
Chapter 4 Connective Tissue

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**Component: cell and intercellular
substance (fibers and matrix)**

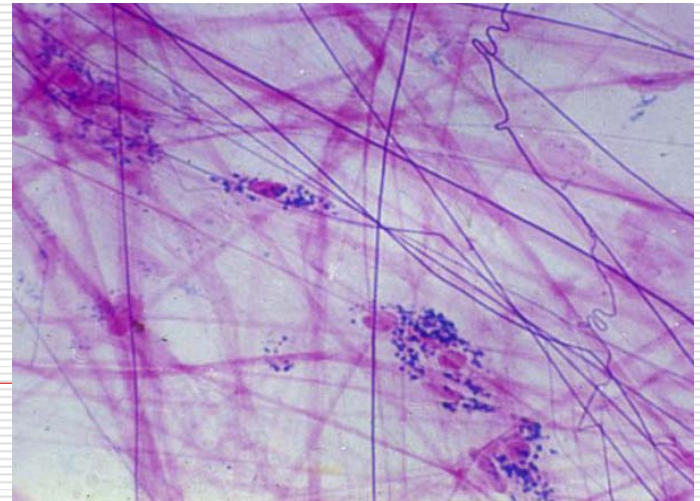
Connective tissue:

Connective tissue proper

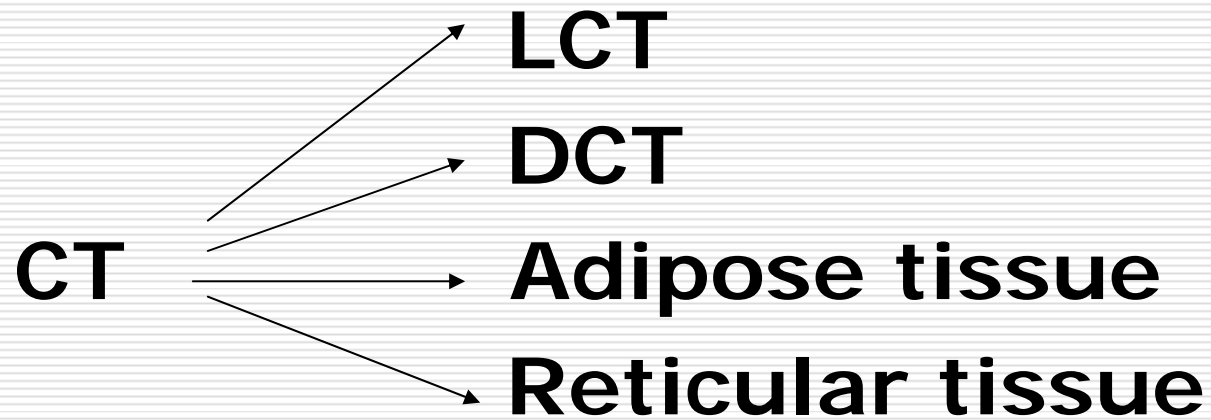
Cartilage, bone

Blood

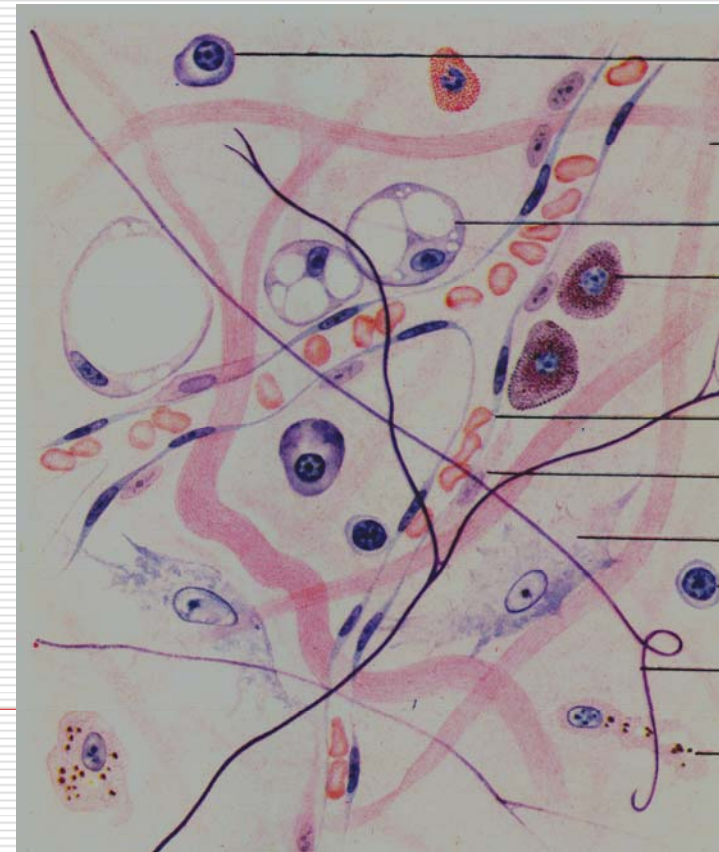
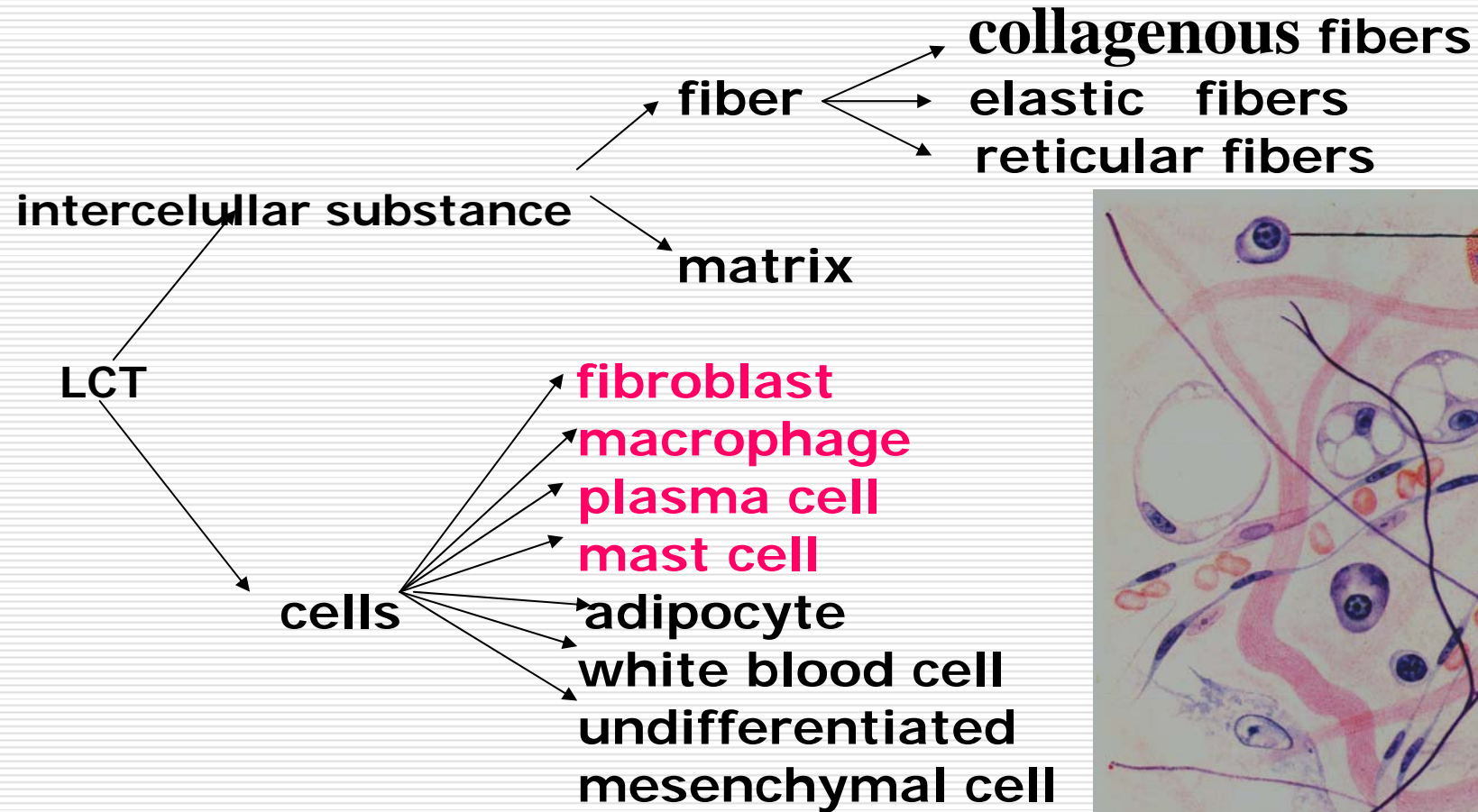
Origin: esenchyme



