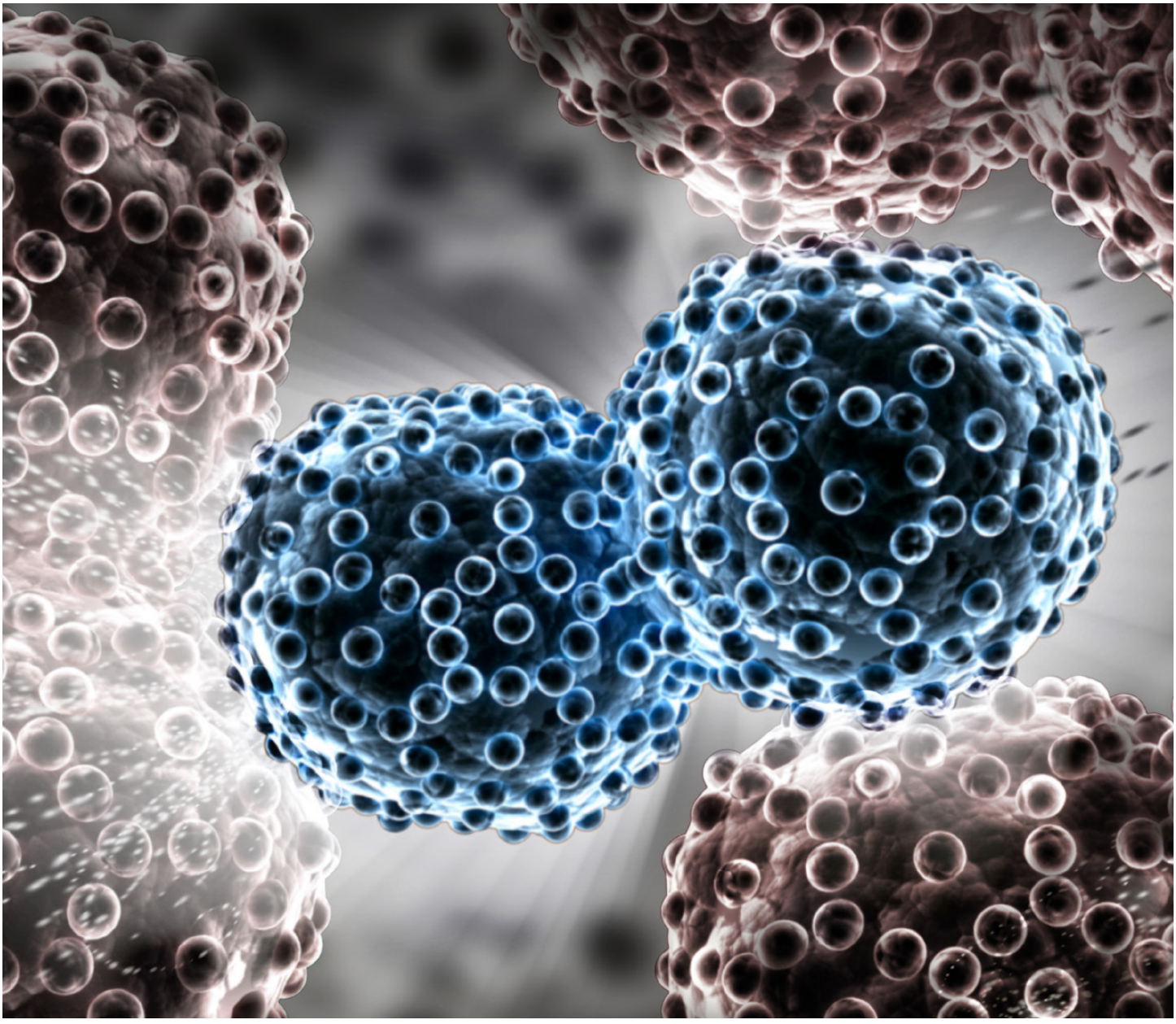
MAYO CLINIC
LABORATORIES

LUNG CANCER

COMPREHENSIVE OFFERINGS FOR DIAGNOSTIC, PROGNOSTIC, AND THERANOSTIC TESTING



MAYO CLINIC PULMONARY ONCOLOGY

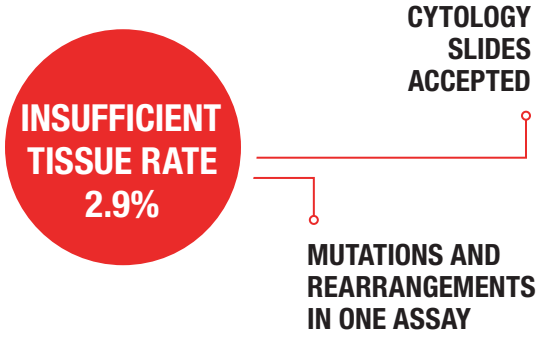
Rapid changes are occurring in pulmonary oncology testing—from advancements in technology to new discoveries in molecular biomarkers to emerging therapies for patients. Mayo Clinic Laboratories keeps pace by offering comprehensive options for diagnostic, prognostic, and theranostic testing.

