

VUMC Flow Cytometry Shared Resource **Cell Sorting**

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Cell Sorting Guidelines

Lab policies

The VUMC Flow Cytometry Shared Resource (Flow Core) has three FACS (fluorescence-activated cell sorting) instruments. One is located in a BSL2+ facility, but all three are housed in biosafety enclosures (BSL2). The BSL2+ sorter is prioritized for sorts requiring a higher level of containment (such as Sars2/Covid 19+, HIV+, etc) but can be reserved when the other two sorters are already booked. You will need to email the flow core (vmcflow@vumc.org) This higher biosafety level refers to higher containment precautions for operator safety. The 3 sorters are not identical. This means that the same panel might not work on all 3 instruments, so please refer to the provided configuration pdfs or ask core staff about your panel before booking.

Sorters are typically run by core personnel; no training is required to have samples sorted by the Flow Core. This means all sorts must be booked with assistance. We have provided pdfs that walk through how to view available assistance alongside instrument calendars and how to book a sort per request. Note that it is lab policy to delete any appointments that are not made correctly.

Sorting services are available Monday-Friday from 10:00am-5:30pm, by appointment only. We are closed for VUMC holidays. If the sorters are unavailable for other reasons such as service/maintenance, the instrument calendar may be blocked. We do have more instruments than personnel, so there is always a chance that a sorter will be available when no core personnel are available to run it. Please keep in mind that our cancellation policy for no charge is 24-hours. Once we are within 24 hours of an appointment, sorts can only be cancelled by core personnel. Please send a cancellation request to our lab email so it goes to all core personnel. **The lab email is vmcflow@vumc.org. The lab phone number is (615)343-8323.**

The email address that is associated to your iLab account is the one we will default to using if we have any questions/issues about a reservation, including sending a heads up that your appointment has been deleted. Please be sure the email associated to your iLab account is your preferred contact email. Since the VU/VUMC split, not all email addresses have been updated to the new vumc.org address, please update your profile if you have not already done so.

BSL2+ considerations

Because of the aerosolizing nature of the cell sorters, some BSL2 reagents require BSL2+ sorting procedures; any and all questionable reagents / treatments / materials / infections should be approved by the Office of Clinical Research and Safety (OCRS) prior to scheduling the sort, and must be documented in the event notes.

This sorter is located outside of our main lab space, so users cannot accompany core personnel. Gating can be confirmed either via email or zoom and a shared screen.

Current price (subject to change)

Sorting: \$153/hour (setup fee of \$76.50 added to each sort)

Booking time

All sorts are booked in iLab, so all users require an active iLab account with access to the appropriate center numbers. All center numbers are added by CORES/OOR, and then designated to users by the PI or lab manager. If you need assistance getting new center numbers added to iLab, email vumccores@vumc.org.

Users make their own reservations, including choosing billing information. Please be sure you are picking the correct center number. If a lab has scholarships/vouchers, these are assigned the same as other cost centers in iLab. When using a scholarship, please be aware that the current total iLab shows does not consider the current appointments that haven't been billed. This means that as long as there is enough to cover a single appointment, it can be used for multiple separate appointments in that billing cycle; effectively over billing the scholarship. If core staff notices this, appointments may be deleted, and the user will need to rebook with a new center number. If center number changes are needed, a "journal entry" may be required by your administrative team. Please double check the correct billing number prior to making your reservation.

When booking sorts, a nozzle size must be left in the comments so core staff can setup the sorter properly. Be sure these comments are viewable to all users. The nozzle size used depends on a.) what type of cells you have and b.) what your sorting goals are. Generalized recommendations for nozzle size:

70um: T cells, samples being taken to Vantage for 10X
100um: B cells, isolated nuclei
130um: iPSCs

Please keep in mind these are *only* recommendations to maintain cell viability without shearing.

If there is already a sort booked before or after your time of interest, be sure to check the nozzle size. If it's different than the nozzle you wish to use, you must leave a 30-minute block of time (*that is available with assistance*) so we can book time for a switch over. If you do not leave the necessary time for a switch over, it is lab policy that the appointment be deleted.

This comments section is also where you can leave any additional instructions (for example, if a sample/collection tube should not be vortexed, or if collection into plates will be required).

Nozzle size/collection

Each nozzle size also has its own range of recommended sample concentration. The recommendation for each nozzle size depends on sample prep. If a sample has been pre-sorted,

then the sort sample concentration can be higher. On the other hand, if the cells in the sort fall out of suspension easily or like to stick, then a lower concentration may be necessary despite the nozzle size.

70um: min: 20×10^6 cells/ mL, max: 40×10^6 cells/mL
100um: min: 5×10^6 cells/mL, max: 14×10^6 cells/ mL
130um: 2.5×10^6 (or up to 5×10^6 for pre-sorted samples) / mL

Maximum (max) recommendations are based on ideal samples (no clumping, cells stay in suspension). If cells are sticky because of cell death (DNA is sticky), some DNase at room temperature may help. No matter the recommended concentration, please always be sure to bring extra buffer in case a sample needs to be diluted. *Personnel can refuse to sort if the sample clogs the instrument.*

It takes approximately 1 hour to get through 1mL of volume.

For collection we can do bulking sorting into individual PCR or micro-tubes, 1.7mL Eppendorf tubes, 5ml round-bottom tube, or 15-mL conical tubes. We can do 4-way sorting (sort 4 different populations from a single sample) into either 1.7mL eppendorfs or 5mL round-bottoms. When using 15mL conicals or PCR tubes for collection, only 2 populations can be sorted from a single sample.

All cells are sorted encased in a droplet of sheath (we use Beckman Coulter Isoflow Sheath Fluid). The volume added to the collection tube is different for different nozzles.

70um: 1×10^6 cells collected = 1.060mL volume added with the highest concentration being 1000 cells/uL
100um: 1×10^6 cells collected = 3.070mL volume added with the highest concentration being 325.7 cells/uL
130um: 1×10^6 cells collected = 5mL with the highest concentration being 200 cells/uL

Because of the amount of volume sorted, samples being sorted to run directly on the 10X (genomics stuff here) should be done on the 70um nozzle, assuming shearing isn't an issue. For larger cells, it may be required that cells be sorted on a larger nozzle and then spinning; however, there will likely be cell loss in this process.

