

INMUNOTERAPIA

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DISCLOSURES

- **Advisory board:** Roche, AstraZeneca, MSD, BMS, Takeda, Sanofi, AMGEN
- **Speaking:** Roche, AstraZeneca, MSD, BMS, Takeda, Pfizer, Janssen





- OA09.05: ASTRUM-004: A phase 3 study of serplulimab plus chemotherapy as first-line treatment for squamous non-small cell lung cancer
- OA09.04: ILLUMINATE: efficacy and safety of durvalumab-tremelimumab and chemotherapy in EGFR mutant NSCLC following progression on EGFR inhibitors
- OA09.06: IMpower151: phase III study of atezolizumab + bevacizumab + chemotherapy in 1L metastatic nonsquamous NSCLC



OA09.05: ASTRUM-004: A phase 3 study of serplulimab plus chemotherapy as first-line treatment for squamous non-small cell lung cancer

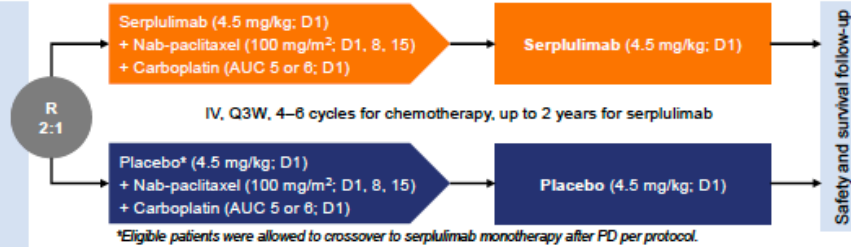
Randomized, double-blind, multicenter, international phase 3 trial

Main eligibility criteria

- ≥18 years
- ECOG PS 0 or 1
- Stage IIIB/IIIC or IV squamous NSCLC
- No prior systemic anticancer therapy
- No known EGFR mutations or ALK/ROS1 rearrangements

Stratification factors

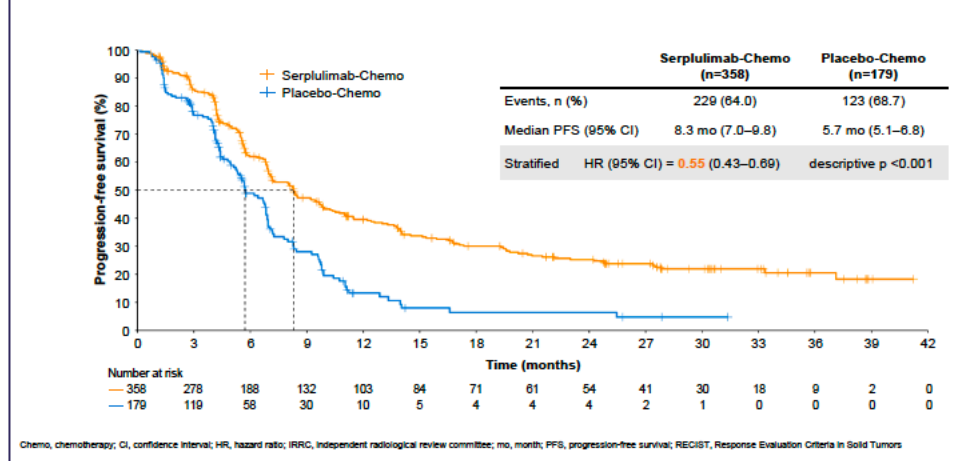
- PD-L1 level (TPS <1% vs 1%≤ TPS <50% vs TPS ≥50%)
- Race (Asian vs non-Asian)
- Disease stage (stage IIIB/IIIC vs IV)



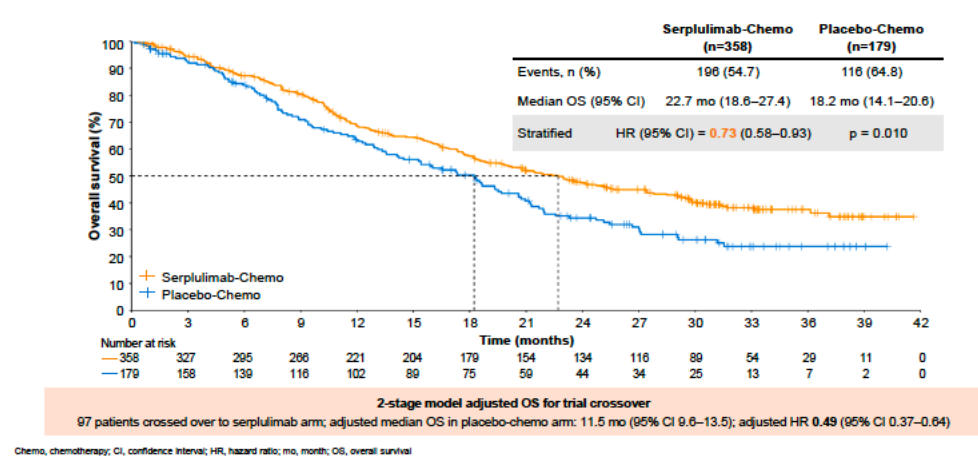
- **Primary endpoint:** PFS by IRRc per RECIST v1.1
- **Secondary endpoints:** OS, PFS, ORR, DOR, safety, exploration of biomarkers

Statistical analysis: The 1st interim analysis of OS was performed at the time of PFS final analysis, when approximately 99 deaths had occurred. The 2nd interim analysis of OS was performed when 198 deaths were observed. The final OS analysis were performed when 299 deaths had occurred. PFS and OS were tested sequentially at an overall 2-sided α level of 0.05. The multiplicity-adjusted 2-sided α level was 0.0002, 0.012, and 0.046 for OS at the 1st and the 2nd interim analysis, and the final analysis, respectively.

