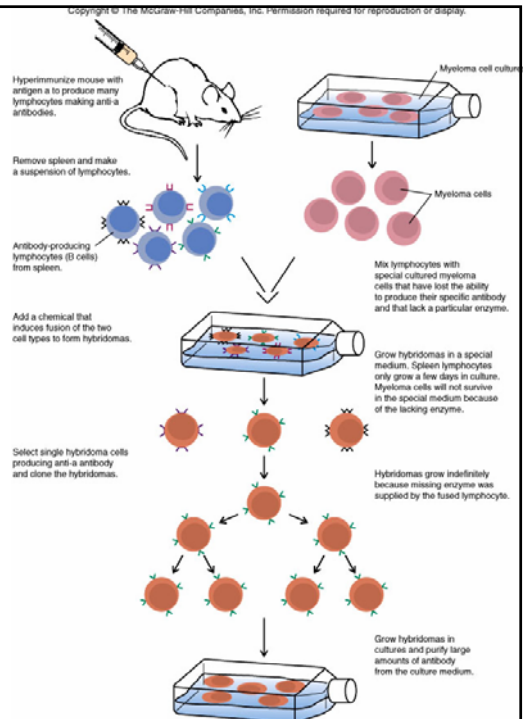


Immunological testing

- **Monoclonal antibodies**
- **Serology**
- **Quantifying antigen – antibody reactions**

