



Immunology Program Specification for MD Degree in Clinical and Chemical Pathology

Program type: Single

Department offering the program: Clinical and Chemical Pathology Department

Program Code: CCP 922 CI

Total Credit points: 280 (160 MSC + 120 MD)

Academic year: 2016/2017

Program coordinators: Prof. Samia Rizk, Prof. Afaf Al Banna, Prof. Lamia Mansour, Prof. Osama Khalfallah

External Evaluator: *Hossam Fahmy, Prof of Clinical and Chemical Pathology, Ain Shams University*

I. Aim of the Program

To develop outstanding Clinical and Chemical Pathology consultants specialized in Clinical Laboratory Immunology, with an in-depth knowledge and understanding of the principles and practices of immunology, immunopathology, immune mediated diseases, and histocompatibility & immunogenetics. They will competently run and manage Immunology laboratories, efficiently adopt international standards of performance, and act as leaders of improvement and innovation in Immunology laboratory services. Graduates will be ready to assume their roles as distinguished medical researchers and educators.

II. Intended Learning Outcomes of the Program (ILOs)

A. Knowledge and Understanding

By the end of the program the student should be able to:

- 1- Acquire detailed knowledge of the immune system, its normal function and conditions associated with its abnormal activity or function
- 2- Demonstrate an understanding of the principles of laboratory diagnostic immunology
- 3- Understand the basic physiology and clinical immunology of the disease processes under investigation in the laboratory
- 4- Demonstrate an understanding of the biology of primary immunodeficiency, diagnostic criteria and the tests used in diagnosis.

- 5- Acquire in depth knowledge of the molecular pathogenesis of immunological disorders.
- 6- Describe the pathophysiology of systemic autoimmune rheumatic disease and systemic vasculitides and select laboratory investigations involved in diagnosis and follow up.
- 7- Gain in depth understanding of the presentation, investigation and principles of management of allergic diseases.
- 8- Demonstrate the ability to analyze lymphoid malignancy including cellular lineage, classification, and diagnosis
- 9- Gain in depth understanding of HLA gene structure, expression, polymorphism, and function and its relevance to transplantation, disease and pharmacogenetics
- 10- Identify HLA and non-HLA factors relevant to the different types of transplant, factors affecting outcome, pre-transplant workup, criteria for selection and matching of recipients and donors, and post-transplant monitoring.
- 11- Explain the immunology relating to transfusion of blood products, factors affecting the outcome, investigation of complications.
- 12- Describe the modes of action of various immunological therapies including vaccines, monoclonal antibodies, recombinant proteins, immunoglobulin and immunosuppressive drugs.

B. Intellectual Skills:

By the end of the program the candidate should be able to:

- 1- Interpret test results in the context of the clinical presentation of the patient and produce reports with interpretive comments using assurance of the quality of test procedures.
- 2- Provide evidence based opinion on the clinical significance of the results of investigations including, follow up and subsequent investigation of patients.
- 3- Make informed decisions regarding the introduction of new diagnostic test in the laboratory
- 4- Review scientific literature using a systematic critical approach.
- 5- Design research for future clinical and laboratory applications.

C. Professional and Practical Skills:

By the end of the program the candidate should be able to:

- 1- Gain in-depth practical experience in selection of appropriate clinical investigations and formulation of differential diagnoses in the context of the clinical presentation of patients.
- 2- Perform, interpret and report immunological investigations to assist with the diagnosis, monitoring and treatment of patients in accordance with clinical protocols and guidelines.
- 3- Understand the technology of automated instrumentation in immunology analyzers, nephelometry and their limitations and benefits.
- 4- Perform and interpret immunological tests including protein electrophoresis, quantitation of immunoglobulins and immunofixation, indirect immunofluorescence, ELISA.
- 5- Gain practical experience of molecular techniques, DNA and RNA based technology.
- 6- Interpret flow cytometry tests, including tests for monoclonality and expression of markers, analysis of cells and MRD assessment.
- 7- Demonstrate an ability to select and perform the tests for the pre-transplant workup of recipients and donors including HLA typing, antibody detection and specification, cross-matching, and post-transplant monitoring tests and report results with clinical interpretation.
- 8- Select, perform and report the tests for the pre-transfusion workup and post transfusion monitoring for patients sensitized to blood products, the investigation of transfusion reactions and complications and the provision of compatible blood components.
- 9- Understand the indications for patch testing, bronchial and nasal challenge and diagnostic tools in allergy.