Connective tissue proper

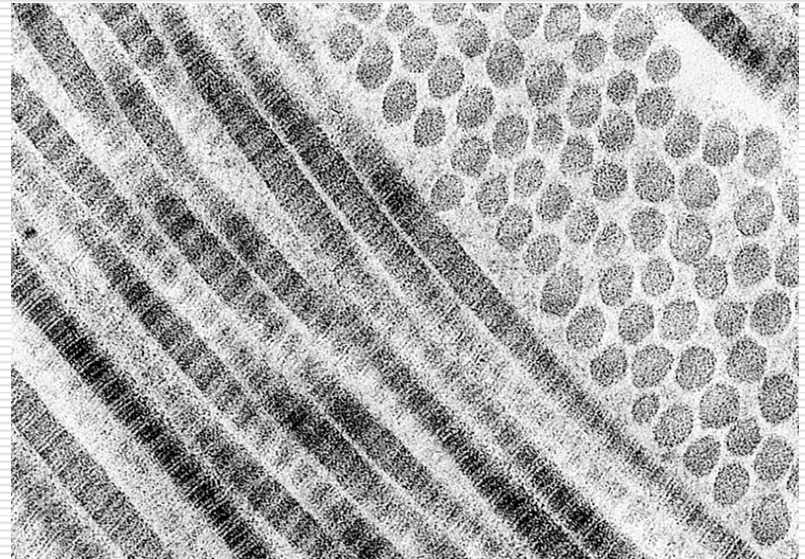
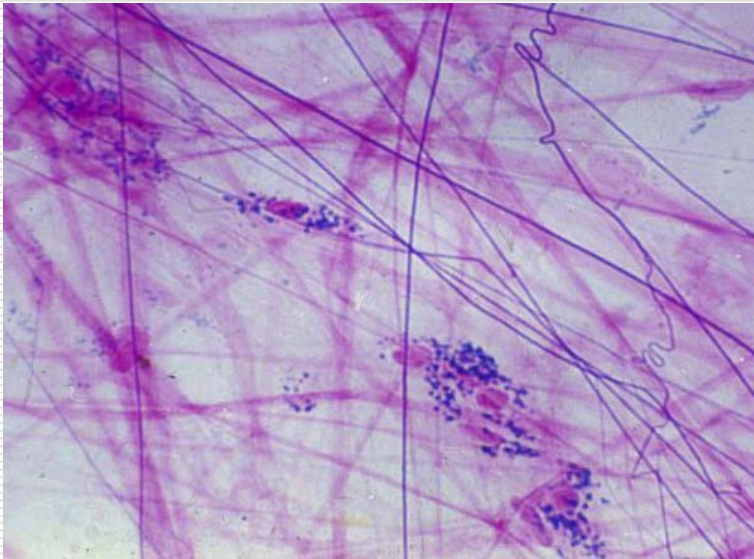


I . Loose connective tissue



1 . Fiber

(1) collagenous collagenous fiber
collagenous fibril: type I and III collagen

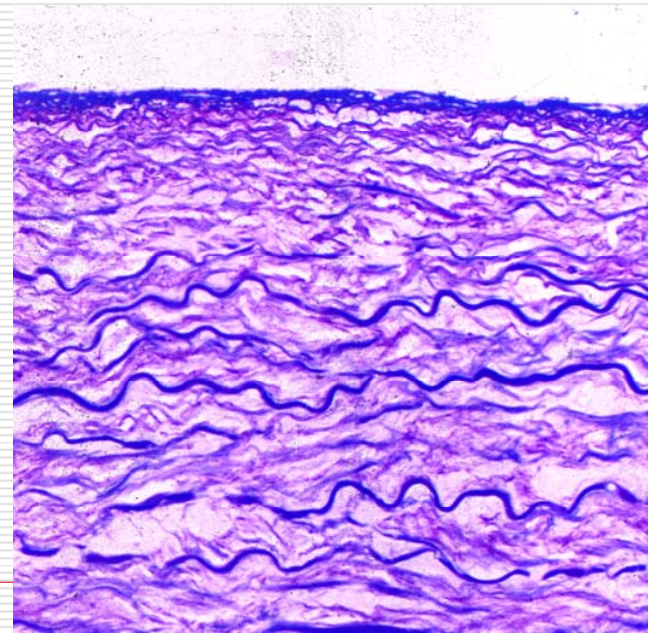
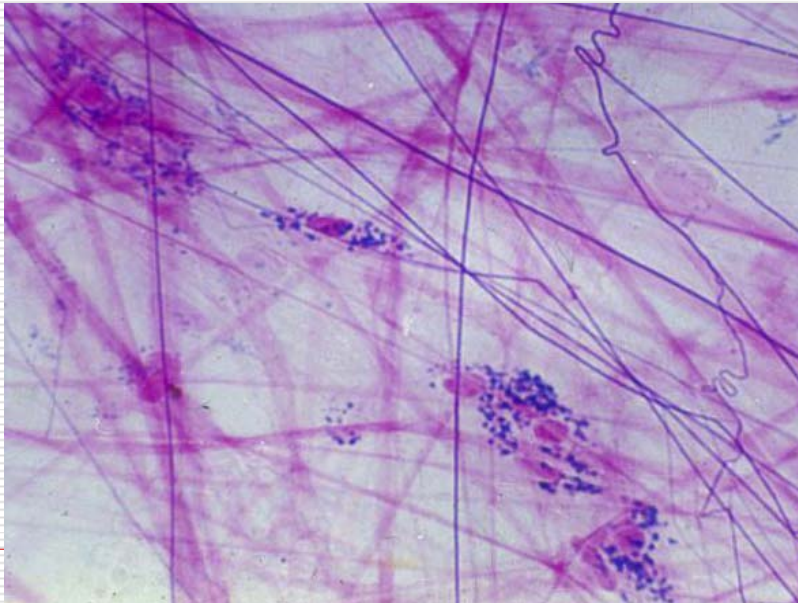
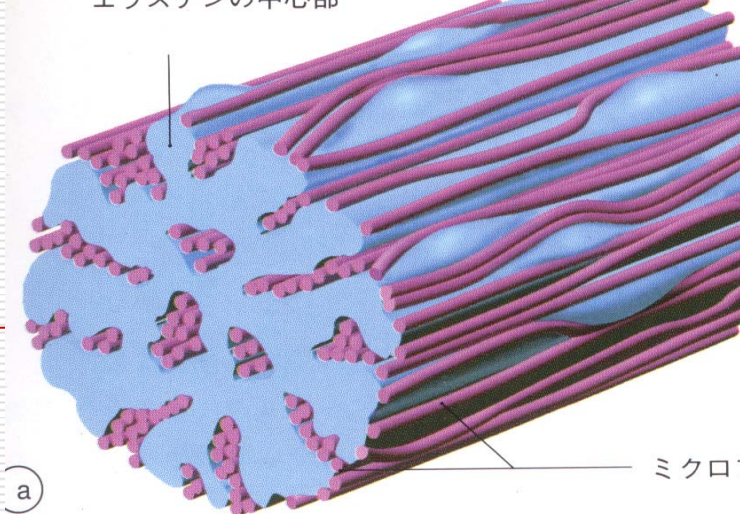


