Biomarker Analysis and the Implications for the Treatment of Non-Small Cell Lung Cancer

FACULTY INTERVIEWS

Gregory J Riely, MD, PhD

Marc Ladanyi, MD

EDITOR

Neil Love, MD

ABIM CME MOC ACCREDITED

CME Certified

Subscribe to Podcasts at ResearchToPractice.com/Podcasts

Follow us at Facebook.com/ResearchToPractice Follow us on Twitter @DrNeilLove

Lung Cancer™ UPDATE

Editor	Neil Love, MD
Director, Clinical Content and CPD/CME	Kathryn Ault Ziel, PhD
Scientific Director	Richard Kaderman, PhD
Editorial	Clayton Campbell Marilyn Fernandez, PhD Adam P Hustad Gloria Kelly, PhD Kemi Obajimi, PhD Margaret Peng
Creative Manager	Fernando Rendina
Graphic Designers	Jessica Benitez Tamara Dabney Silvana Izquierdo
Senior Manager, Special Projects	Kirsten Miller
Senior Production Editor	Aura Herrmann
Copy Editors	Rosemary Hulce Pat Morrissey/Havlin Alexis Oneca Kyriaki Tsaganis
Production Manager	Tracy Potter
Audio Production	Frank Cesarano
Web Master	John Ribeiro
Faculty Relations Manager	Stephanie Bodanyi, CMP
Continuing Education Administrator for Nursing	Karen Gabel Speroni, BSN, MHSA, PhD, RN

Contact Information	Neil Love, MD Research To Practice One Biscayne Tower 2 South Biscayne Boulevard, Suite 3600 Miami, FL 33131 Fax: (305) 377-9998 Email: DrNeilLove@ResearchToPractice.com
For CME/CNE Information	Email: CE@ResearchToPractice.com

Copyright © 2017 Research To Practice. All rights reserved.

The compact disc, Internet content and accompanying printed material are protected by copyright. No part of this program may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or utilizing any information storage and retrieval system, without written permission from the copyright owner.

The opinions expressed are those of the presenters and are not to be construed as those of the publisher or grantor.

Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management.

Any procedures, medications or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patients' conditions and possible contraindications or dangers in use, review of any applicable manufacturer's product information and comparison with recommendations of other authorities.

Biomarker Analysis and the Implications for the Treatment of Non-Small Cell Lung Cancer

A Continuing Medical Education Audio Activity

OVERVIEW OF ACTIVITY

Recent developments have led to an explosion in lung cancer genetic and biologic knowledge, but the integration of anti-PD-1/PD-L1 checkpoint inhibitors into treatment and the evolution of targeted therapy have complicated decision-making for clinicians caring for patients with metastatic non-small cell lung cancer (NSCLC).

To assist medical oncologists as they think through the complex management of NSCLC, this program features the perspectives of a lung cancer clinical oncology investigator and a pathologist on the results of a patterns of care survey of 25 thoracic oncology experts documenting the current state of biomarker analysis and the related implications for treatment. Upon completion of this CME activity, medical oncologists should be able to formulate an up-to-date and more complete approach to the care of patients with lung cancer.

LEARNING OBJECTIVES

- Analyze the effects of tumor histology, genetic alterations and PD-L1 tumor proportion score on the practice patterns of clinical investigators in the management of NSCLC.
- Recognize the utility and limitations of multiplex and next-generation sequencing platforms, and determine their clinical application for patients with NSCLC.
- Review available research data on the effectiveness of approved EGFR tyrosine kinase inhibitors (TKIs) in patients with various EGFR mutations, and use this information to guide first-line treatment decision-making.
- Describe mechanisms of tumor resistance to EGFR TKIs, and understand the therapeutic options for patients whose disease progresses on first-line EGFR therapy.
- Describe available and emerging data on the efficacy of anti-PD-1/PD-L1 antibodies in NSCLC, and consider this information when counseling patients regarding treatment options.
- Assess new oncogenic pathways mediating the growth of unique NSCLC tumor subsets, and recall emerging data with experimental agents exploiting these targets.

