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VMX
VETERINARY MEETING & EXPO



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- + Upcoming in-person education opportunities



Sample collection pointers



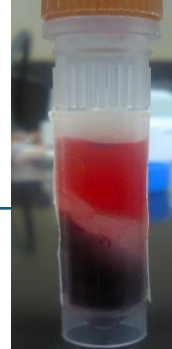
KNOW SAMPLE REQUIREMENTS

Minimize
headaches



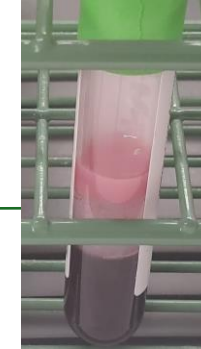
MINIMIZE FAS

Minimizes
hyperglycemia



MINIMIZE HEMOLYSIS

Elevations from
increased absorbance
Dilution with
intracellular fluid of
RBCs
Reaction interference



MINIMIZE LIPEMIA

Interferes with light
scatter
Displaces volume and
decreases values
Increases hemolysis



PROCESS PROPERLY & PROMPTLY

Prompt removal
from cells
Refrigeration or
freezing

Pre-analytical Variable	Effects 5
Lipemia	Interferes with hemoglobin, protein, coagulation tests, platelet counts
Hemolysis	Interferes with coagulation tests, hemoglobin, hematocrit
Excitement/Fear	Elevation in blood glucose, circulating neutrophils, monocytes, & lymphocytes
Splenic Compression	Elevation in red blood cell count, PCV, platelets
Delays in testing	Cellular distortion, clumping interfere with differential and platelet counts
Medications	Depends on drug, may suppress WBCs, increase blood and urinary glucose

- Largest Vein Possible
- Correct Needle Syringe Combo
- Allow Vacuum to Fill Tube
- Avoid Temperature Extremes
- Make Blood Smears at Time of Collection
- Mix Gently & Well
- All supplies within arm reach and ready to go
- Patient Prep
 - Topical Lidocaine – Cream or Spray 2.5%
 - Fasting
 - Acclimation

Steps to Success



Appropriate needle/syringe combos

Venipuncture site	Needle size	Syringe size
Jugular (horses & goats)	20-18 g	6-12 cc
Jugular (cats & small dogs)	22-20 g	3-6 cc
Jugular (larger dogs)	21-20 g	5-12 cc
Cephalic/saphenous/brachial (dogs, cats & birds)	23-21 g	1-3 cc

USE TECHNIQUES TO MINIMIZE DISTRESS DURING COLLECTION



AVOID ALCOHOL

9



AVOID EXCESSIVE PRE-SAMPLING SNACKS

10



Venipuncture Notes

Nutritional State: Obese Overweight Ideal Underweight Cachectic BCS_____/9
 Weight:_____ Age:_____

Hydration Status: Good Fair Poor
 Dehydrated <5% 5-6% 6-8% 10-12% 12-15%

Attitude at sample collection: BAR QAR Excited Depressed Comatose
 Other:_____

Mucous Membrane Color: (Circle one) _____ Jaundiced Tacky
 CRT:_____

Collection Process:
 One attempt-no redirection One attempt-with redirection Multiple attempts-same vein

What works with this patient?

Whole Blood – Well Mixed, Cells & Fluid Mix

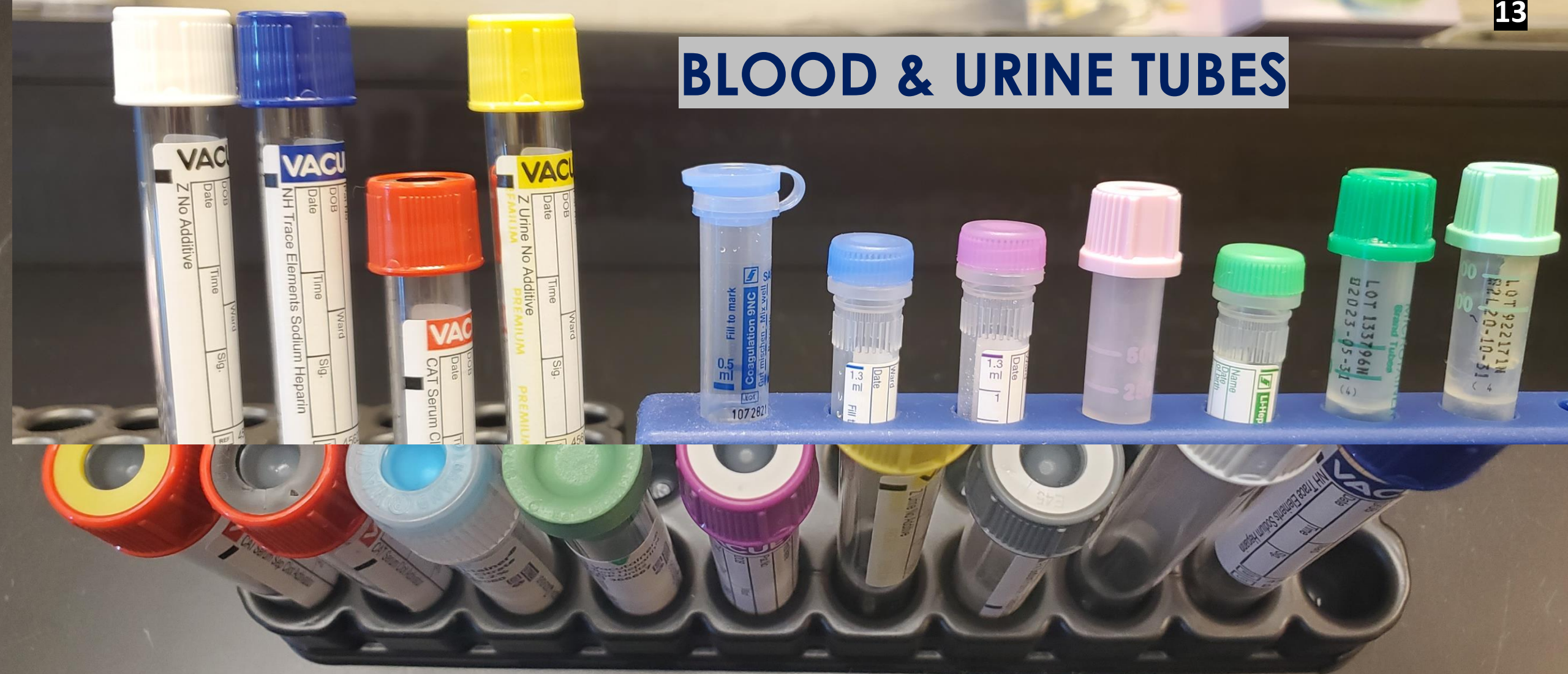
PLASMA

- Supernatant of Whole Blood
- Cells & coagulation factors available
- **EDTA** = **P**ink or **P**urple Top
 - Increased Potassium
 - Decreased Calcium
 - Decreased ALKP
 - May lyse cells of certain avian/reptile species
- **HEP**ARIN
 - Increased Sodium
 - Lithium Heparin used instead
- **CITR**A**TE** = **PL**A**S**MA
 - Diluted
 - Coagulation (Both start with C)

SERUM

- **S**upernatant only
 - Cells & coagulation factors tied up in the clot are unavailable
- **R**ed top
- **Ma**r**ble**/Tiger
 - Red + Gray or Black
- **B**r**ow**n or **Y**e**llow** Top
- **R**ed/Black inner ring
- **R**ed/ Yellow inner ring
- White top - plain

BLOOD & URINE TUBES



Collecting and Preparing Hematology Samples

1. Use the appropriate EDTA tube.

- Use one of the following:
- Standard EDTA-treated tube (such as IDEXX VetCollect* tubes*)
 - Microtube (available for use with the ProCyte Dx* Hematology Analyzer and ProCyte One* Hematology Analyzer only)

Fill the tube according to the tube manufacturer's specifications.

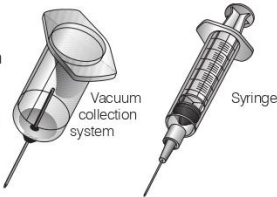
IDEXX VetCollect tubes are required for the LaserCyte Hematology Analyzer and LaserCyte* Dx Hematology Analyzer.



2. Use the appropriate sample collection device.

Use a syringe or vacuum collection system.

Use the appropriate gauge needle for the patient.



3. Collect the sample.

- If using a syringe, immediately transfer the sample to the EDTA tube.
- If using an evacuated tube, push the syringe needle through the rubber stopper of the vacuum collection tube. The vacuum will draw the correct sample volume. If the sample does not initially flow into the tube, **lightly** depress the syringe plunger to start the sample flowing.



IMPORTANT: Fill the tube according to the manufacturer's specifications.

4. Mix the sample.

Manually (and gently) invert the sample 10 times.



Note for samples run on the LaserCyte analyzer or LaserCyte Dx analyzer: If the cap is removed from the EDTA tube (for any reason), the tube should be vented by inserting a needle through the stopper to allow air pressure to equilibrate before placing the tube into the instrument.



Follow guidelines for sample processing

Catalyst Dx Analyzer Catalyst One Analyzer

Your Catalyst Dx* or Catalyst One* Chemistry Analyzer is designed to analyze serum, plasma, whole blood, or urine samples. To ensure maximum accuracy, it is important that you always prepare the sample properly when analyzing blood chemistry parameters. Please refer to your operator's guide for detailed instructions.

Whole blood sample (with a Catalyst* Lithium Heparin Whole Blood Separator)



1. Remove the green cap from the lithium heparin whole blood separator to prepare it for sample collection.
2. Immediately after sample collection (to avoid clotting), dispense 0.7 cc of untreated whole blood into the lithium heparin whole blood separator using an untreated syringe with the needle removed. **Tip:** Use the fill line on the separator to ensure proper fill volume.
3. Gently swirl (do not invert or shake) the whole blood separator at least 5 times to mix the sample with the anticoagulant. **Caution:** Ensure that the cap is removed before loading the separator into the analyzer.

Whole blood separator recommendations



*Heparinized samples can be used in the Lithium Heparin Whole Blood Separator.

Plasma sample



1. Use the appropriate lithium heparin tube. **DO NOT USE EDTA OR SODIUM HEPARIN.**
2. Use the appropriate sample collection device.
3. Draw the sample gently. Transfer if necessary. Use the correct blood-to-lithium heparin ratio.
4. Gently invert the sample for 30 seconds to mix.
5. Within 30 minutes of collection, centrifuge the sample (refer to your operator's guide for centrifugation settings and times).
6. Immediately after centrifugation, transfer 300 µL of sample to a Catalyst* sample cup (take particular care not to aspirate cells during plasma collection). See "Sample cup recommendations" below.

Serum sample



1. Use the appropriate serum tube.
2. Use the appropriate sample collection device.
3. Draw the sample gently. Transfer if necessary.
4. Let the sample clot for a minimum of 20 minutes.
5. Within 45 minutes of collection, centrifuge the sample (refer to your operator's guide for centrifugation settings and times).
6. Immediately after centrifugation, transfer 300 µL of sample to a Catalyst sample cup (take particular care not to disturb the clot during serum collection). See "Sample cup recommendations" below.

Urine sample for UPC ratio

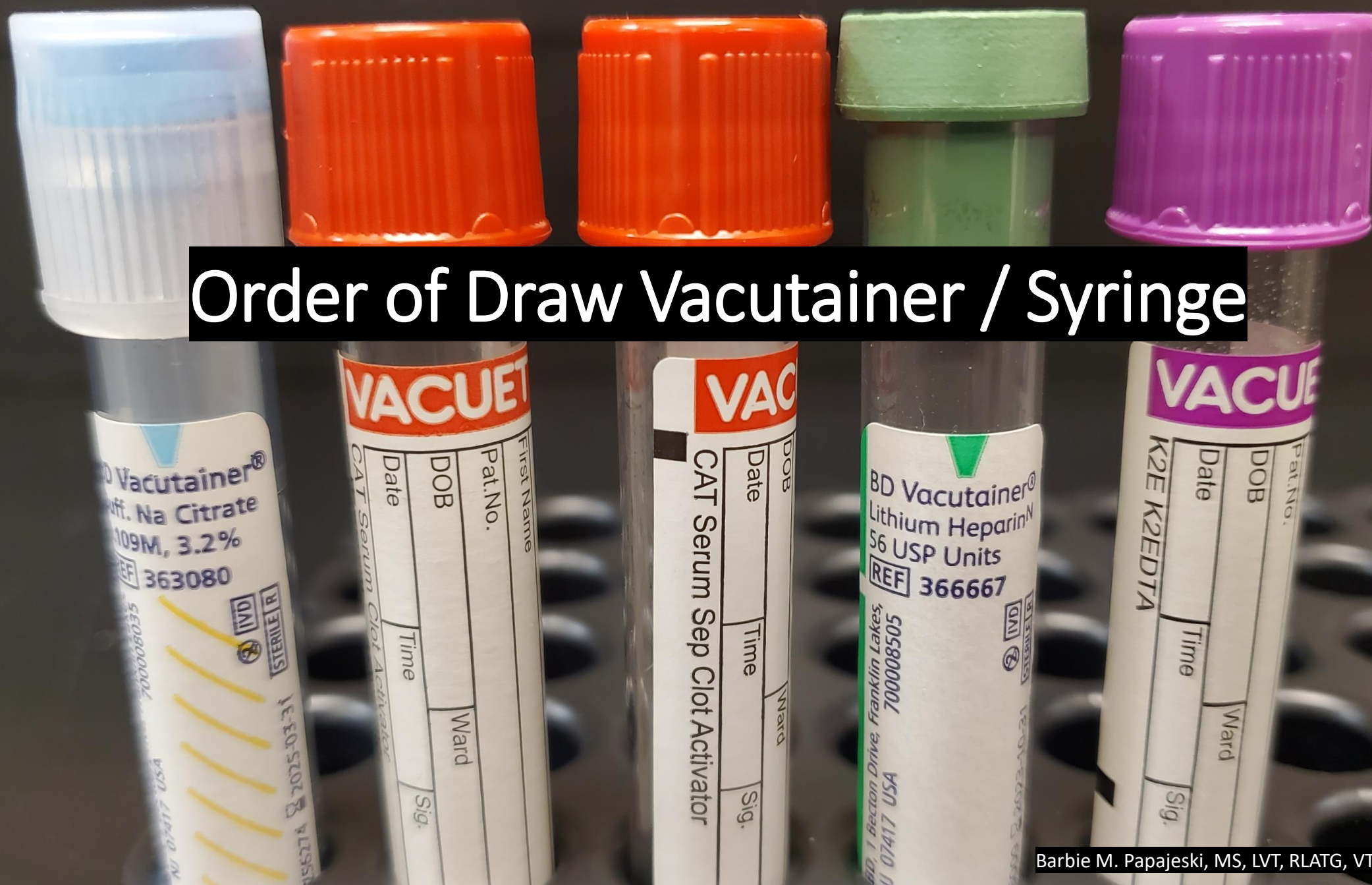


1. Once you have obtained the urine sample through cystocentesis (recommended), a catheter, or free-catch method, transfer the urine sample to a disposable sample tube.
2. Centrifuge the sample (refer to your operator's guide for centrifugation settings and times).
3. Use a transfer pipette to transfer 300 µL of supernatant urine to a Catalyst sample cup. See "Sample cup recommendations" to the right.
4. Dispense 300 µL of Catalyst* Urine P-C Diluent into a Catalyst sample cup.

Sample cup recommendations



Order of Draw Vacutainer / Syringe



Even a tiny bit of EDTA will cause...

