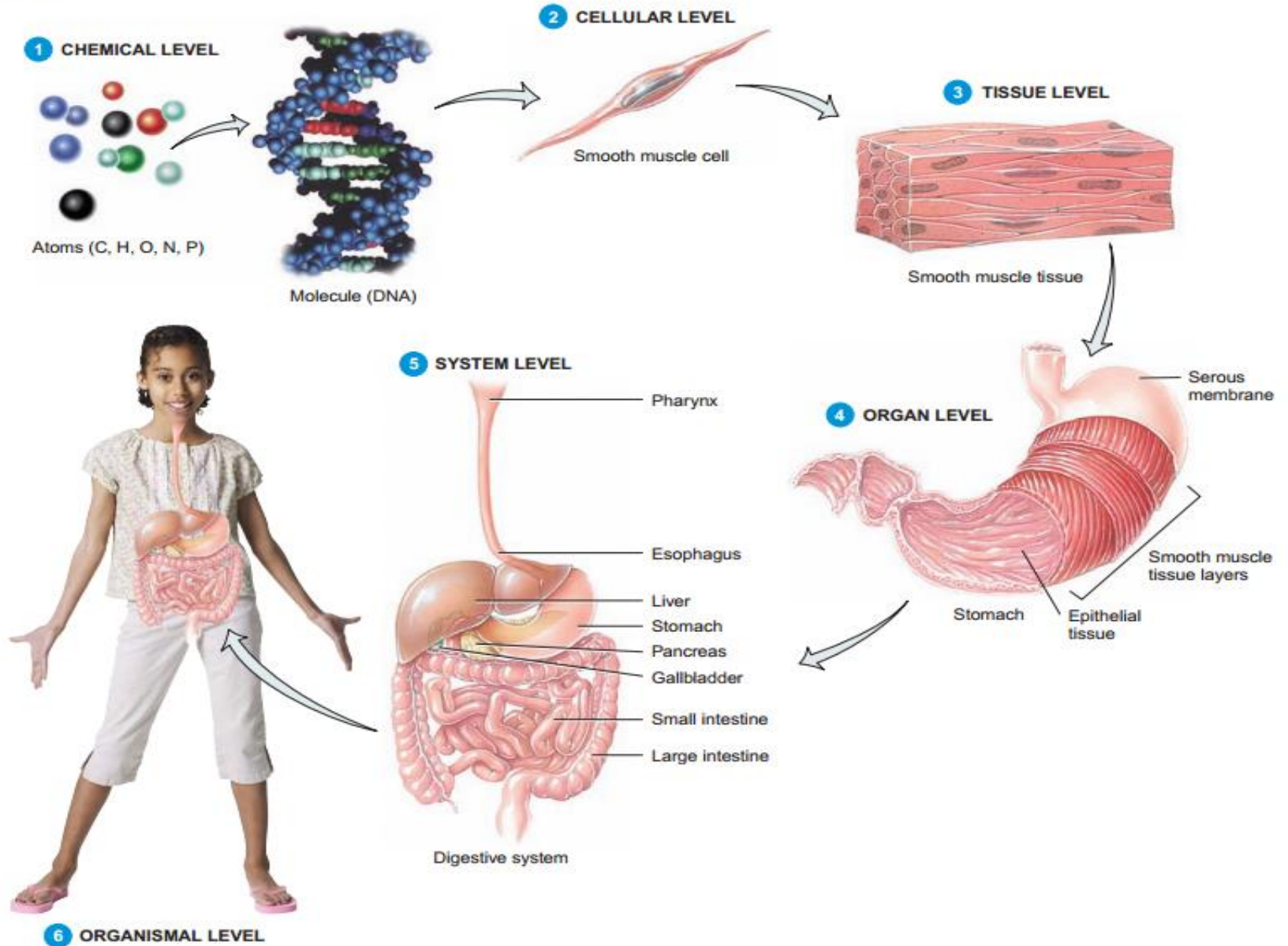


Introduction to Biology

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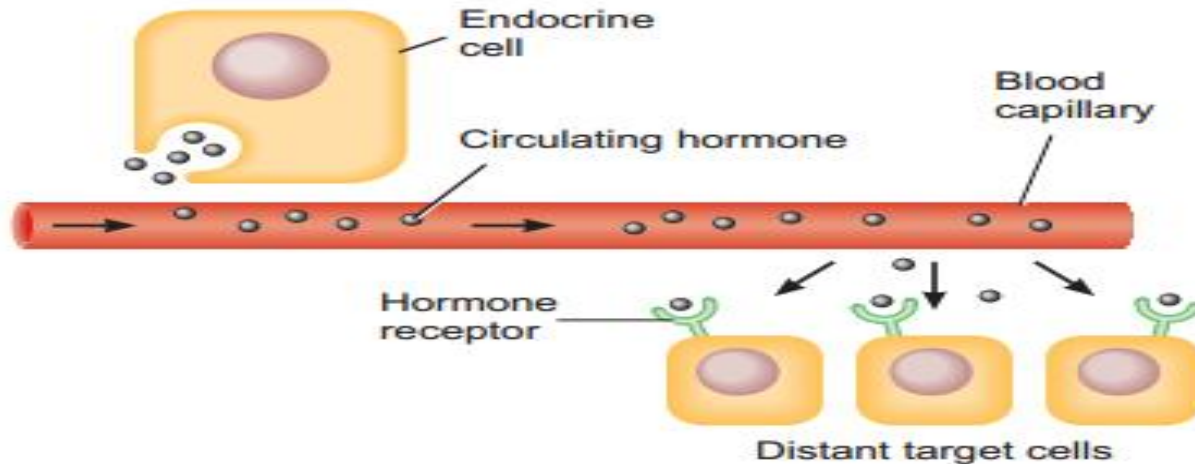


The levels of structural organization are chemical, cellular, tissue, organ, system, and organismal.