We can also sort into plates. This includes 4-well chamber slides, single 6cm dish, all tissue-culture plates (12, 24, 48, 96, 384-wells). This also includes single-cell sorting into 96 and 384-well tissue culture and PCR plates. Media should already be loaded into plates when they arrive in the core. We have an incubator kept at 37°C in which plates can be kept in pre and post sort. (separate incubators for mammalian vs bacteria). If the cells of interest are frequent enough the instrument can sort with no pauses, it takes 2-3 minutes to single-cell sort into a 96-well plate and 7-8 minutes for a 384-well plate. All plate sorting is a single population at a time. When planning your experiment, please account for an additional 3 min / plate for washing between samples.

With the exception of plates and sorting into lysis buffer, collection tubes are kept chilled at 4°C during sorting unless told otherwise by the user. Post sort collection is placed back on ice if provided by user. We do recommend everything (samples, collection, extra buffer) be brought down on ice.

Other sort sample considerations

While we can sort into whatever media in which cells are happiest, there are a couple considerations for the sort sample buffer. Ideally, media containing phenol-red should be avoided as it can add to the background. Protein can be added, but no more than 5% unless absolutely necessary. EDTA can also be used if cells are sticky, but optimization for proper concentration is recommended.

Samples should be filtered. If you can see something floating in the sample, then it will clog our instrument. We recommend FACS tubes that have the filter built into the cap (Falcon 352235). Any samples that continue to clog the instrument will be stopped without completing the sort.

We recommend using a viability dye; however, it's ultimately up to the user. If your sample has a lot of dead cells or when integrity of target cells is a concern, then a viability dye should be used. Ask core personnel if you would like any recommendations based on needs or panel design.

Sorting efficiency (potential target cells vs actual sorted target cells) will never be 100%. A cleaner sample at the optimal concentration for a nozzle is the best path forward to higher recovery. The only way to know the efficiency of a sample is once it's on the sorter.

Users can stay for the sort setup and gating but not for the entire sort. If a user prefers to drop off samples, a sheet of paper or email with sample details and gating strategy is required. We will also need an email address or phone number in case we need to contact the user. We can also verify gates via zoom or text if desired. If a user chooses to drop off their samples, they should be readily available via the contact information provided throughout the duration of the sort.

If sorting bacteria or a sample that is cultured with bacteria, please be sure to alert core personnel when booking as extra time may be required for cleaning.

Users should always provide a negative (WT/parental) control. Single-color controls are also highly recommended, even necessary most of the time. Please be sure core personnel is aware of everything in a sample. Just because the user "isn't interested in sorting a signal", doesn't mean it can't cause issues with other parameters. It's always going to be easier to setup for a signal and then sort around it, then it will be to potentially waste time trying to figure out where a mystery signal is coming from.

If a user wishes to optimize a protocol or panel prior to sorting (as analysis time is cheaper than sorter time), we recommend the 4-laser Fortessa. The 4 laser Fortessa has the closest configuration to the sorters (namely the 561nm laser for PE, PE tandem dyes, and certain fluorescent proteins such as mCherry).

If you have issues with your collection after the sort, please alert core personnel immediately. This includes issues with post-sort viability, presence of cell debris, and possible

contamination. We do daily cleaning each morning and deeper system cleans every other week, but unfortunately nothing is 100%. We also rely on user feedback.


Data analysis

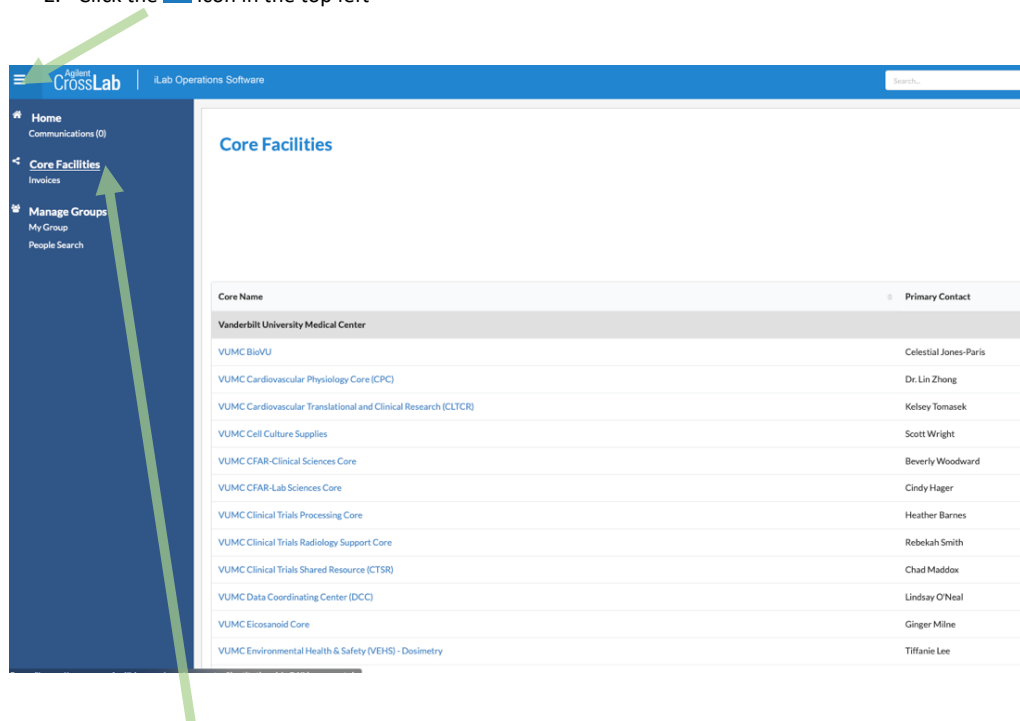
We offer access to Flow Jo on a monthly basis. The current cost is \$25.00, and the signup is through iLab. Vouchers and scholarships cannot be used. Email request must be sent to stop access, otherwise billing will continue. Access is for all Flow Jo plugins on their exchange.

