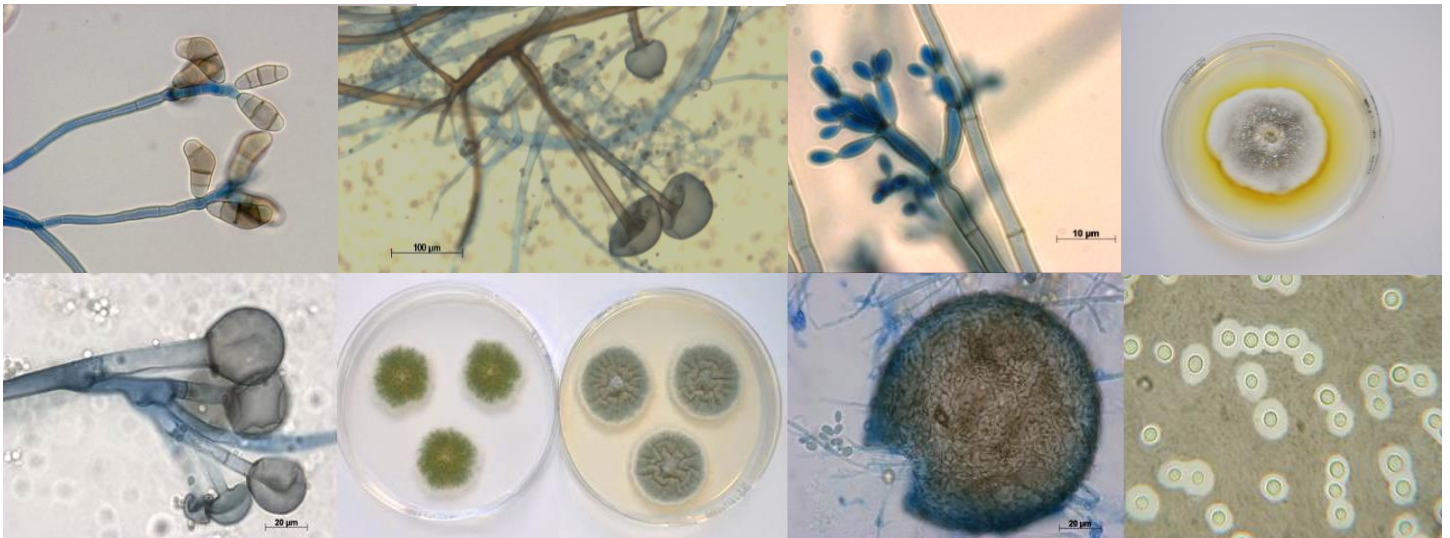




Institut Pasteur

PASTEUR COURSE

MEDICAL MYCOLOGY



PROGRAM 2018-2019

MEDICAL MYCOLOGY COURSE

March 18th to April 12th, 2019

Directors of the Course

Dea GARCIA HERMOSO, PhD and Olivier LORTHOLARY, MD, PhD

Head of Practical Sessions

Dea GARCIA HERMOSO, PhD

UNITE DE MYCOLOGIE MOLECULAIRE
INSTITUT PASTEUR

Education Center – Institut Pasteur

28 rue du Dr Roux 75015 Paris

Lectures: Room 5 - Building 6

Practical Sessions: 1st floor – Building 9

WELCOME INTRODUCTION

Paris, March 18th 2019

Dear Speakers and Students of the 2019 edition of the Medical Mycology (MM) Course, welcome to the Institut Pasteur, Paris and thanks for your participation.

As directors, we had in mind to select across Europe some among the best researchers in medical mycology as lecturers and students worldwide. We also tried to do our best to optimize individual logistics and hosting conditions.

Our sincere thanks to all of our lecturers, training session collaborators and especially to our guest speaker Dr. Elizabeth Johnson. We extend our thanks to all of those who contributed to practical sessions logistics (Murielle Almoussa, Guylène K'ouas, Corinne Fayolle and Sophie Robert), to the Direction of International Affairs (Marianne Lucas-Hourani) and finally to all of those from the Education Center IP (Monica Sala, Virginie Ponticelli, Hervé Waxin, Gladys Elisabeth and Sylvie Malot) for their precious contribution.

The course divided into four thematic modules includes lectures and practical sessions. The first week will deal with general topics. The second and third weeks will be focusing on yeast and mould infections, respectively. Finally, on the last week, we will cover veterinary aspects of mycology (fungal diseases in animals) and fungal risks encountered in the environment.

In order to improve the quality of subsequent MM courses, please let us have your feedback on a daily basis for speakers or in a weekly basis for students!

We hope that the 2019 edition of the MM Course will be successful in both scientific and friendship aspects creating an unforgettable true team spirit!

