BIOMARKER TESTING:
A Roadmap to Personalized Treatment in Lung Cancer

BIOMARKER TESTING IS CRITICAL IN MANAGING LUNG CANCER

Comprehensive biomarker testing at diagnosis is critical because it can help doctors and patients develop a targeted and personalized treatment plan to help improve patient outcomes.[1,2]

~50% of patients with non-small cell lung cancer (NSCLC) have at least one recognized driver mutation that initiates cancer and maintains its growth.[3]

Targeted therapy, enabled by biomarker testing, is associated with an improved outcome.

31% reduction in risk of death[1]

~50% improved survival*

*Median overall survival (mOS) of 3.5 months in patients receiving targeted therapy enabled by biomarker testing compared to 2.4 months mOS in patients with a driver mutation not receiving targeted therapy.[1]

What is Biomarker Testing?

A biomarker is a measurable indicator of a patient's disease.[4]

Biomarker testing, also called molecular testing, is testing of blood, body fluids, or tissue to identify a patient's specific tumor makeup, which may predict response to therapy or provide insight on risk of cancer progression.[4]

Biomarkers can include driver mutations that can help doctors understand what may be causing the cancer. Some biomarkers have FDA-approved therapies and some biomarkers have therapies that are still being developed and investigated in clinical trials.

BIOMARKERS IN LUNG CANCER

Driver mutations observed in lung cancer patients include *EFGR, ALK, MET, ROS1, BRAF, RET, NTRK1, KRAS,* and *HER2.*

Nearly half of all *KRAS* mutations in NSCLC are *KRAS* G12C, one of the most prevalent driver mutations in NSCLC.[5,6,7,8,9]

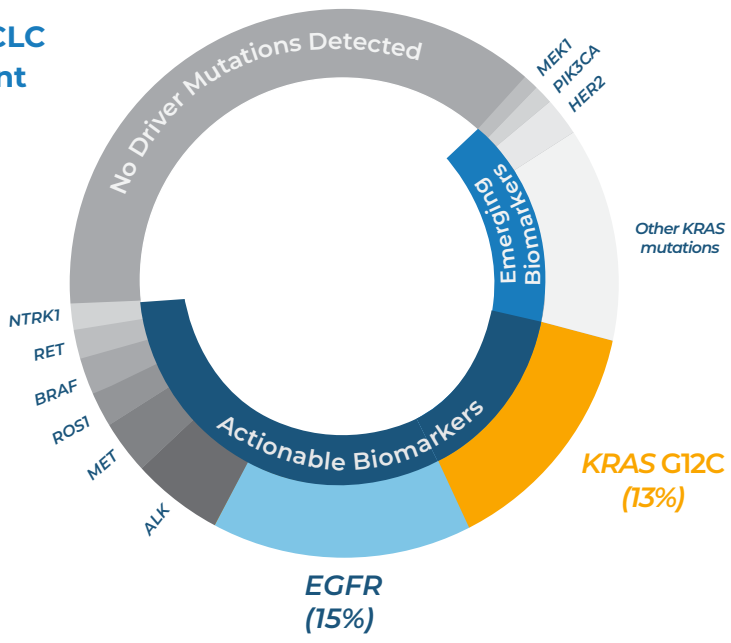
KRAS G12C occurs in

~13%

of patients with NSCLC in the U.S., comparable to the prevalence of *EGFR* mutations[10]

That's 1 in 8 NSCLC patients[10]

Prevalence of Specific Genetic Mutations in Lung Adenocarcinoma



CLINICAL GUIDELINES CALL FOR COMPREHENSIVE TESTING OF PATIENTS WITH ADVANCED NSCLC REGARDLESS OF AGE, RACE OR SMOKING HISTORY[11,12]

Steps for Biomarker Testing

1. Biomarker testing detects DNA from tumors through either tissue or liquid biopsy samples.
2. Sample is sent to a lab for analysis and a report is sent back to the doctor.
3. Results are discussed by doctor and patient to guide treatment path, including whether targeted therapy is appropriate.

Professional medical organizations recommend **testing for actionable and emerging biomarkers at the time of diagnosis for patients with advanced NSCLC;** however, testing in community oncology practices remains sub-optimal.[11-13]

Many patients with lung cancer are not tested. A study showed biomarker testing rates as low as **22%***

*Biomarker testing rates among five U.S. community oncology practices was 22% for all four of the guideline recommended biomarkers between 2017 and 2019.[13]

AMGEN IS COMMITTED TO MAKING BIOMARKER TESTING MORE ACCESSIBLE TO PATIENTS

Amgen's Biomarker Assist™ is a program to help more patients with advanced NSCLC gain access to biomarker testing. Through the program, **eligible patients may save on biomarker testing.** Visit www.BiomarkerAssist.com or contact 1-888-4ASSIST to learn more.

BIOMARKER ASSIST™

Patient resources and tools about biomarker testing in lung cancer, can be found at:

- LUNGEVITY — Find it. Treat it. Live. — www.lungevity.org
- GO2 FOUNDATION FOR LUNG CANCER — www.go2foundation.org
- American Lung Association. — www.lung.org
- LCFA — Lung Cancer Foundation of America — www.lcfamerica.org

To learn more about *KRAS* G12C, visit www.FindKRASG12C.com

References

1. Kris MG, et al. *JAMA*. 2014;311: 1998-2006. **2**. Barlesi F, et al. *Lancet*. 2016;387:1415-1426. **3**. Baumgart M. *Am J Hematol Oncol*. 2015;11:10-13. **4**. Goosens N, et al. *TranslCancer Res*. 2015;4:256-269. **5**. Pakkala S, et al. JCI Insight. 2018:e120858. **6**. Arbour KC, et al. *Clin Cancer Res*. 2018;24:334-340. **7**. Cox AD, et al. *Nat Rev Drug Discov*. 2014;13:828-851. **8**. Biernacka A, et al. *Cancer Genet*. 2016;209:195-198. **9**. Villalobos P, et al. *Hematol Oncol Clin North Am*. 2017; 31:13-29. **10**. Amgen Data on File: Analysis of AACR Genie v8,7-A-Table. **11**. Gutierrez ME, et al. *Clin Lung Cancer*. 2017;18:651-659. **12**. Pennell NA, et al. *Am Soc Clin Oncol Educ Book*.2019;39:531-542. **13**. Gierman HJ, et al.*J Clin Oncol*. 2019;37(15_Suppl):Abstract 1585.

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