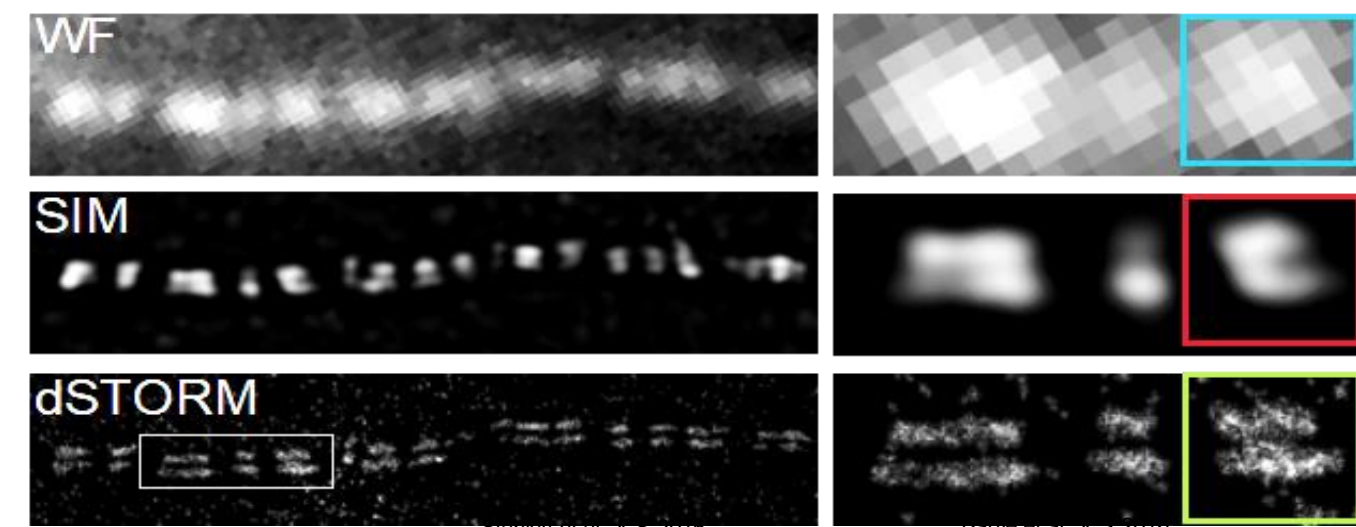


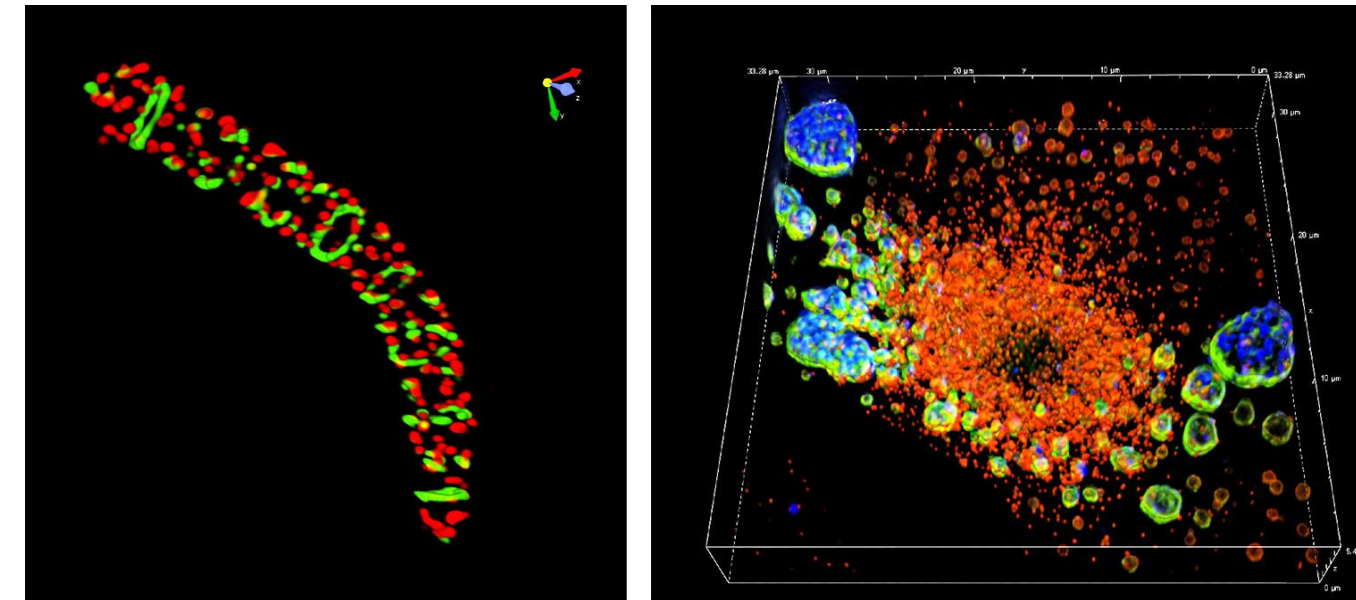
## Super Resolution Microscopy – Nikon STORM and SIM

