

NEREUS COST ACTION ES1403 - NEWSLETTER

Top stories in this newsletter

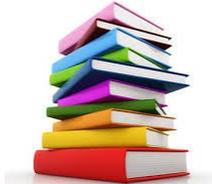
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NEREUS MC and WG
meeting in Vienna



Nereus COST Action
ES1403 - Summer
School



New publications



Call for abstracts



ОБЪЯВЛЕНИЕ
EMPLOYMENT

Next Meeting of NEREUS COST Action ES1403

The next Management Committee and Working Groups meeting will take place in **Vienna, Austria on 14-15 September 2017**. The meeting will be hosted by the Technische Universität Wien and Dr. Norbert Kreuzinger. The meeting will be hosted at Technische Universität Wien, Address: Karlsplatz 13, 1040, Vienna Austria.

NEREUS COST Action ES1403 - Summer School, 10-14 July, Porto

The Action's Summer School will take place from 10 to 14 July 2017 in Porto, Portugal.

Title: "Advanced Treatment Technologies and Contaminants of Emerging Concern"

The Summer School program includes:

- A section specifically devoted to PhD students where they will have the chance to introduce themselves and their work, through a short oral presentation and/or a poster communication, as well as to meet experts in the scientific field of advanced wastewater treatment
- A special session on "Contaminants of emerging concern and antibiotic resistance control in water by Advanced Oxidation Processes"
- Lectures on complementary skills
- A workshop on advanced treatments delivered Nereus members and international experts
- A technical-social visit on 14th July, sponsored by the Portuguese Company "Adventech".

The Summer School is co-organised by NEREUS COST Action ES1403 and the "European PhD School on Advanced Oxidation Processes" with the support of Associate Laboratory LSRE-LCM, Department of Chemical Engineering, Faculty of Engineering, University of Porto.

Location: Auditorium of the Almeida Garrett Municipal Library, Rua de D. Manuel II - Jardins do Palácio de Cristal 4050-239 Porto, Portugal.

New Publication Acknowledging the COST Action

Frontiers in Microbiology

A scientific journal and the Official Organ of the Veterinary Academy, Lithuanian University of Health Sciences (LUHS VA), ISSN 1392-2130

- Piotrowska M., Przygodzińska D., Matyjewicz K., Popowska M. 2017. „Occurrence and variety of β -lactamase genes among *Aeromonas* spp. isolated from urban wastewater treatment plant”, *Frontiers in Microbiology*, DOI: 10.3389/fmicb.2017.00863

For more information please contact Dr. Magdalena Popowska from the University of Warsaw, Faculty of Biology, Institute of Microbiology in Poland, MC Member of WG1 at magdapop@biol.uw.edu.pl

Call for Abstracts for the open access journal: *Journal of Chemistry*

A call for papers that has been opened for a special issue on "Perfluoroalkyl and Polyfluoroalkyl Substances Environmental Fate, Toxicity, Risk Management, and Removal" for the open access journal: *Journal of Chemistry* (<https://www.hindawi.com/journals/jchem/>). The deadline is August 11th, 2017.

Please contact Dr Peter Schroeder (peter.schroeder@helmholtz-muenchen.de) member of WG2 and Dr. Giuseppe Mascolo (giuseppe.mascolo@ba.irs.cnr.it) member of WG4 who are among the guest editors.

EU public consultation on pharmaceuticals in the environment

The European Commission has published a proposed 'roadmap' for a 'Strategic approach to pharmaceuticals in the environment', [open for public comment](#) to 26th May 2017. The three page document specifies the relevant EU regulatory framework, in particular pharmacovigilance, and proposes to address particularly pharmaceuticals in water but also pharmaceuticals in soil as specified by [pharmacovigilance](#). The Commission estimates that EU pharmaceutical consumption doubled from 1990 to 2000 and doubled again from 2000 to 2012. The 'roadmap' proposes as main objectives to identify knowledge gaps and solution to fill these, and to protect the environment whilst safeguarding access to effective and appropriate pharmaceutical treatments for humans and animals. Uncertainty about levels of pharmaceuticals in the environment and need for risk assessment are underlined. ESPP has submitted [comments](#) to the EU to underline the importance of developing better knowledge concerning presence of pharmaceuticals in sewage biosolids and manures, fate and impact on soils and for agriculture, and removal of pharmaceuticals in sewage and manure treatments (e.g. sewage works, anaerobic digestion, composting). Among these topics there are important questions to maintaining recycling of sewage biosolids and manures to agriculture (safety, farmer and public confidence).



