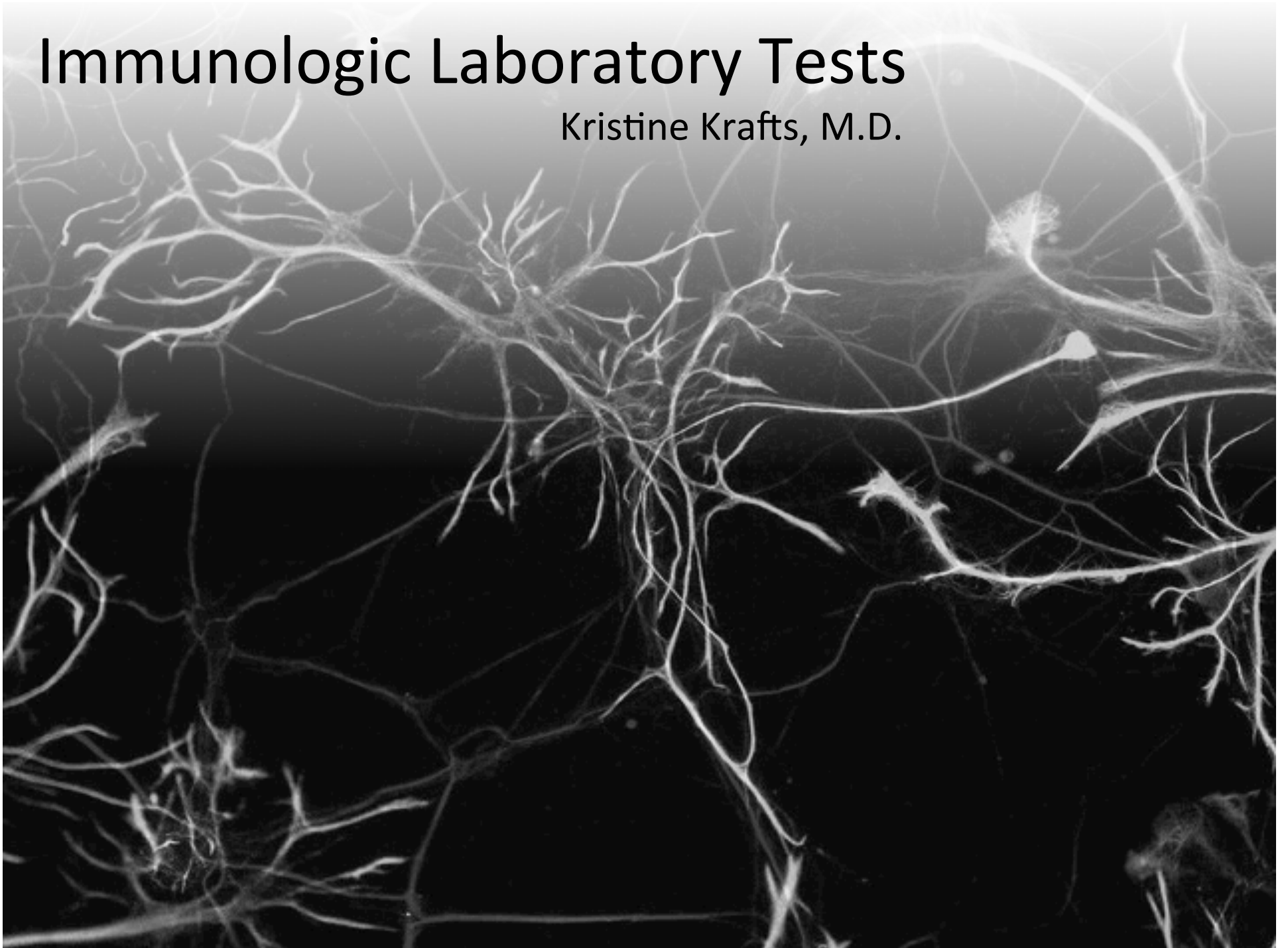


Immunologic Laboratory Tests

Kristine Krafts, M.D.



Immunologic Lab Tests Outline

- Agglutination reactions
- DAT
- IAT
- Immunofluorescence
- ELISA
- Western blot
- Flow cytometry

Things to Remember About Each Test

- What does it measure?
- Where does the Ag-Ab interaction occur?
- How is the Ag-Ab complex detected?

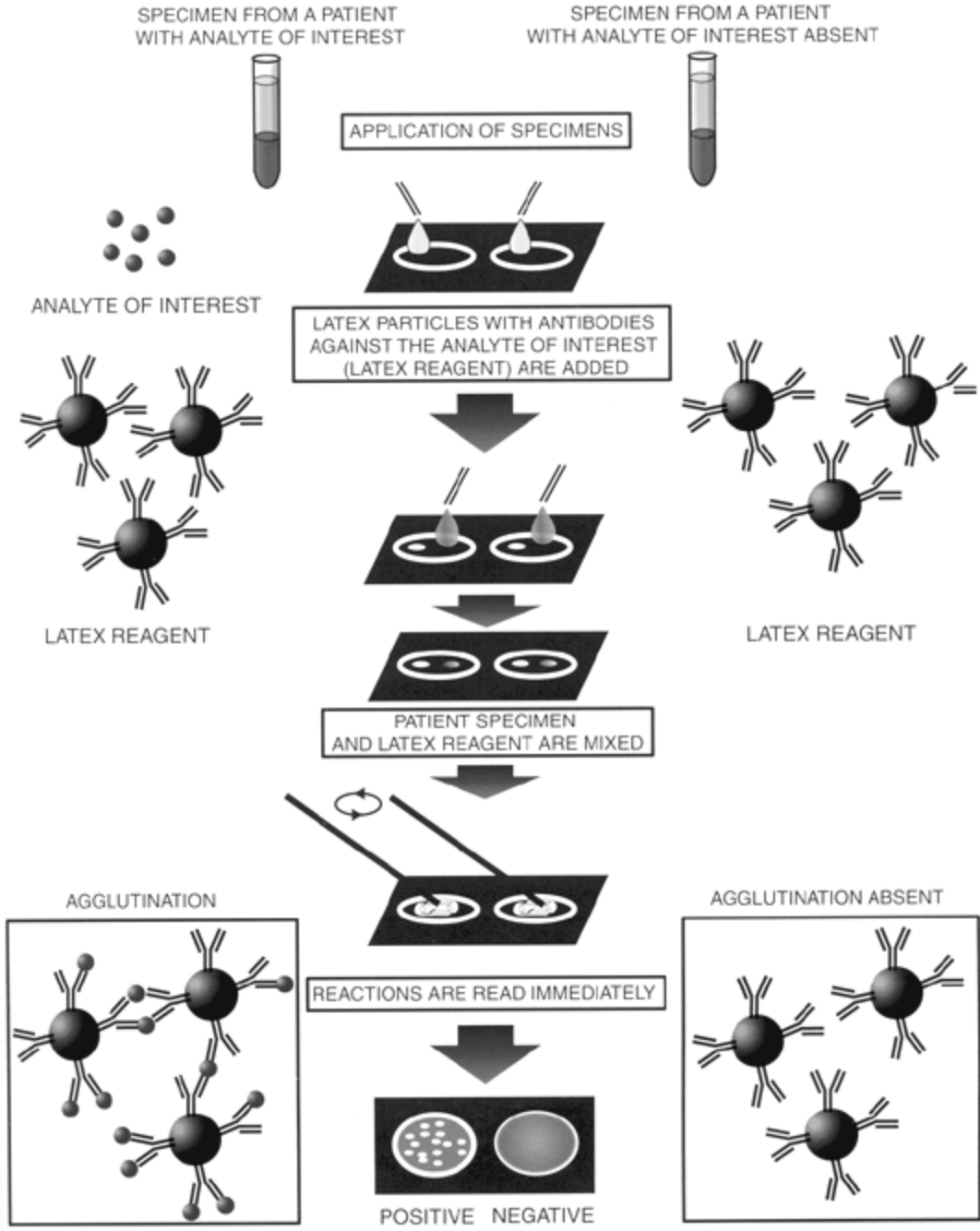
Immunologic Lab Tests Outline

- Agglutination reactions

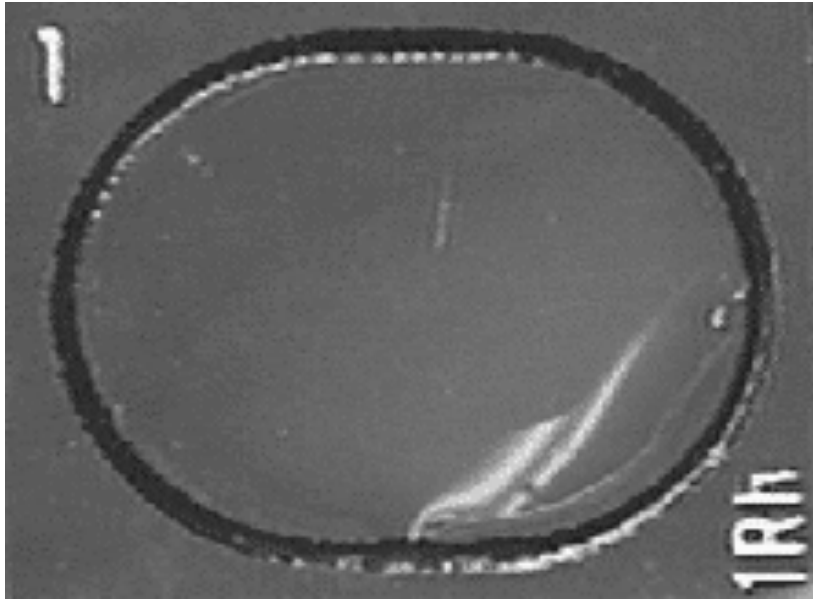
Agglutination Reactions: Purpose

- Detection of Ag in the patient's specimen
- Examples:
 - testing for antibodies to infectious agents
 - testing for Hemophilus influenzae type B capsular antigen in CSF