17-1

Perspective 17.1 Monoclonal Antibodies



17-2

Serology

- **Antibodies**
- **Antibodies detect and identify antigens**

17-3

Quantifying antigen – antibody reactions

- **Seroconversion or rise in titer**
- **Serial dilutions**

17-4

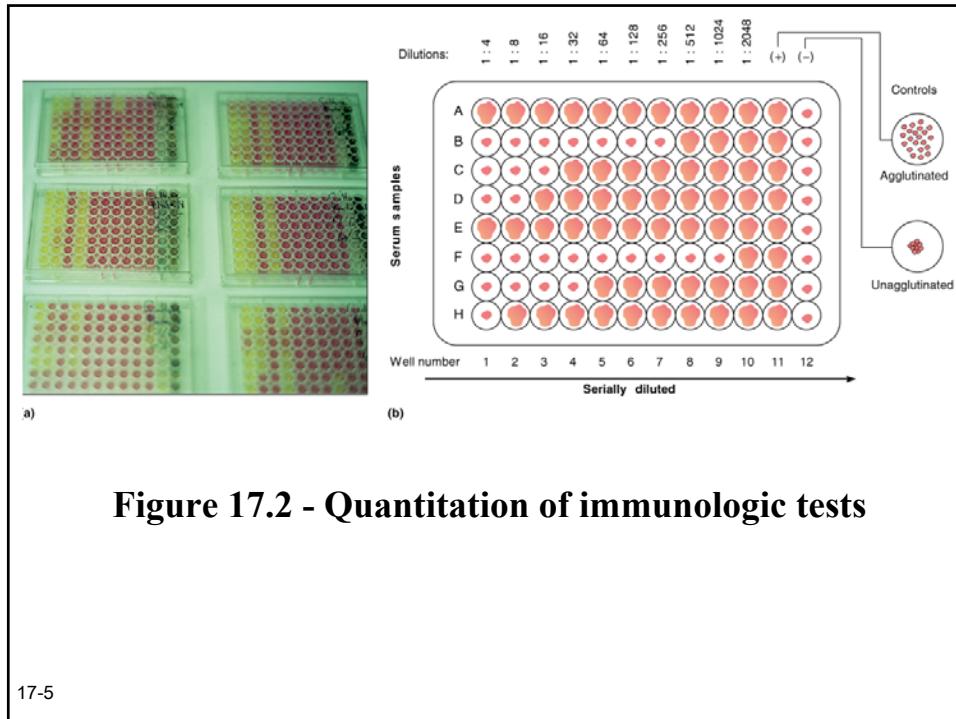


Figure 17.2 - Quantitation of immunologic tests

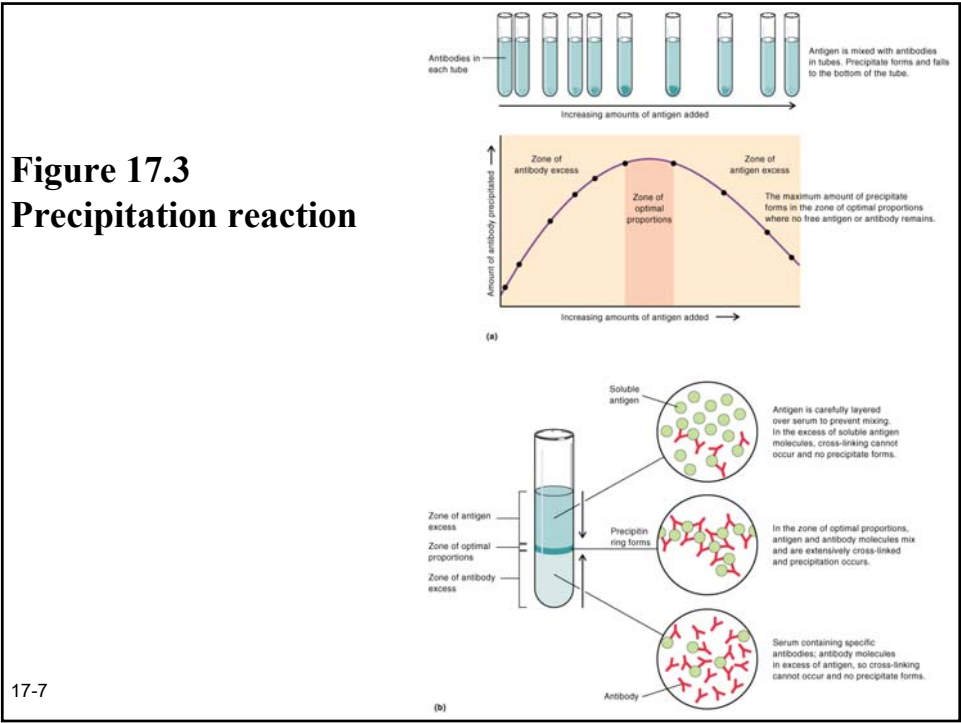
17-5

Precipitation reactions

- Immunodiffusion
- Immunoelectrophoresis

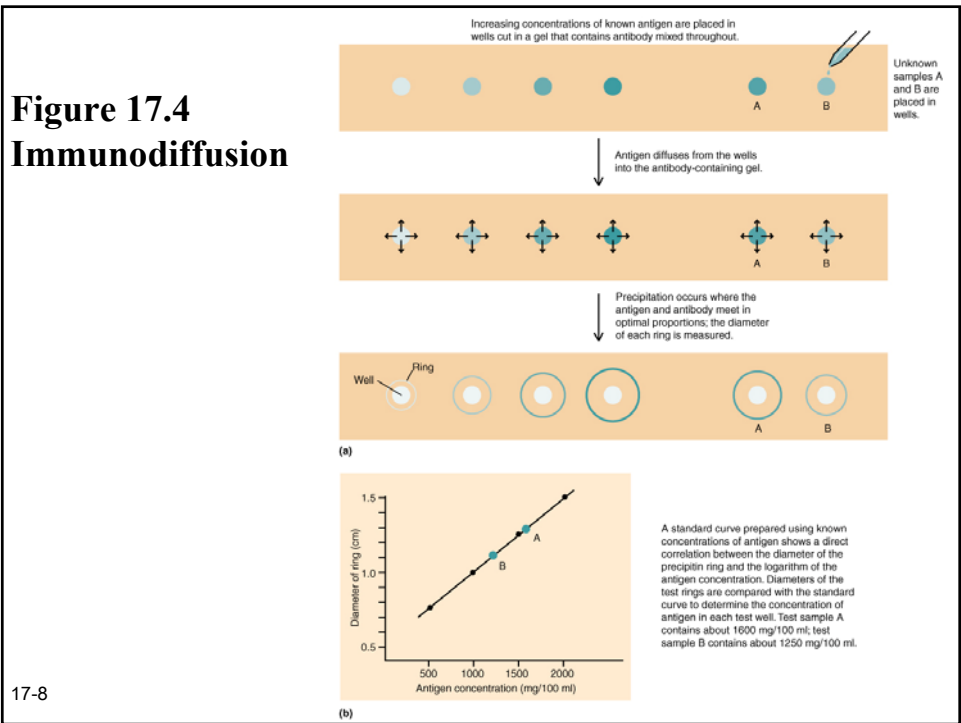
