Danish 3R-Center

RRR

Replacement Reduction Refinement

WELCOME to more than 140 participants.
Please use the opportunity for networking. Presentations are covered and with abstracts and selected PDFs of presentations.

Annual meeting as a 2 day symposium –

This year with several European speakers

Program 10th + 11th November

News from 3R centres and activities (DK, NC3R, Århus, Novo Nordic)

Presentation of last years 3R projects supported by the centre

Teaching, perceptions and practices in Denmark

Networking

3Rs in Europe and new instruments (QSAR, Toxicogenomics, stem cells, human experijments)

Danish 3R award 2015

Past and future (History and human 3D –cultures)

Animal use for science in Europe. Daneshian M, Busquet F, Hartung T, Leist M. ALTEX. 2015;32(4):261-74.

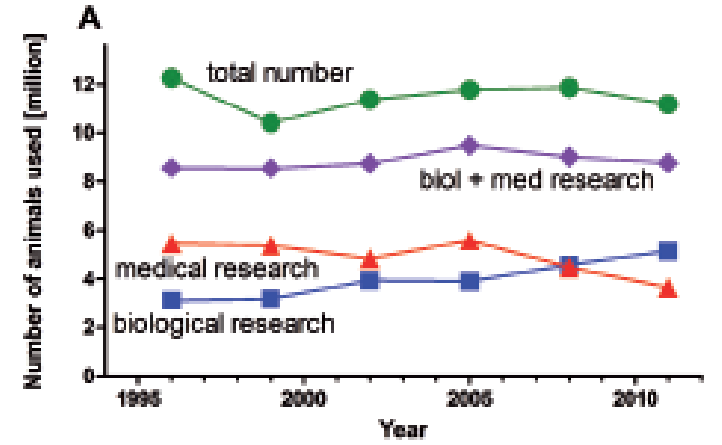

Fig. 1: Numbers of animals used for scientific purposes in 16 core European countries

Data obtained from European Commission reports on the statistics on the number of animals used for experimental and other scientific purposes in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Portugal, Spain, Sweden, Switzerland, The Netherlands and United Kingdom for the years 1996, 1999, 2002, 2005, 2008 and 2011; corresponding data from Switzerland were obtained from the Swiss federal food safety and veterinary office; (A) Total number of animals used (green circles), and detail numbers for research and development for medicine, veterinary and dentistry, summarized as medical research (red triangles), biological research, which refers to basic biological research (blue squares) and medical + biological research combined (purple diamonds). (B) The proportion of animals used for the purpose of safety assurance, i.e., toxicological testing (red triangles), for diagnostic (blue squares) and education purposes (green circles).

