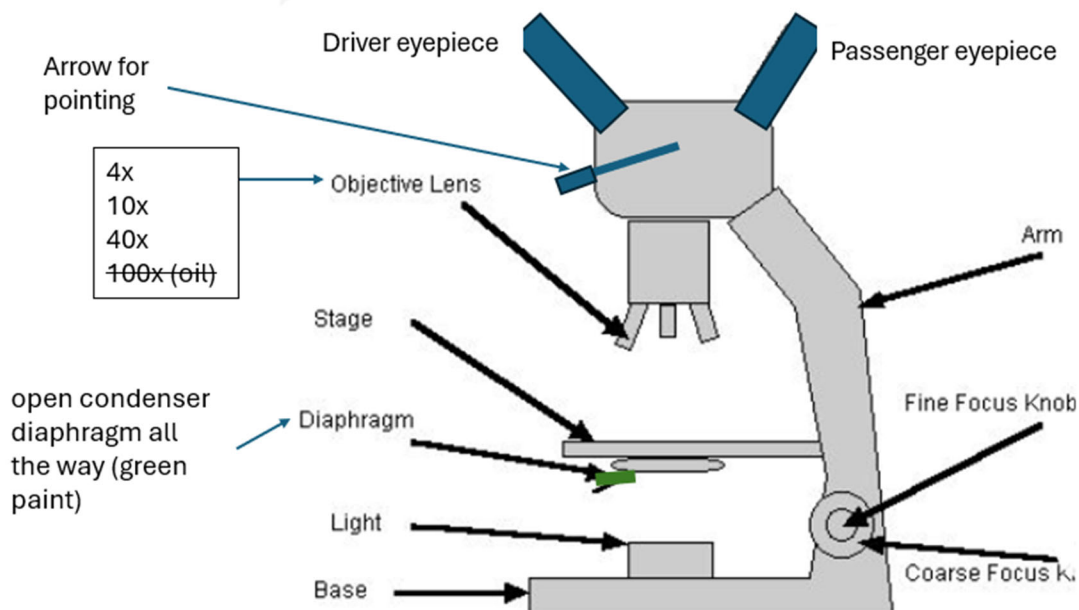


AHD Blood-borne Pathogens Laboratory
SPRING 2025

What you should accomplish during blood-borne apicomplexan laboratory

1. Learn how to adjust the oculars of the microscopes to best view specimens.
2. Learn how to review a Giemsa stained blood smear and identify piroplasms

Microscope Use Instruction



Steps to adjusting oculars on a binocular microscope.

A. First, Adjust Driver-side Oculars

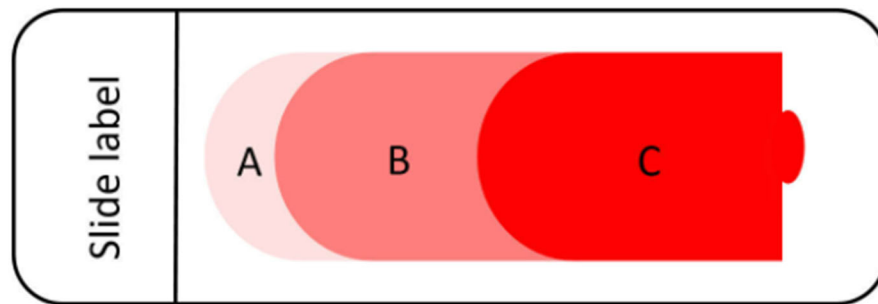
1. Place the blood smear slide on the stage with the smear side facing up.
2. Secure the slide using the stage clips
3. Open the condenser diaphragm all the way (green painted knob)
4. Use 10X objective on the slide to focus.
5. Adjust the width between the 2 oculars to match your eyes.
6. Determine which ocular is the primary ocular (i.e. find the ocular that does not turn (right ocular). All other oculars are adjusted to the primary ocular's focus.
7. Leave your right eye open and close your left eye.
8. Use your focus knob on the side of the microscope to get your right eye focused on the object on the slide. Then don't touch the focus knobs again.

9. Close your right eye, open your left eye & turn the ocular until your left eye is in focus.
10. Open both eyes, make slight adjustments with your left ocular.
11. Back-away until after the passenger adjusts their oculars.

B. Second, Adjust Passenger-side Oculars

1. Adjust the width between the 2 oculars to match your eyes
2. Leave your right eye open and close your left eye & turn the right ocular until your right eye is in focus.
3. Close your right eye, open your left eye & turn the left ocular until your left eye is in focus.
4. Open both eyes, make slight adjustments with either ocular.

