

Koehler Illumination



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How to set Koehler  
Illumination on your  
microscope

## Don't be intimidated...

“Setting up Koehler Illumination” sounds *mysterious*, but it is really just about focusing and centering the condenser under the mechanical stage.

- Focus the condenser - by using the knob in back of the condenser.
- Center the condenser - by using the two knobs on the front of the condenser.
- (The third adjustment on the condenser, the iris opening, can just be set to wide open with all modern objectives.)

Koehler Illumination

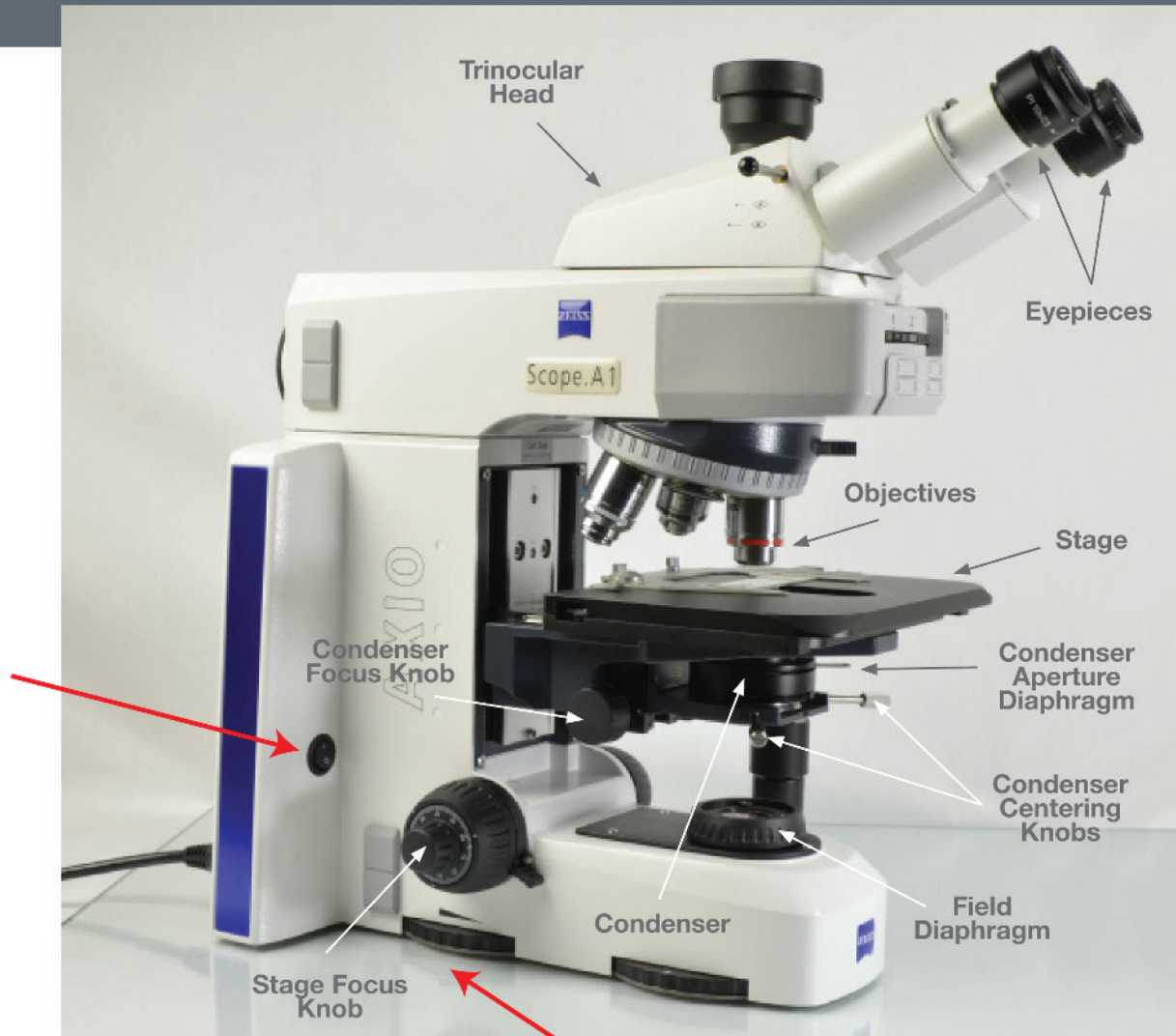
**SPOT IQ**

Microscope Training

# Preliminaries

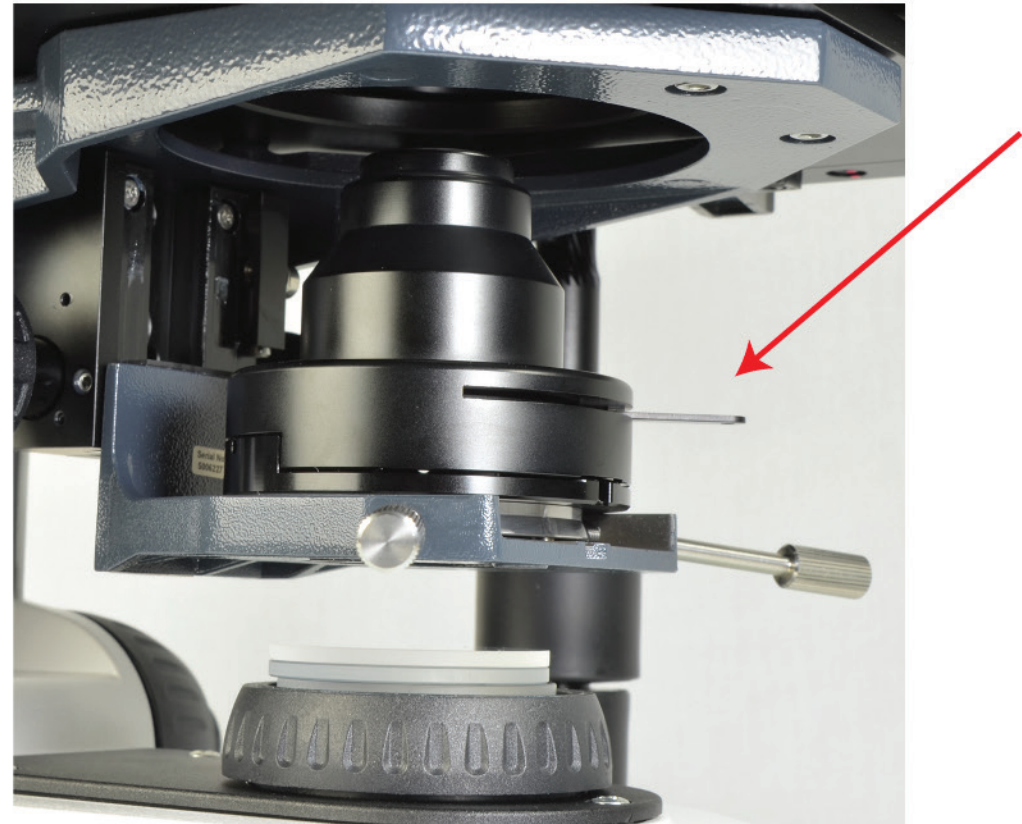
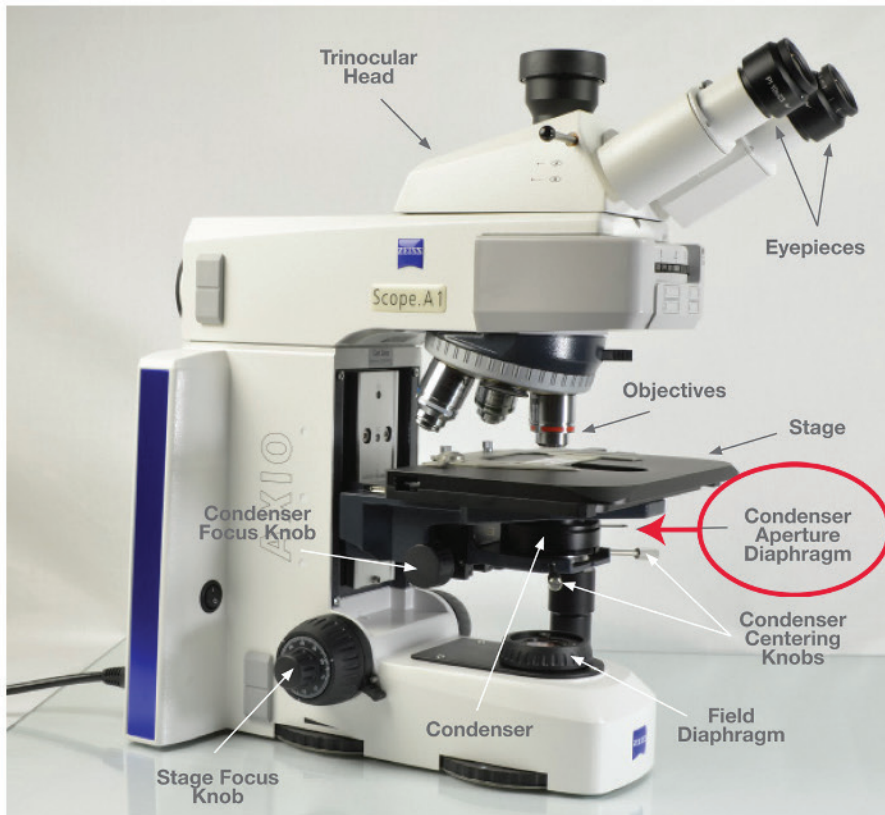
Basic adjustments that get the microscope ready to use.

