

MP.115.MPC Genetic Testing – Lung Cancer

Maryland Physicians Care considers **Genetic Testing, To Guide The Treatment of Lung Cancer** medically necessary for the following indications:

Vysis ALK Break Apart FISH test is indicated only for members who meet the following criteria:

1. Diagnosed advanced or metastatic Non-Small Cell Lung Cancer (NSCLC);
2. Treatment with Crizotinib (Xalkori) or Ceritinib (Zykadia) is being considered.

therascreen EGFR RGQ PCR Kit is indicated only for members who meet the following criteria:

1. Diagnosed with advanced or metastatic NSCLC;
2. Treatment with XalkoriAfatinib (Giltref) or Gefitinib (Iressa) is being considered.

cobas EGFR Mutation Test is indicated only for members who meet the following criteria:

1. Diagnosed with advanced or metastatic NSCLC;
2. Treatment with Erlotinib (Tarceva) is being considered.

Limitations for all testing:

- For in vitro diagnostic use by prescription only;
- Not generally recommended for patients with NSCLC subtype of squamous cell carcinoma.

Note: All tests must be performed by laboratories/technologists with demonstrated proficiency in that specific technology.

Background

The Vysis ALK Break Apart FISH test (commercially known as Vysis ALK test) is a genetic test that determines the presence of the abnormal ALK (anaplastic lymphoma kinase) gene, which causes cancer development and growth. The Vysis ALK test is an FDA proven companion diagnostic test with Xalkori (Crizotinib) as a treatment for non-small cell lung cancer. Xalkori has proven to effectively block certain proteins (kinases) that are produced by the ALK gene. This abnormal ALK gene is present in certain patients with locally advanced or metastatic non-small cell lung cancer and is typically associated with patients who are non-smokers.

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The Vysis ALK Break Apart FISH probe kit (currently manufactured by Abbott Molecular, Inc.) is considered the current standard for detecting ALK rearrangements via FISH tests in NSCLC tissue specimens. If the test result indicates that the patient's tumor is positive for ALK gene rearrangements, then the patient may benefit from treatment with Xalkori. The clinical interpretation of test results should be evaluated within the context of the patient's medical history and with any other diagnostic test results. Patients with these ALK gene abnormalities tend to be younger, have little or no exposure to tobacco and did not have mutations in KRAS (Kirsten Rat Sarcoma) or EGFR (epidermal growth factor receptor).

National Comprehensive Cancer Network's (NCCN) current guidelines recommend:

- ALK testing for patients with NSCLC subtypes of adenocarcinoma, large cell or NSCLC NOS (not otherwise specified).
- If ALK +, then Xalkori is the recommended treatment option.

The Food and Drug Administration (FDA) defines the cobas® EGFR Mutation Test v2 as a real-time PCR test for the qualitative detection of defined mutations of the epidermal growth factor receptor (EGFR) gene in DNA derived from formalin-fixed paraffin-embedded tumor tissue (FFPET) from non-small cell lung cancer (NSCLC) patients. The test is intended to aid in identifying patients with NSCLC whose tumors have defined EGFR mutations and for whom safety and efficacy of a drug have been established as follows:

- Tarceva® (erlotinib) - Exon 19 deletions and L858R
- Tagrisso® (osimertinib) - T790M

The Food and Drug Administration (FDA) defines the theascreen® EGFR RGQ PCR Kit as a real-time PCR test for the qualitative detection of exon 19 deletions and exon 21 (L858R) substitution mutations of the epidermal growth factor receptor (EGFR) gene in DNA derived from formalin-fixed paraffin-embedded (FFPE) non-small cell lung cancer (NSCLC) tumor tissue. The test is intended to be used to select patients with NSCLC for whom GILOTRIF® (afatinib) or IRESSA® (gefitinib), EGFR tyrosine kinase inhibitors (TKIs), is indicated. Safety and efficacy of GILOTRIF (afatinib) and IRESSA (gefitinib) have not been established in the patients whose tumors have L861Q, G719X, S768I, exon 20 insertions, and T790M mutations, which are also detected by the theascreen EGFR RGQ PCR Kit.

Specimens are processed using the QIAamp® DSP DNA FFPE Tissue Kit for manual sample preparation and the Rotor-Gene Q MDx instrument for automated amplification and detection.

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Codes

CPT Codes / HCPCS Codes / ICD-10 Codes

Code	Description
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CPT Codes

81235	EGFR (epidermal growth factor receptor) (eg, non-small cell lung cancer) gene analysis, common variants (eg, exon 19 LREA deletion, L858R, T790M, G719S, L861Q)
88271	Molecular cytogenetics; DNA probe, each (e.g., FISH)
88274	Molecular cytogenetics; interphase in situ hybridization, analyze 25-99 cells
88291	Cytogenetic and molecular cytogenetics, interpretation and report
88367	Morphometric analysis; in situ hybridization (quantitative or semi-quantitative), using computer-assisted technology

ICD-10 codes covered if selection criteria are met:

C34.00-C34.92	Malignant neoplasm of bronchus and lung
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References

1. Abbott Molecular, Inc. Vysis ALK Break Apart FISH Probe Kit Brochure (AM 0513-26): Let the patient's signal guide the need for therapy. ©2018
<https://www.molecular.abbott/int/en/products/oncology/vysis-alk-break-apart-fish-probe-kit>
2. College of American Pathologists (CAP), International Association for the Study of Lung Cancer (IASLC), Association for Molecular Pathology (AMP). Molecular Testing Guideline for Selection of Lung Cancer Patients for Treatment with TKI. Update Published Online Ahead of Print: January 22, 2018.
<https://www.cap.org/protocols-and-guidelines/cap-guidelines/current-cap-guidelines/molecular-testing-guideline-for-the-selection-of-lung-cancer-patients-for-treatment-with-tyrosine-kinase-inhibitors>
3. Hayes GTE Report. Vysis CLL FISH Probe Kit (Abbott Molecular Inc.). Published May 26, 2016.
4. FDA News Release. FDA approves Xalkori with companion diagnostic for a type of late- stage lung cancer. Issued: 08/26/2011.
<https://www.prnewswire.com/news-releases/fda-approves-xalkori-with-companion-diagnostic-for-a-type-of-late-stage-lung-cancer-128484413.html>
5. Lindeman NI, Cagle PT, Beasley MB, et al. Molecular Testing Guideline for Selection of Lung Cancer Patients for EGFR and ALK Tyrosine Kinase Inhibitors. Guideline from the College of American Pathologists, International Association for the Study of Lung Cancer, and Association for Molecular Pathology. J Thorac

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6. National Comprehensive Cancer Network (NCCN). Clinical Practice Guidelines in Oncology: Non-Small Cell Lung Cancer. Version 4.2014. Published: 06/05/2014. http://www.nccn.org/professionals/physician_gls/pdf/nscl.pdf
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Archived References

1. Hayes GTE Report. Anaplastic Lymphoma Kinase (ALK) Gene Rearrangement Testing in Non-Small Cell Lung Cancer (NSCLC). Published: 07/26/2012. Updated: 07/09/2014. Archived: 08/26/201
2. KRAS Sequence Variant Analysis for predicting response to Epidermal Growth Factor Receptor (EGFR) Tyrosine Kinase Inhibitors (TKIs) in the Treatment of Non-Small Cell Lung Cancer (NSCLC). Annual review April 13, 2015. Archived: May 27, 2017.

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