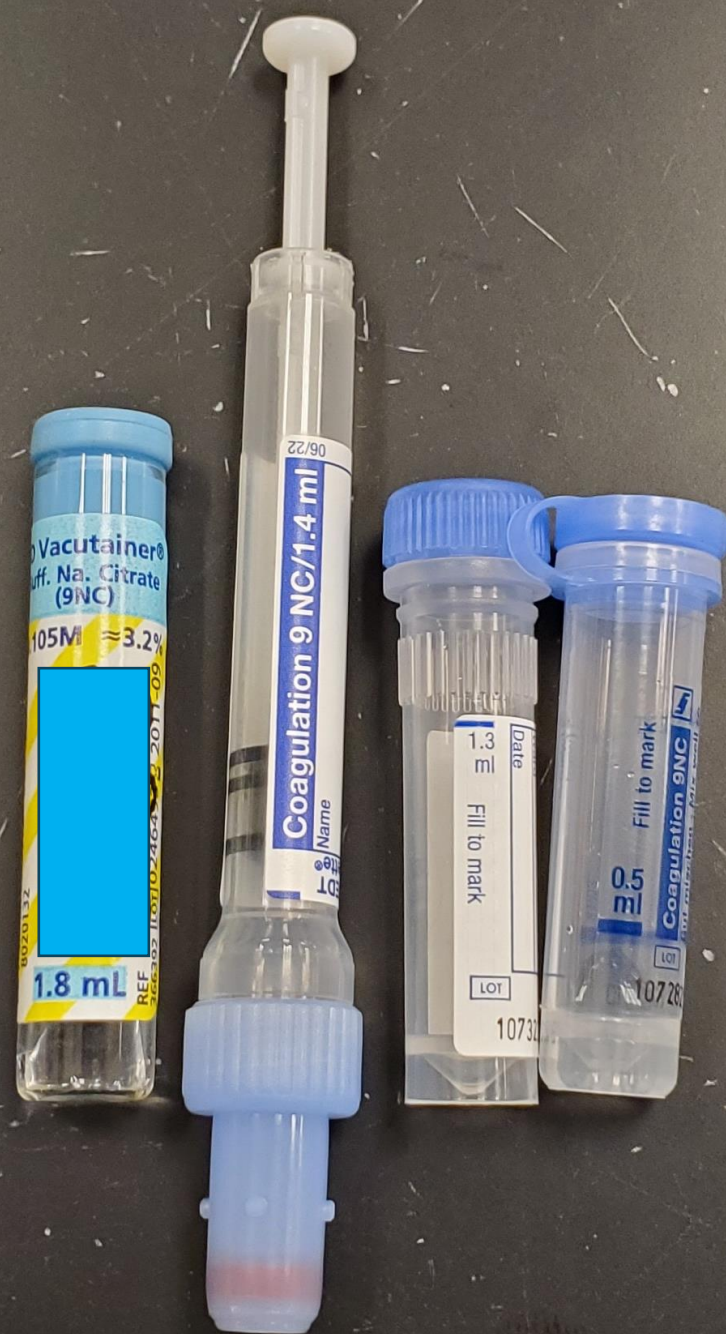
Elevated potassium

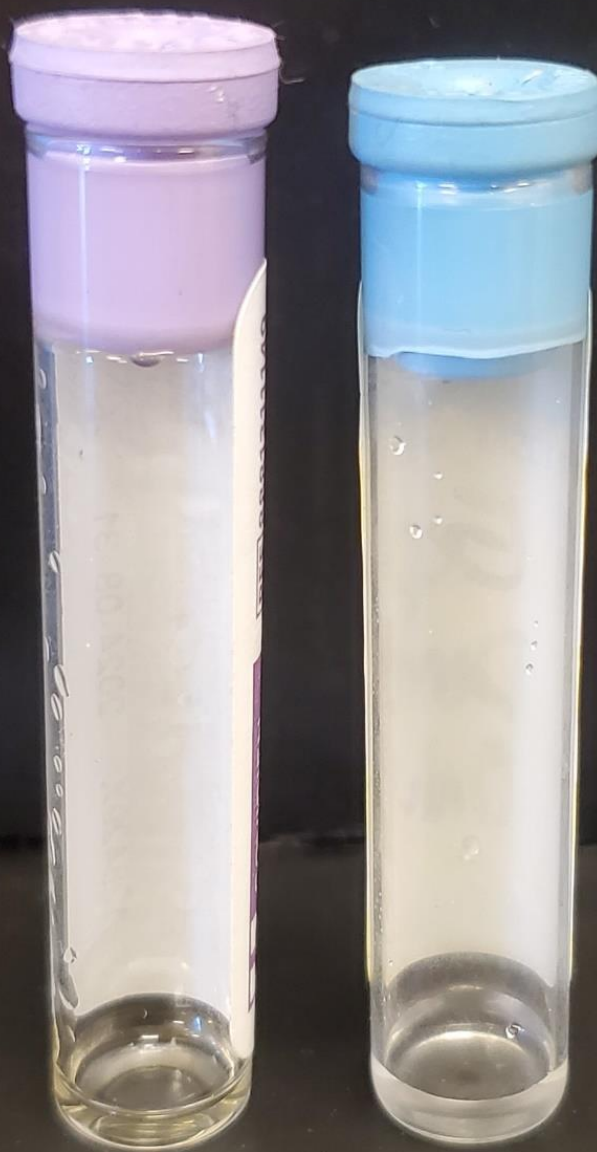
Elevated magnesium

Decreased calcium

Decreased alkaline phosphatase

CITRATE

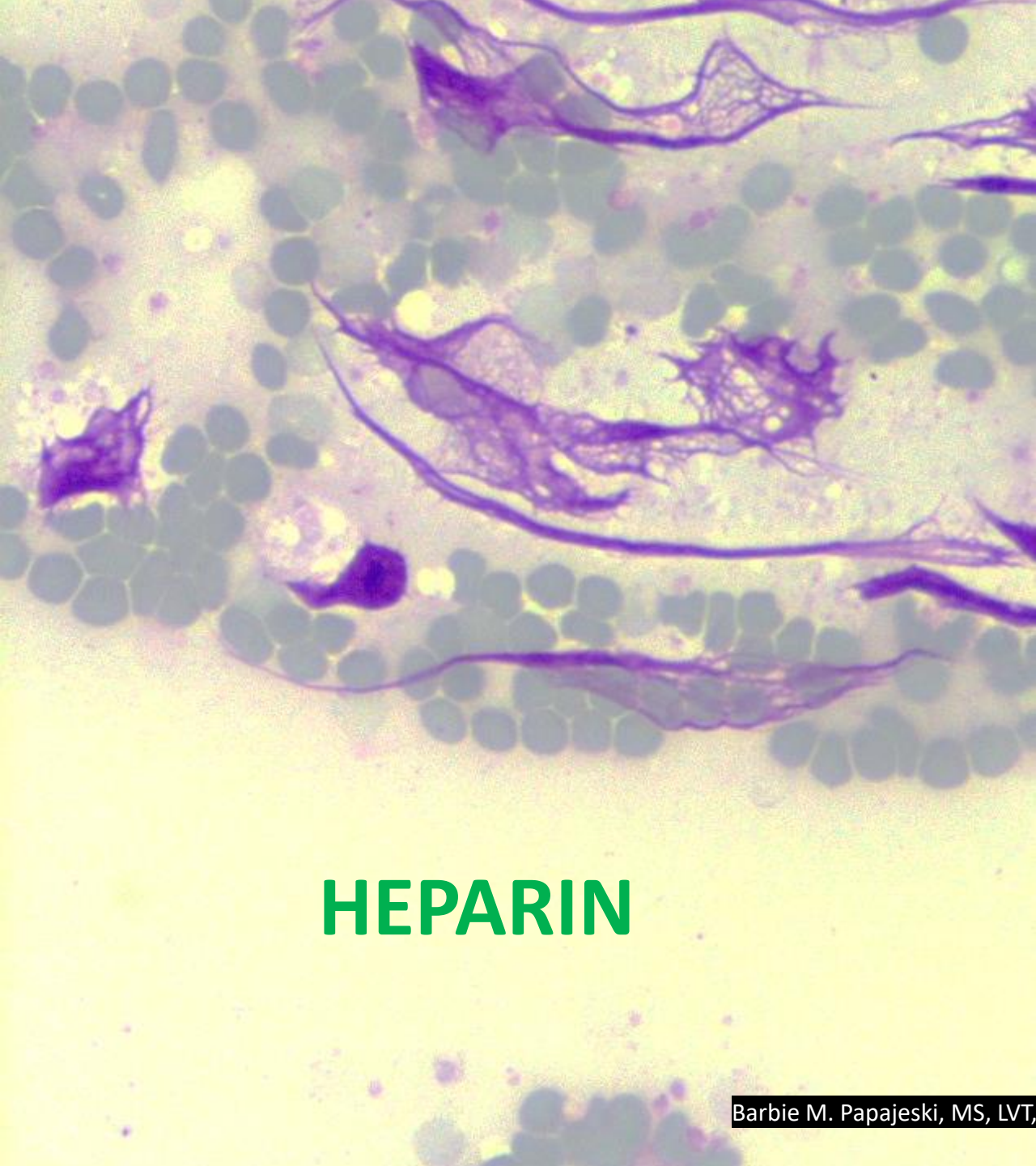




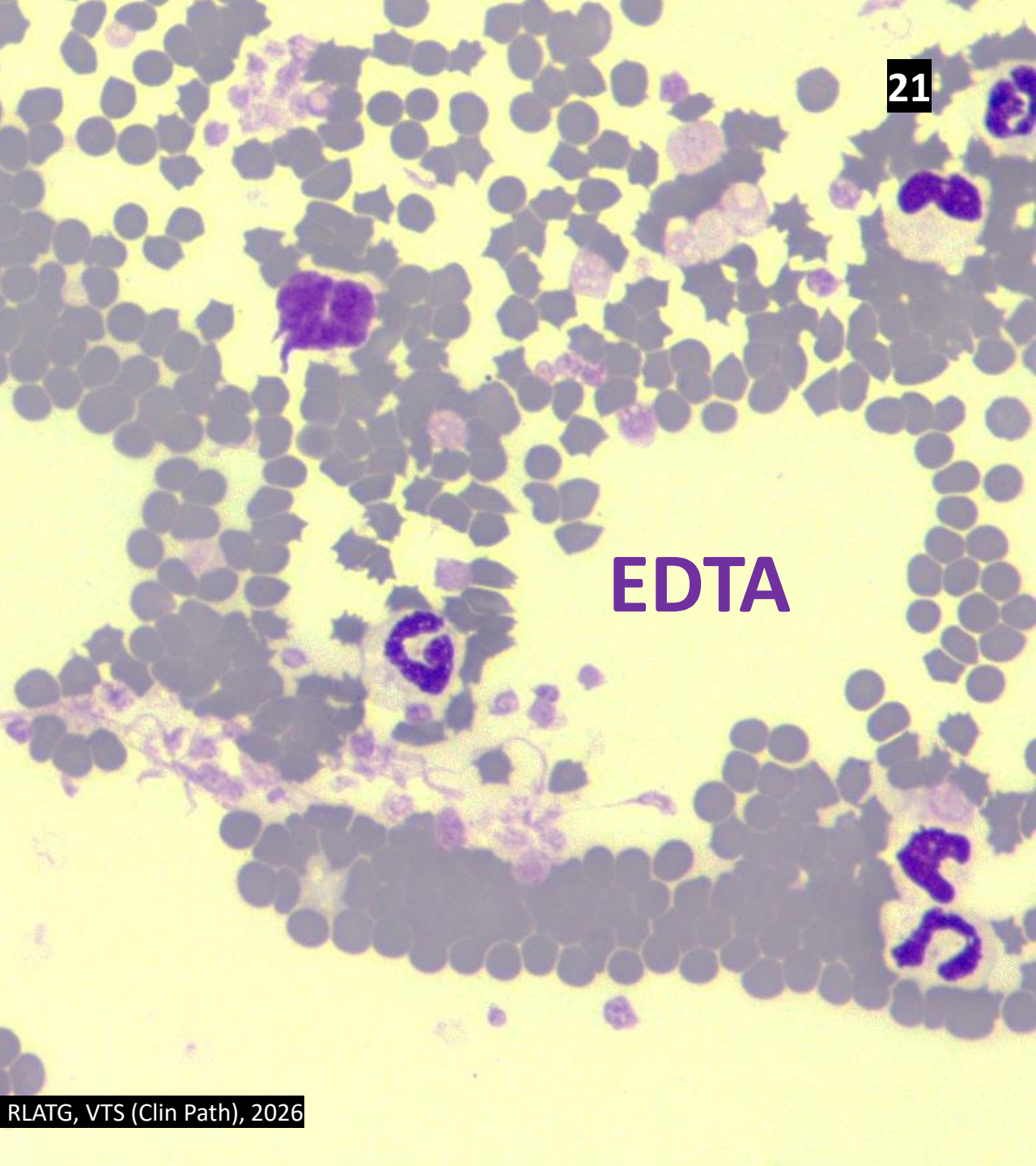
HEPARIN

20





HEPARIN



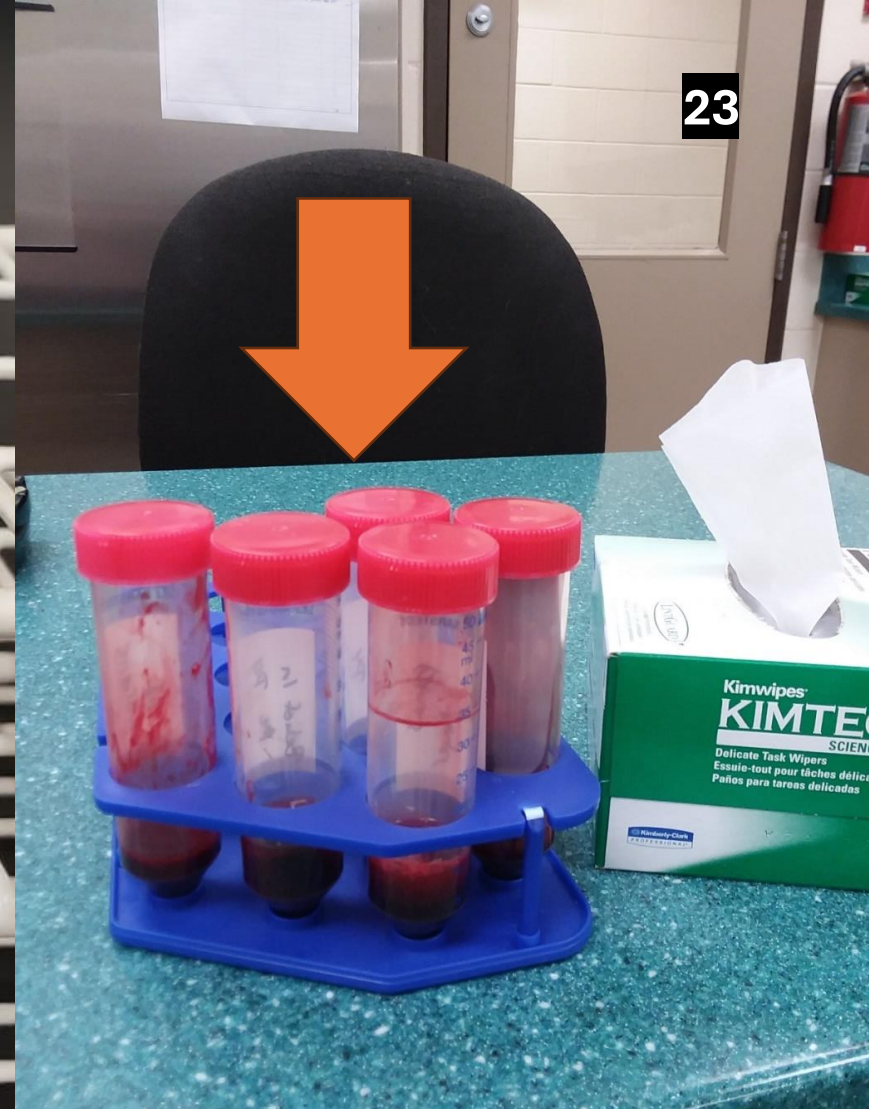
21

EDTA

SERUM

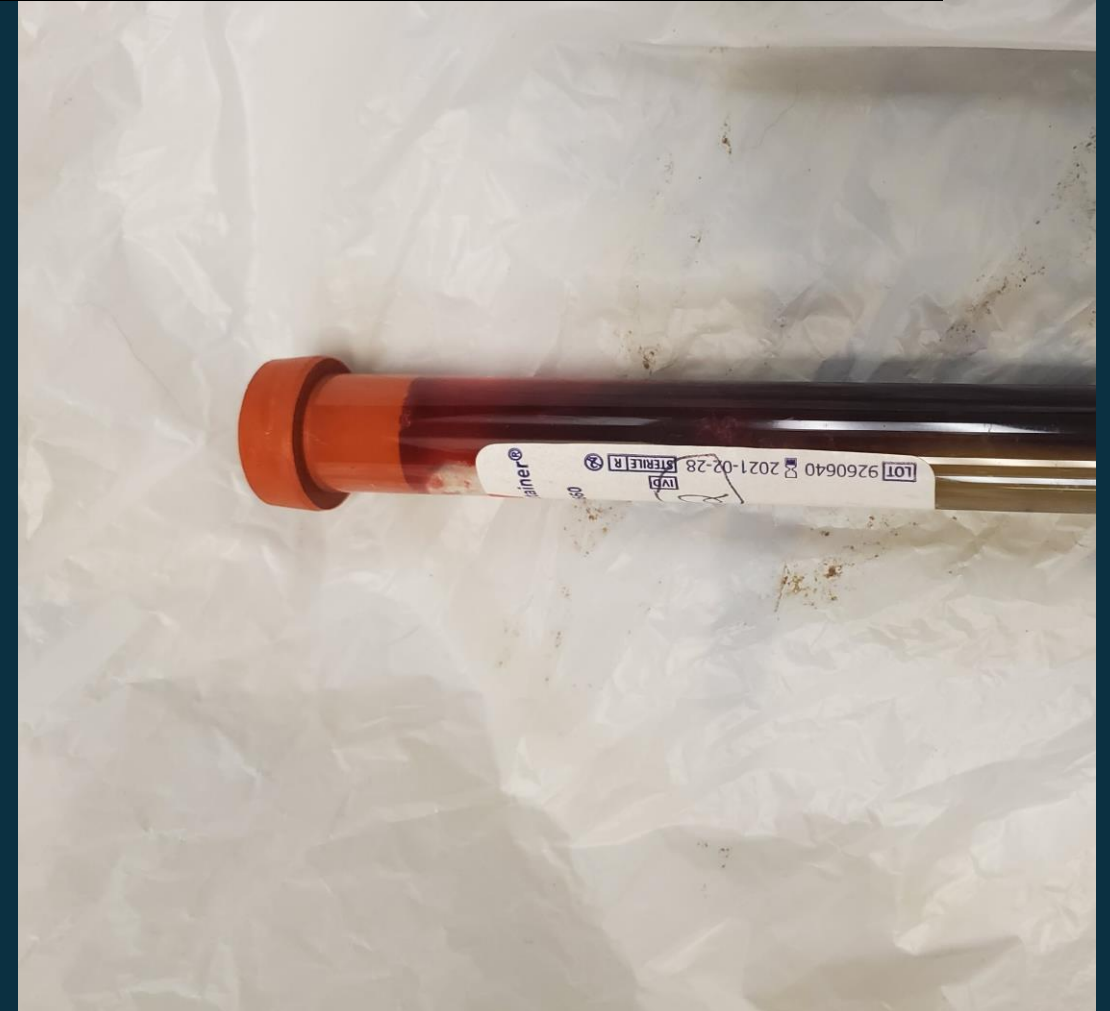


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Clarify / Confirm Tube Types

Vertical Clotting Versus Horizontal



RIM THE CLOT



SEPARATE SERUM FROM CLOT

IMPROPER SAMPLE PREP

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Test	Results	Reference Interval
------	---------	--------------------

Catalyst One (August 25, 2021 11:46 AM)

GLU	58 mg/dL	74 - 143	LOW
CREA	1.0 mg/dL	0.5 - 1.8	
BUN	20 mg/dL	7 - 27	
BUN/CREA	20		
TP	> 12.0 g/dL	5.2 - 8.2	HIGH
ALB	> 6.0 g/dL	2.3 - 4.0	HIGH
ALT	147 U/L	10 - 125	HIGH
ALKP	-- U/L	23 - 212	

Result Details

Chemistry		03/14/2025 10:18 AM
GLU	97 mg/dL	74 - 143 mg/dL
CREA	0.7 mg/dL	0.5 - 1.8 mg/dL
BUN	14 mg/dL	7 - 27 mg/dL
BUN/CREA	19	
TP	> 12.0 g/dL	5.2 - 8.2 g/dL
ALB	5.1 g/dL	2.3 - 4.0 g/dL
ALT	220 U/L	10 - 125 U/L
ALKP	274 U/L	23 - 212 U/L

LABEL, LABEL, LABEL!



LABEL POSITIONING



ACCURATELY LABEL SUPPRESSION/STIMULATION TESTS

Vaccination(s)
FVRCP/PELV/RV

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Tests Requested T4-
Total

FAILURE TO LABEL

Quality Notice

- Sample Not Identified Properly

No patient ID on sample

LABEL DETAILS

Initial ID/Name	Species	Breed
103-1	Porcine	Hamp
6-3	Porcine	Hamp

Purpose of Test: ☐ Diagnostic ☐ Regulatory ☐ Surveillance ☐ Experimental



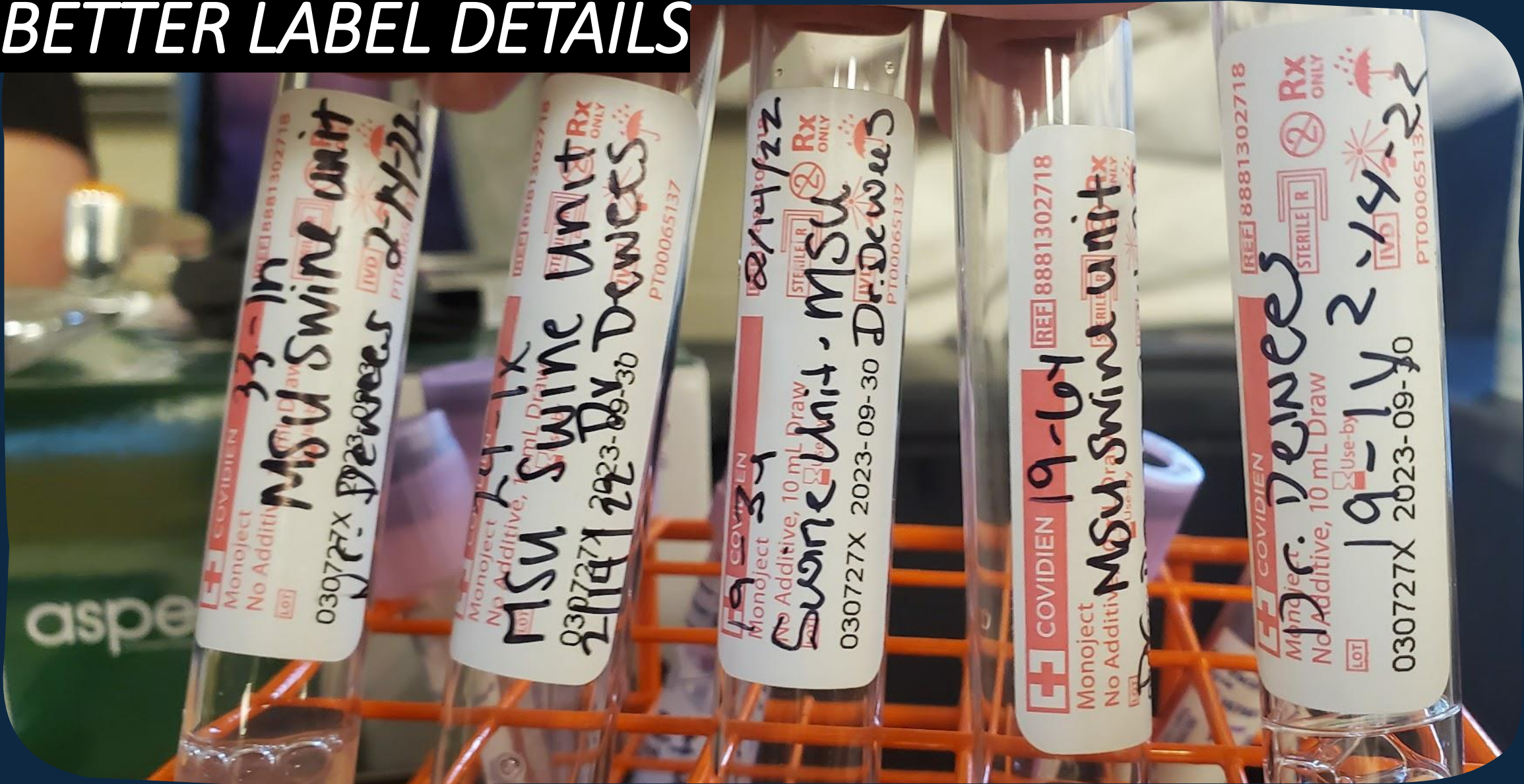
☐ FRESH

☐ Fetus

Site/Source(s): _____

Complete Diagram on back of form

BETTER LABEL DETAILS



LIPEMIA

MAY FALSELY ELEVATE

- Albumin
- Ammonia
- AST
- Bile acids
- Bilirubin
- Calcium
- Cholesterol
- Creatine Kinase
- Fibrinogen
- MCHC
- SDH
- Total iron binding capacity
- Total Protein
- Troponin (if marked)

MAY FALSELY DECREASE

- Bicarbonate (Cornell)
- BUN
- Chloride
- Potassium
- Sodium



Hemolysis

May falsely increase:

- Albumin
- ALKP (Cornell)
- ALT
- Ammonia
- AST
- Bicarbonate (IDEXX)
- Bilirubin
- BUN
- Cholesterol
- Cholinesterase
- Creatine Kinase
- Creatinine
- Fibrinogen
- Folate
- Fructosamine
- GLDH
- Iron
- LDH
- Magnesium
- MCHC
- NEFA (method dependent)
- proBNP
- Platelet Count
- Phosphate
- Potassium
- SDH
- TIBC
- Total Protein
- Triglycerides



May falsely decrease:

- ALKP (IDEXX)
- Amylase
- Bicarbonate (Cornell)
- Bile Acids
- GGT
- NEFA (method dependent)
- SDMA

ICTERUS

May falsely decrease:

Bicarbonate

Cholesterol

Creatinine

GGT

Lipids / Triglycerides

Phosphate

Total Protein

Uric acid

May falsely increase:

Ammonia

AST

Bilirubin

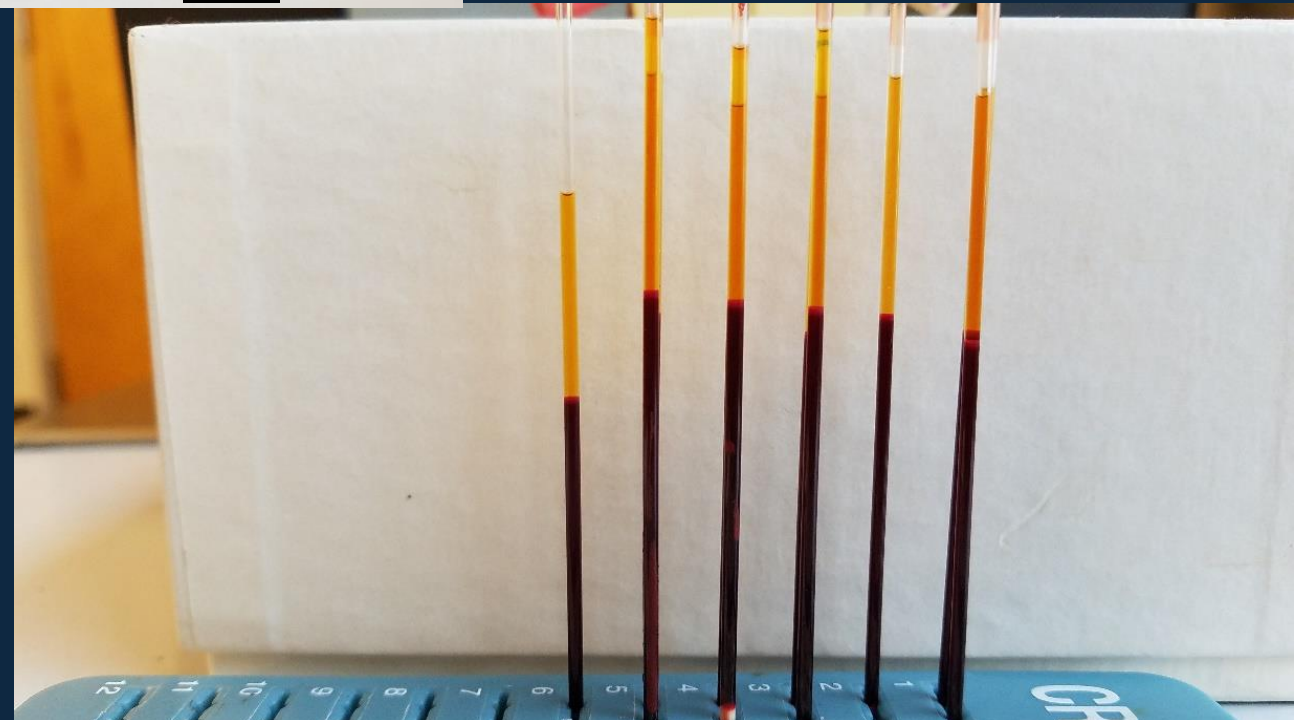
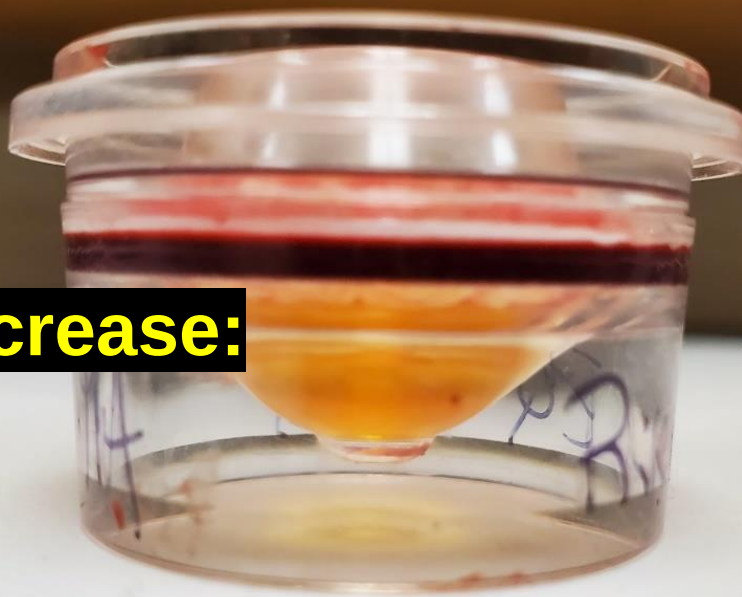
BUN

Calcium

CK

INTERFERES WITH:

- Bile acids
- Cortisol
- Fructosamine
- LDH



Don't Overfill

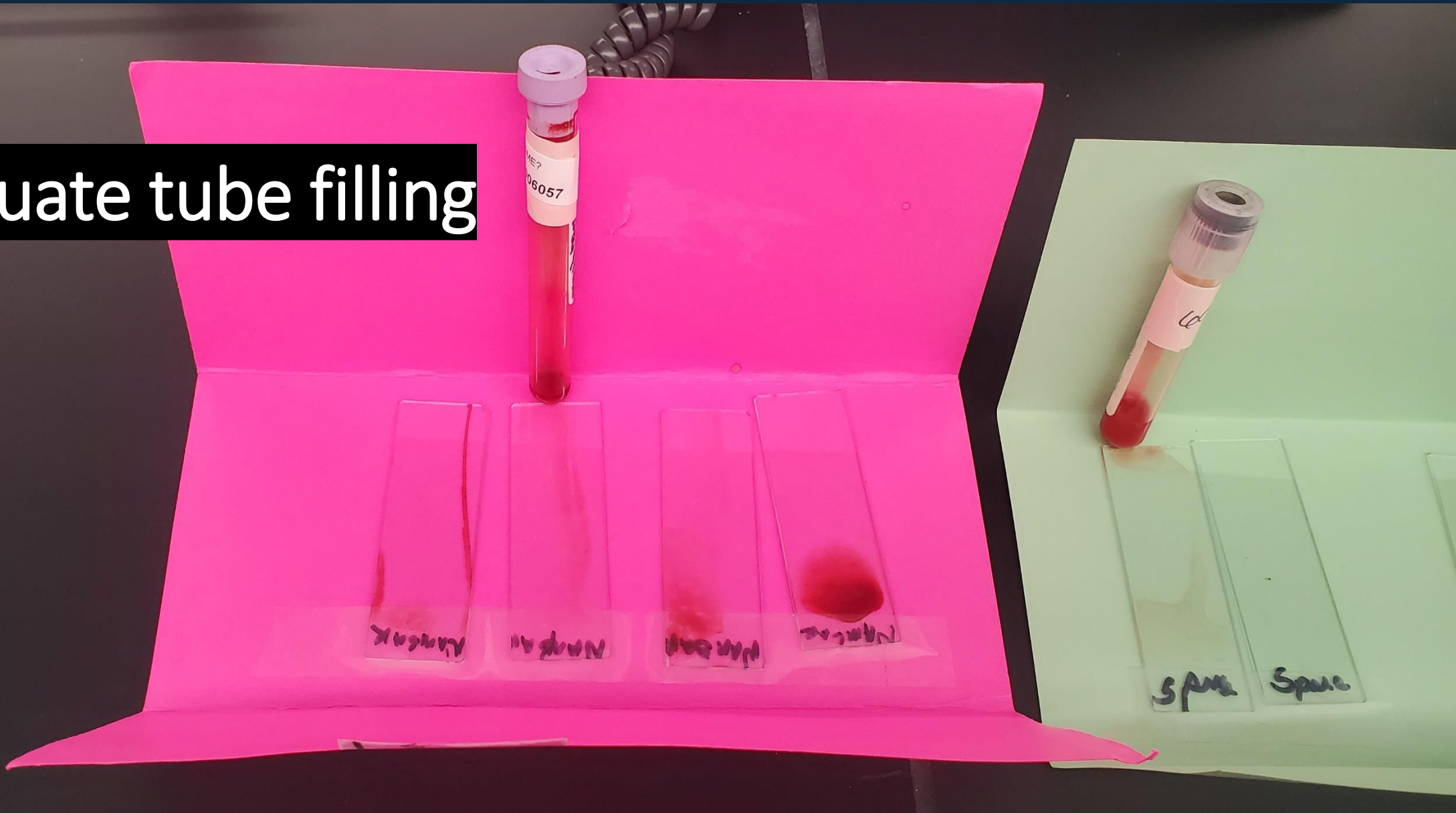




CHECK FOR CLOTS

MICROCLOTS MICROSCOPICALLY

Inadequate tube filling



Why is it important? One syringe, two tubes

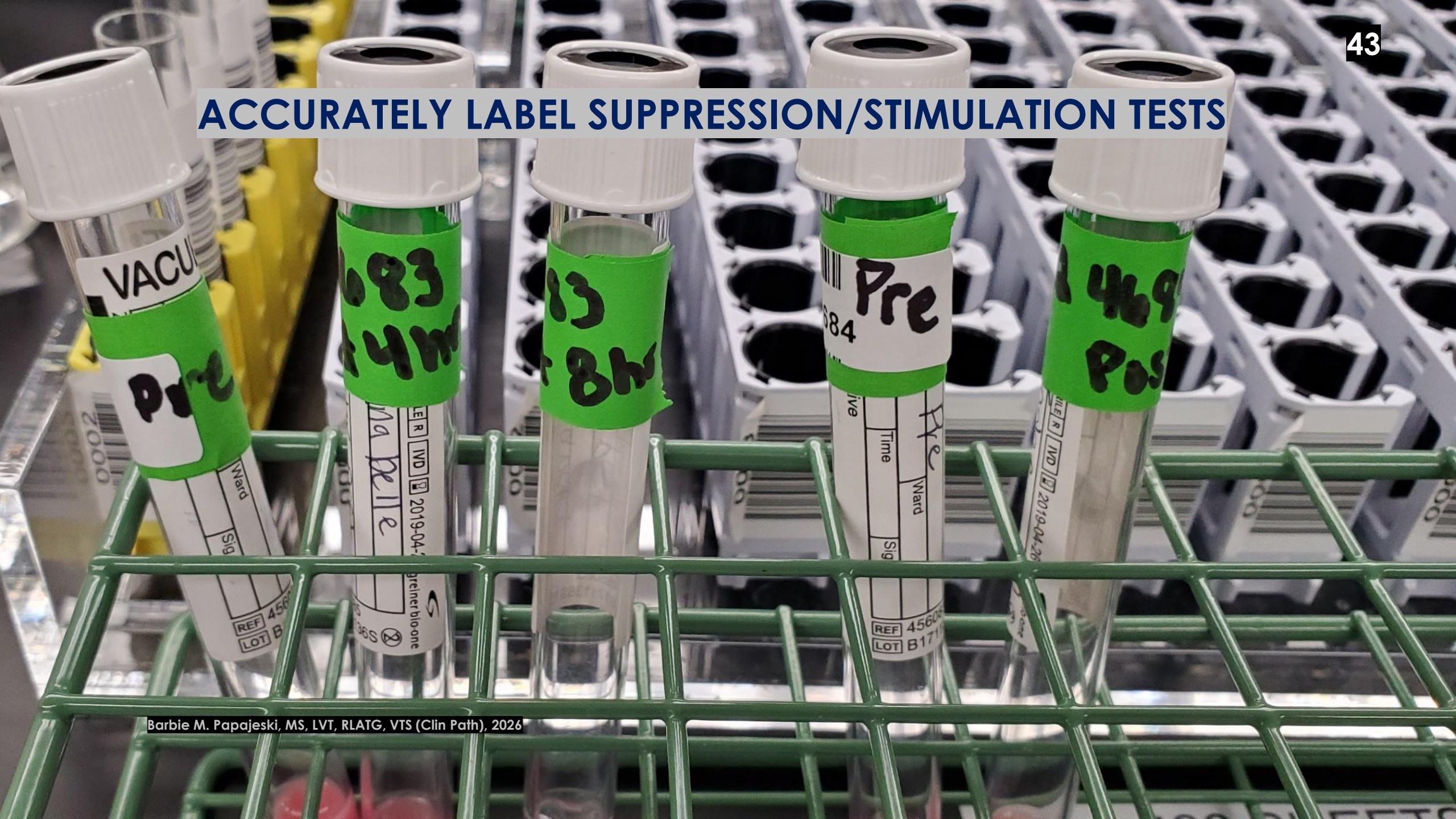
Vet collect
Tube
Capacity ½
-1 mL
PCV = 46%

