

Mohammed Abd El-Karim Abd El-Mohsen El-Kholy.

Head of Quality Assurance Unit.

Associate Professor,

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i10-index: 4

Points of Interest: Antimicrobial Resistance – Microbial Genotyping – Microbial Virulence Factors and Pathogenesis – Microbial genomics – Phage Therapy – Probiotics.

Education

PhD, Diagnostic and Molecular Microbiology, Medical Research Institute, Alexandria University. **(Sept. 2016)**

Thesis: **Virulence Factors, Antifungal Susceptibility Profile and Possible Mechanism of Azole Resistance among *Candida tropicalis* Clinical Isolates.**

cGPA: 3.9/4.0

M.Sc, Diagnostic and Molecular Microbiology, Medical Research Institute, Alexandria University. **(Jul. 2016)**

Thesis: **Detection of Multidrug Efflux System in Multidrug Resistant *Escherichia coli* Clinical Isolates.**

cGPA: 3.6/4.0

B.Sc., Pharmaceutical Sciences, Faculty of Pharmacy, Alexandria University, Egypt.

(Jun. 2008)

Grade: Excellent (85.6%) (Graduated in top 6%)

Current Employment and Teaching Experience

- **Head of Quality Assurance Unit (QAU).** **(June 2022 – present)**

- **Associate Professor,** Microbiology and Biotechnology Department, **(Mar. 2024 – present)**

Clinical and Biological Sciences Division, College of Pharmacy, Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria, Egypt.

- **Assistant Professor,** Microbiology and Biotechnology Department. **(Oct. 2016 – Feb 2024)**

Courses involved: Microbiology – Pharmaceutical Microbiology – Medical Microbiology – Drug Biotechnology – Parasitology – Immunology – Public Health and Epidemiology – Communication Skills.

- Participating in the construction and the design of microbiology department courses in the college.
 - Participating in public awareness sessions held by the college during the summer months.
 - Supervise some of the students' research projects as well as participating in summer school training sessions for the students.
 - Head of Students' Activities since Feb. 2017.
 - Participating in several administrative positions: Exams control committee - education affairs committee - quality assurance committee.
- **General Academic Advisor** for the BPharm program students. **(Oct. 2016 - June 2022)**
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Previous Employment and Teaching Experience

- **Assistant Lecturer** - Microbiology and Immunology Department, **(2013 – 2016)**
 Faculty of Pharmacy & Drug Manufacturing, Pharos University, Alexandria, Egypt.
- o Conducted tutorial and problem-solving sessions and performed lab experiments and results analysis.
 - o Assisted the teaching staff in preparing tutorial assignments, lab sheets and practical sessions.
 - o Graded tutorial/lab assignments and practical reports.

Courses involved:

Microbiology I – Microbiology II – Virology – Parasitology – Pharmacogenetics and immunology – Pharmacoepidemiology – Pathogenesis of Infectious Diseases.

- **Demonstrator** - Microbiology and Immunology Department, **(2009 – 2013)**
 Faculty of Pharmacy & Drug Manufacturing, Pharos University, Alexandria, Egypt.

Courses involved: General Chemistry – Basic Inorganic Chemistry – Basic Organic Chemistry – Organic I Chemistry – Analytical Chemistry – Botany – Pharmacognosy – Physical Pharmacy – Terminology – Hematology - Microbiology I – Microbiology II – Virology – Parasitology – Pharmacogenetics and immunology – Pharmacoepidemiology – Pathogenesis of Infectious Diseases.

Publications and Presentations

Journal Articles

1. El-Kholy, A. T., **El-Kholy, M. A.**, Omar, H., et al. (2024). Co-existence of antibiotic resistance and virulence factors in carbapenem-resistant *Klebsiella pneumoniae* clinical isolates from Alexandria, Egypt. *BMC Microbiology*, 24, 466. <https://doi.org/10.1186/s12866-024-03600-1>
2. Darwesh, M. A. K., Bakr, W., Omar, T. E. I., **El-Kholy, M. A.**, & Azzam, N. F. (2024). Unraveling the relative abundance of psychobiotic bacteria in children with autism spectrum disorder. *Scientific Reports*, 14, 24321. <https://doi.org/10.1038/s41598-024-72962-3>
3. El-Gohary, H., Azab, M., Abdelrahman, A., Fayyad, D., **El-Kholy, M.**, Mohamed, D., & El-Zahed, M. M. (2024). In vitro antibacterial action of *Zingiber officinale* Roscoe crude extract irrigation against

