

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Acquired immune deficiency syndrome (AIDS)

Pinkerton family



Franklin



- Healthy , immunized (DPT , polio vaccine)

* At 6 Months

Wight lose ,Severe diarrhea ,Fever ,Thrush ,Otitis media

* At 7 Months

Mild difficulty in breathing

* At 10 Months

Unsteady when standing , lost 1 Kg

Examinations and Tests



- Physical examination → ✓ Candida ✓ inspiratory rales
- Blood test → ↓ CD4 T cells
- Intradermal antigens (candida, TB) → NO DTH
- ELISA & Western Blot → ✓ AB against HIV
- ** Test the family ! **
- Bronchial washing → *Pneumocystis Carinii*
- ** trimethoprim and sulfa **
- Lung biopsy → CMV , RSV , *Pseudomonas aeruginosa*
- Duodenal biopsy → CMV



Hemoptysis → Respiratory failure → Death



Mrs. Pinkerton



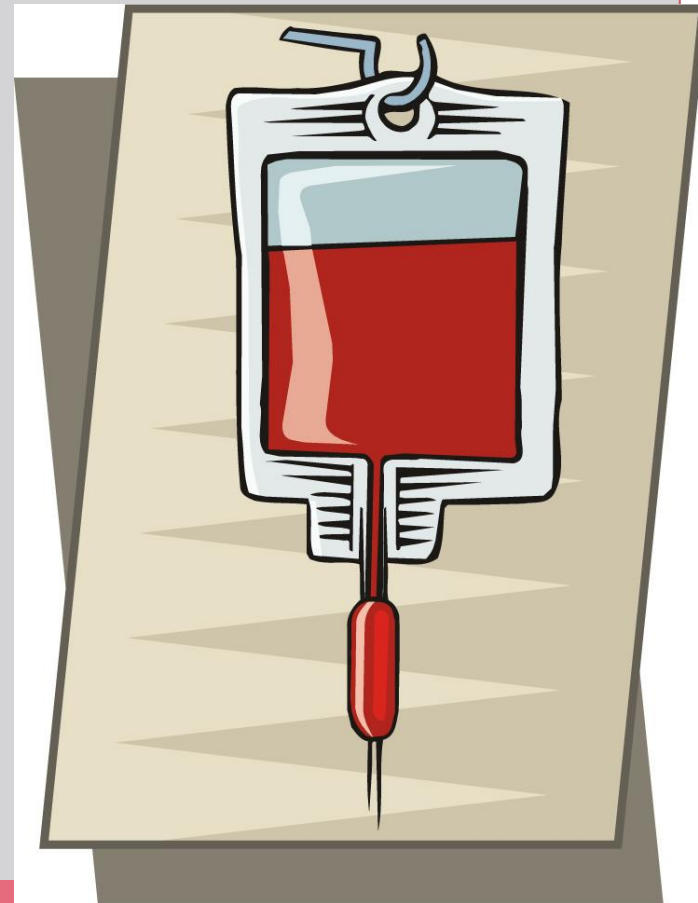
- Low grade fever , swollen lymph nodes , My son is sick :(
- HIV positive ! → AZT (Zidovudine)
- CD 4 T cell < 200
- *Pneumocystis Carinii* → trimethoprim and sulfa
- Died of respiratory failure
- Asymptomatic : 4 years
- **Mr. Pinkerton**
- Remained Asymptomatic

What is the story ?