Best fungal wishes from

Dea Garcia-Hermoso & Olivier Lortholary



GENERAL PRESENTATION

This four-week course is intended for microbiologists (MDs, PharmDs, PhDs & veterinarians) willing to catch up with the most recent advances in diagnosis and identification procedures and principles of therapy for fungal infections.

Training is provided through bench works, lectures and panel discussions and will cover:

Technical aspects: choice of media, slide cultures, storage of isolates, molecular diagnosis and identification (PCR, qPCR, sequencing, MALDI-TOF), typing techniques (microsatellite, MLST), antifungal susceptibility testing (CLSI/EUCAST microbroth dilution methods, commercially available tests), antigen/antibody detection, histopathology.

Practical aspects : spectrum of action and pharmacokinetics/dynamics of antifungal drugs, role of the laboratory in the diagnosis and monitoring of patients (direct examination, histopathology, antigen detection, antifungal susceptibility testing results, qPCR ...), limitation and use of public and specific databases for molecular identification, discussion of clinical cases.

Fungal aspects: sexual and asexual reproduction, phylogeny, species identification, resistance mechanisms.

Medical aspects : Pathogenic concepts, epidemiology, diagnosis criteria for infections due to common and emerging yeasts or filamentous fungi (including invasive and mucocutaneous infections, endemic mycoses), principles of therapeutic management, practical guidelines.

WEEK 1

Institut Pasteur Laboratory Training team:

Dea Garcia-Hermoso, Murielle Almoussa, Corinne Fayolle, Guylène K'ouas

Monday, 18 March

8:30-10:30	Student reception & introduction to the course	Dea Garcia-Hermoso (Institut Pasteur, France) Olivier Lortholary (Université Paris Descartes, Hôpital Necker-Enfants Malades & Institut Pasteur, France)
11:00-1:00	Basic techniques //lecture	Dea Garcia-Hermoso
2:00-4:00	Establishing a mycology laboratory/ lecture	Maurizio Sanguinetti (Catholic University of the Sacred Heart, Italy)
4:15-6:00	Basic techniques /practical	Dea Garcia-Hermoso Aude Sturny-Leclère (Institut Pasteur, France)

Tuesday, 19 March

9:00-1:00	Sexual reproduction //lecture & practical	Joëlle Dupont (Museum National d'Histoire Naturelle, France)
2:00-6:30	Asexual multiplication / lecture & practical	Alberto Stchigel (Universitat Rovira i Virgili, Spain)

Wednesday, 20 March

8:30-9:45	Systemic antifungal drugs: mode of action, PK/PD, TDM / lecture	Vincent Jullien (Hôpital Avicenne, France)
10:00-12:00	Antifungal resistance //lecture	Dominique Sanglard (Université de Lausanne, Switzerland)
1:00-4:00	Antifungal susceptibility testing //lecture & practical	Jésus Guinea (Hospital Gregorio Marañón Madrid, Spain)
4:15-5:30	RoundTable I: "Antifungals: everything you wanted to know that you never asked"	Vincent Jullien Dominique Sanglard, Jésus Guinea

Thursday, 21 March

9:00-11:00	Diagnostic fungal antigens and antibodies //lecture	Marie Elisabeth Bougnoux-Andremont (Université Paris Descartes, Hôpital Necker-Enfants Malades & Institut Pasteur, France)
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11:00-1:00	Practical molecular approaches towards diagnosis and typing <i>//lecture</i>	Stéphane Bretagne (Université Paris Diderot, Institut Pasteur, France)
2:00-4:00	Project Distribution	Dea Garcia-Hermoso Olivier Lortholary
4:00-5:30	Current role of mass spectrometry in fungal identification <i>//lecture</i>	Renaud Piarroux (Hôpital Pitié-Salpêtrière, France)

Friday, 22 March

8:30-1:00	Molecular Biology (yeast and molds): <i>/practical</i>	IP Laboratory Training team
2:00-4:00	Barcoding and Databases <i>//lecture</i>	Vincent Robert (Westerdijk Fungal Biodiversity Institut, The Netherlands)
4:30-6:00	RoundTable II: “Diagnosis and typing: everything you wanted to know that you never asked”	Marie Elisabeth Bougnoux-Andremont, Stéphane Bretagne, Renaud Piarroux, Vincent Robert

Weekly survey

WEEK 2

Institut Pasteur Laboratory Training team:

Dea Garcia-Hermoso, Murielle Almoussa, Corinne Fayolle, Guylène K'ouas

Monday, 25 March

8:30-9:00	Autotest	
9:00-11:00	Yeast Biology //lecture	Teun Boekhout (Westerdijk Fungal Biodiversity Institut, The Netherlands)
11:30-1:00	Medical Mycology in Europe: structures, challenges and opportunities //lecture	Oliver Cornely (University of Cologne, Germany)
2:00-4:00	Yeast Identification Procedure //lecture	Cornelia Lass-Flörl (University of Innsbruck, Austria)
4:30-5:30	Pathogenesis of human candidiasis //lecture	Frank van de Veerdonk (Radboud University Nijmegen, The Netherlands)
5:30-6:30	Time for Project	IP Laboratory Training team

