







### 27 SEPTIEMBRE - 1 OCTUBRE 2019



Con la colaboración de:









# Inmunoterapia (I)

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Con la colaboración de:

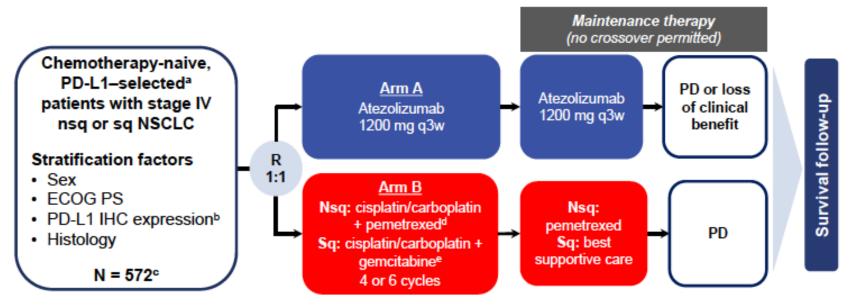


IMpower110: Interim OS Analysis of a phase III Study of Atezolizumab vs Platinum-based CT as 1L Tx in PD-L1-sledted NSCLC



## IMpower110 Study Design





- Primary endpoint: OS in WT population<sup>f</sup>
- Key secondary endpoints: investigator-assessed PFS, ORR and DOR (per RECIST version 1.1)

IC, tumour-infiltrating immune cells; IHC, immunohistochemistry; nsq, non-squamous; PD, progressive disease; q3w, every 3 weeks; R, randomised; sq, squamous; TC, tumour cells; WT, wild-type. \*PD-L1 expression (VENTANA SP142 IHC assay) ≥ 1% on TC or IC. \*TC1/2/3 and any IC vs TC0 and IC1/2/3. \*554 patients in the WT population. \*d Cisplatin 75 mg/m² or carboplatin area under the curve (AUC) 6 + permetrexed 500 mg/m² IV q3w. \* Cisplatin 75 mg/m² + gemcitabine 1250 mg/m² or carboplatin AUC 5 + gemcitabine 1000 mg/m² IV q3w. \*WT population excludes patients with EGFR+ and/or ALK+ NSCLC.

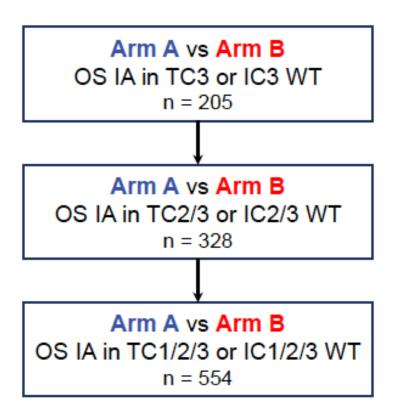
Spigel et al. IMpower110 Interim OS Analysis https://bit.ly/2lxRNHQ



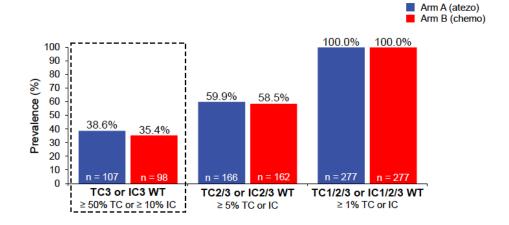
IMpower110: Interim OS Analysis of a phase III Study of Atezolizumab vs Platinum-based CT as 1L Tx in PD-L1-sledted NSCLC



