

Editorial

Surprise, surprise! We now know the 3 projects selected under the first CONCERT call: 2 are from topic 2 (Radioecology and Emergency) and 1 is from topic 1 (Health) (8 proposals were submitted under topic 1, and 4 under topic 2). The financial distribution is even more unbalanced with 80% of the budget being allocated to topic 2 (very different from the budget split between topics applied by EURATOM in previous work programmes). Let's see if the 2nd call can rebalance this.

However scientific quality is THE priority and hopefully when the CONCERT grant contracts are signed, the issue of the 31% funding for the Third parties will not jeopardize the ranked list.

Only the acronyms and project titles were whispered to us, and not the infrastructures needed.

However, our editorial team is on the lookout for any new infrastructures that could be included in AIR² and AIR²D². **Dr Laure Sabatier, CEA**

The floor to...

EURAMED - European Alliance for Medical Radiation Protection Research - is a new vehicle for medical radiation protection research. The vision of this new platform, launched at the 2016 Radiation Protection Week in Oxford, is to "lead European research activities in medical radiation protection and to harmonise clinical practice to advance European radiation safety culture in medicine". EURAMED aims to initiate and facilitate research on medical radiation protection issues in Europe, to bring together researchers in the field, cooperate with stakeholders, facilitate research training, integrate into radiation protection communities in Europe, work on communication issues and regularly update the newly developed EURAMED Strategic Research Agenda (SRA). Being the youngest platform, we have much to learn and we appreciate the warm welcome and openness of the other platforms.

The first SRA, which EURAMED (represented by members of its founding organisations) has made publicly available, states that "extending the concept of biobanks to medical imaging ... is needed in order to collect radiation protection metrics and to allow for long-term follow-up for specific cohorts, which will be called a

comprehensive medical database or imaging biobanks." This is seen as important for dose collection and long-term follow-up of medical cohorts. The necessary research to set this up needs to include generally applicable measures and descriptors for exposure parameters, quality assurance and image quality descriptors. In addition there is a specific need to ensure data protection and privacy.

The SRA also highlights the need for a European coding system for medical applications, especially imaging, to achieve better harmonisation, as a key element of medical radiation protection throughout Europe.

For further information, please contact me or visit:

<http://www.eibir.org/scientific-activities/joint-initiatives/european-alliance-for-medical-radiation-protection-research-euramed/>

Pr Christoph Hoeschen
Magdeburg University and
Helmholtz Zentrum München
Chair of EURAMED,
joint initiative of EIBIR



Photo: Annette Hoeschen

Future events:

2nd Call

Jan 2017: Pre announcement

Feb 2017: Launch

April 2017: Deadline

WP 6 News:

AIR²D²:

- Please complete the online [form\(s\)](#) to register your infrastructure(s) in the database.

- A new option to feature your infrastructure is now available: [add document](#).

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February 2017

Exposure platforms

Nanoparticle Inhalation Facility

PHE Centre for Radiation, Chemical and Environmental Hazards

The Centre for Radiation, Chemical and Environmental Hazards (CRCE) has had an inhalation exposure facility for many decades. The facility was originally developed to undertake inhalation studies using aerosols of relevance to the nuclear industry. In 2008 the facility was extensively re-furbished to enable it to undertake studies to explore the toxicity of inhaled nanomaterials.

The facility is flexible and has a range of aerosol production, delivery and characterisation

filter based gravimetric methods and on-line using a Tapered Element Oscillating Microbalance (TEOM). Aerosol particles can also be sampled onto EM grids using a number of options including an electrostatic precipitator, for post-exposure analysis. The temperature, humidity and oxygen content of the aerosol delivered is also monitored continuously during exposures.

The facility currently focuses primarily on inhalation toxicity studies using non-radioactive nano-sized aerosols, however, it is possible to use radioactive aerosols in the facility. For example, a recent study to explore the deposition, clearance and translocation of nano-sized aerosol particles following inhalation was performed using nano-sized iridium-192 aerosol particles produced using an iridium-192

electrode in one of the aerosol spark generators. This study made use of radioactive counting and analysis equipment from the significant range available at CRCE.

