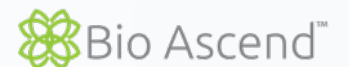




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Optimal Approach to Perioperative Management of Resectable NSCLC Without Driver Mutations

Heather Wakelee, MD, FASCO
Professor and Chief Division of Medical Oncology
Stanford University School of Medicine
Deputy Director, Stanford Cancer Institute



DECLARATION OF INTERESTS

Clinical Trial Support to Institution: AstraZeneca; Bayer; BMS;
Genentech/Roche; Gilead (via IIT) Helsinn; Merck; SeaGen; Xcovery
Advisory Board Participant: IOBiotech, Mirati, OncoC4, Beigene, GSK
CME talk and travel: Chugai

Unpaid Consultant Work: BMS; Genentech/Roche; Merck; AstraZeneca
Societies: IASLC (Past President); EcogAcrin (Executive Committee)

NEOADJUVANT Treatment:

Neoadjuvant alone



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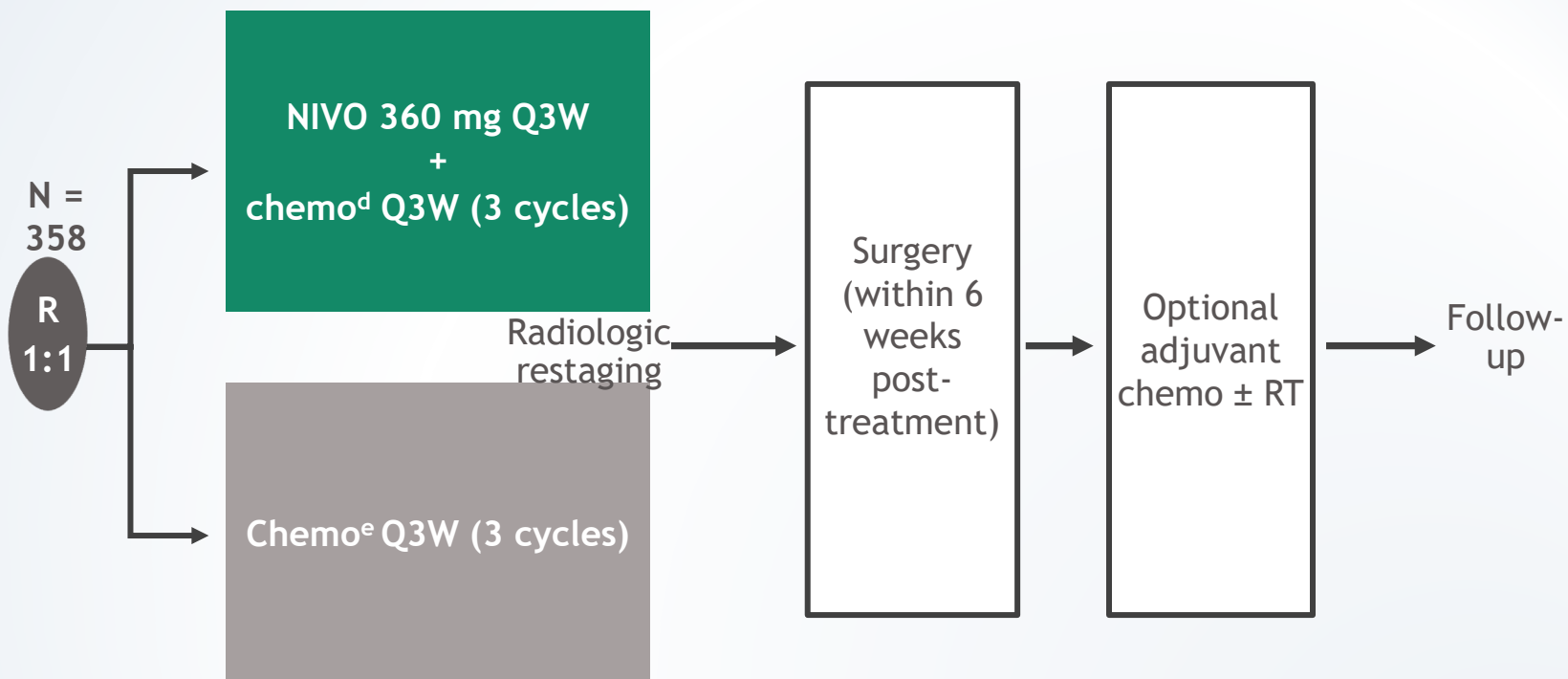
First Phase II: CheckMate816

37% stage IB/II; 63% Stage IIIA
50% PD-L1 >1%
No EGFR/ALK

Key eligibility criteria

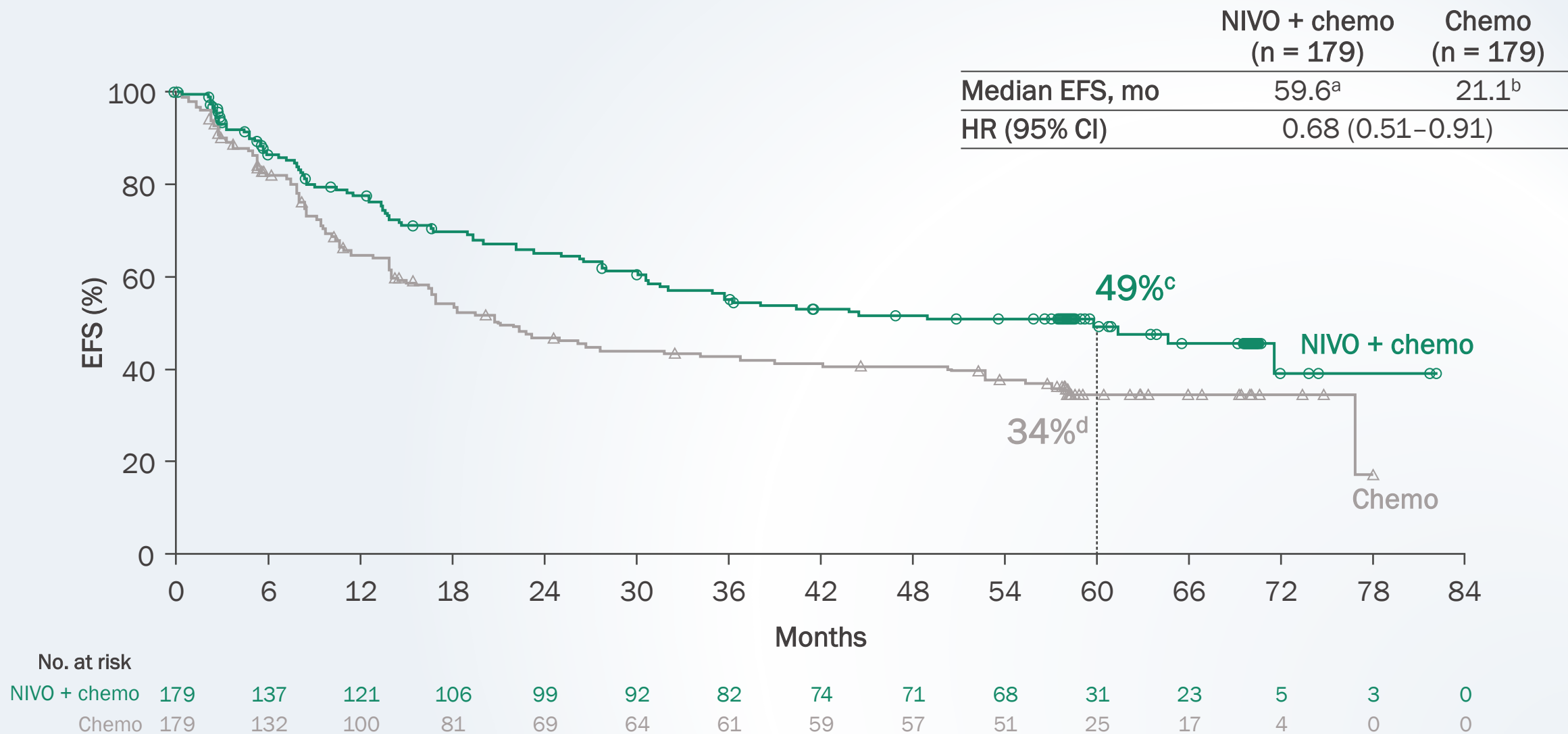
- Newly diagnosed, resectable, stage IB (≥ 4 cm)-IIIA NSCLC (per TNM 7th edition)
- ECOG PS 0-1
- No known sensitizing *EGFR* mutations or *ALK* alterations

