

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ
КАФЕДРА МОРФОЛОГИИ ЧЕЛОВЕКА

Ю. М. Мельниченко, В. В. Заточная

**ЭМБРИОЛОГИЯ
И ОБЩАЯ ГИСТОЛОГИЯ**

**EMBRYOLOGY
AND GENERAL HISTOLOGY**

Практикум



Минск БГМУ 2025

УДК 611.013.018(076.5)(075.8)-054.6
ББК 28.03+28.06я73
М48

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Содержит текстовые и графические задания, таблицы для самостоятельной работы студентов.

Предназначен для студентов 1-го курса медицинского факультета иностранных учащихся, обучающихся по специальности «Стоматология» на английском языке.

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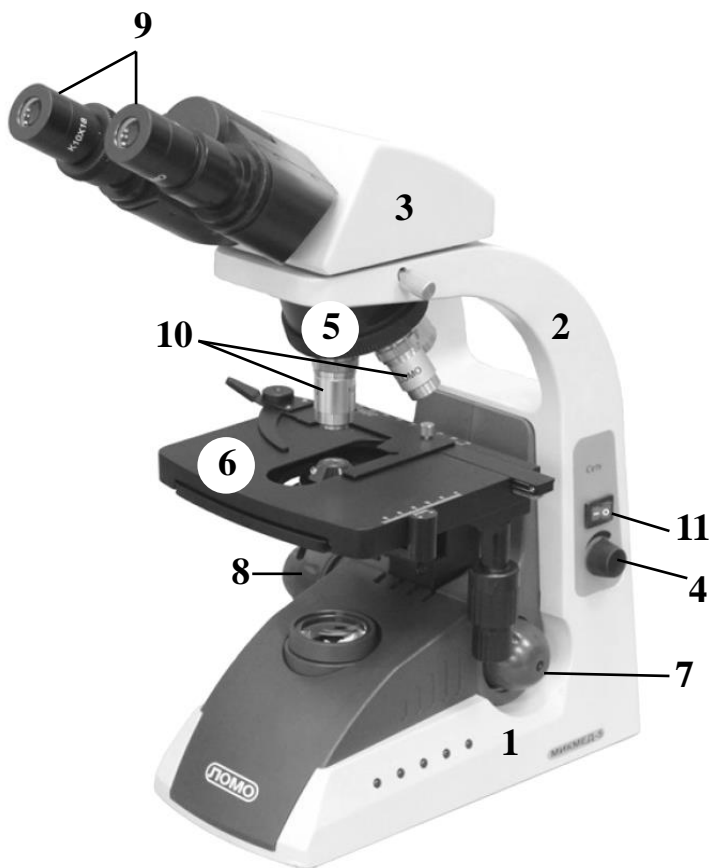
TOPIC 1
OBJECTS AND METHODS OF RESEARCH IN HISTOLOGY AND CYTOLOGY.
THE MAIN STEPS OF HISTOLOGICAL SLIDES PREPARATION.
RULES OF WORKING WITH A LIGHT MICROSCOPE

Control questions:

1. Methodological and applied value of histology, cytology and embryology, their connection with other medical and biological sciences.
2. Types and techniques for preparation of histology slides.
3. Principles and methods of tissue fixing in histology. Preparation of histology slides. Principles and methods of histological staining. The concept of basophilia and oxyphilia.
4. Methods for studying the chemical composition of cells and tissues.
5. Instruments and research methods in light and electron microscopy.

MATERIAL FOR INDEPENDENT WORK

Light microscope



Name parts of microscope, indicated by the numbers:

1. _____
2. Arm
3. Head
4. _____
5. _____
6. _____
7. _____
8. Coarse adjustment knob
9. _____
10. _____
11. _____

Liver of axolotl



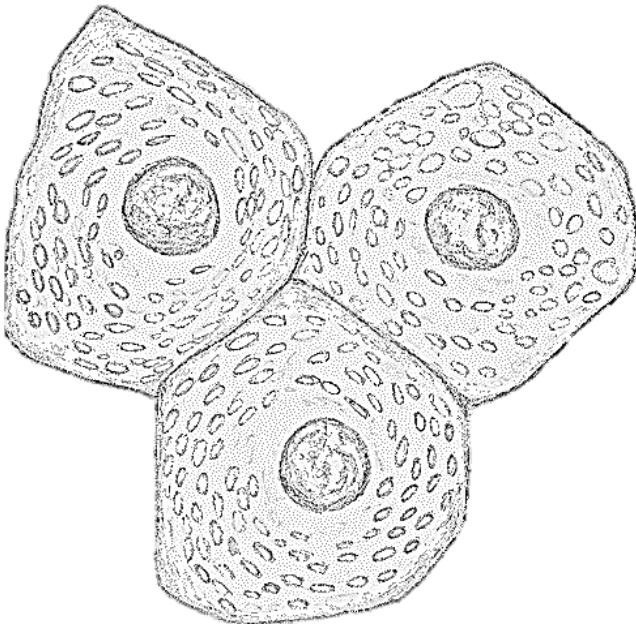
Draw and indicate the following structures:

1. Nucleus
2. Cytoplasm
3. Plasma membrane

Histology slide

(H&E, high-power magnification)

Inclusions of glycogen in the liver cells



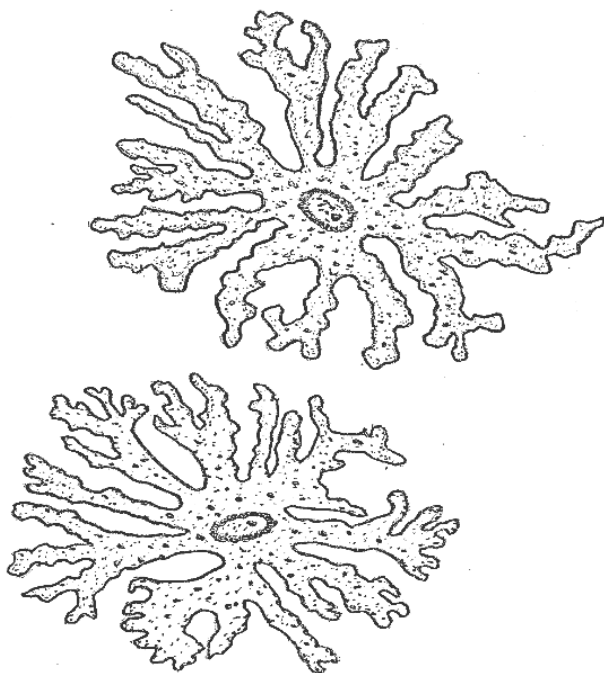
Color the following structures according to the staining technique:

- nucleus
- cytoplasm
- granules of glycogen

Histology slide

(Best's carmine stain, high-power magnification)

Skin pigment cells of axolotl



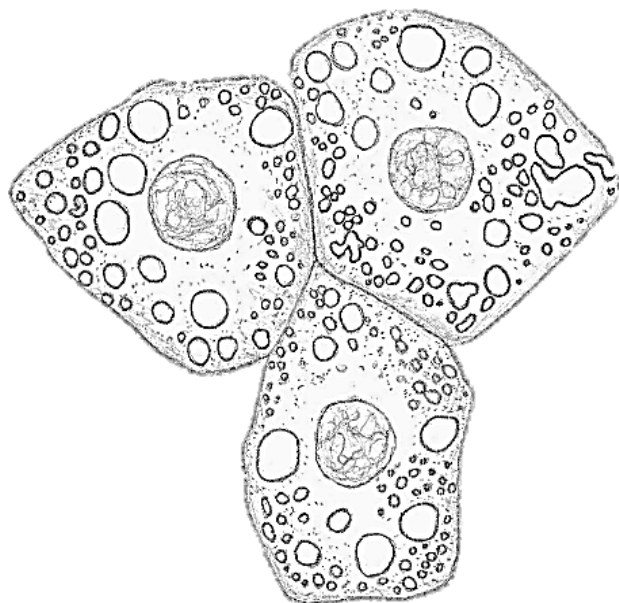
Color the following structures according to the staining technique:

- nucleus
- cytoplasm
- pigment inclusions

Histology slide

(Nuclei stained with hematoxylin, high-power magnification)

Fat inclusions in the liver cells



Color the following structures according to the staining technique:

- nucleus
- cytoplasm
- pigment inclusions

Histology slide

(Osmic acid-safranin, high-power magnification)

THE LESSON IS COMPLETED

Teacher _____

« » _____

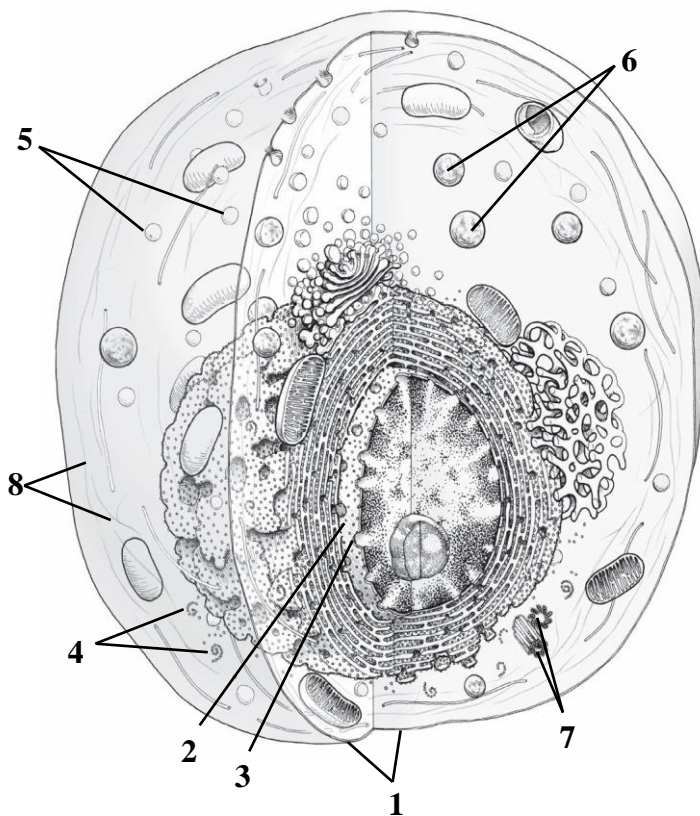
**TOPIC 2
FUNDAMENTALS OF CYTOLOGY**

Control questions:

1. The concept of a cell as a basic unit of living things. Cell theory. Extracellular matrix.
2. Biological membranes. The major components of plasma membrane. Types of cell junctions. Methods by which substances pass through the cell membrane.
3. Morphofunctional classification of intracellular structures. The concept of organelles and inclusions.
4. Classification of organelles based on their structure: membranous and non-membranous organelles. Their structure, function. Classification of inclusions.
5. Cell nucleus. Function and structure of the nucleus in interphase.
6. Cell division: mitosis, endoreduplication. Cell cycle.