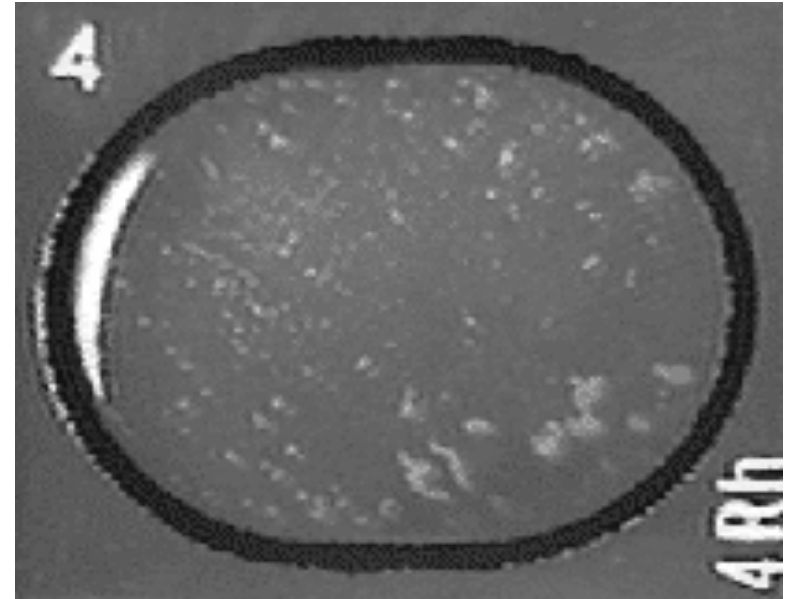
LATEX AGGLUTINATION







negative



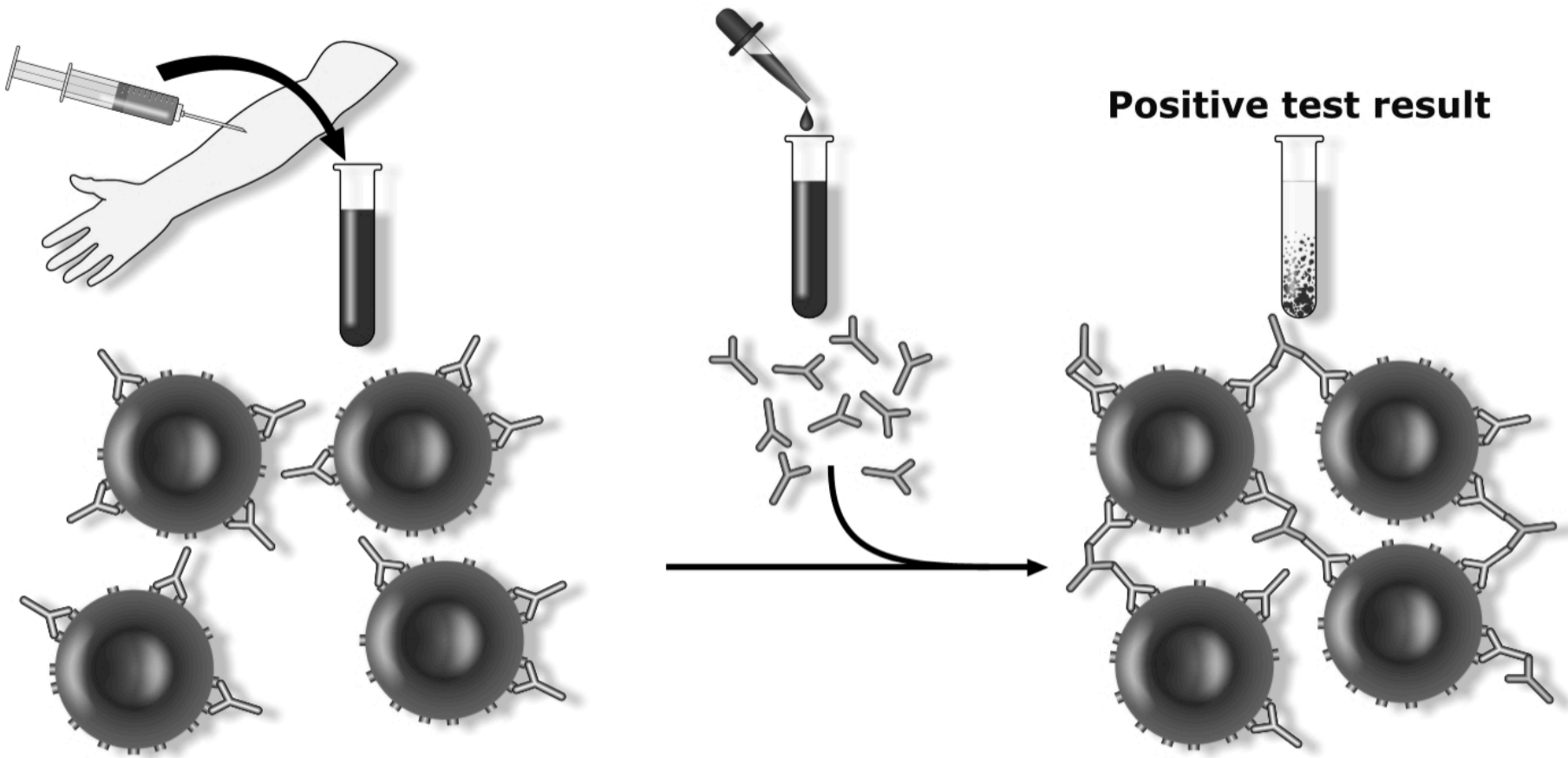
positive

Immunologic Lab Tests Outline

- Agglutination reactions
- DAT

DAT: Purpose

- Detection of Ab on patient's red cells
- Also called the direct Coombs Test
- Performed in patients with hemolytic anemia



patient red cells

+

AHG

=

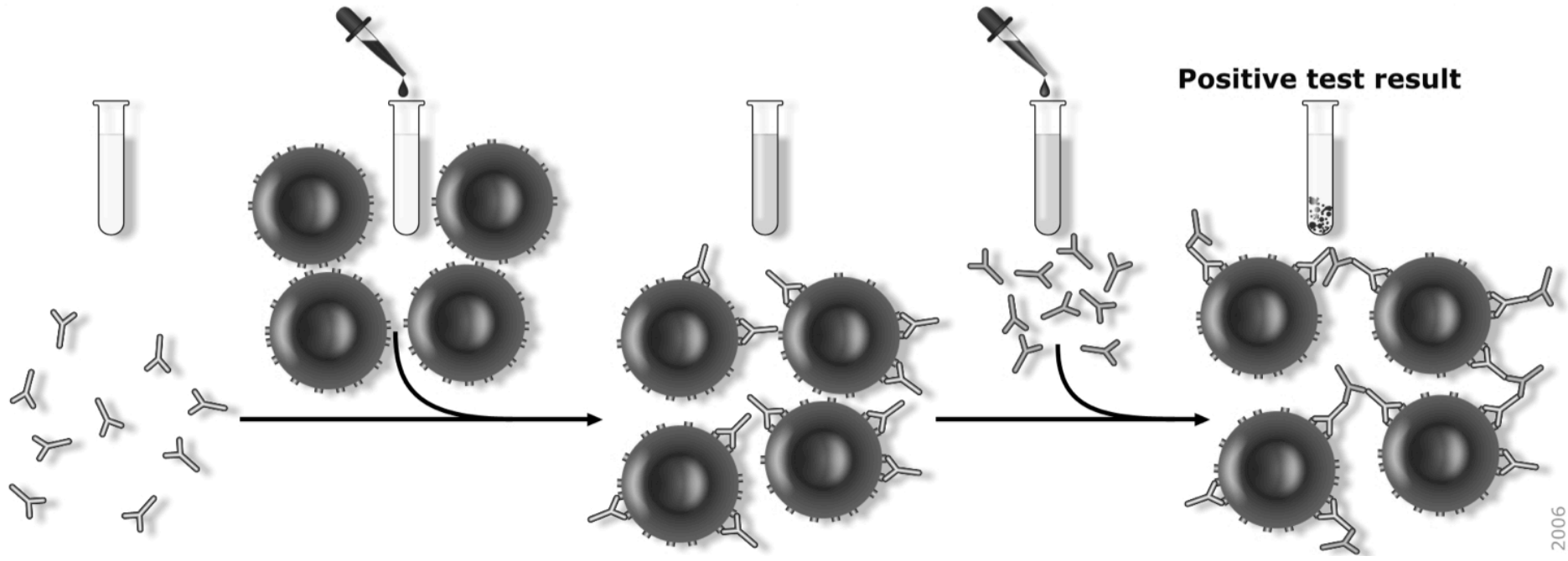
agglutination

Immunologic Lab Tests Outline

- Agglutination reactions
- DAT
- IAT

IAT: Purpose

- Detection of antibodies to red cell antigens
- Also called the indirect Coombs Test
- Performed as part of pre-transfusion testing



