***Гістологія***

**Cytology**

**#**

Analysis of an electron diffraction pattern of a cell revealed mitochondrion destruction. This

might result in abnormal course of the following cell process:

+ Oxidation of organic substances

***-***  Nuclear division

***-*** Crossingover

***-***  Cleavage

**#**

Formation of ribosome subunits in a cell was disturbed in course of an experiment (by means of

activated mutagenic factors). This will have an effect on the following metabolic process:

***+*** Protein biosynthesis

***-*** Carbohydrate biosynthesis

***-***  ATP synthesis

***-***  Photosynthesis

***-***  Biological oxidation

#

Electron microscopic study of a cell revealed roundish bubbles confined by a membrane and

containing a lot of various hydrolytic enzymes. It is known that these organelles provide

intracellular digestion and protective functions. These elements are:

***+*** Lysosomes

***-*** Centrosomes

***-***  Endoplasmic reticulum

***-***  Ribosomes

***-***  Mitochondria

***#***

A 50 year old woman had her tooth extracted. The tissue regenerated. Which of the following

organella are the most active during tissue regeneration?

***+***Ribosomes

***-*** Centrosomes

***-*** Postlysosomes

***-*** Agranular endoplasmic reticulum

***-*** Lysosomes

**Embryology**

**#**

Microspecimen of a child's finger skin reveals subnormal development of epidermis. What

embryonic leaf was damaged in course of development?

***+*** Ectoderm

***-*** Mesoderm

***-*** Entoderm

***-*** Mesenchyma

***-*** Ectomesenchyma

**#**

During gastrulation the Hensen's node remained underdeveloped in the embryo. Which axial

organ will slow down its development?

***+*** Chord

***-***Neural crests

***-***  Neural groove

***-***  Neural tube

***-*** Mantle layer of the neural tube

**#**

At a certain stage of development of a human embryo one can observe formation of a cavity in

its structure, small light blastomeres on the periphery and large dark blastomeres at one of the

poles. The embryo at this stage of development is called:

***+*** Blastocyst

***-***  Morula

***-***  Zygote

***-***  Gastrula

***-***  Blastodisk

**#**

For an unknown reason the fertilization membrane of an embryo dissolved in the fallopian tube

in the first critical period. What complication of pregnancy is possible in this case?

***+*** Embryo implantation into the Fallopian tube

***-***  Embryonic death

***-*** Invagination of the blastocyst wall

***-***  Return of blastocyst back to the ampullary portion of the tube

***-***  Formation of two blastocysts

**#**

Implantation process has two stages: adhesion and invasion. Morphological manifestation of

blastocyte adhesion is:

***+*** Attachment of blastocyte to the endometrium

***-*** Destruction of endometrium epithelium

***-***  Destruction of connective tissue of endometrium

***-***  Destruction of endometrium vessels

***-***  Formation of lacunes

**Epithelial tissue**

***#***

A scheme presents an exocrinous gland that has unbranched excretory duct with a terminal part in form of a saccule openining into the duct. How is this gland called according to the morphological classification of exocrinous glands?

***+*** Simple unbranched alveolar

***-*** Compound branched alveolar

***-*** Simple branched tubular

***-*** Compound unbranched alveolar

***-*** Compound unbranched alveolar tubular

**#**

There is a specimen of soft palate where both oral and nasal surfaces can be seen. It was

revealed that oral cavity had damaged epithelium. What epithelium is damaged?

***+*** Multistratal squamous nonkeratinizing

***-*** Multistratal cubical nonkeratinizing

***-*** Multistratal prismatic nonkeratinizing

***-*** Multistratal squamous keratinizing

***-*** Multirowed ciliated epithelium

#

Study of a tubular organ revealed that its median membrane consists of solid hyaline rings.

What epithelium lines mucous membrane of this organ?

***+*** Multinuclear prismatic ciliated

***-*** Monostratal prismatic glandular

***-*** Monostratal prismatic with a border

***-*** Multistratal squamous nonkeratinizing

***-*** Monostratal cubical

#

Histological examination of a tissue sample revealed that the tissue had no blood vessels, and

the cells were packed tightly together making layers. Specify this tissue:

***+*** Epithelial

***-*** Cartilaginous

***-*** Osseous

***-*** Nervous

***-***Muscular

**Blood and lymph**

**#**

In the blood of a 26-year-old man it was revealed 18% of erythrocytes of the spherical, ball-shaped, flat and thorn-like shape. Other eritrocytes were in the form of the concavo-concave disks. How is such phenomenon called?

