Cefic-LRI 12th Annual Workshop 2010

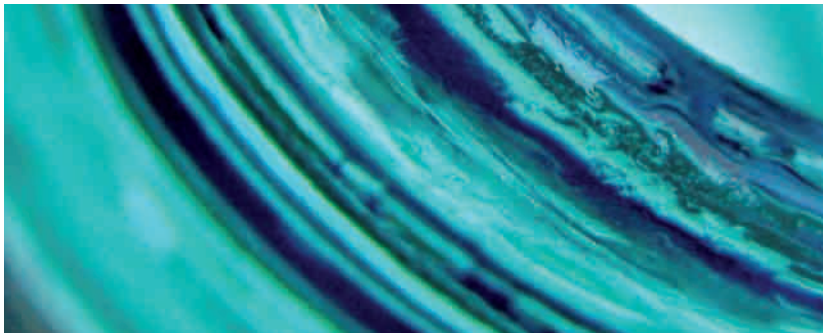
Reduction of Uncertainty Enabling Decision Making

17-18 NOVEMBER 2010

RADISSON BLU ROYAL HOTEL, BRUSSELS

cefic

LRI
The Long-range Research initiative



LRI In Brief

A major contribution to a sustainable chemical industry

In its first decade of activity, the Long-range Research Initiative (LRI) programme has made substantial strides in providing proactive scientific advice to industry, regulators and policy makers, and designing a robust, reliable framework on which they can draw to respond more quickly and accurately to societal concerns.

More forward looking, LRI aims to support the competitive and innovative edge for Europe and its chemical industry. It has adjusted focus to keep it in line with key public concerns:

- Development of intelligent testing (including alternatives to animal testing);
- Understanding the effects of chemicals in complex environments and health;
- Public acceptance of new technologies and products.

The 12th edition of the LRI annual workshop will address a range of critical issues, including:

- What is the LRI contribution into the reduction of uncertainty towards decision making in key areas?
- Where does LRI go from here? What are the new projects to start in 2011? What is the research vision?
- What is the value of such a programme in the future – from a multi-stakeholder perspective? Is it fit for purpose? What approaches and tools are offered?

Programme Day 1

17.30 - 18.00	**Foyer**	Registration
18.00 - 19.30	**Foyer**	**Poster session on 2009-2010 completed projects and networking cocktail**

- Development of a Tiered Set of Modelling Tools for Derivation of Biomonitoring Guidance Values
  Michael Bartels, DOW, USA
- Human risk assessment using only non-animal data: comparison of in silicopredictions with in vivo toxicity
  Bas J. Blaauboer & Milou Dingemans, IRAS, NL
- Detection of Nanoparticles in Sediment dwelling Worms
  Alistair Boxall, University of York, UK
- A framework for the development and application of biological monitoring guidance values
  John Cocker, HSL, UK
- Tiered Approach to Testing and Assessment of Nanomaterial Safety to Human Health - N1: Zinc Oxide
  Otto Creutzenberg, Fraunhofer ITEM, DE
- A full chain mechanistic approach assessing health risks from multiple sources in indoor environments
  Matti Jantunen & Arja Asikainen, THL, FI
- Cheminformatics Data Management System
  Joanna Jaworska, P&G, BE
- Simulation of blood and urine levels with a newly developed generic Physiologically Based ToxicoKinetic (PBTK) model
  Frans Jongeneelen, IndusTox, NL
- The Rapid Generation of PBPK Models - Phase 2
  George Loizou, HSL, UK
- Impact of physiological, endocrine, and environmental factors on the development of puberty
  Thomas Remer, University of Dortmund, DE

WEDNESDAY
17 NOVEMBER 2010

18.00 - 19.30	**Foyer**	• Overcoming current Limitations In Metabolism Prediction of Industrial Chemicals (OLIMPIC) *Lothar Terfloth, Molecular Networks, DE* • ART: Advanced REACH Tool *Erik Tielemans, TNO, NL*
19.30 - 22.00	**Pebblewood Corner**	Workshop Dinner-Talk: "The culture of fear" *by Prof. Frank Furedi, University of Kent*

The culture of fear

19.30 - 22.00

These days virtually every human experience has become the subject of risk management. Consequently just about everything we do comes with a health warning. What happens when everything is represented as a risk? Do we stop taking risks or do we just become disoriented or confused? The aim of this speech is to explain why we have become suspicious of the risk taker and what this means for our lives in the future.