2 mL draw EDTA
Tube with 0.5 mLs
PCV = 28%

MARKED HEMOLYSIS FROM HIGH TEMPERATURES

Centrifuged PCV

ACCURATELY LABEL SUPPRESSION/STIMULATION TESTS



LIPEMIA OFTEN OCCURS WITH HEMOLYSIS

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Prolonged Storage or Delays in Processing

INCREASES

HEMOLYSIS

MCV

HCT

MPV

Phosphorus

Magnesium

Potassium

**INTERFERES
WITH CELLULAR
IDENTIFICATION**

DECREASES

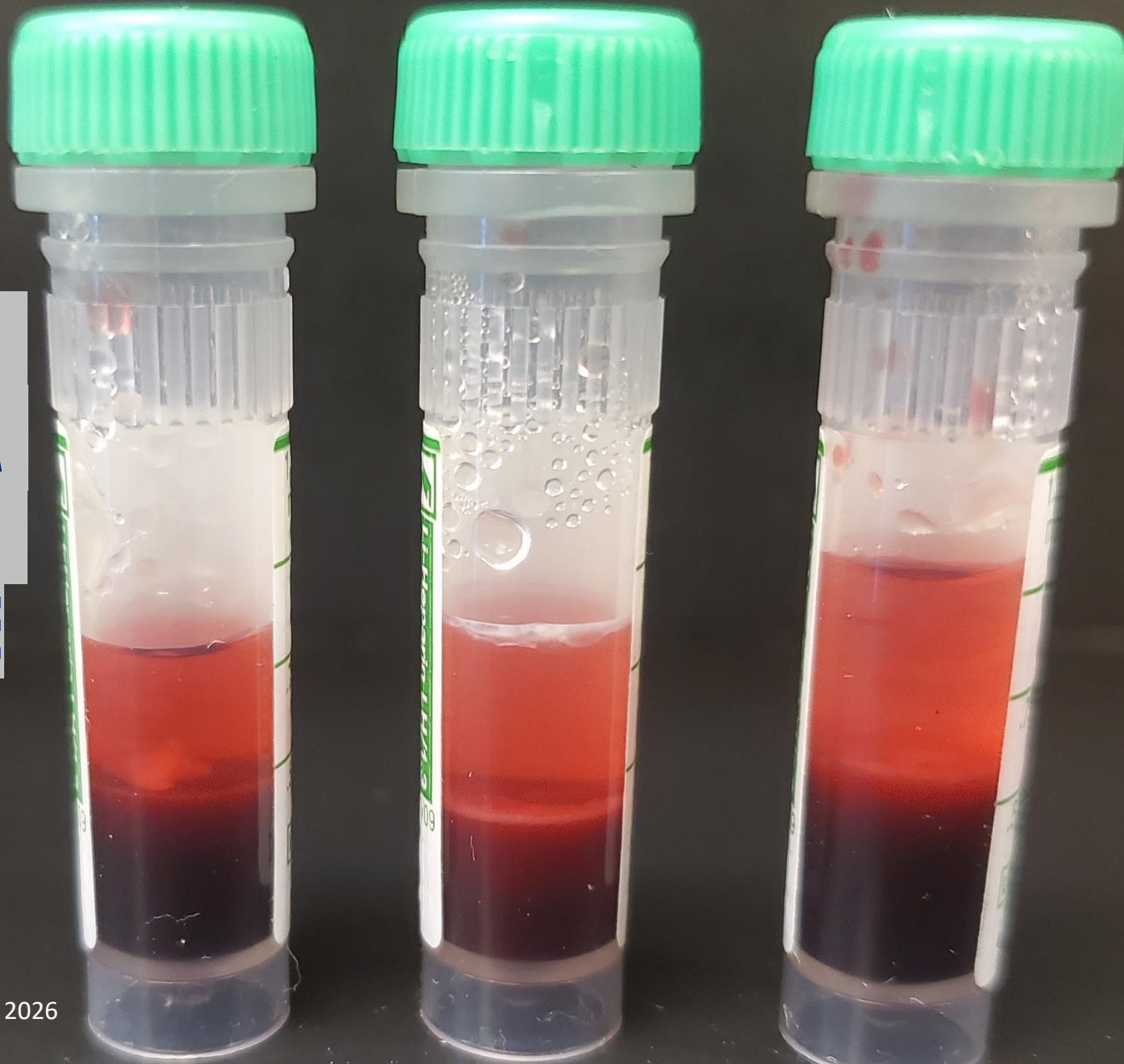
MCHC

WBC

Platelet count

Glucose

HEMOLYSIS FROM PROLONGED STORAGE



Basket/Smudge Cells

The bulb turns white for temperatures $<0^{\circ}\text{C}$ (32°F).
 Le témoin vire au blanc pour une température $<0^{\circ}\text{C}$ (32°F).
 Bei Temperaturen unter 0°C (32°F) verfärbt sich der Indikator weiß.
 El piloto se pondrá blanco a temperatura $<0^{\circ}\text{C}$ (32°F).
 Il bulbo diventa bianco con temperature $<0^{\circ}\text{C}$ (32°F).



The center of the disk turns black when the temperature exceeds the specified limits.
 Le centre du disque vire au noir lorsque la température dépasse les limites spécifiées.
 Bei Temperaturen oberhalb der spezifizierten Grenzwerte verfärbt sich das Zentrum der Scheibe schwarz.
 El centro torna a negro cuando la temperatura está fuera des los límites especificados.
 Il centro del disco diventa nero quando la temperatura supera i limiti specificati.



IDEXX
LABORATORIES

One IDEXX Drive
Westbrook, Maine 04092 USA

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The bulb turns white for temperatures $<0^{\circ}\text{C}$ (32°F).
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 El piloto se pondrá blanco a temperatura $<0^{\circ}\text{C}$ (32°F).
 Il bulbo diventa bianco con tempe

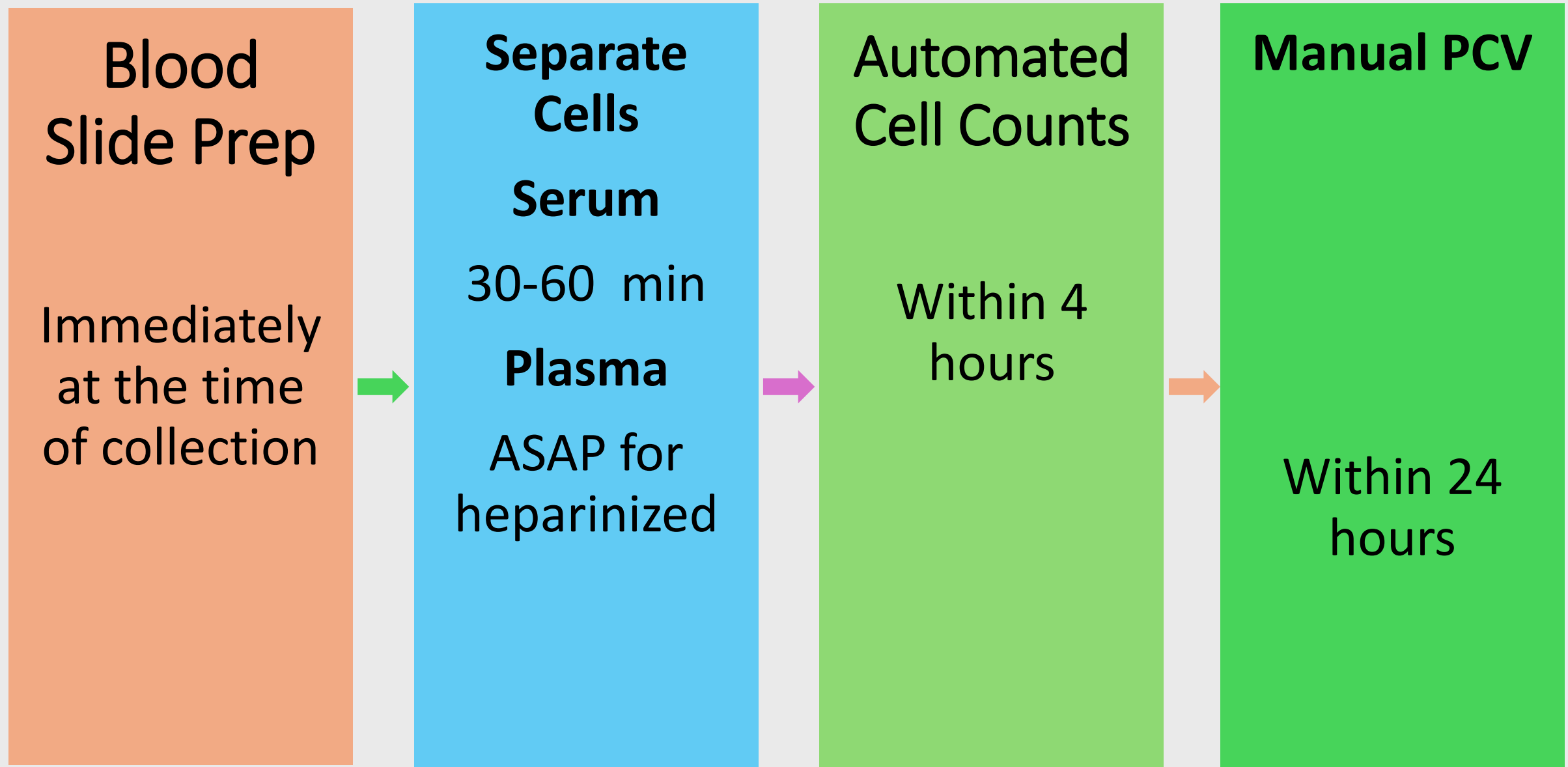


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 El centro torna a negro cuando los límites especificados.
 Il centro del disco diventa nero i limiti specificati.



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Westbrook, Maine 04092 USA
idexx.com

Timeline of Sample Processing for Blood Samples



Why make blood smears?

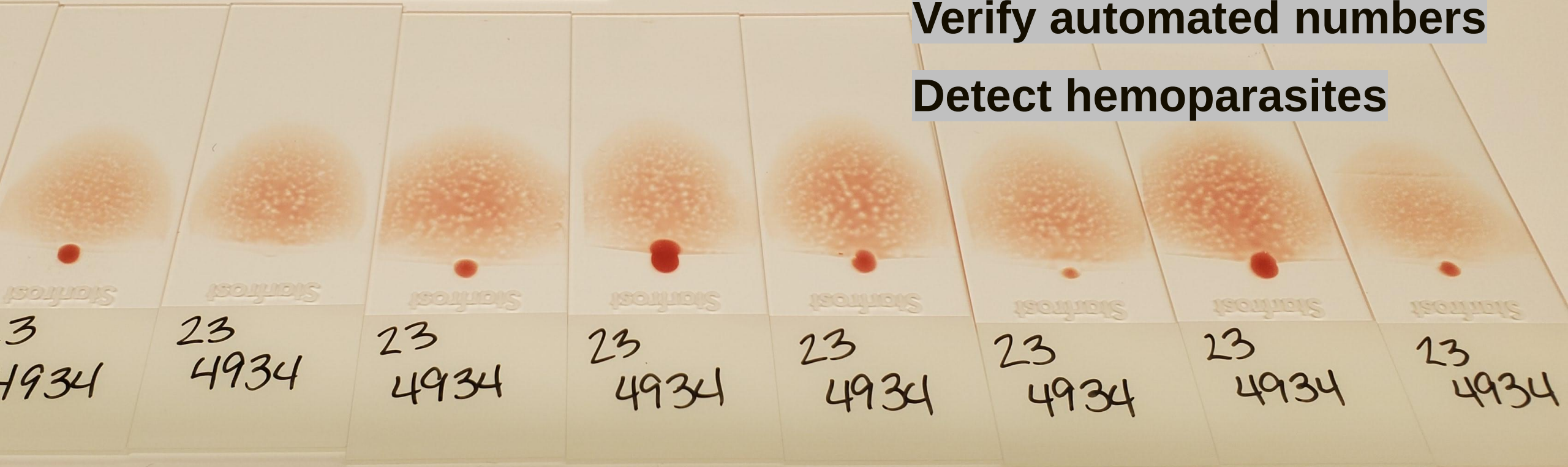
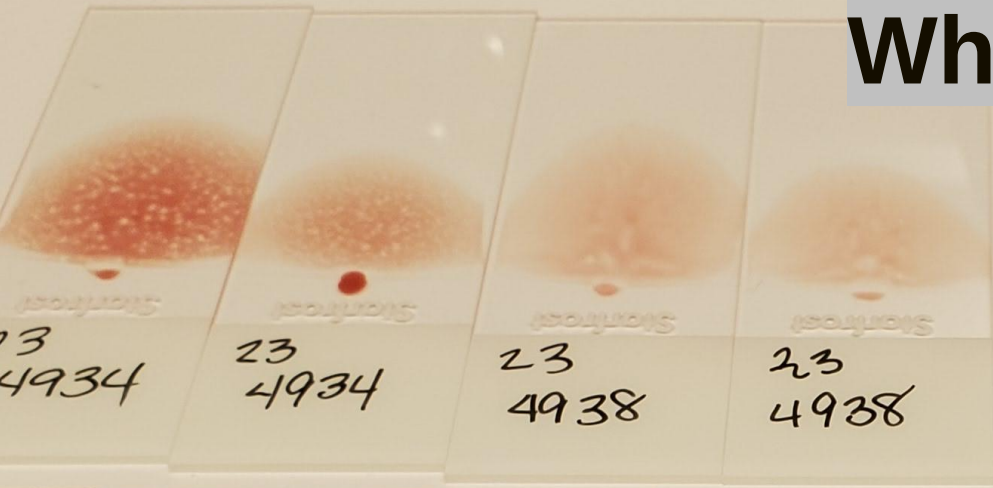
50

Morphology

Cell clustering

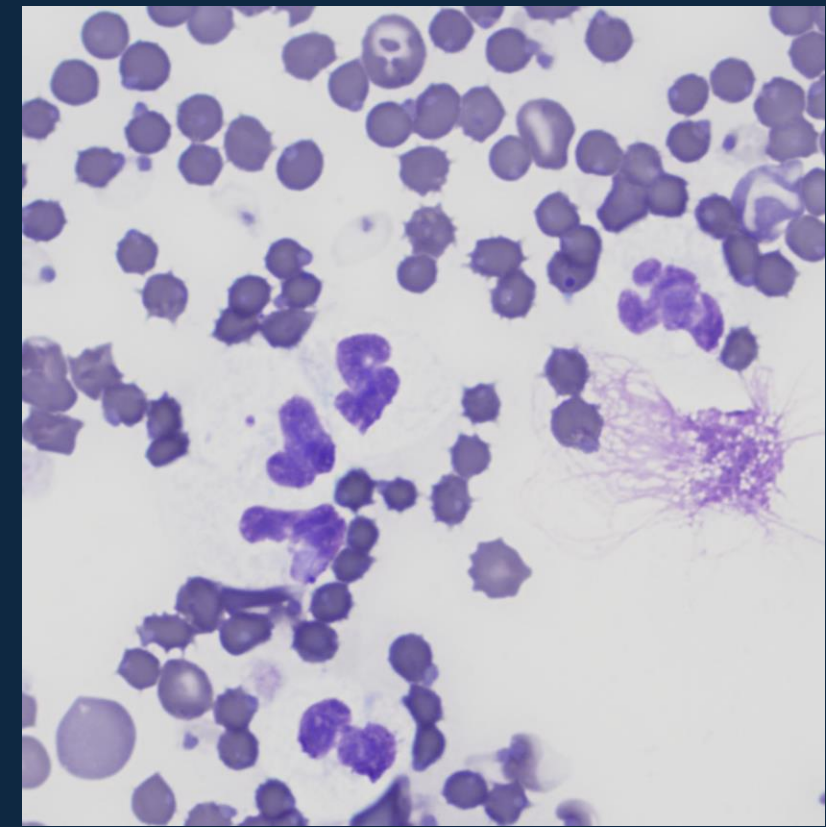
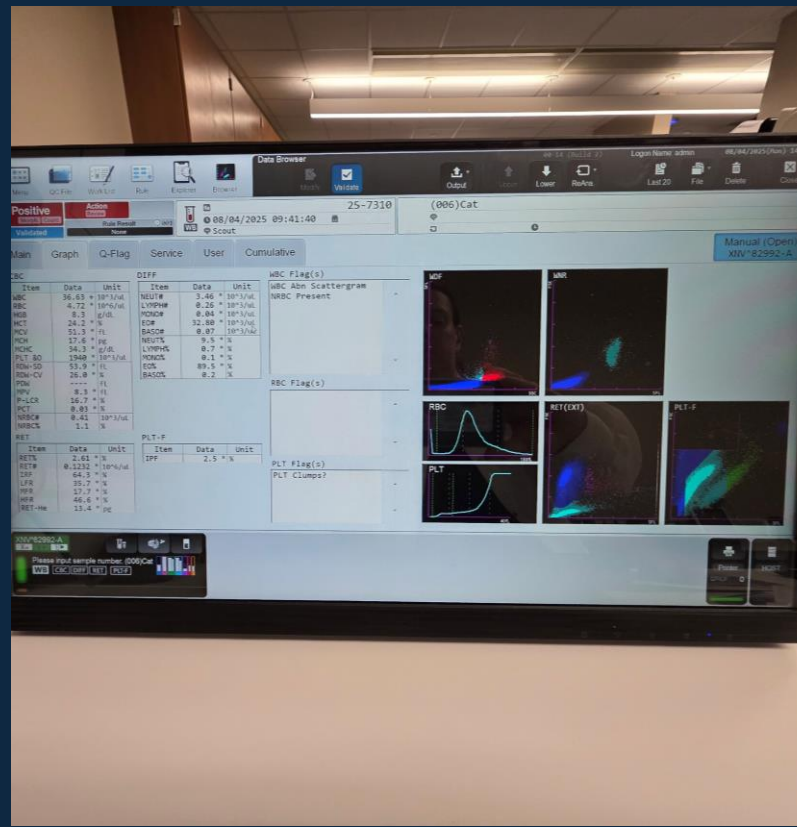
Verify automated numbers

Detect hemoparasites

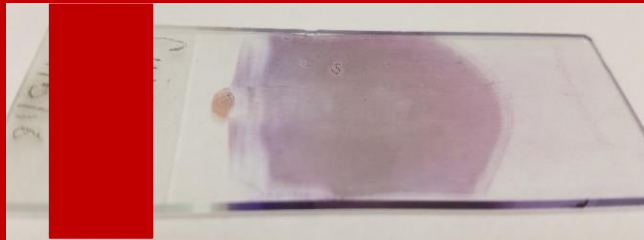
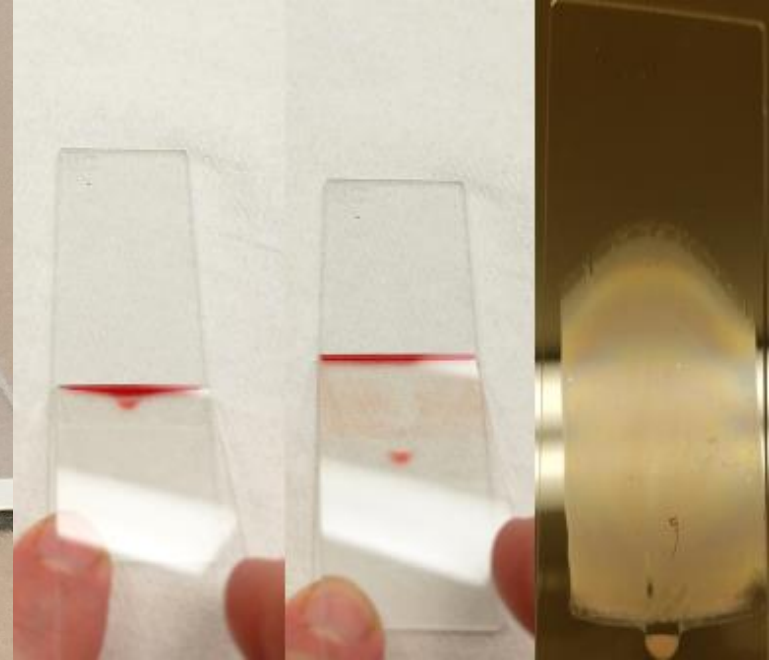
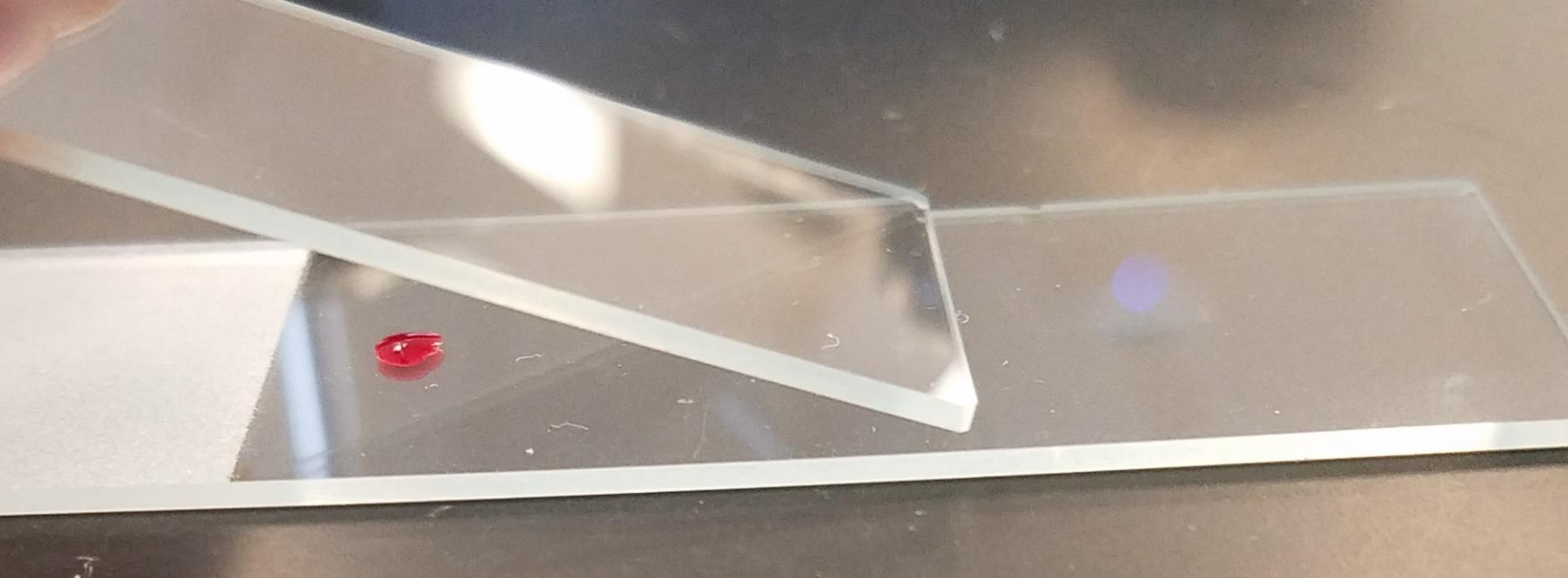


Interferences	Results Affected	Verification or Corrective Action
Clots	Falsely lowers RBC, WBC, & platelet counts	Sample must be redrawn
Heinz Bodies	Falsely elevates WBC count & HGB concentration when present in high numbers or larger sized	Confirm with NMB stained blood slide microscopically
Hemolysis	Falsely elevates MCHC, MCH	Verify sample condition with manual PCV. Redraw sample.
High WBC Counts	Analyzer dependent	Dilute sample to obtain values
Lipemia	Falsely elevates HGB, MCHC, MCH, & WBC count	Verify sample condition with manual PCV & WBC estimate from slide
Macrocytosis of Platelets	Falsely lowers PLT count & MPV	Confirm microscopically & perform PLT estimate from slide
Microcytosis of RBCs	Falsely lowers RBC count Falsely elevates PLT count	Confirm microscopically
Nonlysed RBCs	Falsely elevates WBC count (Impedance)	Refer to histogram
NRBCs	Falsely elevates WBC count (Impedance) – pseudoleukocytosis	Confirm microscopically Correct if >5 observed per 100 WBCs
Platelet Clumping	Falsely lowers PLT counts – pseudothrombocytopenia May interfere with differentials	Evaluate microscopically
RBC Agglutination	Falsely decreases RBC count Falsely increases MCV Falsely lowers HCT	Confirm microscopically Verify HCT by manual PCV
WBC Aggregation	Falsely decreases WBC count	Confirm microscopically

Barbie M. Papajeski, MS, LVT, RLATG, VTS
(Clinical Pathology)



PUT IN THE MAIL ON FRIDAY,
ARRIVED AT THE LAB ON MONDAY
No Slides Prepared



Stained peripheral blood slide.

Direct or Wedge Prep

Step 1. Place a small drop of fluid near the frosted edge.

Step 2. Back into the drop with a top slide.

Step 3. Move forward with even pressure without lifting the slide.

Cells will be distributed in a monolayer near the feathered edge of the slide.