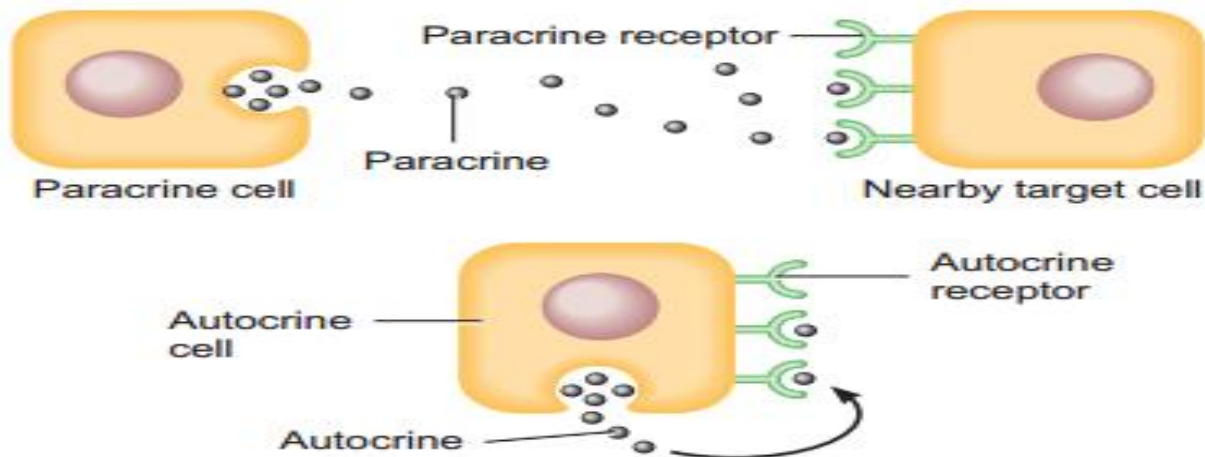


6

Circulating hormones are carried through the bloodstream to act on distant target cells. Paracrines act on neighboring cells and autocrines act on the same cell that produced them.



