New Grantee Workshop

Division of Cancer Biology

DCB/NCI Research Resources

Cindy Kyi, Ph.D.

Biophysics, Bioengineering and Computational Biology Branch

Office of Cancer Genomics

NIH NATIONAL CANCER INSTITUTE

January 15, 2026

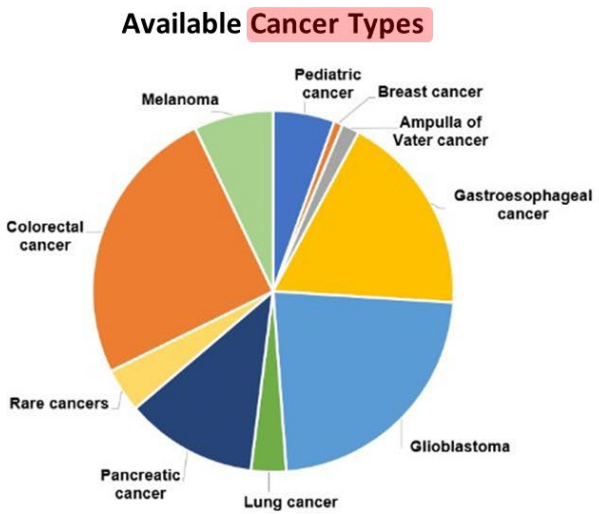
Outline

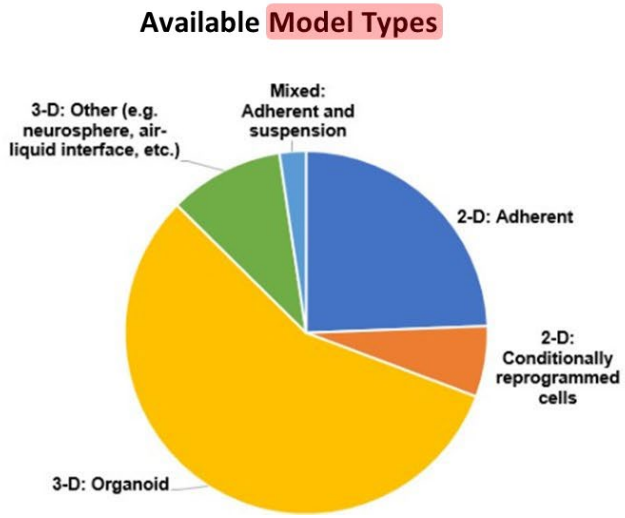
1. In-vitro Model Systems
2. Structural Biology Resources
3. Data Resources
4. Informatics/Computational Tools
5. Epidemiology and Population Science Resources
6. Biospecimens, Biological Materials, Reagents
7. Drug Discovery and Development Resources
8. Clinical Research Resources

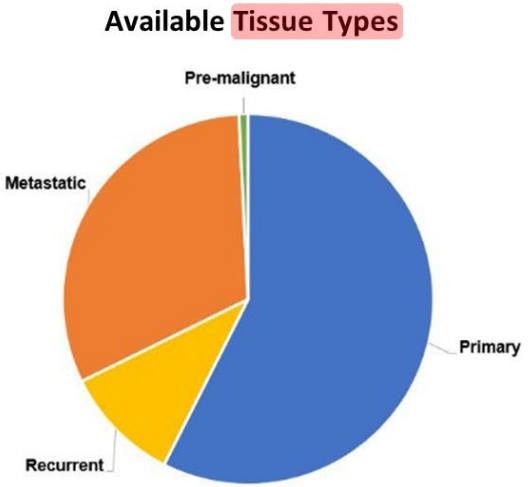
In-vitro Model Systems

Human Cancer Models Initiative (HCMI)- Next-generation Cancer Models

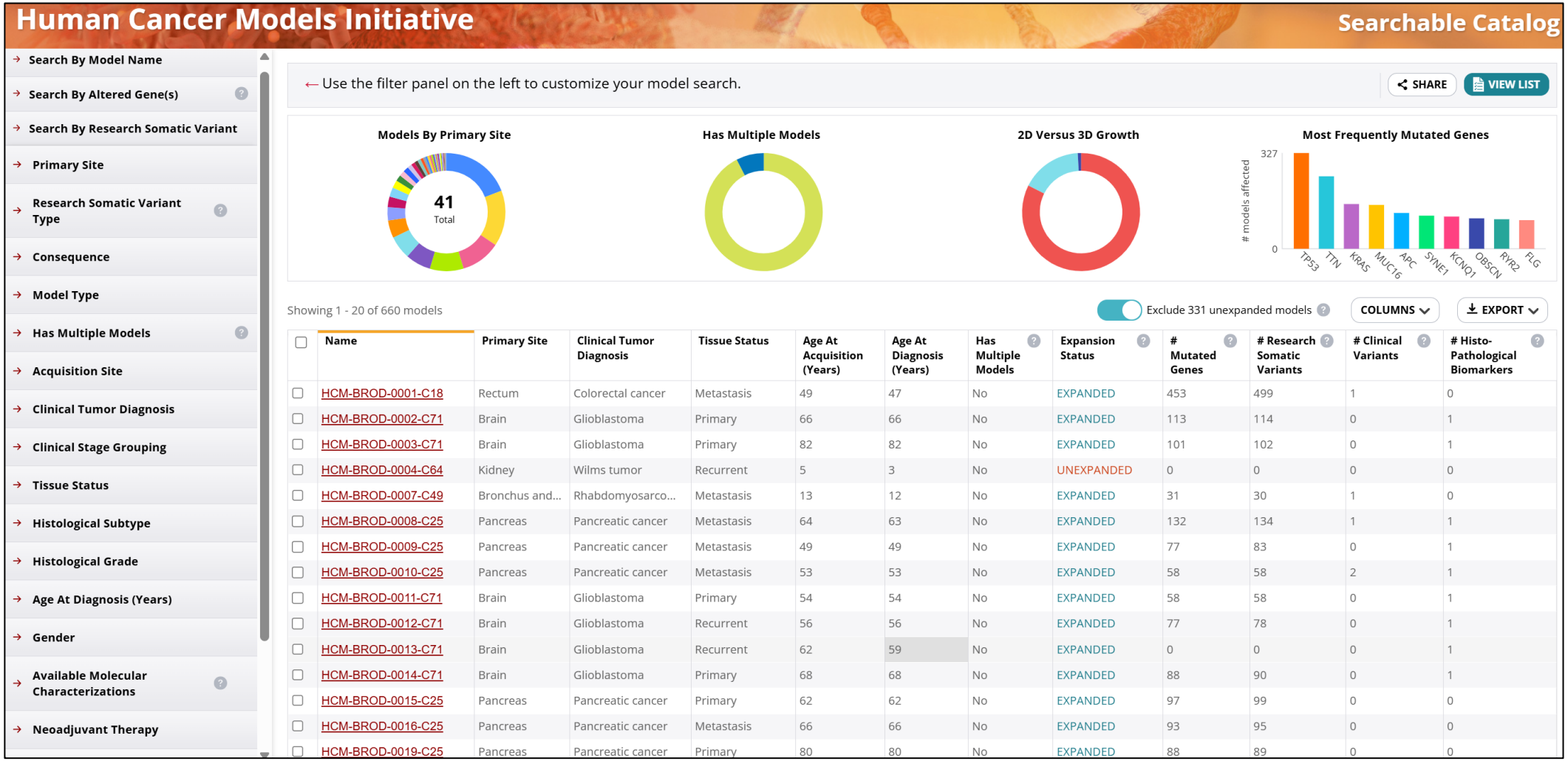
- Patient-derived next-generation cancer models and associated clinical, biospecimen and molecular characterization
- Case-associated data are available at NCI's Genomic Data Commons
- Models can be purchased at ATCC.
- Available models can be browsed through the HCMI Searchable Catalog
- Visit https://www.cancer.gov/ccg/research/functional-genomics/hcmi







