News

EU: DB-ALM update launched

The EURL ECVAM's DataBase service on ALternative Methods, DB-ALM, provides comprehensive and evaluated descriptions of alternative methods in use for regulatory or research purposes in biomedical sciences. Information at various levels of detail is provided, such as summary descriptions and/or more detailed information to allow the transfer and use of a method in a laboratory. Current focus is given to toxicological evaluations of chemicals.

DB-ALM 2014 is now available online, based on an entirely redesigned data retrieval approach offering more flexibility and support. This version was presented during the 9th World Congress on Alternatives and Animal Use in the Life Sciences in Prague this August, where first positive feedback was collected.

Together with the revised DB-ALM 2014, the following method descriptions have been published for *in vitro* methods compliant with regulatory requirements and/or undergoing validation by the EURL ECVAM in the areas of carcinogenicity, eye irritation and skin sensitization:

- Bhas 42 cell transformation assay in 6- and 96-well plates (Method Summary and Protocol No. 156)
- In vitro BALB/c 3T3 Cell Transformation Assay (BALB/c 3T3 CTA) (Method Summary and Protocol No. 137)
- Ocular Irritection® Assay System (Protocol No. 157)
- Human Cell Line Activation Test (h-CLAT) (Protocol No. 158)

DB-ALM is available at: http://ecvam-dbalm.jrc.ec.europa.eu/beta/

Adapted from http://ihcp.jrc.ec.europa.eu/whats-new
September 30, 2014

EU: EC consults the public on criteria to identify endocrine disruptors

The European Commission has launched an on-line consultation to help define criteria for endocrine disruptors as required by the regulations on biocidal and plant protection products. Endocrine disruptors are chemicals that interfere with hormone systems, which may lead to harmful effects on health and the environment. Input is sought from stakeholders and the public on various options for the criteria and for their implementation.

Chemicals with endocrine disrupting properties are used in various industrial and service sectors, and may be found in the environment after their use. Current legislation for biocidal products and plant protection products requires the Commission to specify scientific criteria for the determination of endocrine-disrupting properties of chemical substances. Because of the potential socio-economic impacts linked to how the criteria will be defined and the complexity of the issue, the Commission needs to carry out an impact assessment, and to consult the public. The scope of the impact assessment is set out in a roadmap that can be accessed at http://bit.ly/1lZMJn9. Until the new criteria are set, protective interim criteria are in place.

All citizens and organizations are invited to contribute to the consultation which will be open until January 16, 2015. Replies to the public consultation will, subject to confidentiality rules, be published following the closure of the consultation.

More information:
Public consultation: http://ec.europa.eu/yourvoice/
Background information: http://ec.europa.eu/environment/chemicals/endocrine/index_en.htm
Report of the Endocrine Disrupters Expert Advisory Group: http://ihcp.jrc.ec.europa.eu/our_activities/food-cons-prod/endocrine_disrupters/jrc-report-scientific-issues-identification-endocrine-disrupting-substances
European Food Safety Authority Scientific Opinion on endocrine disruptors: http://www.efsa.europa.eu/en/press/news/130320.htm

Adapted from European Commission – IP/14/1057
September 29, 2014

EU: EC takes the Netherlands to court over failure to protect animals used for scientific purposes

The European Commission is referring the Netherlands to the European Court of Justice over its failure to enact EU legislation on the protection of animals used for scientific purposes (2010/63/EU). The EU rules, which should have been enacted into national law by November 2012, aim to minimize the number of animals used in experiments, and require alternatives to be used where possible. The legislation also lays down minimum standards for housing and care of animals, and regulates their use, taking into consideration criteria such as pain, suffering, distress and lasting harm caused to the animals. The European Commission is asking the Court to impose penalty payments of EUR 51 156 per day until the law is enacted.

Although Dutch legislation already provides some protection for animals used in laboratories, gaps remain and almost

two years after the deadline given to Member States to enact Directive 2010/63/EU, full compliance with EU standards has still not been achieved. Some of the shortcomings concern the purpose of testing procedures, the use of endangered species, classification of severity of procedures, establishment of an animal-welfare body, as well as prior authorisation for animal testing projects.

The Commission first raised its concerns in a letter of formal notice to the Dutch government in January 2013, and repeated them in a reasoned opinion five months later. The Netherlands replied that the deficiencies in transposition would be addressed in a new Act planned for adoption on 1 January 2014 or soon after. However, despite the progress of the legislative procedure in the Dutch Chamber of Deputies, the draft Act is still awaiting discussion in the Senate. As no new date for final adoption, publication and entry into force of the Act has been announced, it has been decided to call the Netherlands before the EU Court of Justice.

