

BBMRI - Biobanking and Biomolecular Resources Research Infrastructure

The Power of Many

Brussels, June 2009 - Human biological and biomolecular samples are key resources in unravelling the true nature of disease. Collections of biological material such as tissues, cells, blood or DNA extracted from these are stored in what is commonly known as a biobank. Such data becomes very valuable if it can also be linked to medical, environmental and lifestyle information for more complete analysis.

Existing national collections suffer from fragmentation and underutilisation due to lack of commonly applied standards and limited access by investigators. This has systematically hampered the collation of biological samples and data necessary for statistical analysis which in turn has slowed research into potential new treatments for diseases.

The Biobanking and Biomolecular Resources Research Infrastructure (BBMRI) was set up in 2008 to coordinate a large scale biobanking network to share access to available biological samples and biomolecular tools in Europe. This infrastructure will cover major biobanks, molecular resources and biocomputing centres to ensure that the samples are linked to existing databases, scientific literature and statistical expertise.

Understanding Disease

Biological resources are considered the essential raw material for the advancement of biotechnology, human health and R&D in life sciences. If well connected, catalogued and accessible, biobanks provide a crucial resource for academic and industry-based research to treat and prevent human diseases.

Building on existing infrastructures, resources and technology, BBMRI will allow the identification of genetic risk factors (“disease genes”) and help define the relationships between genes, the environment and lifestyle. A sharper biology-based definition of disease categories will enhance the development of more effective treatments, reduce undesired and unintended side effects and improve clinical trial design.

This unprecedented network could allow people to become aware of their susceptibility to specific disease conditions, opening the possibility of personalised medicine (targeted diagnostics and treatments). At the same time, BBMRI will support policy and scientific momentum to harmonise ethical, legal and quality standards across Europe.

European Research Infrastructures

BBMRI is one of the 44 initiatives selected for funding by the European Strategic Forum on Research Infrastructures (ESFRI). The forum brings together senior science policy officials representing the member state ministers, and a senior policy official from the European Commission. They have prepared a Roadmap that identifies pan-European Research Infrastructures (RI) of crucial importance to strengthen the European

Research Area, in particular for capacity building, but also for strengthening European diagnostics and pharmaceutical industries and thereby improving the health of EU citizens.

These projects have received financial support within the EU's Seventh Framework Programme (FP7) for research and technological development and demonstration. It will cover the initial set up stage that should allow the different initiatives to define and develop mechanisms that can provide the necessary funding after the preparatory phase. €5 million have been granted to the BBMRI to lay out the construction and operational process that will make its continuation possible.

Challenges

The members of BBMRI have started preparing an inventory of European resources. More than 300 biobanks have been identified and recruited to join BBMRI. The biggest challenges they will face in the set up of the network will have to do with harmonisation of policies and standards, the establishment of a data protection system and the definition of the legal, ethical and financial governance of this new research infrastructure.

Further information about BBMRI can be accessed at: [Hwww.bbmri.euH](http://www.bbmri.eu)
To request interviews of contributions from BBMRI contact:

BBMRI in Numbers

- BBMRI has received €5 million from the European Commission to be spent in the preparatory phase of the project.
- Launched in February 2008, the participating organisations have 27 months to define the technical, legal, and financial aspects of the project.
- There are currently 51 members (universities, research centres, ministries, research councils) and more than 190 associated partners from 29 different European countries.
- The construction phase will take about 4 years and operational costs are currently estimated at 15€ million a year.
- The construction costs could amount for approximately 170€ million to be raised mostly at the member state level.

BBMRI Participating Members

Medical University of Graz (AT)
National Institute for Health and Welfare (FI)
Helmholtz Zentrum München (DE)
Uppsala Universitet (SE)
Karolinska Institutet (SE)
INSERM (FR)
University of Manchester (UK)
International Agency for Research on Cancer (FR)
Academisch Ziekenhuis Leiden (NL)
Univ. of Malta (MT)
Norwegian University of Science and Technology (NO)
Semmelweis University (HU)
EGP of the University of Tartu (EE)
National DNA Bank, University of Salamanca (ES)
Fondazione Telethon (IT)
Fédération Hospitalière de France (FR)

