Policies and Procedures for DHVI Flow Facility Users

SOP Flow_010
Standard Operating Procedure

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SOP Flow_010  Title: Policies and Procedures for DHVI Flow Facility Users

By signing the “Approved By” section below, the person attest that he/she has personally conducted a review of the document for completeness and accuracy and approves the contents of the SOP document.

Approved By: Gregory D. Sempowski, PhD
Title: Flow Facility Director, DHVI
Scientific Director for Shared Resources, DHVI

Signed: [Signature]
Date: 1/30/2015
**SOP Revision Document History**:

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<td>2/4/14</td>
<td>Minor edit to update contact list in attachment</td>
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<td>2.0</td>
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<td>Added Influx and Fortessa information as well as several edits throughout SOP</td>
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Standard Operating Procedure
Policies and Procedures for DHVI Flow Facility Users

1.0 Purpose
The purpose of this procedure is to provide DHVI Flow Facility Users orientation to our resources, policies and required procedures:
1.1 Flow Facility website
1.2 User and project funding registration
1.3 Safety and hazard assessment
1.4 Scheduling cytometer sessions
1.5 Completion of experimental protocol sheets/templates
1.6 Safe transportation of samples into Flow Facility laboratories
1.7 Data archive
1.8 Overall policies

2.0 History, Scope and Application
The DHVI Research Flow Cytometry Facility serves the analytical and cell sorting needs of the Duke Human Vaccine Institute (DHVI) and researchers throughout the Duke Community. The Flow Cytometry Facility offers state-of-the-art cytometric support to investigators in basic, developmental, and clinical research. The Flow Facility offers several cytometric services including BSL-1 through BSL-3 live cell sorting, phenotypic acquisition, DNA cell cycle analysis and intracellular marker analysis. Analytical and sorting capabilities up to 18 simultaneous parameters enable researchers to define subpopulations based on cell surface morphology as well as size and complexity.

The DHVI Flow Facility is partially supported by the NIH and conforms with guidelines established to ensure that the entire Duke Community has access to the Facility.

Investigators must be trained for independent use of the analytical instruments. The DHVI Flow Facility has offline analysis computer workstations available for data analysis with Flow Jo software, a web-based scheduling and billing tool (DHVI Facility Manager (Fac Man)), and an online Storage Area Network (SAN; Biotrue) which has expandable storage capacity.

This SOP applies to all DHVI Flow Facility end Users. Failure to comply with this SOP may result in loss of privileges to use DHVI Flow Facility services and instruments. **This procedure does not provide instruction on running FACS Diva software (BD Biosciences) or the actual operation of the cytometers.** Individual training with our facility staff is required for independently running our cytometers.
3.0 DHVI Research Flow Cytometry Website

3.1 URL:  http://shared-resources.dhvi.duke.edu/research-flow-cytometry

3.2 Instrument alerts, contact information, quick links to the DHVI Fac Man calendar, User guides and data archive links are present on the landing page and present on all pages in side panels.

3.3 Overview Tab:  Registration, Required Forms, Pricing and FAQ’s

3.4 Services Tab:  Training request form, FlowJo software license seat request form, end User policy, safety protocols, and miscellaneous protocols and procedures.

3.5 Cytometers Tab:  Descriptions of all our analyzers and cell sorters, downloadable required instrument-specific protocol forms/templates, and comprehensive instrument optical configuration details.

3.6 Resources Tab:  News, useful links and other notifications are posted here.  In addition there are sub pages with details regarding our group affiliations, funding sources, facility acknowledgement text and future links to facility-sponsored publications.

3.7 HELP Tab:  There are useful links for contacting the right people to answer questions regarding DHVI Fac Man registration, billing, training, and general consultation.

3.8 Links to all the other DHVI Shared Resources and the Regional Biocontainment Laboratory are along the left side of the website.

