

Immunology Department

1- Basics of Tissue Culture

Candidates will learn the following: principles of tissue culture, handling of sterile materials under laminar flow, dealing with various equipments included in a tissue culture lab, identifying different cell, their specific culture media and cryopreservation of cultured cells and revival from liquid nitrogen. Course includes seminars and illustrative practical sessions.

Duration: 5 days

Fees: 500 EGP for Egyptians/200 US\$ for non-Egyptians

Number of trainees: 6 / course

2- Hands-on Working with Stem Cells

Regular Courses: include an introduction to stem cells, Mesenchymal stem cells (MSCs) isolation by plastic adherence method, hematopoietic stem cells(HSCs) isolation using MiniMACs separation kit, stem cells culture, and propagation, stem cells surface markers identification by flowcytometer analysis, cryopreservation of stem cells and their revival from liquid nitrogen.

Duration: 2 weeks

Fees: 3000EGP for Egyptians/ 750 US\$ for non-Egyptians

Number of trainee: 3- 4/ course.

Optional Courses

- 1- MSCs in vitro differentiation into osteoblasts.
- 2- MSCs in vitro differentiation into adipocytes.
- 3- MSCs in vitro differentiation into chondrocytes
- 4- MSCs in vitro differentiation into hepatocytes.
- 5- Pluripotent gene expression of stem cells by molecular techniques
- 6- Telomere length determination of stem cells by molecular techniques.

3- Development of Antigen Detection Kits

A- Monoclonal Antibodies Production

Course includes immunization of BALB/c mice with specific antigens, myeloma cells revival from liquid nitrogen, and their culture, fusion of immunosplenocytes with myeloma cells, culture of fused cells in drug selection medium, screening for positive hybridomas by ELISA, cloning of positive hybridomas by limiting dilution method, propagation of single cloned hybridomas, cryopreservation of unused hybridomas and large scale production of monoclonal antibodies

Duration: 2 months,

Fees: 5000 for Egyptians/1500 US\$ for non- Egyptians

Number of trainees: 2/ course

B- Characterization of Monoclonal Antibodies

Course includes ELISA to test for specificity, determination of MAbs, isotyping of MAbs by ELISA isotyping kit, Immunoelectrophoresis (IEP) for determination of ability of MAb to recognize a repetitive epitope. polyacrylamide gel electrophoresis (PAGE) of antigen followed by enzyme linked immunoelectrotransfer

blot technique (EITB) for determination of molecular weight range of recognized antigen and Identification of the chemical nature of recognized antigen.

Duration: 2 week,

Fees: 1000EGP for Egyptians/ 350 US\$ for non-Egyptians

Number of trainees: 3-5 / course

C- Application of Monoclonal Antibodies in Antigen Detection

Purification of MABs from ascitic fluid by different purification methods, conjugation of MAb to horse-radish peroxidase, standardization of sandwich ELISA for antigen detection using MABs as antigen capture and antigen detection horse radish peroxidase conjugate and modification of sandwich ELISA by loading of MABs on gold nanoparticles

Duration: 3 weeks,

Fees: 1500 for Egyptians/500 US\$ for non- Egyptians

Number of trainees: 3-5/ course

D-Hands-on ELISA Technique

Course includes an overview to antigen antibody reactions, principle of ELISA technique and its different types, ELISA performance and results interpretation and how to deal with errors that one may face during practical application of ELISA and their corrective and preventive actions

Duration: 3 days

Fees: 1500for Egyptians/ 500US\$ for non- Egyptians **Number of trainees: 5-10/course**

4- Detection of circulating epigenetics markers in liver diseases

Course includes an overview to identify microRNAs profile as a diagnostic and prognostic marker for liver diseases.

Duration: 3 days

Fees: 500 for Egyptians/ 150 US\$ for non- Egyptians

Number of trainees: 5-10/course

- **All courses include seminars and illustrative practical sessions.**
- **All techniques and materials to be used in the training courses will be accompanied with detailed protocols**

5- Essentials of Biobanking

A- Overview of Research Biobanking

This objective is to present a general overview of all the key aspects of establishing, maintaining, and using a research biobank. The module will orient you to standard biobank terminology, describe principles related to the handling of research biospecimens and provide information on acceptable

practices and standards in biobanking. Also, this module discusses the importance of ensuring that biospecimens and personal health-related information are used ethically and optimally for research that enhances health and increases knowledge.

Duration: 5days

Fees: 500 for Egyptians/150 US\$ for non- Egyptians

Number of trainees: 5-10/course

B- Quality Management and Biobank Process Improvement

This module provides general information on the importance of quality management and process improvement for biobanks. You will learn how a quality management system (QMS) improves efficiency, accuracy and quality of biobank processes. Creation and maintenance of standard operating procedures (SOPs) and education and training of personnel will also be covered. Actions to address risks and opportunities and the corrective action for nonconforming output will be addressed.

Duration: 1 week

Fees: 500 for Egyptians/150 US\$ for non- Egyptians

Number of trainees: 5-10/course



C- Biobank Facility Design and Safety

This module provides you with information on the fundamental physical components of a biobank facility. It also covers the importance of biobank facility design and security in maintaining a safe environment

Duration: 3 days

Fees: 500 for Egyptians/100 US\$ for non- Egyptians

Number of trainees: 5-10/course

D- Handling biospecimen, Data Systems and Records Management

This module provides an overview of the types of biospecimens commonly collected and stored in a biobank , the procedures involved in biospecimen collection and processing and the proper biospecimen storage and distribution procedures for a biobank. Also, the module provides an overview of the types of data systems and records management systems used for storing biospecimen data. The overall objective is to provide you with key terminology and standard processes as well as inform you of any issues that may be involved with data collection, access or retention. This module also covers the topics of data security and confidentiality.

Duration: 1 week

Fees: 500 for Egyptians/150 US\$ for non- Egyptians

Number of trainees: 5-10/course

