

A close-up photograph of crocodile or alligator skin, showing a pattern of large, irregular, scaly plates in shades of brown and tan. The word "Skin" is written in a large, bold, black serif font across the center of the image.

Skin

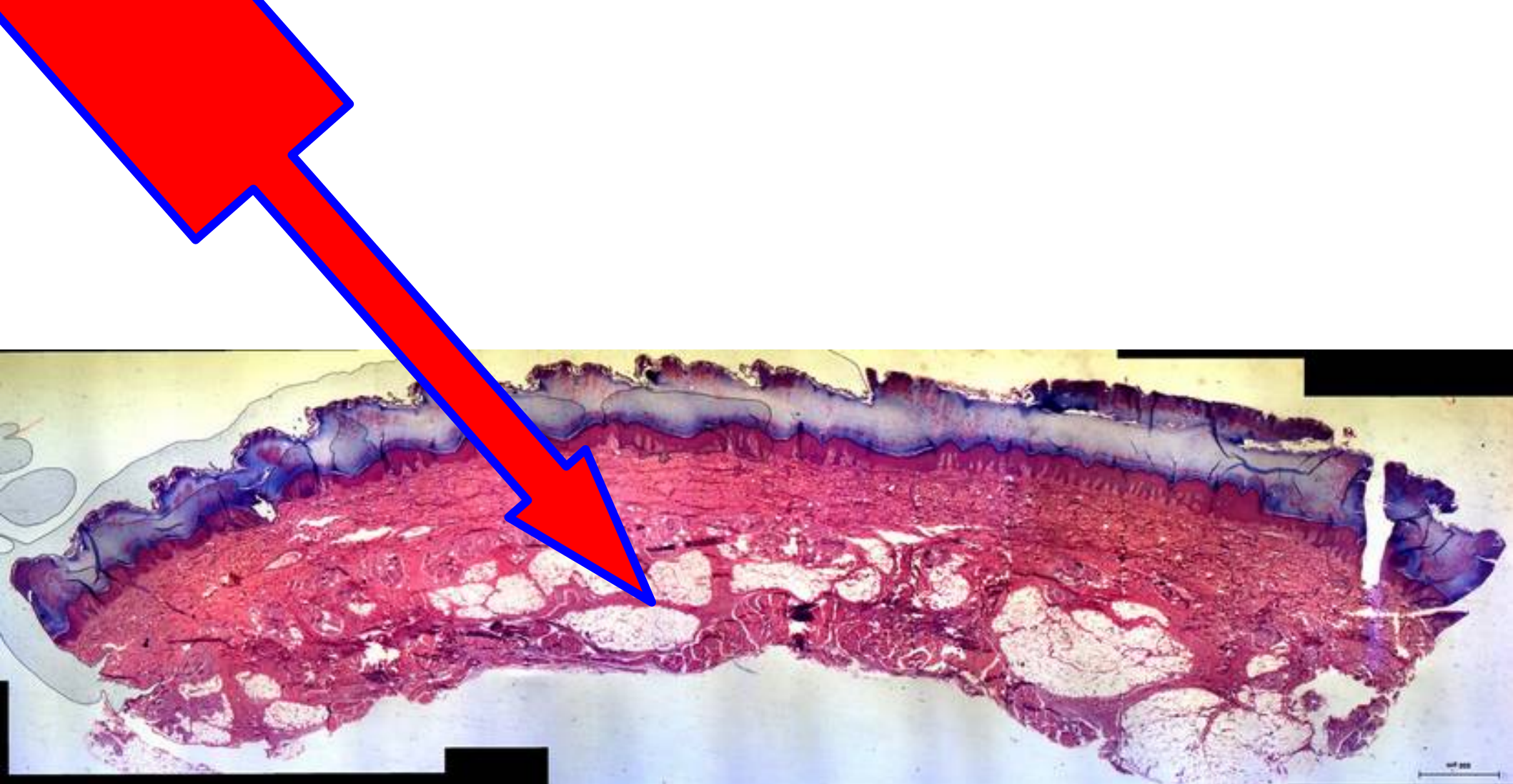


Skin

Consider a needle penetrating skin.

Describe the layers.

Up to and including the vein.



List the layers

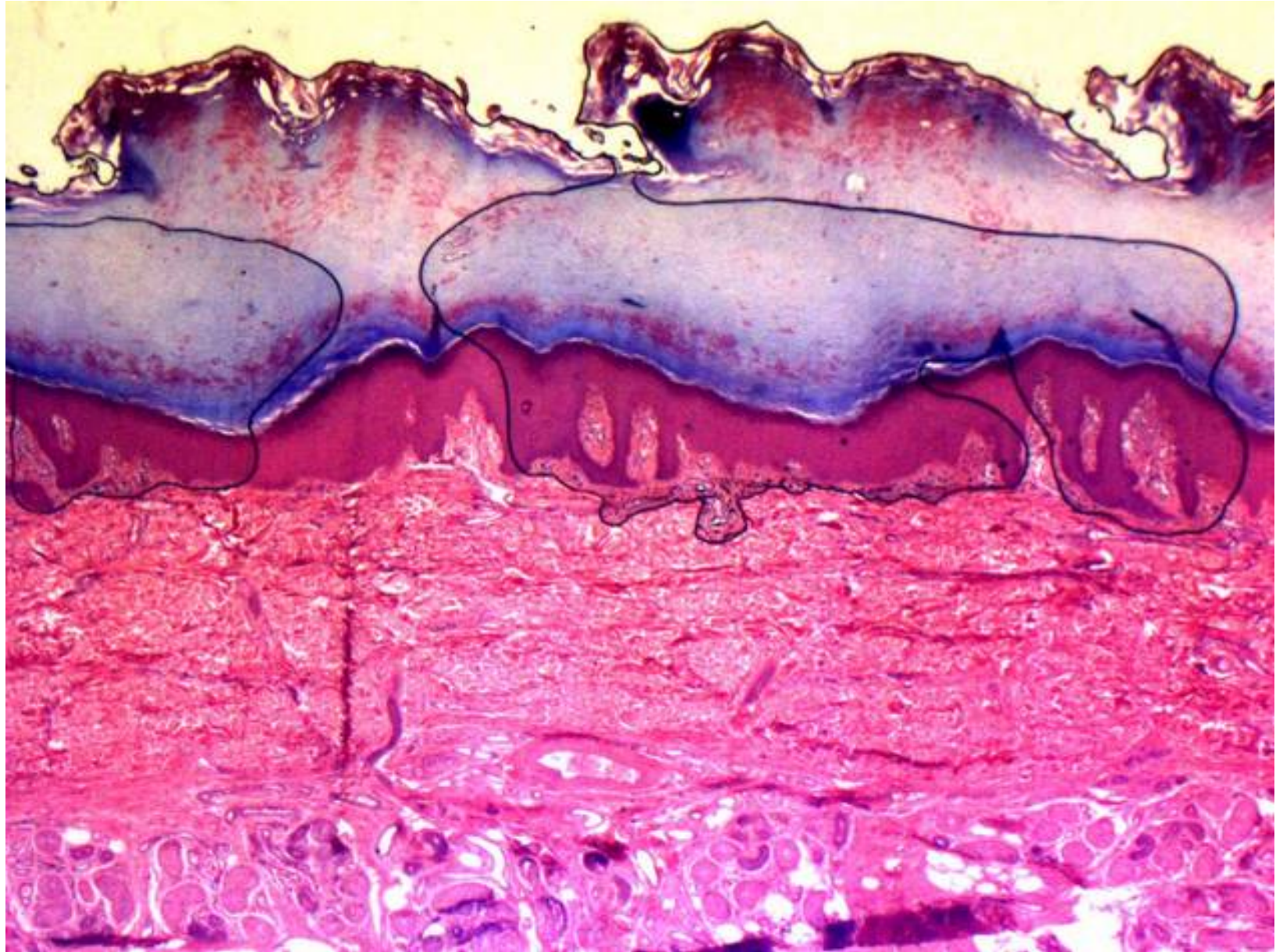
which layers of cells are penetrated?

what do they look like?

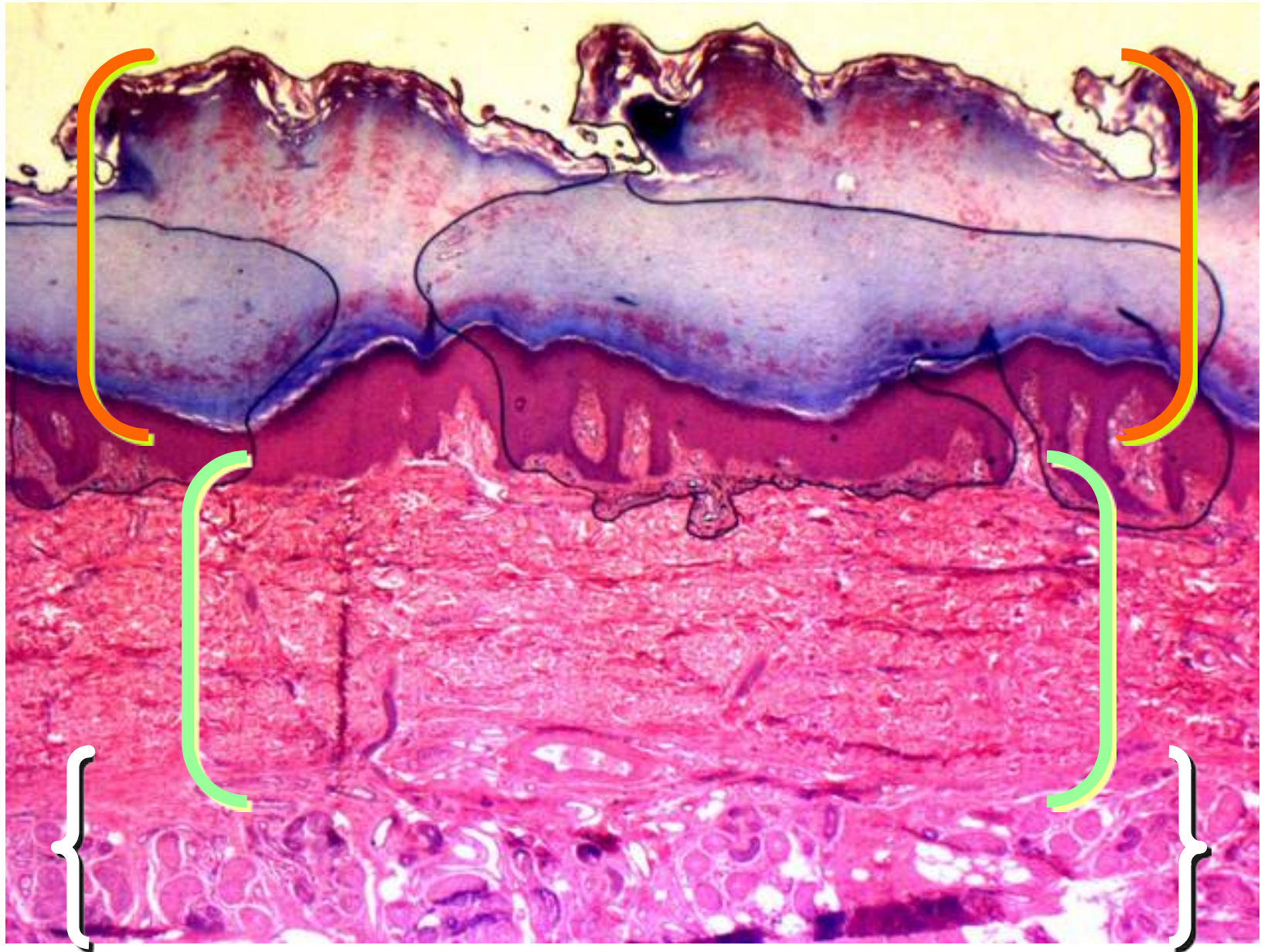
what is the function of each layer?

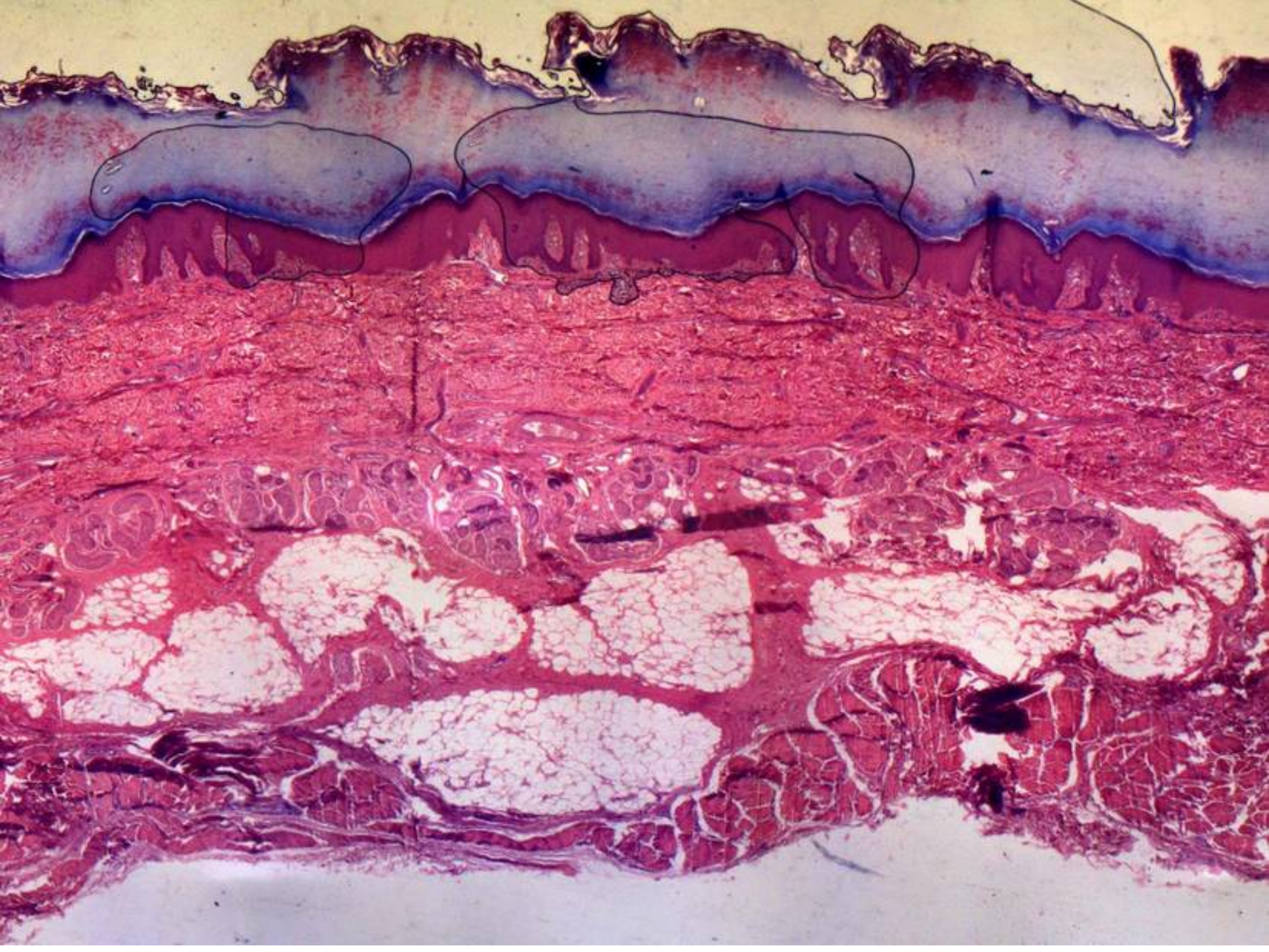
what is the function of each type of cell?

3 main layers seen.



Epidermis, Dermis, Hypodermis

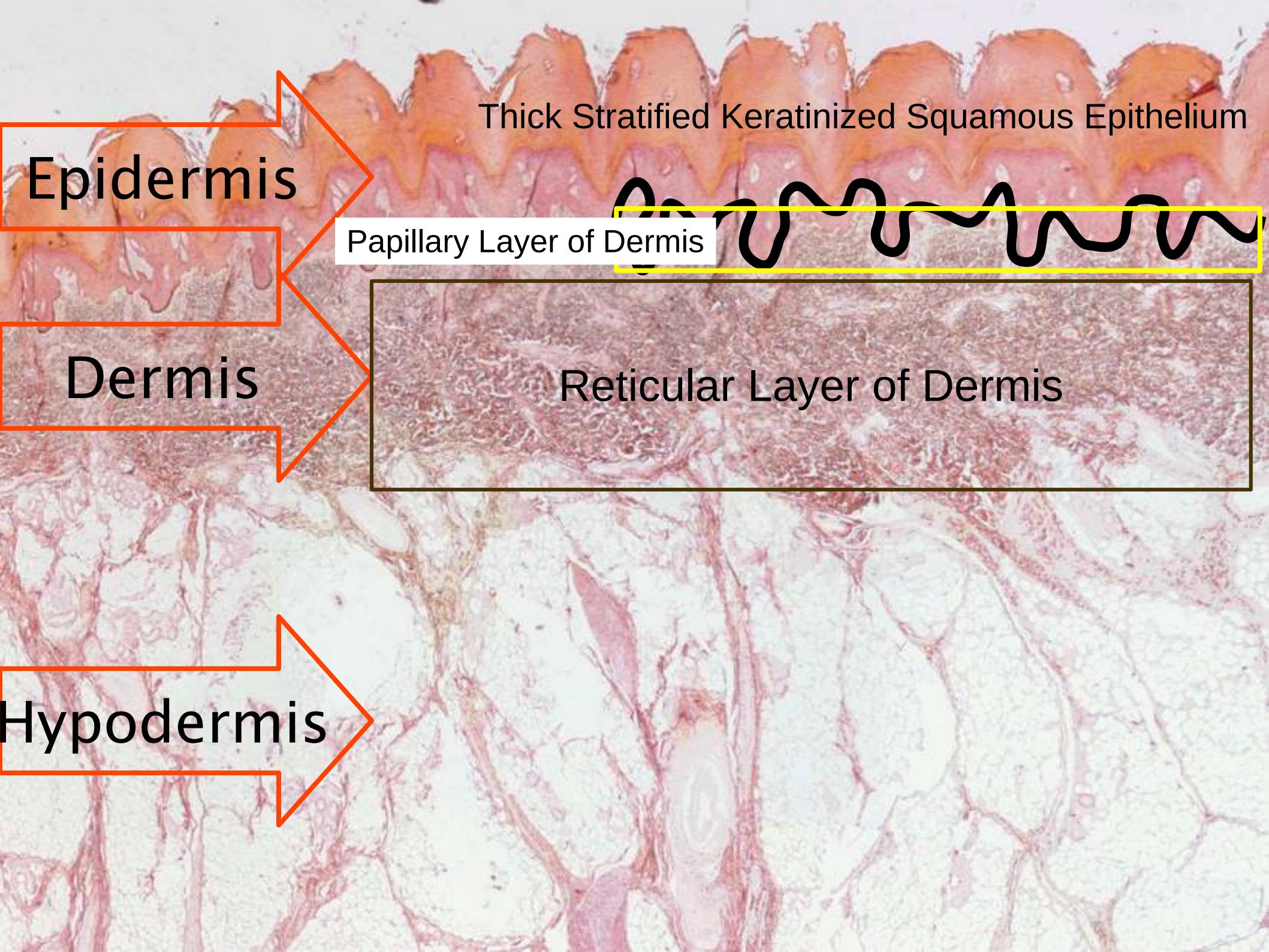




Slide 93: Thick skin – this slide is a section through the skin of the palm of the hand.