Stratified by
stage (IB/II vs IIIA),
PD-L1^b ($\geq 1\%$ vs $< 1\%$ ^c), and
sex

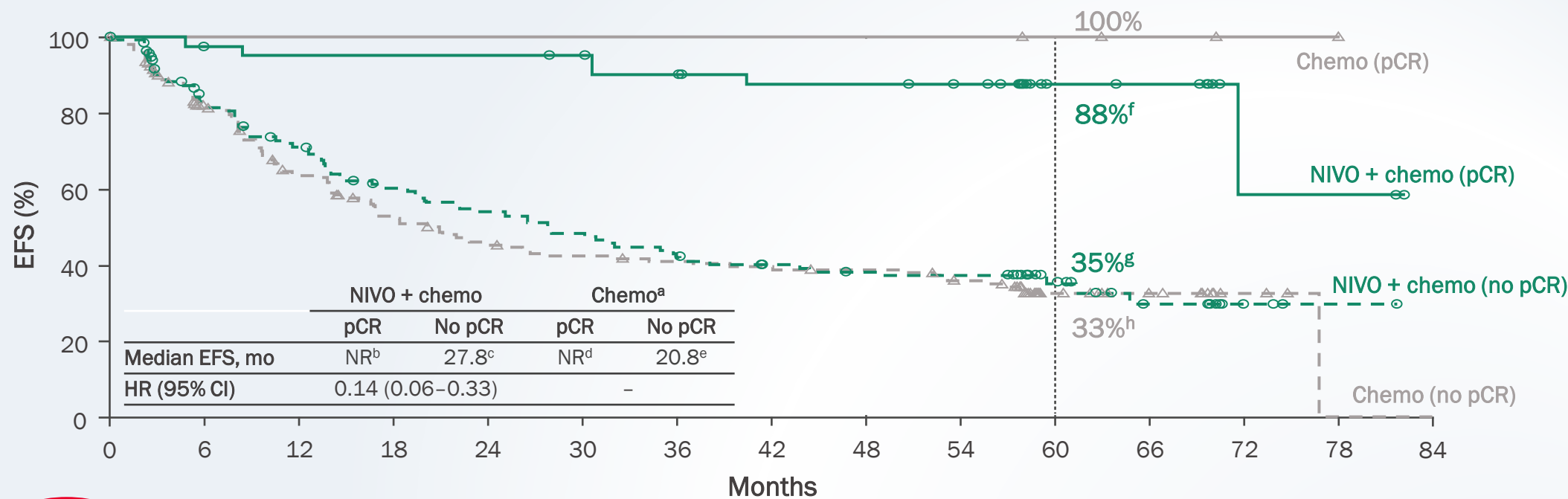


Spicer ASCO 2021 abstr: 8503, Forde NEJM

CM816 EFS: 5-year analysis



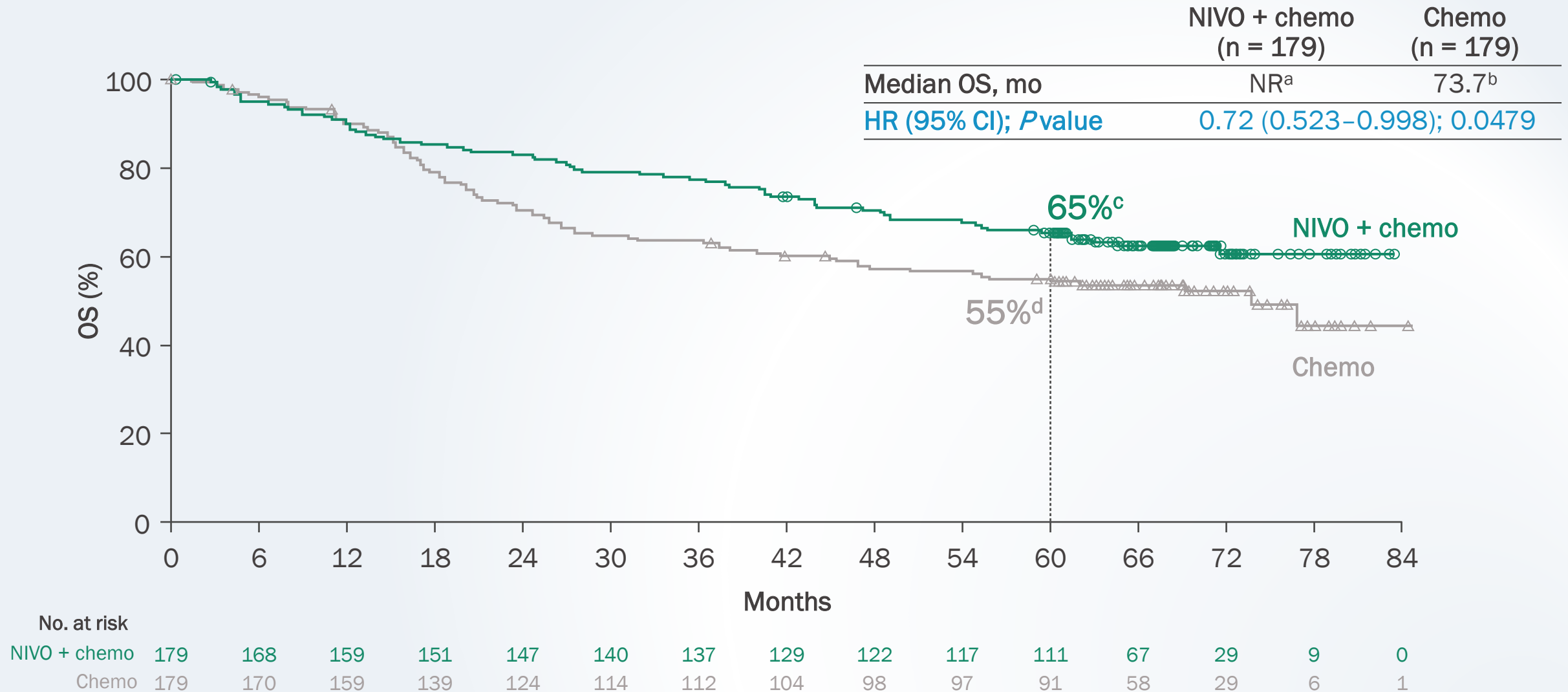
CM816 Exploratory analysis: EFS by pCR status



No. at risk																
pCR	43	41	40	40	40	39	36	33	33	31	14	13	2	2	0	
pCR	4	4	4	4	4	4	4	4	4	4	3	2	1	0	0	
No pCR	136	96	81	66	59	53	46	41	38	37	17	10	3	1	0	
No pCR	175	128	96	77	65	60	57	55	53	47	22	15	3	0	0	

- In the NIVO + chemo arm:
- Among patients with pCR, 3 (7.0%) patients had disease recurrence or relapseⁱ
 - Among patients with no pCR, 57 (41.9%) patients had disease recurrence or relapse

CM816 Final analysis: OS with neoadjuvant NIVO + chemo vs chemo



Minimum/median follow-up: 59.9/68.4 months.

^{a-d}95% CI: ^aNR; ^b47.3-NR; ^c58-72; ^d47-62.



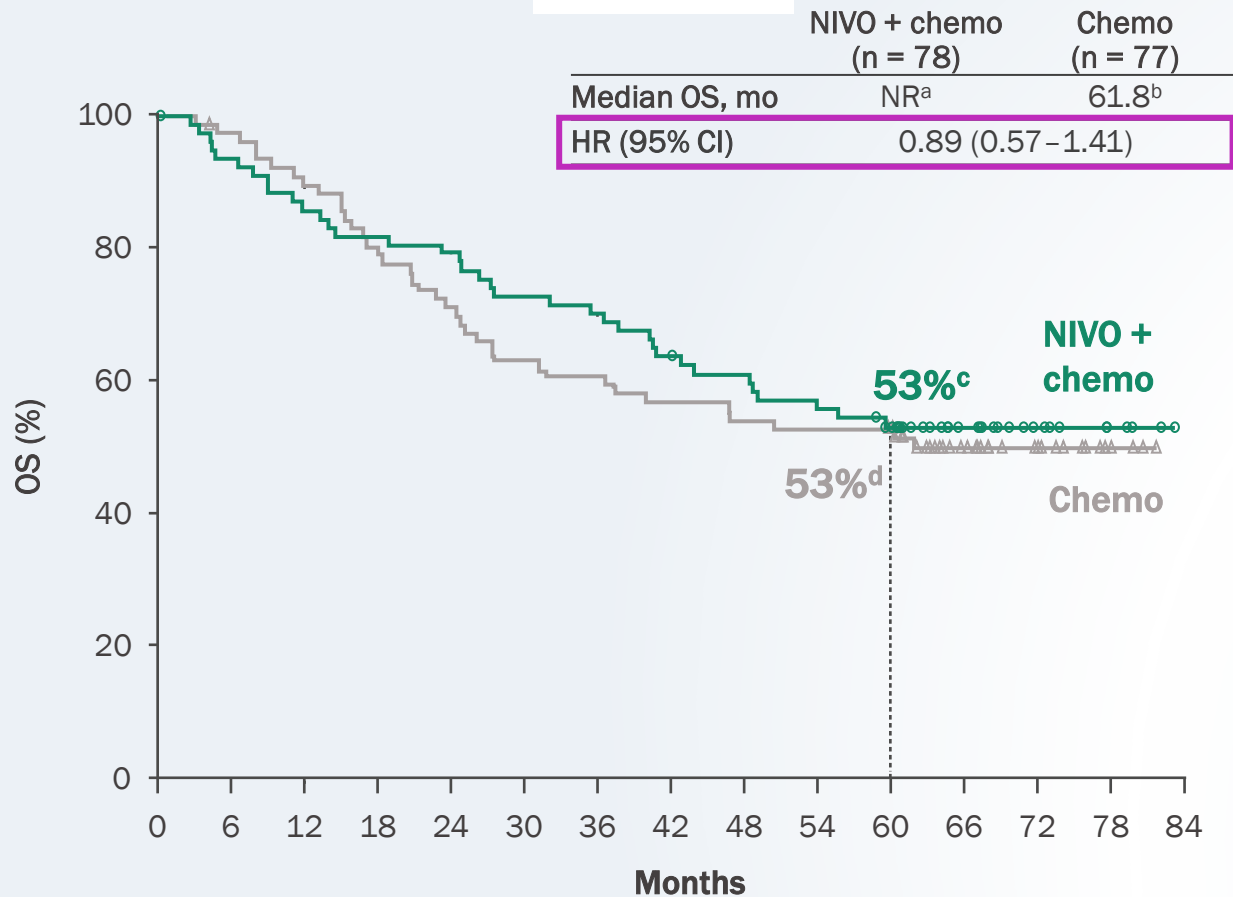
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Forde ASCO2025, LBA8000, NEJM

