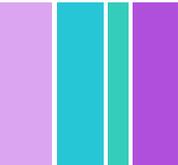


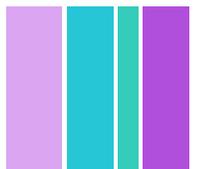
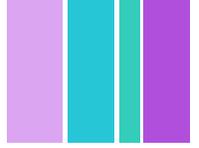


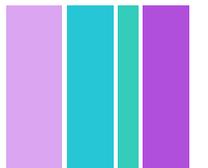
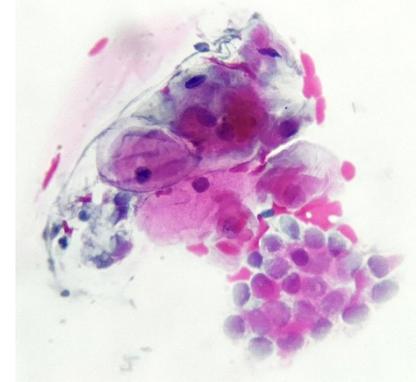
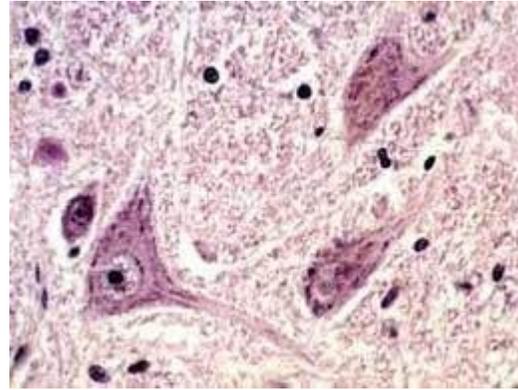
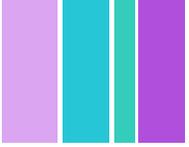
# Citología de LCR:

No solo la morfología, la preparación  
de la muestra como pilar fundamental  
del diagnóstico

Dra. L. Faridi Villegas



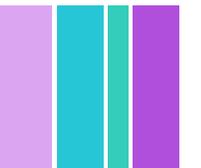






# Funciones del LCR

- Rodea el cerebro protege del impacto con el cráneo
- Hacer flotar el cerebro y “disminuir” su peso
- Regula la concentración de electrolitos, hormonas, neurotransmisores
- Transporta sustancias para su eliminación
- Administrar medicamentos que no atraviesan la barrera hematoencefálica.



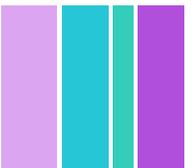


# Componentes del LCR

<b>Nutrition Facts</b>	
<b>Serving size:</b> 100 ml / 500 ml ..g	
Agua	
Proteínas	
Glucosa	
Iones	
Vitaminas	
Neurotransmisores.	

\*Percent Daily Values are based on 2.000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

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# Obtención del LCR

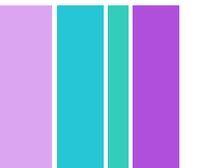
- Punción (procedimiento invasivo)
  - Lumbar
  - Sub occipital
  - Directamente de los ventrículos
- Lumbar: entre la 3ra y 4ta o 4ta y 5ta espacio intervertebral
- Medir la presión al inicio (50 a 180mm Hg)
- Detener la punción 10-30 mm Hg.
- Dividir la muestra en diferentes contenedores





# Estudio citológico

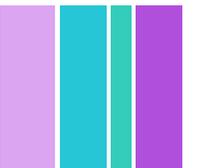
- Identificación de neoplasias / estadio clínico
- Primarios
- Secundarios
- Linfoma / leucemia
- Infecciones





# Estudio citoquímico

- Color
- Aspecto
- Coagulo
- Glucosa
- Proteínas totales
- Células totales
  - % polimorfonucleares
  - %mononucleares
  - Cuenta de eritrocitos mm<sup>3</sup>
- Deshidrogenasa láctica



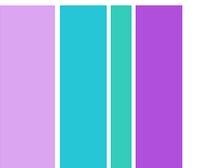
# Líquido cefalorraquídeo





# Fijación

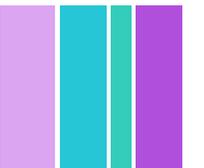
- Carbowax: Alcohol, polietilenglicol, rifampicina.
- Alcohol 96%
  - Proporción 1:1
- Conservar la morfología
  - Realizar estudios adicionales
    - Tinciones especiales
    - inmunohistoquímica





# Tinción

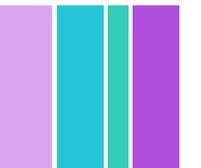
- Se recomienda filtrar las tinciones previamente
- Solamente teñir LCR
- Recomendando dos tinciones
  - Hemacolor, Diff Quik, Wright-Giemsa
  - Papanicolaou (h&e)

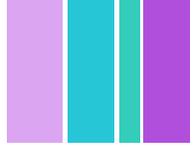




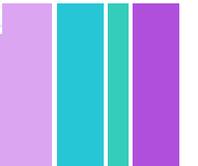
# Preparación de la laminilla

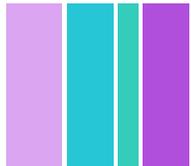
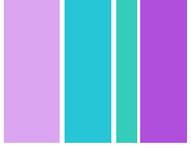
- Citocentrifuga (cytospin)
- No se recomienda el extendido por la escasez de celularidad

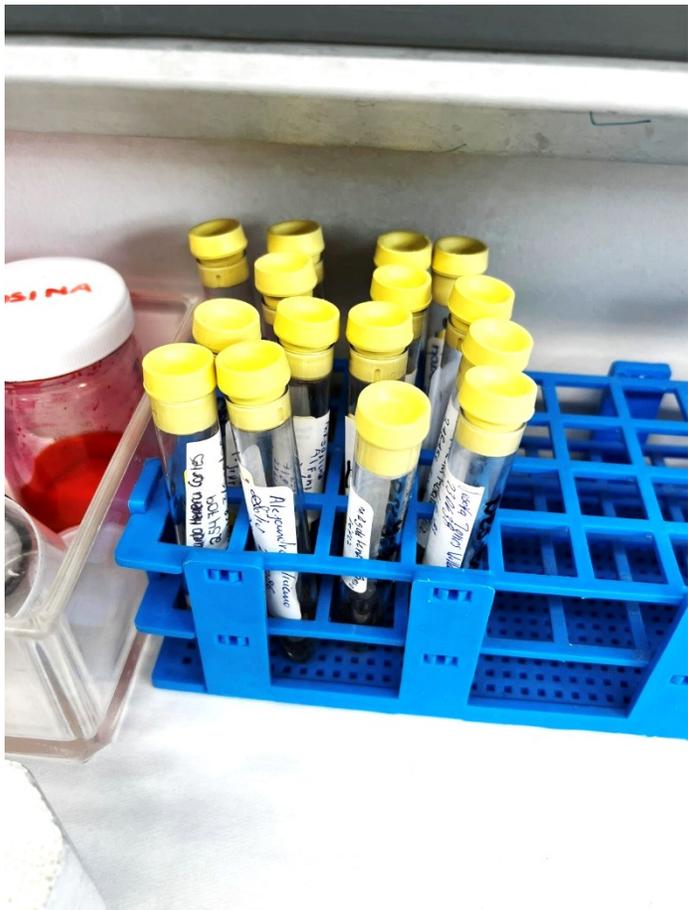
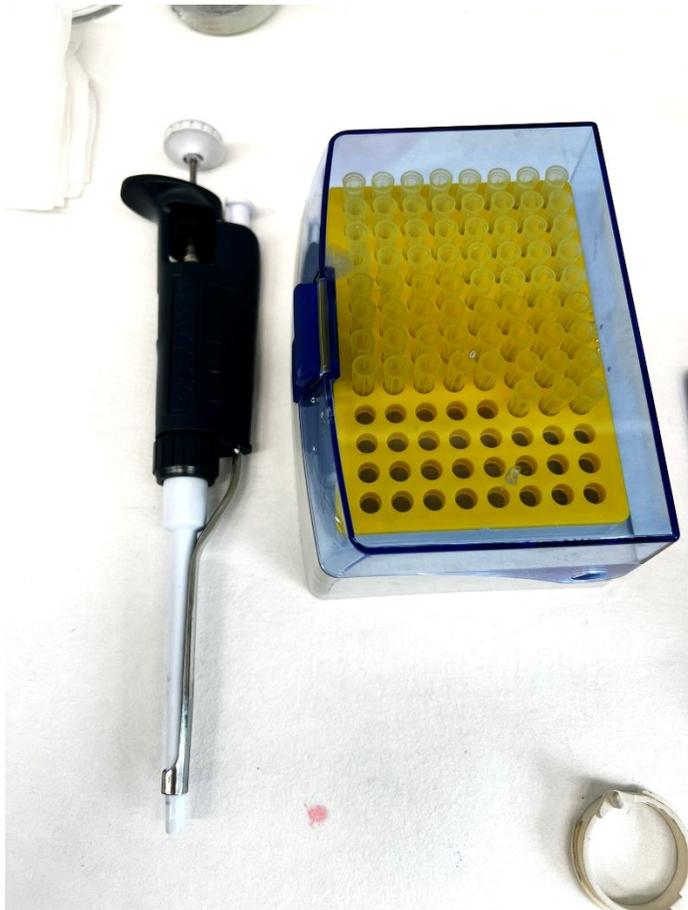


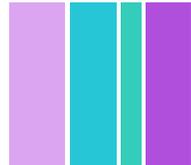
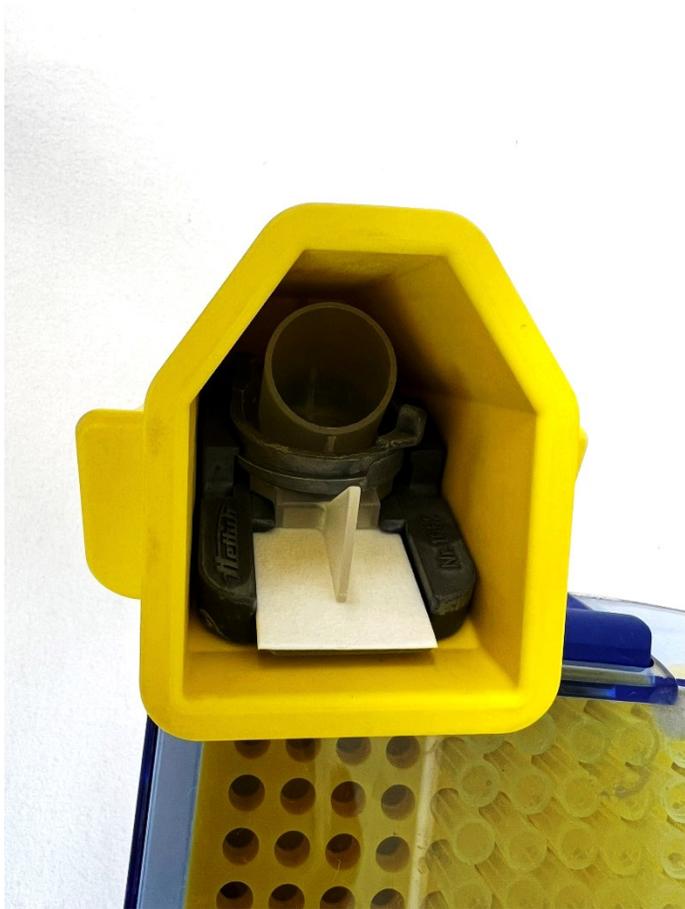