patient Ab + donor RBC = Ab-coated donor RBC + AHG = agglutination

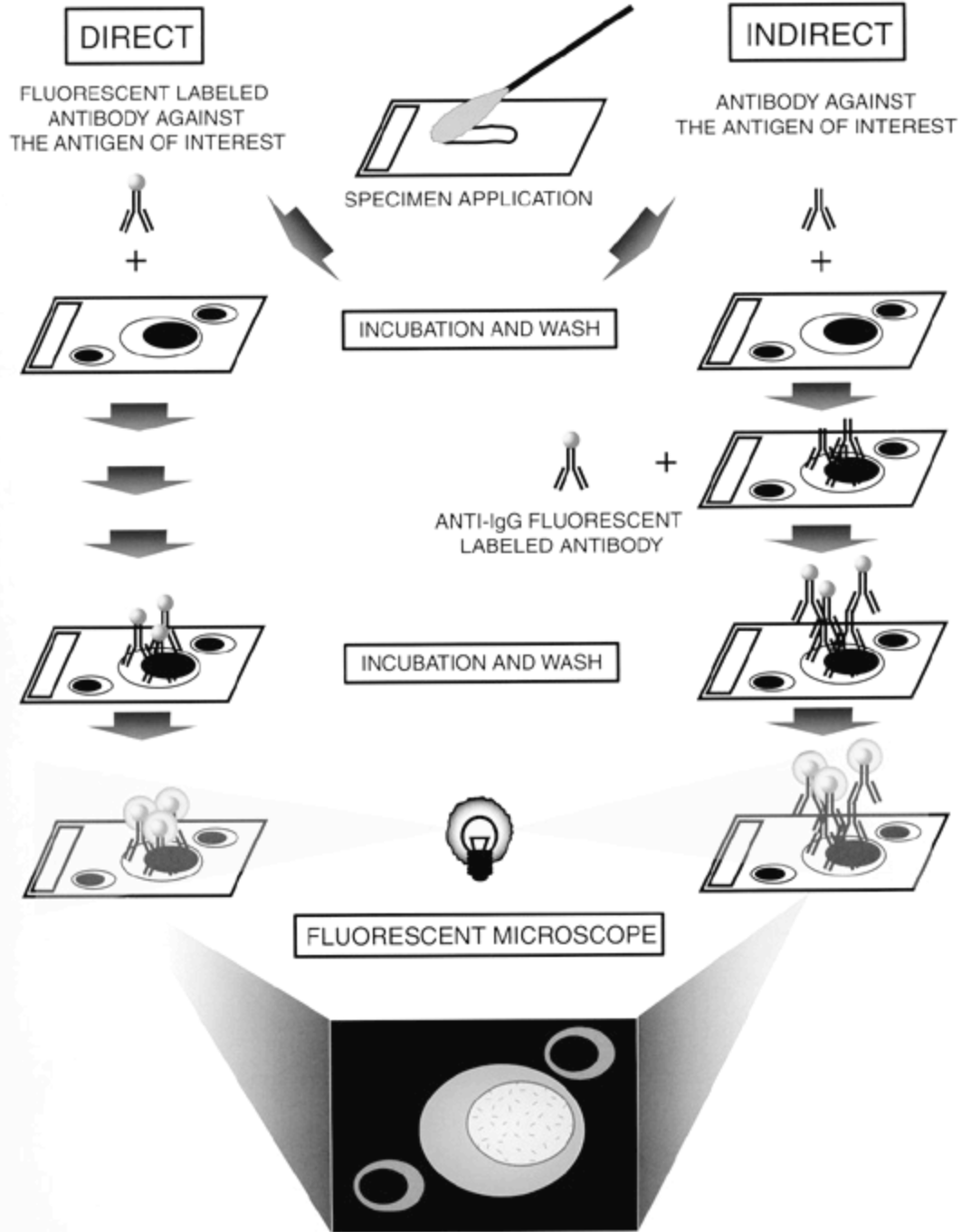
Immunologic Lab Tests Outline

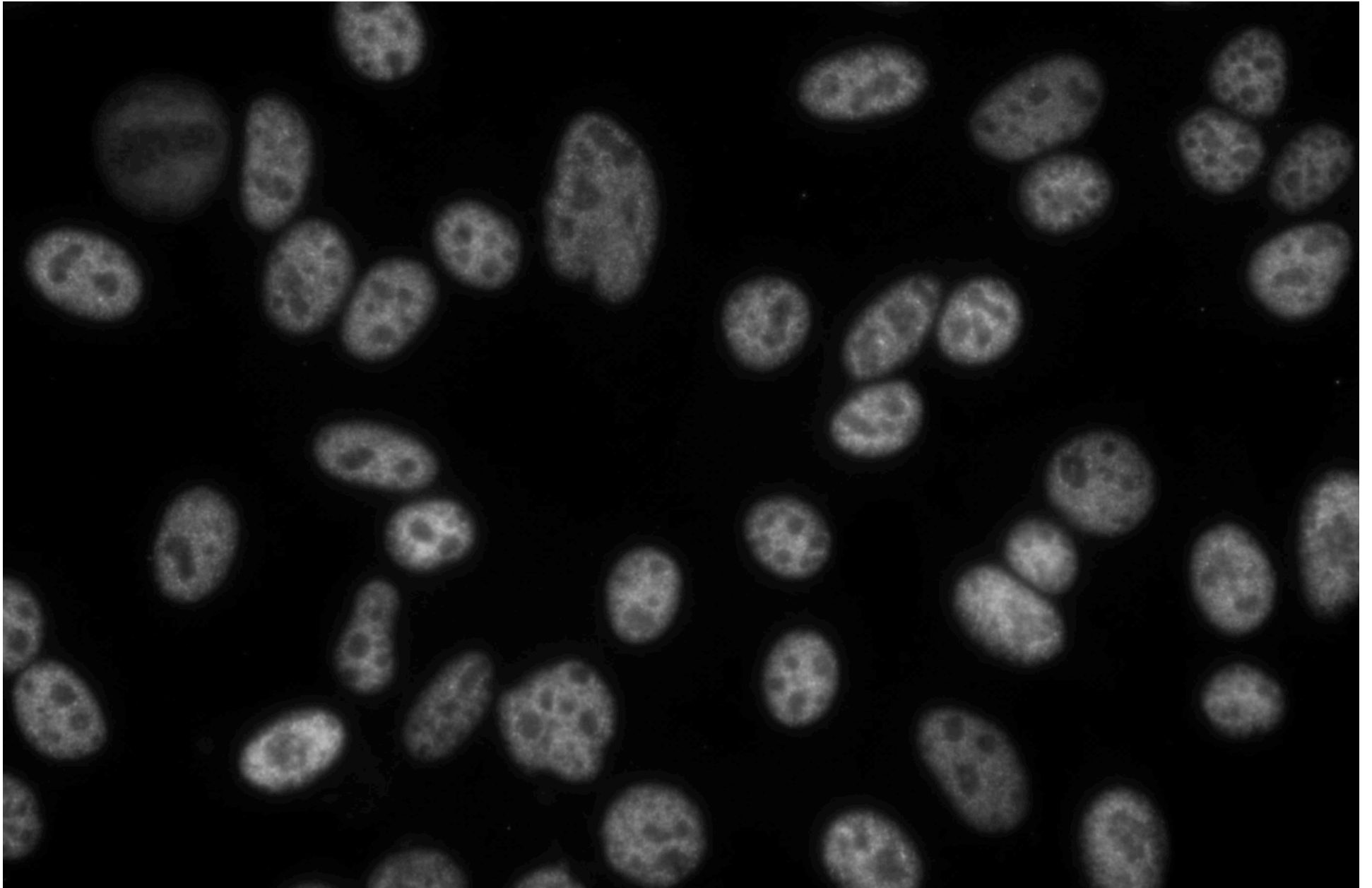
- Agglutination reactions
- DAT
- IAT
- Immunofluorescence

