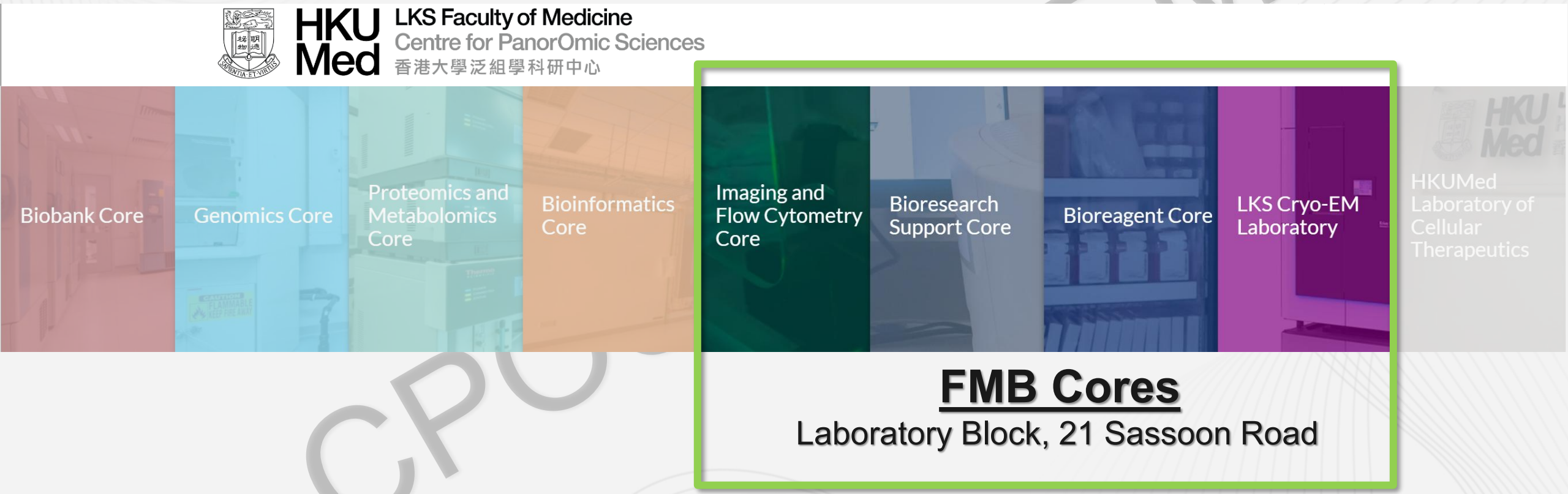
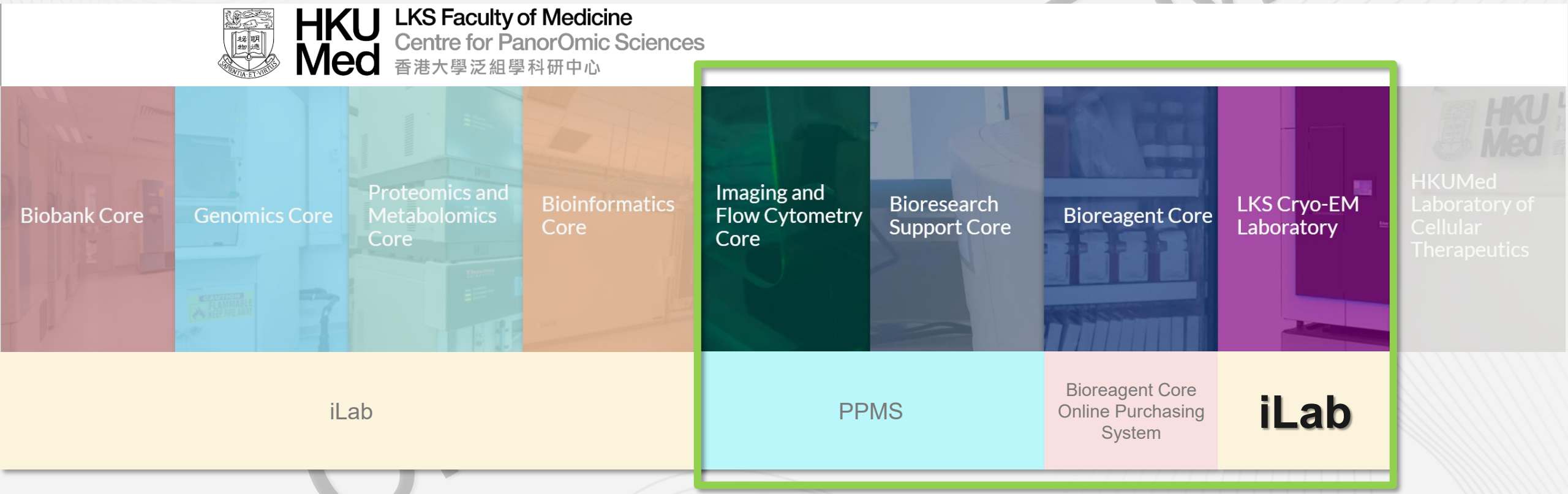
General Policy

