



Cartagena, Colombia 3 al 6 OCTUBRE 2024

Identificación de células inmaduras y maduras de médula ósea y sangre periférica

Orlando Mena Álvarez



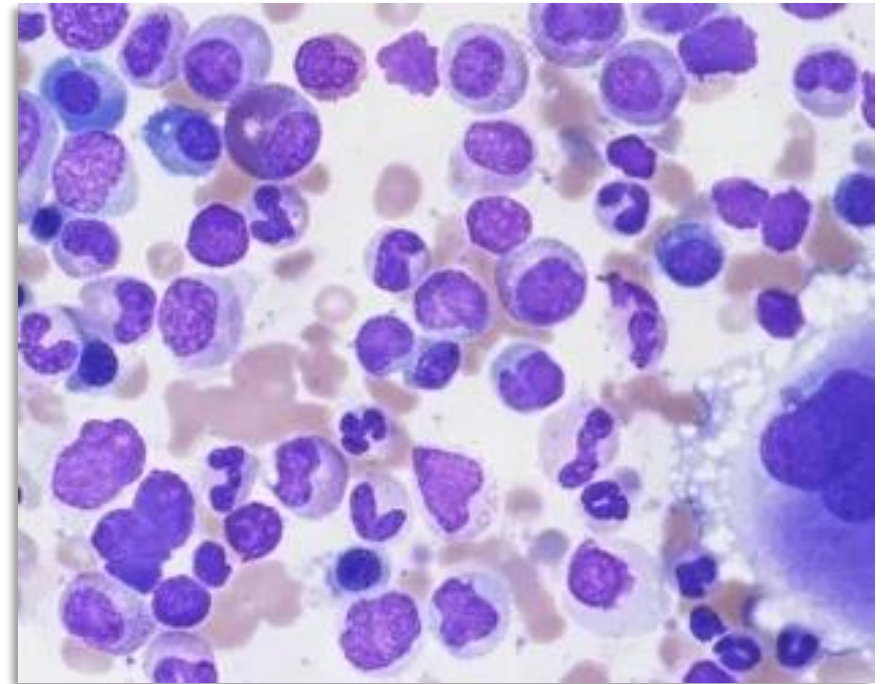
Identificación de células

ANTÍGENOS DE AMPLIA EXPRESIÓN

Linaje B: CD19, CD22, CD79. Igs
Linaje T: CD3, CD5, CD7
Linaje mieloide: MPO, CD13, CD33, CD34, CDW65

ANTÍGENOS ASOCIADOS CON INMADUREZ O PRECURSORES

HLA-DR, CD34, TdT, CD3, CD10, CD19, CD117



Identificación de células

ANTICUERPOS MONOCLONALES ESPECÍFICOS

Linaje B: CD10, CD19, CD22, CD20, CD21, CD22, CD23, CD4, CD79. Igs

Linaje T: CD1, CD2, CD3, CD4, CD5, CD7, CD8, CD27

Linaje mieloide: MPO, HLA-DR, CD10, CD13, CD16, CD33, CD34, CDW65

Plasmocitos: CD38, CD138. Cel malignas: CD28, CD33, CD56 y CD117.

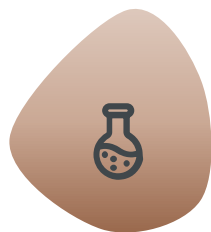
Linaje Eritroide: Glicoforina A y C, Hemoglobina, Espectrina.

Linaje Monocítico: CD11, CD14, CD36, CD64, CD68, CD163

Linaje Megacariocítico: CD41, CD42, CD61, FvW

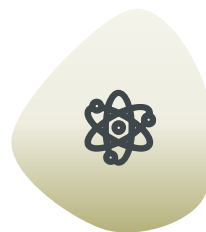
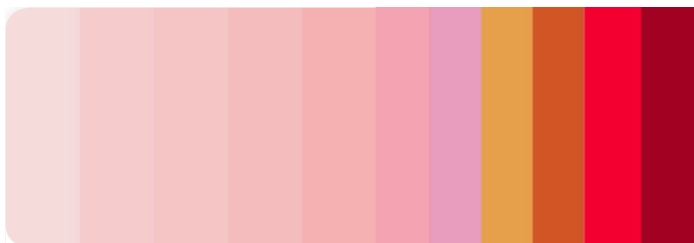


Colorante de Wright



Eosina

Ácida y colorea partes básicas
Rosa – rojo
Color acidófilo



Metanol

Fijador

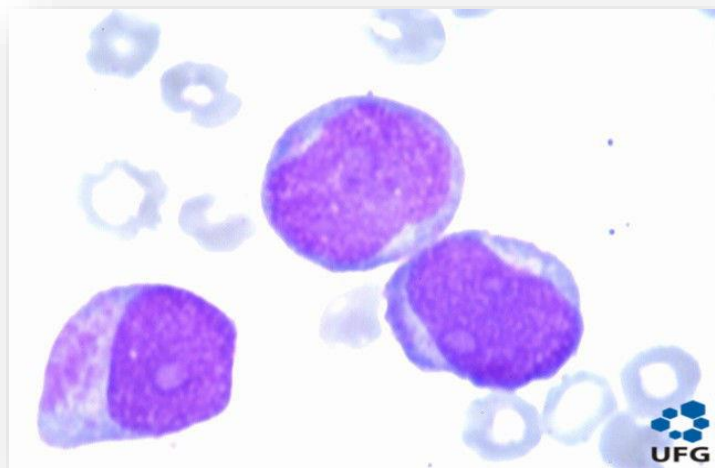


Azul de metileno

Básico y colorea las partes ácidas
Azul claro – morado
Color basófilo

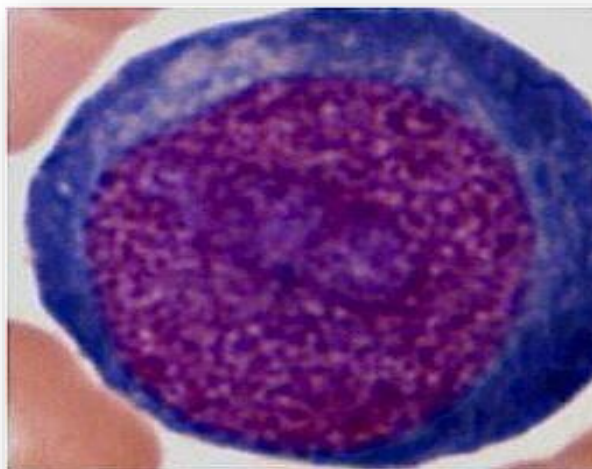


CLASES DE NUCLEÓLOS



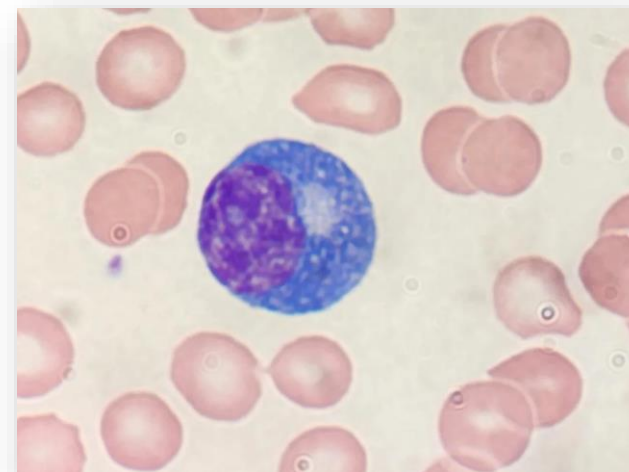
Claros:

- Línea mieloide
- Línea linfoide
- Línea Monocítica



Oscuros:

- Línea eritroide



Azul celeste:

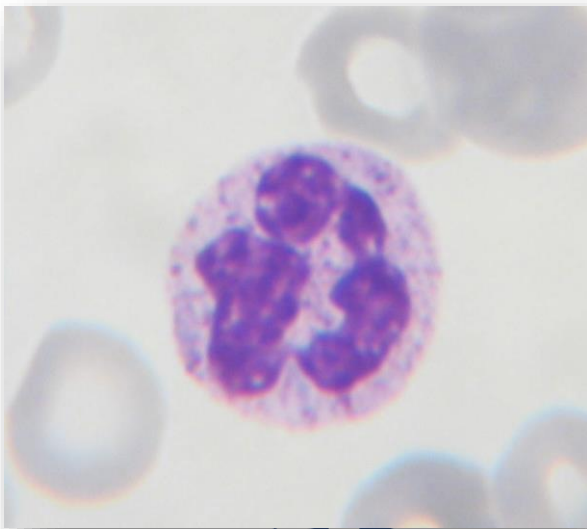
- Células plasmáticas
- Megacariocitos
- Células reticulares
- Células tumorales



CLASES DE GRÁNULOS

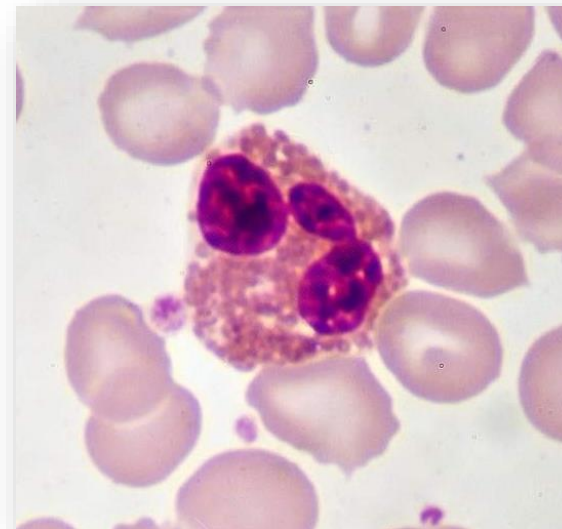
Neutrófilos

pH neutro, color púrpura
Capta los dos colorantes
lisozima, lactoferrina, gelatinasa y proteínas captadoras
de vitamina B12



Eosinófilos

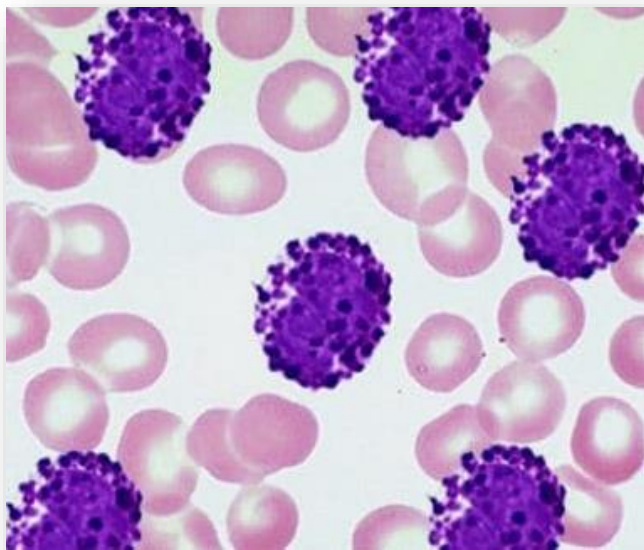
pH básico, color naranja – rojo
Capta colorante ácido – Eosina
Proteína mayor básica y proteína catiónica



CLASES DE GRÁNULOS

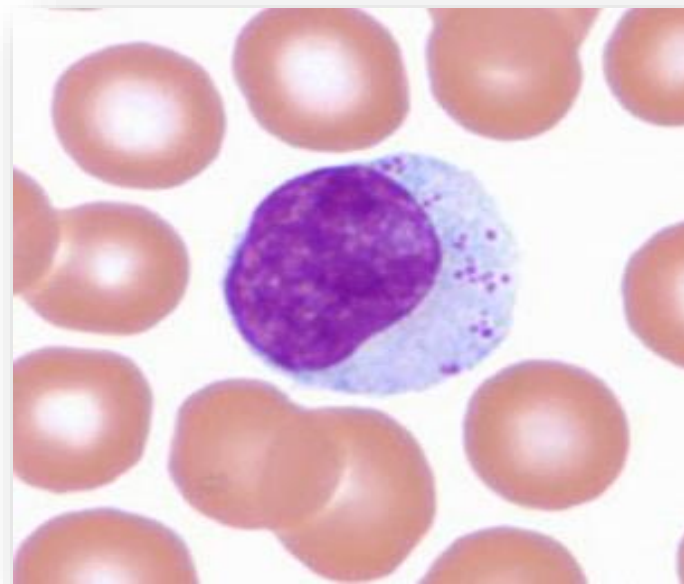
Basófilos

pH ácido, color púrpura
Capta colorante básico – Azul de metileno
Proteoglucanos sulfatados, heparina y condroitin sulfato-4-sulfato



Primarios o Azurófilos

pH neutro, color rojo vino
Capta los dos colorantes
PMO, Lisozima, Fosfatasa acida



Línea mieloide

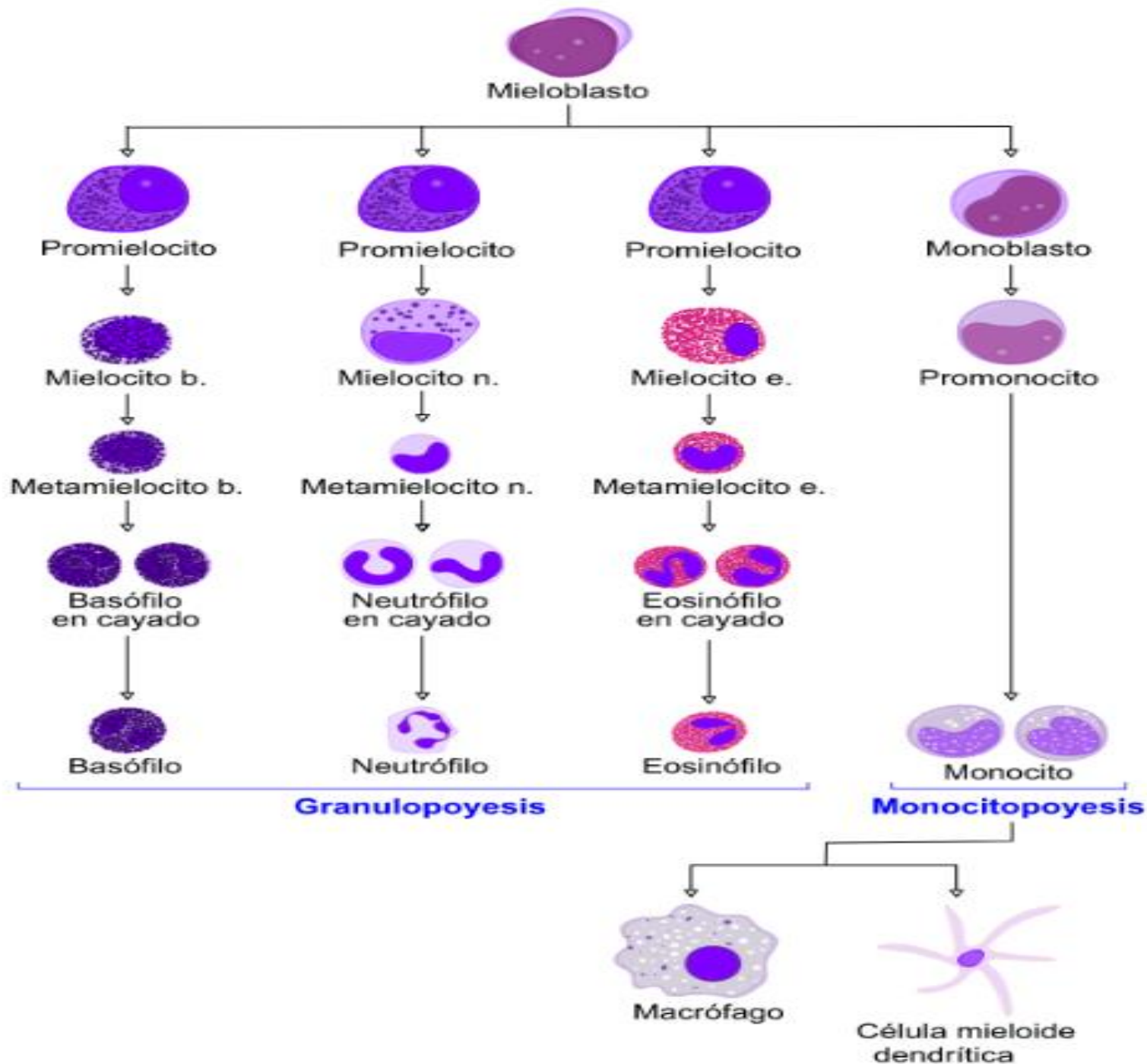


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www.congresocolabiocli.com





Fuente:

<https://www.facebook.com/medicinaveterinariapractica/photos/a.517907231555543/4318999174679644/>

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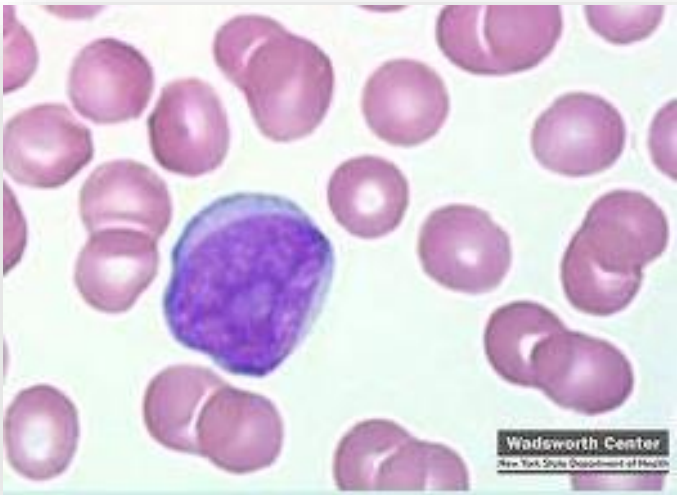


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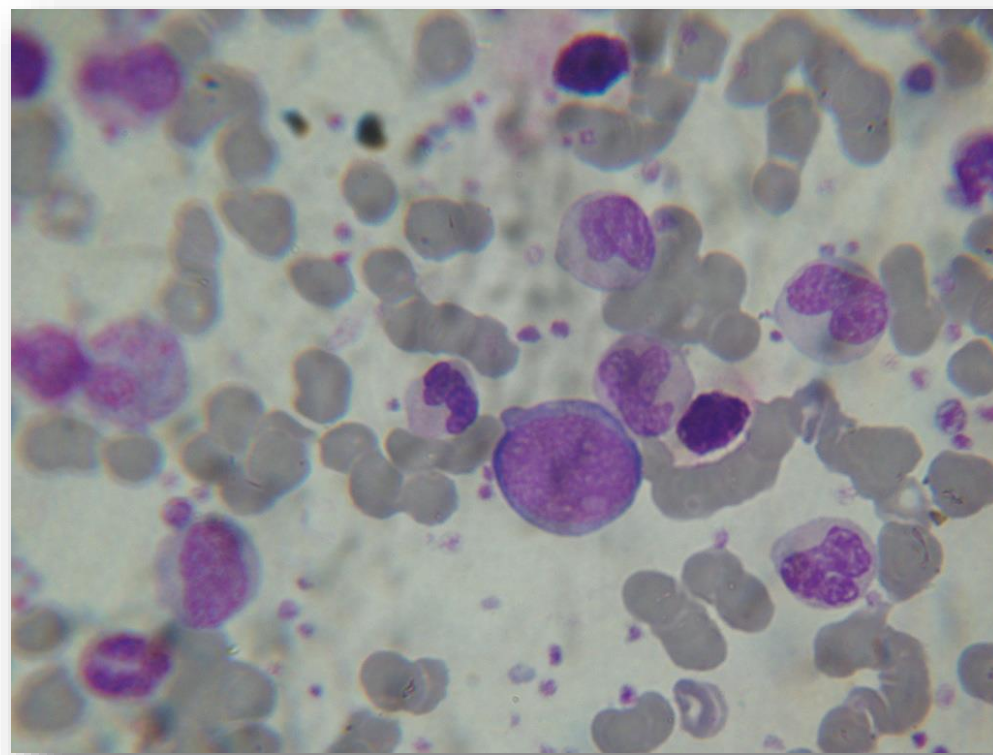
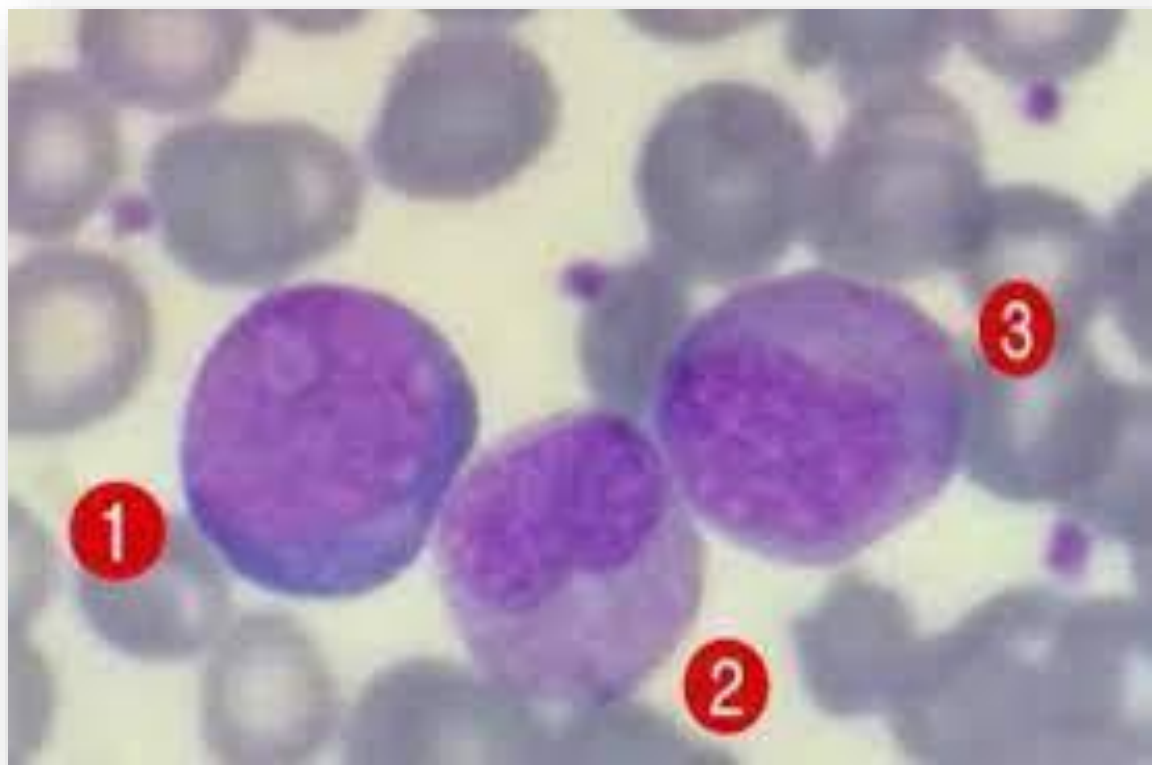
MIELOBLASTO



10 – 18 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina y homogénea Nucléolos presentes	Ligeramente basófilo (azul claro) Escasos gránulos	+/- B. Auer	MPO: +/- CAE: + PAS: – ANAE: - ANBE: -	+: HLA-DR, CD13++, CD33++, CD38, CD117++ +/-: MPO, CD34, CD66 +/- débil: CD45 -: CD10, CD11b, CD15, CD16, CD24, CD65, CD67, Lactoerrina

MIELOBLASTO



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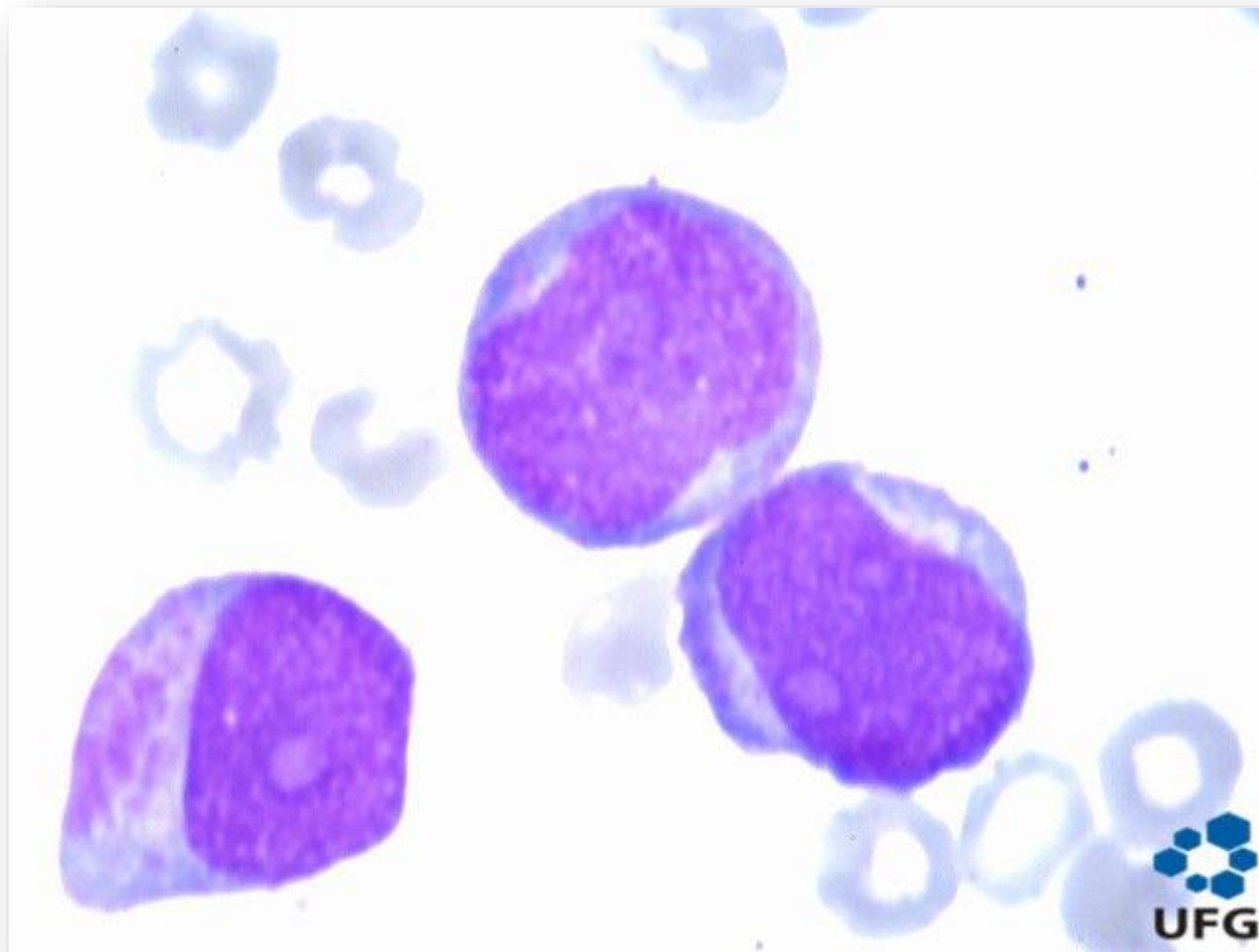


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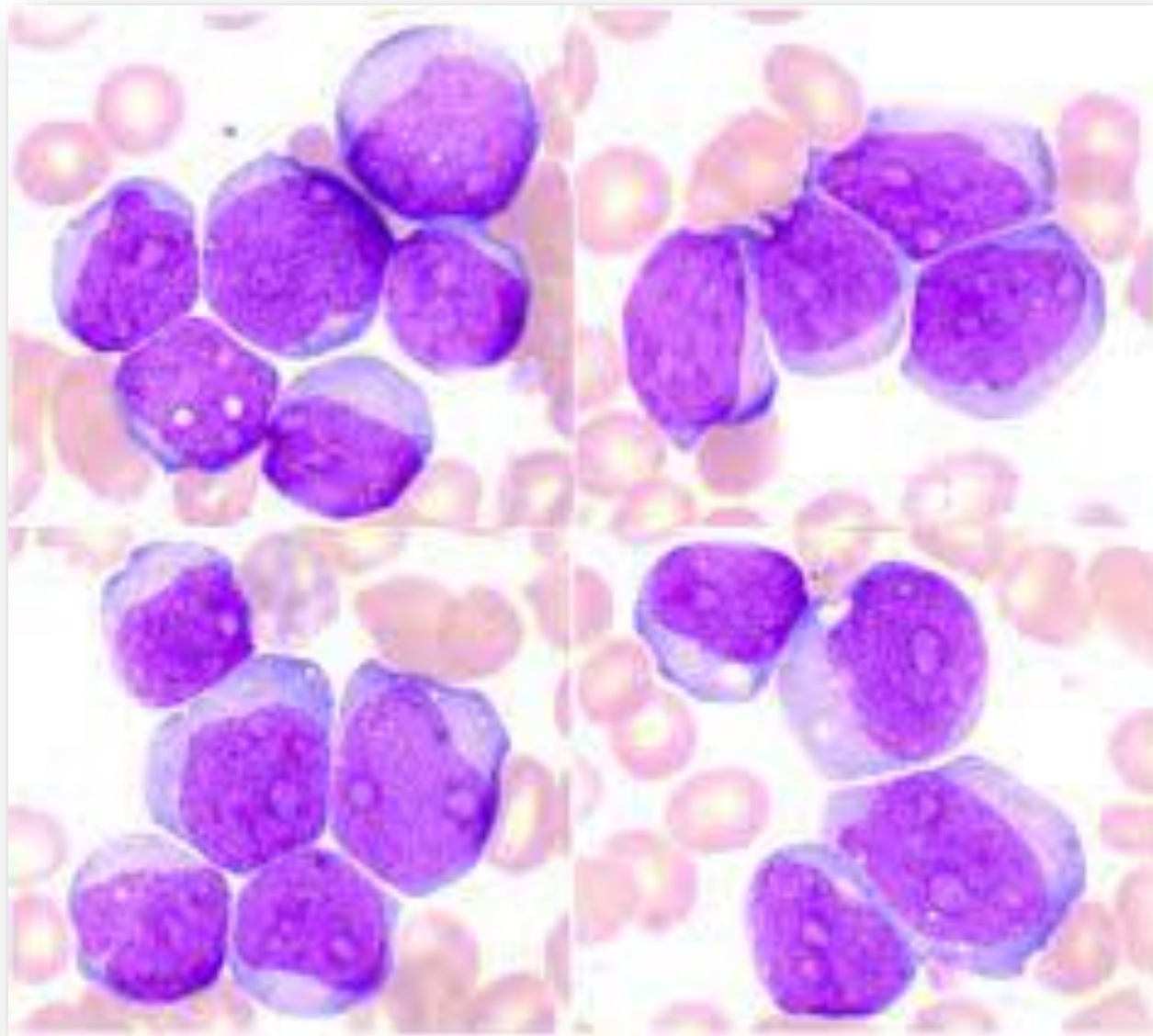
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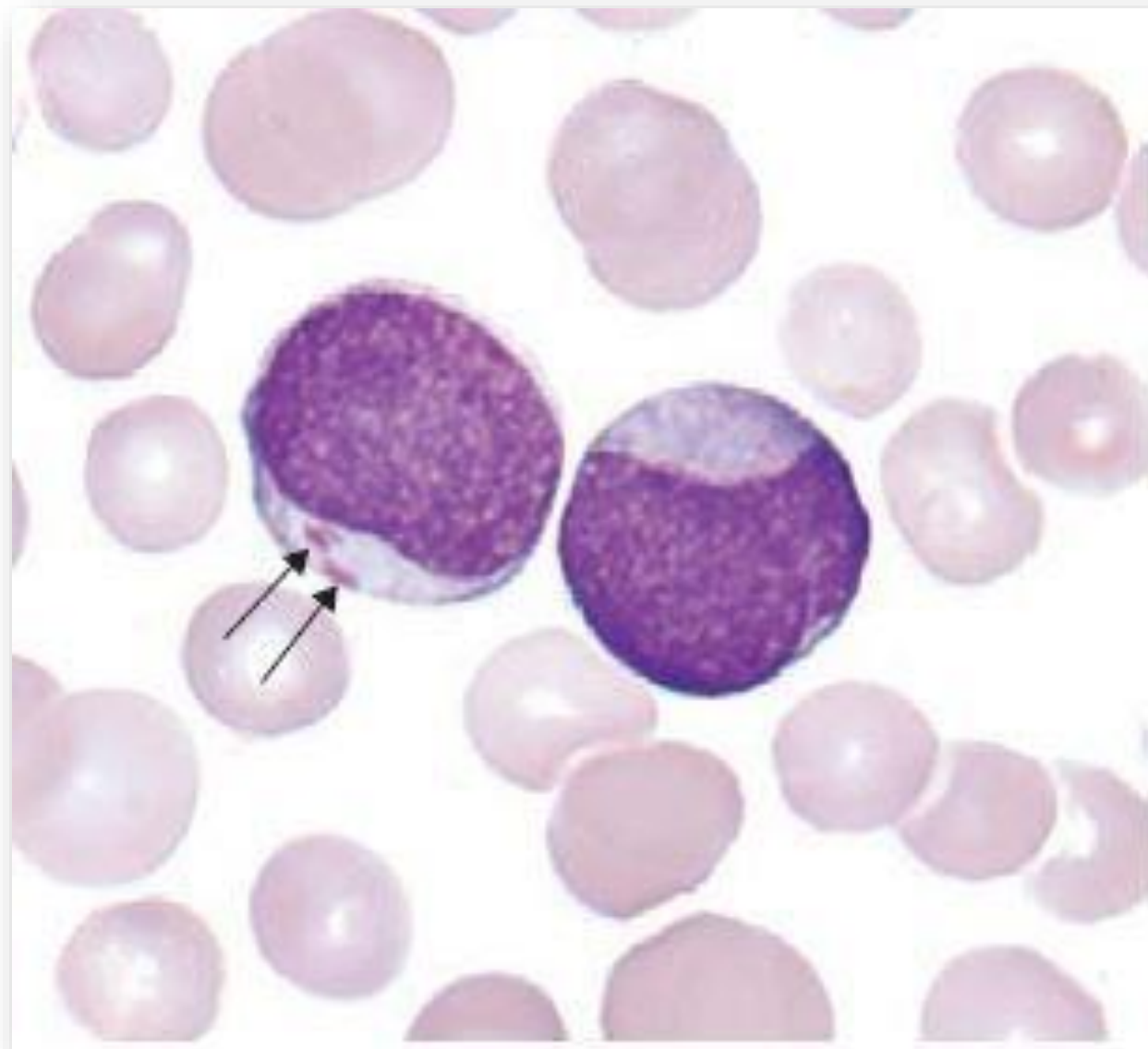
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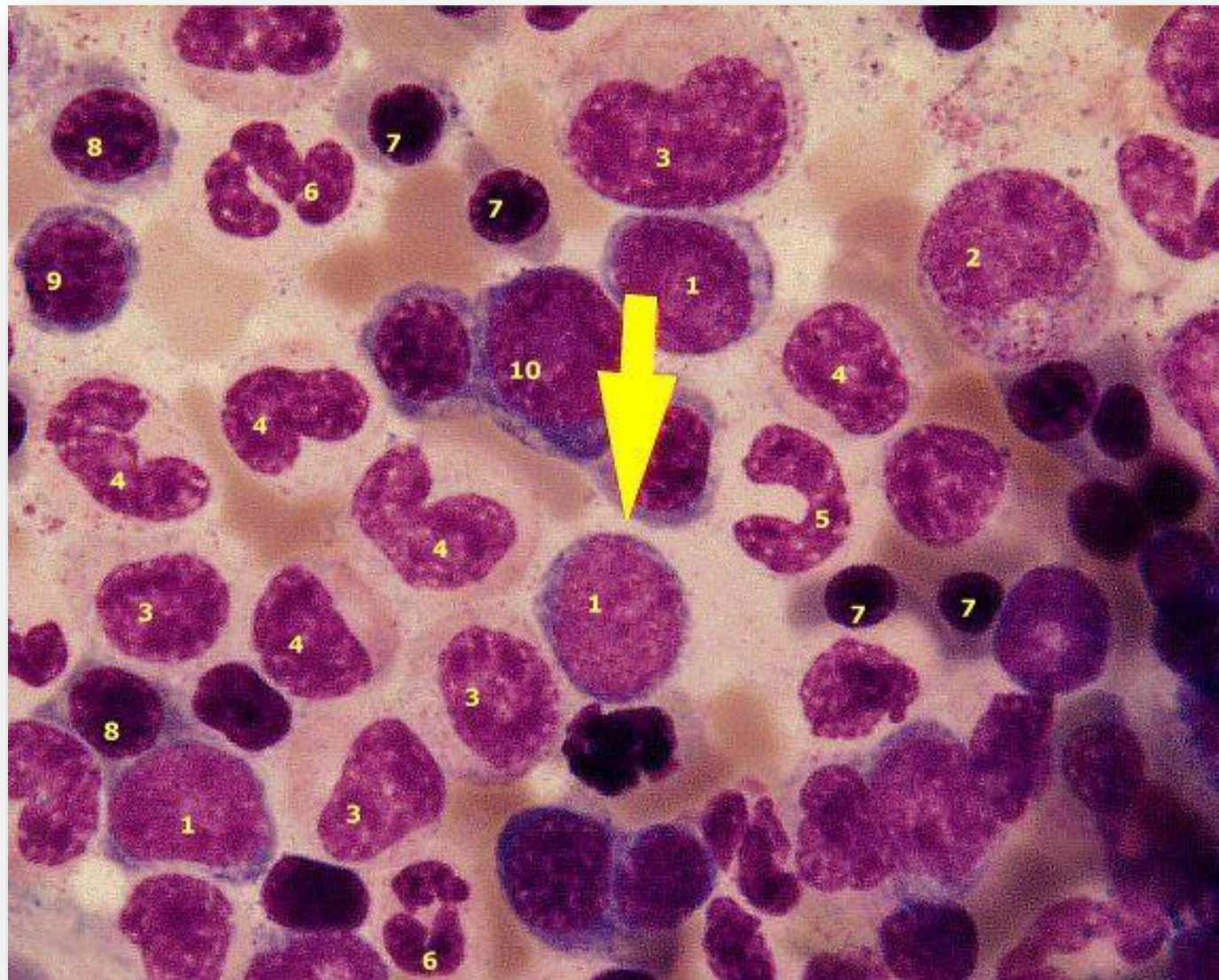
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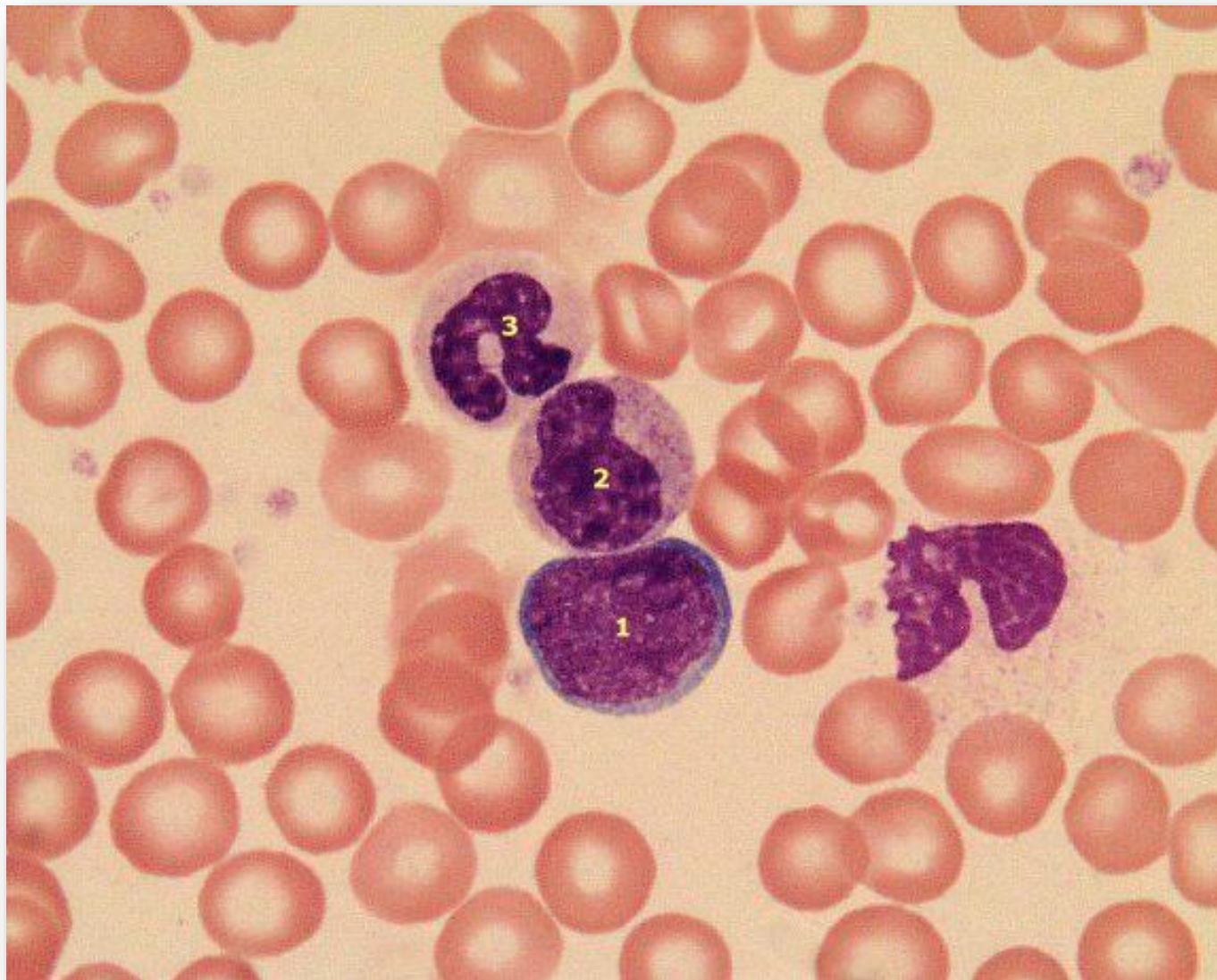
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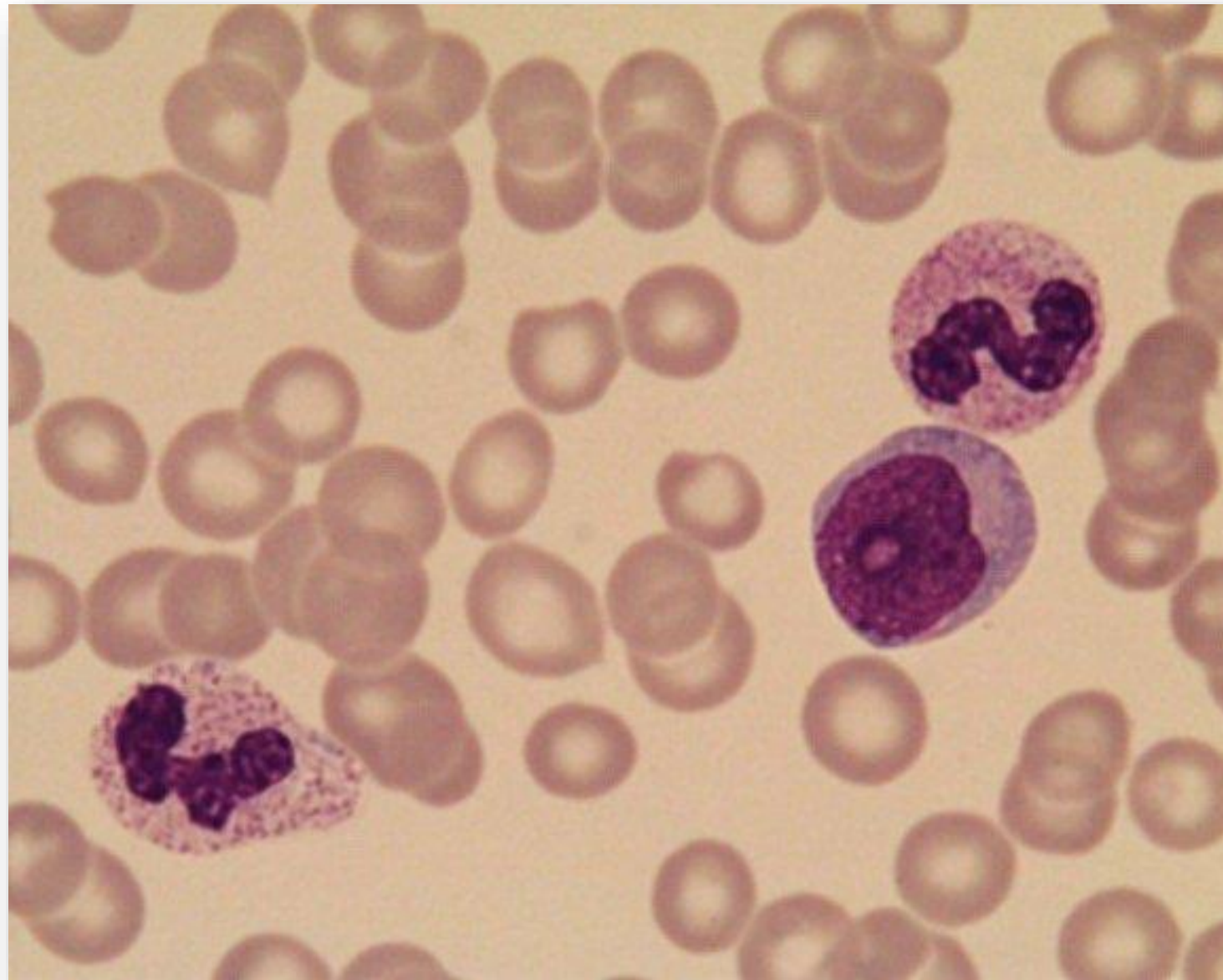
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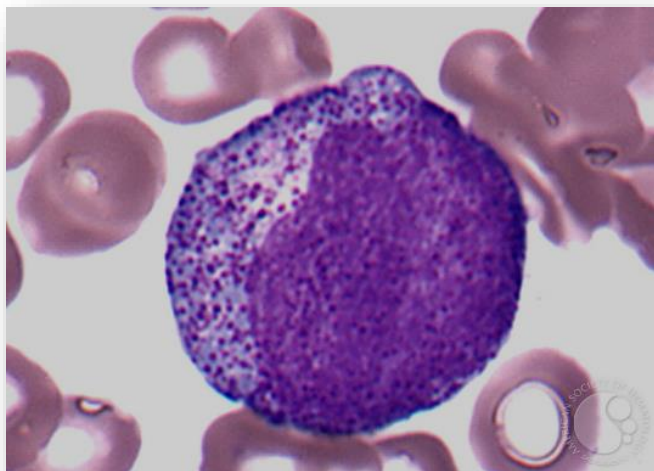
MIELOBLASTO



MIELOBLASTO



PROMIELOCITO



14 – 20 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina. Nucléolos prominentes	Ligeramente Basófilo	+/- B. Auer Abundantes gránulos. G. Neutrófilos, eosinófilos y azurófilos	MPO: + CAE: + PAS: – ANAE: – ANBE: –	+: MPO++, CD13++, CD33++, CD65+, CD66 + débil: CD45 +/-: CD11b, CD15, CD117 -/+ débil: HLA-DR (raro) -: CD10, CD16, CD24, CD34, CD38, CD67, Lactoferrina

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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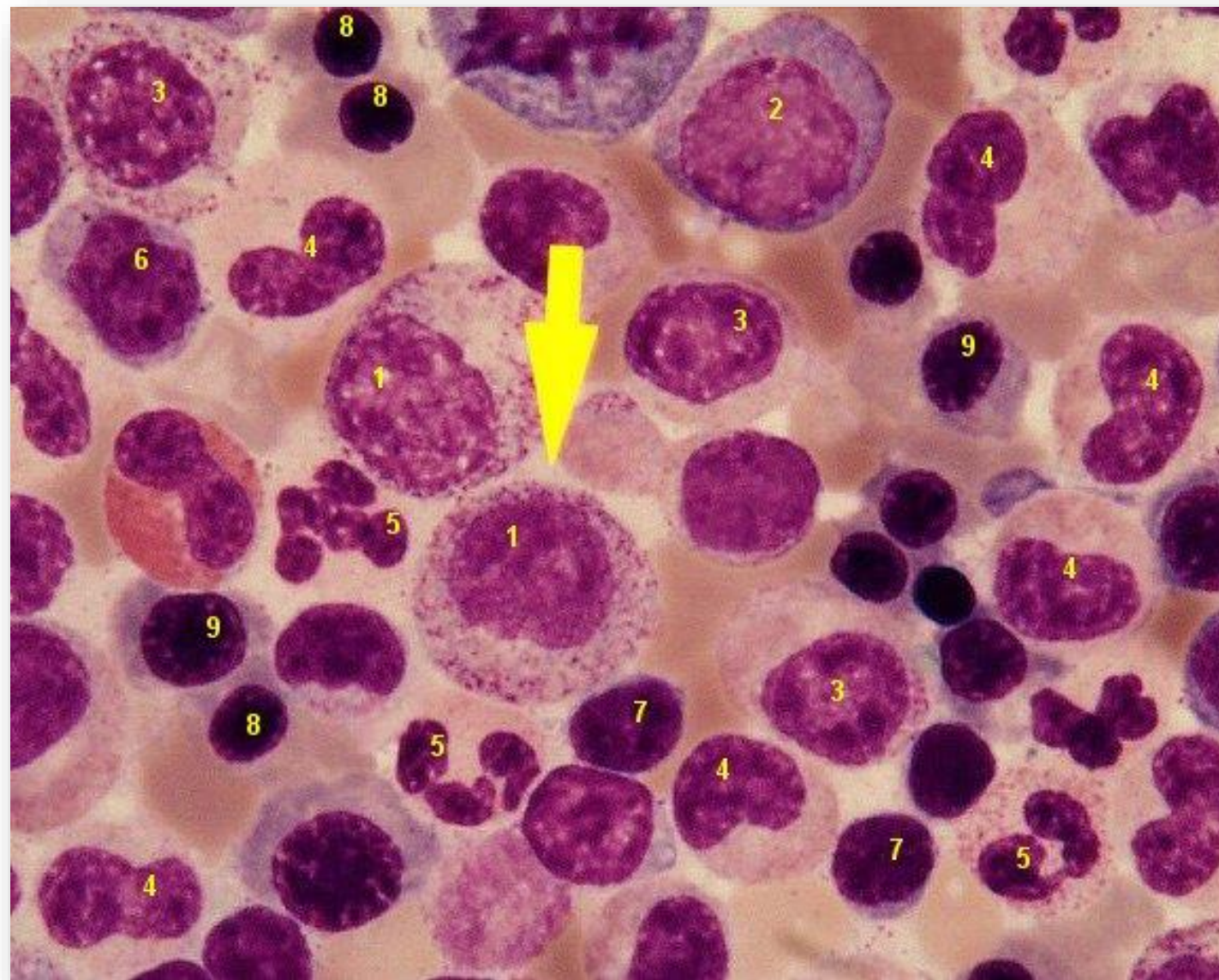


