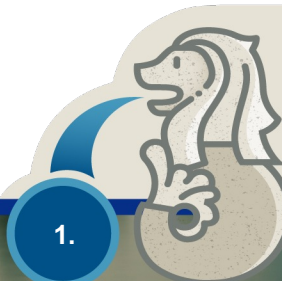


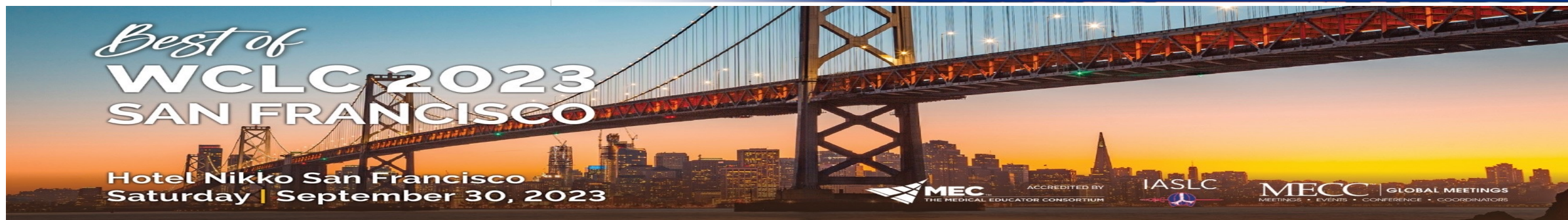


Adjuvant/Neo-adjuvant Systemic Therapy

Heather Wakelee, MD, FASCO

Stanford University Cancer Institute





OA12.05: *Surgical outcomes with neoadjuvant durvalumab + chemotherapy followed by adjuvant durvalumab in resectable NSCLC (AEGEAN) – Dr. Kratz*

OA12.06: Neoadjuvant durvalumab + chemotherapy followed by adjuvant durvalumab in resectable EGFR-mutated NSCLC (AEGEAN)

MA11.08: IMpower010: Exploratory analysis of tumour mutational burden and disease-free survival with adjuvant atezolizumab in NSCLC

MA11.09: SAKK 16/18: Neoadjuvant chemotherapy, durvalumab and immune-modulatory RT in Stage III(N2) NSCLC. Surgical interim analysis

MA 11.11: Drug tolerant persister (DTP) to neoadjuvant osimertinib in resectable NSCLC harbouring *EGFR* mutations (NORA)





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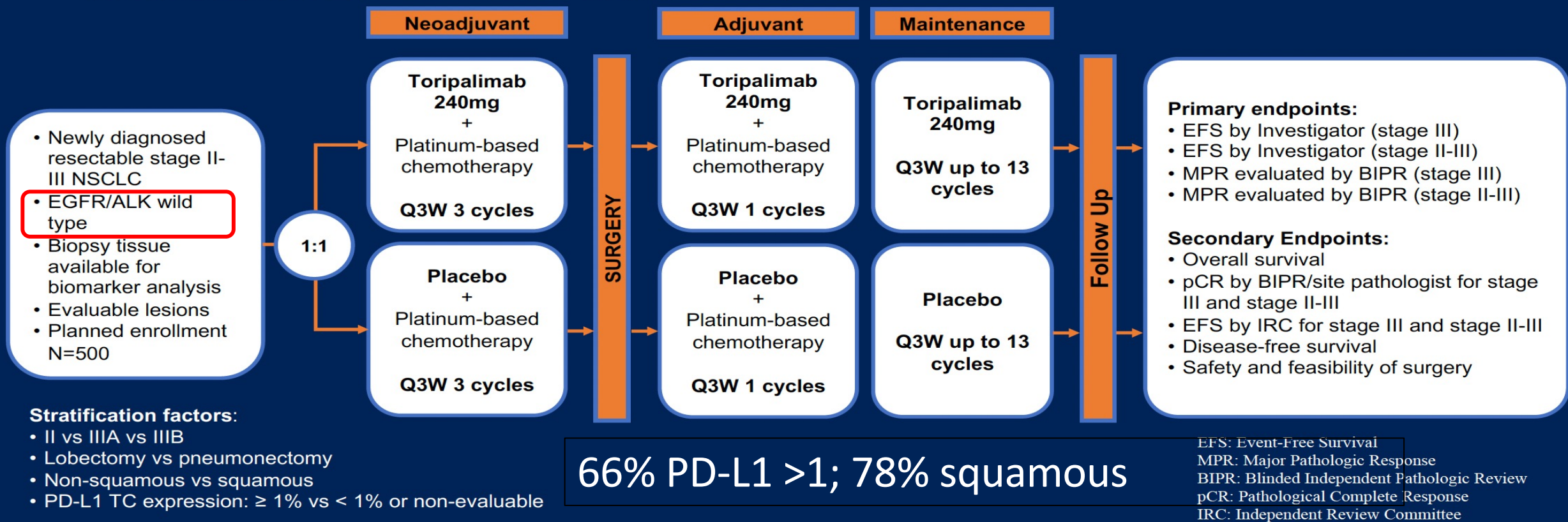
**Peri-Operative IO
NEOCOAST
KN671
AEGEAN**





Neotorch Study Design

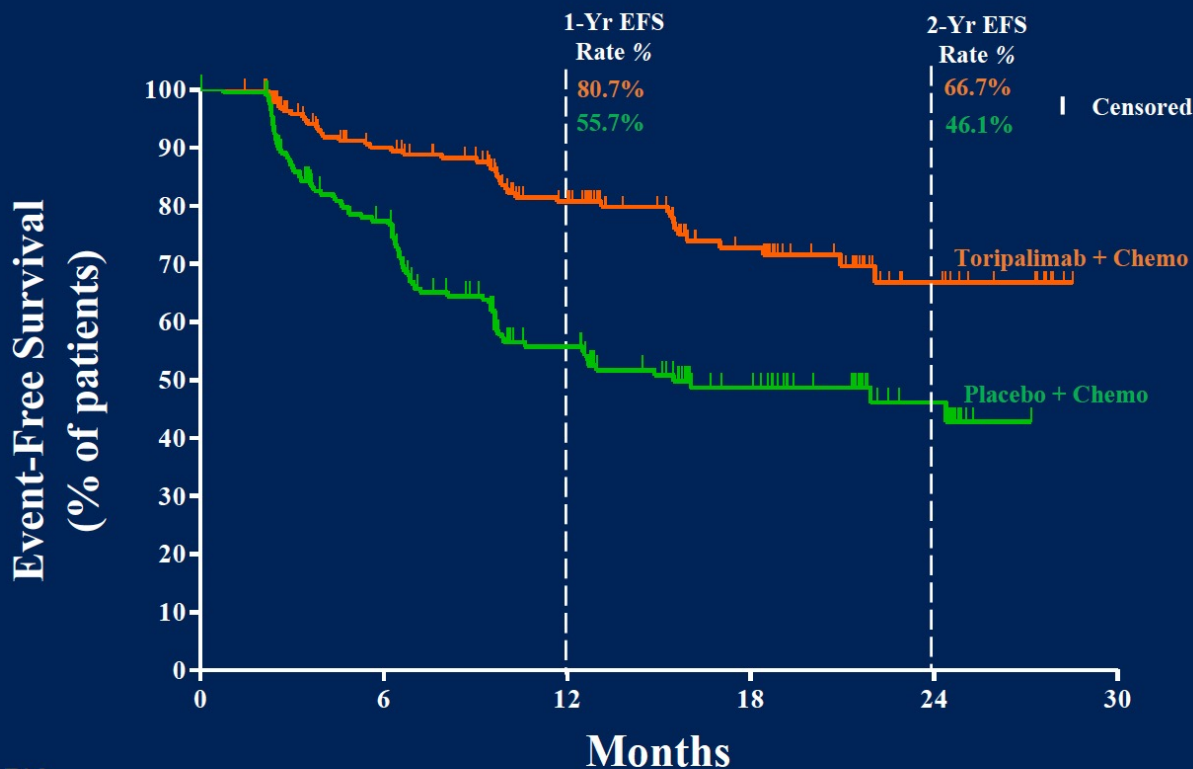
- Neotorch is a randomized, double-blind, placebo-controlled, Phase III trial evaluating the efficacy and safety of perioperative toripalimab plus chemotherapy, followed by toripalimab maintenance vs perioperative chemotherapy alone in resectable stage II/III non-small cell lung cancer (NSCLC)





Event-Free Survival Analysis by IRC

Intent-to-treat Stage III patients assessed by IRC per RECIST v1.1



	No. of Events/ No. of Patients	Median EFS mo (95% CI)
Toripalimab + Chemo	43/202	NE (NE, NE)
Placebo + Chemo	87/202	15.5 (9.9, NE)

Median follow-up: 18.25 months

HR 0.40 (95%CI 0.271, 0.572)

nominal P<0.0001

No. at Risk

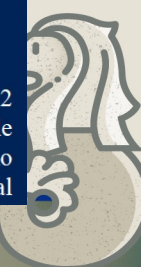
	0	6	12	18	24	30
Toripalimab + Chemo	202	150	107	60	17	0
Placebo + Chemo	202	134	74	38	14	0

Data cutoff date: Nov. 30, 2022

NE: not evaluable

HR; Hazard ratio

CI: confidence interval





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KEYNOTE-671 Study Randomized, Double-Blind, Phase 3 Trial

Key Eligibility Criteria

- Pathologically confirmed, resectable stage II, IIIA, or IIIB (N2) NSCLC per AJCC v8
- No prior therapy
- Able to undergo surgery
- Provision of tumor sample for PD-L1 evaluation^a
- ECOG PS 0 or 1

~786
R 1:1

Pembrolizumab 200 mg IV Q3W
+
Cisplatin and Gemcitabine^b
or
Cisplatin and Pemetrexed^c
for up to 4 cycles

Surgery^d

Pembrolizumab 200 mg IV Q3W
for up to 13 cycles

Placebo IV Q3W
+
Cisplatin and Gemcitabine^b
or
Cisplatin and Pemetrexed^c
for up to 4 cycles

