Waipapa Taumata Rau University of Auckland

Zeiss LSM 800 Airyscan confocal microscope



Applications

- *Modes: xy, xyz, xt, xyt, lambda*
- *Airyscan module for super-resolution*
- *Spectral unmixing*
- *Reflection imaging*
- *Tile-scanning and multi-point imaging*

Software

- *ZEN 2.6*

Specifications

- *Fully motorised Axio Observer 7 inverted microscope stand*
- *Marzhauser motorised XY stage, fully controllable through software*
- *Lasers: diode - 405nm, 488 nm, 561nm), 640 nm*
- *Modes: xy, xyz, xz, xt, xyt, lambda*

- *Detectors: 2 x GaAsP -PMT detectors (variable range), 1 x Airyscan module, 1 x transmission*
- *Objectives: Dry (5x/0.16 NA, 10x/0.45 NA, 20x/0.8 NA), Water (25x/0.8 NA, 40x/1.1 NA), Oil (25x/0.8 NA, 40x/1.3 NA, 63x/1.4 NA), Glycerol (25x/0.8 NA, 63x/1.3 NA), Silicone oil (63x/1.3 NA)*
- *Colibri 7 LED light engine for fluorescence observation, white LED for transmitted light observation.*
- *Differential interference contrast optics*
- *Zeiss anti-vibration table*

Fluorescence filter sets – for observation

Filter set	Fluorophore	LED	Excitation range	Dichroic mirror	Emission range
90 HE LED	*DAPI*	*UV*	*385/30 nm*	*405 nm*	*425/30 nm*
90 HE LED	*Alexa 488/FITC*	*Blue*	*469/38 nm*	*493 nm*	*514/30 nm*
90 HE LED	*Cy3/Alexa 555*	*Green*	*555/30 nm*	*575 nm*	*592/25 nm*
90 HE LED	*Cy5/Alexa 647*	*Red*	*631/33 nm*	*653 nm*	*709/100 nm*
91 HE LED	*Alexa 405*	*Violet*	*423/44 nm*	*450 nm*	*467/24 nm*
91 HE LED	*CFP/BV 480*	*Cyan*	*511/44 nm*	*538 nm*	*555/25 nm*
91 HE LED	*YFP*	*Yellow*	*591/27 nm*	*610 nm*	*687/145 nm*
DAPI/Texas Red	*DAPI*	*UV*	*378 - 409 nm*	*440 nm*	*444 – 478 nm*
DAPI/Texas Red	*Alexa 594*	*Yellow*	*560 – 590 nm*	*597 nm*	*600 – 651 nm*

Environmental control for live imaging

- *Zeiss stage-top environmental control system for heating from ambient temperature (approximately 22 degrees Celsius) - 60 degrees Celsius and carbon dioxide gas supply*
- *Controllable via the microscope's TFT interface or ZEN software*
- *Stage inserts - Petri dish, 6 well plate, 12 well plate, 48 well plate, 96 well plate, ibidi chamber slides*
- *Objective lens heaters available for immersion lenses if required*

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Abberior Facility Line STED microscope



Applications

- *Stimulated emission depletion (STED) microscopy – super-resolution imaging*
- *Modes: xy, xyz, xt, xz, xyt*
- *2D – 3D STED*
- *Fluorescence lifetime imaging (FLIM)*
- *Fluorescence correlation spectroscopy (FCS)*

Software

- *Lightbox*
- *Imspector Base*

Specifications

- *Fully motorised Olympus IX83 inverted microscope*
- *Olympus motorised XY stage, Physik Instrumente piezo z stage*
- *Lasers: excitation - 405nm (CW), 485nm (pulsed), 561nm (SHG pulsed), 640nm (pulsed)*

- *Lasers: STED - 775nm*
- *Detectors: APD, spectral, transmission*
- *ZDC autofocus*
- *Objective lenses – confocal - 4x/0.13 NA UPLFLN, 10x/0.3NA UPLFLN, 20x/0.5 NA UPLFLN, 20x/0.85 NA UPLSAPO oil immersion, 40x/1.4 NA UPLXAPO oil immersion, 60x/1.42 NA UPLXAPO oil immersion, 60X/1.3 NA UPLSAPO silicone oil immersion, 60x/1.2 NA UPLSAPO water immersion*
- *Objective lenses – STED - 60x/1.42 NA UPLXAPO oil immersion, 60X/1.3 NA UPLSAPO silicone oil immersion, 60x/1.2 NA UPLSAPO water immersion*
- *CoolLED pE-4000 LED light engine for fluorescence observation, halogen lamp for transmitted light observation*
- *Accurion anti-vibration platform*

Advanced features

- *Easy3D*
- *Adaptive illumination (ResCUE, DyMin)*
- *Adaptive optics*

Fluorescence filter sets – for observation

Filter set	Fluorophore	LED
Quad	*DAPI*	*365 nm*
Quad	*Alexa 488/FITC*	*470 nm*
Quad	*Cy3/Alexa 568*	*580 nm*
Quad	*Cy5/Alexa 647/STAR RED/STAR 635P*	*635 nm*
Dual – DAPI/TR	*DAPI*	*365 nm*
Dual – DAPI/TR	*Alexa 594*	*595 nm*
Dual – FITC/Cy5	*Alexa 488/FITC*	*470 nm*
Dual – FITC/Cy5	*STAR RED/635P*	*635 nm*
Cy7	*Alexa 750, Cy7*	*740 nm*

Environmental control for live imaging

- *Okolab stage-top incubation system for live imaging – heating and carbon dioxide*
- *Stage inserts for 35mm Petri dishes, ibidi chamber slides and multi-well plates*

Contact person

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Zeiss LSM 710 inverted confocal microscope



Applications

- *Modes: xy, xyz, xt, xyt, lambda*
- *Spectral unmixing and online fingerprinting*
- *Reflection imaging*
- *Tile-scanning and multi-point imaging*

Software

- *Zeiss ZEN Black*
- *Visual Macro Editor (VME)*

Specifications

- *Fully motorised Axio Observer inverted microscope stand*
- *Marzhauser motorised XY stage, fully controllable through software*
- *Lasers: 405nm diode, Argon ion (458, 488, 514 nm), diode-pumped solid state (561nm), Helium-Neon (633nm)*

- *Modes: xy, xyz, xz, xt, xyt, lambda*
- *Detectors: 1 spectral (QUASAR), 2 x photomultiplier tubes (variable range), 1 transmitted light*
- *Sequential and online unmixing*
- *Resolution: up to 6144 x 6144 pixel resolution*
- *Objectives: Dry (5x/0.16 NA, 10x/0.45 NA, 20x/0.8 NA), Water (25x/0.8 NA, 40x/1.1 NA), Oil (25x/0.8 NA, 40x/1.3 NA, 63x/1.4 NA), Glycerol (25x/0.8 NA, 63x/1.3 NA), Silicone oil (63x/1.3 NA)*
- *Differential interference contrast optics*
- *Excelitas XCite light source for fluorescence observation, halogen lamp for transmitted light observation*
- *TMC anti-vibration table*

Fluorescence filter sets – for observation

Filter set	Excitation range	Dichroic mirror	Emission range
Filter set 49 DAPI	*365 nm*	*395 nm*	*445/50 nm*
Filter set 01 DAPI	*365/12 nm*	*395 nm*	*397 nm longpass*
Filter set 09 FITC	*450-490 nm*	*510 nm*	*515 nm longpass*
Filter set 38 Endow GFP	*470/40 nm*	*495 nm*	*525/50 nm*
Filter set 43 DsRed	*545/25 nm*	*570, nm*	*605/70 nm*

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