- Staphylococcus aureus* isolated from infected human root canals. *Journal of Microbiology, Biotechnology and Food Sciences*, 14(3), e11691. <https://doi.org/10.55251/jmbfs.11691>
4. Ramadan, A., Shawky, S., Ibrahim, A., & **El-Kholy, M.** (2024). Experience of an Egyptian tertiary laboratory in the diagnosis of tuberculous and non-tuberculous mycobacterial infections: A five-year retrospective study. *Microbes and Infectious Diseases*, 5(3), 948-960. <https://doi.org/10.21608/mid.2024.287718.1933>
 5. Marey, M. A., Abozahra, R., El-Nikhely, N. A., Kamal, M. F., Abdelhamid, S. M., & **El-Kholy, M. A.** (2024). Transforming microbial pigment into therapeutic revelation: Extraction and characterization of pyocyanin from *Pseudomonas aeruginosa* and its therapeutic potential as an antibacterial and anticancer agent. *Microbial Cell Factories*, 23(1), 174. <https://doi.org/10.1186/s12934-024-02438-6>
 6. Sánchez-Urtaza, S., Ocampo-Sosa, A., Rodríguez-Grande, J., El-Kholy, M. A., Shawky, S. M., Alkorta, I., & Gallego, L. (2024). Plasmid content of carbapenem resistant *Acinetobacter baumannii* isolates belonging to five International Clones collected from hospitals of Alexandria, Egypt. *Frontiers in cellular and infection microbiology*, 13, 1332736. <https://doi.org/10.3389/fcimb.2023.1332736>
 7. **El-Kholy, M. A.**, Helaly, G. F., El Ghazzawi, E. F., El-Sawaf, G., & Shawky, S. M. (2023). Analysis of *CDR1* and *MDR1* gene expression and *ERG11* substitutions in clinical *Candida tropicalis* isolates from Alexandria, Egypt. *Brazilian Journal of Microbiology*. <https://doi.org/10.1007/s42770-023-01106-y>
 8. Sánchez-Urtaza, S., Ocampo-Sosa, A., Molins-Bengoetxea, A., Rodríguez-Grande, J., **El-Kholy, M. A.**, Hernandez, M., Abad, D., Shawky, S. M., Alkorta, I., & Gallego, L. (2023). Co-existence of *blaNDM-1*, *blaOXA-23*, *blaOXA-64*, *blaPER-7*, and *blaADC-57* in a clinical isolate of *Acinetobacter baumannii* from Alexandria, Egypt. *International Journal of Molecular Sciences*, 24, 12515. <https://doi.org/10.3390/ijms241512515>
 9. Spruijtenburg, B., Meijer, E. F. J., Xiao, M., Shawky, S. M., Meis, J. F., de Groot, T., **El-Kholy, M. A.** (2023). Genotyping and susceptibility testing uncover a large azole-resistant *Candida tropicalis* clade in Alexandria, Egypt. *Journal of Global Antimicrobial Resistance*, 34, 99-105. <https://doi.org/10.1016/j.jgar.2023.06.012>
 10. Sánchez-Urtaza, S., Ocampo-Sosa, A., Molins-Bengoetxea, A., **El-Kholy, M. A.**, Hernandez, M., Abad, D., et al. (2023). Molecular characterization of multidrug-resistant *Acinetobacter baumannii* clinical isolates from Alexandria, Egypt. *Frontiers in Cellular and Infection Microbiology*, 13. <https://doi.org/10.3389/fcimb.2023.1208046>
 11. Dougue, A. N., **El-Kholy, M. A.**, Giuffrè, L., et al. (2022). Multilocus sequence typing (MLST) analysis reveals many novel genotypes and a high level of genetic diversity in *Candida tropicalis* isolates from Italy and Africa. *Mycoses*, 00, 1-12. <https://doi.org/10.1111/myc.13483>
 12. **El-Kholy, M. A.**, Helaly, G. F., El Ghazzawi, E. F., El-Sawaf, G., & Shawky, S. M. (2021). Virulence factors and antifungal susceptibility profile of *Candida tropicalis* isolated from various clinical specimens in Alexandria, Egypt. *Journal of Fungi*, 7, 351. <https://doi.org/10.3390/jof7050351>

