

IMAGING AND FLOW CYTOMETRY CORE

CONTACT US

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<http://cpos.hku.hk/>

Imaging and Flow Cytometry Core

High resolution imaging and high throughput flow cytometry are both cutting edge research technology platforms extensively used in modern biomedicine research. Imaging and Flow Cytometry Core serves as a training and development center for advanced imaging and cell sorting technologies. It promotes and facilitates multi-disciplinary research studies and collaboration among researchers.

PPMS

ONLINE BOOKING SYSTEM

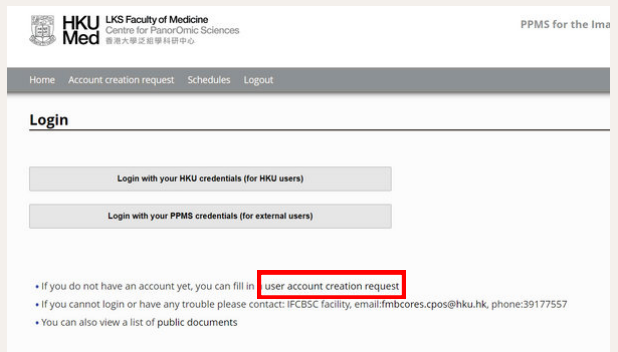
Apply training | Book instruments



☎ 3917 7557

🌐 <http://ppms.asia/hku/>

✉ fmbcores.cpos@hku.hk

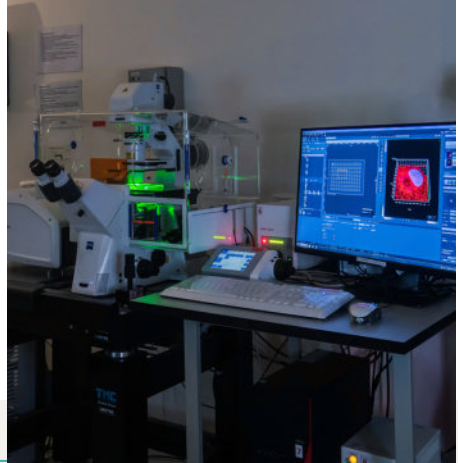


The screenshot shows the PPMS login page. At the top left is the HKU Med logo and the text 'HKU Faculty of Medicine Centre for Panor/Omic Sciences 香港大學泛組學科學中心'. At the top right is 'PPMS for the Im...'. Below the header is a navigation bar with 'Home', 'Account creation request', 'Schedules', and 'Logout'. The main heading is 'Login'. There are two login buttons: 'Login with your HKU credentials (for HKU users)' and 'Login with your PPMS credentials (for external users)'. Below the buttons is a red-bordered box containing the text 'user account creation request'. At the bottom, there are three bullet points: '• If you do not have an account yet, you can fill in user account creation request', '• If you cannot login or have any trouble please contact: IFCB5C facility, email:fmbcores.cpos@hku.hk, phone:39177557', and '• You can also view a list of public documents'.

Steps

- 1 Fill in the account creation request form in PPMS system.
- 2 Email fmbcores.cpos@hku.hk and cc your PI for the group joining consensus.
- 3 Upon receiving the approval reply from PI, CPOS staff will process the account creation.

Start your EXPERIMENT



ACCOUNT REGISTRATION

1

Submit the account creation request in PPMS system. After receiving PI's approval, your PPMS account will be created accordingly.

2

SUBMIT TRAINING REQUEST

Fill in the training form in PPMS system. After submission of the training request, our staff will contact you in 3 working days.



3

ATTEND TRAINING SESSION

Training will be organized monthly and first-come first-served basis. Upon completion of training, attendees will be classified as NOVICE user of the equipment.



BOOK EQUIPMENT

5



TRANSFER DATA

User can register to access the Data Transfer Server. After data acquisition, user can transfer the data to the server and download it to their own computer.

4

User can book the instrument in PPMS system. Earliest booking is available 2 weeks in advance. User can request technical support during usage.