Li Ka Shing Cryo-EM Laboratory

Cores in CPOS



Online Platform

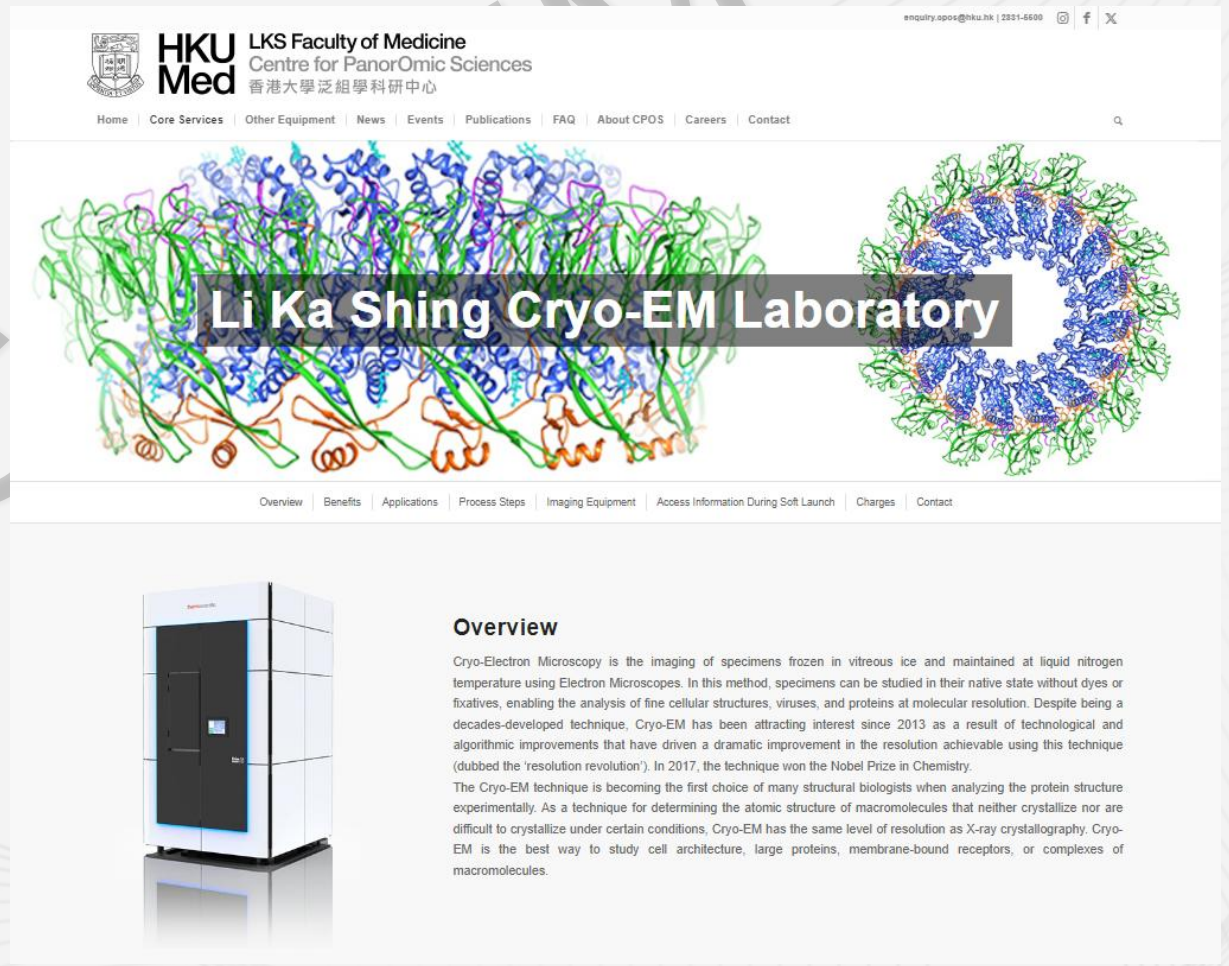


Li Ka Shing Cryo-EM Laboratory

Email: cryoem.cpos@hku.hk

Tel: 3910-2938

Opening hours: 9:00 am to 5:30pm



General Rules and Security

The Core is under surveillance **24/7**

Do **NOT** lend account to other users

Only access booked equipment

The last user of the day must turn off light and lock the doors

No Drinking And Eating

Turn off the machine right after use

Must attend training before using instrument

Always wear appropriate protective clothing and glasses when working in the laboratories.

User Responsibility

User should strictly follow the standard operation protocol (SOP)

Please operate the instruments carefully and gently

Keep workspace / sample preparation bench tidy and clean

Report any problem related to instruments

Write down experiment settings in logbook

If you are uncertain about performing a particular procedure, please contact Cryo-EM core staff.

General Safety

Staff has the right to query and, if necessary, stop any activity that is considered unsafe.

Avoid working alone during non-office hours in the laboratory.

Plan your work well before getting started.

General Safety

Fire Extinguisher

First Aid Box

Safety shower at corridor

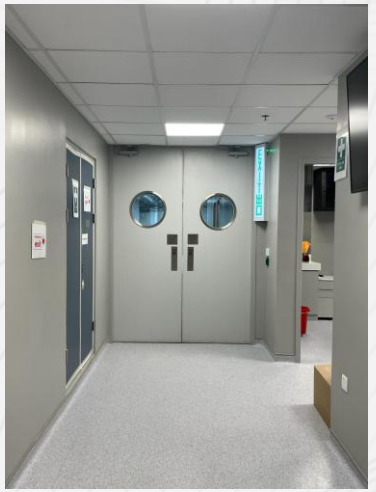
Fire Escape Route and First Aid box.

No gloves on computer and areas accessible by others.

Dispose biological waste in designated bins.

Dispose sharps / glasses in sharp box.