View the slides at low magnification. You should be able to see several layers, stained different colours and intensities. For a standard haematoxylin and eosin stained slide, there are three layers:

- A dark pink to red scalloped area – the epidermis.
- A central light pink eosinophilic area – the dermis.
- A very thick light pink area – the hypodermis.



Thick Stratified Keratinized Squamous Epithelium

Epidermis

Papillary Layer of Dermis

Dermis

Reticular Layer of Dermis

Hypodermis

Contextual questions

- Look at the palm of your hand and fingertips. The thickened outer layer is the outer layer of stratified squamous keratinized epithelium.
- Compare and describe the visual differences seen between the skin of the palm of your hand, the back of your hand, your forearm and scalp.
- Make a list of structures you expect to find in skin using the microscope.

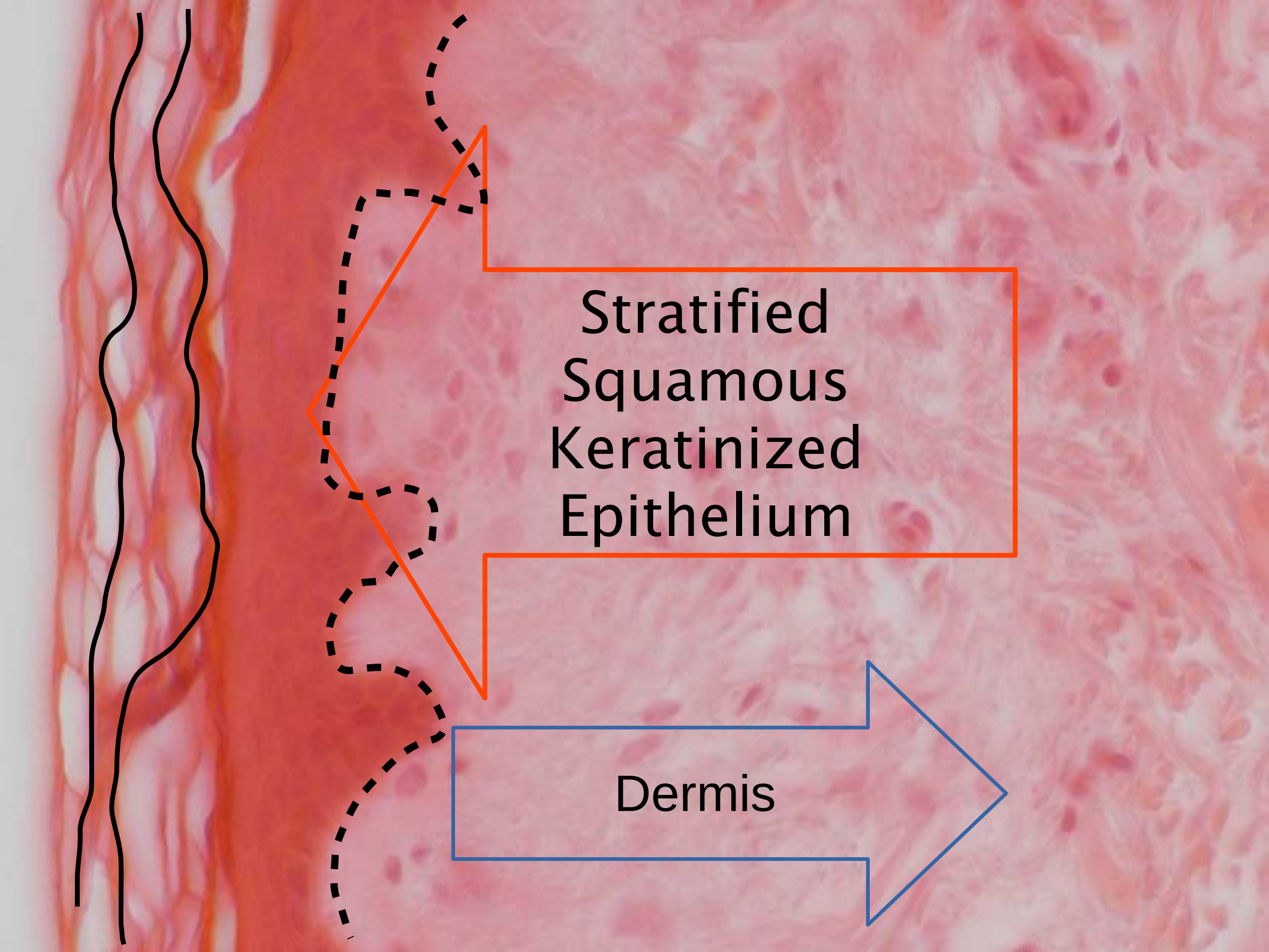


A histological section of skin stained with hematoxylin and eosin (H&E). The image shows three distinct layers: the epidermis at the top, the dermis in the middle, and the hypodermis at the bottom. The epidermis is a thin, multi-layered structure. The dermis is a thick, fibrous layer containing various structures like hair follicles and sweat glands. The hypodermis is a layer of adipose tissue at the bottom. Three orange arrows point to these layers, labeled 'Epidermis', 'Dermis', and 'Hypodermis' respectively.

Epidermis

Dermis

Hypodermis



A histological diagram of skin tissue. On the left, two wavy black lines represent the epidermal-dermal junction. To the right, a dashed black line outlines the boundary between the epidermis and the dermis. An orange rectangular box with a pointer identifies the epidermis as stratified squamous keratinized epithelium. A blue arrow-shaped box identifies the dermis.

Stratified
Squamous
Keratinized
Epithelium

Dermis

All Connective Tissues

3 Components



This histological image shows a cross-section of skin. The top layer is the epidermis, characterized by a wavy, undulating boundary with the underlying dermis. The dermis is divided into two main layers: the upper reticular layer and the lower papillary layer. The reticular layer is the thicker, more densely stained area, while the papillary layer is thinner and contains more delicate, finger-like projections. An orange arrow points from the label 'Dermis' to the reticular layer, and a black box highlights this specific region.

Dermis

Reticular Layer of Dermis

A histological micrograph of dense irregular connective tissue. The image shows a dense network of collagen fibers stained pink, with scattered cells (fibroblasts) visible as small, dark purple nuclei. The overall appearance is irregular and dense.