MATERIAL FOR INDEPENDENT WORK

Eukaryotic cell (scheme)



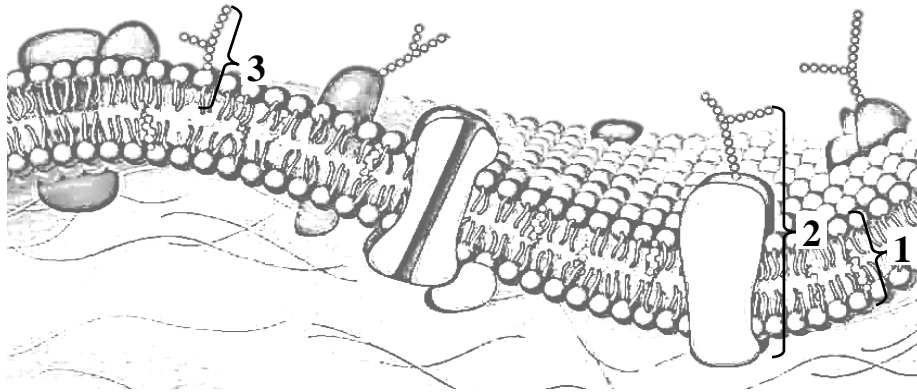
Color the following structures, using a different color for each:

- nucleus
- nucleolus
- mitochondria
- smooth ER
- rough ER
- Golgi apparatus
- cytosol
- microtubules

Name structures, indicated by the numbers:

1. _____
2. _____
3. _____
4. _____
5. Peroxisomes
6. _____
7. _____
8. _____

Plasma membrane (diagram)



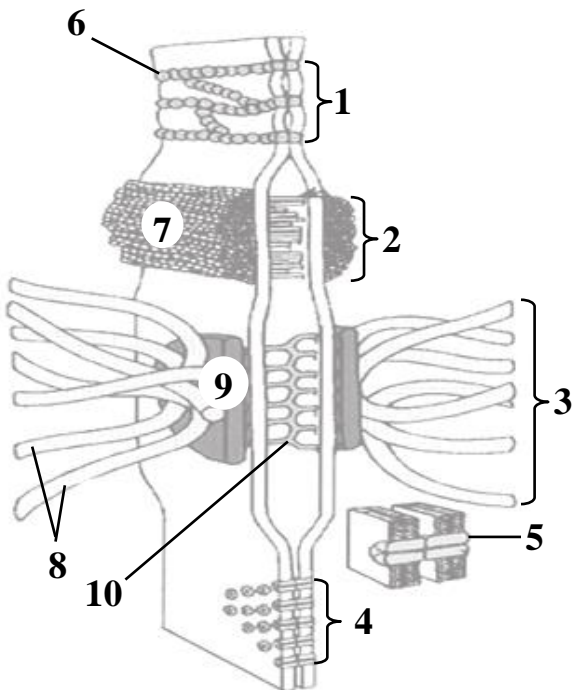
Name structures, indicated by the numbers:

1. _____
2. _____
3. _____

Color the following structures of plasma membrane, using a different color for each:

- hydrophilic heads
- hydrophobic tails
- integral membrane proteins
- peripheral membrane proteins
- cholesterol
- glycocalyx

Intercellular junctions (diagram)



Name structures, indicated by the numbers:

1. _____
2. _____
(adhesion belt)
3. _____
4. _____
5. _____
6. Integral membrane protein (occludin)
7. Microfilaments
8. Intermediate filaments
9. Attachment plaque
10. Adhesion proteins

THE LESSON IS COMPLETED

Teacher _____

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TOPIC 3
FUNDAMENTALS OF HUMAN EMBRYOLOGY. DEVELOPMENTAL PERIODS.
FERTILIZATION. CLEAVAGE. GASTRULATION.
MECHANISMS OF ORGANOGENESIS AND HISTOGENESIS

Control questions:

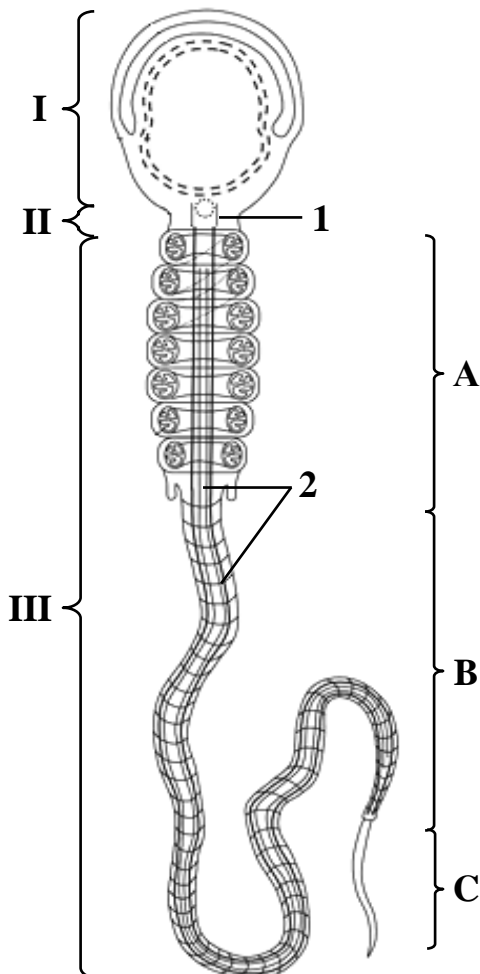
1. Concept of embryogenesis. Connections between phylogeny and ontogeny.
2. Developmental periods.
3. Gametogenesis. Morphological and functional characteristics of mature human gametes.
4. Fertilization and zygote formation.
5. Cleavage and formation of the blastocyst.
6. Implantation of blastocyst. Implantation sites.
7. Gastrulation. Histiotropic and hemotrophic nutrition.
8. Organogenesis and histogenesis.
9. Differentiation of germ layers and their derivatives.
10. Extraembryonic membranes: sources of development and functions.
11. Placenta. Structure and function.
12. Critical periods in human development.

MATERIAL FOR INDEPENDENT WORK

Male and female gametes

Spermatozoa

Name structures, indicated by the letters and numbers:



I. _____

II. _____

III. _____

A. _____

B. _____

C. _____

1. Centrioles

2. _____

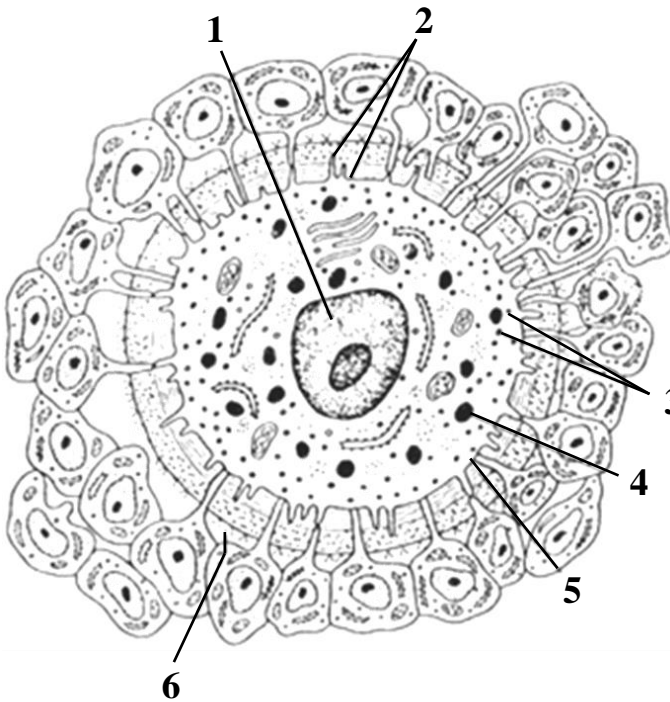
Color the following structures, using a different color for each:

acrosome

nucleus

mitochondrial sheath

Secondary oocyte



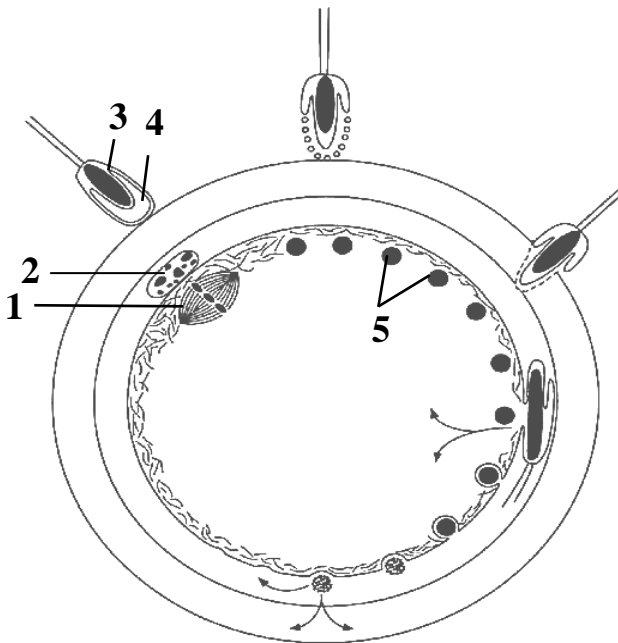
Name structures, indicated by the numbers:

1. _____
2. _____
3. _____ granules
4. _____ granules
5. _____ pellucida
6. Receptor

3 Color the following structures, using a different color for each:

- corona radiata
- perivitelline space

Fertilization (scheme)



Place the letters according to the stages of fertilization:

- A. Binding of sperm to the zona pellucida
- B. Acrosome reaction
- C. Penetration of the zona pellucida
- D. Fusion of cell membranes of the secondary oocyte and sperm
- E. Penetration of the head and neck of the sperm into the ooplasm (except cell membrane)
- F. Cortical reaction

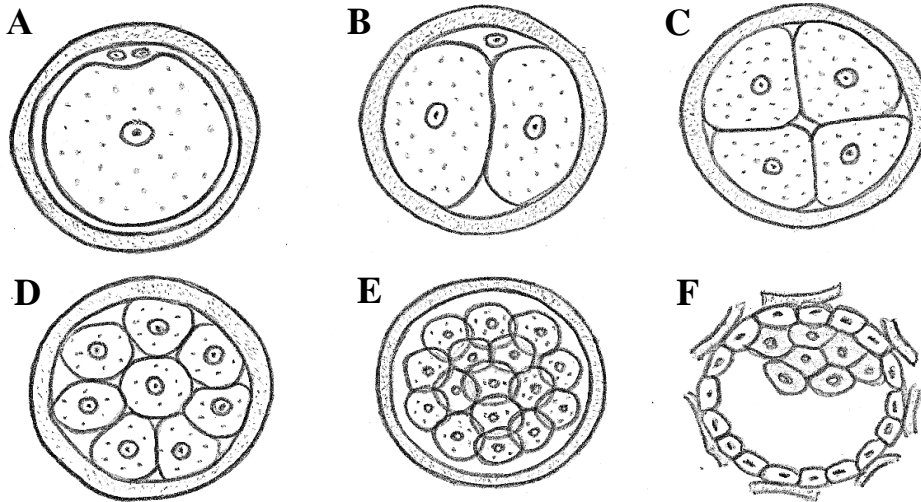
Name structures, indicated by the numbers:

1. _____ plane
2. _____ body
3. _____
4. _____
5. _____ granules

Color the following structures, using a different color for each:

- ooplasm
- zona pellucida
- perivitelline space

Cleavage



Name stages of cleavage, indicated by the letters:

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____

Color the following structures, using a different color for each:

- zona pellucida
- trophoblast
- embryoblast

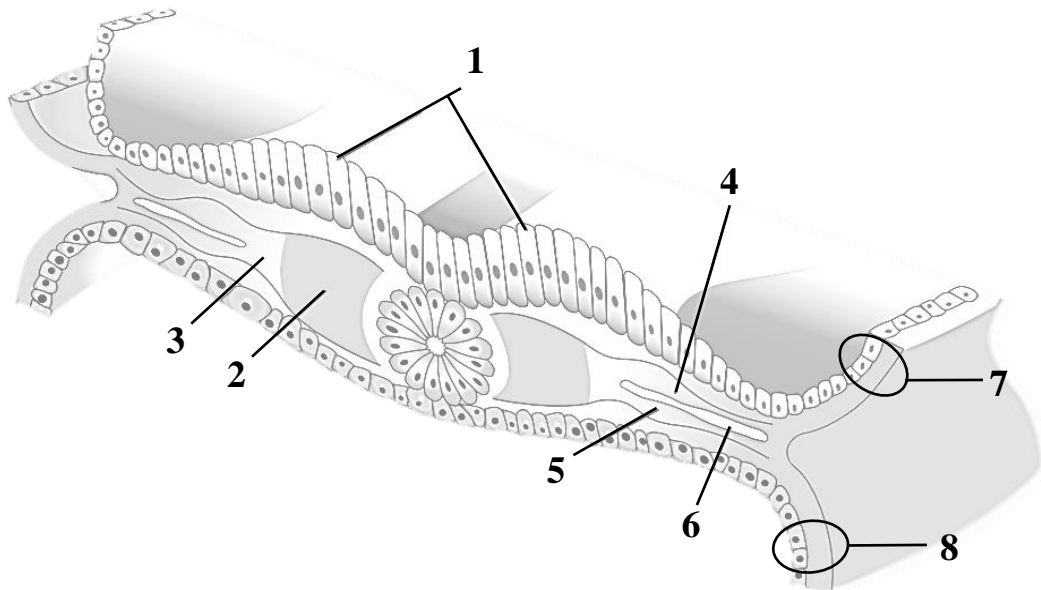
Extraembryonic membranes

Fill in the table.