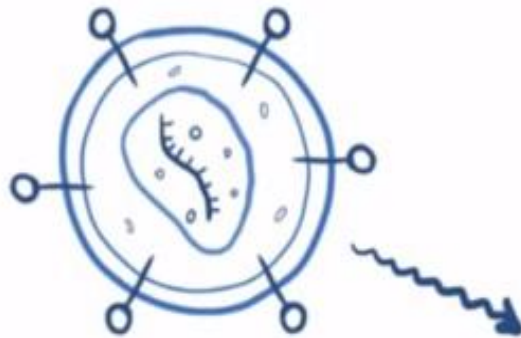
- Before Franklin , Cheiko got pregnant
- Her baby died inside her
- CS was done
- She lost a lot of blood

Contaminated blood transfusion



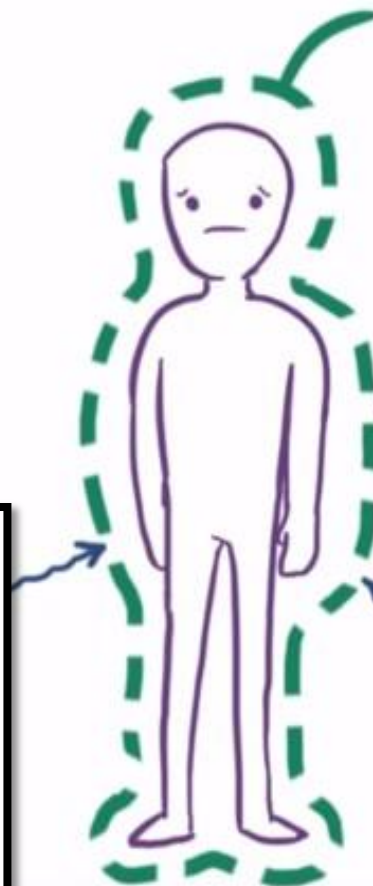
Human Immunodeficiency Virus (HIV)

