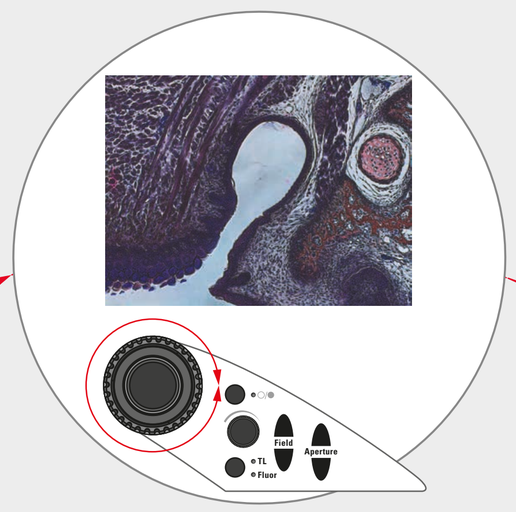
How to set up Koehler Illumination

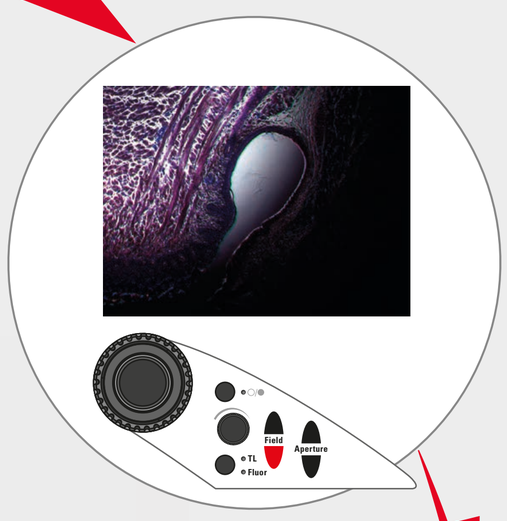
3 minutes to optimize your image quality

Step 1:
Fully open the FD and AD, then adjust brightness using the illumination intensity control

