



**Histology**  
**Sheet No.**  
**10**

**Writer**

Abdullah Isma'eal

**Scientific correction**

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**Grammatical correction**

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Dr. Ghadah Abu Al-Ghanam

Notes:

Dr. Ghada's speech is in black color.

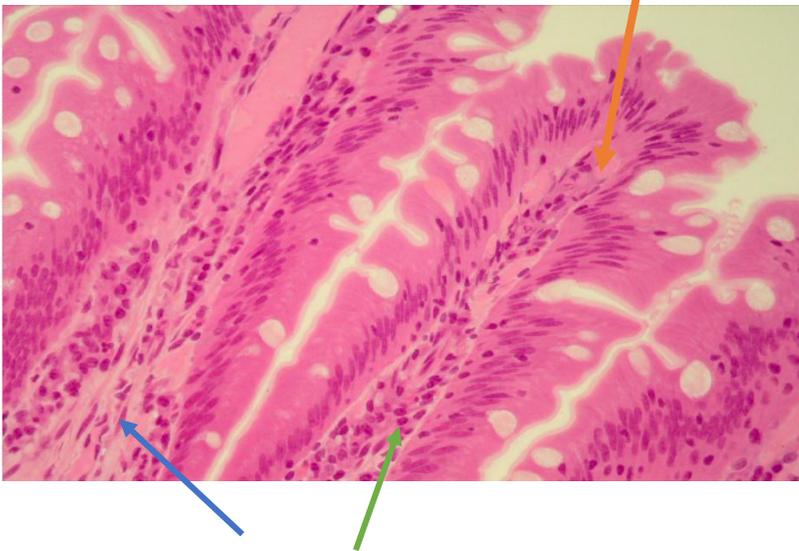
Additional information is in light blue

Location of the section is in green

### General information:

- Connective tissue composed of 3 components: (cells, fibers & ground substance)
- Connective tissue categories are:
  1. **proper**: A. Loose= less fibers & more cells & more ground substance  
B. Dense= more fibers & less cells & less ground substance
  2. **special type** (cartilage, bone, adipose tissue & blood)
- Cells are : (fixed: we always see them) or (transiting: the quantity of them depends on the conditions)
- C.T= connective tissue.

## Q. Identify the structures of C.T. in these pictures?



The section represents villi (finger like projection) in G.I.T

Orange arrow → lamina propria (loose C.T)

Note: we need more cells & blood vessels for active absorption, whereas we use dense C.T in tendons & ligaments.

Blue arrow → fibroblast (ovoid shape nucleus) the most presence type of cells in C.T.

Green arrow → The rounded ones are W.B.C (white blood cells)

There are a lot of them in G.I.T to protect us from pathogens & other things that can inter the G.I.T.

Time is 11:00

Connective tissue is under the epithelial tissue to support it (its proper place to exist)



Orange arrow → loose C.T  
 Blue arrow → fibrocytes  
 (darkly stained nucleus, thin & smaller)  
 Green arrow → fibroblast  
 (lightly stained nucleus, bigger)