13. Abozahra, R., **El-Kholy, M. A.**, & Baraka, K. (2021). Virulence genotyping of drug-resistant *Pseudomonas aeruginosa* clinical isolates in Egypt using multiplex PCR. *Gene Reports*, 22, 101000. <https://doi.org/10.1016/j.genrep.2020.101000>
14. Shawky, S. M., Gaballah, A. H., Abdallah, A., Fadel, S., & **El-Kholy, M. A.** (2017). Automated identification and antifungal susceptibility testing of *Candida* species using the Vitek 2 Compact system in ICUs and pediatric oncology unit, Alexandria, Egypt. *Egyptian Journal of Medical Microbiology*, 26. <https://doi.org/10.12816/0046235>
15. Helaly, G. F., Shawky, S., Amer, R., Abdel-Kader, O., El-Sawaf, G., & **El-Kholy, M. A.** (2016). Expression of *AcrAB* efflux pump and role of mefloquine as efflux pump inhibitor in MDR *E. coli*. *American Journal of Infectious Diseases and Microbiology*, 4(1), 2. <https://doi.org/10.12691/ajidm-4-1-2>
16. Shawky, S. M., Abdallah, A., & **Khoully, M.** (2015). Antimicrobial activity of colistin and tigecycline against carbapenem-resistant *Klebsiella pneumoniae* clinical isolates in Alexandria, Egypt. *International Journal of Current Microbiology and Applied Sciences*, 4(2), 731-742.

Research Talks and Poster Presentations

1. **El-Kholy, M. A.**, Spruijtenburg, B., Meis, J. F., Shawky, S. M., Meijer, E. F. J., & de Groot, T. (2024). Characterization of large collection of clinical non-albicans yeast isolates from Alexandria, Egypt. *ASM Microbe 2024*, June 2024, Organized by the American Society of Microbiology (ASM).
2. Sánchez-Urtaza, S., Ocampo Sosa, A., Rodríguez-Grande, J., **El Kholy, M. A.**, Shawky, S. M., Alkorta, I., & Gallego, L. (2024). Genomic identification of capsular type and other virulence factors of multi-drug-resistant *Acinetobacter baumannii* clinical isolates recovered from Alexandria, Egypt. *33rd European Congress of Clinical Microbiology & Infectious Diseases (ECCMID 2024)*, April 2024, Organized by the European Society of Clinical Microbiology and Infectious Diseases (ESCMID).
3. Invited to give a talk at the *1st Scientific Meeting of Pan African Mycology Working Group*, Nairobi, Kenya, titled: Antifungals: Access and Barriers. (30–31 May 2023).
4. Deghedy, S. H., Mahmoud, H. E., Hussein, A. A., **El-Kholy, M. A.**, Gaafar, P. M., Ali, M. M., & Sultan, A. S. (2023). Synergistic effect of bacterial ghosts loaded with belinostat and betaine nano-emulsion: A potential treatment strategy for breast cancer [abstract]. In *Proceedings of the American Association for Cancer Research Annual Meeting 2023; Part 1 (Regular and Invited Abstracts)*; 2023 Apr 14-19; Orlando, FL. Philadelphia (PA): AACR; *Cancer Research*, 83(7_Suppl): Abstract nr 834.
5. Sánchez-Urtaza, S., Hernández, M., **El Kholy, M. A.**, Abad, D., Shawky, S. M., Alkorta, I., Ocampo Sosa, A., & Gallego, L. (2022). Resistome of multidrug-resistant *Acinetobacter baumannii* clinical isolates from Alexandria, Egypt. *32nd European Congress of Clinical Microbiology & Infectious Diseases (ECCMID 2022)*, April 2022, Organized by the European Society of Clinical Microbiology and Infectious Diseases (ESCMID).

