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Respiratory passages, Cells & functions

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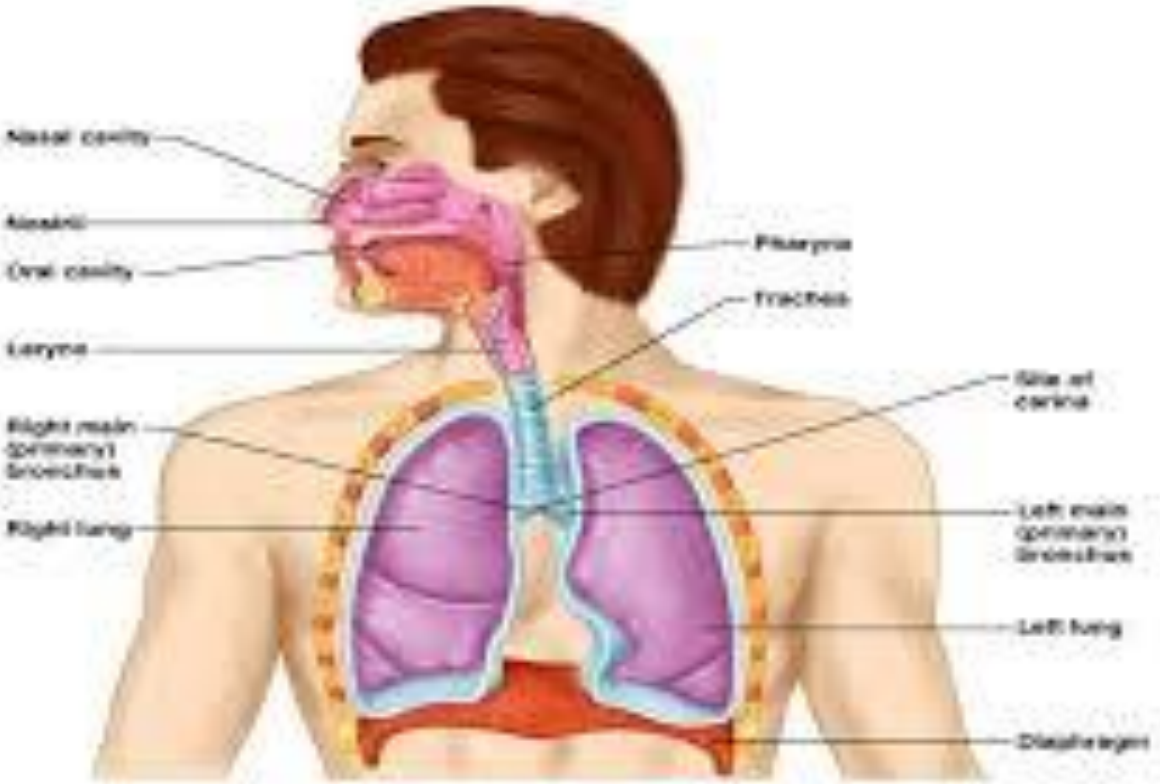
Introduction

- The respiratory tract is subdivided into the upper respiratory tract, which consists of the nose, nasal passages, sinuses, pharynx, and larynx (voice box), and the lower respiratory tract, which consists of the trachea (windpipe), bronchi (singular: bronchus), and lungs