Irregular

Dense

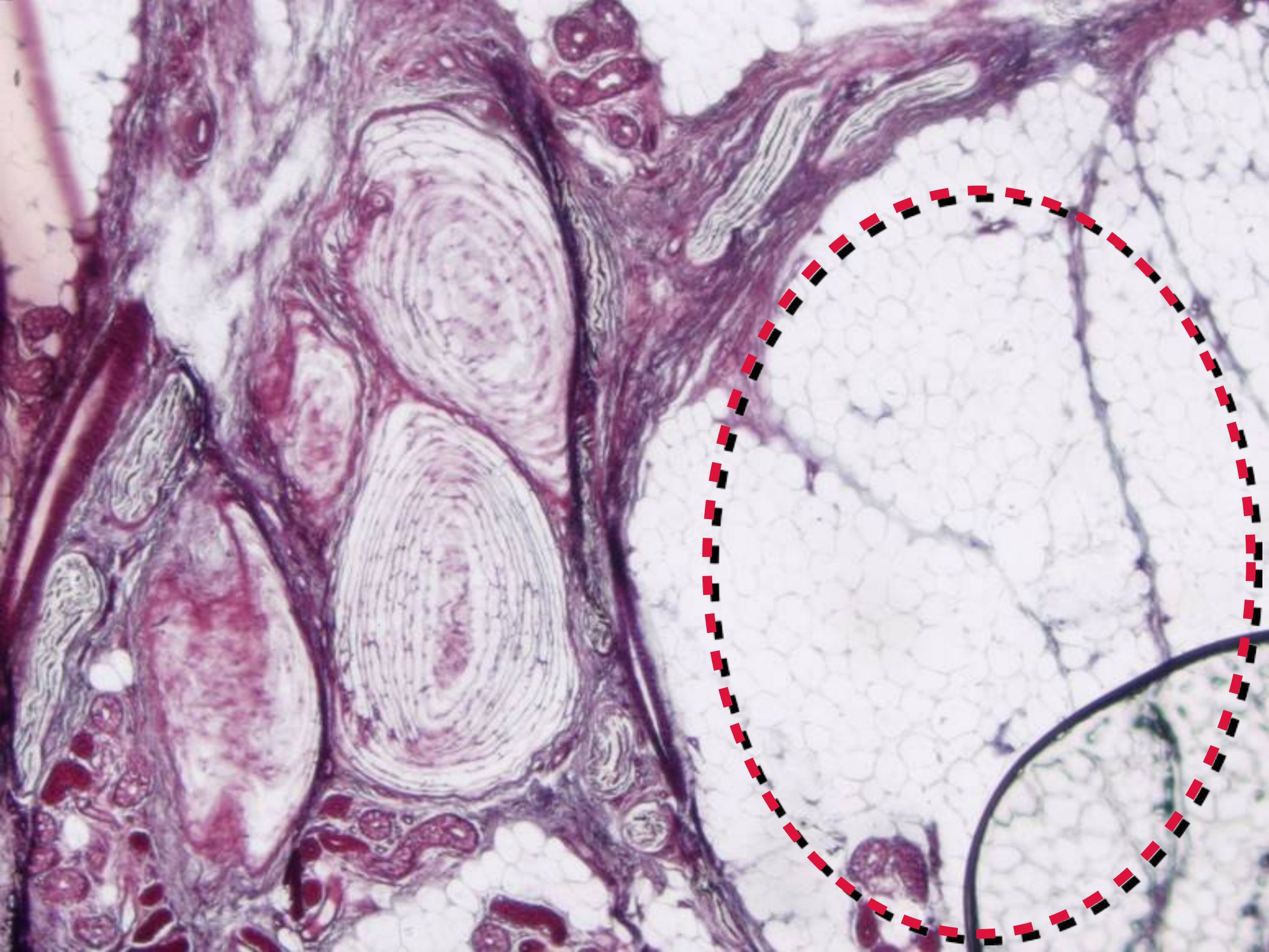
Connective Tissue

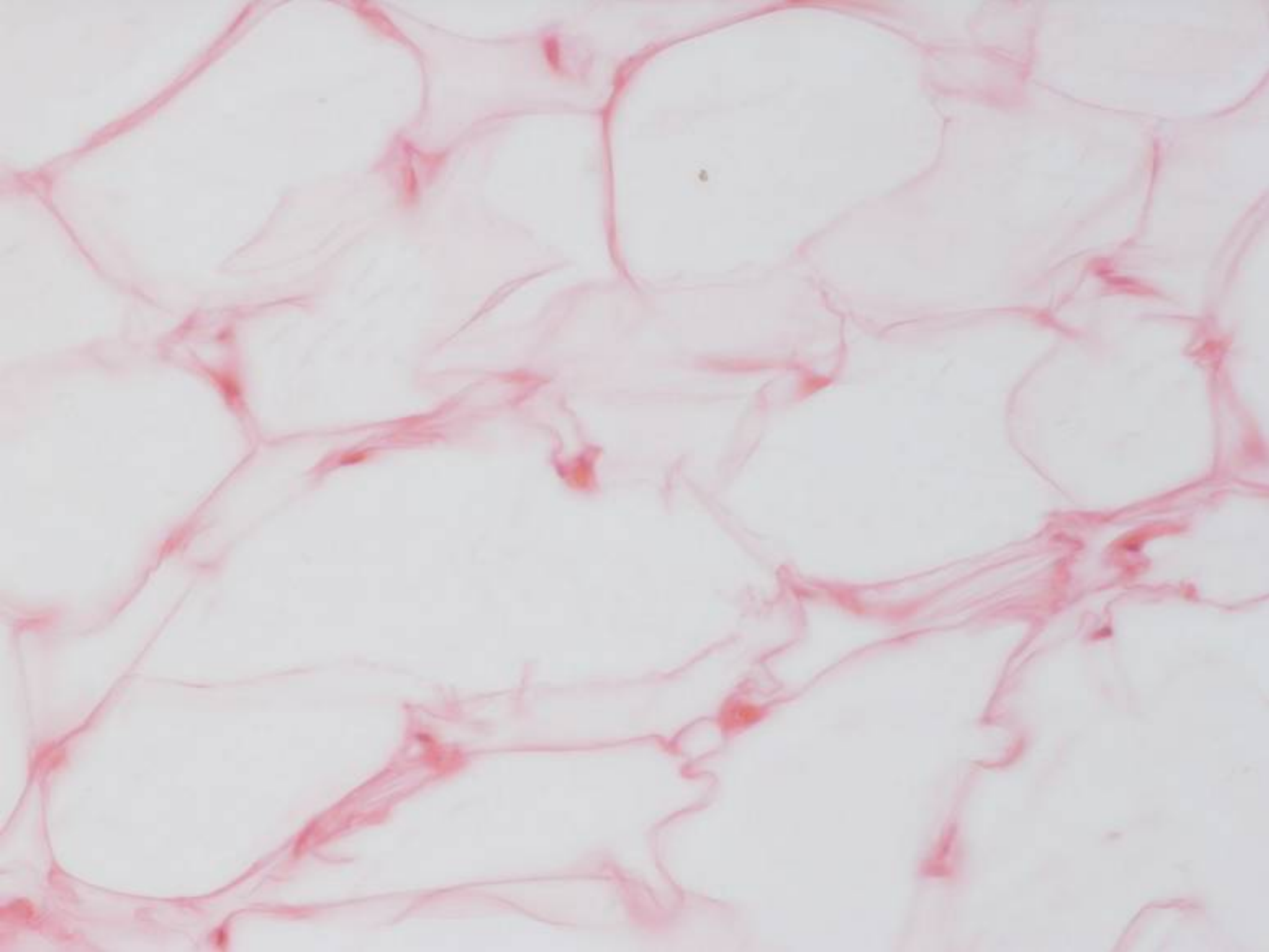
Cells

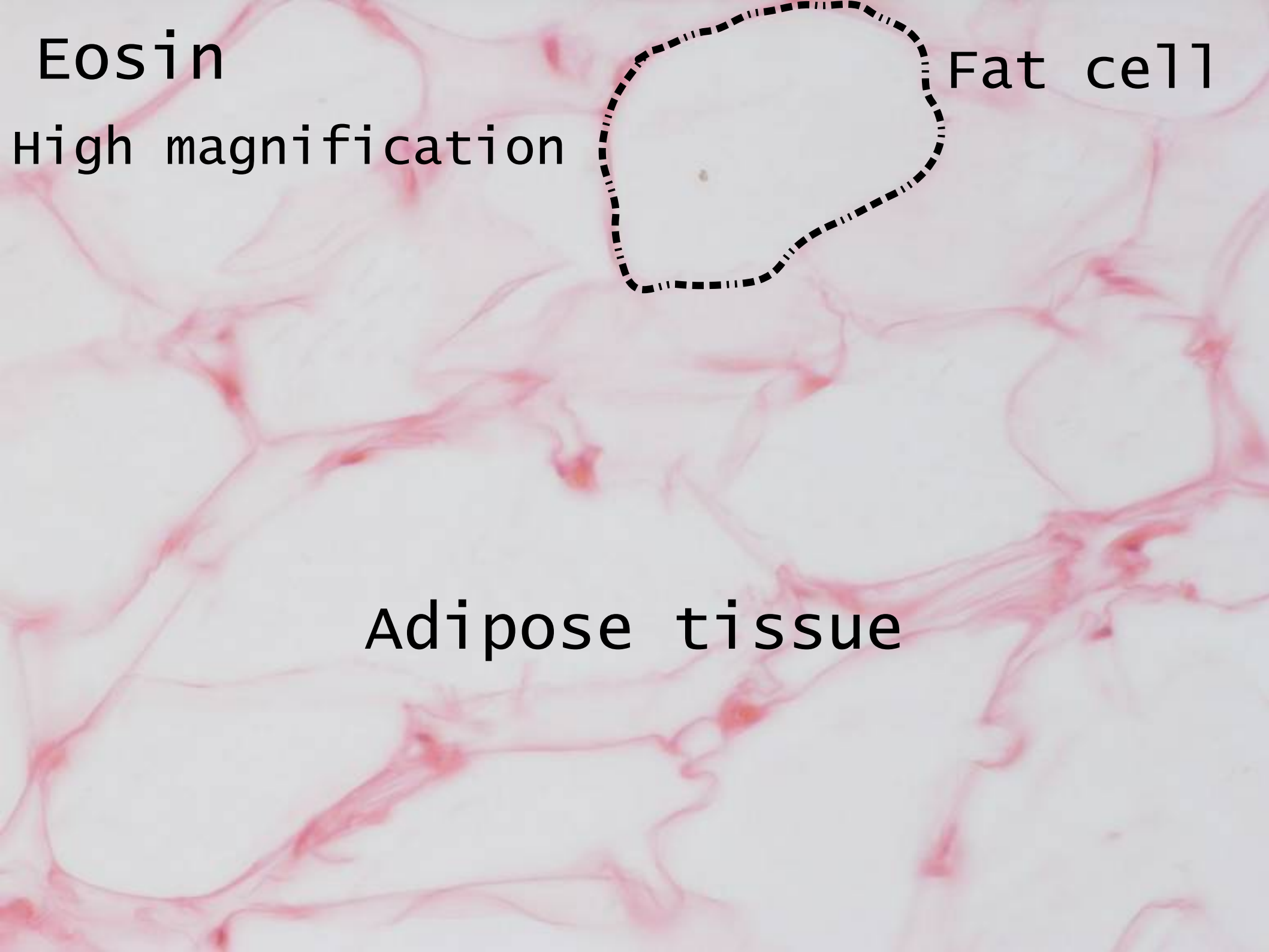
Fibres

Amorphous Ground Substance

Hypodermis







Eosin

High magnification

Fat cell

Adipose tissue

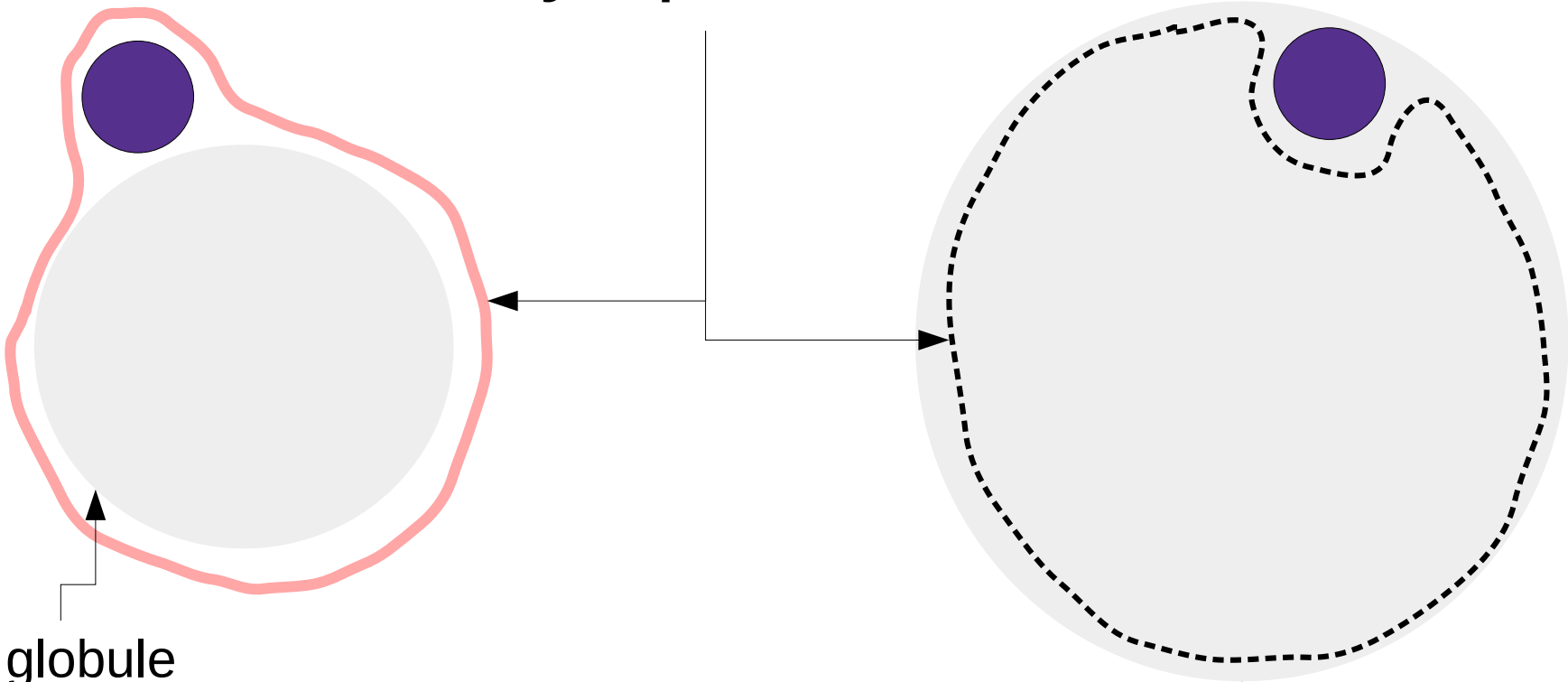
Fat cell

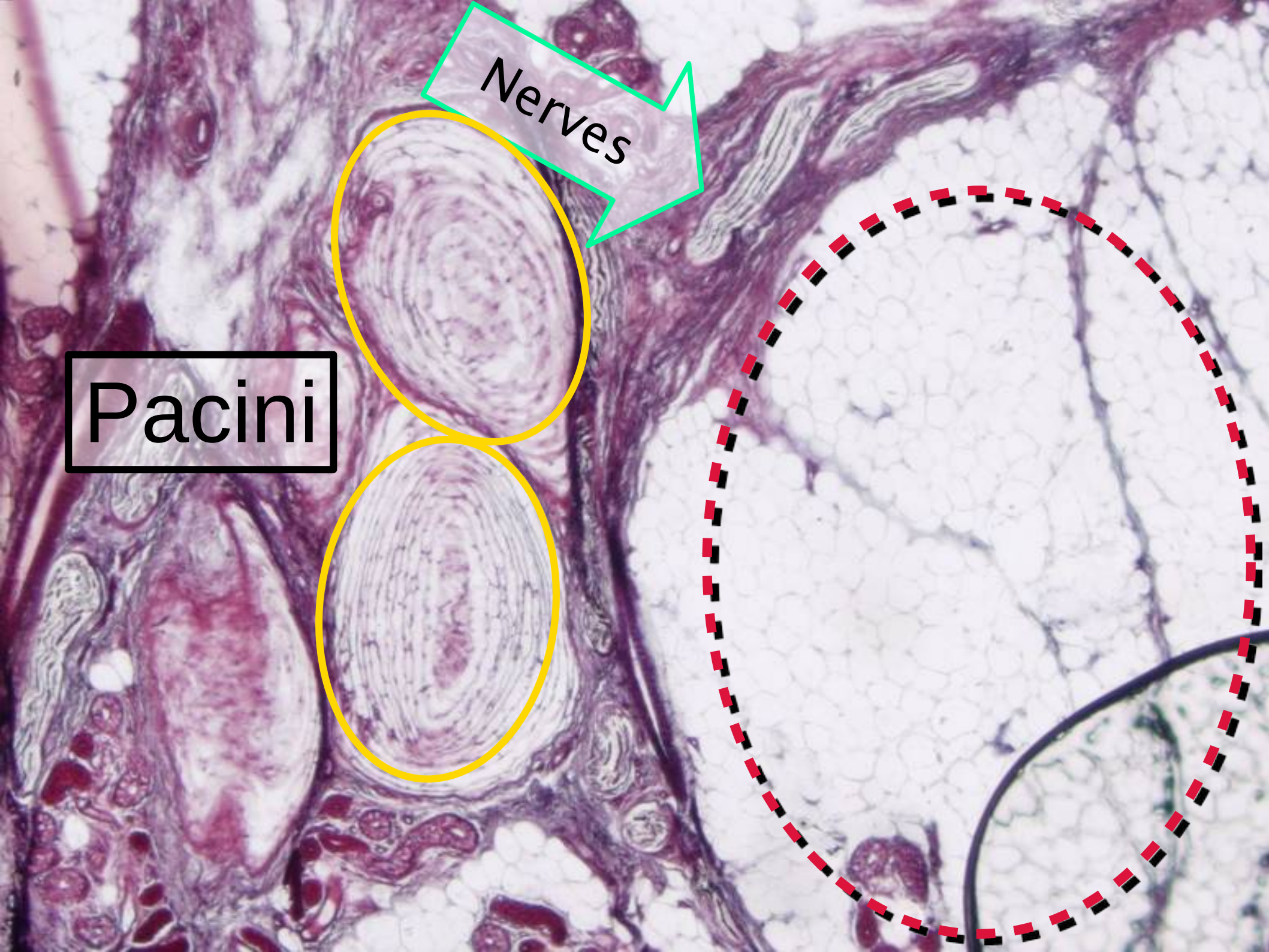
Endothelium

Cytoplasm

Fat globule

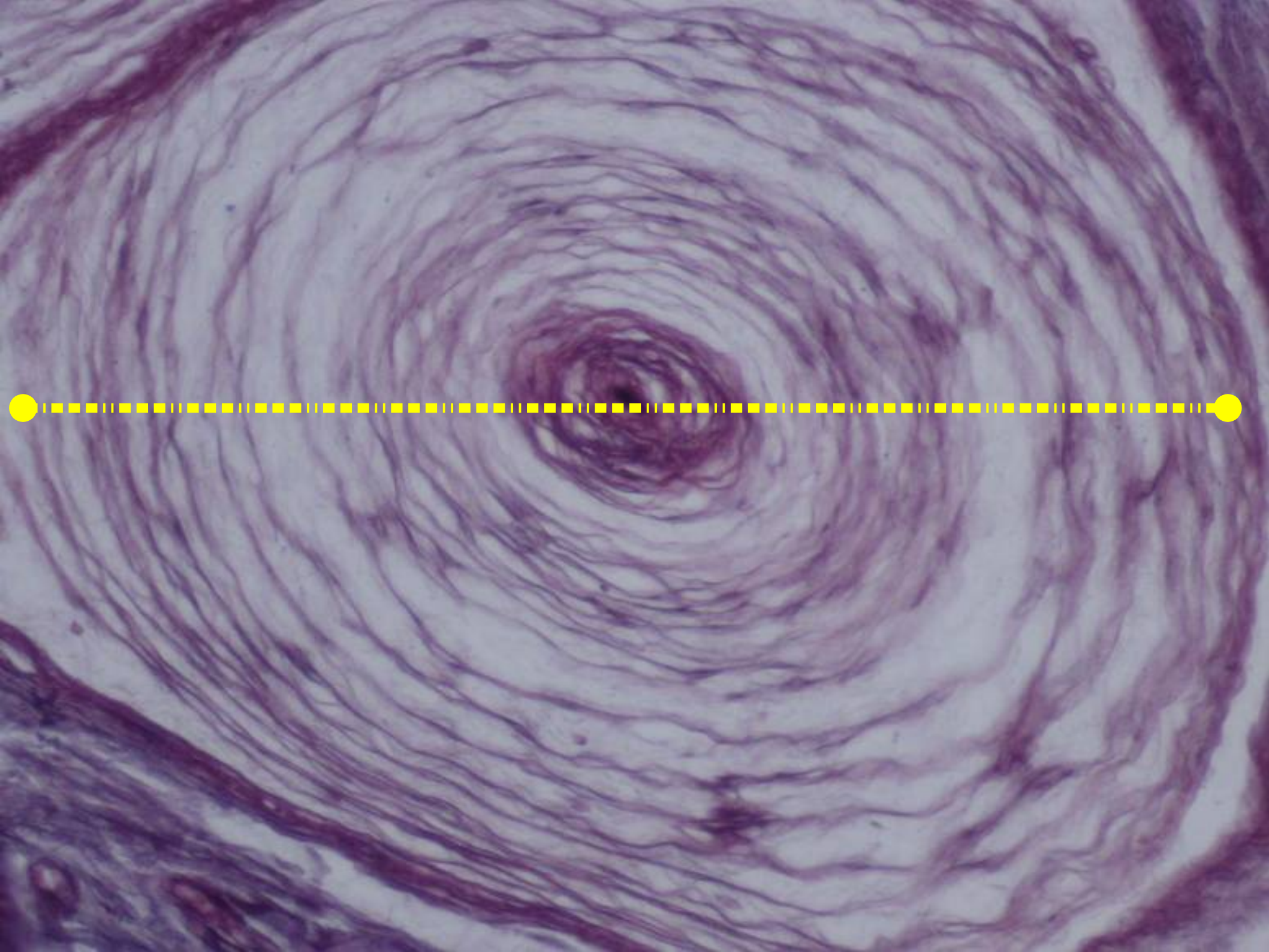
