N-SIM S | A1 R HD25

Nikon Combined A1 R HD25 and N-SIM Systems

High speed high content confocal and super resolution combined in one

Get biological information and details across the length scale

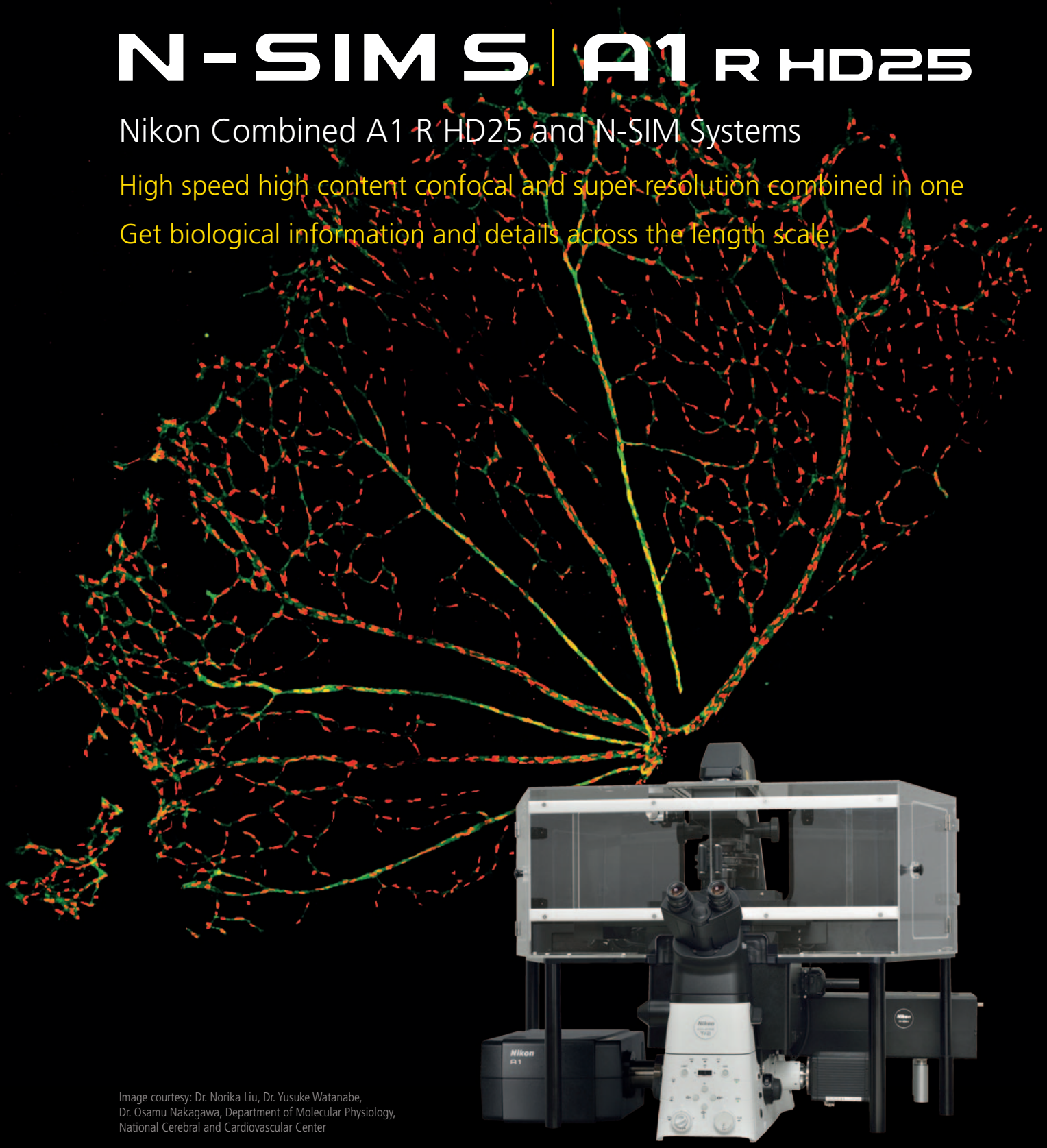
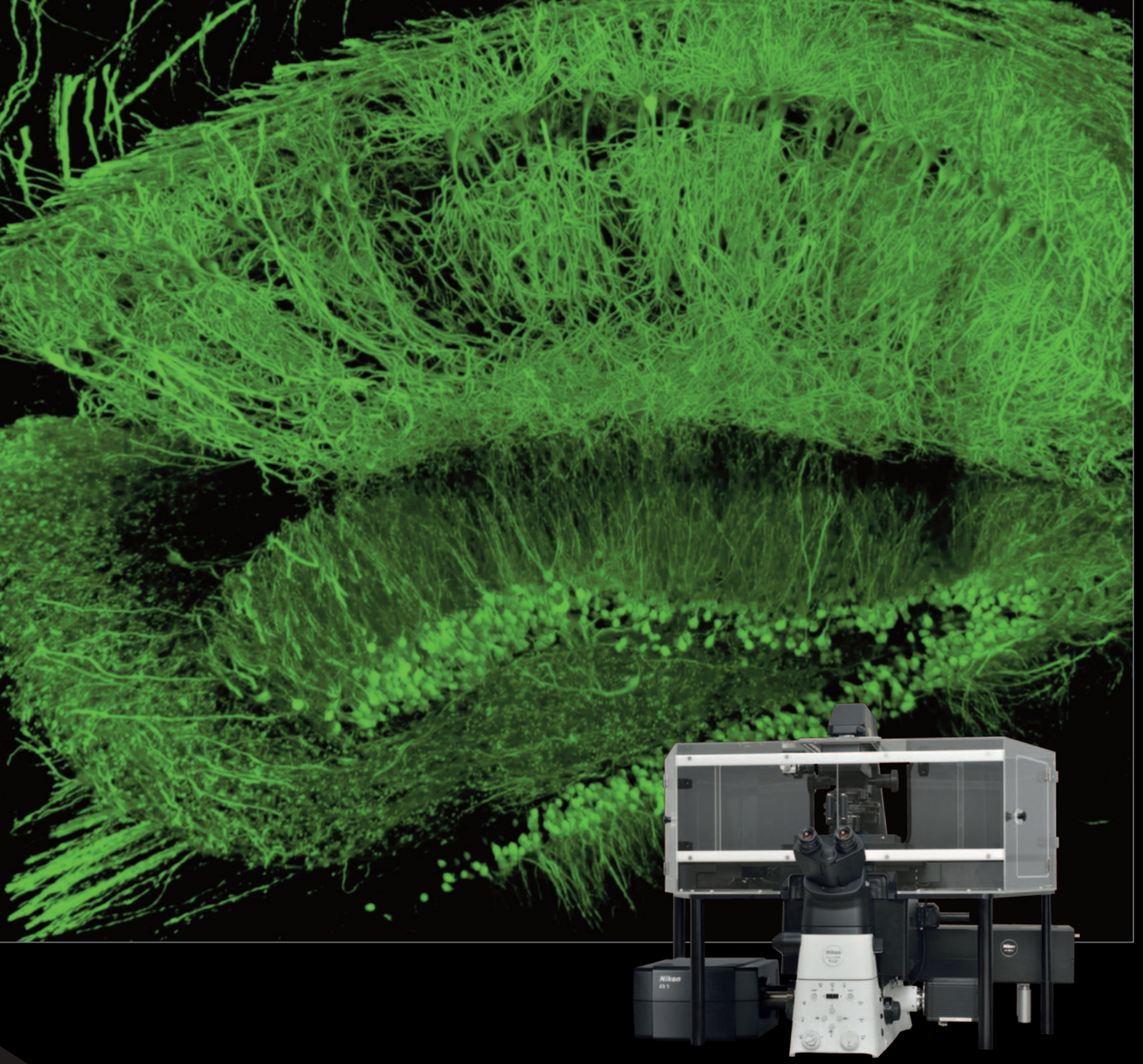


