

# LMS Light Microscopy Laboratory

## CONFOCAL MICROSCOPES

### Leica Stellaris 5

Fully motorised upright microscope with four sensitive HyD-S detectors and conventional as well as fast resonant scanner. Additional 40x/1.25NA glycerol objective. Lightning and Navigator software.

#### **Illumination**

405nm/442nm/485-685nm White light laser

#### **Applications**

- 3D fluorescence imaging (slides & 35mm dishes)
- Lightning super-resolution imaging



### Leica SP8 DLS (Digital Light Sheet)

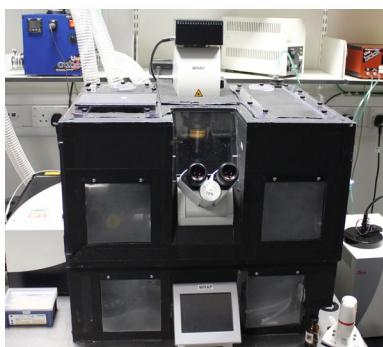
Fully motorised inverted microscope with three PMT detectors and one sensitive HyD detector. Hardware autofocus. Hamamatsu FLASH camera for light sheet imaging and additional camera for fast well scanning. Navigator software.

#### **Illumination**

405nm/488nm/552/638nm lasers

#### **Applications**

- 3D fluorescence imaging (multiwell plates, slides & 35mm dishes)
- Light sheet imaging of transparent aqueous samples
- Live cell imaging



### Leica SP8X STED

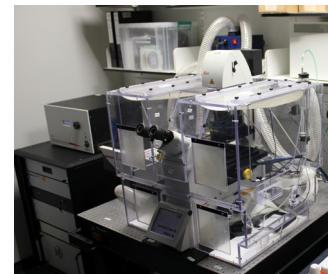
Fully motorized inverted microscope with three PMT and two sensitive HyD detectors and conventional as well as fast resonant scanner. Hardware autofocus. Navigator software.

#### **Illumination**

405nm/442nm/Argon/470-670nm White light laser;  
592nm/775nm STED depletion lasers

#### **Applications**

- 3D fluorescence imaging (multiwell plates, slides & 35mm dishes)
- Live cell imaging
- 3D gated STED super-resolution imaging



### Leica SP5

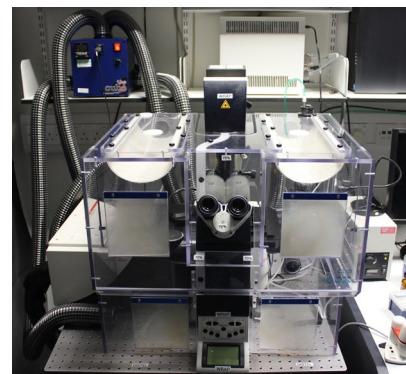
Fully motorized inverted microscope with three PMT and two sensitive HyD detectors and conventional as well as fast resonant scanner. LAS AF software with MatrixScreener. Additional PC with LASX Navigator and colour camera.

#### **Illumination**

405nm/Argon/561nm/594nm/633nm lasers

#### **Applications**

- 3D fluorescence imaging (multiwell plates, slides & 35mm dishes)
- Live cell imaging
- Multi-well plate scanning with colour camera



## CONFOCAL MICROSCOPES

### Olympus Spinning Disk

Fully motorized inverted microscope with sensitive ORCA Fusion camera. Fast Piezo focus and hardware autofocus. Yokogawa CSU-W disk. CellSense and ScanR software.

#### **Illumination**

405/488/561/640nm lasers

Spectra X 7-colour light engine for widefield imaging

#### **Applications**

- 3D fluorescence imaging (multiwell plates, slides & 35mm dishes) in confocal or widefield mode
- Live cell imaging
- High content screening and analysis



