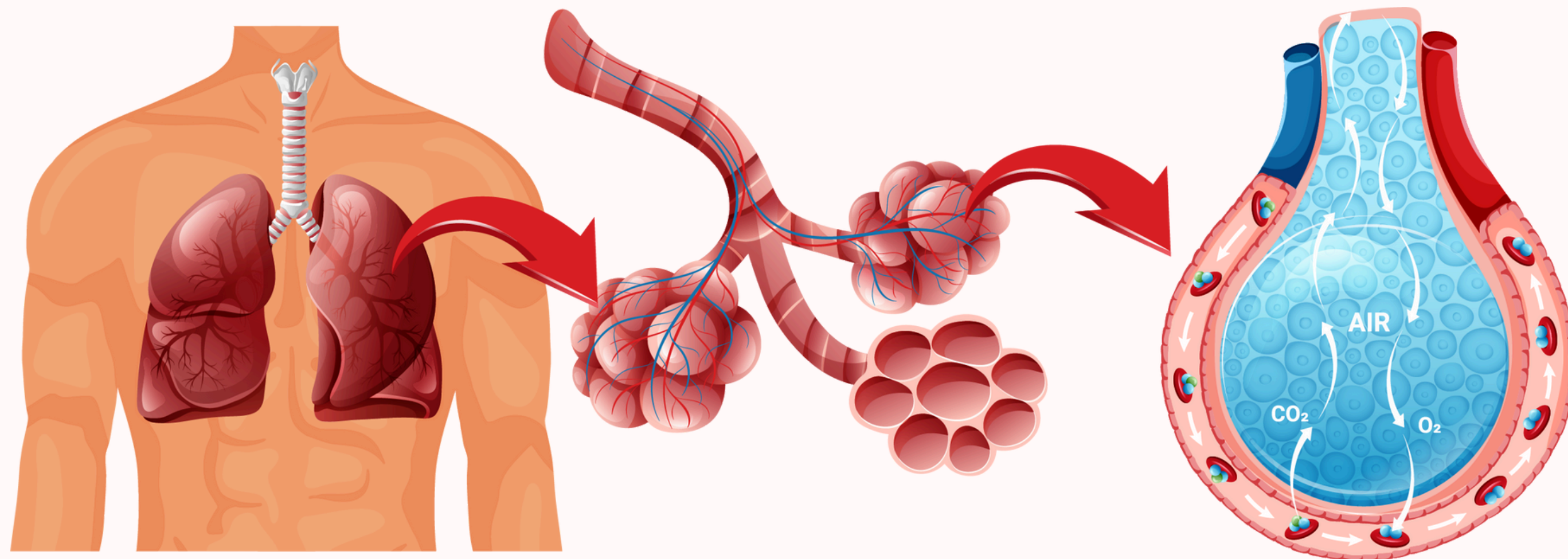


THE MAJOR COMPONENTS OF THE RESPIRATORY SYSTEM

The respiratory system is vital for sustaining human life by enabling the exchange of gases between the body and the surroundings. This process ensures that oxygen reaches the cells for cellular respiration and that carbon dioxide, a metabolic waste product, is eliminated from the body.



FUNCTIONS OF THE RESPIRATORY SYSTEM

Gas Exchange: The primary function of the respiratory system is to facilitate the exchange of oxygen and carbon dioxide between the body and the environment. This occurs in the alveoli of the lungs.

Regulation of Blood pH: The respiratory system helps maintain the acid-base balance of the blood by regulating the levels of carbon dioxide, which influences the pH of the blood.

Protection: The respiratory system has several mechanisms to protect the body from harmful substances. The nasal cavity filters large particles, while mucus and cilia trap smaller particles and pathogens. The cough reflex helps expel irritants from the respiratory tract.

Voice Production: The larynx contains the vocal cords, which vibrate to produce sound when air passes through them. This allows for speech and other vocalizations.

Olfaction (Sense of Smell): The nasal cavity contains olfactory receptors that detect airborne chemicals, allowing us to perceive smells.