Surgery^d

Placebo IV Q3W
for up to 13 cycles

Stratification Factors

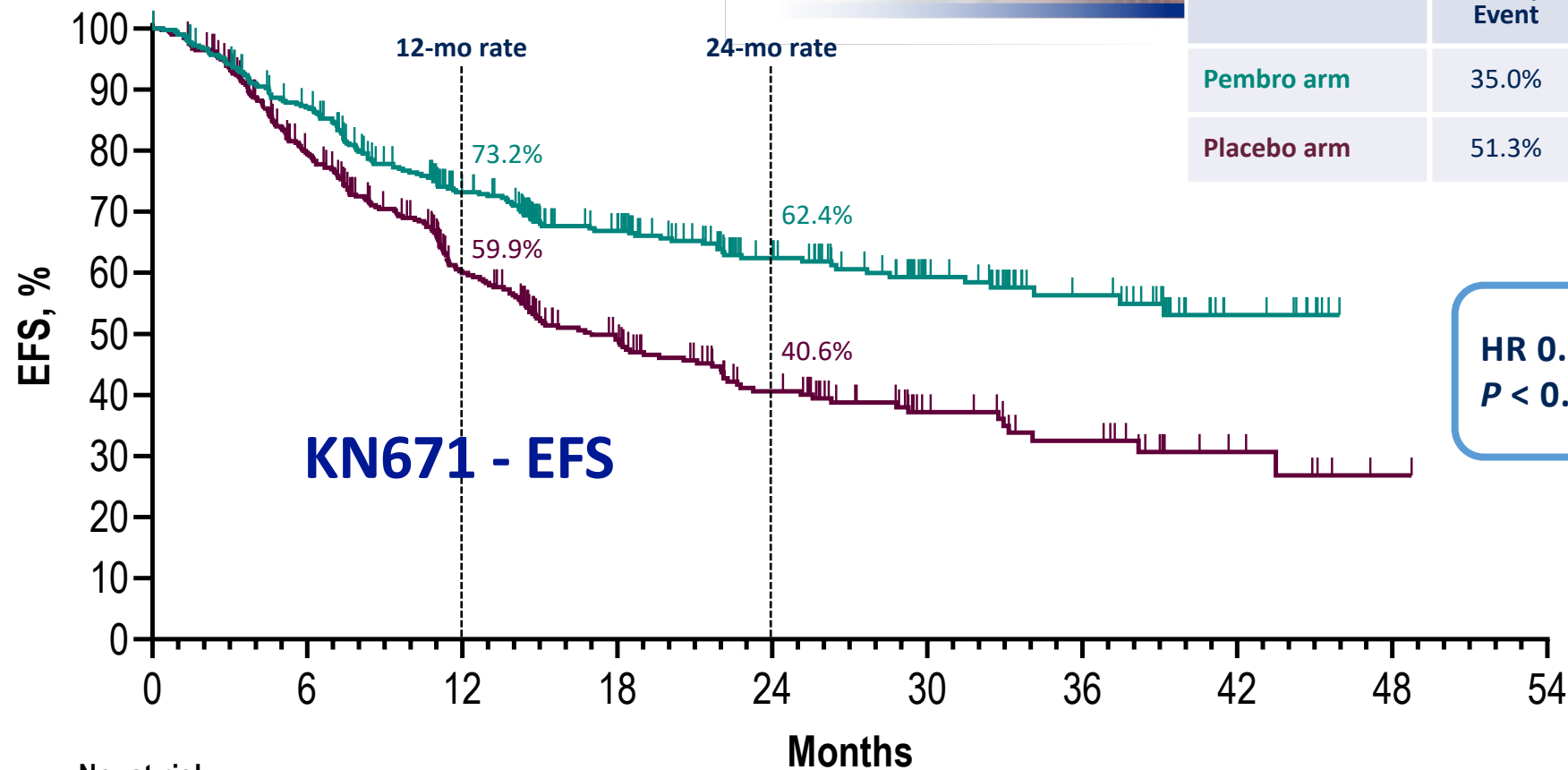
- Disease stage (II vs III)
- PD-L1 TPS^a (<50% vs ≥50%)
- Histology (squamous vs nonsquamous)
- Geographic region (east Asia vs not east Asia)

Dual primary end points: EFS per investigator review and OS

Key secondary end points: mPR and pCR per blinded, independent pathology review, and safety

^a Assessed at a central laboratory using PD-L1 IHC 22C3 pharmDx. ^b Cisplatin 75 mg/m² IV Q3W + gemcitabine 1000 mg/m² IV on days 1 and 8 Q3W was permitted for squamous histology only. ^c Cisplatin 75 mg/m² IV Q3W + pemetrexed 500 mg/m² IV Q3W was permitted for nonsquamous histology only. ^d Radiotherapy was to be administered to participants with microscopic positive margins, gross residual disease, or extracapsular nodal extension following surgery and to participants who did not undergo planned surgery for any reason other than local progression or metastatic disease. ClinicalTrials.gov identifier: NCT03425643.

~30% stage II; ~1/3 each PD-L1 group (<1, 1-49, 50+)



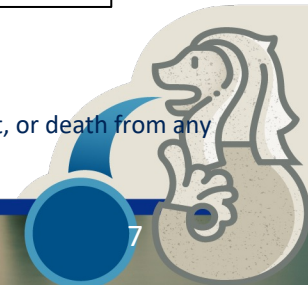
	Pts w/ Event	Median (95% CI), mo
Pembro arm	35.0%	NR (34.1-NR)
Placebo arm	51.3%	17.0 (14.3-22.0)

HR 0.58 (95% CI, 0.46-0.72)
P < 0.00001

18% pCR
30% mPR

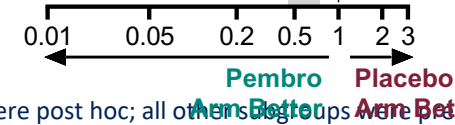
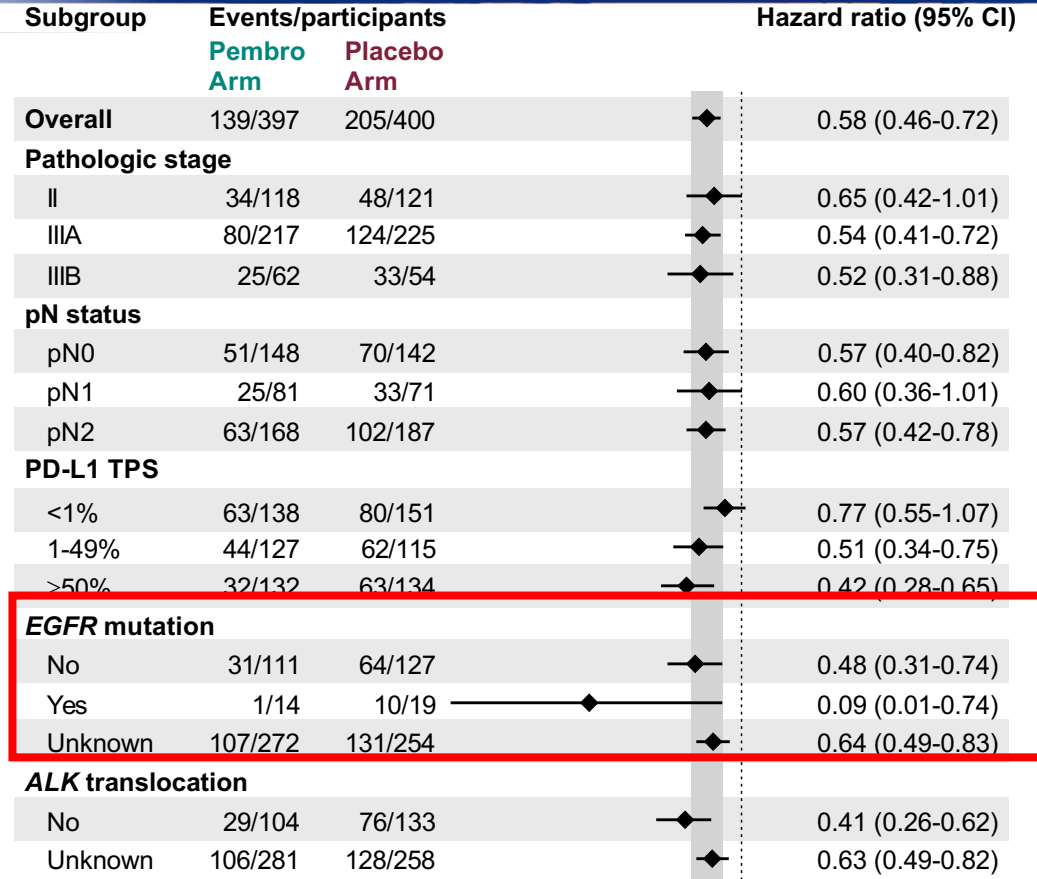
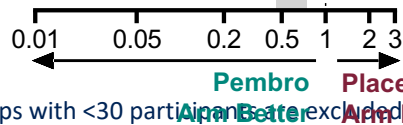
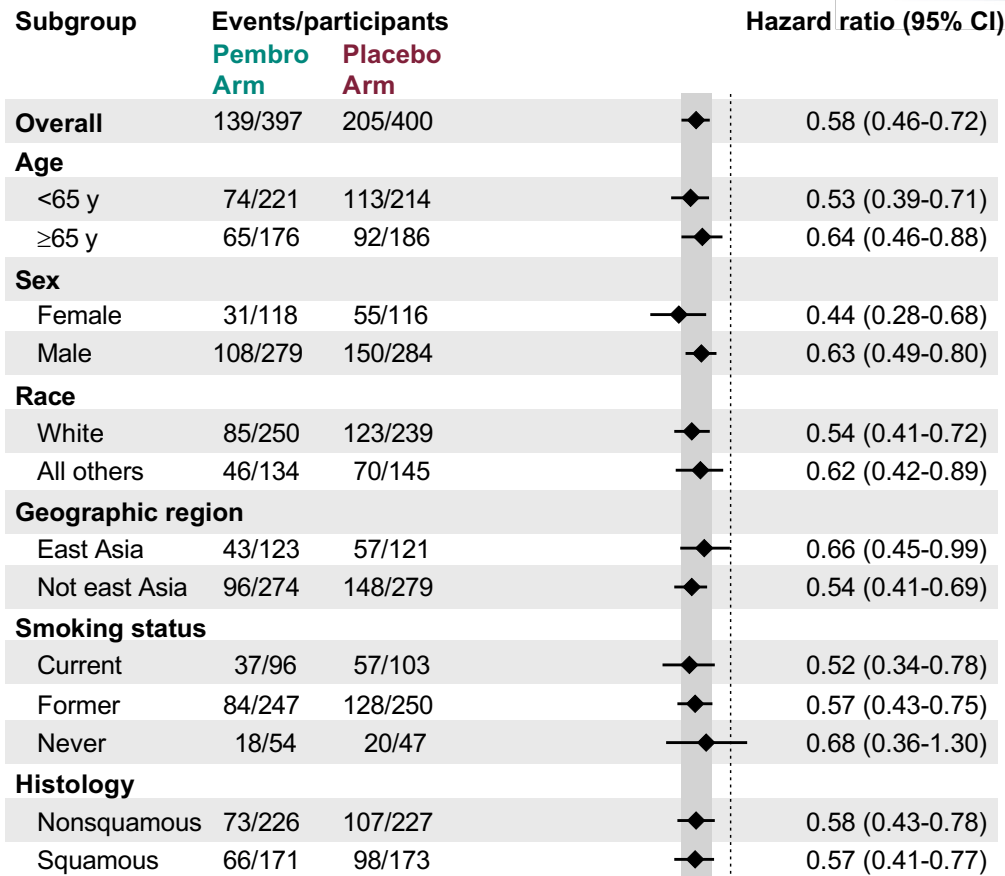
No. at risk	0	6	12	18	24	30	36	42	48	54
Pembro arm	397	330	236	172	117	72	42	11	0	0
Placebo arm	400	294	183	124	74	38	24	9	1	0