Tuesday, 26 March

9:00-10:00	Ten highlights on <i>Candida</i> biology //lecture	Christophe d'Enfert (Institut Pasteur, France)
10:00-11:00	Time for Project	IP Laboratory Training team
11:00-1:00	Epidemiology, clinical manifestations and therapeutic principles of invasive <i>Candida</i> spp. infections //lecture	Thierry Calandra (Centre hosp. Universitaire Vaudois, Switzerland)
2:00-3:00	Uncommon yeast species //lecture	Marie Desnos-Ollivier (Institut Pasteur, France)
3:30-6:00	Yeast Identification Flow Chart //Practical	Marie Desnos-Ollivier Dea Garcia-Hermoso

Wednesday, 27 March

9:00-11:00	Histopathology of yeast infections //lecture & practical	Grégory Jouvion (Institut Pasteur, France)
11:00-12:00	Key lessons on the epidemiology of invasive fungal diseases //lecture	Olivier Lortholary
2:00-4:00	GUEST LECTURE: <i>Candida auris</i> : threat for Europe?	Elizabeth Johnson (PHE Mycology Reference Lab., Bristol, UK)

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4:30-5:30	Ten highlights on <i>Cryptococcus</i> biology <i>/lecture (video conferencing)</i>	Alexandre Alanio (Institut Pasteur, France)
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Thursday, 28 March

9:00-11:00	Epidemiology, clinical manifestations and therapeutic principles of cryptococcosis <i>/lecture</i>	Olivier Lortholary
11:00-11:15	GROUP PHOTO	
11:15-1:00	Rapid tests for the diagnosis of cryptococcal meningitis <i>/lecture & practical</i>	Angela Loyse (St. George's University of London, UK) Aude Sturny-Leclère (Institut Pasteur, France)
2:00-4:15	Interactive clinical cases on yeast infections and Pneumocystosis	Timothée Boyer- Chammard Maud Gits-Muselli (Institut Pasteur, France)
4:30-6:30	Histopathology of infections related to dimorphic fungi <i>/lecture & practical</i>	Grégory Jouvion

Friday, 29 March

9:00-10:45	Superficial candidiasis and <i>Malassezia</i> infections <i>/lecture</i>	Roderick Hay (International Foundation of Dermatology, UK)
11:00-1:00	Epidemiology, clinical manifestations and therapeutic principles of endemic subcutaneous mycoses <i>/lecture</i>	Olivier Lortholary
2:00-3:00	Dimorphic fungi and diagnosis of related diseases <i>/lecture</i>	Manuel Cuenca-Estrella (Centro Nacional de Microbiología, Spain)
3:15-5:15	Epidemiology, clinical manifestations and therapeutic principles of endemic invasive mycoses <i>/lecture</i>	Olivier Lortholary
5:30-6:15	Weekly Summary & autotest correction <i>Weekly survey</i>	Dea Garcia-Hermoso Olivier Lortholary

WEEK 3

Institut Pasteur Laboratory Training team:

Dea Garcia-Hermoso, Murielle Almoussa, Corinne Fayolle, Guylène K'ouas

Monday, 1st April

8:30-9:00	Autotest	
9:00-11:00	Pathogenesis of mould respiratory diseases <i>/lecture</i>	Agostinho Carvalho (University of Minho, Portugal)
11:00-1:00	Mould identification procedure: hospital view <i>/lecture</i>	Frédéric Lamoth (University Hospital Lausanne, Switzerland)
2:15-3:15	Recent acquisitions in mould identification <i>/lecture</i>	Dea Garcia-Hermoso
3:30-4:30	Ten highlights on <i>Aspergillus</i> biology <i>/lecture</i>	Vishu Kumar Aimanianda Bopaiah (Institut Pasteur, France)
4:30-6:00	Time for Project	IP Laboratory Training team

Tuesday, 2 April

9:00-1:00	Keys to <i>Aspergillus</i> identification <i>/lecture & practical</i>	Paul Verweij Henrich Van der Lee (Radboud University Nijmegen Medical Center, The Netherlands)
2:00-4:00	Invasive and chronic aspergillosis <i>/lecture</i>	Johan Maertens (University Hospital Gasthuisberg, Belgium)
4:00-6:00	Histopathology of mould infections <i>/lecture & practical</i>	Grégory Jouvion

