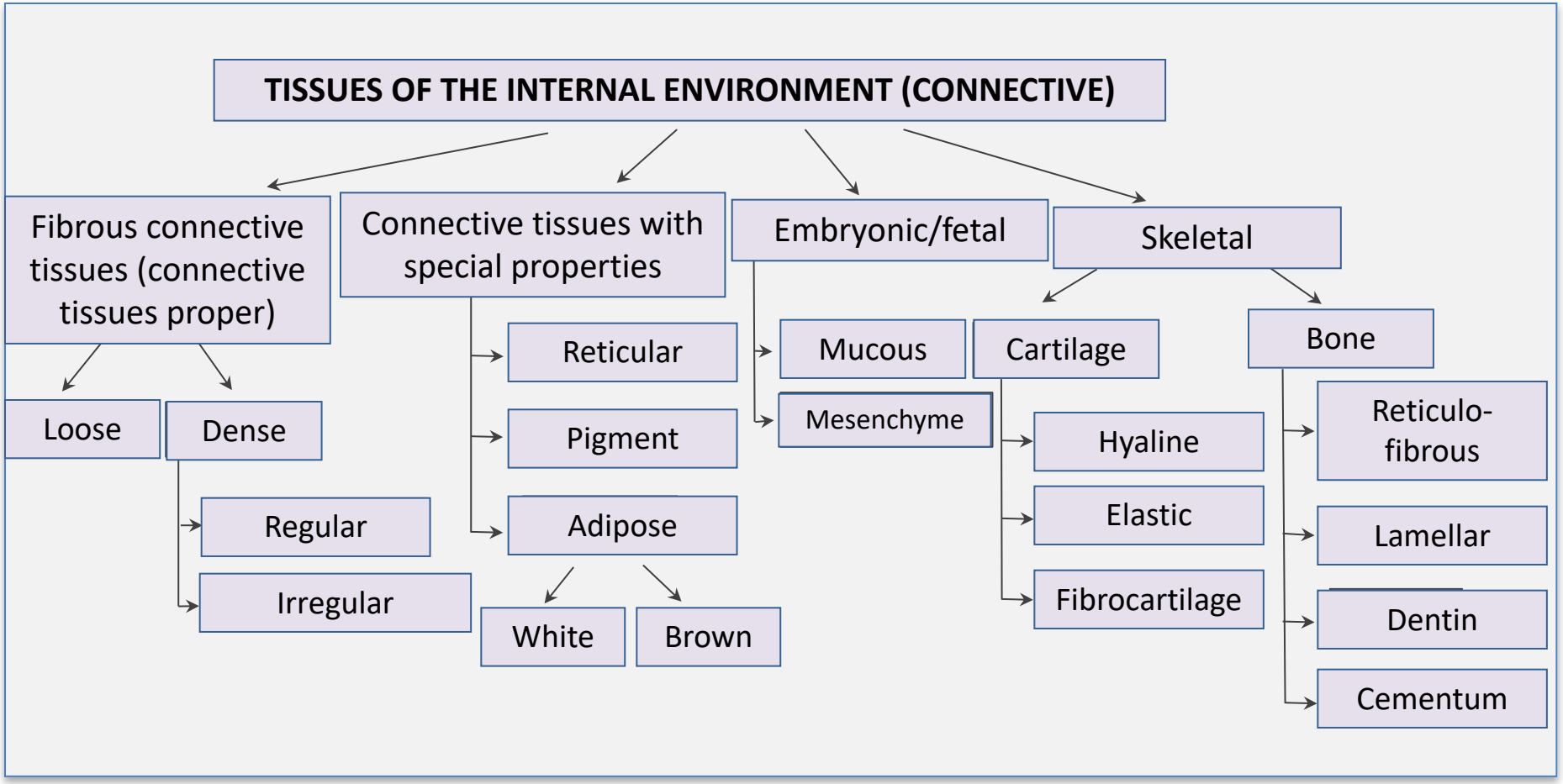
CONNECTIVE TISSUES

Department of Histology, Embryology, and Cytology
of the General Medicine Faculty, RNMR



<u>All tissues of the internal environment have several features in common</u>

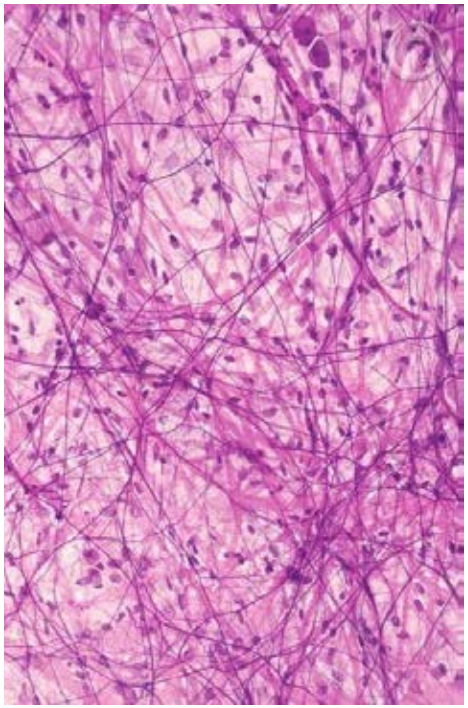
-origin from mesenchyme,

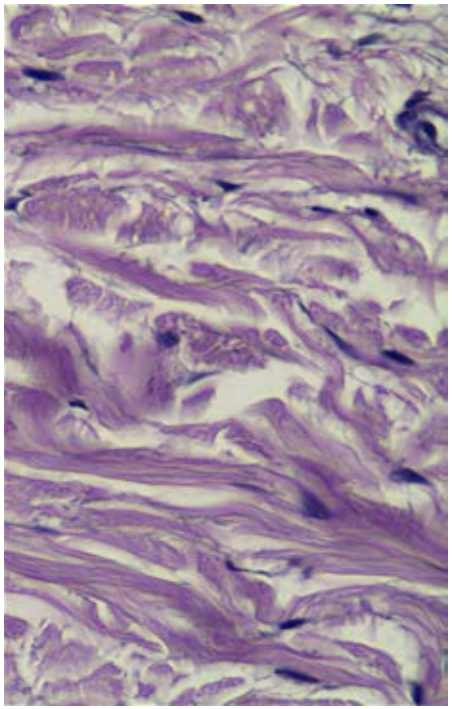
-abundant extracellular matrix

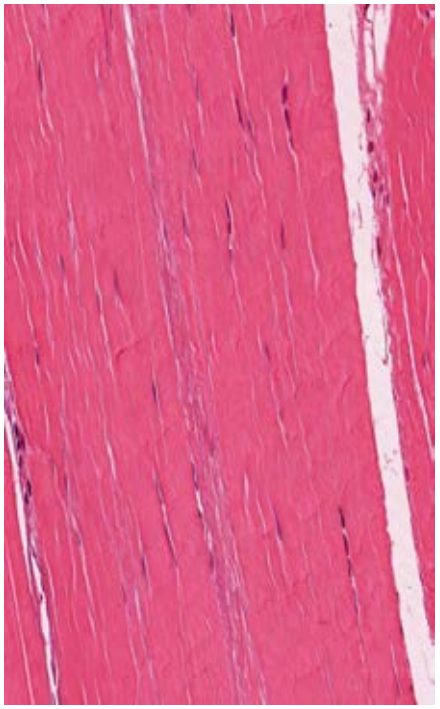
-separated arrangement of resident cells

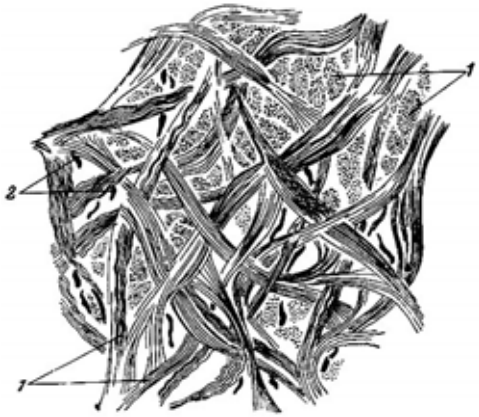
-lack of permanent cell junctions

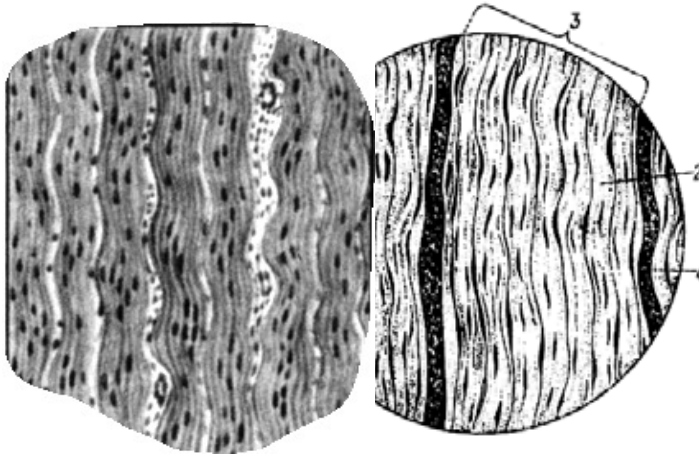
FIBROUS CONNECTIVE TISSUES

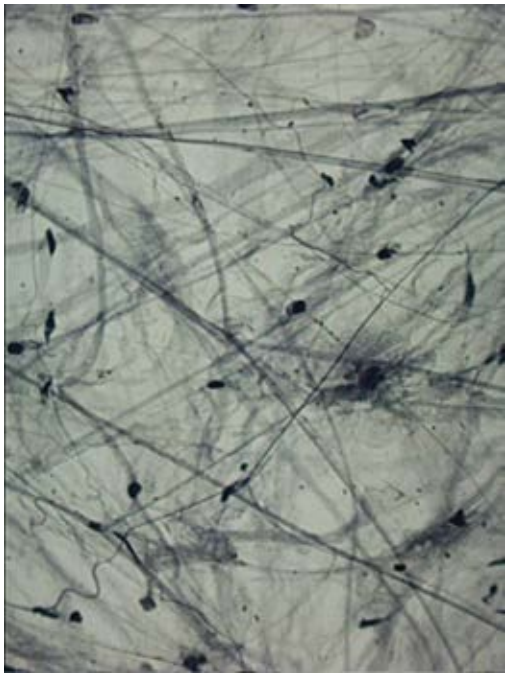


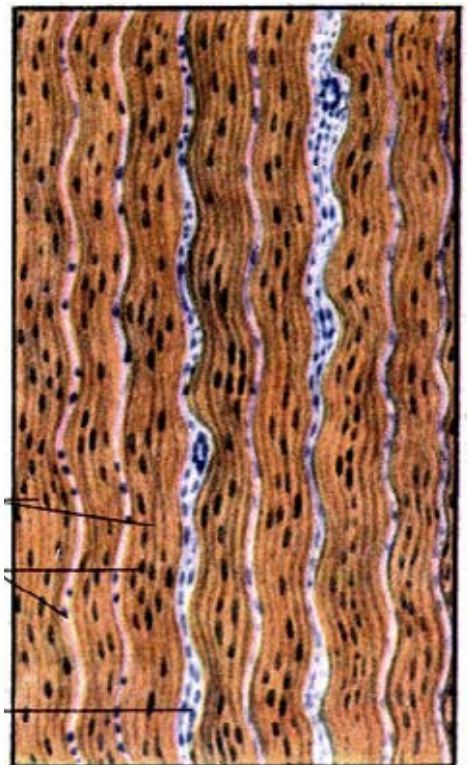


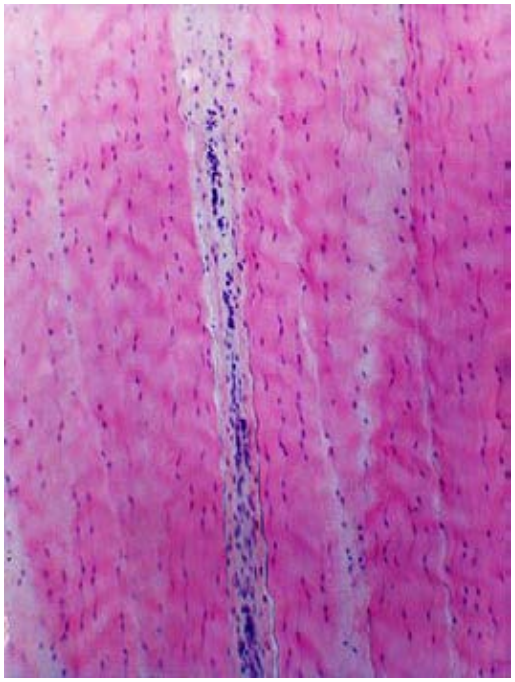




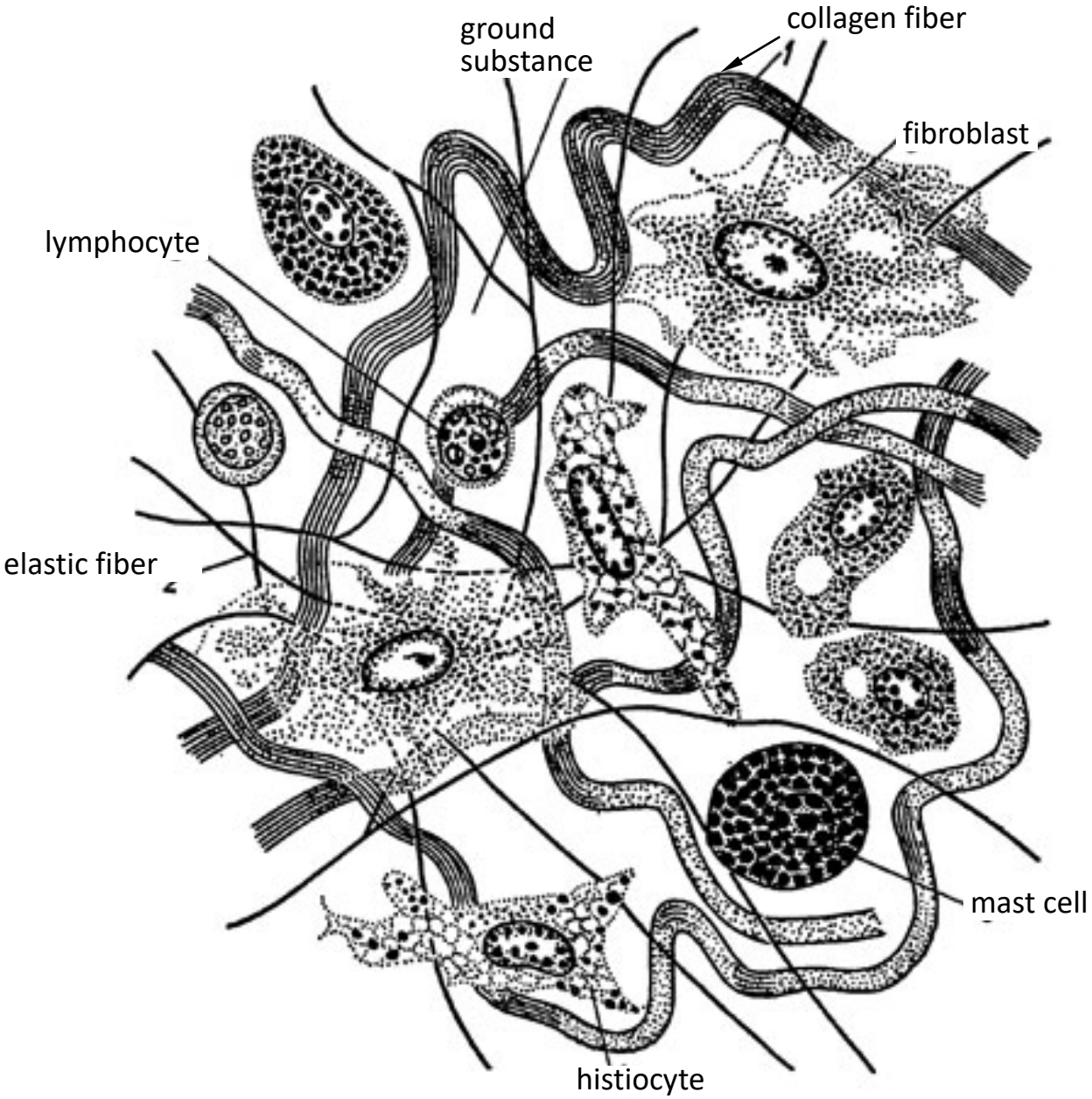








LOOSE FIBROUS CONNECTIVE TISSUE



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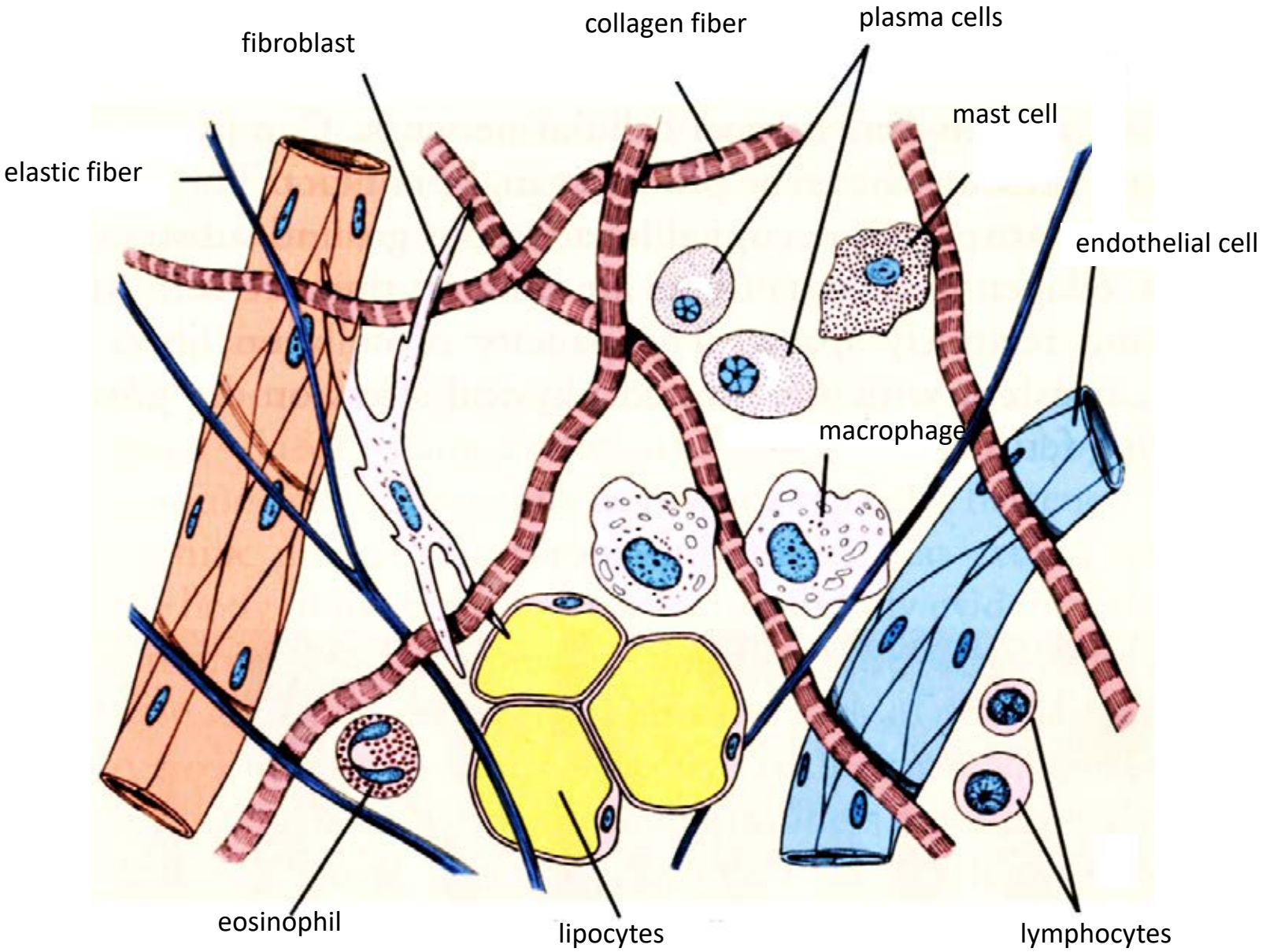
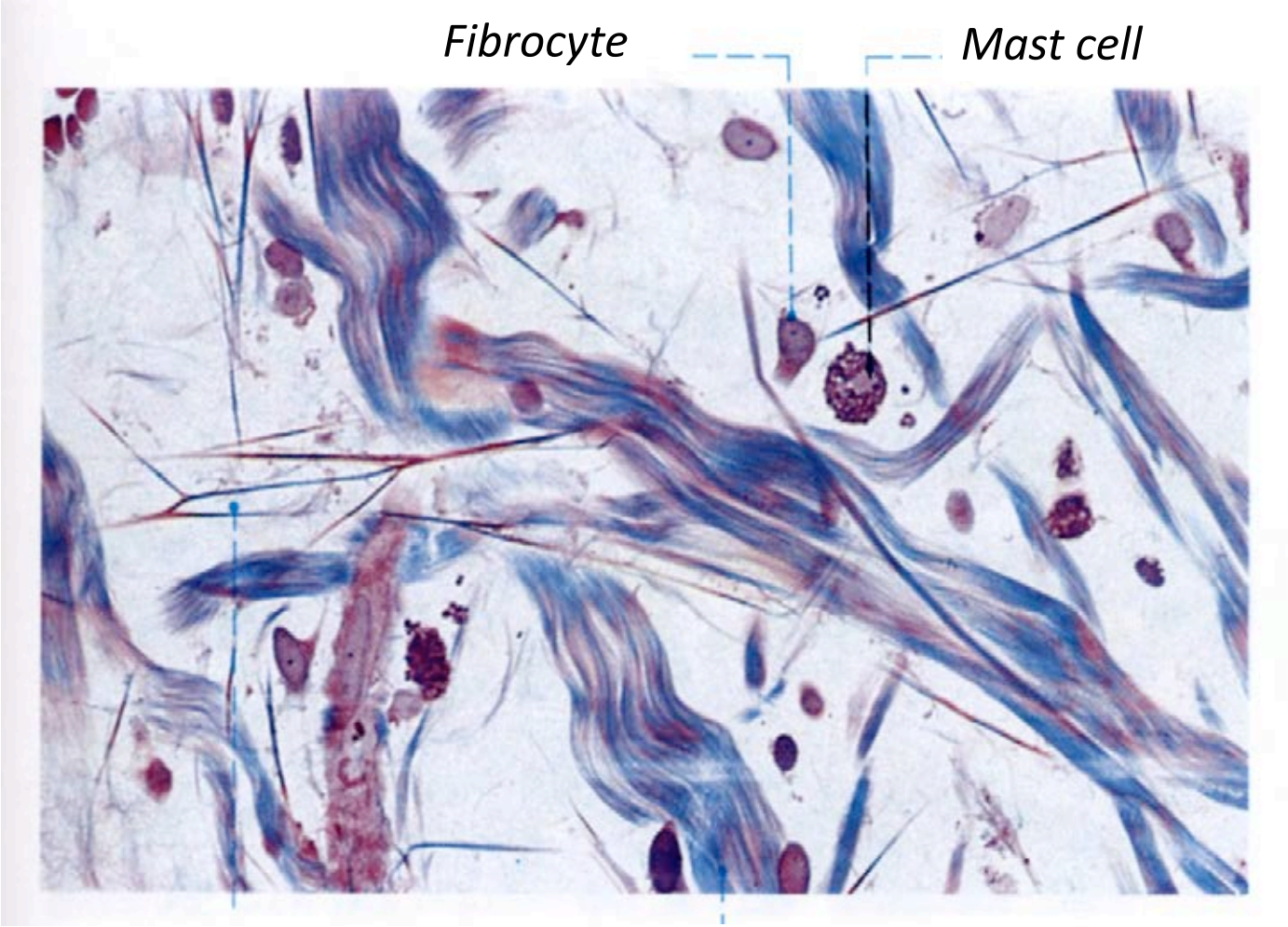
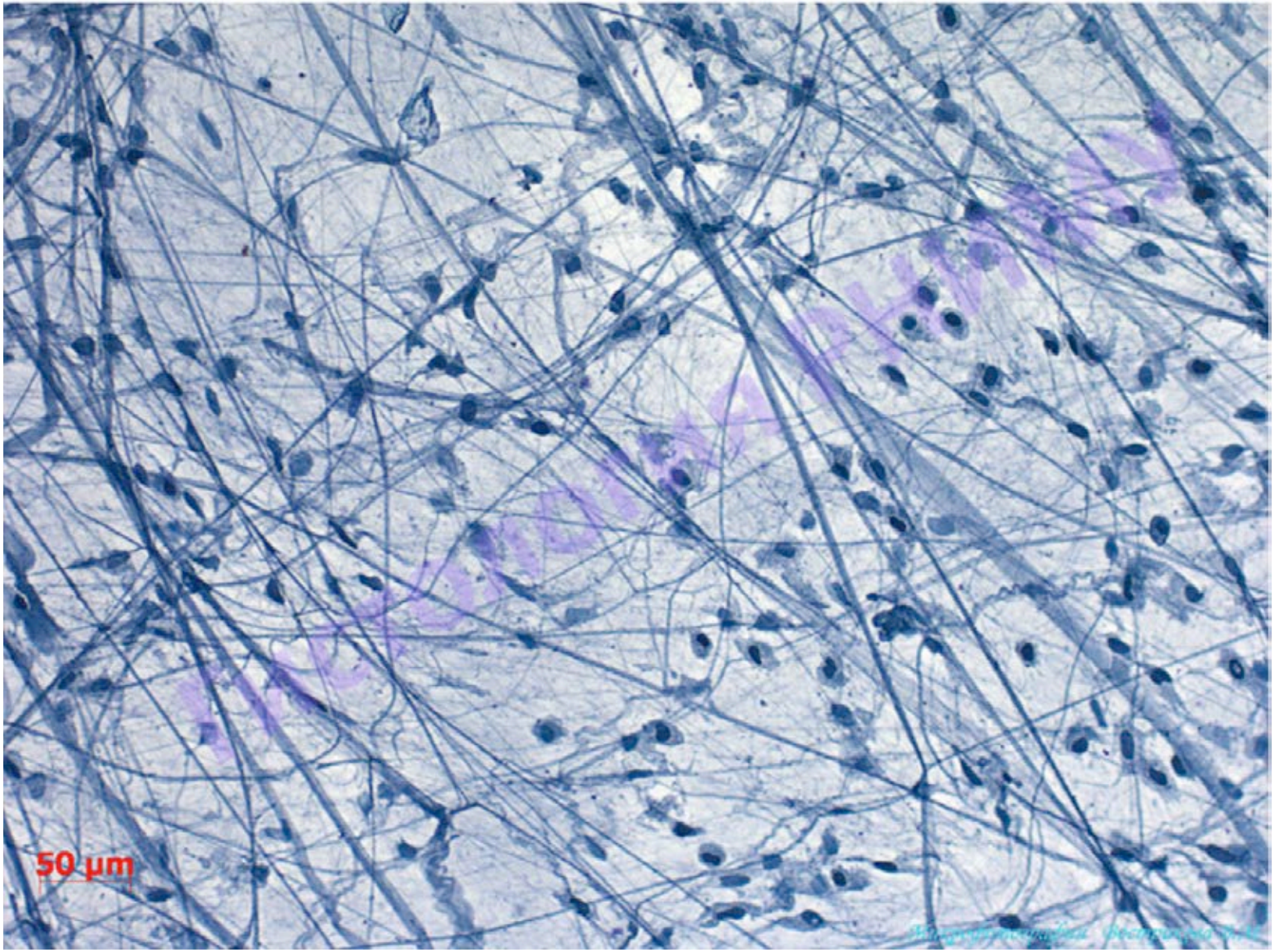


LOOSE FIBROUS CONNECTIVE TISSUE



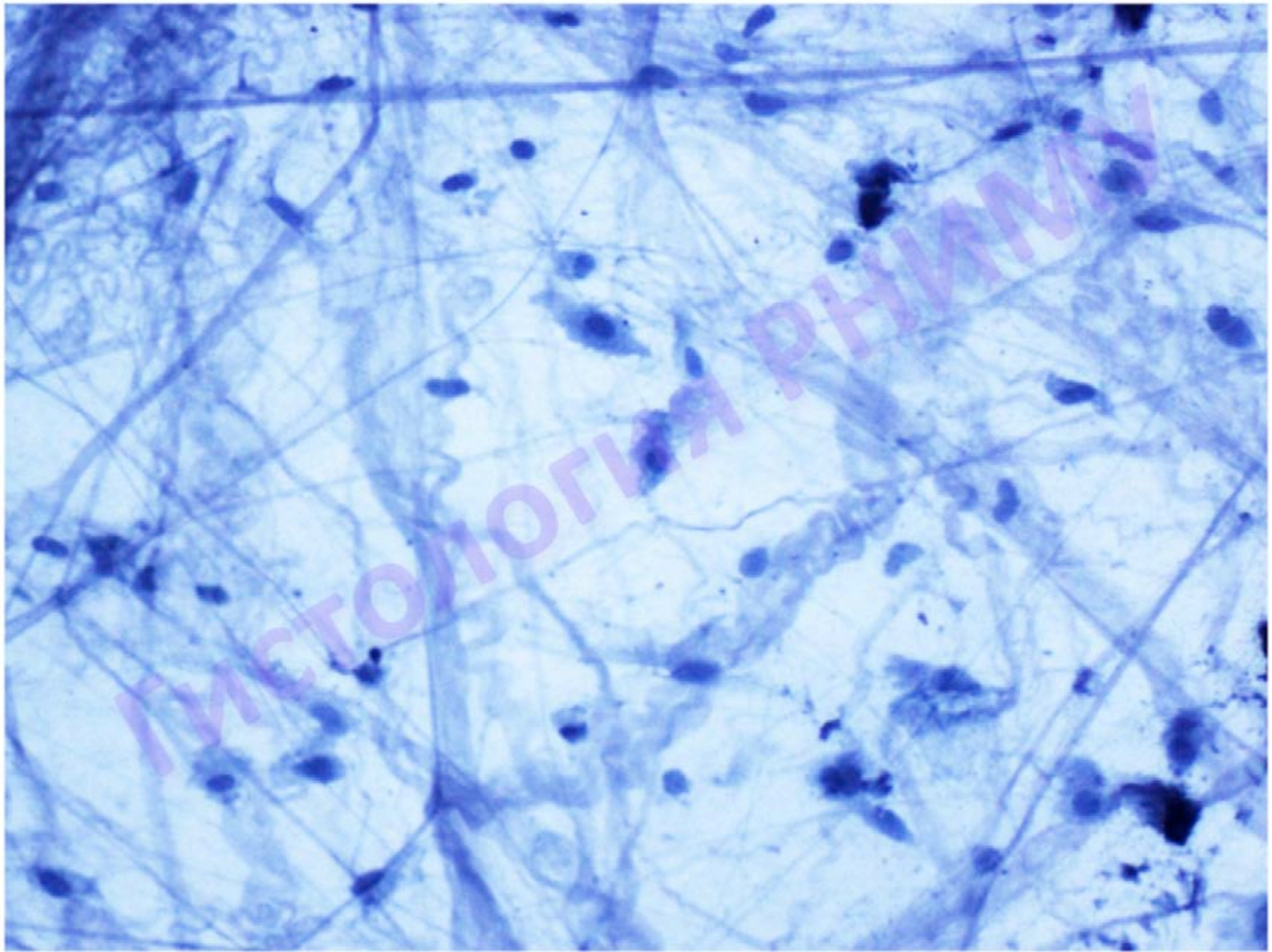
Slide №55 “Loose fibrous connective tissue (whole mount)”

Staining: iron hematoxylin



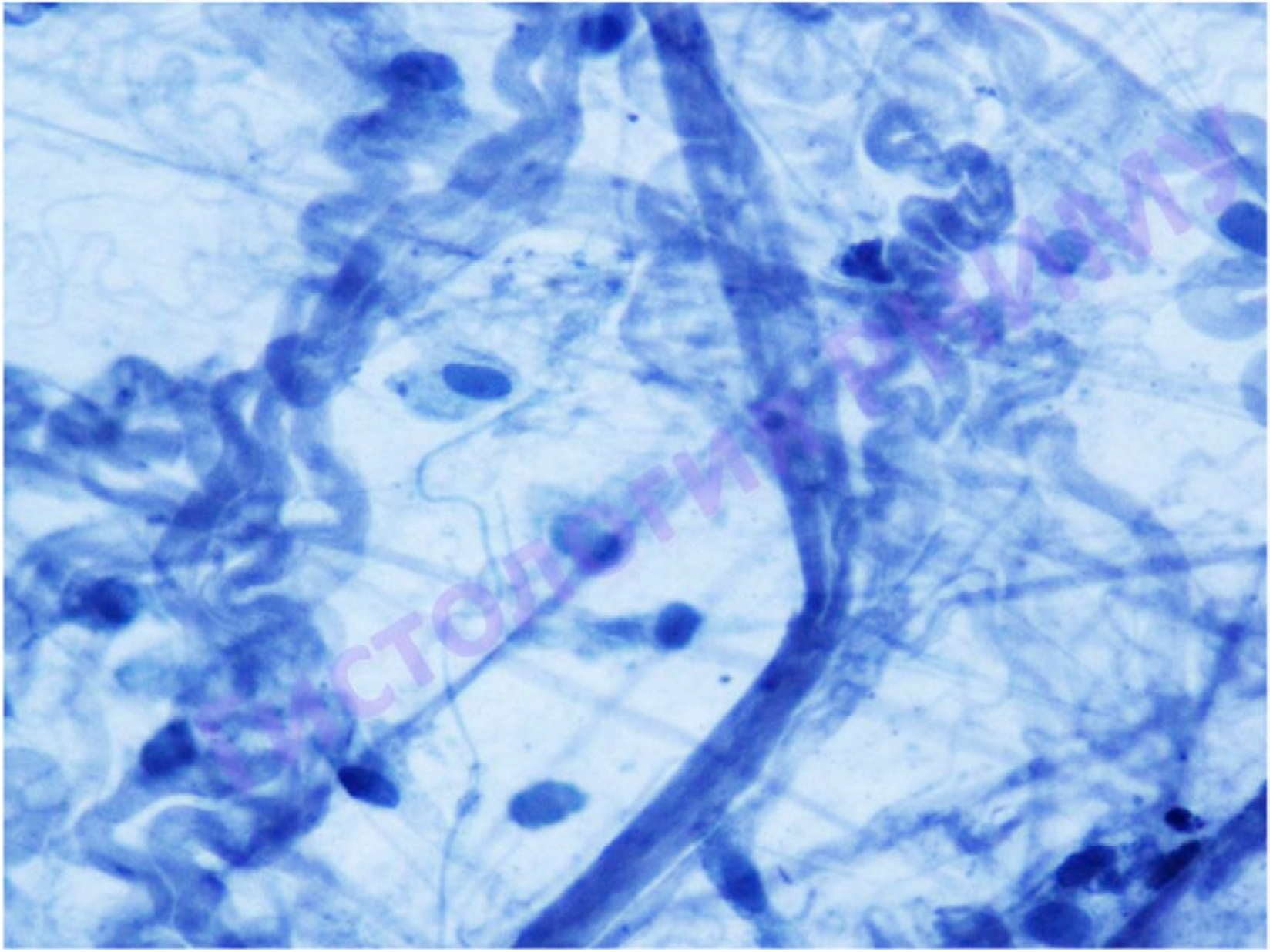
Slide №55 “Loose fibrous connective tissue (whole mount)”

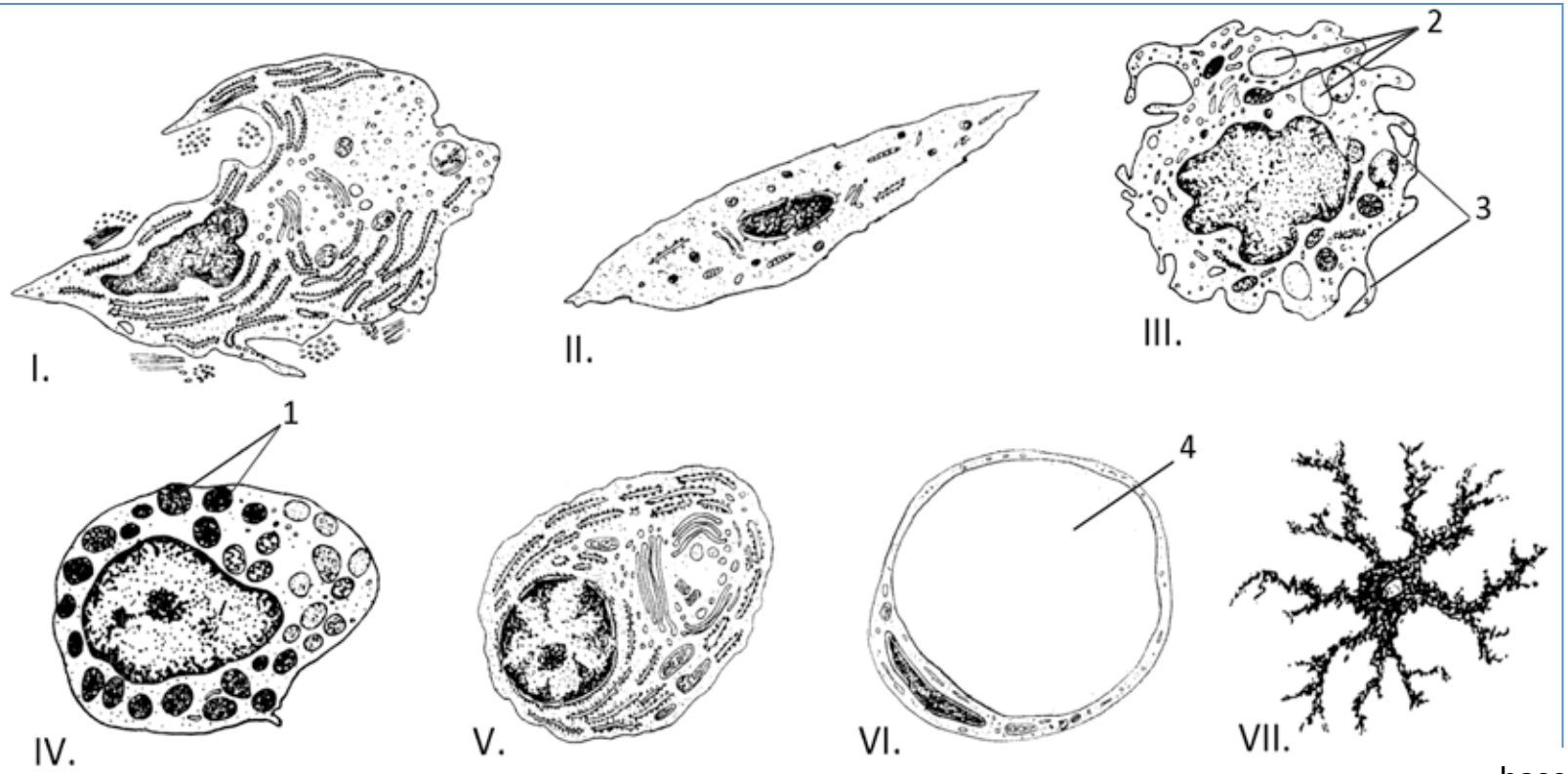
Staining: iron hematoxylin



Slide №55 “Loose fibrous connective tissue (whole mount)”