6. Sánchez-Urtaza, S., **El-Kholy, M. A.**, Shawky, S. M., Alkorta, I., & Gallego, L. (2021). Molecular characterization of carbapenem-resistant *Acinetobacter baumannii* clinical isolates from Alexandria, Egypt. *World Microbe Forum*, June 2021 (Online), Organized by the American Society of Microbiology (ASM).
7. **El-Kholy, M. A.**, Fayed, A. M., Shawky, S. M., & Meis, J. F. (2019). *Candida auris* bloodstream infection in Egypt. *9th Trends in Medical Mycology*, Nice, France, conference abstracts. *Journal of Fungi*, October 2019. <https://doi.org/10.3390/jof5040095>
8. **El-Kholy, M. A.**, Shawky, S. M., Helaly, G. F., Gaballah, A. H., El Ghazzawi, E. F., & El-Sawaf, G. A. (2018). Virulence factors, antifungal susceptibility profile, and possible mechanisms of azole resistance among *Candida tropicalis* clinical isolates, Alexandria, Egypt. *First Balkan Fungus*, Timișoara, Romania, conference abstracts. *Revista Română de Medicină de Laborator*, Supplement 26:3, September 2018.
9. **El-Kholy, M. A.**, & Amer, S. (2018). Nanocarrier-mediated photodynamic therapy for the control of MRSA: A computerized literature review. *23rd Dubai International Pharmaceuticals and Technologies Conference and Exhibition - DUPHAT*, Dubai, UAE, February 2018.
10. Shawky, S. M., Gaballah, A. H., Abdallah, A., Fadel, S., & **El-Kholy, M. A.** (2017). *Candida* species epidemiology and antifungal susceptibility profile in ICUs, Alexandria, Egypt: Three years study. *34th Annual Meeting of the Nordic Society of Clinical Microbiology and Infectious Diseases (NSCMID)*, Tórshavn, Faroe Islands, August 2017.
11. **El-Kholy, M. A.**, & Amer, S. (2017). Evaluation of the association between schizophrenia and herpes viruses infection: A computerized literature review. *22nd Dubai International Pharmaceuticals and Technologies Conference and Exhibition - DUPHAT*, Dubai, UAE, March 2017.
12. Helaly, G. F., Shawky, S. M., Amer, R., Abdel-Kader, O., El-Sawaf, G., & **El-Kholy, M. A.** (2014). Analyses of overexpression of *acrAB* efflux pump and the role of mefloquine as an efflux pump inhibitor in multidrug-resistant *Escherichia coli* clinical isolates. *Biovision Conference*, Alexandria, Egypt, April 2014.

Awarded Grants:

- One of the final selected projects in the AASTMT Call for Collaboration Research and Innovation Project grants with a project title: "**Co-existence of Antibiotic Resistance and Virulence Factors in Carbapenem Resistant Gram-Negative Clinical Isolates from Alexandria, Egypt.**" Project ID: 2072
 - "**Investigation of Ceftaroline Non-susceptibility in Methicillin Resistant *Staphylococcus aureus* Clinical Isolates in Alexandria, Egypt.**" The grant is funded by Pfizer company. Request ID: 73467913
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Memberships:

- ESMID Young Scientist member: Web ID: 459011. Valid until: 23/11/2027
- ISHAM Young active member: Member MM3900. Valid until: 01/01/2026

- ASM Global Outreach - Postdoctoral Membership. ID: 200374130. Valid until: 31/12/2024

Honors and Awards

- Faculty of Pharmacy and Drug Manufacturing, Pharos University in Alexandria (2014 & 2015)
Supervisor of students' activities Awardee, Egypt.
 - Faculty of Pharmacy and Drug Manufacturing, Pharos University in Alexandria (2014)
Academic Excellence Awardee, Egypt.
 - Faculty of Pharmacy, Alexandria University Academic Excellence Awardee, Egypt. (2008)
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Skills

- Perform routine microbiology laboratory procedures in pathogen samples/isolates collection, culturing and biochemical analysis.
 - Use a variety of identification methods, including molecular techniques, to test samples: Conventional PCR – Gel Electrophoresis – ELISA – qRT PCR – Gene Sequencing.
 - Plan and organize resources and activities.
 - Maintain accurate and up-to-date records.
 - Write up research findings and produce reports.
 - Keep up with new research and attend national and international conferences and other events.
 - Liaise with colleagues from non-scientific departments.
 - Manage and oversee laboratory work.
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Mentoring Experience

Master Thesis Supervision

- One of the supervisors for a master thesis "**Molecular study on selected antibiotic resistant *Staphylococcus spp.* clinical isolates in Alexandria, Egypt.**", Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University. (2023 – Present)
- One of the supervisors for a master thesis "**Investigation of colistin activity and its possible resistance mechanisms among carbapenem-resistant Gram-negative bacteria isolated from bloodstream infections in Alexandria, Egypt**", Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University. (2023 – Present)
- One of the supervisors for a master thesis "**Phenotypic and molecular characterization of Sulphamethoxazole / Trimethoprim-Resistant *Escherichia coli* isolated from patients with urinary tract infection in Alexandria, Egypt**", Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University. (2022 – Present)

