Year in Review: Clinical Investigator **Perspectives on the Most Relevant New Data Sets** and Advances in Oncology **Immunotherapy and Other Nontargeted Approaches for Lung Cancer** Thursday, April 13, 2023 5:00 PM - 6:00 PM ET Faculty Luis Paz-Ares, MD, PhD Heather Wakelee, MD **Moderator** Neil Love, MD

## Faculty



#### Luis Paz-Ares, MD, PhD

Chair of the Medical Oncology Department at the Hospital Universitario 12 de Octubre Associate Professor at the Universidad Complutense Head of the Lung Cancer Unit at the National Oncology Research Center Madrid, Spain



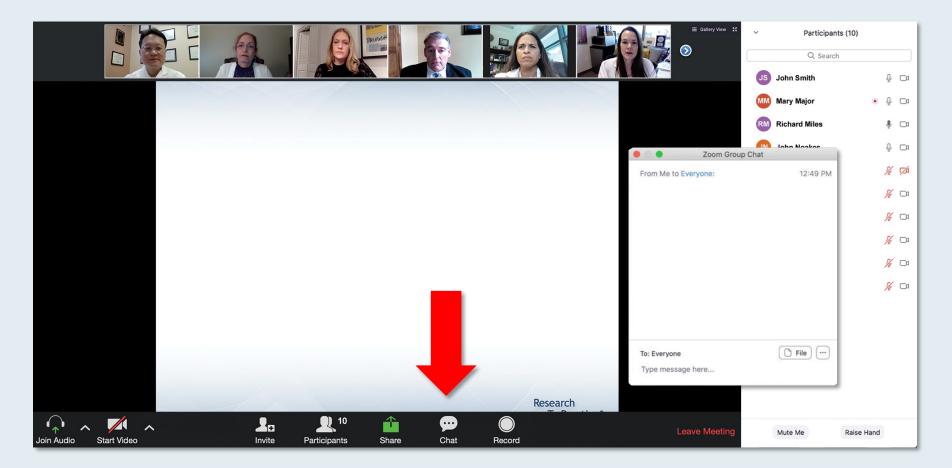
MODERATOR Neil Love, MD Research To Practice Miami, Florida



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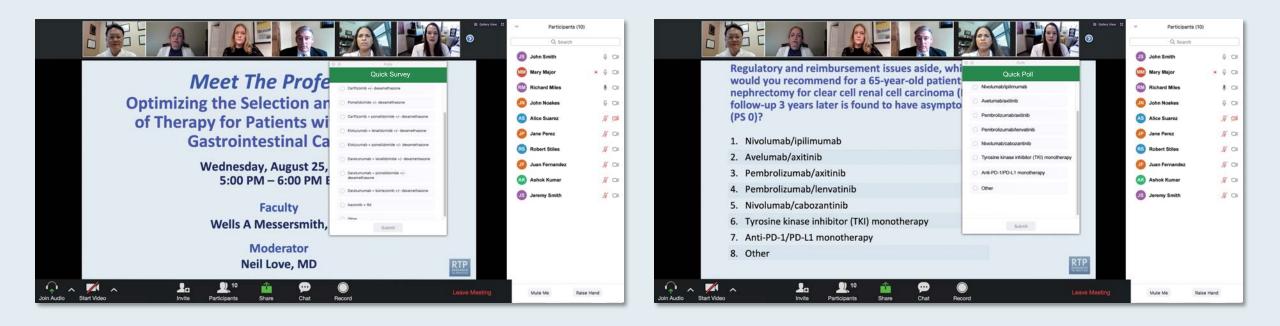
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## Management of Metastatic Non-Small Cell Lung Cancer without an Actionable Mutation



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Fifteenth Annual RTP Symposium Series Held During the Annual ONS Congress

#### Cervical and Endometrial Cancer

Wednesday, April 26, 2023 11:15 AM – 12:45 PM CT (12:15 PM – 1:45 PM ET) Faculty Paula J Anastasia, MN, RN, AOCN Michael J Birrer, MD, PhD Jennifer Filipi, MSN, NP Brian M Slomovitz, MD

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### **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 companies: AbbVie Inc, Adaptive Biotechnologies Corporation, ADC Therapeutics, Agios Pharmaceuticals Inc, Alexion Pharmaceuticals, Amgen Inc, Array BioPharma Inc, a subsidiary of Pfizer Inc, Astellas, AstraZeneca Pharmaceuticals LP, Aveo Pharmaceuticals, Bayer HealthCare Pharmaceuticals, BeiGene Ltd, BeyondSpring Pharmaceuticals Inc, Blueprint Medicines, Boehringer Ingelheim Pharmaceuticals Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, Coherus BioSciences, CTI BioPharma Corp, Daiichi Sankyo Inc, Eisai Inc, Elevation Oncology Inc, EMD Serono Inc, Epizyme Inc, Exact Sciences Corporation, Exelixis Inc, Five Prime Therapeutics Inc, Foundation Medicine, G1 Therapeutics Inc, Genentech, a member of the Roche Group, Genmab US Inc, Gilead Sciences Inc, Grail Inc, GSK, Halozyme Inc, Helsinn Healthcare SA, ImmunoGen Inc, Incyte Corporation, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Karyopharm Therapeutics, Kite, A Gilead Company, Kronos Bio Inc, Lilly, Loxo Oncology Inc, a wholly owned subsidiary of Eli Lilly & Company, MEI Pharma Inc, Merck, Mersana Therapeutics Inc, Mirati Therapeutics Inc, Natera Inc, Novartis, Novartis Pharmaceuticals Corporation on behalf of Advanced Accelerator Applications, Novocure Inc, Oncopeptides, Pfizer Inc, Pharmacyclics LLC, an AbbVie Company, Puma Biotechnology Inc, Regeneron Pharmaceuticals Inc, Sanofi, Seagen Inc, Servier Pharmaceuticals LLC, SpringWorks Therapeutics Inc, Stemline Therapeutics Inc, Sumitomo Dainippon Pharma Oncology Inc, Taiho Oncology Inc, Takeda Pharmaceuticals USA Inc, TerSera Therapeutics LLC, Tesaro, A GSK Company, TG Therapeutics Inc, Turning Point Therapeutics Inc, Verastem Inc, and Zymeworks 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 Paz-Ares — Disclosures**

Advisory Committee	AbbVie Inc, Amgen Inc, AstraZeneca Pharmaceuticals LP, Boehringer Ingelheim Pharmaceuticals Inc, Bristol-Myers Squibb Company, Eisai Inc, EMD Serono Inc, Genentech, a member of the Roche Group, GSK, Guardant Health, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, Jazz Pharmaceuticals Inc, Lilly, Merck Sharp & Dohme LLC, Novartis, Pfizer Inc, PharmaMar, Regeneron Pharmaceuticals Inc, Sanofi, Takeda Pharmaceuticals USA Inc
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### Agenda

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## Thank you for joining us!

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



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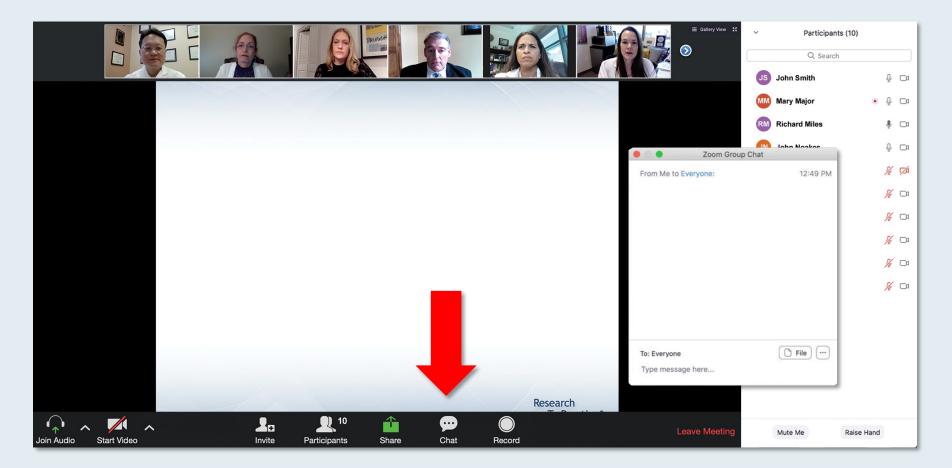
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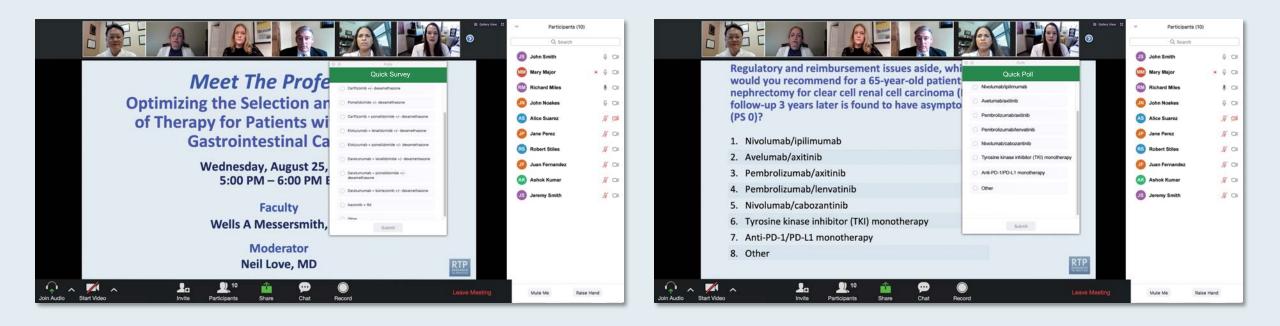
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### Research To Practice CME Planning Committee Members, Staff and Reviewers

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#### Year in Review: Webinar Non-Targeted Lung Cancer

#### Heather Wakelee, MD, FASCO

Professor of Medicine, Oncology Chief, Division of Medical Oncology Interim Medical Director, Stanford Cancer Center Stanford University School of Medicine Deputy Director, Stanford Cancer Institute President, International Association for the Study of Lung Cancer (IASLC)



Year in Review — Clinical Investigator Perspectives on the Most Relevant New Datasets and Advances in Oncology: Immunotherapy and other Non-Targeted Approaches for Lung Cancer Edition

> Luis Paz-Ares Hospital Universitario 12 de <u>Octubre</u>



### **Key Data Sets**

#### Heather Wakelee, MD

- Castro G Jr et al. Five-year outcomes with pembrolizumab versus chemotherapy as first-line therapy in patients with non-small-cell lung cancer and programmed death ligand-1 tumor proportion score ≥ 1% in the KEYNOTE-042 study. J Clin Oncol 2022;[Online ahead of print].
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- Johnson ML et al. Durvalumab with or without tremelimumab in combination with chemotherapy as first-line therapy for metastatic non-small-cell lung cancer: The Phase III POSEIDON study. J Clin Oncol 2023;41(6):1213-27.



