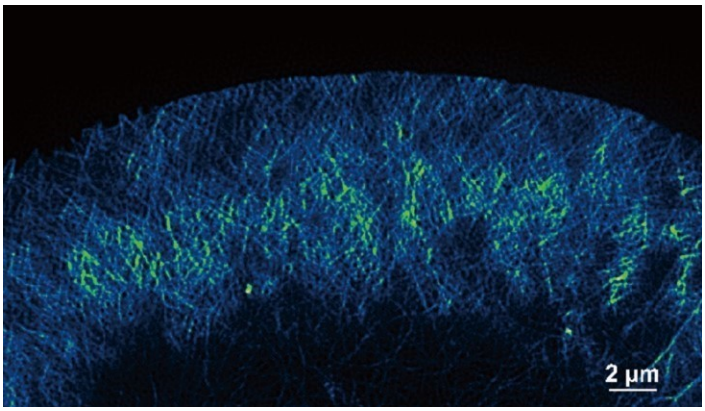
Biological Microscopes

Super Resolution Microscope

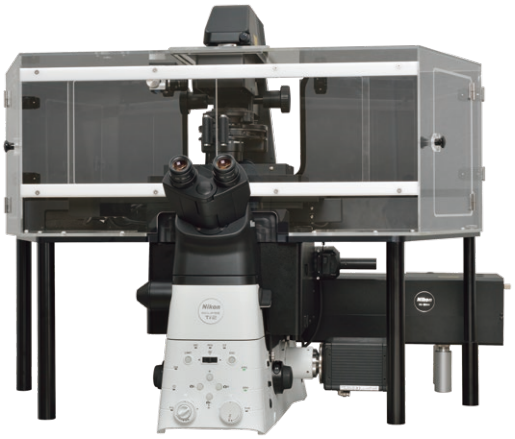
N-SIM S

Achieving temporal resolution of up to 15 fps and twice the spatial resolution of conventional light microscopes enables fast super-resolution imaging of dynamic live cell events

- The unique high-speed structured illumination system enables high-speed super-resolution imaging at 15 fps* (*2D-SIM mode, 512 x 512 pixels, 2 msec exposure time)
- Utilization of “Structured Illumination Microscopy” technology achieves nearly twice (up to approx. 115 nm*) the resolution of conventional light microscopes (*excited with 488 nm laser, in 3D-SIM mode)
- Automated optimization of structured illumination patterns for different wavelengths and magnifications enables fast 2-color TIRF-SIM imaging
- The large imaging area of up to 66 square μm enables high throughput for applications/samples that benefit from larger FOV, such as a neurons
- The optional two-camera imaging adapter allows simultaneous two-wavelength super-resolution imaging with excitation of 488 nm and 561nm
- The personal super-resolution microscope N-SIM E, which provides a streamlined, affordable super-resolution system supporting only essential, commonly used excitation wavelengths and imaging modes, is also available



Growth cone of NG108 cell labeled with GFP-Lifeact for F-actin.
Image courtesy of: Drs. Minami Tanaka and Kaoru Katoh, The National Institute of Advanced Industrial Science and Technology (AIST)

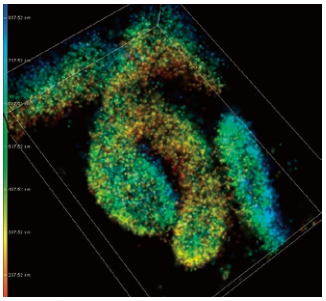


Super Resolution Microscope

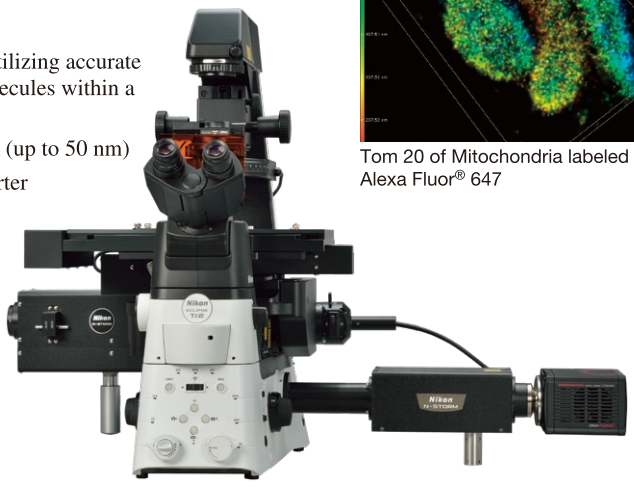
N-STORM

Resolution 10 times that of conventional light microscopes enables a greater understanding at the molecular level