Organ	Structure	Functions
Amnion		
Yolk sac		
Allantois		
Chorion		
Placenta		

Gastrulation

Transverse section of a 20-day embryo (scheme)



Name structures, indicated by the numbers:

1. _____ folds
2. _____
3. _____ mesoderm
4. _____ layer of lateral plate mesoderm
5. _____ layer of lateral plate mesoderm
6. _____
7. _____
8. _____

Color the following structures, using a different color for each:

- neuroectoderm
- surface ectoderm
- extraembryonic (amniotic) ectoderm
- notochord
- embryonic mesoderm
- extraembryonic mesoderm
- embryonic endoderm
- extraembryonic endoderm

THE LESSON IS COMPLETED

Teacher _____

« ____ » _____

TOPIC 4

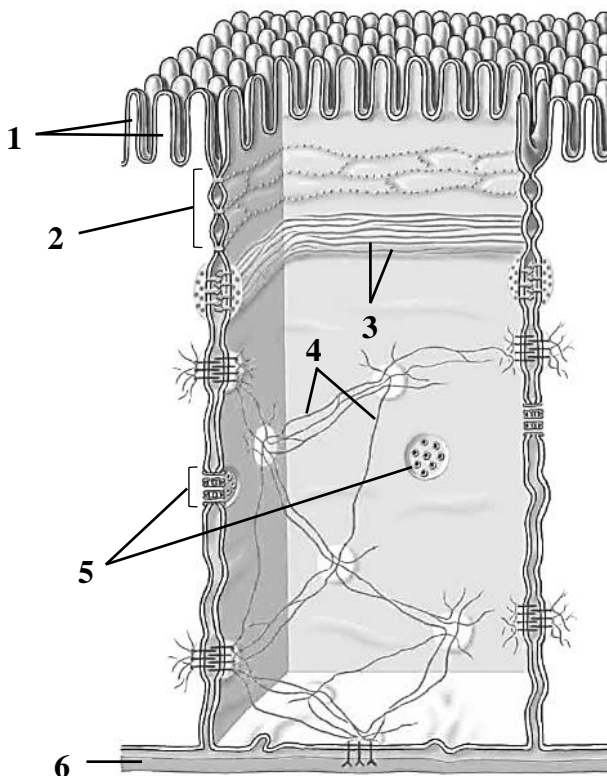
GENERAL PRINCIPLES OF STRUCTURAL ORGANIZATION OF TISSUES: CELLS, EXTRACELLULAR MATRIX. THE STRUCTURE OF THE SURFACE EPITHELIUM. MORPHOLOGY OF THE GLANDULAR EPITHELIUM

Control questions:

1. Definition of the tissue. Classification of tissues.
2. General principles of the structural organization of tissues: cells, extracellular matrix.
3. The concept of syncytia and postcellular structures.
4. Cell-differon organization of the tissue.
5. Morphofunctional characteristics of epithelial tissues. Regenerative capacity.
6. Developmental sources of epithelia. Classification and types of epithelial tissues.
7. Micro- and ultramicroscopic characteristics of simple epithelia. Intercellular junctions.
8. Micro- and ultramicroscopic characteristics of stratified epithelia.
9. Histophysiology of glandular epithelium. Characteristics of secretory cells.
10. Secretory cycle of glandulocytes, its phases. Types of exocrine secretion.
11. Classification of exocrine glands. The regeneration of glandular epithelium.

MATERIAL FOR INDEPENDENT WORK

Types of intercellular junctions



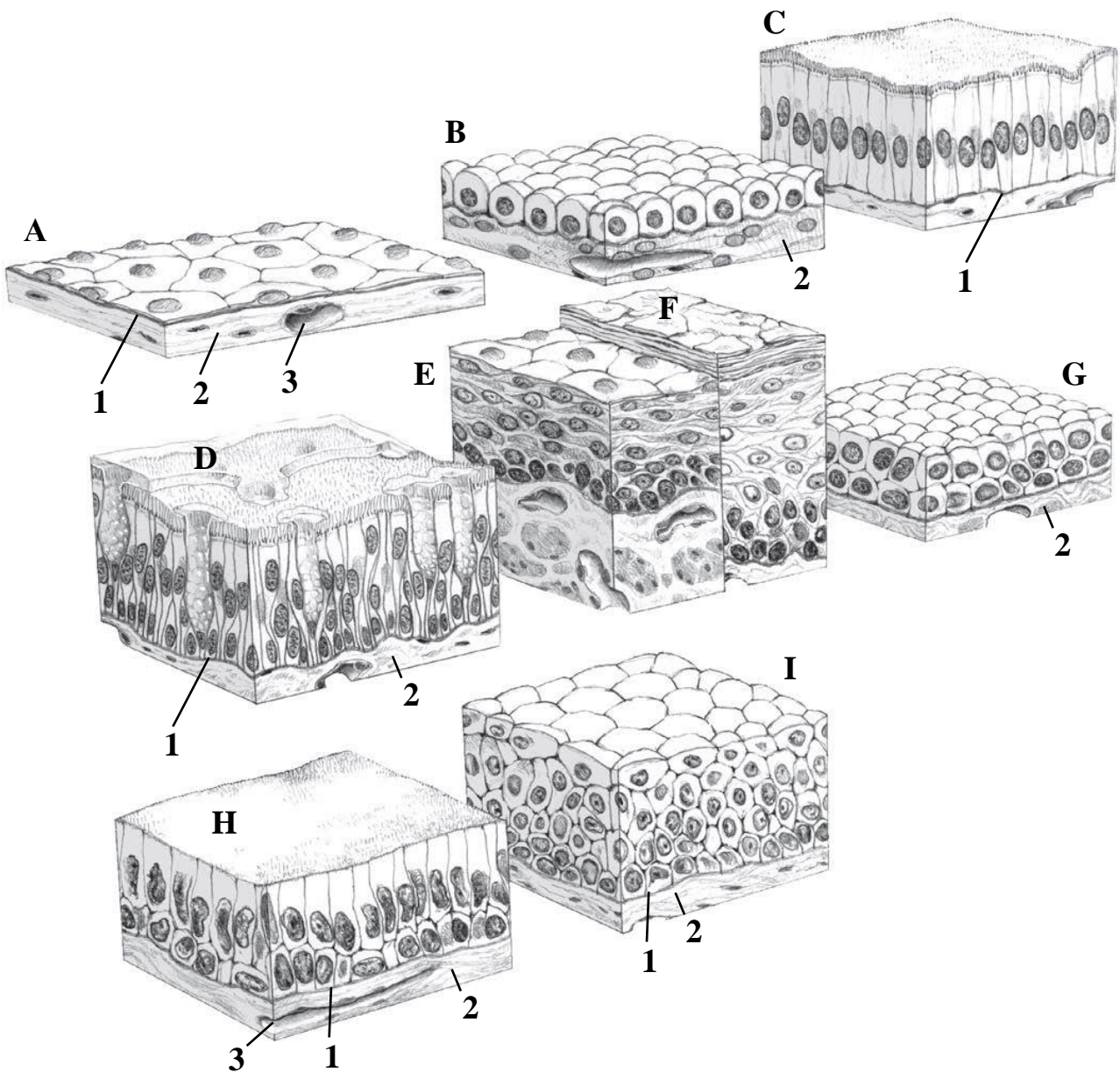
Name structures, indicated by the numbers:

1. Microvilli
2. _____ junctions
3. _____
4. _____ filaments
5. _____ junctions
6. _____ membrane

Color the following structures, using a different color for each:

- zonula adherens (adhesion belt)
- desmosomes
- hemidesmosomes

Surface epithelia



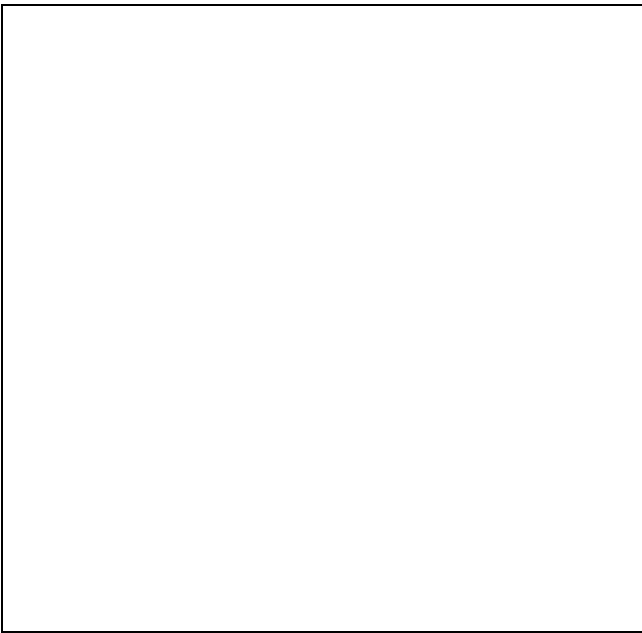
Identify and color types of surface epithelia:

- A. Simple _____ epithelium
- B. Simple _____ epithelium
- C. Simple _____ epithelium
- D. _____ ciliated epithelium
- E. Stratified _____ epithelium
- F. Stratified _____ epithelium
- G. Stratified _____ epithelium
- H. Stratified _____ epithelium
- I. _____ epithelium (urothelium)

Name structures, indicated by the numbers:

- 1. _____ membrane
- 2. _____ tissue
- 3. _____ vessels

**Skin of finger.
Stratified squamous keratinized epithelium (epidermis)**

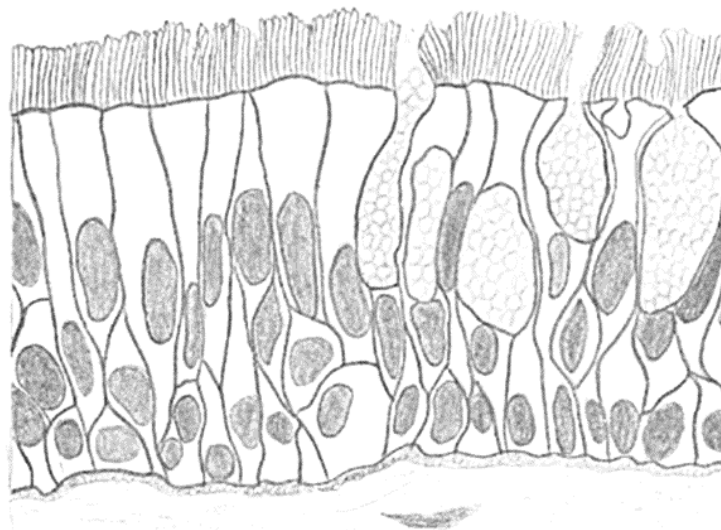


Draw and indicate the following structures:

1. Basement membrane
2. Stratum basale
3. Stratum spinosum
4. Stratum granulosum
5. Stratum lucidum
6. Stratum corneum

Histology slide
(H&E, high-power magnification)

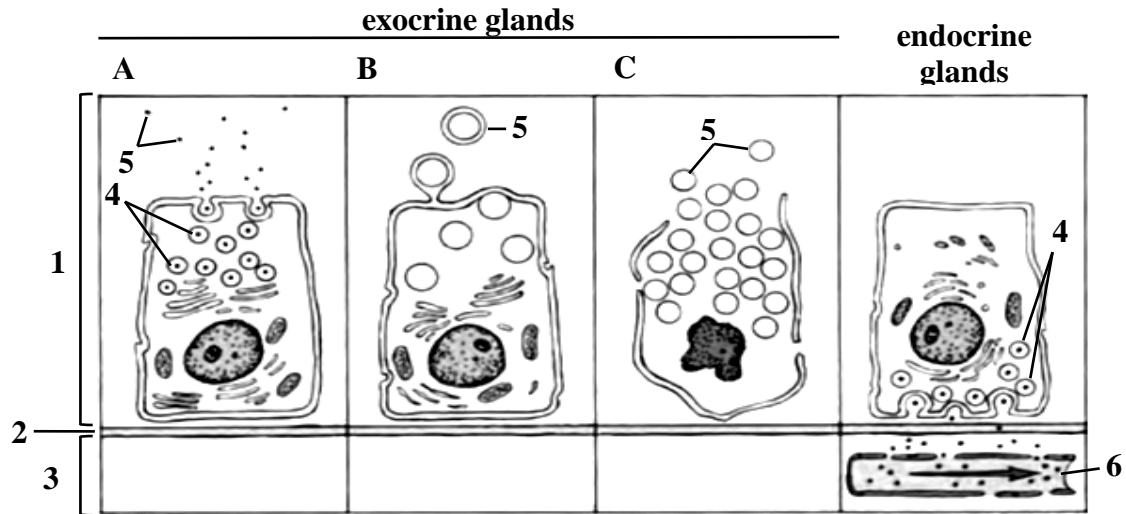
Pseudostratified ciliated columnar epithelium



Color the following structures, using a different color for each:

- ciliated cells
- goblet cells
- basal cells
- basement membrane

Glandular epithelium. Types of secretion



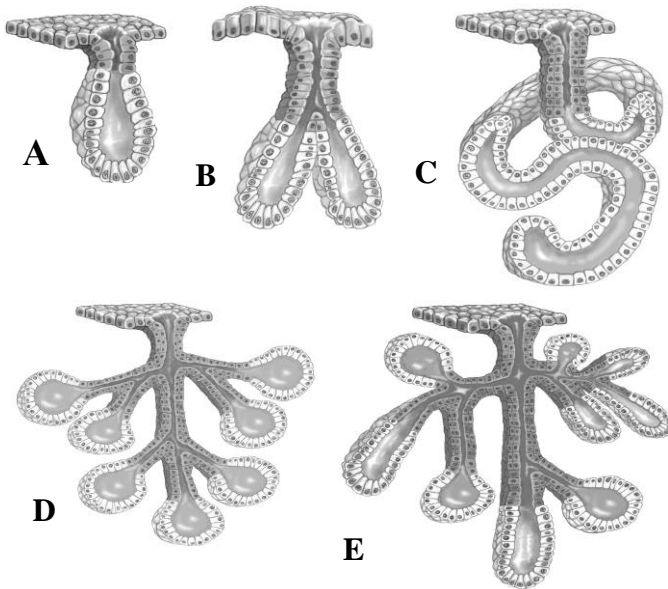
Exocrine glands

Name types of secretion, indicated by the letters:

- A. _____
 B. _____
 C. _____

Name structures, indicated by the numbers:

1. Epithelium
 2. _____ membrane
 3. _____ tissue
 4. _____ vesicles
 5. Secretory products
 6. _____ vessel



Name glands, indicated by the letters:

- A. _____ gland
 B. _____ gland
 C. _____ gland
 D. _____ gland
 E. _____ gland

Color the following structures, using a different color for each:

- tubular secretory portion
 acinar secretory portion
 excretory duct

THE LESSON IS COMPLETED

Teacher _____

<< _____ >>

TOPIC 5
GENERAL MORPHOLOGY OF BLOOD AND LYMPH.
STRUCTURE AND FUNCTIONS OF BLOOD CELLS. HEMATOPOIESIS

Control questions:

1. Blood and lymph as types of vascular connective tissues.
2. Functions of the blood.
3. The blood plasma as a variety of extracellular matrix.
4. Blood cells: size, structural features, functions, lifespan.
5. Blood count, leukogram.
6. Stem hematopoietic cell.
7. Embryonic hematopoiesis: in the yolk sac, in the liver, in the red bone marrow, in the spleen.
8. Erythropoiesis.
9. Granulopoiesis.
10. Monocytopoiesis. Mononuclear phagocyte system.
11. Thrombopoiesis.
12. Lymphopoiesis in the central and the peripheral lymphoid organs. T-and B-lymphocytes.

Complete blood count

Test	Reference ranges
Hematocrit (Hct)	0,4–0,45
Erythrocytes (RBC), adult male	$3,9–5,5 \times 10^{12} /L$
Erythrocytes (RBC), adult female	$3,7–4,9 \times 10^{12} /L$
Reticulocytes	0–1 %
Haemoglobin (Hbg), adult male	130–170 g/L
Haemoglobin (Hbg), adult female	120–150 g/L
Leukocytes (WBC)	$3,8–9,0 \times 10^9 /L$
Platelets	$180–400 \times 10^9 /L$
Erythrocyte sedimentation rate (ESR)	4–12 mm/hr

Leukogram (differential blood count), percentage

Granulocytes			Agranulocytes			
Neutrophils (65–75)			Basophils	Eosinophils	Lymphocytes	Monocytes
metamyelocytes	banded	segmented				
0–0,5	1–5	60–65	0–1	1–5	20–40	6–8

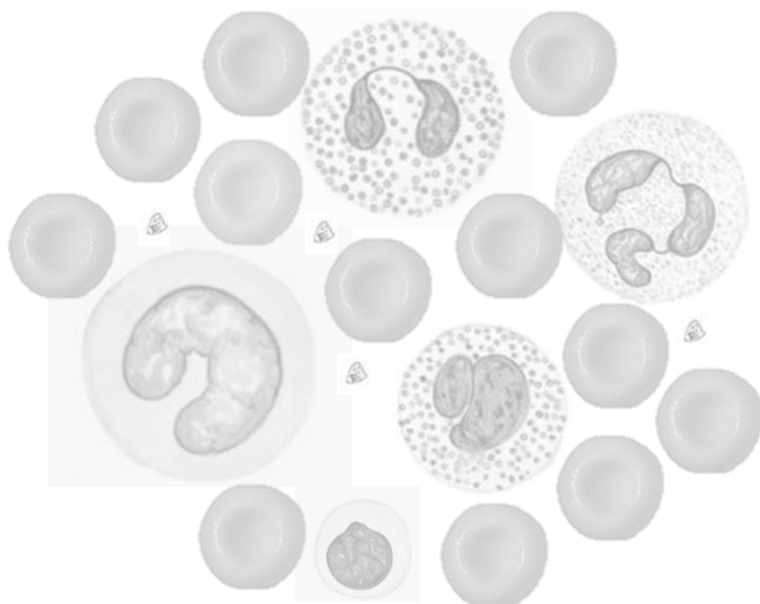
MATERIAL FOR INDEPENDENT WORK

Morphofunctional characteristics of blood cells

Fill in the table.

Blood cells	Size, μm	Nucleus	Specific intracellular structures	Functions
1. Erythrocytes				
2. Platelets				
3. Leukocytes				
3.1. Neutrophils				
<i>metamyelocytes</i>				
<i>banded</i>				
<i>segmented</i>				
3.2. Eosinophils				
3.3. Basophils				
3.4. Lymphocytes				
3.5. Monocytes				

Human blood smear



Color the cells in colors that match the coloring technique:

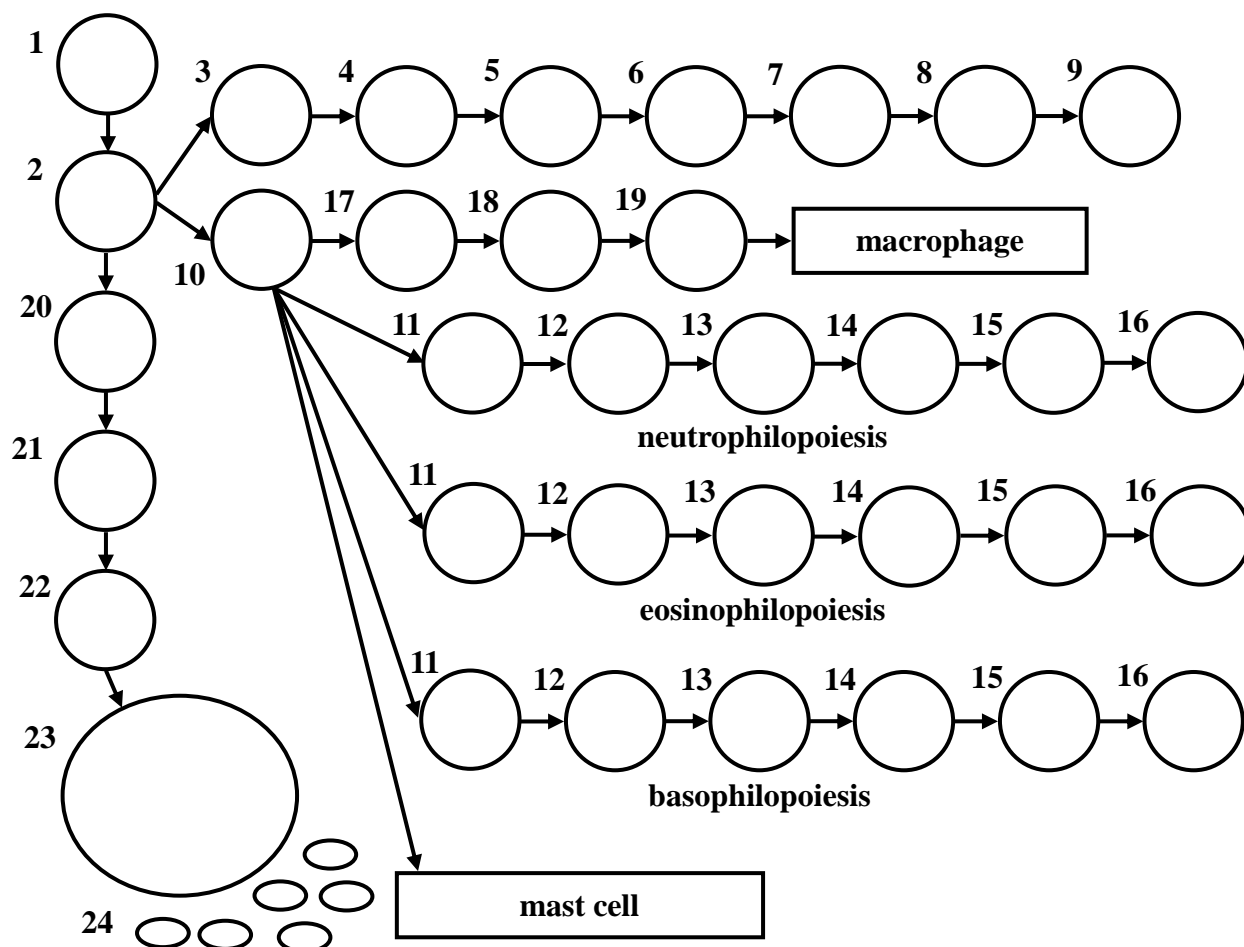
- erythrocyte
- neutrophil
- eosinophil
- basophil
- lymphocyte
- monocyte
- platelet