- One of the supervisors for a master thesis "**Gut Microbiome Profile, with Special Reference to Some Bacteria Used as Psychobiotics, in Children with Autism Spectrum Disorder**", Department of Microbiology, High Institute of Public Health, Alexandria University. (2022 – 2024)
 - One of the supervisors for a master thesis "**Novel-nano delivery system: targeted bacterial ghosts associated nano-particles encapsulating promising chemotherapeutic strategy for breast cancer therapy**", Institute of Graduate Studies and Research, Alexandria University. (2022 – 2024)
 - One of the supervisors for a master thesis "**Co-existence of Antibiotic Resistance and Virulence Factors in Carbapenem Resistant *Klebsiella pneumoniae* Clinical Isolates from Alexandria**", Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University. (2021 – 2024)
 - One of the supervisors for a master thesis "**Antimicrobial and Anticancer Effect of Pyocyanin Pigment extracted from *Pseudomonas aeruginosa***", Department of Microbiology and Immunology, Faculty of Pharmacy, Damanhour University. (2020 – 2024)
 - One of the supervisors for a master thesis "**Phenotypic and genotypic characterization of virulence factors and carbapenem resistance in *Acinetobacter baumannii* clinical isolates**", Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University. (2020 – Present)
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Scientific Research Experience for Undergraduates

- Supervised a student oral poster presentation DUPHAT 2023 conference (Dubai) with title: "Distribution and antifungal susceptibility profile of non-*albicans* *Candida* Species in Alexandria, Egypt."
- Supervised a student oral poster presentation DUPHAT 2022 conference (Dubai) with title: "Phenotypic Detection of Carbapenemases in Carbapenem-Resistant *Klebsiella pneumoniae* Clinical Isolates in Alexandria, Egypt.". 5th best poster presentation prize.
- Supervised a student oral poster presentation DUPHAT 2022 conference (Dubai) with title: "Phenotypic Detection of Carbapenemases in Carbapenem-Resistant *Acinetobacter baumannii* Clinical Isolates in Alexandria, Egypt. ".
- Supervised a student oral poster presentation DUPHAT 2021 conference (Dubai) with title: "The Surging Crisis of Anti-Microbial Resistance and the Implementation Of “One Health” Approach To Unravel It".
- Supervised a student oral poster presentation DUPHAT 2020 conference (Dubai) with title: "*Candida auris*: The Fungal Threat to Arab Countries".
- Supervised a student oral poster presentation DUPHAT 2019 conference (Dubai) with title: "Bacteriophage Therapy: An Alternative Strategy to Combat Carbapenem- and Colistin- Resistant *Klebsiella pneumoniae*".
- Supervised a student oral poster presentation DUPHAT 2018 conference (Dubai) with title: "Evaluation of Antimicrobial Susceptibility Pattern of Bacteria Isolated from Urinary Tract Infection Patients, Alexandria, Egypt." 8th best poster presentation prize.

- Supervised a student oral poster presentation DUPHAT 2018 conference (Dubai) with title: "*Candida* Species Epidemiology and Antifungal Susceptibility Profile in Alexandria, Egypt." 8th best oral presentation prize.
 - Supervised a student oral poster presentation DUPHAT 2017 conference (Dubai) with title: "Algae as a Worldwide Nutritional Supplement for Malnourished Children."
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Internships, Activities, Conferences and Workshops

- Hosting and organizing the second meeting of “Control of Antibiotic Resistance in the Mediterranean Area: Global Solutions for a Global Threat” (CAREME network) as a member of an international collaborative research work, Alexandria – Egypt. **(Dec 2022)**
 - Awarded an observership grant funded from the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) to CWZ (Canisius Wilhelmina Ziekenhuis), Nijmegen, Netherlands. Request ID: 1793 **(Oct/Nov 2022)**
 - Received an invitation to participate as a speaker in a scientific workshop “Control of Antibiotic Resistance in the Mediterranean Area: Global Solutions for a Global Threat” (CAREME network) as a member of an international collaborative research work, Bilbao – Spain. **(June 2021)**
 - Received an invitation from the Serbian Society of Medical Mycology to participate in an educational internship at:
 - a- The Laboratory for Microbial Molecular Genetics and Ecology, Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Serbia.
 - b- The Medical Mycology Reference Laboratory (MMRL), Institute of Microbiology and Immunology, Faculty of Medicine University of Belgrade, Serbia **(Jan. – Feb. 2020)**
 - Attended an event entitled: "Academy on Green Jobs Promotion in the Middle East – North Africa (MENA) Region” at Abukir campus of the Arab Academy for Science, Technology and Maritime Transport. **(Oct. 2017)**
 - Attended workshop titled "Linking to Industry: Meet the End User" held in The Technology Innovation Commercialization Office (TICO) Theodor Bilharz Research Institute (TBRI), Cairo, Egypt. **(May 2017)**
 - Attended seminar by McGraw-Hill Education Foundation titled "Digital Teaching and Learning Environment" held in The Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria, Egypt. **(May 2017)**
 - Attended workshop titled "Contaminants in Water and Food" held in City of Scientific Research and Technology Application (SRTACity), Alexandria, Egypt. **(Mar. 2017)**
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Professional Development Workshops for Academic Staff Members:

- 1- "Problem Solving and Decision Making".
- 2- "KPI in Educational Institutes".

