



Belgian Cancer Registry

The Belgian Virtual Tumourbank

In practice

www.kankerregister.org | www.registreducancer.org

Céline Degallier
BVT Inauguration symposium
04/10/2012

Overview

- From theory to practice:
 - A network of collaborations
 - Belgian Cancer Plan and the virtual tumourbank
 - Legal aspects
 - Harmonization with existing structures
 - BVT applications: BVTr & BVTc
 - Loading the data in the catalogue
- Registration module
- The catalogue
 - What steps to take?
 - Possibilities
 - Sample exchange tool
- Perspectives

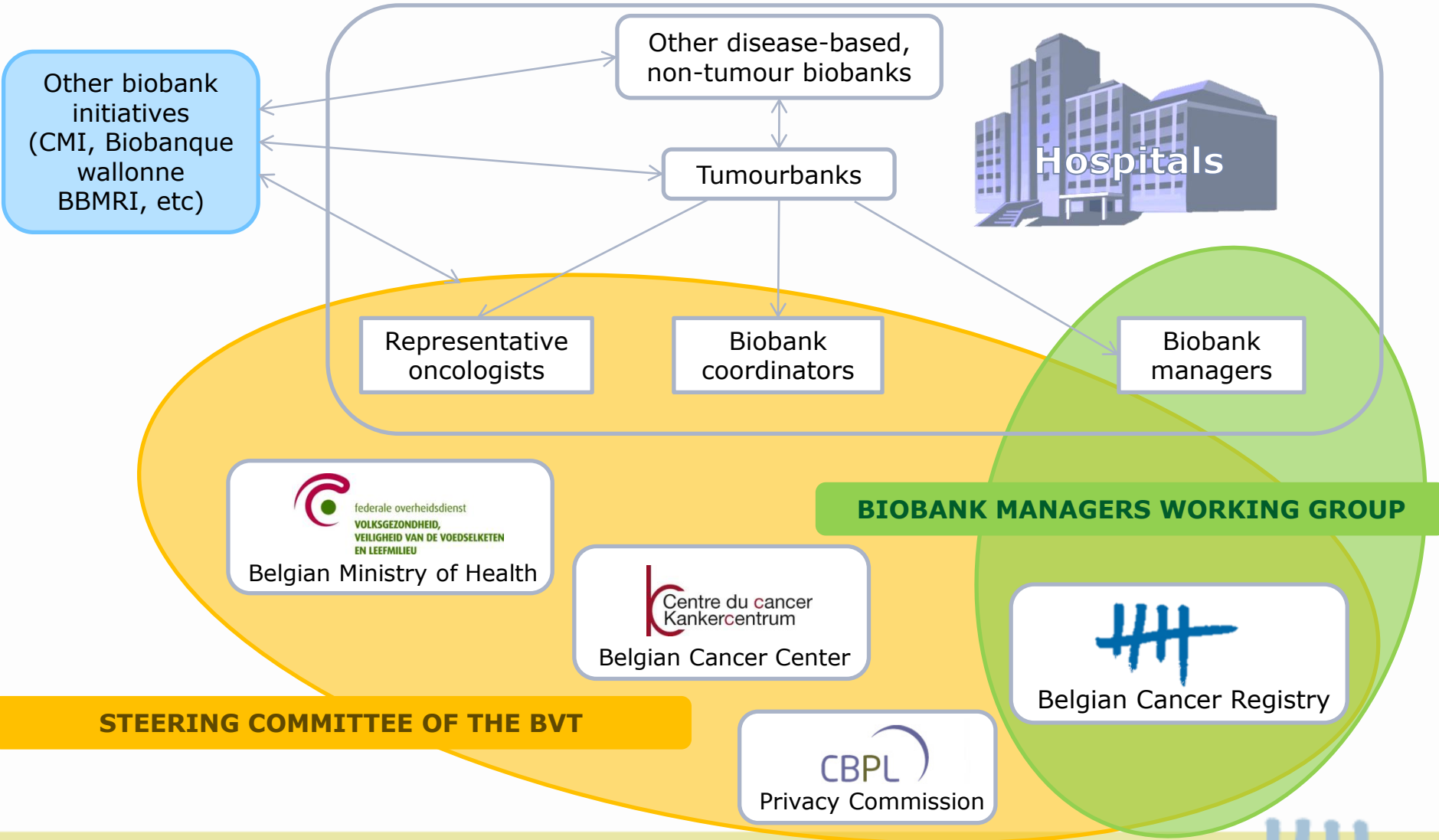


A network of collaborations

- **11 local biobanks/tumourbanks (TB)**
 - Conservation and management of the samples (and associated data)
 - Biobank Manager: daily coordination
 - Biobank Coordinator (medical doctor) as legal representative
- **Steering Committee of the Belgian Virtual Tumourbank (BVT)**
 - Strategic decisions
 - Meetings 2-3x/year
- **Belgian Cancer Registry (BCR)**
 - Collects data from cancer diagnoses of Belgian residents
 - Belgian Virtual Tumourbank: daily coordination of the project (datamanagement, harmonization and standardization, helpdesk, prepare policies and procedures, website, organize meetings, ...)