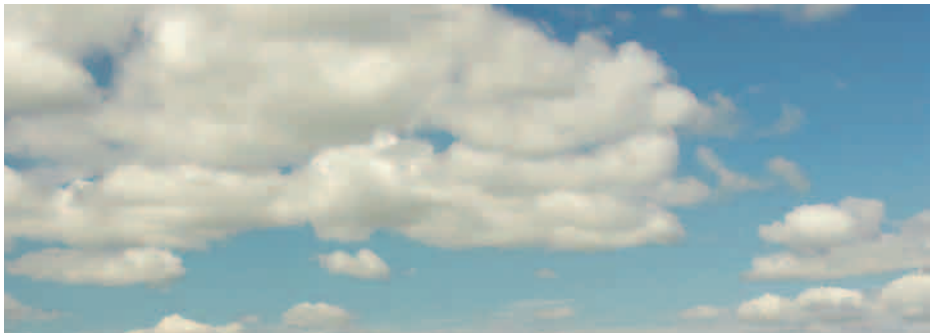
Dr. Frank Furedi
University of Kent

Dr. Frank Furedi is a professor of sociology at the University of Kent, UK. His studies have been devoted to an exploration of the cultural developments that influence the construction of contemporary risk consciousness. His book, Invitation To Terror; Expanding the Empire of the Unknown (2007) explores the way in which the threat of terrorism has become amplified through the ascendancy of possibilistic thinking.
It develops the arguments contained in two previous books The Culture of Fear (1997), Paranoid Parenting (2001) Politics of Fear(2005). At present he is engaged in a study of the changing cultural forms of authority.

Programme Day 2

THURSDAY
18 NOVEMBER 2010

08.00 - 08.45	Foyer	Welcome/networking coffee
08.45 - 09.00	Royal A&B	Welcome *by Richard D. Phillips, ExxonMobil, LRI SIG*
09.00 - 09.10		Opening: "Enabling decision making" *by Adri Postema, Shell, R&I Programme Council*
09.10 - 09.25	Royal A&B	Introduction: "Right science for right decision: Key priority issues of the Belgian EU Presidency" *by Roland Moreau, Federal Public Service (FPS) Health, Food Chain Safety and Environment*
09.30 - 12.00		**Plenary sessions: "Recent LRI Science Achievements in key issues areas"** *Chair: Richard D. Phillips, Exxon Mobil, LRI SIG*
09.30 - 09.55	Royal A&B	"Dynamic, linked fate and bioaccumulation models as tools in chemicals management" *by Michael McLachlan, University of Stockholm*
09.55 - 10.20		"The regulatory and scientific impact of LRI and ECETOC environmental persistence initiatives over the past ten years." *by Jason Snape, AstraZeneca*
10.20 - 10.45		"Are the kids alright? Strengthening regulatory decision-making in the uncertain world of children's health research." *by Judy LaKind, LaKind Associates*



10.45 - 11.15	Foyer	Coffee break
11.15 - 11.40	Royal A&B	"Dose Response and Thresholds in Endocrine Disruption" *by Helen Tinwell, Bayer CropScience*
11.40 - 12.05	Royal A&B	"Female breast cancer: who, how and why?" *by Lesley Rushton, Imperial College London & Rebecca Slack, University of Leeds*
12.05 - 12.25		"LRI in motion: Toolbox and new projects 2010-2011" *by Bruno Hubesch, Cefic LRI*
12.30 - 13.45	Pebblewood Corner	Lunch
13.45 - 14.30		**LRI Innovative Science Award** *Chair: Matti Jantunen, THL, ESAP*
13.45 - 14.10	Royal A&B	"Using metabonomic biomarkers to bridge the gap between environmental exposure and human disease" *by Hector Keun, Imperial College London, LRI Award winner 2009*
14.10 - 14.15		LRI Innovative Science Award 2010 presentation *by Adri Postema, Shell, R&I Programme Council*
14.15 - 14.25		"In quest of new fingerprints of exposure to VOC from consumer products" *by Juana Maria Delgado Saborit, University of Birmingham, LRI Award winner 2010 (10min)*

14.25 - 14.30	**Royal A&B**	Introduction to LRI Innovative Science Award 2011 *by Adri Postema, Shell, R&I Programme Council*
14.30 - 17.20		**"LRI Research vision"** *Chair: Ian Kimber, University of Manchester, ESAP*
14.30 - 14.55	**Royal A&B**	"Ecotoxicology and risk assessment: quo vadis?" *by Colin Janssen, Rijk University of Gent, ESAP*
14.55 - 15.20		"Application of technology tools in human health assessments of chemical entities" *by Timothy Gant, University of Leicester, ESAP*
15.20 - 15.50	**Foyer**	☐ Coffee break
15.50 - 16.15	**Royal A&B**	"Predictive models and their appropriate use within the applicability domain" *by Emilio Benfenati, Mario Negri Institute, ESAP*
16.15 - 16.40		"Integrated assessment of health risks of environmental stressors" *by Erik Lebret, RIVM, ESAP*
16.40 - 17.10		Panel discussion / Q&A's
17.10 - 17.20	**Royal A&B**	"Conclusions & future perspectives" *by Gernot Klotz, Cefic R&I*
Close		Feedback questionnaire & Close of Cefic-LRI Workshop