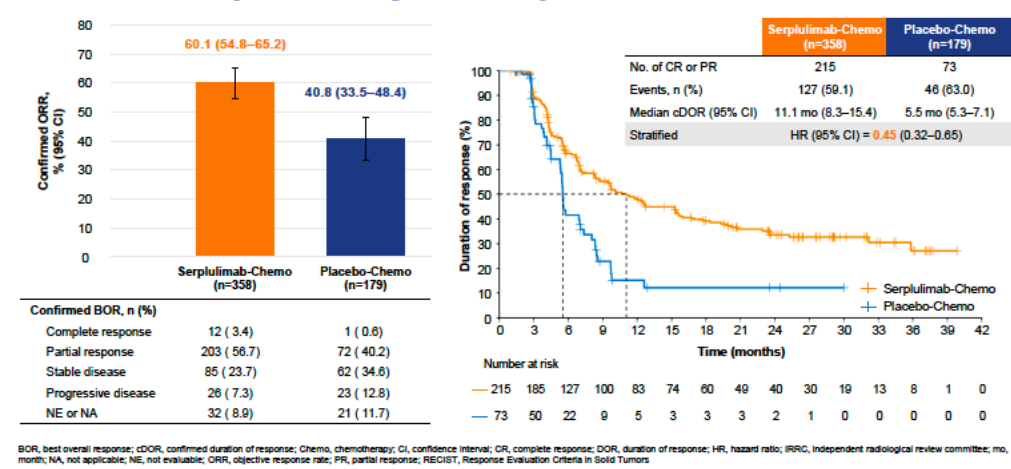
Updated PFS by IRRc per RECIST 1.1



Overall Survival



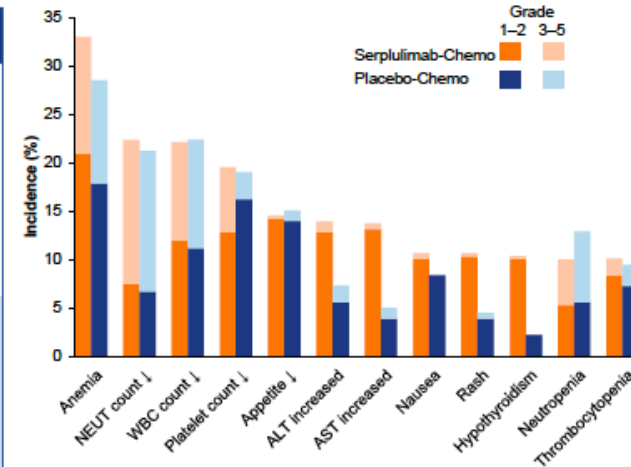
Tumor Response by IRRc per RECIST v1.1



OA09.05: ASTRUM-004: A phase 3 study of serplulimab plus chemotherapy as first-line treatment for squamous non-small cell lung cancer

Safety Profile

	Serplulimab-Chemo (n=358)	Placebo-Chemo (n=179)
TEAE, n (%)	354 (98.9)	176 (98.3)
Grade ≥3	305 (85.2)	142 (79.3)
Serious	186 (52.0)	76 (42.5)
Leading to Tx discontinuation	80 (22.3)	27 (15.1)
Leading to death	49 (13.7)	19 (10.6)
AESI	109 (30.4)	31 (17.3)
irAE	106 (29.6)	31 (17.3)
IRR	4 (1.1)	0
TRAE, n (%)	345 (96.4)	170 (95.0)
Serious	119 (33.2)	49 (27.4)
Leading to death	4 (1.1)	5 (2.8)
Related to serplulimab/placebo	282 (73.2)	112 (62.6)
Grade ≥3	127 (35.5)	57 (31.8)
Leading to Tx discontinuation	37 (10.3)	9 (5.0)
Leading to death	4 (1.1)	2 (1.1)



* AEs related to serplulimab or placebo in ≥10% of patients in either group were shown.
 † AEs occurred after trial crossover were not included.

AE, adverse event; AESI, adverse event of special interest; ALT, alanine transaminase; AST, aspartate aminotransferase; Chemo, chemotherapy; irAE, immune-related adverse event; IRR, infusion-related reaction; NEUT, neutrophil; TEAE, treatment-emergent adverse event; TRAE, treatment-related adverse event; Tx, treatment; WBC, white blood cell

- With 31.1 months of follow-up, serplulimab plus carboplatin/nab-paclitaxel showed consistent benefits in PFS, OS, ORR, and DOR.
 - Median OS at final analysis: 22.7 vs 18.2 months, HR = 0.73, p = 0.010
 - Updated median PFS at OS final analysis: 8.3 vs 5.7 months, HR = 0.55, descriptive p <0.001
- Serplulimab plus carboplatin/nab-paclitaxel showed a manageable safety profile, with no new safety signals being observed during the study.

In conclusion, adding serplulimab to carboplatin/nab-paclitaxel significantly improved survival in previously untreated patients with locally advanced or metastatic squamous NSCLC. The aforementioned combination regimen represents a new treatment option for this patient population in the global setting.

OA09.04: ILLUMINATE: efficacy and safety of durvalumab-tremelimumab and chemotherapy in EGFR mutant NSCLC following progression on EGFR inhibitors

Population
 EGFR +ve advanced NSCLC
 Progressed on EGFR TKI therapy
 ECOG PS 0-1
 Measurable disease (RECIST 1.1)

Cohort 1
 T790M -ve (N=50)

Cohort 2
 T790M +ve (N=50)
 with disease progression following a 3rd generation EGFR TKI

Exclusions
 Prior immunotherapy or chemotherapy for metastatic disease

Open label, parallel cohort, non-comparative, multicentre phase 2 trial

Induction

Durvalumab 1500mg IV + Tremelimumab 75mg IV + Cisplatin 75mg/m² + Pemetrexed 500mg/m² q3/52