Histology slide

(Romanovsky–Gimza stain, high-power magnification)

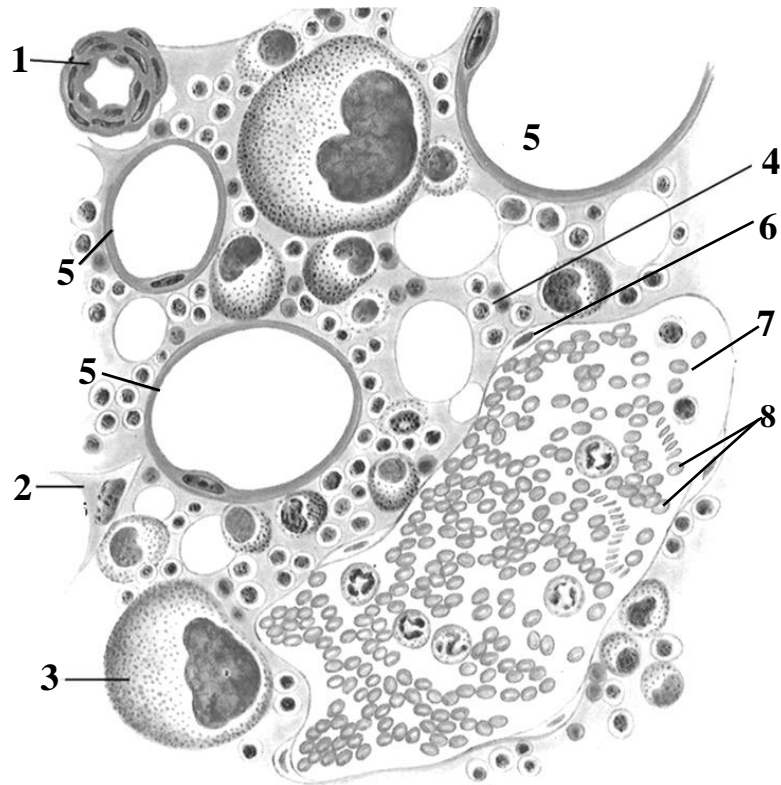
Scheme of embryonic hematopoiesis in the red bone marrow

Draw hematopoietic cells on the diagram, taking into account their specific signs (human blood smear, Azur II – eosin stain).



- | | |
|--|-----------------------------------|
| 1. Stem hematopoietic cell | 12. Promyelocytes |
| 2. Multipotent stem cell (common myeloid progenitor) | 13. Myelocytes |
| 3. Unipotent stem cell (CFU-E) | 14. Metamyelocytes |
| 4. Proerythroblast (pronormoblast) | 15. Band cells |
| 5. Basophilic erythroblast (early normoblast) | 16. Mature granulocyte |
| 6. Polychromatophilic erythroblast (intermediate normoblast) | 17. Monoblast |
| 7. Orthochromatic erythroblast (late normoblast) | 18. Promonocyte |
| 8. Reticulocyte | 19. Monocyte |
| 9. Erythrocyte | 20. Unipotent stem cell (CFU-Meg) |
| 10. Unipotent stem cell (CFU-G) | 21. Megakaryoblast |
| 11. Myeloblasts | 22. Promegakaryocyte |
| | 23. Megakaryocyte |
| | 24. Platelets |

Scheme of the structure of the red bone marrow



Name structures, indicated by the numbers:

1. Artery
2. _____ cell
3. _____
4. _____ cords
5. _____
6. _____
7. _____ capillary
8. _____

THE LESSON IS COMPLETED

Teacher _____

« ____ » _____

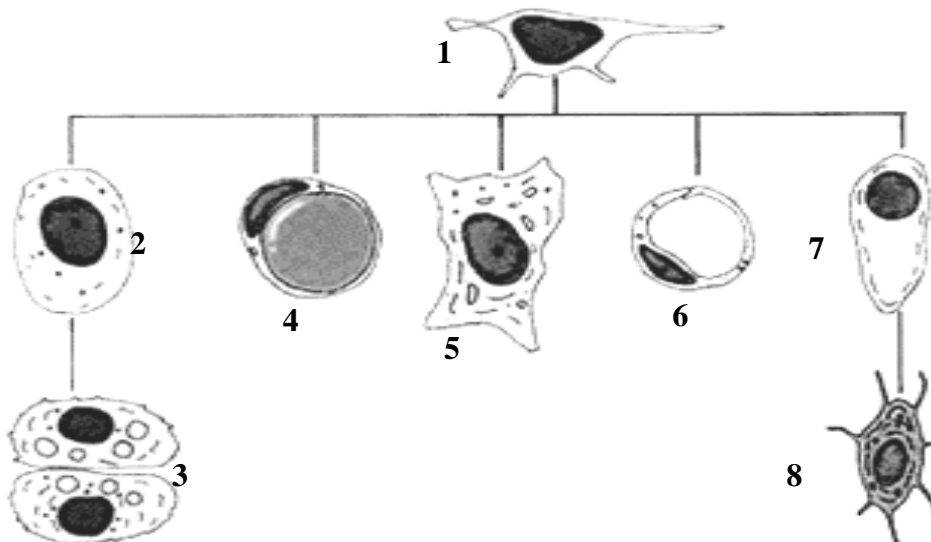
TOPIC 6
GENERAL PRINCIPLES OF CONNECTIVE TISSUE ORGANIZATION.
CONNECTIVE TISSUE PROPER: LOOSE AND DENSE.
SPECIALIZED CONNECTIVE TISSUES

Control questions:

1. Classification, sources of development, and general morphofunctional characteristics of connective tissues.
2. Histogenesis, structure and functions of loose connective tissue.
3. Relationship between blood cells and loose connective tissue cells.
4. Structure and functions of dense connective tissues.
5. The structure and functions of specialized connective tissues.
6. Reticular tissue: structural features, localization.
7. Pigment tissue: structural features, localization.
8. White and brown adipose tissue: structural features, localization.
9. Reaction of connective tissues to damage: inflammation, reparative regeneration.

MATERIAL FOR INDEPENDENT WORK

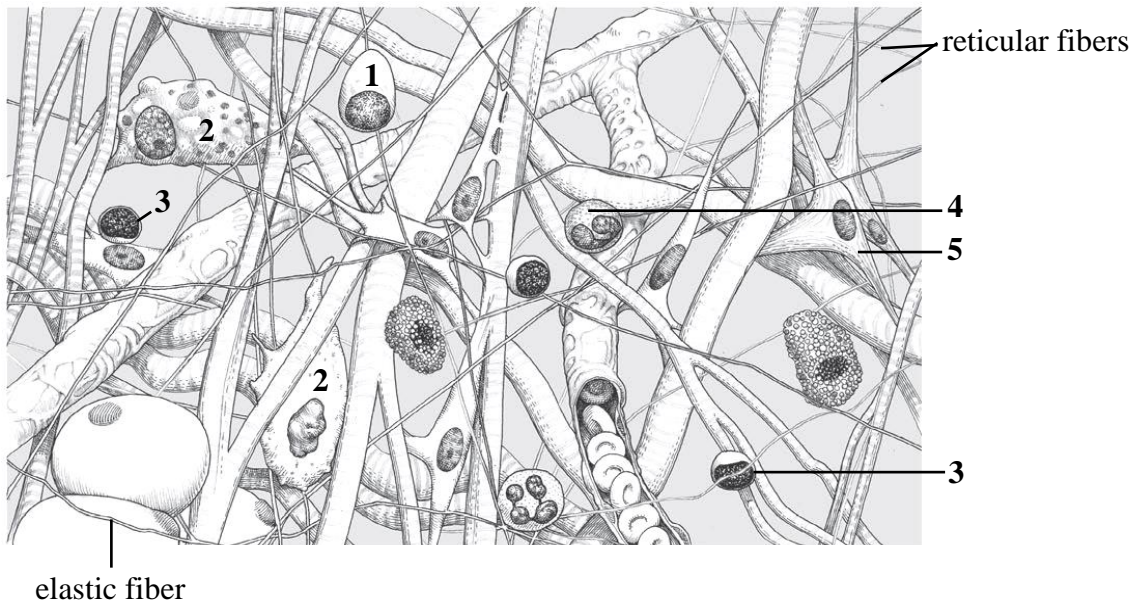
Derivates of mesenchymal cell



Name the cells of mesenchymal origin:

1. Mesenchymal stem cell
2. Chondroblast
3. _____
4. Adipocyte
5. _____
6. _____ cell
7. _____
8. Osteocyte

Scheme of the structure of loose connective tissue



Name the cells, indicated by the numbers:

1. _____
2. _____
3. _____
4. _____
5. Myofibroblast

Color the following structures, using a different color for each:

- collagen fibers
- blood vessels with erythrocytes
- fibroblasts
- mast cells
- adipocytes
- neutrophil

Histology slide. Loose connective tissue



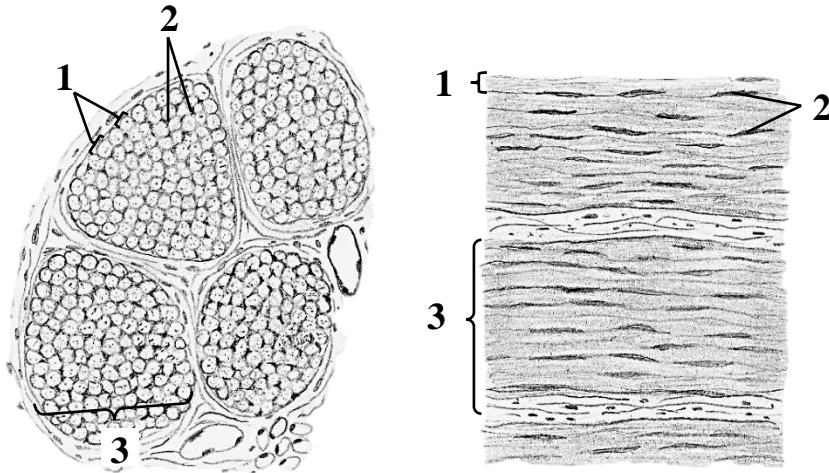
Draw and indicate the following structures:

1. Fibroblast
2. Macrophage
3. Plasma cell
4. Mast cell
5. Ground substance
6. Collagen fiber
7. Elastic fiber

Histology slide

(Iron hematoxylin stain, high-power magnification)

Scheme of the tendon (dense regular connective tissue)



Name the structures, indicated by the numbers:

1. _____
2. _____
3. _____

Color the following structures, using a different color for each:

- endotendineum
- peritendineum
- blood vessel

**Cells of loose connective tissue, derivatives of hematopoietic stem cells
(transmission electron microscopy)**

Name the cells and structures, indicated by the numbers.