4.0 User and Project Fund Code Registration

4.1 All users must register ONE TIME in the DHVI Fac Man system.  There are three types of required users:

4.1.1 End Users (person using instruments or services).

4.1.2 Principal Investigators (person responsible for funding compliance).

4.1.3 Departmental Business Managers (person responsible for billing).

4.2 User Registration

4.2.1 URL:  https://dhvifacmgr.duhs.duke.edu

4.2.2 Click on the Register link next to “New User?”

4.2.3 Select the link for Duke DHE account holder (Duke Med Center Only), or Select the link for non-DHE account holder (all others Duke or Non-Duke).

4.2.4 Complete all require fields on the registration page and select your primary role:  User, PI, or Business Manager.

4.3 Project Registration

ALL lab fund codes (Projects/Cost Centers/WBS) or external PO numbers to be billed for services must be registered in the DHVI Fac Man system and linked to a responsible PI and Business manager prior to signing up for sessions or initiating work.

ALL authorized END USERS must also be listed on the Facility-Specific Project Registration (Authorizations Section).
4.3.1 URL: https://dhvifacmgr.duhs.duke.edu

4.3.2 Log in with your DHE or assigned Username/Password (see above).

4.3.3 Select REGISTRATION Tab and follow instructions for New Project.

4.3.4 NOTE: A NEW project registration requires applicable and valid IRB, IACUC, and IBC information, and a valid Duke Fund Code or external Purchase Order (PO) number.

4.3.5 FacMan Registration Help: Call 919-684-3349; email DHVI.FacFinMgrHelp@notes.duke.edu

5.0 Required Submission of Hazard Assessment Forms

The DHVI is fully committed to provide a safe work environment for the Flow Facility staff and its users. To assure the assignment of proper safety practices and procedures, it is necessary to collect detailed information about all potential samples being generated by a given research group prior to receipt.

5.1 An online Hazard Assessment Form must be completed and submitted for a given research group (i.e., laboratory or PI). These forms must be submitted online at least 48 hours prior to the inaugural job/session for a particular user or laboratory group. Typically Users or PIs accessing the facility for the first time complete one or more of these online forms to cover all potential sample types and situations for their research projects.

5.1.1 URL: https://dhvifacmgr.duhs.duke.edu/hazard_request

5.1.2 Please complete one form per each sample species, pathogen etc.

5.1.3 Contact Facility Safety Officer for assistance in completing this form.

5.1.4 Forms can be submitted at anytime to alert the Flow Facility staff to changes in sample risk/hazard.

5.1.5 Routine audits by DHVI Safety and Facility staff may result in a need for updated form submission.

5.2 Forms are reviewed electronically by the DHVI Safety Director. An appropriate containment level, and SOP, is assigned based on risk.

5.3 Assigned Hazard Assessment Profiles are noted for PIs in the DHVI Fac Man system and will be a required field when scheduling jobs.

5.4 If no available or relevant Hazard Assessment Profile then please submit a form at this link (https://dhvifacmgr.duhs.duke.edu/hazard_request)

5.5 NOTE: More than one form may need to be submitted for a given PI to cover fixed/unfixed, infected/uninfected and viral vectors/recombinant DNA.

5.6 Work will not proceed until safety approval is granted and appropriate containment level can be provided.

5.6.1 Projects assigned to BSL-3 and/or Select Agent require comprehensive oversight by the Facility Director and the Duke Select Agent Principal Investigator. Please contact the Facility.
Director at least 4 weeks prior to initiation of any BSL-3 and/or Select Agent assigned work.

6.0 Scheduling Cytometer Sessions

ALL end Users are required to go through a onetime DHVI Flow Facility orientation before scheduling a session in the DHVI Fac Man system. Please contact User Support to schedule an appointment.

Use the “schedule time” tab (not “request”) to book sessions in DHVI Fac Man online system at least 24 hours prior to desired session time.