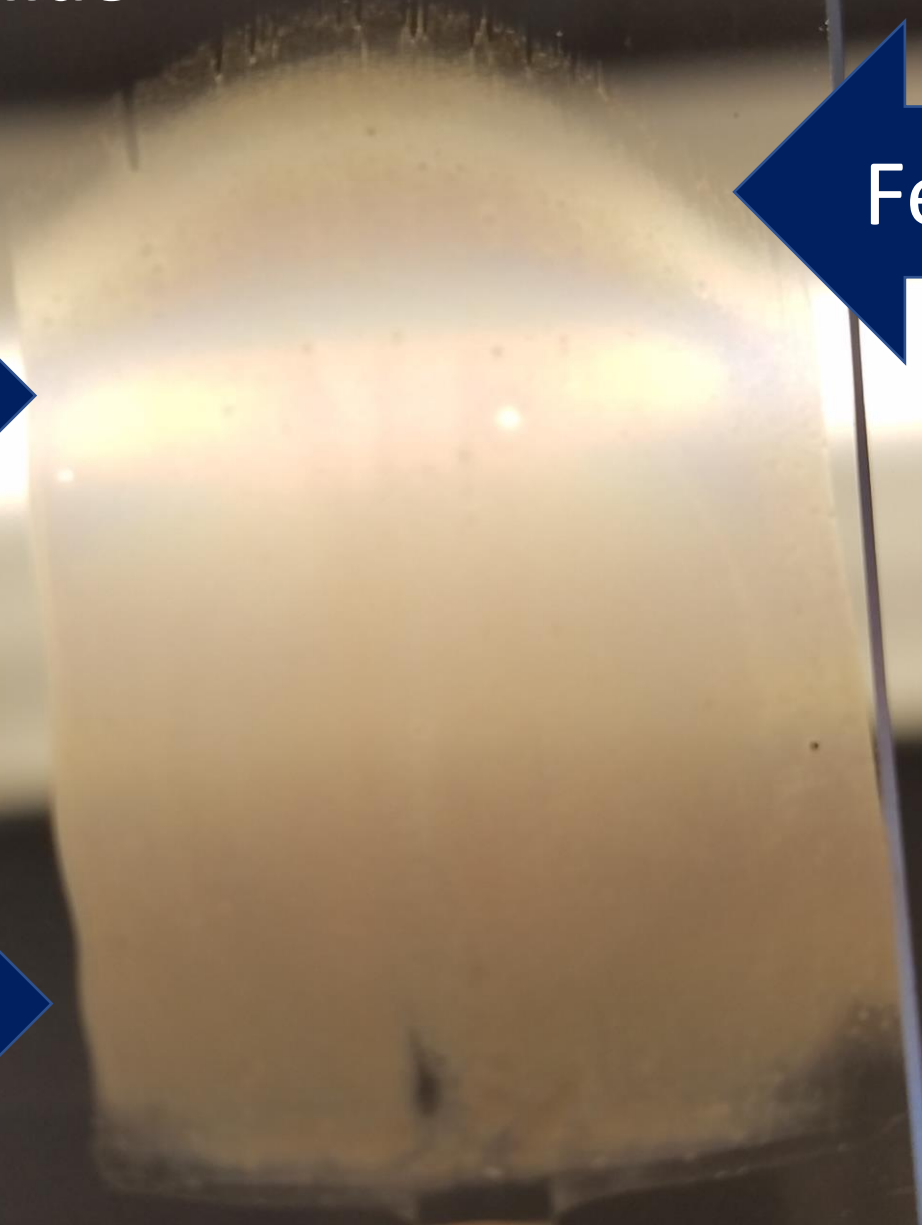


Motion of slide when preparing a blood (wedge) or direct slide

Anatomy of a Blood Slide

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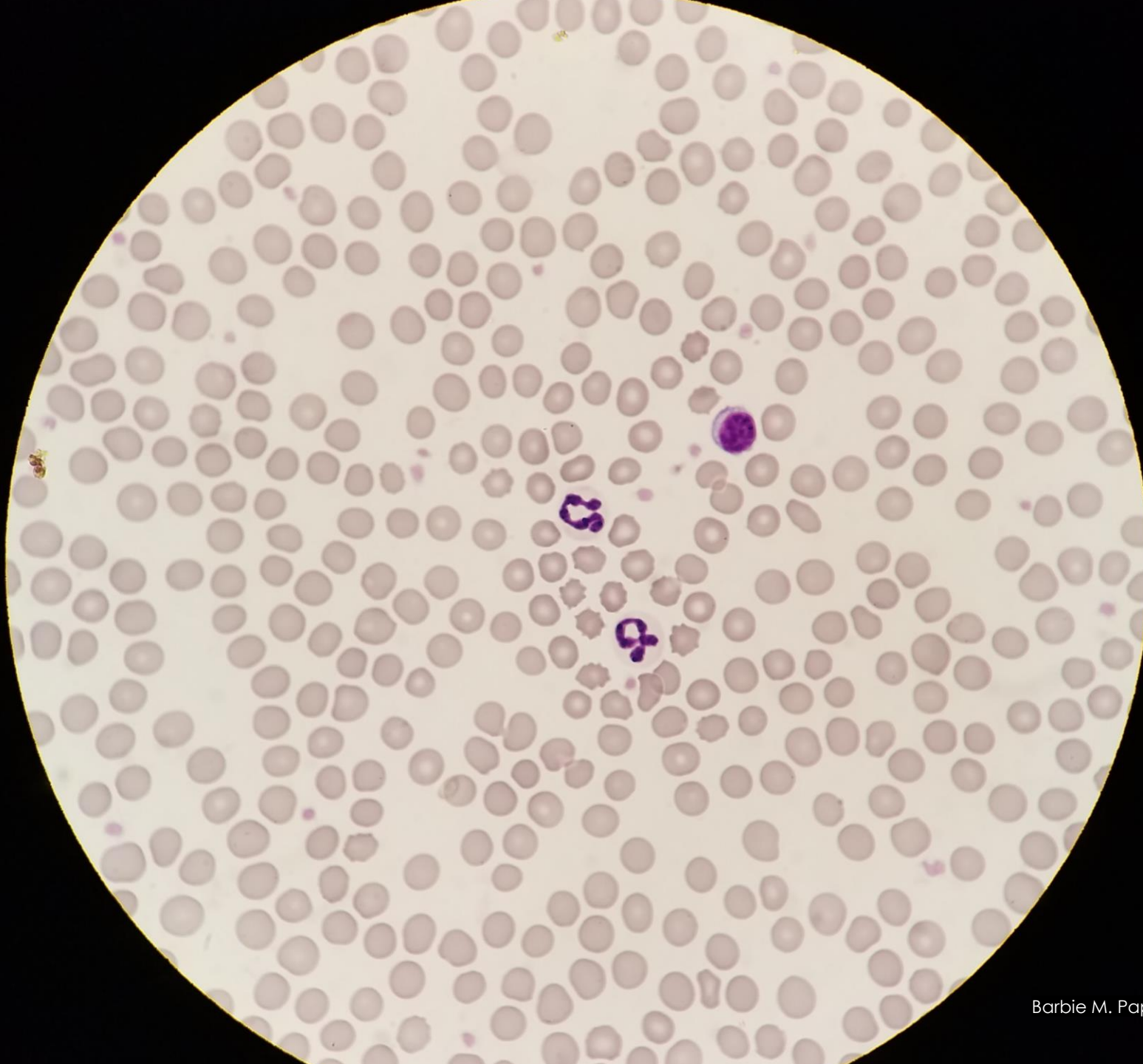
Monolayer



A microscopic image of a blood smear on a glass slide. The smear is spread from left to right, showing a dense area of red blood cells on the left and a thin, translucent area on the right. Three blue arrows with white text point to specific parts of the smear: 'Monolayer' points to the dense area of red blood cells, 'Body' points to the middle area, and 'Feathered Edge' points to the thin, translucent area on the right.

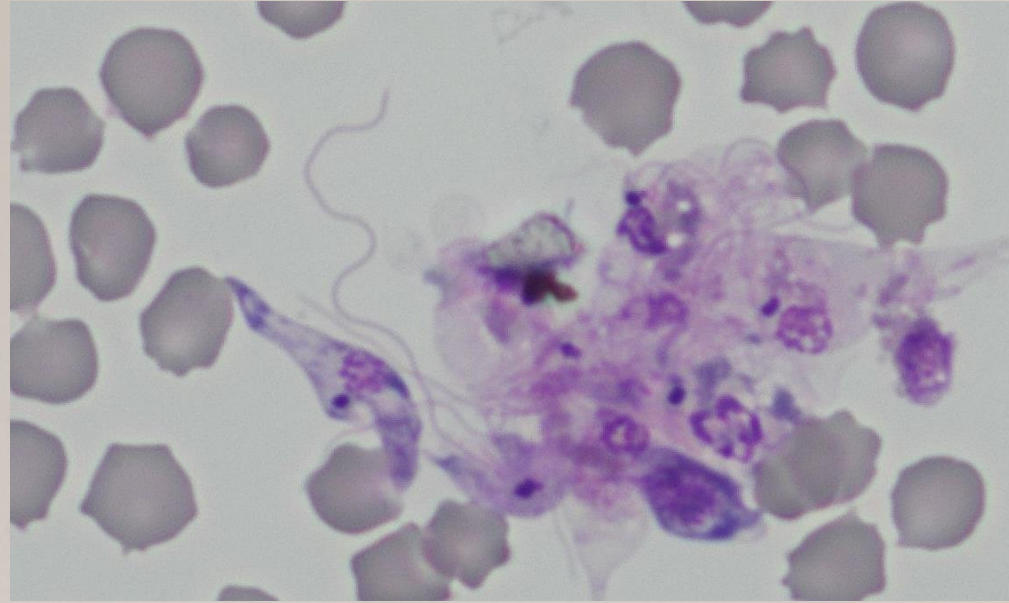
Feathered Edge

Body



WBCs Pushed to Edge

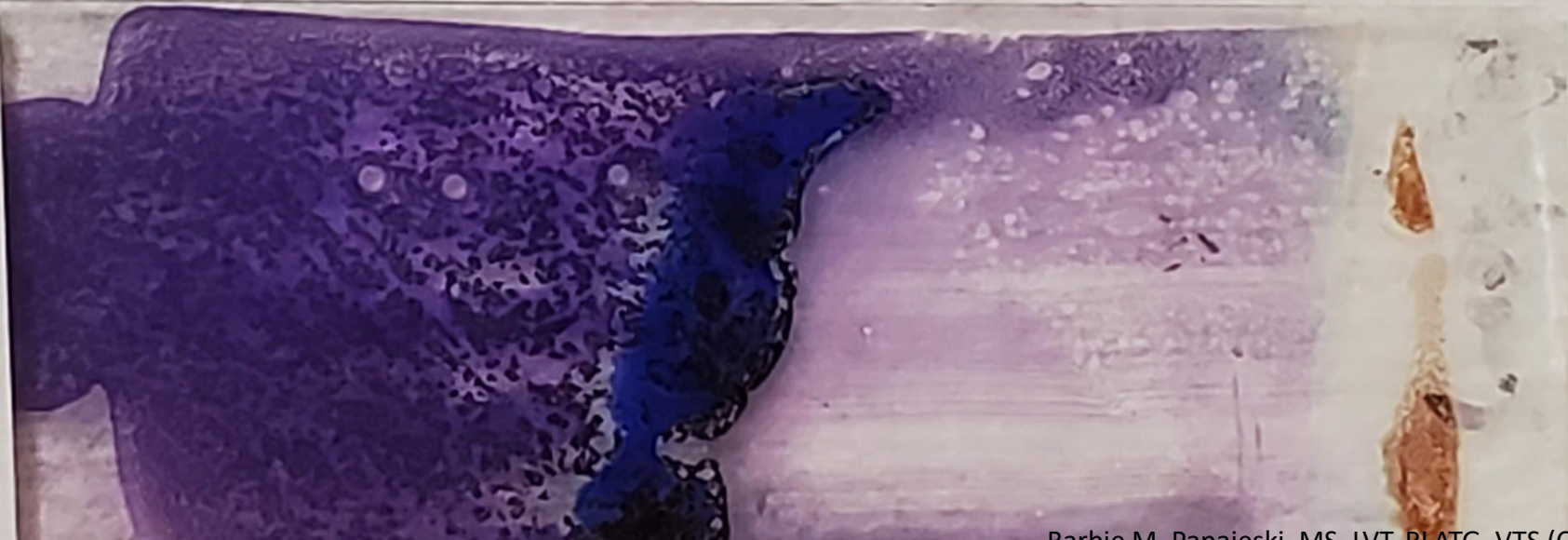
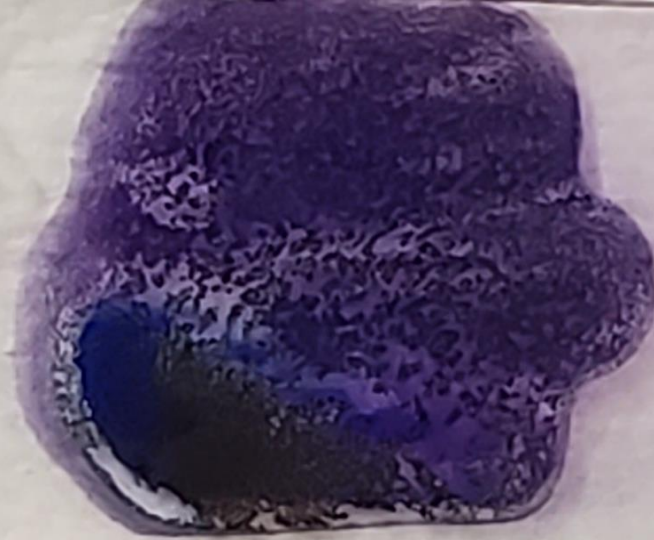
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Problem	Cause	Solution
Holes	Dirt, oil, fingerprints Aged sample Moisture Lipemia Clumped platelets	Use new, clean slides, wipe with clean microfiber cloth if needed Make smears ASAP after venipuncture Make sure slides are dry Fast animals Avoid traumatic venipuncture or processing delays
Streaks & gaps	Too much or uneven pressure Chips in spreader slide	Use light but even pressure on spreader slide Check slides for imperfections
Too long	Too much blood Slide moved forward too slowly Angle of spreader slide is too small	Use no more than a 2-3 mm drop Proceed forward with even speed Increase angle of spreader slide
Too short	Not enough blood Slide moved forward too fast Angle of spreader slide is too large	Use at least a 2 mm drop Proceed forward with even speed Decrease angle of spreader slide
Too thick	Too much blood Spreader slide not in contact with bottom slide throughout process	Use no more than a 2-3 mm drop Maintain contact of spreader slide with bottom slide throughout process

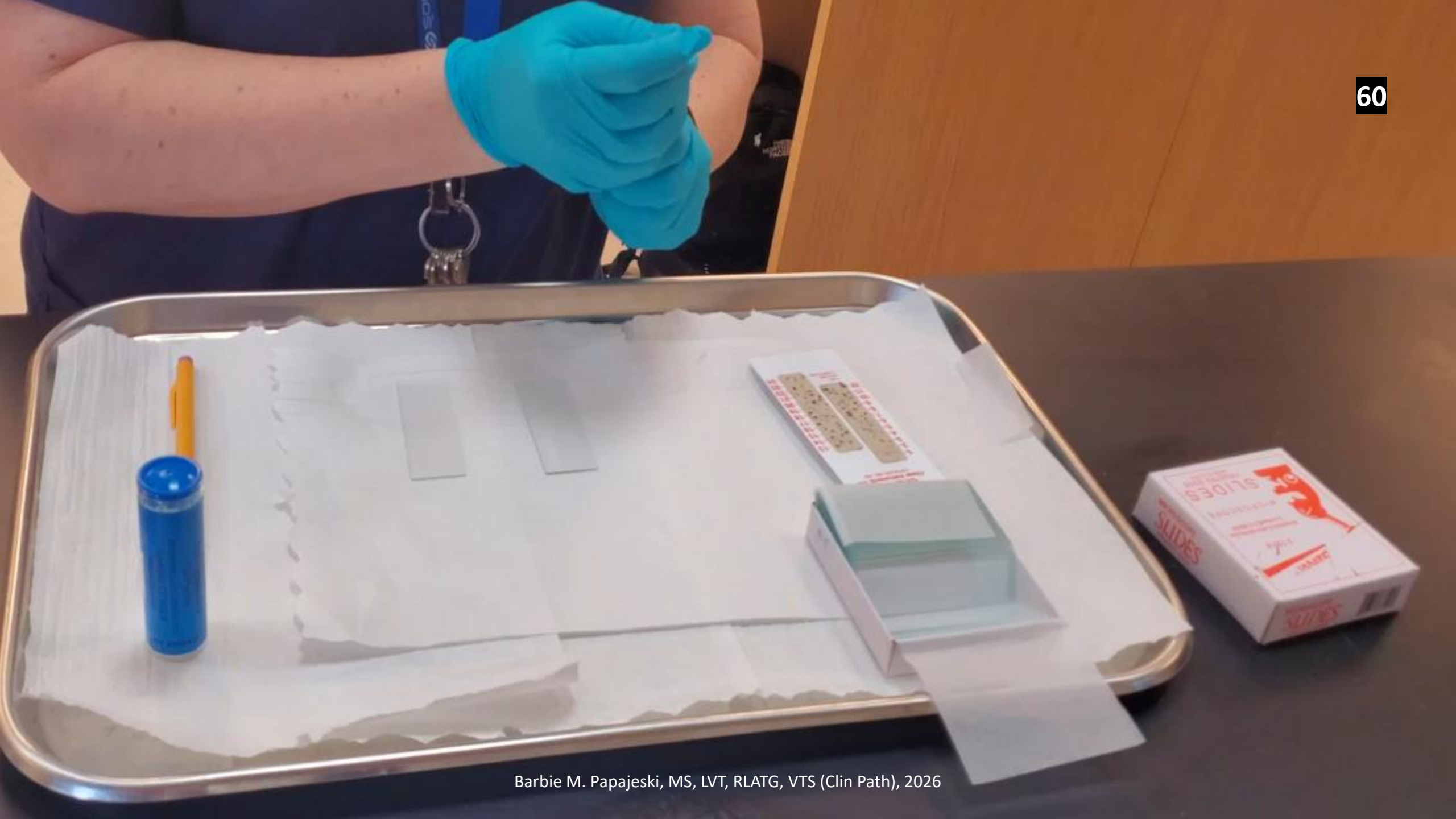
TOO THICK!

58



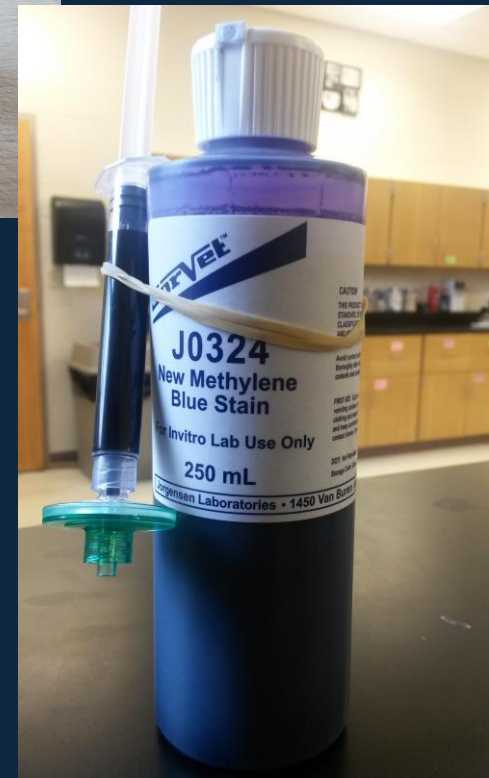
Microscopically

59



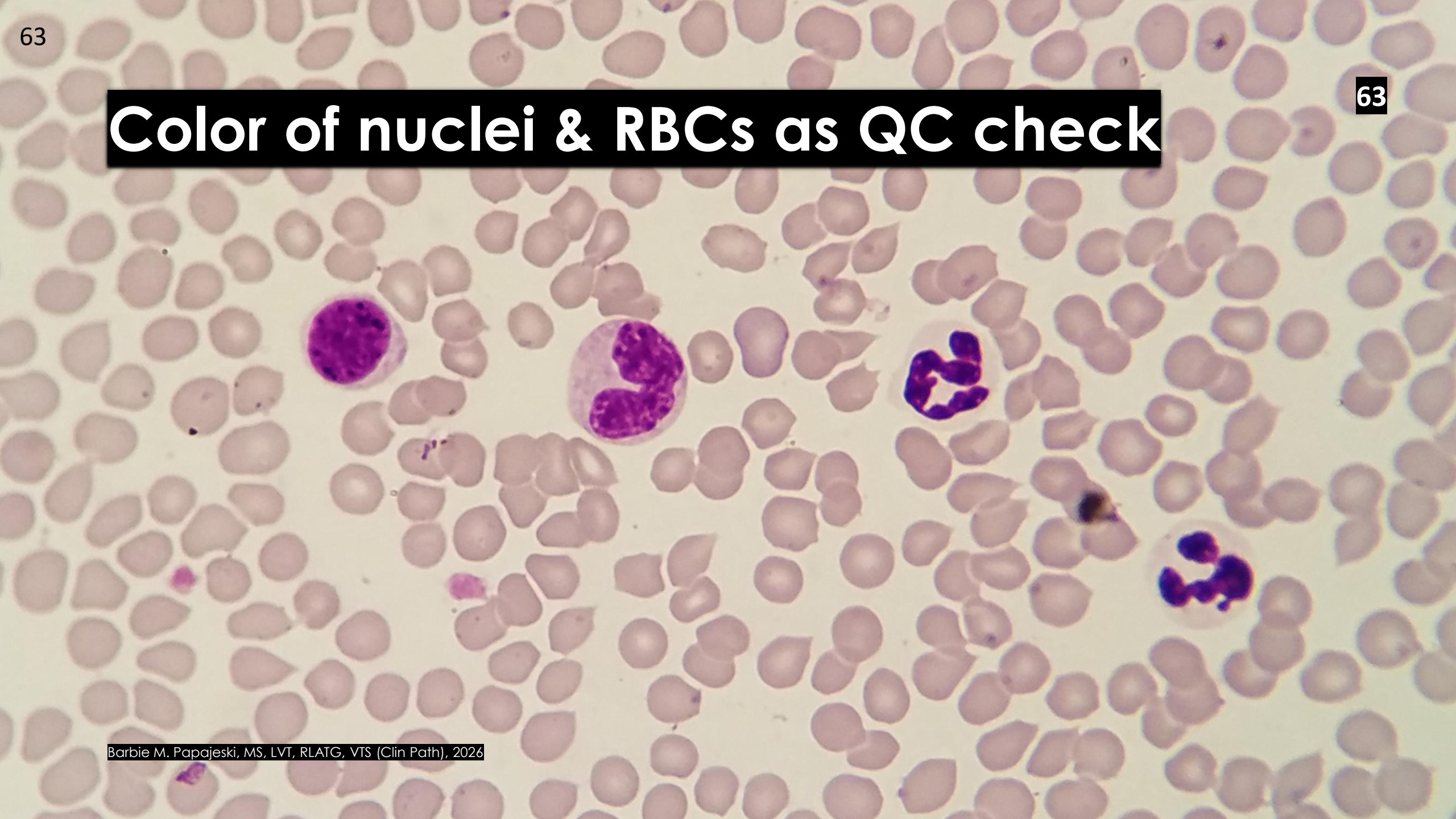
Stains

- Air dry
- Quick stains
 - Romanowski type
 - Wright-Giemsa
 - Wright
- New methylene blue
 - Temporary vital stain
- Follow instructions
- Change/filter regularly





Color of nuclei & RBCs as QC check



CHECK STAINS

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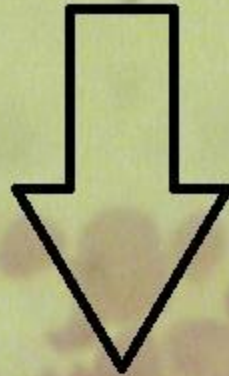
Examples of poor staining