EFS defined as time from randomization to first occurrence of local progression precluding planned surgery, unresectable tumor, progression or recurrence per RECIST v1.1 by investigator assessment, or death from any cause. Data cutoff date for IA1: July 29, 2022 (median follow-up, 25.2 mo [range, 7.5-50.6]).



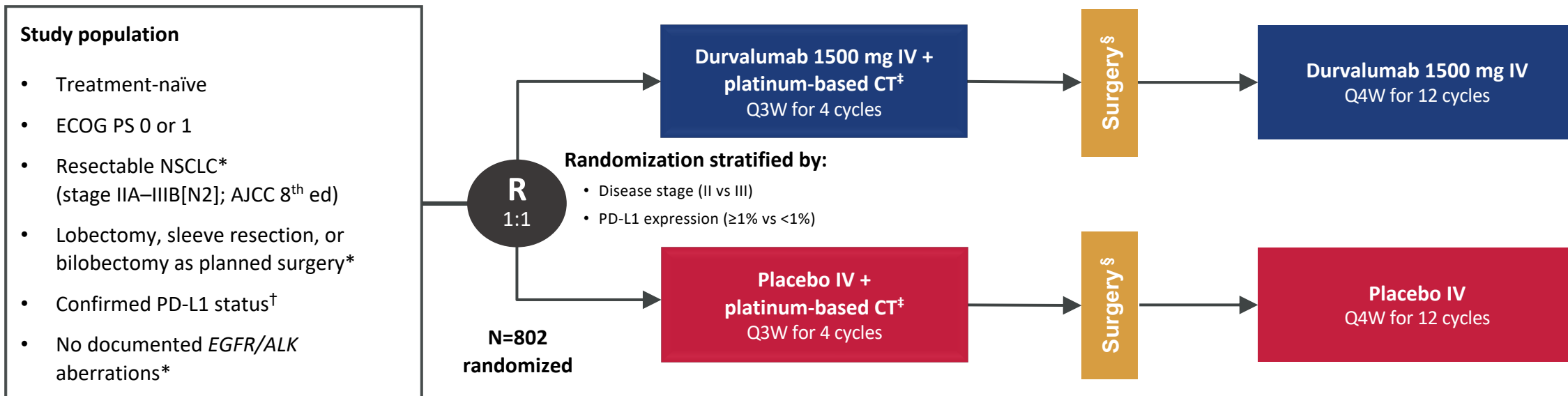


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Per the prespecified analysis plan, subgroups with <30 participants were excluded from the forest plot. Subgroups for stage IIIA and IIIB and pN status were post hoc; all other subgroups were prespecified. Data cutoff date for IA1: July 29, 2022.





AEGEAN: A Phase 3 Trial of Neoadjuvant Durvalumab + Chemotherapy Followed by Adjuvant Durvalumab in Patients with Resectable NSCLC

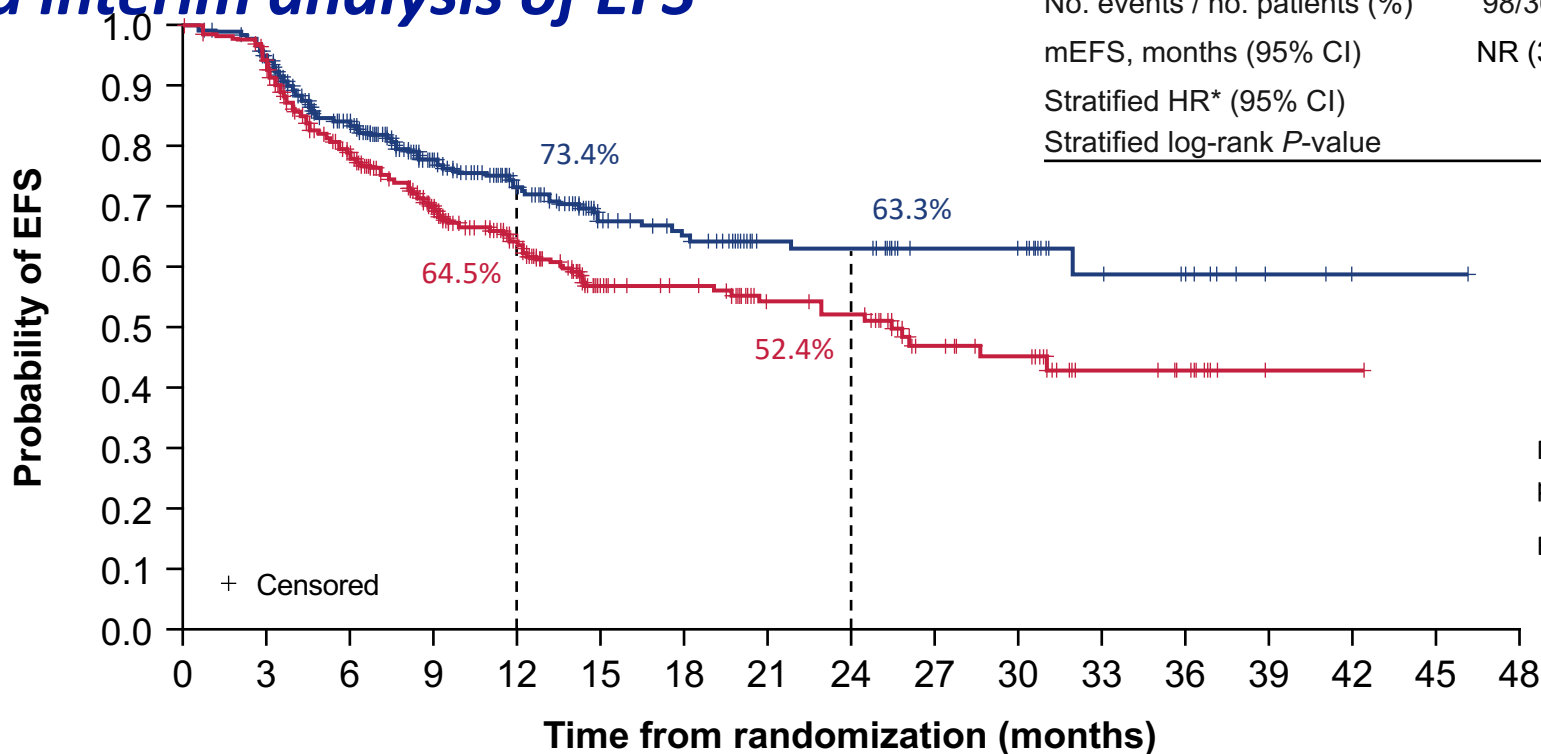
~30% stage II; ~ 1/3 each PD-L1 group (0, 1-49, 50+%)

*The protocol was amended while enrollment was ongoing to exclude (1) patients with tumors classified as T4 for any reason other than size; (2) patients with planned pneumonectomies; and (3) patients with documented *EGFR/ALK* aberrations. [†]Ventana SP263 immunohistochemistry assay. [‡]Choice of CT regimen determined by histology and at the investigator's discretion. For non-squamous: cisplatin + pemetrexed or carboplatin + pemetrexed. For squamous: carboplatin + paclitaxel or cisplatin + gemcitabine (or carboplatin + gemcitabine for patients who have comorbidities or who are unable to tolerate cisplatin per the investigator's judgment). [§]Post-operative radiotherapy (PORT) was permitted where indicated per local guidance. [¶]All efficacy analyses reported in this presentation were performed on the mITT population, which includes all randomized patients who did not have documented *EGFR/ALK* aberrations.



AEGEAN: EFS using RECIST v1.1 (BICR) (mITT)

First planned interim analysis of EFS



	D arm	PBO arm
No. events / no. patients (%)	98/366 (26.8)	138/374 (36.9)
mEFS, months (95% CI)	NR (31.9–NR)	25.9 (18.9–NR)
Stratified HR* (95% CI)	0.68 (0.53–0.88)	
Stratified log-rank P-value	0.003902	

Median follow-up (range) in censored patients: 11.7 months (0.0–46.1)

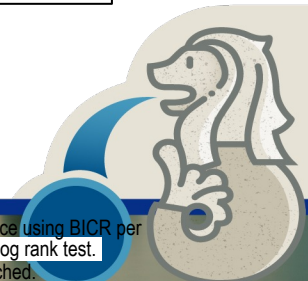
EFS maturity: 31.9%

17% pCR
33% mPR

No. at risk:

D arm	366	336	271	194	140	90	78	50	49	31	30	14	11	3	1	1	0
PBO arm	374	339	257	184	136	82	74	53	50	30	25	16	13	1	1	0	0

DCO = Nov 10, 2022. EFS is defined as time from randomization to the earliest of: (A) progressive disease (PD) that precludes surgery; (B) PD discovered and reported by the investigator upon attempting surgery that prevents completion of surgery; (C) local/distant recurrence using BICR per RECIST v1.1; or (D) death from any cause. *HR <1 favors the D arm versus the PBO arm. Median and landmark estimates calculated using the Kaplan-Meier method; HR calculated using a stratified Cox proportional hazards model; and P-value calculated using a stratified log rank test. Stratification factors: disease stage (II vs III) and PD-L1 expression status (<1% vs ≥1%). Significance boundary = 0.009899 (based on total 5% alpha), calculated using a Lan-DeMets alpha spending function with O'Brien Fleming boundary. mEFS, median EFS; NR, not reached.





