WINSHIP HUMAN TISSUE PROCUREMENT SERVICES (HTPS)

A Service of the Winship Cancer and Tissue Pathology Shared Resource (Director Dr. Dan Brat)
Background

Goals

Tissue Stabilization

“Personnel and Infrastructure”

Projects

Role of the Pathologist
Support

- Winship Cancer Institute
- Department of Pathology
- Emory University
GOVERNANCE/OVERSIGHT

HTPS Tissue Utilization Committee
- Joe Sharma, MD
- Taofeek Owonikoko, MD, PhD
- Shishir Kumar Maithel, MD
- Adam Marcus, PhD
- Gabriel Sica, MD, PhD

Advisory Committee
- Volkan Adsay, MD
- Daniel J. Brat, MD, PhD
- Dianne Cassels MHA,
- Gabriel Sica, MD, PhD
- Rebecca Pentz, PhD
- Charles Staley, MD
- Paula Vertino, PhD

Reporting to Paul Doetsch, PhD
ACTIVITIES

- >60,000 frozen tissue samples stored
- Collect ~ 7,000 tissue samples per year
- Routine pathology QA per sample

Snap frozen aliquots

Research Pathology Labs for Processing, Sectioning and Mounting
HTPS

- Background
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- Tissue Stabilization
- “Personnel and Infrastructure”
- Projects
- Role of the Pathologist
WHAT DO WE DO?

- Mission
  - Collect
  - Store
  - Distribute

"Actually, we’re only taking tissue samples."
HTPS

Peripheral Blood

Study Participant

Tumor Paraffin Block

SNP Genotyping
Serum Proteomics
Gene Expression Microarray (investigator A)
Tissue Proteomics (investigator B)
Methylation Analysis (investigator C)
Immunohistochemistry (investigator D)
Biomarker Validation

Integrated Specimen Biomarker Data + Clinical Data

Ian Fore, D.Phil.
NCI Center for Biomedical Informatics and Information Technology
TISSUE IS THE ISSUE

Modified from TCGA Webinar presentation:
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Role of the Pathologist
Tissue Stabilization (Preservation)

- **Solid Tissues**
  - Fresh (4°C; media)
  - RNAlater
  - Frozen
    - Snap Frozen
    - OCT
    - Isopentane/dry ice
  - Fixative
    - Formalin
    - PAXgene

- **Blood**
  - Whole
  - Fractions
    - Plasma
    - Cell Pellet
    - Serum
- Standard Collection Protocol
  - Aliquot samples
    - 500mg
  - FFPE
  - Label
    - Organ site
    - Gross diagnosis
      - Tumor/ Normal
### MEASUREABLE

- **Current Measureables**
  - OR
  - Cold ischemic times
  - TPS
  - Procurement Time
  - Pathology
  - Tissue Collected
  - NO
  - Please explain
  - Accession Time
  - Time received from OR
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Role of the Pathologist
PERSONNEL

- Medical Director: Gabriel Sica, M.D., Ph.D.
- Manager: Charles Butler
- Research Coordinator (University): Ke Young
- Research Coordinator (Midtown): Eman Dosimenu
- Research Coordinator (Grady): Brian Burns
Collection Sites
RELATIONSHIP WITH DISEASE SPECIFIC BANKS (DSB)

Operating Room

SOPs Consents

DSB

Lung
H&N
Brain
GU
Heme
Breast

HTPS
2 basic collection protocols - Central Bank

- Consented
  - Allows us to collect data from electronic medical record
- Unconsented
  - Can collect
    - Must anonymize sample
**Temporary Storage**
- EUH (Frozen Section Rm)
  - - 80 Ultralow Freezer

**Long Term Storage**
- Clinics B & C
  - Large volume Vapor phase Tanks
TISSUE PROCUREMENT

- Consents
  - Who does it?
  - When is it done?
  - Where is it done?
  - Where does it get deposited?

- Quality
  - Tissue: ischemic time, RIN analysis
  - Standard Operating Procedure
  - Data

- Specimen Tracking/Inventory Management
- Background
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- “Personnel and Infrastructure”
- Projects
- Role of the Pathologist
CURRENT HTPS SERVICES

- Collection and storage of frozen tissue (including blood)
  - Prospective collection with HTPS IRB approved protocol
  - Investigator initiated prospective collection
- Retrieval of archived diagnostic blocks and slides for research (new service)
- Specialized collections per protocol
- Services provided and costs outlined on our website: http://www.pathology.emory.edu/HTPS/
Metabolomic Profiling Reveals Potential Markers and Bioprocesses Altered in Bladder Cancer Progression

Cancer Research

Figure 1.
TCGA: “No Platform Left Behind”

**25 forms of cancer**

- glioblastoma multiforme (brain)
- squamous carcinoma (lung)
- serous cystadenocarcinoma (ovarian)

**Multiple data types**

- Clinical diagnosis
- Treatment history
- Histologic diagnosis
- Pathologic report/images
- Tissue anatomic site
- Surgical history
- Gene expression/RNA sequence
- Chromosomal copy number
- Loss of heterozygosity
- Methylation patterns
- miRNA expression
- DNA sequence
  - **RPPA (protein)**
  - **Subset for Mass Spec**

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The National Cancer Institute (NCI) is sponsoring a unique initiative to advance cancer research and treatment through development of the cancer Human Biobank (caHUB) as a national center for biospecimen science and standards.

caHUB was created in response to the critical and growing need for high-quality, well-documented biospecimens for cancer research. The caHUB initiative builds on resources already developed by the NCI, including the Biospecimen Research Network and the NCI Best Practices for Biospecimen Resources, both of which were developed to address challenges around standardization of the collection and dissemination of quality biospecimens.
PROCUREMENT OF FRESH TISSUES FOR IMMEDIATE PROCESSING

- Tumor infiltrating lymphocytes
- PDTx
- Organoids
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Role of the Pathologist
HTPS COLLECTION

- Department of Pathology
  - Gross Exam
  - Remnant Tissue
  - Excess
  - Refrigerate
Acknowledgement:
Charles Butler