OSIRIS Newsletter

No. 4 August 2009

In this Issue:

- Presentation of OSIRIS Partners
- OSIRIS Results Highlights
- New OSIRIS Publications
- Programme OSIRIS Training Course

Photo: Andrea Richarz

Contents:

OSIRIS Pillar 2 Meeting

The next OSIRIS Pillar meeting is organised by Pillar 2 and will be held at the

Institute of Public Health, Ljubljana, Slovenia on **8 – 9 October 2009**,

hosted by the OSIRIS Partner IVZ RS.

The primary purpose of the meeting is to discuss results, and especially to allow the younger researchers (PhDs and post-docs) to present their findings.

Other issues such as Pillar interactions will also be dealt with if required.

The meeting is open to all partners of the OSIRIS consortium, regardless of their direct involvement in Pillar 2.

Photo: Sonja Jeram

OSIRIS Partners

Procter and Gamble – P&G (Partner 9)

Modeling & Simulation, Biological Systems
Brussels Innovation Center
Brussels, Belgium

Deputy Pillar 5 Co-ordinator

Photo: : Procter & Gamble

Procter and Gamble (P&G) is a consumer product company. It is a global corporation of over 100 000 employees based in Cincinnati, Ohio that manufactures a wide range of consumer goods. For P&G the safety of the company's products and manufacturing operations to people (consumers, workers, communities) and to the environment is a priority.

The methodologies P&G employs have evolved over a number of years through the work of industry, government and academic scientists. Many have been standardised and have gained broad scientific acceptance, beyond organisational and international boundaries. P&G's research on safety methods in the EU is carried in its Brussels Innovation Centre.

P&G Modeling & Simulation:

The research focuses on novel risk assessment methods such as quantitative and qualitative structure-activity relationships (QSAR), reliability assessment and decision theory. The group has an in-depth experience in practical applications of risk assessment methodologies both to human health and environment. Within OSIRIS, the focus is on decision theory and on the development of optimal integration strategies of different ITS components.

Merck KGaA – MERCK (Partner 23)

Institute of Toxicology
Darmstadt, Germany

WP 5.2 leader

Photo: © Merck KGaA, Darmstadt Germany

The Institute of Toxicology of Merck Darmstadt, Germany, is a part of Global Toxicology at Merck KGaA. As global function of non clinical development within Merck Serono research and development, the Institute is responsible for the toxicological and ecotoxicological evaluation of all kinds of Merck products, from both pharma and chemicals.

Institute of Toxicology Research Focus:

The main goal is to provide data for risk assessment, to ensure the safety of a product for its intended use, and to expedite the product development and authorisation. A predictive safety concept is applied, based on early inclusion of safety criteria in the evaluation of compound hazard profiles.

Within OSIRIS, case studies are performed that illustrate and compare the classical hazard identification process with the new intelligent testing strategies (ITS) developed in OSIRIS. The focus of this work is on consumer product compounds with special regard to reproduction toxicity, mutagenicity, carcinogenicity, and skin sensitisation. The ITS developed in OSIRIS are analysed for their scope and limitations, i.e. for their capability to identify systemic hazardous properties including their accuracy and predictivity.

The information on time and cost saving strategies for a REACH compliant product development thus obtained will contribute to reduce, refine and replace animal testing whenever possible.

OSIRIS Partners

National Institute of Chemical Physics and Biophysics – NICPB (Partner 17)

Laboratory of Molecular Genetics
Group of In vitro & Ecotoxicology
Tallinn, Estonia

Photo: NICPB homepage http://www.kbfi.ee/?id=56

The National Institute of Chemical Physics and Biophysics (NICPB) is an autonomous public research institution created in 1980 involving a total number of ~120 employees. It carries out fundamental and applied research in novel directions of material sciences, gene- and biotechnology, environmental technology and computer science.

The strategic programmes of NICPB are: particle physics, nuclear magnetic resonance, new spin materials and states, ionic conductivity and catalysis, macromolecular interactions, environmental chemistry, *in vitro* toxicology and 3R. It consists of four Laboratories: Chemical Physics, Molecular Genetics, Bioorganics and Bioenergetics.

