Unit 4: Summary

Similarities and Differences Between Living Things

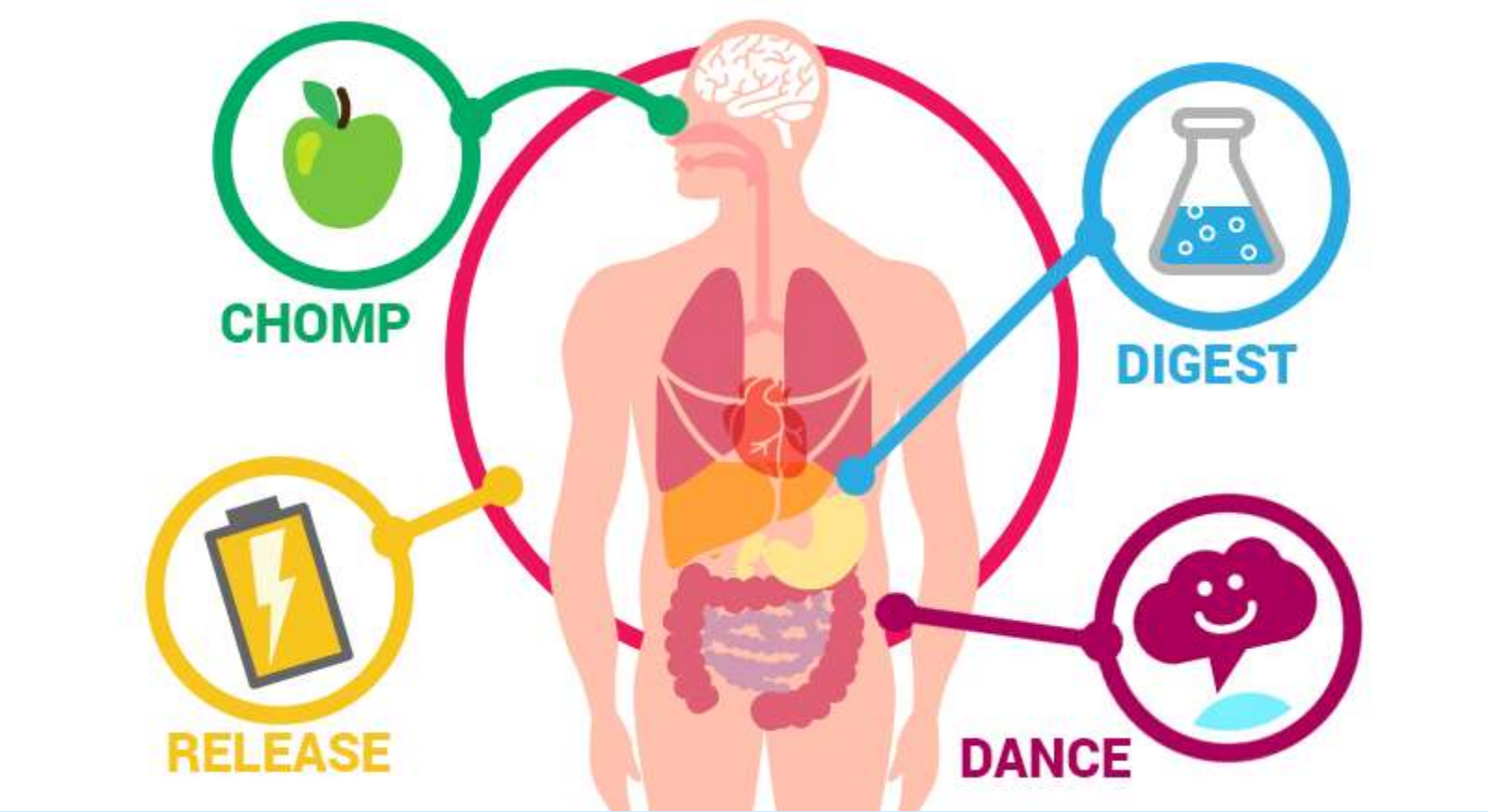
Review cell theory

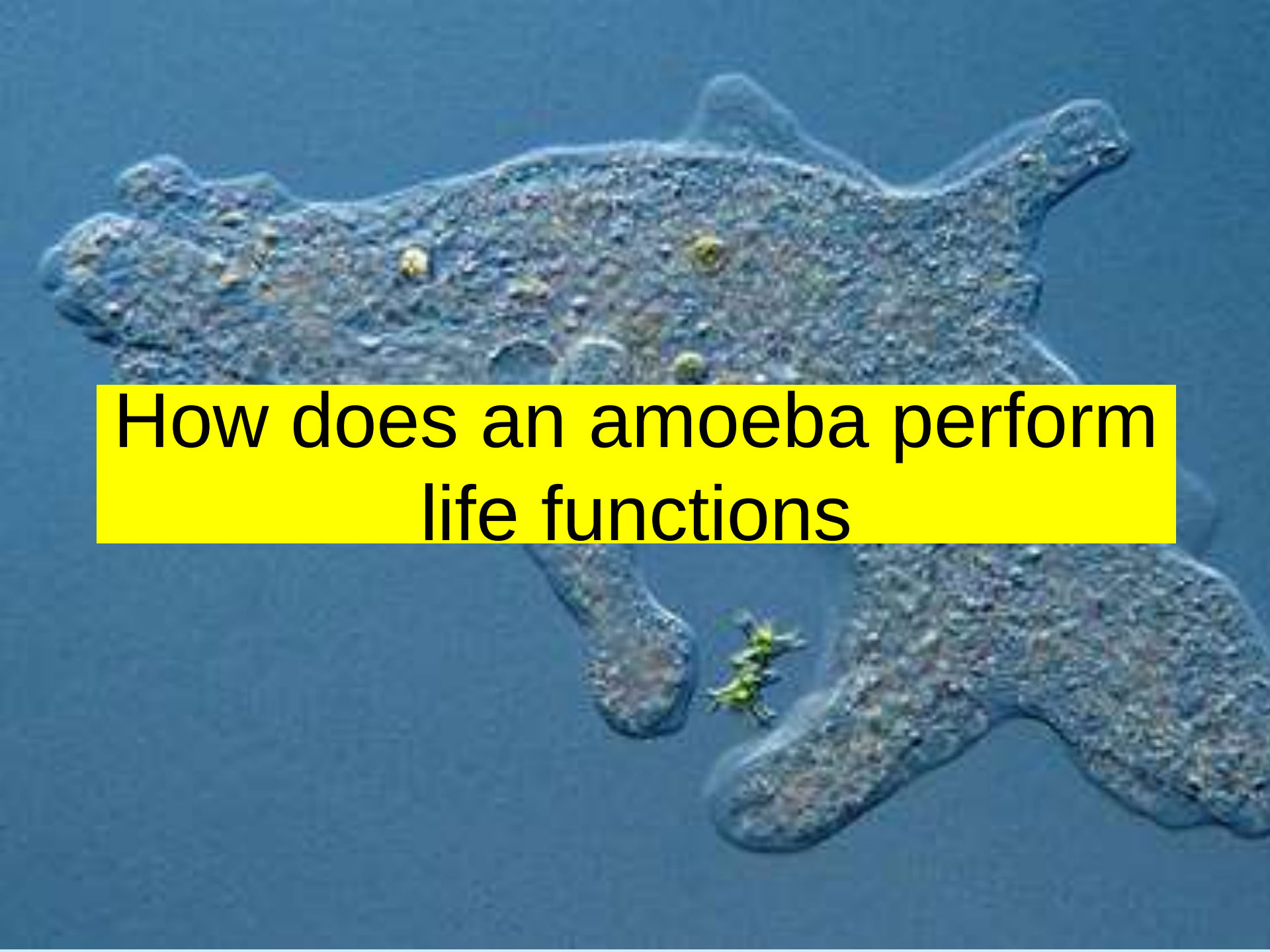
- All living things made of cells
- Cells perform life functions
- Cells come from pre existing cells

What are life functions?

Metabolism

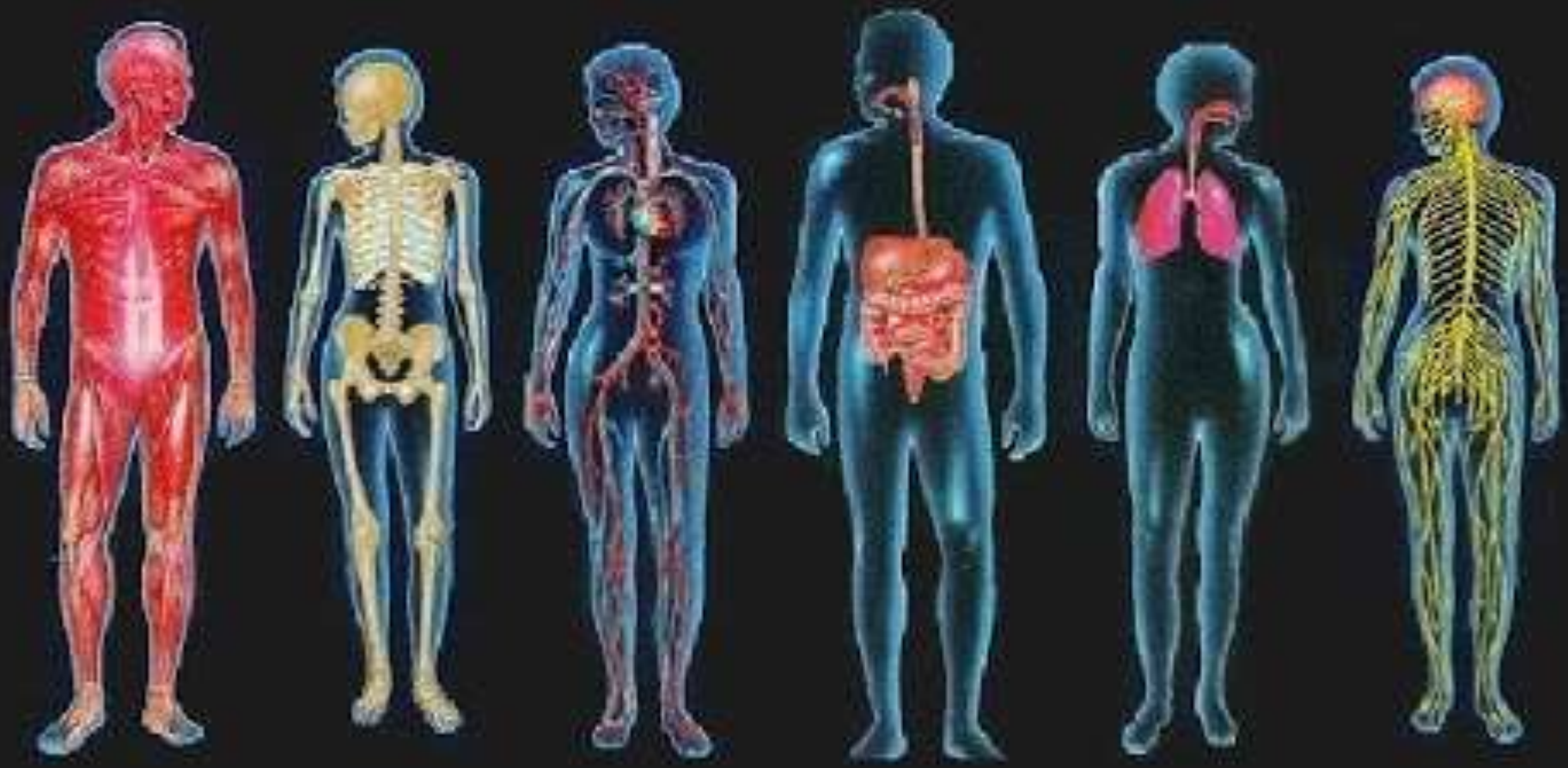
- Chemical reactions needed to live




How does an amoeba perform life functions

How do plants perform life functions?