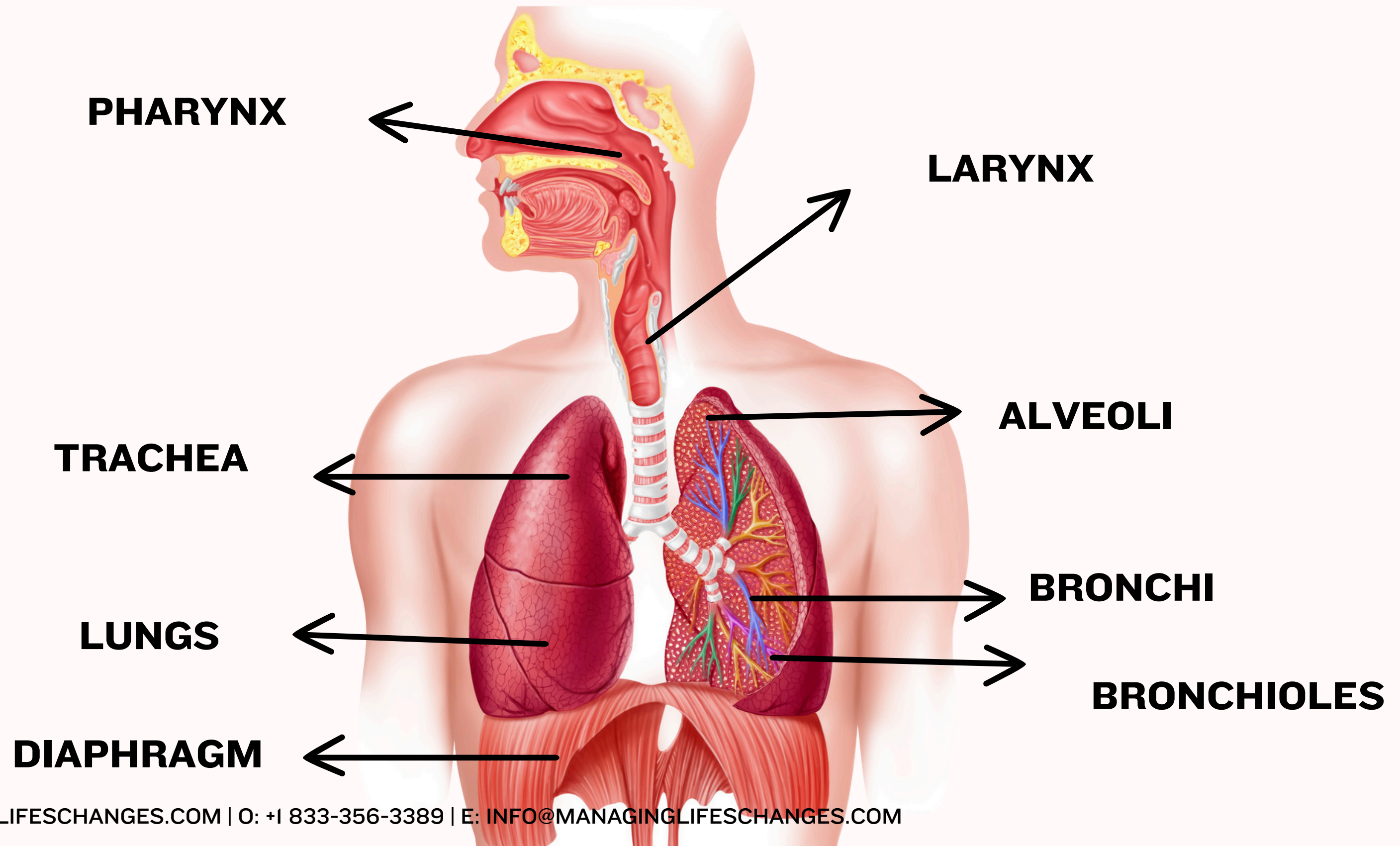


NOSE AND NASAL CAVITY

The nose serves as the main air entry point, filtering, warming, and humidifying the air. Within the nasal cavity, mucous membranes and cilia work together to capture dust, microbes, and other particles.



RESPIRATORY SYSTEM DIAGRAM



PHARYNX

The pharynx is a muscular tube that serves as a passageway for both air and food. It connects the nasal cavity to the larynx and esophagus.