Blood vessel

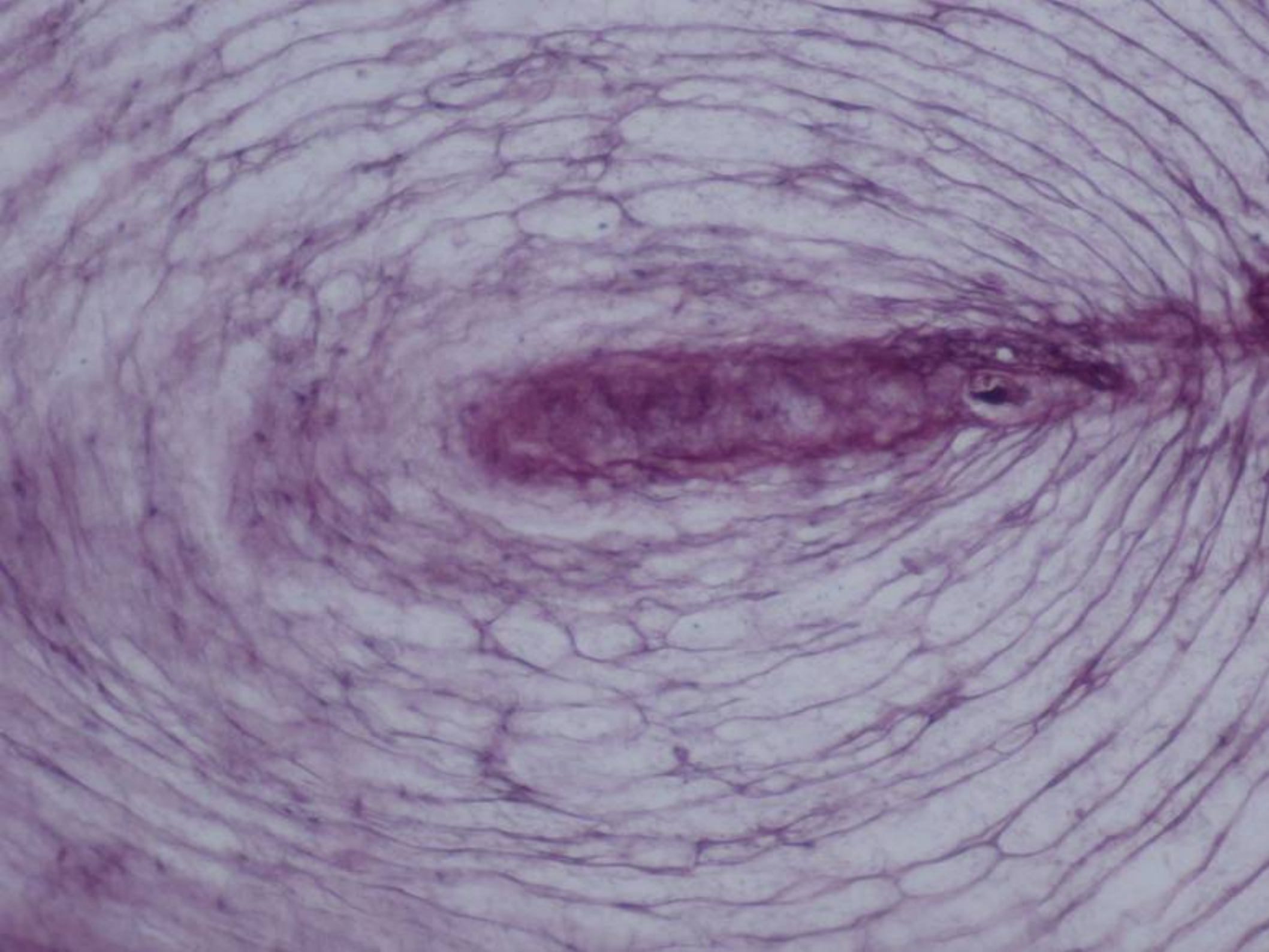


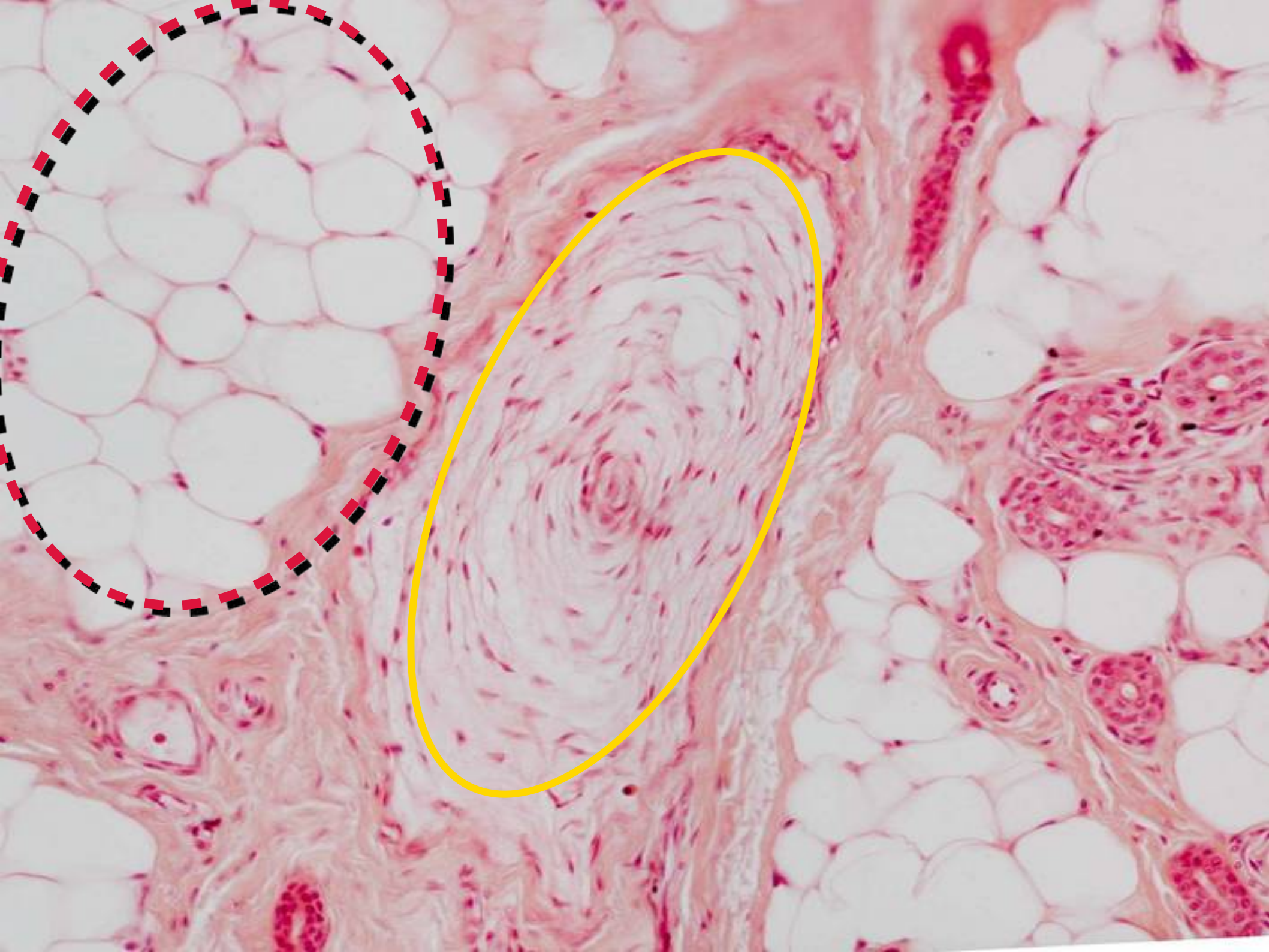


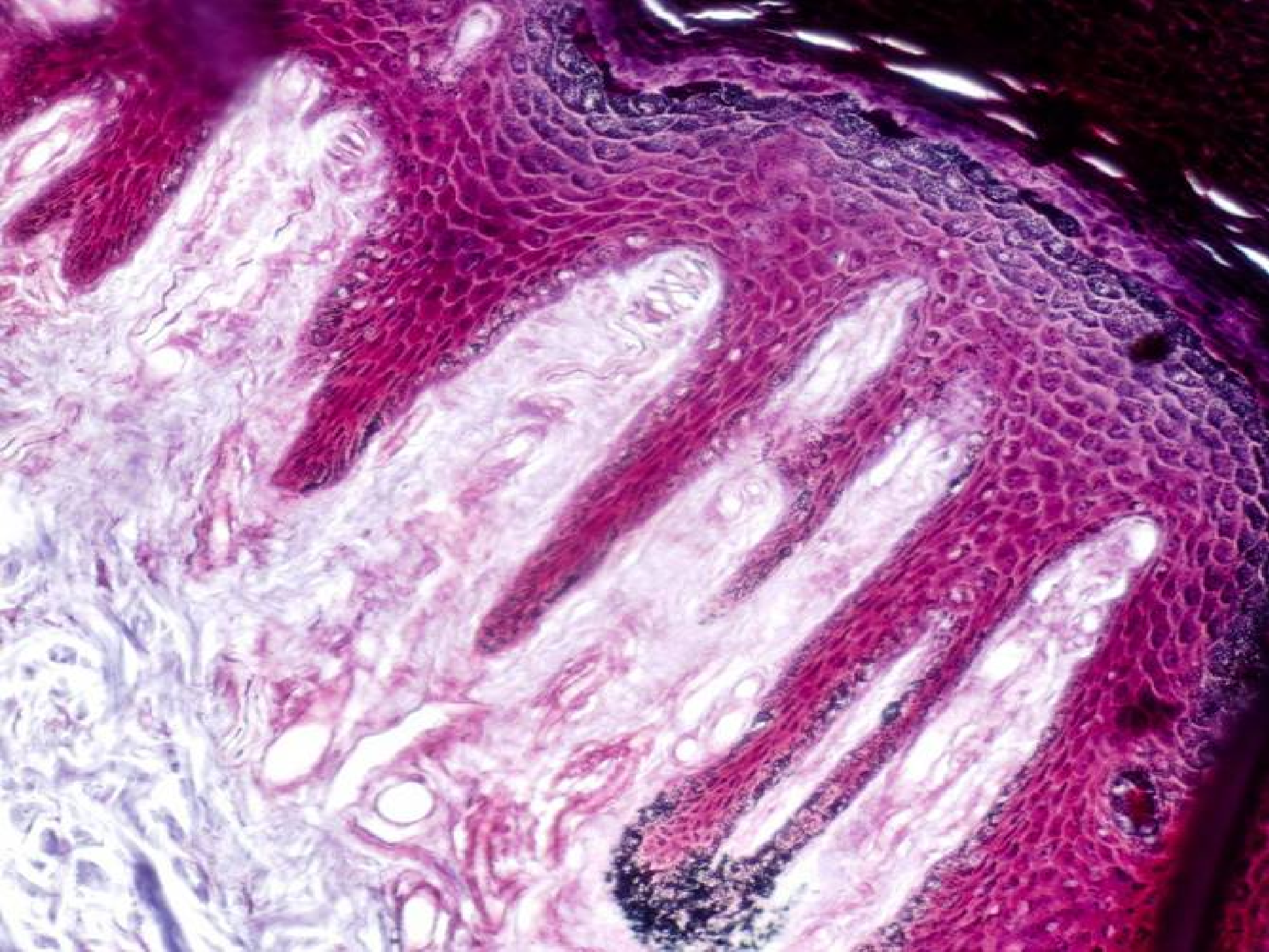
Nerves

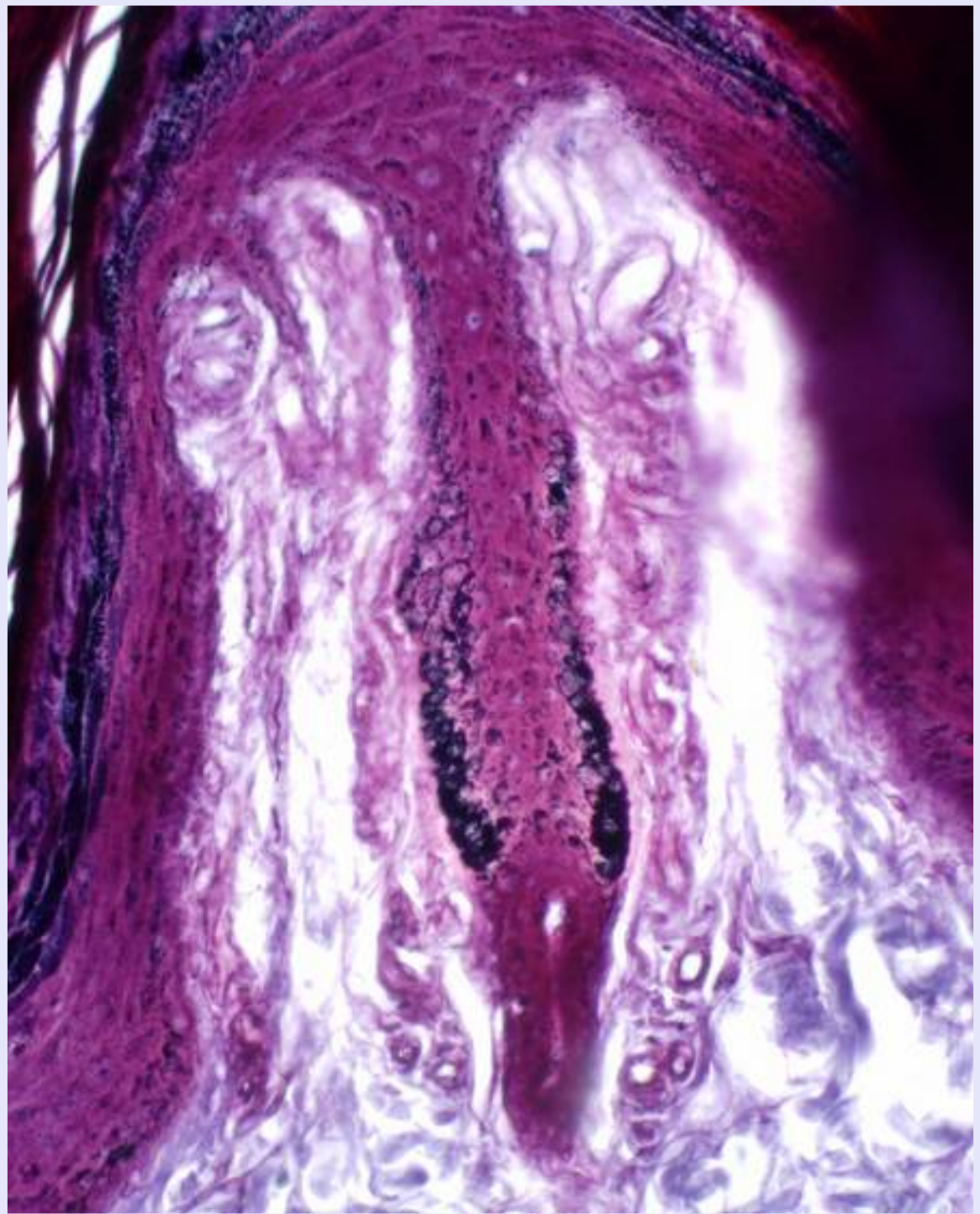
Pacini

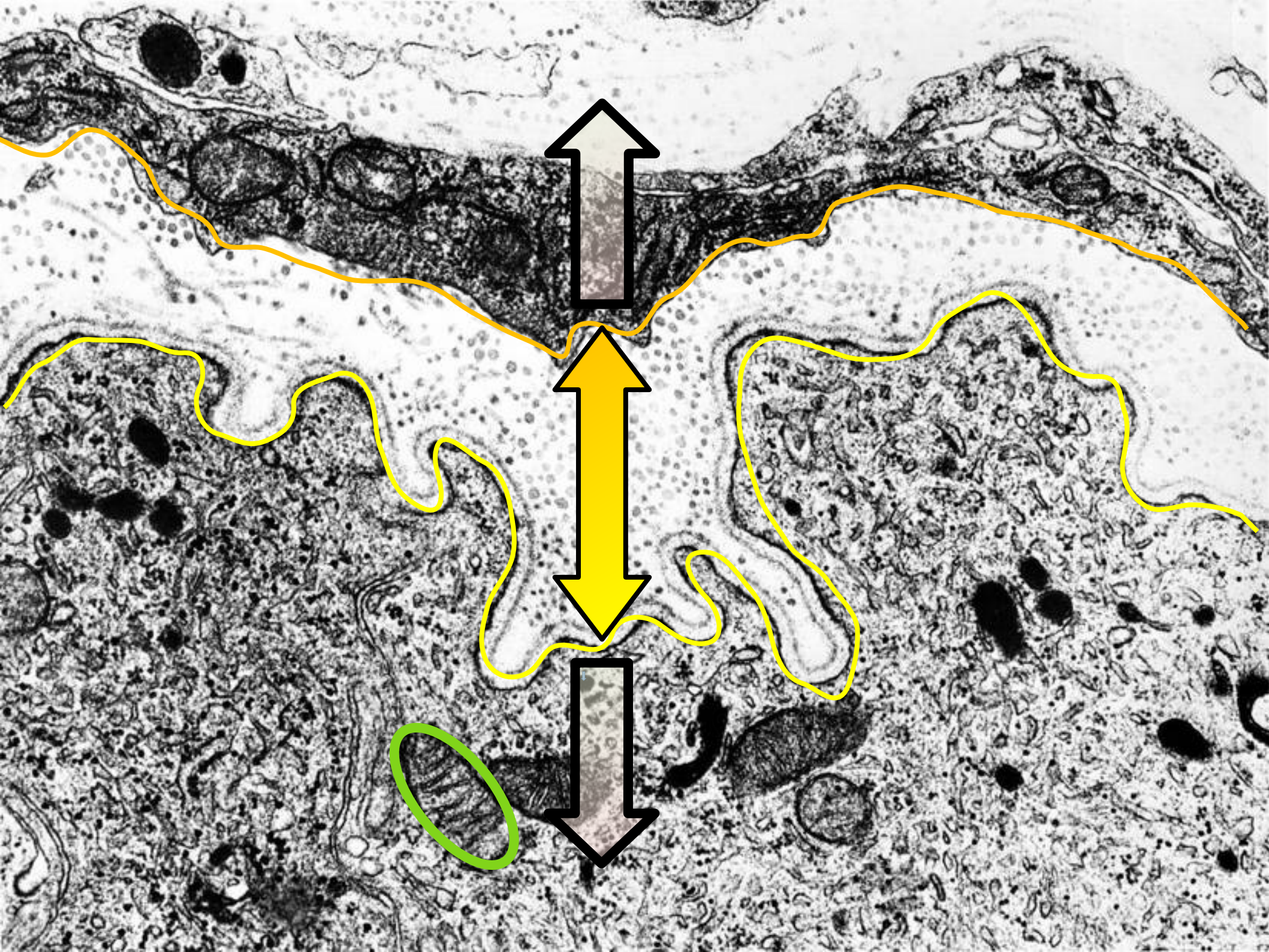


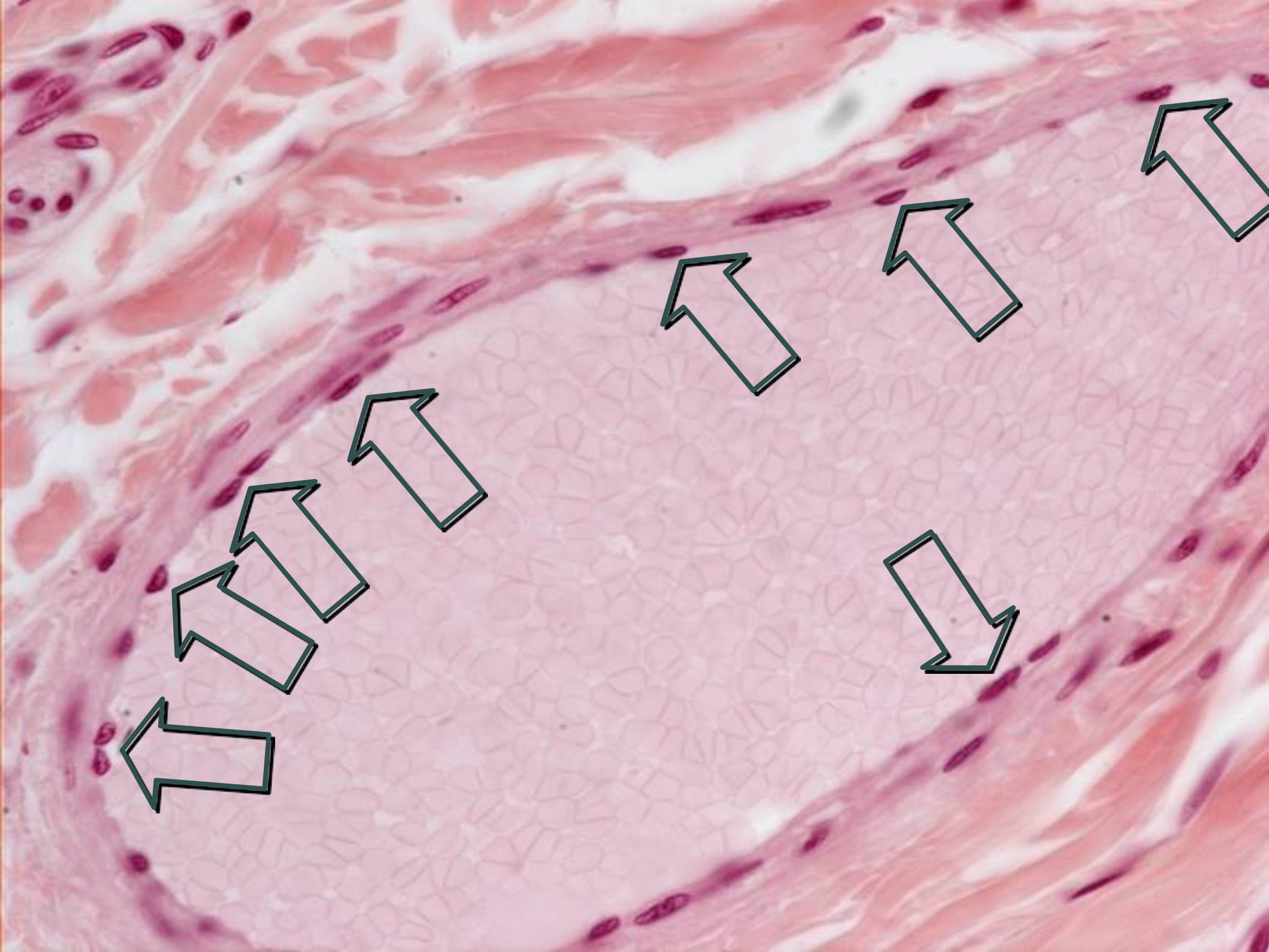


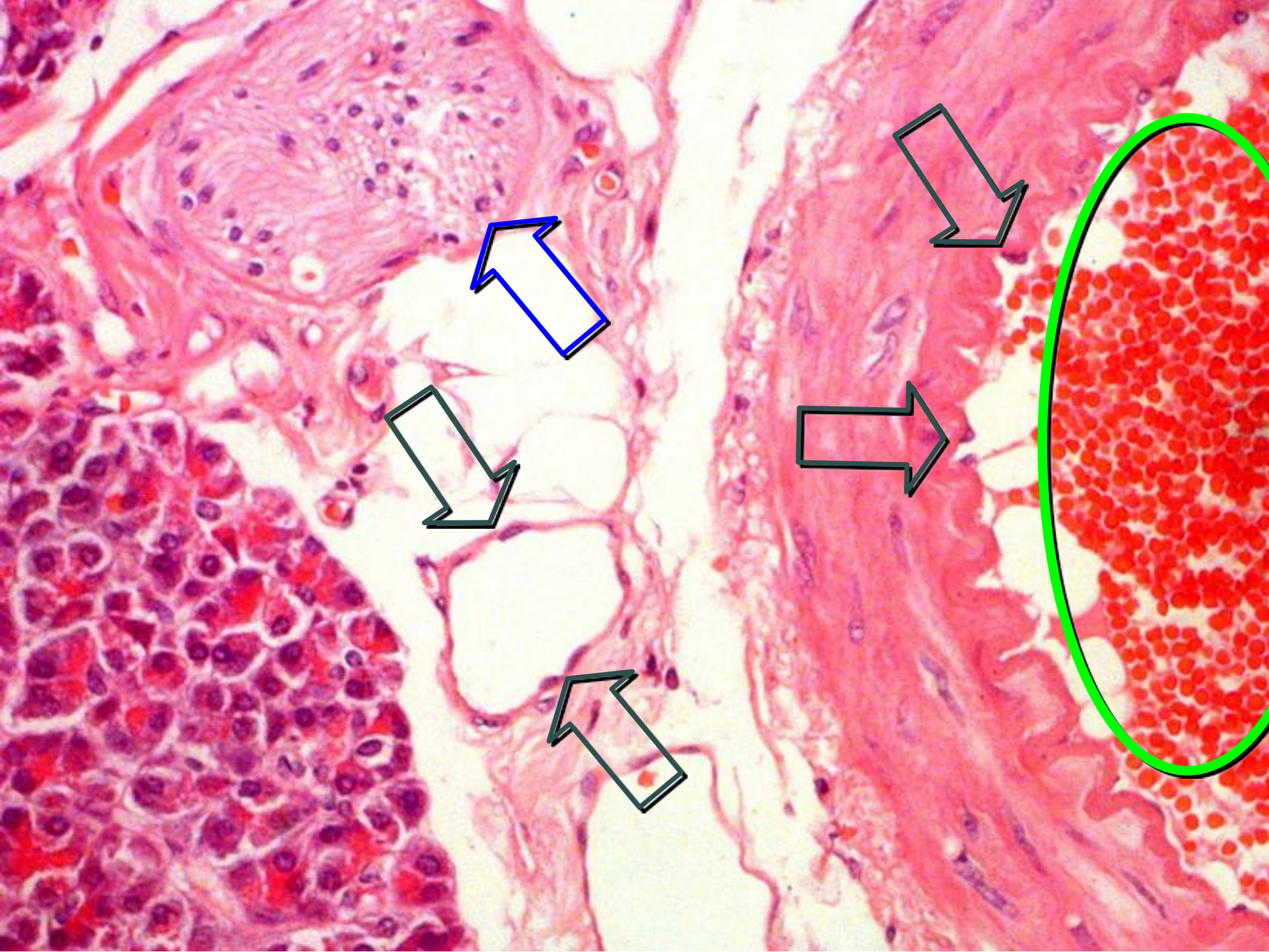






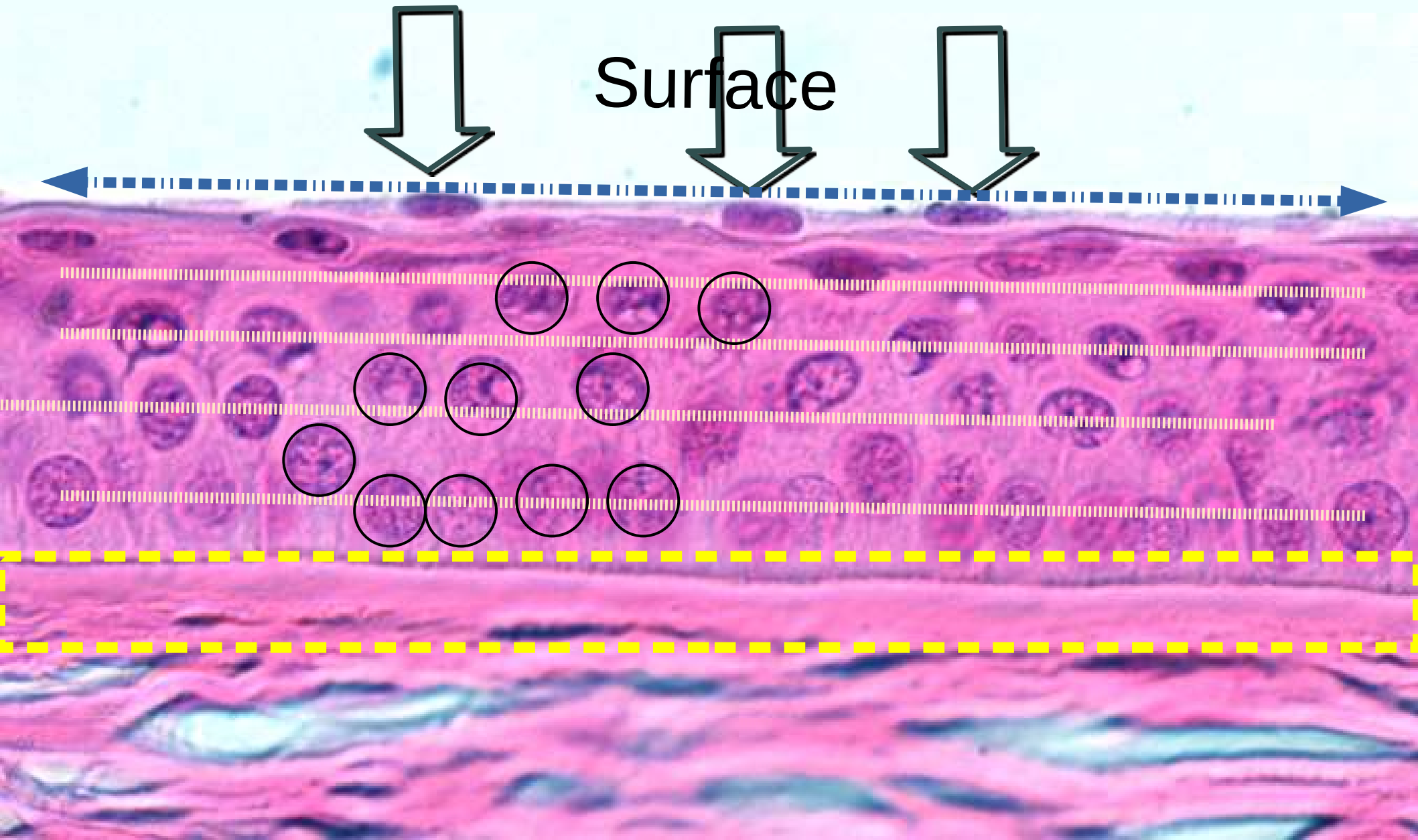








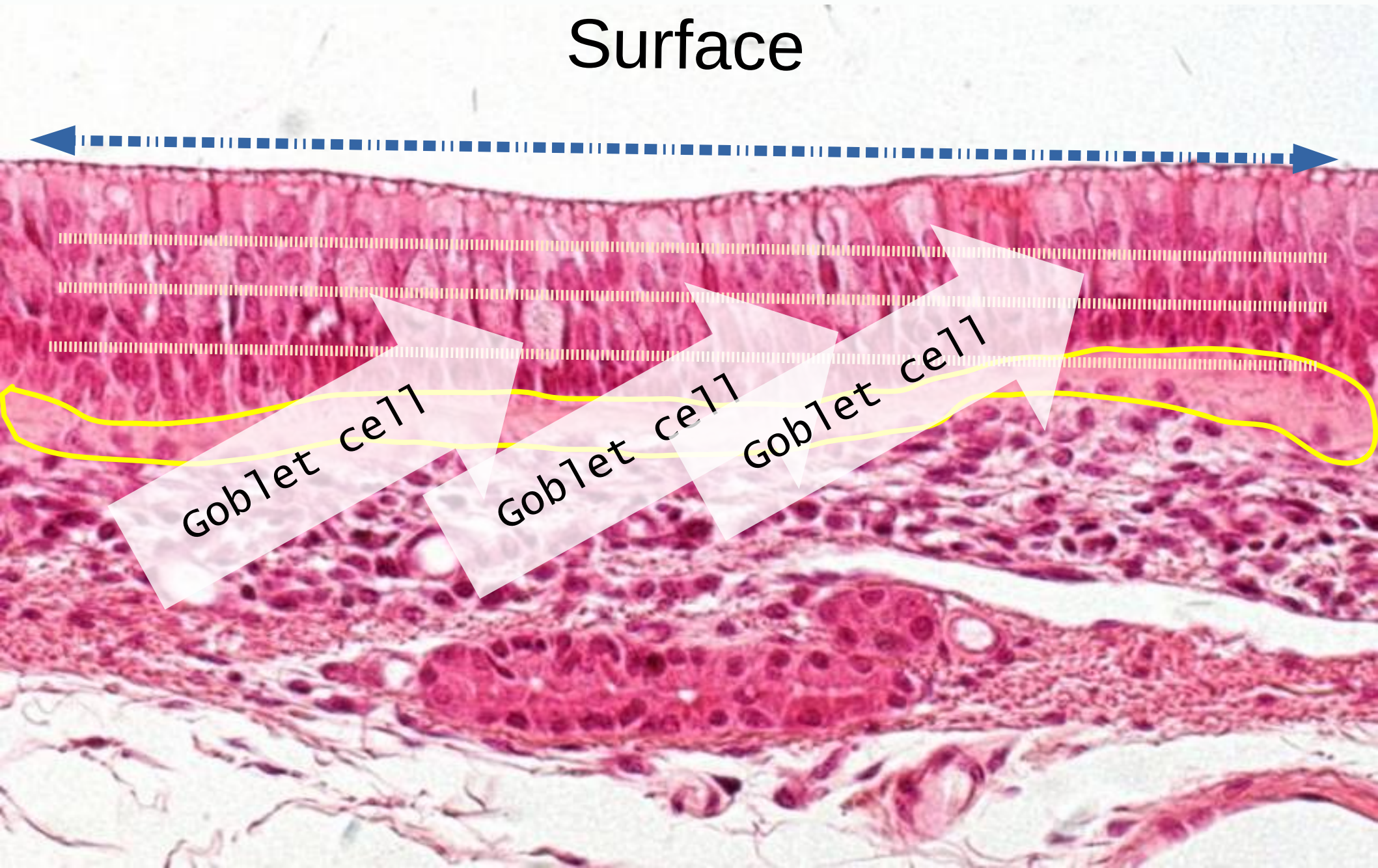
Thin stratified squamous epithelium