A network of collaborations



From theory to practice: BVT applications

Créer une tumorotheque virtuelle inter-universitaire

Action 27 : Création d'une tumorotheque

Objectif

Créer une tumorotheque virtuelle inter-universitaire visant à promouvoir la recherche translationnelle et d'établir un réseau de collaborations entre les structures académiques, les hôpitaux généraux et les différents partenaires industriels concernés (pharmacie, biotechnologies, diagnostic...) développant des activités de recherche en Belgique.

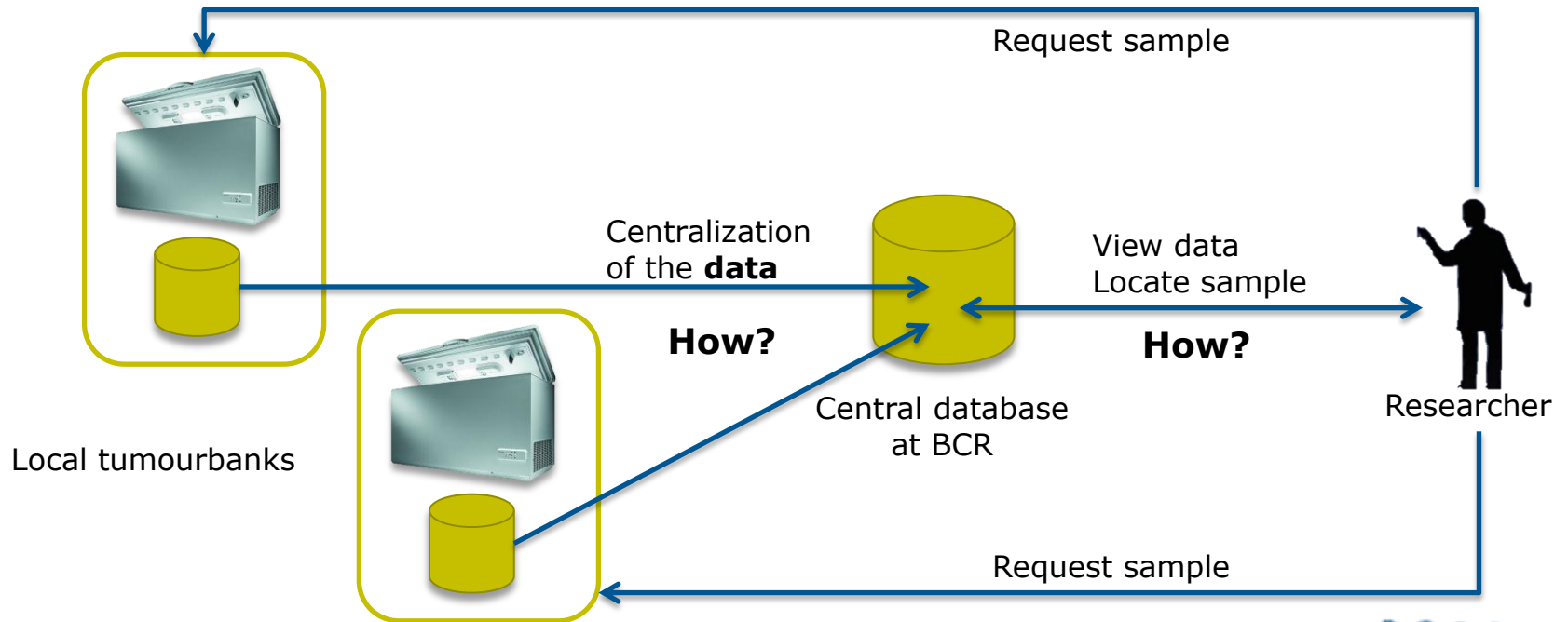


From theory to practice: BVT applications

Créer une tumorothèque virtuelle inter-universitaire



= Samples remain locally in the tumourbanks and the associated data is submitted for centralization



From theory to practice: Legal aspects

Processing of (medical) personal data requires the **authorization from the Privacy Commission**

- Use of medical personal data for the creation of the catalogue
- Access control to the catalogue of the BVT
- Use of the national registry number for the BVT-project
 - Unequivocally identify donors among the different hospitals
 - Allow quality control of the sample data → linkage with the cancer diagnoses



Harmonization with TB data and IT-systems

- Every tumourbank has its own **local software** application to manage the samples
- Every tumourbank has its own **local dataset**

=> The harmonization has to occur on the level of the centralization, by use of structured files for datatransfer