### STochastic Optical Reconstruction Microscopy (STORM)



STORM offers ten-fold enhancement in resolution over confocal microscopy and provides information at the nanoscale.

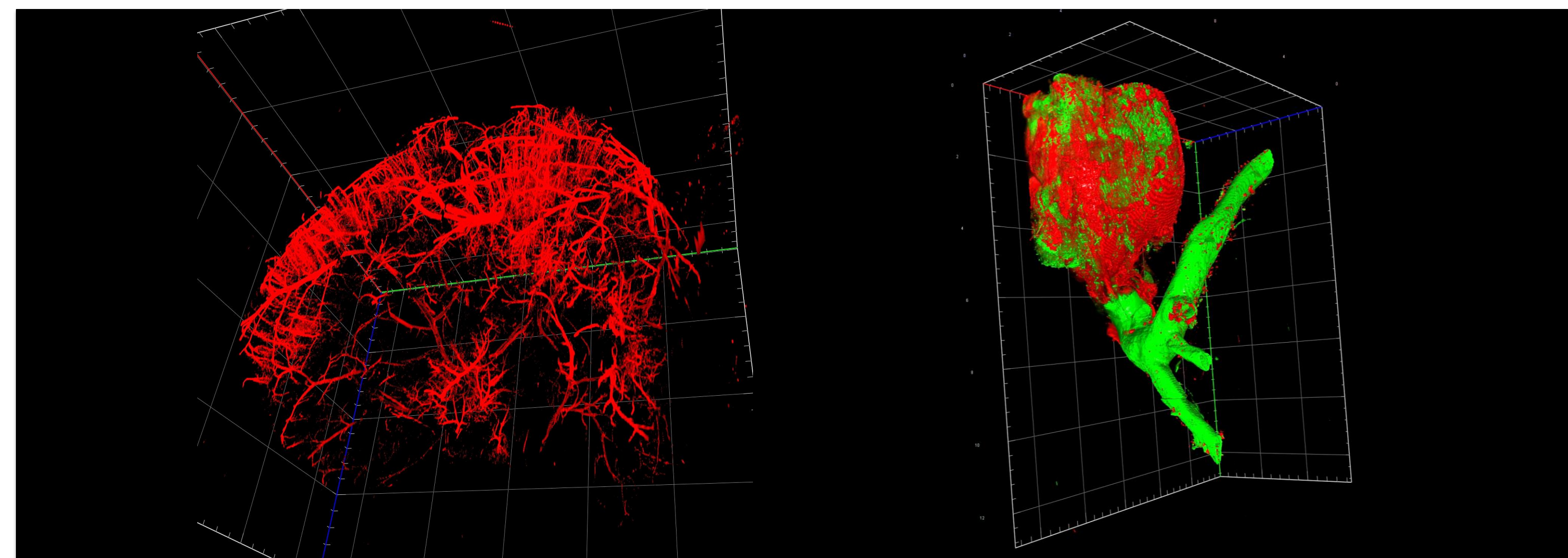
### Structured Illumination super-resolution Microscope (SIM)