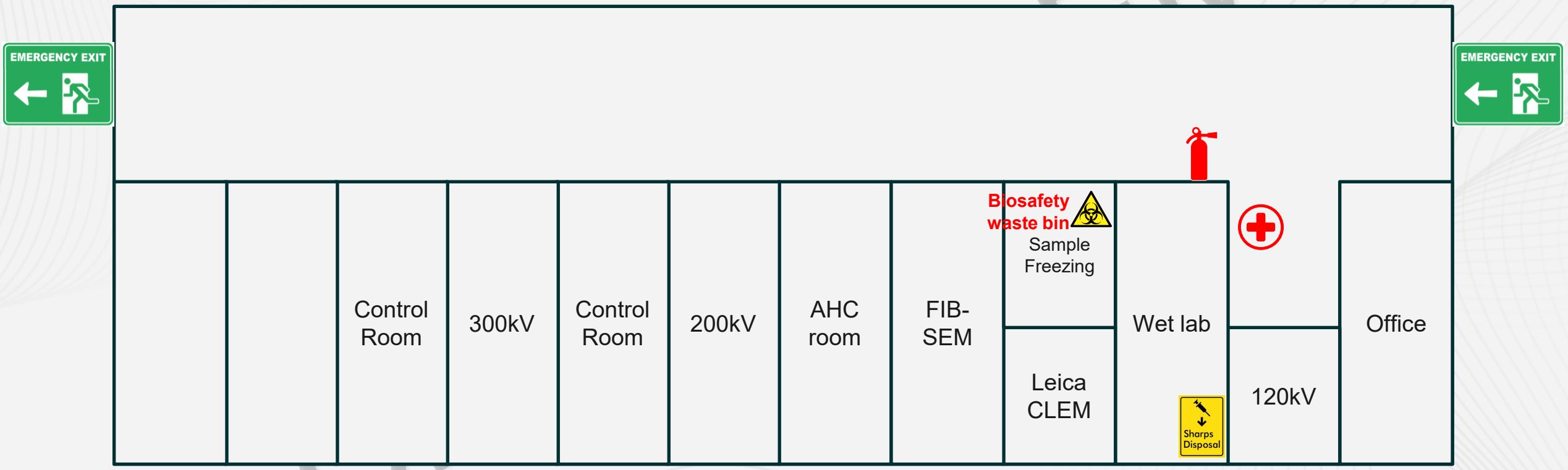
Emergency Exit



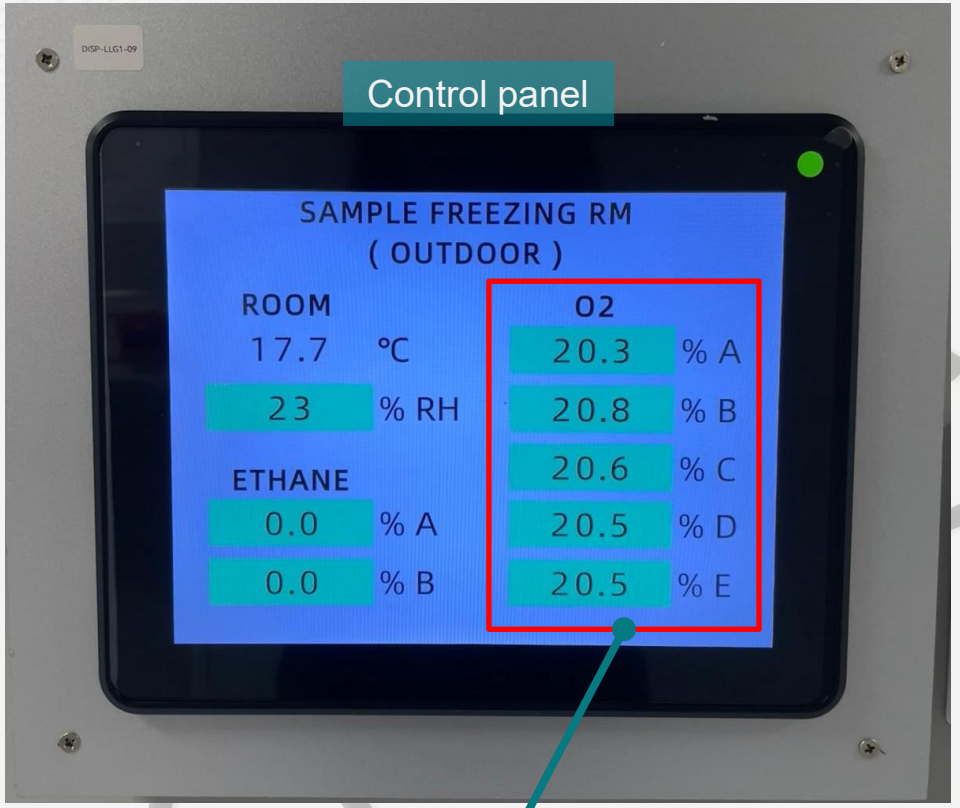
Biological waste bin

Sharp box

Safety (Floor Plan)

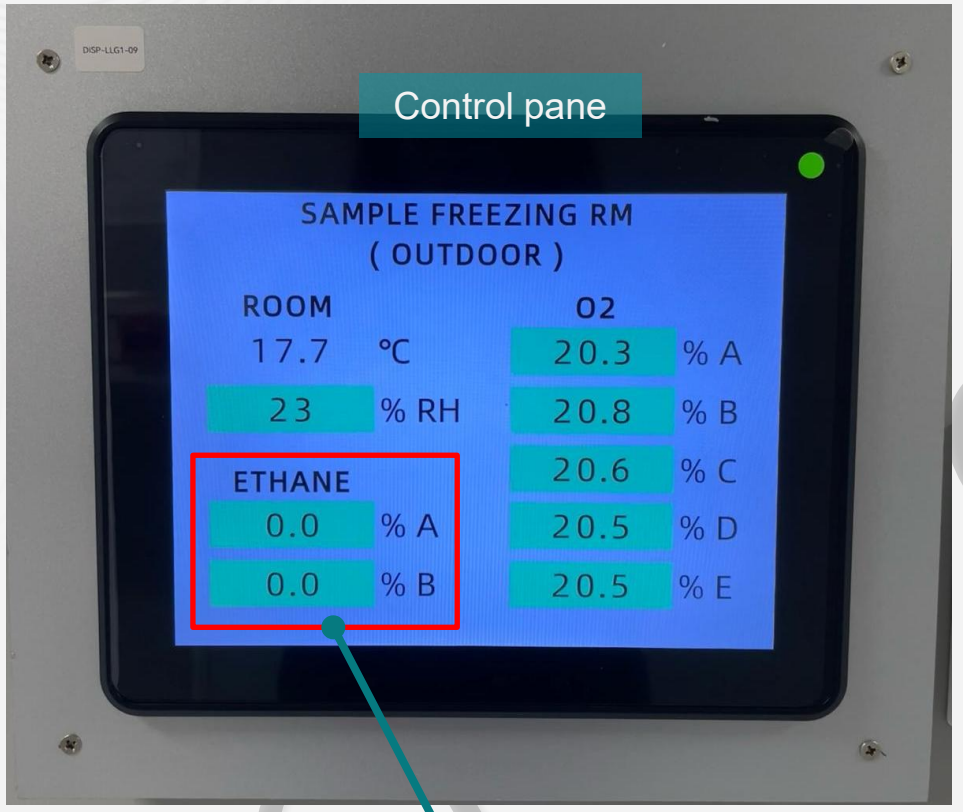


Oxygen Detector



If the O_2 VALUE shows red or alarm in the room, user should leave the room immediately and report it to staff.

Ethane Detector



If the ETHANE VALUE shows in red or alarm in the room, user should leave the room immediately and report it to core staff.

Getting Access to Cryo–EM Lab

1.Submit the following forms

a) Sample Safety Information e-Form (for new PI/ new project)
https://hku.au1.qualtrics.com/jfe/form/SV_4U6w9XvilI3F5gG

b) iLab Registration Form to enquiry.cpos@hku.hk and cc cryoem.cpos@hku.hk

https://info.cpos.hku.hk/wp-content/uploads/2025/07/iLab-User-Registration-Form-202507.xlsx

c) Training Application

Submit Training Request in iLab system

Sample Information e-Form

2.Training and booking for TwoMP

1.Register your HKU card for access

2.Training session

3.Self-booking (staff support is a must for 1st booking)

4.Email to cryoem.cpos@hku.hk to confirm the availability of staff

5.Transfer data (get a SFTP server from staff if you do not have HPC account)

iLab Registration Form

Charging

Training	HKU-Med	HKU
1st training	Free	$500
Re-training	$700	$1000

User should use the instrument **within 2 months** after training.

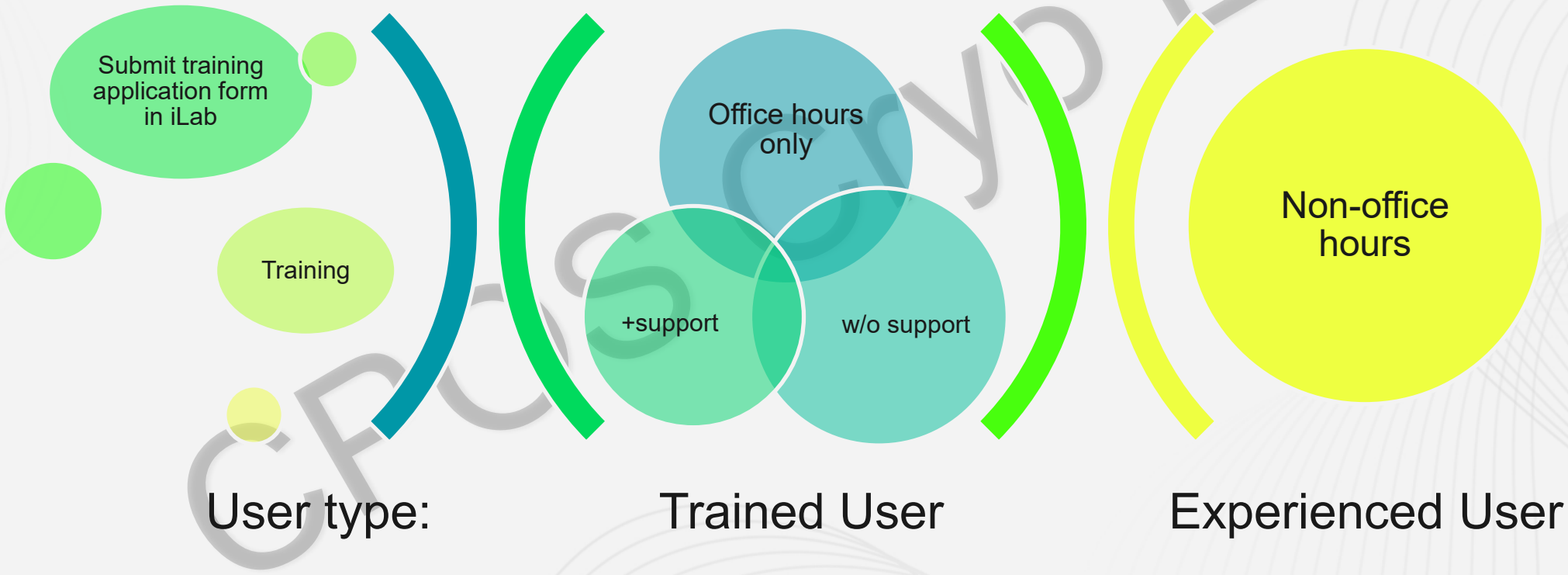
- If user has not booked within 2 months, **re-training** is required before using the instrument.