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- Johnson ML et al. Durvalumab (D) ± tremelimumab (T) + chemotherapy (CT) in 1L metastatic (m) NSCLC: Overall survival (OS) update from POSEIDON after median follow-up (mFU) of approximately 4 years (y). ESMO 2022;Abstract LBA59.
- Levy B et al. **TROPION-Lung02**: Initial results for **datopotamab deruxtecan** plus pembrolizumab and platinum chemotherapy in advanced NSCLC. WCLC 2022;Abstract MA13.07.
- Ricordel C et al. Safety and efficacy of tusamitamab ravtansine (SAR408701) in long-term treated patients with nonsquamous non-small cell lung cancer (NSQ NSCLC) expressing carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5). ASCO 2022; Abstract 9039.
- Besse B et al. **HUDSON**: An open-label, **multi-drug**, **biomarker-directed**, Phase II platform study in patients with NSCLC, who progressed on anti-PD(L)1 therapy. WCLC 2022;Abstract OA15.05
- Kotecha R et al. KEYNOTE B36: A pilot study of first-line tumor treating fields (150 kHz) plus pembrolizumab for advanced or metastatic NSCLC. WCLC 2022;Abstract EP08.01-076.



#### Luis Paz-Ares, MD, PhD

- Forde PM et al. **Neoadjuvant nivolumab** plus chemotherapy in **resectable** lung cancer. *N Engl J Med* 2022;386(21):1973-85.
- Wakelee H et al. **IMpower010**: Overall survival interim analysis of a Phase III study of **atezolizumab** vs best supportive care in **resected** NSCLC. WCLC 2022;Abstract PL03.09.
- O'Brien M et al. **Pembrolizumab** versus placebo as **adjuvant** therapy for **completely resected** stage IB-IIIA non-small-cell lung cancer (**PEARLS/KEYNOTE-091**): An interim analysis of a randomised, triple-blind, phase 3 trial. *Lancet Oncol* 2022;23(10):1274-86.
- Spigel DR et al. Five-year survival outcomes from the PACIFIC trial: Durvalumab after chemoradiotherapy in Stage III non-small-cell lung cancer. *J Clin Oncol* 2022;40(12):1301-11.
- Senan S et al. Outcomes with **durvalumab** after chemoradiotherapy in **stage IIIA-N2** non-smallcell lung cancer: An **exploratory** analysis from the **PACIFIC** trial. *ESMO Open* 2022;7(2):100410.
- Girard N et al. **Real-world** overall survival (OS) with **durvalumab** (D) after chemoradiotherapy (CRT) in patients (pts) with unresectable Stage III non-small-cell lung cancer (NSCLC): Interim analysis from the **PACIFIC-R** study. ESMO Immuno-Oncology Congress 2022;Abstract 58O.



#### Luis Paz-Ares, MD, PhD (continued)

- Garassino MC et al. **Durvalumab** after sequential chemoradiotherapy in **Stage III, unresectable** NSCLC: The Phase 2 **PACIFIC-6** trial. *J Thorac Oncol* 2022;17(12):1415-27.
- Herbst RS et al. COAST: An open-label, Phase II, multidrug platform study of durvalumab alone or in combination with oleclumab or monalizumab in patients with unresectable, Stage III non-small-cell lung cancer. J Clin Oncol 2022;40(29):3383-93.
- Reck M et al. Brief report: Exploratory analysis of maintenance therapy in patients with extensive-stage SCLC treated first line with atezolizumab plus carboplatin and etoposide. J Thorac Oncol 2022;17(9):1122-9.
- Paz-Ares L et al. Durvalumab, with or without tremelimumab, plus platinum-etoposide in first-line treatment of extensive-stage small-cell lung cancer: 3-year overall survival update from CASPIAN. ESMO Open 2022;7(2):100408.



#### Luis Paz-Ares, MD, PhD (continued)

- Aix SP et al. Combination **lurbinectedin** and doxorubicin versus physician's choice of chemotherapy in patients with **relapsed** small-cell lung cancer (**ATLANTIS**): A multicentre, randomised, open-label, **phase 3** trial. *Lancet Respir Med* 2023;11(1):74-86.
- Calles A et al. A phase 1/2 trial of lurbinectedin (L) in combination with pembrolizumab (P) in relapsed small cell lung cancer (SCLC): The LUPER study. ASCO 2022;Abstract 8581.
- Paz-Ares L et al. Tarlatamab, a first-in-class DLL3-targeted bispecific T-cell engager, in recurrent small cell lung cancer: An open-label, Phase I study. J Clin Oncol 2023;[Online ahead of print].
- Doi T et al. DS-7300 (B7-H3 DXd antibody-drug conjugate [ADC]) shows durable antitumor activity in advanced solid tumors: Extended follow-up of a phase I/II study. ESMO 2022;Abstract 453O.



Introduction: Looking Back at Immuno-oncology Therapies (IOs)

**MODULE 1: Metastatic Disease** 

MODULE 2: Localized Non-Small Cell Lung Cancer (NSCLC)

MODULE 3: Small Cell Lung Cancer (SCLC)

**MODULE 4: Appendix** 



#### **Introduction: Looking Back at IOs**

- **MODULE 1: Metastatic Disease**
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#### Introduction: Looking Back at IOs

#### **MODULE 1: Metastatic Disease**

- Long-term data/perspective
  - IO monotherapy
  - IOs with chemotherapy
  - IO/CTLA-4 combinations
- Antibody-drug conjugates: Datopotamab deruxtecan (Dato-DXd), tusamitamab ravtansine
- Novel "basket" trials
- Tumor treating fields

**MODULE 2: Localized NSCLC** 

MODULE 3: SCLC

**MODULE 4: Appendix** 



## Year in Review: Webinar Non-Targeted Lung Cancer

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## **IO Monotherapy**

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## **IOs with Chemotherapy**

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## **IO/CTLA-4 Combinations**

- Brahmer JR et al. Five-year survival outcomes with nivolumab plus ipilimumab versus chemotherapy as first-line treatment for metastatic non-small-cell lung cancer in CheckMate 227. J Clin Oncol 2023;41(6):1200-12.
- Paz-Ares LG et al. First-line (1L) nivolumab (NIVO) + ipilimumab (IPI) + 2 cycles of chemotherapy (chemo) versus chemo alone (4 cycles) in patients (pts) with metastatic non– small cell lung cancer (NSCLC): 3-year update from CheckMate 9LA. ASCO 2022;Abstract LBA9026.
- Johnson ML et al. Durvalumab with or without tremelimumab in combination with chemotherapy as first-line therapy for metastatic non-small-cell lung cancer: The Phase III POSEIDON study. J Clin Oncol 2023;41(6):1213-27.
- Johnson ML et al. Durvalumab (D) ± tremelimumab (T) + chemotherapy (CT) in 1L metastatic (m) NSCLC: Overall survival (OS) update from POSEIDON after median follow-up (mFU) of approximately 4 years (y). ESMO 2022;Abstract LBA59.



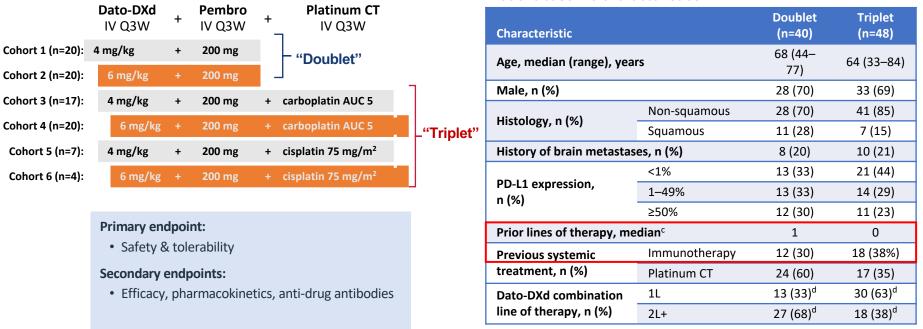
#### **Antibody-Drug Conjugates: Dato-DXd, Tusamitamab Ravtansine**

- Levy B et al. **TROPION-Lung02**: Initial results for **datopotamab deruxtecan** plus pembrolizumab and platinum chemotherapy in advanced NSCLC. WCLC 2022;Abstract MA13.07.
- Ricordel C et al. Safety and efficacy of tusamitamab ravtansine (SAR408701) in long-term treated patients with nonsquamous non-small cell lung cancer (NSQ NSCLC) expressing carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5). ASCO 2022; Abstract 9039.
- Besse B et al. **HUDSON**: An open-label, **multi-drug**, **biomarker-directed**, Phase II platform study in patients with NSCLC, who progressed on anti-PD(L)1 therapy. WCLC 2022;Abstract OA15.05.