European Commission – IP/14/1141
October 16, 2014

EU: ECHA introduces new compliance check strategy

To maximize the impact on the safe use of chemicals, ECHA is changing how it checks the compliance of registration dossiers. The aim is to identify substances of concern and coordinate different REACH and CLP measures to address these concerns effectively. ECHA's Management Board endorsed the new strategy in September and it will be implemented from 2015 onwards.

In compliance checks in the future, the main focus will be to check information on those substances that matter most for the protection of people and the environment. This means high-tonnage registrations with data gaps in human health or environment endpoints and with high potential for exposure; and substances or mixtures that are widely used by workers or the general public. Most dossiers will be chosen because of these concerns but some dossiers will still be picked up randomly so that no registrant can be certain that their dossier will not be selected.

Using a common screening technique, ECHA and the national authorities will select priority substances for compliance checks, substance evaluation and risk management measures.

Adapted from ECHA Newsletter
October 2014

EU: EURL-ECVAM review of available methods for assessing chemical safety

In support of EU legislation on safety of chemicals, the JRC has published a state-of-the art review of test methods and non-testing (computational) approaches that help promote the replacement, reduction, and refinement of animal experiments – known as the 3Rs – in the safety assessment of chemicals.

The report, which may be accessed at http://bit.ly/1wbgDsZ, focuses on "non-standard" methods that are not included in current regulatory guidelines. It provides a valuable resource for companies that produce or market chemicals and consumer products as well as for regulatory bodies and non-governmental organizations interested in the use of non-standard methods for enhanced safety testing.

The report reviews the current scientific status of alternatives to animal experiments, such as *in vitro* test methods and computational models, for a range of human health and ecotoxicological endpoints. It describes their availability and applicability based on knowledge of the underlying mechanisms of toxicological actions. The endpoints covered for the assessment of potential human health effects range from skin and eye irritation to mutagenicity and carcinogenicity. In relation to ecotoxicology, the report centers on methods for acute and chronic fish toxicity.

While specific reference is made to the information needs of the European chemicals legislation REACH, the Biocidal Products Regulation and the Classification, Labelling and Packaging Regulation, this report also informs about the possible use of alternative and non-standard methods in other sectors, such as cosmetics and plant protection products.

The review was completed by JRC's European Union Reference Laboratory for Alternatives to Animal Testing (EURL ECVAM) within a collaboration agreement with the European Chemicals Agency (ECHA). It complements a recent JRC report (http://bit.ly/1xUSgPA) that describes the state of play on the development, validation and regulatory acceptance of alternative methods/approaches.

Adapted from http://ihcp.jrc.ec.europa.eu/whats-new
September 25, 2014

EU: JRC hepatotoxicity datasets available within ToxBank Data Warehouse

The ToxBank project, aimed at supporting the data management and analysis activities carried out across the Alternative Testing Strategies SEURAT-1 program, has launched a centralized compilation of data for systemic toxicity – the ToxBank Data Warehouse – for which public access is now available upon request.

Data generated under the SEURAT-1 research program and additional public data are being uploaded and integrated whenever possible into computerized models capable of predicting repeated-dose toxicity. The ToxBank Data Warehouse will use the ISA-TAB file format for interchange, storage and query of any investigation data, including dose-response and omics results.

In August, the European Commission Joint Research Centre made available via the ToxBank Data Warehouse the complete data sets derived from a JRC study on hepatotoxicity screening, in which a mode-of-action targeted analysis of the literature was used to identify toxicity pathways and the key biological events associated with them.

A detailed demonstration of the ToxBank Data Warehouse is available on-line at: http://www.toxbank.net/video/toxbank-demo-wc9

Users may access protocols or data that have been made available within the ToxBank Data Warehouse. The managers of the application also provide a request option to support the incorporation of relevant data generated outside of SEURAT-1 activities.

Public access may be requested at: http://www.toxbank.net/enquiries/request-data-warehouse-access

Tutorials on the use of the ToxBank resources are made available at: http://www.toxbank.net/library

Adapted from http://ihcp.jrc.ec.europa.eu/whats-new
August 30, 2014

INDIA: Dissection of animals in zoology and life science university courses banned

The University Grants Commission (UGC), which sets the standards for university education in India, in August banned the dissection of animals for academic purposes at the undergraduate and post-graduate university levels in zoology and life science courses. The UGC issued a notification stating, "*No animal from any species shall be dissected, either by teachers or students for any purpose*."