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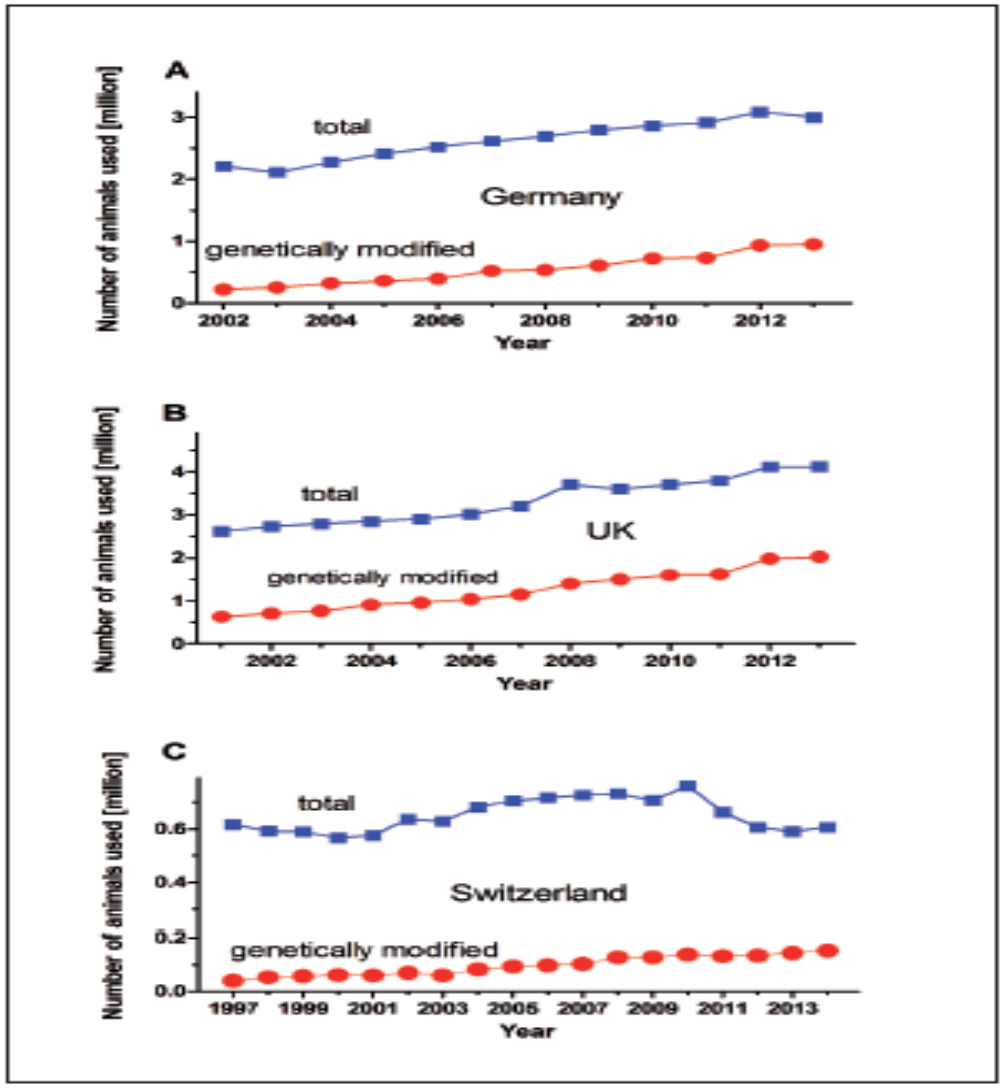

Fig. 2: National examples for the number of transgenic and non-transgenic animals used for scientific purposes

The total annual number of animals (blue squares) and genetically-modified animals (red circles) in (A) Germany, (B) UK and (C) Switzerland. Data are from annual publications on statistics on animals used for scientific purposes from the German Federal Ministry of Food and Agriculture (BMEL), the UK Home Office and the Swiss Federal Food Safety and Veterinary Office (BLV).

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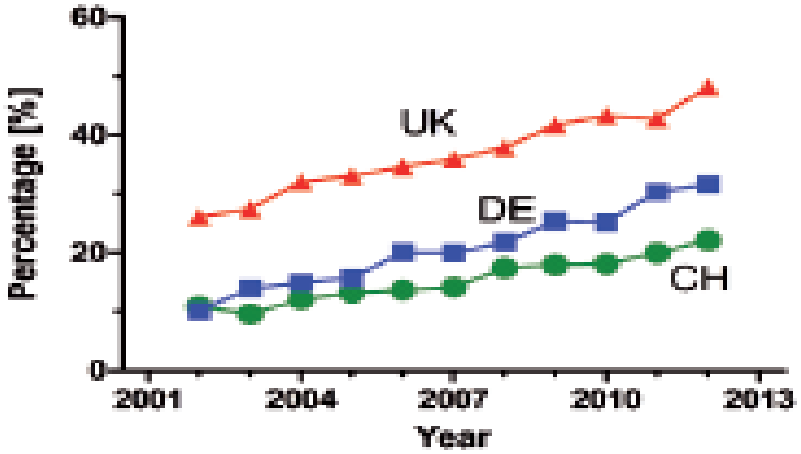

Fig. 3: Proportion of genetically modified animals of the total number of animals

The graph shows the annual percentage of transgenic animals of the total animals used for scientific purposes from 2002 to 2012 in the United Kingdom (UK, red triangles), Germany (DE, blue squares) and Switzerland (CH, green circles). Data are calculated from annual publications on statistics on animals used for scientific purposes from the German Federal Ministry of Food and Agriculture (BMEL), the UK Home Office and the Swiss Federal Food Safety and Veterinary Office (BLV).