# Levy B et al. TROPION-Lung02: Initial results for datopotamab deruxtecan plus pembrolizumab and platinum chemotherapy in advanced NSCLC. WCLC 2022;Abstract MA13.07

- Dato-DXd ADC: humanized TROP2 IgG1 mAb covalently linked to topoisomerase I inhibitor payload; via stable tetrapeptide-based cleavable linker
- Study approach: safety of Dato-DXd + pembro "doublets" was established prior to evaluation of platinum-containing "triplets"
  - Safety of Dato-DXd 4-mg/kg combinations was established prior to evaluation of 6-mg/kg combinations



#### Patient baseline characteristics

Levy B et al. TROPION-Lung02: Initial results for datopotamab deruxtecan plus pembrolizumab and platinum chemotherapy in advanced NSCLC. WCLC 2022;Abstract MA13.07

#### **Antitumor activity**

In the overall population:

ORRs (confirmed + pending):

- Double (n=38): 37%
- Triplet (n=37): 41%
- Both groups had 84% DCR

#### Best overall response with 1L therapy for advanced NSCLC<sup>a,b</sup>

Response, n (%)	Doublet (n=13)	Triplet (n=20)
ORR (confirmed + pending)	8 (62)	10 (50)
CR	0	0
PR (confirmed)	8 (62)	7 (35)
PR (pending)	0	3 (15)
SD	5 (39)	8 (40)
DCR	13 (100)	18 (90)

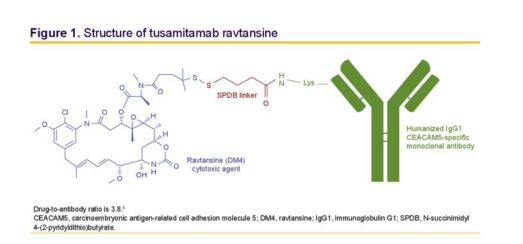
- As 2L+ therapy, respective ORRs (confirmed + pending) were 24% and 29%

#### Safety

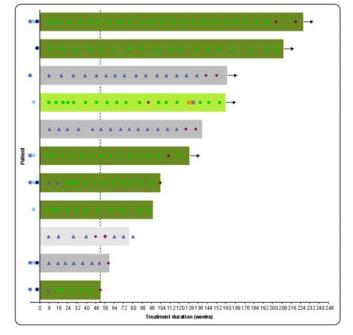
Events, n (%)	Doublet (n=40)	Triplet (n=48)			
TEAEs	37 (93)	47 (98)			
Study treatment-related <sup>a</sup>	33 (83)	46 (96)			
Grade ≥3 TEAEs	16 (40)	29 (60)			
Study treatment-related <sup>a</sup>	14 (35)	26 (54)			
Serious TEAEs	9 (23)	13 (27)			
Study treatment-related	4 (10)	7 (15)			
TEAEs associated with					
Death⁵	2 (5)	1 (2)			
Discontinuation due to any drug	9 (22)	9 (19)			
Discontinuation due to Dato- DXd	6 (15)	5 (10)			
ILD adjudicated as drug related					
Grade 1/2	2 (5)	0			
Grade 3	1 (3)	1 (2)			

 The Phase 3 TROPION-Lung08 trial (NCT05215340) is evaluating Dato-DXd
 + pembro vs pembro alone as 1L therapy in advanced/metastatic NSCLC with PD-L1 TPS >50%

Ricordel C et al. Safety and efficacy of tusamitamab ravtansine (SAR408701) in longterm treated patients with nonsquamous non–small cell lung cancer (NSQ NSCLC) expressing carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5). ASCO 2022;Abstract 9039



- In previously reported results from an open-label Phase 1/2 study (NCT02187848), tusamitamab ravtansine showed promising antitumor activity in patients with heavily pretreated NSQ NSCLC<sup>4</sup>
  - Among 64 patients with high CEACAM5 expression, 13 (20.3%) had a confirmed partial response (PR) and 28 (43.8%) had stable disease (SD)
  - Of 28 moderate expressors of CEACAM5, 2 (7.1%) had confirmed PR and 15 (53.6%) had SD
- Herein we report results for patients with NSQ NSCLC and high or moderate CEACAM5 expression who were treated with tusamitamab ravtansine for ≥ 12 months as of April 14, 2022



#### Best overall response

- Non-responder / Moderate CEACAM5 expressor
- Non-responder / High CEACAM5 expressor
- Responder / Moderate CEACAM5 expressor
- Responder / High CEACAM5 expressor

#### 11/92 patients had long responses

Besse B et al. HUDSON: An open-label, multi-drug, biomarkerdirected, Phase II platform study in patients with NSCLC, who progressed on anti-PD(L)1 therapy. WCLC 2022;Abstract OA15.05

- Multidrug, nonrandomized umbrella phase II study (data cutoff April 14, 2021)
- Primary endpoint: ORR
- Secondary endpoints: DCR, PFS, OS, safety

HUDSON is an ongoing, modular phase II trial evaluating several treatment options for patients with biomarker matched or nonmatched locally advanced/metastatic NSCLC after receipt of a platinum doublet and failure of anti–PD-1/PD-L1 immunotherapy

Current analysis reports results from cohorts of durvalumab in combination

with either ceralasertib (ATR inhibitor), danvatirsen (STAT3 inhibitor),

olaparib (PARP inhibitor), or oleclumab (anti-CD73 mAb)

Locally advanced or metastatic NSCLC; previous platinumdoublet chemotherapy and PD-1/PD-L1 targeted therapy; no *EGFR, ALK, ROS1, BRAF, MET,* or *RET* targetable mutations (N = 225)

#### Group A: Biomarker Matched (n = 86)

- HRRm: durvalumab + olaparib (n = 21)
- LKB1: durvalumab + olaparib (n = 21)
- ATM: durvalumab + ceralasertib\* (n = 21)
- ATM: ceralasertib\*
- CD73h: durvalumab + oleclumab (n = 23)
- HER2e/m: durvalumab + trastuzumab deruxtecan<sup>+</sup>

#### Group B: Biomarker Nonmatched (n = 169)

#### Primary Resistance (PD<sup>‡</sup> ≤24 Wk)

- Durvalumab + olaparib (n = 22)
- Durvalumab + danvatirsen (n = 23)
- Durvalumab + ceralasertib (n = 20)
- Durvalumab + oleclumab (n = 9)

#### Acquired Resistance (PD<sup>‡</sup> >24 Wk)

- Durvalumab + olaparib (n = 23)
- Durvalumab + danvatirsen (n = 22)
- Durvalumab + ceralasertib (n = 25)
- Durvalumab + oleclumab (n = 25)
- Durvalumab + cediranib<sup>+</sup>

Besse B et al. HUDSON: An open-label, multi-drug, biomarkerdirected, Phase II platform study in patients with NSCLC, who progressed on anti-PD(L)1 therapy. WCLC 2022;Abstract OA15.05 — PFS/OS by Treatment

Efficacy Parameter	Durvalumab +		Durvalumab +	Durvalumab +	Durvalumab +
	Ceralasertib		Olaparib	Danvatirsen	Oleclumab
	(n = 66)		(n = 87)	(n = 45)	(n = 57)
ORR (primary endpo	nt), % 16.7		4.6	0	1.8
Median PFS, mo	6.0		2.7	2.9	1.8
(80% CI)	(4.6-7.5)		(1.6-3.0)	(1.7-3.1)	(1.6-2.7)
6-mo PFS, %	46.3		18.7	18.8	16.6
(80% Cl)	(37.9-54.2)		(13.5-24.5)	(11.5-27.6)	(10.8-23.6)
OS Parameter	Durvalumab +	Other	Durvalumab +	Durvalumab +	Durvalumab +
	Ceralasertib	Regimens*	Olaparib	Danvatirsen	Oleclumab
	(n = 66)	(n = 189)	(n = 87)	(n = 45)	(n = 57)
Median OS, mo	15.9	9.4	9.4	7.9	11.0
(80% CI)	(14.1-20.3)	(7.5-10.6)	(6.9-10.8)	(6.0-10.6)	(7.6-13.5)
12-mo OS, %	61.6	39.7	40.8	28.8	46.2
(80% CI)	(53.4-68.8)	(35.1-44.3)	(34.0-47.5)	(20.2-38.0)	(37.5-54.5)

In this umbrella phase II study, durvalumab + ceralasertib showed promising activity HUDSON remains ongoing,

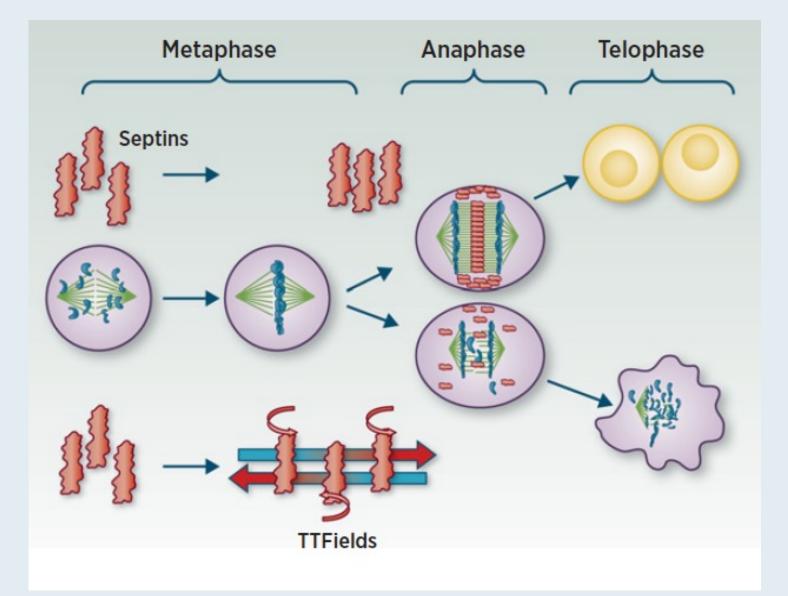
\*Pooled internal control of durvalumab + olaparib, durvalumab + danvatirsen, and durvalumab + oleclumab.

#### **Tumor Treating Fields**

• Kotecha R et al. **KEYNOTE B36**: A pilot study of **first-line tumor treating fields** (150 kHz) plus **pembrolizumab** for advanced or metastatic NSCLC. WCLC 2022;Abstract EP08.01-076.



## Model for Tumor Treating Fields (TTFields) Leading to Mitotic Disruption



- Successful mitosis requires precise spatial and temporal alignment of polarizable or charged structures, notably tubulin and septin, at various stages of cell division
- TTFields are able to inhibit the propagation of lattice formation by disrupting the ability of individual fibers to bind each other.
- In the absence of proper septin function, contractile elements of the cytokinetic furrow are not restrained within the equatorial midline of the cell resulting in ectopic furrow malfunction that leads to violent membrane contractions at the onset of anaphase followed by aberrant mitotic exit.



Mun EJ et al. Clin Cancer Res 2018;24(2):266-75.

## **TTFields Application in the Clinic: Apparatus**

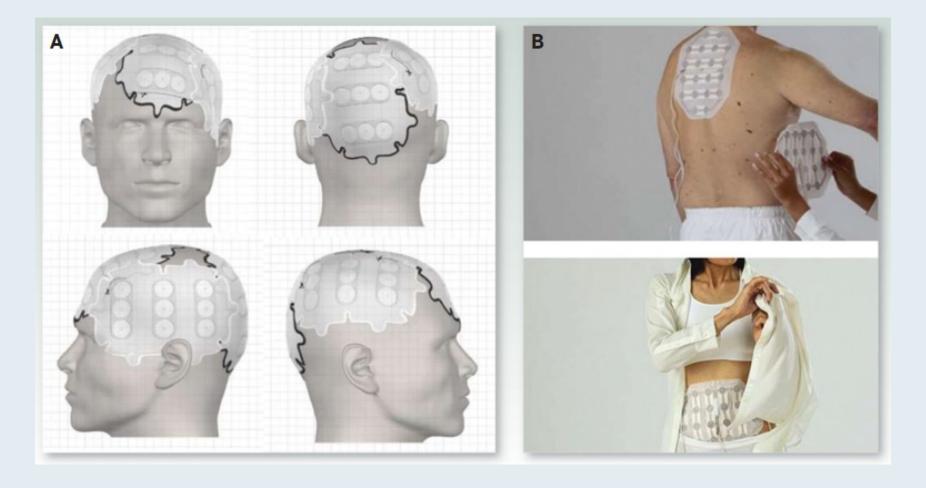


Second-generation Optune<sup>®</sup> device
The complete system consists of
A. Electric field generator
B. Rechargeable battery pack
C. Carrying pouch
D. Two pairs of disposable ceramic transducer arrays



Mun EJ et al. Clin Cancer Res 2018;24(2):266-75.

