COURSE SPECIFICATION

(Molecular Biology in Hematology-HEM 630 MB)

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	Postgraduate Doctorate Degree of Clinical Hematology/HEMA 600
(2) Department offering the programme:	Internal Medicine Department
(3) Department responsible for teaching the course:	Hematology Unit and Clinical Pathology department.
(4) Part of the programme:	First part
(5) Date of approval by the Department`s council:	26/04/2016
(6) Date of last approval of programme specification by Faculty council:	9/08/2016
(7) Course title:	Molecular biology in Hematology
(8) Course code:	HEM 630 MB
(9) Credit hours	1 hour
(10) Total teaching hours:	15 hours

(B) Professional information

(1) Course Aims:

The molecular biology course aims to provide the MD candidate with knowledge, recent trends and possible applications in the field of molecular medicine including biomarkers as diagnostics tools in hematological disorders, DNA analysis and different genetic techniques and to identify the application of gene therapy in management of hematological disorders.

(2) Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding

A1: To identify basic molecular mechanisms, diagnosis, and therapy of diseases of the blood, including anemias, diseases of white blood cells and stem cells, and disorders of hemostasis and thrombosis.

A2: To identify principles and area under research in the field of molecular genetics, the nature of oncogenes and their products, and cytogenetic.

A3: To identify Immune markers, immunophenotyping, flow cytometry, cytochemical studies, and cytogenetic and DNA analysis of neoplastic disorders.

A4: To differentiate between genotypic and phenotypic testing methods and advantages of different types of molecular testing in different investigation settings

A5: To identify mode of inheritance, genetic background and polymorphisms frequently encountered in different hematological diseases.

A6: To explain molecular and genetic basis of hemoglobinopathies.

A7: To identify basics and application of gene therapy in management of hematological disorders.

(3) Course Contents (1 credit hour/15 teaching hours/theoretical):

Subjects	Lectures	Total Teaching Hours
(1)The Red blood cells • Molecular mechanisms of normal iron hemostasis • Molecular basis of iron deficiency anemia • Hereditary hemochromatosis • Biochemical and molecular basis of megaloblastic anemia • Genetic basis of hereditary hemolytic anemia. • Biological basis of paroxysmal nocturnal hemoglobinuria.	3hrs	3hrs
(2) The White blood cells • Molecular biology of acute leukemia • Acute myeloid leukemia • Acute lymphoblastic leukemia • Molecular biology of chronic leukemia • Chronic lymphocytic leukemia • Chronic myeloid leukemia • Detection of minimal residual disease	3hrs	3hrs
(3) Molecular basis of Plasma cell dyscrasis	1h	1h
(4) Molecular pathogenesis of Myeloproliferative neoplasm • Chronic myelogenous leukemia • Polycythemia vera • Essential thrombocythemia • Primary myelofibrosis • Chronic neutrophilic leukemia • Chronic eosinophilic leukemia • Mastocytosis	2hrs	2hrs
(5)Molecular biology of Myelodysplastic syndromes	1h	1h
(6)Lymphoid neoplasm • Molecular biology of Hodgkin's lymphoma • Molecular biology of Non-Hodgkin's lymphoma	2hrs	2hrs
(7)Hemorrhagic disorders • Molecular basis of Platelet disorders • Quantitative platelet disorders • Qualitative platelet disorders • Molecular basis Coagulation disorders • Hemophilia • Von Willebrand disease • Hypercoagulable states(Thrombophilia)	3hrs	3hrs
	1 credit hour/15 teaching hours	

(4) Teaching methods:

4.1: Power Point presentation.

4.2: Laboratory work.

(5) Assessment methods:

5.1: Written exam and MCQ for assessment of knowledge

Assessment schedule:

Final exam 25th week

Percentage of each Assessment to the total mark:

Written exam: 80 marks

MCQ: 20 marks

(6) References of the course:

Text books:

6.1: Manual of Clinical Hematology, Post Graduate Hematology, Williams Hematology, Wintrobes Clinical Hematology, Hollan-Frei Cancer Medicine, DeVita Cancer Principles and Practice of Oncology

6.2: Journals: American Society of Hematology (ASH), European Hematology Associatation (EHA).

(7) Facilities and resources mandatory for course completion:

-Lecture Hall.

-Data show.

-Equipped Laboratory.

Course coordinator: Dr Mona Taalab

Head of Hematology Unit: Prof Mohamed Nasr Mabed

Head of the Internal Medicine Department: Prof. Dr. Salah Al-Gamal

Date of First Approval: 22/12/2010

Date of Last Approval: 26/04/2016