Speakers Day 2

Welcome

08.45 - 09.00

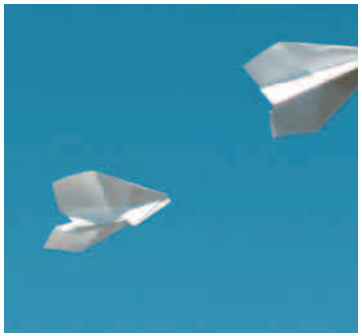
Recent LRI Science Achievements in key issues areas

09.30 - 12.00

Richard Philips joined Exxon Corporation in 1979 after receiving his PhD in Toxicology. During his career he has supported a number of ExxonMobil business groups across both petroleum and chemical companies. In addition, he has held a number of management positions within ExxonMobil including Director of the Toxicology Laboratory (1988 – 1994) and Director of Toxicology Division (1996 – 2002). In August, 2002, he became a Senior Scientific Advisor in ExxonMobil Biomedical Sciences Inc. and led the development of strategic programs in computational toxicology. In May of 2006, he began an European assignment in Belgium as a Distinguished Advisor leading key programs in industry strategic health effects research, risk assessment and science policy as well supporting ExxonMobil Refining & Supply in meeting their REACH obligations. Dr. Phillips is a Diplomate of the American Board of Toxicology and member of the Board of Directors for the Toxicology Forum amd ECETOC. He is a member of a number of professional societies including the Society of Toxicology, the American College of Toxicology, the Society for Risk Analysis and the International Society of Regulatory Toxicology and Pharmacology.

CHAIR

Richard D. Philips
ExxonMobil, LRI SIG



Enabling decision making

09.00 - 09.10

LRI Innovative Science Award 2010 presentation

14.10 - 14.15

The future of the chemical industry in Europe is highly dependent on responsible innovation. While new technologies and new practices are the basis for maintaining our quality of life, better understanding how society feels about new technologies is one of the focuses of the Long-range Research Initiative. LRI can serve as a model of partnership to accelerate and improve the understanding of potential environment and health impact of chemicals. It has brought together a network of highly-respected independent scientists and researchers. LRI is therefore a great illustration of how the chemical industry can join forces with key stakeholders to unlock the full innovation potential of Europe. It is helping the chemical industry better understand the impacts of its products on human health and the environment. It is part of its contribution to getting the right innovation framework in Europe and enhancing consumer confidence.
Prioritising environment and health is an ongoing process which LRI has been engaged in on many fronts for many years, from the OECD to the World Health Organisation to its own research and funding grants.

Adri Postema
Shell, R&I Programme Council

Adri Posterma has a PhD in Chemistry from the University of Groningen, and worked as post-doc at the University of California, Santa Barbara. In 1989 he joined Imperial Chemical Industries PLC as a researcher. In 1991 Adri moved to Shell Research where he worked in R&D and followed a post-academic study in Strategic Business Development. Subsequently he served Shell's Chemicals and Renewables businesses in different positions in technology, HSE, business development, strategy and project management. End 2009 Adri was appointed as the General Manager for Downstream (Chemicals and Refining) Process Technologies in Europe, Middle-East and Africa.

Speakers Day 2

Right science for right decision: Key priority issues of the Belgian EU Presidency

09.10 - 09.25

This talk will open with a summary of the main Belgian EU Presidency priorities, particularly those related to sustainable materials management and environment & health. Roland Moreau will then give his personal views on the relationship between science and policy, outlining how badly science is needed to initiate, support, justify, prioritize policies.
Life-cycle analysis will be used as a typical example. Risk evaluation will be developed to illustrate the difficult relation between policy-makers, expecting simple black & white opinions, and the scientists whose advice should reflect the complexity and nuances of the existing knowledge and suspected unknowns. The 'precautionary principle' will be discussed as a controversial issue when moving from risk assessment to risk management.
"How do we cope with this growing paradox: the more we want to rely on science, the more we hear doubts or even mistrust about it".