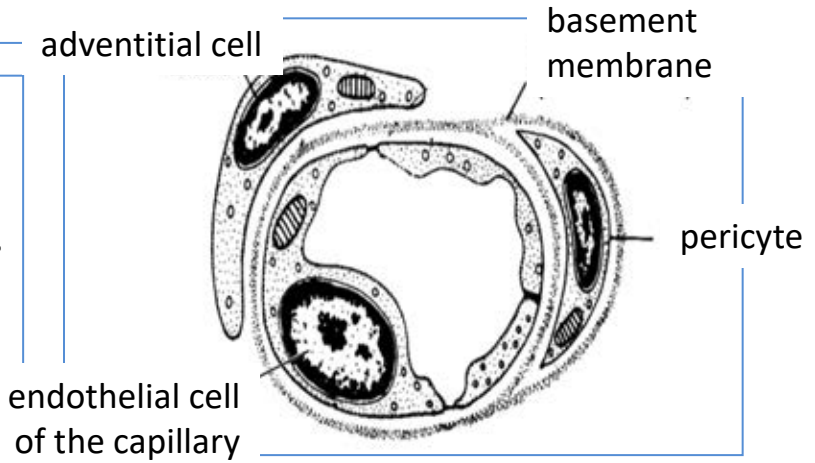
Staining: iron hematoxylin



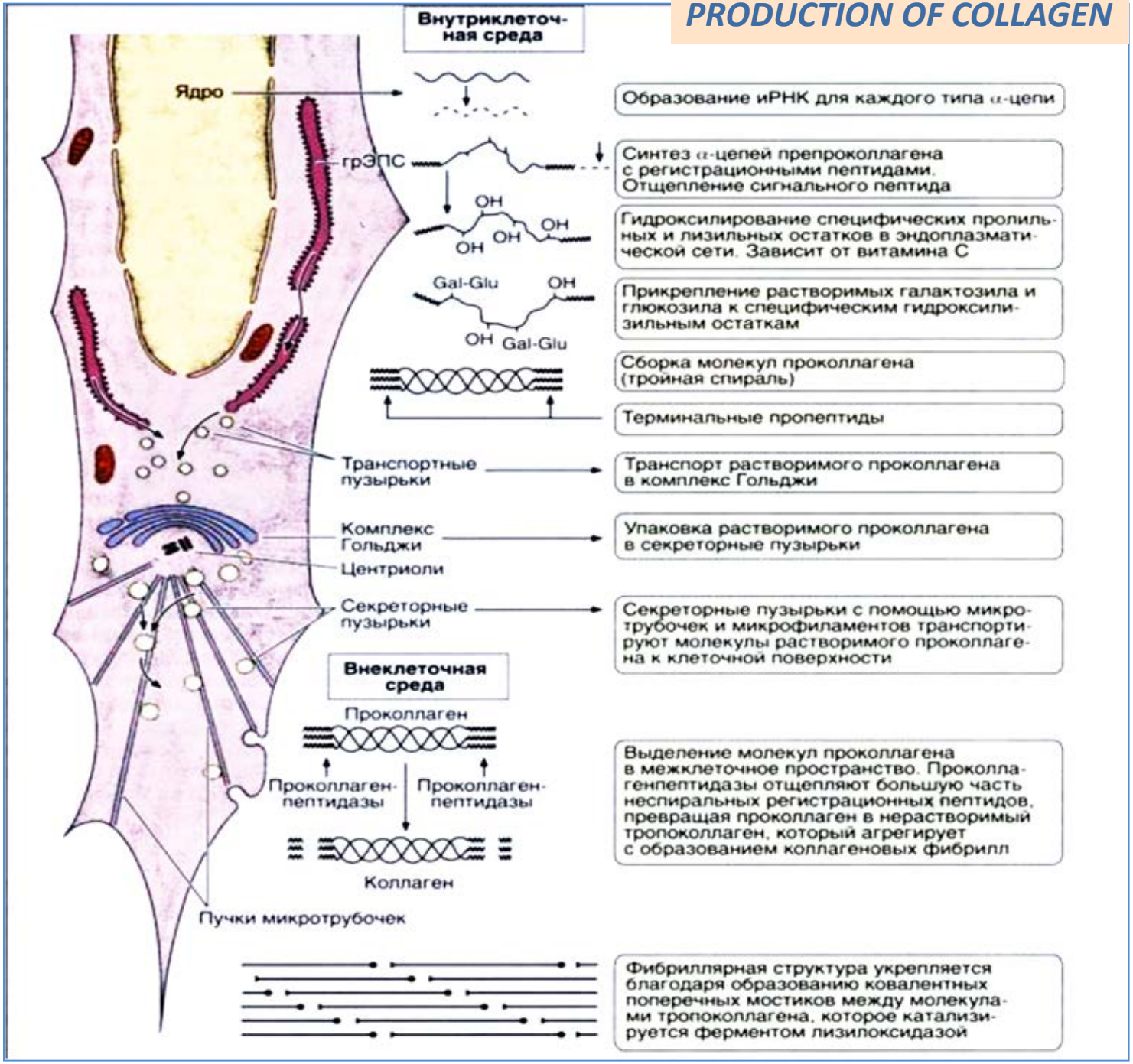


Cells of the loose fibrous connective tissue:

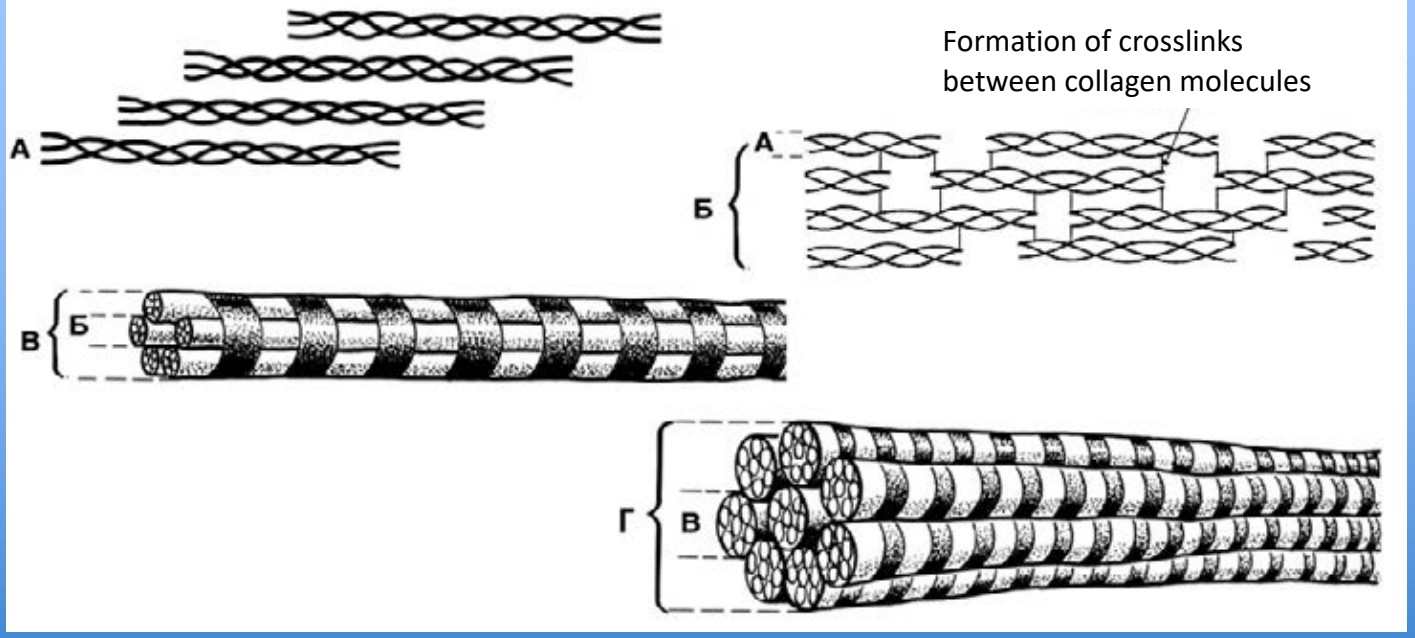
I- fibroblast, II- fibrocyte, III- histiocyte, IV- mast cell, V- plasma cell, VI- adipocyte, VII- pigment cell.
1- specific granules, 2- lysosomes, 3- lamellopodia, 4- lipid droplet.



PRODUCTION OF COLLAGEN

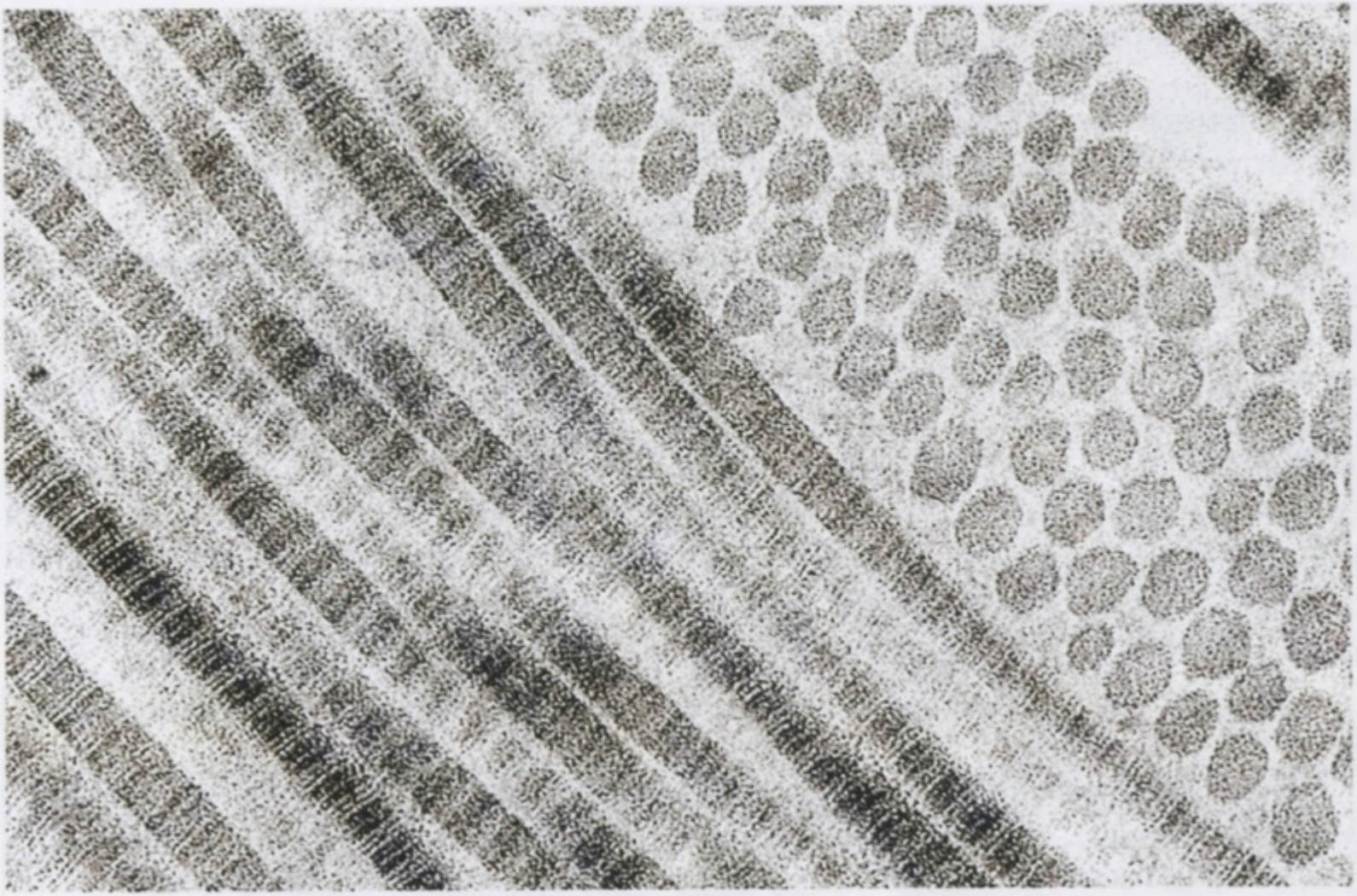


PRODUCTION OF COLLAGEN

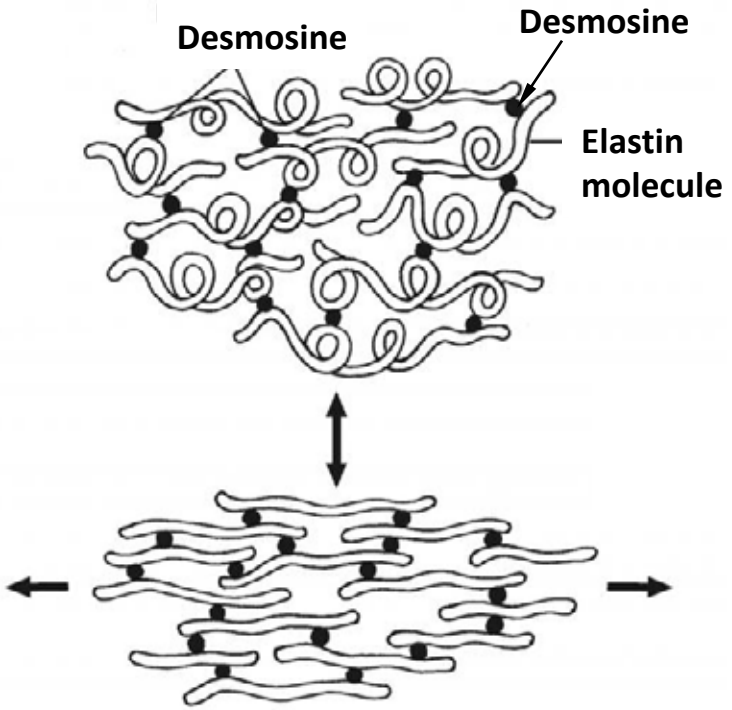


Structure of a collagen fiber

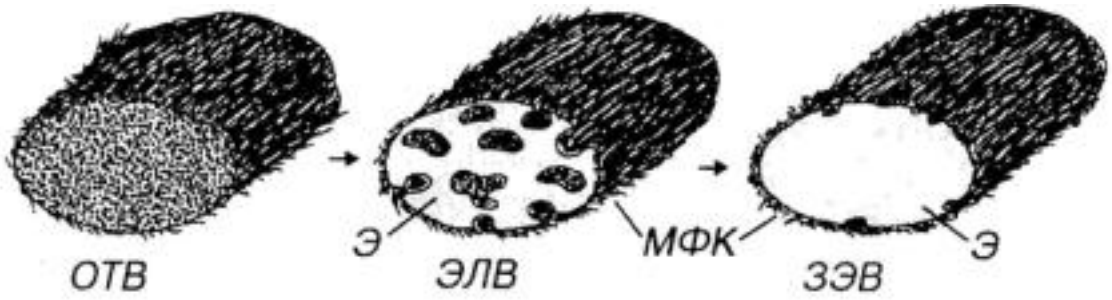
А- collagen molecule composed of three polypeptides,
Б- collagen microfibril, В- collagen fibril, Г- collagen fiber



