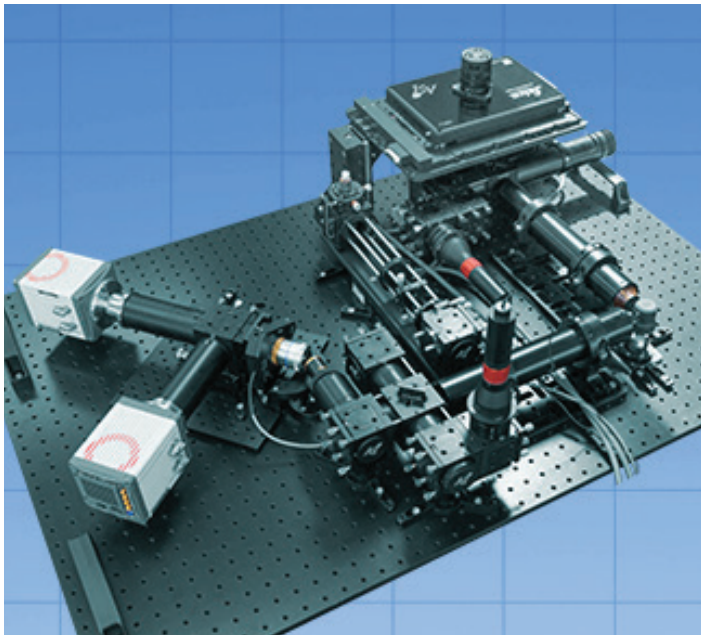
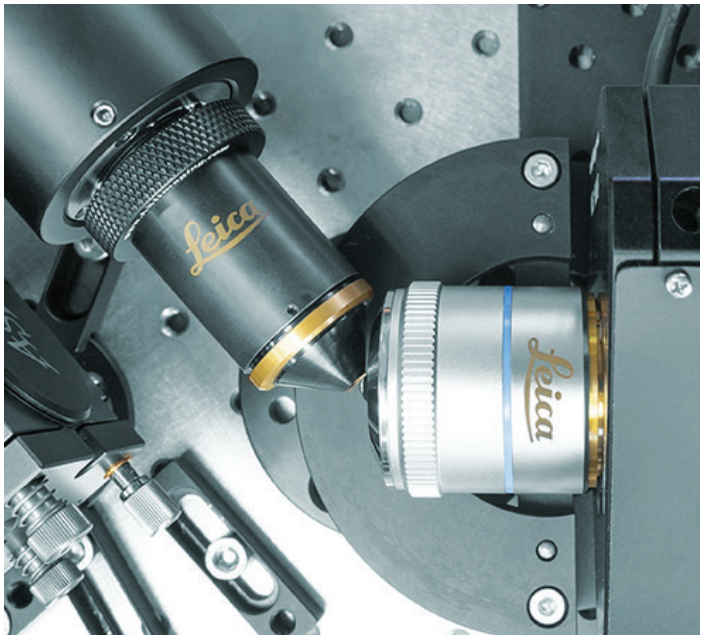
APPLIED SCIENTIFIC INSTRUMENTATION

Single-Objective Light Sheet: Cell Biology Configuration





The single-objective light sheet geometry – known in the literature as OPM, SCAPE, SOPi, eSPIM, and SOLS – enables 4D fluorescence imaging of biological samples at high speed and low light dose with conventional sample mounting. Previously such a microscope had to be home-built; now ASI is making this transformative technology broadly available in collaboration with Leica Microsystems.

The single sample-facing objective is used for both light sheet illumination and detection. The illumination light sheet and detection plane are scanned together at the sample using a galvo, and the stationary descanned image is captured by a camera. This scheme allows volumetric imaging at camera-limited frame rates with negligible bleaching and excellent optical sectioning.

This microscope system is flexible, affordable, and easily customized to fit your needs. It is compatible with most laser launches and sCMOS cameras. It is well-suited to image cells, organoids, or similar cell cultures mounted in any coverslip-bottom holder including 35 mm dishes, chamber slides, or multi-well plates.

Primary objective	40x / 1.1 WI with correction collar, inverted geometry, 0.65 mm WD
Total magnification	67x (options for 47x and 33x)
Field of view	up to ~350 µm in diameter
Effective NA (theoretical)	~0.70 in X, ~1.05 in Y
Measured resolution	~450 nm in X, ~350 nm in Y, ~1.1 µm in Z
Scan methods	Galvo scanning (~1 ms flyback), stage scanning plus tiling
Frame rate	Limited by camera
Cameras supported	All major sCMOS cameras
Lasers supported	All major laser launches with single-mode fiber output, 400 – 750 nm

Applied Scientific Instrumentation Inc. | 29391 W. Enid Rd. Eugene, OR 97402
(541) 461-8181 | (800) 706-2284 | info@asiimaging.com | www.asiimaging.com