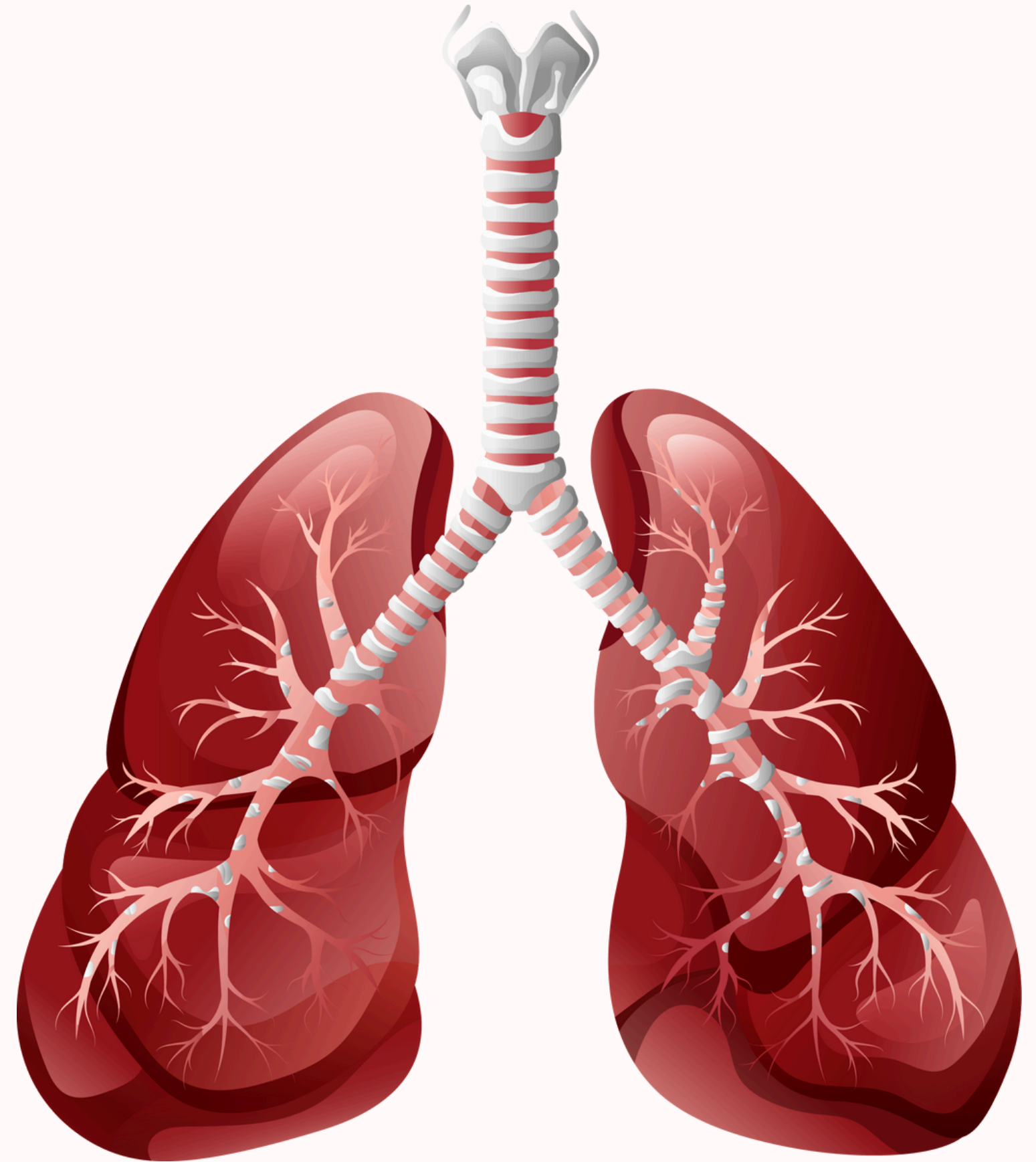
LARYNX

The larynx is located below the pharynx and is responsible for voice production. It also acts as a passageway for air, preventing food and drink from entering the trachea during swallowing.