This notification follows a guideline issued by the UGC on the phasing out of dissections issued in 2011 and the decision of the State Board of Andhra Pradesh to discontinue dissections in 2013 (see ALTEX 4/13). In March, the Medical Council of India imposed a ban on animal dissection in undergraduate medical courses as well. People for Animals (PfA) and People for the Ethical Treatment of Animals (PETA), with participation of the Mahatma Gandhi-Doerenkamp Center for alternatives in the life sciences (MGDC) have strongly advocated the ban of animal dissections in life science and medical education for many years.

Several frog species have become endangered in the past 40 years because they have been collected in large numbers for dissection classes. Instead, students will now be required to draw organ systems that are displayed or projected and learn from models or charts as well as computer-simulated dissections where these are available.

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INT: OECD launches knowledge base on adverse outcome pathways

The OECD endeavors to make better use of increased knowledge of how chemicals induce adverse effects in humans and wildlife, through the so-called adverse outcome pathways (AOPs). It is based on such knowledge that effective tools can be built to identify chemicals that need to be regulated. AOPs provide a means of understanding how chemicals induce adverse effects through their toxicity pathways and modes of action. Since 2012, the AOP Development Programme at the OECD has been pioneering the establishment of a comprehensive AOP framework that can enable the more effective use of mechanistic information in regulatory decision-making.

As a major step forward towards this goal, a joint collaboration between the OECD, the U.S Environmental Protection Agency and the European Commission Joint Research Centre has launched the Adverse Outcome Pathway Knowledge Base (AOP KB) at https://aopkb.org/. This is a web-based platform which aims to bring together all knowledge on how chemicals can induce adverse effects, therefore providing a focal point for AOP development and dissemination. The first AOP KB module is the AOP Wiki: an interactive and virtual encyclopedia for AOP development, structured in accordance with the original OECD "Guidance document and a template for developing and assessing adverse outcome pathways" (Series No. 184, Series on Testing and Assessment) and the more recent Handbook for AOP developers. The Wiki is an innovative knowledge-sharing tool and can be accessed at https://aopkb.org/aopwiki/.

All stakeholders from academia, governmental agencies and the chemical industry are invited to use the Wiki either as a source of information, or as active contributors posting comments and content. This expert contribution from third-parties is strongly encouraged since it is through such "crowdsourcing" that the AOP KB will ultimately evolve.

A typical AOP within the Wiki consists of a series of interlinked articles and tables that describe its Molecular Initiating Event (MIE), Adverse Outcome (AO), and the associated series of intermediate Key Events (KE). The causal associations tying the MIE, KEs and AOs together are captured in the Key Event Relationships (KER) pages, together with the supporting evidence. An important feature of the Wiki is the ease with which developers can re-use MIE/KE/AO/KER articles created by others, modifying or adding to them if required.

The AOP Wiki is open to the public for (anonymous) read-access by default. Users can also register and therefore benefit from the discussion pages where they can post remarks on AOPs

that have been opened for commenting. While freely accessible, anyone interested in gaining special access to insert their own AOP should first make a project proposal to the AOP Development Programme.

The AOP KB has been only recently made available to AOP developers. Thus the content of the Wiki is somewhat limited for the moment, with many AOPs in a state of construction and only a small number open for commenting. By opting for this early public release, the OECD aims to familiarize interested parties with AOP concepts and terminology through interaction with the AOP Wiki, with the hope of engaging as many potential AOP developers and contributors as possible.

The OECD is currently elaborating its process for the formal evaluation of AOPs by its various expert groups and decision-making bodies. Ultimately it is expected that adopted AOPs will inform the OECD Test Guidelines Programme regarding new *in vitro* test methods that could become OECD Test Guidelines, the OECD QSAR Project for the development of new methods/profilers for grouping chemicals, and the OECD Hazard Assessment activities for the design of Integrated Approaches to Testing and Assessment (IATA) of chemicals.

Questions can be addressed to Anne Gourmelon and Joop de Knecht at anne.gourmelon@oecd.org or joop.deknecht@oecd.org in OECD's Environment directorate.

