Warning

- please, do not manipulate the microscope,
- they are prepared for your study of blood smears after presentation,
- you will get instructions, how to study blood smears.

DEPARTMENT OF HISTOLOGY AND EMBRYOLOGY
FACULTY OF MEDICINE - MASARYK UNIVERSITY

BLOOD, HEMATOPOIESIS

- Composition of blood.
- Blood corpuscles.
- Development of blood /hematopoiesis/.

Blood

hematocrit

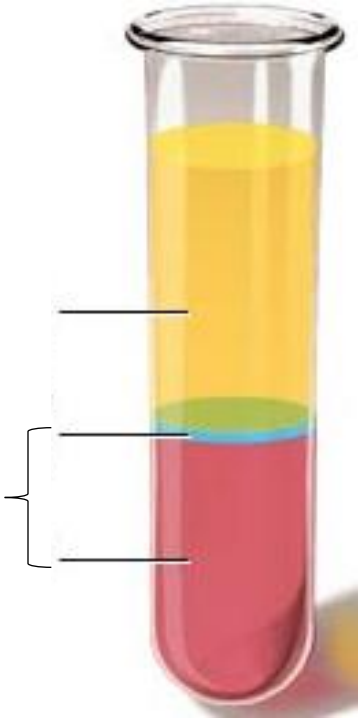
♂ 42 – 52 %

♀ 37 – 47 %

55 % plasma

- 90 % H_2O
- 7 % plasma proteins
- 3 % -AAs, saccharids, lipids
  - -hormones
  - -electrolytes

45 % blood corpuscles



BLOOD CORPUSCLES

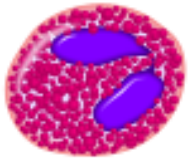
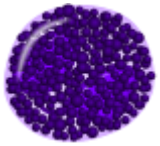
ERYTHROCYTES  7,2 - 7,6 μm

3.5-5.5 million/μl

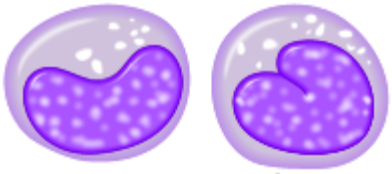
LEUKOCYTES

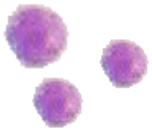
4.500-11.000/μl

GRANULOCYTES (polymorphonuclears)

- neutrophilic  10 - 12 μm
- eosinophilic  12 - 12 μm
- basophilic  8 - 10 μm

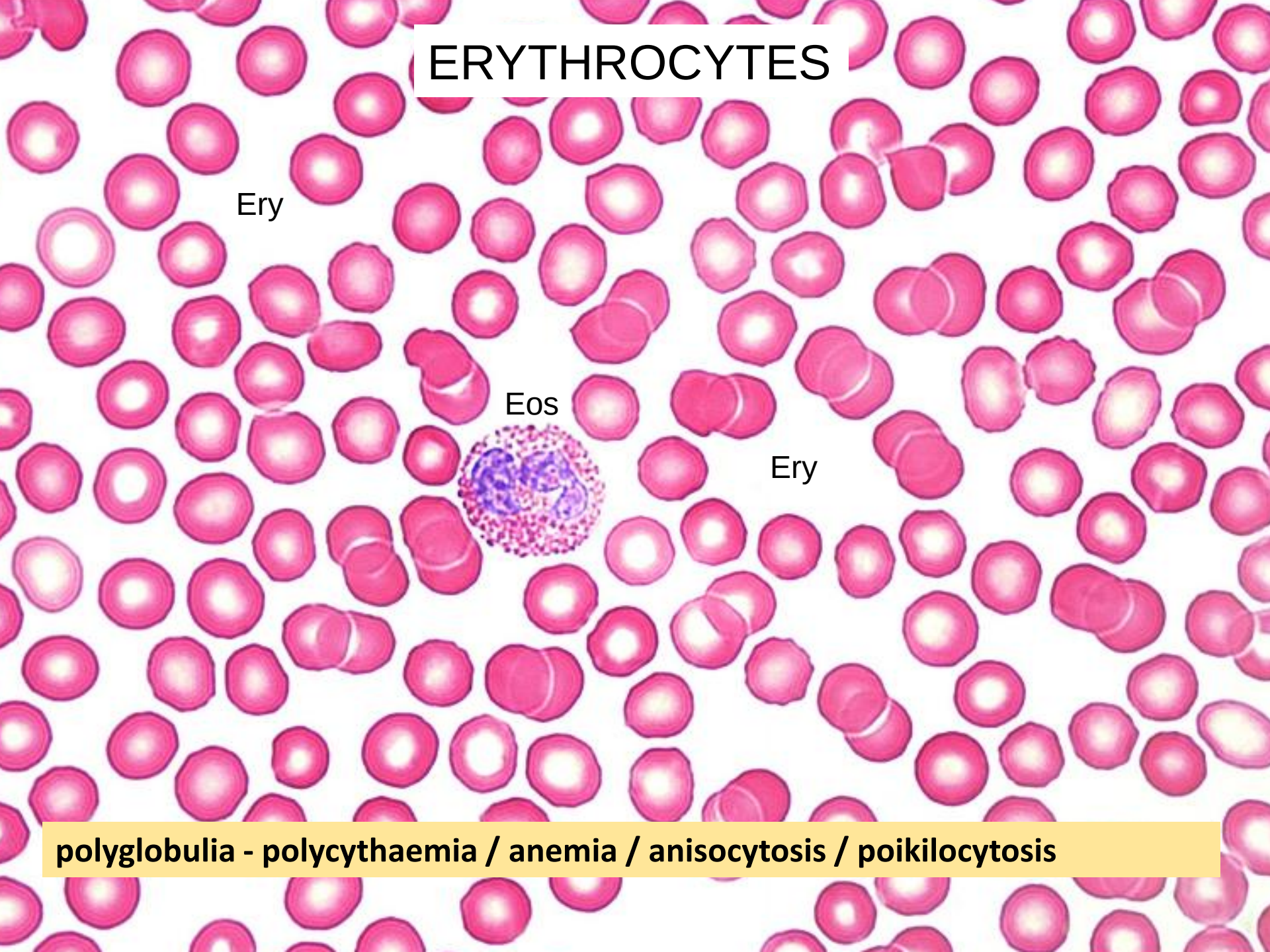
AGRANULOCYTES (mononuclears)