# Proceso





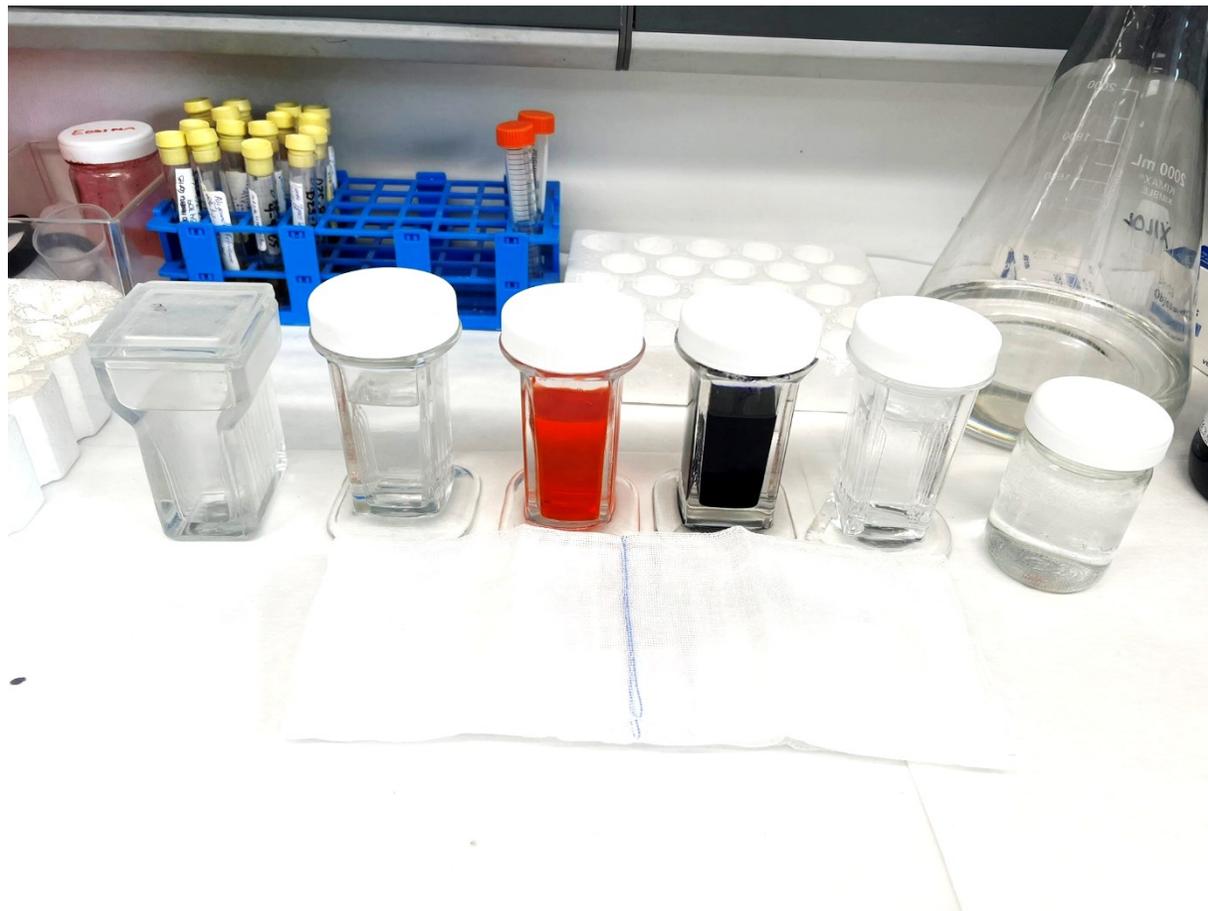




2500 RPM durante 5 minutos

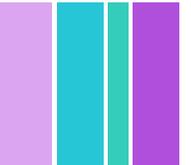


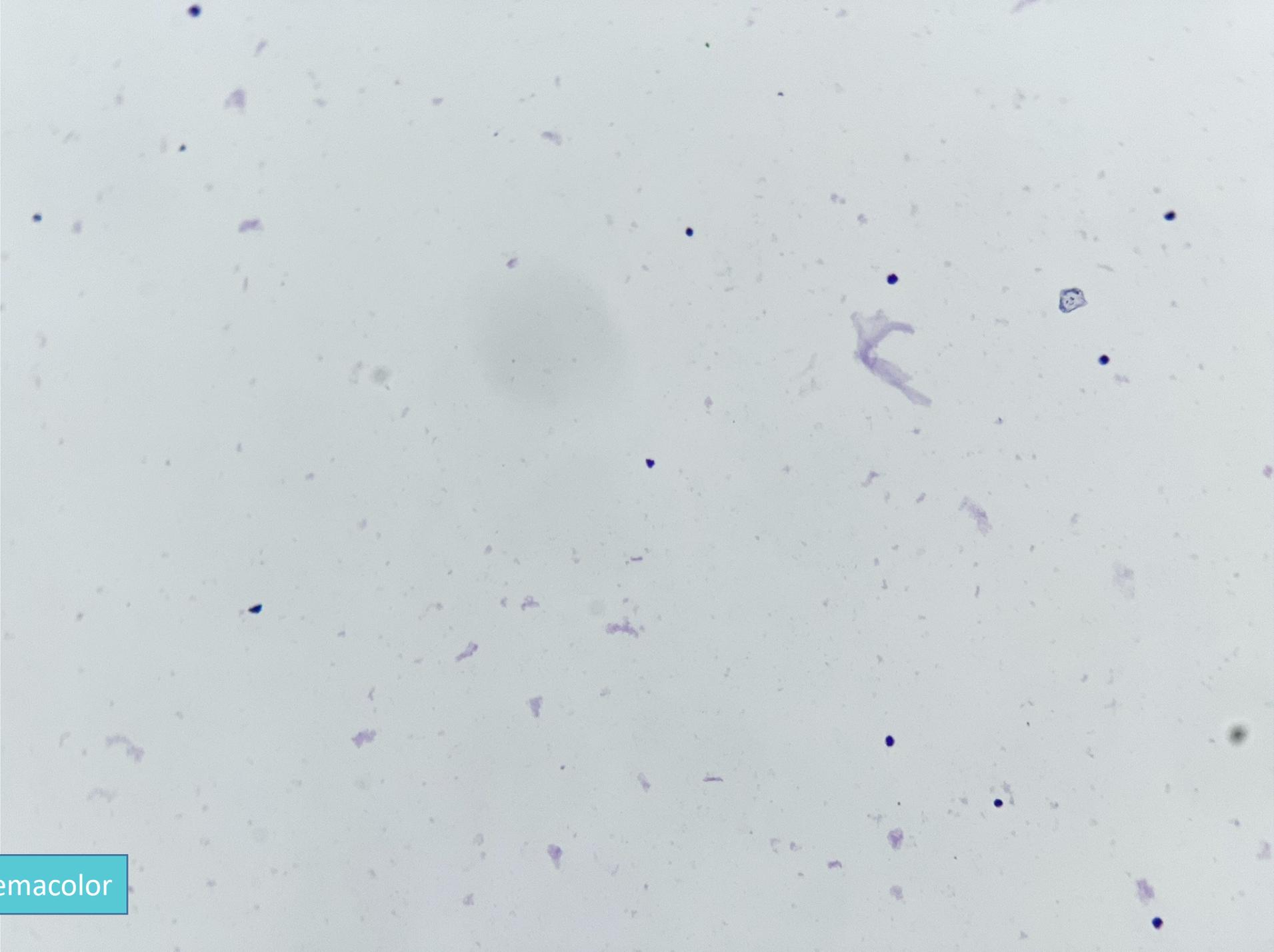
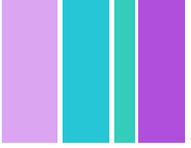
# Tren de tinción de hemacolor



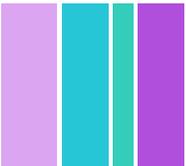


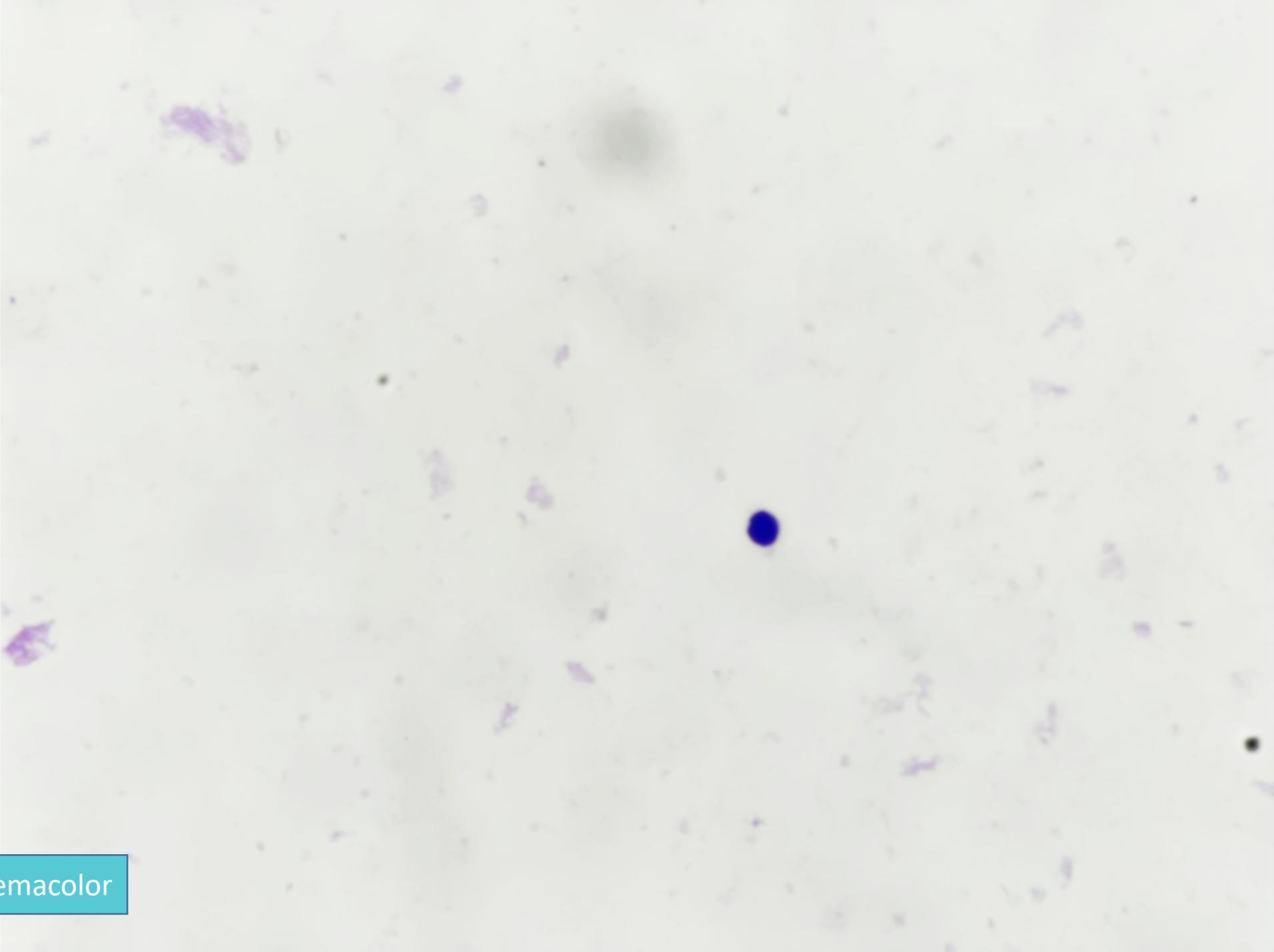
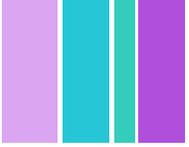
# Liquido cefalorraquideo normal



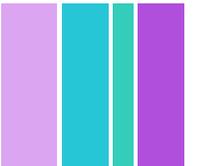


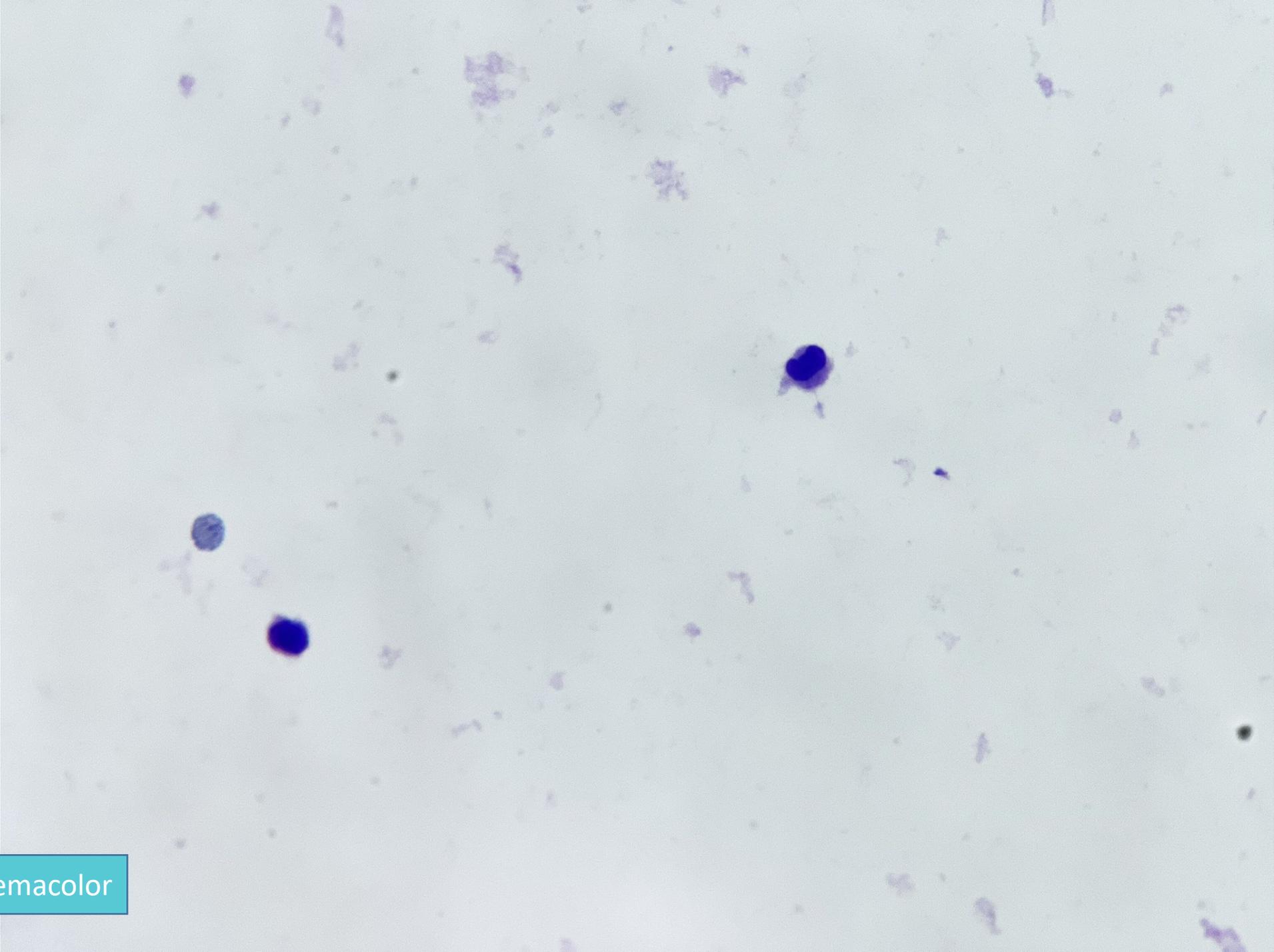
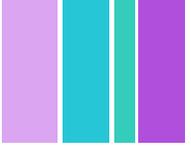
Tinción de hemacolor



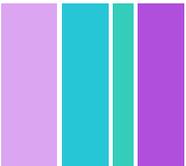


Tinción de hemacolor

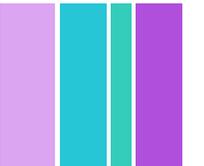


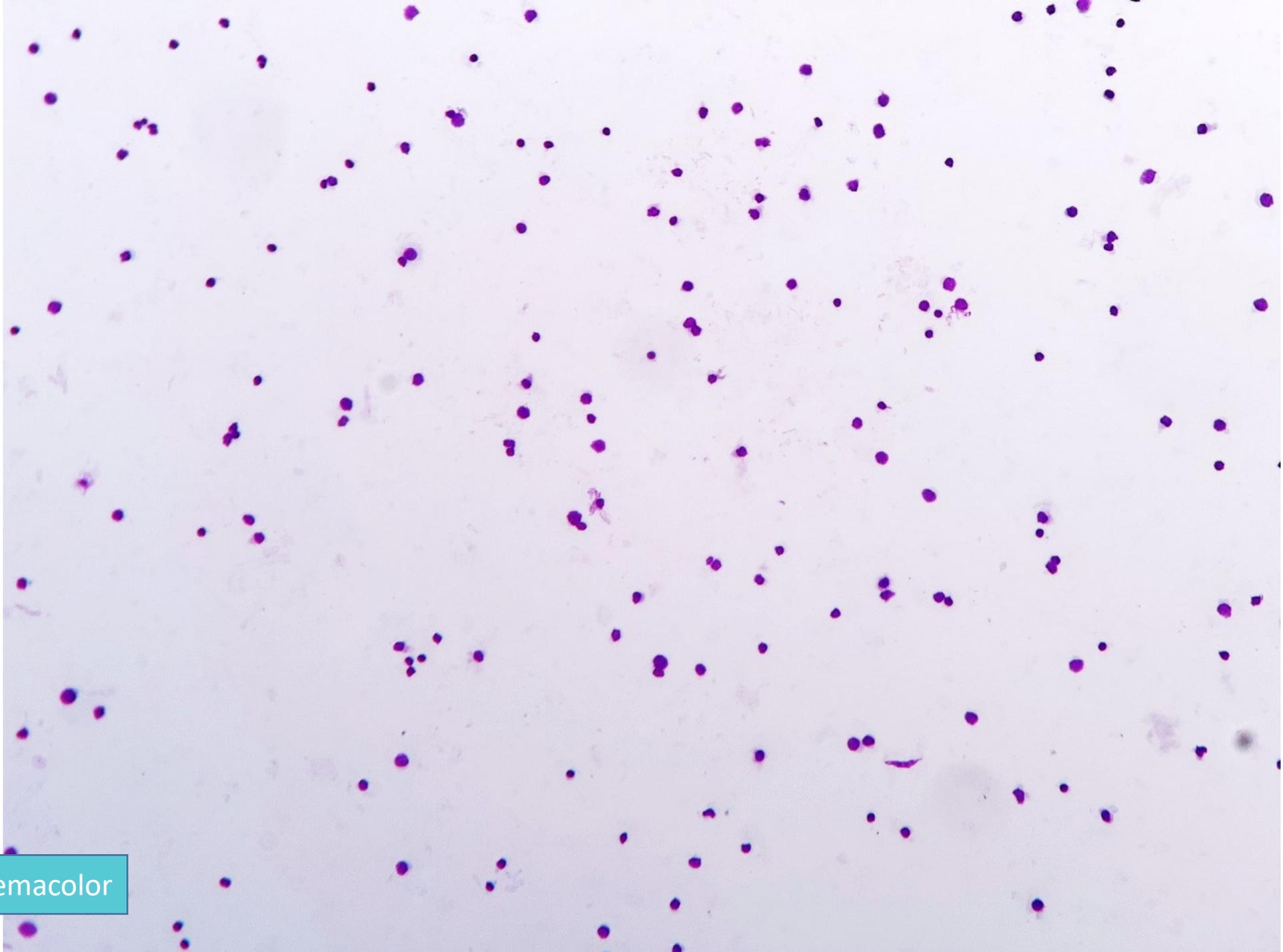
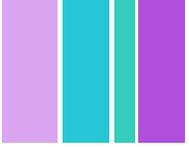


