



COURSE SPECIFICATION

Immunohistochemistry

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	Master degree of Histology & Cytology
(2) Department offering the programme:	Histology & Cell biology
(3) Department responsible for teaching the course:	Histology & Cell biology
(4) Part of the programme:	Second part Semester-4
(5) Date of approval by the Department`s council	30 / 5 / 2012
(6) Date of last approval of programme specification by Faculty council	8 / 6 / 2012
(7) Course title:	Histology & Cell biology
(8) Course code:	HIST 502 IH
(9) Total teaching hours:	30

(B) Professional information

(1) **Course Aims:**

The broad aims of the course are as follows:

The aim of this course is to prepare the candidate to be professional in the field of Immunohistochemistry through increasing his/ her awareness about:

1. the various techniques that are used in the preparation of immunohistochemistry (IHC) stains.
2. Principals of sample handling for IHC staining procedures
3. Appropriate quality control (QC) used while performing IHC procedures.
4. Role of IHC in the Histology Laboratory, advanced histopathological diagnosis and medical research.

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the course, the candidate will be able to:

A- Knowledge and Understanding

- A. 1-** Identify the immunohistochemistry (IHC), antigens, antibodies, antigen-antibody binding.
- A. 2-** Sample preparation and tissue fixation for immunohistochemical stains
- A. 3-** Enumerate types of antibodies & antibodies production.
- A. 4-** Recognize the different antigen retrieval techniques.
- A. 5-** Demonstrate the methods of blocking of non-specific site during immunohistochemical stains.
- A. 6-** Enumerate types of tissue control in IHC
- A. 7-** How to prepare coated slides for IHC
- A. 8-** Discuss the immunohistochemistry staining procedures.
- A. 9-** Method of detection of low levels of antigen
- A. 10-** Understand the immuno-Fluorescence techniques.
- A. 11-** Describe the immuno-Electron microscopic techniques.
- A. 12-** Enumerate the factors affecting the reliability of IHC stain.
- A. 13 -**Demonstrate the role of IHC in the histology Laboratory, advanced histopathological diagnosis and medical research.

- B. 2-** Differentiate between Immunohistochemistry & Immunocytochemistry
- B. 3-** Select the suitable method for tissue preparation to demonstrate specific antigen
- B. 4-** Predict importance of monoclonal & Polyclonal antibodies
- B. 5-** Choose the specific technique for antigen retrieval
- B. 6-** Blocking of non-specific site during immunohistochemical stains.
- B. 7-** Application of tissue control in IHC
- B. 8-** Recommend the suitable method of immunohistochemistry staining procedures & detection of low levels of antigen
- B. 9-** Distinguish between direct and indirect immuno-Fluorescence techniques.
- B. 10-** Discriminate between pre- & Post-embedding immuno-Electron microscopic techniques.
- B. 11-** Report factors affecting the quality & reliability of IHC stain
- B. 12-** Interpret the role of IHC in the histology, histopathological diagnosis and medical research.

- D .1 –**Enjoy working in team.
- D. 2 –** Acquired skills in internet usage to search for recent findings in Immunohistochemistry.
- D. 3 –**Develop the ability to communicate comprehension through presentation and

(3) Course content:

Subjects	Lectures	Seminars	Total Teaching Hours
• Introduction and Immunohistochemical theory	1	1	2

• Sample preparation and tissue fixation for immunohistochemical stains	2		2
• Types Of antibodies & antibodies production	2		2
• Antigen Retrieval techniques	2		2
• Methods of blocking of non specific site during IHC	2		2
• Types of tissue control in IHC	2		2
• Preparation of Coated Slides for IHC	2		2
• Immunohistochemistry (IHC) Staining procedures	3	1	4
• Method of Detection of low levels of antigen	2		2
• Immuno-Fluorescence techniques	2		2
• Immuno-Electron microscopic techniques	2		2
• Appropriate quality control used while performing IHC procedures	4		4
• Application of IHC in the histology Laboratory, advanced histopathological diagnosis and medical research	2		2

(4) Teaching methods:

- 4.1: Lectures
- 4.2: problem-based exercises
- 4.3: Seminars
- 4.4: Self learning (internet search for specific topics)

(5) Assessment methods:

- 5.1: Assessment MCQs exam.....Marks: 20%
- 5.2: Final Written exam..... Marks: 80%
- 5.3: Other assessment without marks: seminars

(6) References of the course:

6.1: Text books:- Theory and Practice of Histological Techniques
-Modern Immunohistochemistry

6.2: Journals: Applied Immunohistochemistry & Molecular Morphology
Journal, Journal of Biomedical Science, J Histochem Cytochem,
Egyptian Journal of Histology and Cytology

6.3: Websites: www.ihcworld.com/introduction.htm,
<http://www.ncbi.nlm.nih.gov/pubmed/?term=immunohistochemistry+review>

<http://www.labce.com/immunohistochemistry-ihc-basics-in-histology.aspx>

(7) Facilities and resources mandatory for course completion:

7.1-Data show for power point presentations

7.2-Library

7.3-Computers

7.4-Internet connection

Course coordinator: - Dr. Amal Mohamed Moustafa

Head of the department: Dr. Amal Mohamed Moustafa

Date: 4/ 2 / 2018