# Thank you for joining us. The program will commence momentarily.



# Current Questions and Controversies in the Management of Lung Cancer An Interactive Meet The Professor Series

#### Leora Horn, MD, MSc

Ingram Associate Professor of Cancer Research Director, Thoracic Oncology Research Program Assistant Vice Chairman for Faculty Development Vanderbilt University Medical Center Nashville, Tennessee



## **Commercial Support**

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



### **Dr Love — Disclosures**

**Dr Love** is president and CEO of Research To Practice. Research To Practice receives funds in the form of educational grants to develop CME activities from the following commercial interests: AbbVie Inc, Acerta Pharma — A member of the AstraZeneca Group, Adaptive Biotechnologies Corporation, Agendia Inc, Agios Pharmaceuticals Inc, Amgen Inc, Array BioPharma Inc, a subsidiary of Pfizer Inc, Astellas, AstraZeneca Pharmaceuticals LP, Bayer HealthCare Pharmaceuticals, Biodesix Inc, bioTheranostics Inc, Blueprint Medicines, Boehringer Ingelheim Pharmaceuticals Inc, Boston Biomedical Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, Daiichi Sankyo Inc, Dendreon Pharmaceuticals Inc, Eisai Inc, EMD Serono Inc, Exelixis Inc, Foundation Medicine, Genentech, a member of the Roche Group, Genmab, Genomic Health Inc, Gilead Sciences Inc, GlaxoSmithKline, Grail Inc, Guardant Health, Halozyme Inc, Helsinn Healthcare SA, ImmunoGen Inc, Incyte Corporation, Infinity Pharmaceuticals Inc, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Kite, A Gilead Company, Lexicon Pharmaceuticals Inc, Lilly, Loxo Oncology Inc, a wholly owned subsidiary of Eli Lilly & Company, Merck, Merrimack Pharmaceuticals Inc, Myriad Genetic Laboratories Inc, Natera Inc, Novartis, Oncopeptides, Pfizer Inc, Pharmacyclics LLC, an AbbVie Company, Prometheus Laboratories Inc, Puma Biotechnology Inc, Regeneron Pharmaceuticals Inc, Sandoz Inc, a Novartis Division, Sanofi Genzyme, Seattle Genetics, Sirtex Medical Ltd, Spectrum Pharmaceuticals Inc, Taiho Oncology Inc, Takeda Oncology, Tesaro, A GSK Company, Teva Oncology, Tokai Pharmaceuticals Inc, Tolero Pharmaceuticals and Verastem Inc.



### Research To Practice CME Planning Committee Members, Staff and Reviewers

Planners, scientific staff and independent reviewers for Research To Practice have no relevant conflicts of interest to disclose.



## **Dr Horn — Disclosures**

Advisory Committee	Amgen Inc, EMD Serono Inc, Genentech, a member of the Roche Group, Xcovery
Consulting Agreements	AstraZeneca Pharmaceuticals LP, EMD Serono Inc, Genentech, a member of the Roche Group, Incyte Corporation, Merck, Xcovery
Contracted Research	Boehringer Ingelheim Pharmaceuticals Inc, Bristol-Myers Squibb Company, Xcovery



#### **Upcoming Live Webinars**

Wednesday, August 19, 2020 12:00 PM – 1:00 PM ET

Clinical Investigator Perspectives on the Current and Future Management of Multiple Myeloma

**Faculty** Noopur Raje, MD

Moderator Neil Love, MD Thursday, August 20, 2020 5:00 PM – 6:00 PM ET

Clinical Investigator Perspectives on the Current and Future Role of PARP Inhibition in the Management of Ovarian Cancer

Faculty Don S Dizon, MD

#### **Upcoming Live Webinars**

Friday, August 21, 2020 12:00 PM – 1:00 PM ET

Optimizing the Selection and Sequencing of Therapy for Patients with Chronic Lymphocytic Leukemia

Faculty Brad S Kahl, MD

Moderator Neil Love, MD Tuesday, August 25, 2020 5:00 PM – 6:00 PM ET

Optimizing the Selection and Sequencing of Therapy for Patients with Chronic Lymphocytic Leukemia

**Faculty** Anthony R Mato, MD, MSCE

#### **Upcoming Live Webinars**

Wednesday, August 26, 2020 12:00 PM – 1:00 PM ET

Current Questions and Controversies in the Management of Lung Cancer

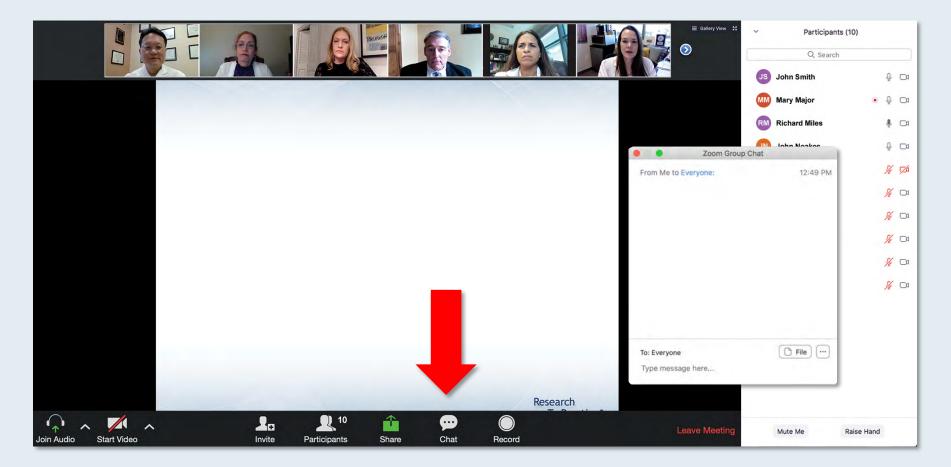
**Faculty** Lecia V Sequist, MD, MPH

Moderator Neil Love, MD Friday, August 28, 2020 12:00 PM – 1:00 PM ET

Exploring the Role of Immune Checkpoint Inhibitor Therapy and Other Novel Strategies in Gynecologic Cancers

**Faculty** Michael J Birrer, MD, PhD

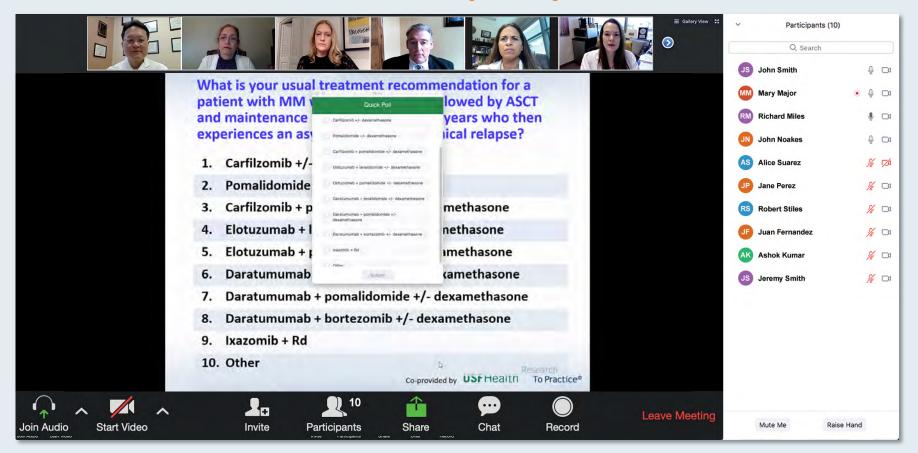
## We Encourage Clinicians in Practice to Submit Questions



Feel free to submit questions now before the program commences and throughout the program.



# Familiarizing yourself with the Zoom interface How to answer poll questions



When a poll question pops up, click your answer choice from the available options. Results will be shown after everyone has answered.

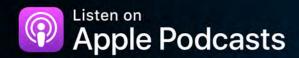


# Thank you for joining us!

# CME and MOC credit information will be emailed to each participant within 5 days.

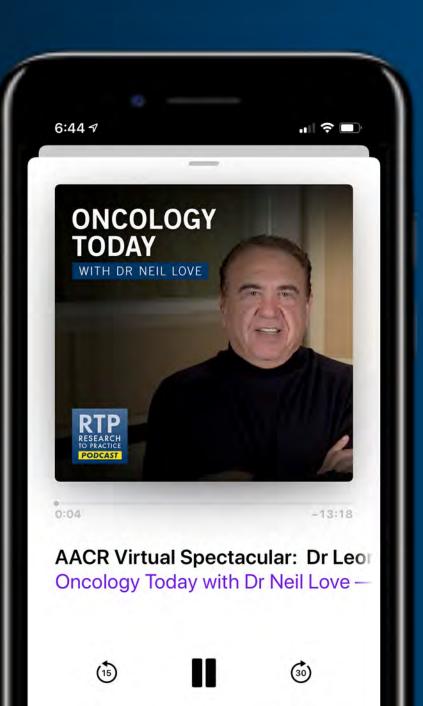


# ONCOLOGY TODAY WITH DR NEIL LOVE









# Current Questions and Controversies in the Management of Lung Cancer An Interactive Meet The Professor Series

#### Leora Horn, MD, MSc

Ingram Associate Professor of Cancer Research Director, Thoracic Oncology Research Program Assistant Vice Chairman for Faculty Development Vanderbilt University Medical Center Nashville, Tennessee



## **Meet The Professor Program Participating Faculty**



#### John V Heymach, MD, PhD Professor and Chair Thoracic/Head and Neck Medical Oncology The University of Texas MD Anderson Cancer Center Houston, Texas



