Uncovering Treatment Options for Patients with Non-Small Cell Lung Cancer (NSCLC)

FOUNDATION MEDICINE®

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) Recommend Molecular Testing for Appropriate Patients with Metastatic NSCLC, if Clinically Feasible[1*†]

FOR ADENOCARCINOMA, LARGE CELL, AND NSCLC NOT OTHERWISE SPECIFIED (NOS)

1. Recommend biomarker testing for *EGFR, ALK, ROS1, BRAF, NTRK,* and PD-L1*
2. Strongly advise broader molecular profiling with the goal of identifying rare driver mutations for which effective drugs may already be available, or to appropriately counsel patients regarding the availability of clinical trials
3. The use of cell-free/circulating tumor DNA can be considered in specific clinical circumstances such as a patient unfit for invasive tissue sampling or if there is insufficient material for molecular analysis following pathologic confirmation of a NSCLC diagnosis

Expanding Therapy Options for Metastatic NSCLC patients

Our portfolio of tests analyzes all guideline recommended genes and biomarkers for relevant alterations in patients with NSCLC including *EGFR, ALK, ROS1, BRAF, NTRK*‡, and PD-L1.§

Biomarkers to inform therapy selection

(**Bolded therapies** are FoundationOne CDx companion diagnostics for NSCLC)

EGFR	**Afatinib (Gilotrif®),** Dacomitinib (Vizimpro®), **Erlotinib (Tarceva®), Gefitinib (Iressa®), Osimertinib (Tagrisso®)**
ALK	**Alectinib (Alecensa®),** Brigatinib (Alunbrig®), **Ceritinib (Zykadia®), Crizotinib (Xalkori®)**
ROS1	Ceritinib (Zykadia®), Crizotinib (Xalkori®) Entrectinib (Rozlytrek™)
BRAF V600E	**Dabrafenib (Tafinlar®)+/- Trametinib (Mekinist®),** Vemurafenib (Zelboraf®) [Trametinib is not recommended as a single agent]
NTRK	Entrectinib (Rozlytrek™) Larotrectinib (Vitrakvi®)
PD-L1	Atezolizumab (Tecentriq®) in combination with chemotherapy **Pembrolizumab (Keytruda®) +/- chemotherapy**

Single gene testing or limited panels have been shown to **miss up to 35% of *ALK* fusions[2] and 21% of *EGFR* mutations** (41% of these missed *EGFR* mutations are common alterations targetable by an FDA-approved therapy in the applicable patient's tumor type)[3].

FoundationOne®Liquid is the only liquid biopsy test that has demonstrated the ability to identify patients with *ALK* fusions in a global prospective trial for metastatic NSCLC at **similar frequencies historically published with tissue testing.**[4]

Our portfolio of tests detects additional emerging genes and biomarkers ***MET, RET, ERBB2*** (HER2), ***STK11,*** **and TMB‡ (tumor mutational burden)** and additional genes of clinical significance such as ***KRAS.***

* The 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.

† National Comprehensive Cancer Network® (NCCN®).

‡ Only currently tested on FoundationOne CDx.

§ PD-L1 by immunohistochemistry (IHC) can be ordered as a supplemental test and may inform eligibility for several immunotherapies across different cancer types.

A portfolio of tests to help identify more treatment options:

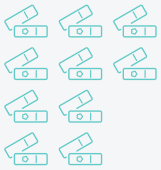
FOUNDATIONONE®CDx

TISSUE BIOPSY

FoundationOne CDx is FDA-approved with Medicare coverage for qualifying Medicare patients.[5]

- Analyzes 324 genes
- Reports TMB and Microsatellite Instability (MSI)

Total: ***10 SLIDES or 1 FFPE BLOCK***



Typical turnaround time is < 2 weeks from when we receive the tissue specimen

IHC Testing for PD-L1

Optional add-on with 4 additional slides

Typical turnaround is 5 days from receipt of specimen

FOUNDATIONONE®LIQUID

LIQUID BIOPSY

FoundationOne Liquid is a laboratory developed test that delivers high-quality answers from a simple blood draw.

- Analyzes 70 genes
- Reports MSI-H status

Total: ***TWO 8.5mL TUBES of PERIPHERAL WHOLE BLOOD***

Typical turnaround time is < 2 weeks from receipt of specimen

VS

Traditional testing slide requirements

PD-L1 expression	***BRAF V600*** mutation	***ERBB2*** (HER2) mutations
EGFR mutations	***KRAS*** mutations	***STK11*** mutations and losses
ALK rearrangements	***MET*** amplification	***NTRK*** fusions → Preferred testing with NGS panel
ROS1 rearrangements	***RET*** rearrangements	***TMB***

Total: ***20 SLIDES***

2–4 days per test; more for those performed by a reference or esoteric laboratory

TO LEARN MORE:

Visit *www.foundationmedicine.com*

TO SIGN UP OR ORDER A TEST:

Visit *www.foundationmedicine.com/signup*

NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way.

FoundationOne®CDx is the only FDA-approved *in vitro* diagnostic test by Foundation Medicine. FoundationOne Liquid was developed and its performance characteristics determined by Foundation Medicine. It has not been cleared or approved by the U.S. Food and Drug Administration. For more information on our laboratory developed tests (LDTs) please see their respective Technical Specifications at http://www.foundationmedicine.com

FoundationOne CDx is a next-generation sequencing based *in vitro* test intended for use by healthcare professionals for advanced cancer patients with solid tumors. The test analyzes 324 genes as well as genomic signatures including microsatellite instability (MSI) and tumor mutational burden (TMB) and is FDA-approved as a companion diagnostic to identify patients who may benefit from treatment with a specific list of therapies (listed in Table 1 in the Technical Information at www.foundationmedicine.com/f1cdx) in accordance with the approved therapeutic product labeling. Additional genomic findings, other than those listed in Table 1, may be reported and are not prescriptive or conclusive for labeled use of any specific therapeutic product. Use of the test does not guarantee a patient will be matched to a treatment or clinical trial option, or that all relevant alterations will be detected. Some patients may require a biopsy. For the complete label, including important risk information, please visit www.foundationmedicine.com/f1cdx.

References:

1. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for NSCLC V.1.2020. © National Comprehensive Cancer Network, Inc. 2019. All rights reserved. Accessed May 10, 2019. To view the most recent and complete version of the guideline, go online to *NCCN.org.*
2. Ali SM, et al. Comprehensive genomic profiling identifies a subset of crizotinib-responsive ALK-rearranged non-small cell lung cancer not detected by FISH. The Oncologist. 2016 Jun;21(6):762-770.
3. Suh J, et al. Hybrid Capture-Based Comprehensive Genomic Profiling Identifies Lung Cancer Patients with Well-Characterized Sensitizing Epidermal Growth Factor Receptor Point Mutations That Were Not Detected by Standard of Care Testing. The Oncologist. 2018;23:776-781.
4. LBA81_PR 'Phase II/III blood first assay screening trial (BFAST) in patients (pts) with treatment-naïve NSCLC: initial results from ALK+ cohort' will be presented by Shirish Gadgeel during the proffered paper session on Monday, 30 September 2019, 08:30-10:00 CEST in Madrid Auditorium (Hall 2). Annals of Oncology, Volume 30, Supplement 5, October 2019.
5. Medicare and Medicare Advantage members have coverage of FoundationOne CDx in accordance with the Centers for Medicare and Medicaid Services (CMS) national coverage determination (NCD) criteria.

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