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STAIN EXHAUSTION/FATIGUE

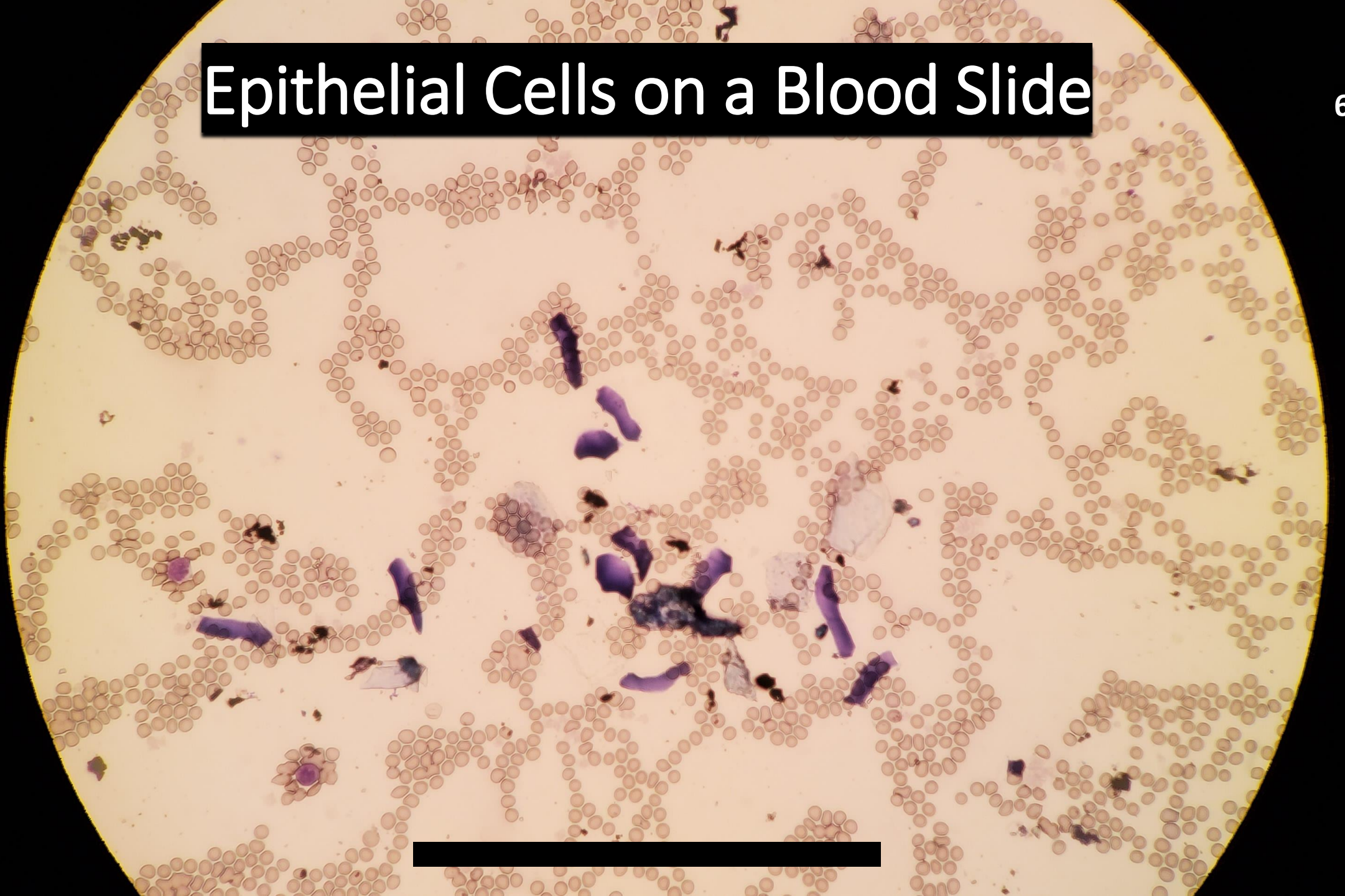


pH Variations on Slide



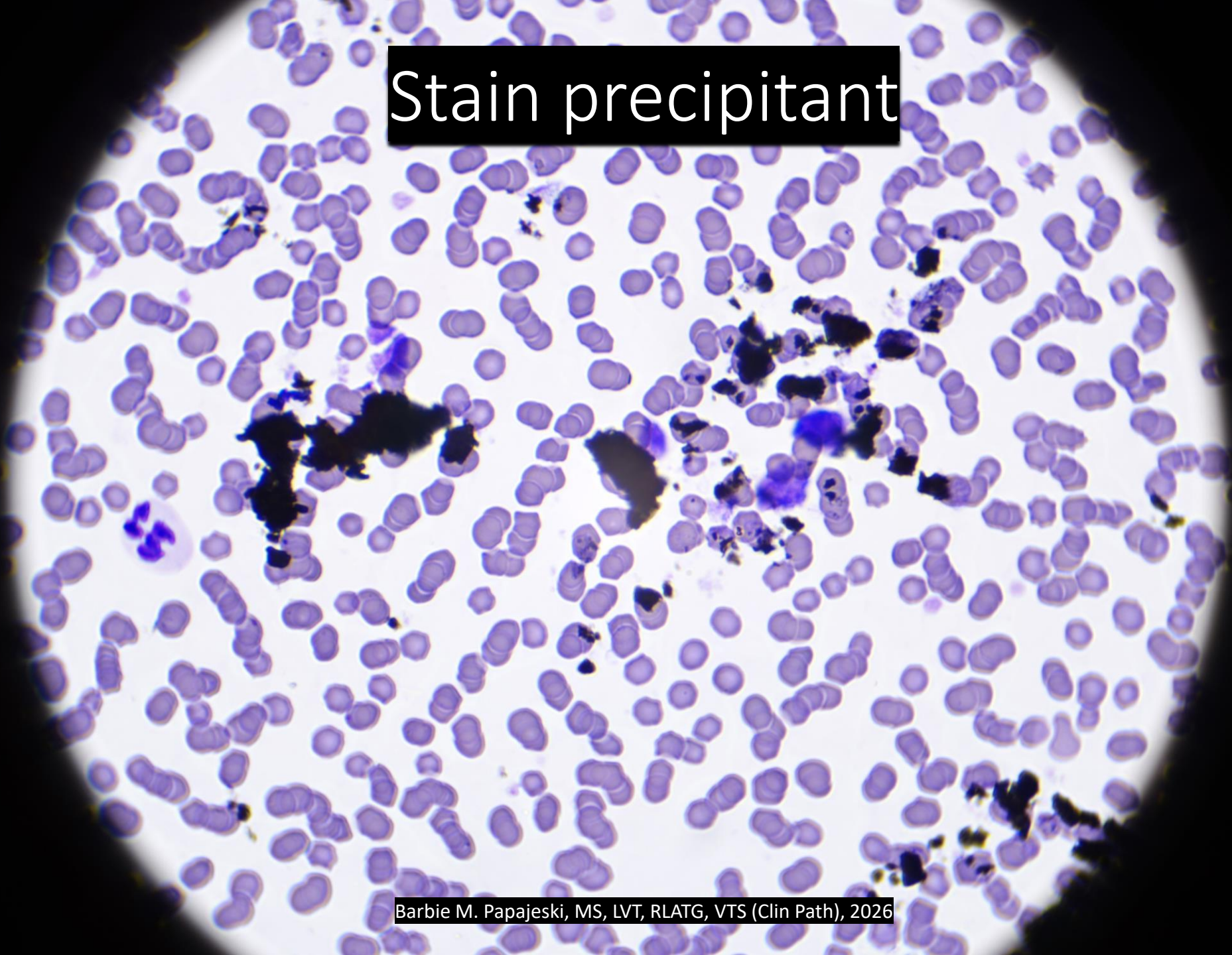
Epithelial Cells on a Blood Slide

68



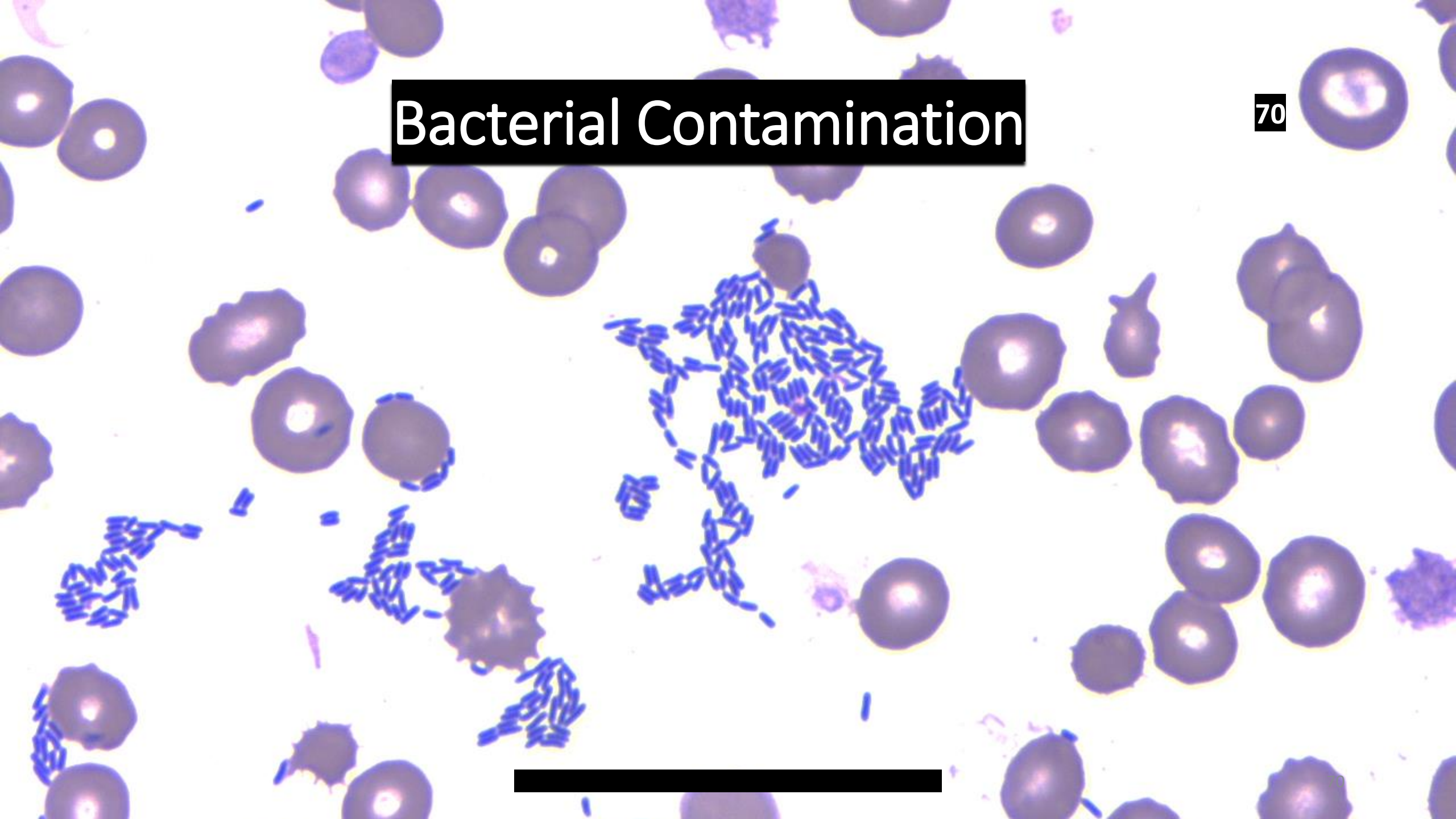
Stain precipitant

69



Bacterial Contamination

70

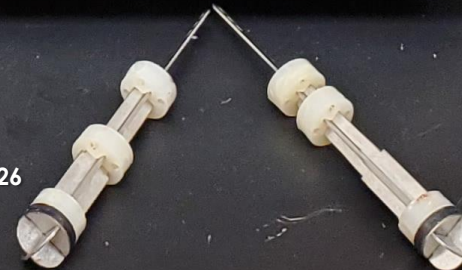


CENTRIFUGES

71



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SWING-ARM



FIXED ROTOR & SST GEL



FECAL FUGES

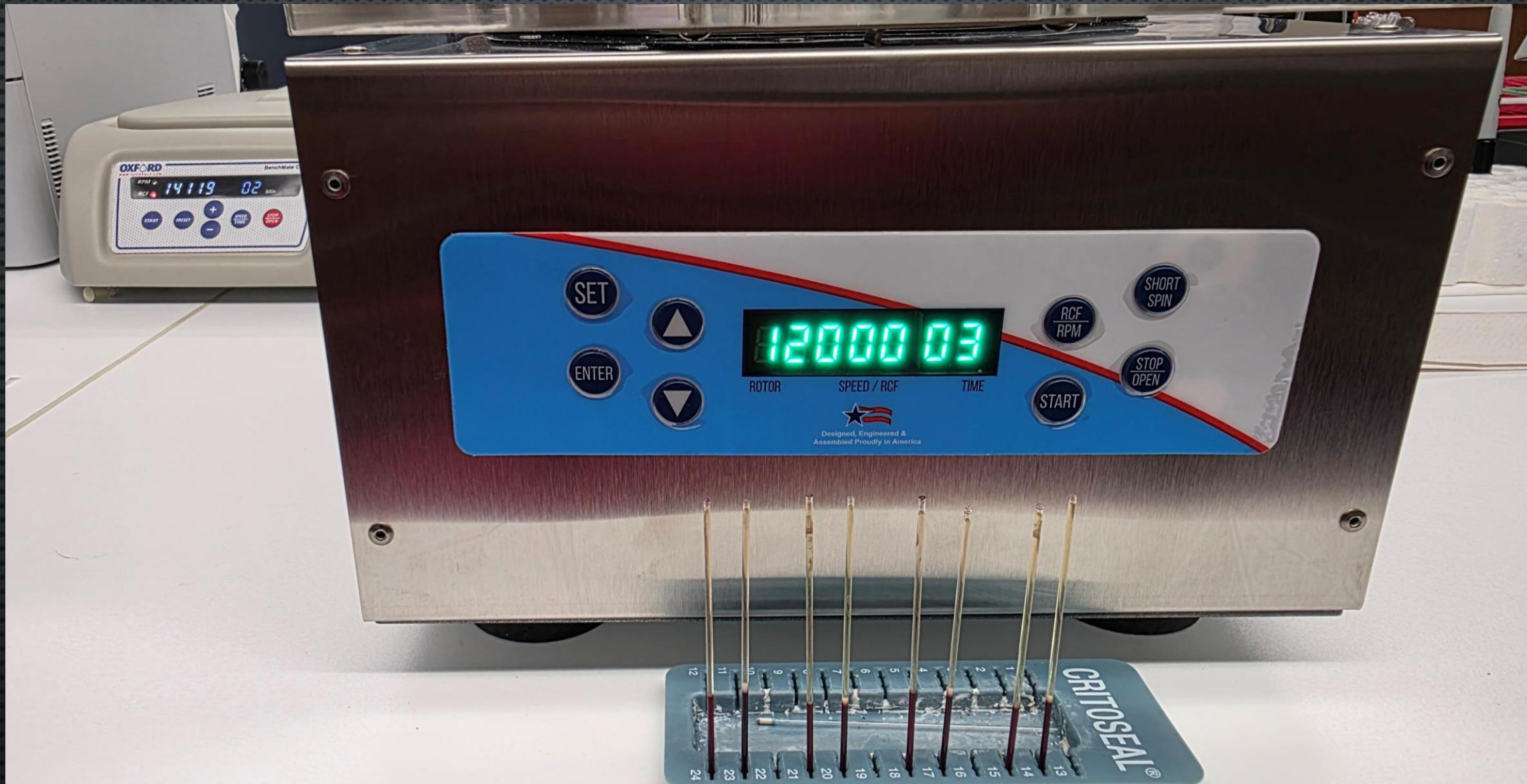
74

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MICROHEMATOCRIT





CRIT CARRIERS

77

C5

SPEED X 100

TIME (MINS)

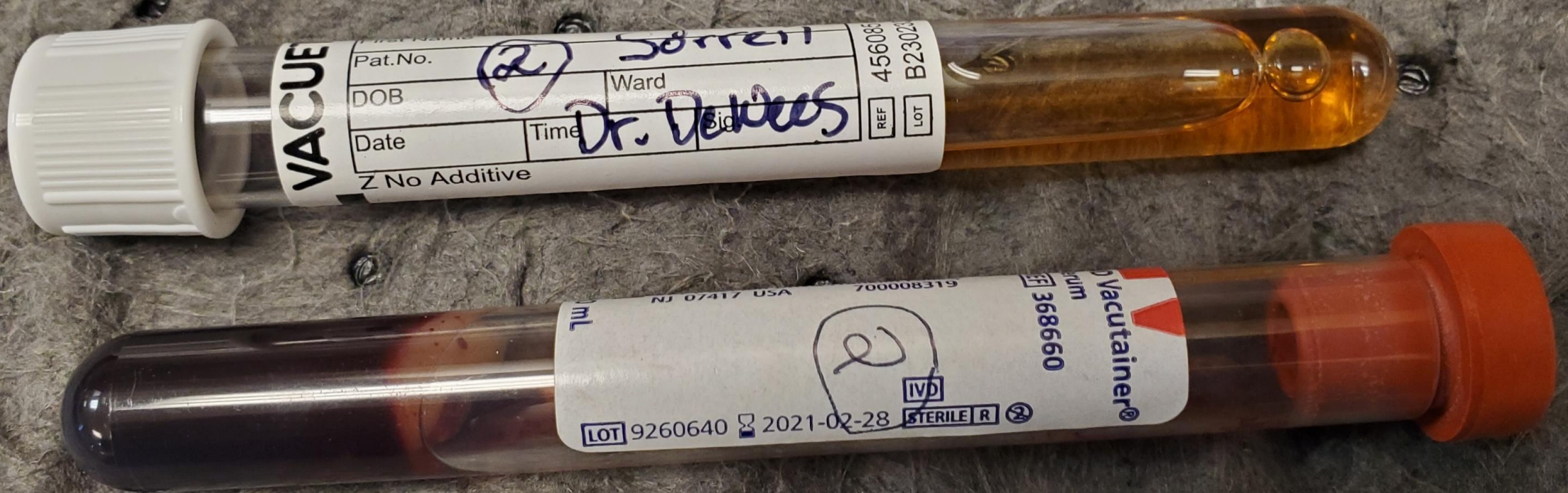
RUN

STOP/OPEN



SEPARATION INTO A PLASTIC TUBE SUITABLE FOR FREEZING IF DESIRED

78



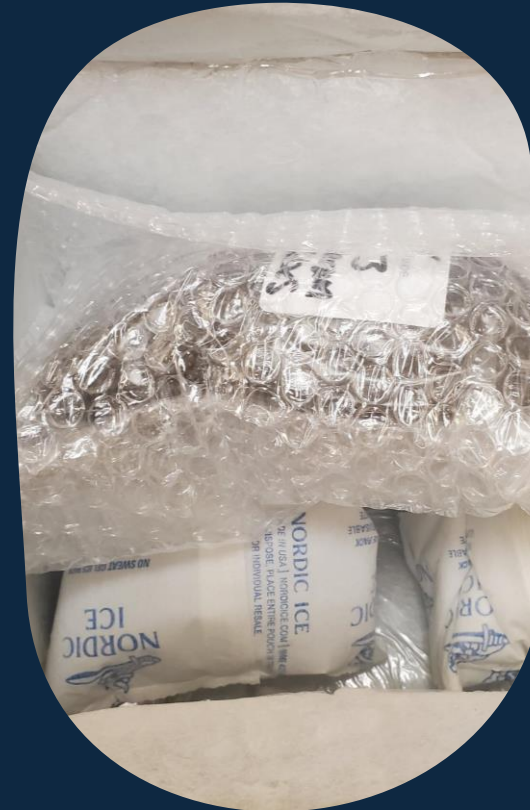
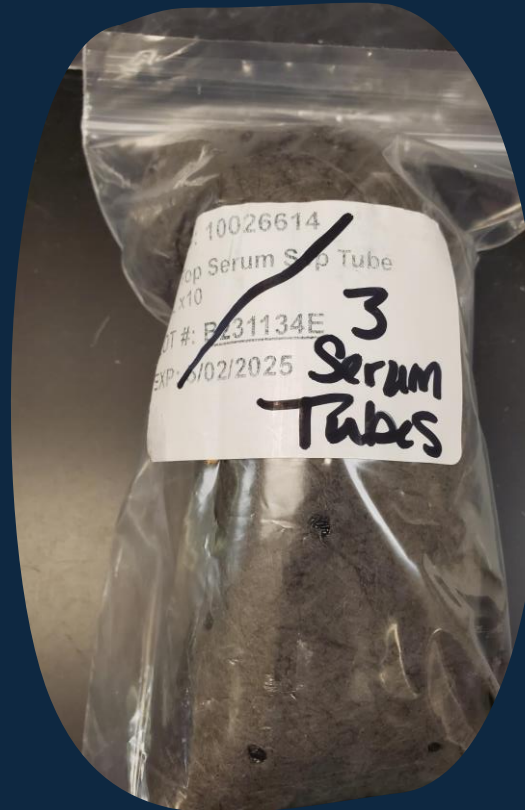
Packaging for Shipment

Primary in Absorbent Material

79

Cushioning Material on Ice

Documents placed in a separate sealed bag



Urine Sample collection

Cystocentesis*

80



Urine tubes for Bacterial Analysis



Catheterization

82



Natural Micturition AKA Free Catch, Voided

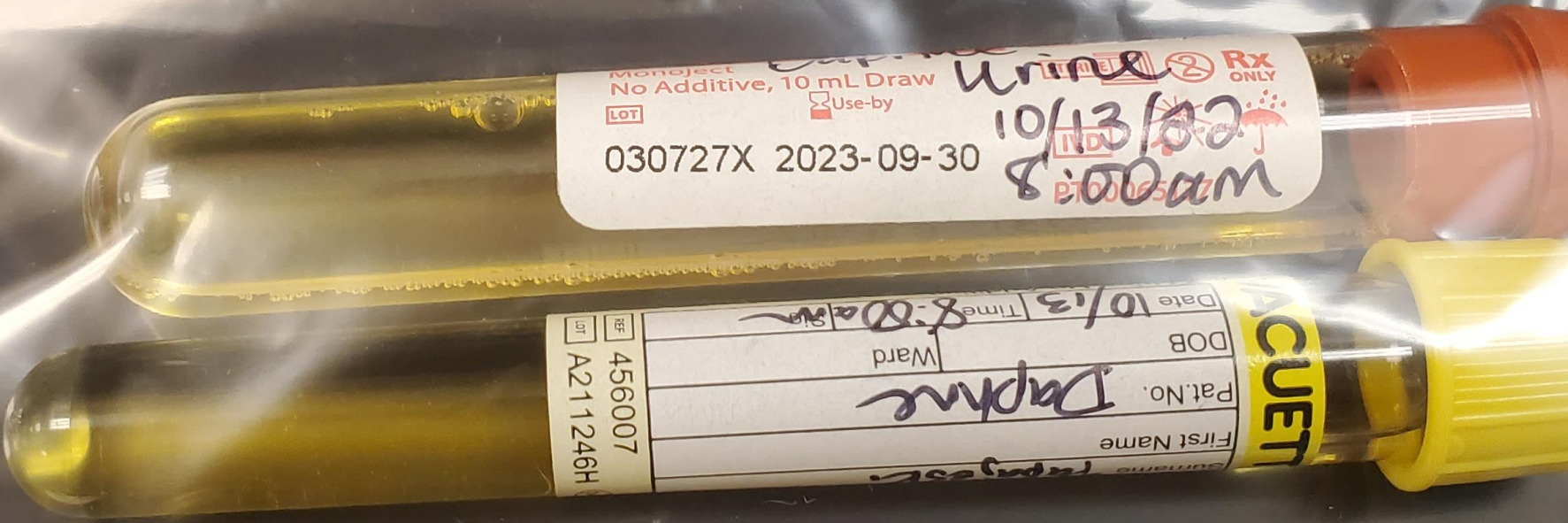
83



Floor sample microscopically

84

USE PLAIN STERILE TUBES OR URINE CULTURE TUBES

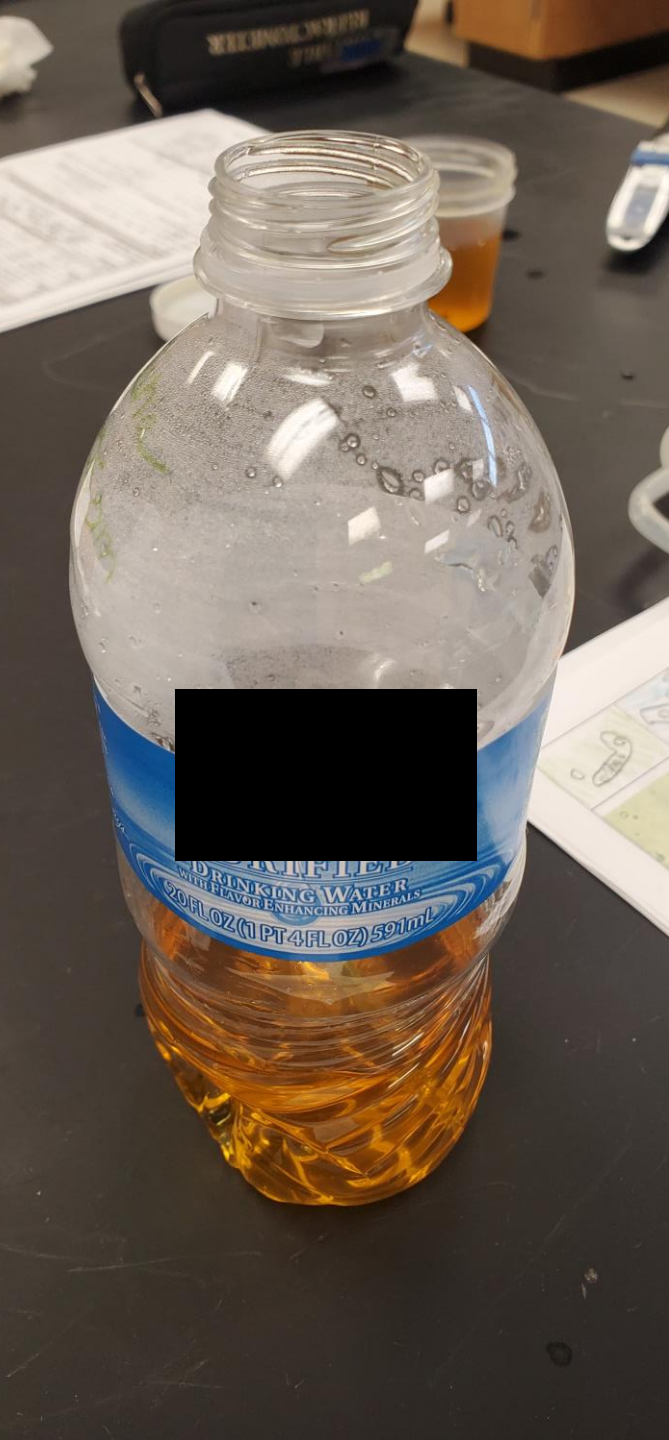


URINE CUPS ARE NOT LEAK-PROOF!
Protect samples from light

86

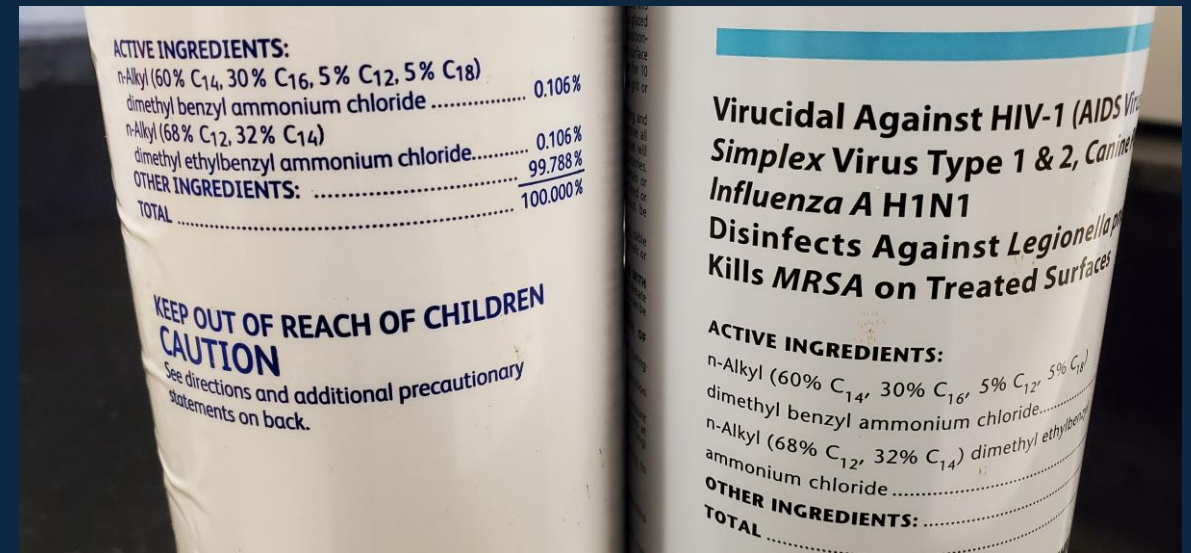
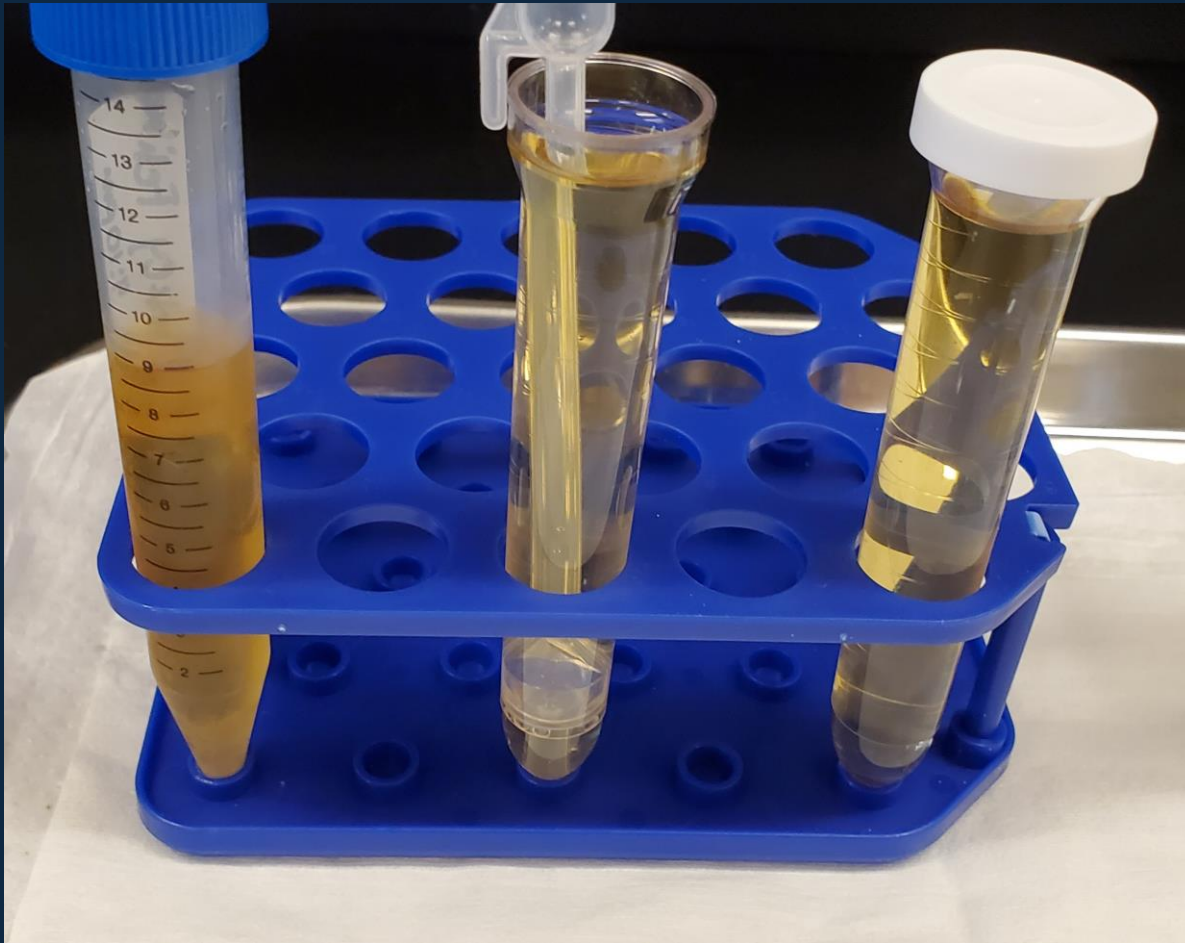
Specimen Containers