ACCREDITATION STATEMENT

Research To Practice is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT

Research To Practice designates this enduring material for a maximum of 2 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AMERICAN BOARD OF INTERNAL MEDICINE (ABIM) — MAINTENANCE OF CERTIFICATION (MOC)

Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 2 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit. Please note, this program has been specifically designed for the following ABIM specialty: **medical oncology**.

Personal information and data sharing: Research To Practice aggregates deidentified user data for program-use analysis, program development, activity planning and site improvement. We may provide *aggregate* and *deidentified* data to third parties, including commercial supporters. **We do not share or sell personally identifiable information to any unaffiliated third parties or commercial supporters. Please see our privacy policy at ResearchToPractice.com/Privacy-Policy for more information.**

HOW TO USE THIS CME ACTIVITY

This CME activity contains an audio component. To receive credit, the participant should review the CME information, listen to the audio tracks, complete the Post-test with a score of 80% or better and fill out the Educational Assessment and Credit Form located in the back of this booklet or on our website at **ResearchToPractice.com/BiomarkersLung17/CME**. The corresponding video program is available as an alternative at **ResearchToPractice.com/BiomarkersLung17/Video**.

This activity is supported by an educational grant from AstraZeneca Pharmaceuticals LP.

Release date: December 2017; Expiration date: December 2018

CME INFORMATION

FACULTY AFFILIATIONS

Gregory J Riely, MD, PhD
Associate Attending
Memorial Sloan Kettering
Cancer Center
New York, New York

Marc Ladanyi, MD
Molecular Geneticist
Chief, Molecular
Diagnostics Service
William J Ruane Chair in
Molecular Oncology
Memorial Sloan Kettering
Cancer Center
New York, New York

EDITOR

Neil Love, MD
Research To Practice
Miami, Florida

CONTENT VALIDATION AND DISCLOSURES

Research To Practice (RTP) is committed to providing its participants with high-quality, unbiased and state-of-the-art education. We assess conflicts of interest with faculty, planners and managers of CME activities. Conflicts of interest are identified and resolved through a conflict of interest resolution process. In addition, all activity content is reviewed by both a member of the RTP scientific staff and an external, independent physician reviewer for fair balance, scientific objectivity of studies referenced and patient care recommendations.

FACULTY — The following faculty (and their spouses/partners) reported relevant conflicts of interest, which have been resolved through a conflict of interest resolution process: **Dr Riely** — Consulting Agreement: Genentech BioOncology; Contracted Research: Ariad Pharmaceuticals Inc, Astellas Pharma Global Development Inc, Novartis, Pfizer Inc. **Dr Ladanyi** — Contracted Research: AstraZeneca Pharmaceuticals LP, Loxo Oncology.

EDITOR — **Dr Love** is president and CEO of Research To Practice, which receives funds in the form of educational grants to develop CME activities from the following commercial interests: AbbVie Inc, Acerta Pharma, Adaptive Biotechnologies, Agendia Inc, Agios Pharmaceuticals Inc, Amgen Inc, Ariad Pharmaceuticals Inc, Array BioPharma Inc, Astellas Pharma Global Development Inc, AstraZeneca Pharmaceuticals LP, Baxalta Inc, Bayer HealthCare Pharmaceuticals, Biodesix Inc, bioTheranostics Inc, Boehringer Ingelheim Pharmaceuticals Inc, Boston Biomedical Pharma Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, CTI BioPharma Corp, Dendreon Pharmaceuticals Inc, Eisai Inc, Exelixis Inc, Foundation Medicine, Genentech BioOncology, Genomic Health Inc, Gilead Sciences Inc, Halozyme Inc, ImmunoGen Inc, Incyte Corporation, Infinity Pharmaceuticals Inc, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Kite Pharma Inc, Lexicon Pharmaceuticals Inc, Lilly, Medivation Inc, a Pfizer Company, Merck, Merrimack Pharmaceuticals Inc, Myriad Genetic Laboratories Inc, NanoString Technologies, Natera Inc, Novartis, Novocure, Onyx Pharmaceuticals, an Amgen subsidiary, Pfizer Inc, Pharmacyclics LLC, an AbbVie Company, Prometheus Laboratories Inc, Puma Biotechnology Inc, Regeneron Pharmaceuticals Inc, Sanofi Genzyme, Seattle Genetics, Sigma-Tau Pharmaceuticals Inc, Sirtex Medical Ltd, Spectrum Pharmaceuticals Inc, Taiho Oncology Inc, Takeda Oncology, Tesaro Inc, Teva Oncology and Tokai Pharmaceuticals Inc.