CRCE is open for collaboration and welcomes suggestions for projects with partners.



Photo: PHE

Rachel Smith



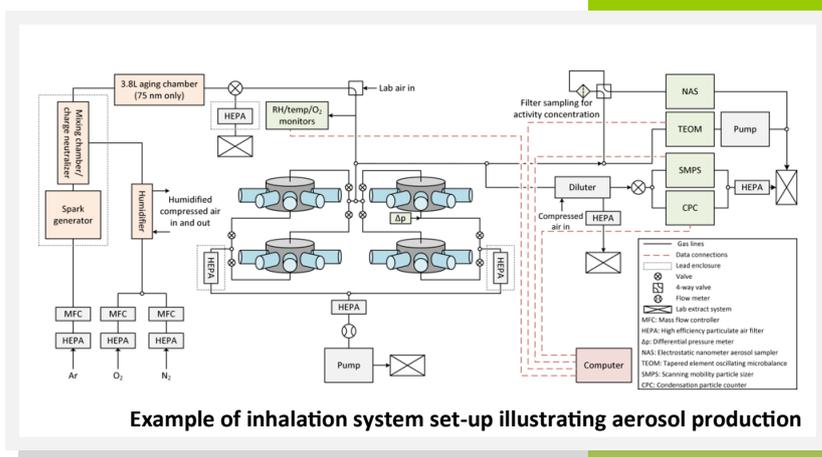
Photo: PHE

Nose-only aerosol delivery system

options. Aerosols can be generated from carbon or metallic electrodes using a spark generator, and carbon nanotube aerosols can be produced using a 'NIOSH style' acoustic aerosol generator. Aerosols can be generated from materials in dispersions using various atomisers and nebulisers. Aerosols can be delivered to a range of small rodents, both nose-only and whole-body, and to cell cultures using a CultexTM system. We have an extensive range of aerosol characterisation equipment to cover aerosols from nano to micron sized. On-line equipment to measure aerosol particle size distributions includes: TSI Aerodynamic Particle Sizer (APS), TSI Scanning Mobility Particle Sizer (SMPS) with standard and nano-DMA, and nano-MOUDI cascade impactor. Aerosol mass concentrations are measured using

electrode in one of the aerosol spark generators. This study made use of radioactive counting and analysis equipment from the significant range available at CRCE.

CRCE is open for collaboration and welcomes suggestions for projects with partners.



Example of inhalation system set-up illustrating aerosol production

Photo: PHE



Protecting and improving the nation's health

ID Card:

Exposure type:
Internal, Inhalation

Source:
Various options

Dose rate:
Variable

Irradiation type:
All

Irradiated organism type:
Cells, small rodents

Address:
Centre for Radiation, Chemical and Environmental Hazards
Harwell Science Campus,
Didcot,
Oxfordshire OX11 0RQ
UK

Access:
Joint research collaborations

Supporting lab:
Radioactive counting, radio-chemical analysis, cell culture, dissection

Internet link:
NA

Contact:
Rachel Smith,
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+44 (0)1235 825191

Related to:



BIOBANK OF EASTERN FINLAND

Potential for development of personalised medicine

The Biobank of Eastern Finland was established by the Hospital Districts of Eastern Finland and the University of Eastern Finland in 2015, in Kuopio. It is a hospital-integrated biobank with a catchment area population of over 800,000. The biobank aims at collecting samples from each new consenting patient entering a hospital in Eastern Finland (“Capture all newcomers” principle).