HCMI Searchable Catalog- Next-generation Cancer Models



Name	Primary Site	Clinical Tumor Diagnosis	Tissue Status	Age At Acquisition (Years)	Age At Diagnosis (Years)	Has Multiple Models	Expansion Status	# Mutated Genes	# Research Somatic Variants	# Clinical Variants	# Histo-Pathological Biomarkers
HCM-BROD-0001-C18	Rectum	Colorectal cancer	Metastasis	49	47	No	EXPANDED	453	499	1	0
HCM-BROD-0002-C71	Brain	Glioblastoma	Primary	66	66	No	EXPANDED	113	114	0	1
HCM-BROD-0003-C71	Brain	Glioblastoma	Primary	82	82	No	EXPANDED	101	102	0	1
HCM-BROD-0004-C64	Kidney	Wilms tumor	Recurrent	5	3	No	UNEXPANDED	0	0	0	0
HCM-BROD-0007-C49	Bronchus and...	Rhabdomyosarco...	Metastasis	13	12	No	EXPANDED	31	30	1	0
HCM-BROD-0008-C25	Pancreas	Pancreatic cancer	Metastasis	64	63	No	EXPANDED	132	134	1	1
HCM-BROD-0009-C25	Pancreas	Pancreatic cancer	Metastasis	49	49	No	EXPANDED	77	83	0	1
HCM-BROD-0010-C25	Pancreas	Pancreatic cancer	Metastasis	53	53	No	EXPANDED	58	58	2	1
HCM-BROD-0011-C71	Brain	Glioblastoma	Primary	54	54	No	EXPANDED	58	58	0	1
HCM-BROD-0012-C71	Brain	Glioblastoma	Recurrent	56	56	No	EXPANDED	77	78	0	1
HCM-BROD-0013-C71	Brain	Glioblastoma	Recurrent	62	59	No	EXPANDED	0	0	0	1
HCM-BROD-0014-C71	Brain	Glioblastoma	Primary	68	68	No	EXPANDED	88	90	0	1
HCM-BROD-0015-C25	Pancreas	Pancreatic cancer	Primary	62	62	No	EXPANDED	97	99	0	0
HCM-BROD-0016-C25	Pancreas	Pancreatic cancer	Metastasis	66	66	No	EXPANDED	93	95	0	0
HCM-BROD-0019-C25	Pancreas	Pancreatic cancer	Primary	80	80	No	EXPANDED	88	89	0	0

HCMI Catalog: https://hcmi-searchable-catalog.nci.nih.gov

Contact PD: Dr. Justin Benavidez (justin.benavidez@nih.gov)

Structural Biology Resources

NIGMS/NCI X-ray Beamline

- Provides beam time on a peer-reviewed basis for investigations requiring advanced synchrotron capabilities.
- Offers X-ray beams of exceptional stability and tunability, a powerful biologist-friendly user interface, and a pipeline for data processing with modern software.
- If you are applying as a user of an NCI funded program, email gmcauserinfo@anl.gov.
- Program website: https://www.gmca.aps.anl.gov/
- Contact PD: Dr. Eric Johnson (eric.johnsonchavarria@nih.gov)

National Cryo-Electron Microscopy Facility

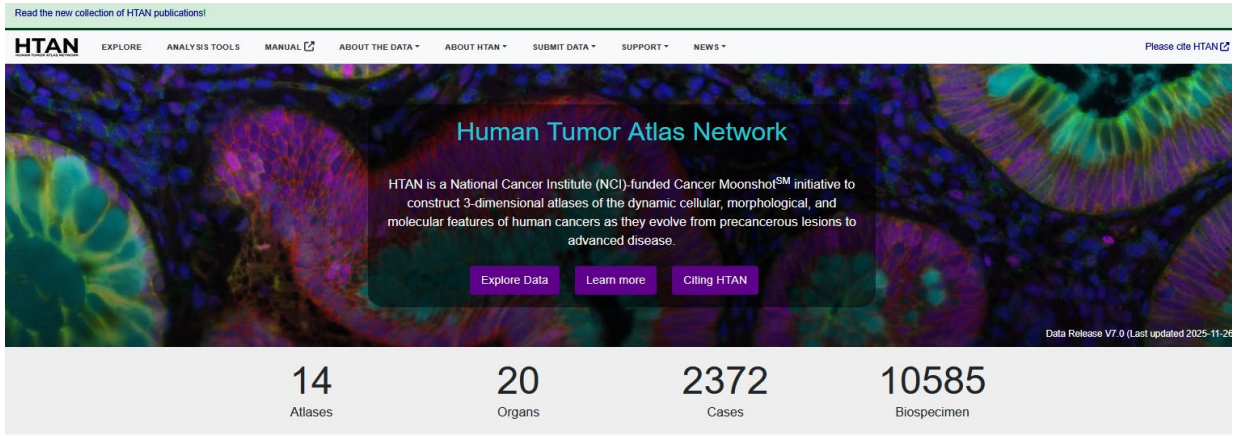
- Provides high resolution imaging services using Titan Krios Microscope
- Samples will be pre-screened for cancer relevance and need to be of quality ready for imaging at high resolution
- Users can apply for a 48-hour imaging session of up to two different samples
- Visit https://www.cancer.gov/research/resources/cryoem/access

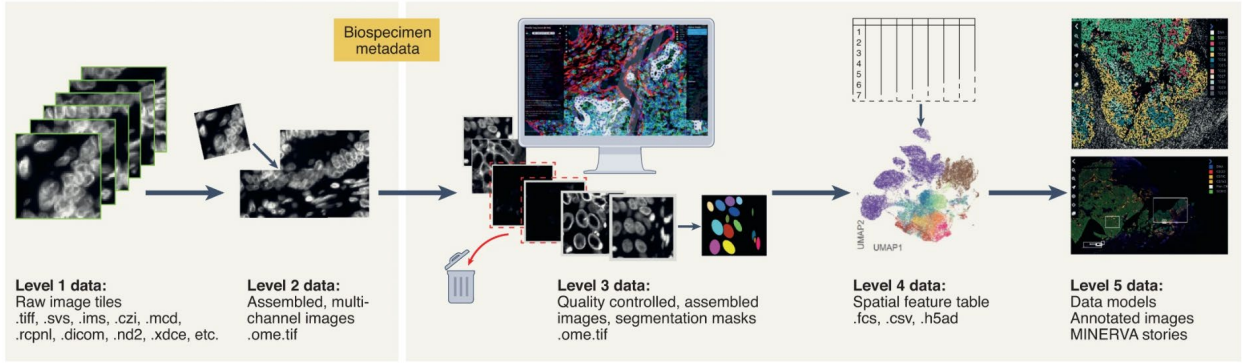
NIH Common Fund Transformative High Resolution Cryo-Electron Microscopy Program

