

## **ELISA** (Enzyme-linked Immunosorbent Assay)

## **ELISA theory overview**

Enzyme-linked immunosorbent assay (ELISA) is widely used in immunology to detect the presence of proteins or other antibodies in a sample. For instance, it is used as an initial detection tool for HIV, based on the interaction of an antibody with antigen presented by the virus. There are several different ELISA methods: indirect ELISA, sandwich ELISA and competitive ELISA are the most commonly applied. All three methods have similar steps: 1) attach antigens or primary antibodies or their complexes to a solid surface; 2) wash away unbound substances; 3) block exposed sites on the solid surface; 4) add detection antibodies and/or enzyme-conjugated secondary antibodies; 5) develop color by adding substrates that react with the enzymes.

## Stepwise comparison of Indirect ELISA Sandwich ELISA Competitive ELISA O 0000 00 Samples containing Samples are prepared by Samples containing protein mixtures such as primary antibodies, also incubating the primary known as capture antibodies with the cell lysates antibodies antigens of interest Antibody: antigen Antigens are added to Primary antibodies are complexes are added to wells for antigen binding added to wells and and incubated for incubated for thorough wells and incubated for thorough absorption to absorption to the well thorough absorption to the well surface. surface. the well surface. Wash off the Wash off the Wash off the unbound antigens unbound antibodies unbound substances Washing is required

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