



## Theme 4 Information Systems and Databases

### Chairs:

Carol Howard (USA)

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## Session 4.1 3Rs databases and services – developments worldwide

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### Poster

## Animal Ethics Infolink – a web-based information resource

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Animal Ethics Infolink ([www.animaethics.org.au](http://www.animaethics.org.au)) was developed by the NSW Animal Research Review Panel to (1) facilitate communication with key stakeholders to raise awareness of and rapidly respond to emerging issues and (2) enable ready access to web-based publications and other on-line resources to the widest possible audience. The scope and detail of the information has been designed to meet both specific and general enquiries and covers a broad range of activities. Utilising the resources of the NSW Department of Primary Industries, the website provides researchers, animal house managers, technicians, institutional Animal Ethics Committees

(AECs), administrators, students and the public with information about legislation and codes of practice governing the use of animals in research and teaching, policies covering a range of subjects, such as, the operation of AECs and guidelines on topics such as housing and husbandry of particular species and specific research procedures. The website has extensive links to information on the 3Rs and to organisations and other useful websites. All listings are annotated to facilitate searching for specific topics. The website also includes a regularly updated newsletter.



## Lecture

# Database on animal experiments in Germany

*Corina Gericke*

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Animal experiments are widely funded by tax payers money, but still the broad public has got no access to information on what is really happening in animal research. By establishing an internet database we aim to reveal the conditions of animal experiments in German laboratories and to initiate a public discussion on this subject. In addition to this we offer solutions by providing information on a number of non-animal research methods.

Many animal experiments carried out at research institutes are published in English-speaking specialist journals. In general, these publications are not accessible or, due to technical jargon, not understandable to the layman. By summarising published papers on animal experiments and translating them into German we make these information accessible to the public.

The database currently provides descriptions of more than 3,000 experiments which have been conducted in Germany during the past 10 years. Users of the database can easily find out about experiments on certain animal species, in which cities they are carried out, which research area they belong to and which research institutes conducted them. The database on *in vitro* methods currently includes 90 methods.

Animal researchers often claim animal experiments are not harmful and antivivisectionists would exaggerate their extent. By providing access not to a secret world, but to a world which is hidden to the public, people can make up their own minds. The uncommented and plain descriptions of the database speak for themselves.

## Lecture

# AnimAlt-ZEBET – an internet database on alternatives to animal experiments

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Background: According to current legislation scientists have to explore the use of alternatives to animal experiments (cf. German Animal Protection Law and EU Directive). For this reason the German Centre for the Documentation and Validation of Alternative Methods (ZEBET) at the German Federal Institute for Risk Assessment (BfR) has made available its database on the internet. The main aim is to provide information on alternatives both to scientists and the representatives of regulatory authorities.

Basic concept: The ZEBET Database “AnimAlt-ZEBET” contains reports which have been evaluated by ZEBET’s scientific staff according to the concept of the 3Rs (refinement, reduction, replacement) established by Russel and Burch in 1959. AnimAlt-ZEBET also provides an assessment of the current stages of development, validation and acceptance of a method

for either scientific or regulatory purposes. AnimAlt-ZEBET is a full-text database in English. It covers alternative methods in many fields of the biomedical sciences and related disciplines. Each document consists of several data fields, e.g. title of method, keywords, evaluation according to the 3Rs principle, abstract and bibliographic references.

Access and AnimAlt-ZEBET usage: AnimAlt-ZEBET can be accessed free of charge on the Internet via the German Institute for Medical Documentation and Information (DIMDI), <http://www.dimdi.de>. Searches in AnimAlt-ZEBET may be combined with searches in well-established databases such as MEDLINE. As of April 2005, AnimAlt-ZEBET contained 117 documents. The database contents are updated on a regular basis and new reports are added. ZEBET’s Activity Report shows an average of about 23,000 visits *per annum*.



## Lecture

# Altweb, the alternatives to animal testing web site: A global clearinghouse of information about the Three Rs

*Carol Howard*

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In 1997, the Johns Hopkins Center for Alternatives to Animal Testing (CAAT) launched Altweb, the Alternatives to Animal Testing Web Site (<http://altweb.jhsph.edu>). Altweb was created to serve as a central reference point or gateway to alternatives information, resources, and news. It is international in scope and freely available to all users.

Altweb is intended to serve diverse audiences, including biomedical researchers, industry, regulatory agencies, the international alternatives community, animal care and use/animal ethics committees, the animal welfare community, veterinarians, lab technicians, educators, students, and the general public.

This session will present an overview of the resources available on Altweb, highlighting the latest developments. We have redesigned the site, with several goals in mind: To facilitate easier, faster, and more logical access to data; to make the site more

aesthetically appealing; to take advantage of new Web standards (XHTML, CSS); to and to be adhere as closely as possible to accessibility standards.

An important new addition to the site is a guide to searching for alternatives – a web-based resource aimed at assisting scientists with both compliance and relevancy. We also are adding a Spanish-language version of several general interest sections (FAQs, history of alternatives, and glossary). A new special section on refinement issues is in progress.

Other resources available on Altweb include: Specialised databases; abstracts from major alternatives journals; relevant books, reports, proceedings, articles and newsletters; news updates in the alternatives field; a meetings calendar; and a special section on monoclonal antibody production.