Tinción de hemacolor

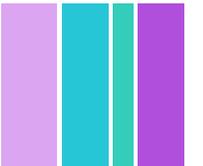


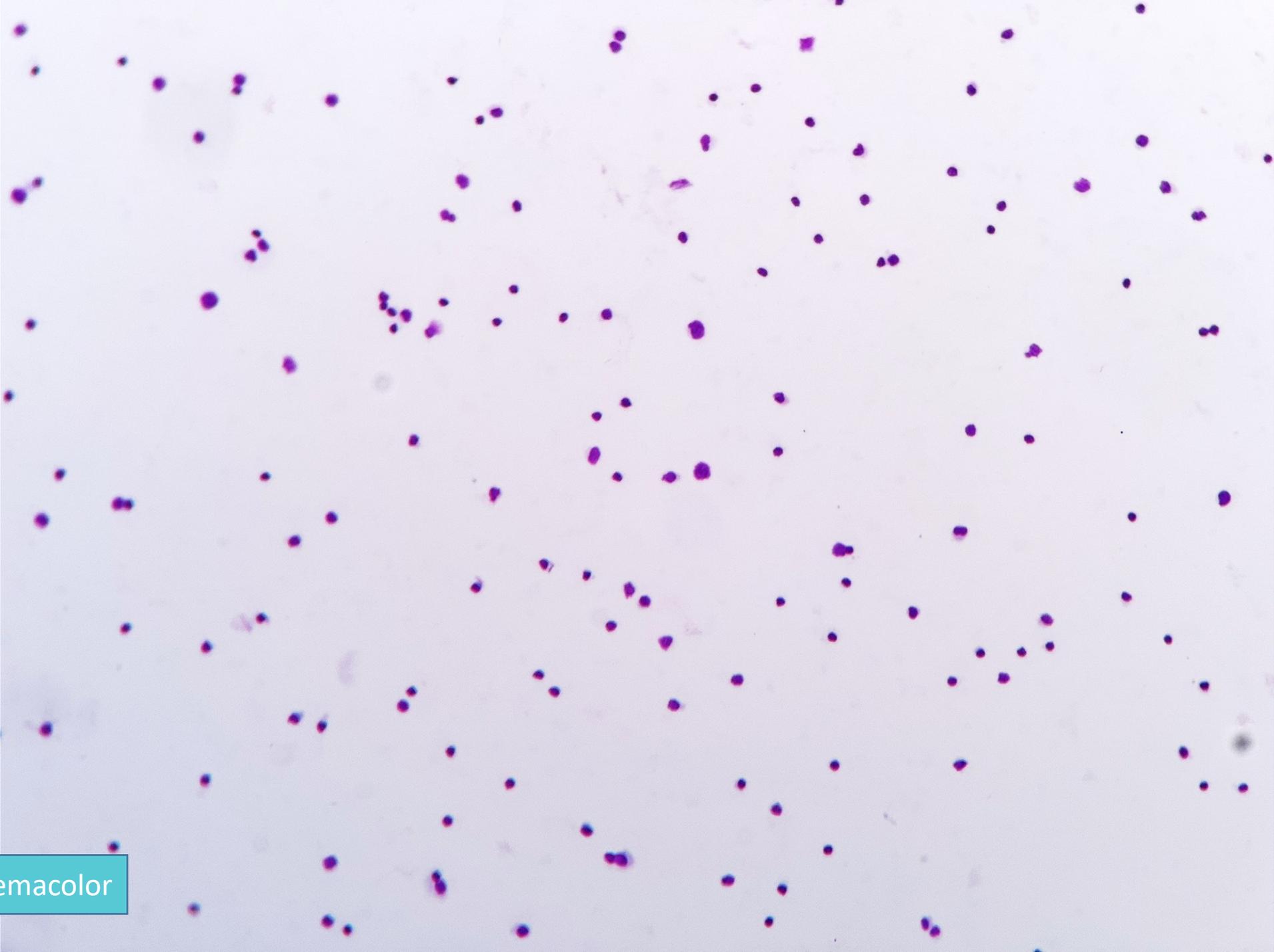
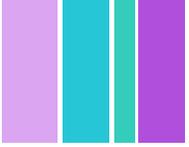
- 
- Paciente hombre de 43 años
  - LLC



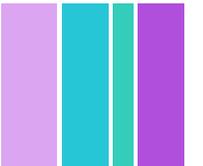


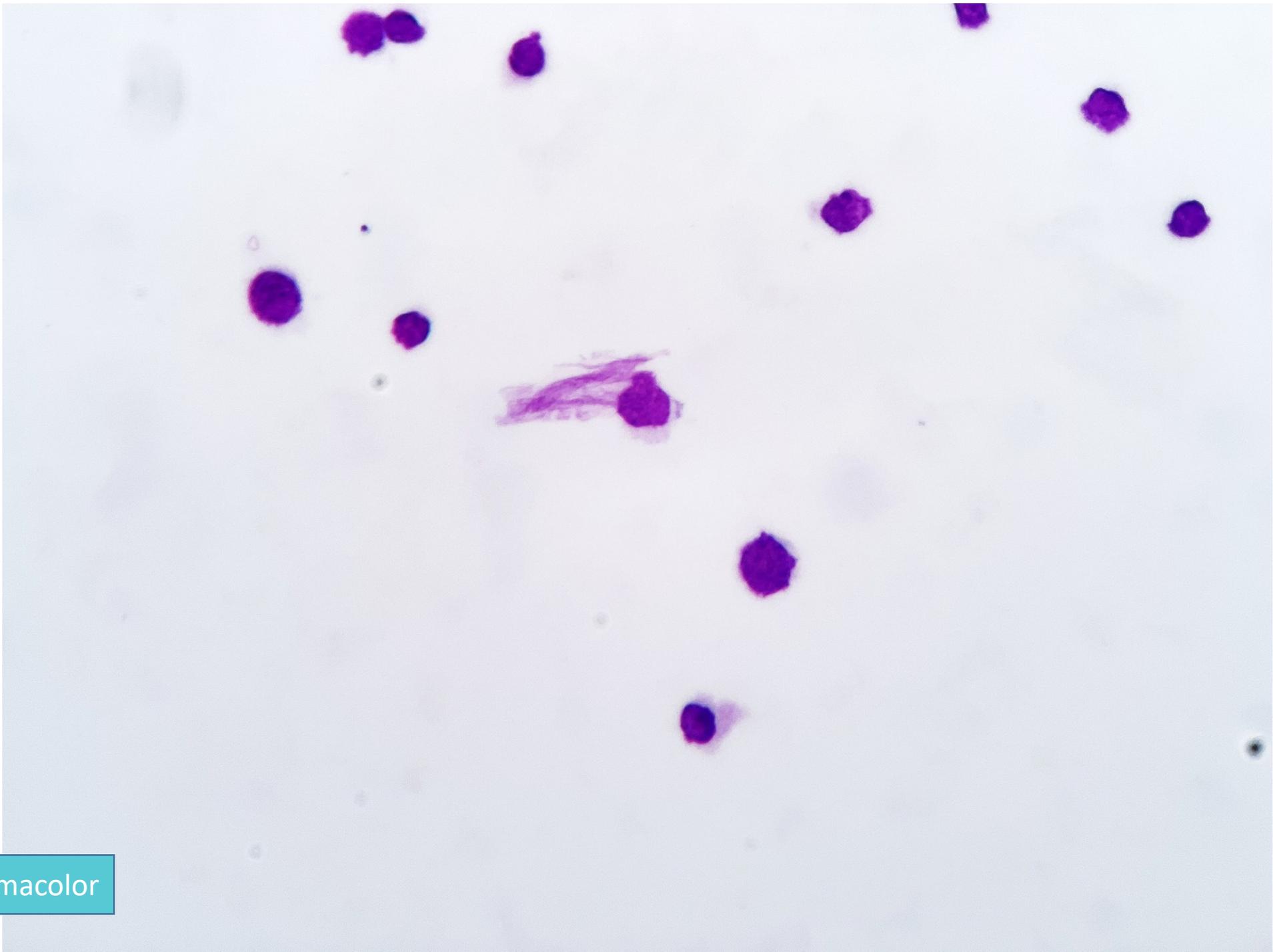
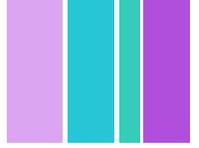
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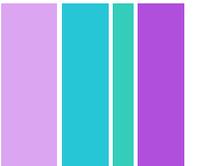


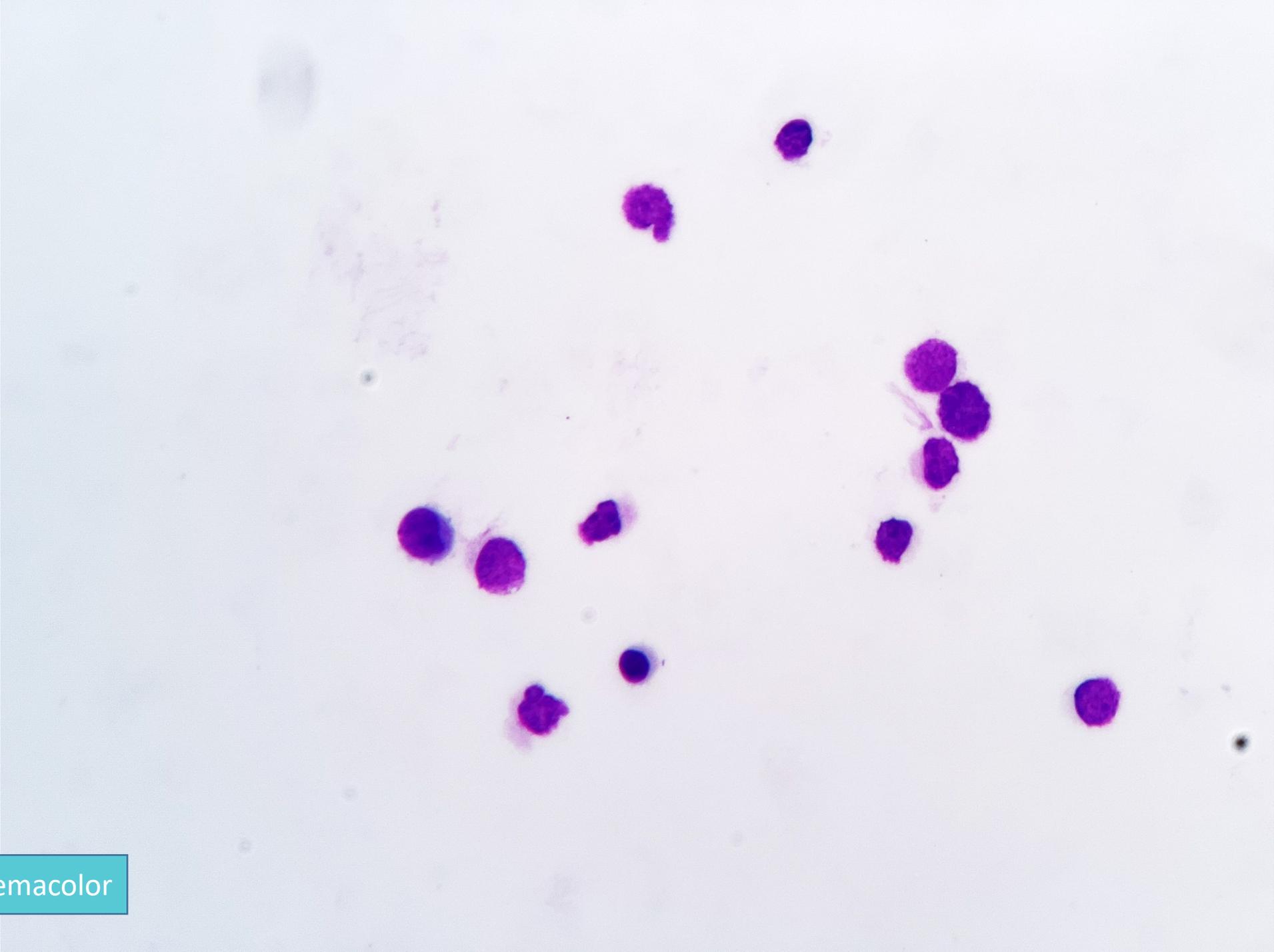
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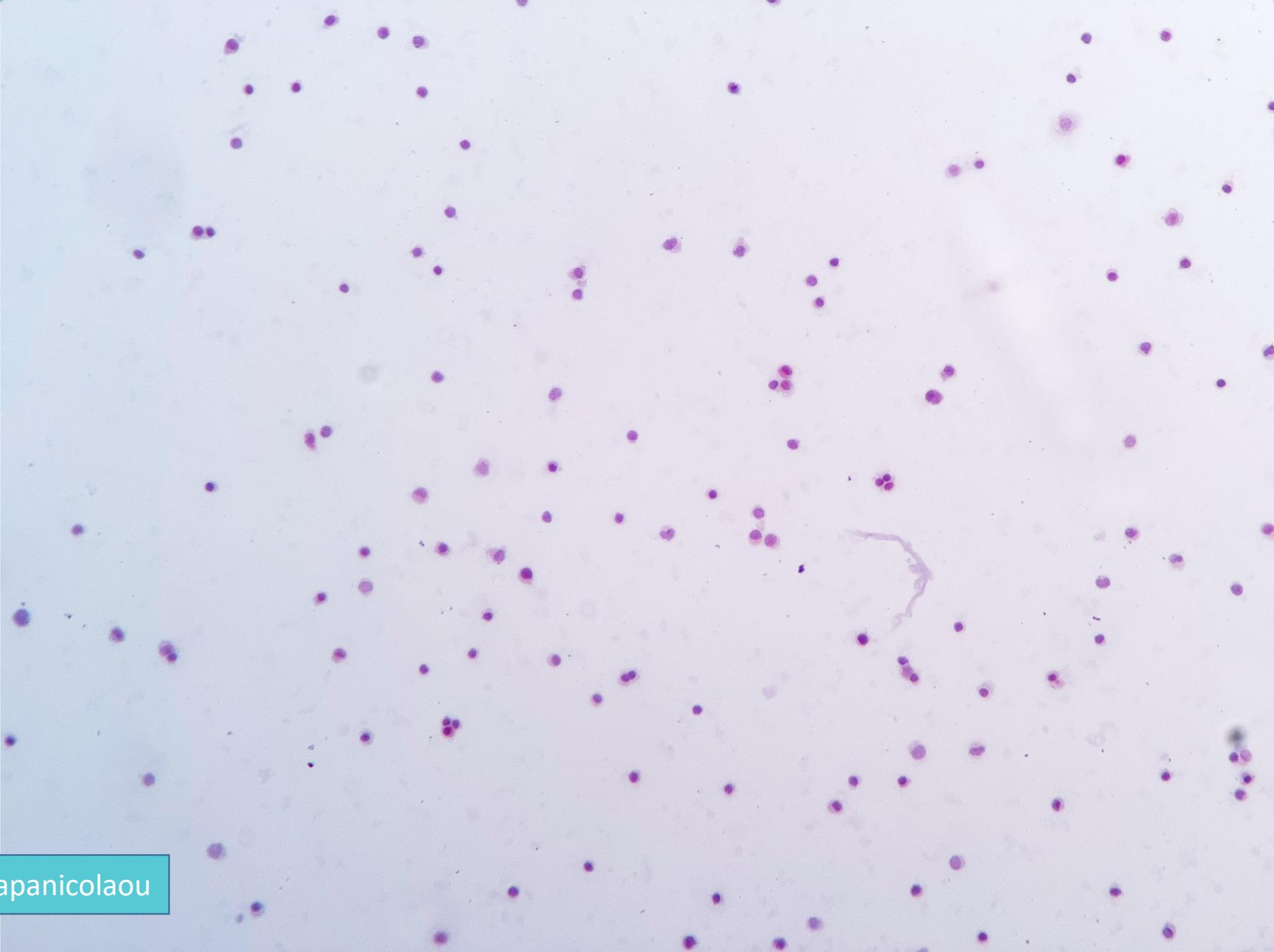
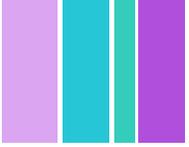
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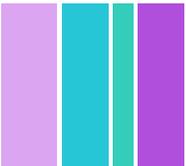