The In vitro & Ecotoxicology Group:

The In vitro & Ecotoxicology Group belongs to the Laboratory of Molecular Genetics. The focus of the group is the development of *in vitro* test batteries of aquatic biotests and recombinant biosensors for the analysis of harmful effects of major current environmental pollutants as well as emerging ones (such as nanoparticles). Molecular toxicology activities involve targeted design of genetically altered sensor bacteria and studies of toxicity mechanisms.

The team has internationally recognized expertise and has participated in the Multicentre Evaluation of In Vitro Cytotoxicity (MEIC) project.

ECT Oekotoxikologie GmbH – ECT (Partner 18)

Research and Services in Ecotoxicology
Flörsheim/Main, Germany

Photo: ECT

ECT Oekotoxikologie GmbH is a SME which provides ecotoxicological services for industry and governmental authorities under the conditions of Good Laboratory Practise (GLP) that qualify chemical products for registration and notification. These services include the performance of environmental risk assessments.

ECT carries out research projects on behalf of or supported by the German Ministry of Education, Science, Research and Technology (BMFT), the German Federal Environmental Agency (UBA) and the European Commission.

Research Focus of ECT:

The main aspect of ECT's ecotoxicological research is to evaluate the effects and fate of chemicals and other substances introduced into the environment by human factors. Objectives of these research activities have been inter alia the development of new ecotoxicological testing methods under laboratory and field conditions, e.g. bioaccumulation and toxicity in sediment dwelling organisms, biodegradation of chemicals in surface water and sediment, biodegradation of organic matter under field conditions, determination of endocrine effects in fish and determination of fate and effects of chemicals in terrestrial and aquatic mesocosms. Several of these methods have been ring-tested and have been or will be soon published as OECD and/or ISO Guidelines.

OSIRIS Partners

Fraunhofer Institute of Toxicology and Experimental Medicine – FhG (Partner 19)

Department of Chemical Risk Assessment
Hannover, Germany

Photo: Fraunhofer-Gesellschaft

The Fraunhofer Institute of Toxicology and Experimental Medicine (ITEM) is one of 57 research institutes of the Fraunhofer Gesellschaft (FhG), the leading non-profit organisation of applied research in Germany. Human health is the focus of research at the Fraunhofer ITEM. With its expertise it supports government, national and international organisations as well as industry in assessing the risk of existing products. Furthermore, FhG ITEM addresses different issues of prevention - with studies and risk assessments in environmental and occupational toxicology and consumer protection as well as with mechanistic based research.

The Department of Chemical Risk Assessment:

The ITEM Department of Chemical Risk Assessment has long-term experience in the preparation of hazard and risk assessments of e.g. biocides or existing chemicals. The wide spectrum of expertise is based on a multi-disciplinary staff and includes the evaluation of toxicological, environmental fate, eco-toxicological and exposure data up to quantitative risk assessments. Another focus is the development of assessment methodologies.

The Department has recently developed the database RepDose, funded by the framework of the Cefic Long-range Research Initiative. RepDose focuses on subacute to chronic toxicity studies in rodents and is used for the evaluation of e.g. structure activity relationships of chemicals, TTC and the development of new approaches for risk assessment.

Aarhus University, National Environmental Research Institute – AU (Partner 20)

Department of Environmental Chemistry and Microbiology
Roskilde, Denmark

Photo: AU-NERI

The National Environmental Research Institute (NERI), Denmark, is a research institute under the Aarhus University. NERI's mission is to provide a sound and informed scientific basis for making environmental decisions at the political, administrative and commercial levels.

NERI undertakes both applied research, directed at alleviating specific environmental problems, and long-term strategic research. NERI serves as scientific advisor to the Danish Parliament and the Ministry of the Environment, as well as to other public authorities, private organisations and enterprises. The advice is provided in the form of analyses, reports and replies to inquiries, as well as through the participation of NERI staff in various commissions and committees.

The Department of Environmental Chemistry and Microbiology:

The Department of Environmental Chemistry and Microbiology assesses potential risks associated with the use of microorganisms for industrial and environmental purposes, evaluates the prospects of using microorganisms as sustainable clean technology, and researches the exposure and the chemodynamics of organic contaminants in the (human) environment.

