

Technical tips

Session 8

ELISA (Enzyme-linked immunosorbent assay): It is a rapid test where an antibody or antigen is linked to an enzyme as a means of detecting a match between the antibody and antigen. This versatile test is widely used in the medical laboratory. It allows your health care provider to test your blood with an antigen (e.g. from a virus or bacteria) to see if your immune system recognizes it as something it has seen before (see HIV example below). It also allows to test your blood with an antibody to see if a particular substance like a hormone (antigen) is present in your body (e.g. pregnancy test).

Example: testing HIV

An HIV ELISA, sometimes called an HIV enzyme immunoassay (EIA) is the first and most basic test to determine if an individual is positive for a selected pathogen, such as HIV. The test is performed in a 8 cm x 12 cm plastic plate which contains an 8 x 12 matrix of 96 wells, each of which are about 1 cm high and 0.7 cm in diameter.

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The method uses the following components and steps:

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Partially purified inactivated HIV antigens pre-coated onto an ELISA plate

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Patient serum which contains antibodies. If the patient is HIV+, then this serum will contain antibodies to HIV, and those antibodies will bind to the HIV antigens on the plate.

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Anti-human immunoglobulin coupled to an enzyme. This is the second antibody, and it binds to human antibodies.

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Chromogen or substrate which changes color when cleaved by the enzyme attached to the second antibody.

Positive ELISA Test Negative ELISA Test

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