Light Microscopy Imaging Core
Penn State College of Medicine

SCAN ME

http://med.psu.edu/core/imaging

OVERVIEW

Light Microscopy Imaging Core at the Penn State Hershey provides training and consultation in ultra-high resolution imaging of cells and tissues in fixed or live states using high end multimodal light microscope systems. We also provide expert advice in quantitative image analysis and offer collaborative opportunities, including image processing, image analysis and data interpretation in microscopy related research projects.

MICROSCOPY INSTRUMENTIONS/ IMAGING TECHNOLOGIES

Confocal/ Super Resolution Microscope

Leica SP8 STED 3X Inverted confocal [Room C1730] is capable of generating nanoscale level spatially and spectrally resolvable multicolor 3D or 4D fluorescent images in live or fixed cells/ tissues.

Fluorescence Microscope

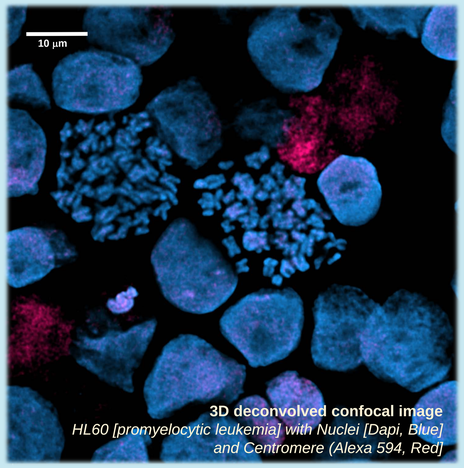
DeltaVision Elite Inverted Microscope [Room C1728] is designed for generating multicolor 3D or 4D fluorescent images in ultra-high speed live cell imaging mode as well as ultra-fast tile scanning mode.

Multiphoton/ Harmonic Generation Microscope

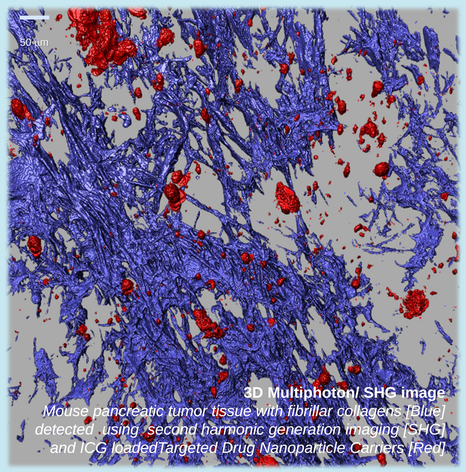
Nikon A1 MP+ with Spectra Physics Insight DeepSee Femtosecond Laser [Room C1730] is designed for high-resolution ultra-high speed deep tissue ex vivo, in vivo or intra-vital small animal fluorescence (multiple colors), spectral and harmonic generation imaging in upright microscope platform.

3D & 4D Image Processing Stations

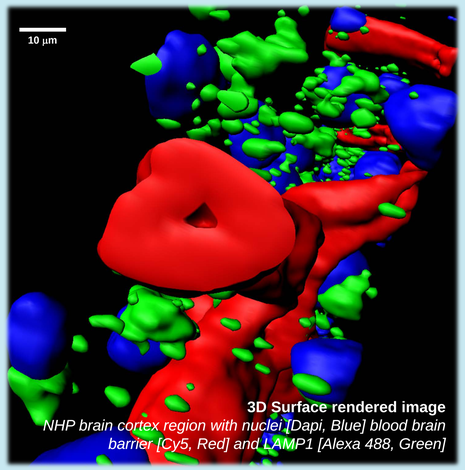
IMARIS, VOLOCITY and HUYGENS [Room C1732A] image processing work stations facilitate 3D and 4D reconstructions to visualize and complex quantitative analysis of multiple color fluorescence images.



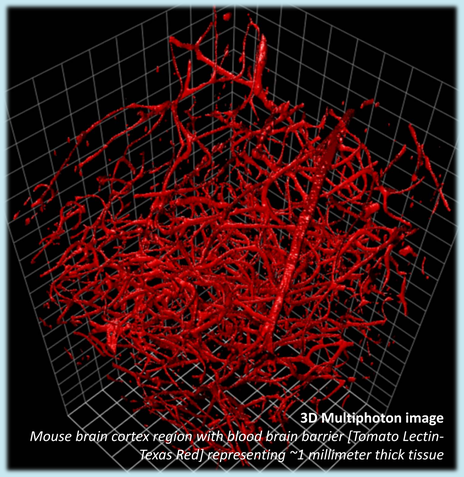
3D deconvolved confocal image
HL60 [promyelocytic leukemia] with Nuclei [Dapi, Blue] and Centromere (Alexa 594, Red]