Adapted from OECD/Chemical Safety/
What's New
September 25, 2014

INT: PETA and Chemical Watch present REACH webinars

The PETA International Science Consortium, Ltd., and Chemical Watch are presenting a webinar series focused on alternative methods and testing strategies that can be used to meet REACH requirements. Topics for the webinars include *in silico* tools, skin and eye irritation and corrosion, skin sensitization and acute toxicity. Information about the webinar series is available at: http://www.piscltd.org.uk/reaching-alternatives-animal-testing/

The first webinar on October 22 discussed the OECD QSAR toolbox and read-across and was presented by Drs Grace Patlewicz (DuPont) and Mark Cronin (Liverpool John Moores University). The second webinar on skin irritation and corrosion will take place on November 11 and will be presented by Drs Gertrude-Emilia Costin (Institute for In Vitro Sciences) and Costanza Rovida (REACH Mastery). Register for the November 11 webinar at: https://www2.gotomeeting.com/register/978779354

The four remaining webinars (registrations open soon) include:

– Webinar 3: Eye irritation and corrosion (December 2014) with Drs Kimberly Norman (Institute for In Vitro Sciences) and Joao Barroso (EURL ECVAM)
– Webinar 4: Skin sensitization (January 2015) with Drs Susanne Kolle (BASF) and Silvia Casati (EURL ECVAM)
– Webinar 5: 3T3 neutral red uptake assay (February 2015) with Dr Pilar Prieto (EURL ECVAM)
– Webinar 6: Fish Embryo Test (March 2015) with Dr Marlies Halder (EURL ECVAM)

Adapted from Chemical Watch
Global Risk and Regulation News
October 7, 2014

JPN: Call for Mandom International Research Grants open

The Japanese Society for Alternatives to Animal Experiments (JSAAE) is accepting proposals for the 8th Mandom International Research Grants on Alternatives to Animal Experiments. Researchers around the world, mainly focusing on Asia, who are members of the JSAAE and engaged in research in the respective area in public or private universities or research organizations of national or non profit-making bodies are eligible. Research relating to alternatives to animal experiments may be funded with 500,000 to 2,000,000 Japanese Yen (JPY) per project; total funding available is 2,500,000 JPY for the grant period of April 1, 2015 to March 31, 2016.

Application deadline:
January 31, 2015.
More information:
http://www.asas.or.jp/jsaae/eng/info/8thMandom.html

NL/GER: InnoSysTox call for tender open

InnoSysTox is a joint call by ZonMw and the German Federal Ministry of Education and Research (BMBF). Within ZonMw this joint call is part of the More Knowledge with Fewer Animals programme.

The aim of the joint call is to develop innovative systems-biology-based 3R methods in toxicology and/or to apply new and existing systems-biology-based 3R methods in toxicology. The call for public-private research projects is designed to bring about the development and application of 3R methods in systems toxicology. A public-private partnership may consist of a consortium of several public and private partners. A public partner will supply the project leader (also the main applicant), who will liaise with ZonMw or BMBF throughout the procedure. All the other partners (public and private) are co-applicants. The call is open to co-applicants from any international company.

A total budget of up to M€2.9 is available for the call. ZonMw will contribute up to M€1.4 of this sum and will allocate grants to the Dutch groups. BMBF will contribute up to M€1.5 and allocate grants to the German groups.

Each joint project consortium may apply for a maximum budget of k€750 and a joint project timescale of a maximum of three years.

Submission deadline: December 16, 2014
More information: http://bit.ly/1nZLxOv

UK: Applications invited for Chair in Animal Replacement Science

As part of a pioneering strategic collaboration between the Blizard Institute and the Dr Hadwen Trust (DHT), applications are invited for the post of Chair in Animal Replacement Science. The post will be the world's first Chair dedicated to replacement science and recognizes that the Blizard Institute has been a pioneer in the development of *in vitro* models using human cells and tissue and in particular the development of three-dimensional models in the fields of cutaneous biology and gastroenterology.

The Chair will be located within one of the centers that constitute the Blizard Institute, which is based within an award-winning building on the Whitechapel campus. This exciting environment contains world-class facilities for biomedical research based on an innovative open plan design and includes core facilities for imaging, flow cytometry and genomics. In the UK Research Assessment Exercise 2008, the Blizard Institute was joint first out of 28 medical school returns in hospital based clinical subjects with 80% of the faculty rated as world leading or internationally excellent. The medical school was ranked in the top 5 in the UK. The Chair in Animal Replacement Science will be funded through a legacy donation to the DHT, which was donated specifically to advance animal replacement approaches. The DHT is the UK's leading non-animal medical research charity that funds and promotes the development of techniques and procedures to replace the use of animals in biomedical research.