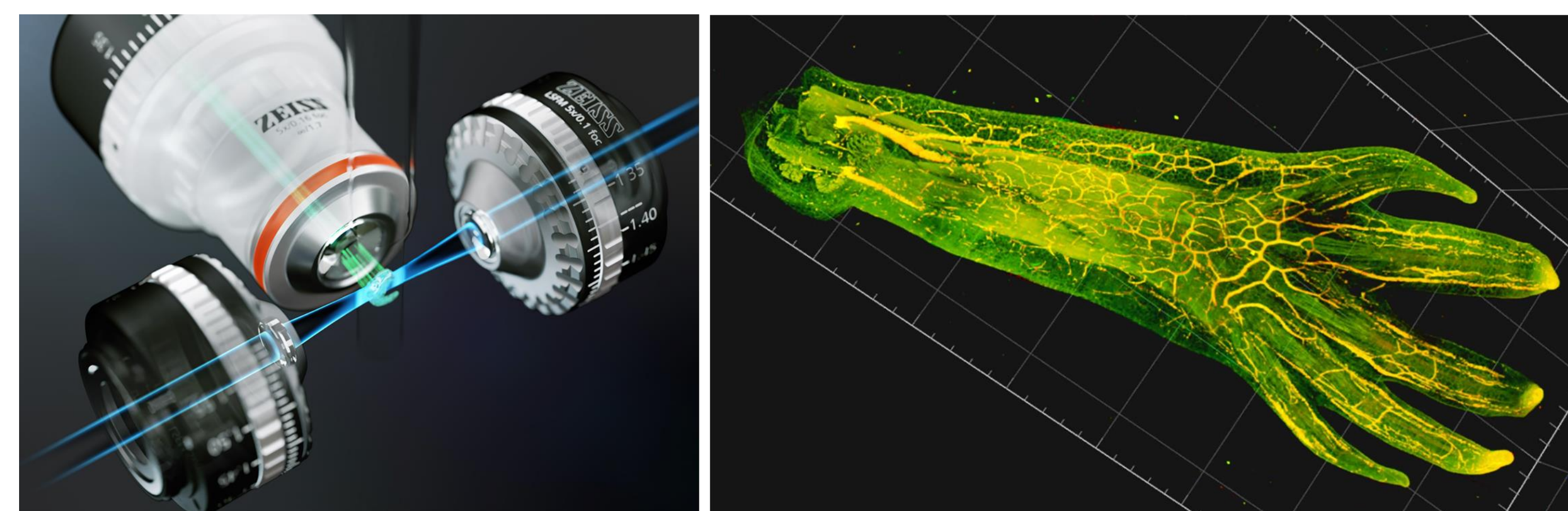
SIM enables detailed visualization of intracellular structures in fixed and live specimens at higher than confocal microscopy spatial resolution.

## Lightsheet Microscopy – Zeiss Lightsheet 7

Zeiss Lightsheet 7 microscope for fluorescent imaging and analysis of live or fixed-cleared whole organisms and organs



Mouse brain vasculature and mouse aorta imaged at HRIF core facility. Courtesy of Daniel Tyrrell Ph.D., UAB