Turn the  
Illuminator  
ON.

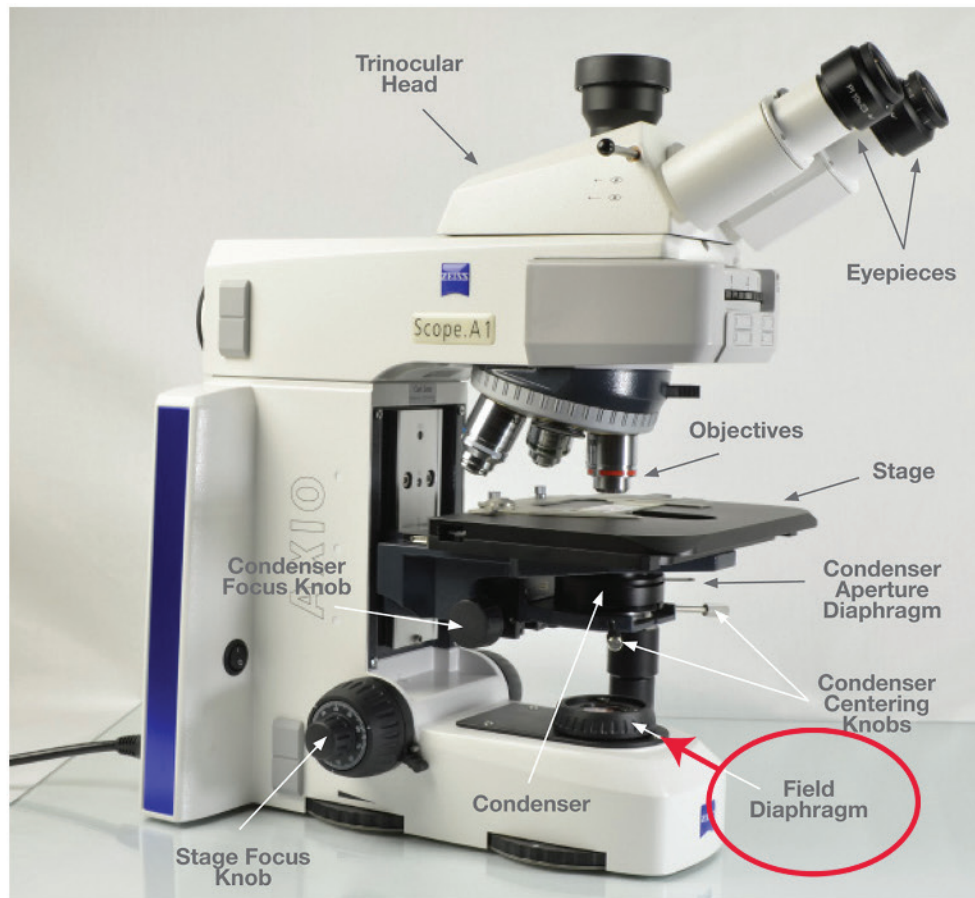


Adjust the bulb voltage  
to about 75% of full scale.





Open the Condenser Iris Diaphragm (under the stage) all the way open (to the largest number or all the way to the left).

