

HOW ARE GENOMICS TRANSFORMING THE FUTURE OF ONCOLOGY?

Precision oncology, which defines cancers by their underlying genomic alterations, is revolutionizing the diagnosis and management of cancer.¹⁻⁵

Fighting cancer by finding its fingerprint

- Oncology is evolving from thinking about cancer according to site of origin to thinking about cancer according to tumor genomics¹⁻⁴



The goal of precision oncology is to optimize and tailor each patient's treatment approach based on the genomic profile of the patient's cancer.²⁻⁶

Precision oncology is advancing rapidly^{2,4}

- Understanding a patient's genomic drivers can help determine a more tailored approach to cancer care, which may potentially prevent cycles of trial and error and associated adverse physical and financial impact^{2,3,6}
- As cancer biology advances, both the number and rate of discovery of actionable genomic alterations continue to rise^{2,5,7}



While treatments are still being developed, it is estimated that over 50% of patients may have a potential actionable alteration^{5,8-10,a}

- Individual genomic alterations may be rare; however, alterations in totality are found in a significant percentage of patients with cancer^{5,8-10,a}
- Targeting genomic alterations may lead to better outcomes for patients with cancer¹⁻⁸



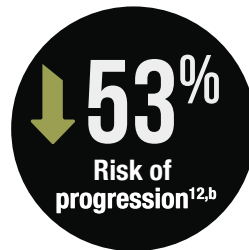
FISH, fluorescence in situ hybridization; IHC, immunohistochemistry; NGS, next-generation sequencing; RT-PCR, reverse transcription-polymerase chain reaction.

^aLarge retrospective series have documented that 80% to 90% of patients tested will have potentially actionable genomic alterations.⁵ A genomic alteration is defined as actionable when there is a potential therapeutic target that will mitigate the oncogenic consequences of the disrupted pathway, though across clinical studies, the definition of actionable can vary substantially.^{5,8}

Investigators saw a 7X increase in the number of people estimated to benefit from precision oncology over 12 years^{11,a}

Significant improvements were seen in ORR, OS, PFS, and QOL for patients with certain well-characterized molecular alterations with available targeted therapies compared with conventional chemotherapies^{1,8,10-14}

The data-driven difference



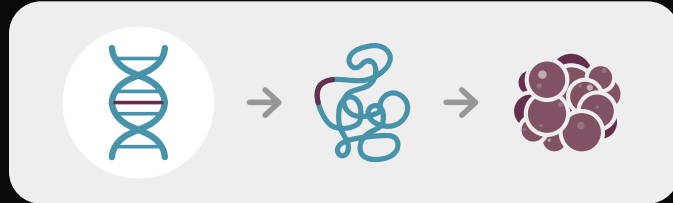
^aFrom 2006-2018.

^bWhen adjusted for age, sex, histologic diagnosis, and number of previous lines of treatment.¹²

Point mutations and pathogenic gene fusions are among the most common genomic alterations driving cancer¹³

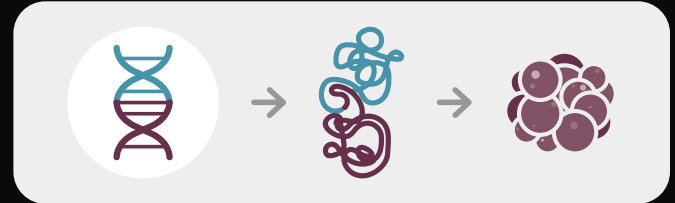
Point mutations

(eg, *KRAS*, *BRAF*, and *EGFR*) are changes in DNA base pair(s)^{7,15}



Pathogenic gene fusions

(eg, *ALK*, *NTRK*, *ROS1*, *MET*, and *NRG1*) typically occur when 2 different genes join to form an abnormal hybrid gene^{7,16,17}



What difference can targeting pathogenic gene fusions make for your patients?
Learn more at [FindTheFusions.com](https://www.findthefusions.com)

NRG1, neuregulin 1; ORR, overall response rate; OS, overall survival; PFS, progression-free survival; QOL, quality of life.

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