New Data at WCLC: AEGEAN

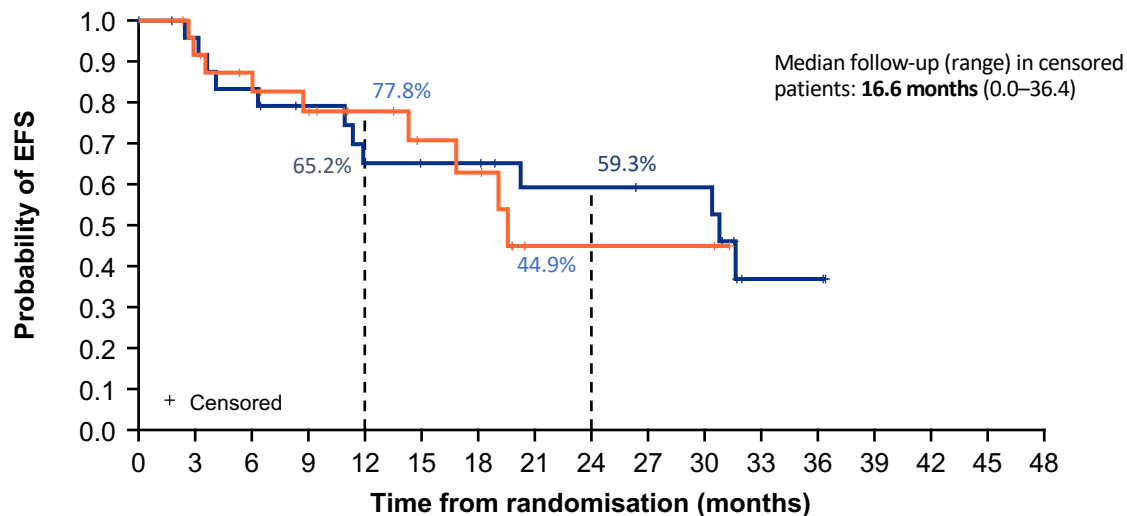
OA12.05 Surgical Outcomes – Dr. Kratz
OA12.06 EGFR outcomes





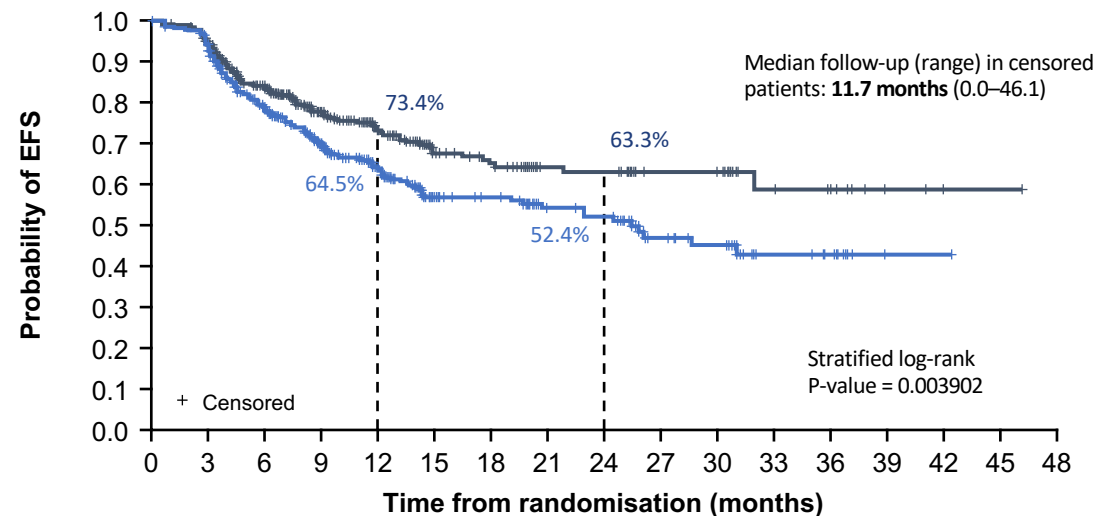
EGFRm subgroup	Durvalumab arm	Placebo arm
No. events / no. patients (%)	12/26 (46.2)	9/25 (36.0)
mEFS, months (95% CI)	30.8 (11.4, NR)	19.6 (14.3, NR)
Unstratified HR[†] (95% CI)	0.86 (0.35, 2.19)	

mITT population¹	Durvalumab arm	Placebo arm
No. events / no. patients (%)	98/366 (26.8)	138/374 (36.9)
mEFS, months (95% CI)	NR (31.9, NR)	25.9 (18.9, NR)
Stratified HR[†] (95% CI)	0.68 (0.53, 0.88)	



No. at risk:

	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48
D arm	26	23	20	17	14	13	13	10	10	9	9	2	2	0	0	0	0
PBO arm	25	22	19	16	12	9	8	2	2	2	2	0	0	0	0	0	0

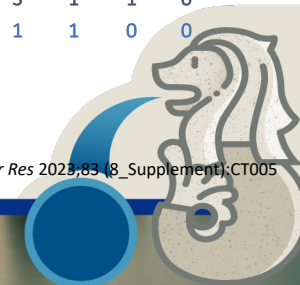


No. at risk:

	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48
D arm	366	336	271	194	140	90	78	50	49	31	30	14	11	3	1	1	0
PBO arm	374	339	257	184	136	82	74	53	50	30	25	16	13	1	1	0	0

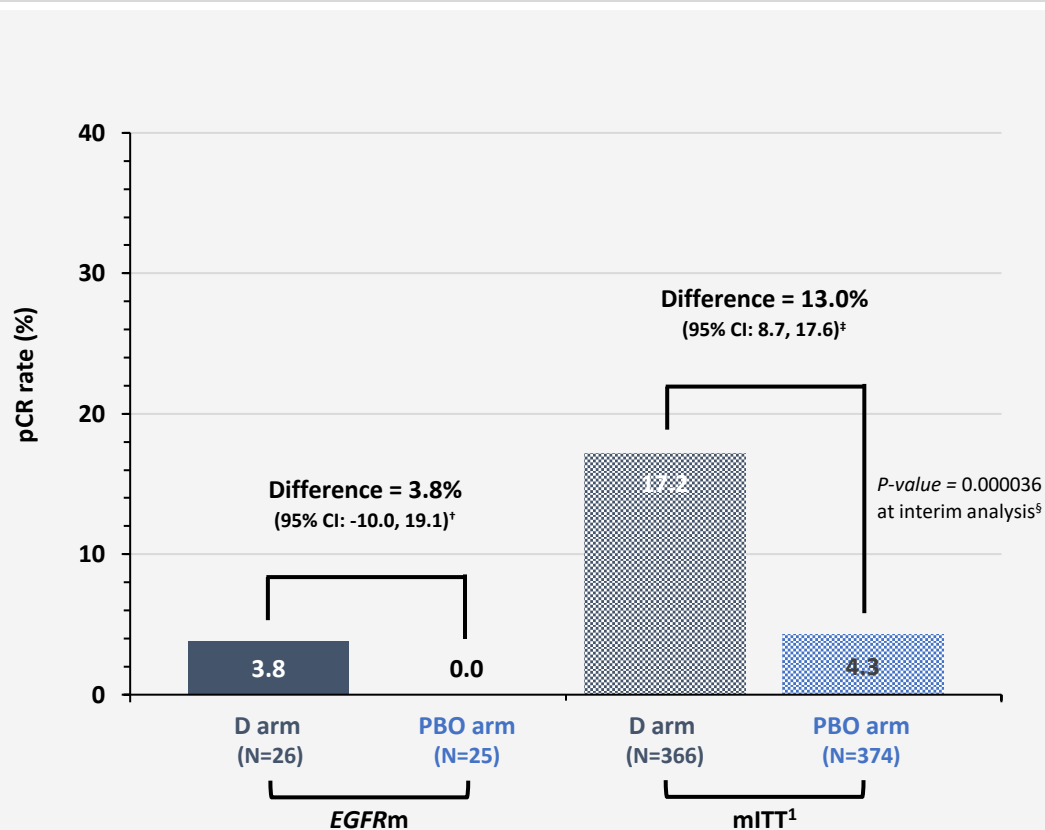
AEGEAN: EFS using RECIST v1.1 (BICR) (*EGFRm* and mITT)*

