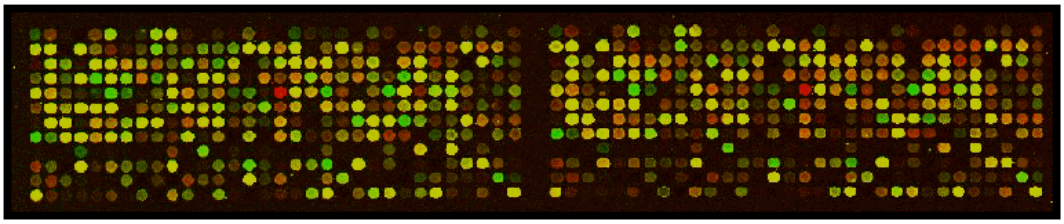
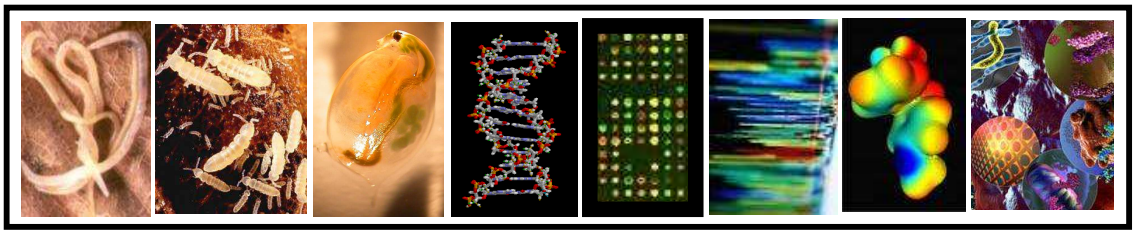
universidade de aveiro debio departamento de biologia

FIRST ANNOUNCEMENT



PRACTICAL APPROACH TO ECOTOXICOGENOMICS



Advanced Workshop Studies in Biology and Applied Biosciences

Department of Biology
University of Aveiro, 28th June-2nd July 2010

This one-week post-graduate workshop aims to provide knowledge on the development of molecular markers of stress using molecular biology techniques. This includes among others the following: RNA extraction, cDNA synthesis, basic cloning techniques, PCR reaction development and optimisation, real time PCR, DNA sequencing, and development of microarrays (cDNA arrays), their hybridization and analysis.
The course is addressed to scientists and PhD and M.Sc. students with a background in Biology, Natural and Environmental Sciences, Chemistry, Environmental engineering or related fields, members of consulting companies and of private and public institutions responsible for environmental management. A maximum of 20 students will be admitted.

Course Coordinators:

Mónica Amorim and Amadeu Soares

CESAM- Centre for Environmental and Marine Studies
Department of Biology, University of Aveiro, 3810-193 Aveiro, Portugal.

CESAM Centre for Environmental and Marine Studies
www.cesam.ua.pt

Lecturers:

Dr Dick Roelofs holds an MSc degree in Agricultural Sciences, with specialisation in plant molecular genetics. During his PhD thesis he studied the molecular evolutionary consequences of cytoplasmatic introgression. As a Post-doc he studied the molecular mechanism of RNA interference. Subsequently, he participated in the development of new high throughput screening technologies at the US based company Promega Life Sciences. In 2002 he switched back to the academic environment as lecturer Molecular Ecology at the Vrije Universiteit (VU) Amsterdam. Currently, he is project leader of the VU Ecogenomics team participating in the Dutch Ecogenomics consortium that applies genomics tools to assess and unlock life support functions of the soil. He teaches courses in Evolutionary Genetics, Evolutionary Biology and Environmental Genomics. Recently, he co-authored the first textbook on Ecological Genomics.

Benjamin Nota got his BSc degree in biotechnology at the Hogeschool Utrecht in 2001. During the last year of this BSc program he did research at KIWA. In this research project molecular techniques were developed to detect the pathogen *Cryptosporium* in surface water. After graduation he worked for more than 2 years as a research technician at the Netherlands Cancer Institute in Amsterdam. In this project BRCA1 and BRCA2 mutations were identified in breast cancer patients, using robotics and high-throughput PCR techniques. In 2003 he started a Master's in Biology at the Vrije Universiteit Amsterdam. During this period he did two undergraduate studies, both with gene expression microarrays. The first study was with different types of human lymphomas, at the VU medical centre in Amsterdam. Herein, gene expression profiles of the lymphomas were used for prognostic purposes. The second undergraduate study was done at the microbiology lab of TNO. In this study the genomic response was investigated of the spore forming bacterium *Bacillus subtilis* at high (lethal) temperatures. After graduating for this MSc in Biology, he started a PhD project at the department of Animal Ecology of the Vrije Universiteit in Amsterdam, where he is currently still working on. In this project he designed a microarray for the soil dwelling springtail *Folsomia candida*, to perform soil ecotoxicogenomics.

Dr. Mónica Amorim is an Assistant Researcher at the University of Aveiro, Portugal. She has done her PhD on ecotoxicology focusing on the study of the effect of different soils properties in organisms and its interaction with toxic substances. Main research area has been ecotoxicology, where several years were devoted to the development of an active research programme, mostly terrestrial, field and laboratory, addressing a series of both fundamental and pre-normative research questions. Ecotoxicogenomics has been the latest research area. Progresses have already taken place, such as the development of a new micro-array for a relevant test species. Dr. Amorim has been involved in several research projects and in the standardisation of new guidelines, having published several papers in the area. CESAM- Centre for Environmental and Marine Studies, Department of Biology, University of Aveiro, Portugal.

