

# NCI Resources for Researchers

Chamelli Jhappan, PhD

Cancer Immunology, Hematology and Etiology Branch (CIHEB)

Division of Cancer Biology (DCB)

NCI

# *NCI Experimental Resources for Researchers*

Databases

Animal Models/Cell Lines

Clinical Resources

# NCI-Supported Databases

- SEER
- TCGA

# The Surveillance, Epidemiology, and End Results Program (SEER)

(<https://seer.cancer.gov/>)

- Provides information on cancer statistics
- Cancer data from registries covering 35% of the U.S. population
- SEER is managed by the Surveillance Research Program (SRP) in the Division of Cancer Control and Population Science (DCCPS), NCI
- Data includes cancer incidence and population data associated by age, sex, race, year of diagnosis, and geographic areas
- Releases new research data every spring based on the previous November's submission of data

# The Cancer Genome Atlas (TCGA)

(<https://cancergenome.nih.gov>)

- Collaboration between NCI and the National Human Genome Research Institute (NHGRI)
- Sequencing information from tumor and matched normal tissue from over 11,000 patients
- TCGA dataset is made up of more than two petabytes of genomic data
- Generated a tremendous amount of information on about 33 different types of cancer

The screenshot shows the homepage of the The Cancer Genome Atlas (TCGA) website. At the top, the NIH logo is followed by the text "THE CANCER GENOME ATLAS National Cancer Institute National Human Genome Research Institute". A search bar is located on the right. Below the header is a navigation menu with links for Home, About Cancer Genomics, Cancers Selected for Study, Research Highlights, Publications, News and Events, and About TCGA. The main content area features a "Launch Data Portal" button and a section titled "About TCGA" which describes the project as a collaboration between NCI and NHGRI. Key statistics are highlighted: 2.5 petabytes of data, 33 different cancer types, 10 different genomic data types, 212,000 data points, and 11,000 patients. A "Questions About Cancer" section provides contact information for the website, a phone number (1-800-4-CANCER), and a live help chat. A "Multimedia Library" section lists links for Images, Videos and Animations, Podcasts, and Interactive content. A "Stay Connected" section offers options to sign up for email updates, RSS newsfeeds, Twitter, and YouTube. The footer contains links for Home, Contact Us, Web Site Policies, Accessibility, FOIA, and RSS, along with the text "U.S. Department of Health and Human Services | National Institutes of Health | National Cancer Institute | National Human Genome Research Institute | USA.gov" and the slogan "NIH... Turning Discovery Into Health®".

# NCI Mouse Repository

(<https://frederick.cancer.gov/science/technology/mouserpository>)

## Mouse cancer models

- Request frozen embryos or sperm
- Researchers are encouraged to submit their cancer models to the NCI mouse repository for archiving and distribution

## miRNA Embryonic Stem Cell Collection

- ES cells overexpressing microRNAs
- MicroRNAs are GFP labeled
- MicroRNA expression is inducible



### Ordering miR ES Cells/requirements

- Must have NIH funding
- Distribution is prioritized
- Pay a shipping fee

Contact: Dr. Nancy Boudreau

# Developmental Therapeutics Program

<https://dtp.cancer.gov/repositories/default.htm>

- **Repository of Tumors and Tumor Cell Lines**  
Transplantable *in vivo*-derived tumors and *in vitro*-established tumor cell lines from various species
- **Repository of Patient-Derived Models**  
Early-passage, clinically annotated Patient-Derived Models (PDMs) comprised of patient-derived xenografts (PDXs) and *in vitro* patient-derived cell cultures (PDCs) including mixed cell populations, clonal cell lines, and fibroblast cell lines.
- **Repository of Chemical Agents – Small Molecules and Isolated Natural Products**  
More than 200,000 synthetic compounds and pure natural products for non-clinical research purposes
- **Repository of Natural Products**  
170,000 extracts from samples of more than 70,000 plants and 10,000 marine organisms collected from more than 25 countries, more than 30,000 extracts of diverse bacteria and fungi
- **Repository of Biologicals – Monoclonal Antibodies, Cytokines and Cytokine Standards**  
Bulk cytokines, monoclonal antibodies, and cytokine standards

# NCI-60 Human Tumor Cell line

([https://dtp.cancer.gov/discovery\\_development/nci-60/](https://dtp.cancer.gov/discovery_development/nci-60/))