#### Corey J Langer, MD Director of Thoracic Oncology Abramson Cancer Center Professor of Medicine Perelman School of Medicine University of Pennsylvania Philadelphia, Pennsylvania



#### Leora Horn, MD, MSc Ingram Associate Professor of Cancer Research Director, Thoracic Oncology Research Program Assistant Vice Chairman for Faculty Development Vanderbilt University Medical Center Nashville, Tennessee



Benjamin Levy, MD Associate Professor Johns Hopkins School of Medicine Clinical Director Medical Director, Thoracic Oncology Program Johns Hopkins Sidney Kimmel Cancer Center at Sibley Memorial Washington, DC



## **Meet The Professor Program Participating Faculty**



Joel W Neal, MD, PhD Associate Professor of Medicine Division of Oncology Department of Medicine Stanford Cancer Institute Stanford University Palo Alto, California



Lecia V Sequist, MD, MPH Director, Center for Innovation in Early Cancer Detection Massachusetts General Hospital Cancer Center The Landry Family Associate Professor of Medicine Harvard Medical School Boston, Massachusetts



Nathan A Pennell, MD, PhD Professor, Hematology and Medical Oncology Cleveland Clinic Lerner College of Medicine of Case Western Reserve University Director, Cleveland Clinic Lung Cancer Medical Oncology Program Cleveland, Ohio



David R Spigel, MD Chief Scientific Officer Program Director Lung Cancer Research Sarah Cannon Research Institute Nashville, Tennessee



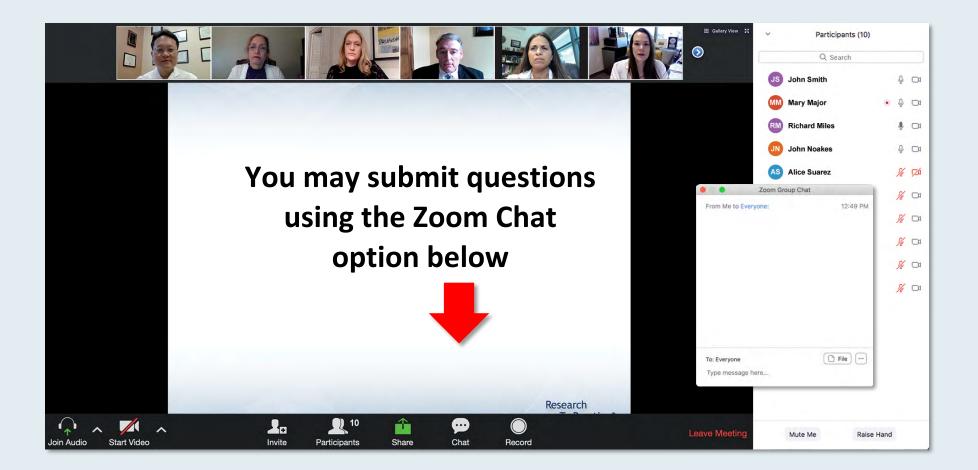
### Meet The Professor Program Moderator



**Project Chair Neil Love, MD** Research To Practice Miami, Florida



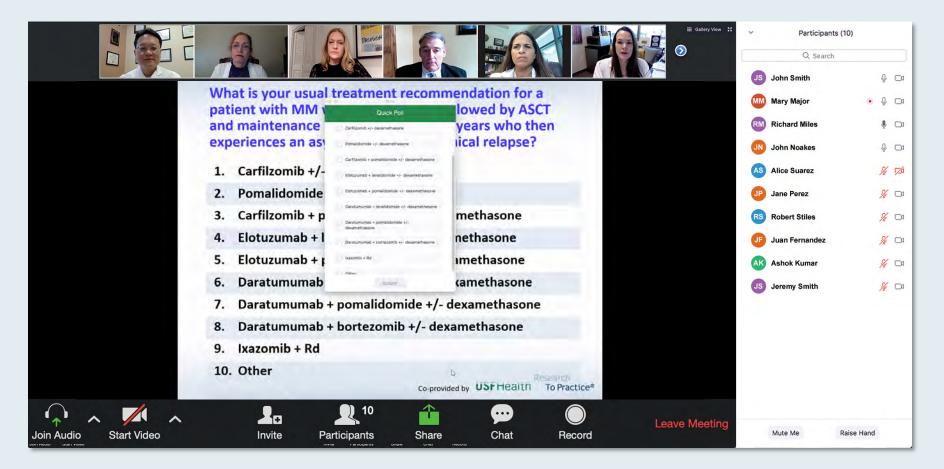
### We Encourage Clinicians in Practice to Submit Questions



Feel free to submit questions now before the program commences and throughout the program.



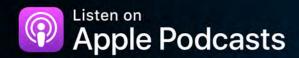
# Familiarizing yourself with the Zoom interface How to answer poll questions



When a poll question pops up, click your answer choice from the available options. Results will be shown after everyone has answered.

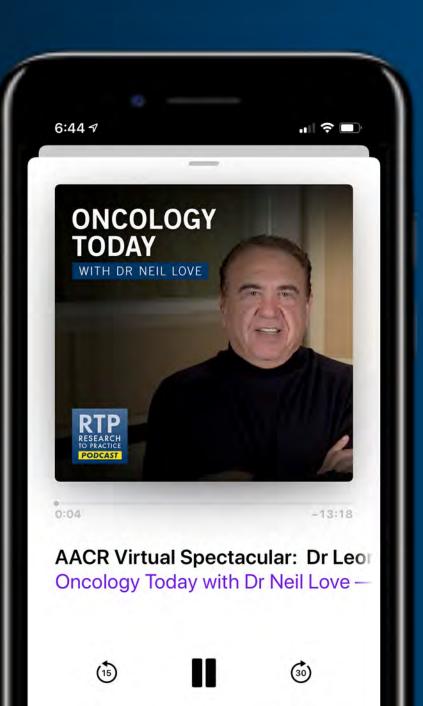


# ONCOLOGY TODAY WITH DR NEIL LOVE









Clinical Investigator Perspectives on the Current and Future Management of Multiple Myeloma A Meet The Professor Series

# Wednesday, August 19, 2020 12:00 PM – 1:00 PM ET

Faculty Noopur Raje, MD

Moderator Neil Love, MD



Co-provided by **USF**Health

Clinical Investigator Perspectives on the Current and Future Role of PARP Inhibition in the Management of Ovarian Cancer A Meet The Professor Series

> Thursday, August 20, 2020 5:00 PM – 6:00 PM ET

> > Faculty Don S Dizon, MD



Optimizing the Selection and Sequencing of Therapy for Patients with Chronic Lymphocytic Leukemia A Meet The Professor Series

> Friday, August 21, 2020 12:00 PM – 1:00 PM ET

> > Faculty Brad S Kahl, MD



Optimizing the Selection and Sequencing of Therapy for Patients with Chronic Lymphocytic Leukemia A Meet The Professor Series

> Tuesday, August 25, 2020 5:00 PM – 6:00 PM ET

Faculty Anthony R Mato, MD, MSCE



Current Questions and Controversies in the Management of Lung Cancer *A Meet The Professor Series* Wednesday, August 26, 2020 12:00 PM – 1:00 PM ET

> Faculty Lecia V Sequist, MD, MPH



Exploring the Role of Immune Checkpoint Inhibitor Therapy and Other Novel Strategies in Gynecologic Cancers A Meet The Professor Series

> Friday, August 28, 2020 12:00 PM – 1:00 PM ET

Faculty Michael J Birrer, MD, PhD



# Current Questions and Controversies in the Management of Lung Cancer An Interactive Meet The Professor Series

#### Leora Horn, MD, MSc

Ingram Associate Professor of Cancer Research Director, Thoracic Oncology Research Program Assistant Vice Chairman for Faculty Development Vanderbilt University Medical Center Nashville, Tennessee



### **Contributing Oncologists**



Matthew Gubens, MD, MS Associate Professor, Thoracic Medical Oncology University of California, San Francisco San Francisco, California



Sulfi Ibrahim, MD Hematology/Oncology Reid Health Richmond, Indiana



**Neil Morganstein, MD** Hematology Oncology Atlantic Health System Summit, New Jersey



### **Meet The Professor with Dr Horn**

#### Module 1: Management of Metastatic NSCLC with an EGFR Tumor Mutation

• A 67-year-old woman with metastatic adenocarcinoma of the lung – Dr Ibrahim

#### Module 2: Anti-PD-1/PD-L1 Antibodies Alone or in Combinations for Metastatic NSCLC

- A 59-year-old man with metastatic squamous cell carcinoma of the lung Dr Morganstein
- A 72-year-old man with metastatic adenocarcinoma of the lung Dr Morganstein

#### Module 3: First-Line Treatment of Extensive-Stage Small Cell Lung Cancer

• A 64-year-old man with extensive-stage small cell lung cancer – Dr Ibrahim

#### Module 4: Checkpoint Inhibition in the Management of Locally Advanced NSCLC

• A 65-year-old man with locally advanced adenocarcinoma of the lung – Dr Gubens



A 67-year-old former light smoker presents with symptomatic metastatic adenocarcinoma of the lung (PD-L1 level 50%). The patient requires urgent treatment but there is not enough tissue for NGS and the liquid biopsy is pending. How would you treat?