## Statistical Testing Plan



## Prevalence of PD-L1 Expression



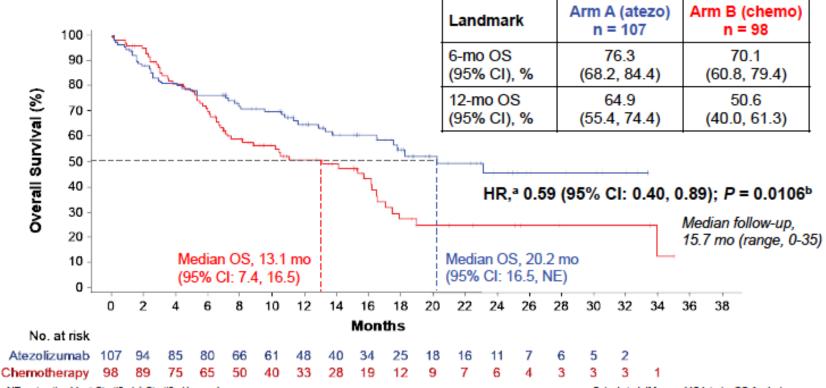


### IMpower110: Interim OS Analysis of a phase III Study of Atezolizumab vs Platinum-based CT as 1L Tx in PD-L1-sledted NSCLC



### OS: TC3 or IC3 WT





NE, not estimable. \* Stratified. b Stratified log-rank. Data cutoff: 10 September 2018.

Spigel et al. IMpower110 Interim OS Analysis https://bit.ly/2lxRNHQ



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# IMpower110: Interim OS Analysis of a phase III Study of Atezolizumab vs Platinum-based CT as 1L Tx in PD-L1-sledted NSCLC

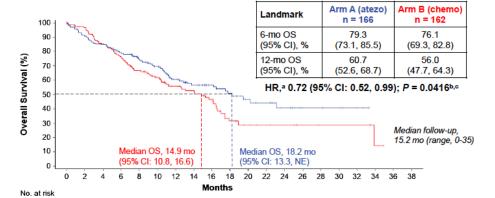


OS: TC2/3 or IC2/3 WT

Atezolizumab 166 151 139 128 108 92 66 54 42 30

Chemotherapy 162 150 131 117 95 75 57 46 32 17 9



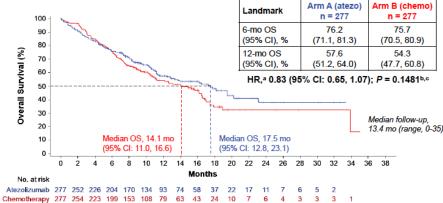


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### OS: TC1/2/3 or IC1/2/3 WT







IMpower110: Interim OS Analysis of a phase III Study of Atezolizumab vs Platinum-based CT as 1L Tx in PD-L1-sledted NSCLC



### **Subsequent therapies**

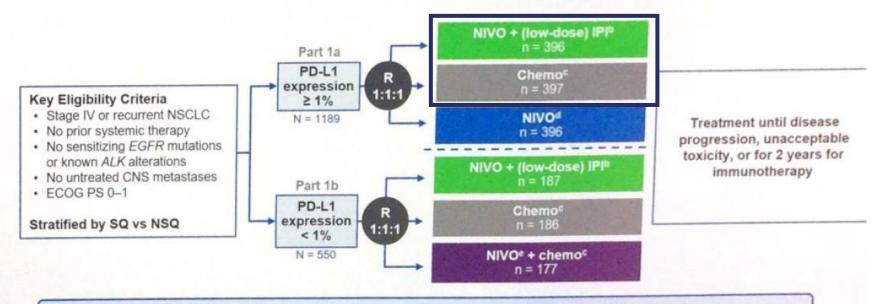
### TC1/2/3 or IC1/2/3 WT

	Arm A (atezo) n = 277	Arm B (chemo) n = 277
Patients with ≥ 1 therapy, n (%)	82 (29.6)	137 (49.5)
Chemotherapy	77 (27.8)	68 (24.5)
Immunotherapy	7 (2.5)	80 (28.9)
Targeted therapy	14 (5.1)	12 (4.3)





### CheckMate 227 Part 1 Study Designa



### Independent co-primary endpoints: NIVO + IPI vs chemo

- PFS in high TMB (≥10 mut/Mb) population<sup>1</sup>
- OS in PD-L1 ≥ 1% population<sup>g</sup>