- lymphocytes  6 - 8 / 10 -12 μm
- monocytes  12-20 μm

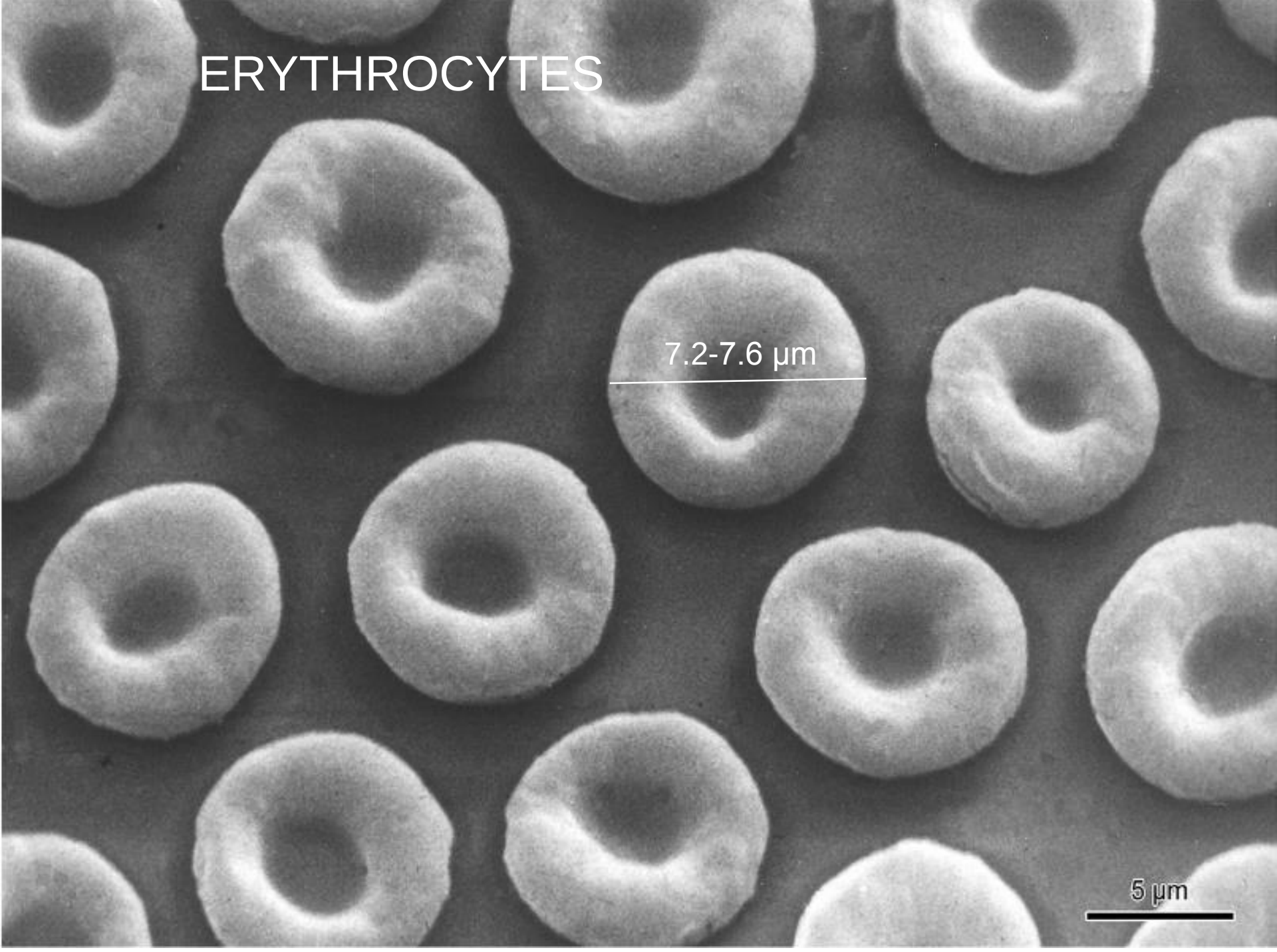
THROMBOCYTES  2 – 4 μm

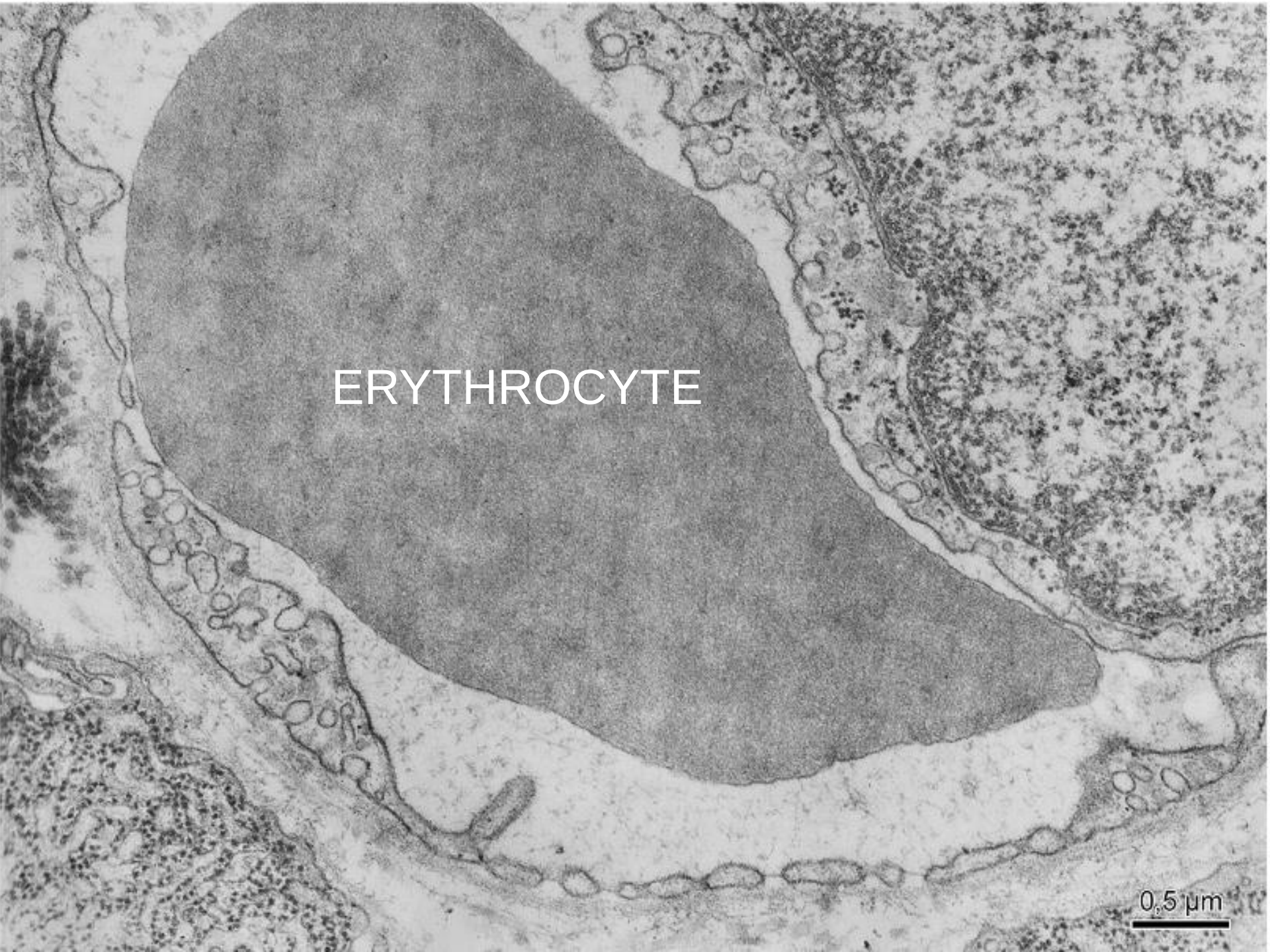
150.000-400.000/μl

ERYTHROCYTES

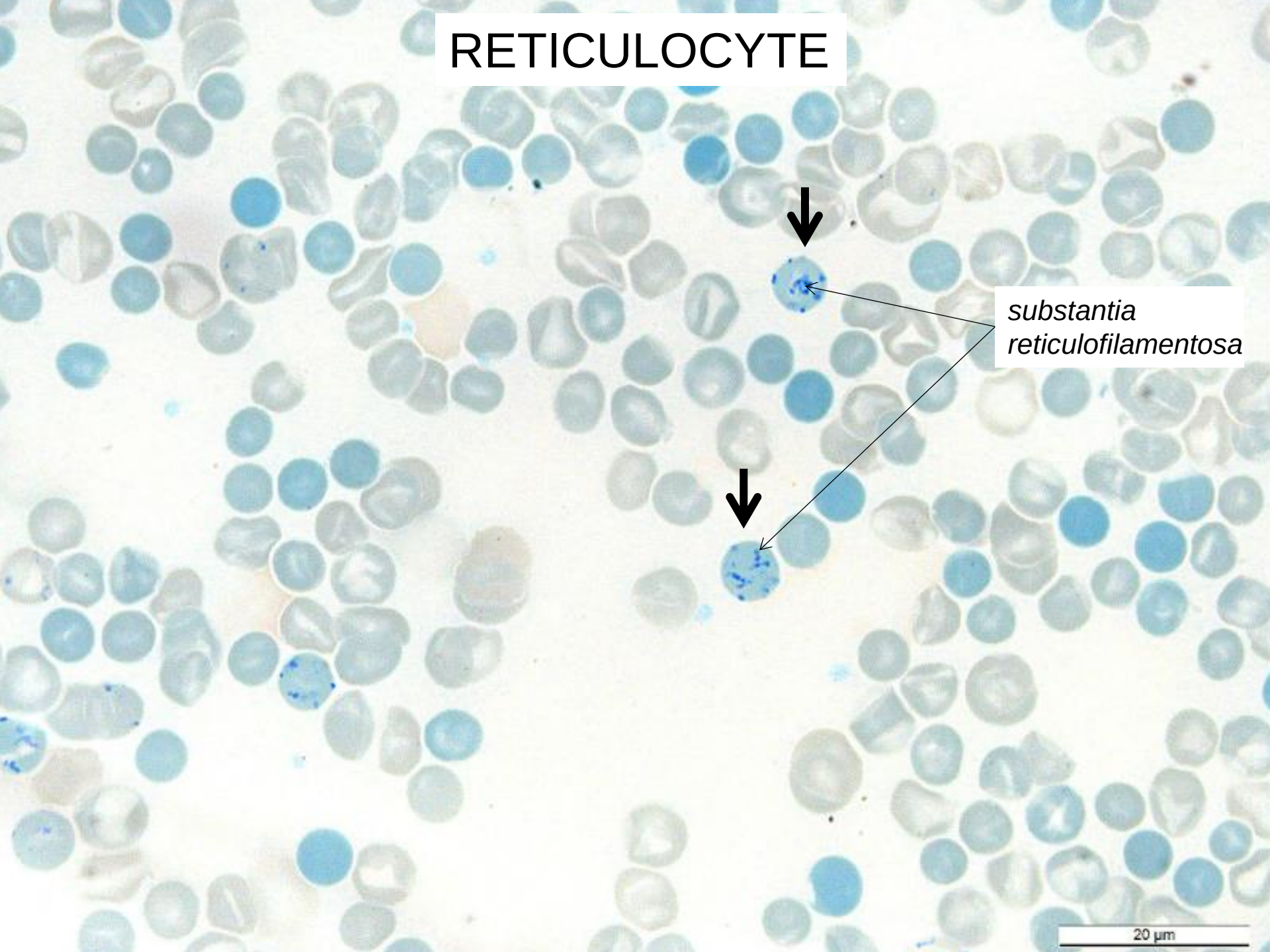