Scheduling Sorts

Viewing core-availability calendars

Viewing Core Assistants Calendars

1. Log into iLab
2. Click the  icon in the top left

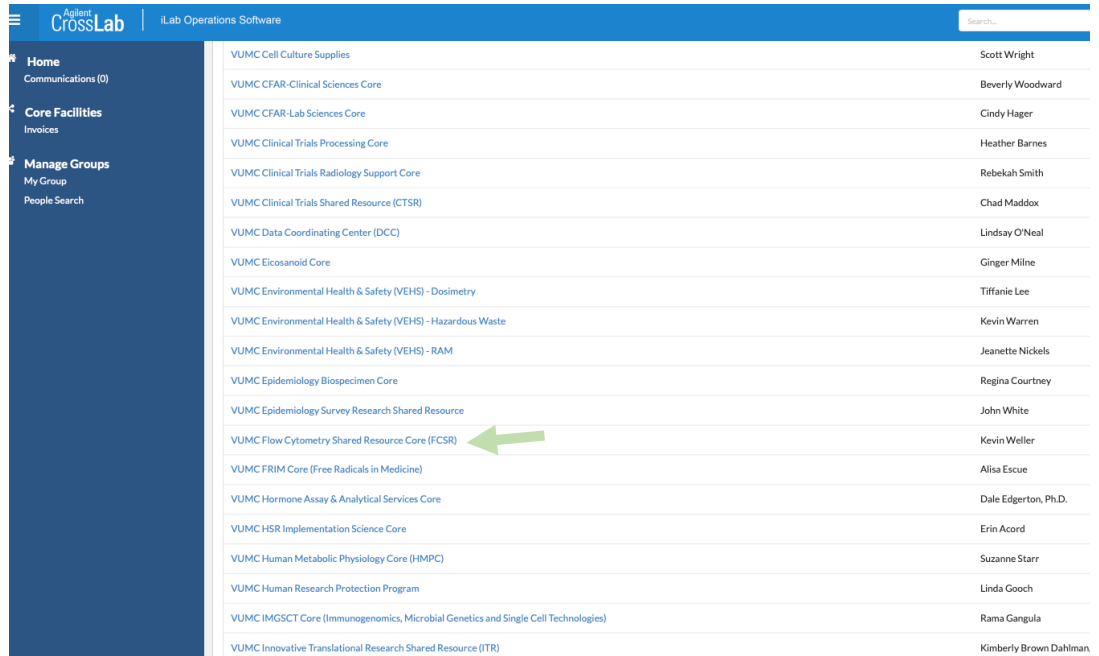


The screenshot shows the iLab CrossLab interface. The top navigation bar includes the CrossLab logo, 'iLab Operations Software', and a search box. The left sidebar contains a menu with 'Home', 'Core Facilities', and 'Manage Groups'. The 'Core Facilities' section is expanded, showing a list of facilities and their primary contacts. A green arrow points to the hamburger menu icon in the top left, and another green arrow points to the 'Core Facilities' menu item in the sidebar.

Core Name	Primary Contact
Vanderbilt University Medical Center	
VUMC BioVU	Celestial Jones-Paris
VUMC Cardiovascular Physiology Core (CPC)	Dr. Lin Zhong
VUMC Cardiovascular Translational and Clinical Research (CLTCR)	Kelsey Tomasek
VUMC Cell Culture Supplies	Scott Wright
VUMC CFAR-Clinical Sciences Core	Beverly Woodward
VUMC CFAR-Lab Sciences Core	Cindy Hager
VUMC Clinical Trials Processing Core	Heather Barnes
VUMC Clinical Trials Radiology Support Core	Rebekah Smith
VUMC Clinical Trials Shared Resource (CTSR)	Chad Maddox
VUMC Data Coordinating Center (DCC)	Lindsay O'Neal
VUMC Eicosanoid Core	Ginger Milne
VUMC Environmental Health & Safety (VEHS) - Dosimetry	Tiffany Lee

3. When the menu appears, click "Core Facilities"

4. From the Core Facilities list, scroll to find “VUMC Flow Cytometry Shared Resource (FCSR)” and click the link.



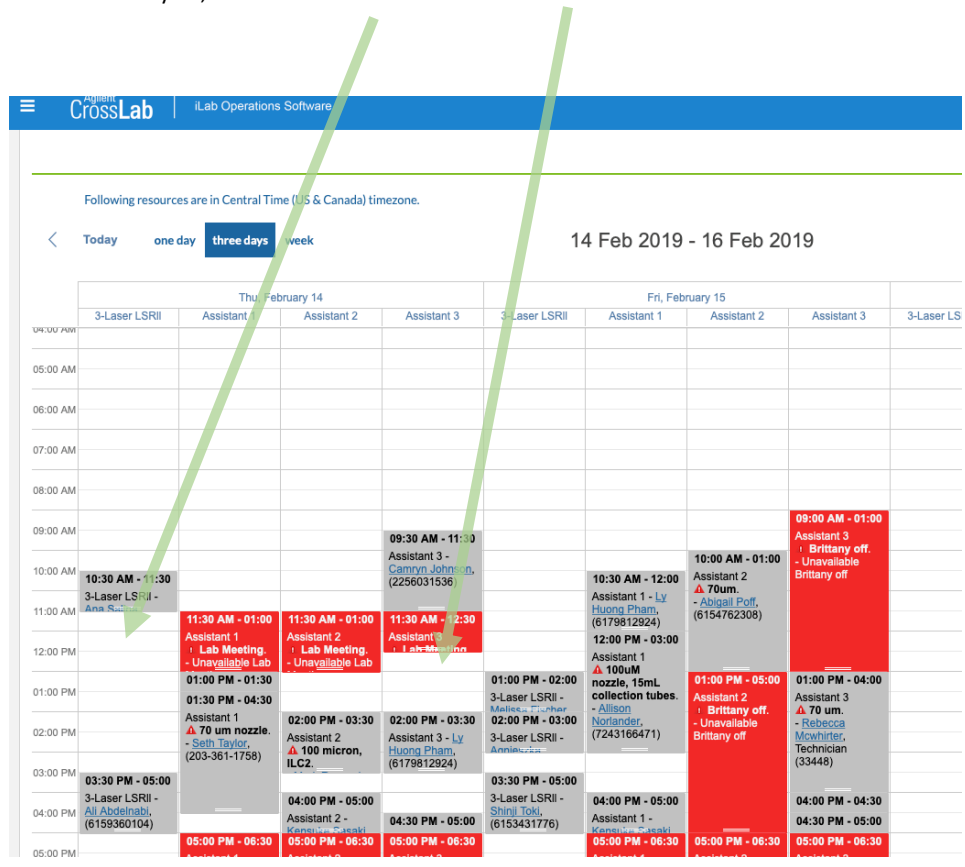
The screenshot displays the Agilent CrossLab iLab Operations Software interface. The top navigation bar includes the Agilent CrossLab logo and the text 'iLab Operations Software'. A search bar is located in the top right corner. The left sidebar contains navigation options: Home, Communications (0), Core Facilities, Invoices, Manage Groups, My Group, and People Search. The main content area shows a list of Core Facilities with their respective contact persons. A green arrow points to the 'VUMC Flow Cytometry Shared Resource Core (FCSR)' entry.