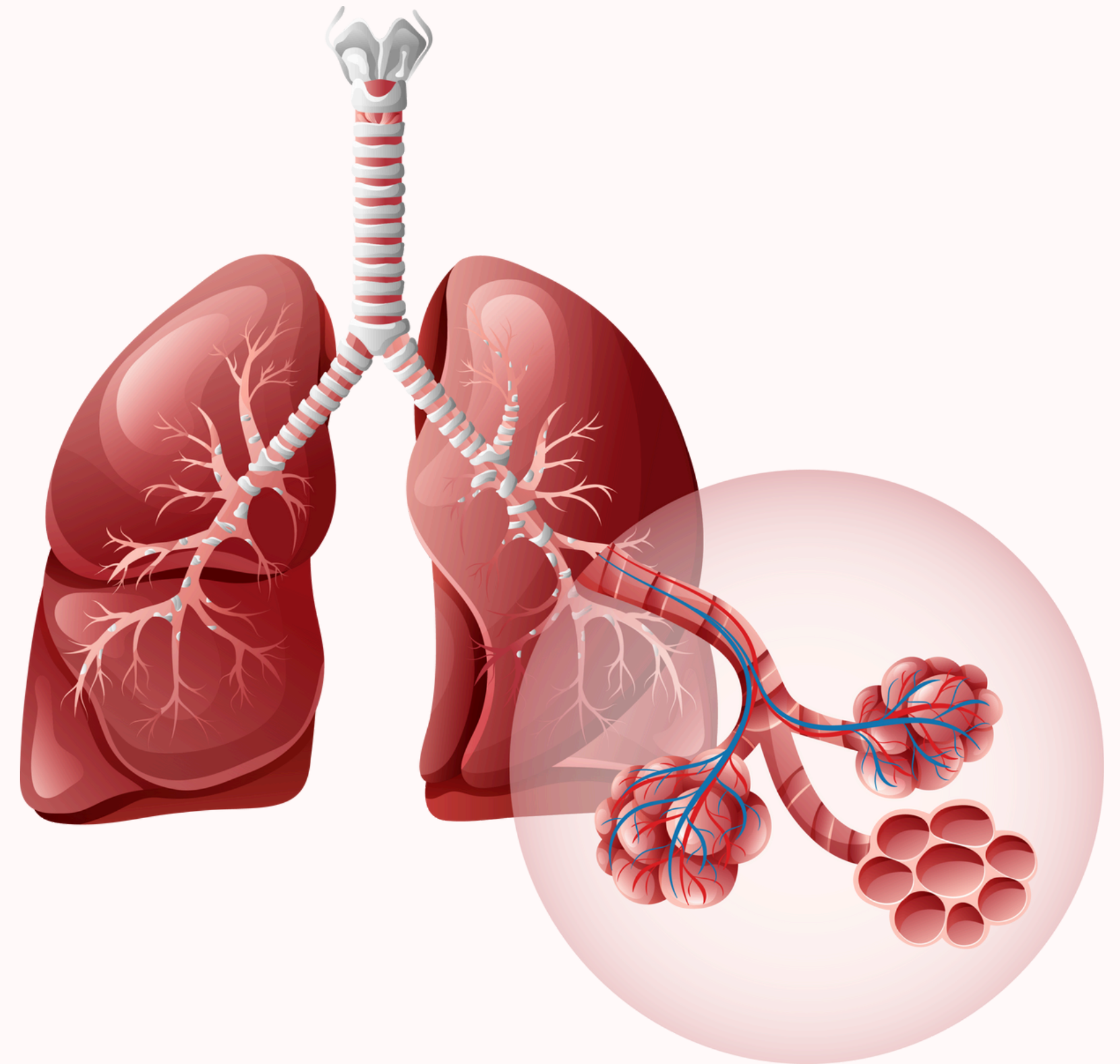
TRACHEA

The trachea is a tubular structure that connects the larynx to the bronchi. It is supported by C-shaped cartilaginous rings that keep the airway open.