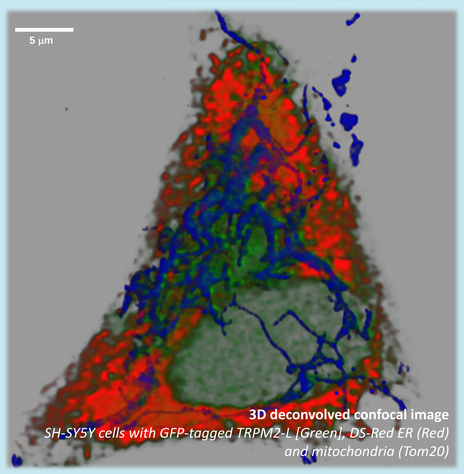
3D Multiphoton/ SHG image
Mouse pancreatic tumor tissue with fibrillar collagens [Blue] detected using second harmonic generation imaging (SHG) and ICG loaded Targeted Drug Nanoparticle Carriers [Red]



3D Surface rendered image
NHP brain cortex region with nuclei [Dapi, Blue] blood brain barrier [Cy5, Red] and LAMP1 [Alexa 488, Green]

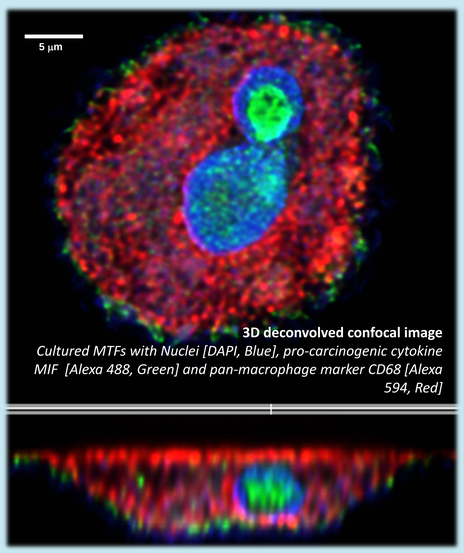


3D Multiphoton image
Mouse brain cortex region with blood brain barrier [Tomato Lectin-Texas Red] representing ~1 millimeter thick tissue

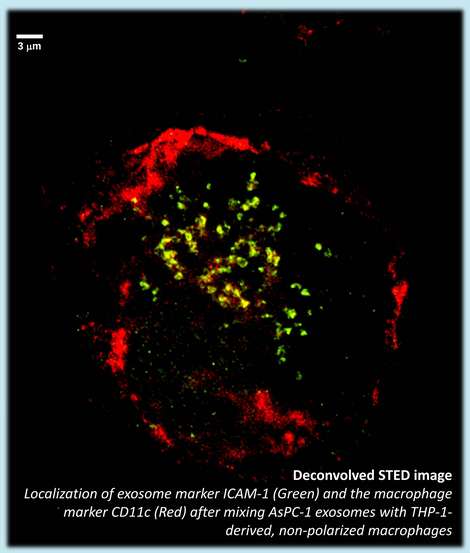


3D deconvolved confocal image
SH-SY5Y cells with GFP-tagged TRPM2-L [Green], DS-Red ER (Red) and mitochondria (Tom20)

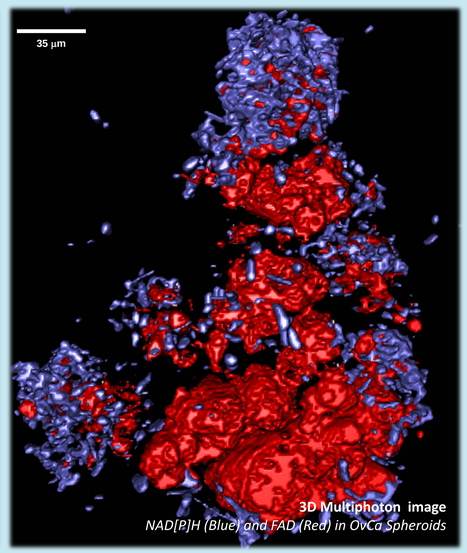
Deconvolved STED image
Localization of exosome marker ICAM-1 (Green) or the macrophage marker CD11c (Red) after mixing AsPC-1 exosomes with THP-1-derived, non-polarized macrophages



3D deconvolved confocal image
Cultured MTFs with Nuclei [DAPI, Blue], pro-carcinogenic cytokine MIF [Alexa 488, Green] and pan-macrophage marker CD68 [Alexa 594, Red]



Deconvolved STED image
Localization of exosome marker ICAM-1 (Green) and the macrophage marker CD11c (Red) after mixing AsPC-1 exosomes with THP-1-derived, non-polarized macrophages



3D Multiphoton image
NAD[P]H (Blue) and FAD (Red) in OvCa Spheroids

Key Personnel

Thomas Abraham, PhD (Director)
tabraham1@pennstatehealth.psu.edu
(717) 531 0003 x 285486

Wade Edris, MS (Research Tech.)
wedris@pennstatehealth.psu.edu
(717) 531 1157