**Course Competency** | **Learning Outcomes**
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**Competency 1:** The student will demonstrate and apply the principles and theories of immunohistochemistry by: | • Communication  
• Critical thinking  
• Information Literacy  
• Ethical Issues  
• Computer / Technology Usage  
• Aesthetic / Creative Activities |
1. Explaining the role of immunohistochemistry (IHC) in the Histology Laboratory.  
2. Discussing safety issues related in reference to immunohistochemistry  
3. Defining the following terms:  
   i. Antigen  
   ii. Antibody  
   iii. Substrate  
   iv. Chromogen  
   v. Fluorochrome  
   vi. Epitope  
   vii. Secondary antibody  
   viii. Multilink secondary antiserum  
4. Illustrating the principles of immunohistochemistry as they relate to the following terms:  
   i. Direct  
   ii. Indirect  
   iii. Peroxidase-anti-peroxidase  
   iv. Avidin-biotin complex  
   v. Polymeric detection system  
5. Listing at least 2 common fluorochromes
6. Identifying 2 common chromogens used in both immunoperoxidase and immunoalkaline phosphatase techniques.
7. Listing 2 methods of epitope retrieval
8. Listing 3 solutions that are used for heat-induced epitope retrieval

**Competency 2:** The student will demonstrate knowledge of appropriate quality control and validation while performing IMMUNOHISTOCHEMISTRY procedures by:

- Communication
- Numbers / Data
- Critical thinking
- Ethical Issues
- Computer / Technology Usage
- Aesthetic / Creative Activities

1. Explaining the general principles quality control in immunohistochemistry.
2. Discussing the use of positive and negative tissue and reagent controls.
3. Debating why preparing positive controls in the laboratory is preferred to purchasing them.
4. Appraising recommended quality for an antibody and a tissue block.
5. Assessing the requirements for daily quality control of immunohistochemistry.
6. Discussing the storage of quality control slides.

**Competency 3:** The student will demonstrate knowledge, comprehension and application of specimen and slide preparation procedures for IMMUNOHISTOCHEMISTRY by:

- Communication
- Numbers / Data
- Critical thinking
- Ethical Issues
- Computer / Technology Usage
- Aesthetic / Creative Activities
1. Deciding the preferred method of specimen preparation for immunohistochemistry.
2. Adapting a sound theoretical approach to the application of immunohistochemistry within the work environment.
3. Carrying out immunohistochemistry protocols to demonstrate how proteins are distributed within a tissue section.
4. Interpreting and identify positive staining within a tissue section using a light microscope.
5. Troubleshooting the interaction of an antigen and antibody and how their impact on the immunohistochemistry reactions.
6. Preparing reagents and antibodies including calculation of molarity and dilutions

**Competency 4:** The student will demonstrate knowledge, comprehension and application of epitope unmasking and retrieval that may be used in performing IMMUNOHISTOCHEMISTRY procedures by:

- Communication
- Numbers / Data
- Critical thinking
- Ethical Issues
- Computer / Technology Usage
- Aesthetic / Creative Activities

1. Performing epitope unmasking and retrieval on a given specimen.
2. Preparing the proper epitope retrieval solutions.
3. Troubleshooting epitope retrieval methods.

**Competency 5:** The student will demonstrate knowledge, comprehension and application of troubleshooting procedures when performing IMMUNOHISTOCHEMISTRY staining by:

- Communication
- Numbers / Data
- Ethical Issues
- Computer / Technology Usage
- Aesthetic / Creative Activities
1. Troubleshooting Immunohistochemical procedures due to fixation errors.
2. Troubleshooting specimen size and processing and pretreatment.
3. Evaluating and performing quality control requirements of Immunohistochemical specimens