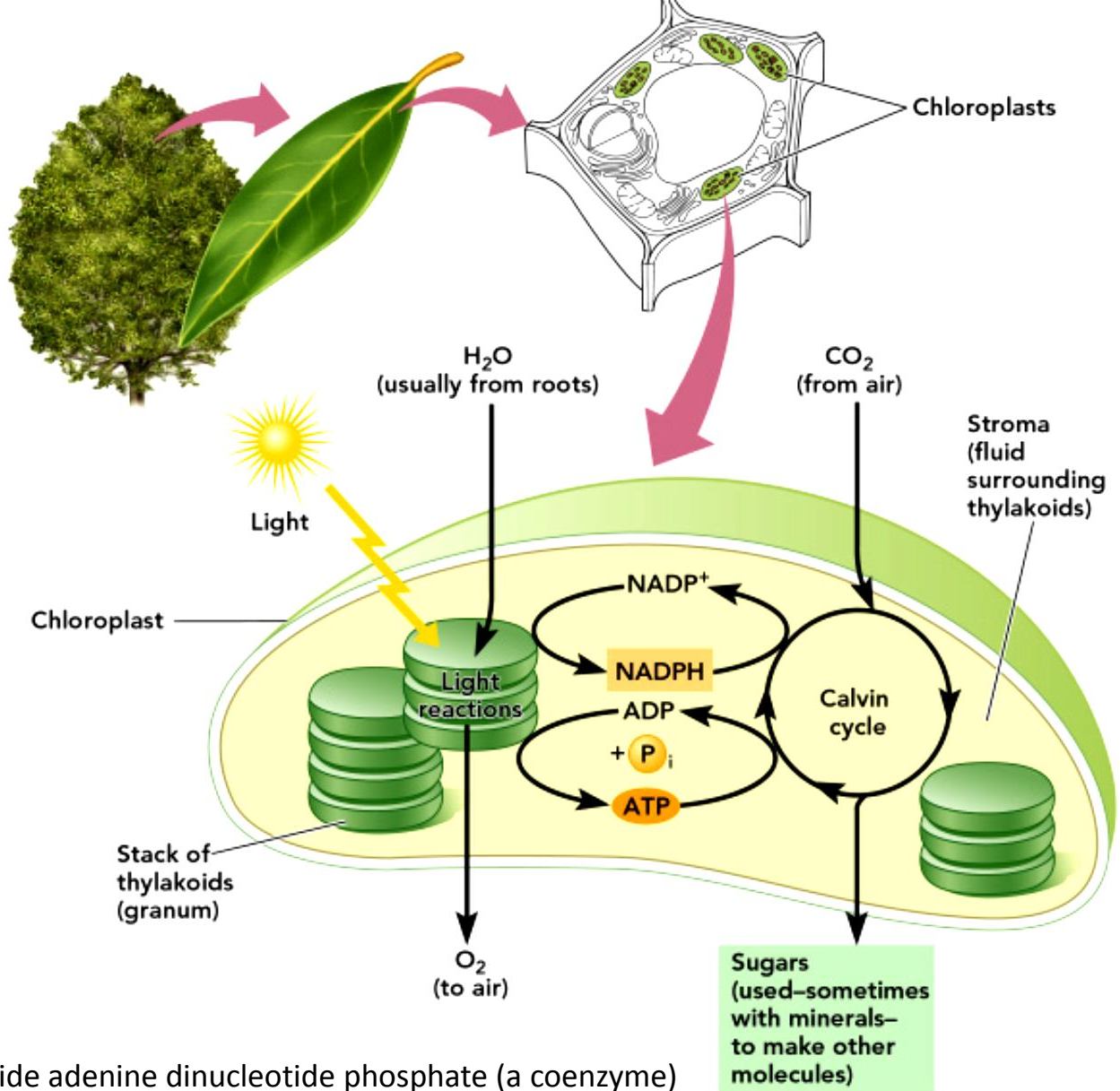


Revision of concepts on life processes

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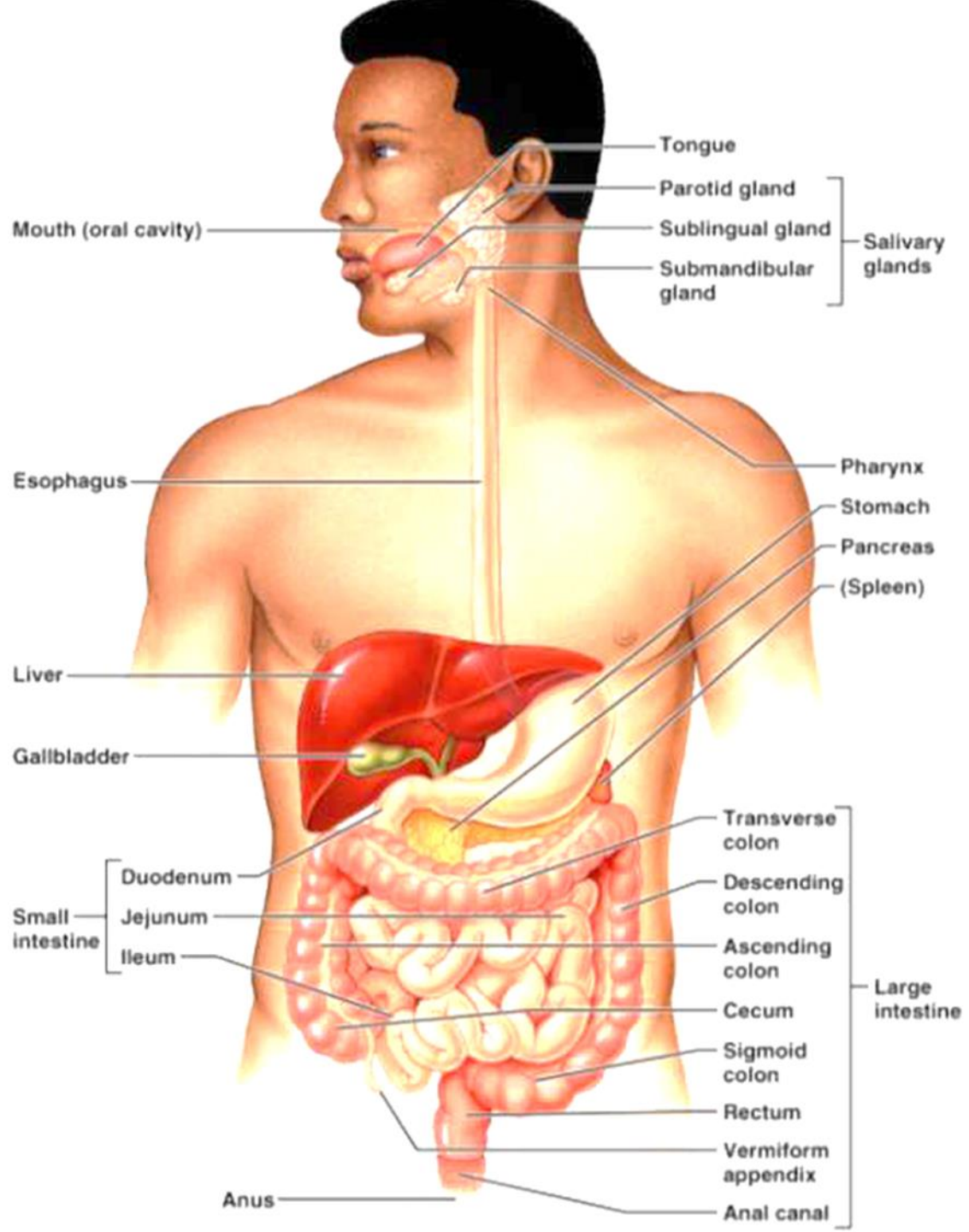