Human Body Systems

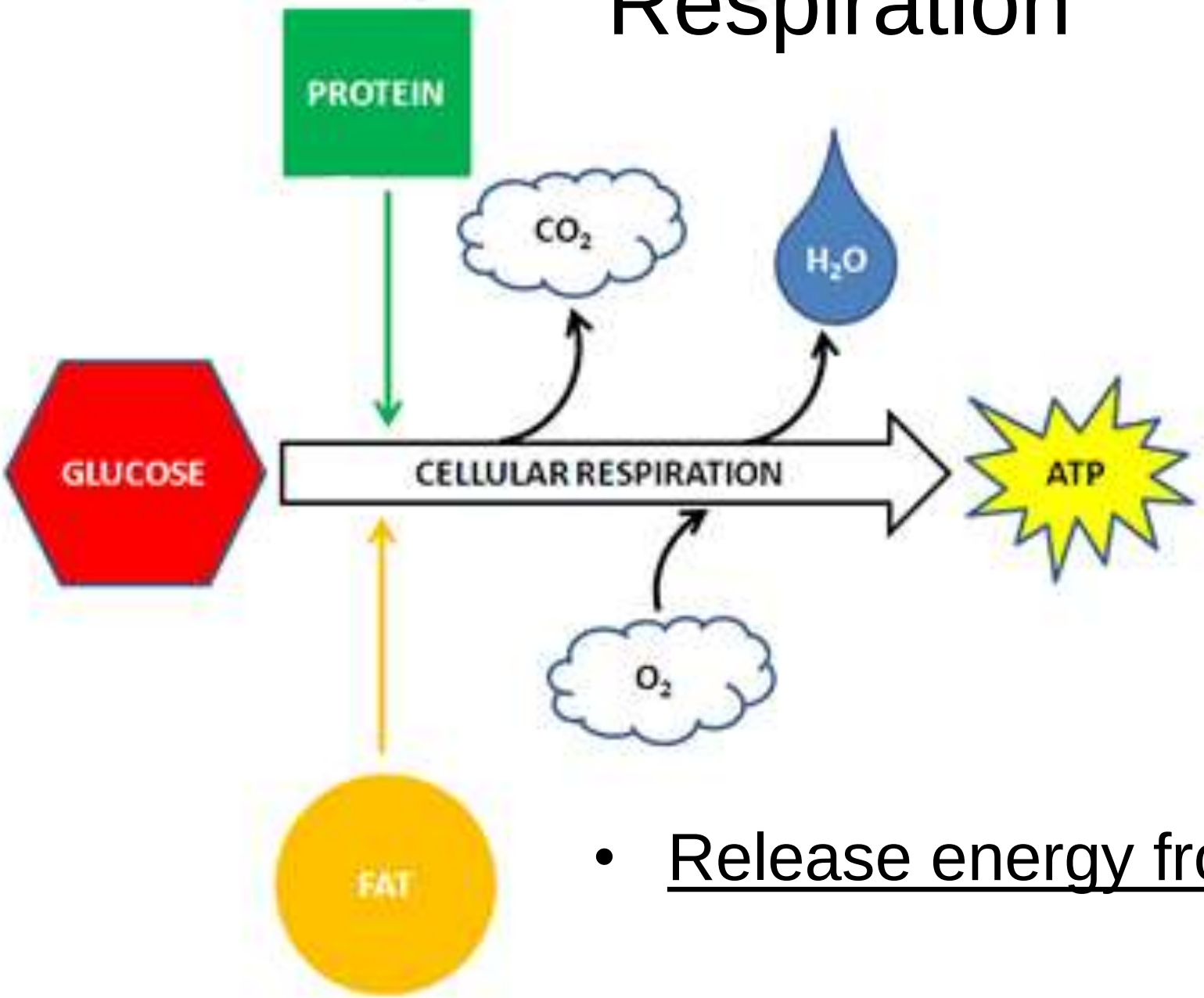


Life Functions =

Movement

- helps us respond to the environment

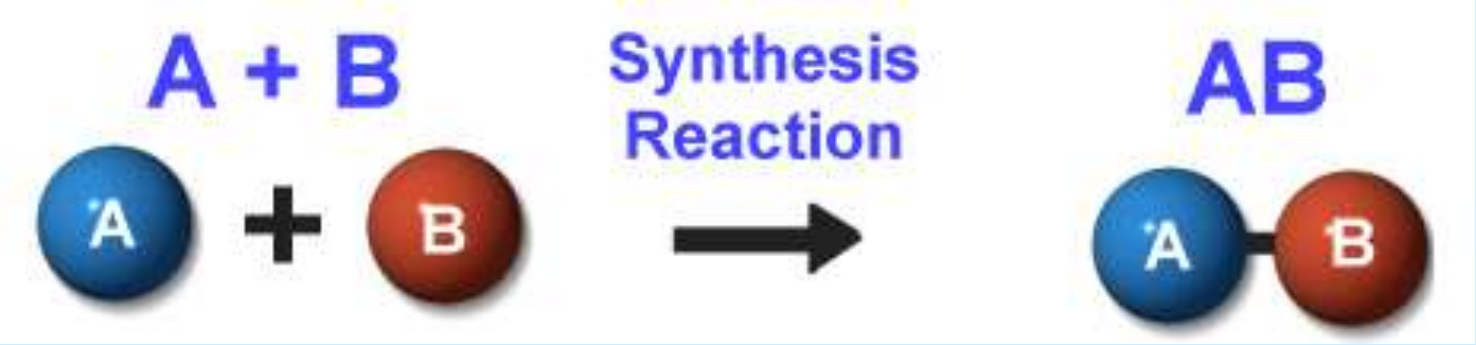
Respiration



- Release energy from food

Synthesis

- Making cell parts



Circulation

- Transport food and wastes within organisms

Excretion

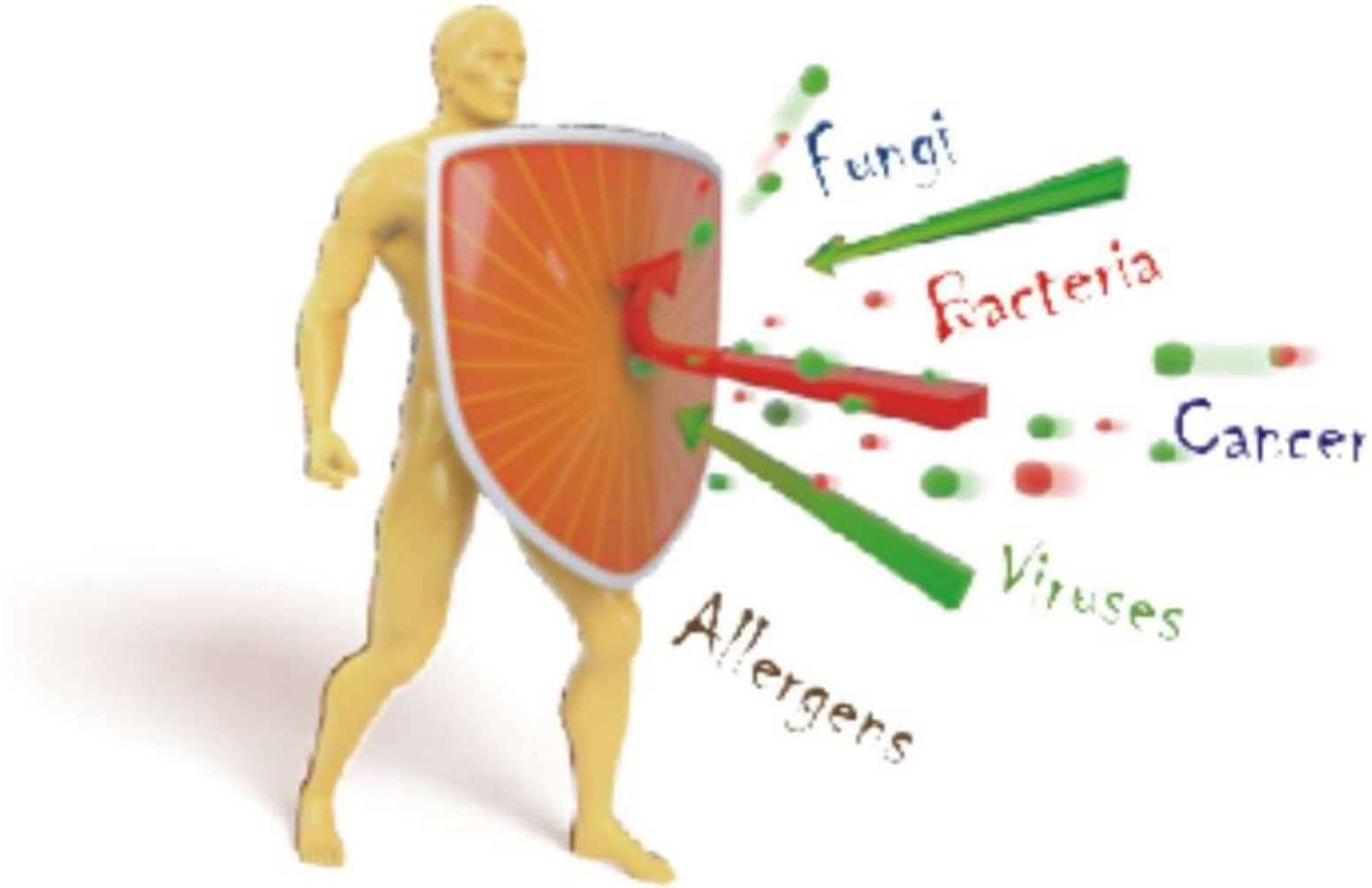
- <u>Waste removal</u>

Digestion

- lysis = breakdown

Immunity

- Protect against invaders