Roland Moreau
Federal Public Service (FPS)
Health, Food Chain Safety
and Environment

Mr. Roland Moreau has a degree in commercial engineering from Université Libre de Bruxelles. From 1977 to 2003 he held various positions including Executive Director of Greenpeace Belgium, Manager of the recycling activities of the leader of the Waste market in Belgium (WATCO – now SITA), General Manager of SMEs, including Sassoon and Group Cometsambre, and also various functions with the group Umicore. Since 2003 he has served as Director General Environment of the Federal Public Service Public Health, Food Chain Security & Environment and Chair of the BE Coordination Committee for the International Environment policy.

Dynamic, linked fate and bioaccumulation models as tools in chemicals management

09.30 - 09.55

Linking a dynamic (non-steady state) model of chemical fate in the environment to a model of bioaccumulation in food webs creates a valuable tool for chemical management. The presentation will outline the different manners in which such tools can be applied in decision making. Using a model developed in the LRI program, the domain of applicability of these tools will be explored and examples of model evaluation against measured data will be given. We will then take up the use of linked models to screen industrial chemicals for environmental exposure and examine the sources of uncertainty in model outcomes such as the chemical concentration in a human. Ongoing efforts to reduce these sources of uncertainty will be presented, opening for a discussion of future research needs.

Michael Mc Lachlan
University of Stockholm

Michael McLachlan is a Professor in Analytical Environmental Chemistry and Deputy Head of the Department of Applied Environmental Science at Stockholm University. He has an undergraduate degree in engineering, a Masters in Applied Science from the University of Toronto, and a Doctorate from the University of Bayreuth. He was Professor of Marine Chemistry at the University of Rostock for 5 years before moving to Stockholm 7 years ago. His research interests are the environmental fate and bioaccumulation of organic contaminants, with a particular emphasis on applying trace analytical methods, innovate sampling techniques, field experimentation and mathematical models to yield new insights and create useful tools.

Speakers Day 2

The regulatory and scientific impact of LRI and ECETOC environmental persistence initiatives over the past ten years

09.55 - 10.20

Increasingly, hazard assessment using a Persistence (P), Bioaccumulative (B) and (eco)Toxicity (T) approach is replacing environmental risk assessment for the management of chemicals in the environment. Assessing persistence is a particular challenge as it is not just an inherent property of the substance; environmental persistence is also determined by the conditions of the receiving environment and the catabolic capabilities of the environmental microorganisms. Persistence is therefore inferred by the continued and increasing presence of a chemical in the environment or the absence of degradation in any empirical laboratory studies. Many of these laboratory studies to assess degradation were originally developed, nearly three decades ago, to identify chemicals that undergo rapid degradation in the environmental. The studies were not designed to conclude or prioritise on environmental persistence and consequently result in a significant number of false persistency assignments. Over the past decade CEFIC, ECETOC and its member companies have invested a significant amount of research (including funds from the Cefic-LRI), foresight and advocacy work to improve the scientific basis for persistency assessment. This presentation will highlight the impact of these efforts.

Dr. Jason Snape
AstraZeneca

Dr. Jason Snape has extensive experience in microbiology and biochemistry, especially the microbial metabolism of industrial and pharmaceutical compounds in aquatic environments; toxicity and process effluents to microorganisms; nitrification and nitrification inhibition; the molecular microbial ecology of marine environments; and microbial genomics. He manages the AstraZeneca Environmental Foresight programme tracking emerging regulatory and scientific drivers that can improve environmental risk assessment. He is currently a co-contractor on the Cefic-LRI-ECO11 project validating enhanced approaches to persistence testing.

Are the kids alright? Strengthening regulatory decision-making in the uncertain world of children's health research

10.20 - 10.45

Pediatric neuropsychiatric disorders have received substantial attention from scientists, the public and the media. Despite the growing concerns about perturbations in neurodevelopment that may be associated with environmental exposures, few environmental chemicals are regulated on the basis of neurodevelopmental outcomes. Important factors hindering consideration of neurodevelopment in weight-of-evidence (WOE) assessments – as evidenced by our analysis of the epidemiology literature on PCBs - are differences in methods used in conducting neurodevelopmental epidemiologic studies and in data analysis and reporting. We developed a clearly articulated set of guidelines to help inform and harmonize the design of proposed studies, to assist in deciding which proposals would likely advance the field, and to enhance the ability of regulators to use research results for WOE assessments in support of chemical regulation for developmental neurotoxicants.