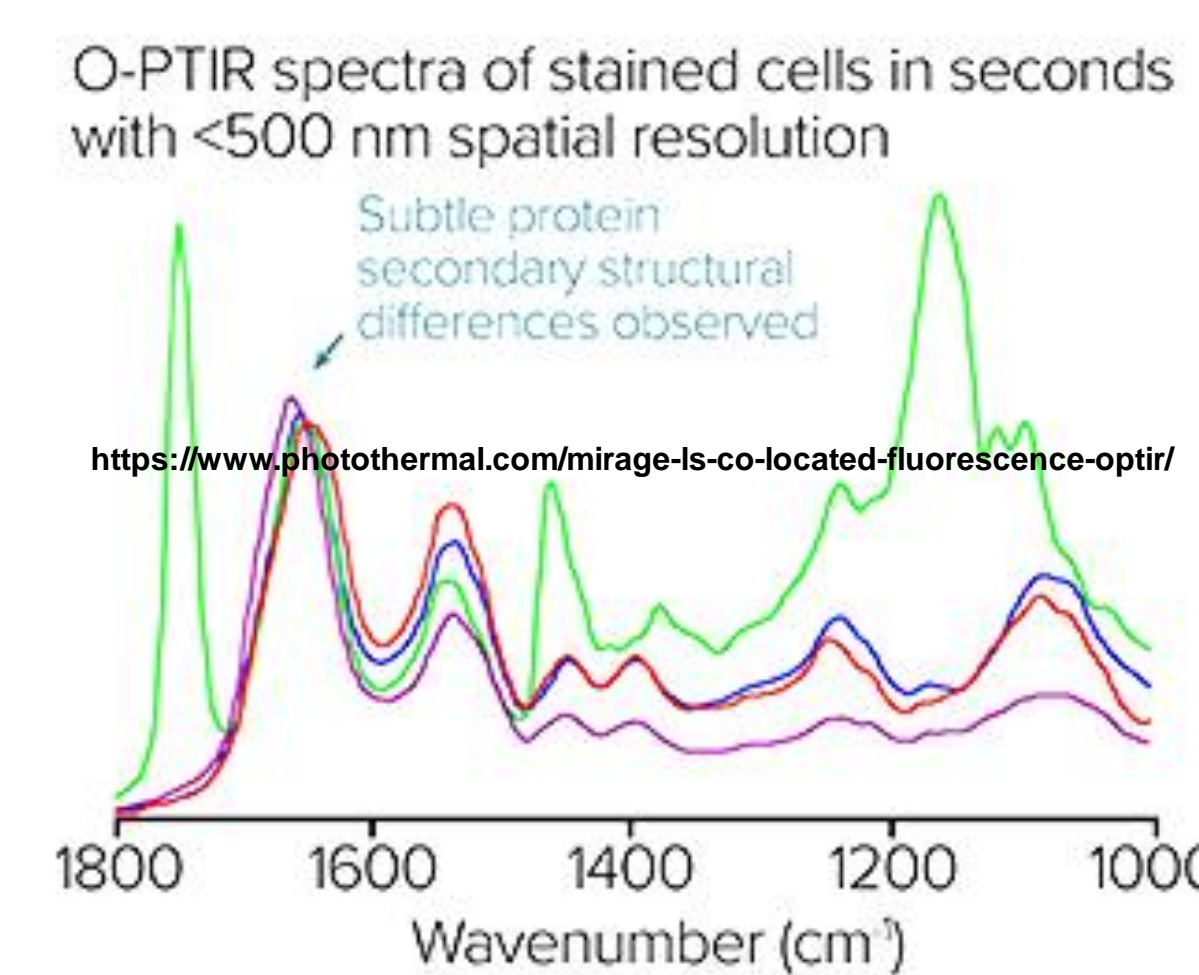