The Blizard Institute and the DHT aim to encourage and stimulate research of the highest quality. The appointment will represent a major stepping-stone towards the development of a global community for the progression of human-relevant methods and alternatives to animal use in research. In addition, it is also anticipated that educational programmes specific to Animal Replacement Science will be developed to raise awareness of, and inspire uptake of, replacement techniques and procedures. We are especially interested in hearing from candidates with a passion for Animal Replacement Science and expertise in one or more of the following key areas: 3D cell culture, 3D modelling and bioinformatics, and regenerative medicine.

Informal enquiries are encouraged and should be made by contacting Professor Mike Philpott at the Blizard Institute (m.p.philpott@qmul.ac.uk) and Dr Brett Cochrane at the DHT (b.cochrane@drhadwentrust.org).

For additional information, a comprehensive job description, application instructions and closing date please visit http://www.jobs.qmul.ac.uk/5063.

DHT Newsletter
August 27, 2014

UK: CRACK IT Challenge winners announced

The NC3Rs open innovation platform, CRACK IT, has awarded £4.9 million in its annual challenge-led competition, run in collaboration with the UK's innovation agency, Innovate UK, formerly known as the Technology Strategy Board.

CRACK IT Challenges is a two-phase competition that funds collaborations between industry, academics and SMEs to solve problems related to the 3Rs, leading to new products or improved business processes. Large pharmaceutical and chemical industries act as "Sponsors", defining relevant Challenges and providing in-kind contributions, such as access to data, compounds or equipment. In Phase 1 several teams are selected to carry out proof-of-concept studies for each Challenge, but only one team for each Challenge will receive the funding to deliver the full Challenge in Phase 2.

Recently, the Phase 1 CRACK IT Challenge teams from 2013 went head-to-head in "Dragons' Den-style" interviews. The winner of each Challenge was awarded up to a possible £1 million investment to complete Phase 2.

The five winning teams proceeding to Phase 2 are led by: Dr Selina Wray from UCL (University College London) for UnTangle; Professor Chris Denning from the University of Nottingham for InPulse; Dr Ben Forbes from King's College London for Inhalation Translation; Dr Martijn Wilmer from the Radboud University Medical Centre for NephroTube; and Professor Paul Kaye from the University of York for Virtual Infectious Disease Research.

The Challenges that the winning teams are tackling cover a wide range of scientific and business problems across different therapeutic areas, each with significant potential to replace, refine or reduce the use of animals in research.

The Virtual Infectious Disease Research Challenge is to develop a reliable computer-based model of the dynamics of infection and response within an individual host. The model is intended to help predict the efficacy of drugs, vaccines and other treatments. A typical rodent efficacy study for new antibiotics or vaccines involves approximately 100 animals per candidate drug. The use of *in silico* approaches to study disease biology and predict efficacy would reduce the number of animals used. The winning team is developing a computer model approach for studying leishmania infection

Sponsored by GlaxoSmithKline, Pfizer and Roche, the NephroTube Challenge will use novel microtitre plate microfluid-

ics developed by MIMETAS BV in The Netherlands, to build an *in vitro* assay that can accurately predict tubular toxic effects of drug candidates in the kidneys. The model focuses on replicating the cellular architecture of the kidney tubule, as this is a major site of potential drug-induced nephrotoxicity. Having established the potential utility in Phase I, with a limited subset of known nephrotoxicants, the team will expand upon this in Phase II by establishing a translational correlation between rodent and human based systems on a larger compound set. If toxic effects can be identified early in the drug development process, then animal testing can be avoided for drug candidates that would be destined to fail later in the development process owing to toxicity.

In partnership with Alzheimer's Research UK, Lilly and Janssen, the UnTangle Challenge competition winners will develop a human stem cell-derived neuronal assay to study the spread of the tau protein pathology in Alzheimer's disease, and also predict the efficacy and any unexpected side effects of new drugs targeting tau. The human tissue model will be more reflective of human disease than animal models, and will also have the potential to reduce the number of animals needed for research.

Adapted from NC3Rs Newsletter
September 2014

UK: GM and HM breeding account for more than half of animal use for scientific purposes

In 2013, 4.12 million scientific procedures were started in Great Britain, an increase of 0.3 per cent (+11,600 procedures) compared with 2012. Of these procedures, 2.02 million (49%) were performed for purposes other than to breed genetically modified (GM) animals and animals with a harmful genetic mutation (HM), a decrease of 5 per cent (-111,600 procedures) compared with 2012. The remaining 2.10 million procedures (51%) were undertaken to breed GM and HM animals, an increase of 6 per cent (+123,200 procedures).