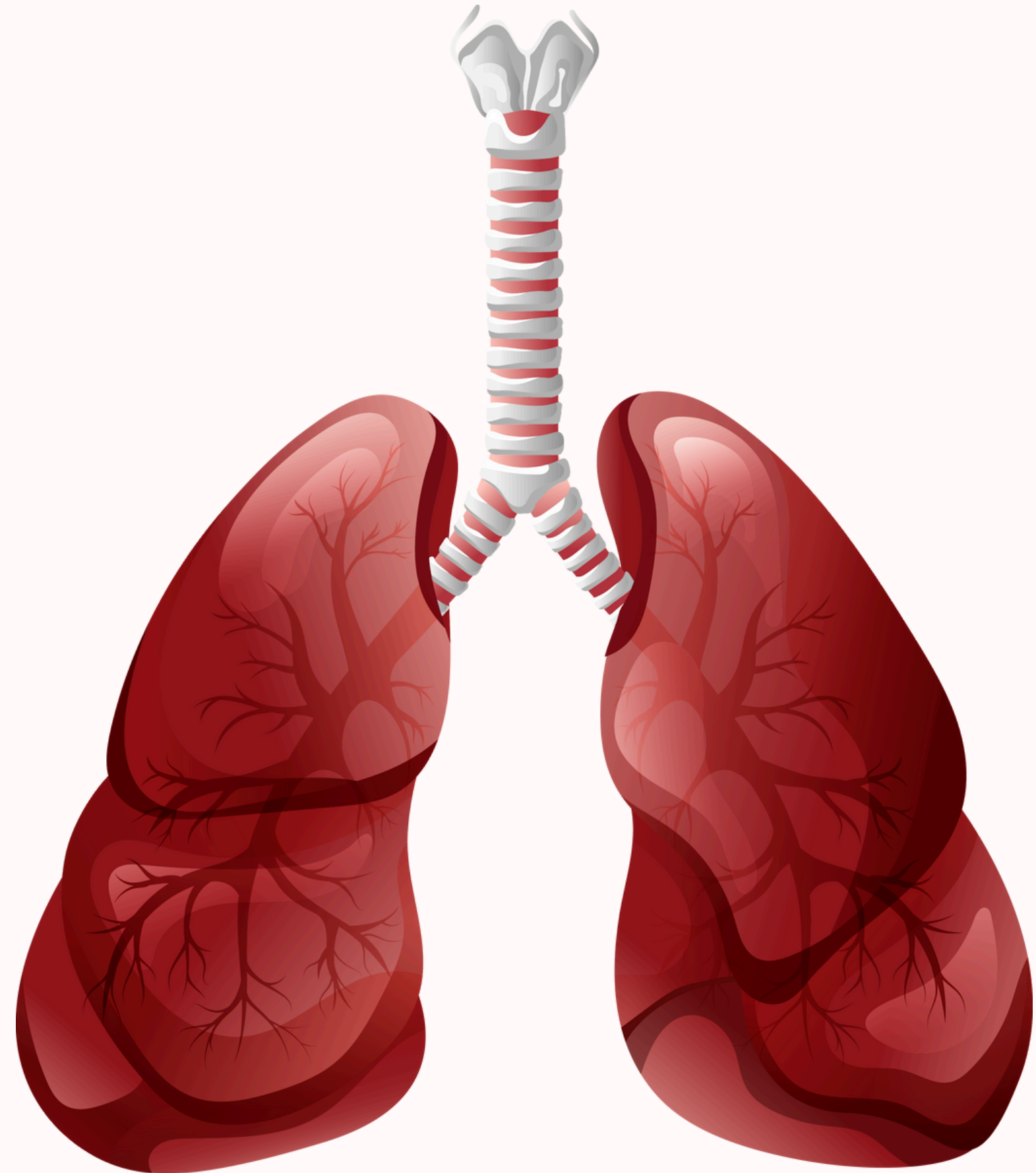
BRONCHI AND BRONCHIOLES

The trachea divides into two main bronchi (left and right), each leading to a lung. The bronchi further subdivide into smaller bronchioles within the lungs, forming a tree-like structure that ensures air is distributed throughout the lungs.