The Respiratory System

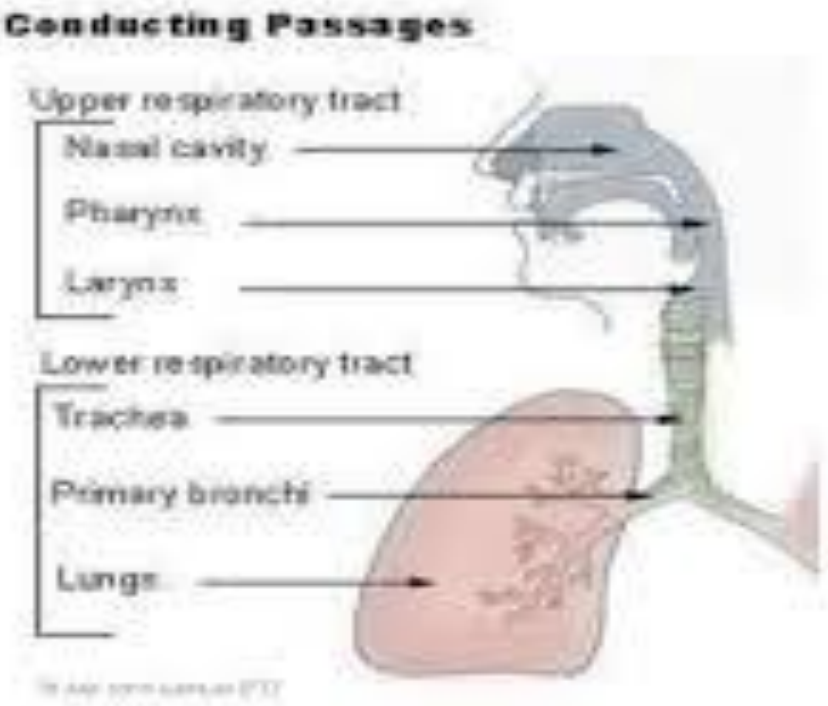


Divisions of the respiratory system

- The respiratory system consists of two divisions with distinct structural elements that reflect their unique functions. These include: The conducting airways, which serve to conduct, clean, warm, and moisten the air. This portion is composed of the nose, pharynx, larynx, trachea, bronchi, and bronchioles.

Respiratory passages

- Nasal cavity
- Pharynx
- Larynx
- Trachea
- Bronchi
- bronchioles



Correct order of structures in the respiratory passageway

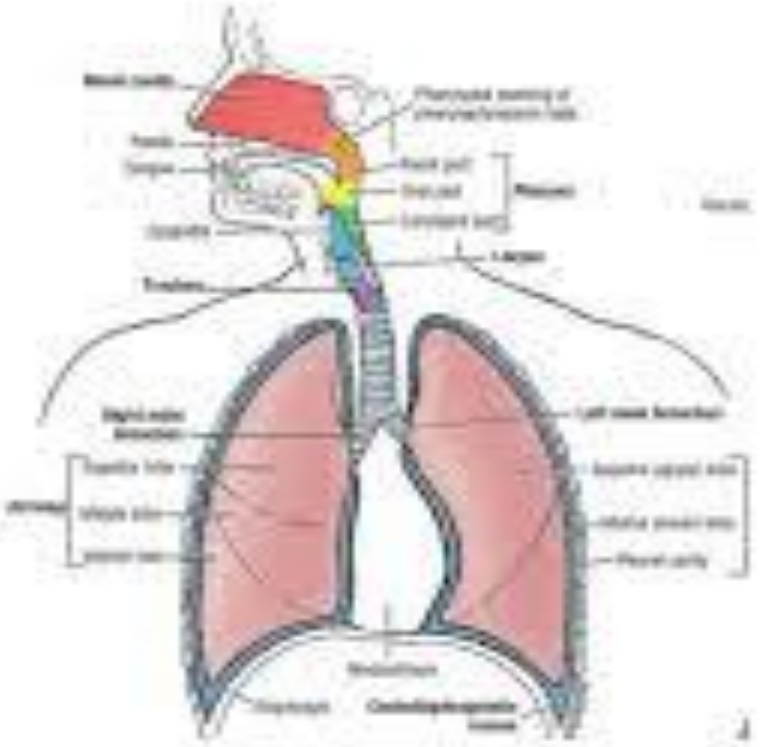
- Assuming air comes in through the nose, the correct order is:
- Nasal cavity. ...
- Pharynx (throat). ...
- Larynx (voice box). ...
- Trachea (wind pipe). ...
- Bronchi. ...
- Alveolar ducts. ...
- Alveoli.

10 parts of the respiratory system

- Anatomy of the Respiratory System
- Nose and Nasal Cavity. The nose and nasal cavity form the main external opening for the respiratory system and are the first section of the body's airway—the respiratory tract through which air moves. ...
- Mouth. ...
- Pharynx. ...
- Larynx. ...
- Trachea. ...
- Bronchi and Bronchioles. ...
- Lungs. ...
- Muscles of Respiration.

