

Biospecimen Banks to Support NCI Clinical Trials

Irina A. Lubensky, MD

*Chief, Pathology Investigations & Resources Branch
Cancer Diagnosis Program, DCTD*

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Biospecimen Banks to Support NCI Clinical Trials

Goal: Collect, process, store and distribute well-annotated NCI Clinical Trials biospecimens for research

- ❑ Current NCI support: NCI National Clinical Trials Network Banks (**NCTN Banks**) & a pilot for the Experimental Therapeutics Clinical Trials Network Bank (**ETCTN Bank**)
- ❑ Future plan is to support: **NCTN Banks**, expansion of the **Early Clinical Trials Bank**, and inclusion of the **Pediatric Early Phase Clinical Trial Network (PEP-CTN)** and **NCI Community Oncology Research Program (NCORP) Banking**

U24 Cooperative Agreement Grants for 5 NCTN Banks (2015-2020): **ALLIANCE, SWOG, ECOG-ACRIN, NRG Oncology, COG**

Grant PIs: Pathologists specialized in biospecimen banking

Governing Body: NCTN Group Banking Steering Committee (GBC)

Subcommittees:

- **Best Practices and Operations**
- **Access and Marketing**
- **Informatics**
- **Regulatory**

➤ **Common documents, standard operating procedures (SOPs), Central Manual of Operation (MOO), templates; implementation by all banks**

NCTN Biospecimen Banks

- Specimens collected on NCTN phase III, phase II and other trials (protocols); well-annotated with clinical and outcome data
- Specimens initially used by Trial Group Investigators for **integral** and **integrated biomarker** studies/assays (prognosis/prediction)
- Specimens remaining in excess after clinical trial requirements have been met become **“legacy”** specimens and are available to investigators for **secondary correlative studies** following an NCTN biospecimen access process and approval by NCTN Core Correlative Science Committee (NCTN CCSC)
- **Use of NCTN “Legacy” Biospecimens:** Validation studies of predictive/prognostic biomarkers based on the trial treatments and outcomes; assay development/validation

NCTN Biospecimen Distribution (2013-2017)

ALL Organ Sites; Adult & Pediatric Cancer

Total Samples* Distributed		440,114
- Solid Tumor Samples		410,248
- Leukemia Samples		29,866
NCTN Investigators Served (Integral/Integrated)		223
ALL Investigators Served (Legacy Specimens)		348
- NCTN Group Investigators	220	
- Non-Group Investigators	128	
▪ Publications (based on specimens used for research)		572

**Sample” is defined as one processed piece of a biospecimen, regardless of the sample size or type of initial processing: FFPE block/frozen tissue/vial/aliquot.*

Solid Tumors Samples DISTRIBUTED by NCTN Banks (2013-2017)

		SELECTED MAJOR SAMPLE TYPE				
5 NCTN Groups	Samples	FFPE	Frozen	Plasma	Serum	# of Trials OVER ENTIRE 2013 – 2017 PERIOD
2013	106,902	41,025	2,042	27,235	18,682	316
2014	74,163	24,990	1,526	22,155	14,342	
2015	50,615	34,018	4,404	5,270	7,411	
2016	78,353	50,746	11,174	2,564	3,103	
2017	100,215	70,947	9,543	5,831	5,191	
TOTAL	410,248	221,726	28,689	63,055	48,729	

Leukemia Samples DISTRIBUTED by NCTN Banks (2013-2017)

		SELECTED MAJOR SAMPLE TYPE				
4 NCTN Groups	Samples	Bone Marrow	Blood WBC	DNA	RNA	# of Trials OVER ENTIRE 2013 – 2017 PERIOD
2013	6,823	2,251	265	1,393	1,233	83
2014	7,410	2,863	794	996	1,100	
2015	6,373	3,614	284	1,037	714	
2016	4,924	1,279	401	988	558	
2017	4,336	1,475	612	527	341	
TOTAL	29,866	11,482	2356	4,941	3,946	

“# of Trials Over Entire 2013-2017 Period” - number of unique trials involved across all 5 years, as number of trials with active sample distributions will vary from year to year.

Collected NCTN Trials Specimens (2013-2017)

ALL Organ Sites, Types and Preparations

5 NCTN Banks: ALL INCOMING SAMPLES (2013-2017)		
ALL NCTN Groups	Samples	# of Trials OVER ENTIRE 2013 – 2017 PERIOD
2013	348,208	428
2014	342,677	
2015	342,246	
2016	328,657	
2017	280,779	
TOTAL	1,642,567	

“# of Trials Over Entire 2013-2017 Period” - number of unique trials involved across all 5 years, as number of trials with active sample collections will vary from year to year.