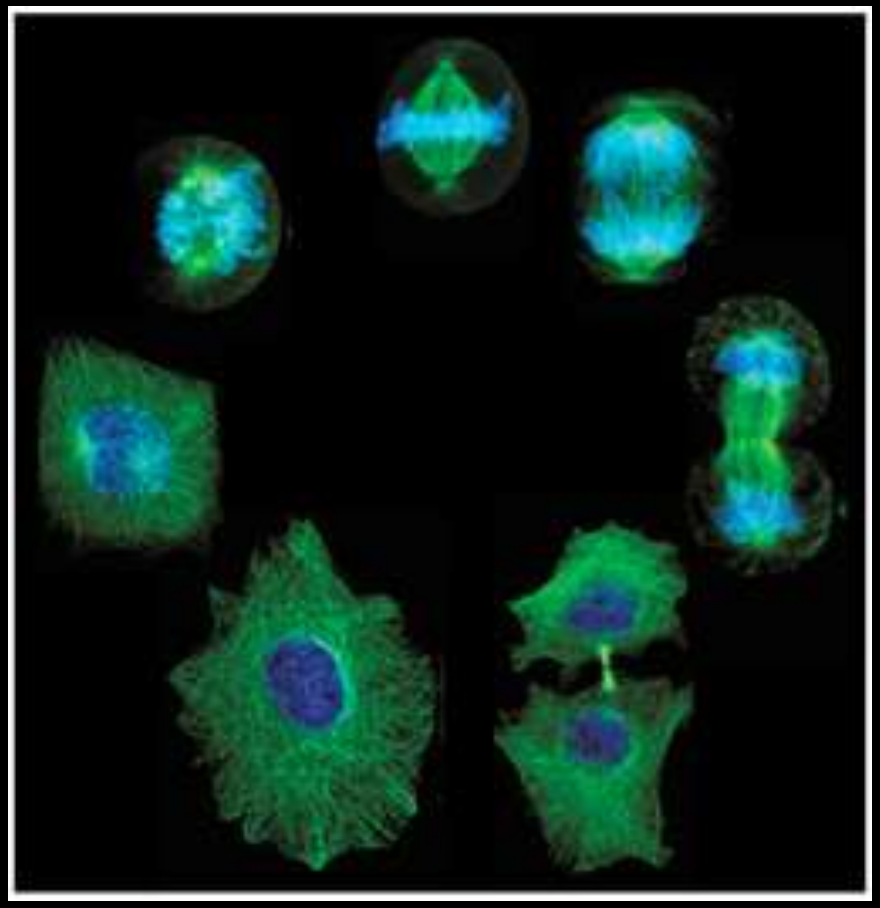


Coordination and regulation

- Communication and control

Reproduction

- DNA replicates → new cells



Organelles → life functions

Body systems → life functions

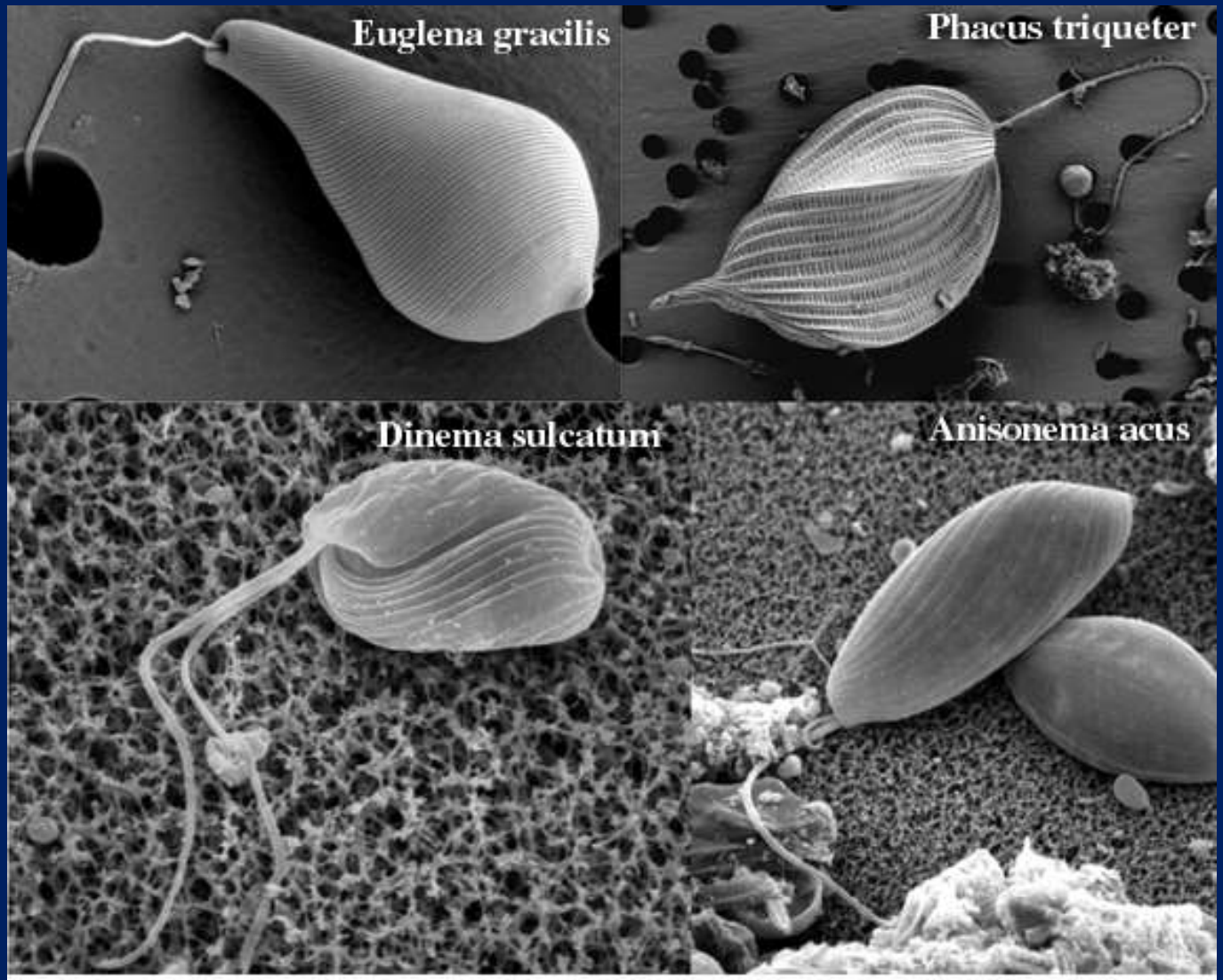
Multi-celled organisms only

Life function chart

Movement

- Purpose
- Helps living things respond to environment

Flagella = whiplike tail

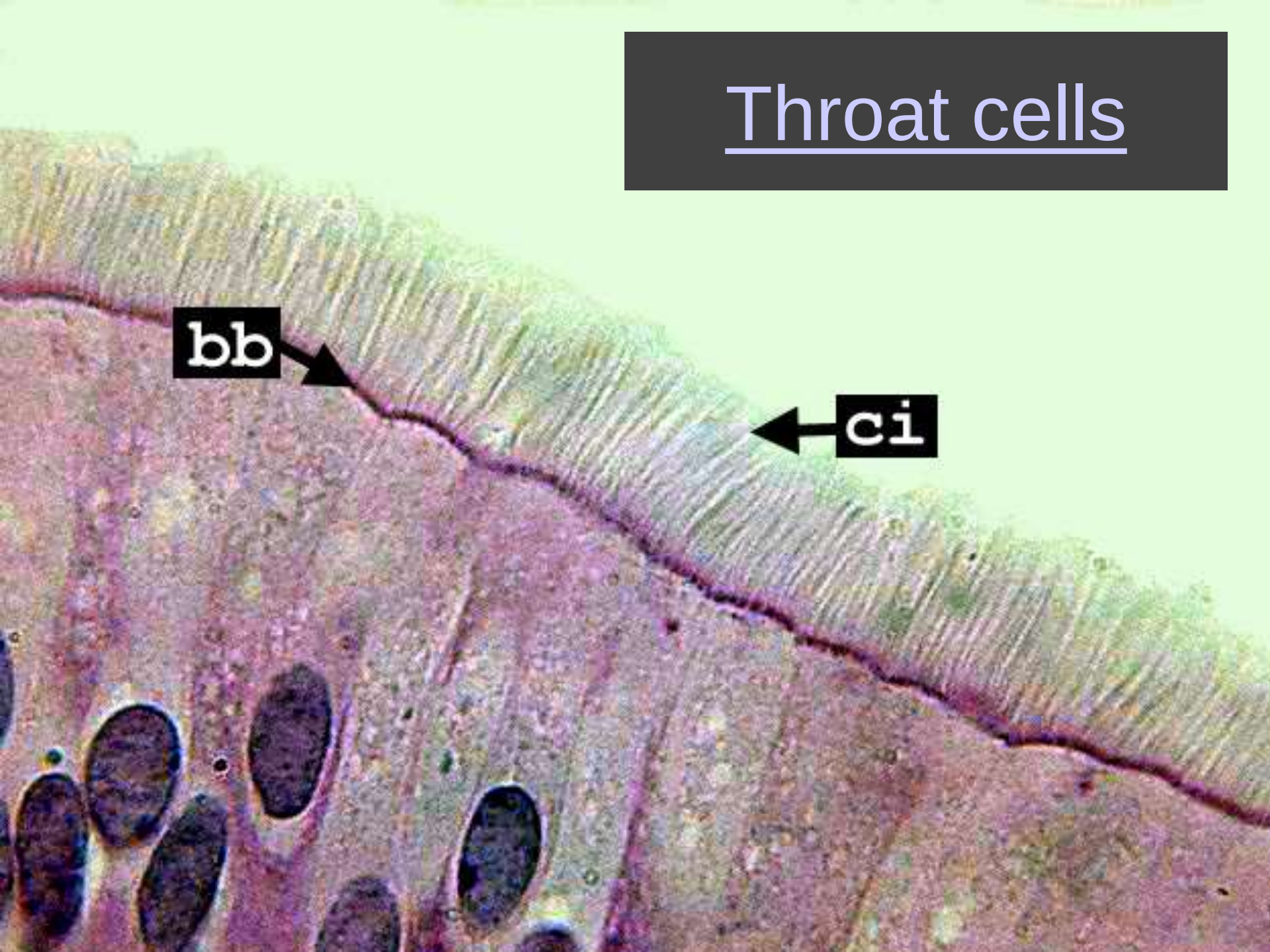


Flagellar diversity in Euglena species.