NADP⁺ = Nicotinamide adenine dinucleotide phosphate (a coenzyme)
NADPH= Reduced form of NADP⁺
ATP= Adenosine tri phosphate

Sugars
(used-sometimes
with minerals-
to make other
molecules)

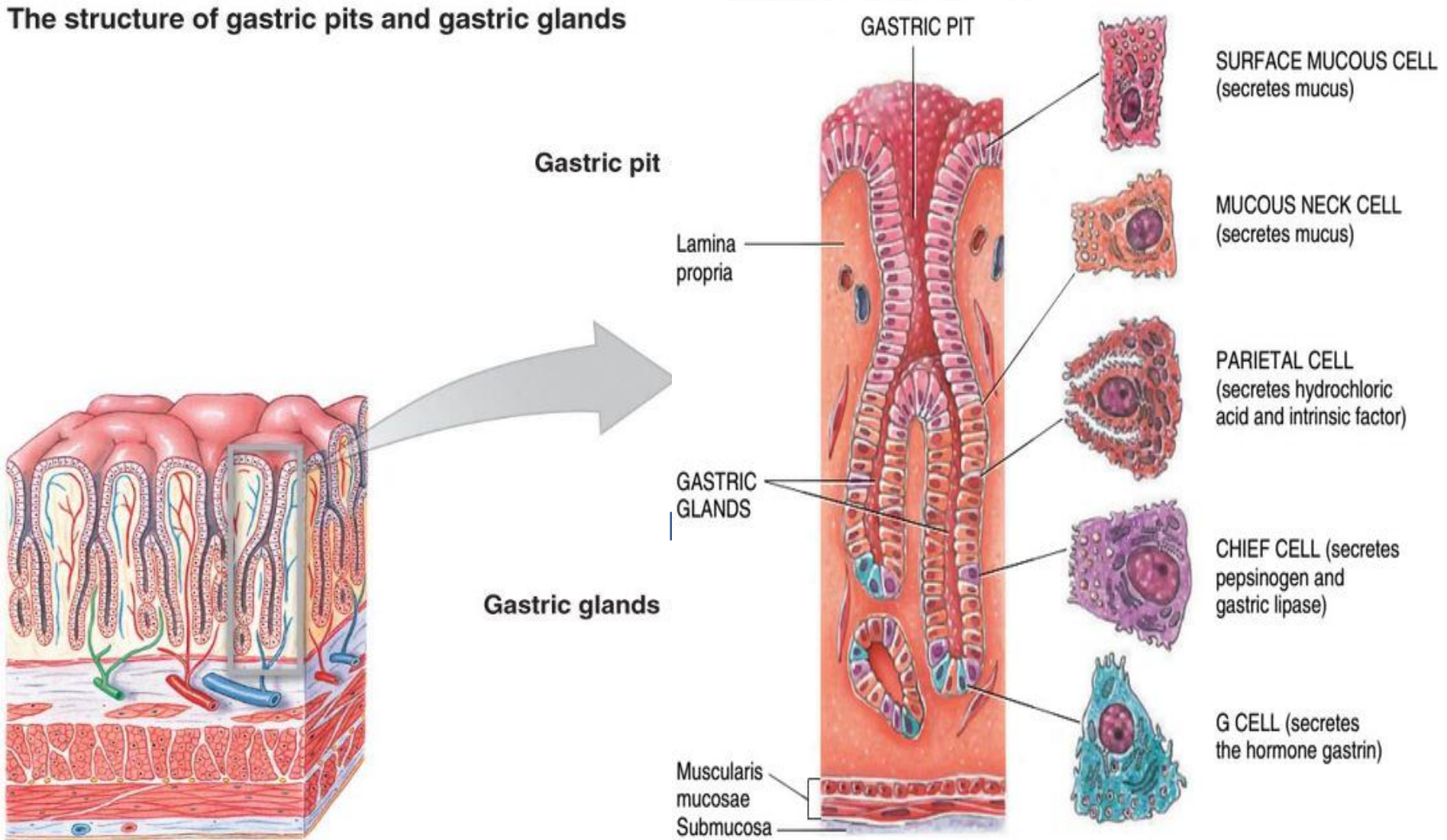
Nutrition in amoeba

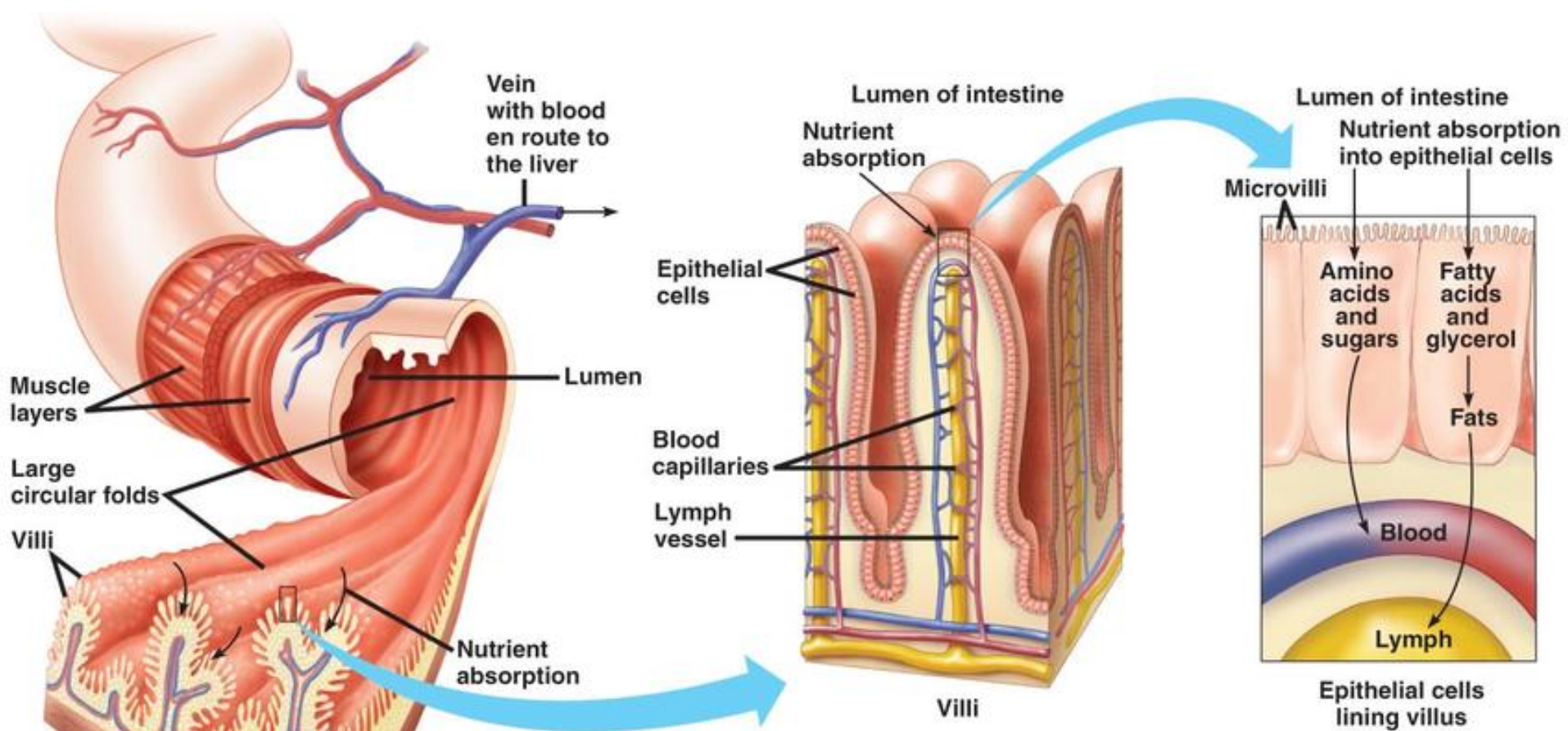
- **Heterotrophic Organism:**
 - The organisms which can't prepare their own food and depends on green plants for their food are called heterotrophic organism.
- **Heterotrophic nutrition:**
 - The process by which foods are taken inside by heterotrophic organisms and are digested, absorbed and assimilated by the body is called Heterotrophic nutrition.
- **Holozoic nutrition** (Greek: holo-whole ; zoikos-of animals) is a type of heterotrophic nutrition that involves the ingestion of liquid or solid organic material, **digestion**, absorption and assimilation of it to utilize. Nutrition in amoeba is holozoic.
- **Nutrition** in an **amoeba** occurs through a process called **phagocytosis**.
- **Phagocytosis** (from Ancient Greek phagein , meaning 'to eat', and kytos, meaning 'cell') is the process by which a cell uses its plasma membrane to engulf a large particle ($\geq 0.5 \mu\text{m}$), giving rise to an internal compartment called the phagosome. It is one type of endocytosis.
- Digestion in amoeba is called **endocytosis** (the taking in of matter by a living cell by invagination of its membrane to form a vacuole) too.
- Steps- Ingestion, digestion, absorption, assimilation, egestion.