Usage	Min. usage / Session	HKU-Med	HKU
Refeyn TwoMP Mass Photometer	1 hour	$100 / hour	$110 / hour

Charge will be based on **(1) booking** or **(2) usage** whichever longer.
Same charge will be applied for no-show (not recommended).

User Type

- Do not transfer your booking session without notifying CPOS staff.
- Fill in correct information (e.g. usage time) in the logbook.



TwoMP

Mass Photometer

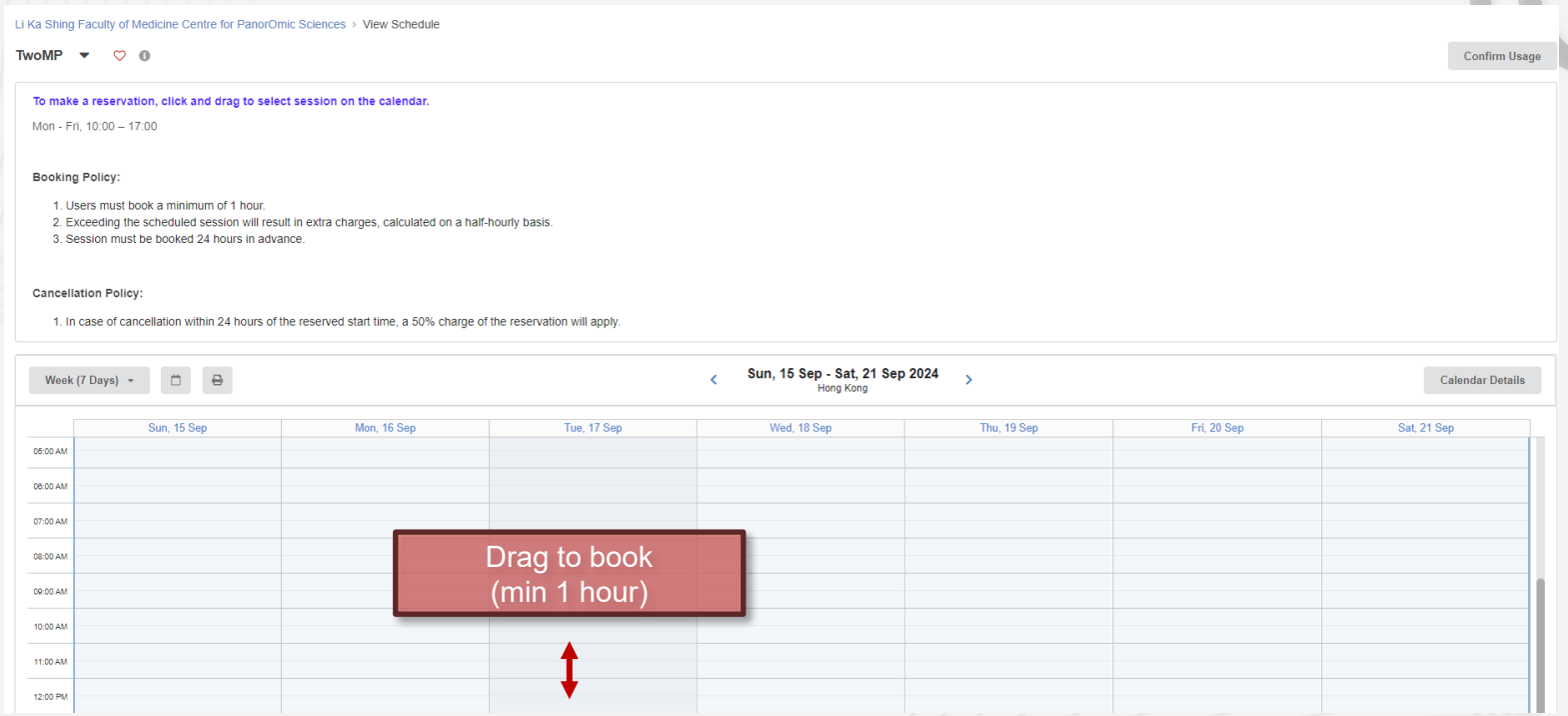
Booking Sessions

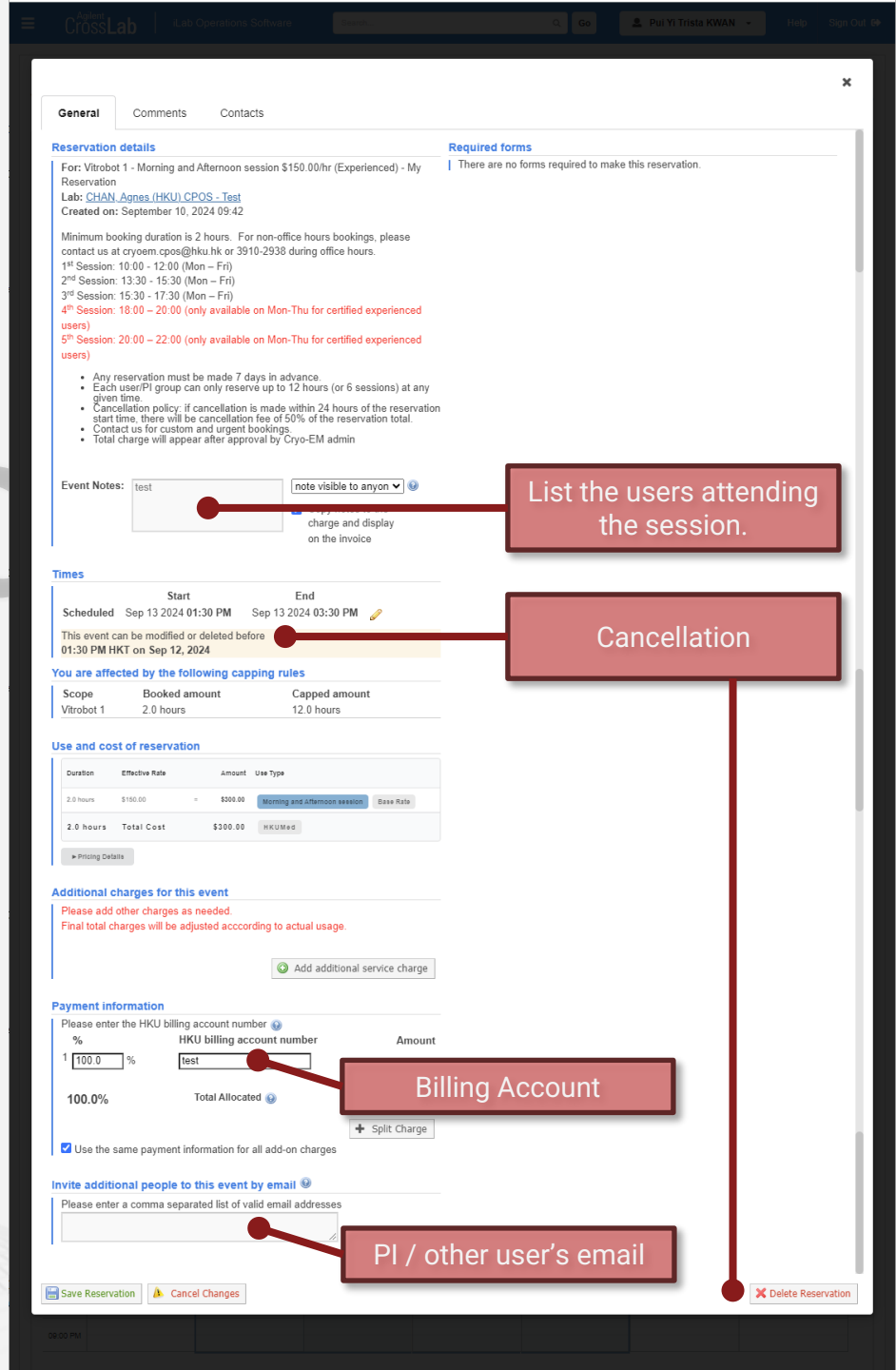
Office Hour	
Anytime (Min 1 hour)	10:00 am – 5:00 pm