Sperm use flagella

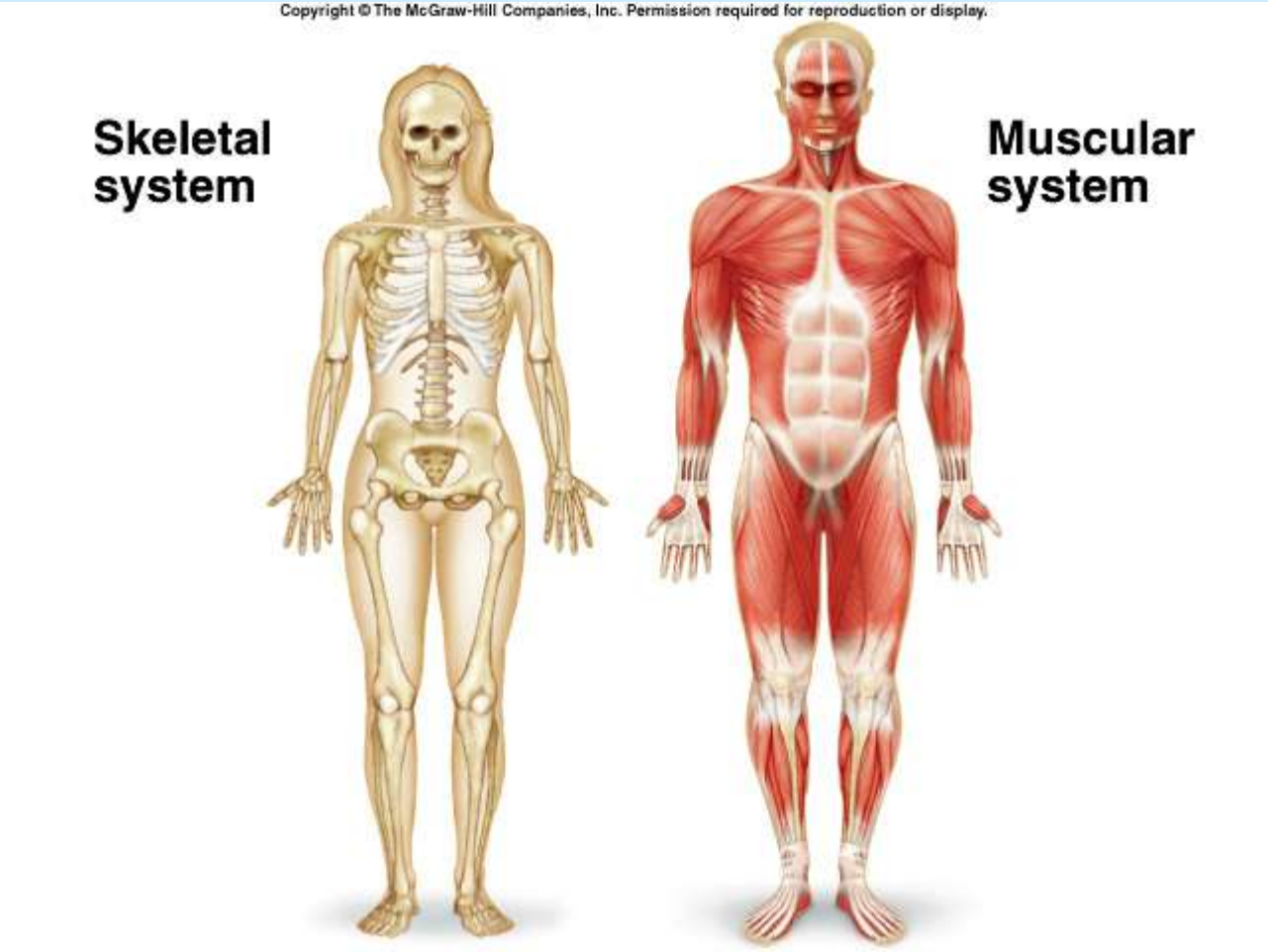
Cilia

Throat cells



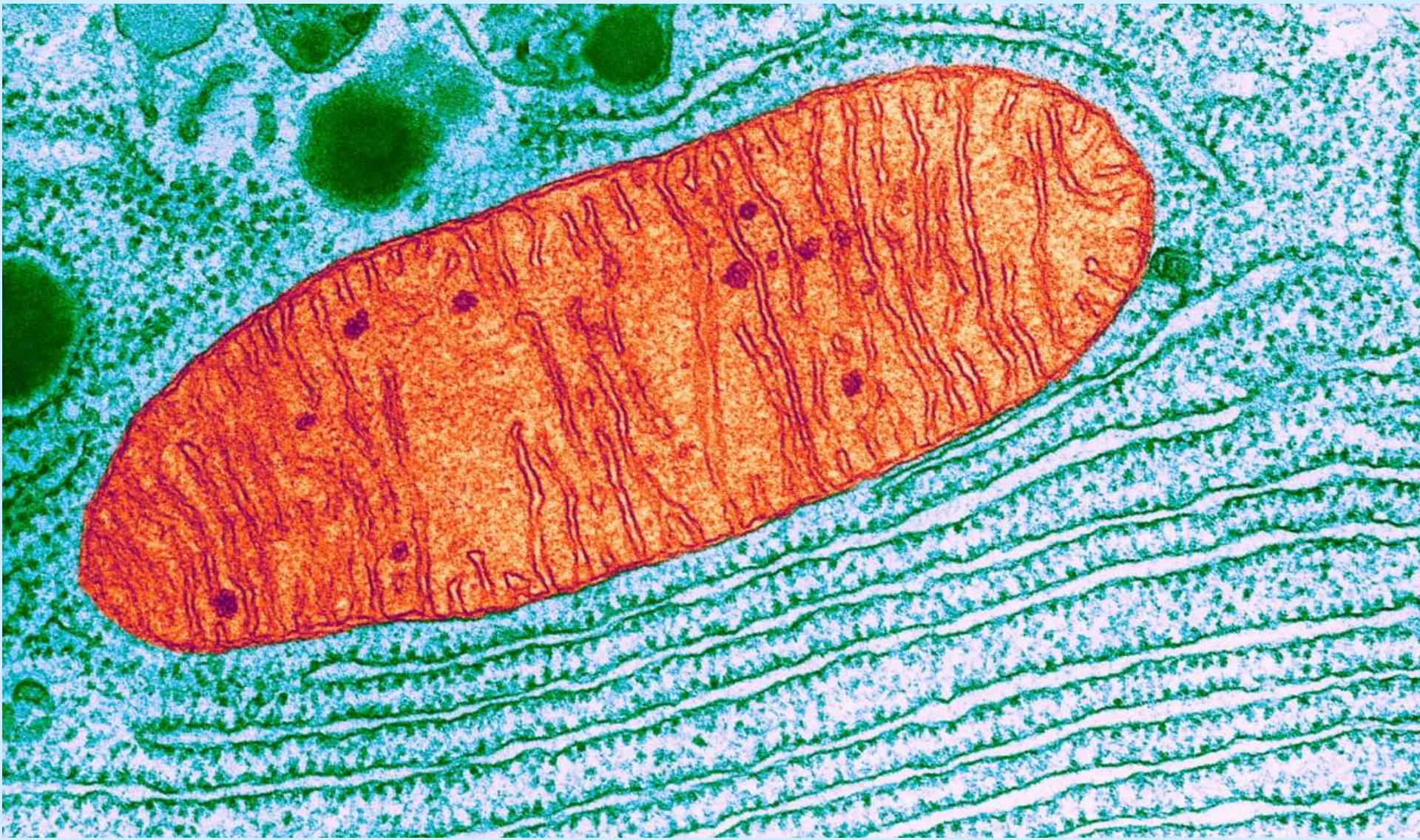
Skeletal muscle system

- Bones connected by ligaments
- Muscles connected by tendons

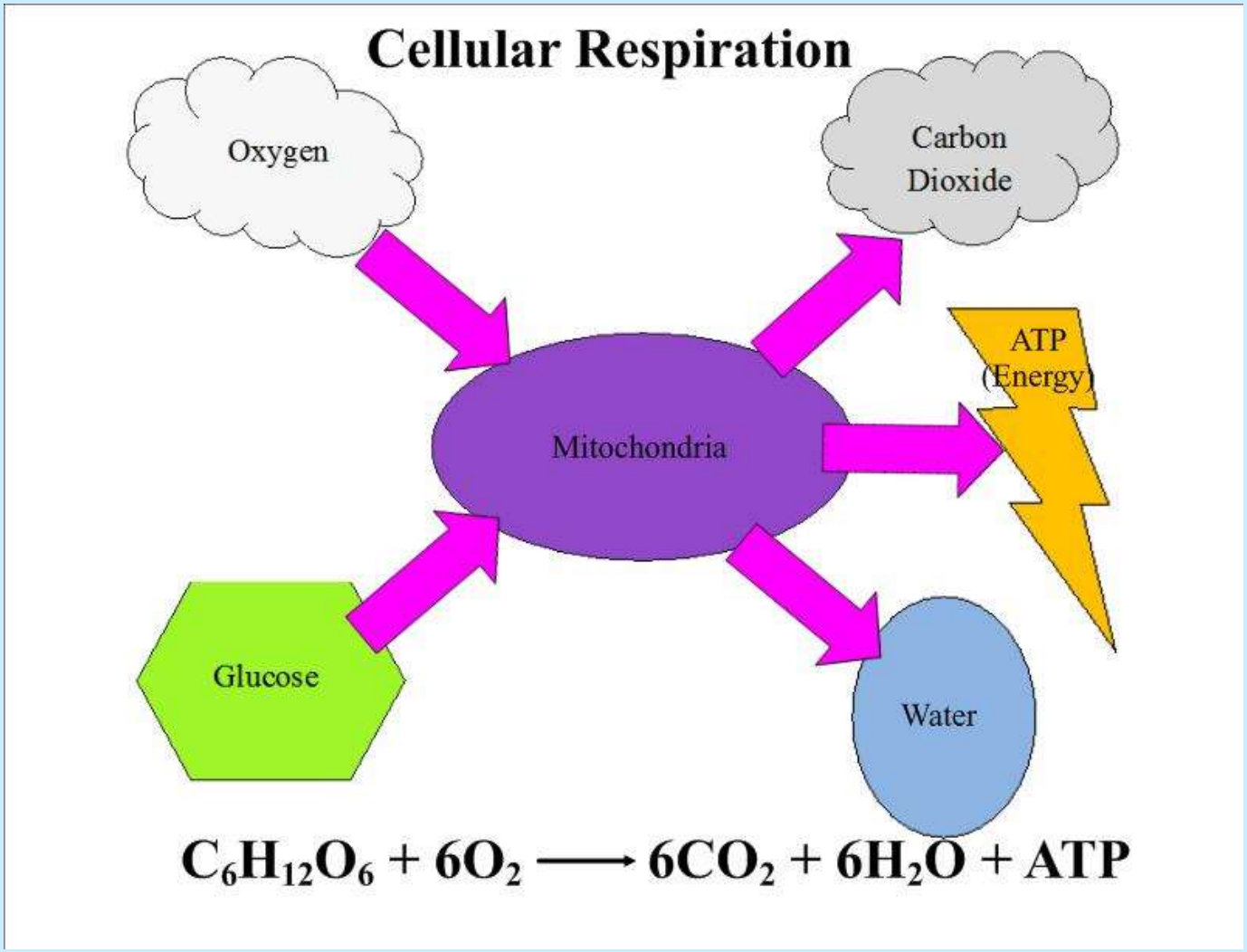


Respiration

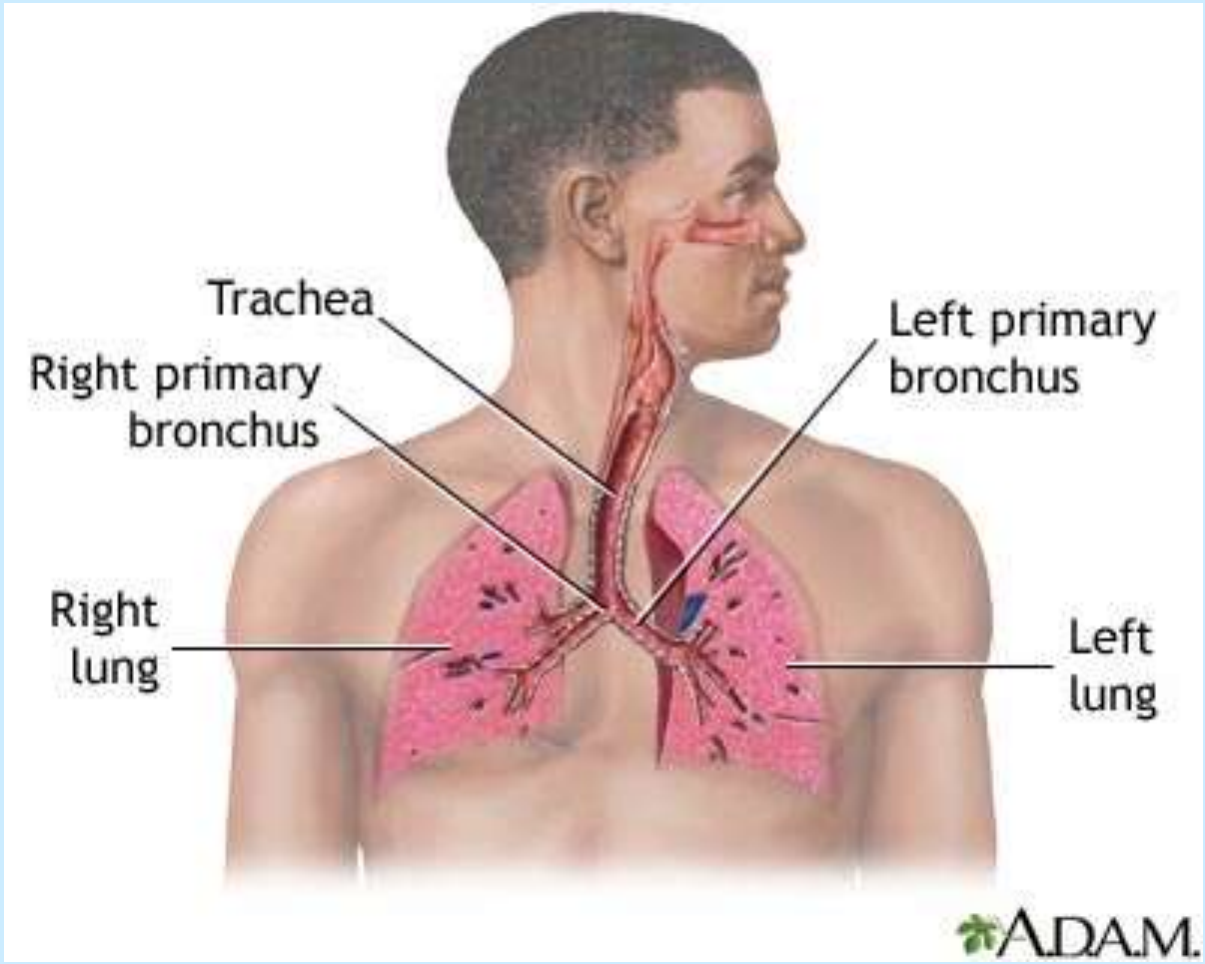
- Purpose:
  - Release **energy** from food
- Types:
  - Aerobic = with O_2
  - Anaerobic = absence of O_2