Immunofluorescence: Purpose

- Detection of a specific antigen or antibody in a patient's specimen
- Examples:
 - detection of antigen in a patient's biopsy specimen
 - detection of antibody in a patient's serum

IMMUNOFLUORESCENCE





Positive fluorescent antinuclear antibody test

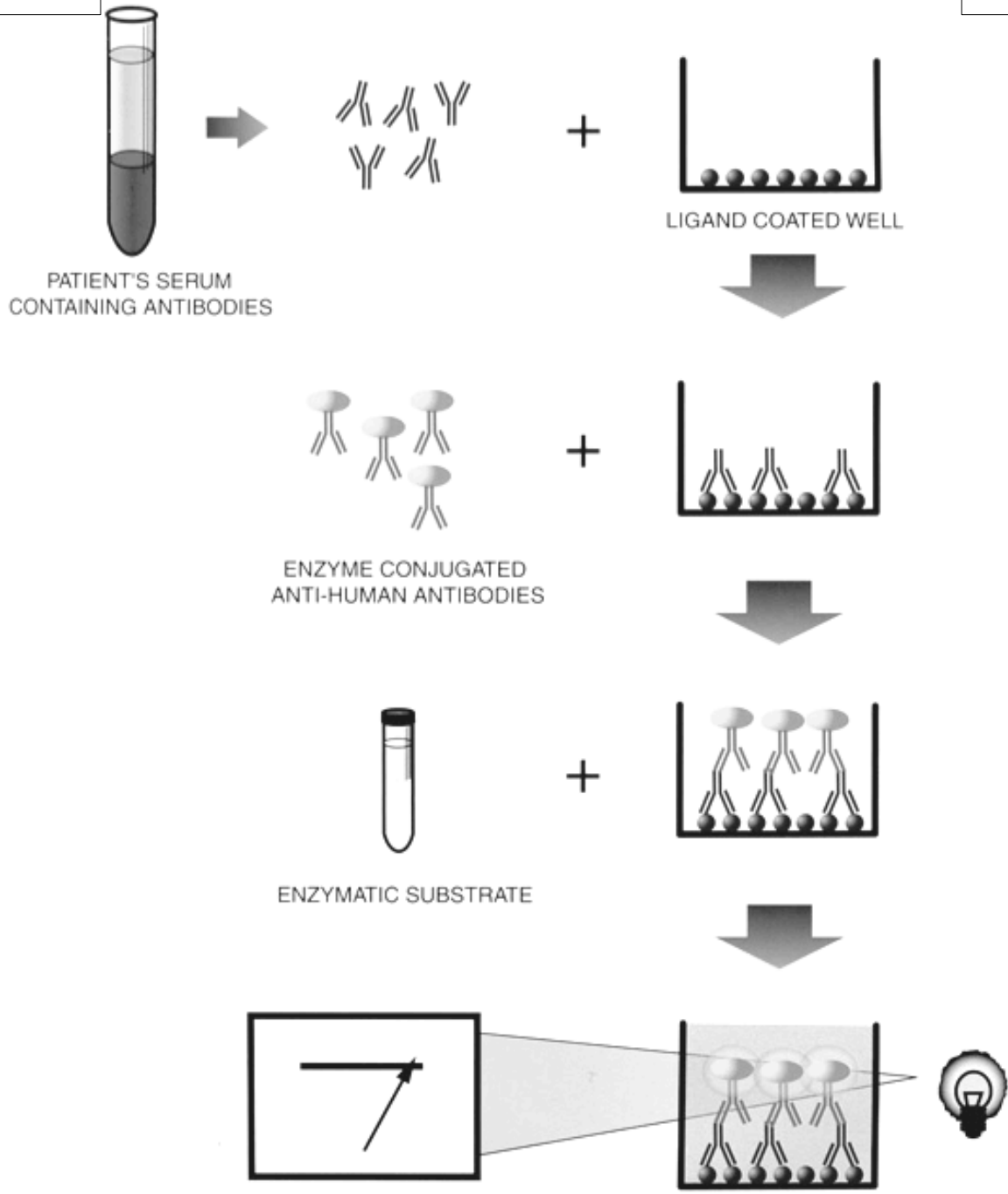
Immunologic Lab Tests Outline

- Agglutination reactions
- DAT
- IAT
- Immunofluorescence
- ELISA

ELISA: Purpose

- Detection of antibodies in patient specimen
- Examples:
 - home pregnancy tests
 - HIV tests
 - tests for some coagulation factors, cytokines, and autoantibodies

ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA)



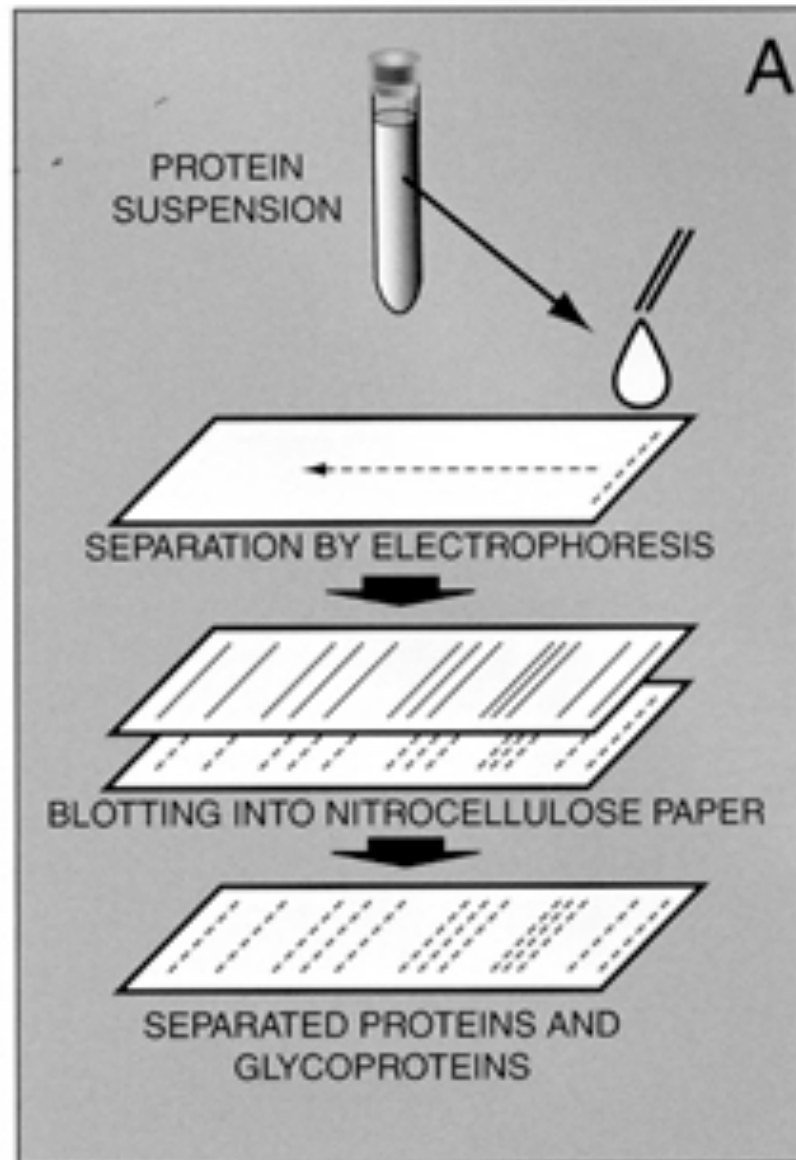
Immunologic Lab Tests Outline

- Agglutination reactions
- DAT
- IAT
- Immunofluorescence
- ELISA
- Western blot