#### Secondary endpoints (PD-L1 hierarchy):

- PFS: NIVO + chemo vs chemo in PD-L1 < 1%</li>
- OS: NIVO + chemo vs chemo in PD-L1 < 1%</li>
- OS: NIVO vs chemo in PD-L1 ≥ 50%

Database lock: July 2, 2019; minimum follow-up for primary endpoint: 29.3 months

\*NCT02477826; \*NIVO (3 mg/kg Q2W) + IPI (1 mg/kg Q6W); \*NSQ: pemetrexed + cisplatin or carboplatin, Q3W for ≤ 4 cycles, with optional pemetrexed maintenance following NIVO + chemo; SQ: gemcitabine + cisplatin, or gemcitabine + carboplatin, Q3W for ≤ 4 cycles; \*NIVO (240 mg Q2W); \*NIVO (360 mg Q3W); TMB primary endpoint analysis conducted at January 24, 2018 database lock in subset of patients randomized to NIVO + IPI or chemo, alpha allocated was 0.025; \*Alpha allocated was 0.025 overall (0.023 for final analysis)

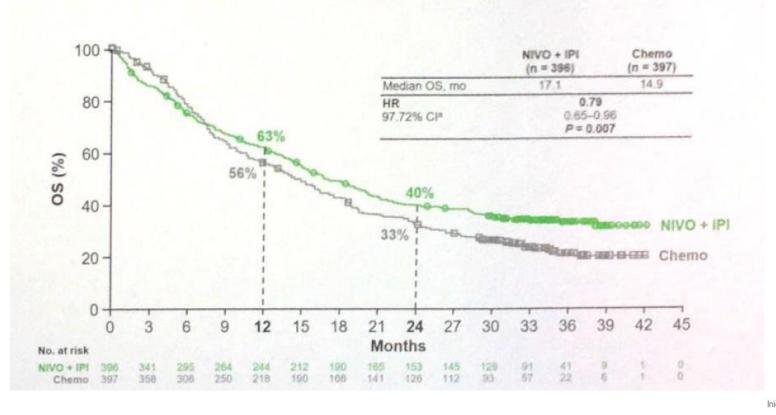
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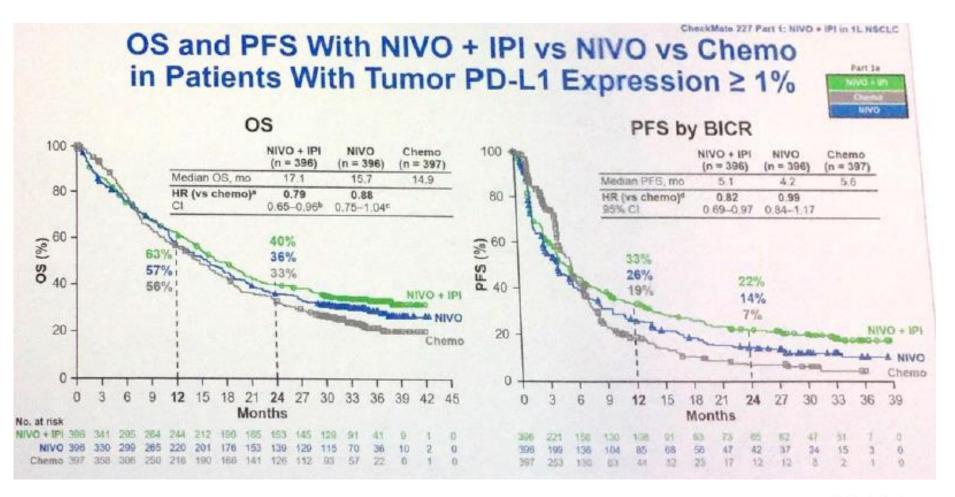