## **TTFields Application in the Clinic: Transducer Array Placement**



A. For glioblastoma multiforme, placement of arrays on patient's shaved scalp. An array map used as guidance for optimal placement of transducer arrays based on tumor size and location.

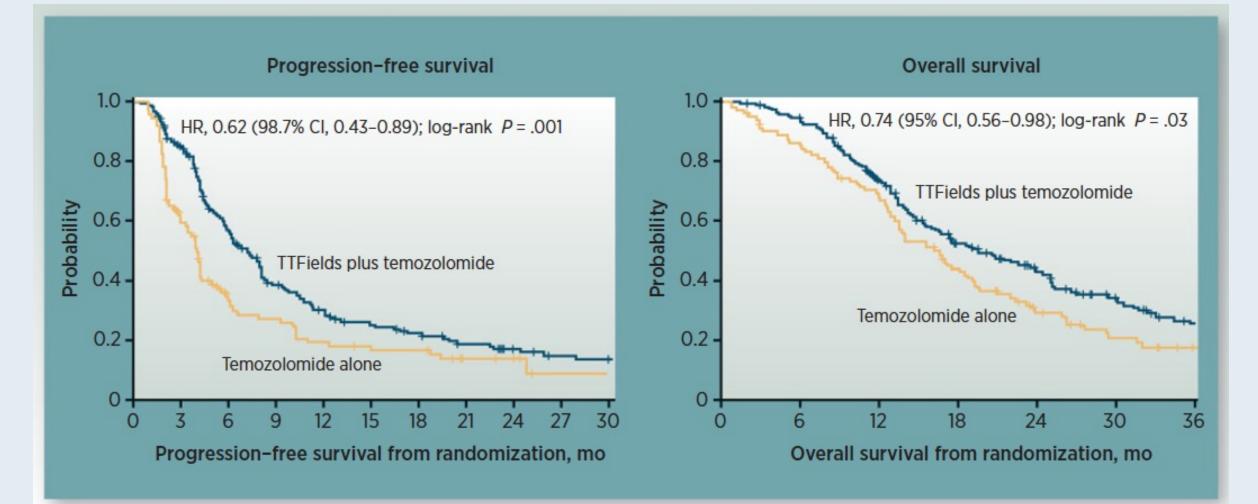
The array map is personalized for each patient and generated using NovoTAL<sup>™</sup> System software. The customization of the array layout is dependent on the patient's size and location of the tumor.

B. Transducer arrays attached to the device, Optune, are placed on patient's body, for lung cancer (top) and ovarian cancer (bottom).



Mun EJ et al. Clin Cancer Res 2018;24(2):266-75.

#### EF-14: Results from a Phase III Trial of TTFields/Temozolomide versus Temozolomide Alone for Newly Diagnosed Glioblastoma





Mun EJ et al. *Clin Cancer Res* 2018;24(2):266-75; Stupp R et al. *JAMA* 2015;314(23):2535-43.

# A phase I/II trial of Tumor Treating Fields (TTFields) therapy in combination with pemetrexed for advanced non-small cell lung cancer

Miklos Pless<sup>a,\*</sup>, Cornelia Droege<sup>b</sup>, Roger von Moos<sup>c</sup>, Marc Salzberg<sup>d</sup>, Daniel Betticher<sup>e</sup>

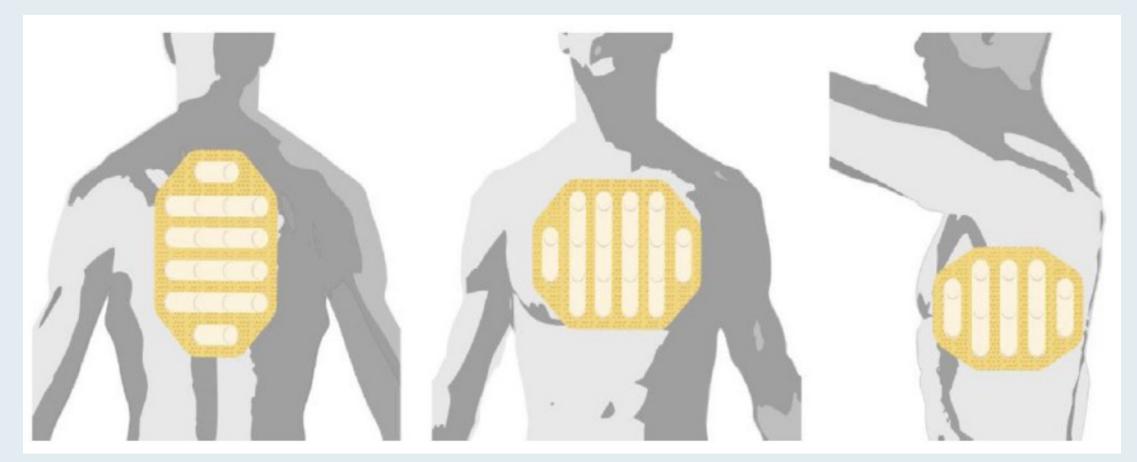
<sup>a</sup> Medical Oncology, Kantonsspital Winterthur, Switzerland
 <sup>b</sup> Medical Oncology, University Hospital Basel, Switzerland
 <sup>c</sup> Medical Oncology, Kantonsspital Graubünden, Switzerland
 <sup>d</sup> Medpace Inc., USA
 <sup>e</sup> Medical Oncology, Cantonal Hospital Fribourg, Switzerland

JAMA 2015;314(23):2535-43.

**Author Conclusions:** "The combination of TTFields and pemetrexed as a second line therapy for NSCLC is safe and potentially more effective than pemetrexed alone. TTFields improved disease control within the treatment field and a Phase III study is planned to further investigate its role as a novel treatment in NSCLC."



#### **TTFields in Combination with Pemetrexed for Advanced NSCLC:** Electrode Application Sites



Four single-use transducer arrays are placed on the thorax so as to generate perpendicular fields in the chest of the patient



Pivotal LUNAR Study in non-small cell lung cancer meets primary overall survival endpoint [press release]. Kotecha R et al. KEYNOTE B36: A pilot study of first-line tumor treating fields (150 kHz) plus pembrolizumab for advanced or metastatic NSCLC. WCLC 2022;Abstract EP08.01-076

- January 5, 2023: The LUNAR study met its primary endpoint
- Tumor Treating Fields (TTFields) are a locoregional, anti-mitotic treatment modality approved for glioblastoma and unresectable malignant pleural mesothelioma. Preclinical data have shown that TTFields induce immunogenic cell death and enhance the efficacy of PD-1 inhibitors
- The LUNAR study is a pivotal, open-label, randomized study evaluating the safety and efficacy of TTFields when used together with immune checkpoint inhibitors or docetaxel (experimental arm) versus immune checkpoint inhibitors or docetaxel alone (control arm) for patients with stage 4 NSCLC who progressed during or after platinum-based therapy
- The LUNAR study showed a statistically significant and clinically meaningful improvement in OS w/TTFields + ICI vs ICI alone and a positive trend in OS when patients were treated with TTFields and docetaxel versus docetaxel alone.. TTFields therapy was well tolerated by patients enrolled in the experimental arm of the study.
- KEYNOTE B36 (NCT04892472) is a multicenter, single arm, phase 2 open-label study designed to evaluate the safety and efficacy of TTFields (150 kHz) plus pembrolizumab for first-line treatment of advanced NSCLC

Promising novel therapy Await full data Unclear if patients will be accepting

#### Introduction: Looking Back at IOs

**MODULE 1: Metastatic Disease** 

#### **MODULE 2: Localized NSCLC**

- Adjuvant and neoadjuvant IO-containing regimens
- Locally advanced unresectable disease: Durvalumab alone or in combination, other studies

**MODULE 3: SCLC** 

**MODULE 4: Appendix** 











MADRID

Year in Review — Clinical Investigator Perspectives on the Most Relevant New Datasets and Advances in Oncology: Immunotherapy and other Non-Targeted Approaches for Lung Cancer Edition

Luis Paz-Ares

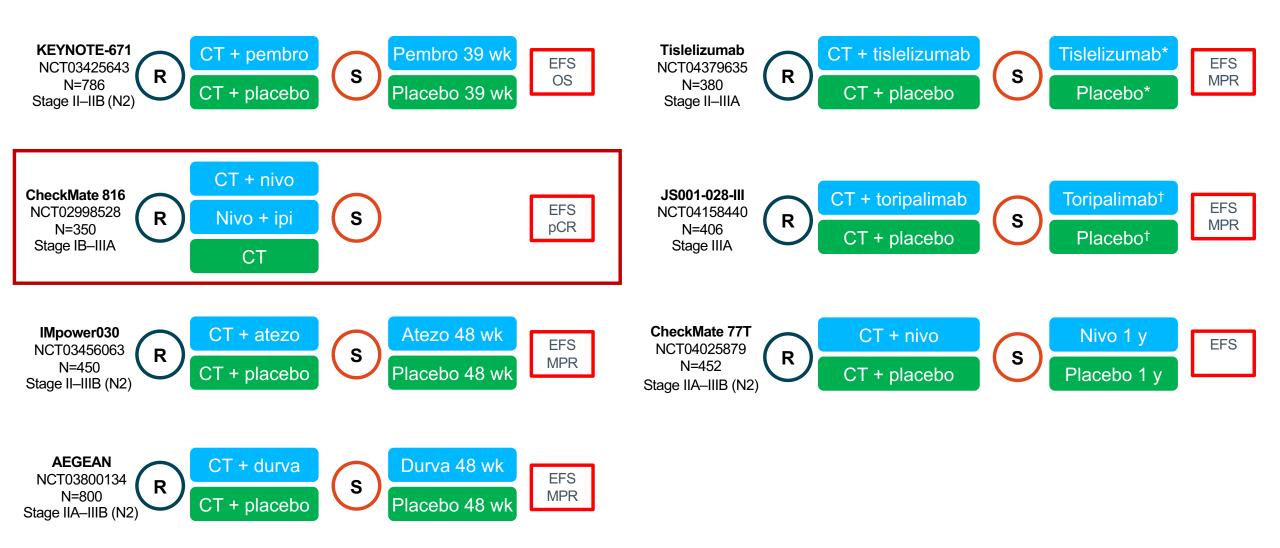
Hospital Universitario 12 de Octubre

### **Adjuvant and Neoadjuvant IO-Containing Regimens**

- Forde PM et al. Neoadjuvant nivolumab plus chemotherapy in resectable lung cancer. N Engl J Med 2022;386(21):1973-85.
- Wakelee H et al. **IMpower010**: Overall survival interim analysis of a Phase III study of **atezolizumab** vs best supportive care in **resected** NSCLC. WCLC 2022;Abstract PL03.09.
- O'Brien M et al. **Pembrolizumab** versus placebo as **adjuvant** therapy for **completely resected** stage IB-IIIA non-small-cell lung cancer (**PEARLS/KEYNOTE-091**): An interim analysis of a randomised, triple-blind, phase 3 trial. *Lancet Oncol* 2022;23(10):1274-86.



