

Managing resources
for biomedical research



The European Research Infrastructure for Biobanking and Biomolecular Resources (BBMRI)

Melanie Waldenberger, HMGU

Erich Wichmann, HMGU

Preparatory Phase Grant Agreement 212111





Increasing Need for Biological Resources

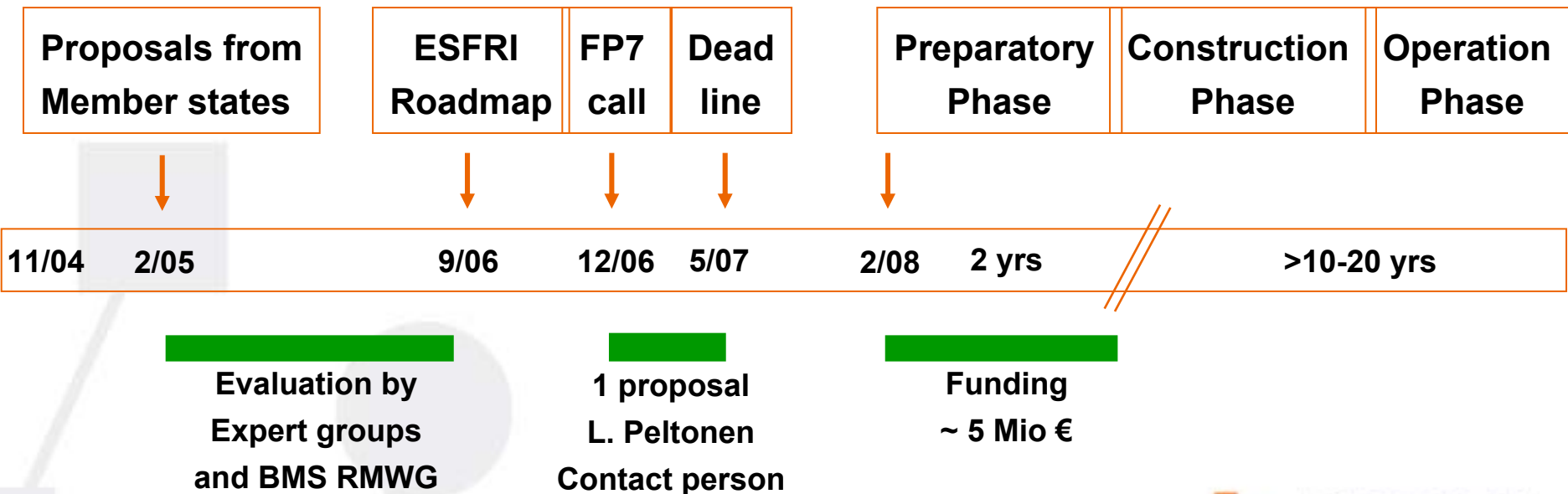
- **Personalized medicine**
 - new patient subgroups
 - more biomarkers/molecular signatures
- **Drug development**
 - Biomarkers for toxicity/efficacy
- **Translational research**
 - Human disease relevance
- **New technologies**
 - -omics technologies
 - molecular tools

more samples
larger cohorts
different ethnic groups

specific sample quality



The ESFRI Process: Towards a Research Infrastructure



Managing resources for biomedical research



The Facility



BBMRI is a pan-European and internationally broadly accessible research infrastructure and a network of existing and de novo biobanks and biomolecular resources. The infrastructure will include samples from patients and healthy persons, representing different European populations (with links to epidemiological and health care information), molecular genomic resources and biocomputational tools to optimally exploit this resource for global biomedical research.



