

Postgraduate Workshop

Title

Fungal infections: from epidemiology to treatment - theoretical and practical aspects

Course coordinators

1. *Stavroula Antonopoulou*, MD, PhD, Senior Consultant in Medical Biopathology, Department of Microbiology, General Hospital "G. Gennimatas", Athens, Greece
2. *Drosos Karageorgopoulos*, MD, PhD, Consultant in Infectious Diseases and Internal Medicine, 4th Department of Medicine, National and Kapodistrian University of Athens, Attikon General Hospital, Athens, Greece
3. *Panagoula Kollia*, PhD, Associate Professor of Human Molecular Genetics, Faculty of Biology, National and Kapodistrian University of Athens, Athens, Greece
4. *Joseph Meletiadis*, PhD, FECMM, Assistant Professor of Microbiology, Medical School, National and Kapodistrian University of Athens, Athens, Greece

Auspices

1. National and Kapodistrian University of Athens (NKUA)
2. European Commission FP7 program (EC FP7)
3. International Society for Human & Animal Mycology (ISHAM)
4. European Confederation of Medical Mycology (ECMM)
5. Hellenic Society of Medical Mycology (HSMM)

Description & Objectives

Fungal infections are the third most common illness on earth, after headaches and dental caries affecting nearly a billion people (www.gaffi.org) and yet there are gaps in understanding the epidemiology, pathophysiology and immunology following by misdiagnosis and under treatment of those infections. Fungi can cause a variety of clinical syndromes ranging from superficial infections in healthy individuals to invasive diseases in immunocompromised patients that are associated with high mortality. This workshop will summarize current knowledge on yeast and mold infections addressing issues related with epidemiology, pathophysiology, immunology, diagnosis, species identification and antifungal susceptibility testing. The basic and applied concepts of pharmacokinetics and pharmacodynamics of antifungal drugs will be presented in order to explore approaches for dose optimization of antifungal treatment. Participants will learn to identify common yeast and mold species (macroscopic/microscopic observation, biochemical tests), perform susceptibility testing (reference and commercial methods) and analyze MIC data with different statistical tools for determining epidemiological cutoff values.

Motivation

The changing epidemiology with new *Aspergillus* and *Candida* species, the presence of cryptic species within common genera with similar morphological characteristics and the new taxonomy particularly within dermatophytes group pose challenges in the correct identification of those pathogens. In addition, antifungal susceptibility testing is challenging with reference and commercial methods of MIC testing having unique peculiarities. Translation of MIC data to the clinic pose another challenge since host and drug factors contribute to a great extent in the clinical outcome. Because of suboptimal efficacy of antifungal treatment particularly against resistant isolates, a deep understanding of the pharmacokinetics and pharmacodynamics of antifungal drugs is of paramount importance in order to optimize antifungal treatment. For all those reasons, this workshop on fungal infections is important to educate mycologists, clinical microbiologists, infectious disease specialists and clinicians and provide the theoretical background and practical information to manage these infections.

Programme

Wednesday October 2nd, 2019. *Biology of fungi*

- 14:00-17:00: Registration
17:00-17:30: Welcome
17:30-18:30: *Plenary lecture: "Trends in Medical Mycology: 'old' stuff and new kids on the block"* (T. Boekhout)
18:30-19:00: Taxonomy of fungi (Z. Gonou)
19:00-19:30: Phylogenesis and genome analysis of fungi (B. Kouvelis)
19:30: *Welcome reception*

Thursday October 3rd, 2019. *Yeast infections*

- 09:00-09:30: Superficial, mucosal and invasive candidiasis (D. Karageorgopoulos)
09:30-10:00: Clinical manifestations and treatment of vulvovaginal candidiasis (E. Pitsouni)
10:00-10:30: Immunity in vaginitis (F. De Bernardis)
10:30-11:00: Clinically relevant basidiomycetous yeasts (T. Boekhout)
11:00-11:30: *Coffee break*
11:30-12:15: Conventional and molecular diagnosis of yeast infections (S. Antonopoulou)
12:15-13:00: Identification and antifungal susceptibility testing of common *Candida* spp. (M. Arendrup)
13:00-14:00: *Lunch*
14:00-16:30: **Bench-work.** How to identify common *Candida* spp. and determine their susceptibility to antifungal drugs (H. van der Lee, L. Kanioura)
16:30-17:30: Determine the MIC. Interactive session (M. Arendrup)
20:00 *Dinner*