DEVELOPMENT OF RESPIRATORY SYSTEM

- Introduction
- RS has differents parts like nose, nasopharynx & oropharynx, larynx, trachea, bronchi &lungs).
- Here we will discuss from larynx to lungs.
- RS develops from **Respiratory diverticulum (LUNG BUD)**,which appears as an outgrowth from the ventral wall of the primitive foregut,at 4th week of intrauterine life.



Difference between the conducting division and the respiratory division

- The respiratory zone includes the respiratory bronchioles and the alveoli. ... While the conducting zone moves air into and out of the lungs, the respiratory zone moves oxygen and carbon dioxide in and out of the blood. This process is referred to as respiration or gas exchange.

Air passages lined with

- The major passages and structures of the upper respiratory tract include the nose or nostrils, nasal cavity, mouth, throat (pharynx), and voice box (larynx). The respiratory system is lined with a mucous membrane that secretes mucus. The mucus traps smaller particles like pollen or smoke.

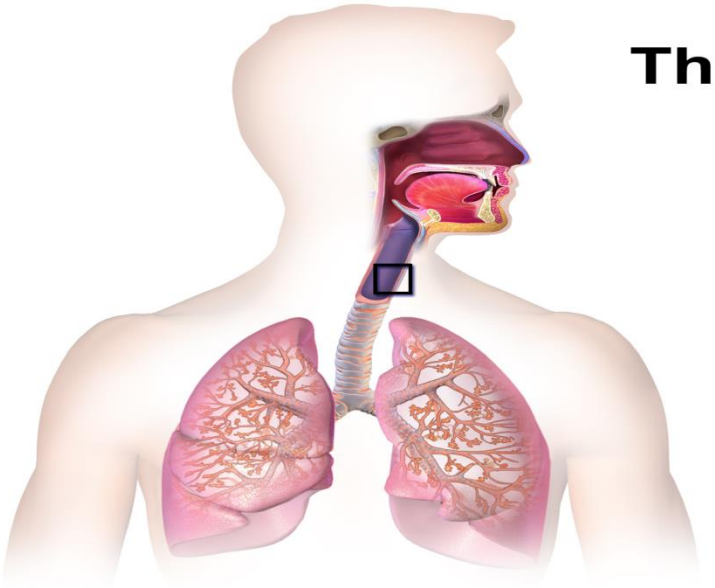
Respiratory passages lined with ciliated epithelium

- The epithelium provides physical barrier to infection, lining the respiratory tract from the nose to the alveoli with a wide range of cell types. Ciliated epithelial cells are important in propelling mucus up the airway, thereby removing particulate material.

