

# Practical immunity

## Neutralization Reactions

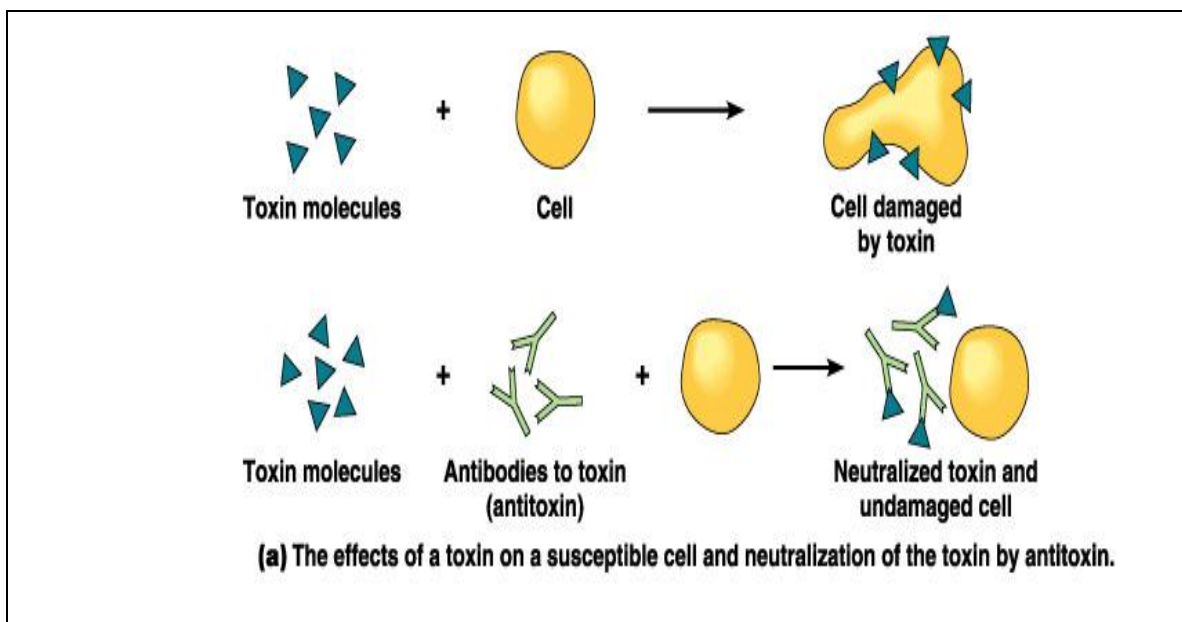
**Neutralization:** is an antigen-antibody reaction in which the **harmful effects** of a bacterial exotoxin or a virus are blocked by specific antibodies. For example when the serum antibody neutralize the toxic substances produced by the diphtheria pathogen, *Corynebacterium diphtheriae*. Such as a neutralizing substance, which is called an “Antitoxin” ?

**\*Antitoxin\*:** is a specific antibody produced by a host as it respond to a bacterial exotoxin or its corresponding toxoid (inactivated).

So the Antitoxin combines with the exotoxin to neutralize it.

### \*\*Results\*\*

- NO agglutination or NO hemolysis = positive reaction
- Agglutination or hemolysis = negative reaction (antibody not bound in origin)



Antitoxins produced in an animal can be injected in to humans to provide passive immunity against a toxin.

Antitoxins from the horses are routinely used to prevent or treat **diphtheria** and **botulism** ; **tetanus antitoxin** is usually of human origin .

A more frequently used neutralization test is the (**Viral hemagglutination inhibition test**). The test is used in the diagnosis of influenza, measles mumps, and a number of other infections caused by viruses that can agglutinate red blood cells.

If the person's serum contains **antibodies** against these **viruses** , these antibodies will react with the viruses and neutralize them. For example , if hemagglutination occurs in a mixture of measles virus and red blood cells but does not occur when the patient's serum is added to the mixture, this result indicates that the serum contains antibodies that have bound to and neutralized the measles virus.