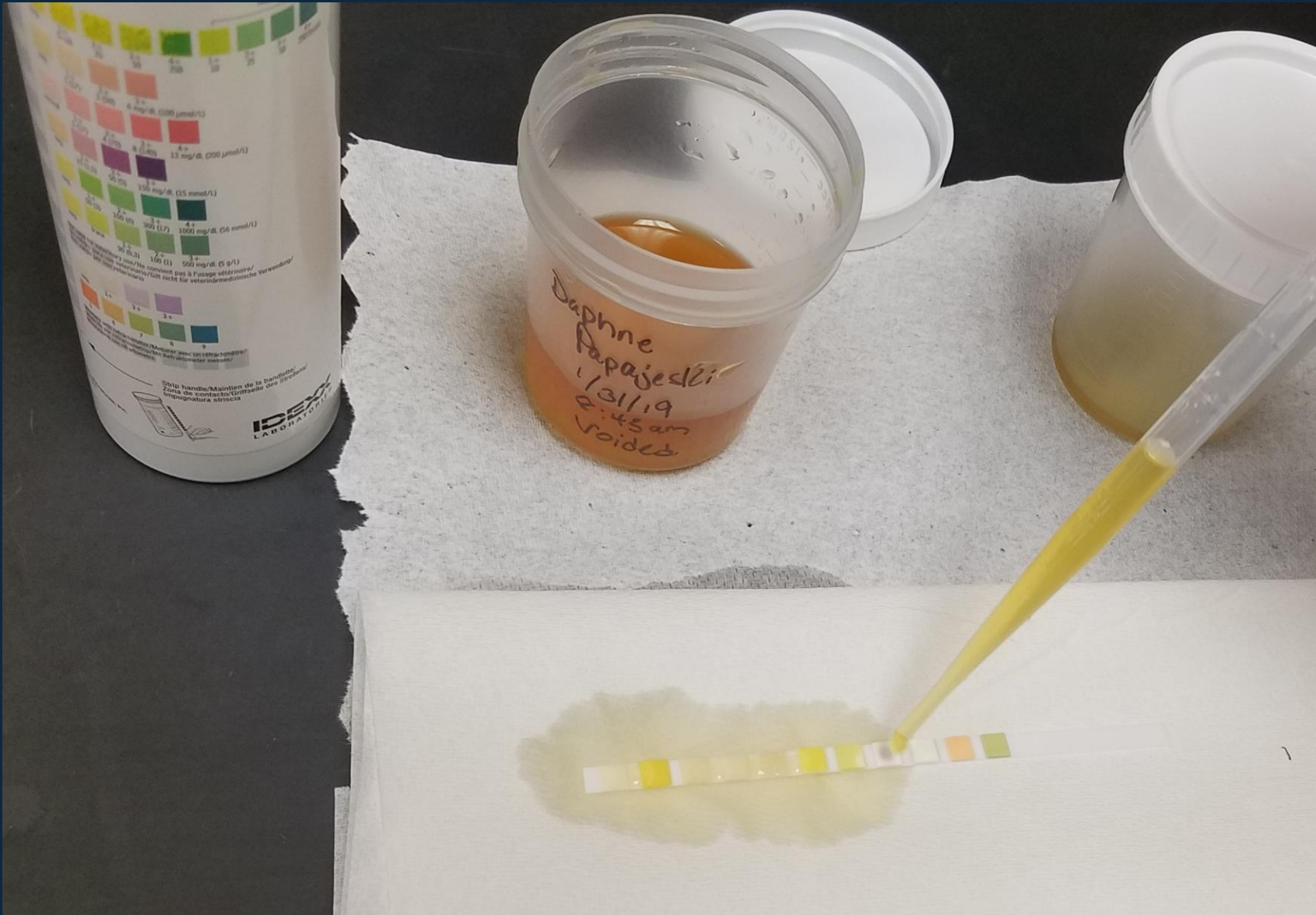


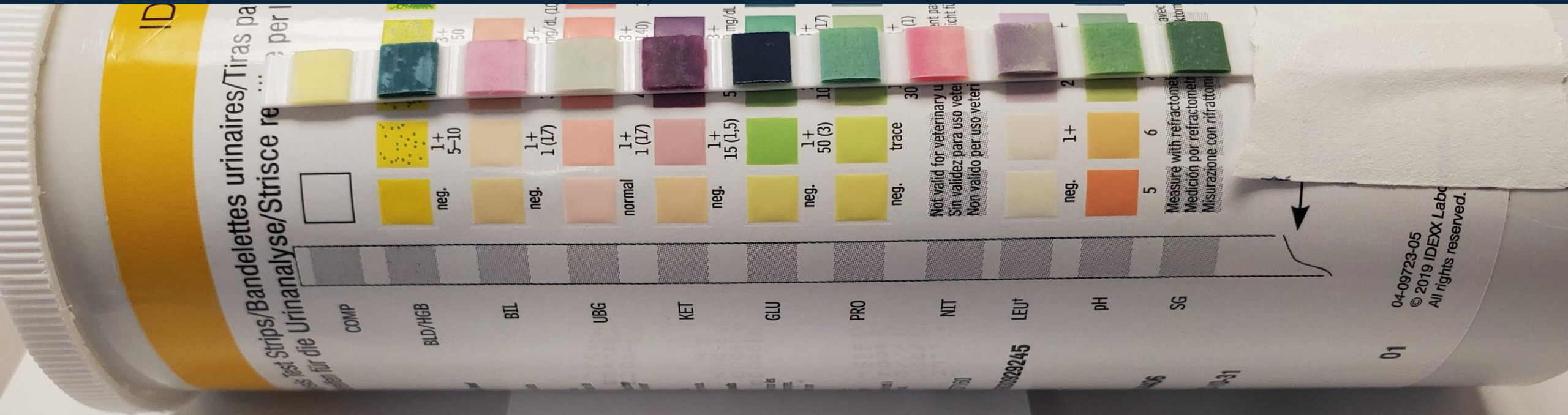


Containers

Correct Sample for the Test Type/Avoid Disinfectant Contamination





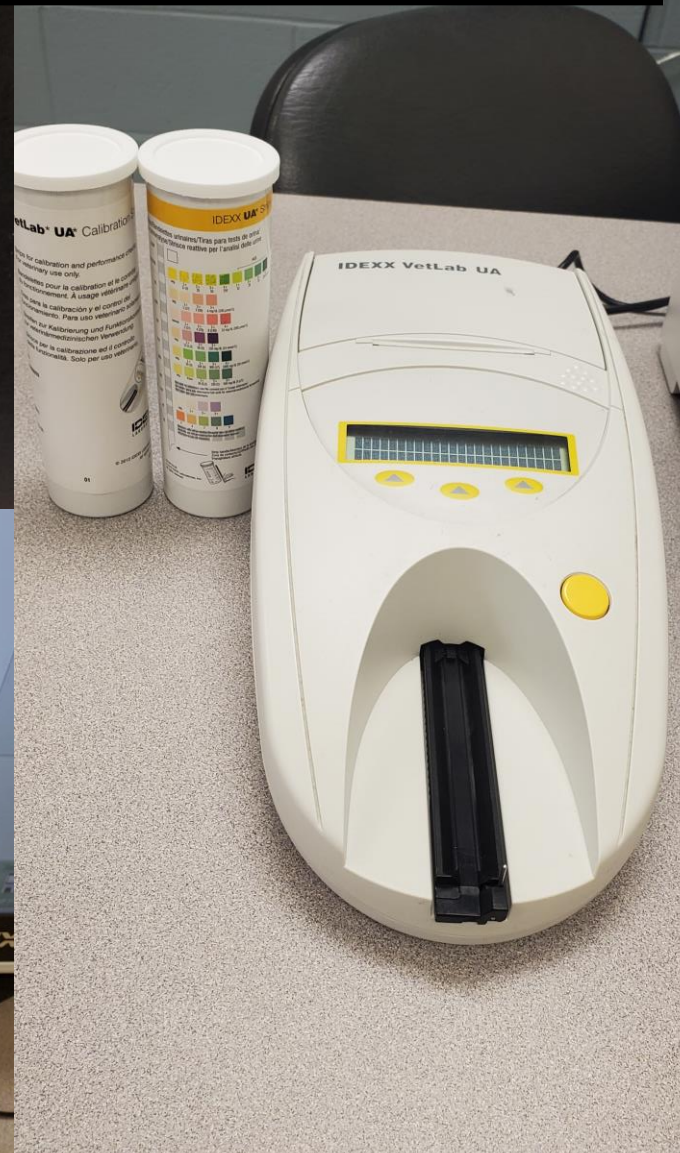
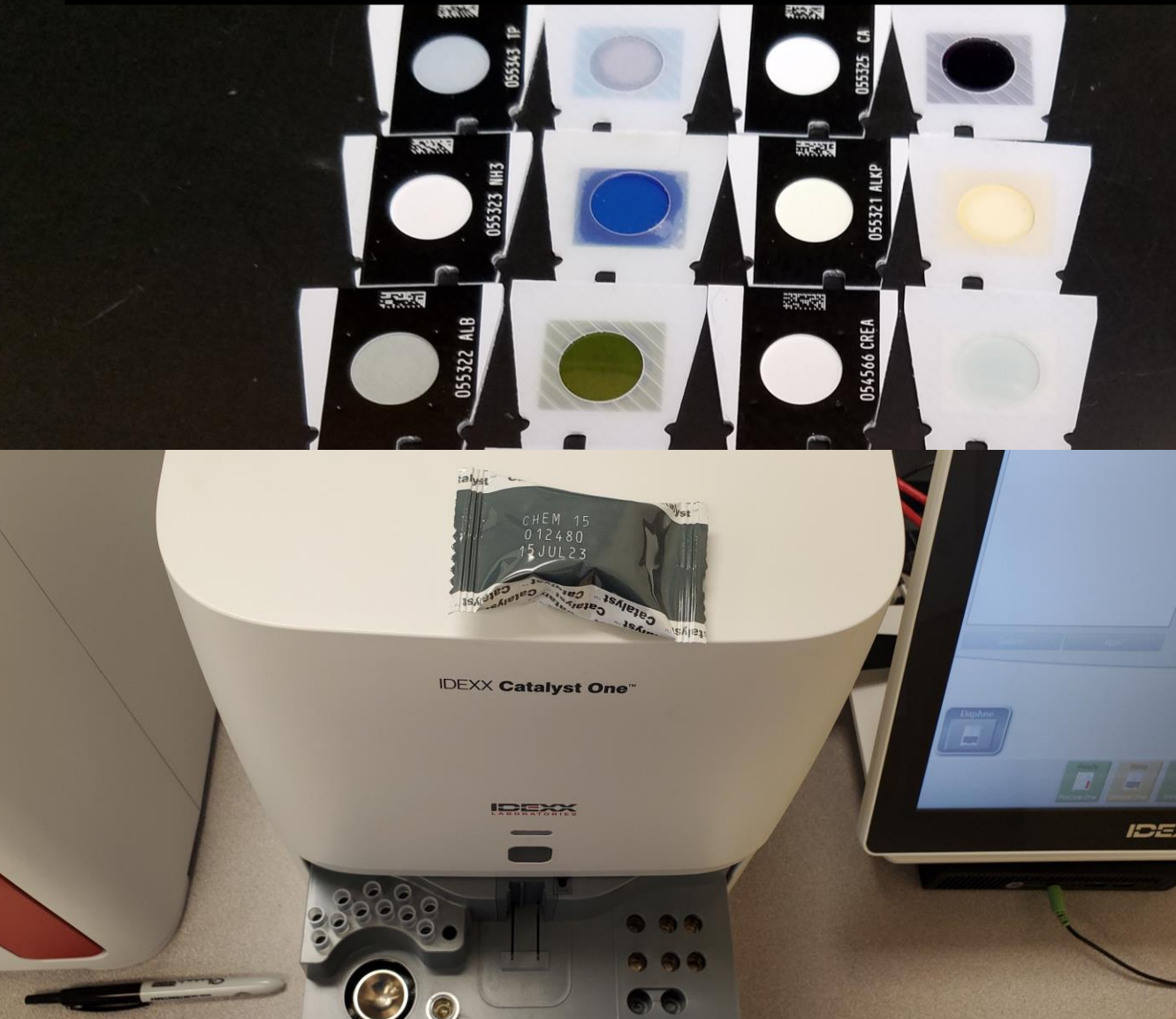


pH	8	
*LEU	500	Leu/uL
PRO	500	mg/dL
GLU	1000	mg/dL
KET	50	mg/dL
UBG	norm	
BIL	6	mg/dL
BLD	250	Ery/uL
*Confirm with Microscopy		

04-09723-05
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CHEMISTRY STRIPS & TESTS

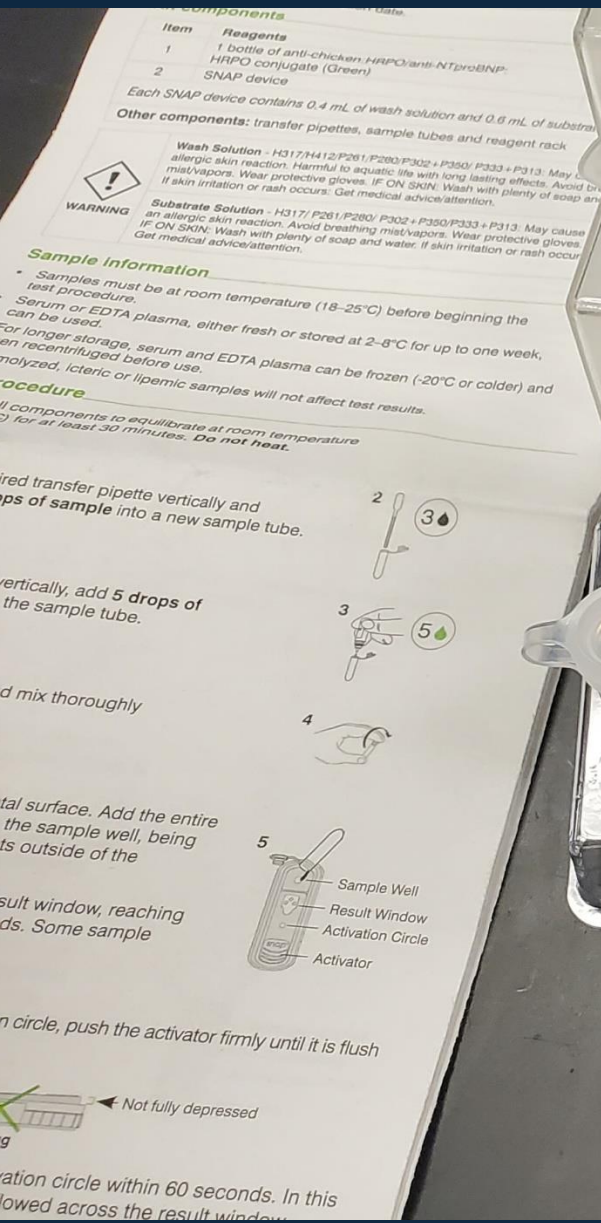
92



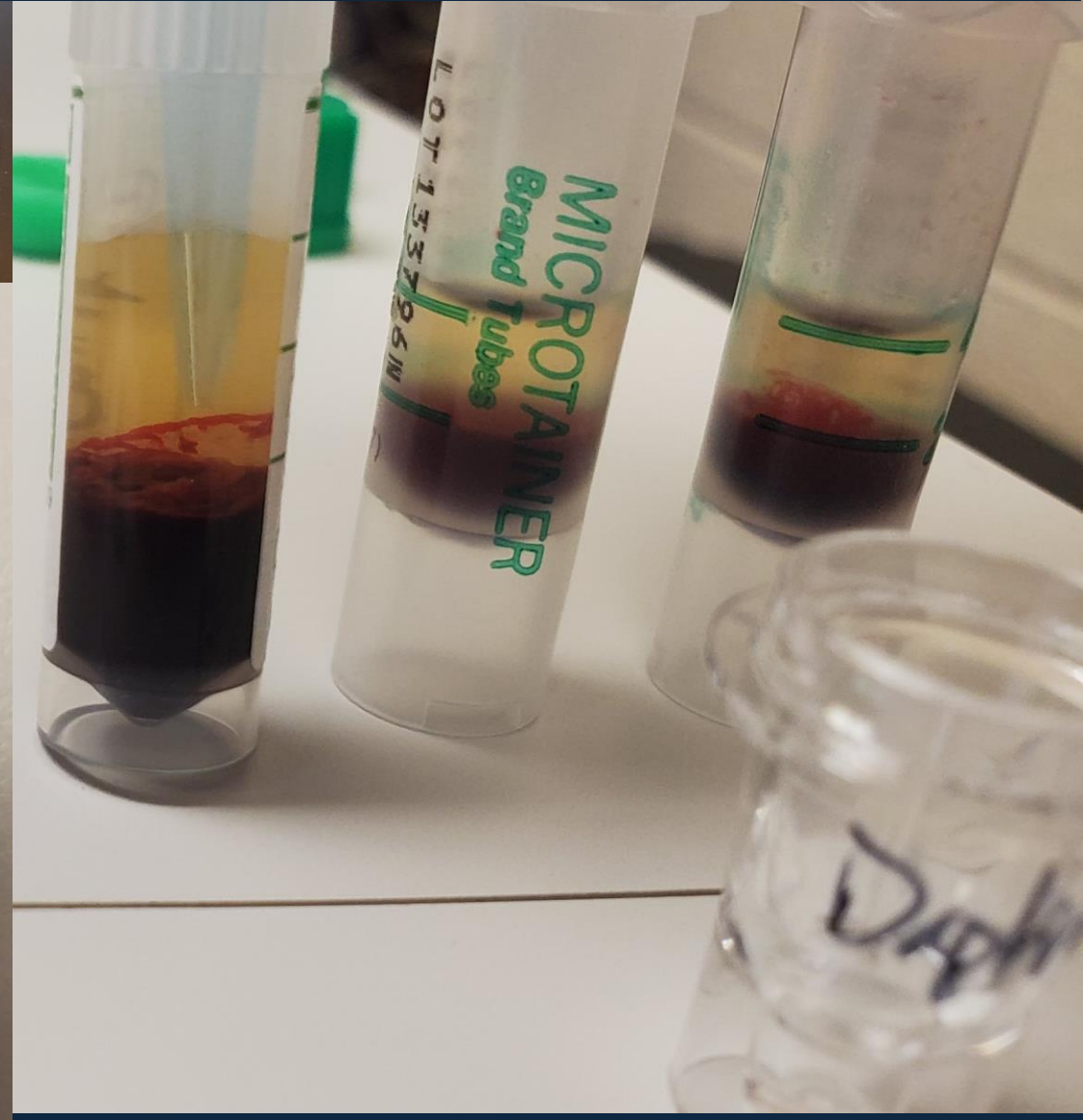
Avoid
handling
reagent pads
& slides on
reaction
surface

Protect from
humidity

Proper Pipet Technique



Avoid Overfilling & Air Bubbles

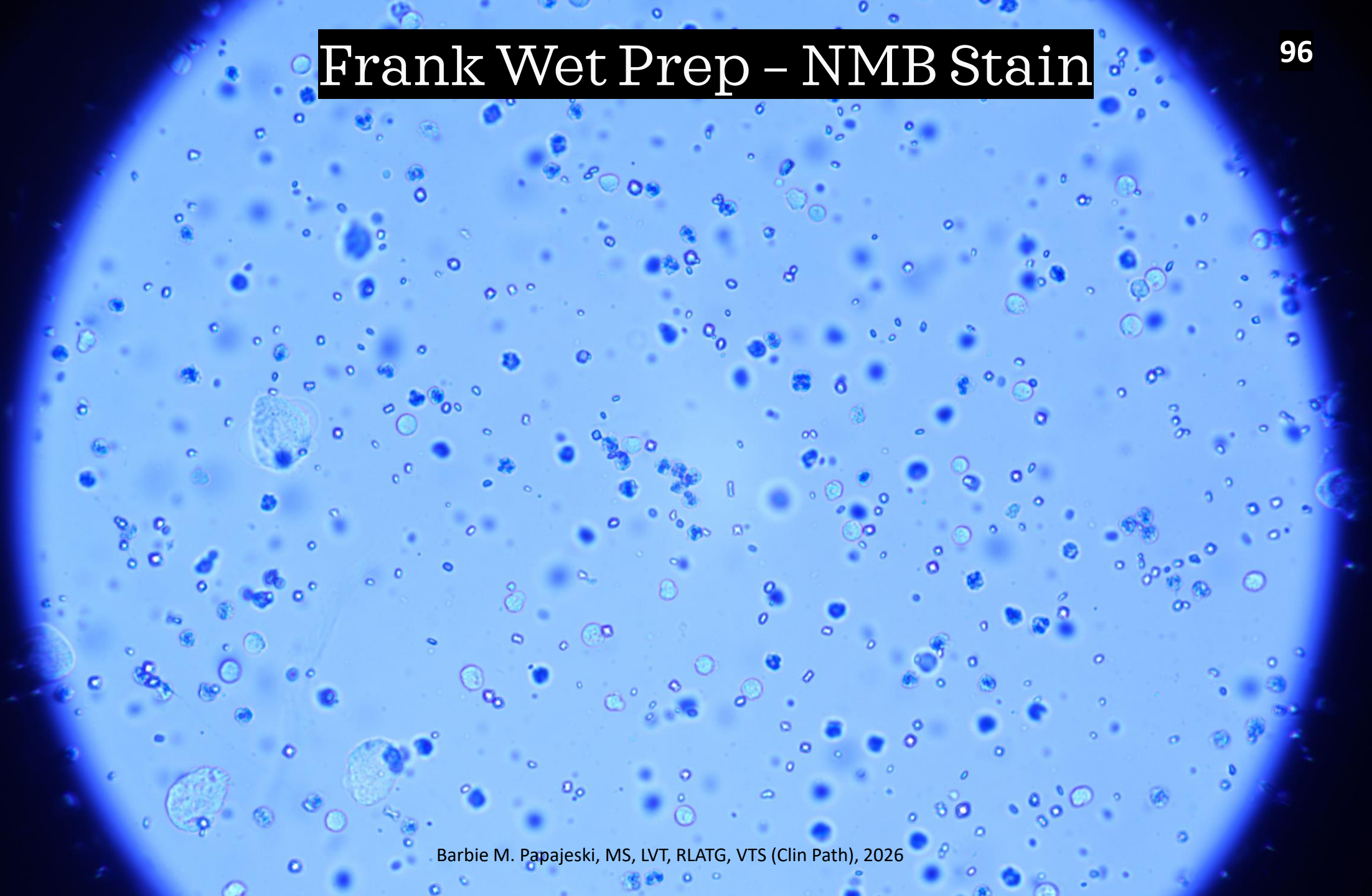


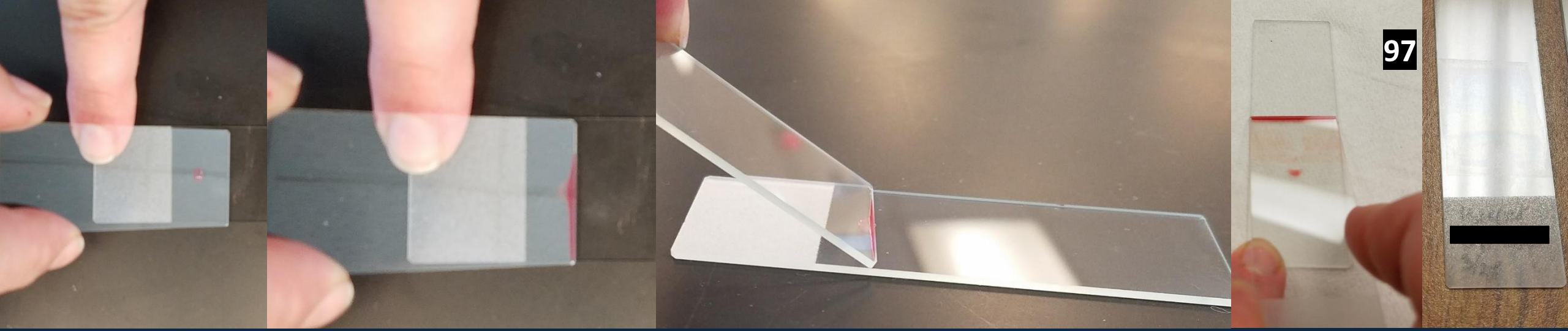
Frank Wet Prep

95

Frank Wet Prep – NMB Stain

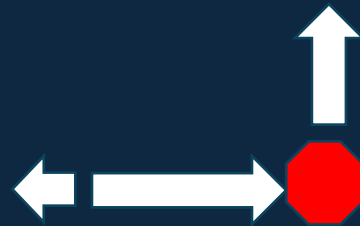
96





Line or Stop Slide Prep

- Step 1. Place a small drop of fluid near the frosted edge.
 - Step 2. Back into the drop with a top slide.
 - Step 3. Move forward about $\frac{1}{2}$ to $\frac{1}{4}$ of the edge and stop.
 - Step 4. Lift the top slide straight up.
- Cells will be concentrated in a line at the end.