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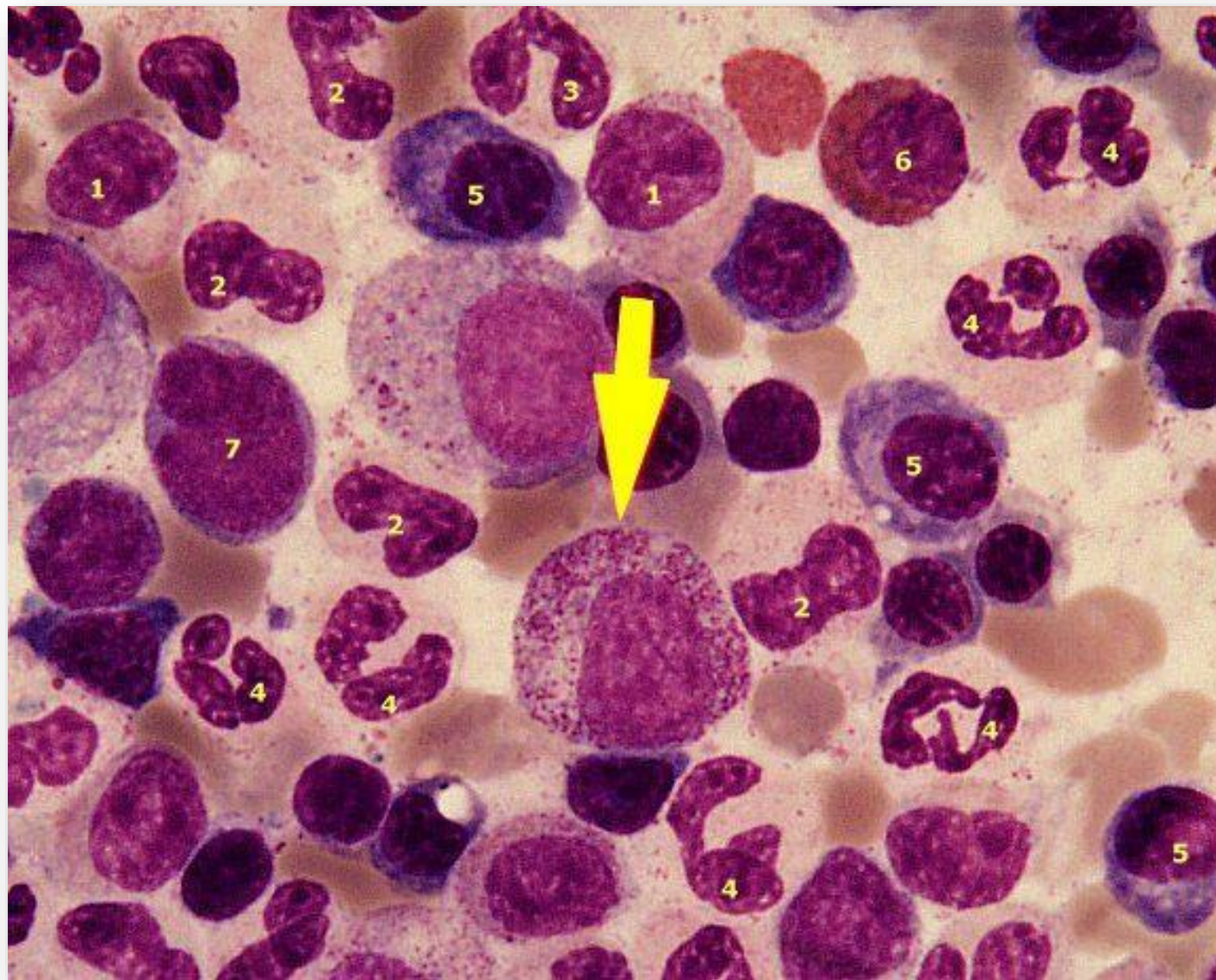
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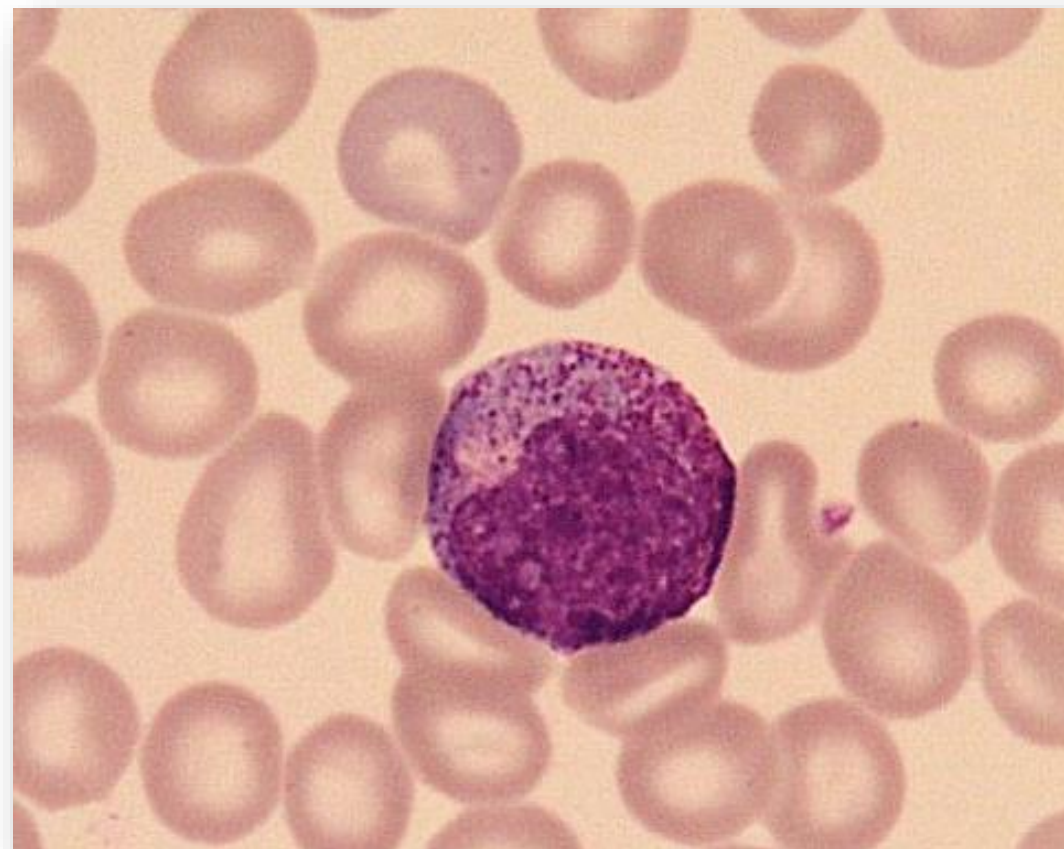
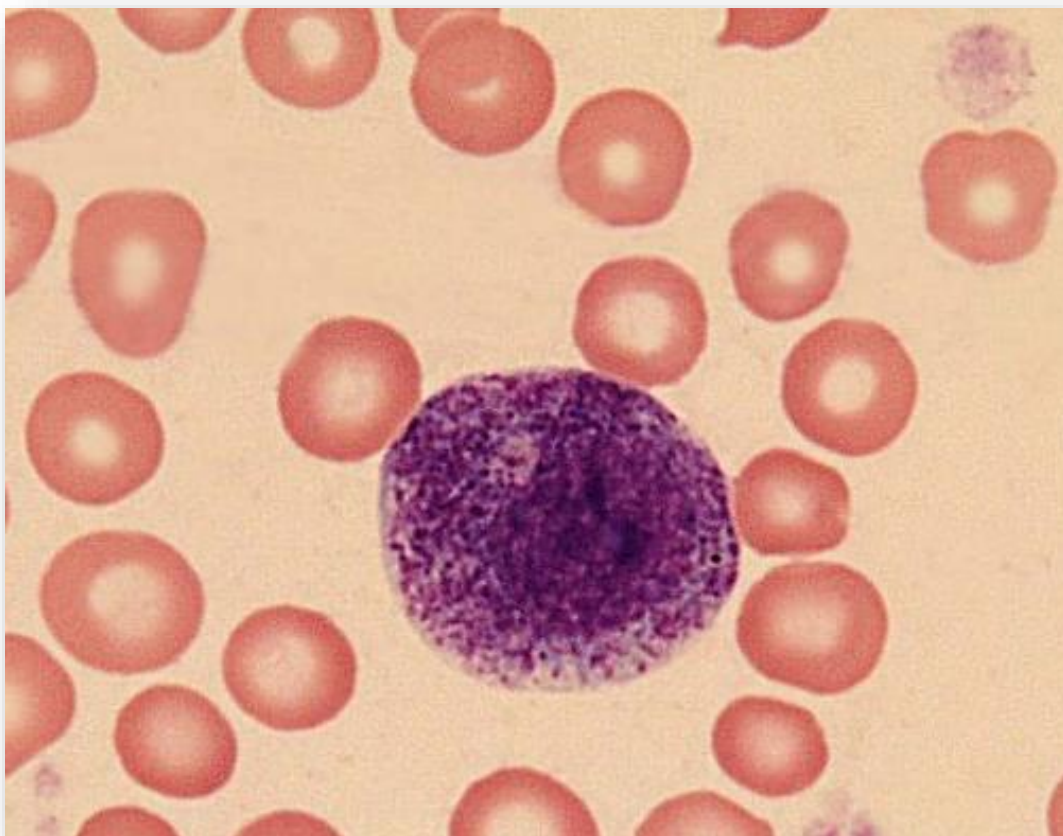
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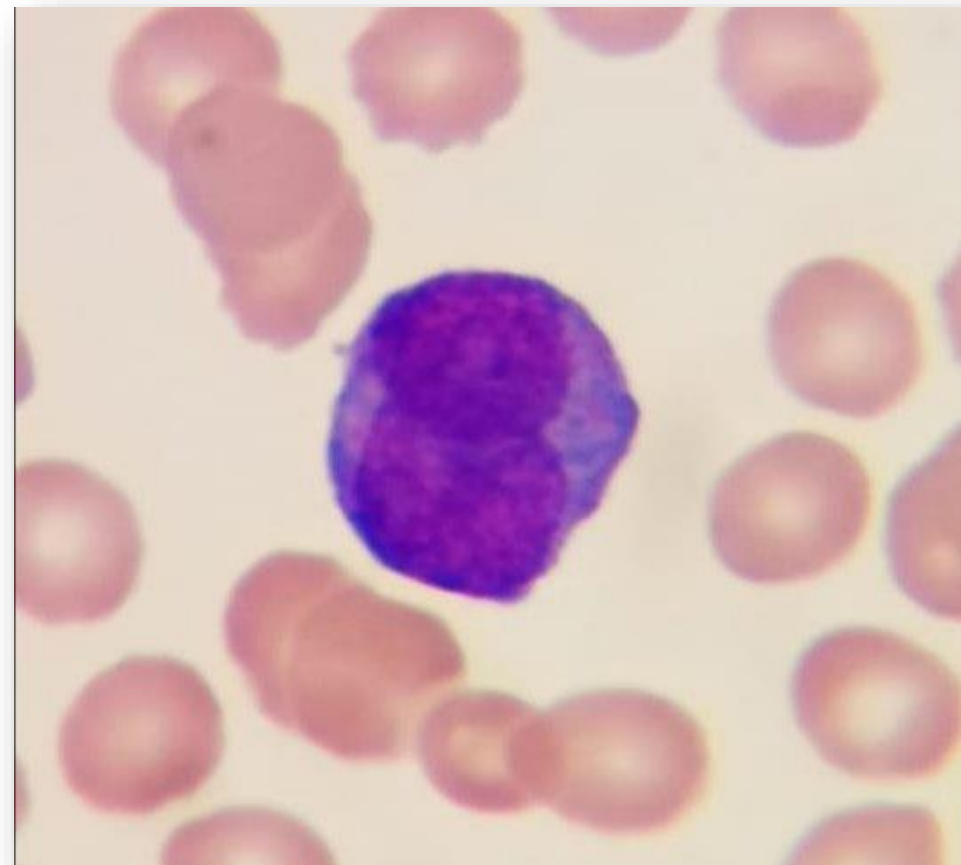
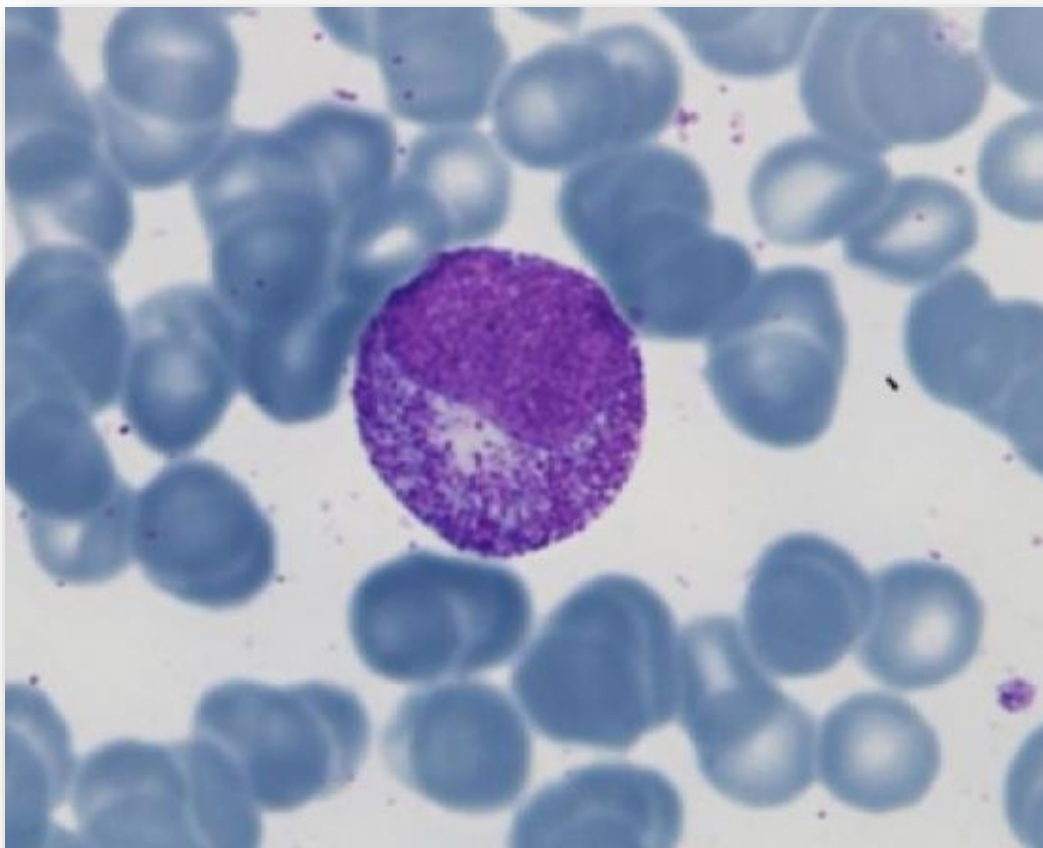
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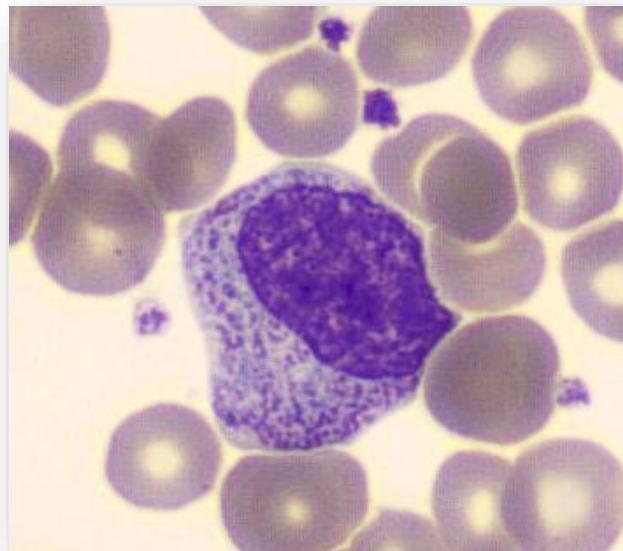
PROMIELOCITO



PROMIELOCITO



MIELOCITO



12 – 18 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina ligeramente condensada No se observan nucléolos	Ligeramente Basófilo En etapa inicial azul celeste y poco a poco tono rosado	Pequeños, rojo violeta. Menos gránulos que el promielocito	MPO: + PAS: -/+ ANAE: - ANBE: -	+: MPO, CD15, CD33, CD65+, CD66 -/+ débil: CD16, CD117 +/-: CD11b -: HLA-DR, CD34, CD10, CD24, CD67, Lactoferrina

Fuente: <https://www.cellwiki.net/es/c%C3%A9lulas/granulocitos-neutrofilos-mielocitos>



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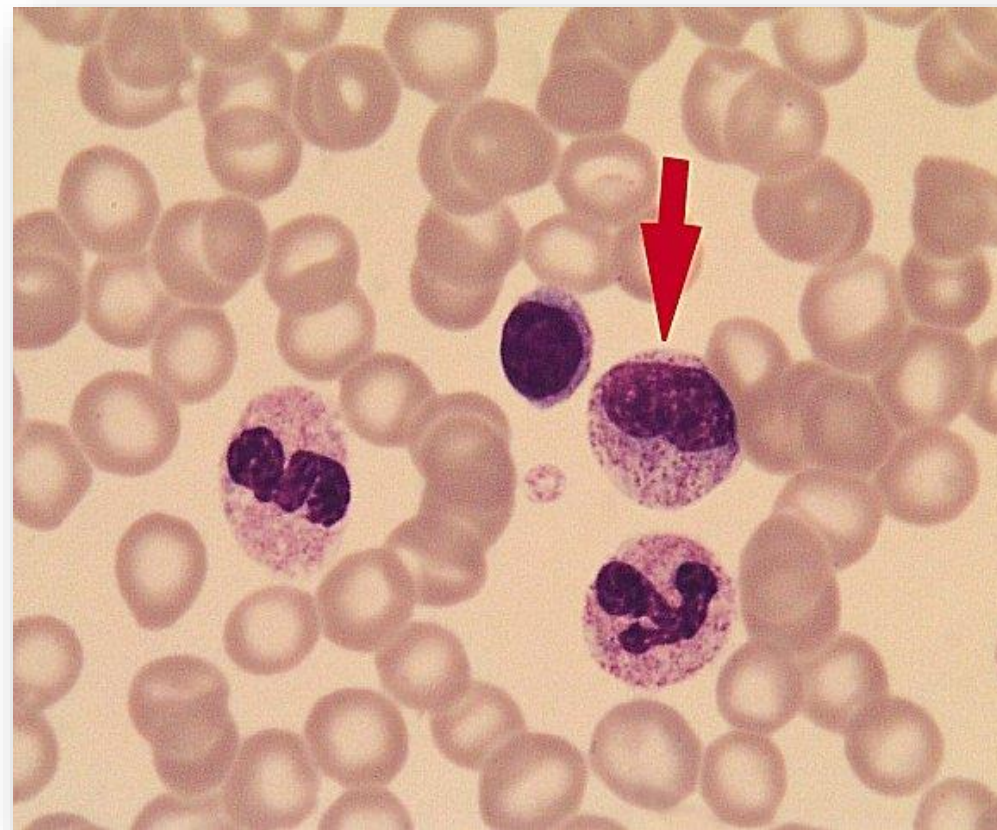
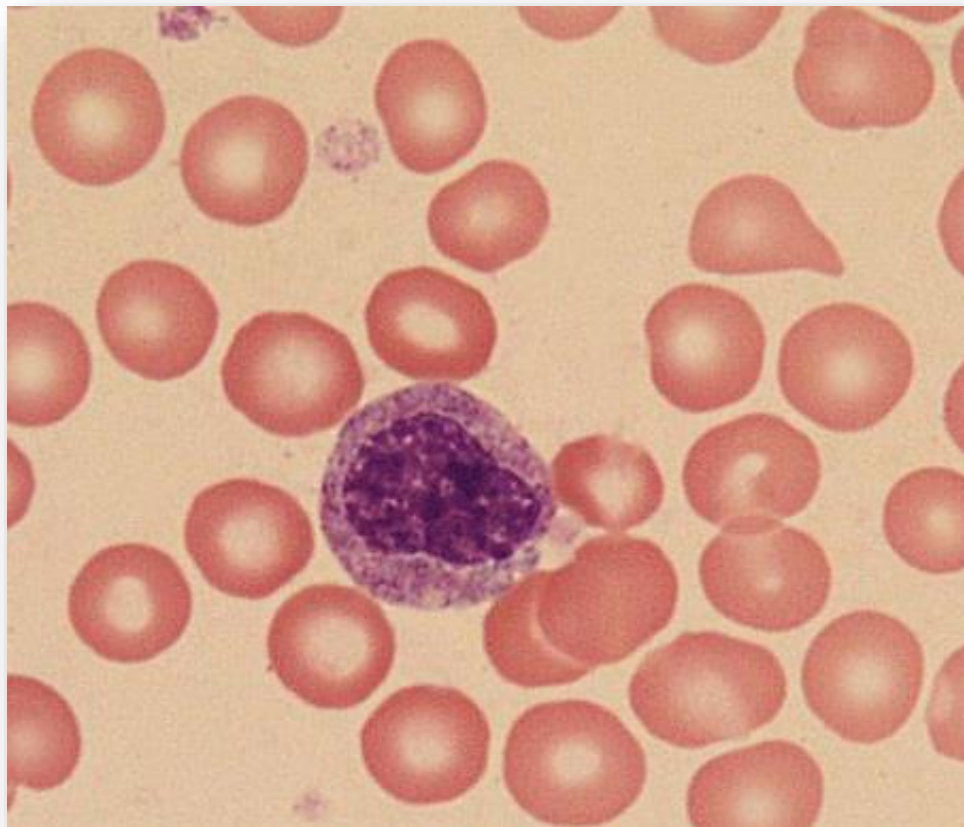


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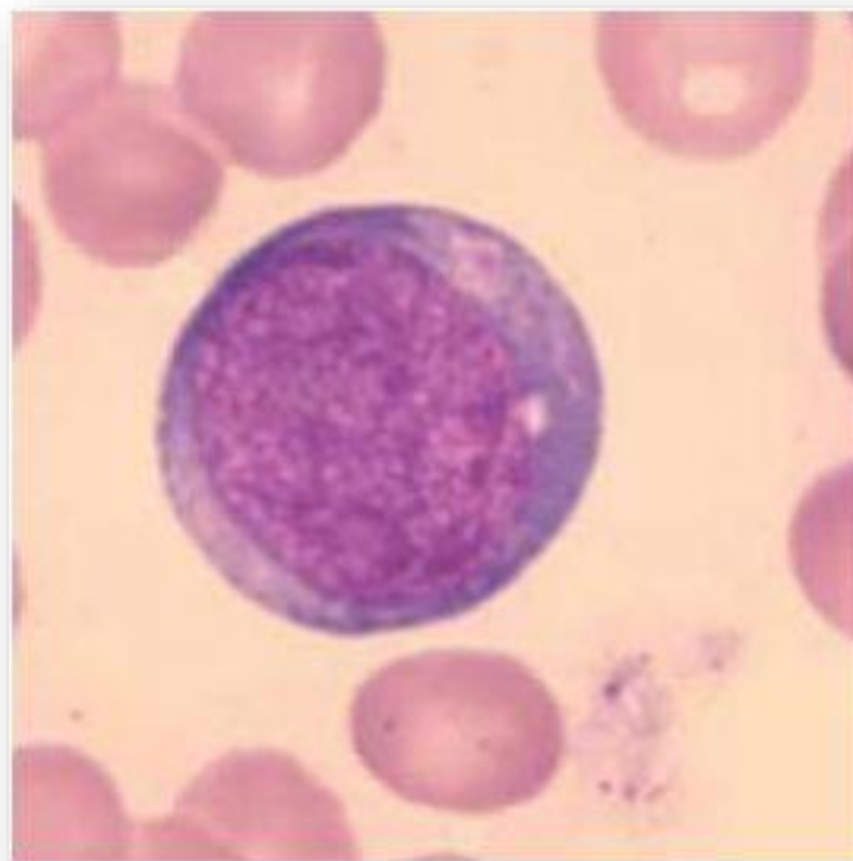
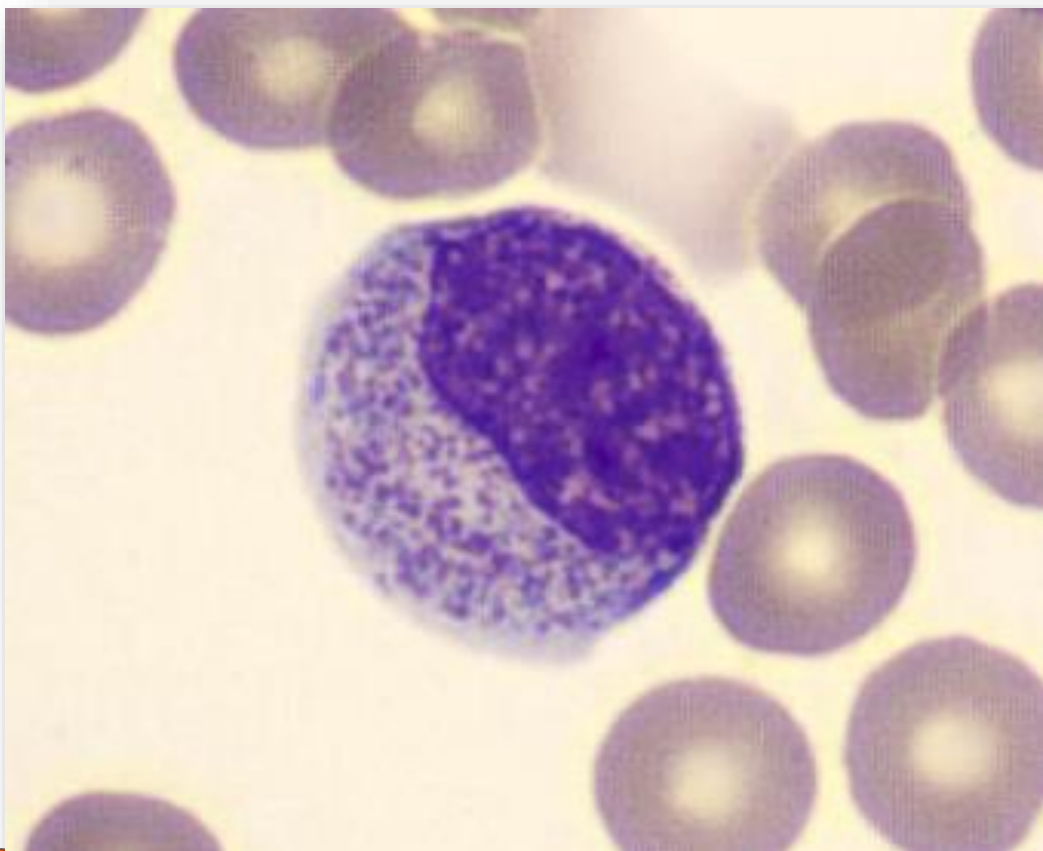
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MIELOCITO

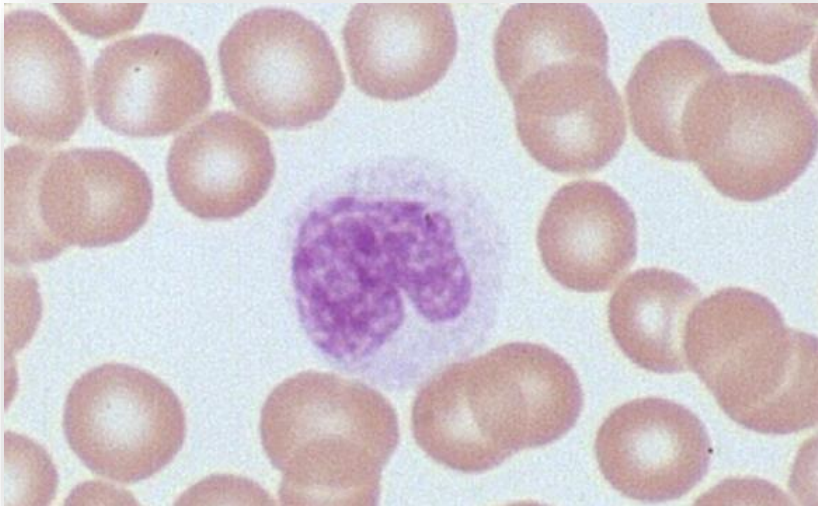


MIELOCITO



MIELOCITO

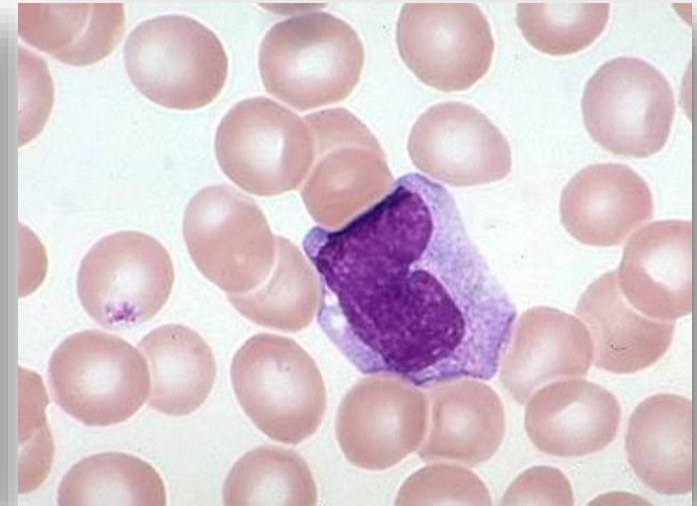
DX DIFERENCIAL CON....



Monocito



Mieloblasto



Monocito



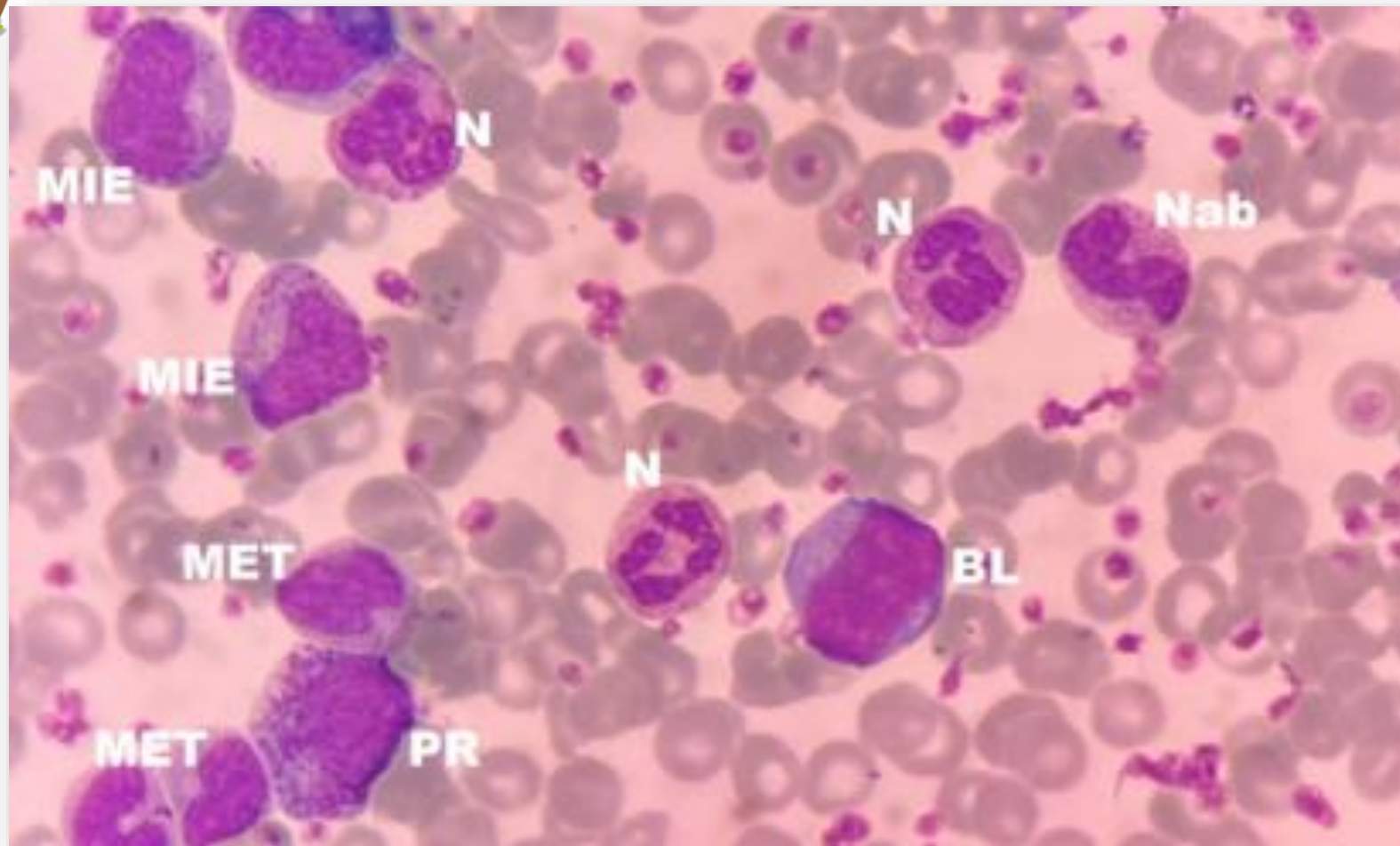
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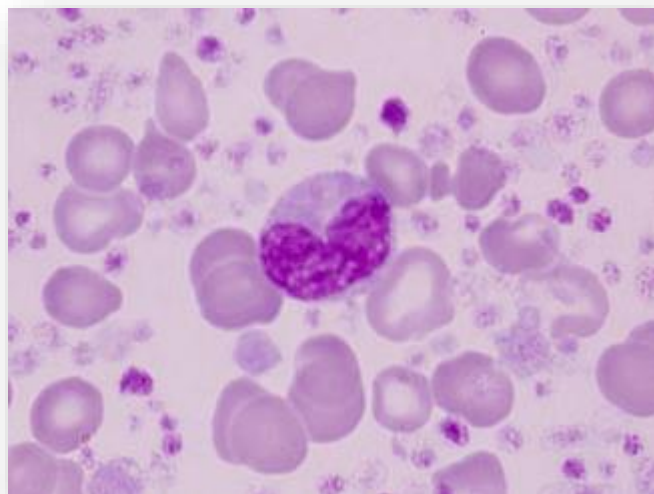
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MIELOCITOS



METAMIELOCITO



12 – 16 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Hendido, forma de fríjol, arriñonado. Sin nucléolos Cromatina con grumos	Acidófilo, abundante	Gránulos primarios escasos y gránulos secundarios abundantes	MPO: + PAS: – ANAE: – ANBE: –	+: MPO++, CD11b+, CD13, CD15++, CD16, CDw65, CD66 + débil: CD45, CD33, CD35 -/+ : Lactoferrina. -: HLA-DR, CD34, CD10, CD24, CD25, CD38, CD67, CD117

Fuente: <https://www.flickr.com/photos/134592789@N07/21289148736>



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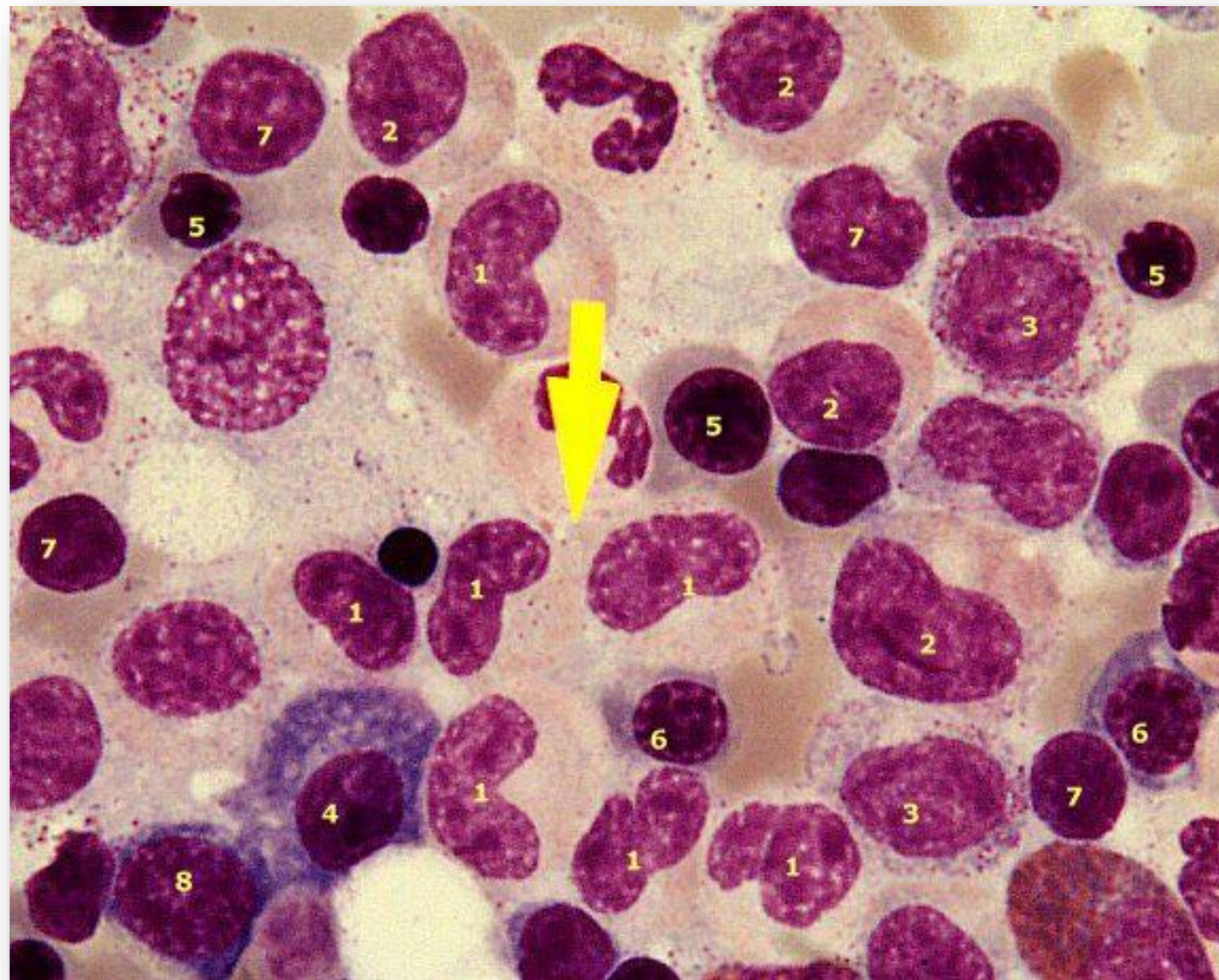


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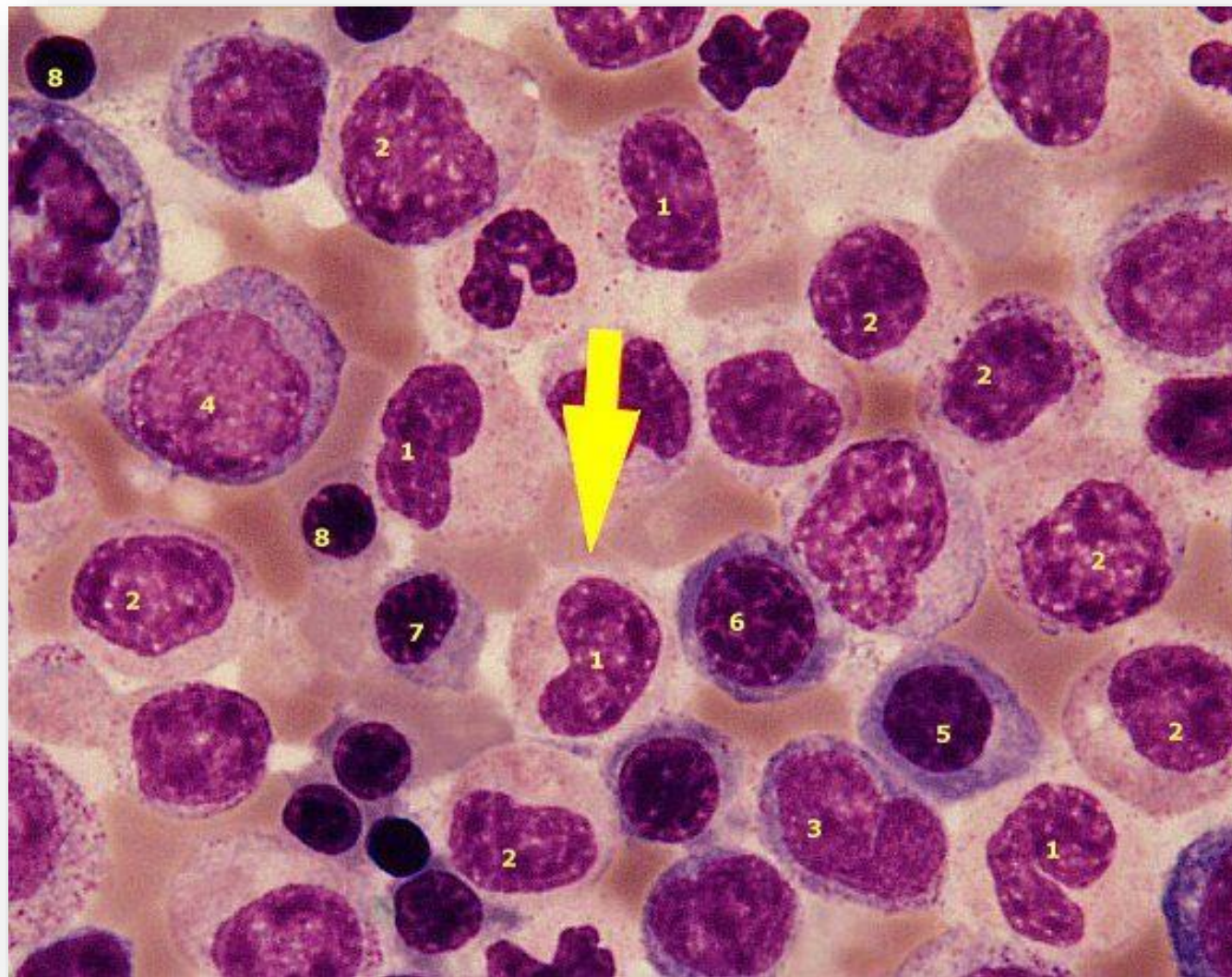
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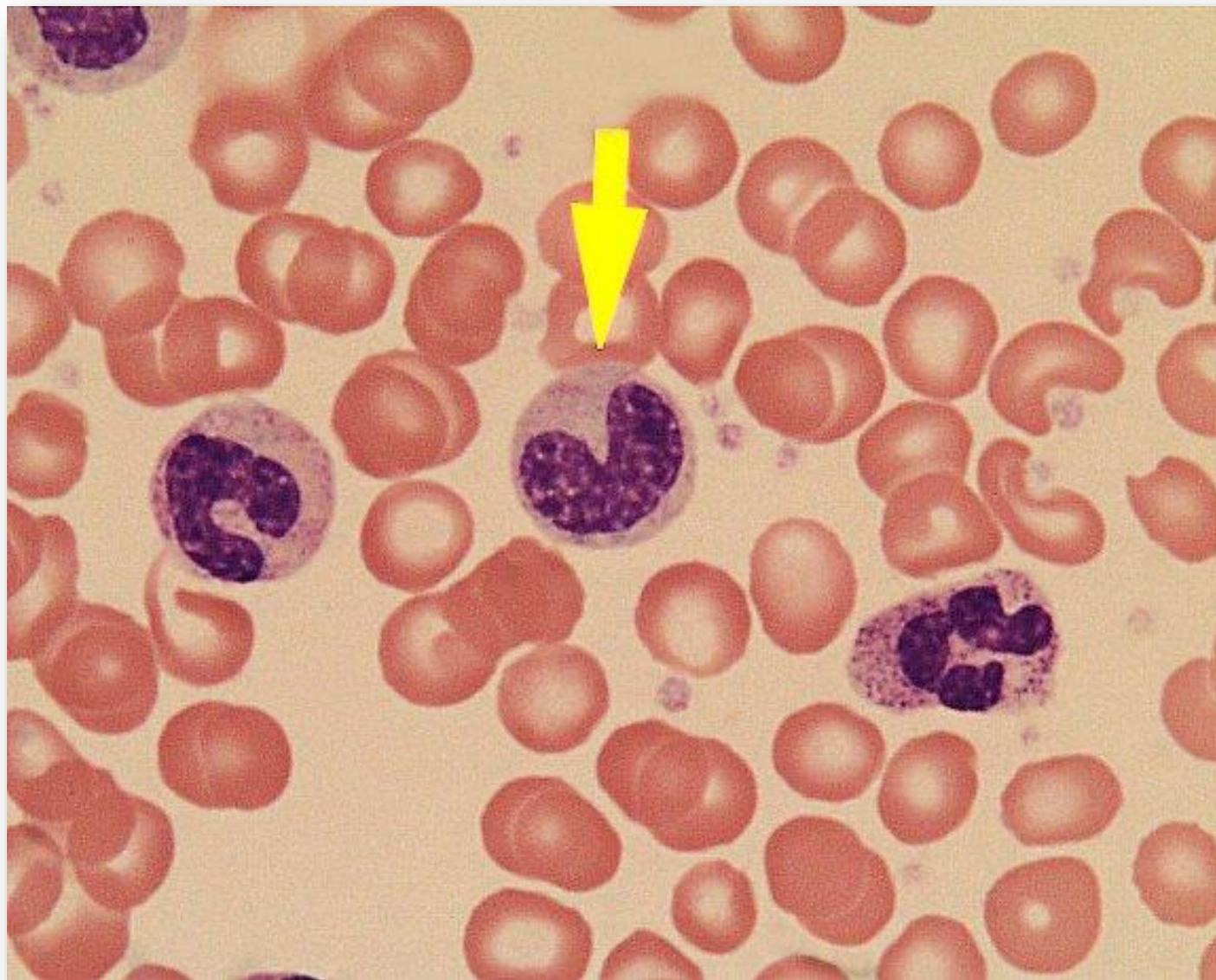
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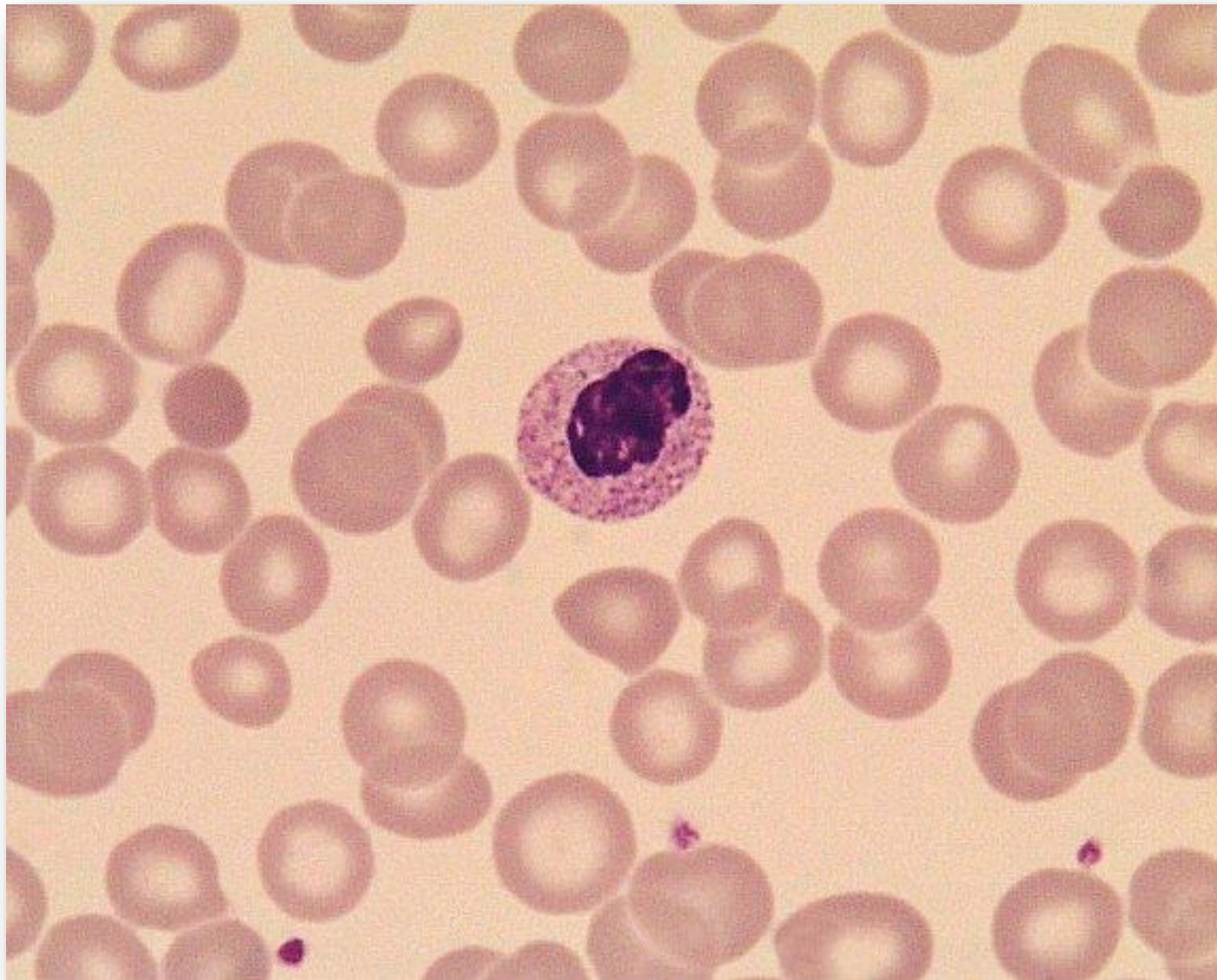
METAMIELOCITO



METAMIELOCITO



METAMIELOCITO



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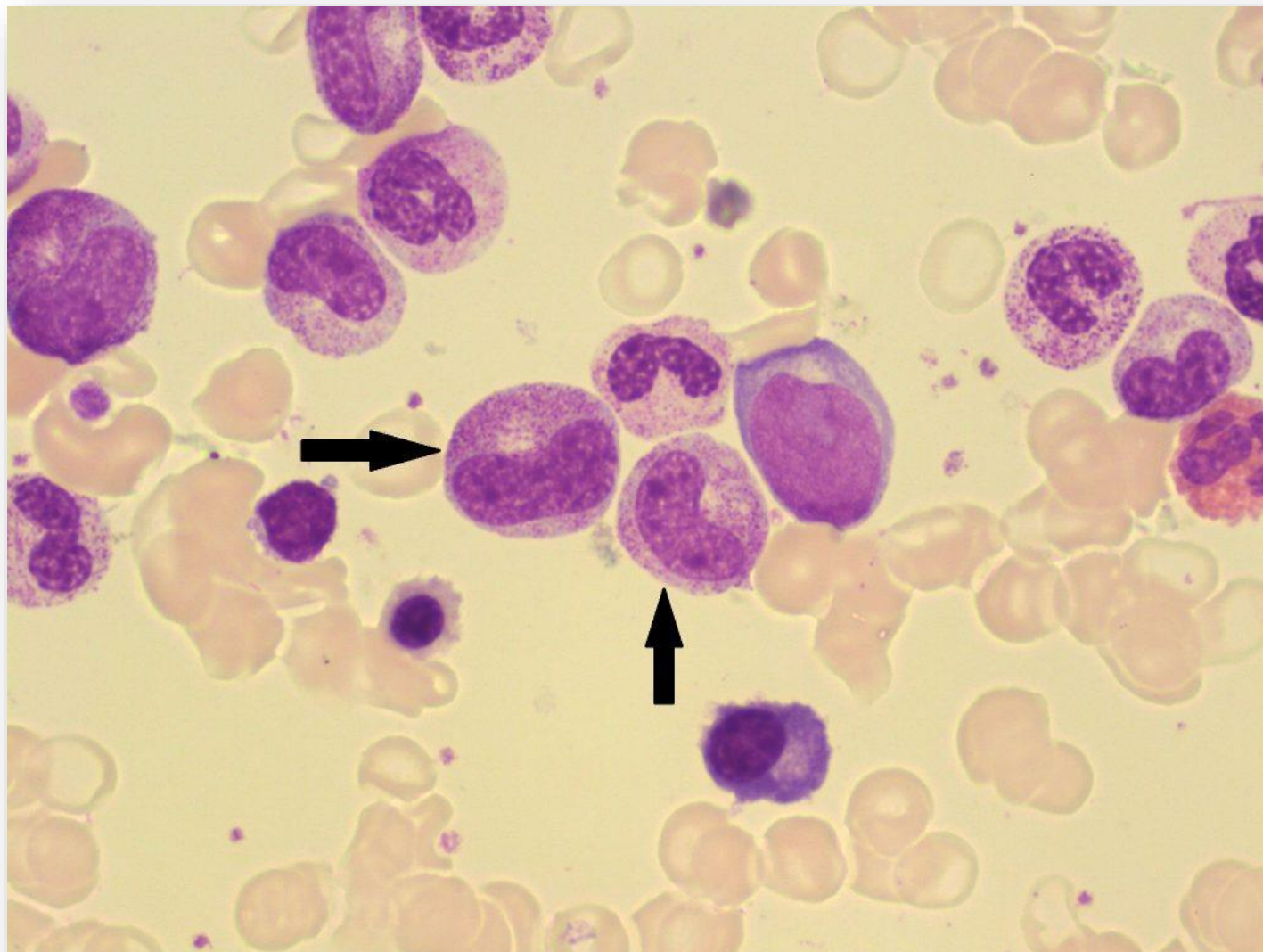


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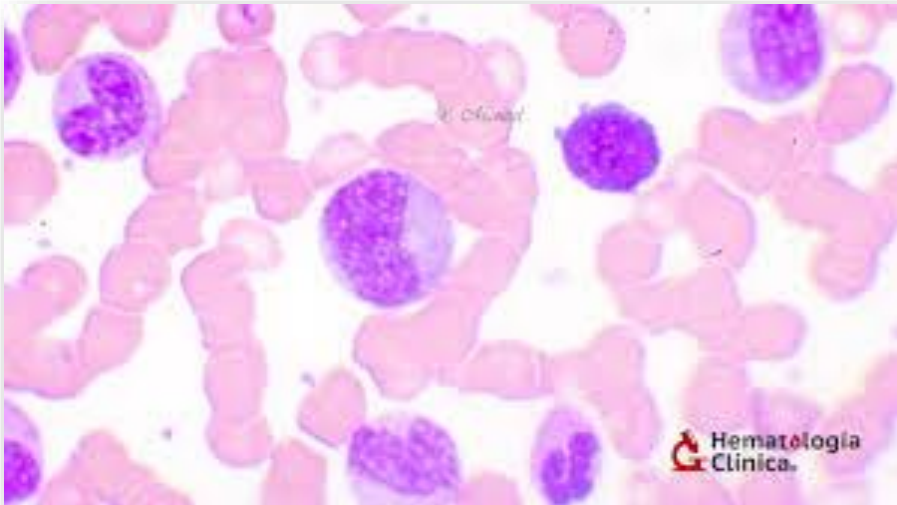
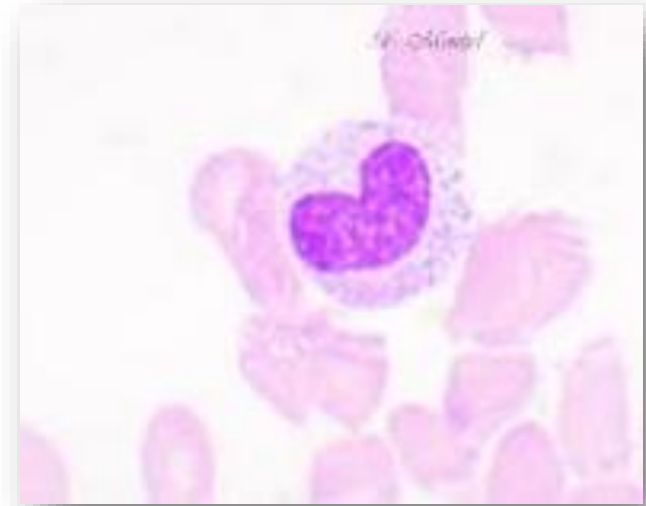


METAMIELOCITO



METAMIELOCITO

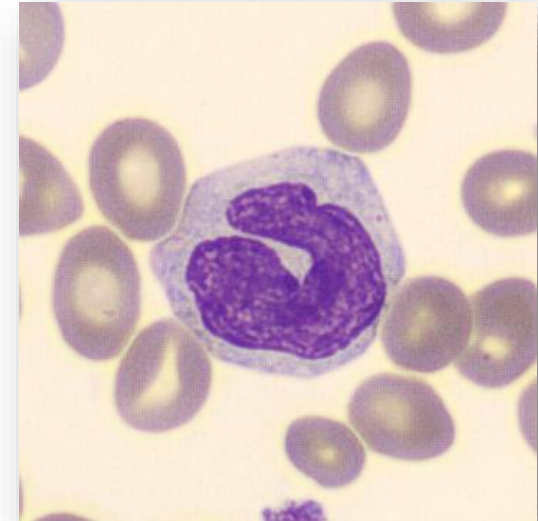
DX. DIFERENCIAL CON



Mielocito



Monocito



Monocito



BANDA O CAYADO



10 – 16 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Un solo lóbulo en forma de C, S. Cromatina gruesa, condensada, sin nucléolos	Acidófilo Abundante	Pequeños, color rojo violeta	MPO: + PAS: + ANAE: - ANBE: -	+: MPO, CD11b, CD13, CD15++, CD16, CD45, CD66, Lactoferrina + débil: CD33, CD35 -/+ débil: CD10 -/+ : CD67 -: HLA-DR, CD24, CD34, CD38, CD117

Fuente: <http://hematologiausac15krqm.blogspot.com/2015/09/neutrofilo-banda-o-cayado.html>



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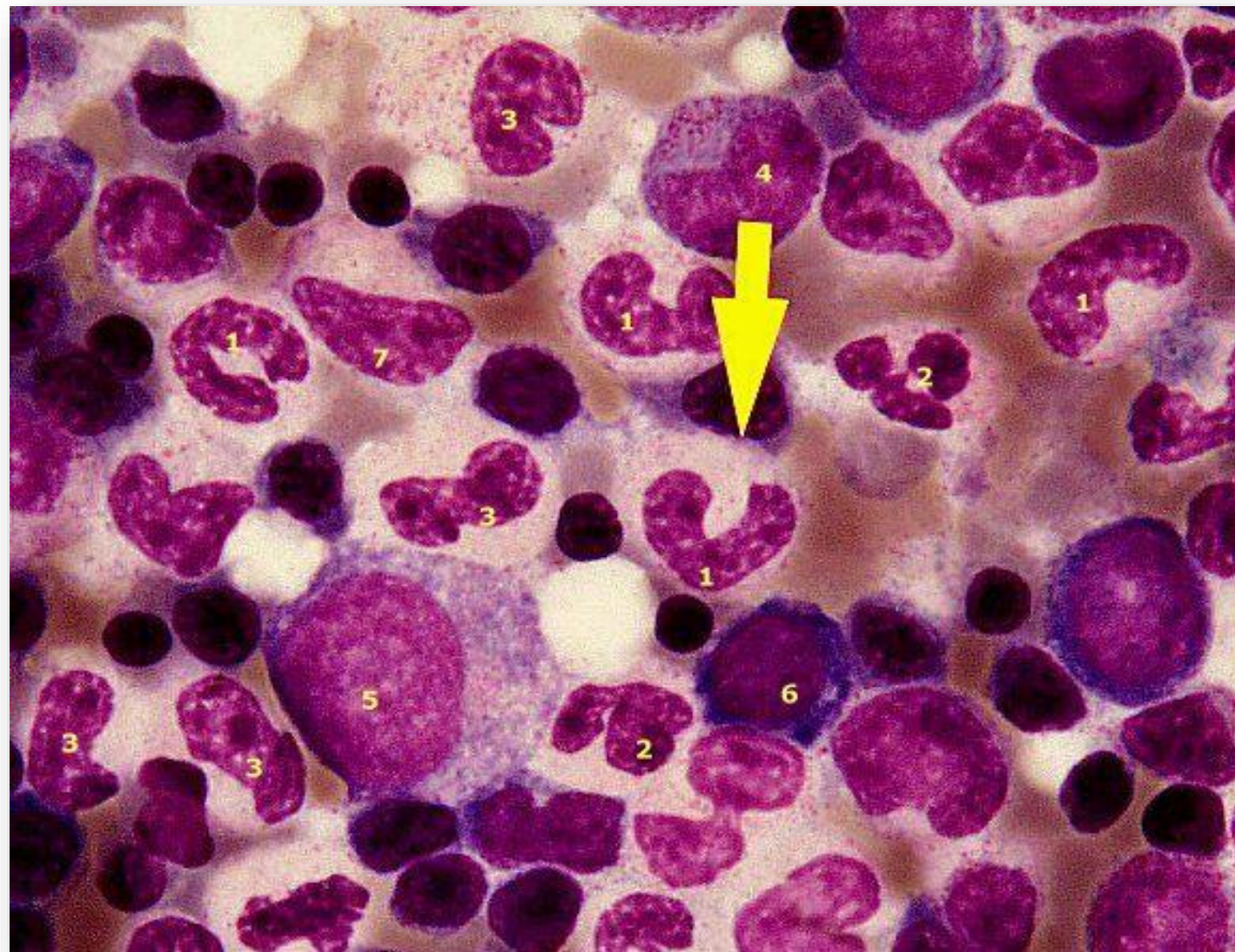