(2) Elastic fibres

Component:

elastin and microfibrils

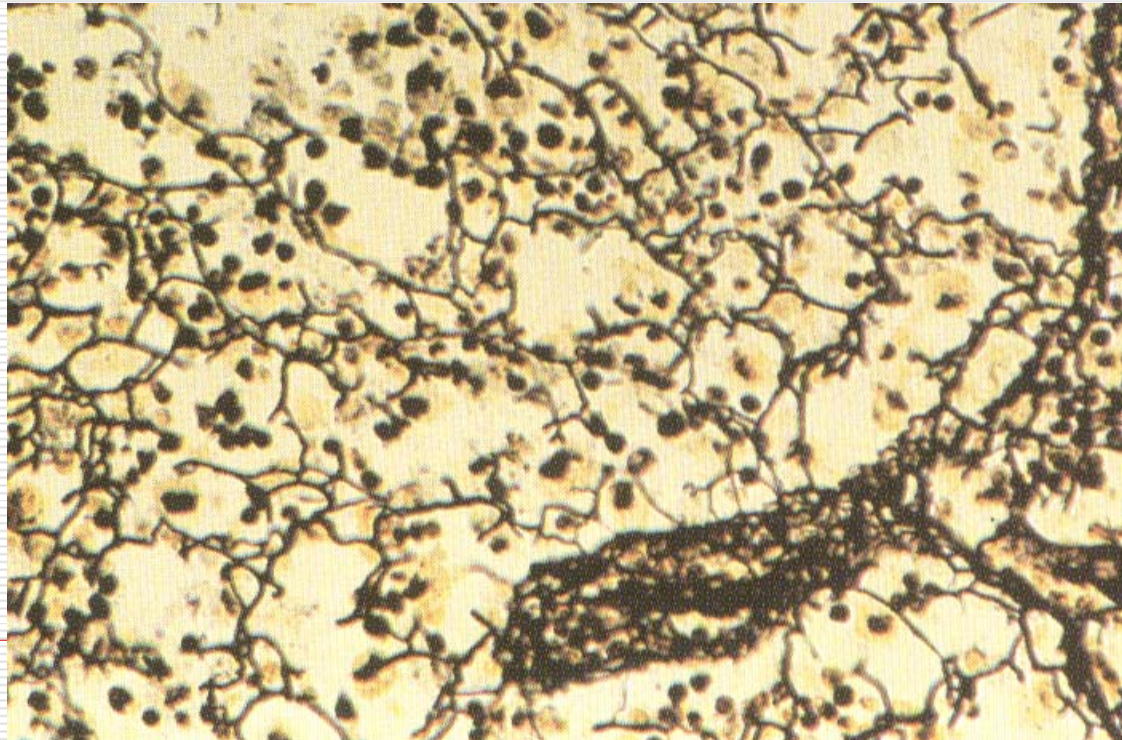
Function: elasticity



2.3 Reticular fibres

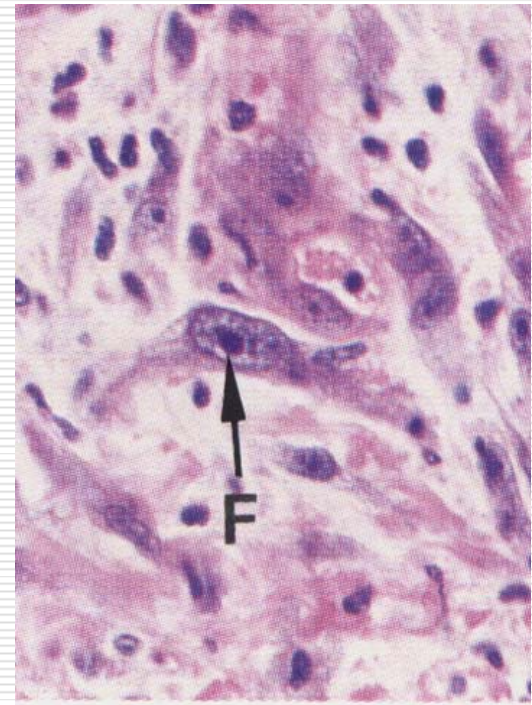
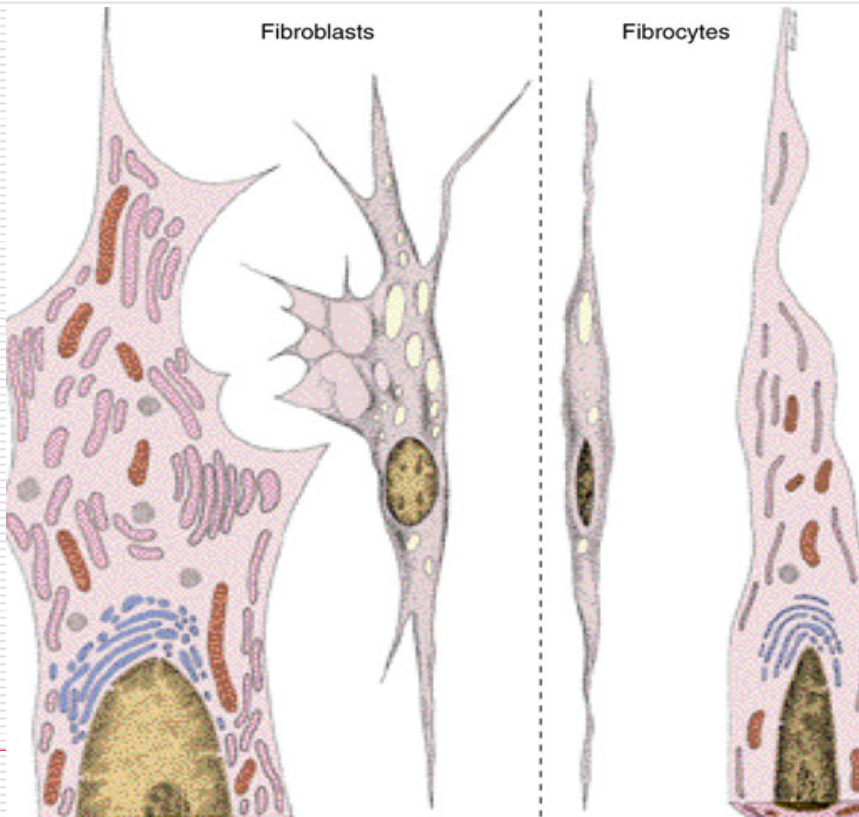
Component: type III collagen