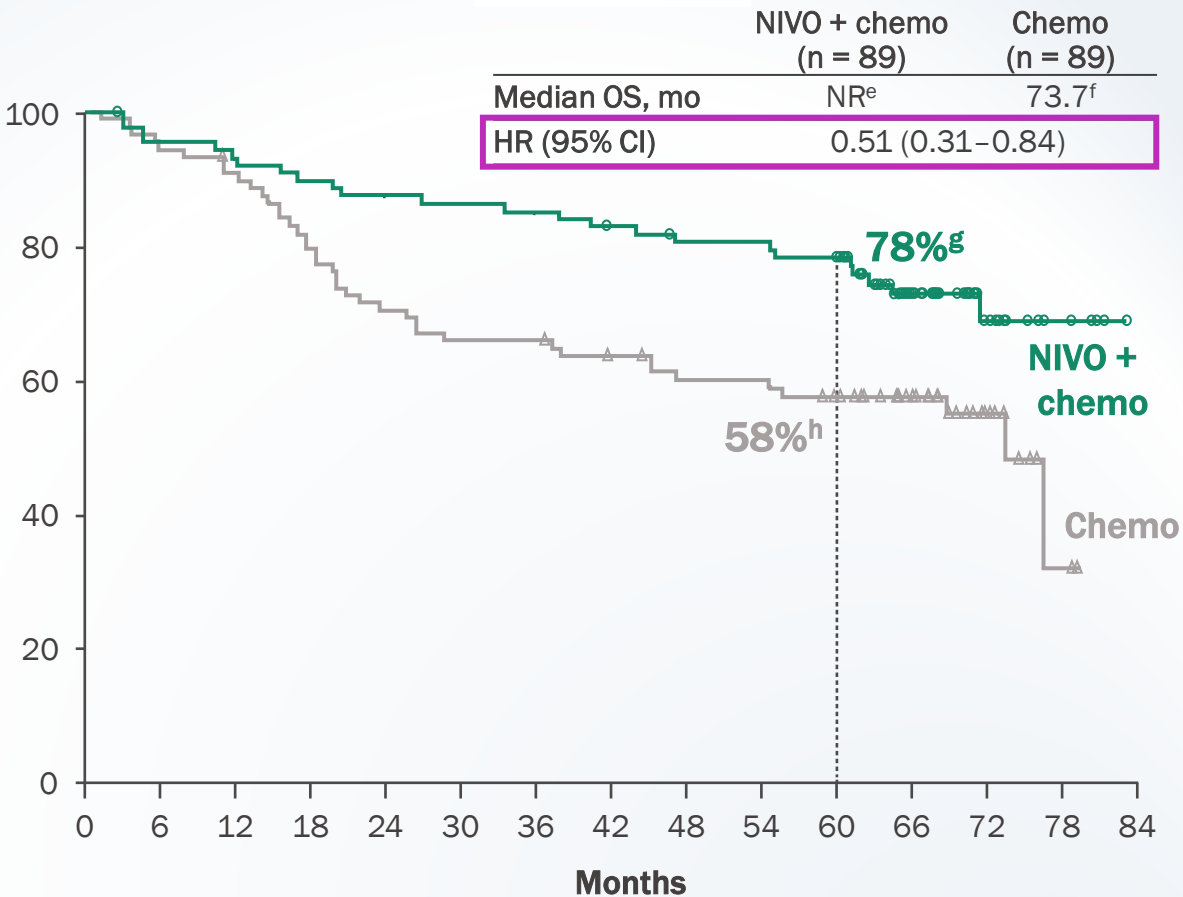


CM816 OS by tumor PD-L1 expression

PD-L1 < 1%



PD-L1 ≥ 1%



No. at risk

NIVO + chemo	78	72	66	63	61	56	54	49	46	42	38	23	12	4	0
Chemo	77	74	68	61	54	48	46	43	41	40	39	23	13	3	0

89	84	82	79	77	76	75	72	69	69	67	40	16	5	0
89	84	80	70	62	58	58	54	50	50	46	31	15	2	0



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Forde ASCO2025, LBA8000, NEJM



Neo-Adjuvant ICI Key Points

Only 3 cycles
All patients exposed to ICI
PD-L1 –important
Driver Mutations-excluded
OS benefit proven



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What can Pure Adjuvant Do?

IMpower010
KN091 (Pearls)
BR.31

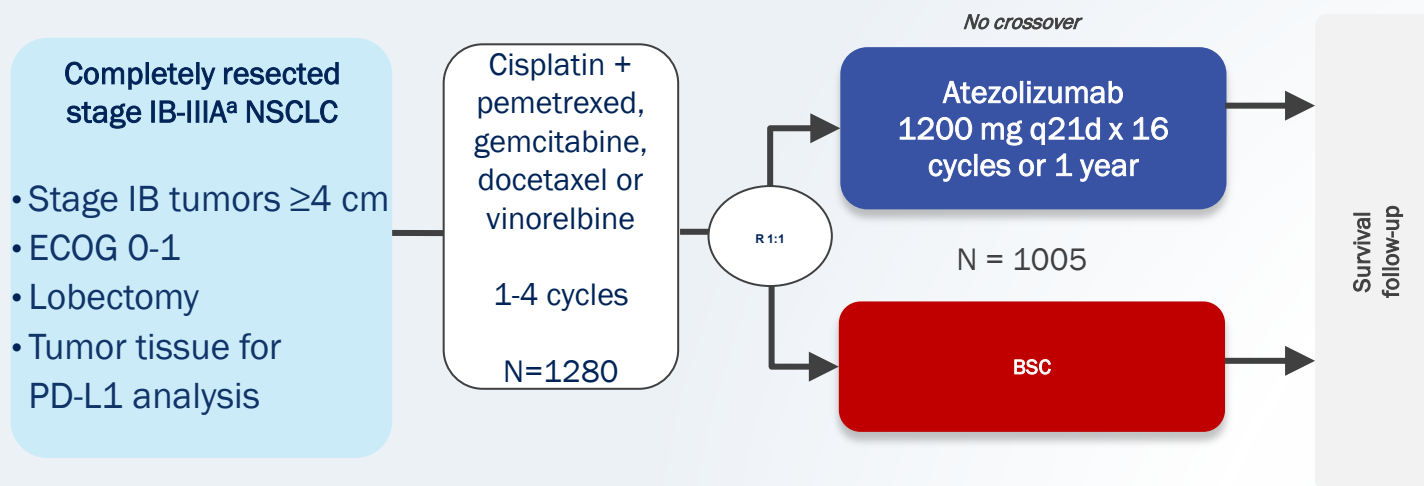


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IMpower010 Study Design

12% stage 1, ~50% stage II, 40% stage III
55% PD-L1+; ~15% known driver mutation



Stratification factors

- Sex | Stage | Histology | PD-L1 status

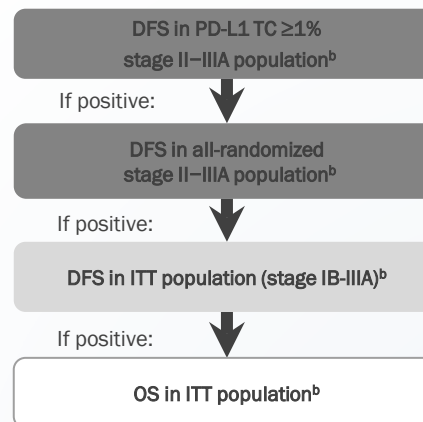
Key exploratory endpoints

- OS biomarker analyses

Key secondary endpoints

- OS in ITT | Safety | Exploratory OS biomarker analyses

Hierarchical statistical testing of endpoints



- Endpoint was met at DFS IA
- Endpoint was not met at DFS IA and follow up is ongoing
- Endpoint was not formally tested

Clinical cutoff: 18 April 2022. Both arms included observation and regular scans for disease recurrence on the same schedule. ECOG, Eastern Cooperative Oncology Group, q21d, every 21 days.

^a Per UICC/AJCC staging system, 7th edition. ^b Two-sided $\alpha=0.05$.



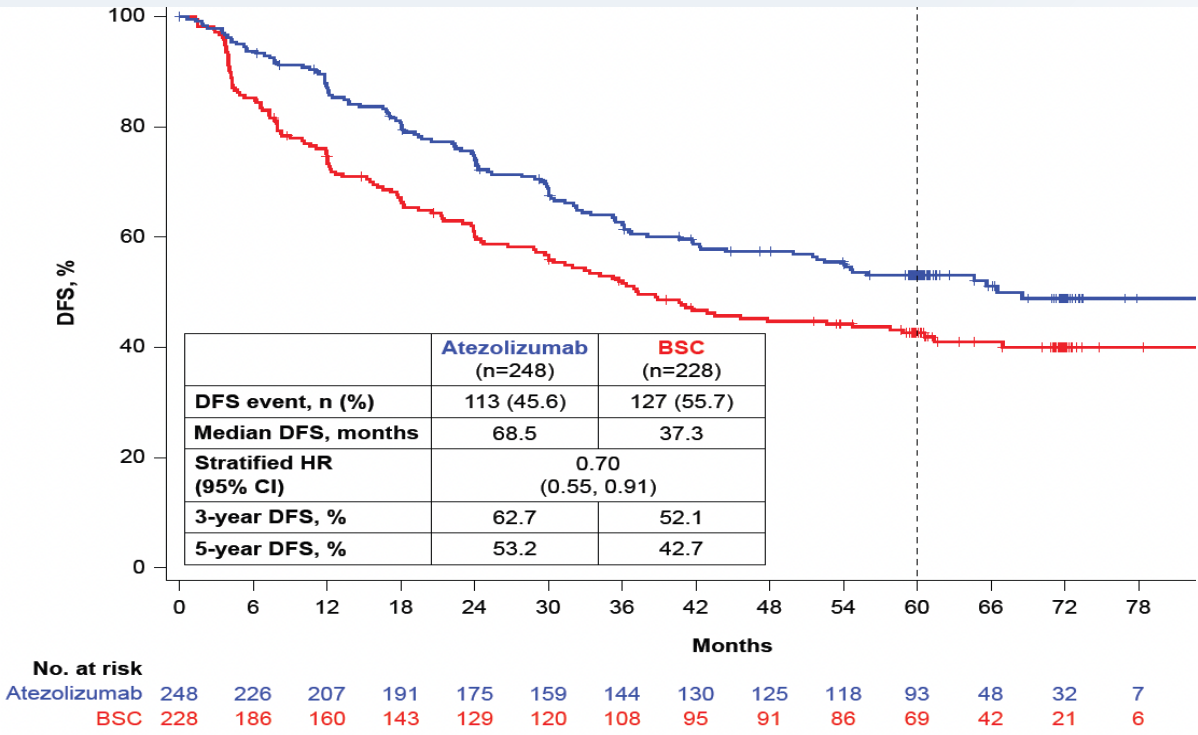
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H. Wakelee ASCO 2021, abstr 8500:IMpower010 Interim Analysis; Felip Lancet 2021, Felip IASLC WCLC 2022