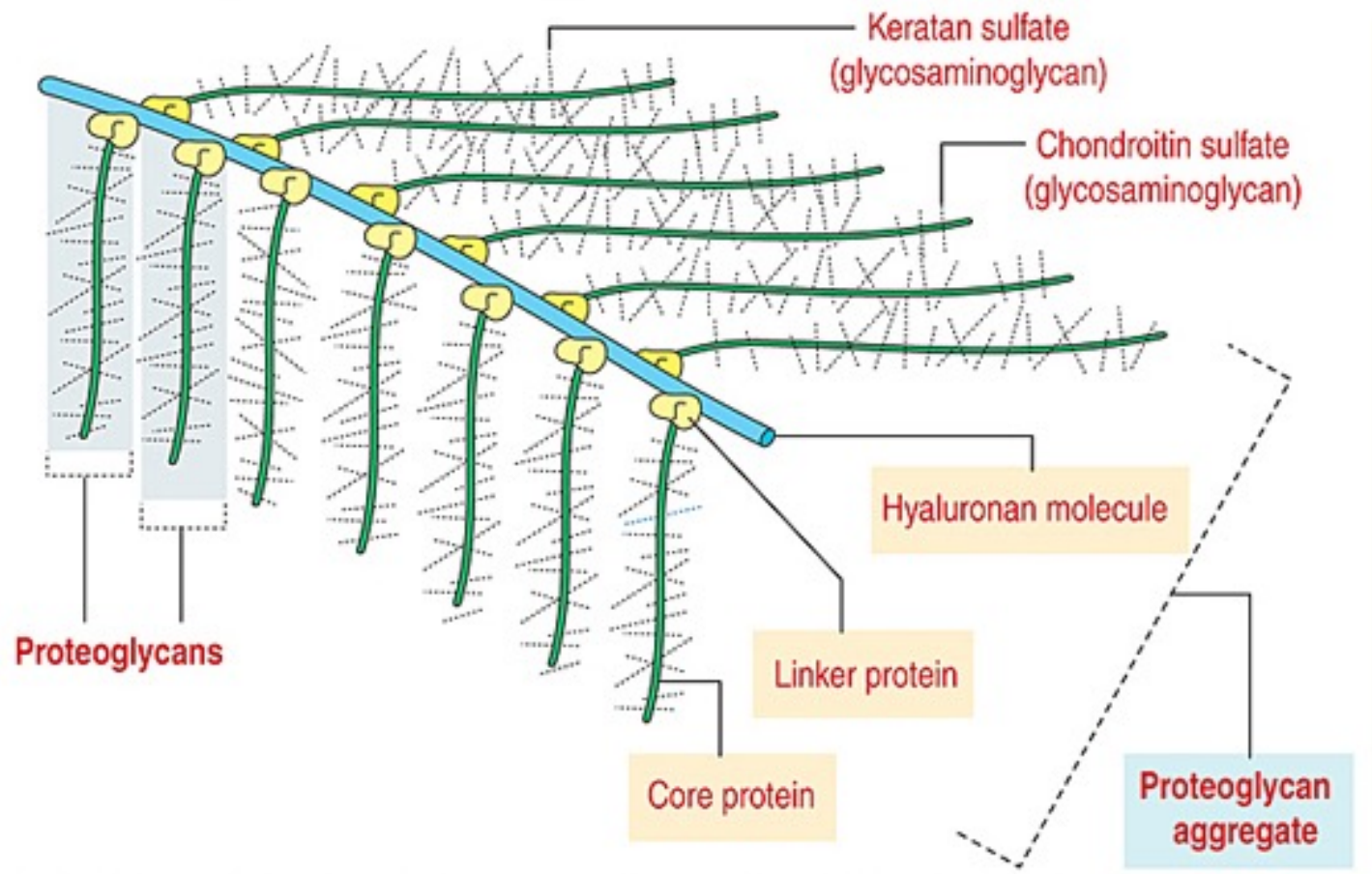
1 to 10 μm

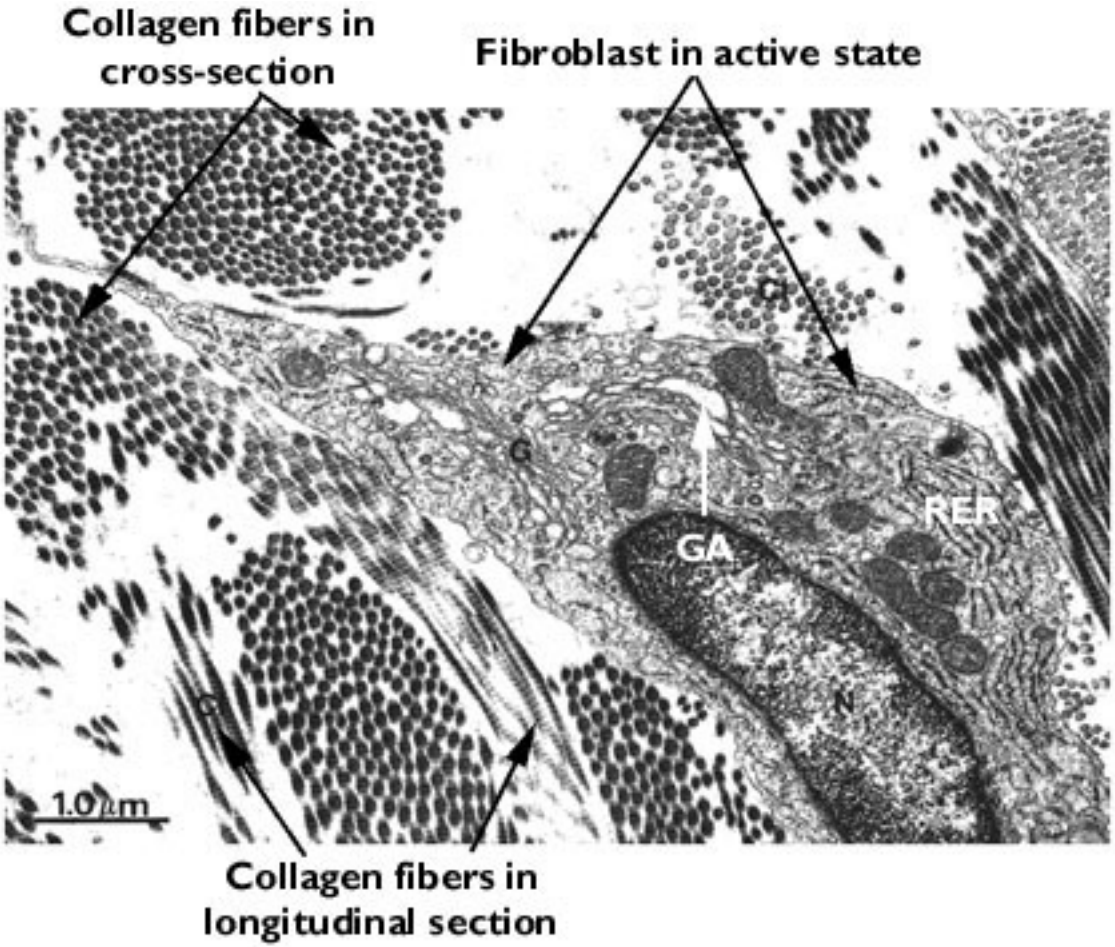


DEFORMATIONS

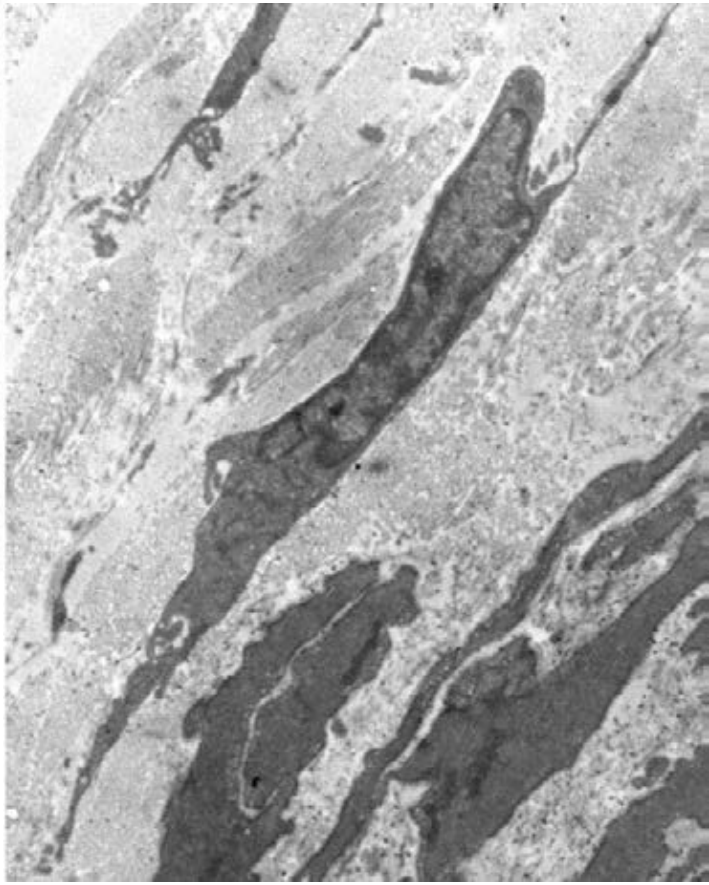


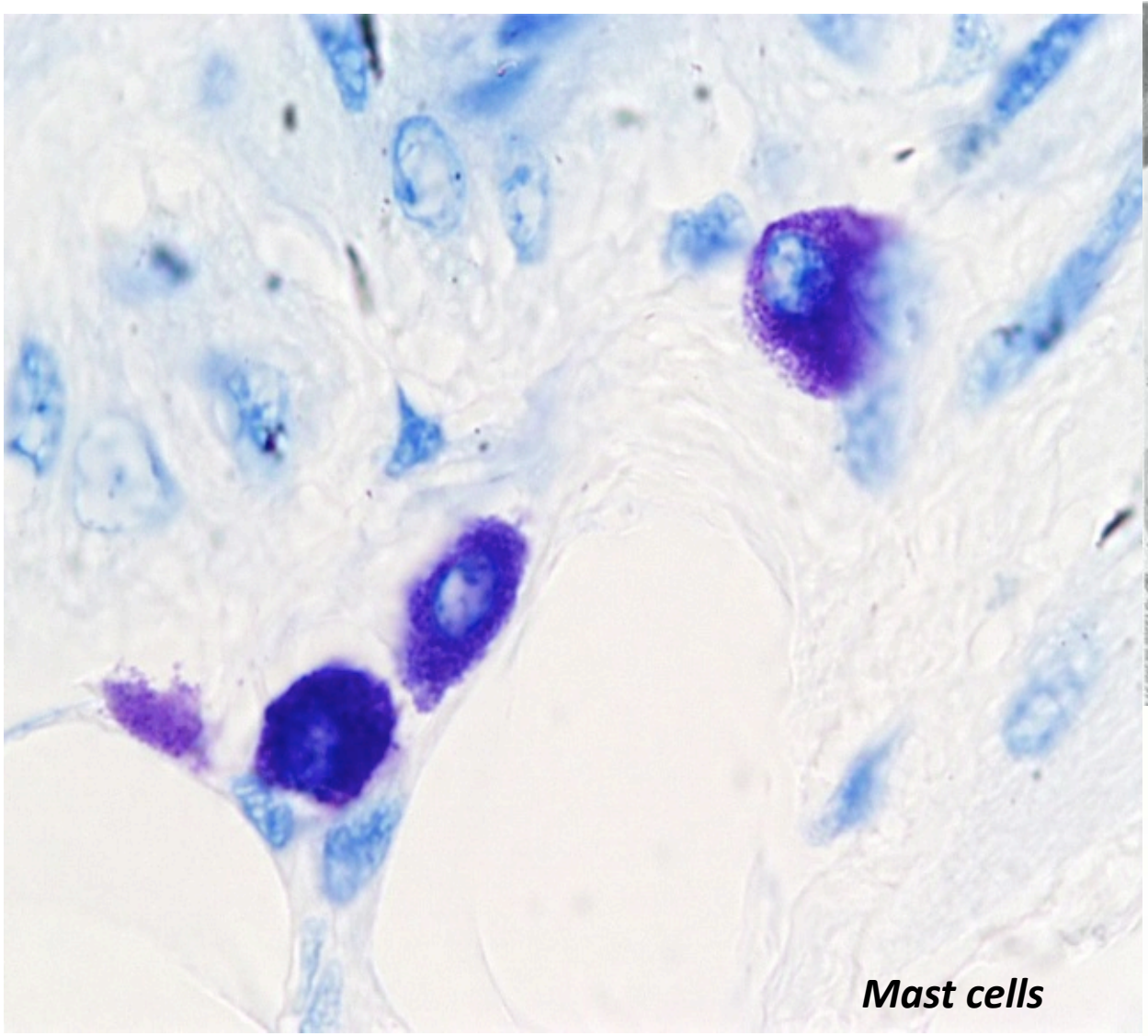
GROUND SUBSTANCE



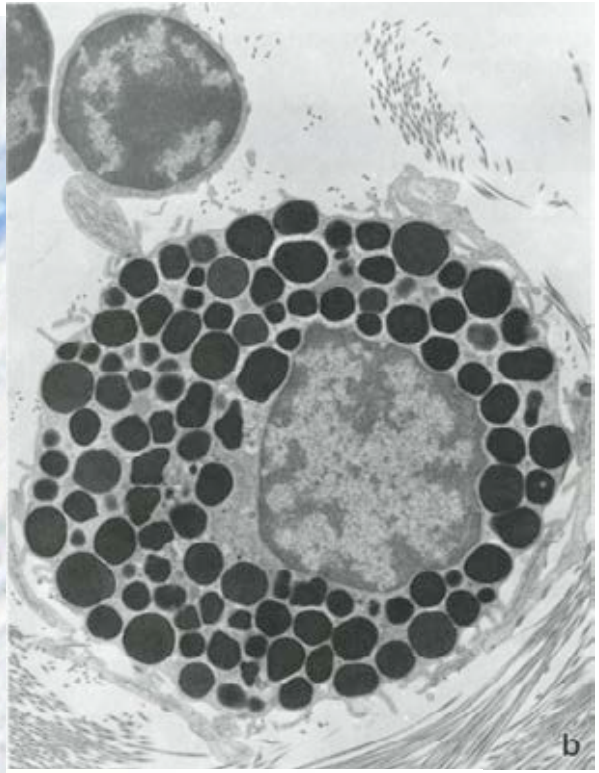


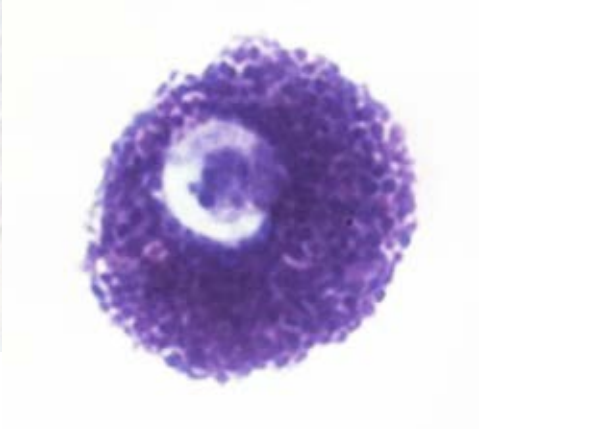
Fibroblasts

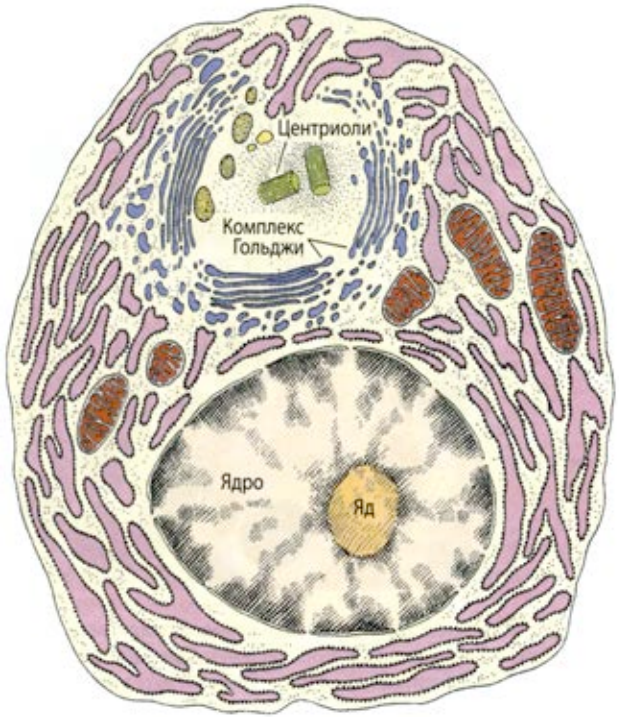




Mast cells





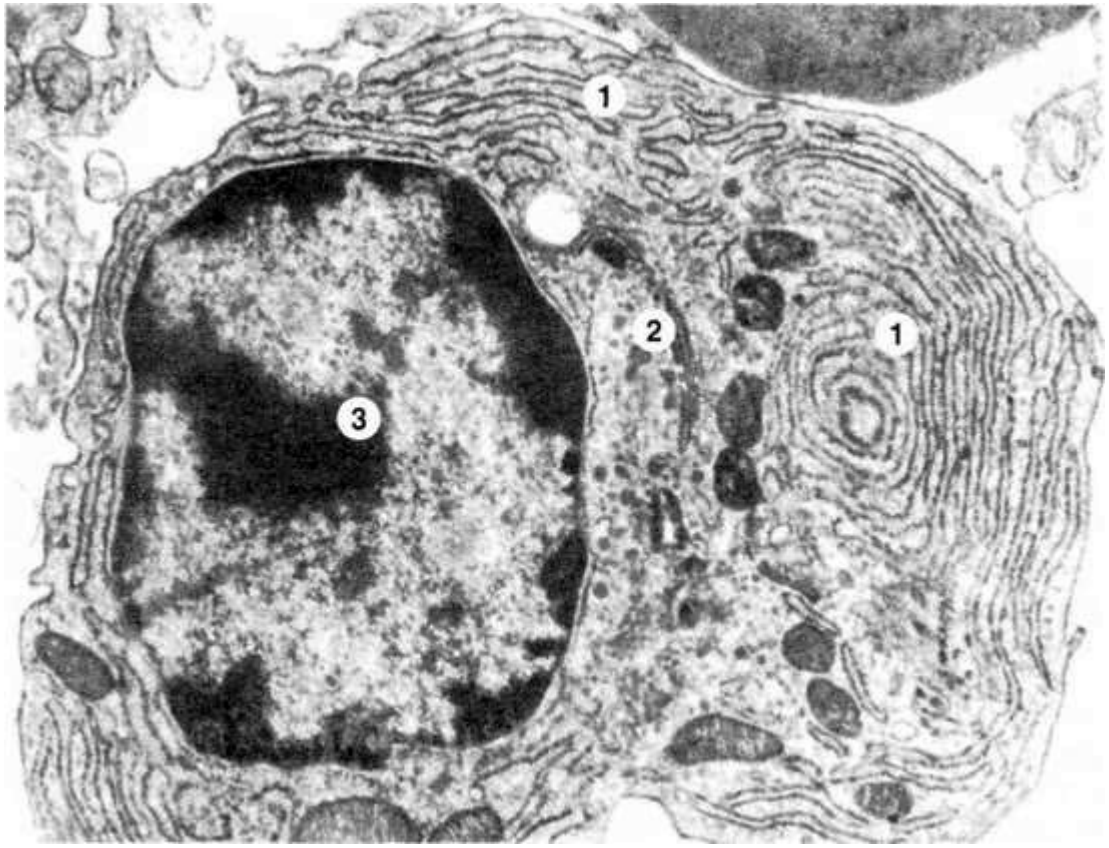


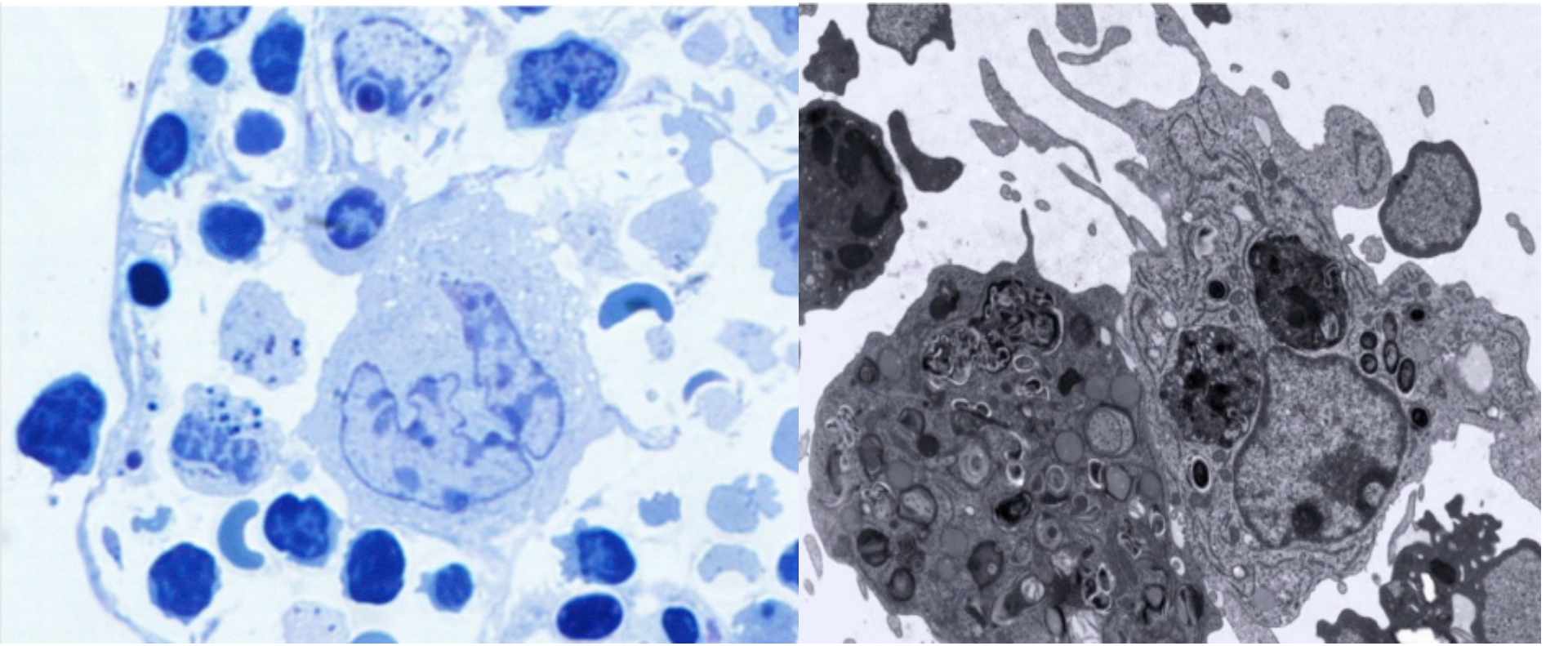
Plasma cells

Epithelium of
an intestinal villus

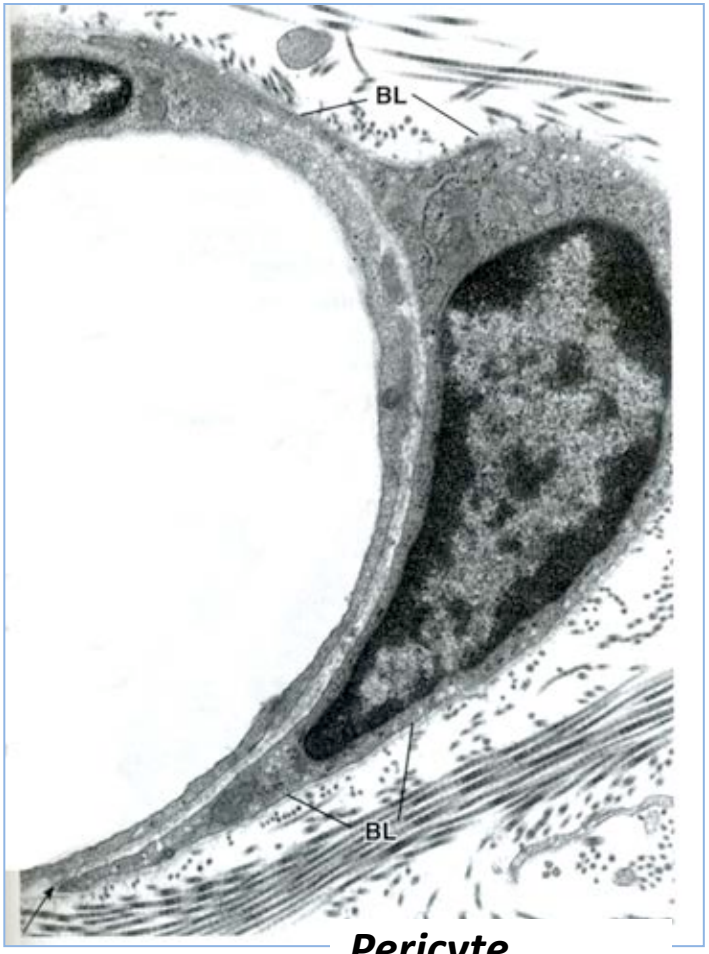
1 μm
2
1

грЭПС
КГ
МТХ


1
2
1
3

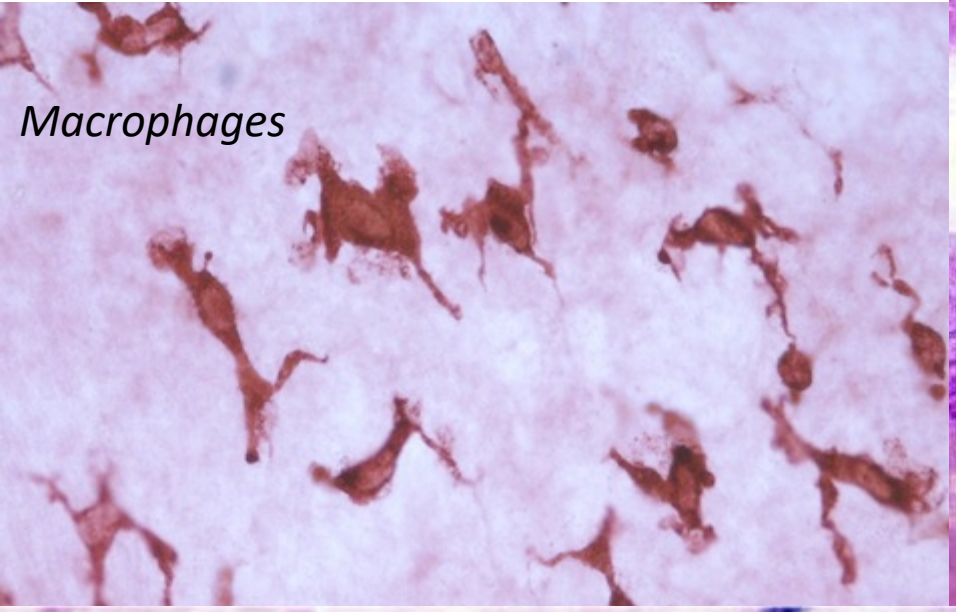


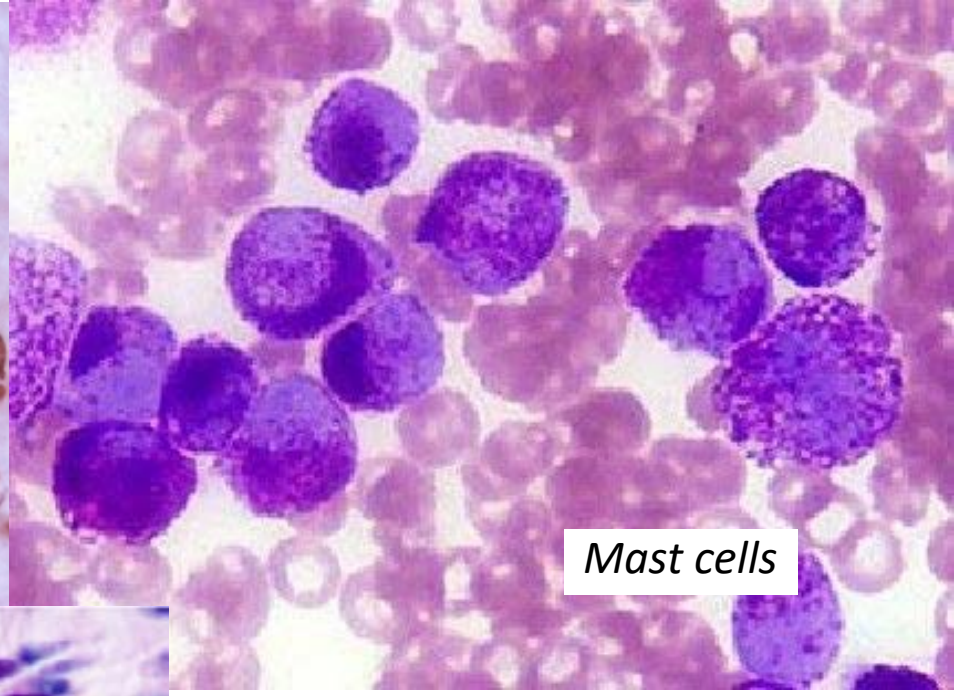
Macrophage

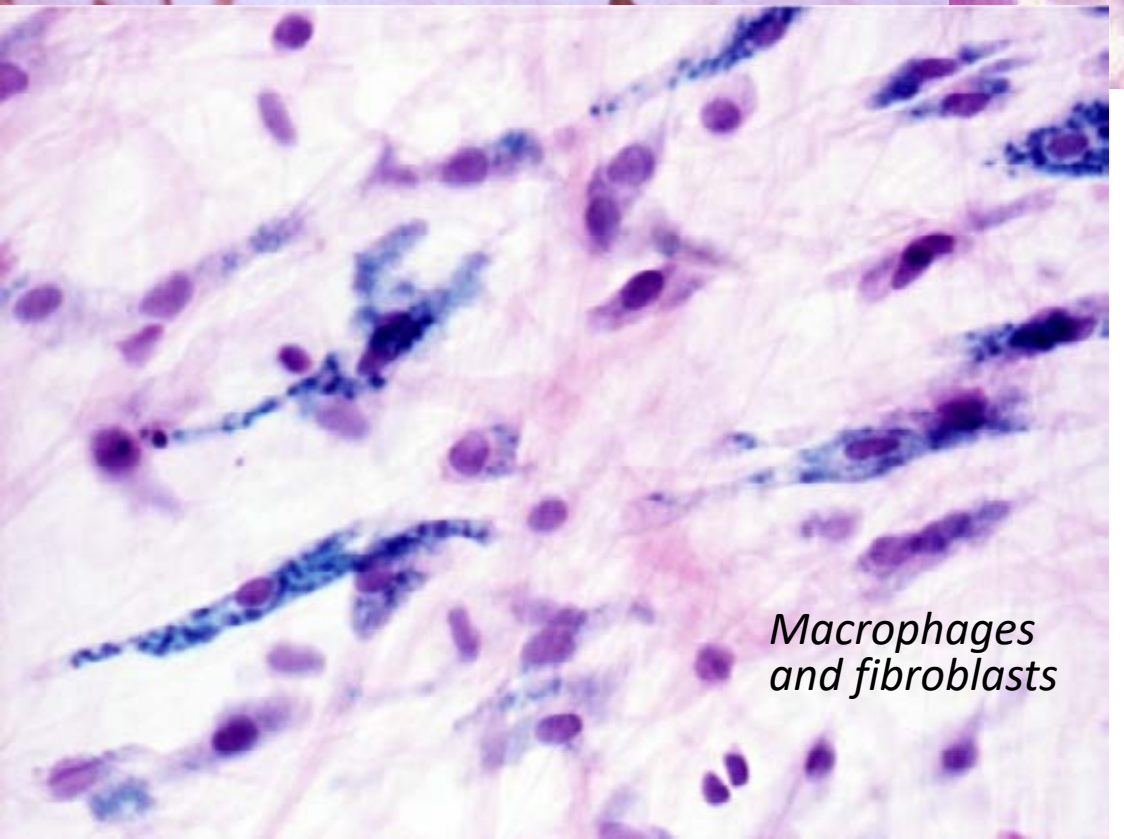


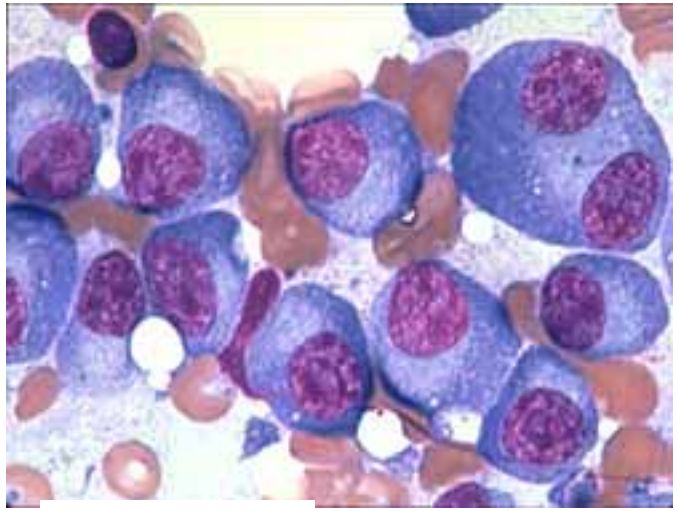
Pericyte
Endothelial cell

Pigment cell (melanocyte)

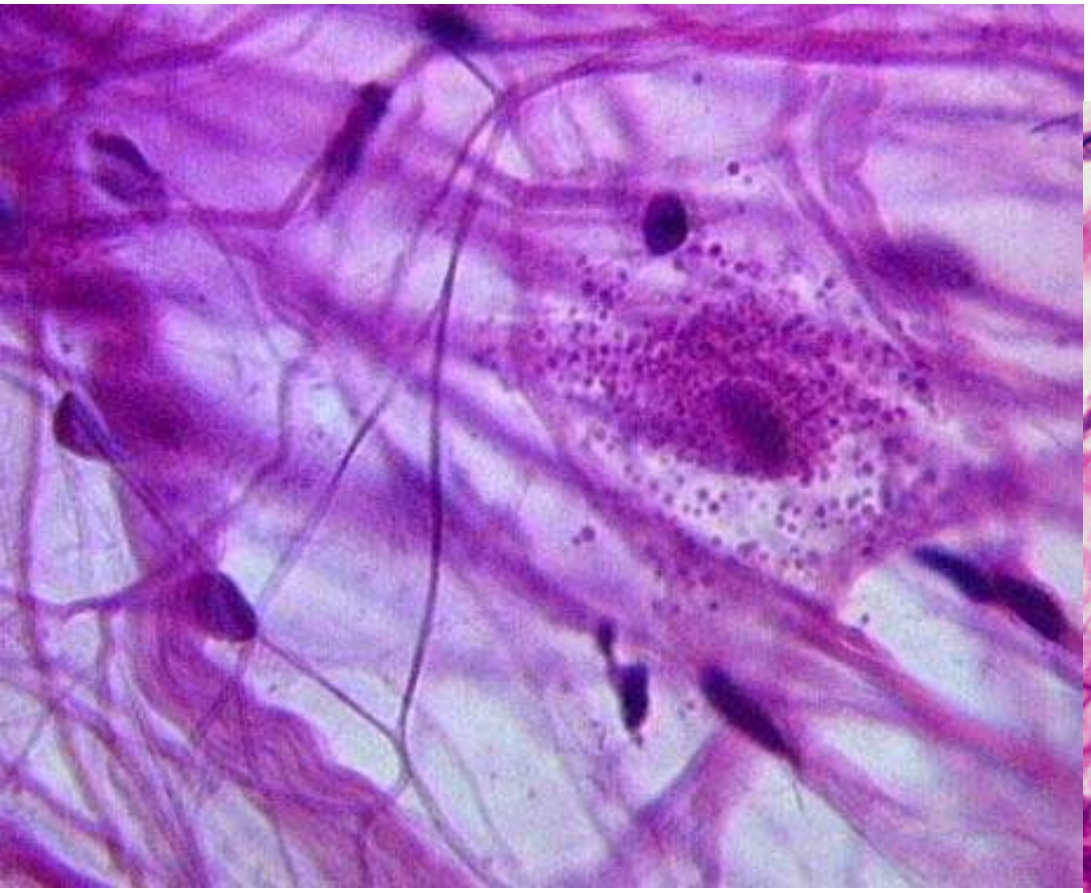


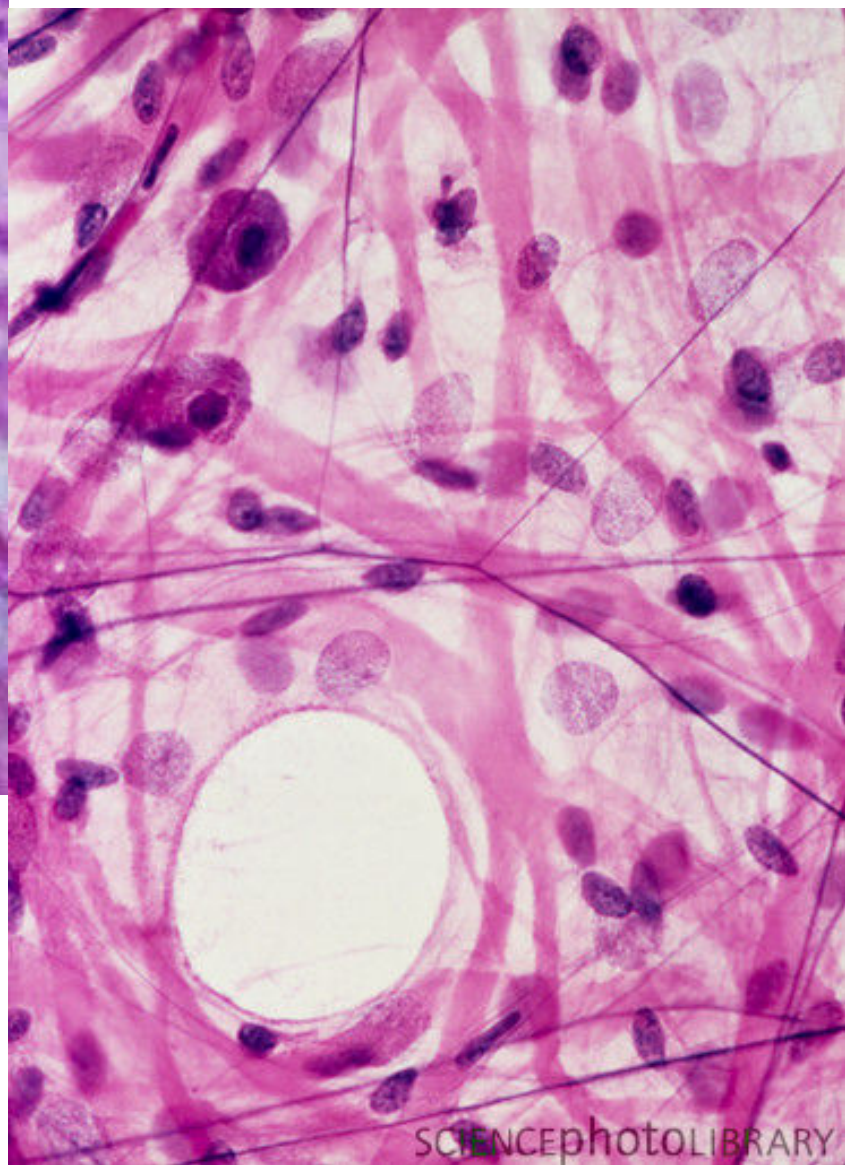






Plasma cells

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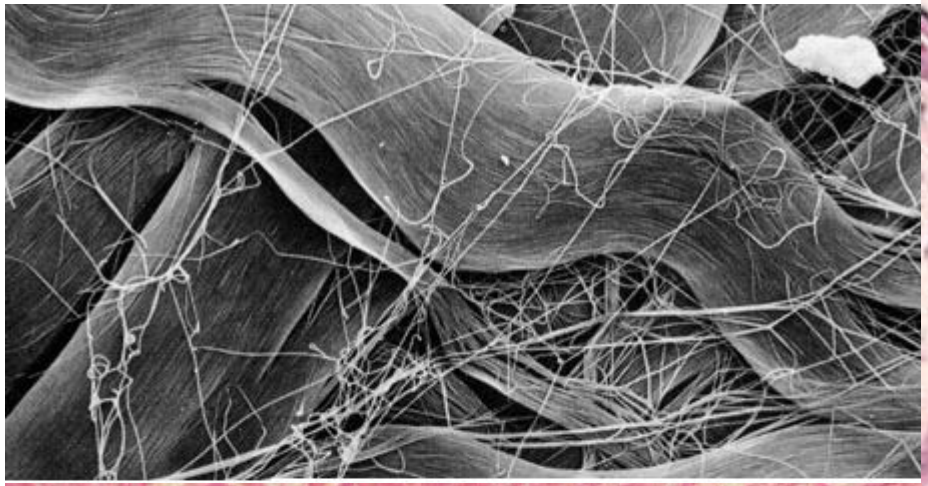
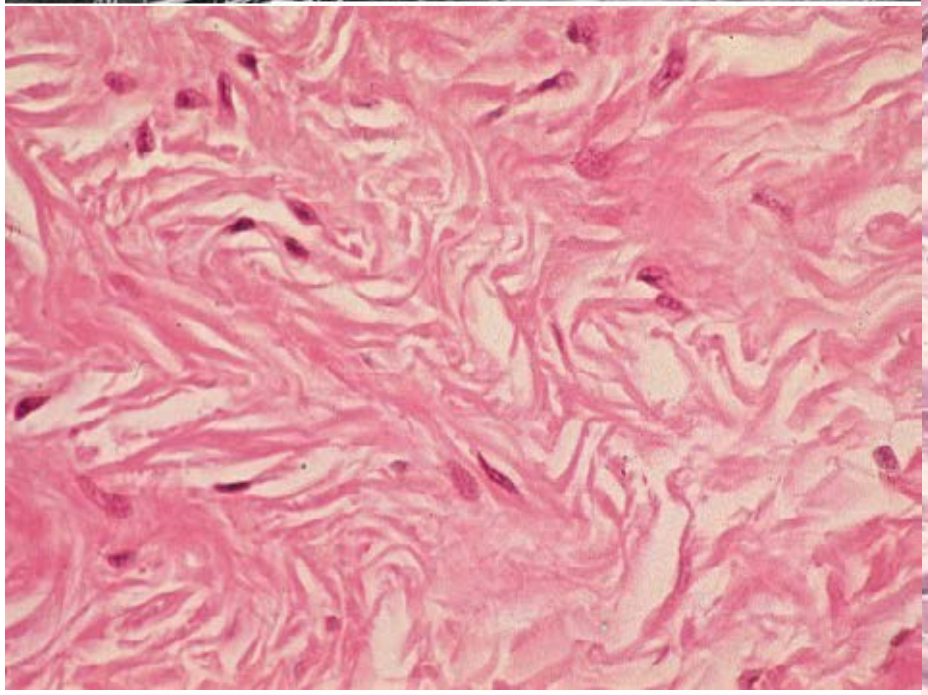
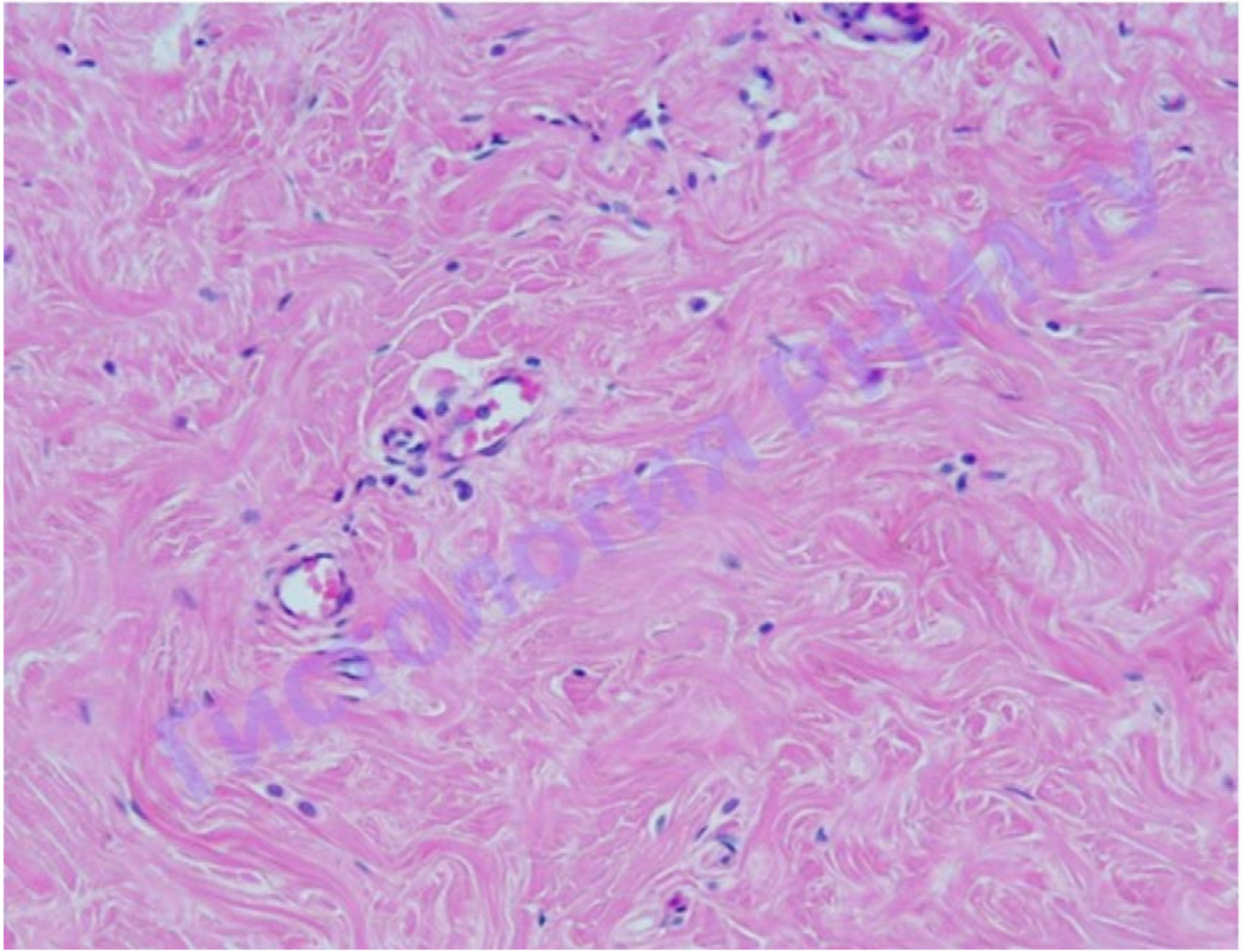
Dense fibrous irregular connective tissue



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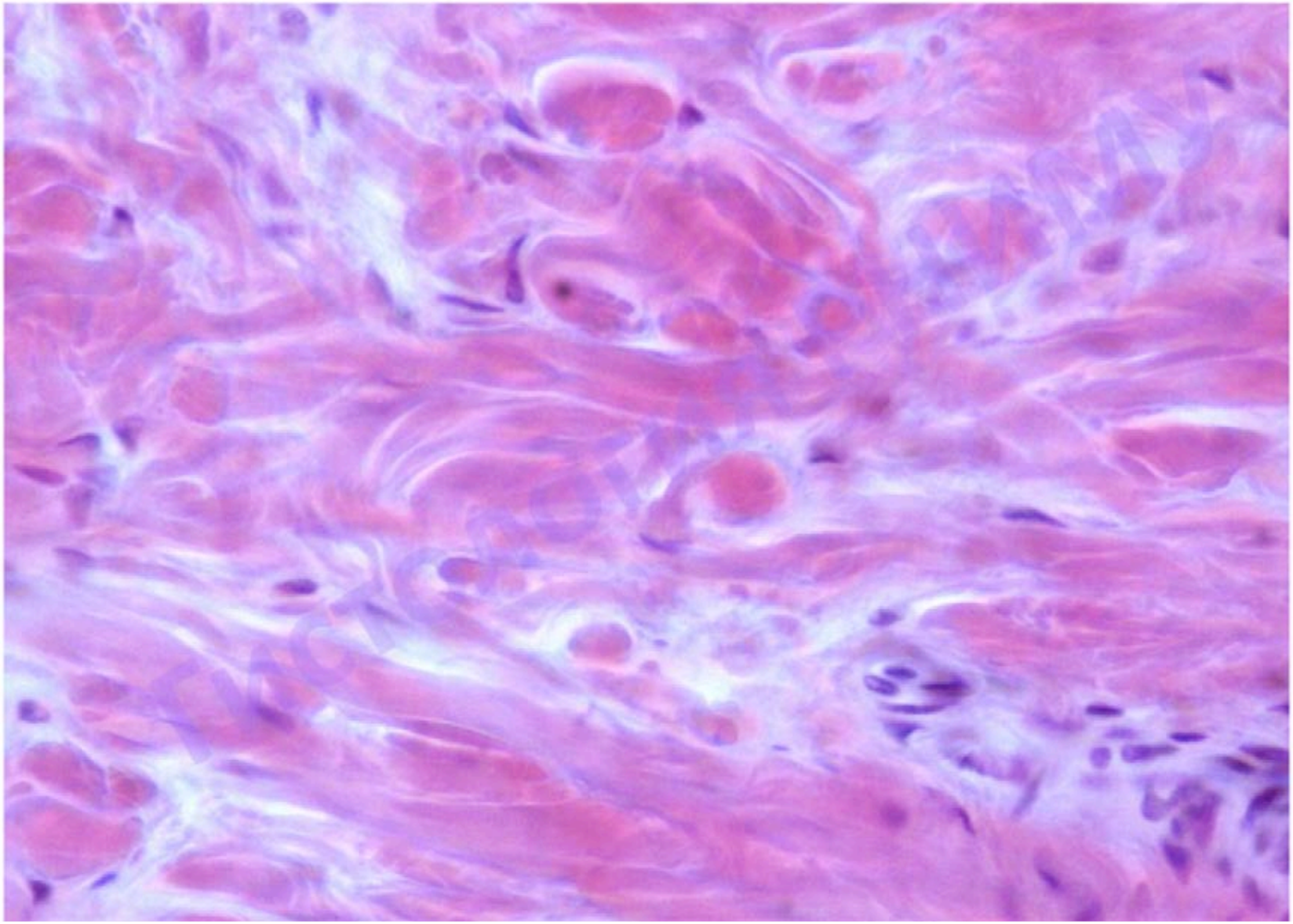
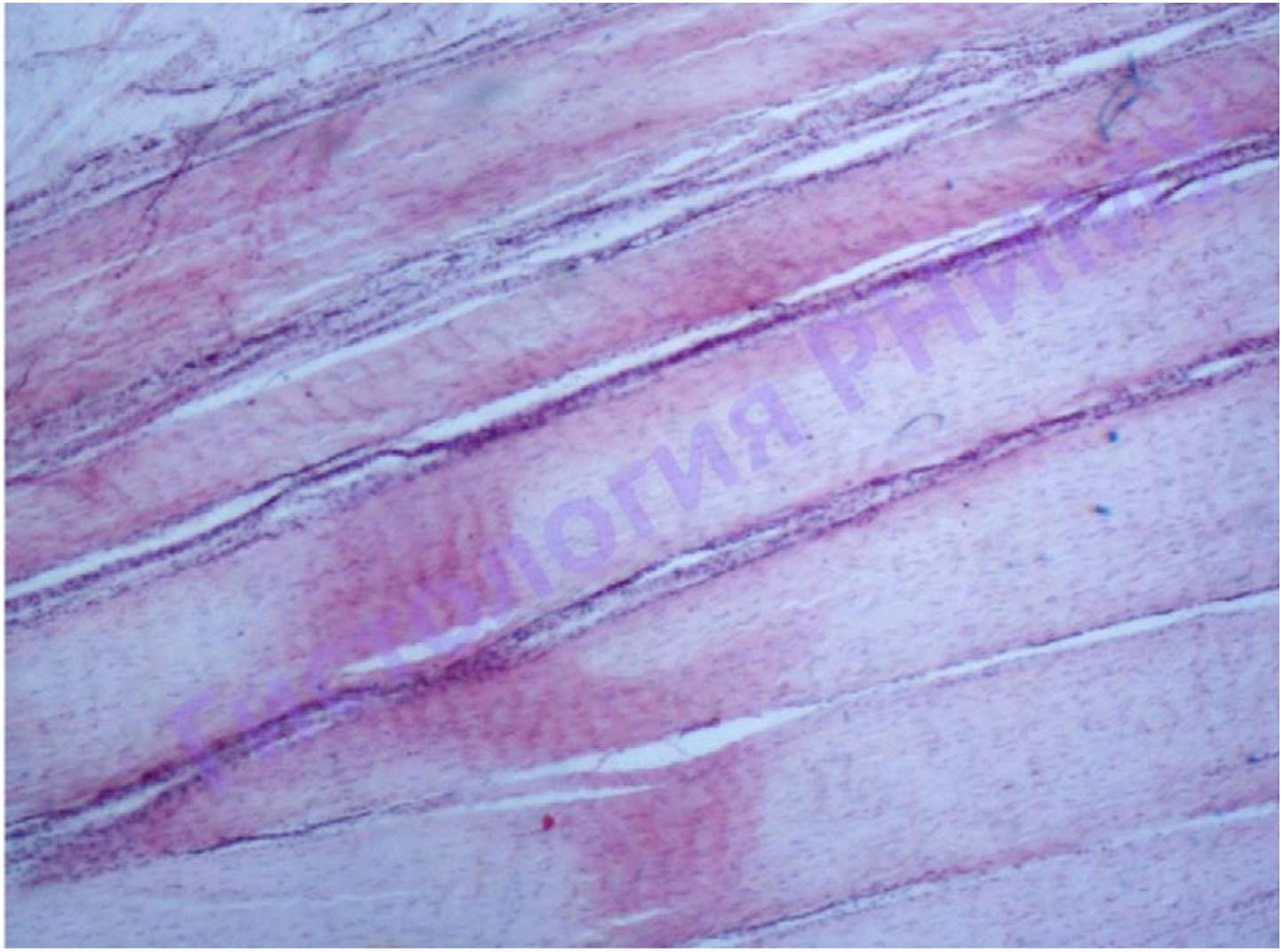
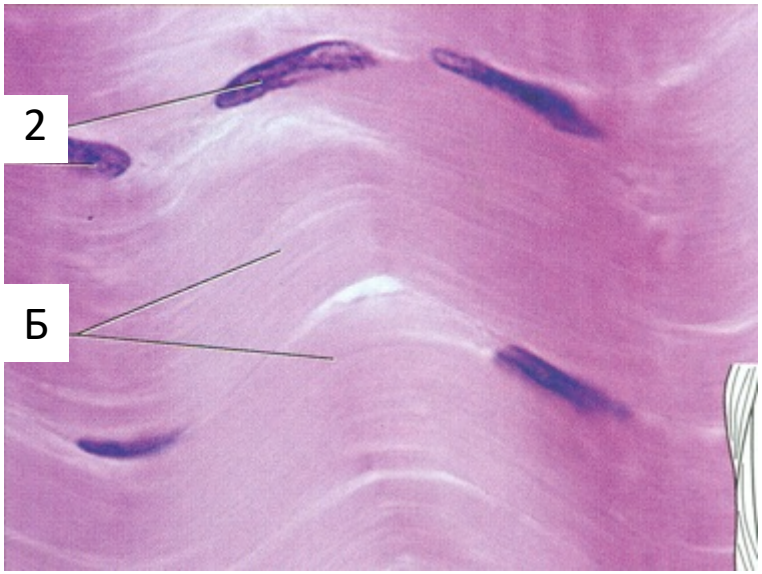
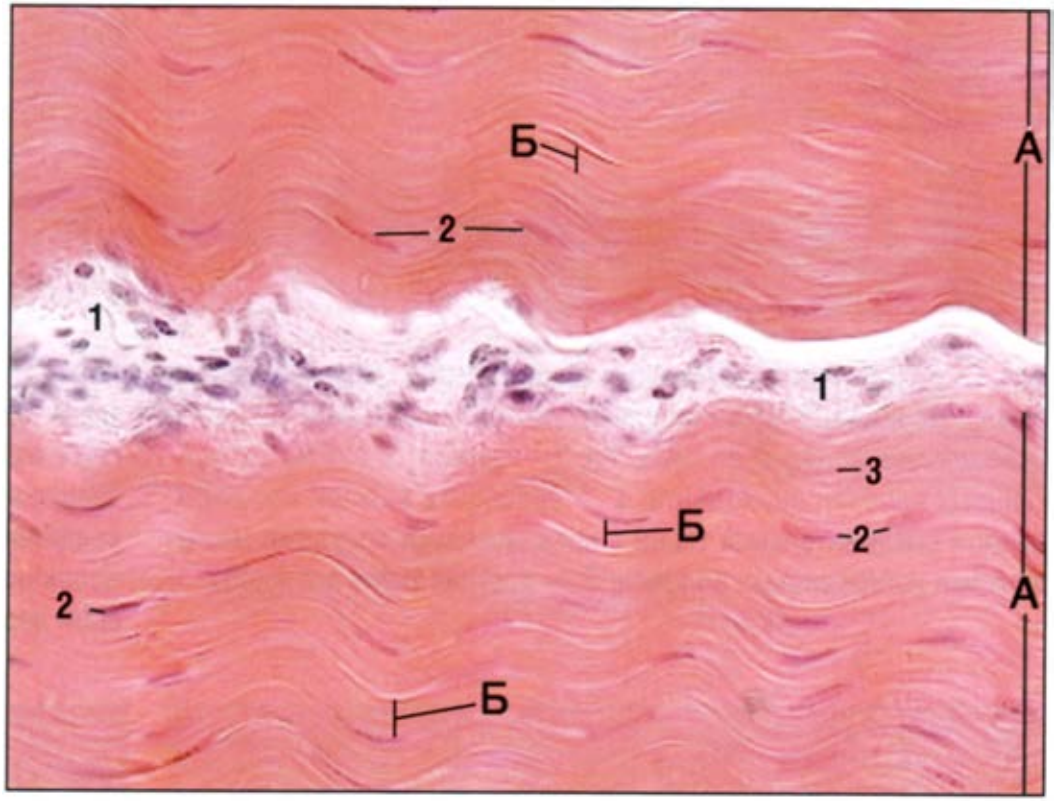


