

# **The SWOG Biospecimen Bank: investing in the future of translational research**

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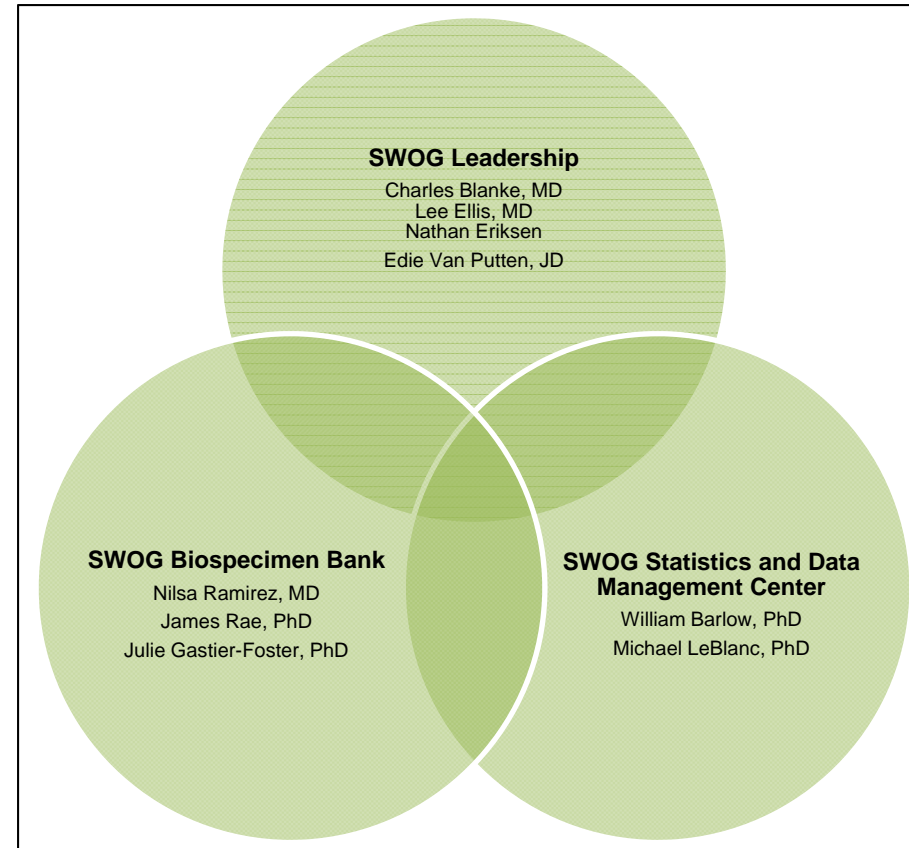
- 2011 - Four SWOG Biospecimen Resources were consolidated into one resource housed at the Biopathology Center (BPC), part of The Research Institute at Nationwide Children's Hospital (NCH) in Columbus, Ohio
- 2015 - Name changed from "SWOG Specimen Repository" to "SWOG Biospecimen Bank"



# SWOG Biospecimen Bank

- NCI funded (U24 grant) – started on April 2015
- 3 PIs
  - James Rae, PhD (University of Michigan)
    - SWOG Executive Officer
    - Liaison between SWOG leadership, the Disease Committees, and the SWOG BB
  - Julie Gastier-Foster, PhD (Nationwide Children's Hospital)
    - Director of the SWOG Leukemia and Myeloma Bank
    - Oversees nucleic acid extractions
  - Nilsa Ramirez, MD (Nationwide Children's Hospital)
    - Contact PI and Director of the SWOG BB
    - Oversees Solid Tumor Bank

# SWOG Biospecimen Bank



- The SWOG Biospecimen Bank is a member of the NCI sponsored Group Banking Committee and has 4 representatives in the GBC Steering Committee (Jimmy Rae, Julie Gastier-Foster, Bill Barlow, Nilsa Ramirez)

