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

- 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
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/)

• 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
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)

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

Contact: Anthony Welch Ph.D. (welcha@mail.nih.gov)
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)
- Cooperative Human Tissue Network (https://www.chtn.org/)