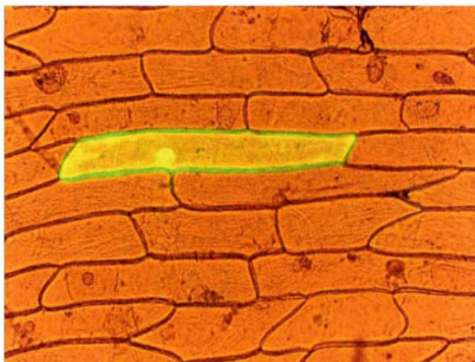
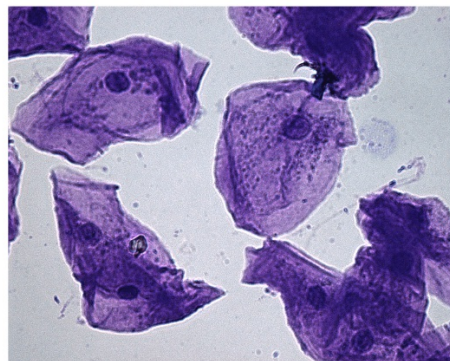


**Living things are made of cells.  
We can see cells with a microscope.**



[www.nrc-cnrc.gc.ca](http://www.nrc-cnrc.gc.ca)

**Plant Cell Magnified  
(onion cells)**



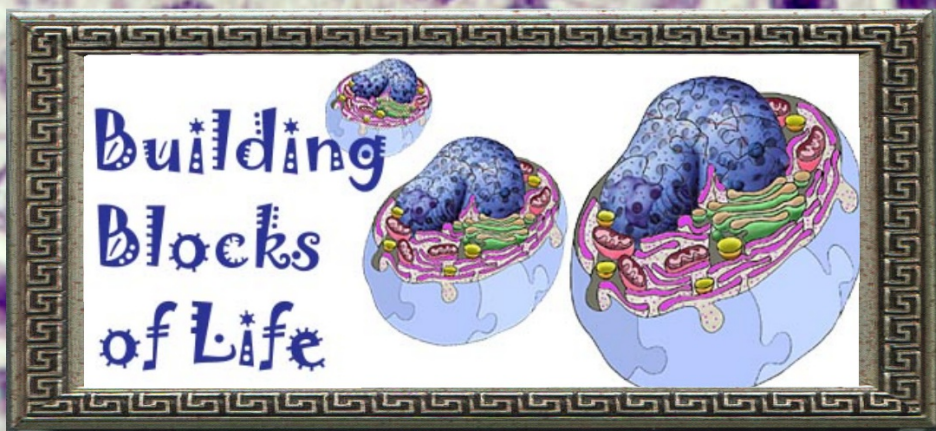
[www.washington.uwc.edu](http://www.washington.uwc.edu)

**Animal Cells  
(cheek cells)**

The smallest building block that makes up all living things is the cell.

All living things are made of cells.

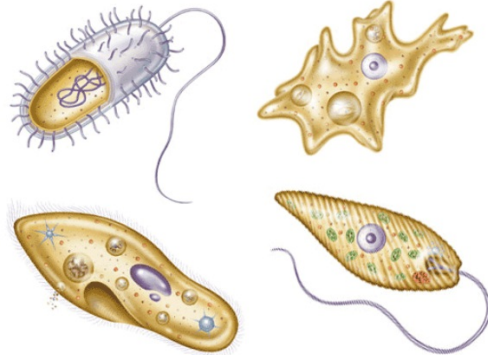
Cells come from other cells. Cells divide, or split into two new cells.