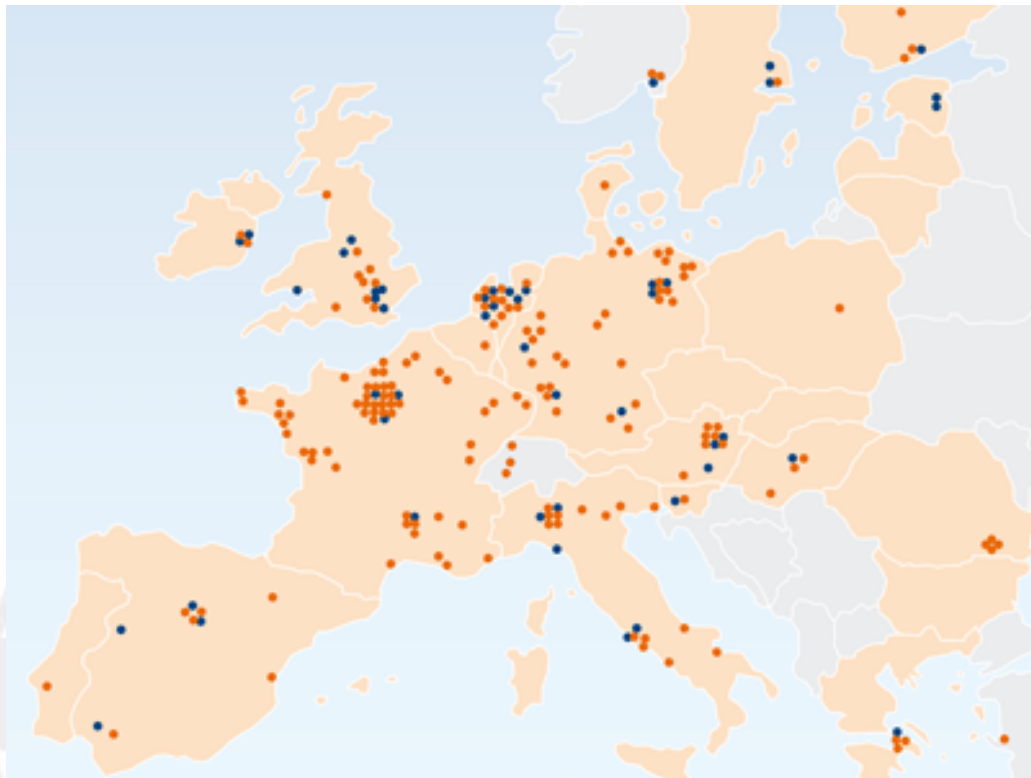


BBMRI will meet the increasing demand for biological material of academia and industry of all EU member states by

- Providing a pan-European inventory
- Complementing existing resources and technologies
- Ensuring coordinated development of resources and technologies
- Establishing clear access rules
- Facilitating transnational combination and exchange of biological materials and data
- Reducing the fragmentation of the scientific community
- Developing a sustained financial basis



Participants and Associated Organisations



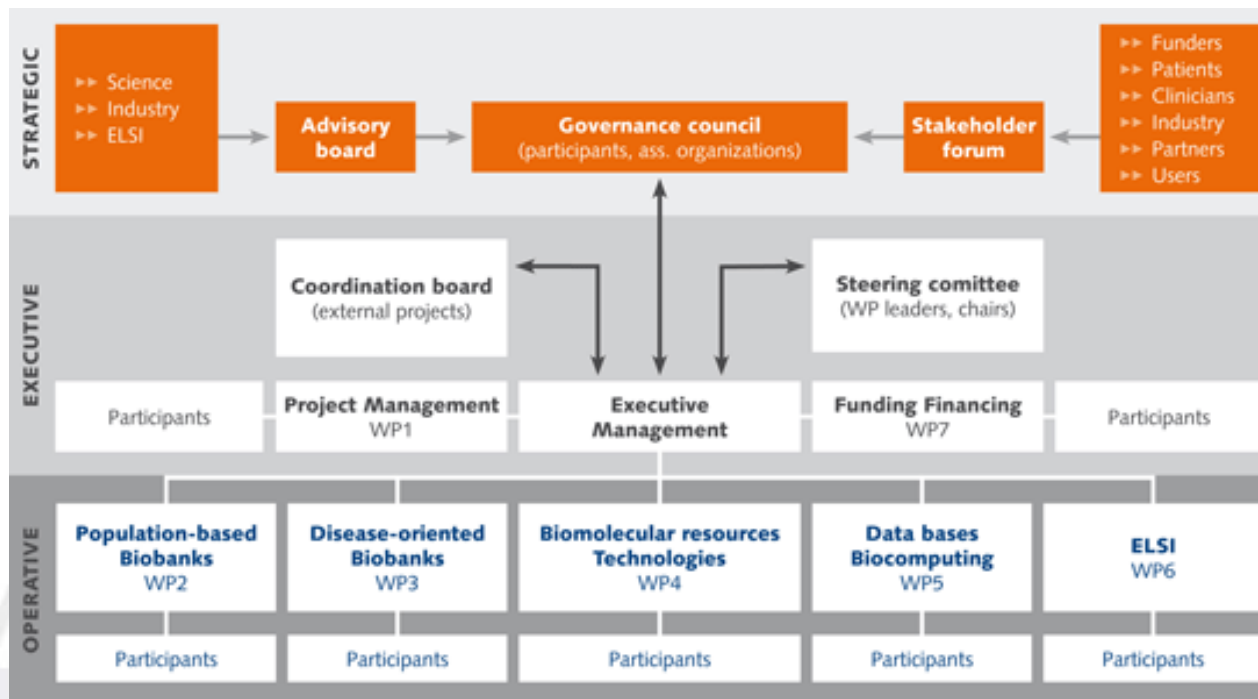
- Preparatory phase
27 months
- Funding 5 mio €
- 54 Participating
institutions
- 190 Associated
organisations
- 29 Countries