Core Facility Name	Contact Person
VUMC Cell Culture Supplies	Scott Wright
VUMC CFAR- Clinical Sciences Core	Beverly Woodward
VUMC CFAR- Lab Sciences Core	Cindy Hager
VUMC Clinical Trials Processing Core	Heather Barnes
VUMC Clinical Trials Radiology Support Core	Rebekah Smith
VUMC Clinical Trials Shared Resource (CTSR)	Chad Maddox
VUMC Data Coordinating Center (DCC)	Lindsay O'Neal
VUMC Eicosanoid Core	Ginger Milne
VUMC Environmental Health & Safety (VEHS) - Dosimetry	Tiffany Lee
VUMC Environmental Health & Safety (VEHS) - Hazardous Waste	Kevin Warren
VUMC Environmental Health & Safety (VEHS) - RAM	Jeanette Nickels
VUMC Epidemiology Biospecimen Core	Regina Courtney
VUMC Epidemiology Survey Research Shared Resource	John White
VUMC Flow Cytometry Shared Resource Core (FCSR)	Kevin Weller
VUMC FRIM Core (Free Radicals in Medicine)	Alisa Escue
VUMC Hormone Assay & Analytical Services Core	Dale Edgerton, Ph.D.
VUMC HSR Implementation Science Core	Erin Acord
VUMC Human Metabolic Physiology Core (HMPC)	Suzanne Starr
VUMC Human Research Protection Program	Linda Gooch
VUMC IMGSC Core (Immunogenomics, Microbial Genetics and Single Cell Technologies)	Rama Gangula
VUMC Innovative Translational Research Shared Resource (ITR)	Kimberly Brown Dahman

- The calendar view might be empty. On the right of the screen is a list of all available calendars. Click the box next to the instrument calendar(s) you want to see. Scroll down to find the Core Assistants Calendars, and check Assistant 1, Assistant 2 and Assistant 3. You can view multiple calendars at a time.

The screenshot displays the VUMC Flow Cytometry Shared Resource Core (FCSR) interface. At the top, it identifies the institution as Vanderbilt University Medical Center. The main navigation includes links for 'About Our Core', 'Schedule Equipment', 'Request Services', 'View My Requests', 'Contact Us', and 'View Schedule'. The current view is 'Select resources', showing a calendar for the dates 8 Feb 2019 to 10 Feb 2019. The calendar grid is currently empty. On the right side, there is a list of available resources with checkboxes. A green arrow points from the text in step 5 to the 'HyperCyt Plate Sampler : HyperCyt Plate' resource. Below this, another green arrow points to the 'Core Assistants Calendar' section, which includes checkboxes for 'Assistant 1', 'Assistant 2', and 'Assistant 3'. At the bottom of the page, there is a footer with contact information: 'If you need help, email: lab-support@allent.com © Agilent Technologies, Inc. 2019'.

- Find a time when both the instrument and an assistant are available. For example, on February 14, both the instrument and Assistant 3 are available from 12:30PM-1PM.



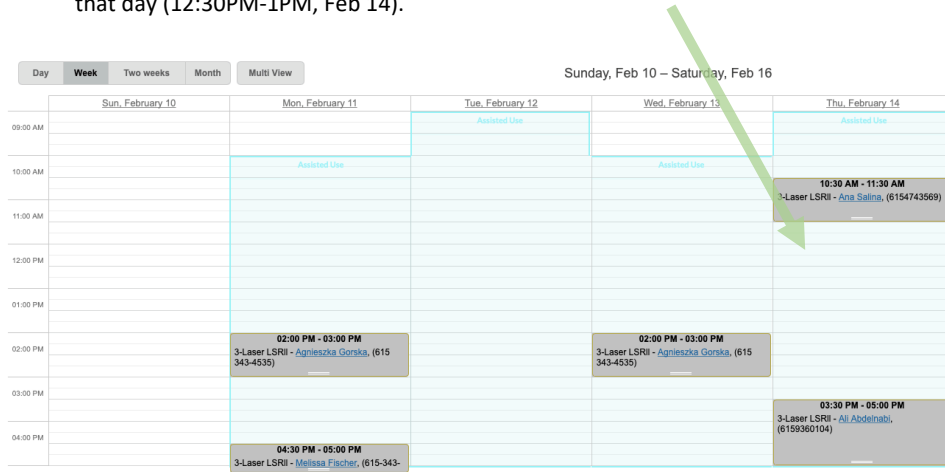
7. To book the 12:30PM-1PM spot, click the instrument calendar's name for that day

Following resources are in Central Time (US & Canada) timezone.