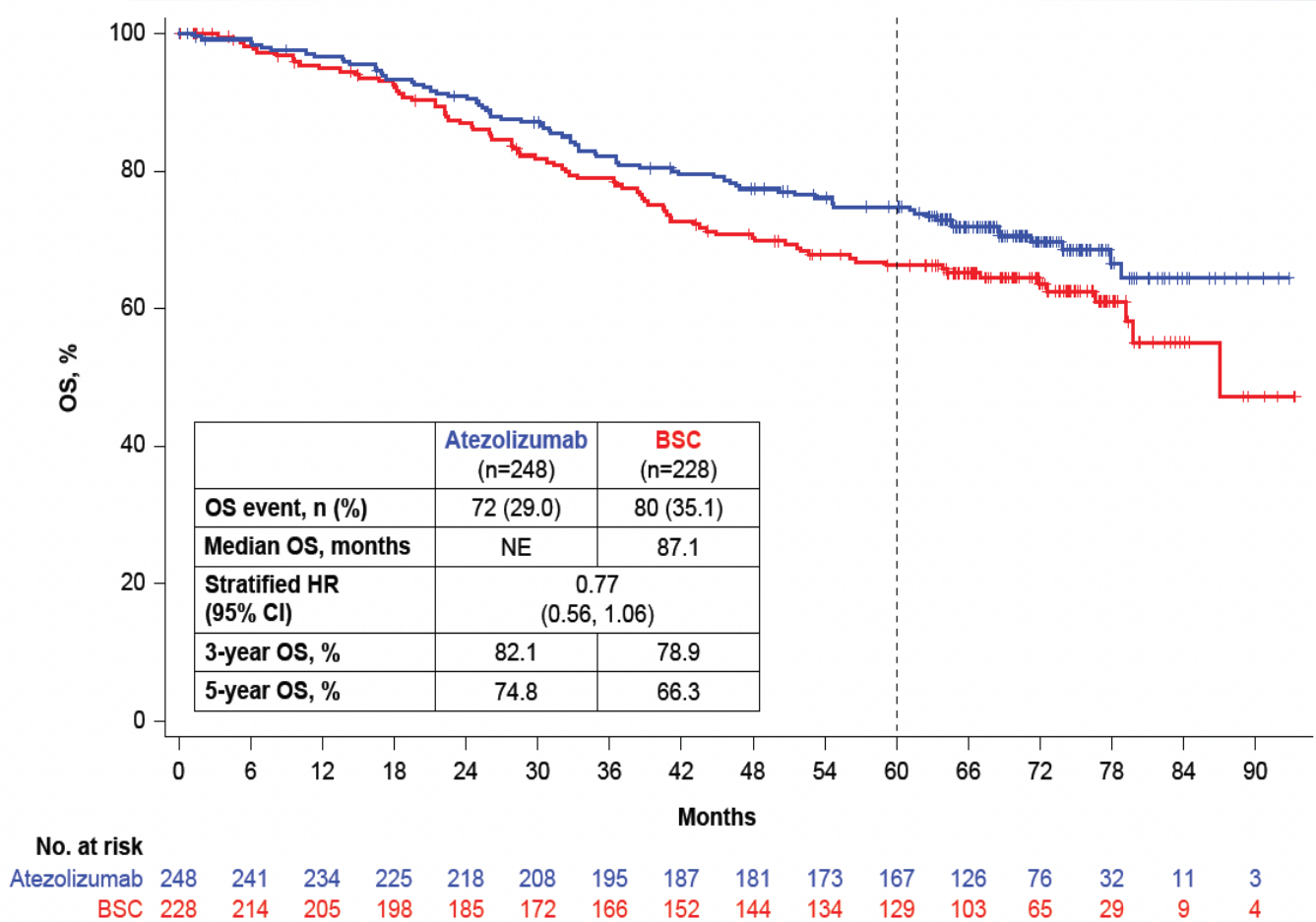


Adjuvant ICI: IMpower010 DFS+OS >60 Mo f/up

IMpower010 PD-L1 TC ≥1% stage II-IIIa population- DFS and OS

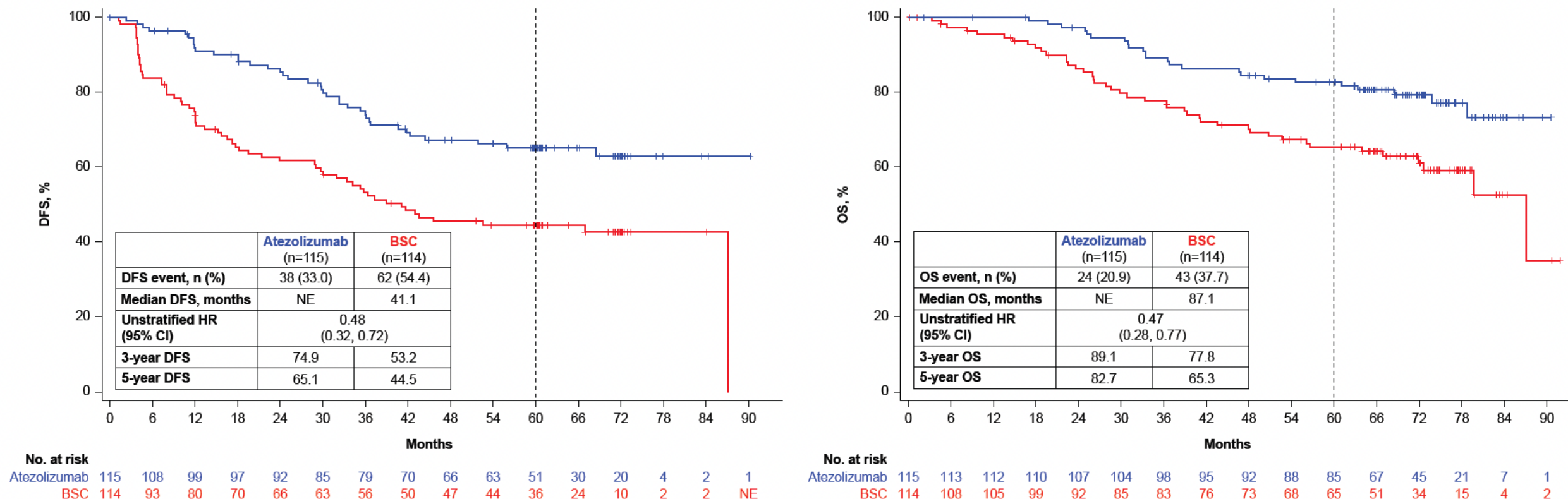


PD-L1 status by SP263				
TC 1-49%	247	41.7	36.0	0.91 (0.65, 1.27)
TC ≥50%	229	NE	41.1	0.48 (0.32, 0.72)



IMpower010: 5 yr Overall Survival- selected subsets

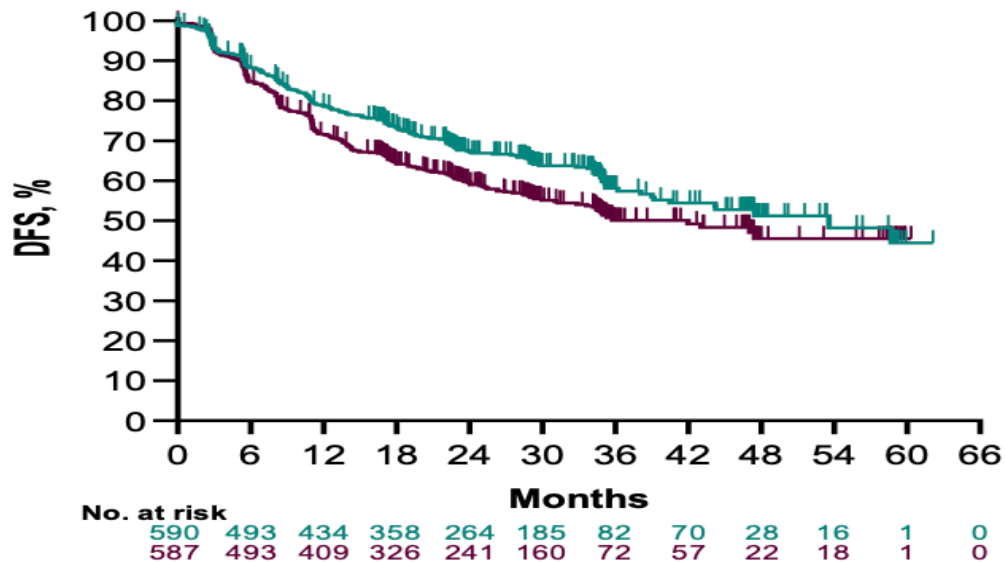
Figure 5. DFS and OS in the stage II-III A PD-L1 TC $\geq 50\%$ population