HIV ~ HUMAN IMMUNODEFICIENCY VIRUS



IMMUNE SYSTEM

FAILS ~ IMMUNODEFICIENCY



OTHER INFECTIONS
↳ usually fends off



HIV-1

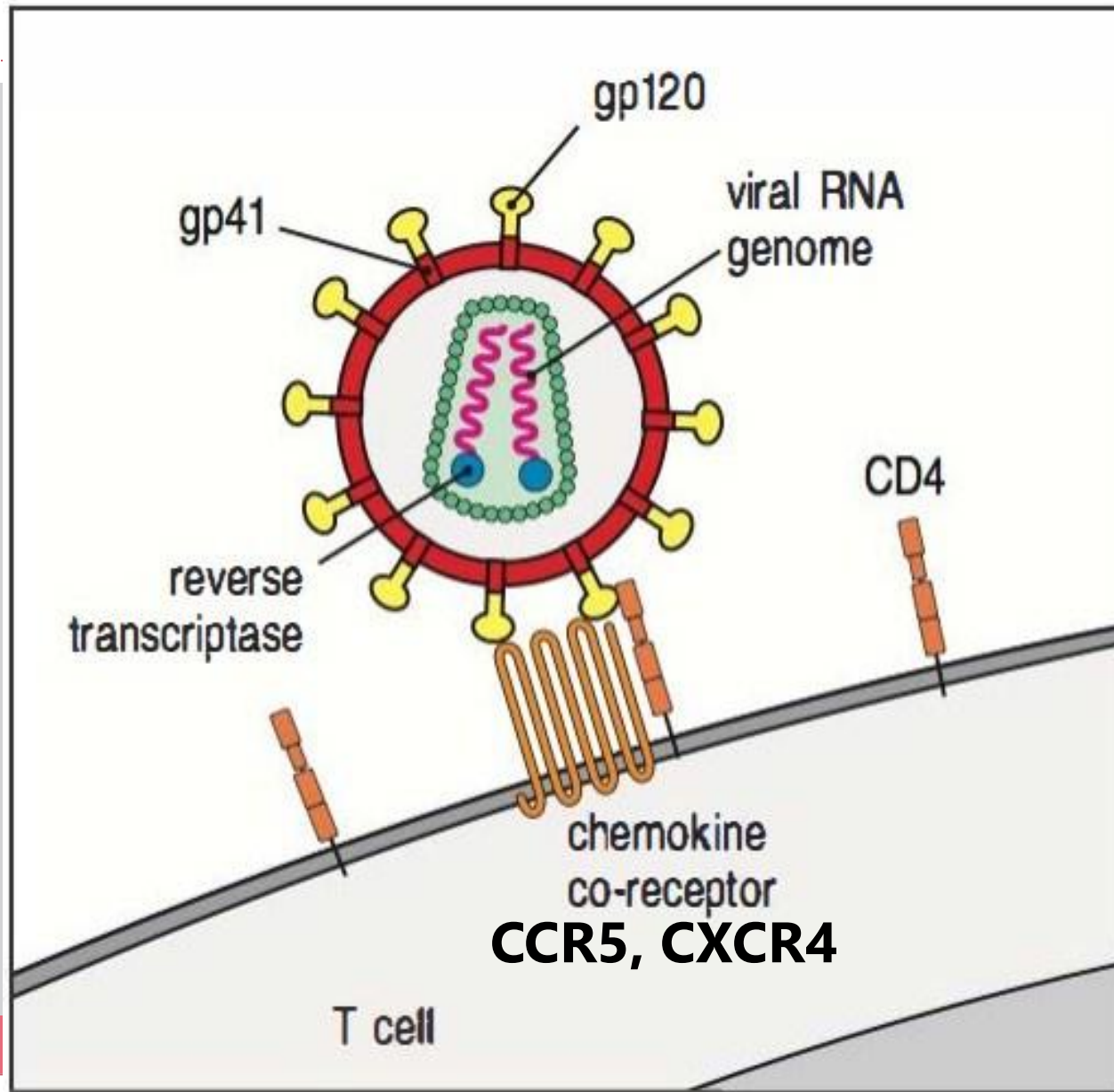
↳ AIDS in U.S. & worldwide



HIV-2

↳ AIDS in Western Africa & Southern Asia

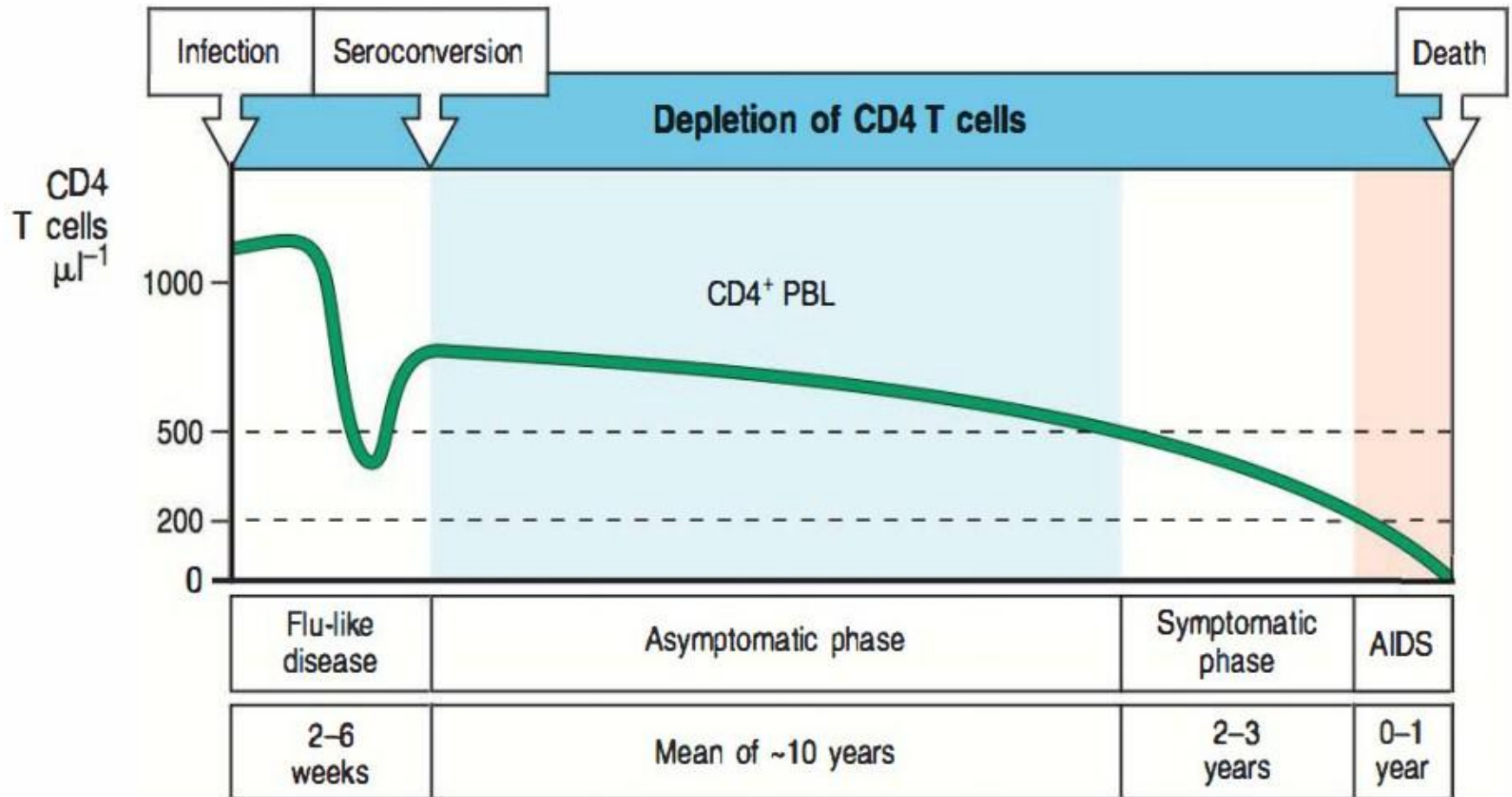
Human Immunodeficiency Virus (HIV)