# Biopathology Center (BPC)

- Largely *National Institutes of Health/National Cancer Institute* grant/contract supported operations
- Primary objective: long-term acquisition and storage of large numbers of biospecimens & related data for the purpose of supporting cutting edge research
- Personnel (PhDs, MDs, MBAs, histotechnologist, medical technologists, biomedical engineers, computer scientists, electrical engineers, college students, sponsor project officers)
- Support NCI-sponsored National Clinical Trials Network trials, NCI sponsored genomics studies (Biospecimen Core Resource), internal NCH studies

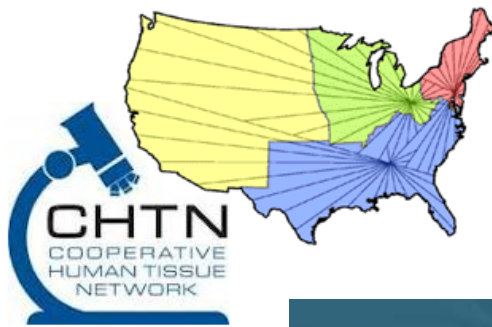
## Projects/Banks Supported by the Biopathology Center (BPC) at NCH

**NRG**  
ONCOLOGY

**CHILDREN'S  
ONCOLOGY  
GROUP**

The world's childhood cancer experts

**SWOG**   
Leading cancer research. Together.



Pediatric  
MATCH

**CCSS**  
Childhood Cancer Survivor Study

THE CANCER GENOME ATLAS 

**SARC** Sarcoma Alliance  
for Research  
Through Collaboration

**HTMCP**  
HIV+ Tumor Characterization Project



**BLGSP**  
Burkitt Lymphoma Genome Sequencing Project

**ALCHEMIST**

**Exceptional Responders**

**NCTN Navigator**

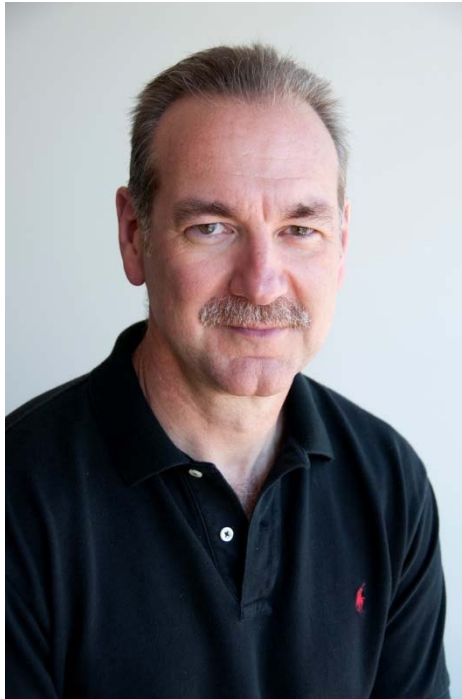


# BPC - Scope of Activities

- >4 million biospecimens in storage
- >50,000 specimens distributed every year to academic and commercial investigators across the US and overseas
- Close to 1,000 biospecimens received everyday from >500 national and international institutions
- Accredited by the *College of American Pathologists Biorepository Accreditation Program* (CAP BAP)
  - Some components of our operation are accredited by the *College of American Pathologists Laboratory Accreditation Program* (CAP LAP) and certified by CLIA for patient related testing
- Involved in scientific publications (including biospecimen processing, banking, and regulatory issues)



# NCH Institute for Genomic Medicine



Dr. Rick Wilson



Dr. Elaine Mardis

- To translate genomic knowledge to clinical practice (key strategic priority of NCH)
- Integration of clinical and research genomics
  - Cyto/Molecular Clinical Lab
  - Research Genomics Core
  - Clinical Genetics

- Close alignment with Biopathology Center





# SWOG Biospecimen Bank - Scope of Activities

Types of biospecimens:

- Tissue
  - Frozen (snap frozen, OCT embedded)
  - FFPE tissue blocks
- Stained and unstained slides
- Blood
- Bone marrow
- Serum / Plasma
- Urine and other biofluids
- Nucleic acids
- Tissue microarrays
- Virtual images from tissue sections