RESEARCH TO PRACTICE STAFF AND EXTERNAL REVIEWERS — The scientific staff and reviewers for Research To Practice have no relevant conflicts of interest to disclose.

This educational activity contains discussion of published and/or investigational uses of agents that are not indicated by the Food and Drug Administration. Research To Practice does not recommend the use of any agent outside of the labeled indications. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications and warnings. The opinions expressed are those of the presenters and are not to be construed as those of the publisher or grantor.

If you would like to discontinue your complimentary subscription to *Lung Cancer Update,* please email us at **Info@ResearchToPractice.com**, call us at (800) 648-8654 or fax us at (305) 377-9998. Please include your full name and address, and we will remove you from the mailing list.

Interview with Gregory J Riely, MD, PhD

Tracks 1-22

Track 1	Classification of metastatic non-small cell lung cancer (NSCLC) based on biomarker analysis
Track 2	Optimal testing platforms for patients with metastatic NSCLC
Track 3	Molecular profiling to detect targetable alterations in patients with newly diagnosed metastatic nonsquamous NSCLC
Track 4	Choice of first-line therapy for patients with metastatic squamous NSCLC and no targetable mutations
Track 5	Ongoing investigation of immune checkpoint inhibitors with chemo-therapy as first-line treatment for metastatic squamous NSCLC with no targetable mutation
Track 6	Duration and level of response to immune checkpoint inhibitors based on PD-L1 tumor proportion score (TPS)
Track 7	Use of immune checkpoint inhibitors in combination with chemotherapy as front-line therapy for metastatic nonsquamous NSCLC without a targetable mutation
Track 8	Selection of EGFR tyrosine kinase inhibitors (TKIs) as first-line therapy for EGFR-mutated NSCLC
Track 9	Types of EGFR mutations and activity of EGFR TKIs
Track 10	Efficacy and tolerability of the EGFR TKI osimertinib as first-line therapy
Track 11	Mechanisms of acquired resistance to osimertinib
Track 12	Response to EGFR TKIs in patients with CNS metastases
Track 13	Plasma versus tissue genotyping for detection of T790M mutations
Track 14	Response to osimertinib in patients with T790M-negative metastatic NSCLC
Track 15	Therapeutic options for patients with T790M-negative metastatic NSCLC
Track 16	Choosing between targeted therapy and immunotherapy for patients with metastatic nonsquamous NSCLC and actionable mutations
Track 17	Management of lung cancer in patients with ALK and ROS1 genomic alterations
Track 18	Selection of up-front therapy for BRAF mutation-positive metastatic NSCLC
Track 19	MET exon 14 alterations and implications for treatment
Track 20	Sequencing therapy for patients with RET rearrangements
Track 21	Efficacy of HER2-targeted therapy for patients with metastatic NSCLC and HER2 alterations
Track 22	Analysis of PD-L1 expression and variation over time