C. Third, Examine Giemsa-stained blood smears for each case



A: Feathered edge- Platelet clump evaluation

B: Monolayer- Cell evaluation

C: Body- Multiple cells thick- do not use

1. Start with Low Magnification (10X) by rotating objective.
2. Use the coarse focus knob to bring the slide into focus.
3. Locate the monolayer region of the smear (the area where red blood cells are evenly distributed and not overlapping).
4. Rotate the objective to 40X to view piroplasms and adjust focus as needed
5. Examine the slide in a systematic fashion to cover the monolayer.
6. Look for piroplasms inside red blood cells and answer questions about the case.
7. Do not use the 100X (it requires oil and we are not using oil in this lab)

CASE 1

Please review the stained blood smear labeled A and B

Signalment:

A 3-year-old male neutered mixed breed, weighing 62 lbs, presented to the veterinary clinic.

History:

The dog was adopted from a rescue organization two weeks ago. The rescue noted that the dog had previously lived in a kennel environment and been around other dogs (breeds not known). The owner reported lethargy, decreased appetite, and pale gums over the past three days. No recent travel history reported since adoption. Not on flea and tick prevention yet.

Physical Examination:

- Temperature: 103.2°C (mild fever)
- Mucous membranes: Pale with a slight icteric tinge
- Capillary refill time (CRT): 2 seconds
- Heart rate: 120 bpm (tachycardia)
- Respiratory rate: 30 bpm
- Enlarged popliteal lymph nodes and mild splenomegaly were noted on palpation.

Laboratory Findings:

1. **Complete Blood Count (CBC):**
 - Packed Cell Volume (PCV): 22% (low; anemia)
 - Mild thrombocytopenia (platelets: 80,000/ μ L)
 - Leukocyte count: Normal
2. **Biochemistry:**
 - Mild hyperbilirubinemia
 - Slightly elevated ALT and ALP

ANSWER the following:

1. Can you classify the intraerythrocytic parasites in A and B as large or small?
2. Describe (or draw) the morphology of the organisms.
3. What intracellular pathogen do you suspect for A and B?
4. What additional diagnostic test (s) do you want to order to be certain?

CASE 2

Please review the stained blood smear labeled C

Signalment:

A 3-year-old Hereford cow presented with acute anemia, and lethargy.

History:

The cow is part of a herd in Laredo TX.

Clinical Findings:

- Temperature: 104.4°F (fever)
- Mucous membranes: Pale with mild icterus
- Heart rate: 110 bpm (tachycardia)
- Respiratory rate: 36 bpm
- Splenomegaly noted on abdominal palpation

Laboratory Results:

Complete Blood Count (CBC):

- PCV: 16% (severe anemia)
- Platelets: 80,000/ μ L (thrombocytopenia)

ANSWER the following:

1. Did you identify the intraerythrocytic parasites?
2. Describe (or draw) the morphology of the organisms.
3. What intracellular pathogen (s) do you suspect?

CASE 3 (We will examine a lymph node aspirated Geimsa stained slide together)

Signalment:

A 5-year-old female intact Spanish galago (AKA Spanish greyhound), weighing 66 lbs, presented to the clinic.

History:

The Spanish galago was adopted 6 month ago in Spain. The owner reports progressive weight loss, decreased appetite, and intermittent lethargy over the past month. The dog has also developed alopecia, along with mild epistaxis.

Physical Examination:

- Body condition score: 3/9 (underweight)
- Mucous membranes: Pale
- Lymph nodes: Enlarged popliteal and submandibular lymph nodes
- Skin: Alopecia on the hind legs
- Splenomegaly noted on abdominal palpation

Initial Diagnostics:

1. **Complete Blood Count (CBC):**
 - Mild non-regenerative anemia (PCV: 28%)
 - Thrombocytopenia (platelets: 80,000/ μ L)
2. **Serum Biochemistry:**
 - Hyperglobulinemia
 - Mildly elevated creatinine
3. **Urinalysis:**
 - Proteinuria (UPC ratio: 3.2)
4. **Fine Needle Aspirate (FNA)** of an enlarged lymph node is examined

ANSWER the following:

1. What additional diagnostic test (s) do you want to order to be certain?
2. What other information do you want to communicate to the owner?
3. Is this disease zoonotic?
4. Is this disease reportable?