Maintenance

Durvalumab 1500mg IV + Pemetrexed 500mg/m² q4/52

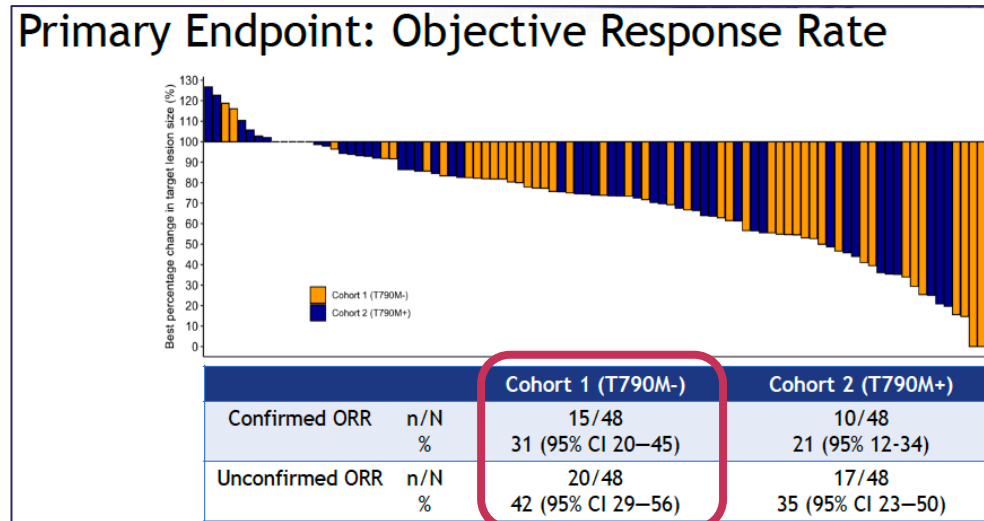
4 cycles Until progression

Outcomes

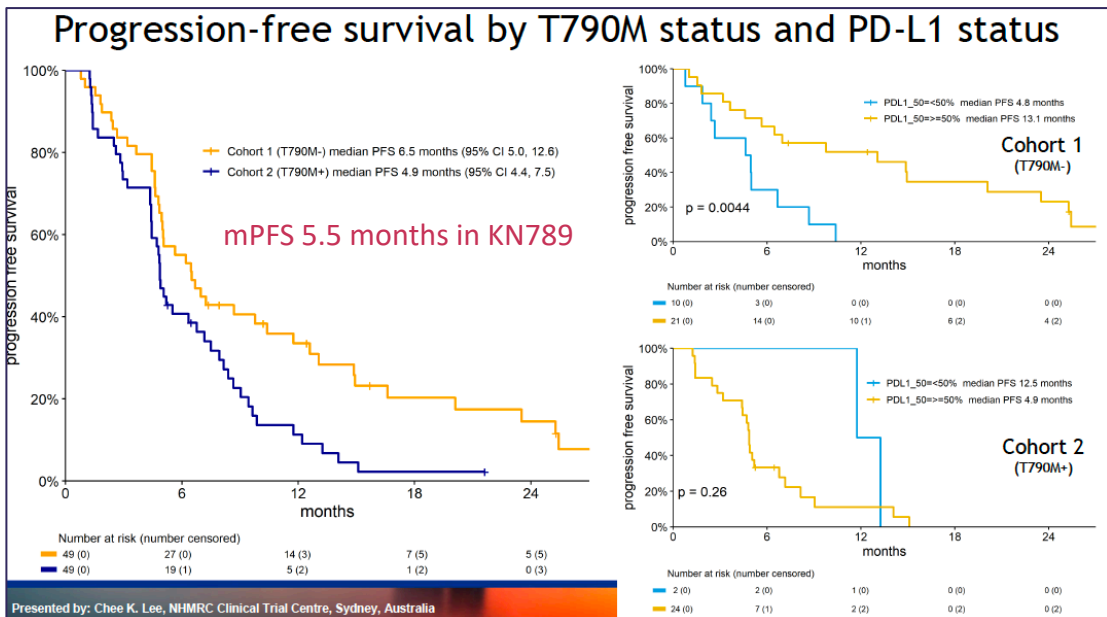
Best OTRR*

Best DCR*
 OTRR**
 PFS* **
 PFS_{12 months} * **
 OS
 Safety
 Correlation with tumour PD-L1 expression, TIL, baseline and longitudinal cfDNA

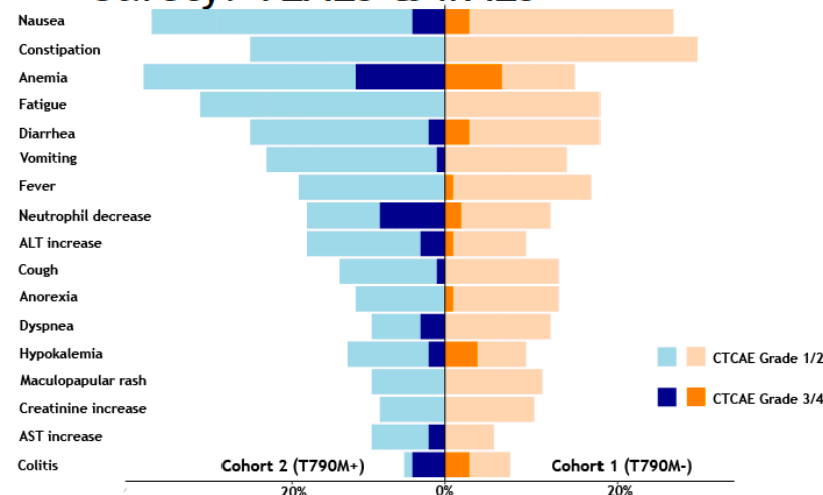
* RECIST 1.1
 ** IRECIST



ORR ~ 28% for Pemetrexed + platinum + pembro in KN789



Safety: TEAEs & irAEs



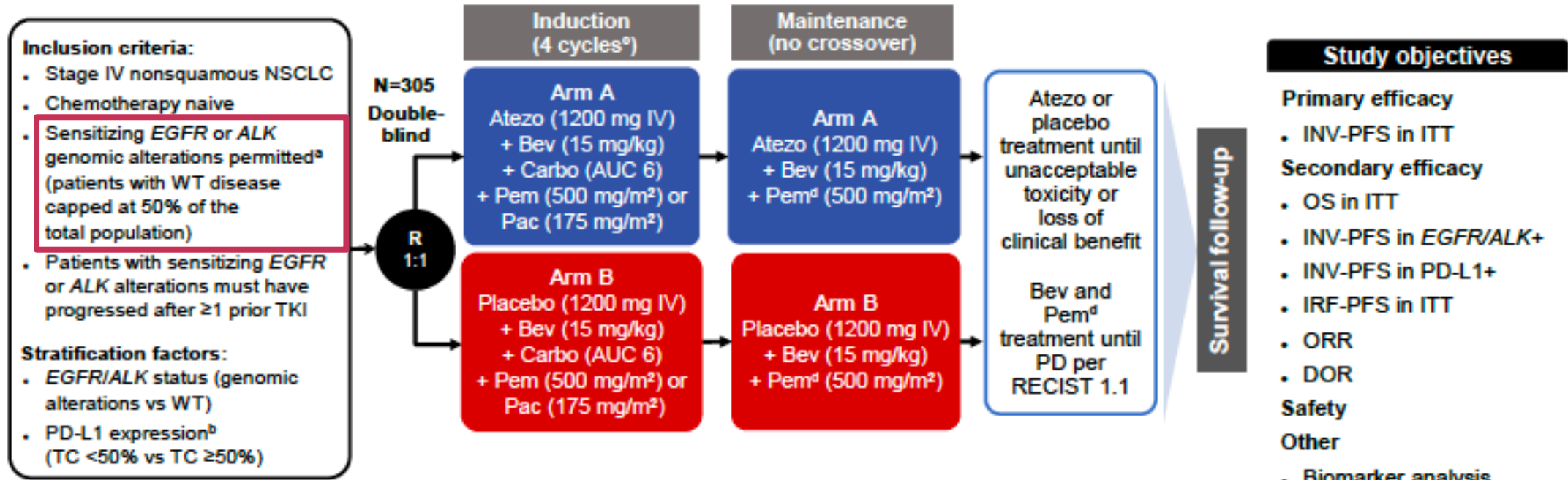
Grade 3-4 immune-related AEs	n (%)
Colitis	8 (8)
Hepatitis	4 (4)
Adrenal insufficiency	2 (2)
Pneumonitis	1 (1)

- No fatal TEAEs
- No significant difference in G3-G4 irAE rates between cohorts
 10% vs 18%, p=0.40
- Treatment discontinuation for irAEs in 6 (6%)

Summary

- The addition of durvalumab and tremelimumab to platinum-doublet chemotherapy has modest anti-tumor activity in advanced *EGFR* mutant NSCLC following progression on EGFR TKIs
- There was a numerically greater benefit for ORR and PFS in *EGFR* T790M-tumors (cohort 1)
- The safety profile was consistent with other chemoimmunotherapy regimens in advanced NSCLC and not increased with the addition of tremelimumab

