BLOOD& B.M

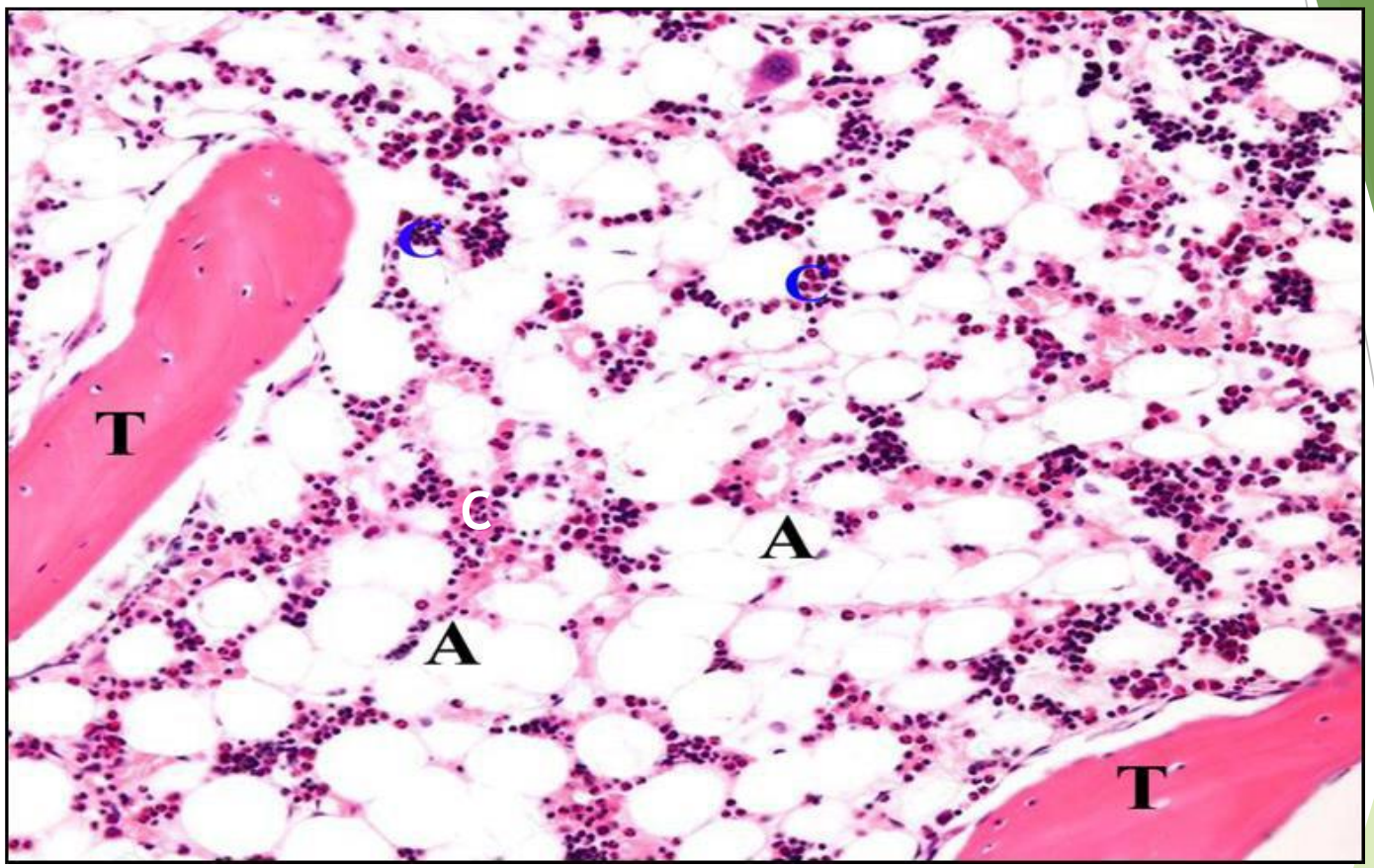
(Lab)

- DR. Heba Hassan

LM picture of red bone marrow

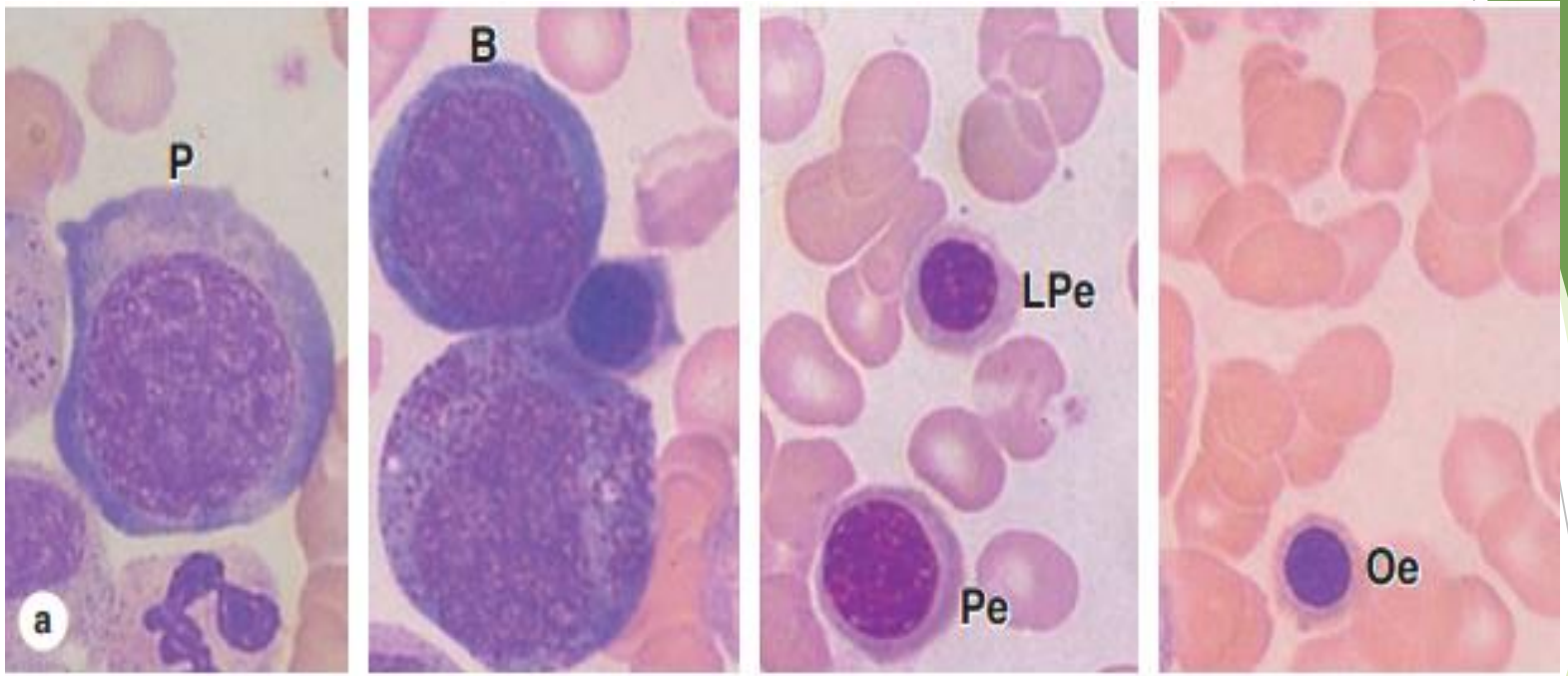
Hematopoietic cells (C) bony trabeculae (T).
Sinusoidal capillaries (S) and Adipocytes (A)

LM picture of yellow bone marrow



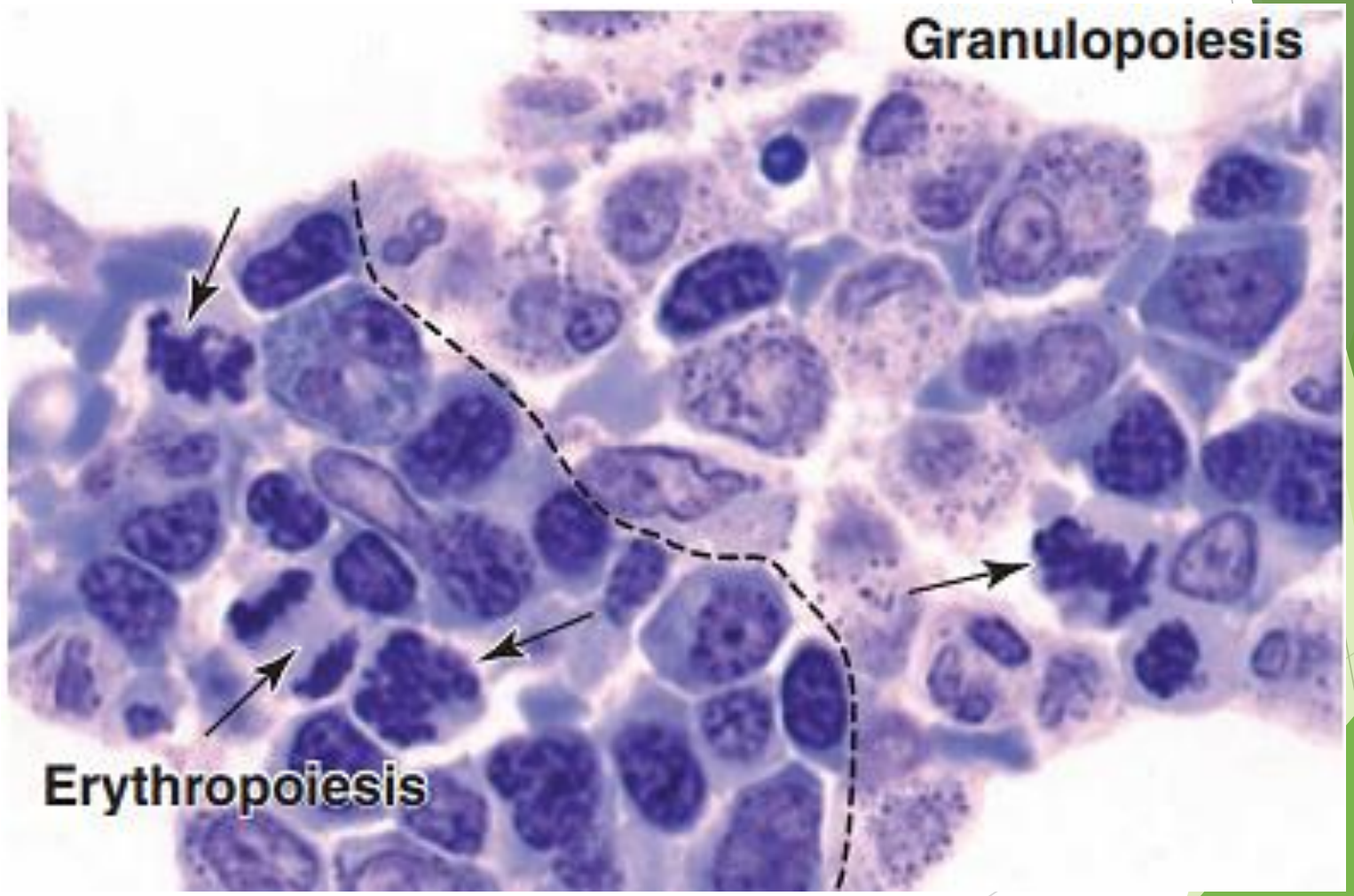
Adipocytes (A) occupy the bone marrow spaces and there is decrease in the ratio of hematopoietic cells (C).