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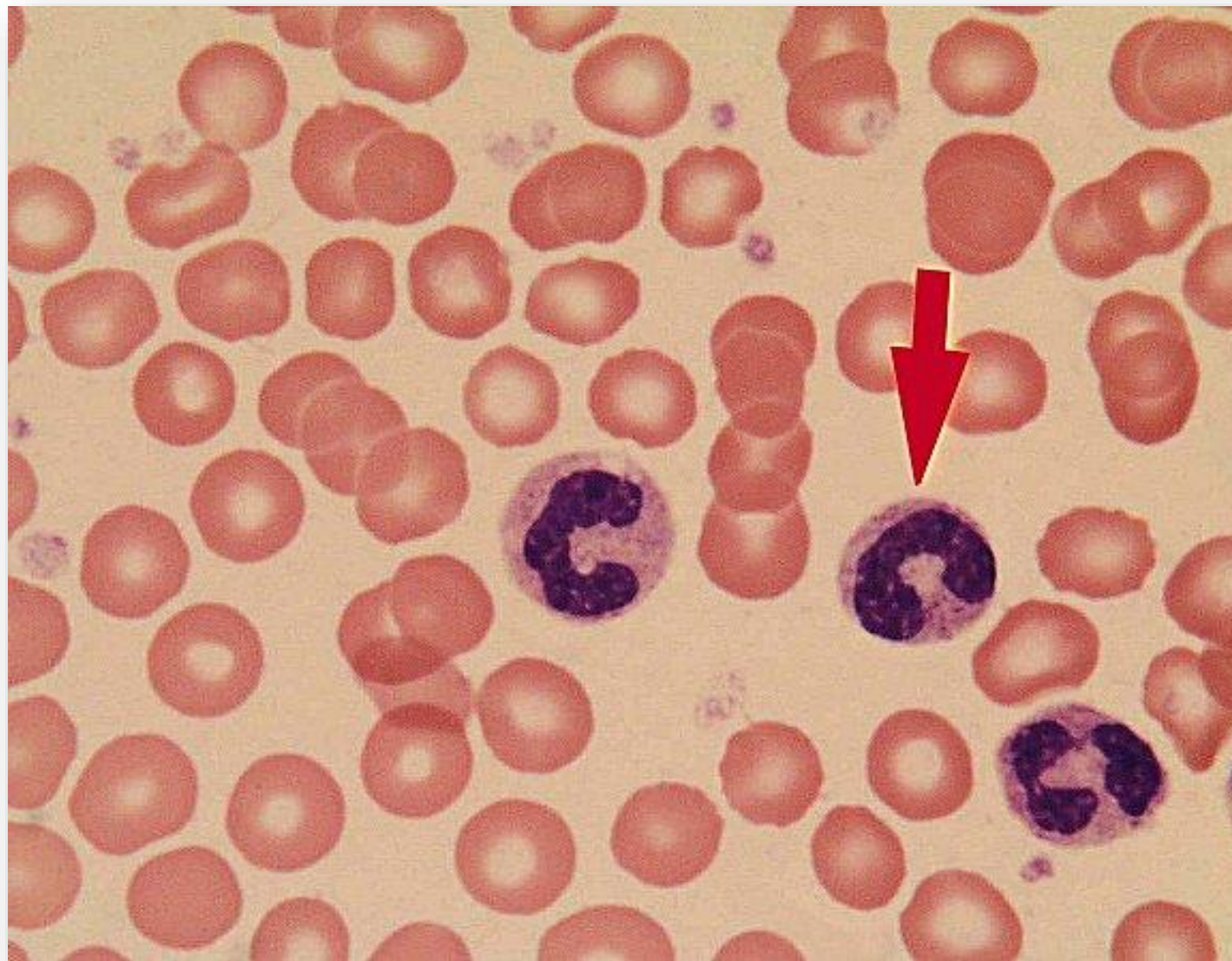
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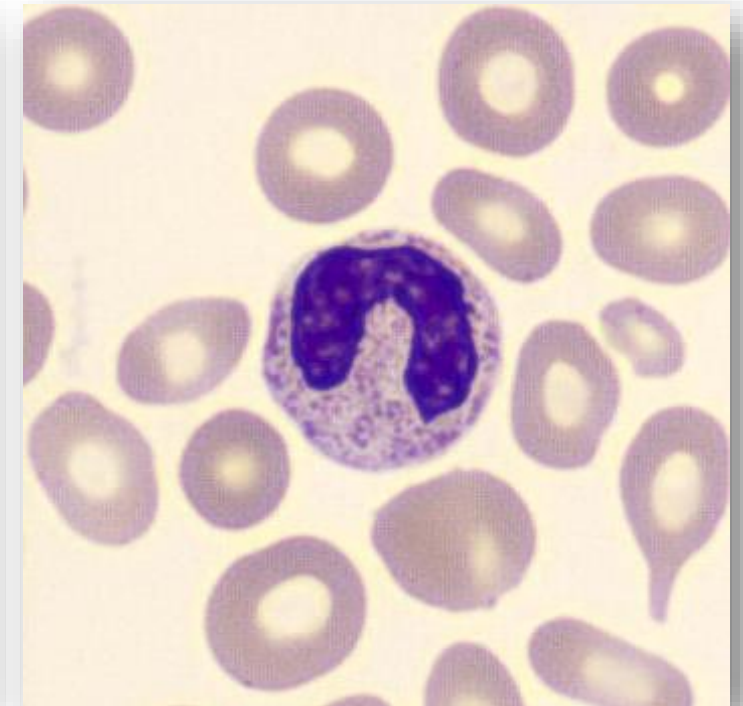
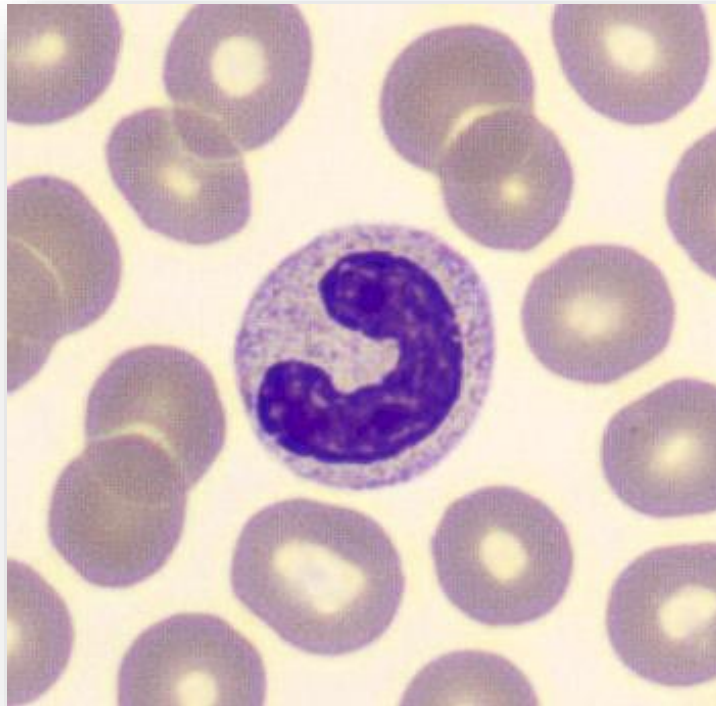
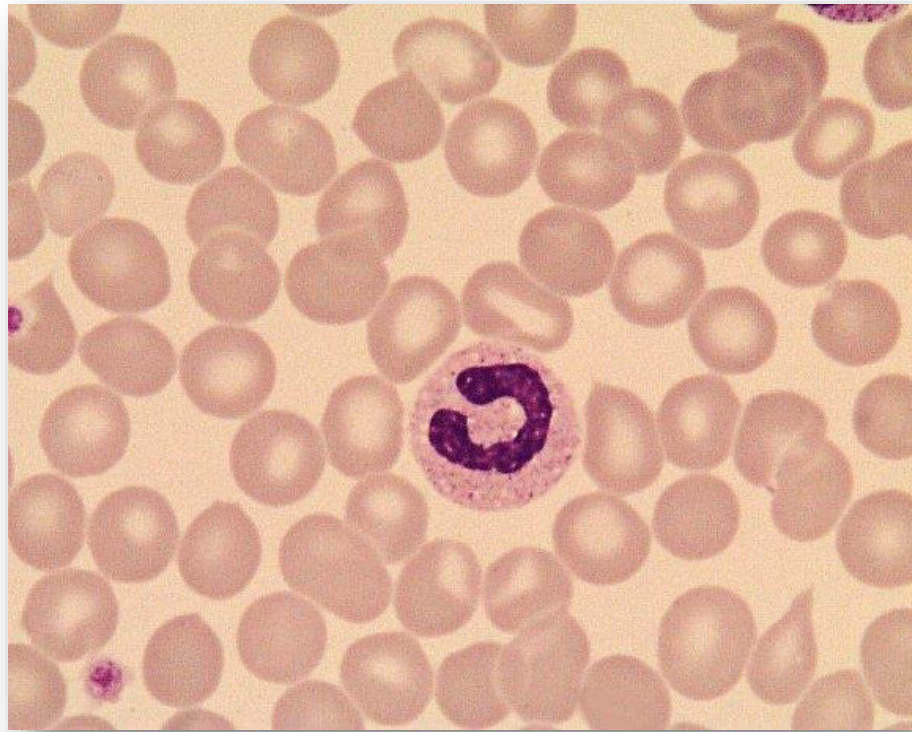
BANDA O CAYADO



BANDA O CAYADO



BANDA O CAYADO



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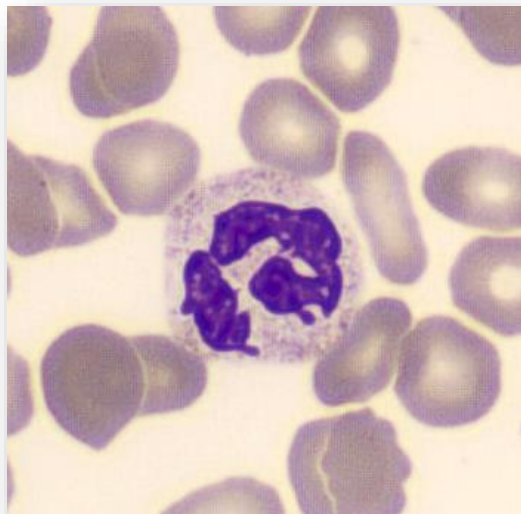


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NEUTRÓFILO



10 – 15 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Cromatina condensada y segmentada, 2 – 5 lóbulos. Sin Nucléolos	Acidófilo, abundante	Pequeños, neutrófilos	MPO: + PAS: – ANAE: – ANBE: –	+: MPO, CD10, CD11b, CD13++, CD15++, CD16, CD24++, CD45, CDw675, CD66, CD67++, Lactoferrina + débil: CD33 -: HLA-DR, CD34, CD38, CD117

Fuente: <https://www.cellwiki.net/es/c%C3%A9lulas/granulocitos-neutrofilos-segmento>



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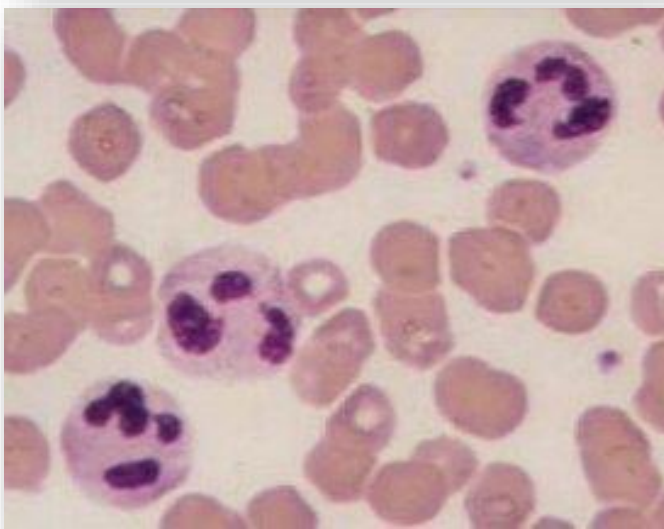
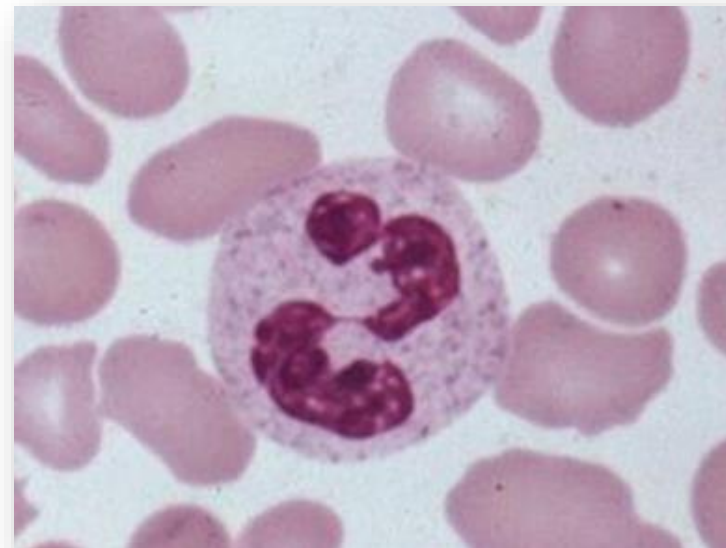
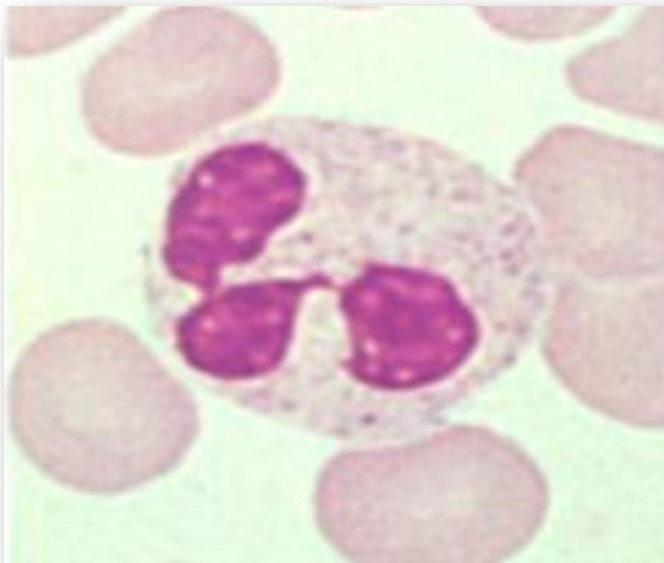


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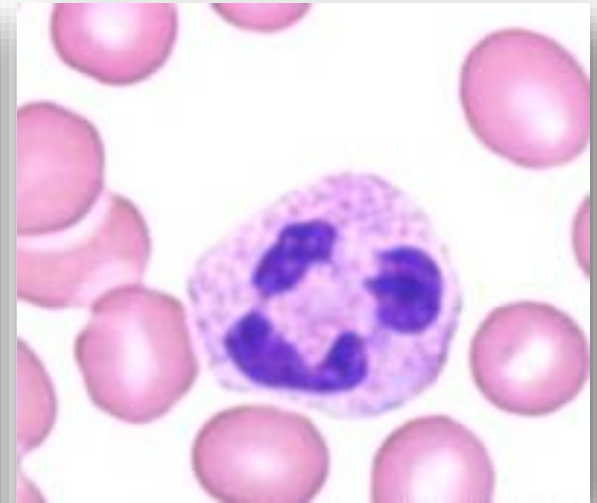
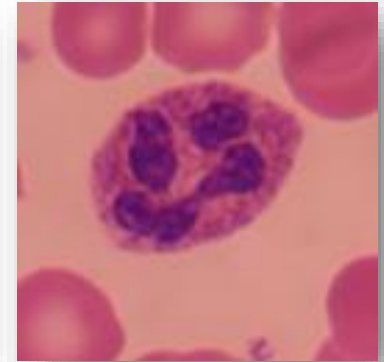
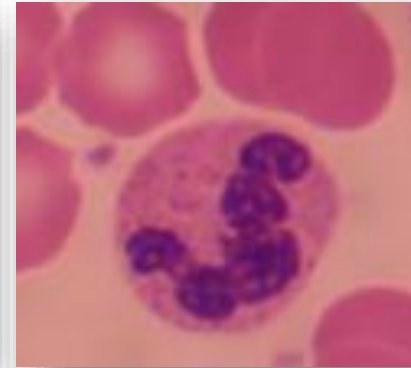
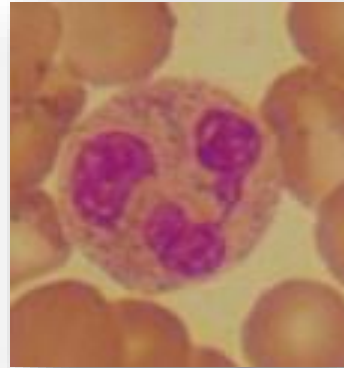
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NEUTRÓFILO



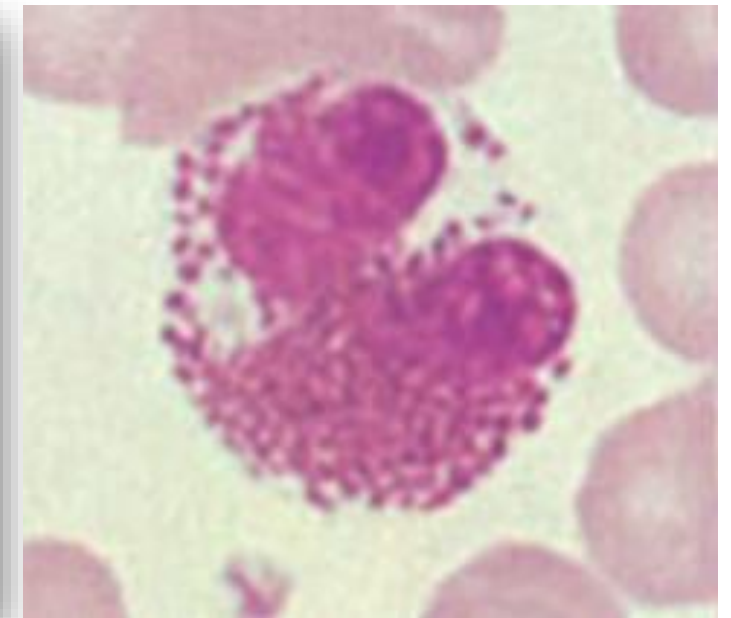
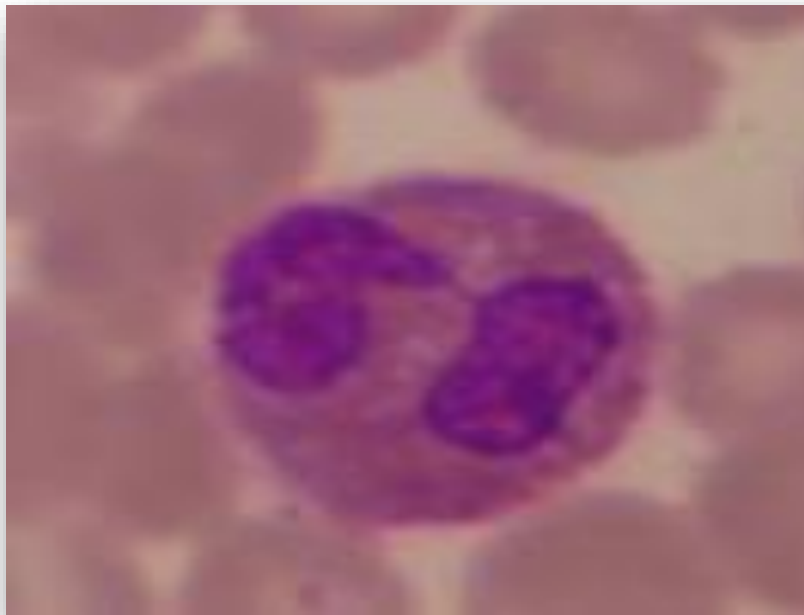
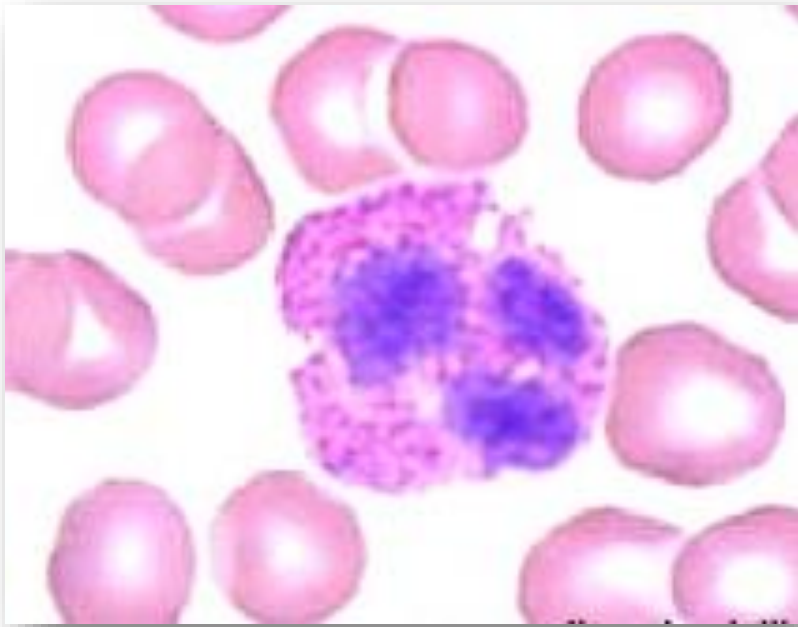
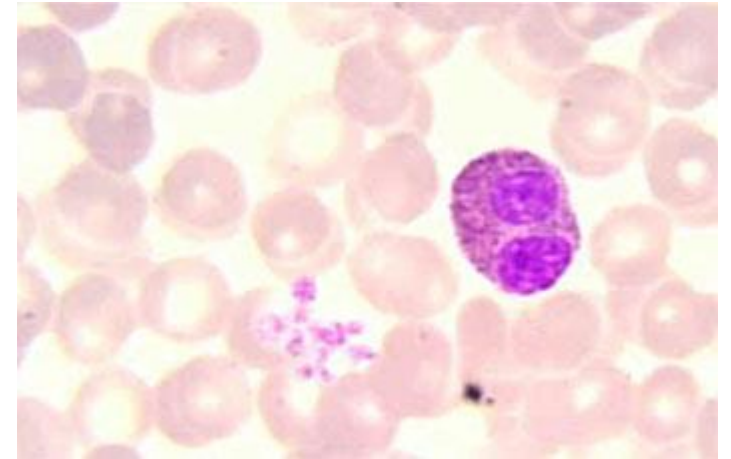
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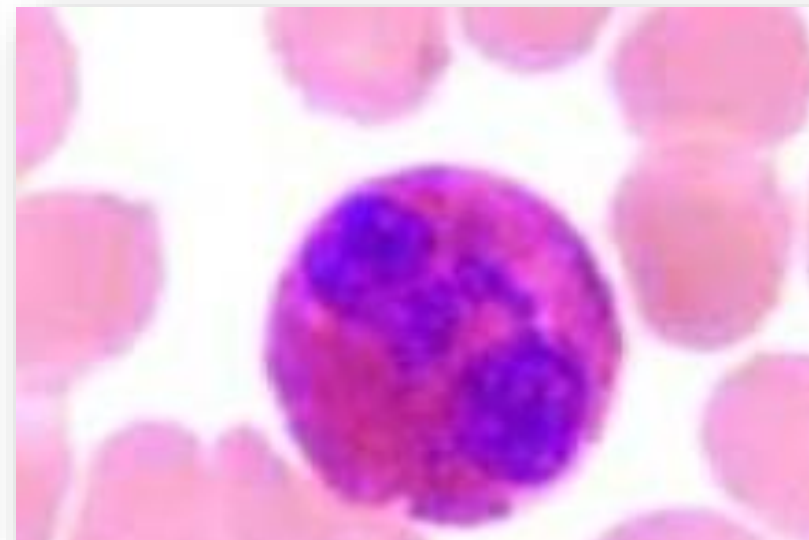
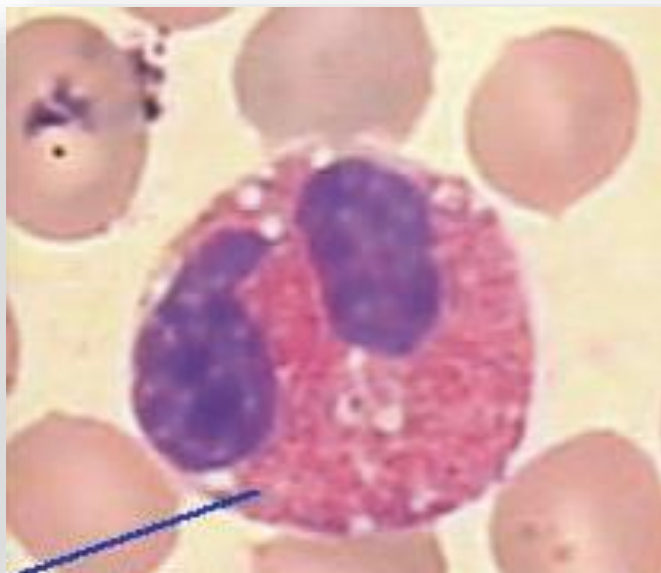
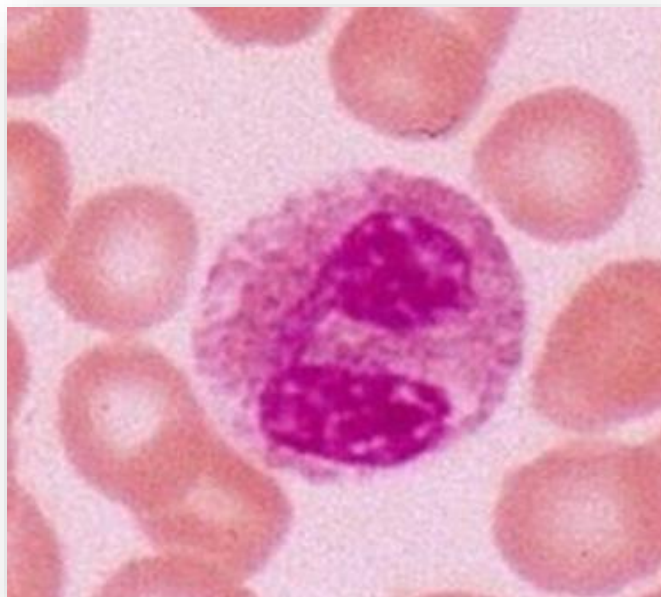
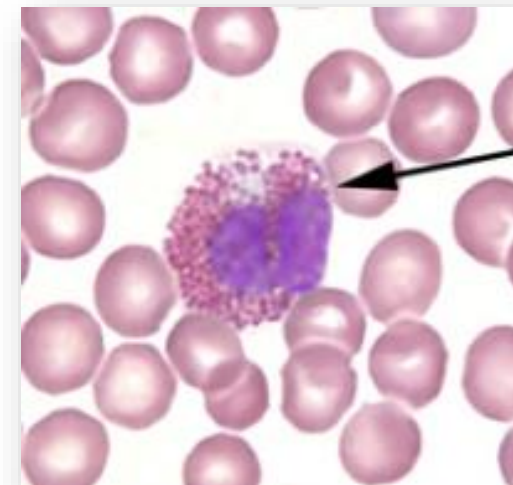
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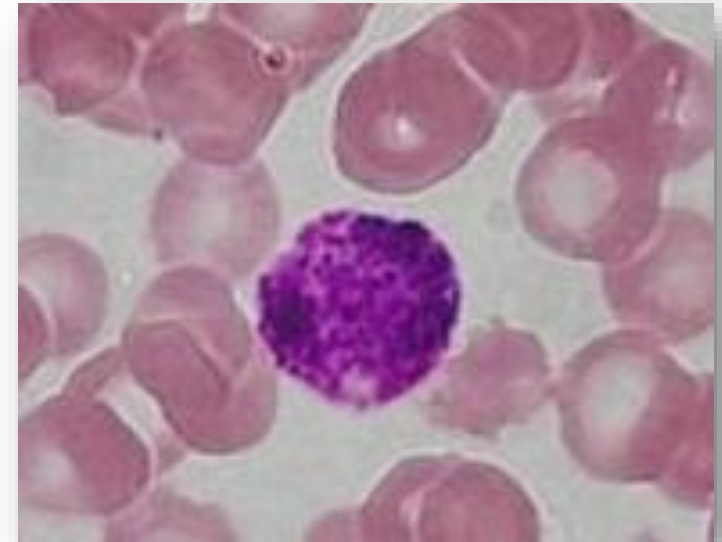
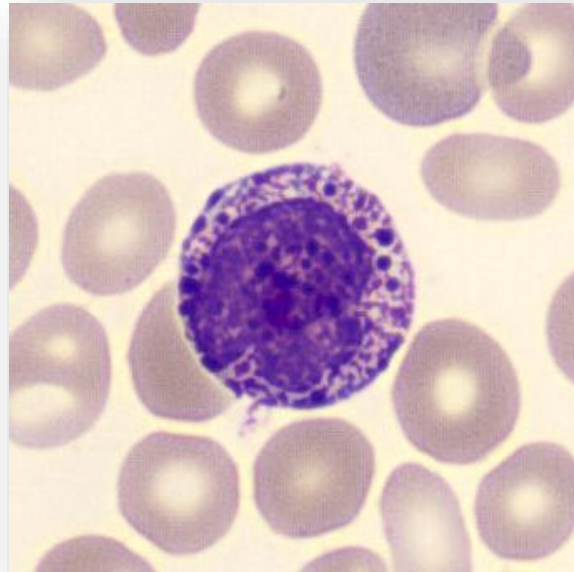
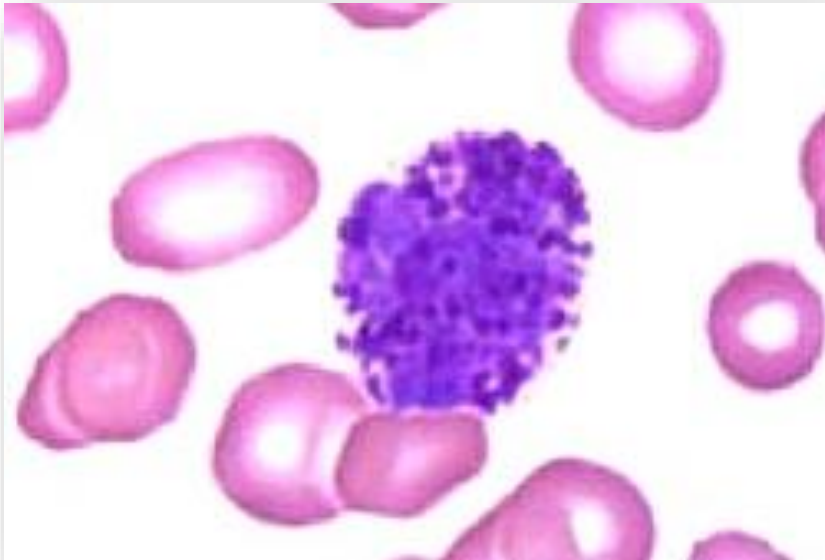
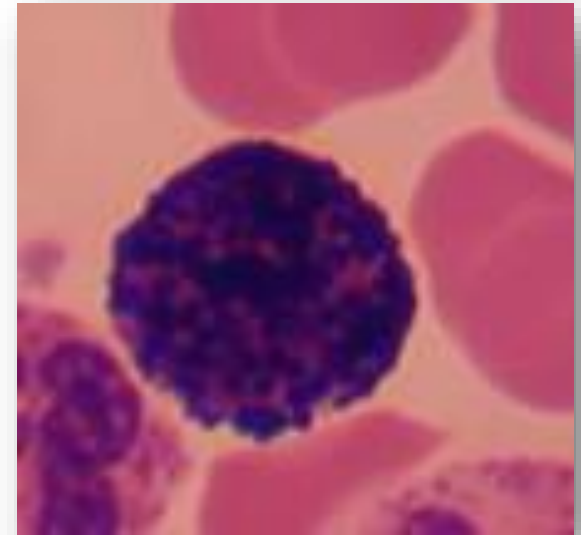
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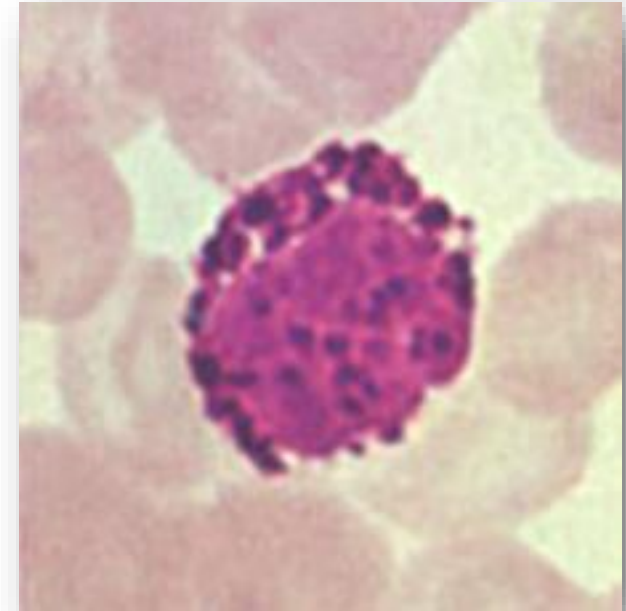
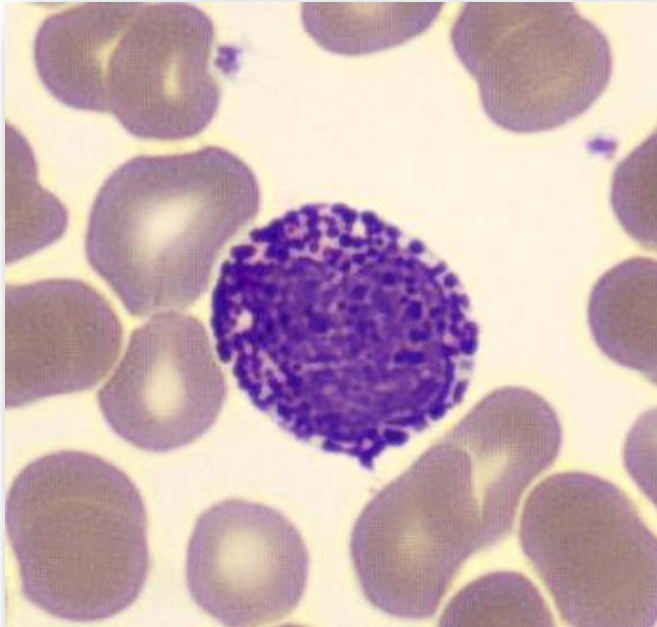
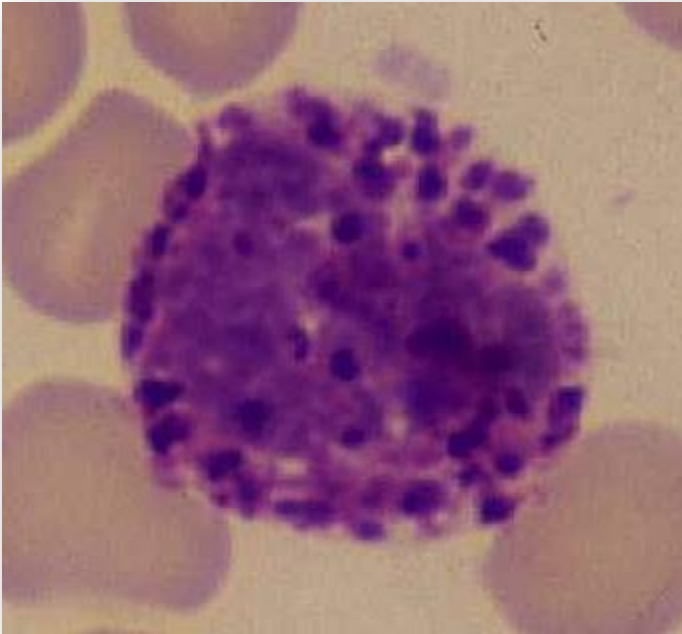
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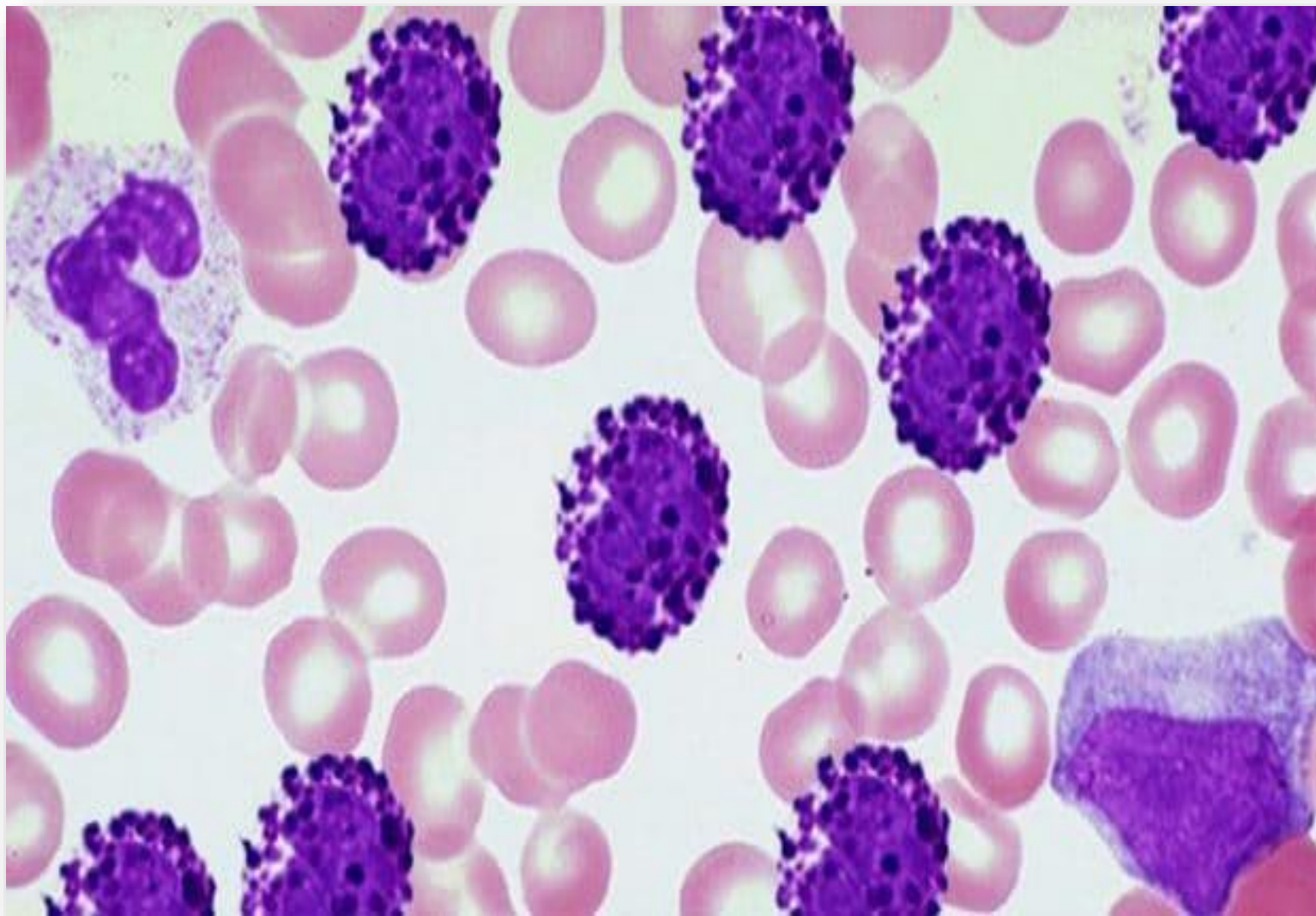
BASÓFILO



BASÓFILO



BASÓFILO



Línea eritroide



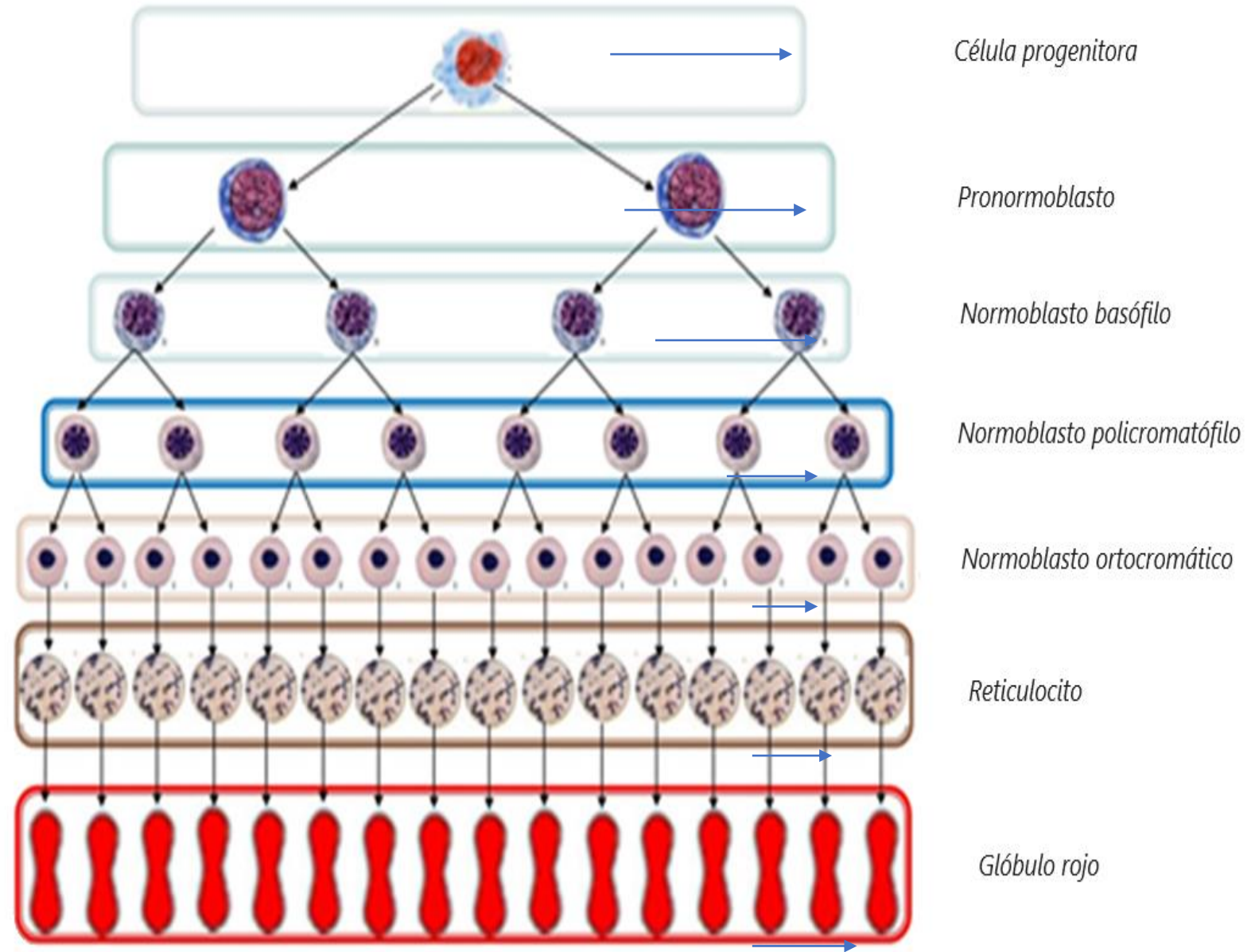
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Las células de linaje eritroide presentan pérdida secuencial del marcador CD45. Adicionalmente, adquieren en su superficie el receptor de transferrina CD71 en conjunto con el CD235a (glicoforina A), hasta que el eritrocito maduro pierde el CD71 conservando el marcador CD235a



Línea eritroide

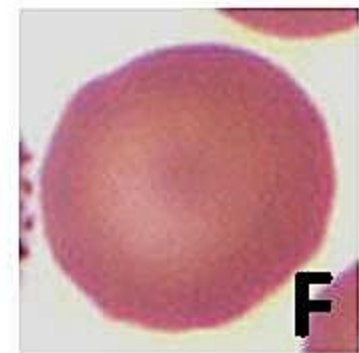
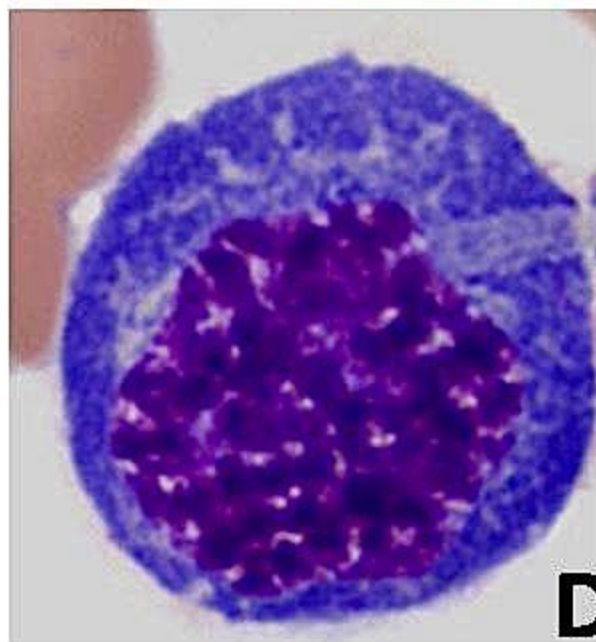
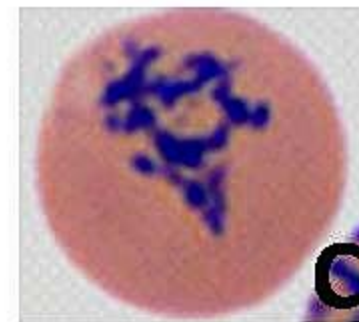
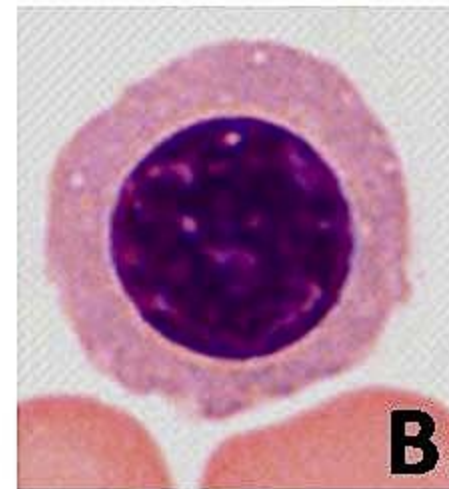
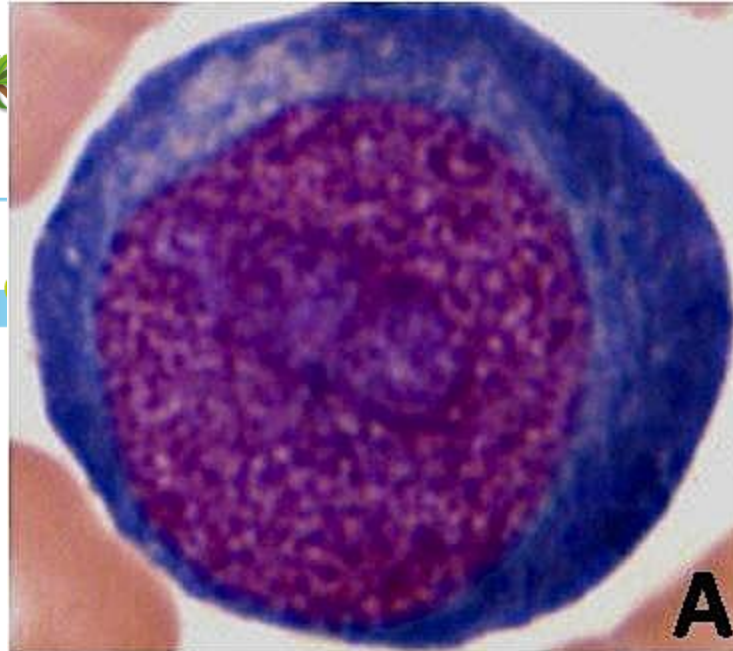
Núcleo: redondeado

Cromatina: fina a grumosa

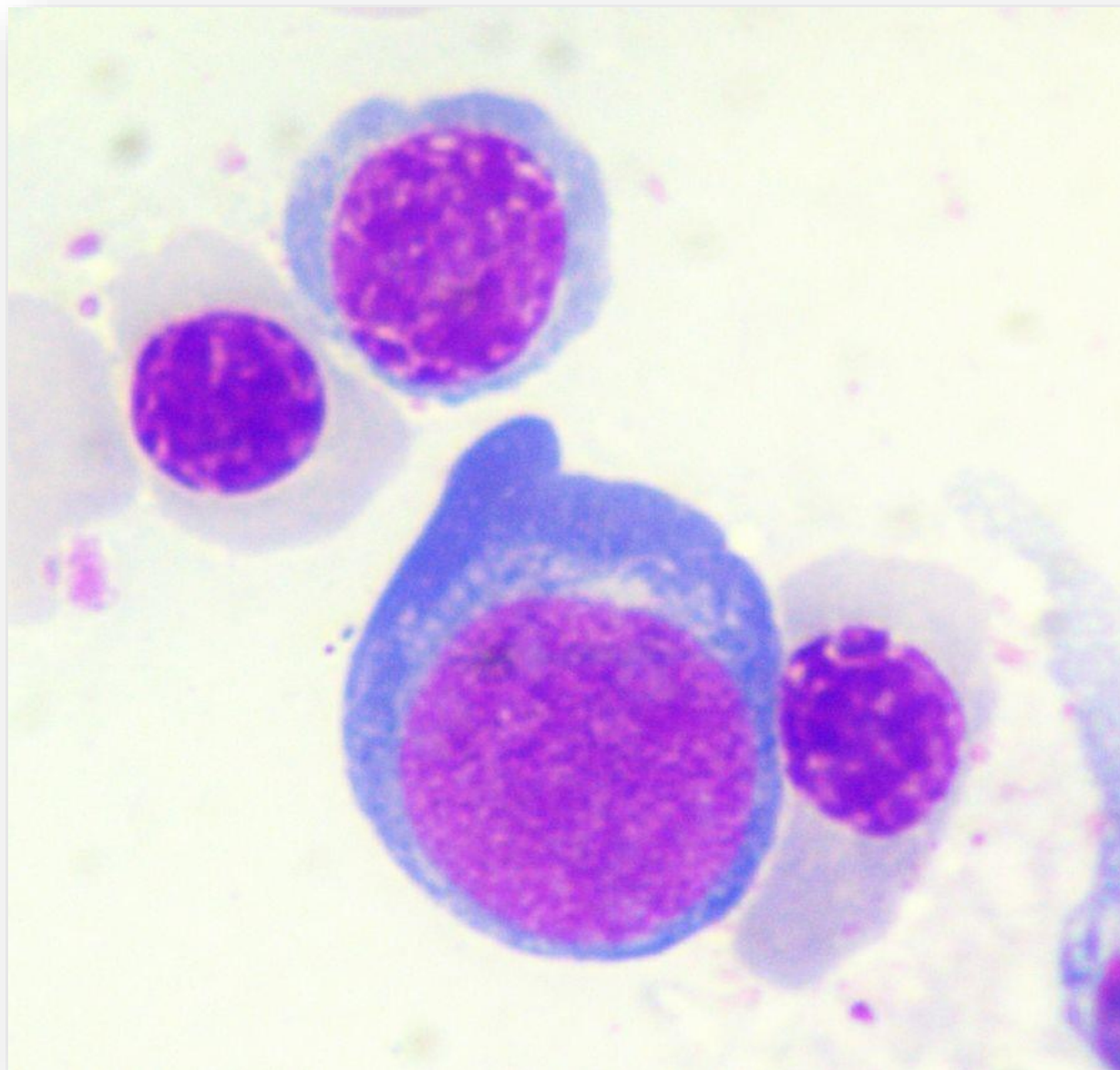
Citoplasma: desde basófilo hasta acidófilo

-: MPO, PAS, ANAE, ANBE, CAE

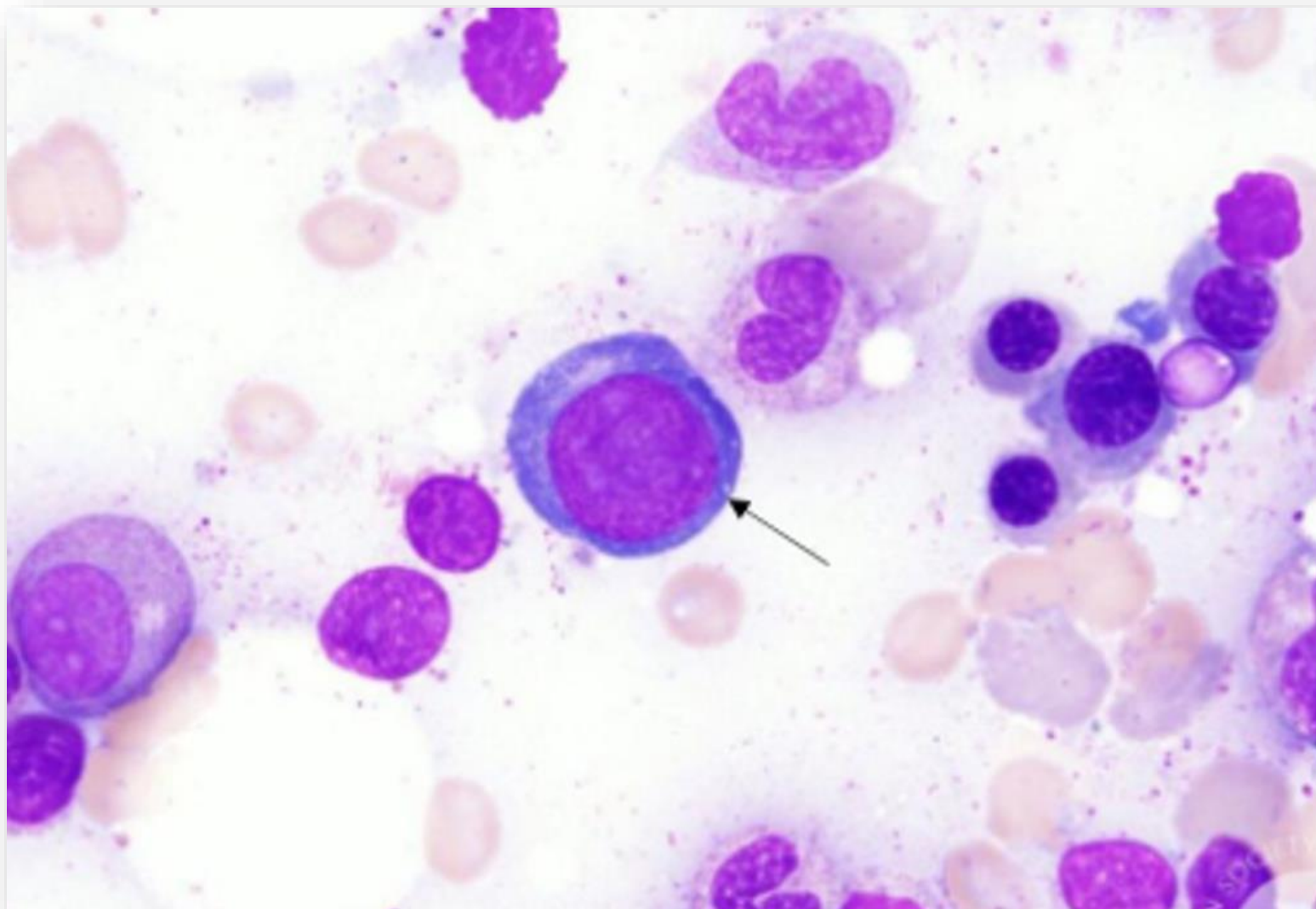
+: CD36, CD45d, CD117,
CD235, Glicoforina A



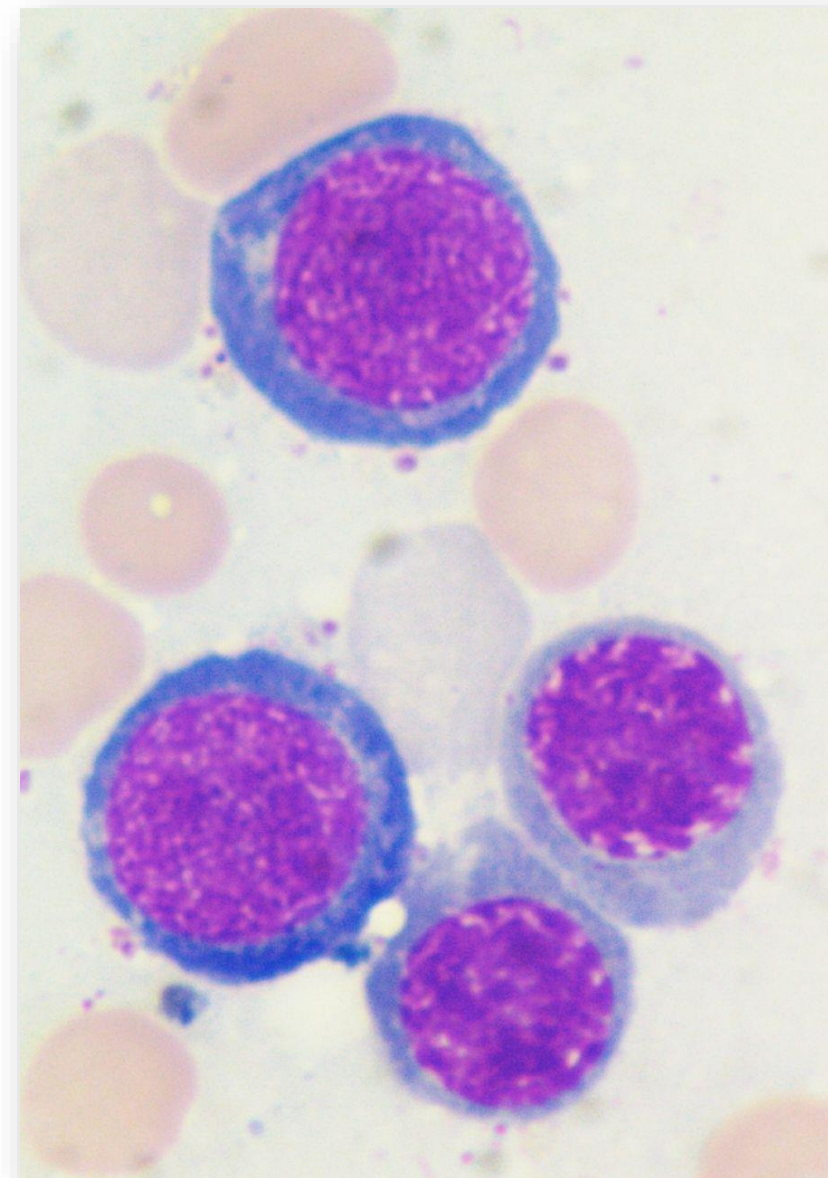
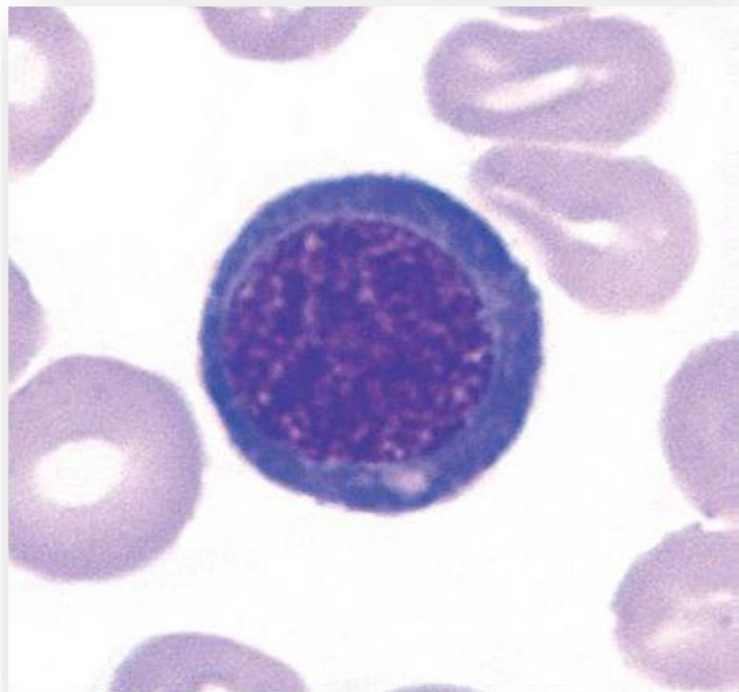
PROERITROBLASTO / PRONORMOBLASTO



