



Diagnostic Unit of Parasitic Diseases  
وحدة تشخيص الأمراض الطفيلية



LMMP  
Lab of Molecular Medical Parasitology  
معمل علم الطفيليات الجزيئية الطبية



# Molecular Medical Parasitology Training Program

Post-graduate Program,  
Medical Parasitology

## Study Guide

Department of Medical Parasitology  
Kasr Al-Ainy School of Medicine  
Cairo University

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## Introduction

Welcome to the training program of Molecular Medical Parasitology. This Skills course will enable students to gain hands on experience, up-to-date knowledge in **basic** modern molecular techniques and their application in Medical Parasitology. Molecular techniques have revolutionized all fields of biology including Medical Parasitology. It is a peculiar molecular course dealing with parasites genome as a great diversity of eukaryotic organism.

This booklet will guide you during the course and provides you with clear descriptions schedules, teaching strategies and evaluation methods for the course. The course of deals essentially with the basic molecular biology techniques required for post graduate medical parasitology students. This course was planned to provide students the tools they need to understand the science behind cell biology of parasites and host parasite relationship, explores core concepts of molecular medical parasitology in considerable depth and presents experimental detail when it helps to explain and reinforce the concept being explained.

**Course director:** Ayman A. El-Badry, Prof. of Medical Parasitology  
Head of Labof Molecular Medical Parasitology (LMMP),  
Head of Diagnostic & Research Unit of Parasitic Diseases (DRUP),  
Medical Parasitology department, Faculty of Medicine, Cairo University.

## **Goal of the Course**

The Course is intended to provide the parasitologist with practical skills in commonly applied Molecular techniques in field of Medical Parasitology.

## **Aim of the Course**

This is course interested in providing parasitologist with basic theory and molecular biological techniques used for DNA isolation & purification, DNA amplification, DNA Sequence Variation and methods of DNA detection of medically important parasites using laboratory experiments to reinforce gained knowledge from lectures and provide hands-on experience.

## **Course structure**

The Molecular Medical Parasitology Training Program course last 12 weeks. The Course is intended to acknowledge the students with the essential facts and concepts of Molecular Medical Parasitology techniques as well as other topics related to the better understanding of the course. Emphasis is placed on diagnosis of parasitic infections. The course will highlight use of molecular as a tool to understand taxonomy of parasites of medical importance management & control of parasitism, its transmission and pathogenesis. In addition, students will be taught how to apply learned knowledge and skills, integrating facts and concepts to answer parasitological problems. A thorough background in introductory Medical Parasitology and molecular parasitology are needed.

## **Learning Management (Strategies)**

The course is delivered to students in theoretical and practical training and will consist of:

### **Theoretical teaching**

#### **A) Interactive Lecture Notes**

- Attendance is essential
- Both text books and taking notes should be used in the lecture
- Taking Notes in Lecture:
  - No hand-outs for all class notes
  - Record notes in class: No need to write down every, single word appearing on screen.

#### **B) Small group teachings:**

Tutorials are designed to include for small groups activities, in order to promote deeper learning, encourage self motivation, problem-solving skills and awareness of different views on issues taught. In addition, to develop interpersonal communication, team working and presentation skills with opportunity to change and improve attitude.

#### **C) Distance Learning:**

Theoretical and practical parts will be reinforced by distance learning

### **Student assignment**

Major topics will be discussed with the students and minor topics will be identified and distributed among the students to be have assignment in group or individually.

### **Practical Teaching**

#### **B) Practical Laboratory:**

Laboratories will be used to teach student how to identify various work labs and equipments and acquire basic skills of diagnostic molecular methodology and techniques in medical Parasitology.

# Learning Resources

## References

- 1-From Genes to Genomes: Concepts and Applications of DNA Technology. [Jeremy W. Dale](#), [Malcolm von Schantz](#), John Wiley & Sons, Dec 14, 2007 - 394 pages. *Latest Edition*
- 2- Molecular Cloning: A Laboratory Manual. By Joseph Sambrook, *Peter MacCallum Cancer Institute, Melbourne, Australia*; David Russell, *University of Texas Southwestern Medical Center, Dallas. Latest Edition*
- 3- Manual of Molecular Medical Parasitology Course

## Further reading

-Molecular [Medical Parasitology](#). [Joseph Marr](#), [Tim W. Nilsen](#), [Richard W. Komuniecki](#). *Latest Edition*

## Suggested-Websites:

[www.ncbi.nlm.nih.gov/](http://www.ncbi.nlm.nih.gov/) National Center for Biotechnology Information

<http://www.embl.de/> <http://www.ebi.ac.uk/> The European Molecular Biology Laboratory - European Bioinformatics Institute

<http://www.mastersportal.eu/studies/5553/molecular-parasitology-and-vector-biology.html> Molecular Parasitology and Vector Biology, University of Salford

<http://www.keele.ac.uk/media/keeleuniversity/studyatkeele/postgraduate/pgcourseleaflets/MolecularParasitology> MolecularParasitology, keele university

[http://www.parasit.hu-berlin.de/frameset\\_en.htm](http://www.parasit.hu-berlin.de/frameset_en.htm) Department of Molecular Parasitology of the Humboldt-Universität Berlin

[http://www.qimr.edu.au/page/Lab/Molecular\\_Parasitology/Molecular\\_Parasitology\\_-\\_research/](http://www.qimr.edu.au/page/Lab/Molecular_Parasitology/Molecular_Parasitology_-_research/) Molecular Parasitology - Queensland Institute of Medical Research

## Assessment and Evaluation

### Type of assessment

Assessment is through a variety of methods including.

#### Summative: Final Course Examination:

- Practical work “Objective structural practical exams (OSPE)”

#### Formative: Continuous assessment:

- Student activities:
  - Portfolios (assignment of Lab sheet)/Log book
- Self assessment

### Grading:

Your grade will be calculated on the basis of the continuous and final assessment.

The grading system is “pass/fail.” The minimum passing score is 60 of 100

### Attendance Policy:

Attendance will be taken and recorded; it gives a better chance to judge effort if your record of attendance is good

The minimum acceptable attendance in the course is 85%

## Student Feedback

Feedback from students is welcomed all the time whether oral or written in order to explore areas of weakness and areas of strength, to enhance self-improvement, professional career and develop competencies.

### Methods of Student feedback

1. Oral (Tutor contact)
2. Questionnaire (“one minute” after lecture, “open ended” for lecture items, what student want and don’t want in a teaching professor...etc)
3. Interviews regularly between tutor and students
4. Discussion: focus group and informal to get the student feedback

