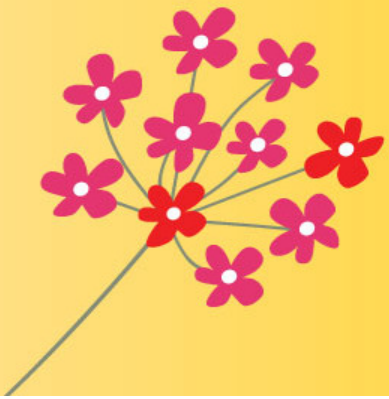
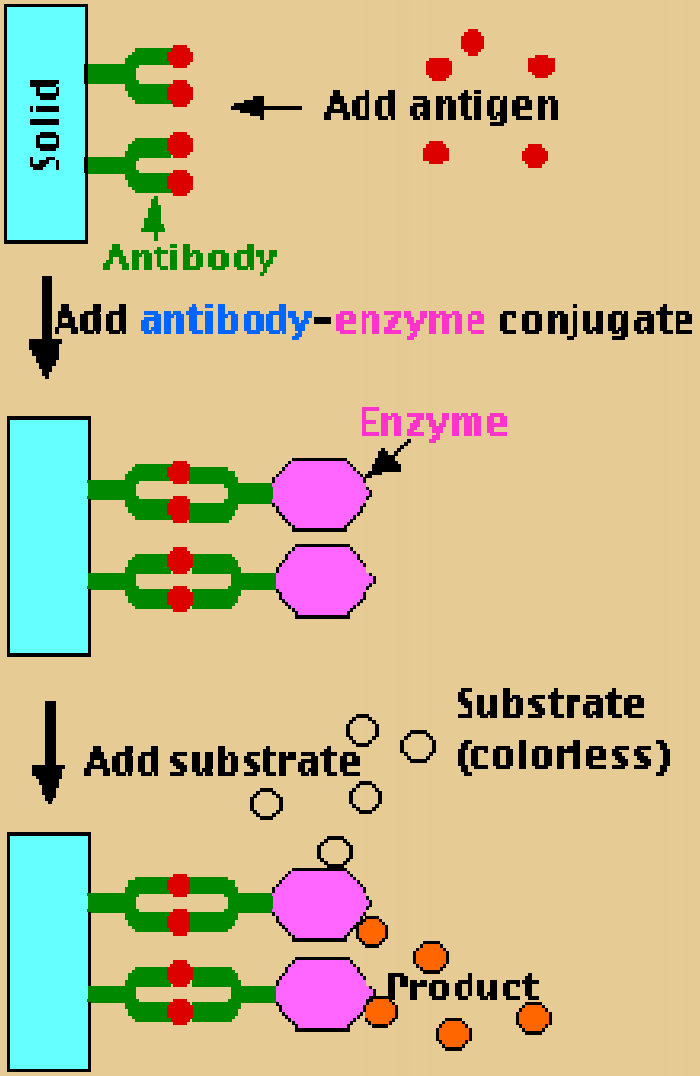

ELISA
Enzyme Linked
Iimmune Sorbent Assay

Introducion

- Test are Specific and Sensitive
- It is the most commen, widely used serological test for Ab or Ag detection.
- Ag or Ag are labelled by linking of enzyme.
- These test can be automated.
- It is method to determine the concentration of material.