Other requirements for the BVT applications

Respect the **privacy of the donors**:

- Highly secured: eHealth services, adapted infrastructure
- Anonymised data for the researcher
- Controlled replication of the submitted data to the catalogue

But: **return to the donor's identity** must remain possible

- Quality Control
- Additional associated data if needed, after authorization
- Change of consent
- Return of relevant accidental findings



BVT online applications

BVTr(egistration)

= Registration module of the BVT

- For local TB and BCR
- Input data

BVTC(atalogue)

= Catalogue module of the BVT

- For researcher
- View samples



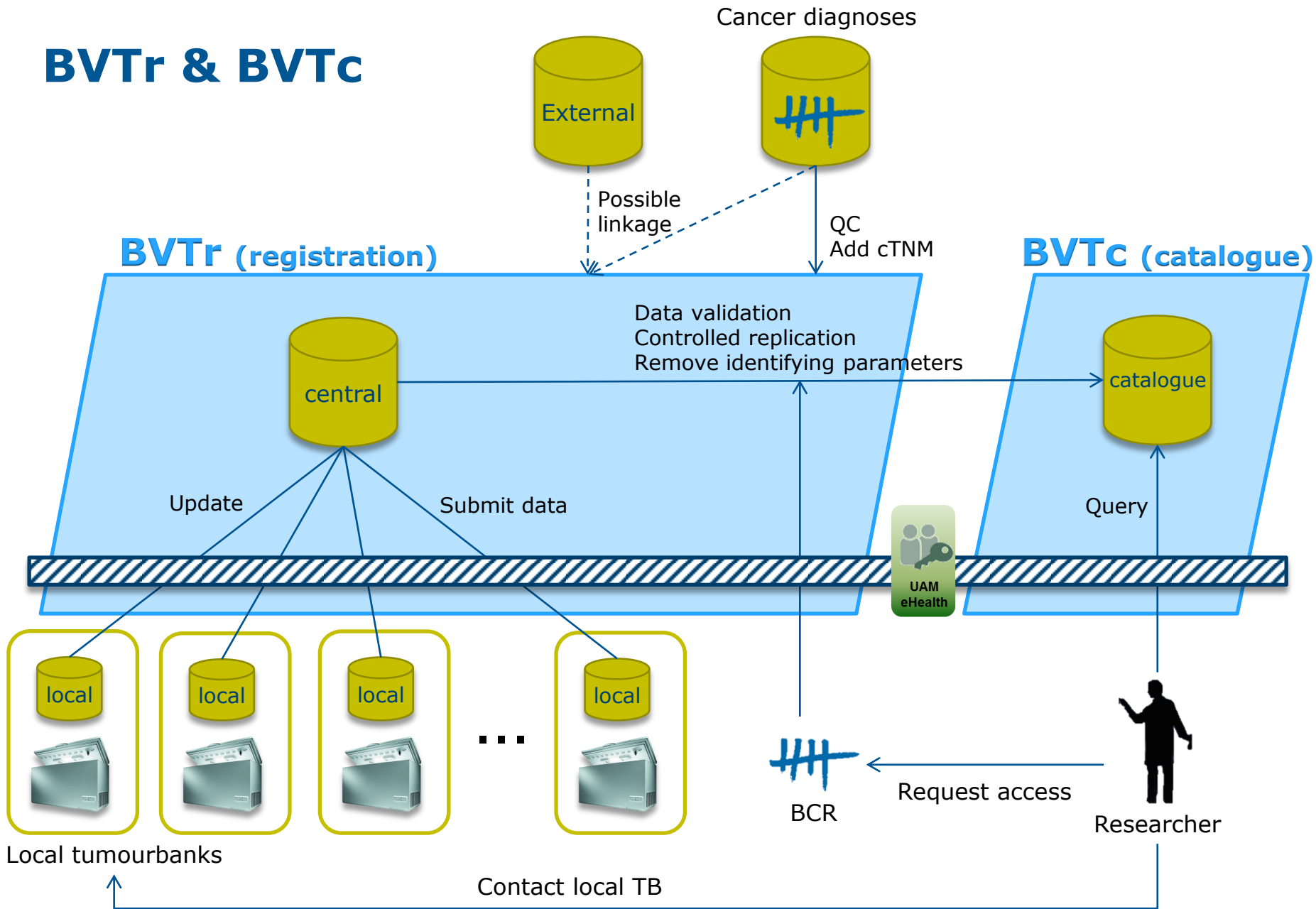
Secured by



Live since beginning of 2012 !



BVTr & BVTc



BVTr Registration module



From theory to practice: Loading data in the catalogue

- 2010: Elaboration of a minimal **dataset**, with well-defined variables
- Data from samples **before** 2010
 - BCR supports the formatting of data conform the dataset
- Data from samples **after** 2010
 - Local tumourbanks format their own data conform the dataset
 - If needed, assistance is given by BCR



Local TB



UPLOAD BATCH FILE

New batch upload

Select CSV/KMEHR file to upload

Browse...