- Ultra-high spatial resolution (up to 20 nm in xy) is achieved by utilizing accurate localization information of thousands of discrete fluorophore molecules within a specimen
- A tenfold enhancement has also been achieved in axial resolution (up to 50 nm)
- Multicolor super-resolution imaging utilizing both activator-reporter pairs and activator-free labels affords a critical insight into the localization and interaction of proteins at the molecular level
- The N-STORM 5.0, the newest version of N-STORM, is capable of more flexible imaging sequencing thanks to improved JOBS function



Tom 20 of Mitochondria labeled with Alexa Fluor® 647



Inverted Research Microscopes

ECLIPSE Ti2-E/Ti2-A/Ti2-U

Leading platform for advanced imaging

- Bright and uniform illumination is provided across an unprecedented 25 mm field of view that maximizes the sensor area of large-format CMOS cameras, and significantly improves data throughput
- Ti2-E is a motorized and intelligent model for advanced imaging applications, and Ti2-A and Ti2-U are manual models with imaging capability for laser applications. Ti2-A has unique, intelligent features
- Ti2-E is compatible with real-time focus maintenance Perfect Focus System (PFS), auto correction collar, and external phase contrast system
- For its stable and drift-free platform, Ti2-E is perfect for super-resolution and confocal imaging
- The hardware-triggering capabilities of Ti2-E enhance even the most challenging, high-speed imaging applications
- Stability of PFS on Ti2-E is enhanced by reducing mechanical load on the nosepiece. It is compatible with broad wavelengths from ultraviolet to infrared, as well as various applications involving plastic dishes, single molecule and multi-photon imaging
- Ti2-E/Ti2-A's intelligent functions provide interactive guidance for microscope operation by integrating data from internal sensors, thus eliminating the possibility of user errors. The status of each sensor is automatically recorded during image acquisition
- The Water Immersion Dispenser automatically applies the appropriate amount of water to the tip of an objective, eliminating evaporation and overflow during experiments

Ti2-E

Ti2-A

Ti2-U

Illumination modules

Ti2-LAPP Modular Illumination System (for Ti2-E/A/U)

A wide range of illumination modules can be flexibly combined or added to create an imaging system tailored for individual research. Utilizing the Ti2's stratum structure, up to five modules can be simultaneously mounted and rapidly switched. Dual layer configuration of filter cube turrets enables optimal filter configuration for illumination modules on each layer.

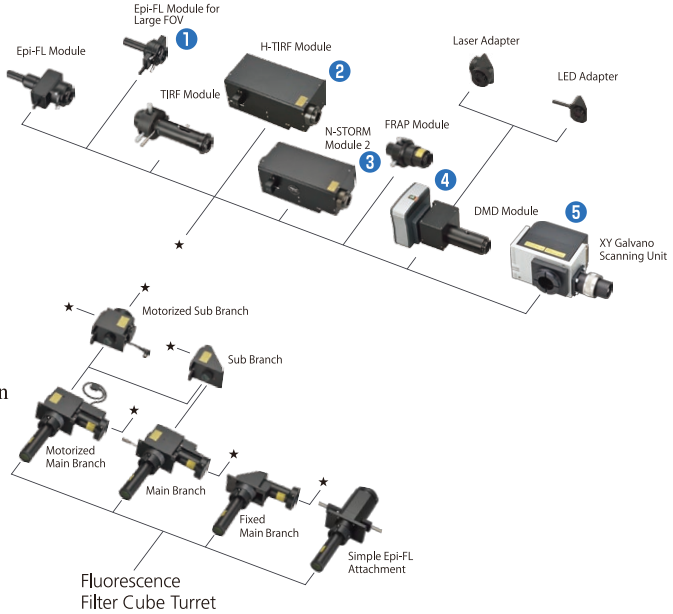
❶ EPI FL Module for Large FOV: Delivers a large 25 mm field of view and is perfect for epi-fluorescence imaging with cameras with large sensors