OSIRIS Partners

Nofer Institute of Occupational Medicine – NIOM (Partner 25)

Department of Chemical Hazards
Lodz, Poland

WP 5.5 leader

The Nofer Institute of Occupational Medicine assesses occupational and environmental health hazards and sets the scientific background for this purpose. For example, it develops methods for the identification of individual susceptibility factors and a monitoring system for occupational and work-related diseases. The Institute is involved in the implementation of preventive activities, in updating organisational solutions in the workers' health care system in Poland, and in the education in health care organisation, occupational medicine and public health.

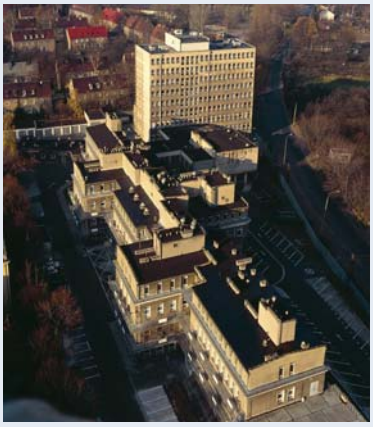


Photo: NIOM http://old.imp.lodz.pl/english/niom.htm

The Department of Chemical Hazards:

The research focuses on the identification of chemical substances and technological processes hazardous to health, the assessment of exposure to chemical agents in the work and living environments and the assessment of health risks from environmental and occupational exposure to chemicals.

New methods are developed for the determination of toxic substances in the air and biological material. Dose-effect and dose response relationships in occupational exposure to metals are determined. The absorption of chemicals into biological material is assessed, and toxicokinetics of volatile organic compounds (VOC's) in humans are studied.

University of Exeter – UNEXE (Partner 27)

School of Biosciences
Ecotoxicology and Ecophysiology Research Group
Exeter, UK

The School of Biosciences at the University of Exeter has 53 full-time academic members of staff researching into Plant and Microbial Biology, Evolutionary Genetics, Biodiversity and Conservation, Biocatalysis and Metabolomics, Human and Environmental Health. The School is well funded from a wide range of organisations, including Research Councils, The Department for the Environment, Food and Rural Affairs, The UK Environment Agency, various industries and charities and the EU. It has contributed to many EU funded projects.

Photo: Hatherly building, University of Exeter

The Ecotoxicology and Ecophysiology Research Group: The main research theme is in the ecological and physiological impact of environmental change induced by man on aquatic organisms. Fish and invertebrates including snails, worms and sponges are studied. The research is linked to the development and application of predictive approaches to environmental management, and the Group works closely with industry and government agencies.

Research focuses on the effects of environmental pollutants on aquatic wildlife, investigating the basic physiology of fish. Key areas of the ecotoxicology work are endocrine disruption and the biological effects of nanoparticles. Mechanisms of effect in individuals to population-level impacts are studied. Reproduction and reproductive behaviour are the major processes investigated. The wide range of *in vivo* and *in vitro* techniques includes the use of gene arrays and DNA microsatellites.

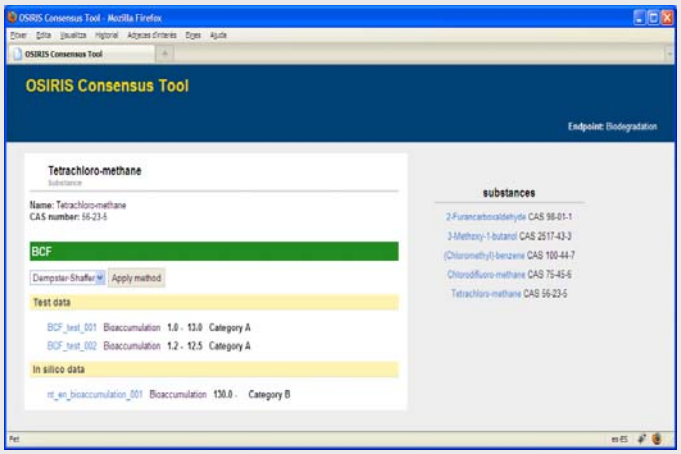
OSIRIS Results Highlights

Uncertainty testing with the OSIRIS Consensus Tool (Partner URV)

Universitat Rovira i Virgili, Transport Phenomena research team, Tarragona, Catalonia, Spain

The assessment of eco-toxicological effects of chemicals for regulatory purposes requires large amounts of experimental data which are expensive to obtain and eventually might entail exhaustive animal testing. The required decision-making processes in this regulatory context must often be carried out with limited or even contradictory sources of information. To benefit from all sources of information without compromising the quality of the decision process, uncertainty management and reduction techniques, such as Dempster-Shafer and Bayesian approaches, have to be applied.