Submit

Upload of strictly formatted batch files to the central database

Overview of batch uploads

Refresh

5 batch uploads found, displaying page 1 of 1.

Id	File Type	Upload on ▼	Completed on	Status	Errors processed ?	Original file	Errors file
58	CSV	04/09/2012 09:21:51	04/09/2012 09:26:11	COMPLETED_ERRORS	<input checked="" type="checkbox"/>	8LAB-check_upload_ICDO-TNM_v4.csv	Error_8LAB-check_upload_ICDO-TNM_v4.csv
53	CSV	03/09/2012 11:40:20	03/09/2012 11:42:59	COMPLETED_ERRORS	<input checked="" type="checkbox"/>	4LAB-5LAB-check_upload_2_v6.csv	Error_4LAB-5LAB-check_upload_2_v6.csv
51	CSV	31/08/2012 14:27:39	31/08/2012 14:28:18	COMPLETED_ERRORS	<input checked="" type="checkbox"/>	4LAB-5LAB-check_upload_2_v6.csv	Error_4LAB-5LAB-check_upload_2_v6.csv
49	CSV	31/08/2012 13:50:50	31/08/2012 13:52:16	COMPLETED_ERRORS	<input checked="" type="checkbox"/>	1BCR-2BCR-	Error_1BCR-2BCR-



SEARCH & MANAGE

NEW REGISTRATION

BATCH UPLOAD

Sample ID



Lab 1
[logout](#)



[View all](#) | [2834 Submitted](#) | [63 Published](#) | [3 Saved](#) | [Rejected: 16](#)

NEW REGISTRATION

Registration

History

Individual input of data possible

Save

Submit

Patient variables

SSIN * ?

Birth date (dd/mm/yyyy)*

22/03/1983

Gender*

Male Female

The biobank declares that the donor is informed about the conservation and potential use of his/her residual corporal material for scientific research, and that he/she has not opposed.

Technical characteristics of the sample

Sample ID* ?

Sample001

Conservation delay* ?

0 - 30 min

Biopsy number * ?

Biopsy001

Autopsy ?

Yes No

Sample date (dd/mm/yyyy)*

04/09/2012

Conservation mode*

-20°C -80°C -120°C or colder
 Liquid nitrogen paraffin (FFPE) Other

Available materials* ?

Tissue Cytology DNA
 NA Proteins Corresponding normal tissue
 Serum Plasma Whole blood
 Urine Other

Technical remarks ?



SEARCH & MANAGE

NEW REGISTRATION

BATCH UPLOAD

Sample ID



Lab 1
logout



[Show all](#) | [2834 Submitted](#) | [63 Published](#) | [3 Saved](#) | [Rejected: 16](#)

SEARCH CRITERIA

Modifications to loaded samples are always possible

Search

General variables

Creation date (dd/mm/yyyy)

01/09/2012



until

30/09/2012



Status

Patient variables

SSIN

Gender

Male Female Both

Age

until

Technical characteristics of the sample

Sample ID ?

Conservation delay ?

Biopsy number ?

Autopsy ?

Yes No

Conservation mode

Available materials ?

Sample date (dd/mm/yyyy)



until



Technical remarks available?

Oncological characteristics of the sample



<input checked="" type="checkbox"/>			Creation date	Sample ID	SSIN	Birth date	Gender	Age	Sample type	Organ code	Lesion code	pTNM
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1556	10000081673	16/10/1953	M	52	M	C64.9	M9818/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1555	10000081475	16/10/1953	F	52	M	C64.9	M9817/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1554	10000081376	16/10/1953	M	55	M	C64.9	M9816/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1553	10000081277	16/10/1953	F	55	M	C64.9	M9815/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1552	10000081178	16/10/1953	M	55	M	C64.9	M9814/3	
<input type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1551	10000081079	16/10/1953	F	55	M	C64.9	M9813/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1550	10000080980	16/10/1953	M	55	M	C64.9	M9812/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1549	10000080881	16/10/1953	F	55	M	C64.9	M9811/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1548	10000080782	16/10/1953	M	55	M	C64.9	M9809/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1547	10000080683	16/10/1953	F	55	M	C64.9	M9808/3	
<input type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1546	10000080584	16/10/1953	M	55	M	C64.9	M9807/3	
<input type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1545	10000080485	16/10/1953	F	55	M	C64.9	M9806/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1544	10000080386	16/10/1953	M	55	M	C64.9	M9759/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1543	10000080287	16/10/1953	F	55	M	C64.9	M9757/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1542	10000079990	16/10/1953	M	55	M	C64.9	M9754/3	
<input type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1541	10000079891	16/10/1953	F	55	M	C64.9	M9751/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1540	10000079792	16/10/1953	M	55	M	C64.9	M9751/1	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1539	10000079693	16/10/1953	F	55	M	C64.9	M9741/3	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1538	10000080089	16/10/1953	M	55	M	C64.9	M9741/1	
<input checked="" type="checkbox"/>	Open	Edit	04/09/2012	8ICDO-3-1537	10000079590	16/10/1953	F	55	M	C64.9	M9740/1	