❷ H-TIRF Module: Enables automatic laser focus adjustment and incident angle adjustment for TIRF observations

❸ N-STORM Module2: Equipped with motorized switching of illumination field for N-STORM microscopy

❹ DMD Module: Allows for simultaneous multi-point photoactivation with customizable illumination ROIs

❺ XY Galvano Scanning Unit: Allows for simultaneous photostimulation and confocal imaging with A1 HD25/A1R HD25



Inverted Research Microscopes

ECLIPSE Ts2R/Ts2R-FL

A compact inverted research microscope configurable with a wide variety of observation methods

- Space-saving compact body allows these models to be easily fit inside a laminar flow hood
- Low stage design helps reduce fatigue during repetitive sample exchange
- Mechanical stage with long travel stroke enables observation of entire 96-well plates
- High-intensity LED light source is used for both diascopic and epi-fluorescence illumination
- In addition to DIC and NAMC, the Emboss Contrast method is possible, enabling observation of thick samples with high contrast and relief images using standard condenser lenses and objectives, supporting both plastic and glass dishes
- The Ts2R-FL features built-in fluorescence light source and filter turret, accommodating up to four sets of LED units and filter cubes
- Illumination can be switched to epi-fluorescence with one button; the fluorescence illumination brightness adjuster is located on the same side of the microscope for intuitive operation (Ts2R-FL)
- Optional Contrast Shield blocks room light, making high S/N fluorescence observation possible even in brightly-lit rooms (Ts2R-FL)
- The spindle observation system allows accurate locating of spindle bodies, which is important for ICSI, and also makes switching to NAMC and emboss contrast observation easy

ECLIPSE Ts2R
(Diascopic illumination model)

ECLIPSE Ts2R-FL
(Diascopic and epi-fluorescence illumination model)

Inverted Routine Microscopes

ECLIPSE Ts2/Ts2-FL

Fits in every laboratory — Simple to use and compact

- Space-saving compact bodies allow these models to be easily located next to incubators; camera port located on the side enables confirmation of what is on the stage from the observation position
- Mechanical stage with long travel stroke enables observation of entire 96-well plates
- High-intensity LED light source is used for both diascopic and epi-fluorescence illumination
- The Emboss Contrast method allows observation of thick samples with high contrast and relief images using standard condenser lenses and objectives, supporting both plastic and glass dishes
- The Ts2-FL features built-in fluorescence light source and filter turret, accommodating up to three sets of LED units and filter cubes
- Illumination can be switched to epi-fluorescence with one button; the fluorescence illumination brightness adjuster is located on the same side of the microscope for intuitive operation (Ts2-FL)
- Optional Contrast Shield blocks room light, making high S/N fluorescence observation possible even in brightly-lit rooms (Ts2-FL)

ECLIPSE Ts2
(Diascopic illumination model)

ECLIPSE Ts2-FL
(Diascopic and epi-fluorescence illumination model)

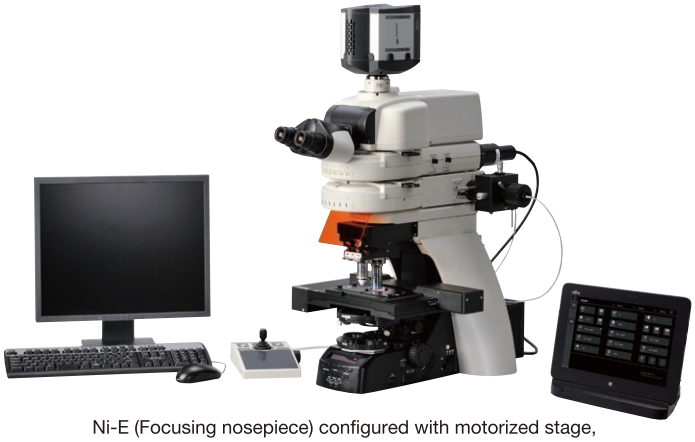
Motorized Advanced Research Microscope

ECLIPSE Ni-E (focusing stage model and focusing nosepiece model)