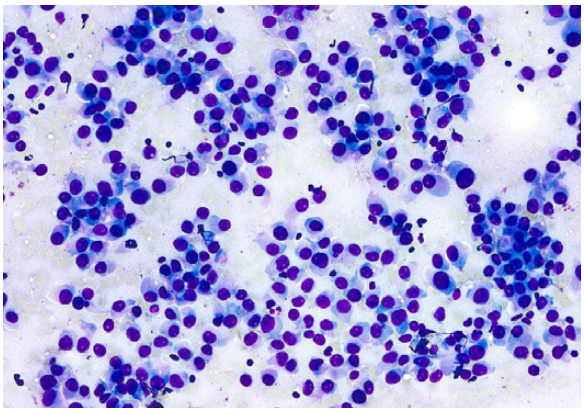
LUNG CANCER-TARGETED GENE PANEL WITH REARRANGEMENTS

(Mayo ID: LNGPR)

MUTATIONS				REARRANGEMENTS			
ALK	*BRAF*	*EGFR*	*ERBB2*	*ALK*	*NTRK1*	*RET*	*ROS1*
HRAS	*KRAS*	*MET*	*NRAS*				

Lung cancer specimens are small and can vary in tumor content. Obtaining enough tissue for multiple molecular and histological tests has created a significant challenge for pathologists wanting to test patients for all clinically actionable mutations recommended by current guidelines. By assessing for mutations and rearrangements in a single next-generation sequencing assay and by accepting cytology slides, we are able to limit usage of scarce tissue and provide results for more patients.



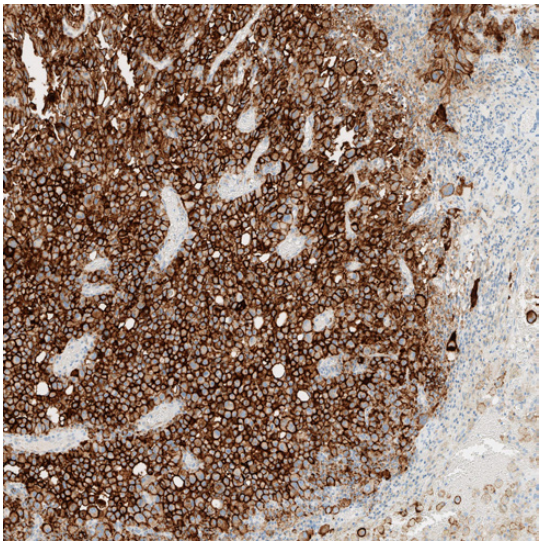


Example of lung adenocarcinoma cytology smear.

Mayo Clinic Laboratories' LNGPR test assesses for mutations in 8 genes and rearrangements in 4 genes, including those targets recommended by the National Comprehensive Cancer Network guidelines—*EGFR*, *ROS1*, *BRAF*, and *ALK*. The results can be useful in guiding selection of targeted therapies in non-small cell lung cancer (NSCLC) patients. Genes that are not specifically linked to current FDA-approved therapies may provide data useful in determining eligibility for clinical trials.

PD-L1 TESTING

Immunotherapies (treatments designed to use the body's own immune system to fight cancer) have recently emerged as a new therapeutic option for patients with NSCLC. One way tumor cells avoid detection by the immune system is through the PD-L1/PD-1 immune checkpoint pathway. Therapies that block this pathway have been approved for both first- and second-line treatments of NSCLC tumors found to express PD-L1. Mayo Clinic Laboratories offers three PD-L1 clones for the assessment of response to specific therapies.



Adenocarcinoma stained with PD-L1 clone 22C3 (Dako).

CLONE/MAYO ID	DRUG
22C3	Companion diagnostic assay – **KEYTRUDA®** (pembrolizumab)
SP263	Complementary diagnostic assay – **OPDIVO®** (nivolumab)
SP142	Complementary diagnostic assay – **TECENTRIQ®** (atezolizumab)

CELL-FREE DNA TESTING

EGFR MUTATIONS
(Mayo ID: EGFRD)

While comprehensive molecular testing is preferable for NSCLC patients, *EGFR* mutations are the most common and are found in approximately 25% of cases. Sometimes, patients are unable to undergo biopsy procedures, or the tissue obtained during these procedures has been exhausted. For these patients, cell-free DNA testing can access the most common mutations in exons 18, 19, 20, and 21 of the *EGFR* gene. The results of this assay will identify patients most likely to respond to *EGFR*-targeted therapies.

T790M MUTATION
(Mayo ID: T790M)

Based on recently released guidelines from the College of American Pathologists, the International Association for the Study of Lung Cancer, and the Association for Molecular Pathology, patients in relapse after an initial response to *EGFR*-targeted therapies should be tested for the acquired T790M mutuation in the *EGFR* gene.

FOR MORE INFORMATION ABOUT ONCOLOGY TESTING, VISIT US AT:

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