Dense fibrous regular connective tissue.
Tendon, longitudinal section



Dense fibrous regular connective tissue.
Tendon, longitudinal section

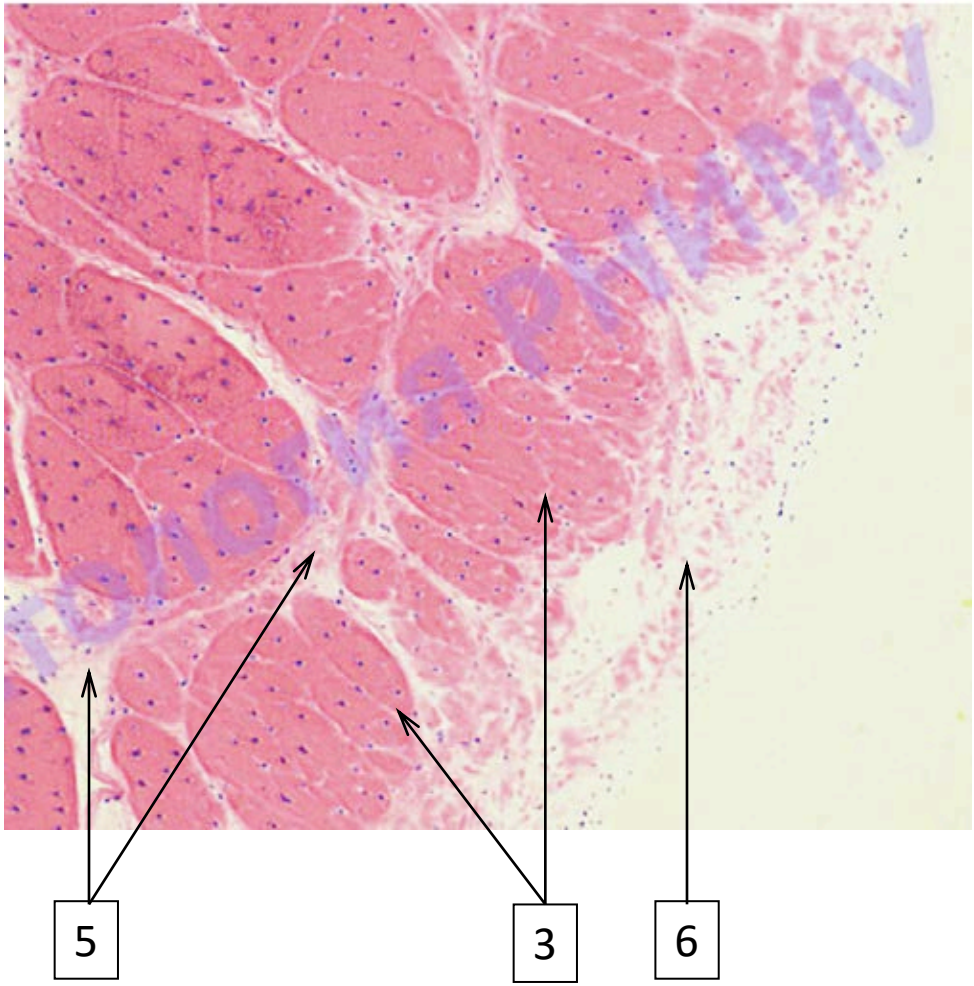




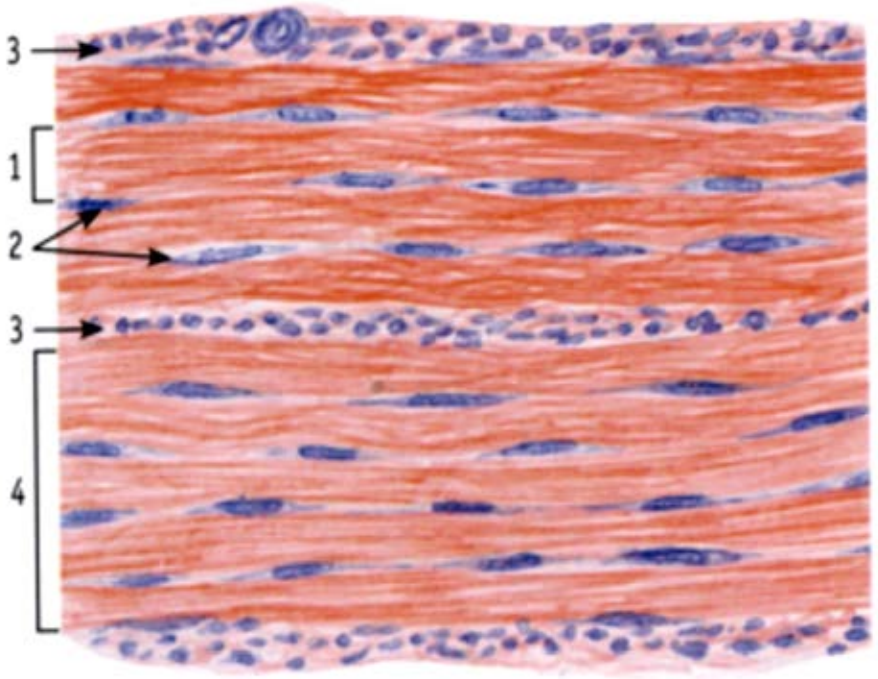
А- bundle of the second order;
Б- bundles of the first order;
1- endotendinium; 2- nuclei of fibrocytes;
3- collagen fibers

Dense fibrous regular connective tissue. Tendon

Cross section

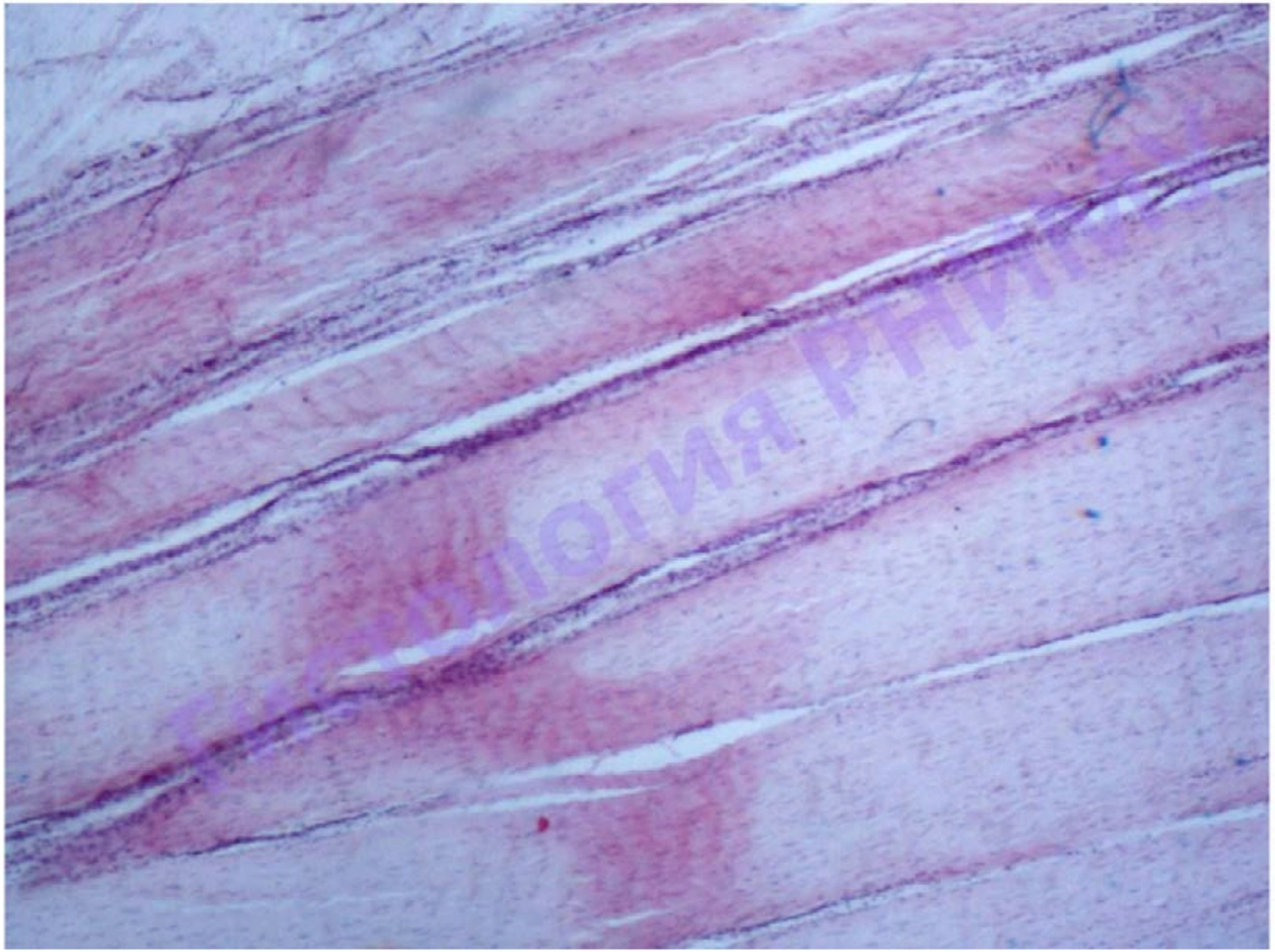


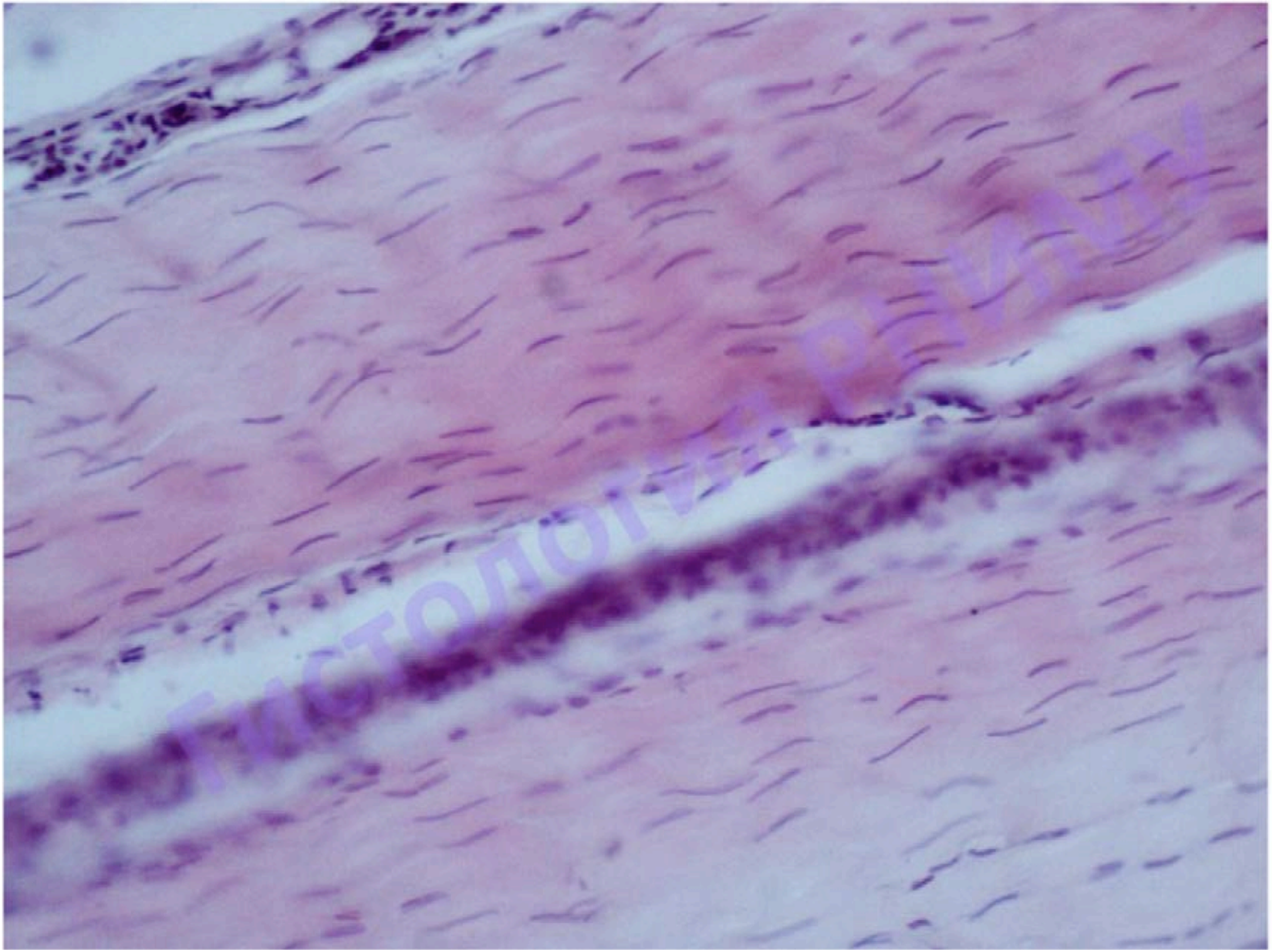
Longitudinal section

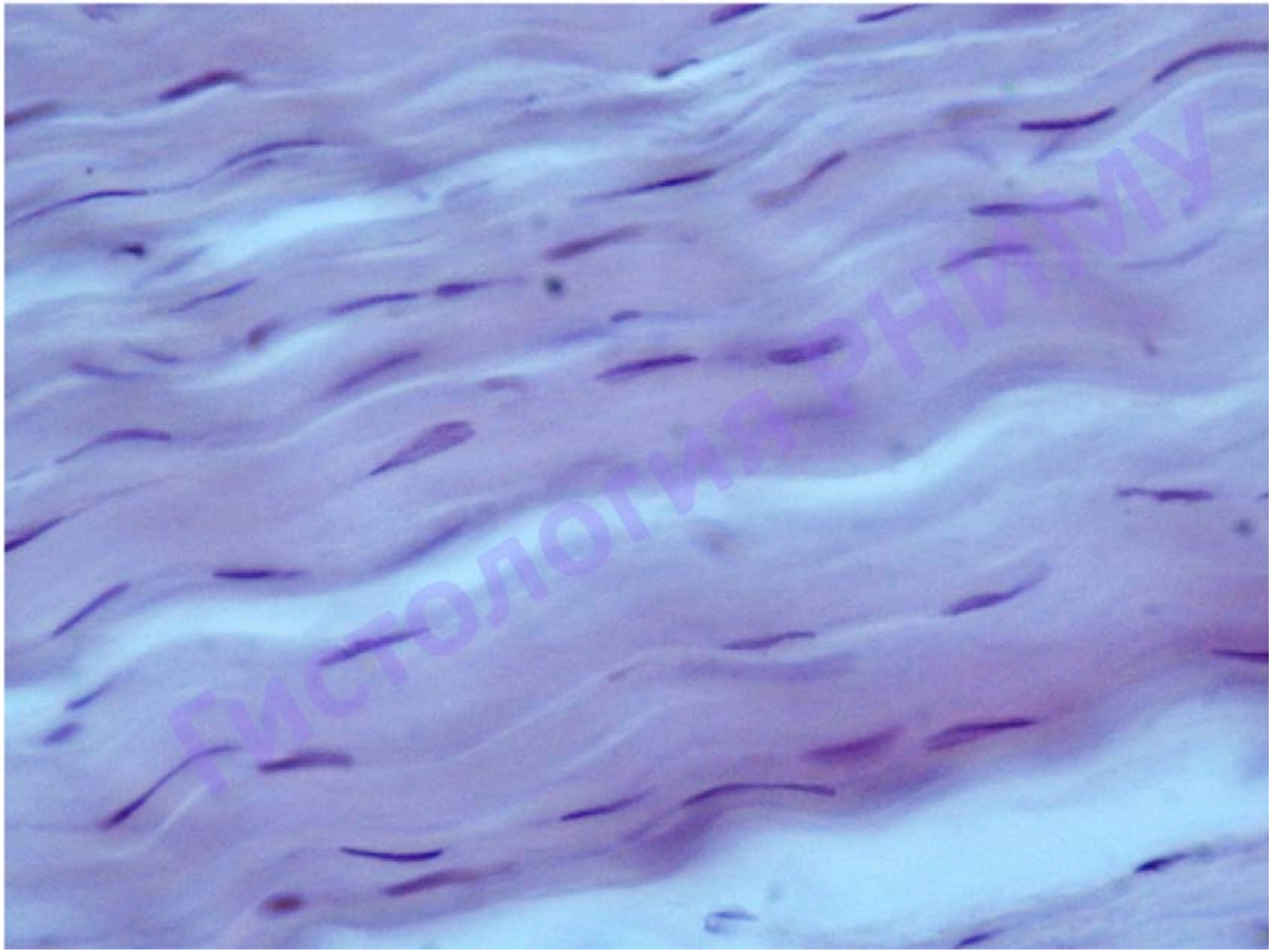


1- bundle of the first order, 2- nuclei of fibrocytes,
3- endotendinium, 4- bundle of the second order,
5- peritendinium, 6-epitendinium

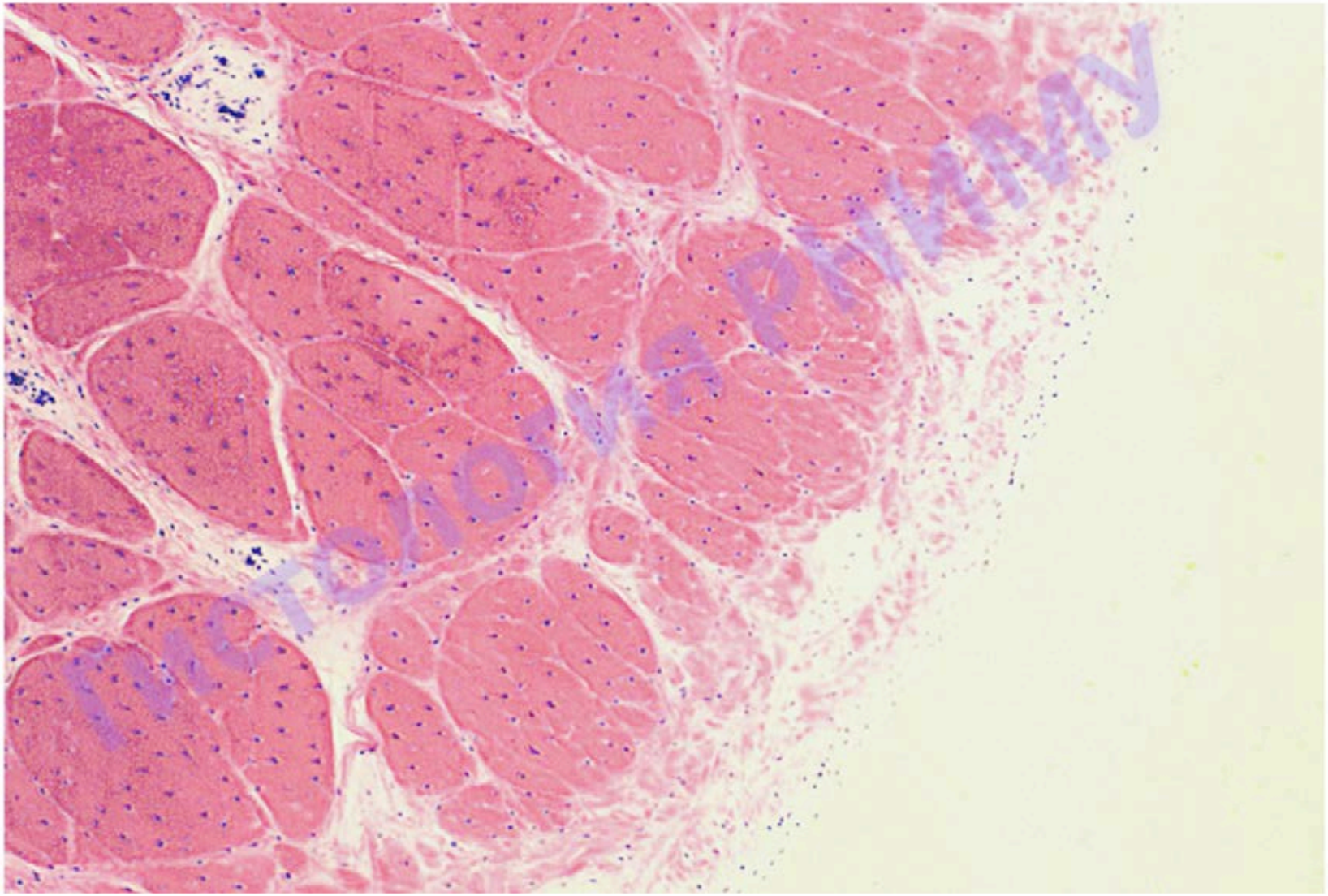
Slide №62 “Dense fibrous regular connective tissue of a tendon, longitudinal section”
Staining: H&E

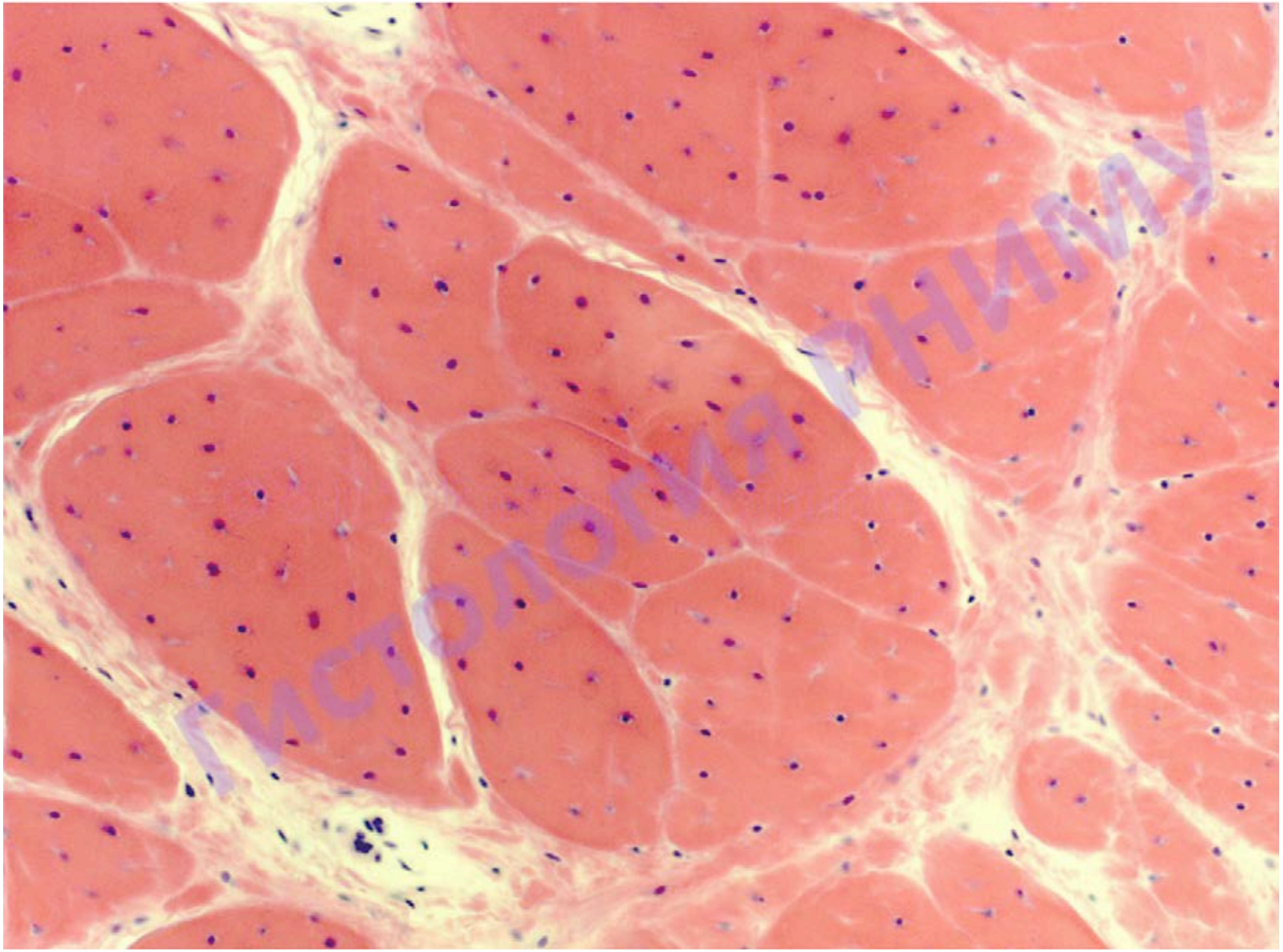


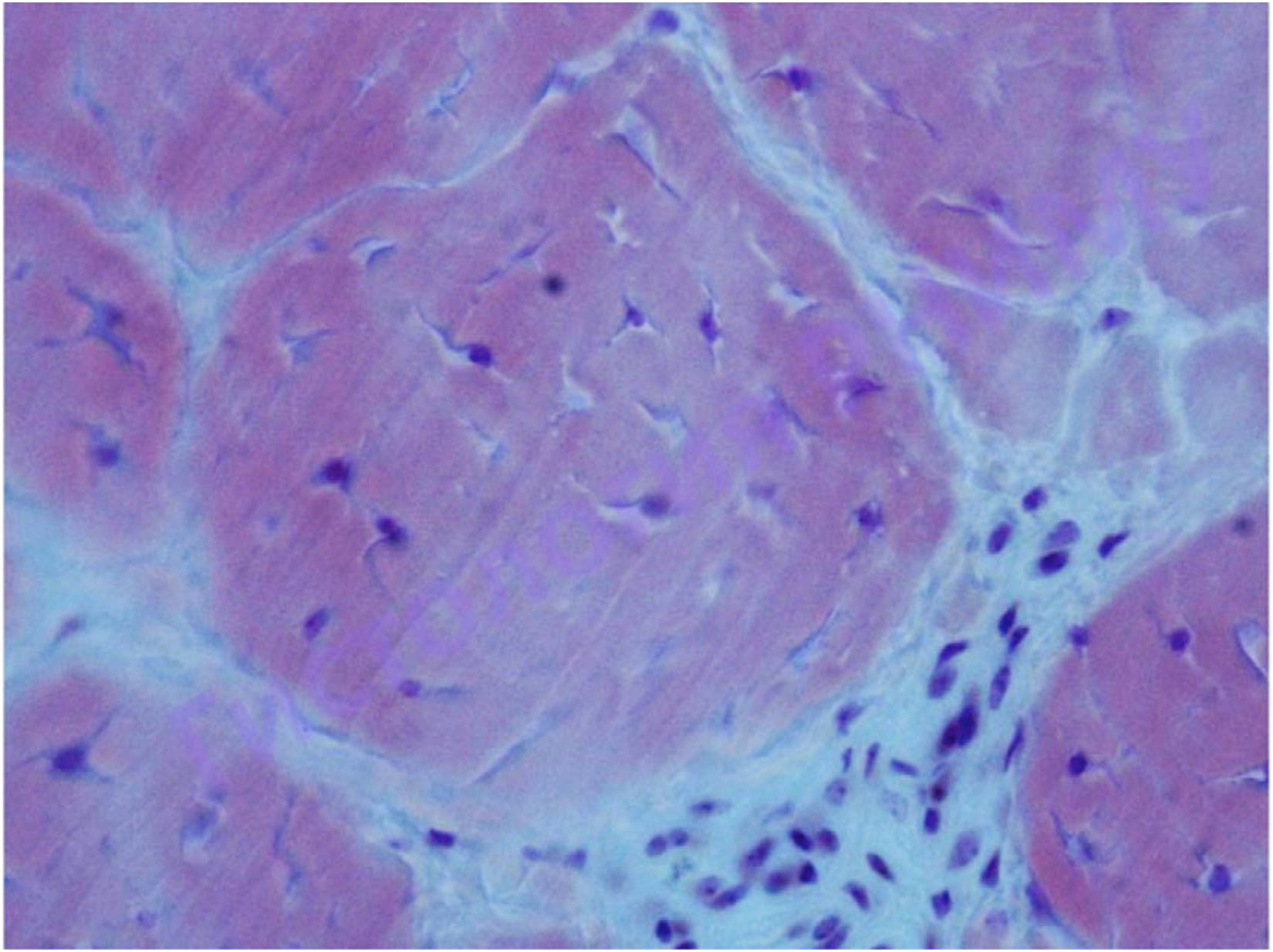



ГИСТОЛОГИЯ ЭНГМУ

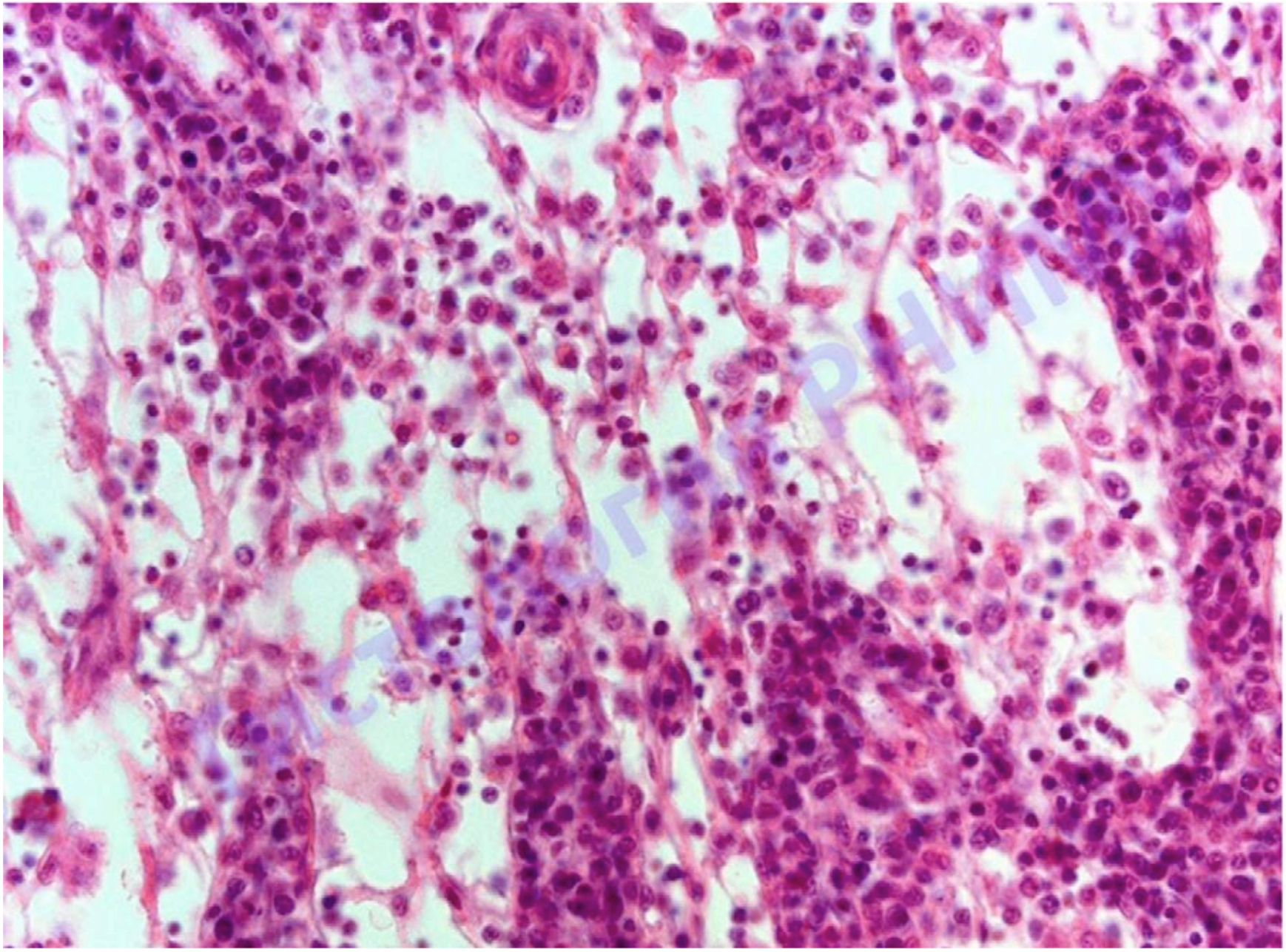
Slide №62a “Dense fibrous regular connective tissue of a tendon, cross section”
Staining: H&E