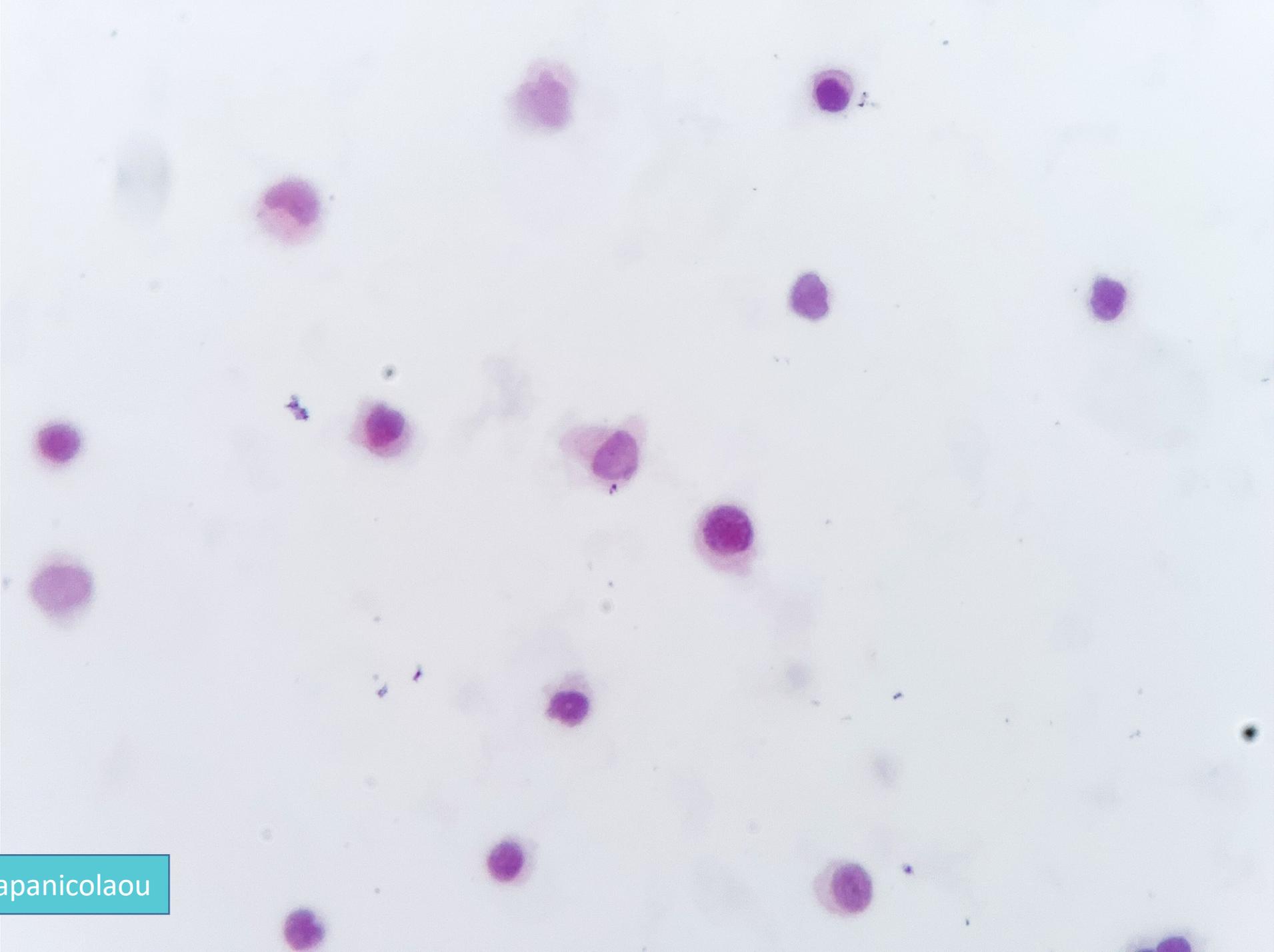
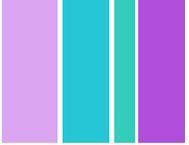
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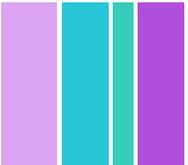


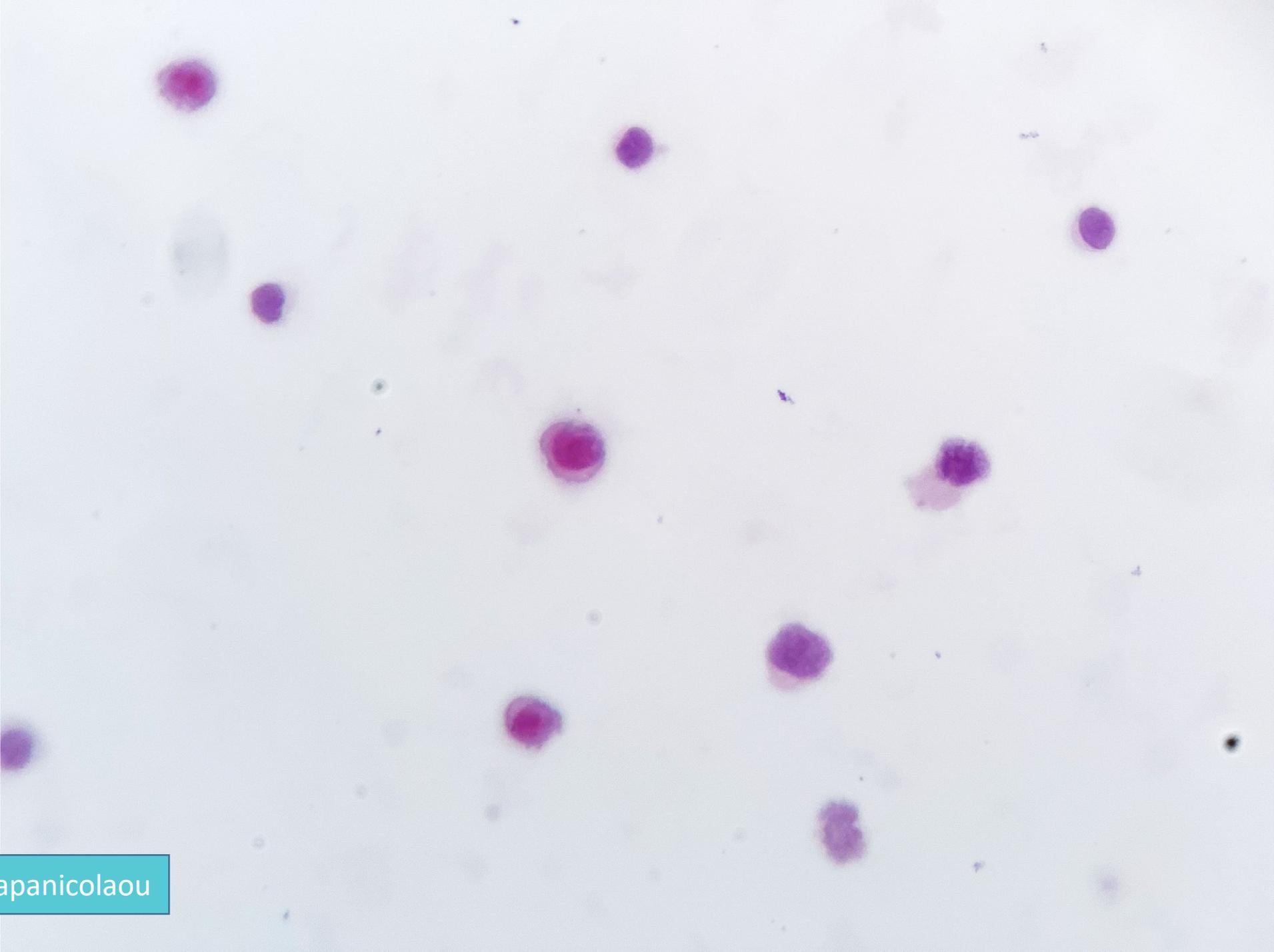
Tinción de papanicolaou





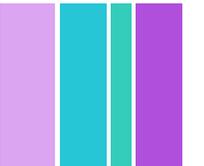
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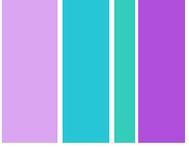




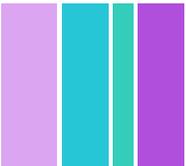
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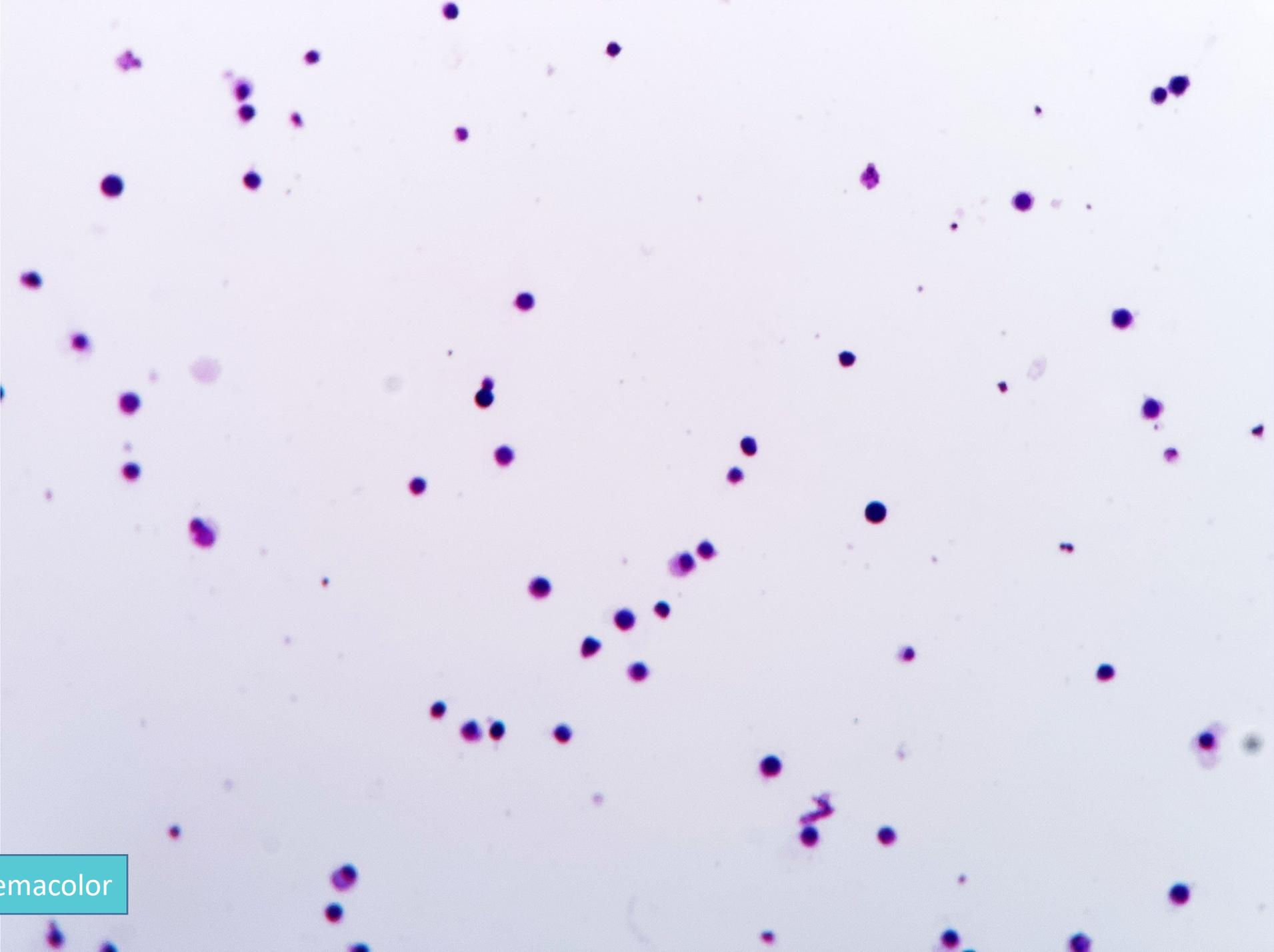
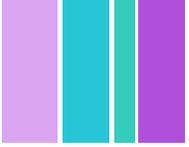
- 
- Mujer de 65 años
  - Abordaje de diagnóstico
  - Tumor en pulmón



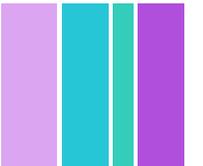


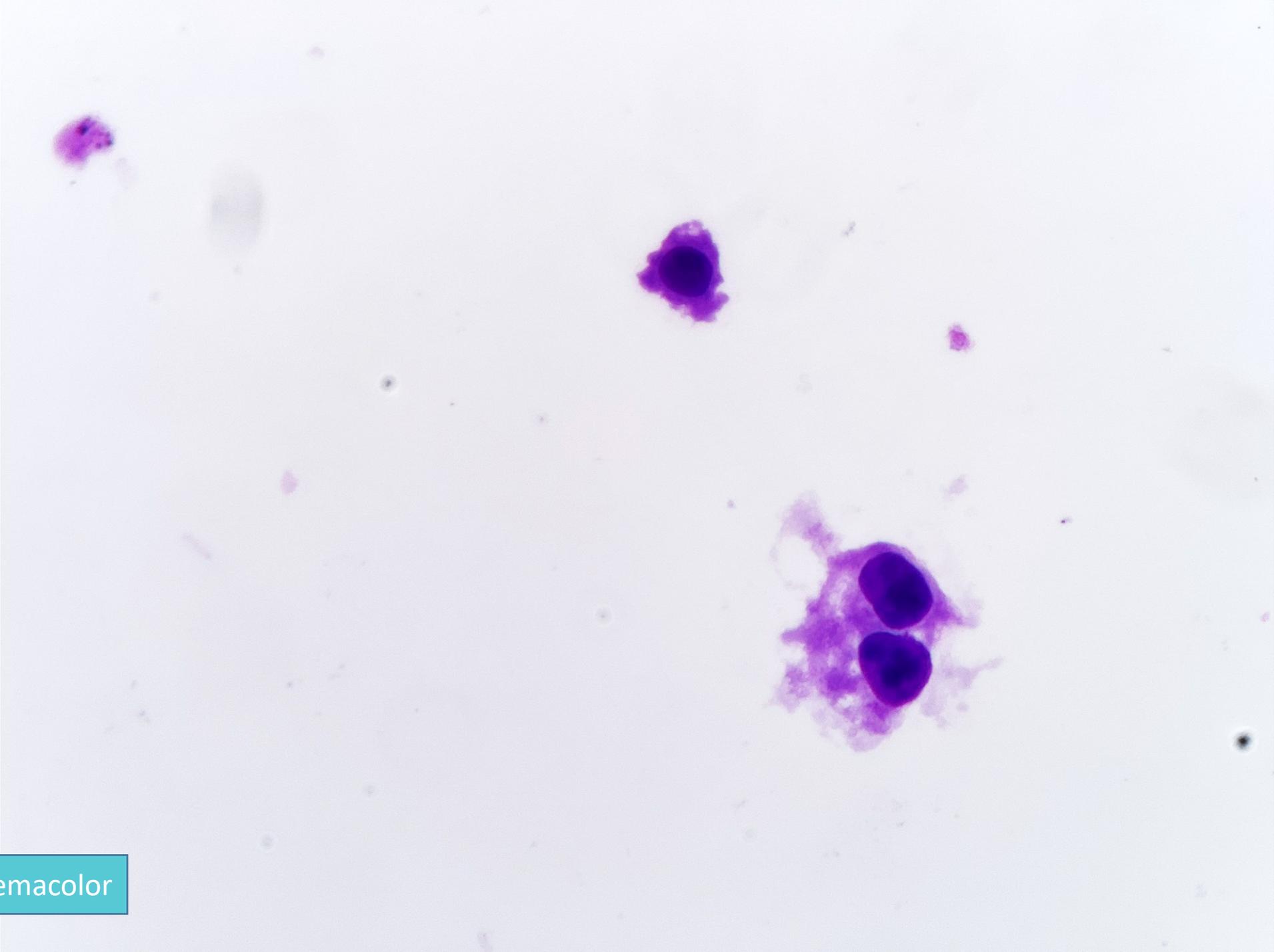
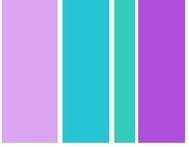
Tinción de hemacolor