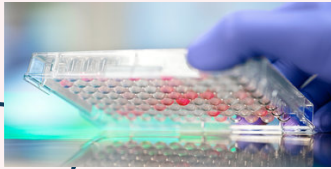
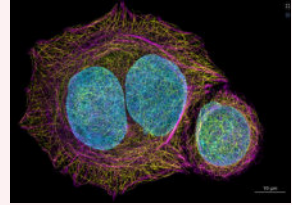


IMAGING EQUIPMENT

Applications

CONFOCAL MICROSCOPES

- Time-lapse confocal microscopy
- XY 2D / Z-stack 3D imaging, DIC/Phase contrast; Spot/line Scan
- Fast biological processes tracking
- Live cell imaging

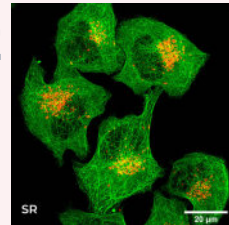


HIGH-CONTENT IMAGING

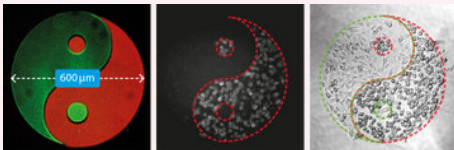
- Multiplexing imaging
- Multispectral imaging
- High through-put imaging

SUPER RESOLUTION MICROSCOPE

- high-speed super-resolution imaging (e.g. mitochondrial, chromosome, etc.)



OTHER IMAGING SYSTEMS



- Track and trap object
- Micropatterning, microfabrication, hydrogel polymerization
- Intravital imaging of living, whole mount, thickly sliced specimens or small animals

IMAGING EQUIPMENT

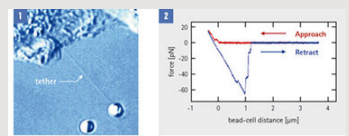
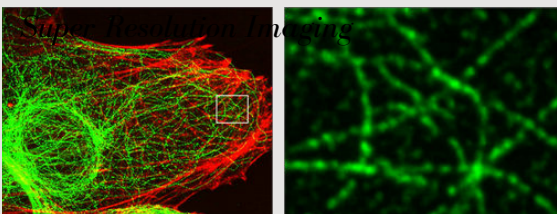
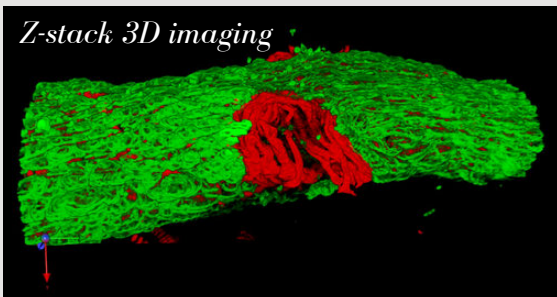
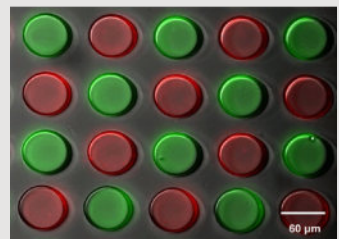
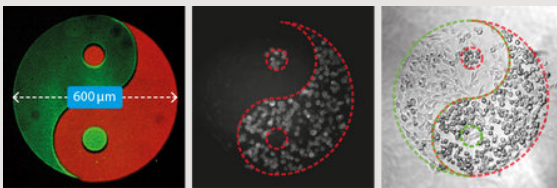
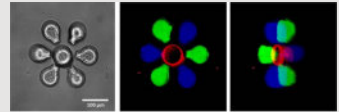
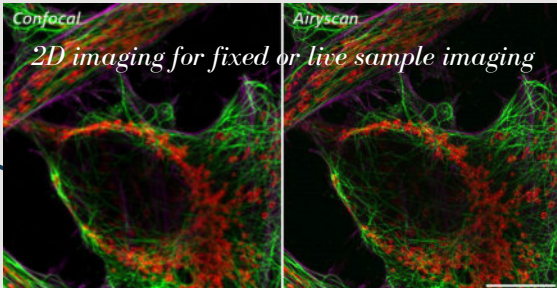
Applications ★

CONFOCAL MICROSCOPES

SUPER RESOLUTION MICROSCOPE

HIGH-CONTENT IMAGING SYSTEMS

OTHER IMAGING SYSTEMS



CONFOCAL MICROSCOPES



LSM980 with Airyscan 2

Lasers equipped: 7

Airyscan 2 expands the excitation laser spot, enabling multiplex modes of SR-8Y, SR-4Y, and CO-8Y for high-speed imaging without sacrificing sensitivity or resolution.



LSM880 with Airyscan 1

Lasers equipped: 7

Achieve a 1.7× higher resolution in all spatial dimensions, with 120 nm laterally and 350 nm axially, allowing for fast biological processes with minimal phototoxicity.



