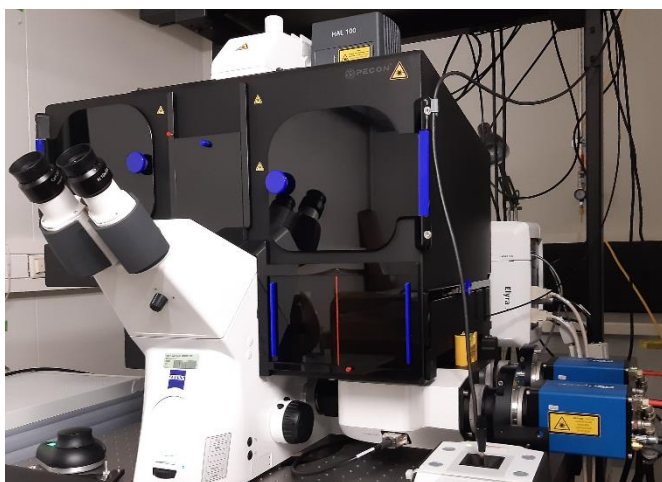


# Zeiss Elyra 7



Installed 2022. Super-resolution microscope for lattice SIM, 3D SMLM (PALM, STORM), TIRF and laser widefield imaging. Dual-camera port with 2 sCMOS cameras for fast acquisitions. Apotome mode for thick specimen. Lasers to image dyes from blue to far red. Multi-positioning (Piezo-driven XY stage with Z-Piezo insert) and hardware autofocus. Environmental box for live imaging with temperature and CO<sub>2</sub> control (Last updated: May 2022)

## Stand

Zeiss Observer 7, inverse, motorized, hardware autofocus (Definite Focus 3), Optovar 1.0x/1.6x

## Objectives

- EC Plan-Neofluar 10x/0.3 M27 (WD 5.2 mm)
- Plan-Apochromat 40x/1.4 Oil DIC M27 (WD 0.13 mm)
- C-Apochromat 63x/1.2 W Corr M27 (WD 0.28 mm)
- Plan-Apochromat 63x/1.4 Oil DIC M27 (WD 0.19 mm)
- $\alpha$  Plan-Apochromat 63x/1.46 Oil Corr M27 (WD 0.10 mm)
- $\alpha$  Plan-Apochromat 100x/1.46 Oil DIC M27 (WD 0.11mm)

## Lasers

- 405 nm laser diode (50 mW)
- 488 nm OPSL (100 mW)
- 561 nm OPSL (100 mW)
- 642 nm laser diode (150 mW)

## Widefield illumination

- Excelitas Xylis white-light LED (for fluorescence)
- Halogen lamp (100 W, for transmitted light)

## Filters

### Reflector turret

- Zeiss Filterset 25 (DAPI/FITC/Texas Red) – *for viewing/eyepiece*  
Ex TBP 400+495+570, BS FT 410+505+585, Em TBP 460+530+625
- MBS 405/488/561/642, Em LBF 405/488/561/642 (laser blocking filter)
- MBS 405/488/561/642, Em BP420-480/BP495-525/LP655
- MBS 405/488/561/642, Em BP495-550/BP570-620
- MBS 405/488/561/642, Em BP420-480/LP655

## *DuoLink camera port*

- SBS LP560  
Em BP420-480/BP495-550  
Em BP570-620/LP655
- SBS BP490-560/LP640  
BP420-480/BP570-630/LP740  
BP495-550/LP655

## Cameras

- 2x pco.edge 4.2 CL HS sCMOS camera, 2048 x 2048 pixels, 6.5  $\mu\text{m}$  pixel size, up to 100 fps, peak QE 82%, liquid cooled (innovatek LCS-BU)

## Imaging modalities

- SIM: 5 grating sizes for lattice SIM, Apotome mode for thick specimen (up to 40x). Burst and leap mode for fast acquisitions (pixel reassignment approach to reconstruct extra frames/z-slices, respectively)
- PALM: double phase ramp module for 3D PALM (z capture range up to 1.4  $\mu\text{m}$ , 50-80 nm axial resolution)
- TIRF: motorized TIRF field adjustment with 3 field size options (TIRF, high power, ultra high power), HILO mode

## XYZ-Stage

- WSB CAN XY Piezo scanning stage (travel range 130 x 100 mm, resolution 0.1  $\mu\text{m}$ , absolute precision  $\pm 3 \mu\text{m}$ , repeatability  $\pm 0.6 \mu\text{m}$ )
- WSB 500 Z-Piezo insert (travel range 500  $\mu\text{m}$ , resolution 1 nm, repeatability  $\pm 5 \text{ nm}$ )
- Standard inserts for slides and 35 mm dishes

## Environmental control

- PeCon heating unit XL S

## Software

- Zeiss ZEN Black 3.0 SR running on Windows 10 LTSC 2019 (64-bit)
- ZEN modules:
  - Experiment Designer (for complex workflows)
  - Tiles and Positions (tiling and stitching module)
  - Lattice-diSIM (SIM/SIM<sup>2</sup>)
  - PALM, PALM 3D, PALM sequential
  - Macro (Visual Basic)