Nikon A1+ Laser Scanning Confocal Microscope

The Nikon A1+ Laser Scanning Confocal is our versatile high-performance microscope, enabling high-resolution 3D imaging of thick samples. This microscope is user-friendly for routine imaging and has plenty of advanced features for more complex experiments.

Remember to **acknowledge** the facility in your publications! For example:

Confocal microscopy analysis was performed using the Curtin Medical Research Institute Microscopy and Histology Shared Resources Laboratory with the assistance of Mr Michael Nesbit.

Features

- 4 lasers and matched detectors for multicolour imaging.
- 32 channel spectral detector, real time spectral unmixing and virtual filtering
- High speed galvano and resonant scanners
- High signal to noise ratio and adjustable pinhole, for excellent 3D imaging and rejection of out of focus light
- Nikon High Content Analysis module for multi-well plates and automated analysis including autofocussing.
- Stage top incubator for live cell imaging including Fluorescence Recover after Photobleaching (FRAP).
- Transmission detector for simultaneous brightfield and confocal imaging, including DIC optics.
- Perfect focus system for stable live imaging
- CCD camera for brightfield and widefield fluorescence applications

Objective Lenses

Mag	Immersion	Numerical Aperture	Working Distance (mm)	Correction collar
10x	Dry	0.45	4.0	
20x	Dry	0.75	1.0	
40x	Dry	0.95	0.25 - 0.17	0.11 - 0.22
60x	Water	1.20	0.31 - 0.28	0.15 - 0.18
100x	Oil	1.45	0.13	

Additional Objectives Available

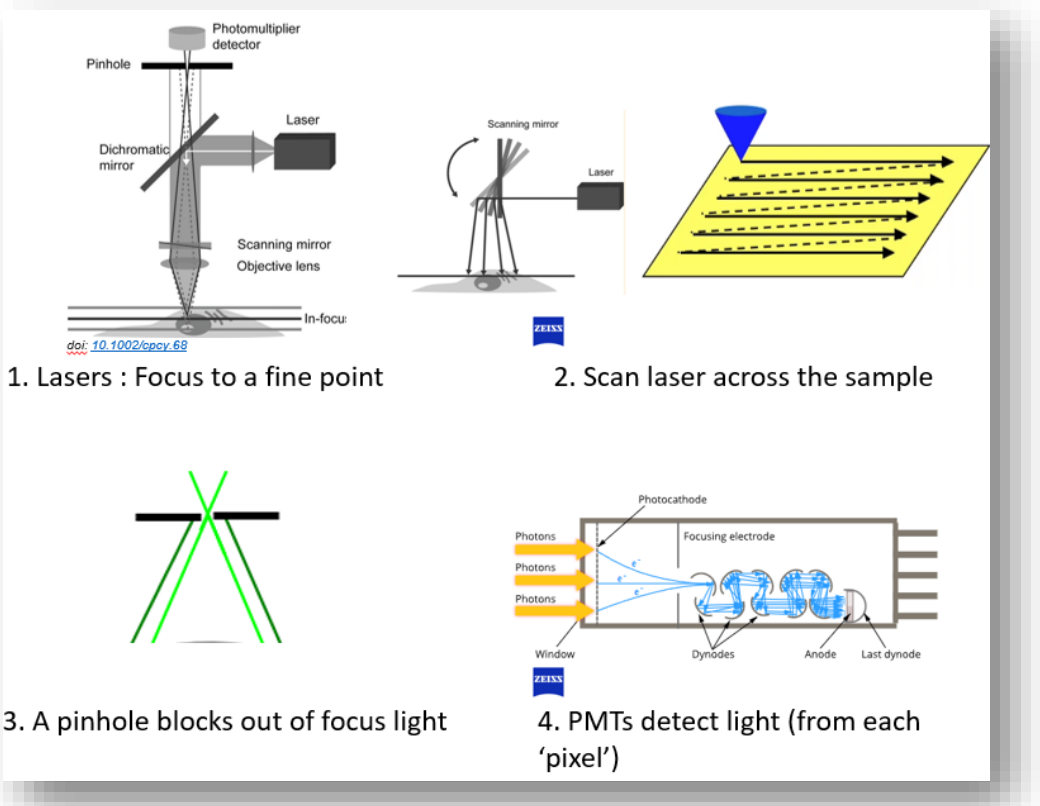
Mag	Immersion	Numerical Aperture	Working Distance (mm)	Correction collar
4x	Dry	0.13	16.5	
20x	Multi-immersion	0.75	0.51 - 0.33	0 - 0.17
40x	Dry	0.60	3.6 - 2.8	0 – 2
60x	Oil	1.40	0.13	

Excitation and Emission

Excitation (nm)	Emission (nm)	Fluorophore examples
405	450/50	DAPI, HOECHST
488	525/50	GFP, Alx488
561	595/50	RFP, dTomato, Alx564
640	700/75	Cy5, alx647

Technology Overview

In laser scanning confocal microscopy, a single point of the sample is strongly illuminated. The laser is guided across the sample in a grid pattern to build an image. Emitted light from each point on the sample passes through an adjustable pinhole and is detected by PMTs.



May2026