First time user should not book during 12:30 pm – 1:30 pm.

Booking Policy

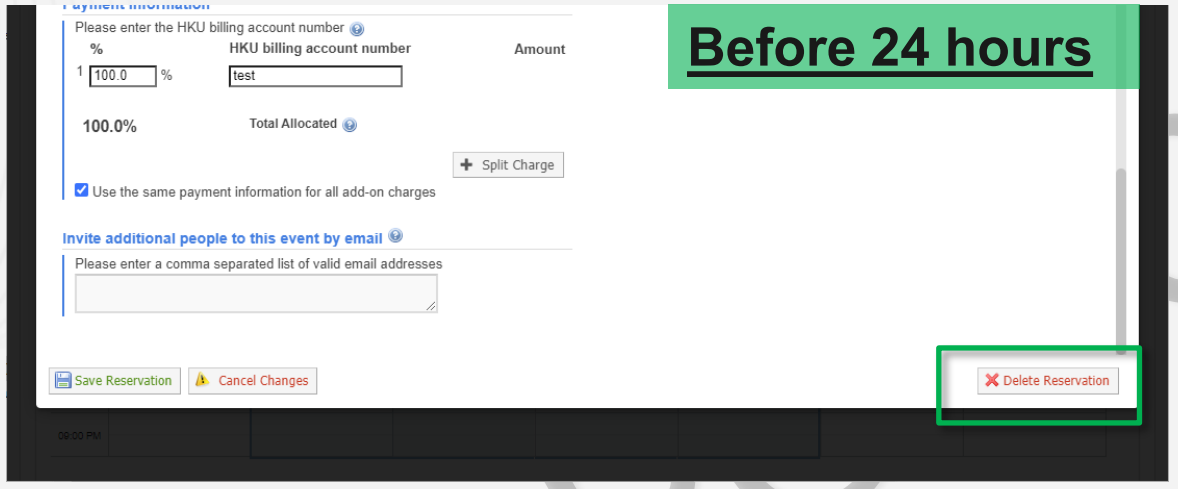
- Open for 28 days booking
- User needs to book the instrument at least 24 hours in advance
- Card access: User can access the instrument on the booking date



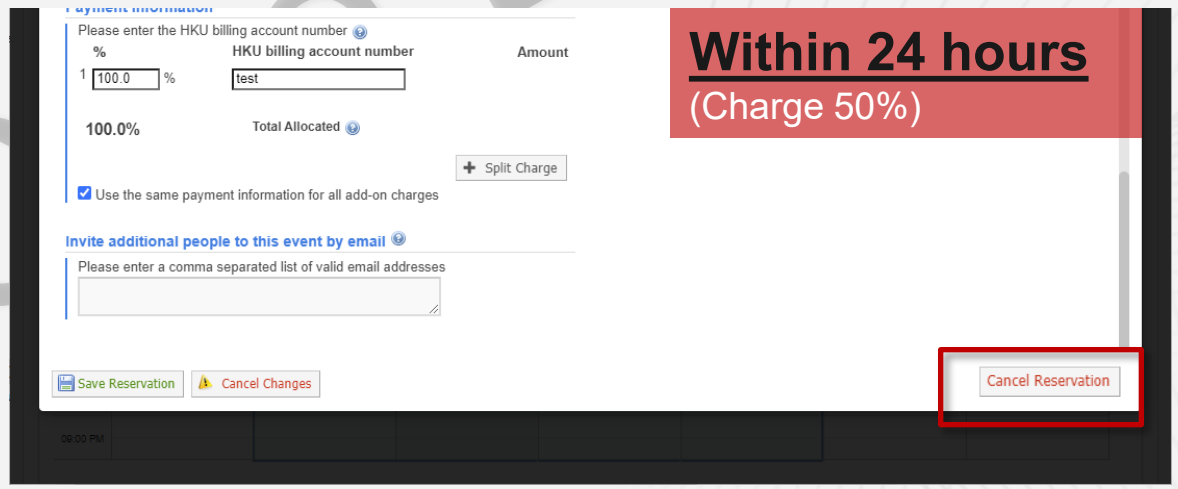


Cancellation Policy

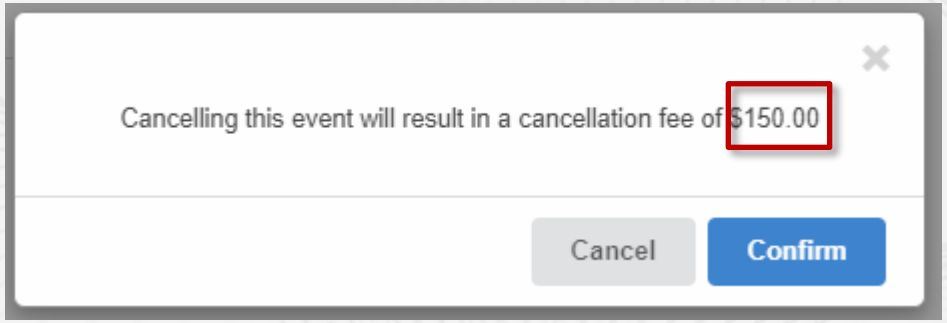
- Before 24 hours → Free cancellation
- Within 24 hours → 50% charge
- Session starts → 100% charge



Before 24 hours



Within 24 hours
(Charge 50%)



Consumables

Items	Price
Sample Carrier Slide (glass slide) + Sample Well Cassette (gasket)	$1000 / pack

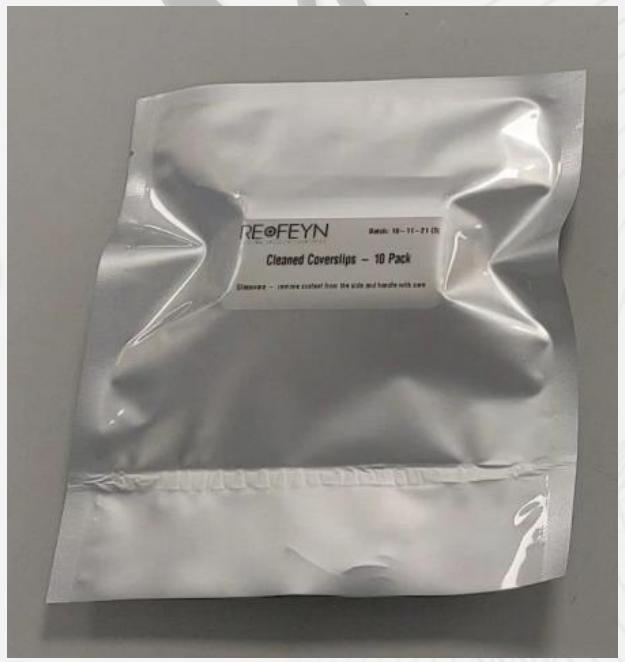
Must buy whole package.

