Introduction to Histology: Respiratory System answer sheet

Observations

Take a picture and insert it in the appropriate section below

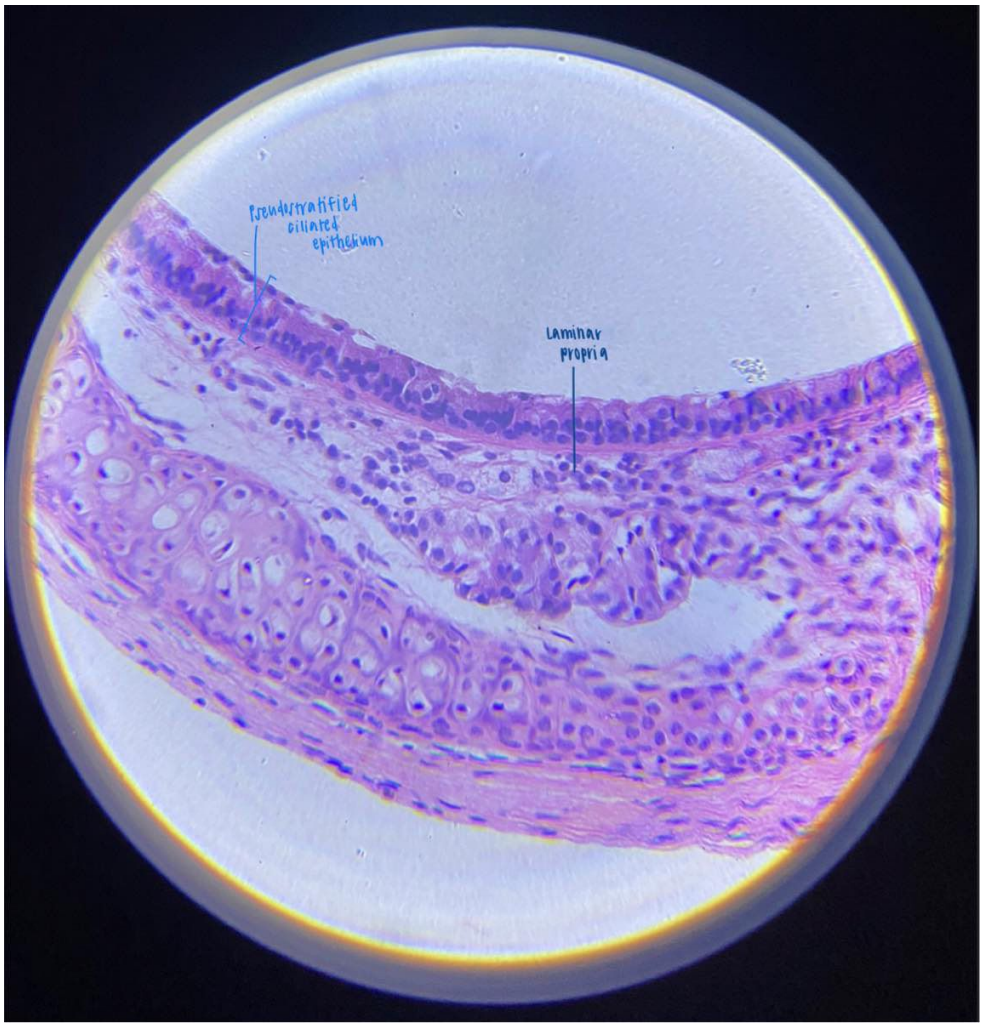
Trachea mucosa and submucosa

(and if possible, tracheal gland).