Dempster-Shafer theory of evidence has been applied to both experimental and *in silico* biodegradation data sources to assess chemical persistence. Uncertainties of the initially less uncertain estimates for biodegradation rates in water were reduced by as much as 20% to 60%. The analysis showed that conflicting evidence can be detected, quantified and redistributed proportionally among all the feasible subsets of hypotheses (see additional information).



Continuing this theoretical work to ascertain uncertainty in decision-making processes, a tool for consensus testing has been integrated into the OSIRIS web tool, in collaboration with SIMPPLE. The current functional version of this tool allows analysing two different endpoints, Mutagenicity and Bioconcentration factor (BCF), although more endpoints are planned to be added in the future. Regarding the possible consensus models to use, two of them are implemented in the tool: Dempster-Shafer theory of evidence and Bayesian networks.

Additional information: Fernández A, Rallo R, Giralt F 2009. Uncertainty reduction in environmental data with conflicting information. Environ. Sci. Technol. 43(13): 5001-5006

Sources of variability of *in vivo* ecotoxicity data (Partners IVZRS, UB)

Institute of Public Health of the Republic of Slovenia, Centre for Environ. Health, Ljubljana, Slovenia
Centre for Fish and Wildlife Health, University of Bern, Switzerland

The variability of fish acute lethality values as listed in commonly used databases was investigated for 44 chemical substances (4 654 records) extracted from the US EPA ECOTOX database. Significant variability in test results going up to several orders of magnitude for one and the same substance was observed.

In an attempt to systematically explore potential sources of the data variability, the influence of test species, life stages and test conditions (temperature, pH, water hardness) was analysed. Major limitations in this analysis were pronounced gaps in the recording of test conditions. Amongst the 4 654 extracted reports 66.5% of data were without information on fish life stage. Mean temperature, water hardness and pH were not defined in 19.6%, 48.2% and 41.2% respectively. For 75.4% of reports chemical purity was not recorded.

As conclusion from the results, it is suggested on the one hand to optimise acute toxicity test protocols in

OSIRIS Results Highlights

order to minimise variations due to variable testing procedures, and on the other hand, to rigorously control data quality before they are entered into databases.

With respect to *in vivo* toxicity testing, a first recommendation from this study is to reduce the number of accepted fish species, life stages and test protocols. This could clearly reduce data variability.

For instance, initial data evaluation could always be focused first on rainbow trout, as one of the most sensitive species and the species with comprehensive data already available, while additional species would only be considered if there is a lack of trout data or for specific purposes. A similar proposal is contained in the guidance document on aquatic ecotoxicity developed for the purpose of pesticide risk assessment which requires the acute toxicity test on *Oncorhynchus mykiss* as mandatory and an additional test on warm water fish (EFSA 2002). The restriction to one key species would also enable a more narrow setting of test conditions, what would further reduce variability.

A second recommendation is a more stringent reporting of test conditions and parameters, together with a more strict selection of data entries for databases. A more detailed reporting of test procedures and conditions would be important to understand why results from individual tests are different. Such effort would greatly reduce data variability and thereby would enhance the utility of databases used in the development of non-testing and non-animal testing methods. Also the need for repetition of studies and thus number of fish used for testing would be significantly reduced.

Additional information: Hrovat M, Segner H, Jeram S 2009. Variability of *in vivo* fish acute toxicity data. Regul. Toxicol. Pharmacol. 54 (3): 294–300

Mammalian Toxicity Database (Partner LJMU)

School of Pharmacy and Chemistry, Liverpool John Moores University, UK

An initial mammalian toxicity database has been developed. In order to provide maximum flexibility and accessibility for all OSIRIS partners, and easy harmonisation within the ITS framework, it was developed as an Excel spreadsheet. Thus it can also be used as platform for data input into the OSIRIS edition of the ChemProp software, enabling data-related structure handling and searching.