- 6 measurements can be done for each glass slide + gasket
- Total 60 measurements can be done for 1 pack
- Recommended to put in dry box

Glass slide and Gasket **CANNOT** be reused.

1 Pack contains:

Glass slide x 10

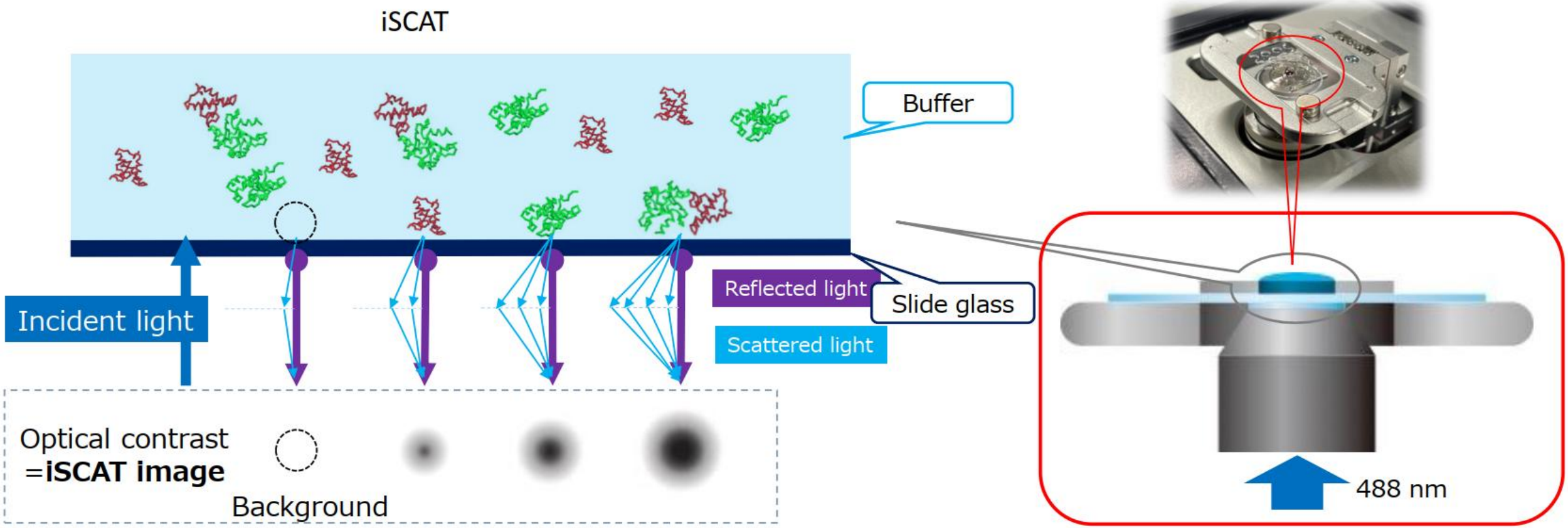


Gasket x 10

Introduction of TwoMP

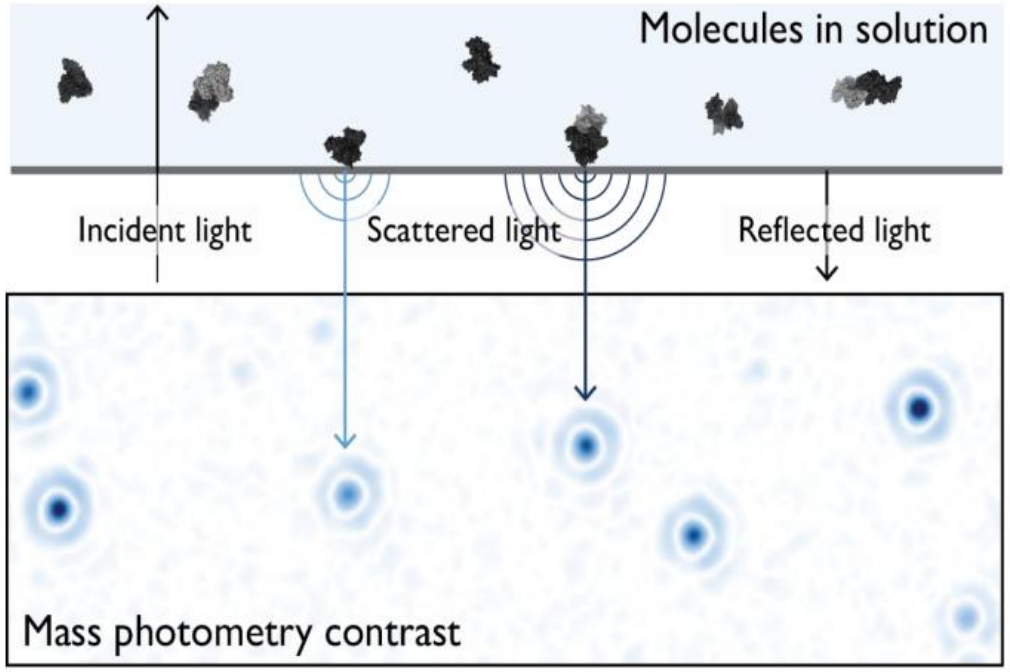
Interferometric scattering microscopy

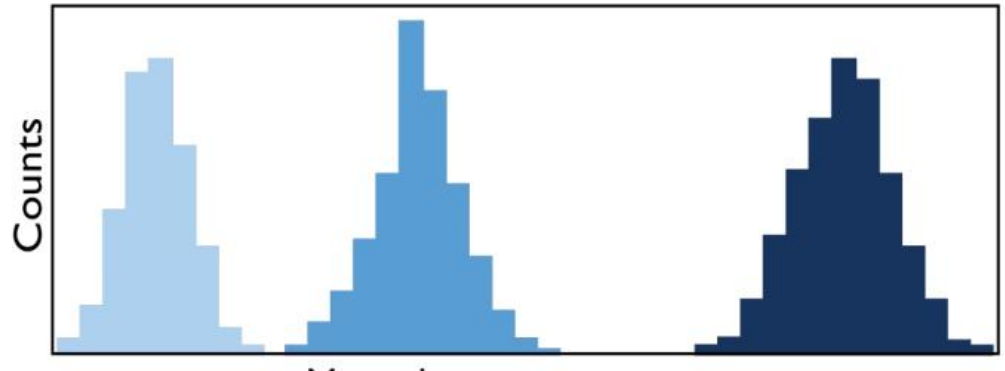
Do not look at the light source directly.