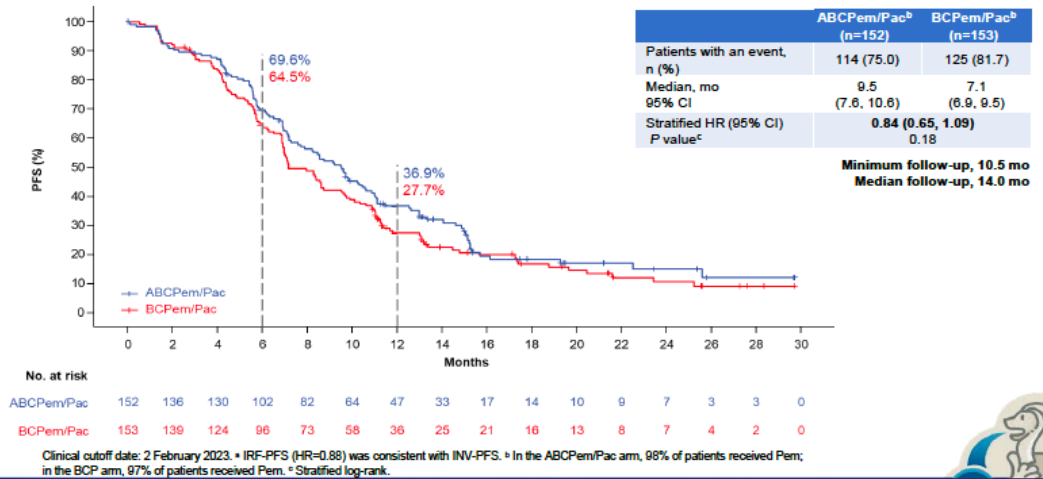
0A09.06: IMpower151: phase III study of atezolizumab + bevacizumab + chemotherapy in 1L metastatic nonsquamous NSCLC



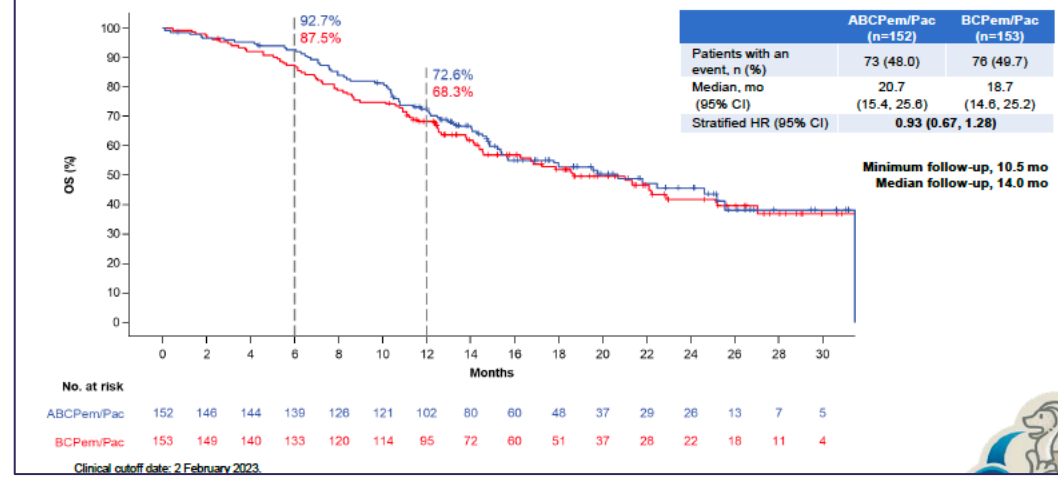
- A target sample size of 306 patients allowed for 90% power to detect a HR of 0.65, corresponding to an improvement in median PFS from 6.8 to 10.5 months in the ITT population

0A09.06: IMPower151: phase III study of atezolizumab + bevacizumab + chemotherapy in 1L metastatic nonsquamous NSCLC

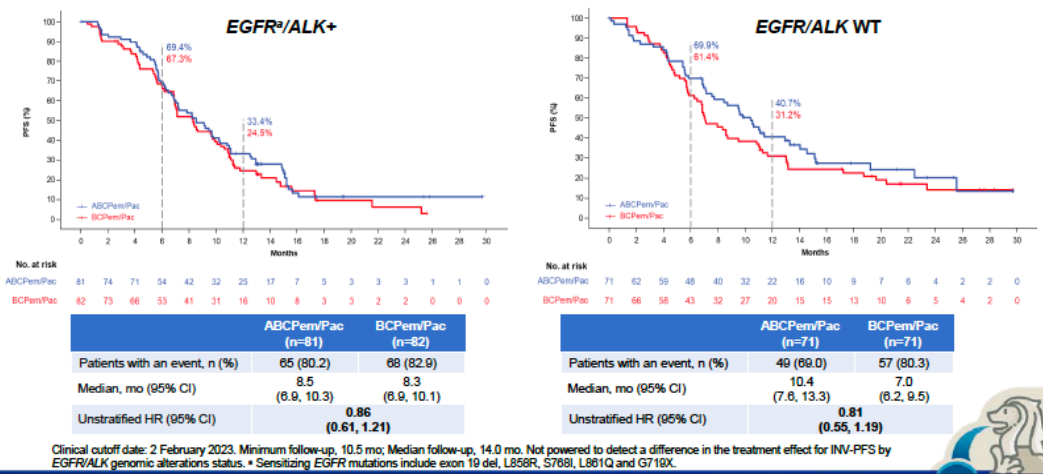
Primary Endpoint: INV-PFS in the ITT population^a