## **Ongoing Phase 3 perioperative IO trials**



Durvalumab plus chemotherapy significantly improved pathologic complete response in AEGEAN Phase III trial in resectable non-small cell lung cancer

Phase 3 KEYNOTE-671 Trial met Primary Endpoint of Event-Free Survival (EFS) in patients with Resectable Stage II, IIIA, or IIB Non-Small Cell Lung Cancer

#### Positive High-Level Results Announced from the Phase III AEGEAN Trial Evaluating Durvalumab with Chemotherapy for Resectable NSCLC Press Release – March 9, 2023

"Positive high-level results from a planned interim analysis of the AEGEAN Phase III, placebocontrolled trial showed that treatment with durvalumab in combination with neoadjuvant chemotherapy before surgery and as adjuvant monotherapy after surgery demonstrated a statistically significant and clinically meaningful improvement in event-free survival (EFS) versus neoadjuvant chemotherapy alone followed by surgery for patients with resectable early-stage (IIA-IIIB) non-small cell lung cancer (NSCLC).

Results from the final pathologic complete response (pCR) and major pathologic response (mPR) analyses were consistent with previously announced positive results. The trial will continue as planned to assess key secondary endpoints including disease-free survival (DFS) and overall survival (OS). ... Adding durvalumab to neoadjuvant chemotherapy was consistent with the known profile for this combination and did not increase complications or adverse events, or compromise patients' ability to undergo surgery versus chemotherapy alone.

These data will be presented at a forthcoming medical meeting and shared with global health authorities."

https://www.astrazeneca-us.com/media/press-releases/2023/imfinzi-significantly-improved-event-free-survival-in-aegean-phase-iii-trial-for-patients-with-resectable-non-small-cell-lung-cancer-03092023.html



#### Interim Analysis of the Phase III KEYNOTE-671 Trial Evaluating Pembrolizumab with Chemotherapy for Resectable NSCLC Press Release – March 1, 2023

"[It was] announced today that the Phase 3 KEYNOTE-671 trial investigating [the anti-PD-1 therapy pembrolizumab] met one of its dual primary endpoints, event-free survival (EFS), as a perioperative treatment regimen for patients with resectable stage II, IIIA or IIIB non-small cell lung cancer (NSCLC). ... The trial will continue to evaluate the other dual primary endpoint of overall survival (OS).

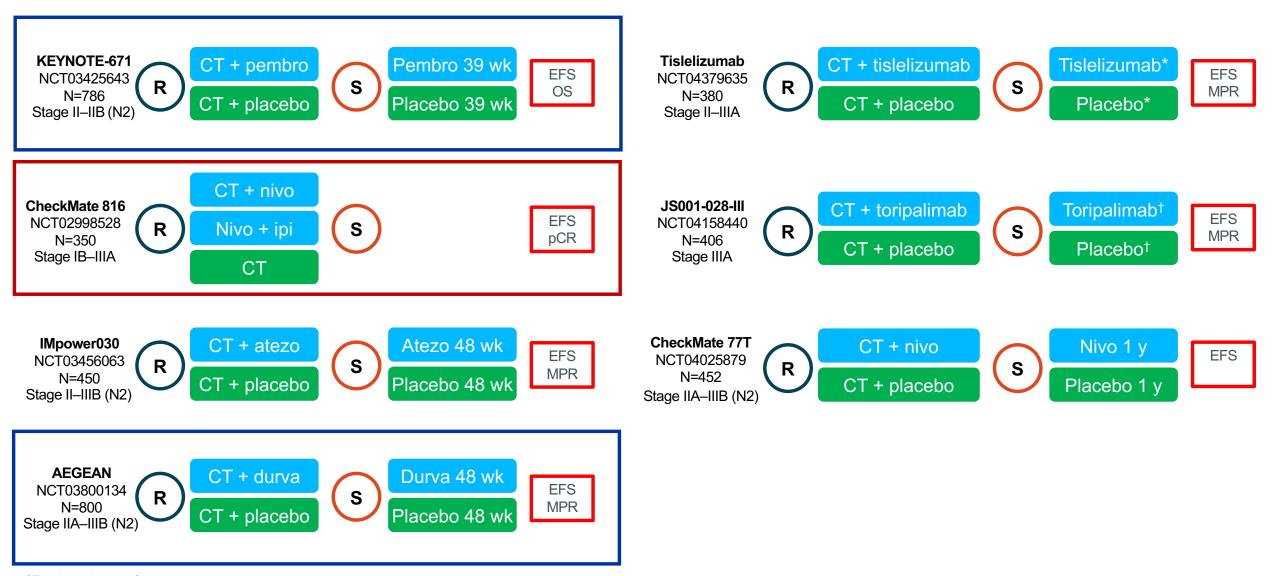
At a prespecified interim analysis conducted by an independent Data Monitoring Committee, neoadjuvant pembrolizumab plus chemotherapy followed by resection and adjuvant single-agent pembrolizumab demonstrated a statistically significant and clinically meaningful improvement in EFS compared to neoadjuvant placebo plus chemotherapy followed by adjuvant placebo. Statistically significant improvements in the trial's key secondary endpoints of pathological compete response (pCR) and major pathological response (mPR) were also demonstrated at this analysis. No new safety signals were observed.

Results will be presented at an upcoming medical meeting."

https://www.merck.com/news/merck-announces-phase-3-keynote-671-trial-met-primary-endpoint-of-event-free-survival-efs-in-patientswith-resectable-stage-ii-iiia-or-iiib-non-small-cell-lung-cancer/



## **Ongoing Phase 3 perioperative IO trials**



CT = chemotherapy; S = surgery. \*Up to 12 cycles of 21 or 42 days. †Duration not specified.

## Take home – Early stages

- Neoadjuvant chemo-IO (CM 816) improves pCR rates, EFS and OS in early stage resectable NSCLC
  - Outcome after pCR appears favourable, despite absence of adjuvant therapy
- Adjuvant IO decreases the probability of relapse (Atezo, Pembro) and appears to improve survival (Atezo)
  - Benefit proportional to PD-L1 expression (Atezo, Pembro??)
- Perioperative IO improves outcomes in resectable NSCLC
  - Nadim (pCR, EFS, OS), Aegean (pCR) and KN 671 (EFS)
  - Actual data awaited

#### Locally Advanced Unresectable Disease: Durvalumab Alone or in Combination, Other Studies

- Spigel DR et al. Five-year survival outcomes from the PACIFIC trial: Durvalumab after chemoradiotherapy in Stage III non-small-cell lung cancer. *J Clin Oncol* 2022;40(12):1301-11.
- Senan S et al. Outcomes with **durvalumab** after chemoradiotherapy in **stage IIIA-N2** non-smallcell lung cancer: An **exploratory** analysis from the **PACIFIC** trial. *ESMO Open* 2022;7(2):100410.
- Girard N et al. **Real-world** overall survival (OS) with **durvalumab** (D) after chemoradiotherapy (CRT) in patients (pts) with unresectable Stage III non-small-cell lung cancer (NSCLC): Interim analysis from the **PACIFIC-R** study. ESMO Immuno-Oncology Congress 2022;Abstract 58O.
- Garassino MC et al. **Durvalumab** after sequential chemoradiotherapy in **Stage III, unresectable** NSCLC: The Phase 2 **PACIFIC-6** trial. *J Thorac Oncol* 2022;17(12):1415-27.
- Herbst RS et al. COAST: An open-label, Phase II, multidrug platform study of durvalumab alone or in combination with oleclumab or monalizumab in patients with unresectable, Stage III non-small-cell lung cancer. J Clin Oncol 2022;40(29):3383-93.



# **Take home – Unresectable Stage III**

Durvalumab consolidation therapy (Pacific regimen) has a remarkable long term impact in unresectable stage III patient outcomes

- Improved 5 year PFS (19% v 33%) and OS (33% v 43%)
- Validation in RWD
- Valid strategy as well following sequential chemo-radiotherapy
- > Strategies of further treatment optimization include:
  - Consolidation with combination IO (durvalumab plus monalizumab or oleclumab) based on the encouraging Coast phase II results
  - Concurrent chemo-radio-immunotherapy approaches

### Agenda

**Introduction: Looking Back at IOs** 

**MODULE 1: Metastatic Disease** 

**MODULE 2: Localized NSCLC** 

#### **MODULE 3: SCLC**

- Current and future role of IOs; lurbinectedin
- Bispecific antibodies, antibody-drug conjugates (ADCs)

#### **MODULE 4: Appendix**



#### **Current and Future Role of IOs; Lurbinectedin**

- Reck M et al. Brief report: Exploratory analysis of maintenance therapy in patients with extensive-stage SCLC treated first line with atezolizumab plus carboplatin and etoposide. J Thorac Oncol 2022;17(9):1122-9.
- Paz-Ares L et al. Durvalumab, with or without tremelimumab, plus platinum-etoposide in firstline treatment of extensive-stage small-cell lung cancer: 3-year overall survival update from CASPIAN. ESMO Open 2022;7(2):100408.
- Aix SP et al. Combination **lurbinectedin** and doxorubicin versus physician's choice of chemotherapy in patients with **relapsed** small-cell lung cancer (**ATLANTIS**): A multicentre, randomised, open-label, **phase 3** trial. *Lancet Respir Med* 2023;11(1):74-86.
- Calles A et al. A phase 1/2 trial of lurbinectedin (L) in combination with pembrolizumab (P) in relapsed small cell lung cancer (SCLC): The LUPER study. ASCO 2022;Abstract 8581.