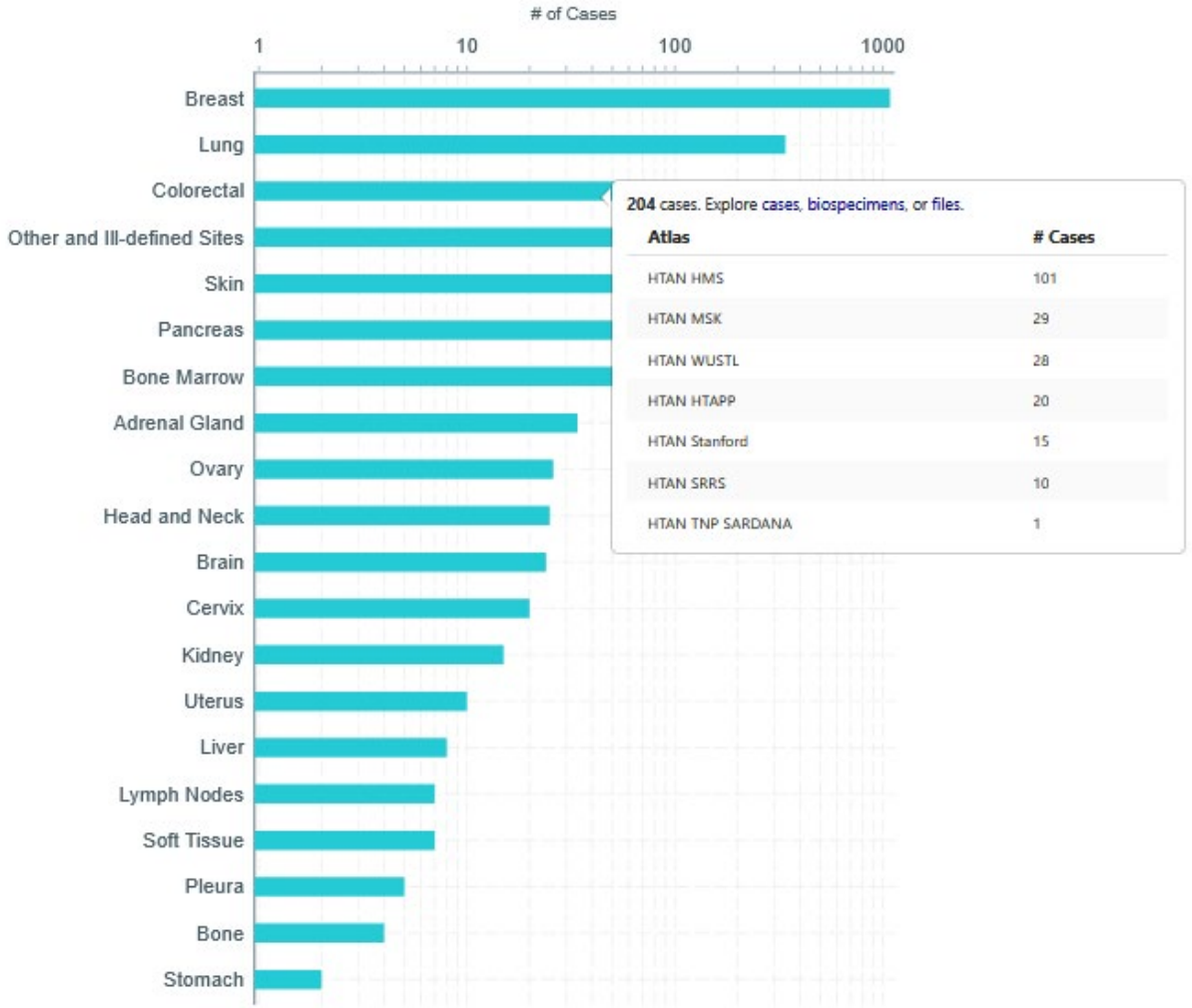
- National CryoEM and CryoET centers: https://www.cryoemcenters.org

Data Resources (Data Sources and Data Commons)

Human Tumor Atlas Network (HTAN)- 3D maps of Human Tumors







HTAN Atlas: https://humantumoratlas.org

Program Contact: Dr. Sharmistha Ghosh-Janjigian (sharmistha.ghosh-janjigian@nih.gov)

Cancer Complexity Knowledge Portal- Data from DCB Programs

- Cancer Systems Biology Consortium

https://www.cancer.gov/about-nci/organization/dcb/research-programs/csbc

- Physical Sciences-Oncology Network

https://www.cancer.gov/about-nci/organization/dcb/research-programs/pson

- The Cancer Tissue Engineering Collaborative

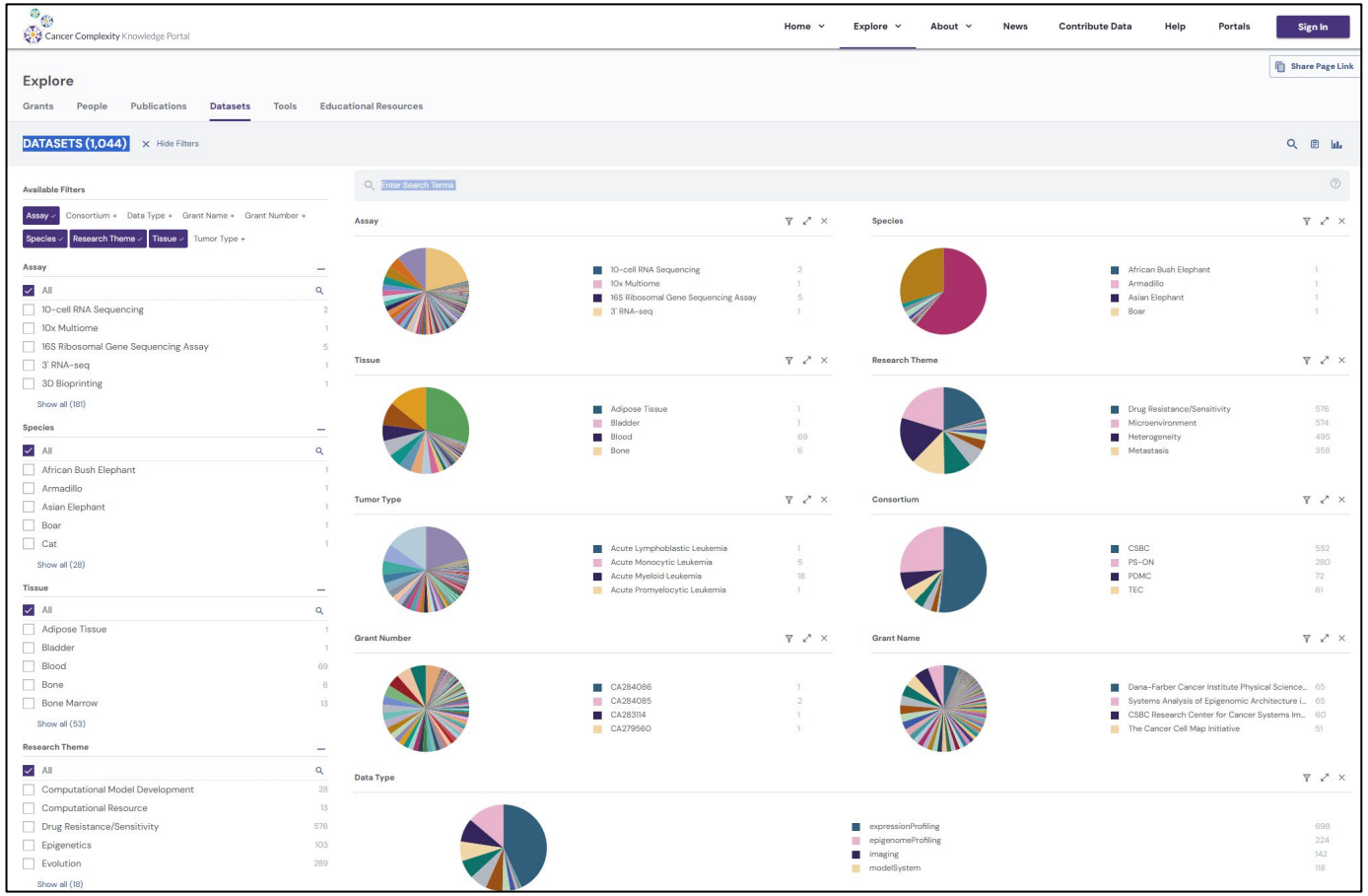
https://www.cancer.gov/about-nci/organization/dcb/research-programs/tec

