

The Ohio BioRepository: A Community Hospital Focused Tissue Repository

**Windows of the Future
March 7, 2006**

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www.ohiobiorepository.org

Omeris

- Founded in 1986 as the Edison BioTechnology Center, Omeris is a non-profit organization designed to build and accelerate bioscience industry, research, and education in Ohio



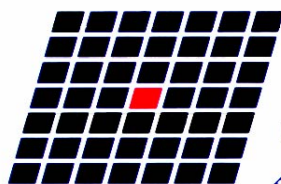
Omeris' Dual Role

- Statewide public-private economic membership organization for biosciences
- Business Development via 4 regional bioscience incubators



Omeris' Bioscience Incubators Partners

2003 Incubator of the
Year - USA



*Business
Technology
Center*

An Edison Technology Incubator

www.btccolumbus.com

BIO/START

Bio/Medical Start-Up Center

www.biostart.org



BioEnterprise

www.bioenterprise.com



**Edison
Biotechnology
Institute**

www.ohiou.edu/biotech



What do the Bioscience Incubator Partners do?

- **Collaborations** with universities, established companies, and start-up companies; national and international collaborations
- **Business development** to help established and startup companies make contacts and pursue success
- **Management support** for startup companies, “portable executives” until the company operates on its own
- **Professional Services** referrals to attorneys, accountants, and others who understand the technology, the startup company environment, international business
- **Access to Capital** helping startups find investors, and helping investors find companies to invest in



Omeris' Role

- Advocacy and Visibility
- Marketing / Networking
 - BIO
 - BioOhio
 - Regional events
- Trade Missions
- ***State and National Caliber Projects***
- International and National Attraction



Why a Tissue Repository?

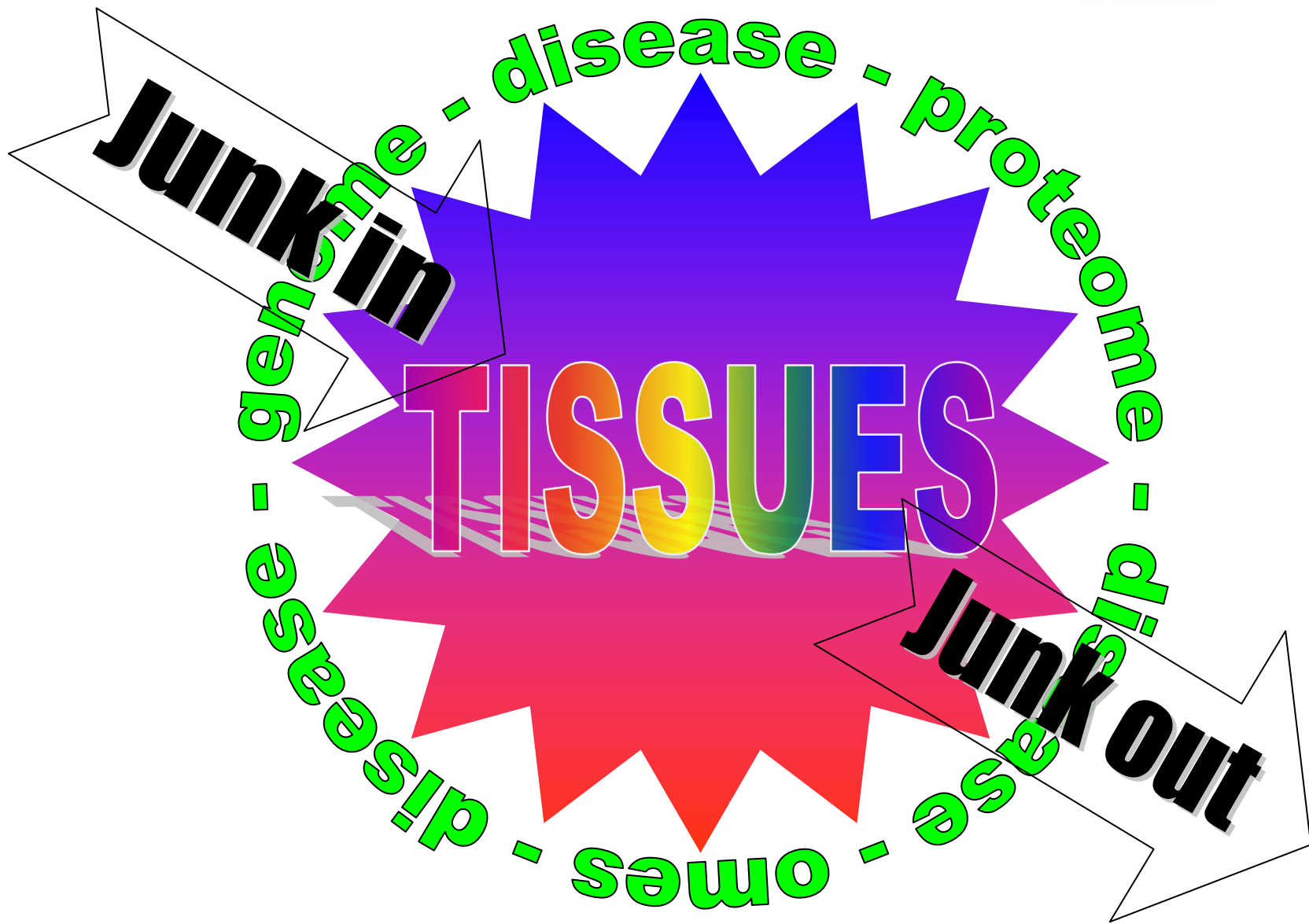


Tissue Bottle-neck

- Availability of validated human tissue & associated patient/clinical data is creating a research bottle-neck
- Why?







