

FRED HUTCH

Precision Oncology Strategic Overview



“We are on the threshold of amazing advances...Where better in the world would you want to be than in a city and state that has Amazon and Microsoft? We’re right in their backyard, or as I like to say, they’re in our backyard.”

– Dr. D. Gary Gilliland
President and Director, Fred Hutch

We take a comprehensive approach to precision oncology. Our teams have unified the collection, processing, interpretation and application of clinical and molecular data, with the goal of enhancing our understanding of cancer biology and identifying personalized treatments that improve patient outcomes. Components of this unified system include:

SPECIMEN COLLECTION

We collect and store a variety of biological samples for research through Northwest BioTrust. Tumor tissue can be grown to create living models of patients’ cancers, allowing researchers to learn how tumors become resistant to treatment. Blood samples are analyzed for early signals of the presence, or relapse, of cancer.

EMR ABSTRACTION

We are establishing standard processes for capturing key data from electronic medical records so it can be safely and reliably used in rigorous, collaborative research efforts.

DETAILED MOLECULAR FINGERPRINTING

It is now feasible and affordable to capture the molecular and genetic



profiles of patients and their tumors. These detailed molecular fingerprints move us from a one-size-fits-all approach to cancer treatment to personalized, tailored strategies. For example, a tool called UW Oncoplex, developed by scientists at the University of Washington and Fred Hutch, allows researchers to test patients' tumors for more than 200 cancer-related genes and use the results to help predict how well certain drugs are likely to work for individual patients.

DATA INTEGRATION

The Hutch Integrated Data Repository and Archive merges thousands of medical records, databases and tissue collections maintained by Fred Hutch and its partners into a single system. It draws on every information type available in more than 335,000 cancer patient records, from the results of lab tests to clinic notes written by physicians. The system uses state-of-the-art

security measures to keep patient information safe and confidential.

DATA VISUALIZATION AND INTERPRETATION

Fred Hutch has led the development of a suite of tools, known as Oncoscape, to analyze and visualize rich medical data from thousands of patients. The patterns that emerge will guide laboratory and clinical research, and also help physicians precisely tailor treatment choices for each patient.

This remarkable foundation is just the beginning. Our next steps are to use our strong infrastructure and ever-growing body of knowledge to launch clinical trials based on the genetic characteristics of patients and their tumors; expand research and industry partnerships to bolster our technological and scientific capabilities; and further integrate our precision oncology efforts with our world-leading work in immunotherapy.

"Precision oncology is about making care decisions that are tailored to the patient and the tumor. What makes the Hutch a leader in this space is the highly collaborative, multidisciplinary nature of our cancer research and computational biology — not just generating big data but knowing how to structure it and what to do with it to speed discoveries that benefit patients."

— Dr. Eric C. Holland

Senior Vice President and Director,
Human Biology Division, Fred Hutch

Fred Hutch researchers are at the forefront of the rapidly evolving field of precision oncology. Our teams are:

- ▶ Pioneering new computational tools to visualize and interact with Big Data, rapidly turning these vast stores of digital information into meaningful advances for patients.
- ▶ Streamlining our ability to perform specialized genetic analyses of tumor samples to compile their molecular profiles.
- ▶ Building a standardized reference database linking clinical information about patients with the molecular details of their tumors.

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