Irish Clinical Research Infrastructure Network (IE)
Helmholtz Gemeinschaft (DE)
Institut National du Cancer (FR)
Comitato Nazionale per la Biosicurezza, le Biotecnologie e le Scienze della Vita, Istituto Superiore di Sanita (IT)
Max-Planck-Institut für Molekulare Genetik (DE)
Instituto de Salud Carlos III (ES)
VITRO Ltd (ES)
European Genotype Archive (ES)
Norwegian Institute of Public Health (NO)
Erasmus MC Rotterdam (NL)
Istituto Nazionale per la Ricerca sul Cancro, Biological Bank and Cell Factory (IT)
Institute for Biomedical Technologies (IT)
Research Infrastructure and Special Initiatives Unit Health Research Board (IE)
Medical Research Council (UK)
UK Biobank Ltd (UK)
Ministry of Education, Culture and Science (NL)
The Icelandic Centre for Research (IS)
University Hospital Groningen (NL)
Dutch Federation of University Medical Centers (NL)
The Netherlands Organisation for Health Research and Development (NL)
Fraunhofer IBMT (DE)
Bundesministerium für Bildung und Forschung (DE)
Bundesministerium für Wissenschaft und Forschung (AT)
Legal Pathways b.v. (NL)
deCODE genetics (IS)
Life Science Governance Institute (AT)
Center for Economics and Social Aspects of Genomics (UK)
Alleanza contro il cancro (IT)
Fundación para el desarrollo de la investigación en Genómica y Proteómica (ES)
Ministry of Education and Research (EE)
Babraham Bioscience Technologies (UK)
Hellenic Republic Ministry of Development, (EL)
Biomedical Research Foundation of the Academy of Athens (EL)
Universitaet Klagenfurt (AT)
University of Turku (FI).

Editors Note

ESFRI, the **European Strategy Forum on Research Infrastructures**, acts on issues related to the development of high scientific quality European research infrastructures. As such, ESFRI contributes to the implementation of the Lisbon agenda and responds to the need of the scientific community to address the rapidly evolving science frontiers. ESFRI's delegates are nominated and mandated by the Research Ministers of the Member States and Associated Countries, and include a representative of the European Commission.

In 2006, ESFRI presented a roadmap that described the scientific needs for Research Infrastructures for the next 10-20 year. This first version identified a total of 35 vital new European Research Infrastructures (RI) of different size and scope. An updated version was presented in 2008 including a total of 44 infrastructures. The preparatory phase of the selected projects will be funded through the Capacities Programme of FP7 aimed at bringing the projects to the level of legal and financial maturity required to be implemented.

2008 ESFRI Research Infrastructures

Environmental Sciences:

AURORA BOREALIS / COPAL (ex EUFAR) – Heavy Payload Long endurance Tropospheric Aircraft

EISCAT_3D – The next generation European incoherent scatter radar system /
EMSO - European Multidisciplinary Seafloor Observatory
EPOS – European Plate Observing System
EURO-ARGO – Global Ocean Observing Infrastructure
IAGOS – In Service Aircraft for a Global Observing System
ICOS – Integrated Carbon Observation System
LIFEWATCH – Science and Technology Infrastructure for Biodiversity Data and Observatories
SIAEOS – the Svalbard Integrated Arctic Earth Observing System

Energy

ECCSEL – European Carbon Dioxide Capture and Storage Laboratory Infrastructure
HiPER – High Power Laser Energy Research Facility
IFMIF – International Fusion Materials Irradiation Facility
JHR - Jules Horowitz Reactor

Biological and Medical Sciences

BBMRI - Biobanking and Biomolecular Resources Research Infrastructure
EATRIS – European advanced translational research infrastructure in medicine
ECRIN – Pan-European infrastructure for clinical trials and biotherapy
ELIXIR - European Life-Science Infrastructure For Biological Information – A Major Upgrade
EMBRC - European Marine Biological Resource Centre / EU-OPENSOURCE - European Infrastructure of Open Screening Platforms for Chemical Biology
Euro -BioImaging – European Biomedical Imaging Infrastructure
European High Security Bsl 4 Laboratories
INFRAFRONTIER – The European infrastructure for phenotyping and archiving of model mammalian genomes
INSTRUCT – An Integrated Structural Biology Infrastructure for Europe

Materials and Analytical Facilities

EMFL - European Magnetic Field Laboratory
ESRF Upgrade / EuroFEL (ex-IRUVX-FEL)
ESS - European Spallation Source
European XFEL
ILL 20/20 Upgrade

Physical Sciences and Engineering

CTA – Cherenkov Telescope Array
E-ELT – European Extremely Large Telescope
ELI – Extreme Light Infrastructure
FAIR – Facility for Antiproton and Ion Research
KM3NeT – Kilometre Cube Neutrino Telescope
PRINS – Pan-European Research Infrastructure for Nanostructures
SKA – Square Kilometre Array
SPIRAL2

e-Infrastructures

PRACE (ex EU-HPC) – Partnership for Advanced Computing in Europe