## **UNICELLULAR**

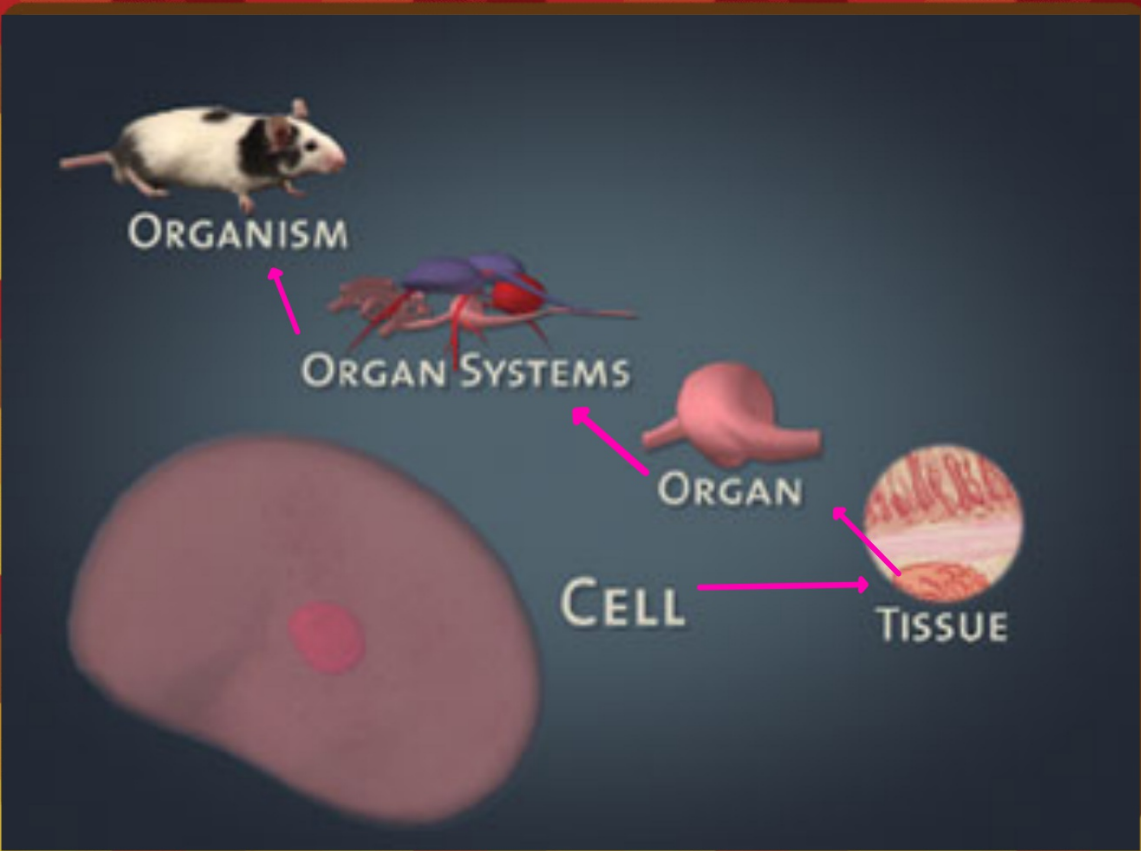


- **one-celled** organism that carries out all life processes within that cell



## **MULTICELLULAR**

- made of **more than one** cell. These include trees, frogs, and you. In multicellular organisms, every cell carries out its own life processes, but the cells also work together to take care of different functions for the organism.

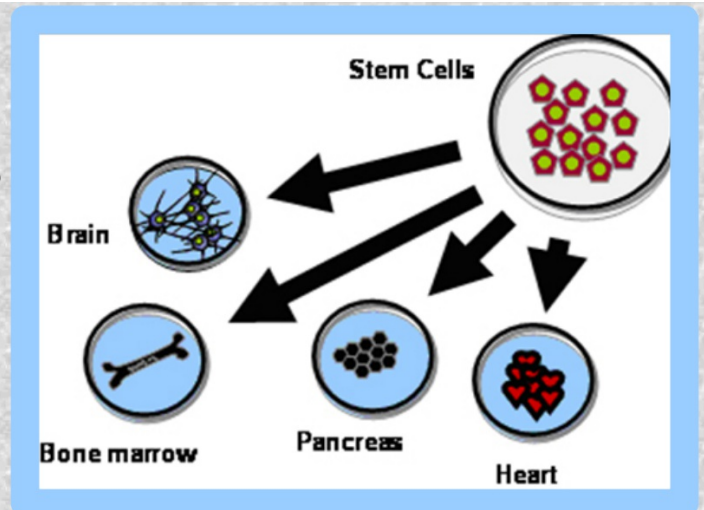




**The more cells an organism has, the more specific each individual cell's job becomes.**

- When cells have their own special jobs or functions
- Only multicellular organisms can have specialized cells

# How do you get specialized cells?



- They start as a **stem cell** = has the ability to become **any type cell in the body**.
  - Stem cells get **signals** (usually **hormones**) to become a **certain** type of **cell**.
- (this is called **DIFFERENTIATION**)



## ***Specialized Animal Cells***

- Muscle, bone, brain, nerve, skin, hair = all different cells with different functions
- Muscle cells: have more mitochondria than other cells = more ATP energy!
- Red Blood Cells: lose their nucleus and are bowl-shaped to carry oxygen molecules

***Remember: hemoglobin is a protein that binds to oxygen molecules***

How fast do  
RBCs carry O<sub>2</sub>?

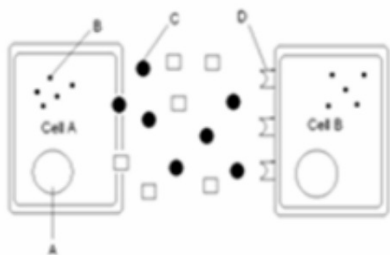


# Cell Communication

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## 1. Hormones

- proteins, so shape matters!
- Only work for cells with the right shaped proteins
- Travel slowly
- In plants AND animals



## 2. Neurons

- In the nervous system.
- Messages travel electrically
- Travel quickly
- In animals ONLY