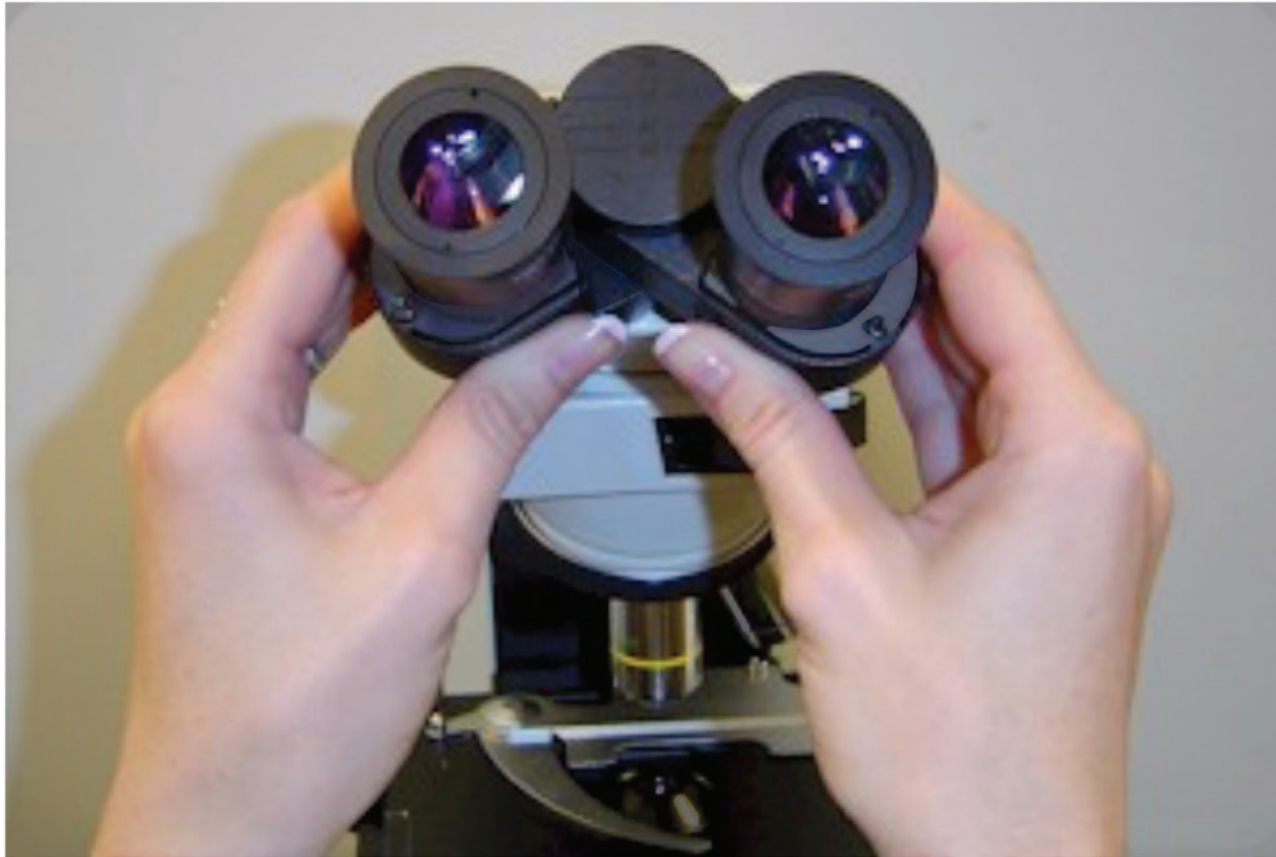


Open the Field Iris Diaphragm (in the front of the base) all the way open (typically turn all the way counterclockwise, you will see more light come out).