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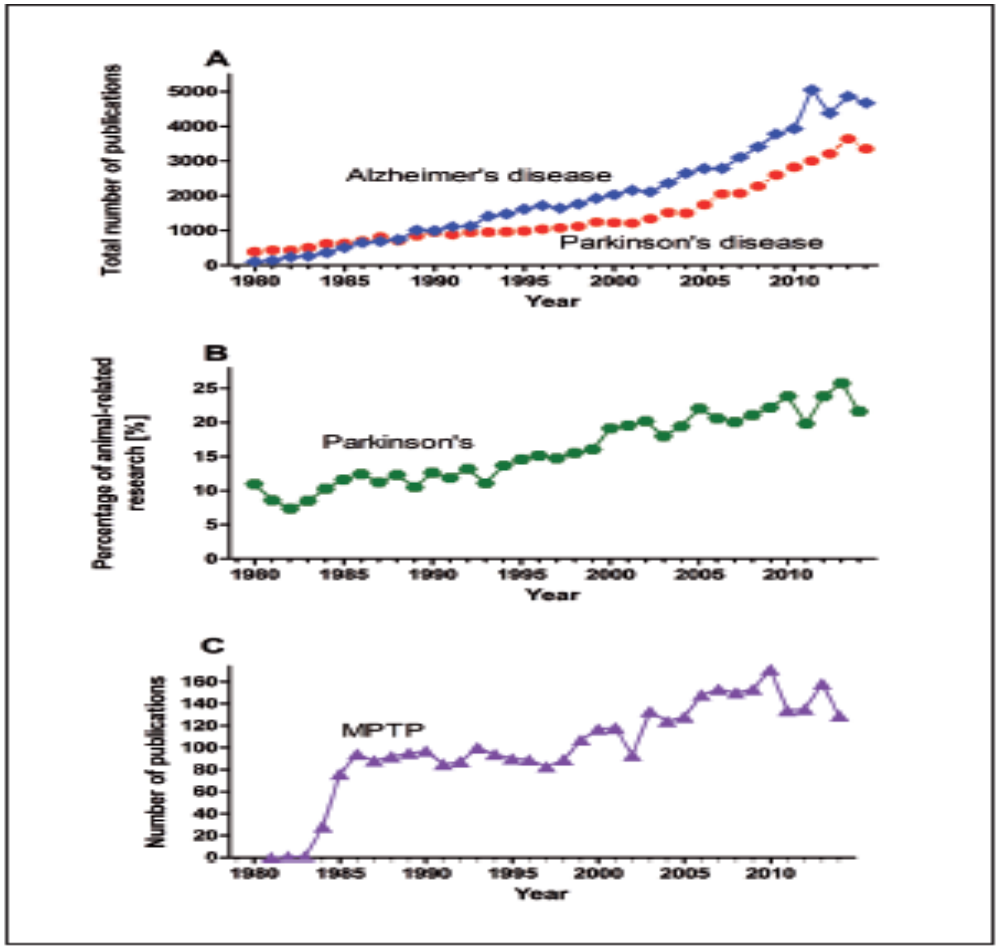

Fig. 4: Publication activity and animal consumption in exemplary areas of neurodegenerative research
(A) Total number of publications in the field of Alzheimer's disease and Parkinson's disease research (using the search terms "Alzheimer" or "Parkinson" and limiting publications to "Journal Article", "Other Animals", i.e., non-human animals and searching for every year individually using the "Publication dates" interface of PubMed). (B) Calculated percentage of publications in the field of Parkinson's disease involving animals (using the search terms "Parkinson" and limiting publications to "Journal Article", "Other Animals", i.e., non-human animals and searching f or every year individually using "Publication dates" interface of PubMed). (C) Total number of publications in one exemplary field of experimental Parkinson's disease research using the 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridin (MPTP) animal model.