OS in the ITT population



INV-PFS by EGFR/ALK genotype

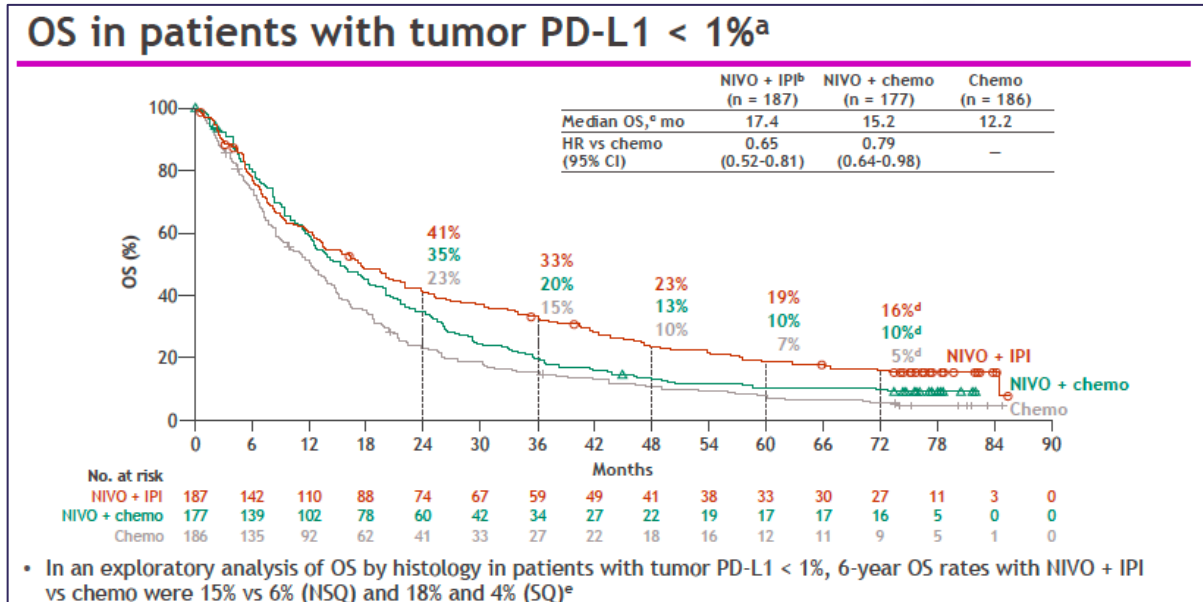
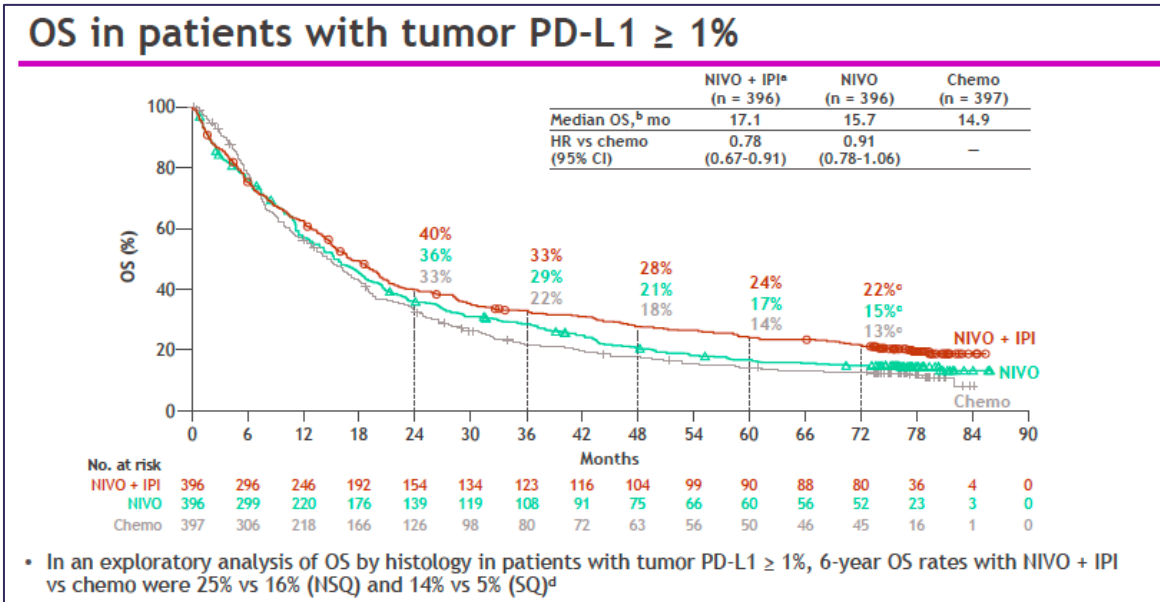
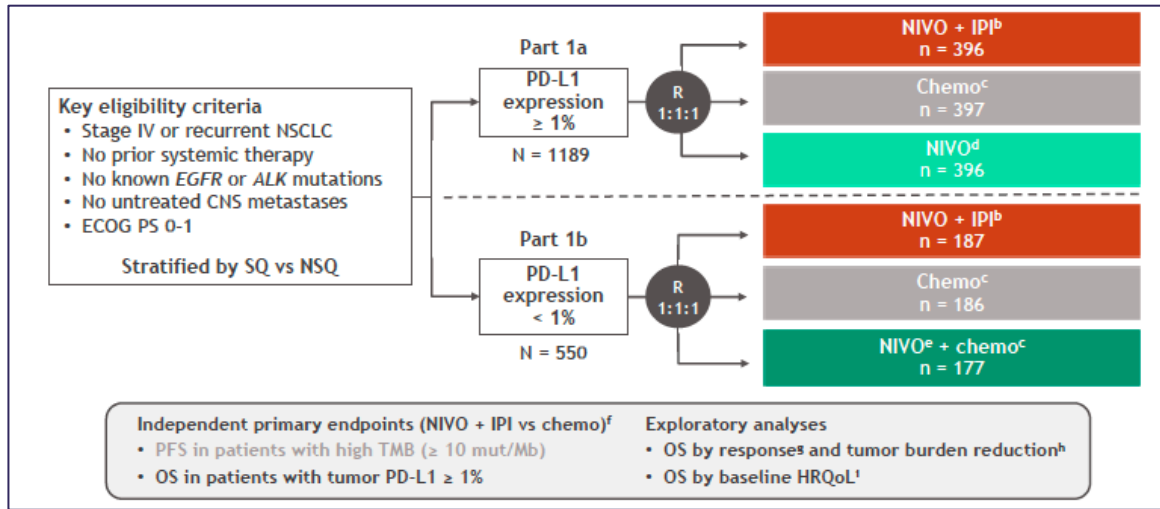


	ABCPem/Pac (n=152)	BCPem/Pac (n=153)
ORR, n (%)	73 (48.0)	76 (49.7)
Complete response	0	1 (0.7)
Partial response	73 (48.0)	75 (49.0)
Stable disease	60 (39.5)	61 (39.9)
Disease progression	10 (6.6)	9 (5.9)
DOR		
Responders, n (%)	73 (48.0)	76 (49.7)
Responders with subsequent event, n (%)	47 (64.4)	60 (78.9)
Median, mo (95% CI)	11.3 (7.4, 13.6)	8.3 (5.7, 9.9)

- OA14.03: Six-year survival and HRQoL outcomes with 1L Nivolumab + Ipilimumab in patients with metastatic NSCLC from CheckMate227
- OA14.04: Three-year outcomes with first-line pembrolizumab, in patients with non-small cell lung cancer and a PD-L1 tumor proportion score > 90%
- OA14.05: 5-year survival of pembrolizumab plus chemotherapy for metastatic NSCLC with PD-L1 tumor proportion score < 1%

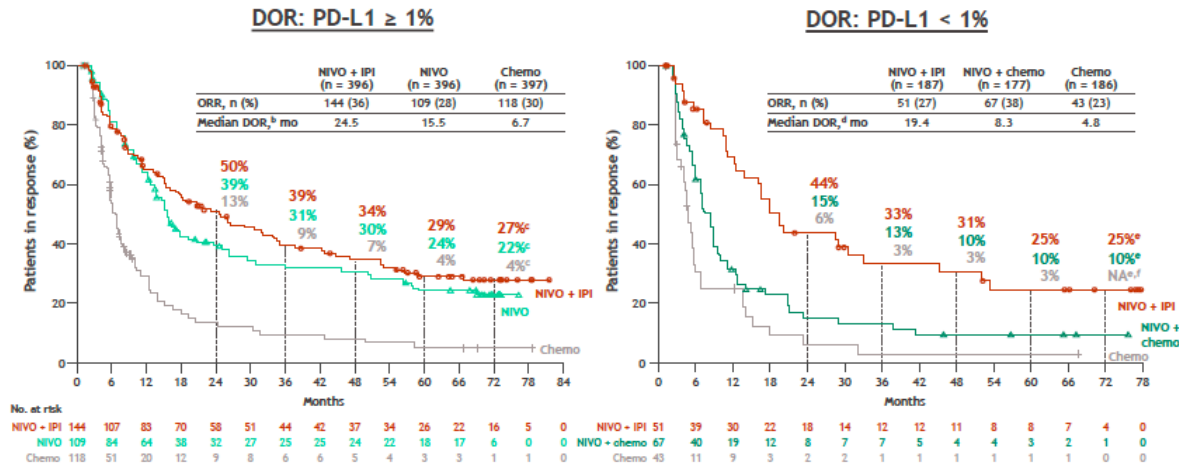


0A14.03: Six-year survival and HRQoL outcomes with 1L Nivolumab + Ipilimumab in patients with metastatic NSCLC from CheckMate227