# SWOG Biospecimen Bank - Scope of Activities

## Banking/Storage

- Storage options:
  - Frozen biospecimens (example: -80°C mechanical freezers, liquid nitrogen freezers)
    - Mesa Scientific Monitor System, back up freezers
  - Formalin fixed paraffin embedded (FFPE) tissue
  - Glass slides (stained, unstained), cytology preparations



Different storage modalities, for example: at the Kinnear facility we currently maintain 66  $-80^{\circ}\text{C}$  freezers (with  $>1$  million liquid biospecimens) and 26  $-190^{\circ}\text{C}$  LN2 freezers with  $>200,000$  tissue specimens (there is space for an additional 19  $-80^{\circ}\text{C}$  freezers and 22  $-190^{\circ}\text{C}$  LN2 freezers).

In the freezer room facility in the hospital we have 14  $-80^{\circ}\text{C}$  freezers and 33  $-190^{\circ}\text{C}$  LN2 freezers. Additionally, freezer storage units are in the separate lab areas as well.



# SWOG Biospecimen Bank - Scope of Activities

## Processing

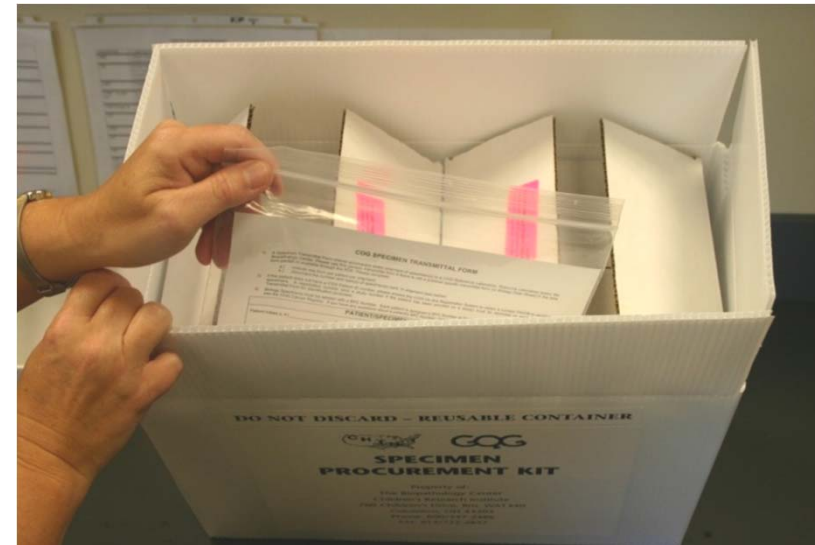
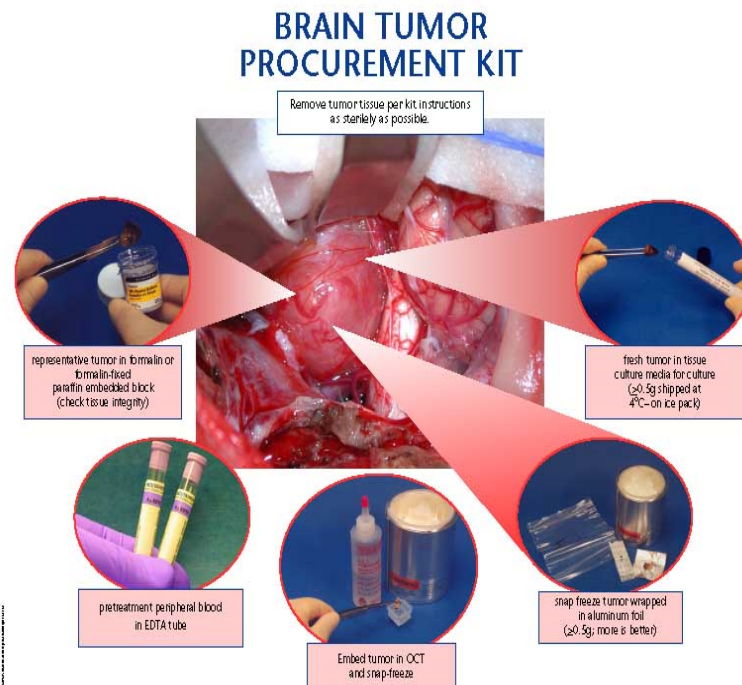
- Blood/plasma/serum processing and aliquotting
- Tissue embedding (paraffin, OCT)
- Histochemical and immunohistochemical staining
- Laser-capture microdissection
- Macrodissection
- Tissue microarrays (TMA) creation
- Tissue sections (frozen tissue, FFPE tissue, TMA)
- Nucleic acid extractions and quality control