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Box 1: Examples of European institutions and projects focusing on alternatives to animal experimentation

A-cute-Tox:
This FP6 project "An *In-Vitro* Test Strategy for Predicting Human Acute Toxicity" ran 2005 - 2010.

CAAT-Europe:
founded 2009 as a joint venture between the Bloomberg School of Public Health at the Johns Hopkins University, USA, and University of Konstanz, Germany, to form a transatlantic bridge for knowledge and information transfer on alternatives to animal experimentation; acts as an information hub and honest broker for further development, evaluation and optimization of alternative approaches to animal testing in toxicology and other biomedical fields.

ChemScreen:
this FP7 project stands for "Chemical substance *in vitro* / *in silico* screening system to predict human and ecotoxicological effects" ran 2010 to 2014.

ECEAE:
The European Coalition to End Animal Experiments was created in 1990 by national organizations to campaign to ban animal testing in the cosmetics sector.

ECHA:
European Chemicals Agency, regulatory agency of the European Union formed June 2007; ECHA manages REACH and the Biocides registration; Helsinki, Finland (http://echa.europa.eu).

ECOPA:
European Consensus Platform for Alternatives, founded in 1997, brings together all national consensus platforms on alternative methods; each platform represents animal welfare, industry, academia and governmental institutions.

EPAA:
European Partnership for Alternative Approaches to Animal Testing, created in 2005 to promote the application of 3Rs; the EPAA board, as a public-private partnership, represents 5 European Commission Directorate Generals, 7 industry sectors and 37 companies.

ESNATS:
the FP7 project "Embryonic Stem cell-based Novel Alternative Testing Strategies" aimed at developing a novel toxicity test platform based on embryonic stem cells, ran 2008 to 2013.

ESTIV:
European Society of Toxicology *In vitro* (ESTIV), founded in 1994, strengthens and promotes *in vitro* toxicology, both scientifically and educationally across Europe.

EURL ECVAM:
The European Centre for the Validation of Alternative Methods (ECVAM) was established in 1991 to actively support the development, validation and acceptance of 3Rs methods. The activities of ECVAM were taken on by the European Union Reference Laboratory on Alternatives to Animal Testing (EURL ECVAM), formally established in 2011; EURL ECVAM, located in Ispra, Italy, belongs to the Joint Research Centre (JRC) of the European Commission; **EU-NETVAL**, the European Union Network of Laboratories for the Validation of Alternative Methods, comprising for instance **ZEBET** (Center for evaluation of test methods at the German authority for risk assessment (BfR) in Berlin) in Germany, supports EURL ECVAM in validation studies for assessment of the reliability and relevance of alternative methods.

Eurogroup for Animals:
was established as a non-governmental organization in 1980 as the first coalition of European animal welfare groups. It is well recognized by the Europaean Parliament and Commission as the leading animal welfare organization at EU level and represents animal welfare interests on many EU advisory committees and consultation bodies. It also holds the secretariat of the European Parliament intergroup on the welfare and conservation of animals.

EUSAAT:
The European Society for Alternatives to Animal Testing was founded in 1994 (as MEGAT, the Middle European Society for Alternatives to Animal Experiments). It aims to disseminate information on alternatives to animal testing, and it is responsible for the annual organization of the European Congress on Alternatives to Animal Testing in Linz, Austria.

EU-ToxRisk:
a Horizon2020 project, endowed with EUR 30 million and starting in 2016; the project will focus on repeated dose systemic toxicity, with liver, kidney, lung and nervous system as well as developmental/ reproduction toxicity as targets. Both read-across and the AOP concept will be promoted.

INVITROM:
The International Society for *In vitro* Methods promotes the development, application and acceptance of *in vitro* models in biomedical research.

IVTIP:
The *In vitro* Testing Industrial Platform gathers companies (worldwide) in an informal platform founded in 1993. Currently it comprises 46 companies from different sectors (assay developers, technology providers, chemical, pharmaceutical and cosmetics companies) with significant *in vitro* testing activities.

LUSH:
Public limited company; since 2012 LUSH tenders a prize for animal-free methods research and policy support; with £250,000 it is by far the biggest award in the non-animal testing area.