- 1. Pemetrexed/pembrolizumab/carboplatin
- 2. Pemetrexed
- 3. Other chemotherapy
- 4. Other checkpoint inhibitor
- 5. Other



## **Case Presentation — Dr Ibrahim: 67-year-old woman with metastatic adenocarcinoma of the lung**

67-year-old woman with a very light history of smoking in her 20's presents with progressive dyspnea. Initially treated with antibiotics as an outpatient with worsening symptoms. Eventually admitted to the hospital with worsening dyspnea. Becomes oxygen dependent. Because she has infiltrates on imaging and not a mass, a diagnosis of lung malignancy is not considered for a few days and she has a work-up for other things like vasculitis. Eventually imaging shows bone lesion and oncology is consulted in the hospital. Biopsy done and patient is discharged home on oxygen. Biopsy positive for metastatic pulmonary adenocarcinoma, but tissue is insufficient for NGS.

I have her come in for plasma based NGS. Suggest she hold off on treatment because of strong possibility of finding a driver mutation. She calls me one morning and says she is more symptomatic and cannot hold on anymore. I admit her to the hospital that day and get a therapeutic thoracentesis for her symptoms of dyspnea. I treat her with one dose of Carboplatin and Pemetrexed in the hospital. She feels better and is discharged home the next day. That afternoon the plasma based NGS comes back showing the EGFR L858R mutation, and the next week she is started on osimertinib.



Sulfi Ibrahim, MD



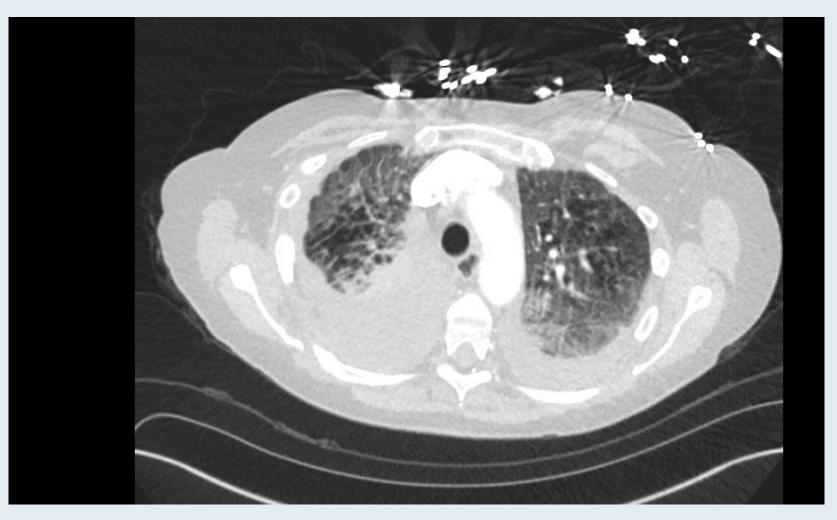
# Case Presentation — Dr Ibrahim: 67-year-old woman with metastatic adenocarcinoma of the lung (cont)

I had a virtual visit with her last week. She is tolerating Osimertinib well and reports she is now barely using her oxygen

Questions are regarding the management of a patient who needs treatment but does not have the time for the NGS to come back. Would you give her bevacizumab with the chemo given her pleural effusions and would you give her bevacizumab now with the osimertinib?

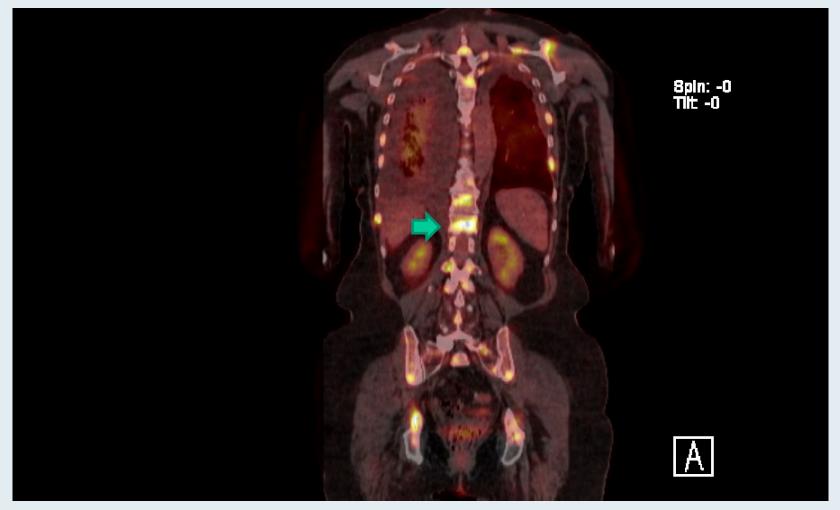


Case Presentation — Dr Ibrahim: 67-year-old woman with metastatic adenocarcinoma of the lung (cont) – CT scan showing left pleural effusion and infiltrates





Case Presentation — Dr Ibrahim: 67-year-old woman with metastatic adenocarcinoma of the lung (cont) – PET CT with bone lesion





# Case Presentation — Dr Ibrahim: 67-year-old woman with metastatic adenocarcinoma of the lung (cont) – Plasma NGS

BIOMARKER FINDINGS	ACTIONABILITY			
MSI Status Undetermined	- A - F - B		-	
GENOMIC FINDINGS	MAF %	THERAPIES WITH CLINICAL BENEFIT (IN PATIENT'S TUMOR TYPE)		THERAPIES WITH CLINICAL BENEF (IN OTHER TUMOR TYPE)
EGFR - L858R	2.0%	Afatinib	1	None
		Dacomitinib	1	
		Erlotinib	1	
		Gefitinib	1	
		Osimertinib	1	
10 Trials see p. 12				



Regulatory and reimbursement issues aside, which adjuvant systemic therapy would you generally recommend for a patient with <u>Stage IIB</u> nonsquamous NSCLC and an EGFR exon 19 deletion?

- 1. Chemotherapy
- 2. Osimertinib
- 3. Chemotherapy followed by osimertinib
- 4. Other



For a patient with metastatic nonsquamous NSCLC with an EGFR exon 19 deletion and a PD-L1 TPS of 60% who receives first-line osimertinib with response followed by disease progression, would you recommend repeat mutation testing? What treatment would you recommend if no further actionable mutations were identified?

	Recommend repeat testing?	Second-line treatment
JOHN V HEYMACH, MD, PHD	Yes, tissue	Atezo/carbo/paclitaxel + bev
LEORA HORN, MD, MSC	Yes, liquid; if negative, tissue	Carbo/pemetrexed
COREY J LANGER, MD	Yes, liquid and tissue	Continue osimertinib, add carbo/pemetrexed/bev*
BENJAMIN LEVY, MD	Yes, liquid and tissue	Atezo/carbo/paclitaxel + bev
JOEL W NEAL, MD, PHD	Yes, tissue	Pembro/carbo/pemetrexed or Atezo/carbo/paclitaxel + bev
NATHAN A PENNELL, MD, PHD	Yes, tissue	Pembro/carbo/pemetrexed
DAVID R SPIGEL, MD	Yes, liquid	Continue osimertinib, add carbo/pemetrexed

Atezo = atezolizumab; carbo = carboplatin; bev = bevacizumab; pembro = pembrolizumab

\* Atezo/carbo/paclitaxel + bev if very symptomatic



# **Key Data Sets**



# Osimertinib as Adjuvant Therapy in Patients (pts) with Stage IB–IIIA EGFR Mutation Positive (EGFRm) NSCLC After Complete Tumor Resection: ADAURA

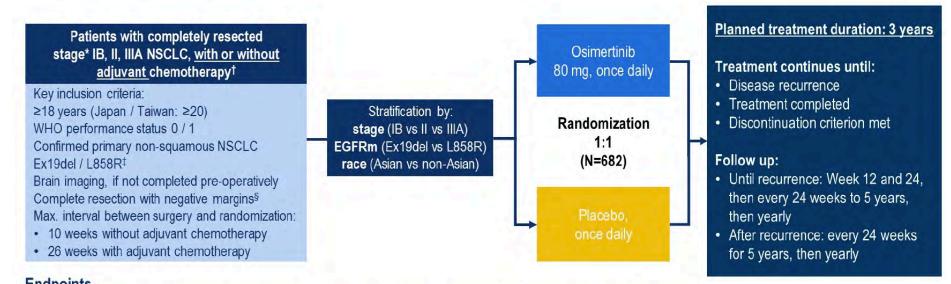
Herbst RS et al. ASCO 2020;Abstract LBA5.

#### **Discussion of LBA5**

Discussant: David R Spigel, MD, FASCO | Sarah Cannon Research Institute



# **ADAURA Phase III Trial Schema**



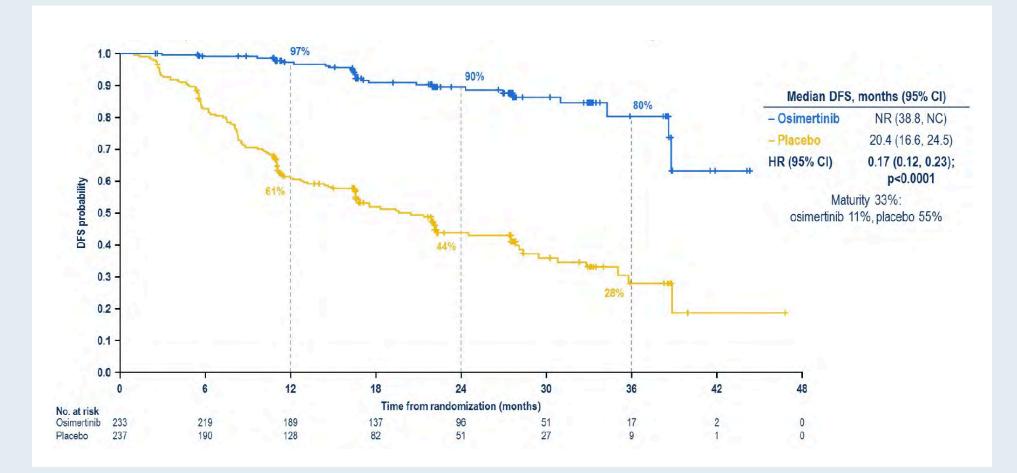
- Endpoints
- Primary: DFS, by investigator assessment, in stage II/IIIA patients; designed for superiority under the assumed DFS HR of 0.70
- Secondary: DFS in the overall population<sup>¶</sup>, DFS at 2, 3, 4, and 5 years, OS, safety, health-related quality of life