# Primary Endpoint: OS With NIVO + IPI vs Chemo in Patients With Tumor PD-L1 Expression ≥ 1%













# OS for NIVO + IPI vs Chemo by Tumor PD-L1 Expression, TMB Status, and Combined Subgroups in All Randomized Patients

BOAK A		Median OS	s, months	TO ALL BOOK	THE PARTY NAMED IN	200
		NIVO + IPI n = 583	Chemo n = 583	HR	HR (95% CI)	
Randomize	d groups			Stratified	Stratified	
	All randomized (N = 1166)	17.1	13.9	0.73	- 1	
PD-L1	PD-L1 < 1% (n = 373)	17.2	12.2	0.62	-	
	PD-L1 ≥ 1% (n = 793)	17.1	14.9	0.79	-	
Additional	exploratory subgroups analyses <sup>b,c</sup>			Unstratified	Unstratified	
DD11	1-49% (n = 396)	15.1	15.1	0.94		
PD-L1	≥ 50% (n = 397)	21.2	14.0	0.70		
TMBd	low, < 10 (n = 380)	16,2	12.6	0.75		
(mut/Mb)	high, ≥ 10 (n = 299)	23.0	16.4	0.68		
				0,25	0,5 1	
					NIVO+IPI ←→	Chemo





# Safety Summary of Treatment-Related AEs in All Patients Treated With NIVO + IPI, Chemo, or NIVO

	777	+ IPI 576)	Chemo (n = 570)		NIVO <sup>b</sup> (n = 391)	
TRAE,ª %	Any grade	Grade 3-4	Any grade	Grade 3–4	Any grade	Grade 3-4
Any TRAE	77	33	82	36	66	19
TRAE leading to discontinuation <sup>c</sup>	18	12	9	5	12	7
Most frequent TRAEs (≥ 15%)						
Diarrhea	17	2	10	1	12	< 1
Rash	17	2	5	0	11	1
Fatigue	14	2	19	1	11	< 1
Decreased appetite	13	1	20	1	7	0
Nausea	10	<1	36	2	6	< 1
Anemia	4	1	33	12	3	< 1
Constipation	4	0	15	<1	2	0
Neutropenia	< 1	0	17	10	< 1	0
Freatment-related deathsd					<	1

- With 18 months more follow-up, safety was consistent with the previous report<sup>1</sup> and did not increase
- Median duration of therapy (range) was 4.2 mo (0.03–25.5) with NIVO + IPI, 2.6 mo (0.03–37.6+) with chemo, and 4.6 mo (0.03–26.5) with NIVO





BARCELONA 2019 Congress

Herbst KN010/042 ESMO 2019

Association Between Tissue TMB and Clinical Outcomes with Pembrolizumab Monotherapy in PD-L1-Positive Advanced NSCLC in the KEYNOTE-010 and 042 Trials

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KEYNOTE-010: phase 1/2, 2L+

KEYNOTE-042: phase 3, 1L, PD-L1≥1%

BARCELONA CONGTESS

Paz-Ares KN021/189/407 TMB ESMO 2019

### Pembrolizumab Plus Platinum-Based Chemotherapy for Metastatic NSCLC: Tissue TMB (tTMB) and Outcomes in KEYNOTE-021, 189, and 407

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esmo.org

KEYNOTE-021: phase 1/2, 1L, NSQ

KEYNOTE-189: phase 3, 1L, NSQ

KEYNOTE-407: phase 3, 1L, SQ

Iniciativa científica de:

GECP



## **Association of tTMB with efficacy**

### **KEYNOTE-010**

### **KEYNOTE-024**

Nominal P Value <sup>b</sup>	Pembro (n = 164)	Chemo (n = 89)
os	0.006 (one-sided)	0.410 (two-sided)
PFS	0.001 (one-sided)	0.579 (two-sided)
ORR	0.009 (one-sided)	0.330 (two-sided)