Erythropoeisis

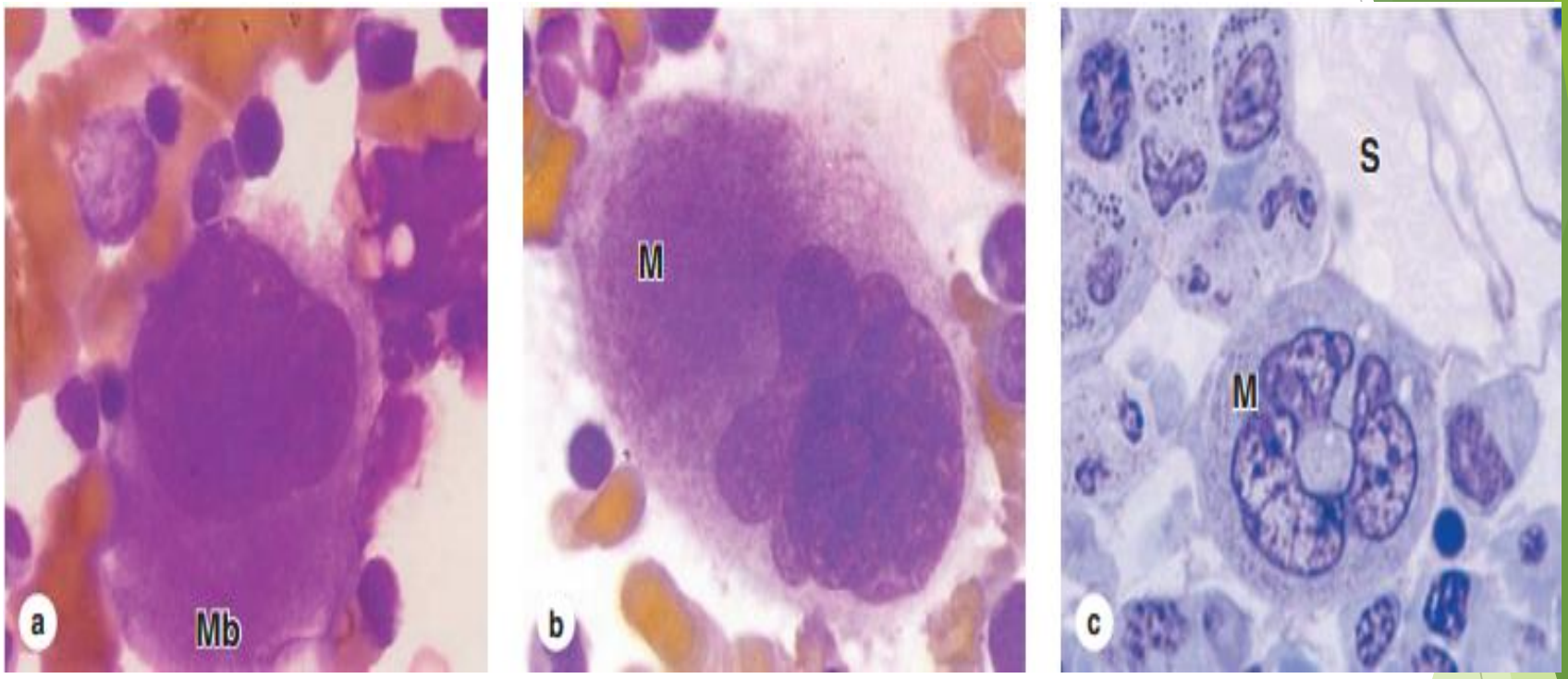


- a very large and scarce **proerythroblast** (P),
- a slightly smaller **basophilic erythroblast** (B) with very basophilic cytoplasm
- **polychromatophilic erythroblasts** (Pe and LPe) with both basophilic and acidophilic cytoplasmic regions
- **orthochromatophilic erythroblast** (Oe) with cytoplasm nearly like that of the mature erythrocytes in the field.

Granulopoeisis

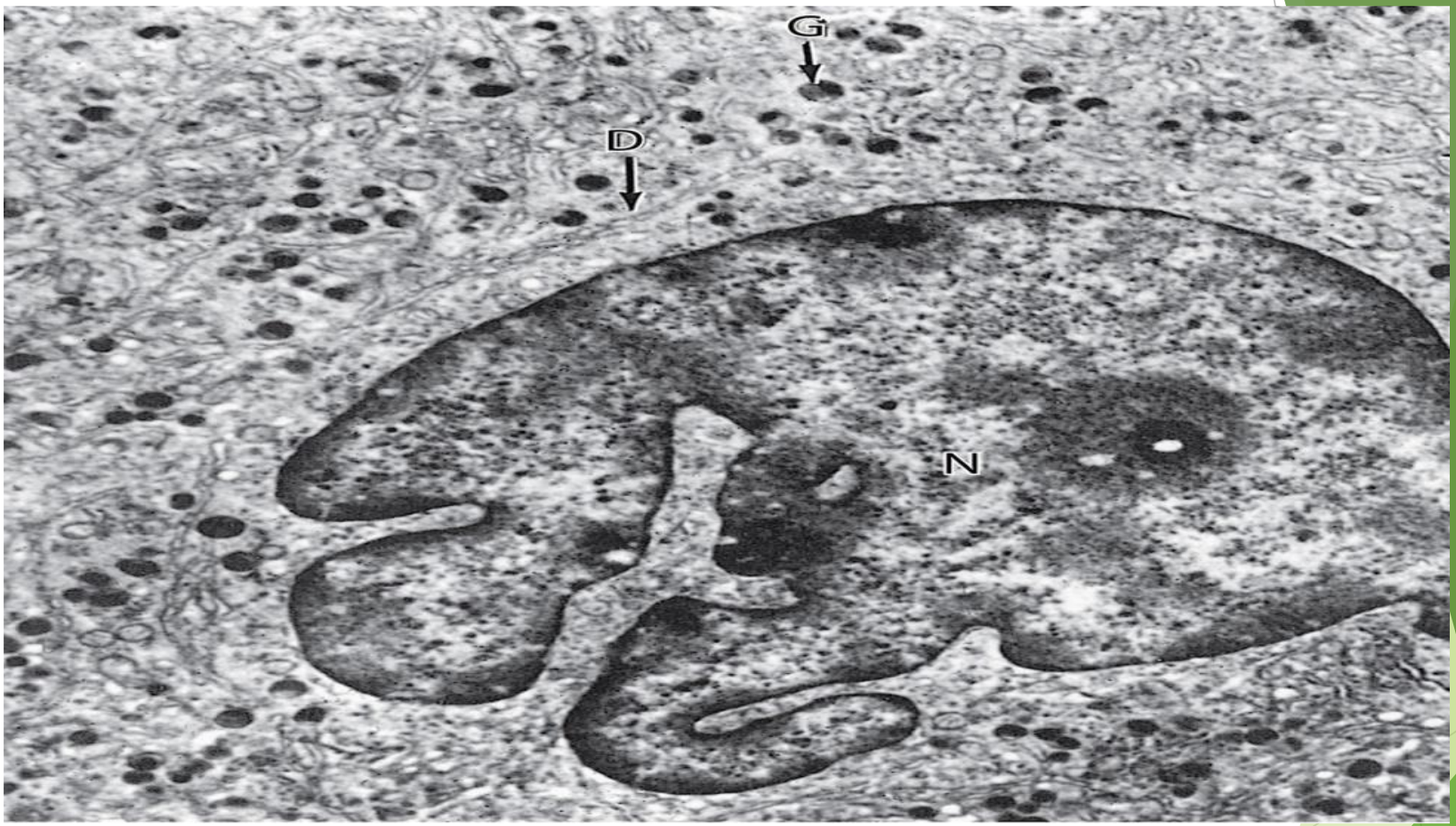


Megakaryopoiesis



(a) Megakaryoblasts (Mb) are very large, with very basophilic cytoplasm.
(b) megakaryocytes (M) larger but with cytoplasm that is less intensely basophilic.
(c) a megakaryocyte (M) is shown near sinusoids (S).