17-6

Figure 17.3
Precipitation reaction

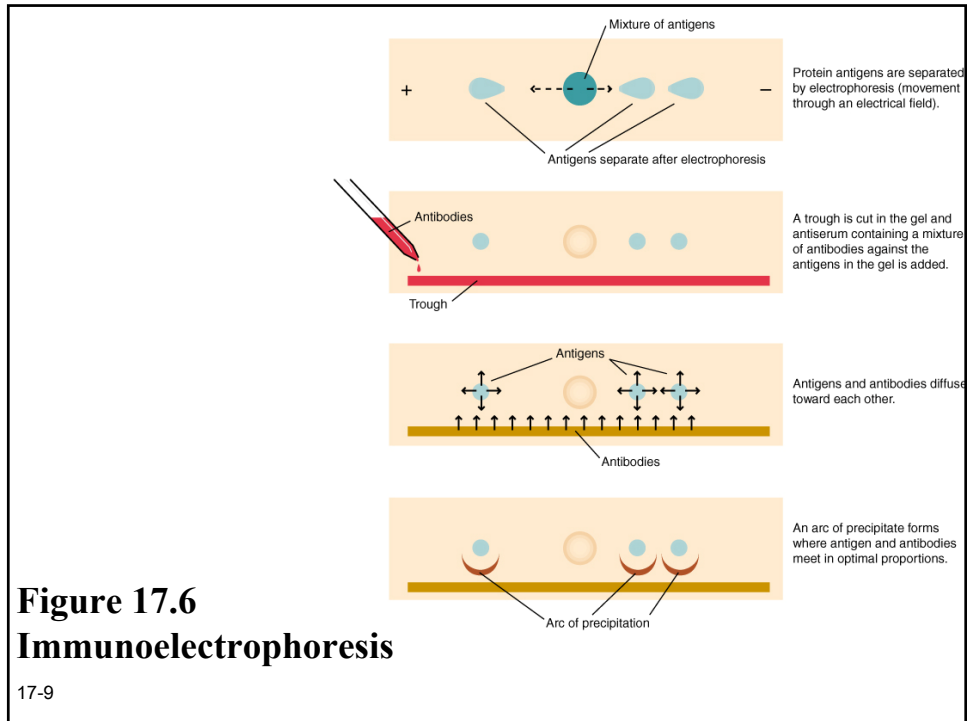


17-7

Figure 17.4
Immunodiffusion



17-8



Agglutination reactions

- **Direct agglutination**
- **Indirect agglutination**
- **Hemagglutination**

17-10

Direct agglutination

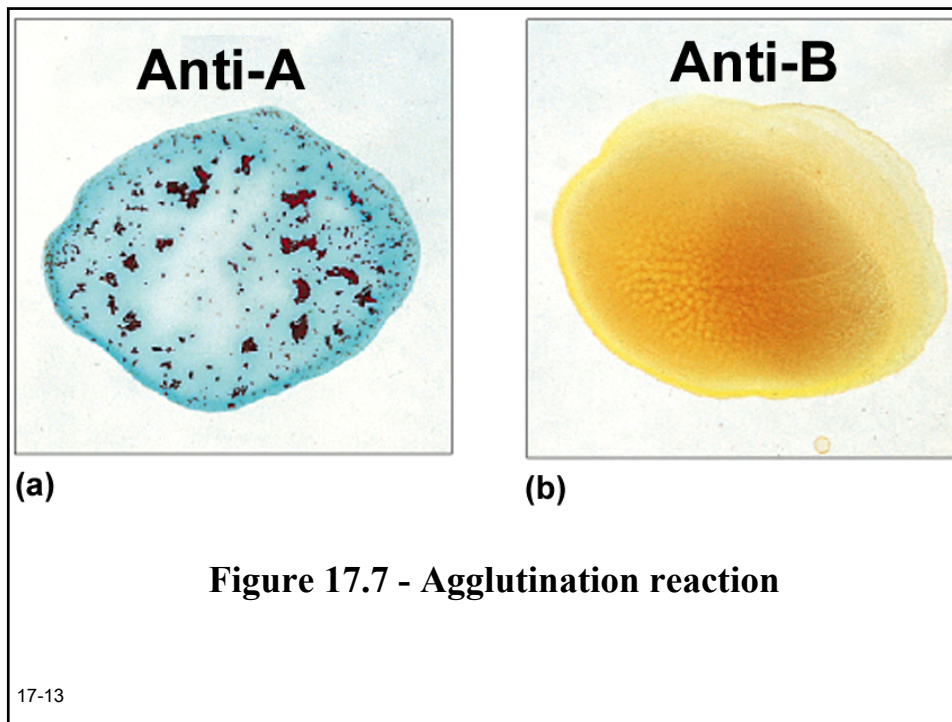
- **Cross – linking and lattice formation**
- **Antibodies react with particulate antigens (red blood cells, bacteria, fungi)**
- **Visible clumps**
- **Estimate amount of antibody**