Interview with Marc Ladanyi, MD

Tracks 1-13

Track 1	Molecular pathology of lung cancer
Track 2	Genomic testing for patients with newly diagnosed metastatic NSCLC
Track 3	Actionable alterations in patients with adenocarcinoma of the lung
Track 4	Targeting KRAS mutation-positive NSCLC
Track 5	Assays to detect genomic alterations in patients with lung cancer
Track 6	Biology of MET exon 14 alterations in NSCLC
Track 7	Incidence of RET fusions in patients with lung adenocarcinoma; response to targeted therapy

Interview with Dr Ladanyi (continued)

Track 8	Activity of NTRK inhibitors in patients with NTRK fusions	**Track 11**	T790M mutation testing for patients who develop resistance to EGFR TKIs
Track 9	MSK-IMPACT™: Next-generation sequencing assay to detect genomic alterations and inform therapeutic decision-making	**Track 12**	Acquired EGFR C797S mutation as a mechanism of resistance to osimertinib
Track 10	Mechanisms of resistance to EGFR TKIs	**Track 13**	Detection of ALK fusions in NSCLC

Video Program

View the corresponding video interviews with (from left) Drs Riely and Ladanyi by Dr Love at www.ResearchToPractice.com/BiomarkersLung17/Video

Have Questions or Cases You Would Like Us to Pose to the Faculty?

Submit them to us via Facebook or Twitter and we will do our best to get them answered for you

Facebook.com/ResearchToPractice or Twitter @DrNeilLove

SELECT PUBLICATIONS

Awad MM et al. **Impact of MET inhibitors on survival among patients (pts) with MET exon 14 mutant (METdel14) non-small cell lung cancer (NSCLC).** *Proc ASCO* 2017;**Abstract 8511**.

Brahmer JR et al. **Progression after the next line of therapy (PFS2) and updated OS among patients (pts) with advanced NSCLC and PD-L1 tumor proportion score (TPS) ≥50% enrolled in KEYNOTE-024.** *Proc ASCO* 2017;**Abstract 9000**.

Drilon A et al. **Broad, hybrid capture-based next-generation sequencing identifies actionable genomic alterations in lung adenocarcinomas otherwise negative for such alterations by other genomic testing approaches.** *Clin Cancer Res* 2015;21(16):3631-9.

Gainor JF et al. **EGFR mutations and ALK rearrangements are associated with low response rates to PD-1 pathway blockade in non-small cell lung cancer: A retrospective analysis.** *Clin Cancer Res* 2016;22(18):4585-93.

Herbst RS et al. **Pembrolizumab versus docetaxel for previously treated, PD-L1-positive, advanced non-small-cell lung cancer (KEYNOTE-010): A randomised controlled trial.** *Lancet* 2016;387(10027):1540-50.

Hida T et al. **Alectinib versus crizotinib in patients with *ALK*-positive non-small-cell lung cancer (J-ALEX): An open-label, randomised phase 3 trial.** *Lancet* 2017;390(10089):29-39.

Langer CJ et al; KEYNOTE-021 Investigators. **Carboplatin and pemetrexed with or without pembrolizumab for advanced, non-squamous non-small-cell lung cancer: A randomised, phase 2 cohort of the open-label KEYNOTE-021 study.** *Lancet Oncol* 2016;17(11):1497-508.

Lee CK et al. **Checkpoint inhibitors in metastatic EGFR-mutated non-small cell lung cancer — A meta-analysis.** *J Thorac Oncol* 2017;12(2):403-7.

Love N et al. **A biomarker-driven algorithm for sequencing of systemic therapy for metastatic NSCLC: A survey of 25 investigators.** Chicago Multidisciplinary Symposium in Thoracic Oncology 2017;**Abstract PS02.17**.

Magnuson WJ et al. **Management of brain metastases in tyrosine kinase inhibitor-naïve epidermal growth factor receptor-mutant non-small-cell lung cancer: A retrospective multi-institutional analysis.** *J Clin Oncol* 2017;35(10):1070-7.

Mok TS et al; AURA3 Investigators. **Osimertinib or platinum-pemetrexed in EGFR T790M-positive lung cancer.** *N Engl J Med* 2017;376(7):629-40.