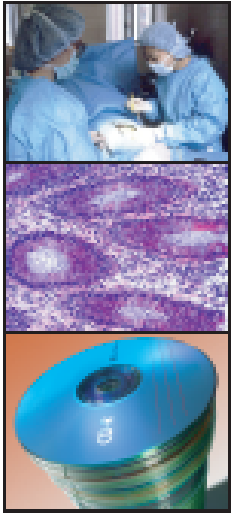


Need Recognized at a Federal Level

- AACR Annual Meeting, Washington, DC
NCI – July 11, 2003 – Dr. von Eschenbach
– Will develop a National Biospecimen Network (NBN)
 - Access to tissues and other biological specimens
 - Collection
 - Dissemination
 - Associated clinical data (data management)
 - New research and translational findings



NBN Blueprint



National Biospecimen Network Blueprint

- Why the NBN
- Biospecimen and data collection & distribution
- Bioinformatics & data management
- Governance

September 2003



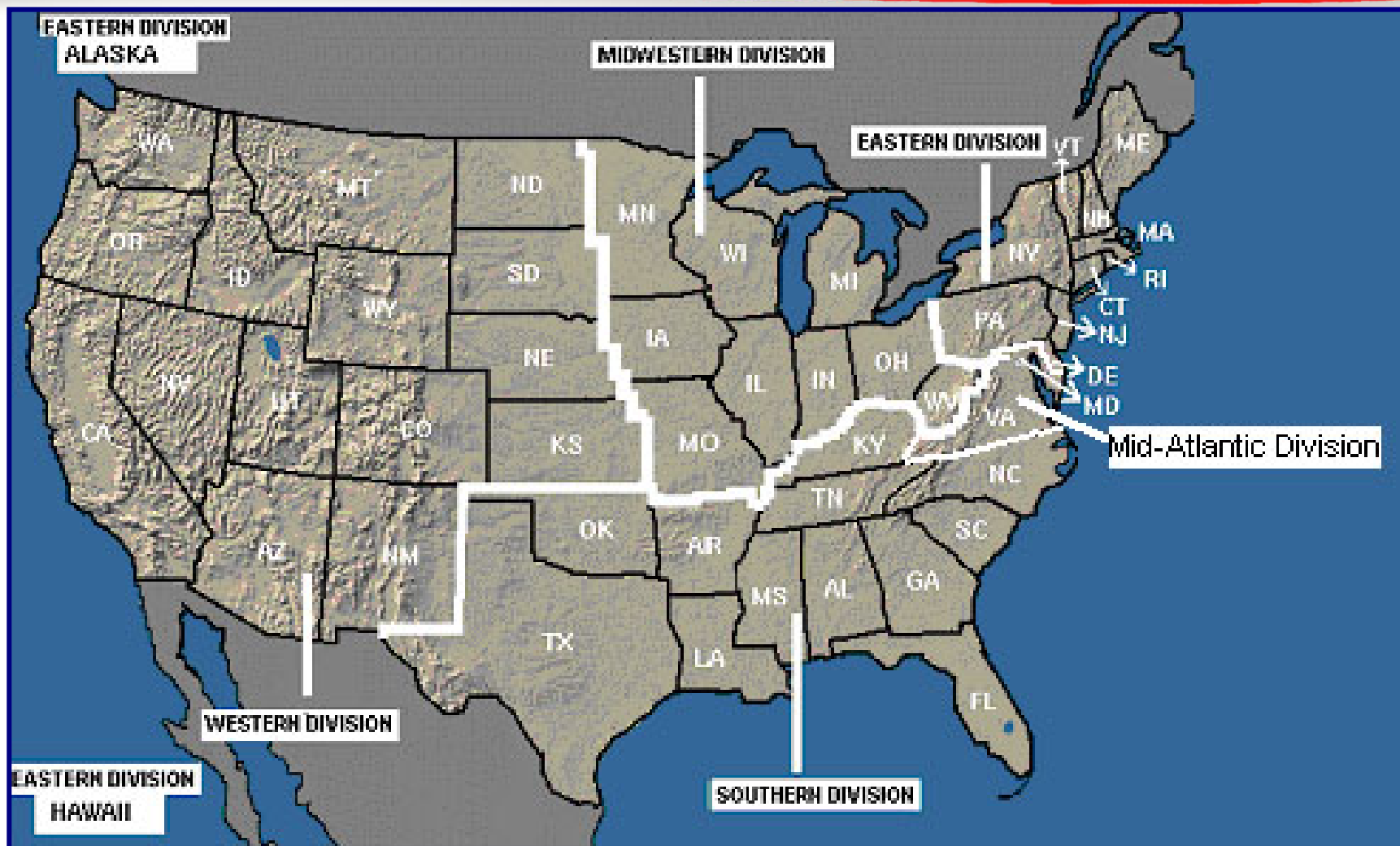
CHTN - A well established tissue collection network



National Cancer Institute's Cooperative Human Tissue Network

- The Ohio State University Medical Center
- The University of Alabama at Birmingham
- University of Pennsylvania Medical Center
- University of Virginia Health System
- Vanderbilt University Medical Center
- Children's Research Institute
- Case Western Reserve University (1992-2000)





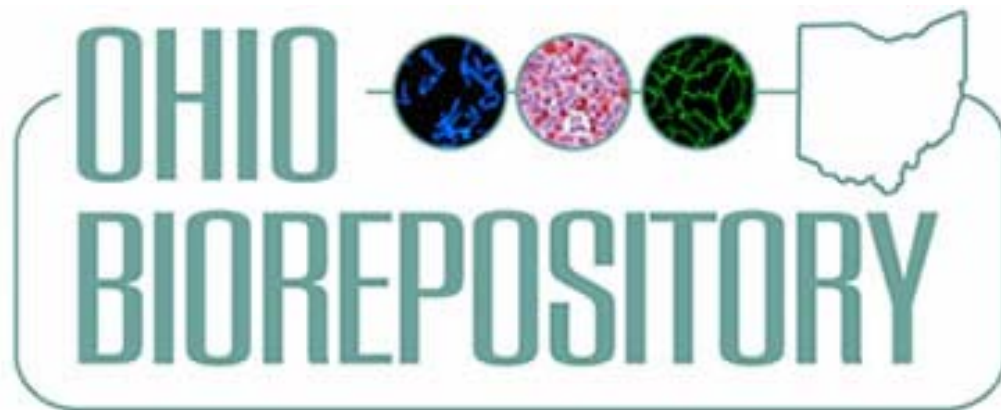
1-866-GO2-CHTN(1-866-462-2486)
<http://www-chn.ims.nci.nih.gov/>