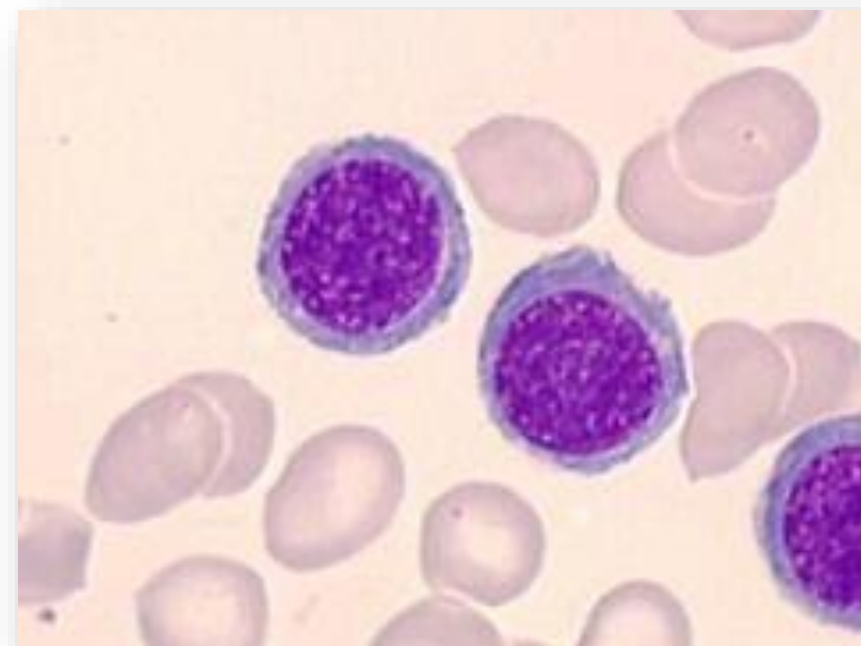
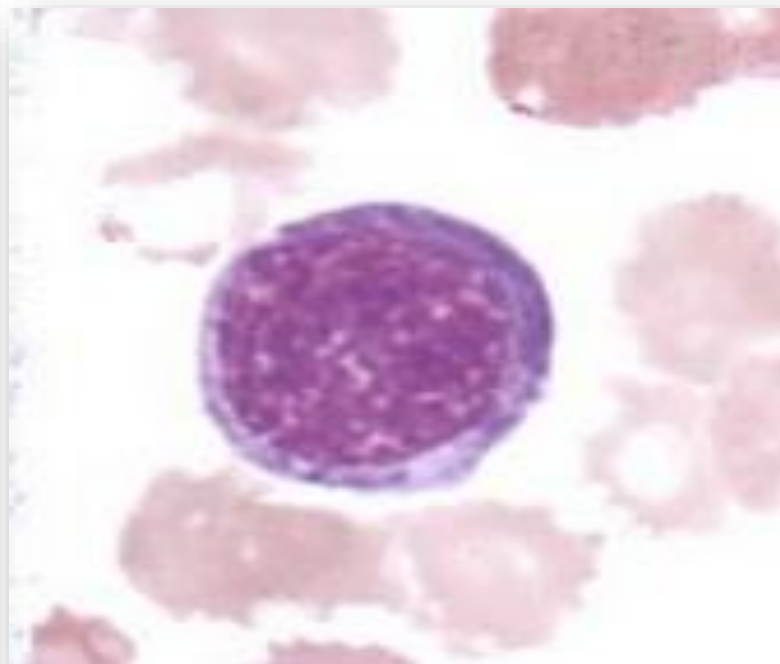
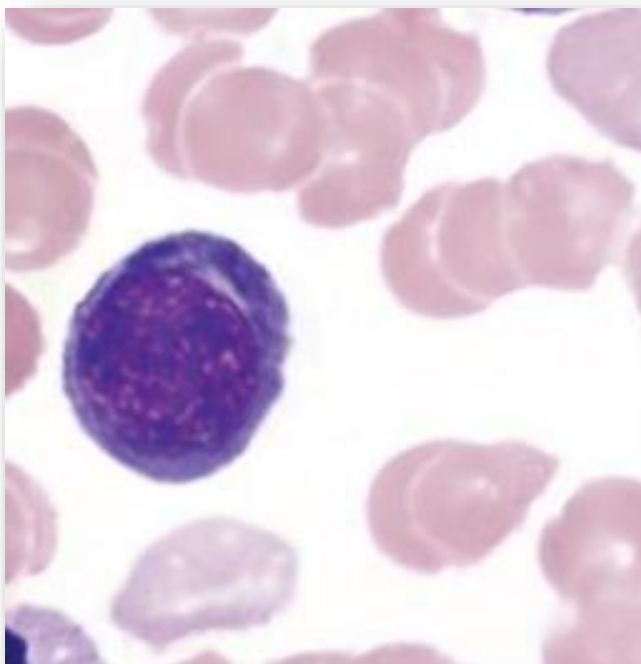
PRONORMOBLASTO



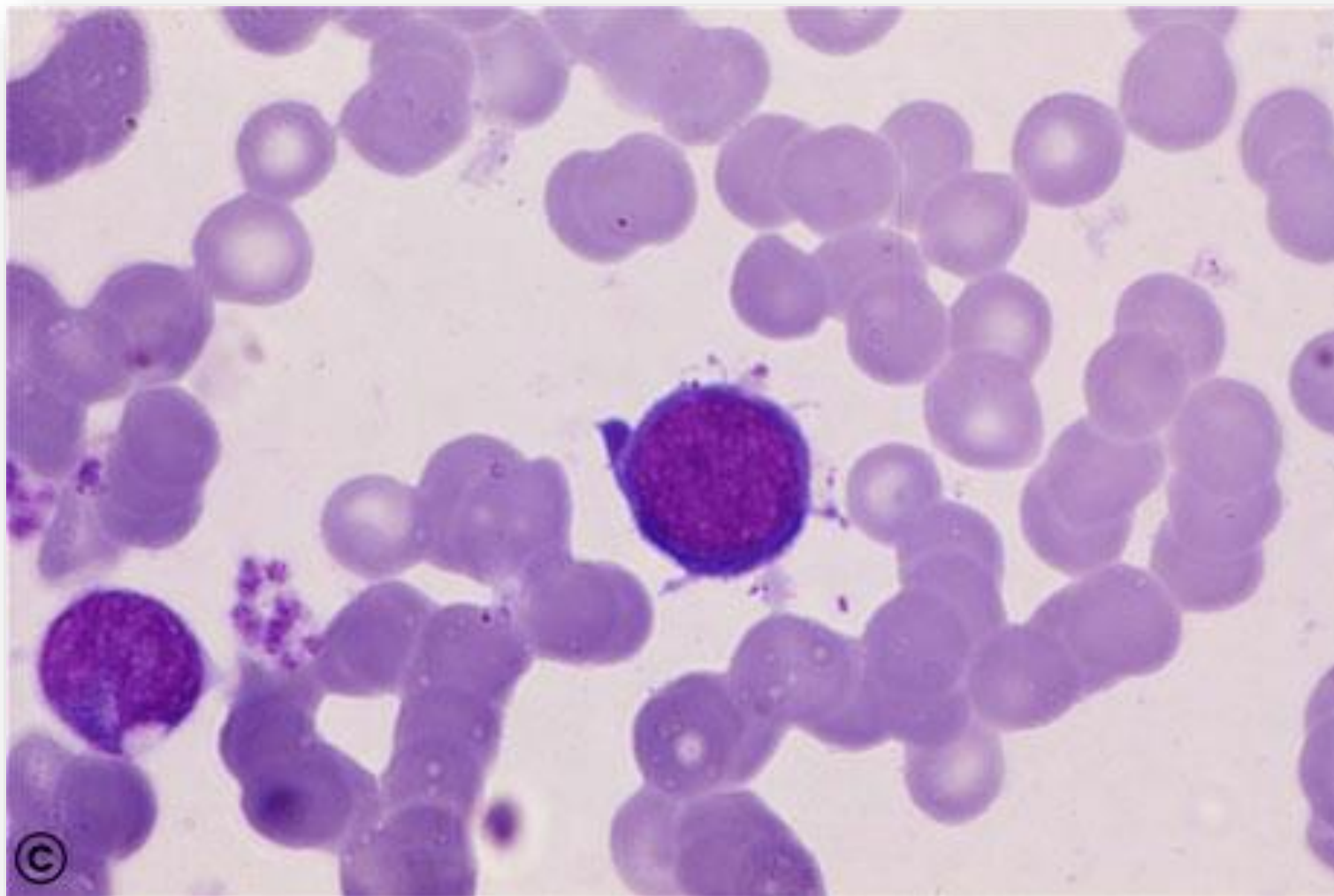
N. Basófilo



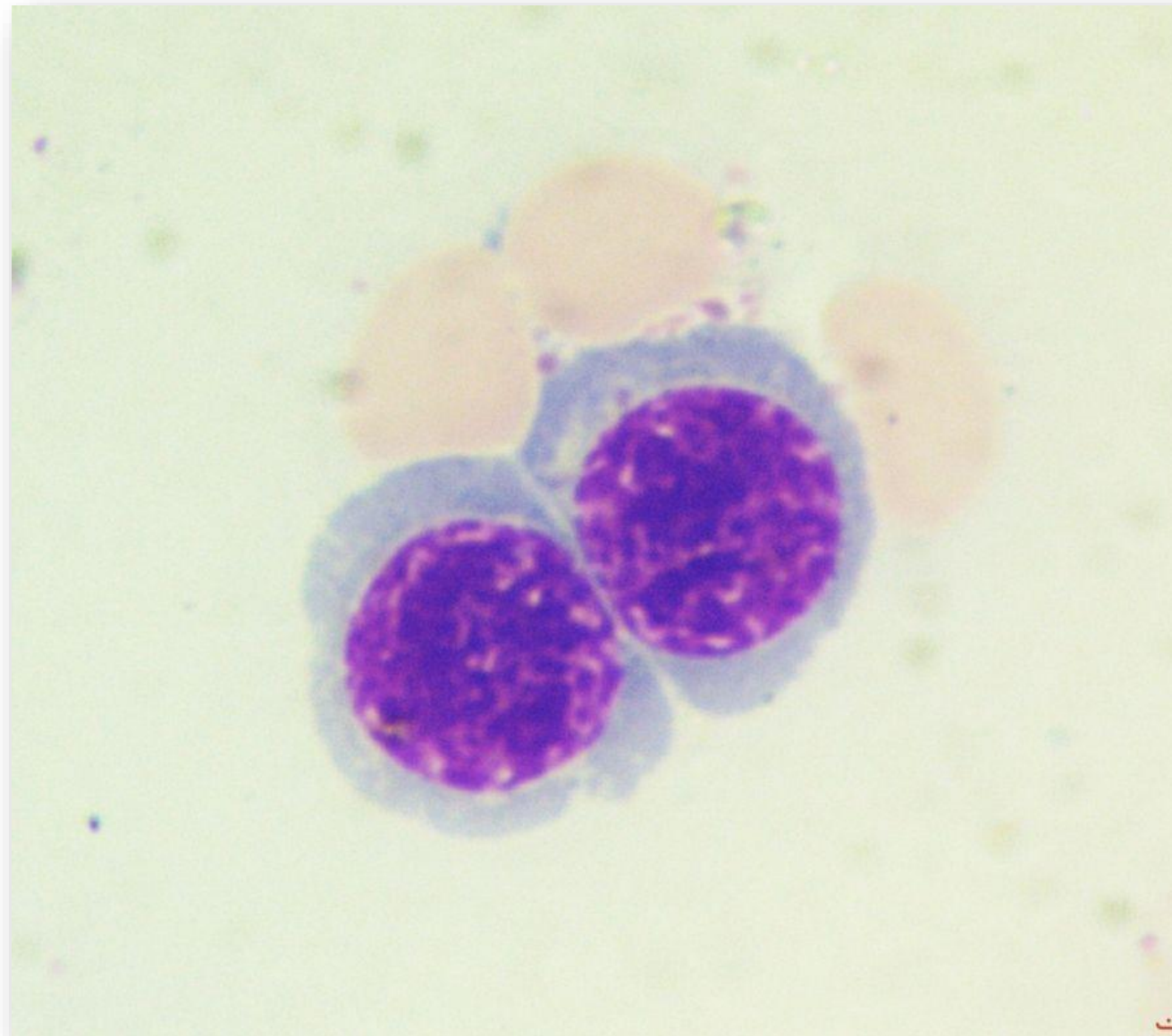
NORMOBLASTO BASÓFILO



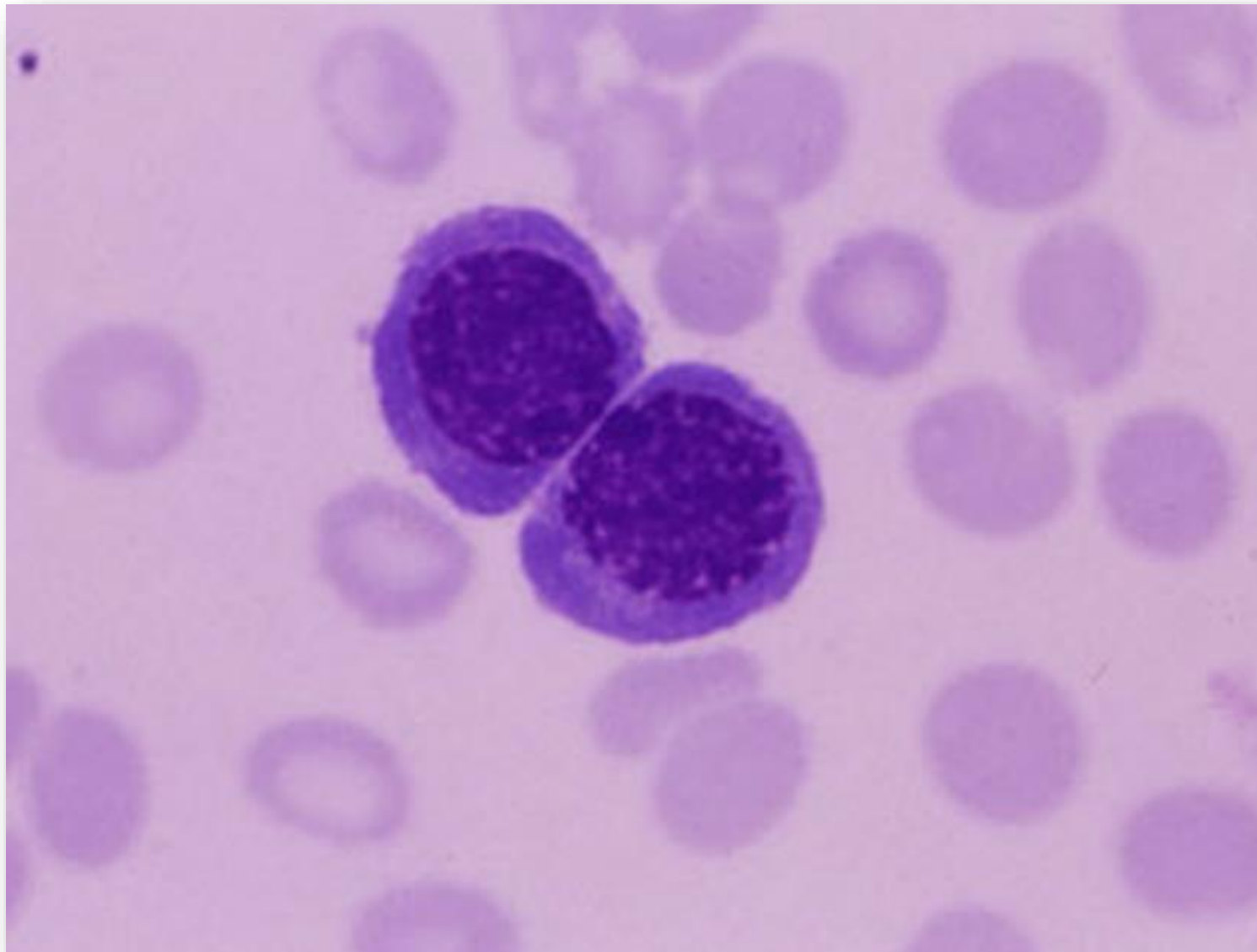
NORMOBLASTO BASÓFILO



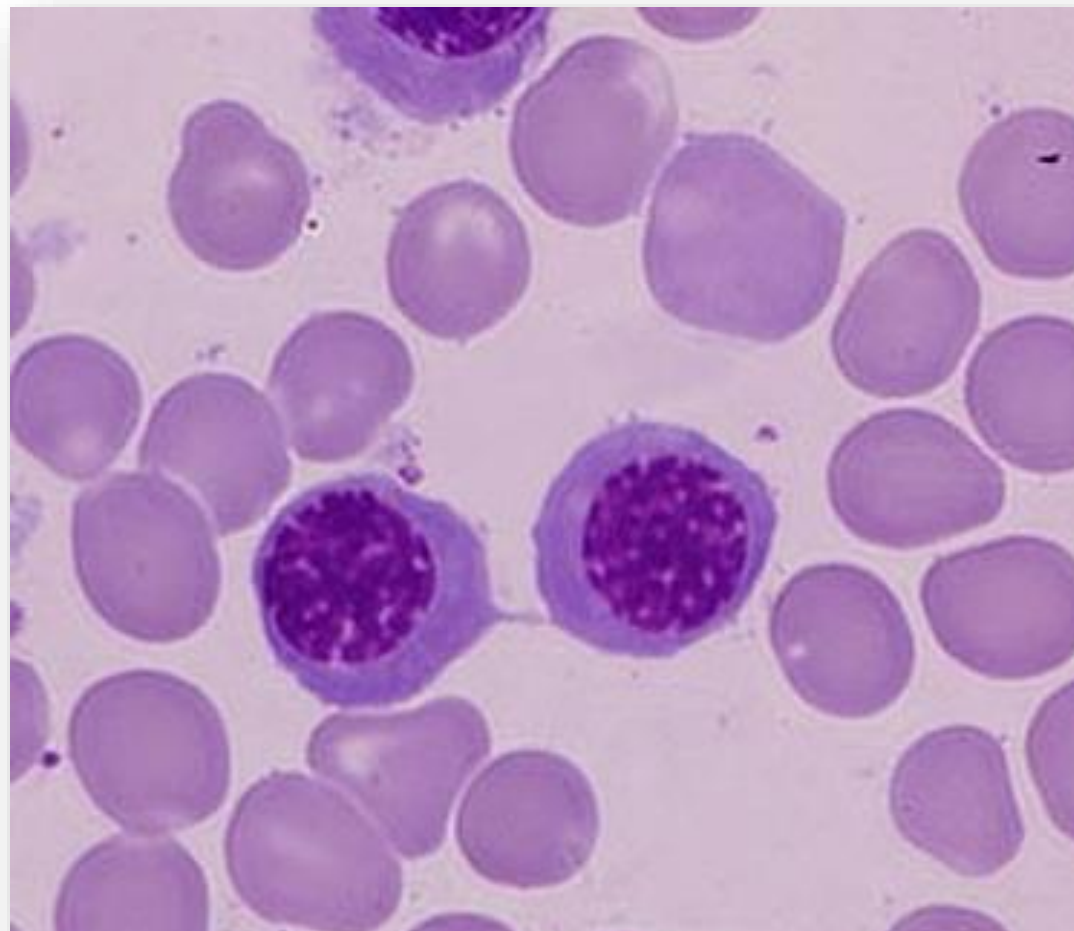
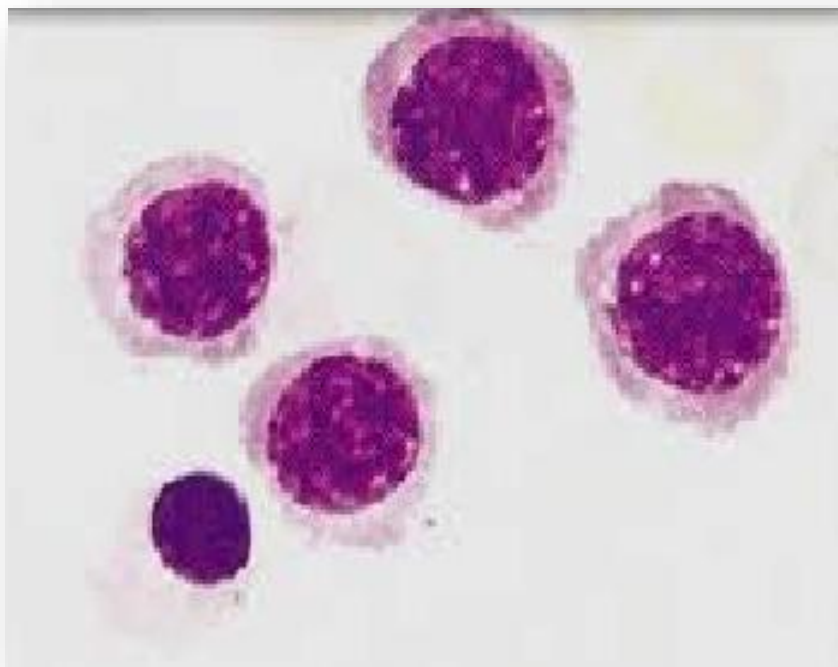
NORMOBLAȘTO POLICROMATÓFILO RUBRICITO



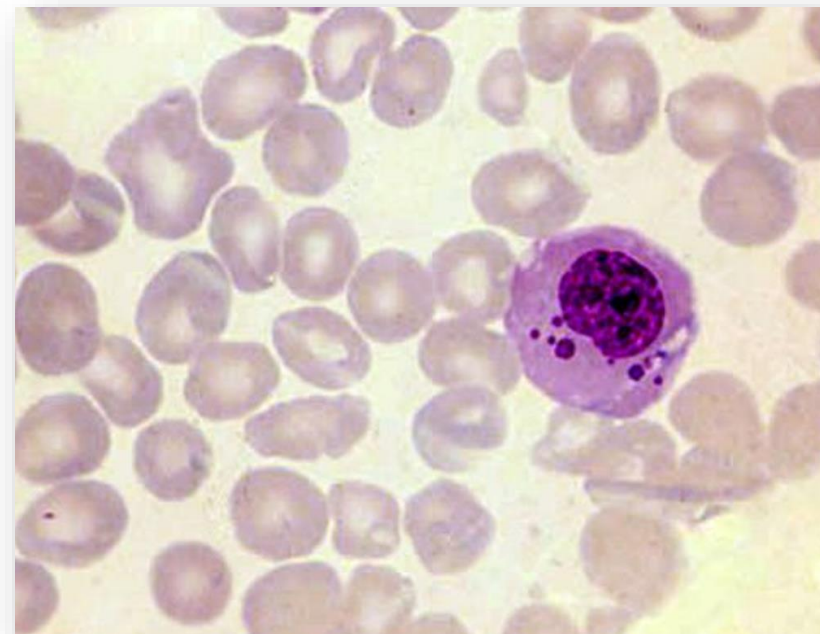
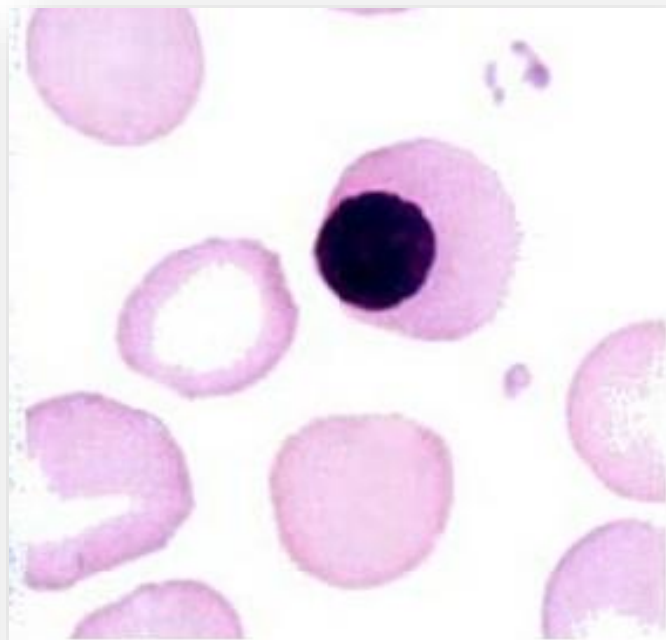
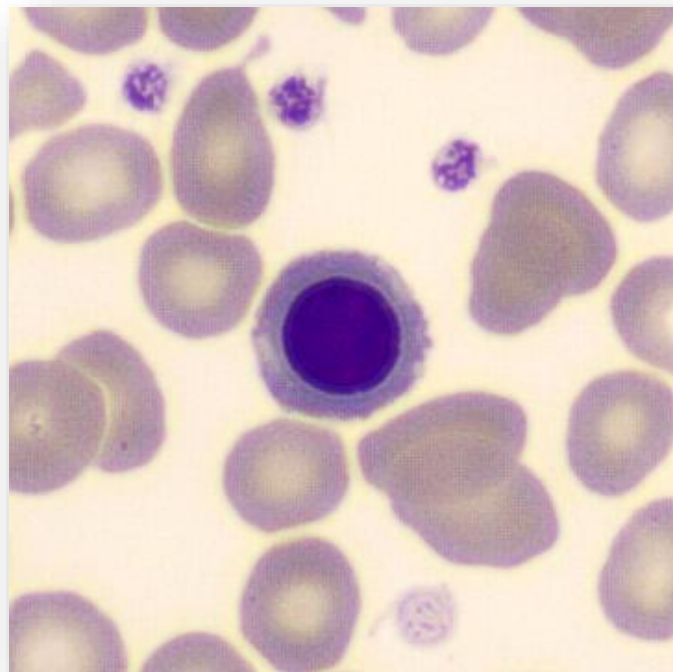
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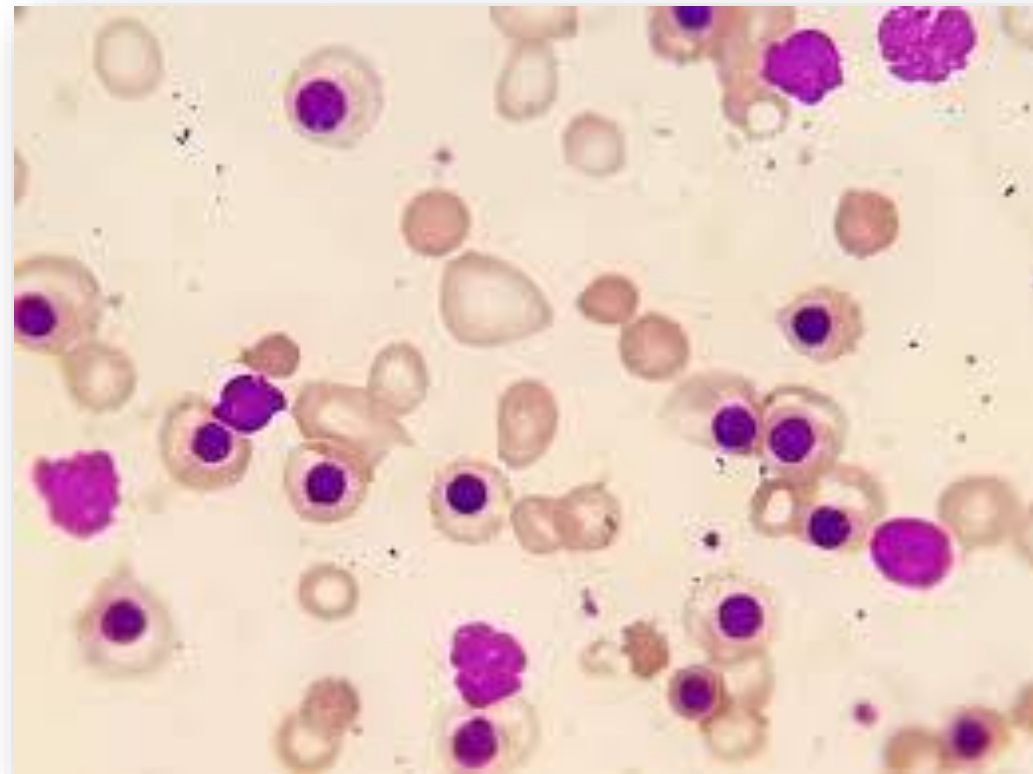
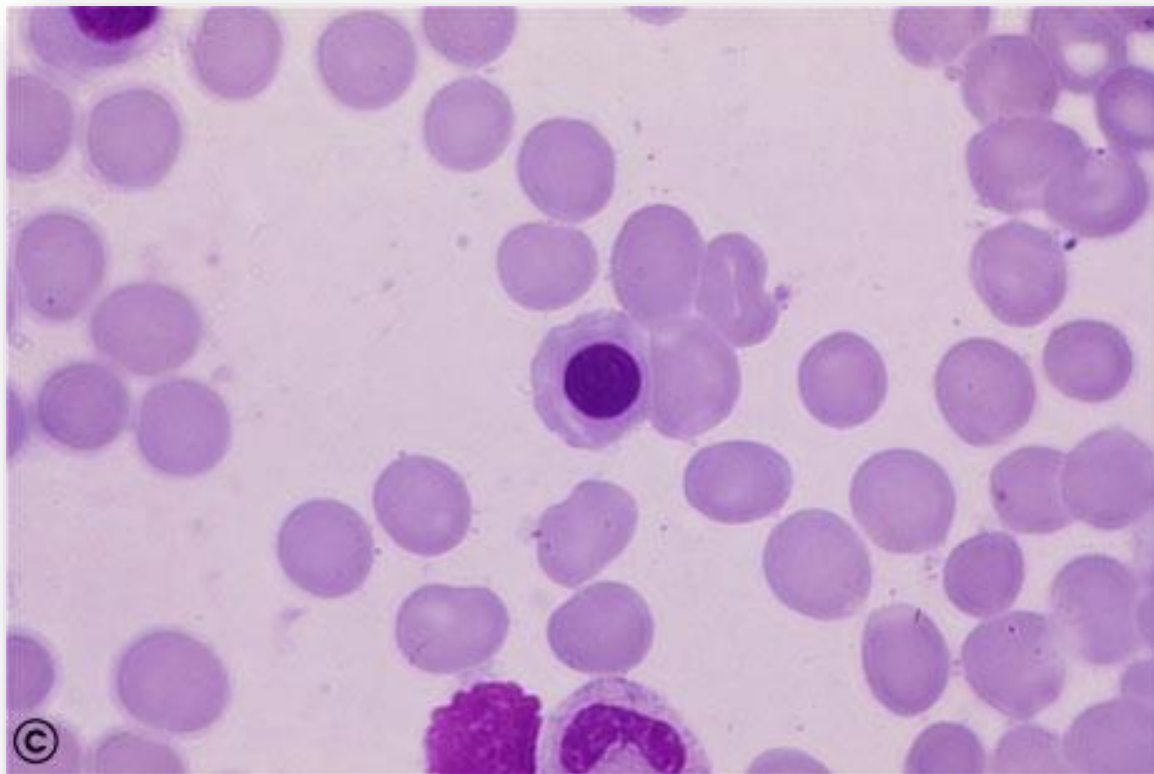
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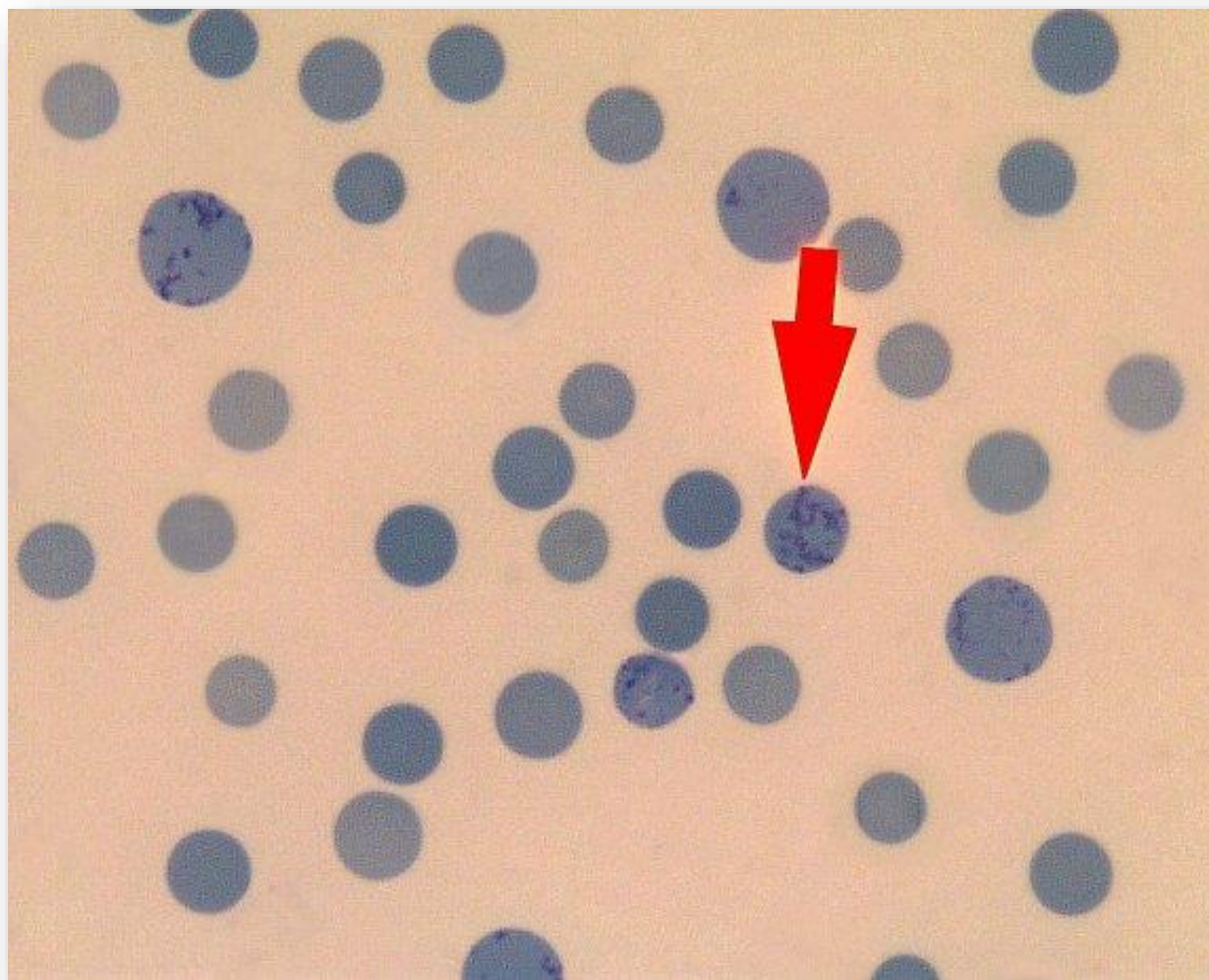
NORMOBLASTO ORTOCROMATICO METARUBRICITO



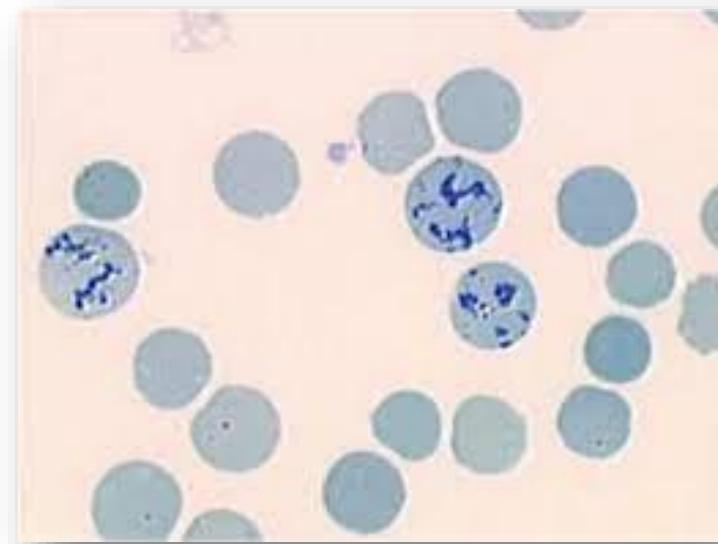
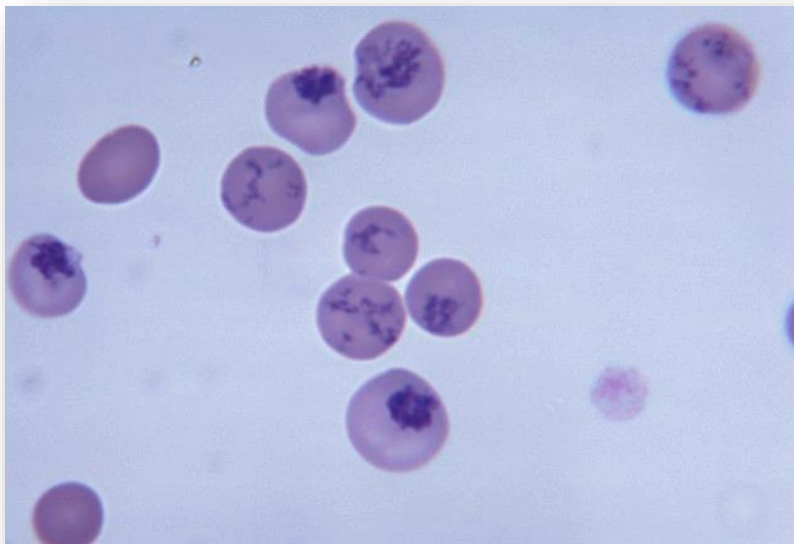
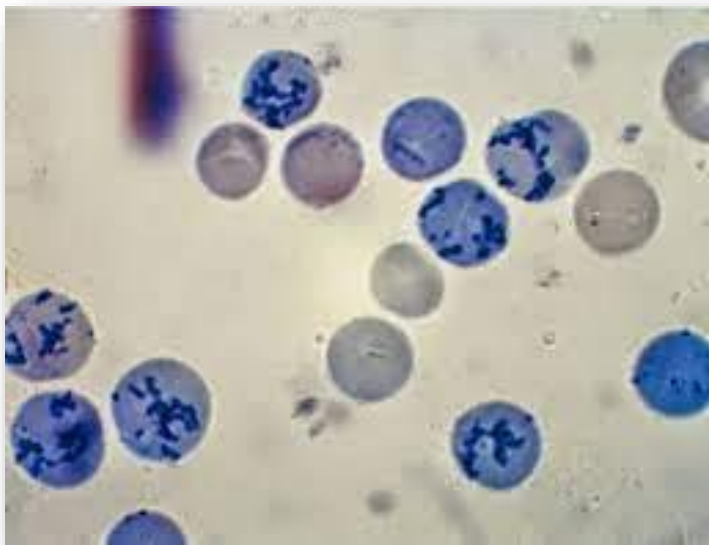
NORMOBLASTO ORTOCROMATICO



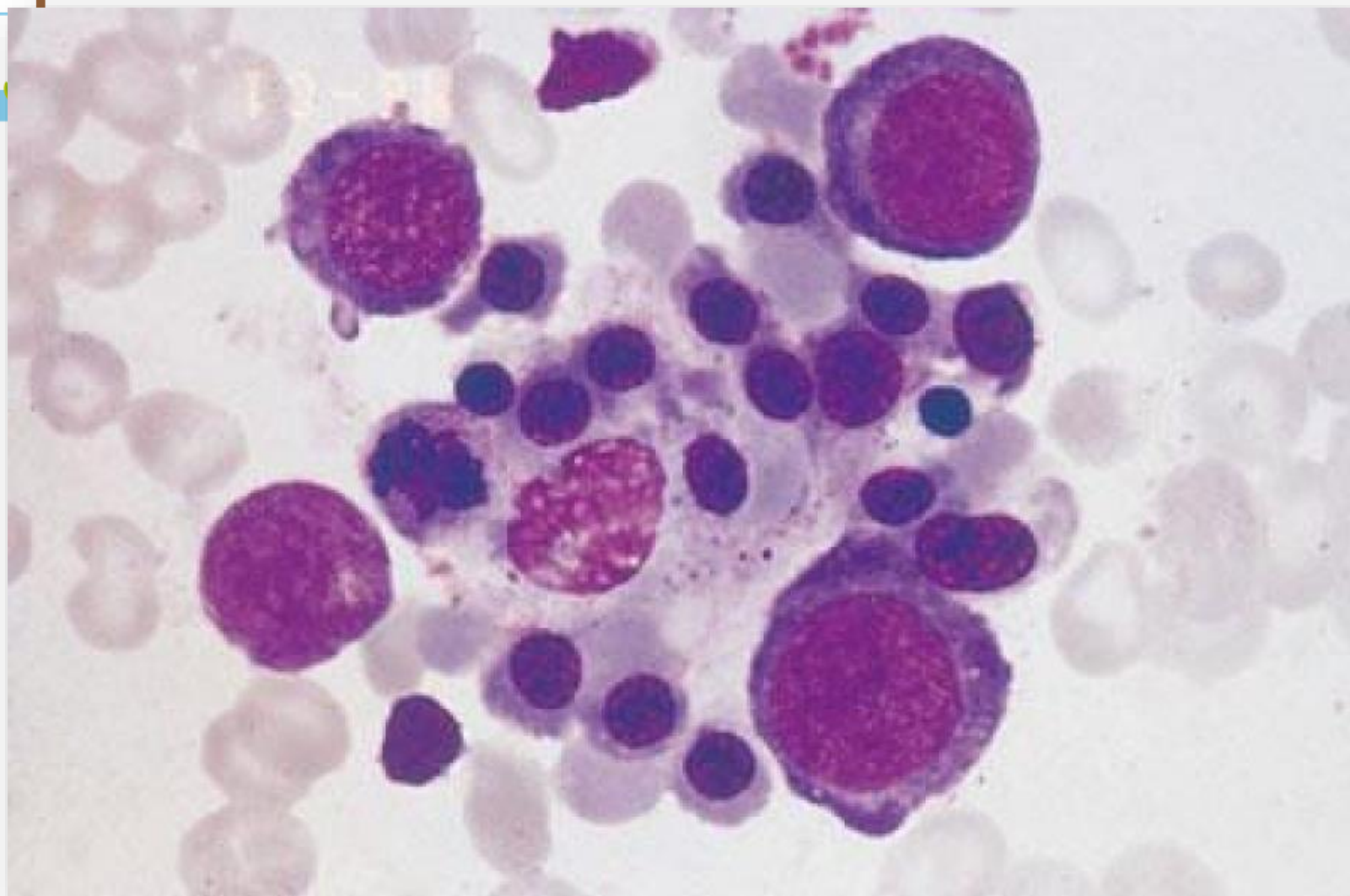
RETICULOCITO



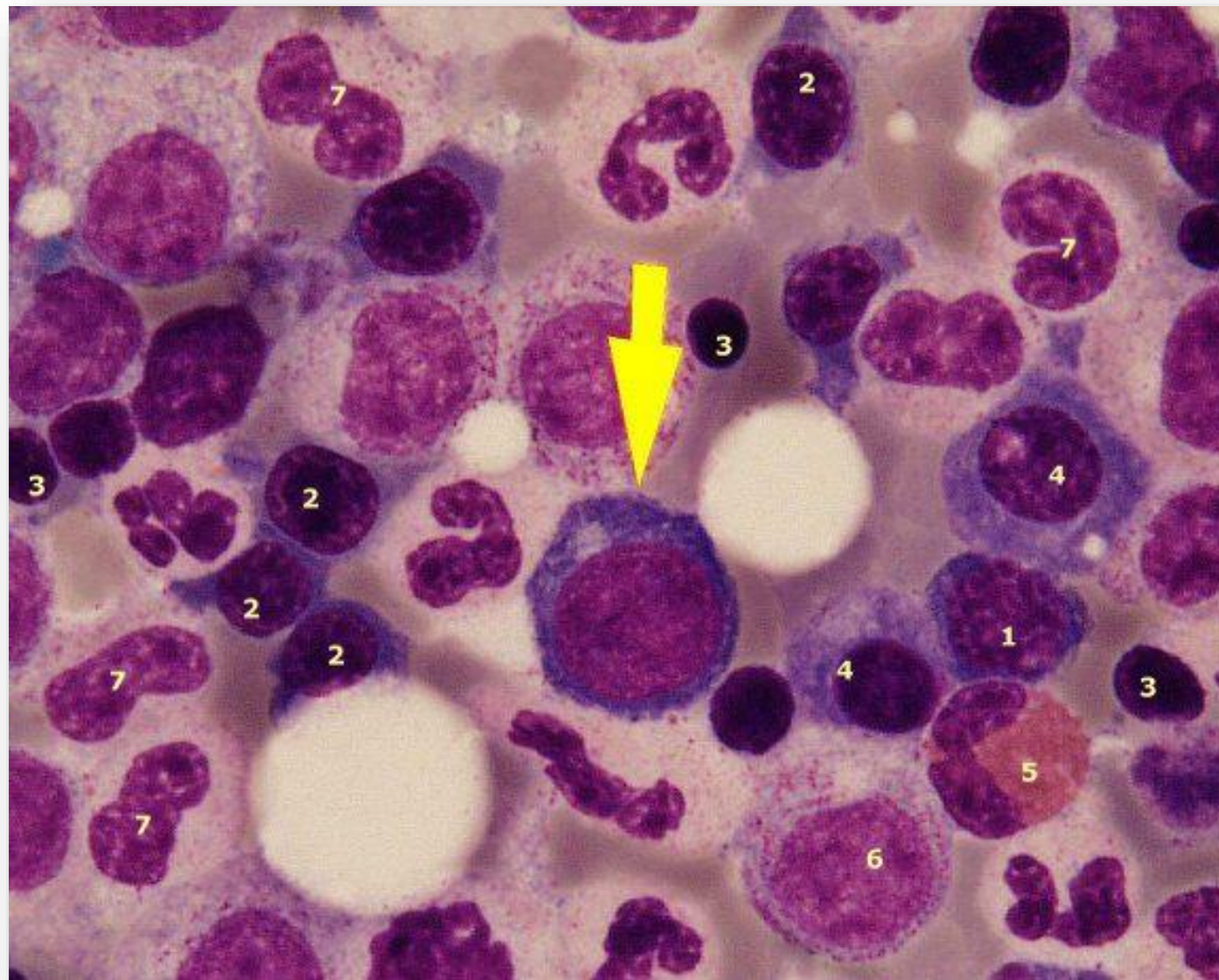
RETICULOCITO



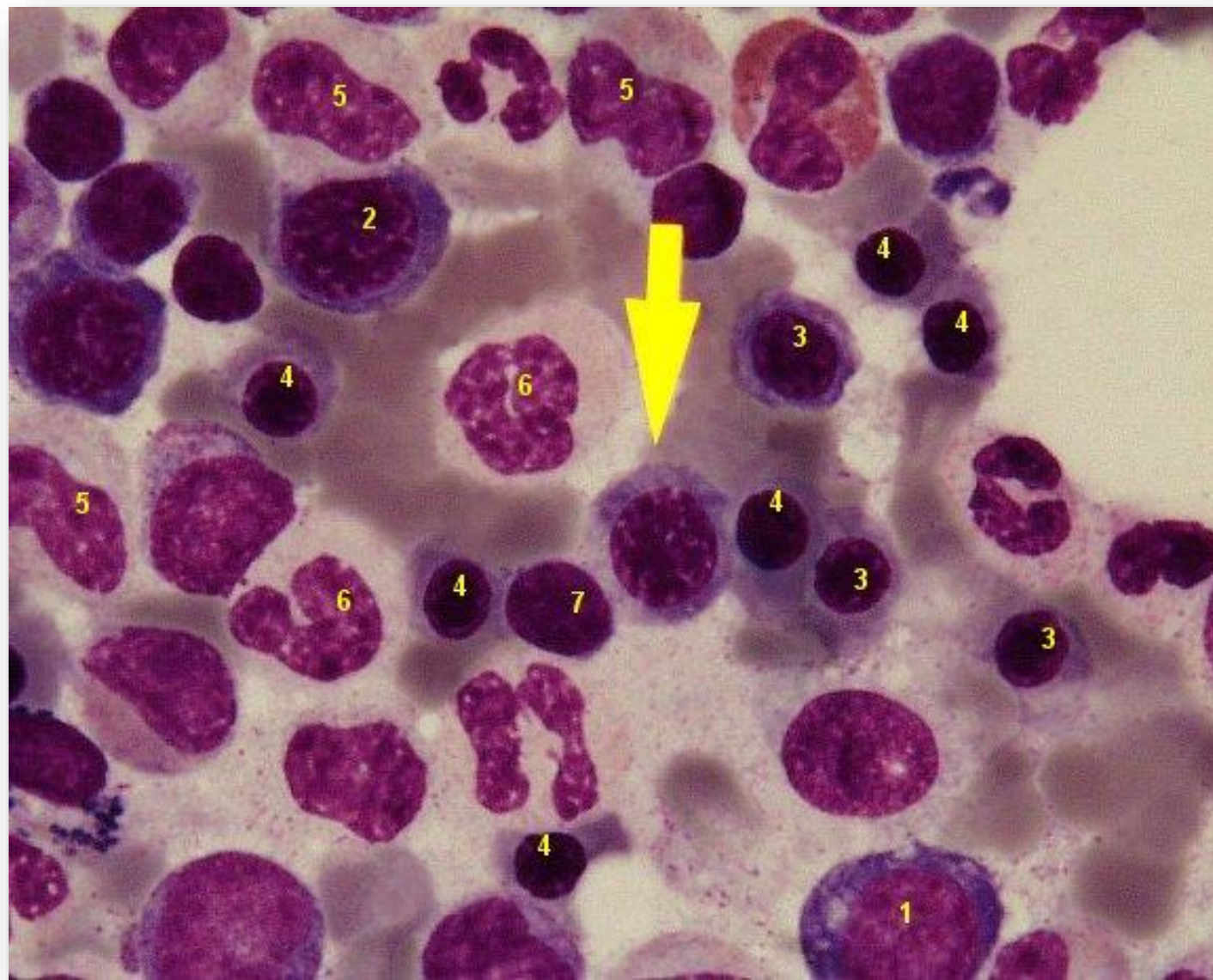
Línea eritroide
Nido eritroblástico medular
centrado por un macrófago que
ejerce su función de "célula
nodriza" en el aporte de hierro a
los eritroblastos para la síntesis
de hemoglobina



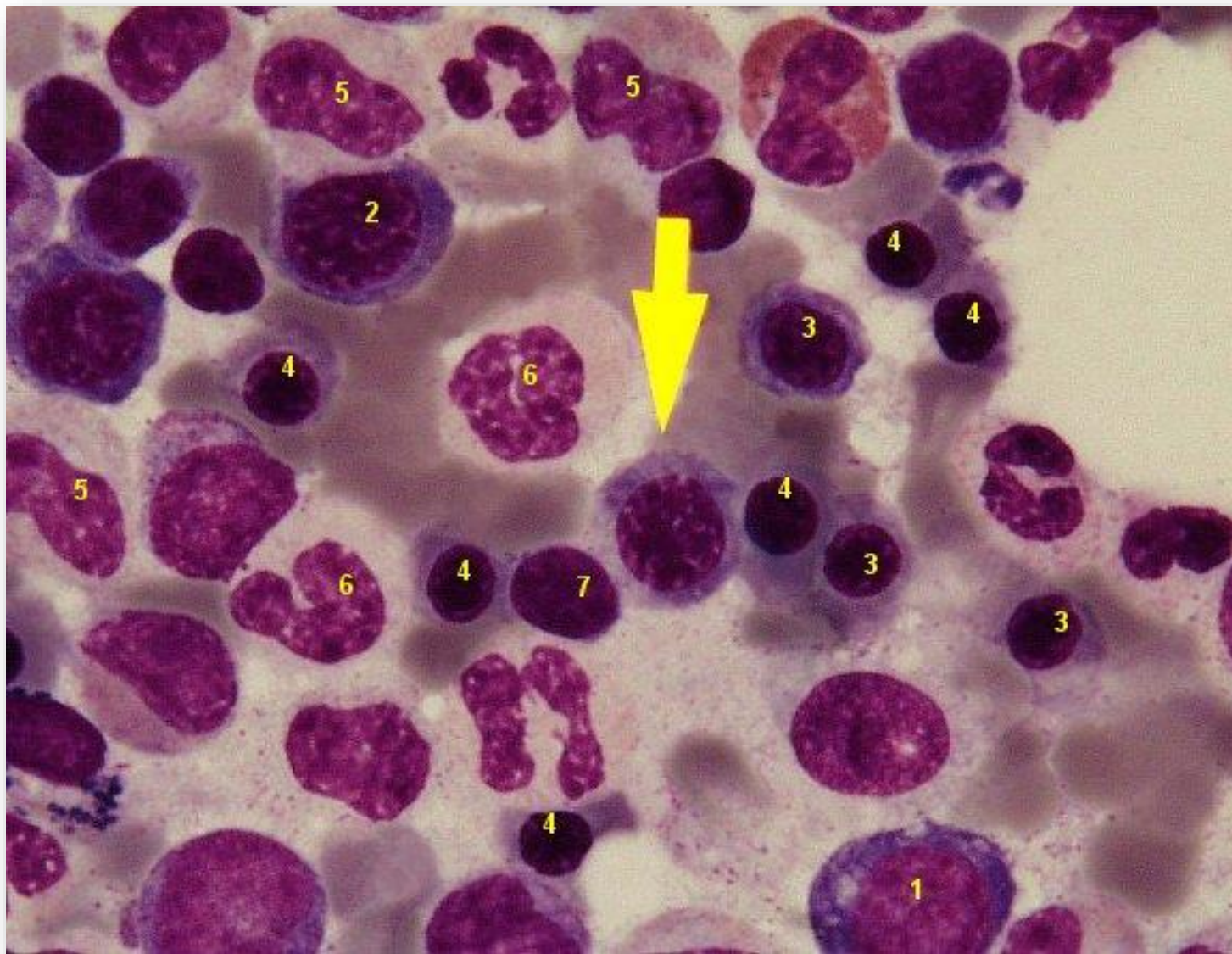
Línea eritroide



Línea eritroide



Línea eritroide



Línea linfoide

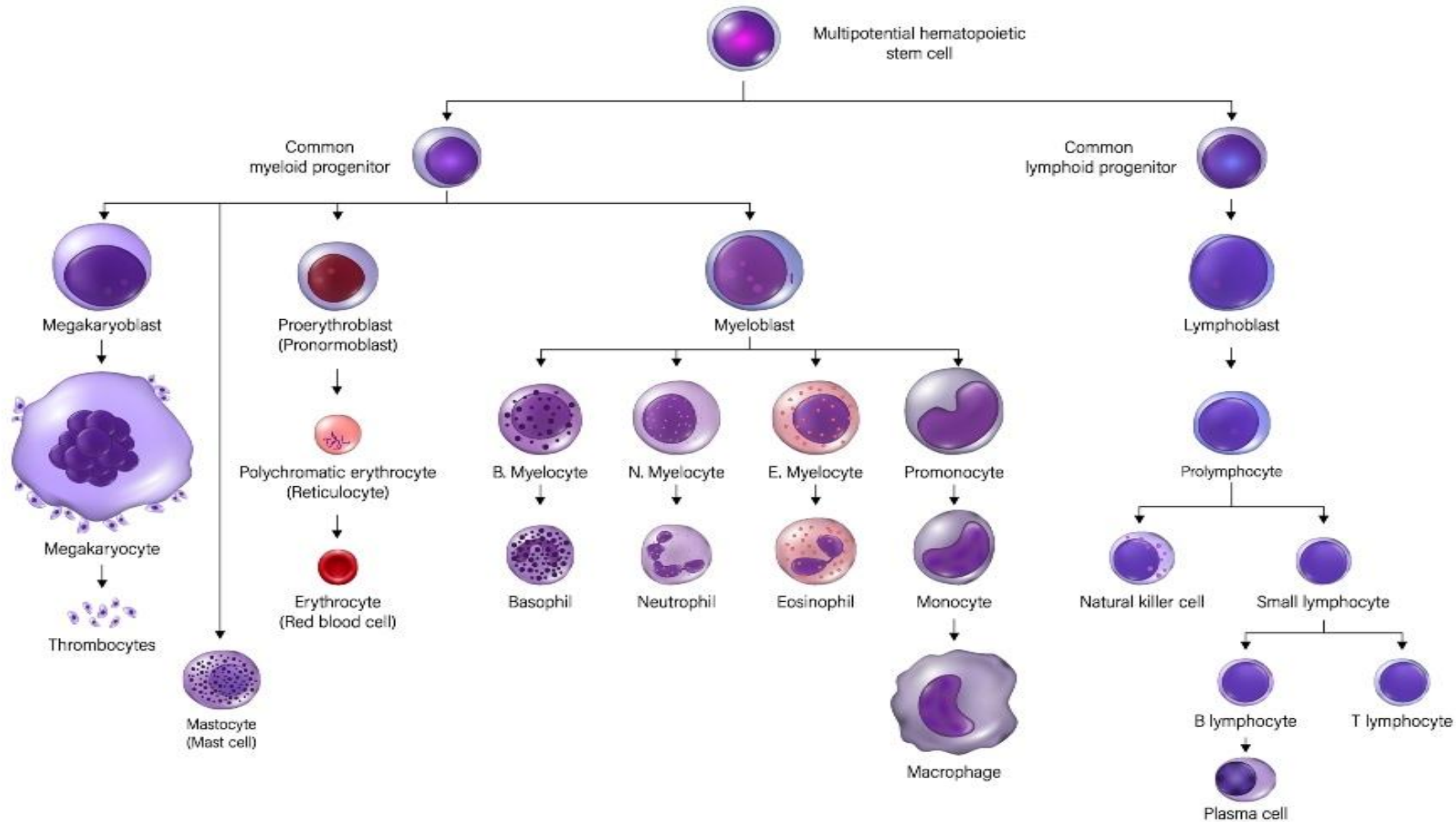


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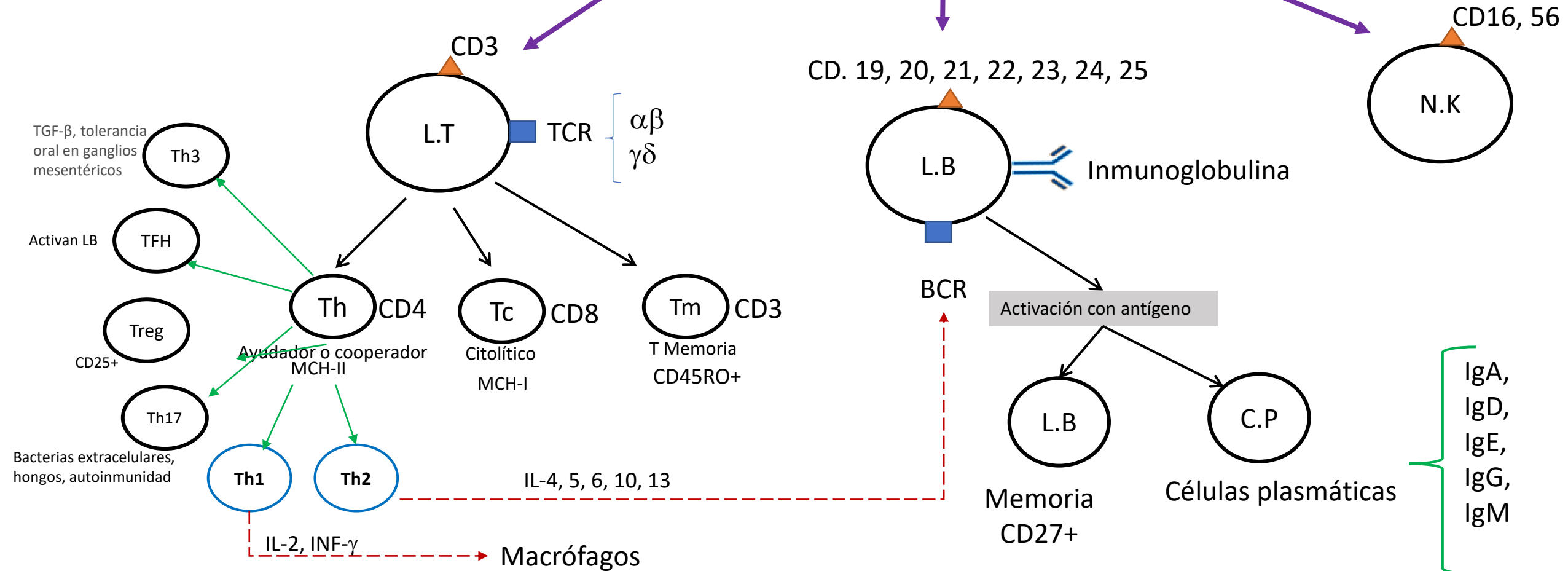