## LIGHT SHEET IMAGING

### Phaseview Alpha3

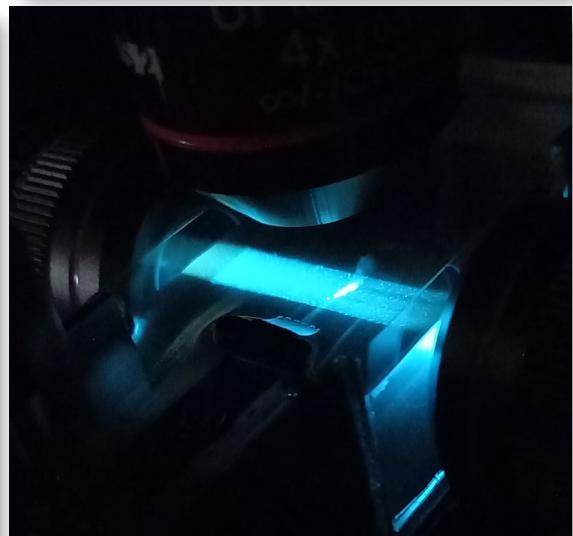
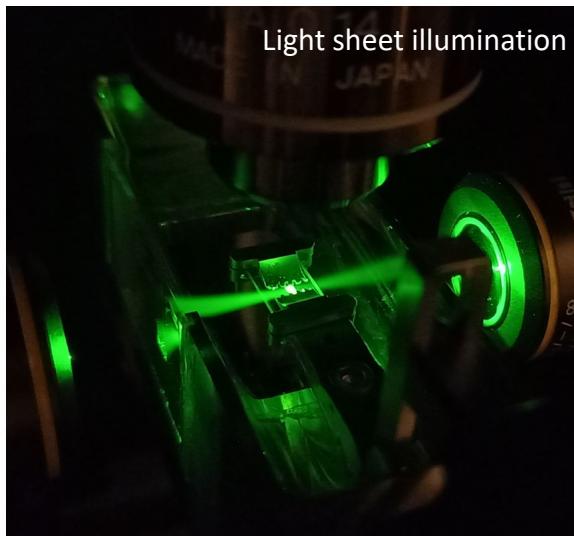
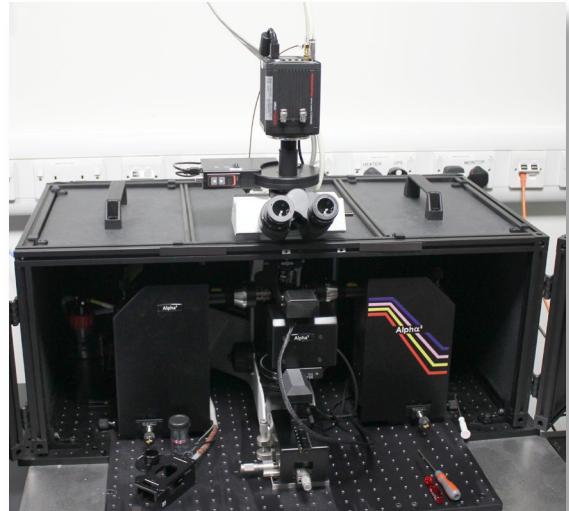
Dual side light-sheet illumination for imaging large, optically cleared samples in aqueous or other non-toxic mounting media like ethyl-cinnamate.

#### **Illumination**

405/488/561/640/730nm lasers

#### **Applications**

- 3D multi-colour fluorescence imaging of large mm to cm sized samples
- Live cell imaging



## SUPER-RESOLUTION IMAGING

### Zeiss Elyra S1 SIM

Fully motorised inverted system with structured illumination super-resolution imaging capabilities, doubling the achievable resolution by a factor of 2 in XY and Z dimensions. Hardware autofocus.

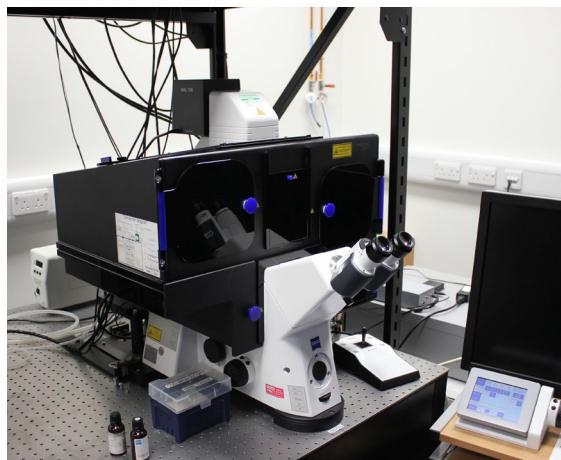
ZEN software

#### **Illumination**

405/488/561/640nm lasers

#### **Applications**

- 3D super-resolution imaging
- Live cell imaging



### Zeiss TIRF/STORM system

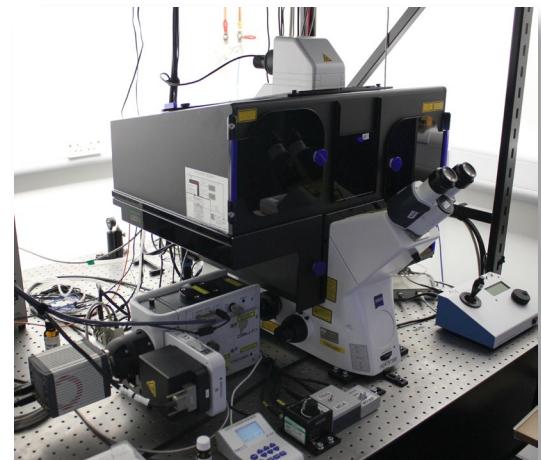
Fully motorised inverted system with adjustable Cairn Opto-TIRF illumination for single molecule imaging techniques. Hardware autofocus for sample stabilisation. CSU-X1 spinning disk with single laser line for live cell imaging.

