EARL at a glance – the EANM initiative for Multicentre Nuclear Medicine & Research

http://earl.eanm.org
 EARL at a glance

The European Association of Nuclear Medicine (EANM), with its central role in the scientific community and its professional setup, today constitutes the umbrella organisation for nuclear medicine in Europe. In 2006, the leadership of the EANM launched EANM Research Ltd (EARL) as an initiative to promote multicentre nuclear medicine and research.

EARL was created to unleash the power of molecular imaging and further:

- To improve nuclear medicine and its practice within the European Union
- To provide a basis for discussion and the exchange of cutting edge ideas
- To act as a contact point for researchers as well as for clinicians and business leaders
- To provide a platform for the efficient pursuit of scientific initiatives
- To facilitate multicentre research projects
- To enhance the comparability of data acquired by molecular imaging
- To boost molecular imaging so that it becomes a standard diagnostic modality in future clinical medicine and research
- To position nuclear medicine within the EU research agenda

The EANM Executive Committee is aware of the power of nuclear medicine and created EARL to fulfil unmet needs of performing research in this field.
Organisational structure

EARL has two CEOs, Andrea Bauer, Executive Director of the EANM, and Prof. Klaus Tatsch, who currently acts as senior advisor to the EANM Neuroimaging Committee. Both operate according to the “four-eye principle” and report to the EANM Executive Committee. Physicists, physicians and scientists from leading European institutions, together with EANM support, ensure the expertise and authority of EARL.

EARL provides scientific support through the Scientific Advisory Board, where high-ranking experts in nuclear medicine provide leadership on scientific questions. Experts from different countries have been selected to act within the six main projects (status as of September 2011).

EARL operates technical committees for the sub-specialties of nuclear medicine (NoEs, Networks of Excellence), which are composed of member institutions internationally acknowledged to have the highest imaging standards. The Neuroimaging NoE has been created as the first technical committee of EARL.
What can EARL do for you?

1. EARL can provide an extensive network of excellent professionals in the field of nuclear medicine.
2. EARL can facilitate your clinical (multi-centre) study. EARL works closely together with the principal investigator (PI) as well as the contract research organisation (CRO).
3. EARL can provide a platform for scientific initiatives.
4. EARL can calibrate your gamma camera according to the ENC-DAT study.
5. EARL can accredit your PET/CT centre in Europe.

EARL is always open to cutting edge ideas – requests for academic and commercial research projects can be directed to EARL. Furthermore, EARL is ready to accept project proposals from nuclear medicine stakeholders, preferentially in the following priority fields:

- Cardiology
- Drug and Radiopharmaceutical Development
- Neurology/Psychiatry
- Oncology
- Paediatrics
- Radionuclide Therapy.

„EARL uses its high potential to promote and perform research in nuclear medicine in order to improve patient care.”

Andrea Bauer, M.A.,
CEO of EARL, EARL HQ Vienna, Austria
Our projects

EARL is running pan-European projects which are coordinated by the EARL HQ, Vienna, Austria. The centres participating in EARL projects are located across Europe and are characterised by a high level of scientific expertise in nuclear medicine and molecular imaging. Their outstanding experience in research can be successfully applied to the EARL projects.

Centres in all European countries are encouraged to join EARL initiatives and projects.

Status as of September 2011
EARL’s pilot project, the ENC-DAT study, which aimed to establish a reference database for DaTSCAN SPECT scans of healthy controls, was carried out by 13 centres in ten European countries. This cross-border collaboration was successfully conducted from 2007 to 2010.

The EARL FDG-PET/CT accreditation was implemented in 2010 to safeguard a minimum standard of PET/CT scanner performance throughout Europe, which is essential in a multicentre setting. The number of sites seeking accreditation for their nuclear medicine or molecular imaging department is continuously rising.