Data validation: publish or reject

« ‹ 1 2 3 4 › »



Publish Reject

Excel Export

KMEHR Export





[logout](#)

SEARCH & MANAGE BATCH UPLOAD **MANAGE LABS** MANAGE RESEARCH GROUPS

Show all [2834 Submitted](#) | [64 Published](#) | [4 Inactive](#) | [18 Rejected](#) | [Error files: 1](#)

LAB DETAIL

Lab details

Access local TBs
to register their
samples

Access researchers
to view samples in the
catalogue

[↑ Return to Lab Overview](#)

[Update](#)

Name	Lab 1
NIHII number	71089914

Contact persons

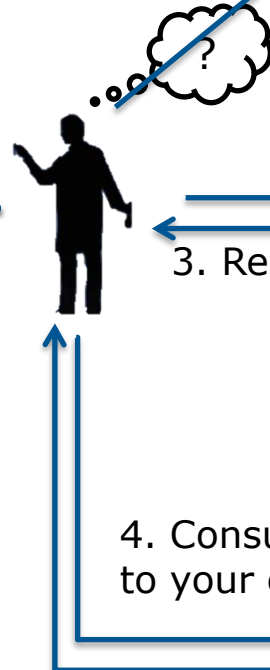
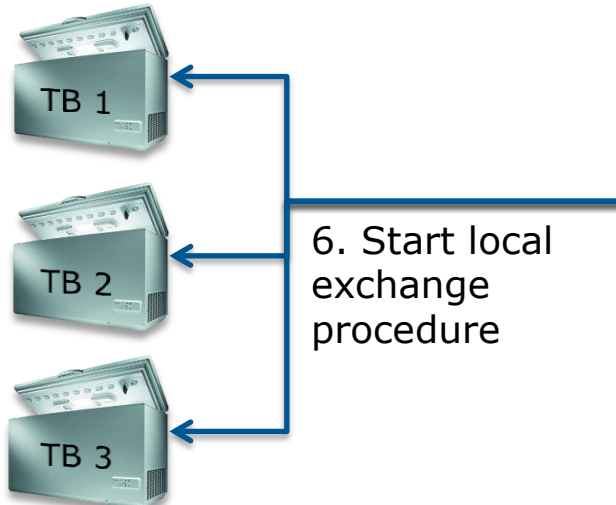
	Biobank Coordinator	Biobank Manager
Name	Coordinator 1	Manager 1
Phone	-	-
E-mail	-	-

BVTc

Catalogue module



The researcher



1. Consult the BVT website for more information
www.virtualtumourbank.be

2. Request access to catalogue

3. Receive access with authorization of the BVT Steering Committee

4. Consult the catalogue: view the samples corresponding to your criteria

5. Record the tumourbanks that have the selected samples

6. Start local exchange procedure



At this moment: more than 12,000 registrations searchable in the catalogue !





SIMPLE SEARCH

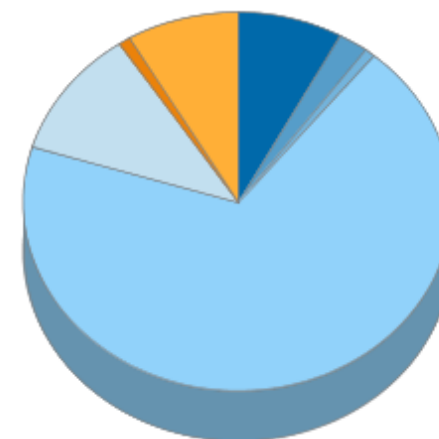
Select lesion type

Make your choice here



Sample Localisation

- C00-C14: Lip, oral cavity and pharynx
- C15-C26: Digestive organs
- C30-C39: Respiratory system and intrathoracic organs
- C40-C41: Bones, joints and articular cartilage
- C42: Hematopoietic and reticuloendothelial systems
- C44: Skin
- C47-C49: Connective and soft tissues
- C50: Breast
- C51-C58: Female genital organs
- C60-C63: Male genital organs
- C64-C68: Urinary tract
- C69-C72: Central nervous system
- C73-C75: Endocrine glands
- C76: Other and ill-defined sites
- C77: Lymph nodes
- C80: Unknown primary site



- Benign tumours (/0)
- Uncertain/borderline tumours (/1)
- In situ tumours (/2)
- Primary malignant tumours (/3)
- Metastatic tumours (/6)
- Normal tissues
- Non-tumoural lesions