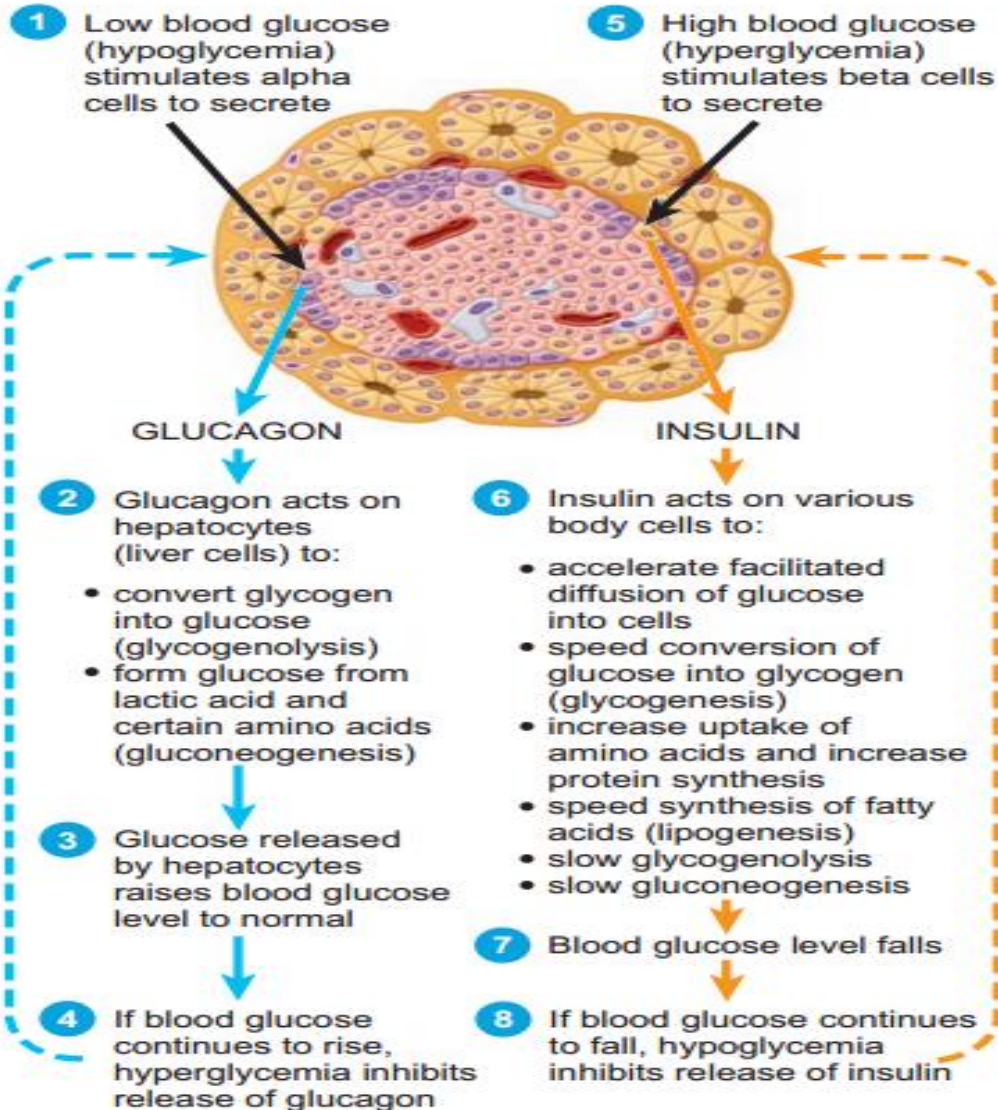
(a) Circulating hormones



(b) Local hormones (paracrines and autocrines)



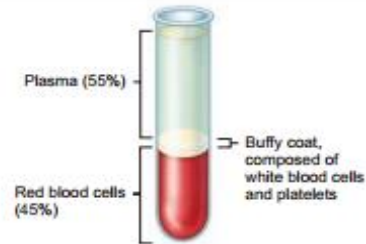
Low blood glucose stimulates release of glucagon; high blood glucose stimulates secretion of insulin.