Existing pathology archives contain 250,000 samples from 100,000 persons. Population based diagnostic samples are connected with clinically relevant information from hospital records, including demographics, treatment,



Digital pathology service

Photo: Alias, Markus Aspergen

long-term follow-up and genomic data, if available. The advanced Finnish Biobank Act enables the donors to be re-contacted for collection of additional information. Digitalisation of FFPE-tumour material as well as tissue microarrays are ongoing. To ensure high quality samples and data, the Biobank of Eastern Finland implements the OECD Quality Guidelines.

The population in Eastern Finland is highly homogenous due to the founder effect, geographic and historical barriers and low migration. The combination of the biobank sample material and related genomic and clinical information creates a valuable framework for research towards innovations in personalised medicine.

The specific benefits for Finnish biobank research include the availability of individual social security numbers, old church records dating back to the 17th century used to track people, national health care registries and hospital electronic health records. The data is continually integrated to provide tools for clients with innovative research initiatives. Special emphasis is set on the acceptance and support of the public for the biobank’s goals and functions; the Finns, in



Sisko Salomaa



Arto Mannermaa

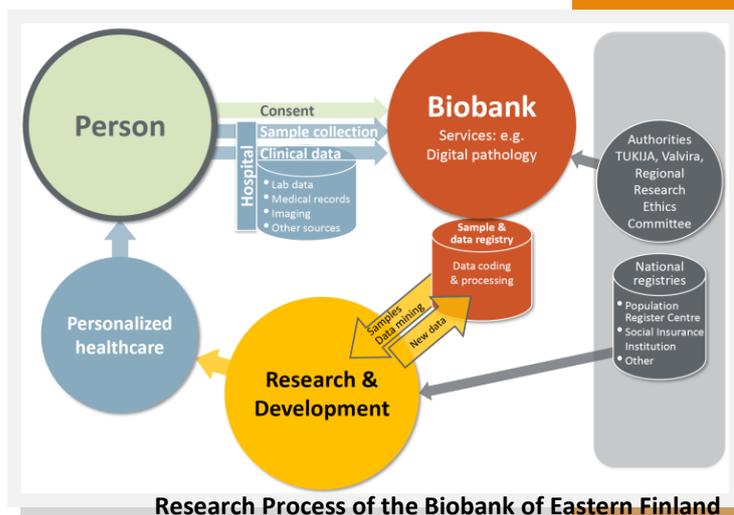
Photo: UEF

general, are willing to provide personal information for medical research, which ensures a representative sample of the population.

The Finnish Biobank Act came into force in September 2013. The purpose of this new act is to promote medical research and innovation and also to protect donor rights and privacy. The key aspects of the legislation are broad consent for upcoming research and the enabling of secondary use of stored samples and related data.

The biobank can assign samples and related data for the sole purpose of high-level health sciences research and product development. Scientists who are planning a research project and would like to use the biobank’s materials are invited to contact the biobank for further information for their research design.

The Biobank of Eastern Finland collaborates with the University of Eastern Finland (Department of Environmental and Biological Sciences) in the OPERRA project. The aim is to set up guidance and procedures for the biobanking of samples from patients exposed to medical radiation, and to provide high quality dosimetric information.



Research Process of the Biobank of Eastern Finland

Photo: UEF

ID Card:

Sample bank topic:

Clinical Biobank

Type of samples:

Human tissue samples and related clinical data from a population isolate in Eastern Finland

Sample type:

Blood, Serum, Plasma, Tissue (FFPE/frozen), DNA

Sample storage condition:

FFPE at room temperature; tissue samples, plasma and serum at liquid nitrogen vapor phase

Condition of use:

For medical research and R&D purposes

Access:

Researchers interested in the biobank material should contact biobank and send a proposal to biobank SAB

Internet link:

www.easternfinlandbiobank.fi

Contact:

Arto Mannermaa
Arto.mannermaa@uef.fi

Related to:

BBMRI, UEF, KUH

MELODI, EURADOS, EURAMED

The Analytical Platform of the PREPARE project Web based information exchange for emergency management