[logout](#)

SIMPLE SEARCH ADVANCED SEARCH

SIMPLE SEARCH

Select lesion type

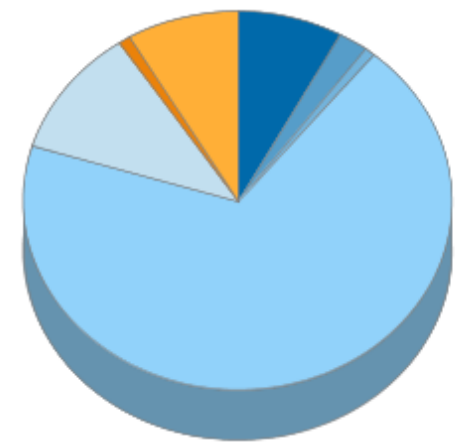
Make your choice here

- Make your choice here
- Benign tumours (/0)
- Uncertain/borderline tumours (/1)
- In situ tumours (/2)
- Primary malignant tumours (/3)**
- Metastatic tumours (/6)
- Normal tissues
- Non-tumoural lesions

Sample Localisation

- + C00-C14: Lip, oral cavity and salivary glands
- + C15-C26: Digestive organs
- + C30-C39: Respiratory system and intrathoracic organs
- + C40-C41: Bones, joints and articular cartilage
- + C42: Hematopoietic and reticuloendothelial systems
- + C44: Skin
- + C47-C49: Connective and soft tissues
- + C50: Breast
- + C51-C58: Female genital organs
- + C60-C63: Male genital organs
- + C64-C68: Urinary tract
- + C69-C72: Central nervous system
- + C73-C75: Endocrine glands
- + C76: Other and ill-defined sites
- + C77: Lymph nodes
- + C80: Unknown primary site

Select the lesion type



- Benign tumours (/0)
- Uncertain/borderline tumours (/1)
- In situ tumours (/2)
- Primary malignant tumours (/3)
- Metastatic tumours (/6)
- Normal tissues
- Non-tumoural lesions



SIMPLE SEARCH

Select lesion type

Primary malignant tumours (/3) ▾

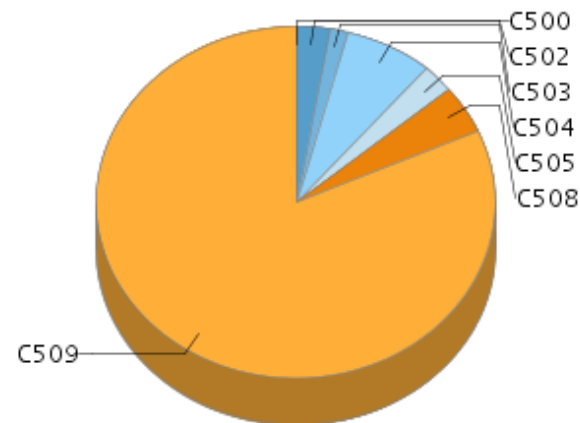
6214 results

Select the lesion type

Sample Localisation

- C00-C14: Lip, oral cavity and pharynx (104)
- C15-C26: Digestive organs (1215)
- C30-C39: Respiratory system and intrathoracic organs (681)
- C40-C41: Bones, joints and articular cartilage (116)
- C42: Hematopoietic and reticuloendothelial systems (42)
- C44: Skin (178)
- C47-C49: Connective and soft tissues (280)
- C50: Breast (1730)
 - C500: Nipple (1)
 - C501: Central portion of breast
 - C502: Upper-inner quadrant of breast (46)
 - C503: Lower-inner quadrant of breast (25)
 - C504: Upper-outer quadrant of breast (124)
 - C505: Lower-outer quadrant of breast (45)
 - C506: Axillary tail of breast
 - C508: Overlapping lesion of breast (76)
 - C509: Breast, NOS (1413)
- C51-C58: Female genital organs (278)
- C60-C63: Male genital organs (96)
- C64-C68: Urinary tract (407)
- C69-C72: Central nervous system (330)

**Select an organ
(category)**



View the available samples

 Your search returned 1,730 registrations, displaying page 1 of 87.



Primary malignant tumours (/3) - C50: Breast


	Sample Year ▲	Gender	Age	Sample Type	Organ Code	Lesion Code	Conservation Mode	Tissue?	Other Materials?
View	1995	F	81	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	74	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	68	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	50	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	74	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	58	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	86	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	57	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	84	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	65	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	48	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	82	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	73	P	C50.9	M8140/3	-80°C	Y	N
View	1995	F	50	P	C50.9	M8140/3	-80°C	Y	N


Adenocarcinoom, NNO


No need to know the codes

Refine your search...