• Following IDMC recommendation, the study was unblinded early due to efficacy; here we report an unplanned interim analysis

At the time of unblinding the study had completed enrollment and all patients were followed up for at least 1 year

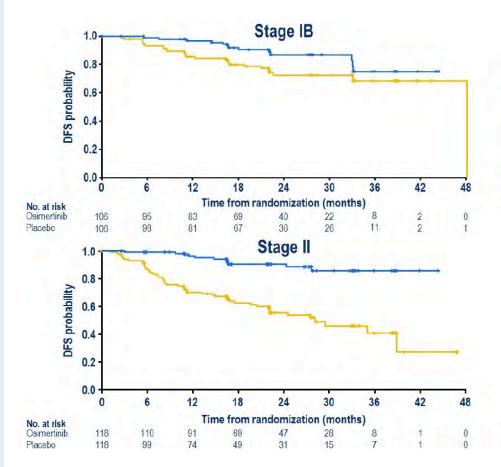


# ADAURA Primary Endpoint: Inv-Assessed DFS (Stage II/IIIA)

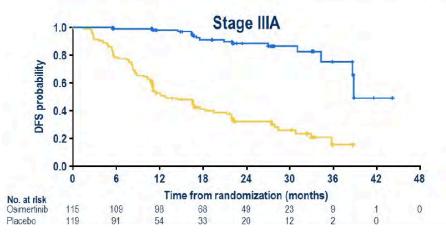




#### **ADAURA: DFS by Stage**

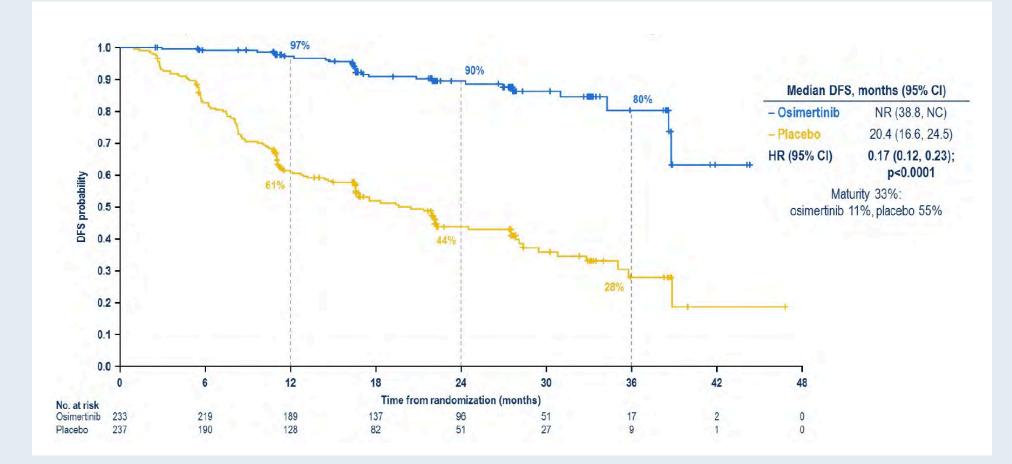


	Stage IB	Stage II	Stage IIIA	
2 year DFS rate, % (95% CI)		. and	3.7	
- Osimertinib	87 (77, 93)	91 (82, 95)	88 (79, 94)	
- Placebo	73 (62, 81)	56 (45, 65)	32 (23, 42)	
Overall HR (95% CI)	0.50 (0.25, 0.96)	0.17 (0.08, 0.31)	0.12 (0.07, 0.20)	



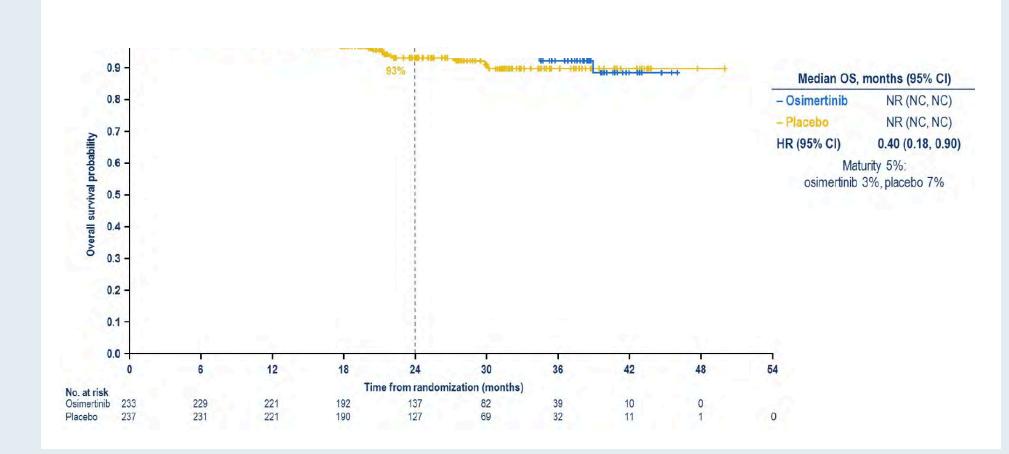


# ADAURA Secondary Endpoint: Inv-Assessed DFS in the Overall Population (Stage IB/II/IIIA)





# **ADAURA: Early Snapshot of OS (Stage II/IIIA)**





# **ADAURA: Safety Summary**

AE, any cause*, n (%)	Osimertinib (n=336)	Placebo (n=343)
Any AE	327 (97)	306 (89)
Any AE Grade ≥3	68 (20)	48 (14)
Any AE leading to death	0	1 (<1)
Any serious AE	54 (16)	44 (13)
Any AE leading to discontinuation	38 (11)	15 (4)
Any AE leading to dose reduction	25 (7)	2 (1)
AE, possibly causally related <sup>†</sup> , n (%)		
Any AE	303 (90)	190 (55)
Any AE Grade ≥3	32 (10)	9 (3)
Any AE leading to death	0	0
Any serious AE	9 (3)	2 (1)



Phase II Randomized Trial of Carboplatin + Pemetrexed + Bevacizumab, +/- Atezolizumab in Stage IV Non-Squamous Non-Small Lung Cancer (NSCLC) Patients who Harbor a Sensitizing EGFR Mutation or Have Never Smoked

Bodor JN et al. ASCO 2020;Abstract TPS9629.



#### **Meet The Professor with Dr Horn**

#### Module 1: Management of Metastatic NSCLC with an EGFR Tumor Mutation

• A 67-year-old woman with metastatic adenocarcinoma of the lung – Dr Ibrahim

#### Module 2: Anti-PD-1/PD-L1 Antibodies Alone or in Combinations for Metastatic NSCLC

- A 59-year-old man with metastatic squamous cell carcinoma of the lung Dr Morganstein
- A 72-year-old man with metastatic adenocarcinoma of the lung Dr Morganstein

#### Module 3: First-Line Treatment of Extensive-Stage Small Cell Lung Cancer

• A 64-year-old man with extensive-stage small cell lung cancer – Dr Ibrahim

#### Module 4: Checkpoint Inhibition in the Management of Locally Advanced NSCLC

• A 65-year-old man with locally advanced adenocarcinoma of the lung – Dr Gubens



# Case Presentation — Dr Morganstein: A 59-year-old man with metastatic squamous cell carcinoma of the lung

- Locally advanced squamous cell cancer and solitary metastasis to abdominal wall, which was resected
- NGS: KRAS G12C mutation, PD-L1: 10%
- Carboplatin/*nab* paclitaxel/pembrolizumab, with excellent response
- Currently on pembrolizumab maintenance

#### Questions

- In limited-stage metastatic disease or metastatic Stage IV NED, is there any role for thoracic radiation as a consolidative measure?
- Where do we fit in first-line VEGF therapy? Is anybody using 4-drug therapy in the first-line setting?
- What does the KRAS G12C mutation mean? How often is that seen in clinical practice? Is there a prognostic significance to that? When AMG 510 comes out, where would that get sequenced?



Neil Morganstein, MD



Would you offer a checkpoint inhibitor to a patient with metastatic NSCLC who had undergone a liver transplant in the past and had exhausted all treatment options?

1. Yes

2. No



# Case Presentation — Dr Morganstein: A 72-year-old man with metastatic adenocarcinoma of the lung

- History of liver transplant 15 years ago
- Presented with stage IV adenocarcinoma with pleural and bone disease
- PD-L1: 80%
- NGS on tissue was normal
- Liquid biopsy: BRAF V600E at 0.2%
- Currently doing well on carboplatin and pemetrexed, with a plan for maintenance pemetrexed

#### Questions

- How do you deal with discordance between liquid biopsy and tissue NGS?
- How to interpret the percent positive on liquid biopsy?
- What is the role of BRAF inhibitor in first-line treatment and later lines?
- If he is running out of options is immunotherapy out of the question?



Neil Morganstein, MD



Which first-line treatment regimen would you recommend for a patient with metastatic <u>nonsquamous lung cancer</u>, no identified targetable mutations and a PD-L1 TPS of 10%? Of 60%?