Organelle
Mitochondria produce ATP



Respiration requires gas exchange =Respiratory system



Synthesis

- Purpose
  - Make things
- Examples:
  - photosynthesis


Chloroplasts absorb sunlight

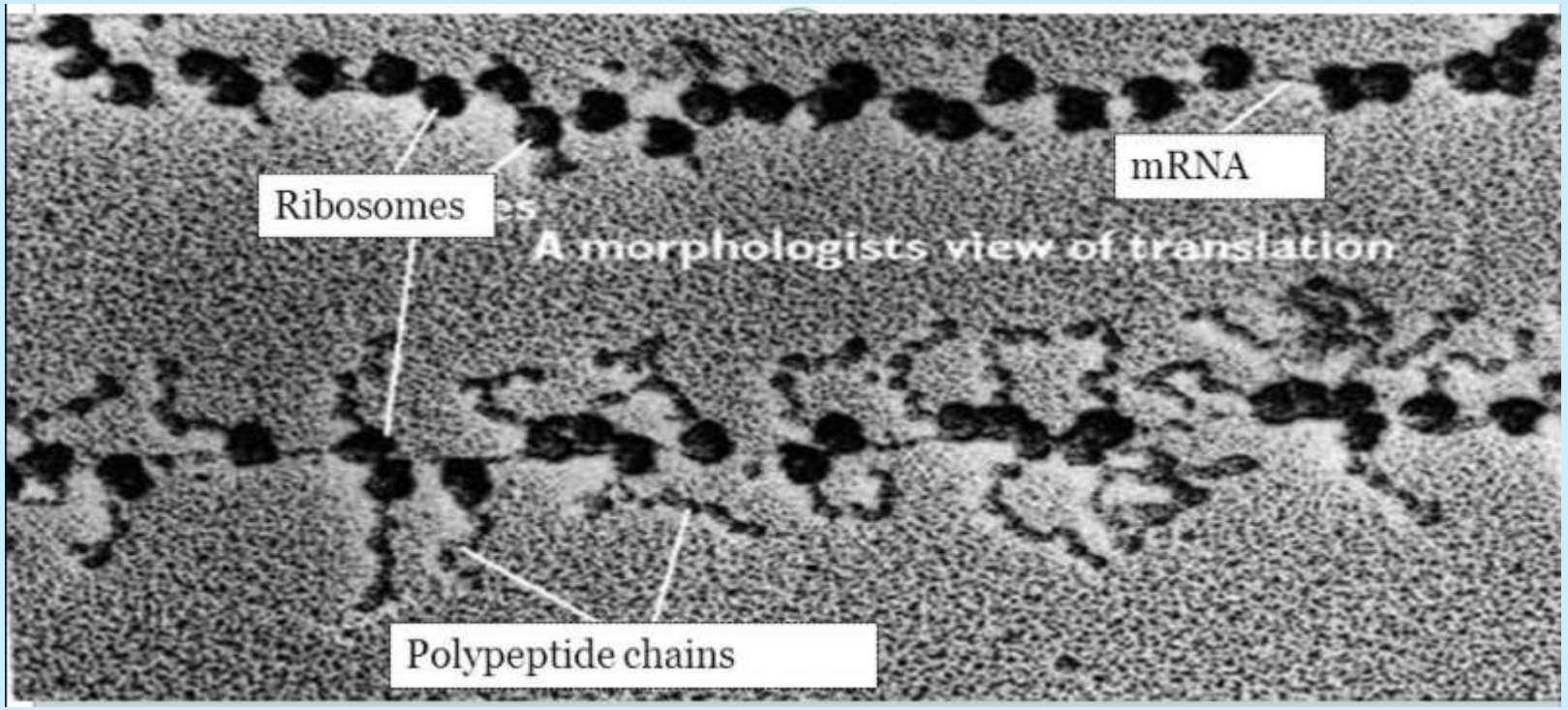
Synthesis

- Purpose
  - Make things
- Examples:
  - Protein synthesis

Body system

- LEAVES = organs → photosynthesis

Ribosomes → protein synthesis



Circulation

Purpose =

- Transport of materials within an organism

Organelles = Cytoplasm

2 types of transport tissues in plants

- Xylem = carries water and nutrients up to leaves

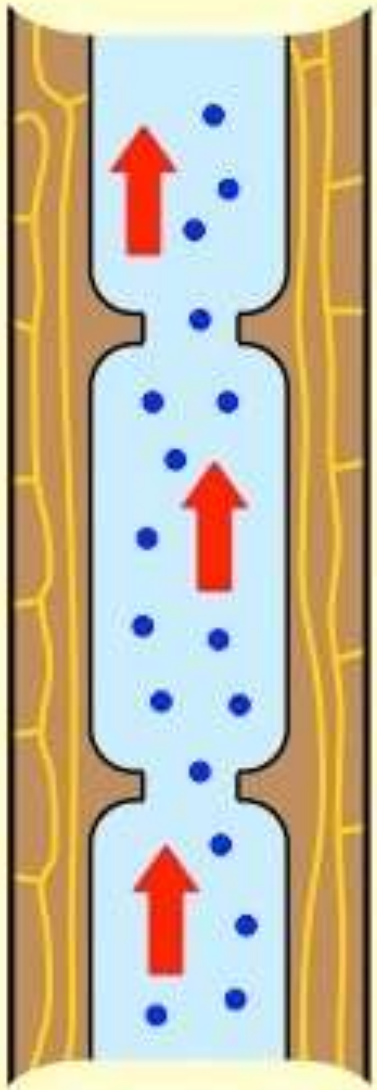
- Phloem = carries sugar down to roots

water and minerals

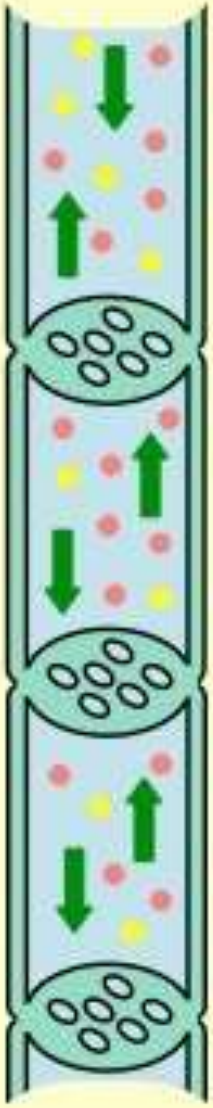
no end walls between cells

one-way only

outer cells are not living



XYLEM



PHLOEM

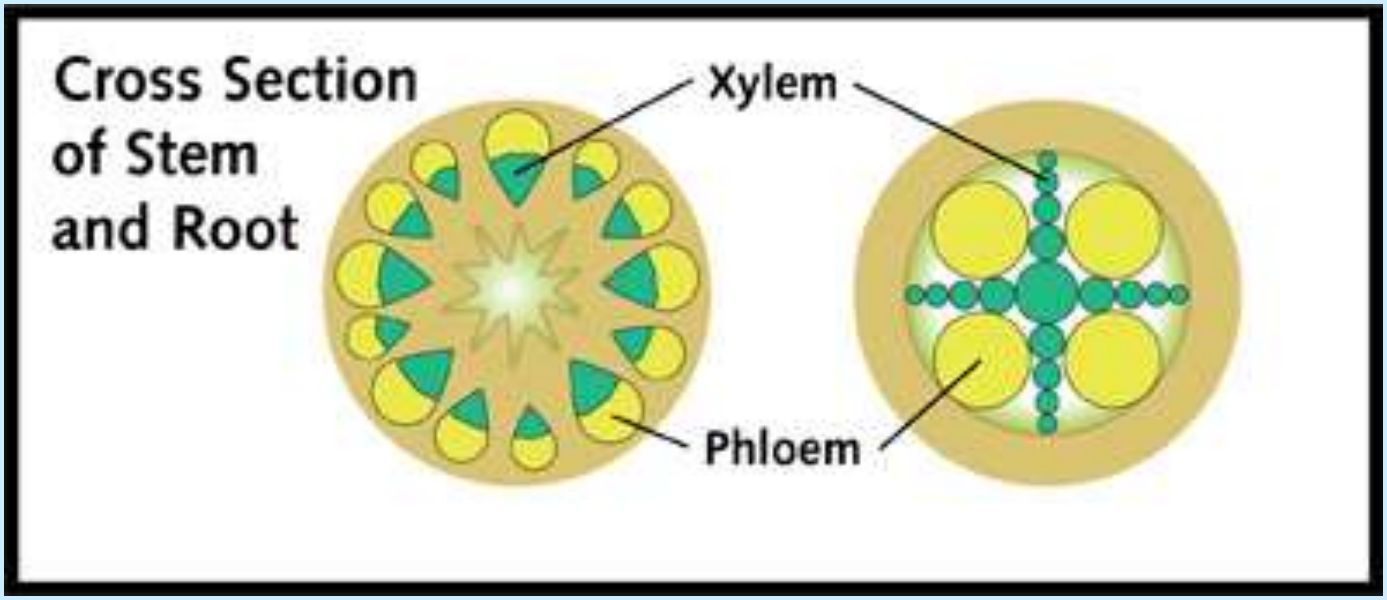
organic molecules

end walls (sieve plates)