 Refine search criteria

 New search

 Extended view

 Export

ADVANCED SEARCH

... in the **Advanced search** page



General Variables

Laboratory

Reference ID

Gender Male Female

Include patient criteria

Age From To

Technical Variables

Sample ID

Sample year From To

Conservation mode -20°C -80°C -120°C or colder
 Liquid nitrogen paraffin (FFPE) Other

Conservation Delay 0 - 30 min + 30 min Unknown

Autopsy Yes No

Available materials Tissue Cytology DNA
 RNA Proteins Corresponding normal tissue
 Serum Plasma Whole blood
 Urine Other

Include sample criteria

Oncological Variables

Lesion type Benign tumours (/0) Normal tissues Non-tumoural lesions
 Uncertain/borderline tumours (/1)
 In situ tumours (/2)
 Primary malignant tumours (/3)
 Metastatic tumours (/6)

- Serum
- Plasma
- Whole blood
- Urine
- Other



Oncological Variables

Lesion type ?

Specify the morphology of the tumour

Sample localisation ?

Laterality

Histological diagnosis ?

Differentiation grade

pT
pN
pM

cT
cN
cM

Histological diagnosis

Search

Results [Select all](#)

Selected codes

Select

Select

Select

Select

Select

Select

Select

Select

Select

Select

1

4

7

0

0

0

0

0

0

1

1

1

2

2

2

3

3

3

4

4

4

Select codes

Select codes

Select codes

Clear

Continue with selection

Hide duplicates ?

Search

Clear all

- Serum
- Plasma
- Whole blood
- Urine
- Other



Oncological Variables

Lesion type ?

Specify the morphology of the tumour

Sample localisation ?

Laterality

Histological diagnosis ?

Differentiation grade

pT

pN

pM

cT

cN

cM

Histological diagnosis

🔍 Search

Results [Select all](#)

- M8319/3 Collecting duct carcinoma
- M8407/3 Sclerosing sweat duct carcinoma
- M8500/3 Infiltrating duct carcinoma, NOS
- M8541/3 Paget disease and infiltrating duct carcinoma of breast
- M8319/6 Collecting duct carcinoma, metastasis
- M8407/6 Sclerosing sweat duct carcinoma , metastasis

Selected codes

- M8500/3 Infiltrating duct carcinoma, NOS

🗑️ Clear

➔ Continue with selection

Include pathological T-staging

Hide duplicates ?

🔍 Search

🗑️ Clear all



SIMPLE SEARCH

ADVANCED SEARCH

[logout](#)



SEARCH RESULT

View the resulting selection



Your search returned 153 registrations, displaying page 1 of 8.

	Sample Year ▲	Gender	Age	Sample Type	Organ Code	Lesion Code	Conservation Mode	Tissue?	Other Materials?
View	2006	F	58	P	C50.9	M8500/3	-80°C	Y	Y
View	2006	F	51	P	C50.9	M8500/3	-80°C	Y	Y
View	2006	F	64	P	C50.9	M8500/3	-80°C	Y	Y
View	2007	F	48	P	C50.9	M8500/3	-80°C	Y	N
View	2007	F	64	P	C50.9	M8500/3	-80°C	Y	Y
View	2007	F	65	P	C50.9	M8500/3	-80°C	Y	Y
View	2007	F	56	P	C50.9	M8500/3	-80°C	Y	N
View	2007	F	49	P	C50.9	M8500/3	-80°C	Y	N
View	2007	F	49	P	C50.9	M8500/3	-80°C	Y	N
View	1995	F	50	P	C50.9	M8140/3	-80°C	Y	N

« « 1 2 3 4 » »

