Glandular Epithelia:

• **Cells**:

2 Gland types:

1. **Exocrine Glands**: exo = “outside”
   
   ★ Secrete:
   
   ★ Duct: Narrow passage to:

2. **Endocrine Glands**: endo = “inside”
   
   ★ Secrete contents into surrounding :

**Exocrine Gland Classification**:

A. **Structure of Gland**:

1. **Unicellular Gland Cells**: Secreting cell :
   
   • Mucous / Goblet

2. **Multicellular Glands**: Secreting structures comprised of :

B. **Mode of secretion**:

1. **Merocrine**: meros = “part” ; Krinein = “separate”
   
   • Secretion :
   
   ★ **Cells remain**:
   
   ★ ie: Sweat & Salivary Glands

   • **Significance**:
   
   ★ Continual :
   
   ★ Small secretion :
2. **Apocrine**: $apo =$
   - Secretion:
     - **Cells remain** :
     - ie: Mammary Glands
   - **Significance**:
     - Intermittent :
     - Moderate :

3. **Holocrine**: $holos =$
   - Secretion: Apoptosis:
   - **Glandular function dependant on** :
     - ie: Sebaceous (Oil) Glands
   - **Significance**:
     - Intermittent :
     - Large secretion:

**Connective Tissue (CT):**
- **General Characteristics** :
  - ✔ Most :
  - ✔ Provides :
  - ✔ NEVER :
- **3 Basic Components**
  1. 
  2. **Extracellular Fluid** :
  3. **Extracellular**:
     - Matrix =

**General Functions:**
1. Body's structural framev
2. Transport Fluid:
3. Protection of organs:
4. Support, surround, interconnect tissues:
5. Energy Storage:
6. Body's immunity:

**Identifiable Tissue Features**:

1. **No Cellularity**: No :
2. **No polarity**: No :
3. **Vascular**: Most contain :
4. **Sensory**: 
5. **Majority of tissue is**:
6. **Variable Matrix Consistency**: 
   - Consistency :

**3 General Classifications**:

1. **Connective Tissue Proper**:
   - Composition :
     - Many different :
     - Matrix:
   - 2 Subdivisions :
     A. **Loose Connective Tissue Proper**
        - Matrix :
          > Areolar, Adipose, Reticular
     B. **Dense Connective Tissue Proper**
        - Matrix :
          > Dense Regular, Dense Irregular, Dense Elastic

2. **Fluid Connective Tissue**:
   - Composition :
     - **Specific cell populations**:
     - Matrix:
   - 2 Subdivisions :
     A.
3. **Supporting Connective Tissue**:
   - Composition:
     - **Specific cell population**:
     - **Matrix**:
   - **2 Subdivisions**:
     - A.
     - B.

**Generalized CT Cells Types**:

1. **Fibroblasts**: *fibro* = “fiber”; *blast* = “bud”
   - Most:
   - Secrete Matrix:
     - a.
     - b.
   - **Function**:

2. **Macrophages**: *Macro* = “large”; *phage* = “to eat”
   - Function:
     - **Remove**:;
     - **Help activate**:

3. **Mesenchymal Cells**:
   - **Multipotent**:
     - Can become a variety of:
     - Differentiate in response to:

   Embryo / Fetus:
   Adult:

4. **Adipocyte**: *adip* = “fat”
   - Store:
• Function: “Body’s Packing Material”

☆ Support & protect:

☆ Connective Tissue Matrix:

• **Ground Substance**: Extracellular Fluid

☆

☆ Variable Consistency:

☆ Contains:

• **3 Main Protein fibers**:

1. **Collagen Fiber**: *colla* = “glue”

 ⇝

 ⇝ High **tensile strength**:

Clinical: Ehlers Danlos Syndrome

25% of body’s protein

2. **Elastic Fibers**:

 ⇝ Ropes of:

 ⇝ Very:

☆ Stretch up to:

   Blood vessels, ear, nose

3. **Reticular Fibers**: *rete* = “net”

 ⇝

 ⇝ Scaffolding for:

☆ Interwoven between:

   Lymph nodes, spleen, liver

**Study Questions**:

1. What are the general characteristics of connective tissue. (Compare them to epithelial tissue)
2. What are the 3 components of CT? How does the ground substance differ from the matrix?
3. What are the general functions of connective tissues?
4. What are the identifiable tissue features (compare them to Epithelial tissue)?
5. What are the 3 general classifications of connective tissues?
6. Describe the composition of Connective Tissue Proper? What are the two subdivisions?
7. Describe the composition of Supportive Connective Tissues? What are the two subdivisions?
8. Describe the composition of Fluid Connective Tissues? What are the two subdivisions?
9. What is the difference between ground substance and matrix? What is the difference between ground substance and extracellular fluid?
10. List four connective tissue cells and their generalized functions.
11. Which connective tissue cell is responsible for producing the proteins and proteoglycans of the connective tissue matrix?
12. Which connective tissue cells are involved in immunity?
13. Which connective tissue cell is responsible for energy storage?
14. Which connective tissue cell is capable of becoming a variety of connective tissue cells? (A connective tissue stem cell with multipotency)
15. List the different protein fibers comprising the matrix. Which cells produce this protein? Which protein fibers are most abundant in the body. Which protein fibers form the supportive net for soft organs? Which protein fibers are most resistant to stretching (high tensile strength)?
16. Which protein do you think predominates ligaments (the ropes of connective tissue attaching bones together?)
17. The lungs are composed of a high concentration of elastic fibers. What do you think is the functional significance of the high concentration?
18. In the lecture we briefly outlined Ehlers Danlos Syndrome, What are some of the clinical manifestations of not being able to form collagen fibers correctly?