- 3- "Quality Standards in the Education Process".
 - 4- "Research Ethics".
 - 5- "Practical Tips towards Achieving International ACPE Accreditation".
 - 6- "The use of MOODLE in Education".
 - 7- "Change Management and Organizational Development".
 - 8- "Examination and Student Assessments Systems - Applied on E-Learning".
 - 9- "Creativity and Innovations Skills".
 - 10- "The use of MOODLE in Education".
 - 11- "Applications of Human Development in Education Neuro-linguistic Programming".
 - 12- "Modern Strategies for Teaching and Learning".
 - 13- "Scientific Research Writing".
 - 14- "International Publishing of Scientific Research".
 - 15- "Intellectual Property Rights".
 - 16- "Education and Quality Systems in AASTMT".
 - 17- "Exams and Students Evaluation Systems".
 - 18- "Modern Strategies for Teaching and Learning".
 - 19- "Conference Organization".
 - 20- "Research Ethics".
 - 21- "Educational Preparation Course for Teaching Assistants and New Lecturers".
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International Collaborators:

- **Prof. Jacques F. Meis**, MD PhD, FRCPath, FIDSA, FAAM, FECMM

Department of Medical Microbiology and Infectious Diseases (C70), Canisius Wilhelmina Hospital (CWZ),
Centre of Expertise in Mycology Radboudumc/CWZ, Nijmegen, The Netherlands.

- **Prof. Valentina Arsic Arsenijevic**, MD, MSc, PhD, FECMM

Specialist in Microbiology, Subspecialist in Medical Mycology/Parasitology, Institute of Microbiology and Immunology, Medical Mycology Reference Laboratory (MMRL), Faculty of Medicine University of Belgrade, Serbia.

- **Prof. Lucía Gallego** MD, PhD, MSc

Acinetobacter baumannii Research Group, Antibiotics & Molecular Bacteriology Laboratory, Joint Research Laboratory on Environmental Antibiotic Resistance, Faculty of Medicine & Nursing, University of the Basque Country UPV/EHU Campus of Biscay, Spain.

- **Prof. Orazio Romeo**, PhD,

Department of Environmental and Biological Sciences, University of Messina, Italy.

- **Prof. Xiao Meng**, PhD,

Beijing Key Laboratory for Mechanisms Research and Precision Diagnosis of Invasive Fungal Diseases, Department of Clinical Laboratory, Peking Union Medical College Hospital (PUMCH), Chinese Academy of Medical Sciences, Beijing, China

References

- **Prof. Amira Senbel**, Dean of College of Pharmacy, The Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria. E-mail: amira.senbel@aast.edu
- **Prof. Rasha Abo ElKhair**, vice dean for educational affairs, Dean of College of Pharmacy, The Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria. E-mail: rasha.aboelkhair@aast.edu
- **Prof. Sherine Shawky**, Professor of Microbiology Department – Medical Research Institute, Alexandria University. E-mail: sherineshawky@hotmail.com
- **Prof. Rania Abozahra**, Professor of Microbiology, Dean of Faculty of Pharmacy, Damanhour University, Egypt. E-mail: rania_abozahra@yahoo.com
- **Prof. Sarah Magdy**, Professor of Microbiology, Faculty of Pharmacy, Damanhour University, Egypt. E-mail: sarah_magdy@yahoo.com
- **Prof. Elsayed Aboulmagd**, Professor, Department of Microbiology and Immunology, Faculty of Pharmacy, Alexandria University, Alexandria, Egypt. College of Pharmacy, Arab Academy for Science, Technology and Maritime, Alamein Branch, Alamein, Egypt. E-mail: elsayed20@hotmail.com
- **Prof. Hosny Fouad**, Former Dean of College of Pharmacy, The Arab Academy for Science, Technology and Maritime Transport (AASTMT), Alexandria. E-mail: drhfouad@gmail.com
- **Prof. Hanan El-Gowelli**, Dean of Faculty of Pharmacy, Alexandria University, Alexandria. E-mail: dr_hanan_el_gowali@hotmail.com