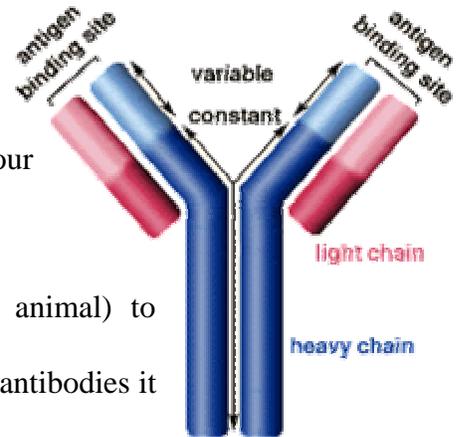


Antibodies: Playing Favorites

A **antigen** is a foreign agent that infects a person or animal and causes them to become sick. Antigens can be virus or bacteria. Our bodies fight antigens with proteins called **antibodies**. **Antibodies** stop the antigens from infecting other cells in our bodies by locking on to the virus and killing it.



COOL FACTS

- Viruses are not alive, they need a host (a person or animal) to reproduce.
- Your body has a library of antibodies, it remembers every antibodies it makes!!
- You can only be infected by the same antigen once. This is why you will only get the chicken pox once!!!!
- When we are infected by a virus or certain types of bacteria our bodies produce many different antibodies, but only one will help us to get better!!

FAQ's

Q: What does an antibody look like?

A: An antibody looks like a Y, it is made up two chains a heavy chain and a light chain. The heavy chain looks like a Y and the light chain is located along the top part of the Y that spreads out.

Q: Why are antibodies different for each antigen?

A: Antibodies are specific to each antigen, just like a lock and a key. At the top of each antibody is an area called the variable region, this region is different for each antibody and is specific for fighting each different type of antigen. When you get a cold, a virus, your body looks through its antibodies to see if any of them are the proper key used to kill the cold virus. If you do not have the right "key" your body makes new antibodies to fight the antigen. Hopefully your body will produce the right key quickly!!

Q: How does a flu shot stop me from getting the flu?

A: A flu shot contains a small amount of inactive flu virus. Your body does not know that the virus is inactive and begins to produce antibodies against that strain of flu. If you catch the flu your body already has the antibody meaning you will not get sick.

Q: Why do I need a new flu shot every year?

A: When our bodies produce antibodies they are very specific to each virus or bacteria. Each year the influenza virus that gives us the flu is slightly different meaning we need new antibodies specific to that strain of the virus to keep us healthy.

RELEVANCE TO OUR LIVES: Anyone who ever had the flu or gets a common cold knows that antigens such as viruses impact our lives. While there is no cure for a those viruses we have found ways to stop the spread of more dangerous antigens, like polio and small pox, which used to cause many people to die. We have made vaccines that you receive when you are young that help you produce antibodies that will protect you from those antigens.

RESOURCES:

Science Explained: <http://www.synapses.co.uk/science/fluvirus.html>

West Nile Virus: http://www.kidshealth.org/kid/ill_injure/aches/west_nile.html