Judy S. LaKind
LaKind Associates

Judy S. LaKind, Ph.D., President, LaKind Associates, LLC, Associate Professor, U. Maryland School of Medicine, and Adjunct Associate Professor, Penn State College of Medicine is scientist with expertise in assessment and management of human health risks, biomonitoring, scientific analysis for regulatory support and state-of-the-science reviews. Dr. LaKind serves on the editorial boards of the Journal of Toxicology and Environmental Health and the Journal of Exposure Science and Environmental Epidemiology. She received her M.S. in geology from U. Wisconsin-Madison and her Ph.D. in environmental chemistry in 1988 from The Johns Hopkins University.

Speakers Day 2

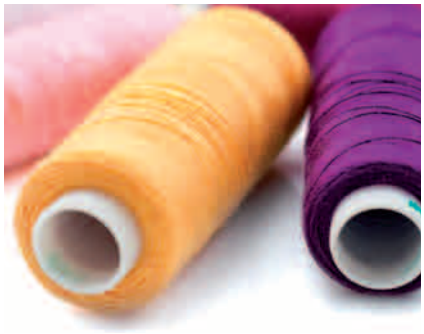
Dose Response and Thresholds in Endocrine Disruption

11.15 - 11.40

The existence or not of thresholds is a much debated topic when considering endocrine disruption. This challenge to our current testing paradigm has been investigated in the adult rat testes using a model antiandrogen, flutamide, and the direct-acting testicular toxicant, 1,3-dinitrobenzene, during the course of a three year funded Cefic research project (EMSG46). Both standard parameters and molecular approaches have been used to characterize the testicular toxicity induced by both compounds following repeat dosing at several dose levels. Thus gravimetric, histopathologic and hormone changes have been established for each compound, which have been correlated with transcriptomic changes. Consequently, these phenotypic and molecular changes have allowed us to determine the transition between normal variability, adaptative responses and adverse effects for both flutamide and 1,3-dinitrobenzene as a function of dose level. In addition, our testicular data suggest the existence of thresholds not only for the phenotypic changes but also for the molecular effects observed for both compounds. Such changes as a function of exposure duration are currently being investigated. In conclusion, our data so far generated provide a useful contribution to the continuing debate concerning thresholds in endocrine disruption.

Helen Tinwell
Bayer CropScience

Helen Tinwell began her life as a toxicologist in 1988 when she joined the Molecular and Cell Biology department of Syngenta's Central Toxicology Lab in Cheshire, UK. She first worked in the field of genetic toxicology and she received her PhD in the same discipline. Moving into the field of endocrine disruption, Helen was involved in OECD method validation, mixtures and the low dose issue. In 2005 Helen left Syngenta to join the Research Toxicology Group of Bayer CropScience in Sophia Antipolis France headed by Remi Bars. She continues to be heavily involved in endocrine disruption at all levels and to date has more than 100 publications.



Female breast cancer: who, how and why?

11.40 - 12.05

Increases in female breast cancer incidence across much of Europe have largely been tempered by improved treatment regimes and survival rates. Much work has also been carried out to evaluate a range of risk factors associated with breast cancer incidence; rarely a week goes by without the media reporting the latest exposure scenarios associated with an increased risk of breast cancer. A point has been reached when an analysis of current evidence is required to assess the contribution made by the various risk factors to the burden of breast cancer. This session will discuss the most recent trends in breast cancer incidence ("who?"), the causal factors associated with increased risk of breast cancer ("how?") and their underlying mechanisms ("why?"), and introduce initial findings associated with the burden of disease.

Dr. Lesley Rushton (left)
Imperial College London

Rebecca Slack (right)
University of Leeds

Dr. Lesley Rushton is a medical statistician and epidemiologist at Imperial College London involved in multidisciplinary research programmes into occupational and environmental causes of ill health. Her studies include investigation of leukaemia and exposure to benzene, silicosis and dermatitis. Environmental research includes the effects of air pollution in relation to children's health. She leads a major study estimating the burden of cancer due to occupation in the UK. Methodological research includes systematic review and meta-analysis in the areas of risk assessment and cross-design synthesis.

Rebecca Slack is a research scientist at University of Leeds with research interests at the environmental science/human health interface including exposure modelling and environmental chemistry. Having worked on projects evaluating human and ecological exposure to contaminants in groundwater, surface waters, soils and air, she has been more recently involved in the HSE Burden of Occupational Cancer in Great Britain project for which she was primary author of the breast cancer technical report. As the project co-ordinator for water@leeds, the water research centre at the University of Leeds, Rebecca is also involved in a range of interdisciplinary water research projects.

Speakers Day 2

LRI in motion: Toolbox and new projects 2010-2011

12.05 - 12.25

Over the past 12 years the Cefic-LRI has developed through its research numerous quality-assured databases and key tools freely available to all. These tools are either databases or predictive models that reduce testing and provide significant financial and resources savings to users. The LRI Toolbox is a repository of 14 tools subdivided into 3 categories: human health databases, human health models, and environmental models.