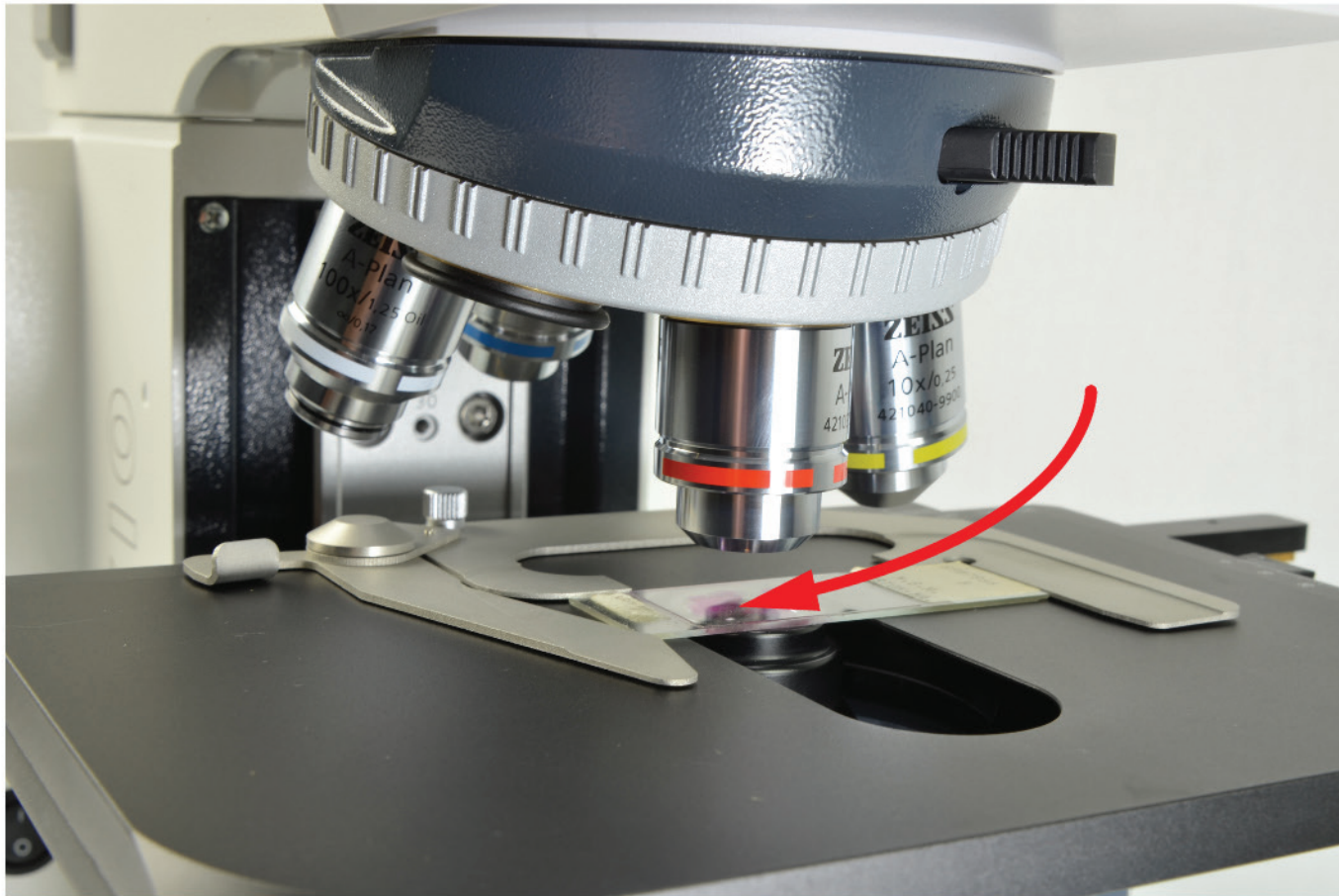
Rotate the front of the eyepiece until the "0" setting lines up with the white dot.