Managing resources for biomedical research



Organization (prep phase)





The Team: WP Leaders and Chairs

Coordination:

K. Zatloukal, AT; E. Vuorio, FI

M. Yuille, UK; M. Pasterk, FR

Population-based Biobanks:

L. Peltonen, FI/UK; A. Metspalu, EE

Disease-oriented Biobanks:

E. Wichman, GER, T. Meitinger, GER

Biomolecular Resources:

U. Landegren, SE; M. Taussig, UK

Databases & Biocomputing:

J.-E. Litton, SE

Ethical, Legal and Societal Issues:

A. Cambon-Thomsen, FR

Funding and Financing:

G. Dagher, FR; C. Brechot, FR

Governance Council Chair:

L. Peltonen, FI

Advisory Board Chair:

G.-J. van Ommen, NL

Coordination Board Chair:

K. Zatloukal, AT

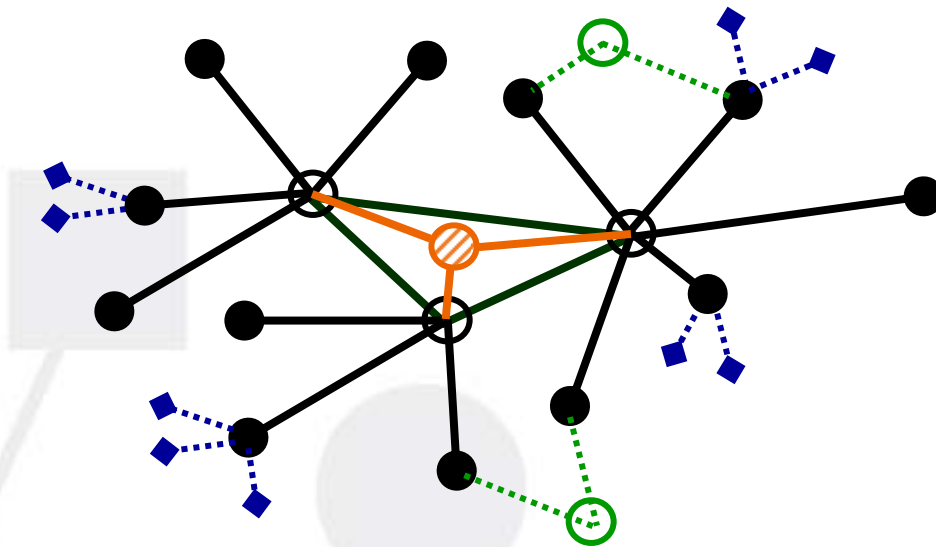
Stakeholder Forum Chair:











M. Griffith, IR





The Legal Structure of BBMRI: Distributed hub and spoke structure



-  Secretariat (statutory seat)
-  Hubs for domains
 -  Biobanks
 -  Biomolecular res.
 -  Technology centers
-  Associated partners
 -  Hospitals
 -  Universities
 -  Service providers*
-  National Coordinators

*not members of the research infrastructure



The Adaptor Model



Define criteria

- Which samples and data can be combined?
- Need for evidence-based standards

Develop tools

- Data exchange
- Sample transport



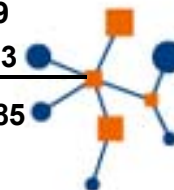


BBMRI inventory

- BBMRI questionnaires have been developed commonly by all WPs
- Stored in a relational database system

Country	Network	Core	Collection	Country	Network	Core	Collection
AT	1	11	11	IE	0	2	2
BE	0	2	2	IL	1	2	2
CH	1	2	2	IS	1	4	4
DE	3	35	51	IT	3	33	74
DK	0	1	1	LV	0	1	1
ES	5	13	24	NL	1	50	68
EU	4	2	30	NO	0	6	6
FI	0	3	3	PT	0	1	35
FR	3	34	102	RO	0	2	2
GR	0	2	3	SE	0	9	9
HU	1	11	40	UK	1	13	13
TOTAL					25	239	485

+ ~200 supplements





Web-based Overview Catalogue

- Key data of the individual biobanks (Background, objectives, number of samples etc.) with links to homepages
- Overview of existing samples, sorted by disease group
- Descriptive statistics of key questions (histograms etc.)
- Search function and possibility to sort
- Online entry of new biobanks with web-based forms and online update of data already stored in the database
- Comparison tables
- User administration

→ Future plans: Direct data transfer between European hub and component systems



Managing resources for biomedical research



Welcome to the BBMRI Portal

BBMRI Portal - Mozilla Firefox
 Datei Bearbeiten Ansicht Chronik Lesezeichen Yahoo! Extras Hilfe
 https://www.bbMRIportal.eu/bbMRI1.8/jsp/bbMRI/coretable.jsf;jsessionid=5CCD18C3A065722542B35ECC25AF34
 Meistbesuchte Seiten Customize Links
 Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers



Please select type of Biobanks:

Total number of biobanks: 239

- Homepage
- ▼ Description of biobanks and networks of biobanks
 - Networks of biobanks
 - Biobanks**
 - Collections
 - Supplementary Questionnaires
- ▼ Fill in Questionnaires
 - Network Questionnaire
 - Core Questionnaire
 - Collection Questionnaire
 - Supplementary Questionnaires
- ▼ Characterization of biobanks and networks of biobanks
 - by general criteria
 - Focus of Biobanks
 - Number of collected biological samples
 - Strength of Biobanks/Studies
 - Location of Biobanks and Networks
 - Financial Support
 - Principal variables of interest
 - Number of filled in questionnaires
 - by specific criteria
 - Search function
- User Management
- Change Password
- Logout

