



Preventing oil from damaging inverted microscope lenses

The bane of inverted microscopes is the fact that immersion oil is subject to the law of gravity and the oil can get into expensive objective lenses and damage them. Unfortunately, it can also be somewhat easier to contaminate dry (air) lenses with oil on an inverted microscope as well. Here are some tips:

- If the slide (or culture dish) already has immersion oil on it, the user will need to clean the oil off before using a dry lens. Mixing oils from two different vendors is not recommended, clean the surface first.
- If you suspect that your dry lens is contaminated, it should be cleaned immediately. A contaminated dry lens will seem to “swim” when you attempt to adjust the focus. The oil can damage the coatings on dry lenses, and the seals are not as well designed to keep out oils.
- Never use Kimwipes to clean any optical surface. Kimwipes, Kleenex, etc. will scratch the optical coatings. Keep a supply of high quality optical lens paper near the microscope and only use the lens paper to clean the objective lenses or the eyepieces.
- Oil objective lenses should have excess oil wiped off with lens paper after each microscope session. Oil left on a lens can seep through seals, down into the barrel of the lens, or even worse it can seep down inside the nosepiece and contaminate some of the internal microscope optics. The typical cost for repairing an oil-damaged lens is 2/3 of the purchase price and the turn-around time from vendors runs 2-3 months.
- Some labs have used hair scrunchies to collect excess immersion oil. Hair scrunchies are what people with long hair use to hold a ponytail or a braid together. They are inexpensive protection that can be purchased at a drug store. Tightly wrap the scrunchie around the barrel of an oil lens. The scrunchies should be replaced every few months, since the elastic wears out and the fabric can become oils-soaked. A side benefit to using the scrunchies is that they clearly identify the oil immersion objective lenses.
- Doug Cromey can teach your lab members how to carefully clean and align your microscope. The tools are simple and the actual procedure is not difficult. However, it is important to learn the dos and don'ts to ensure that the optical surfaces (with their specialty coatings) are not damaged.
- Because we live in a dusty environment, it is important to cover your microscope when it is not in use.
- To keep your microscope in top operating condition, please schedule a factory certified technician to come clean the instrument every 1-3 years. This will cost approximately \$250-300. Doug Cromey has a list of contact information for microscope service and sales.

Intelligent Imaging Innovations (3i) spinning disk confocal demo (10/26-27/2011)

3i will be bringing a Marianas Spinning Disk Confocal System. The instrument will have four solid state lasers for imaging and photomanipulation, 405, 488, 561, and 640. They will also be bringing a highly sensitive Evolve EMCCD camera optimized for live-cell imaging. There will be an incubator chamber on the microscope for keeping samples at 37°C and the system will utilize Zeiss' Definite Focus mechanism for maintaining focus during time-lapse experiments. The system will have a motorized stage with a high speed Z focus drive. If you are interested in seeing this instrument, please contact Dr. Brooke Beam (bbeam@email.arizona.edu) with a description of your sample. The demonstration will be held in the Old Chemistry building, room 250.

Image manipulation help

Doug Cromey has extensive experience with Adobe Photoshop. In addition, he has developed a national reputation on the topic of image manipulation ethics. If your lab needs assistance with bitmapped figures, or tips on improving your imaging workflow, please contact Mr. Cromey.

Congratulations to the SWEHSC for an excellent score on the grant renewal!

Our thanks to the many people who invested their time in insuring that the SWEHSC remains funded. The center grant funds service cores like ours, so that we can help you!