

Announcement of
NEREUS COST ACTION ES1403 TRAINING SCHOOL
Methods for detecting and quantifying antibiotic-resistant bacteria and
antibiotic resistance genes in the environment

Barcelona, June 13-15, 2016

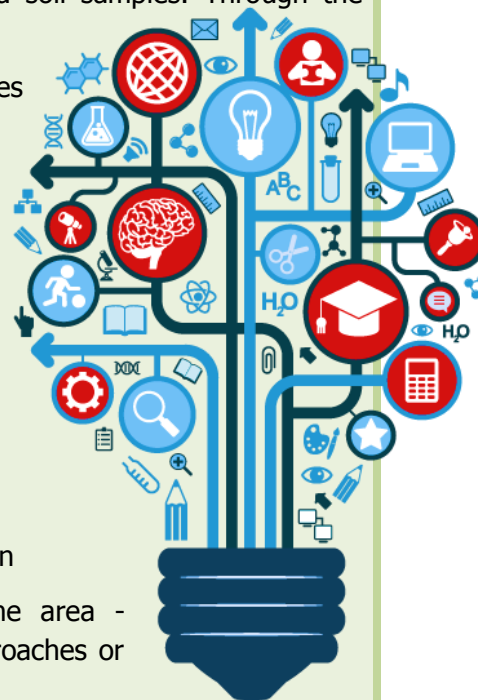
Venue: IDAEA-CSIC, Jordi Girona 18, <http://www.idaea.csic.es/>



Course overview and objectives

This will be an intensive three-day course focused on the state-of-the-art in culture-based and molecular methods for detection and quantification of antibiotic-resistant bacteria and antibiotic resistance genes (ARB&ARG) in wastewater and soil samples. Through the course the following aspects will be addressed:

- Introduction in wastewater reuse practices - case studies
- Bacterial diversity and eco-physiology in water and soil
- Biotic/abiotic factors stimulating horizontal gene transfer in aquatic microbiomes
- Overview of the problem: its implications for human health and uncertainties that need to be solved
- Methodological approaches used to diagnose and measure antibiotic resistance, emphasizing the similarities and contrasts between clinical vs. environmental settings
- Specific terminology and relevant sources of information
- Promote the development of critical thinking in the area - e.g. limitations and biases of some experimental approaches or sampling strategies



The participants will be introduced to the “tools of the trade” and discuss how these methods are applied in assessing the abundance and distribution of ARB&ARG in wastewater treatment facilities and downstream environments. During the course, the participants will get familiar with computer-based tools (bioinformatics), which are used to gather, analyze and integrate biological and genetic information for understanding antibiotic resistance.



Trainers

Trainers of Day 1:

(in tandem with ANSWER/H2020-MSCA-ITN-2015/675530 Summer School)

Despo Fatta-Kassinou - Nireas International Water Research Center,
University of Cyprus, Cyprus

Teik Thye Lim - Nanyang Technical University, Singapore

Yunho Lee - Gwangju Inst. of Science & Technology, South Korea

Celia Manaia - Universidade Catolica Portuguesa, Portugal

Thomas Schwartz - Karlsruhe Institute of Technology, Germany

Trainers of Days 2 and 3:

Senior Teaching Staff

Celia Manaia - Universidade Catolica Portuguesa, Portugal

Benjamin Pina - Consejo Superior de Investigaciones Científicas, Spain

Thomas Schwartz - Karlsruhe Institute of Technology, Germany

Thomas Berendonk - Technische Universität Dresden, Germany

Eddie Cytryn - Agricultural Research Organization, Volcani Center, Israel




Teaching Assistants




Damiano Cacace - Technische Universität Dresden, Germany

Joao Gatica - The Hebrew University of Jerusalem, Israel

Vijay Tripathi - Agricultural Research Organization, Volcani Center, Israel

Marta Casado - Consejo Superior de Investigaciones Científicas, Spain

 <p>Who can attend?</p>	<ul style="list-style-type: none"> ▪ Young researchers starting their research activities in the field of environmental antibiotic resistance. ▪ Researchers and/or technical/policy-making staff with a background in microbiology, biochemistry, chemistry, environmental and chemical engineering etc, interested in antibiotic resistance assessment.
 <p>Course requirements</p>	<ul style="list-style-type: none"> ▪ Laptop computer with installed "bioinformatics" software (freeware, details will be sent to course participants). ▪ Journal club* manuscripts (will be sent to course participants). <p><i>* A journal club is a group of individuals who meet regularly to critically evaluate recent articles in the academic literature, generally of some branch of science. Journal clubs are usually organized around a defined subject in basic or applied research.</i></p>
 <p>Applications</p>	<p>To apply, please provide:</p> <ul style="list-style-type: none"> ▪ A cover letter with an expression of interest and a paragraph describing the relevant scientific activities with this Training School; ▪ A Curriculum Vitae (CV). <p>Number of applicants to be reimbursed: 20-25</p> <p>All applications should be submitted to Mr. Toumazis Toumazi (info@nereus-cost.eu) no later than 20 April 2016.</p> <p>Successful applicants will be contacted directly by e-mail by 28 April 2016.</p>

