Biomarker Testing: Know Your Lung Cancer

Overview

Personalized cancer treatment plans should begin at diagnosis, and it is widely recognized that biomarker testing drives targeted treatments.1,2 However, even with more targeted therapies available to treat actionable mutations, the need to raise awareness of the importance of biomarker testing remains.3 Biomarker testing involves a single test, or group of tests, that look for the presence of molecular signs obtained from the blood, body fluids or tissue. It may also be called "molecular testing" or "genetic testing." After diagnosis, biomarker tests can also be utilized to develop a patient’s personalized treatment approach and to track treatment results.4

Prevalent oncogenic mutations observed in lung cancer patients include KRAS, EGFR, ALK, MET, BRAF, ROS1, RET, NTRK, and PIK3CA.5 Of these, mutated KRAS is one of the most common driver mutations in non-small cell lung cancer (NSCLC).6,7

The KRAS G12C mutation.1 A specific mutation known as KRAS G12C is a major driver of tumor growth, occurring broadly across solid tumors. In the U.S., about 13% of patients with non-squamous NSCLC harbor the KRAS G12C mutation.8 It is also found in approximately 3-5% of CRC and 1-2% of numerous other solid tumors,19-22 making this among the most broadly represented mutations across cancer patient subgroups.18-22

In the U.S., about 13% of patients with non-squamous NSCLC harbor the KRAS G12C mutation. It is also found in approximately 3-5% of CRC and 1-2% of numerous other solid tumors, making this among the most broadly represented mutations across cancer patient subgroups.18,22

Biomarker Testing is Critical for Identifying Mutations and Personalizing Treatment Plans

Changes in genes, including mutations and chromosomal abnormalities, play an important role in the development of cancer. Mutations are permanent changes in the DNA sequence of a gene that can cause a cell to make (or not make) proteins that affect how the cell grows and divides into new cells. Certain mutations can cause cells to grow out of control, which can lead to cancer.22

About KRAS G12C

The RAS gene family, which has been the subject of almost four decades of research, contains some of the most frequently mutated oncogenes in human cancers.23,24 Targeting the KRAS protein, the most commonly altered family member in solid tumors, has been one of the toughest challenges in cancer research.23

A specific mutation known as KRAS G12C is a major driver of tumor growth, occurring broadly across solid tumors. In the U.S., about 13% of patients with non-squamous NSCLC harbor the KRAS G12C mutation.23,24 It is also found in approximately 3-5% of CRC and 1-2% of numerous other solid tumors, making this among the most broadly represented mutations across cancer patient subgroups.23,24

Investigating a unique surface groove in the KRASG12C protein, Amgen is exploring the potential of KRAS G12C inhibition across multiple tumor types for patients. Advances in understanding the structure of KRAS has prompted further investigations.25-27

KRAS G12C can be detected by various testing methods.25-27 Expanded panels or single gene tests can detect the biomarker, and both tissue and liquid biopsy tests can be utilized. In fact, the College of American Pathologists, the International Association for the Study of Lung Cancer, the Association for Molecular Pathology and the American Society of Clinical Oncology all recommend broad molecular profiling at diagnosis for eligible patients with advanced NSCLC, including KRAS as part of an expanded panel.23 Despite guideline recommendations however, many patients do not receive testing for biomarkers.23,24

Knowing the status of biomarkers is critical for developing a personalized treatment plan for NSCLC patients, so Amgen Oncology has made it a priority to advance biomarker awareness and testing. Amgen is also working with advocacy groups to increase awareness of the KRAS G12C mutation and provide information about the importance of biomarker testing.

Media Inquiries

CONTACT: Amgen, Thousand Oaks
Trish Rowland, 805-447-5631 (Media)
Jessica Akopyan, 805-447-0974 (Media)

References