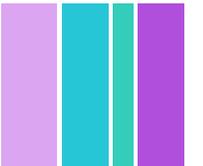


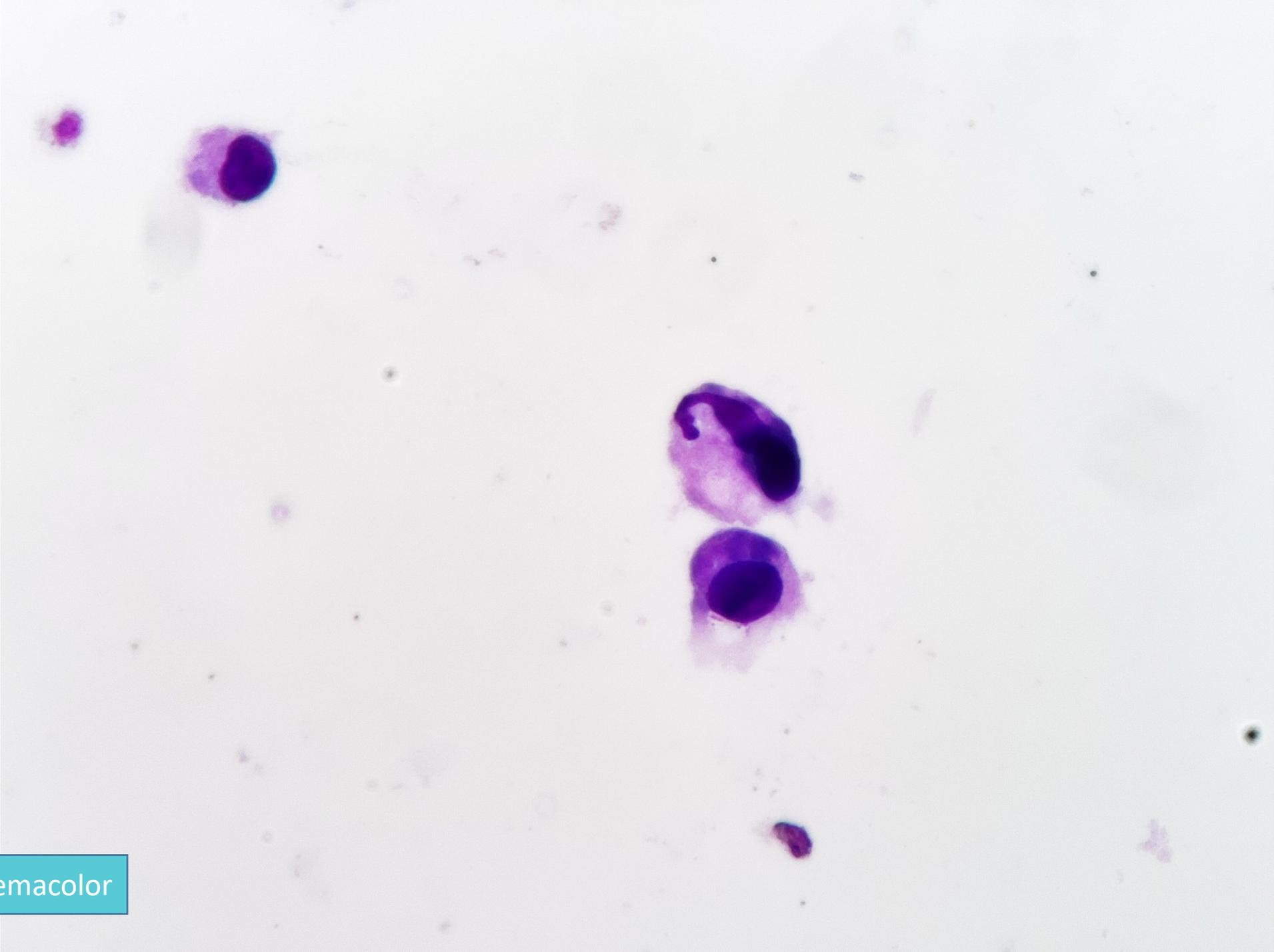
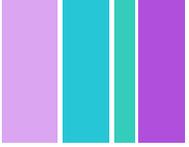
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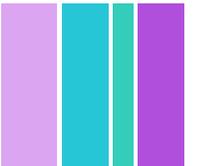


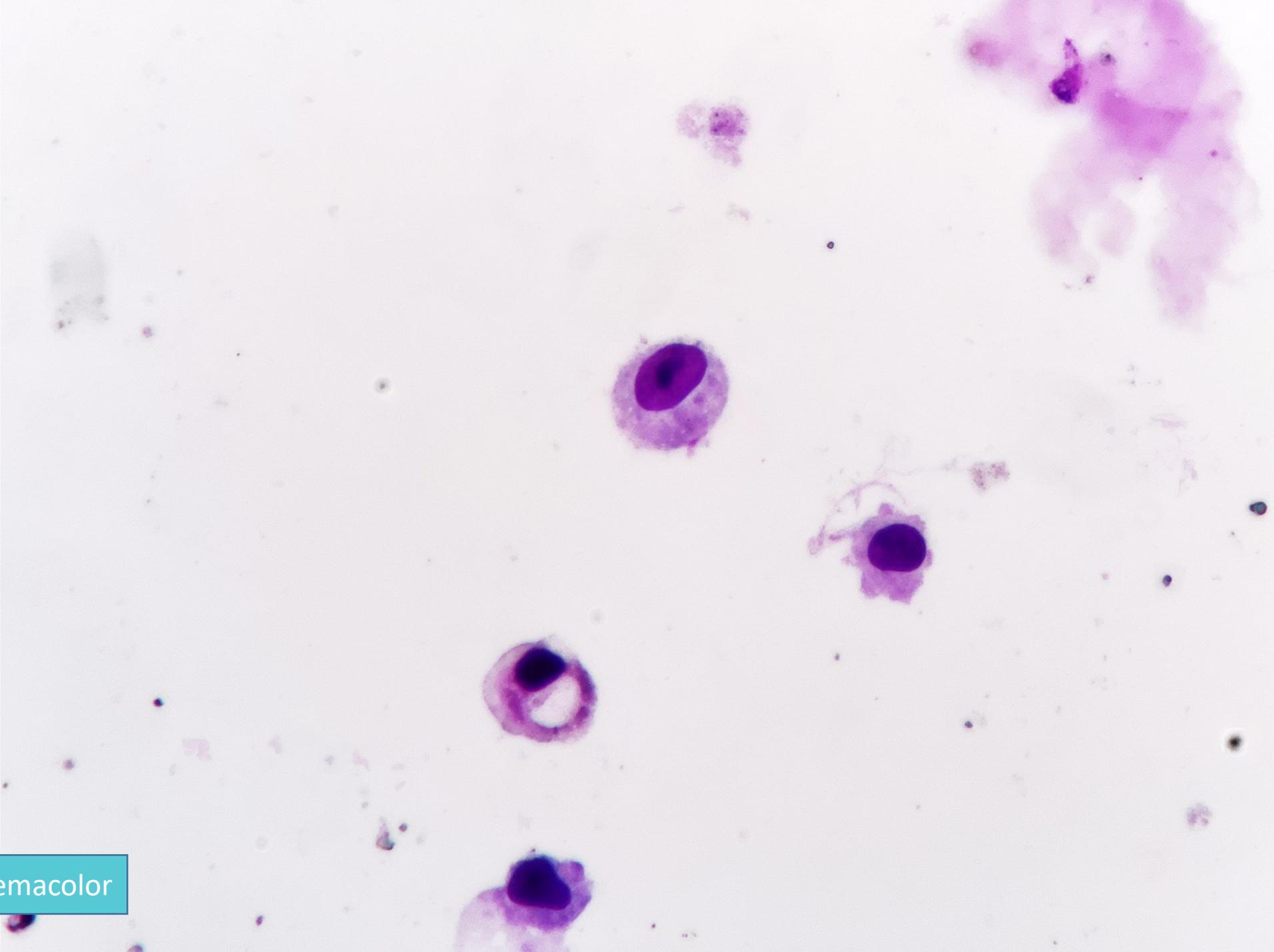
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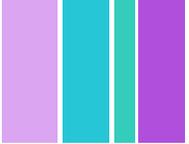
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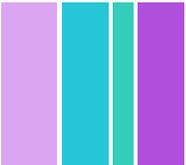


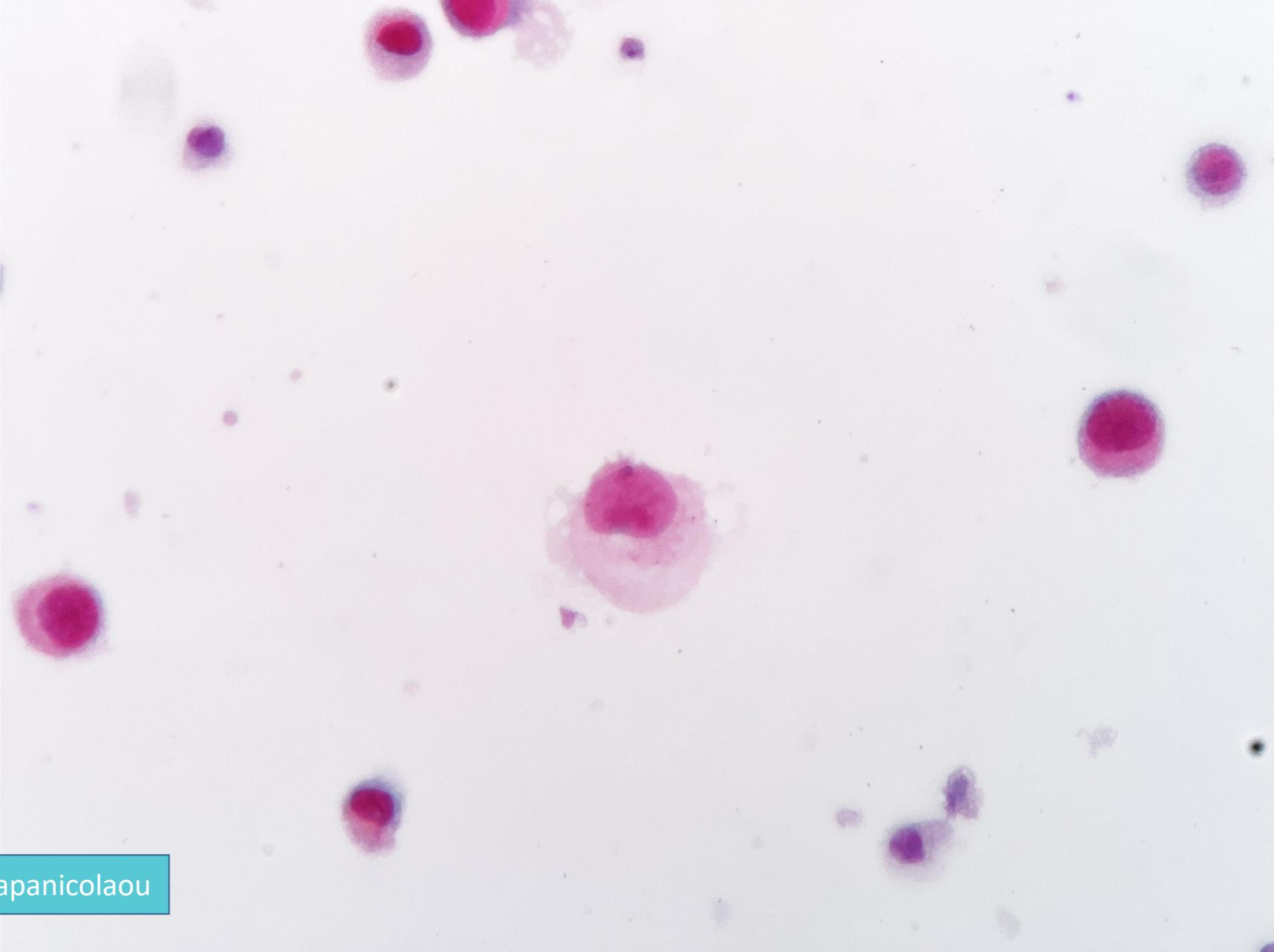
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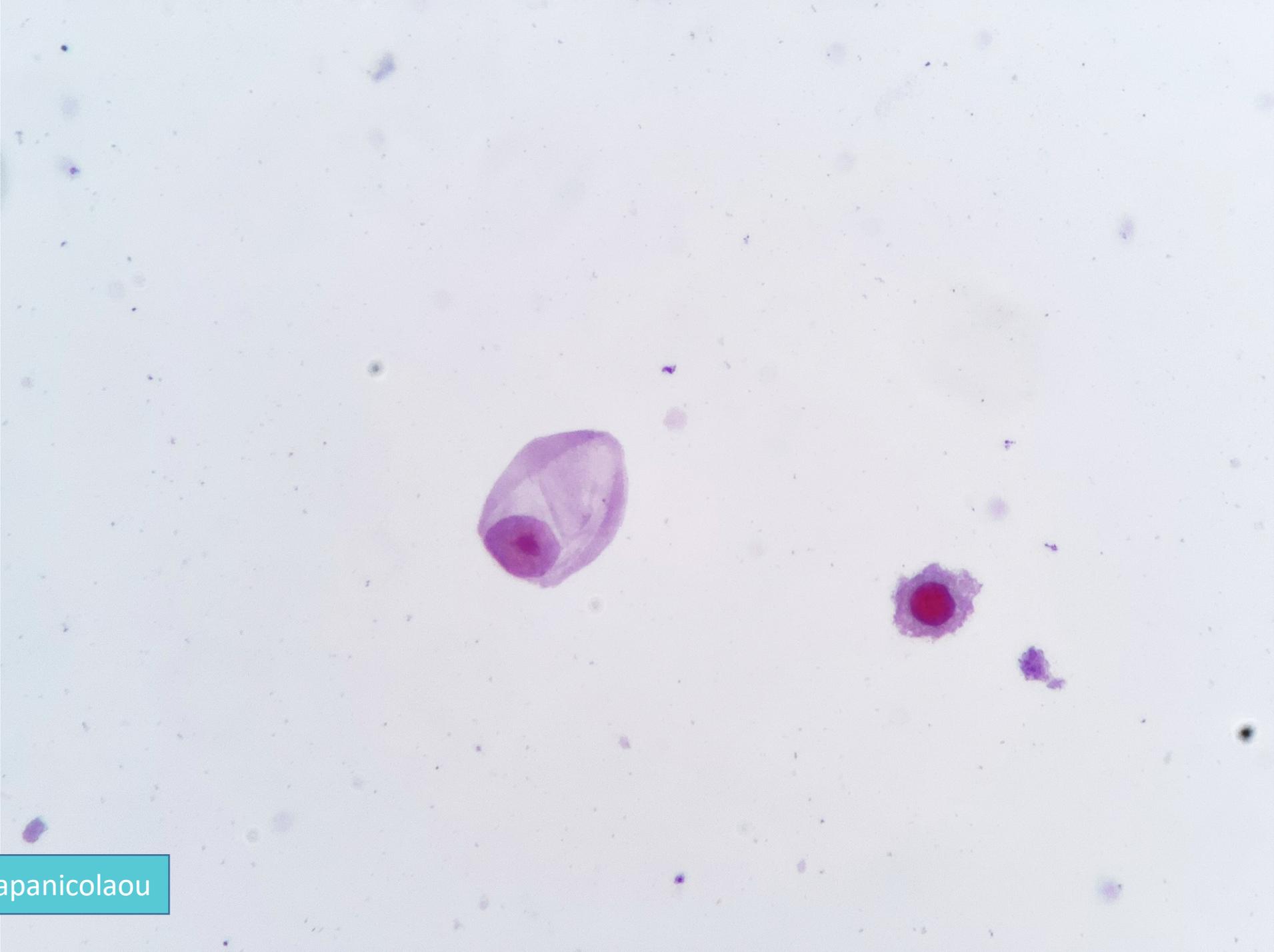
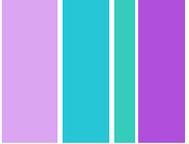