Between 1995 and 2013, the number of procedures increased by 52 per cent (+1.41 million). Of these procedures, the number undertaken for purposes other than to breed GM and HM animals decreased by 16 per cent (-379,500 procedures). In contrast, breeding to produce GM and HM animals rose by 573 per cent (+1.79 million procedures). The proportion of procedures accounted for by GM and HM animal breeding rose from 12 per cent in 1995 to 51 per cent in 2013. Procedures involving dogs, non-human primates, cats and horses (i.e. specially protected species) decreased by 23 per cent (-5,000) over the same period to 16,800 and accounted for 0.4 per cent of all procedures in 2013.

Mice, fish and rats were the most commonly used species in 2013, with 3.08 million procedures (75%) undertaken on mice (+18,294 compared with the previous year), 507,373 (12%) on fish (+6,543) and 266,265 (6%) on rats (-12,121). For the remaining species, there were increases for guinea pigs (+13,602); sheep (+2,919); rabbits (+1,233); pigs (+350); gerbils (+279); non-human primates (+216) and reptiles (+183). There were falls for the following species: birds (-13,259); amphibians (-3,338); cattle (-1,167); goats (-969) and hamsters (-354).

The numbers of procedures for safety testing (toxicology) decreased by 0.5 per cent (-2,000) to 375,000. A similar proportion to 2012 were undertaken to meet at least one legislative/regulatory requirement (92% compared with 94%).

The number of non-toxicology procedures increased by 0.4 per cent (+13,600) to 3.75 million and included rises, largely driven by an increase in the breeding of GM/HM animals, for the following fields of research: genetics (+58,200); physiology (+41,300); pharmaceutical research and development (+35,900); psychology (+8,400); therapeutics (+6,400) and alcohol (+2,000). There were falls in the fields of nutrition (-76,700); parasitology (-16,200); biochemistry (-14,600); pharmacology (-12,200); ecology (-12,100) and animal science (-3,000).

Excerpt of the Animal Statistics of
Scientific Procedures on Living Animals
Great Britain
Home Office, July 10, 2014

UK: NC3Rs announces panel vacancies, project grants and 3Rs Prize

The NC3Rs are inviting applications from scientists with relevant experience and expertise to join the NC3Rs Grant Assessment Panel, PhD Studentship Assessment Panel and David Sainsbury Fellowship Assessment Panel from January 2015. Applications are sought from high caliber senior scientists, based in leading research organizations, including the pharmaceutical, biotechnology, chemical, agrochemical and industry sectors. Applications are also welcome from senior managers and veterinarians from laboratory animal facilities.

Panel members with expertise in the following areas are sought:
– Animal welfare science
– Cancer biology
– Immunology
– Molecular genetics
– Neuroscience
– Tissue engineering

Applications are particularly welcomed from individuals who also have:
– Industry experience
– Interdisciplinary expertise
– Industrial CASE Panel experience

Application deadline: November 26, 2014
More information: recruit@nc3rs.org.uk

The 2015 Project Grant scheme is open for applications. Project grants support the development of new 3Rs approaches and technologies. This year £1.8 million can be awarded. Awards are for up to 36 months with the amount requested dependent on the science. UK research establishments or UK-based researchers fulfilling the eligibility criteria may apply; overseas researchers cannot be principal applicants but can be included as collaborators.

Outline submission deadline: January 21, 2015
More information: http://www.nc3rs.org.uk/funding/project-grants

The international NC3Rs Prize is awarded to highlight an outstanding original contribution to scientific and technological advances in the 3Rs in medical, biological or veterinary sciences published within the last three years. The prize is part of the NC3Rs' commitment to recognize and reward high quality research which has an impact on the use of animals in the life sciences. The prize consists of a grant of £18k, plus a personal award of £2k. Highly-commended entries receive a £4k grant and £1k personal award.

The 3Rs Prize is for a piece of primary research published in a peer-reviewed journal in the last three years (September 2011 until September 2014) and is open to any researcher, in academia or industry. The prize is awarded to the principal investigator, research team leader, or other nominated author. The Prize is open to international groups. Applications are assessed by a dedicated Panel, which also selects the winner. Selection is based on the quality of the published research and its impact on the 3Rs.

