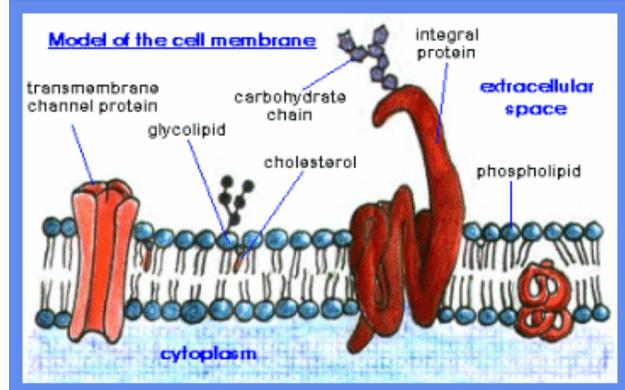


Cell Membranes Fact Sheet (part of dialysis demo)

Our bodies are made up of trillions of cells, each of these cells is like a mini factory. In order to keep each factory in working order the cells needs a security guard to protect the factory. The security guard of a cell is its **cell membrane**. The cell membrane allows certain items into a cell and blocks others from entering, just like a security guard protects a real factory.

COOL FACTS

- Cell membranes are only 10 nm thick!!
- A cell membrane is 20,000 times thinner than a human hair!!!
- Your body builds cell membranes from cholesterol!!!
- Charged particles can move in and out of our cells through our cell membranes, this causes the membranes to generate a voltage, in an electric eel the voltage is large enough to kill a person!!! Luckily our cell membranes do not make such a large voltage.



FAQ's

Q: Why do cells have cell membranes?

A: Our cells have cell membranes to keep important things inside the cell and to guard against dangerous things entering our cells. That is why the cell membrane can be thought of as the security guard of our cells. It protects our cells!!

Q: What does a cell membrane look like?

A: Cell membranes are a very thin wall that surround the inside our cells, you can think of them being like a fence around a yard. The cell membrane is made up of two layers of fat, the same fat that is in our food, with protein on top of and between the layers of fat.

Q: How do cell membranes allow things in and out of our cells?

A: There are three main ways our cell membranes allow things to cross inside of our cells diffusion, facilitated diffusion, and active transport. During diffusion molecules will be absorbed through the cell membrane into cells. The molecules that are allowed to enter the cells through this process are very small. If they are bigger they need to enter to using facilitated diffusion or active transport.

Q: How does facilitated diffusion work?

A: Facilitated diffusion works like a gate, the cell membrane acts as the gate keeper. When something that wants to enter a cell reaches a cell membrane and it can not enter via diffusion, a gate will open and allow the molecule to enter. The proteins that sit on the outside of the cell membranes act as the gates. If the same type of molecule needs to leave a cell the gate will open and allow the molecule to leave. Molecules will enter and leave a cell based upon the concentration of that molecule inside of the cell. If there is not enough of a certain molecule inside a cell the gate will open and allow a molecule to enter. If there is too many of a certain molecule the gate will allow some to leave.

RELEVANCE TO OUR LIVES: Our bodies are made up of many cells, and the cell membranes protect our cells from things entering and leaving our cells. They help to provide our cells with the food it needs as energy by allowing important molecules into the cell. Cell membranes also keep out things that can harm our cells. The cell membranes may be small they are extremely important!!!

RESOURCES:

Children's Encyclopedia: http://www.kids.net.au/encyclopedia-wiki/ce/Cell_membrane

Cells for Kids: <http://www.kathimitchell.com/cells.html>

How Cells Work: <http://science.howstuffworks.com/cell.htm>