

**OBRR** Office of Biorepositories  
and Biospecimen Research

## *The Biospecimen Research Database*

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CANCER  
INSTITUTE



## Outline

**OBBR** Office of Biorepositories  
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- **Vision & organization of the database**
- **RAND literature survey**
- **Curation**
- **Future direction**



# Vision

**OBBR** Office of Biorepositories  
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- **Database for**
  - Evidence for protocols
    - Published
    - Unpublished
    - Research network studies
      - caBIG compatible access to data
  - Analysis of evidence
  - Biospecimen protocols

<b>Biospecimen Basics</b>	<b>Biospecimen Best Practices</b>	<b>Biospecimen Science</b>	<b>Biospecimens &amp; NCI</b>
		<ul style="list-style-type: none"> <li>Biospecimen Research Network &gt;</li> <li><b>Biospecimen Research Database</b></li> <li>Scientific Literature</li> <li>Lifecycle of Biospecimens</li> <li>Funding Opportunities</li> </ul>	

**In Focus:**

**Biospecimen Best Practices Forums**

The National Cancer Institute (NCI) is holding a series of public forums about the *NCI Best Practices for Biospecimen Resources*, which outlines technical, operational, ethical, legal and policy principles for biospecimen resources. The purpose of these forums is to educate and obtain feedback about the *NCI Best Practices* from a broad range of perspectives, including that of investigators, physicians, industry representatives, hospital administrators, cancer survivors, patient advocates, and the general public. These forums will be held on November 5, 2007, in Boston, Massachusetts, December 3, 2007, in Chicago, Illinois, and January 28, 2008, in Seattle, Washington, and will feature expert presentations and interactive discussions. Attendance is free and open to the public. For more information, visit <http://www.nci-bestpractices-forum.com>.

**News:**

**Recap of the First Biospecimen Best Practices Forum**

The first of a series of educational and outreach forums was held on June 18, 2007 in Bethesda, MD [more](#)

**OBBR's Mission:**

The NCI established the Office of Biorepositories and Biospecimen Research (OBBR) in 2005 to guide, coordinate, and develop the Institute's biospecimen resources and capabilities. The OBBR's mission is to ensure that human specimens available for cancer research are of the highest quality. [more](#)