LSM900 with Airyscan 2

Lasers equipped: 4

Airyscan 2 provides sub-diffraction resolution of 120 nm laterally and 350 nm axially, and enables the acquisition of up to four image lines with a high signal-to-noise ratio in a single sweep.



LSM900 Upright

Lasers equipped: 4

Enables the multi-dimensional (multi-channel, multi-position, time-lapse) imaging and big tissue tile scanning. ZEN software modules, including "Sample Navigator" and "Zen Connect" will simplify the imaging setup procedure.

CONFOCAL MICROSCOPES



LSM900 Inverted

Lasers equipped: 4

Enable the multi-dimensional (multi-channel, multi-position) imaging and large tissue tile scanning.



LSM800 Airyscan 1

Lasers equipped: 4

Airyscan 1 detector for sub-diffraction resolution to 120 nm laterally and 350 nm axially.



LSM780 with 2-Photon

Lasers equipped: 7

The GaASP detector allows the detection of weak signals and spectral imaging with unmixing. The photo-bleaching module enables the multi-dimensional live cell imaging, photon-manipulation and large tissue tile scanning.



UltraVIEW VoX Spinning Disk Confocal

Lasers equipped: 6

Yokogawa CSU-X1 spinning disk unit enables to image with very low laser power to minimize effect of phototoxicity during long-term live cell experiments.

HIGH-CONTENT IMAGING



Vectra Polaris

LED equipped: 9

Fully automated system provides high speed whole-slide scanning at 10x to 40x in bright field or fluorescence for up to 80 slides in a run.



MACSima Imaging System

LED equipped: 6

Uses the principle of cyclic staining with different fluorochrome-conjugated antibodies to acquire multiplex imaging in a single tissue section or cells.



IN Cell Analyzer 6500HS

Lasers equipped: 4

Laser-based line scanning high-content imaging system for High speed fixed or live cell imaging.

SUPER RESOLUTION



Live-SR Super-resolution/TIRF Microscope

Lasers equipped: 5

Live-SR Super-resolution Unit for super-resolution (105nm laterally) imaging at high speed with low photo-toxicity. iLAS3 Ring-TIRF/FRAP/Ablation Unit allows the observation of membrane-associated processes and enables ablation for applications like DNA damage and axotomy.

OTHER IMAGING SYSTEMS

Primo Micropatterning / Color Imaging System

LED equipped: 4



Specifically designed for micropatterning applications, allowing for precise creating complex patterns and structures with high accuracy. The system is also equipped with a high-speed color camera that enables whole tissue color imaging.

FVMPE-RS Hybrid Multiphoton System

2-Photon Lasers equipped: 2



Allows fluorescence imaging deep into specimens at depths of hundreds of micrometers in living cells and tissues. It is dedicated to intravital imaging of living, whole mount, thickly sliced specimens or small animals.

Optical Tweezers/TIRF System

Lasers equipped: 5



Enables users to control, manipulate and observe samples in real time with nanometer precision and femtoNewton resolution. The NanoTracker™ 2 optical tweezers module enables trapping and tracking samples from several μm down to 30nm by using a highly focused 1064nm laser beam for sensitive manipulation, force, and tracking experiments.

OTHER IMAGING SYSTEMS



Nikon Ti2-E Inverted Fluorescence Microscope

LED equipped: 6

Advanced imaging applications at high speed and high sensitivity.



AxioZoom.V16

LED equipped: 1

Enables visualization of specimen ranging from large field-of-view to single cell observation.



Color Imaging Microscope

LED equipped: 3

Capable of bright field color imaging and widefield fluorescence imaging.

UPCOMING SYSTEMS



Hermes High-content Imaging system

LED equipped: 7

Automated imaging system for high content screening which can accommodate a variety of multi-well plates and sample formats (slides, dishes, etc.) and offers environmental control for live cell assays.

LIT Lightsheet Microscope

Laser equipped: 4

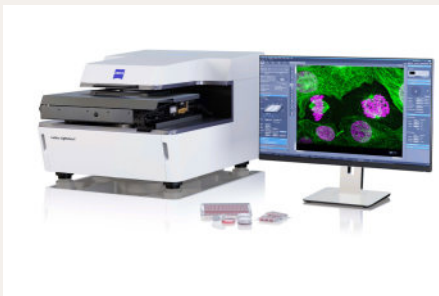
Enables fast live-sampling image acquisition at over 500 sections per second, with stunning 3D resolution including over 270nm lateral resolution and 350nm axial resolution, and ultra-low phototoxicity.