Automated imaging capability for most advanced observations

- High-precision motorized focusing supports automated Z-series acquisition
- Observation method can be changed using buttons on the microscope body. Microscope settings are automatically set to optimal positions according to selected magnification
- Various motorized accessories can be attached
- Stratum structure allows double layer mounting of a photoactivation unit and an epi-fluorescence attachment to enable simultaneous photoactivation and imaging
- High-speed motorized excitation/barrier filter wheel for multicolor imaging
- Exchangeable focusing mechanism from focusing stage to focusing nosepiece
- High optical performance: uniform and bright illumination using fly-eye optics
- Built-in, easy-to-reach image capture button. Angled operation buttons allow touch-type operations during observation

Ni-E (Focusing stage) configured with motorized epi-fluorescence illuminator, motorized condenser and motorized quadrocular tilting tube



Ni-E (Focusing nosepiece) configured with motorized stage, motorized epi-fluorescence illuminator, photoactivation unit, motorized quadrocular tilting tube and camera

Advanced Research Microscope

ECLIPSE Ni-U

Manual microscope with flexible selection of motorized options

- Motorized nosepiece, motorized epi-fluorescence cube turret and motorized shutter can be utilized
- Stratum structure allows double layer mounting of a back port unit and an epi-fluorescence attachment to enable simultaneous multichannel imaging with two cameras
- High optical performance: uniform and bright illumination using fly-eye optics
- Built-in, easy-to-reach image capture button

Ni-U configured with ergonomic binocular tube

Clinical and Laboratory Microscopes

ECLIPSE Ci-E/Ci-L/Ci-S

Exceptional comfort for clinical and laboratory observation

- High-luminescent eco-friendly LED (Eco-illumination) for Ci-E/Ci-L and halogen illumination for Ci-S
- Ci-E offers motorized magnification switching and automatic light intensity reproduction, enabling use of motorized condenser
- Angle and extension adjustable ergonomic binocular tube ensures observation with natural posture. Eye-point height can be lifted using an eyelevel riser
- Stage height can be lowered by adding a nosepiece spacer, and locked for easy refocusing. Height-adjustable stage handle. Durable, scratch-resistant ceramic-coated stage
- Built-in capture button allows easy imaging with the DS series camera

Ci-E configured with ergonomic binocular tube

Ci-L configured with ergonomic binocular tube and DS series camera

Ci-S configured with ergonomic binocular tube

Clinical & Educational Microscope

ECLIPSE E200

Outstanding cost performance—striking image sharpness, operability and durability

- Both high-luminescent LED (Eco-illumination) model and halogen lamp model are available
- Adopts CFI60 infinity optics for this class of microscope. Plan objectives that excel in image flatness come standard
- One-touch refocusing stage for easier specimen handling
- Focusing knob and stage handle are low-positioned and equidistant from operator, permitting one-handed operation in natural posture
- Ergonomic binocular tube and eye-level risers are available for adjusting the eyepoint
- Anti-mold treated
- E200-F (model with field diaphragm) is also available
- Various accessories are available, such as dedicated epi-fluorescence attachment
- Halogen lamp model is compliant with 100V-240V (multi-voltage)
- The E200-dedicated epi-fluorescence attachment is equipped with an LED light source with a minimum lifespan of 10,000 hours

E200 (model without field diaphragm)

Upright Microscope

Educational Microscope

ECLIPSE E100

High optical quality, simple operation and rigid design

- High-luminescence LED (Eco-illumination) and halogen lamp models are both available
- CFI optical system and dedicated objectives for flat images
- Siedentopf-type eyepiece tube and eye level adjustments; digital camera attachable to trinocular eyepiece tube
- Adjustable condenser position (Simplified Kohler's Illumination System)
- Phase contrast observation for high-contrast viewing of transparent and colorless specimens
- Anti-mold treatment for objectives, eyepieces, and eyepiece tube