- The Cellular Cancer Biology Imaging Research

https://www.cancer.gov/about-nci/organization/dcb/research-programs/ccbir

- The Metastasis Research Network

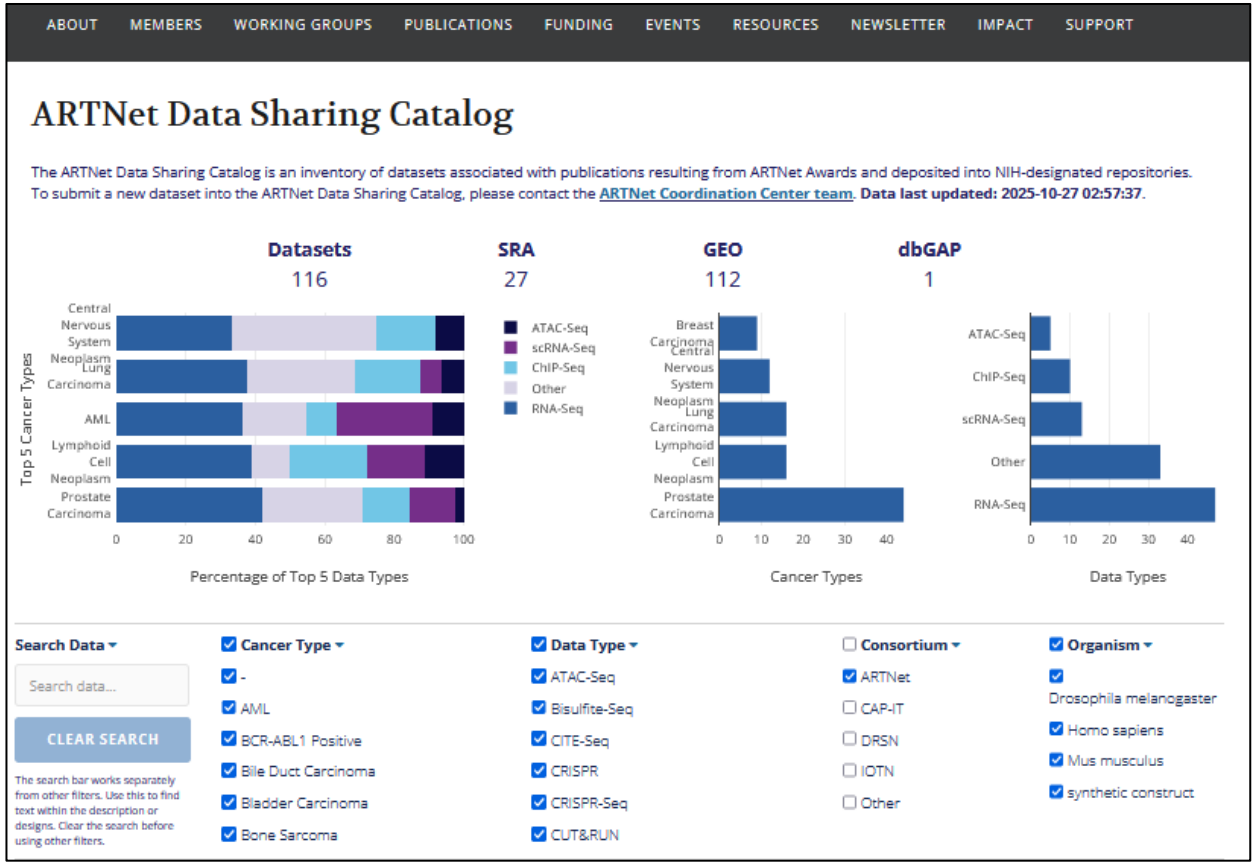
https://www.cancer.gov/about-nci/organization/dcb/research-programs/metnet



Explore: Browse data, publications, and tools.
Find: Search, filter, and refine to find the right data.
Access: Download datasets, publications, and tools.

Portal website: https://cancercomplexity.synapse.org/

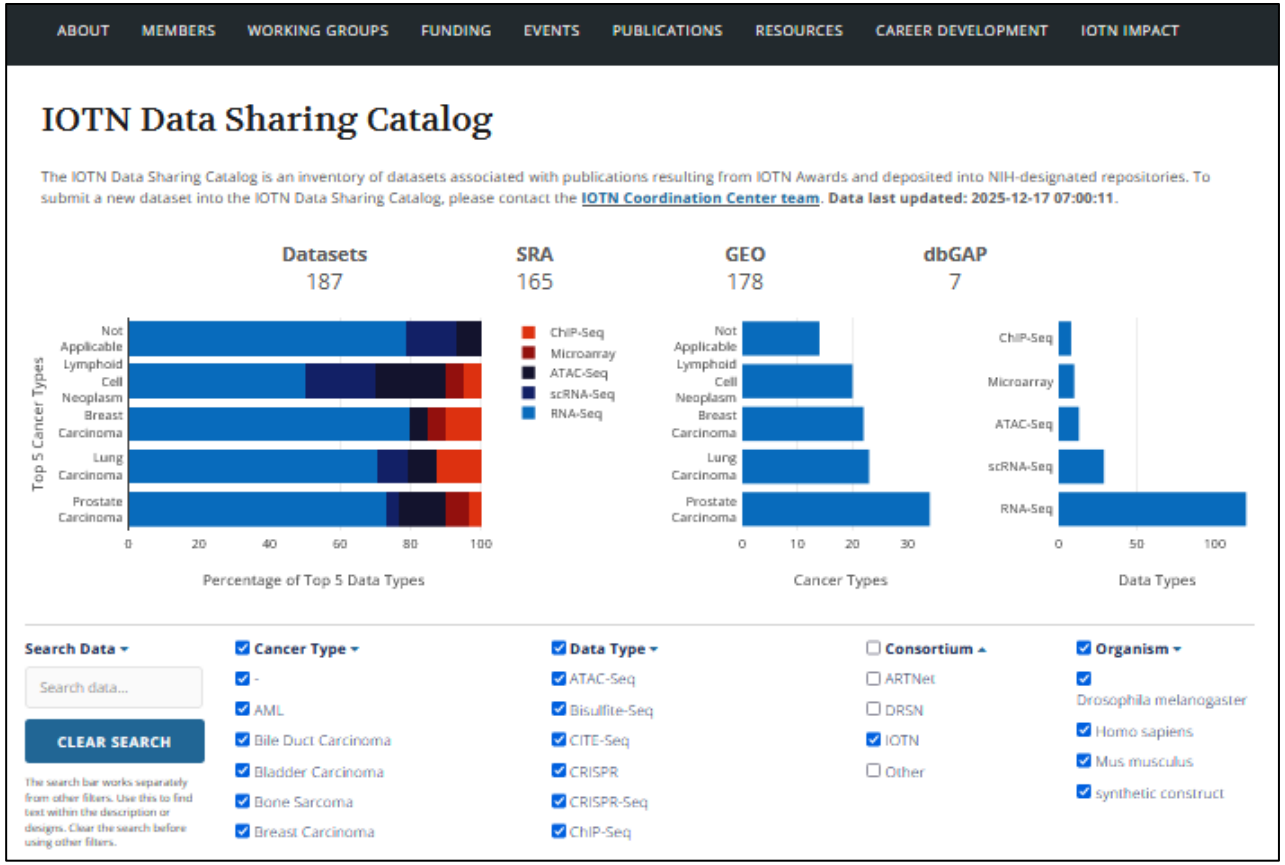
Acquired Resistance to Therapy Network (ARTNet)



https://nciartnet.org/en/resources/data-sharing-catalog/

Contact: Dr. Alan Hutson (alan.hutson@roswellpark.org)
Dr. Jeffrey Hildesheim (hildesheimj@mail.nih.gov)

