

KRAS G12C

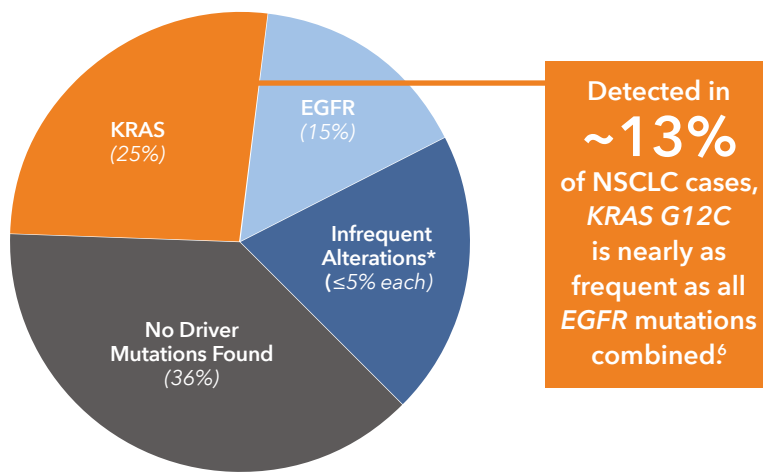
The most prevalent emerging biomarker in advanced non-small cell lung cancer (NSCLC)¹⁻³



KRAS mutations are common oncogenic drivers in NSCLC and generally exclusive of other driver mutations in genes such as *EGFR*, *ALK*, and *ROS1*.⁴ *KRAS* mutations are often early truncal mutations that can persist during disease progression.⁵

Although no *KRAS*-targeted therapies are approved for NSCLC, the *KRAS G12C* mutation is an emerging biomarker.

Prevalence of driver alterations in lung adenocarcinoma²



*Infrequent Alterations: *ALK*, *BRAF*, *HER2*, *MEK1*, *NTRK1*, *PIK3CA*, *RET* and *ROS1*

Detected in
~13%
of NSCLC cases,
KRAS G12C
is nearly as
frequent as all
EGFR mutations
combined.⁵

KRAS G12C is the most prevalent emerging biomarker in NSCLC²



~1/8 patients

in the US with NSCLC have the *KRAS G12C* driver mutation⁶

Guidelines support testing *KRAS* as an emerging biomarker

Discovery of driver mutations through biomarker testing is key to creating personalized approaches to patient management. Upfront testing for *KRAS* mutations may be helpful in patients with advanced NSCLC^{7†‡}

KRAS Testing at Diagnosis	
✓ National Comprehensive Cancer Network® (NCCN®)	Expanded panel testing may be useful
✓ CAP/IASLC/AMP and ASCO	Expanded panel recommended

† NCCN Guidelines® for NSCLC provide recommendations for individual biomarkers that should be tested and recommend testing techniques but do not endorse any specific commercially available biomarker assays.

‡ Upfront testing for *KRAS* mutations may identify patients who are unlikely to benefit from further molecular testing because of the low probability of overlapping targetable alterations.