The initial database contains toxicity data covering a wide range of endpoints ranging from mutagenicity, carcinogenicity, and repeated dose toxicity to reproductive toxicity. In addition, data has also been entered via compound class (i.e. specific toxicities of pesticides and pharmaceuticals).

In order to exploit the full potential of the database, hyperlinks have been added, where possible, linking to the raw toxicity data or original publications.

Data is collated under seven headings:

- **Dataset:** name of the author, publication or database (with hyperlink, if applicable)
- **Assay/Species/Time:** details of the particular assay, species of animal used, timeframe
- **Chemicals (no. and type):** chemicals details, number and chemical/therapeutic class
- **Source:** reference/link to the literature source
- **Quality guide:** currently based upon the existing knowledge (high, medium, low, unknown)
- **Integration with EU and other projects:** indicating whether or not the data has been obtained from a past or present EU or other national project
- **Comments:** general comments on the endpoint, database contents, etc.

OSIRIS Results Highlights

Given the vast amount of data contained within the literature, data collection has concentrated upon the endpoints of greatest concern. The choice of endpoints was directed by the REACH requirements. High priority was given to areas with few available data for model development and for which there is a great need (i.e. high potential cost and animal usage, which should be reduced).

Particular emphasis was placed upon including publically available data. It was also a particular aim for this database to be supplemented with data collected within other European Union funded projects.

The development and population of the mammalian toxicity database is ongoing up to the end of the project. The database will be extended and refined, responding also to user feedback.

Since one important aspect concerning the use of literature data within an ITS framework is that of data quality, a next step will be to implement data quality criteria in order to assess the quality of each dataset.

Chemoassay to quantify electrophilic reactivity (Partner UFZ)

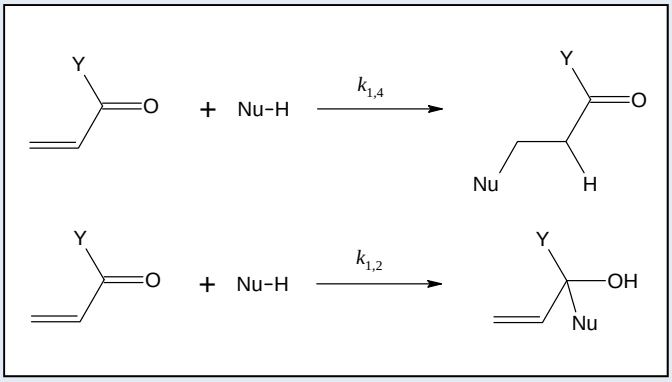
Helmholtz Centre for Environmental Research—UFZ, Dep. of Ecological Chemistry, Leipzig, Germany

A new approach was established to quantify the electrophilic reactivity of compounds as trigger of their reactive toxicity. To this end, a kinetic chemoassay employing glutathione (GSH) as soft model nucleophile was developed, and applied to 26 α,β-unsaturated carbonyl compounds. The goal was to introduce a reactivity parameter that can be used both for directly quantifying the reactive component of the toxicity of respective electrophiles, and for building a reactivity scale as basis for developing computational chemistry models of electrophilic reactivity.

As compared to a previously introduced static variant, the kinetic GSH assay is significantly more sensitive at both the low and high end of reactivity, and also better addresses confounding factors, e.g. GSH loss due to oxidation.

Moreover, the usefulness of the rate constants k_{GSH} as reactivity parameter in the context of electrophilic toxicity was tested by analysing their relationship with the toxicity of the compounds towards the ciliates *Tetrahymena pyriformis* in terms of 48-h log EC_{50} values (growth inhibition 50%). For a first test set of 15 α,β-unsaturated ketones and 11 α,β-unsaturated carboxylic acid esters (acrylates, methacrylates, crotonates, and propiolates), the 2nd-order rate constants for their reaction with GSH, k_{GSH}, yielded a good correlation with the toxicity towards *Tetrahymena pyriformis* ($r^2 = 0.91$).