6.1 Using an internet accessible computer launch a web browser (e.g. Safari or Firefox).

6.2 URL: https://dhvifacmgr.duhs.duke.edu/login

6.2.1 Enter your Duke Health Enterprise username and Password (DHE) OR the DHVI Fac Man auto-assigned username and password (non-Duke Health system users) (see above).

6.2.2 If you do not remember your DHE, contact your departmental IT support.

6.2.3 If you are unable to log into the DHVI Fac Man system, contact DHVI Fac Man Help: DHVI.FacFinMgrHelp@notes.duke.edu

6.3 One experiment per session please - If you are doing multiple experiments, you need to schedule multiple sessions in Fac Man.

6.4 Select Schedule Resource Time.

6.5 Select Research Flow Facility.

6.6 Select desired Resource (i.e. Instrument).

6.7 Click New Session.

6.8 Details Tab

6.8.1 Select the appropriate Project Fund Code/PO (if not available then contact Fac Man Help).

6.8.2 Select an appropriate Sub-Project (if available/applicable).

6.8.3 Select the desired Activity.

6.8.4 Enter an Experiment Title (free text).

6.8.5 Enter the desired Scheduled Start and Scheduled End date and time.

6.9 Comment Tab

6.9.1 REQUIRED FOR SORTS: Please supply us with a brief description of your sort (e.g.: psi/nozzle, plates, tubes, 1, 2, 3, or 4 way etc.). This information will help us set up the instrument.

6.9.2 Enter any additional comments you desire to assist the facility staff in safely running your sort. Do not assume the same operator will run your sort each session.

6.10 Click Save.
7.0 Completion of Experimental Protocol Sheets/Flow Templates

ALL end users are required to fill out a current instrument-specific Experimental Protocol form (aka Flow Template) for every experiment/session. The form must be uploaded to the DHVI Fac Man system 24 hours PRIOR to the scheduled experiment/session (Operator Assisted sessions) or before the session is completed (Independent sessions).

7.1 All current instrument-specific forms or templates (Excel) are available for download on our website: http://shared-resources.dhvi.duke.edu/research-flow-cytometry/getting-started/forms/protocol-sheets

7.2 Forms are updated regularly so please go online every couple months and pull down a new template. Forms need to be filled out completely:

7.2.1 Required Information
7.2.1.1 DHVI Fac Man Job ID: Found in the scheduled view in FacMan.
7.2.1.2 Registered Lab PI/End User: PI being invoiced/User name or initials.
7.2.1.3 End User Telephone/Email: Contact purposes.

7.2.2 Required Session-specific Hazard Review
7.2.2.1 Based on our DHVI safety SOPs (see website) the template will assign the appropriate Biosafety Level (1-3).
7.2.2.2 Answer questions to the best of your ability regarding species, sample fixation, rDNA, viral vectors, infectious agents, Select Agents, and cell type/name and sample prep date.
7.2.2.3 If your answers result in "Contact Facility" do not panic. Call or email the facility (See Appendix 1) and discuss the appropriate plan of action.

7.2.3 Required Data Archive and Instrument Setup Information
7.2.3.1 # of Events/Cells to Record: How many cells do you want us to capture for your data analysis?
7.2.3.2 Record Gate: Which gate in the gating strategy do you want to use to collect recorded events?
7.2.3.3 Biotrue Data Folder: What is the name of the PI Lab folder and/or subfolder for data storage?
7.2.3.4 Sort Pressure: default pressure (A01/A02 only) is 70 psi. Default Sort Pressure (N01) varies. Any other pressure must be noted. Failure to provide custom pressure at least 24 hours prior to sort session will result in extra billed session time.
7.2.3.5 Sort Nozzle: Default nozzle (A01/A02 only) is 70 um. Default Sort Nozzle (N01) varies. Any other nozzle must be noted. Failure to provide custom nozzle requirement at
least 24 hours prior to sort session will result in extra billed session time.