Basic Principle of ELISA

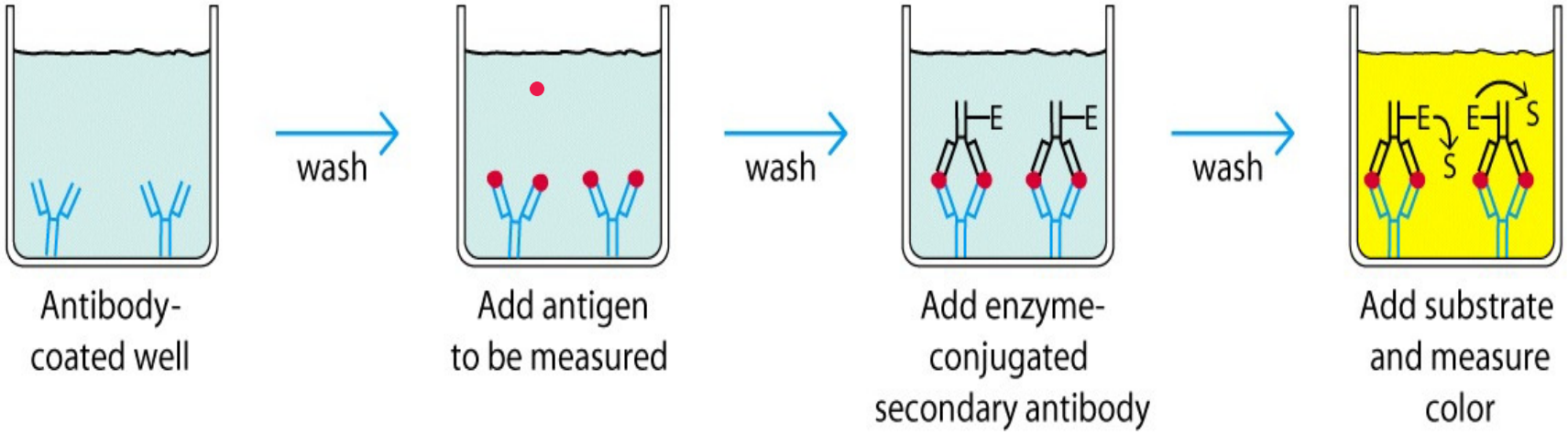


ELISA Types

- Direct (Sandwich)
- Indirect
- Competitive

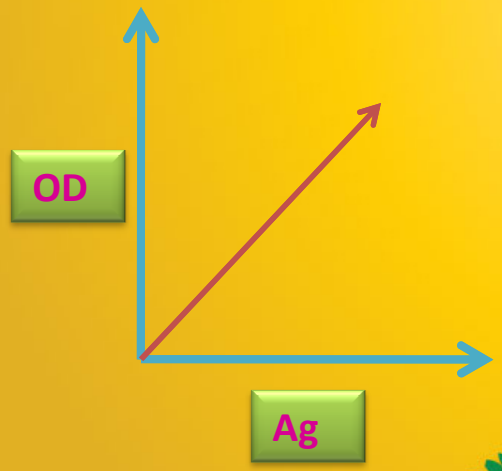
Direct method (Sandwich)

(Detection of Ag)



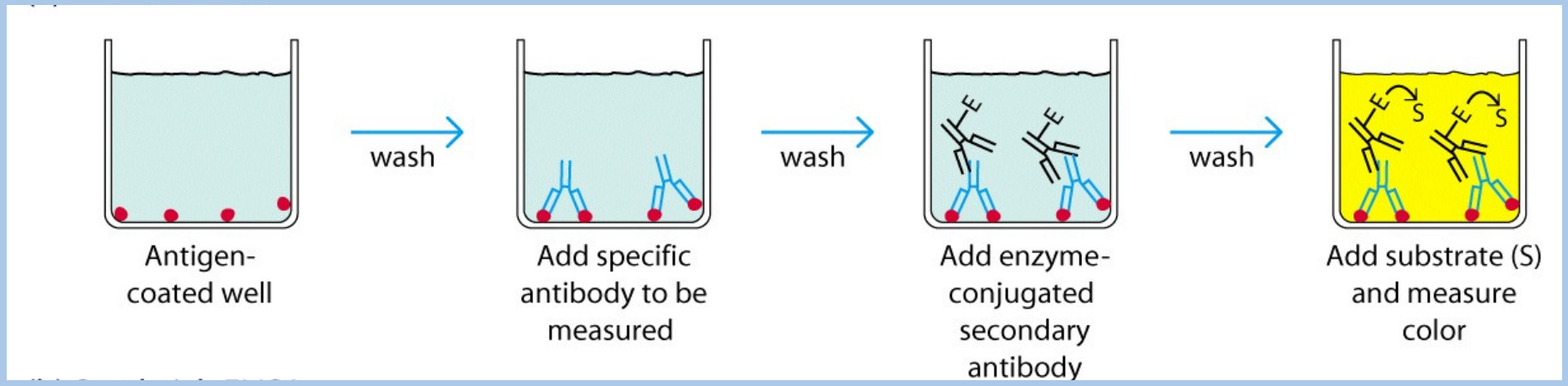
Enzyme	Substrate
Peroxidase	H_2O_2
Alkaline phosphatase	P- Nitro phenyl Phosphate

