



**INSIGHTS FORUM**  
**Hindsight \*\*\* Foresight \*\*\* Insights**



**FACT SHEET**

**Date: May 19, 2022**

**Time: 10:00 a.m. – 12:00 p.m. PDT / 1:00 – 3:00 p.m. EDT**

**Topic: Precision Oncology: Separating Hope from Hype  
(The Good the Bad the Unknown - and the Future)**

**Registration: <https://www.eirf.org/insights/>**

We have long imagined a future where the genomic alterations that drive cancer can be identified to detect cancer (earlier), followed by treatment with targeted therapies that cure or create stable disease. The sequencing of cancer genomes now provides technologies that are driving the concept of precision oncology in reality. How real is this “transformative” approach, and can it ultimately change how we treat all cancers? This Ellison Insights Forum will explore the following questions.

***The Forum Questions:* Where, how, and why is precision oncology working predictably and well? (2) Where and why is precision oncology not working well - or at all? (3) What is needed for all cancer patients to have access to efficacious precision oncology in the future? (4) Given the number of types/subtypes of cancer, is this a realistic expectation?**

***Background:*** The concept of precision medicine, particularly precision oncology, is becoming common “speak” to describe the current aspirational view of cancer detection, treatment, and prevention. However, the pace of progress remains slow. It is estimated that less than 8% of eligible patients are benefitting for a complex of reasons, but two stand out. First, the foundation for precision oncology is based on identifying specific aberrations in a patient’s genome to select therapeutic targets; however, the functional changes resulting from these genomic alterations remain primarily unknown. Second, there is a critical lack of analytic tools/models and trained professionals to analyze the current “big data” overload in sufficient depth to enable decision-making by oncologists. Moreover, the amount of high-quality data required to train and validate targets using machine and/or deep learning is not yet available.

Precision oncology is an attractive alternative to the “one size fits all” approaches to cancer diagnosis and treatment that have dominated the field for decades. However, the reality is cancer is an extraordinarily complex dynamic system, best illustrated by the fact that a single genotype can produce multiple patient phenotypes. For example, progress in understanding how the microenvironment in which these genomic changes influence functions at various biological scales is still limited. Although cancer evolves in the context of its environment, cancer evolution is only now being recognized as critical to

understanding how these complex changes are translated from the genotype to the phenotype across biological scales. The future reality of precision oncology for all types and subtypes of cancer will not depend on simply creating more sophisticated technologies but rather on viewing cancer through the lens of a complex adaptive system where “targets” are much more information-rich than the molecular profiles of today.

***Speakers, Moderators, and Format:*** This Insights Forum conversation will feature experts in precision oncology, multi-omics profiling, pathology, immunotherapy, targeted therapies, “big data,” and advanced analytics and cancer evolution. *Drs. Carolyn Compton, John Quackenbush, Amy Heimberger, and Christine (Chris) Iacobuzio-Donahue will join moderators, Drs. David Agus and Ann Barker to explore and debate this question and offer insights and ideas on how to realize the potential of precision oncology.*