7.2.3.6 **Sort Collection:** Please indicate how you will be sorting and what you will be sorting into 1, 2, 3, or 4-way tubes (5 or 6-way for N01 only) (1.5 mL, 5 ml, 15 ml), plates, slides etc.

7.2.3.7 Contact the Flow Facility if you need assistance in determining sort set up parameters.

7.2.4 **Comments and Notes for Operator**

7.2.4.1 Please provide any additional information that you feel will assist the sorter operator in running your session.

7.2.4.2 Please note that we cannot guarantee the same operator for all sessions and therefore special request comments are essential for study continuity.

7.2.5 **Instrument Configuration: Detectors/Common Fluorochromes**

7.2.5.1 This optional portion of the template is instrument-specific and is provided so you can select the optimal Laser/Detector channel for each of your markers.

7.2.5.2 **Lasers:** Tells you the power, excitation and color of the laser for the individual cytometer (e.g. 100mW 488nm (Blue)).

7.2.5.3 **Detector:** Tells you the position of the photomultiplier tube (PMT) of that laser configuration the fluorochrome being used can be seen.

7.2.5.4 **Filter:** Tells you the color of the laser being used as well as the filter(s) used for that particular (PMT) off that laser (e.g. B-505LP_525_50 refers to the filters used in that channel off the Blue laser).

This is the “Fluorescent Channel.” A 525/50 filter will allow light ranging from 500-550nm (a 50nm envelope centered on the 525 wavelength) to excite the PMT. Use the Fluor emission wavelength to assist in selecting the correct channel.

7.2.5.5 Additional details regarding the optical configuration of each machine is available for download on the Facility website. This includes details on the laser excitation wavelengths which can also help in optimal panel design.

7.2.5.6 **Expt. PMT Voltage:** Allows user or operator to record voltages used for PMTs from experiment to experiment.

7.2.5.7 **Common Fluors:** Example of commonly used fluorochromes seen by this laser/detector configuration.
7.2.6 Required Tube List

7.2.6.1 Sample ID: Please provide per line a detailed description of cell/bead/organism that is in the tube. Please also indicate if the tube is an unstained control, isotype control, compensation control, or FMO control.

7.2.6.2 Tube #: Sequentially number all tubes 1 to X. Add additional lines if needed. This is cross-referenced in Diva data collection software and will be included in exported FCS file name.

7.2.6.3 Detector Channels: Please enter the name of the actual fluorochrome used per channel across the top of the grid (e.g.: FITC, PE, PE-Cy5 etc.). Please be very specific when referring to tandem dyes such as as Cy5.5 versus APC-Cy5.5.

7.2.6.4 Stains/Markers: Please enter the name of the actual marker/stain being used PER fluorescent channel (e.g CD3, Annexin V, Live/Dead etc.). This needs to be completed for ALL tubes in the experiment.

7.2.6.5 Sort Tubes: If a tube is to be physically sorted, then please indicate the number of events to be collected and provide a gate strategy/phenotypic description.

7.2.7 Required Controls

7.2.7.1 We recommend that your first tube on the protocol form be your negative control sample. This should be unstained and /or isotype control-stained cells (all channels).

7.2.7.2 To compensate spectral overlap we require a SINGLE-COLOR stained sample for each of the fluorescent channels in your staining panel. Be sure to select a marker that will result in a significant positive population (~30-50%). This may require some pilot assay work and typically takes a few runs to develop a good multicolor flow panel.

7.2.7.3 We suggest that you set up your individual compensation tubes on the protocol form in the order of the detectors being used (left to right).

7.2.7.4 Commercial compensation beads (kappa beads, Bangs beads etc.) can be a very useful substitute for experimental cells. (Contact the Flow Facility for advice on panel development).