Immuno-Oncology Translational Network (IOTN)



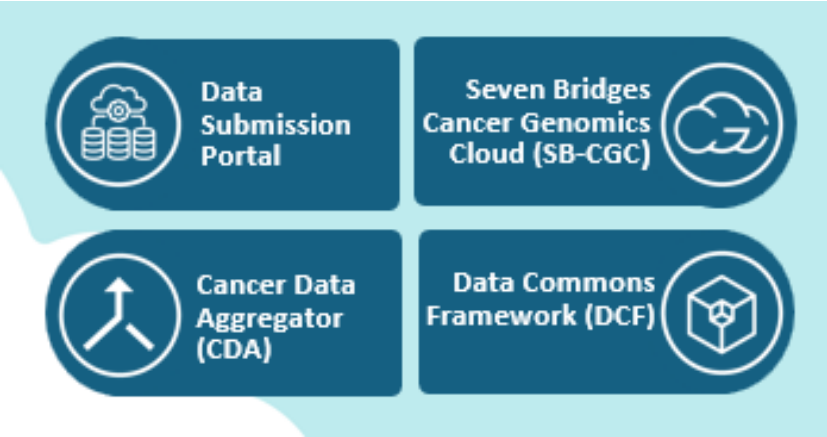
https://www.iotnmoonshot.org/en/resources/data-sharing-catalog/

Contact: Dr. Lillian Kuo (lillian.kuo@nih.gov)

Cancer Research Data Commons (CRDC)

- A cloud-based data science infrastructure that provides secure access to a large, comprehensive, and expanding collection of cancer research data.
- Users can explore and use analytical and visualization tools for data analysis in the cloud.
- The NCI CRDC includes several data commons.