Nominal P Value <sup>b</sup>	Pembro (n = 414)	Chemo (n = 379)
os	<0.001 (one-sided)	0.060 (two-sided) <sup>c</sup>
PFS	<0.001 (one-sided)	0.174 (two-sided)°
ORR	<0.001 (one-sided)	0.035 (two-sided)

tTMB was associated with outcomes for pembas a continuous variable but not with chemo based on α = 0.05 significance level and AUROC analysis

tTMB was associated with outcomes for pembro as a continuous variable but not chemo in general, based on  $\alpha$  = 0.05 significance level and AUROC

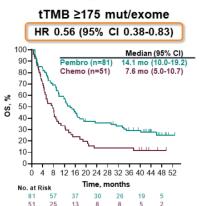


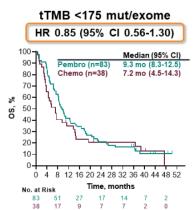


## Association of tTMB with efficacy

### **KEYNOTE-010**

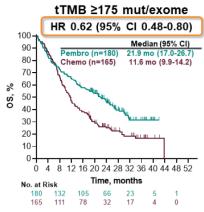
## Clinical Utility for OS (KEYNOTE-010<sup>a</sup>): tTMB Cutpoint of 175 mut/exome

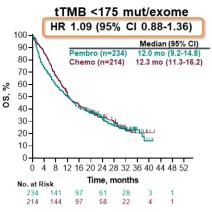




### **KEYNOTE-024**

# Clinical Utility for OS (KEYNOTE-042a): tTMB Cutpoint of 175 mut/exome









## Association of tTMB (log<sub>10</sub>) With Efficacy

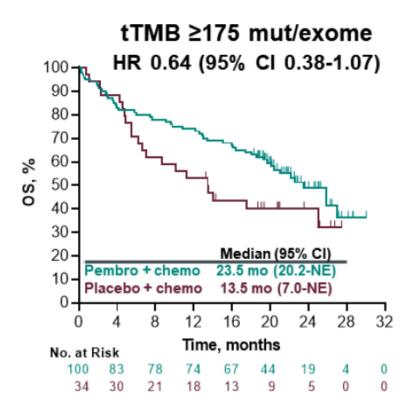
	KEYNOTE-021 C and G		KEYNO	KEYNOTE-189		KEYNOTE-407	
Nominal <i>P</i> Value <sup>a</sup>	Pembro + Chemo (n = 44)	Chemo Alone (n = 26)	Pembro + Chemo (n = 207)	Placebo+ Chemo (n = 86)	Pembro + Chemo (n = 143)	Placebo+ Chemo (n = 169)	
ORR	0.180	0.279	0.072	0.434	0.393	0.086	
PFS	0.187	0.409	0.075	0.055	0.052	0.560	
os	0.081	0.475	0.174	0.856	0.160	0.818	

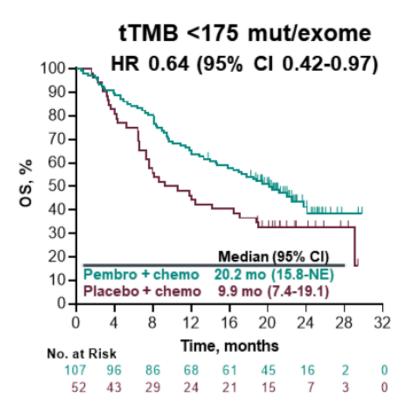
No association between tTMB (continuous,  $log_{10}$ -transformed) and efficacy for pembrolizumab + chemotherapy or chemotherapy ± placebo in any study based on  $\alpha$  = 0.05 significance level