NO benefit in ITT or All randomized stage II-III A

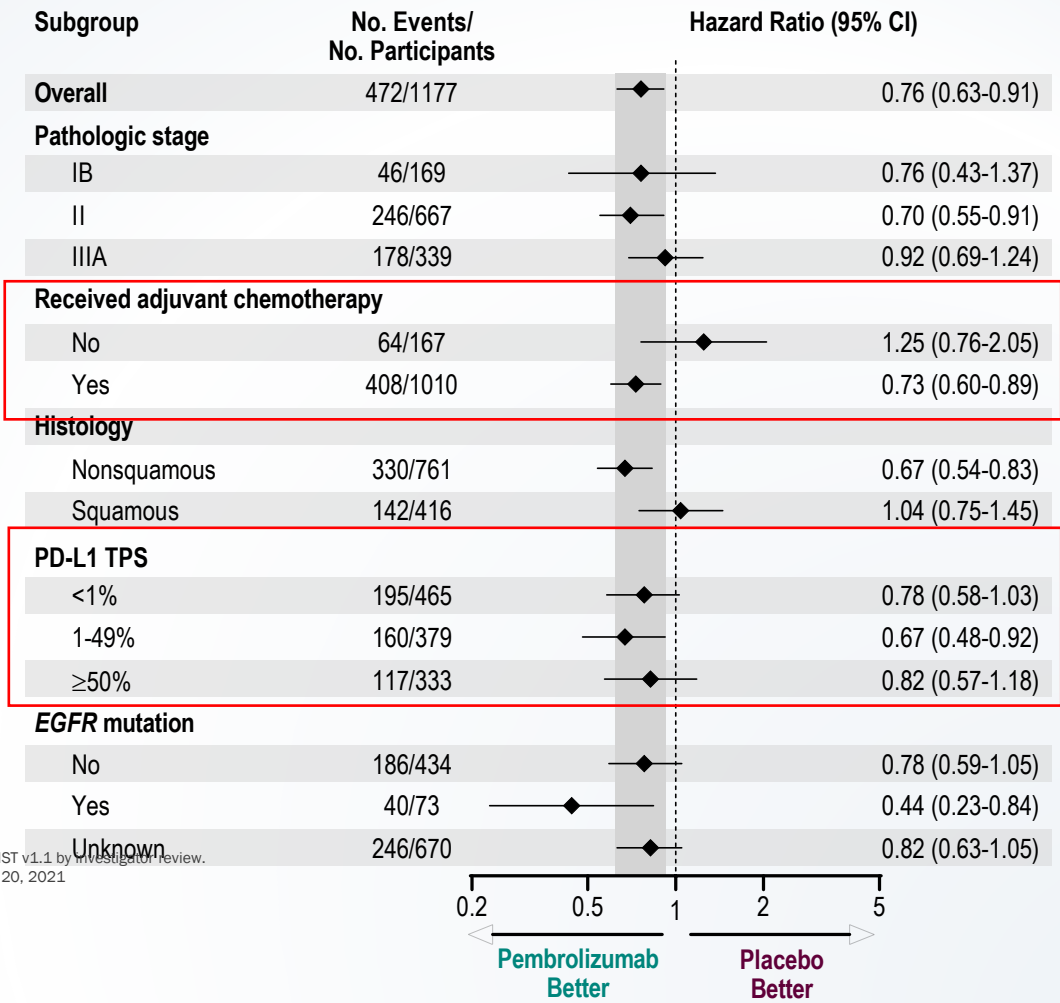
KN-091 (Adjuvant Pembro) Results: DFS in Subgroups

KN091DFS, Overall Population
HR 0.76 (95% CI 0.63-0.91)
P = 0.0014



	Events	Median
Pembro	35.9%	53.6 mo
Placebo	44.3%	42.0 mo

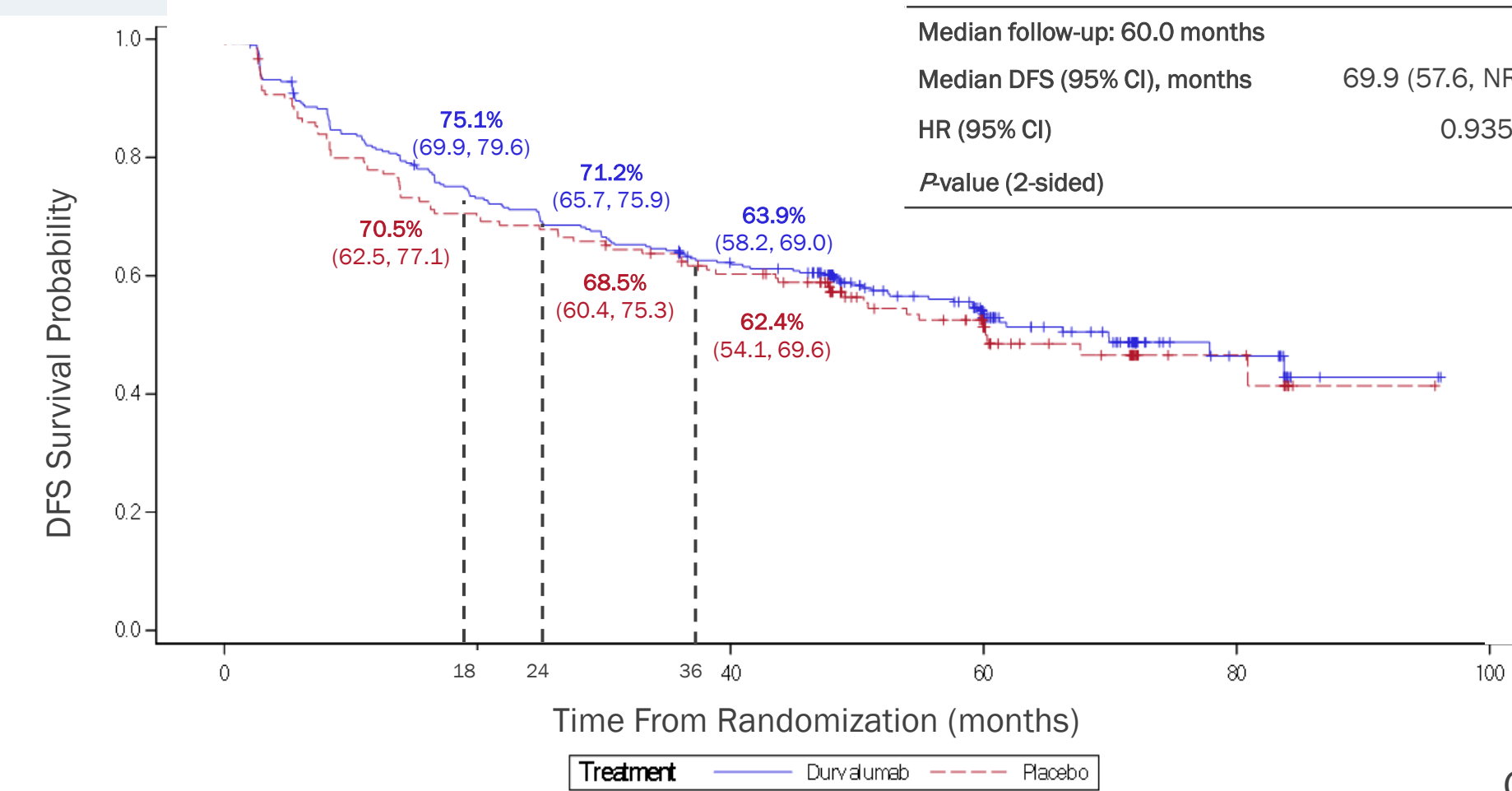
Paz-Ares ESMO plenary 2022, O'Brien ASCO 2022, Lancet Oncol 2023



as per RECIST v1.1 by investigator review.
September 20, 2021

CCTG BR.31 Primary Endpoint

DFS in PD-L1 $\geq$ 25% EGFR-/ALK-



	D arm n=316	PBO arm n=161
Median follow-up: 60.0 months		
Median DFS (95% CI), months	69.9 (57.6, NR)	60.2 (47.7, NR)
HR (95% CI)	0.935 (0.706, 1.247)	
P-value (2-sided)	0.642	

Goss, ESMO2024

Durvalumab	316	287	273	258	248	240	228	219	216	208	202	198	190	183	179	177	149	125	119	117	86	65	62	58	39	21	19	18	7	2	2	2	1	0
Placebo	161	136	129	119	116	109	105	103	102	99	98	95	91	86	86	81	67	57	55	53	43	26	25	24	14	10	10	8	5	1	1	1	0	0

Adjuvant ICI

Everyone Gets Surgery (DFS endpoint)

Driver Mutations- Known for ALL

Maybe can limit to those who are MRD+ after Neo-adj?

