Office of Cancer Genomics

NCI's Office of Cancer Genomics (OCG), within the Center for Cancer Genomics, supports structural, functional, and translational genomic programs, as well as the development of next-generation cancer models, to accelerate the translation of findings into the clinic and contribute to precision oncology. All OCG programs share data and resources with the research community. OCG initiatives promote:

- Generation and dissemination of up-to-date data via programmatic databases and the Genomic Data Commons
- Advances in bio- and chemi-informatic methodologies
- Creation of valuable experimental reagents, resources, and models

OCG Programs

CGCI – Cancer Genome Characterization Initiative

CGCI uses molecular characterization 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) use epigenomic methods and next-generation sequencing methods to uncover distinct features of Burkitt lymphoma, diffuse large B-cell lymphoma, lung carcinoma, and cervical carcinoma in ongoing projects. Molecular characterization for medulloblastoma and non-Hodgkin lymphoma projects have been completed. 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*

CTD² – Cancer Target Discovery and Development Network

The CTD² Network, a functional genomics initiative, bridges the gap between cancer genomics and biology. The Network aims to understand how tumor heterogeneity leads to drug resistance in order to develop optimal combinations of chemotherapy with immunotherapy. The CTD² 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*

- HCMI resources include downloadable cancer-specific case report forms and the Searchable Catalog to query available HCMI models. *https://ocg.cancer.gov/programs/hcmi/resources*

TARGET – Therapeutically Applicable Research to Generate Effective Treatments

TARGET program applies a comprehensive genomic approach to determine molecular changes that drive childhood cancers. The goal of the program is to use data to guide the development of effective, less toxic therapies. TARGET is organized into a collaborative network of disease-specific project teams. *https://ocg.cancer.gov/programs/target*

- The Pediatric Genomic Data Inventory catalogs known pediatric cancer projects and provides a summary of the molecular and clinical annotations available. It is continuously updated as researchers share the information. We welcome all projects that fit the criteria defined for the inventory: *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 at OCG's data coordinating center (DCC) and the Genomic Data Commons. The controlled-access protects patient privacy and confidentiality. Obtaining 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*).

OCG's DCC link: *ftp://caftpd.nci.nih.gov/pub/OCG-DCC*
Visit our Data Access Guide for more information: *https://ocg.cancer.gov/flowchart/guide-accessing-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*
TARGET Data Matrix: *https://ocg.cancer.gov/programs/target/data-matrix*

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 a broad range (computational and non-computational) of scientists. All data generated by this Network are open access.

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

Accessing the Genomic Data Commons (GDC)

NCI's Genomic Data Commons is a data repository led by the Center for Cancer Genomics that enables data sharing from cancer genomic studies in support of precision oncology. The GDC provides a platform for efficiently querying, analyzing, and downloading integrated clinical and sequence data from donors. The Data Analysis, Visualization, and Exploration (DAVE) tools allow users to explore and analyze genomic data in real time, without the need to download the data. The GDC also provides a high-throughput Data Transfer Tool and an Application Programming Interface for software-based access. *https://gdc.cancer.gov/access-data*

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

Phone: (240) 781-3280   **Email:** *ocg@mail.nih.gov*   **Twitter:** *https://twitter.com/NCIgenomics*

Web: To learn more about OCG or sign up for email updates, visit *https://ocg.cancer.gov*

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*

Cancer Genome Anatomy Project (CGAP) Online resource of biological tissue characterization data and tools for analyzing these data. CGAP provides the only online Mitelman database for chromosomal aberrations in cancer. *https://cgap.nci.nih.gov*

Request a free copy of the CGAP Website Virtual Tour CD by sending an email to: *ocg@mail.nih.gov*

Completed Projects

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*