polyglobulia - polycythaemia / anemia / anisocytosis / poikilocytosis

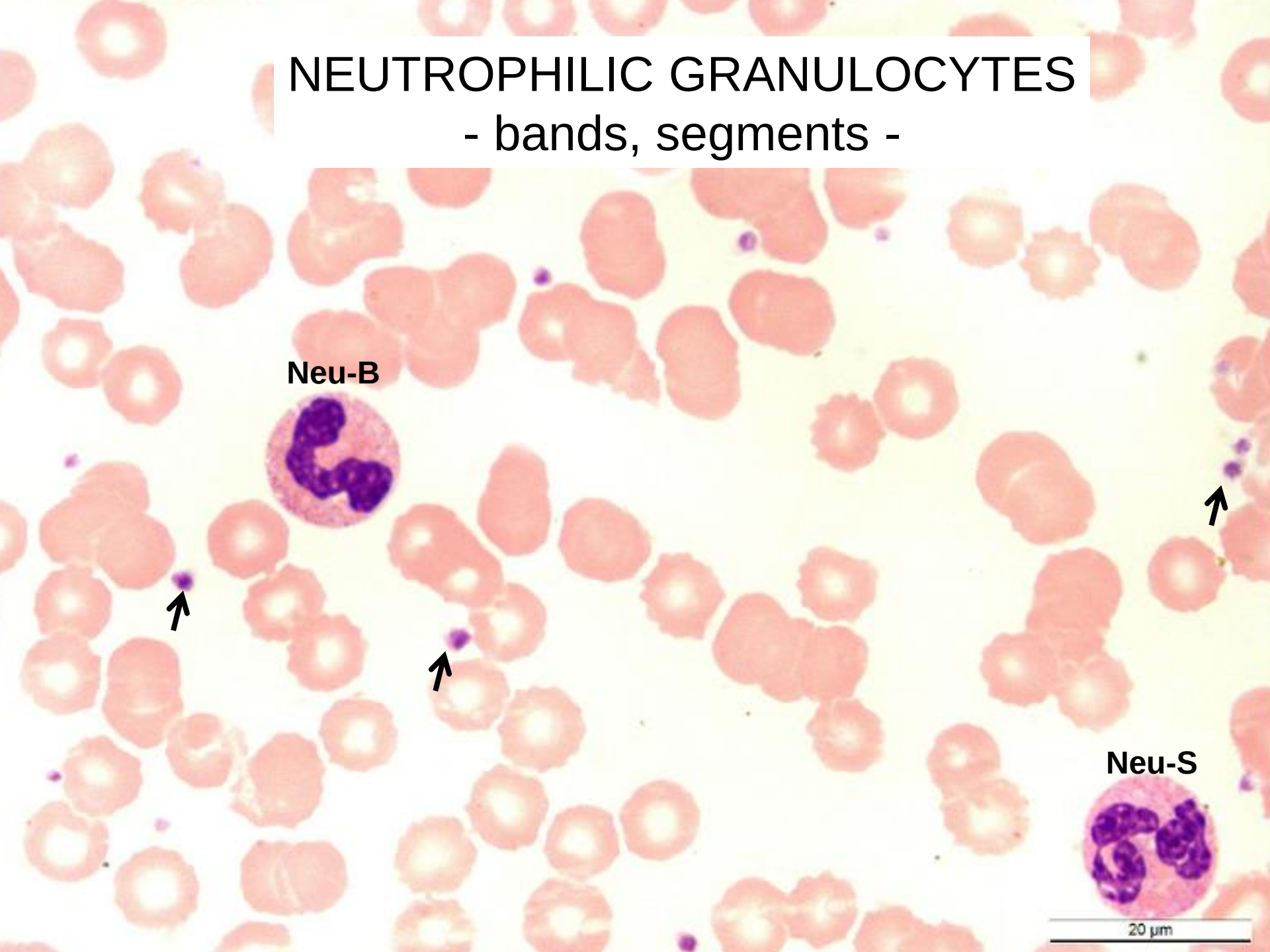

ERYTHROCYTES
7.2-7.6 µm
5 µm


ERYTHROCYTE
0,5 µm

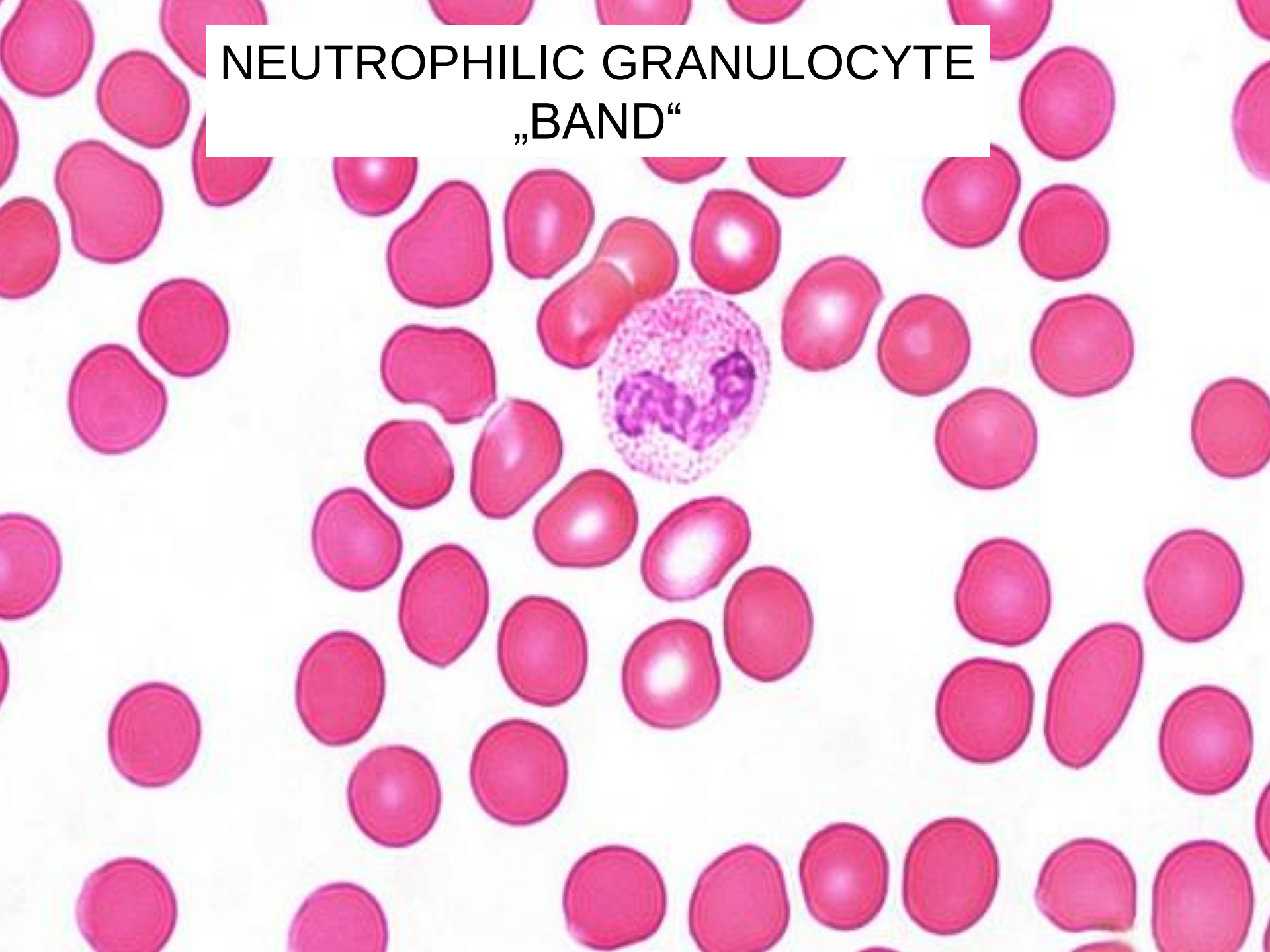
RETICULOCYTE