  https://datacommons.cancer.gov/

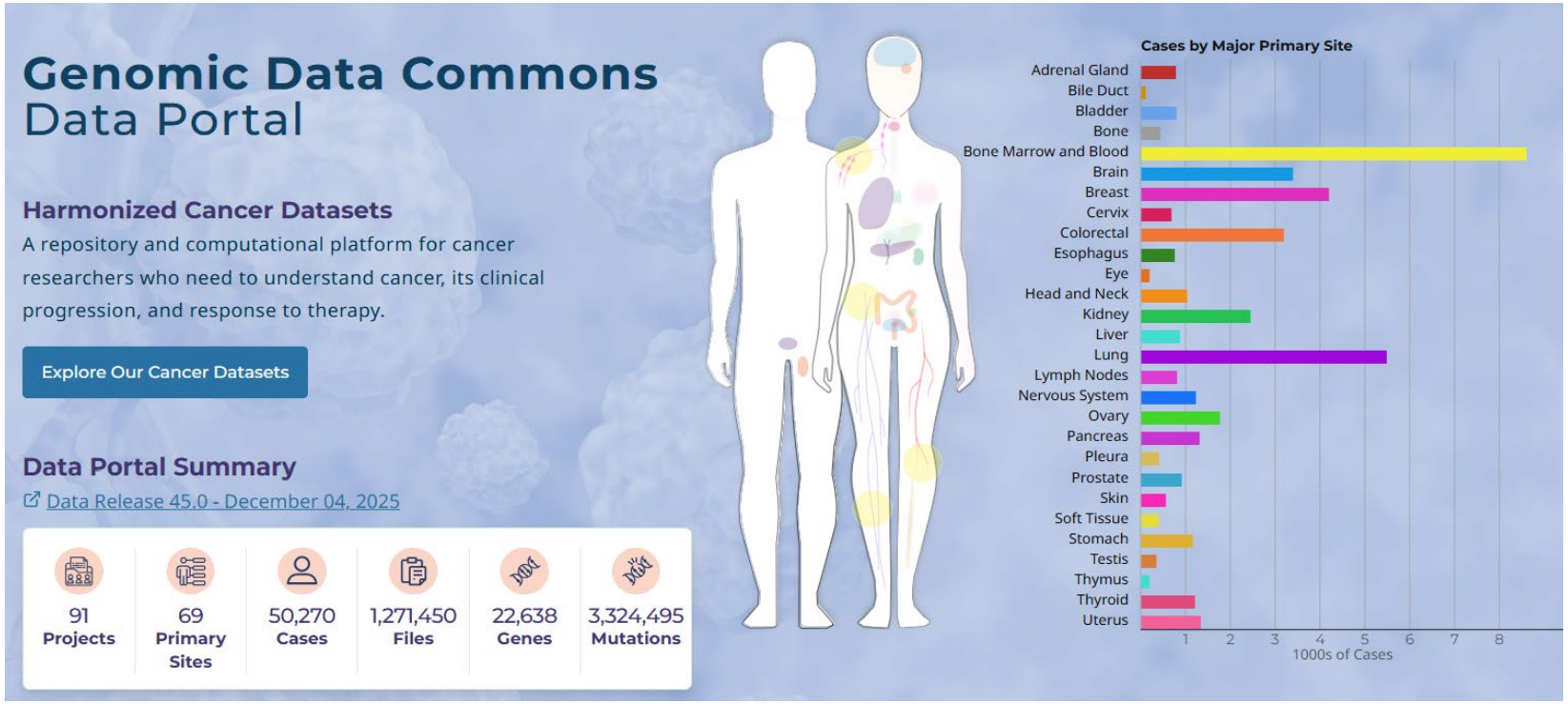


Contact: NCICRDC@mail.nih.gov

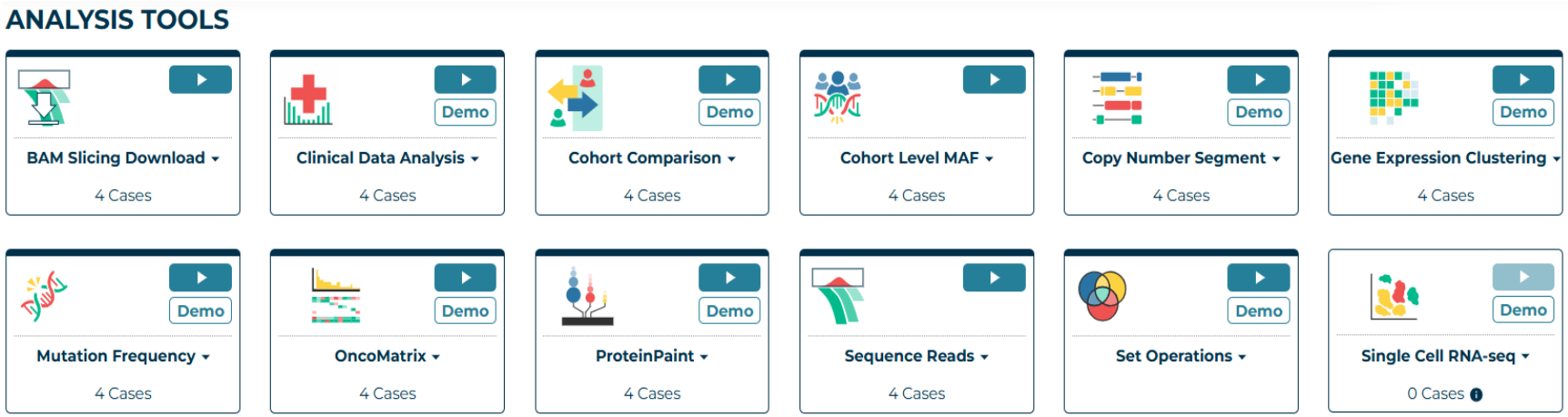
CRDC DATA COMMONS

DATA COMMON	KEY FEATURES
Genomic Data Commons (GDC)	The GDC houses and shares harmonized genomic data, including WGS, WXS, RNAseq, miRNA-seq, scRNAseq, ATAC-seq, and DNA methylation data. The GDC supports free data downloading (both raw sequencing data and derived data), and hosts both open and controlled access data. The GDC Data Portal supports free online data exploration and analysis of custom cohorts.
Proteomic Data Commons (PDC)	PDC houses and shares mass spectrometry-based proteomic data. The PDC portal supports online data exploration and visualization. All data (both raw and derived data) are open access.
Imaging Data Commons (IDC)	The IDC houses and shares de-identified imaging data, including both radiology and pathology slide images. All images are harmonized using DICOM standards. All data in the IDC are open access.
Integrated Canine Data Commons (ICDC)	The ICDC houses and shares data from the veterinary records of pet dogs that naturally developed tumors. Key data types include WXS, WGS, RNA-Seq, and DNA Methylation. All data (including raw sequence data) are open access.
General Commons (GC)	The GC houses and shares data that are not a match for other CRDC Data Commons. Data go through quality control (QC) but are not harmonized. The GC includes both open and controlled access data.
Clinical and Translational Data Commons (CTDC)	The CTDC houses and shares clinical, biospecimen, and molecular characterization data from clinical trials and other studies. All CTDC data are controlled access.

Genomic Data Commons (GDC)



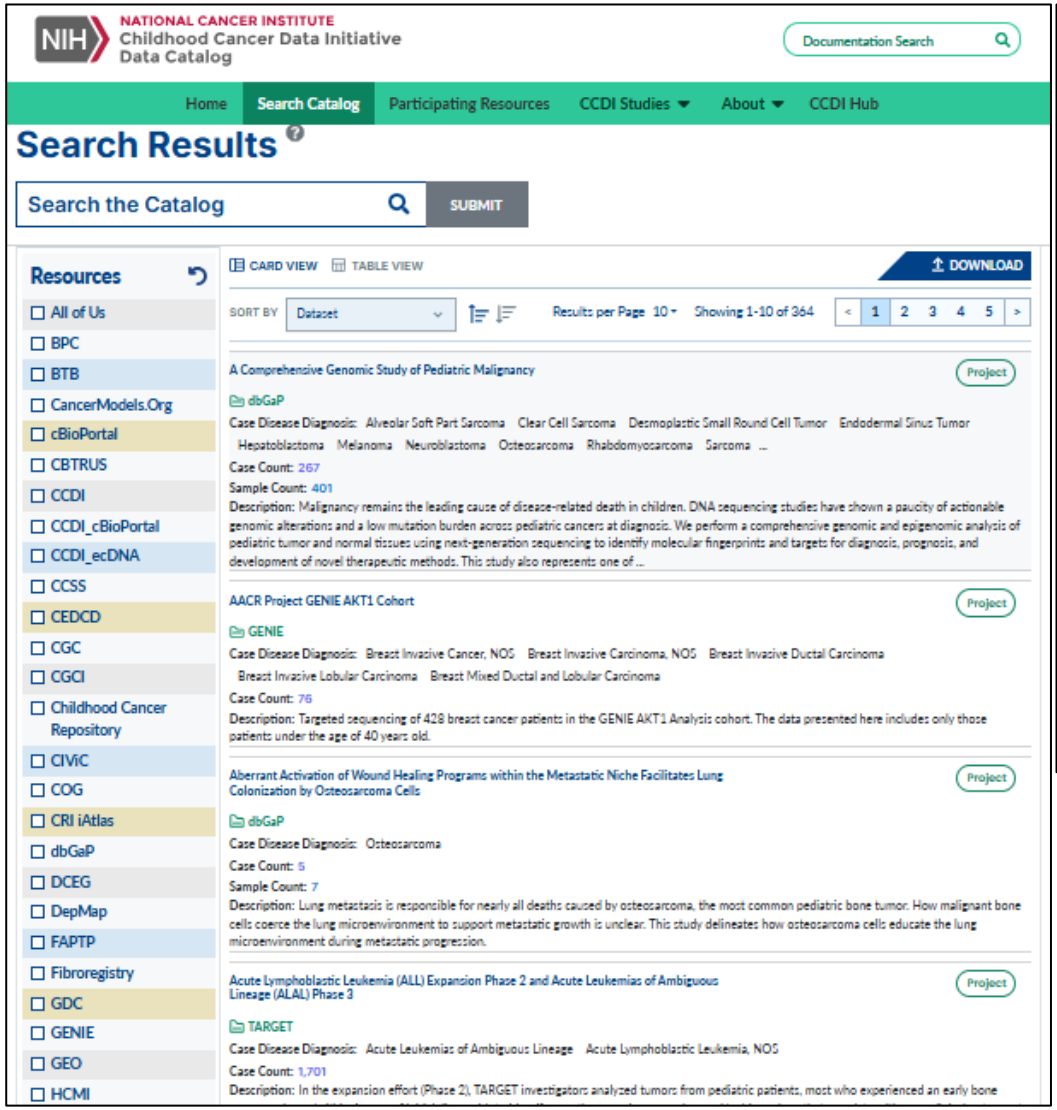
Explore all the data and tools at https://portal.gdc.cancer.gov/