# Clinical Utility for OS in KEYNOTE-189: tTMB Cutpoint of 175 mut/exome

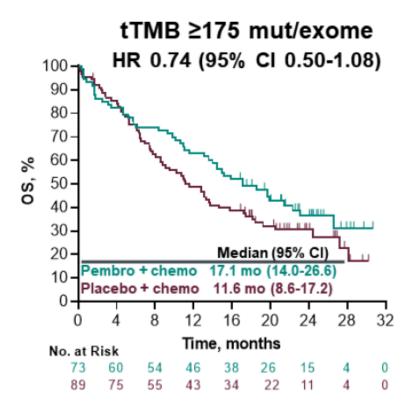


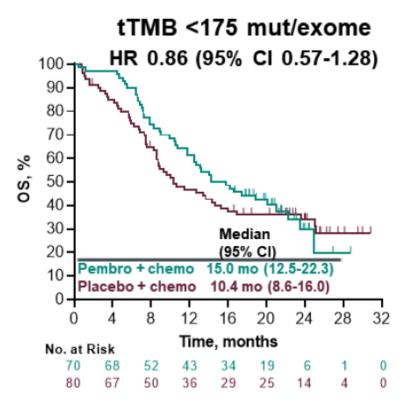






# Clinical Utility for OS in KEYNOTE-407: tTMB Cutpoint of 175 mut/exome

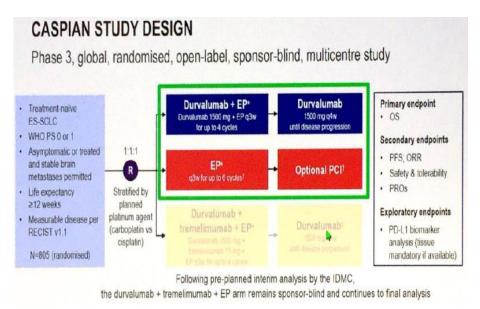


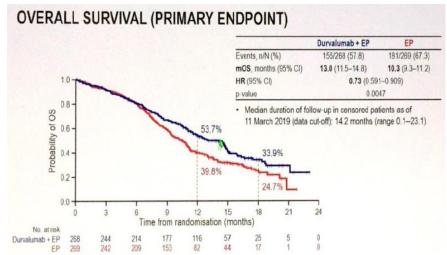




# LBA89 – PD-L1 expression, patterns of progression and PROs with durvalumab plus platinum-etoposide in ES-SCLC: Results from CASPIAN









### LBA89 – PD-L1 expression, patterns of progression and PROs with durvalumab plus platinum-etoposide in ES-SCLC: **Results from CASPIAN**



### PATTERNS OF FIRST PROGRESSION

### Types of progression

	Durvalumab + EP (N=268)	EP (N=269)
Total progression events, n (%)	226 (84.3)	233 (86.6)
RECIST-defined progression, n (%)	192 (71.6)	194 (72.1)
Target lesions	115 (42.9)	106 (39.4)
Non-target lesions	66 (24.6)	61 (22.7)
New lesions	111 (41.4)	127 (47.2)
Death in absence of progression, n (%)	34 (12.7)	39 (14.5)

### Sites of new lesions (>5% patients)

	Durvalumab + EP (N=268)	EP (N=269)
New lesions, n (%)	111 (41.4)	127 (47.2)
Lung	23 (8.6)	41 (15.2)
Brain/CNS	31 (11.6)	31 (11.5)
Liver	15 (5.6)	24 (8.9)
Bone	12 (4.5)	19 (7.1)
Regional lymph nodes	15 (5.6)	12 (4.5)

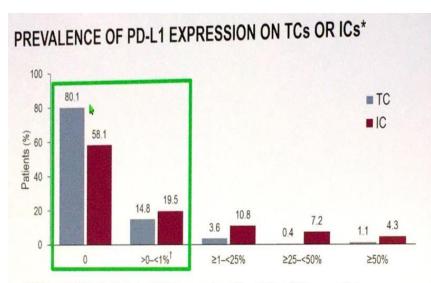
- Numerically fewer patients developed new lesions at first progression with durvalumab + EP versus EP
- No difference in the incidence of new brain/CNS lesions between arms



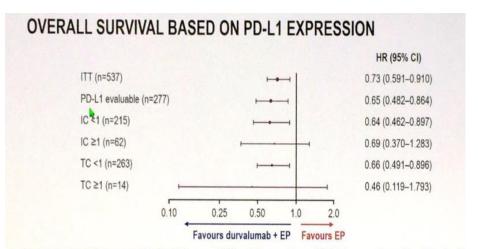


# LBA89 – PD-L1 expression, patterns of progression and PROs with durvalumab plus platinum-etoposide in ES-SCLC: Results from CASPIAN