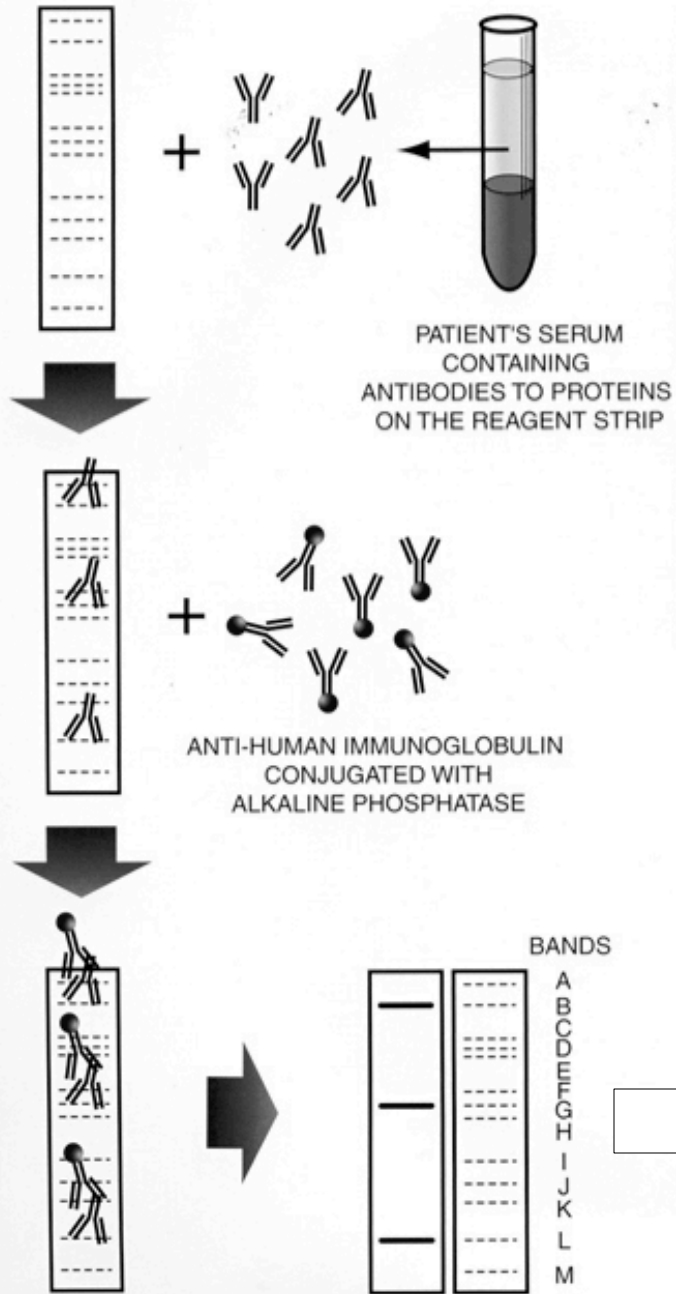
Western Blot: Purpose

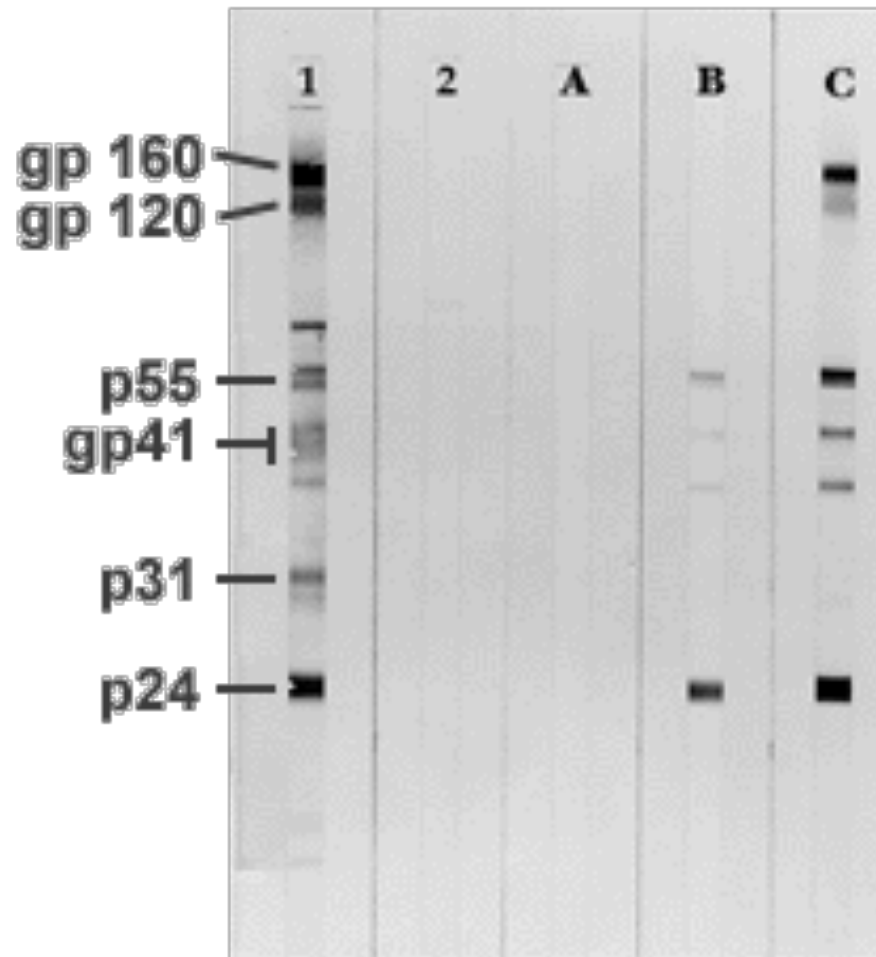
- Detection of antibodies in patient specimen
- Most common example: HIV test

PREPARATION OF A REAGENT STRIP



REAGENT STRIP





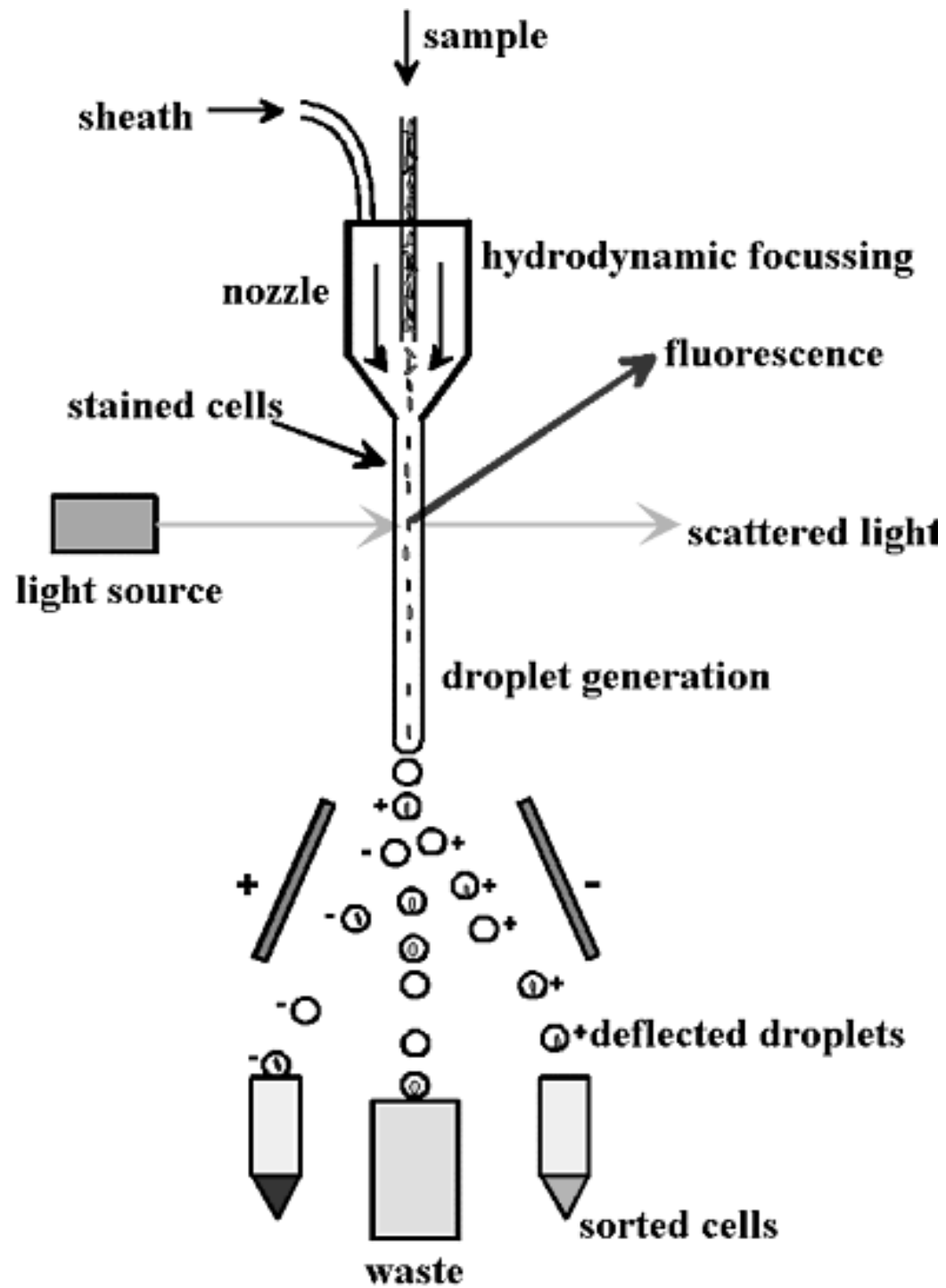
Enough bands = patient is “positive”