17-11

Indirect agglutination

- **Soluble antigen is coated onto particles (red blood cells, latex beads)**
- **Allow for visible clumps (agglutination)**

17-12

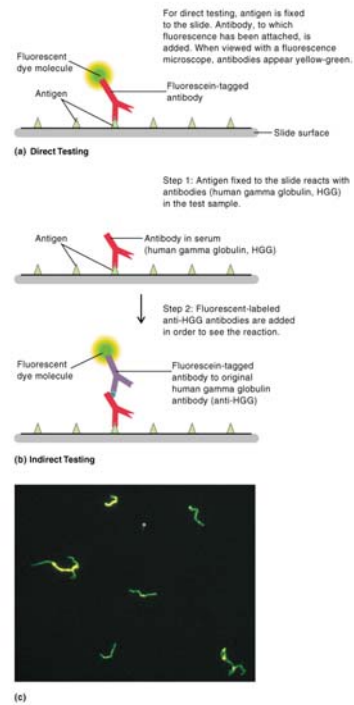


Immunofluorescence tests

- **Direct fluorescent antibody test**
- **Indirect fluorescent antibody test**

17-14

Figure 17.8 - Direct and indirect fluorescent antibody test



17-15

Antigen – antibody assays

- Radioimmunoassay (RIA)
- Enzyme – linked immunosorbant assay (ELISA)
- Western blot

17-16

Radioimmunoassay (RIA)

- **Competitive inhibition assay**
- **Measure antigen or antibody**
- **Ex. Measure small amounts of hormones or drugs in a clinical sample**
- **Ex. Measure small amounts of IgE antibody (radioallergosorbent test)**

17-17

Enzyme – linked immunosorbant assay (ELISA)

- **Color reaction assay**
- **Indirect ELISA**
- **Direct ELISA**

17-18

Figure 17.9 - Indirect ELISA

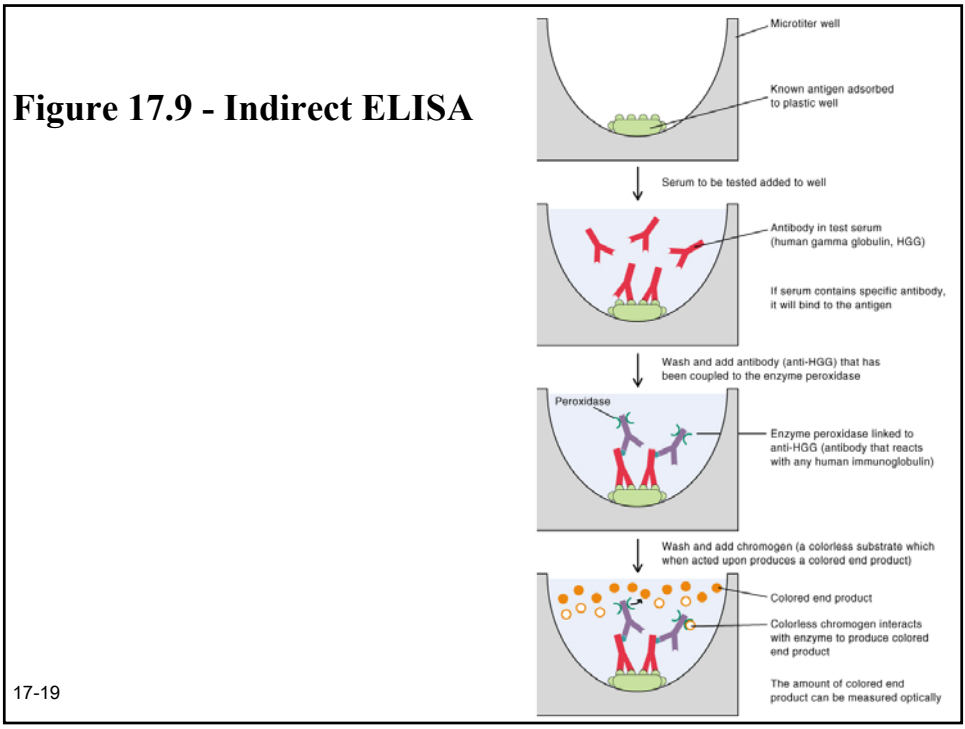
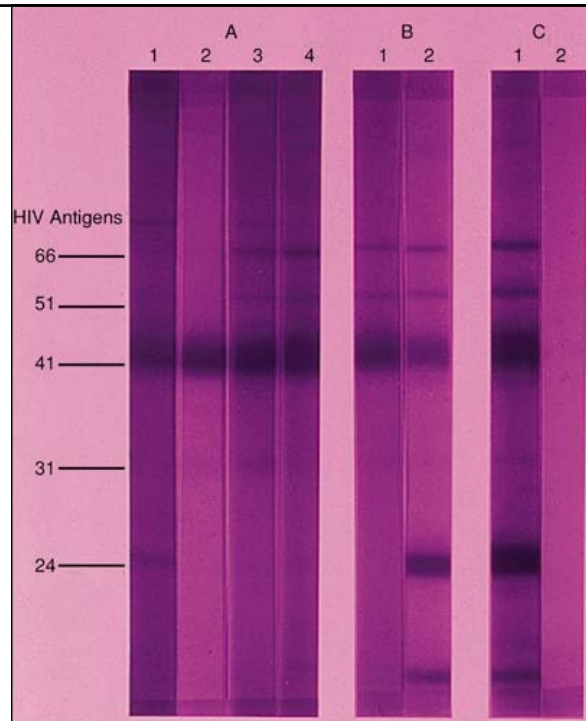