MEP – 3Rs scientists pairing scheme:
This platform, created in 2015, brings together Members of the European Parliament (MEP) interested in alternative approaches to animal testing with relevant experts from corresponding member states. The first meeting was held in January 2015 in the facilities of the European Parliament in Brussels and involved MEPs and scientists from 17 European countries.

Predict-IV:
The FP7 project "Profiling the toxicity of new drugs: a non animal-based approach integrating toxicodynamics and biokinetics" ran from 2008 to 2013.

ReProTect:
This integrated FP6 project intended to develop a novel approach in hazard and risk assessment of reproductive toxicity; ran from 2004 to 2009.

Society ALTEX Edition:
publishes ALTEX – Alternatives to Animal Experimentation – the only open source journal entirely dedicated to 3Rs.

SEURAT-1:
This FP7 Research Initiative running 2011 - 2015 was funded with € 50 million by Cosmetics Europe and the European Commission. It intends to accelerate the development of the complex area of repeated dose toxicity.

Stop vivisection initiative:
An European Citizens' Initiative (ECI) asking the European Commission to "consider the solid scientific principles that invalidate the animal model" and thus to ban animal use in research and testing in the EU. This initiative, registered in June 2012 (ECI(2012)000007), had by November 2013 collected over 1.17 Million signatures across 26 of the EU's 28 member states. These were presented as a petition in March 2015 to the Commission. The European Commission rejected this petition on June 3rd 2015.

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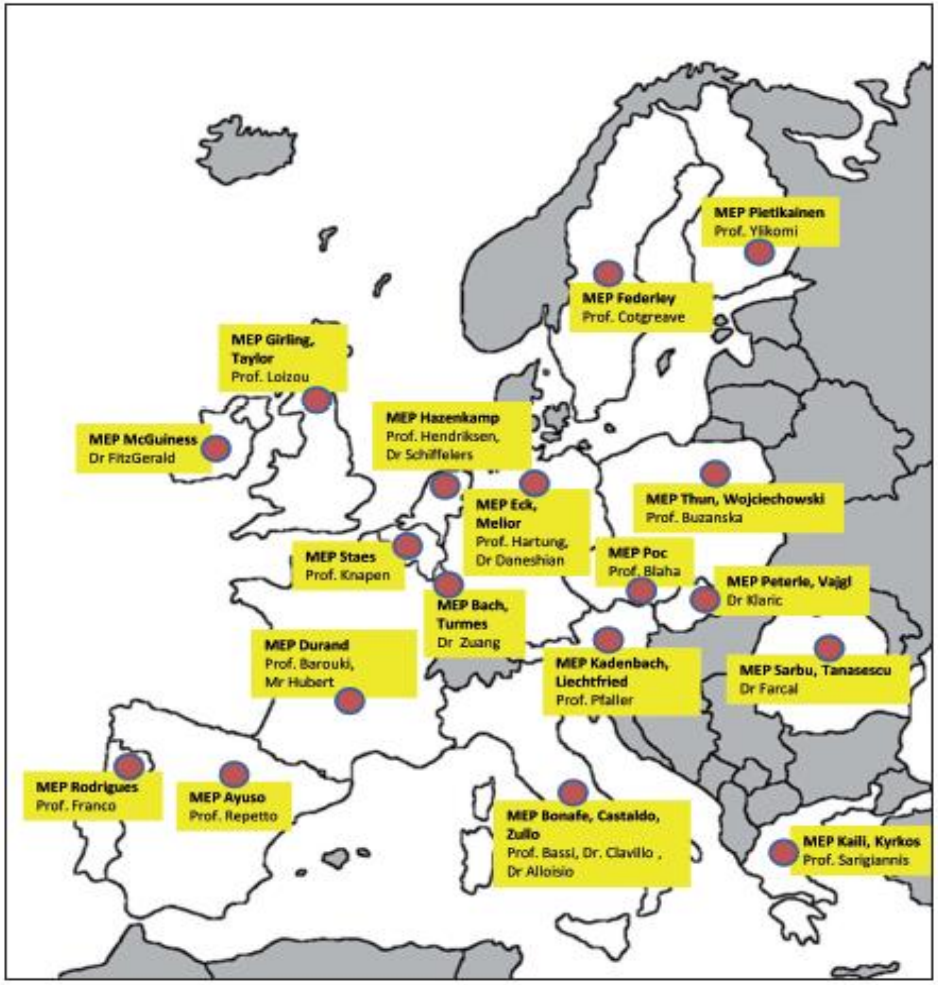