Today one day **three days** week 14 Feb 2019 - 16 Feb 2019

	Thu, February 14			Fri, February 15					
	3-Laser LSRII	Assistant 1	Assistant 2	Assistant 3	3-Laser LSRII	Assistant 1	Assistant 2	Assistant 3	3-Laser LSRII
04:00 AM									
05:00 AM									
06:00 AM									
07:00 AM									
08:00 AM									
09:00 AM				09:30 AM - 11:30 Assistant 3 - Camryn Johnson, (2256031536)				09:00 AM - 01:00 Assistant 3 Brittany off. - Unavailable Brittany off	
10:00 AM	10:30 AM - 11:30 3-Laser LSRII - Ana S... ..					10:30 AM - 12:00 Assistant 1 - Ly Huong Pham, (6179812924)	10:00 AM - 01:00 Assistant 2 70um. - Abigail Poff, (6154762308)		
11:00 AM		11:30 AM - 01:00 Assistant 1 Lab Meeting. - Unavailable Lab	11:30 AM - 01:00 Assistant 2 Lab Meeting. - Unavailable Lab	11:30 AM - 12:30 Assistant 3 Lab Meeting					
12:00 PM						12:00 PM - 03:00 Assistant 1 100uM nozzle, 15mL collection tubes. - Allison Norlandeg, (7243166471)			
01:00 PM		01:00 PM - 01:30 Assistant 1 70 um nozzle. - Seth Taylor, (203-361-1758)	02:00 PM - 03:30 Assistant 2 100 micron, ILC2.	02:00 PM - 03:30 Assistant 3 - Ly Huong Pham, (6179812924)	01:00 PM - 02:00 3-Laser LSRII - M... .. 02:00 PM - 03:00 3-Laser LSRII - Ann... ..		01:00 PM - 05:00 Assistant 2 Brittany off. - Unavailable Brittany off	01:00 PM - 04:00 Assistant 3 70 um. - Rebecca Nowhiter, Technician (33448)	
02:00 PM									
03:00 PM	03:30 PM - 05:00 3-Laser LSRII - Ali Abdelnabi, (6159360104)				03:30 PM - 05:00 3-Laser LSRII - Shinj... .. (6153431776)				
04:00 PM		04:00 PM - 05:00 Assistant 2 - K... ..		04:30 PM - 05:00 Assistant 3		04:00 PM - 05:00 Assistant 1 - K... ..			04:00 PM - 04:30 Assistant 3 04:30 PM - 05:00 Assistant 2
05:00 PM		05:00 PM - 06:30 Assistant 1	05:00 PM - 06:30 Assistant 2	05:00 PM - 06:30 Assistant 3		05:00 PM - 06:30 Assistant 1	05:00 PM - 06:30 Assistant 2	05:00 PM - 06:30 Assistant 3	

- When the instrument calendar only comes up, left click and drag the time you want for that day (12:30PM-1PM, Feb 14).



- After you click and drag, you may be prompted to select which PI this appointment needs to be associate to. Note that scholarships are VUMC, so if you are part of a VU lab, then you'll need to select the VUMC option for your PI here.
- The "Reservation details" page is where you will include any Event Notes (information the user feels is pertinent to Core Personnel), BOOK THE ACTUAL ASSISTANCE, and confirm payment.

- To actually book with assistance, go to "Reserve time on a linked schedule" and click the box next to Reserve.

Reservation details Unsaved reservation - click save reservation Required forms
 There are no forms required to make this reservation.

For: 3-Laser LSR11 - Assisted Use \$97.00/hr (All Customers) (needs approval) - My Reservation
 Lab: [Admin \(VJMC\) Lab](#)
 Created on: February 08, 2019 11:00

Do you need assistance?

*****When making an assisted reservation, users are also required to reserve assistance time on a "linked calendar"*****

- In the "Reserve time on a linked calendar" section (below), check the box next to "reserve".
- The assistant calendars will open.
- Select an assistant by checking the box on the left side of the assistant you are requesting. **The green check mark indicates an assistant is available!**

NOTE: Only select one assistant to avoid duplicate charges.

Availability:
 Assisted: 9:30 AM - 5:00 PM
 Trained Users: 9:00 AM - 5:00 PM
 After-hours Trained Users: 23hr access
 Quality Control Testing is from 8:00 AM - 9:00 AM (everyday)
 Weekly deep-cleaning is Wednesday 8:00 AM - 10:00 AM.

Event Notes: note visible to anyone 🔒 🔓

Times

	Start	End	
Scheduled	Feb 14 2019 12:30 PM	Feb 14 2019 01:00 PM	


[Reserve time on a linked schedule](#)

Reserve

[View next reservation](#)



12. A list of individual assistants (1, 2 and 3) will appear. Only assistants with a green check next to it, are available for booking during the time chosen. If a red circle (with the words "offline") is next to it instead, then that assistant is not available during that time. Note that assistants are not assigned to any individuals in the Core. *HyperCyt is NOT an assistant so don't check it.



Times



Scheduled	Start	End	
	Feb 14 2019 12:30 PM	Feb 14 2019 01:00 PM	



Reserve time on a linked schedule

Reserve




HyperCyt Plate Sampler - HyperCyt Plate Sampler Accessory \$25.50/hr  


Core Assistants Calendar - Assistant 1 Core Assistant (no charge)   offline

Core Assistants Calendar - Assistant 2 Core Assistant (no charge)   offline


Core Assistants Calendar - Assistant 3 Core Assistant (no charge)  

Use and cost of reservation

Duration	Effective Rate	Amount	Use Type
0.5 hours	\$97.00	= \$48.50	 
0.5 hours	Total Cost	\$48.50	



Payment information

Please enter the Billing Number 

13. After the available assistant is picked, scroll down to confirm payment and submit reservation.

Details of booking a sort

The screenshot shows the 'Lab Organizer' web application interface for booking a reservation. The page is titled 'Reservation details' and includes sections for 'Reservation details', 'Required forms', 'Event Notes', 'Times', 'Reserve time on a linked schedule', 'Use and cost of reservation', 'Additional charges for this event', 'Payment Information', and 'Service Project'. Three red callout boxes with arrows pointing to specific elements provide the following instructions:

- 1). Write nozzle size and plate information (if needed) Here.** - Points to the 'Event Notes' field.
- 2). Be sure event notes are available to everyone!** - Points to the 'Reserve time on a linked schedule' section.
- 3). Click here to Reserve an Assistant** - Points to the 'Reserve' button in the 'Reserve time on a linked schedule' section.

Reservation details [Unsaved reservation](#) [Add save reservation](#) [Required forms](#)
Pan: 4 laser FACSIMILE II, Dispositivo de Bata Hood enclosure - Independent Use \$17,00hr (paired)
users) - My Reservation
Lab: Admin (UMC) Lab
Created on: April 26, 2017 08:05
There are no forms required to make this reservation.

When making an associated reservation, users are also required to reserve assistance time on a core technician calendar.

1. In the "Reserve time on a linked calendar" section, check the box next to "Reserve".
2. The assistant's calendars will open.
3. Select an assistant by checking the box on the left side of the assistant you are requesting.

NOTE: Only select one assistant to avoid duplicate charges.

Event Notes:

Times

Scheduled	Start	End
	Apr 27 2017 11:00 AM	Apr 27 2017 11:00 PM

Reserve time on a linked schedule

Reserve

Reserve an event

Use and cost of reservation

All users making associated reservations will need to verify the usage type below is listed as "assisted use" to ensure you are billed the correct rate. To change, select the option from the drop-down menu.