Magnification used 10x

Magnification used: 40x

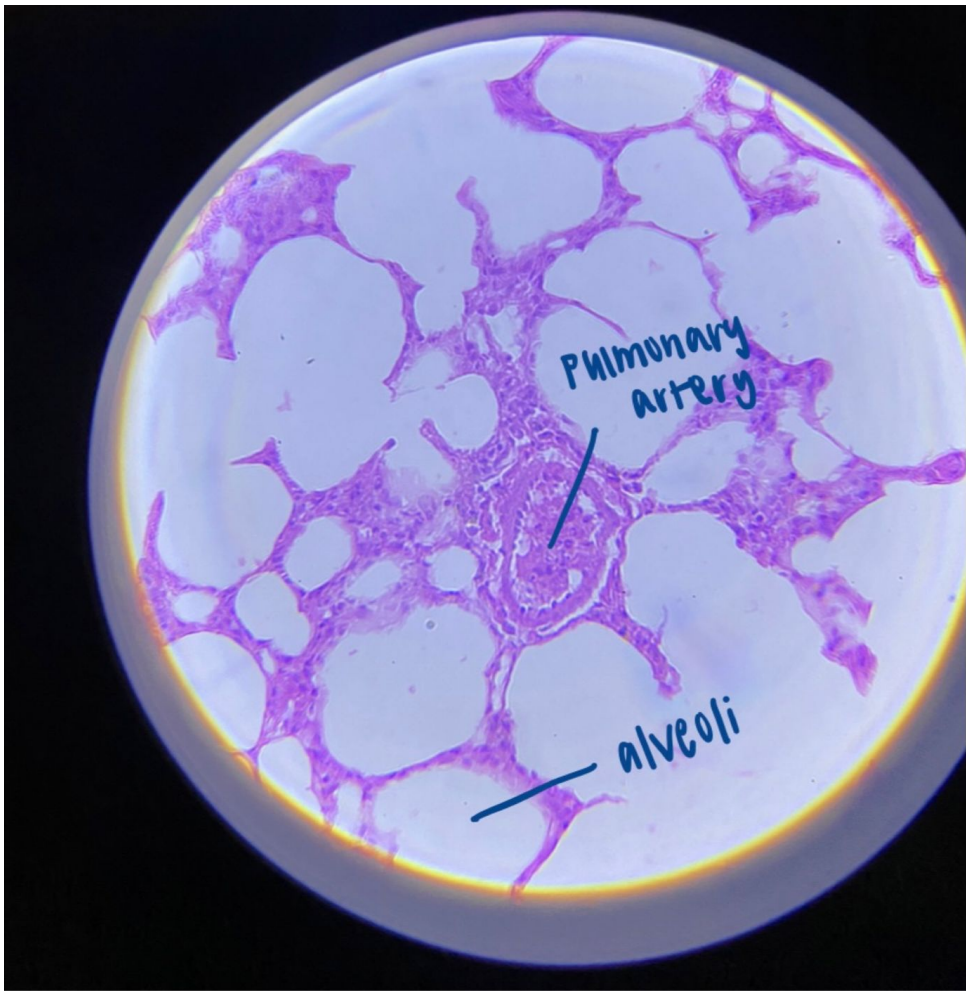
Trachea pseudostratified ciliated epithelium and the lamina propria



Magnification used 4x

Lung

Magnification used



Data table

Tissue type	Best magnification	Provide at least 2 unique identifying features of this tissue type	Describe how these tissues appear under the microscope
Mucosa	10x	- pseudostratified cells - contains laminar propria	-the cells are more compact and the dye is a lot darker
Submucosa	4x or 10x	- sits below the mucosa layer - cells are more circular and even shaped	looks bubbly compared to the rest of the structures
Pseudostratified ciliated epithelium	10x or 40x	- elongated looking cells - dark nuclei towards the bottom	very dark compact looking cells lining the inside of the trachea
Lamina propria	40x	- directly below the mucosa - loose connective tissue	the cells are smaller and more compact; looks similar to submucosa
Bronchiole	4x	- simple cuboidal cells - non-ciliated	looks like small holes that are surrounded by a darker lining

Alveoli	**10x**	- **small sacs** - **epithelial tissue surrounds sacs**	**looks like small bubbles; most of th ewhite circular parts of the tissue**
Pulmonary artery	**40x**	- **surrounded by smooth muscle** - **very large circular shape**	**very pink inner core with cells surrounding it like rings**

Questions

1. How does the pseudo-stratified ciliated epithelium look and where can we find this?

This layer contains very irregular elongated cell shapes. It contains a dark nucleus that sits toward the bottom. At the very top of all the cells, there is a thin layer of cilia. Under the microscope, this layer appears darker, more purple, than the rest of the structures. We can find this layer in
the mucosa. Also known as the inner lining of the trachea.

2. In which layer can you find the tracheal gland in a slide? What is the purpose of the tracheal gland?

The tracheal gland was a lot harder. What I did to try and find the tracheal gland was to look for a bubble or a small opening in laminar propria layer. The function of tracheal glands is to secrete mucus. This helps with movement of particles through the trachea and the rest of the body.

3. Bronchioles are smaller branches of the bronchi. How do the bronchioles differ from the bronchi? Can you identify this difference on the lung slide?

Bronchi are the air passage to the bronchioles. Bronchioles are the air passage to the lungs. Bronchi are surrounded by cartilage and bronchioles are surrounded by smooth muscle. The bronchi is a lot larger on the slides than the bronchioles. Bronchi seems to have a more rigid lining than the bronchioles.

4. Where can non-ciliated cuboidal cells be found? Why would cells of this type be found in this structure, rather than ciliated cells?

Non-ciliated cuboidal cells are found in the bronchioles. The smaller bronchioles have non-ciliated cells because it is in charge of getting hair into the lungs. It does not require any mucus or aid to do that. Also, mucus is used to help aid in particles moving from one point to another, and for the bronchioles, it does not need to bring in foreign particles into the lungs.

5. What is the main tissue type present in the submucosa? Why is this important? Connective tissue is the main tissue type present in the submucosa. It is important because it supports the submucosa layer. It gives the mucosa layer the flexibility to move during muscle contraction and relaxation.