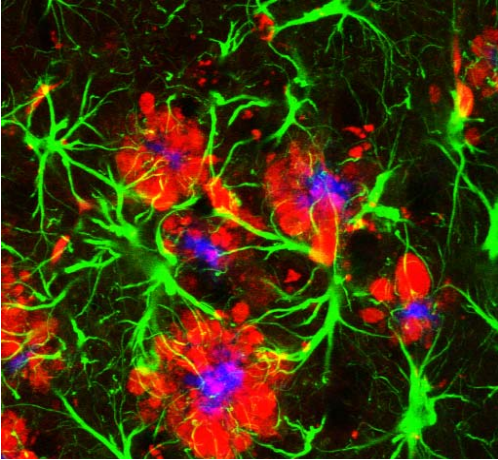


# CELL IMAGING FACILITY



Confocal image of a 5XFAD (APP/PS1 transgenic) brain section showing amyloid plaques (blue) surrounded by neurons with elevated levels of BACE1 (red) and astrocytes immunostained for GFAP (green): a positive feedback loop in which amyloid promotes BACE1 elevation and Abeta production in neurons, a process that may exacerbate Alzheimer's disease. (Dr. Robert Vassar)

The Cell Imaging Facility provides comprehensive and advanced microscopy services to users of the Feinberg School of Medicine, the Robert H. Lurie Comprehensive Cancer Center, CMRC as well as investigators from the Evanston campus. The facility is generously supported by the Feinberg School of Medicine, Robert H. Lurie Comprehensive Cancer Center, Department of Cell & Molecular Biology, and the Northwestern University Committee on Shared Facilities. Microscopy services offered by the Cell Imaging Facility include brightfield, wide-field fluorescence, laser scanning confocal, spinning disc confocal, swept-field confocal, emission fingerprinting, *in vivo* intravital imaging, microinjection, electron microscopy, as well as computerized image analysis and digital image manipulation.

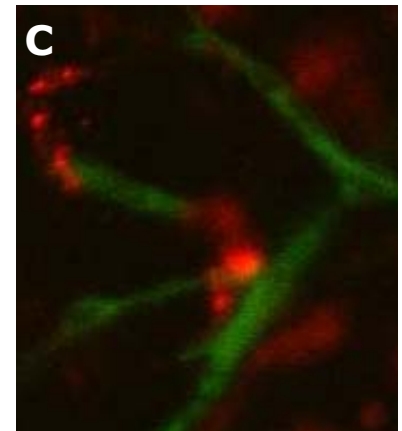
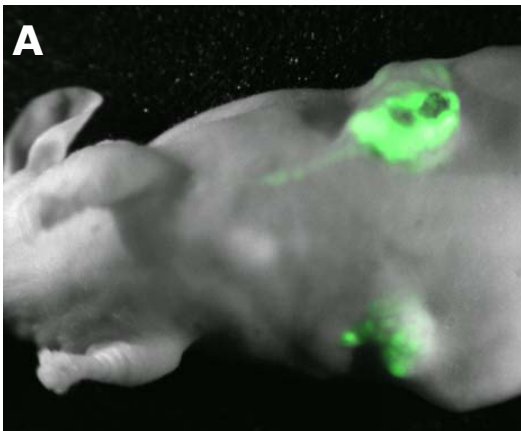
The facility staff provides services ranging from training on instrument operation, to sample preparation and processing, consultation on experimental design, and data analysis. The Cell Imaging Facility also offers numerous advanced live cell imaging techniques such as FRET, FRAP, FLIP, photoactivation, and photoconversion. Several of our imaging systems are capable of performing multiplexed fluorescence microscopy and emission fingerprinting, thus allowing users to vastly increase their choice of fluorophores and effectively eliminate background autofluorescence. Investigators will be delighted to also learn that the facility has recently acquired two instruments that perform live fluorescence microscopy on small animals. These instruments, the Olympus OV-100 and IV-100, were purchased with the support of the NIH S-10 Shared Instrumentation Grant, the Breast Cancer Program, as well as the Committee on Shared Facilities. Both scopes are housed in the Vivarium at the basement of the Robert H. Lurie Medical Research Building.

The facility has an active program and a successful track record of working closely with investigators as well as various software and hardware companies to explore novel imaging applications, and make improvements and adaptations to existing instruments available in

the market. Through our aggressive effort in bridging the gap between the investigators and the manufacturers, we are committed to serve as a focal point upon which novel experimental ideas and innovative commercial engineering can converge, thus allowing the Cell Imaging Facility to help gear instrumental designs toward the need of Northwestern investigators.

With the support of the Medical School leadership and the active involvement of the Department of Cell and Molecular Biology, the Cell Imaging Facility has recently been recognized as one of the six Nikon Centers of Excellence in the world, firmly establishing Northwestern as an important hub for microscopy in the region.

To find out more about the Cell Imaging Facility, please visit <http://www.feinberg.northwestern.edu/cif/>.



Small animal imaging systems available at the Cell Imaging Facility. (A) Sites with GFP-labeled tumors imaged using Olympus IV-100 (Dr. Charles Clevenger). (B) Intravital imaging in live animal using the microprobe lens of the Olympus IV-100. (C) The high resolution image taken with IV-100 of breast cancer cells (red) invading the GFP-labeled vasculature network (Dr. Teng-Leong Chew).