

QUALIFICATION IN IMMUNOHISTOCHEMISTRY (QIHC)

EXAMINATION TOPIC OUTLINE

The Qualification in Immunohistochemistry (QIHC) examination questions encompass different topics or content areas within Immunohistochemistry: General Immunology, Detection Systems, Specimen Handling, Epitope Enhancement (Antigen Retrieval), Staining, and Laboratory Operations. Each of these content areas comprises a specific percentage of the overall 50-question qualification exam.

IMPORTANT: Exam questions may be both theoretical and/or procedural. Theoretical questions measure skills necessary to apply knowledge, calculate results, and correlate patient results to disease states. Procedural questions measure skills necessary to perform laboratory techniques, evaluate laboratory data, and follow quality assurance protocols. The content areas and percentages are described in detail below.

I. GENERAL IMMUNOLOGY (5 – 10%)

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

II. DETECTION SYSTEMS (20 – 25%)

- A. Immunofluorescence
- B. Immunohistochemistry
 - 1. Substrates
 - 2. Enzymes
 - 3. Chromogens
 - 4. Blocking reactions
- C. In-Situ Hybridization

III. SPECIMEN HANDLING (10 – 15%)

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

IV. EPITOPE ENHANCEMENT (ANTIGEN RETRIEVAL) (10 – 15%)

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

V. STAINING (25 – 30%)

- A. Principles and Mechanisms
 - 1. Direct
 - 2. Indirect
 - 3. Avidin-Biotin
 - 4. In-situ hybridization
- 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
- F. Preliminary Screening

VI. LABORATORY OPERATIONS (15 – 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, optimization, 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, hybridization chamber)
- E. Regulations
 - 1. Federal government
 - 2. Accrediting agencies

END OF TOPIC OUTLINE