Waipapa Taumata Rau University of Auckland

Olympus FV4000 upright confocal microscope



Introduction

The Olympus FV4000 is a point-scanning confocal microscope on an upright stand. It has Next-Generation SilVIR detectors and a full incubation enclosure providing heating or cooling. Point-scanning confocal microscopes are used with fluorescently labelled or reflective samples and employ laser-scanning in a point-wise fashion across the sample, providing improved resolution and contrast, by collecting photons from the focal plane only thereby reducing out of focus blur. This is particularly useful for thicker samples.

Applications

- *Slide imaging*
- *Live imaging*
- *Tile-scanning/multipoint imaging*
- *Modes: xy, xyz, xt, xyt, lambda*
- *Spectral unmixing*

Software

- *CellSens*

Specifications

- *Fully motorised upright microscope*
- *Marzhauser motorised XY stage, fully controllable through software*
- *LASERS: diode (405nm, 488nm, 561nm, 640nm, 730nm)*
- *Galvanometer and high-speed resonant scanner*
- *Detectors: Next-Generation SilVIR detectors - 4 spectral including specialised red-shifted detectors and one transmitted light*
- *Objective lenses: dry (10x/0.40 NA, 20x/0.8 NA, 40x/0.95 NA), oil immersion (60x/1.42 NA), water-immersion (20x/1.0 NA)*
- *Nomarski differential interference contrast (DIC) available for all objective lenses*
- *Newport anti-vibration table*

Fluorescence filter sets – for observation

Filter set	Excitation range	Dichroic mirror	Emission range
IX3-FBVWXL	*400-440 nm*	*455 nm*	*460 nm longpass*
IX3-FGFPXL	*460-480 nm*	*490 nm*	*495-540 nm bandpass*
IX3-FGWXL	*530-550 nm*	*570 nm*	*575 nm longpass*

Environmental control for live imaging

- *Ludin environmental control system for both heating and cooling*
- *Carbon dioxide supply available*
- *Fully light-tight enclosure*

Contact person

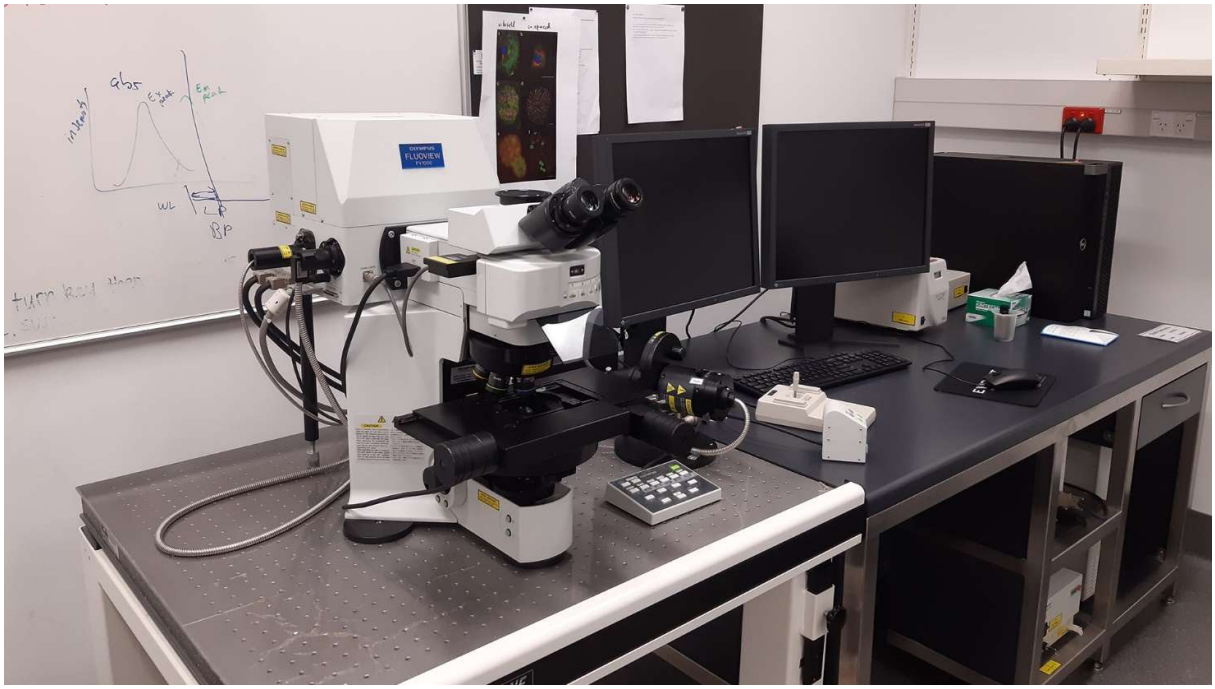
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Olympus FV1000 BX61 confocal microscope