0A14.03: Six-year survival and HRQoL outcomes with 1L Nivolumab + Ipilimumab in patients with metastatic NSCLC from CheckMate227

DOR^a and PFS^a by tumor PD-L1 expression



• 6-year PFS rates with NIVO + IPI vs chemo were 11% vs 2% (PD-L1 ≥ 1%) and 8% vs NA^f (PD-L1 < 1%)^g

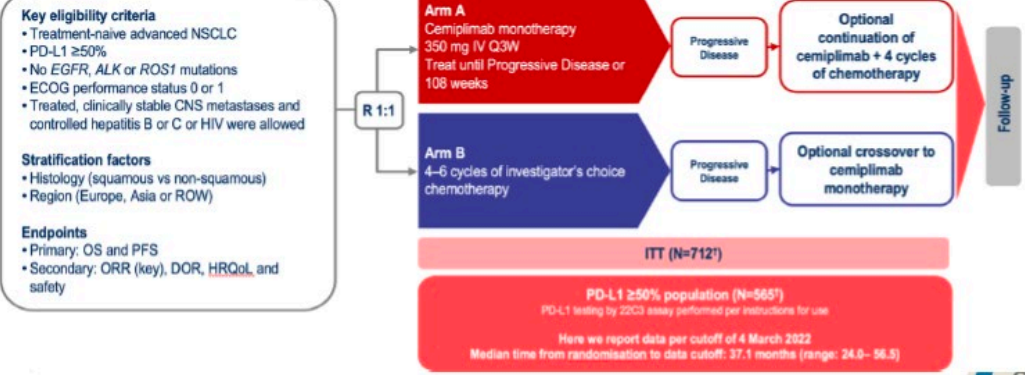
- With 6 years' minimum follow-up, patients treated with NIVO + IPI vs chemo continued to derive long-term, durable efficacy benefit in CheckMate 227 Part 1, regardless of tumor PD-L1 expression
 - 6-year OS rates: 22% vs 13% (PD-L1 ≥ 1%); 16% vs 5% (PD-L1 < 1%)
 - 6-year DOR rates: 27% vs 4% (PD-L1 ≥ 1%); 25% vs NA (PD-L1 < 1%)
- Greater tumor burden reduction was observed with NIVO + IPI vs chemo; deeper responses were associated with long-term OS benefit, regardless of tumor PD-L1 expression
- Better baseline HRQoL was associated with improved OS in both NIVO + IPI and chemo arms
- The safety profile of NIVO + IPI remained unchanged from previous reports
- Taken together, these results
 - Represent the longest reported follow-up across phase 3 studies of 1L immunotherapy in patients with metastatic NSCLC
 - Further highlight the clinical benefit of 1L NIVO + IPI as an effective treatment for patients with metastatic NSCLC and tumor PD-L1 ≥ 1% or tumor PD-L1 < 1%

OA14.04: Three-year outcomes with first-line pembrolizumab, in patients with non-small cell lung cancer and a PD-L1 tumor proportion score > 90%

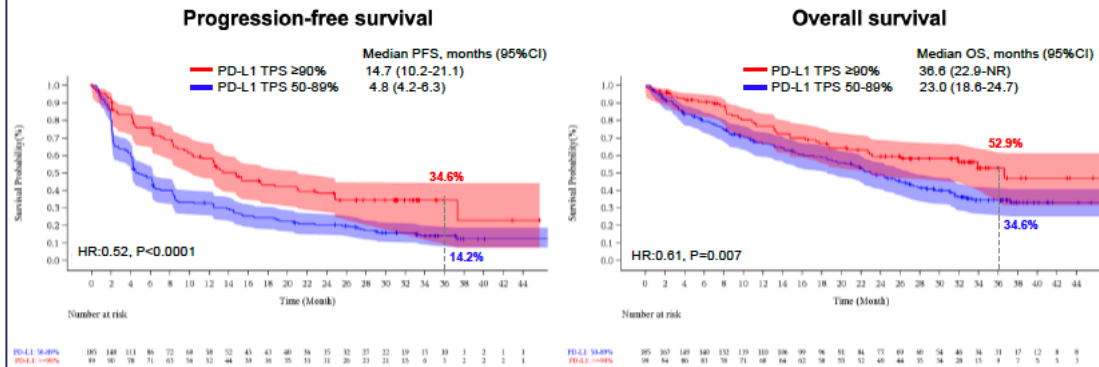
Methods

- We examined two independent cohorts of patients with advanced NSCLC and a PD-L1 TPS $\geq 50\%$ who received PD-1 inhibition:
 - Cohort #1: EMPOWER-Lung-1
 - Cohort #2: retrospective academic cohort (DFCI, MSKCC, MDACC, MGH)
- Targeted exome sequencing and multiplexed immunofluorescence were performed on a subset of NSCLC samples at DFCI.

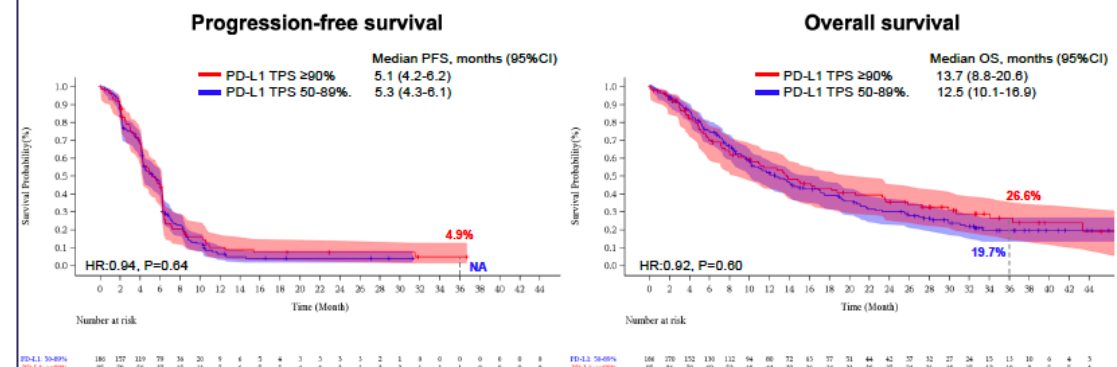
EMPOWER-Lung-1



Three-years PFS and OS to first-line cemiplimab by PD-L1 expression levels in the EMPOWER-Lung-1