Results are confusing across trials



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Peri-Operative ICI Neo-Adjuvant + Adjuvant

AEGEAN
NEOTORCH
KN671
CM77T
RATIONALE-315

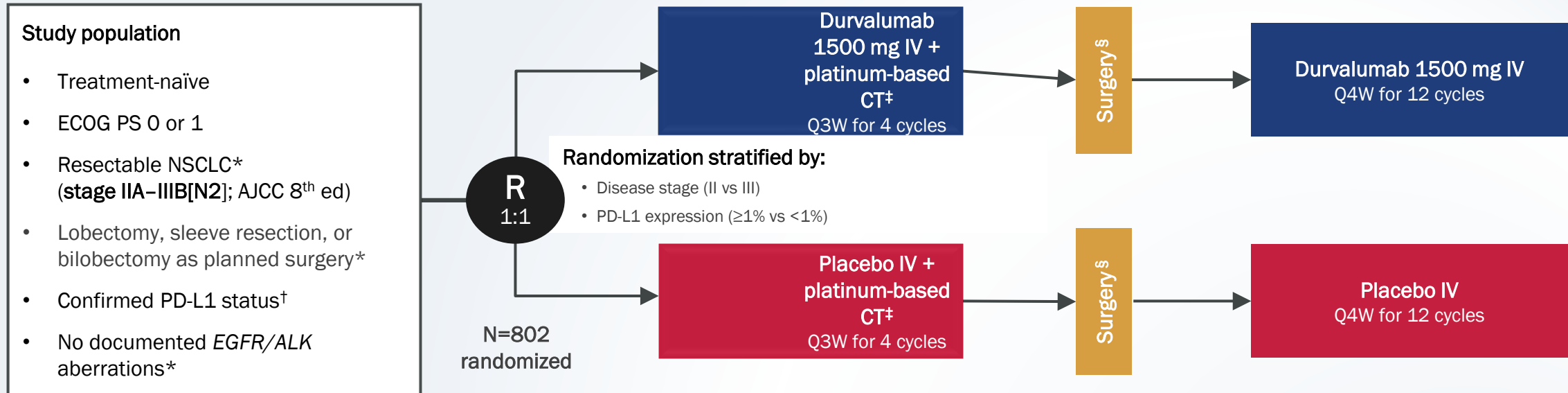


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AEGEAN: A Phase 3 Trial of Neoadjuvant Durvalumab + Chemotherapy Followed by Adjuvant Durvalumab in Patients with Resectable NSCLC

~30% stage II; ~ 1/3 each PD-L1 group (0, 1-49, 50+%); 6% known EGFRmut



Endpoints: All efficacy analyses performed on a modified population that excludes patients with documented *EGFR*/*ALK* aberrations[¶]

Primary:

- pCR by central lab (per IASLC 2020¹)
- EFS using BICR (per RECIST v1.1)

Key secondary:

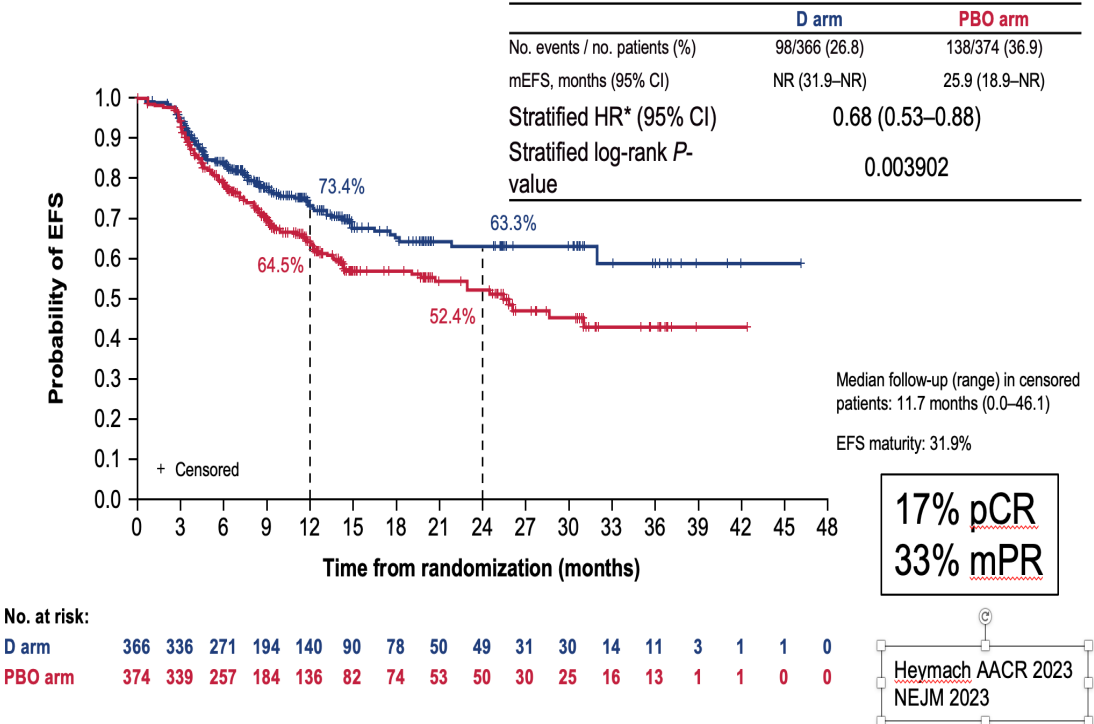
- MPR by central lab (per IASLC 2020¹)
- DFS using BICR (per RECIST v1.1)
- OS

*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.

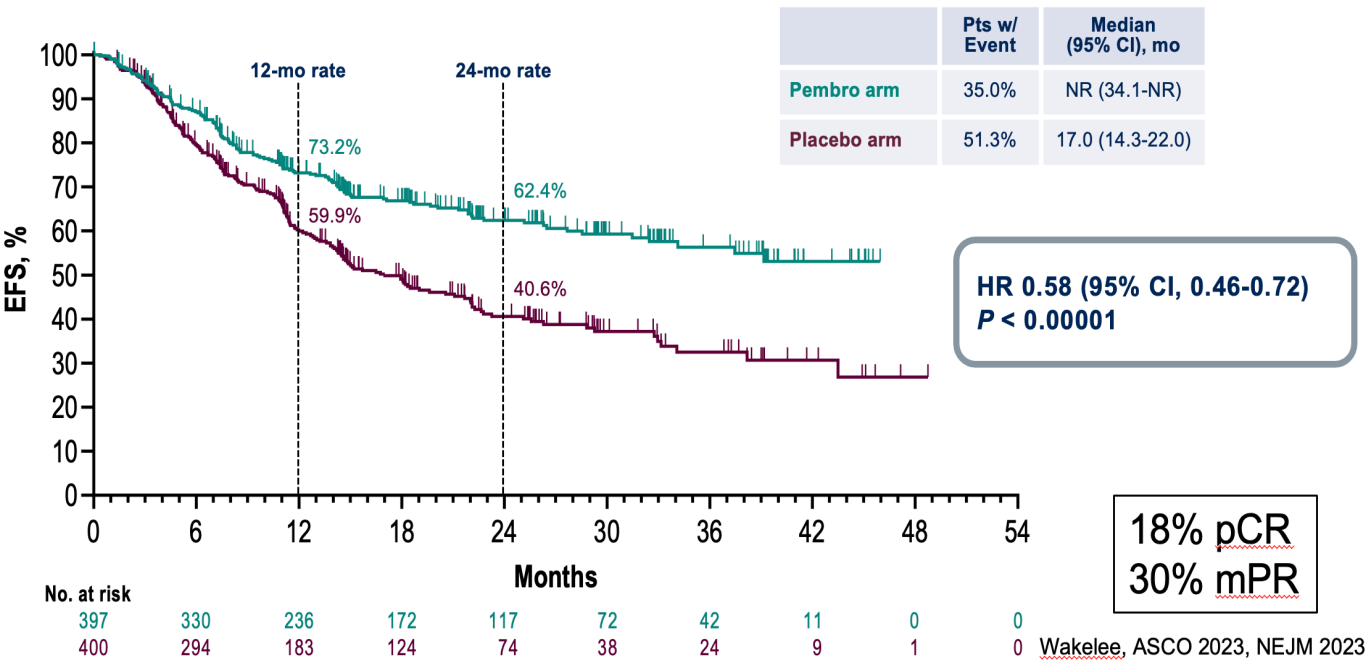
Heymach AACR 2023, NEJM2023

Peri-Operative ICI: EFS from AEGEAN, KN671, and CM77T

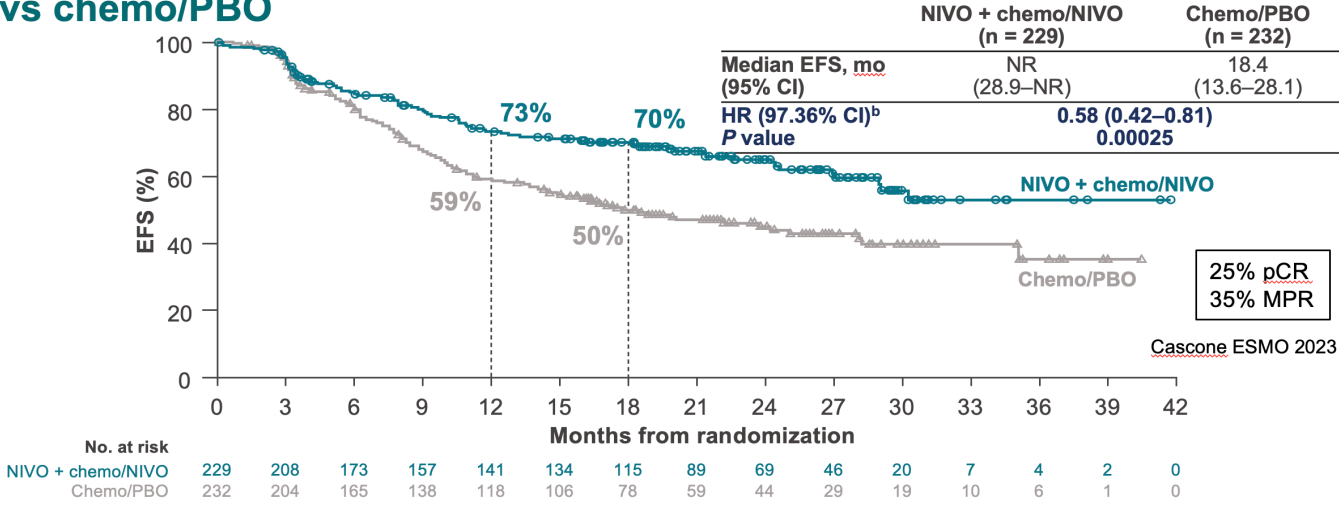
AEGEAN: EFS using RECIST v1.1 (BICR) (mITT) First planned interim analysis of EFS



