



Calibrating images acquired with a microscope:

Image magnification in a microscope is a product of the magnification power of the objective lens and the lenses in the eyepieces. If you use a camera to capture images, you are usually using a different magnification than what you see through the eyepieces, because the camera mount has its own internal lenses. What complicates this even more is that the true magnification of an image is dependent on the size of the final product, for example an image that is projected on a large screen in a lecture hall will have different final magnification than the same image reduced to fit the format of a journal.

The best way to describe the magnification of an image is to use a scalebar of known size. The scalebar will increase or decrease in size relative to the final magnification of your image. The only way to accurately create a scalebar is to calibrate your microscope.



The Cellular Imaging Core has a stage micrometer (a slide with a microscopic ruler) available for loan or we can come to your lab to assist you in calibrating your microscope.

Developing new techniques – an invitation:

In March of 2004 the Core sent out an email to SWEHSC investigators inviting them to collaborate with us in the development of new techniques. Our announcement said that we were particularly interested in trying out new applications of Quantum Dot fluorescent labels or tracking changes in samples that use Green Fluorescent Protein (GFP, or others such as CFP, YFP, etc.) reporter molecules.

We are still very interested in the development of new and interesting techniques. Last fall we used the confocal microscope to help Dr. Chen's lab acquire images of contracting cardiac myocytes using a calcium indicator dye. We are currently working with Dr. Gandolfi's lab to set up a macro on the confocal so that we can look at the generation of ROS in cultured cells after exposure to a toxicant. The unique feature of the macro is that it will look at the same six microscope fields every five minutes over the course of the experiment, thus allowing us to look at more cells over the entire time course. What can we help your lab with?

Sprechen zie microscopy? Parle vous imaging? We do!

Every specialty in science has its own unique terminology. It would be unwise for the Cellular Imaging Core to try to describe for publication an experiment that used microarray or mass-spectrometry technology, because we don't use the appropriate terminology on a regular basis. What we are familiar with is the terminology of histology, electron microscopy, light microscopy, fluorescence microscopy (wide-field, confocal, deconvolution) and image analysis. Let us assist you in writing or proofreading the materials & methods, or results sections for your next poster, journal article or grant. For grant applications we can provide a paragraph or two describing the facilities available through the Core and even write a letter of support if needed.

Microscope vendor service/sales contact list:

The last several years have seen tremendous turnover among the ranks of the sales and service representatives for the four major microscope companies (Leica, Nikon, Olympus, Zeiss). We have recently updated our list of [Light Microscope Vendors for Southern Arizona](http://swehsc.pharmacy.arizona.edu/exppath/resources/handouts.html) that can be found in the middle of this web page:

Please note: if you are considering the purchase of a new microscope, improvements to an existing microscope, or the purchase of a microscope camera, please allow us to assist you. The Core has several decades worth of experience in microscopy. We can help you maximize your purchase and avoid potential pitfalls.

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