two-way movement

cells are living but need support

Circulation in plants



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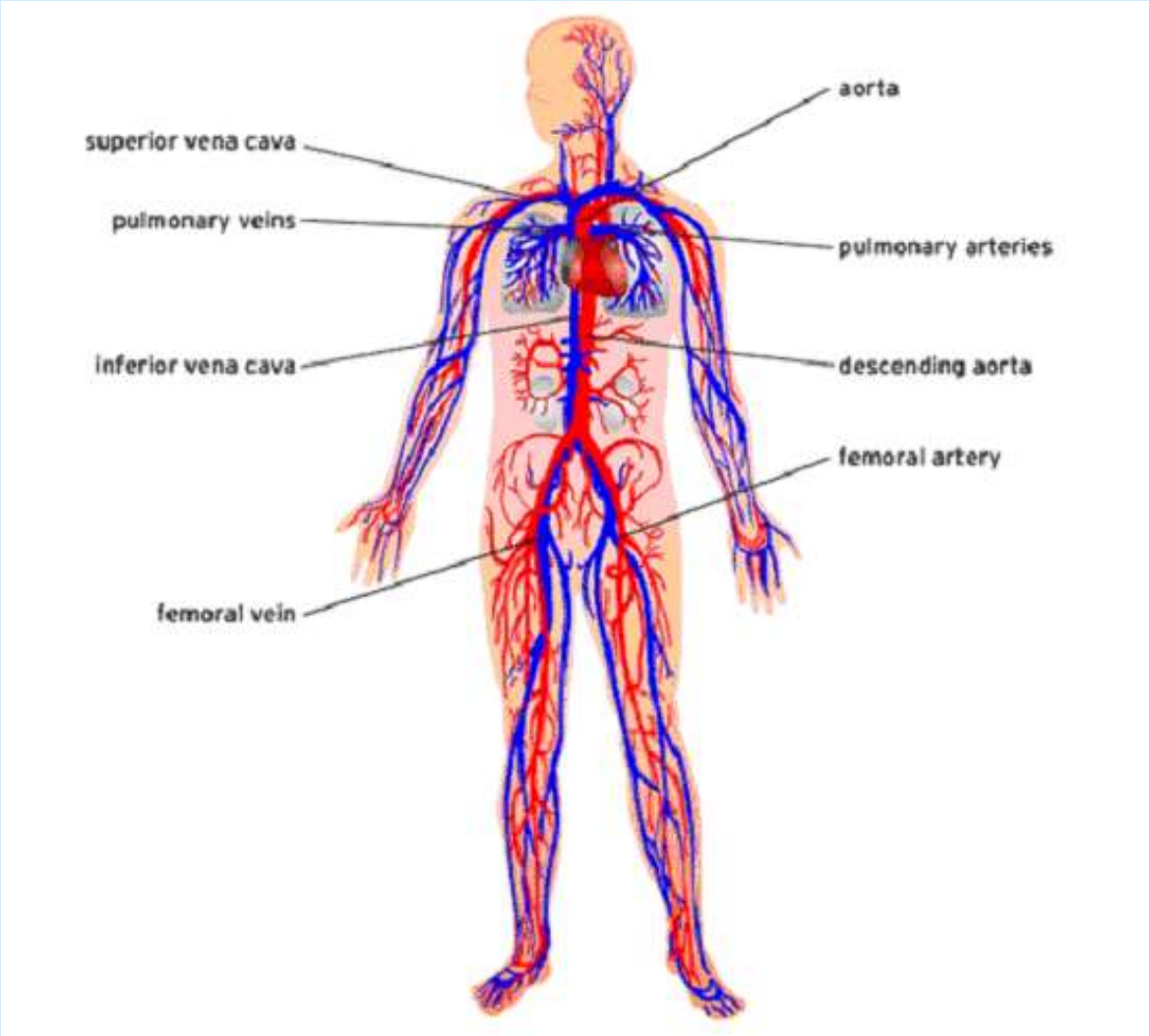
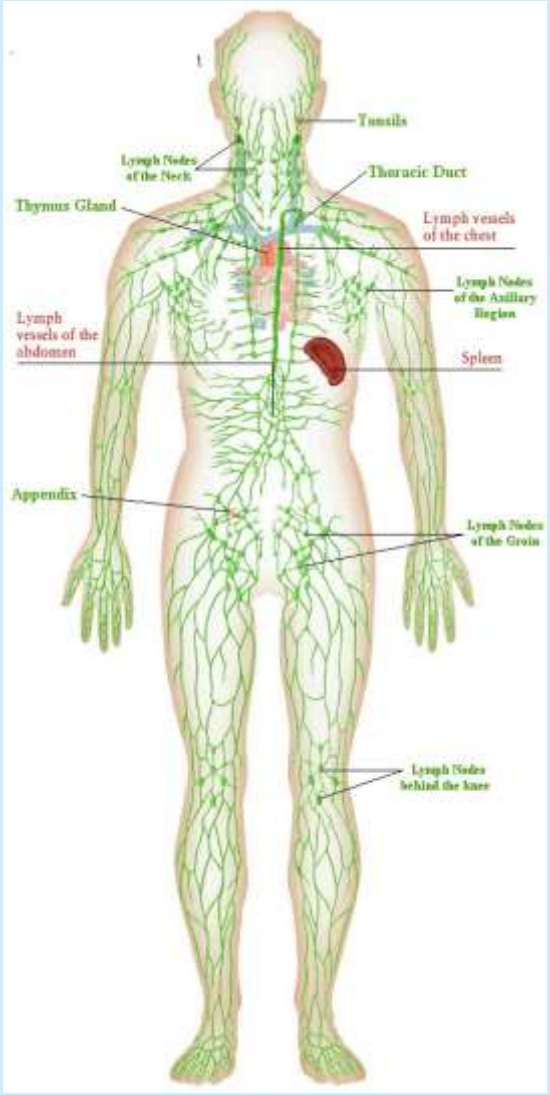
Human Circulatory System



Heart pumps blood through arteries, veins and capillaries

Lymphatic System



Lymph collects body fluids and checks for disease

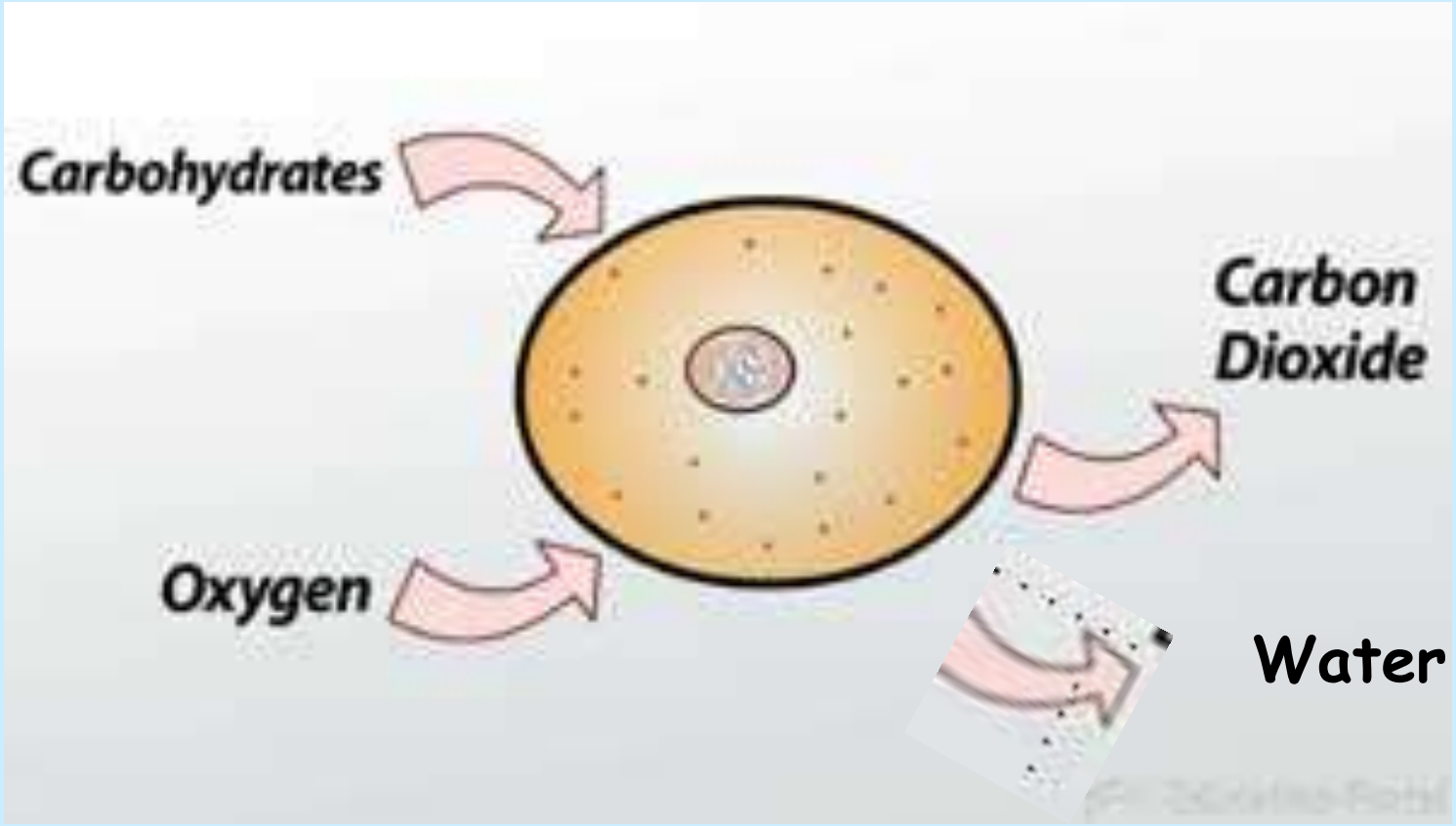
Excretion

Purpose:

- Removal of cellular wastes
- Wastes include:
  - CO_2, H_2O,
  - heat, nitrogen wastes → urine and sweat