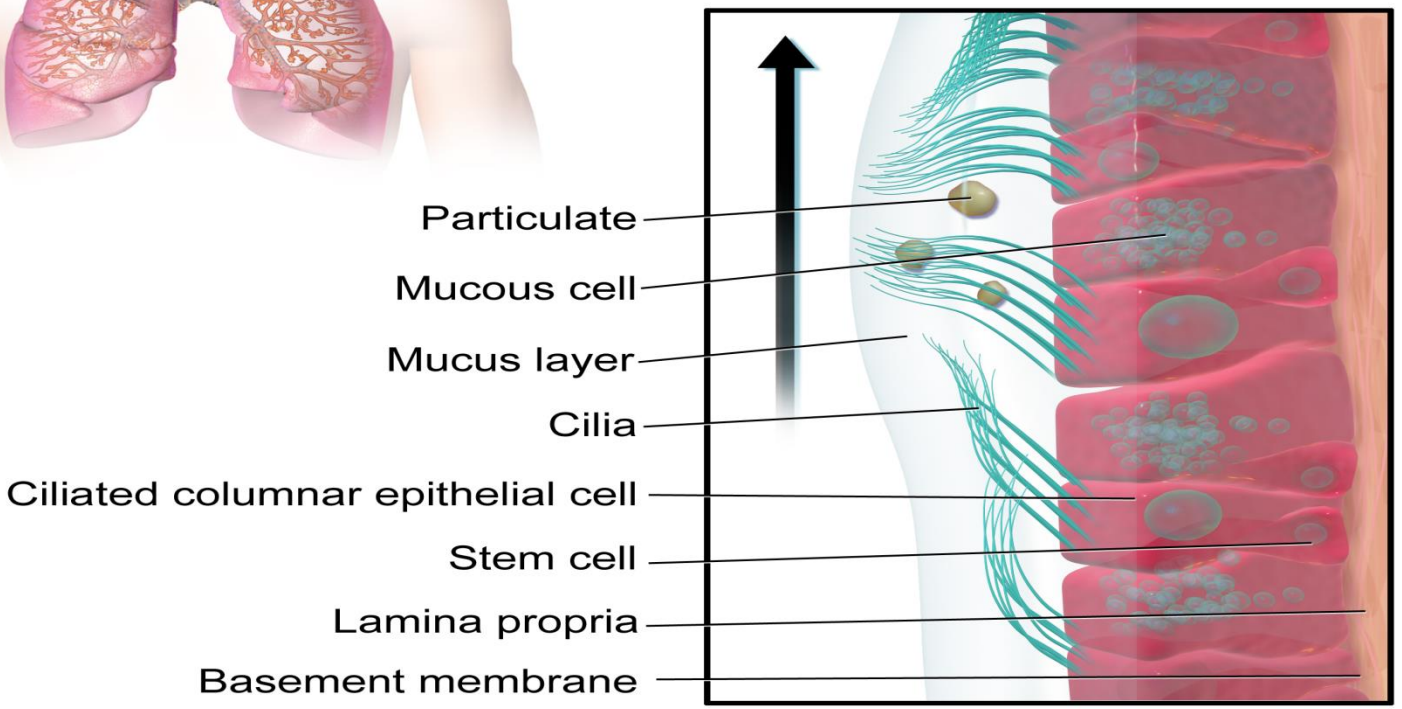
Respiratory epithelium

- Basal cells labelled as stem cells. Respiratory epithelium, or airway epithelium, is a type of ciliated columnar epithelium found lining most of the respiratory tract as respiratory mucosa, where it serves to moisten and protect the airways.

The Respiratory Epithelium



Movement of mucus to the pharynx



Cells line the lungs

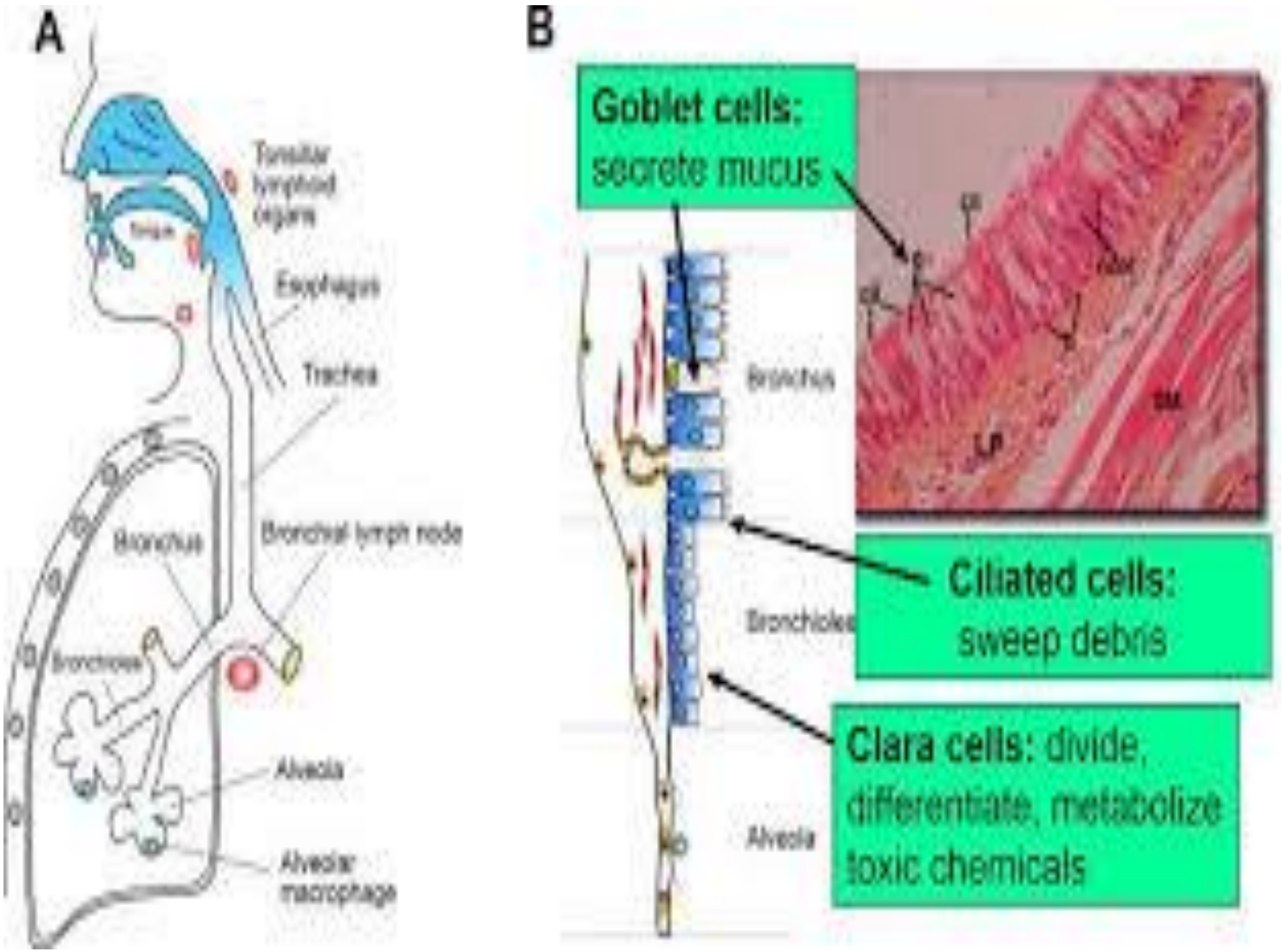
- Most of the respiratory passageways, from the nasal cavity through the bronchi, are lined by ciliated, pseudostratified columnar epithelium with goblet cells. Bronchioles are lined by simple cuboidal epithelium. (Lung alveoli, in contrast, are lined by very thin simple squamous epithelium.)