***+*** Physiological poikilocytosis

***-*** Pathological poikilocytosis

***-*** Physiological anisocytosis

***-*** Pathological anisocytosis

***-***  Erytrocytosis

**Connective tissue**

***#***

In course of indirect histogenesis of tubular bone tissue a plate is formed between epiphyseal and diaphyseal ossification centres that provides further lengthwise growth of bones. What structure is it?

***+*** Metaphyseal plate

***-*** Osseous cuff

***-*** Osseous plate

***-*** Osteon

***-*** Layer of interior general plates

**Muscle tissue**

***#***

Patient with injured muscles of the lower extremities was admitted to the traumatological department. Due to what cells is reparative regeneration of the muscle fibers and restoration of the muscle function possible?

***+*** Satellite-cells

***-*** Myoblasts

***-*** Myofibroblasts

***-*** Fibroblasts

***-*** Myoepithelial cells

**Nerve tissue**

#

A sensitive neural ganglion consists of roundish neurocytes with one extension that divides into axon and dendrite at some distance from the perikaryon. What are these cells called?

***+*** Pseudounipolar

***-*** Unipolar

***-*** Bipolar

***-*** Multipolar

***-*** Apolar

***Central Nervous System***

***#***

One of sections of central nervous system has layerwise arrangement of neurocytes. Among them there are cells of the following forms: stellate, fusiform, horizontal, pyramidal. What section of central nervous system is this structure typical for?

***+***  Cortex of cerebrum

***-*** Spinal cord

***-*** Cerebellum

***-*** Medulla oblongata

***-*** Hypothalamus

**Senses**

***#***

A histological specimen presents a receptor zone of a sensoepithelial sense organ. Cells of this zone are placed upon the basal membrane and include the following types: external and internal receptor cells, external and internal phalangeal cell, stem cells, external limiting cells and external supporting cell. The described receptor zone belongs to the following sense organ:

***+*** Acoustic organ

***-*** Visual organ

***-*** Gustatory organ

***-*** Equilibrium organ

***-*** Olfactory organ

***#***

Vitamin A deficit results in the impairment of twilight vision. Name the cells that have the above-mentioned photoreceptor function:

***+*** Rod receptor cell

***-*** Horizontal neurocytes

***-*** Cone receptor cells

***-*** Bipolar neurons

***-*** Ganglion neurocytes

***Skin***

***#***

An embryo displays disturbed process of dorsal mesoderm segmentation and somite formation. What part of skin will have developmental abnormalities?

***+*** Derma

***-*** Hair

***-*** Sebaceous glands

***-*** Epidermis

***-*** Sudoriferous glands

***#***

Study of fingerprints (dactylography) is used by criminalists for personal identification as well as for diagnostics of genetic abnormalities, particularly Dawn's disease. What layer of skin determines individuality of fingerprints?

***+*** Dermopapillary

***-*** Horny

***-*** Reticular

***-*** Clear (stratum lucidum epidermidis)

***-*** Basal

**Cardiovascular system**

#

A histological specimen shows a blood vessel. Its inner coat is composed by endothelium, subendothelium and internal elastic membrane. The middle coat is enriched with smooth myocytes. Such morphological characteristics are typical for the following vessel:

***+*** Muscular-type artery

***-*** Elastic-type artery

***-*** Capillary

***-*** Non-muscular vein

***-*** Muscular-type vein

**#**

In the microspecimen of red bone marrow there were revealed multiple capillares through the walls of which mature blood cells penetrated. What type of capillares is it?

***+*** Sinusoidal

***-*** Fenestrational

***-*** Somatical

***-*** Visceral

***-*** Lymphatic

***#***

Histological specimen presents a vessel the wall of which consists of endothelium, basal membrane and loose connective tissue. What type of vessel is it?

***+*** Vein of non-muscular type

***-*** Artery

***-*** Vein of muscular type

***-*** Hemocapillary

***-*** Lymphocapillary

***#***

A histological specimen of spleen shows a vessel with a wall consisting of endothelium and subendothelial layer, median membrane is absent, exterior membrane inosculates with the layers of spleen connective tissue. What vessel is it?

***+*** Vein of non-muscular type

***-*** Vein of muscular type

***-*** Artery of muscular type

***-*** Arteriole

***-*** Capillary

***#***

A histological specimen presents an artery. One of the membranes of its wall has flat cells lying on the basal membrane. What type of cells is it?

