

Re: Darkfield Condenser

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- *From:* "Oncologists" <Oncologists@xxxxxxx>
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On Mar 26, 8:15 pm, "Kevin Cunningham" <sms...@xxxxxxxxxxxxxxxx> wrote:

<mythirdeyeiso...@xxxxxxx> wrote in message

news:1174885352.307049.58750@xx

I recently bought an M Series microscope (Model BM-100FL). I want to get a darkfield condenser to look at live cells, but I'm having trouble determining which would be the correct one to buy. The specifications provided in my manual indicate:

Condenser – Abbe N.A. 1.25

I'd like to buy a cheap one off ebay if possible. Can I buy a condenser rated "D 1.20A" ? Are all condensers the same diameter? How do I know if it will fit my scope, and lastly, how difficult is it to install?

I really appreciate any answers you can give me.

Thanks,
– Dan

You've made just about every mistake you could have. Phase contrast or Differential Interference Contrast (DIC) are the standards for researcher. These techniques fully support live cells. I've been in the microscope industry since the late '70's and I've sold one dry dark field condenser.

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Now the first question would be what microscope is an M? We need to know the maker. Next do you have a diaphragm or a stop with your 100X? If not it doesn't matter which condenser you get the 100X won't work. You can't get high resolution with dark field since you have to reduce the NA of the objective. If you want to use an oil dark field then it will say "oil dark field". The type of condenser you get will be based on the kind of microscope you have, different types of mounts are used by different makers. There is an old fashioned type that is kinda universal but it only applies to some student microscopes.

Thanks, let us hear back from you.

Kevin Cunningham
SMS

Hello,

Kevin is correct that Phase and DIC are 'industry standards' but cell biologists are usually more interested in counting cells, looking for contamination of cultures, and assessing viability of cells than particular features of cell morphology. Phase and DIC are rather expensive, and fickle – you really DO need the hardware manufactured by the maker of your microscope for best results. Mix and match it definitely ain't.

Darkfield can be done quite well at magnifications up to x400 with ordinary objectives, and pushing it to x600 if you have really good x15 eyepieces. You need lots of light, a bit of cardboard and some scissors. but you do not need a special condenser for darkfield. You will not be able to use a x100 objective unless it has a built in iris to reduce the N.A. to about 0.8. May I suggest you start with homemade darkfield patch stops at first. I made a whole lot of them with an acetate sheet, a circle cutter, and some wide pvc tape or cardboard. Experiment with different sizes around 12mm–18mm diameter. Suggest you look at the relevant articles on Micscape, which cover the topic in some detail. It is worth playing with, just for the images which can be breathtakingly beautiful – I was looking at an amoeba the other night and it looked like a river of gleaming jewels. Good luck to you ; there's a lot of fun in this and it can be very rewarding, but you do not really need to buy a df condenser to explore the technique.
hugo johnson