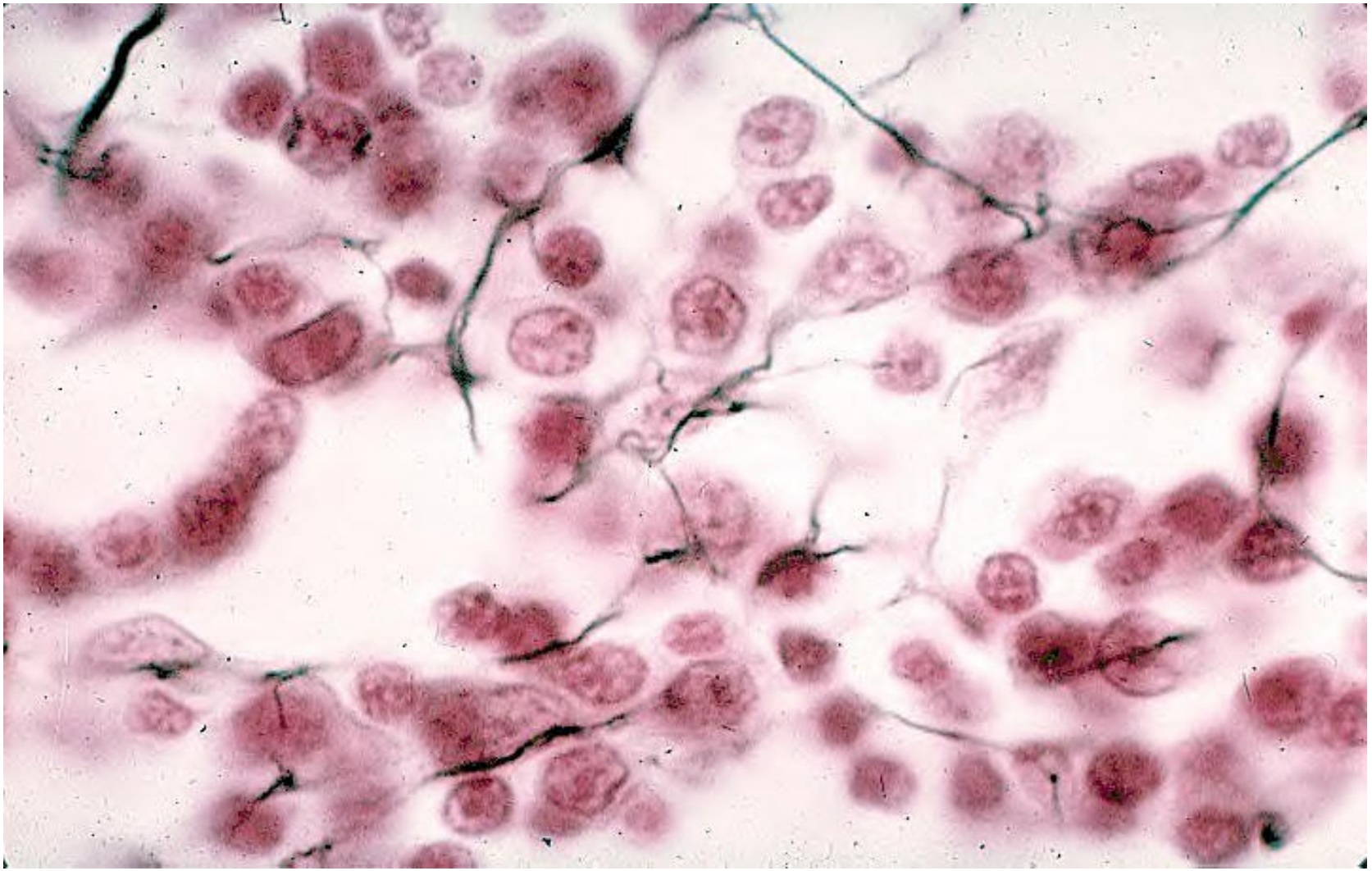


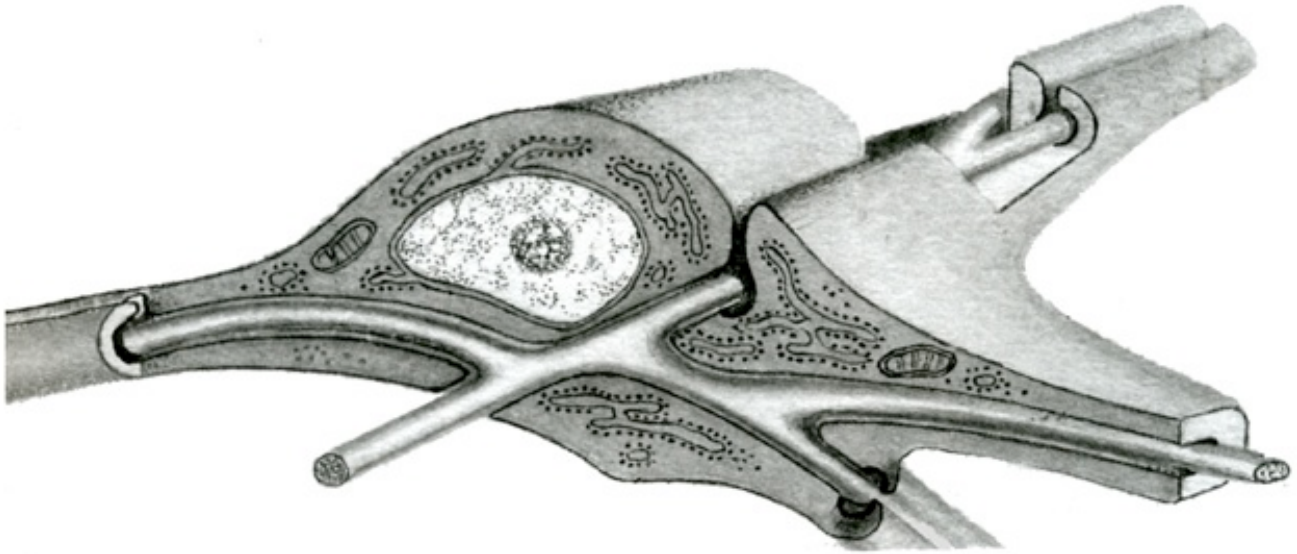

Гистология ННИМУ

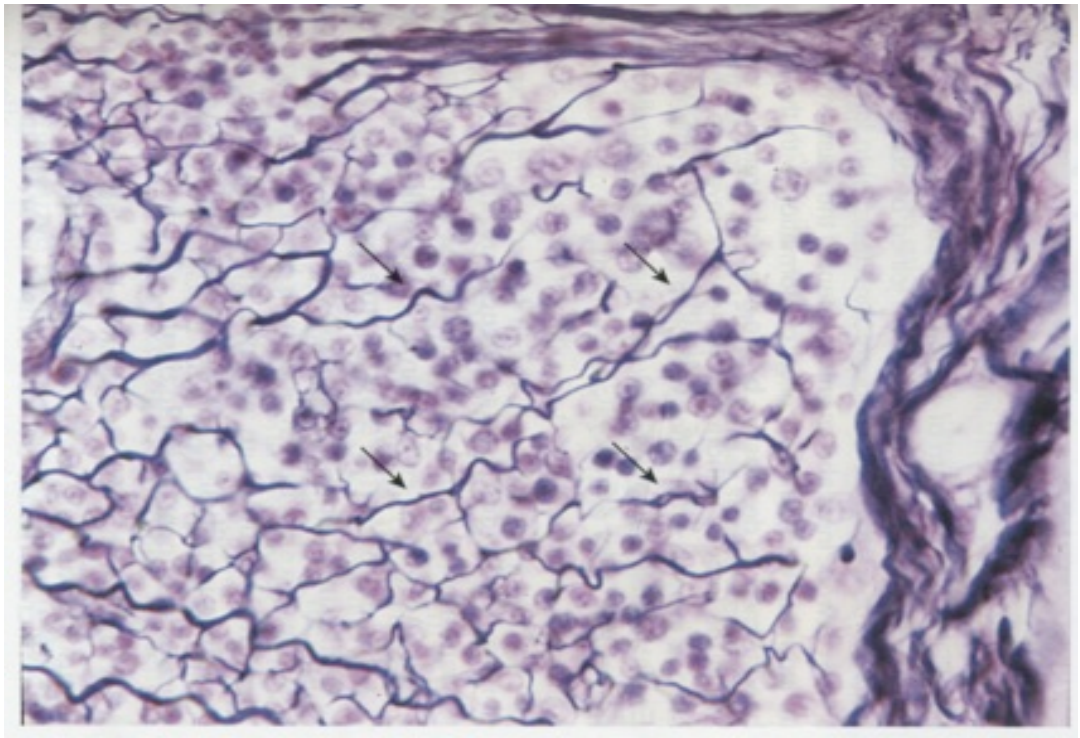


RETICULAR TISSUE

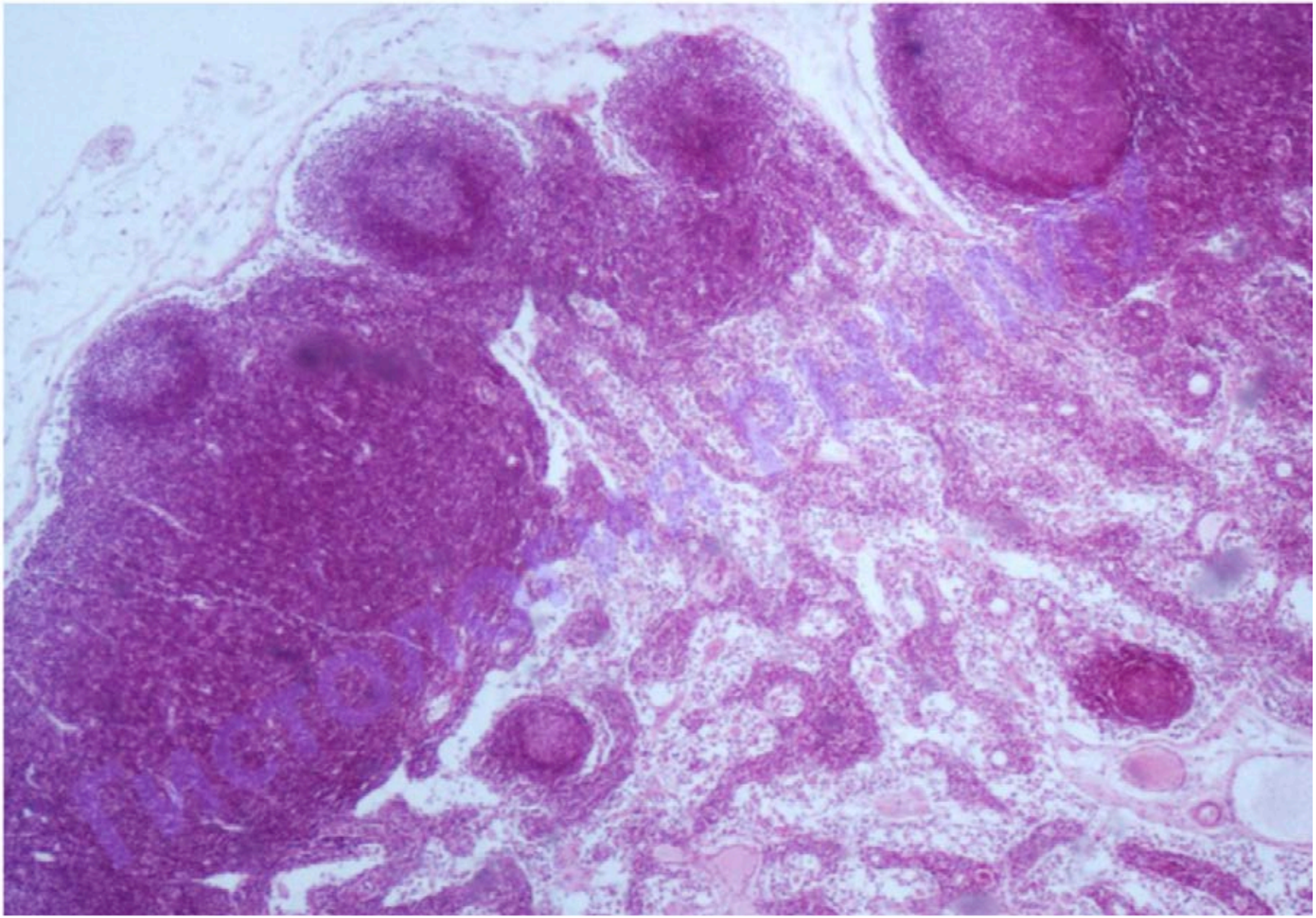


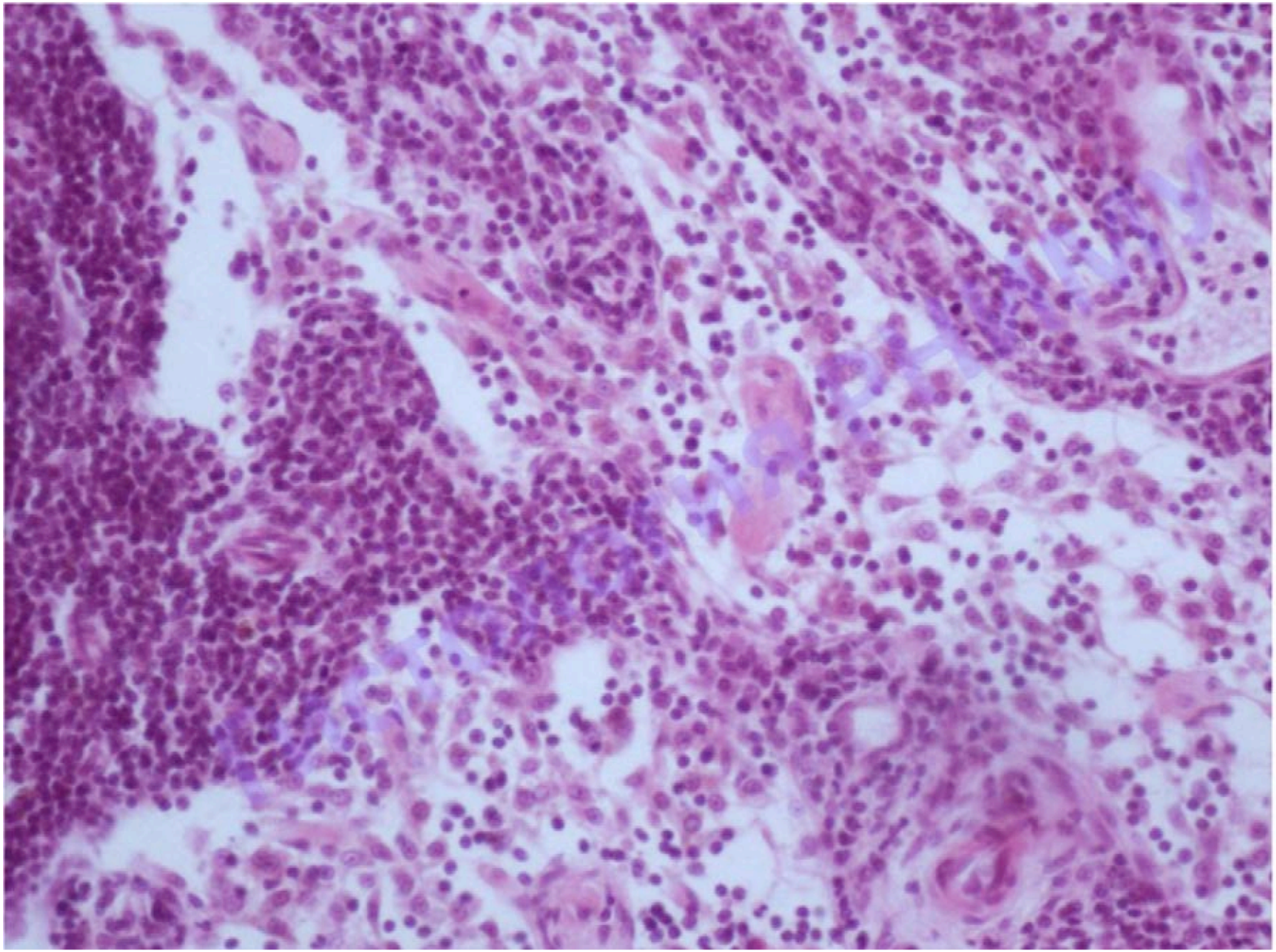




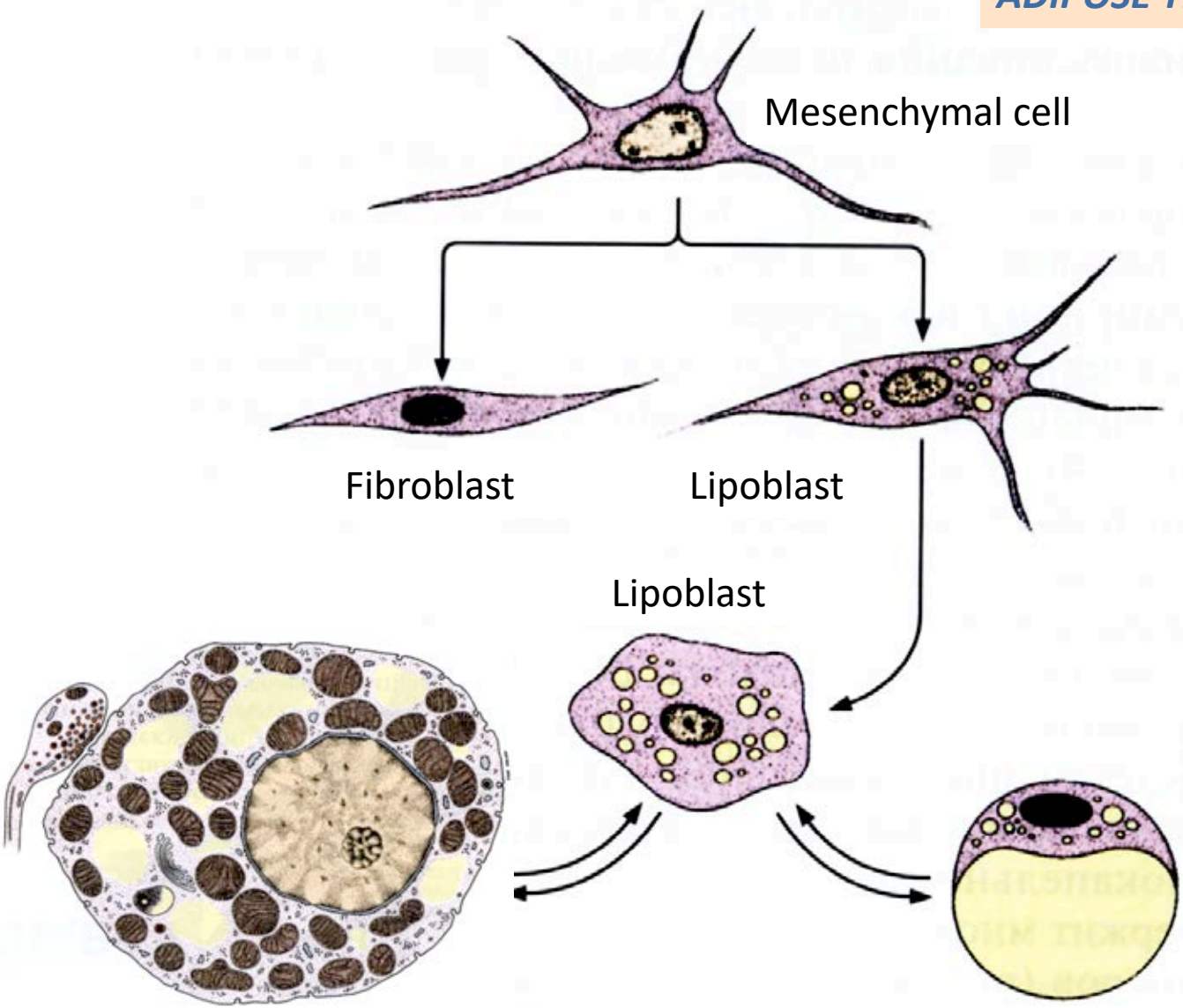


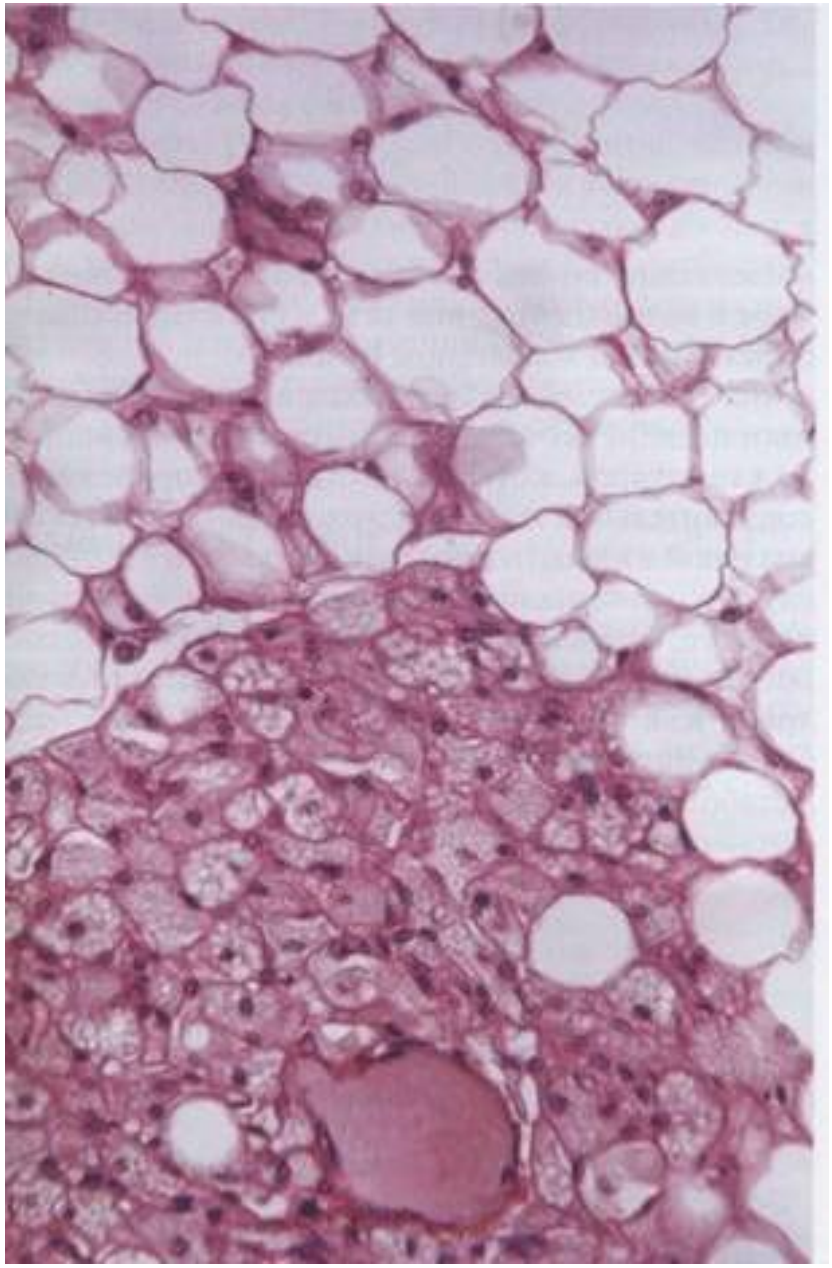
Slide №59 “Reticular tissue, section of a lymph node” *Staining: H&E*

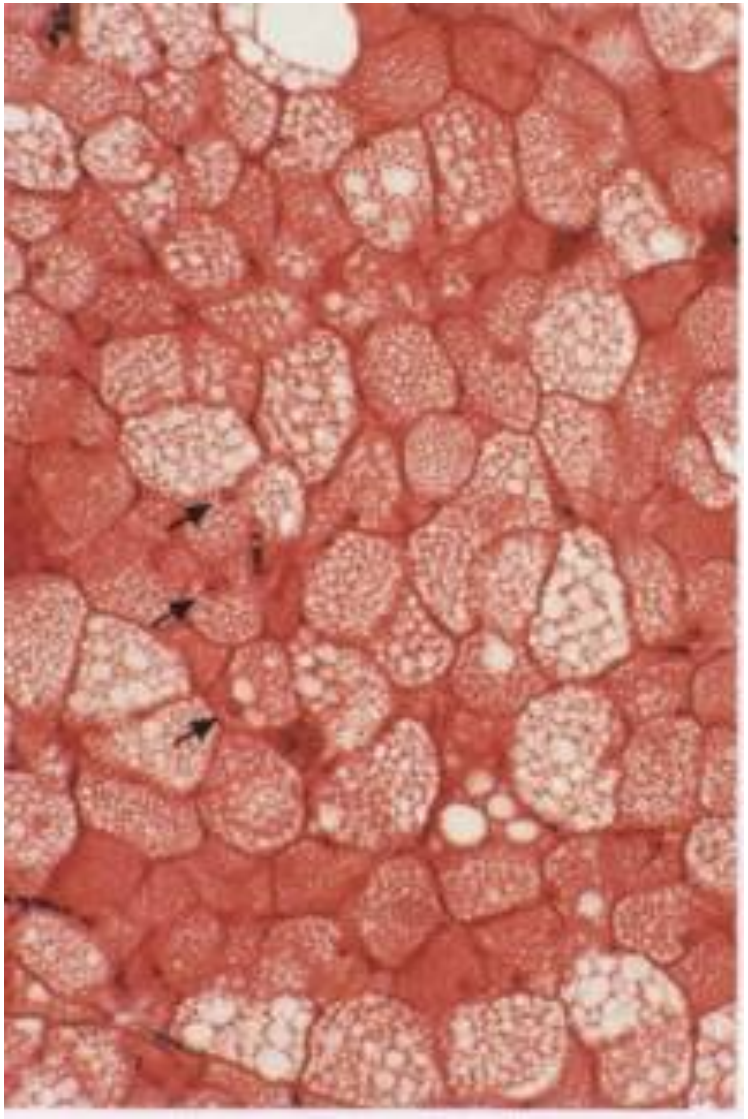


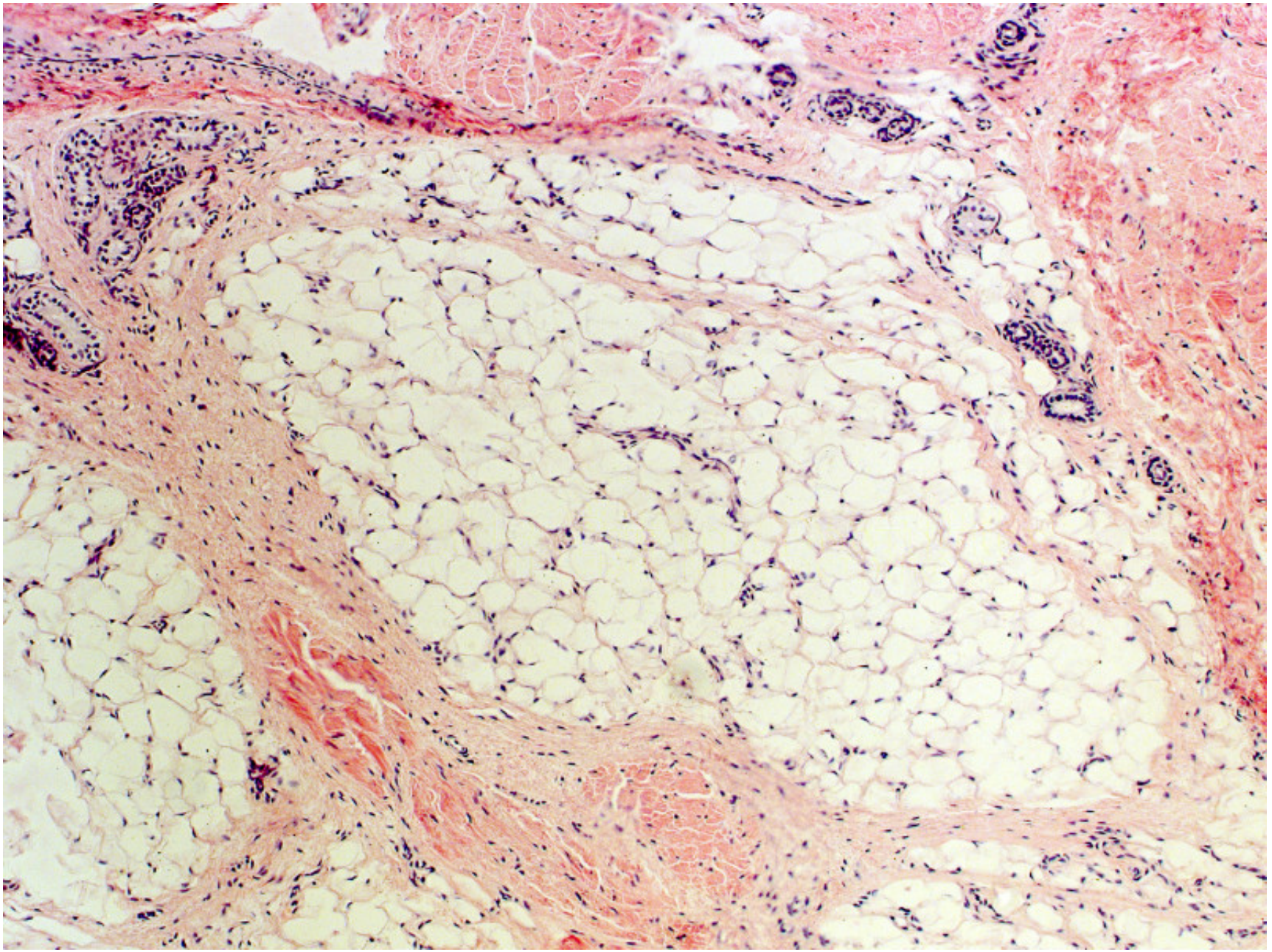


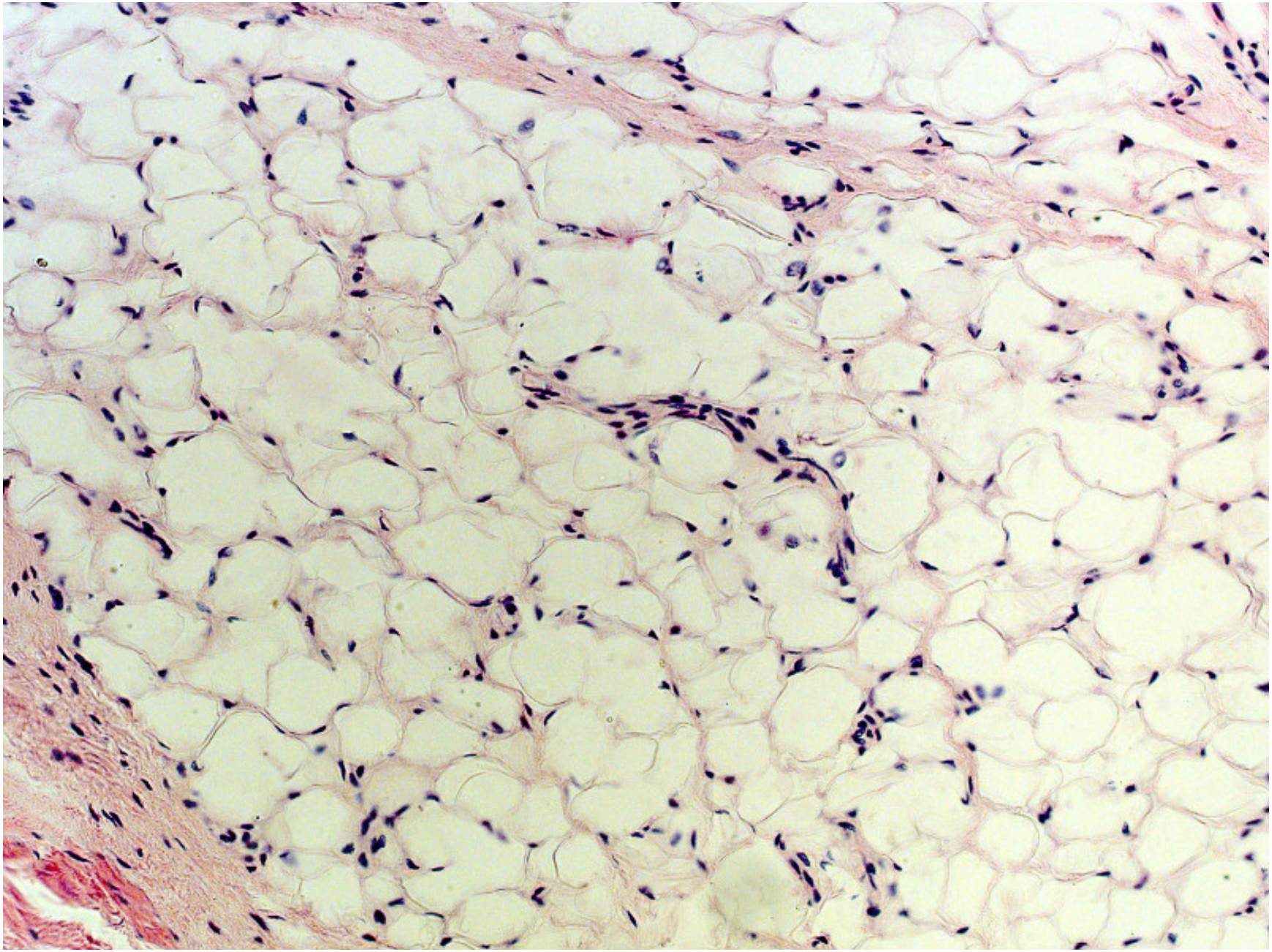
ADIPOSE TISSUE



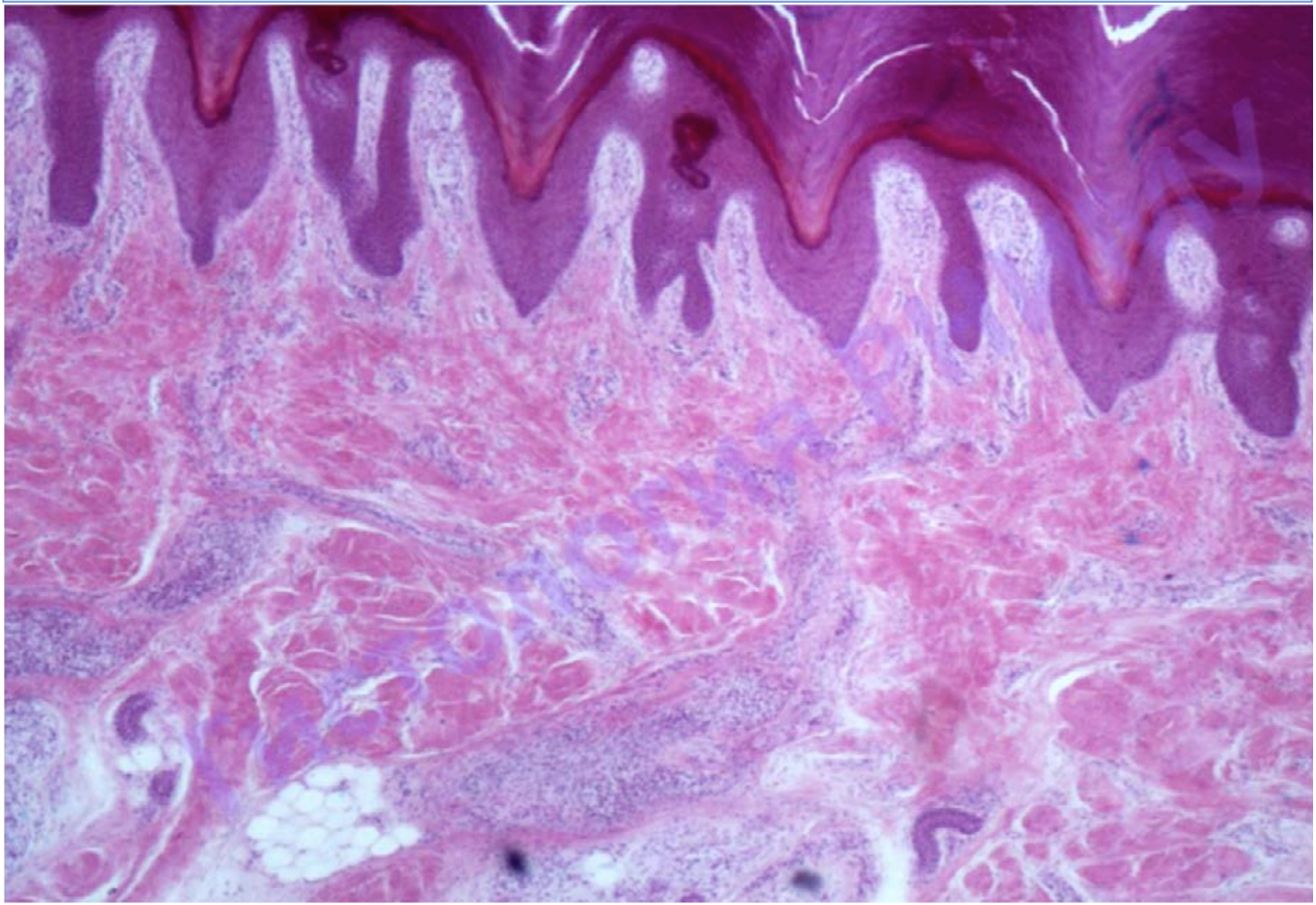


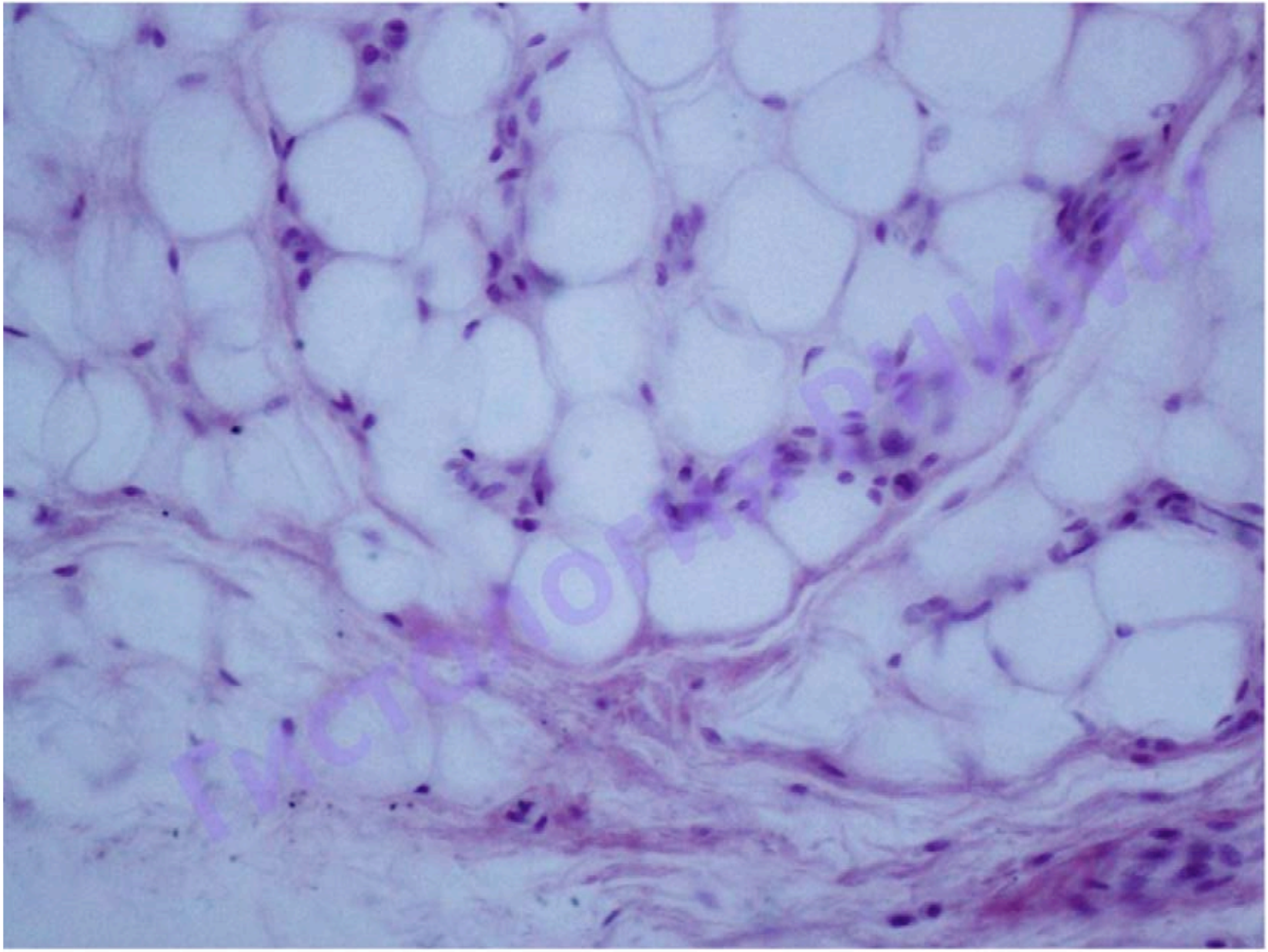


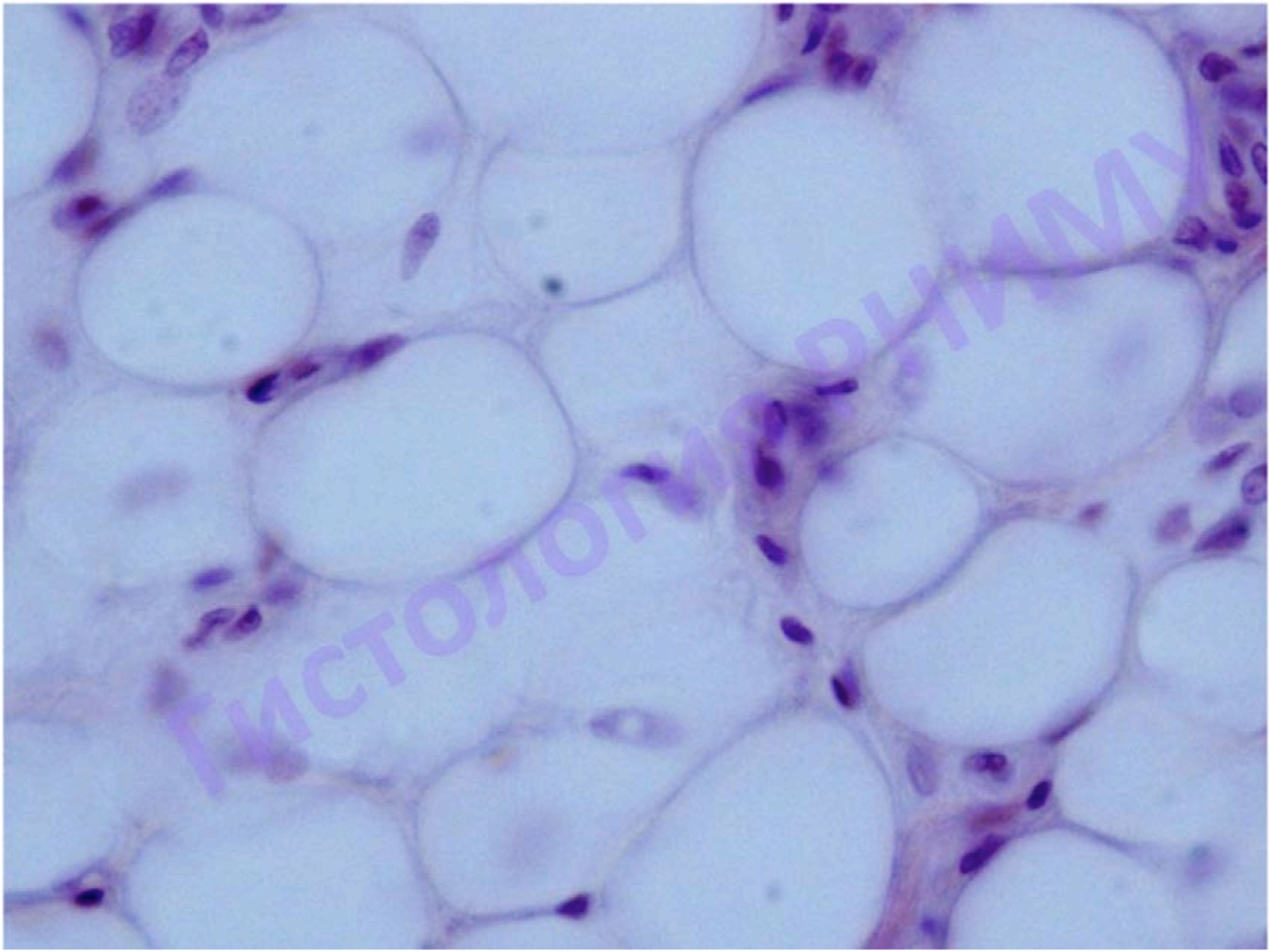




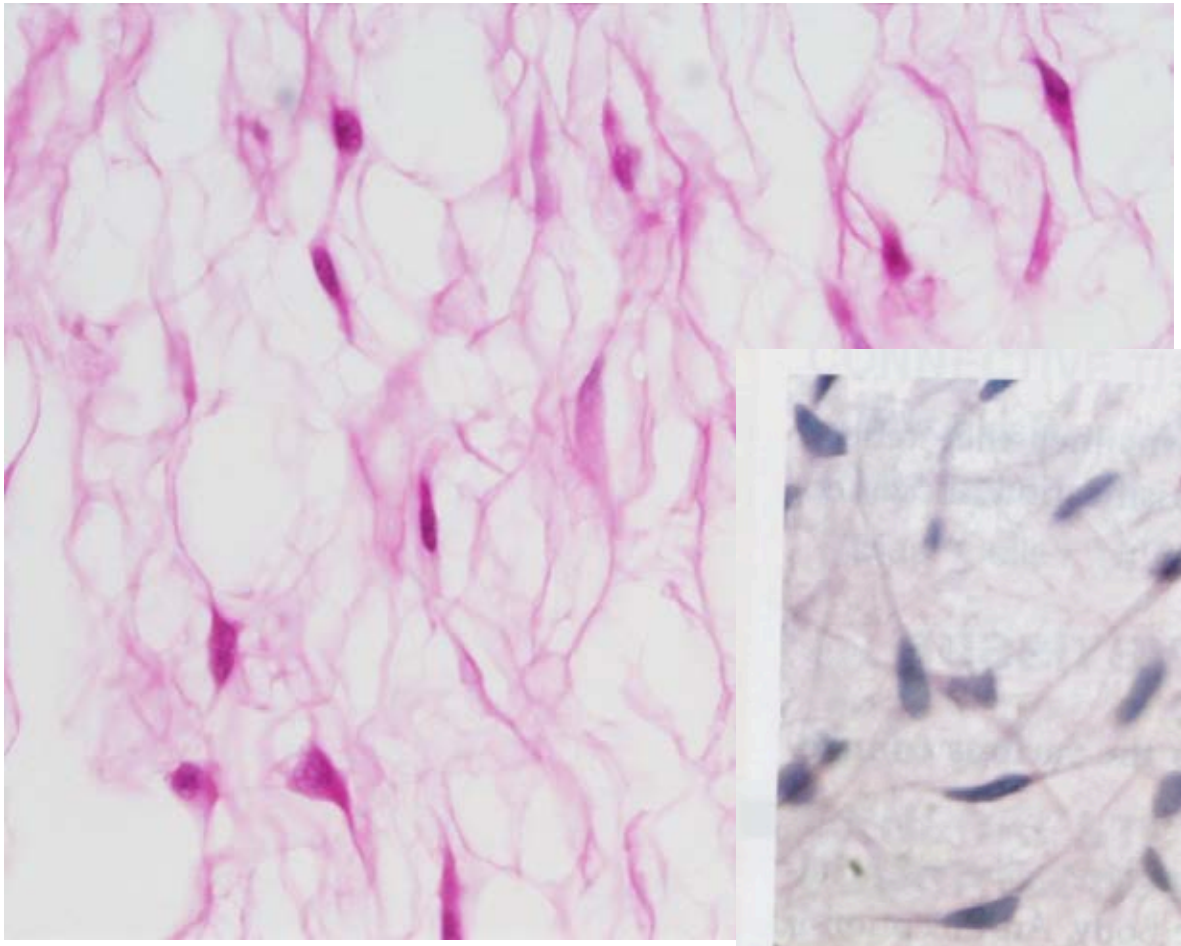
Slides №60, 61 “Dense fibrous irregular connective tissue of the dermis, section of the thick skin”
Staining: H&E

