



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 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, tools, protocols, and other resources



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 and next-generation sequencing methods to gain understanding of the underlying mechanisms of Burkitt lymphoma and HIV-associated cancers. Molecular characterization of medulloblastoma, non-Hodgkin lymphoma, pediatric Burkitt lymphoma and HIV-associated cervical carcinoma projects are 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 bridges the gap between genomics and development of effective therapeutics. The Network aims to understand the mechanisms of tumor progression, heterogeneity, and drug resistance and applies the knowledge for the development of efficient strategies to identify optimal combinations of small-molecules or immunotherapy with small molecules. 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 developed by the Network 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 such as organoids, conditionally reprogrammed cells, and others annotated with genomic, biospecimen, 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, Searchable Catalog user guide and informed consent templates 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>

NEW! NGT - Next-Generation Technologies for Next-Generation Cancer Models

NGT supports the development of technologies and tools that will facilitate, accelerate, and/or enhance research using the HCMI next-generation cancer models. <https://ocg.cancer.gov/programs/NGT>

TARGET - Therapeutically Applicable Research to Generate Effective Treatments

TARGET program applied 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 was organized into a collaborative network of disease-specific project teams. <https://ocg.cancer.gov/programs/target>

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 the project's 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 and storing results and other data not available at the GDC. [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 CTD² Data

Raw and analyzed primary data are available through the CTD² Data Portal. The CTD² Dashboard assembles Network Center-generated conclusions or "observations" with associated supporting evidence and is accessible by a web interface. The Dashboard allows easy navigation to biologists and data scientists.

CTD² Data Portal: <https://ocg.cancer.gov/programs/ctd2/data-portal>

CTD² Dashboard: <https://ctd2-dashboard.nci.nih.gov/dashboard>

Accessing HCMI Data

The available quality-checked clinical, biospecimen, and molecular characterization data of HCMI next-generation cancer models are stored at the GDC: <https://portal.gdc.cancer.gov/projects/HCMI-CMDC>

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

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Email: ocg@mail.nih.gov

Twitter: [@NCIgenomics](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>

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>