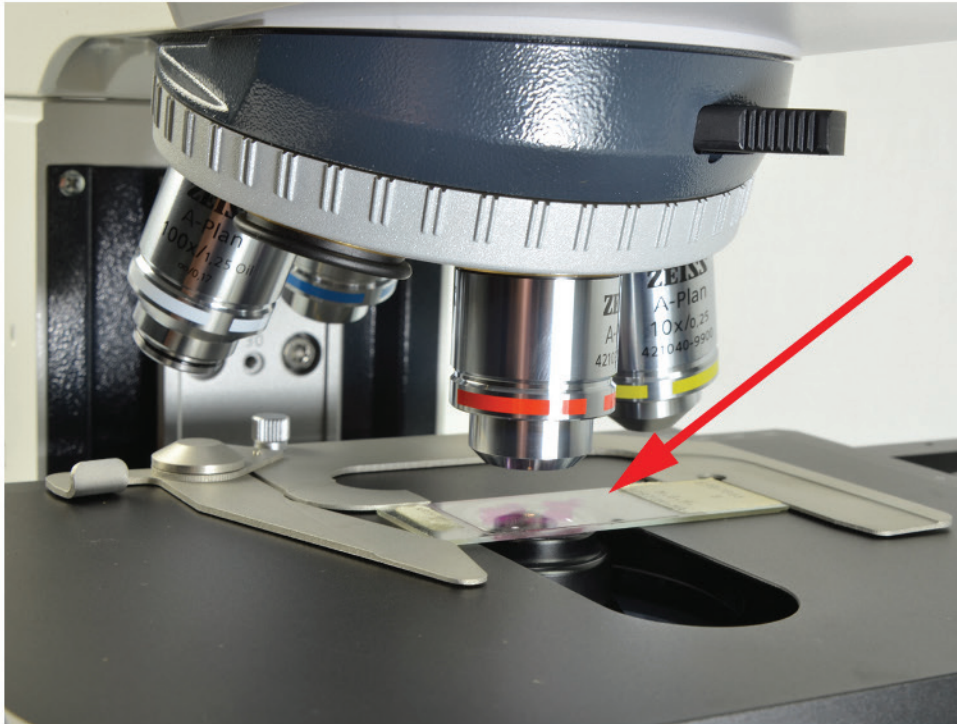


While looking through the eyepieces, adjust the interpupillary distance so that the microscope image can be seen with both eyes open. *(This will take some practice!)*





Rotate the 10x Objective Into Position



Put a slide on the stage.

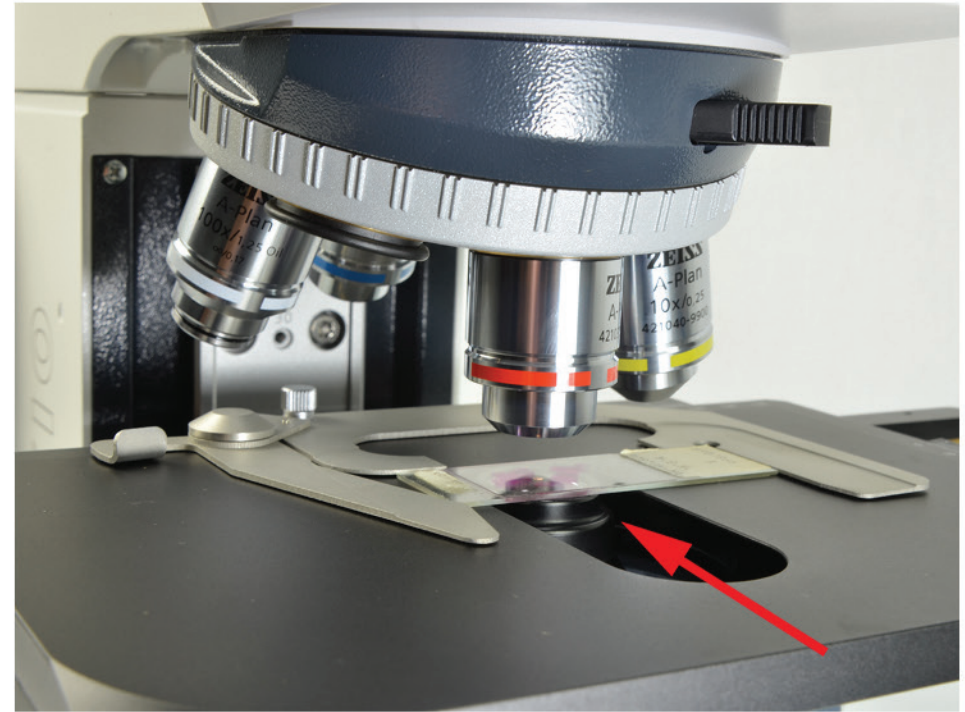


While looking through the eyepieces, use the (coaxial) coarse and fine focus knobs to bring the slide into focus.





Use the condenser focus knob to raise the condenser.



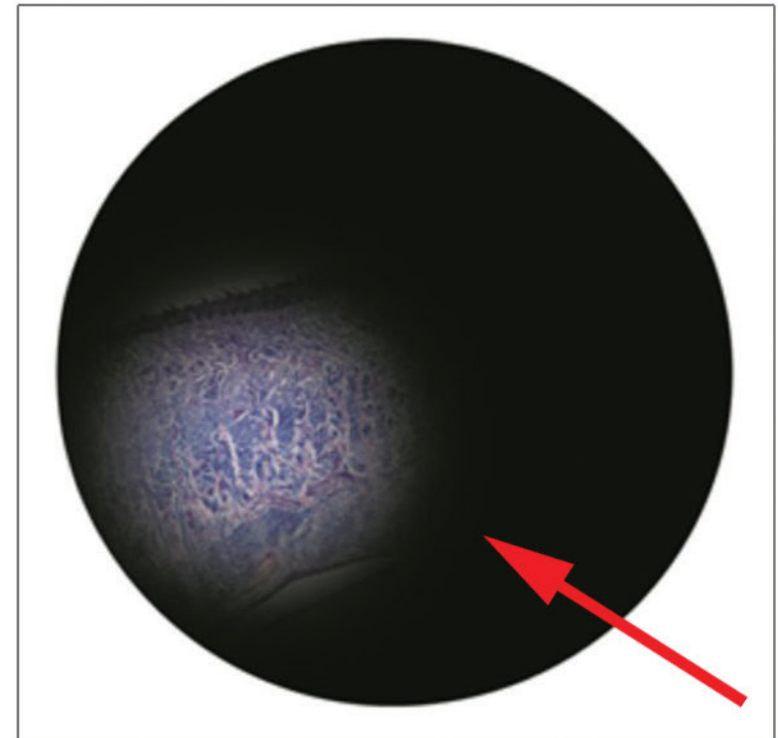
Raise the condenser until the top of the condenser almost touches the bottom of the slide.