Overview of biobanks				
Name of biobank ▲	Acronym ↓	Country ↓	Website ↓	
Doetinchem Cohort Study	DCS	NL		
Dpt of Food Biotechnology and Food Process Engineering Berlin University of Technology	GDK4-TUB*	DE	www2.tu-berlin.de/~foodtech/	
Dutch Dyslexia Program, genetic component	DDP	NL	www.nwo.nl/nwohome.nsf/pages/NWOVA_6NZH9	
Early arthritis Cohort	EAC	NL	--	
Embryonal tumor bank of the Competence Net Pediatric Oncology and Hematology	KN-POH*	DE	www.kinderkrebsinfo.de/e2163/index_ger.html	
English Longitudinal Study of Ageing	ELSA	UK	www.elsa.org.uk/elsa/	
EORTC Prospective Tissue & Biobfluid Collection	EORTC.PTC	BE	www.eortc.be/	
Etude Longitudinale Française depuis l'Enfance	ELFE	FR	www.elfe2009.fr	
European Biobank on PAD patients	EBPp	IT	www.vascularmedicine.it/pub/index.do	
European Childhood Obesity Project	CHOP	DE	www.metabolic-programming.org	
European Human Frozen Tumor Tissue Bank	TuBeFrost	EU	www.tubefrost.org/	
European Mouse Mutant Archive	EMMA	DE	www.emmanet.org	
Family and Health Study	FHS	NL	www.socsci.ru.nl/gezin_en_gezondheid/avp2/	
Fondation Jean Dausset-CEPH Biological Resource Center	CEPH Biobank	FR	www.cephb.fr/	
Galliera Genetic Bank: DNA, cell and tissue bank	GGB-TGB1*	IT	ggb.galliera.it/	
Genbank Parkinson'sche Krankheit Deutschland	GEPARD	DE	www.kompetenznetz-parkinson.de/Projekte/genbank.html	
Genetic modifiers of traumatic brain injury sequelae	TRAUMANL*	NL		
Genetics of Depression Study	GenMood	NL		
Genome Database of Latvian Population	LGDB	LV	biomed.lu.lv/gene	
German Cancer Research Centre (DKFZ), Cryopreservation V430	DKFZV430*	DE	www.dkfz-heidelberg.de/en/embryobank/index.html	
German Heart Center Munich	DHM*	DE		
Gewebebank der Technischen Universität München	Path TUM*	DE		
Global HIV Vaccine Research Cryorepository	GHRC	DE	www.ghrc.info	
Gulliver Project	Guliver	FR	Not yet - www.labcdiagnostics.eu	
Généthon DNA and Cells bank	GENETHON*	FR	www.genethon.fr	

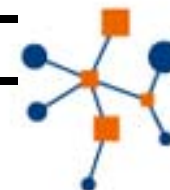
* Acronym was assigned by Helmholtz Center Munich. It can be changed later on by the responsible persons of the individual biobanks.

(c) BBMRI 2008/2009
 Fertig
 Start Microsoft PowerPoint ... BBMRI Portal - Mozilla... Screenshot - Wikiped...
 www.bbMRIportal.eu DE 14:36



Number of samples by material (EU: n=239 biobanks, D: n=35)

Material	All Biobanks	German Biobanks
DNA	1819758	123296
cDNA / RNA	82890	3530
Whole blood	324575	69403
Blood cell isolates (buffy coat, etc.)	770012	21131
Serum	1744656	345835
Plasma	1124293	177884
Fluids (urine, etc.)	250112	120494
Tissues, cryo preserved	491313	91370
Tissues, paraffin embedded	7871785	3082899
Cell lines	329810	2883
Other	809672	182097
TOTAL	15618876	4220822

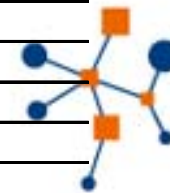


Managing resources for biomedical research



Focus of the biobanks (EU: n=239 biobanks, D: n=35)

ICD group	Disease focus	Number of biobanks EU	Number of biobanks D
A00 - Q99	Not specified	29	6
A00 - B99	Certain infectious and parasitic diseases	33	5
C00 - D48	Neoplasms	106	10
D50 - D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	36	2
E00 - E90	Endocrine, nutritional and metabolic diseases	52	7
F00 - F99	Mental and behavioural disorders	37	3
G00 - G99	Diseases of the nervous system	58	8
H00 - H59	Diseases of the eye and adnexa	12	1
H60 - H95	Diseases of the ear and mastoid process	4	1
I00 - I99	Diseases of the circulatory system	54	8
J00 - J99	Diseases of the respiratory system	51	8
K00 - K93	Diseases of the digestive system	31	4
L00 - L99	Diseases of the skin and subcutaneous tissue	24	5
M00 - M99	Diseases of the musculoskeletal system and connective tissue	40	5
N00 - N99	Diseases of the genitourinary system	20	3
O00 - O99	Pregnancy, childbirth and the puerperium	23	1
P00 - P96	Certain conditions originating in the perinatal period	10	0
Q00 - Q99	Congenital malformations, deformations and chromosomal abnormalities	18	1
	Other Diseases	36	6