Papadimitrakopoulou V et al. **First-line carboplatin and pemetrexed (CP) with or without pembrolizumab (pembro) for advanced nonsquamous NSCLC: Updated results of KEYNOTE-021 cohort G.** *Proc ASCO* 2017;**Abstract 9094**.

Park K et al. **Afatinib versus gefitinib as first-line treatment of patients with EGFR mutation-positive non-small-cell lung cancer (LUX-Lung 7): A phase 2B, open-label, randomised controlled trial.** *Lancet Oncol* 2016;17(5):577-89.

Peters S et al. **Alectinib versus crizotinib in untreated ALK-positive non-small-cell lung cancer.** *N Engl J Med* 2017;377(9):829-38.

Planchard D et al. **Phase 2 trial (BRF113928) of dabrafenib (D) plus trametinib (T) in patients (pts) with previously untreated BRAF V600E–mutant metastatic non-small cell lung cancer (NSCLC).** *Proc ESMO* 2017;**Abstract LBA51**.

Planchard D et al. **Dabrafenib plus trametinib in patients with previously treated BRAF(V600E)-mutant metastatic non-small cell lung cancer: An open-label, multicentre phase 2 trial.** *Lancet Oncol* 2016;17(7):984-93.

Ramalingam S et al. **Osimertinib vs standard of care (SoC) EGFR-TKI as first-line therapy in patients (pts) with EGFRm advanced NSCLC: FLAURA.** *Proc ESMO* 2017;**Abstract LBA2_PR**.

Reck M et al; KEYNOTE-024 Investigators. **Pembrolizumab versus chemotherapy for PD-L1-positive non-small-cell lung cancer.** *N Engl J Med* 2016;375(19):1823-33.

Sabari JK et al. **PD-L1 expression and response to immunotherapy in patients with MET exon 14-altered non-small cell lung cancers (NSCLC).** *Proc ASCO* 2017;**Abstract 8512**.

Shaw AT et al. **Ceritinib in ALK-rearranged non-small-cell lung cancer.** *N Engl J Med* 2014;370(13):1189-97.

Soria JC et al. **First-line ceritinib versus platinum-based chemotherapy in advanced ALK-rearranged non-small-cell lung cancer (ASCEND-4): A randomised, open-label, phase 3 study.** *Lancet* 2017;389(10072):917-29.

Yang JC et al. **Osimertinib activity in patients with leptomeningeal (LM) disease from non-small cell lung cancer (NSCLC): Updated results from BLOOM, a phase I study.** *Proc ASCO* 2016;**Abstract 9002**.

POST-TEST

Biomarker Analysis and the Implications for the Treatment of Non-Small Cell Lung Cancer

QUESTIONS (PLEASE CIRCLE ANSWER):

1. **A recent survey of 25 clinical investigators regarding the sequencing of systemic therapy for metastatic NSCLC revealed that for patients with squamous histology and a PD-L1 TPS greater than 50%, the preferred first-line treatment option was _____.**
   a. Carboplatin/*nab* paclitaxel
   b. Carboplatin/pemetrexed/bevacizumab
   c. Pembrolizumab

2. **Primary results of the global Phase III ALEX study evaluating alectinib versus crizotinib for treatment-naïve, advanced ALK-positive NSCLC demonstrated a significant improvement in favor of alectinib with respect to _____.**
   a. Progression-free survival
   b. Overall survival
   c. Incidence of CNS progression
   d. All of the above
   e. Both a and c

3. **Recent studies presented at ASCO 2017 demonstrated that T-DM1 elicited a higher response rate for patients with HER2-mutant lung cancer than for those with HER2-overexpressed disease.**
   a. True
   b. False

4. **Mechanisms of acquired resistance to EGFR TKIs include _____.**
   a. Development of the T790M mutation
   b. MET amplification
   c. HER2 amplification
   d. All of the above