	TPS o	f 10%	TPS of	60%
	Age 65	Age 80	Age 65	Age 80
JOHN V HEYMACH, MD, PHD	Pembro/carbo/pem	Pembro	Pembro	Pembro
LEORA HORN, MD, MSC	Pembro/carbo/pem	Pembro or hospice	Pembro	Pembro
COREY J LANGER, MD	Pembro/carbo/pem	Pembro	Pembro*	Pembro
BENJAMIN LEVY, MD	Pembro/carbo/pem	Pembro	Pembro	Pembro
JOEL W NEAL, MD, PHD	Pembro/carbo/pem	Pembro	Pembro +/- carbo/pem	Pembro
NATHAN A PENNELL, MD, PHD	Pembro/carbo/pem	Pembro/carbo/pem <sup>+</sup>	Pembro	Pembro
DAVID R SPIGEL, MD	Pembro/carbo/pem	Pembro/carbo/pem	Pembro	Pembro

Pem = pemetrexed

\* If very symptomatic, pembro/carbo/pem; <sup>+</sup> Likely dose-reduced chemotherapy



Which first-line treatment regimen would you recommend for a patient with metastatic squamous lung cancer, no identified targetable mutations and a PD-L1 TPS of 10%? Of 60%?

	TPS o	f 10%	TPS of 60%	
	Age 65	Age 80	Age 65	Age 80
JOHN V HEYMACH, MD, PHD	Pembro/carbo/ nab-P	Pembro	Pembro	Pembro
LEORA HORN, MD, MSC	Pembro/carbo/ nab-P	Pembro/carbo/ <i>nab</i> -P	Pembro	Pembro
COREY J LANGER, MD	Pembro/carbo/ <i>nab</i> -P	Pembro/carbo/ <i>nab</i> -P	Pembro	Pembro
BENJAMIN LEVY, MD	Pembro/carbo/ nab-P	Pembro/carbo/P	Pembro	Pembro
JOEL W NEAL, MD, PHD	Pembro/carbo/ nab-P or P	Pembro/carbo/ <i>nab</i> -P	Pembro +/- carbo/ <i>nab</i> -P or P	Pembro+/- carbo/ nab-P
NATHAN A PENNELL, MD, PHD	Pembro/carbo/ <i>nab</i> -P	Pembro/carbo/P	Pembro	Pembro
DAVID R SPIGEL, MD	Pembro/carbo/ <i>nab</i> -P	Pembro/carbo/ <i>nab</i> -P	Pembro	Pembro

*Nab*-P = nanoparticle albumin-bound paclitaxel; P = paclitaxel



How long would you continue treatment for a patient with metastatic NSCLC who is receiving an anti-PD-1/PD-L1 antibody and at first evaluation is tolerating it well and has a...

	Complete clinical response	Partial clinical response
JOHN V HEYMACH, MD, PHD	2 years	Indefinitely or until PD/toxicity
LEORA HORN, MD, MSC	2 years	2 years
COREY J LANGER, MD	2 years (min)	2 years (min)
BENJAMIN LEVY, MD	Indefinitely or until PD/toxicity	Indefinitely or until PD/toxicity
JOEL W NEAL, MD, PHD	2 years	2 years
NATHAN A PENNELL, MD, PHD	2 years	2 years
DAVID R SPIGEL, MD	Likely 2 years but CR duration dependent	Indefinitely or until PD/toxicity



PD = progressive disease

# **Key Data Sets**



### FDA-Approved Immunotherapy Options for the First-Line Treatment of Metastatic NSCLC

Combination regimen	FDA approval	Pivotal study	Histologic type	HR (OS)
Pembrolizumab + Platinum and pemetrexed <sup>1</sup>	8/20/18	KEYNOTE-189	Nonsquamous	0.49
Pembrolizumab + Carboplatin, paclitaxel or <i>nab</i> paclitaxel <sup>2</sup>	10/30/18	KEYNOTE-407	Squamous	0.64
Atezolizumab + Carboplatin and paclitaxel and bevacizumab <sup>3</sup>	12/6/18	IMpower150	Nonsquamous	0.78
Atezolizumab + Carboplatin and <i>nab</i> paclitaxel <sup>4</sup>	12/3/19	IMpower130	Nonsquamous	0.79
Nivolumab + Ipilimumab <sup>5</sup>	5/15/20	CheckMate-227	PD-L1 TPS≥1, EGFR and/or ALK <i>wt</i>	0.62
Nivolumab + Ipilimumab and chemotherapy <sup>6</sup>	5/26/20	CheckMate-9LA	EGFR and/or ALK wt	0.69
Monotherapy	FDA approval	Pivotal study	Histologic type	HR (OS)
Pembrolizumab <sup>7,8</sup>	4/11/19 10/24/16	KEYNOTE-042 KEYNOTE-024	PD-L1 TPS≥1%	0.63
Atezolizumab <sup>9</sup>	5/18/20	IMpower110	PD-L1 TPS≥50, EGFR and/or ALK <i>wt</i>	0.59

<sup>1</sup> Gandhi L et al. *NEJM* 2018;378(22):2078-92. <sup>2</sup> Paz-Ares L et al. *NEJM* 2018;379(21):2040-51.

<sup>3</sup> Socinski MA et al. *NEJM* 2018;378(24):2288-301. <sup>4</sup> West H et al. *Lancet Oncol* 2019;20(7):924-37.

<sup>5</sup> Hellmann MD et al. *N Engl J Med* 2019;381(21):2020-31. <sup>6</sup> Reck M et al. ASCO 2020;Abstract 9501.

<sup>7</sup> Mok TSK et al. *Lancet* 2019;393(10183):1819-30. <sup>8</sup> Reck M et al. *J Clin Oncol* 2019;37(7):537-46.

<sup>9</sup> Spigel DR et al. ESMO 2019; Abstract LBA78



#### FDA approves nivolumab with ipilimumab for first-line mNSCLC (PD-L1 tumor expression ≥1%) Press Release — May 15, 2020

The Food and Drug Administration approved the combination of nivolumab plus ipilimumab as first-line treatment for patients with metastatic non-small cell lung cancer whose tumors express PD-L1(≥1%), as determined by an FDA-approved test, with no epidermal growth factor receptor (EGFR) or anaplastic lymphoma kinase (ALK) genomic tumor aberrations.

Efficacy was investigated in CHECKMATE-227 (NCT02477826), a randomized, open-label, multi-part trial in patients with metastatic or recurrent NSCLC and no prior anticancer therapy. In Part 1a of the trial, 793 patients with PD-L1 tumor expression ≥1% were randomized to receive either the combination of nivolumab plus with ipilimumab (n=396) or platinum-doublet chemotherapy (n=397).

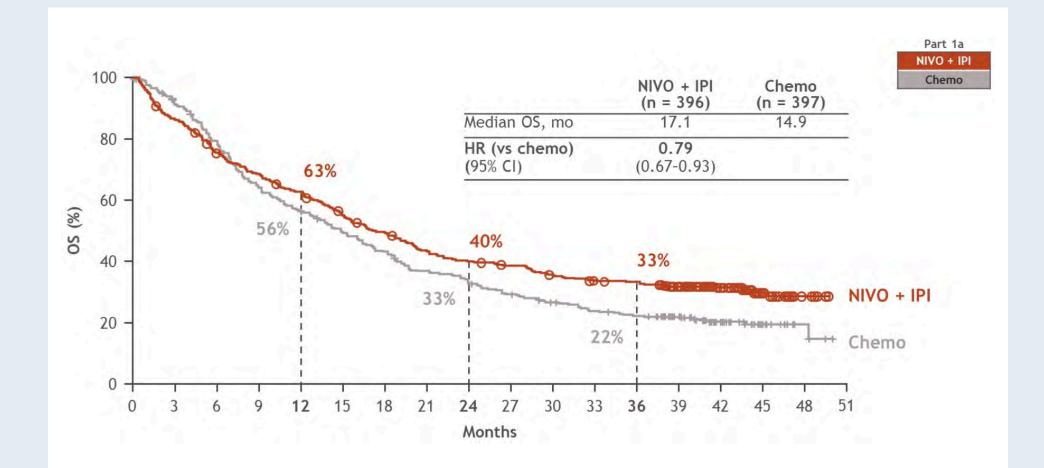


# Nivolumab + Ipilimumab versus Platinum-Doublet Chemotherapy as First-Line Treatment for Advanced Non-Small Cell Lung Cancer: Three-Year Update from CheckMate 227 Part 1

Ramalingam SS et al. ASCO 2020;Abstract 9500.



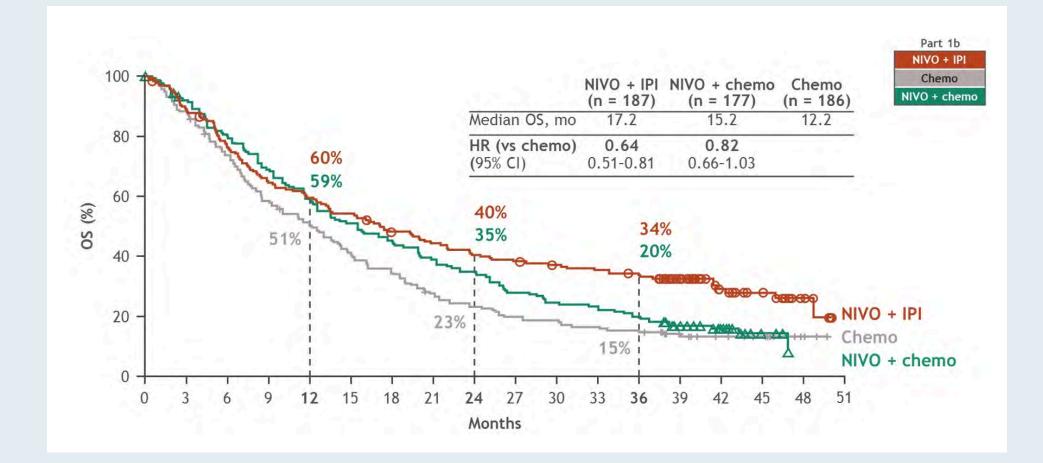
# 3-Year Update: OS with IPI + Nivo vs Chemo (PD-L1 ≥ 1%)





Ramalingam SS et al. ASCO 2020; Abstract 9500.

