

Technical Specifications

Zeiss LSM 900



Inverse confocal microscope with two VSDs (Variable Secondary Dichroic) allowing for fine spectral adjustment and spectral Airyscan imaging. Two highly sensitive GaAsP-PMTs for high sensitivity + Airyscan 2 detector (32 channel GaAsP) for super-resolution imaging or high-speed acquisition (Multiplex mode with up to 4x parallelization of detection), transmitted light PMT. AI Sample finder for automated sample recognition. Motorized XY stage with Z-Piezo top plate, fully incubated. Widefield illumination: 4-channel Zeiss Colibri LED, halogen lamp, Axiocam 305 for sample overviews. (room 1.223)

(Last updated: January 2026)

Stand

Zeiss Axio Observer.Z1, inverse, fully motorized

Objectives

- EC Plan-Neofluar 2.5x/0.085, working distance (WD) 8.8 mm
- Plan Aplanachromat 10x/0.45, WD 2.1 mm
- Plan-Aplanachromat 63x/1.4 Oil DIC, WD 0.19 mm
- LD LCI Plan-Aplanachromat 40x/1.2 Multi-Immersion, WD 0.41 mm
- LD C-Aplanachromat 63x/1.15 Water, WD 0.6 mm with Auto-Immersion

Lasers

- 405 nm laser diode
- 488 nm laser diode
- 561 nm DPSS laser
- 640 nm laser diode

Widefield Illumination

- Colibri 7 (R[G/Y]B-UV), 4 excitation LEDs (385, 475, 555 and 630 nm)
- Halogen lamp (100 W)

Detectors/Filters

- Scanning mirrors with up to 8192 x 8192 pixels

Confocal channels 1-6: slider-based system with free choice of channels (down to 3 nm)

- Ch1, Ch2: alkali PMTs
- Ch3-Ch6: GaAsP detectors (45% QE)

T-PMT (ChD): transmitted light (alkali PMT)

| Airyscan 2 (ChA): compound detector consisting of 32 GaAsP detector units | |
|--|-------------------------|
| <u>Secondary beam splitters</u> | <u>Clean-up filters</u> |
| LP490 | BP420-480 + BP 495-550 |
| LP515 | BP420-480 + BP 570-630 |
| LP545 | BP420-500 + LP605 |
| LP635 | BP465-505 + BP525-585 |
| SP545 | BP495-550 + BP570-630 |
| SP610 | BP495-560 + LP660 |
| | BP570-620 + LP655 |

XYZ-Stage

- ASI PZ-2150 scanning stage (xy travel range 120 x 110 mm), z-piezo top plate (with closed-loop servomotors, travel range 150 μ m, 2.2 nm resolution)
- Standard inserts for slides, dishes and multiwell-plates

Environmental control (stage top)

- Controller: Zeiss TempModule S, CO₂ Module S
- Heated inserts + heated lid for short term live imaging

Software

- Zeiss ZEN 2012 SP5 running on Windows 10 (64-bit)
- Tiles & positions package for stitching and multi-positioning options
- Dynamics profiler package for FCS and dynamics analysis using the Airyscan-2 detector