5. **The incidence of RET fusion in patients with lung adenocarcinomas is approximately _____.**
   a. 1% to 2%
   b. 5%
   c. 10%

6. **Which of the following statements is true regarding MET exon 14 alterations?**
   a. They may result from a splice variant that increases MET signaling
   b. They respond well to crizotinib
   c. They do not occur concomitantly with MET amplification
   d. All of the above
   e. Both a and b

7. **In the survey of 25 clinical investigators analyzing the sequencing of systemic therapy for metastatic NSCLC, for patients with BRAF V600E mutation-positive NSCLC a majority of the investigators chose _____ as the preferred option in the first-line setting, irrespective of TPS.**
   a. Anti-PD-1/PD-L1 antibodies
   b. Chemotherapy
   c. Dabrafenib/trametinib

8. **Patients with EGFR mutation-positive NSCLC are _____ to respond to immunotherapy than are patients who do not have targetable mutations.**
   a. More likely
   b. Less likely

9. **Recent data suggest that _____ is a mutation that confers resistance to alectinib in patients with ALK-rearranged NSCLC.**
   a. G1202R
   b. T790M
   c. C797S

10. **The third-generation EGFR TKI osimertinib _____.**
    a. Selectively targets both the T790M mutation and wild-type EGFR
    b. Is effective for patients with brain metastases
    c. Both a and b

EDUCATIONAL ASSESSMENT AND CREDIT FORM

Biomarker Analysis and the Implications for the Treatment of Non-Small Cell Lung Cancer

Research To Practice is committed to providing valuable continuing education for oncology clinicians, and your input is critical to helping us achieve this important goal. Please take the time to assess the activity you just completed, with the assurance that your answers and suggestions are strictly confidential.

PART 1 — Please tell us about your experience with this educational activity

How would you characterize your level of knowledge on the following topics?

4 = Excellent 3 = Good 2 = Adequate 1 = Suboptimal

	BEFORE	AFTER
ALEX: Results of the Phase III study comparing alectinib to crizotinib for treatment-naïve, advanced ALK-positive NSCLC	4 3 2 1	4 3 2 1
Therapeutic implications of the recent FDA approval of pembrolizumab with carboplatin/pemetrexed as front-line treatment for metastatic nonsquamous NSCLC regardless of TPS	4 3 2 1	4 3 2 1
Emerging data on the treatment of lung cancer with other oncogenic drivers beyond EGFR, ALK and ROS1 (eg, BRAF, MET exon 14, HER2)	4 3 2 1	4 3 2 1
Preference among clinical investigators for the use of immune checkpoint inhibitors as up-front therapy for patients with squamous cell lung carcinoma and a TPS greater than 50%	4 3 2 1	4 3 2 1
Efficacy of osimertinib for T790M mutation-positive advanced NSCLC after disease progression on an EGFR TKI	4 3 2 1	4 3 2 1

Practice Setting:

☐ Academic center/medical school ☐ Community cancer center/hospital ☐ Group practice
☐ Solo practice ☐ Government (eg, VA) ☐ Other (please specify).....

Approximately how many new patients with lung cancer do you see per year? ..... patients

Was the activity evidence based, fair, balanced and free from commercial bias?

☐ Yes ☐ No If no, please explain: .....

Please identify how you will change your practice as a result of completing this activity (select all that apply).

☐ This activity validated my current practice
☐ Create/revise protocols, policies and/or procedures
☐ Change the management and/or treatment of my patients
☐ Other (please explain): .....

If you intend to implement any changes in your practice, please provide 1 or more examples:

.....

.....

The content of this activity matched my current (or potential) scope of practice.

☐ Yes ☐ No If no, please explain: .....