Pseudostratified columnar epithelium

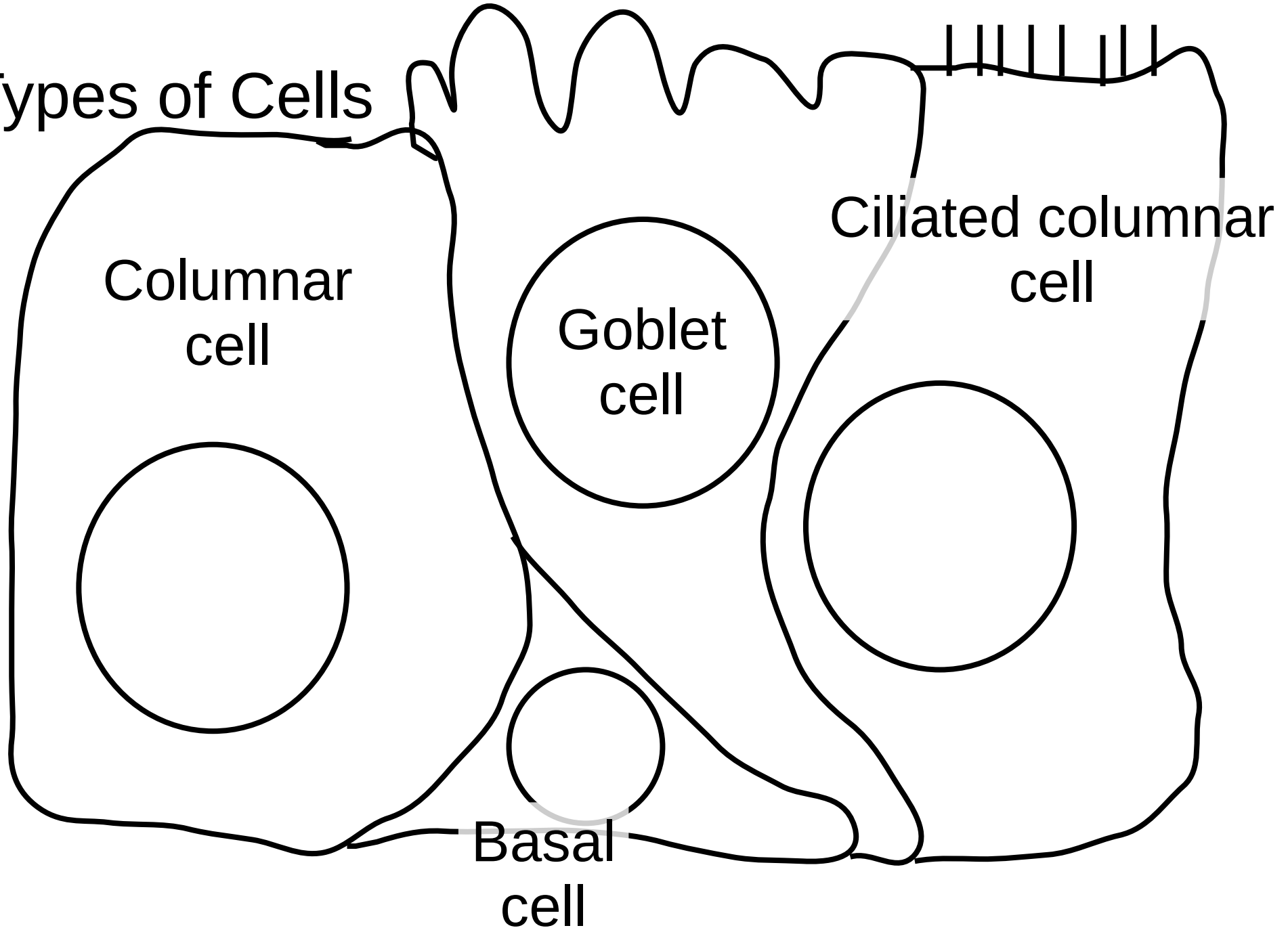
LUMEN

Surface



Pseudostratified columnar epithelium

4 Types of Cells

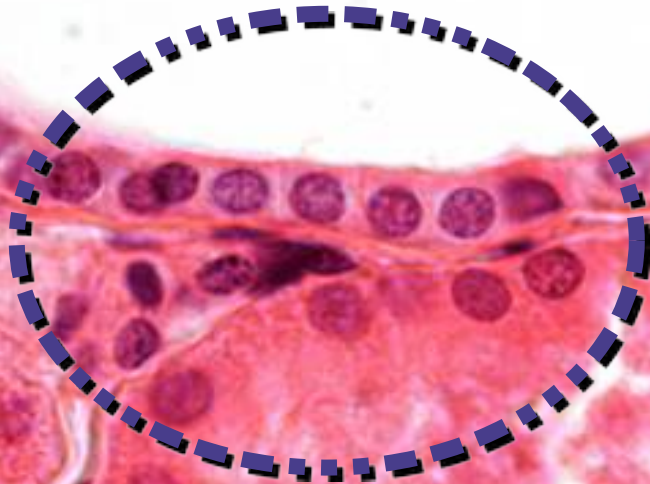


Urothelium



Cuboidal epithelium

LUMEN



LUMEN

Simple

Cuboidal



Basement membrane - kidney



LUMEN

LUMEN

LUMEN

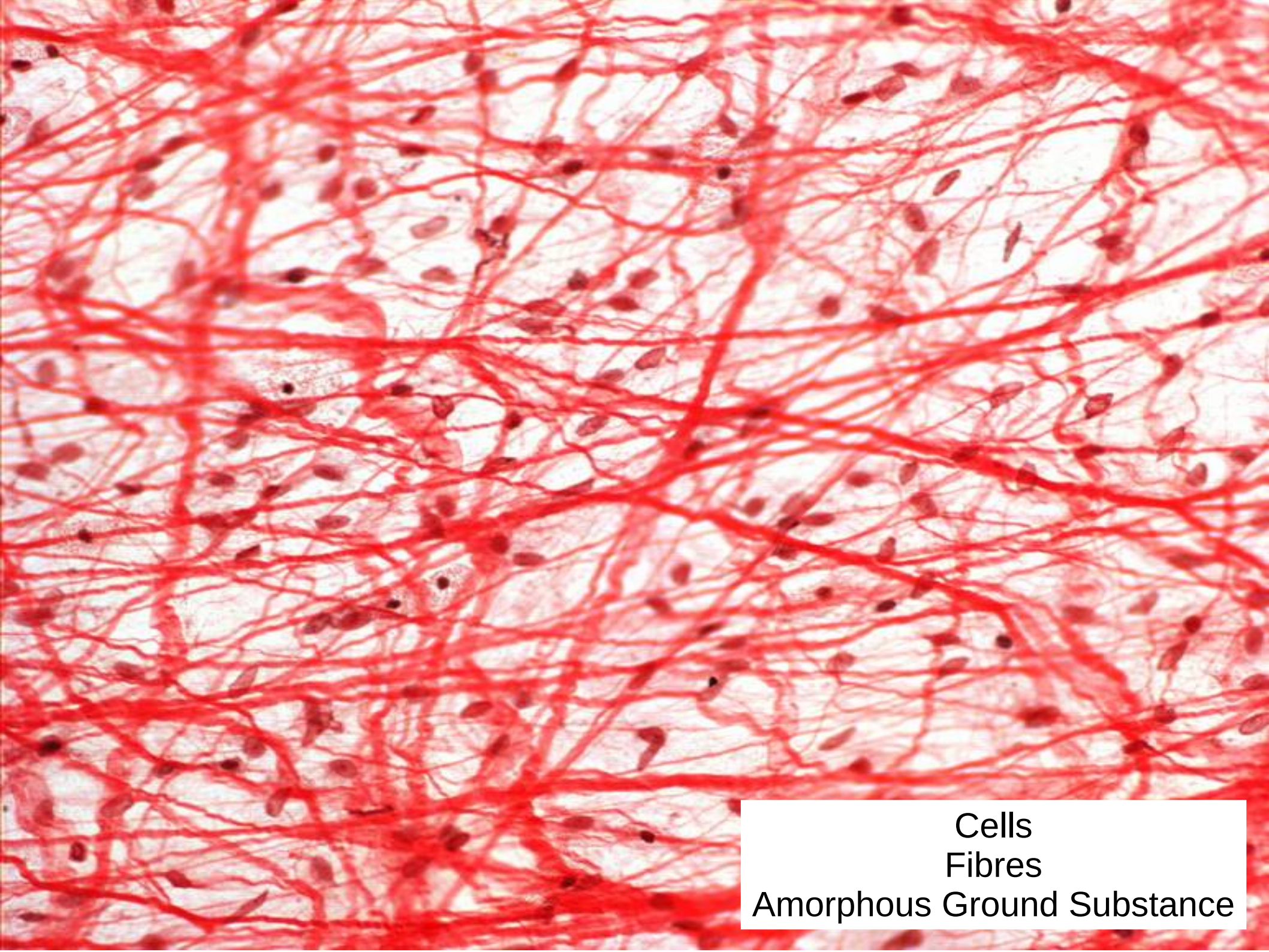




Papillary Layer of Dermis

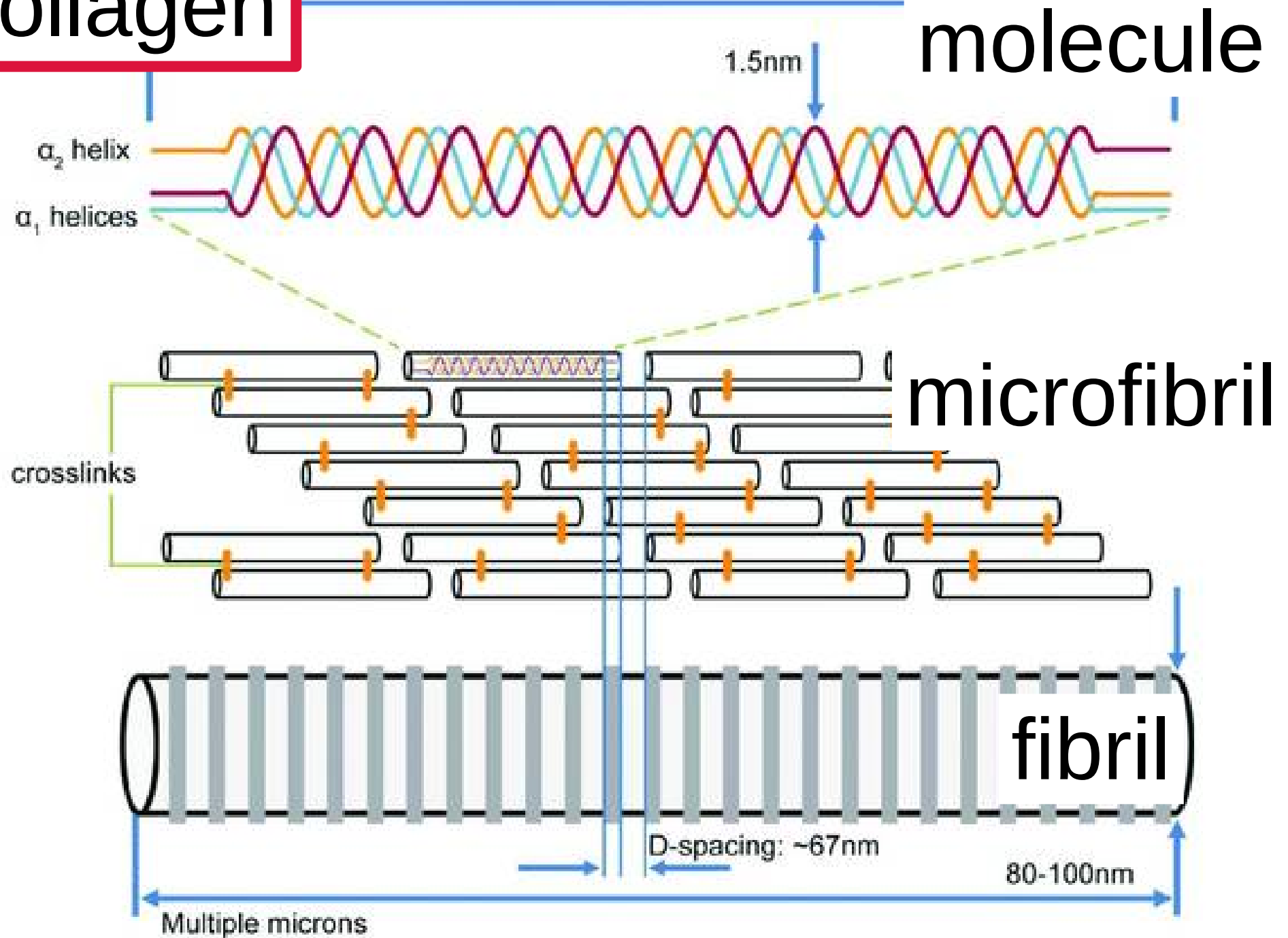
This histological section shows the interface between the epidermis and dermis. The epidermis at the top features a wavy, undulating boundary. Below this, the dermis is divided into a superficial papillary layer and a deeper reticular layer. The papillary layer is characterized by its finger-like projections, while the reticular layer is denser and contains larger, pale-staining structures. Labels with arrows point to these specific layers.