Gastric Gland

The structure of gastric pits and gastric glands

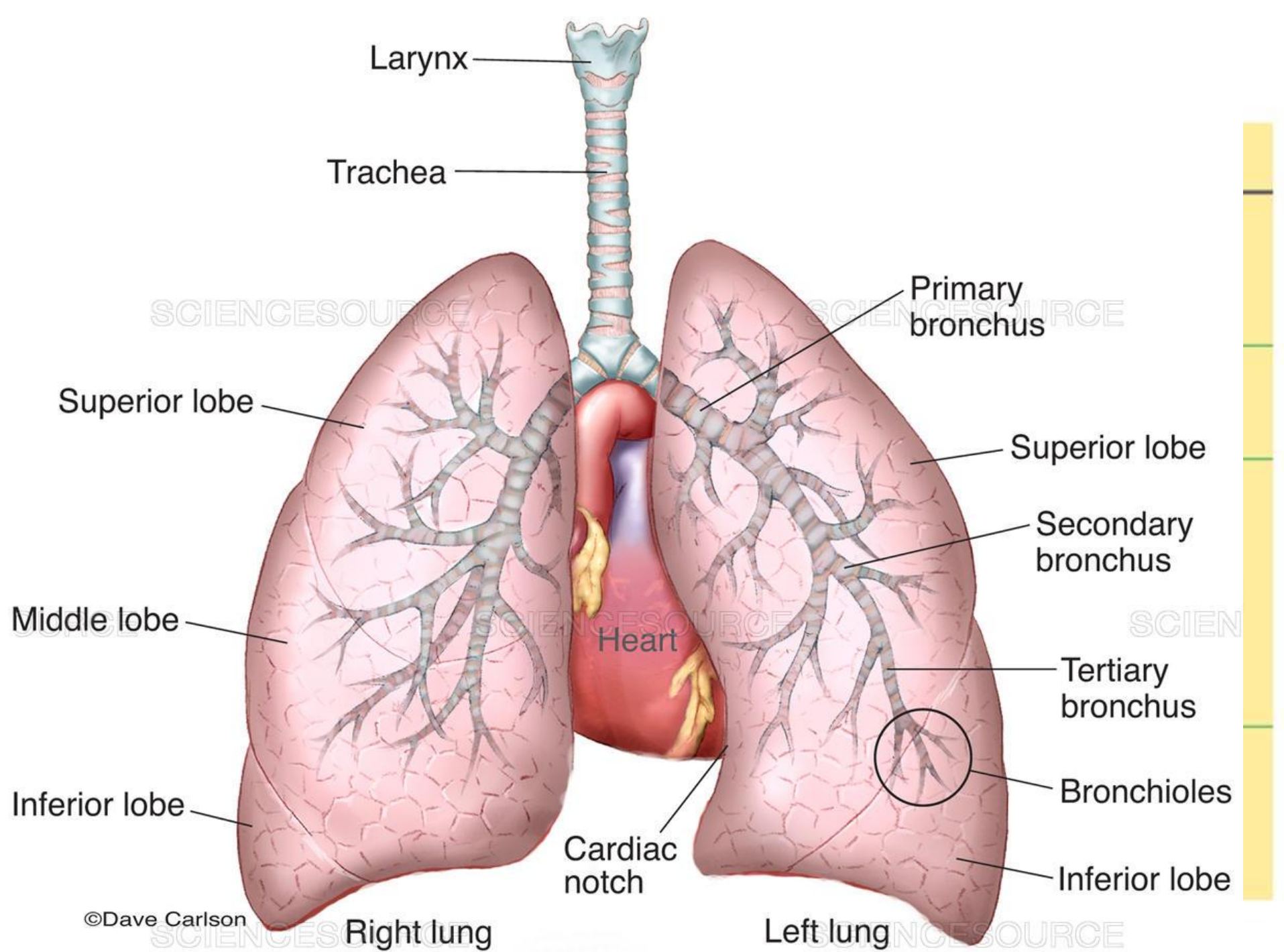




Intestinal wall

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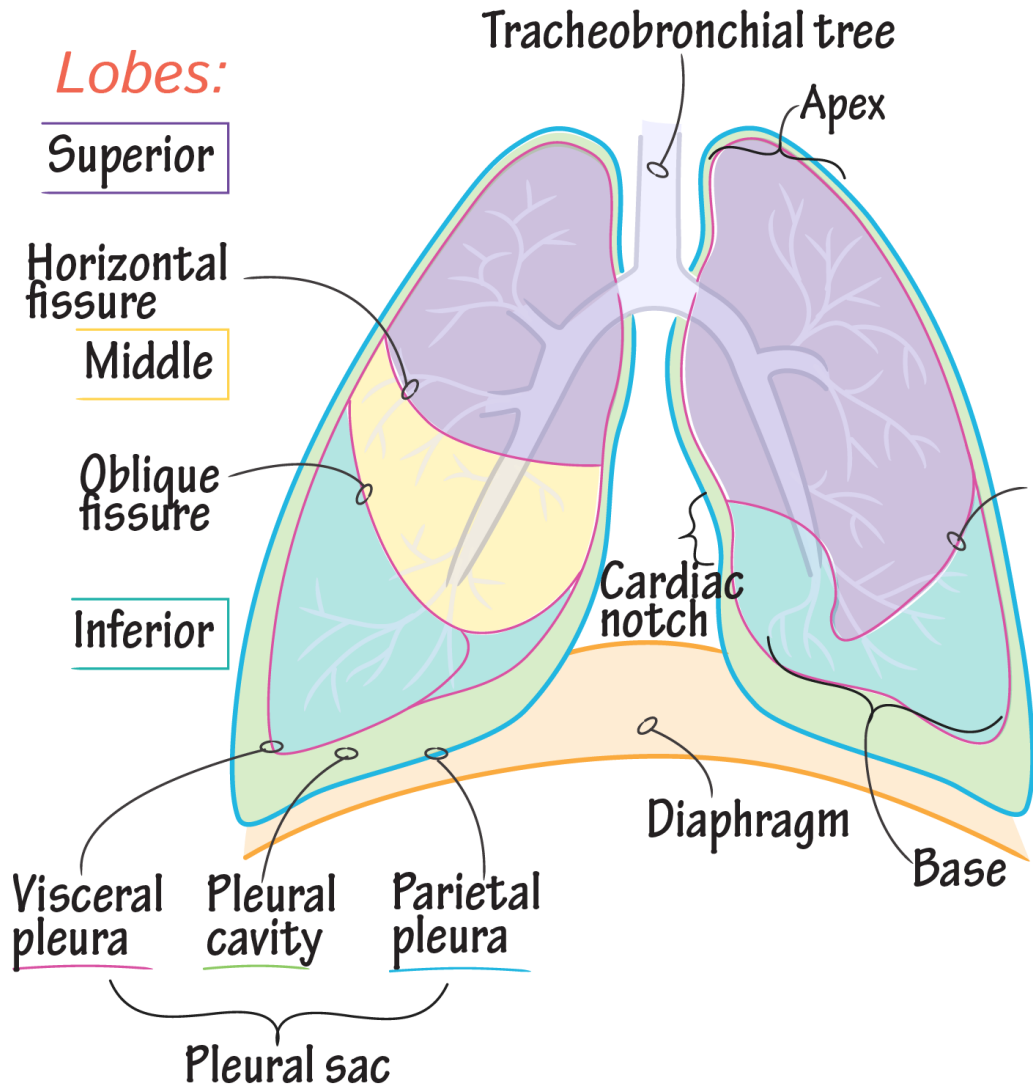
Villi are small finger-like projections located in the walls of the small intestine. Their function is to increase the surface area in order to maximise the absorption of digested food.