- Representative cancers: leukemia, melanoma, lung, colon, brain, ovary, breast, prostate, and kidney cancers
- Used to identify and characterize novel compounds with growth inhibition or killing of tumor cell lines



# Annotated Biospecimens



## National Clinical Trials Network Navigator (NCTN Navigator) (<https://navigator.ctsu.org/navigator/login>)

- For cancer researchers interested in conducting studies using specimens and clinical data collected from cancer treatment trials
- Includes information about specimens, such as tumor and blood samples, donated by patients in NCI-sponsored clinical trials

### Navigator Process Flow



# NCI Patient-Derived Models Repository (PDMR)

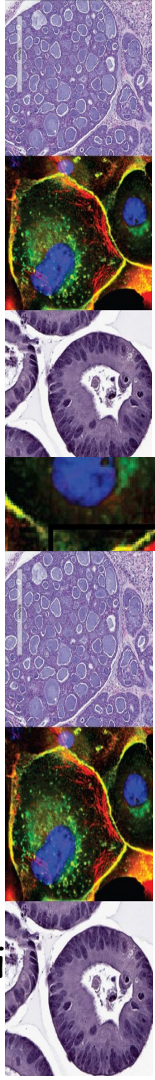
(<https://pdmr.cancer.gov/>)

Generated from primary and metastatic tumor tissues and blood specimens supplied by NCI-supported clinical trials and NCI-designated Cancer Centers

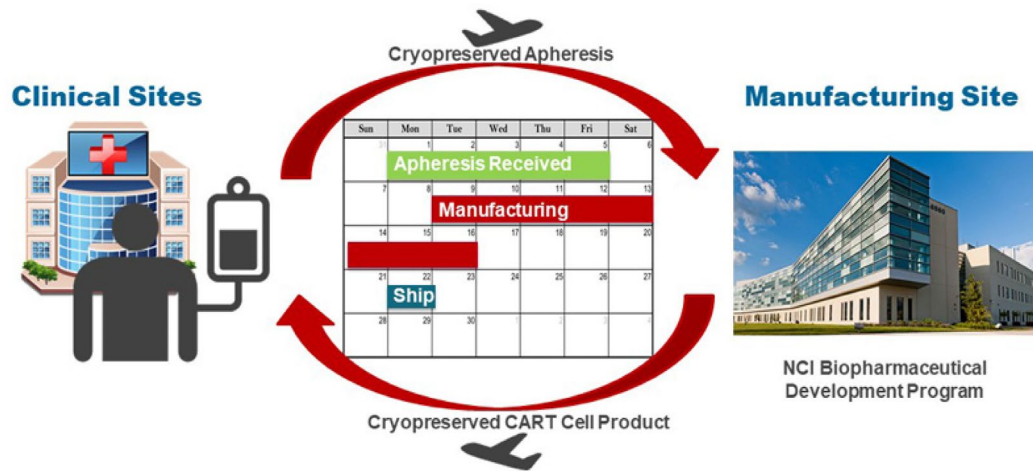
- Patient-derived xenografts
- Patient-derived tumor cell cultures
- Cancer associated fibroblasts
- Patient-derived organoids

Will include a limited amount of patient data:

- Previous clinical therapies
- Smoking history
- Race/ethnicity
- Representative sequence for a sub-set of PDXs for a targeted gene panel, whole exome, and RNASeq
- Will also accept previously derived PDX models developed at external sites



# NCI Manufacturing for multi-center CART cell trials at the Frederick National Lab for Cancer Research (FNLCR)



Contact: Anthony Welch Ph.D.  
(welcha@mail.nih.gov)

CART-T Cell Development at NCI  
Biopharmaceutical Development Program (BDP)

# How are Experimental Resources Developed by NCI?

- Feedback from researchers
- Workshop or Think Tank asking leaders in cancer research to let us know how we can help them
- Approvals from NCI leadership
- PDMR process began in 2012, resource active 4/2018

# Additional NCI Resources....

- Physical Sciences in Oncology Bioresource (<https://physics.cancer.gov/bioresources/>)
- Ras Initiative (<https://www.cancer.gov/research/key-initiatives/ras/outreach/reference-reagents>)
- Informatics Technology for Cancer Research (<https://itcr.cancer.gov/sites/default/files/ITCR>)
- Clinical Proteomic Tumor Analysis Consortium (<https://proteomics.cancer.gov/programs/cptac>)
- Cooperative Human Tissue Network (<https://www.chtn.org/>)



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