- Target cells in immune system → fail → ↑ infections and ↑ tumors → AIDS
- Two known types, HIV- 1 and HIV-2.
- **HIV- 1: North and South America and in Europe ,
HIV-2: West Africa and Southeast Asia .**
- Target CD4+ cells. (T cells , macrophage , megakaryocytes, glial cells).
- Gp120 bind both CD4 & the co receptor (CCR5 and CXCR4).
- Single stranded RNA retrovirus.
- Fatal opportunistic infections.

The typical course of infection with HIV.





- Contact with the virus does not necessarily result in infection.
- A mild viral illness within 6 weeks of infection is sustained, with flu like symptoms.
- It subsides at about the time that seroconversion (the appearance of antiHIV antibodies)
- period of clinical latency lasting years, and perhaps even decades. T cell $> 500 \text{ cell/mm}^3$.

Prodromal stage

AIDS



500-200 cell/mm³

- low-grade fever
- night sweats
- candidiasis (thrush) in the mouth.
- Swelling of lymph nodes
- 2-3 years

<200 cell/mm³

- Immune system severely compromised
- HIV disease → AIDS
- Weight loss
- Excessive fatigue
- Persistent fever
- Diarrhea
- Opportunistic infections & rare tumors
- 0-1 year



Hey, cool, I'm dead!