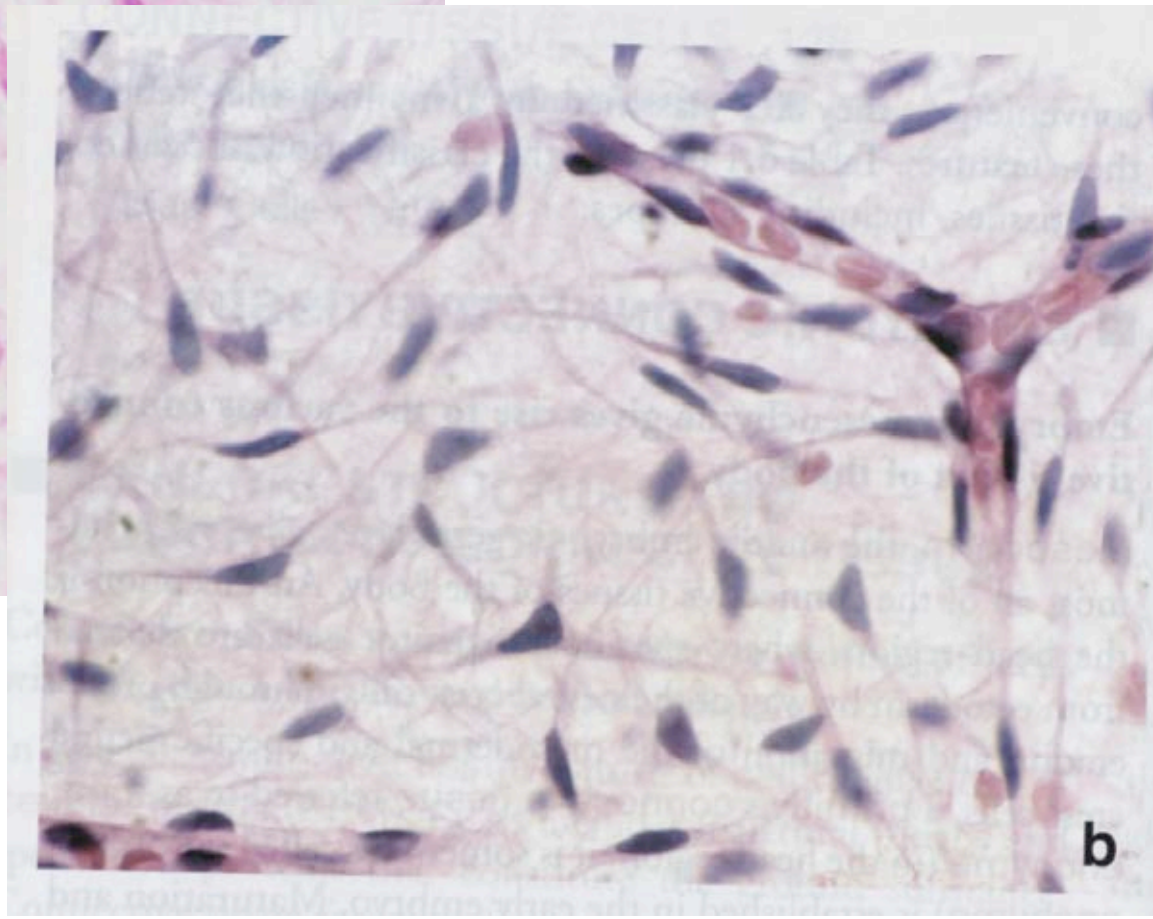




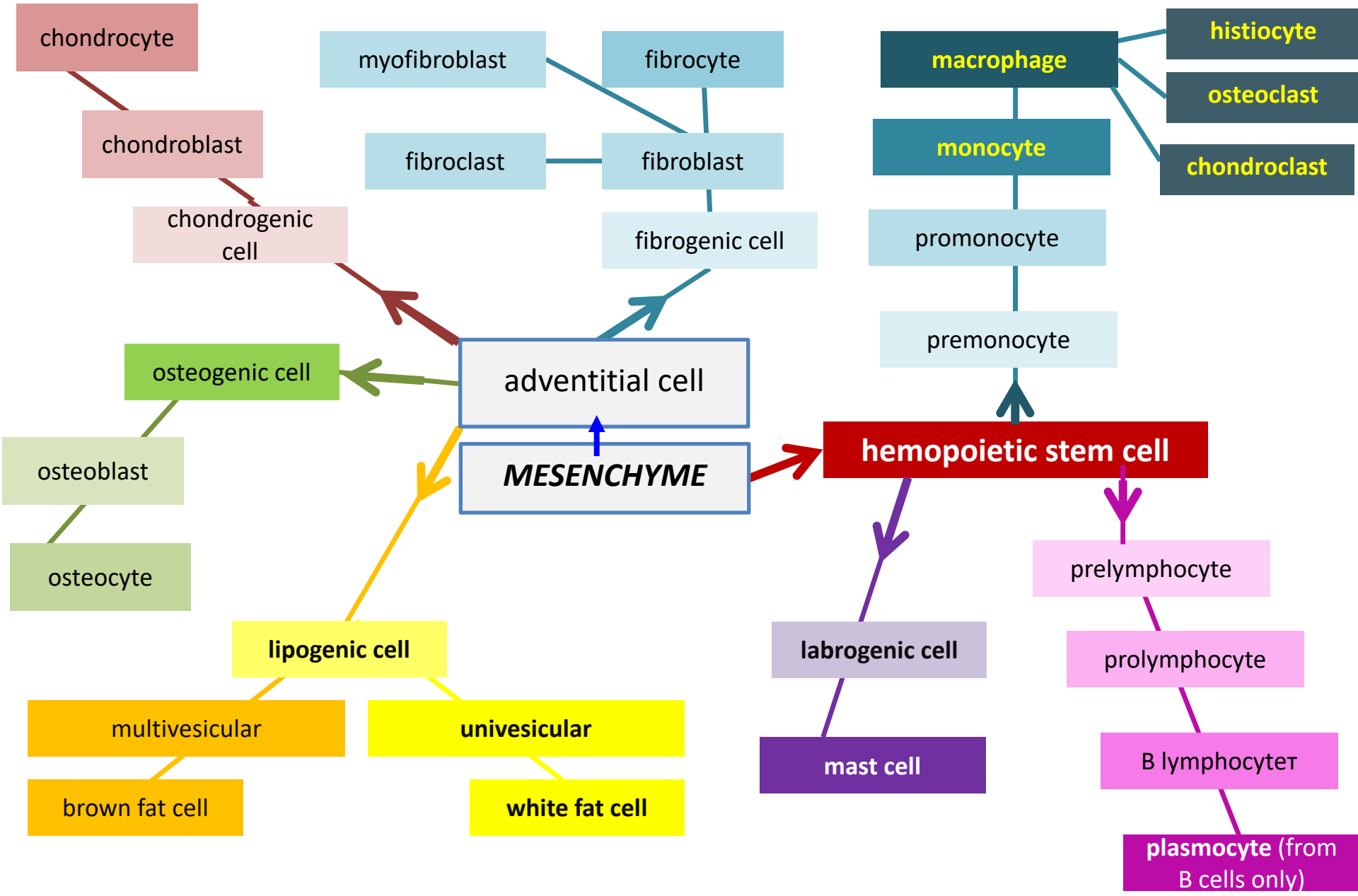

Гистологические

Mucous tissue

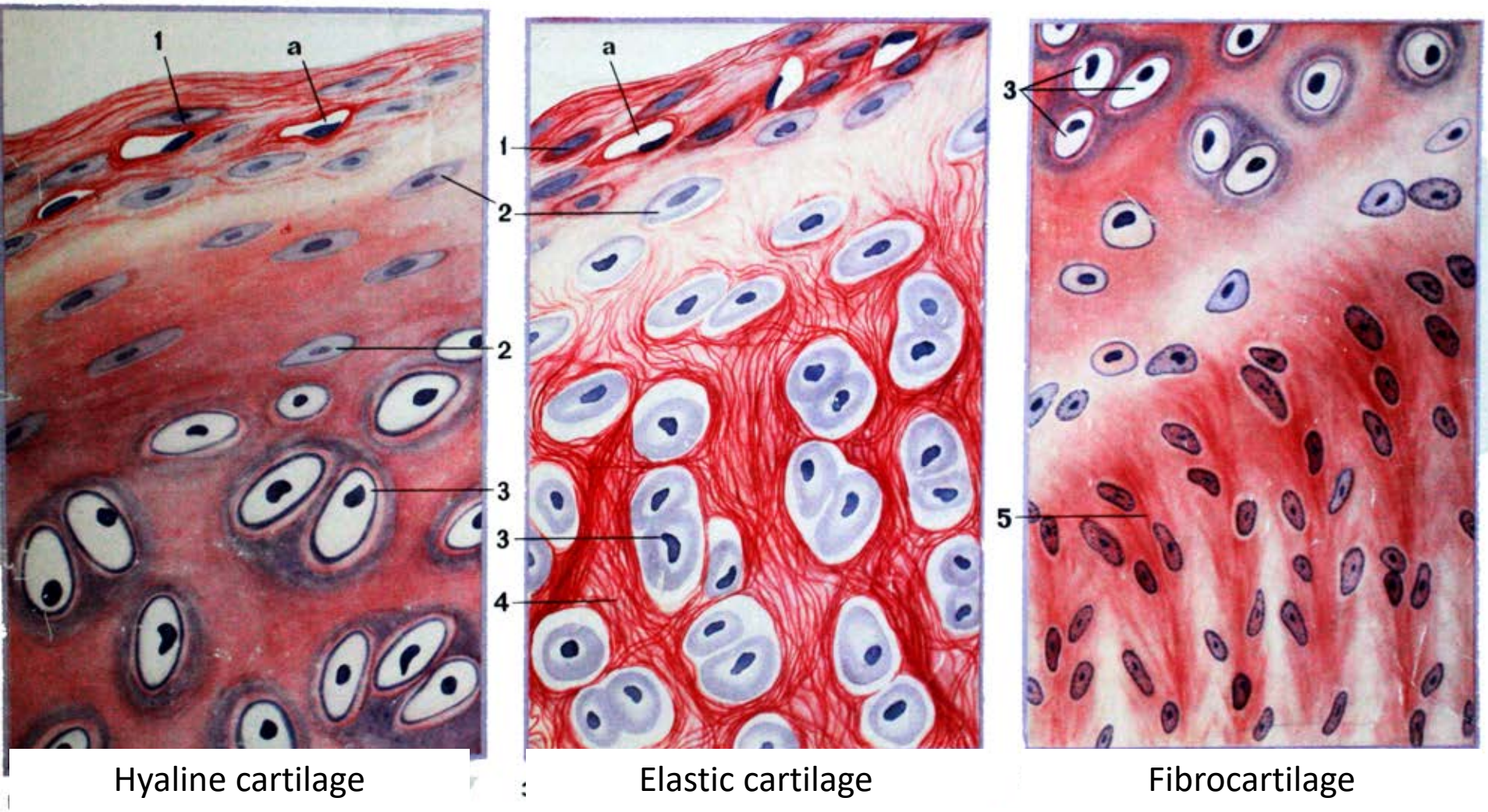




Differons of connective tissues



CARTILAGE TISSUE



Hyaline cartilage

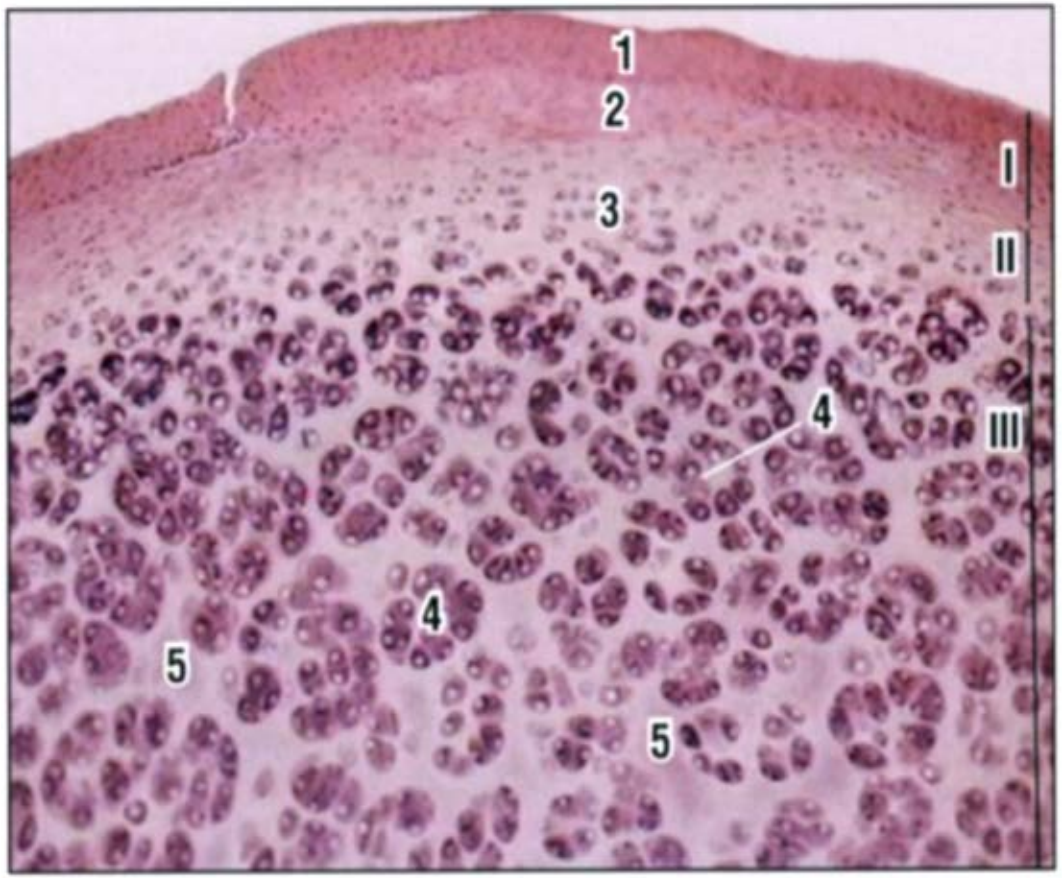
Elastic cartilage

Fibrocartilage

1 – perichondrium: a) blood vessels; 2-young chondrocytes; 3-isogenous groups; 4-elastic fibers; 5-chondrin fibers

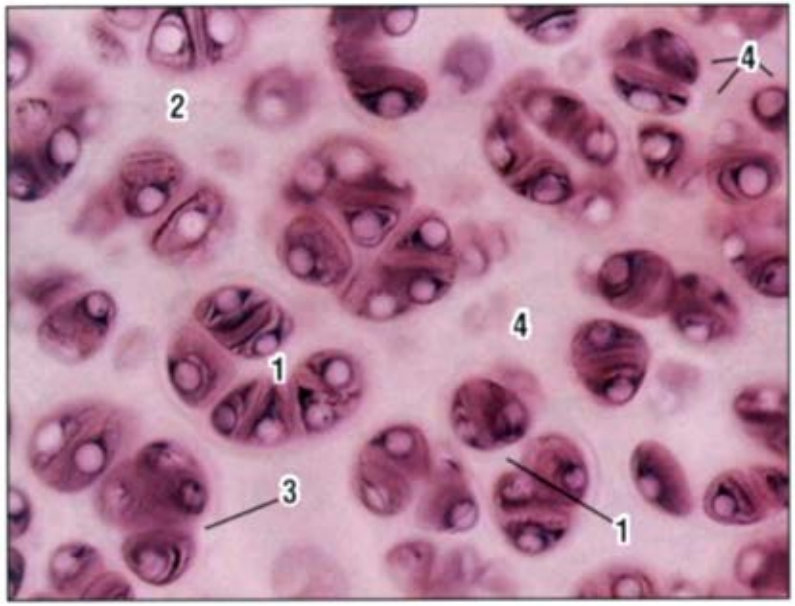
HYALINE CARTILAGE TISSUE

Hyaline cartilage in cross section



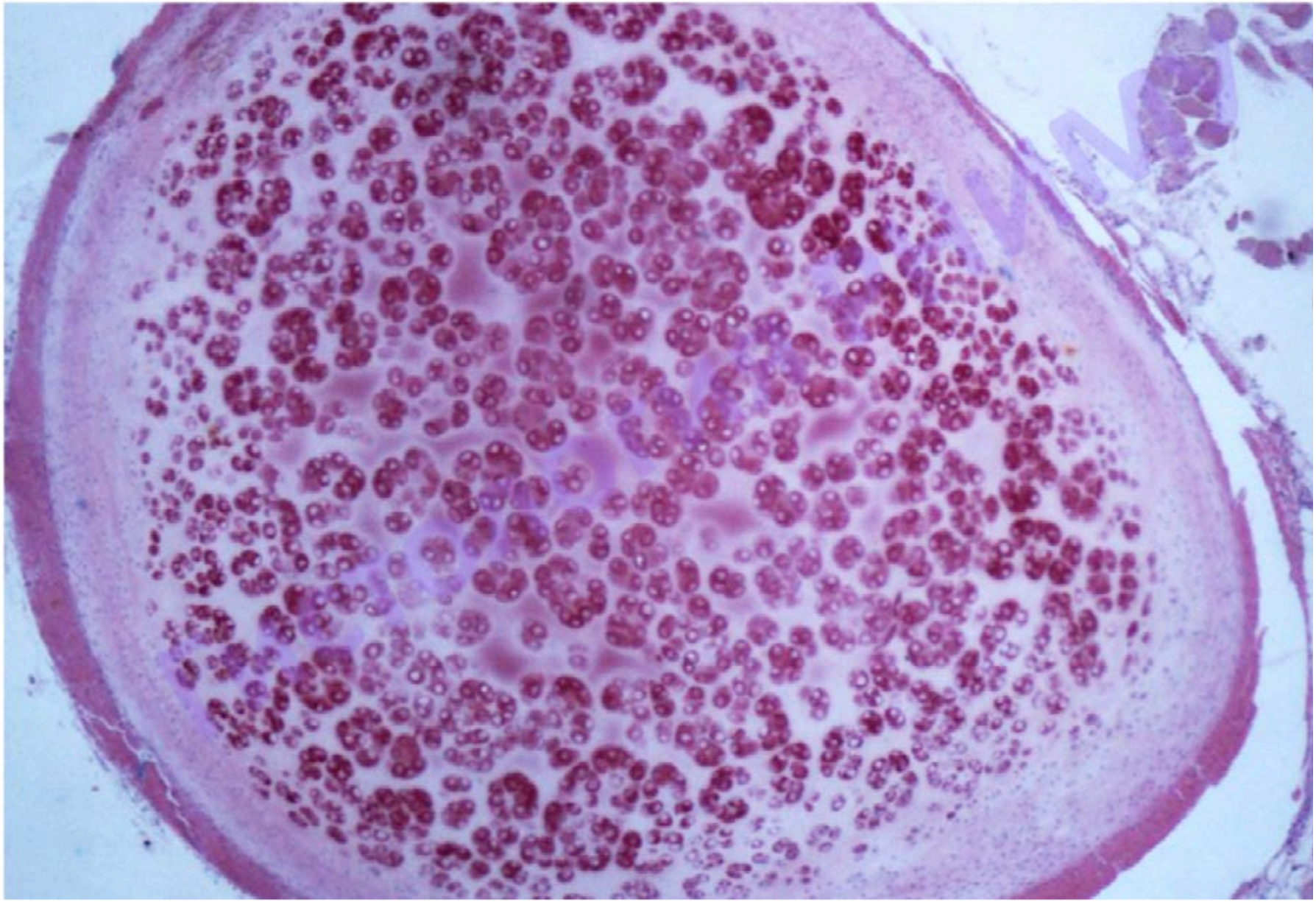
I- perichondrium: 1- external fibrous layer,
2- internal cellular layer (chondrogenic layer);
II- zone of young cartilage: 3- single chondrocytes;
III- zone of mature cartilage: 4- isogenous groups of chondrocytes; 5- extracellular matrix

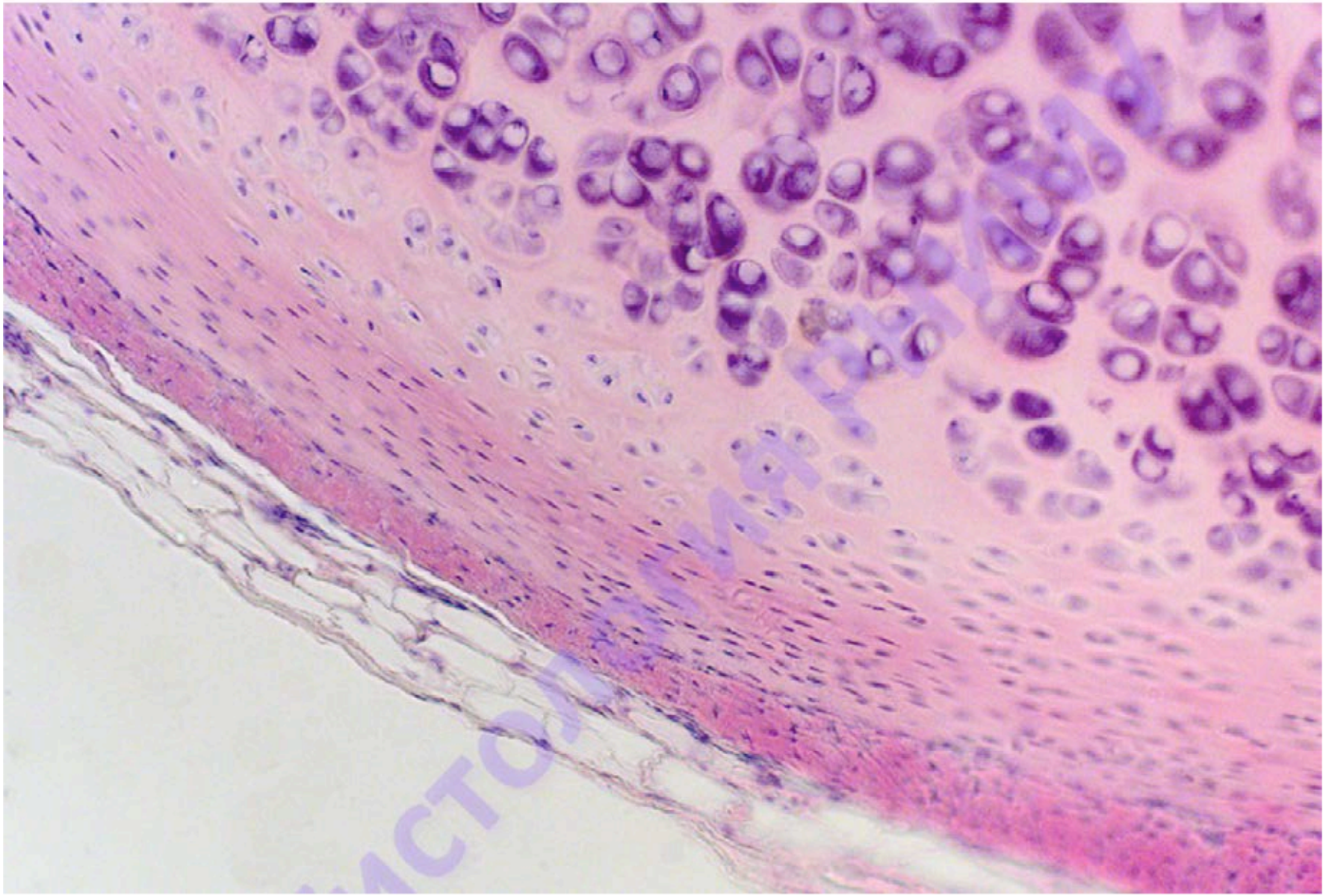
Zone of mature cartilage

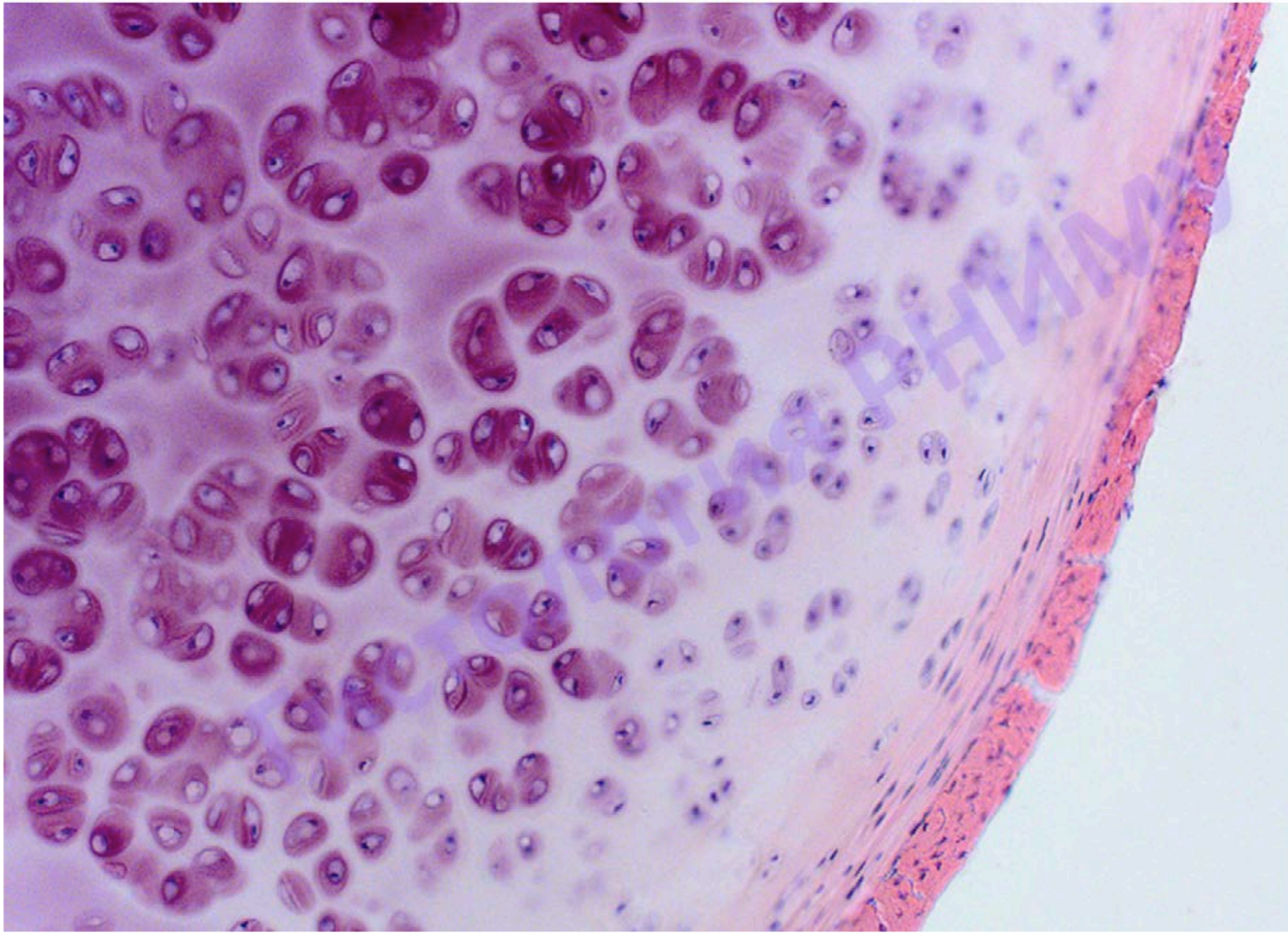


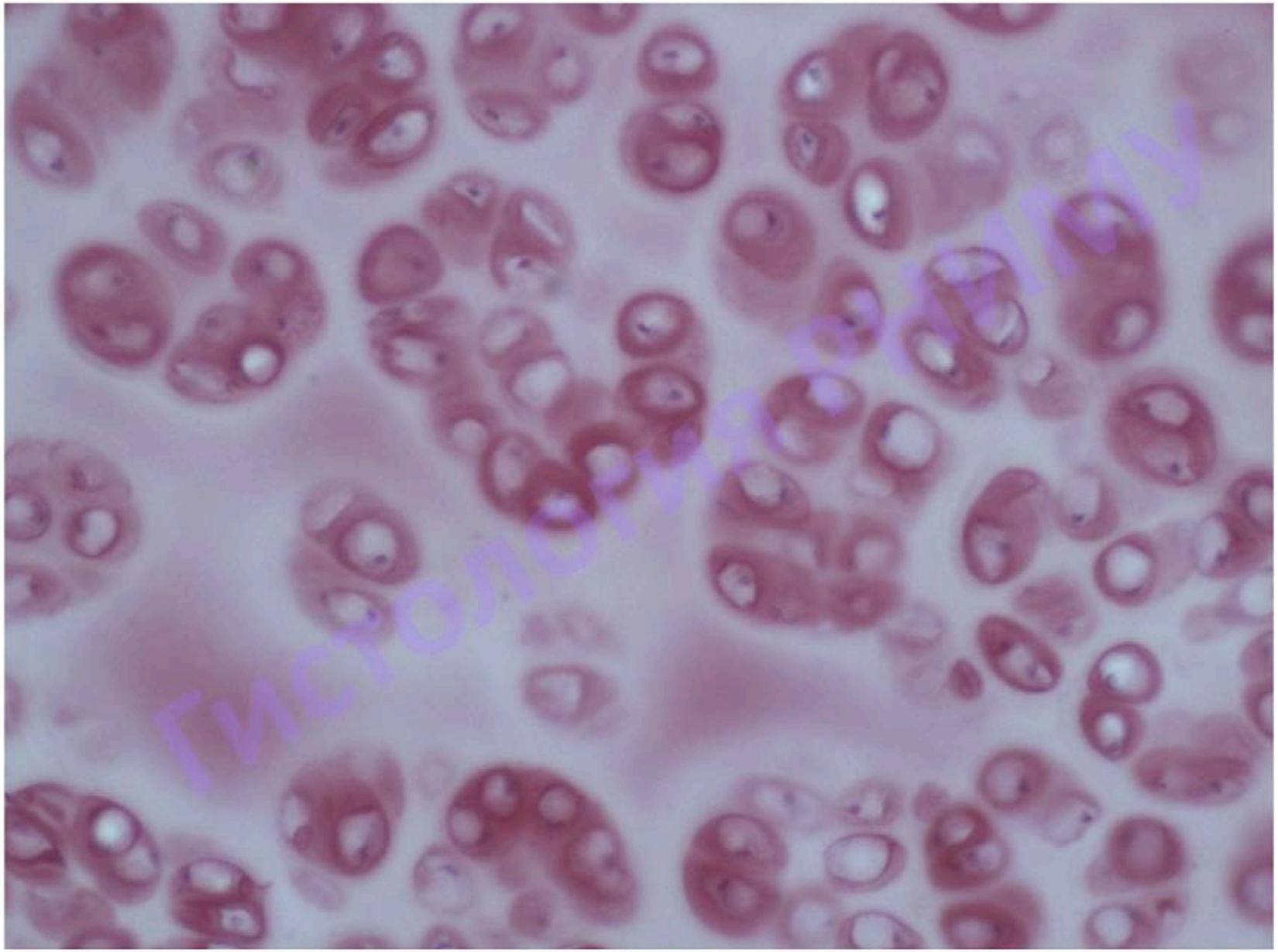
1- isogenous groups of chondrocytes;
2- extracellular matrix;
3- territorial matrix;
4- interterritorial matrix

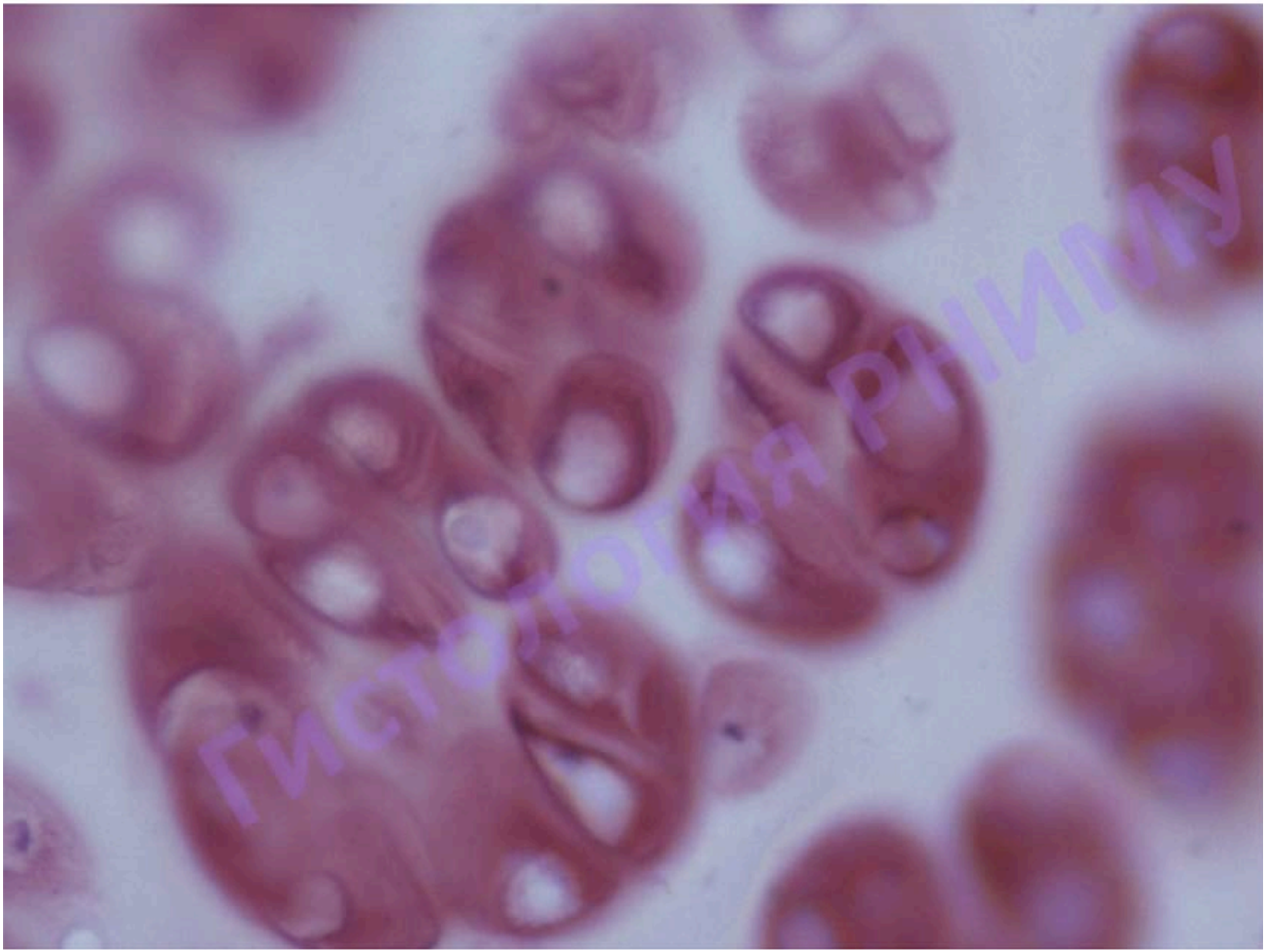
Slide №63 “Hyaline cartilage, cross section of a rib” *Staining: H&E*



