ALBERTA PRECISION LABORATORIES
Leaders in Laboratory Medicine

# LABORATORY PATIENT COLLECTION INSTRUCTIONS

## Malarial Smear Preparation

**Sample Collection**

**5 mL EDTA Blood (optimal for adults).** Minimum sample volume for adults is 2 mL. Blood smears should be made as soon as possible after the blood is collected and ideally no later than 2 hours after collection. EDTA causes red blood cells to enlarge and lyse and will distort parasites making speciation difficult**.**

**Smears to Make**

- **6 thin smears**
- **4 thick smears**

**Materials**

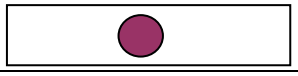
- Semi-automatic pipetting device (e.g. Eppendorf) with ability to deliver 12 ul
- Clean frosted slides
- Micro hematocrit tube, disposable pipette, Diff SAFE/Smear Safe

**THIN Smears**

Make the same as regular Hematology smears. A well-prepared film is thick at one end and thin at the other (one layer of evenly distributed RBCs with no cell overlap).

| Step | Action |
|---|---|
| **1.** | Mix EDTA blood well. |
| **2.** | Using a micro hematocrit tube, Diff Safe or disposable pipette, place a small drop of blood (approximately 2 – 3 mm diameter) about 1 cm from the frosted end of the slide. |
| **3.** | Using another slide spread the blood by drawing the slide back until it touches the drop of blood. |
| **4.** | Holding the spreader at approximately a 30-45$^0$ angle, smoothly, evenly draw it back into the drop of blood until the blood spreads about ¾ across the spreaders edge. Then gently pressing down on the spreader slide, push away from the drop with a smooth even motion, pushing the blood out along the length of the slide The finished smear should be at least 2.5 cm long with the tail ending approximately 1 cm from the end of the slide and have a monolayer of cells in ⅓ to ¼ of end of slide with free margins on each side. If smears appear too thick, decrease the angle at which the spreader is held. |
| **5.** | Let dry 10 to 15 minutes prior packaging up. |

**THICK Smears**

| Step | Action |
|---|---|
| **1.** | Mix EDTA blood well |
| **2.** | Using a semi-automated pipette, dispense 12 ul blood onto the center of the slide.<br>The use of 12 ul blood volume has been proven as optimal; when a larger volume drop is used there is a potential for the blood to wash off in the staining process.<br>If a semi-automated pipette is not available use a Diff Safe, micro hematocrit tube or disposable pipette to deliver 2 small drops (about twice as much needed for a thin blood film). |
| **3.** | Spread blood out to the size of approximately a dime (15 to 20 mm in diameter) by using a stick or corner of another slide and spread the blood in a circular motion starting from the centre of the drop. The smear should be uniform in thickness and small newsprint should be just visible through the blood film.<br>If the slide does not appear to be of uniform thickness, gently rock slide to distribute blood evenly.  |
| **4.** | Let dry 30 minutes prior to packaging up. |

**SAMPLE DELIVERY**

Send all smears AND EDTA blood by STAT transportation to Calgary Microbiology at the Diagnostic and Scientific Centre (DSC).

**Questions? Contact Calgary Microbiology at the Diagnostic and Scientific Centre (DSC) 403-770-3278**