Introduction

This system is a fully motorised point-scanning confocal microscope. Such systems are used with fluorescently labelled or reflective samples and employ laser-scanning in a point-wise fashion across the sample, providing improved resolution and contrast, by collecting photons from the focal plane only thereby reducing out of focus blur. This is particularly useful for thicker samples.

Applications

- *Slide imaging*
- *Tile-scanning/multipoint imaging*
- *Modes: xy, xyz, xt, xyt, lambda*
- *Spectral unmixing*

Software

- *FluoView 4.2*

Specifications

- *Fully motorised BX61 upright microscope*
- *Prior motorised XY stage, fully controllable through software*
- *LASERS: diode (405nm, 440nm, 473nm, 635nm); diode-pumped (559nm)*
- *Detectors: photomultiplier tubes -2 spectral (variable bandpass), 1 filter-based, and one transmitted light*
- *Modes: xy, xyz, xt, xyt, lambda*
- *Objectives: dry (4x/0.16 NA, 10x/0.40 NA) and oil immersion (20x/0.80 NA, 40x/1.0 NA, 60x/1.35 NA, 100x/ 1.4 NA).*
- *Differential interference contrast available for all objective lenses*
- *Kinetic Systems anti-vibration table*

Fluorescence filter sets – for observation

Filter set	Excitation range	Dichroic mirror	Emission range
U-MNU2	*360-370 nm*	*400 nm*	*420 nm longpass*
U-MWBV	*400-440 nm*	*455 nm*	*475 nm longpass*
U-MNIBA3	*470-495 nm*	*505 nm*	*510-550 nm bandpass*
U-MWIB3	*460-495 nm*	*505 nm*	*510 nm longpass*
U-MWIG3	*530-550 nm*	*570 nm*	*575 nm longpass*

Contact person

Jacqueline Ross

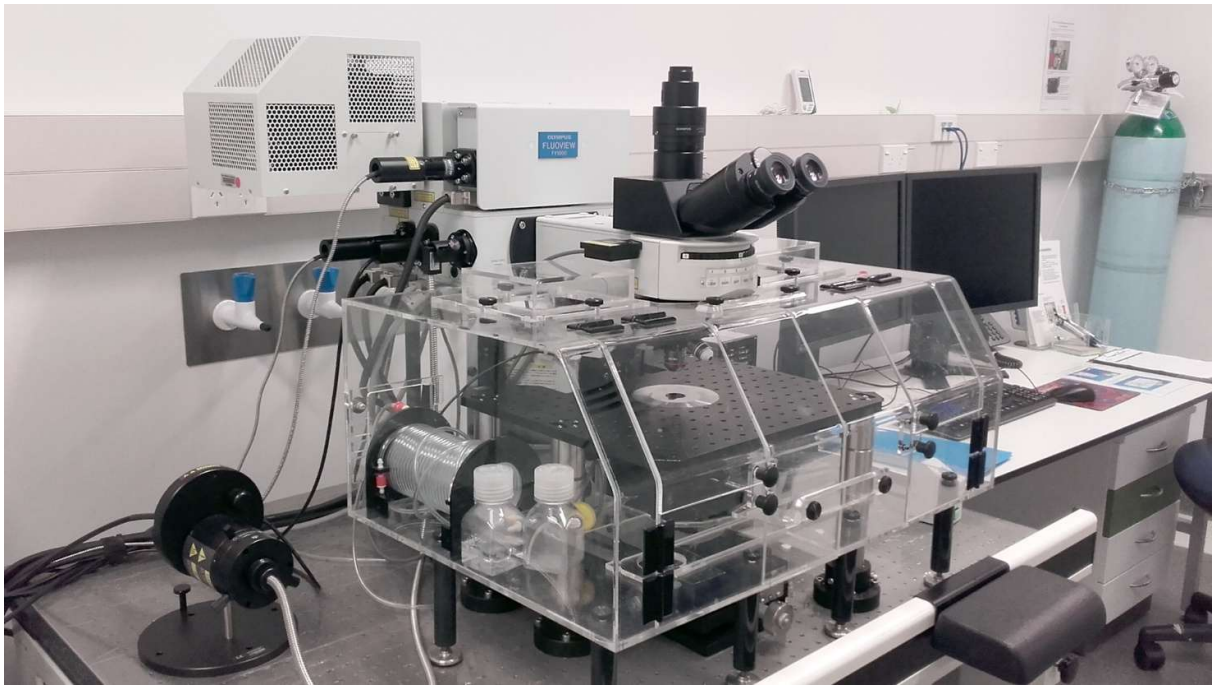
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Waipapa Taumata Rau University of Auckland