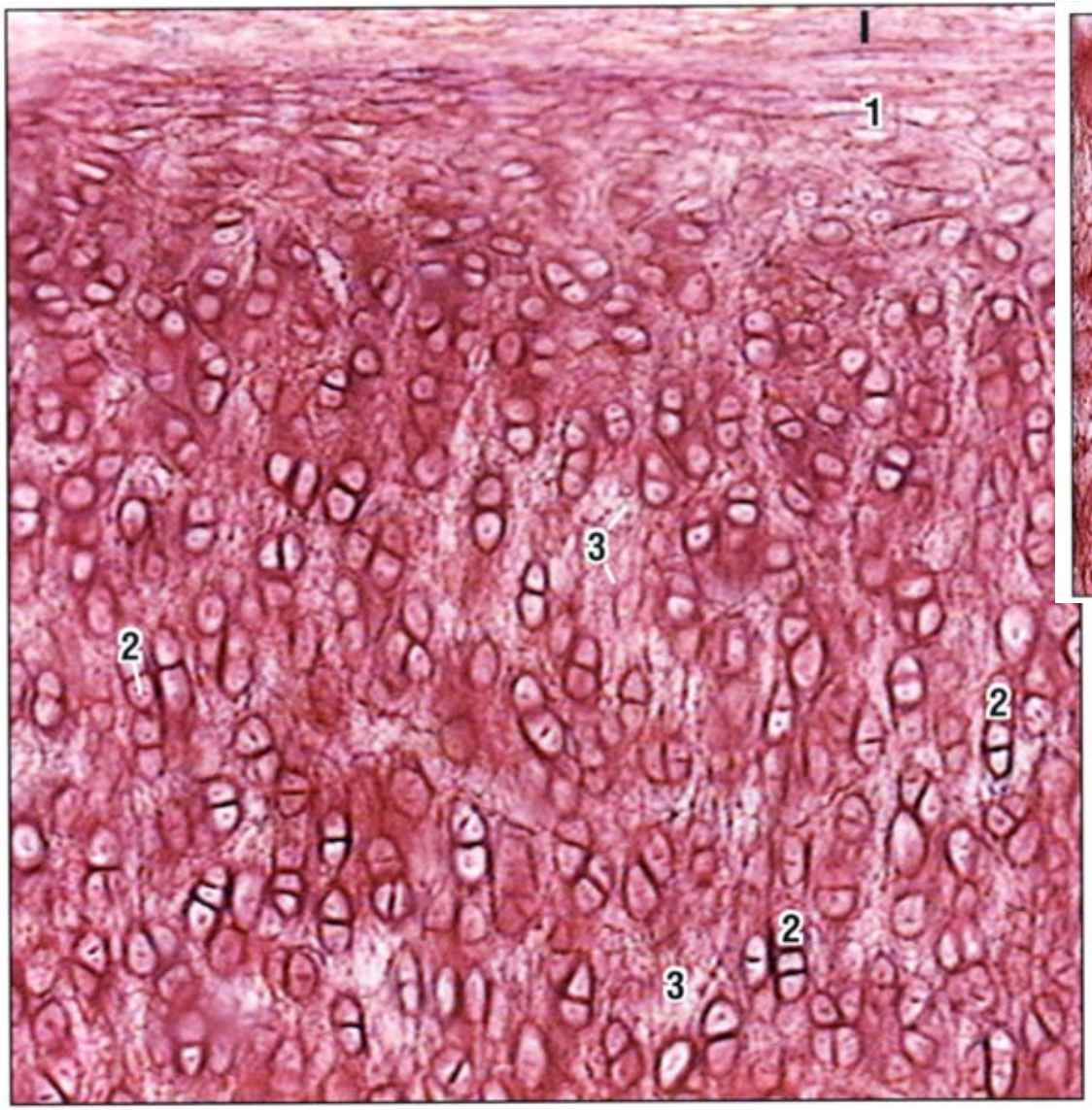


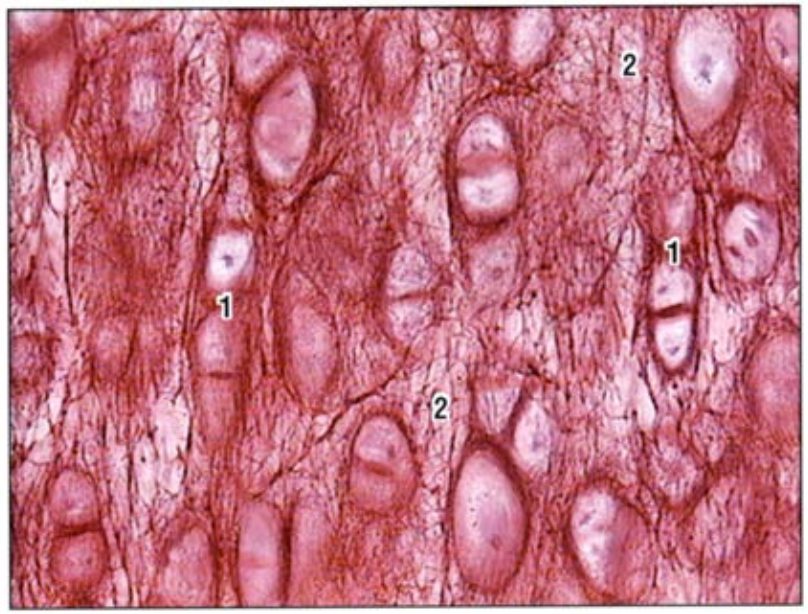





ГИСТОЛОГИЯ РНИМУ

ELASTIC CARTILAGE TISSUE

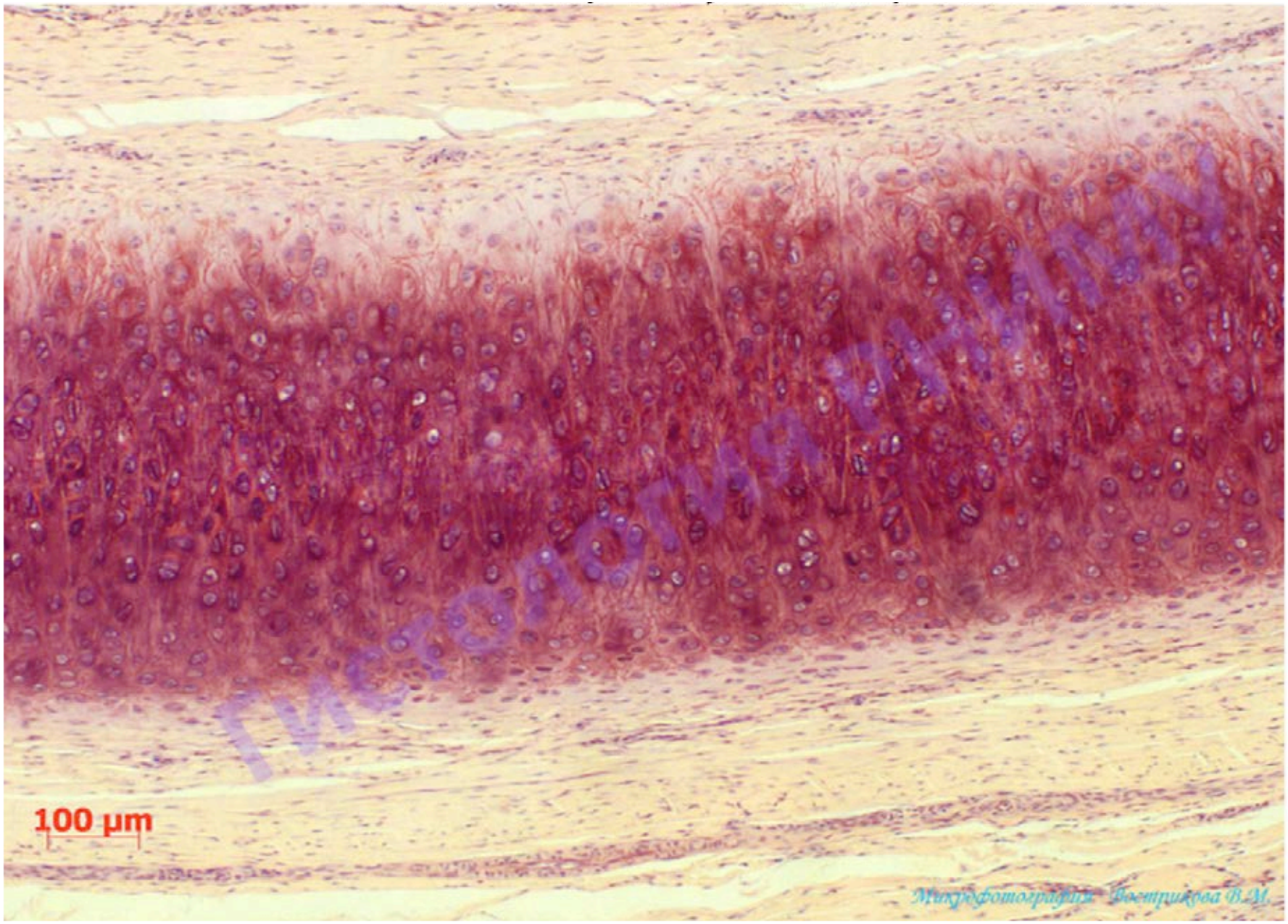


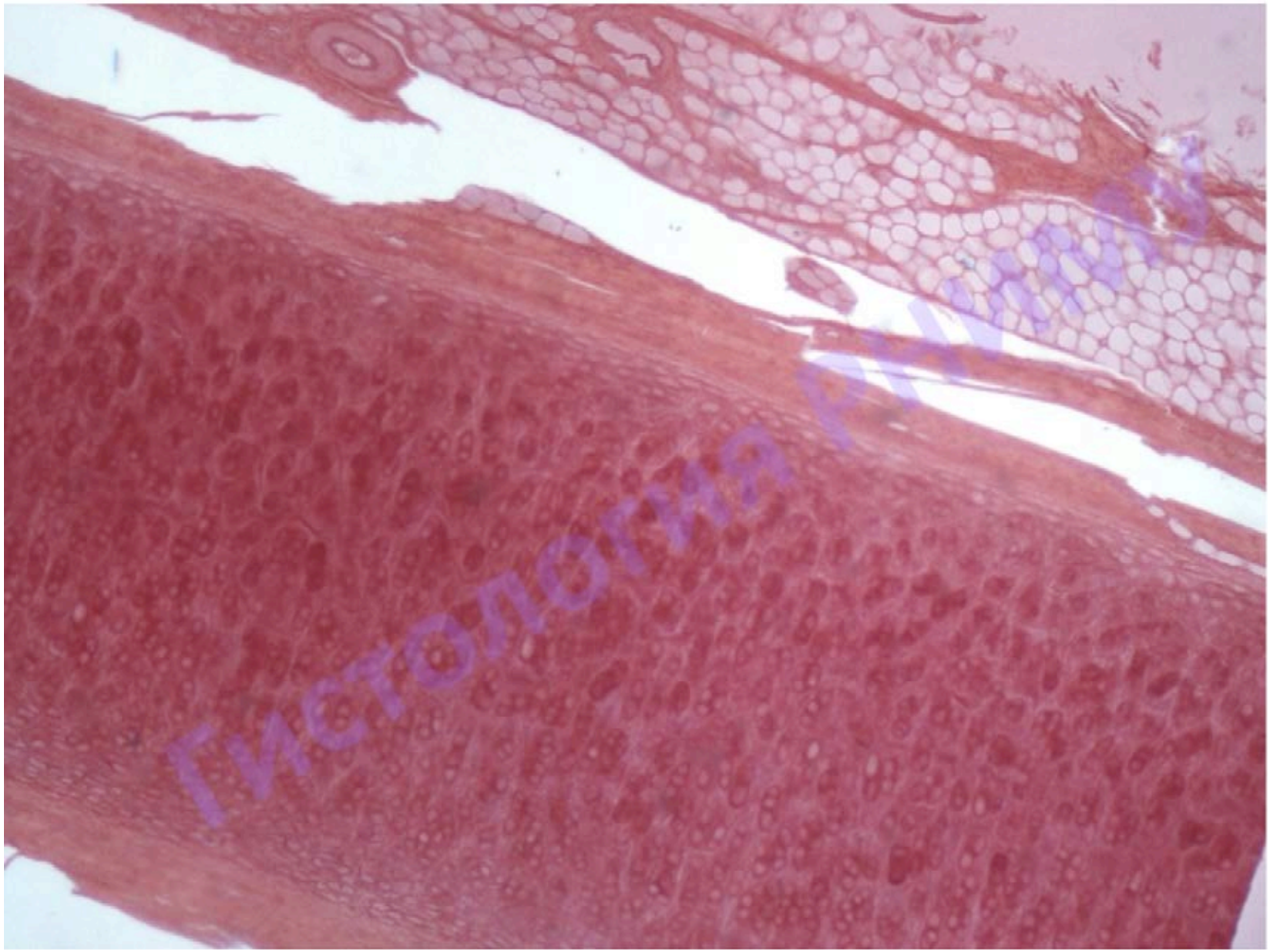


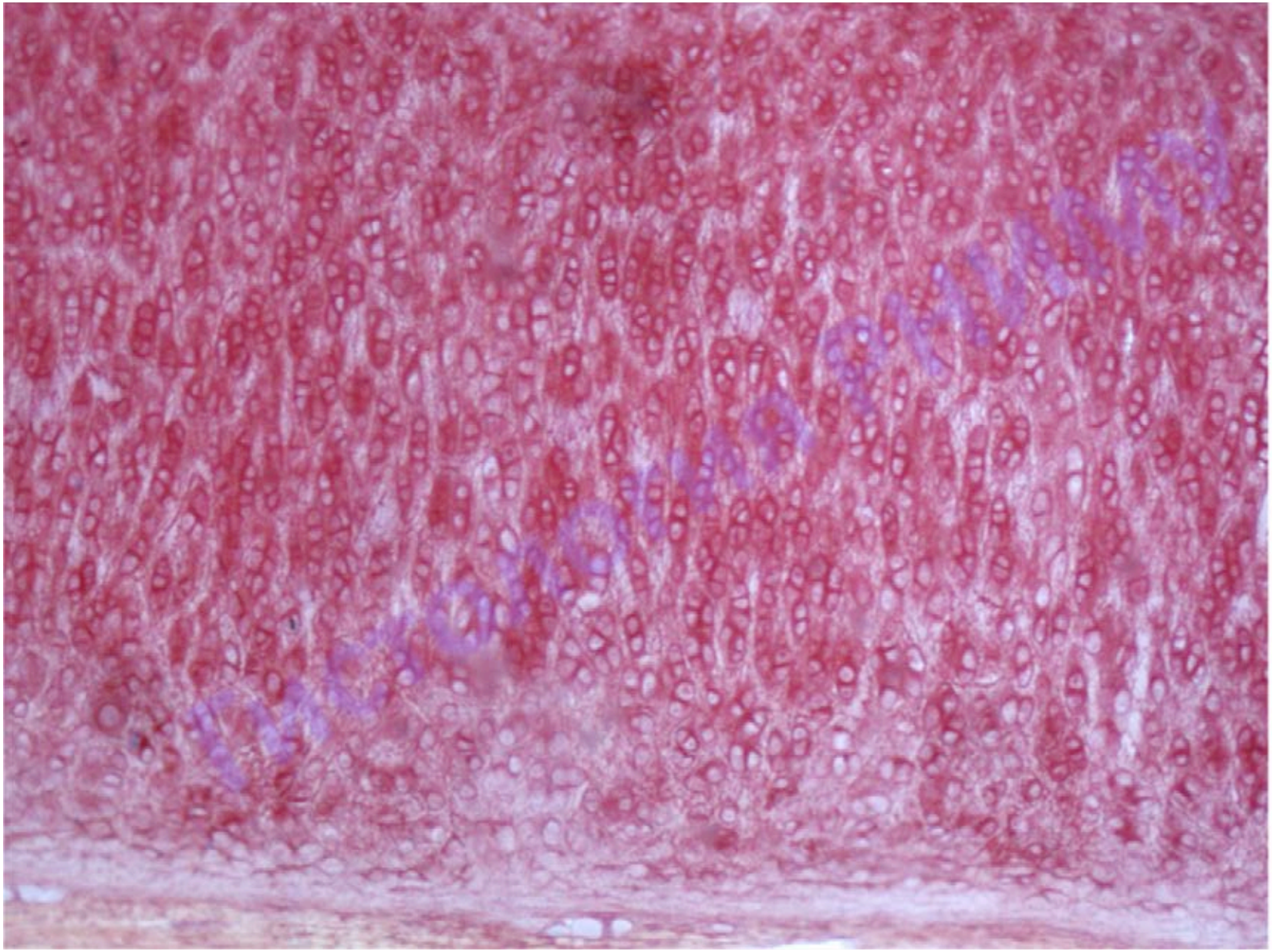
1- isogenous groups of chondrocytes (columns);
2- elastic fibers of the matrix

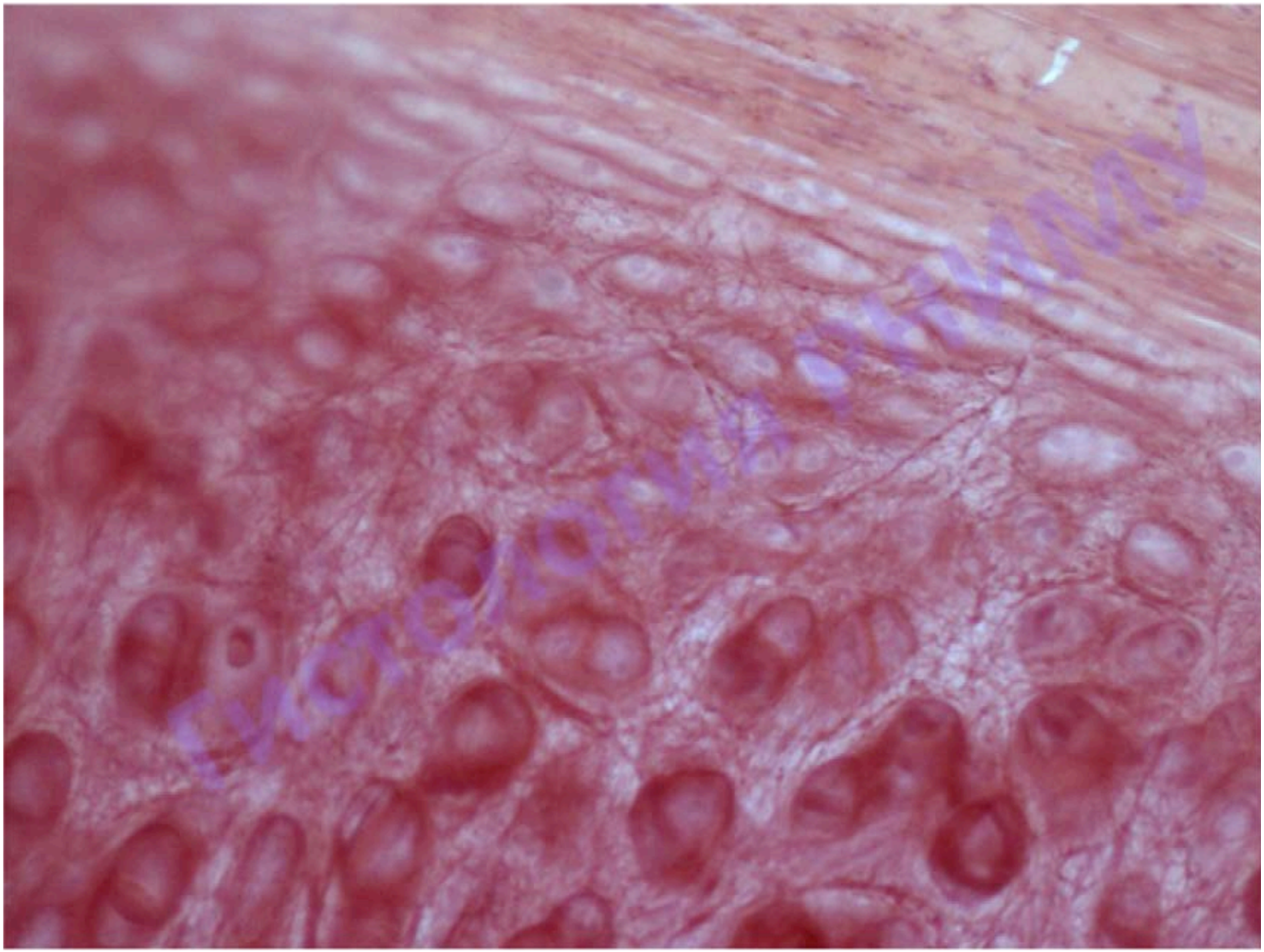
I- perichondrium:
1- single chondrocytes;
2- isogenous groups of chondrocytes (columns);
3- extracellular matrix with elastic fibers

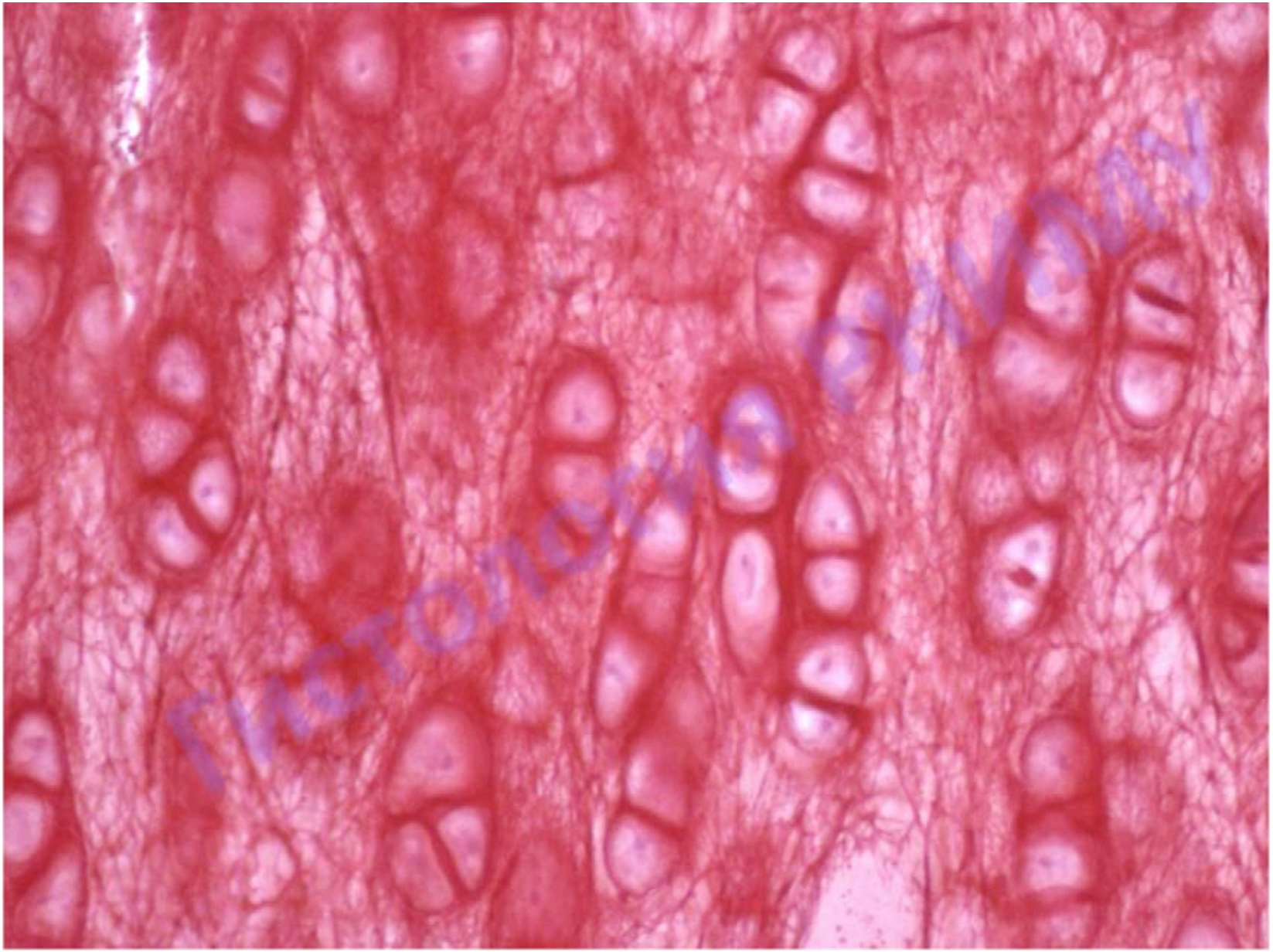
Slide №64 “Elastic cartilage, section of an auricle” *Staining: H&E*



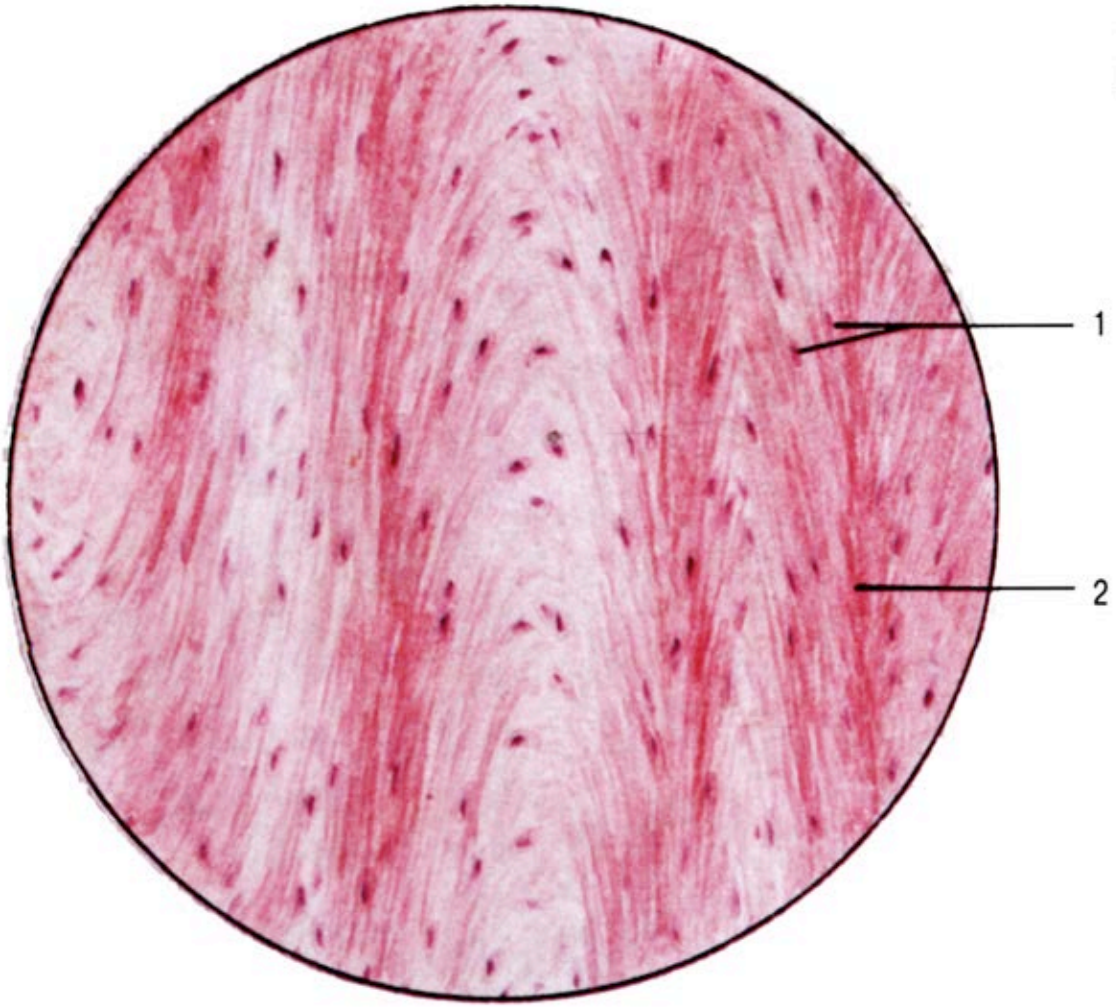

Гистология РМУ




cytography.army

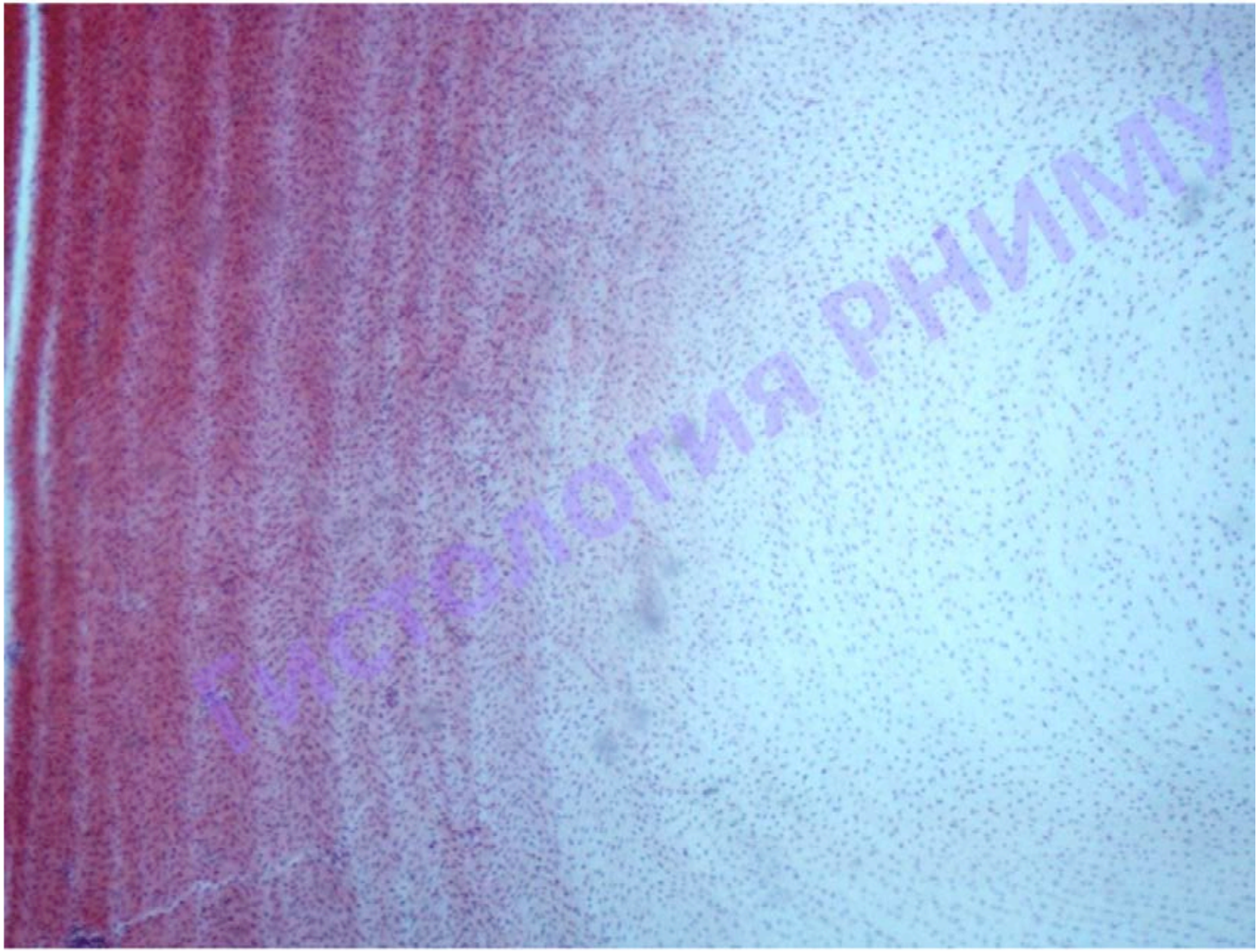


FIBROCARTILAGE TISSUE

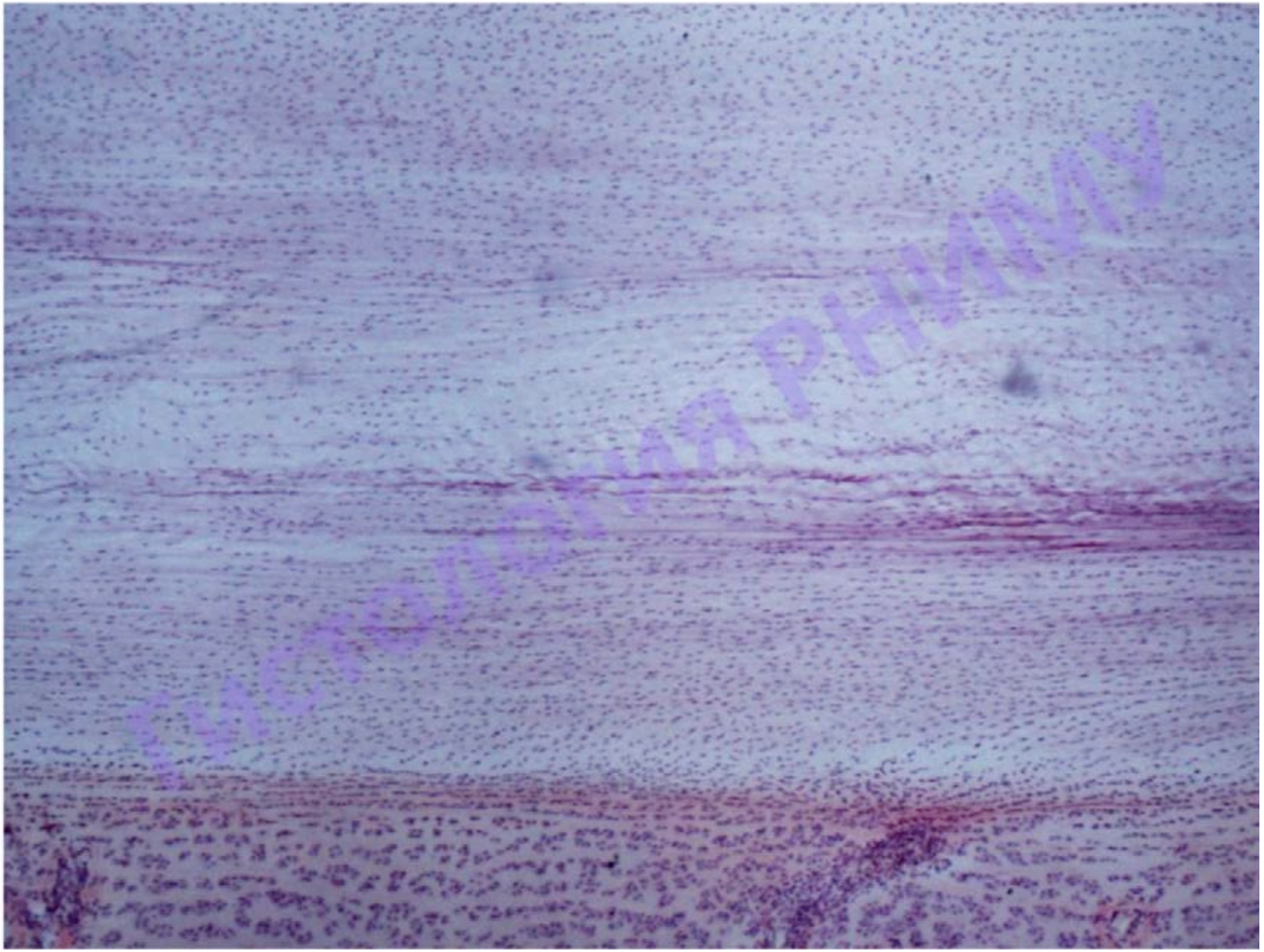


1- chondrocytes, 2- bundles of collagen fibers

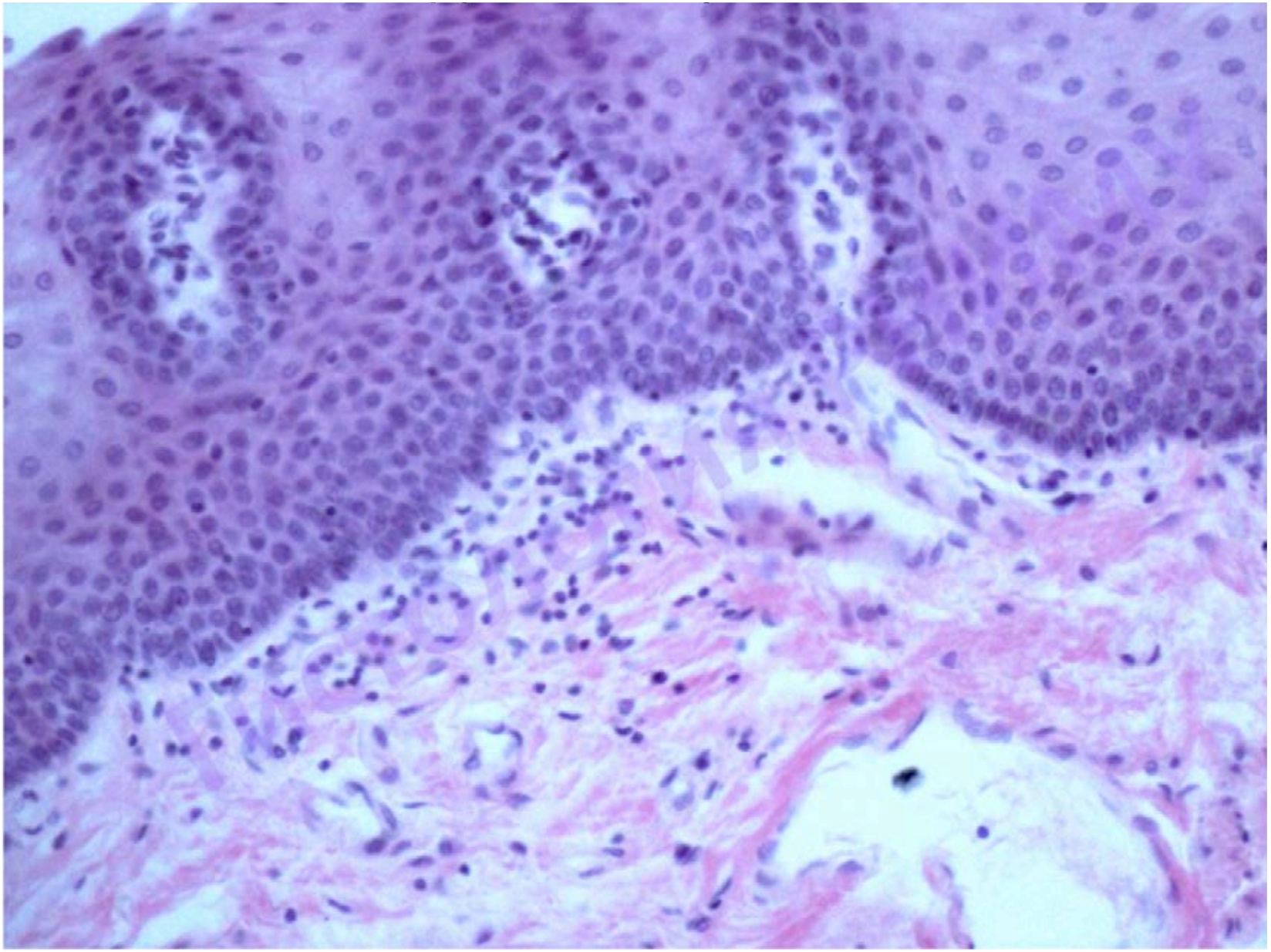
Slide №65 “Fibrocartilage, section of an intervertebral disk” *Staining: H&E*