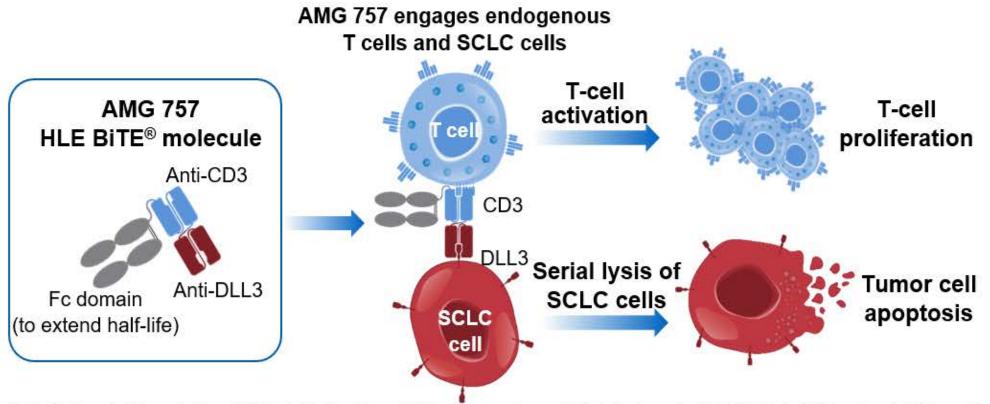


### **Bispecifics Antibodies, ADCs**

- Paz-Ares L et al. Tarlatamab, a first-in-class DLL3-targeted bispecific T-cell engager, in recurrent small cell lung cancer: An open-label, Phase I study. J Clin Oncol 2023;[Online ahead of print].
- Doi T et al. DS-7300 (B7-H3 DXd antibody-drug conjugate [ADC]) shows durable antitumor activity in advanced solid tumors: Extended follow-up of a phase I/II study. ESMO 2022;Abstract 453O.



# AMG 757: A Half-life Extended BiTE<sup>®</sup> (bispecific T-cell engager) Immuno-oncology Therapy Targeting DLL3 for SCLC



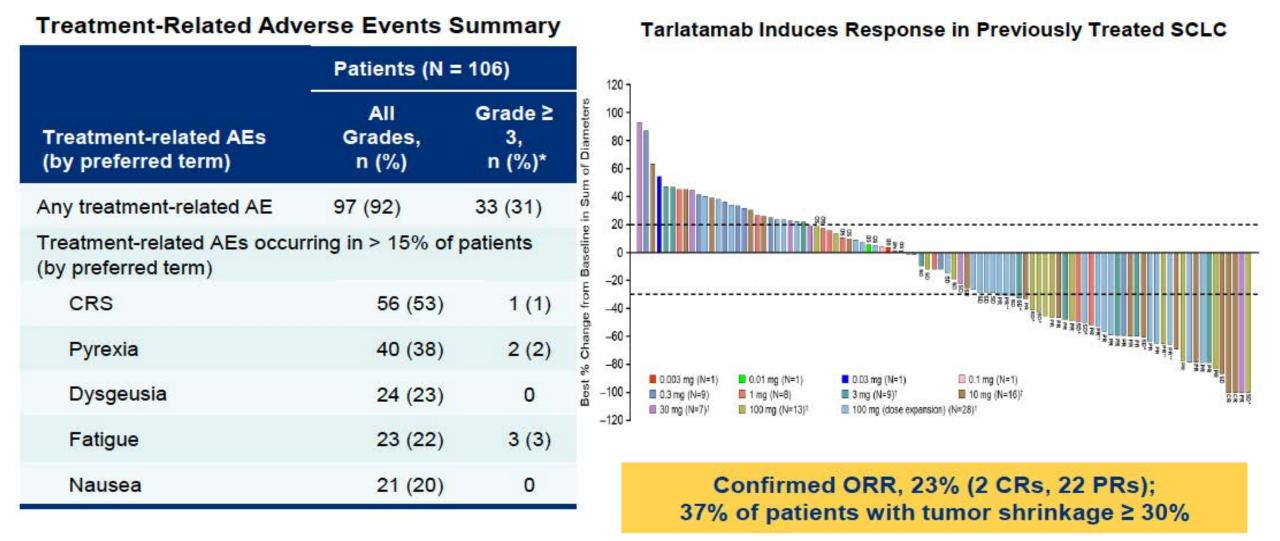
CD, cluster of differentiation; DLL3, delta-like ligand 3; Fc, fragment crystallizable domain; HLE BiTE, half-life extended bispecific T-cell engager; SCLC, small cell lung cancer.

BiTE molecules engage a patient's own T cells to attack and eradicate cancer cells<sup>1–3</sup>

1.Stieglmaier J, et al. *Expert Opin Biol Ther*. 2015;15:1093-1099. 2. Einsele H, et al. *Cancer.* 2020;126:3192-3201. 3. Bargou R, et al. *Science*. 2008;321:974-977.

Courtesy of Luis Paz-Ares, MD, PhD

# **Tarlatamab FIH- Response and Safety**



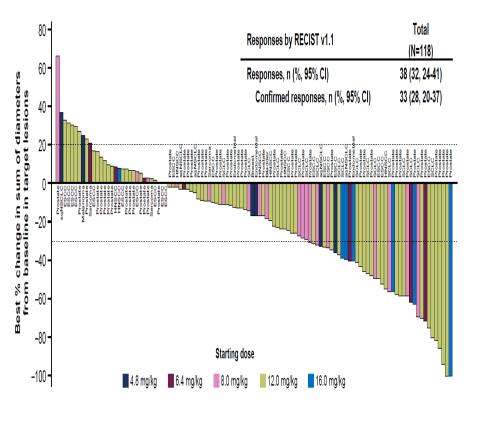
#### Courtesy of Luis Paz-Ares, MD, PhD

#### Paz-Ares et al. J Clin Oncol 2023

# Ifinatamab deruxtecan (DS 7300)- An ADC targeting B7H3

### Preliminary Efficacy Across Tumor Types<sup>a</sup>

# Antitumor Activity: SCLC Subset<sup>a</sup>



Starting dose 12.0 mg/kg 16.0 mg/kg 6.4 ma/ka 8.0 ma/ka Responses by RECIST v1.1 (n=19) diameter Responses, n (%, 95% CI) 11 (58,33-80) --- Off treatment in sur sions<sup>t</sup> 60 Confirmed responses, n (%, 95% CI) 10 (53, 29-76) -20 change in sum of baseline in target target of Change from diameters of -60 -40 -60 -80 Best % from -80 % -100 --100 20 30 Weeks since start of treatment All patients with a post-baseline scan had a reduction in target Median duration of response was 5.5 months (95% CI, 2.8-NR); 4 responders remain on treatment lesions Median time to response was 1.2 months (95% CI, NA-1.4) Median follow-up (months [95% CI]): 4.9 (3.3-8.8)

DOD, data cutoff, ESCC, escophageal oparamous cell carcinoma, HISCCC, lead and neck oparamous cell carcinoma, mCHPC, metatatic cartation-resistant prostate carcer, REDIST, Response Evaluation Criteria in Solid Tumorar, SOLC, small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, PETERS, Response Evaluation Criteria in Solid Tumorar, SOLC, small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, PETERS, Response Evaluation Criteria in Solid Tumorar, SOLC, small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, PETERS, Response Evaluation Criteria in Solid Tumorar, SOLC, small cell lung carcer, sp(ISCLC, spaamous non-small cell lung carcer, sp(ISCLC, sp(ISCLC,

<sup>a</sup> Patients from dose escalation with measurable disease at baseline and a least 2 post-baseline tumor scans and/or discontinued the treatment at DCO are included in best overall response calculations. 3 patients did not have post-baseline tumor scans and are not included in the waterfall or spider plots. <sup>b</sup> 80% reduction is considered CR because the remaining target lesions/nontarget lesions (lymph nodes) are nonpathologic (those with short axis <10 mm).

#### Courtesy of Luis Paz-Ares, MD, PhD

#### T Doi et al. ESMO 2022

CR, complete response; DCO, data cutoff; NA, not available; NR, not reached; RECIST, Response Evaluation Criteria in Solid Tumours; SCLC, small cell lung cancer.

# Take home – SCLC

- PE plus PD-L1/PD-1 blockade represents the standard of care in front-line SCLC-EE
  - Substantial impact in the long term: Tripled survival at 3 years
- Encouraging preliminary data with a number of approaches in the relapse setting
  - Lurbinectedin in combination with IO (atezolizumab, pembrolizumab) but not with doxorubicin (ATLANTIS trial)
  - Tarlatamab and DS 7300.