¹Heymach JV, et al. *Cancer Res* 2023;83 (8_Supplement):CT005

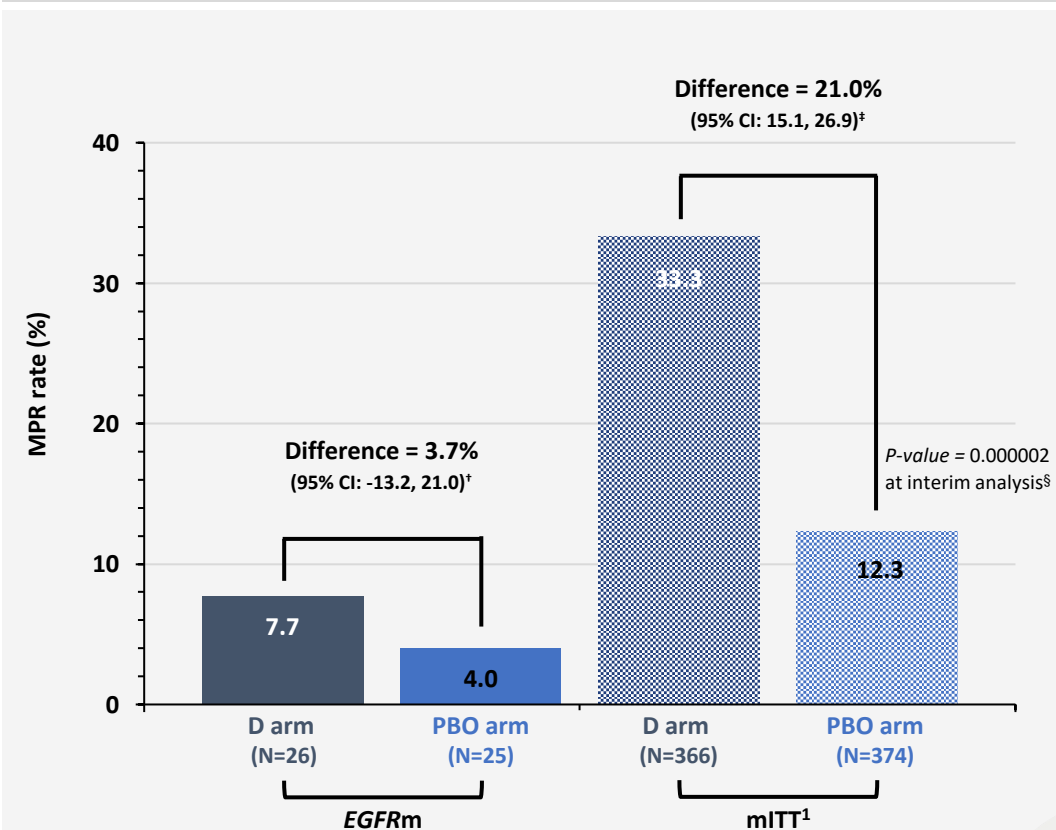




pCR (central lab)

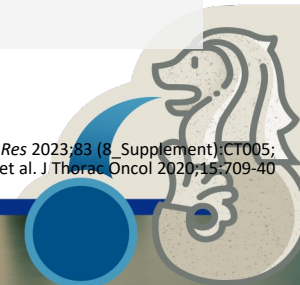


MPR (central lab)



AEGEAN: Pathologic response per IASLC 2020 methodology (*EGFRm* and mITT)*

¹Heymach JV, et al. *Cancer Res* 2023;83 (8 Supplement):CT005;
²Travis WD, et al. *J Thorac Oncol* 2020;15:709-40





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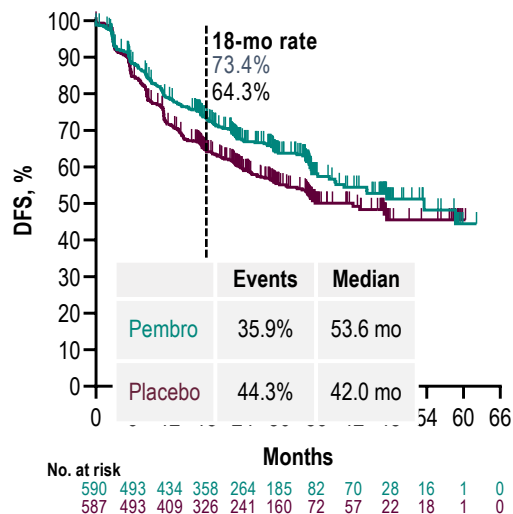
Adjuvant KN091 (Pearls) Impower010



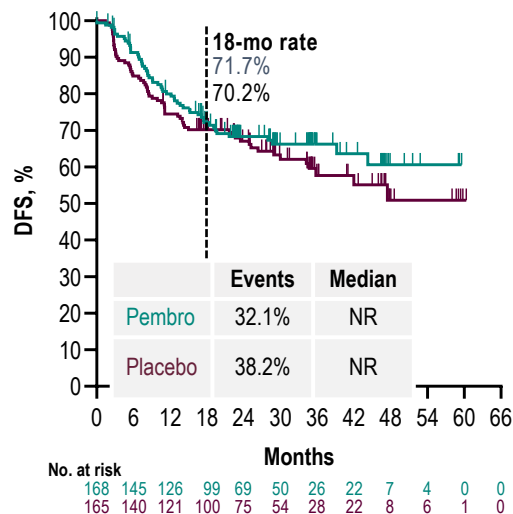


PEARLS/KN-091: Results Second Interim Analysis

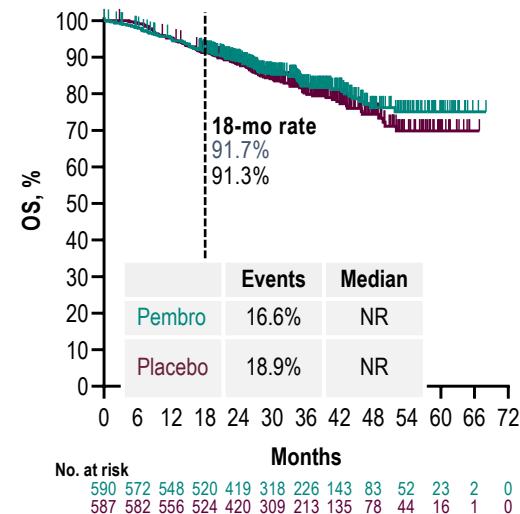
DFS, Overall Population
HR 0.76 (95% CI 0.63-0.91)
P = 0.0014



DFS, PD-L1 TPS ≥50% Population
HR 0.82 (95% CI 0.57-1.18)
P = 0.14

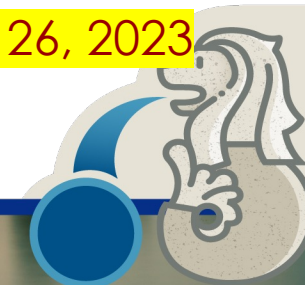


OS, Overall Population
HR 0.87 (95% CI 0.67-1.15)
P = 0.170



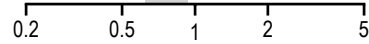
Adjuvant Pembrolizumab
 EGFR mut+ in ~6%; EGFR mutation status was unknown for
 670 (63.5%) in the overall population

US FDA approval Jan 26, 2023



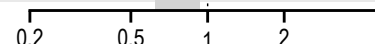


Subgroup	No. Events/ No. Participants	Hazard Ratio (95% CI)
Overall	472/1177	0.76 (0.63-0.91)
Age		
<65 years	213/558	0.73 (0.56-0.96)
≥65 years	259/619	0.84 (0.66-1.07)
Sex		
Female	158/373	0.73 (0.54-1.00)
Male	314/804	0.81 (0.65-1.01)
Geographic region		
Asia	96/211	0.74 (0.49-1.10)
Eastern Europe	90/229	0.84 (0.56-1.27)
Western Europe	245/604	0.77 (0.60-1.00)
Rest of world	41/133	0.74 (0.40-1.39)
ECOG performance status		
0	288/723	0.78 (0.62-0.99)
1	184/454	0.79 (0.59-1.06)
Smoking status		
Current	53/165	0.42 (0.23-0.77)
Former	340/859	0.84 (0.68-1.04)
Never	79/153	0.72 (0.47-1.13)



Response assessed per RECIST v1.1 by investigator review.
Data cutoff date: September 20, 2021

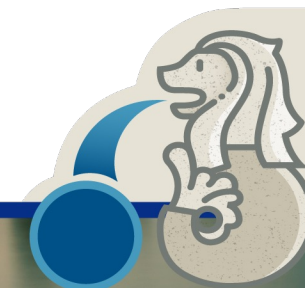
Subgroup	No. Events/ No. Participants	Hazard Ratio (95% CI)
Overall	472/1177	0.76 (0.63-0.91)
Pathologic stage		
IB	46/169	0.76 (0.43-1.37)
II	246/667	0.70 (0.55-0.91)
IIIA	178/339	0.92 (0.69-1.24)
Received adjuvant chemotherapy		
No	64/167	1.25 (0.76-2.05)
Yes	408/1010	0.73 (0.60-0.89)
Histology		
Nonsquamous	330/761	0.67 (0.54-0.83)
Squamous	142/416	1.04 (0.75-1.45)
PD-L1 TPS		
<1%	195/465	0.78 (0.58-1.03)
1-49%	160/379	0.67 (0.48-0.92)
≥50%	117/333	0.82 (0.57-1.18)
EGFR mutation		
No	186/434	0.78 (0.59-1.05)
Yes	40/73	0.44 (0.23-0.84)
Unknown	246/670	0.82 (0.63-1.05)



Response assessed per RECIST v1.1 by investigator review.
Data cutoff date: September 20, 2021

KN-091 Results: DFS in Subgroups

Paz Ares VirtualESMO2022, O'Brien ASCO 2022, Peters ESMO 2022

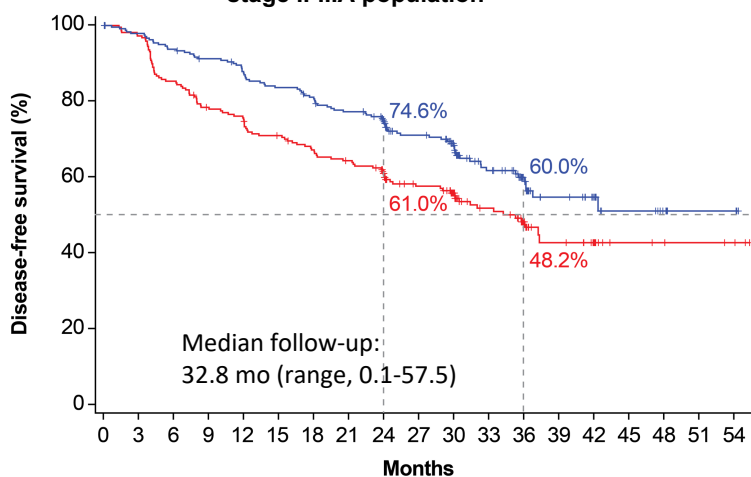




Adjuvant Atezolizumab

IMpower010: DFS in the PD-L1 TC $\geq 1\%$ ^a stage II-IIIa, all-randomized stage II-IIIa and ITT pop (primary endpoint)