<ol style="list-style-type: none"> 1. _____ 2. _____ 3. Residual bodies 4. Lysosomes 	<ol style="list-style-type: none"> 1. _____ 2. _____ 	<ol style="list-style-type: none"> 1. _____ 2. Golgi apparatus 3. _____
<p>Functions:</p>	<p>Functions:</p>	<p>Functions:</p>

Specialized connective tissues

Fill in the table.

Type of tissue	Structural elements		Organs in which the tissue is present	Functions
	Cells	Extracellular matrix		
<i>Reticular</i>				
<i>White adipose</i>				
<i>Brown adipose</i>				
<i>Pigment</i>				
<i>Mucous</i>				

THE LESSON IS COMPLETED

Teacher _____

« ____ » _____

TOPIC 7

SKELETAL TISSUES. MORPHOFUNCTIONAL CHARACTERISTICS OF CARTILAGE: CLASSIFICATION, CELLS AND EXTRACELLULAR MATRIX, GROWTH, HISTOGENESIS, REGENERATION. MORPHOFUNCTIONAL CHARACTERISTICS OF BONE TISSUES: CLASSIFICATION, CELLS AND EXTRACELLULAR MATRIX, GROWTH, HISTOGENESIS, REGENERATION

Control questions:

1. General morphofunctional characteristics and classification of skeletal tissues.
3. Structure of cartilaginous tissues (cells, extracellular matrix).
4. Sources of development, growth, regeneration and age-related changes of cartilage.

Perichondrium: structure and functions.

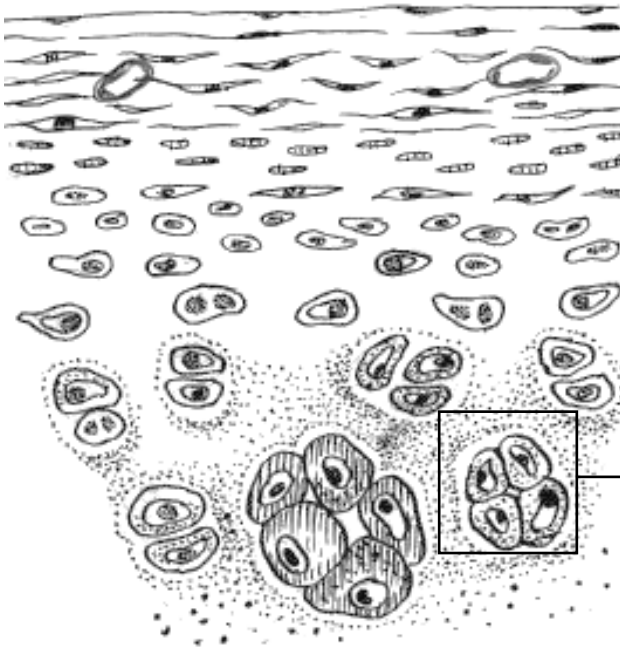
5. Structure of woven (immature) bone tissue – cells, extracellular matrix.
6. Structure of lamellar (mature) bone tissue.
7. Compact and spongy (cancellous) bone. Periosteum: structure and functions.
8. Development of bone tissue. Intramembranous ossification.
9. Endochondral ossification. Growth of long bones.
10. Bone remodeling.

MATERIAL FOR INDEPENDENT WORK

General characteristics of skeletal tissues

Characteristic	Hyaline cartilage	Elastic cartilage	Fibrous cartilage
<i>Perichondrium (+/-)</i>			
<i>Cells</i>			
<i>Fibers</i>			
<i>Type of collagen</i>			
<i>Ground substance (a lot / a little)</i>			
<i>Anatomical localization</i>			

Hyaline cartilage



Isogenous group



Histology slide
(H&E, high-power magnification)

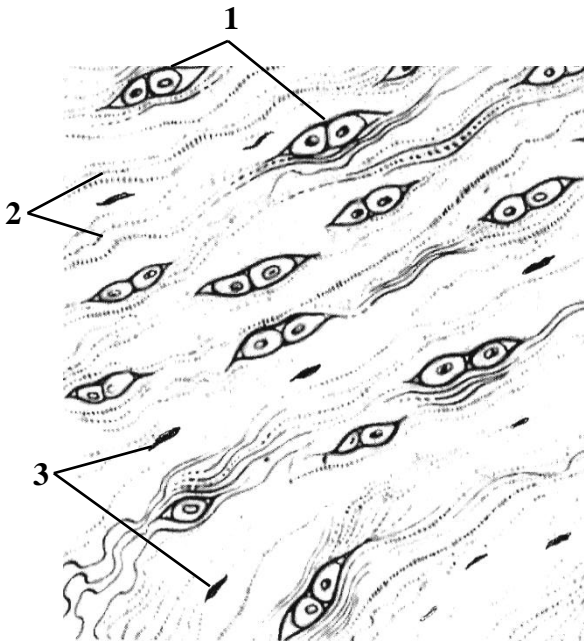
Color the cartilage zones in the diagram, using a different color for each:

- perichondrium
- chondroblasts and young chondrocytes
- isogenous groups (mature chondrocytes)

Draw and indicate the following structures:

1. Mature chondrocytes
2. Pericellular capsule
3. Territorial matrix
4. Interterritorial matrix

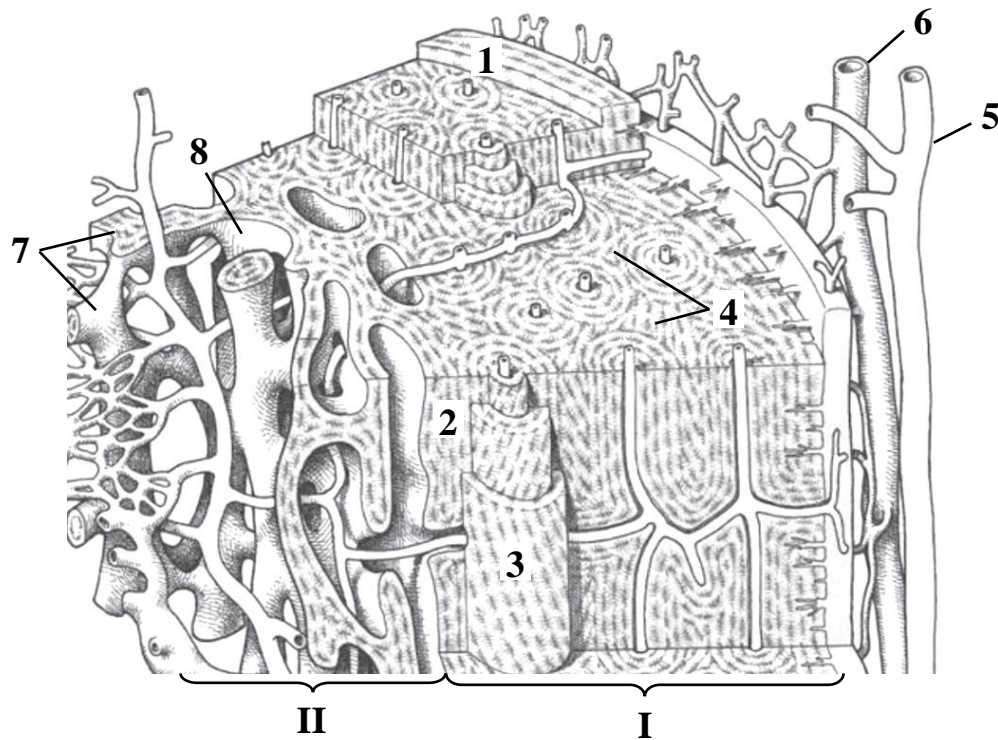
Fibrocartilage



Name the structures, indicated by the numbers:

1. _____
2. _____ fibers
3. _____

Scheme of the structure of the long bone



Name the structures, indicated by the numbers:

- I. _____
1. _____ lamellae
2. _____ lamellae
3. _____
4. _____ lamellae
5. Artery
6. Vein
- II. Spongy bone
7. _____
8. _____

Color the following structures, using a different color for each:

- perichondrium
- Haversian canals
- Volkmann's (perforating) canals

Compact bone (cross-section of the diaphysis of the long bone)



Histology slide

(Schmorl's stain, high-power magnification)

Draw and indicate the following structures:

1. Haversian canal
2. Concentric lamellae
3. Lacunae
4. Canaliculi
5. Cement line
6. Interstitial lamellae

Intramembranous ossification (section of the embryonic pig lower jaw)



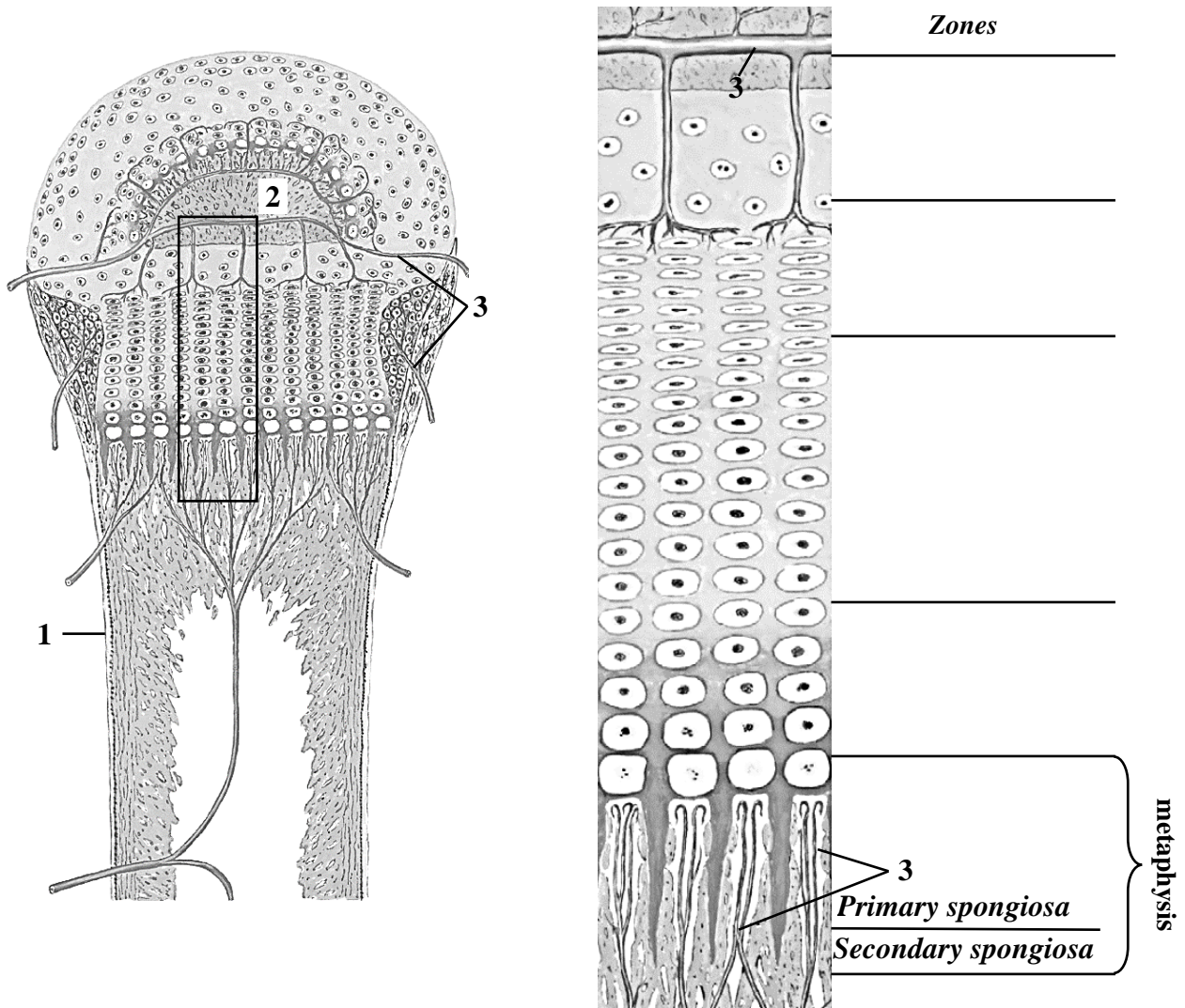
Histology slide

(H&E, high-power magnification)

Draw and indicate the following structures:

1. Trabecula
2. Osteoblasts
3. Osteoid
4. Osteocytes
5. Osteoclasts
6. Mesenchyme
7. Blood vessels

Endochondral ossification. Epiphyseal cartilage



Name and color the epiphyseal cartilage zones, using a different color for each.