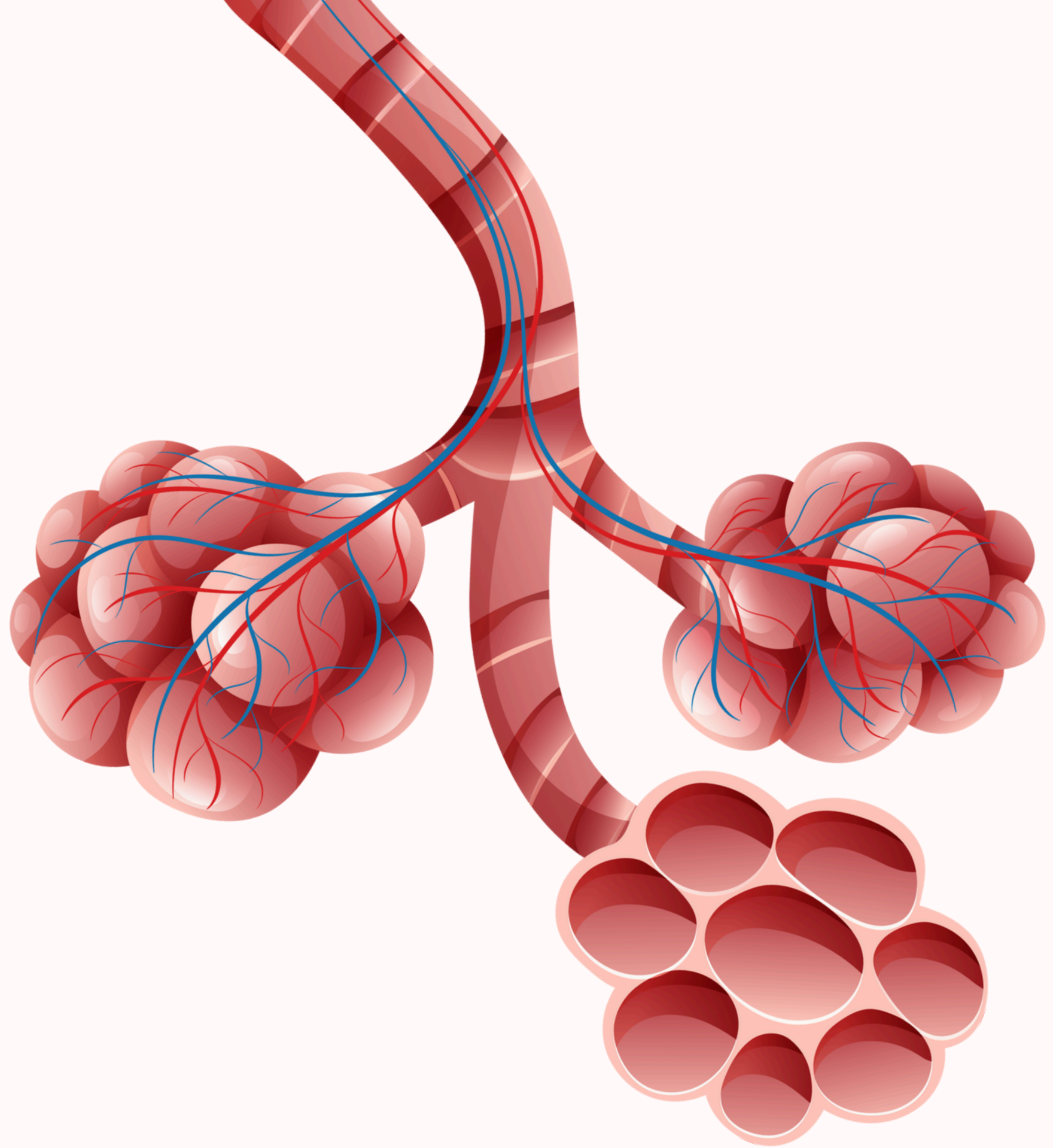
LUNGS

The lungs are a pair of spongy organs responsible for gas exchange. They contain millions of tiny air sacs called alveoli, where oxygen and carbon dioxide are exchanged with the blood.