Function: give support to individual cells



2. Cells of the connective tissue

1.1 Fibroblasts



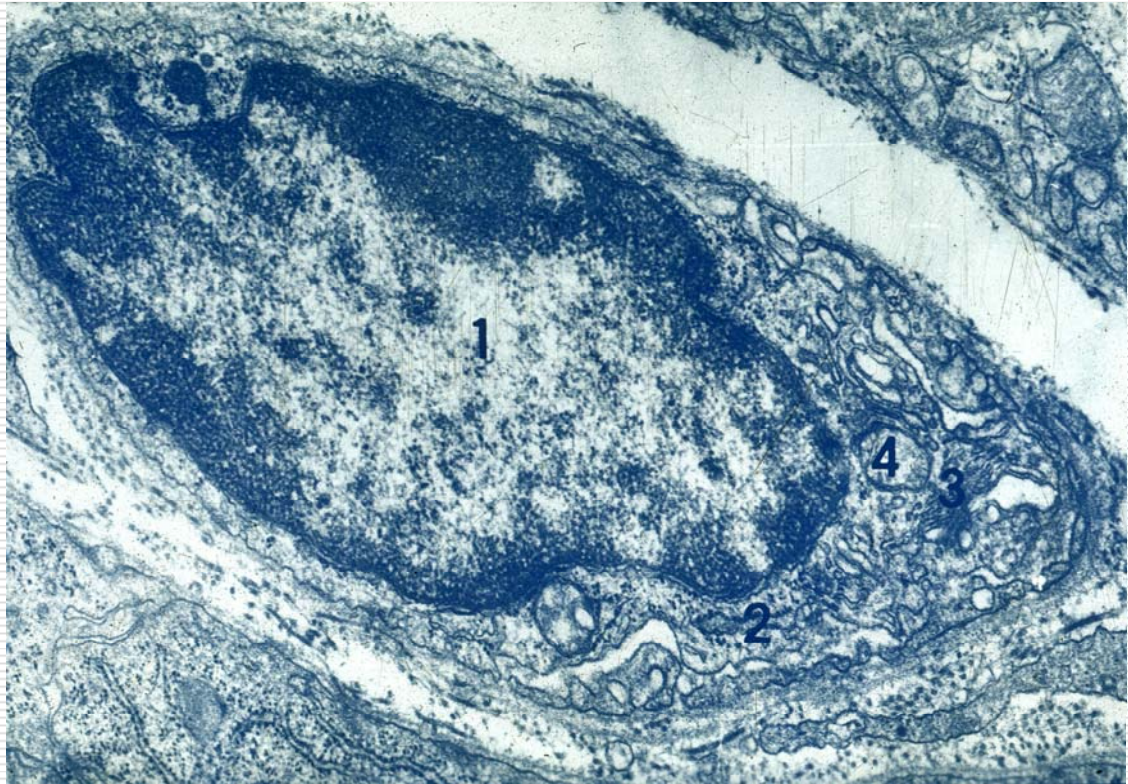
1.1 Fibroblasts

EM:

RER ,

Free Ribosomes

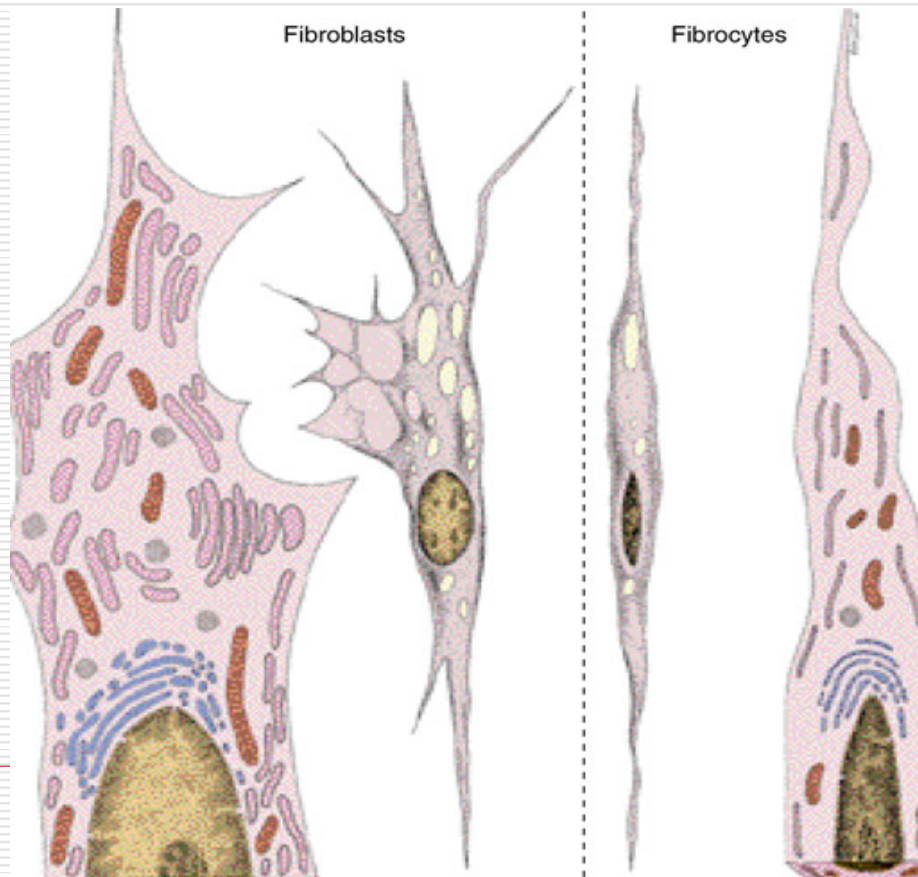
Golgi apparatus



Function: synthesis of fibers and amorphous ground substance

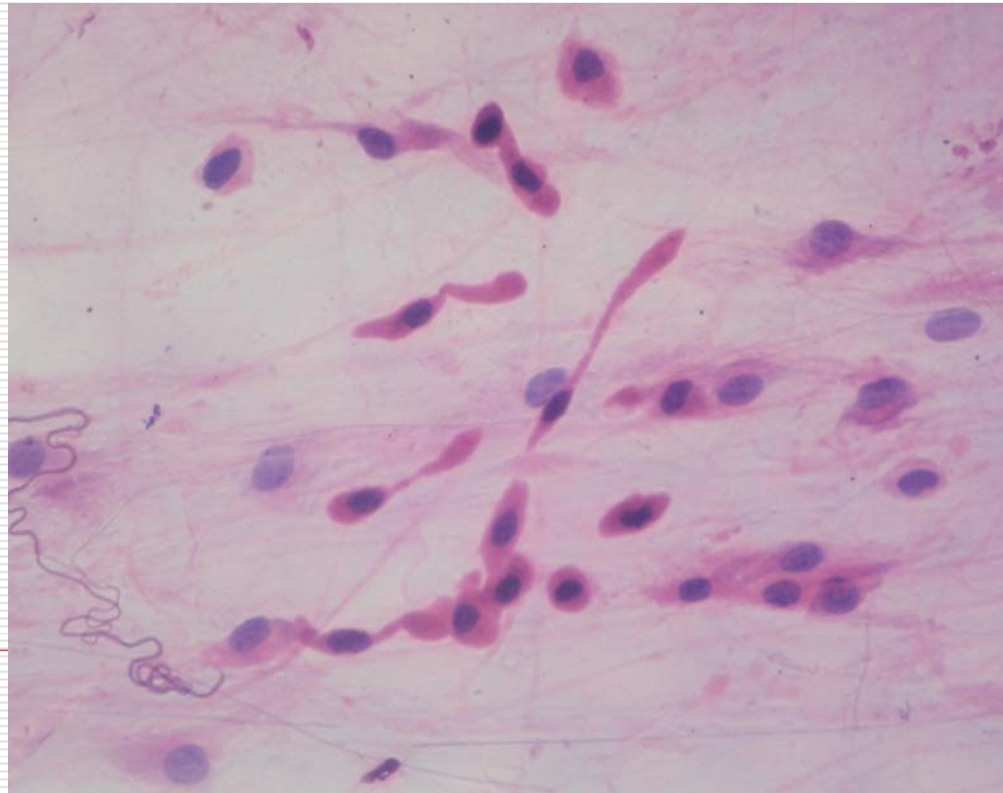
1.1 Fibroblasts

Fibrocytes: inactive fibroblasts



1.2 Macrophages

LM: irregular shape with pseudopodia, small and dark nucleus, strong acidophilic cytoplasm.