Scientific Impact (2013-2017) - Selected Publications

- Sparano A, Gray R.J., Makower, D.F., et al. Prospective Validation of a 21-Gene Expression Assay in **Breast Cancer**. N Engl J Med. 2015 Nov 19; 373(21): 2005–2014 (ECOG)
- Ostronoff F, Othus M, Burnett A, et al. Prognostic significance of NPM1 mutations in the absence of FLT3-Internal Tandem Duplication in older patients with **acute myeloid leukemia**: a SWOG and UK National Cancer Research Institute/Medical Research Council report. J Clin Oncol 33(10):1157-1164, 2015 (SWOG)
- Roberts KG, Li Y, Payne-Turner D, et al. Targetable kinase-activating lesions in Ph-like **acute lymphoblastic leukemia**. N Engl J Med. 2014; 371(11) (COG)
- Stone RM, Mandrekar SJ, Sanford BL, et al. Midostaurin plus chemotherapy for **acute myeloid leukemia** with a FLT3 mutation. N Engl J Med. 2017; 377: 454–64 (ALLIANCE)
- Hodi FS, Lee S, McDermott DF, et al. Ipilimumab plus sargramostim vs ipilimumab alone for treatment of **metastatic melanoma**: a randomized clinical trial. JAMA. 2014; 312(17): 1744-1753 (ECOG)
- Dalerba P, Sahoo D, Paik S, Guo X, et al. CDX2 as a prognostic biomarker in stage II and stage III **colon cancer**. N Engl J Med 2016;374(3): 211-222 (NRG Oncology)

NCTN “Legacy” Biospecimens-Access

<https://navigator.ctsu.org/navigator>

NCTN Navigator | A Clinical Trials Specimen Resource



[Contact FDS](#) [FAQ](#)

NCI's **National Clinical Trials Network (NCTN)** [↗](#) Navigator is a resource for investigators who have typically conducted exploratory correlative analysis and are now seeking specimens to validate their hypotheses. Click the "Explore Specimens" button to the right to explore the inventory.

CTEP-IAM Log-In should only be used when you are ready to submit a LOI. If you have questions, please review the FAQs and if your question is not answered there, contact the **Front Door Service** [✉](#) for assistance.

Navigator Process Flow

The Navigator inventory is currently limited to select adult treatment trials that were conducted by NCI's NCTN clinical trials Groups, Phase 3 or large biospecimen collection protocols with clinical data, and completed, with the primary outcome reported. For additional information on the process workflow, refer to the **Steps for Researchers** [↗](#) document.

To Search Specimens Only

[🔒 Explore Specimens](#)

To Submit a LOI

[🔒 CTEP-IAM Login](#)

OR

[📄 Provisional Account Login or New Request](#)



Explore specimens in Navigator using a Guest Account

Explore related trial publications & develop a question

Create a CTEP-IAM account & submit a LOI

The LOI will be reviewed for feasibility

Submit a proposal, if the LOI was feasible

The proposal will be scientifically reviewed

Obtain regulatory approvals & funding, receive specimens, complete project.

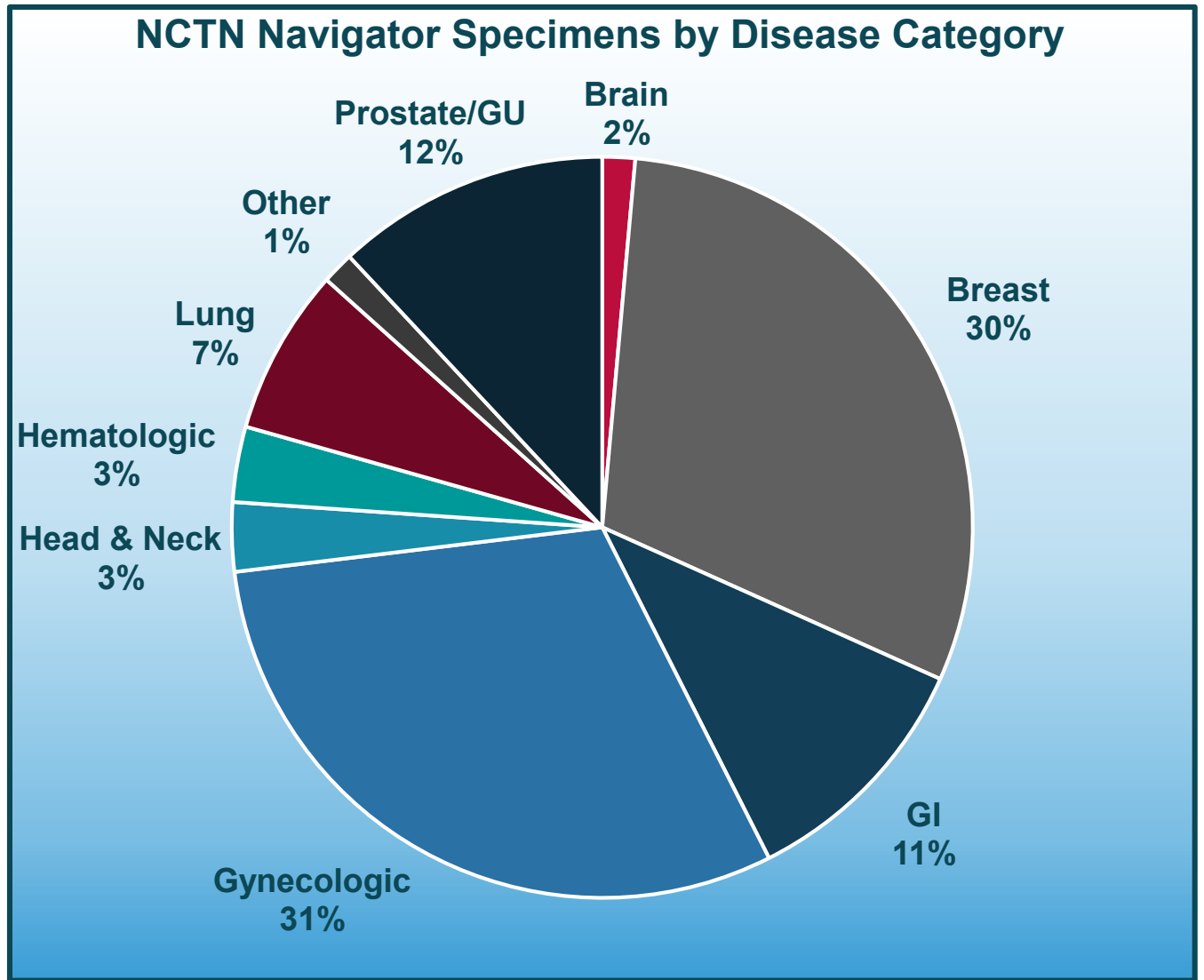
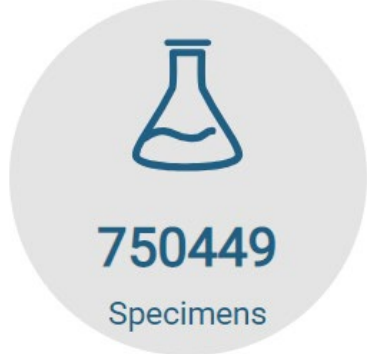
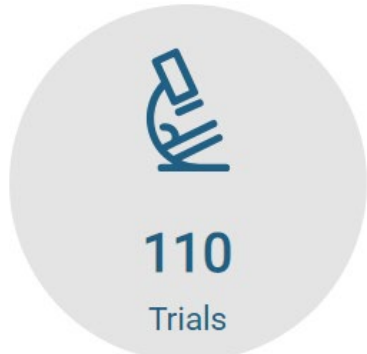
1. Consolidate inventory of biospecimens