***+*** Endothelium

***-*** Mesothelium

***-*** Smooth myocytes

***-*** Fibroblasts

***-*** Macrophages

**Hemato- and lymphopoiesis**

#

An electronic microphotograph shows a macrophagic cell with erythrocytes at different stages of differentiation located along its processes. This is the cell of the following organ:

***+*** Red bone marrow

***-*** Thymus

***-*** Spleen

***-*** Tonsil

***-*** Lymph node

**Immune system**

***#***

In a histological specimen parenchyma of an organ is represented by lymphoid tissue that forms lymph nodes; the latter are arranged in a diffuse manner and enclose a central artery. What anatomic formation has such morphological structure?

***+*** Spleen

***-*** Tonsil

***-*** Lymph node

***-*** Thymus

***-*** Red bone marrow

***#***

Histological examination of a 40 y.o. man's thymus revealed decreased share of parenchymatous gland elements, increased share of adipose and loose connective tissue, its enrichment with thymus bodies. The organ's mass was unchanged. What phenomenon is it?

***+*** Age involution

***-*** Accidental involution

***-*** Hypotrophy

***-*** Dystrophy

***-*** Atrophy

***#***

The specimens present sections of haemopoetic and immunogenetic organs. Organ has lymph tissue forming different structures (lymph nodes,lobules, bars). In what organ does antigen-independent proliferation and differantiation take place?

***+*** Spleen

***-*** Thymus

***-*** Lymphatic nodes

***-*** Hemolymph nodes

***-*** Tonsil

***Endocrine system***

***#***

An endocrinal gland with parenchyma consisting of epithelium and neural tissue is under morphological examination. Epithelial trabecules have two types of cells: chromophilic and chromophobic. Identify this organ:

***+*** Hypophysis

***-*** Adrenal glands

***-*** Hypothalamus

***-*** Thyroid gland

***-*** Parathyroid gland

**Digestive**

**#**

During histological examination of the stomach it was found out that glands contain very small amount of pariental cells or they are totally absent. Mucose membrane of what part of the stomach was studied?

***+*** Pyloric part

***-*** Fundus of stomach

***-*** Cardiak part

***-*** Body of stomach

***#***

When the pH level of the stomach lumen decreases to less than 3, the antrum of the stomach releases peptide that acts in paracrine fashion to inhibit gastrin release. This peptide is:

***+*** GIF

***-*** Acetylcholine

***-*** Gastrin-releasing peptide (GRP)

***-*** Somatostatin

***-*** Vasoactive intestinal peptide (VIP)

***#***

Examination of a 43 y.o. patient revealed that his stomach has difficulties with digestion of protein food. Gastric juice analysis revealed low acidity. Function of which gastric cells is disturbed in this case?

***+*** Parietal exocrinocytes

***-*** Main exocrinocytes

***-*** Mucous cells (mucocytes)

***-*** Endocrinous cells

***-*** Cervical mucocytes

***#***

Low level of albumins and fibrinogen was detected in the patient's blood. Decreased activity of what organelle of the liver hepatocytes can cause it?

***+*** Granular endoplasmatic net

***-*** Agranular endoplasmatic net

***-*** Mitochondrions

***-*** Golgi complex

***-*** Lysosomes

***#***

An electron microphotography of a fragment of proper gastric gland shows a big irregular round-shaped cell. There are a lot of intracellular tubules and mitochondria in the cytoplasm. Specify this cell:

***+*** Parietal cell

***-*** Principal cell

***-*** Undifferentiated cell

***-*** Mucous cell

***-*** Endocrine cell

***#***

A viral infection has damaged cells that form walls of bile capillaries. This stimulated conditions for inflow of bile into the blood of sinusoidal capillaries. What cells are damaged?

***+*** Hepatocytes

***-*** Kupffer's cells

***-*** Ito cells

***-*** Pit-cells

***-*** Endotheliocytes

***#***

A patient ill with chronic gastritis went for endogastric pH-metry that allowed to reveal decreased acidity of gastric juice. It is indicative of diminished function of the following cells:

***+*** Parietal exocrinocytes

***-*** Chief exocrinocytes

***-*** Endocrinocytes

***-*** Cervical cells

***-*** Accessory cells

***#***

Ultramicroscopical examination of "dark" hepatocyte population in the cell cytoplasm detected a developed granular endoplasmic reticulum. What function has this organella in these cells?

