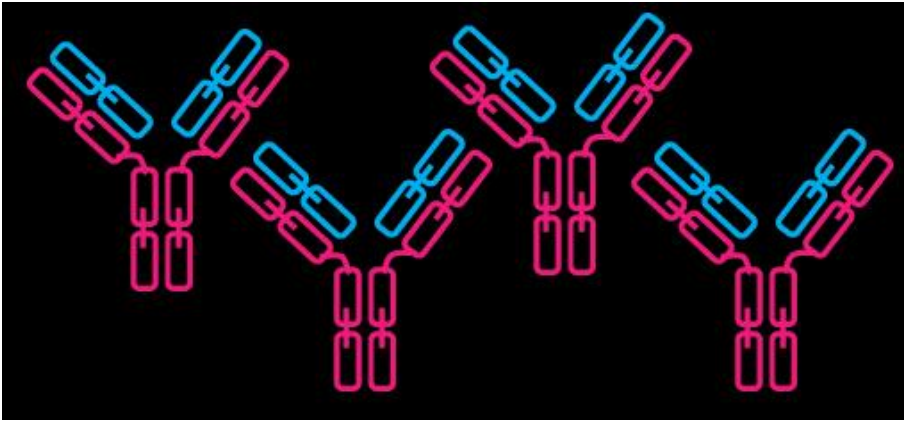




The Royal College of Pathologists

Pathology: the science behind the cure

Object 17: Structure of an antibody



What is it?

An antibody is a protein produced by the body's immune system in response to a foreign substance such as a bacterium or virus. Each antibody is unique and defends the body against a single foreign substance (antigen).

History

The word 'Antikörper', the German for antibody, was first used in a paper by Paul Ehrlich in 1891. Ehrlich proposed a 'lock and key' mechanism of antibody-antigen interaction but this was not confirmed until the 1940s by Linus Pauling. American biologist Gerald Edelman and English biochemist Rodney Porter shared the Nobel Prize for Medicine in 1972 for their work on the structure of the antibody.

Pathology

Antibodies are made up of two long chains and two short chains, arranged in a Y-shape. An understanding of the structure of antibodies has transformed the way in which diseases are diagnosed and treated. Antibodies in the blood can indicate whether someone has a particular infection or autoimmune disease. A greater understanding of the interaction between antibodies and antigens has resulted in the development of targeted antibody therapy against several types of cancer.

Find out more

Learn more about antibodies and watch an animation showing how antibodies 'tag' antigens and cells of the immune system destroy them on the [News Medical website](#).

Learn more about the immune system from the [British Society for Immunology](#).