Routs of transmission



Passed from
mother to baby



Sharing injecting
equipment



Contaminated blood
transfusions &
organ transplants

- homosexual and heterosexual intercourse

Routs of transmission

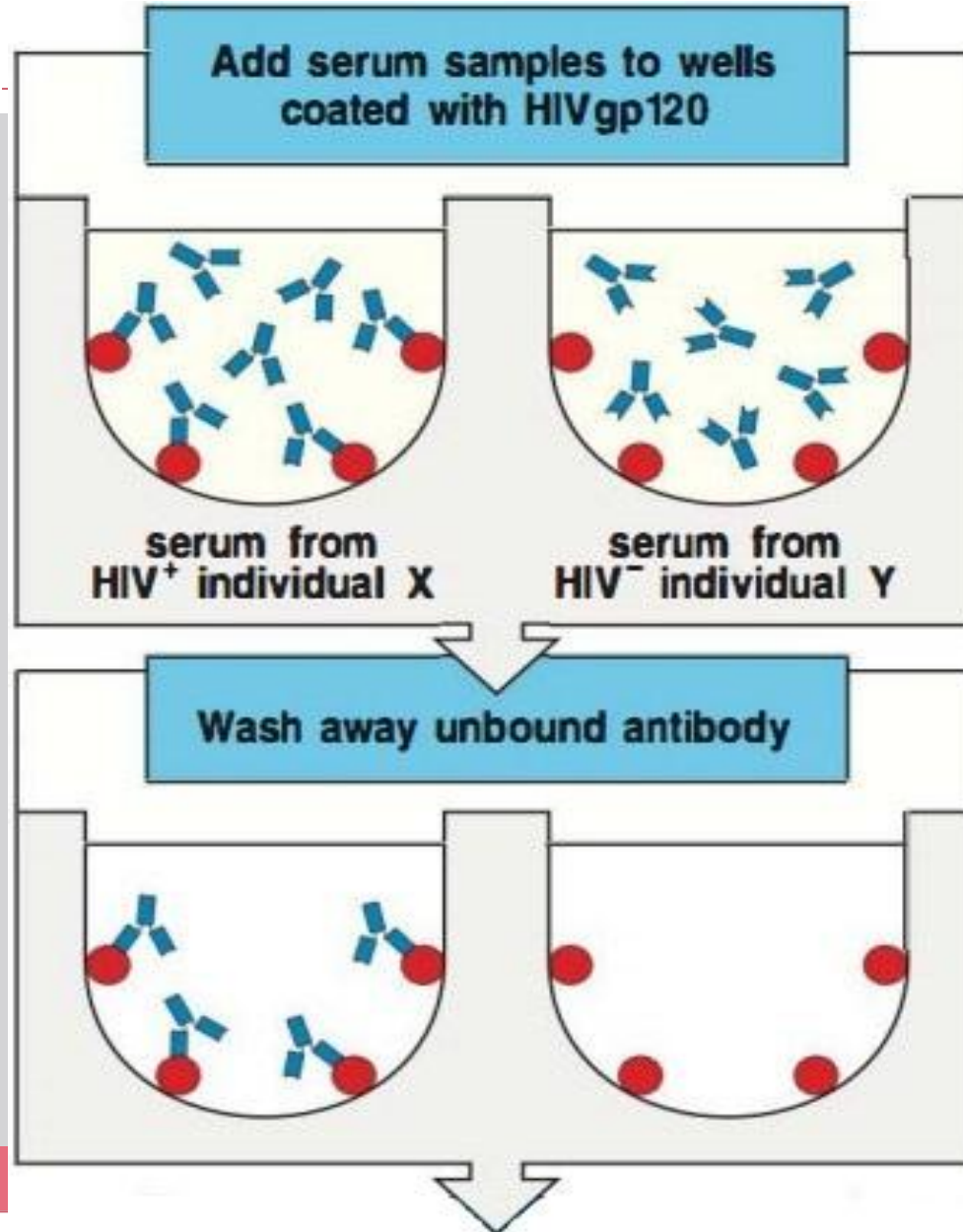


- homosexual and heterosexual intercourse
- infusion of contaminated blood or blood products
- contaminated needles , which are the major source of infection among **drug addicts**
- Vertical transmission during pregnancy, during delivery or, more uncommonly, by breastfeeding (↓) by giving HIV-positive pregnant women antiretroviral drugs such as **zidovudine**.