***+*** Synthesis of blood plasma proteins

***-*** Carbohydrate synthesis

***-*** Deintoxicative function

***-*** Bile production

***-*** Calcium ion depositing

***#***

A microspecimen of the submandibular salivary gland shows some basket-shaped cells

concentrated around the acines and excretory ducts. These cells surround bases of the

serous cells and are called myoepitheliocytes. These cells relate to the following tissue:

***+*** Muscular tissue

***-*** Epithelial tissue

***-*** Neural tissue

***-*** Special connective tissue

***-*** Loose fibrous connective tissue

**Respiratory system**

***#***

Lung of premature infant is presented on electronic photomicrography of biopsy material. Collapse of the alveolar wall caused by the deficiency of surfactant was revealed. Disfunction of what cells of the alveolar wall caused it?

***+*** Alveocytes type II

***-*** Alveocytes type I

***-*** Alveolar macrophages

***-*** Secretory cells

***-*** Fibroblasts

***#***

A patient was admitted to the hospital with an asphyxia attack provoked by a spasm of smooth muscles of the respiratory tracts. This attack was mainly caused by alterations in the following parts of the airways:

***+*** Small bronchi

***-*** Median bronchi

***-*** Large bronchi

***-*** Terminal bronchioles

***-*** Respiratory part

***#***

Electronic microphotography of pulmonary alveole's wall presents a big cell. Its cytoplasm has a lot of mitochondria, developed Golgi apparatus, osmiophil lamellated corpuscles. What is the main function of this cell?

***+*** It produces surfactant

***-*** It is a component of blood-air barrier

***-*** It warms the air

***-*** It purifies the air

***-*** It absorbs microorganisms

***#***

A pathological process in bronchi resulted in epithelium desquamation. What cells will regenerate bronchial epithelium?

***+*** Basal

***-*** Intercalary

***-*** Ciliate

***-*** Endocrinal

***-*** Goblet

**Urinary system**

**#**

In course of an experiment the blood pressure of an animal had a stable rise by means of renal

artery constriction. Hyperfunctioning of what renal cells cause this effect?

***+***Juxtaglomerular cells

***-*** Podocytes

***-*** Endotheliocytes

***-*** Interstitial cells

***-***Thick spot cells

**#**

Electron micrograph of a kidney fragment presents an afferent arteriole with big cells under

endothelium. These cells contain secretory granules. Name this type of cells:

***+***Juxtaglomerular

***-*** Mesangial

***-*** Smooth muscular

***-*** Juxtavascular

***-*** Interstitial

**#**

A patient suffering from chronic renal insufficiency has got osteoporosis. Osteoporosis was

caused by abnormal synthesis of the following regulator of mineral metabolism in kidneys:

***+***1,25(OH)2 D3 formation

***-*** Proline hydroxylation

***-*** Lysine hydroxylation

***-*** Glutamate carboxylation

***-*** Cortisol hydroxylation

#

A histological specimen of a kidney shows a part of the distal tubule going between the afferent

and efferent arteriole. The cells building the tubule wall have dense nuclei; basal membrane is

absent. Such structural formation is called:

***+***Macula densa

***-*** Juxtaglomerular cells

***-*** Mesangial cells

***-*** Juxtavascular cells

#

A microphotography represents a fragment of cortical substance of a kidney. This fragment

contains thick spot cells and juxtaglomerular cells with big secretory granules. What kidney

structure is represented?

***+***Juxtaglomerular apparatus

***-*** Renal corpuscle

***-*** Filtering barrier

***-*** Prostaglandin apparatus

***-*** Choroid glomus

#

Electron-microscope investigation of cortical substance of a kidney reveals some structures

lined with prismatic epithelium that normally has brush border and deep plicae of plasmolemma

in its basal part. There is a big number of mitochondrions between these plicae. These

structures belong to the following part of a nephron:

***+***Proximal tubule

***-*** Distal convoluted tubule

***-*** Henle's loop

***-*** Renal corpuscle

***-***Distal straight tubule

**Reproductive system**

***#***

The impact of oxytocin on uterus wall helps to stop uterine bleeding after labor. What

membrane of this organ reacts on the effect of this hormone?

***+***Myometrium

***-*** Endometrium

***-*** Perimetrium

***-*** Parametrium

***-*** Submucous membrane

#

A patient underwent Caesarean section. During the operation a long incision was made in the

uterus wall and the fetus was extracted from uterus. Healing of the sutured myometrium will

proceed in the following way:

***+***Formation of a fibrous cicatrix

***-*** Formation of smooth muscular tissue

***-*** Formation of cross-striated muscle fibers

***-*** Proliferation of myosatellitocytes

***-***Hypertrophy of smooth myocytes