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LINFOCITOS



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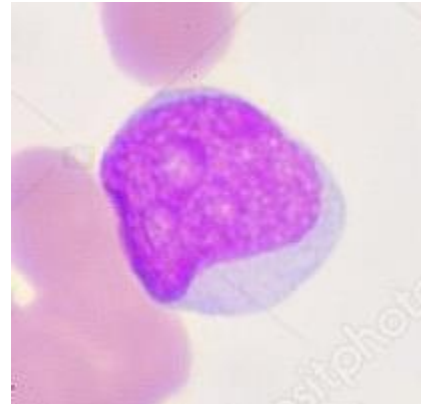
Colegio Nacional de Bacteriología

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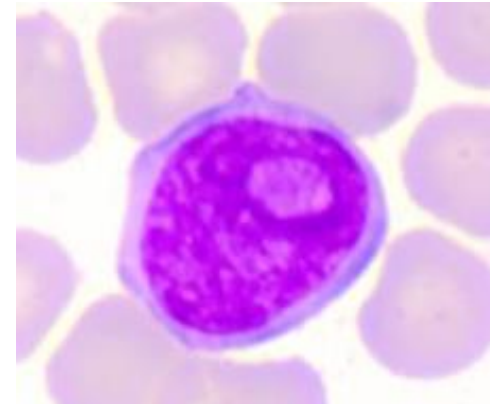


LINFOPOYESIS

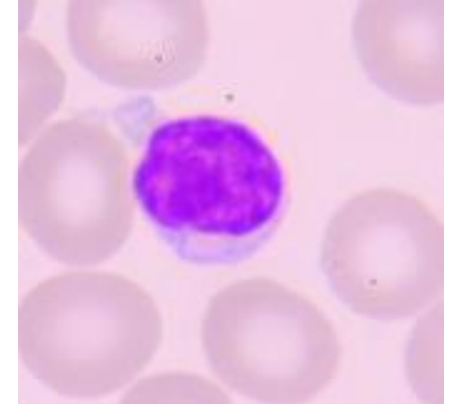
- Dependiente de antígeno
- Independiente de antígeno



Linfoblasto



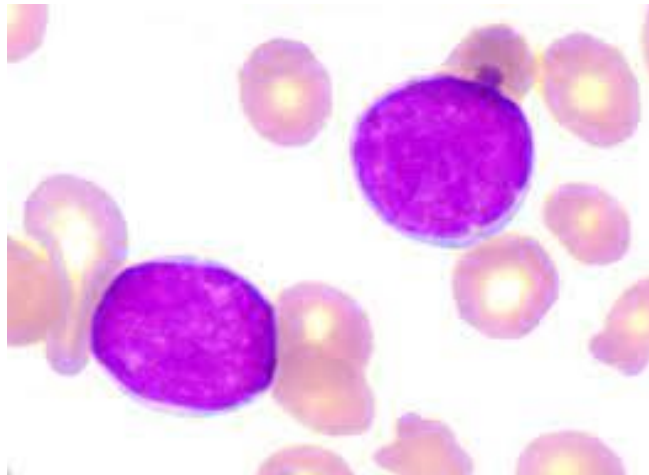
Prolinfocito



Linfocito



LINFOBLASTO



14 – 20 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina y homogénea. Nucléolos claros	Basófilo	Variables, azurófilos	MPO: - PAS: +/- ANAE: -/+ ANBE: -	ORIGEN B: +: HLA-DR, TdT, CD34, CD10, CD19, CD22cy, CD38, CD45, CD79A, PAX5. -/+ : CD24 ORIGEN T. +: CD1a, CD2, CD4, CD5, CD7, CD8, CD3cy -/+ : CD10, CD79a Coexpresión CD13, CD33

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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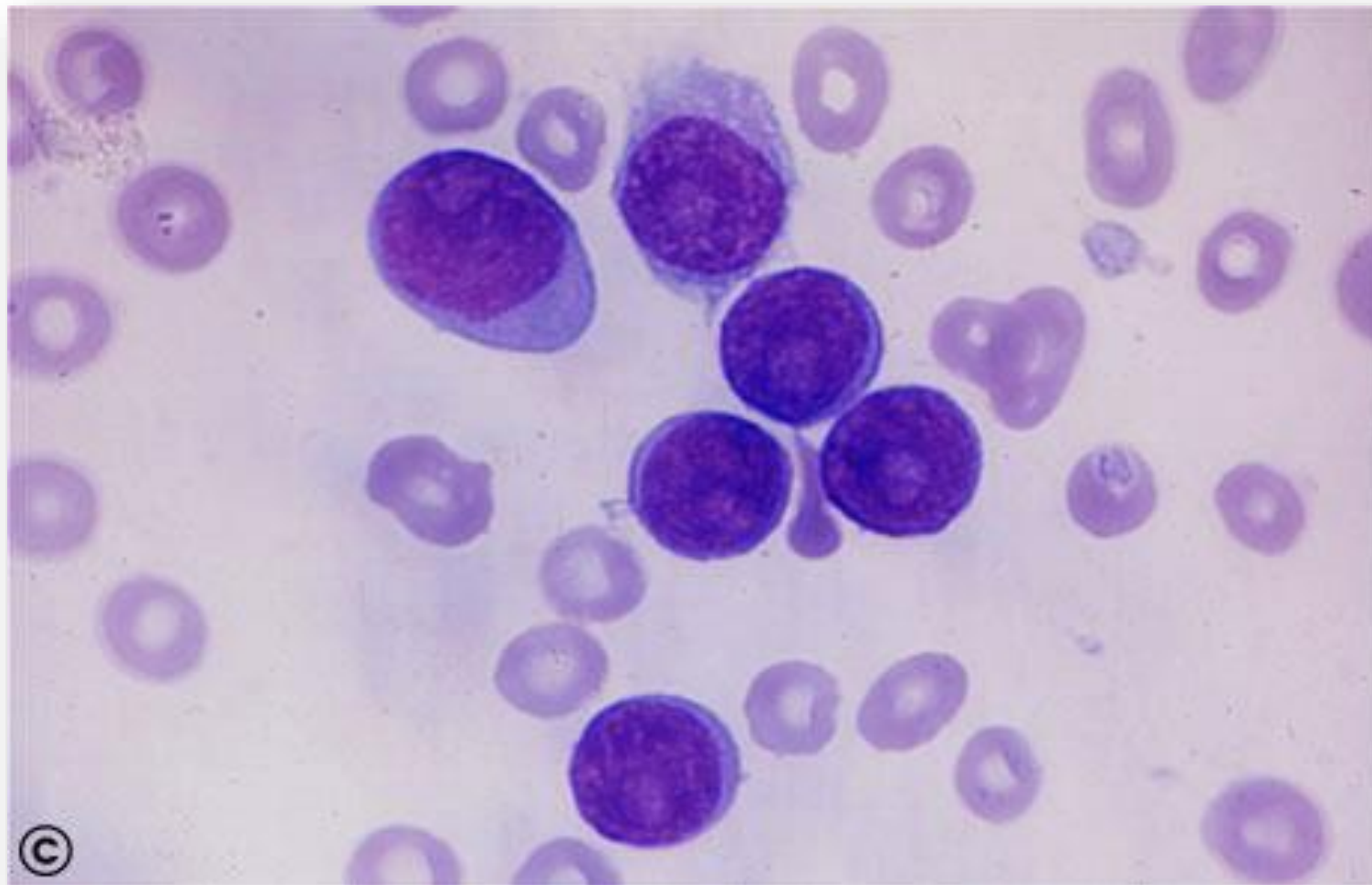


Colegio Nacional de Bacteriología

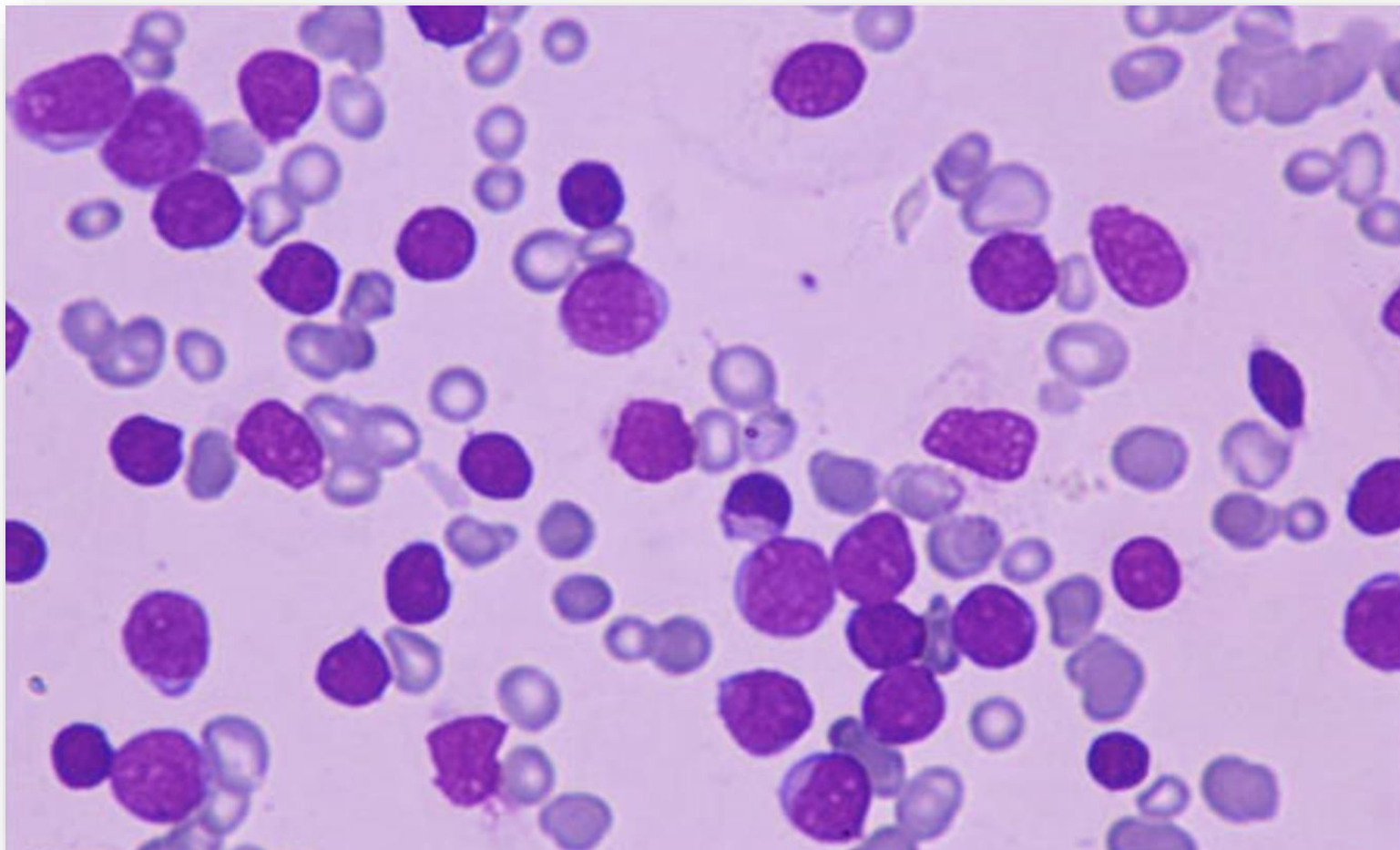
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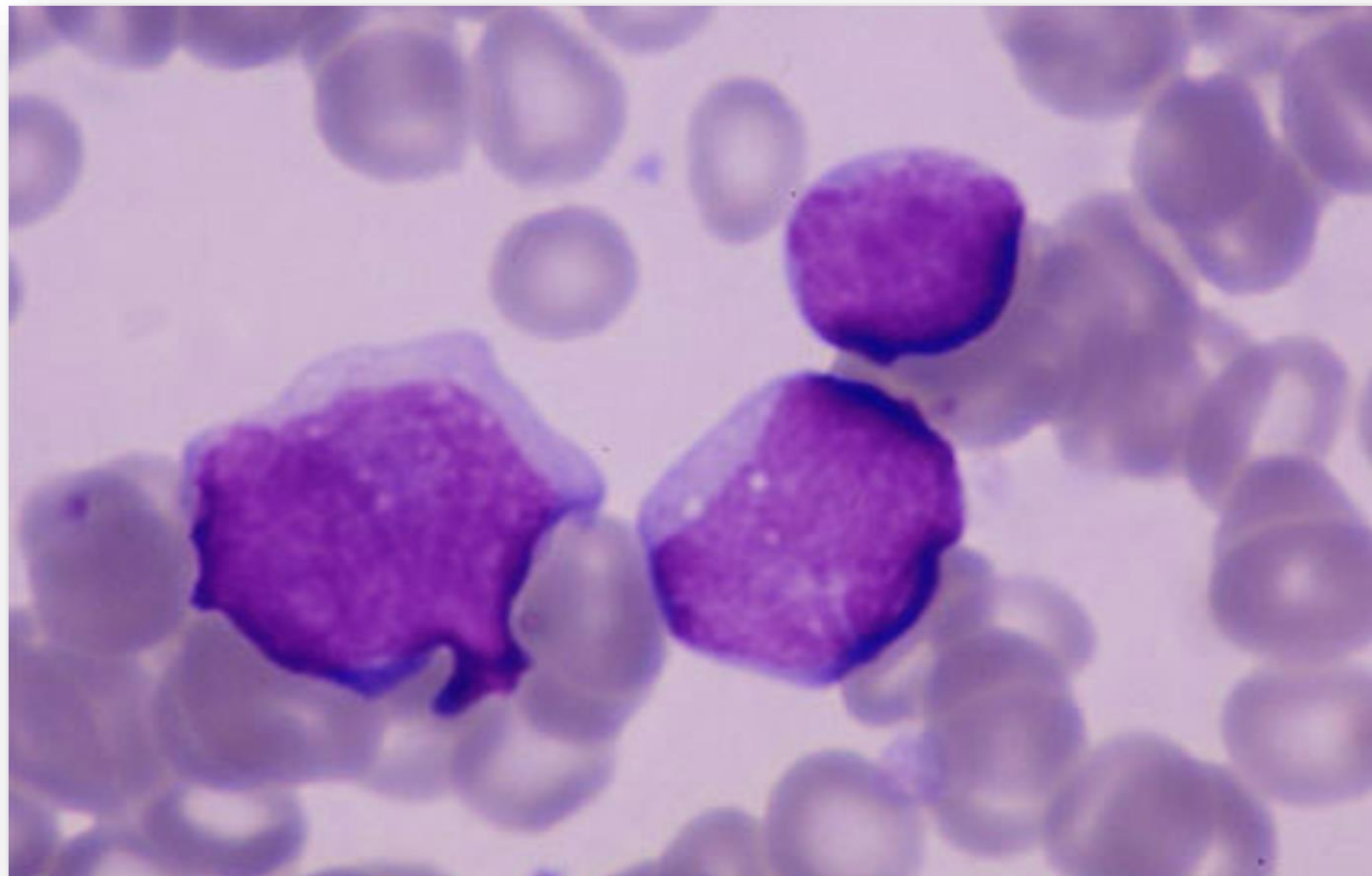
LINFOBLASTOS – L1.



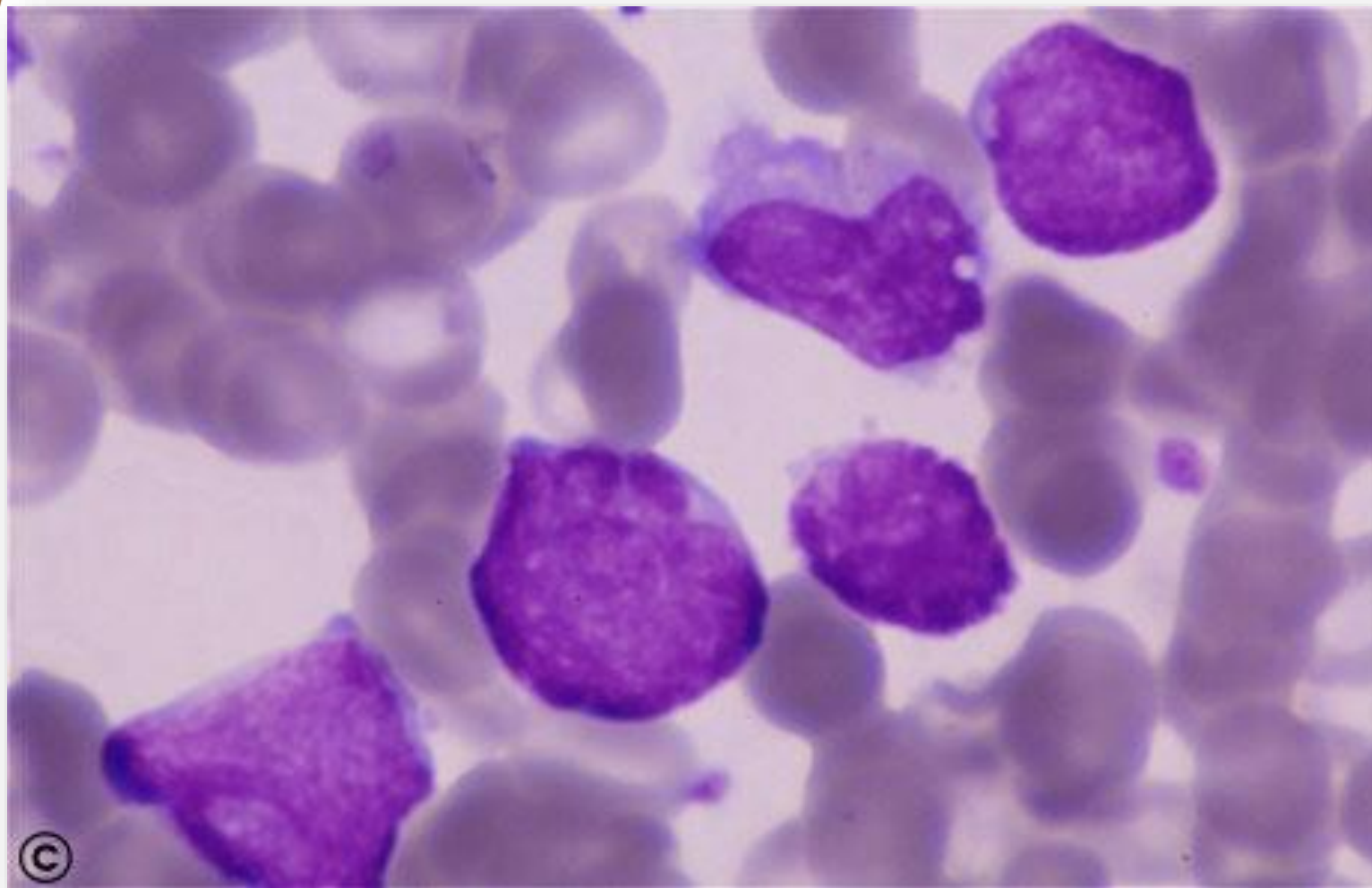
LINFOBLASTO S – L1.



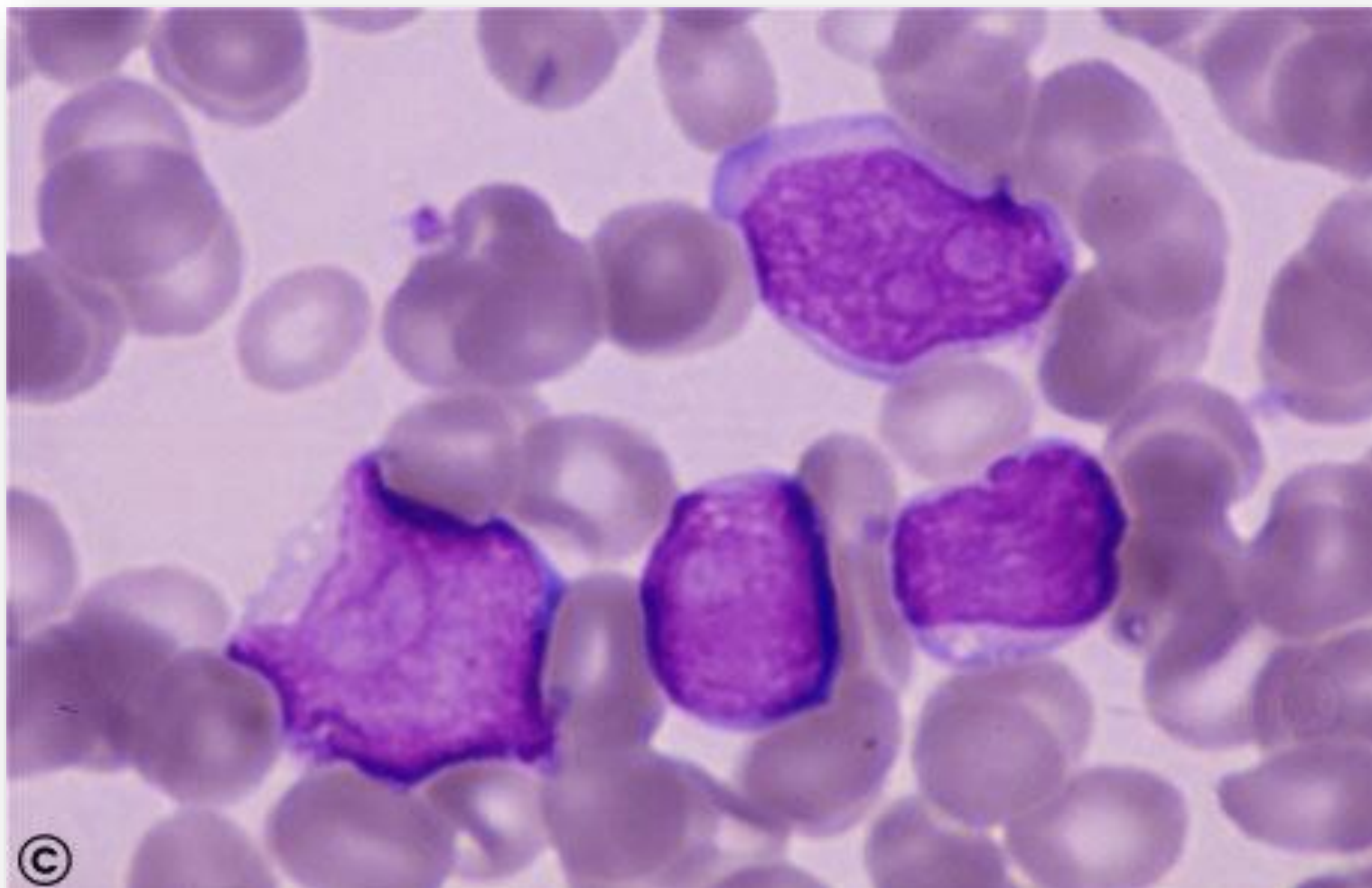
LINFOBLASTOS – L2.



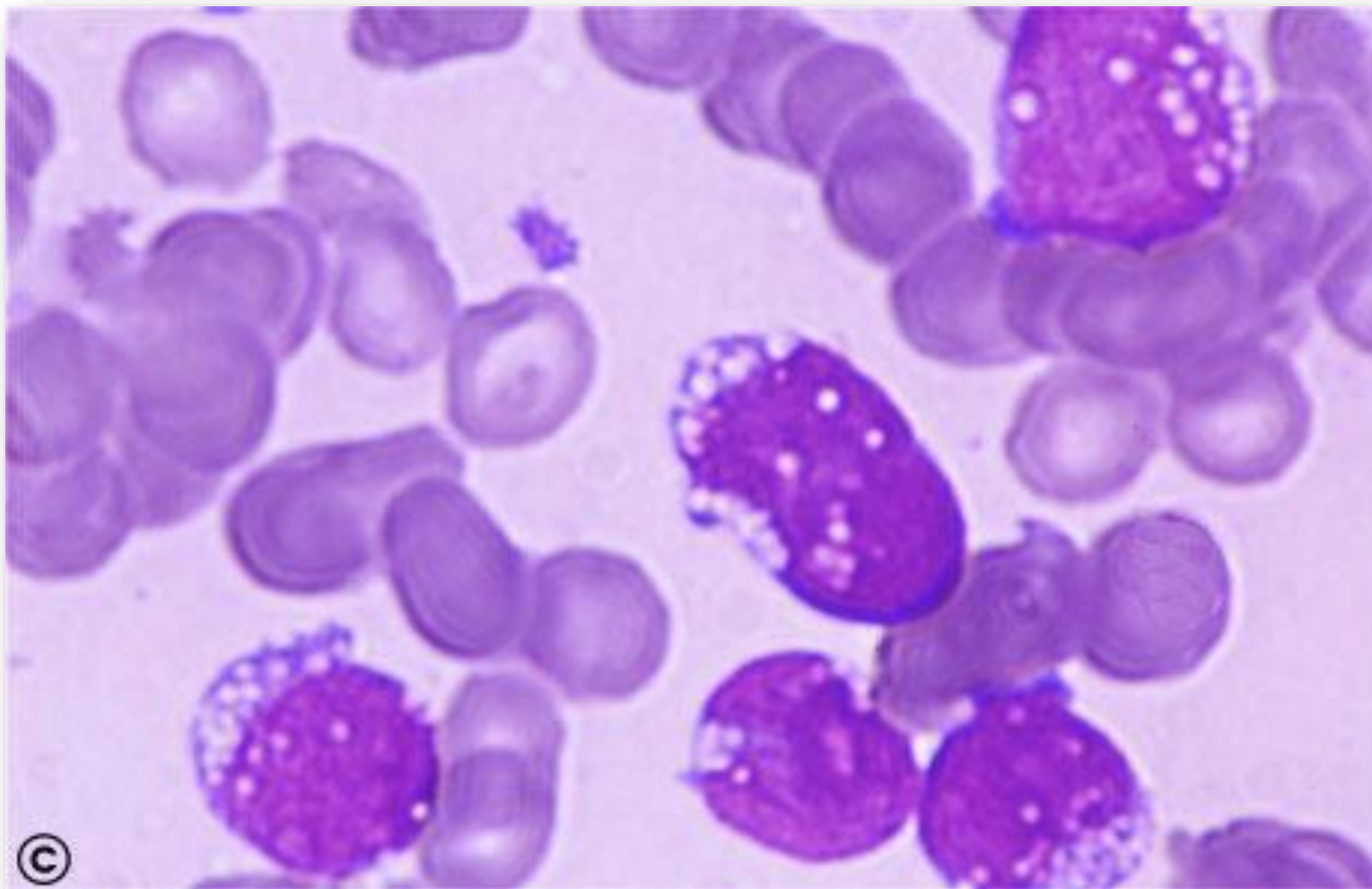
LINFOBLASTOS – L2.



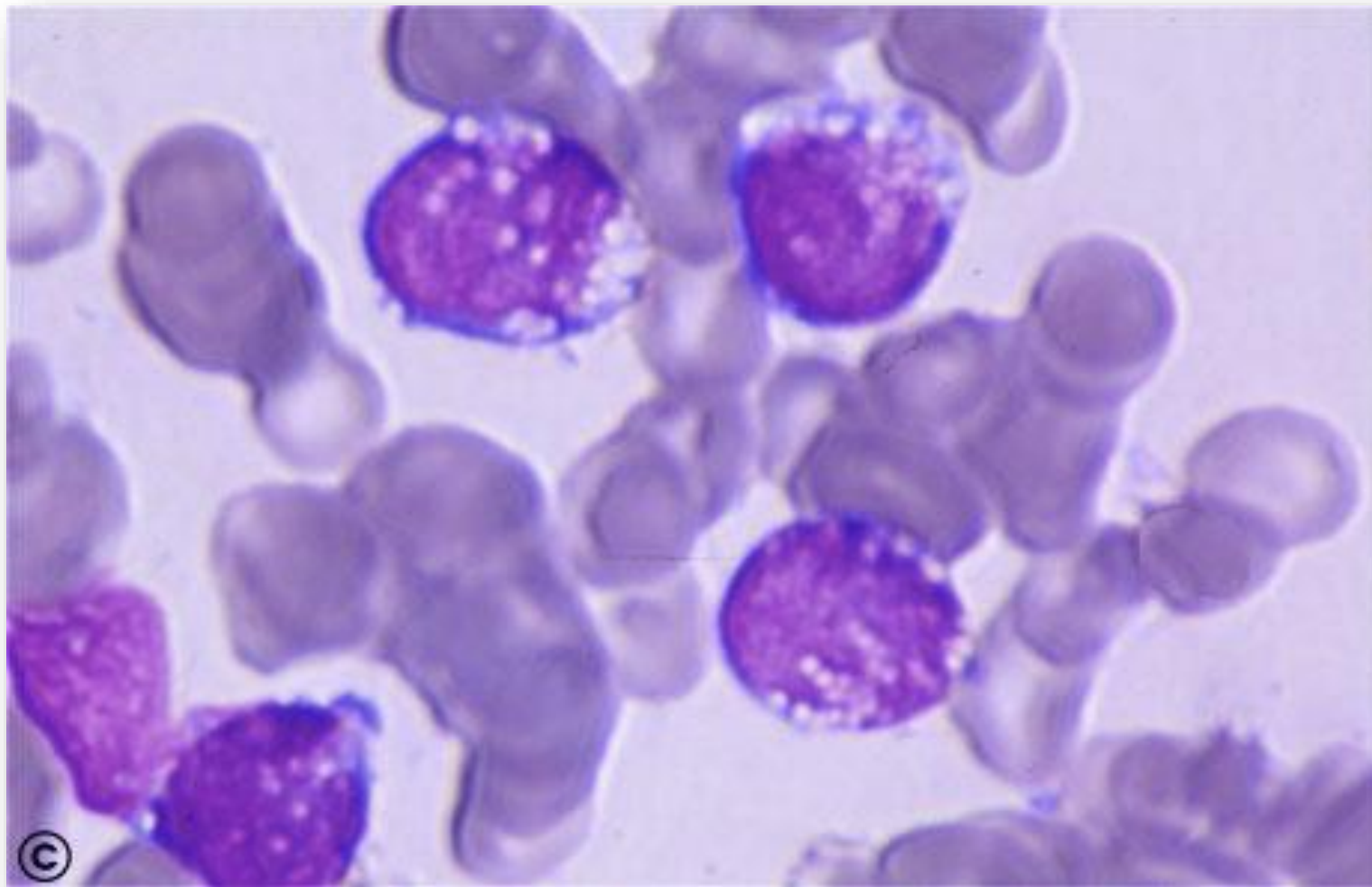
LINFOBLASTOS – L2.



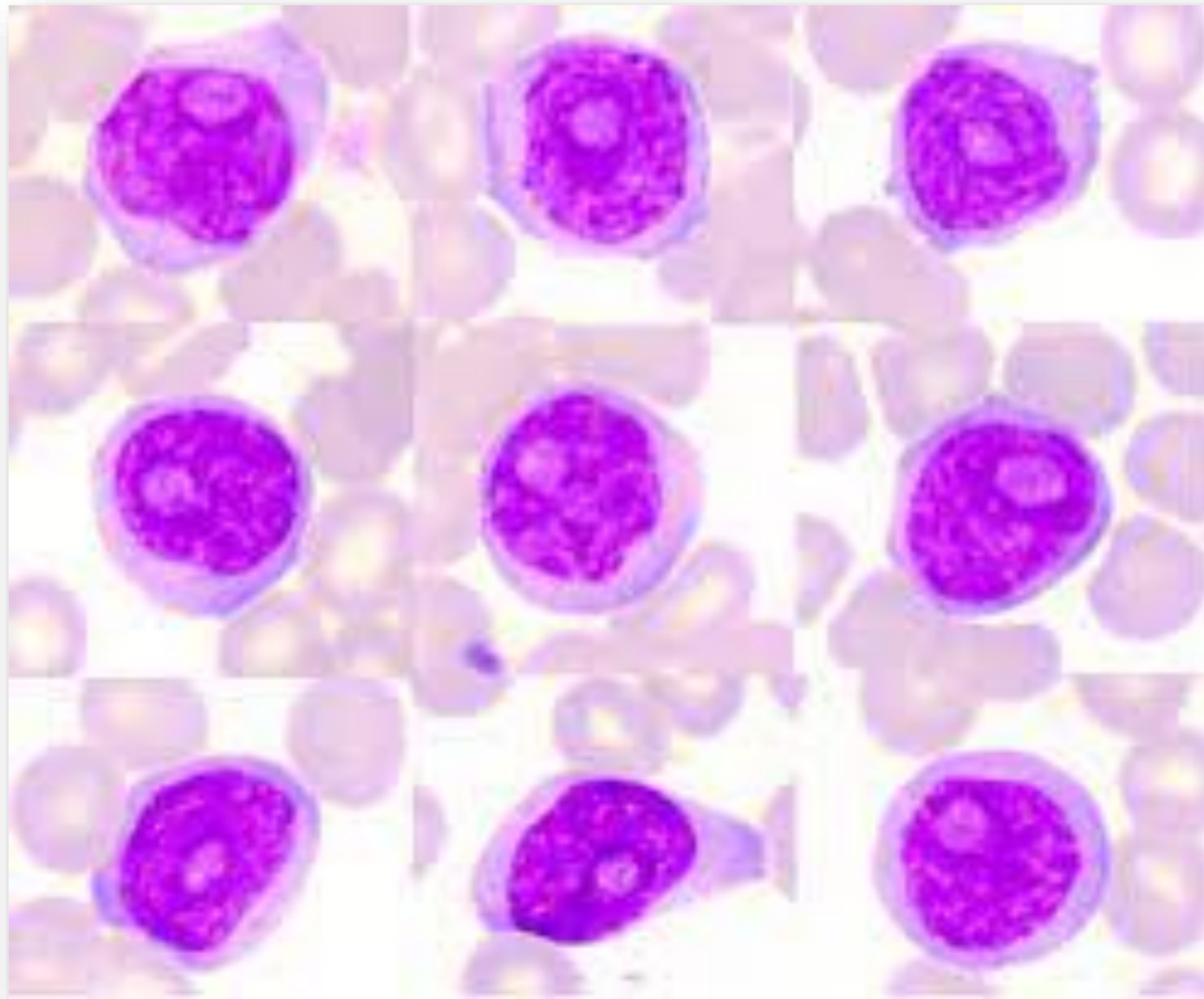
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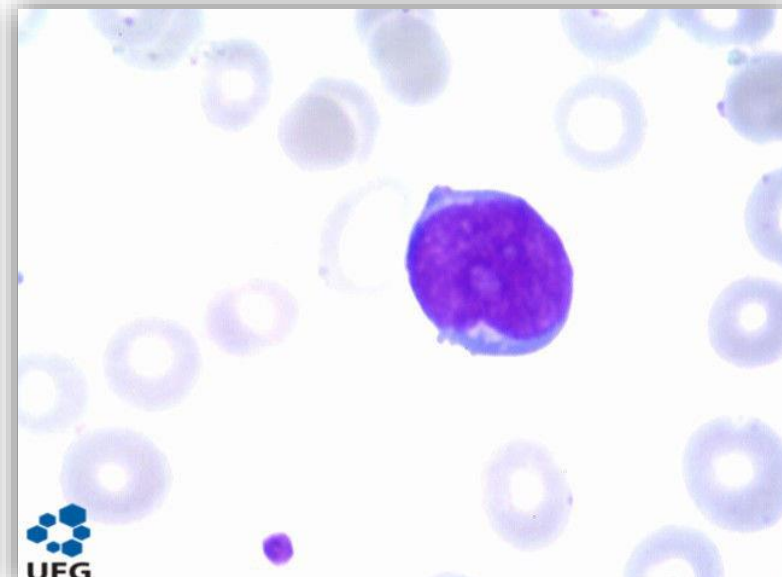
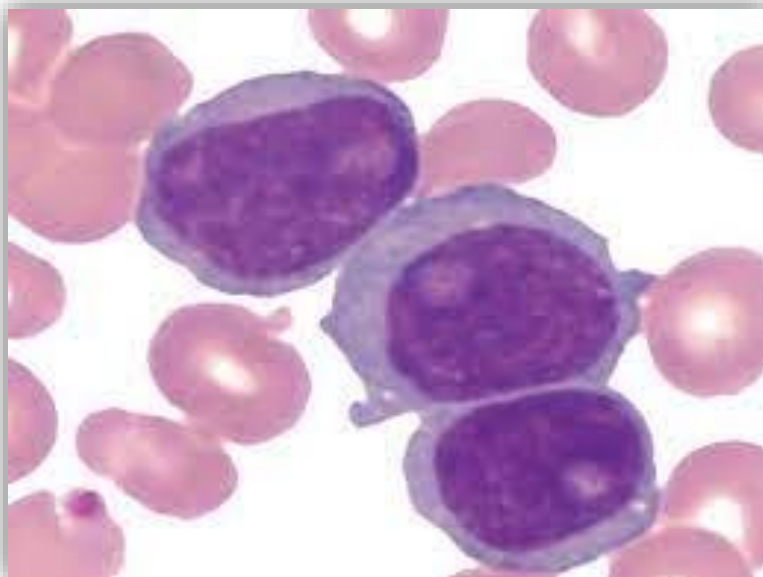
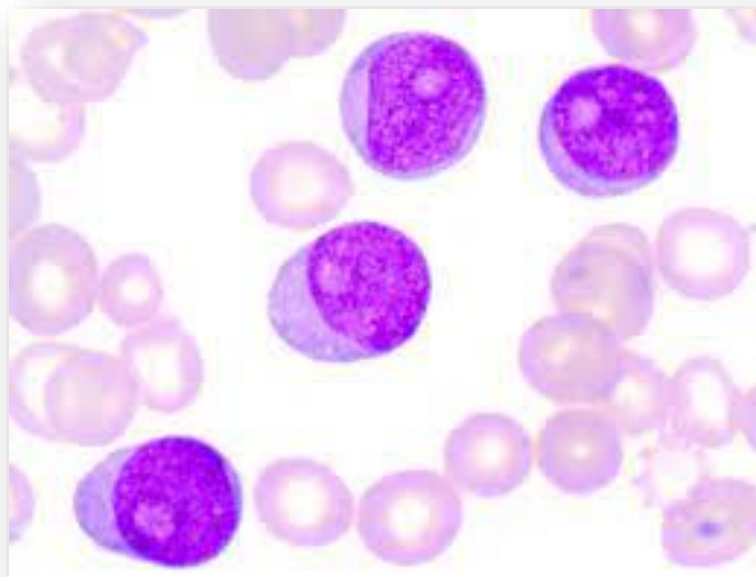
LINFOBLASTOS – L3.



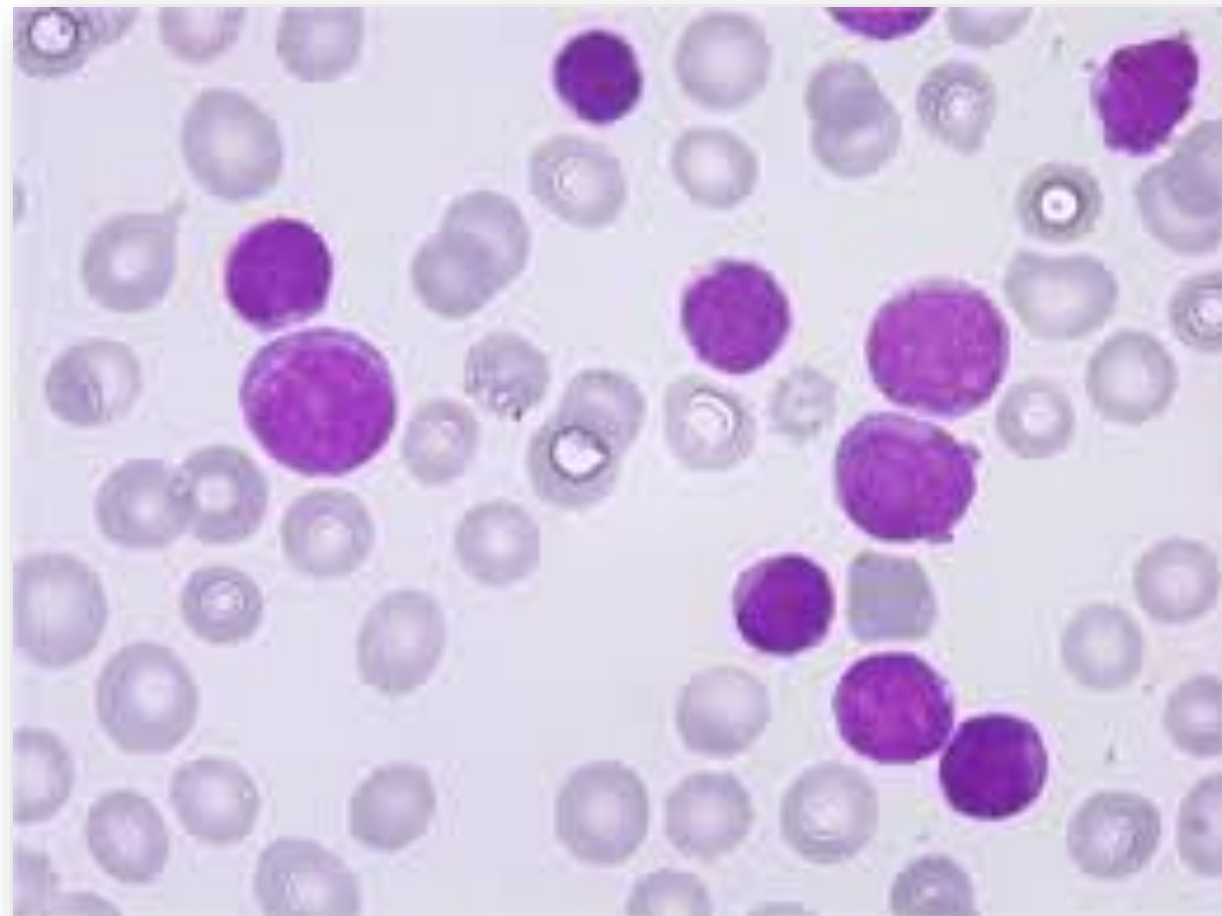
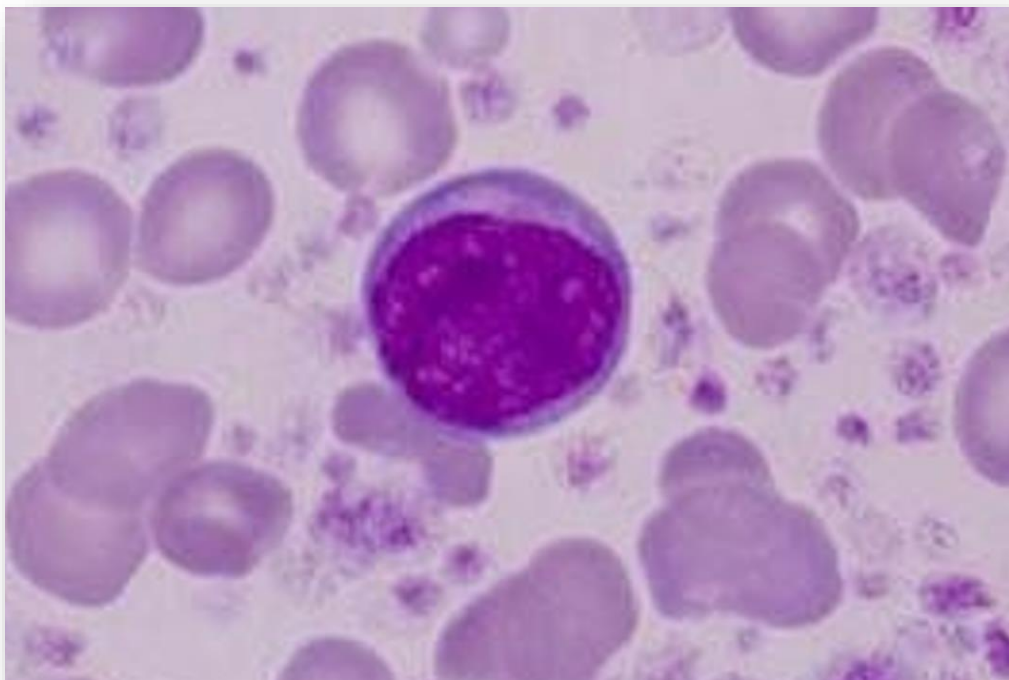
PROLINFOCITO



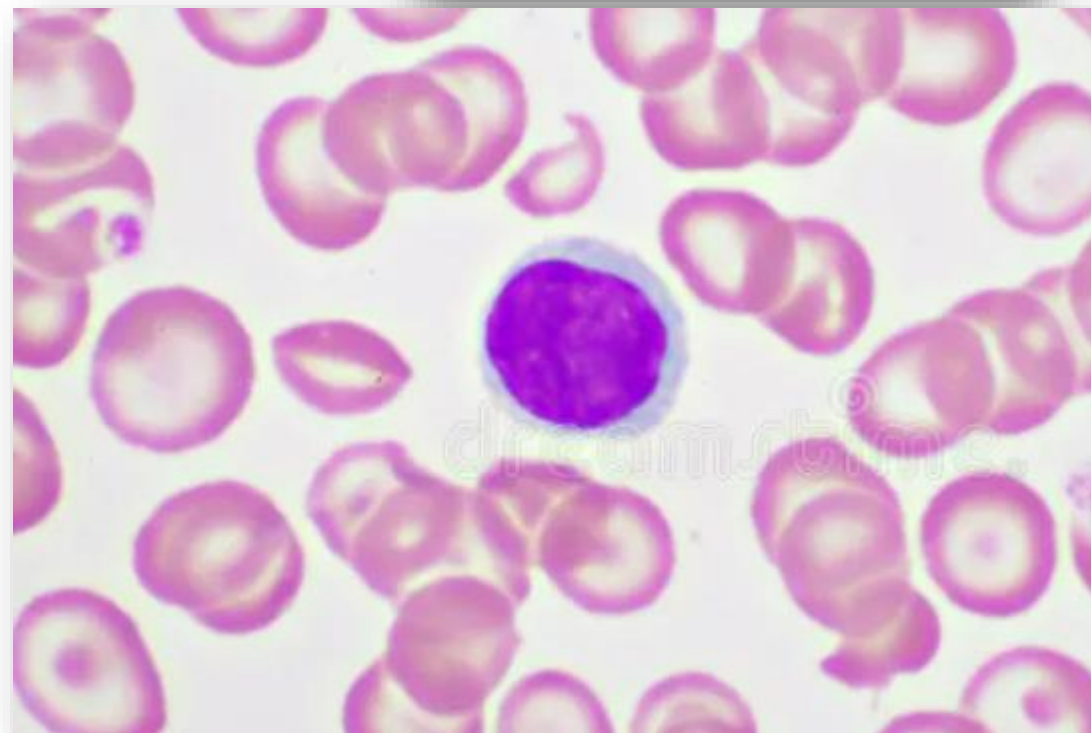
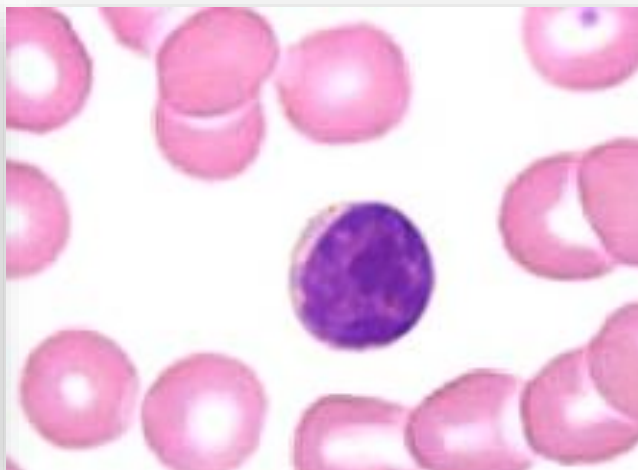
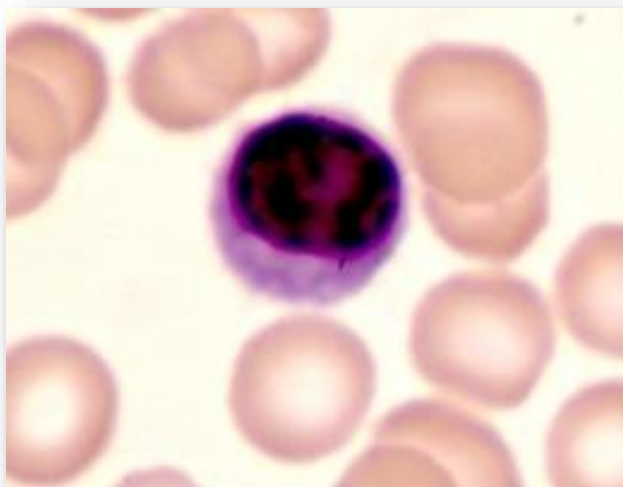
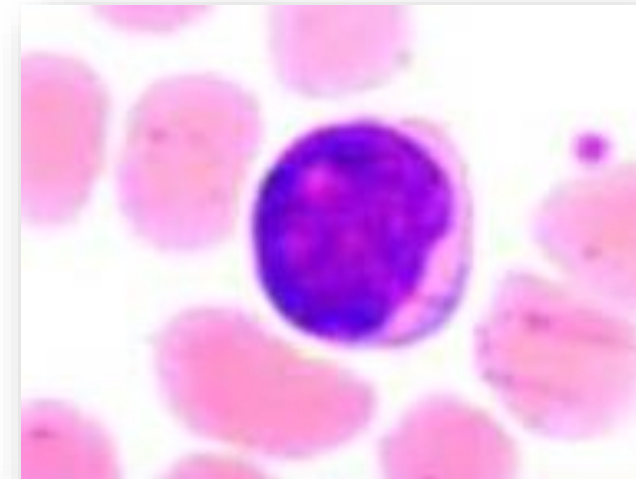
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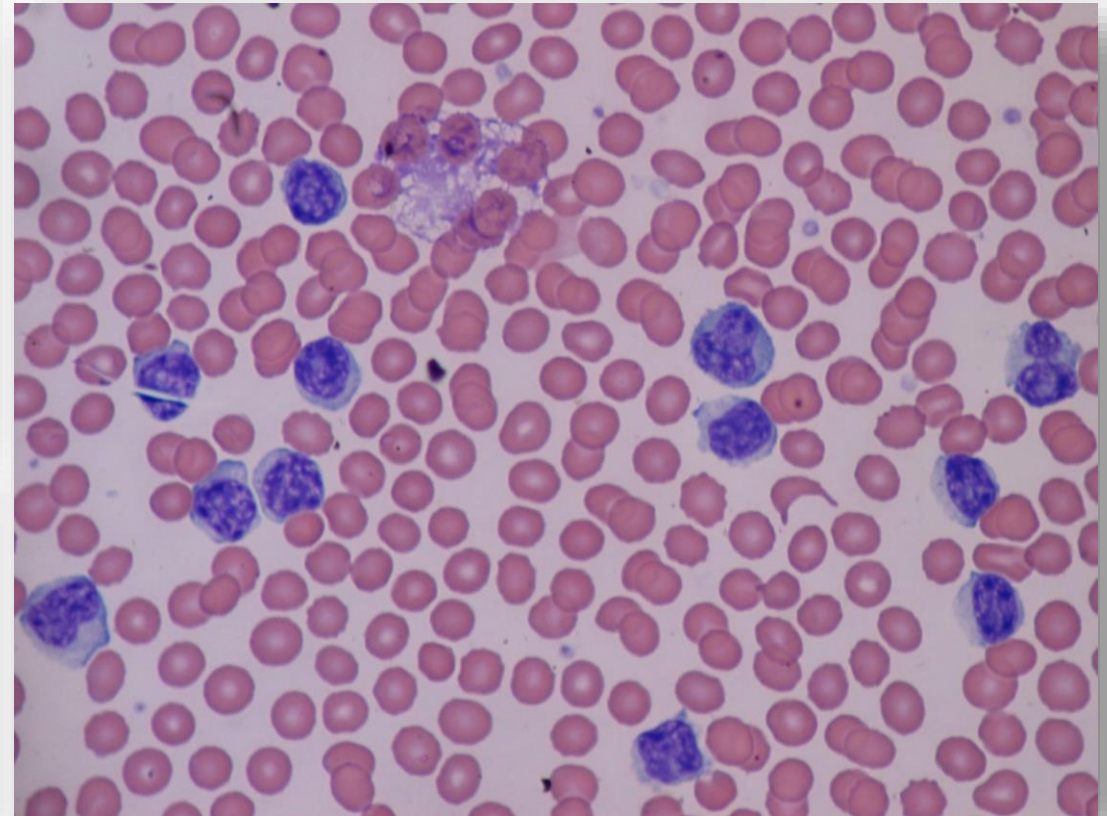
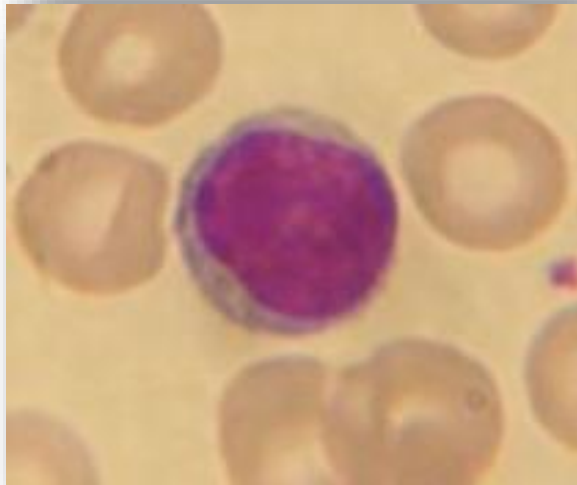
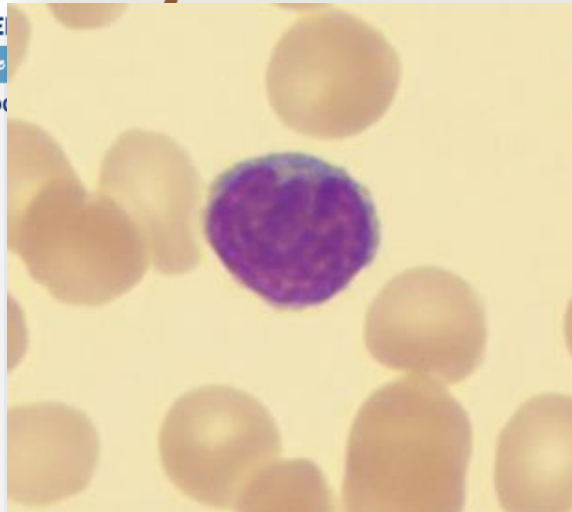
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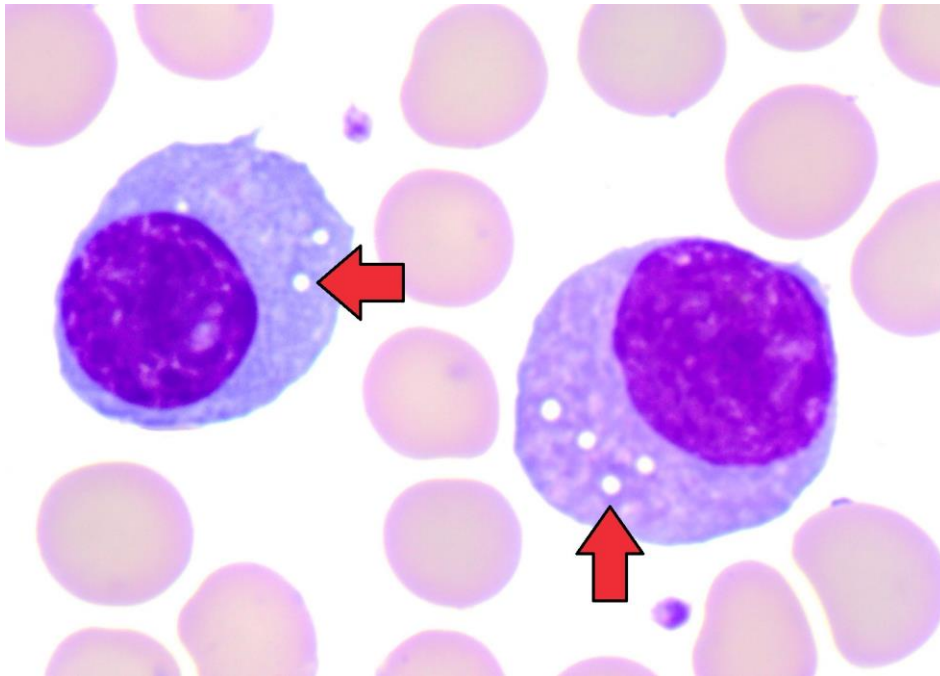
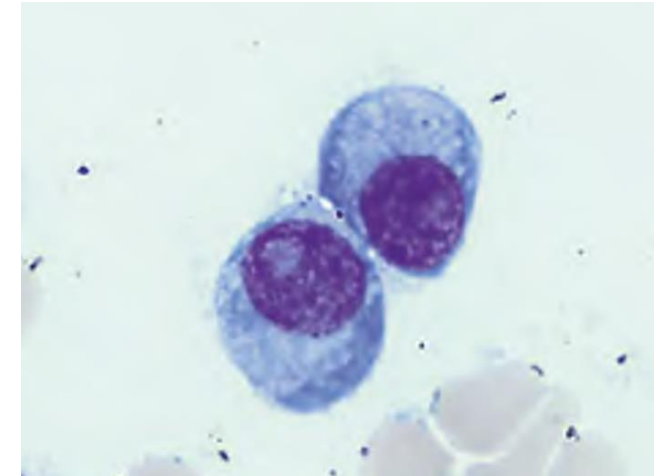
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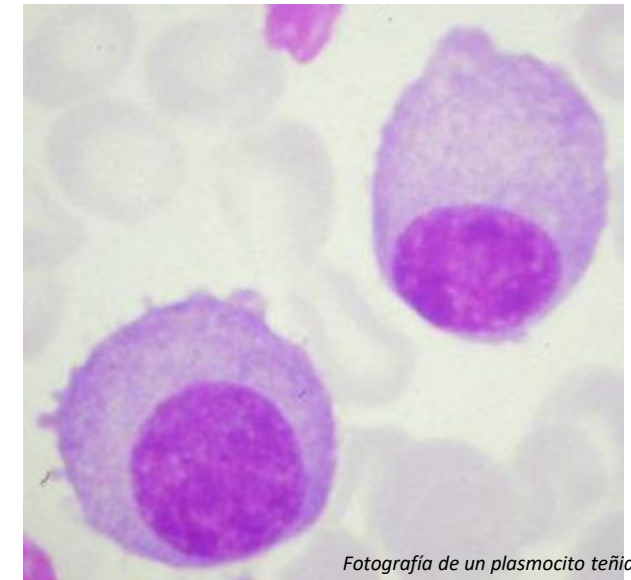
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Célula plasmática



Células de Mott. (Cuerpos de Russell)



Fotografía de un plasmocito teñido (Fuente: Guy Waterhouse)
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Wikimedia Commons



Línea monocítica



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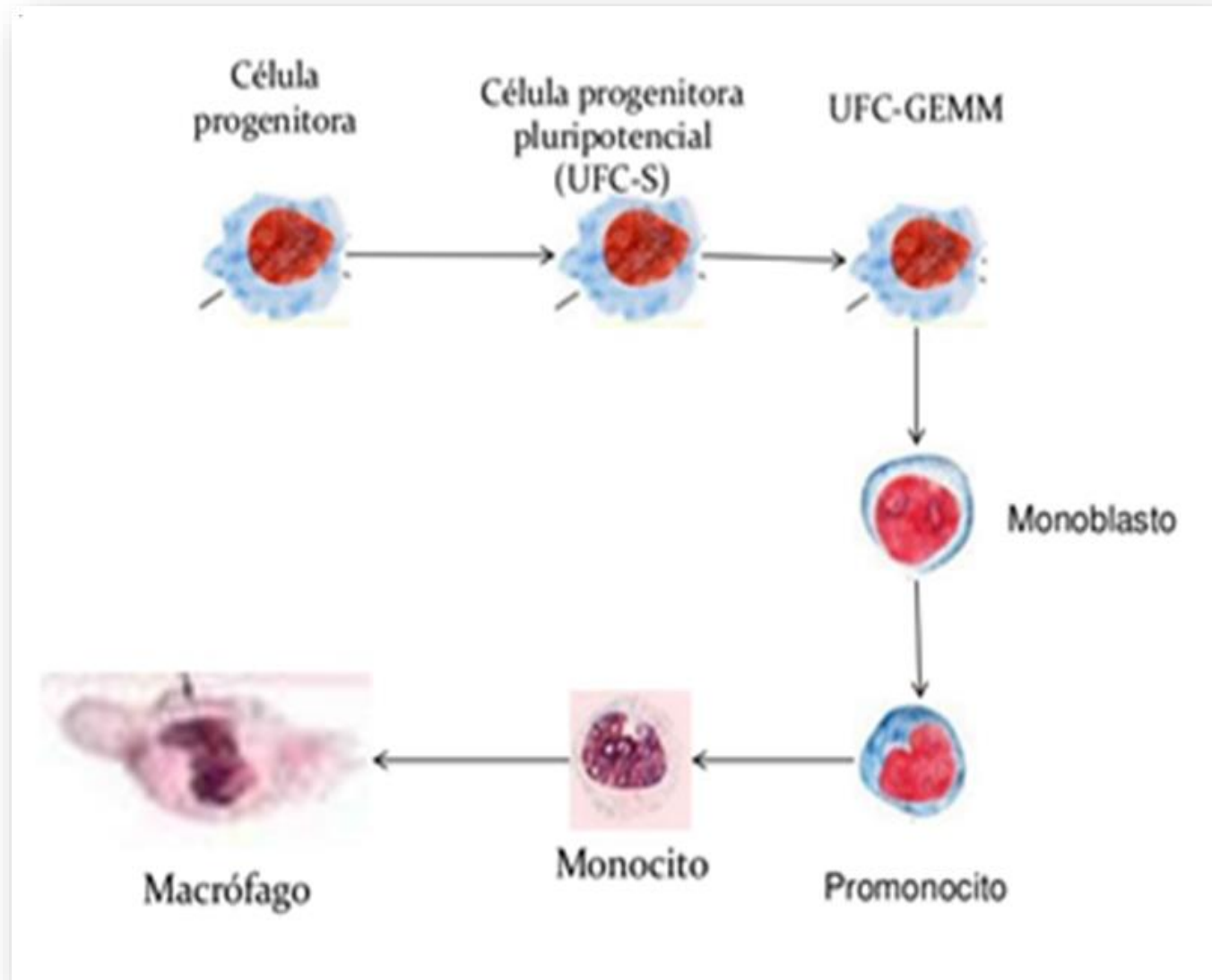


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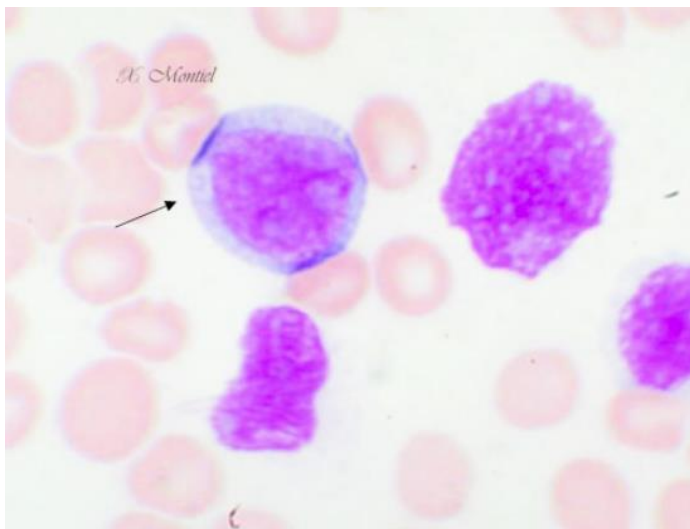


El linaje monocítico proviene del progenitor mieloide CD34+/CD117+, y a medida que ocurre la diferenciación a promonocito y monocito se observan variaciones fenotípicas que incluyen aumento en la expresión de CD45, CD64 y CD33, disminución de los niveles de expresión de CD15 y adquisición del marcador CD14 en monocitos.