Fig. 5: Participants of the first meeting of the MEP- 3Rs scientist pairing scheme
Members of the European Parliament (MEP, bold) interested in alternatives to animal testing from 17 European member states (depicted white on the map) were paired with scientists from corresponding countries (in italics) involved in research in the field of alternatives to animal testing (yellow rectangles).

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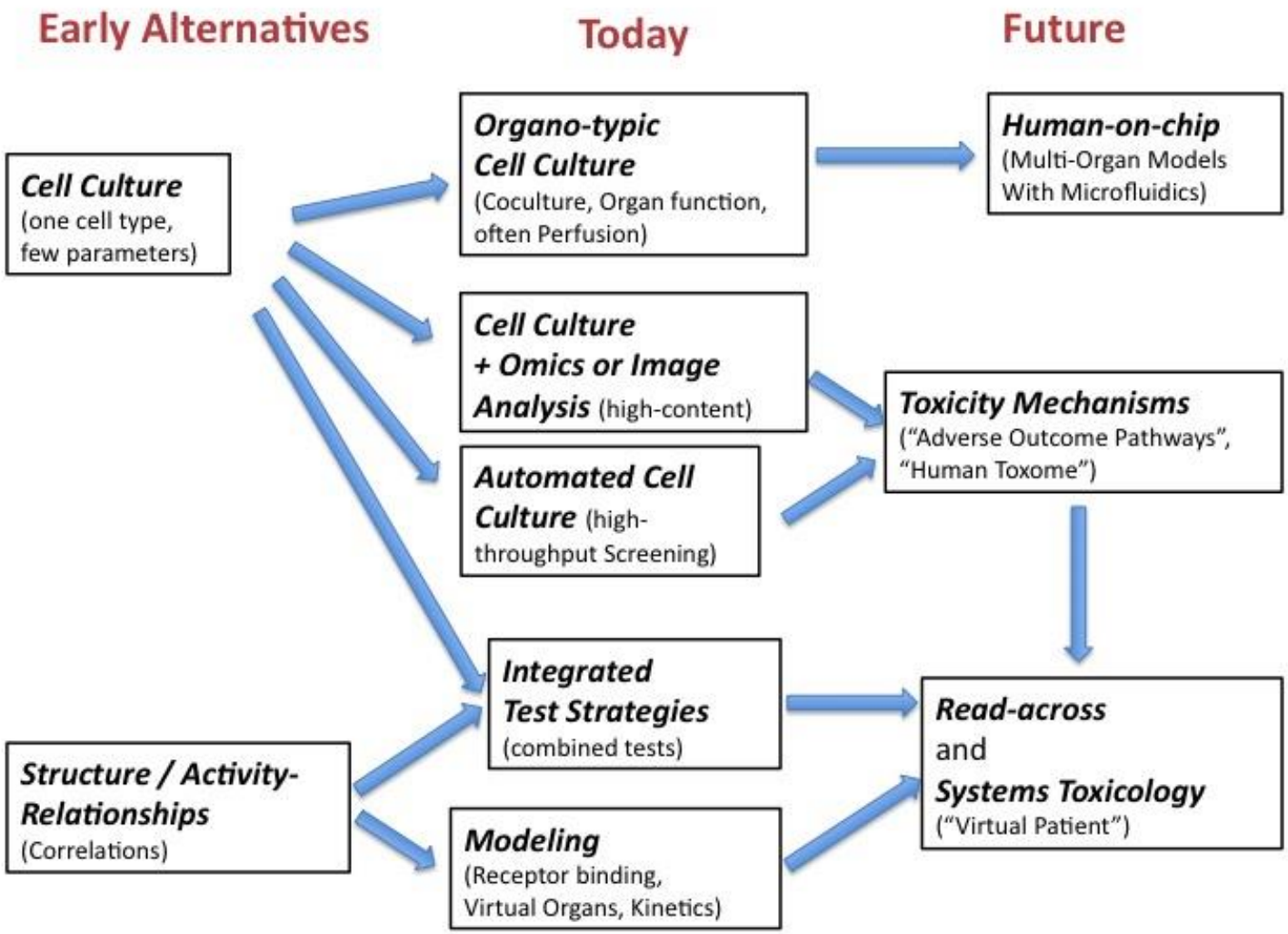
Tab. 1: Paired scientists and MEP from corresponding countries