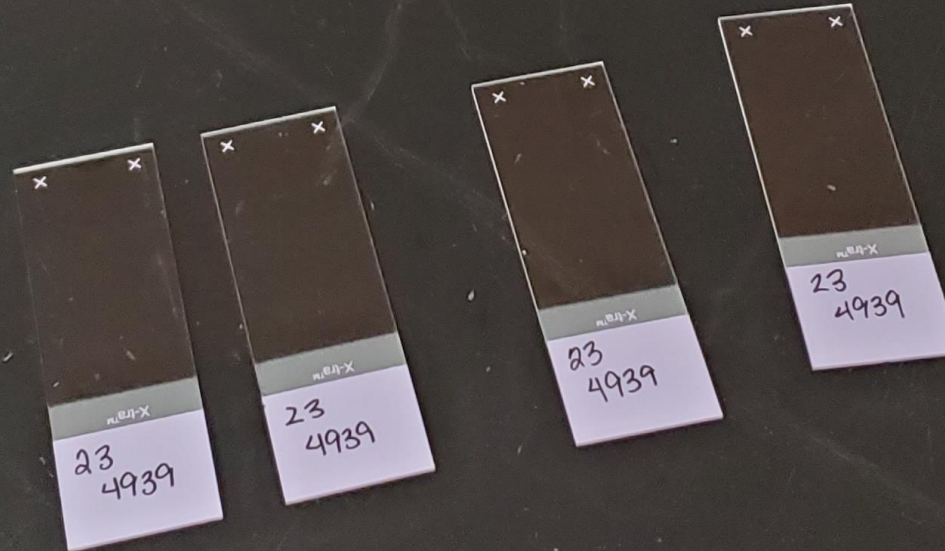


Motion of slide or tissue when preparing a line slide



Line of concentrated cellular material on a cytology slide.

AIR DRY SLIDES

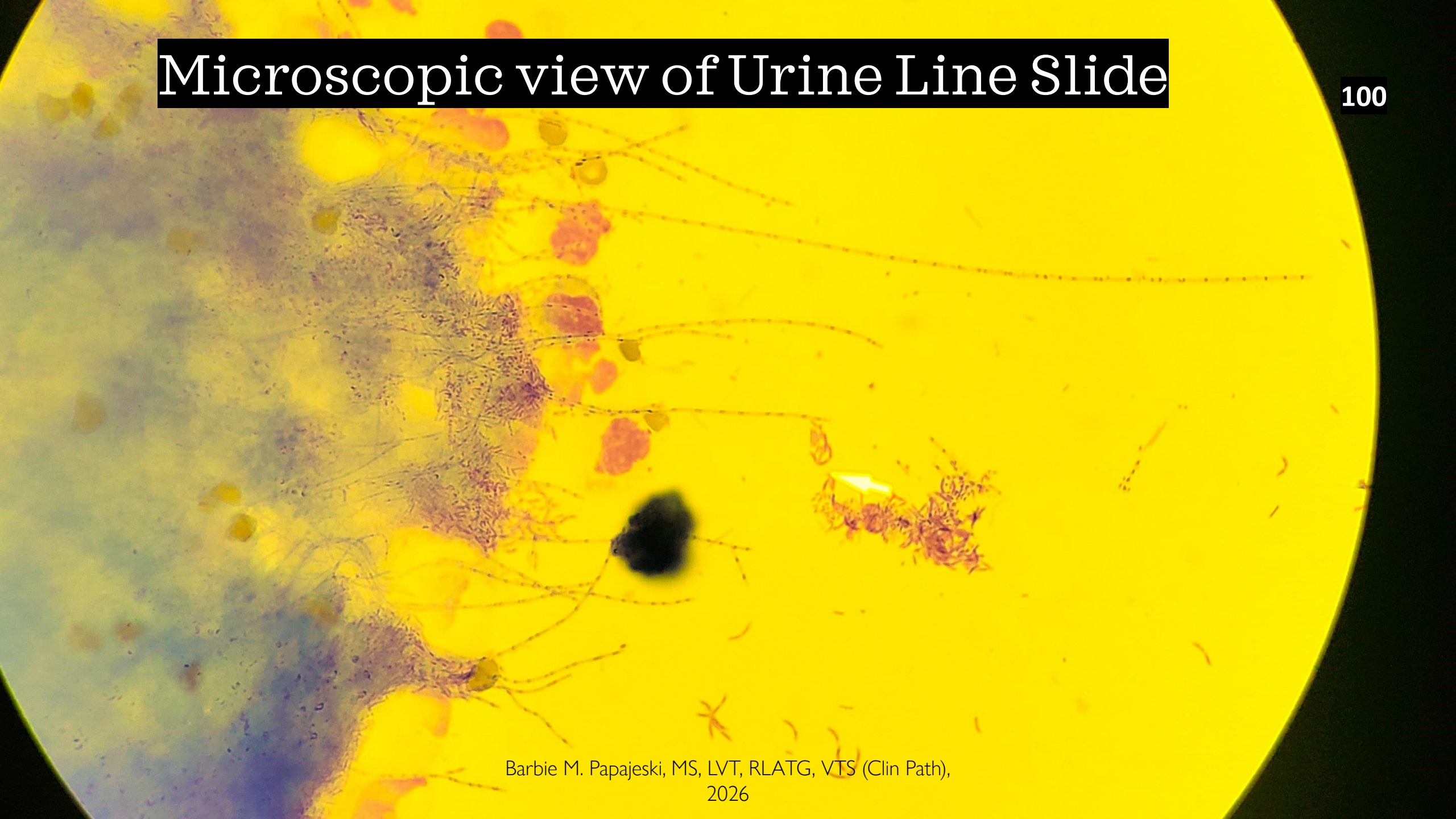


Frank Line Slide

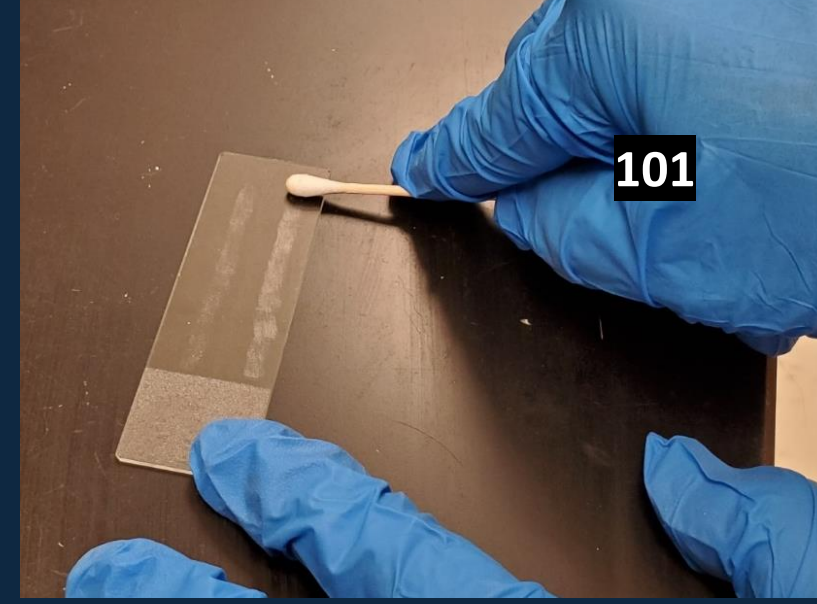
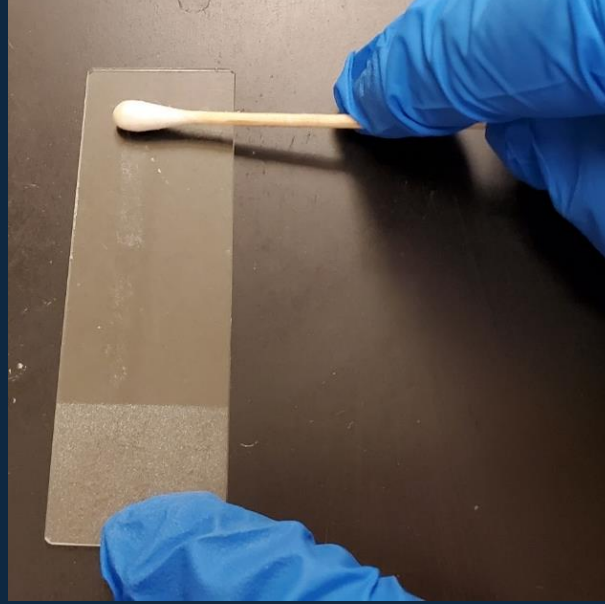
99

Microscopic view of Urine Line Slide

100



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2026



Swab Slide Prep

Step 1. Begin near the frosted edge.

Step 2. Twist (roll) the swab with complete revolutions down the slide.

Step 3. Roll second swab (ear swab) below the initial line

Keep the rolling action to a single line to avoid damaging cells.



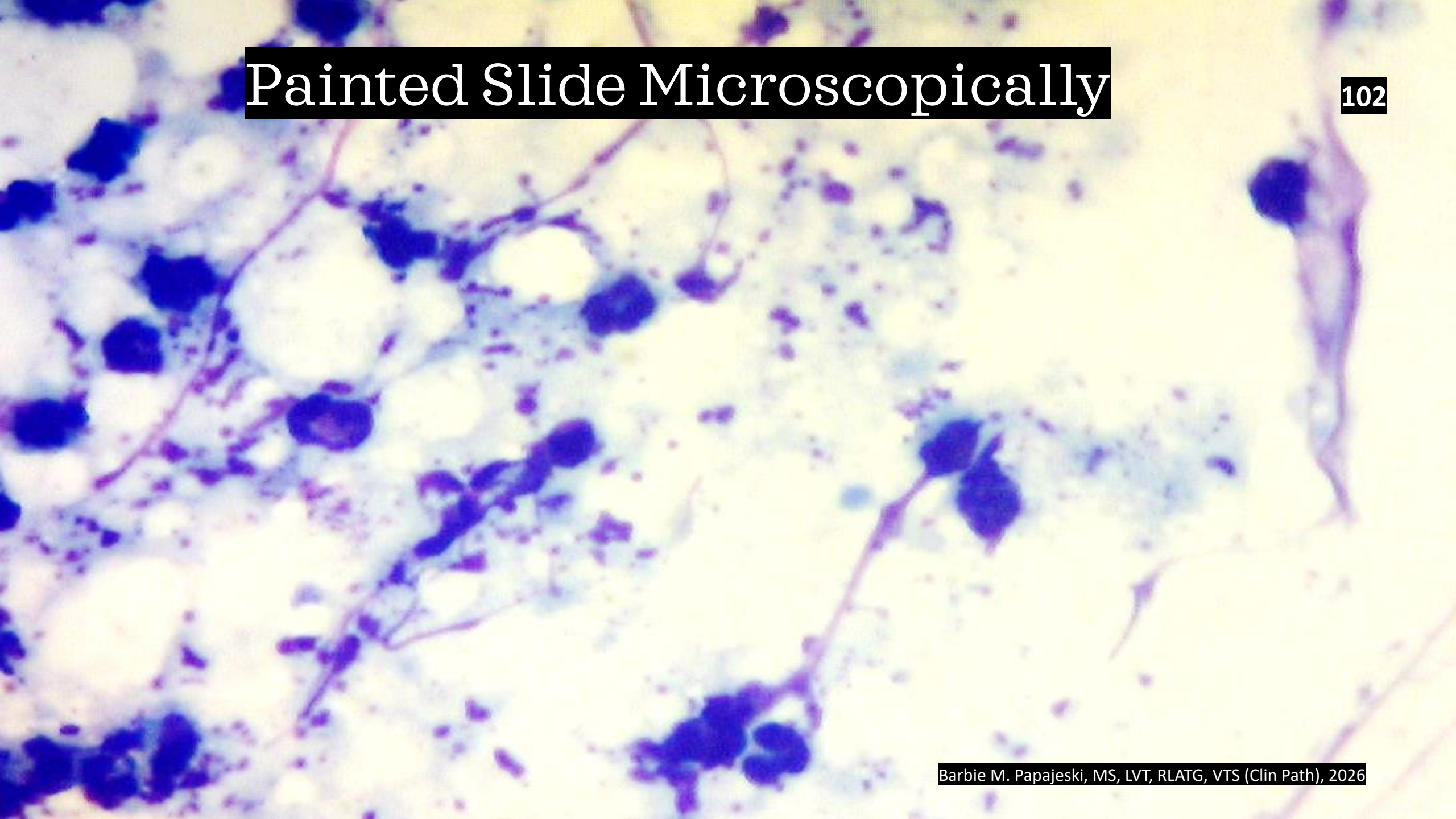
Motion of swab rolling along slide.



Stained Ear Cytology Slide – Left ear is at top and Right ear is at bottom

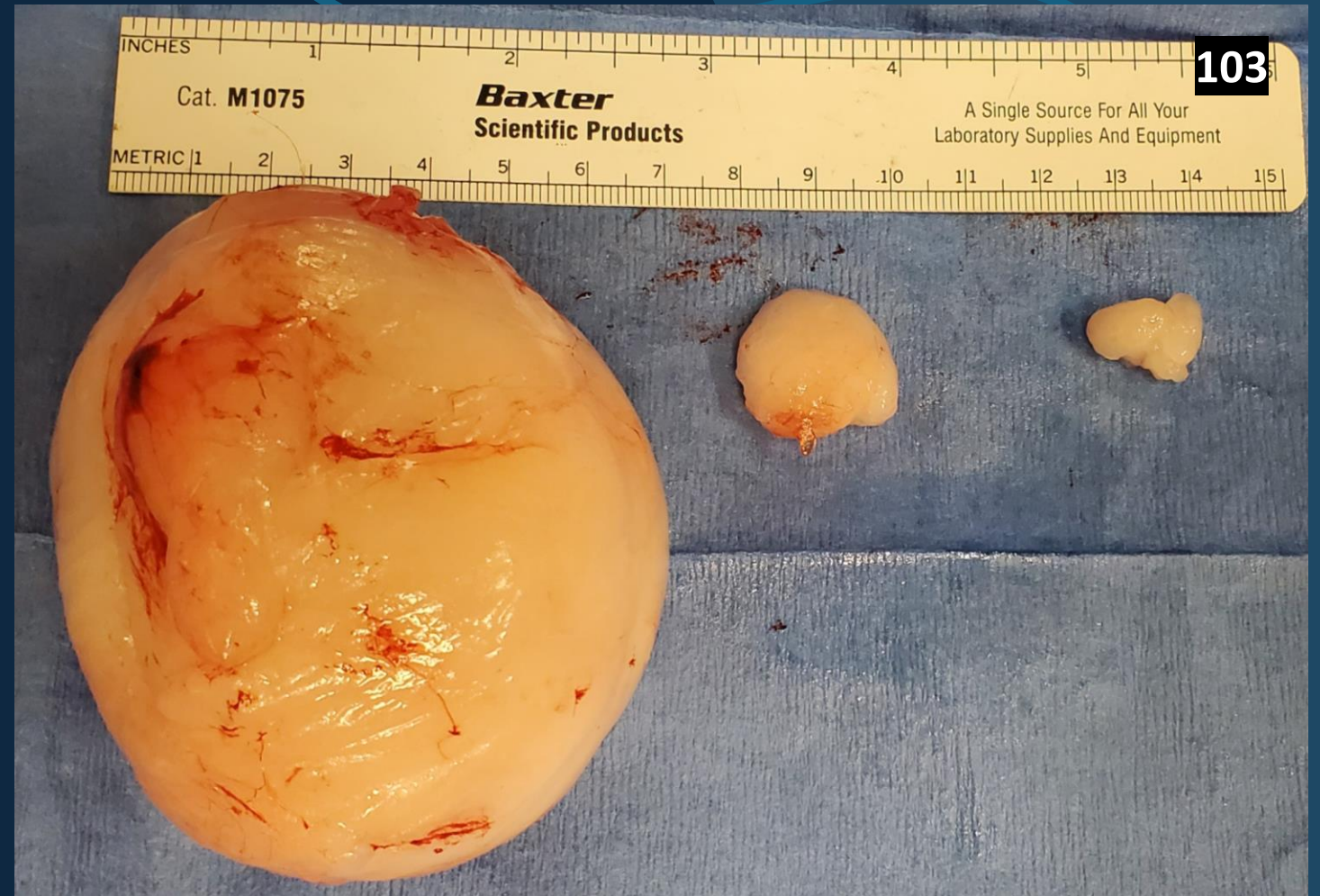
Painted Slide Microscopically

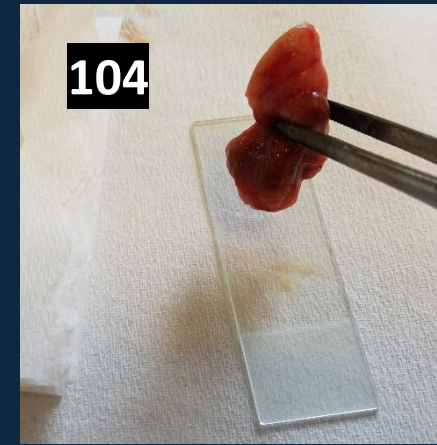
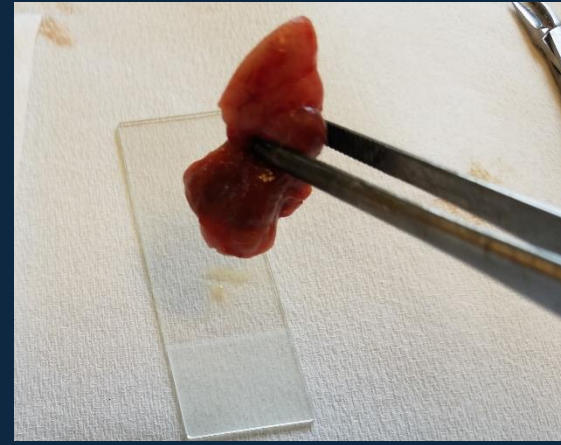
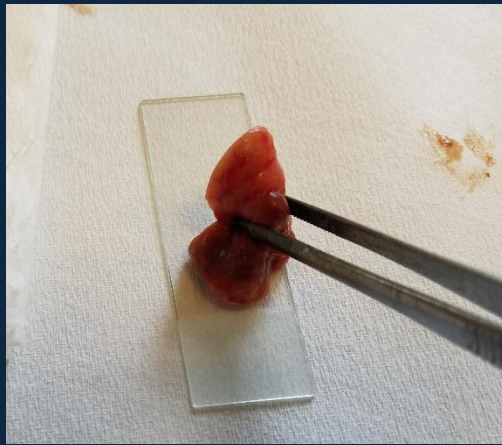
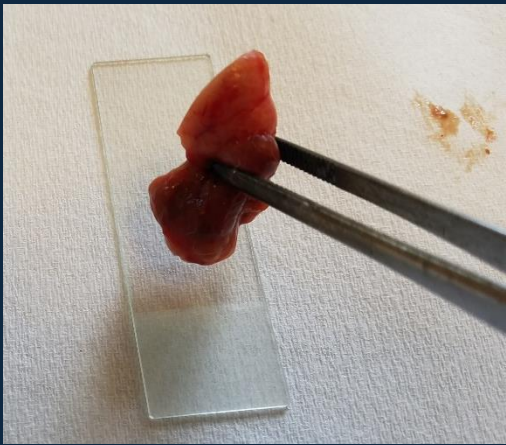
102



Masses

- Detailed description
- Anatomical location
- Separate data for multiple masses
 - Fresh needle/syringe each
- Firmness
- Size





Imprint/Impression/Touch Slide Prep

Step 1. Blot tissue on paper towel until it sticks.

Step 2. Touch tissue to slide and lift straight up or touch slide to ulcerated lesion.

Step 3. Move down the slide and repeatedly touch using the straight up and down motion.

Depending on size of mass/tissue, there may be 2-4 imprints per slide.



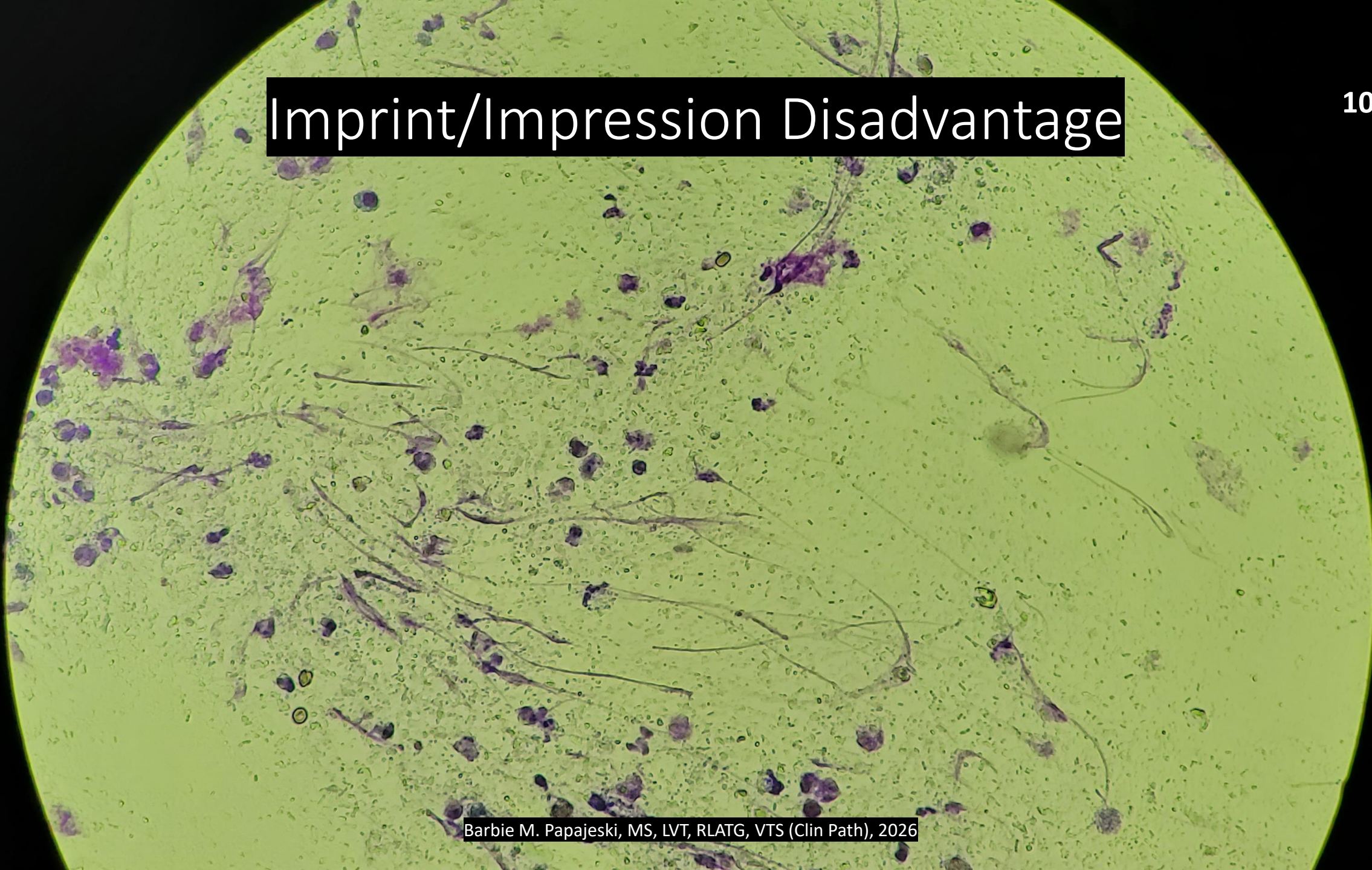
Motion of slide or tissue when preparing imprint slide



Stained Mass, Lymph Node, Spleen, and Lung Imprint Slides

Imprint/Impression Disadvantage

105



Fluids For Cytology

- Total amount collected
- Color (be descriptive)
- Transparency
- Clarity before and after centrifugation



Fluid Sample Prep

107

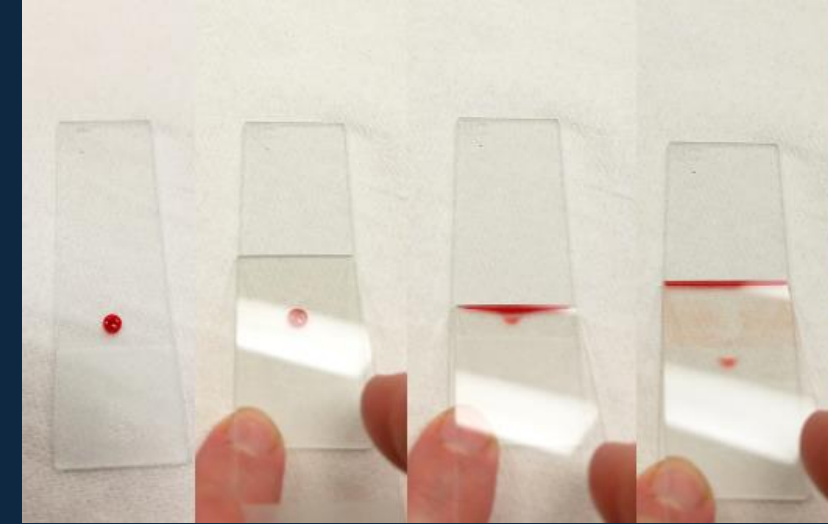
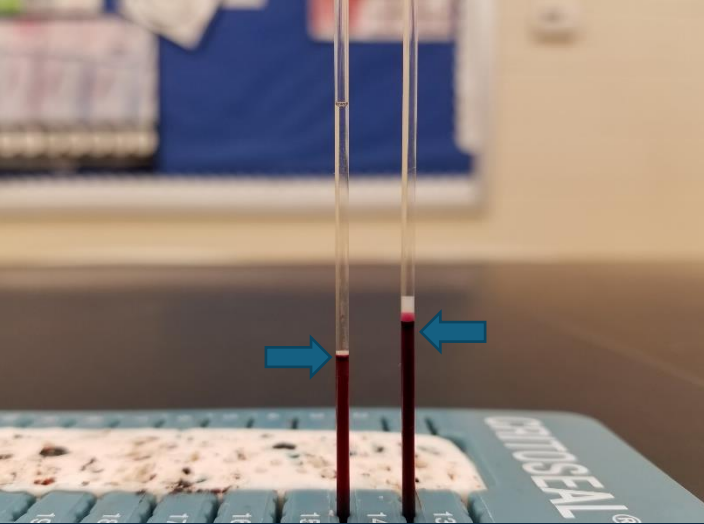
Suspension
of cells +
fluid