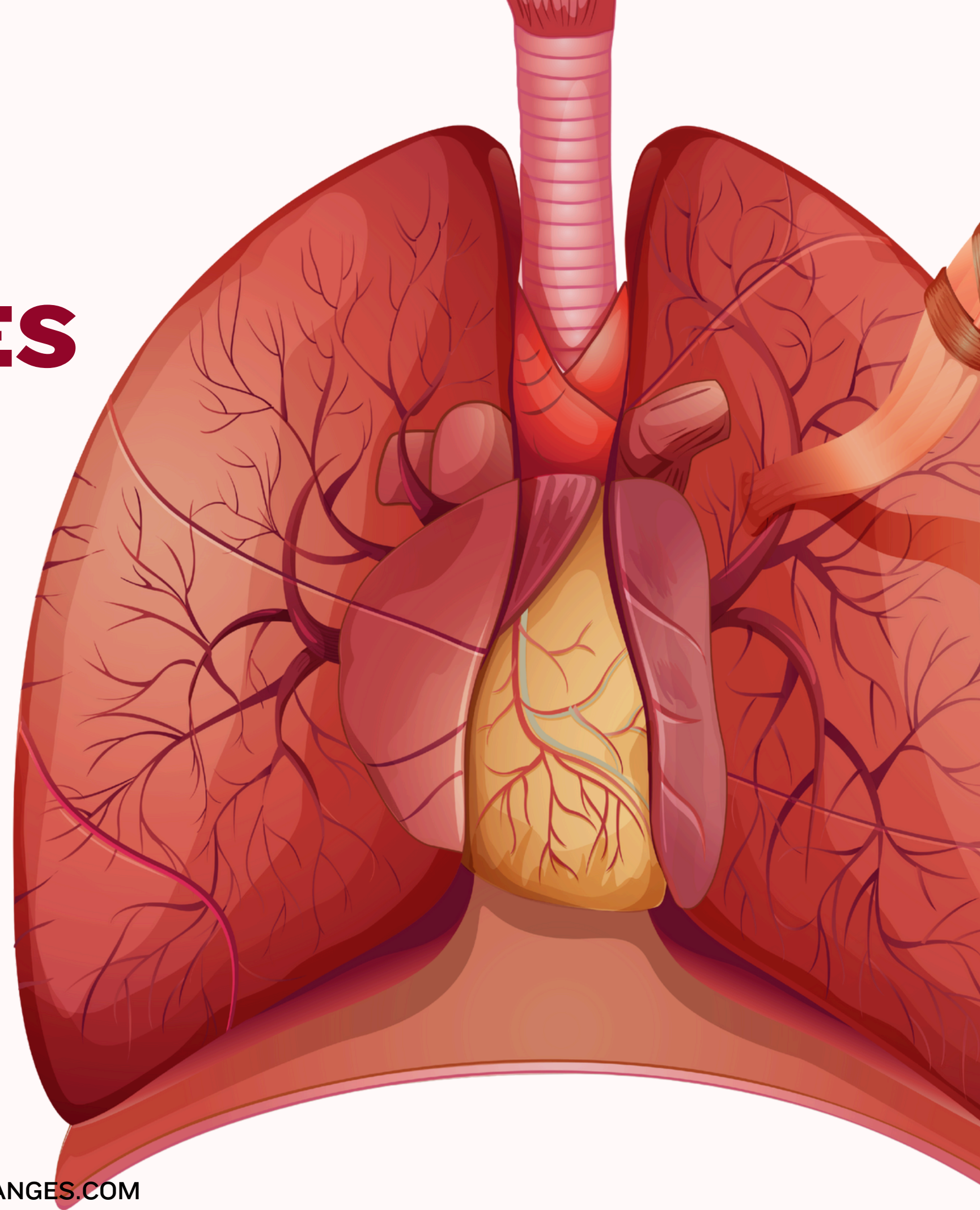
ALVEOLI

Alveoli are microscopic air sacs with thin walls that allow for the efficient exchange of gases. Each alveolus is surrounded by a network of capillaries where oxygen enters the blood, and carbon dioxide is removed.



DIAPHRAGM AND INTERCOSTAL MUSCLES

The diaphragm is a dome-shaped muscle that separates the thoracic cavity from the abdominal cavity. It plays a crucial role in breathing by contracting and relaxing to change the volume of the thoracic cavity. The intercostal muscles, located between the ribs, also aid in expanding and contracting the chest during respiration.



Thank you

The Art & Science of Saving Lives