

The Wonderful Cell Membrane (a.k.a the Plasma Membrane)

Our cells are in constant contact with fluids such as blood and tissue fluids.

It is from these fluids that our cells get the nutrients they need.

Cells also release any wastes they produce into these fluids.

The uptake and release of contents into and out of the cell is regulated by the CELL MEMBRANE

And our cell membrane is picky about what it lets in and lets out!!

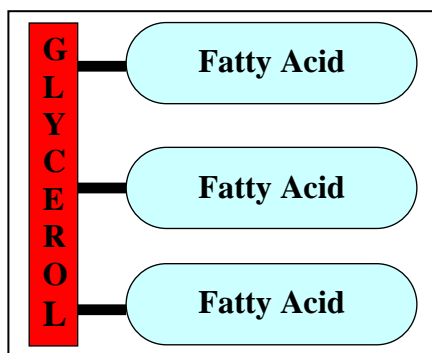
This is called SELECTIVE PERMEABILITY.

Selective permeability is the ability of the cell to **REGULATE** what it allows to enter and what it allows to leave.

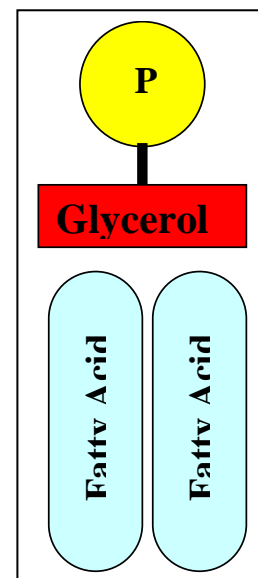
WHY DO YOU THINK THIS IS IMPORTANT?

A model of the Plasma Membrane

- ☺ Lipid bilayer
- ☺ Made up of two layers of molecules called phospholipids (hey-phospholipids are DIFFERENT from regular lipids)



Lipid



Phospholipid

- **A phospholipid has 2 fatty acids and a phosphate group**
- **Fatty acids are NON-POLAR – they do not dissolve in water (hydrophobic – HATES WATER!!)**
- **The phosphate group IS POLAR – it easily dissolves in water (hydrophilic – LOVES WATER!!)**

So what does all of this mean in terms of the ARRANGEMENT of these molecules in the lipid bilayer????

- ➔ **The POLAR phosphate head point toward the inside and outside of the cell membrane where water is plentiful**
- ➔ **The NON POLAR fatty acid tails point away from water – toward the middle of the cell membrane**

This arrangement of the cell membrane forms

- ➔ **Spontaneously (by itself)**
- ➔ **can be maintained without the cell using any energy**
- ➔ **moves (is flexible)**
 - **fatty acid tails can wag back and forth**
 - **entire phospholipids can glide from side to side**

Hey, wait a minute---there are other compounds in the bilayer too!!

★ Cholesterol –

- **Binds to the phospholipids and restricts movement.**
- **This makes the cell membrane strong and flexible**
- **STRUCTURAL ROLE**

★ Proteins

- **work as channels to help bring bigger compounds in (regulate what comes in/goes out)**
- **serve as enzymes – take part in chemical reactions**
- **FUNCTIONAL ROLE**

**We call this structure of the bilayer the
FLUID MOSAIC MODEL**