# 3-Year Update: OS with IPI + Nivo vs Chemo vs Nivo + Chemo (PD-L1 < 1%)





Ramalingam SS et al. ASCO 2020; Abstract 9500.

## Landmark Analysis of OS by Response Status at 6 Months with PD-L1 ≥ 1% (IPI + Nivo vs Chemo)

	lpi + Nivo (n = 295) versus Chemo (n = 306)				
Response status	Response at 6 mo	1-yr OS rate	2-yr OS rate	3-yr OS rate	
CR or PR	39% vs 25%	90% vs 73%	76% vs 51%	70% vs 39%	
SD	14% vs 18%	69% vs 54%	45% vs 38%	34% vs 33%	
PD	46% vs 58%	44% vs 47%	22% vs 25%	19% vs 17%	



Ramalingam SS et al. ASCO 2020; Abstract 9500.

# **CheckMate 227: Treatment-Related AEs**

	Nivo/Ipi (n = 576)		Chemo (	n = 570)
Select AE	Any grade	Grade 3-4	Any grade	Grade 3-4
Diarrhea	17.0%	1.7%	9.6%	0.7%
Rash	17.0%	1.6%	5.3%	0
Fatigue	14.4%	1.7%	18.9%	1.4%
Decreased appetite	13.2%	0.7%	19.6%	1.2%
Nausea	9.9%	0.5%	36.1%	2.1%
Anemia	3.8%	1.4%	33.0%	11.6%
Neutropenia	0.2%	0	17.2%	9.5%

- Treatment-related serious AEs (any grade): 24.5% (Nivo/Ipi) vs 13.9% (chemo)
- Treatment-related AEs leading to discontinuation (any grade): 18.1% (Nivo/Ipi) vs 9.1% (chemo)
- Treatment-related **death (any grade)**: 1.4% (Nivo/Ipi) vs 1.1% (chemo)



Hellmann MD et al. N Engl J Med 2019;381(21):2020-31.

#### FDA approves nivolumab with ipilimumab and chemotherapy for first-line treatment of metastatic NSCLC Press Release — May 26, 2020

The Food and Drug Administration approved the combination of nivolumab plus ipilimumab and 2 cycles of platinum-doublet chemotherapy as first-line treatment for patients with metastatic or recurrent non-small cell lung cancer (NSCLC), with no epidermal growth factor receptor (EGFR) or anaplastic lymphoma kinase (ALK) genomic tumor aberrations.

Efficacy was investigated in CHECKMATE-9LA (NCT03215706), a randomized, open-label trial in patients with metastatic or recurrent NSCLC. Patients were randomized to receive either the combination of nivolumab plus ipilimumab and 2 cycles of platinum-doublet chemotherapy (n=361) or platinum-doublet chemotherapy for 4 cycles (n=358).

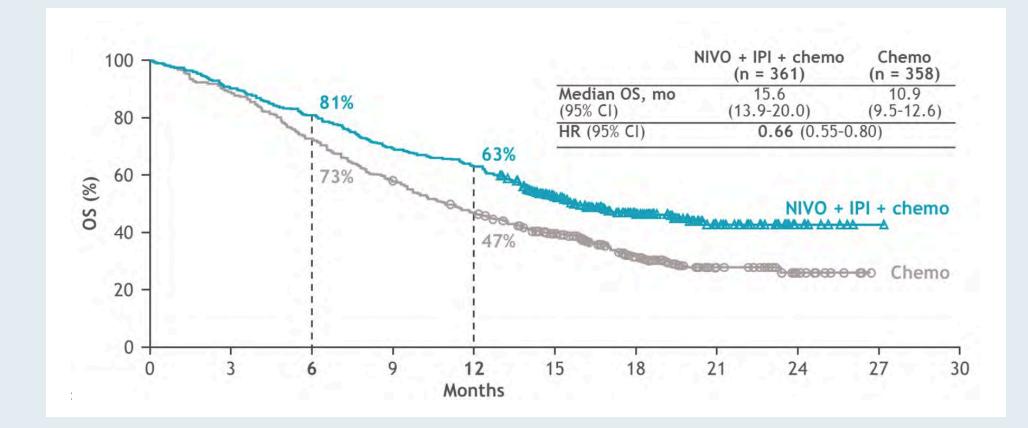


Nivolumab (NIVO) + Ipilimumab (IPI) + 2 Cycles of Platinum-Doublet Chemotherapy (Chemo) vs 4 Cycles Chemo as First-Line (1L) Treatment (tx) for Stage IV/Recurrent Non-Small Cell Lung Cancer (NSCLC): CheckMate 9LA

Reck M et al. ASCO 2020;Abstract 9501.



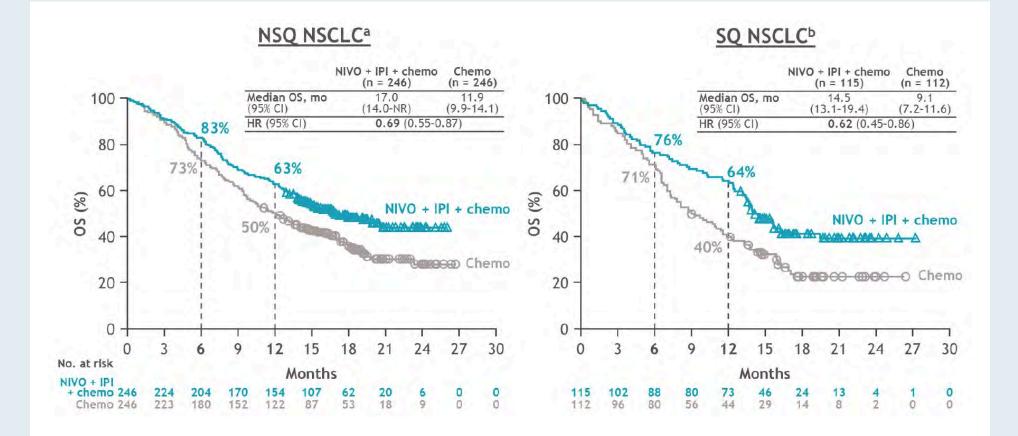
### **CheckMate 9LA: Updated OS**





Reck M et al. ASCO 2020; Abstract 9501.

#### **CheckMate 9LA: Updated OS by Histology**





Reck M et al. ASCO 2020; Abstract 9501.

### **CheckMate 9LA: Safety Summary**

	NIVO + IPI + chemo (n = 358)		Chemo (n = 349)	
TRAE,ª %	Any grade	Grade 3-4	Any grade	Grade 3-4
Any TRAE	92	47	88	38
TRAEs leading to discontinuation of any component of the regimen	19	16	7	5
Serious TRAEs	30	25.4	18	15
Treatment-related deaths <sup>b</sup>		2		2

- Median (range) duration of therapy was 6.1 (0-23.5) months and 2.4 (0-24.0) months for NIVO + IPI + chemo versus chemo, respectively
- Most common any-grade TRAEs (≥ 15%) were nausea, anemia, asthenia and diarrhea



#### **Meet The Professor with Dr Horn**

#### Module 1: Management of Metastatic NSCLC with an EGFR Tumor Mutation

• A 67-year-old woman with metastatic adenocarcinoma of the lung – Dr Ibrahim

#### Module 2: Anti-PD-1/PD-L1 Antibodies Alone or in Combinations for Metastatic NSCLC

- A 59-year-old man with metastatic squamous cell carcinoma of the lung Dr Morganstein
- A 72-year-old man with metastatic adenocarcinoma of the lung Dr Morganstein

#### Module 3: First-Line Treatment of Extensive-Stage Small Cell Lung Cancer

• A 64-year-old man with extensive-stage small cell lung cancer – Dr Ibrahim

#### Module 4: Checkpoint Inhibition in the Management of Locally Advanced NSCLC

• A 65-year-old man with locally advanced adenocarcinoma of the lung – Dr Gubens



# Case Presentation — Dr Ibrahim: A 64-year-old man with extensive-stage small cell lung cancer

64-year-old gentleman who presented with symptoms of dyspnea and a palpable left supraclavicular lymph node. Biopsy of supraclavicular node consistent with metastatic small cell lung cancer. Also found to have a left adrenal lesion on PET scan that is hypermetabolic

Started on the IMpower 133 regimen of Carboplatin, Etoposide and Atezolizumab for extensive stage small cell lung cancer. Has good improvement in symptoms with four cycles of therapy, and follow-up imaging shows a good response to therapy. Has prophylactic cranial radiation and is on maintenance Atezolizumab for about four months when he develops disease progression in the mediastinum and adrenal gland

Gets second and third line therapy with weekly Paclitaxel and Topotecan with no response

Was started Lurbinectedin three weeks ago. I got it for him on an expanded access program just prior to FDA approval. Has had one cycle with no toxicity issues that he has called us about

#### **Questions:**

• Is Lurbinectedin now the second line therapy for small cell? Any specific toxicity concerns? Further directions in the development of this agent?