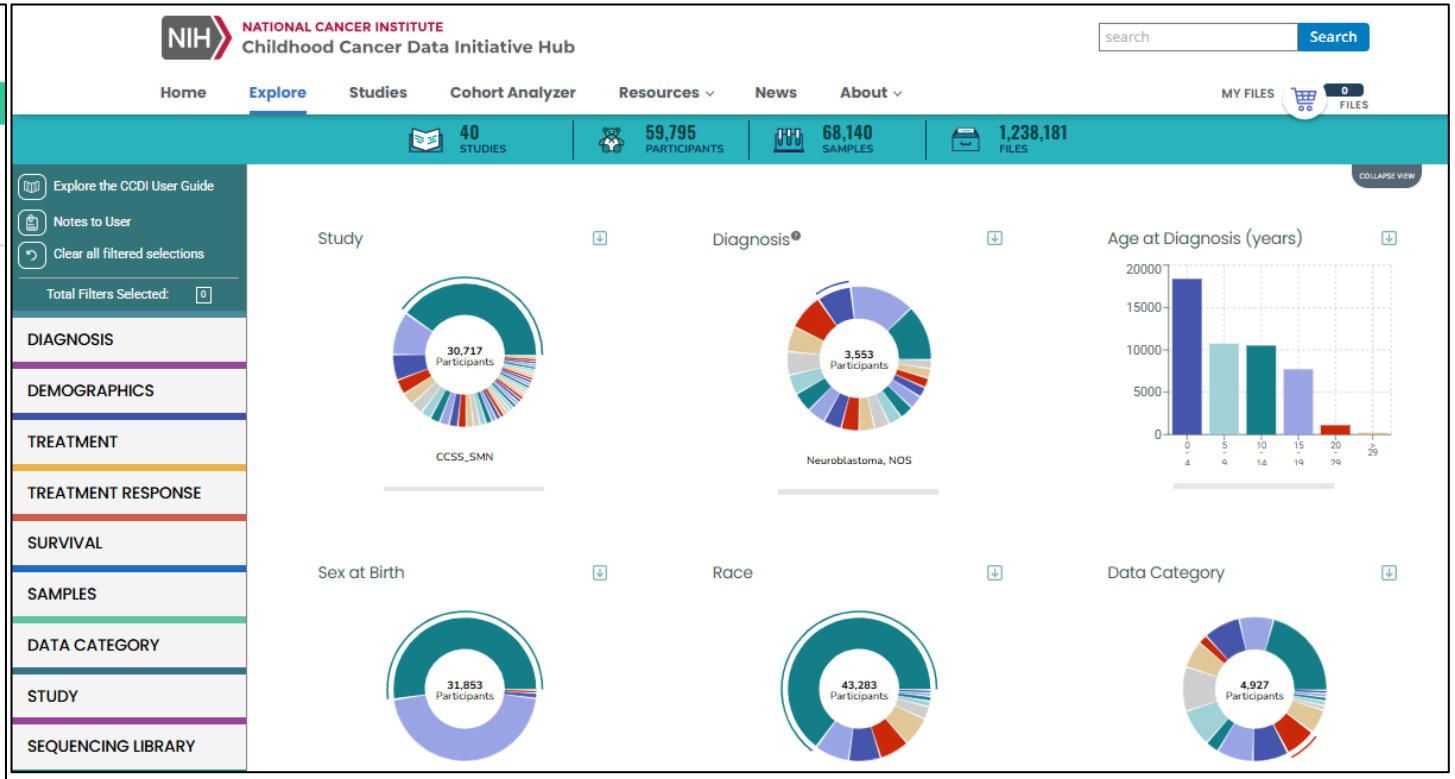
Contact: Dr. David Sturgill (david.sturgill2@nih.gov)

GDC Contact: https://gdc.cancer.gov/contact-us

Childhood Cancer Data Initiative (CCDI)



Childhood Cancer Data Catalog: A searchable inventory of available childhood cancer datasets



CCDI Hub: Data repository and platform to access, download and analyze integrated datasets

https://www.cancer.gov/research/areas/childhood/childhood-cancer-data-initiative

Contact: NCIChildhoodCancerDataInitiative@mail.nih.gov

Informatics/Computational Tools

Informatics Technology for Cancer Research- Informatics/Computational Tools

Informatics Tools Supported by ITCR

The Informatics Technology for Cancer Research (ITCR) Program funds open source, informatics tools that support research across the cancer continuum. All of the tools are free for use by academic and non-profit researchers. Access to tools, code repositories and introductory videos is available through the links in the table below.

On This Page

Program: https://itcr.cancer.gov/informatics-tools

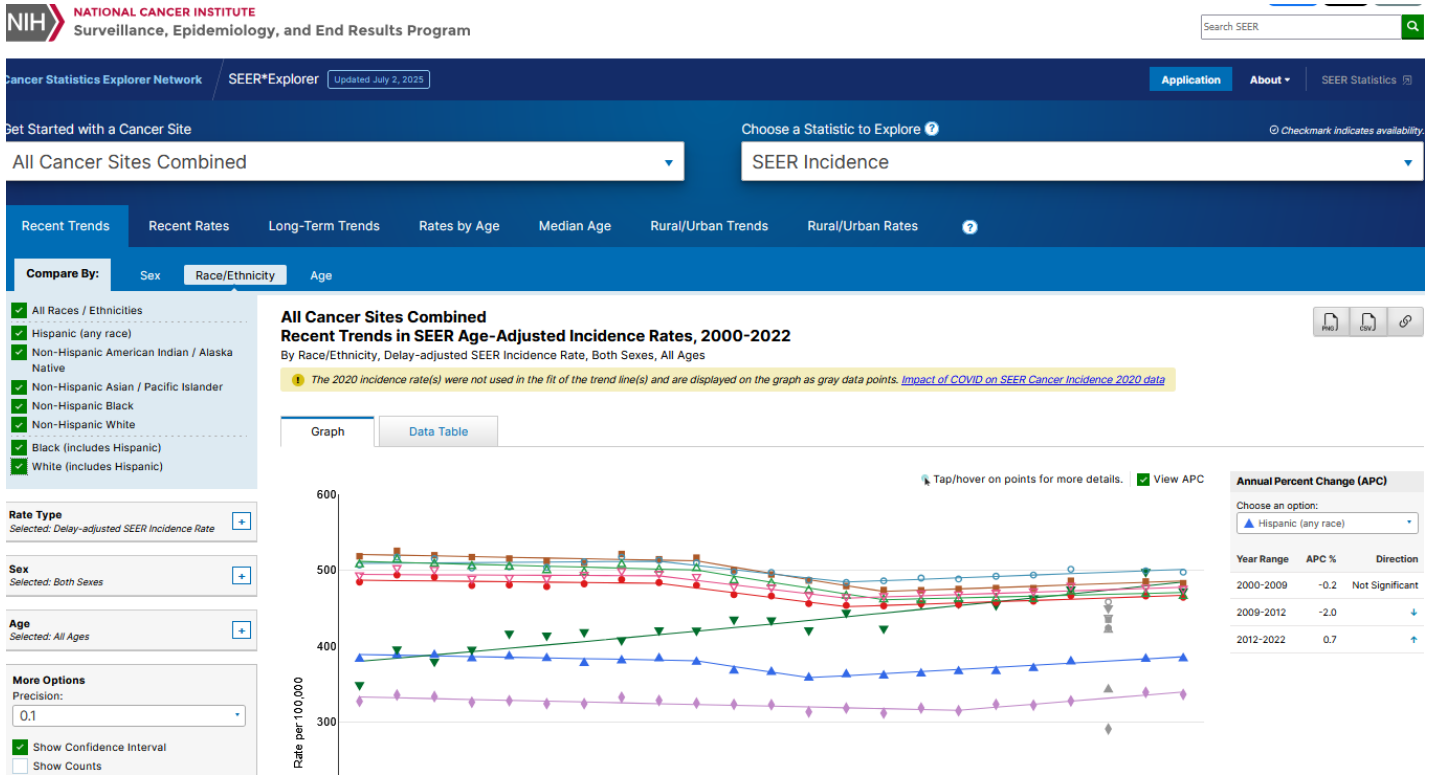
Catalog: https://www.cancer.gov/about-nci/organization/cssi/resources/informatics-tools