Tinción de papanicolaou

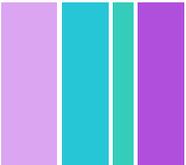


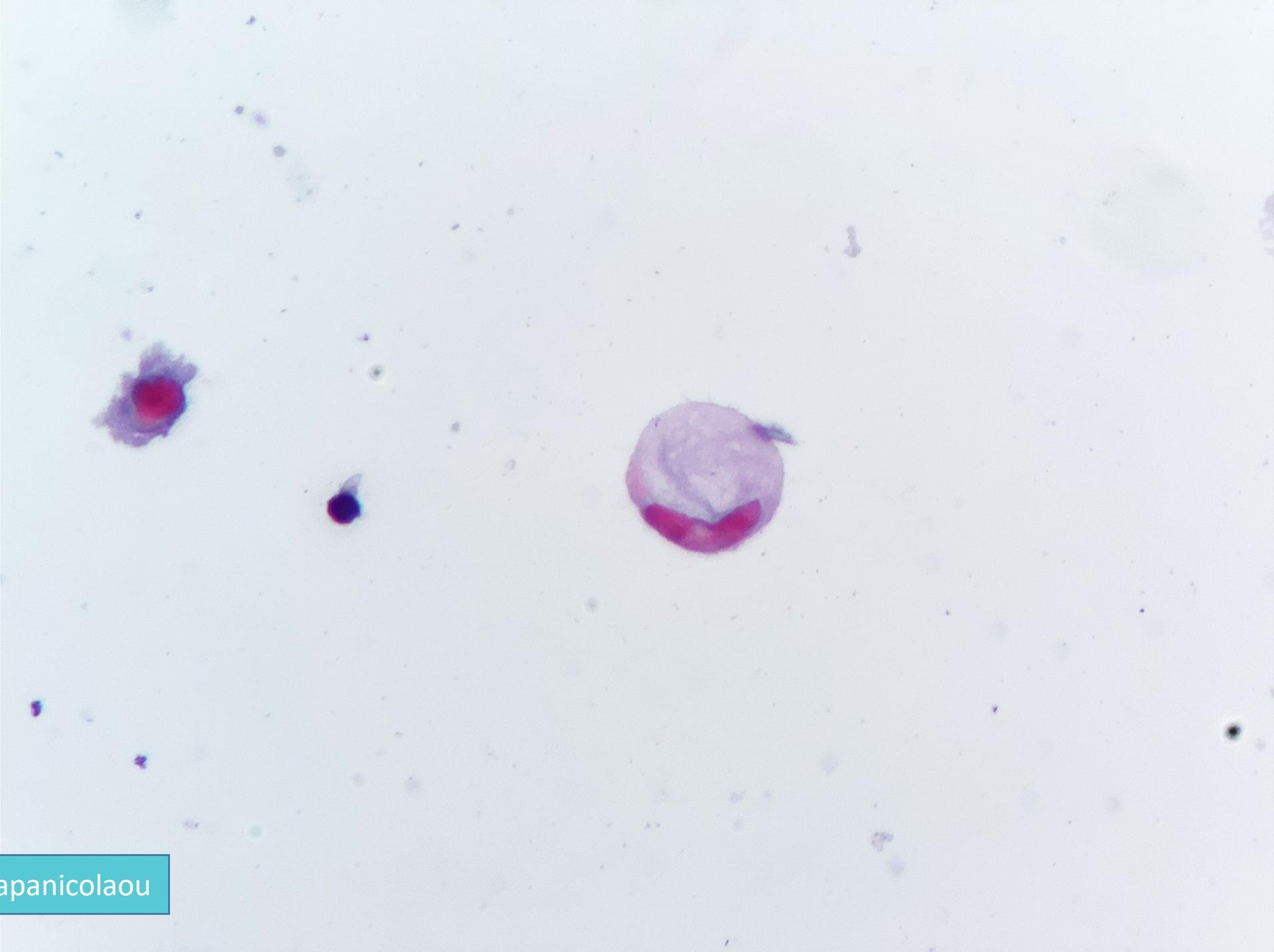


Tinción de papanicolaou



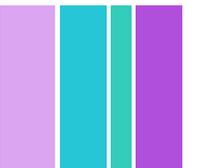
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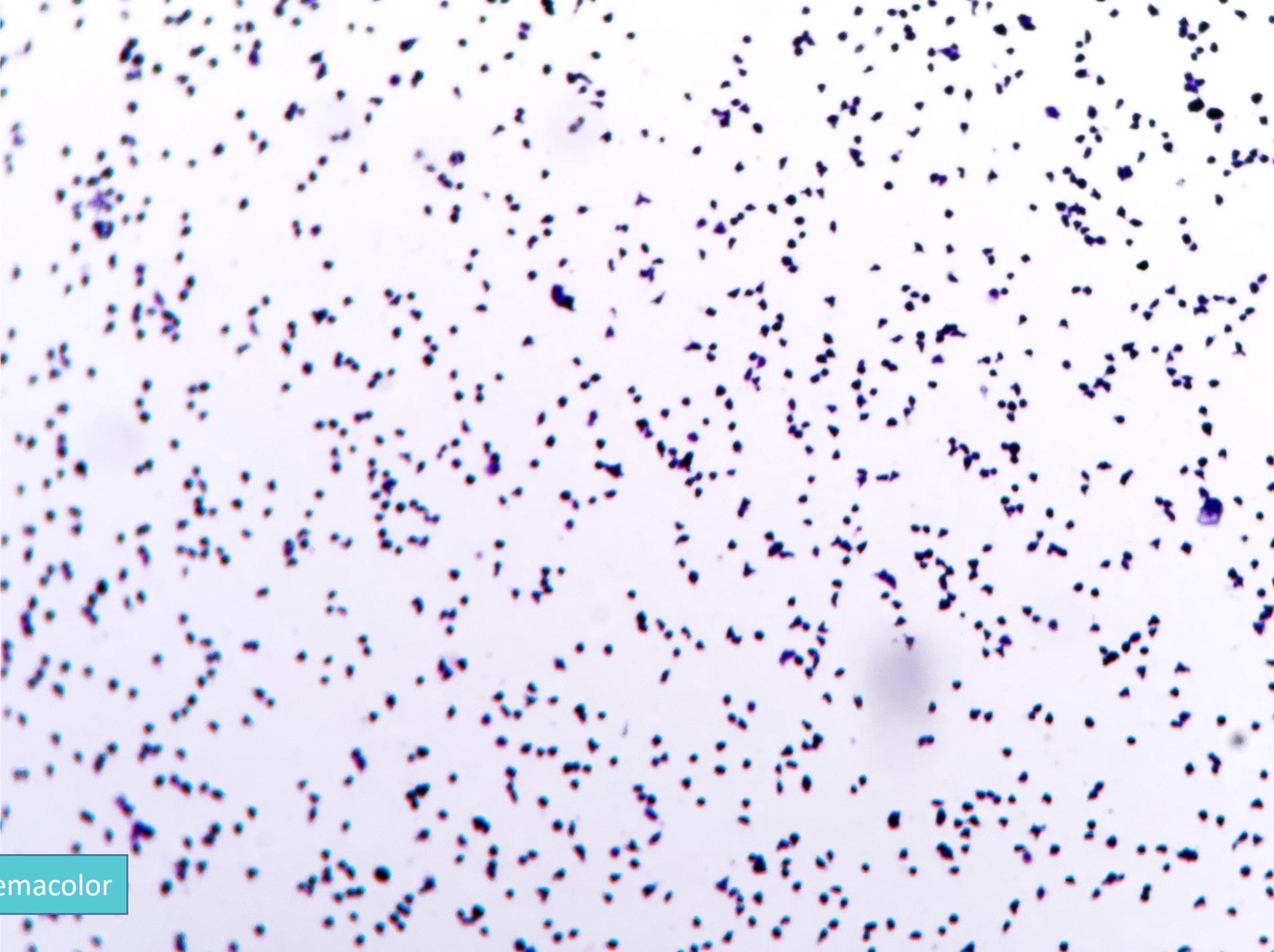




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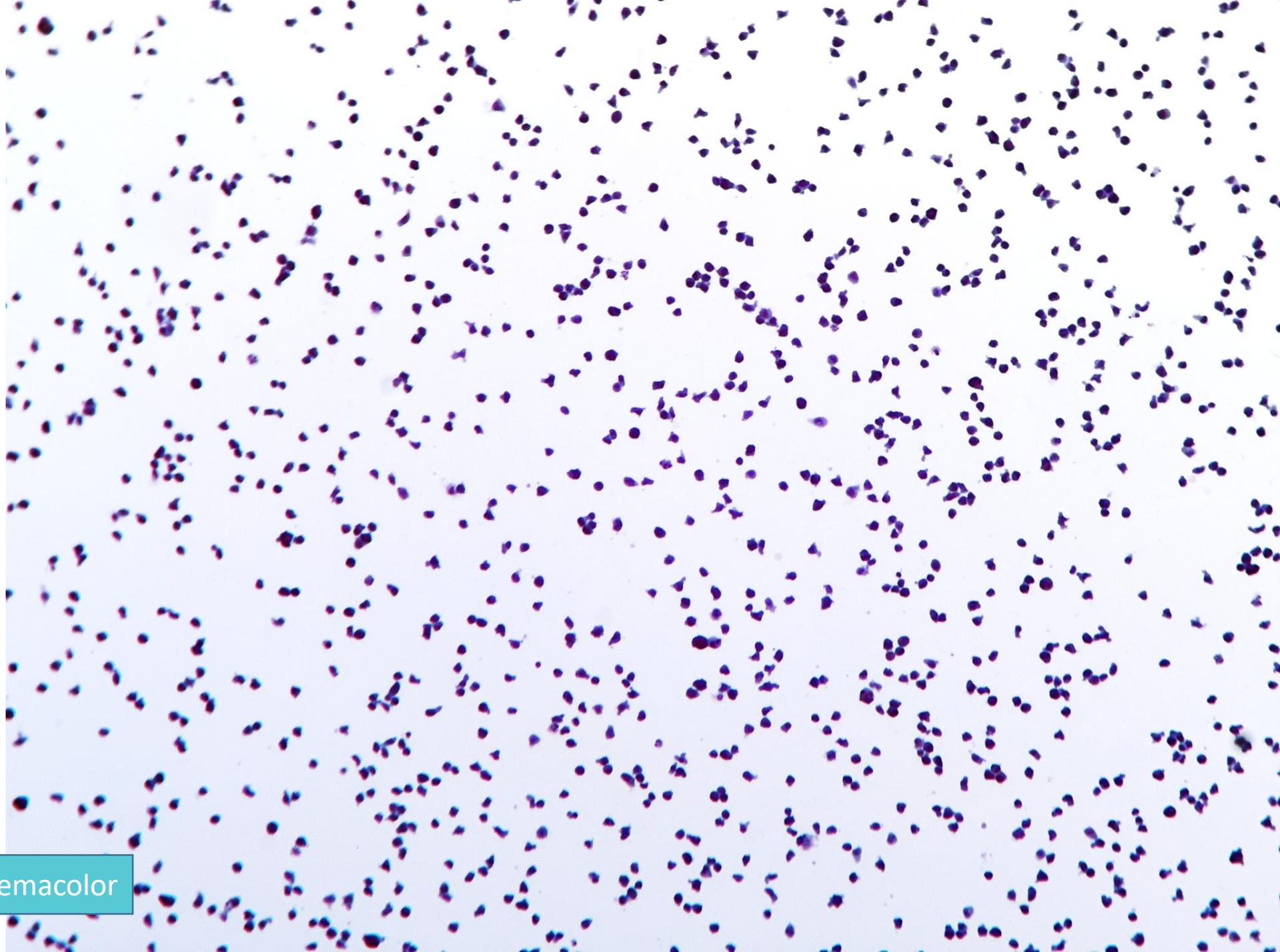
- 
- Hombre de 45 años
  - Sospecha de neoplasia de células plasmáticas