## Lecture

# Special resources supporting the 3Rs at the U.S. national library of medicine

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Resources at the U.S. National Library of Medicine (NLM) have greatly increased since 1992 when the Bibliography on Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing was first distributed to the scientists. With the advent of Internet technology, NLM has extended its services to the general public in providing health and toxicology information. This presentation will focus on features and NLM services which can assist and educate users looking for alternatives to animal experiments in PubMed, ALTBIB, TOXLINE, ChemIDplus, GenBank and PubChem. The National Center for Biotechnology Information (NCBI), an NLM component, main-

tains the GenBank of DNA sequences. It contains sequences from over 140,000 species in a centralised location which is integrated with information for all major research organisms. A new development under NCBI is the PubChem suite of databases. PubChem was developed as part of the NIH Small Molecule Repository which will eventually assist in the study of cell functions and metabolic pathways. This in turn will reduce animal experimentation.

The content of some of the specialised NLM and other NIH databases and linkages between them will be presented.



## Lecture

# ECVAMs database service-online

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ECVAM's database service was established to achieve a principal objective of ECVAM as required by the European Commission and Parliament, namely, "to establish, maintain and manage a database on alternative procedures".

The year 2005 will see the public access to the entirely revised Internet version of ECVAM's DataBase service on Alternative Methods (DB-ALM), formerly known as "SIS". In addition to the already available INVITTOX protocol collection, method-summary descriptions will be included, as well as details on formal validation studies and test results. A new sector on (Q)SARs

is under development. DB-ALM provides its information as evaluated data sheets and is based on extensive literature reviews including ECVAM in-house information. So far, information is available for 21 topics mainly in the area of toxicity testing of chemicals. The current online version of SIS can refer to 3,000 registered users from 65 countries being the USA (22%), UK (15%) and India (13%) the major costumers followed by Germany and Italy (7% each) and by France and Spain (6% each) in addition to others.

## Poster

# ASPCA Animal Poison Control Center (APCC) clinical data can support 3R initiatives

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The ASPCA Animal Poison Control Center (APCC) provides 24-hour consulting services to animal owners, practicing veterinarians, and pharmaceutical and chemical industry personnel. APCC staff obtains an extensive history, offers diagnostic recommendations, directs sample submission and offers detailed therapeutic recommendations for each case. In 2004, the APCC managed more than 95,000 cases, involving over 100,000 animals.

In 2001, the APCC developed a sophisticated veterinary database, AnTox™, to support management of animal poisoning cases and to collect detailed incident data. AnTox™ data have helped characterise sensitivities and syndromes and identified minimum toxic and lethal doses for several pharmaceutical and chemical agents. AnTox™ data analyses led to identification of clinical problems involving substances previously considered safe. For example, data retrieved from AnTox™ showed that

ingestion of calcipotriene, a vitamin D3 analogue, causes hypercalcemia, renal failure, and death in dogs. Similarly, AnTox™ data indicated that cats are extremely sensitive to concentrated permethrin-containing flea and tick products. Data relating to permethrin exposure were used to suggest revisions to product labels. AnTox™ data summarising exposures to human non-steroidal anti-inflammatory drugs in animals were utilised by the FDA Center for Veterinary Medicine. AnTox™ data have also been used to verify consumer product safety in animals when products have been rumored to be unsafe. AnTox™ data can be valuable to regulatory agencies and product manufacturers when a product's safety is in question or when new formulations are under consideration. The data can help pharmaceutical and chemical companies reduce, refine and replace animal studies when investigating product safety.



## Poster

# A database system for managing experimental data generated by parallel *in vitro/in vivo* renal carcinogenesis studies aimed at animal experiment replacement

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The quantity and diversity of xenobiotics creates a high demand for reliable and efficient predictive test systems to evaluate possible health risks. Although the incidence of renal tumours is on the rise in Western countries, no suitable test systems exist for the prediction of the carcinogenic potential in the human kidney so far – except for costly and protracted animal studies. The aim of our project is to establish an *in vitro* test system by identifying marker genes characteristic for responses to carcinogenic substances.

This study conducted by three research groups in different locations will generate large amounts of heterogenous data in the course of several years. Thus, a centralised and secure, easily accessible database solution is required.

With the system presented, data integrity is enforced, records of all experimental details are kept and thus documented in a

standardised way (in compliance with OECD's GLP Guidelines). In spite of internal complexity, data is displayed via web-interface in a user-friendly fashion. Data can easily be added and changed with dynamically generated forms and viewed using specialised datasheets. Handling of complex data is eased by sophisticated search options and contextual filtering techniques.

The server application built gives secure access to the experimental and result data, thus helping all co-operation partners to keep the big picture in focus. For each result, all relevant events in the course of the experiment can be displayed. *In vitro* and *in vivo* results are structured in a way which allows for direct comparison.

## Lecture

# Acubase – database and online service of *in vitro* tests and methods for predicting human acute toxicity

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Acubase is a part of A-Cute-Tox – FP6 EU Research Project for Alternative Testing. Large European integrated projects, involving many partners require an effective and user friendly systems for data acquisition, management and analysis. Data generated in participating laboratories have to be integrated into one manageable database which enables to use raw data for statistical evaluation and construction/evaluation of prediction models. It also facilitates GLP compliance of conducted research which is now a prerequisite for successful validation and implementation of new toxicological methods. Due to a large number of participating centres, diversity of experimental design and type of generated data, creation of such an integrated data management environment is a very demanding task. Acubase is written as a multi-layered and multi-module web-

hosted application that facilitates data transfer and analysis of *in vivo* and *in vitro* toxicology tests. The Acubase works on client-server architecture and any modern web browser on client-side is needed to get access. The database is already available on Internet <https://acubase.amwaw.edu.pl> and contains 16 selected chemicals which will be tested first. In the next stage protocols will be put into the database to standardise and optimise experiments. In summary, Acubase will serve as a central element of the project with regard to reporting, management and analysis of data in order to improve predictions of human acute toxicity and substantially reduce animal experiments. In future it can be modified and used for the data management of other similar multicentre projects.