The European project PREPARE (Innovative integrated tools and platforms for radiological emergency preparedness and post-accident response in Europe) is aimed at closing gaps that have been identified in nuclear and radiological preparedness following the first evaluation of the Fukushima disaster. Among other measures, a so-called Analytical Platform (AP) has been developed to explore the scientific and operational means of

emergency. The knowledge database contains more than 100 scenarios and historical cases for early phase countermeasures, and several dozen for the late phase. These can be used as a starting point for the evaluation



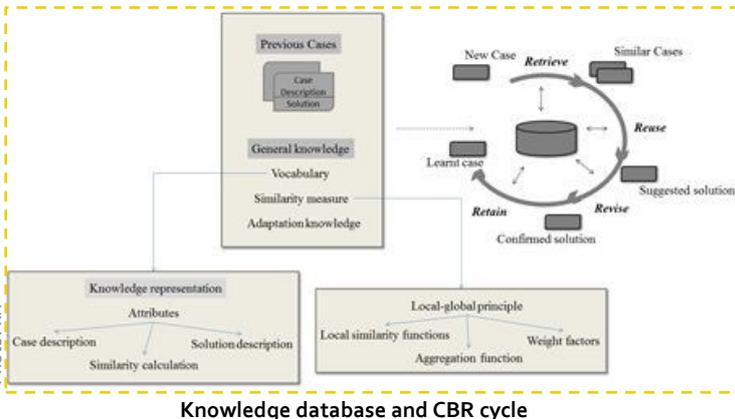
Photo: KIT

Wolfgang Raskob

of an on-going event. Internal communication is supported by the virtual meeting room that allows experts to communicate on particular topics. This communication is secure and only visible to those who have been assigned to this task. The forum and web-crawling facilities serve to support communications with the public.

Application areas of the AP include situations where information is sparse and uncertain, for example, if the accident has happened in a neighbouring country. Training of decision-makers and other experts is also a possible field of application, as the AP contains lots of information for many different scenarios and provides vast knowledge not only on historical consequences but also on particular events from the scenario database.

Now that the Analytical Platform has been developed, the next step is to explore its application and usability. To facilitate this, an "Information, participation and communication" working group has been established under NERIS (<http://www.eu-neris.net/>). Among other tasks, the group intends to establish adequate rules of conduct and the basis for maintenance of the platform.



Knowledge database and CBR cycle

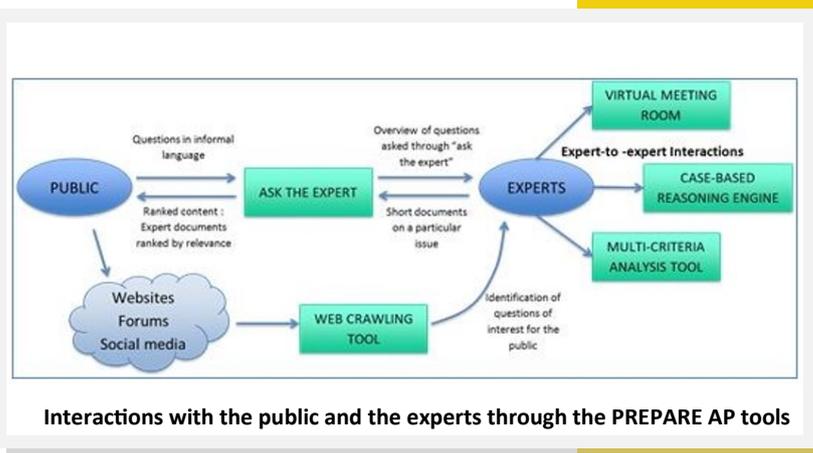
improving information collection, information exchange and the evaluation of such types of disasters.

The AP provides a framework to allow discussion between experts and to disseminate congruent information on the current situation to the public. The AP is composed of three types of tools. Module 1 supports the expert-to-expert interactions in analysing an ongoing incident. Components include:

- A knowledge database and case-based reasoning (CBR) functionalities with machine-learning algorithms to find solutions for events that are not part of the existing knowledge database.
- A multi-criteria analysis tool for evaluating the effects of potential sets of measures to be taken.
- A means of communication to allow experts to analyse an on-going event (virtual meeting room).

