

EPITHELIAL TISSUES LAB

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David B. Fankhauser, Ph.D.

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http://Biology.clc.uc.edu/Fankhauser/Labs/Anatomy_&_Physiology/A&P201/Epithelium/Epithelial_Tissues.htm

First review and follow carefully the rules and regulations for microscope use. Also, be familiar with guidelines in *Notebook Illustrations* for these drawings.

We will start by viewing organs in the dissected cat to familiarize ourselves with the location and function of the following tissues. Then we employ the microscope.

Examine each of the following slides, note the features in common and those which are differentiating. Illustrate each at 400x to take up most of a page. Include and label each listed feature, and give a brief description of its function or significance. Compare with the plates in Eroschenko's *Atlas of Normal Human Histology*, 9th Ed (VE).

1. (slide 2) **Simple squamous epithelium**, (VE:11): top view of peritoneum, a serous membrane (an example of mesothelium, derived from mesoderm). It functions where where slick friction-free surface is required, or ready exchange across membranes is essential: lung alveoli, capillary endothelium, kidney glomerulus.
 - cell borders
 - nucleus and nucleolus
 - cytoplasm
 - tiled appearance (its heterogeneity is due to variations in sample preparation)
2. (slide 3) **Simple cuboid epithelium**, (VE:257) section of kidney. In the cortex (outer portion) of the section, view the proximal convoluted tubules with brush borders.
 - basement membrane
 - lumen
 - brush border (only on proximal convoluted tubules)
 - nuclei
 - proximal convoluted tubule
3. (slide 4) **Simple columnar epithelium**, (VE:13) c.s. of the intestine of a *Nectarus* (a newt). (Note the classic four functional layers of a GI wall, inside to outside: mucosa, submucosa, muscularis, and serosa).
 - basement membrane
 - brush border
 - nuclei
 - goblet cells
 - lamina propria (connective tissue which underlies mucous membrane)
 - capillaries in lamina propria (lacking in epithelium)
4. (slide 5) **Stratified squamous epithelium**, (VE:17) dog esophagus. This tissue is especially resistant to friction. Note the mucous alveoli of the esophageal glands.
 - basement membrane
 - basal cells (brownish cells along basement membrane where mitosis occurs)
 - squamous cells being shed (superficially, include nucleated surface cells)
 - lamina propria
5. (slide 6) **Pseudostratified ciliated columnar epithelium**, c.s. of trachea, (try slide 11 if the detail is poor) (VE:15) This tissue is especially prominent in the respiratory tree.
 - basement membrane
 - numerous nuclei in deeper half of the tissue
 - goblet cells
 - cilia (contrast with brush border for appearance & function)
 - lamina propria