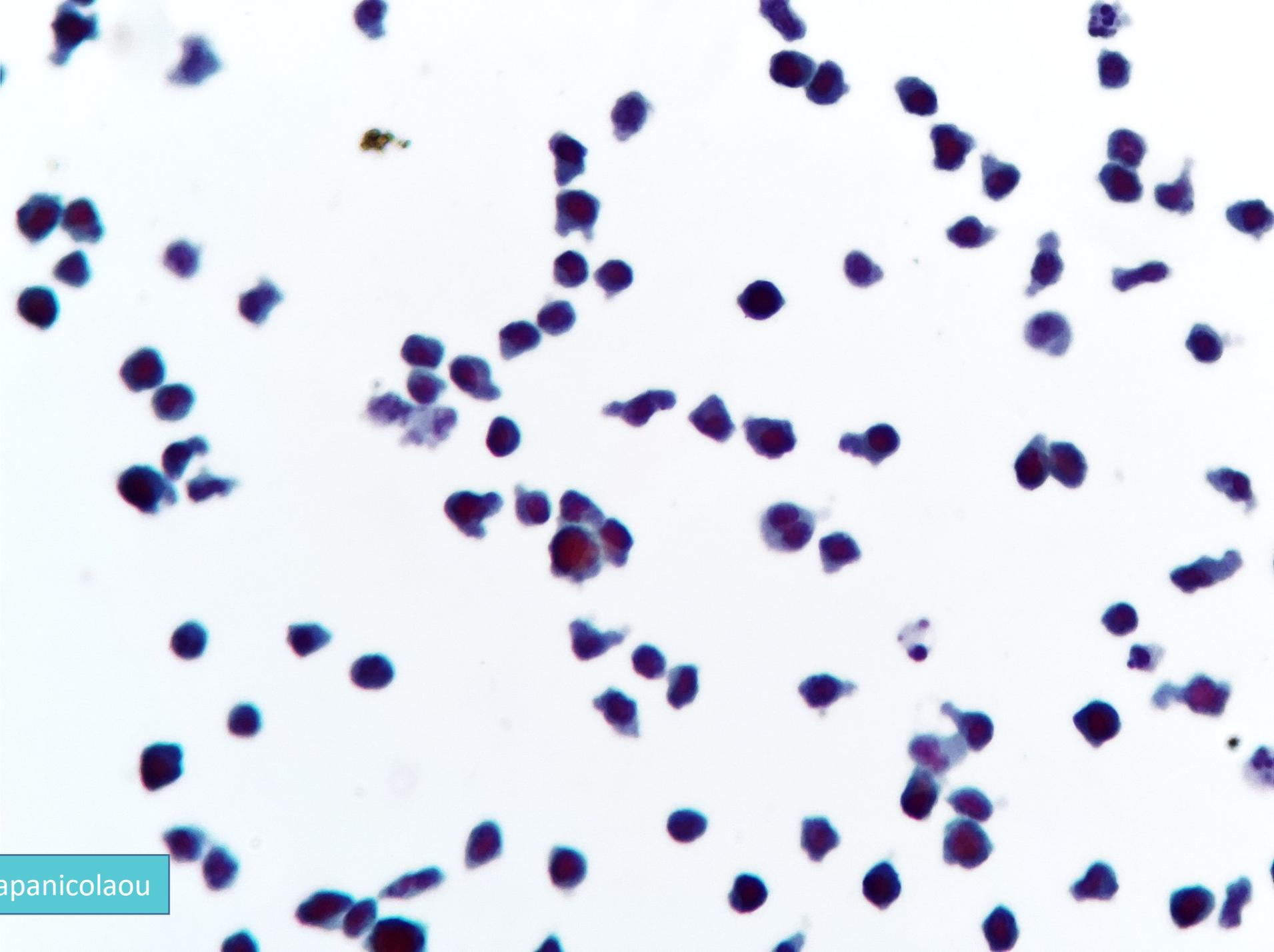
Tinción de hemacolor



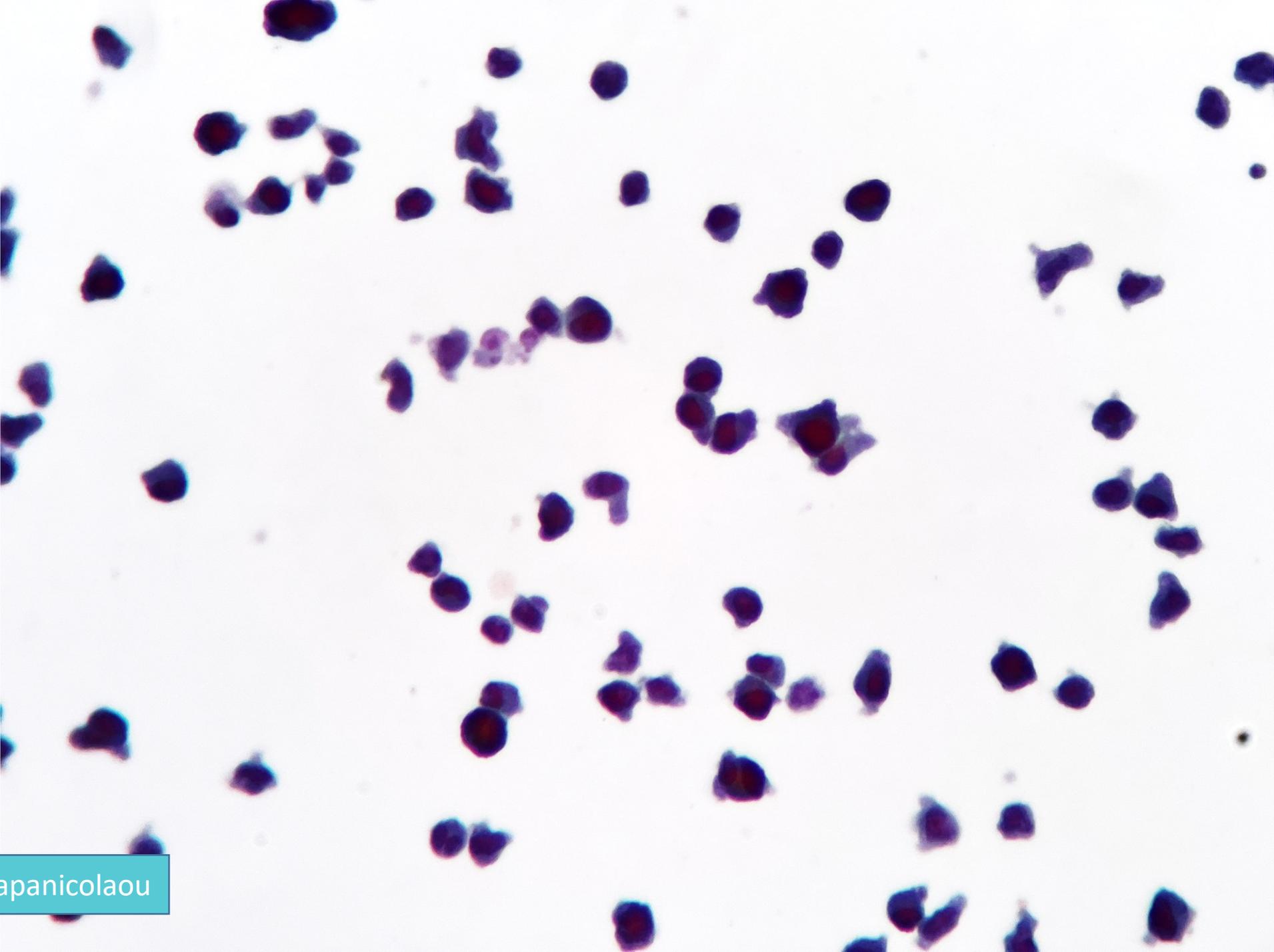


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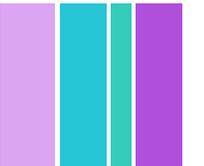


Tinción de papanicolaou

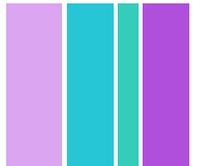


Tinción de papanicolaou

- 
- Se abre paréntesis...



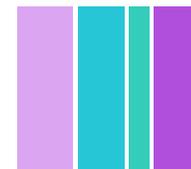
# Bloque celular



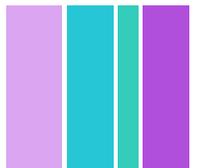
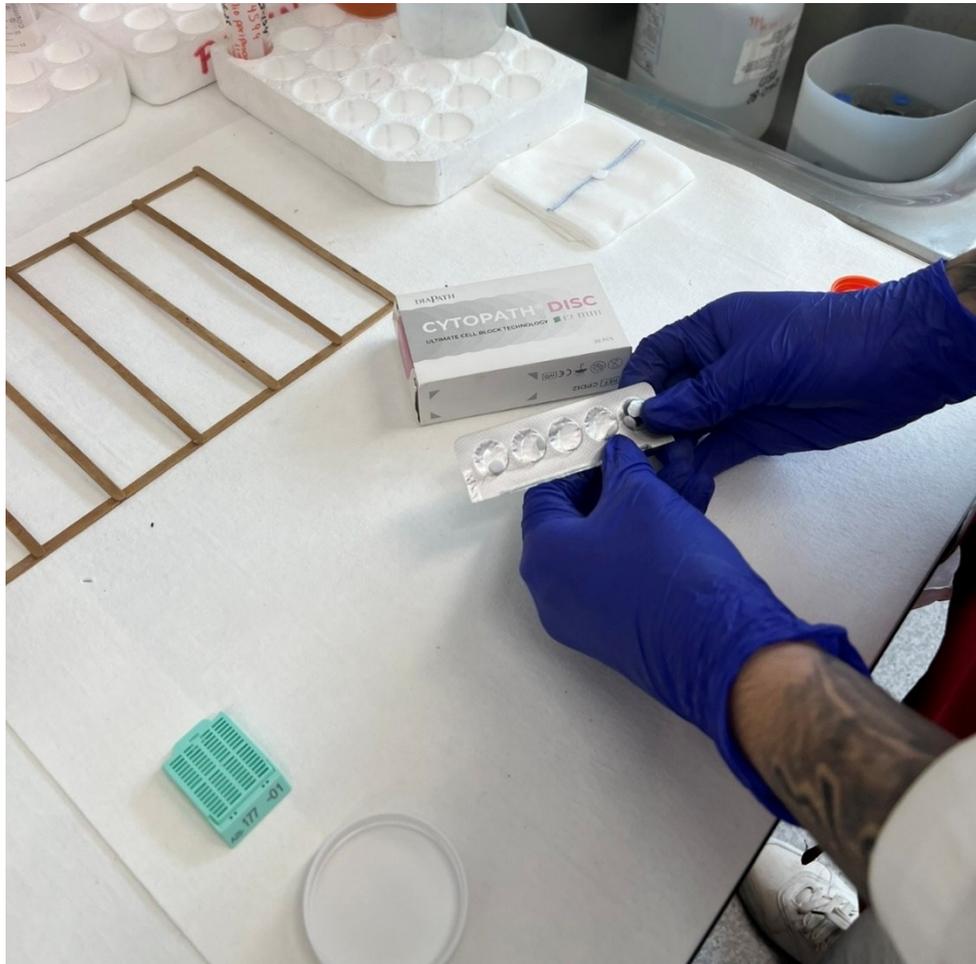
# Proceso del Bloque Celular



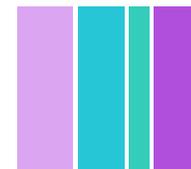
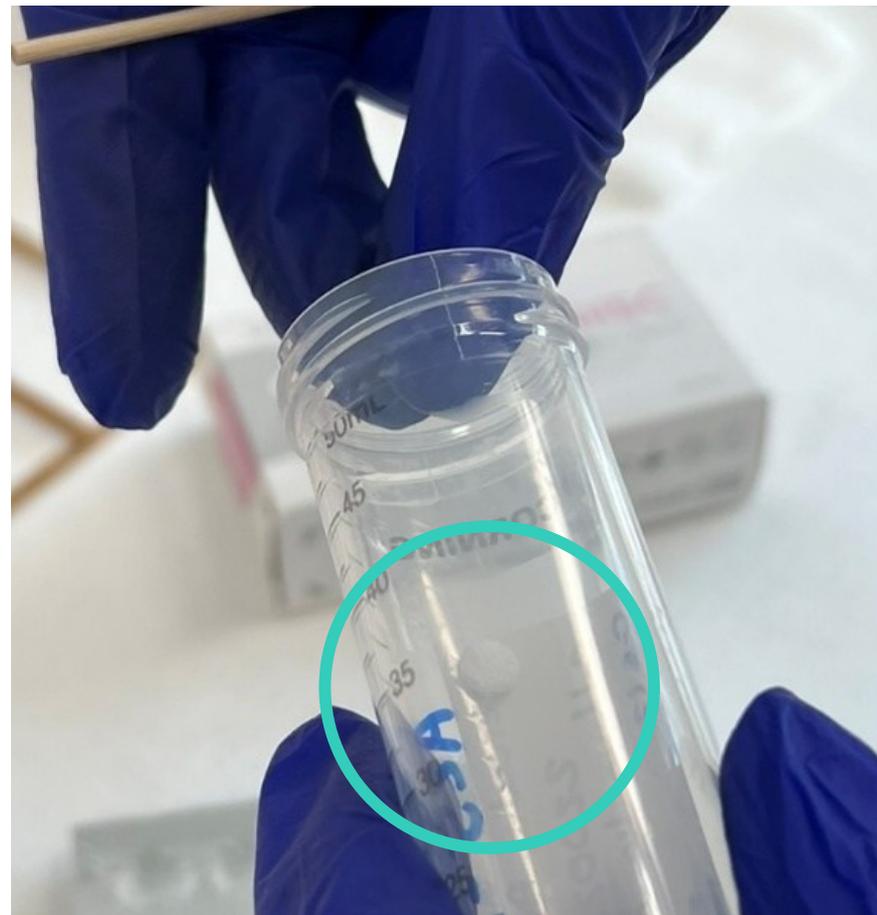
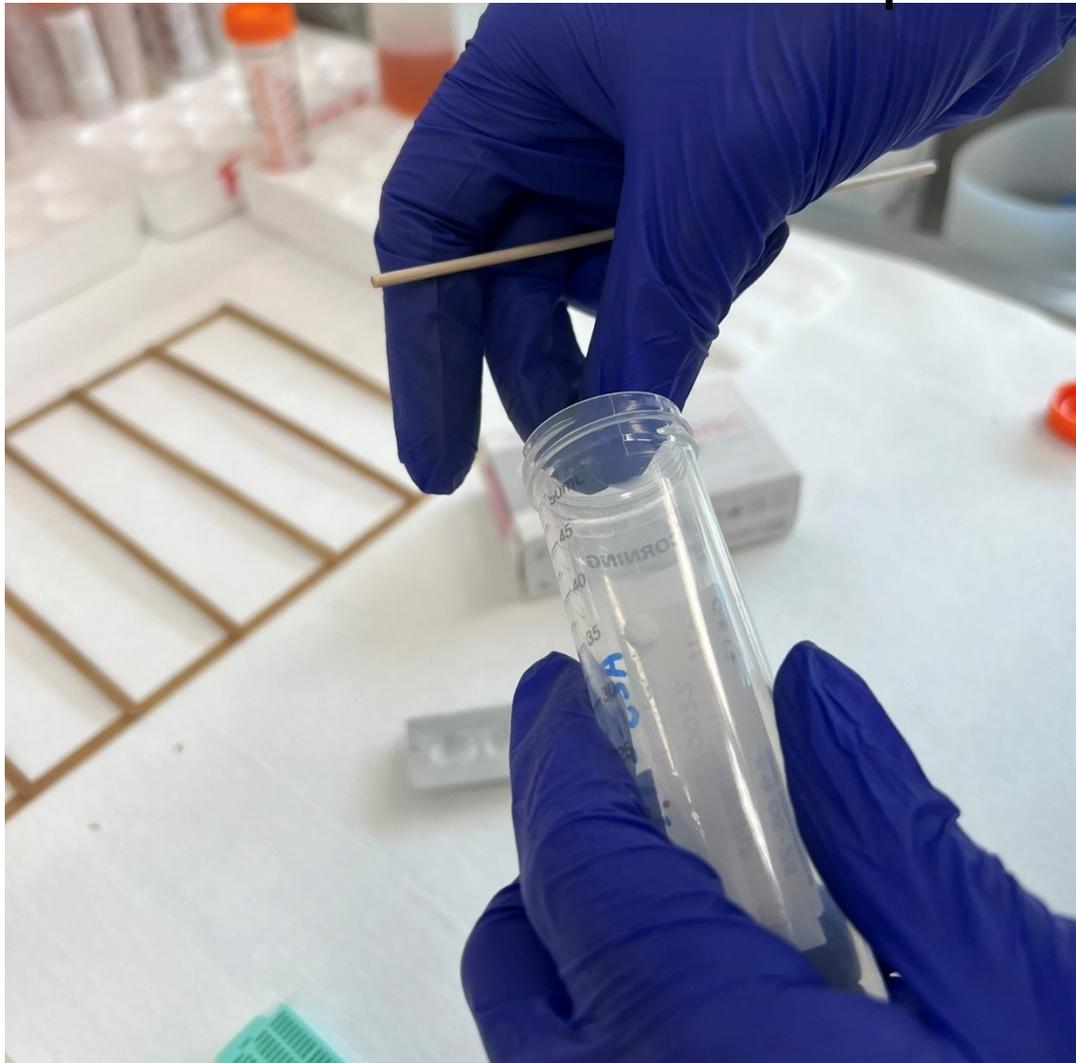
Esponjita