Composition of Blood



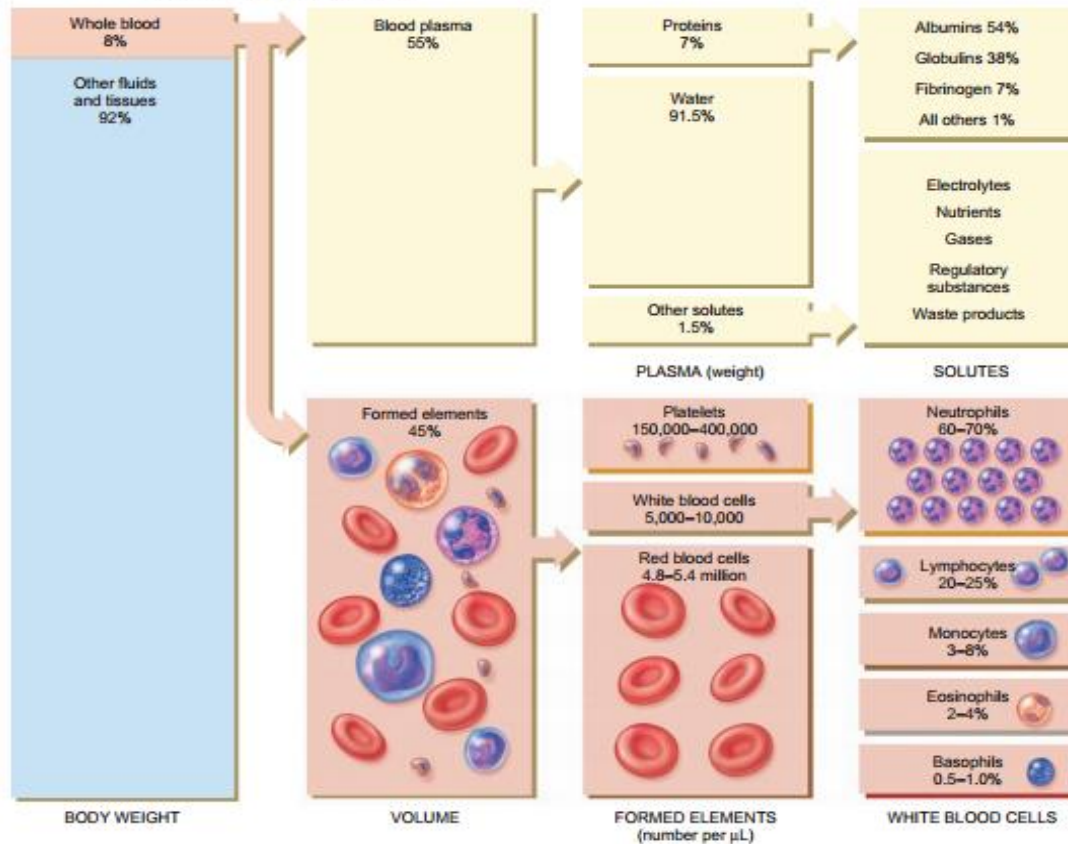
Blood is a connective tissue that consists of blood plasma (liquid) plus formed elements (red blood cells, white blood cells, and platelets).



(a) Appearance of centrifuged blood

Functions of Blood

1. Transports oxygen, carbon dioxide, nutrients, hormones, heat, and wastes.
2. Regulates pH, body temperature, and water content of cells.
3. Protects against blood loss through clotting, and against disease through phagocytic white blood cells and antibodies.



(b) Components of blood

pH Values of Selected Substances

SUBSTANCE	pH VALUE
• Gastric juice (found in the stomach)	1.2–3.0
Lemon juice	2.3
Vinegar	3.0
Carbonated soft drink	3.0–3.5
Orange juice	3.5
• Vaginal fluid	3.5–4.5
Tomato juice	4.2
Coffee	5.0
• Urine	4.6–8.0
• Saliva	6.35–6.85
Milk	6.8
Distilled (pure) water	7.0
• Blood	7.35–7.45
• Semen (fluid containing sperm)	7.20–7.60
• Cerebrospinal fluid (fluid associated with nervous system)	7.4
• Pancreatic juice (digestive juice of the pancreas)	7.1–8.2
• Bile (liver secretion that aids fat digestion)	7.6–8.6
Milk of magnesia	10.5
Lye (sodium hydroxide)	14.0

- Denotes substances in the human body.

THANKS