Dr. Bruno Hubesch
Cefic LRI

Dr. Bruno Hubesch obtained his Master degree in Nuclear Chemistry in 1980 and his PhD in Physical Chemistry in the area of Photochemistry in 1985 from the University of Louvain, Belgium. After a year as non-commissioned officer in the Belgian Air Force, he pursued from 1987 to 1990 postdoctoral research as a Fulbright Scholar and NATO Science Fellow at the University of California, San Francisco at the Faculty of Medicine at the Veterans Administration Hospital. In 1990 he joined Procter & Gamble, Household Care R&D. In January 2009 he joined in secondment Cefic Research & Innovation as the LRI Programme Manager.

LRI Innovative Science Award

13.45 - 14.30

Professor Matti Jantunen is a research professor at the National Public Health Institute's Department of Environmental Health in Finland, and was visiting scientist at the EC Joint Research Centre from 1999 to 2001. He is a founding member of the International Society of Indoor Air Quality and Climate (ISIAQC) (vice President for Policy, 2000-2003), and a member of the International Society of Exposure Analysis (ISEA). Prof Jantunen also serves in the EC Steering Committee on "Urban Air, Indoor Environment and Human Exposure" and has participated in numerous WHO working groups.

CHAIR

Matti Jantunen
THL, ESAP

Speakers Day 2

Using metabonomic biomarkers to bridge the gap between environmental exposure and human disease

13.45 - 14.10

There is currently a need to improve exposure assessment in order to get a clearer picture of how specific risk factors interact with genotype to produce effects on human health [Wild, Mutagenesis 2009]. Simultaneously, there is also a need to define intermediate biomarkers that correlate to exposure, while at the same time reflecting biological effect/adaptive response (a "meet in the middle approach" to biomarker discovery, [Vineis & Perera, Cancer Epidemiol. Biomarkers 2007]). Such markers should not only be more effective at predicting health endpoints (i.e. good for risk assessment as well as hazard identification), but should also give clues as to the mechanism of toxicity and aetiology of disease in the human population. "Omics" approaches represent a systematic and efficient route to these biomarkers, and potentially report the effects of many exposures at once if used directly for exposure assessment. Part of the power of these methods comes from the fact that combinations of biomolecules (a 'profile' or 'signature') could be more sensitive and specific biomarkers than any single measurement alone. Metabolic biomarkers have added value because they are highly translational: non-invasive measurement in biofluids and lack of sequence variation or post-translational modifications makes it easier to transfer analytical methods from studies in laboratory models to humans and vice-versa.

Dr. Hector Keun
Imperial College London,
LRI Award winner 2009

Dr. Hector Keun is a Lecturer in Biological Chemistry in the Department of Biomolecular Medicine, Imperial College London. He joined Imperial in 2001 after completing undergraduate and postgraduate degrees from Oxford University in Chemistry and Biochemistry. Hector's research programme centres on the application of metabolic profiling (metabonomics/ metabolomics) to toxicology and oncology. He is currently investigating the potential of metabolic profiling in environmental health research.

In quest of new fingerprints of exposure to VOC from consumer products

14.15 - 14.25

Currently, there is international recognition of the contribution of indoor air to personal exposures and the associated potential health risks. The general population is exposed to different VOCs emitted from consumer products and building materials and doses of inhaled VOCs are metabolised producing several biomarkers of exposure and metabolism profiles that can be detected in the urine even at low levels of exposure. The aim of the project is to a) characterise human exposures, lung doses and indoor microenvironment concentrations to VOCs; and b) to find suitable biomarkers and metabolomic profiles to monitor the exposure and effects to low-level of VOCs arising from consumer and building products, especially benzene as a carcinogenic marker of the VOC mixture.

Dr. Juana Maria Delgado Saborit
University of Birmingham,
LRI Award winner 2010

Dr. Delgado-Saborit is a Research Fellow at the Division of Environmental Health and Risk Management at the University of Birmingham (UoB). During her postdoctoral work, she gained a great expertise measuring and analysing different pollutants in projects involving sampling in a wide range of micro-environments and recruiting and sampling with subjects. She assessed the effect of different sources such as second-hand smoking, traffic, home characteristics and personal activities in human exposures to VOCs and PAHs. Currently, she is characterising sources and processes governing the fate of PAH concentrations and quinones in ambient air.