Zeiss Lattice Lightsheet

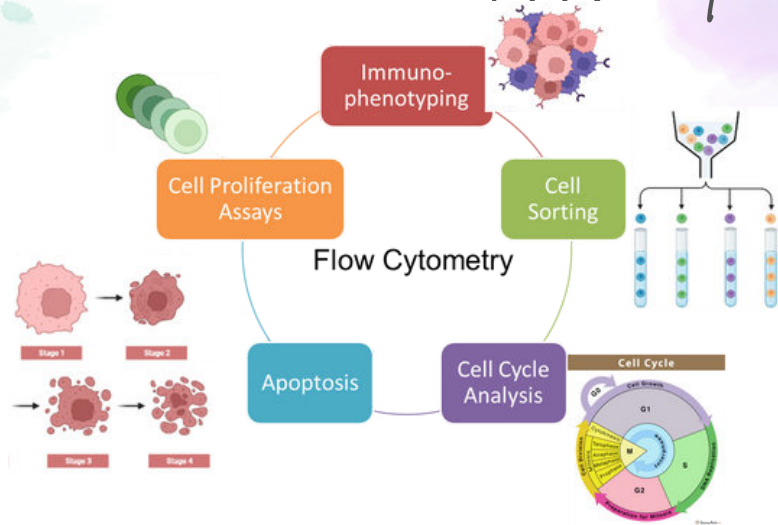
Laser equipped: 3

Available for live cell imaging at subcellular resolution – while also allowing the use of standard sample carriers. With this automated, easy-to-use system, volumetric imaging of subcellular structures and dynamics over hours and days with best protection from photo damage becomes available to users.



FLOW CYTOMETRY

Applications



APPLICATIONS ON SORTERS:

- Multi-color Cell Sorting (up to 18 colors)
- Rare Population Cell Sorting
- Index Sorting
- Single Cell Sorting

APPLICATIONS ON ANALYZERS:

- Annexin V assay
- Cell Cycle Analysis
- Cell Proliferation Assay
- Multiplex Bead Assay for Cytokines
- Immunophenotyping
- High Parameters Immunophenotyping
- Small Particle Detection
- Bacterial Detection

Flow SORTER

BD FACSAria Fusion

Laser equipped: 4

Fluorochromes detected: 16

Ideal for sorting Biosafety Level 2 samples in BSC; A gel coupled quartz cuvette flow cell; 70/85/100 μm nozzles available; Index sorting



BD FACSAria SORP

Laser equipped: 5

Fluorochromes detected: 18

UV laser available; A gel coupled quartz cuvette flow cell; 70/85/100/130 μm nozzles available; Ideal for sorting Biosafety Level 1 samples



Influx with BSC

Laser equipped: 4

Fluorochromes detected: 14

Jet-in-air system; High frequencies with low pressures; Ideal for sorting Biosafety Level 2 samples in BSC; 70/86/100/140/200 μm nozzles available; Index sorting



Influx w/o BSC

Laser equipped: 4

Fluorochromes detected: 16

Jet-in-air system; High frequencies with low pressures; Ideal for sorting Biosafety Level 1 samples; 70/86/100/140 μm nozzles available; Index sorting



Flow ANALYZER



Agilent NovoCyte Quanteon

Laser equipped: 4
Fluorochromes detected: 25

SiPM with excellent sensitivity and stability; 7.2 log dynamic range; NovoSampler Q for flow tubes or plates automatic loading; NovoExpress® Software from the NovoCyte® workstation; Small particle and bacterial detection



Agilent Novocyte Advanteon BVR

Laser equipped: 3
Fluorochromes detected: 19

SiPM with excellent sensitivity and stability; 7.2 log dynamic range; NovoSampler Q for flow tubes or plates automatic loading; NovoExpress® Software from the NovoCyte® workstation; Small particle and bacterial detection



Agilent NovoCyte Advanteon BVIYG

Laser equipped: 3
Fluorochromes detected: 15

SiPM with excellent sensitivity and stability; 7.2 log dynamic range; NovoExpress® Software from the NovoCyte® workstation; Small particle and bacterial detection



BD LSRFortessa

Laser equipped: 4
Fluorochromes detected: 17

Gel-coupled flow cell combined with trigon and octagon detection systems increased sensitivity and resolution; Identify cells with especially dim expression or quantitate rare cell populations



BD FACSymphony A5 SE

Laser equipped: 5
Fluorochromes detected: 48

Gel-coupled flow cell combined with Cascade array of square PMT detection systems provide increased sensitivity. Spectral flow cytometry for high parameters immunophenotyping