Office of Cancer Genomics

The Office of Cancer Genomics' (OCG) mission is to advance the molecular understanding of cancers and their response to therapies to improve clinical outcomes. To accomplish this goal, OCG develops and collaboratively manages molecular characterization and translational genomic research initiatives. All OCG programs share data and resources with the research community. OCG initiatives support:

- Generation and dissemination of data via programmatic databases and the Genomic Data Commons (GDC)
- Advances in bio- and chemi-informatic methodologies
- Development of valuable next-generation cancer models (NGCMs), experimental reagents, and other resources

OCG Programs

CGCI - Cancer Genome Characterization Initiative

CGCI uses molecular characterization data to uncover distinct features of rare adult and pediatric cancers. The HIV+ Tumor Molecular Characterization Project (HTMCP) and the Burkitt Lymphoma Genome Sequencing Project (BLGSP) are two ongoing projects using epigenomic and next-generation sequencing methods to uncover distinct features of Burkitt lymphoma, diffuse large B-cell lymphoma, lung carcinoma, and cervical carcinoma. The research community can use CGCI data to gain insights into the underlying mechanisms of these cancers and identify potential therapeutic targets.
https://ocg.cancer.gov/programs/cgci

- Standard operating procedures and templates for submitting samples to large-scale genome characterization initiatives can be accessed at: *https://ocg.cancer.gov/programs/cgci/resources*

CTD^2 - Cancer Target Discovery and Development Network

The CTD^2 Network bridges the gap between genomics and development of effective therapeutics. The Network aims to understand tumor development, heterogeneity, drug resistance, and metastasis to develop optimal combinations of chemotherapy with immunotherapy. The CTD^2 Network emphasizes collaborations between its Centers which have complementary and distinctive expertise in various computational and functional genomic approaches.
https://ocg.cancer.gov/programs/ctd2

- Analytical tools and reagents available to the research community can be accessed through: *https://ocg.cancer.gov/programs/ctd2/analytical-tools* and *https://ocg.cancer.gov/programs/ctd2/supported-reagents*

HCMI - Human Cancer Models Initiative

HCMI is a collaborative international consortium that is generating novel, next-generation, tumor-derived culture models annotated with genomic and clinical data. HCMI-developed models and related data are available as a community resource.
https://ocg.cancer.gov/programs/HCMI

- Downloadable cancer-specific case report forms and templates for informed consent forms can be accessed at: *https://ocg.cancer.gov/programs/hcmi/resources*
- HCMI Searchable Catalog to query available HCMI models and data: *https://hcmi-searchable-catalog.nci.nih.gov*

TARGET - Therapeutically Applicable Research to Generate Effective Treatments

TARGET program applies comprehensive genomics approaches to determine molecular changes that drive childhood cancers. The goal of the program is to identify effective therapeutic targets and biomarkers. TARGET is organized into a collaborative network of disease-specific project teams. *https://ocg.cancer.gov/programs/target*

- Pediatric Genomic Data Inventory (PGDI): "one stop shopping" for researchers — submit your molecular characterization project(s) at: *https://ocg.cancer.gov/programs/target/pgdi/overview*

OCG Data Access

OCG shares data generated through its programs with the research community in accordance with NIH policies. Data is available in open- and controlled-access tiers as required by informed consent to protect patient privacy and confidentiality. Access to controlled data and metadata files requires authorization through NCBI's database for Genotypes and Phenotypes (dbGAP; *https://www.ncbi.nlm.nih.gov/gap*). Visit our Data Access Guide for more information: *https://ocg.cancer.gov/flowchart/guide-accessing-data*

Data is available at OCG's data coordinating center (DCC) and the Genomic Data Commons (GDC). The DCC is responsible for managing the flow of data within each of OCG's programs. GDC is a data repository led by the CCG that enables data sharing from cancer genomics studies in support of precision oncology. The GDC provides a platform for efficient querying, analyzing, and downloading clinical, biospecimen, and sequence data. The Data Analysis, Visualization, and Exploration (DAVE) tools allow users to explore and analyze genomics data in real time, without the need to download the data.

Accessing CGCI and TARGET Data

Genomic profiles (molecular characterization and sequence data) and clinical data for a variety of tumor types are accessible through each program's Data Matrix. Researchers can access up to four levels of data, primary through higher level summary, for the molecular platform employed.

CGCI Data Matrix: *https://ocg.cancer.gov/programs/cgci/data-matrix*
CGCI BLGSP data at GDC: *https://portal.gdc.cancer.gov/projects/CGCI-BLGSP*
TARGET Data Matrix: *https://ocg.cancer.gov/programs/target/data-matrix*
TARGET data at GDC: *https://portal.gdc.cancer.gov/projects*

Accessing CTD^2 Data

Raw and analyzed primary data are available through the CTD^2 Data Portal. The CTD^2 Dashboard is a web interface which assembles Network Center-generated conclusions or "observations" with associated supporting evidence. The Dashboard allows easy navigation to biologists and data scientists.

CTD^2 Data Portal: *https://ocg.cancer.gov/programs/ctd2/data-portal*
CTD^2 Dashboard: *https://ctd2-dashboard.nci.nih.gov/dashboard*

Accessing HCMI Data

The clinical and molecular characterization data of NGCMs are stored at GDC:
https://portal.gdc.cancer.gov/projects/HCMI-CMDC

Contact us at the Office of Cancer Genomics, Center for Cancer Genomics, NCI

Phone: (240) 781-3280   **Email**: ocg@mail.nih.gov   **Twitter**: @NCIgenomics
Web: To learn more about OCG or sign up for email updates, visit https://ocg.cancer.gov

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Other Resources

e-Newsletters An online newsletter featuring research spotlights, educational articles, guest editorials by OCG-supported scientists, and more! *https://ocg.cancer.gov/news-publications/e-newsletters*

Publications OCG-funded manuscripts are listed at: *https://ocg.cancer.gov/news-publications*

Completed Projects

Cancer Genome Anatomy Project (CGAP) The Mitelman Database of Chromosome Aberrations and Gene Fusions in Cancer has a new home at the Institute for Systems Biology Cancer Genomics Cloud. The Mitelman Database relates chromosomal aberrations to tumor characteristics, based either on individual cases or associations. *https://mitelmandatabase.isb-cgc.org/*

Mammalian Gene Collection (MGC) Open-access bank of full-length open reading frame clones for human, mouse, cow, rat, frog, and zebrafish genes. *https://genecollections.nci.nih.gov/MGC*

The ORFeome Collaboration (OC) Collection of validated, expression-ready, full-length open reading frames for most of the currently defined human genes. *https://www.nature.com/articles/nmeth.3776*