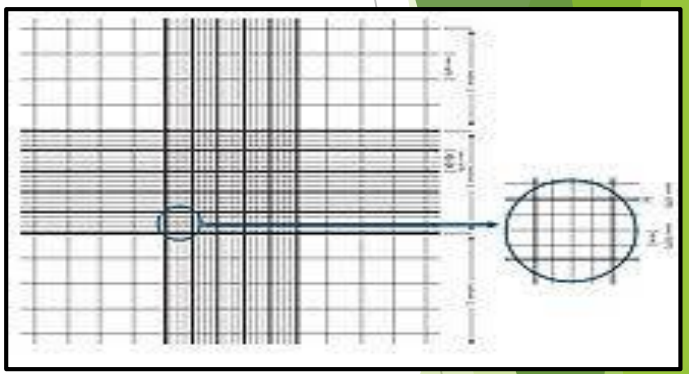
TEM of a megakaryocyte



lobulated nucleus (N),
numerous cytoplasmic granules (G),
demarcation lines (D)

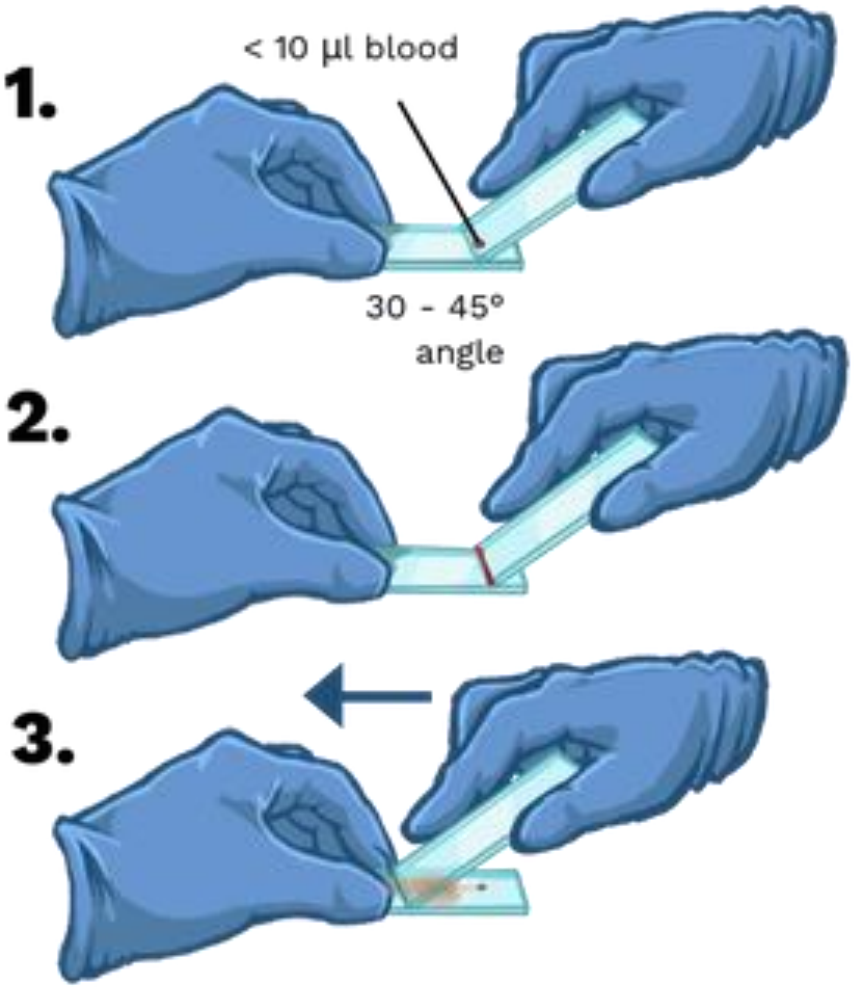
Complete blood count (CBC)

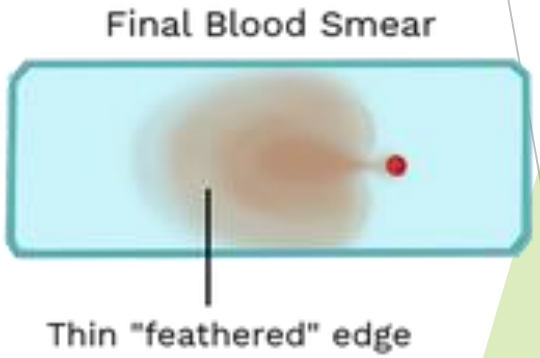
- 1- Total count: It is the total number of blood elements (RBCs, WBCs, or Platelets) per cubic millimeter Measured by
  - Hemocytometer
  - Or Automatic counter



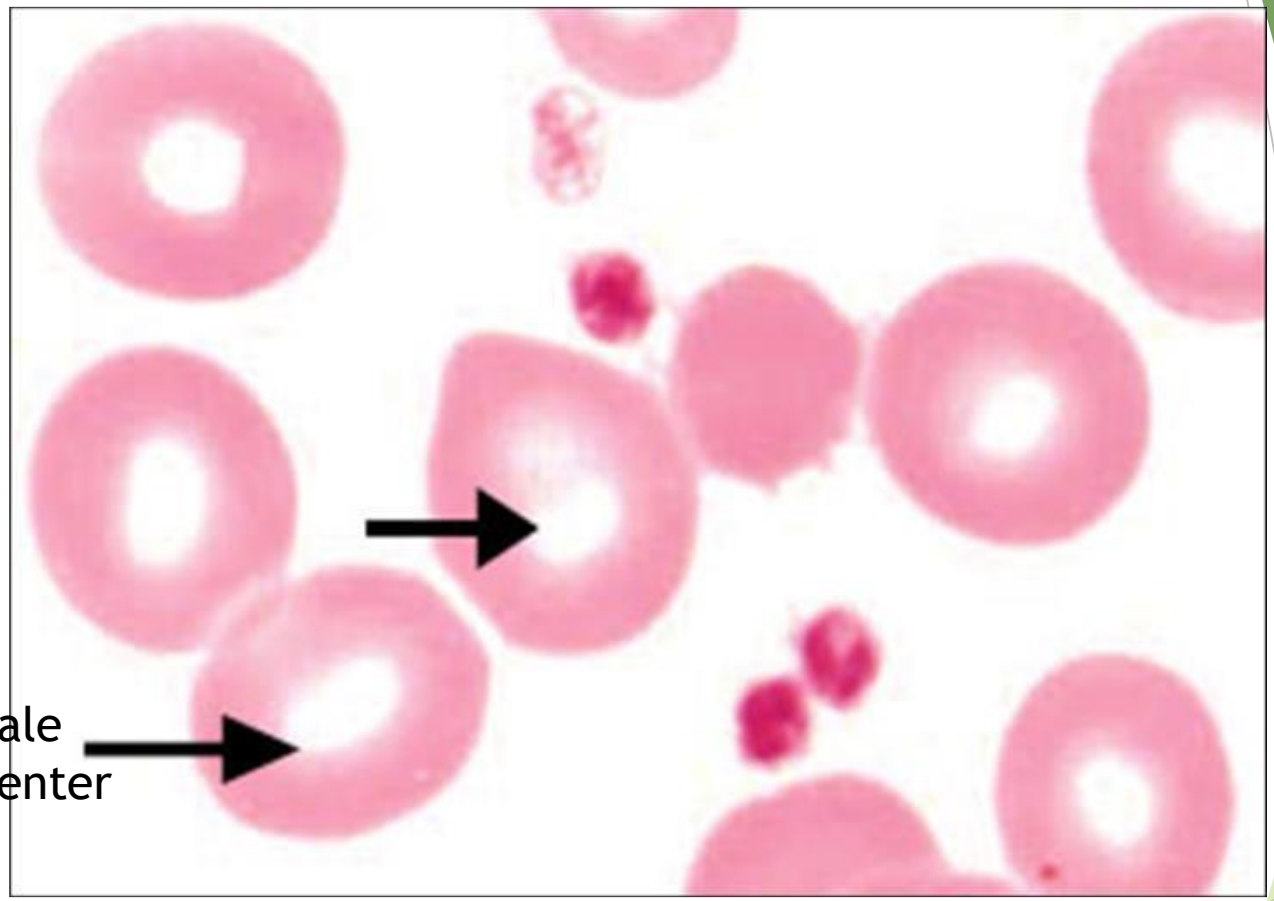
- 2- Differential leukocytic count The percentage of each type of leucocytes to the total count

Blood smear (Leishman stain)



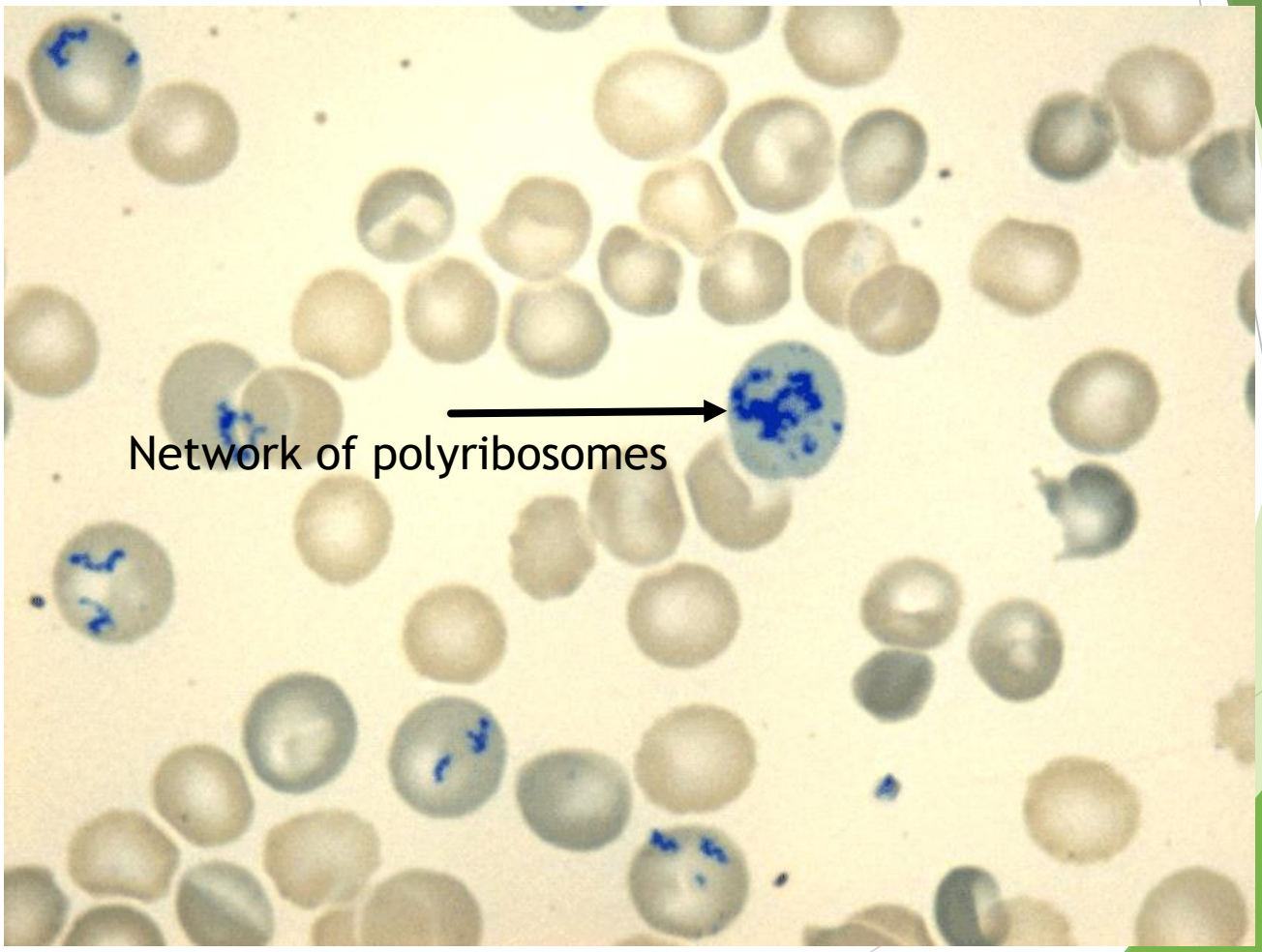


Red Blood Cells (RBCS)

