

Biobank Portals and
Networks:
More Efforts than Benefits?

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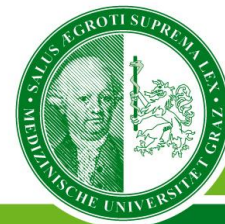
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Biobank Networks

During the last decade biobanks have been established in large numbers. At the same time, societies and networks have been developed to give biobanks a platform for

- Exchange of Information
- Transfer of Knowledge
- Contacts
- Defining the Standing of a Biobank
- Etc.

Hence, today each local biobank should be embedded in (at least) one network.

Biobank Networks

International and European Level:

- BBMRI-ERIC
Biobanking and BioMolecular resources Research Infrastructure – European Research Infrastructure Consortium
Headquarter in Graz, Austria
- ISBER
International Society for Biological and Environmental Repositories
Headquarter in Vancouver, Canada
- ESBB
European, Middle Eastern and African Society for Biopreservation and Biobanking
Headquarter in Aix-en-Provence, France
- H3Africa
Human Heredity and Health in Africa
Headquarter in Bethesda, USA
- B3 Africa
Bridging Biobanking and Biomedical Research across Europe and Africa
Headquarter in Uppsala, Sweden
- ... (e.g. EuroBioBank)

Biobank Networks

National Level (Example Austria):

- BBMRI.at

Austrian Hub of Biobanking and BioMolecular resources Research Infrastructure
Headquarter in Graz, Austria

- CoreFacilityNet

Austria's largest Life Science Technology Network
Not only biobanks, but all larger technology platforms
Headquarter in Graz, Austria

Aims of these Biobank Networks

International and European Level:

- BBMRI-ERIC
 - Definition of quality
 - Linking of data of biobanks of the member states
 - Harmonization of processes
 - Implementation of standards
- ISBER
 - Voice of biobanks in politics and with stakeholders
 - Development of Best Practice guidelines
 - Platform for information exchange
- ESBB
 - Identifying problems and offering solutions
 - Fostering high standards in biobanks
 - Voice of biobanks
 - Support of PPP strategies

Biobank Portals

Besides biobank networks a large variety of portals and online catalogues are developing.

Background:

The wish to gather information on biobanks, their samples and data from a single site.

Examples for **Portals**:

- www.portal.meril.eu
- www.esbb.org
- www.specimencentral.com

Portal of Meril

Not only biobanks, but also other research infrastructures are listed.

Scientific Domains

[Biological and Medical Sciences \(213\)](#)

[Chemistry and Material Sciences \(100\)](#)

[Earth and Environmental Sciences \(78\)](#)

[Engineering and Energy \(62\)](#)

[Humanities and Arts \(28\)](#)

[Information Science and Technology \(67\)](#)

[Physics, Astronomy, Astrophysics and](#)

[Mathematics \(74\)](#)

[Social Sciences \(26\)](#)

RI Categories

[Research Facilities \(92\)](#)

[Structural Biology Facilities \(37\)](#)

[Bio-informatics Facilities \(37\)](#)

[Genomic, Transcriptomic, Proteomics and](#)

[Metabolomics Facilities \(36\)](#)

[Analytical Facilities \(34\)](#)

Countries

[France \(30\)](#)

[Spain \(27\)](#)

[Germany \(27\)](#)

[Portugal \(11\)](#)

[Austria \(15\)](#)

Status

[Being upgraded \(3\)](#)

[Under construction \(17\)](#)

[Operational \(192\)](#)

RI Type

[Virtual \(12\)](#)

[Distributed \(63\)](#)

[Single-sited \(137\)](#)

Portal of Meril

Not only biobanks, but also other research infrastructures are listed.

Alphabetical list with information on biobanks, partly already defined, partly written in free text.

Hosting organisation:

[Medical University of Graz](#)

Location:

Neue Stiftingtalstraße 2/B/2 | 8010 Graz [Austria](#)

Contact:

Berthold Huppertz

Details:

Average number of European users per year: 200

Main status: Operational from 2007

RI Type: Single-sited

Description:

The mission of Biobank Graz is to support research on the cause of diseases and the development of improvements in disease diagnosis and treatment. Our goal is to contribute to an improved and sustained healthcare for the general population. Biobank Graz currently contains more than 7 million human samples representing both specific cohorts as well as a non-selected patient group characteristic of Central Europe. The scientific value of the existing sample collection is increased by the direct link to all clinical data of the university hospital in Graz. The about 6 million FFPE samples have been processed in a single institute under constant conditions for more than 30 years. Additionally the stored cryo tissue and liquid samples in freezers accounts for about 1 million samples.