Por otra parte, las células dendríticas derivadas de monocito expresan altos niveles de CD16



MONOBLASTO



14 – 18 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina. Nucléolos prominentes, claros	Ligeramente basófilo a grisáceo	No tiene	MPO: -/+ débil PAS: -/+ ANAE: ++ ANBE: ++	+: HLA-DR, CD4+, CD13+, CD33+, CD38 +/-: CD34 + débil: CD45 -: CD11c, CD14, CD15, CD16, CD17, CD36, CD64, CD65, CD68, CD163

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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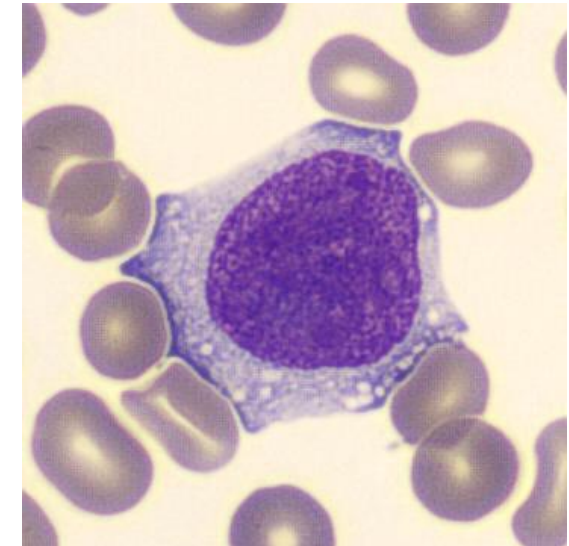
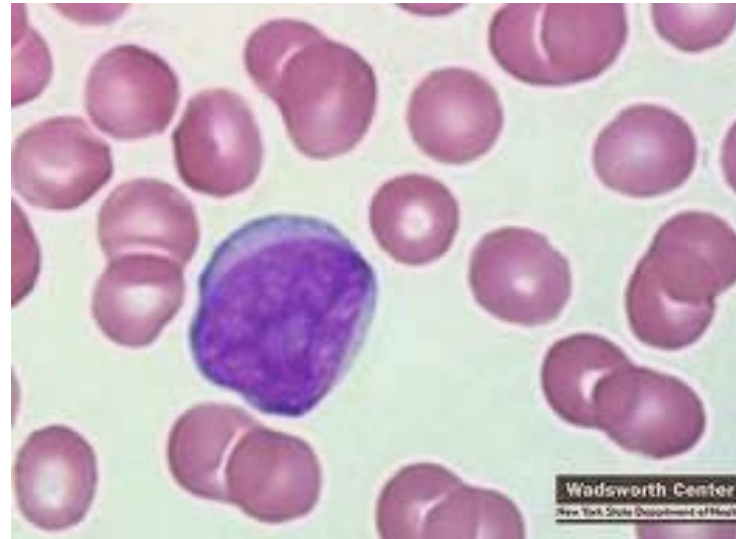
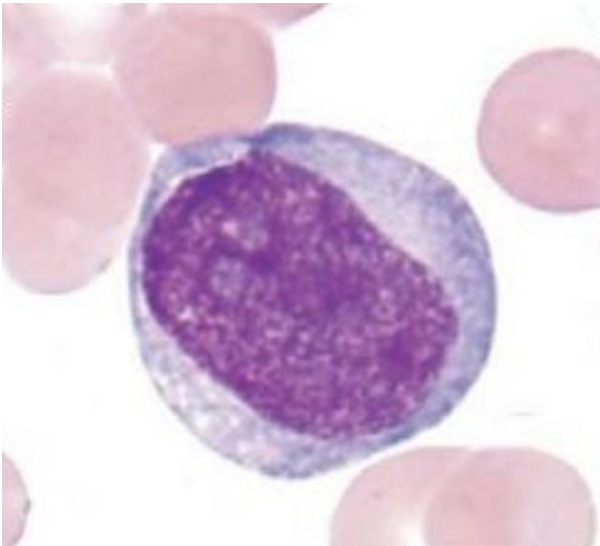


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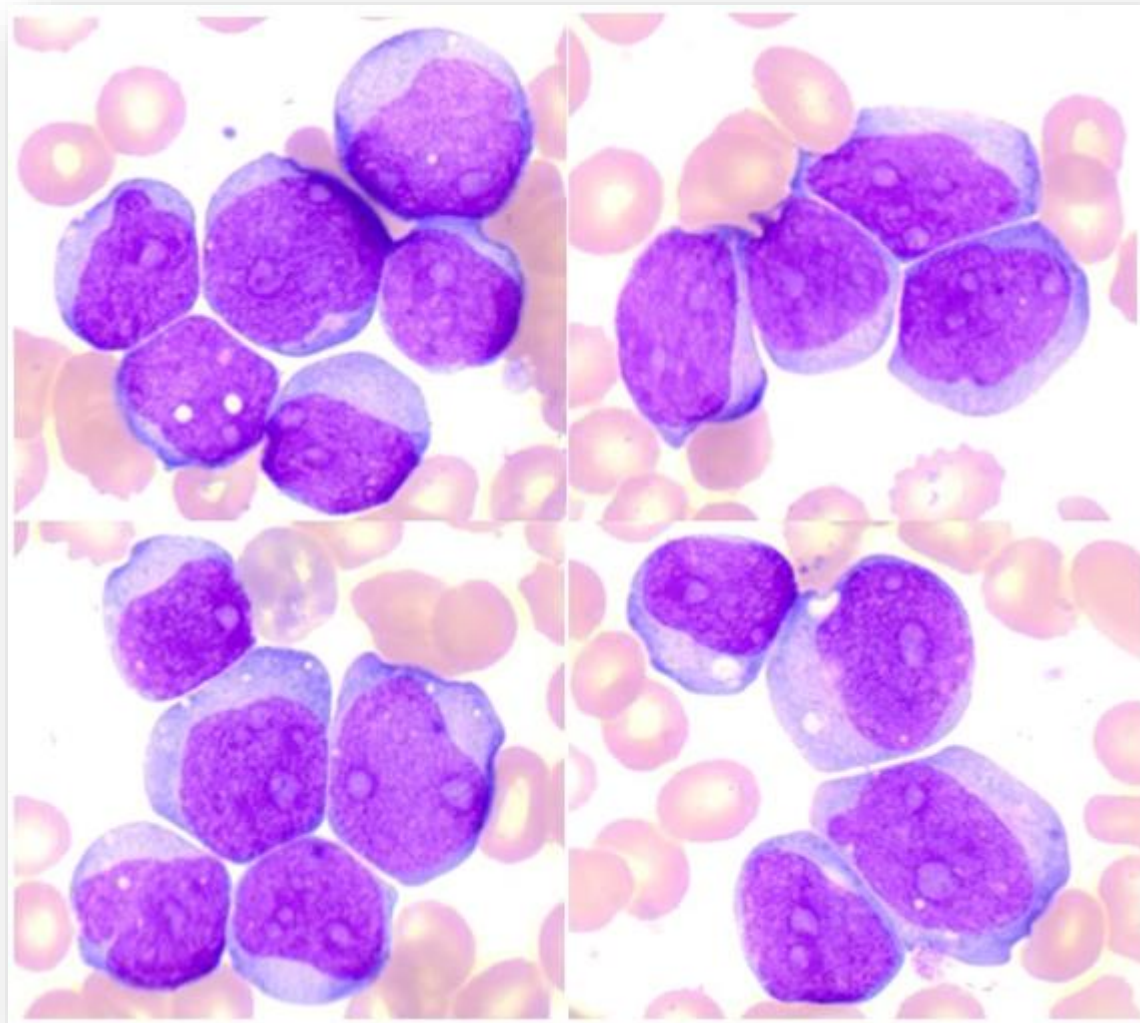
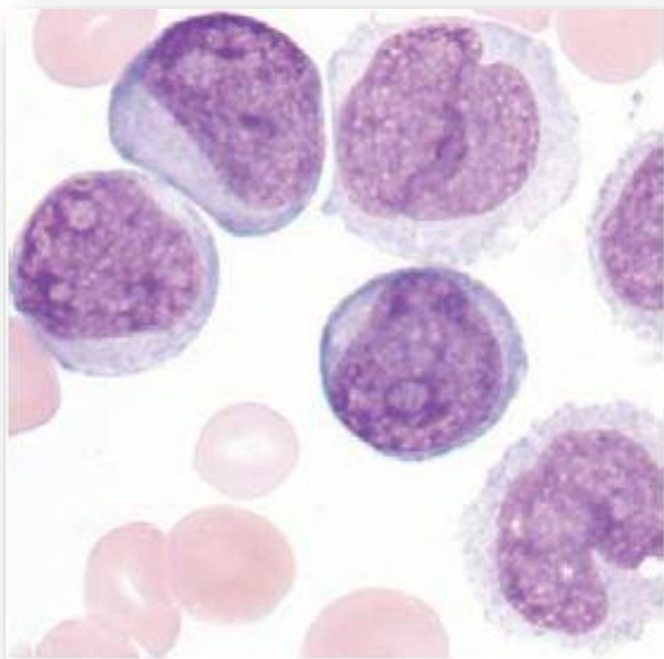
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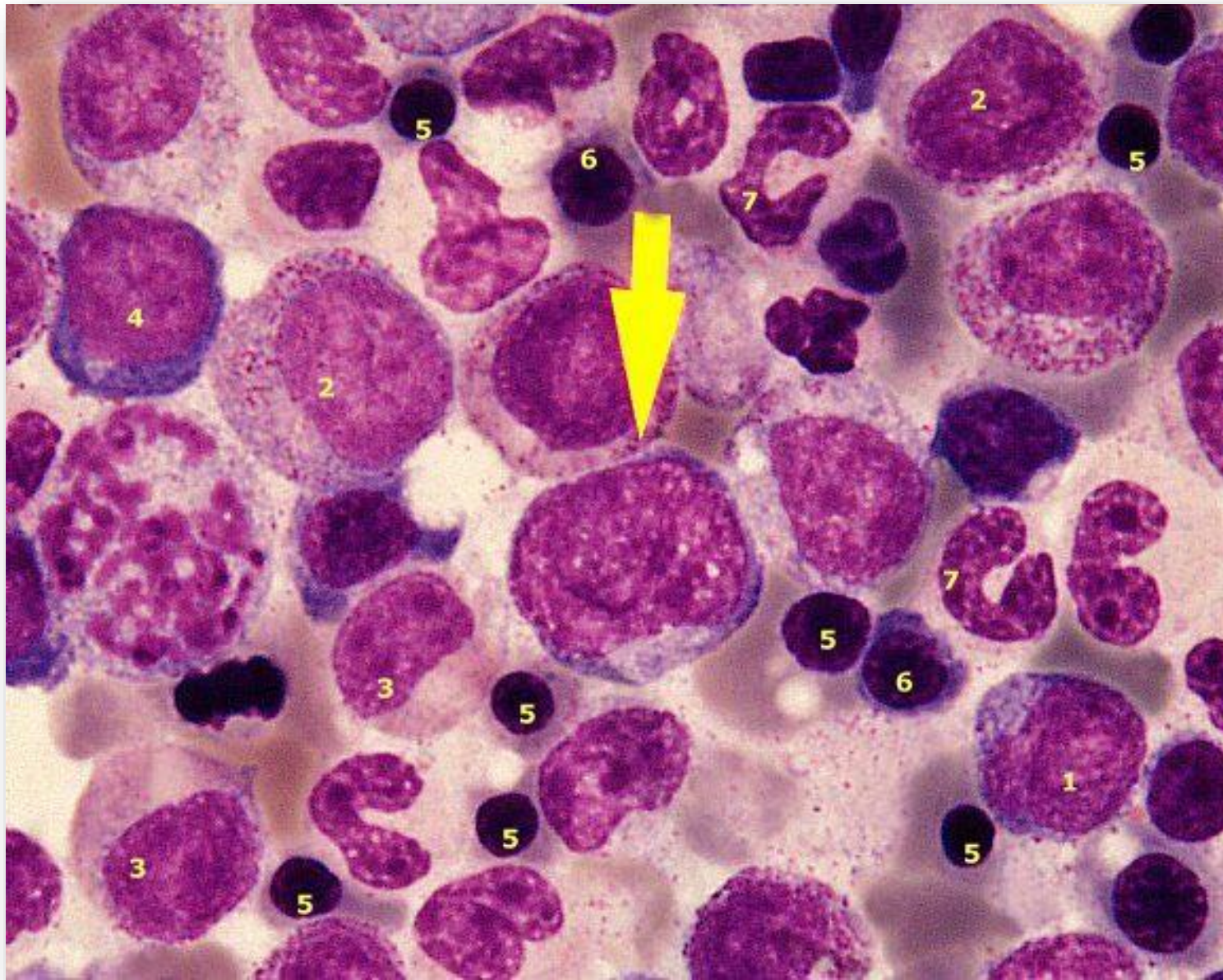
MONOBLASTO



MONOBLASTO



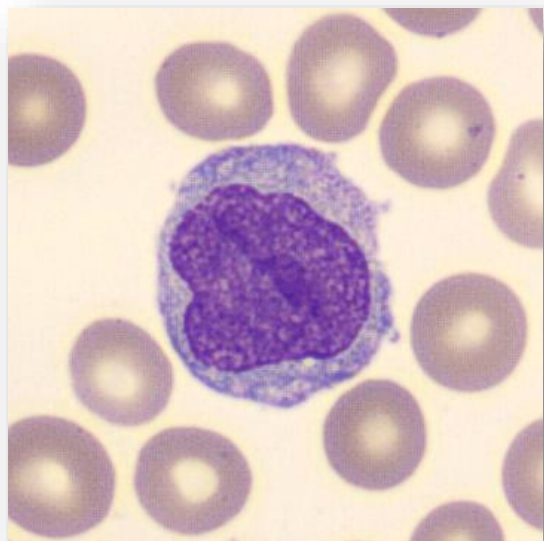
MONOBLASTO



MONOBLASTO



PROMONOCITO



12 – 20 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina y homogénea, Nucléolos claros, pueden o no verse	Ligeramente basófilo a grisáceo	Gránulos azurófilos	MPO: -/+ PAS: -/+ ANAE: ++ ANBE: ++	+: CD4, CD11b y c, CD13++, CD33++, CD36 +/-: CD34, CD66 + débil: HLA-DR, CD45 -/+ : CD14, CD64 -/+ borroso: CD15 -: CD16, CD17, CD34, CD68, CD163

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



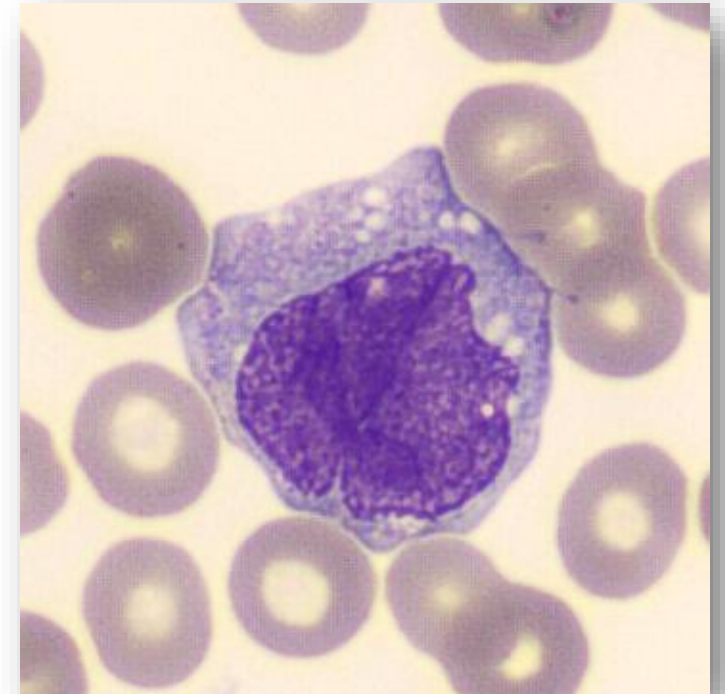
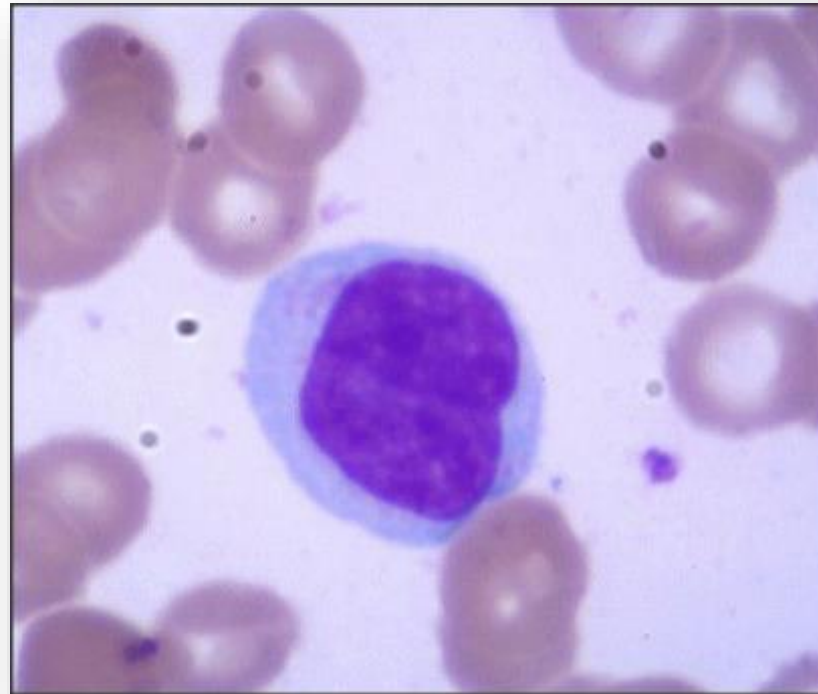
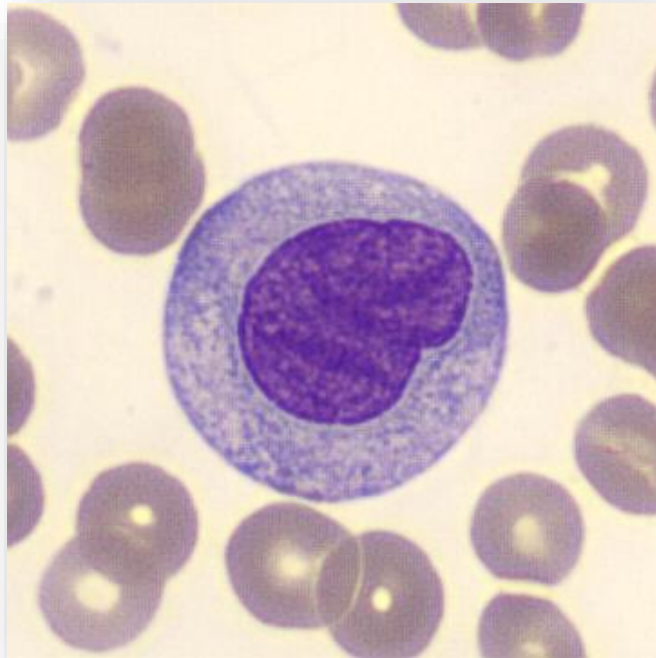
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PROMONOCITO



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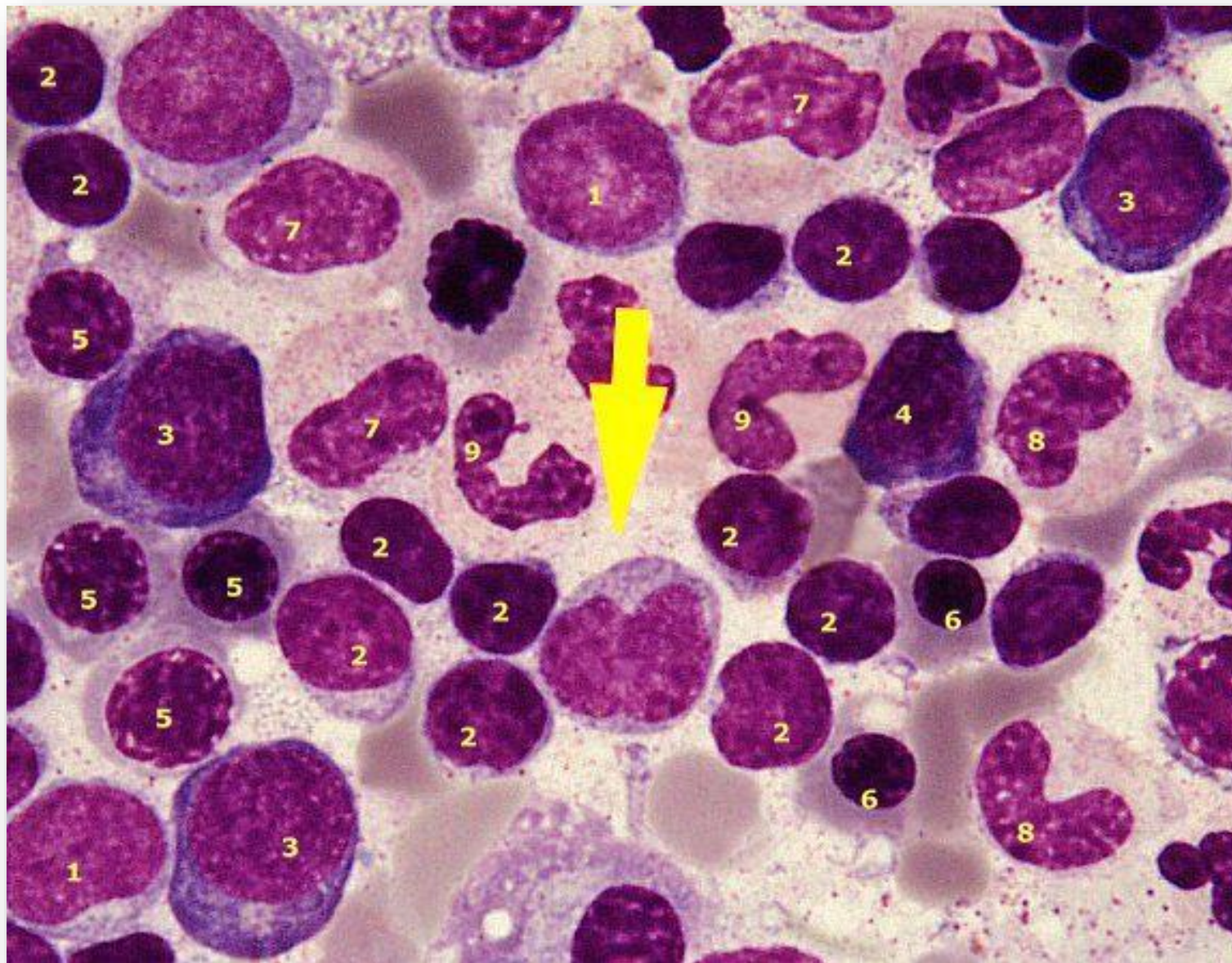


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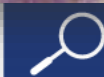
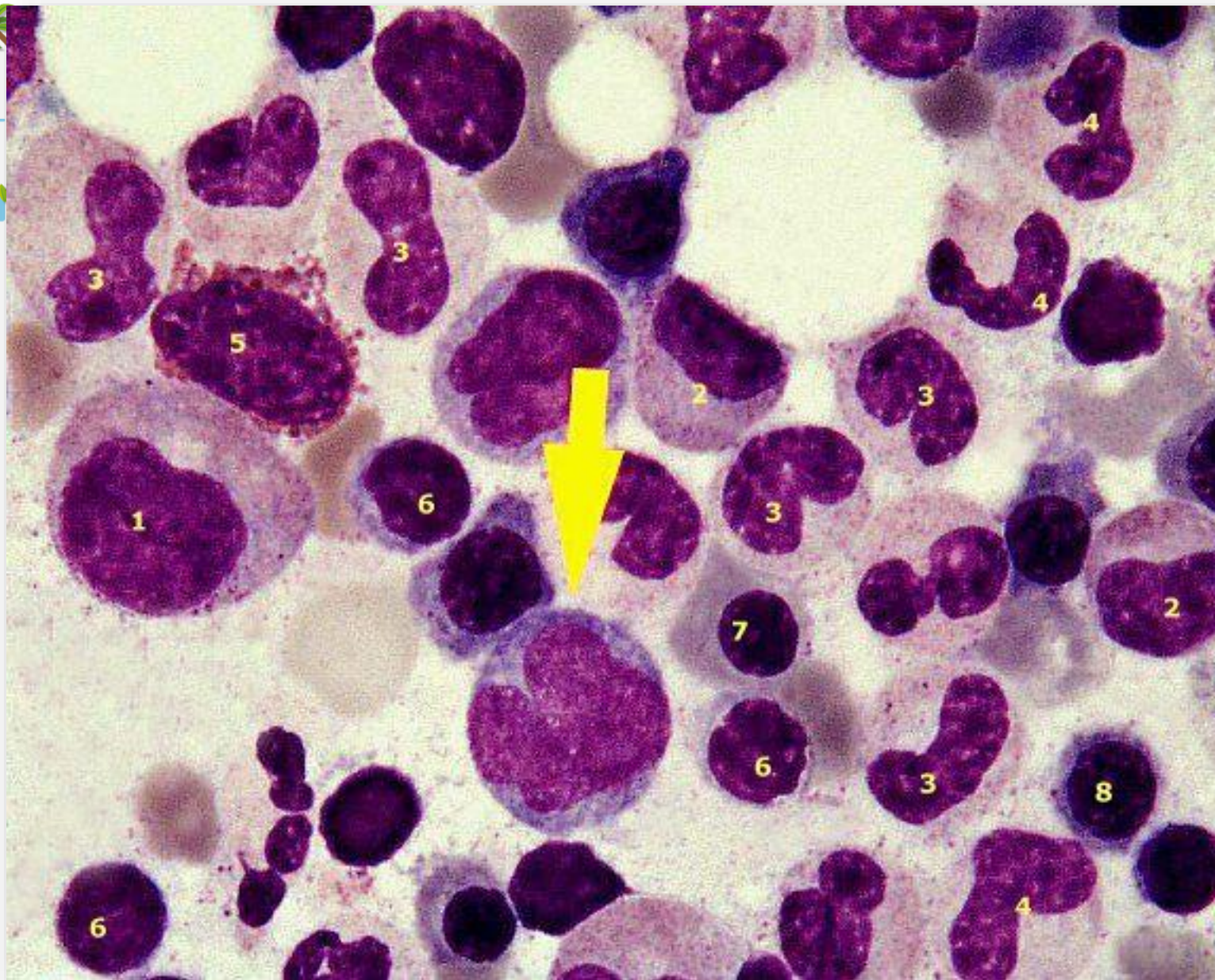
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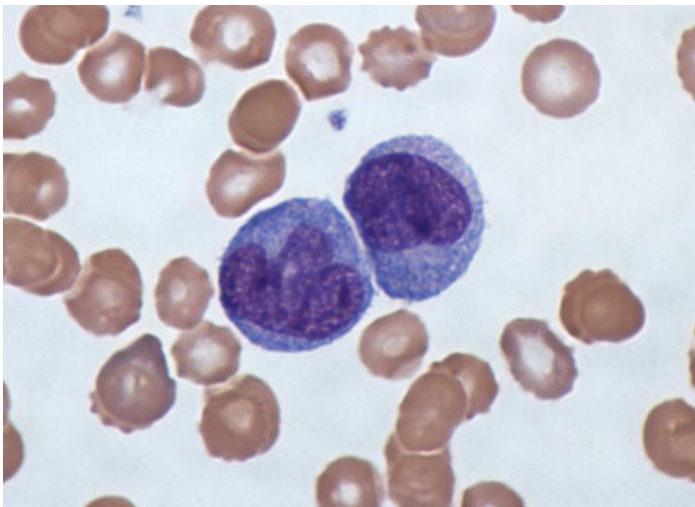
PROMONOCITO



PROMONOCITO



MONOCITO

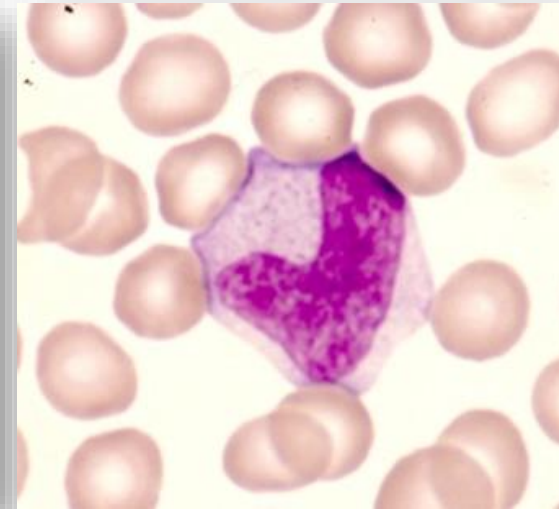
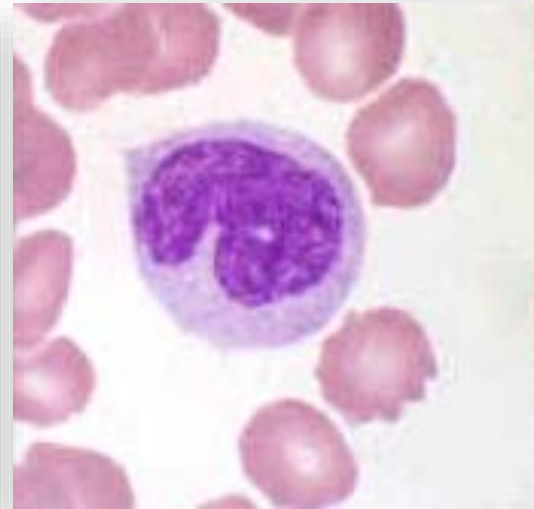
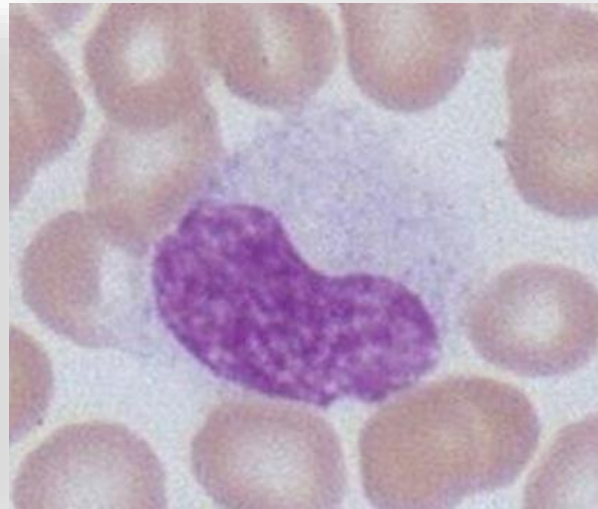
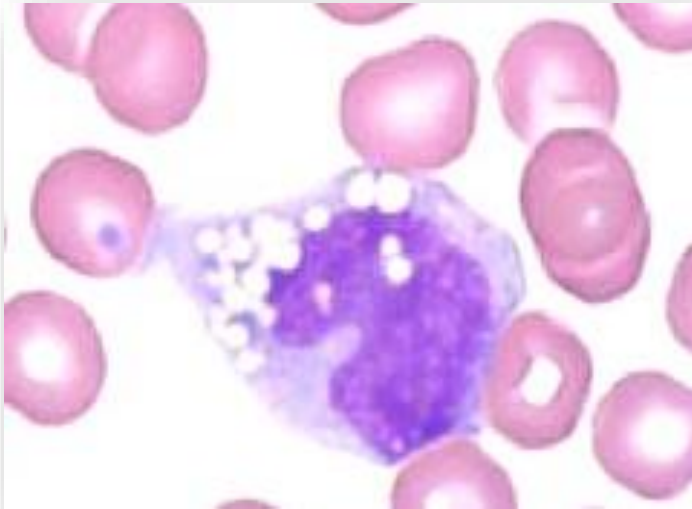


14 – 20 μm

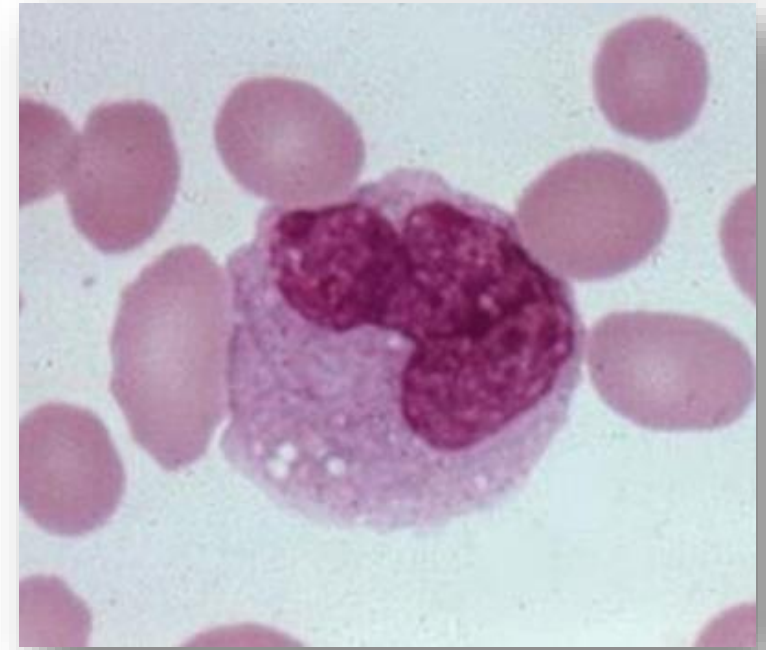
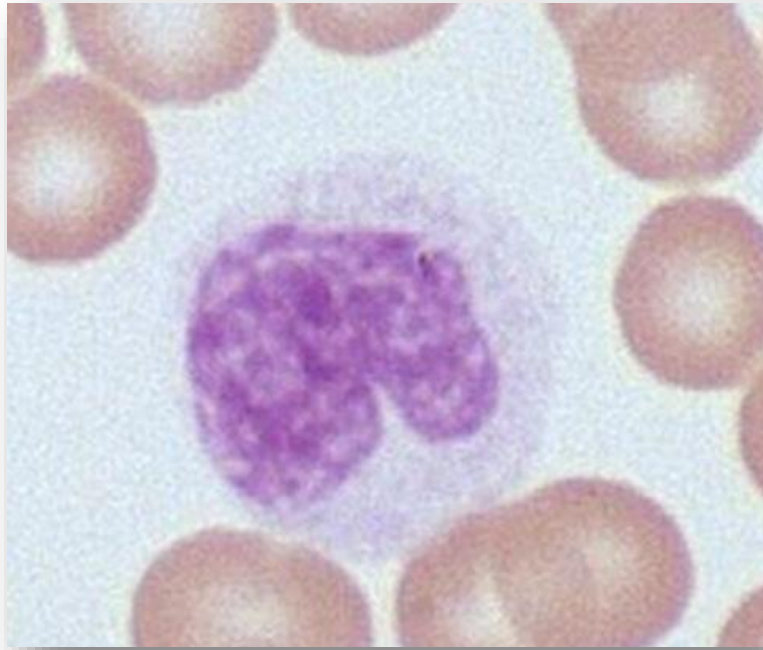
DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Hendido, arriñonado, montañoso, esmerilado. No se observan nucléolos	Azul grisáceo	Azurófilos	MPO: - PAS: -/+d ANAE: + ANBE: +	+: CD4++, CD11b y c, CD13++, CD14++, CD17, CD33, CD36, CD45, CD64, CDw65, CD68 + débil: HLA-DR, CD15 -: CD16, CD34, CD163

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>

MONOCITO



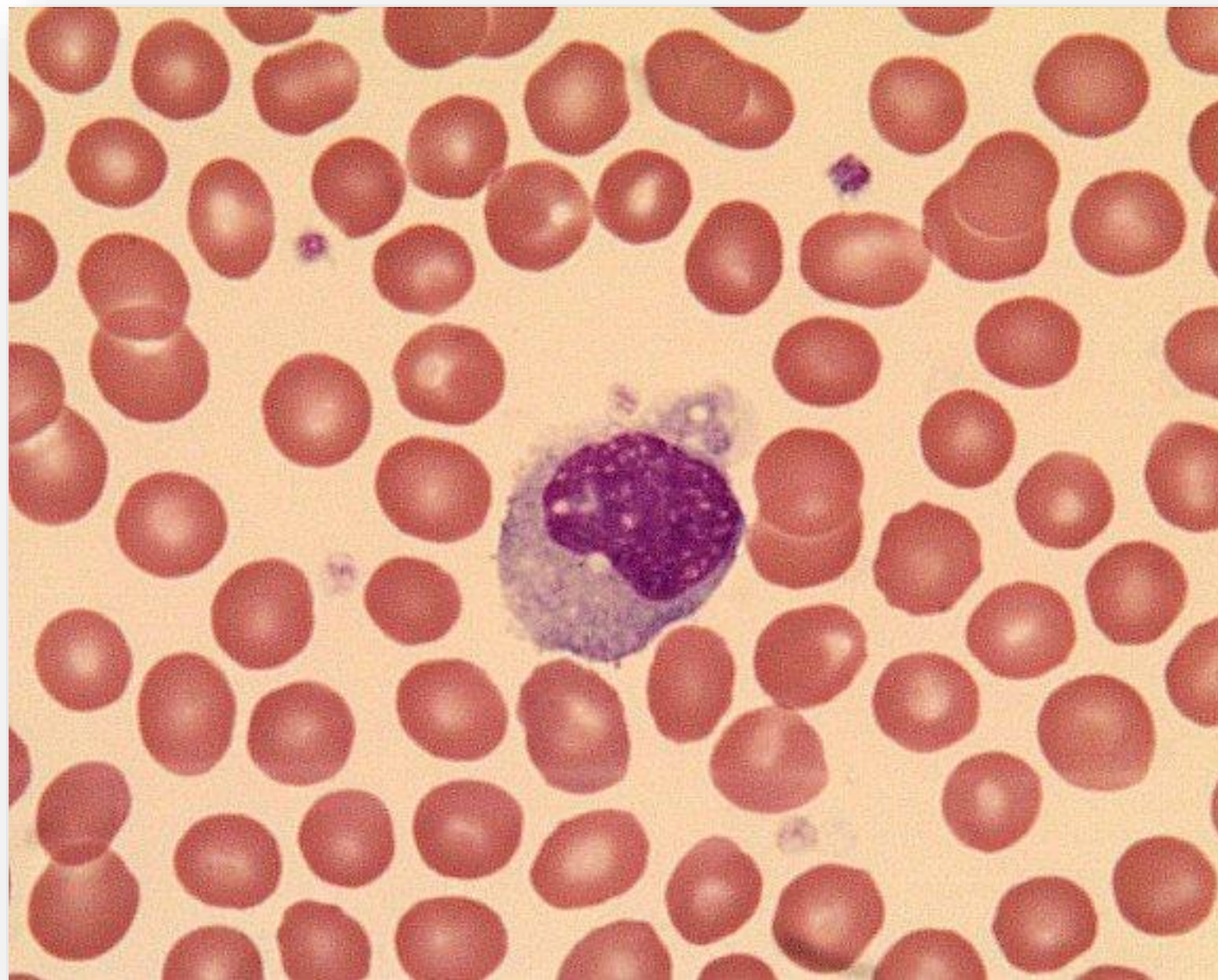
MONOCITO



MONOCITO



MONOCITO



Línea Megacariocítica

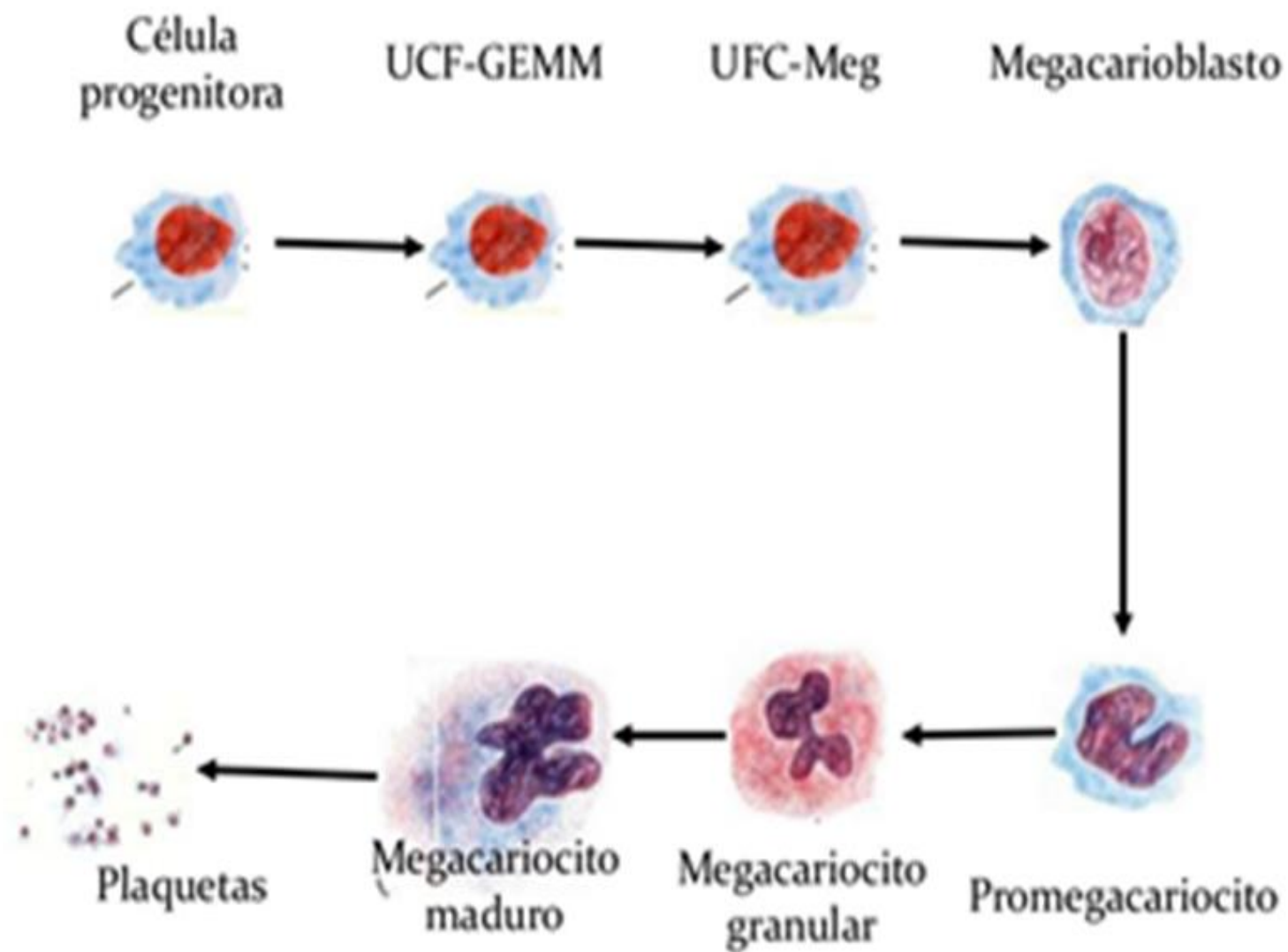


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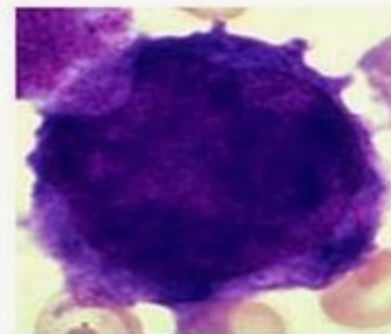


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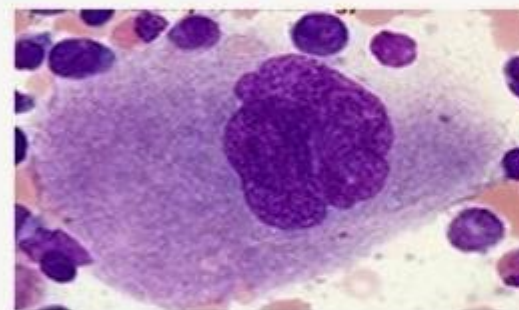


7 - 35 μm



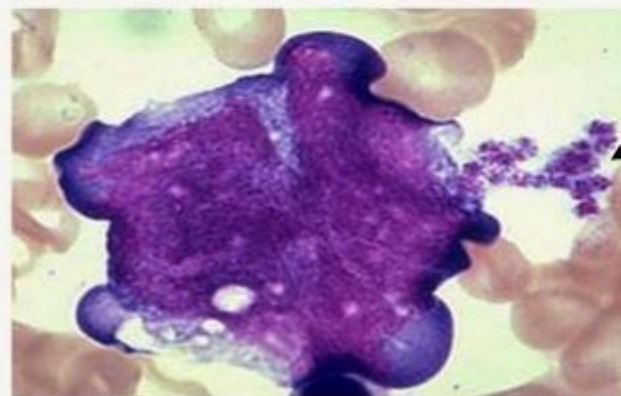
Megacarioblasto

30 - 50 μm



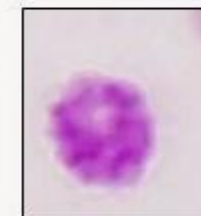
Pro-Megacariocito

50 - 150 μm

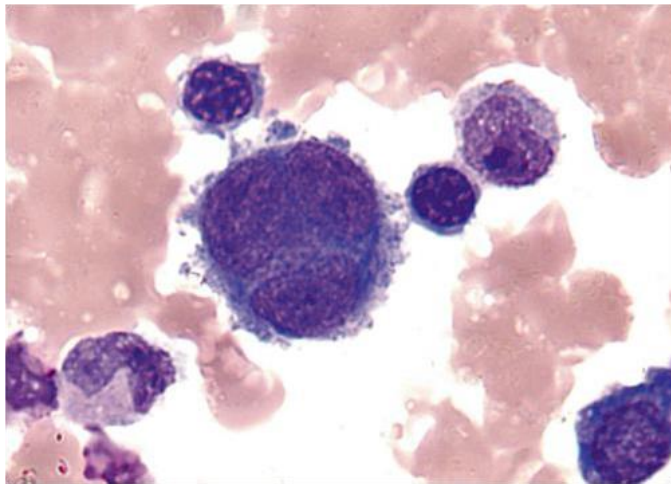


Plaquetas

Megacariocito



MEGACARIOBLASTO



7 - 35 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina fina. Nucléolos prominentes, azul claro	Basófilo con proyecciones citoplasmáticas redondeadas	No se observan	MPO: - PAS: + difuso ANAE: - ANBE: -	+: CD41++, CD42++, CD61c++, CD36++ +/-: CD13, CD33, CD65 -/+: HLA-DR, MPO, CD45, CD34, CD7 -: CD2, CD19, CD15, CD38, CD56, CD117

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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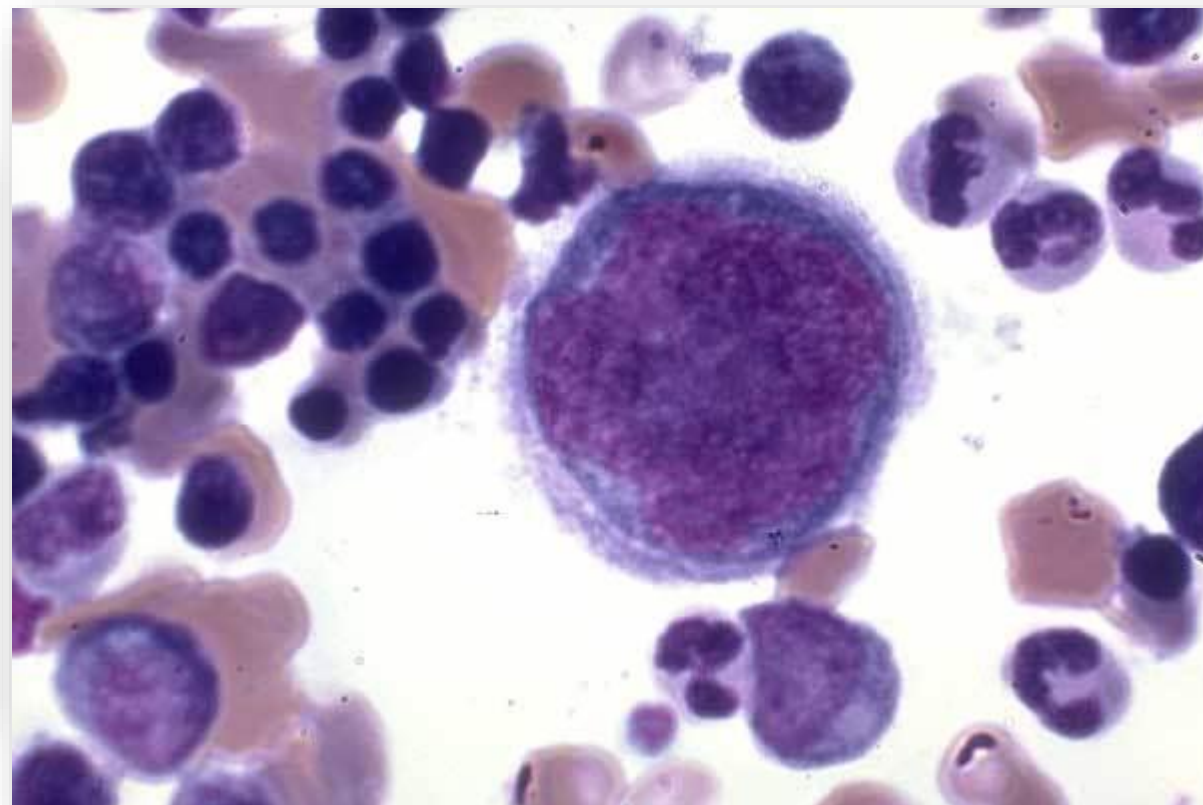
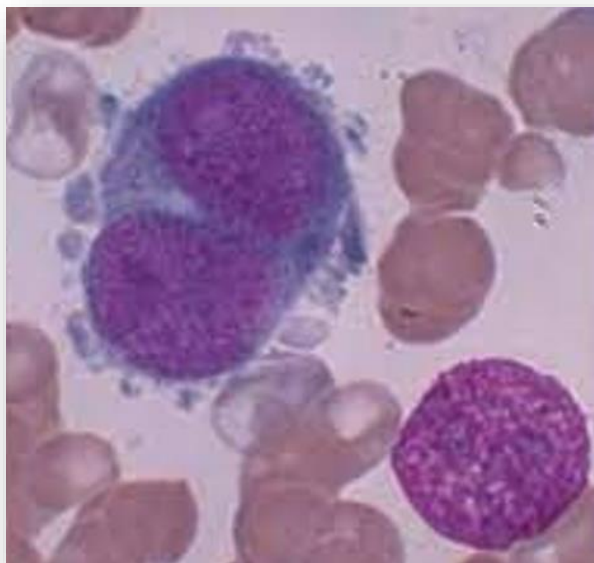
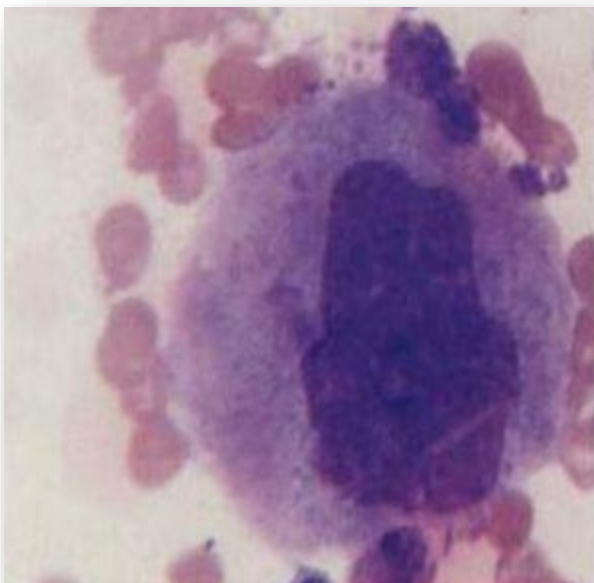