#### **Illumination**

405/462/525/638nm lasers for single molecule imaging  
488nm laser for spinning disk

#### **Applications**

- 2D-3D super-resolution imaging (STORM/DNA-PAINT)
- Live cell imaging
- 3D confocal GFP live cell imaging



## SLIDE SCANNING

### Zeiss AxioScan Z1

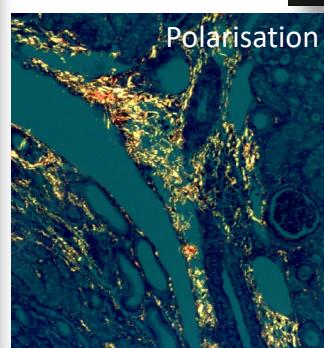
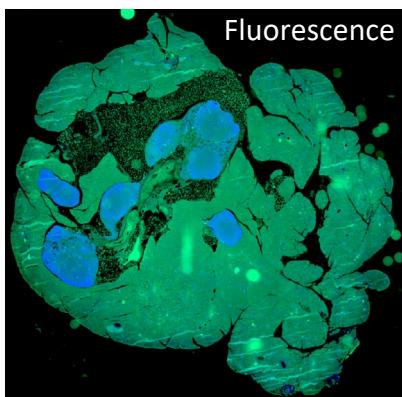
Fully motorised slide scanner for imaging up to 100 slides in brightfield, polarization or multi-colour fluorescence modes. ZEN software.

#### **Illumination**

Colibri 7-colour LED light engine

#### **Applications**

- Imaging large number of histological sections



# WIDEFIELD IMAGING SYSTEMS

## Leica DM6000

Fully motorised upright microscope with sensitive colour camera for brightfield and multi-colour fluorescence imaging. Navigator software.

### **Illumination**

EL6000 Metal-halide fluorescence lamp  
(DAPI/FITC/TRITC/TxRed)

### **Applications**

- Imaging large tissue sections or whole slides in brightfield and/or fluorescence
- Scanning of slides unsuitable for the slide scanner



## Leica FISH

Manual upright microscope with phase contrast, DIC and 5-colour fluorescence imaging  
Separate Canon DSLR camera with LED illumination panel for macro photography. Micro-Manager and EOS utility software.

### **Illumination**

100W HBO with excitation filterwheel  
(DAPI/FITC/TRITC/CY5/CY7)

### **Applications**

- Multi-colour fluorescence imaging in combination with DIC or phase contrast



## Leica Microinjection

Manual inverted microscope with phase contrast, fluorescence imaging and separate colour camera. Optional Eppendorf microinjection equipment. Micro-Manager and LAS-X software.

### **Illumination**

Cooled light engine (DAPI/CFP/GFP/YFP/RFP-mCherry)

### **Applications**

- Imaging samples in plates and dishes (checking expression of fluorescent reporter or looking at lacZ expression)



## Zeiss Upright

Manual upright microscope with phase, DIC and optional circular-polarisation contrast. Canon DSLR camera with EOS utility software.

### **Illumination**

Brightfield only !

### **Applications**

- DIC/phase contrast imaging of slide mounted samples
- Imaging histological samples with colour camera, also examining fibrosis with polarisation contrast



## WIDEFIELD IMAGING SYSTEMS

### Olympus Stereo SZX16

Stereo microscope with sensitive colour camera (optional fluorescence camera) for brightfield and fluorescence imaging. ThorCam software. Motorised stage for automated image acquisition using Micro-Manager software.

#### **Illumination**

Cooled light engine (DAPI/GFP/RFP/mCherry)

Schott KL1500 cold light source

LED base for transmitted and darkfield illumination

#### **Applications**

- Imaging large thick samples in plates or dishes
- Automated scanning of colony assays in multi-well plates



### Deltavision

Inverted Olympus IX71 microscope with motorised stage and focus. Sensitive camera and Spectra X light engine for multi-colour fluorescence imaging. SoftWorx acquisition and deconvolution software.