7.2.7.5 For more complex stain protocols/panels we suggest also staining a series of tubes with all markers minus one (aka FMO). This allows for more robust and reliable compensation and analysis gating set up.
7.2.8 **Required Upload/Attachment of Completed Protocol Sheet/Template to DHVI Fac Man**

7.2.8.1 DHVI Fac Man was enhanced in fall 2012 to accept and store your completed experiment Protocol Sheet with your job/session reservation.

7.2.8.2 Sign up for a job/session as normal and SAVE (see above).

7.2.8.3 Log into Fac Man and click on saved session.

7.2.8.4 Select the **Documents Tab**.

7.2.8.5 Be sure the protocol sheet is updated to include the **Fac Man Job ID#** and saved to your local computer.

7.2.8.6 Click on **“Add a New Document.”**

7.2.8.7 A New Document upload box will appear. Input a description of the file to be uploaded (e.g. Flow Protocol), browse for saved protocol file and upload the job-specific Protocol Sheet.

7.2.8.8 Sorting sessions also need a pdf of the gating strategy uploaded to the session for experimental template setup.

7.2.8.9 After uploading the file to the system it will be readily available on any instrument workstation by logging into Fac Man, locating your session (calendar or job view) and downloading the file from the documents tab.

7.2.8.10 Only the owner of the Fac Man job/session can download the file, edit the description, add additional documents or replace the document at any time.

7.2.8.11 If updating a protocol sheet and re-uploading it to Fac Man, please put revised or updated protocol in the description box.

7.2.8.12 Independent Users only: The protocol file needs to be uploaded to its Fac Man session **BEFORE** completing the session. If it is not attached to its Fac man session by the time the session needs to be invoiced, the end User will be given a warning. If you get (3) warnings the end User privileges will be suspended until the end User has met with the Facility Director to go over the SOP again.

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8.0 **Tube Labeling**

8.1.1 When bringing samples to the DHVI Flow Facility for an Operator Assisted session, please label the tube with the following information:

8.1.1.1 Tube Number (from the protocol sheet)
9.0 **Safe Transportation of Samples into DHVI Flow Facility Laboratories**

In accordance with Duke OESS and DHVI Safety protocols (see website) we require that all samples coming into DHVI Flow Facility laboratories be fully compliant with the following packaging/transport/labeling procedures:

9.1.1 At a minimum, all materials are to be double-packaged prior to transport. At least one layer of packaging must be leak-proof if the material is a liquid.

9.1.1.1 **Example:** placement of a leak-proof Vacutainer blood tube in a tube rack, and then placing the rack in closeable carrier (e.g. Igloo cooler).

9.1.2 For packages containing liquids, absorbent material must be included in sufficient quantity to absorb the entire contents of the primary container should a spill occur.

9.1.3 The outer sides of the carrier must be sprayed (prior to transport) with a disinfectant that is effective against the potentially infectious material(s) used in the laboratory. Hard plastic exteriors are best for clean ability. Once this step is complete, the outer surfaces of the carrier are considered safe for handling with bare hands. **Lab coats and gloves should not be worn when transporting carriers outside the laboratory.**

9.1.4 A biohazard warning label shall be applied when applicable to the carrier to communicate the potential hazard of its contents. Any potentially infectious material (e.g. human blood, unfixed human tissue, bacterial culture) would require the biohazard label (see example).

**Example of Proper Packaging for Liquids**

![Example of Proper Packaging for Liquids](image)

10.0 **Facility Entry/Exit Requirements and Proper PPE**

10.1 When entering a cytometer room, closed toed shoes **MUST** be worn.

10.2 When using the cytometer, proper PPE must be worn. This includes wearing a white lab coat and gloves under Green status and a blue lab coat, double gloves and a face shield under Red status.
10.3 When exiting the cytometer room, gloves must be removed and disposed of in the Biohazard container, lab coat removed and hands washed thoroughly with soap and warm water.