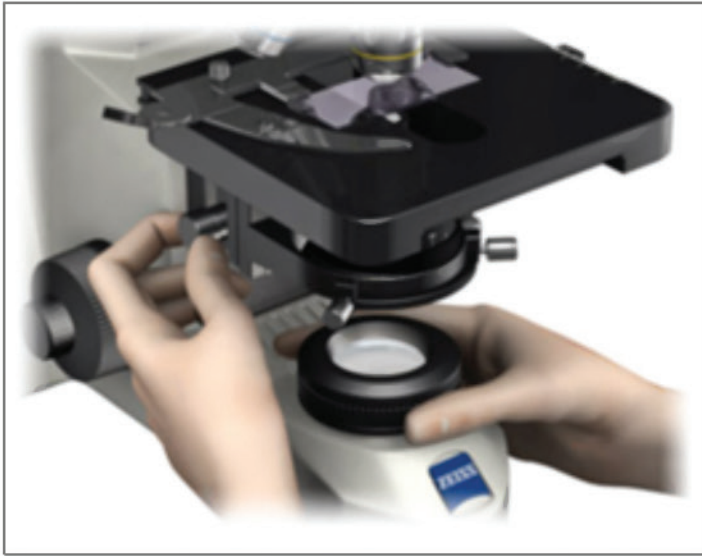
# FOCUSING THE CONDENSER



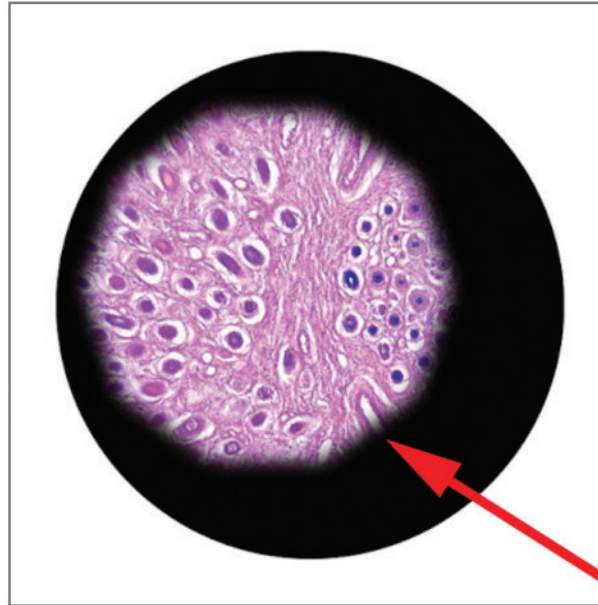
While looking through the eyepieces, start closing the field diaphragm.



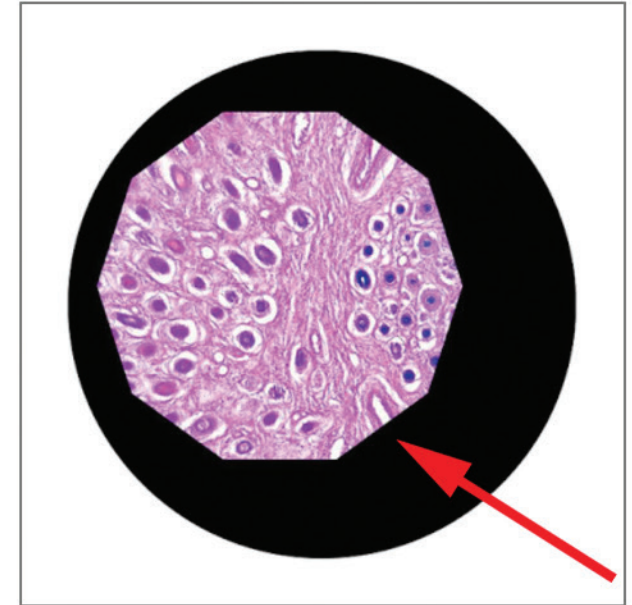
As the field diaphragm closes you will see the blurry, out-of-focus edges of the diaphragm move into the field of view.