Sulfi Ibrahim, MD

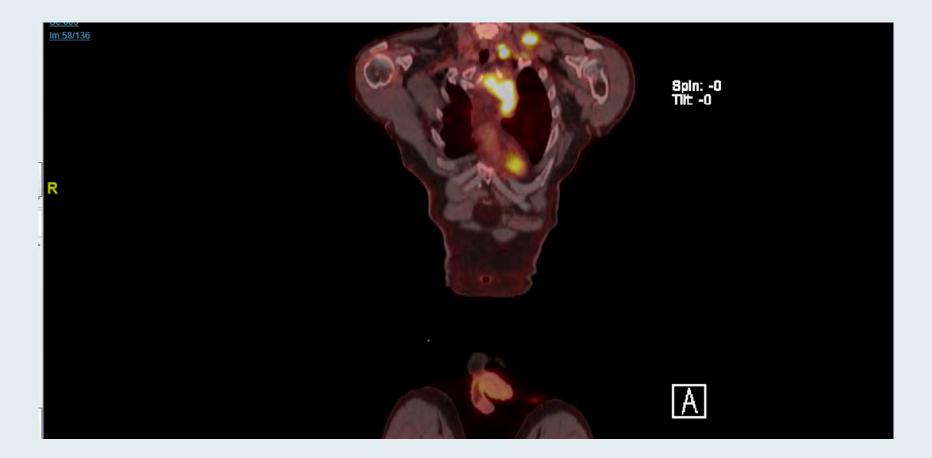


# Case Presentation — Dr Ibrahim: A 64-year-old man with extensive-stage small cell lung cancer (cont) – Large left lung mass





Case Presentation — Dr Ibrahim: A 64-year-old man with extensivestage small cell lung cancer (cont) – Large left lung mass and supraclavicular adenopathy





What is your preferred second-line treatment for a patient with extensive-stage small cell cancer of the lung with metastases and disease progression on chemotherapy/atezolizumab?

- 1. Topotecan or irinotecan
- 2. Lurbinectedin
- 3. Nivolumab/ipilimumab
- 4. Pembrolizumab
- 5. Nivolumab
- 6. Other



Regulatory and reimbursement issues aside, what would be your preferred first-line treatment regimen for a patient with extensive-stage SCLC?

	Age 65	Age 80
JOHN V HEYMACH, MD, PHD	Carbo/etoposide + atezolizumab	Carbo/etoposide + atezolizumab
LEORA HORN, MD, MSC	Carbo/etoposide + atezolizumab	Carbo/etoposide + atezolizumab
COREY J LANGER, MD	Carbo/etoposide + atezolizumab or durvalumab	Carbo/etoposide + durvalumab
BENJAMIN LEVY, MD	Carbo/etoposide + atezolizumab	Carbo/etoposide + atezolizumab
JOEL W NEAL, MD, PHD	Carbo/etoposide + atezolizumab	Carbo/etoposide + atezolizumab or durvalumab
NATHAN A PENNELL, MD, PHD	Carbo/etoposide + atezolizumab	Carbo/etoposide + atezolizumab
DAVID R SPIGEL, MD	Carbo/etoposide + durvalumab	Carbo/etoposide + durvalumab



Regulatory and reimbursement issues aside, what would be your preferred first-line treatment regimen for a 65-year-old patient with extensive-stage SCLC and neurologic paraneoplastic syndrome causing moderate to severe proximal myopathy?

JOHN V HEYMACH, MD, PHD	Carboplatin/etoposide		
LEORA HORN, MD, MSC	Carboplatin/etoposide		
COREY J LANGER, MD	Carboplatin/etoposide + atezolizumab or durvalumab		
BENJAMIN LEVY, MD	Carboplatin/etoposide		
JOEL W NEAL, MD, PHD	Carboplatin/etoposide + atezolizumab or durvalumab		
NATHAN A PENNELL, MD, PHD	Carboplatin/etoposide		
DAVID R SPIGEL, MD	Carboplatin/etoposide + durvalumab		



Regulatory and reimbursement issues aside, what would be your preferred first-line treatment for a 65-year-old patient with extensive-stage SCLC and symptomatic SIADH, in addition to standard treatment for SIADH?

JOHN V HEYMACH, MD, PHD	Carboplatin/etoposide + atezolizumab or durvalumab
LEORA HORN, MD, MSC	Carboplatin/etoposide/atezolizumab
COREY J LANGER, MD	Carboplatin/etoposide + atezolizumab or durvalumab
BENJAMIN LEVY, MD	Carboplatin/etoposide/atezolizumab
JOEL W NEAL, MD, PHD	Carboplatin/etoposide + atezolizumab or durvalumab
NATHAN A PENNELL, MD, PHD	Carboplatin/etoposide/atezolizumab
DAVID R SPIGEL, MD	Carboplatin/etoposide + durvalumab

SIADH = syndrome of inappropriate antidiuretic hormone secretion



### **Key Data Sets**



#### Accelerated Approval of Lurbinectedin for Metastatic SCLC Press Release – June 15, 2020

"On June 15, 2020, the Food and Drug Administration granted accelerated approval to lurbinectedin for adult patients with metastatic small cell lung cancer (SCLC) with disease progression on or after platinum-based chemotherapy.

Efficacy was demonstrated in the PM1183-B-005-14 trial (Study B-005; NCT02454972), a multicenter open-label, multi-cohort study enrolling 105 patients with metastatic SCLC who had disease progression on or after platinum-based chemotherapy. Patients received lurbinectedin 3.2 mg/m<sup>2</sup> by intravenous infusion every 21 days until disease progression or unacceptable toxicity.

The recommended lurbinected in dose is 3.2 mg/m<sup>2</sup> every 21 days."



Randomized Phase II Clinical Trial of Cisplatin/Carboplatin and Etoposide (CE) Alone or in Combination with Nivolumab as Frontline Therapy for Extensive-Stage Small Cell Lung Cancer (ES-SCLC): ECOG-ACRIN EA5161

Leal T et al. ASCO 2020;Abstract 9000.



#### **KEYNOTE-604:** Pembrolizumab (Pembro) or Placebo Plus Etoposide and Platinum (EP) as First-Line Therapy for Extensive-Stage (ES) Small-Cell Lung Cancer (SCLC)

Rudin CM et al. ASCO 2020;Abstract 9001.



### Durvalumab +/- Tremelimumab + Platinum-Etoposide in First-Line Extensive-Stage SCLC (ES-SCLC): Updated Results from the Phase III CASPIAN Study

Paz-Ares LG et al. ASCO 2020;Abstract 9002.



#### **Meet The Professor with Dr Horn**

#### Module 1: Management of Metastatic NSCLC with an EGFR Tumor Mutation

• A 67-year-old woman with metastatic adenocarcinoma of the lung – Dr Ibrahim

#### Module 2: Anti-PD-1/PD-L1 Antibodies Alone or in Combinations for Metastatic NSCLC

- A 59-year-old man with metastatic squamous cell carcinoma of the lung Dr Morganstein
- A 72-year-old man with metastatic adenocarcinoma of the lung Dr Morganstein

#### Module 3: First-Line Treatment of Extensive-Stage Small Cell Lung Cancer

• A 64-year-old man with extensive-stage small cell lung cancer – Dr Ibrahim

#### Module 4: Checkpoint Inhibition in the Management of Locally Advanced NSCLC

• A 65-year-old man with locally advanced adenocarcinoma of the lung – Dr Gubens



What additional treatment, if any, would you recommend to a patient who had just completed chemoradiation therapy for unresectable Stage IIIB adenocarcinoma and had an ALK fusion mutation?

- 1. None
- 2. Durvalumab
- 3. Durvalumab followed by an ALK inhibitor
- 4. Durvalumab + ALK inhibitor
- 5. ALK inhibitor



# Case Presentation — Dr Gubens: A 65-year-old man with a modest smoking history and locally advanced adenocarcinoma of the lung

- Stage III adenocarcinoma of the lung, with multi-station mediastinal nodes involved; No distant disease
- Chemoradiation, with response
- Molecular profiling: ALK fusion alteration
- Consolidation durvalumab x 1 year
- Currently, under surveillance



Matthew Gubens, MD, MS



Should PD-L1 levels generally be tested in patients with locally advanced NSCLC? In general, do you recommend durvalumab as consolidation treatment for patients with locally advanced NSCLC who have no disease progression after chemoradiation therapy?

		Recommend consolidation durvalumab?		
	Test for PD-L1?	<b>PD-L1</b> ≤1%	EGFR mutation	ALK rearrangement
JOHN V HEYMACH, MD, PHD	No	Yes	Yes	Yes
LEORA HORN, MD, MSC	No	Yes	No	No
COREY J LANGER, MD	Yes	Yes	Yes	Yes
BENJAMIN LEVY, MD	Yes	Yes	Yes	Yes
JOEL W NEAL, MD, PHD	Yes	Yes	Yes	No
NATHAN A PENNELL, MD, PHD	No	Yes	Yes	Yes
DAVID R SPIGEL, MD	No	Yes	Yes	Yes



A patient who successfully received chemoradiation therapy for locally advanced NSCLC is about to start durvalumab. Pretreatment imaging shows changes consistent with radiation effect. Would you use durvalumab?

In general, would you recommend consolidation durvalumab for similar patients who are experiencing mild esophagitis or mildly symptomatic pneumonitis?

