

BIOSPECIMEN RESEARCH NETWORK

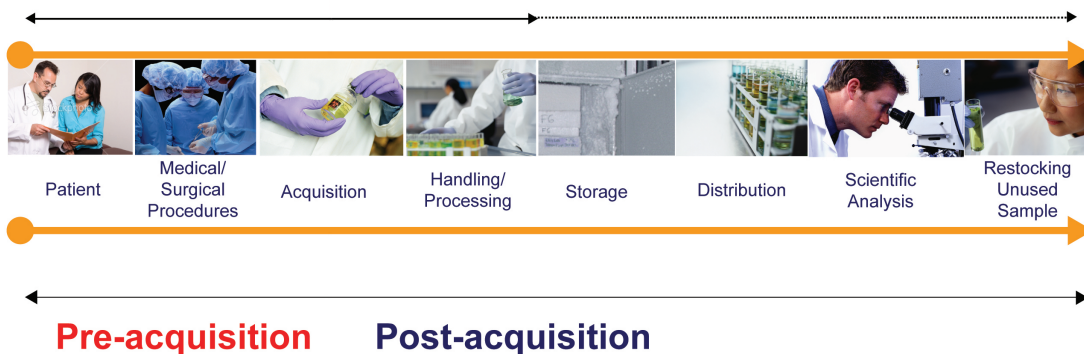


The National Cancer Institute's (NCI) Office of Biorepositories and Biospecimen Research (OBRR) initiated the Biospecimen Research Network (BRN) in early 2006 to coordinate and support systematic investigation into how collection, processing, and storage of human biospecimens affect subsequent molecular analysis.

Biospecimens, such as tissue, blood or urine, are routinely collected to aid in patient diagnosis and disease research. Notably, biospecimens are vulnerable to environmental and biological stresses introduced by routine collection, processing, storage, and transport procedures prior to analysis. These "pre-analytical" variables may transform the molecular profile of the biospecimen before it ever reaches the clinician or researcher. Without proper understanding of the impact of pre-analytical variables, molecular changes may be misinterpreted as disease-related or even disease-specific findings. New attention to this issue is needed, particularly with the movement toward an era of "Personalized Medicine," where appropriate preservation of biospecimens will be essential for molecular tests that diagnose disease and target therapies based on patient molecular characteristics.

LIFE-CYCLE OF THE BIOSPECIMEN

The specimen is biologically viable



THE ROLE OF THE BRN

Currently, there is a considerable lack of scientific data assessing the effects of biospecimen handling variables on the molecular analysis of human tissues. New research in biospecimen science aims to define this relationship to ensure the quality and reproducibility of resulting diagnostic and research data. The goal of the BRN is to stimulate original research and disseminate available data in biospecimen science.

To support this goal, the BRN sponsors, conducts and collaborates on studies to evaluate the effects of biospecimen pre-analytical variables on the outcomes of molecular assays for cancer diagnosis and research. BRN-supported research will contribute to the development of evidence-based best practices for the collection, processing, storage and transport of biospecimens. Furthermore, communicating the results of such research to the scientific and clinical communities will significantly improve the quality and reproducibility of biospecimen-based diagnostic and research data.

BRN ACTIVITIES AND INITIATIVES

A variety of BRN initiatives have been designed to develop and support the research efforts of the biospecimen science community. The online Biospecimen Research Database and the annual BRN symposium are forums established for effective exchange of biospecimen research results. The BRN also generates new research data through BRN extramural research funding programs, the interdisciplinary Biospecimen Research Network Laboratory, and partnership with the NCI Innovative Molecular Analysis Technologies (IMAT) Program, “Innovative and Applied Emerging Technologies in Biospecimen Science.”

The BRN has active collaborations with other NCI programs such as The Cancer Genome Atlas and Clinical Proteomic Technologies for Cancer. Through these partnerships, the BRN serves as a resource for project grantees and presents new opportunities for biospecimen research.

BRN RESOURCES

Annual BRN Symposium, “Advancing Cancer Research Through Biospecimen Science”

The BRN Symposium connects the cancer community to develop comprehensive solutions addressing pre-analytical biospecimen variability in cancer research. The BRN Symposium encourages participation from all stakeholders to improve the quality of biospecimen-based research and fuel advances in personalized medicine.

BRN Research Database

The Biospecimen Research Database (BRD) represents a joint effort of the BRN and the NCI Center for Biomedical Informatics and Information Technology. The BRD surveys and curates the existing scientific literature for data that define the precise relationships between biospecimen handling and the quality and reproducibility of data for cancer research. The database is available online at <http://brd.nci.nih.gov/> as a searchable database that displays information such as the effect of pre-analytical variables on the detection of protein biomarkers or gene expression patterns.

BRN Research Funding Opportunities

The BRN funds research in biospecimen science through its new extramural program, “Biospecimen Research for Molecular Medicine”. The program aims to (1) systematically define the impact of key pre-analytical variables in human biospecimens on downstream molecular data generated from specific molecular analysis platforms and (2) develop innovative approaches to the control, monitoring and assessment of biospecimen quality. In addition, the BRN has partnered with the NCI IMAT Program to support technology development in the area of “Innovative and Applied Emerging Technologies in Biospecimen Science”. More information on BRN funding opportunities can be found at <http://biospecimens.cancer.gov/sciencelfol/>.

To learn more about the Biospecimen Research Network, visit <http://biospecimens.cancer.gov/sciencelbrn/>.

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