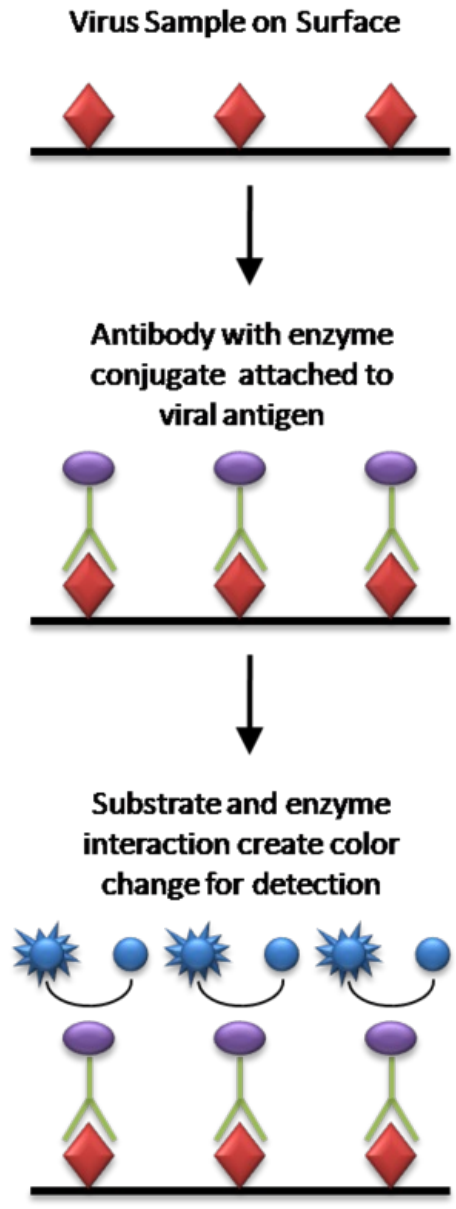
ELISA

Enzyme-Linked Immunosorbent Assay (ELISA) is a sensitive immunoassay that uses an enzyme linked to an antibody or antigen as a marker for the detection of a specific protein, especially an antigen or antibody. It is a biochemical test mainly used in Immunology. It was the first most basic test to determine if an individual is positive for a selected pathogen, such as HIV.

Principles

1. An unknown amount of antigen is fixed to a solid surface (inner surface of a test tube)
2. Preparation of the specific antibodies coupled to an enzyme
3. These antibodies will conjugate with the antigens
4. Substrate is added and it will bind to the enzyme
5. The subsequent reaction produces a detectable signal, most commonly a color change in the substrate.



Types

- "Indirect" ELISA
- Sandwich ELISA
- Competitive ELISA
- Multiple and Portable ELISA

Applications

- Determination of serum antibody concentrations
- Detection of potential food allergens (milk, peanuts, walnuts, almonds, eggs)
- Detection of antigens (pregnancy hormones, drug allergens, mad cow disease)
- Detection of myobacterial antibodies in tuberculosis, rotavirus and enterotoxin E. *coli* in feces, hepatitis B markers in the serum and gonorrhea bacteria

Links

- ELISA (http://en.wikipedia.org/wiki/ELISA)
- Animation of ELISA method (http://www.sumanasinc.com/webcontent/animations/content/ELISA.html)
- Brief explanation of ELISA (http://www.bio.davidson.edu/courses/genomics/method/ELISA.html)