# Proceso de bloque celular



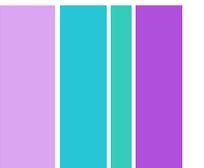
# Proceso de Bloque Celular

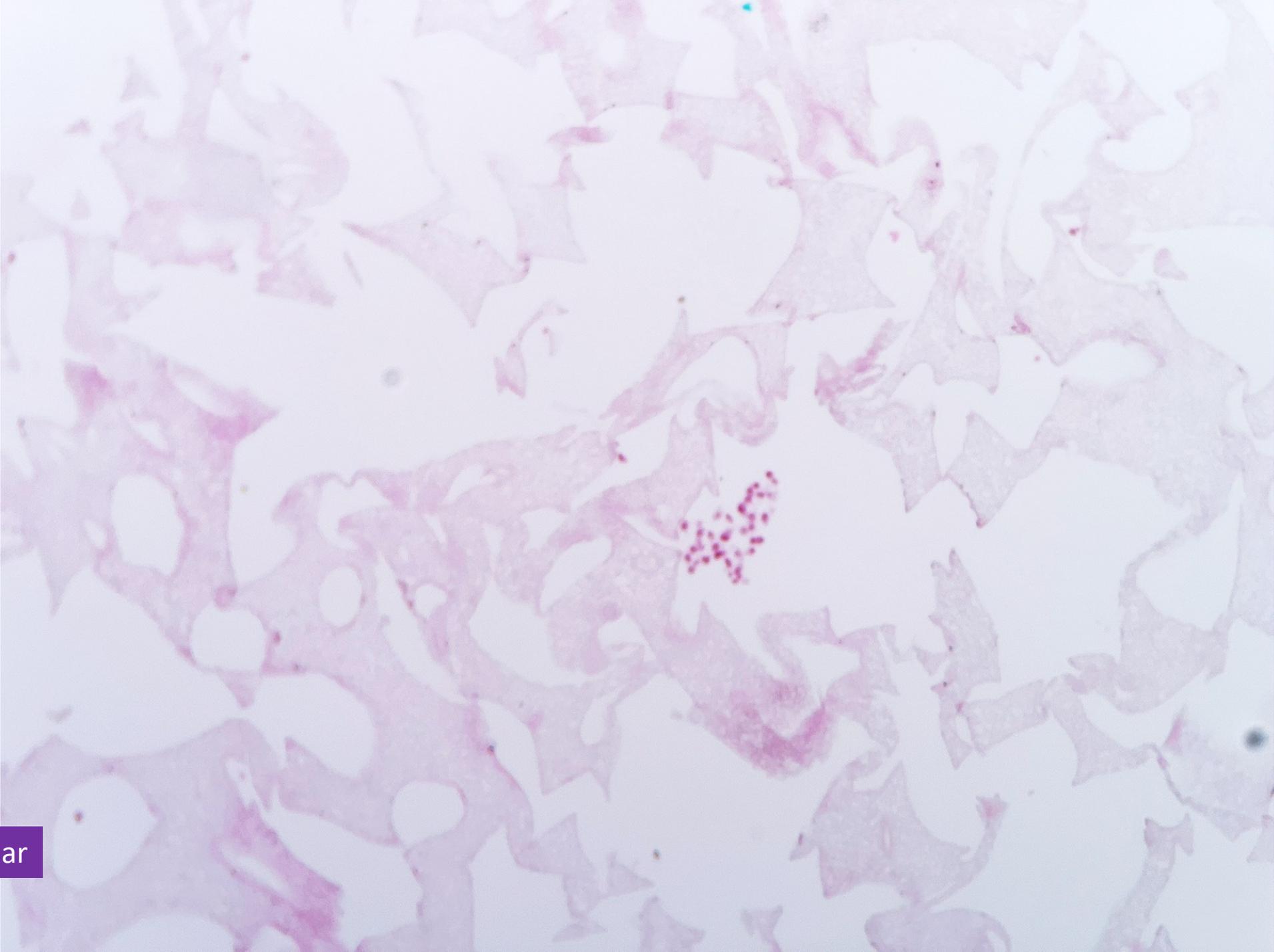


# Proceso de Bloque Celular

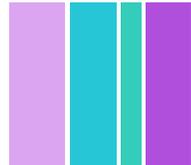


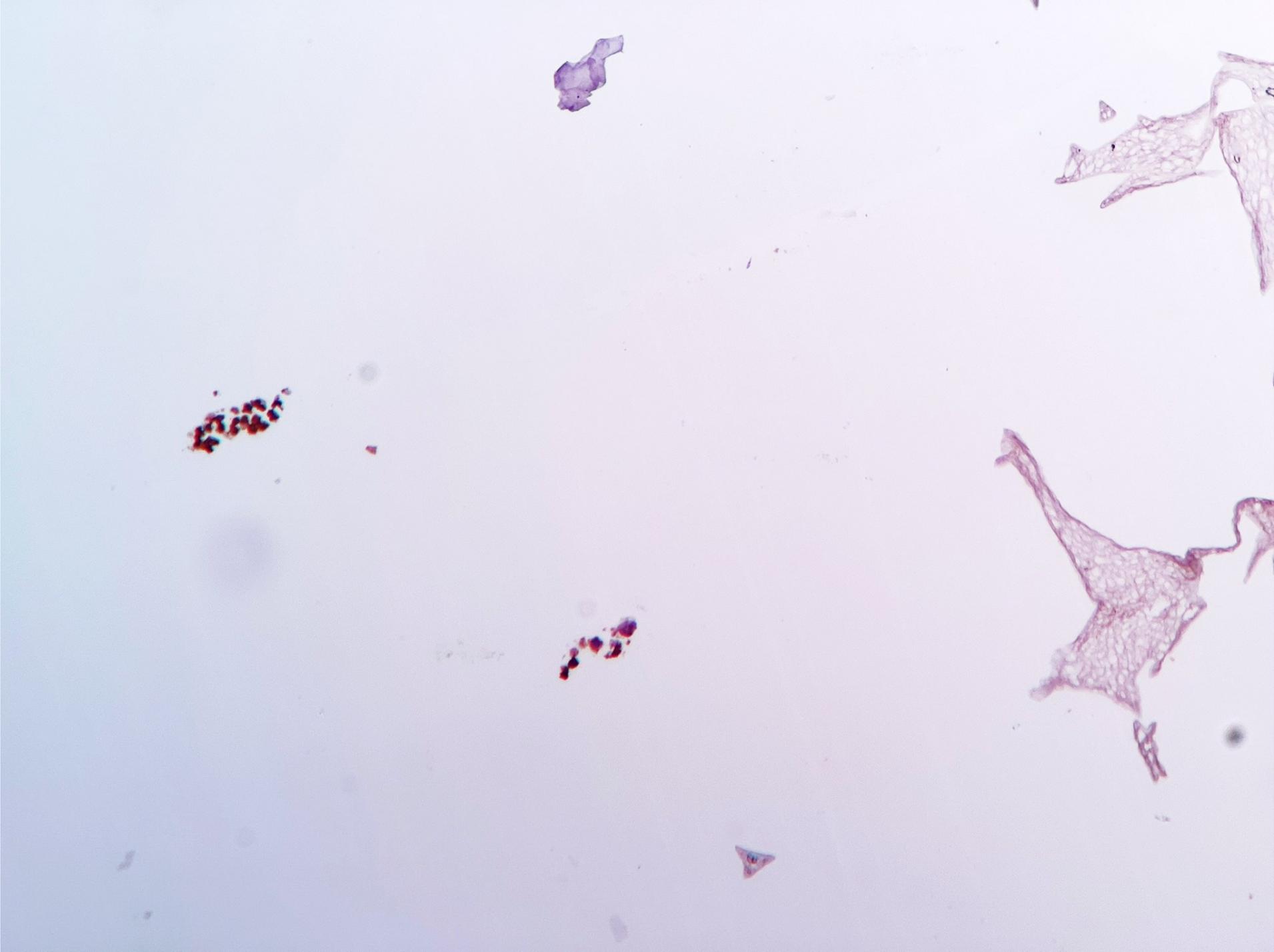
- 
- Se cierra paréntesis...



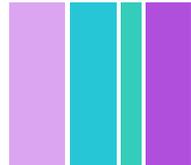


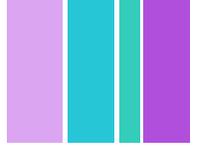
Bloque celular



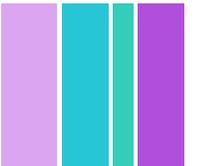


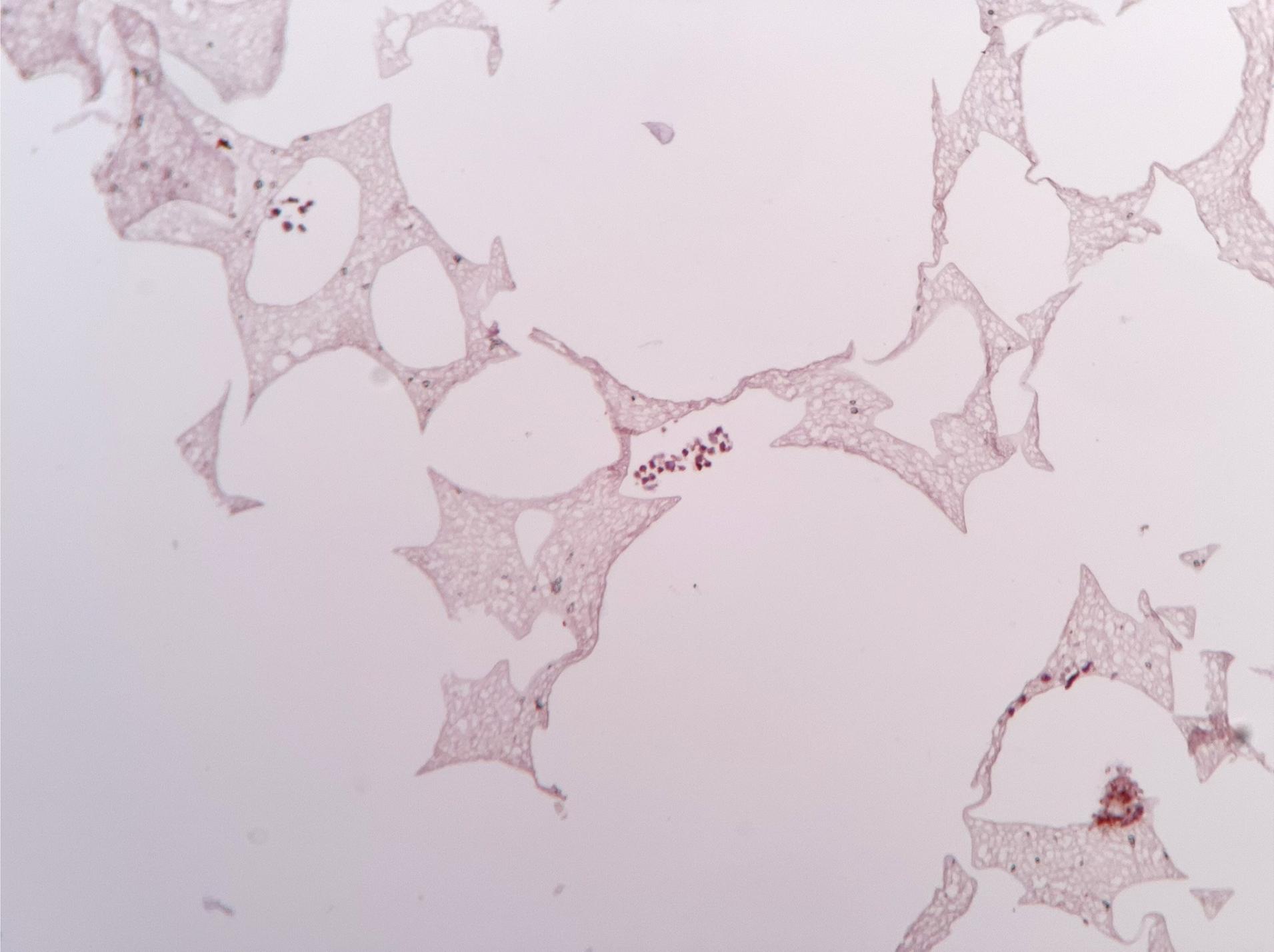
CD135



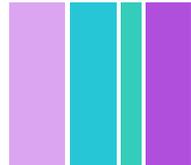


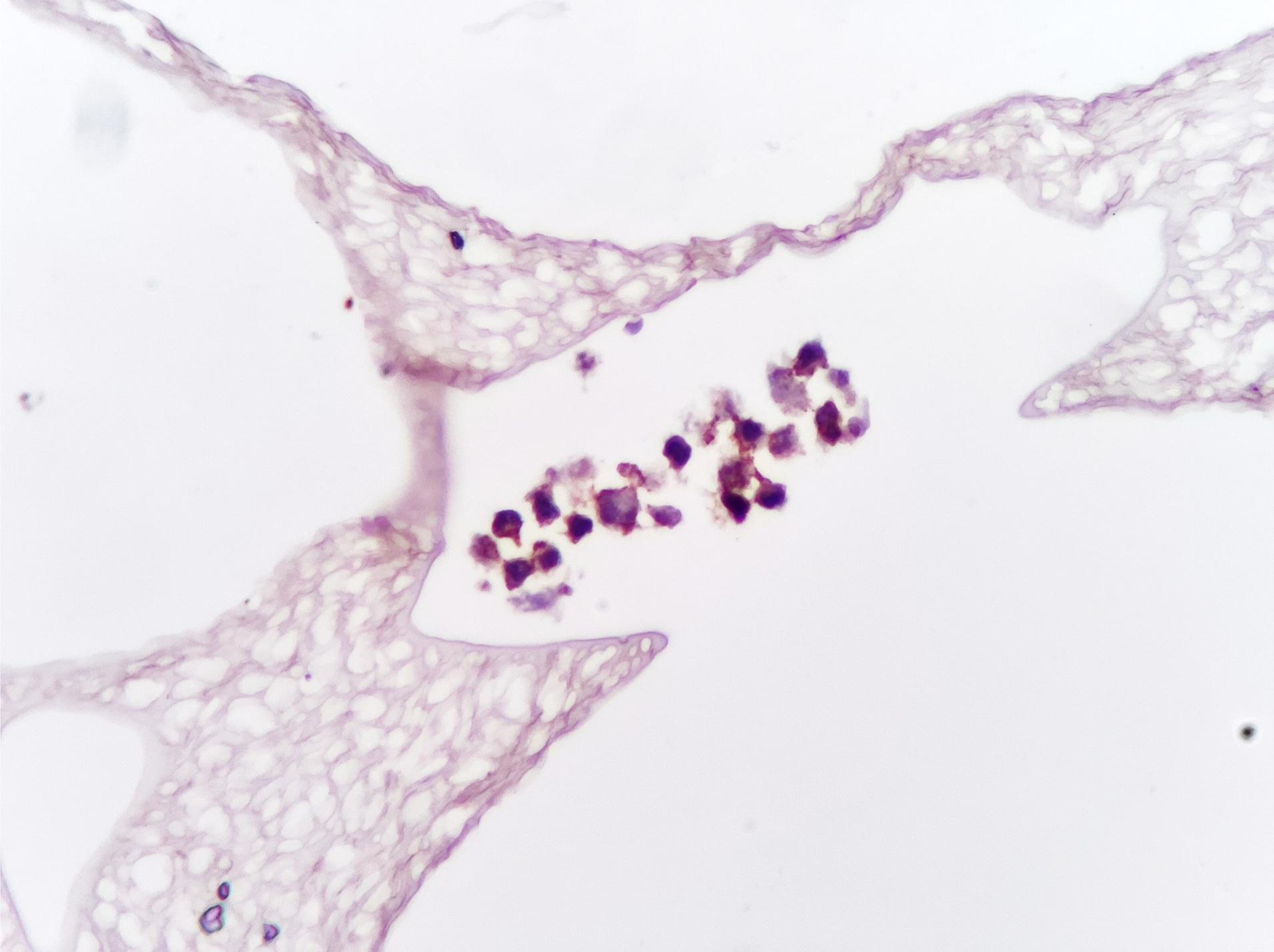
CD135



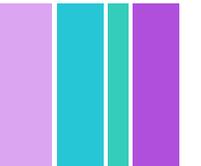
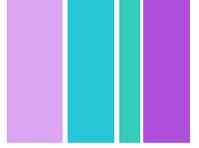


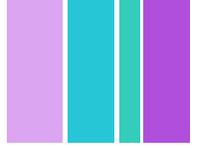
CD56





CD56

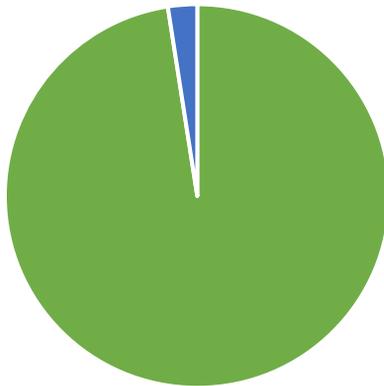




# INCan

- Muestras de líquido cefalorraquídeo: 1500 por año

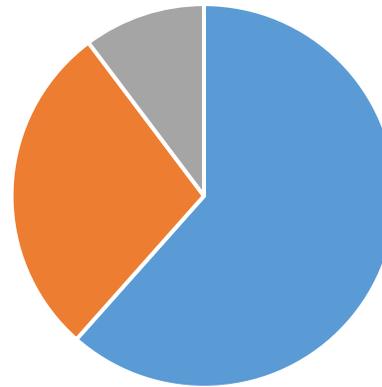
Total de LCR



■ Negativas ■ Positivas

2.6%

Neoplasias en LCR



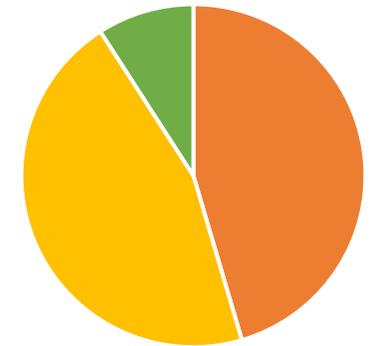
■ leucemia o linfoma ■ carcinomas ■ Neoplasias de celulas plasmaticas

61%

28%

10%

Carcinomas



■ adenocarcinoma de pulmon ■ Carcinoma de mama  
■ Adenocarcinoma pancreatobiliar