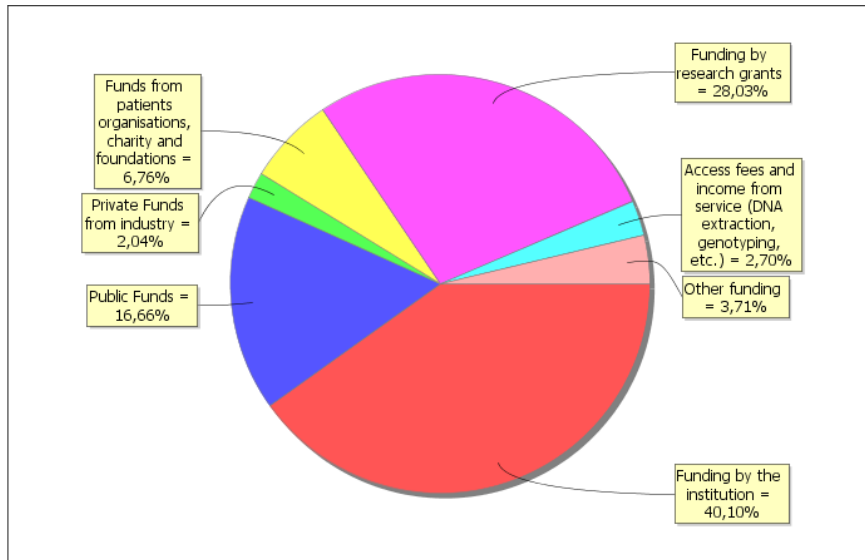


BBMRI
Biobanking and
Biomolecular
Resources Research
Infrastructure

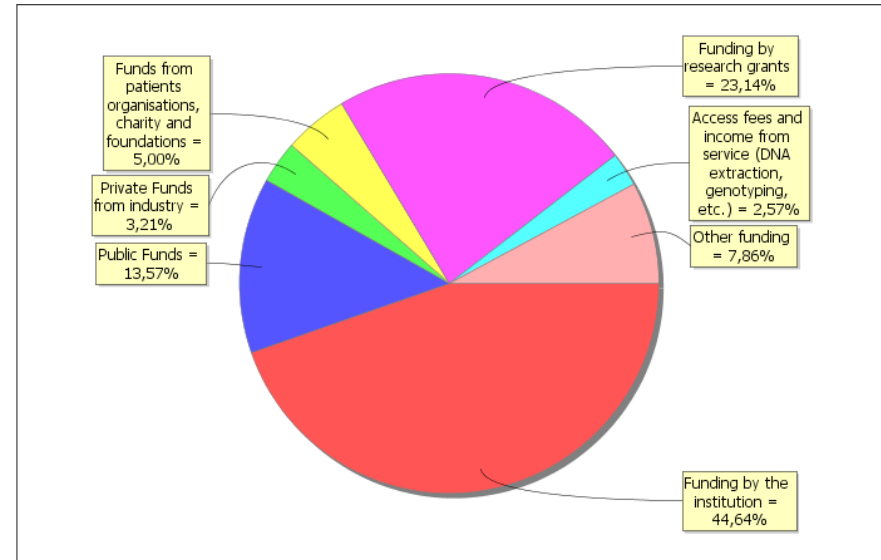
Managing resources for biomedical research



Relative percentage of financial support (EU: n=239 biobanks, D: n=35)