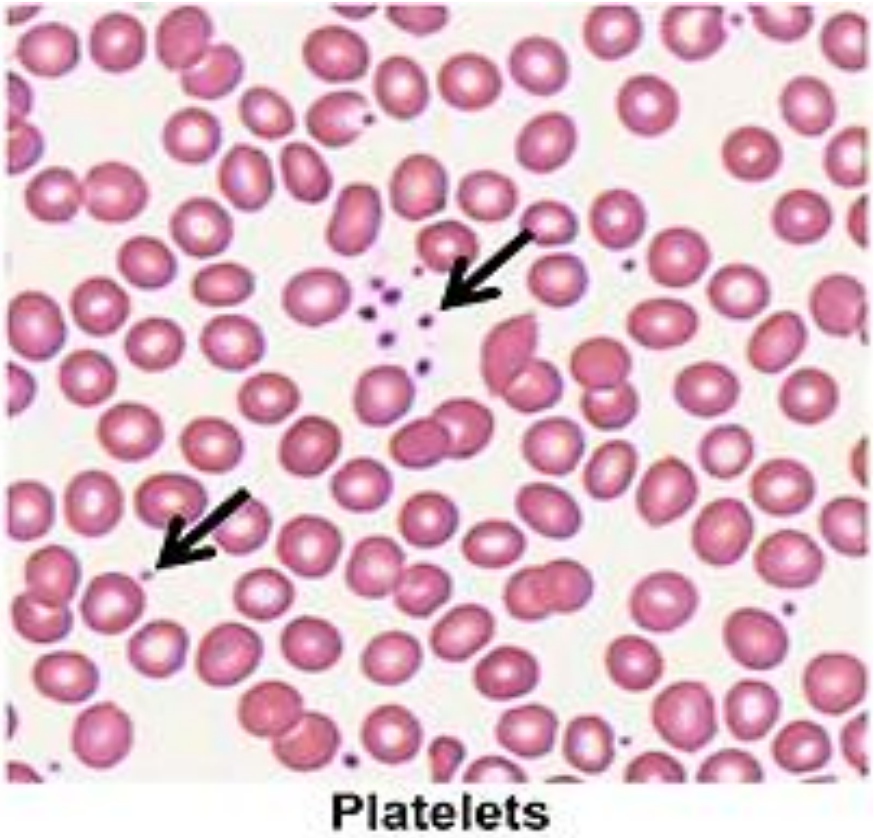


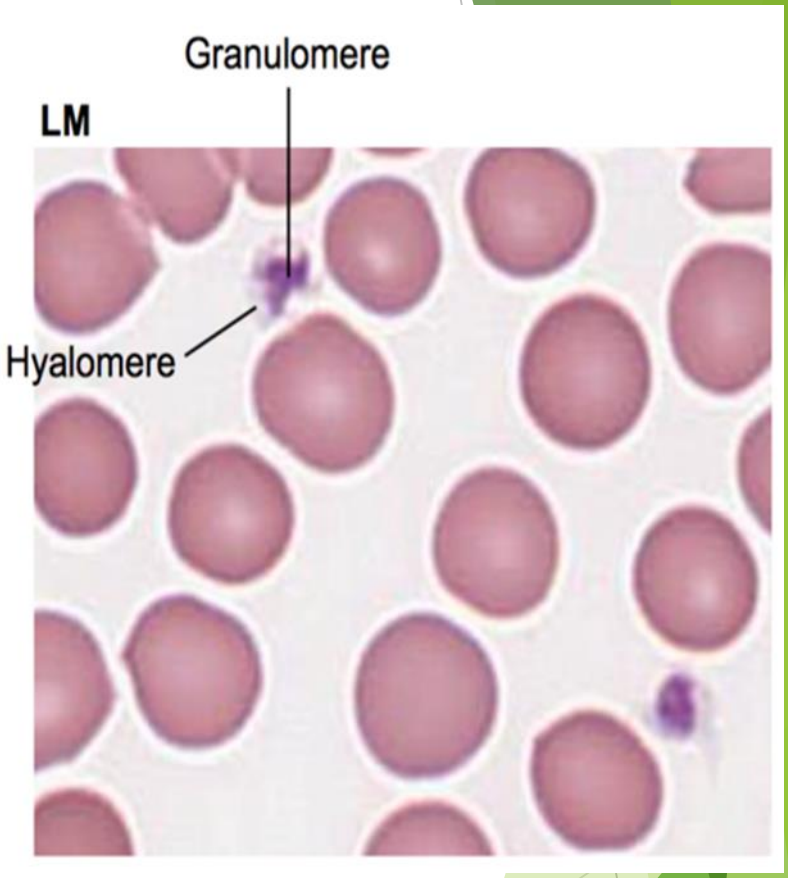
- ***RBCs that display rounded biconcave discs.***

Reticulocyte (brilliant cresyl blue)