KN671 - EFS



CM77T Primary endpoint: EFS^a per BICR with neoadjuvant NIVO + chemo/adjuvant NIVO vs chemo/PBO



• EFS per investigator assessment, NIVO + chemo/NIVO vs chemo/PBO: HR, 0.56; 95% CI, 0.41–0.76

Peri-Operative ICI: EFS from NEOTORCH and RATIONALE-315

NEOTORCH

~25% pCR (stage III)

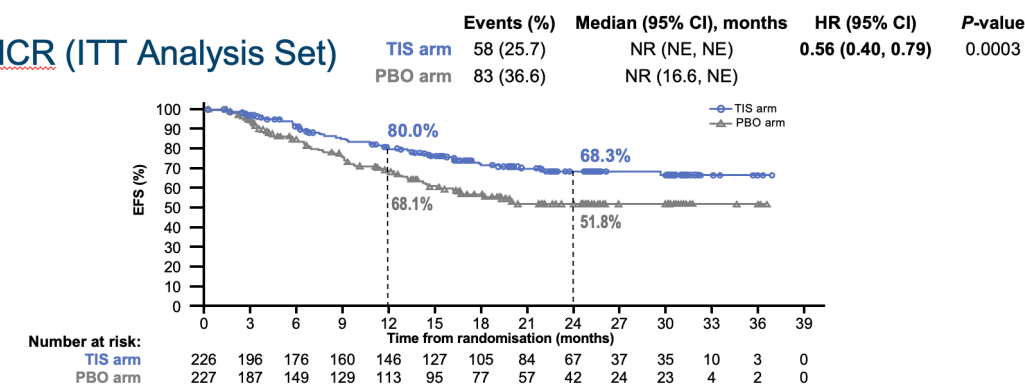
Event-Free Survival Analysis by IRC

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



RATIONALE 315 Event-Free Survival

Per BICR (ITT Analysis Set)



- A statistically significant and clinically meaningful improvement in EFS (HR=0.56 [95% CI: 0.40, 0.79]; one-sided P=0.0003) was observed favouring perioperative TIS
- A clinically meaningful improvement in EFS per investigator (HR=0.55 [95% CI: 0.39, 0.77]) was also observed

Analysis occurred at the August 21, 2023, cut-off. EFS was defined as the time from randomisation until any of the following, whichever occurred first: disease progression precluding surgery, local or distant recurrence, or death due to any cause. The significance boundary of the EFS interim analysis was 0.0105 (calculated based on 141 actual EFS events).

Abbreviations: CI, confidence interval; BICR, blinded independent central review; EFS, event-free survival; HR, hazard ratio; ITT, intention-to-treat; NE, not evaluable; NR, not reached; PBO, placebo; TIS, tiselimab.

ESMO VIRTUAL PLENARY

Dongsheng Yue

WITH AACR EXPERT COMMENTARY

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Lu, S ASCO Virtual Plenary April 20, 2023