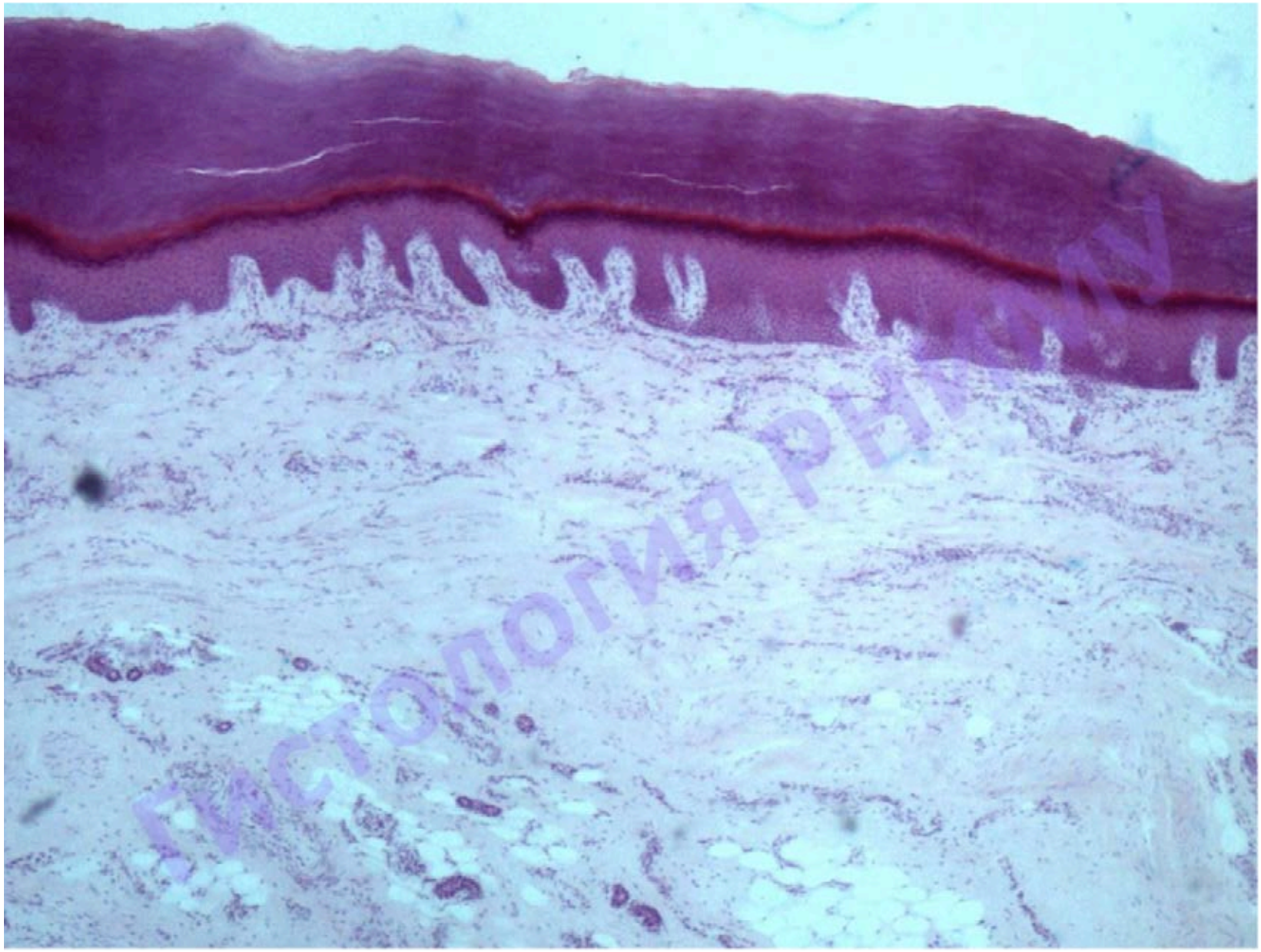


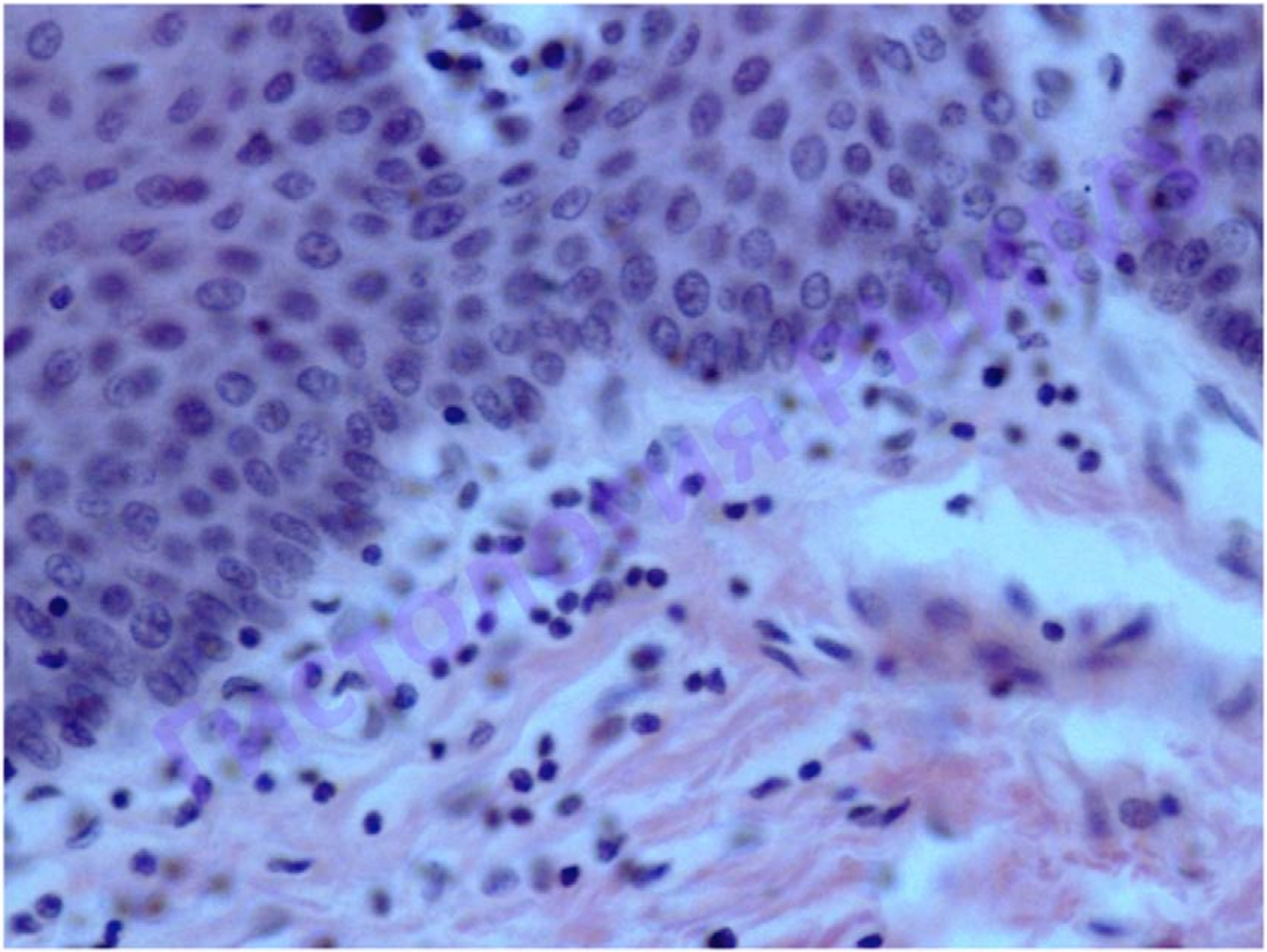
Slide №65 “Fibrocartilage, section of an intervertebral disk” *Staining: H&E*

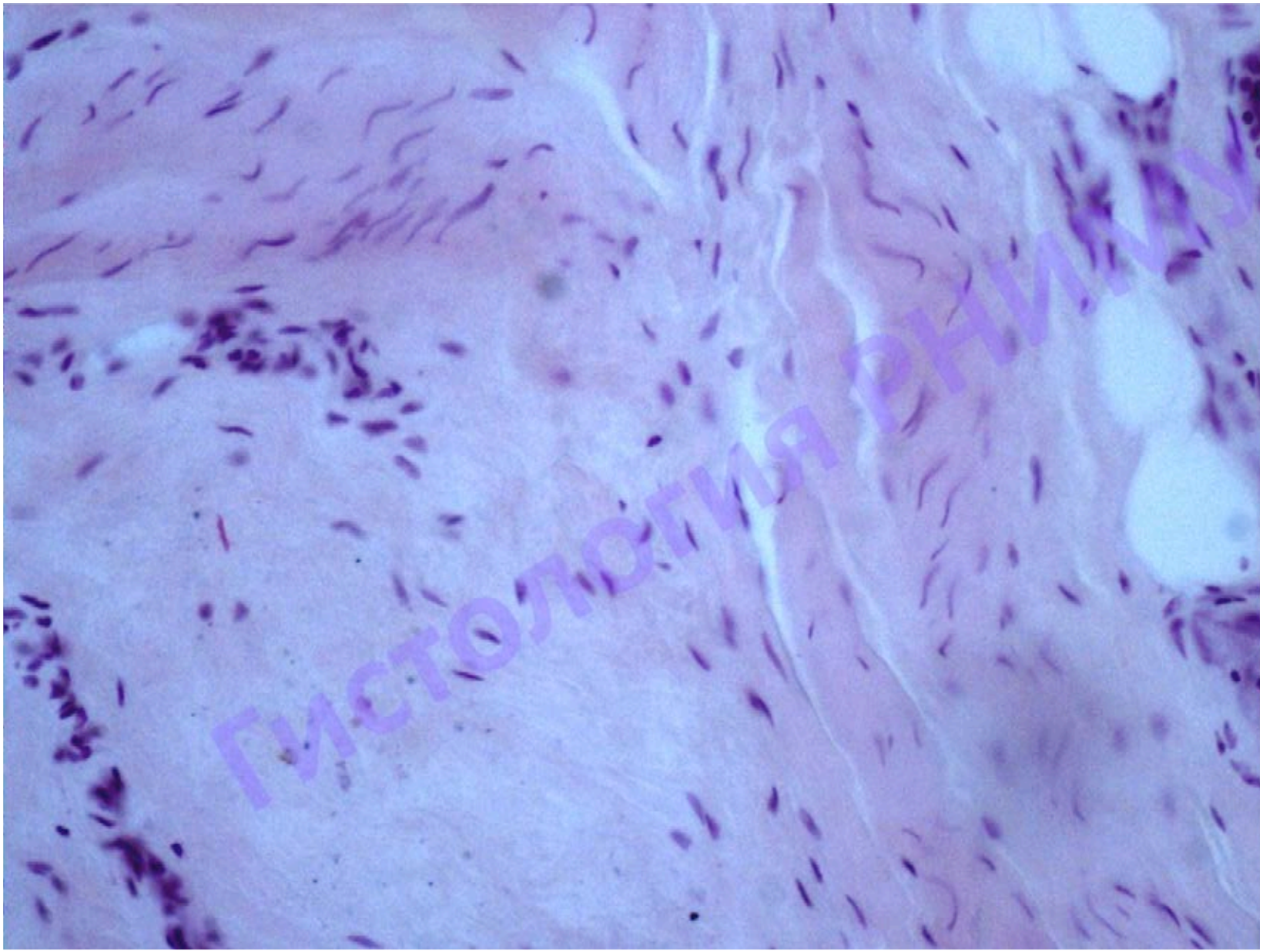


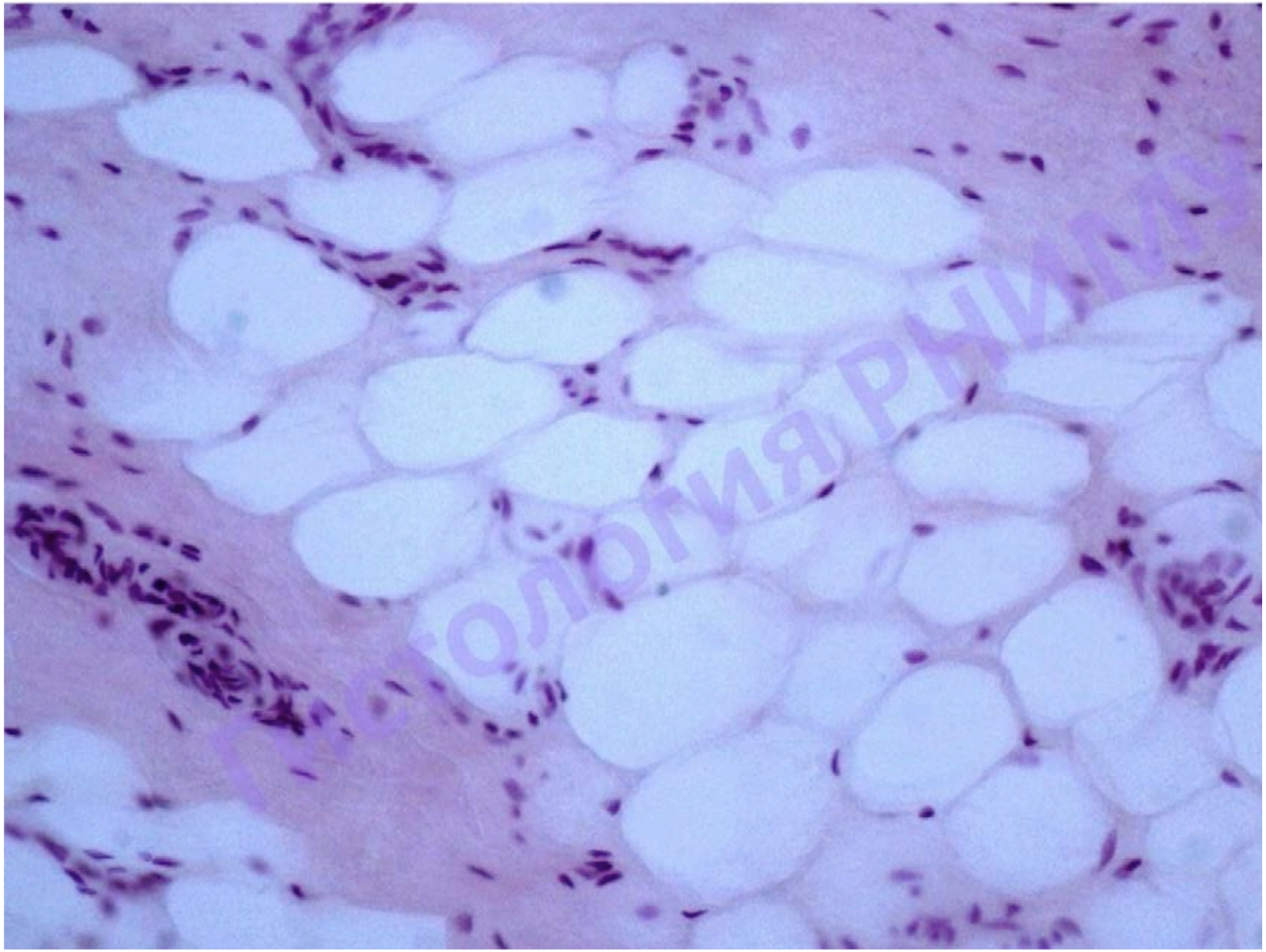
TASKS FOR SELF-STUDYING

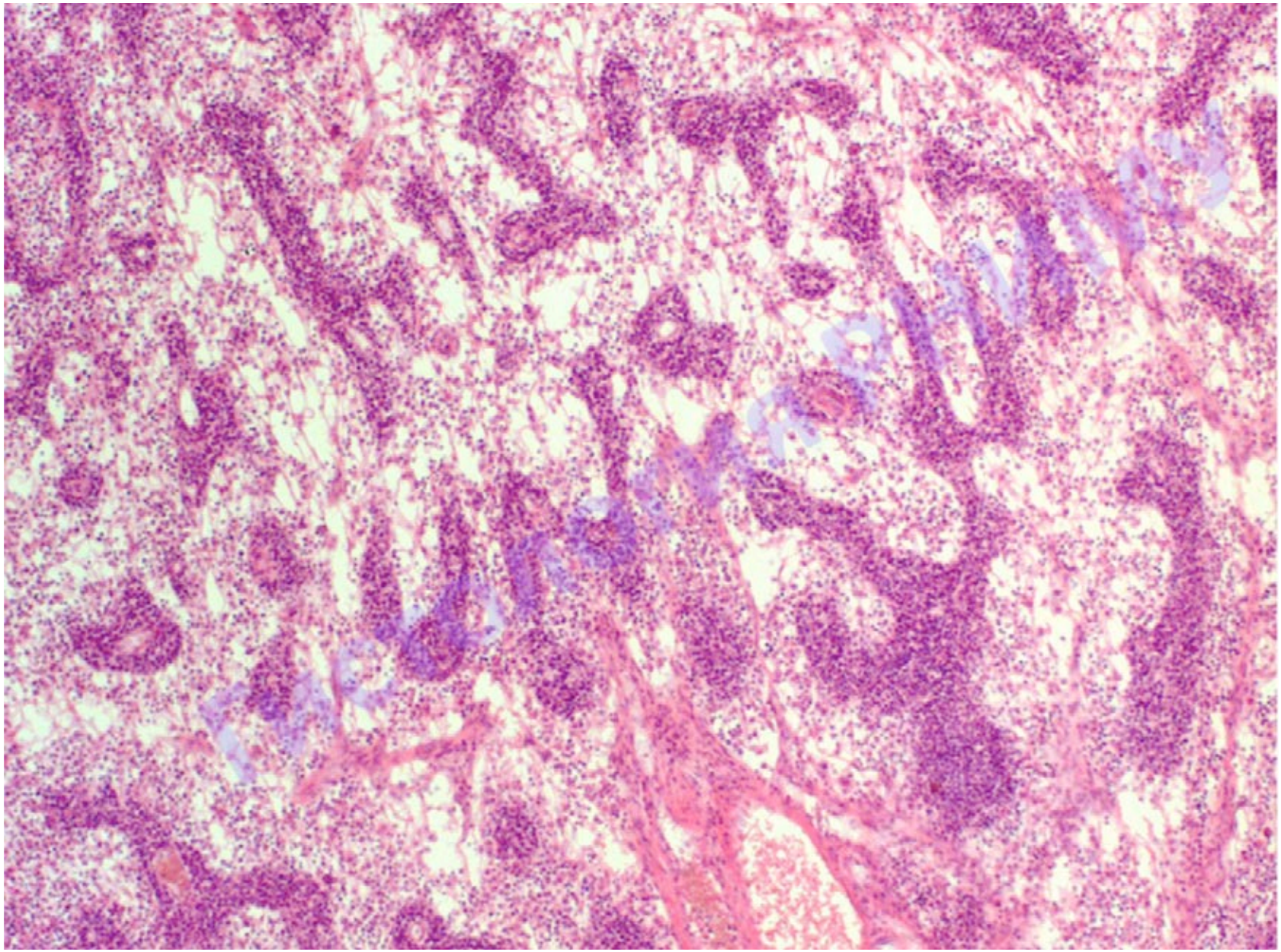


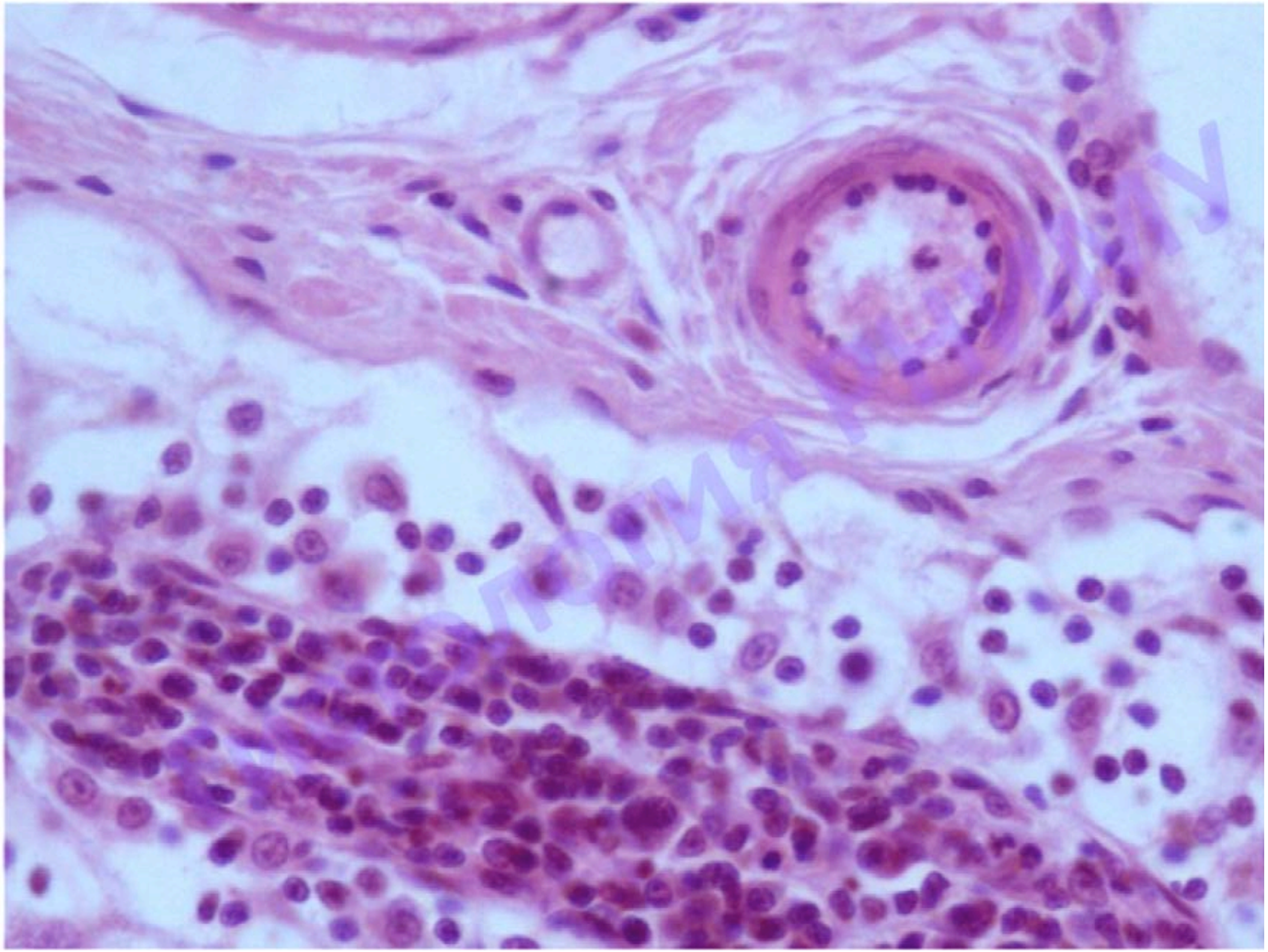

Гистология РНИМУ

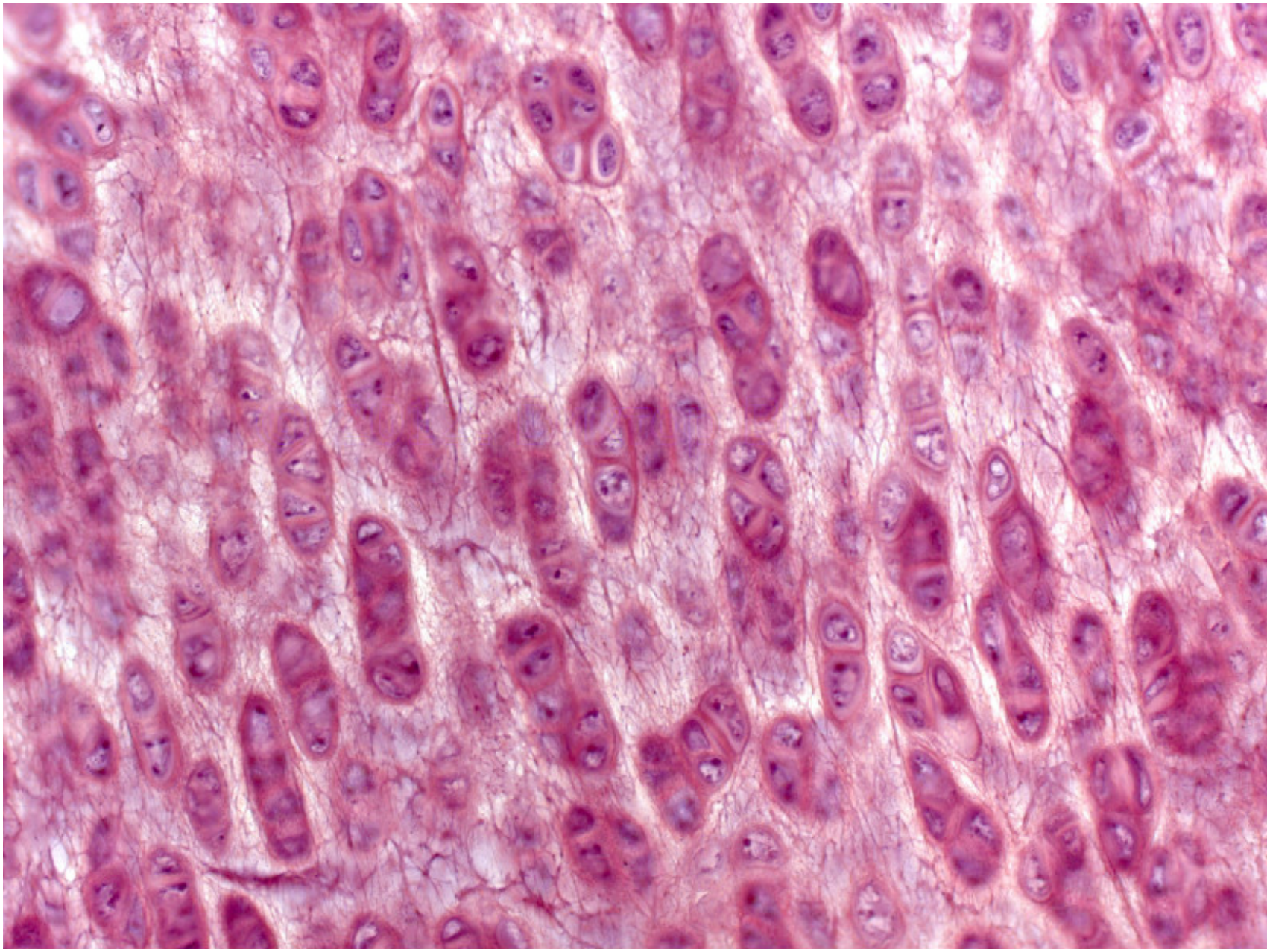


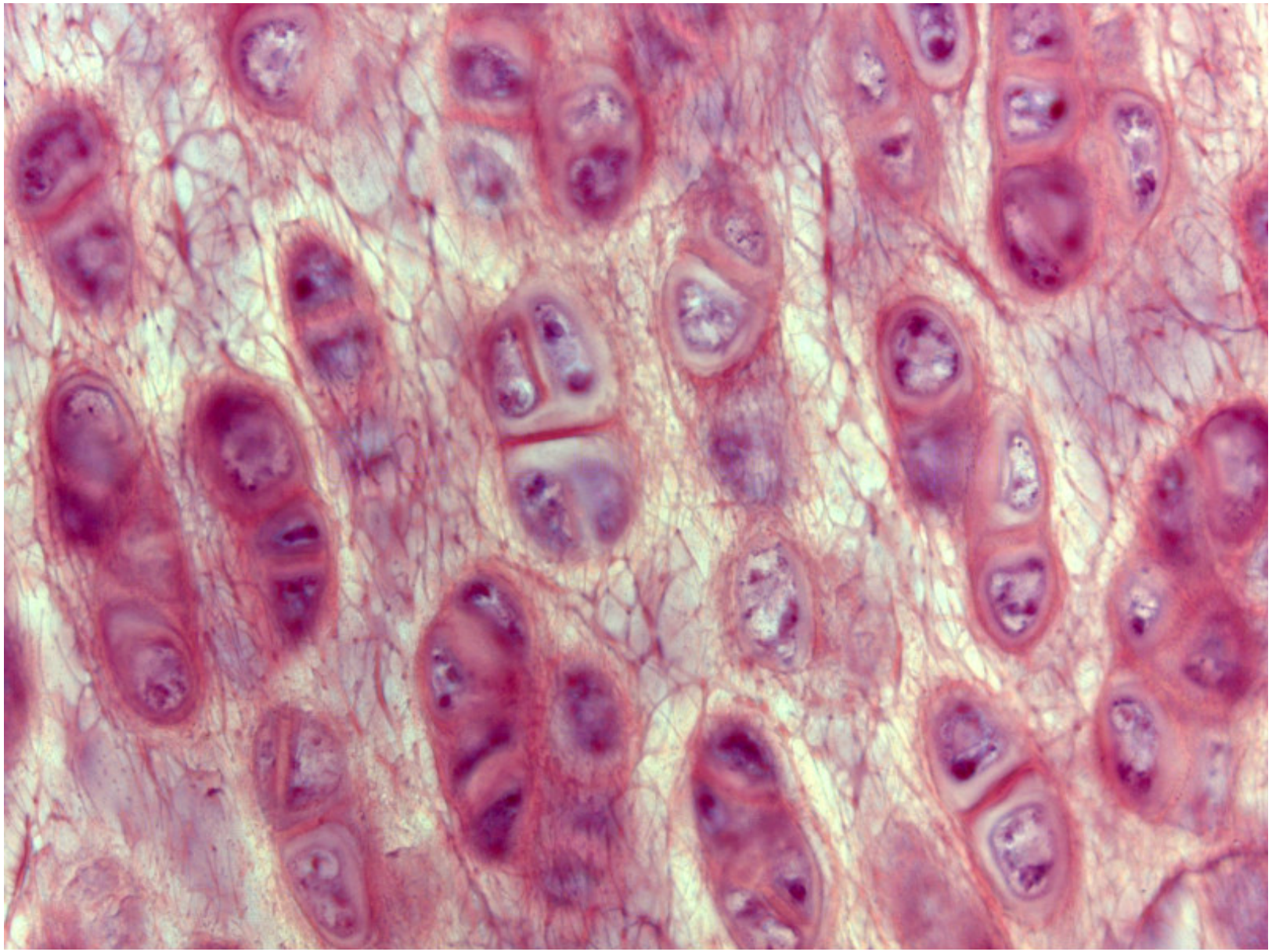

Гистология РНИМУ

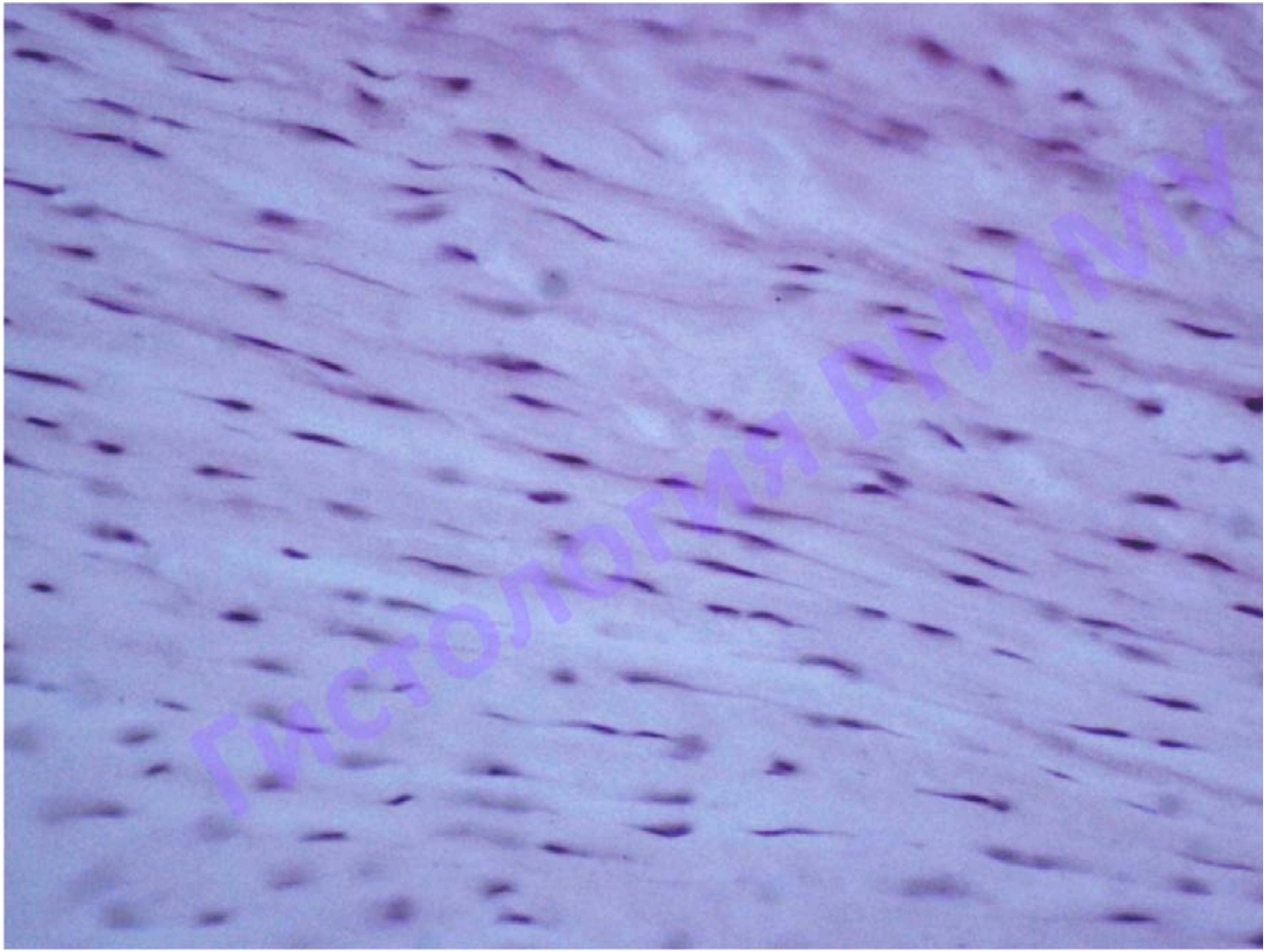


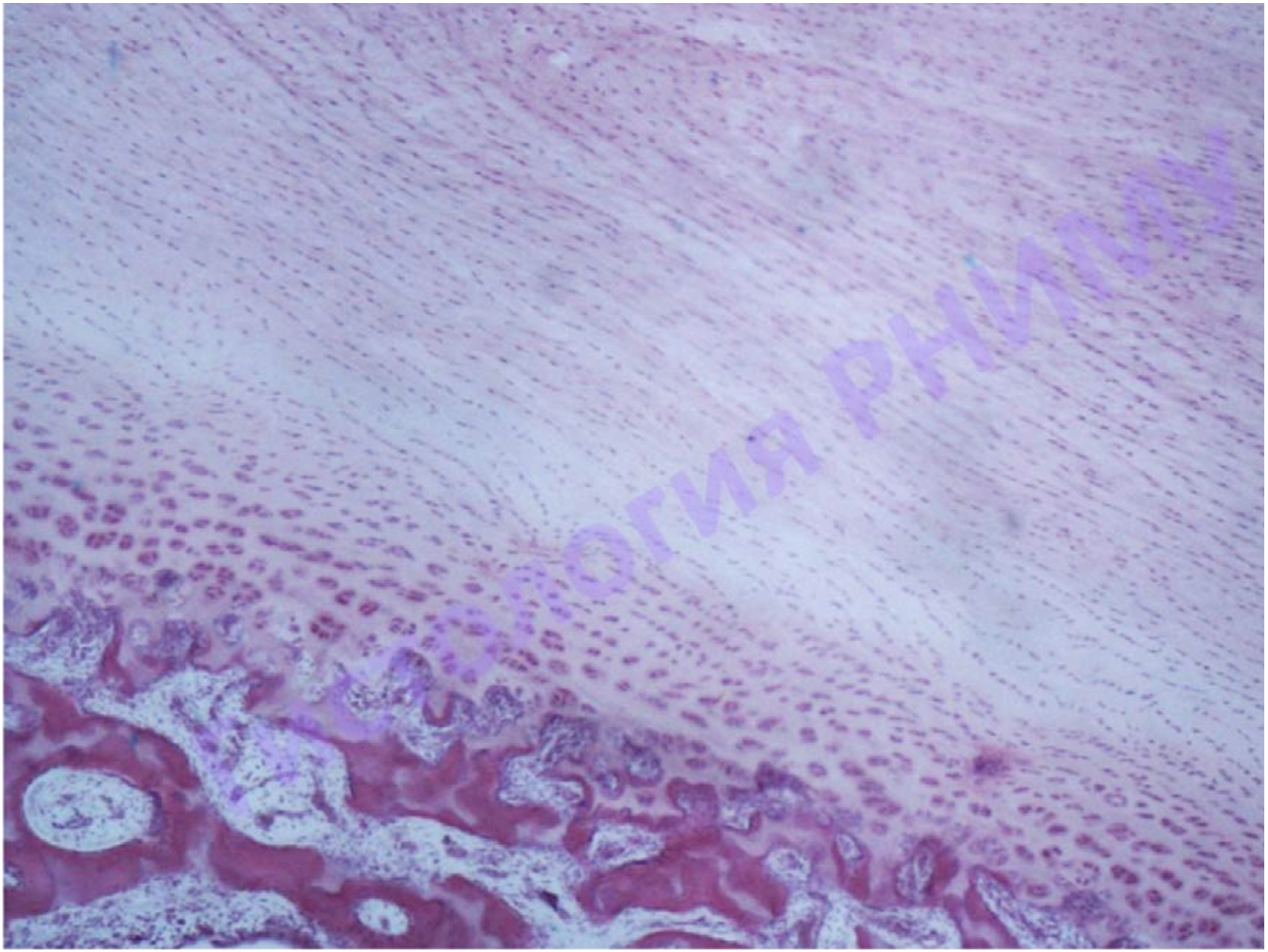









Гистология АМИМ


Гистология РНИМУ