

NIKON N-STORM

GENERAL INFORMATION

The Nikon N-STORM microscope at the LMCB Super-Resolution Facility (SuRF) uses STochastic Optical Reconstruction Microscopy (STORM) localization with which lateral resolutions of ~20 - 30 nm in biological specimens can be achieved. This allows the study of protein-protein interactions at the molecular level using localization information of individual fluorophores within the specimen. Axial resolutions of ~50 nm can be reached using a cylindrical lens that induces a known astigmatic stretch to the image therefore allowing super-resolution information to be obtained in 3D. The system is built around the Nikon Ti-E inverted microscope and allows high-accuracy, multi-colour imaging. It comes with the NIS-Elements software package for image acquisition and processing. The 100x oil TIRF Apochromat (NA 1.49) objective lens is ideal for STORM or Total Internal Reflection Fluorescence (TIRF) imaging. TIRF allows high-



Nikon N-STORM microscope at the LMCB

sensitivity and high contrast imaging of single molecules near the cover glass and multi-colour, multi-point, time-lapse experiments are possible. Incubation equipment for live cell experiments is also available. Multi-colour STORM imaging can be performed using tandem dye pairs or standard secondary antibodies in continuous activation mode.

Nikon N-STORM Specifications

XY resolution	~ 20 - 30 nm
Z resolution	~ 50 - 75 nm
3D STORM axial range	± 500 nm
Imaging mode	Widefield TIRF (multi-colour, multi-point, time-lapse), 2D-STORM, 3D-STORM using cylindrical lens
Lasers	Agilent Technologies MLC400 Laser Combiner (405, 488, 561 and 647 nm)
LEDs	Lumencor SPECTRA Light Engine® (395, 440, 470, 508, 555 and 640 nm)
Microscope	Inverted microscope Nikon ECLIPSE Ti-E, anti-vibration optical table, fully enclosed, Perfect Focus System, Motorized XY stage with encoders, Piezo Z stage
Objectives	Plan Fluor 10x/0.30 dry Plan Fluor 40x/1.30 oil Plan Apochromat VC 60x/1.20 WI Plan Apochromat VC 60x/1.40 oil Apochromat TIRF 100x/1.49 oil
Camera	Andor Technology EMCCD camera iXon DU-897E Andor Technology sCMOS Zyla 4.2
Software	NIS-Elements Ar including NIS-A N-STORM analysis module
Incubation	Solent Scientific chamber heater and CO ₂ supply unit

Please contact Kathrin Scherer (k.scherer@ucl.ac.uk) or Andrew Vaughan (andrew.vaughan@ucl.ac.uk) for enquiries relating to facility access and training on the Nikon N-STORM.