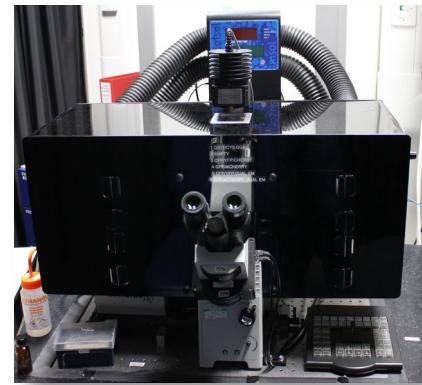
#### **Illumination**

7-colour SpectraX light engine

(DAPI/CFP/GFP/YFP/DsRed/mCherry/Cy5)

#### **Applications**

- 3D multi-colour fluorescence imaging of fixed samples
- Deconvolution to improve contrast of acquired image stacks



### Olympus IX70

Inverted Olympus IX70 microscope with motorised stage and 300 µm piezo focus. Orca FLASH 4 camera and Spectra III light engine for five colour fluorescence imaging. Live cell imaging. Micro-Manager software.

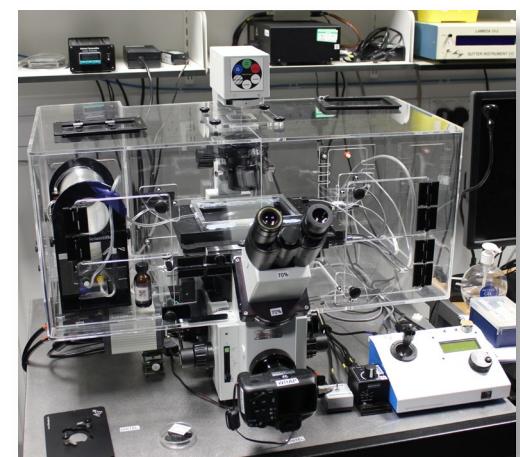
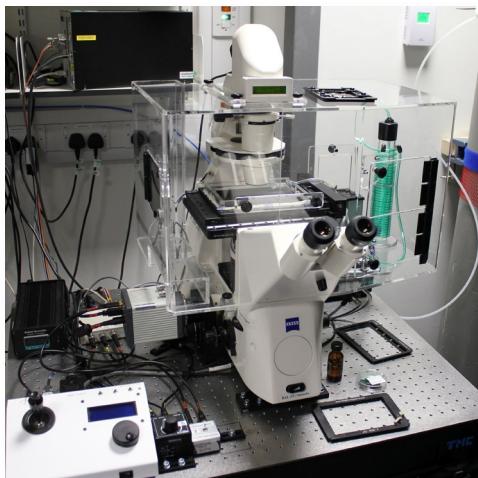
#### **Illumination**

7-colour Spectra light engine

(DAPI/CFP/GFP/YFP/DsRed/mCherry/Cy5)

#### **Applications**

- Fast 3D fluorescence imaging (multiwell plates, slides & 35mm dishes)
- Live cell imaging with phase contrast and fluorescence
- CFP/YFP FRET imaging



## WIDEFIELD IMAGING SYSTEMS

### Leica DMI6000

Fully automated inverted Leica DMI6000 microscope with sensitive Orca FLASH 4 camera for multi-colour fluorescence imaging.

#### **Illumination**

Transmitted light LED  
EL6000 Metal-halide fluorescence lamp  
(DAPI/Alexa488/Alexa555/Alexa594/Cy5)



#### **Applications**

- High throughput fluorescence screening applications
- Imaging of multiwell plates, up to four slides and up to 6 35mm dishes
- Fluorescence imaging of large sections or whole slides

## LASER MICRODISSECTION

### Zeiss PALM

Fully automated inverted Zeiss PALM Microbeam with Robomover for fully automated laser-microdissection and catapulting and sampel capture into collection devices. Sensitive colour camera for processing histology samples and fluorescent samples

#### **Illumination**

Transmitted light  
Xcite 120W Metal-halide fluorescence lamp  
(DAPI/Alexa488/Alexa555)



### microCT Scanner

### Bruker Skyscan 1272

X-ray based microCT scanner for 3D imaging of large samples. Sample size up to Ø 75 mm and height of 80 mm

#### **Illumination**

X-ray 40-100kV

#### **Applications**

- 3D imaging technique to reveal the internal structures of entire fixed samples (flies, organs, embryos for example) with little sample preparation
- To enhance contrast of soft tissues typically stained with I2/KI