Keywords:

Biobank, ISO 9001:2008, FFPE, tissue paraffin preserved, tissue cryo preserved, serum, plasma, whole blood, buffy coat, urine, liquor, seminal plasma, follicle liquid, cumulus cells, cord blood serum, cord blood plasma

ETC ...

Portal of ESBB

List of member biobanks
Most of them with link to homepage
No information on samples and data

Biobank & Institutional Members

Activity Center Biobanking, Leuven, Belgium

[Andalucian Public Health System Biobank \(BB-SSPA\)](#),
Granada, Spain

[Applied Research on Cancer Centre \(ARC-NET\)](#),
Verona, Italy

[Biobank Graz](#), Graz, Austria

[Biobank Ireland Trust](#), Dublin, Ireland

[Biobanco HIV-HGM](#), Madrid, Spain

[Biocollections](#), Paris, France

[Biostór Ireland Ltd](#), Rosslare Harbour, Ireland

Portal of Specimen Central

List of biobanks with link to homepage
No information on samples and data

- [Global Regions](#)
- [EUROPEAN BIOBANKS](#)
- [NORTH AMERICAN BIOBANKS](#)
- [ASIAN BIOBANKS](#)
- [AUSTRALIAN BIOBANKS](#)
- [MIDDLE EAST BIOBANKS](#)
- [ANIMAL & PLANT BIOBANKS](#)

European Biobanks

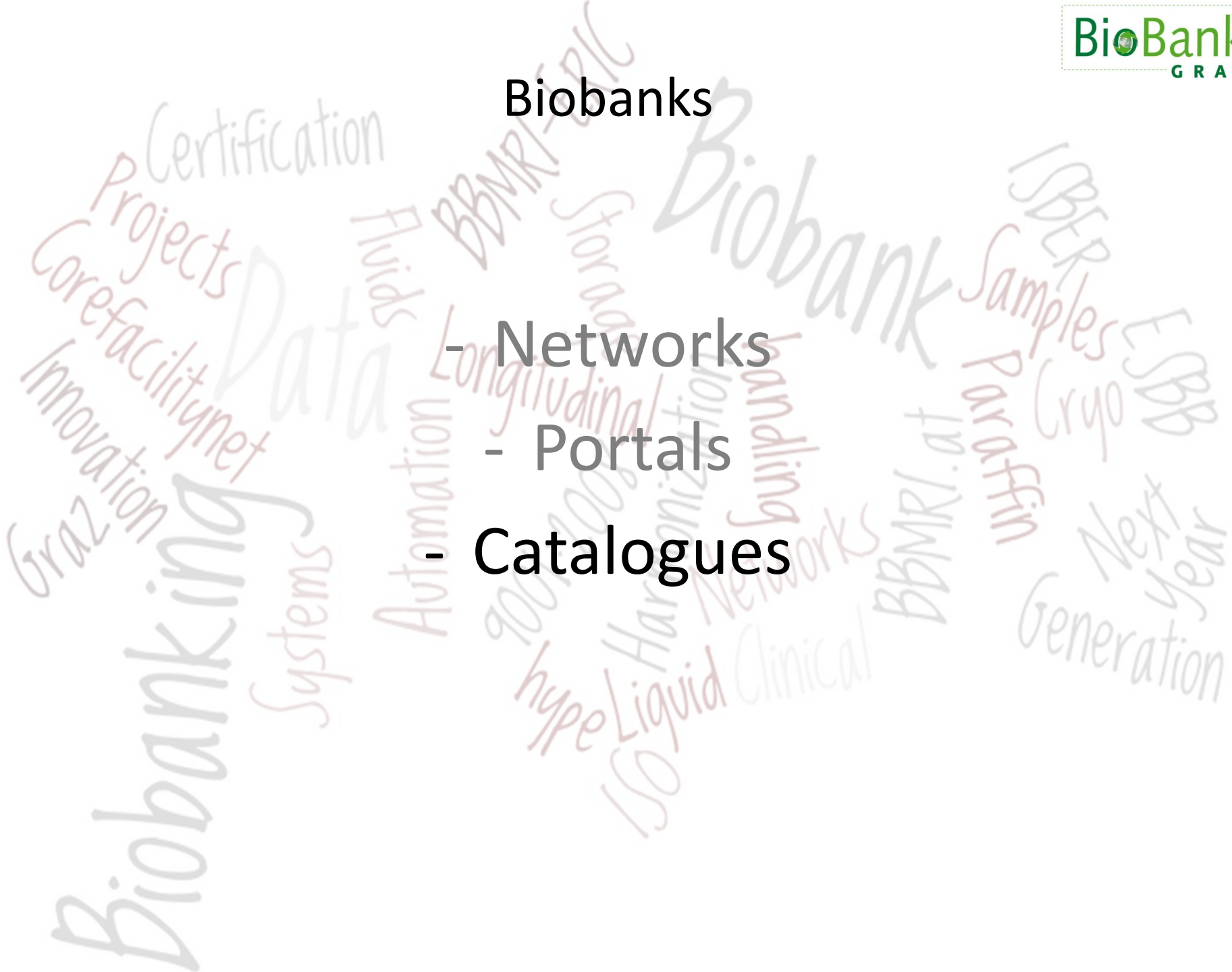
AT	Graz	Biobank Graz
AT	Vienna	MUW Biobank
AT	Vienna	Ludwig Boltzman Tumour Bank
BE	Brussels	Biotheque Wallonie Bruxelles
BE	Brussels	Saint-Luc Tumour Bank
BE	Luxembourg	Integrated Biobank of Luxembourg
BG	Sofia	Fidelis Research Ltd.
CH	Bern	Biobank Suisse
CH	Pfaeffikon	Cryo-Save
CH	Bern	Tumor Bank Bern
CH	Geneva	East West Biopharma
CH	Monthey	Swiss Biobank