Dr Laura Carreto Dr Laura Carreto is an Assistant Researcher integrated in CESAM- Centre for Environmental and Marine Studies at the University of Aveiro, Portugal. She is part of a multidisciplinary team involved in the implementation of a National Facility for DNA Microarrays (NFDM), were she is responsible for the production, processing and analysis of DNA oligonucleotide microarrays targeting *Saccharomyces cerevisiae* ORFeome. She is currently using yeast as a model system to characterize the eukaryote cell response to proteome perturbations using high throughput genomic and transcriptomic approaches, following evidences that link the

accumulation of aberrant proteins to degenerative processes and diseases in higher eukaryotes. She is also investigating the impact and potential adaptive potential of genomic instability traits frequently observed in yeast subjected to proteome imbalances, particularly considering the generation of population heterogeneity and the fixation of novel advantageous genotypes under stressful environments. CESAM- Centre for Environmental and Marine Studies, Department of Biology, University of Aveiro, Portugal.

Dr Patrícia M. Pereira is a Post-Doctoral Fellow at the University of Aveiro. Her recent research interests include the study of microRNAs expression profiling in vertebrate organisms using DNA microarray technology, as well as study the role of microRNAs in Human cell biology. She is part of a multidisciplinary team involved in the implementation of a National Facility for DNA Microarrays (NFDM), were she is responsible for the in-house production, processing and analysis of DNA-oligonucleotide Microarrays targeting microRNAs from vertebrate organisms.
CESAM- Centre for Environmental and Marine Studies, Department of Biology, University of Aveiro, Portugal.

Sara Novais is a PhD student at the University of Aveiro, Portugal. During her degree in Biology she became interested in ecotoxicology, mainly terrestrial. The first contact with ecotoxicogenomics was made during a practical training at the University of Antwerp, Belgium. Multiple molecular techniques were applied to study the effects of toxic substances in gene expression of *Daphnia magna*. Currently, her PhD is focused on finding ecologically relevant effects of environmental toxicants in soil organisms at different levels of biological organization.
CESAM- Centre for Environmental and Marine Studies, Department of Biology, University of Aveiro, Portugal.

Joel Arrais, is a researcher in the bioinformatics group, with background in computer science, at the University of Aveiro, who started his PhD in 2005. The goal was to produce a contribution to the microarray community to improve the workflow of the laboratory data. The main research topics are microarray data standards, ontology's, information retrieval and microarray data analysis tools. One of the main achievements has been the development of GeneBrowser that aims to be an all-in-one web application for functional analysis of microarray studies. IEETA- Instituto de Engenharia Electrónica e Telemática de Aveiro, University of Aveiro, Portugal.

Main Themes

- Basics of ecotoxicogenomics: strategies and designs;
- RNA extraction, cDNA synthesis;
- Basic cloning techniques;
- PCR reaction development and optimisation;
- Real time PCR
- Development of microarrays: spotting arrays (cDNA arrays, oligo's);
- Hybridization techniques
- Microarray analysis;
- DNA sequencing;

This course will comprise a combination of lectures and practical work in which hands-on experience will be gained.

Course Fees

Normal course fee- 400 Euros

Discount fee - 350 Euros (members of Ordem dos Biólogos, SICTA, SETAC)

Travel to Aveiro

For those arriving at Porto Airport: Aveiro has an excellent railway service to Porto, situated 60 km North of Aveiro. Porto airport is directly connected to the major European and some North and South American cities. Travel by underground between Porto airport and railway station of Porto-Campanhã is 40 minutes. Depending on the type of train service used, travel between Porto-Campanhã and Aveiro railway takes 30 to 50 minutes and costs between €2 and €13. On average, there are trains very 25 minutes between Porto and Aveiro. Aveiro University is 5 minutes taxi distance from the railway station, and the taxi fare is around €5 to €7.

For those arriving at Lisbon airport: Aveiro is also connected by train to Lisbon, situated 250 km South of Aveiro. From Lisbon airport you should go to Oriente railway station, by taxi (fare between €10 to €15). On average, there are trains from Lisbon-Oriente to Aveiro every 90 minutes. Train will cost between €15 to €30, and the journey between Lisbon-Oriente and Aveiro railway station will be around 2,5 hours.

Accommodation

Several accommodation options are available in the city of Aveiro, from a youth hostel, pensions and hotels. As soon as we have more information on the prices and availability of rooms we will inform you. We can easily pre-book a number of rooms, in a hotel within walking distance from the University with a convenient price.

For updated information on this course, please go to:

http://www.bio.ua.pt

http://www.cesam-ua.pt

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REGISTRATION FORM

(send by fax (+351 234 372587) or e-mail (mjamorim@ua.pt) to **Mónica Amorim** till the 15th of May)

Name:_____

Institution:_____

Address:_____

_____

Country:_____

Course Fee:

Normal Fee: 400 € ☐ Discount Fee: 350 € ☐

(please provide confirmation of eligibility for the discount fee)

Accommodation:

Yes, I am interested in booking a room ☐

Arrival date: ___/06/2010 Departure date: ___/07/2010

No, I will book my own room ☐