- 94.9% and 77.6% of patients had PD-L1 expression <1% on TCs and ICs, respectively</li>
- · Due to low PD-L1 expression, a 1% cut-off was used in post-hoc analyses



- Durvalumab + EP was associated with improved OS vs EP, regardless of PD-L1 expression with a 1% cut-off
- No significant interaction was observed with OS based on PD-L1 expression as a continuous variable (TC, p=0.54; IC, p=0.23); similar results were observed with PFS and ORR



LBA89 – PD-L1 expression, patterns of progression and PROs with durvalumab plus platinum-etoposide in ES-SCLC: Results from CASPIAN



### TIME TO DETERIORATION IN SYMPTOMS

Durvalumab + EP was favoured across all symptoms

HR (95% CI) QLQ-C30 Appetite loss (n=454) 0.70 (0.542-0.899) Constipation (n=468) 0.65 (0.499-0.855) Diarrhoea (n=487) 0.59 (0.442-0.774) Dyspnoea (n=442) 0.75 (0.574-0.989) Fatigue (n=475) 0.82 (0.653-1.027) Nausea/vomiting (n=488) 0.80 (0.626-1.027) Pain (n=472) 0.79 (0.615-1.021) Insomnia (n=435) 0.75 (0.568-0.980) QLQ-LC13 Cough (n=459) 0.78 (0.600-1.026) Dyspnoea (n=480) 0.79 (0.625-1.006) Haemoptysis (n=487) 0.64 (0.469-0.876) Pain in arm/shoulder (n=478) 0.70 (0.535-0.915) Pain in chest (n=478) 0.76 (0.575-0.996) Pain in other parts (n=466) 0.72 (0.558-0.923) 04 0.5 0.8 0.9 congress Favours durvalumab + EP Favours EP





# 17360- IMPOWER133: UPDATED OS ANALYSIS OF 1L ATEZOLIZUMAB +CARBOPLATIN+ETOPOSIDE IN ES-SCLC



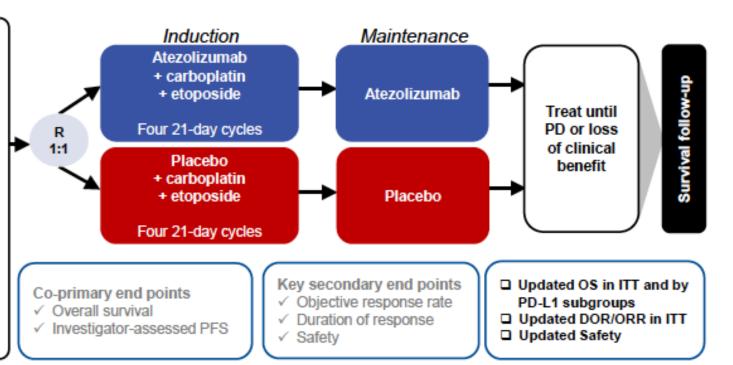
## IMpower133 study design

#### Patients with (N = 403)

- Measurable ES-SCLC (RECIST version 1.1)
- FCOG PS 0 or 1
- No prior systemic treatment for ES-SCLC
- Patients with treated asymptomatic brain metastases were eligible

#### Stratification

- Sex (male vs female)
- ECOG PS (0 vs 1)
- Brain metastases (yes vs no)<sup>a</sup>



Atezolizumab, 1200 mg IV, Day 1; Carboplatin, AUC 5 mg/mL/min IV, Day 1; Etoposide, 100 mg/m² IV, Days 1–3.