- Colour proportional to Antigen in patient sample.

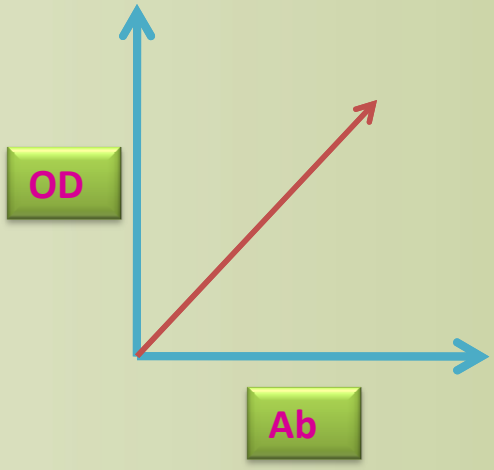


Indirect method

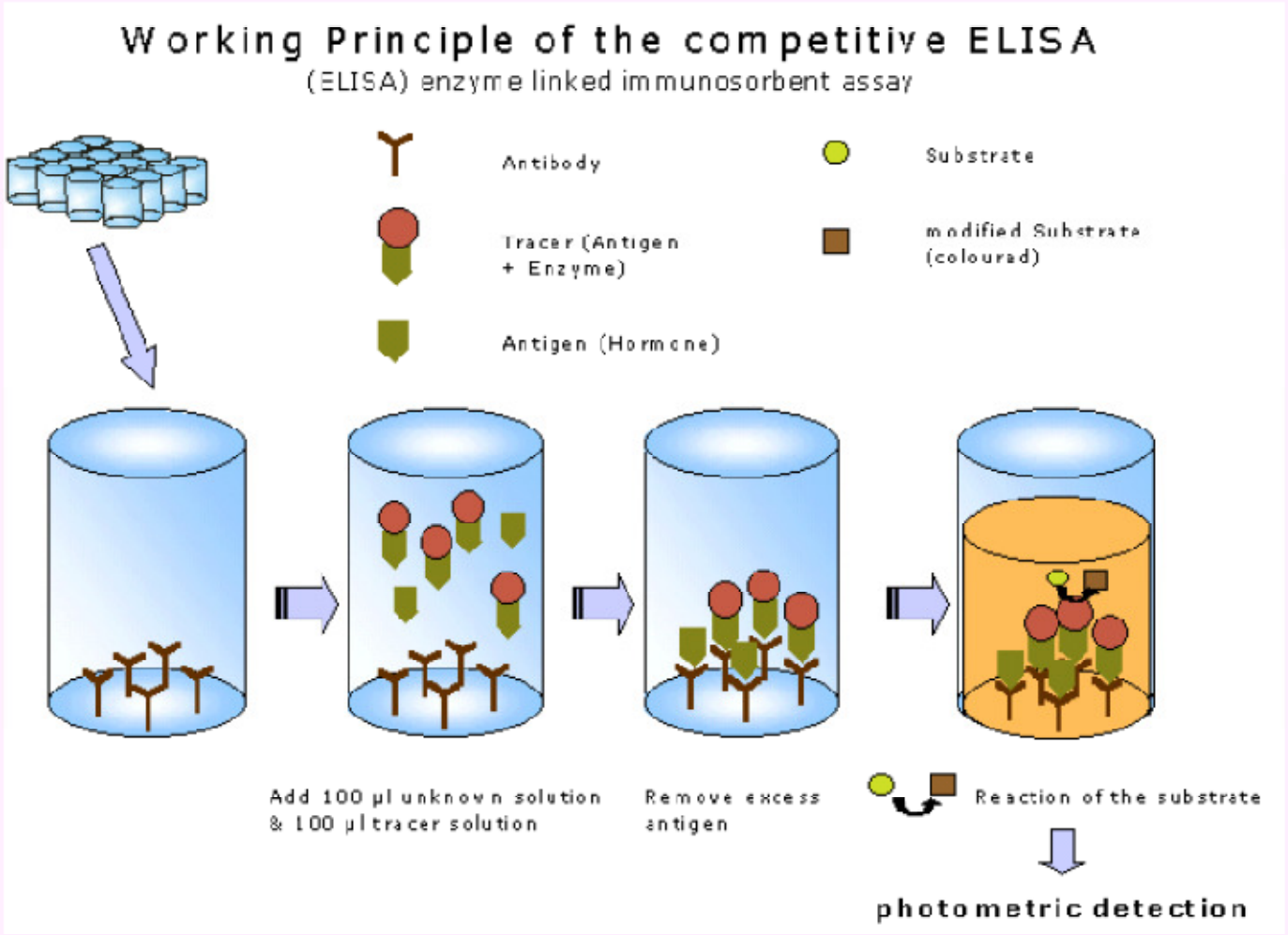
(Detection of Ab)