 <p>Eligibility Criteria</p>	<p>Applicants eligible to be reimbursed:</p> <ol style="list-style-type: none"> 1. <u>Applicants from all COST Countries:</u> <ol style="list-style-type: none"> a. List of COST countries: http://www.cost.eu/about_cost/cost_countries 2. <u>Applicants from the following approved Near Neighbour Countries institutions:</u> <ol style="list-style-type: none"> a. Jordan University of Science and Technology b. Institute for Rural Engineering, Water and Forestry c. Kiev National University of Construction and Architecture d. G. Eliava Institute of Bacteriophage, Microbiology & Virology (IBMV)
 <p>Selection Criteria</p>	<p>Applicants will be evaluated on the basis of two main criteria:</p> <ol style="list-style-type: none"> 1. Relevance of applicants' studies and research experience to the topics of the Training School programme; 2. Balanced distribution of educational background (e.g. chemical engineering; environmental engineering; chemistry; microbiology; etc.).
 <p>Financial Support Accommodation</p>	<p>Fees: FREE Each applicant will receive a financial support grant of 780 EUR</p> <ul style="list-style-type: none"> ▪ Travel Grant: 300 EUR ▪ Accommodation and meals: 160 EUR per day (3 days covered) <p>The Grant will be provided after the completion of the training school through the e-COST system https://e-services.cost.eu.</p> <p>Travel and accommodation must be arranged by each participant after the receipt of the acceptance email and the official e-COST invitation.</p>

Training School Schedule

Monday June 13th, 2016

Time	Description
9:00-10:00	An overview on the wastewater reuse practices and current challenges D. Fatta-Kassinou , Nireas International Water Research Center, University of Cyprus, Cyprus
10:00-11:00	Presentation of the NEREUS COST Action & other related ongoing projects D. Fatta-Kassinou , Nireas International Water Research Center, University of Cyprus, Cyprus
11:00-12:00	Wastewater reuse in Singapore: Technology overview and challenges T.T. Lim , Nanyang Technical University, Singapore
12:00-13:30	LUNCH
13:30-14:30	Oxidative treatment of municipal wastewater effluent for micropollutant elimination and disinfection: options and limitations Y. Lee , Gwangju Inst. of Science & Technology, South Korea
14:30-15:30	Bacterial diversity and eco-physiology in water and soil C. Manaia , Universidade Catolica Portuguesa, Portugal
15:30-16:30	Biotic/abiotic factors stimulating horizontal gene transfer in aquatic microbiomes T. Schwartz , Karlsruhe Institute of Technology, Germany

Tuesday, June 14th, 2016

Time	Description
9:00-10:30	Welcome and introduction to antibiotic resistance in wastewater and agro-environments Celia Manaia , Universidade Catolica Portuguesa, Portugal Benjamín Piña , Consejo Superior de Investigaciones Científicas, Spain Thomas Berendonk , Technische Universität Dresden, Germany Eddie Cytryn , Agricultural Research Organization, Volcani Center, Israel
10:30-11:00	Coffee Break
11:00-12:30	Culture based techniques Celia Mania , Universidade Catolica Portuguesa, Portugal
12:30-13:30	LUNCH
13:30-15:00	Introduction to molecular techniques-emphasis on PCR and qPCR Benjamín Piña , Consejo Superior de Investigaciones Científicas, Spain
15:00-15:30	Coffee Break

15:30-16:30	qPCR- from primer design to data analysis Thomas Schwartz , Karlsruhe Institute of Technology, Germany
16:30-17:30	Journal Club * Thomas Berendonk , Technische Universität Dresden, Germany

* **Journal club** - papers on antibiotic resistance (will be sent to participants prior to the workshop)

Wednesday, June 15th, 2016

Time	Description
9:00-10:45	Genome based methodologies Eddie Cytryn , Agricultural Research Organization, Volcani Center, Israel
11:00-12:30	Workshop: introduction to group projects - 4-5 hands-on projects with tasks focusing on qPCR and bioinformatics hands case study analyses ** Teaching assistants
12:30 - 13:30	LUNCH
13:30-16:00	Workshop (continued)
16:00-16:30	Coffee Break
16:30-18:00	Project presentations (20 min each)

****Workshop:** divide into 4-5 groups, each will receive a "project"