ANTERIOR

Right

Left



Lobes:

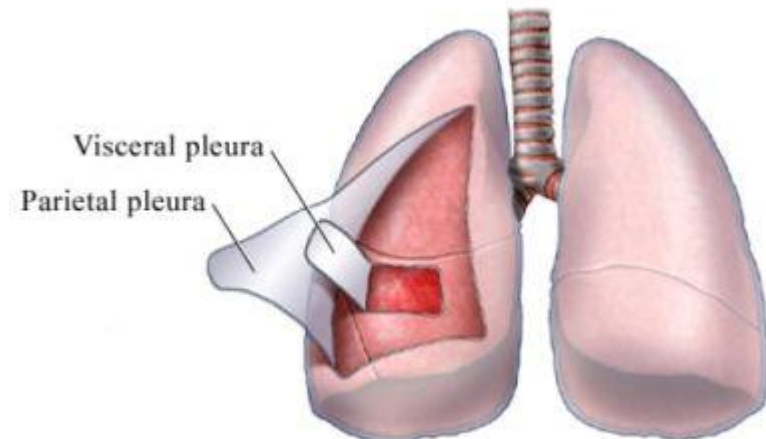
Superior

Oblique fissure

Inferior

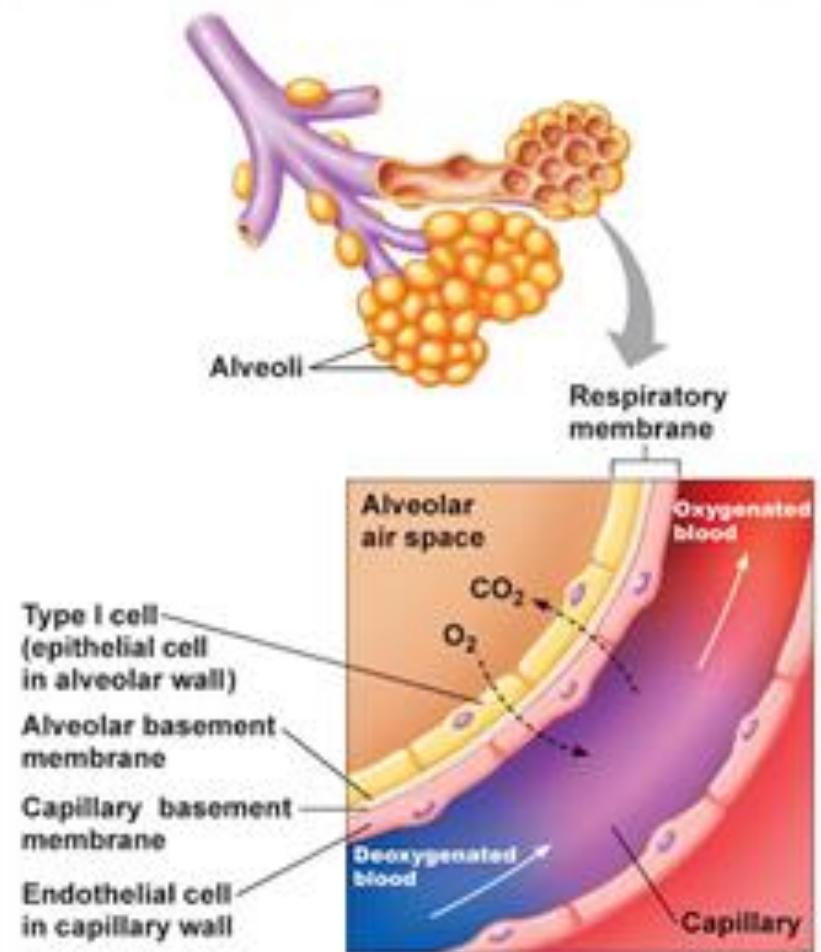
Pleura

The function of the pleura is to allow optimal expansion and contraction of the lungs during breathing. The **pleural fluid** acts as a lubricant, allowing the parietal and visceral pleura to glide over each other friction free.

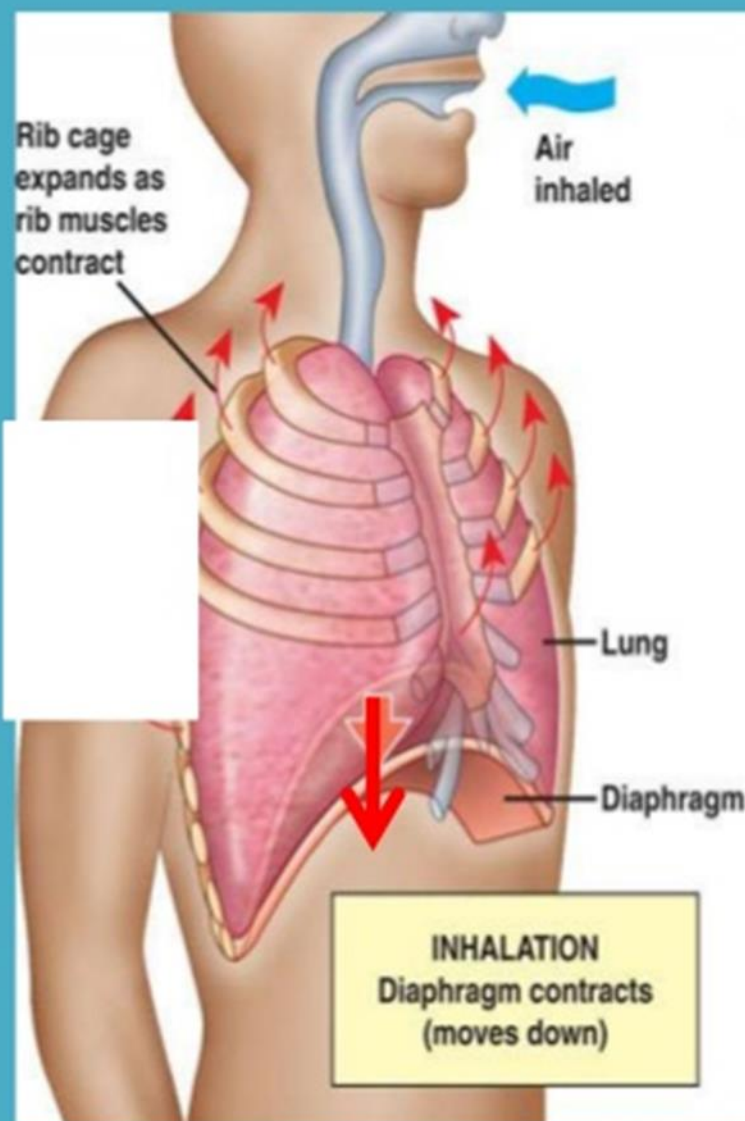


How are the **alveoli designed** to maximize the **exchange of gases**?

- The alveoli are thin walled and richly supplied with a network of blood vessels to facilitate exchange of gases between blood and the air filled in alveoli. They have balloon-like structure that provide maximum surface area for exchange of gases.