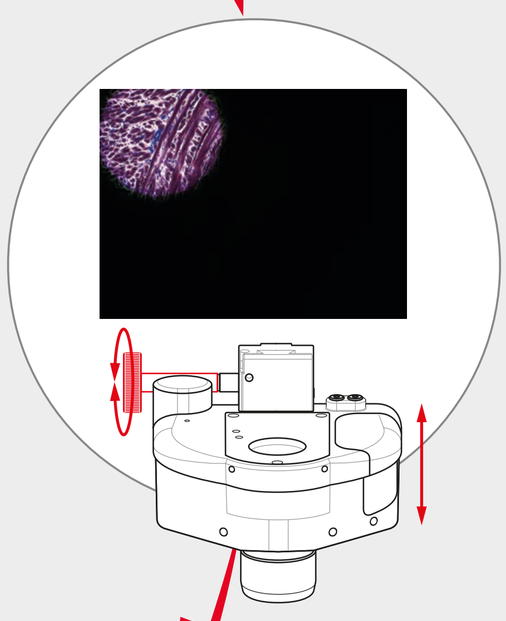
Step 2: Focus on specimen

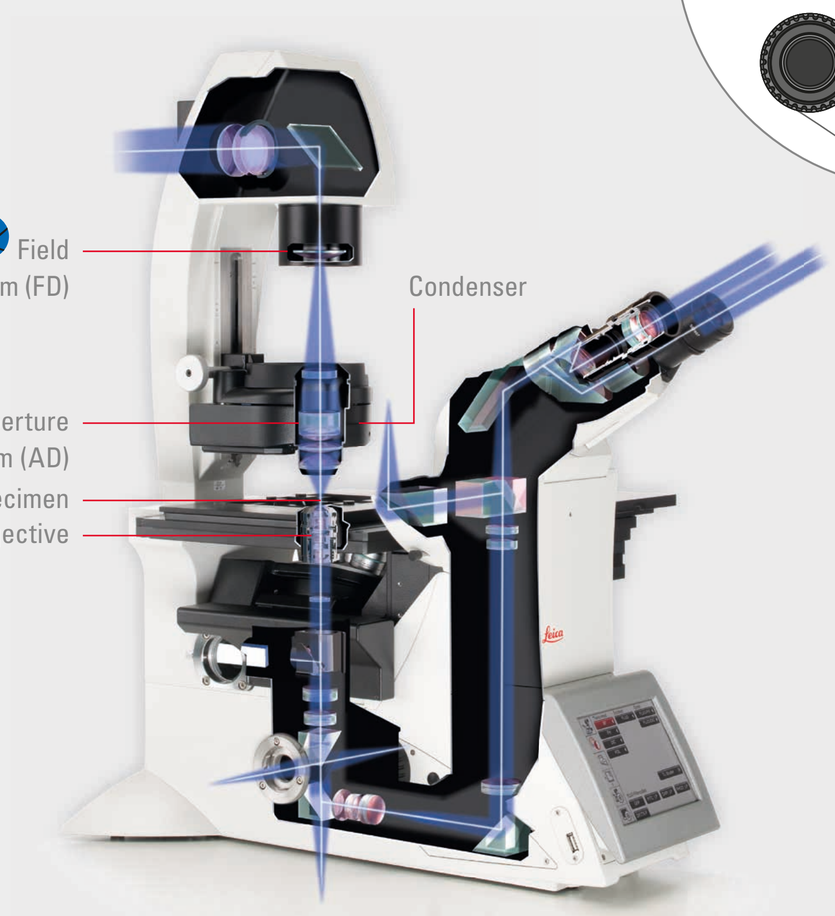


Step 3:
Close the FD

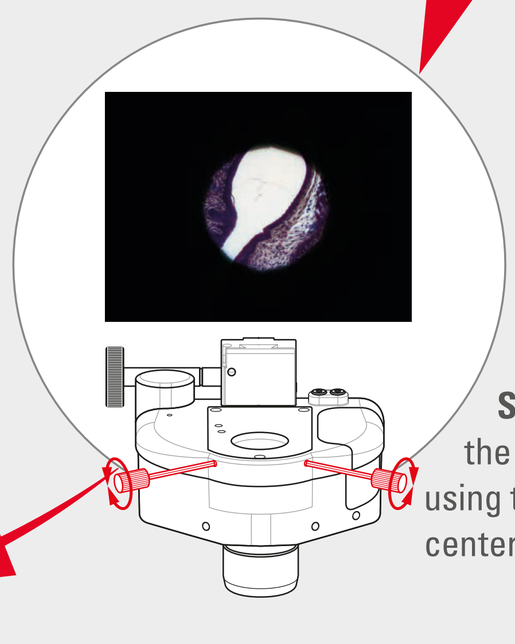


Step 4: Bring the FD into focus by adjusting the height of the condenser



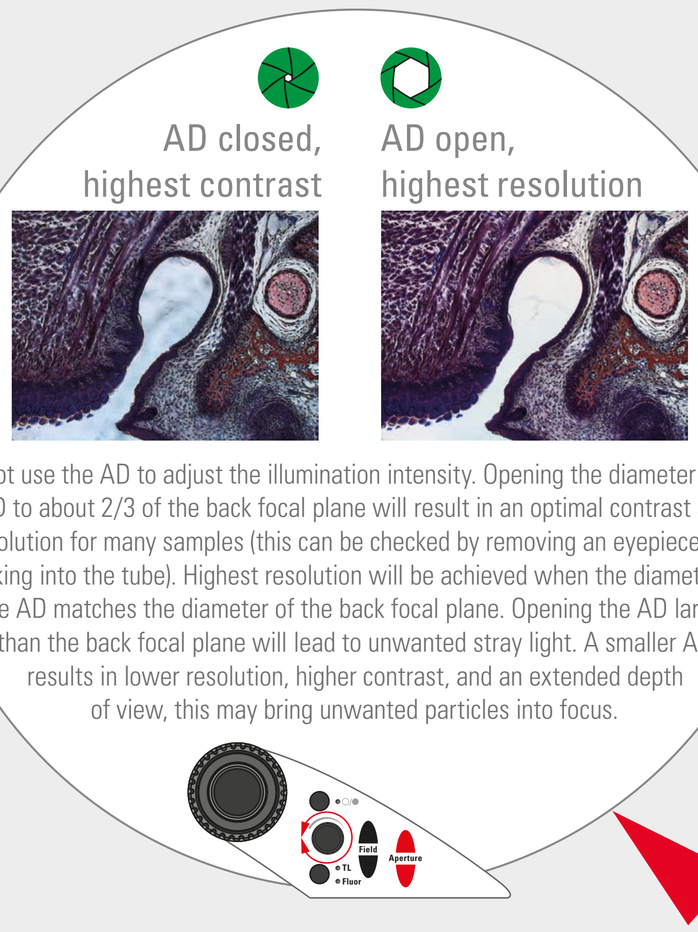


Step 5: Center the FD aperture, using the condenser centering screws



Step 6:
Open FD aperture until its edges are just outside the field of view

Step 7:
Optimize the contrast and resolution to your sample with the AD. Adjust the image brightness using the illumination intensity control.



Do not use the AD to adjust the illumination intensity. Opening the diameter of the AD to about 2/3 of the back focal plane will result in an optimal contrast and resolution for many samples (this can be checked by removing an eyepiece and looking into the tube). Highest resolution will be achieved when the diameter of the AD matches the diameter of the back focal plane. Opening the AD larger than the back focal plane will lead to unwanted stray light. A smaller AD results in lower resolution, higher contrast, and an extended depth of view, this may bring unwanted particles into focus.

Why you should set up Koehler illumination:
A correctly set up Koehler illumination delivers a homogeneous illumination across your specimen. It maximizes image contrast, minimizes stray light, and makes optimum use of the illumination intensity. Good Koehler illumination is needed for achieving best image resolution, reproducibility, and image quality as well as a prerequisite for other transmitted light contrasting methods. Recheck regularly to ensure that your system is set up correctly for Koehler Illumination. The openings of the FD and AD need to be adjusted for each objective.

See also the interactive tutorial on Science Lab
“Koehler Illumination – Step by Step Guide to Optimal Illumination of Specimen”:
www.leica-microsystems.com/science-lab/koehler-illumination

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