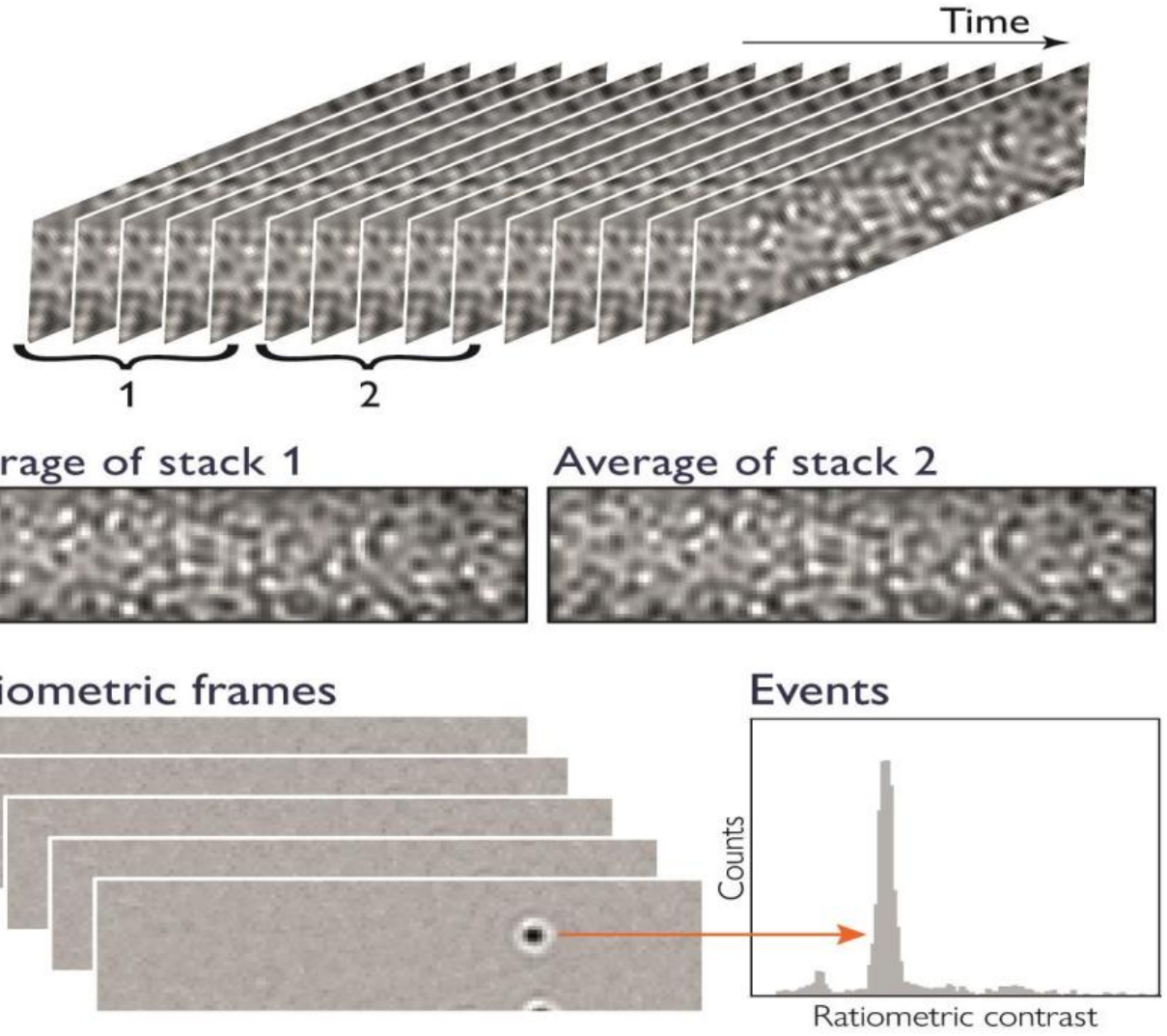


Introduction of TwoMP

Ratiometric analyzing method

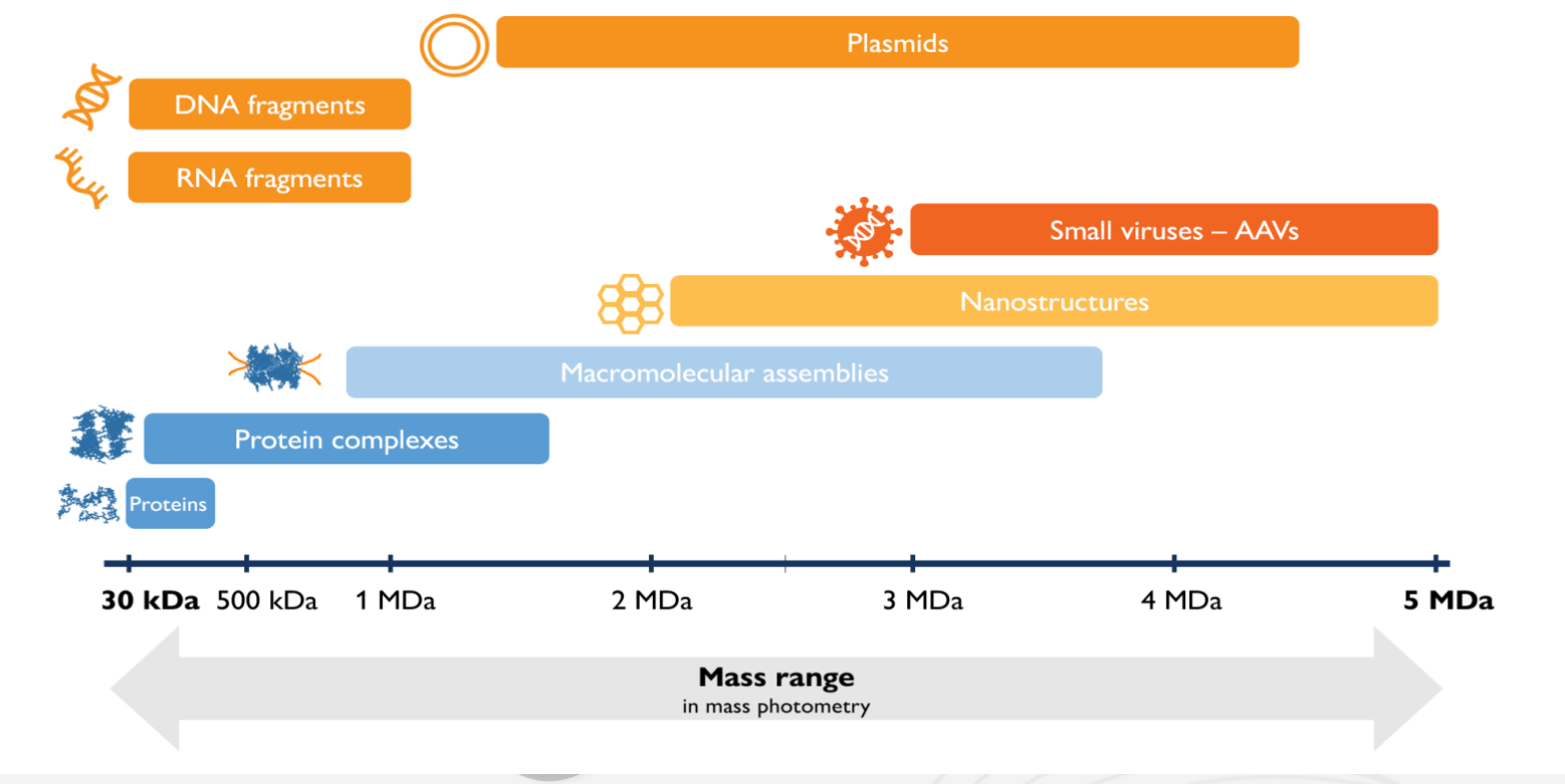






Introduction of TwoMP

Mass range of TwoMP



Key Specifications

Refeyn Two^{MP} Mass Photometer Specifications*

Mass range	30 kDa – 5 MDa
Resolution (FWHM)	25 kDa @ 66 kDa
	60 kDa @ 660 kDa
Mass precision	± 2%
Mass error	± 5% (single measurement)
Concentration range	100 pM – 100 nM
Sensitivity:	<< 1 ng of protein
Wavelength:	488 nm
Field of view:	Small: 3 x 11 µm (@ 700 Hz)
	Regular: 4 x 11 µm (@ 500 Hz)
	Large: 12 x 17 µm (@ 135 Hz)
Pixel size:	12 nm

