

QUALIFICATION IN IMMUNOHISTOCHEMISTRY (QIHC) Topic Outline

I. General Immunology (10%)

- A. Antigen
- B. Antibody
 - 1. Monoclonal antibodies
 - 2. Polyclonal antibodies
 - 3. Antibody classes
 - 4. Antibody structure

II. Detection Systems (10%)

- A. Immunofluorescence
- B. Immunohistochemistry
 - 1. Substrates
 - 2. Enzymes
 - 3. Chromogens
 - 4. Blocking reactions

III. Specimen Handling (10%)

- A. Fixation
- B. Processing
- C. Microtomy/Slide Preparation
- D. Cytology Specimens
- E. Immunofluorescence Specimens
- F. Frozen Sections

IV. Epitope Enhancement (Antigen Retrieval) (20%)

- A. Methods, Principles and Techniques
 - 1. Heat induced epitope retrieval
 - 2. Enzyme induced epitope retrieval
 - 3. Combined heat and enzyme methods

V. Staining (30%)

- A. Principles and Mechanisms
 - 1. Direct
 - 2. Indirect
 - 3. Avidin-Biotin
- B. Tissues
 - 1. Morphology/anatomy
 - 2. Cell/component demonstration
 - a. Staining patterns
 - b. Microorganisms
 - 3. Pathology
- C. Stain Components/Characteristics
 - 1. Concentrated antibody
 - 2. Pre-diluted antibody
 - 3. Titrations
 - 4. Reagents
- D. Troubleshooting
- E. Mounting Procedures

VI. Laboratory Operations (20%)

- A. Quality Control/Quality Assurance
 - 1. Documentation
 - a. Procedures
 - b. Quality control records
 - c. Personnel
 - d. Reagents/antibody lots
 - 2. Selection, utilization and evaluation of control tissue
 - 3. Slide storage
 - 4. Method selection and validation
 - 5. Troubleshooting
- B. Safety
 - 1. Storage
 - 2. Disposal
 - 3. Hazards
 - 4. Regulations
 - 5. Procedures
- C. Laboratory Mathematics
- D. Ancillary Equipment/Instruments (e.g., microwave, computers, pH meter, solvent recovery)
- E. Regulations
 - 1. Federal government
 - 2. Accrediting agencies