Human Tissue for Research

- Malignant, benign, diseased and normal
- Fresh, frozen, fixed
- Academic and commercial investigators
- Requires IRB approval from investigator's institution
- Investigator Agreement
- Data Use Agreement (HIPAA)
- *Tissue sourced from major medical centers*





www.ohiobiorepository.org



Our Intent (in 2003)

- Omeris to establish a biorepository, which could also serve as a regional component to the NBN
- Start with cancer, but expand to include all disease types
- Leverage Ohio's Academic, Commercial, Hospital and Informatics networks
- Focus on Ohio's community hospitals which serve ~85% of the cancer population
- Other states, e.g. Pennsylvania, Georgia, Arizona, are already on this path



OBR - Structure

- Ohio BioRepository (OBR) established as an independent operating entity of Omeris
- OBR “facility” at the Columbus Business Technology Center (BTC) and Ohio Supercomputer Center (OSC)
- Run as a self sustaining “service”
- Builds inventory; tissue and associated clinical and analysis data
- Initial focus cancer



OBR – Partners

We couldn't do this without you:

- The biorepository
 - Omeris – Concept, Management
 - Ohio Supercomputer Center – data warehouse
 - Ohio State University – Consulting, services, training
- Tissue partners – Community hospitals
 - Ohio Health – Riverside Methodist Hospital
 - Others – in discussion
- Academics centers
 - Cleveland Clinic/CASE – Validation
 - OSU – Validation
- Commercial partner
 - Phylogeny



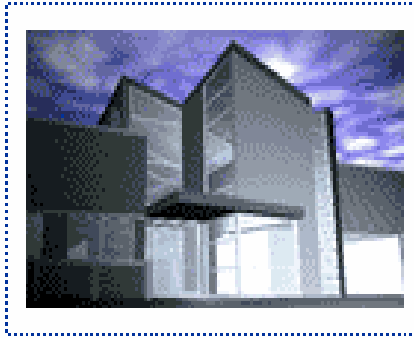
Establishing the OBR

A Phased Approach

- Building Capability: Tissue archive
- Building a Community Hospital Focus: Ohio Health, Riverside Methodist Hospital



OBR locations



- Tissue and pathology block archive storage facility – BTC
- Data warehouse – OSC-Springfield



Building The Ohio BioRepository



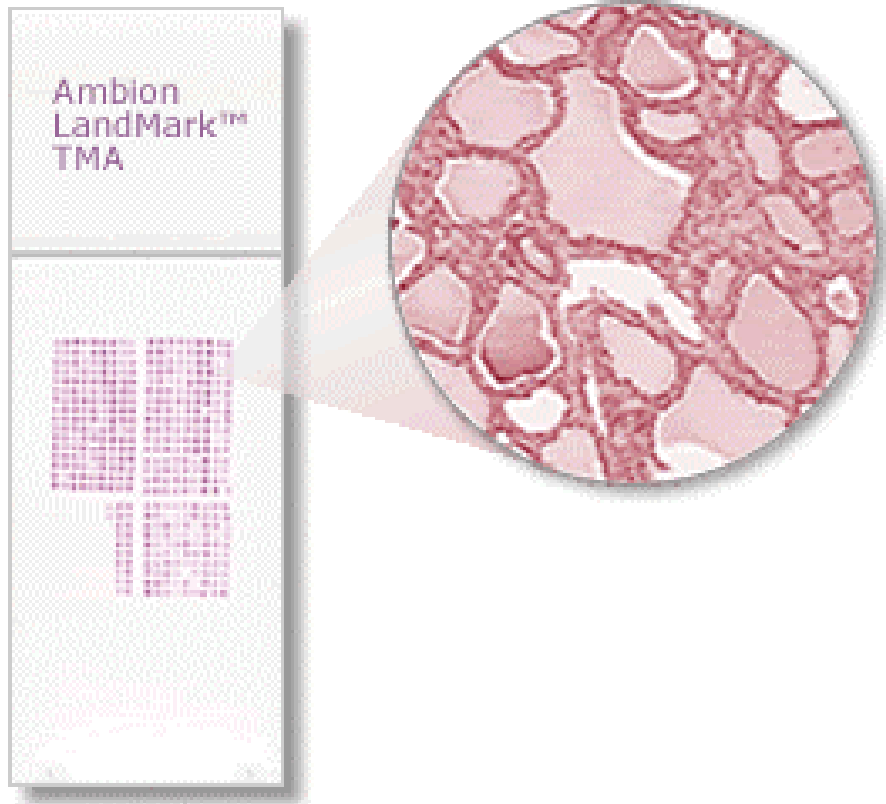
phylogeny

OSC

- Third Frontier funding secured to start building OBR and support Phylogeny
- OBR being developed in partnership with OSU & OSC
- Leverage partners expertise
- Tissue sourcing from OSU (archive) & community hospitals



Tissue Micro-Array Product Line



- Partnership with Phylogeny (Folio) to support TMA production
- Will market own brand and OEM for others
- Phylogeny fixative preserves all mRNA



OBR Tissue Archive

- The problem and the challenge



Pathology Block Archive

- Pathology block archive comprising 144,000 patient records and blocks donated by OSU to the OBR
- 18 year collection from 1950-1967
- Report information annotated into searchable database
- Asset now available to the research community
- 14,214 annotated cancer cases



Pathology Block Archive:

Some Numbers

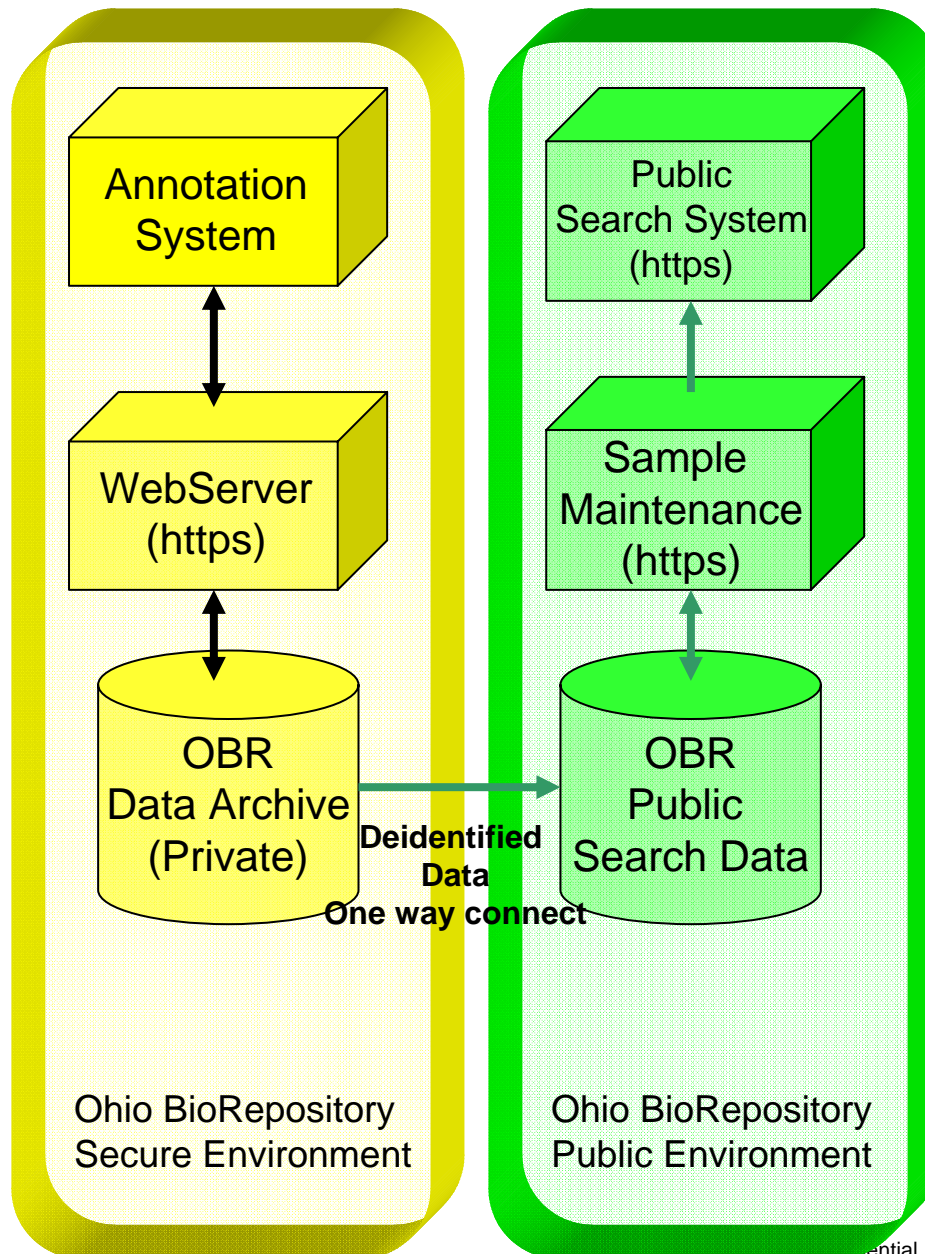
- 83,475 reports examined
- 14,214 annotated entries for cancer
- Cancer cases (malignant and benign) represent 17% of cases
- Cancer (malignant) 13% of cases

Anatomic Site	Cases
Bone	185
Breast	815
Brain	149
Cervix	1,140
Colon	738
Kidney	93
Liver	205
Lung	540
Ovary	191
Pancreas	75
Stomach	160
Prostate	376
Thyroid	249
Urinary bladder	497



Data Collection, Access & Security - Archives





Annotation web portal



OBR Details Page - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Go

Ohio BioRepository
New Search Results Home Page

Details Page [View Image](#)

OBR ID: 20383

Report Number:

Procedure Date: (mm-dd-yyyy) 01-01-1951

Donors Gender: Female

Donors Race: White

Donors Age: 61

Anatomic Site: Breast

Tissue Type: Malignant

Malignancy: Primary

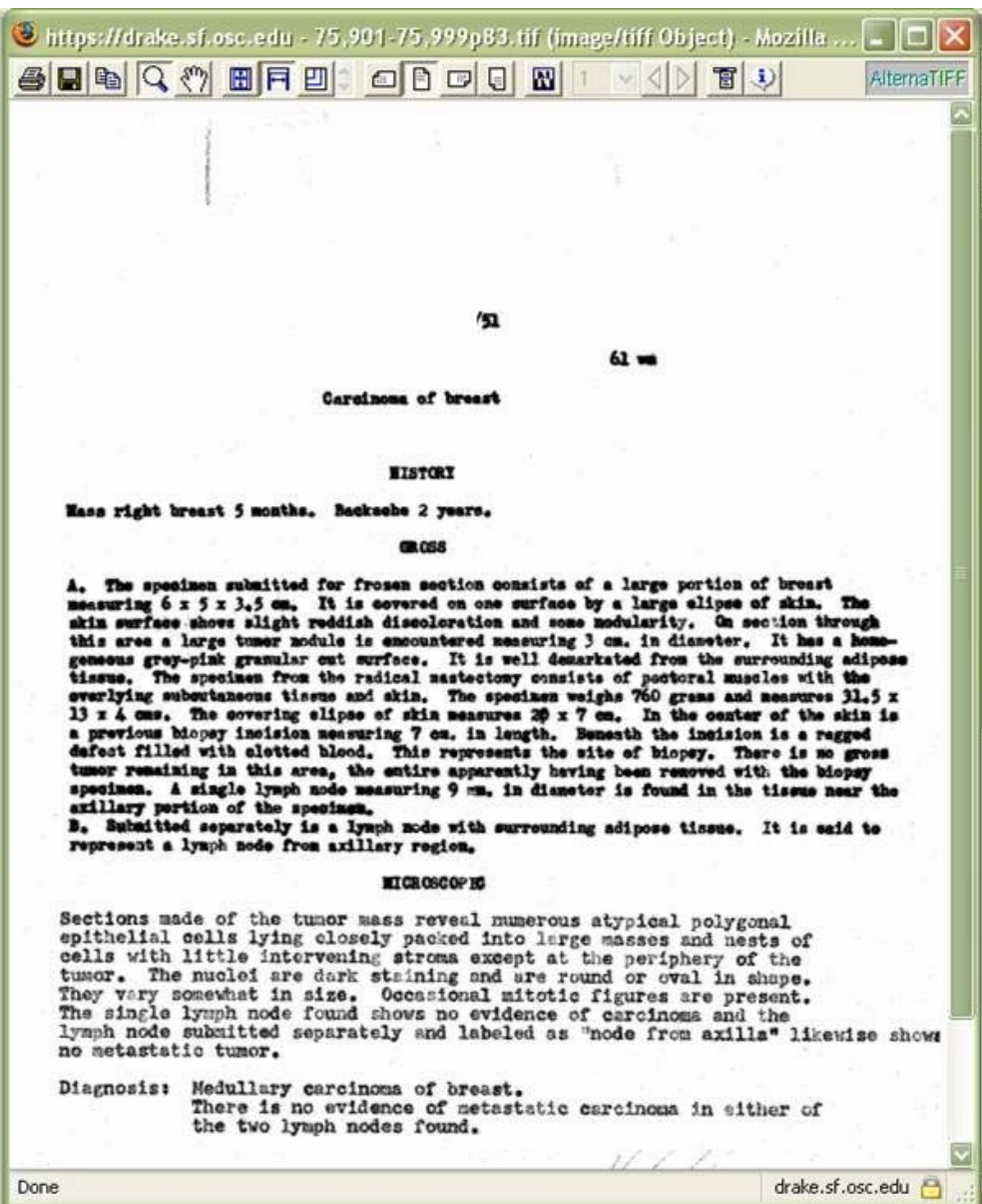
Grade:

Diagnosis: Carcinoma

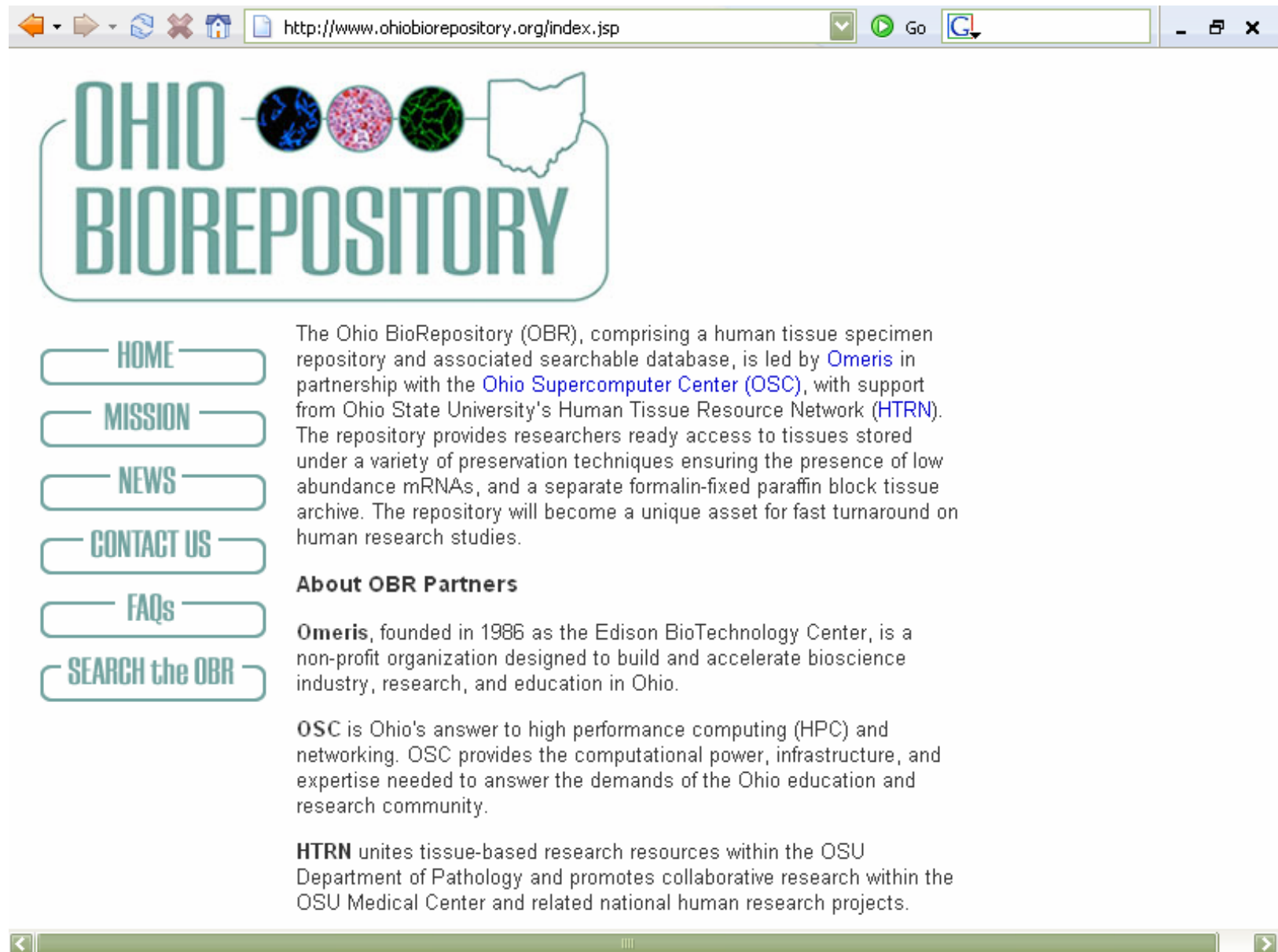
Annotation Status: Complete

Inventory Back Prev Next Update 1 of 759

Done drake.sf.osc.edu



Database accessed through OBR web portal



The screenshot shows a web browser window with the address bar displaying <http://www.ohiobiorepository.org/index.jsp>. The page features the Ohio BioRepository logo, which includes the text "OHIO BIOREPOSITORY" and three circular icons representing different biological samples. A navigation menu on the left contains links for HOME, MISSION, NEWS, CONTACT US, FAQs, and SEARCH the OBR. The main content area provides an overview of the repository, its partners (Omeris, OSC, and HTRN), and their roles in the bioscience industry, research, and education in Ohio.

OHIO BIOREPOSITORY

[HOME](#)
[MISSION](#)
[NEWS](#)
[CONTACT US](#)
[FAQs](#)
[SEARCH the OBR](#)

The Ohio BioRepository (OBR), comprising a human tissue specimen repository and associated searchable database, is led by [Omeris](#) in partnership with the [Ohio Supercomputer Center \(OSC\)](#), with support from Ohio State University's Human Tissue Resource Network ([HTRN](#)). The repository provides researchers ready access to tissues stored under a variety of preservation techniques ensuring the presence of low abundance mRNAs, and a separate formalin-fixed paraffin block tissue archive. The repository will become a unique asset for fast turnaround on human research studies.

About OBR Partners

Omeris, founded in 1986 as the Edison BioTechnology Center, is a non-profit organization designed to build and accelerate bioscience industry, research, and education in Ohio.

OSC is Ohio's answer to high performance computing (HPC) and networking. OSC provides the computational power, infrastructure, and expertise needed to answer the demands of the Ohio education and research community.

HTRN unites tissue-based research resources within the OSU Department of Pathology and promotes collaborative research within the OSU Medical Center and related national human research projects.

Public search of annotated PHI free data

https://www.ohiobiorepository.org/TISSUE_REQUEST/pub_search

[HOME](#) [MISSION](#) [NEWS](#) [CONTACT US](#) [FAQs](#)

[Search](#) | [Pref](#) | [Help](#) | [Logout](#)

You may search the OBR database by any or all of the following values. Fill in the fields using the drop down lists and click "Search".

OBR ID:

Age:

Anatomic Site:

Diagnosis:

Gender:

Grade:

Malignancy:

Procedure Year:

Race:

Tissue Type:

Advanced Options

Rows to Display Per Page:

Order Results By:

Then By:

Then By:

Pull-down Search Parameters

https://www.ohiobiorepository.org/TISSUE_REQUEST/pub_search

[HOME](#) [MISSION](#) [NEWS](#) [CONTACT US](#) [FAQs](#)

Search | [Pref](#) | [Help](#) | [Logout](#)

You may search the OBR database by any or all of the following values. Fill in the fields using the drop down lists and click "Search".

OBR ID:

Age:

Anatomic Site:

Diagnosis:

Gender:

Grade:

Malignancy:

Procedure Year:

Race:

Tissue Type:

Abdomen
Adipose Tissue
Adrenal Gland
Anus
Aorta
Appendix
Artery
Atrium
Axilla
Blood
Bone
Bone Marrow
Brain
Brain Stem
Breast

Advanced Options

Rows to Display Per Page:

Order Results By:

Then By:

Then By:

Search Output: Breast Cancer Samples

Browser address bar: https://www.ohiobiorepository.org/TISSUE_REQUEST/pub_results

Navigation links: [HOME](#) | [MISSION](#) | [NEWS](#) | [CONTACT US](#) | [FAQs](#)

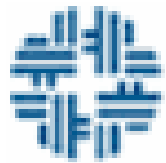
Search | Results | Requested Tissues | Pref | Help | Logout

814 items found Page 1 of 41

Page navigation: << 1 2 3 4 5 6 7 >>

Request	OBR ID	Gender	Race	Age	Site	Type	Diagnosis	Year	Malignancy	Grade
<input type="checkbox"/>	16846	Female	White	39	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	16875	Female	White	40	Breast	Benign	Fibroadenoma	1950	-	-
<input type="checkbox"/>	16905	Female	White	22	Breast	Benign	Fibroadenoma	1950	-	-
<input type="checkbox"/>	16969	Female	Black	21	Breast	Hyperplasia	Hyperplasia	1950	-	-
<input type="checkbox"/>	17126	Female	White	51	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	17153	Female	White	35	Breast	Other	Fibrocystic Disease	1950	-	-
<input type="checkbox"/>	17361	Female	White	46	Breast	Malignant	Fibrosarcoma	1950	Primary	-
<input type="checkbox"/>	17435	Female	White	75	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	17515	Female	Black	20	Breast	Benign	Fibroadenoma	1950	-	-
<input type="checkbox"/>	17545	Female	White	58	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	17561	Female	White	57	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	17595	Female	White	-	Breast	Malignant	Carcinoma	1950	Primary	-
<input type="checkbox"/>	17628	Female	White	39	Breast	Benign	Fibroadenoma	1950	-	-
<input type="checkbox"/>	17822	Female	Unknown	-	Breast	Malignant	Carcinoma	1950	-	-

Hospital Collection



Riverside Methodist Hospital
OhioHealth



Prospective sample collection from community hospitals

- Tissue sample collection operations at Riverside Methodist Hospital commenced Feb 6th, 2006
- Target is 6,000 samples per year from cancer surgeries
- Snap frozen and formalin QC
- Expand into other OhioHealth hospitals
- Expand into other community hospitals



