



# VCU

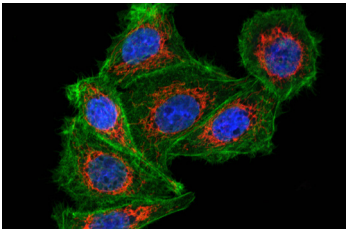
## Office of *Research* spotlights...

March 2013

The Microscopy Core Facility

The Microscopy Core Facility, a unit within the Department of Anatomy & Neurobiology, provides VCU researchers with equipment and expertise needed to image subcellular detail at high resolution and to perform quantitative image analysis. The Microscopy Core Facility staff provides training, technical support, assistance with imaging and consultation. The core director, Scott Henderson, Ph.D., is available for consultation, instruction and scientific collaboration. Training sessions for operation of the equipment may be arranged by contacting the core director.

### Instrumentation

- Electron Microscopy** - Both transmission (TEM-Jeol JEM-1230) and scanning (SEM-Zeiss EVO 50 XVP) electron microscopes are available for ultrastructural analysis of cells and tissues. EM sample preparation services are provided by the core staff.
 
- Confocal Microscopy** - Confocal laser scanning microscopy provides high resolution, multi-channel, 3-D imaging fluorescently-labeled specimens. It is ideal for co-localization studies and multidimensional analyses. Both laser-scanning (Zeiss LSM 710, Zeiss LSM 700 and Leica TCS-SP2) and spinning disc (Zeiss Cell Observer SD) confocal microscopes are located in the facility.
 
- Multi-photon Laser Scanning Microscopy** - Multi-photon (2-photon) imaging allows for high resolution 3-D fluorescence imaging of thicker samples and live samples with reduced phototoxicity. The core houses a Zeiss LSM 510 META system equipped with Fluorescence Lifetime Imaging capability and physiology recording equipment.
 
- TIRF Microscopy** - An Olympus cellTIRF total internal reflection fluorescence microscope is available for high signal-to-noise imaging of fluorescently-labeled molecules at surfaces and interfaces.
 
- Light Microscopy** - Several widefield microscopes (both upright and inverted) are available. All include optics for fluorescence imaging as well as DIC and phase contrast. One system is set up for computer assisted stereological analysis (newCAST) and another is set up for 3D tracing and morphometric analysis (NeuroLucida).
 
- Live-cell imaging** - Several of the imaging systems (widefield, confocal, TIRF) are equipped with stage incubators (to regulate temperature, CO<sub>2</sub> levels and humidity) and a cell culture facility is on-site to support live-cell imaging.
 
- Sample preparation equipment** - Ultramicrotomes, cryostat, vibratome, microwave, critical point dryer, and sputter coater are available for sample preparation.
 
- Image analysis** - A variety of programs are available for multi-dimensional image analysis.
 

### Services

- Electron microscopy (TEM, SEM)
- Confocal laser scanning microscopy
- Multi-photon laser scanning microscopy
- Spinning Disc confocal microscopy
- TIRF microscopy
- Atomic force microscopy
- Fluorescence and brightfield microscopy
- Computer-assisted Stereology
- Sample preparation, sectioning
- Live-cell imaging
- Immuno-localization
- FRAP / FRET / FLIM
- Deconvolution
- Multi-dimensional Image analysis

### Access

All equipment may be reserved online via the CORES scheduling system. All equipment is accessible 24 hours/day (7 days/week).

### Support

The Microscopy Core Facility is supported in part with funding from an NINDS P30 VCU Neuroscience Center Core Grant P30NS047463 and NCRR S10 Shared Instrumentation Grants S10RR022495 and S10RR027957.

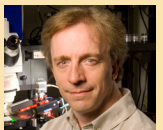
### Website

<http://www.anatomy.vcu.edu/microscopy>

### Contact Information

#### Scott Henderson, Ph.D.

Microscopy Core Facility Director  
804-828-0949  
schenderson@vcu.edu



#### Karen Gorse

804-827-2141  
kgorse@vcu.edu



#### Frances White

804-828-9366  
fwhite@vcu.edu



#### Judy Williamson

804-828-9648  
jcwillia@vcu.edu