Image courtesy: Dr. Norika Liu, Dr. Yusuke Watanabe,
Dr. Osamu Nakagawa, Department of Molecular Physiology,
National Cerebral and Cardiovascular Center

Shedding New Light On **HEALTHCARE**



N-SIM S | A1 R HD25

Fluorescence imaging with gentle illumination, suitable for both live cells and fixed specimens

Obtain large overview faster at confocal resolution with resonant scanning

Resolve higher spatial structural details in your biological systems at ease with structured illumination microscopy (SIM)

Switch between imaging modalities effortlessly without disturbing the samples

A1 R HD25 and N-SIM system together for high flexibility, high content, high speed and super resolution to unravel biological details

- Benefit from both high context and super resolution on one platform
- A1 R HD25 offers resonant scanning and the largest field of view. Image the complete area of interest with fewer frames more rapidly
- Flexibility to use Galvano confocal imaging for high resolution and signal to noise ratio
- Switch effortlessly to SIM to resolve subcellular details at super resolution using Nikon's software interface
- Choose from a wide range of objectives, optionally with the auto correction collar, to optimise your experiments
- Easily obtain up to 115 nm XY resolution and 269 nm Z resolution using the user-friendly N SIM S or N-SIM E
- Record dynamic events in fine details in live cells with gentle illumination at up to 15 fps with N-SIM S

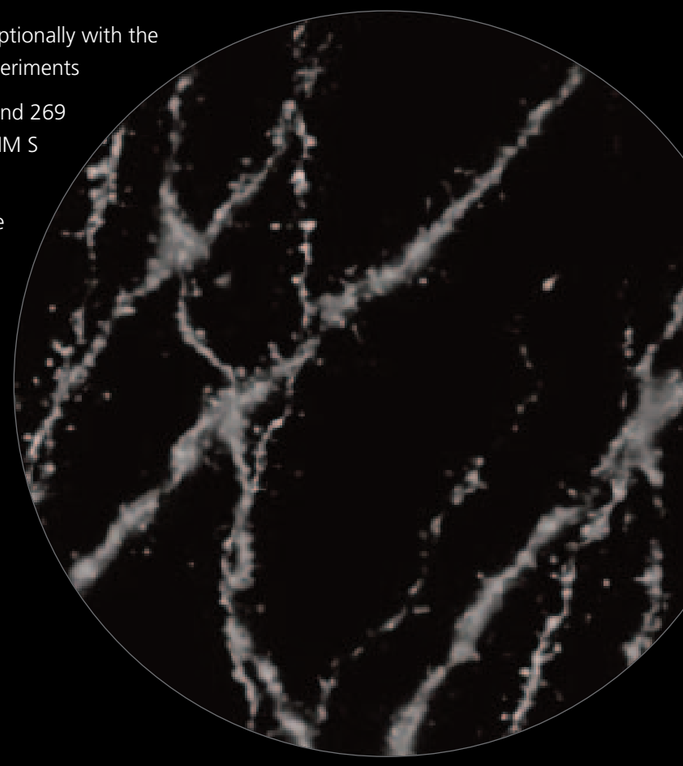


Image courtesy of
Dr. Kaoru Katoh,
The National Institute of
Advanced Industrial Science
and Technology (AIST)

Get more data, more information and higher context

- Set up automated confocal to SIM workflows using the powerful software feature JOBS
- Screen for specific structures in the confocal images based on chosen criteria with General Analysis, and acquire SIM images of these structures automatically
- Save time and remove human subjectivity through automation

A1 R HD25 Specifications

Scanhead	25 mm FOV for inverted, 18 mm FOV for upright microscope 1 (galvano) or 2 scanners (galvano & resonant) 1 or 2 laser units 2 or 3 detectors (4-ch fluorescence, spectral and 3rd party FLIM Low-angle incidence dichroic mirrors Hexagonal motorized pinhole
Imaging method	Galvano Scanner - Highest Resolution Imaging up to 4096 x 4096 pixels up to 10 fps at 512 x 512 pixels 200 fps at 512 x 16 pixels
	Resonant Scanner - High Speed and Gentler Imaging up to 1024 x 1024 pixels 15 fps at 1024 x 1024 pixels 30 fps at 1024 x 512 pixels 60 fps at 1024 x 256 pixels 720 fps at 512 x 16 pixels
Compatible laser	LU-N series laser unit Standard: 405 nm, 488 nm, 561 nm, 640 nm Option: 445 nm, 458 nm, 514 nm, 532 nm, 594 nm, 647 nm