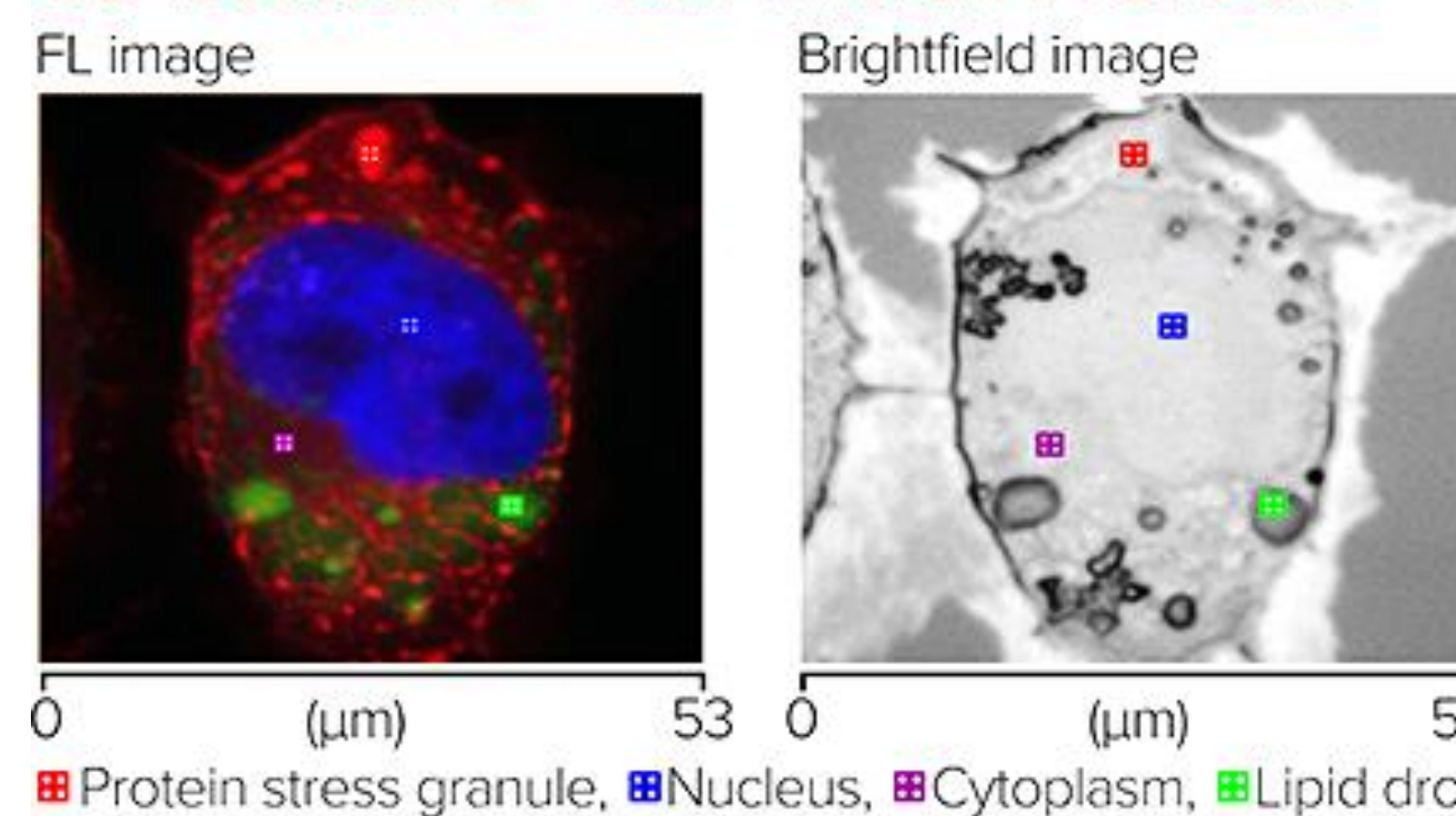