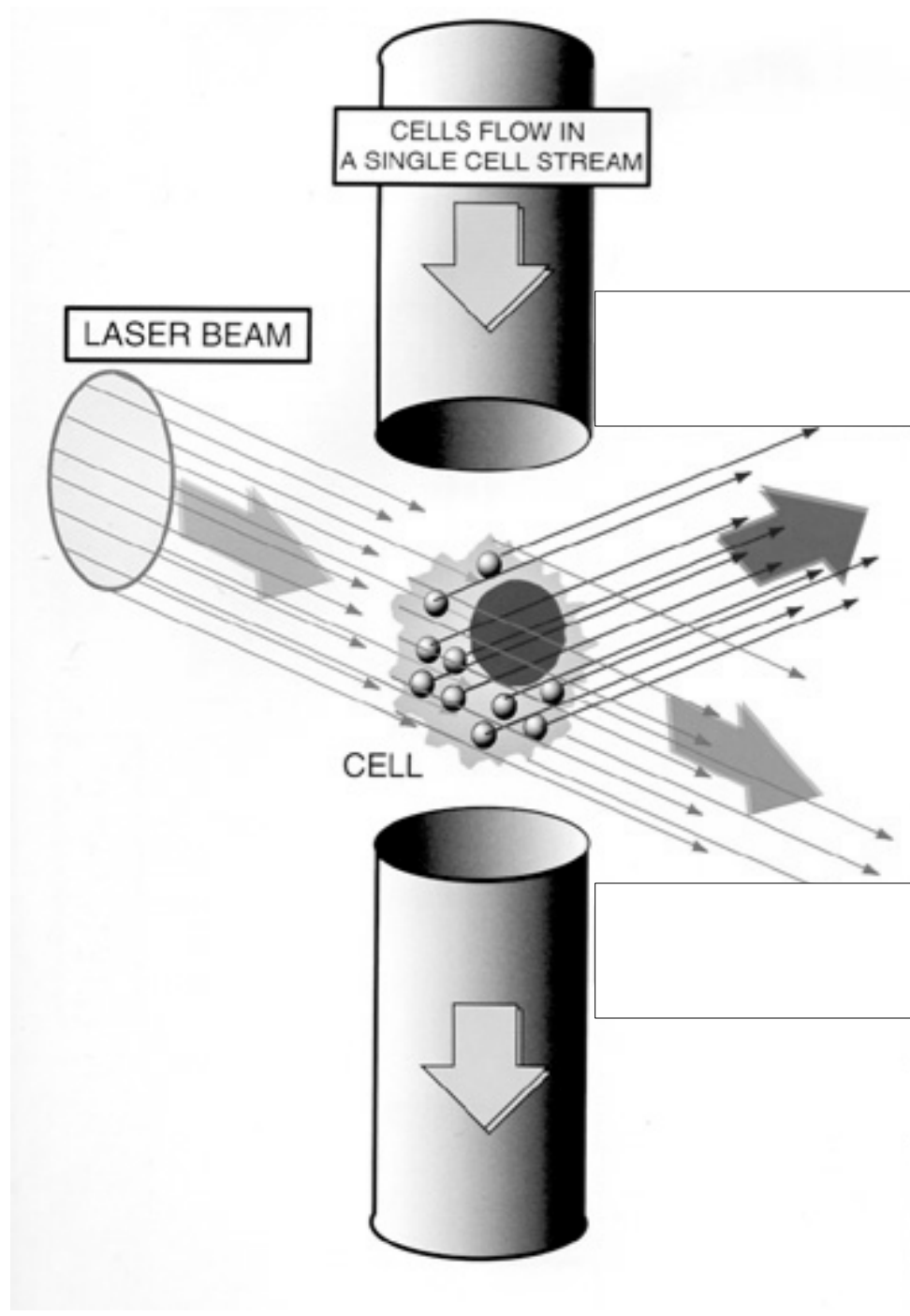
Immunologic Lab Tests Outline

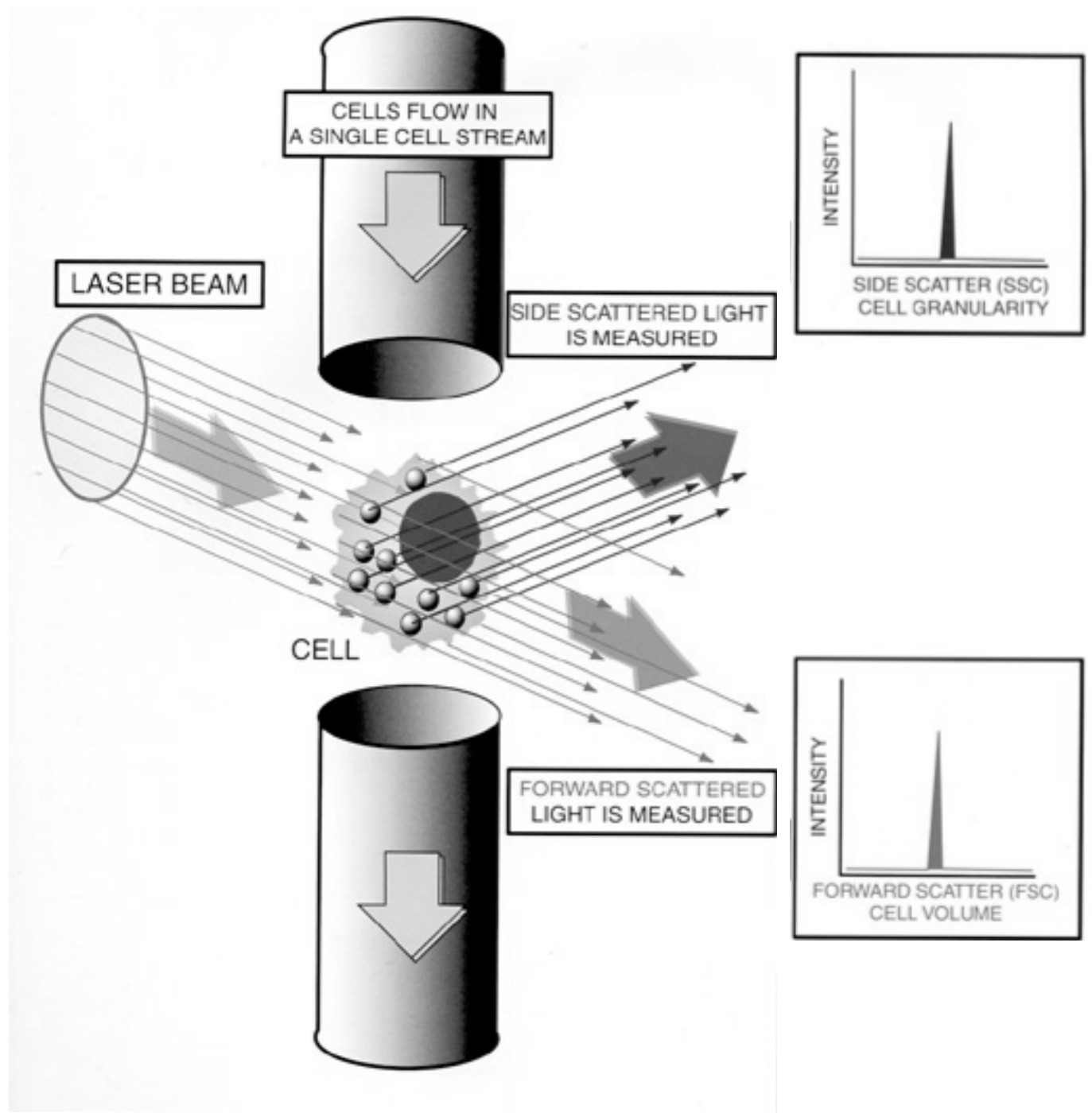
- Agglutination reactions
- DAT
- IAT
- Immunofluorescence
- ELISA
- Western blot
- Flow cytometry