Olympus FV1000 WI confocal microscope



Introduction

The Olympus FV1000 Live cell imaging confocal microscope is a point-scanning confocal microscope. Such systems are used with fluorescently labelled or reflective samples and employ laser-scanning in a point-wise fashion across the sample, providing improved resolution and contrast, by collecting photons from the focal plane only thereby reducing out of focus blur. This is particularly useful for thicker samples. This system is equipped with a full environmental enclosure and has a twin scanner which is specialised for photoactivation/photobleaching studies.

Applications

- *Time-lapse imaging*
- *FRAP, FRET*
- *Uncaging/Photoactivation*
- *Reflection imaging*
- *Modes: xy, xyz, xt, xyt, lambda*
- *Spectral unmixing*

Software

- *FluoView 4.2*

Specifications

- *Lasers: Argon ion multi-line (458nm, 488nm, 514nm), Helium Neon: 543nm, 633nm, diode-pumped 405nm (for imaging and photoactivation/bleaching)*
- *Twin scanner system - main scanner for standard confocal imaging; SIM scanner for photobleaching/uncaging. Enables simultaneous bleaching/imaging (FRAP, etc.)*
- *Detectors: 2 spectral (variable bandpass), 1 filter-based, and one transmitted light + 2 high sensitivity detectors (HSD - GaAsP) for green/red and red/far-red*
- *Four separate nosepieces, one for water-immersion long working distance objectives, one for the 20x high NA water immersion lens, one for the 10x Scaleview lens and one for dry and oil immersion objectives (for imaging slides)*
- *Objectives: long working distance water-immersion (10x/0.3 NA, 20x/0.5 NA, 40x/ 0.8 NA, 60x/ 0.9 NA), dry (4x/0.16 NA, 10x/0.4 NA, 20x/0.8 NA, 40x/0.95 NA), silicone oil immersion (60x/ 1.3 NA) and oil immersion (50x, 60x/ 1.35 NA, 100x/1.4 NA)*
- *Specialised 10x/0.6 NA XPLN SVMP lens, larger circumference than other lenses, working distance 8mm, refractive index (RI) immersion capability from 1.33-1.52*
- *20x/1.0 NA long working distance water-immersion lens - larger circumference than standard water-immersion lenses*
- *Kinetic Systems anti-vibration table*

Fluorescence filter sets – for observation

Filter set	Excitation range	Dichroic mirror	Emission range
WU	*330-385 nm*	*400 nm*	*420 nm longpass*
NIBA	*470-495 nm*	*505 nm*	*510-550 nm bandpass*
WIB	*460-495 nm*	*505 nm*	*510 nm longpass*
WIG	*520-550 nm*	*570 nm*	*580 nm longpass*

Environmental control for live imaging

- *Solent Scientific environmental control system for heating and 5% carbon dioxide*
- *Full enclosure*

Contact person

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