Future work will extend this approach to different compound classes of electrophiles in order to generate respective reference parameters of electrophilic reactivity. These data will then form a basis for developing computational chemistry tools to predict local molecular electrophilicity from molecular structure.



1,4-Michael addition (top) and 1,2-addition (bottom) of a nucleophile (Nu-H) to an α,β-unsaturated carbonyl. The reaction with GSH is assumed to proceed predominantly via 1,4-Michael addition, thus setting $k_{GSH} \approx k_{1,4}$.

Additional information: Böhme A, Thaens D, Paschke A, Schüürmann G 2009. Kinetic glutathione chemoassay to quantify thiol reactivity of organic electrophiles – Application to α,β-unsaturated ketones, acrylates, and propiolates. Chem. Res. Toxicol. 22(4): 742-750

OSIRIS Results Highlights

Bioaccumulation model for polar and non-polar compounds (Partner SU)

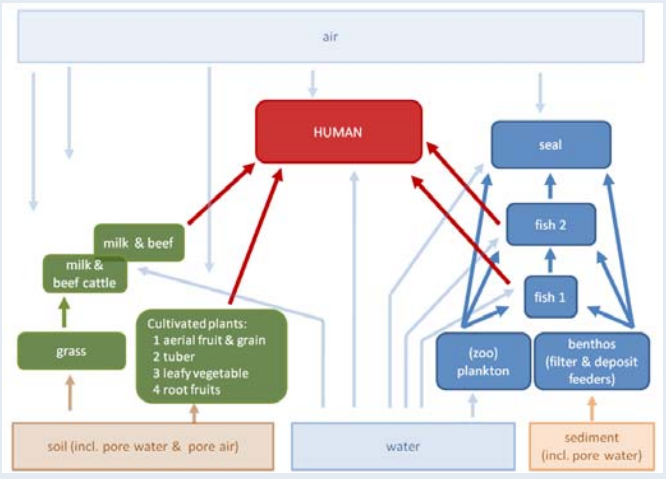
Stockholm University, Department of Applied Environmental Science (ITM), Stockholm, Sweden

A bioaccumulation model for polar and non-polar compounds was developed assembling state-of the art approaches in exposure modelling including mechanistic process descriptions and quantification of phase partitioning with polyparameter linear free energy relationships (pp-LFER). The latter enables an extension of the range of application of the model from neutral non-polar chemicals (the domain of existing bioaccumulation models) to neutral polar compounds. The model includes modules of uptake into plant developed by the OSIRIS partner DTU.

The model is designed as a hybrid of a steady state and a non-steady state model. It is subdivided into an aquatic food web, an agricultural food chain, four different types of crops/cultivated plants, and the human as the top consumer and model endpoint. Bioaccumulation in the long-living carnivorous top-predators seal and human is described with a non-steady state approach, whereas the lower trophic levels are assumed to be in a steady-state.

In addition to dietary uptake, the model considers direct exposure to contaminants present in the physical environment via respiration, drinking and ingestion of soil or sediment particles. Elimination pathways considered for each organism are excretion via feces, respiration, metabolism, growth, and for mammals additionally urination, percutaneous excretion, and in the case of females, loss via birth and lactation. For the vegetation, contaminant uptake from both soil and the atmosphere is considered, as well as contaminant loss due to biotransformation, due to growth, and loss to the atmosphere.

The model can be easily linked to multimedia fate and transport models, allowing a sophisticated estimation of the contaminants distribution in the environment and the exposure of wildlife and humans as the result of chemical emissions. Alternatively, the user can directly define environmental concentrations or fugacities which are used as input for the bioaccumulation model. For this purpose, a tool is provided to calculate environmental fugacities from given concentrations or, alternatively, from a level I unit world, consisting of an air compartment including aerosols, a water compartment including suspended matter, a sediment compartment, and a soil compartment. The default parameterisation is set in accordance with the regional default scenario of EUSES.



Overview scheme: Gerjo Czub

Local irritation in the mucous membrane of the upper respiratory tract (Partner NIOM)

Nofer Institute of Occupational Medicine, Department of Chemical Hazards, Lodz, Poland

One common biological effect of many chemicals used in the workplace is the sensory irritation. About 40% of the Threshold Limit Values (TLV) set by the American Conference of Governmental Industrial Hygienists (ACGIH) is based on this effect.