Discrete Availability Types

Apr 27 11:00 - 11:00	Independent use \$17,00hr (paired)
----------------------	------------------------------------

Total: \$104.0 (2.0 hours)

Additional charges for this event

Payment Information

Please enter the Billing Number

%	Billing Number
100.0%	You do not have access to any Billing Numbers. To resolve this problem, please contact the PI or financial manager of your lab.

100.0% [Add additional service charge](#)

Service Project

Assign to an ongoing project of the same researcher

Invite additional people to this event by email

Please enter a comma separated list of valid email addresses

[Save Reservation](#) [Cancel Changes](#) [Cancel Reservation](#) [Delete Reservation](#)

Lab Organizer - VJMC Flow Cytometry Station - Lab Organizer

Secure https://vumc.edu/facilities.org/equipment/2144873?tab=reservation

Reservation details **Unsaved reservation - edit new reservation** Required forms

For: 4 laser FACSAria II, Biorobed IV Biorobed enclosure - Independent Use \$77,000/yr (shared)
 user: My Reservation
 Lab: Alpha (VJMC) Lab
 Created on: April 20, 2017 09:15

When making an assisted reservation, users are also required to reserve assistance time on a core technician calendar.

- In the "Reserve time on a linked calendar" section, check the box next to "Reserve".
- The assistant calendars will open.
- Select an assistant by checking the box on the left side of the assistant you are requesting.

NOTE: Only select one assistant to avoid duplicate charges.

Event Notes:

Times

Scheduled	Start	End
	Apr 27 2017 11:00 AM	Apr 27 2017 01:00 PM

Reserve time on a linked schedule

Reserve

- Core Assistants Calendar - Assistant 1 Core Assistant fee charges
- Core Assistants Calendar - Assistant 2 Core Assistant fee charges to reserve, select a different time
- Core Assistants Calendar - Assistant 3 Core Assistant fee charges

Repeating event
 Enabled

Use and cost of reservation

All users making assisted use reservations will need to verify the usage type below is listed as "assisted use" to ensure you are billed the correct rate. To change, select the option from the drop down menu.

Override Availability Types
 Apr 27 11:00 - 13:00 Independent Use \$77,000/yr shared users
 Total: \$154.0 (2.0 hours)

Additional charges for this event

Payment Information
 Please enter the Billing Number

100.0% Billing Number
Please do not leave spaces in our Billing Numbers. To resolve this problem, please contact the PI or Financial manager of your lab.

100.0%

Service Project
 Assign to an ongoing project of the same researcher
 Select existing project

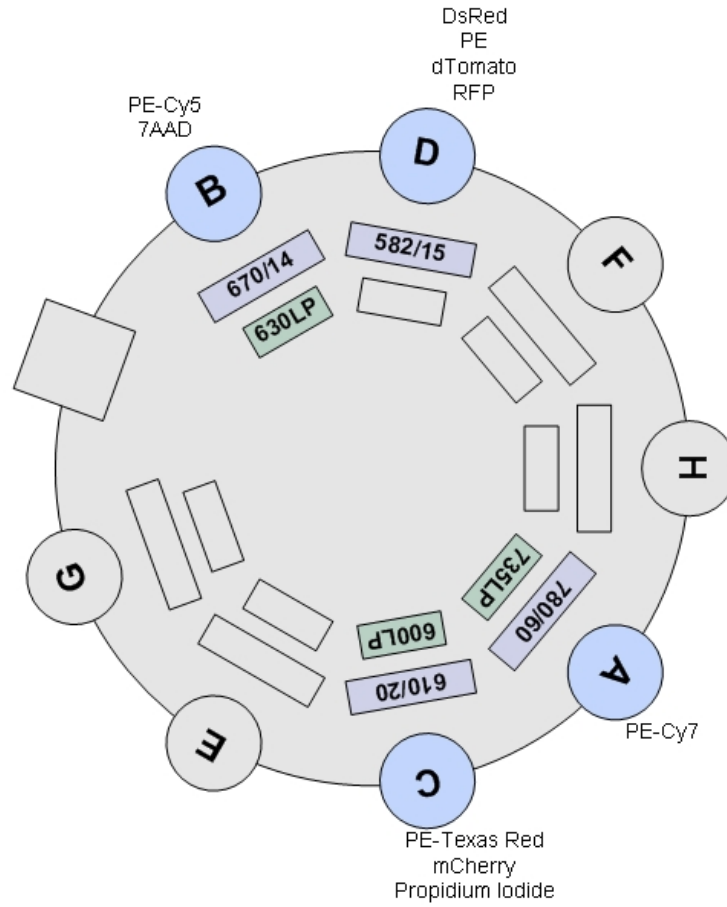
Invite additional people to this event by email
 Please enter a comma separated list of valid email addresses

4).
 Choose only 1 available Core Assistant.

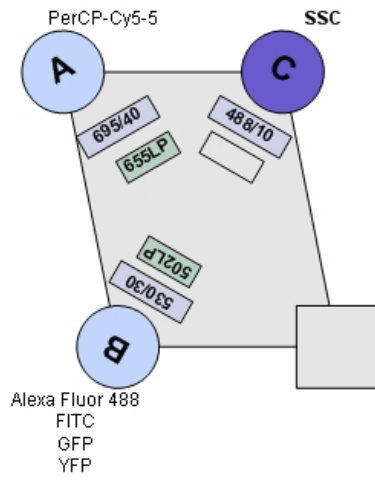
5).
 Select your Billing Number

Remember:
 Leave 30min between your sort and pre-existing sorts using a different nozzle size