3rd Iberoamerican Conference on Advanced Oxidation Technologies (CIPOA III)

The 3rd Iberoamerican Conference on Advanced Oxidation Technologies (III CIPOA) and 2nd Colombian Conference on Advanced Oxidation Processes (II CCPAOx) will be held in Guatapé (near Medellín), Colombia, from 14th to 17th of November, 2017. The on-line Abstract submission already started, the abstract template is available on: <https://cipoa2017.wordpress.com/presentation-and-submission/abstract/>. The deadline for abstract submission is 23rd June 2017. The on-line registration is already open. Additional relevant information about the conference is available at the web page <http://cipoa2017.com>.

PhD at the Institute for Ecopreneurship, School of Life Sciences at FHNW (Muttentz, Switzerland)

The Institute for Ecopreneurship, School of Life Sciences at FHNW (Muttentz, CH) has a four year open PhD position Significance of bacteria subsisting on antibiotics in wastewater treatment plants. The goal of this PhD position is to isolate antibiotic degrading bacteria from wastewater. Check for the presence of resistance genes in these strains and assess what are the catabolic genes and enzymes. The starting date for the position is at candidate earliest convenience. The gross salary commensurate with Swiss National Science Foundation standard and starts at approximately 43,000 € per year. For application contact Prof. Philippe Corvini (philippe.corvini@fhnw.ch; Tel: +41 61 467 43 44).

PhD position at Université de Limoges, France

INSERM 1092 – O. BARRAUD – C. DAGOT

Name of Team and Head: UMR Inserm 1092, Pr Marie-Cécile Ploy

Precision on the framework (Name of the supervisor (s)): Olivier Barraud, Christophe Dagot

Keywords: Effluents, anthropogenic pollution, antibiotic resistance, biofilms, integrons

Profile and skills required: Molecular biology and bioinformatics but also a desire to work in the environment, a taste for experimentation and data acquisition, a good capacity of synthesis, autonomy in the relevant initiative, scientific curiosity.

Topic title: Dissemination of antimicrobial resistance: coupling exposure epilithic biofilms in effluents, research biomarkers control and bioinformatics modelling for monitoring and risk prediction

Deadline: Friday 9 June 2017

Description of the research problem: The antibiotics discovery has largely contributed to the increase in life expectancy but has been accompanied by a growing and worrying increase in bacterial resistance, questioning antibiotic therapy. Although the first resistances were mainly detected in a clinical setting, the propensity of these bacteria to colonize the different anthropised environmental matrices (water, soil, sediments) was very quickly observed. Different stakeholders, including environmental and health managers, are lacking to predict the occurrence of resistance and thus project proposes measures for monitoring, control, management and prospective risk analysis.

Themes Area Context: Environment, antimicrobial dissemination, anthropogenic pollution

Objectives: The INSERM U1092 laboratory develops a "One Health" approach to analyse this microbial contamination, coupling the clinical and animal approaches, from the patient to the animal and the human, with the return to the environment. The research work proposes to validate a set of biomarker (s) as an effluent characterization tool to predict their typology in terms of risks of dissemination of resistances.

Method: It involves coupling an in situ experimental approach with a fine molecular approach, a bioinformatic treatment and models construction. The experimental approach is based on the use of biofilms recognized as accumulators of germs and privileged places of transfer of genes. The molecular markers used will be the integrons, whose quantitative relationship with a global bacterial resistance has been demonstrated. The discrimination of the resistance genes will be carried out by characterizing the constitutive cassettes of the integrons, knowing that the first results carried out in the laboratory showed that these cassettes were different according to the effluents, some being common to several effluents, others, sometimes of identity hitherto unknown, appearing more specific to a given effluent. If the preliminary work, limited by the methodology used, allowed a first qualitative analysis of the genes carried by the cassettes, the development of high-throughput sequencing (NGS) must allow the construction of a much more accurate, robust and in fine the development of specific qPCRs to these cassettes in order to quantify them in the different types of effluents.

Expected result: The ultimate objective is to propose a system linking "environmental sentinels" (biofilms) and qPCR tools to feed a predictive model for the spread of antimicrobial resistance in effluents allowing risk anticipation.

References:

- Stalder T, Barraud O, Jové T, Casellas M, Gaschet M, Dagot C, Ploy MC. Quantitative and qualitative impact of hospital effluent on dissemination of the integron pool. ISME J. 2014 Apr;8(4):768-77.
- Stalder T, Barraud O, Casellas M, Dagot C, Ploy MC. Integron involvement in environmental spread of antibiotic resistance. Front Microbiol. 2012 Apr 9;3:119.
- Auberteau E, Stalder T, Mondamert L, Ploy MC, Dagot C, Labanowski J. Impact of wastewater treatment plant discharge on the contamination of river biofilms by pharmaceuticals and antibiotic resistance. Sci Total Environ. 2017 Feb 1;579:1387-1398.

For more information please contact Dr. Christophe Dagot MC and WG4 Member at dagot@ensil.unilim.fr .

NEREUS COST Action ES1403

info@NEREUS-cost.eu

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