ClearScope®

Light sheet theta microscope for imaging specimens of virtually any size, with unparalleled resolution



ClearScope is a revolutionary light sheet microscope system designed to quickly and easily image cleared specimens of nearly any size at subcellular resolution. The patented light sheet theta geometry is suitable for imaging a wide array of samples ranging in size from embryos to whole mouse brains up to large slabs of primate brain tissue.



ClearScope is a complete light sheet imaging solution designed with automation and efficiency in mind to help researchers increase scientific throughput without the need for expertise in optics, software development or hardware control. All clearing techniques are compatible with ClearScope via its Intelligent Refractive Index Compensation (IRIC). The modular hardware design allows for scanning of biologic structures at a variety of objective lenses (4x-25x) and up to 7 laser wavelengths, customizable to researcher needs.

Key Features

- Visualize whole intact biological specimens
- Adaptable hardware design allows cost effective customization for distinct research applications
- Quick and gentle scanning of a wide range of specimens
- Rapid image acquisition and visualization of multi-TB image volumes
- Unprecedented axial resolution and uniform illumination

Key Benefits

- Work with cleared specimens that are too large for traditional light sheet imaging, such as human, non-human primates, and tissue from expansion microscopy
- Accelerate your research using rapid, high resolution 3D imaging & low photobleaching
- Choose the optimal clearing method for your research ClearScope is compatible with all techniques
- Perform sophisticated imaging workflows easily using an intuitive software interface without requiring expertise in optics or software development
- Allows you to perform the most advanced imaging experiments, using a wide range of objective lenses and up to 7 laser wavelengths



The Difference is Driven by Theta Geometry

ClearScope's patented light sheet theta microscopy technology applies two light sheets that are oblique to the specimen in order to image tissue specimens of nearly any lateral size at high resolution, taking full advantage of the working distance of high numerical aperture detection objective lenses. The unique arrangement of the dual oblique illumination allows for gentle scanning of your large intact cleared tissue samples, mitigating redundant illumination of the scanned areas and resulting in more uniform excitation of the sample, thereby reducing imaging artifacts.



Specifications

Maximum Imaging Depth	12mm (working distance depends on choice of objective lens)
Maximum Specimen Size	114mm x 75mm x 12mm with standard stage 150mm x 100mm x 12mm with ext. travel stage
Refractive Index Range	138 – 156 (i.e. compatible with CLARITY, CUBIC, Scale, iDisco, BABB, etc.)
Horizontal (XY) Optical Resolution	0.325 µm (with 20x objective lens)
Laser Wavelengths	405 / 488 / 561 / 640 nm standard (customizable up to seven lasers)
Specimen Chamber	for whole mouse or rat brains, tissue slabs from primates and human specimens, plus custom chambers available for other size specimens
Single Field-Of-View Pixel Resolution	2048 x 2048 pixels
Image Digitization	16 bit
Light Sheet Thickness	2 - 6μm depending on optics
Peak Quantum Efficiency (QE)	82% @ 560nm

Have any questions about Clearscope? Contact us using the information below.

Available Options for Objective Lenses:

Magnification	Numerical Aperture	Working Distance (mm)
4x	0.28	10
10x	0.60	8
17×	0.40	12
20x	1.00	8
24x	0.70	10
25×	0.95	8

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Request an Expert Demonstration

We offer free expert demonstrations. During your personal session, you'll also have the opportunity to talk to us about your hardware, software and experimental design questions with our team of Ph.D. neuroscientists and experts in microscopy, and image processing.

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