Platelets



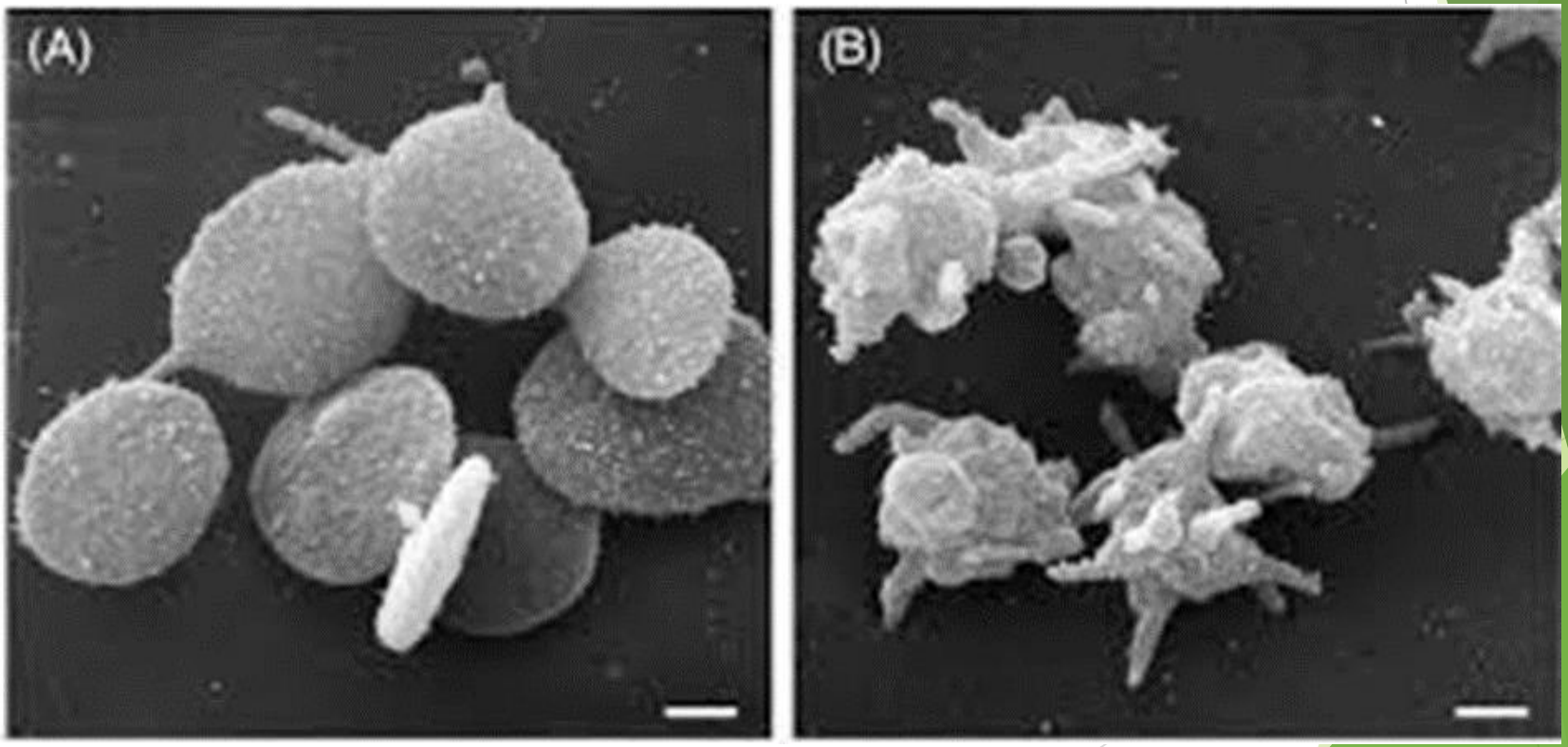


Fragments of cytoplasm

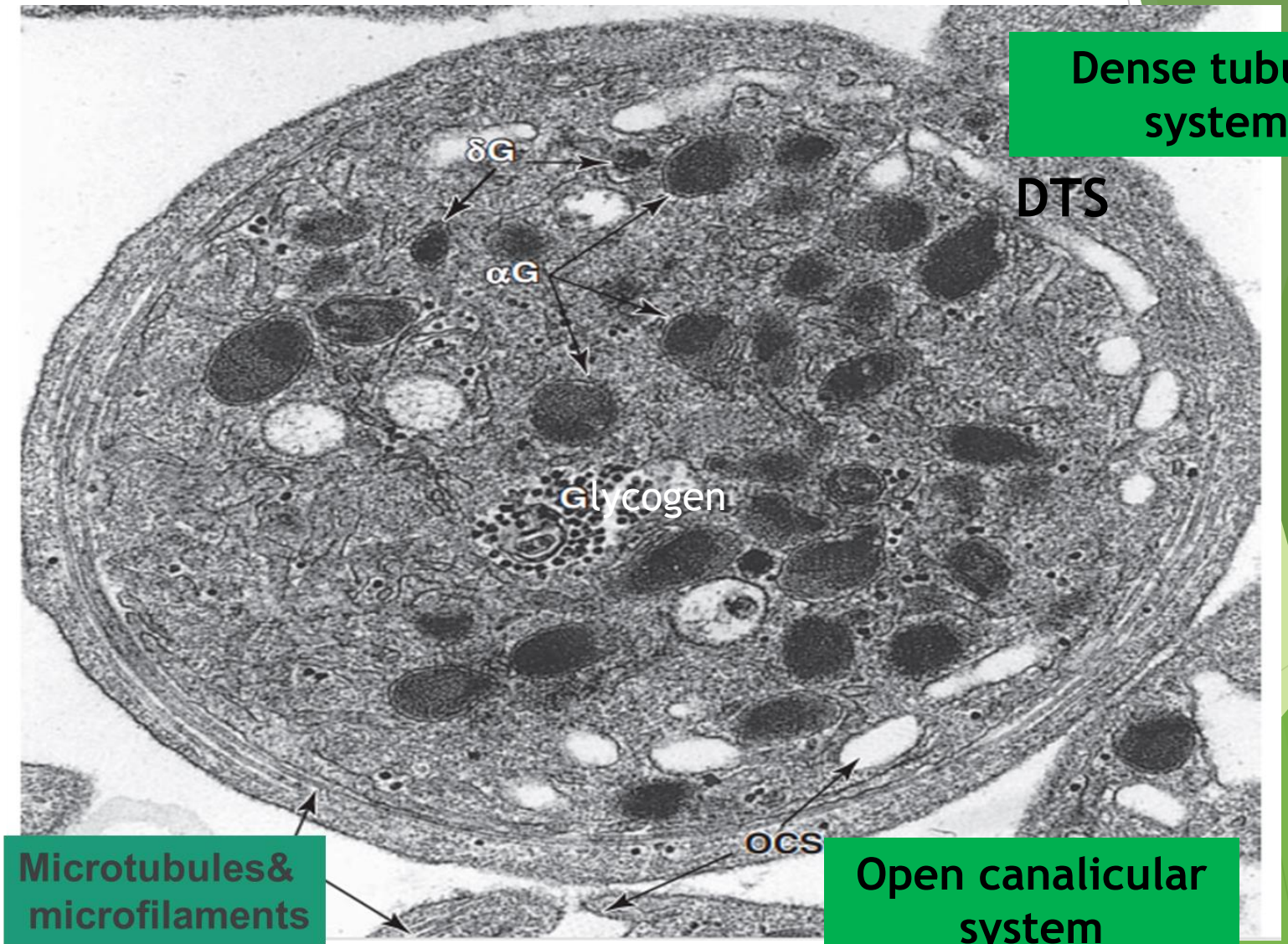
Scaning EM platelets

Discoid shape

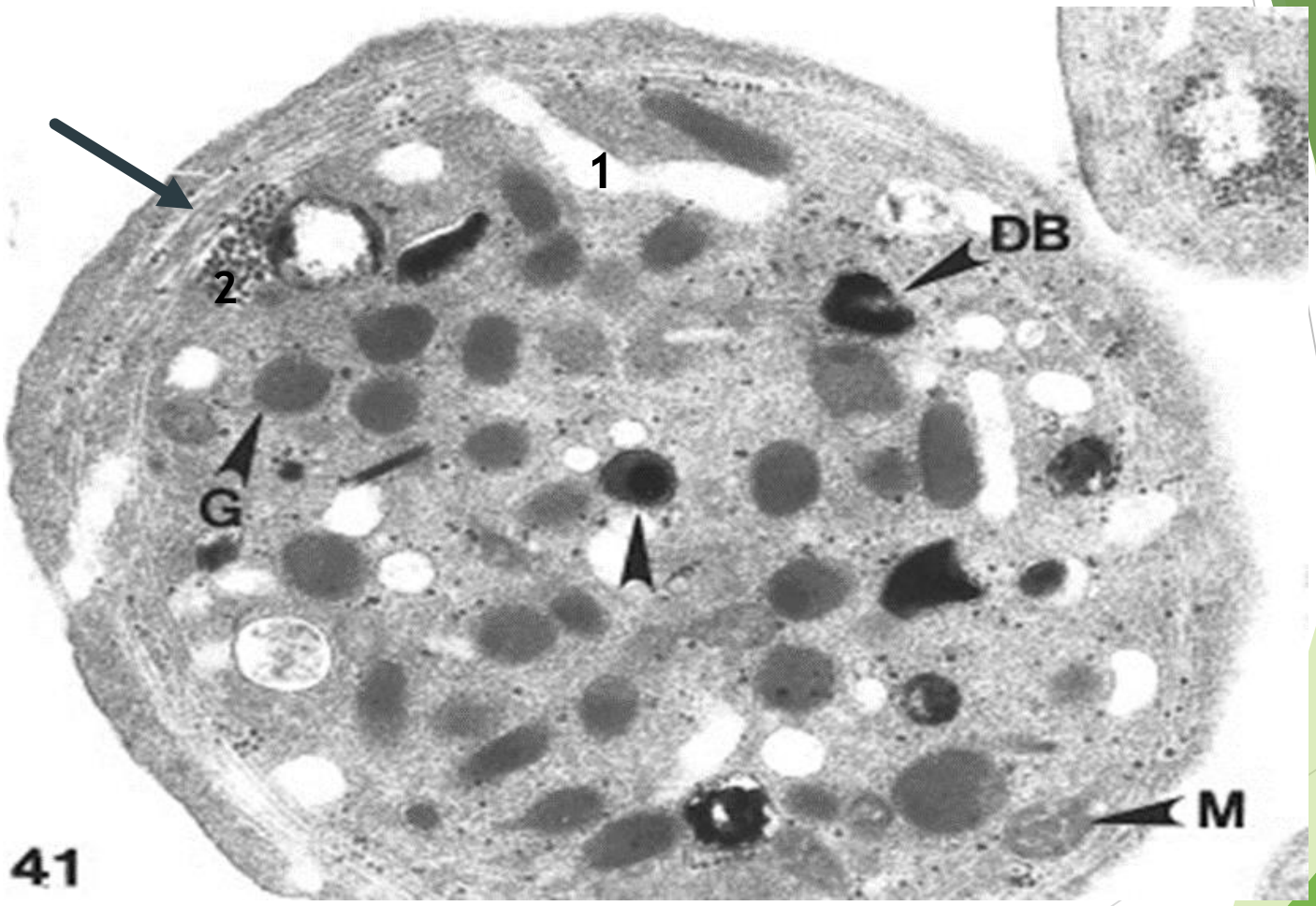
Activated with ruffled membrane



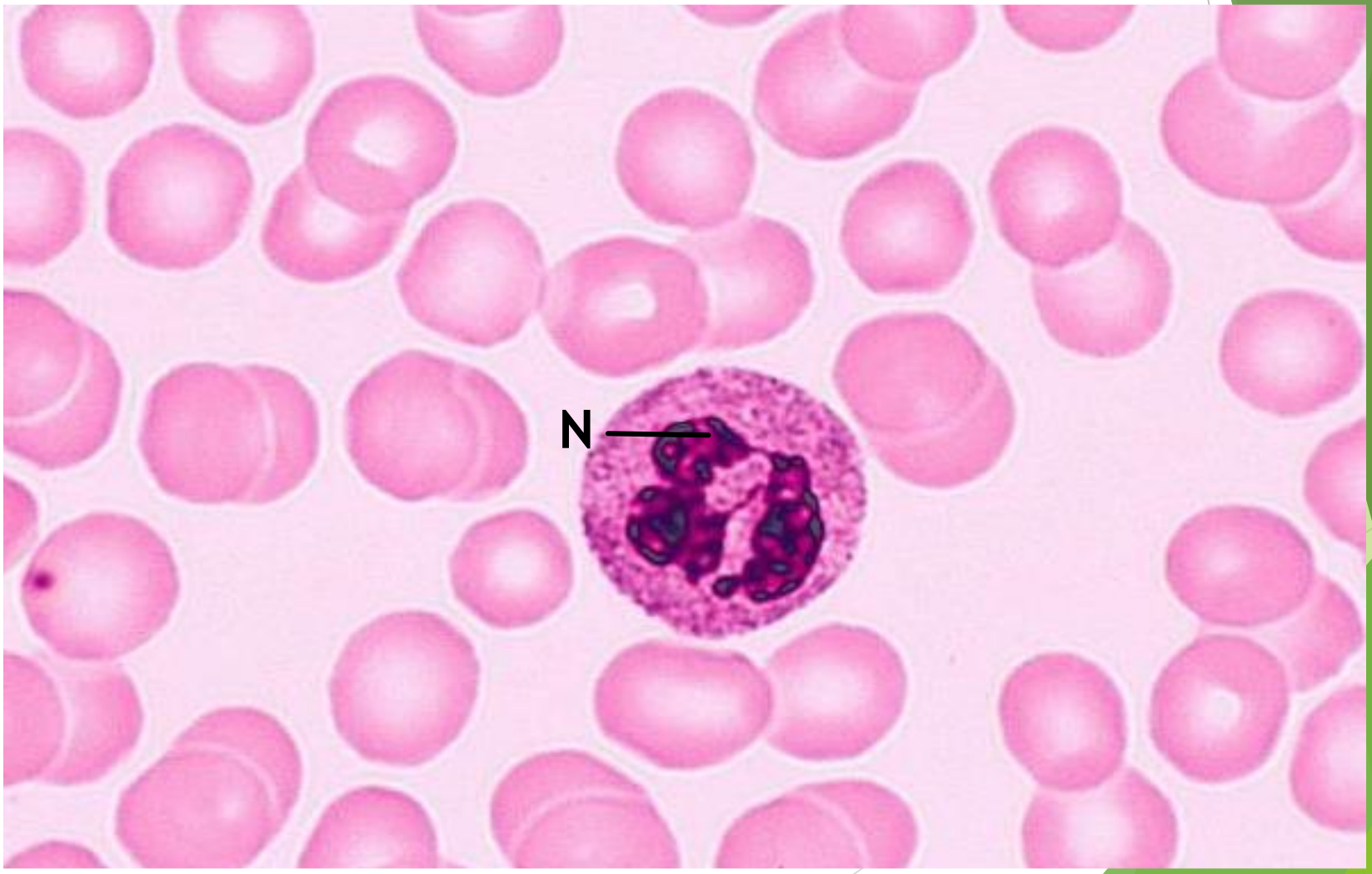
TEM of Platelets



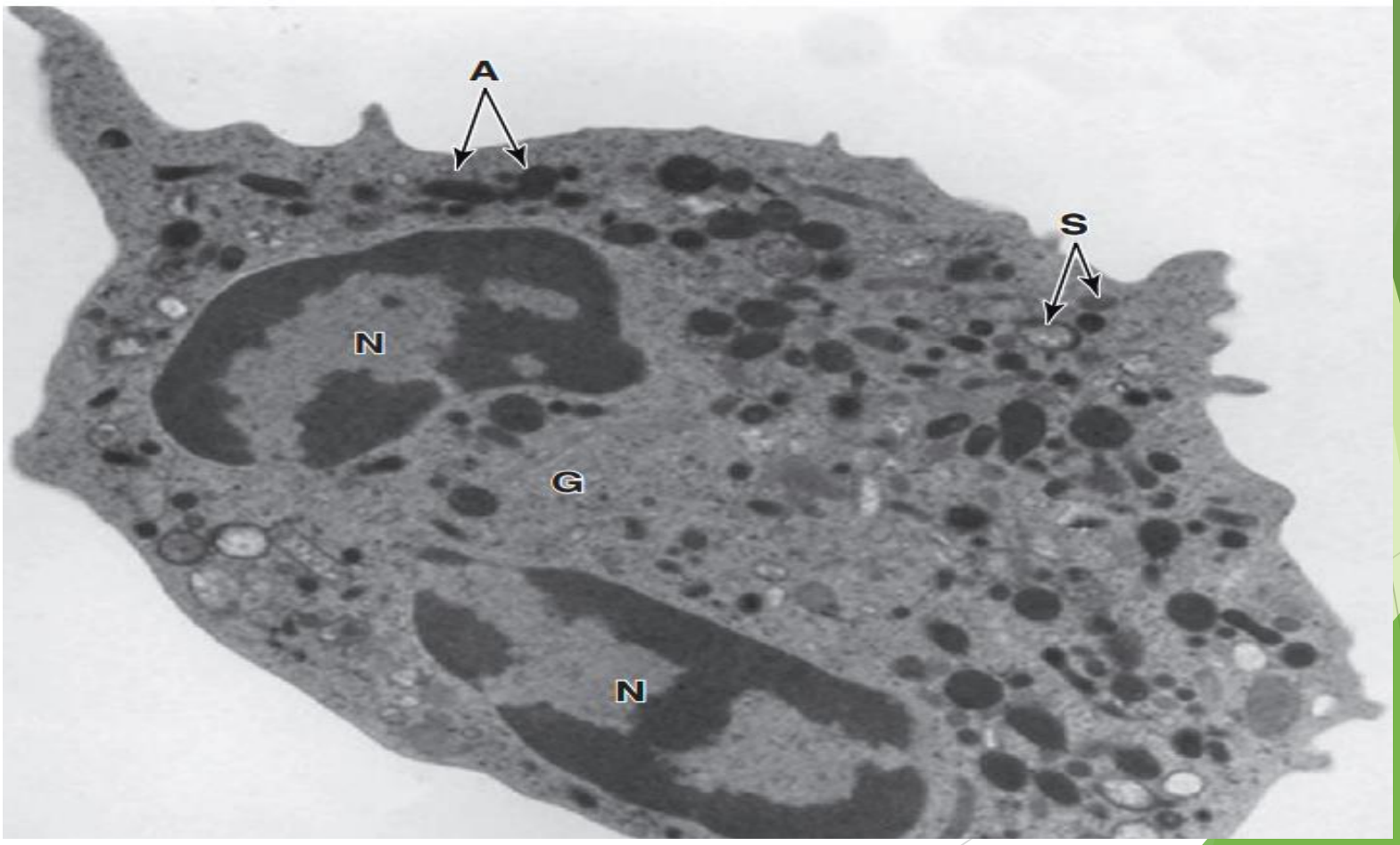