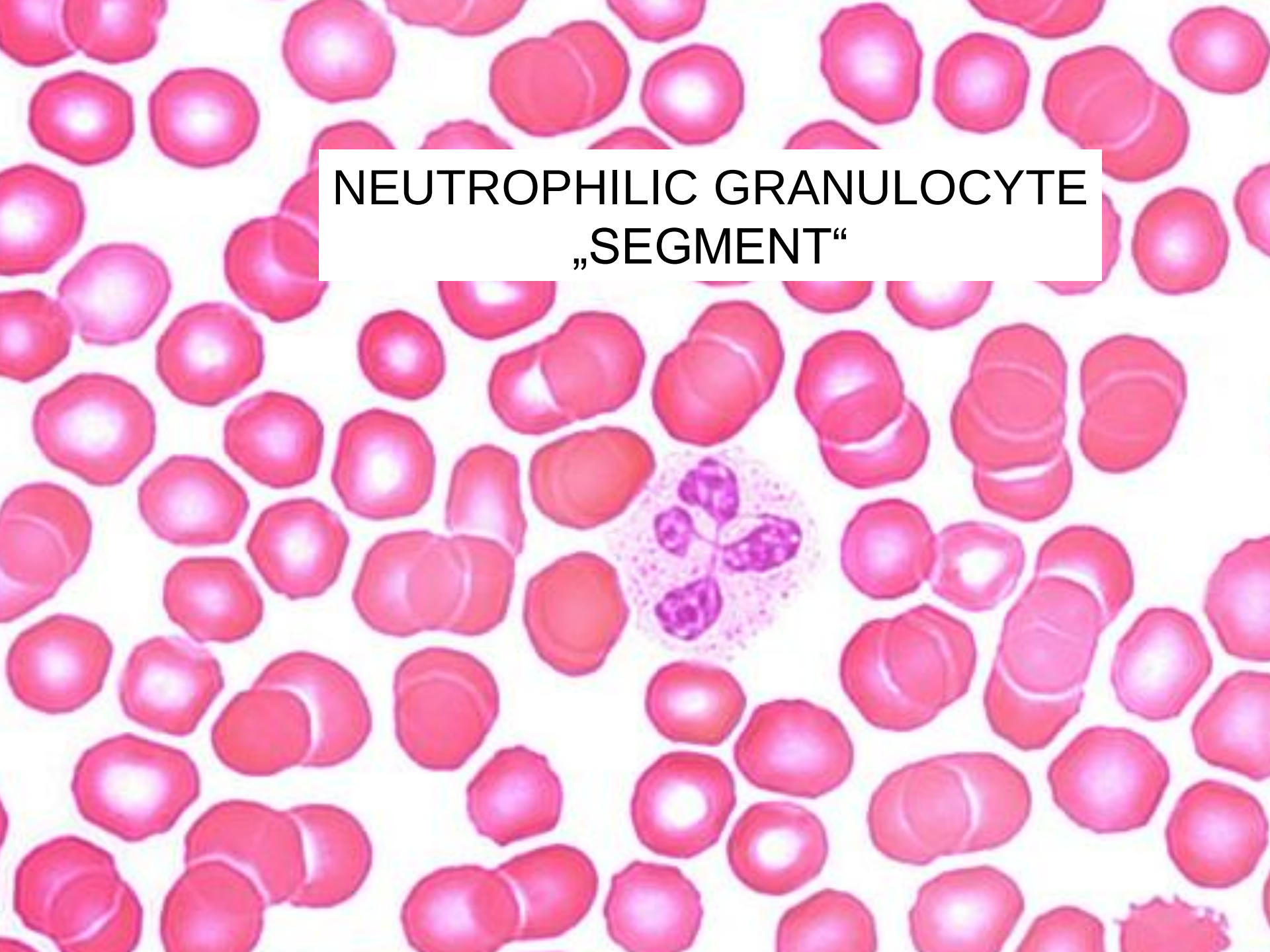


NEUTROPHILIC GRANULOCYTES
- bands, segments -

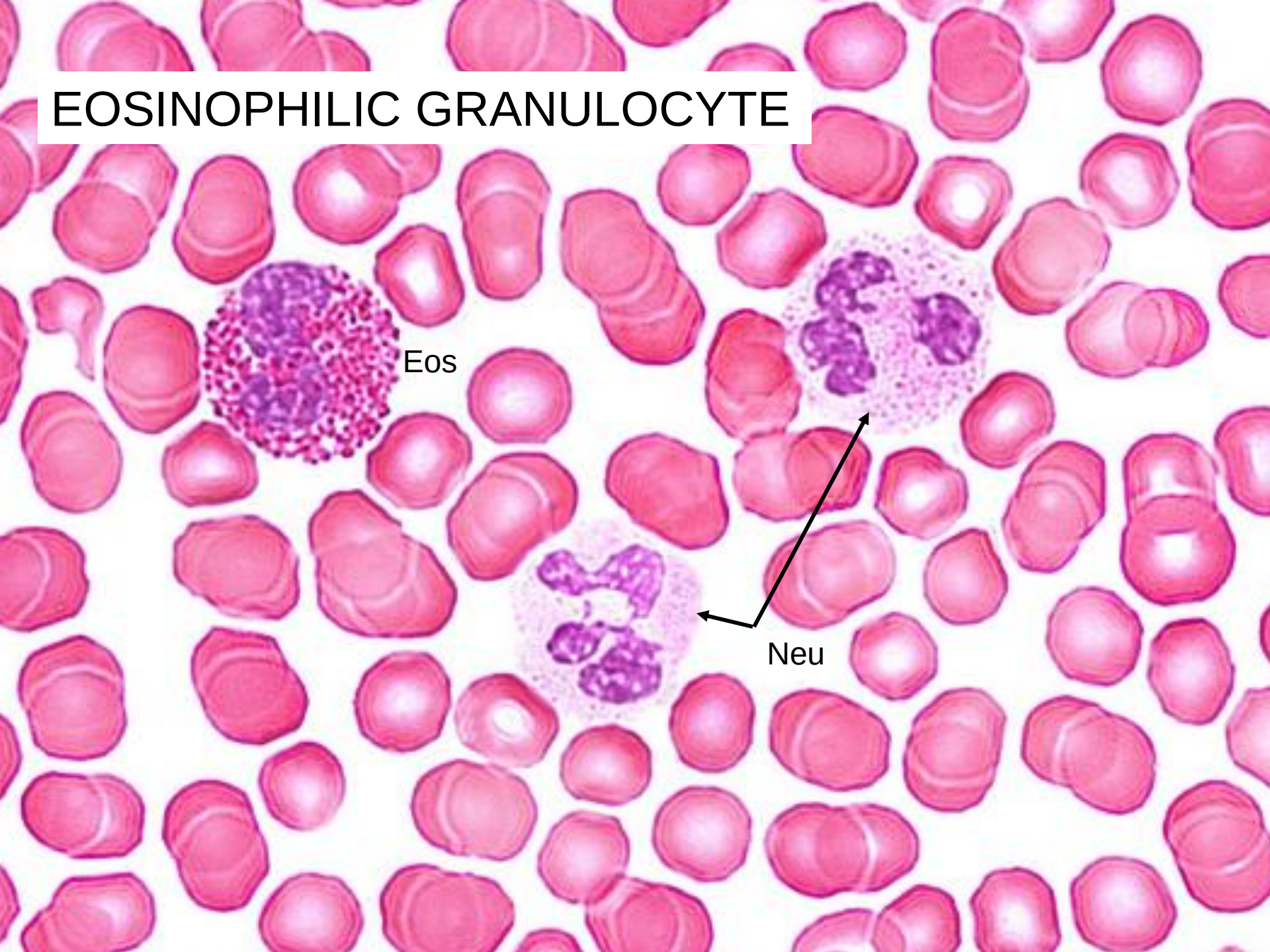


NEUTROPHILIC GRANULOCYTE „BAND“

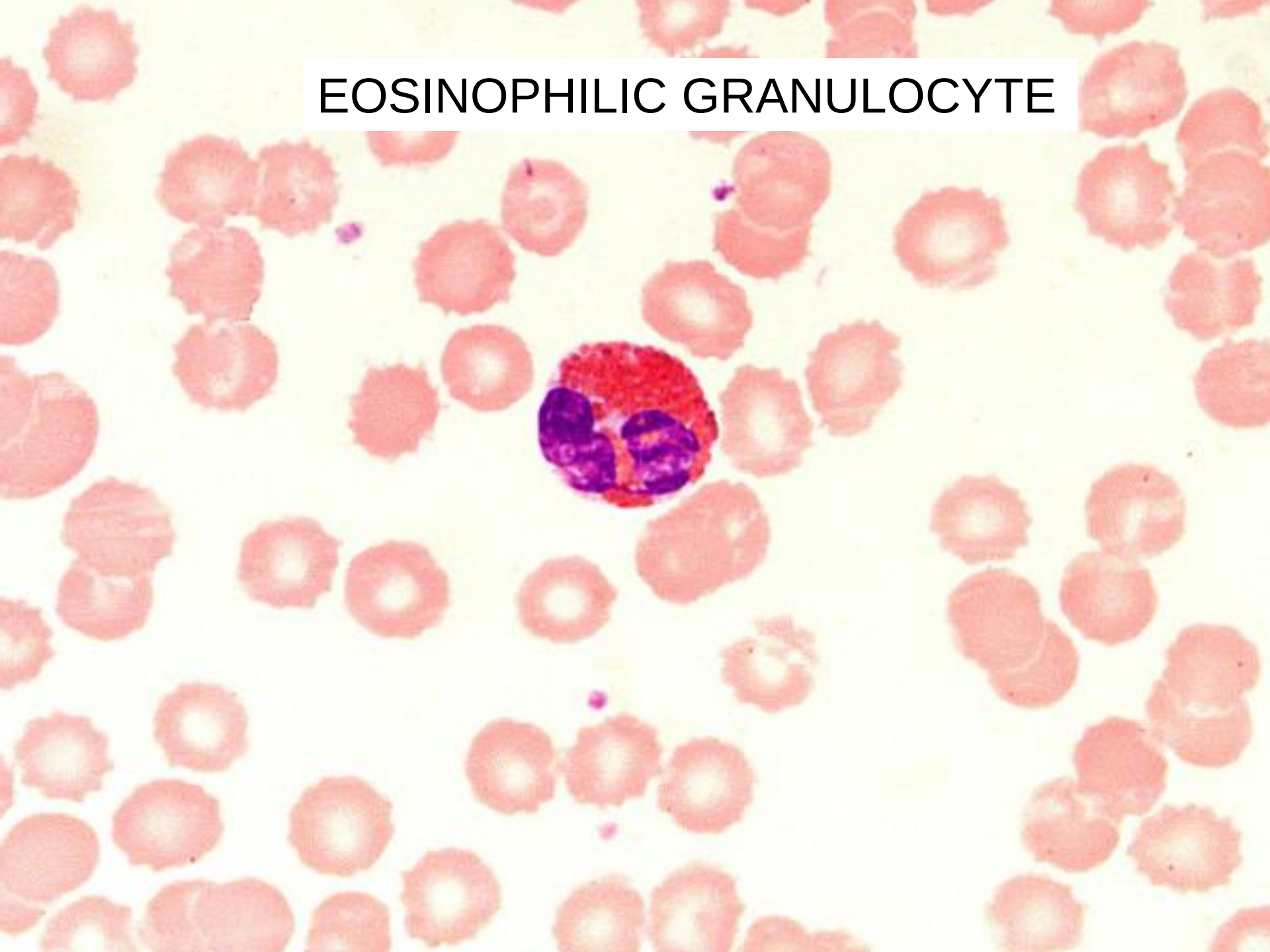



NEUTROPHILIC GRANULOCYTE
„SEGMENT“

