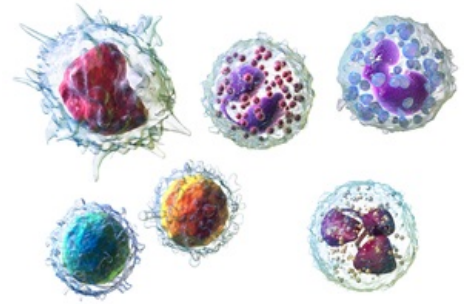


Histology MCQs/Blood and Hematopoiesis



1 Which function do have **azurophilic granules** in leukocytes?

- ☐ Derivatives of the smooth endoplasmic reticulum
- ☐ Derivatives of the cytoskeleton
- ☐ Cell inclusions
- ☐ Lysosomes

2 Diameter of **basophilic erythroblast** is:

- ☐ 6 to 8 μm
- ☐ 10 to 16 μm
- ☐ 20 μm
- ☐ 22 to 25 μm

3 Diameter of **megakaryocyte** is:

- ☐ 5 to 20 μm
- ☐ 20 to 50 μm
- ☐ 50 to 150 μm
- ☐ 150 to 1000 μm

4 Diameter of **myeloblast** is:

- ☐ 1 to 5 μm
- ☐ 5 to 10 μm
- ☐ 10 to 15 μm
- ☐ 15 to 20 μm

5 Diameter of **orthochromatophilic erythroblast** is:

- ☐ 6 to 8 μm
- ☐ 8 to 10 μm
- ☐ 10 to 18 μm
- ☐ 20 to 25 μm

6 Diameter of **proerythroblast** is:

- ☐ 20 μm
- ☐ 40 μm
- ☐ 60 μm
- ☐ 80 μm

7 What is a **differential blood count** (leucogram):

- ☐ Relative frequency of all formed blood elements
- ☐ Absolute number of all formed blood elements
- ☐ Relative frequency of white blood cells
- ☐ Absolute number of white blood cells

8 What are dimensions of an average **red blood cell**?

- ☐ Diameter 7.5 μm , maximal thickness 2.6 μm , thickness in the middle 0.8 μm
- ☐ Diameter 10 μm , maximal thickness 1.6 μm , thickness in the middle 0.1 μm
- ☐ Diameter 7.5 μm , maximal thickness 1.6 μm , thickness in the middle 0.8 μm
- ☐ Diameter 10 μm , maximal thickness 2.6 μm , thickness in the middle 0.1 μm

9 Except one, all below mentioned cells are differentiated monocytes. Which of them is **the exception**?

- ☐ Microglia
- ☐ Osteoclast
- ☐ Goblet cell

☐ Kupfer's cell

10 How is called first morphologically distinguishable stage of development of **red blood cells**?

- ☐ Polychromatophilic erythroblast
- ☐ Orthochromatophilic erythroblast
- ☐ Basophilic erythroblast
- ☐ Proerythroblast

11 How many of **basophils** are in the blood?

- ☐ 0 to 1 % of all WBC's
- ☐ 3 to 5 % of all WBC's
- ☐ 20 to 30 % of all WBC's
- ☐ 60 to 70 % of all WBC's

12 How many of **eosinophils** are in the blood?

- ☐ 0 to 1 % of all WBC's
- ☐ 2 to 5 % of all WBC's
- ☐ 20 to 30 % of all WBC's
- ☐ 60 to 70 % of all WBC's

13 How many of **lymphocytes** are in the blood?

- ☐ 3 to 5 % of all WBC's
- ☐ 5 to 20 % of all WBC's
- ☐ 20 to 40 % of all WBC's
- ☐ 60 to 70 % of all WBC's

14 How many of **monocytes** are in the blood?

- ☐ 1 to 3 % of all WBC's
- ☐ 2 to 10 % of all WBC's
- ☐ 20 to 30 % of all WBC's
- ☐ 60 to 70 % of all WBC's

15 How many of **neutrophilic bands** are in the blood?

- ☐ 0 to 1 % of all WBC's
- ☐ 2 to 5 % of all WBC's
- ☐ 60 to 70 % of all WBC's
- ☐ 20 to 30 % of all WBC's

16 How many of **neutrophils** are in the blood?

- ☐ 0 to 1 % of all WBC's
- ☐ 3 to 5 % of all WBC's
- ☐ 20 to 30 % of all WBC's
- ☐ 60 to 70 % of all WBC's

17 How many **platelets** (trombocytes) are in the blood?

- ☐ 15 000 to 40 000 in mm³
- ☐ 150 000 to 400 000 in mm³
- ☐ 1.5 000 000 to 4 000 000 in mm³
- ☐ 15 000 000 to 40 000 000 in mm³

18 Which important compounds are inside specific granules of **basophils**?

- ☐ Heparine a histamine
- ☐ Kolagenases
- ☐ Defensins
- ☐ Lysozym

19 In which stage occur changes of nuclear morphology which are hallmark of **granulocytes**?

- ☐ Metamyelocyte
- ☐ Promyelocyte

- ☐ Myeloblaste
- ☐ Myelocyte

20 In which stage starts production of **specific granules**?

- ☐ Metamyelocyte
- ☐ Promyelocyte
- ☐ Myeloblaste
- ☐ Myelocyte

21 Which stage of development of red blood cells is last stage sensitive to erythropoietin (EPO)?

- ☐ Polychromatophilic erythroblast
- ☐ Orthochromatophilic erythroblast
- ☐ Basophilic erythroblast
- ☐ Proerythroblast