Figure 17.1 - Direct ELISA

17-20

Figure 17.1
Western blot



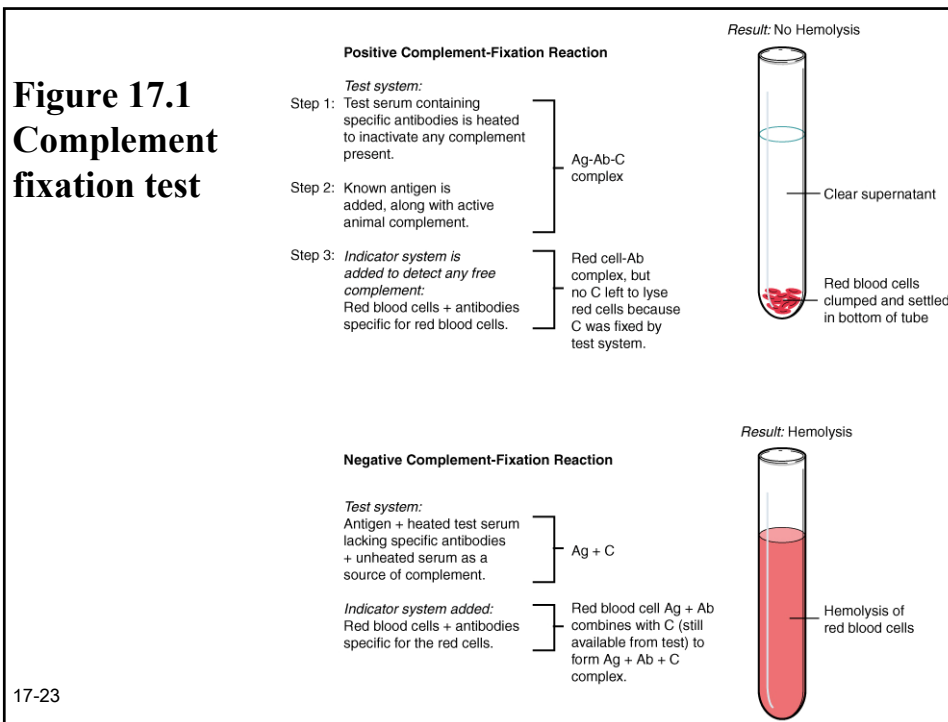
17-21

Complement fixation test

- **Measures the binding of complement by an antigen – antibody interaction**
- **Indicator system determine positive or negative reactions**

17-22

Figure 17.1 Complement fixation test



Neutralization test

- Antibody bind to specific antigen (virus, toxin)
- Antibody – antigen complex prevents antigen from binding (neutralization)

17-24

Cellular immunology test

- **Identification of subsets of lymphocytes**
- **Lymphocyte response to mitogens**
- **Cytotoxic T – cell function**
- **Cell – mediated immunity to infectious agents**

17-25