### Agenda

**Introduction: Looking Back at IOs** 

**MODULE 1: Metastatic Disease** 

**MODULE 2: Localized NSCLC** 

MODULE 3: SCLC

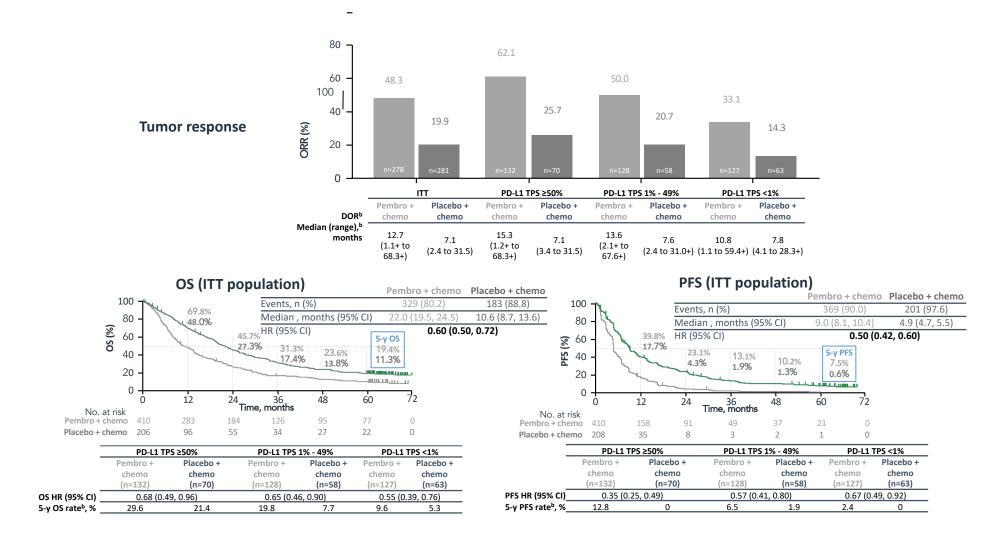
**MODULE 4: Appendix** 



### **Metastatic Disease**

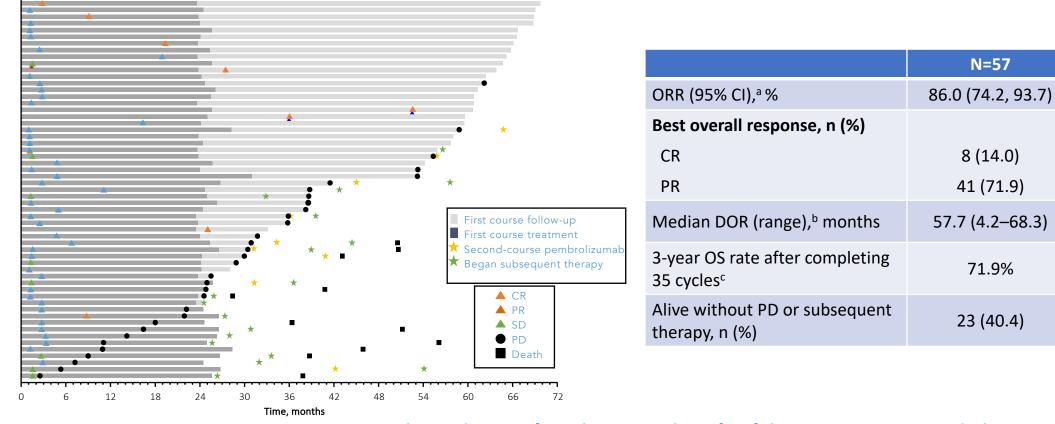


Garassino MC et al. Pembrolizumab plus pemetrexed and platinum in nonsquamous non-small-cell lung cancer: 5-year outcomes from the Phase 3 KEYNOTE-189 study. J Clin Oncol 2023



#### Courtesy of Heather Wakelee, MD

Garassino MC et al. Pembrolizumab plus pemetrexed and platinum in nonsquamous non-small-cell lung cancer: 5-year outcomes from the Phase 3 KEYNOTE-189 study. J Clin Oncol 2023



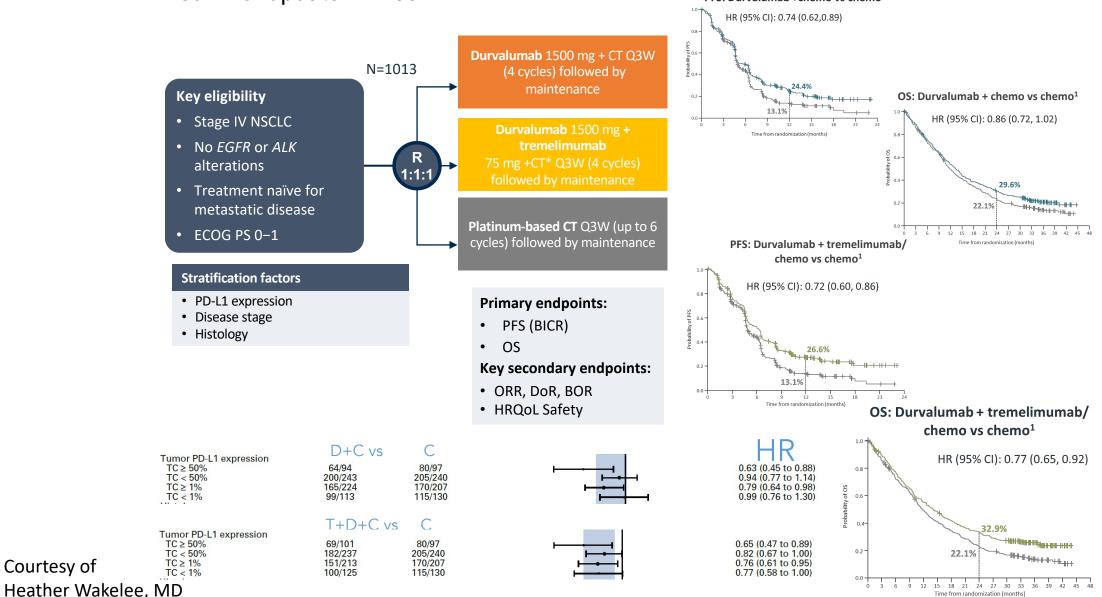
- This update confirms long-term benefit of the KN189 regimen including OS, despite crossover
- Benefit is seen regardless of PD-L1 level, but best survival in those with high PD-L1
- Reporting long term benefit of the long term responders is biased

Courtesy of Heather Wakelee, MD

N=57

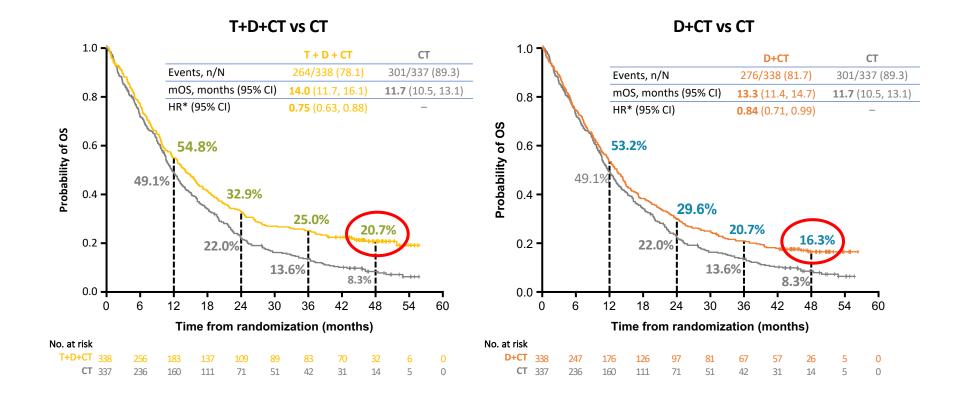
71.9%

Johnson ML et al. Durvalumab with or without tremelimumab in combination with chemotherapy as first-line therapy for metastatic non-small-cell lung cancer: The Phase III POSEIDON study. J Clin Oncol 2023;41(6):1213-27; ESMO 2022 4 yr survival update LBA59 PFS: Durvalumab +chemo vs chemo<sup>1</sup>



Courtesy of

Johnson ML et al. Durvalumab with or without tremelimumab in combination with chemotherapy as first-line therapy for metastatic non-small-cell lung cancer: The Phase III POSEIDON study. J Clin Oncol 2023;41(6):1213-27; ESMO 2022 4 yr survival update LBA59



Long term benefit (~20% survival at 4 years) with T+D+CT, Benefit regardless of PD-L1 with T+D, but PD-L1 dependent for D alone

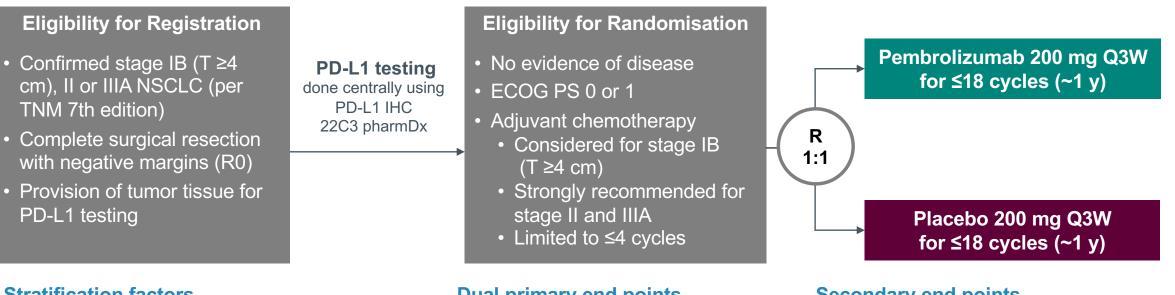
Courtesy of Heather Wakelee, MD

### **Localized NSCLC**



# **KEYNOTE-091/PEARLS: Study design**

#### Randomised, triple-blind, Phase 3 trial



#### Stratification factors

- Disease stage (IB vs II vs IIIA)
- PD-L1 TPS (<1% vs 1–49% vs ≥50%)
- Receipt of adjuvant chemotherapy (yes vs no)
- Geographic region (Asia vs Eastern Europe vs Western Europe vs rest of world)

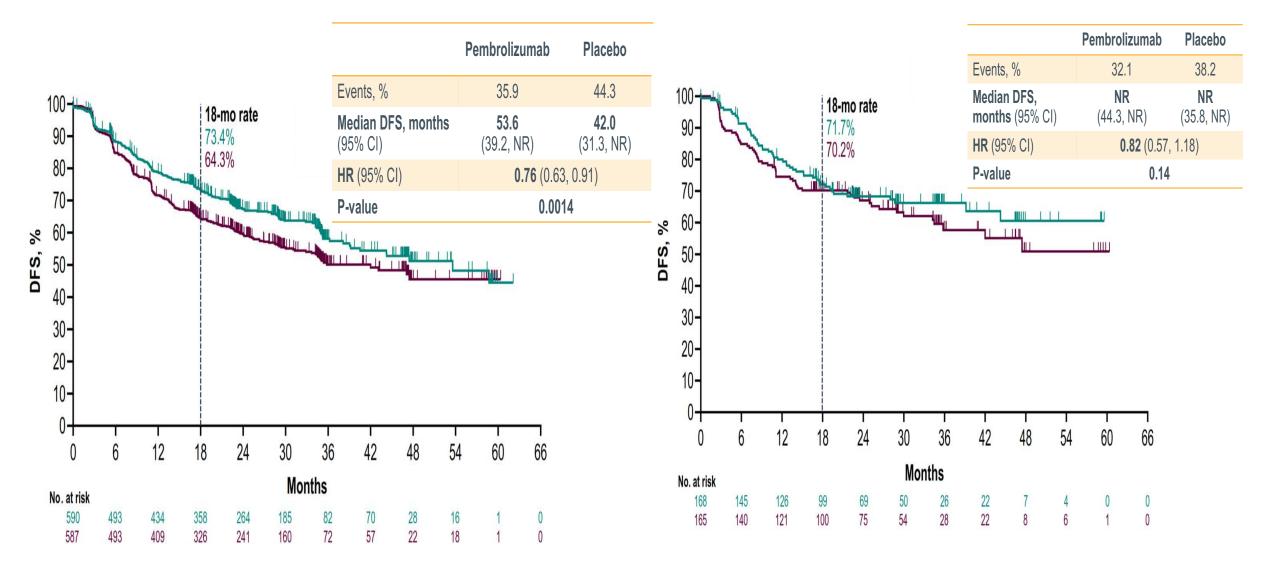
#### **Dual primary end points**

- DFS in the overall population
- DFS in the PD-L1 TPS  $\geq$  50% population

#### **Secondary end points**

- DFS in the PD-L1 TPS ≥1% population
- OS in the overall. PD-L1 TPS ≥50% and PD-L1 TPS ≥1% populations
- Lung cancer-specific survival in the overall population
- Safety