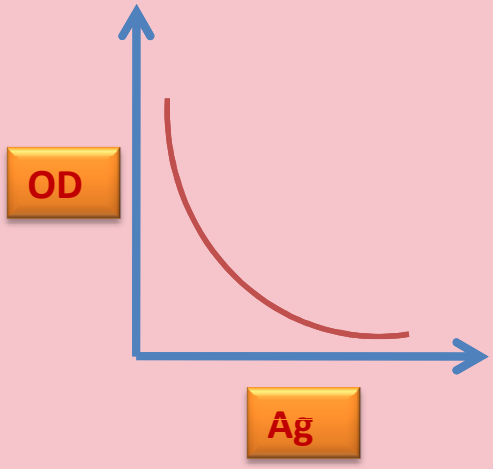
Colour proprtional to Ab in patient sample.



Competitive method

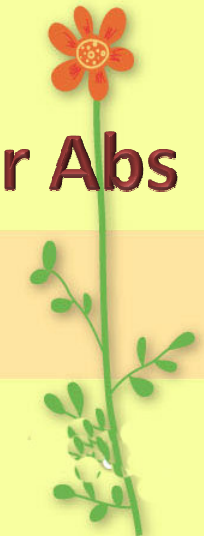


- Colour inversely related to Ag in patient serum.



Application Of ELISA

- Hormones in the serum likeThyroid hormones, Insuline….
- Tumer marker like AF1, PSA
- Infectious Disease like Bacterial toxin,Viruses, Hepatitis – B Surface antigen
- Assay of the Ab in serum infectious disease like Rubella Viruses, HIV etc…
- Assay of auto Ab or Anti DNA, anti-nuclear Abs etc…



Advantage : - No Radiation hazard

- High sensitive
- Obtain quick and accurate result
- Minimal discomfort
- Used in wide variety of test
- It doesn't need costly instrumentation.
- Antigens of very low or unknown concentration can be detected since captur antibody only grabs specific antigen.

Disadvantage : - Monoclonal antibodies more difficult separate

- Enzyme/substrate reaction is short term so Microwells must be read as soon as possible
- Good Time management require
- Monoclonal antibodies can cost
- Require good skill
- Require good quality of ELISA kit.

RIA	ELISA
Radioactive Hazard.	It is **not Hazard.**
Used estimation of **very small** concentration.	Used estimation of **small** concentration.
Very **high cost** eqipment	**Low cost** equipment
Cheap reagent.	Costly reagent.
Value measured in **curie & microcurie**	Value is measured in **micro.**
Require certificate & training from RIA centre.	No training nor certificate require.