EOSINOPHILIC GRANULOCYTE



EOSINOPHILIC GRANULOCYTE



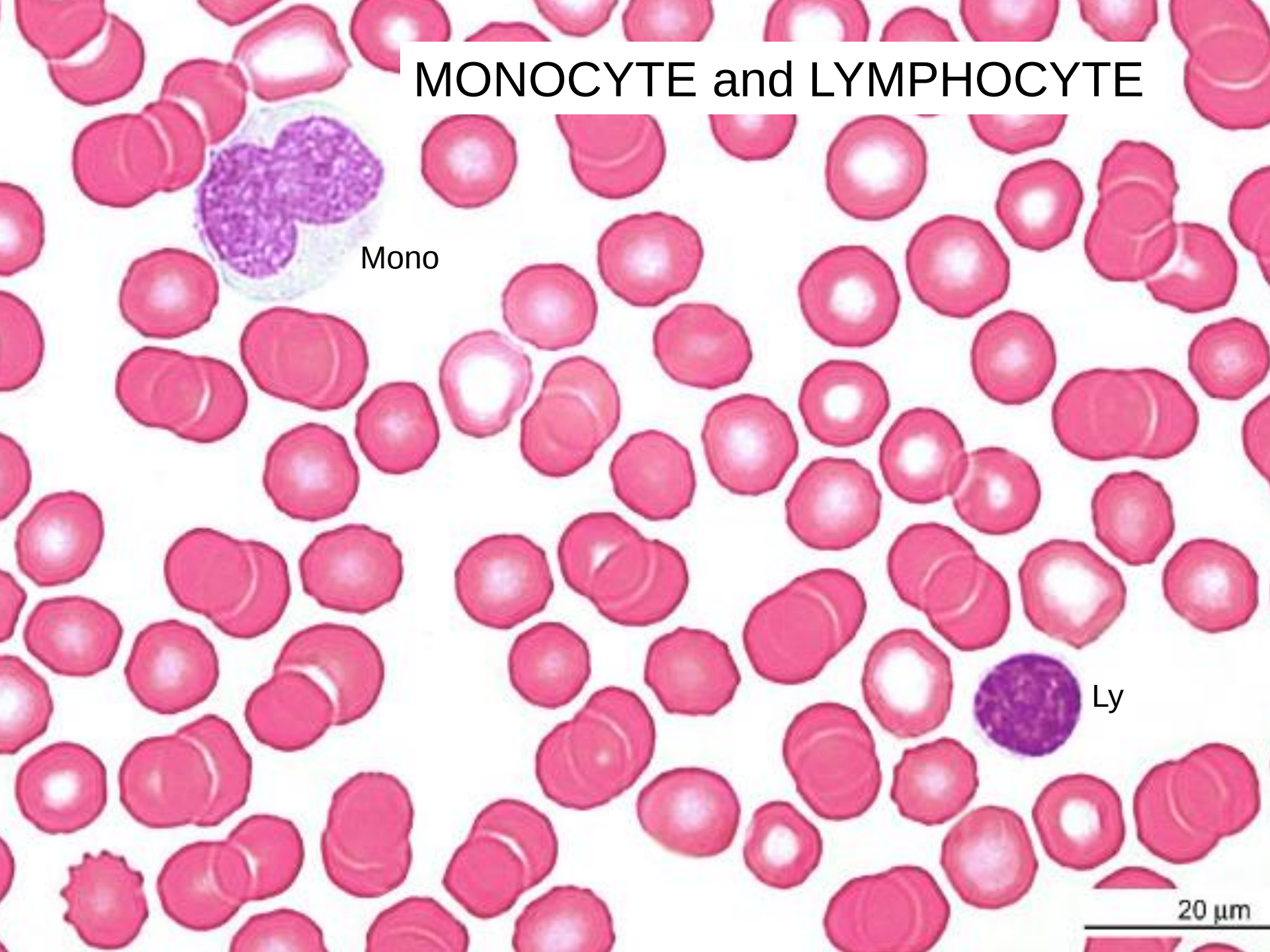
EOSINOPHILIC GRANULOCYTE

BASOPHILIC GRANULOCYTE

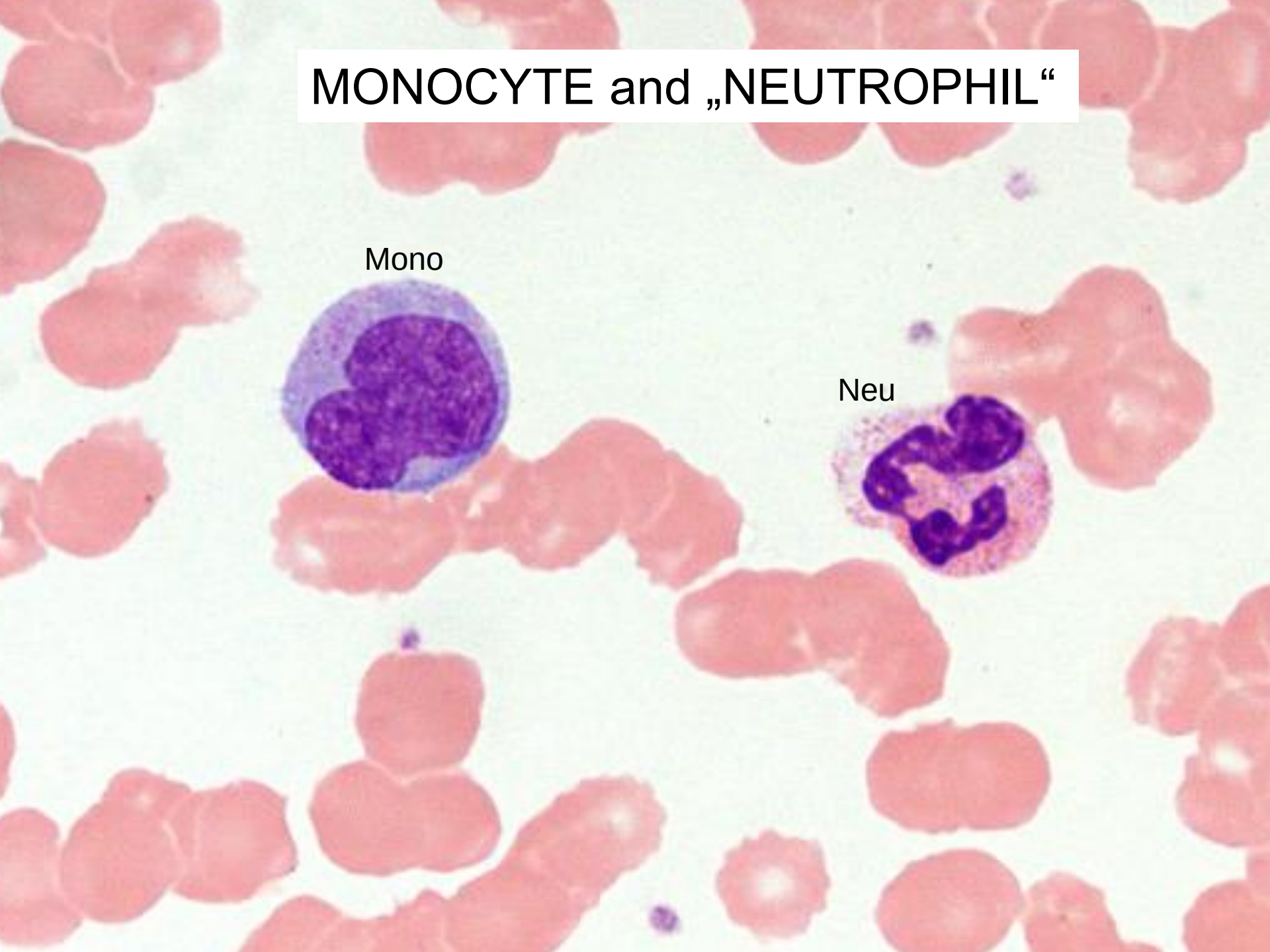

LYMPHOCYTE

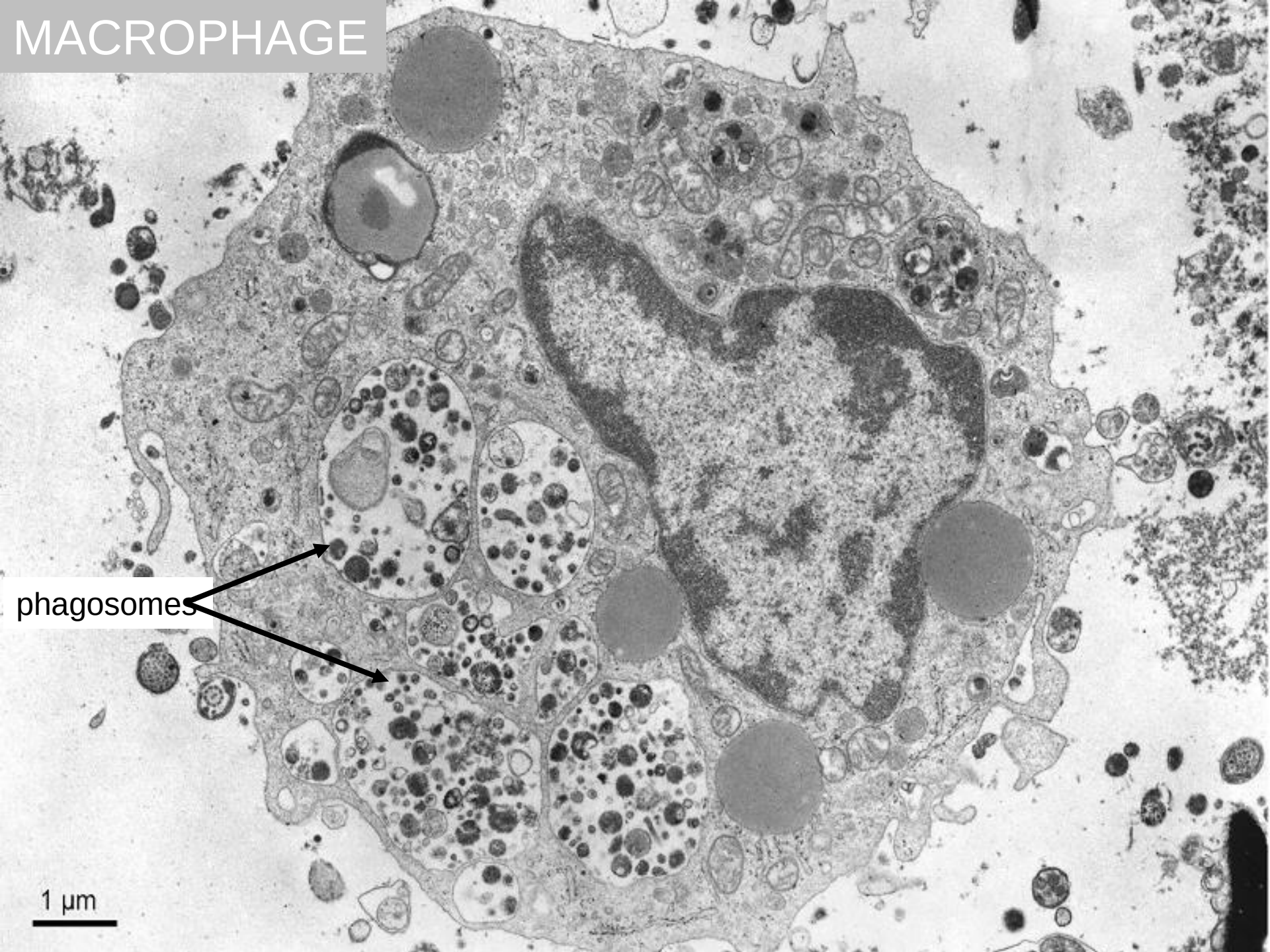