INHALATION



Internal intercostal muscle relaxed



External intercostal muscle contract



Rib cage moves upwards & outwards



Diaphragm contracts & flattens



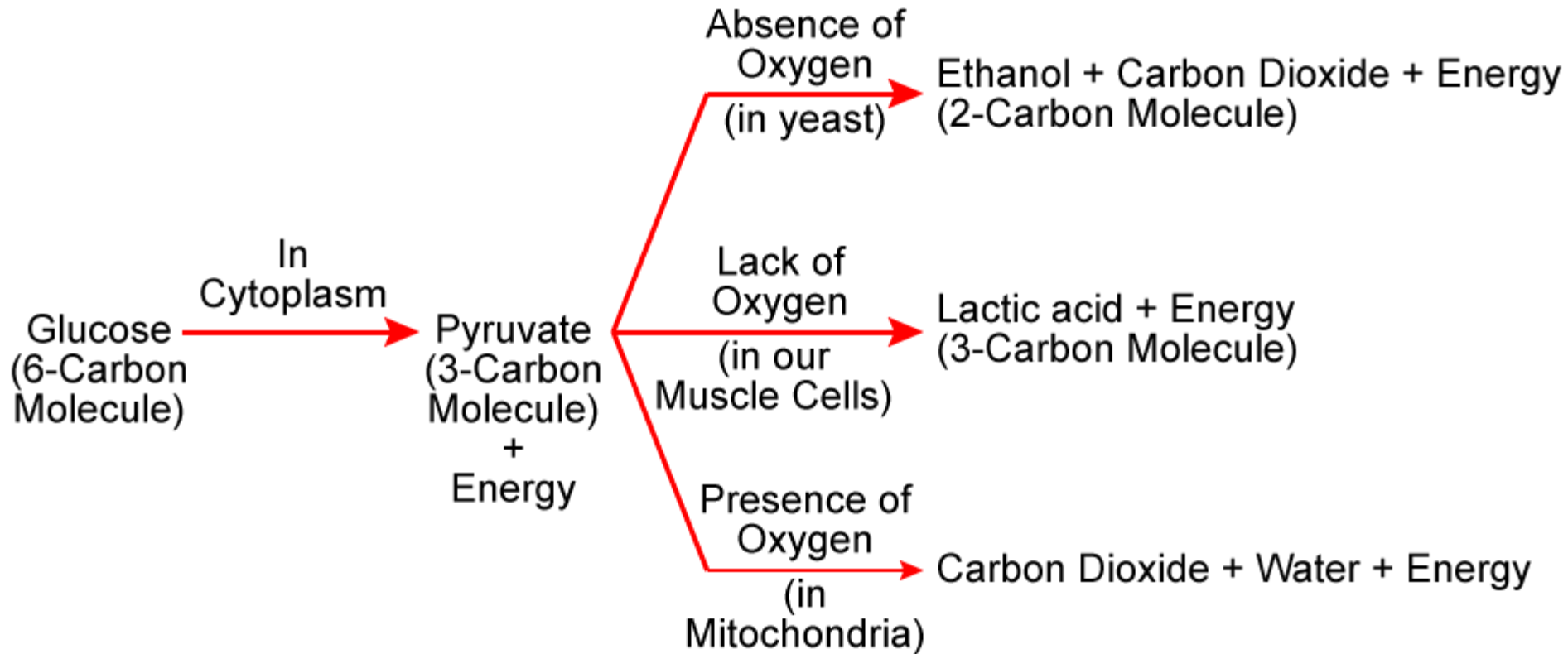
Volume of thorax cavity increase



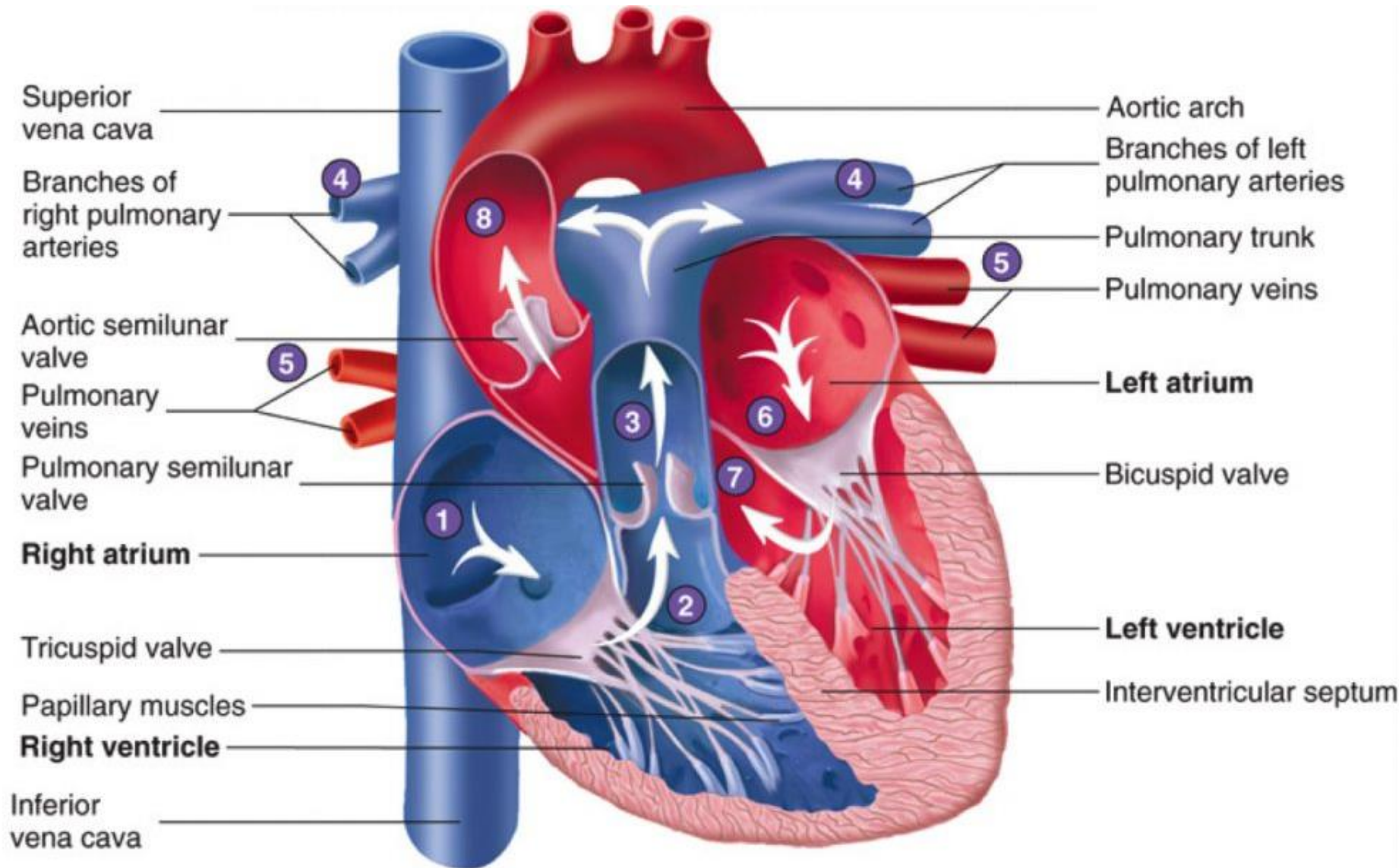