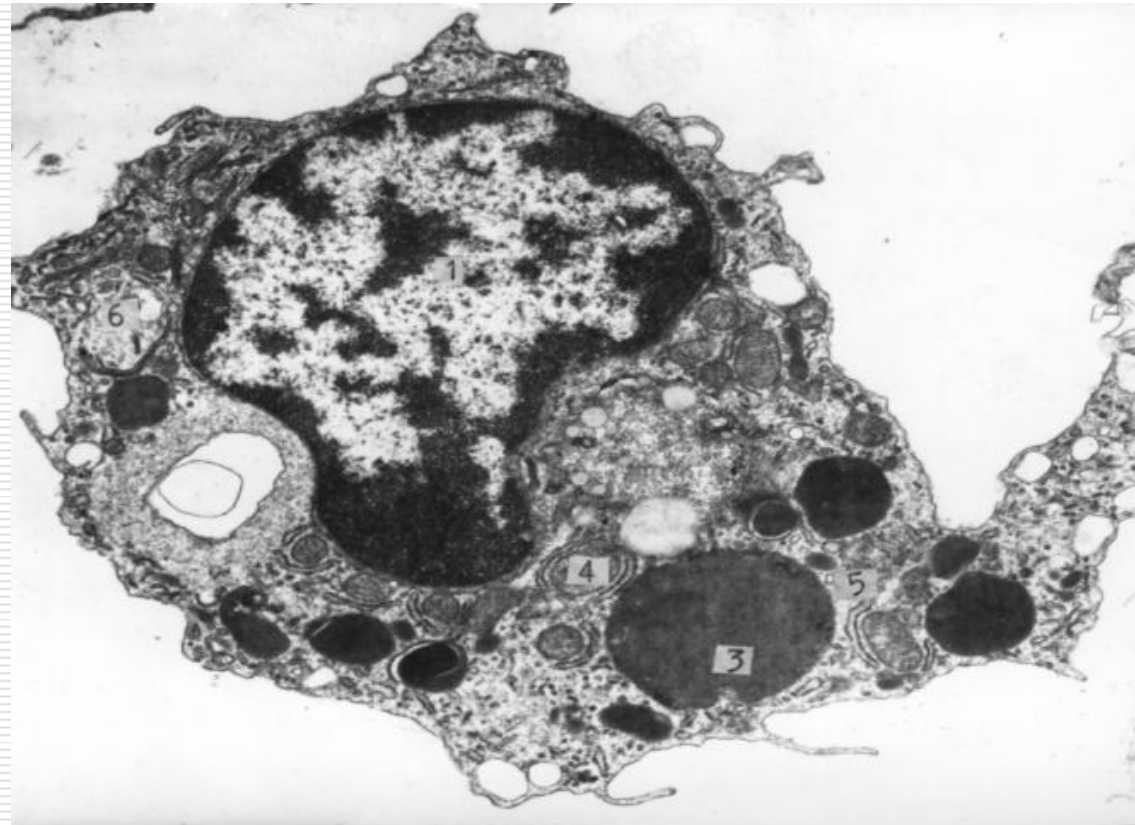


1.2 Macrophages

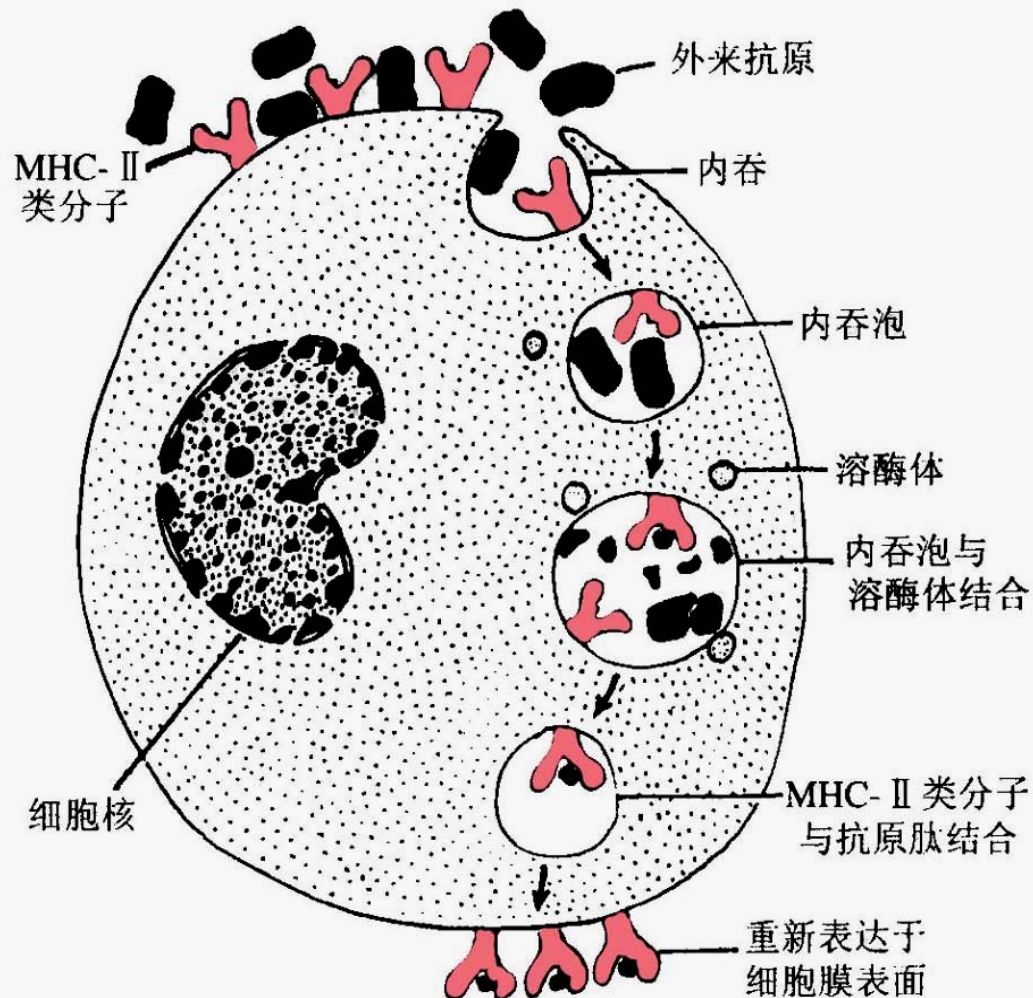
Origin: monocytes

Function:

- Chemotaxis
- Phagocytosis
- Secretion
- Immune reaction

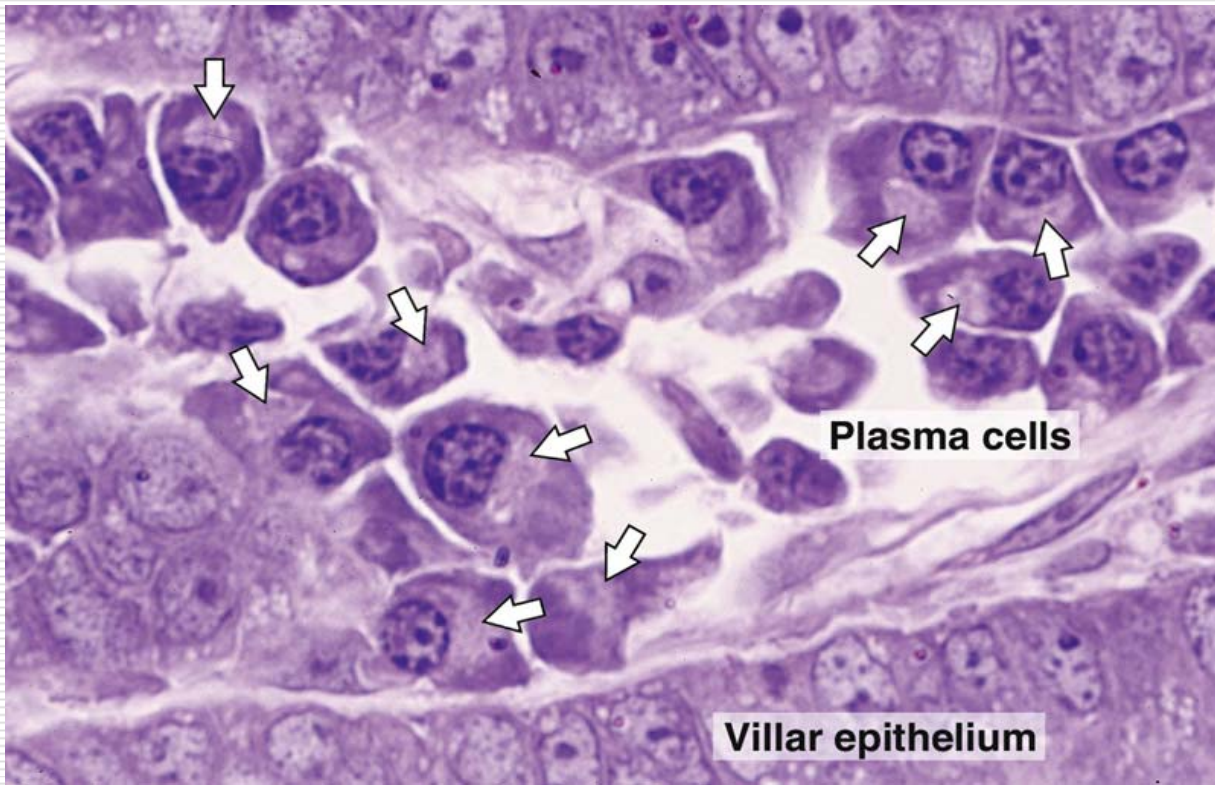


1.2 Macrophages



1.3 Plasma cells

LM:



1.3 Plasma cells

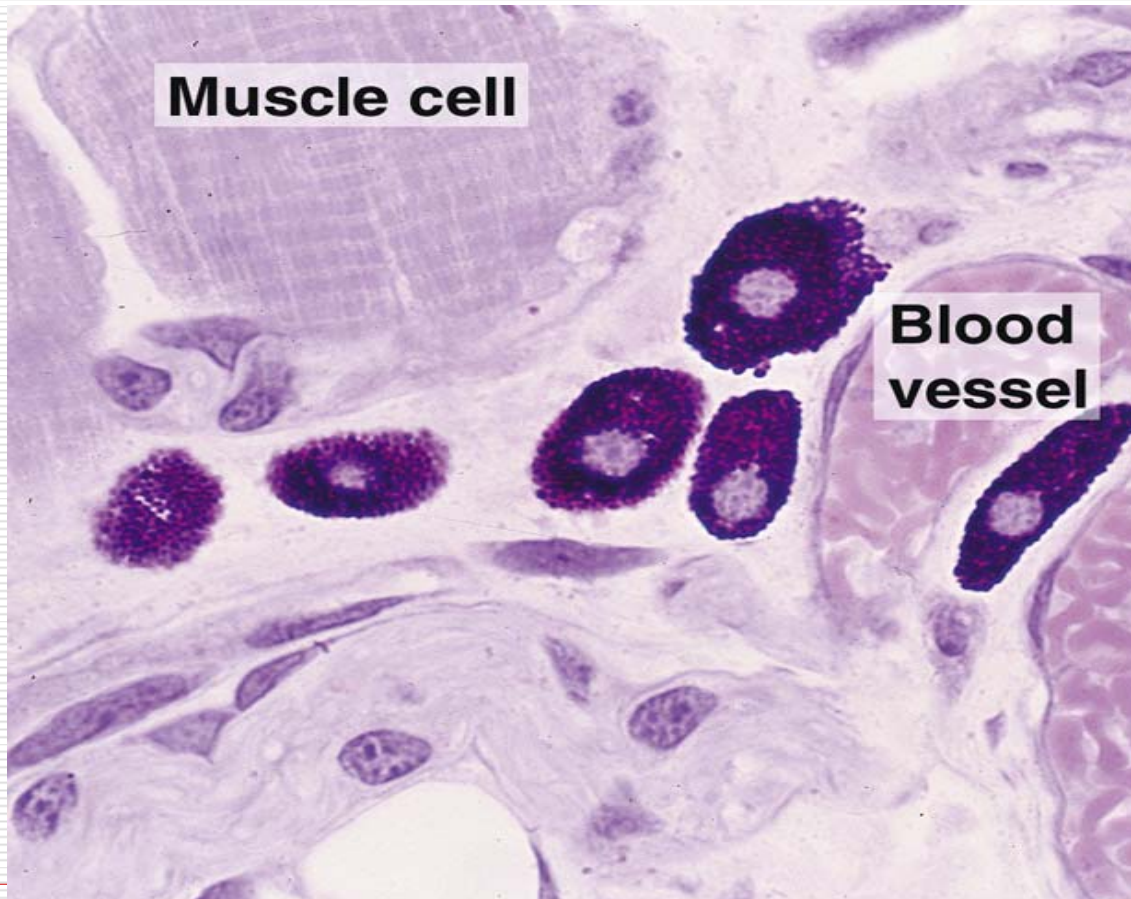
Origin: B lymphocyte

Function: produce antibodies



1.4 Mast cells

LM:



1.4 Mast cells

EM:

Function:

involved in

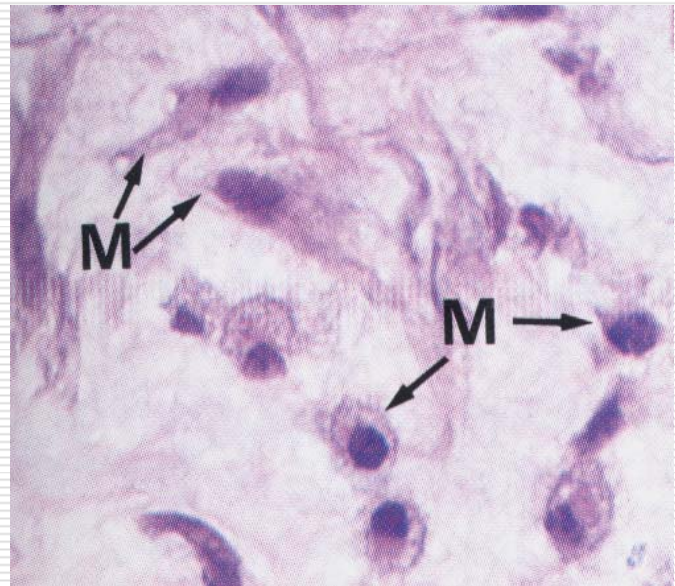
allergic reactions



1.5 Fat cells

1.6 Undifferentiated cells

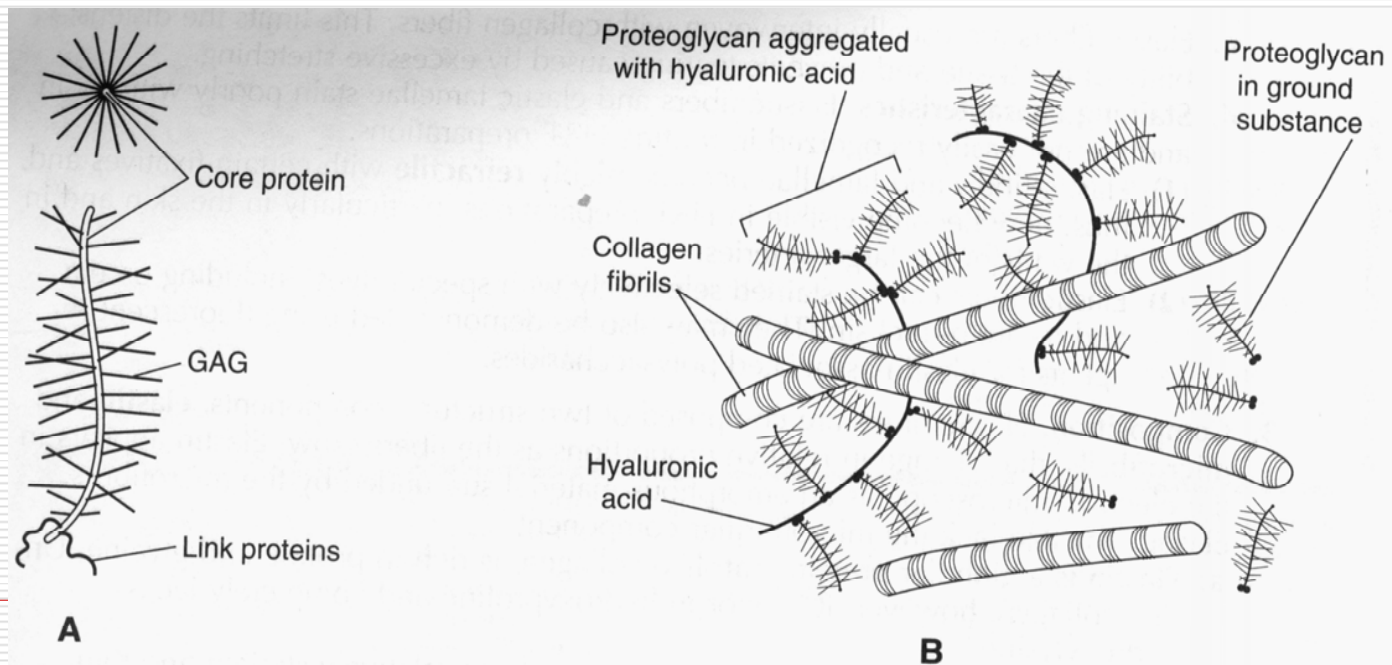
1.7 Leukocytes



3. Ground substance

3.1 proteoglycan

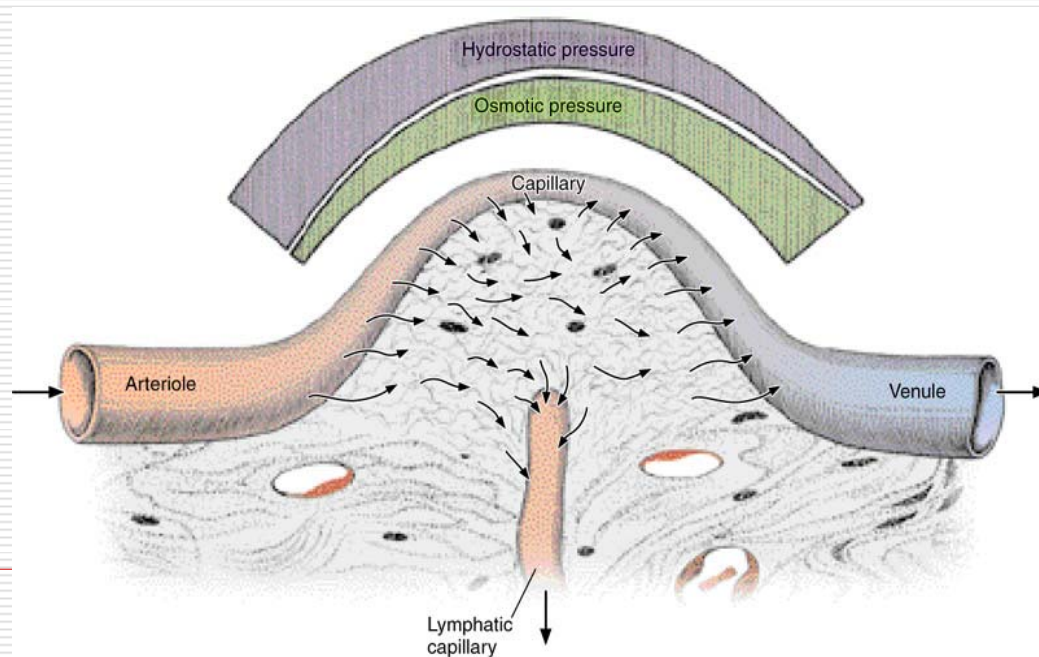
Proteoglycan are composed of a core protein associated with 4 main glycosaminoglycans.



3.2 glycoprotein

fibronectin, laminin and entactin

3.3 tissue fluid

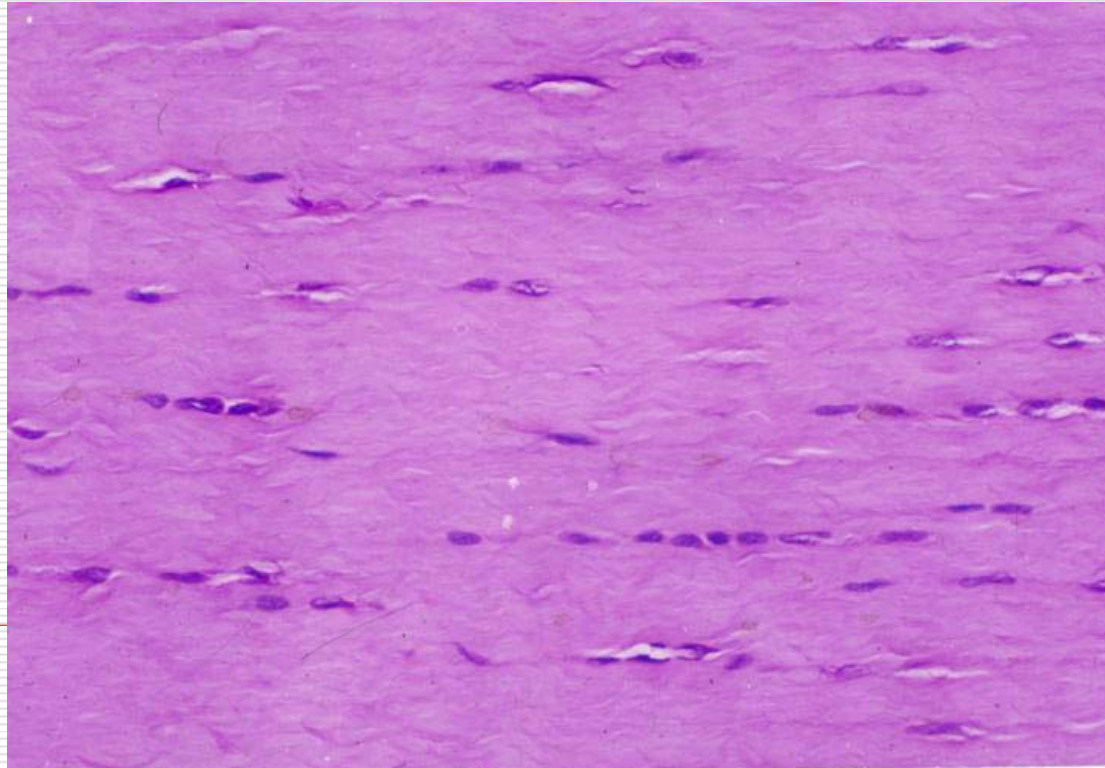


II. Dense connective tissue

1. Dense regular connective tissue

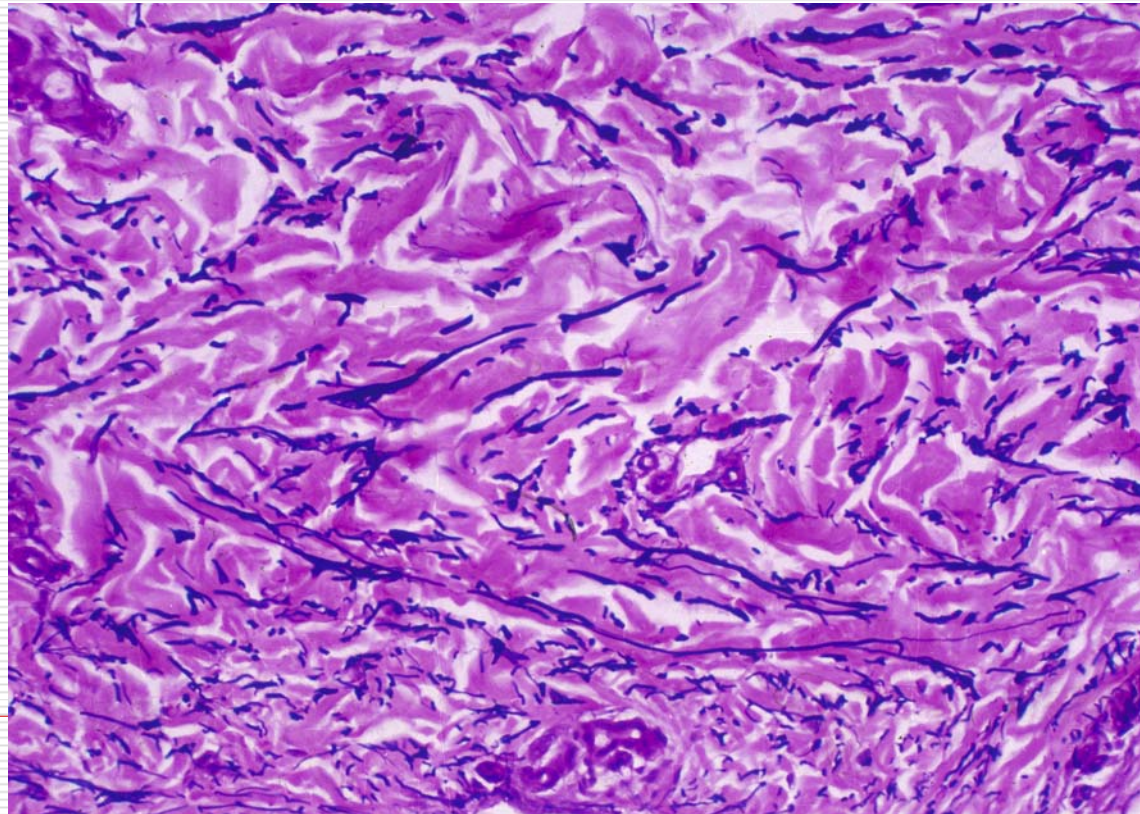
the collagen fibers are parallel to each other.