Occupational Exposure Limits (OELs) are based on information from industrial experience, human data and animal studies — when possible, on the combination of all of them. Taking into account the limited amount of human data and the aim to minimise animal testing there is an urgent need for an alternative method estimating sensory irritation.

OSIRIS Results Highlights

Nasal pungency involves the transfer of a compound from the air stream through a mucous layer into a receptor or receptor area. This environment is likely to be inhomogeneous, being partly a hydrophobic lipid-like area and partly a hydrophobic aqueous-like area. Abraham and co-workers have developed the relationships that seem satisfactory for the correlation and explanation of the transfer of volatile organic compounds (VOCs) from the gaseous phase to a large number of solvents or other condensed phases, including biophases, and make it possible to calculate nasal pungency thresholds (NPT).

The obtained relation between log 1/NPT and TLVs for 81 VOCs based exclusively on their irritative properties suggests that the relation between these values for compounds that can act through "physical" mechanisms (alcohols, ketones, esters, ethers, aromatic and aliphatic hydrocarbons, amides) differs from those obtained for compounds that act rather through "chemical" or "reactive" mechanisms (aldehydes, allyl compounds, aliphatic amines, benzyl halides, carboxylic acids, acrylates, mercaptanes).

Correlation for "nonreactive" VOCs has been very high ($r = 0.89$) and it seems that prediction of OELs for this group of compounds on the basis of a regression equation is possible. The correlation between the same parameters obtained in the case of "reactive" compounds was lower ($r = 0.38$).

The obtained regression equations were positively validated against selected case study chemicals.

New OSIRIS Publications

The publication list with **links to the articles** is also available at http://www.osiris-reach.eu

Publications in Peer Reviewed Scientific Journals

- Fu W, Franco A, Trapp S 2009. Methods for estimating the bioconcentration factor of ionizable organic chemicals. Environ. Toxicol. Chem. 28 (7): 1372–1379
- Enoch SJ, Cronin MTD, Madden JC, Hewitt M 2009. Formation of structural categories to allow for read-across for teratogenicity. QSAR Comb. Sci. 28 (6-7): 696-708
- Sihtmäe M, Dubourguier HC, Kahru A 2009. Toxicological information on chemicals published in the Russian language: contribution to REACH and 3Rs. Toxicology 262 (1): 27-37
- Hrovat M, Segner H, Jeram S 2009. Variability of *in vivo* fish acute toxicity data. Regul. Toxicol. Pharmacol. 54 (3): 294–300
- Fernández A, Rallo R, Giralt F 2009. Uncertainty reduction in environmental data with conflicting information. Environ. Sci. Technol. 43 (13): 5001-5006
- Jakubowski M, Czerczak S 2009. Calculating the retention of volatile organic compounds in the lung on the basis of their physicochemical properties. Environ. Toxicol. Pharmacol. 28(2): 311-315
- Schwöbel J, Ebert R-U, Kühne R, Schüürmann G 2009. Prediction of the intrinsic hydrogen bond acceptor strength of chemical substances from molecular structure. J. Phys. Chem. A., in press, available online
- Fjodorova N, Vračko M, Tušar M, Jezierska A, Novič M, Kühne R, Schüürmann G 2009. Quantitative and qualitative models for carcinogenicity prediction for non-congeneric chemicals using CP ANN method for regulatory uses. Mol. Divers., in press, available online

Conference Calendar: OSIRIS-related Events

CEST2009—11th International Conference on Environmental Science and Technology
3 – 5 September 2009, Chania, Crete, Greece
http://www.gnest.org/cest/default.htm

EUROTOX 2009 - 46th Congress of the European Societies of Toxicology
13 – 17 September 2009, Dresden, Germany
http://www.eurotox2009.org/home.asp

Society of Environmental Toxicology and Chemistry UK Branch Annual Meeting 2009
14 – 15 September 2009, London, UK
http://www.setac-uk.org.uk/setacEvents.html

1st Joint PSE-SETAC Conference on Ecotoxicology
Ecotoxicology in the real world
Polish Society of Ecotoxicology, Society of Environmental Toxicology and Chemistry - Central and Eastern Europe Branch
16 – 19 September 2009, Krakow, Poland
http://www.eko.uj.edu.pl/ecotox/2009