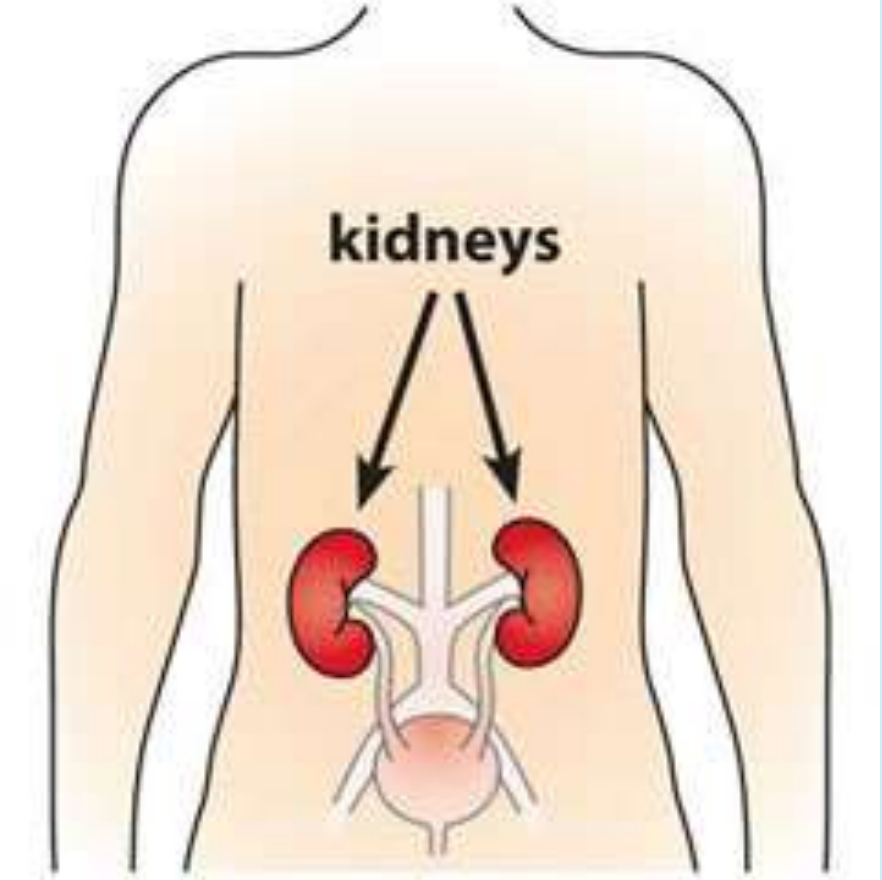
Organelle

Cell membrane



Excretory system

Kidneys filter blood → urine

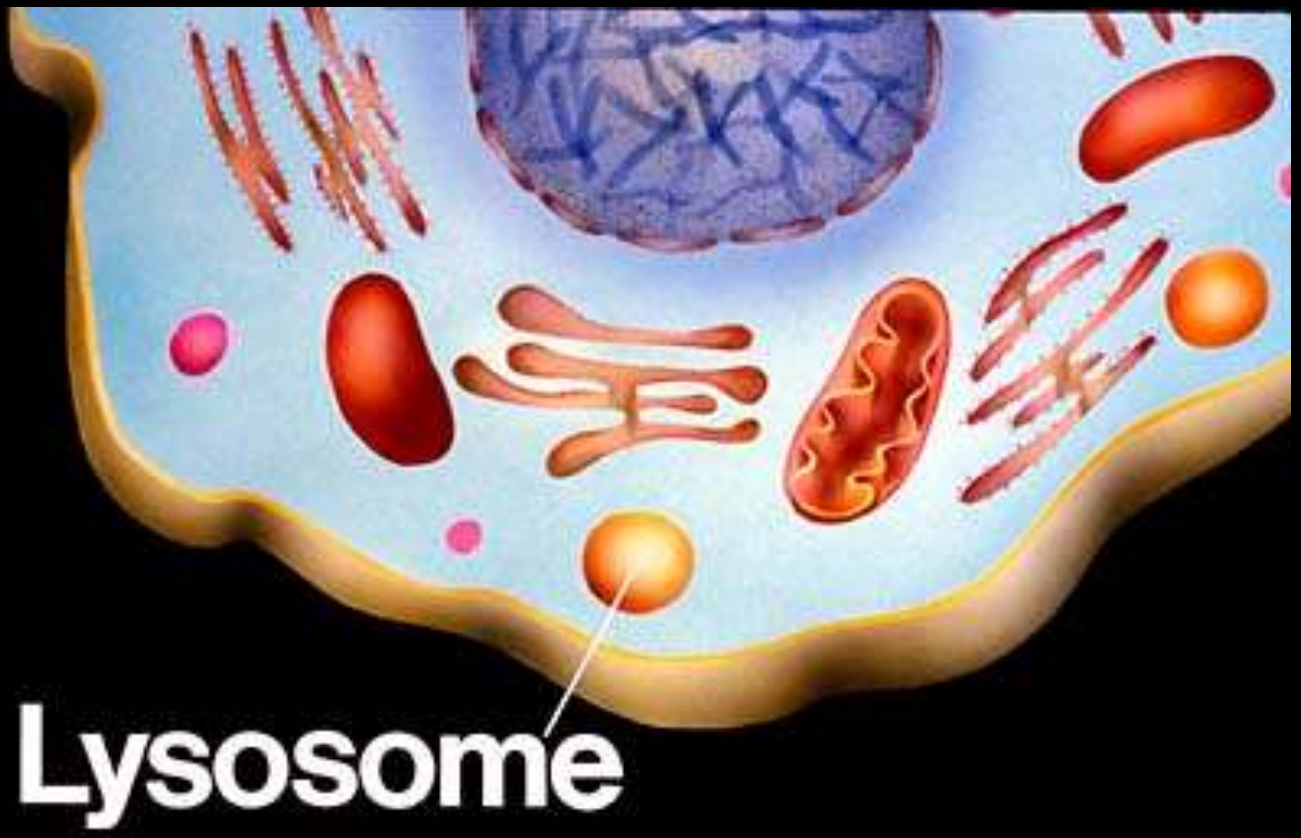


Digestion

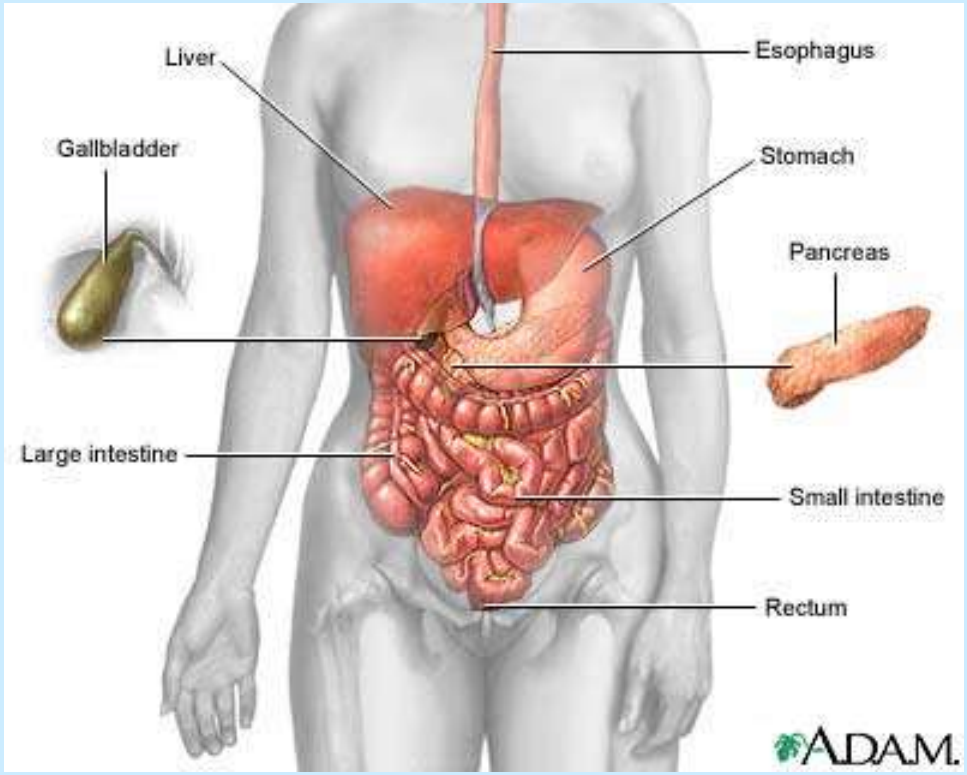
Function

- break down food into building blocks
  - Complex sugars → simple sugars
  - Proteins → amino acids

Lysosomes (lots of acids and enzymes)



Digestive system



http://www.nlm.nih.gov/medlineplus/ency/images/ency/fullsize/1090.jpg

Digestive system

- Chemical digestion
  - (enzymes and acids)
- Mechanical
  - Chewing and churning

http://www.nlm.nih.gov/medlineplus/ency/images/ency/fullsize/1090.jpg

Immunity

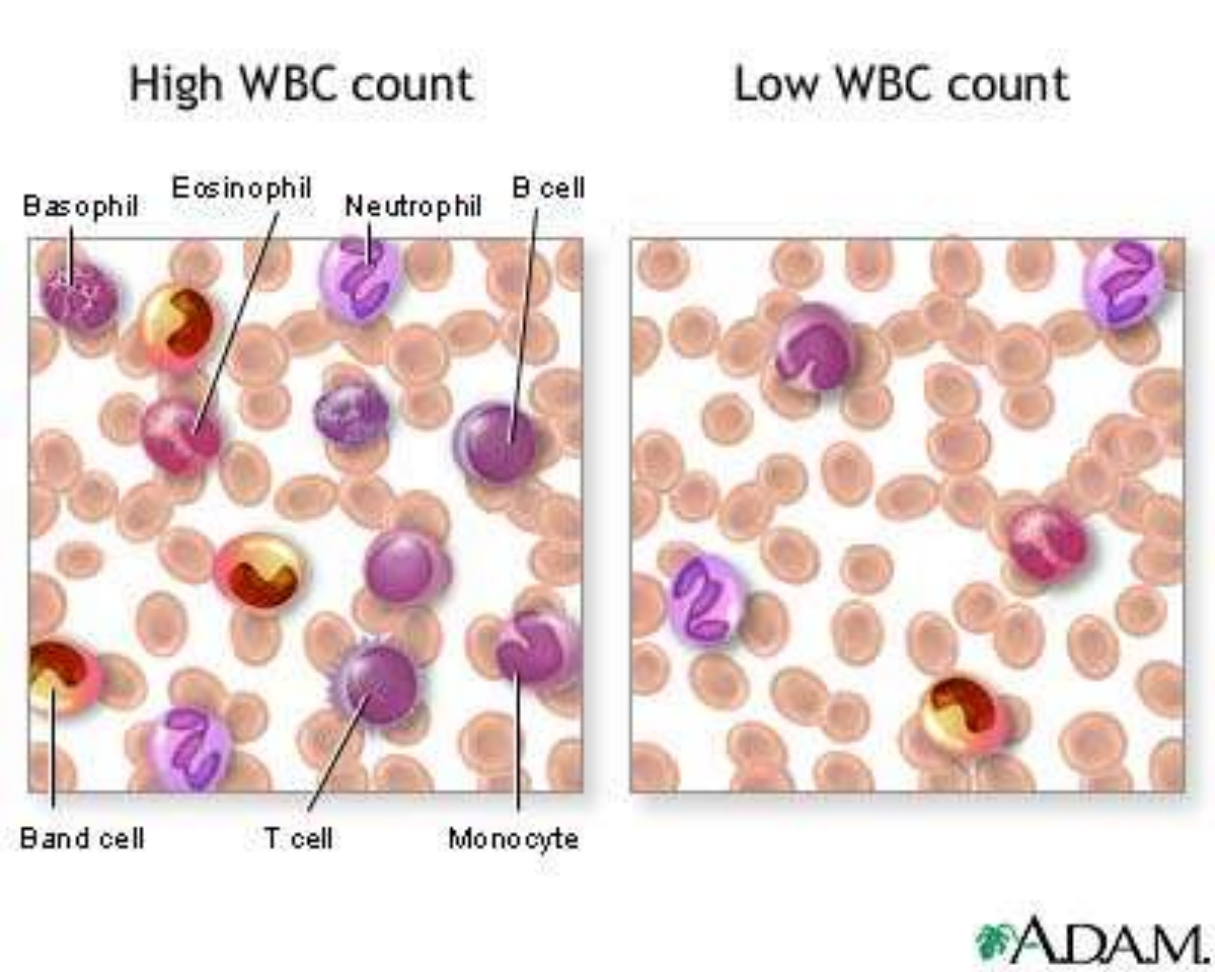
Purpose

- Prevent disease and kill pathogens
- Pathogens = disease causing organisms

Organelle = Cell membrane

Body system = immune system

- White blood cells travel in blood and lymph



http://static.howstuffworks.com/gif/adam/images/en/white-blood-cell-count-results-picture.jpg