22 Life-span of the **red blood cell** is around:

- ☐ 3 to 5 days
- ☐ 50 days
- ☐ 80 days
- ☐ 120 days

23 Main difference between the blood plasma and serum is:

- ☐ Plasma does not contain proteins involved in blood clotting
- ☐ Serum does not contain proteins involved in blood clotting
- ☐ Plasma does not contain albumin and prealbumin
- ☐ Serum does not contain albumin and prealbumin

24 Major basic protein (MBP) is main part of specific granules of:

- ☐ All granulocytes
- ☐ Neutrophils
- ☐ Eosinophils
- ☐ Basophils

25 How is called pathological condition where red blood cells of pathological shapes are present?

- ☐ Poikilocytosis
- ☐ Anisocytosis
- ☐ Polycythaemia
- ☐ Anaemia

26 Platelets (trombocytes) are not assumed to be cells because:

- ☐ Bad formulation of the question, platelets are cells
- ☐ They are fragments of cytoplasm of the megakaryocyte
- ☐ It was states so in the past
- ☐ They have no nuclei

27 Which of following statements about platelets **is not true**?

- ☐ alpha (α) granules contain proteins involved in blood clotting
- ☐ delta (δ) granules contain ATP, ADP, serotonin and calcium
- ☐ lambda (λ) granules contain hydrolytic enzymes
- ☐ mu (μ) granules contain myeloperoxidase

28 In which structure is first site of production of red blood cells in the embryo?

- ☐ Wall of the yolk sack
- ☐ Bone marrow
- ☐ Kidney
- ☐ Liver

29 The best definition of the **hematocrit** (HCT) is:

- ☐ Volume percentage of the blood occupied by formed blood elements
- ☐ Mass percentage of the blood occupied by formed blood elements
- ☐ Total volume of the blood occupied by formed blood elements
- ☐ Total mass of the blood occupied by formed blood elements

30 Which anions are the most common in the blood plasma?

- ☐ SO_4^{2-} a Cl^-
- ☐ H_2PO_4^- a HSiO_4^-
- ☐ Cl^- a HCO_3^-
- ☐ HCO_3^- a HSiO_4^-

31 Which cation has the highest concentration in the blood plasma?

- ☐ Ca^{2+}
- ☐ Mg^{2+}
- ☐ Na^+
- ☐ K^+

32 Which is a diameter of the **monocyte**?

- ☐ 6 to 8 μm
- ☐ 10 to 12 μm
- ☐ 12 to 20 μm
- ☐ 16 to 18 μm

33 Which is a diameter of the **neutrophil**?

- ☐ 6 to 8 μm
- ☐ 10 to 12 μm
- ☐ 12 to 20 μm
- ☐ 16 to 18 μm

34 What is a **leukocyte**?

- ☐ Activated white blood cell
- ☐ Quiescent white blood cell
- ☐ Immature white blood cell
- ☐ Any white blood cell

35 What is main function of **buffer systems** in the blood?

- ☐ Blood buffer is curiosity of biophysical chemistry, but it is out of physiological importance
- ☐ They are involved in regulation of pH on value related to the actual need of the organism
- ☐ They are involved in regulation of pH on strict value
- ☐ There is nothing like buffers inside the blood

36 Which hormone or cytokine simulates formation of **platelets**?

- ☐ Trombopoietin
- ☐ Erythropoietin
- ☐ Interleukin 6
- ☐ Vasopresin

37 Which hormone or cytokine simulates formation of **red blood cells**?

- ☐ Erythropoietin (Epo)
- ☐ Interleukin 1 (IL 1)
- ☐ Interleukin 6 (IL 6)
- ☐ Vasopresin

38 Which hormone or cytokine simulates maturation of **granulocytes**?

- ☐ SCF (stem cell factor)
- ☐ Interleukin 5 (IL 5)
- ☐ Angiotensin
- ☐ GM-CSF

39 Which of below mentioned cells **is not able** to undergo mitosis?

- ☐ Orthochromatophilic erythroblast
- ☐ Polychromatophilic erythroblast
- ☐ Bazophilic erythroblast
- ☐ Proerythroblast

40 Which of following cells is **the least differentiated**?

- ☐ Metamyelocyte
- ☐ Promyelocyte
- ☐ Myeloblast
- ☐ Myelocyte

41 Which of statements below describes **B lymphocytes** the best?

- ☐ B lymphocytes has nucleus composed of lobules
- ☐ B lymphocytes are precursors of plasma cells
- ☐ B lymphocytes has fagocytic activity
- ☐ B lymphocytes produce antibodies

42 Which of statements below describes **T lymphocytes** the best?

- ☐ We have different types of T lymphocytes according to their function
- ☐ Mature T lymphocytes are released from the bone marrow
- ☐ T lymphocytes has nucleus composed of lobules
- ☐ T lymphocytes are usually two-nucleated

43 Which statement about development of the **megakaryocyte** is correct?

- ☐ It is a result of both endomitosis and fusion of precursor cells, but endomitosis dominates
- ☐ It is a result of both endomitosis and fusion of precursor cells, but fusion dominates
- ☐ It is a result of endomitotic division of precursor cell
- ☐ It is a result of fusion of precursor cells

44 Which statement about **monocytes** is **false**?

- ☐ Except in very exceptional cases. they have a round nucleus
- ☐ They circulate in the peripheral blood few days only
- ☐ They can differentiate in macrophages
- ☐ They have 15 to 20 μm in diameter

45 Which type of tissue serves as a supportive structure for hematopoiesis in the bone marrow?

- ☐ Jelly-like connective tissue
- ☐ Reticular connective tissue
- ☐ Elastic connective tissue
- ☐ Connective tissue proper

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- List of all tests: Histology MCQs
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