



**WORKSHOP**  
**Systems biology approaches to biomarkers of environmental health**  
**National Hellenic Research Foundation, Athens; 14 February 2008**

The Institute of Biological Research and Biotechnology, NHRF, and the NewGeneris research consortium ([www.newgeneris.org](http://www.newgeneris.org)) are co-organising a 1-day workshop on “Systems biology approaches to biomarkers of environmental health”.

Along with other areas of biological research, environmental toxicology is adapting to the evolution of genomics by incorporating practical and theoretical tools which permit a holistic study of cellular phenomena. This new approach has led to the advent of toxicogenomics which is already enabling significant advances in our understanding of the mechanisms of chemical toxicity.

In the area of biomarker research, genomics is being used mainly in the context of genome-wide scanning to discover genetic variations affecting individual susceptibility, while the use of gene expression profiling, proteomics and metabonomics to reveal biomarkers of exposure and early effects is increasing. On the other hand, the potential of pathway analysis and bioinformatics in the study of the modulation of biomarker levels by gene-gene and gene-environment interactions has been only little explored. The Workshop will review the current state of science in the area and identify opportunities and research challenges, especially in relation to the integration of different, -omics-related data into a systems view that may facilitate the discovery of new biomarkers to study the environmental etiology of disease.

While forming part of the Annual General Meeting of the NewGeneris network, the Workshop is open to non-NewGeneris members. People interested in participating are requested to complete and send a registration form before February 1<sup>st</sup>, 2008. There is no registration fee.

Programme

- 09.00 Welcome and Introduction to the Workshop (S.A. Kyrtopoulos, NHRF, Athens)
- 09.05 Welcome by Prof. F. Kolisis, Director of IBRB-NHRF
- 09.10 Systems toxicology and its relevance for biomarkers of environmental health (C.J. Portier, National Institutes of Environmental Health Sciences, Research Triangle Park, NC, USA)

*Genomics tools for biomarker discovery*

- 09.50 Transcriptomics as a biomarker for molecular epidemiology on environmental carcinogen exposure (J. van Delft, Univ. of Maastricht)
- 10.30 Coffee break
- 11.00 Epigenomics for biomarker discovery in cancer research (Z. Herceg, International Agency for Research on Cancer, Lyon)
- 11.40 Proteomics (J. Findlay, Univ. of Leeds)

12.20 Lunch break

- 13.30 Metabonomics (E. Holmes, Imperial College, London)
- 14.10 Genome-wide scanning (G. Thomas, US National Cancer Institute, Bethesda, MA, USA)
- 14.50 Coffee break

*Integration and analysis of complex biomarker data*

- 15.20 Statistical analyses of -omics data for biomarker discovery (M. Ritchie, Vanderbilt Univ., Nashville, TN, USA)
- 16.00 Pharmacokinetic and pathway-based approaches to biomarker studies (D.C. Thomas, Univ. S. California, CA, USA)
- 16.40 Closing remarks (J. Kleinjans, Univ. of Maastricht, NewGeneris co-ordinator)
- 16.50 End of the Workshop