PD-L1 TC $\geq 1\%$
stage II-IIIa population



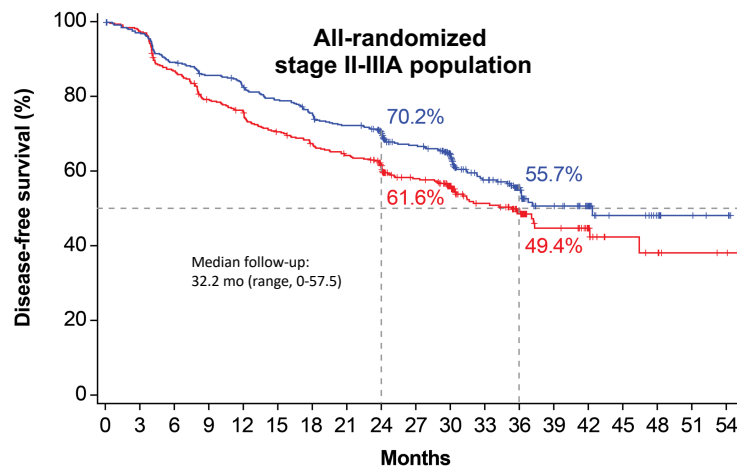
No. at risk

Months	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
Atezolizumab	248	235	225	217	206	198	190	181	159	134	111	76	54	31	22	12	8	3	3
BSC	228	212	186	169	160	151	142	135	117	97	80	59	38	21	14	7	6	4	3

	Atezolizumab (n=248)	BSC (n=228)
Median DFS (95% CI), mo	NE (36.1, NE)	35.3 (29.0, NE)
Stratified HR (95% CI)	0.66 (0.50, 0.88)	
P value ^b	0.004 ^c	

Clinical cutoff: January 21, 2021. ^a Per SP263 assay. ^b Stratified log-rank. ^c Crossed the significance boundary for DFS. ^d The statistical significance boundary for DFS was not crossed.

All-randomized
stage II-IIIa population

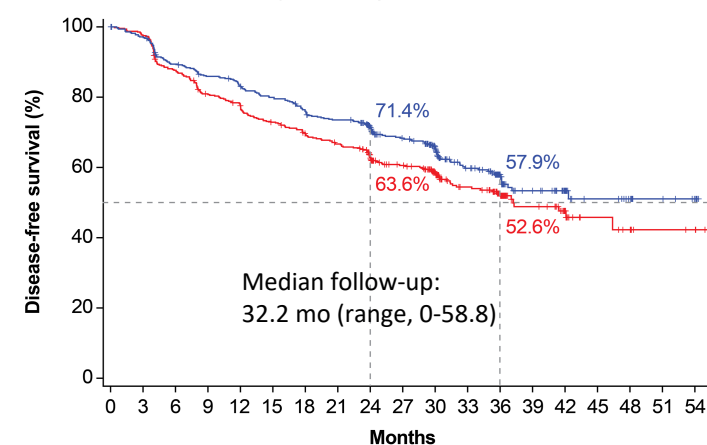


No. at risk

Months	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
Atezolizumab	442	418	384	367	352	337	319	305	269	225	185	120	84	48	34	16	11	5	3
BSC	440	412	366	331	314	292	277	263	230	182	146	102	71	35	22	10	8	4	3

	Atezolizumab (n=442)	BSC (n=440)
Median DFS (95% CI), mo	42.3 (36.0, NE)	35.3 (30.4, 46.4)
Stratified HR (95% CI)	0.79 (0.64, 0.96)	
P value ^b	0.02 ^c	

ITT (randomized
stage IB-IIIa) population

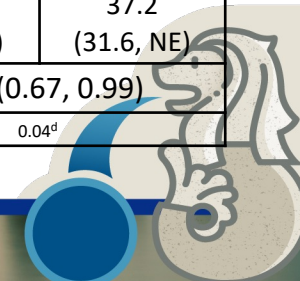


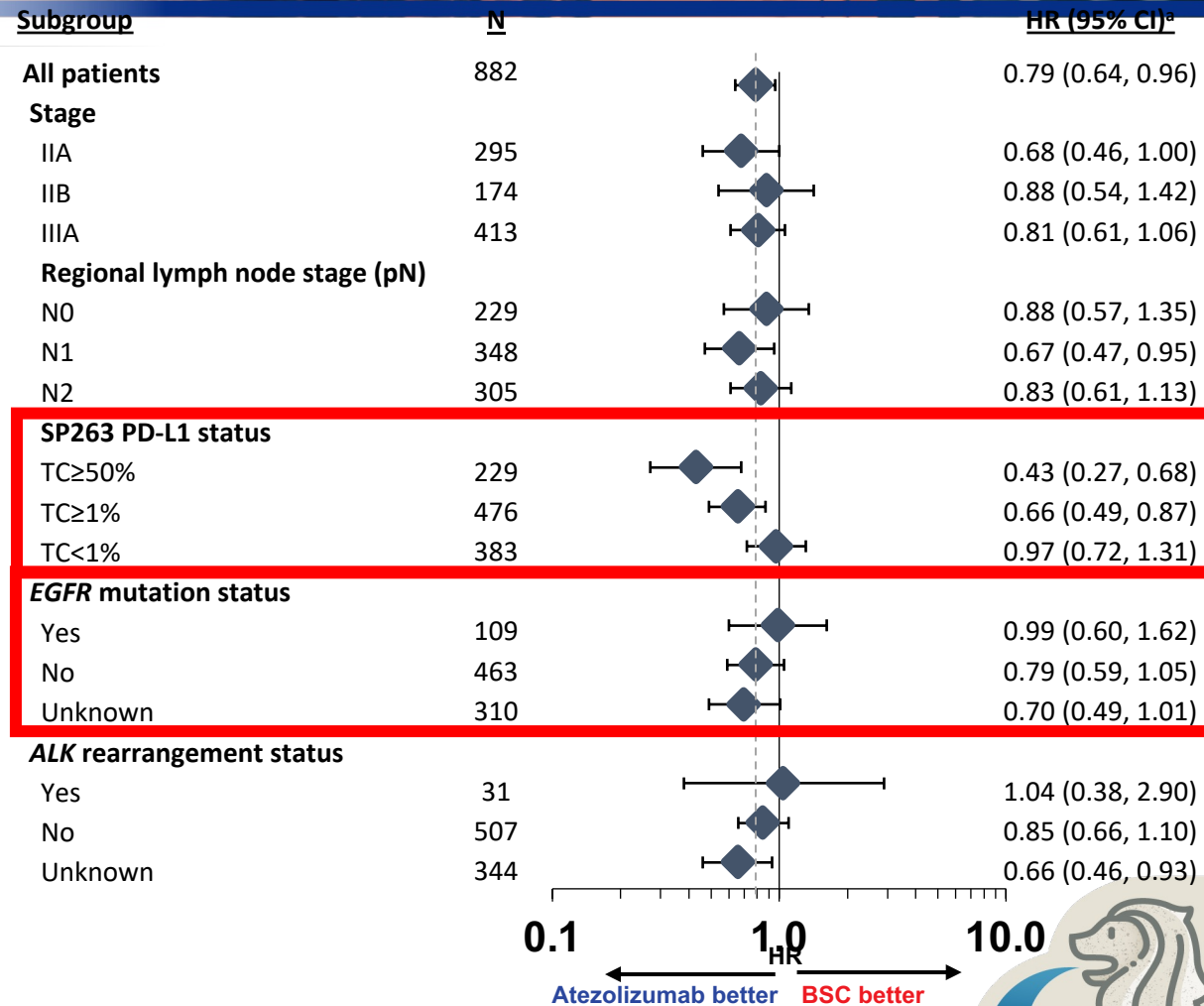
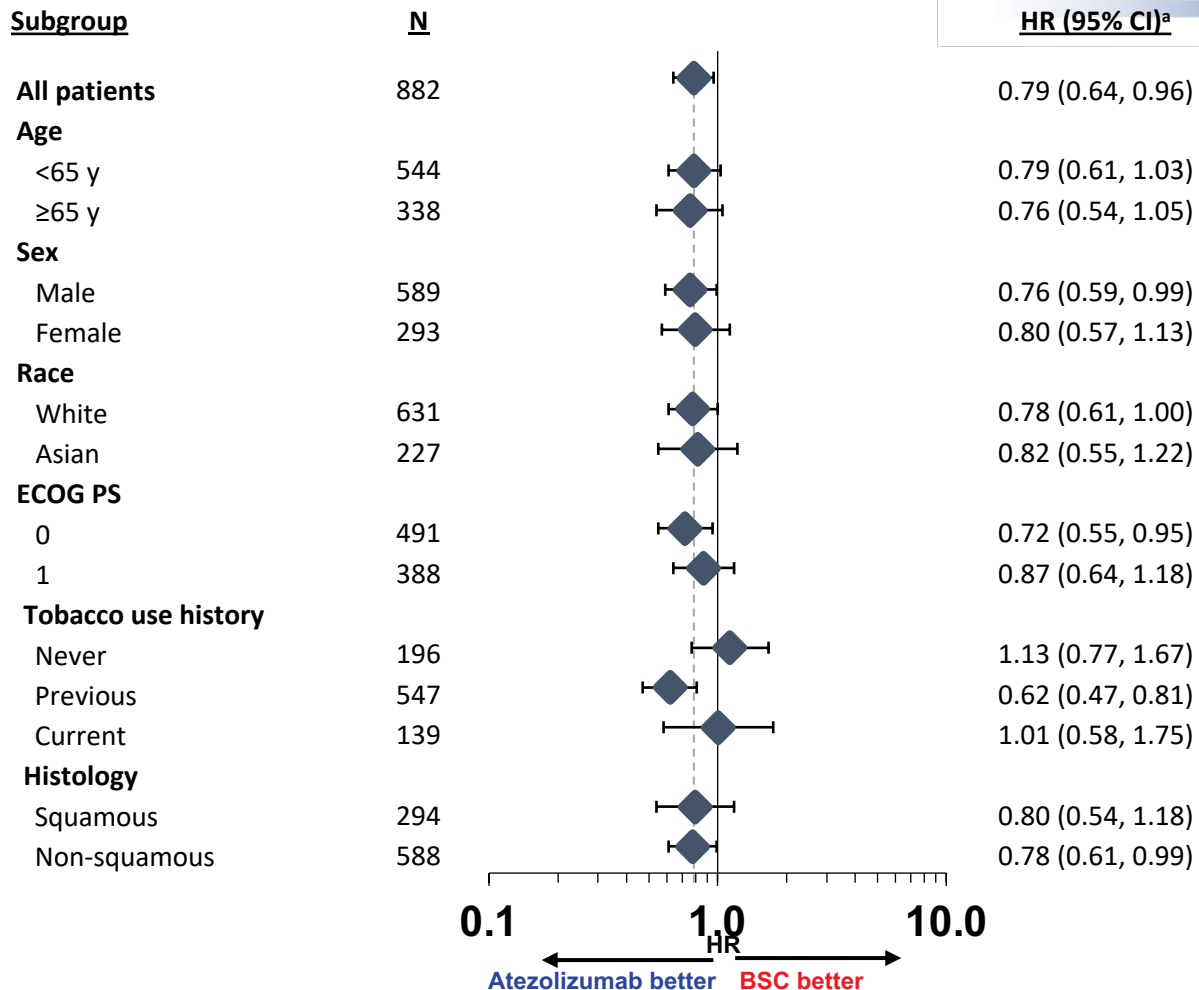
No. at risk