Detection method	4-channel Fluorescence Detectors: DU4 or DUG 400-750 nm 4 MA-PMTs (DU4) or 2 MA-PMTs + 2 GaAsP PMTs (DUG) Spectral Detectors : DUS or DUVB 400-750 nm DUS: 32-ch array, grating-based spectral detector with 2.5/6/10 nm resolution and 0.25 nm step DUVB: Prism-based spectral detection (DUVB) with 10 nm resolution and 1 nm step
Compatible microscope	Motorized inverted microscope ECLIPSE Ti2-E Perfect Focus System Motorized upright microscope ECLIPSE Ni-E or FN1
Objective	Plan Apochromat Lambda, Lambda S or VC series, which includes Silicon Series 25x/1.05; 40x/1.25; 100x/1.35 LWD Water Series: 20x/0.95, 40x/1.15 Other Water Series: 40x/1.25, 60x/1.27
Software	NIS-Elements C NIS-Elements C-ER for Deconvolution Module included
Operating conditions	Temperature 23 ± 5 °C, humidity 70 % (RH) or less

N-SIM Specifications

	N-SIM S	**N-SIM E**
Lateral resolution (FWHM of beads in xy)	115 nm*1 in 3D-SIM mode, 86 nm*2 in TIRF-SIM mode	115 nm*1 in 3D-SIM mode
Axial resolution (FWHM of beads in z)	269 nm*1 in 3D SIM mode	269 nm*1 in 3D SIM mode
Image acquisition time	Up to 15 frames/ second (2D-SIM)	Up to 1 second/frame (3D-SIM)
Reconstructed image size	1024 x 1024 pixels, 2048 x 2048 pixels	512 x 512 pixels
Imaging modes	TIRF-SIM 2D-SIM 3D-SIM (Reconstructed method: slice, stack)	3D-SIM (Reconstructed method: slice, stack)
Simultaneous multi-color imaging	2 colors	1 color
Multi-color imaging	Up to 6 colors	Up to 3 colors
Compatible laser	LU-NV series laser unit Standard: 405 nm, 488 nm, 561 nm, 640 nm Option: 445 nm, 514 nm Laser combination: 405 nm /445nm/488nm/561 nm/ 647 nm	LU-N3 SIM laser unit 488 nm, 561 nm, 640 nm
Compatible microscope	Motorized inverted microscope ECLIPSE Ti2-E, Perfect Focus System, Motorized XY stage with encoders Motorized barrier filter wheel, Piezo Z stage (option)	
Objective	CFI SR HP Plan Apochromat Lambda S 100XC Sil (NA1.35) CFI SR Plan Apochromat IR 60XAC/C WI (NA 1.27) CFI Plan Apochromat Lambda 40XC (NA 0.95)*3	CFI SR HP Apochromat TIRF 100XAC/C Oil (NA 1.49) CFI Plan Apochromat Lambda 60XC (NA 0.95)*3
Camera	ORCA-Flash 4.0 sCMOS camera (Hamamatsu Photonics K.K.)	
Software	NIS-Elemets Ar, NIS-Elements C (for confocal microscope) Both require additional software modules NIS-A 6D and N-SIM Analysis	
Operating conditions	20 ˚C to 28 ˚C (± 1.5 ˚C)	20 ˚C to 28 ˚C (± 1.5 ˚C)
Image acquisition time	Up to 15 frames/ second (2D-SIM)	Up to 1 second/frame (3D-SIM)

1. These values are measured using 100 nm diameter beads excited by a 488 nm laser. Actual resolution is dependent on laser wavelength and optical configuration.
2. This value is measured using 40 nm diameter beads excited by a 488 nm laser. Actual resolution is dependent on laser wavelength and optical configuration.
3. Supports 2D-SIM and 3D-SIM (slice reconstruction)

Reference publications:
Douanne et al., (2019), Cell Reports 27, 1657–65 | Lee et al., (2017), Nature Communications 8, 2226 | Devergne et al.,(2017), Cell Reports 18, 1831–9