ENC-DAT:
- Amsterdam (NL)
- Ankara (TR)
- Copenhagen (DK)
- Genova (IT)
- Leipzig (DE)
- Leuven (BE)
- London (UK)
- Munich (DE)
- Nice (FR)
- Southampton (UK)
- Stockholm (SE)
- Vienna (AT)
- Yvoir (BE)

EARL FDG-PET/CT Accreditation:
- Amsterdam (NL)
- Annecy (FR)
- Avignon (FR)
- Bad Berka (DE)
- Besançon (FR)
- Bordeaux (FR)
- Brussels (BE)
- Dijon (FR)
- Edegem (BE)
- Geneva (CH)
- Groningen (NL)
- Leipzig (DE)
- Leuven (BE)
- Limburg (NL)
- Linz (AT)
- London (UK)
- Manchester (UK)
- Munich (DE)
- Nantes (FR)
- Nieuwegein (NL)
- Nijmegen (NL)
- Rennes (FR)
- Rome (IT)
- Rostock (DE)
- Rozzano, MI (IT)
- Toulouse (FR)
- Vandoeuvre-lès-Nancy (FR)
- Yvoir (BE)
ENC-DAT

In 2007 EARL started its pilot project, “European Database of [123I]FP-CIT (DaTSCAN) SPECT scans of healthy controls (ENC-DAT),” which was successfully completed in 2010. The reference database acquired in this project represents a milestone in research into and diagnosis of Parkinson’s disease and dementia.

The ENC-DAT database is the world’s largest normal database of FP-CIT scans:

- Collaborative effort by 13 European institutions in ten European countries
- Extensive age- and sex-corrected reference database of 152 healthy controls
- Equipment-independent quantitative reference values
- Enabling between-centre comparisons of DaTSCAN findings
- Enabling data pooling for clinical and scientific (academic or industry-sponsored) studies
- Quantum leap with respect to standardisation and quality improvement of DaTSCAN SPECT investigations in Europe

In this project EARL proved its dedication to standardisation by applying centre cross-calibration procedures using one travelling phantom and a single network physicist to minimise inter-operator variability.

ABX-CRO, a contract research organisation focussing on nuclear medicine, was selected by the EANM to professionally support the ENC-DAT study.

The ENC-DAT database is highly valued by clinical health professionals and researchers. Moreover, the industry is interested in developing specialised software for use of the database.

As a further practical outcome of the ENC-DAT project, EARL offers a service providing “calibration of gamma cameras for ENC-DAT”

- An expert physicist calibrates the gamma camera in the individual department in the same way as was done for the ENC-DAT study
- The department’s measurements can be easily compared with the normal database of the ENC-DAT study

“Assessing the reliability of our camera in comparison to the other European centres of Excellence has been of paramount importance. This study has allowed to collect a normative database of DAT-SPECT scans in a standardised way across Europe, which is of high relevance for both scientific and clinical purpose.”

Prof. Dr. Flavio Nobili,
Department of Neuroscience, Ophthalmology and Genetics
University of Genoa, Italy
FDG-PET/CT Accreditation

In January 2010 the EANM published the “FDG PET and PET/CT: EANM procedure guideline for tumour PET imaging: version 1.0.” in the European Journal of Nuclear Medicine and Molecular Imaging (EJNMMI). On the basis of this guideline, EARL has set up the EARL FDG-PET/CT accreditation programme, which was launched in July 2010, to help imaging sites meet the standard requirements indicated in the guideline. The EARL FDG-PET/CT accreditation programme is endorsed by the EORTC Imaging Group.

- The objective is to provide a minimum standard of PET/CT scanner performance in order to harmonise the acquisition and interpretation of PET and PET/CT scans.
- Imaging sites which are performing quantitative FDG PET or PET/CT oncological studies will profit from the EARL FDG-PET/CT accreditation as it will ensure similar performance of PET/CT systems within a multicentre setting.
- The imaging site is characterised by continuing quality control, making it highly eligible as a participant in multicentre studies.
- Participation in the accreditation programme ensures that routine patient examinations will be of a high quality.

To gain EARL FDG-PET/CT accreditation, sites are required to regularly (cross-)calibrate their PET/CT scanner and to regularly perform image quality control (QC) experiments, which are described in detail in the above-mentioned guideline. After performance of these QC experiments, the department will be able to compare, exchange and combine FDG-PET/CT findings and also to collect data in a standardised manner, which is a prerequisite for multicentre studies.

An EARL working group was established in June 2011 to review and update the FDG PET guidelines, to deal with specific requests concerning FDG PET and to stay in contact with other academic societies.

“Having the EARL accreditation has helped to document appropriate PET/CT camera performance and QA on an international level, adding objective proof that we can reliably share data for multicentre trials.”