11.0 Data Archive

11.1 DHVI-CDMS Biotrue: Currently we have a web-based collaborative data management system from which users can retrieve their flow FCS data. This is currently a set of open access drop box like folders for all Facility users. **It is the Users’ responsibility to archive their exported FCS files into the correct Biotrue folder (Independent Users only).**

11.1.1 URL: https://cdms.duhs.duke.edu

| 11.1.1.1 Username: | flowguest |
| 11.1.1.2 Password: | DHVIflow0311 |
| 11.1.1.3 Select | DHVI Flow Cytometry Facility |
| 11.1.1.4 Select | PI Lab Flow Data (e.g. Sempowski Lab) |
| 11.1.1.5 Select | Desired Flow Data year (e.g. 2015 Flow Data) |

11.1.2 Data Upload: Outside the scope of this SOP. Procedure for data upload is provided during end User independent training (see website for training request).

11.1.3 Data Download:

| 11.1.3.1 | Locate and select the desired folder of FCS files |
| 11.1.3.2 | Click the green down arrow to initiate folder download. |
| 11.1.3.3 **OR** use the “Select Task for Check Items” toll at the bottom of the screen to initiate folder download. |
| 11.1.3.4 | A download dialog box will appear. Follow the prompts to download the folder of compressed FCS files. |
| 11.1.3.5 | A .jar file will be downloaded and should automatically decompress. This will result in a new folder with the name of the experiment. In this folder is another folder containing all the raw FCS files. |
| 11.1.3.6 | For help with Biotrue, please contact the DHVI Flow Facility. |

11.2 Data Analysis: We use and recommend FlowJo from Treestar for off line flow data analysis. The DHVI Flow Facility manages a Duke site license for FlowJo. A seat on this license is purchased annually (July 1-June 30) and can be requested via our web page. http://shared-resources.dhvi.duke.edu/research-flow-cytometry/services/flowjo-license-0
12.0 Overall Facility Policies

12.1 Users caught violating ANY safety protocol will have immediate suspension of Facility use. The User must meet with the Facility Director and the DHVI Safety Director to determine future use.

12.2 Users that have three documented violations of our policies will have Facility use suspended and must meet with the Facility Director to determine future use. If needed the User’s PI will be included in these discussions.

12.3 It is critical that the authorized end User select the correct Project Fund Code and Hazard Profile for the experiment being run to maintain cost compliance with federal grants and a safe environment. If you are unsure - ask your PI!

12.3.1 If the Project Fund Code needed is not present, then the User needs to Register that Project Fund Code in the DHVI Fac Man system and ensure that they are authorized to use the code in our Facility (see above).

12.4 The DHVI Research Flow Facility has financial support from a number of sponsors. Registered funding sources (i.e. Project Fund Codes, POs) and NOT PIs are then assigned to Affiliations in our Fac Man systems. User rates are Affiliation-specific. The approved rate for services will be auto-populated by Fac Man. Questions regarding rates, affiliations and discounts should be directed to the Facility Director.

12.5 Sessions cannot be scheduled under another User’s name. If you are not registered in Fac Man please do so or if you do not have project codes available to you, please contact Fac Man Help (see above).

12.6

12.7 Analytical cytometers (L01, L02, F01) can only be operated by trained Users. Trained independent Users cannot allow their untrained colleagues to independently operate a cytometer. To become a trained independent User please go to the DHVI Flow Facility website and get on the training wait list: http://shared-resources.dhvi.duke.edu/research-flow-cytometry/services/training

12.8 Sorting cytometers (A01, A02 and N01) are only operated by a DHVI Flow Facility Operator. Sort samples take priority over phenotyping samples. Users are responsible for scheduling their sessions in Fac Man on these cytometers. When scheduling your session please account for an additional 30 minutes setup time for the default pressure/nozzle setup (see 7.2.3 above) and an additional 45 minutes for a custom setup.

