MECICO BIOLOGY

Connective Tissue

It is the most numerous tissues in the body, which connects the structures with each other, it characterized by:

- binding and supporting the organs.
- it is vascular except the cartilage.
- it is derived from mesoderm layer.
- Cells are widely separated (large amount of matrix).

Connective tissue is composed of:

- ► Cells
- Extracellular material

The extracellular matrix is composed of:

- fibers (collagen fibers, reticular fibers, elastic fibers)
- ground substance is a highly hydrophilic viscous complex of anionic macromolecules.



Functions of connective tissue

1-Establishing a structural framework and Protecting delicate organs:

2-Transporting fluids and dissolved materials:

3-Storing energy reserves:

4-Defending the body from microorganisms:



Connective tissue component

Cells:

Fibroblasts:





Myofibroblast

wound contraction.



Macrophages





EPITHELIOID CELLS





multinuclear giant cells



Mast cells



Plasma cells:





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Leukocytes:

The white blood cells (lymphocytes, eosinophils, and basophils) are commonly found in connective tissue. They migrate from the blood vessels to the connective tissue, especially to sites of injury or inflammation.

Undifferentiated mesenchymal cells (cells of regeneration):

These cells have ability to give rise any kind of cells, it form fibroblast, osteoblasts, chondrocytes and adipocytes, they are smaller than fibroblast but have the same appearance, so it characterized by small cell body, with few cytoplasmic processes, large round nucleus with a prominent nucleolus.



cells Some in mesenchyme are multipotent stem cells potentially useful in regenerative medicine after grafting to replace damaged tissue in certain patients. Mesenchymelike cells remain present some adult in connective tissues, including that of tooth pulp and some adipose tissue, and are being investigated as possible sources of stem cells for therapeutic repair and organ regeneration.



Thank you