Supernatant fluid to
use for biochemical
analysis

Sediment comprised
of cells for cytological
analysis





108

Buffy Coat Slide Prep

PCV Tubes

- Step 1. Centrifuge PCV tubes.
- Step 2. Break PCV tube below the buffy coat.
- Step 3. Place sample onto a slide using the cut end closer to the plasma

Microsediment Tubes

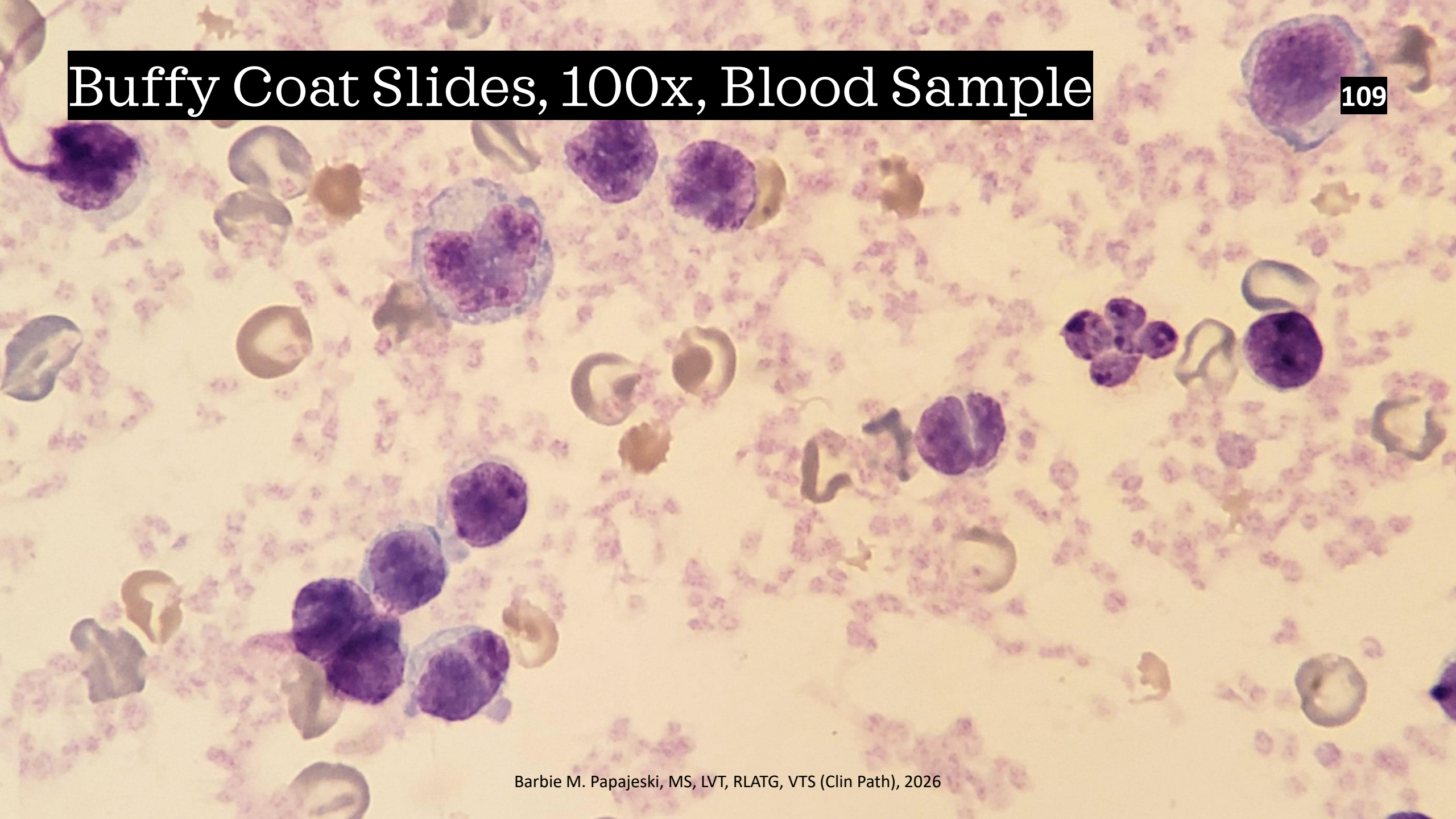
- Step 1. Centrifuge blood in microsediment tubes
- Step 2. Pipet off plasma (may be used for other tests)
- Step 3. Gently pipet top layer of cells onto a slide

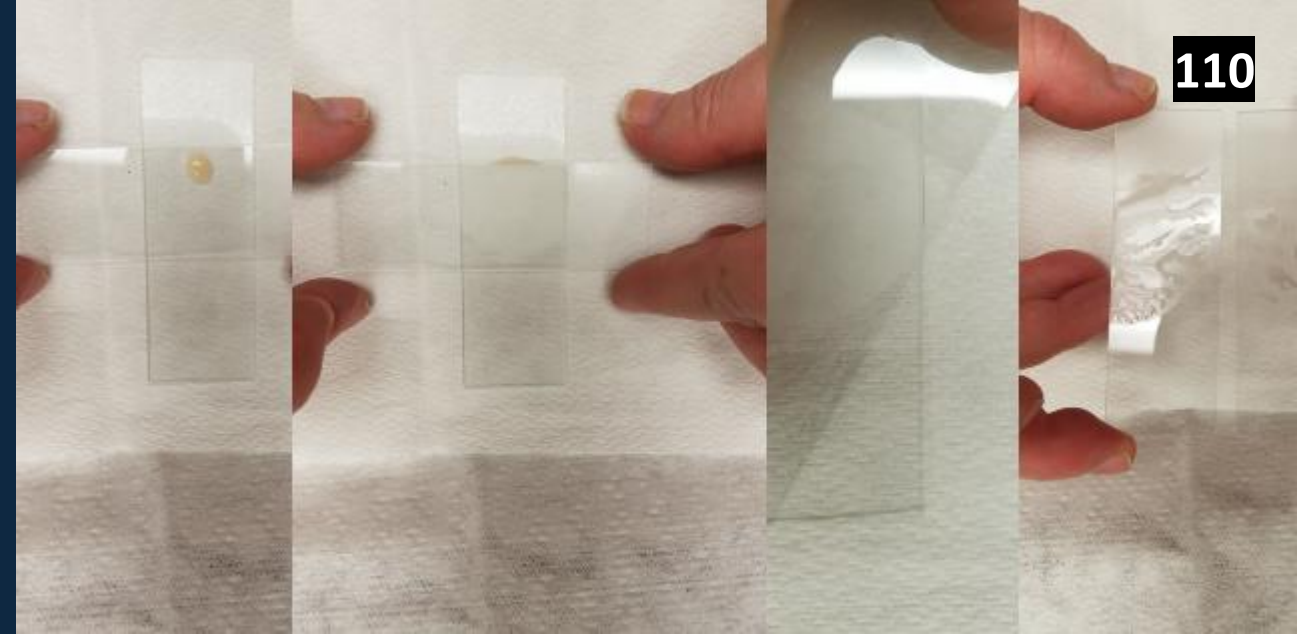
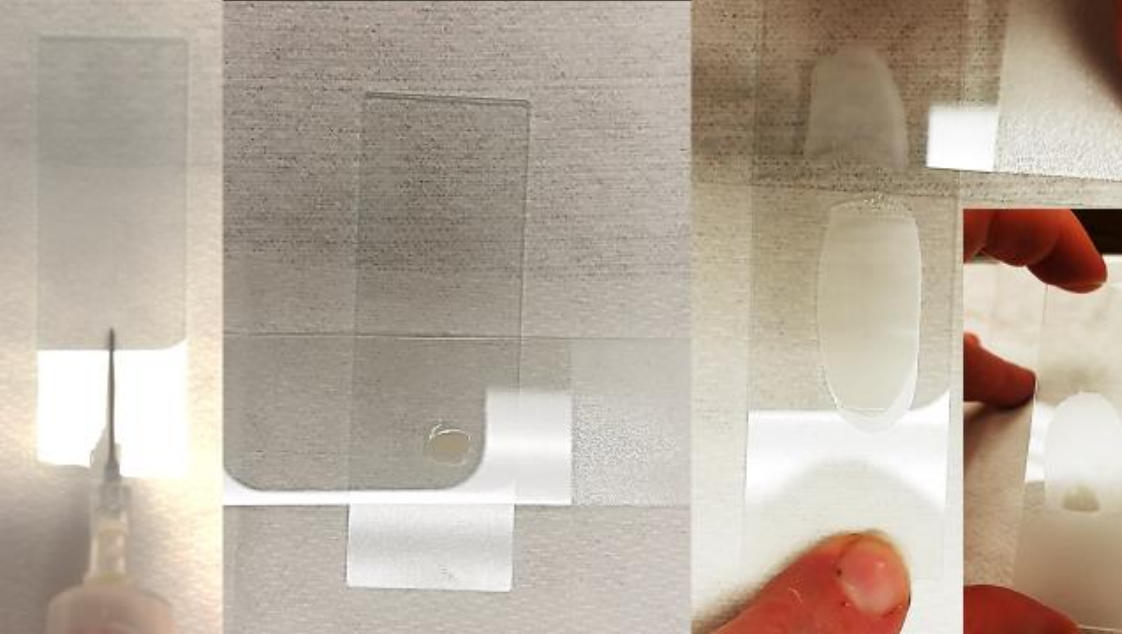


Motion of slide when preparing a blood (wedge) or direct slide for the buffy coat slide

Buffy Coat Slides, 100x, Blood Sample

109





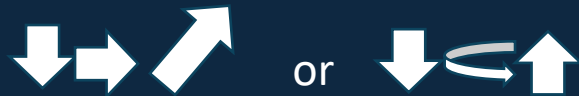
Squash Slide Prep

Step 1. Place fluid near the frosted edge.

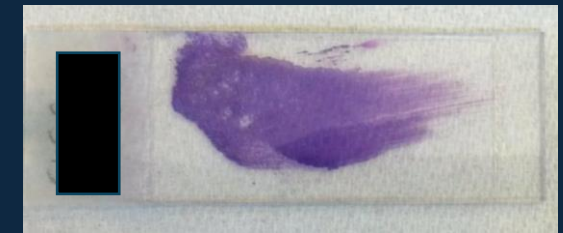
Step 2. Place second slide face down over drop.

Step 3. Gently pull slides apart at a slight angle to spread or lift straight up.

Alternately turn top slide 45° angle and lift up.



Motion of slide when preparing a squash/compression slide



More diagnostic / larger monolayer



Not as diagnostic / limited monolayer

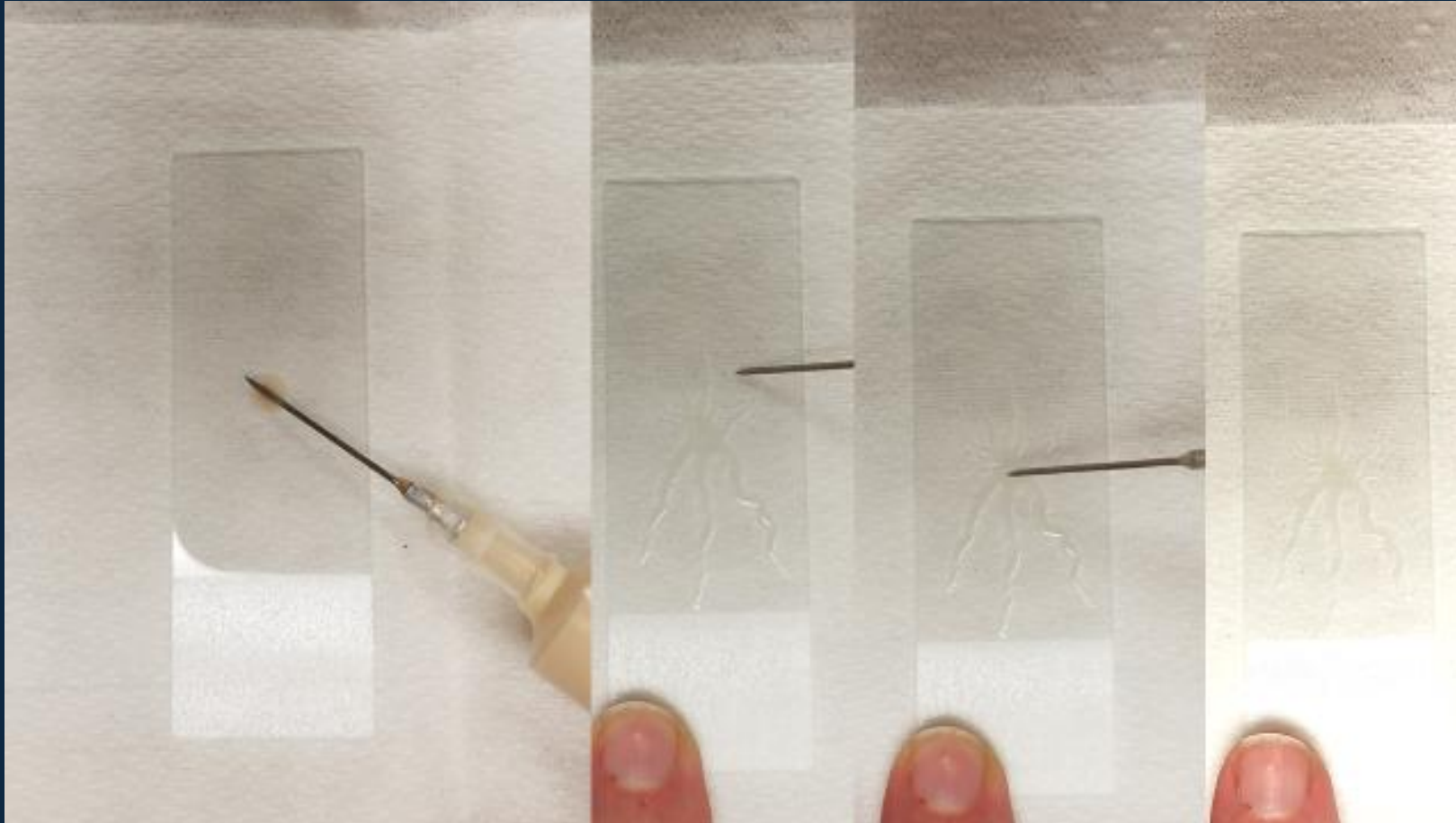
Less Diagnostic Sample



Touching and lifting straight up

Starfish or Needle Slide Prep

112



Step 1. Place fluid in the center of the slide.

Step 2. Use needle or wooden applicator stick to gently pull the sample into several directions.
Used for very thick samples

FECAL & URINE SAMPLES

255291

AIRTIGHT & REFRIGERATED – NEMATODES & SOME PROTOZOA STILL RECOVERABLE WEEKS POST COLLECTION



**WITH DIARRHETIC SAMPLES AND SUSPECTED
PROTOZOANS, PERFORM A DIRECT ASAP**

115

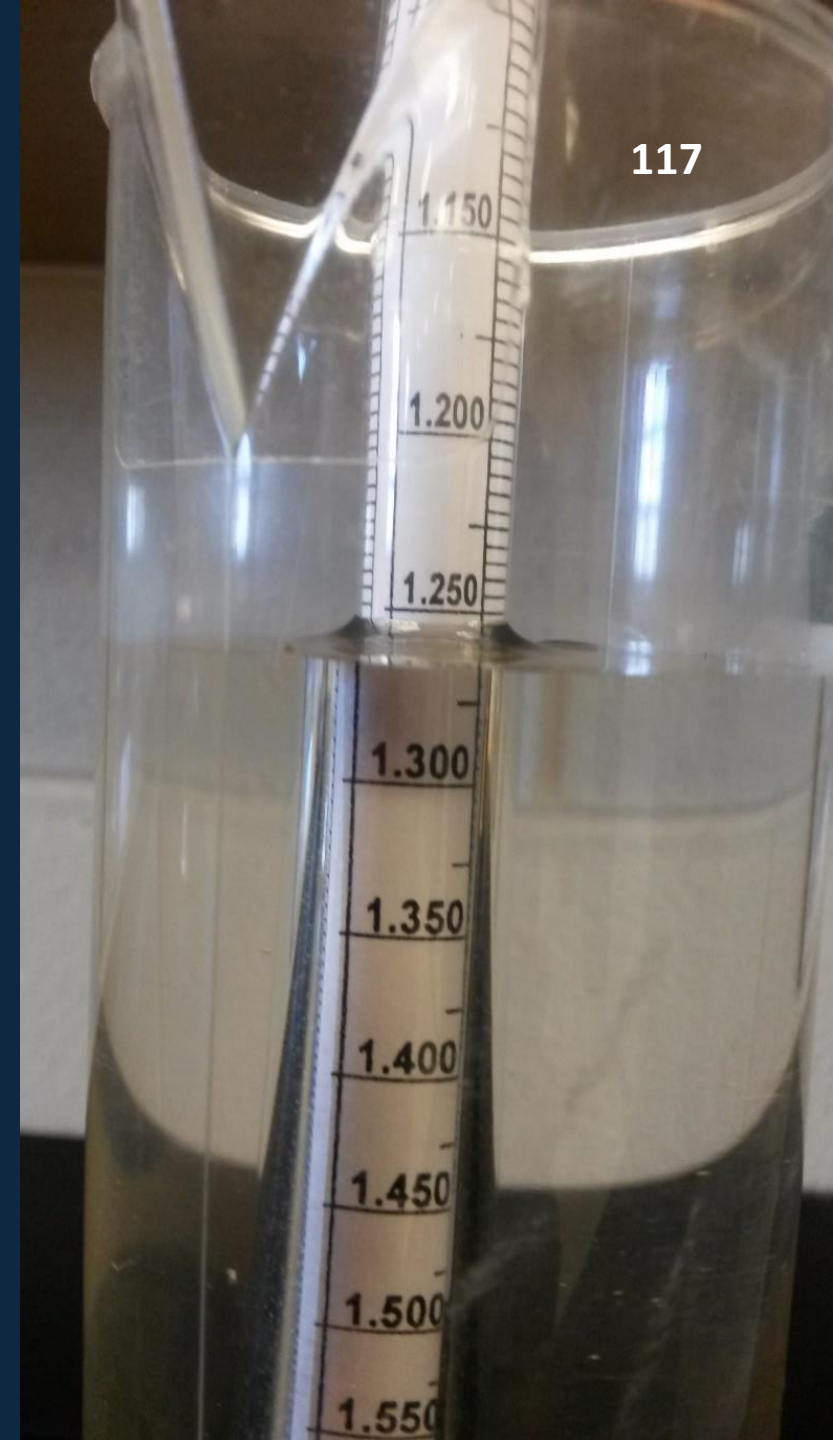


**DO NOT REFRIGERATE SAMPLE – SET UP
WITHIN 30 MINUTES OF DEFECATION**





- Zinc Sulfate
 - $SG = 1.180-1.200$
- Sheather's Solution
 - $SG = 1.200-1.275$
- Sodium Nitrate
 - $SG = 1.200-1.300$
- Fecasol®
 - $SG = 1.200$

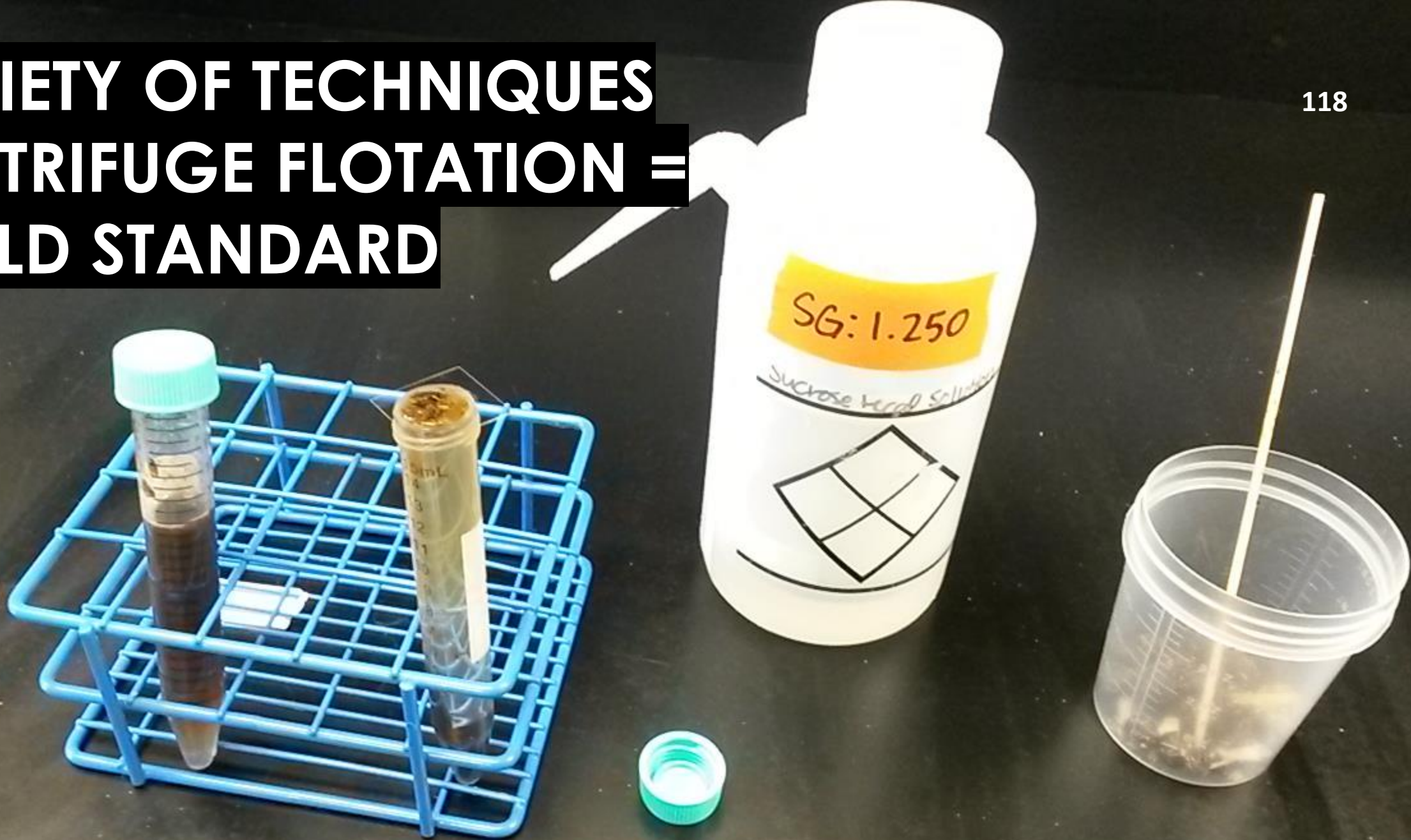


VARIETY OF TECHNIQUES

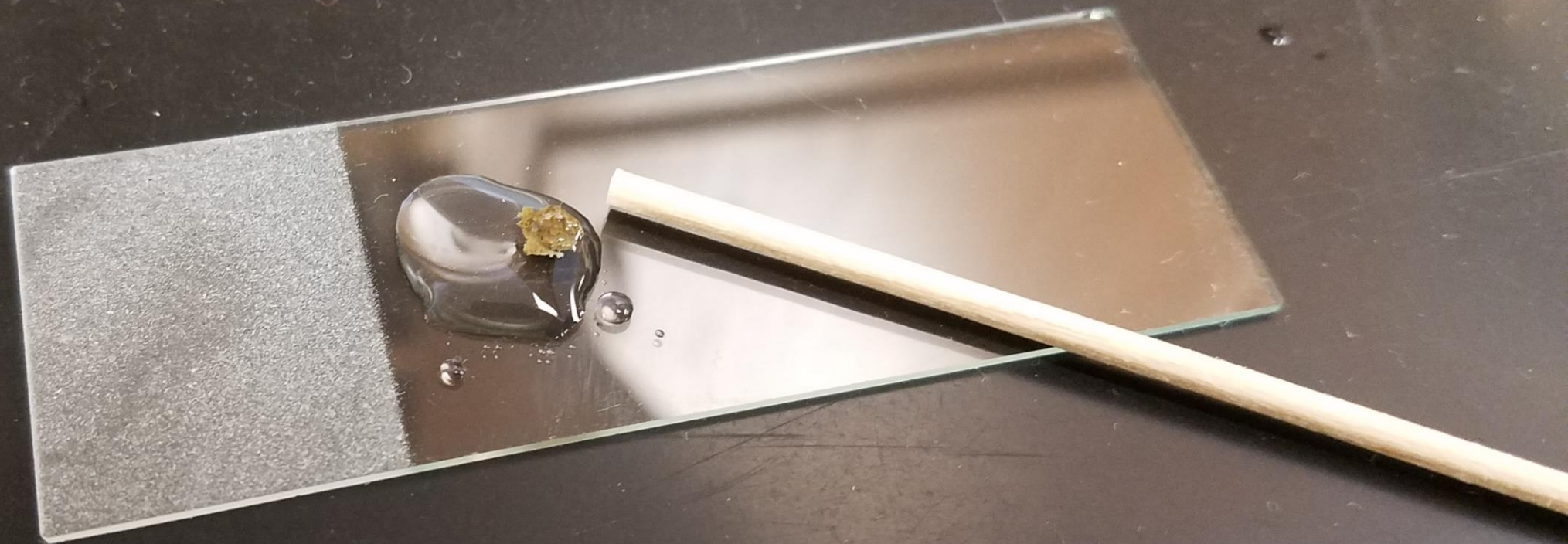
CENTRIFUGE FLOTATION =

GOLD STANDARD

118



DIRECTS ARE NOT AS SENSITIVE



NOTATE ADULT PARASITES



USE MINERAL OIL!

121



Cutaneous samples

122

- Flea combs
- Brushings
- Hair pulls
- Tape

ELONGATED PROGLOTTID = Taenia type



CUCUMBER SEED TYPE PROGLOTTID =
Dipylidium caninum



Any Questions?

125





THANK YOU

DON'T FORGET TO RATE YOUR SPEAKER
AND SESSION IN THE APP!

Presented By