Dermis



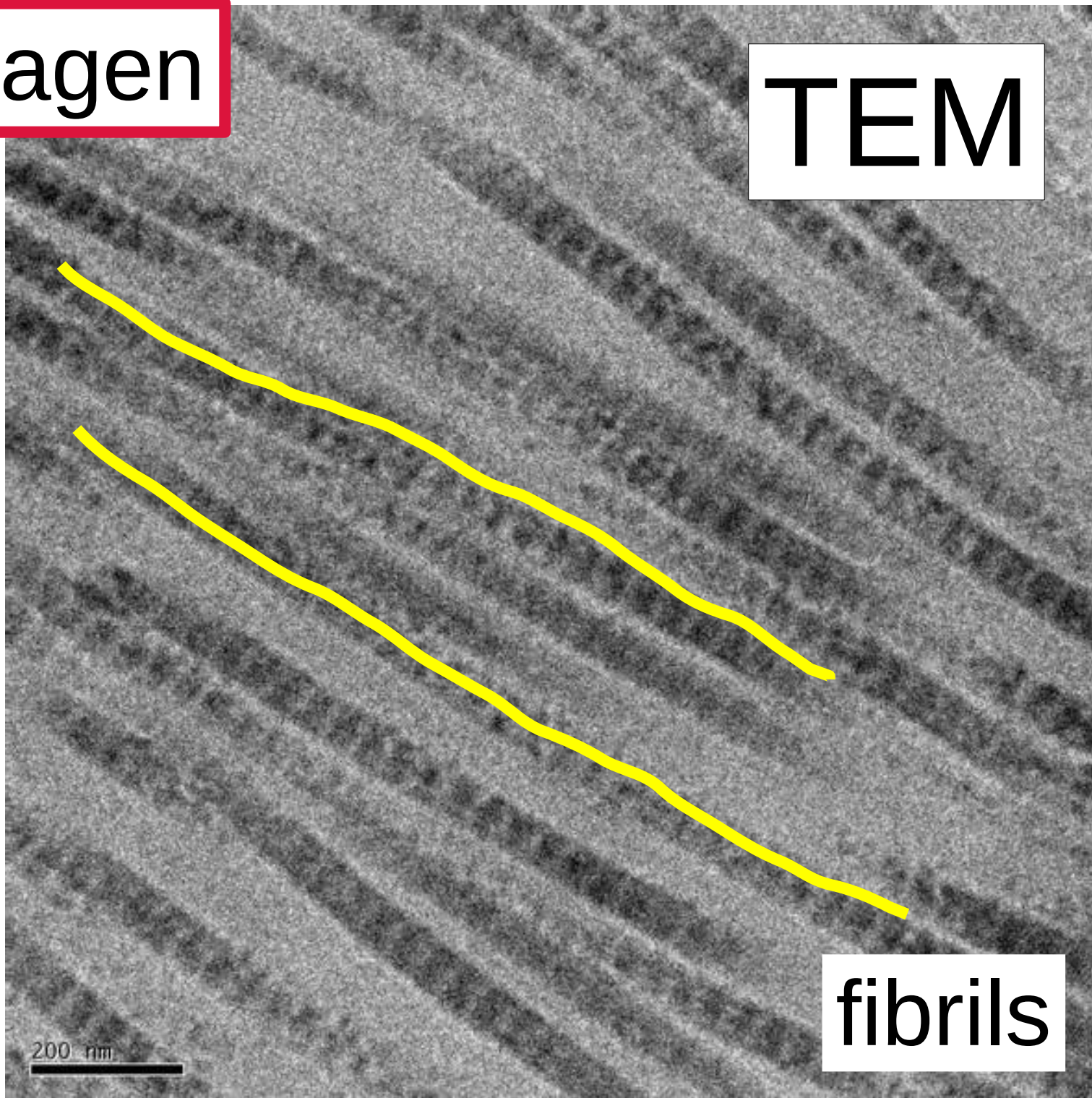
Cells
Fibres
Amorphous Ground Substance

Collagen



Collagen

TEM

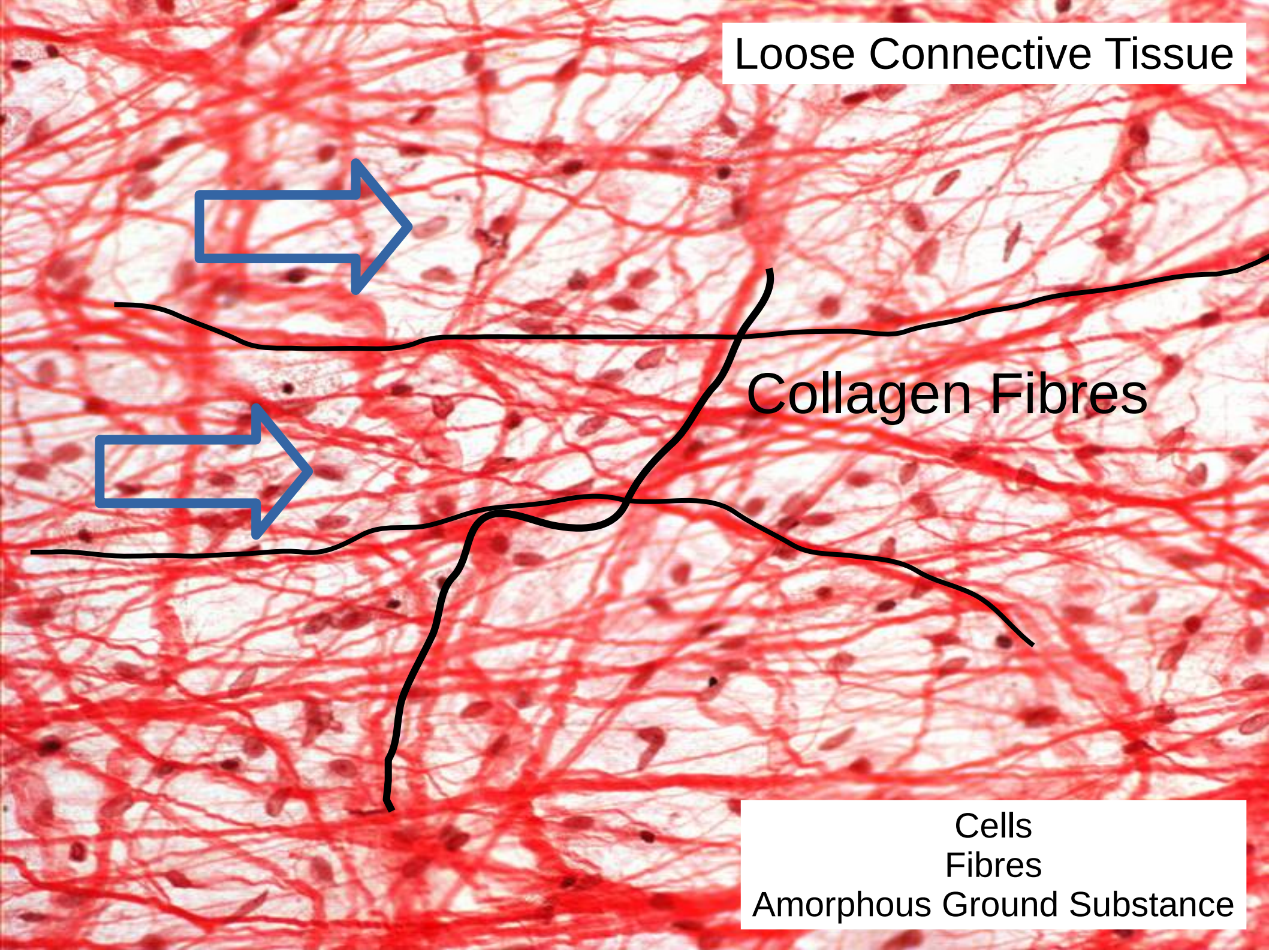


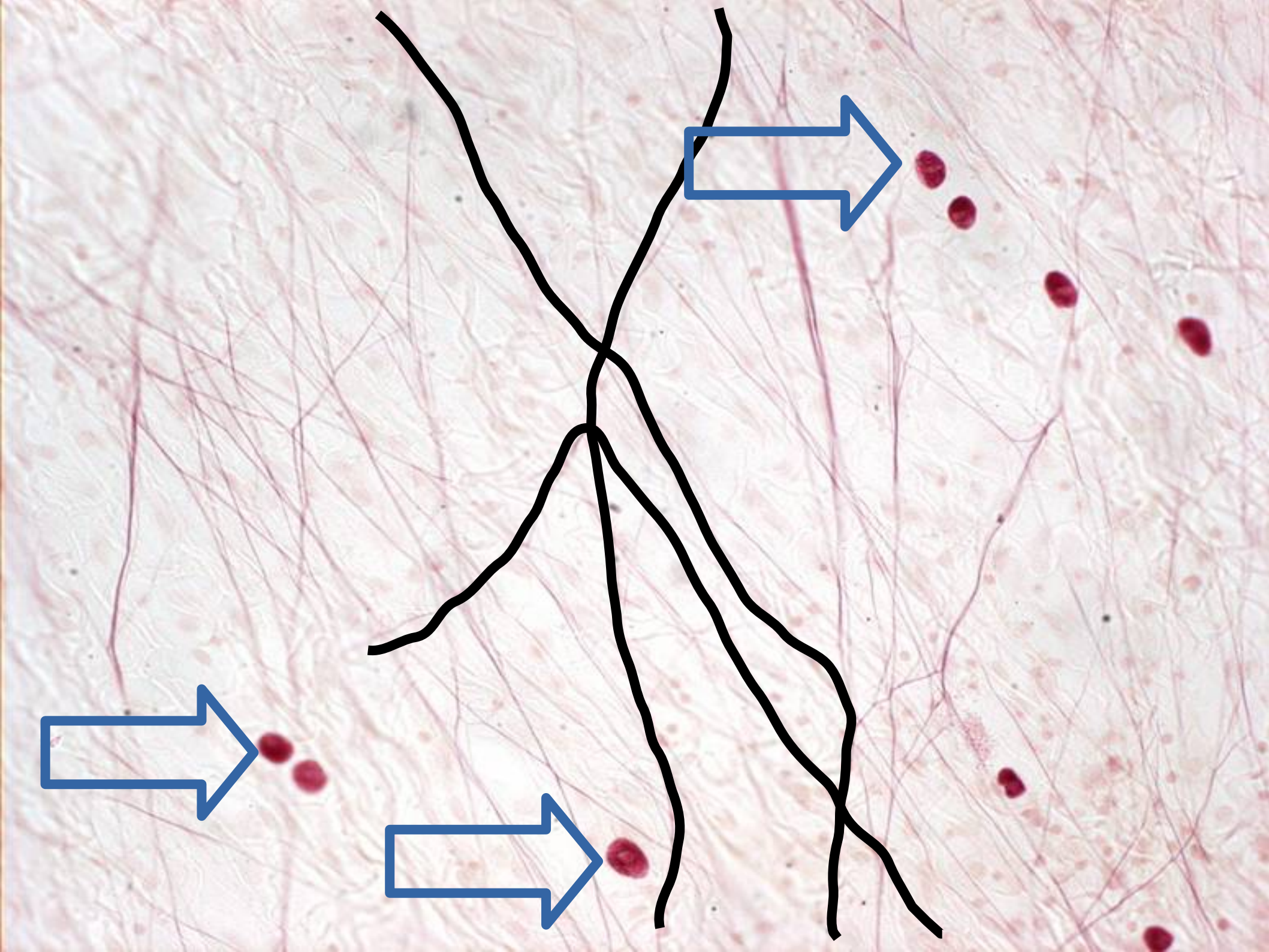
fibrils

Loose Connective Tissue

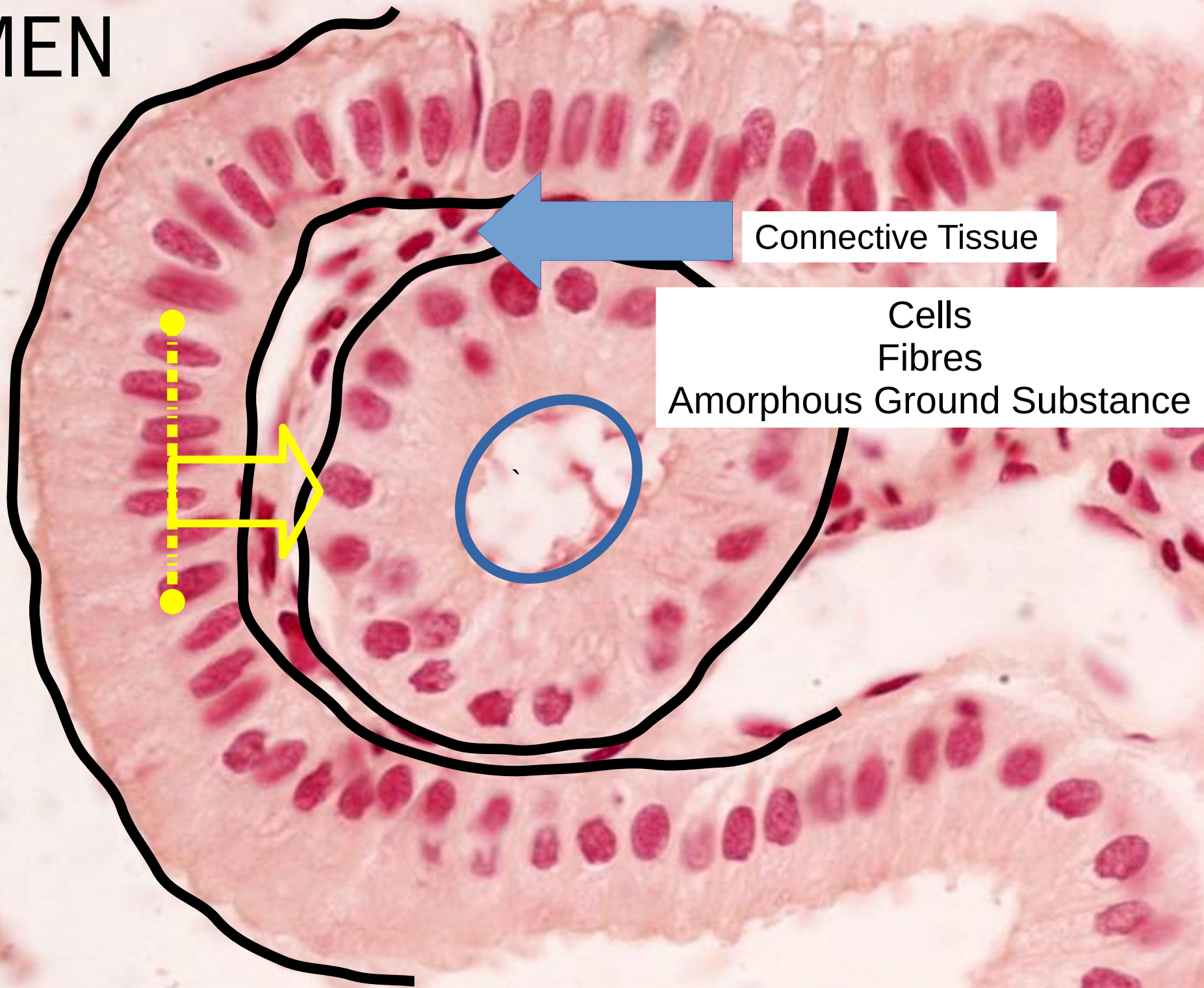
Collagen Fibres

Cells
Fibres
Amorphous Ground Substance





LUMEN



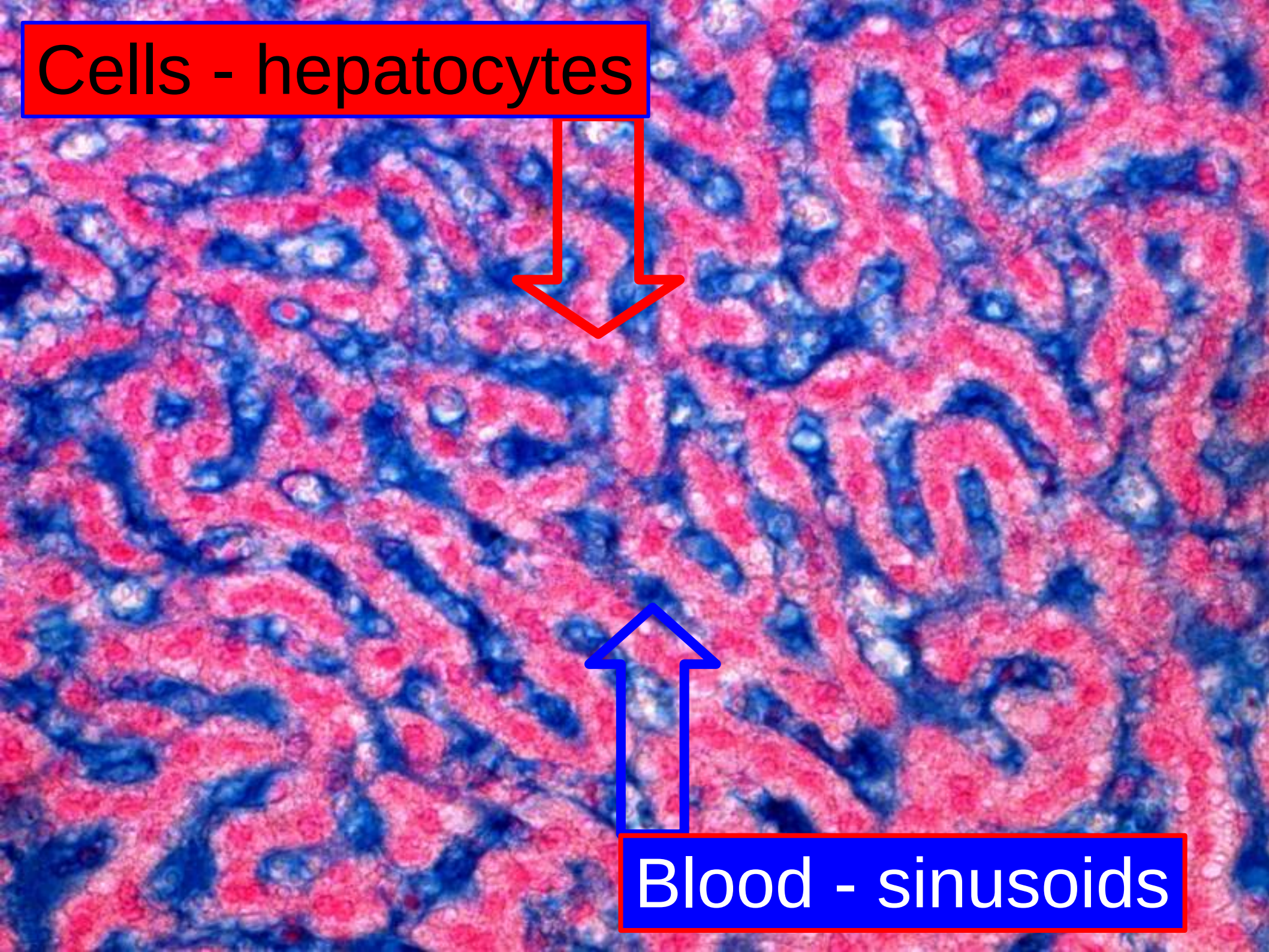
Connective Tissue

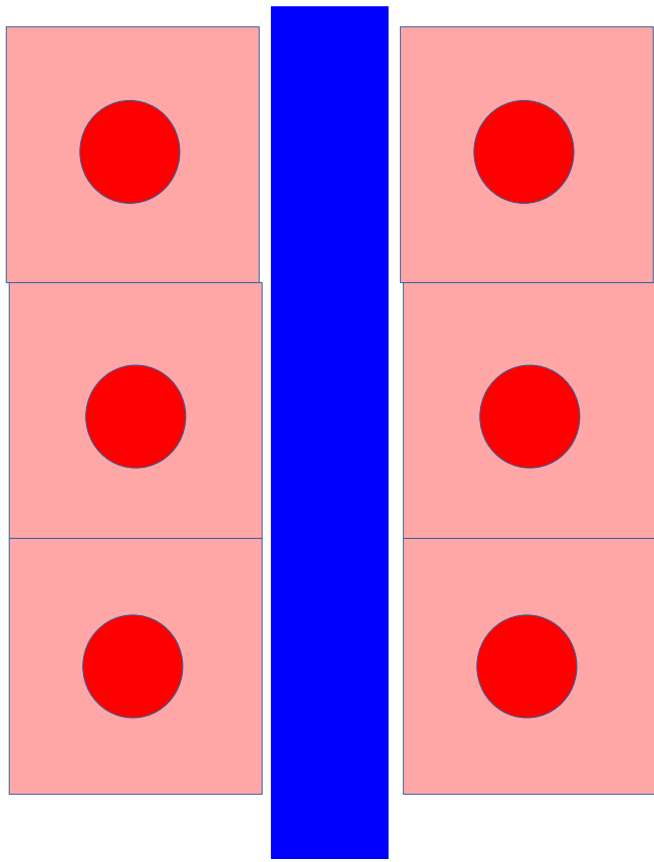
Cells
Fibres
Amorphous Ground Substance

Cells - hepatocytes



Blood - sinusoids

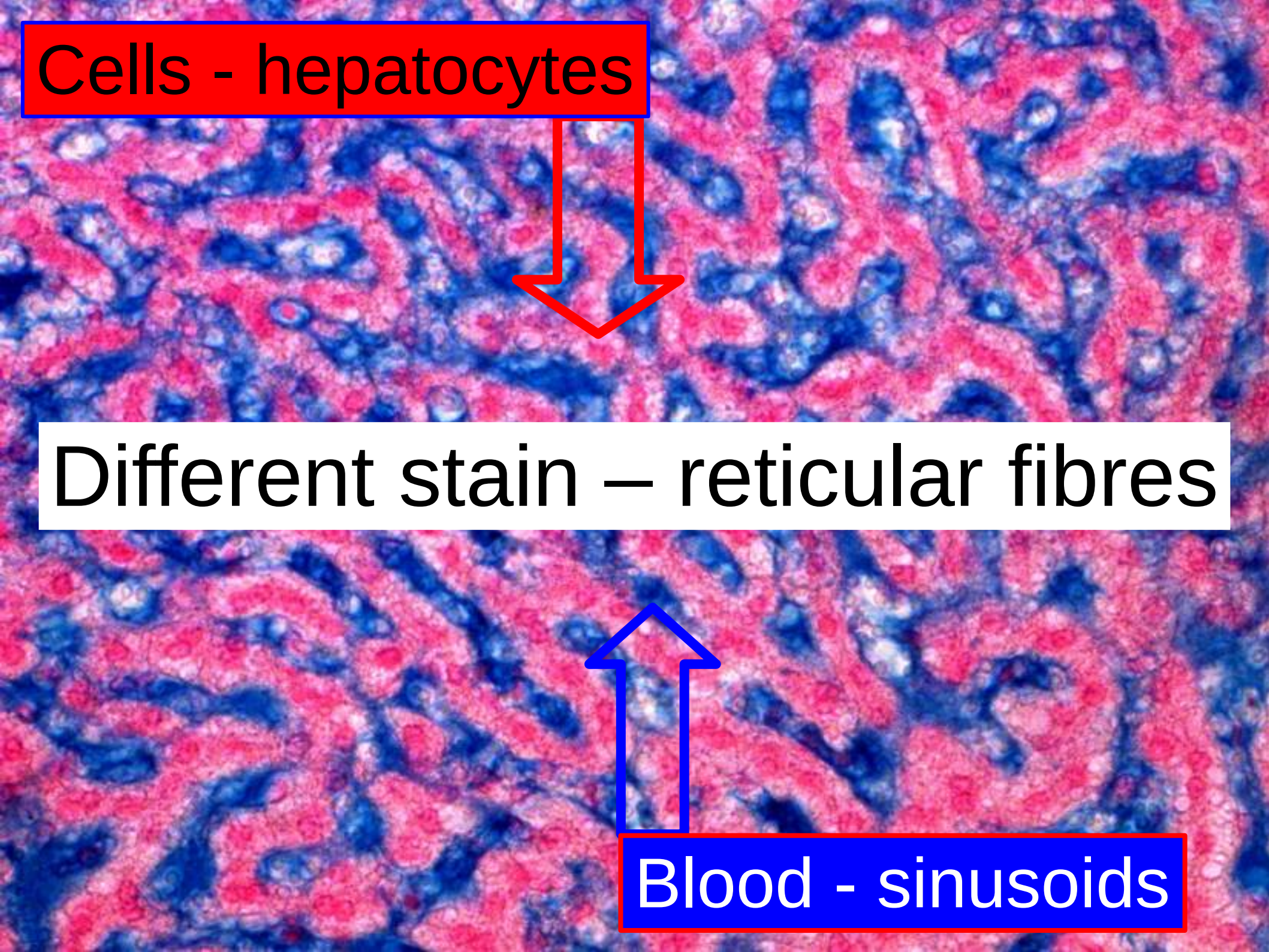


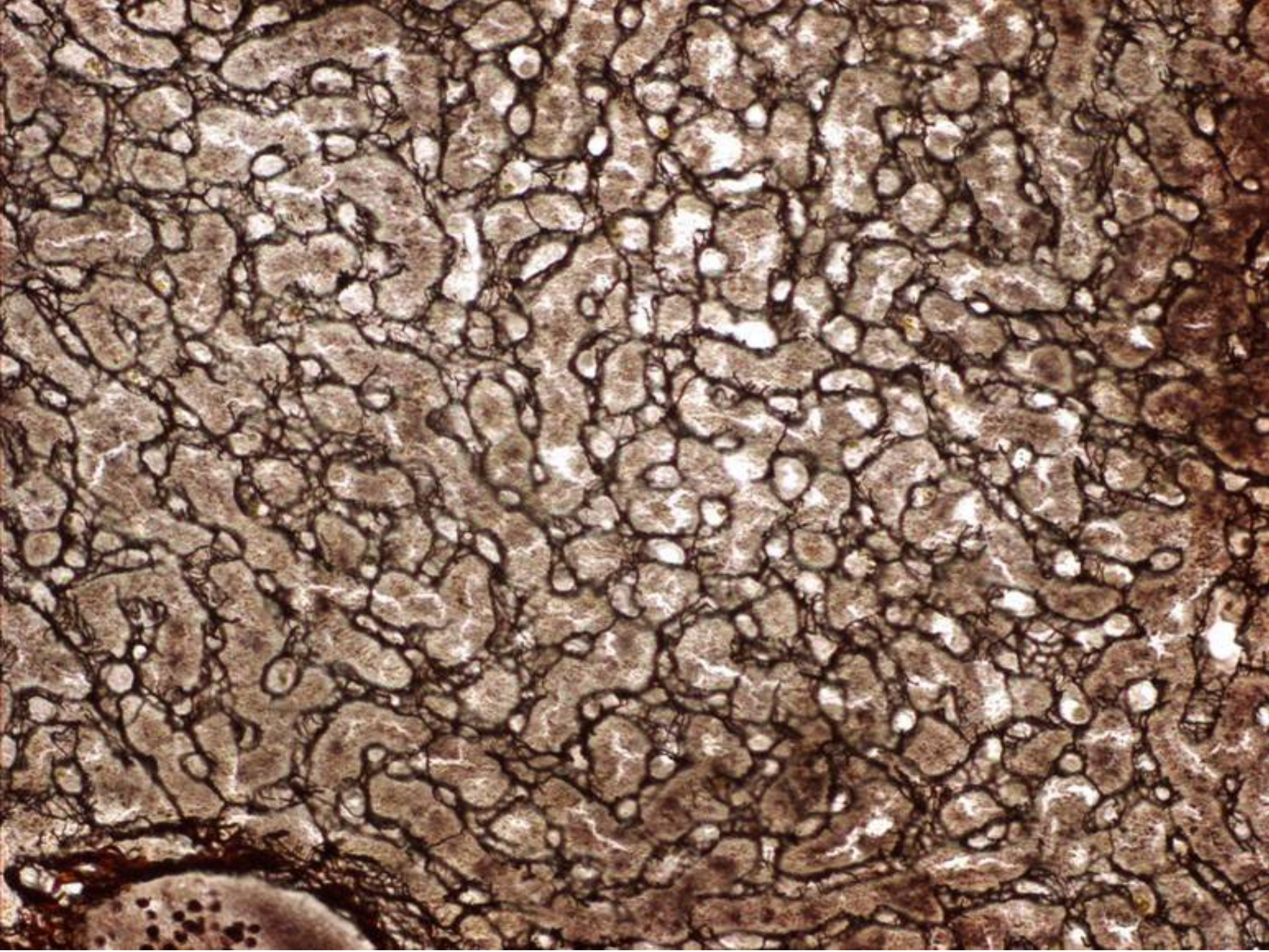


Cells - hepatocytes

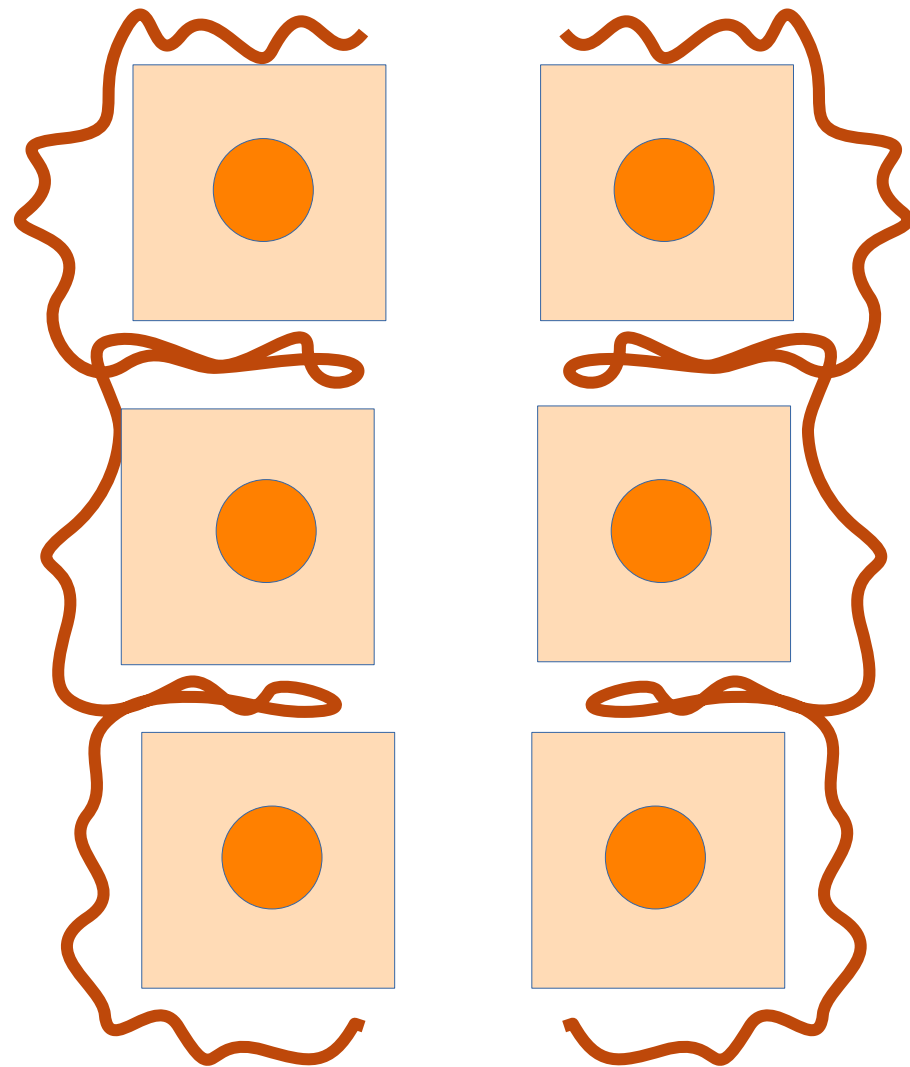
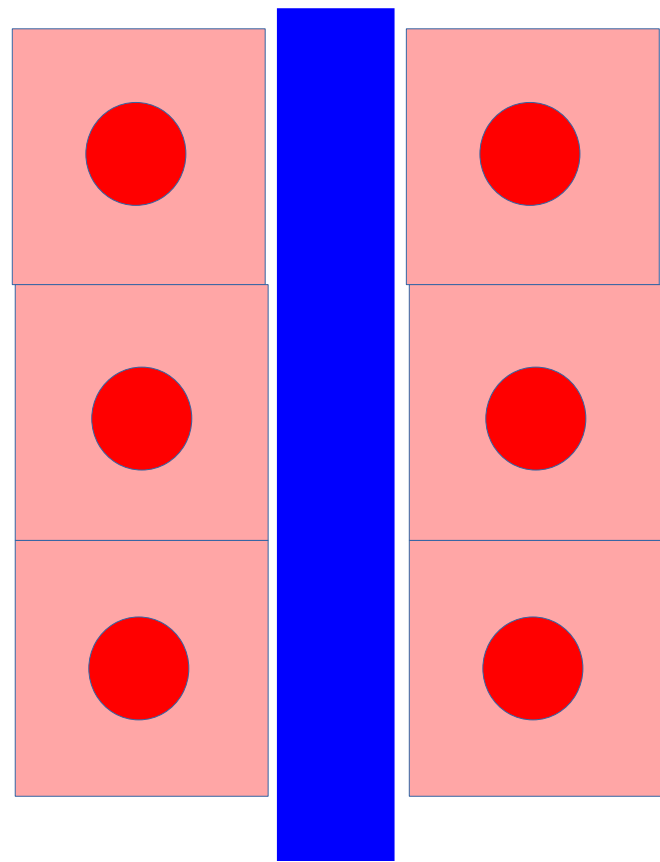
Different stain – reticular fibres

Blood - sinusoids

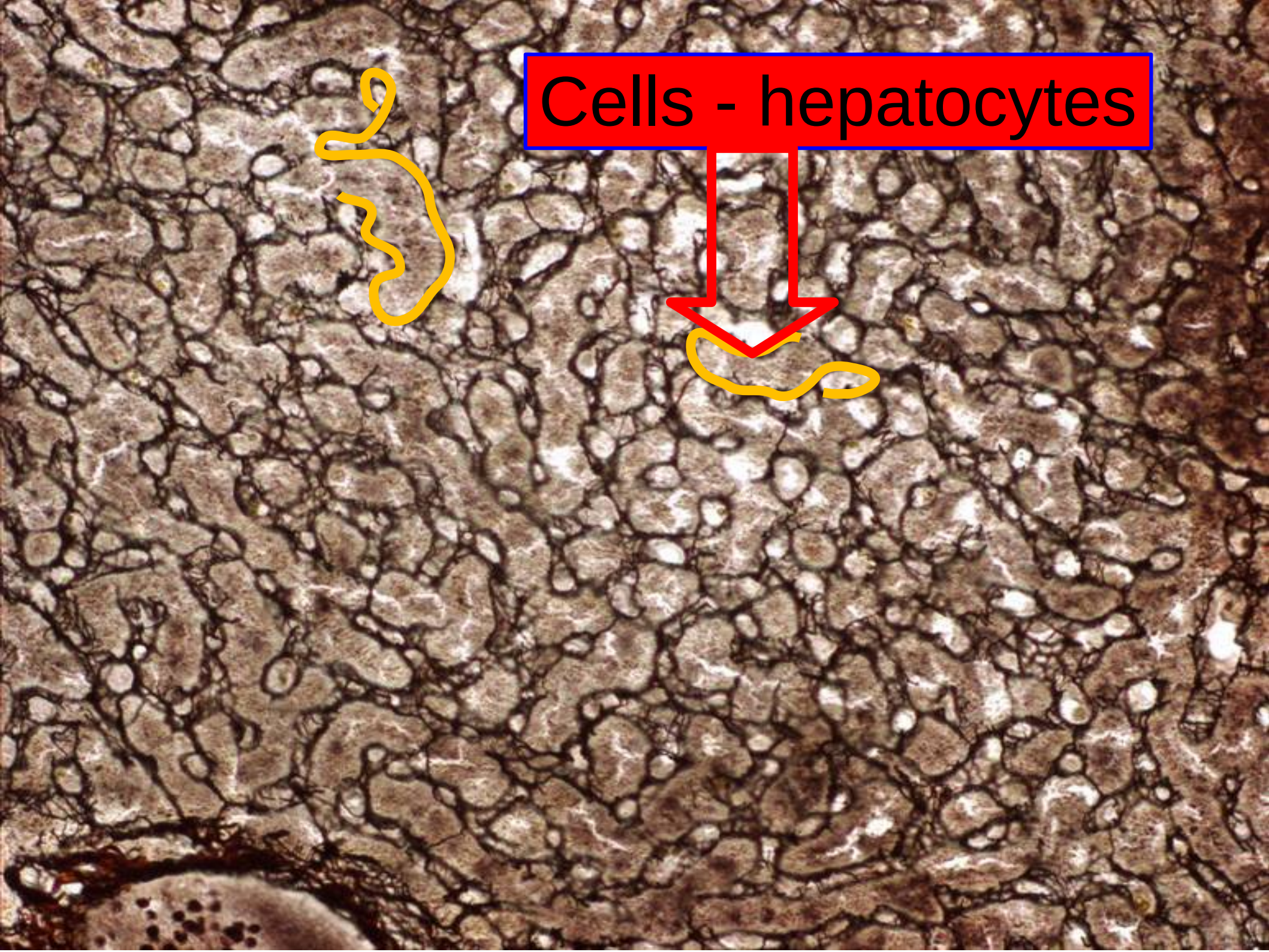