20 nM (recommend)

* All specifications subject to meeting the installation requirements

Sample ,Calibrant and Buffer

- Bring your own sample, calibrant and buffer.

Detection range of TwoMP system:	**30kDa to 5MDa**
Concentration of standard	Protein standard marker (1:500) Protein with known mass (~1uM)
Concentration of the sample	20nM is preferred. The range is 100pM to 100nM.
Sample volume	100uL (actually only 10uL is required for 1 well)
Buffer	About 5mL (filtered using 0.22um filter, freshly prepare) Avoid using buffer contains: 1. Detergent 2. High concentration (mM) of small molecules 3. Glycerol

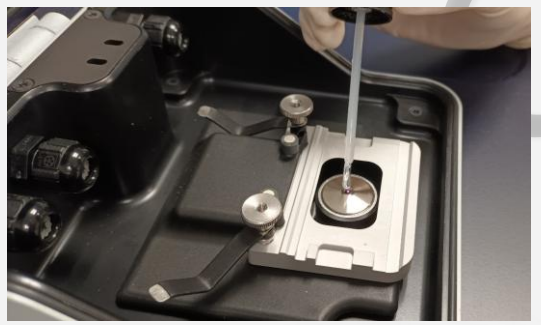
Instrument	What to measure to measure	Calibrant	MW (kDa) / Size (bp or bases)
Two^{MP} One^{MP}	Small Proteins <90KDa	BAM	56, 112, 224 kDa
	Medium Size 90KDa-1MDa	BAM +TG (separate)	56, 112, 224 + 670 kDa
		Urease	90, 272, 545 kDa
	Larger proteins >500kDa	BAM + TG (separate)	112, 224 + 670 kDa
		Urease + TG (separate)	272, 545 + 670 kDa
	dsDNA	Invitrogen DNA ladder	100, 200, 400, 800, 1200, 2000 bp
	ssDNA	M13MP18 + Phix174	7249 and 5386 bases
	RNA	Agilent ssRNA Ladder	200, 500, 1000, 1500, 2000 bp
		NEB ssRNA Ladder	500, 1000, 2000, 3000 bases

No live virus or bacterial samples allowed for TwoMP.

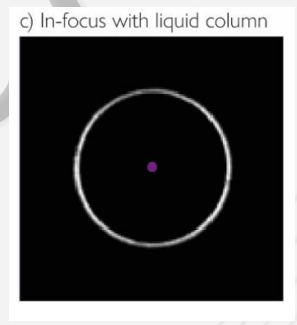
Steps

1. Warm up for 1 hour (done by staff)
2. Initialization
3. Focus
4. Measure
5. Clean up and shutting down TwoMP
6. Sample analysis
7. Data Transfer

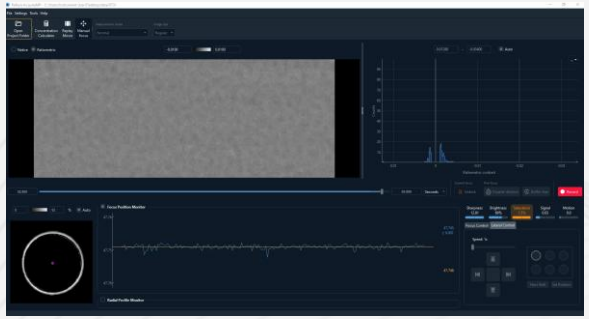
1. Initialization



2. Focus

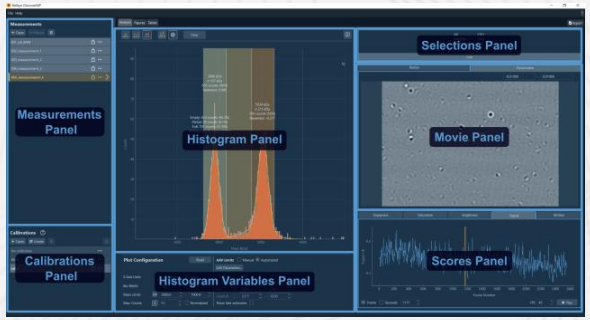


3. Measure



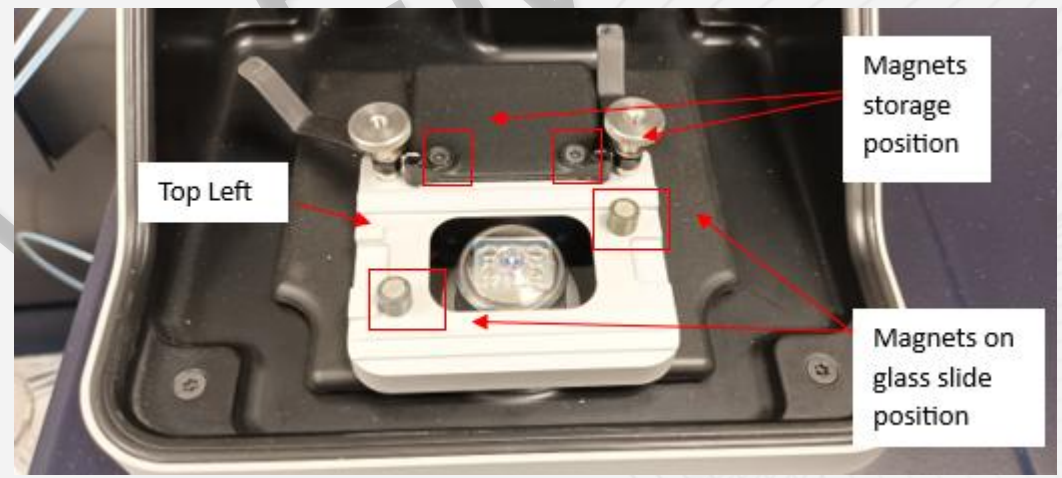
4. Clean up

5. Sample analysis



Special Notice

- Discard the glass slide with gasket into the sharp box.
- Ensure that the stage plate is clean and oil free after clean up.
- Remember to transfer your data (using SFTP server or HPC account) to your personal computer.



1. If you use SFTP server, please make sure you have successfully downloaded the data to your local computer within 14 days.
2. The local data stored in the computer of TwoMP will be removed on the first working day of each calendar month.

Please handle the magnets with extra caution. Do not drop them into the machine.