Pressure in alveoli decrease

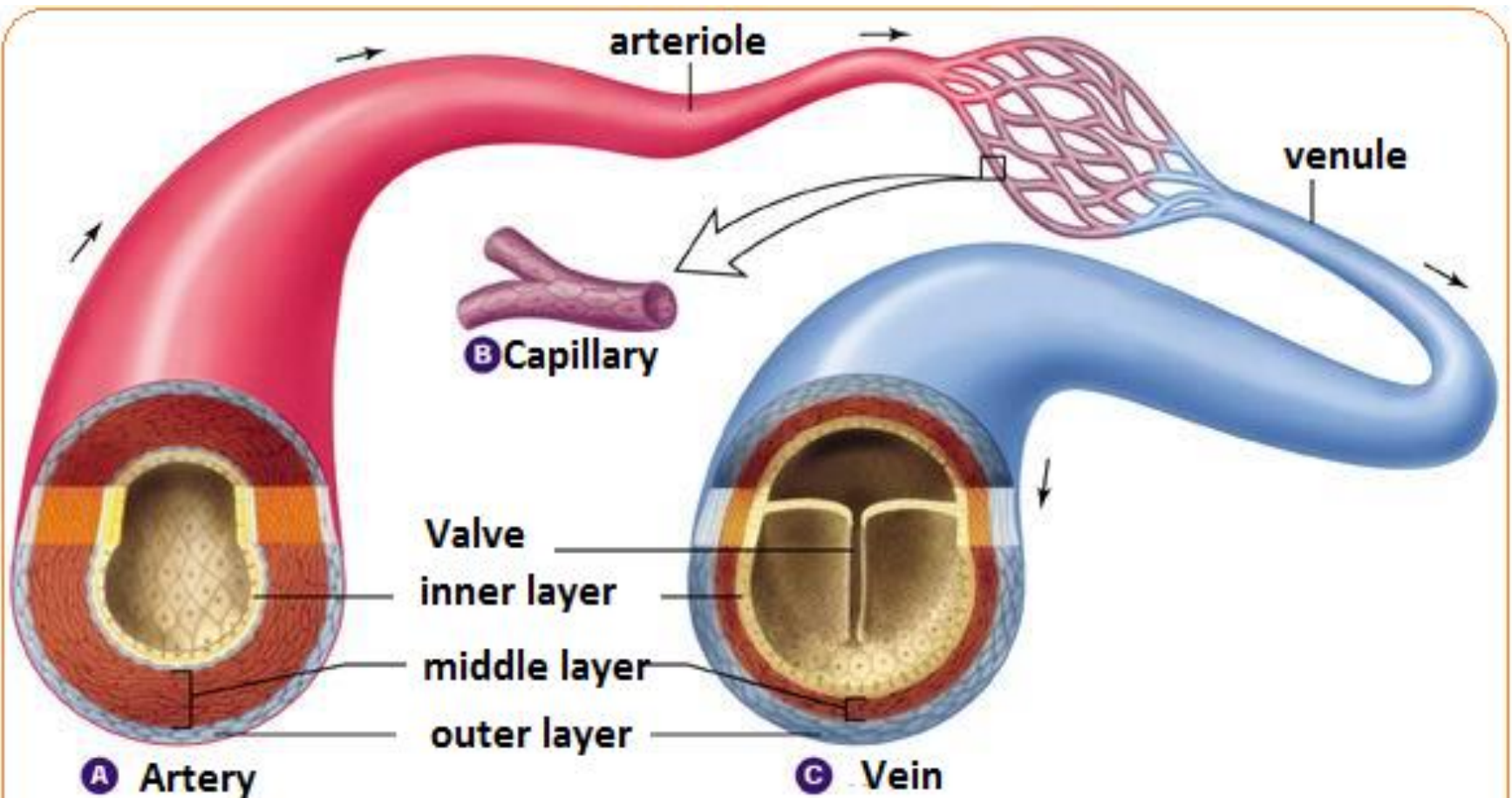


Air moves in



Blood flow pathways





At any given moment, about 30% of the blood in your systemic circulation will be found in the arteries, 5% in the capillaries and 65% in the vein.