Biobanks

- Networks

- Portals

- Catalogues



Biobank Catalogues

Besides biobank networks more and more portals and online catalogues are developing.

Background:

The wish, to gather information on biobanks, their samples and data from a single site.

Examples for **Catalogues**:

- www.bbmri-eric.eu
- www.bbmri.at
- www.irlocator.isber.org
- www.eurobiobank.org
- www.biobanken.de

Catalogue of BBMRI-ERIC

The BBMRI-ERIC Directory 1.0 lists all biobanks of the member states that have sent respective data.

So far, no detailed information on samples and data can be retrieved from the catalogue.

Material Types:

Diagnosis Available:

Country:

Biobank Size:

Type of Biobank:

Country	Name	Type	Diagnosis	Size	Juristic Person
AT	Biobank Graz (http://bbmri-eric.eu/web/guest/id-card-beta?biobankId=bbmri-eric%3AID%3AAT_MUG)	biobank, biobankClinical, biobankNonHuman	icd:*	10 ⁶	Medical University of Graz
AT	MUI Biobank (http://bbmri-eric.eu/web/guest/id-card-beta?biobankId=bbmri-eric%3AID%3AAT_MUI)	biobank, biobankClinical	icd:*	10 ⁵	Medical University of

Catalogue of BBMRI.at

The biobank catalogue of BBMRI.at is now available in version 2.0 – as a beta tester version.

So far, it includes four biobanks involved in BBMRI.at and lists „Collections“ within a biobank with

- Type (population-based, disease-based)
- Material (tissue paraffin, tissue cryo, ...)
- # of Samples
- # of Aliquots
- # of Donors
- Further Informationen (age range, gender, ICD10, ICD11, storage temperature)

Catalogue of BBMRI.at

Main Information

Name

Biobank Graz

Acronym

MUGBB

Collections



Clear Filter

Filter table rows

Collection ⇅	Type ⇅	Material ⇅	#Samples ⇅	#Aliquots ⇅	#Donors ⇅	
> Testicles Tissue Collection (collection.jsp?bbid=MUG&cid=16)	PopulationBased, DiseaseSpecific	TissueParaffinPreserved, TissueCryoPreserved	11815	14289	1268	Urolog
> Urethra Tissue Collection (collection.jsp?bbid=MUG&cid=19)	PopulationBased, DiseaseSpecific	TissueParaffinPreserved, TissueCryoPreserved	58790	78016	12684	Gastro
> Bladder Tissue Collection (collection.jsp?bbid=MUG&cid=8)	PopulationBased, DiseaseSpecific	TissueParaffinPreserved, TissueCryoPreserved	14443	19610	4795	Urolog

Catalogue of ISBER

The International Repository Locator (IRL) includes biobanks that send an application to be included and then added their data.

Within the IRL a search engine looks for:

- Type of Repository (human, animal, plant, ...)
- Type of Specimens collected (blood, tissue, urine, ...)
- Type of Data collected (clinical, genetic, ...)
- Repository Properties (e.g. service and shipping fee)

Entering a search criterion (e.g. Serum) results in a list of biobanks that have entered this criterion.

Further information (e.g. clinical data) is missing.