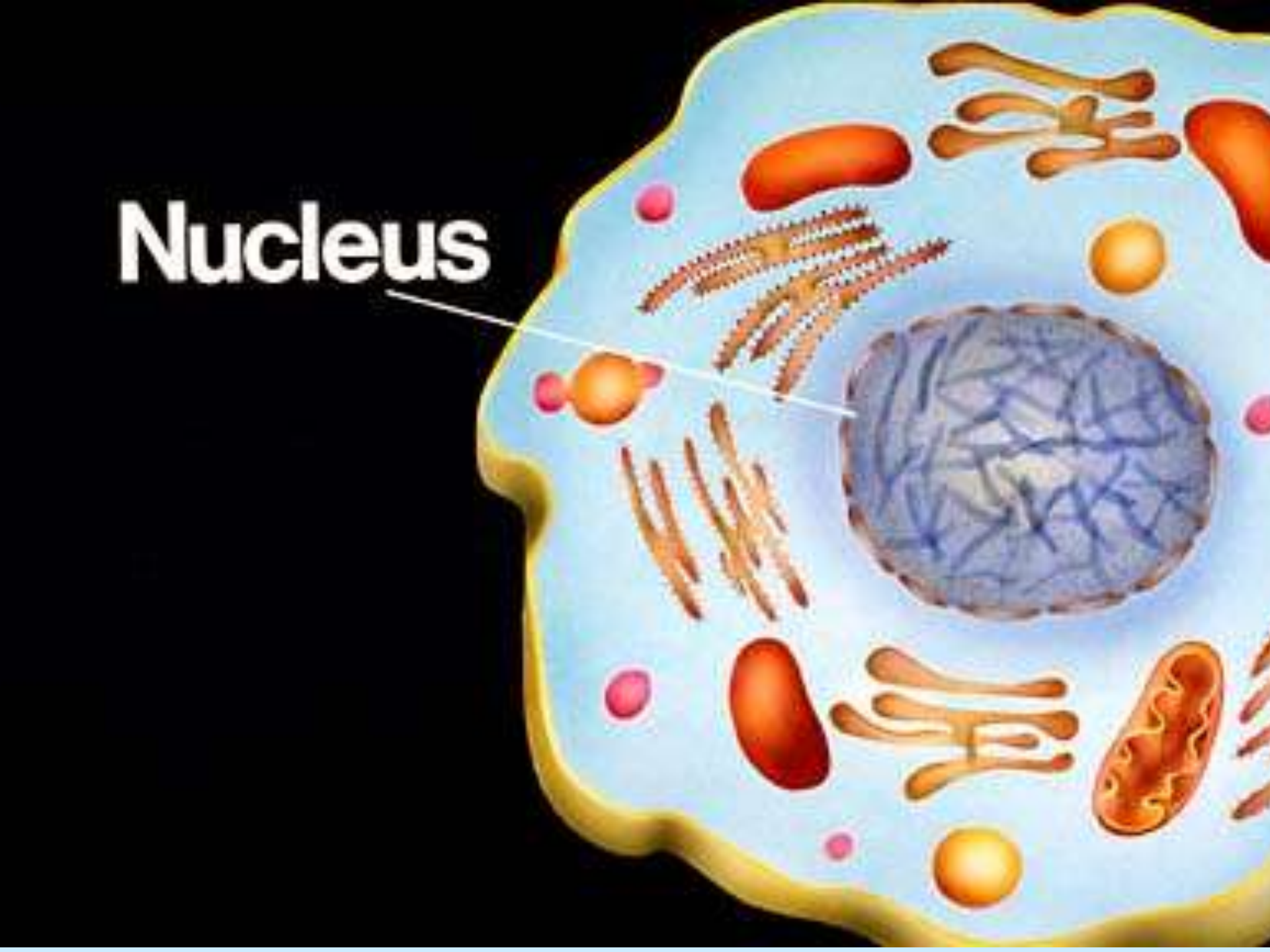
Coordination and regulation

Purpose

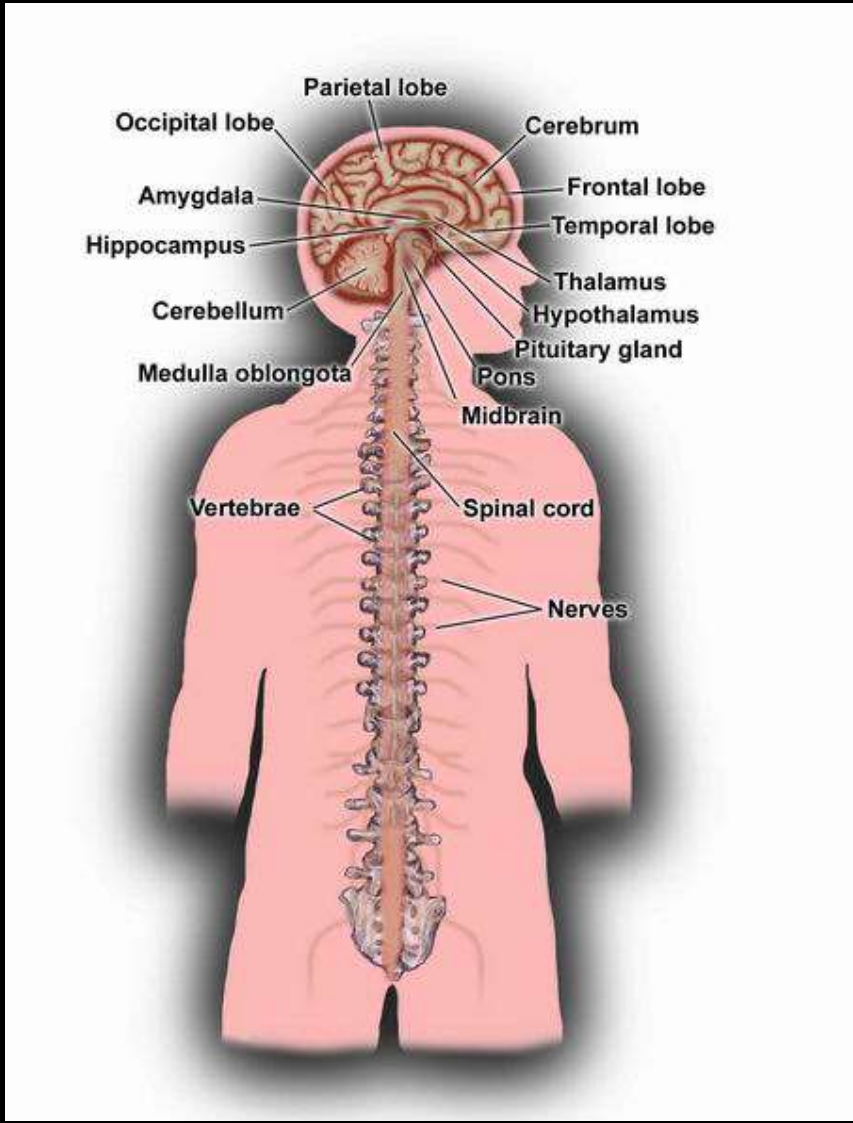
- Control life functions
- communication

Organelle = Nucleus

- Nucleus
  - DNA contains information


Nucleus

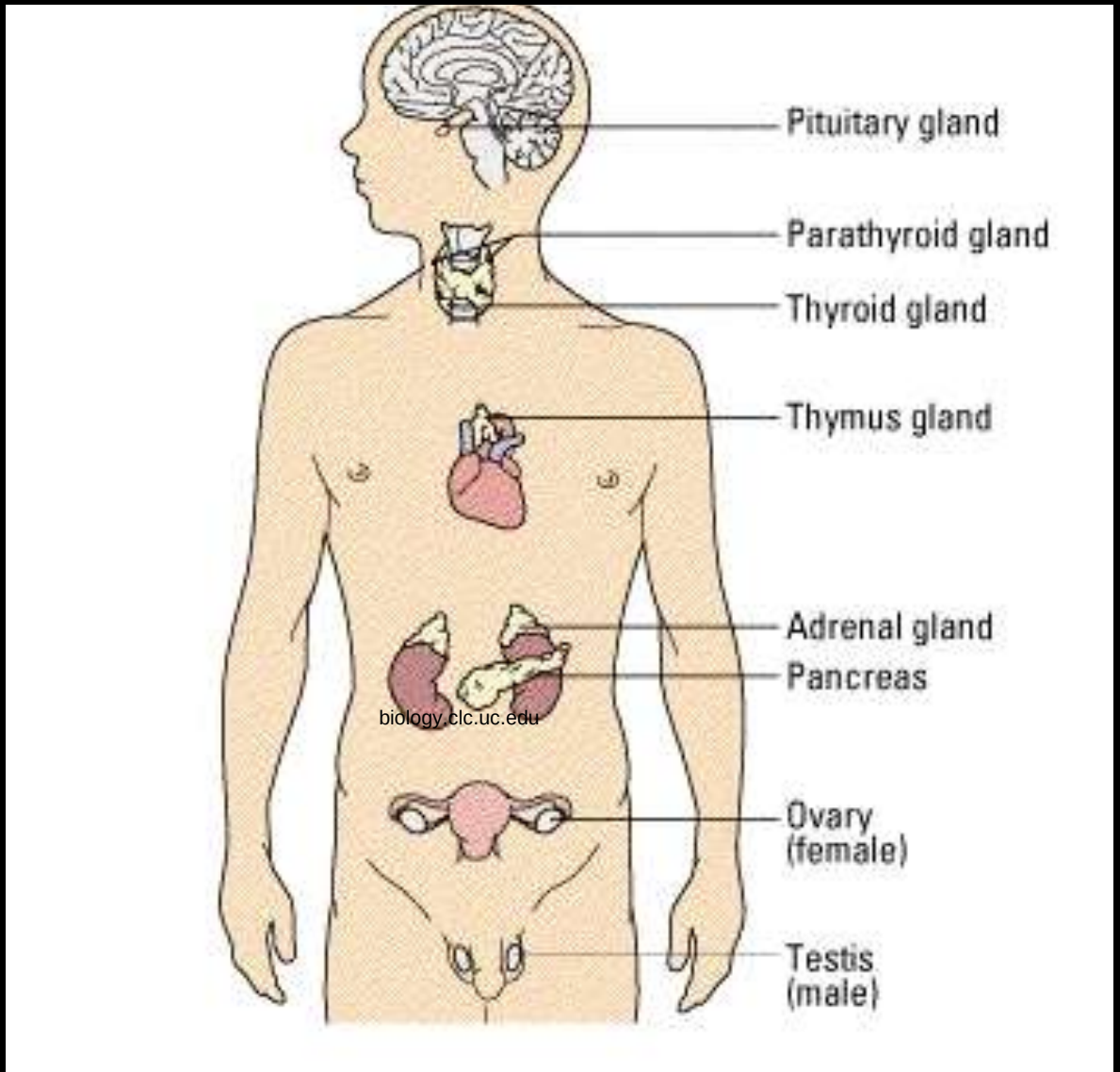
Nervous system



Nervous system

- Organs = brain and spinal chord
- Cells = nerve cells

Endocrine system



Endocrine system

Organs =

- glands release chemical messengers
- Called hormones

Reproduction

Purpose:

- Necessary for the continuation of life
- 2 types
- Asexual → genetically identical offspring
- Sexual → diversity

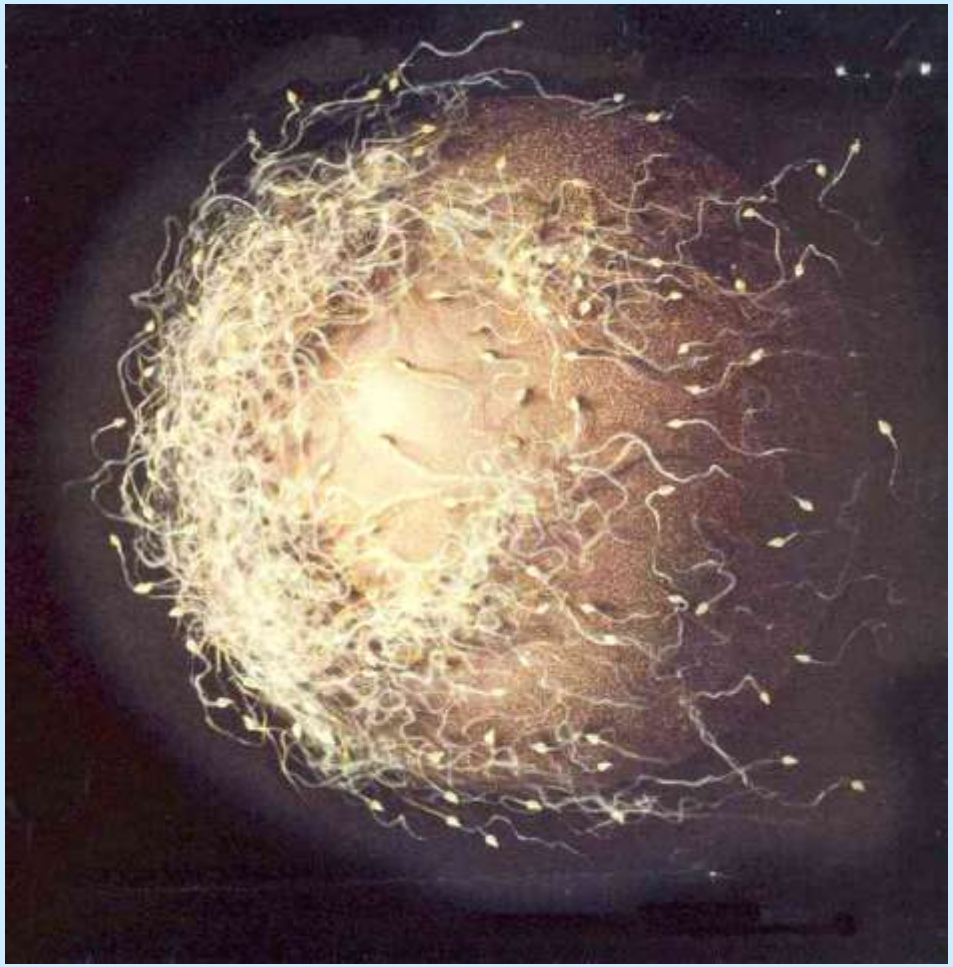
Organelle = nucleus

DNA replicates and cells split

Reproductive system

- Organs
  - Females = ovaries → eggs
  - Males = testes → sperm

Advantage of Sexual reproduction → increased diversity



MRS. CEDICR

- Movement
- Respiration
- Synthesis
- Circulation
- Excretion
- Digestion
- Immunity
- Coordination and regulation
- reproduction

Cells and Tissues

- https://www.youtube.com/watch?v=7bDpYZsC8mQ
- Tissue rap http://www.teachertube.com/video/4-types-of-tissues-rap-464117