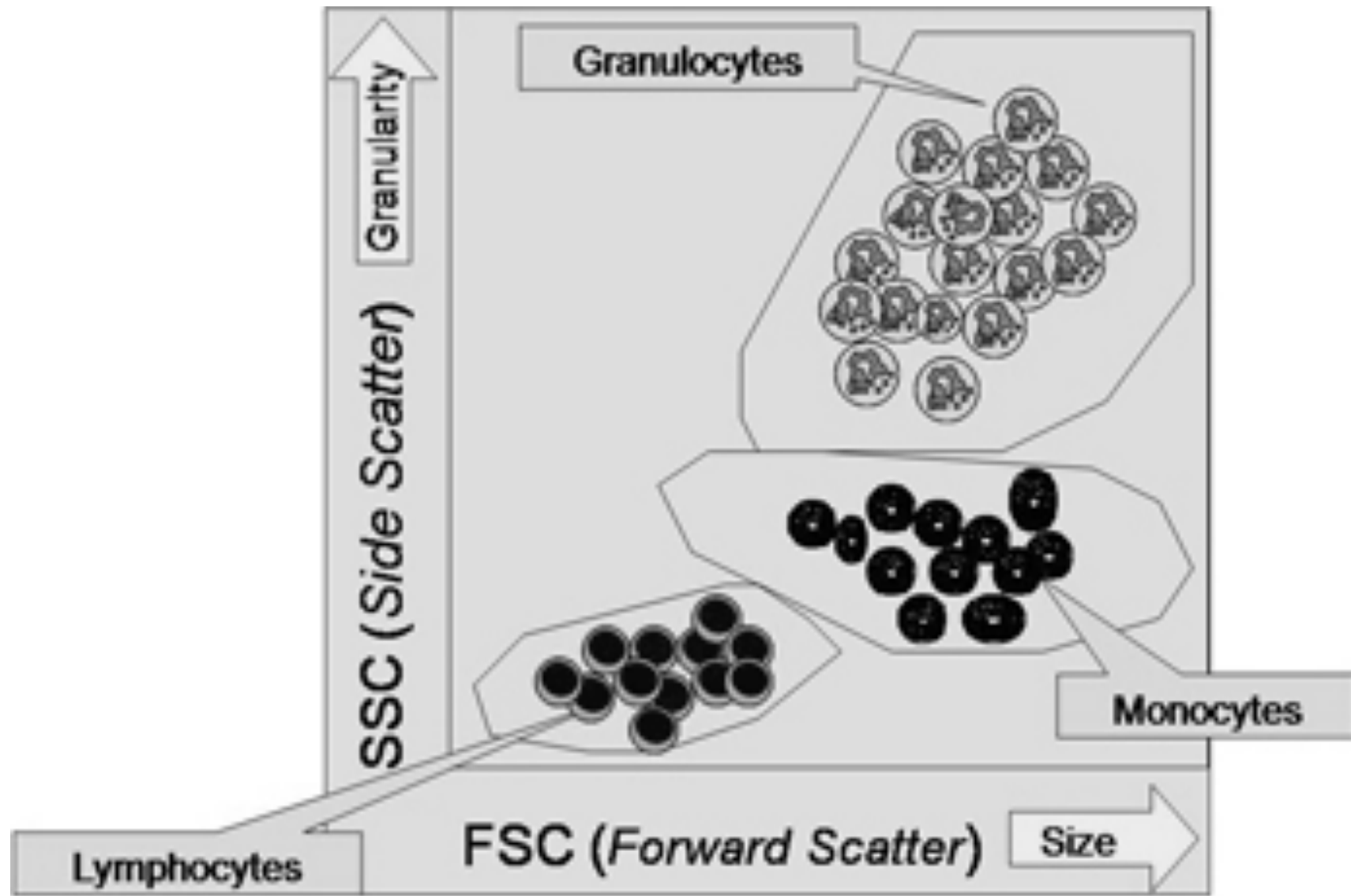
Flow Cytometry: Purpose

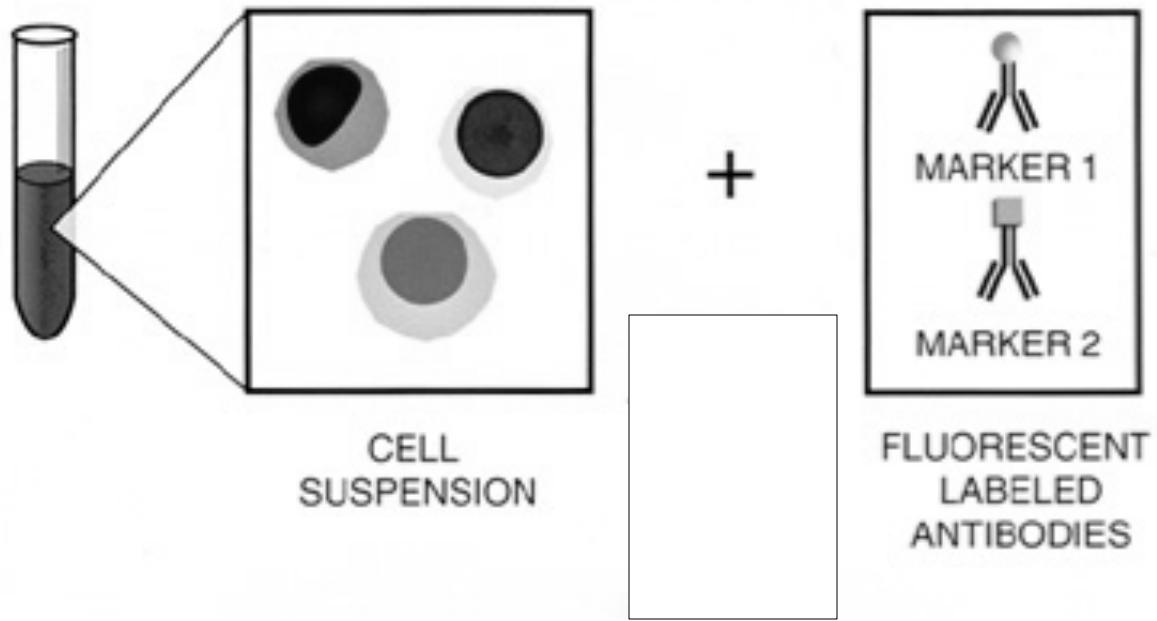
- Characterization of cell size, complexity, antigens
- Examples:
 - diagnosis of leukemia and lymphoma
 - determination of CD4/CD8 counts in patients with HIV