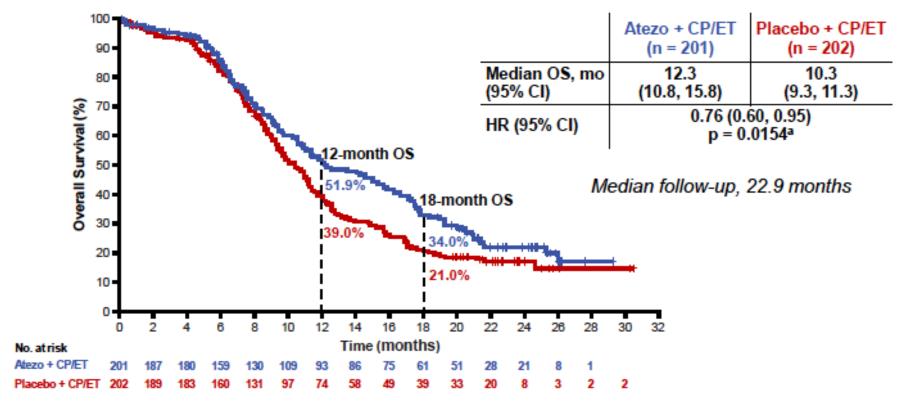
\* Only patients with treated brain metastases were eligible.



# 17360- IMPOWER133: UPDATED OS ANALYSIS OF 1L ATEZOLIZUMAB +CARBOPLATIN+ETOPOSIDE IN ES-SCLC



## Updated OS in ITT



\*p-value is provided for descriptive purpose. CCOD 24 January 2019



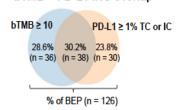
# 17360- IMPOWER133: UPDATED OS ANALYSIS OF 1L ATEZOLIZUMAB +CARBOPLATIN+ETOPOSIDE IN ES-SCLC



### Biomarker analysis: bTMB and PD-L1 expression

- · PD-L1 and bTMB biomarkers identify distinct patient populations in ES-SCLC
- Post-hoc exploratory analysis conducted for OS by PD-L1 expression
  - o The PD-L1 IHC biomarker evaluable population (BEP) comprised 34% of the ITT population
  - o VENTANA SP263 assay was used to determine PD-L1 status on slide sections ≤ 1 year old
  - PD-L1 expression was observed mostly on immune cells (IC), with limited expression on tumour cells (TC)
  - o Efficacy analyses were conducted using PD-L1 expression cut-offs of 1% and 5%

#### bTMB - PD-L1 IHC overlap



PD-L1 IHC expression in ES-SCLC (n = 137)					
IC	% BEP (n)	TC	% BEP (n)		
< 1%	49.6% (68)	< 1%	94.2% (129)		
≥ 1%	50.4% (69)	≥ 1%	5.8% (8)		
≥ 5%	20.4% (28)	≥ 5%	1.5% (2)		

### Updated OS in PD-L1 expression subgroups

Subgroup		)\$ (months) Placebo + CP/E	T ,	OS Hazard Ratio <sup>a</sup> (95% CI)
ITT (N = 403)	12.3	10.3	<b>⊢</b>	0.76 (0.61, 0.96)
ITT-BEP (n = 137)	9.9	8.9	-	0.70 (0.48, 1.02)
Non-BEP (n = 266)	14.6	11.2	<b>└</b>	0.81 (0.61, 1.08)
PD-L1 expression 1% TC or IC				
< 1% PD-L1 (n = 65)	10.2	8.3	<b>──</b>	0.51 (0.30, 0.89)
≥ 1% PD-L1 (n = 72)	9.7	10.6	<b></b>	→ 0.87 (0.51, 1.49)
PD-L1 expression 5% TC or IC				
< 5% PD-L1 (n = 108)	9.2	8.9	<b>⊢</b>	0.77 (0.51, 1.17)
≥ 5% PD-L1 (n = 29)	21.6	9.2 ⊢	•	0.60 (0.25, 1.46)
		0.25	1.0	1.5
			Hazard Rati	io <sup>a</sup>
			Favours Atezo + CP/ET Fav	ours: Placebo + CP/ET