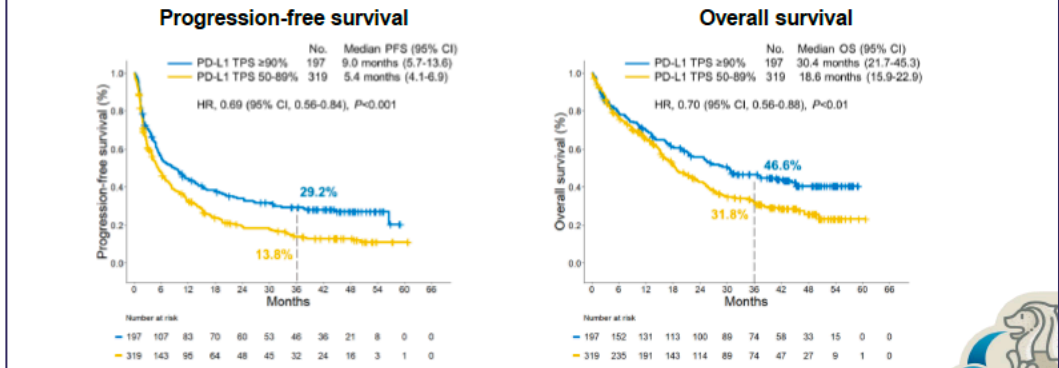


Three-years PFS and OS to first-line chemotherapy by PD-L1 expression levels in the EMPOWER-Lung-1

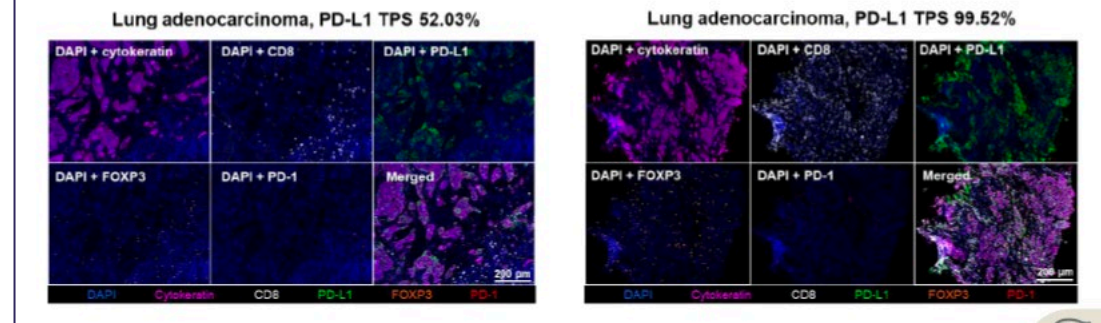


OA14.04: Three-year outcomes with first-line pembrolizumab, in patients with non-small cell lung cancer and a PD-L1 tumor proportion score > 90%

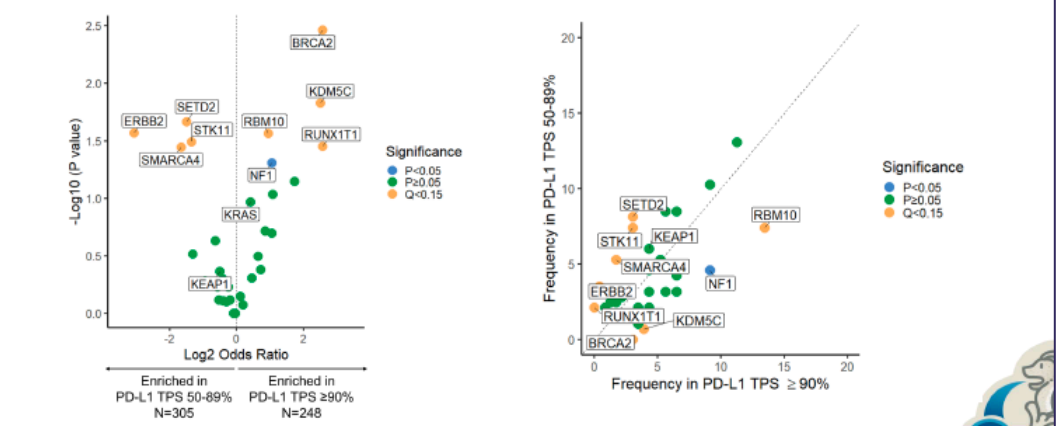
Three-year PFS and OS to first-line commercial **pembrolizumab** by PD-L1 expression levels in the retrospective academic cohort



Immunophenotype of NSCLCs with a PD-L1 TPS of 50-89% and ≥90%



Genomic profile of NSCLC with a PD-L1 TPS 50-89% and ≥90%



- PD-1 monotherapy continues to demonstrate a meaningful long-term survival benefit in patients with advanced NSCLC and a PD-L1 TPS ≥90%.
- NSCLCs with very high PD-L1 TPS may have a more favorable genomic and immunophenotypic profile (lower prevalence of *STK11/SMARCA4* mutations, increased CD8+PD1+ T cells).
- Implication for clinical decision making and for the interpretation and design of immunotherapy clinical trials in metastatic and early-stage NSCLC

OA14.05: 5-year survival of pembrolizumab plus chemotherapy for metastatic NSCLC with PD-L1 tumor proportion score < 1%

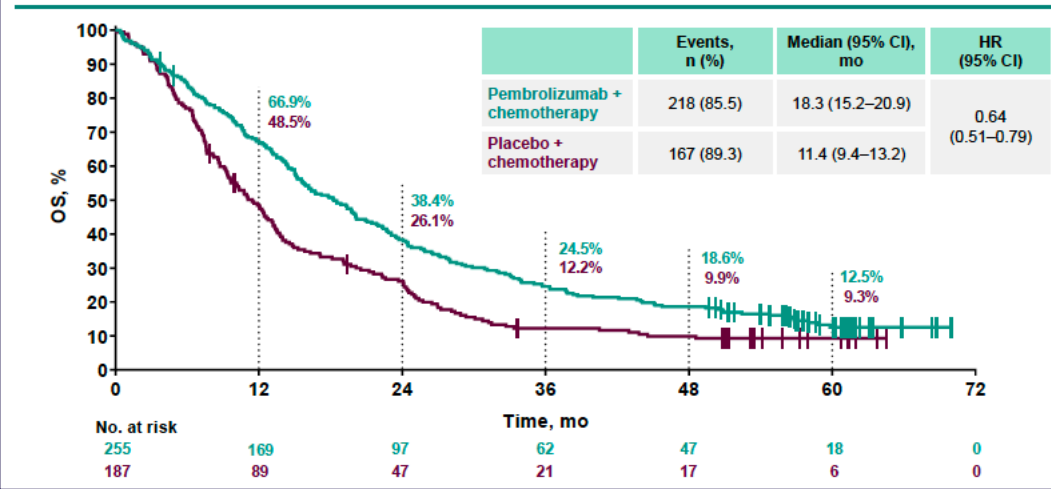
We present 5-year outcomes from a post-hoc exploratory pooled analysis of phase 3 trials of pembrolizumab plus chemotherapy vs placebo plus chemotherapy in patients with previously untreated metastatic NSCLC with PD-L1 TPS <1%

- **PD-L1 expression:** centrally assessed using PD-L1 IHC 22C3 pharmDx (Agilent Technologies, Carpinteria, CA, USA) from biopsy samples collected at diagnosis^{1,2}
- **Tumor response:** assessed per RECIST version 1.1 by BICR
- **PFS2:** defined as time from randomization to second/subsequent tumor progression on next line of treatment or death; assessed per RECIST version 1.1 by investigator review

