TISSUE REVIEW

• The following slides are from your text or other sources. This will allow you to study tissues at home.
• You are also responsible for tissue slides that we view with the microscope in class.
• Always study the Histology Atlas available online from the textbook’s website – PAL, or your PAL CD
• know:
  – name of the tissue
  – cells and other structures
  – the function of the tissue
  – where it is found
procedure to identify epithelial tissues

- Does the tissue contact an opening?
- Is it made entirely of cells?
- if it’s epithelial:
  - # layers
  - what is the shape of cells
  - other structures - cilia, microvilli, basement membrane
  - what function matches this structure?
- if it’s not epithelial:
  - see connective tissue procedure
  - muscle, nerve
If it’s all cells, is it epithelial or connective tissue?
simple squamous epithelium
thin, flat cell; only one layer

opening
connective tissue
Simple squamous epithelium

Note: the blood vessel and blood are two different tissues. Even though the lumen of a blood vessel is filled with blood, the cells of the blood vessel are said to be contacting an opening, and thus, are epithelia.
artery wall

simple squamous epithelium

very thin layer of flat cells; contacts the opening

some other tissue
simple squamous

you’re looking at a thin ring of simple squamous cells that make up the wall of an alveolus in the lung.

You see many, flat nuclei
lung alveoli : simple squamous
simple cuboidal

basement membrane

connective tissue
Simple cuboidal epithelium (kidney tubules)

this is a longitudinal cut through the tubule
Stratified cuboidal epithelium gland
(gland ducts)

Basal cell
Apical cell
Nuclei
Lumen of duct
Stratified cuboidal epithelium
Glands are long, coiled openings lined with cuboidal cells.

So, when we slice through the tissue, we get many circular arrangements of cuboidal cells.
many circular arrangements of simple cuboidal cells around a duct –

Think gland or kidney
simple columnar epithelium
basement membrane
nucleus
areolar c.t.
pseudostratified columnar ciliated epithelium (trachea)

cilia

goblet cell

connective tissue

*note: if it’s pseudostratified – those are not microvilli*
Pseudostratified epithelium (trachea)
What type of tissue is this? Where is it found?
Simple columnar epithelium
(small intestine)

- Nucleus of columnar cell
- Columnar cell
- Simple columnar epithelium
- Goblet cell
- Microvilli
- Areolar c.t.
(e) Stratified squamous epithelium

Description: Thick membrane composed of several cell layers; basal cells are cuboidal or columnar and metabolically active; surface cells are flattened (squamous); in the keratinized type, the surface cells are full of keratin and dead; basal cells are active in mitosis and produce the cells of the more superficial layers.

Function: Protects underlying tissues in areas subjected to abrasion.

Location: Nonkeratinized type forms the moist linings of the esophagus, mouth, and vagina; keratinized variety forms the epidermis of the skin, a dry membrane.

Photomicrograph: Stratified squamous epithelium lining of the esophagus (300x).
Stratified squamous epithelium, nonkeratinized (esophagus)
transitional epithelium - mostly cuboidal shaped cells

where is it found?
Transitional epithelium

Nuclei