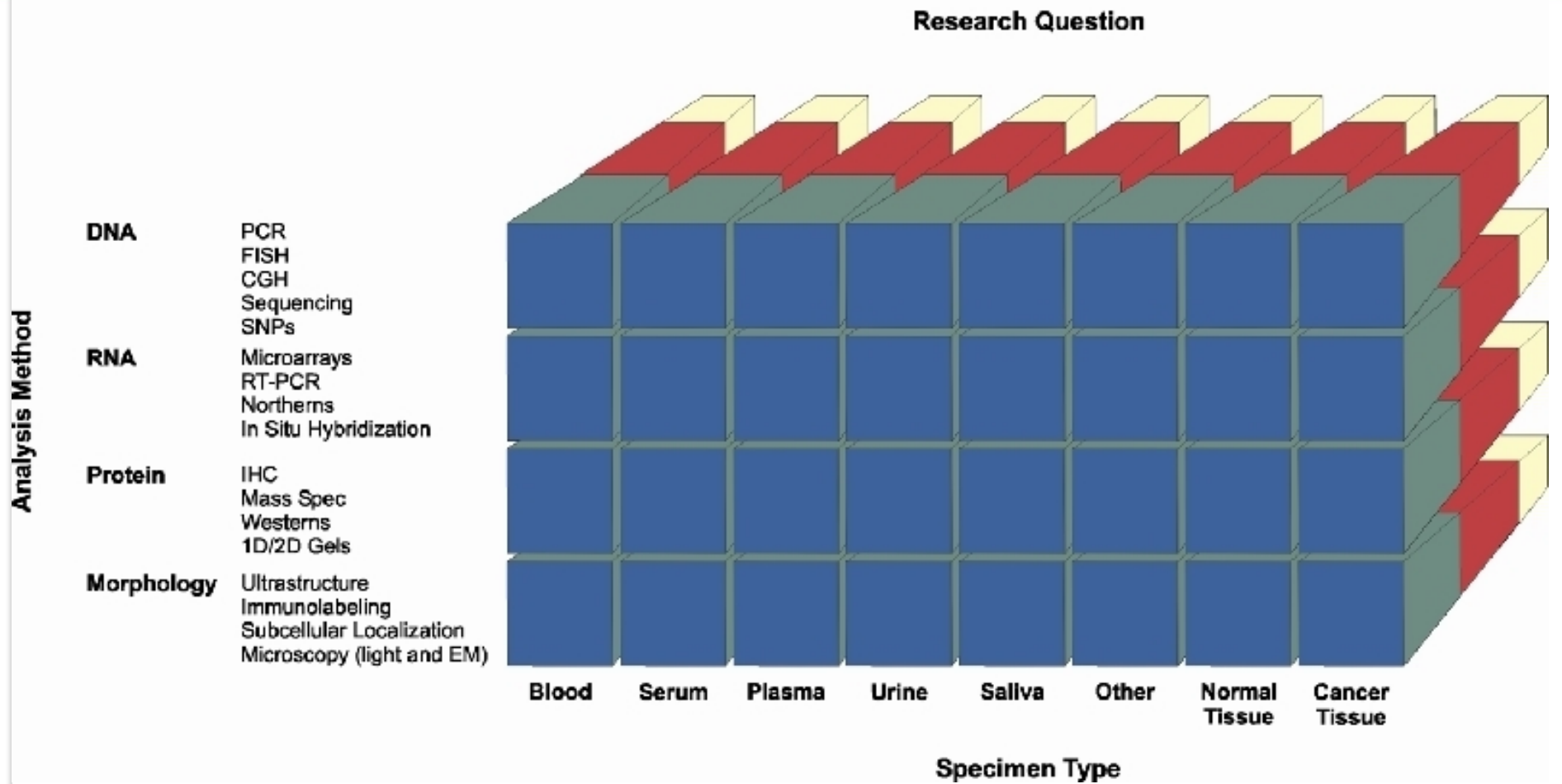
**Quick Links**

- [Biospecimen Research Network](#)
- [Providing Your Tissue for Research](#)
- [Biospecimen Basics](#)
- [NCI Best Practices for](#)



# The "ice cube tray"

**OBBR** Office of Biorepositories and Biospecimen Research



- Biospecimen Research Network (BRN)
- Network Events
- Scientific Literature
- Lifecycle of Biospecimens

NCI Biospecimen Resources >>

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HOME SEARCH ?

Search the Biospecimen Network Repository (Quick Search)

To find research studies for a biospecimen type and platform click on a cell in the table below.

Analyte	Technology Platform	Biospecimen Locations						Neoplastic Tissue	
		Blood	Serum	Plasma	Urine	Saliva	Other	Normal	Cancerous
DNA	<a href="#">Array CGH</a>								
	<a href="#">CGH</a>								
	<a href="#">DNA Sequencing</a>								
	<a href="#">FISH</a>								1
	<a href="#">In situ hybridization</a>								
RNA	<a href="#">PCR</a>								
	<a href="#">cDNA Microarray</a>							3	6
	<a href="#">Northern</a>							1	2
Protein	<a href="#">Immunohistochemistry</a>							1	3
	<a href="#">Mass Spec</a>							2	1
	<a href="#">SELDI-TOF Mass Spectrometry</a>							1	1
	<a href="#">Westerns</a>								1
	<a href="#">ELISA</a>								
Morphology	<a href="#">Standard H-n-E microscopy</a>								
	<a href="#">Subcellular localization</a>								
	<a href="#">Ultrastructure</a>								

[Simple Search](#) [Advanced Search](#)

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- Biospecimen Research Network (BRN)
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HOME SEARCH ?

**Paper and Study Details**

PubMed ID: 11469890

Huang J, Qi R, Quackenbush J, Dauway E, Lazaridis E, Yeatman T  
Effects of Ischemia on Gene Expression

*Journal of Surgical Research*, 2001, Vol. 99, Page 222

Review Paper? No

Purpose of Paper: To determine the effects of time at room temperature after surgical removal on gene expression profiles in normal adjacent tissue from a human colon cancer specimen.

Conclusion of Paper: Time at room temperature after surgical removal of normal colon mucosa from a human colon cancer specimen has significant effects on gene expression in as little as 20 minutes.

**Studies**

<a href="#">Detail</a>	Specimen: Tissue / Colorectal / Frozen / Neoplastic - Normal Adjacent Platform: RNA - Northern / Findings : No differences in RNA quality were detected by ethidium bromide staining of 18S and 28S ribosomal RNA even after 60 minutes at room temperature after surgical removal in colon cancer and normal adjacent tissue. In addition, there was no noticeable effect on the expression of GAPDH as measured by Northern blot.
<a href="#">Detail</a>	Specimen: Tissue / Colorectal / Frozen / Neoplastic - Normal Adjacent Platform: RNA - cDNA Microarray / Findings : Significant changes in gene expression levels occur in normal adjacent colon tissue as early as 20 minutes after surgical removal. Increases in expression of some genes and decreases in expression of others were observed.


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### Study Details

PubMed ID: 15211754

Spruessel Annika, Steimann Garnet, Jung Mira, Lee Sung A, Carr Theresa, Fentz Anne-Kristin, Spangenberg Joerg, Zornig Carsten, Juhl Hartmut H, David Kerstin A

Tissue Ischemia Time Affects Gene and Protein Expression Patterns within Minutes Following Surgical Tumor Excision

*BioTechniques*, 2004, Vol. 36, Page 1030

Review Paper? No

#### Study Purpose

To determine the impact of time at room temperature between colon resection and snap freezing in liquid nitrogen on gene expression profiles of normal adjacent colon tissue that was resected with colon cancer.