Application deadline: December 5, 2014
More information: http://www.nc3rs.org.uk/3rsprize

Adapted from NC3Rs News
October 16, 2014

USA: Refinement and Environmental Enrichment grants offered

The Animal Welfare Institute (AWI) is offering grants of up to $7,500 to develop and test innovative methods of refinement and/or environmental enrichment to improve the lives of animals in research. To qualify for the award, applicants must be based in and the project must be conducted in the United States. Proposals may be part of other research projects, but should be broadly applicable and must be completed within one year (shorter durations are encouraged). Anticipated award notification date will be January 5, 2015, with awards starting about February 1, 2015.

Proposals which inflict avoidable stress or anticipate killing animals will not be funded.

Application deadline: December 1, 2014.
More information: http://awionline.org/eeaward

USA: Fellowship grant for alternatives to animal research in women's health and sex differences

The American Fund for Alternatives to Animal Research (AFAAR) and the New England Anti-Vivisection Society (NEAVS) offer a $40,000, one-year postdoctoral fellowship grant (with possible renewal) to a woman interested in developing, validating, or using alternatives to animal methods in the investigation of women's health or sex differences in Boston, USA. Applicants should send a cover letter explaining their interest in alternative research methods and their career goals, along with their CV, research proposal, and three letters of recommendation (including one from their mentor). Award notification will be sent on or before Jan. 15, 2015.

Application deadline: December 5, 2014
More information: http://alternativestoanimalresearch.org/afaar/programs
Enquiries: afaar@neavs.org

USA: The Wizard of 3Rs – Alan M. Goldberg's 75th birthday and retirement from CAAT

In November 2014 we celebrate the 75th birthday of Alan Goldberg, an iconic figure in the field of alternative methods. Coincidentally, one of the most beloved films of all time, The Wizard of Oz, shares this anniversary. Our story takes place in Maryland, not in Kansas, and it was not a storm that transported Alan into the alternative world but the Cosmetic Toiletries and Fragrance Association (CTFA), which in 1980 was looking for help to make a credible contribution to reduce animal use.

And thus began the journey to the Emerald City along the yellow brick road through a land where animals and humans spoke to and helped one another (well, except for the flying monkeys). While it's tempting to translate the companions found on the way – the Scarecrow, Tin Woodsman, and the Cowardly Lion – to some of the characters Alan teamed up with on his way, let's not overdo the analogy.

Anyway, Alan fits neither the role of Dorothy (who in the end is only a dreamer) nor the wizard (who is exposed as a fraud). Still, what seemed like a fairytale for many when he created CAAT in 1981 has become a reality in 2014: More research is done *in vitro* than *in vivo*. A PubMed query on publications in 2014 (January to September) with the term "animal" results in 70,000 papers vs. 190,000 with the term "cell." The use of animals in drug development continues to decline, as is most clearly evidenced by the 25% decline between 2005 and 2008 in Europe. Alternative approaches are now mainstream science – and Alan Goldberg was pivotal in making that happen.

He led CAAT, the premier 3Rs center in North America, for 27 years, created Altweb, the most prominent website in the field and began the series of international World Congresses on Alternatives. Now Alan is retiring from his role as Chairman of the CAAT boards in the US and Europe.

All great journeys have a beginning. Alan got his PhD in pharmacology from the University of Minnesota in 1966 with an interest in the cholinergic nervous system. At the time, the importance of acetylcholine (Ach) in the nervous system was first being understood but there were no chemical assays to measure it. He decided he wanted to develop an assay sensitive enough to measure ACh in a single spinal motor neuron in order to study neuromuscular physiology. He applied to the laboratory of Richard McCaman at Indiana University, a laboratory dedicated to microchemical techniques and the nervous system. He went to McCaman's laboratory at the Psychiatric Research Institute at Indiana University (Indianapolis) as a postdoctoral fellow for one-and-a-half years and then accepted an assistant professorship position in pharmacology at IU. Alan continued to work with McCaman and in 1973 published a paper describing a radioenzymatic assay for ACh. The sensitivity was so high that the test could measure the content of a single motor neuron, and the assay has been used for at least 35 years. Few assays have such longevity.

Alan was recruited by Hopkins in 1969 to the Department of Environmental Health Sciences, Division of Toxicology, to continue his studies on cholinergic-related systems and their relationship to pesticides and heavy metals. Most of the pesticide studies attempted to understand organophosphate delayed neurotoxicity and were the first use of tissue culture systems in mechanistic toxicology. Alan's work contributed to a better standardization of tissue culture systems.