Name the structures, indicated by the numbers:

1. _____
2. _____ center of ossification
3. _____ vessels

THE LESSON IS COMPLETED

Teacher _____

« » _____

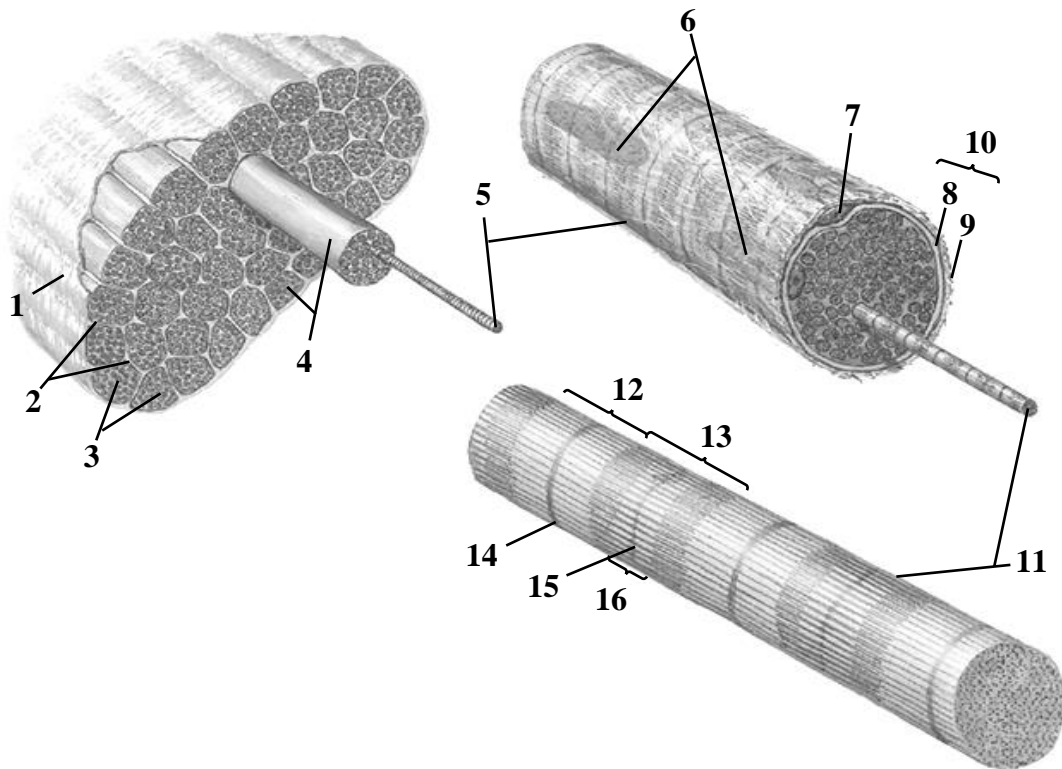
TOPIC 8
MORPHOFUNCTIONAL CHARACTERISTICS OF SMOOTH, SKELETAL
AND CARDIAC MUSCLE

Control questions:

1. Classification of muscle tissues, origin, general morphofunctional characteristics.
2. Smooth muscle tissue: morphological and functional characteristics of structural elements.
3. Histophysiology of muscle contraction, regeneration.
4. Cardiac muscle tissue. Contractile (typical) and conducting (atypical) cardiomyocytes. The possibilities of regeneration.
5. Skeletal muscle tissue: histogenesis, morphofunctional characteristics of the structural elements, histophysiology of contraction, regeneration.
6. Structure of skeletal muscle as an organ.

MATERIAL FOR INDEPENDENT WORK

Scheme of the structure of skeletal muscle



Name the structures, indicated by the numbers:

- | | |
|-----------------------------|----------------------|
| 1. _____ | 9. Basement membrane |
| 2. _____ | 10. _____ |
| 3. _____ | 11. Myofibrils |
| 4. Bundles of muscle fibers | 12. _____ |
| 5. Muscle fiber | 13. _____ |
| 6. _____ | 14. _____ |
| 7. _____ | 15. _____ |
| 8. Sarcolemma | 16. H-band |

Tongue (skeletal muscle)



Draw and indicate the following structures:

1. Muscle fibers (longitudinal section)
2. Muscle fibers (cross section)
3. Endomysium
4. Perimysium
5. Nuclei of the muscle fiber
6. Sarcolemma

Histology slide

(Iron hematoxylin stain, low-power magnification)

Scheme of sarcomere structure

Sign the structures indicated by brackets in the figure and color the following sarcomere components, using a different color for each:

- Thin filaments
- Thick filaments
- Z-line
- M-line

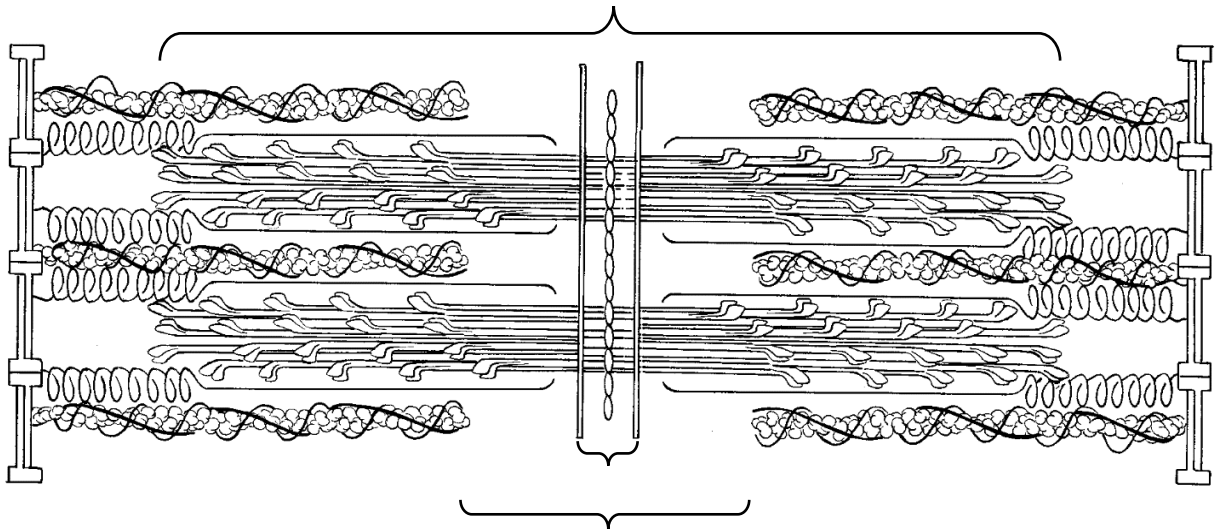
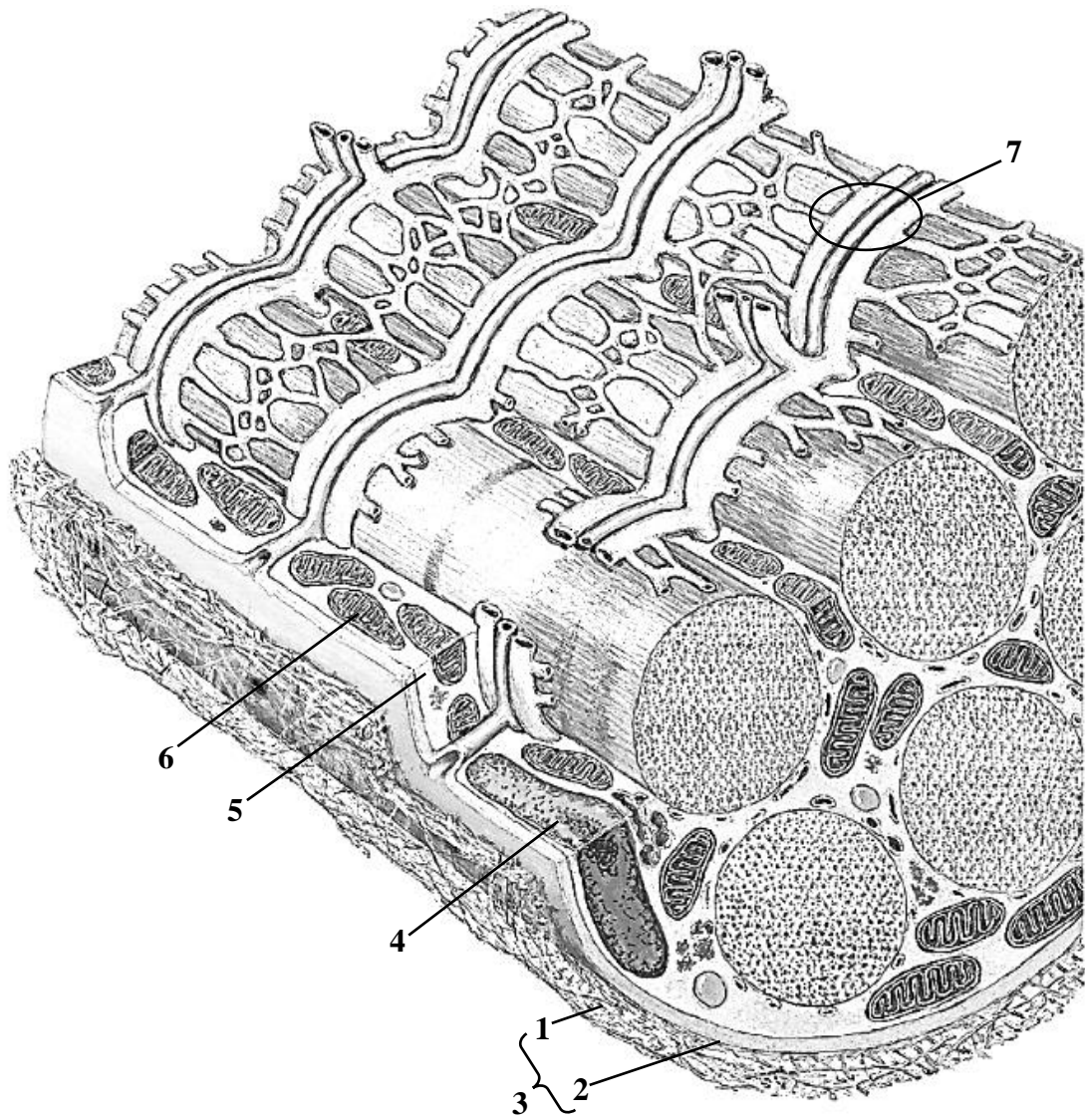