This section is from urinary bladder

Red arrow → urothelium  
 (transitional epithelium) has large & obvious nuclei

Orange arrow → fibroblast

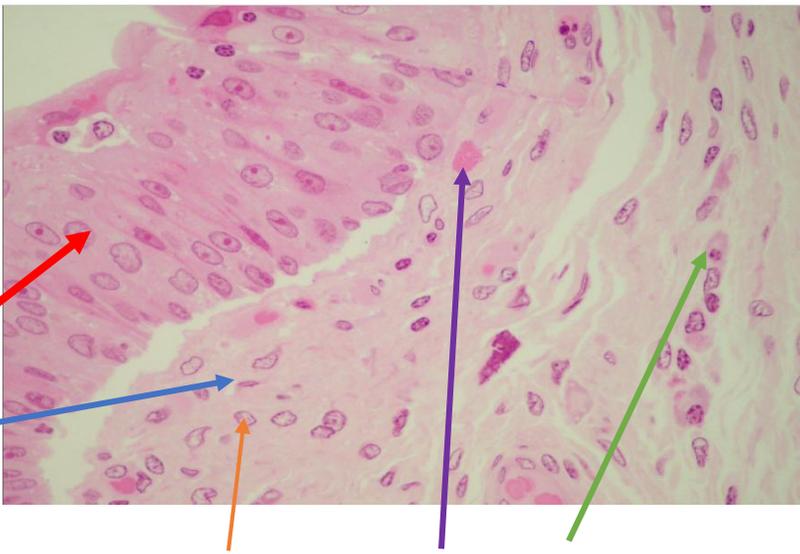
Blue arrow → fibrocyte

Purple arrow → mast cell

(grains appearance) not so clear image because of H&E staining. **In the exam it will be so clear**

Green arrow → plasma cells

(cartwheel shape nucleus, good size)



This section is from tendon of muscle

This is regular dense connective tissue.  
 Tiny ground substance.

Orange arrow → collagen fibers

Blue arrow → fibrocytes

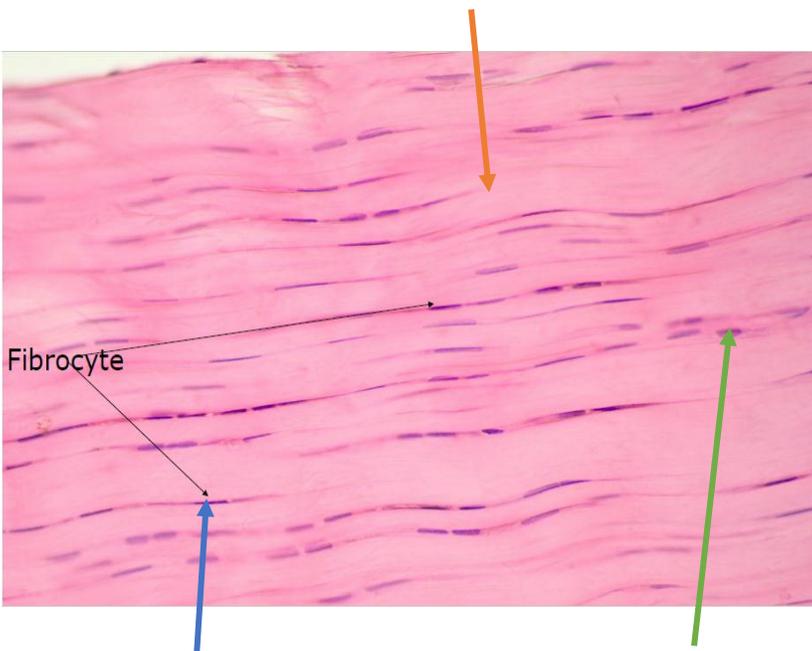
(tiny linear like nucleus, darker, smaller size)

