Office of Cancer Genomics (OCG) Program Flowchart

This flowchart depicts how the four OCG-supported programs function and interact with one another to move toward the development of novel cancer therapeutics.

If you have any questions about any of the OCG-supported programs, contact us by email at ocg@mail.nih.gov or call (240) 781-3280.

Cancer Target Discovery and Development

Cancer Target Discovery and Development (CTD^2) Network Centers functionally validate discoveries from genomic initiatives and advance them toward precision oncology approaches. CTD^2 Network Centers generate various functional data types (e.g. high-throughput siRNA, shRNA, CRISPR, small molecule, and natural products screens, protein-protein interactions, *in vivo* gain-and loss-of function screens etc.). The Centers develop various bioinformatics tools to analyze the genomic and proteomic data and understand the molecular basis of cancer, tumor heterogeneity, treatment resistance, identification of biomarkers and targets etc. Resources (data, computational tools, and reagents) developed by CTD^2 Network Centers are made available to the research community.

Therapeutically Applicable Research to Generate Effective Treatments

Therapeutically Applicable Research to Generate Effective Treatments (TARGET) collects matched primary, relapsed, or metastatic (if available) pediatric cancer and normal tissue from clinical and biological studies. Genome-wide molecular characterization and sequencing is performed on the tissues. The resulting genomic, functional, and clinical data is made available to the research community and feeds into CTD^2 to allow for the identification of alterations important for cancer etiology and treatment. As a resource under the TARGET program, the Pediatric Genomic Data Inventory (PGDI) lists ongoing and completed molecular characterization projects of pediatric cancer cohorts from the United States and other countries, along with some basic details and reference metadata. In addition, genomic data from TARGET contributes to the potential development of novel targeted therapies through efforts not directly supported by OCG.

Cancer Genome Characterization Initiative

The Cancer Genome Characterization Initiative (CGCI) collects matched adult and pediatric cancer and normal tissue. Genome-wide molecular characterization by sequencing is performed on the tissues. The resulting genomic, functional, and clinical data is made available to the research community and feeds into CTD^2 to allow for the identification of alterations important for cancer etiology and treatment. In addition, genomic data from CGCI contributes to the potential development of novel targeted therapies through efforts not directly supported by OCG.

Human Cancer Models Initiative

The Human Cancer Models Initiative (HCMI) is an international consortium that is generating patient derived cancer models using next generation cell culture technologies. Molecular characterization of the generated models is performed along with sequencing of normal tissue and primary tumor. All molecular and sequencing data is made available to the research community and feeds into CTD^2 to allow for the identification of alterations important for cancer etiology and treatment. The resulting models are made available to the research community through a third-party distributor. The Next-gen Technology Program, which branches out from HCMI, uses the HCMI models to develop and validate reagents, protocols, and tools that will facilitate research using these models. The data, reagents, and tools from this program will be made available to the research community.