Diagram of muscle fiber



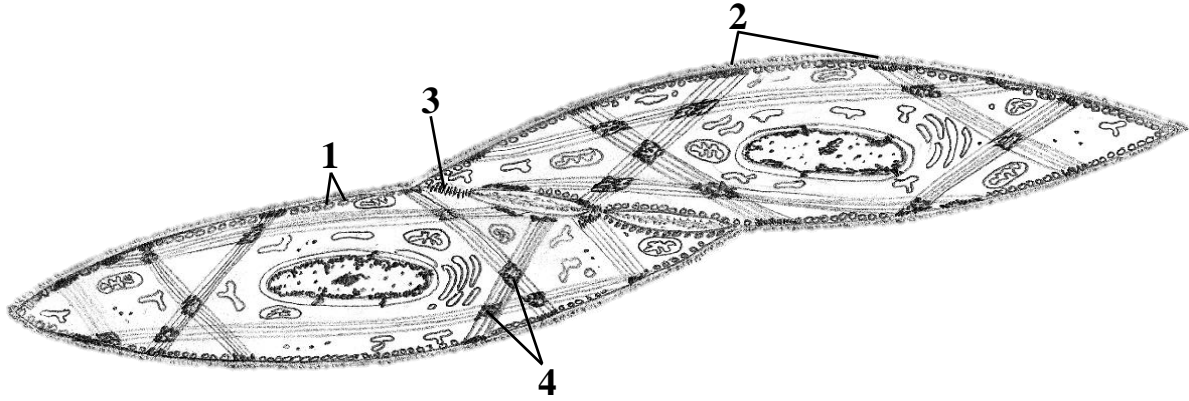
Name the structures, indicated by the numbers:

1. _____
2. _____
3. Sarcolemma
4. _____
5. Sarcoplasm
6. _____
7. _____

Color the components of muscle fibers:

- T-tubule
- terminal cisternae

Diagram of smooth muscle cells



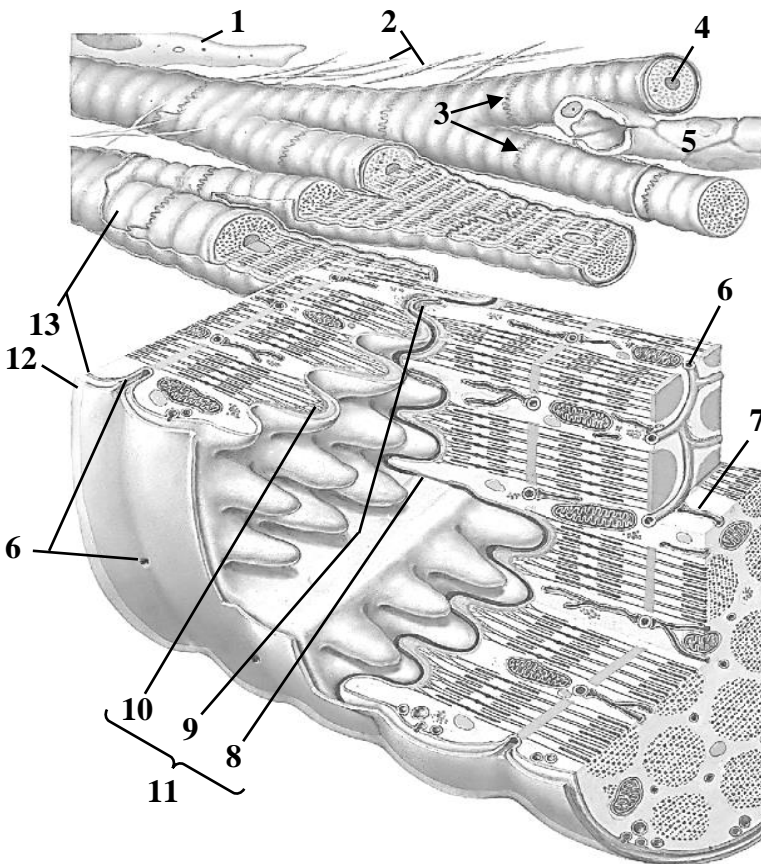
Name the structures, indicated by the numbers:

1. _____
2. _____
3. Nexus
4. _____ bodies

Color the following structures, using a different color for each:

- basement membrane
- bundles of myofilaments
- nucleus

Scheme of structure of cardiac muscle tissue



Name the structures, indicated by the numbers:

1. Fibroblast
2. Collagen fibers
3. Cardiomyocytes
4. _____
5. Blood capillary
6. _____
7. _____
reticulum
8. _____ junction
9. Desmosome
10. Fascia adherens
11. _____
12. _____
13. _____

THE LESSON IS COMPLETED

Teacher _____

« _____ » _____

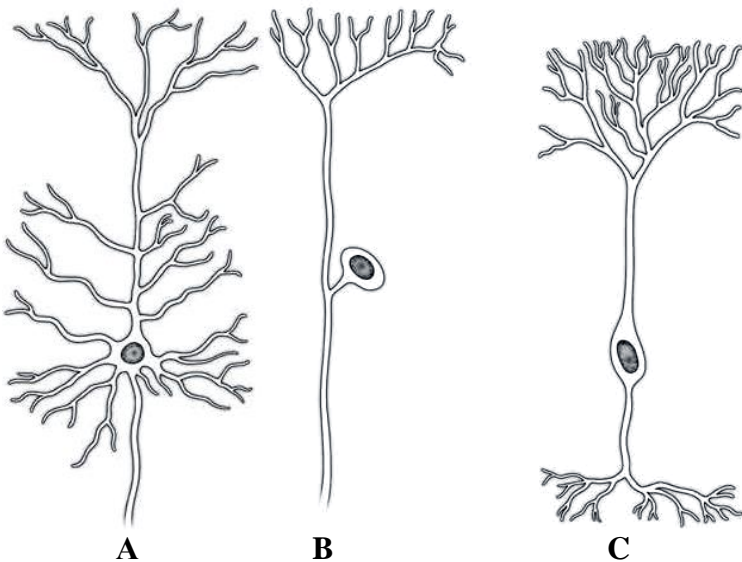
TOPIC 9
NERVOUS TISSUE. GENERAL MORPHOFUNCTIONAL CHARACTERISTICS, SOURCES OF DEVELOPMENT

Control questions:

1. Nervous tissue: general morphofunctional characteristics, sources of development.
2. Neurons.
3. Neuroglia.
4. Structure of unmyelinated and myelinated nerve fibers. Degeneration and regeneration of nerve fibers.
5. Nerve endings: classification, general morphofunctional characteristics; a. receptor and effector nerve endings: classification, structure; b. interneuronal synapses: classification, structure, mechanisms of nerve impulse transmission.

MATERIAL FOR INDEPENDENT WORK

Morphological types of neurons



Name the structures, indicated by the letters:

A. _____ neuron

B. _____ neuron

C. _____ neuron

Color the processes of neurons, using a different color for each:

axon

dendrite

Cross section of spinal cord



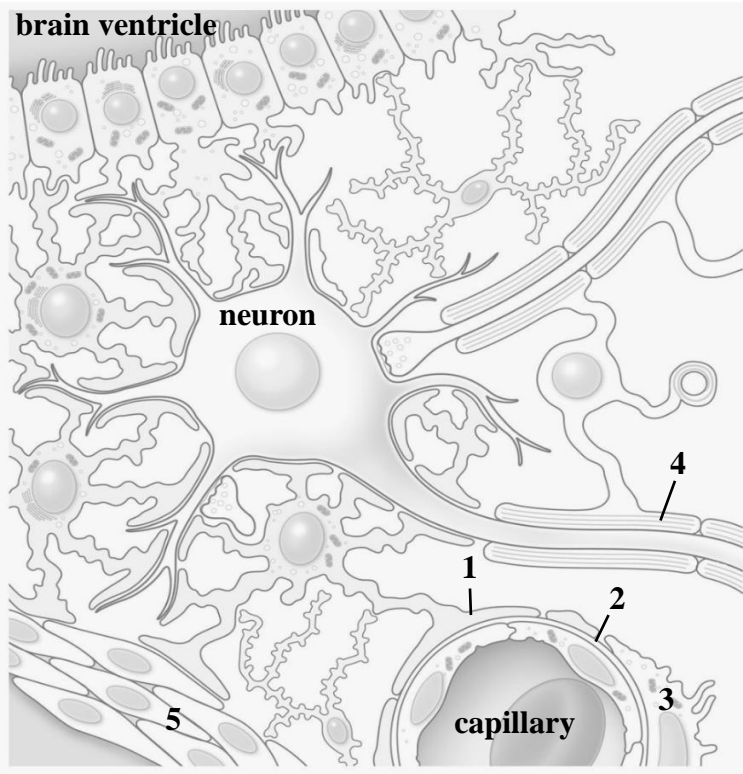
Draw multipolar neuron and indicate the following structures:

1. Perikaryon
2. Nucleus
3. Nucleolus
4. Nissl substance
5. Dendrites
6. Axon
7. Axon hillock

Histology slide

(Methylene blue stain, high-power magnification)

Central neuroglia



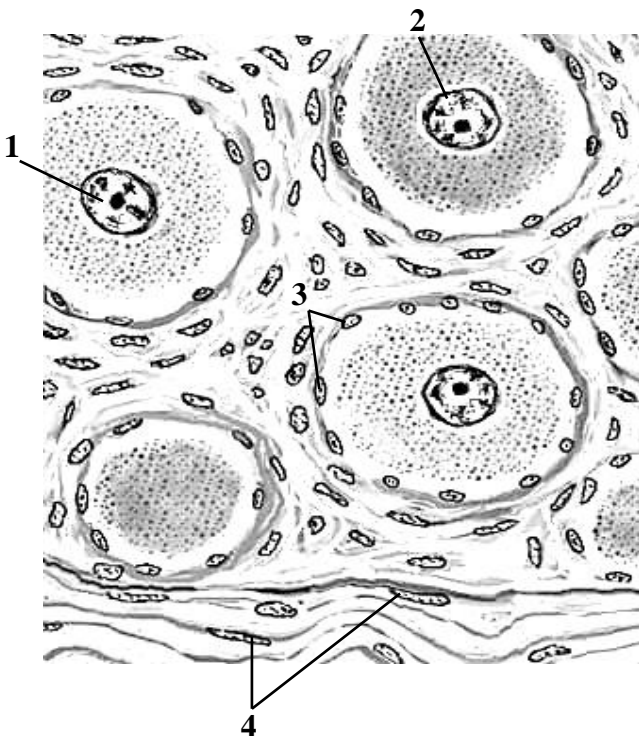
Name the structures, indicated by the numbers:

1. _____
2. _____
of blood capillary
3. _____
4. _____ sheath
5. Pia mater

Color the following cells, using a different color for each:

- astrocytes
- microglia
- ependymal cells
- oligodendrocytes
- endothelial cells

Peripheral neuroglia. Spinal ganglion



Name the structures, indicated by the numbers:

1. Nucleus of _____ neuron
2. _____
3. _____ cells
4. Nuclei of _____

Color the following structures, using a different color for each:

- neuronal bodies
- loose connective tissue
- nerve fibers

THE LESSON IS COMPLETED

Teacher _____

« » _____

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EMBRYOLOGY AND GENERAL HISTOLOGY

Практикум

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