Extend view or export data to **allow localization**

+ Refine search criteria

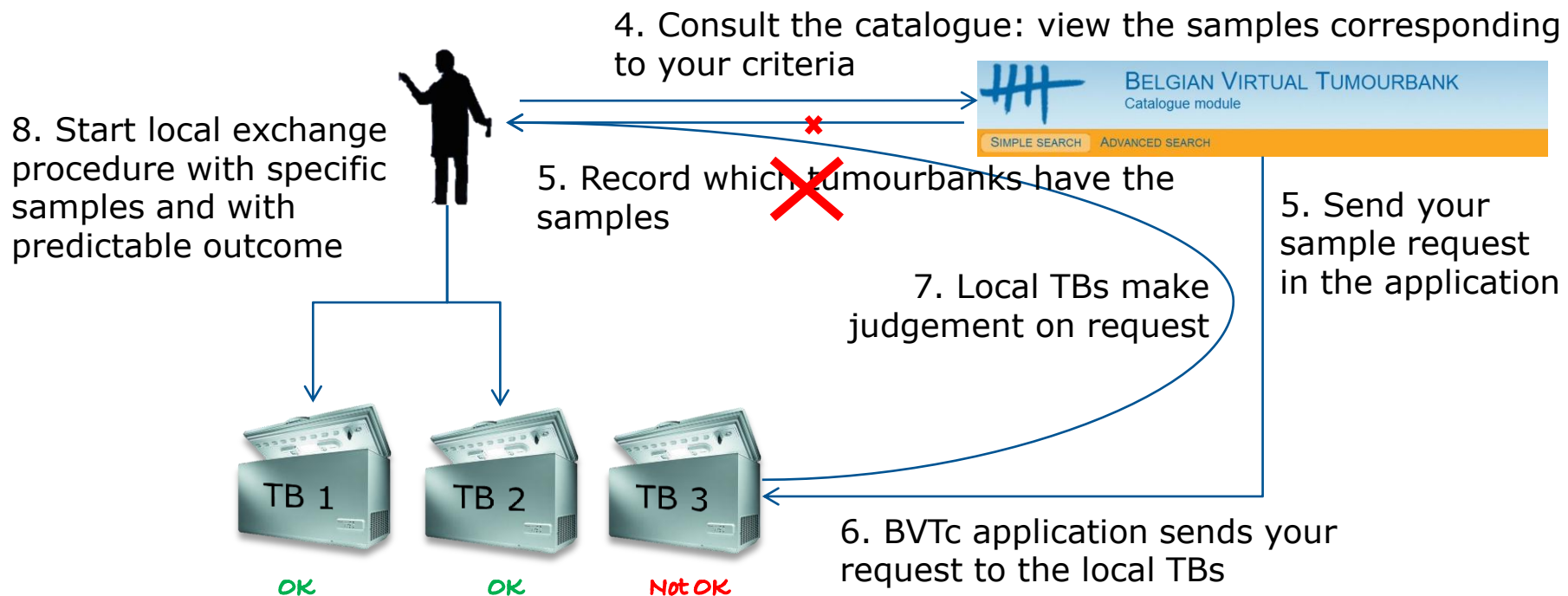
New search

Extended view

Export

Sample exchange tool

Upgrade of the BVTc application




Sample exchange tool

- Researcher selects samples a

Display Name of Project* ?

 Samples 1 - 4 of 4 are shown.

<input type="checkbox"/>		Sample Year 	Gender	Age	Sample Type	Organ Code					
<input type="checkbox"/>	View	2009	M	55	P	C64.9	M8312/3	-80°C	Y	N	
<input type="checkbox"/>	View	2009	F	55	P	C64.9	M8312/3	-80°C	Y	N	
<input type="checkbox"/>	View	2009	F	55	P	C64.9	M8312/3	-80°C	Y	N	
<input type="checkbox"/>	View	2009	F	55	P	C64.9	M8312/3	-80°C,paraffin (FFPE)	N	Y	

Request form ✕

Project information

Title of the project* ?

Description of the project* ?

Project topic ?

Is the project peer reviewed?* ? Yes No

Do you have an approval from an ethics committee for this project and the use of the samples?* ? Yes No Pending

Sample information


Provide a brief description of the requested samples ?


Provide a brief description of the requested materials ?


Do you need additional clinical information outside the BVT-dataset?* ? Yes No

Please motivate your ?

 Remove Selected

 Send Sample Request

 Extended view

 Export All

Sample exchange tool

- The local tumourbanks send back their decision

REQUEST OVERVIEW

LIST OF REQUESTED SAMPLES : PROJECT



Samples 1 - 4 of 4 are shown.

	Sample Year	Gender	Age	Sample Type	Organ Code	Lesion Code	Conservation Mode	Tissue?	Other Materials?	Status	Comment
View	2009	M	55	P	C64.9	M8312/3	-80°C	Y	N	✓	
View	2009	F	55	P	C64.9	M8312/3	-80°C	Y	N	✓	
View	2009	F	55	P	C64.9	M8312/3	-80°C	Y	N	✓	
View	2009	F	55	P	C64.9	M8312/3	-80°C,paraffin (FFPE)	N	Y	✗	Not accepted



Start local exchange procedure at the concerned tumourbanks with specific samples and with predictable outcome

Perspectives

- **Finalize the Sample exchange tool**
- **Increase quality and standardization** of data and samples
 - Local TB: Towards ISO accreditation for all tumourbanks?
 - Data and samples
 - Implement SOPs and quality assurance
 - BCR: increase Quality Control
 - Comparison with the cancer diagnoses in BCR registry
 - Increase feedback to local tumourbanks
- Local TB: **continue input** of data in the catalogue
- BCR: **continue coordination and support** for the project
- Increase national and international **collaboration**



Thank you for your attention



THE BELGIAN VIRTUAL
TUMOURBANK

Biobank team at the Belgian Cancer Registry

Céline Degailier and Eva Van der Stock

biobank@registreducancer.org

www.virtualtumourbank.be

Acknowledgement to Dr. Jimmy Van den Eynden