Catalogue of ISBER

Type of Specimens Collected

Serum + -

Search for *Type of Specimens Collected* values:

Search for... ×

- Blood
- Buffy Coat
- Cell lines
- DNA
- Fluid
- Plasma
- RNA
- Serum
- Stem cells
- Tissue
- Urine

Found 21 matching repositories

You may also [show all results](#). Click on a repository to view more information about it.

Repository

- [Cooperative Human Tissue Network \(CHTN\)](#)
- [NIDDK Central Repository](#)
- [Biobank of the Respiratory Health Network of the FROS](#)
- [Azizi Biorepository](#)
- [Tumorbank@UZA](#)
- [NHLBI BioLINCC](#)
- [Australian Prostate Cancer BioResource](#)
- [Liquid Biobank of the German competence network of multiple sclerosis](#)
- [Pulmonary Biobank Consortium CIBERES](#)
- [Mayo Clinic Cancer Serum Biobank](#)
- [ABN-Oncology](#)
- [Neurology Biobank](#)
- [SWAN Repository](#)

Collection Information

Type of Specimens Being Collected	Type(s) of Data Being Collected	Number of Specimens
Tissue	<input type="text" value="Donor clinical data"/> <input type="text" value="Sample management data"/>	<input type="text" value="34800"/>
Blood	<input type="text" value="Donor clinical data"/> <input type="text" value="Sample management data"/>	<input type="text" value="2600"/>
Plasma	<input type="text" value="Donor clinical data"/> <input type="text" value="Sample management data"/>	<input type="text" value="2600"/>
Serum	<input type="text" value="Donor clinical data"/> <input type="text" value="Sample management data"/>	<input type="text" value="3600"/>

Catalogue of EuroBioBank

... CATALOGUE OF SAMPLES

About 130,000 samples are available across the network and can be requested via the online catalogue. ...

The catalogue lists the samples available throughout the EuroBioBank network by type of biomaterial. A **search engine** enables a search by disease or by bank contact.

Once a sample has been located in the catalogue, it can be requested by email. Therefore, the biological material is exchanged faster.

If a sample does not appear in the EuroBioBank catalogue, help can be provided to further search it at: eurobiobank@telethon.it

But ...

Catalogue of EuroBioBank

But ...

The catalogue is an excel file including the following information:

Type Of Sample	tissues, cells, blood, DNA
ICD10 Identifier	nearly fully filled
ICD10_Name	nearly fully filled
MIM Number	often
MIM_Name of Disease	often
ORPHA_Number	nearly fully filled
ORPHA_Name	nearly fully filled
Number Of Persons	1-1150 (total: 26,962)
Anatomic origin	½ filled
Type Of cells	½ filled
Bank_Contact	Email address

Catalogue of the German Biobank Register

Besides the involved biobanks, the following informationen can be found:

- Donors
- Materials
- Collections
- Funding and
- Phenotypes

Unfortunately, linking of the single headings can only be done when starting wiith the “Phenotype“.

Catalogue of the German Biobank Register

Angeborene Herzfehler	ICD-10 und EPCC	ICD-10-GM 2012, EPCC Version May 201	NRCHD
Apergillom	B44	ICD-10 GM 2014	ASK-Tx
Brustkrebs	C50	ICD-10-GM 2011	PATH
Erstmanifestation Multiple Sklerose	G35.0	ICD-10GM	Biobank KKNMS
Essentieller Tremor	G25.0	ICD-10 GM V2012	P2N-Popgen
Hamartom	Q85	ICD-10 GM2014	ASK-Tx
Hirnfarkt	I63.0 - 63.9	ICD-10 GM V.2012	P2N-Popgen

Material	Anzahl Aliquots / Schnitte / Blöcke	Biobank
Festes Gewebe (TIS)	5662	PATH
Festes Gewebe (TIS)	5800	PATH
Serum (SER)	12572	PATH

Conclusions

Networks

- The development of specific networks is extremely important for the field.
- This has an impact within the field but also for the appearance to outside the field.

Portals

- Portals are important to understand where biobanks can be found.
- At the same time, such portals are so unknown on their own that they cannot be found either.

Catalogues

- This combination of listing biobanks plus listing their samples and data will be the most important tool in the near future.
- So far, the catalogues are far from being of use, since there is not enough information on samples and data available so far.
- Also, entering information from biobanks into such catalogues is still a major challenge and an unsolved problem. So far, most of the biobank-related data are entered manually.

Thanks for Your Attention!

BioBank
GRAZ

Biobank of the Year 2014

