Cellular Communication

➔ Multicellular organisms have cells that communicate with each other.

HOW DO THEY DO THIS???

✪ The information they send is in the form of ***chemical*** and ***electrical*** signals.

BUT HOW DO THE CELLS RECEIVE THIS INFORMATION??

⬇

Receptor proteins

☺ Some are located on the cell surface in the plasma membrane

☺ Some are located inside the cell

☺ Function as tiny antennas and messengers ready to transmit or carry important information to the cell

Receptor Protein Channels located on the surface of the cell

- Protein extends through the cell membrane
- Chemical signals that cannot pass through the membrane can send a message into the cell through these proteins

☑ Chemical signal binds to the protein surface
☑ Sends its message through the protein
☑ Message gets delivered into the cell

Some Protein Channels located on the surface of the cell Can Respond to Electricity

☺ Voltage-sensitive protein channels lined with charged amino acids
☺ At one end of the channel is a gate that is usually closed
☺ When ions carrying electrical message arrives, gate opens
☺ Ions enter the cell
☺ Electrical message is relayed to the cell

Receptor Proteins located inside the cell

- Chemical signal passes through the cell membrane
- Binds (attaches) to a receptor protein inside the cell
- Signal + protein travel to the cell's nucleus
- Message gets relayed to the DNA of the cell

Cell Markers Identify Cells

- Specific membrane proteins
- Called *cell surface markers*

WHAT DO THESE CELL SURFACE MARKERS DO??

✪ Distinguish your cells from other cells
  - ☞ Helps your immune system recognize and destroy uninvited guests

✪ Used in early embryonic development
  - ☞ Determines a cell's fate: helps decide what type of cell it will become (muscle, skin, kidney, etc.)