Salamander (axoloti) forearm, optically cleared, imaged with light sheet microscopy. Image courtesy of Wouter Masselink & Ely Margaret Tanaka, IMP – Research Institute of Molecular Pathology, Austria

The Zeiss Lightsheet 7 Fluorescent Microscope (LSFM) is ideal for fast and gentle imaging of whole living model organisms (zebrafish, organoids, tadpole embryo, various tissues), as well as imaging of large optically cleared specimens with subcellular resolution. Dedicated optics, sample chambers and holders allow adaption to the refractive index of your chosen clearing method.

## O-PTIR Microscopy – Photothermal mIRage-LS

### Co-located FL + sub-micron IR of cells

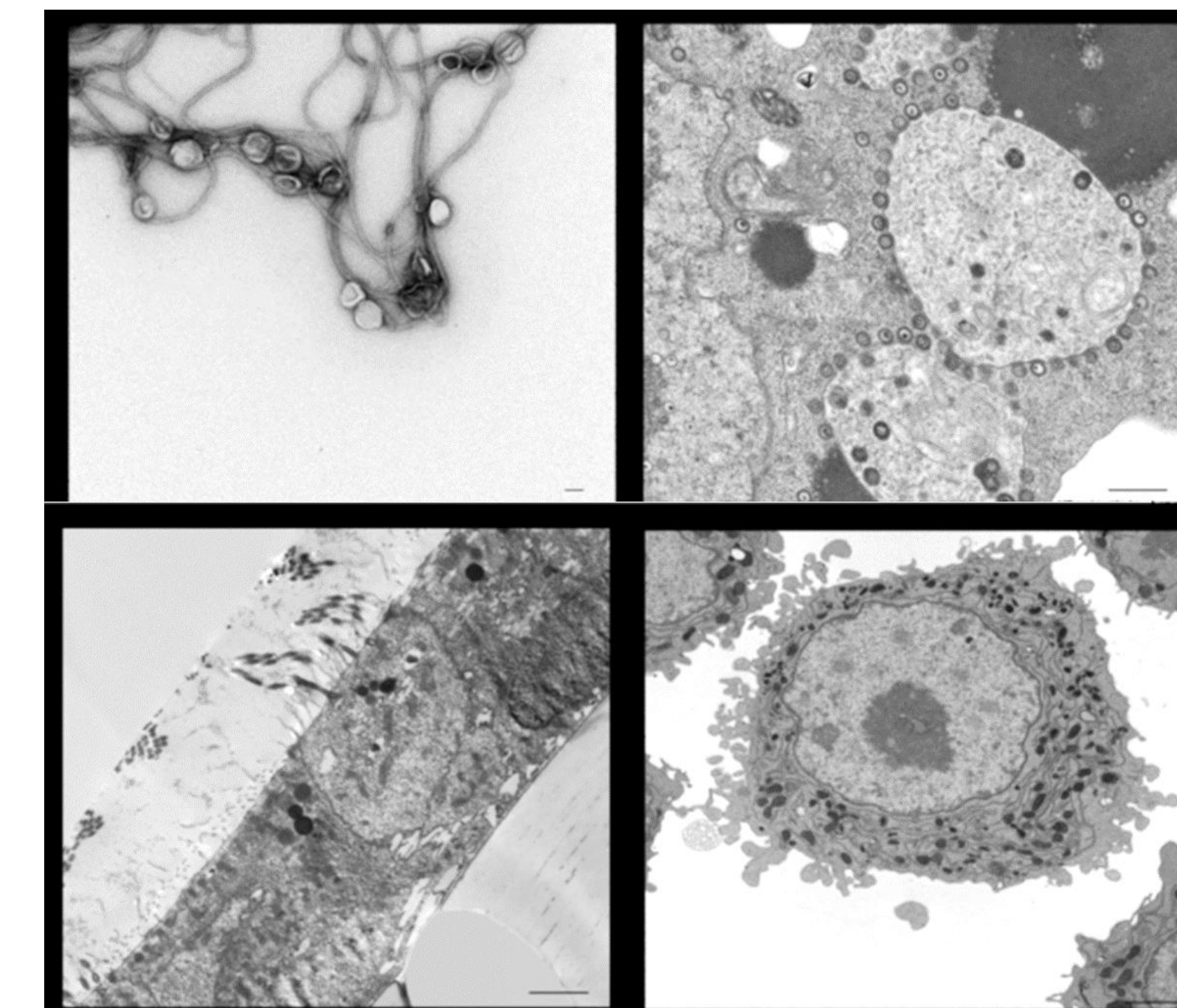


The mIRage-LS Optical Photothermal Infrared (O-PTIR) microscope with submicron and simultaneous Raman spectroscopy capabilities, offers broad macromolecular characterization of material and biological specimens at spatial scale <500nm, allowing uniquely for IR spectroscopy at sub-cellular resolution, that is matched with Raman and fluorescence imaging. The mIRage-LS is capable of imaging a wide range of biological and material samples with multitude of applications in life science including cancer research and drug delivery, microplastics, polymers, and more.

## Transmission Electron Microscopy

**NEW TEM available Winter 2024!!**

JEOL 1400HC TEM equipped with AMT NanoSprint43 Mk-II CMOS Camera



The HRIF provides conventional transmission electron microscopy and associated sample processing services for applications including pathology, biology, quality control, nanotechnology, polymer, and materials. The new JEOL 1400 HC TEM is optimized for high-contrast imaging, ultra-wide area montaging, and a +/- 70° tilt for tomography. Remote operation and data viewing for collaboration are available. HRIF also provides block sectioning and robotic sample processing.