Months	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
Atezolizumab	507	478	437	418	403	387	367	353	306	257	212	139	97	53	38	19	14	8	4
BSC	498	467	418	383	365	342	324	309	269	219	173	122	90	46	30	13	10	5	4

	Atezolizumab (n=507)	BSC (n=498)
Median DFS (95% CI), mo	NE (36.1, NE)	37.2 (31.6, NE)
Stratified HR (95% CI)	0.81 (0.67, 0.99)	
P value ^b	0.04 ^d	

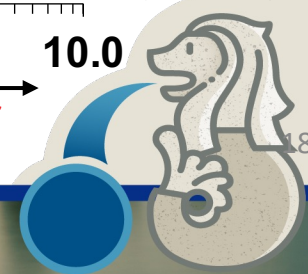
US FDA approval Oct 15, 2021





Clinical cutoff: January 21, 2021. ^a Stratified for all patients; unstratified for all other subgroups.

IMpower010: DFS in key subgroups of all-rand stage II-IIIa population





New Data at WCLC Adjuvant

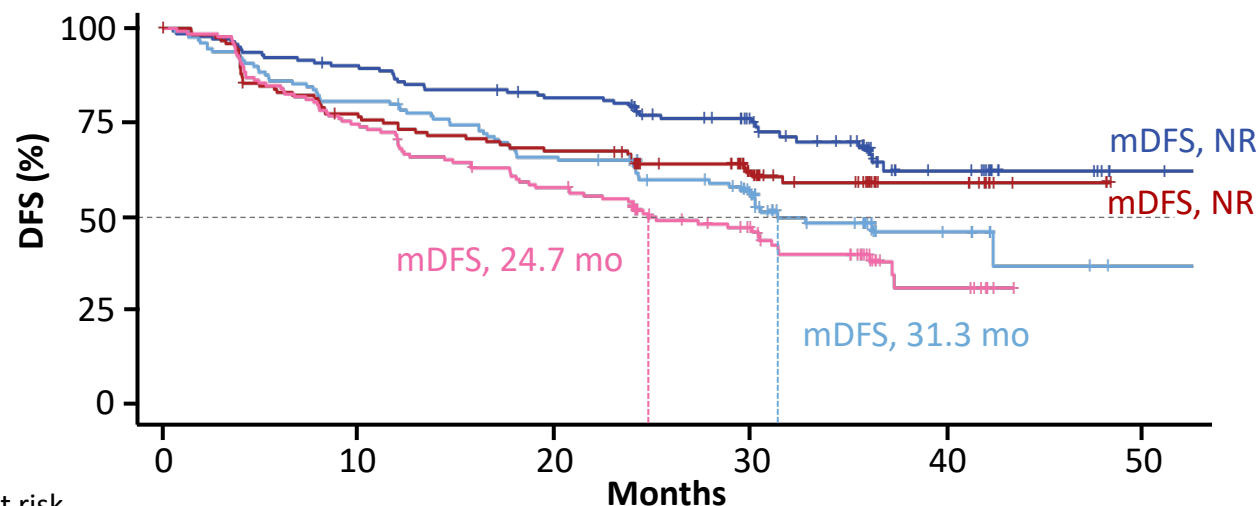
MA: 11.08 Impower010 TMB





DFS by TMB status in the stage II-IIIa TMB-evaluable population

- Baseline characteristics of the stage II-IIIa TMB-evaluable population (n=549) were similar between treatment arms and consistent with those of the stage II-IIIa population¹ (not shown)



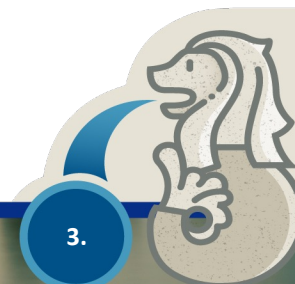
No. at risk	0	10	20	30	40	50
TMB-H: atezo	144	127	113	76	23	2
TMB-L: atezo	133	104	84	53	12	1
TMB-H: BSC	129	93	82	53	12	0
TMB-L: BSC	143	103	78	45	9	0

TMB-H vs TMB-L	DFS HR (95% CI)
TMB-H: atezo vs TMB-L: atezo	0.52 (0.36, 0.78)
TMB-H: BSC vs TMB-L: BSC	0.62 (0.44, 0.89)

Atezolizumab vs BSC	DFS HR (95% CI)
TMB-H: atezo vs TMB-H: BSC	0.67 (0.44, 1.01)
TMB-L: atezo vs TMB-L: BSC	0.76 (0.54, 1.05)

- In both treatment arms, improved DFS was observed in the TMB-H vs TMB-L populations
- DFS improvement with atezolizumab vs BSC was similar for the TMB-H and TMB-L populations

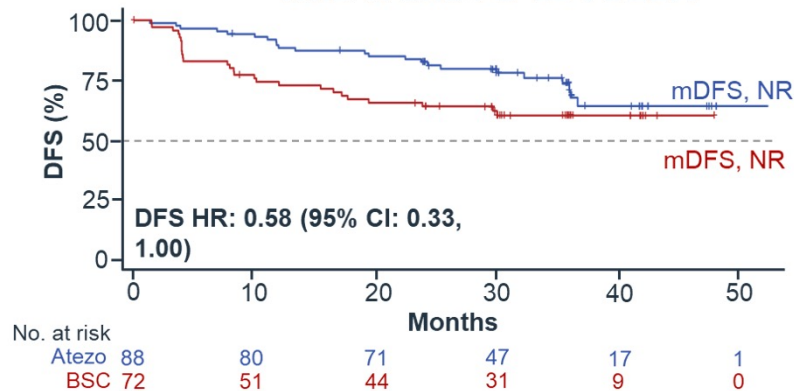
HR, hazard ratio; mDFS, median disease-free survival; NR, not reached; TMB-H, high tumour mutation burden; TMB-L, low tumour mutation burden. TMB-H (n=273) and TMB-L (n=276) were defined as TMB levels above or below the median (6.23 mutations/Mb), respectively. 1. Felip, E et al Lancet 2021; 938:1344-57.



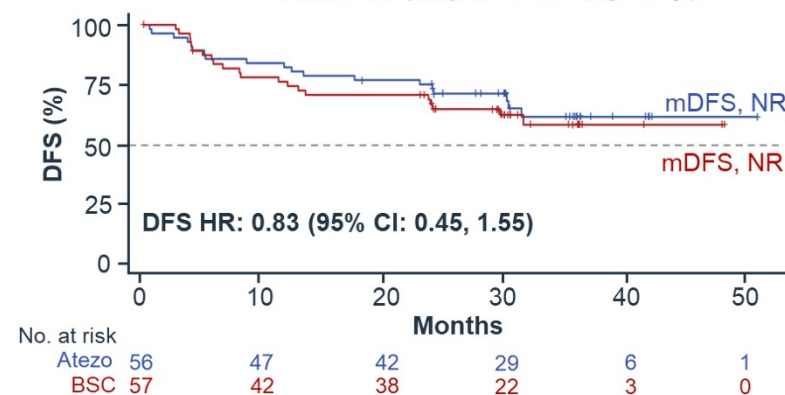


IMpower010: TMB irrelevant regardless of PD-L1

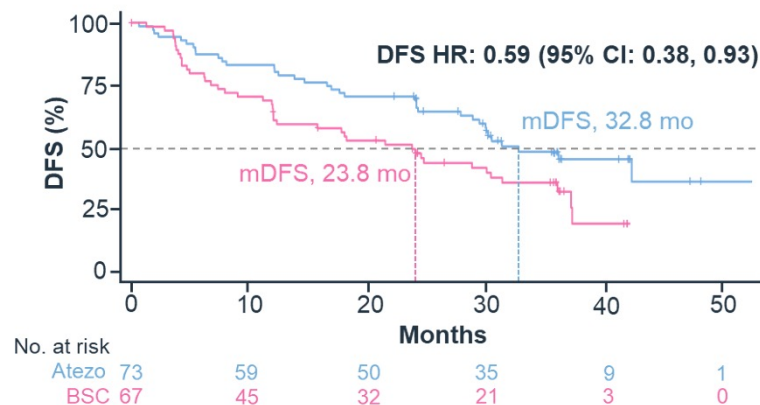
TMB-H and PD-L1 TC ≥1%



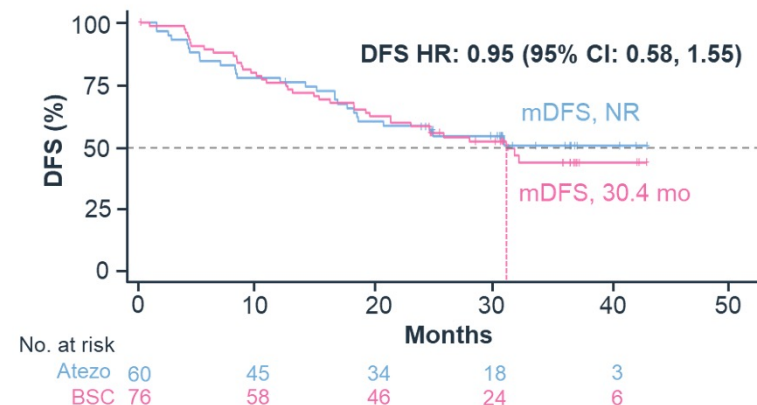
TMB-H and PD-L1 TC <1%



TMB-L and PD-L1 TC ≥1%



TMB-L and PD-L1 TC <1%



TMB, tumor mutation burden; DFS, disease-free survival. Felip E, et al. WCLC 2023. Abstract MA11.08.