	Radiation effect	Mild esophagitis	Mildly symptomatic pneumonia
JOHN V HEYMACH, MD, PHD	Yes	Yes	Νο
LEORA HORN, MD, MSC	Yes	Yes	No, wait until improvement
COREY J LANGER, MD	Yes	Yes	Yes*
BENJAMIN LEVY, MD	Yes	Yes	Yes
JOEL W NEAL, MD, PHD	Yes	Yes	Yes
NATHAN A PENNELL, MD, PHD	Yes	Yes	Νο
DAVID R SPIGEL, MD	Yes	Yes	Yes

\* If Grade 1 and do not require steroids



### **Key Data Sets**



### **Real-World Rates of Pneumonitis After Consolidation Durvalumab**

Real-World Survey of Pneumonitis/Radiation Pneumonitis in LA-NSCLC After Approval of Durvalumab: HOPE-005/CRIMSON Retrospective Cohort Study

- >80% developed pneumonitis
- More than half of them were asymptomatic, but 5% needed HOT and 1.5% developed fatal pneumonitis
- V20 was an independent risk factor for symptomatic pneumonitis (Grade  $\geq$ 2)
- With careful consideration, durvalumab-rechallenge could be an option after corticosteroid therapy for pneumonitis

Incidence of Pneumonitis in US Veterans with NSCLC Receiving Durvalumab After Chemoradiation Therapy

- In this real-world cohort, clinical significant pneumonitis was:
  - More frequent compared to clinical trial reports
    - Asymptomatic infiltrates on imaging: 39.8%
    - Clinically significant pneumonitis: 21.1%
      - Grade 2 (7.3%), Grade 3 (11.4%), Grade 4 (1.6%), Grade 5 (0.8%)
  - Not associated with increased risk of death



Saito et al. ASCO 2020; Abstract 9039. Thomas T et al. ASCO 2020; Abstract 9034.

### Lorlatinib Significantly Improves Progression-Free Survival in First-Line ALK-Positive Lung Cancer

Press Release – August 5, 2020

The Phase 3 CROWN study of lorlatinib in people with previously untreated advanced anaplastic lymphoma kinase (ALK)-positive non-small cell lung cancer (NSCLC) met its primary endpoint by demonstrating significantly improved progression-free survival (PFS), as compared to crizotinib. The results were reviewed by an independent Data Monitoring Committee (DMC) at a planned interim analysis. The safety profile for lorlatinib and crizotinib were consistent with what has been previously seen in clinical trials.

CROWN is a Phase 3, randomized, open-label, parallel 2-arm study in which 296 people with previously untreated advanced ALK-positive NSCLC were randomized 1:1 to receive lorlatinib monotherapy or crizotinib monotherapy. The primary endpoint of the CROWN trial is PFS based on blinded independent central review (BICR). Secondary endpoints include overall survival, PFS based on investigator's assessment, objective response (OR) based on BICR and on investigator's assessment; intracranial OR (IC-OR), IC time to progression, duration of response (DR), IC-DR, time to tumor response (TTR), IC-TTR (all by BICR); PFS2 based on investigator's assessment, and safety.

https://investors.pfizer.com/investor-news/press-release-details/2020/LORBRENA-lorlatinib-Significantly-Improves-Progression-Free-Survival-in-First-Line-ALK-Positive-Lung-Cancer/default.aspx



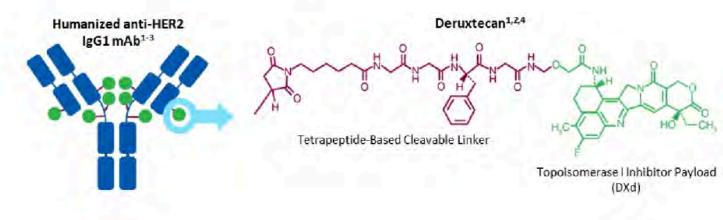
### Trastuzumab Deruxtecan (T-DXd; DS-8201) in Patients with HER2-Mutated Metastatic Non-Small Cell Lung Cancer (NSCLC): Interim Results of DESTINY-Lung01

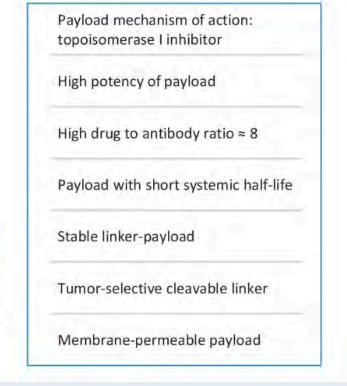


#### Antibody-Drug Conjugate Trastuzumab Deruxtecan

#### T-DXd is an ADC with 3 components:

- A humanized anti-HER2 IgG1 mAb with the same amino acid sequence as trastuzumab
- A topoisomerase I inhibitor payload, an exatecan derivative
- A tetrapeptide-based cleavable linker







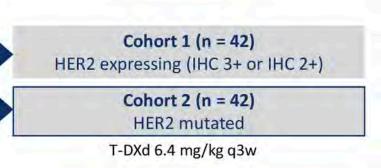
#### **DESTINY-Lung01: Phase II Study Design**

#### Patients

- Unresectable/metastatic nonsquamous NSCLC
- Relapsed/refractory to standard treatment
- HER2-expressing or HER2activating mutation<sup>a</sup>
- No prior HER2-targeted therapy, except pan-HER TKIs

#### **Primary endpoint**

Confirmed ORR by independent central review

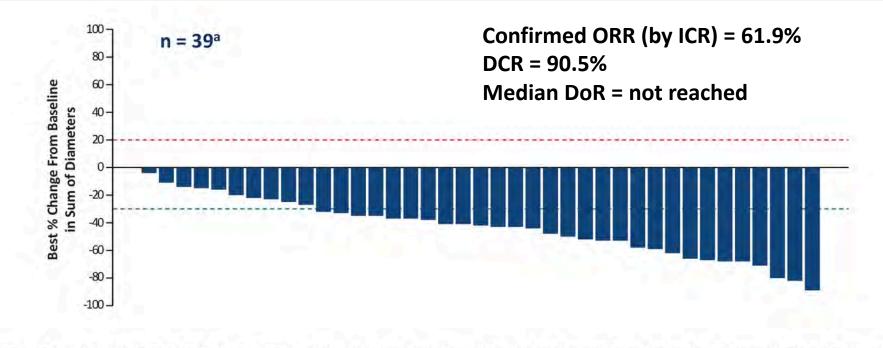


#### Data cutoff: November 25, 2019

- 45.2% of patients (19/42) in Cohort 2 remained on treatment
- 54.8% discontinued, primarily for progressive disease and adverse events (21.4% each)



#### **DESTINY-Lung01: Efficacy**

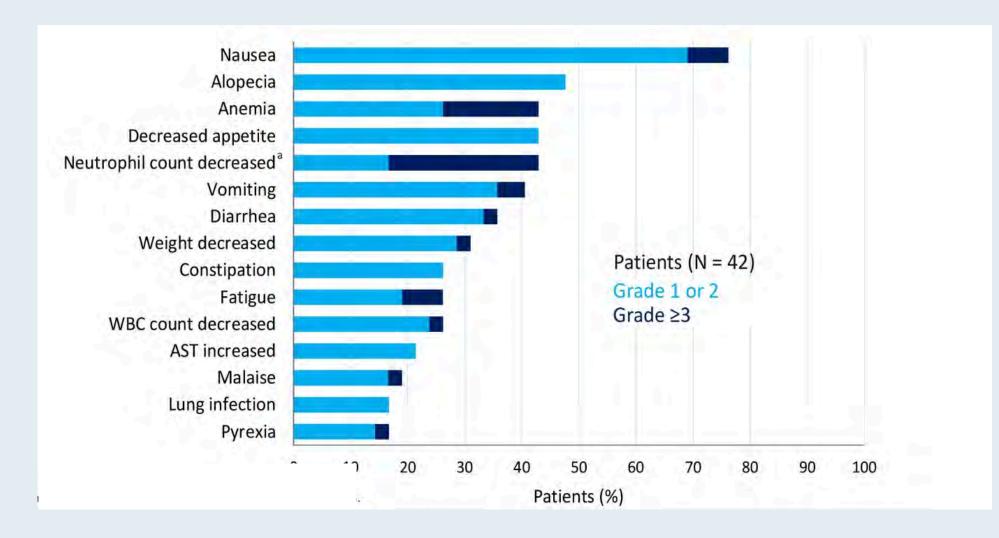


Based on independent central review. Baseline is last measurement taken before enrollment. Shown is best (minimum) percent change from baseline in the sum of diameters for all target lesions. <sup>a</sup> One patient was missing a baseline assessment and 2 additional patients were missing post-baseline assessments.

• Median PFS = 14.0 mos



#### **DESTINY-Lung01: Treatment-Emergent AEs**





#### **DESTINY-Lung01: AEs of Special Interest – Interstitial Lung Disease**

			All Pa	atients (N =	42)	
n (%)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Any Grade/ Total
Interstitial lung disease	0 <sup>a</sup>	5 (11.9)	0	0	0	5 (11.9)

- Median time to onset of investigator-reported ILD was at 86 days (range, 41-255 days)
- 4 patients had drug withdrawn and 1 had drug interrupted
- All patients received steroid treatment
- 2 patients recovered, 1 recovered with sequelae, 1 was recovering, and 1 had not recovered by data-cutoff
- No grade 5 ILD was observed in this cohort



Clinical Investigator Perspectives on the Current and Future Management of Multiple Myeloma A Meet The Professor Series

### Wednesday, August 19, 2020 12:00 PM – 1:00 PM ET

Faculty Noopur Raje, MD

Moderator Neil Love, MD



Co-provided by **USF**Health

## Thank you for joining us!

### CME and MOC credit information will be emailed to each participant within 5 days.