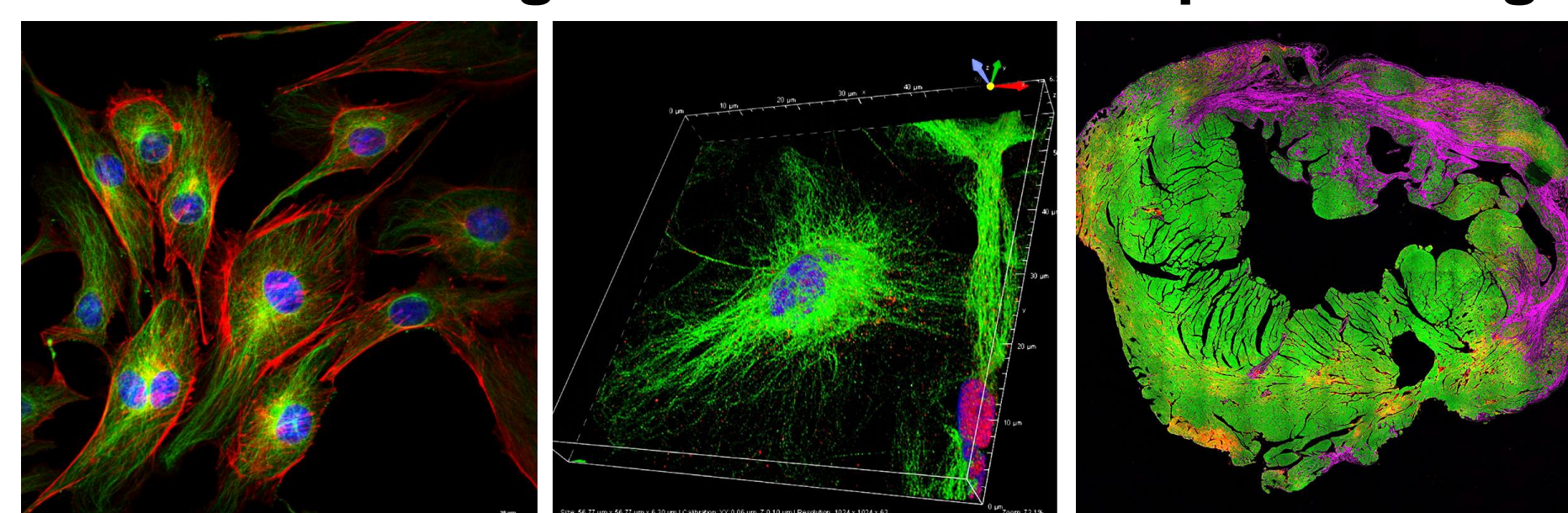
## Imaging and Analysis Software

The HRIF core offers to the users two workstation computers equipped with large storage capacity and high computational power for data analysis and rendering of images. We provide assistance, learning resources and connect our clients with expert support from software developers to deliver cutting edge data analysis and meet the needs of UAB and OCCC research community. Our clients can choose between wide selection of professional software that can accommodate virtually any file type:

- Imaris 10 by Bitplane:** Leading visualization and analysis software for widefield, confocal, light sheet, two-photon, electron microscopy, CLEM, OPT, and other imaging modalities.
- Arivis Pro by Zeiss:** Modular image analysis software for multi-channel 2D, 3D, and 4D images of virtually unlimited size.
- NIS-Elements Analysis by Nikon:** Optimized for advanced research applications for processing, analysis, and visualization of 2D, 3D, and 4D data.
- Zen Blue by Zeiss:** Image processing software with scientifically proven algorithms, Visualize big data by GPU-powered 3D engine, and analyze images via Machine Learning-based tools and quantitative processing.
- Gen5 by Biotek/Agilent:** Automated image capture, processing, and analysis for various samples, from whole organism imaging to high magnification subcellular imaging.