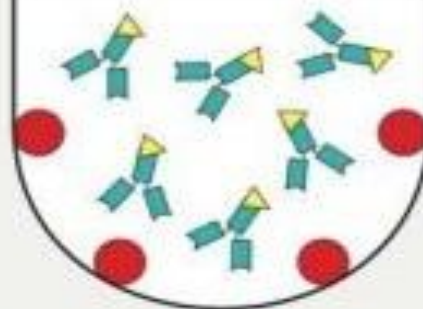
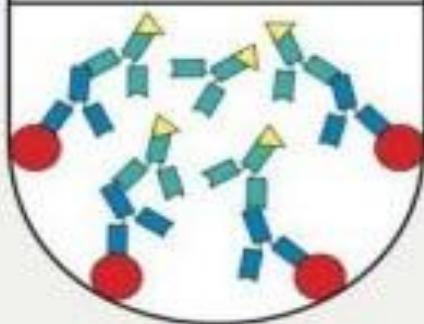
Opportunistic pathogens and cancers can kill AIDS patients

Infections	
Parasites	<i>Toxoplasma</i> spp. <i>Cryptosporidium</i> spp. <i>Leishmania</i> spp. <i>Microsporidium</i> spp.
Bacteria	<i>Mycobacterium tuberculosis</i> <i>Mycobacterium avium</i> <i>intracellulare</i> <i>Salmonella</i> spp.
Fungi	<i>Pneumocystis jirovecii</i> <i>Cryptococcus neoformans</i> <i>Candida</i> spp. <i>Histoplasma capsulatum</i> <i>Coccidioides immitis</i>
Viruses	Herpes simplex Cytomegalovirus Herpes zoster
Malignancies	
Kaposi's sarcoma (invasive) Non-Hodgkin's lymphoma, including EBV-positive Burkitt's lymphoma Primary lymphoma of the brain	

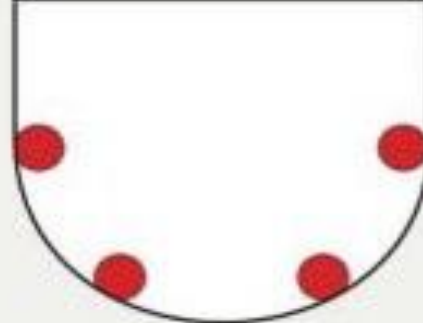
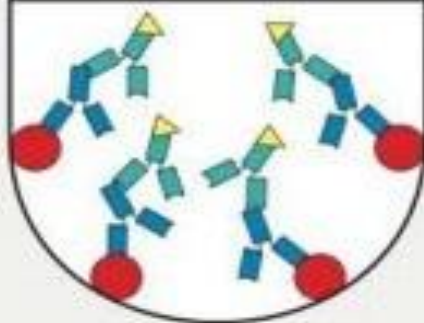
ELISA



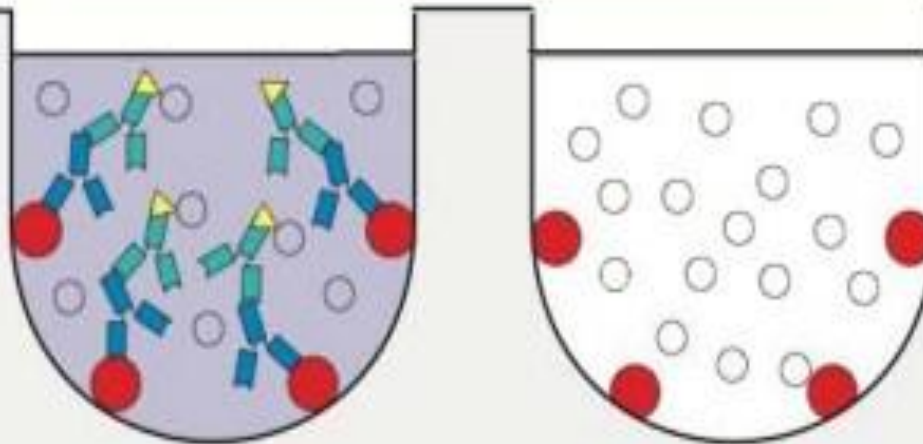
Add enzyme-linked anti-human immunoglobulin antibody



Wash away unbound antibody



**Enzyme makes colored
product from added
colorless substrate**



**Measure absorbance of light
by colored product**



Thank you :D