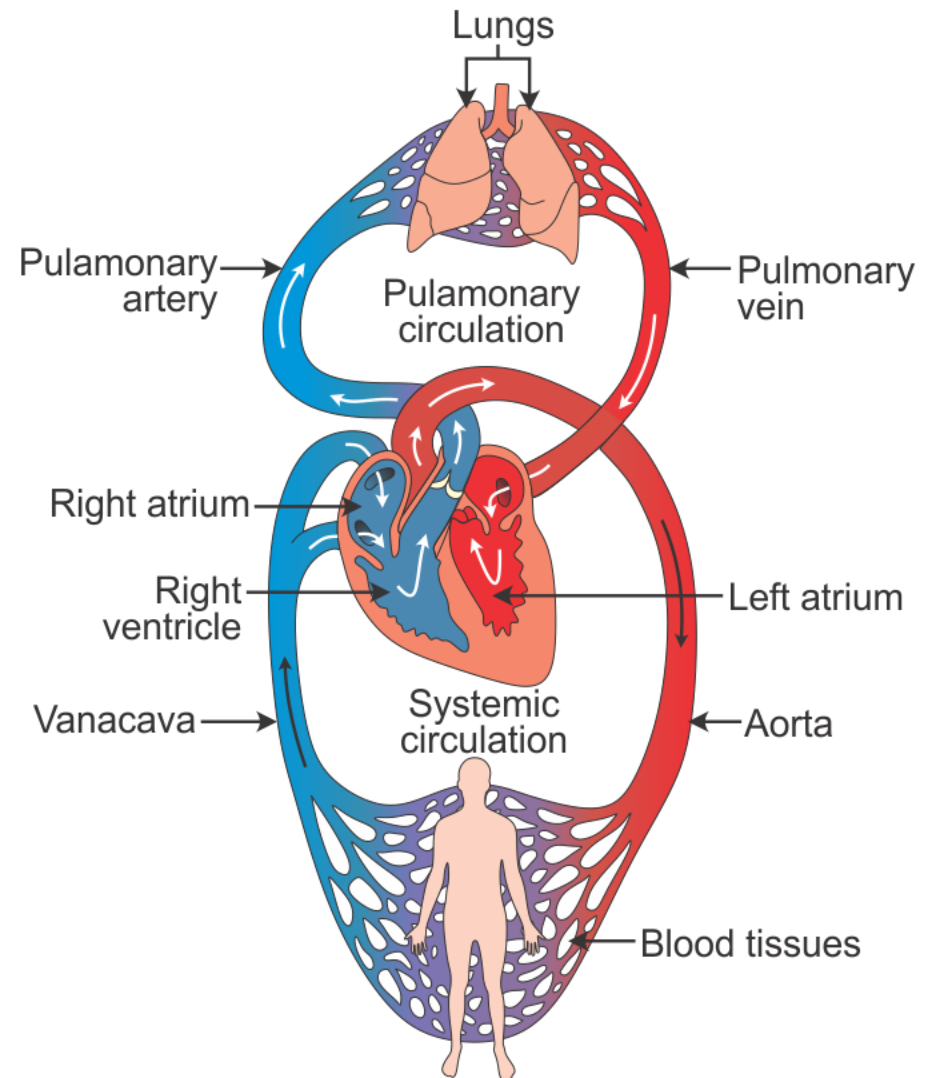
Double circulation is a process during which blood passes twice through the heart during one complete cycle. This type of circulation is found in birds, mammals.

- 1) The blood from all body parts is brought to the right auricle which pumps it into the right ventricle. From right ventricle blood is pumped to the lungs (for pulmonary artery) for oxygenation.
- 2) The oxygenated blood from the lungs is brought to the left auricle which pumps it into left ventricle. From the left ventricle, oxygenated blood then distributed to all body parts through larger artery called Aorta. [this is second circulation]

Importance of double circulation :-

Double circulation not only allows highly efficient supply of oxygen to the body but it also helps in meeting the high energy needs. This high energy is required to maintain the constant body temperature.

Double Circulation



MCQ 1

- Which of the following are energy foods?
 - (a) Carbohydrates and fats
 - (b) Proteins and mineral salts
 - (c) Vitamins and minerals
 - (d) Water and roughage

MCQ Answer 1

- (a)

MCQ 2

- In which mode of nutrition an organism derives its food from the body of another living organism without killing it?
 - (a) Saprotrophic nutrition
 - (b) Parasitic nutrition
 - (c) Holozoic nutrition
 - (d) Autotrophic nutrition

MCQ Answer 2

- b

MCQ 3

- The mode of nutrition found in fungi is:
 - (a) Parasitic nutrition
 - (b) Holozoic nutrition
 - (c) Autotrophic nutrition
 - (d) Saprotrophic nutrition

MCQ Answer 3

- d

MCQ 4

- The contraction and expansion movement of the walls of the food pipe is called:
 - (a) translocation
 - (b) transpiration
 - (c) peristaltic movement
 - (d) digestion

MCQ Answer 4

- c

MCQ 5

- What are the products obtained by anaerobic respiration in yeast?
 - (a) Lactic acid + Energy
 - (b) Carbon dioxide + Water + Energy
 - (c) Ethanol + Carbon dioxide + Energy
 - (d) Pyruvate

MCQ Answer 5

- c

MCQ 6

- Name the tube which connects the kidneys to the urinary bladder.
 - (a) Urethra
 - (b) Nephron
 - (c) Tubule
 - (d) Ureter

MCQ Answer 6

- d

MCQ 7

- The procedure used for cleaning the blood of a person by separating urea from it is called:
 - (a) osmosis
 - (b) filtration
 - (c) dialysis
 - (d) double circulation

MCQ Answer 7

- c

MCQ 8

- Identify the correct path of urine in the human body.
 - (a) Kidney → urinary bladder → urethra → ureter
 - (b) Urinary bladder → ureter → kidney → urethra
 - (c) Kidney → ureter → urethra → urinary bladder
 - (d) Kidney → ureter → urinary bladder → urethra

MCQ Answer 8

- d

MCQ 9

- This has a shorter intestine
- (a) carnivore
- (b) herbivore
- (c) both (a) and (b)
- (d) none of the above

MCQ Answer 9

- a

MCQ 10

- Here, the maximum exchange of material between blood and surrounding cells takes place
- (a) Veins
- (b) Heart
- (c) Capillaries
- (d) Arteries

MCQ Answer 10

- c

MCQ 11

- The following questions consist of two statements- Assertion (A) and Reason (R). Answer the questions selecting the appropriate option below;
 - a) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
 - b) Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion.
 - c) Assertion is true statement but Reason is false.
 - d) Both Assertion and Reason are false statements

MCQ 11

- Assertion: Molecular movements are needed for life.
- Reasons: Body structures made up of these molecules need continuous repair and maintenance

MCQ Answer 11

- a

MCQ 12

- Assertion: diffusion does not meet high energy requirements of multicellular organisms.
- Reason: Diffusion is a fast process but only occurs at the surface of the body.

MCQ Answer 12

- c

MCQ 13

- Assertion: The opening and closing of the pore is a function of the guard cells.
- Reasons: Stomatal pores are the site for exchange of gases by diffusion.

MCQ Answer 13

- b

MCQ 14

- Assertion: Saliva contains pepsin enzyme
- Reasons: Pepsin digests lipids

MCQ Answer 14

- Both A and R incorrect.

MCQ 15

- Assertion: Pyruvate is prepared in cytoplasm as a first step to cellular respiration.
- Reasons:. Pyruvate is a six carbon molecule.