E100 configured with binocular tube

Polarizing Microscopes

ECLIPSE LV100N POL/Ci-POL/E200POL

- CFI60 optics deliver world-class optical performance
- Excellent basic performance, operability, durability and, above all, outstanding image sharpness
- LV100N POL is a research polarizing microscope that boasts twice the rigidity of conventional models and a brightness exceeding 100W (12V-50W model with centering quintuple nosepiece). The built-in Fly-Eye optics ensures uniform illumination, making it ideal for digital imaging
- ECLIPSE Ci-POL is compact yet offers high functionality, such as a nosepiece with DIN standard compensator slot (6V-30W model with centering quintuple nosepiece). Built-in capture button allows easy imaging with DS series cameras
- E200POL is a cost-efficient and extremely compact model (6V-30W multi-voltage model with quadruple nosepiece)

LV100N POL (diascopic illumination type)

Ci-POL (diascopic illumination type)

E200 POL (diascopic illumination type)

Microscope for Asbestos Identification

Polarizing/Dispersion Microscope

ECLIPSE LV100ND POL/DS

Dispersion staining microscopy that aids in the identification of asbestos

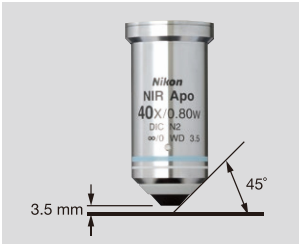
- Characteristic dispersion colors of each asbestos type corresponding to the refraction index of the immersion liquid can be observed using the phase contrast condenser and objectives (10X and 40X) for dispersion staining microscopy
- Qualitative asbestos analysis is possible by determination of birefringence and elongation (positive/negative); measurement of extinction angle, refractive index, and birefringence magnitude (retardation); observation of pleochroism

Fixed Stage Microscope for Electrophysiological Research

ECLIPSE FN1

Dedicated microscope for electrophysiological research with I-shaped body design—more room for smooth electrode manipulation

- The 40X and 60X objectives allow crisp high resolution IR-DIC imaging by correcting axial chromatic aberration up to near-IR light (850 nm)
- The 100X objective with 1.1 NA and 2.5 mm working distance comes with a correction function for depth- and thermally-induced aberrations
- The vertical motion nosepiece enables magnification changes without moving Petri dish (15 mm or less in height)
- Easy switching between IR light and reflected illumination
- With an optional variable magnification double port (0.35X, 2X, 4X), both wide field and high magnification observations can be carried out with a 16X objective alone
- Deep imaging of living specimens is possible in configuration with the A1 MP+/A1R MP+ multiphoton confocal system



All objectives have wide approach angles and long working distances (45° and 3.5 mm with 40X objective).

Configuration with Narishige micromanipulators and epi-fluorescence attachment

SMZ1270/1270i, SMZ800N

- SMZ1270/1270i provides highest-in-class zoom ratio of 12.7:1. Zoom ratio of SMZ800N is 8:1
- Total magnification 3.15-480X (SMZ1270/1270i), 5-480X (SMZ800N), depending on eyepieces and objectives used
- High-level chromatic aberration correction provides sharp images
- Automatic detection of zoom magnification in combination with the digital camera control unit. Objective information is also detected with the intelligent nosepiece. (SMZ1270i)
- Compatible with various accessories, including trinocular tubes, epi-fluorescence attachment and teaching head. The slim-type LED diascopic stand is equipped with OCC illumination. The nosepiece offers both a widened magnification range and on-axis imaging

SMZ1270 configured with binocular tube and LED diascopic illumination stand

SMZ1270i configured with trinocular tilting tube, intelligent nosepiece and LED diascopic illumination stand

SMZ800N configured with binocular tube and plain stand

SMZ745/SMZ745T

- Total magnification 3.35-300X
- Zoom ratio 7.5:1
- Compatible with a camera (SMZ745T)
- Eyepiece inclination 45°

SMZ745T configured with C-PS plain stand

SMZ745 configured with C-PS plain stand

SMZ445

- Total magnification 4-70X
- Zoom ratio 4.4:1
- Eyepiece inclination 45°

SMZ445 configured with hybrid LED stand

SMZ460

- Total magnification 3.5-60X
- Zoom ratio 4.3:1
- Eyepiece inclination 60°

SMZ460 configured with hybrid LED stand