Please respond to the following learning objectives (LOs) by circling the appropriate selection:

4 = Yes 3 = Will consider 2 = No 1 = Already doing N/M = LO not met N/A = Not applicable

As a result of this activity, I will be able to:

- Analyze the effects of tumor histology, genetic alterations and PD-L1 tumor proportion score on the practice patterns of clinical investigators in the management of NSCLC. ..... 4 3 2 1 N/M N/A
- Recognize the utility and limitations of multiplex and next-generation sequencing platforms, and determine their clinical application for patients with NSCLC. ..... 4 3 2 1 N/M N/A
- Review available research data on the effectiveness of approved EGFR tyrosine kinase inhibitors (TKIs) in patients with various EGFR mutations, and use this information to guide first-line treatment decision-making. ..... 4 3 2 1 N/M N/A

EDUCATIONAL ASSESSMENT AND CREDIT FORM (continued)

As a result of this activity, I will be able to:

- Describe mechanisms of tumor resistance to EGFR TKIs, and understand the therapeutic options for patients whose disease progresses on first-line EGFR therapy. . . . . 4 3 2 1 N/M N/A
- Describe available and emerging data on the efficacy of anti-PD-1/PD-L1 antibodies in NSCLC, and consider this information when counseling patients regarding treatment options. . . . . 4 3 2 1 N/M N/A
- Assess new oncogenic pathways mediating the growth of unique NSCLC tumor subsets, and recall emerging data with experimental agents exploiting these targets. . . . 4 3 2 1 N/M N/A

Please describe any clinical situations that you find difficult to manage or resolve that you would like to see addressed in future educational activities:

.....

Would you recommend this activity to a colleague?

☐ Yes ☐ No

If no, please explain: .....

PART 2 — Please tell us about the faculty and editor for this educational activity

4 = Excellent 3 = Good 2 = Adequate 1 = Suboptimal

Faculty	Knowledge of subject matter	Effectiveness as an educator
Gregory J Riely, MD, PhD	4 3 2 1	4 3 2 1
Marc Ladanyi, MD	4 3 2 1	4 3 2 1
Editor	**Knowledge of subject matter**	**Effectiveness as an educator**
Neil Love, MD	4 3 2 1	4 3 2 1

REQUEST FOR CREDIT — Please print clearly

Name: ..... Specialty: .....

Professional Designation:
☐ MD ☐ DO ☐ PharmD ☐ NP ☐ RN ☐ PA ☐ Other: .....

Street Address: ..... Box/Suite: .....

City, State, Zip: .....

Telephone: ..... Fax: .....

Email: .....

Research To Practice designates this enduring material for a maximum of 2 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

I certify my actual time spent to complete this educational activity to be _____ hour(s).

Signature: ..... Date: .....

☐ **I would like Research To Practice to submit my CME credits to the ABIM to count toward my MOC points. I understand that because I am requesting MOC credit, Research To Practice will be required to share personally identifiable information with the ACCME and ABIM.**

Additional information for MOC credit (required):

Date of Birth (Month and Day Only): __ __ / __ __ ABIM 6-Digit ID Number: .....

If you are not sure of your ABIM ID, please visit http://www.abim.org/online/findcand.aspx.

The expiration date for this activity is December 2018. To obtain a certificate of completion and receive credit for this activity, please complete the Post-test, fill out the Educational Assessment and Credit Form and fax both to (800) 447-4310, or mail both to Research To Practice, One Biscayne Tower, 2 South Biscayne Boulevard, Suite 3600, Miami, FL 33131. You may also complete the Post-test and Educational Assessment online at www.ResearchToPractice.com/BiomarkersLung17/CME.

QID 1849

Lung Cancer™
UPDATE

PRSRT STD
U.S. POSTAGE
PAID
MIAMI, FL
PERMIT #1317

Neil Love, MD
Research To Practice
One Biscayne Tower
2 South Biscayne Boulevard, Suite 3600
Miami, FL 33131

Copyright © 2017 Research To Practice.
This activity is supported by an educational grant from AstraZeneca Pharmaceuticals LP.

Research
To Practice®

Research To Practice is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Release date: December 2017
Expiration date: December 2018
Estimated time to complete: 2 hours