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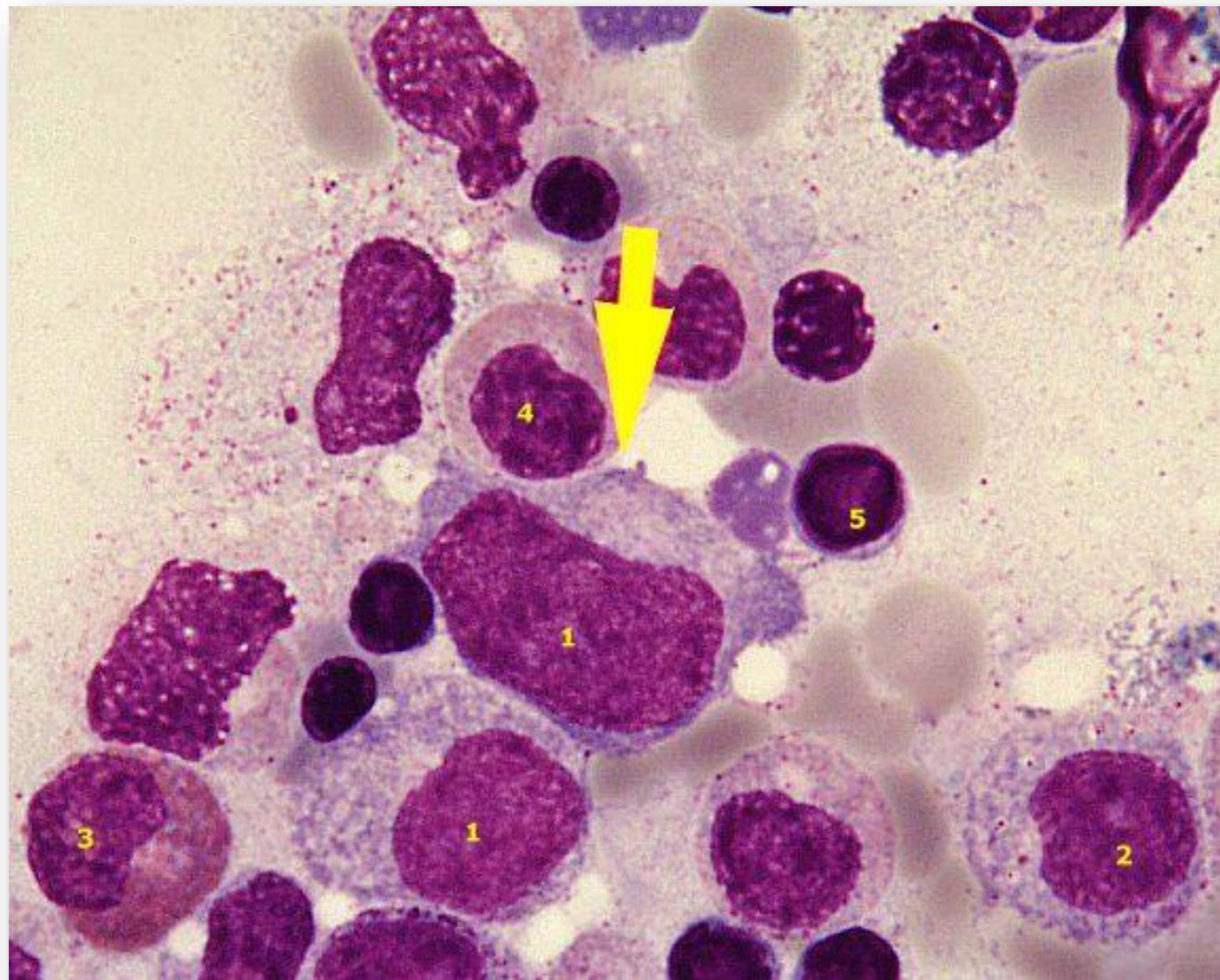


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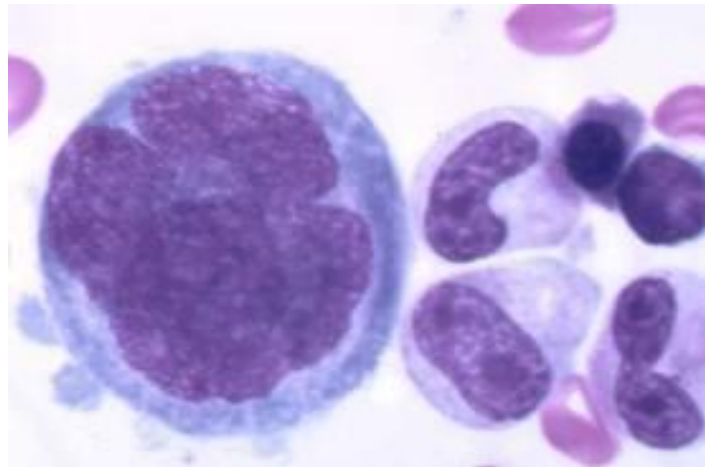
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MEGACARIOBLASTO



PROMEGACARIOCITO



30 - 50 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Oval o redondo, cromatina ligeramente condensada, no se observan nucléolos, multilobulado	Citoplasma basófilo, con bordes mal limitados y con prolongaciones	Si se observan	MPO: - PAS: + difuso ANAE: - ANBE: -	+: CD41++, CD42++, CD61c++, CD36++ +/-: CD13, CD33, CD65 -/+: HLA-DR, MPO, CD45, CD34, CD7 -: CD2, CD19, CD15, CD38, CD56, CD117

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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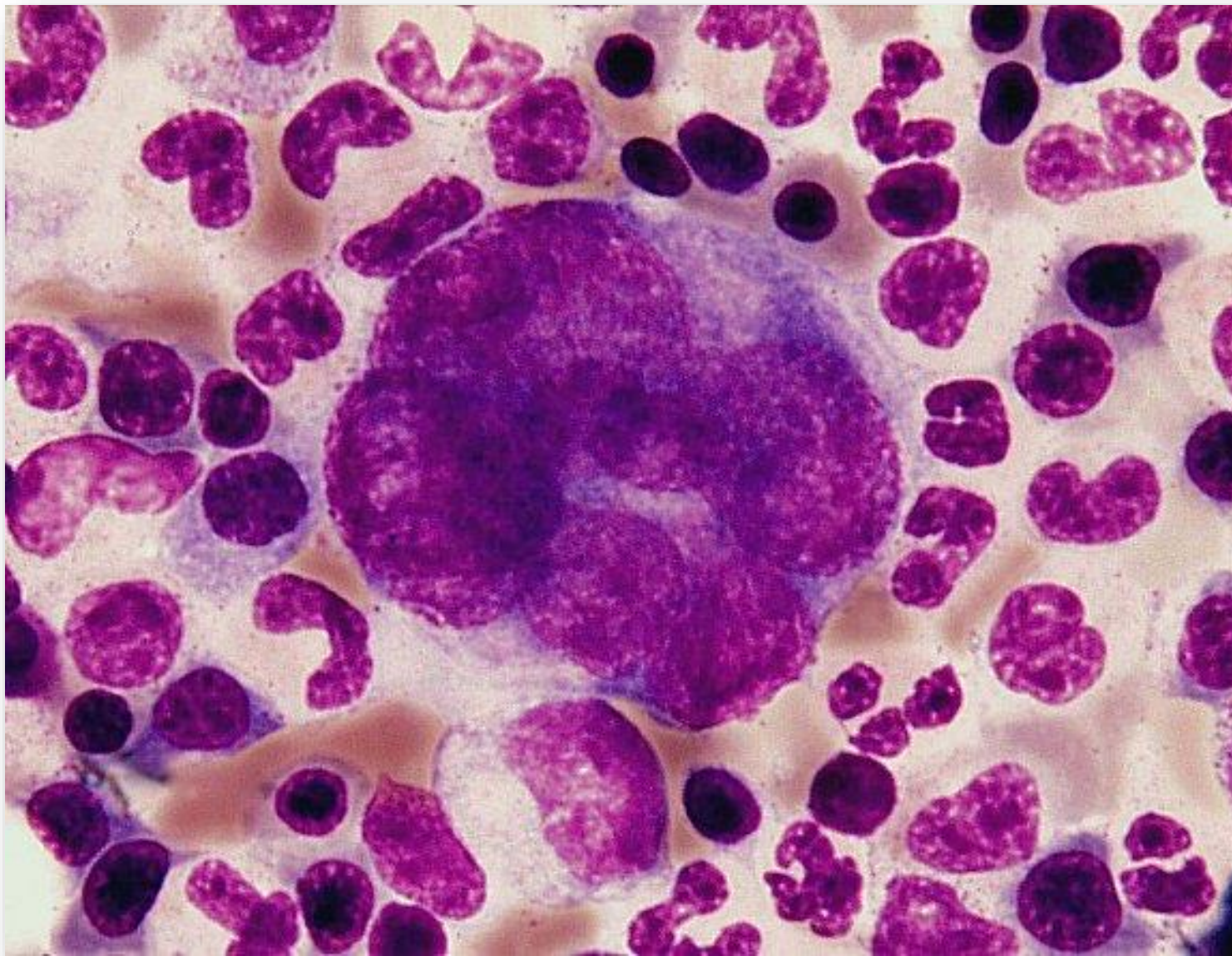


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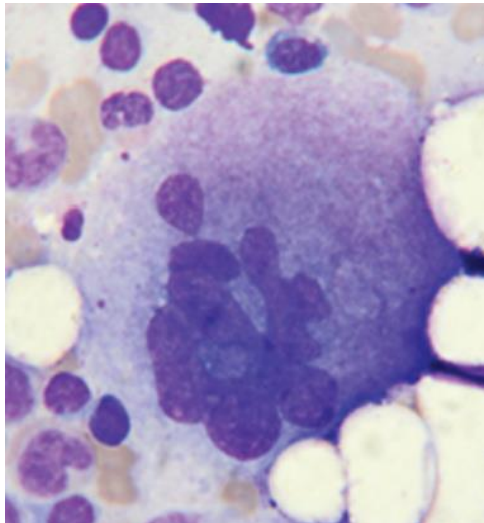
PROMEGACARIOCITO



PROMEGACARIOCITO



MEGACARIOCITO



50 - 150 μm

DIFERENCIACIÓN MORFOLÓGICA			DIFERENCIACIÓN CITOQUÍMICA	DIFERENCIACIÓN INMUNOLÓGICA
NÚCLEO	CITOPLASMA	GRÁNULOS	COLORACIONES	CD
Núcleo multilobulado de 8 a 16 lóbulos. Cromatina condensada, no se observan nucleolos	Extenso citoplasma que ha perdido su basofilia	Granulación azurófila en la periferia	MPO: - PAS: + difuso ANAE: - ANBE: -	+: CD31, CD36, CD38, CD41, CD42, CD51, CD61, CD62cy, CD63cy -/+ : CD29, CD49 - : HLA-DR, CD34

Fuente: <https://www.flickr.com/photos/134592789@N07/21128503759/in/photostream/>



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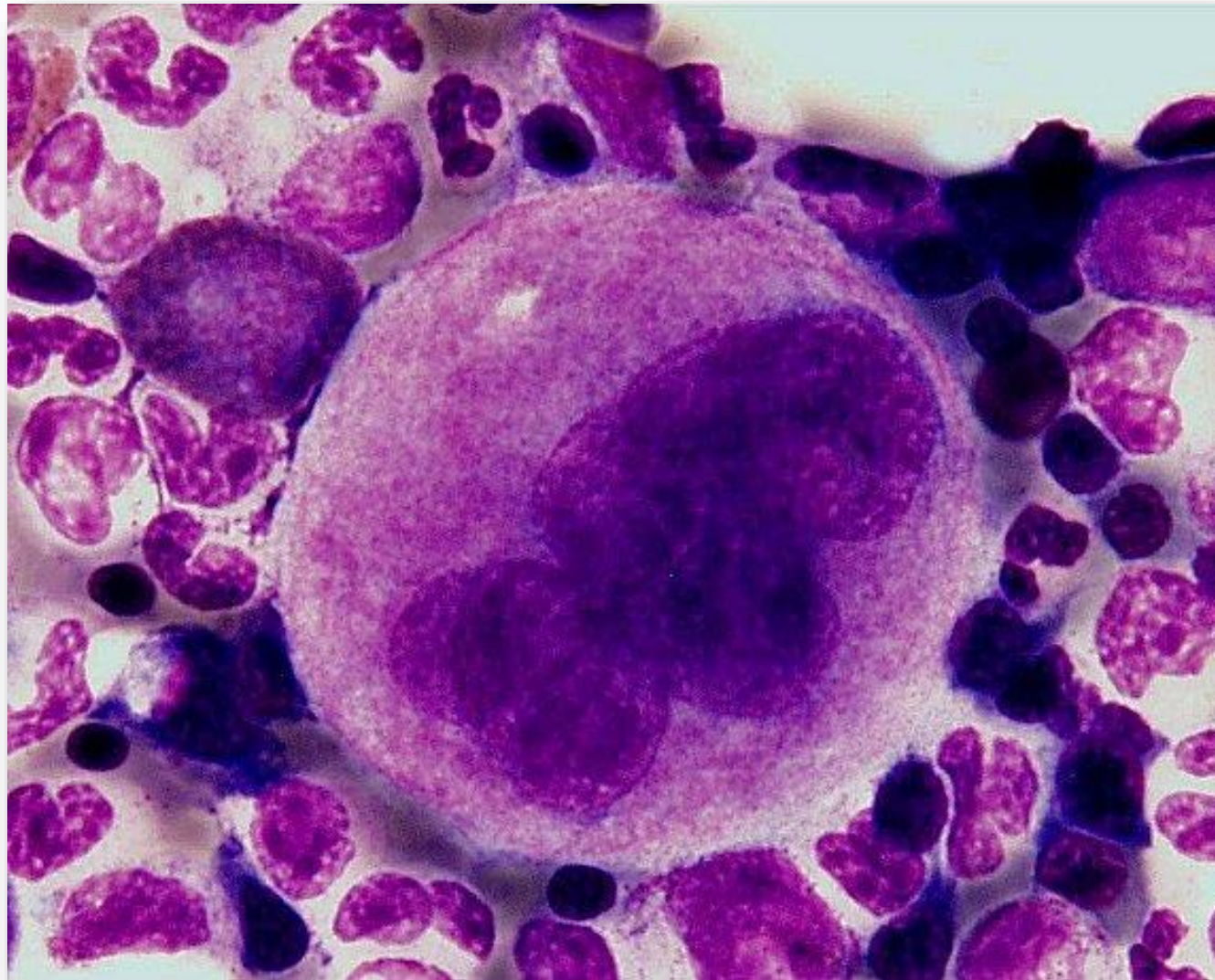


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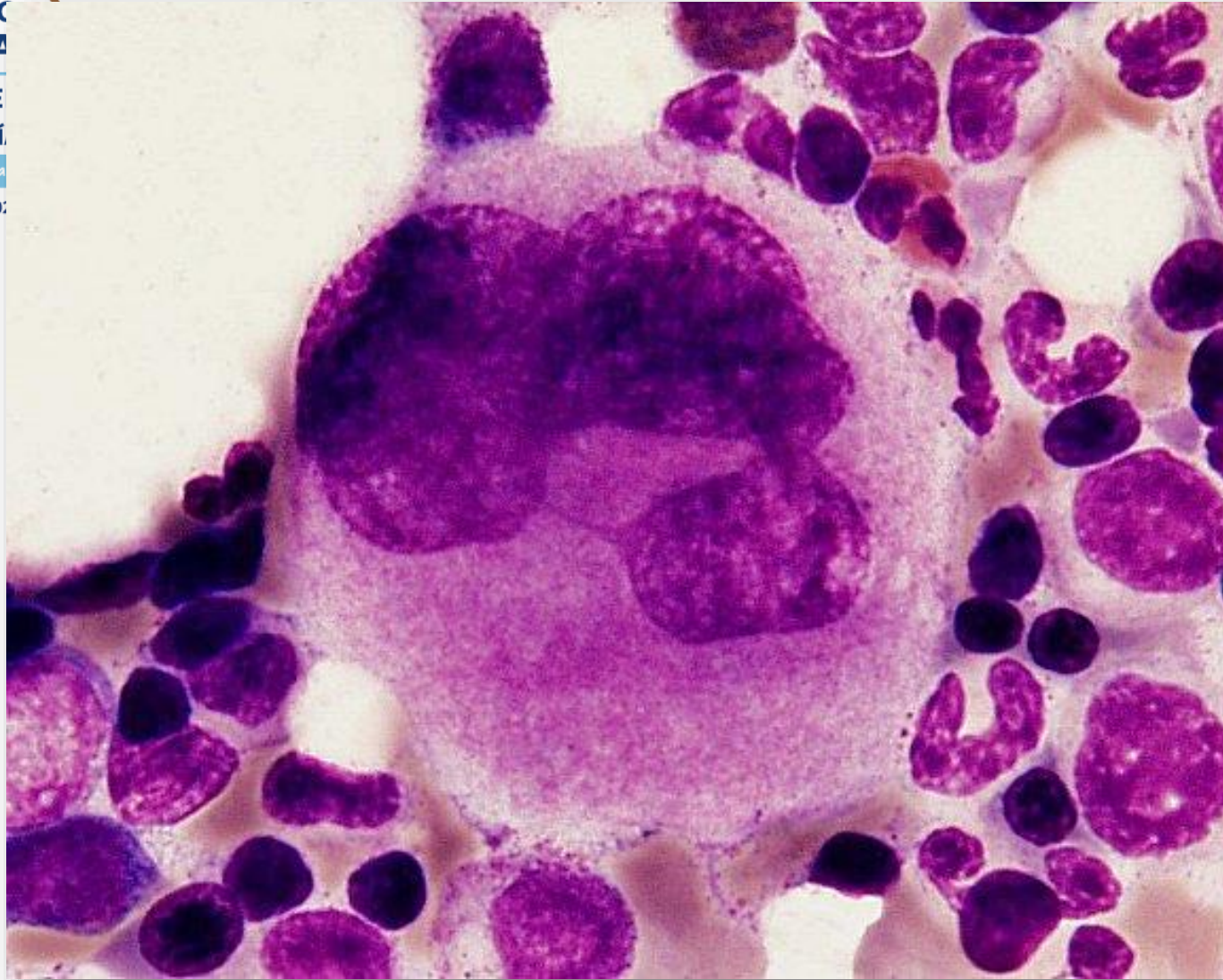
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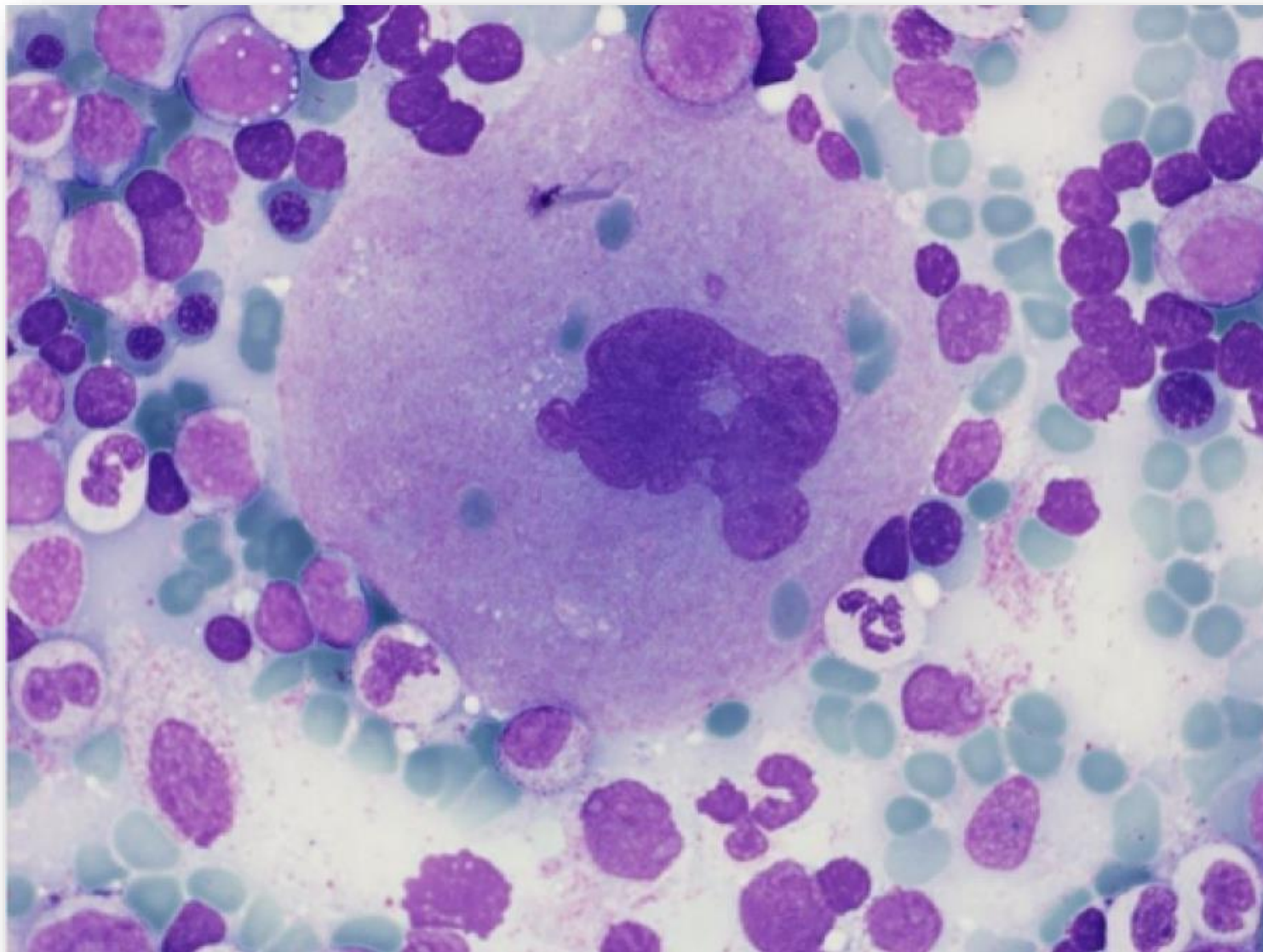
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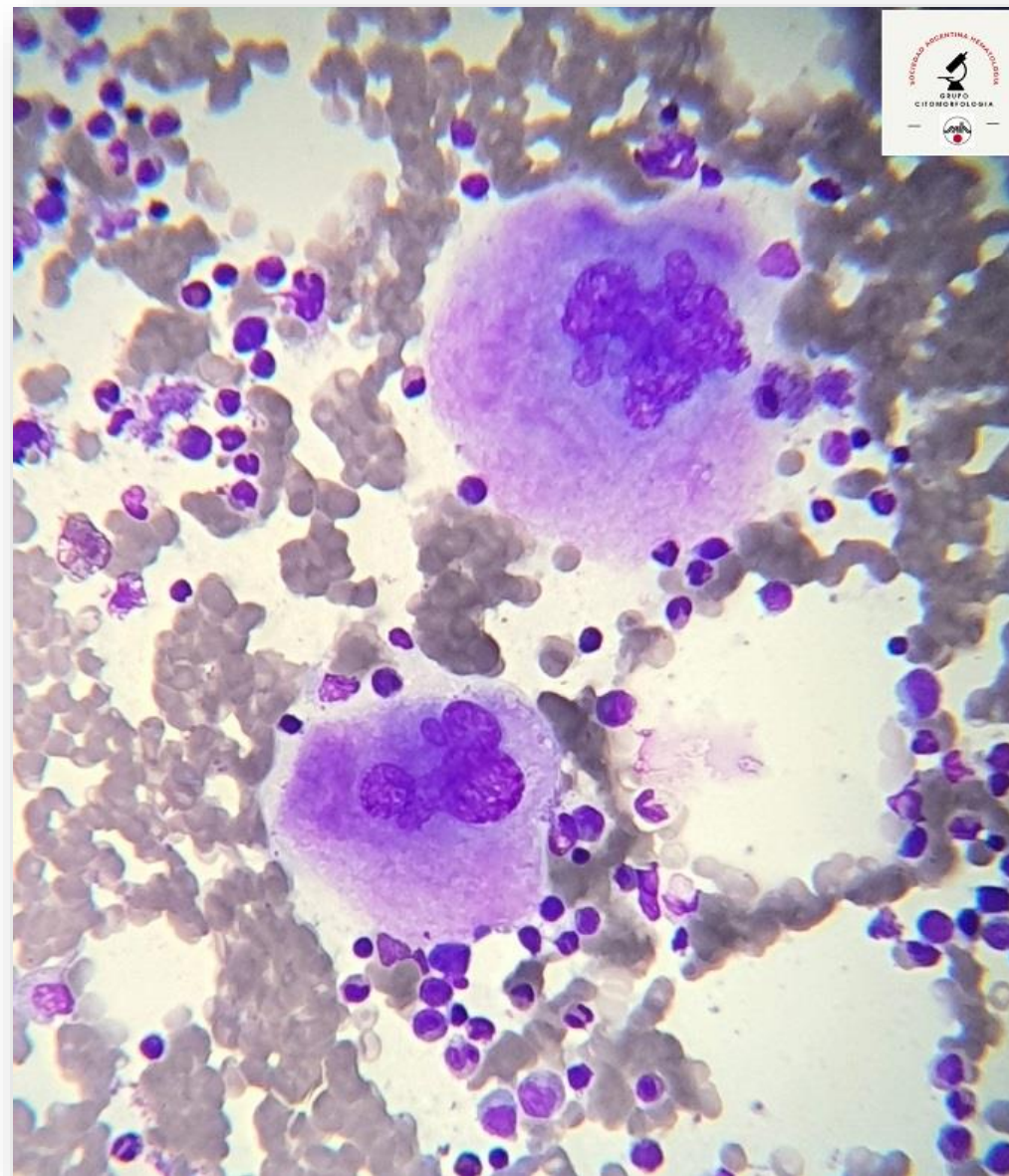
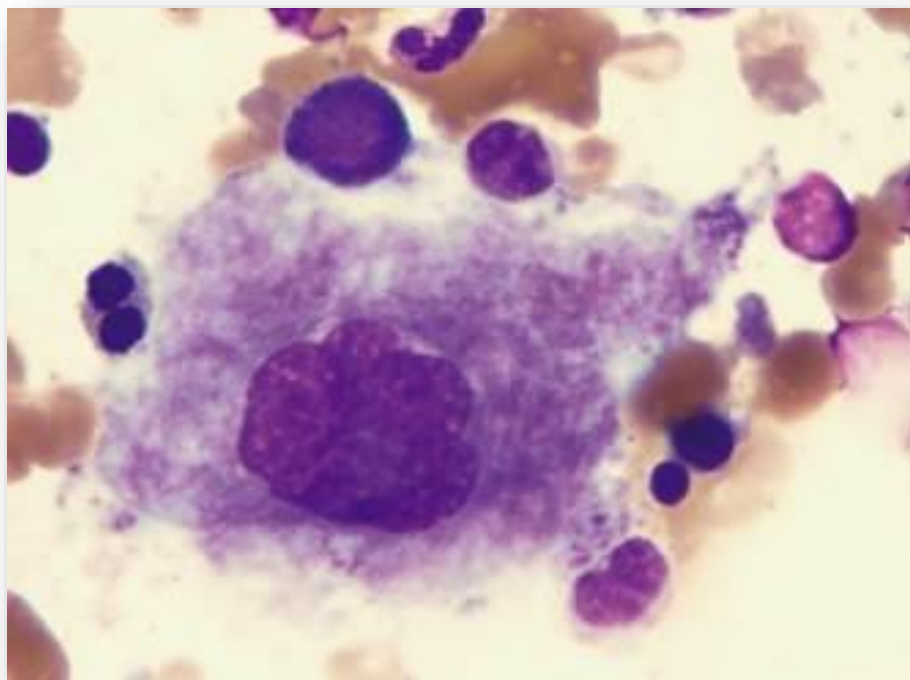
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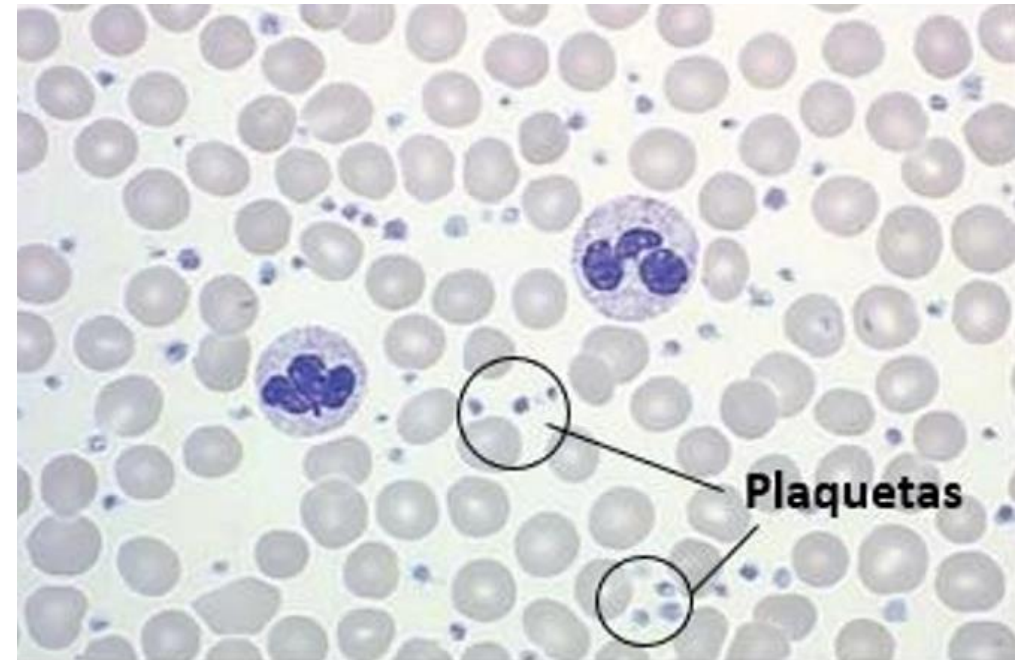
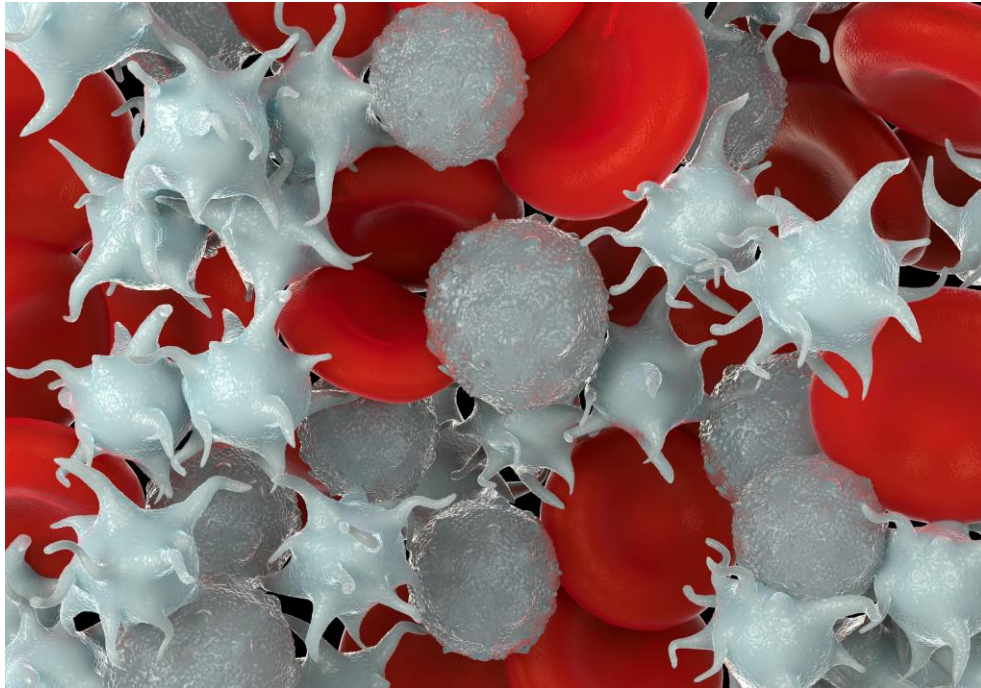
MEGACARIOCITO



MEGACARIOCITO



PLAQUETAS O TROMBOCITOS



PLAQUETAS O TROMBOCITOS

No poseen núcleo.

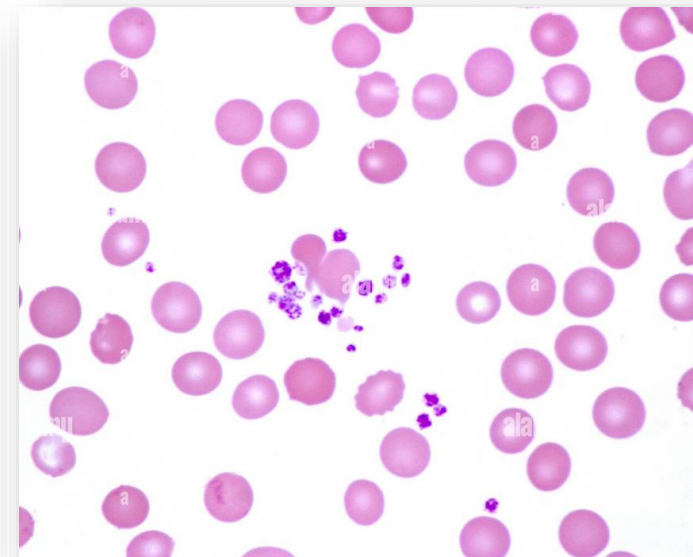
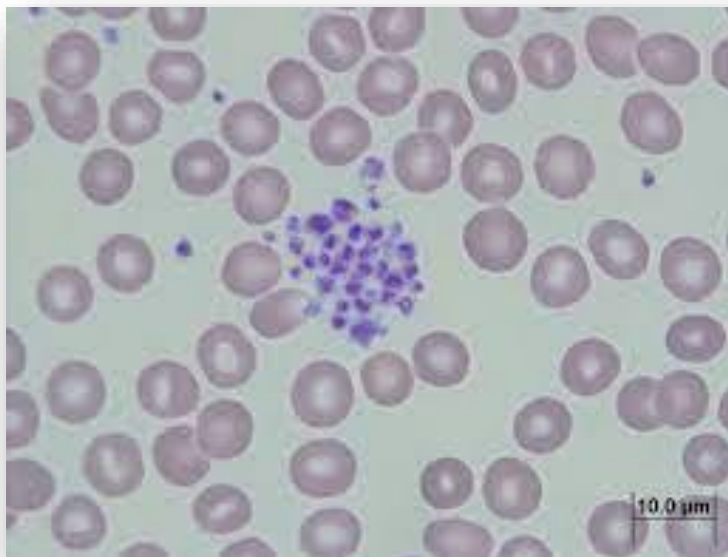
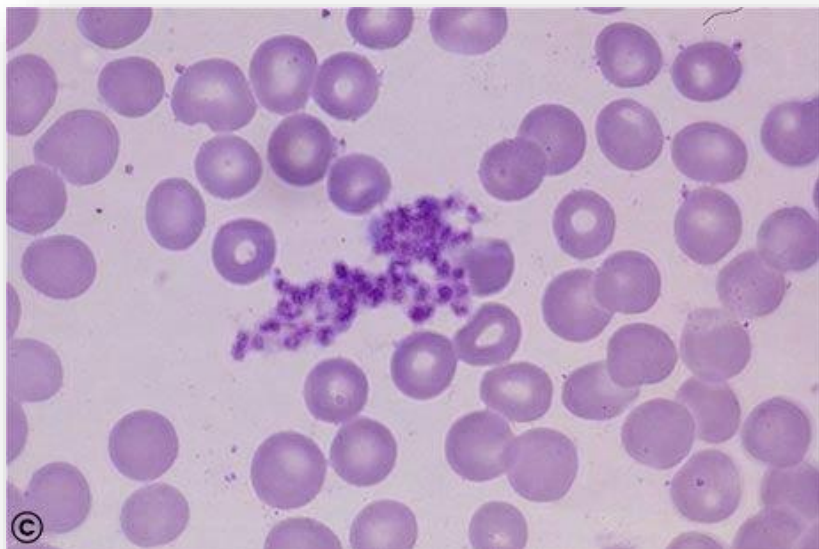
Tienen mitocondria y
ribosomas.

Poseen ADN mitocondrial y
ARN para la síntesis de
proteínas

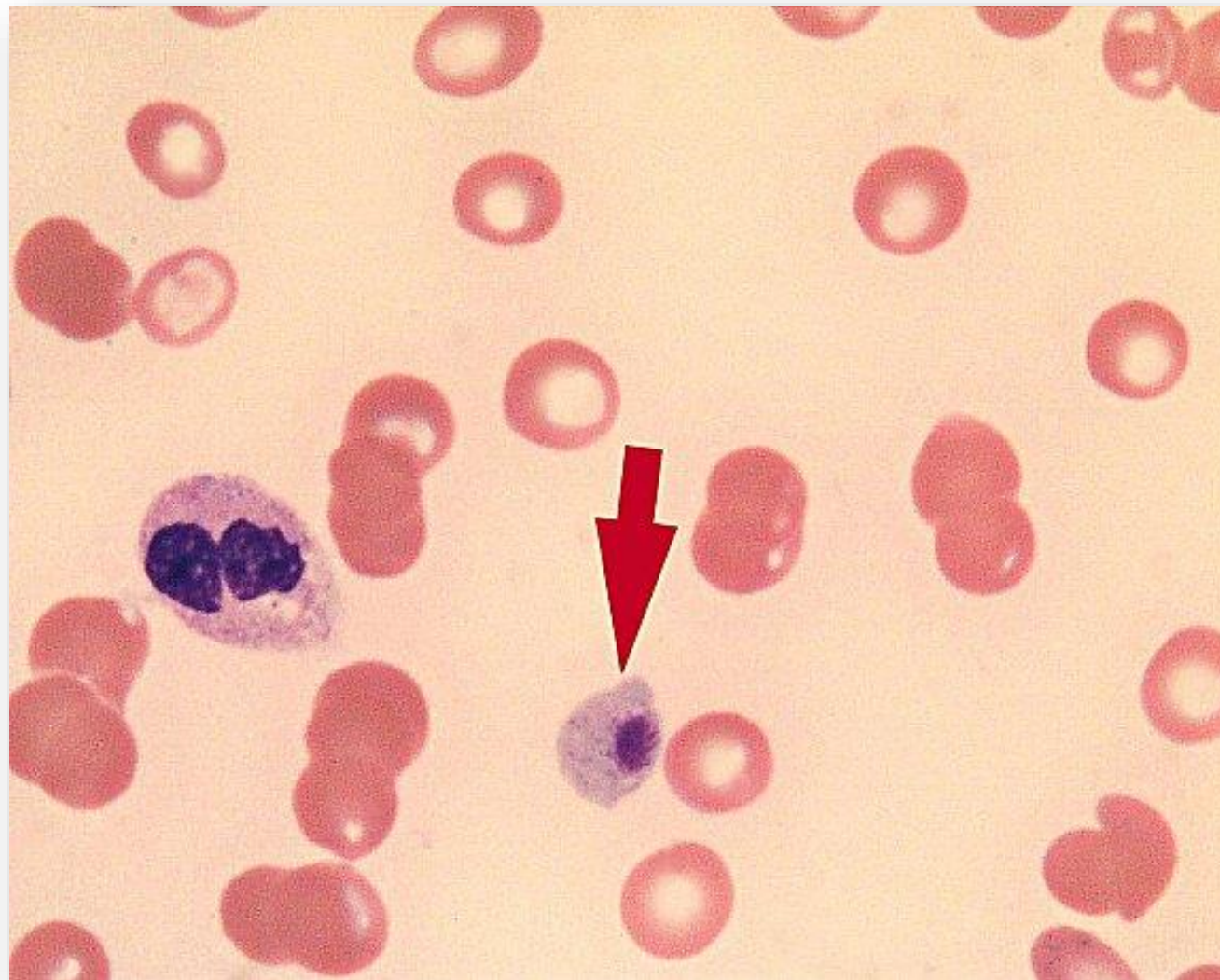
Contienen gránulos alfa, densos
y lisosomales



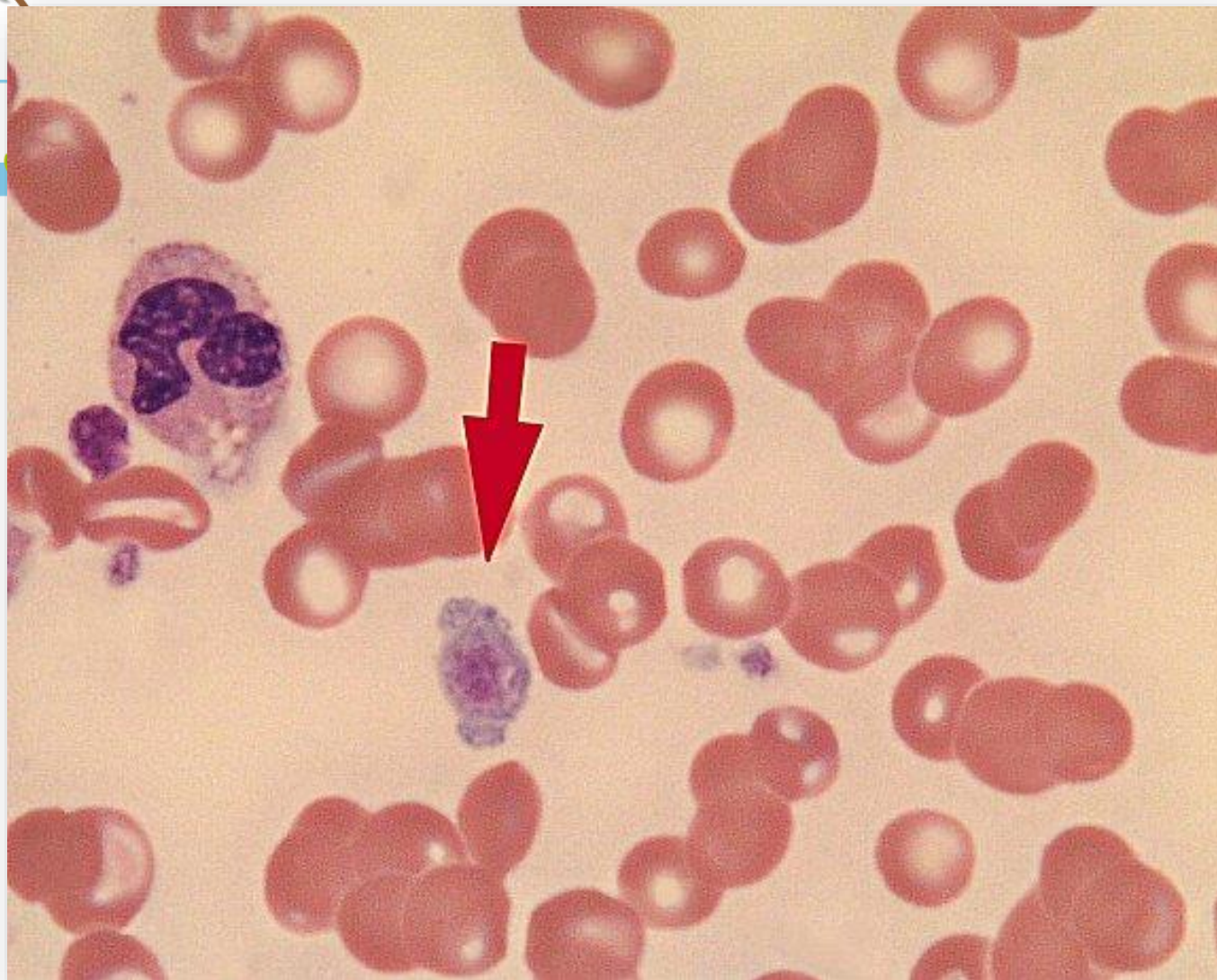
PLAQUETAS O TROMBOCITOS



PLAQUETA DEGRANULADA



PLAQUETA DEGRANULADA





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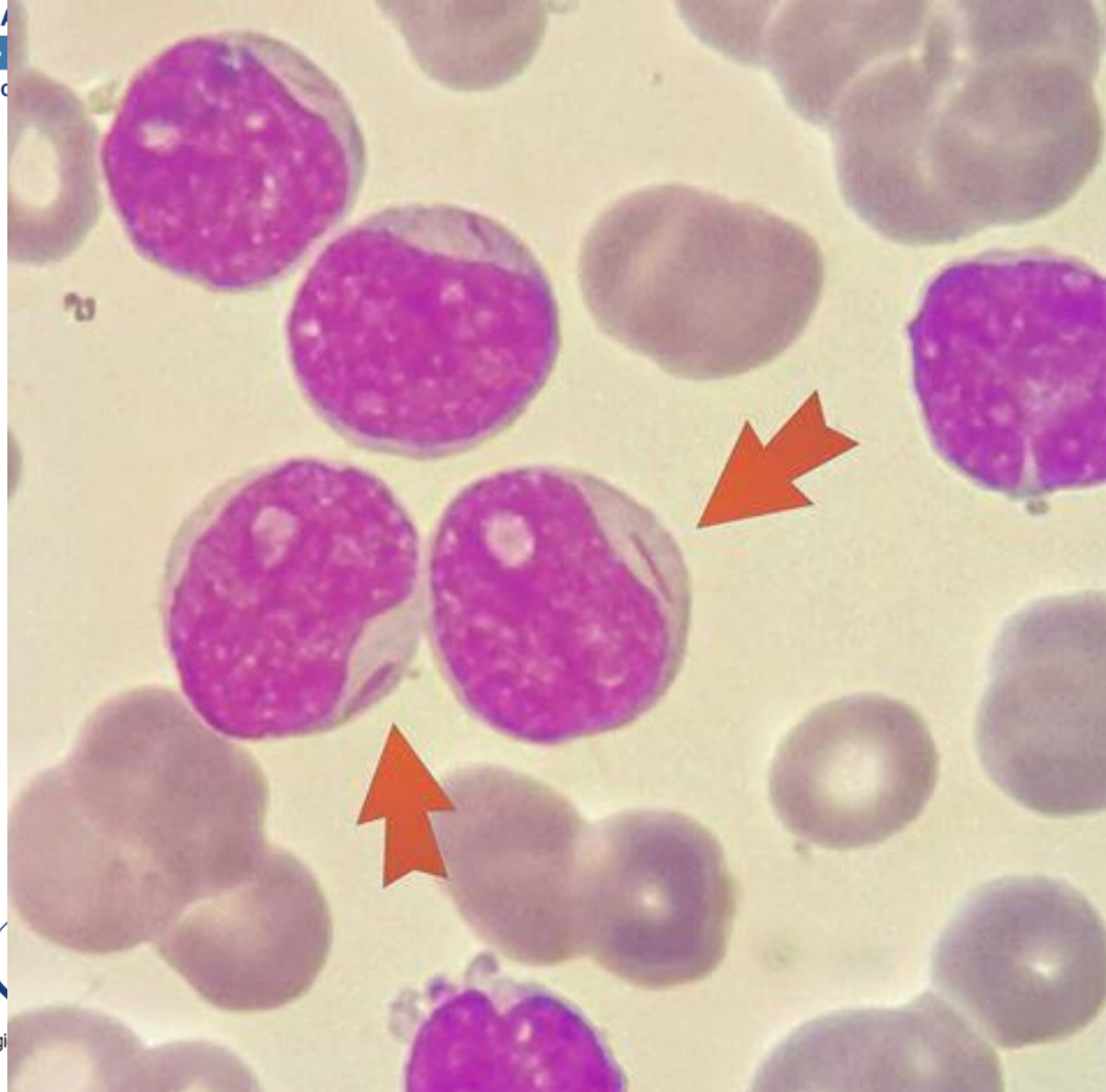
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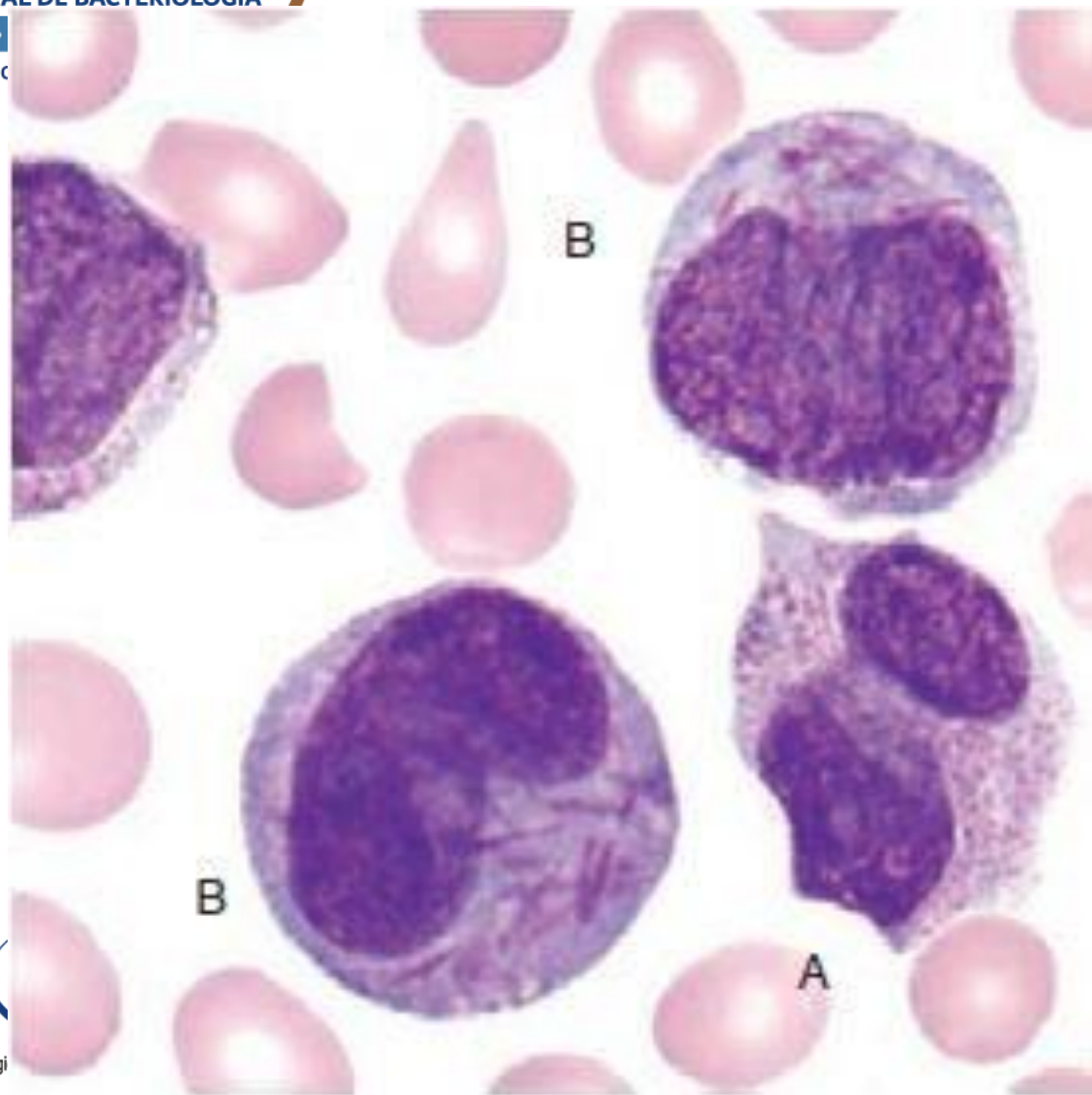


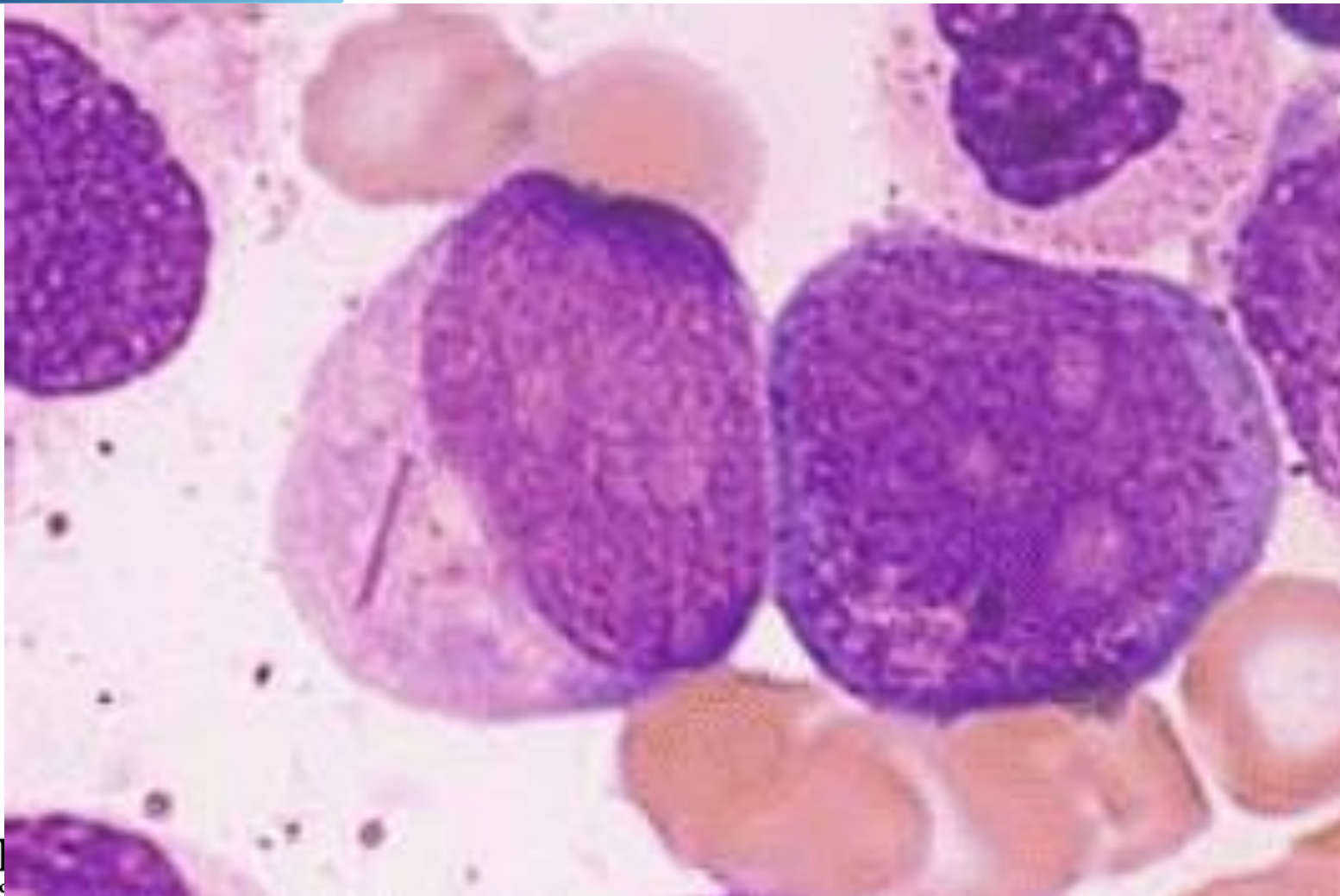
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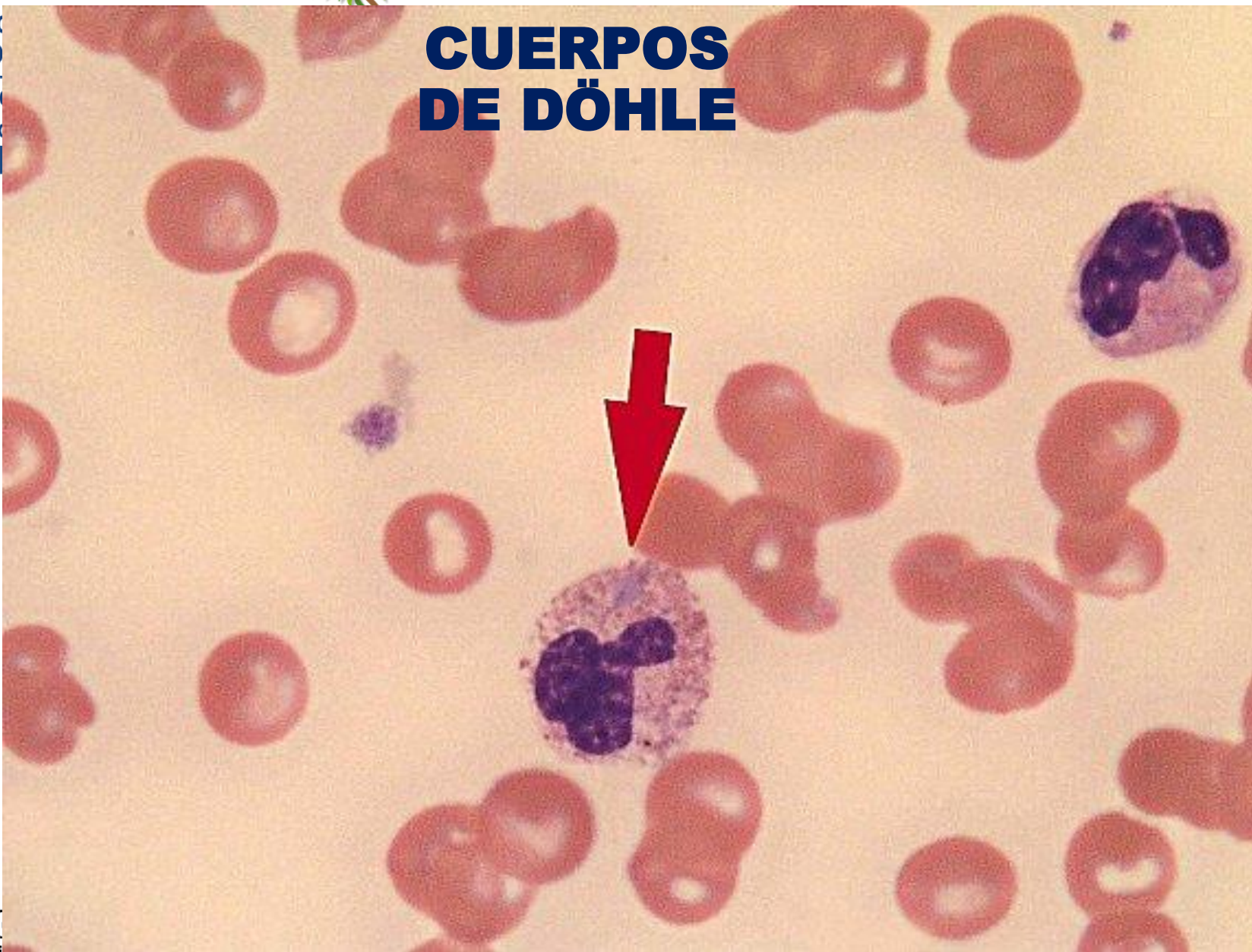




