Integrated Genomics Operations group leader Daoqi You (left) with CMO Associate Director Agnès Viale.

The CMO provides researchers with expertise or technology related to project design, genomics operations, and computational analysis.

Experimental Design Consultation

Our multidisciplinary project team vets project applications based on their scientific, technical, and analytical attributes. Members of the team partner with our scientific experts to ensure feasibility, quality control, and optimal technology deployment.

Large projects are assigned a project manager who assembles a team composed of the principal investigator of the project, a technologist with the appropriate expertise, and a group of computational biologists, ensuring that experiments and analyses are precisely tailored to the research questions under study.

Integrated Genomics Operations

The Integrated Genomics Operations (IGO) unit of the CMO helps researchers generate high-quality genomics data from human tissue samples. The team is focused on delivering comprehensive, rapid, and user-friendly services, from pathology assessment and nucleic acids extraction to library preparation and next-generation sequencing.

Combining manual processing and a highly automated environment, the IGO provides a solution for every sample — with the convenience and speed of robotics when needed and a boutique approach for challenging samples. Learn more about our services.

Computational Oncology

Recognizing the importance of not only enumerating the molecular alterations in a tumor but also placing them in biological context and interpreting their clinical significance, the CMO aims to be a leader in the field of computational oncology. Three teams of computational scientists provide comprehensive research support in the areas of biocomputing, applied genomics, and knowledge systems.

Biocomputing

The Biocomputing team assists CMO scientists with the processing and analysis of data obtained by next-generation sequencing of human tumor samples. The team designs, implements, and evolves a sophisticated, automated pipeline to transform raw molecular data into high-confidence mutational events of all types, ensuring robust and modern analysis methods and accessibility to the research community.

The team also administers high-performance computing and associated computational resources and assists CMO investigators with high-level genomic analyses of applied genomics research efforts.

Applied Genomics

This emerging discipline brings together computational science and cancer biology to answer clinical or biological questions with computational methods. CMO scientists are leading efforts to develop new computational algorithms for the analysis of multi-platform data sets, with the goal of identifying molecular alterations that contribute to cancer development and correlate with clinical course and response to therapy. These efforts require a team approach in which computational scientists work closely with clinicians and laboratory investigators.

Knowledge Systems for Molecular Oncology

The third pillar of the CMO's Computational Oncology unit, the Knowledge Systems group develops platforms to deliver genomic data obtained by various technologies to both laboratory and clinical investigators. An extended version of the cBioPortal for Cancer Genomics will be the main engine for the delivery and visualization of analysis results. All tumor profiling data and analysis generated by the CMO and its scientific collaborators will be incorporated into the cBio Portal for intuitive visualization and mining. The cBio Portal will also be populated with all available clinical annotation as well as histology and pathology images.

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