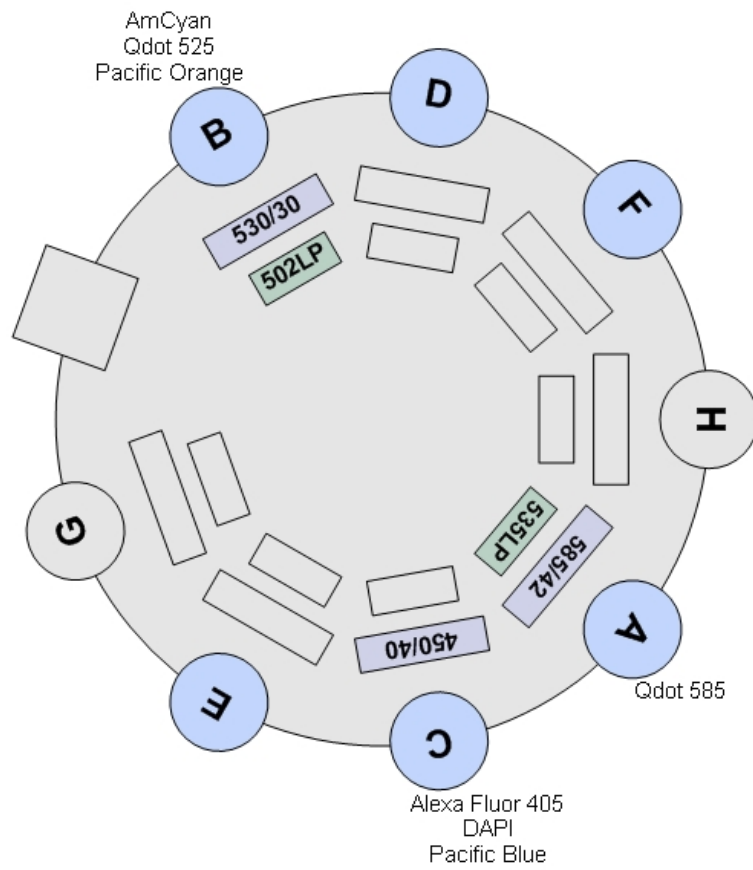
Yellow Green Laser
(561nm)



Blue Laser
(488nm)
FSC



Violet Laser
(407nm)

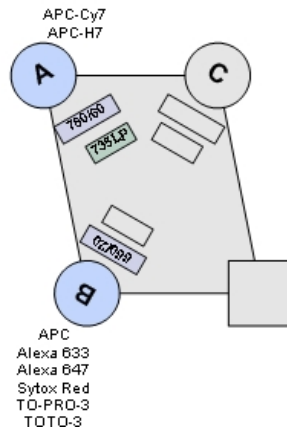


Biobubble Aria

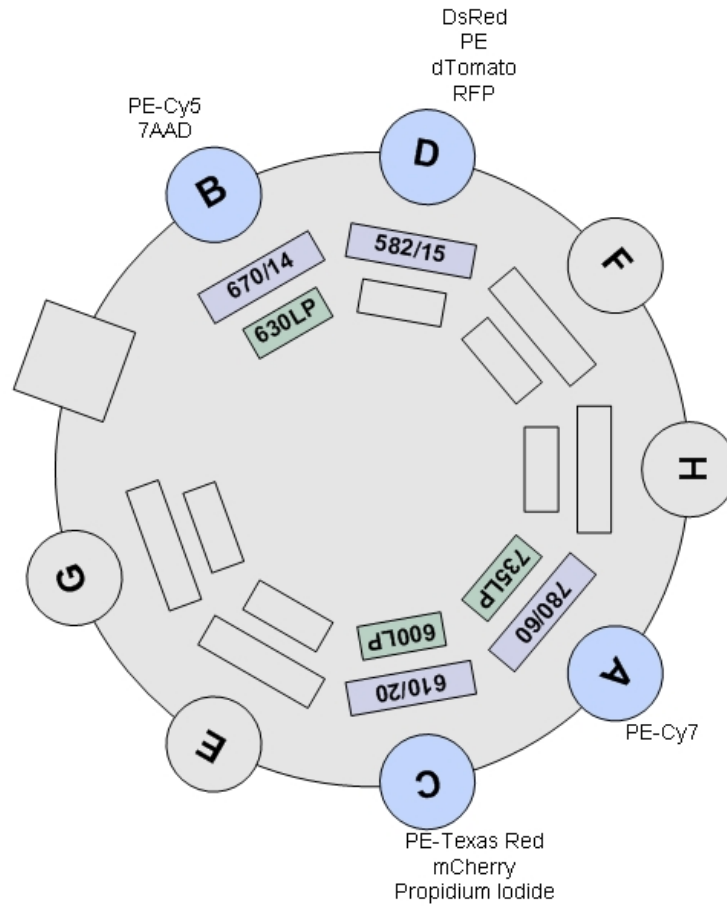
New 100 488,561,633,405

Cytometer:	FACSAriaII	User:	Administrator
Cytometer Name:	FACSAriaII	Institution:	
Serial Number:	1	Software:	BD FACSDiva 6.1.3
Input Device:	Manual	Date:	3/14/2013 1:56:14 PM
Sheath Pressure:	17.00		
Nozzle Size:	100		
Window Extension:	2.00		

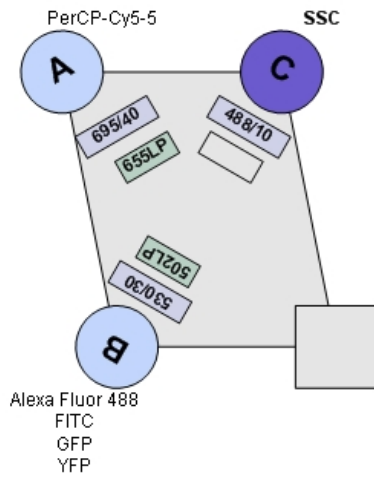
Red Laser
(633nm)



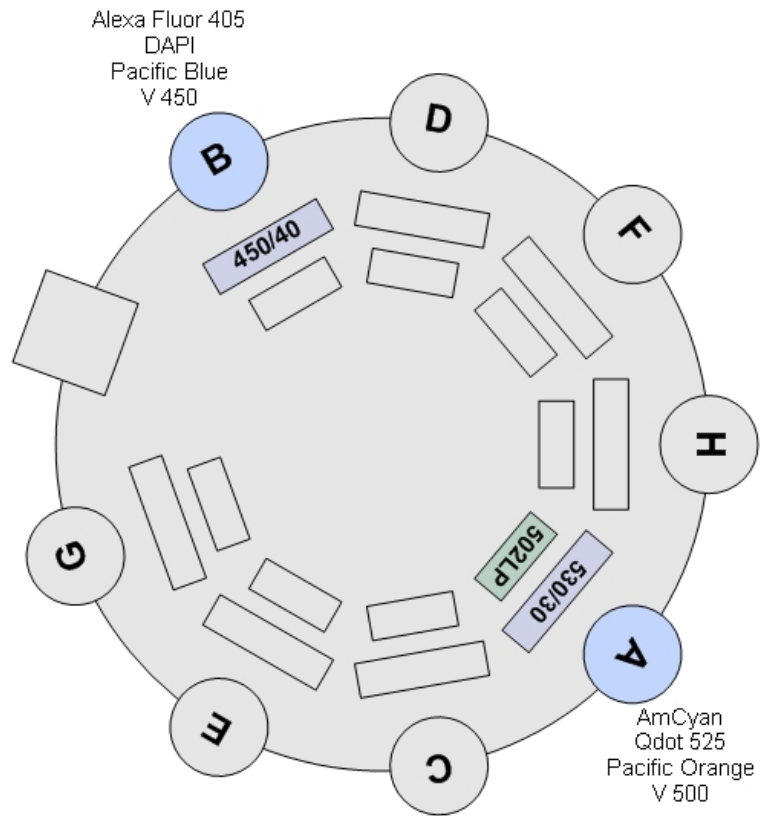
Yellow Green Laser
(561nm)