Prof. Dr. Christophe Deroose, Department of Nuclear Medicine, University Hospitals Leuven, Belgium
European Initiative for PET as an Imaging Biomarker (EPIB)

In August 2010 an inter-committee working group on imaging biomarkers consisting of representatives of the EANM Oncology, Translational Molecular Imaging, Physics, Radiopharmacy and Drug Development Committees was set up. The European Initiative for PET as an Imaging Biomarker aims to raise awareness and enforce acceptance and legislation of PET as an imaging biomarker.

- Professionals in the field have identified the need to define and clarify the use of imaging biomarkers in drug development, in particular (but not only) as surrogate endpoints and/or early therapy response markers.
- Imaging agents developed in concert with drug development have a built-in synergy that accelerates the drug development process.
- FDG PET/CT has been established as a response biomarker for monitoring cancer therapies. Furthermore, several other radiopharmaceuticals have the potential to monitor response to therapy before, during or after therapeutic intervention.

Taskforce-EU Grants

The Taskforce-EU Grants was created by EARL in June 2011 to raise awareness within the nuclear medicine community of the necessity of competing for EU research grants as well as conducting multicentre studies.

Its main objectives are:
- To boost the role of molecular imaging in personalised medicine
- To make the European Union (EU) aware of research topics in nuclear medicine which will be pivotal in the future
- To follow open calls from the EU and the development of recent grants (e.g. FP7, Horizon 2020 - the Framework Programme for Research and Innovation) in order to evaluate opportunities for nuclear medicine
PEDDOSE.NET

The project “Dosimetry and Health Effects of Diagnostic Applications of Radiopharmaceuticals with Particular Emphasis on the Use in Children and Adolescents” started in April 2010. It is coordinated by the European Institute for Biomedical Imaging Research (EIBIR) with the EANM as a project partner.

Key features are:

- Summary and evaluation of current knowledge on the impact on patients’ health of small and non-repetitive or less repetitive doses (amounts) of radioactive, biological and/or chemical substances, as currently used in diagnostic imaging procedures
- Development of recommendations and guidelines to drive scientific and technological innovation in order to improve patient healthcare
- Identification of whether clinical studies are needed, and corresponding detailing of such studies
- Involvement in legislative approval of these agents for human use

MEDRAPET Project

In 2010 the “Study on the Implementation of the Medical Exposure Directives Requirements on Radiation Protection Training of Medical Professionals in the European Union” was initiated. The EANM is included in the consortium responsible for the project, which is led by the European Society of Radiology (ESR).

- The results of the 27-month project will form the basis for revision of Radiation Protection 116: Guidelines on Education and Training in Radiation Protection for Medical Exposures.
- The aim is to achieve improved implementation of the Medical Exposure Directive provisions relating to radiation protection education and training of medical professionals in the EU Member States.
Collaboration/Cooperation

EARL is collaborating with various organisations, research institutes and hospitals to advance and improve the use of nuclear medicine in research and clinical medicine. Some of them, with which we are currently running projects, are listed below:

The EANM is a co-shareholder of the European Institute for Biomedical Imaging Research (EIBIR): Collaboration within the project PEDDOSE.NET

The European Organisation for Research and Treatment of Cancer (EORTC)/The EORTC Imaging Group: Collaboration in the EARL FDG-PET/CT accreditation programme

European Society of Radiology (ESR): Collaboration in the MEDRAPET project

GE Healthcare supported the ENC-DAT study by providing some start-up money; the development of an application program for ENC-DAT is in process

Hermes Medical Solutions Ltd: Development of an application program for ENC-DAT is in process

The International Atomic Energy Agency (IAEA): Ongoing collaboration in the field of nuclear medicine

Society of Nuclear Medicine (SNM): Collaboration in the SNM image reconstruction working group as well as in quality assurance for imaging sites
Share our vision – create future

We are asking industrial stakeholders and private persons interested in molecular imaging for financial support in order to achieve our ambitious goals in the most efficient way.

Create a Win-Win situation:

- Increasing the use of molecular imaging in clinical medicine
- Accelerating the development of new radiopharmaceuticals
- Stimulating multicentre drug development and biomedical research
- Ultimately increasing your sales in nuclear medicine

For discussion of individual models of support or further information, please contact EARL.

Take the chance and get involved.
Contact us

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