Environmental Health Risk 2009
Fifth International Conference on the Impact of Environmental Factors on Health
21 – 23 September 2009, New Forest, UK
http://www.wessex.ac.uk/09-conferences/environmental-health-risk-2009.html

Jahrestagung 2009 der GDCh-Fachgruppe Umweltchemie und Ökotoxikologie
German Chemical Society (GDCh)
23 – 25 September 2009, Trier, Germany
http://www.gdch.de/vas/tagungen/tg/5350.htm

SETAC GLB Annual Meeting 2009
German Language Branch of the Society of Environmental Toxicology and Chemistry
5–7 October 2009, Freising-Weihenstephan, Germany
http://www.setac-glb.org/

EPAA Annual Conference 2009
European Partnership for Alternative Approaches to Animal Testing (EPAA)
6 November 2009, Brussels, Belgium
http://ec.europa.eu/enterprise/epaa/4_events/ann_conf_2009/conf_2009_1_announcement.pdf

NORMAN WORKSHOP: Mixtures and metabolites of chemicals of emerging concern
18 – 19 Nov 2009, Amsterdam, The Netherlands
http://norman.ineris.fr/index_php.php?module=public/workshops/workshops2009_rivm&menu2=public/workshops/workshops&interface=1024&lang=en

SETAC North America 30th Annual Meeting
Society of Environmental Toxicology and Chemistry
19 – 23 November 2009, New Orleans, USA
http://www.setac.org/neworleans/

EMEC10 - 10th European Meeting on Environmental Chemistry
1 – 5 December 2009, Limoges, France
http://www.unilim.fr/emec10/

International Meeting on Health & Environment: Challenges for the Future
9 – 11 December 2009, Rome, Italy
http://www.iss.it/imhe-2009/

Preview of 2010 events : www.osiris-reach.eu > OSIRIS Events and Activities

Third OSIRIS Annual Meeting

Photo: Andrea Kisharz

The Third OSIRIS Annual Meeting will take place
on 9 – 11 March 2010
in Liverpool, UK,
hosted by the OSIRIS partner LJMU.
The meeting venue is the Holiday Inn Liverpool City Centre.

On the agenda:

- Results of the 3rd project year
- Planning for the next months
- Intra- and inter-Pillar/-Workpackage discussions

Second OSIRIS Training Course

The next OSIRIS Training Course will be held at the **Mario Negri Institute** in **Milan, Italy**, on **23 – 25 September 2009**.

The course will address **risk assessment under REACH legislation** with particular emphasis on **non-testing methods** and their use in a more global framework to set preferences in testing strategies and priorities.

The course is constituted by **two modules**: the first module is a **theoretical introduction to risk assessment** and will also provide the necessary background to the software and tools to be used for the second module, devoted to **practical case studies**.

Programme

Module 1: Conceptual Background

23 Sep, 14:00 - 17:50 , 24 Sep, 09:00 - 13:00

- Introduction to Risk Assessment
- REACH Procedures and the Chemical Safety Assessment
- Integrated Testing Strategies for REACH
- Introduction to Cost-effectiveness Analysis
- Endpoint-specific Background for Web Tool Demonstration on BCF
- Developing Strategies for *in vitro*, *in vivo* and *in silico* Information in Mutagenicity/Carcinogenicity

Photo: Andrea Richarz

- Mode-of-Action Framework for Toxicity Prediction: Concepts and Use of Information
- Reporting Formats for QSARs: QMRF, QPRF

Module 2: Demonstrations & Practical Case Studies

24 Sep, 14:30 - 18:00, 25 Sep, 09:00 - 12:30

- Case Studies using Software Tools for Profiling Chemicals and Generating Predictions of Toxicity
- A Collection of *in silico* Tools for Generating Non-testing Data for Chemical Hazard Assessment
- Roundtable Discussion: Adequacy of Non-Testing Information
- Demonstration of ChemProp - Chemical Properties Estimation Software System
- Demonstration of OSIRIS Web Tool

Abstracts of the presentations as well as details on the venue and registration can be found on the OSIRIS website **http://www.osiris-reach.eu** .

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