Blue Laser
(488nm)
FSC



Violet Laser
(407nm)

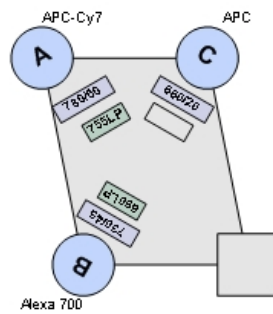


BSL2+ Aria (located outside of main lab space)

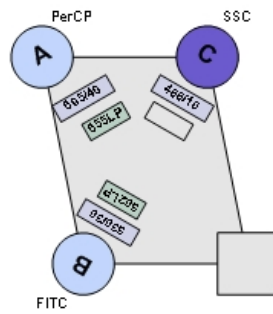
BSL 2 Aria III 70um

Cytometer:	FACSAriaII	User:	Administrator
Cytometer Name:	FACSAriaII	Institution:	N/A
Serial Number:	1	Software:	BD FACSDiva 8.0.1
Input Device:	Manual	Date:	8/30/2017 12:52:19 PM
Sheath Pressure:	70.00		
Nozzle Size:	70		
Window Extension:	2.00		

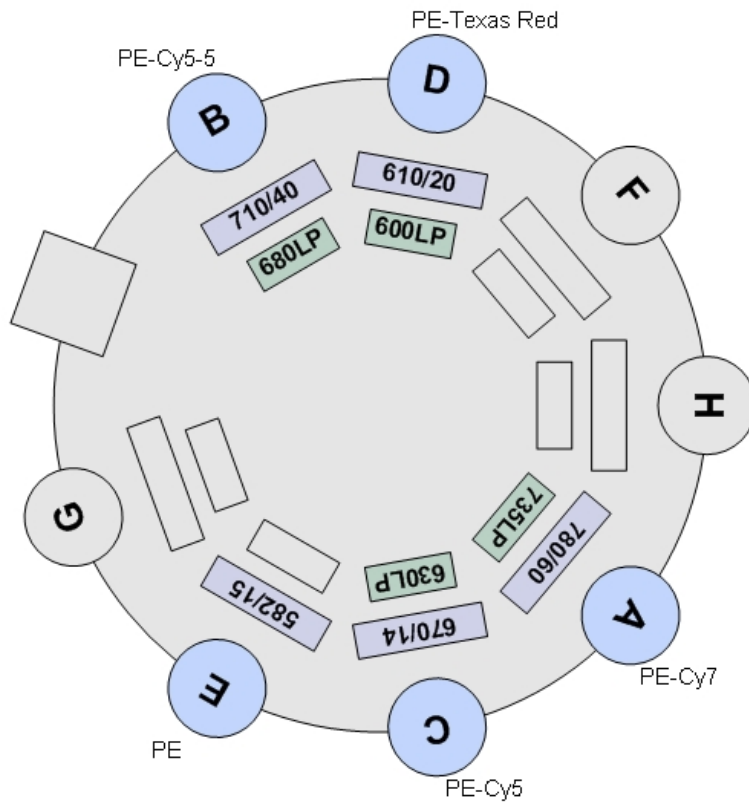
Red Laser (633nm)



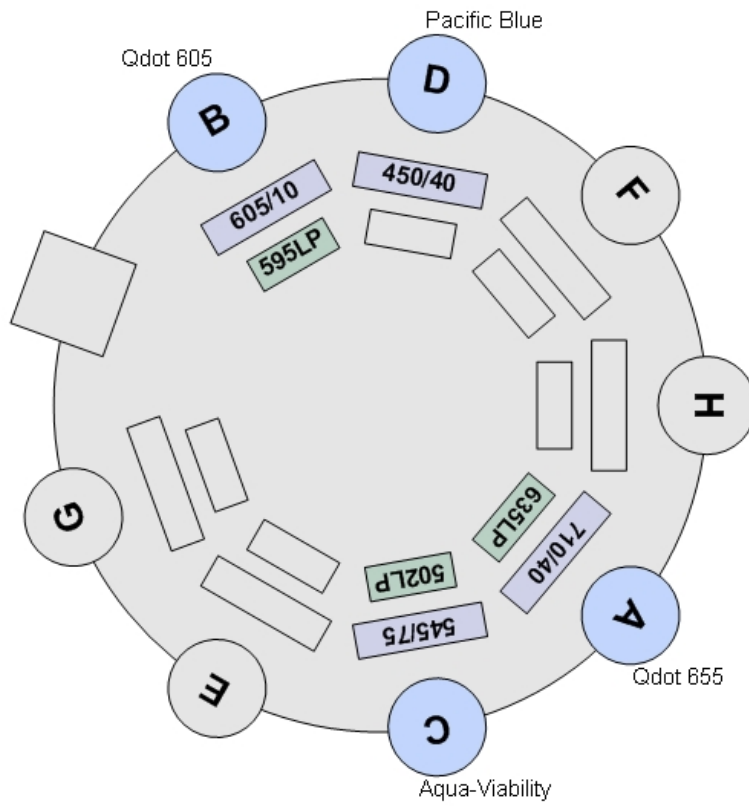
Blue Laser (488nm) FSC



Yellow Green Laser



Violet Laser
(407nm)



Acknowledging the Flow Cytometry Shared Resource:

Please remember to acknowledge our core with the following statement:

Flow Cytometry experiments were performed in the Vanderbilt Flow Cytometry Shared Resource. The Vanderbilt Flow Cytometry Shared Resource is supported by the Vanderbilt Ingram Cancer Center (P30 CA068485) and the Vanderbilt Digestive Disease Research Center (DK058404)