Country*	MEPs	Scientists
Austria	Karin Kadenbach, Joerg Liechtfried	Prof. Walter Pfaller (Medical University Innsbruck)
Czech Republic	Pavel Poc	Prof. Ludek Blaha (Recetox, Masaryk University)
France	Pascal Durand	Mr Philippe Hubert (Director of Ineris), Prof. Robert Barouki (Universite Paris Descartes)
Finland	Sirpa Pietikainen	Prof. Timo Ylikomi (University of Tampere)
Germany	Susanne Melior, Stefan Eck	Prof. Thomas Hartung (University of Konstanz (CAAT)) Dr Mardas Daneshian (University of Konstanz (CAAT Europe))
Greece	Eva Kaili, Mitiliadis Kyrkos	Prof. Dimosthenis Sarigiannis (Aristotle University)
Ireland	Mairead McGuinness	Dr Rex FitzGerald (SCAHT)
Italy	Simona Bonafe's office, Fabio Castaldo's office, Marco Zullo	Prof. Anna Bassi (LARF, University of Genoa), Dr Laura Calvillo (Istituto Auxologico Italiano), Dr Susanna Alloisio (National Research Council, Genova)
Luxemburg	Georges Bach, Claude Turmes	Dr Valerie Zuang (European Commission)
Poland	Roza Thun's office, Janusz Wojciechowski's office	Prof. Leonora Buzanska (Polish Academy of Sciences)
Portugal	Liliana Rodrigues's office	Prof. Nuno Franco (Institute for Molecular and Cellular Biology)
Romania	Daciana Sarbu, Claudiu Tanasescu's office	Dr Lucian Farcal (Biotox SRL)
Slovenia	Alojz Peterle, Ivo Vajgl	Dr Martina Klaric (Cosmetics Europe)
Spain	Pilar Ayuso	Prof. Guillermo Repetto (University Pablo de Olavide)
Sweden	Fredrik Federley	Prof. Ian Cotgreave (Swetox)
The Netherlands	Anja Hazenkamp	Prof. Coenraad Hendriksen (Institute for Translational Vaccinology), Dr Marie-Jeanne Schiffelers (Utrecht University)
United Kingdom	Julie Girling, Keith Taylor	Prof. George Loizou (The Health and Safety Laboratory)

* MEPs from Belgium (Bart Staes) and Denmark (Jeppe Kofod) also showed interests to join but the corresponding scientists were not available at the time of the event.



CAAT 2.1 – a vision and a strategy
led by Thomas Hartung

Announcement of Workshops 14-18 August 2016 at Panum, University of Copenhagen with 3R

Bridging genomics, human environmental health risk assessment and the 3Rs in animal science

to be organized by the Nordic Environmental Mutagen Societies (NordEMS) and adhered to program of the European Environmental Mutagen Societies (EEMS), and European Concensus Platform of Alternatives (ECOPA) in August 2016 in Copenhagen.

Organising committee: Lisbeth E. Knudsen, University of Copenhagen, Denmark (chair)

Jørn A. Holme, Norwegian Institute of Public Health, Head of Norwegian Society of Pharmacology and Toxicology (NSFT)

Margareta Törnqvist, Stockholm University, Sweden

Tuula Heinonen, president of FICAM and SSCT, Finland

Kristín Ólafsdóttir, University of Iceland