## Confocal Microscopy – Nikon A1RHD

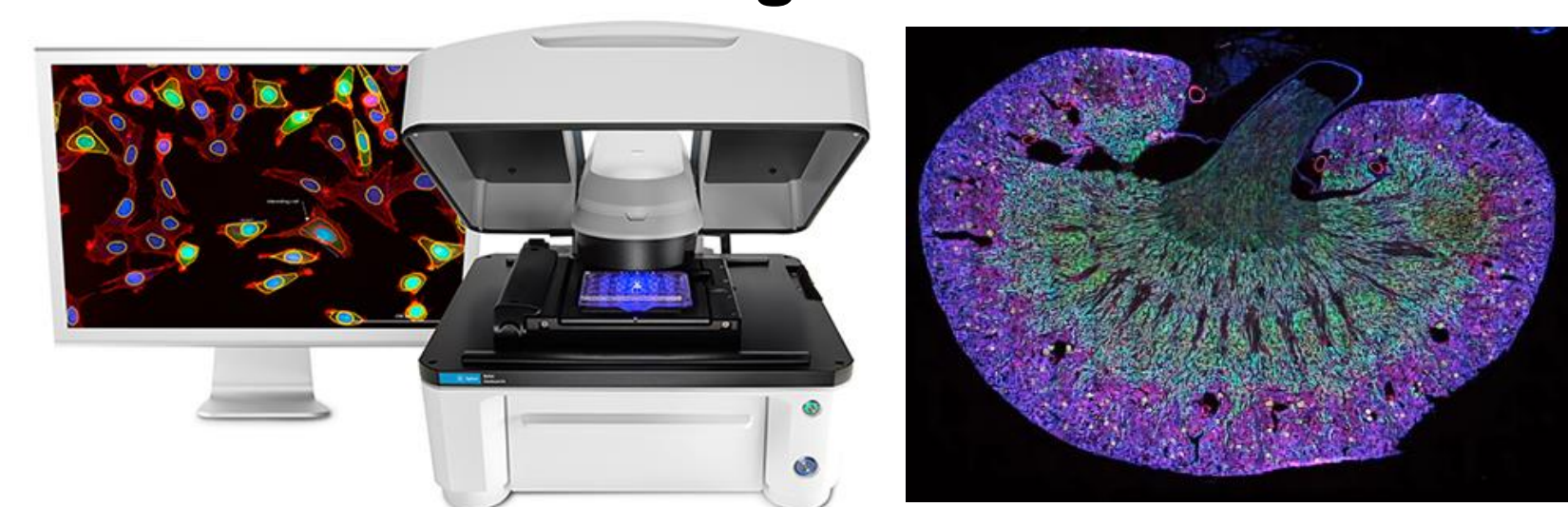
Laser scanning confocal microscope for imaging of fixed or live specimen



Four channel imaging, HD resonance scanner, timelapse imaging, environmental chamber, spectral detector, FRAP, photoactivation, 3-D and 2-D imaging, and more.

## Histology and Widefield – Agilent Lionheart FX

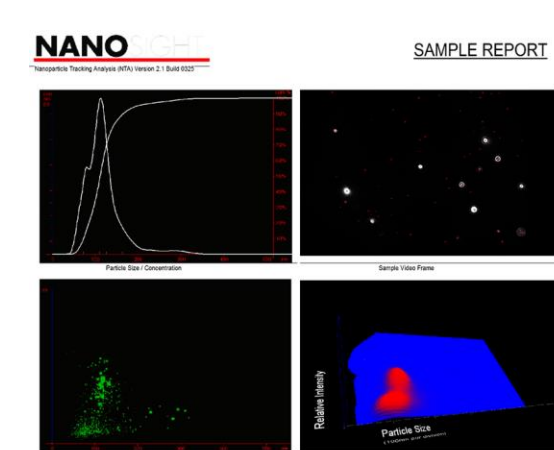
Lionheart FX from Agilent - versatile and capable epifluorescence microscope



Broad variety of high quality basic and advanced imaging techniques, imaging of live and fixed specimens, color and B/W brightfield, fluorescence, and phase-contrast.

## Nanoparticle Image System – NanoSight NS300

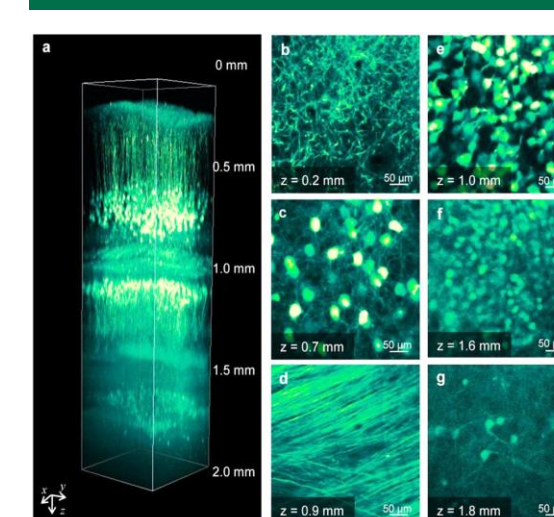
NS300 Submicron Particle/Exosome Imaging Analysis System



Visualization and measurement of particles in suspension ranging in size 10-2000 nm. Wide variety of applications including protein aggregation, exosomes macrovesicles, and more.

## Multiphoton Microscopy – Nikon A1R

Upright Nikon Multiphoton microscope



Imaging of cells, organs, and live animals, reduced photobleaching, increased penetration depth into samples. Excitation wavelengths 680-1020nm, fluorescence and second harmonic generation, long working distance 10x and 25x objectives.

### HRIF Sponsors

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