2. Connect biospecimens and clinical data

3. Provide biospecimen access to research community

4. Track applications

Published Data Load Status as of January 30, 2019



How To Request NCTN “Legacy” Biospecimens?

- An investigator does not need to be associated with an NCTN Group to request “legacy” biospecimens
- The web-based NCTN **Biospecimen Navigator** allows investigators to independently query for NCTN Bank biospecimens that meet their criteria, and track their request through the review and approval process
- The NCTN **Front Door Service** guides investigators through biospecimen query, application, and regulatory filing procedures
- The NCTN **Front Door Service** and **Biospecimen Navigator** will improve the efficiency and transparency of the biospecimen request process for the entire cancer research community

Rationale to Support Biospecimen Banks for NCI Clinical Trials

Biospecimen Resource for NCTN & Early Trials

- NCTN trial specimens used in a wide range of validation studies of predictive/prognostic biomarkers and assay development; well-utilized and resulted in high-impact publications
- Early Trial specimens used for early clinical evaluation of innovative cancer therapies

External Review: September, 2018 (consensus)

- High value of resource for the research community (translational & clinical research; impact on medical practice)
- Unique trial specimens with clinical annotations and outcome data; harmonized banking SOPs
- Importance of Biospecimen Navigator, Front Door Service, CCSC: provide transparent access to legacy specimens

There is no alternative to the NCTN Banks

- Commercial or academic biospecimen resources cannot supply similar trial specimens for research with broad range of tumor types and detailed annotations

Biospecimen Banks: U24 Cooperative Agreement (2020-2026)

5 NCTN Biospecimen Banks

- Infrastructure and operations
- NCTN Biospecimen IT Navigator & Front Door Service curation
- “Legacy” specimens retrieval, processing, QA/QC
- Specimens for CIMAC (specialized processing/handling)
- Specialized kits and tubes for collection sites & processing
- Digital whole slide images storage/scanning

Early Clinical Trials Bank Expansion (ETCTN, CITN, & CIMAC)

New PEP-CTN Biospecimen Banking in COG NCTN Bank (*)

NCORP Cancer Control & Prevention Trials Banking at NCTN Banks

() Banking for the Pediatric Early Phase Clinical Trial Network (PEP-CTN) in the Children’s Oncology Group (COG) NCTN Bank is responsive to the provision of the STAR Act*

Questions/Discussion

- Is the rationale/justification for sustained NCI funding to cover clinical trial banking infrastructure and previously unfunded processes and operations adequate?
- What are the functions that NCTN and Early Trials Banks need to fulfill in the future that require NCI investment?
- Will the current and future strategies for improved biospecimen access through the NCTN Biospecimen Navigator help researchers and increase utilization of NCTN “legacy” specimens?
- What are the best ways to increase awareness of NCTN Biospecimen Banks resource to the research community beyond the strategies the program is utilizing currently?