LYMPHOCYTE
0,5 µm

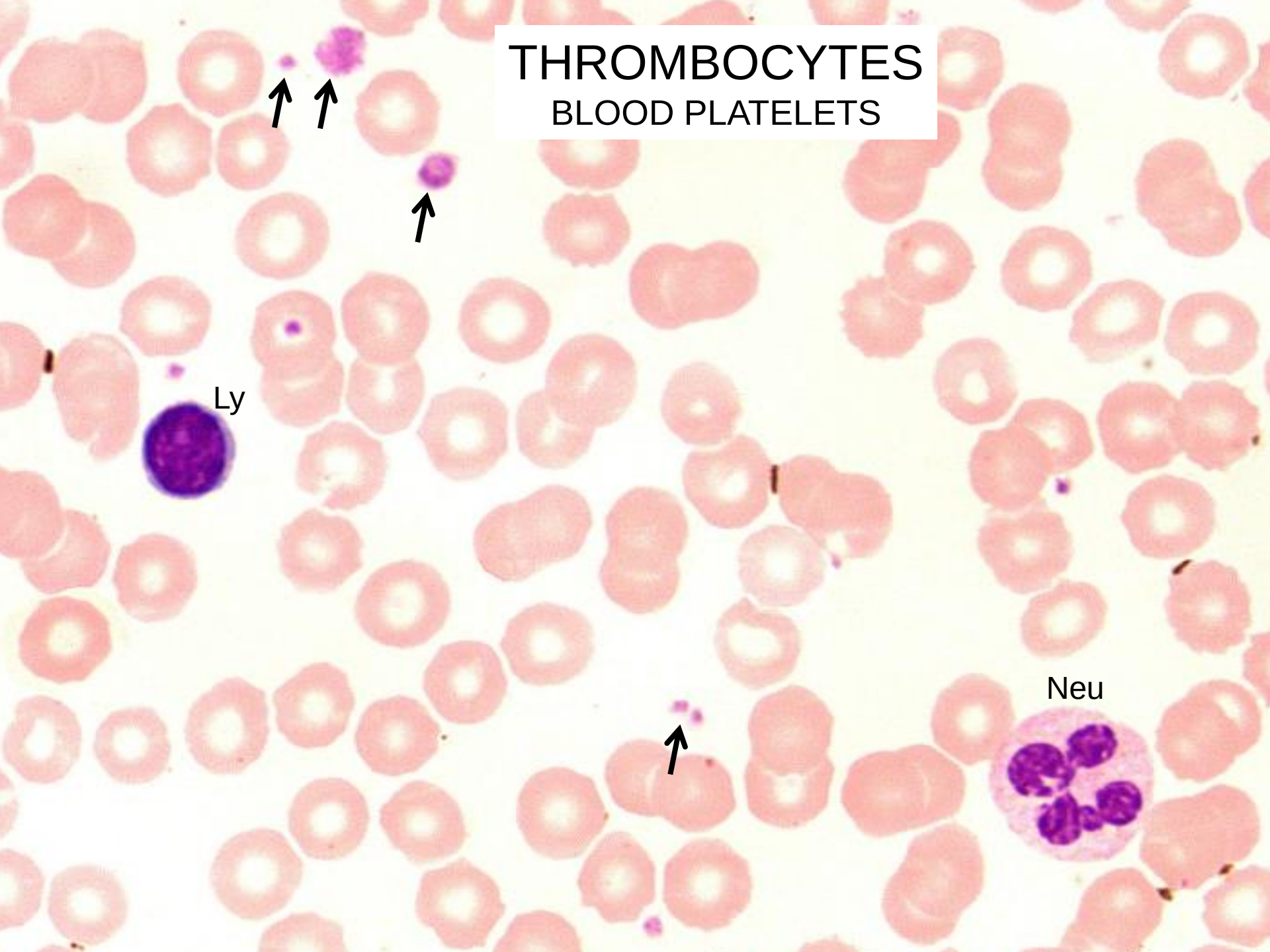
MONOCYTE and LYMPHOCYTE

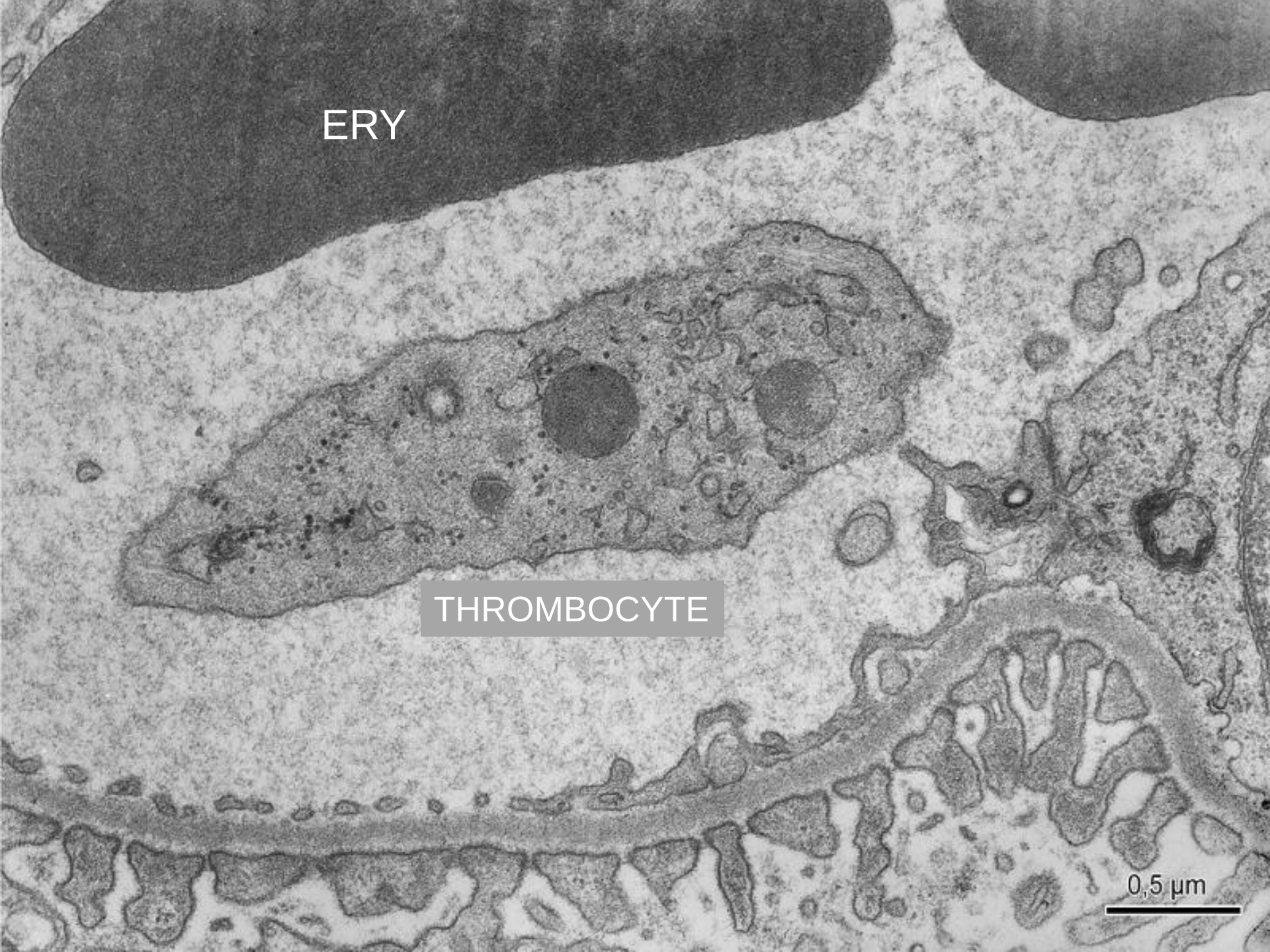


MONOCYTE and „NEUTROPHIL“




MACROPHAGE
phagosomes
1 µm


THROMBOCYTES
BLOOD PLATELETS
Ly
Neu


ERY
THROMBOCYTE
0,5 µm

BLOOD

Slide
Peripheral blood smear, panoptic staining (method of Pappenheim), immersion oil, magnif. 1000x

How to study blood smear in LM?

- Lens of immersion objective /magnifying 100x/ is immersed into drop of immersion oil and blood smear is prepared for study.

- Swich on the microscope and check the picture in the microscope.

- If the image is not sharp, focus it using **fine adjustment knob!** If it is not possible, contact your teacher.