Alan's heavy metal studies focused mainly on lead toxicity. At the time the grant was funded, a young environmental engineer, Ellen Silbergeld, became a postdoc in his laboratory. Their studies pioneered the understanding of early lead exposure hazards and lead's effect on the developing brain.

In 1980, The Cosmetic Toiletries and Fragrance Association (CTFA, now PCPC, the Personal Care Product Council), wanted to respond to consumer concerns about animal testing for cosmetics. They approached the Johns Hopkins School of Hygiene and Public Health (now the Bloomberg School of Public Health) for help. D. A. Henderson, the school's dean, knew of Alan's work using tissue culture and asked if he would be interested in organizing such a program.

Gareth Green (Chair of Environmental Health Sciences), D. A. and Alan met to discuss how to develop the proposal. Gareth (with Alan's participation) ran the EPA grants program. They knew that small grants ($20,000) could be spread over many laboratories at Hopkins and other institutions to develop a foundation for *in vitro* toxicology. "We would not be creating a giant laboratory at Hopkins," Alan recalls, "but could tap into the best scientists worldwide to develop the *in vitro* methodologies that could become the basis for test development. The vision became clear. CAAT would focus on developing *in vitro* cell-based assays to replace animal tests for regulatory purposes." Since then, CAAT has awarded more than 300 grants totaling over $6 million.

The CTFA grant that established CAAT was funded on September 21, 1981, with a press conference announcing the center and its anticipated programs. The press coverage was enormous and the center was off and running. "We had been advised to have security present because of the animal activist community," Alan recalls with a smile. (CAAT has worked closely with animal welfare organizations throughout its history.)

Two other Hopkins faculty members, Henry Wagner and Franklin (Frank) Loew, joined the team. Their first major activity was putting together an advisory board, organizing its first meeting and planning to solicit grants. Frank suggested approaching Andrew Rowan of the Humane Society of the US to be a member of the board so that the animal protection community would be represented. Andrew would also serve as Alan's mentor on animal protection issues. The team also realized they needed academics specializing in eye and skin physiology, representatives from government regulatory agencies (FDA, NIEHS, and EPA) and industry sponsors. D.A. and Gareth identified and recruited the government representatives. They approached the FDA commissioner, who appointed Gerald Guess to represent them, John (Jack) Moore (an Associate Director of the EPA) and Paul Kotin, the first Director of the NIEHS, were asked to participate. All three joined the board. The academics included Lowell Goldsmith, the chair of dermatology at Rochester, and James (Jim) McCulley, of Dallas South West Medical School. From industry they invited Norman Estrin, a representative of the CTFA, and Leon Golberg of the Chemical Institute of Toxicology (now known as The Hamner Institutes for Health Sciences).

The board sought to create a comprehensive and honest animal protection agenda. All of the board agreed that a fundamental component would have to be rigorous scientific research. Leon Golberg initiated one of the most important discussions. If CAAT were to actually replace animal testing with tissue culture methods, he pointed out, it would need to develop assays using human cells in culture. This understanding was prophetic and absolutely correct. Funding research to provide consistent human tissue culture models became a focus of the research program. Human cells in culture and 3D models are now commercially available, in part because of CAAT's vision.

Other CAAT programs included an *in vitro* laboratory, organized by John Frazier, a grants program, symposia, technical workshops, and an 11-volume book series. The communications program was then developed as it became apparent that the public was truly interested in alternatives. The symposia series developed into the World Congress on Alternatives and Animal Use in the Life Sciences. The first was held in 1993 in Baltimore and the ninth was held this year (2014) in Prague.

Alan Goldberg directed CAAT from its founding in 1981 to 2008. Upon my request he stayed with us as Chairman of the Board, and soon after Chairman of the European Board. Now, almost six years later, it is time to say farewell. "Every farewell combines loss and new freedom," the aphorist Mason Colley said. While we will dearly miss Alan's daily presence, we hope that while enjoying his new freedom he will remain available for occasional advice and assistance. We now identify him as Founding Director (Emeritus).

L. Frank Baum, in *The Wonderful Wizard of Oz*, wrote: "... And remember, my sentimental friend, that a heart is not judged by how much you love, but by how much you are loved by others." Alan, his great work, and his generous heart, are clearly loved by many. We wish him a wonderful journey ahead.

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