Tool Name	Tool Description	Tool Resources
Bioconductor	The Bioconductor project offers over 2,000 open-source software and data packages and is essential to modern cancer genomics research. ITCR supports key infrastructure benefiting thousands of researchers from academia, government, and industry who use and develop Bioconductor tools, furthering our knowledge and treatment approaches for cancer.	Grant Info Documentation Introductory Video Social Media Code Repository
CancerModels.Org	CancerModels.Org is an open global research platform for patient-derived cancer models (PDCMs), including patient-derived xenografts, organoids, and cell line models. It is the largest open catalog of harmonized PDCMs and associated clinical, genomic, and functional data from academic and commercial providers.	Grant Info Social Media Code Repository
cBioPortal for Cancer Research	The cBioPortal for Cancer Genomics provides visualization, analysis and download of large-scale cancer genomics data sets.	Grant Info Documentation Social Media
Galaxy	Galaxy is a Web-based computational workbench that anyone can use to analyze large biomedical datasets. There are >9500 software tools and visualizations integrated into Galaxy for analysis of single-cell and bulk omics, live cell and molecular imaging, machine learning, microbiome, and much more. Galaxy also includes many ITCR tools and visualizations.	Grant Info Introductory Video Social Media Code Repository
Galaxy-P-Multi-omics	A unified platform for integrative genomic-proteomic-metabolomic data analysis and informatics in cancer research.	Grant Info Social Media Code Repository Code Repository
GenePattern	GenePattern is an analysis platform providing hundreds of tools for the analysis of multiple molecular data types. A web interface provides easy access to these tools and allows the creation of multi-step reproducible analysis pipelines. The GenePattern Notebook environment allows users to combine GenePattern analyses with Jupyter notebooks to create reproducible research narratives.	Grant Info Introductory Video Social Media Code Repository

Epidemiology and Population Science Resources

Surveillance, Epidemiology, and End Results Program (SEER)

- **Provides information on cancer statistics** such as incidence, prevalence, and survival data from population-based US cancer registries.
- Data include age, sex, race, year of diagnosis, primary tumor site, tumor morphology, stage at diagnosis, and first course of treatment and vital status.
- SEER data files and SEER*Stat software are available to users.
- The SEER program data can be explored through SEER* Explorer and NCCR* (National Childhood Cancer Registry) Explorer



SEER Program: https://seer.cancer.gov
SEER* Explorer
NCCR* Explore
Contact: SEERInfo@ims.nci.nih.gov

Biospecimens, Biological Materials, Reagents

Drug Discovery and Development Resources

Clinical Research Resources

Biological Materials, Reagents

- Repository of Chemical Agents (https://dctd.cancer.gov/drug-discovery-development/reagents-materials/vialed-plated-compounds-0)
- Repository of Natural Products (https://dctd.cancer.gov/programs/dtp/organization/npb/npnpd)
- Repository of Biological Products (https://frederick.cancer.gov/resources/repositories/Brb/)
- Validated and Characterized Antibodies (https://dctd.cancer.gov/drug-discovery-development/reagents-materials/antibodies)
- NCI Formulary (https://dctd.cancer.gov/drug-discovery-development/reagents-materials/formulary)

(Visit https://dctd.cancer.gov/drug-discovery-development/reagents-materials for more information and additional resources.)

Drug Discovery and Development Resources

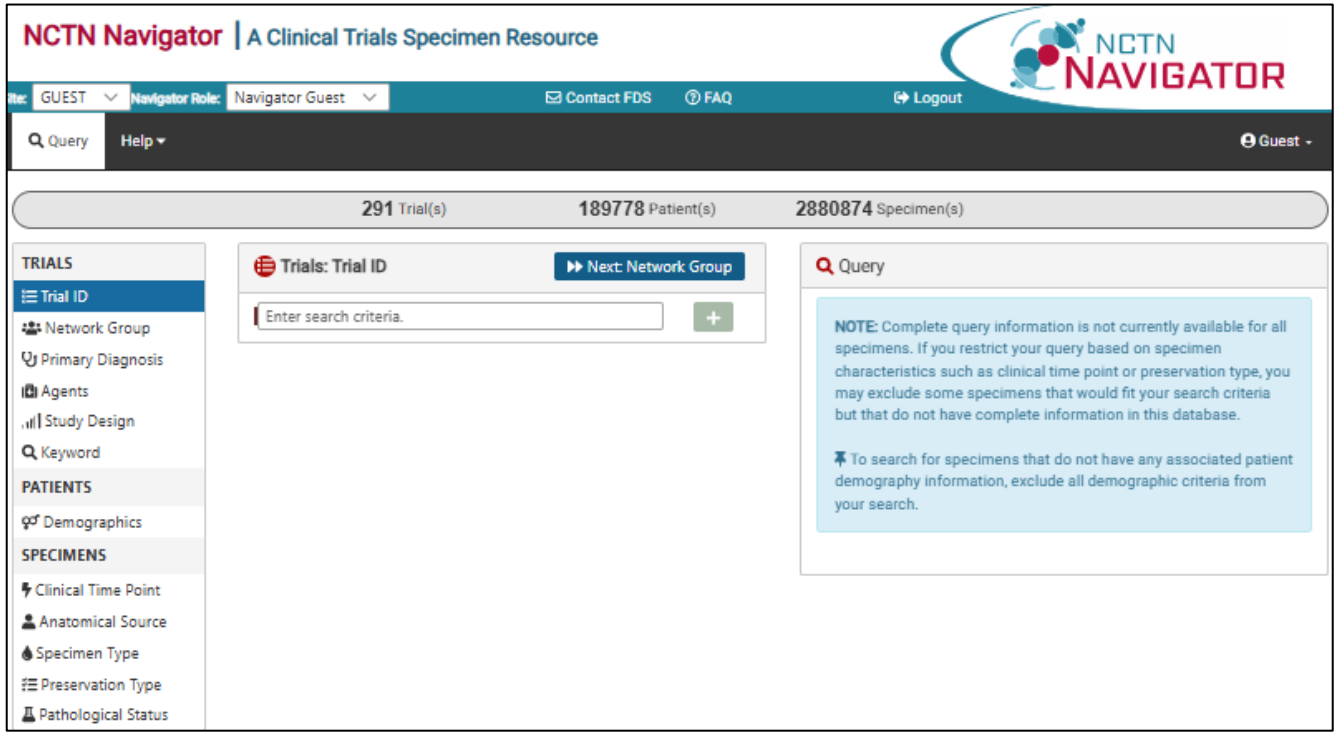
- Patient-Derived Models Repository (PDMR) (https://dctd.cancer.gov/drug-discovery-development/reagents-materials/pdmr)
- NCI Experimental Therapeutics Program (NExT) (https://dctd.cancer.gov/drug-discovery-development/services/next)
- Nanotechnology Characterization Laboratory (https://dctd.cancer.gov/research/research-areas/nanotech/ncl)
- PREVENT Cancer Preclinical Drug Development Program (https://prevention.cancer.gov/research-areas/networks-consortia-programs/prevent)
- Validate Assays and Assay Services (https://dctd.cancer.gov/drug-discovery-development/assays)

Visit https://dctd.cancer.gov/drug-discovery-development/services for more information and additional resources.

National Clinical Trials Network (NCTN) Navigator

- Annotated biospecimens and data from cancer clinical trials
- Specimens are donated by patients in NCI-sponsored Phase 3 clinical trials
- https://www.cancer.gov/research/infrastructure/clinical-trials/nctn

Navigator: https://navigator.ctsu.org/navigator/login



Navigator Process Flow

Listings of NCI Resources

NCI Data Catalog: https://www.cancer.gov/about-nci/organization/cbiit/catalog

NCI Resources for Researchers: https://www.cancer.gov/research/resources

Thank You

cancer.gov

cancer.gov/espanol