D. General and Transferable Skills:

By the end of the program the candidate should be able to:

- 1- Implement and adhere to guidelines and integrate them into practice.
- 2- Participate in interaction with multidisciplinary clinical teams to advise and provide a scientific perspective.
- 3- Critically review the literature to identify a new approach, technique or method.
- 4- Communicate effectively orally and in writing.

- 5- Demonstrate competent use of information technology including the use of word processing, databases, statistical programs, laboratory and hospital information systems

III. Academic standards

1. Academic reference standers: The academic standers of anatomy program m is adopted and accredited by the departmental council
2. External References for Standards:
 - The “Reference Standards for Post Graduate Programs”, (March, 2009), provided by the “National Authority to Ensure the Quality of Accreditation and Education”. The academic reference standards (Benchmarks) used for subspecialties:
 - Chemical pathology (also known as clinical chemistry or clinical biochemistry): Royal college of pathologists
<https://www.rcpath.org/resourceLibrary/chemical-pathology-curriculum-.html>
 - Hematology: The college of American pathologists www.cap.org , The Royal college of pathologists
 - Blood banking/Transfusion medicine: international society of transfusion ISBT <http://www.isbtweb.org>
 - Immunology: The royal college of pathologists
<https://www.rcpath.org/specialist-area/immunology.html>
 - Clinical microbiology: The royal college of pathologists, the American board of clinical microbiology, the American board of infection control.

IV. Program Admission Requirements

According to the Faculty of Medicine, Cairo University bylaws for post graduate programs (July 2009/ Amendment 2015), applicants should hold a Master degree (or an equivalent), accredited by the Egyptian Supreme Council of Education, in Clinical and Chemical Pathology, during the previous ten years.

Admission to the program is open twice a year, during January and July. Advanced training prior to registration may be accredited according to departmental evaluation.

V. Program Structure and Contents

Program duration: Two years.

Program structure: (Table 1)

Total credit points: 280 (160 MSc + 120 MD)

- **Compulsory Courses**
 - General Laboratory Medicine (CCP 922 G) **10 credit points**
- **Elective Courses**: There are four elective courses; only one will be selected by the student to determine his/her subspecialty. **10 credit points**

- Clinical Microbiology, Advanced level (CCP 922 CM)
 - Clinical Immunology, Advanced level (CCP 922 CI)
 - Hematology, Advanced level (CCP 922 H)
 - Chemical Pathology, Advanced level (CCP 922 CP)
- **Scientific Activities** **5 credit points**
 - **Advanced Residency Training Program (CCP 922P)** **55 credit points**
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- **MD Thesis** **40 credit points**

Table 1

Courses	Credit Points	ILOs	
Title, Code	CPS	Total	
COMPULSORY COURSES			
General Laboratory Medicine, CCP922G	10	10	A1. A2.A3. A7. A8. A9. A10.B1.B2. B4.B7. B8. C1. C3. C6. C9. C10. C11.
ELECTIVE COURSES			
Clinical Microbiology (advanced), CCP922CM	10	10	A3. A4. A5. A6. B3. B4. B5. B6. C1. C2. C4. C5. C6. C7. C8. C11. D1. D2. D3. D4.D5.D6.
Clinical Immunology (advanced), CCP922CI	10		A3. A4. A5. A6. B3. B4. B5. B6. C1. C2. C4. C5. C6. C7. C8. C11. D1. D2. D3. D4.D5.D6. D1. D2. D3. D4.D5.D6.
Hematology (advanced), CCP922H	10		A3. A4. A5.A6. B3. B4. B5. B6. C1.C2. C4. C5. C6. C7. C8. C11. D1. D2. D3. D4.D5.D6.
Chemical Pathology (advanced), CCP922CP	10		A2.A3.A4. A5. A6. B1. B3. B4. B5. B6. C1.C2. C3. C4. C5. C6. C7. C8. C11. D1. D2. D3. D4.D5.D6.
SCIENTIFIC ACTIVITIES			
• Seminars	S 1 CP A 0.5 CP	5	A6. A7. B5. B8. C1. C8. C9. C10. C11. D2. D3. D6.
• Journal clubs	S 1 CP A0.5 CP		
• Scientific meetings.	1 CP		
• Workshops.	O 2 CP A 1 CP		
• Conferences.	S 2 CP A 1 CP		
• Thesis discussions.	A0.5 CP		
RESIDENCY TRAINING PROGRAM			
Phase 3 CCP 922 P	55	55	C1. C2. C5. C6. D4. D6.
M.D.THESIS			

	40	40	B8. C8. C9. C10. D4.
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Scientific activity abbreviations: S: speaker, A: attendant, O: organizer

M.D. Thesis:

All MD degree students should prepare a thesis in one of the four subspecialties of Clinical and Chemical Pathology. The “Research and Ethics Committee” at the Faculty of Medicine, Cairo University, must approve the protocol of the research. The thesis is supervised by 2-4 staff members, one of them at least being a Professor, and may include other specialties as relevant to the research topic. The thesis will be evaluated and approved by a committee of three professors including one of the supervisors, and an external evaluator.