TEM platelets



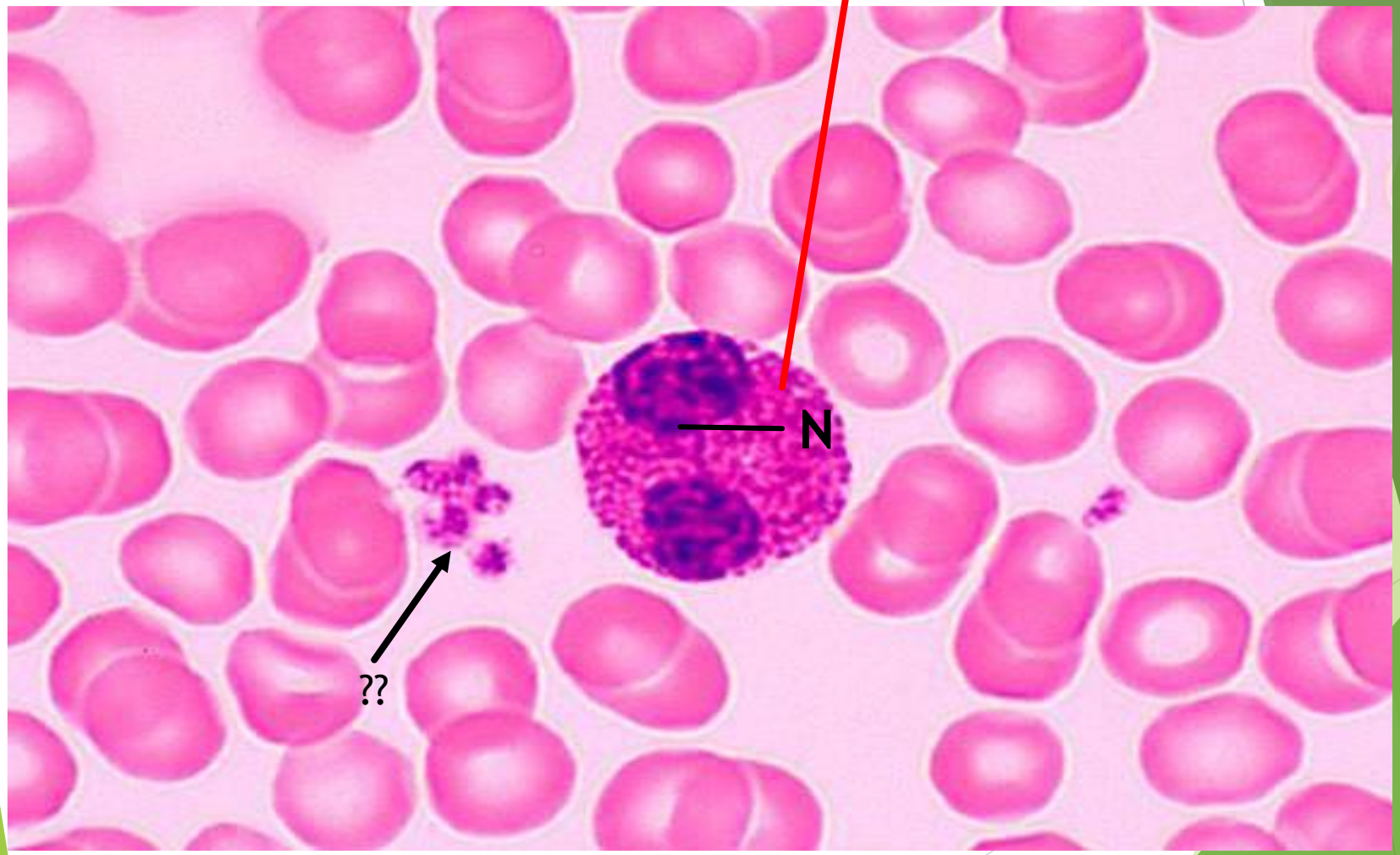
1-**Neutrophils** with **segmented** nucleus (N) and **neutrophilic** granules.



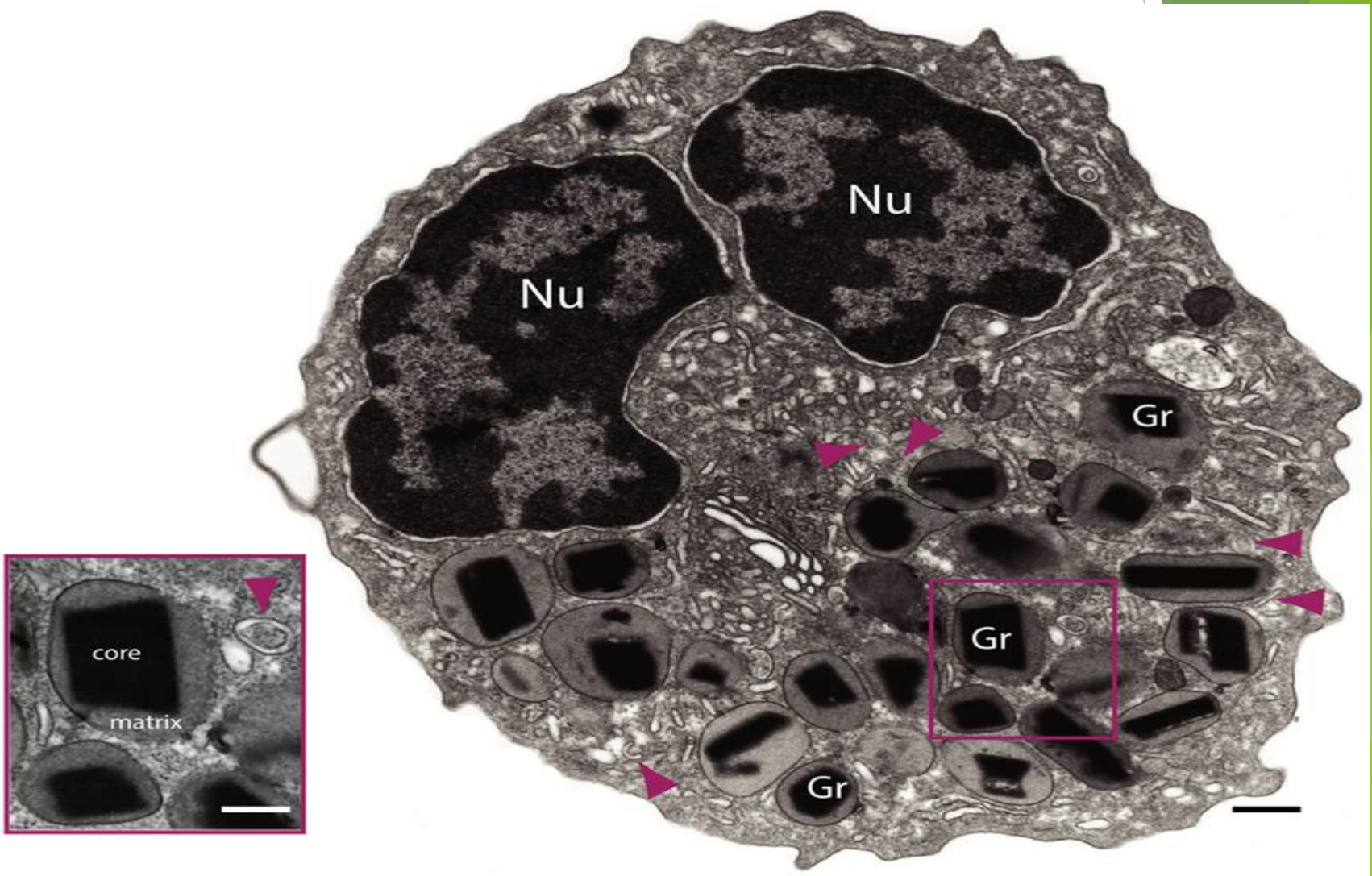
EM Neutrophil reveals the two types of cytoplasmic granules: the small, pale stained specific granules (S) and the larger, electron-dense non specific granules (A).