Friday October 4th, 2019. *Mould infections*

- 09:00-09:30: Non-invasive *Aspergillus* infections (C. Kosmidis)
09:30-10:00: Invasive mould infections (N. Sipsas)
10:00-10:30: Mucormycosis (A. Skiada)
10:30-11:00: Immunopathogenesis of aspergillosis (G. Chamilos)
11:00-11:30: *Coffee break*
11:30-12:00: Cultural and non-cultural methods in the diagnosis and monitoring of invasive mould infections (G. Vriani)
12:00-12:45: Identification and antifungal susceptibility testing of *Aspergillus* and other non-dermatophyte moulds (P. Verweij)
12:45-13:30: Identification and antifungal susceptibility testing of Dermatophytes (M. Arendrup)
13:30-14:30: *Lunch*
14:30-17:00: **Bench-work.** How to identify moulds and determine susceptibility to antifungal drugs? (H. van der Lee, L. Kanioura)
17:00-18:00: Find the fungus. Interactive session (P. Verweij)

Saturday October 5th, 2019. *Dermatomycosis*

- 09:00-10:00: Dermatophytes: classical/molecular diagnosis and the march of taxonomy (M. Arabatzis)
10:00-10:30: The skin mycobiome member *Malassezia* is associated with skin diseases (A. Velegriaki)
10:30-11:00: *Malassezia* genus, a source of bioactive metabolites (P. Magiatis)
11:00-11:30: *Coffee break*
11:30-12:00: Raman spectroscopy for translational diagnostics in mycology (N. Kourkoumelis)
12:00-12:45: PK and PD of antifungal drugs (J. Meletiadiis)
12:45-13:15: Concluding remarks closure of the workshop

Course Venue

Department of Genetics and Biotechnology, Faculty of Biology, National and Kapodistrian University of Athens, Athens, Greece

Registration Procedure

Register online on the ASCENT website at <https://fungalworkshop2019.com/>
Registration deadline is 23 September 2019.

Registration Fee

EUR 350 without accommodation

The fee includes coffee, lunches, dinners and the course materials. Travel is not included.

Registration grants

ISHAM will give 12 grants for reduced registration (200 EUR) to young participants who are ISHAM members. Please send your application together with your CV to sioran@ascentltd.gr

Accommodation

Hotel in downtown Athens. A transfer from and to the venue will be available.

Intended audience

30 microbiologists, pharmacists, infectious disease, ICU or hematology specialists, anyone interested on fungal infections and antifungal susceptibility testing.

CME Accreditation

The Workshop provides CME Credits

Faculty

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|---|---|
| 1. Stavroula Antonopoulou, Athens, Greece | 13. Prokopis Magiatis, Athens, Greece |
| 2. Michail Arabatzis, Athens, Greece | 14. Joseph Meletiadis, Athens, Greece |
| 3. Maiken Arendrup, Copenhagen, DK | 15. Elina Pitsouni, Athens, Greece |
| 4. Teun Berkhout, Utrecht, Netherlands | 16. Nikolaos Sipsas, Athens, Greece |
| 5. Flavia de Bernardis, Rome, Italy | 17. Anna Skiada, Athens, Greece |
| 6. George Chamilos, Heraklion, Greece | 18. Aristeia Velegraki, Athens, Greece |
| 7. Zacharoula Gonou, Athens, Greece | 19. Paul Verweij, Nijmegen, The Netherlands |
| 8. Drosos Karageorgopoulos, Athens, Greece | 20. Georgia Vrioni, Athens, Greece |
| 9. Panagoula Kollia, Athens, Greece | Technical assistance |
| 10. Vassilis Kouvelis, Athens, Greece | 1. Hein van der Lee, Nijmegen, Netherlands |
| 11. Chris Kosmidis, Manchester, UK | 2. Lamprini Kanioura, Athens, Greece |
| 12. Nikolaos Kourkoumelis, Ioannina, Greece | 3. Elena Pappa, Athens, Greece |



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European
Commission

Horizon 2020
European Union funding
for Research & Innovation



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