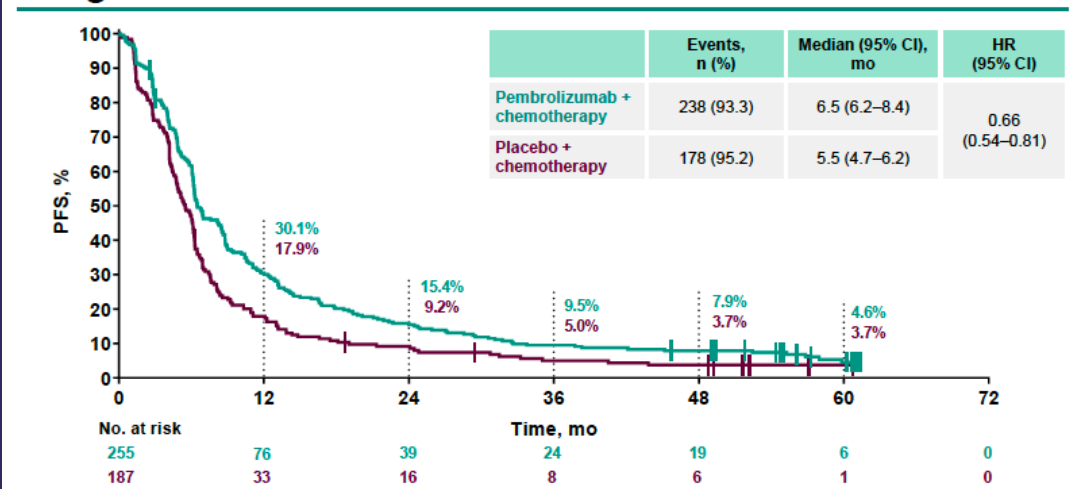
Clinical Study	Study Design
KEYNOTE-189 global¹ (NCT02578680) and Japan Extension⁷ (NCT03950674)	<ul style="list-style-type: none">▪ Previously untreated stage IV nonsquamous NSCLC; no <i>EGFR/ALK</i> alteration▪ Pembrolizumab 200 mg Q3W plus pemetrexed-platinum vs placebo plus pemetrexed-platinum▪ 2:1 randomization
KEYNOTE-407 global² (NCT02775435) and China Extension⁸ (NCT03875092)	<ul style="list-style-type: none">▪ Previously untreated stage IV squamous NSCLC▪ Pembrolizumab 200 mg Q3W plus carboplatin-paclitaxel/hab-paclitaxel vs placebo plus carboplatin-paclitaxel/hab-paclitaxel▪ 1:1 randomization

OA14.05: 5-year survival of pembrolizumab plus chemotherapy for metastatic NSCLC with PD-L1 tumor proportion score < 1%

Overall Survival



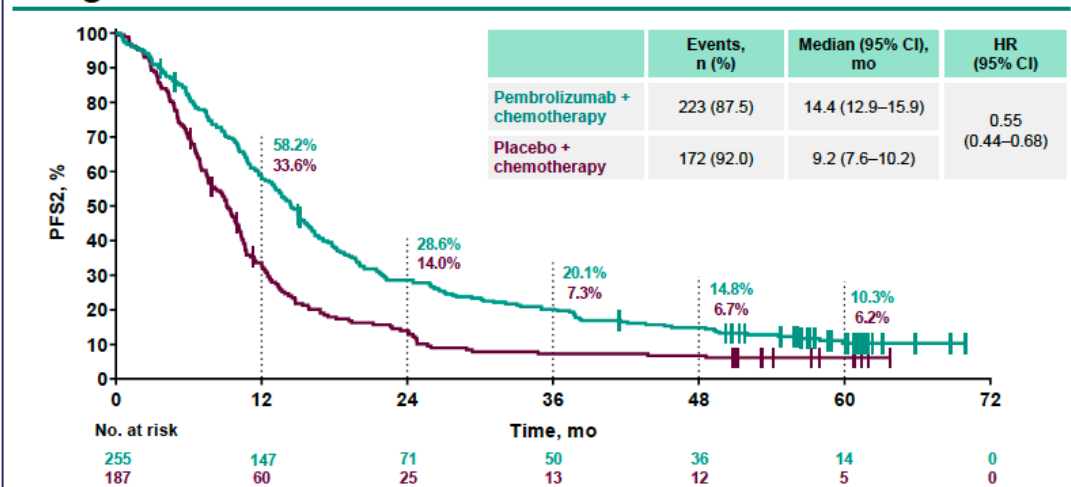
Progression-Free Survival^a



Antitumor Activity and Duration of Response^a

	Pembrolizumab + Chemotherapy n = 255	Placebo + Chemotherapy n = 187
ORR (95% CI), %	50.6 (44.3–56.9)	33.2 (26.5–40.4)
Best overall response, n (%)		
Complete response	4 (1.6)	5 (2.7)
Partial response	125 (49.0)	57 (30.5)
Stable disease ^b	88 (34.5)	79 (42.2)
Progressive disease	20 (7.8)	31 (16.6)
Not evaluable ^c	11 (4.3)	6 (3.2)
No assessment ^d	7 (2.7)	9 (4.8)
Median DOR (range), mo	7.6 (1.1+ to 59.4+)	5.5 (1.4+ to 55.8+)

Progression-Free Survival 2



Summary and Conclusions

- With ~5 years of follow-up in this pooled analysis, pembrolizumab plus chemotherapy provided clinically meaningful, durable improvements in OS, PFS, ORR, and PFS2 compared with chemotherapy alone in patients with previously untreated metastatic NSCLC with PD-L1 TPS <1% without *EGFR/ALK* alterations enrolled in KEYNOTE-189 and KEYNOTE-407
- Pembrolizumab plus chemotherapy had manageable safety
- Patients in this subgroup who completed 35 cycles (□2 years) of pembrolizumab experienced durable responses and 57% were alive 3 years after completion of 35 cycles (□5 years after randomization)
- These results continue to support pembrolizumab plus chemotherapy as a standard-of-care first-line therapy for metastatic NSCLC with PD-L1 TPS <1%

PD-L1

Other biomarkers

Digital vs
manual

50-89% vs
 $\geq 90\%$

Pathologic response

Tumor
transcriptomics

Blood

OA15.04:
subgroup
analysis
IMpower110

OA14.04: ICI
monotherapy

OA15.03:
differential
response

OA15.06:
CALCULATION
METHODS

OA09.03:
STK11/LKB1

OA15.05:
LIPI: Lung
Immune
Prognostic
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CONCLUSIONS

- **Impower 151:** Atezo + Beva + chemotherapy has no clear role in EGFR/ALK
- **ILLUMINATE:** Longer follow up and studies are needed: role of dual IO for EGFR mut NSCLC post-TKI progression
- Dual IO or pembro + chemotherapy. Consistent durable responses in PD-L1 negative
- Better biomarkers or combination of biomarkers are needed for ICI beyond genomic testing or PD-L1

MUCHAS GRACIAS