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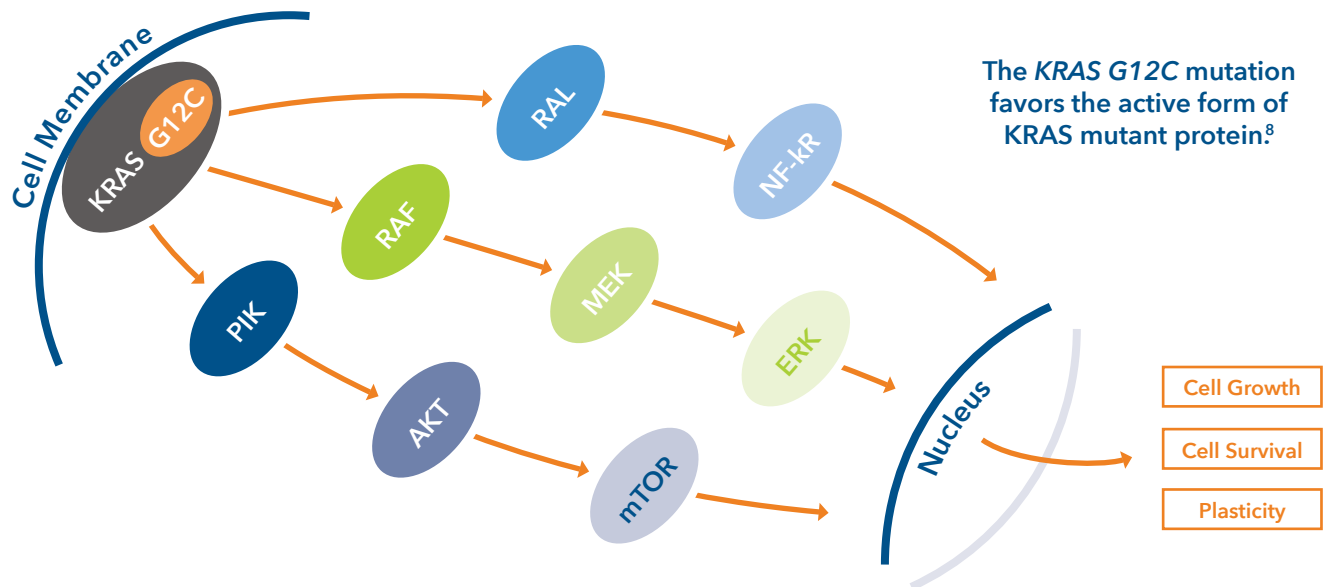
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866.776.5907
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Biomarker testing reveals activated KRAS

KRAS is a membrane-associated GTPase that regulates cell proliferation and differentiation. *KRAS G12C* is a point mutation in codon 12 causing a glycine-to-cysteine substitution near a narrow pocket in the KRAS protein.^{8,9} Advances in understanding the protein structure have led to the investigation of inhibitors that target the pocket, potentially locking the *KRAS G12C* mutant protein in the inactive state.

KRAS G12C mutation drives oncogenic signaling¹⁰



▶ Amgen is committed to investigating strategies and understanding the role of the *KRAS G12C* mutation in cancer development and maintenance

How to test for the *KRAS G12C* mutation in tissue and plasma

KRAS G12C mutation is available in any of the following NeoGenomics tests:

- NeoTYPE® Lung Tumor Profile
- NeoTYPE® Discovery Profile for Solid Tumors
- NeoTYPE® Precision Profile for Solid Tumors
- New York Lung Targeted Profile
- *KRAS* Mutation Analysis
- InVisionFirst®-Lung Liquid Biopsy

For specimen requirements and other test details please visit neogenomics.com/test-menu

References: 1. Arbour KC, et al. *Clin Cancer Research*. 2018;24:334-340. 2. Pakkala S, et al. *JCI Insight*. 2018;3:e120858. 3. Graham RP, et al. *Arch Path Lab Med*. 2018 Feb;142(2):163-167. 4. Shea M, et al. *Ther Adv Respir Dis*. 2016;10:113-129. 5. Villaflor V, et al. *Oncotarget*. 2016;7:66880-66891. 6. Data on file, Amgen; 2020. 7. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer. V8.2020. © National Comprehensive Cancer Network, Inc. All rights reserved. Accessed September 22, 2020. 8. Ryan MB, et al. *Nat Rev Clin Oncol*. 2018;15:709-720. 9. Cox AD, et al. *Nat Rev Drug Discovery*. 2014;13:828-851. 10. Gimple RC, et al. *Front. Oncol*. 2019; https://doi.org/10.3389/fonc.2019.00965 11. Neel N, et al. *Genes Cancer*. 2011;2(3):275-287. 12. Ferrer I, et al. *Lung Cancer*. 2018;124:53-64.

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12701 Commonwealth Dr., Suite 9
Fort Myers, FL 33913
Phone: 866.776.5907 / Fax: 239.690.4237
neogenomics.com

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