Steps along the way

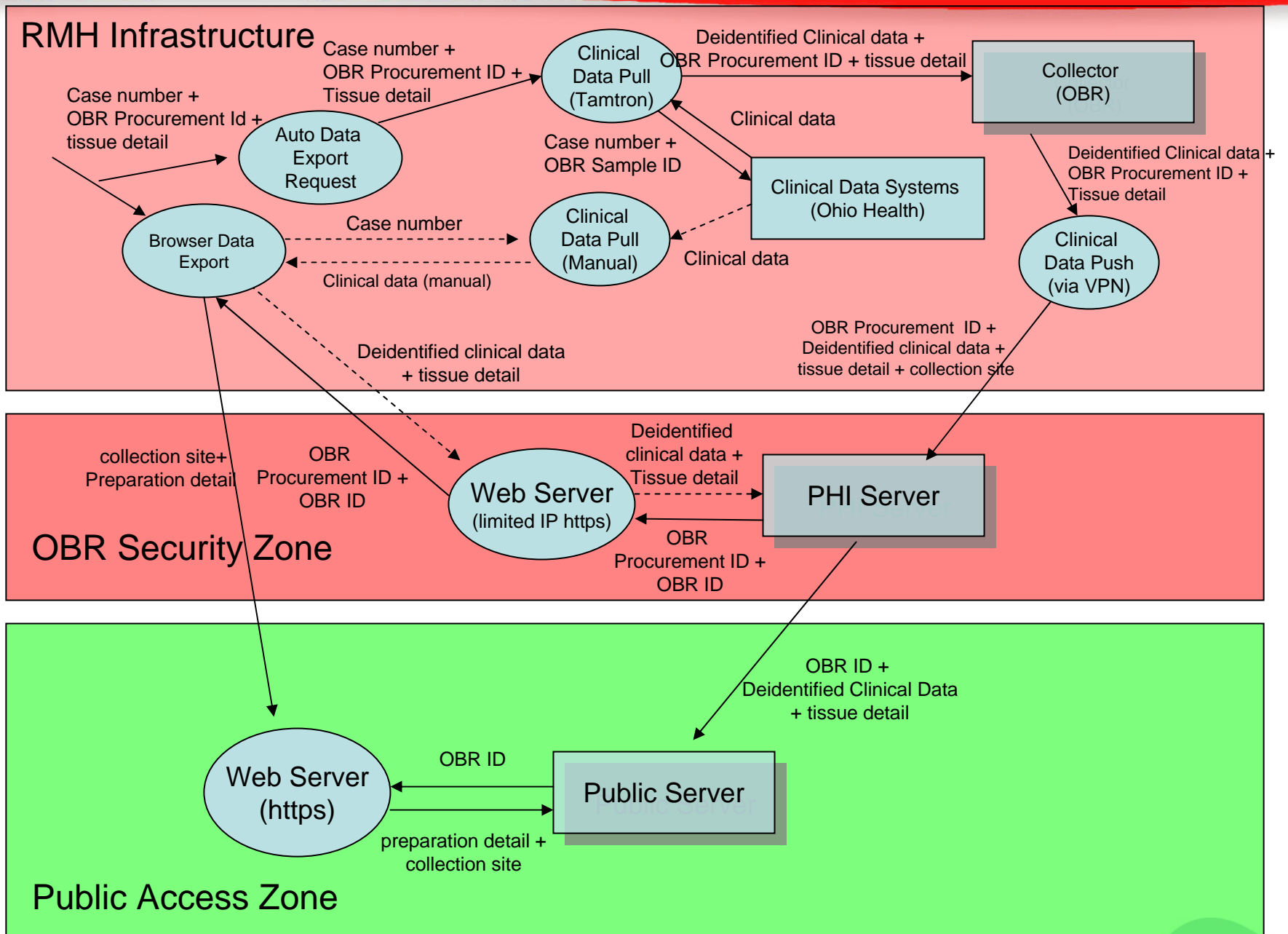
- Ohio Health/Riverside MH desire to engage in the research process
- Hospital IRB approval
- Hospital general consenting allows patient to “opt out” of donating remnant tissue for research
- Web-based annotation tool modified
- Hook up to RMH IT systems

