



Advanced Course on BIOMARKERS OF ENVIRONMENTAL CONTAMINATION

ICBAS – Institute of Biomedical Sciences of Abel Salazar
FCUP – Faculty of Sciences
CIIMAR – Centre of Marine and Environmental Research
University of Porto

22 – 26 March 2010

Aims

This advanced course will cover essential major issues concerning the use of environmental biomarkers, providing updated knowledge on new molecular and traditional methods used at sub-individual level allowing the understanding of mechanistic aspects of toxicity and how these changes may affect individuals and populations. It is intended for MSc and PhD students, as well as for scientists and other professionals related to environmental sciences. The course is also open to the students of the *Master of Environmental Contamination and Toxicology* of ICBAS and FCUP of the University of Porto.

Coordination

Dr. Carlos Gravato, Laboratory of Ecotoxicology, CIIMAR, University of Porto, Portugal

Prof. Dr. Lúcia Guilhermino, Laboratory of Ecotoxicology, ICBAS and CIIMAR, University of Porto, Portugal

Teaching staff

Prof. Dr. Kari Lehtonen, Finnish Environment Institute, Marine Centre, Finland

Prof. Dr. Lúcia Guilhermino, Laboratory of Ecotoxicology, ICBAS and CIIMAR, University of Porto, Portugal

Prof. Dr. Maria Armanda Henriques, Laboratory of Environmental Toxicology, ICBAS and CIIMAR, University of Porto, Portugal

Dr. Carlos Gravato, Laboratory of Ecotoxicology, CIIMAR, University of Porto, Portugal

Dr. Laura Guimarães, Laboratory of Ecotoxicology, CIIMAR, University of Porto, Portugal

Dr. Miguel Santos, Laboratory of Environmental Toxicology, CIIMAR, University of Porto, Portugal

Monitors

Dr. Luis Vieira, Laboratory of Ecotoxicology, CIIMAR, University of Porto, Portugal

Dr. Miguel Oliveira, Laboratory of Ecotoxicology, CIIMAR, University of Porto, Portugal

Programme

This intensive course will consist of a combination of lectures and practical sessions including the determination of biomarkers and data analysis, and discussion of case studies. All lectures and sessions will be held in English.

Main topics

1. Introduction to environmental biomarkers
 - Basic principles and fundamental concepts
 - Advantages and criticisms
2. Biomarkers of neurotoxicity
3. Biomarkers indicative of energetic unbalance
4. Biomarkers involved in biotransformation
5. Oxidative-stress biomarkers
6. Endocrine disruption and reproduction biomarkers
7. Biomarkers of genotoxicity

The practical sessions will deal with the quantification of biomarkers in tissue samples of fish and mussels, calculation of responses after exposure to environmental contaminants and data analysis.

Registration, fees and other information

Registration fee: € 500 (includes attendance to all lectures and training sessions, and course documentation).

Reduced fee: € 400 (for members of the following institutions/societies upon confirmation of eligibility: University of Porto, Society of Environmental Contamination and Toxicology (SETAC), Iberoamerican Society of Environmental Contamination and Toxicology (SICTA), Sociedade Portuguesa de Ecologia (SPECO), Ordem dos Biólogos (Portugal).

Number of external participants: 10 maximum.

Certificates: certificate of attendance for all the participants; certificate of approval, including the final classification obtained in a written exam at the end of the course **only** for participants requesting it at the registration form.

Application: candidates should fill in the *registration form* and send it to Dr. Carlos Gravato either by fax (+351 22 339 0608) or email (gravatoc@ciimar.up.pt) before **12 March 2010**.

Registration: after acceptance by e-mail, candidates will have **5 days to process fee payment** by Bank Transfer (details of Bank Account will be provided in the acceptance e-mail); if the transfer is not processed during this period the acceptance will be cancelled.

Additional information

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FCT Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



REGISTRATION FORM

Name _____

Title _____

Institution _____ /

Company _____

Postal address _____

Postal code _____ Town _____ Country _____

Telephone _____ Fax _____

Email _____

Normal fee (500 €) _____ Reduced fee (400 €) _____

Invoice to

Name _____

Postal address _____

Postal code _____ Town _____ Country _____

NIF / VAT number _____

*To be sent to Dr. Carlos Gravato (Fax: +351 22 339 0608, email: gravatoc@ciimar.up.pt) no later than
12 March 2010.*