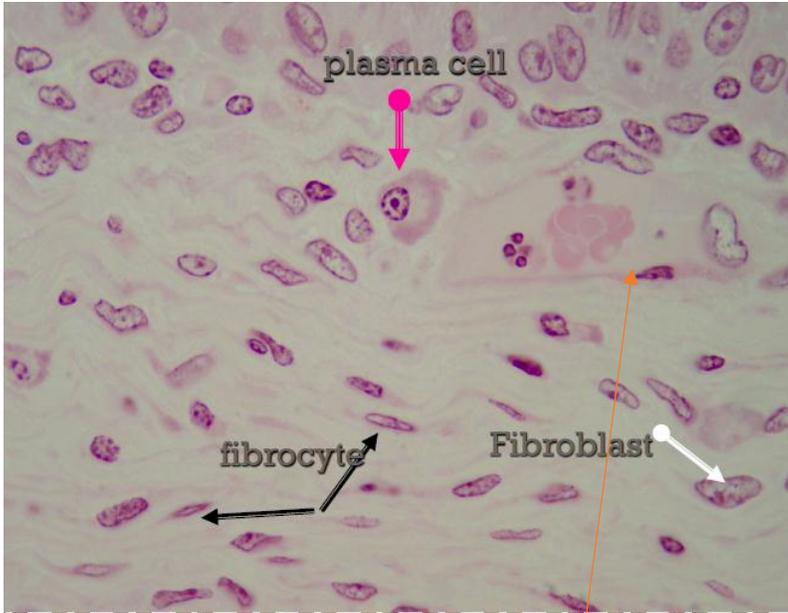
Green arrow → fibroblast

(extremely spindle shape nucleus)

(It appears like spindle but it's actually ovoid in shape)

It has no typical shape.





Time is 23:00

Fibroblast cell has more organelles & cytoplasm because it's active cells and can secrete things.

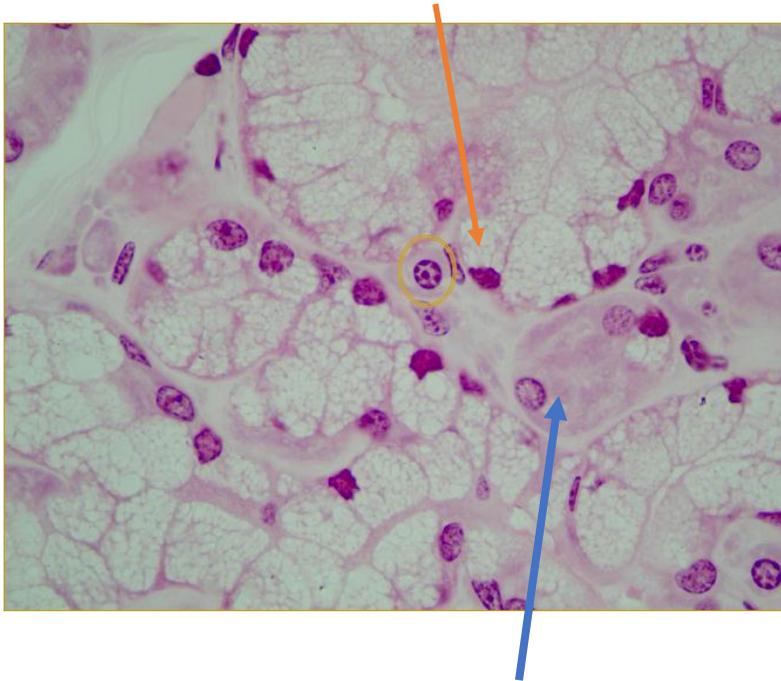
Fibrocyte is not as eosinophilic as fibroblast

Note:

(in order to see the boundaries & cytoplasm we use immunohistochemistry or immunofluorescence. We can use E.M, but the electron microscope is wasting for time & money)

Orange arrow → endothelium cell (lining venule that has RBCs and special type of WBCs).

Venule has irregular shape.



This section is from sublingual gland.

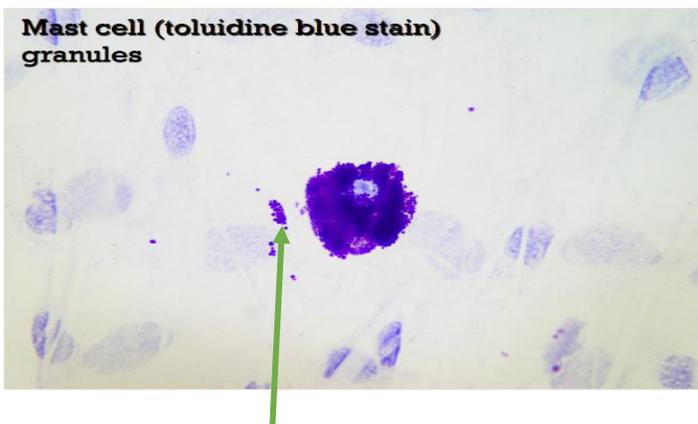
In the yellow circle → plasma cell.

