.
- Ethanol, gloves and paper rolls will be provided. If you need pipettes, tips, pens please bring these. No sharing of pens is allowed.
When you book an instrument, you must book at least a 20-minute cleaning session to perform cleaning procedures (instrument and workspace). This is not charged, i.e. it's free, but we do need to know your time in the lab due to the occupancy rules.

5.2.2 Cleaning Check List: Touch It, Clean It, Bin It (TCB)

<table>
<thead>
<tr>
<th>Wear the compulsory PPE at all times. Bring your own clean lab coat and eyeglasses. Gloves should be worn for all cleaning tasks. Hand sanitizer is provided at each instrument. Dots are placed on high contact areas as reminders to clean. Spray bottles of 70% EtOH and hard surface wipes are available at each active instrument (ref 5.2.1.2 for contact time).</th>
<th>Tick if done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Start</strong></td>
<td><strong>Done</strong></td>
</tr>
<tr>
<td>Disinfect your workstation before you start work. Dry surfaces thoroughly to avoid pooling of liquids. This should include any surface you will touch, including the:</td>
<td></td>
</tr>
<tr>
<td>- computer keyboard, mouse, screen and PC tower at touch points</td>
<td></td>
</tr>
<tr>
<td>- vortex</td>
<td></td>
</tr>
<tr>
<td>- cytometer acquisition buttons</td>
<td></td>
</tr>
<tr>
<td>- SIP tube arm</td>
<td></td>
</tr>
<tr>
<td>- any other instruments components that may need to be touched such as sheath tank, waste tank, power on button, chairs</td>
<td></td>
</tr>
<tr>
<td>- Pens, tube racks, pipettes, chairs, light switches</td>
<td></td>
</tr>
<tr>
<td>Dispose of tissues in orange bins. Gloves should be discarded after each cleaning.</td>
<td></td>
</tr>
<tr>
<td><strong>2. End</strong></td>
<td><strong>Done</strong></td>
</tr>
<tr>
<td>Disinfect your workstation and areas you have touched when your work at an analytic cytometer is done.</td>
<td></td>
</tr>
<tr>
<td>If there are no further bookings after you, switch off the cytometer.</td>
<td></td>
</tr>
<tr>
<td>For the communal data transfer computer cover the computer keyboard and mouse with plastic wrap before use. For data transfer use the provided waterproof USB. Wipe it down before and after use.</td>
<td></td>
</tr>
<tr>
<td>Remove wrap when finished and clean with wipes including the on button.</td>
<td></td>
</tr>
<tr>
<td>Dispose of tissues in the provided bins. Gloves should be discarded after each cleaning.</td>
<td></td>
</tr>
<tr>
<td>Check ilab and if there are no further bookings after you, switch off the cytometer.</td>
<td></td>
</tr>
</tbody>
</table>

5.2.1.1 Waste Disposal

- **Orange bin bag:** disposal of FACS tubes used for cleaning, paper towels and wipes use for cleaning your instrument and work areas
- **Black bin bag:** General waste (no hazardous, GMO, chemical or biological material)

5.2.1.2 Disinfectants

Spray the surfaces and wipe them down after the appropriate dwell time to achieve disinfection

- 70% Ethanol (NOT 100%): Requires a 5 minute dwell time to effectively kill viruses
- 70% isopropyl alcohol (rubbing alcohol): Requires a 5 minute dwell time to effectively kill viruses
- Diluted bleach (20 ml of bleach diluted to 1 liter H2O): Requires a 10 minute dwell time to effectively kill viruses (do not use bleach to wipe the instruments down with)
- **Chemgene HLD4 dilutions of 1:50 contact time 5 minutes.**

5.2.1.3 Correct wiping procedure

You may instinctively move in a circular motion to clean the area. This is better for spreading the contamination, rather than cleaning it up. Swipes should be done in one direction and only overlap 10% to 25%. Turn the wiper so that each new swipe is done with an unused portion of the wiper, once each fold is used the wiper can be refolded so the other side can be used. As much as possible, try to use this technique.
Surface Sanitation, Wipedown, and Disinfection

Figure 1
Fold the wipe in half

Figure 2
Wipe from a clean area to the dirtiest, usually back to front on horizontal surfaces and from top to bottom on vertical surfaces. Consistently move left-to-right or right-to-left. Do not mix. Use one wiper for each stroke.

Figure 3
Fold in half again to make a quarter-folded wipe.

Uncontrolled when printed. Please ensure that you are working on the most up to date version of this SOP.

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