Speakers Day 2

LRI Research vision

14.30 - 17.20

Ian Kimber is currently Professor of Toxicology and Associate Dean for Business Development in the Faculty of Life Sciences at the University of Manchester. Previous to that he was Head of Research and Principal Fellow at the Syngenta Central Toxicology Laboratory. He has published over 500 research papers, review articles and book chapters and serves currently on the editorial boards of toxicology, immunology, dermatology and pathology journals. Earlier this year Professor Kimber was awarded the Bo Holmstedt Memorial Fund Award and Lectureship by Eurotox.

CHAIR

Ian Kimber
University of Manchester,
ESAP

Ecotoxicology and risk assessment: quo vadis?

14.30 - 14.55

Current regulatory approaches are lacking ecological realism and over-dependent on pragmatism (both exposure and effects). Hence, large uncertainties are inherent to these exercises and as such we may not protecting (or over-protecting) the environment. We simply do not know as we are not asking the right questions nor using the right tools. Current technology-driven research might be moving the wrong way...

Dr. Colin Janssen
Rijk University of Gent,
ESAP

Dr. Colin R. Janssen is full professor of Ecotoxicology at Ghent University, Belgium where he is department head and director of the Laboratory for Environmental Toxicology, Department of Applied Ecology and Environmental Biology at the Faculty of Biosciences. He holds a Masters degree in Zoology and obtained his Ph.D. in Environmental Sciences (1992) from the same university. He now teaches courses in aquatic ecology, marine ecotoxicology and environmental toxicology and risk assessment. C. Janssen is a full member and chair of the Ecotoxicity group of Belgian Health Council. He has published more than 270 international papers.

Speakers Day 2

Application of technology tools in human health assessments of chemical entities

14.55 - 15.20

During the past 20 years a revolution in technologies applicable to human health sciences have occurred, primarily driven by advances in computing, chemistry and instrumentation. As an example 20 years ago one person could sequence perhaps 300 to 400 bases a day whereas now 150 million bases per man/day is possible. Similarly 20 years ago one person could assess the expression, in a sample, of a handful of genes in a week, now the entire transcriptome across many samples can be carried out in a day. Not just the genome, but the proteome, metabonome, lipidome and just about whatever other 'ome you wish to name have been made high throughput by technology advances. Furthermore, over the same period molecular science has delivered cloned proteins, cloned animals, differentiated cells from stem cell precursors and genetically modified animals to mention just a few. All of these technologies should be improving our assessment of toxicity and risk assessment, but translation has been slow. This is partly because all the new data has perhaps raised more questions than it has answered. Perversely more data sometimes highlights how much we do not understand. Finally there are the validation challenges and the need to overcome conservative attitudes. We are though getting more experienced at handling, understanding and assimilating data. Therefore gradually these technologies will lead to a more intelligent, and individual, toxicity testing strategies that utilise primarily in vitro systems.

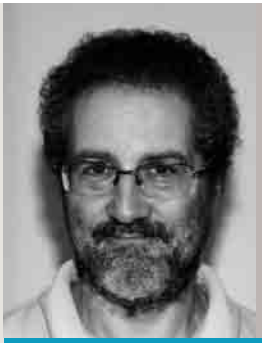
Dr. Timothy Gant
University of Leicester, ESAP

Dr. Gant graduated from the School of Pharmacy, University of London, in 1985 and 1988 (PhD, Pharmacology). He served postdoctoral and staff position at the National Cancer Institute, Bethesda USA in the Office of the Chief, Dr S. S. Thorgeirsson. He returned to the UK in 1993 and set up the Systems Toxicology group at the Medical Research Council Toxicology Unit on award of tenure in 2001. He has a wide experience of molecular toxicology and its application in understanding chemical mechanisms of toxicity and intelligent risk assessment for finding the correct balance of progress and risk.

Predictive models and their appropriate use within the applicability domain

15.50 - 16.15

REACH requires, for a correct use of the (quantitative) structure-activity relationship (Q)SAR model, if "the substance is included in the applicability domain of the model". Thus, the acceptance of the model is not given a priori, but in relation to the appropriate use. It means that the same model can be accepted if used for a substance, but can be not accepted if used for a second one. Within the CAESAR platform (http://www.caesar-project.eu) we developed a freely available tool to assess the applicability domain (AD), through quantitative and visual WAYS. This free, fast tool is based on: Chemiometric check, Fragments for outliers, Similarity index, Prediction Concordance, Prediction Accuracy, and Uncertainty of the prediction. Thus, the CAESAR's tool is based not only on the chemical information, as the typical AD tools, but also on toxicity results. This tool proved to discriminate cases where QSAR can be applied, and cases were there are problems.