(cartwheel nucleus)

Orange arrow → mucus acini

Blue arrow → ductal cell

(a lot of cytoplasm & rounded nuclei)



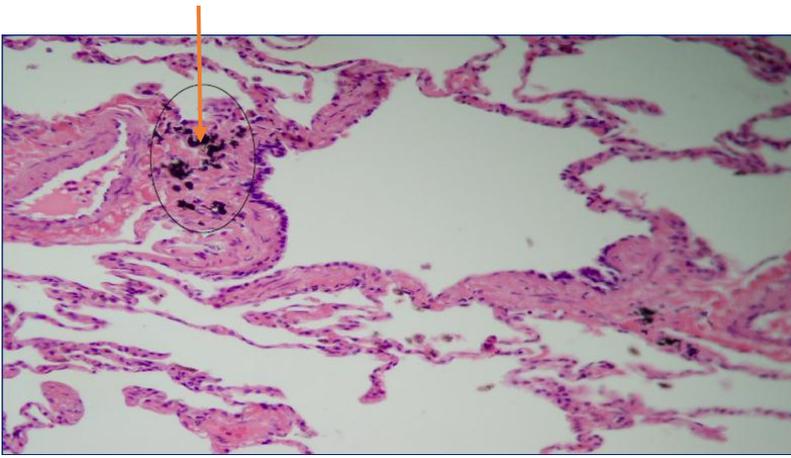
Mast cell (toluidine blue stain) granules

Mast cell with special stain

Basophilic

The granules have violet color because they're metachromatic (staining or characterized by staining in a different color or shade from what is typical).

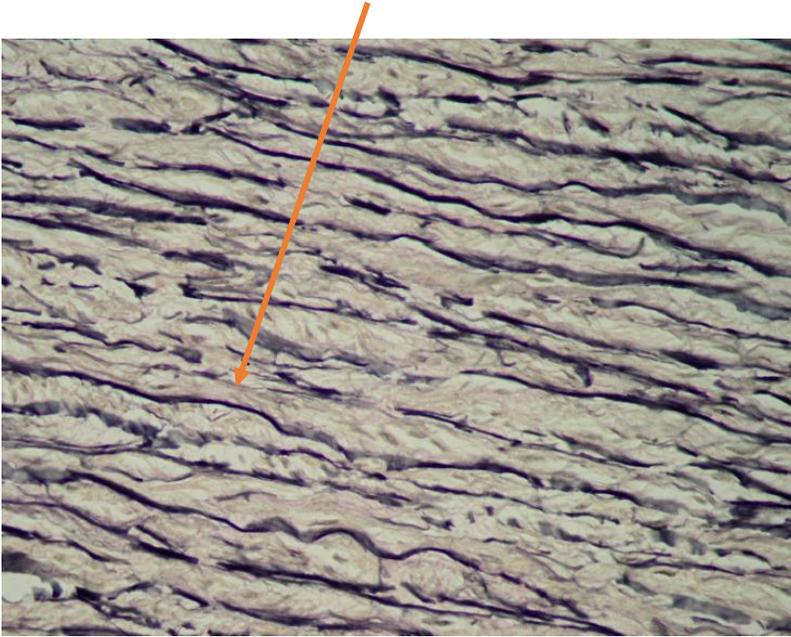
Green arrow → represents granules that split during preparation. Indeed, there are stuck to the cytoplasm of the cell



This section is from lung

Orange arrow → macrophage (dust cells)

The precursor is: monocyte



This section is from aorta artery

Orange arrow → elastic fibers

(there are no nuclei in them, so they are not cells)

They are special stained (Orcein)

They have laminae shape

Function:

(they are stretch so they can extend to handle with the high pressure of the blood stream from the heart)

سيتم بإذن الله تلخيص الفروقات وكيفية التمييز بين الصور والتراكيب في النسيج الضام في الورقة رقم ١٢ بعد اكتمال الصورة.