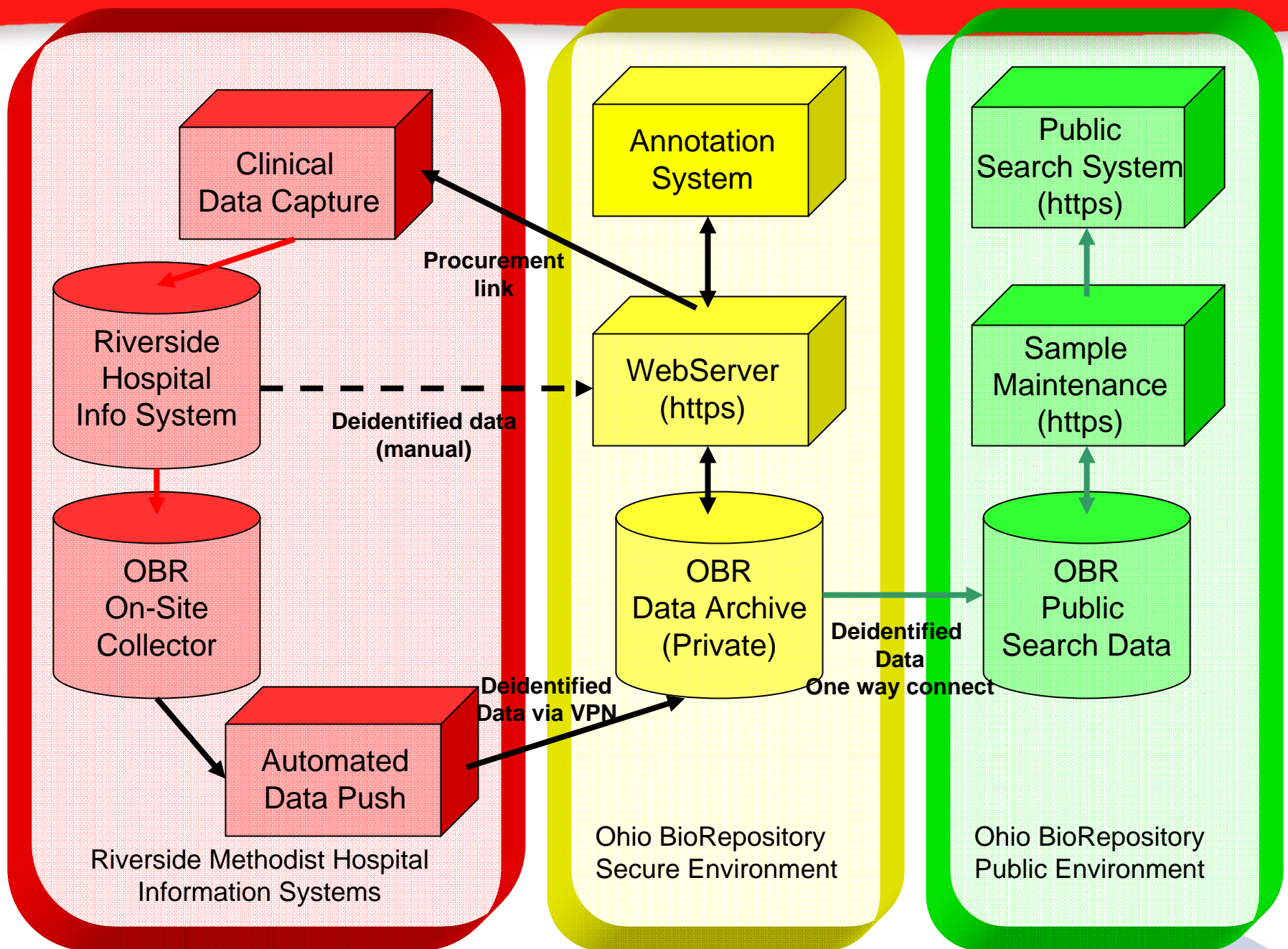


Data Collection, Access & Security - RMH



RMH Infrastructure






Ohio BioRepository - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Mail

Address Go Links



[Search](#) | [Results](#) | [Details](#) | [Options](#) | [Logout](#)

2 items found Page 1 of 2

Status:

1 2

OBR ID:

Report Num:

Procedure Date: (mm-dd-yyyy)

Donor's Gender:

Donor's Race:

Donor's Age:

Anatomic Site:

Tissue Type:

Malignancy:

Grade:

Diagnosis:

Annotation Status:

Procurement ID:

Procurement Date: (mm-dd-yyyy)

Collection Site:

Comments:

1 2

Local intranet

- Web-based data capture tool – manual & automated data push
- Pathology report capture
- Ability to capture additional fields



Pathology Report & Additional Fields

Ohio BioRepository - Microsoft Internet Explorer

Pathology Text:

Close Commit

Ohio BioRepository - Microsoft Internet Explorer

Additional Fields:

Chemo History (y/n)	y
Radiation History (y/n)	n
Smoking History (y/n)	n
Surgical Procedure	
zipcode	
any	
any	
any	
any	
any	

Close Commit





OBBR

Office of Biorepositories
and Biospecimen Research

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Role of
Biospecimens

NCI &
Biorepositories

Funding Opportunities and
Demonstration Projects

National
Biospecimen Network

Biospecimen
Sciences

International
Harmonization

Resources

THE CRITICAL ROLE OF BIOSPECIMENS IN CANCER RESEARCH



Highlights:

Job posting: Assistant
Director for Biorepositories
and Biospecimen Research
See [USAjobs.com](#)

First-Generation Guidelines
Now Available ([more](#))

Symposium on International
Harmonization
NCI Cancer Bulletin ([more](#))

NCI Leadership Role in Biorepositories

The NCI is leading a national initiative to systematically address and resolve one of the most difficult problems that will drive 21st century cancer research: the limited availability of carefully collected and controlled, high-quality human biospecimens annotated with essential clinical data and properly consented for broad investigational use. This issue has been repeatedly identified by the scientific community as the leading obstacle to progress in

SPOTLIGHT



Message From the NCI Director

As we enter the era of molecular medicine, new attention is being focused on biorepositories, collections of human biological materials annotated with demographic and clinical information. ([more](#))

NCI – Office of Biorepositories & Biospecimen Research

- Established 2005
- NCI supported repositories – guidelines
- Clinical biospecimen research
 - Life cycle of biospecimen
 - Medical/Surgical Procedures
 - Acquisition
 - Handling/Processing
 - Storage
 - Distribution
 - Scientific Analysis
 - Restocking Unused Samples



Personalized Medicine



Institute for Personalized Healthcare

- Goal: To make Central Ohio a leader in the emerging field of personalized medicine
- Institute to create warehouse of medical information
- Data would drive clinical decisions toward the “best” therapeutic outcome
- Players: IPHC, OSUMC, Battelle, Siemens AG, OhioHealth, Mt. Carmel Health System, Children’s Hospital, OBR
- OBR to be the IPHC’s biorepository
- Business First – Feb 27, 2006



Acknowledgements

- **Omeris:** Tony Dennis, Mona Stefanos
- **Omeris Board:** Jim Scozzie, Rich Rosen, Peter Kleinhenz
- **OSC:** Eric Stahlberg, Joe Miller, Jim Gregory, Shannon Schraegle, Jordan Schweller, Kevin Wohlever
- **OSU:** Scott Jewell, Laurie Johnson, Jasmine Ramaradjou, Cheryl Reeder
- **Ohio Health / Riverside:** Susan Fuhrman, John Nisbet, Katrina English
- **Phylogeny:** Adel Mikhail, Lali Reddy, Sushma Joshi, Patricia Spitzner