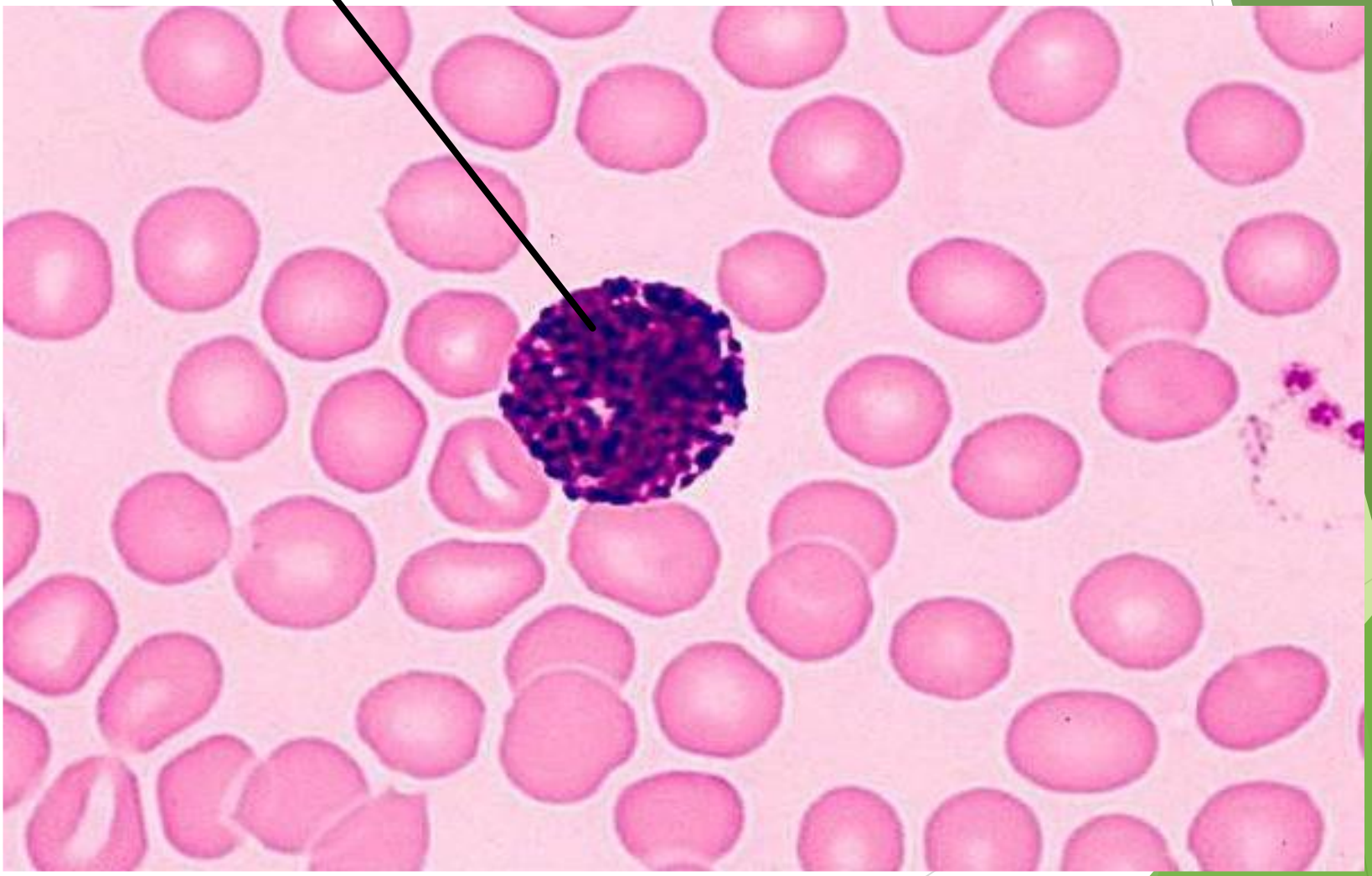
2- **Eosinophils** with **bilobed** nucleus (N) and **eosinophilic** granules.



E.M : Eosinophils with bilobed nucleus (Nu) Large elongated specific granules with central crystalline dense core (Gr)

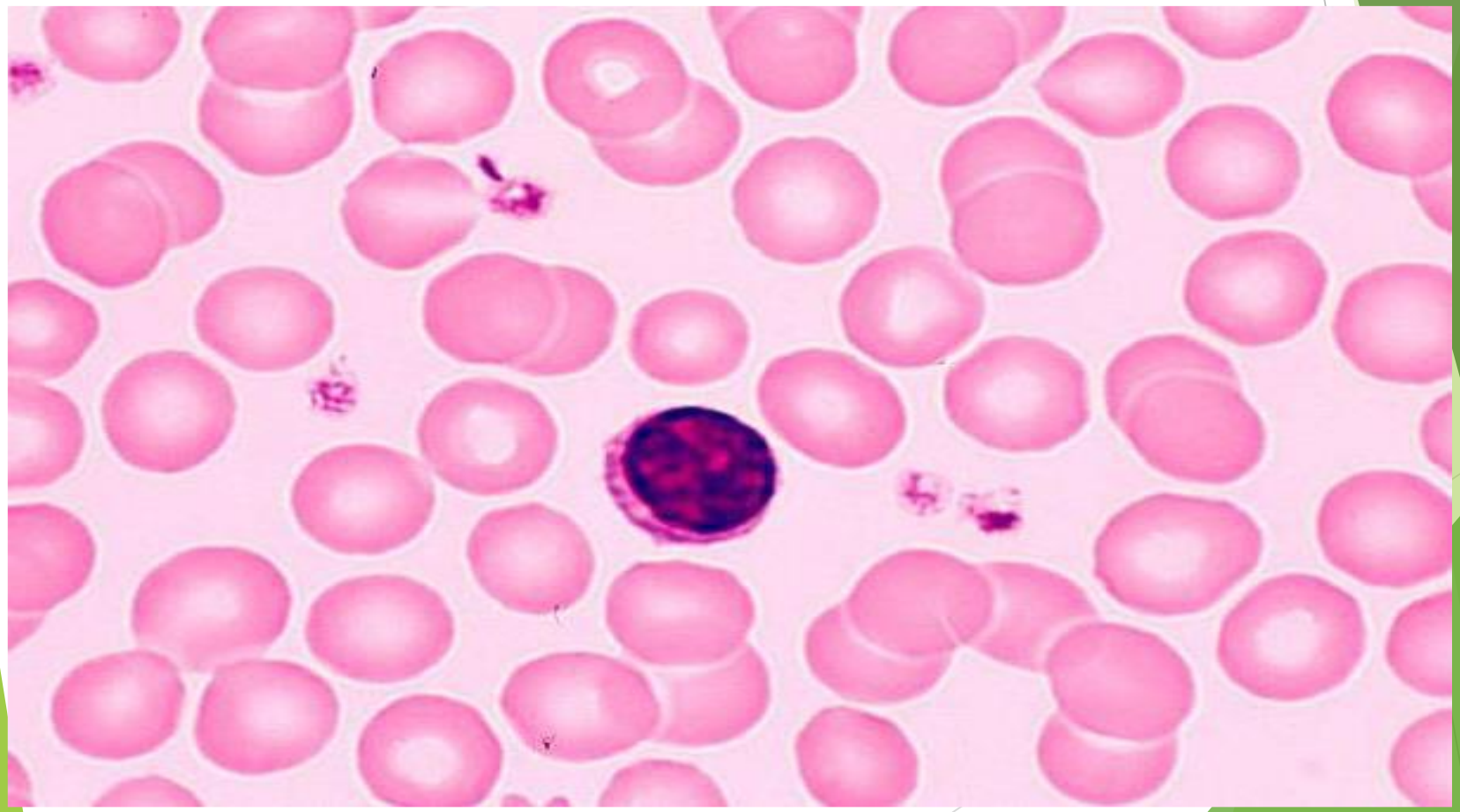


3- **Basophils** with **basophilic** granules.

