Abstract

In 1998, the Breast Cancer Progress Review Group of the National Cancer Institute (NCI) identified the limited understanding of the biology and developmental genetics of the normal mammary gland as a significant barrier to progress in preventing and treating breast cancer. This challenge went unmet until 2005, when an unprecedented collaboration among patient advocates, clinicians, basic scientists and volunteers was organized under the auspices of the Indiana University Breast Program and underwritten by the Catherine Peachey Fund, Inc. This collaboration has produced the first in the world (to our knowledge) bank of breast tissue and biomolecules from donors without cancer.

Using guidance from a number of sources including the First-Generation Guidelines for NCI-Supported Biorepositories, the Panel Report, the NIH Rare Disease Indicators, and CTEP Standard Operating Procedures (SOPs), we have organized the acquisition, processing, storage, retrieval, and dissemination of the specimen. The bank has collected over 3,900 specimens, including whole blood, DNA, serum, and breast core biopsies from over 200 women without clinical evidence of breast cancer. Each specimen is annotated with detailed information about the donor including medical history, reproductive history, health history, medications, and family history. All data is available in a searchable Web-accessible PHP-based Oracle database. There has been active outreach to minority communities which has enabled 14% of the Bank to be populated with specimens from African-Americans. The goals of the Bank are to acquire specimens from the entire continuum of breast development: puberty to menopause, and to provide much-needed and underutilized core biopsies from men.

Materials & Methods

Quality Control

STANDARDIZATION

Best Practices

A number of resources were consulted to compile a compendium of best practices. These resources included, but were not limited to, the following:

- RAND Report
- First-Generation Guidelines for NCI-Supported Biorepositories
- TuBafrost 2: Standardising tissue collection and quality control procedures for a European Virtual Tissue Bank network
- http://tubafrost.org
- Cancer Care: 2006 Nov 42(16):2848-91
- N. Holland Lab
- Biobank sample collection and processing for molecular epidemiological studies. Mutat Res. 2003 Jan 543(1-2):317-34
- http://dta.sph.berkeley.edu/ehs/prc/protocollibrary.html
- CTEP

Standard Operating Procedures (SOPs) were developed for all aspects of banking in order to minimize bias and to enable bias to be recognized.

- Collection
- Processing
- Storage
- Retrieval
- Replication

Examples include:
- Collection: tubing container
- Anticoagulant choice
- Temperature during processing and storage
- Standardized concentration of axolotls
- Storage/thermostat of medium, if applicable
- Special considerations:
  - g: presence or absence of protease inhibitors

THE DATABASE

- HPRD compliant
- Tiered access
- Web accessible
- Searchable
- Oracle

THE COLLECTION: DIVERSITY

- Number
- Ethnicity
- Number

Race

- White
- African American
- Hispanic/Latino
- Other

Age Distribution

- Histogram of DONOR AGE 4.qdf
- dist (histogram)

- Histogram of LIFETIME RISK 2.qdf
- dist (histogram)

- Histogram of GEL RISK DISTRIBUTION 2.qdf
- dist (histogram)

References

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Representative Core Biopsies

- HPRD compliant
- Tiered access
- Web accessible
- Searchable
- Oracle