Dr. Emilio Benfenati
Mario Negri Institute, ESAP

Dr. Emilio Benfenati, head of the Laboratory of Environmental Chemistry and Toxicology at the Mario Negri Institute, Milan, Italy, has been researcher at Stanford University, CA. In that period he also had a collaborative research at the Berkeley University, CA. He has gained a considerable experience in the management of international programs, coordinating 13 European projects and participating to 16 others. He has been Member of the National Commission for the evaluation of pesticides, Italian Ministry of Health. He is author or co-author of about 200 papers in international journals and books.

Speakers Day 2

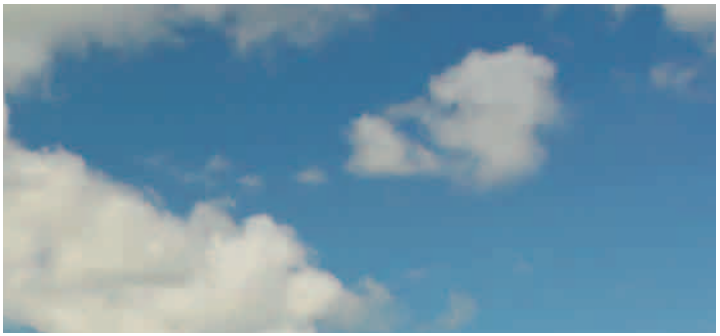
Integrated assessment of health risks of environmental stressors

16.15 - 16.40

Integrated environmental health assessment can be defined as a means of assessing health-related problems deriving from the environment, and health-related impacts of policies that affect the environment, in ways that take account of the complexities, interdependencies and uncertainties of the real world (Briggs, 2008). Insights developed in the EU-funded project INTAREASE and the sister-project HEIMTSA will be presented and discussed. In particular, different perspectives from stakeholders and uncertainty and ambiguity of values will be addressed.

Erik Lebret
RIVM, ESAP

Erik Lebret, Ph.D. is professor in Environmental Health Impact Assessment at the Institute of Risk Assessment Sciences (IRAS) at Utrecht University and Chief Scientist of the Division of Environment and Safety at the National Institute of Public Health and the Environmental (RIVM), The Netherlands. He served on a series of expert committees and review panels for the Dutch Health Council, WHO, US-EPA, European Science Foundation, and USA Heath Effects Institute. He was president of the International Society of Exposure Analysis, and associate editor of the Journal of Exposure Analysis and Environmental Epidemiology.



Conclusions & future perspectives

17.10 - 17.20

Dr. Gernot Klotz studied Biology and Microbiology at the University of Aachen. After having worked for the US based pharmaceutical company Armour he joined Bayer in various business sections. Since 2007 he is the Cefic Executive Director for Research and Innovation. Key areas of responsibility are innovation, emerging science-policy issues and the Cefic LRI as well as managing the Cefic R&I Board. He is also responsible for the EU Technology Platform for Sustainable Chemistry. G. Klotz has been called on to various advisory and steering committees at OECD, WHO and EU Commission level in areas like innovation, technology development etc.

CHAIR

Dr. Gernot Klotz
Cefic R&I

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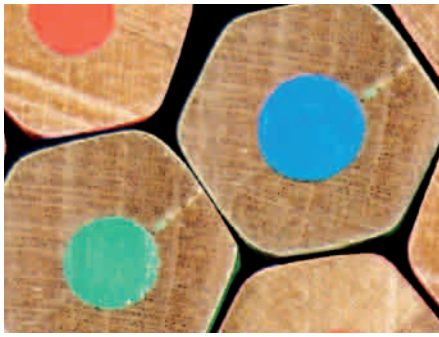

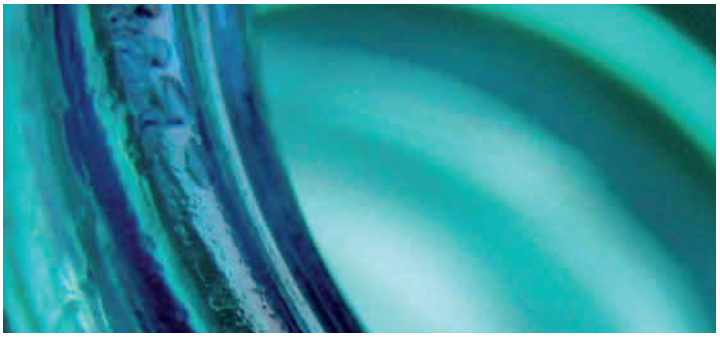

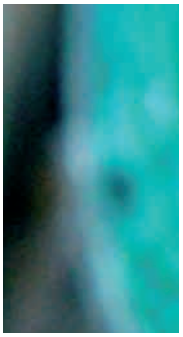

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