The toolbox is completed by a web-crawling facility, which allows the collection and processing of information from all possible sources, and an "Ask the expert" tool to communicate information to the public about assessments.

The AP is designed to be installed centrally and access is provided via a web browser from any mobile or stationary computer. The AP was designed to be applicable in all phases of an



Interactions with the public and the experts through the PREPARE AP tools

Photo: KIT

ID Card:

Purpose:

Information collection and exchange to analyse an ongoing nuclear emergency

Capacity:

No limitation

Use:

Installed centrally and accessed via web browser. Possible to install it locally for training

Housed at:

Virtual installation (Virtual Box)

Address:

If applicable

Access:

Installed centrally at KIT, user can request access. Access is free

Internet link:

Will be provided after registration

Contact:

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Related to:

NERIS



Future events:

5-7 December 2016:

[8th EAN_{NORM}](#), Stockholm, Sweden

27 Feb-2 March 2017:

[Eurados Annual Meeting](#)
KIT, Karlsruhe, Germany

March 7-9, 2017:

[Radiation effects on the immune system: an updated state of the art and future research needs](#), Budapest, Hungary

25-27 April 2017:

[COMET final event](#), Bruges, Belgium

8-11 May 2017:

[ConRad 2017](#), Bundeswehr Institute of Radiobiology, München, Germany

14-19 May 2017:

Neutron and Ion Dosimetry Symposium, [NEUDOS13](#), Krakow, Poland

23-26 May 2017:

[Operra final event](#), Budapest, Hungary

10-12 October 2017:

[Joint ICRP-RPW 2017](#), Paris, France

Issue

Exposure platforms

Databases, Sample banks, Cohorts

Analytical platforms, Models & Tools

Published to date:

Oct 2015, #1

[FIGARO](#)

[FREDERICA](#)

[RENEB](#)

Nov 2015, #2

[B3, Animal Contamination Facility](#)

[The Wismut Cohort and Biobank](#)

[The Hungarian Genomics Research Network](#)

Dec 2015, #3

[Cosmic Silence](#)

[STORE](#)

[Metabohub](#)

Feb 2016, #4

[SNAKE](#)

[French Haemangioma Cohort and Biobank](#)

[Dose Estimate, CABAS, NETA](#)

Mar 2016, #5

[Radon exposure chamber](#)

[3-Generations exposure study](#)

[ProFI](#)

Apr 2016, #6

[Biological Irradiation Facility](#)

[Wildlife Transfer Database](#)

[Radiobiology and immunology platform \(CTU-FBME\)](#)

May 2016, #7

[CIRIL](#)

[Portuguese Tinea Capitis Cohort](#)

[LDRadStatsNet](#)

Jun 2016, #8

[Mixed alpha and X-ray exposure facility](#)

[Elfe Cohort](#)

[ERICA Tool](#)

Jul 2016, #9

[SCRS-GIG](#)

[RES3T](#)

[CROM-8](#)

Sept 2016, #10

[Facility radionuclides availability, transfer and migration](#)

[INWORKS cohort](#)

[France Génomique](#)

Oct 2016 #11

[LIBIS gamma low dose rate facility ISS](#)

[JANUS](#)

[Transcriptomics platform SCK CEN](#)

Nov 2016, #12

[Microtron laboratory](#)

[EPI-CT Scan cohort](#)

[CATI](#)

Dec 2016, #13

[Nanoparticle Inhalation Facility](#)

[UEF Biobanking](#)

[The Analytical Platform of the PREPARE project](#)

Coming soon:

Feb 2017, #14

[Infrastructure for retrospective radon & thoron dosimetry](#)

[UkrAm screened cohort](#)

[HZDR – Radioanalytical Laboratories](#)