Wednesday, 3 April

9:00-11:00	Mucormycosis and Enterophthoromycosis <i>/lecture</i>	Fanny Lanternier (Université Paris Descartes, Hôpital Necker-Enfants Malades & Institut Pasteur, France)
11:00-1:00	<i>Mucorales</i> I <i>/practical</i>	Dea Garcia-Hermoso

2:00-3:00	<i>Mucorales II /practical</i>	Dea Garcia-Hermoso
3:00-4:00	Time for project	IP Laboratory Training team
4:30-5:30	<i>Pneumocystis</i> and Pneumocystosis //lecture (video conferencing)	Alexandre Alanio

Thursday, 4 April

9:00-11:00	Interactive “clinical cases on mould infections”	Fanny Lanternier Dea Garcia-Hermoso
11:00-1:00	Hyphomycetes I //practical	Dea Garcia-Hermoso
2:00-4:00	Fusariosis, Scedosporiosis and phaeohyphomycosis //lecture	Patricia Muñoz (Hospital General Universitario , G. Marañón, Spain)
4:00-5:30	Hyphomycetes II //practical	Dea Garcia-Hermoso

Friday, 5 April

10:00-12:30	Dermatophytosis //lecture	Malcolm Richardson (University of Manchester, UK)
2:00-4:00	Dermatophytes //practical	Maud Gits-Muselli (Institut Pasteur, France)
4:15-5:15	Time for project	IP Laboratory Training team
5:15-6:00	Weekly Summary & autotest correction <i>Weekly survey</i>	Dea Garcia-Hermoso Olivier Lortholary

WEEK 4

Institut Pasteur Laboratory Training team:

Dea Garcia-Hermoso, Murielle Almoussa, Corinne Fayolle, Guylène K'ouas

Monday, 8 April

8:30-9:30	Happy breakfast	
9:30-10:45	Animal mycoses <i>/lecture</i>	Jacques Guillot (École Nat. Vétérinaire d'Alfort, France)
11:00-12:00	Key determinants of immunoprotection against fungi <i>/lecture</i>	Jessica Quintin (Institut Pasteur, France)
2:30-4:00	Environmental fungal risks <i>/lecture</i>	Jean-Pierre Gangneux (CHU Pontchaillou de Rennes, France)
4:15-6:00	Last minute questions	Dea Garcia-Hermoso Olivier Lortholary

Tuesday, 9 April

9:00-12:00	Time for project	IP Laboratory Training team (Institut Pasteur, France)
2:00-4:00	<i>Weekly survey</i> Revision <i>/practical</i>	

Wednesday, 10 April

10:00-1:00	Project presentations I
2:00-5:00	Project presentations II

Thursday, 11 April

9:00-12:00	Written exam
12:30-15:30	Lunch – closure party
16:00-17:00	Pasteur Museum Visit (OPTIONAL)

Friday, 12 April

9:00-10:30	Debriefing committee
10:30-12:00	Debriefing students and Prize “Major of Promotion”
12:00	Closure of the Course

MEDICAL MYCOLOGY COURSE 2019

A. AUTOTEST

The “autotest” will consist on **six multiple choice questions** (MCQ) starting on the 2nd and 3d weeks of the course. Baseline knowledge (before training courses) will be evaluated and the same questions will be asked at the end of the week followed by the appropriate answers. These “autotests” are important for self-evaluation and will not be integrated in the final evaluation

B. FINAL EXAMINATION

a. **WRITTEN EXAM** (1-20 scale, coefficient 1)

Thursday April 11th from 9:00am to 12:00pm

The exam will involve **two sections**:

- On the first section the student will have **10 Multiple Response Questions (MRQ)** and will be required to make none, one or more than one choice (30 min).
- On the second section, the student will have **4 General Questions**. The student will explain, complete or choose the correct answers.

b. **ORAL EXAM** (1-20 scale, coefficient 1)

On **March 21**, we will organize a draw. Each student will get an unknown yeast or mould isolate. Each isolate will be associated with a clinical history. In the following 3 weeks, the student will work to achieve identification to the species level and will present it at the day of the exam.

Each student will prepare **a short PowerPoint file** to present the entire procedure and the key features allowing identification, including morphology (pictures welcome), differential diagnosis and key elements of the clinical history.

On **April 8**, there will be another draw to decide the order of the presentations (20 min each). The PowerPoint presentation should be handed to the Head of studies on **April 9**, before 2pm.

On **April 10**, the **oral presentation (10 min max) in English** (with slides in English) will take place in front of ALL students and the course directors. Directors and fellow students will ask questions during the subsequent 10 minutes.

c. **ACTIVE PARTICIPATION TO LECTURES AND PRACTICAL COURSES** (1-20 scale; coefficient 0.5)

Student's investment, quality of work, general attitude, participation to discussions during roundtables and elsewhere, will be evaluated throughout the duration of the course by directors.