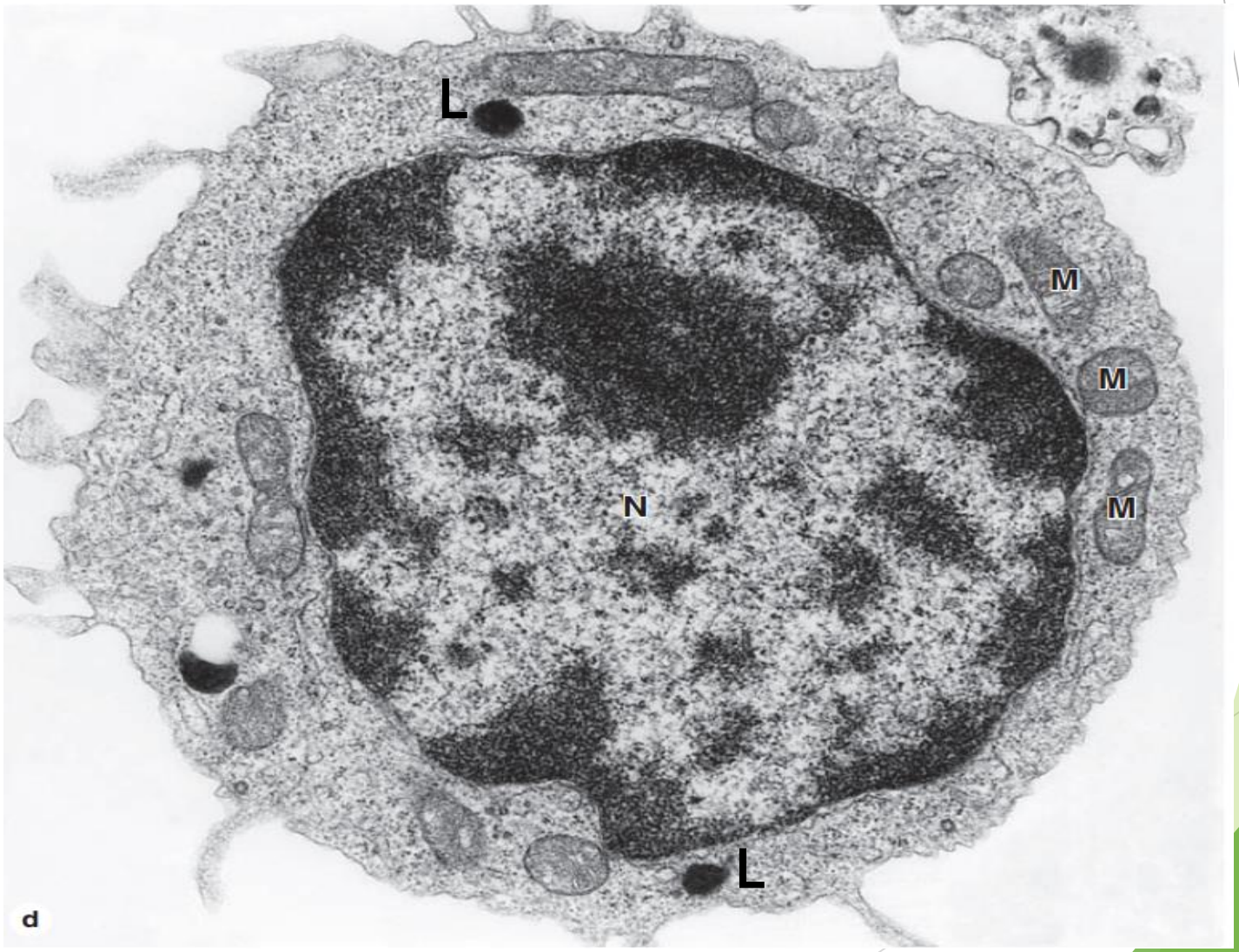


Agranulocytes

1- **Lymphocytes:** with **large** nucleus and basophilic thin rim of cytoplasm.

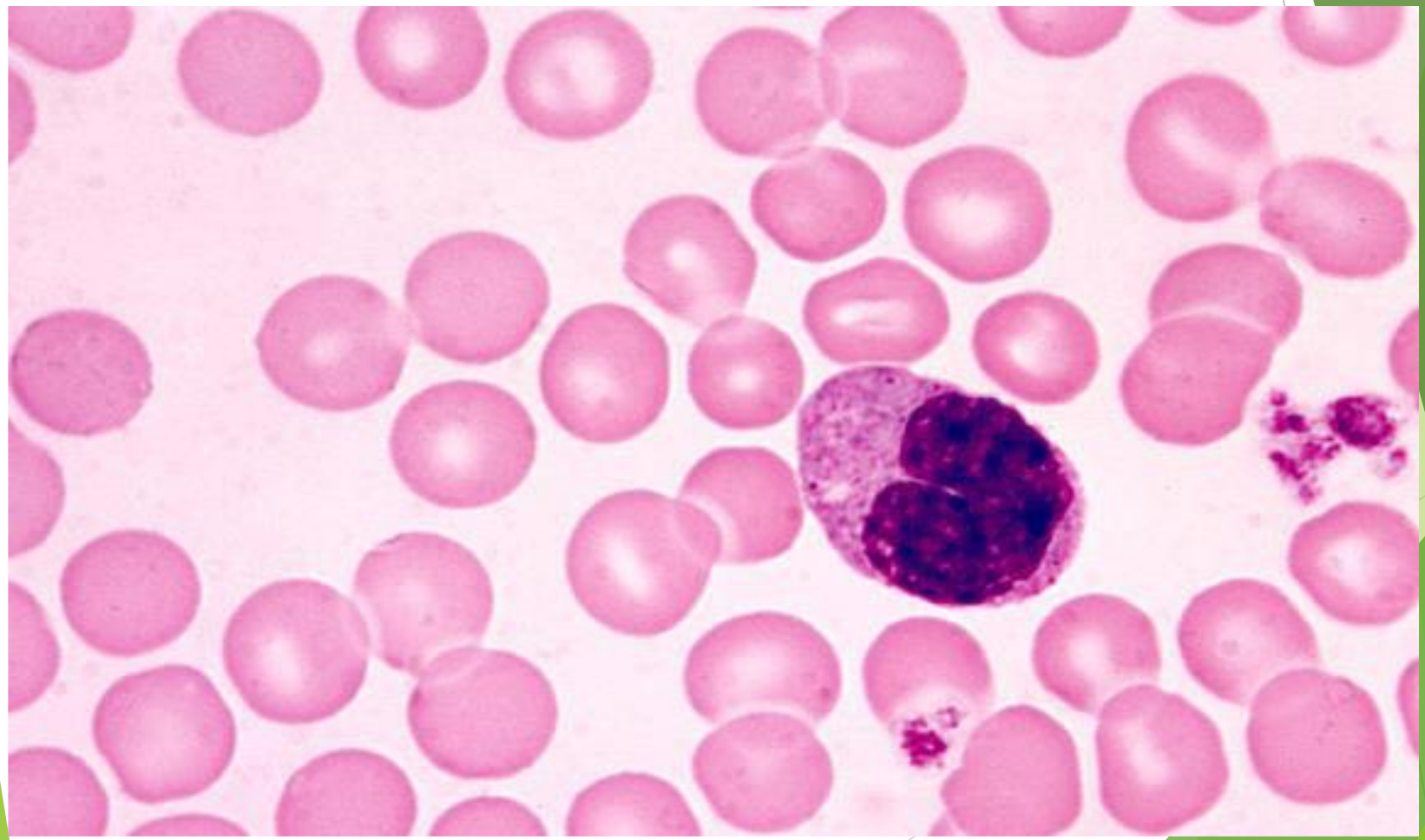


EM lymphocytes is seen to be mostly filled with euchromatic nucleus (N) surrounded by cytoplasm containing mitochondria (M), and lysosomes (L)

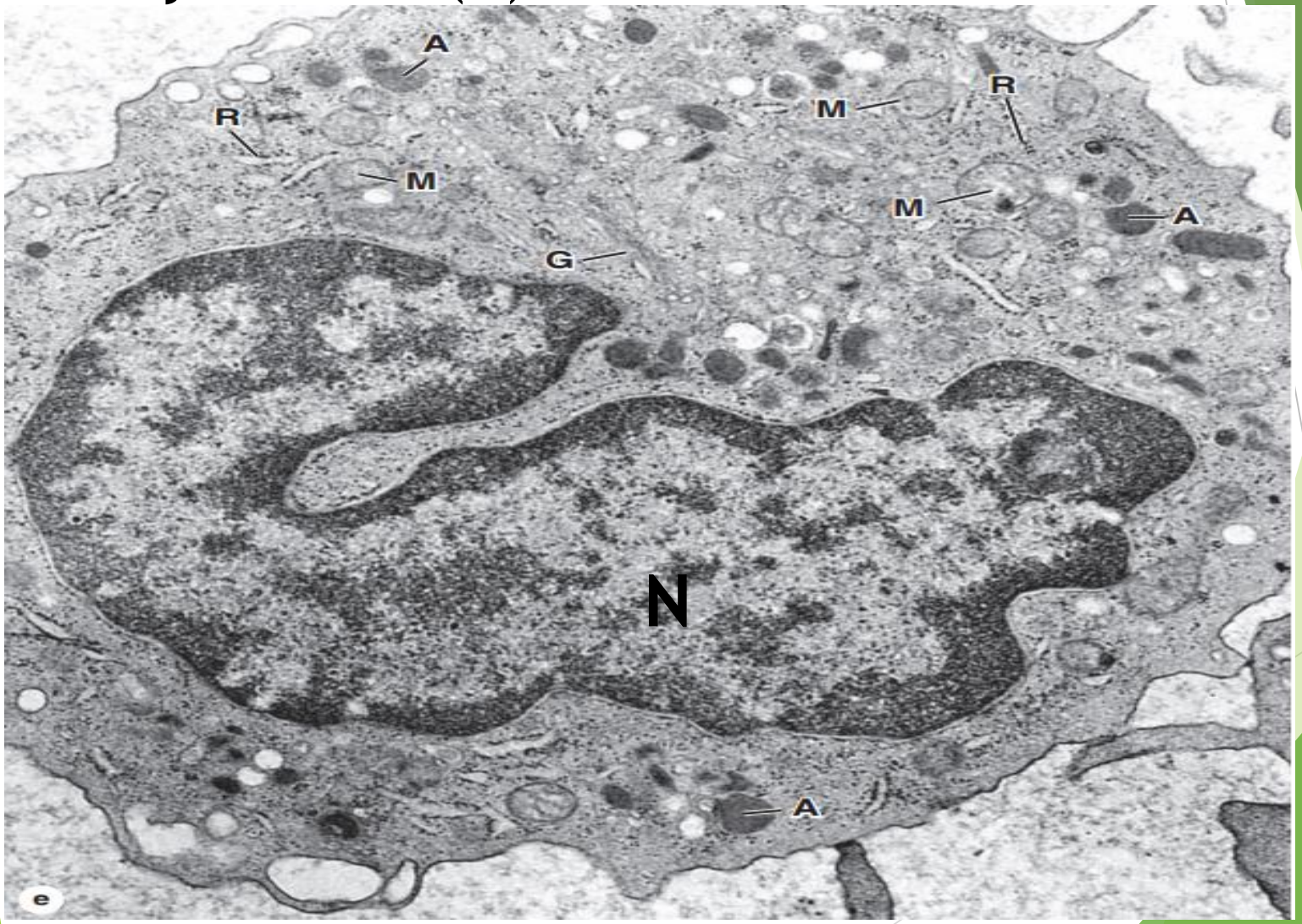


Agranulocytes

2- **Monocytes:** with **kidney-shaped** eccentric nucleus and pale basophilic cytoplasm.



EM monocyte shows kidney shaped nucleus (N) Golgi apparatus (G), mitochondria (M), and lysosomes (A)



GOOD LUCK
&
THANK YOU