Types of cells

- The respiratory epithelium in trachea and bronchi is pseudostratified and primarily consists of three main cell types – cilia cells, goblet cells, and basal cells. The ciliated cells are located across the apical surface and facilitate the movement of mucus across the airway tract.

lung cells have cilia

- In the lung, cilia are tiny hair-like structures that move mucus and debris up the respiratory escalator. ... To be effective in transporting secretions out of the lung, the mucociliary transport apparatus must exhibit a cohesive beating of all ciliated epithelial cells that line the upper and lower respiratory tract.


A
Tonsillar lymphoid organs
Nasal cavity
Esophagus
Trachea
Bronchus
Bronchial lymph node
Bronchioles
Alveolus
Alveolar macrophage
B
Goblet cells: secrete mucus
Bronchus
Bronchiole
Alveolus
Ciliated cells: sweep debris
Clara cells: divide, differentiate, metabolize toxic chemicals

Function of ciliated cells in the respiratory system

- 'Motile' (or moving) cilia are found in the lungs, respiratory tract and middle ear. These cilia have a rhythmic waving or beating motion. They work, for instance, to keep the airways clear of mucus and dirt, allowing us to breathe easily and without irritation.

Ciliated cells protect the lungs

- The bronchus in the lungs are lined with hair-like projections called cilia that move microbes and debris up and out of the airways. Scattered throughout the cilia are goblet cells that secrete mucus which helps protect the lining of the bronchus and trap microorganisms.

Hair in the nasal cavity protect the respiratory system

- Tiny hairs called cilia (SIL-ee-uh) protect the nasal passageways and other parts of the respiratory tract, filtering out dust and other particles that enter the nose through the breathed air. ... The trachea, or windpipe, is the continuation of the airway below the larynx.

To clear the lungs

- Steam therapy. Steam therapy, or steam inhalation, involves inhaling water vapor to open the airways and help the lungs drain mucus. ...
- Controlled coughing. ...
- Drain mucus from the lungs. ...
- Exercise. ...
- Green tea. ...
- Anti-inflammatory foods. ...
- Chest percussion.

THANK YOU