12.9 The BD FACS Aria (A01) is designed for high-containment sorts as well as standard sorts. It is housed in the NIAID-Regional Biocontainment Building at Duke called GHRB, you will need a valid DUKE ID or government issued ID to clear Security. Users will be screened by Duke Security before entering the building (similar to airport security).
12.10 To access the BD FACS Aria (A02) or the BD Influx (N01) in **MSRBII 4th floor**, you will need to phone the Flow Facility 919-684-4130 to come out and let you into the 4th floor hallway (there is a phone next to the elevator that you can use).

12.11 Up to 24 hours before a scheduled session you can log into Fac Man and cancel your session with no penalty.

12.12 If you are running late or need to change/cancel your scheduled time slot within 24 hours of the start time, then contact the Flow Facility (919-684-4130) so that we can act accordingly. If there is no answer at that number, email the DHVI Flow Cytometry mailbox at dhvflo@dm.duke.edu. Additional contact numbers are in Attachment 1.

12.13 Independent Users must put “**Cancel**” in the experiment title box in their Fac Man session to let other Independent Users scheduled before them know if they need to shut down the cytometer or not.

12.14 If you do not show or if you cancel inside the 24 hour window, you will be invoiced for that scheduled time unless we can find another User to fill the time slot. Contact the Facility Director if you have extenuating circumstances.

12.15 If you require a Facility Operator to assist with your “Independent” session in excess of 15 minutes, or routine troubleshooting, you will be invoiced for the operator’s time.

12.16 Sessions are automatically invoiced in 15 minute increments from the earliest **Scheduled Start** to the latest **Actual END**.

12.17 There is a 30 minute minimum schedule time for a session and a session will be paused by Facility staff during instrument malfunction or with approval of the Facility Director.

12.18 It is the responsibility of the independent end User to export their FCS files from FACS Diva and upload them to their lab folder in DHVI-CDMS Biotrue. The Facility will maintain a separate archive of all Diva experiments but we cannot guarantee immediate retrieval.

12.19 FlowJo site license seats are invoiced annually in July. Initial purchases are prorated for the number of remaining months on the annual seat. **NO REFUNDS** for seat cancellation.

12.20 The DHVI Research Flow Facility is supported by a variety of shared instrumentation grants, center grants, and program awards. Acknowledgement of our facility and applicable funding in publications is required and helps to demonstrate our utility to Duke and funding sponsors. A list of example acknowledgment text can be found in Attachment 2.

12.20.1 Please include all funding affiliations that apply. If you have a question about the appropriate grant to acknowledge please contact Flow Facility Director.
12.21 The DHVI Research Flow Facility reserves the right to cancel/reschedule booked sessions based on a priority list drafted by the Facility Advisory Board.

13.0 Attachments

13.1 #1: DHVI Flow Facility Contact List

13.2 #2: Facility and Funding Support Acknowledgement
Attachment #1: DHVI Flow Facility Contact List

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<td>Hope</td>
<td>Tony</td>
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<td>Facility Director</td>
<td>Sempowski</td>
<td>Greg</td>
<td>919-684-4386</td>
<td>919-699-4242</td>
<td>919-381-5833</td>
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<td>Director for Instrumentation</td>
<td>Whitesides</td>
<td>John</td>
<td>919-684-4895</td>
<td>919-724-6451</td>
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Attachment #2: Facility and Funding Support Acknowledgement

General Facility Acknowledgement:
“Flow cytometry was performed in the Duke Human Vaccine Institute Research Flow Cytometry Shared Resource Facility under the Direction of Dr. Gregory D. Sempowski (Durham, NC).”

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Please include all funding affiliations that apply. If you have a question about the appropriate grant to acknowledge please contact the Facility Director.

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DCTR
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NIAID Regional Biocontainment Laboratory at Duke
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RadCCORE
“This work was supported by the Immune Monitoring Core of the Radiation Countermeasures Center of Research Excellence at Duke, which is funded by the National Institutes of Health (U19-AI067798).”

SERCEB
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