

Vanderbilt Cell Imaging Shared Resource

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The Vanderbilt Cell Imaging Shared Resource (CISR) is an institutional, fee-for-service, advanced microscopy resource. The CISR provides researchers with access to state-of-the-art imaging equipment and expert technical support for sophisticated microscopy and analysis of tissue and cellular anatomy and physiology. As of 2023, the CISR independently manages 17 advanced optical microscopes, 1 transmission electron microscope and 2 scanning electron microscopes. These instruments and the array of advanced capabilities offered by them are available to support any investigator with an appointment at Vanderbilt University or Vanderbilt University Medical Center. The CISR supports over 200 labs per year (over 400 individual users) for 12,000+ microscope hours per year and 100+ publications associated with these microscope hours.

CONTINUED CORE SUCCESS OVER DECADES

The CISR has been in existence for over two decades and grown with time in number of personnel, instruments, users, technology offered, and funding sources. In 2007, the CISR incorporated the EM core and in 2016, added the new Nikon Center of Excellence (COE).

NEW TECHNOLOGY

The CISR continuously strives to add new microscope technologies to support our wide variety of biomedical researchers. In the past 3 years, we have added lightsheet microscopy for imaging larger samples (up to 1 cm) as well as Focused-Ion-Beam Scanning Electron Microscopy for volumetric EM. To promote these new imaging technologies, we also support sample preparation necessary for these microscopes including tissue clearing for lightsheet and new EM preparation techniques such as freeze substitution.

ONGOING USER EDUCATION

The CISR participates in microscopy education through a variety of ways. For microscope use, CISR staff perform one-on-one training with users as well as video training for basic microscope operation. We also offer workshops on a variety of topics surrounding image analysis and new microscope technologies. CISR faculty also participate in graduate course work.