Look through the eyepieces and turn the condenser focus knob until the field diaphragm comes into sharp focus.



Field diaphragm starts to come into focus.



Field diaphragm is in focus.



# CENTERING THE CONDENSER



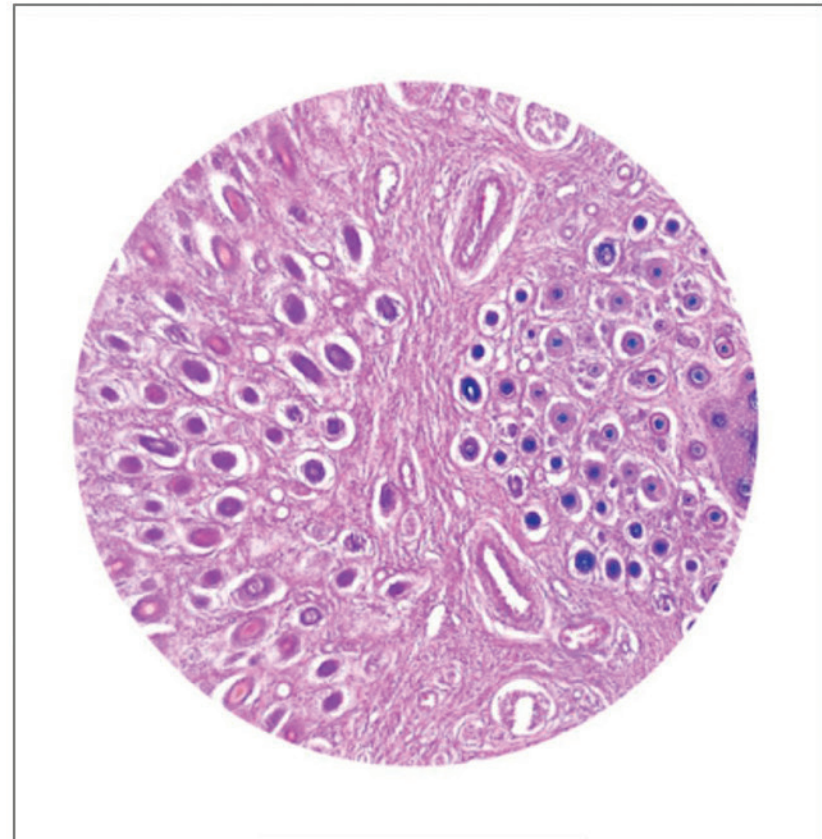
While looking through the eyepieces, use the condenser centering knobs to center the field diaphragm in the center of the field of view.



Keep opening the field diaphragm while adjusting the centration. Perfect centration is achieved when all of the outside “points” of the diaphragm equally touch the edge of the field of view.



Open the field diaphragm all the way.



The edge of the field diaphragm will now be outside of the field of view.



# Step 13 - Success

You have successfully adjusted the Koehler Illumination  
on your microscope!

## HOW TO SET UP KOEHLER ILLUMINATION (cheat sheet)

1. Turn the microscope ON. Adjust the bulb voltage to about 75% of full voltage
2. Open the condenser iris diaphragm (under the stage) all the way open (largest number).
3. Open the field iris diaphragm (in the base) all the way open.
4. Set the diopter adjustment on both eyepieces to "0".
5. Adjust the interpupillary distance until the images from both eyepieces merge into one image
6. Rotate the 10x objective into position
7. Put a slide on the stage and turn the coarse and fine focus knobs to bring it into focus.
8. Use the CONDENSER focus knob to raise the condenser so that it is almost touching the bottom of the slide.
9. Close the field iris diaphragm until the edge of the diaphragm is visible in the field of view.  
This is tricky! The edge may be so out of focus that it is just a very blurry shadow.
10. Use the CONDENSER focus knob to bring the edges of the field iris diaphragm into focus.
11. Use the CONDENSER centering knobs to center the field iris diaphragm in the field of view.  
Opening the field iris to just under the full field of view will make it easier to achieve perfect centration.
12. Open the field iris diaphragm all the way.