## SWOG Biospecimen Bank - Scope of Activities

- Specimen receiving and distribution services
- Clinical trial support
- Molecular Genetics and Cytogenetics clinical testing (CAP/CLIA)
- Informatics (data collection and distribution, biospecimen inventory, virtual microscopy)
- Regulatory issues (CAP/CLIA certifications, Material Transfer Agreements, informed consents, HIPAA)
- Disaster recovery initiatives (biospecimens, data)
- Kit management

## Clinical Trial support

- The BB can assist in the development of:
  - the biology component of clinical trials (get the BB involved as early as possible)
  - cost estimates for various projects (including R01 grants, pilot projects, etc.)
- Online real time biospecimen kit request/tracking
  - Provide collection supplies and shipping containers to collections sites
- Develop and produce laminated “placemats” to assist in proper collection of biospecimens, biospecimen collection training videos for collection sites
- Train CRAs during FTF biannual meetings
- Available by phone and email to assist biospecimen collection sites and investigators
- Available to receive biospecimens (in Columbus) from Monday to Saturday





# Informatics – Biomedical Imaging Team

## Hardware

9 Whole Slide Imaging Robots  
1 Aperio OS (oil scanner)  
1 Aperio FL (fluorescent)

30 terabytes of local image storage  
100 terabytes of image storage at the  
Ohio Supercomputer Center (OSC)

## Software

VIPER (Virtual Microscopy for  
Pathology, Education &  
Research)

- Over 130 national and international pathologists using automated review system
- Used by several SWOG investigators



## How do I request SWOG biopecimens?

- *An investigator, who is named as a co-investigator of a correlative science study integrated into the clinical trial design itself, requests biospecimens for the pre-approved study:*
  - A list of biospecimens selected by the Statistics and Data Management Center is submitted to the Bank
  - Banked biospecimens are processed and forwarded to the investigator following the instructions noted on the protocol
  - There is no fee for this specific Bank processing (it is covered by the U24 grant), unless highly specialized, expensive, or onerous biospecimen processing is required, in which case, the work should be supported by the trial or correlative science study budget, which is determined prior to the start of the study

## How do I request SWOG biospecimens?

- *An investigator wants to use clinical trial biospecimens remaining after the completion of a primary correlative science study (legacy biospecimens)*
  - In some cases, biospecimens that are remaining after the completion of trial-associated correlative science studies may be available for secondary use in other correlative science studies
  - An investigator does not need to be associated with an NCTN Group to request biospecimens
  - A scientific merit review process is required for research proposals before biospecimen access is granted
  - Biospecimen processing and distribution is associated with a fee for service (this process is not covered by the U24)

## How do I request SWOG legacy biopecimens?

- At this time:
  - For instructions go to the SWOG website (<http://www.swog.org/Visitors/TranslationalMed.asp>); it is under “Collaborative Use of Specimens for Translational Medicine Research”
- In the near future (early 2018) a new mechanism will be instituted in response to the NCTN Group reorganization and research community feedback
  - The **NCTN Biospecimen ‘Front Door Service’ and biospecimen *Navigator* tool** will greatly improve the efficiency and transparency of the biospecimen request process for the entire cancer research community
  - **NCTN Front Door staff** will guide investigators, particularly those unfamiliar with NCTN policies and operations, through biospecimen query, application, and regulatory filing procedures
  - The **web-based *Navigator tool*** will allow investigators to independently query for Group Bank biospecimens that meet their criteria, and track their request through the review and approval process

# SWOG Biospecimen Bank Team

For additional information regarding the SWOG Biospecimen Bank, please contact:

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