#### Specimen

Biospecimen Type: Tissue

Biospecimen Location: Colorectal

Diagnoses: Neoplastic - Normal Adjacent

Preservative Type: Frozen

#### Platform

Analyte: RNA   Technology Platform: cDNA Microarray

#### Experimental Factors



To determine the impact of time at room temperature between colon resection and snap freezing in liquid nitrogen on gene expression profiles of normal adjacent colon tissue that was resected with colon cancer.

### Specimen

Biospecimen Type: Tissue      Biospecimen Location: Colorectal  
 Diagnoses: Neoplastic - Normal Adjacent  
 Preservative Type: Frozen

### Platform

Analyte: RNA      Technology Platform: cDNA Microarray

### Experimental Factors

Classification	Factor	Value(s)
Postacquisition	Time at room temperature/pre-fixation time	5 min
		8 min
		10 min
		12 min
		15 min
		20 min
		30 min

### Summary of Findings

No differences of RNA quality were observed over a period of 30 minutes. Changes in gene expression profiles were already observed 5-8 minutes after colon resection. 15 minutes after surgery, 10-15% of all genes differed significantly (>2-fold) from the baseline values, and by 30 minutes after surgery, 20% of all detectable genes differed. Changes of expression were found in molecules in a wide variety of functional groups, such as oncogenes, transduction, nuclear genes, kinases, chaperones, and cell growth.


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### Study Details

 PubMed ID: 16822846 [PubMed](#)

 Lin Daniel W, Coleman Ilsa M, Hawley Sarah, Dumpit Ruth, Gifford David, Kezele Philip,  
Hung Hau, Knudsen Beatrice S, Kristal Alan R, Nelson Peter S

 Influence of Surgical Manipulation on Prostate Gene Expression: Implications for Molecular  
Correlates of Treatment Effects and Disease Prognosis

*Journal of Clinical Oncology*, 2006, Vol. 24, Page 3763

Review Paper? No

#### Study Purpose

 To conduct cDNA microarray hybridization to examine changes in gene expression  
associated with surgical resection of the prostate gland by radical retopubic prostatectomy  
as compared to in situ prostate biopsy.

#### Specimen

Biospecimen Type: Tissue

Biospecimen Location: Prostate

Diagnoses: Neoplastic - Normal Adjacent

Preservative Type: OCT

#### Platform

Analyte: RNA   Technology Platform: cDNA Microarray

#### Experimental Factors



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in Reviewer.[HOME](#) [SEARCH](#) [MAINTENANCE](#)

### BRN System Code Maintenance

[Search](#)[Add Published Paper](#)[Add Unpublished Paper](#)[Add/Edit Experimental Factors](#)[Add/Edit Biospecimen Types](#)[Add/Edit Biospecimen Locations](#)[Add/Edit Technology Platforms](#)[Map Analyte to Technology Platforms](#)[Map Technology Platforms to Experimental Factors](#)[Map Biospecimen Types to Biospecimen Locations](#)[Add Users /Roles](#)

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FIRSTGOV



## Next Steps for the Database

**OBBR** Office of Biorepositories  
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- Expand information with:
  - **Data from existing studies that focus directly on the effects of preanalytical variables on biospecimens**
  - **Results from Biospecimen Research Network studies**
  - **Procedures for clinical laboratory testing relevant to research on genetic changes in cancer**
  - **Other potential sources of data (e.g., unpublished data)**
- Perform Meta-analysis of data:
  - **To inform development and prioritization of Biospecimen Research Network laboratory studies**
  - **To inform development of evidence-based Standard Operating Procedures (SOPs)**
- Add protocols to the database



## Issues for discussion

**OBBR** Office of Biorepositories  
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- **Research network contributions**
  - Detail data
  - Use of caBIG compatible software
- **Protocols**
  - Web 2.0 mechanisms
    - Wiki, Forums,...
    - Open community input
    - Minimal oversight
  - Or more controlled access
    - To concise analysis of evidence



# Acknowledgments

**OBBR** Office of Biorepositories  
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  - Jyothsna Chilukuri
  - Stephen Hunter
  - Paul Morris



## NCI Wants Your Input

**OBBR** Office of Biorepositories  
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- To identify key scientific papers and protocols (published and unpublished)
- Please contact OBBR for further information and to volunteer to help us make this database a vital tool for Biospecimen Science
  - Telephone: 301-496-2741
  - Web: [www.biospecimens.cancer.gov](http://www.biospecimens.cancer.gov)
  - Email: [biospecimens@mail.nih.gov](mailto:biospecimens@mail.nih.gov)
- Your chance to make this a useful tool