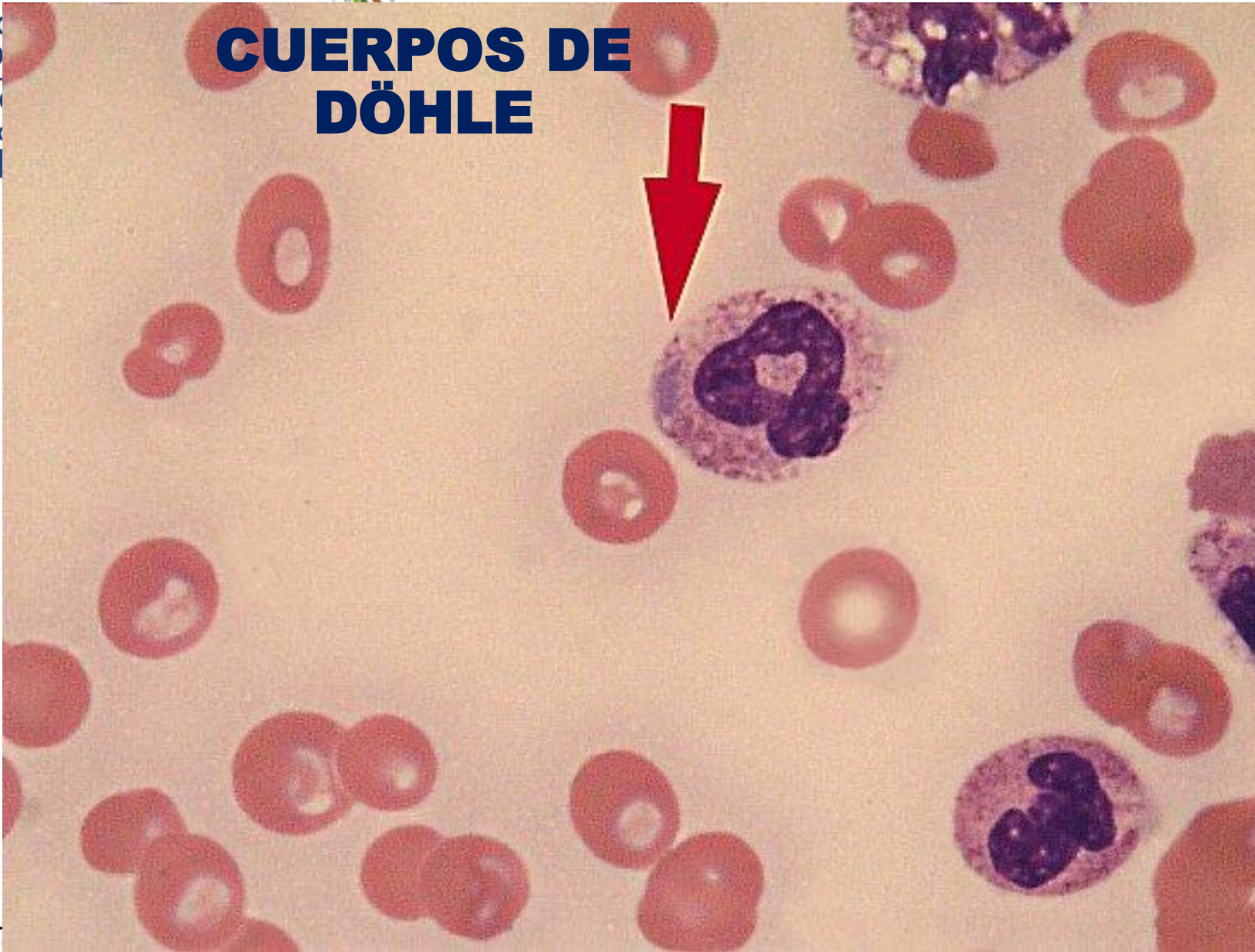




CUERPOS DE DÖHLE



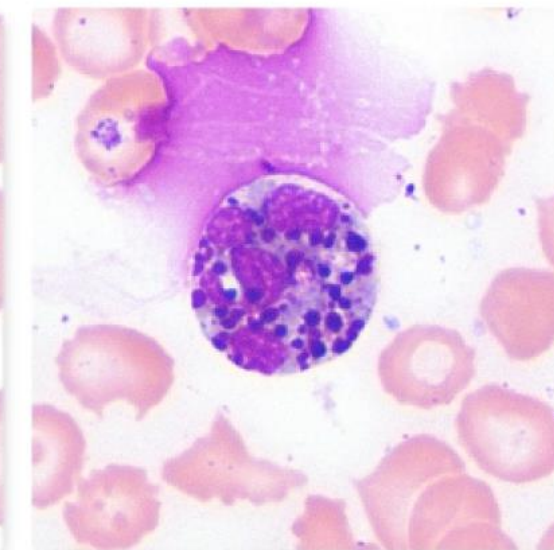
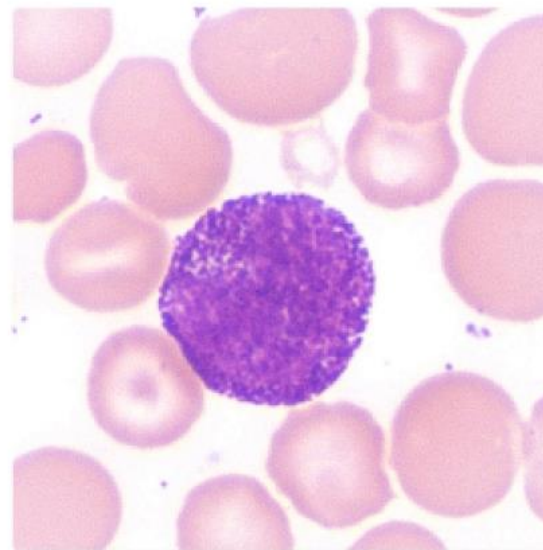
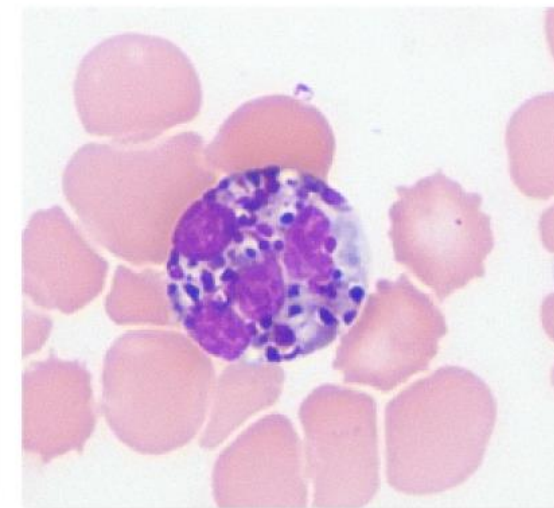
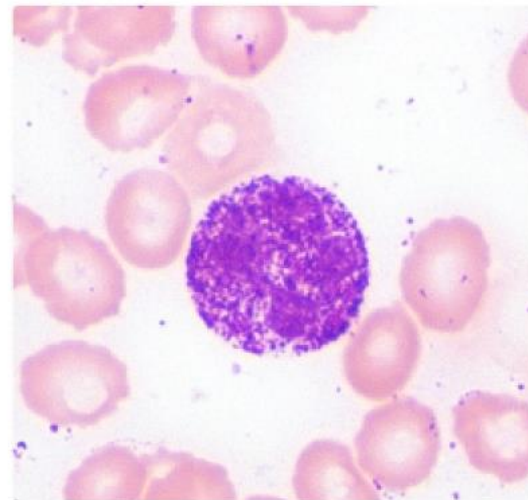
CUERPOS DE DÖHLE



ALDER - REILLY

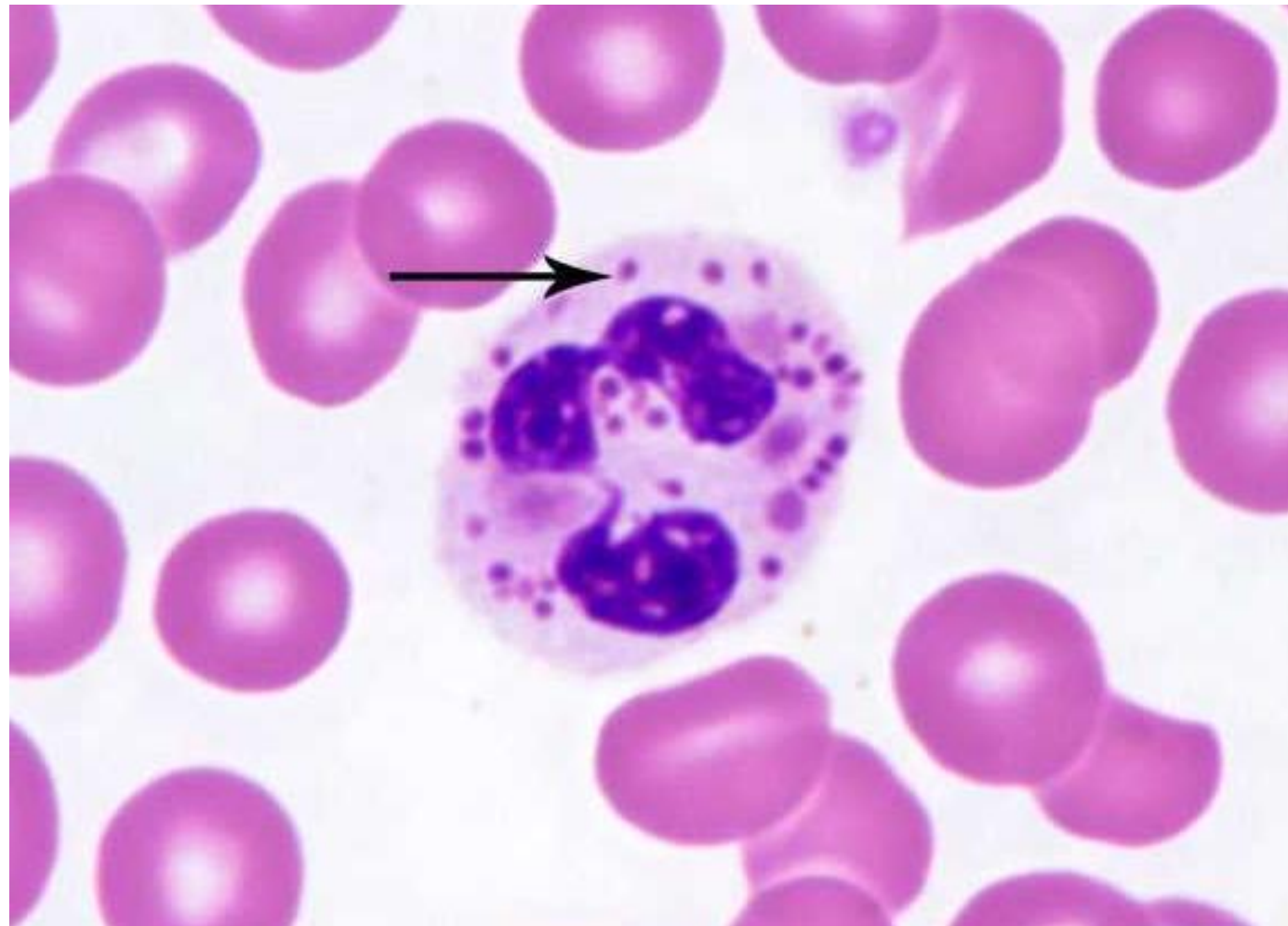
Inclusiones citoplasmáticas densas, azul oscuro, de esfingomieline y otros mucopolisacáridos. Se presentan en neutrófilos, eosinófilos y, ocasionalmente en linfocitos y monocitos.

Los cuerpos de Alder-Reilly son característicos de algunas mucopolisacaridoses, un grupo de enfermedades hereditarias como la enfermedad de Hurler o de Hunter que se deben a un catabolismo alterado de algunos glicosaminoglicanos por deficiencia de alguna enzimas.

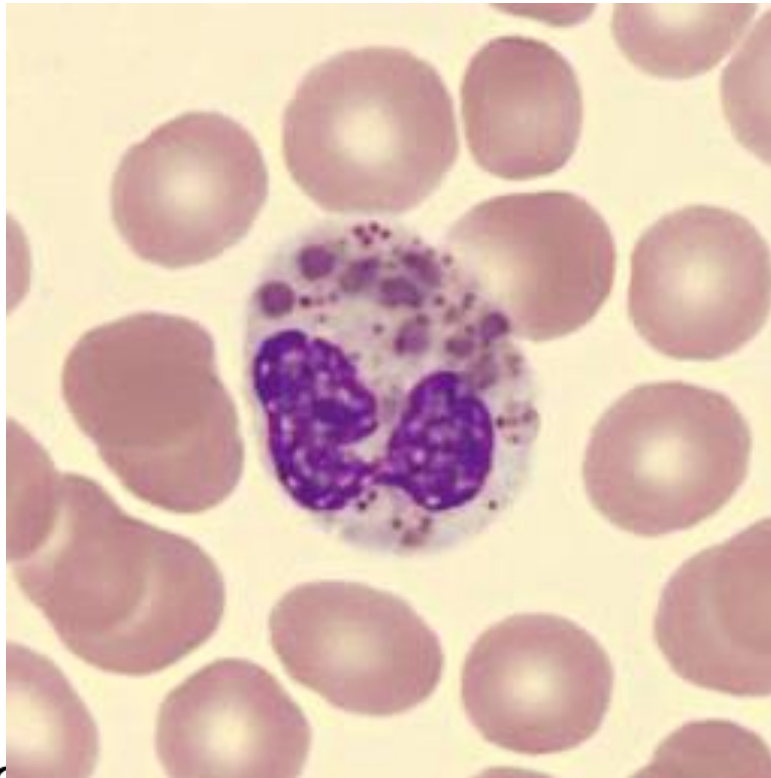


Chediak-Higashi syndrome is a rare autosomal recessive disorder characterized clinically by partial oculocutaneous albinism due to defects in melanin granules and recurrent pyogenic bacterial infections due to abnormalities in granulocytes. The basic defect is in microtubules resulting in fusion of lysosomal granules. All white blood cells contain abnormally giant granules. This image shows a normally segmented neutrophils with giant azurophilic granules.

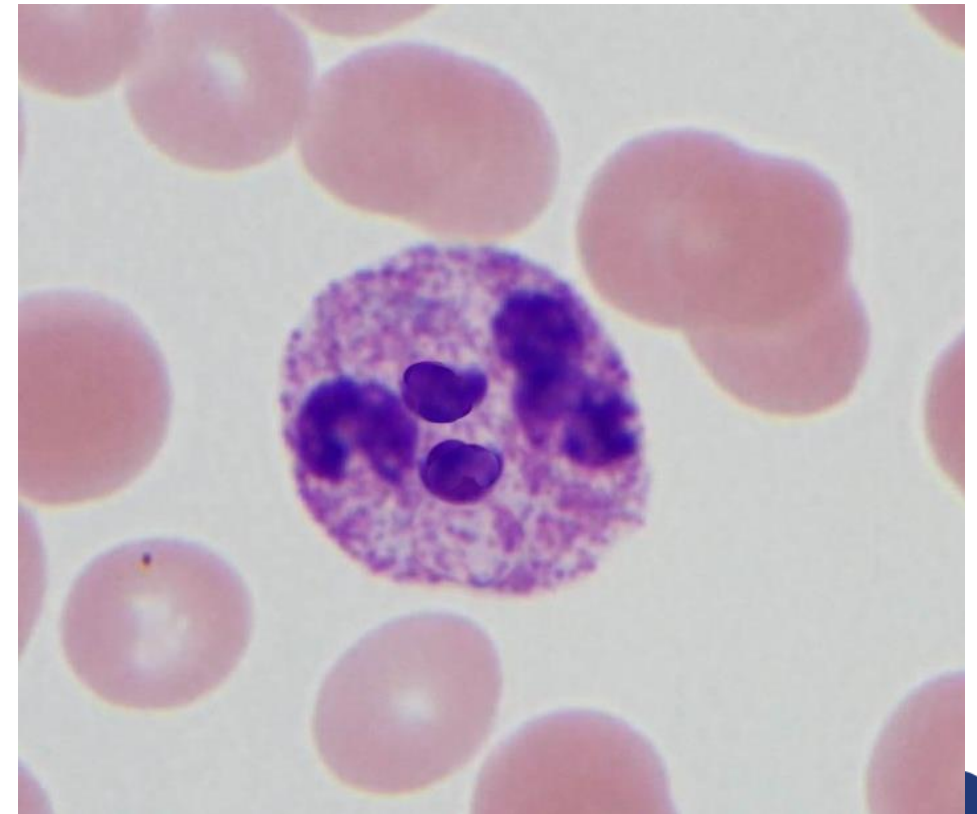
CHEDIAK HIGASHI



Chediak - Higashi



GRANULACIONES TÓXICAS



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GRANULACIONES TOXICAS



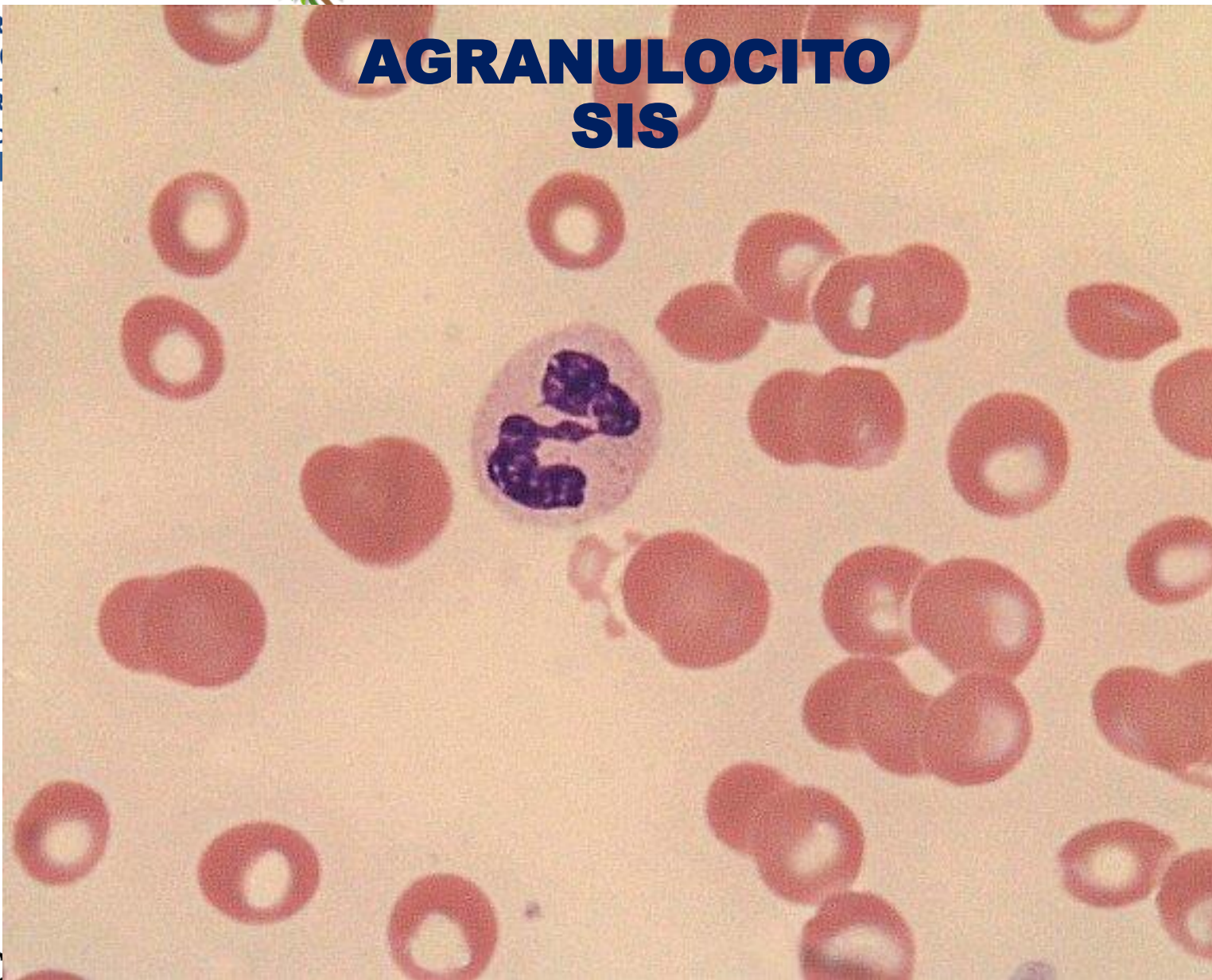


GRANULACIONES TOXICAS



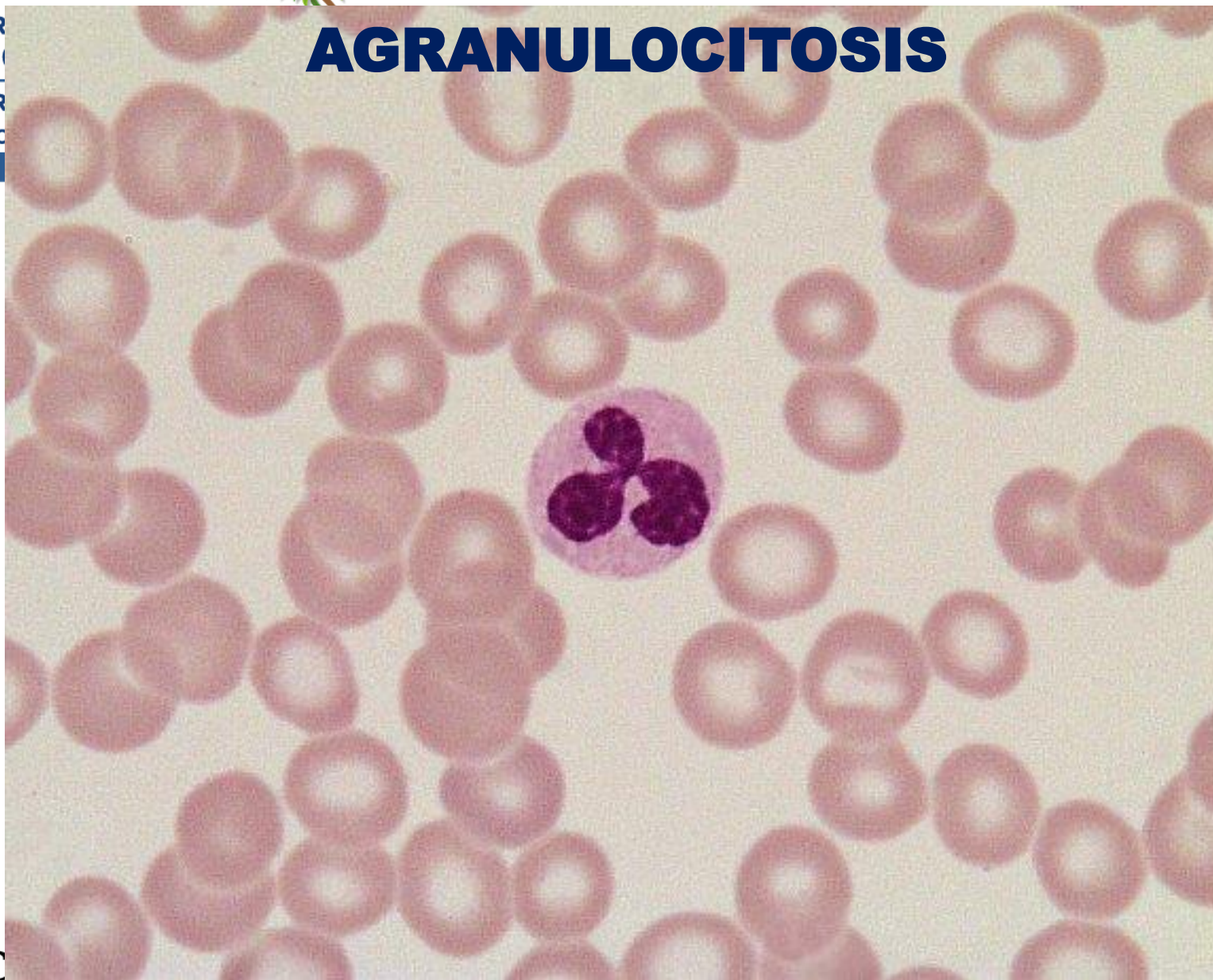


AGRANULOCITOSIS



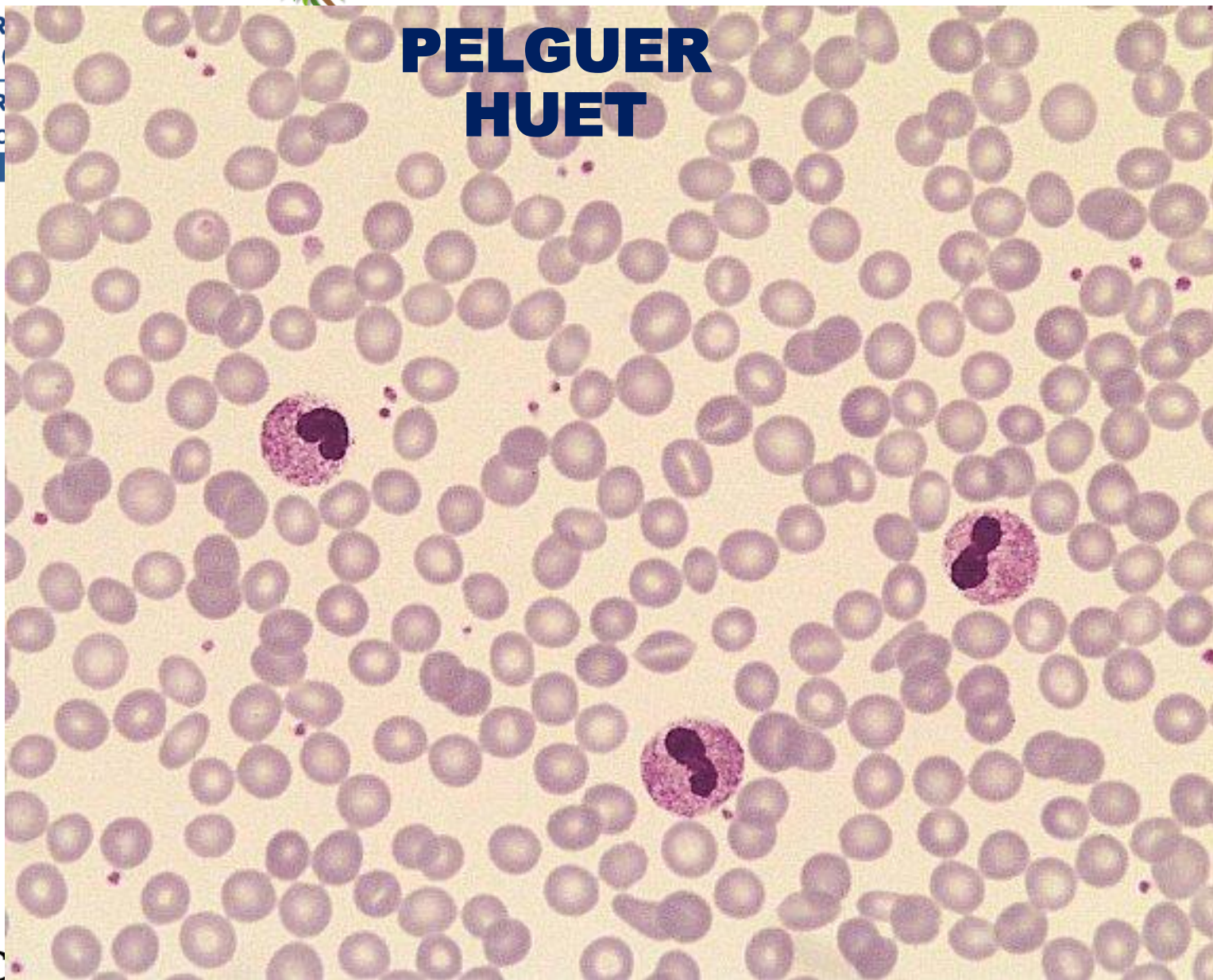


AGRANULOCITOSIS



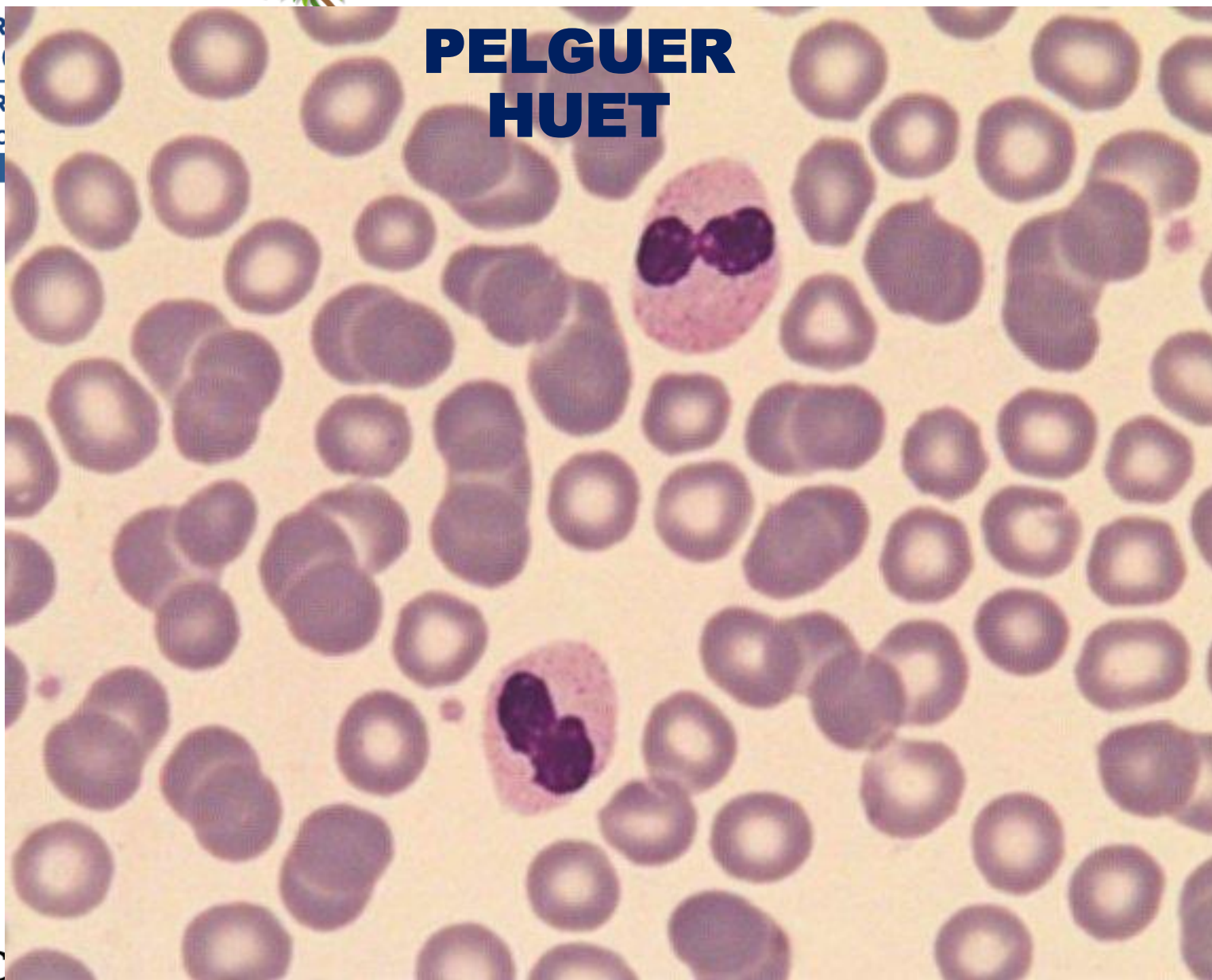


PELQUER HUET



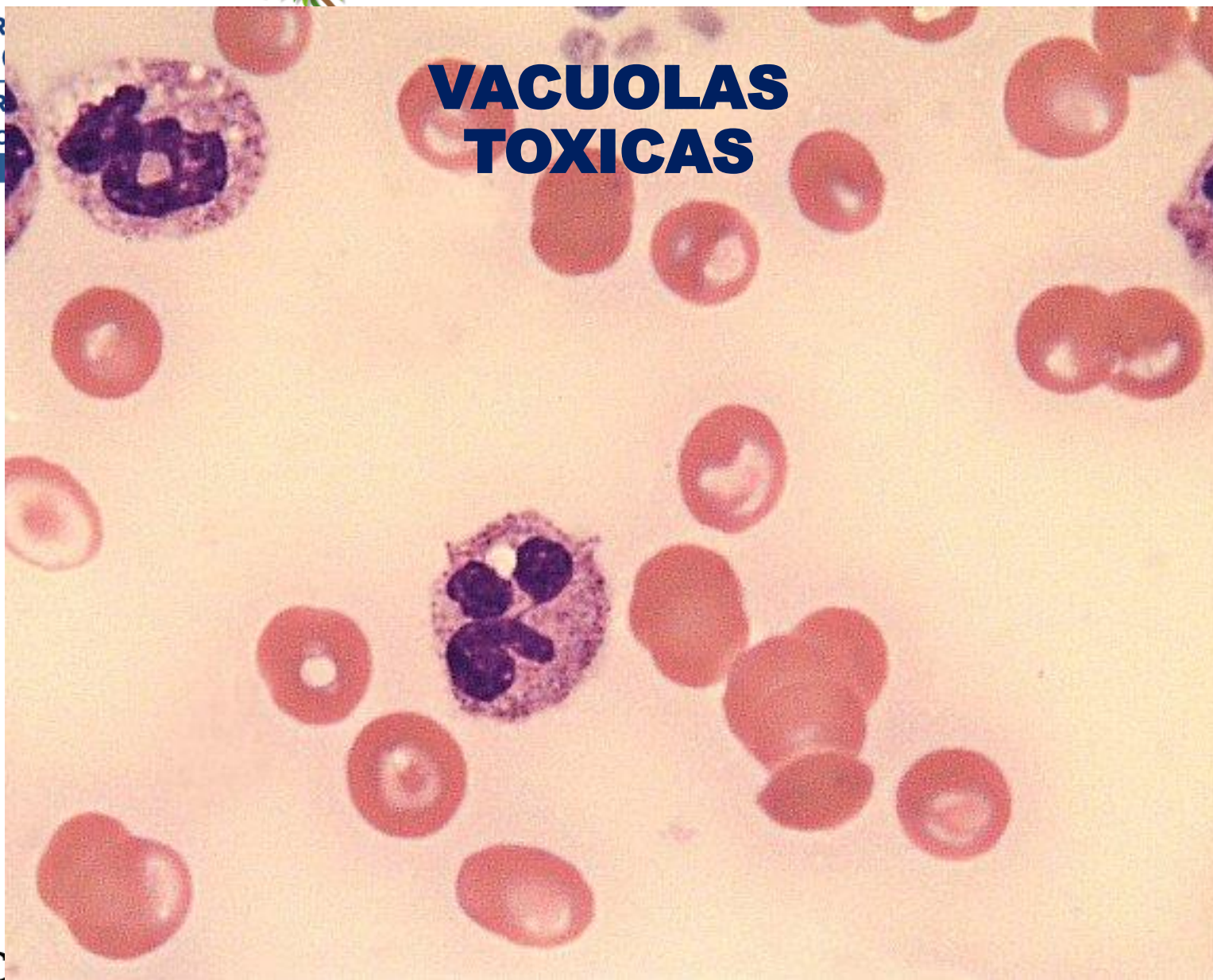


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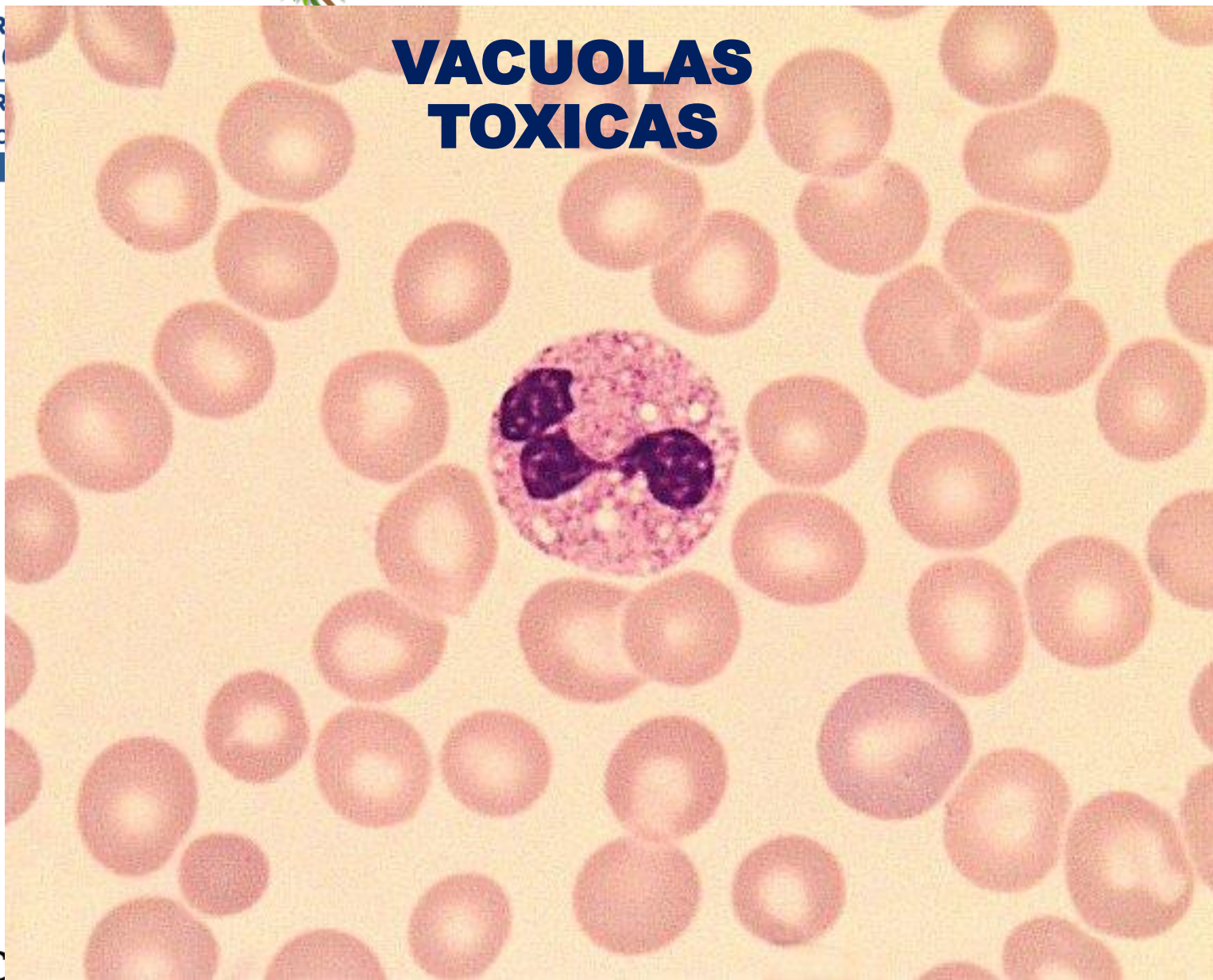


VACUOLAS TOXICAS





VACUOLAS TOXICAS

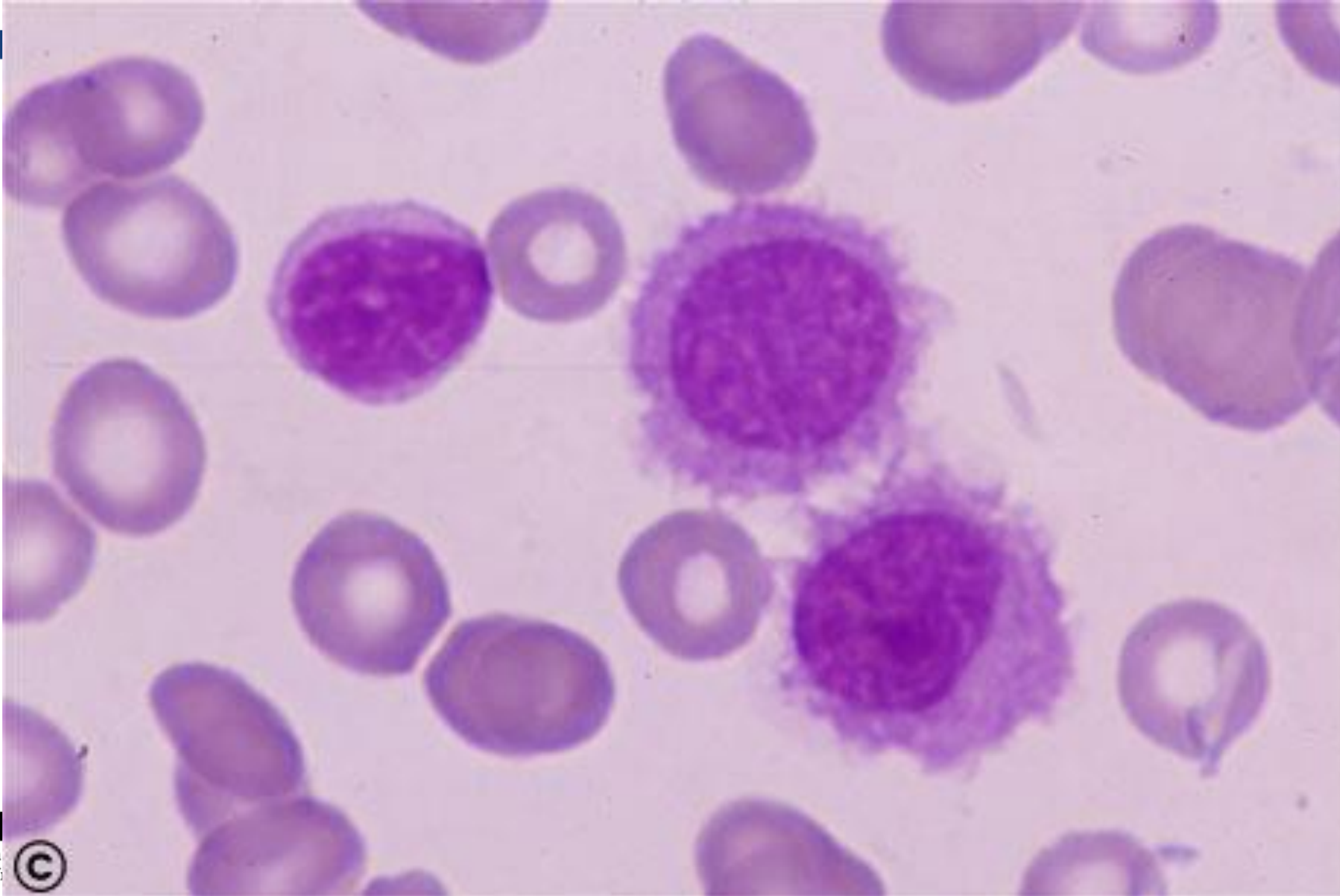


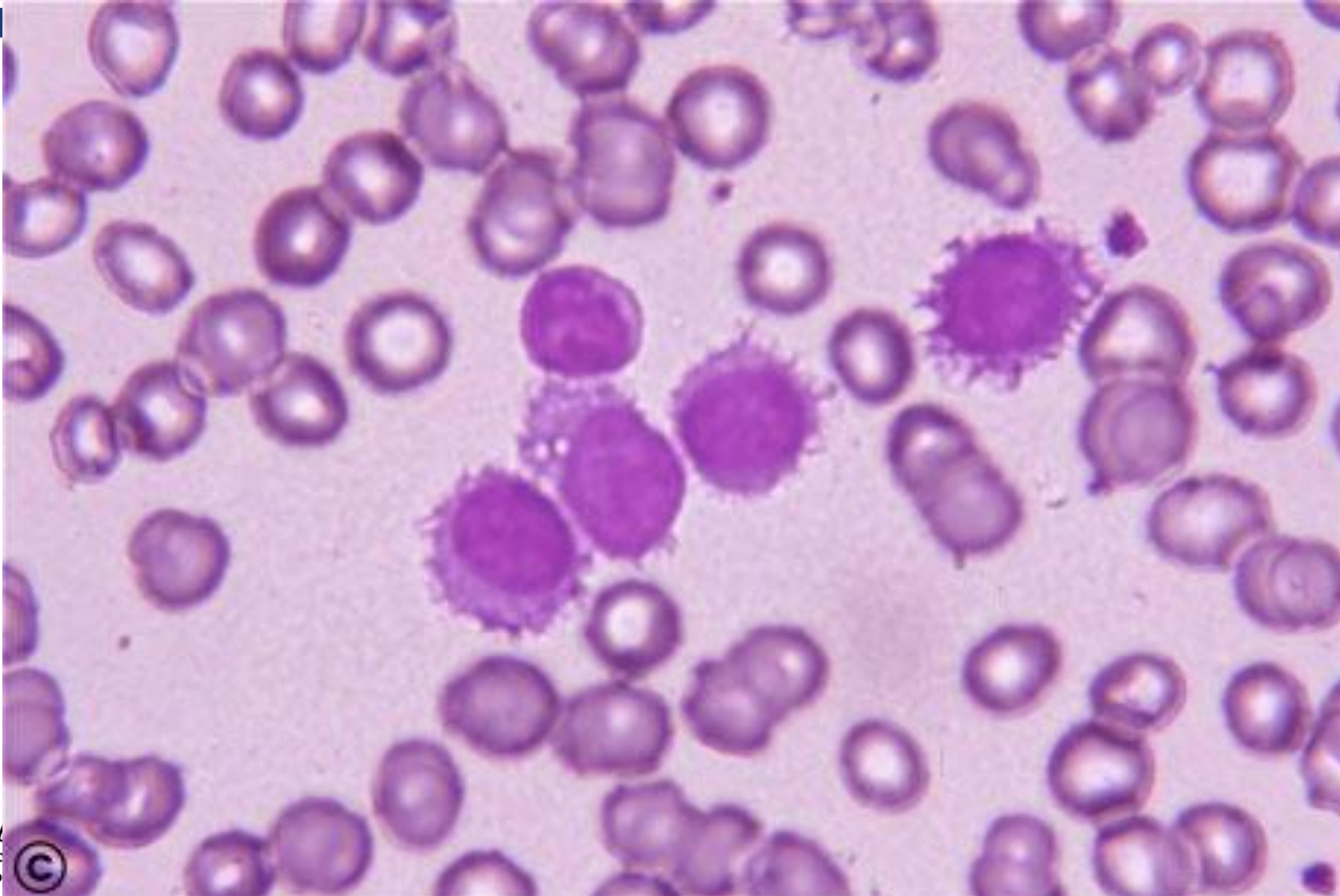
DESVIACION A LA IZQUIERDA

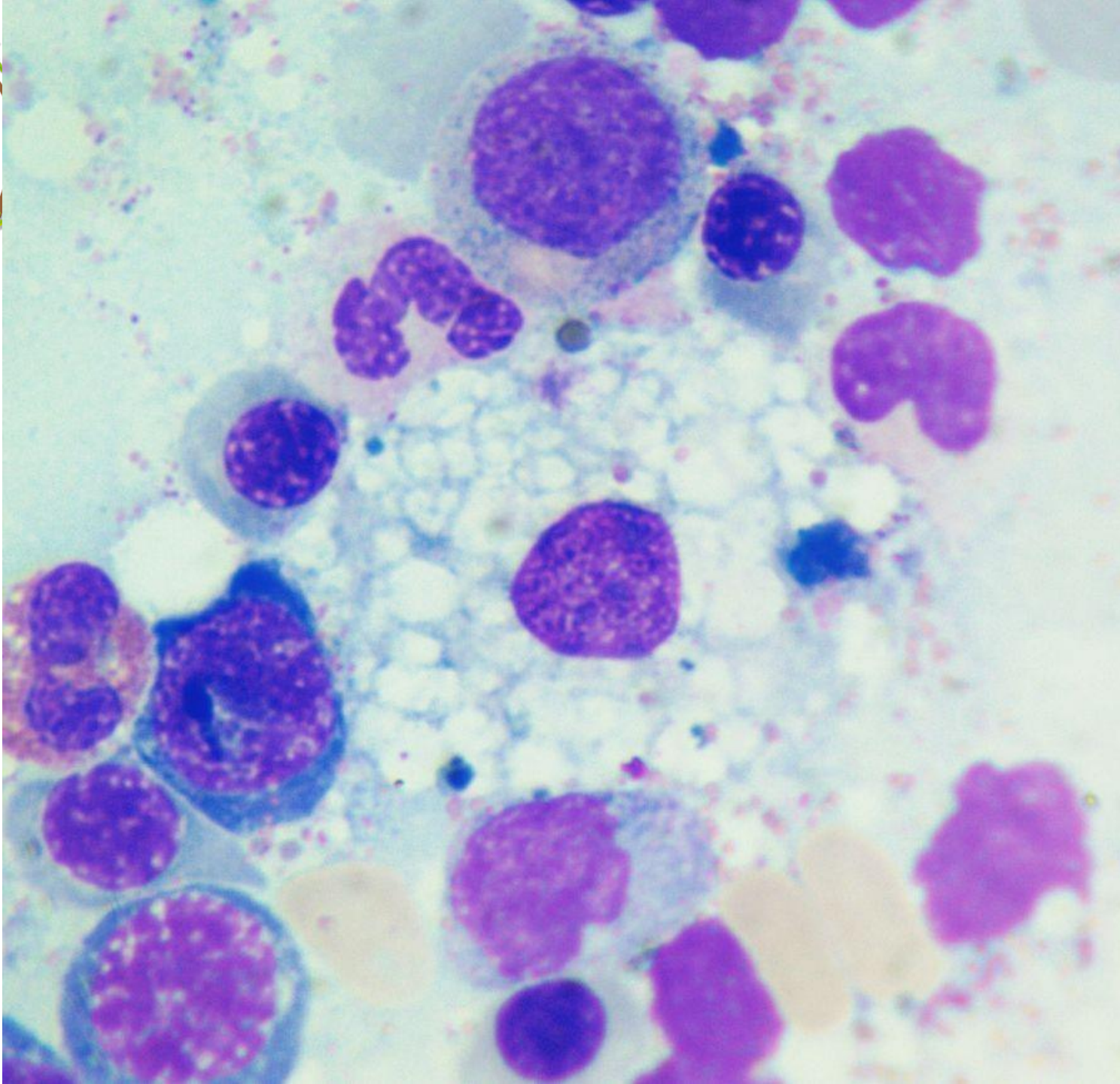


DESVIACION A LA IZQUIERDA











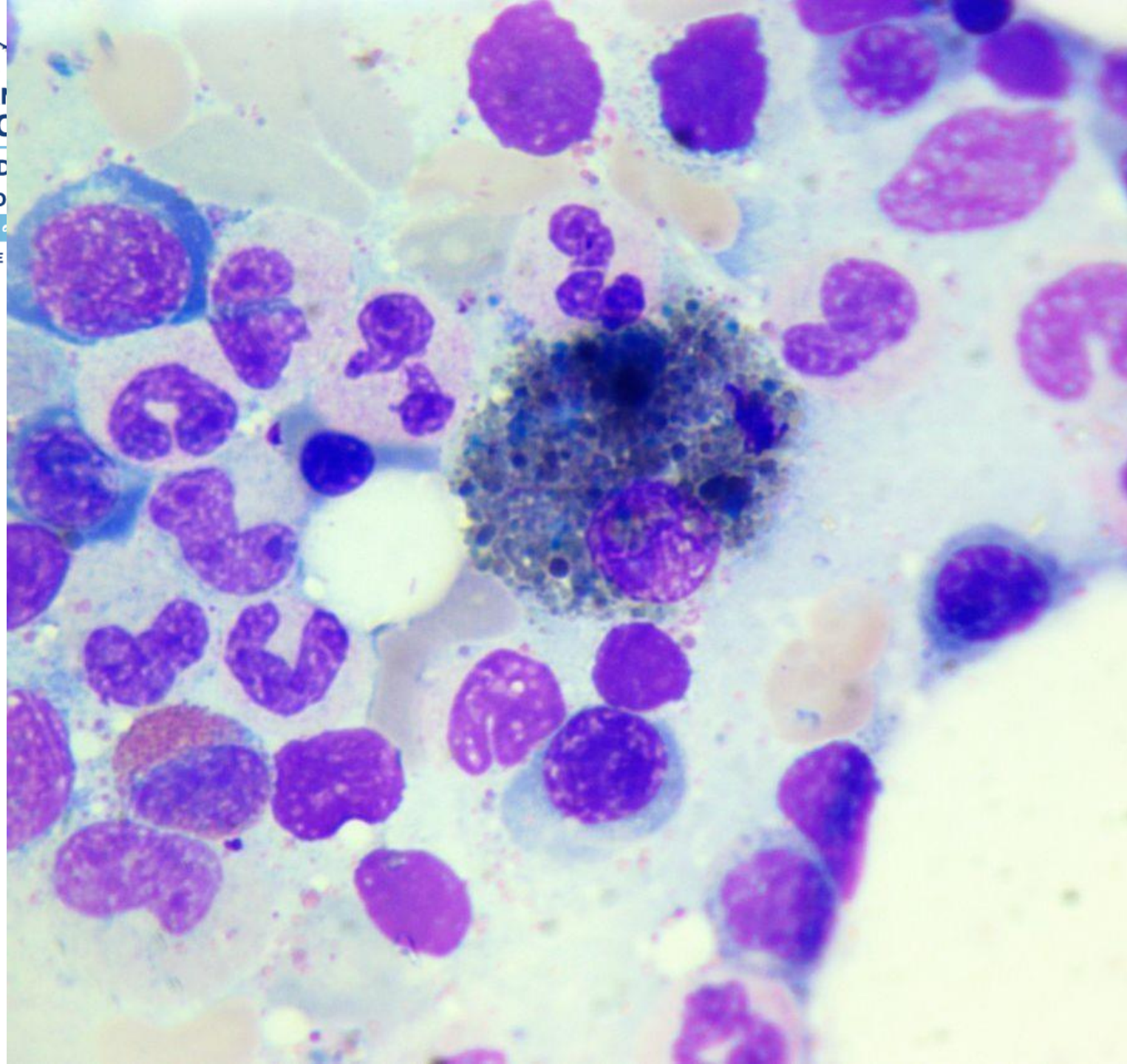
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