HISTOLOGY: histio = ; logos =

- **Tissue**: Collaborative group of specialized cells:

- **4 Primary Adult Tissues**:

  1. **Epithelial Tissue**:
     * Protective:
     * 

  2. **Connective Tissue**:
     * 
     * Specialized fluid connective tissues:

  3. **Muscular Tissue**:
     * 

  4. **Nervous Tissue**:
     * 
     * 

**• Primitive (Germ) Embryonic Tissue**

**• Three Embryonic Tissues**: Appears during gastrulation (~day 15)

1. **Ectoderm**: External:
Epithelial Tissue: *Epi* = “above” ; *thel* = “tender”

- **Functions:**
  1. **Cover & line** :
     a. External ;
     b. Internal :

     - *Skin ; Oral cavity, parietal peritoneum*

  2. **Secretion** :
     a. External ;
     b. Internal :

     - *Sweat, mucus, digestive*

- **Tissue Characteristics:**
  1. **Cellularity:**

     - Composed almost **entirely** of:

     - *Little :*

  2. **Polarity:**

     - Tissue has a definite:

     - *Apical Surface*: Exposed to :

     "Free Surface"

     - *Basal Surface*: Attached to :

     "Bound Surface"

  3. **Attachment:**

     - Cells secured to underlying tissue:

     - *Basement Membrane:*

     - 2 part membrane

     - a. **Basal Lamina**: “goo” ; epithelial secreted:

     - b. **Reticular Lamina**: “scaffolding” = *net*: Connective tissue:

  4. **Avascular**: *a* = “without”

     - Blood vessels DO NOT :

     - *Maintain:"
Nutrients supplied from:

Dependant upon:

5. **Arranged into sheets**: “Covering” or “Lining”

- Line of interconnected cells:

6. **Regeneration**: High rate of:
   - Mitotic division of:
   - Cells experience a high degree of:
     - Physical: Skin ~2 wks
     - Chemical: Stomach Lining 2-3 days

- **Functions**:
  1. **Physical Protection**: External & internal:
     a. **Abrasion**:
        - Protect underlying tissue
     b. **Dehydration**:
        - **Tight Junctions**:
          - Water resistant protein:
     c. **Chemical & biological agents**:
        - **Tight Junctions**: Impede entrance of:
  2. **Control Permeability**:
     - **Tight Junctions**: Prevent unregulated:
       - “ALL molecules MUST pass through epithelial tissue to enter or exit the body!!!”
  3. **Provide Sensations**:
     - 1° tissue in contact w/
       - **Highly**
  4. **Produce Secretions**:
     - Produce cellular secretions onto:
       - **Sweat, mucus, enzymes, hormones**

**Epithelial Cell Membrane Specializations**:

1. **Microvilli**:
   - Function:
2. Stereocilia:
   - Functions:
     a. Increase:
     b. Mechanosensing:
        * Bend:

3. Cilia:
   - Function: Movement of:

**Study Questions:**
1. What are the 4 adult primary tissues? What are the 3 embryonic tissue? Which adult primary tissues does each embryonic tissue become?
2. What are the 2 general functions of epithelial tissue?
3. What are the 6 general characteristics of epithelial tissue? (what characteristics would be helpful in identifying a tissue as epithelial?)
4. Which of the following is epithelial tissue: a. The lining of your mouth b. the covering of your eye c. the inside of the sweat ducts d. the inside lining of your intestine e. the inside of the uterus f. the covering of all your organs.
5. What is the functional significance of the Basement Membrane? What are the two components of the basement membrane? What produces each component?
6. Why don’t you bleed when you cut into a callous in your skin? Why do you think that thick-skinned calluses are comprised of dead cells?
7. Why is a high rate of regeneration a characteristic of epithelial tissue? (hint what is one general function which would warrant a high rate of turn over?)
8. What are the structural and functional differences between microvilli, stereovilli, and cilia?
9. Ovulated oocytes (eggs) are pushed down the inside of the fallopian tube to the uterus, which epithelial membrane specialization would you expect to find in the fallopian tube? Explain why.
10. The inside of the kidney tubules are designed to do a moderate level of absorption, which type of epithelial membrane specialization would you expect to find and why?