

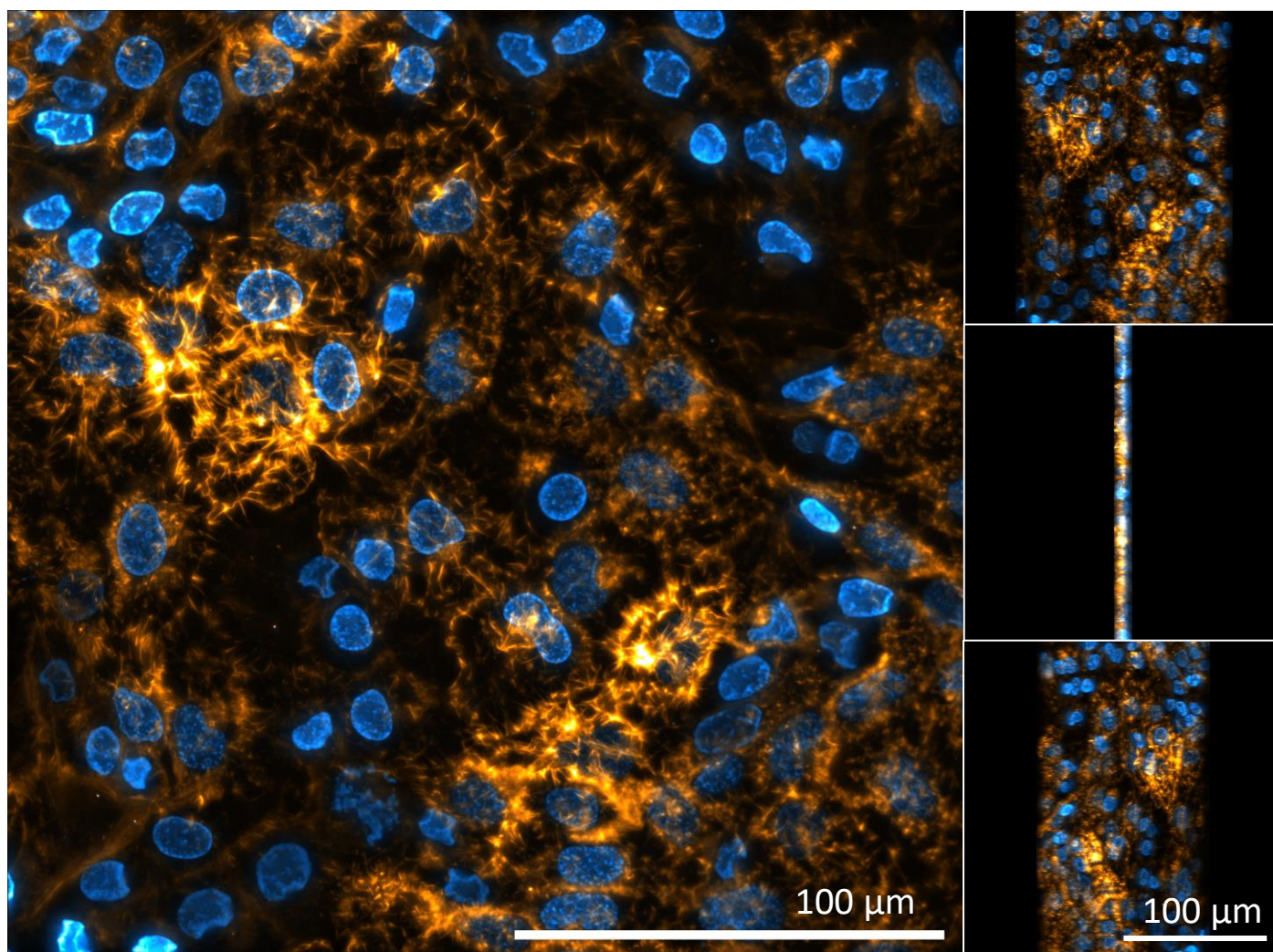


3D EPI deconvolution

ACP ZERO offers EPI-luminescence in addition to TIRF. Deconvolution can greatly improve the image quality of widefield microscope images. By reassigning out of focus blur to the in-focus signal, it is possible to get improved contrast, higher signal to noise ratio and increased resolution.

ACP ZERO can automatically acquire a 3D stack of images, where each slice in the sample is a different focal plane. After which the **ArcticProcessing** software uses the point spread function to de-blur the acquired signal, revealing cellular structures and complexes that are not visible in a single 2D image. A 3D deconvolution algorithm is then used to remove out-of-focus light and image blur, leaving a clearer image with sharper features. **ACP ZERO** includes a software suite which uses an accelerated deconvolution algorithm. 3D deconvolution is therefore easily integrated into the workflow to assess the acquired images.

The image is the resulting deconvolution of two z-stack acquired using EPI illumination of demonstrating **actin** and **DNA**.



ACP ZERO STANDARD

TECHNICAL SPECIFICATIONS

WORKING PRINCIPLE

ACP ZERO is an accessible and robust TIRF imaging platform. Our multimode waveguide technology decouples the illumination and imaging pathways. The imaging path follows conventional standards, while the illumination path occurs via built-in waveguides on the surface of a photonic chip. There are several parallel waveguides on top of the chip, allowing for imaging within an active waveguide while preserving the neighboring fluorophores. The sample is placed or grown directly on top of the chip. After automatic laser coupling into a selected waveguide, an evanescent field penetrates the sample and excites the fluorophores which are then detected by an upright microscope.

SYSTEM SPECIFICATIONS

Standard model, customizable options

Camera unit

Sensor type: Scientific CMOS
Pixel count: 3200x3200

Laser unit

Standard wavelengths: 491 nm, 561 nm, 640 nm
Customizable laser lines: TBD

White light source (EPI)

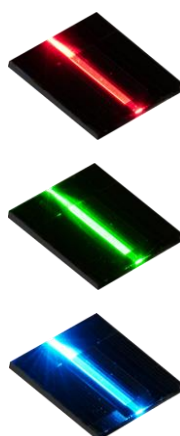
Technology: 200W metal halide

Objective lenses

Lens turret: 2 objectives, simultaneously mounted
Lens selection:
- 60x NA 1.2W
- 25x NA 0.8
- 20x NA 0.45
- 10x NA 0.4

Lateral resolution: 50 nm @ 60x (SMLM)
75 nm @ 25x (SMLM)
140 nm (SMLM) @20x
Diffraction limited and DV enhanced

Software: Acquisition software
Post-processing suite with GPU-accelerated visualization and reconstruction for SMLM data, and deconvolution software



CONTACT INFORMATION

Chip NanoImaging AS
Visiting address:
Fiolvegen 15
9016 Tromsø
Norway
cniptest@chipnano.com
chipnano.com/contact/

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