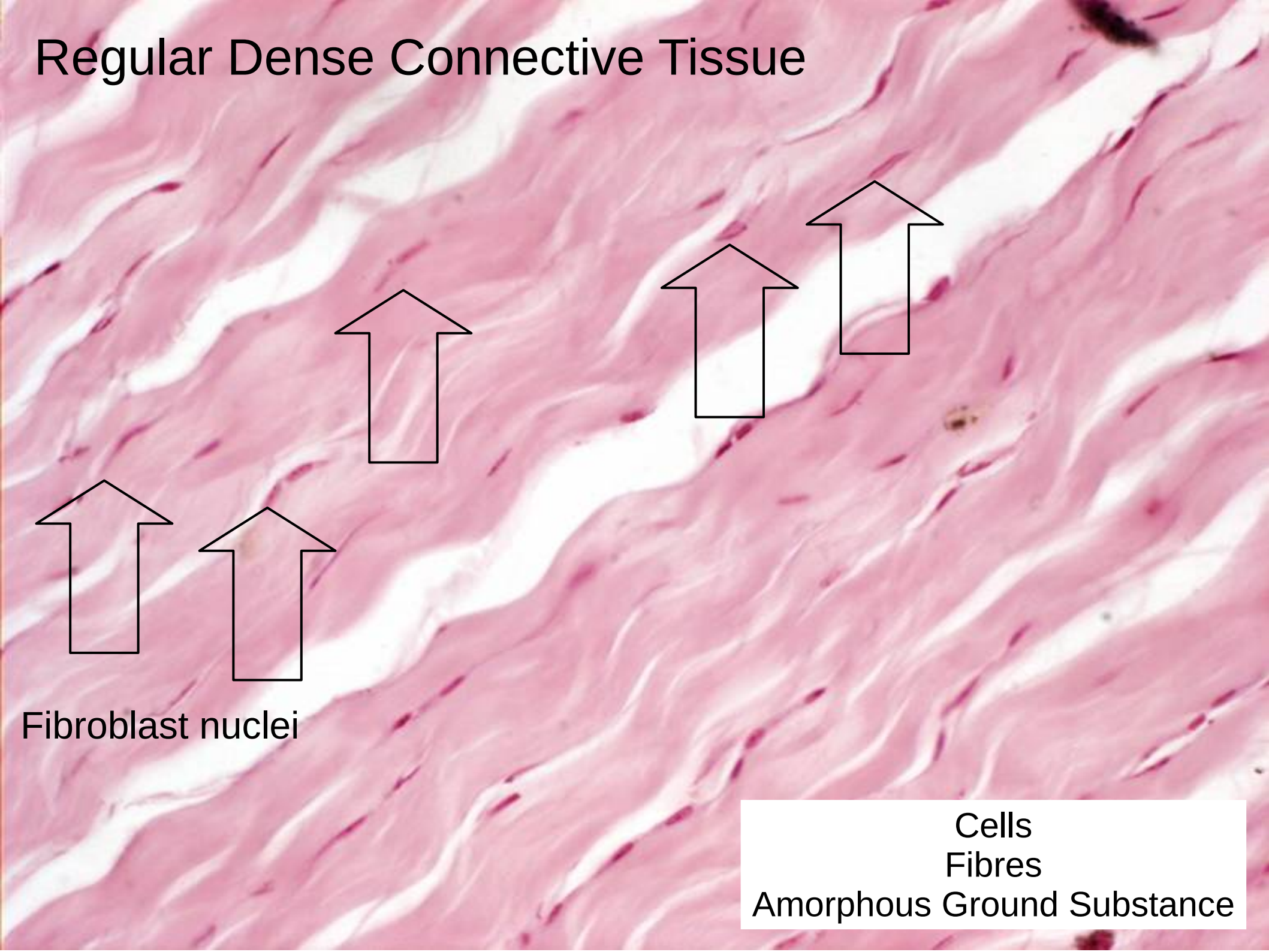




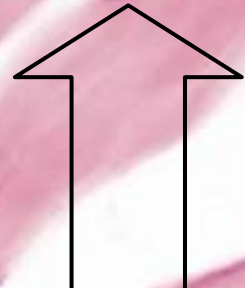
Cells - hepatocytes



Regular Dense Connective Tissue



Fibroblast nuclei

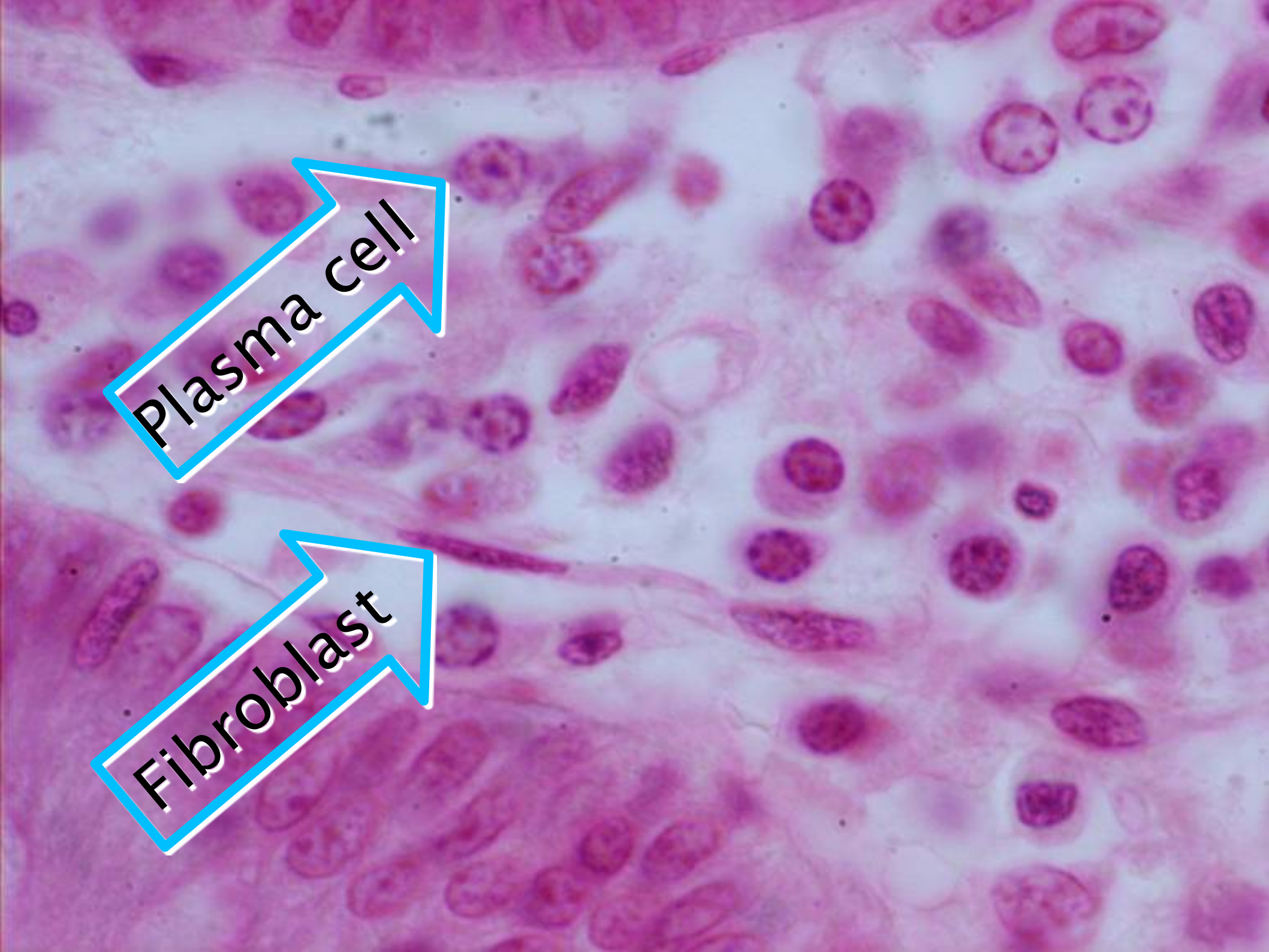


Cells
Fibres
Amorphous Ground Substance



A histological micrograph showing a tissue section stained with hematoxylin and eosin (H&E). The image displays various cellular structures, including elongated, spindle-shaped cells and clusters of small, round cells. A blue arrow points to a specific cell, which is identified as a mast cell. The mast cell is characterized by its large, oval nucleus and the presence of numerous small, dark-staining granules within its cytoplasm. The surrounding tissue shows a mix of pink-stained extracellular matrix and various other cell types.

Mast cell



Plasma cell

Fibroblast