Scientific Activities:

The candidates should participate in various scientific activities such as:

- Seminars.
- Journal clubs.
- Scientific meetings.
- Workshops.
- Conferences.
- Thesis discussions.

Each activity is monitored, given credit points, and registered in the “Scientific Activities Section”, of the logbook. Candidates should collect the required credit points before being allowed to sit their final exam.

VI. Regulations for Progression and Program Completion

The student becomes eligible to sit for the final examinations two years after registering for the MD degree and after collecting the required credit points for the respective courses, the advanced residency training, the scientific activities, and thesis discussion and approval. The candidate will be awarded the MD degree after passing this final examination. MD degree should be obtained within a maximum of 6 years after registration date.

Students who pass written exams are allowed to sit for the oral and practical exams up to three successive times. In case the student fails to pass the practical and oral exams during that period, he/she will have to retake the written exam.

VII. Assessment

Assessment Tools

- **Formative Assessment of Training Program**

According to the Faculty of Medicine, Cairo University Bylaws for practical Training Programs, professors carry continuous assessment of the student's progress during the program. A practical training program logbook will be kept for each candidate to document all his/her practical activities as well as his/her participation in different scientific activities. The head of the department should allow the candidates to sit for the final examination after they fulfill their training program and collect the required credit points.

- **Summative Assessment**

According the Faculty of Medicine, Cairo University Bylaws for Post Graduate Programs (July 2009), students will be assessed at the end of the program by written, oral and practical exams. Exams are held bi-annually, in May and November.

Written exams comprise two papers: CCP922G, which includes two sections; a multiple choice (40 marks, 20 minutes), and short essay questions (160 marks, 160 minutes), and CCP922CM/CI/H/CP 180 minutes, according to sub-specialty.

Oral exam

Practical Exam

Weighing of Assessment (Marks allocated to courses):
(50 marks for each credit point)

Courses	Marks			
	Code, Title	Written	Oral	Practical
CCP922G, General Laboratory Medicine	200	150	150	500
Only One of the Following Courses:	200	150	150	500
CCP922CM, Clinical Microbiology				
CCP922CI, Clinical Immunology				
CCP922H, Hematology				
CCP922CP, Chemical Pathology				
				1000

Remarks

- It is mandatory to pass all the papers of written exams in one sitting.
- The passing mark in any written exam is $\geq 60\%$.

VIII. Evaluation of Program Intended Learning Outcomes

Evaluator	Tool	Sample
1. Senior Students	Questionnaire at the end of the program	MD students ready to sit for final exam
2. Alumni	The faculty is currently developing an Alumni office for postgraduates	Not yet determined
3. Stakeholders	A meeting will be arranged during annual conference of the department	Available representatives from: <ul style="list-style-type: none"> - Army hospitals - National medical insurance - Medical syndicate - Ministry of health
4. External Evaluators	Review program and courses Attending the final exam	Once before implementation Annually
5. College Quality Assurance committee	Annual program reviewer	

Signatures

Date of approval by department: December 2016

Program coordinators:

Prof. Samia Rizk

Prof. Lamia Mansour

Prof. Afaf Al Banna

Prof. Osama Khalfallah

Head of Clinical and Chemical Pathology Department

Prof. Azza Abuleinen

Matrix

Courses	A Knowledge and Understanding										B Intellectual Skills								C Professional and Practical Skills											D General and Transferable Skills							
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	
Name	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	
General Laboratory Medicine, CCP922G	x	x	x				x	x	x	x	x	x		x				x	x	x		x				x		x	x	x							
Clinical Microbiology, CCP922CM			x	x	x	x							x	x	x	x			x	x		x	x	x	x	x			x	x	x	x	x	x			
Clinical Immunology, CCP922CI			x	x	x	x							x	x	x	x			x	x		x	x	x	x	x			x	x	x	x	x	x			
Hematology, CCP922H			x	x	x	x							x	x	x	x			x	x		x	x	x	x	x			x	x	x	x	x	x			
Chemical Pathology, CCP922CP		x	x	x	x	x					x		x	x	x	x			x	x	x	x	x	x	x	x			x	x	x	x	x	x			
Scientific Activities						x	x								x				x	x							x	x	x	x			x				
Residency Training Program																				x	x		x	x	x							x	x	x			
M.D. Thesis																											x	x	x				x				