



Lecture title: Digestive system

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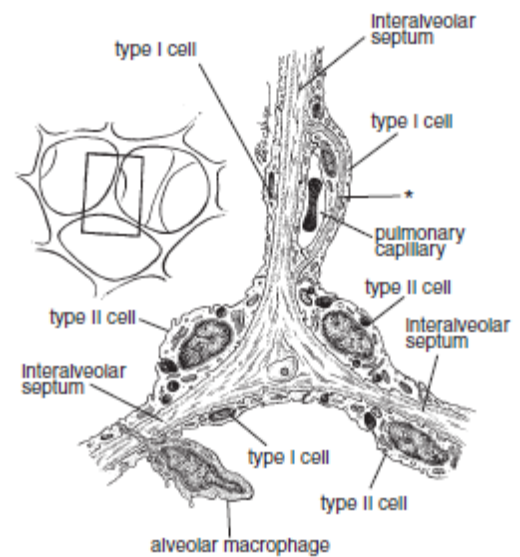
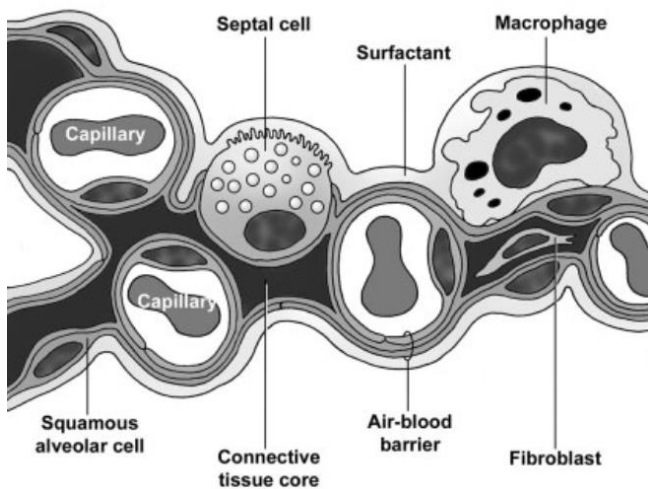
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The blood-air barrier ➤ The air-blood barrier separates air from blood. Oxygen and carbon dioxide must cross this barrier during gas exchange. consists of the surface-lining layer of pulmonary surfactant and fluid, the alveolar type I cell, fused basal laminae of the alveolar epithelial cell and the underlying capillary endothelial cell, the capillary endothelial cell, and the plasmalemma of a red blood cell . At its thickest, this barrier consists of the above-mentioned layers and interstitial connective tissue and cells between the basal laminae of epithelial and endothelial cells.

➤ Composition

- 1- Squamous alveolar cell(cytoplasmic processes)
- 2- with its basement membrane
- 3- Capillary endothelial cell
- 4- with its basement membrane
- 5-connective tissue.



Schematic illustration of parts of three adjacent alveoli, as outlined in the rectangle (inset): type I alveolar epithelial cell; type II alveolar epithelial cell; interalveolar septum; pulmonary capillary; alveolar macrophage. Note the merger of the basal laminae of the pulmonary capillary and adjacent alveolus (*)



Pulmonary surfactant

- _ Is an extracellular fluid coating alveolar surfaces
- _ Lowers alveolar surface tension, aiding in inflation of alveoli during inspiration, and preventing collapse of alveoli during expiration.
- _ Is composed of a monomolecular, phospholipid surface film that covers an underlying aqueous hypophase.
- _ Appears during the last weeks of gestation. Absence or insufficiency of surfactant may result in respiratory distress syndrome or hyaline membrane disease in infants born prematurely.
- _ *Alveolar* or *Kohn's pores*. Small openings in the interalveolar septa between neighboring alveoli that aid in equalizing interalveolar pressure.

These pores can contribute to the spread of bacteria in the lung.

Pleura

- The *pleura* is a serous membrane (serosa) covering the lungs.
- Composition
 - _ Simple squamous epithelium (mesothelium)



- _ Underlying connective tissue layer with elastic fibers
 - Produces a fluid film that lubricates the surface of the lungs and provides surface tension for lung expansion.