Novel Approach: Neo-adjuvant XRT MA 11:08. SAKK 16/18





SAKK 16/18: Neoadjuvant chemo, durvalumab + immune-modulatory radiotherapy for Stage III(N2) NSCLC – surgical interim

Background and study design

- Neo-adjuvant and peri-operative chemo-IO is a new standard of care (SOC) for resectable NSCLC ^{1,2,3,4}
- SAKK 16/14 trial: sequential neo-adjuvant cisplatin-docetaxel durvalumab significantly increased pCR and 1-yr-EFS rates in stage III(N2) NSCLC ⁵
- Radiotherapy (RT) can act synergistically with PD-(L)1 blockade to improve systemic immune response
- Optimal RT regimen unknown

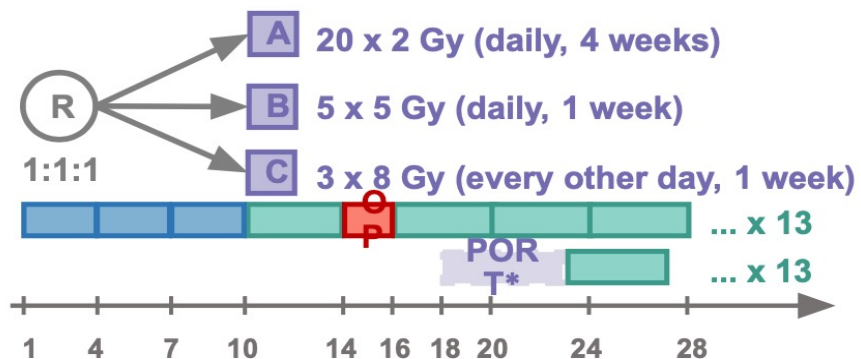
¹ Forster MK, et al, NEJM 2022; ² Wakelee H et al, NEJM 2023; ³ Heymach J V, AACR Meeting 2023; ⁴ Lu S, ASCO Meeting 2023; ⁵ Rothschild S. I. et al, JCO 2021

Inclusion criteria:

- NSCLC, cT1-4, _{>7} N2 M0 (8th ed.)
- Primarily resectable and operable
- ECOG 0-1
- Adequate organ function (incl. eGFR \geq 60 mL/min)

Exclusion criteria:

- Any previous treatment for NSCLC
- Previous checkpoint inhibitor or thoracic RT
- Active auto-immune disease, \geq 10 mg/day of prednisone

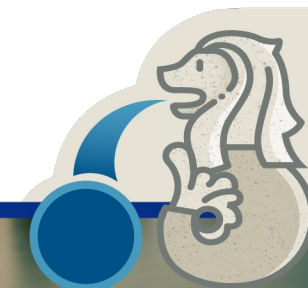


Neoadj. Cisplatin (100mg/m²) + Docetaxel (85mg/m²) q3w

Neoadj. (1x) and adj. (13x) Durvalumab: 1500mg q4w

Immune-modulatory RT to the primary tumor
*post-operative RT: only allowed for R1 or R2 resections

- Primary endpoint: 1-yr EFS
- Interim safety analysis after 25 resections
- Unresected patients: safety F/U \geq 90 days

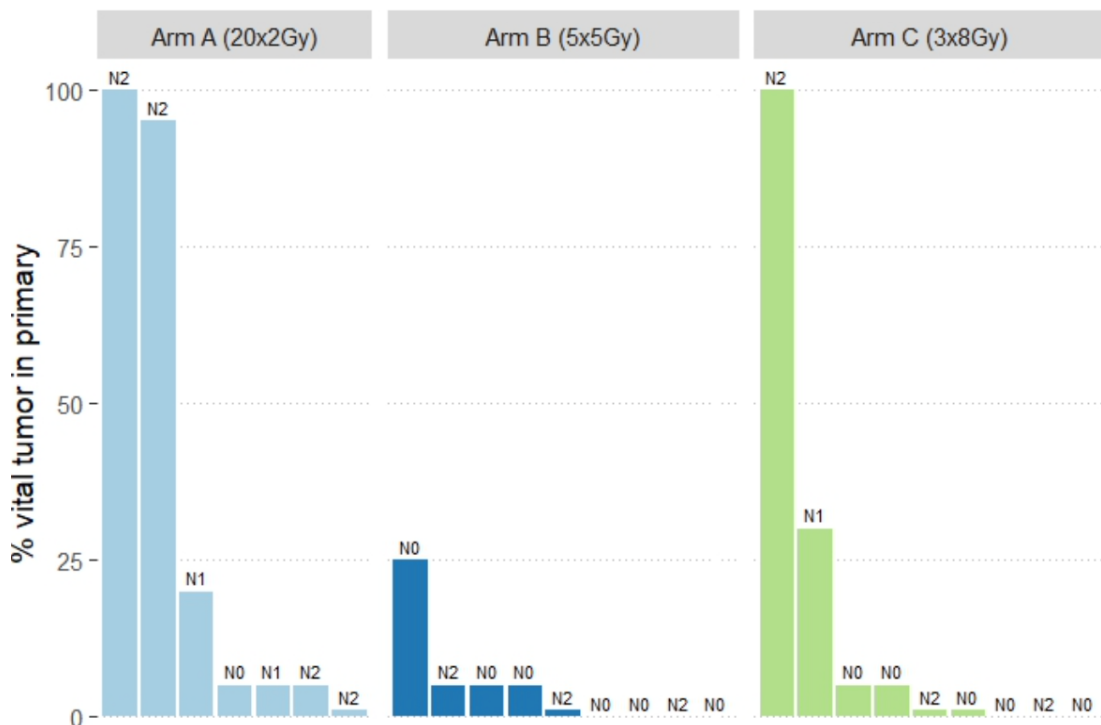




SAKK 16/18: Neoadjuvant chemo, durvalumab + immune-modulatory radiotherapy for Stage III(N2) NSCLC – surgical interim

Efficacy and Conclusion

- N= 31 Cis/Doce
 - 1PD/1Covid
- N= 29 Durva
 - 2PD/2NR
- N= 25 Surgery



Variable	Arm A N = 7	Arm B N = 9	Arm C N = 9	Total N = 25
MPR	4	8	7	19
pCR	0	3	2	5
<ypN2	3	6	6	15

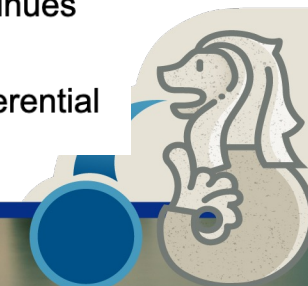
Conclusions:

Surgical feasibility as in other neo-adjuvant / perioperative IO trials

No clear difference in safety / surgical outcomes between the 3 arms

Based on interim safety analysis trial continues as planned to N = 90

No conclusion can be drawn yet as to differential efficacy between the 3 RT regimen



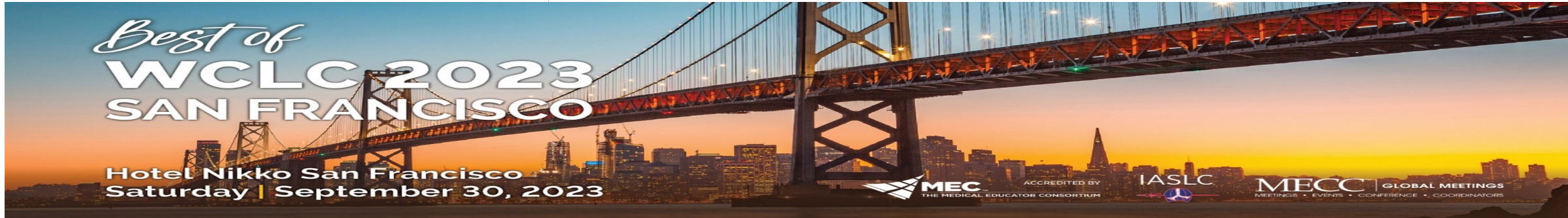


Drug tolerant persister (DTP) to neoadjuvant osimertinib in resectable NSCLC harbouring *EGFR* mutations (NORA)

Take Home Points

- Neoadjuvant osimertinib is a feasible option that was not associated with surgical delays and induced an **MPR rate of 24%** of resected tumors.
- **Single-cell RNA-seq analysis** reveal post-osimertinib samples with AT1-like features with **Hippo-YAP/TAZ, Wnt and TGF- β pathway**. Compared to MPR, **AT1-like cells** and **apCAF** were enriched in the nMPR subset.
- Using **Natera assay**, **6/20 (30%)** positive patients at baseline timepoint (N=2/2/2 for stage I/II/III) were identified. **All 6 patients showed ctDNA clearance after 1 cycle of osimertinib.**
- Further analysis:
 - Identification of molecular mechanisms of DTP using genomics and transcriptomics
 - Longitudinal time points, incumbent upon data collection





OA12.05 + OA 12.06: AEGEAN and other + peri-operative trials rapidly changing landscape – the surgical outcomes were expected (Dr. Kratz to discuss) and the EGFR results are not unexpected, but conflict with data from other trials (KN091, KN671, IMpower010)

MA11.08: IMpower010: TMB not a useful biomarker in this trial

MA11.09: SAKK 16/18: Neoadjuvant immune-modulatory RT in Stage III(N2) NSCLC showed increased MPR but actual impact unclear

MA 11.11: Drug tolerant persister (DTP) to neoadjuvant osimertinib in resectable NSCLC harbouring *EGFR* mutations (NORA) – very exploratory