EU



D

Managing resources for biomedical research



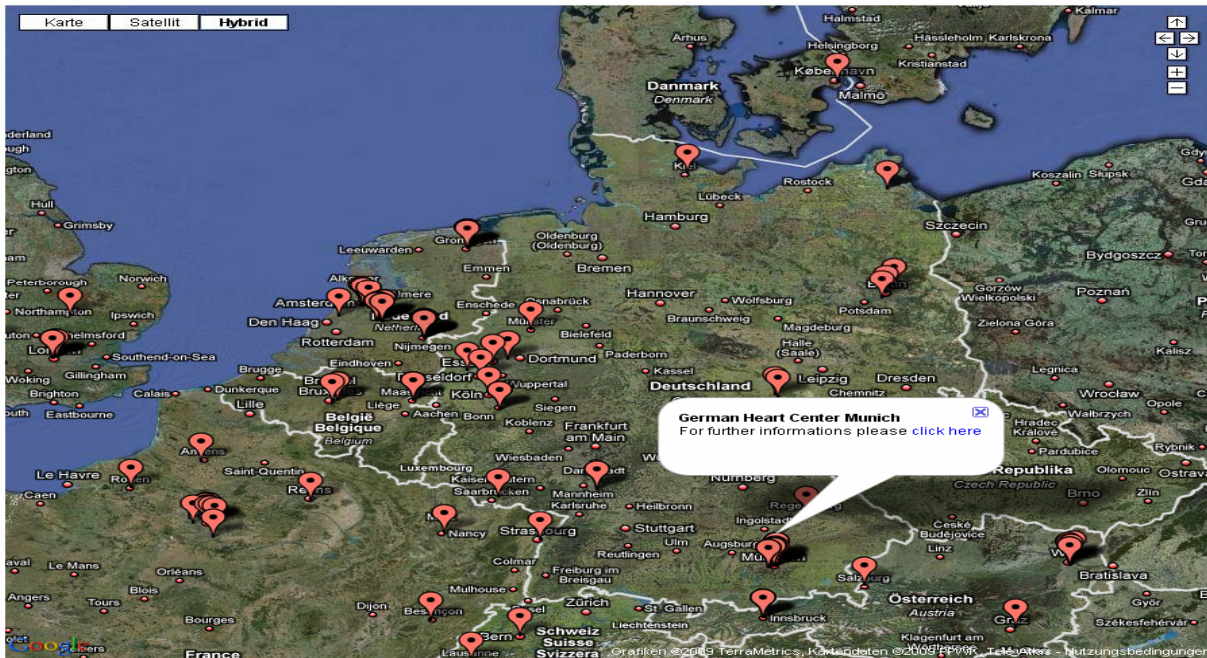
Location

BBMRI Portal - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Lesezeichen Yahoo! Extras Hilfe
https://www.bbMRIportal.eu/bbMRI1.8/jsp/bbMRI/googleMaps.jsf;sessionid=5C145CD9C510A38AF1C7CC55343997F6
Meistbesuchte Seiten Customize Links
Search Web Mail Shopping Personals My Yahoo! News Games Travel Finance Answers



Location of individual biobanks

- Homepage
- Description of biobanks and networks of biobanks
- Fill in Questionnaires
- Characterization of biobanks and networks of biobanks
 - by general criteria
 - Focus of Biobanks
 - Number of collected biological samples
 - Strength of Biobanks/Studies
 - Location of Biobanks and Networks
 - Financial Support
 - Principal variables of interest
 - Number of filled in questionnaires
 - by specific criteria
 - Search function
- User Management
- Change Password
- Logout



(c) BBMRI 2008/2009

Fertig

Start Microsoft PowerPoint ... BBMRI Portal - Mozilla... D:\Documents and Se... DE 16:30



How to join as an associated organization?

- Submit an Expression of Interest (EoI) by sending an email to the Coordinator (kurt.zatoukal@meduni-graz.at)
→ Associated organizations (~ 200 biobanks)
- Fill in the core questionnaire and return it via e-mail to questionnaires@bbmri.eu → Review
- Selection of candidates for the Infrastructure Prototype → Detailed on-site analysis



Further information for biobanks

- BBMRI general information
www.bbmri.eu
- Catalogue of European Biobanks
<http://www.bbmri.eu/index.php/catalog-of-european-biobanks>
- Report of Expert Groups
<http://www.bbmri.eu/index.php/workpackages/wp-3>
- MolMeth (Molecular Methods Database)
www.molmeth.org
- P³G Observatory
www.p3gobservatory.org