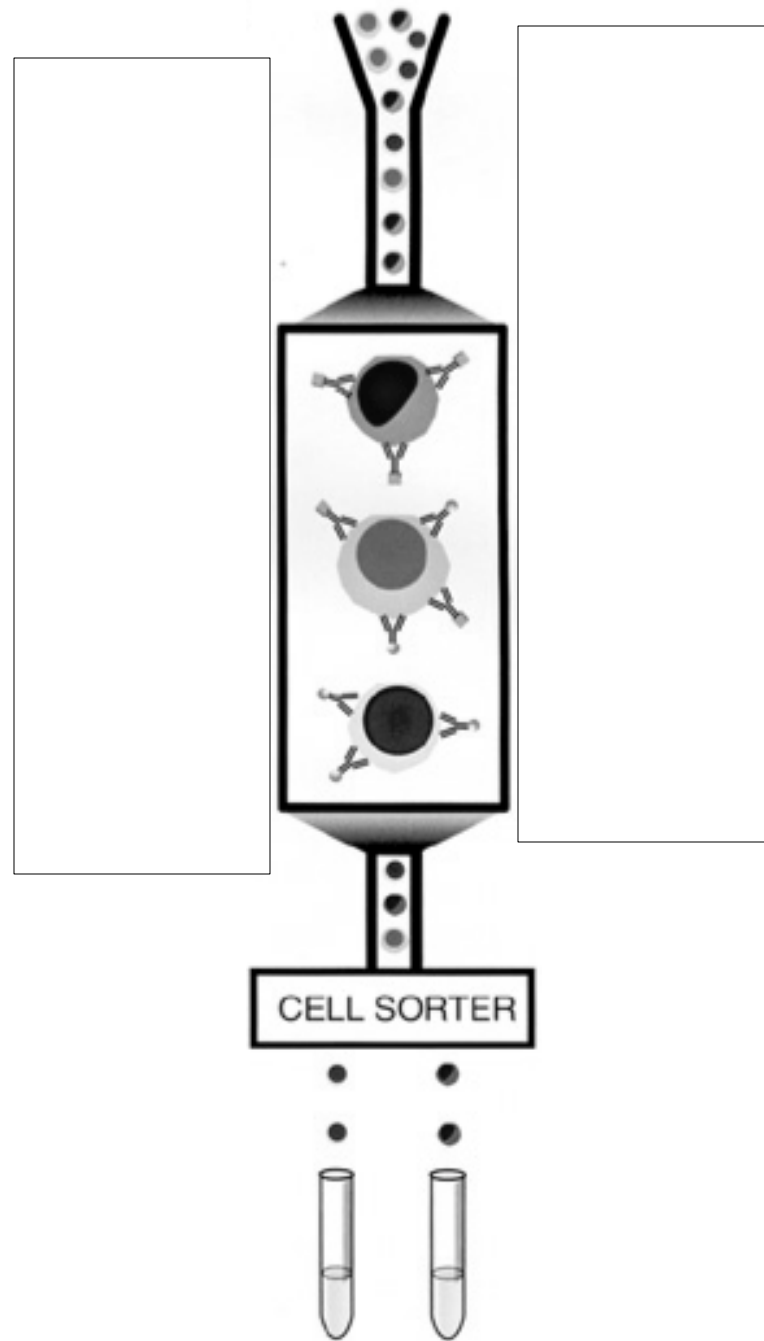


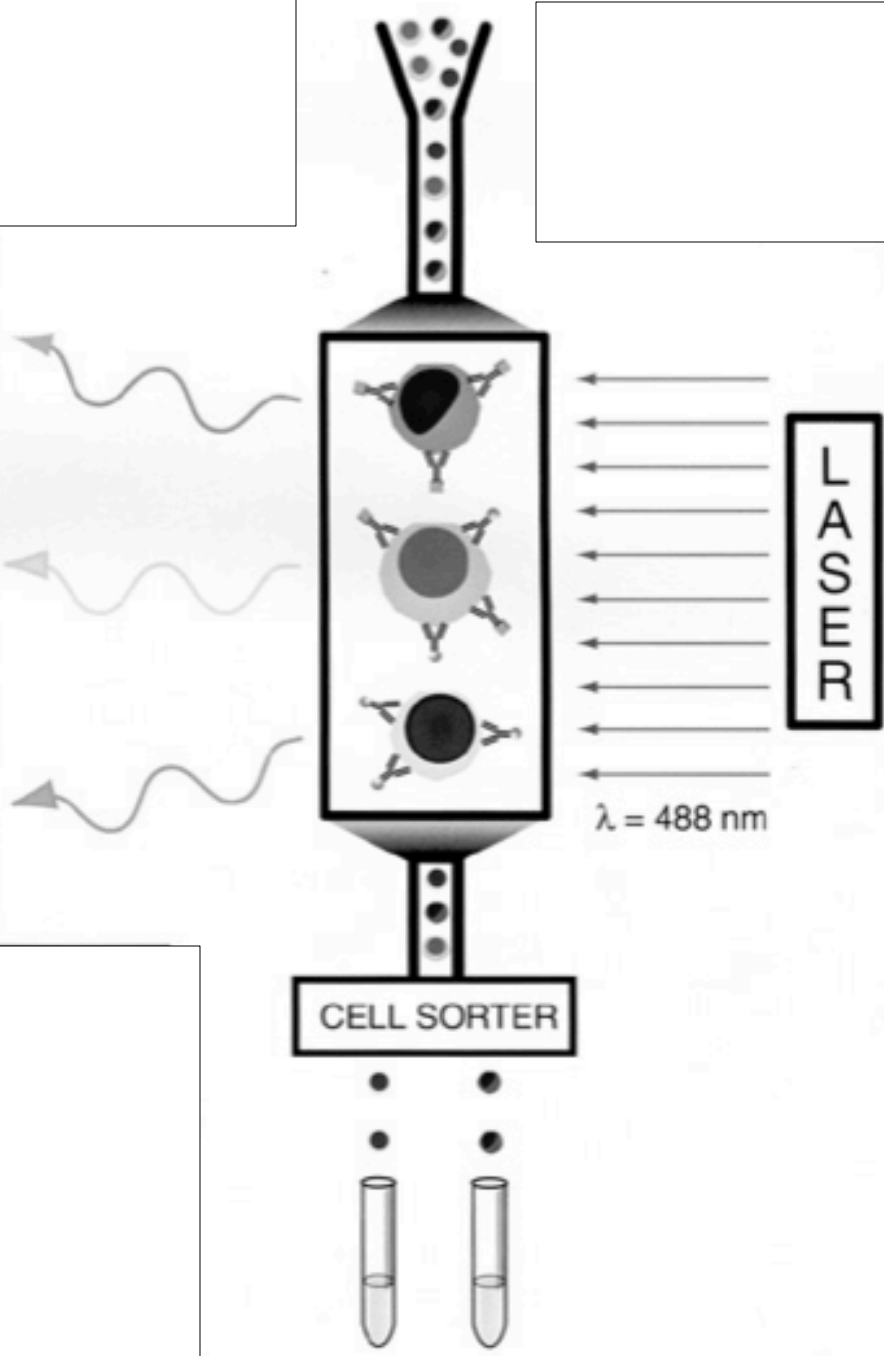
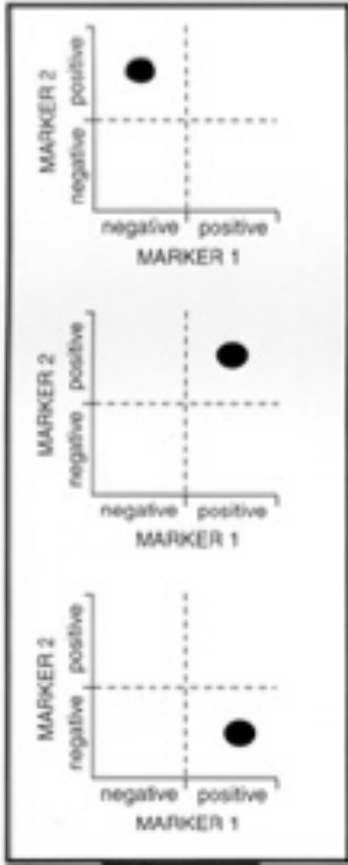


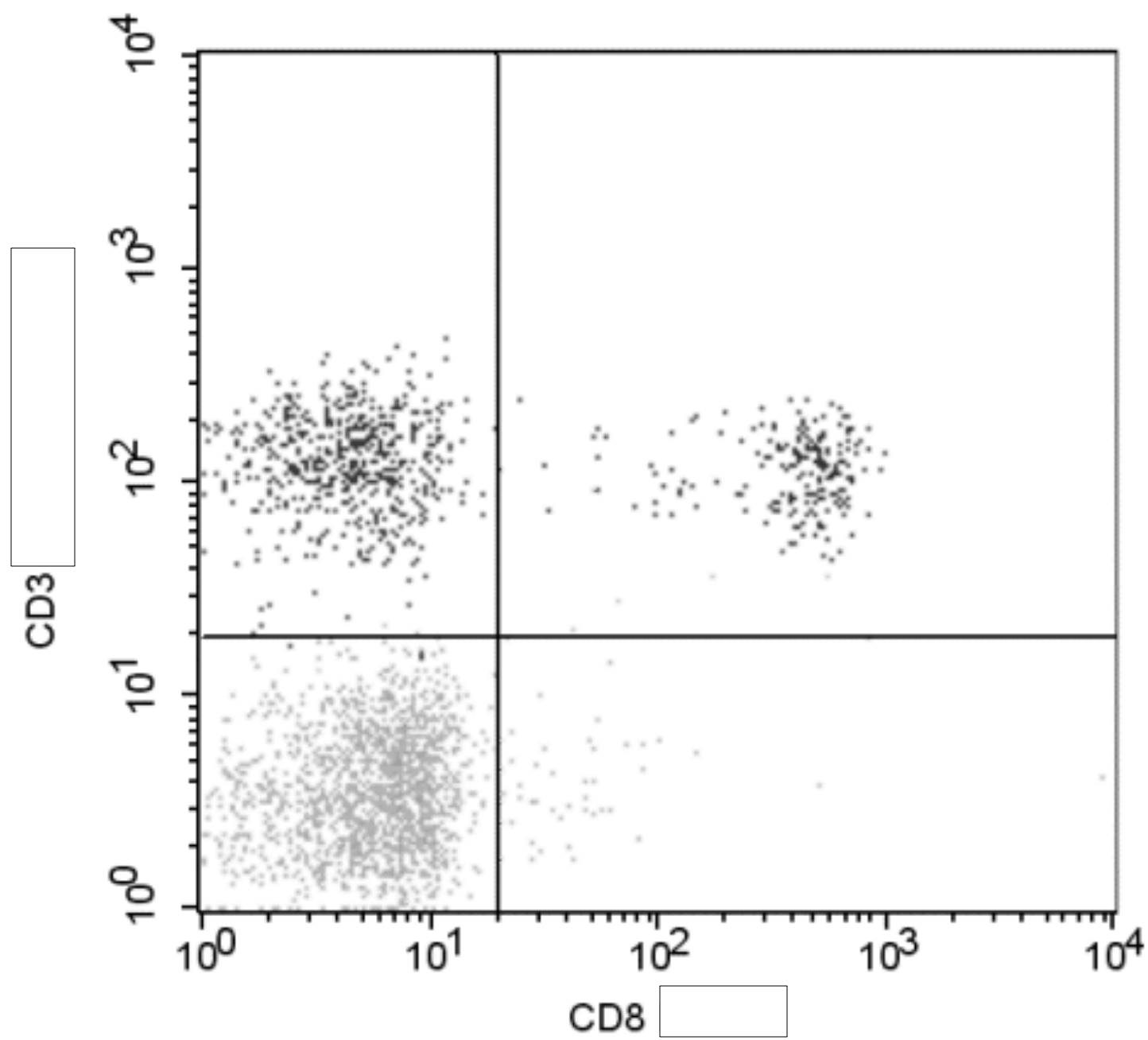












Immunologic Lab Tests Outline

- Agglutination reactions
- DAT
- IAT
- Immunofluorescence
- ELISA
- Western blot
- Flow cytometry