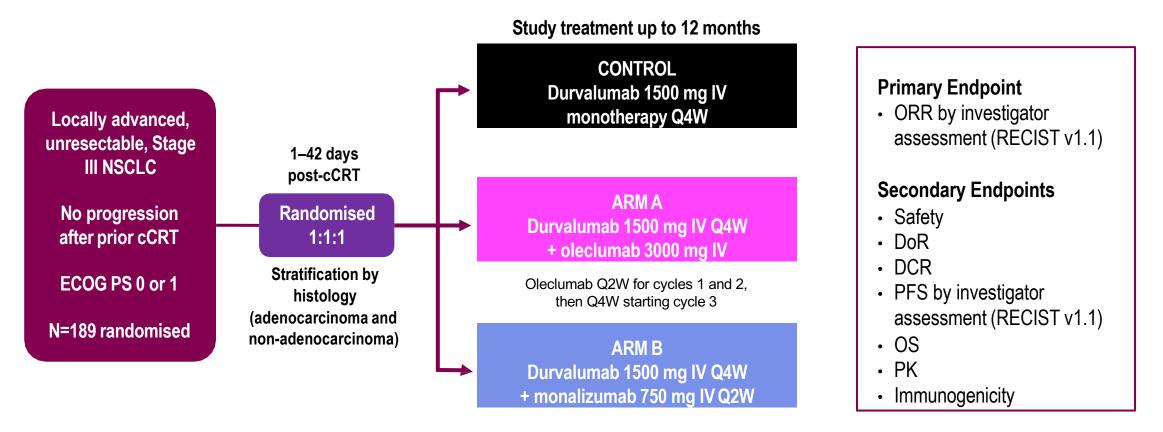
# **PEARLS Trial: DFS in ITT and PD-L1 ≥50% Populations**



Courtesy of Luis Paz-Ares, MD, PhD

Paz-Ares L et al ESMO Virtual Plenary 2022; O'Brien M et al. Lancet Oncol 2022

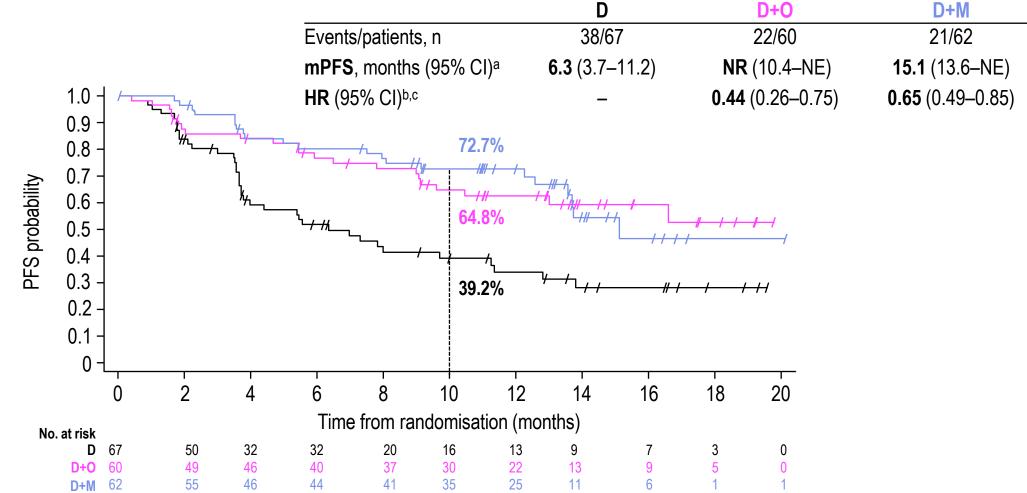
# **COAST: Phase 2, randomised open-label study**



- A planned sample size of 60 patients per arm was designed to provide acceptable precision in estimating antitumour activities in an early phase setting
- Between Jan 2019 and Jul 2020, 189 patients were randomised of whom 186 received D (n=66), D+O (n=59) or D+M (n=61)
- As of 17 May 2021, all patients had a minimum of 10 months potential follow-up and the median actual follow-up was 11.5 months (range, 0.4–23.4; all patients)

Courtesy of Luis Paz-Ares, MD, PhD

# **COAST: PFS by investigator assessment** (interim analysis; ITT population)



### SCLC

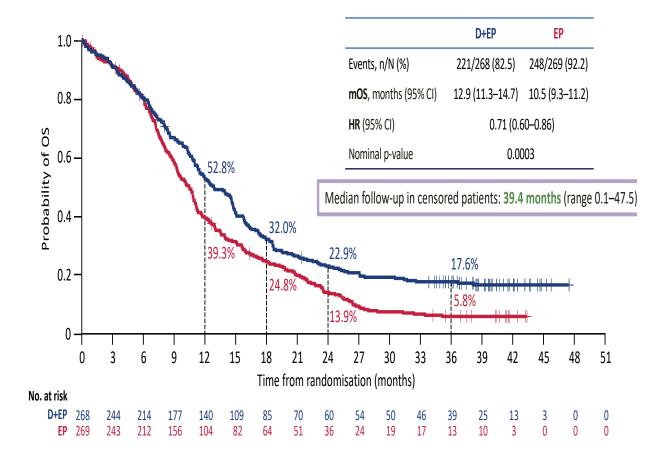


# **Summary: Chemo-Immunotherapy in SCLC**

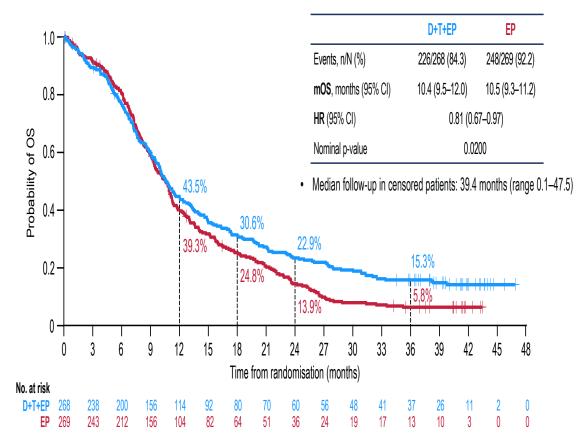
Study	IMPOWER 133 NEJM 2018		CASPIAN Lancet 2019		KEYNOTE 604 JCO 2020		CAPSTONE-1 Wang et al. Lancet Oncology 2022		ASTRUM 005 Cheng et al. ASCO 2022	
Arm	Atezo (PD-L1)	Control	Durva( PD-L1)	Control	Pembro (PD-1)	Control	Adebrelimab (anti-PD-L1)	Control	Serplulimab (anti-PD-1)	Control
Patients	201	202	268	269	228	225	230	232	389	196
OS*	12.3	10.3	13.0	10.3	10.8	9.7	<mark>1</mark> 5.3	12.8	<b>1</b> 5.4	10.9
HR (OS) ( p value)	0.70 (p=0.0069)		0.73 (p= 0.0047)		0.8 (p=0.0164)		0.72 (p=0.0017)		0.63 (p<0.001)	
G3-4 AEs	67 vs 63 %		61 vs 62 %		77 vs 75 %		39 vs 28% TRSAEs		82.5 vs 80.1 %	
Comment			8% PCI (Control arm only)		Primary endpoint not met		Chinese population		30% Caucasian patients	

# **CASPIAN Trial – OS after 3 years**

### 3-year Overall Survival Update: D+EP vs EP

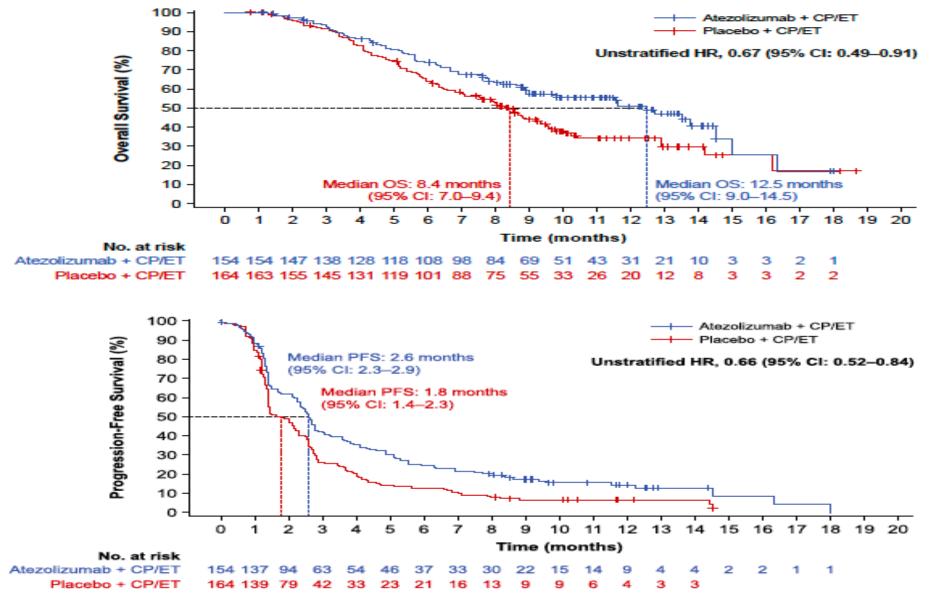


### 3-year Overall Survival Update: D+T+EP vs EP



Courtesy of Luis Paz-Ares, MD, PhD

### IMpower133 Trial: Maintenance Atezolizumab



Courtesy of Luis Paz-Ares, MD, PhD

M Reck et al. JTO 2022

Year in Review: Clinical Investigator **Perspectives on the Most Relevant New Data Sets** and Advances in Oncology A Multitumor CME/MOC-Accredited Live Webinar Series **Colorectal Cancer** Wednesday, April 19, 2023 5:00 PM - 6:00 PM ET Faculty Pashtoon M Kasi, MD, MS Wells A Messersmith, MD **Moderator** 

Neil Love, MD



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Please take a moment to complete the survey currently up on Zoom. Your feedback is very important to us. The survey will remain open up to 5 minutes after the meeting ends.

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