Fibroblasts are located between fibrous bundles.



2. Dense irregular connective tissue

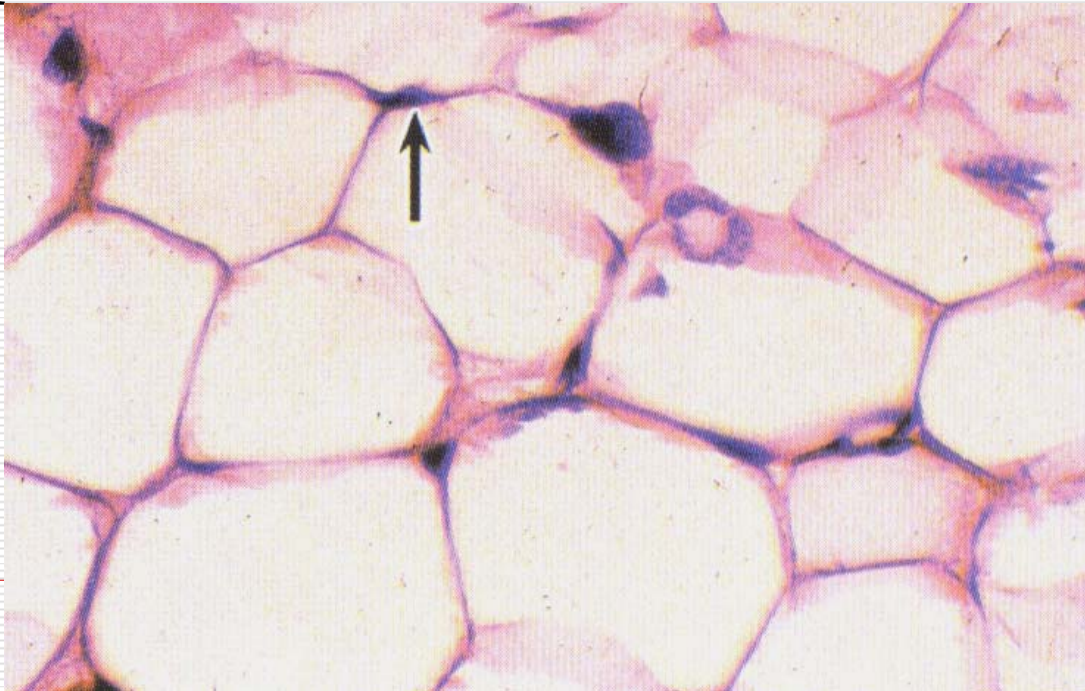
The collagen fibers are arranged in bundles without a definite orientation.



3. Elastic Tissue

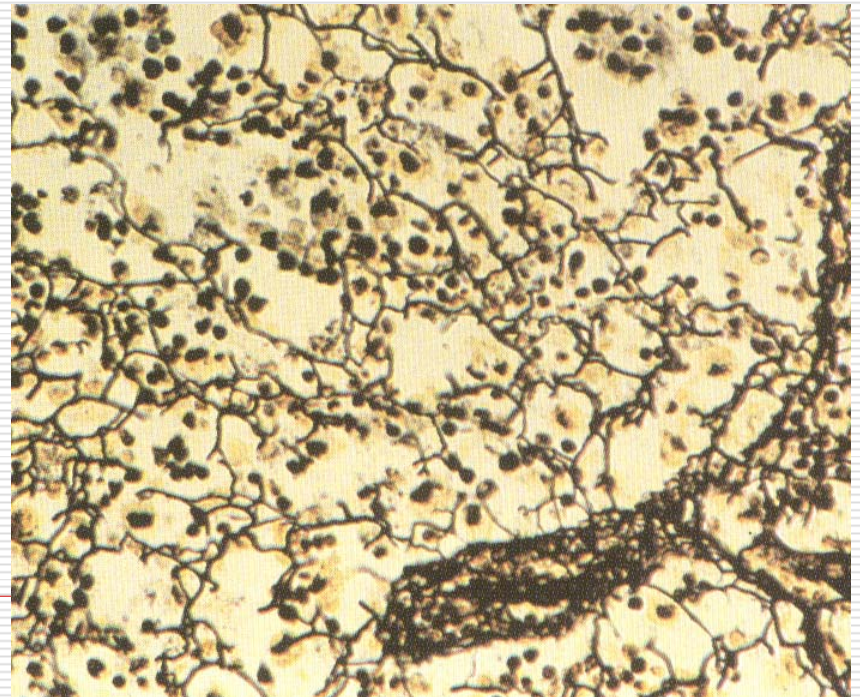
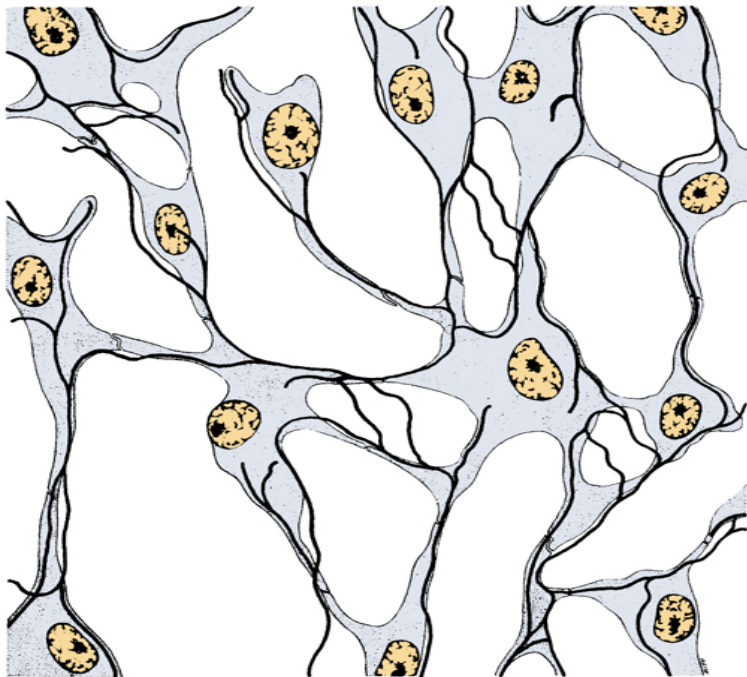
- Elastic tissue is composed of bundles of thick, parallel elastic fibers.

III. Adipose tissue



IV. Reticular tissue

reticular cells
reticular fibres
ground substances.



弹性纤维分子示意图