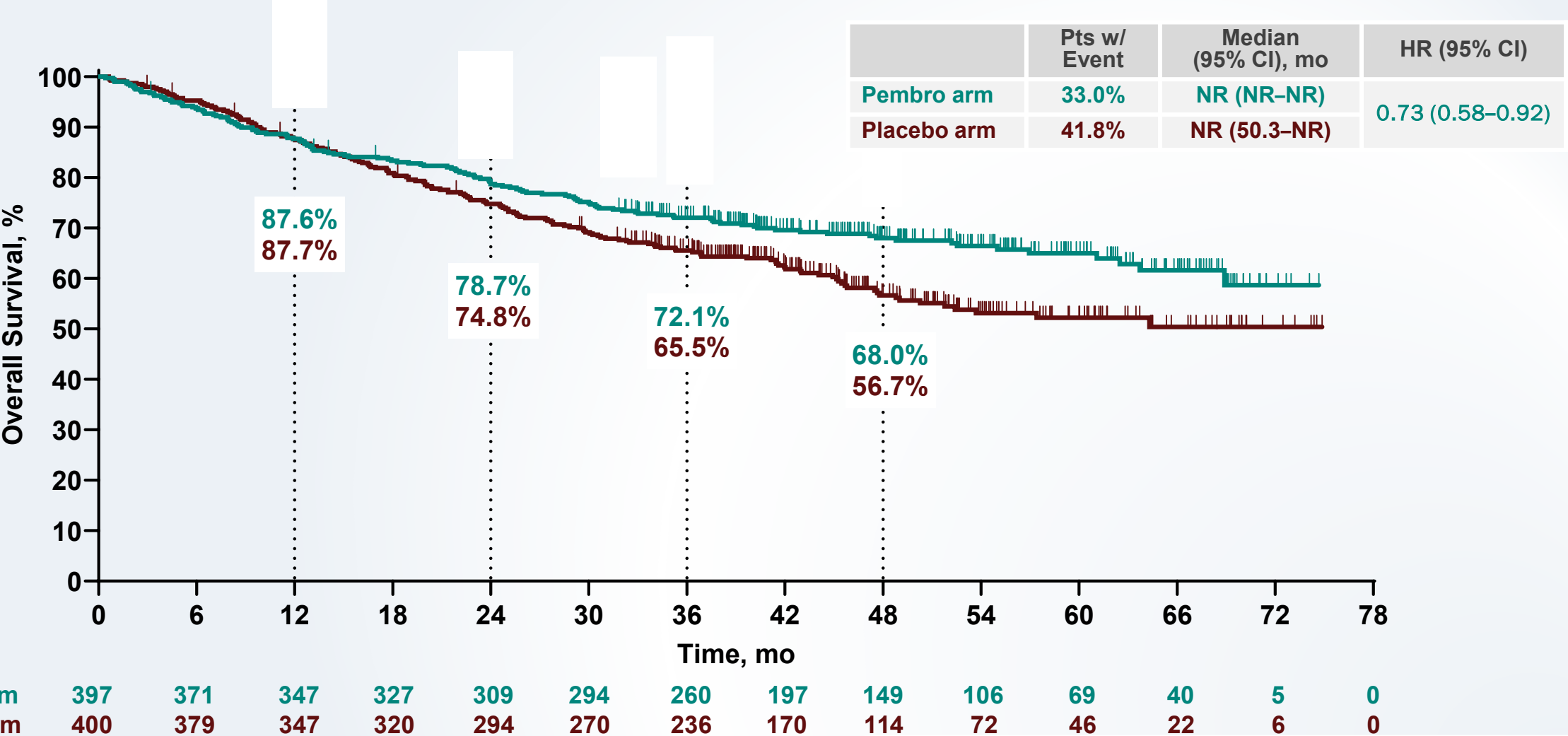


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KN671 Overall Survival, IA3

Median Follow-Up: 41.1 (range, 0.4–75.3) months



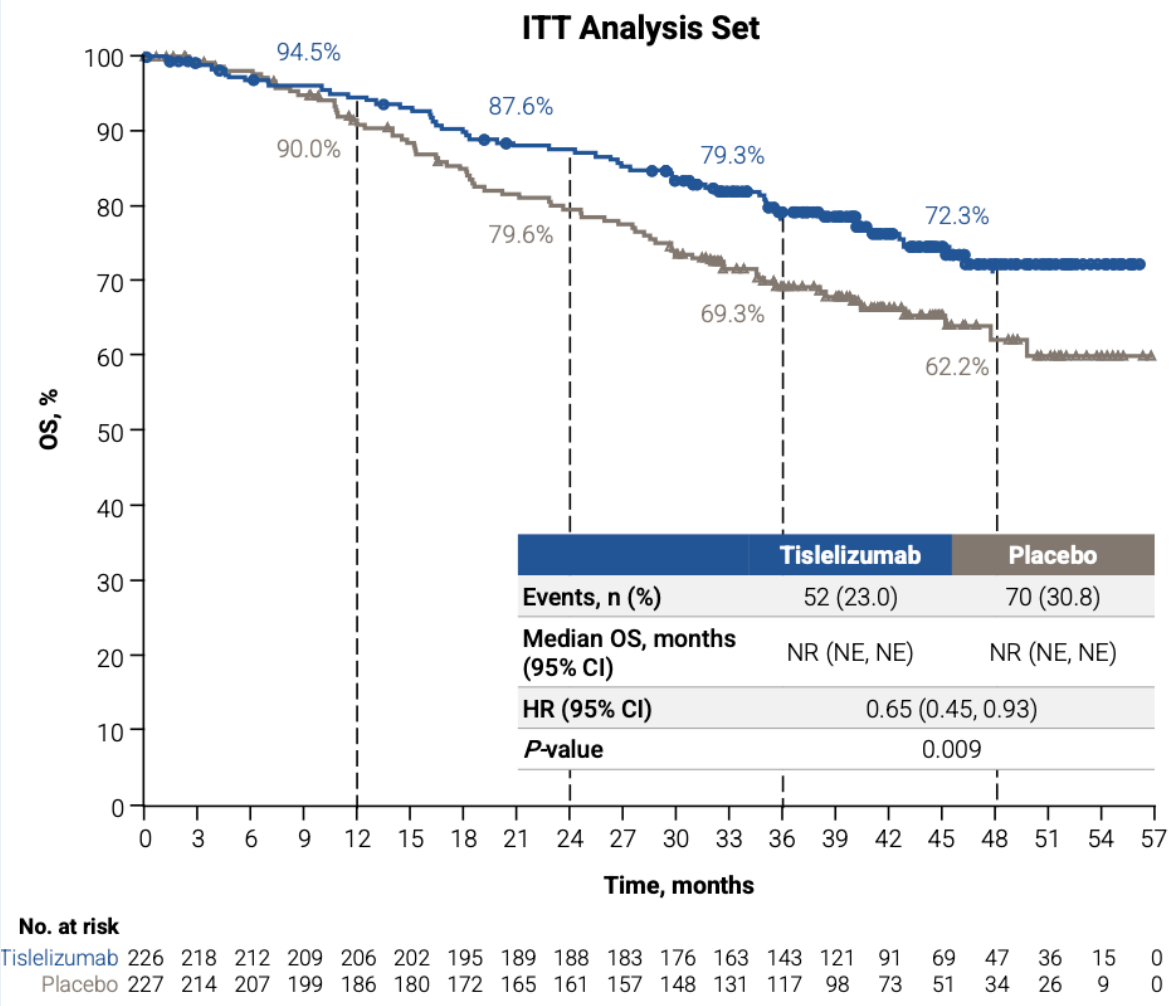
KN671 Overall Survival in Key Subgroups

Subgroup	Events/patients			Hazard ratio (95% CI)
	Pembro Arm	Placebo Arm		
Overall	131/397	167/400		0.73 (0.58–0.92)
Age				
<65 y	63/221	96/214		0.56 (0.41–0.77)
≥65 y	68/176	71/186		1.01 (0.73–1.41)
Sex				
Male	105/279	130/284		0.75 (0.58–0.97)
Female	26/118	37/116		0.68 (0.41–1.13)
Race				
White	86/250	112/239		0.67 (0.50–0.89)
Others	38/134	47/145		0.86 (0.56–1.33)
Geographic region				
East Asia	35/123	38/121		0.91 (0.58–1.44)
Non-east Asia	96/274	129/279		0.69 (0.53–0.89)
Smoking status				
Never	12/54	10/47		1.08 (0.47–2.50)
Former	85/247	103/250		0.80 (0.60–1.06)
Current	34/96	54/103		0.58 (0.38–0.89)
ECOG				
0	79/253	91/246		0.79 (0.58–1.07)
1	52/144	76/154		0.67 (0.47–0.96)

Subgroup	Events/patients			Hazard ratio (95% CI)
	Pembro Arm	Placebo Arm		
Overall	131/397	167/400		0.73 (0.58–0.92)
Histology				
Squamous	67/171	90/173		0.69 (0.51–0.95)
Nonsquamous	64/226	77/227		0.79 (0.57–1.10)
Clinical stage				
II	29/118	42/121		0.69 (0.43–1.11)
III	102/279	125/279		0.75 (0.58–0.97)
PD-L1 TPS				
≥50%	27/132	44/134		0.57 (0.35–0.92)
1–49%	42/127	52/115		0.68 (0.45–1.02)
≥1%	69/259	96/249		0.63 (0.47–0.86)
<1%	62/138	71/151		0.93 (0.66–1.31)
EGFR activating mutation status				
Yes	1/14	5/19		0.23 (0.03–1.94)
No	27/111	40/124		0.70 (0.43–1.14)
Unknown/missing	103/272	122/257		0.75 (0.58–0.98)
ALK translocation status				
No	28/104	46/132		0.72 (0.45–1.15)
Unknown/missing	102/281	120/259		0.74 (0.57–0.96)



PERIOPERATIVE TISLELIZUMAB FOR RESECTABLE NON-SMALL CELL LUNG CANCER: FINAL ANALYSIS OF RATIONALE-315



Yue DS, et al. WCLC 2025.
Abstract MO04.08



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38.5 mo f/up



Neo-Adjuvant risk of NO surgery

16-22% NO surgery

TRIAL	STAGES	% completing surgery
CM816	6% IB, 31% II, 63% III	84%
AEGEAN	29% II, 71% III	78%
NEOTORCH	Only III presented	82%
KN671	30% II, 70% III	82%
CM77T	35% II, 65% III	78%
RATIONALE-315	41% II, 58% III	84%

Peri-Operative ICI

5 trials with consistent EFS benefit

OS proven in KN671, RATIONALE315

PD-L1 – very important in all trials

Driver Mutations- excluded or ? benefit

Stage – Benefit across stages

However, increased toxicity risk (more therapy)

Increased costs (more therapy)

AND 20% risk no surgery

Some Key Remaining Questions

- Who Should Still Go to Surgery First?
- What Does the Adjuvant ICI Component Add to Neo-Adjuvant?
- What is the Optimal Duration of ICI or Adj Targeted Therapy?
- How Does ctDNA Analysis Help?
- What are Future Steps?

Some Key Remaining Questions

- **Who Should Still Go to Surgery First?**
- All stage I?
- Which stage II?
- How to determine who is at most risk of NOT getting surgery if systemic therapy is started first?

Some Key Remaining Questions

- Who Should still go to Surgery first?
- **What Does the Adjuvant ICI Component Add to Neo-Adjuvant?**

We need to do the trials to answer the question!

CM816 (neo-adj) vs CM77T (neo-adj + Adj) nivolumab comparison was flawed in comparing all on CM816 who had surgery vs those on CM77T who had surgery AND got at least 1 dose of adjuvant therapy

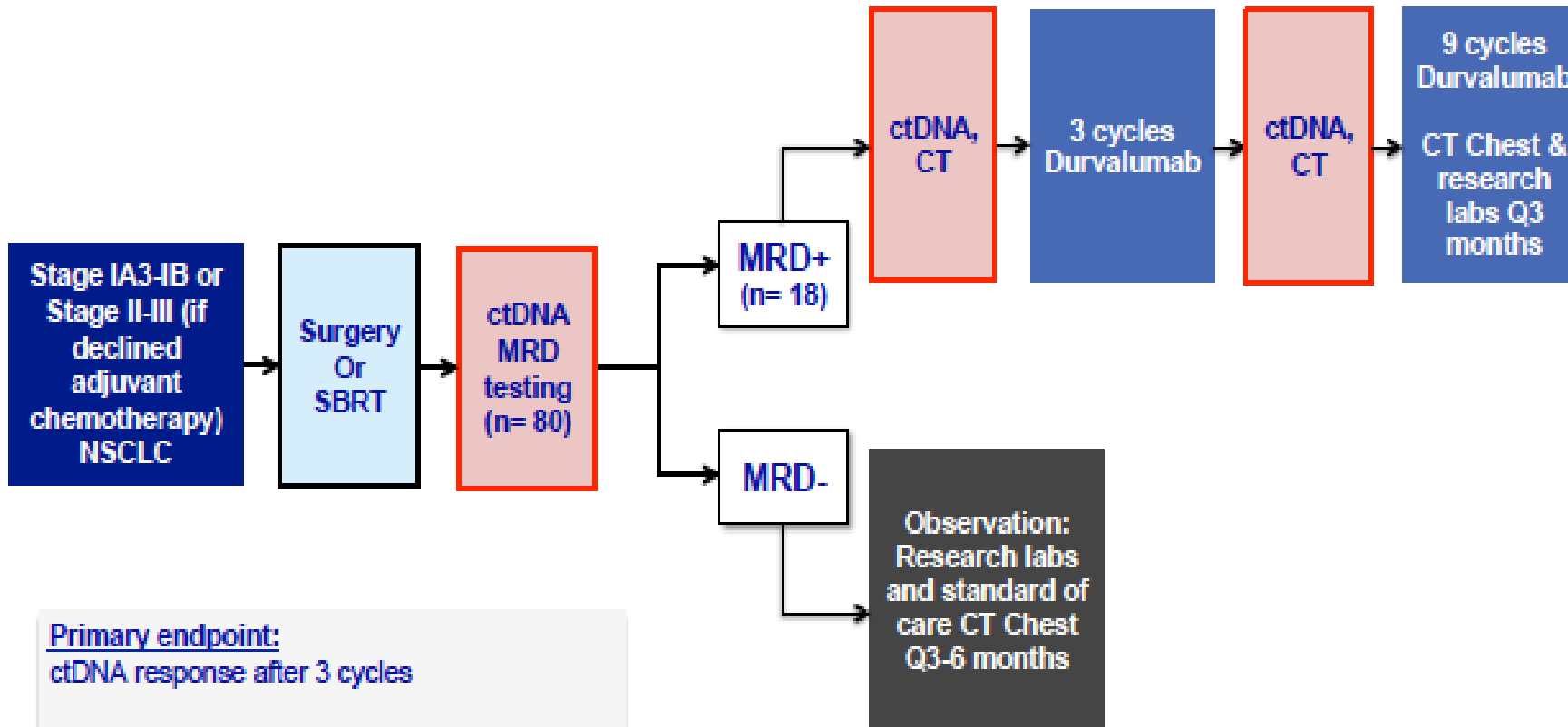
But we know those who do not get Adj on a peri-operative regimen trial tend to do poorly (ie there are reasons they did not proceed to adjuvant)



Key Remaining Questions

- Who Should still Go to Surgery First?
- What Does the Adjuvant ICI Component Add to Neo-Adjuvant?
- **What is the Optimal Duration of ICI or Adj Targeted Therapy?**
- We are not sure of these answers even in metastatic NSCLC
- Perhaps ctDNA will help guide

Adjuvant Durvalumab for early-stage NSCLC patients with ctDNA Minimal Residual Disease



Primary endpoint:
ctDNA response after 3 cycles

Secondary endpoints:

- DFS, OS
- Safety

Key Remaining Questions

- Who Should still go to Surgery First?
- What Does the Adjuvant ICI Component Add to Neo-Adjuvant?
- What is the Optimal Duration of ICI or Adj Targeted Therapy?
- How Does ctDNA Analysis Help?
- What are Future Steps? – Novel Drugs, Contribution of Components Trials

Novel Agents in Early Stage NSCLC



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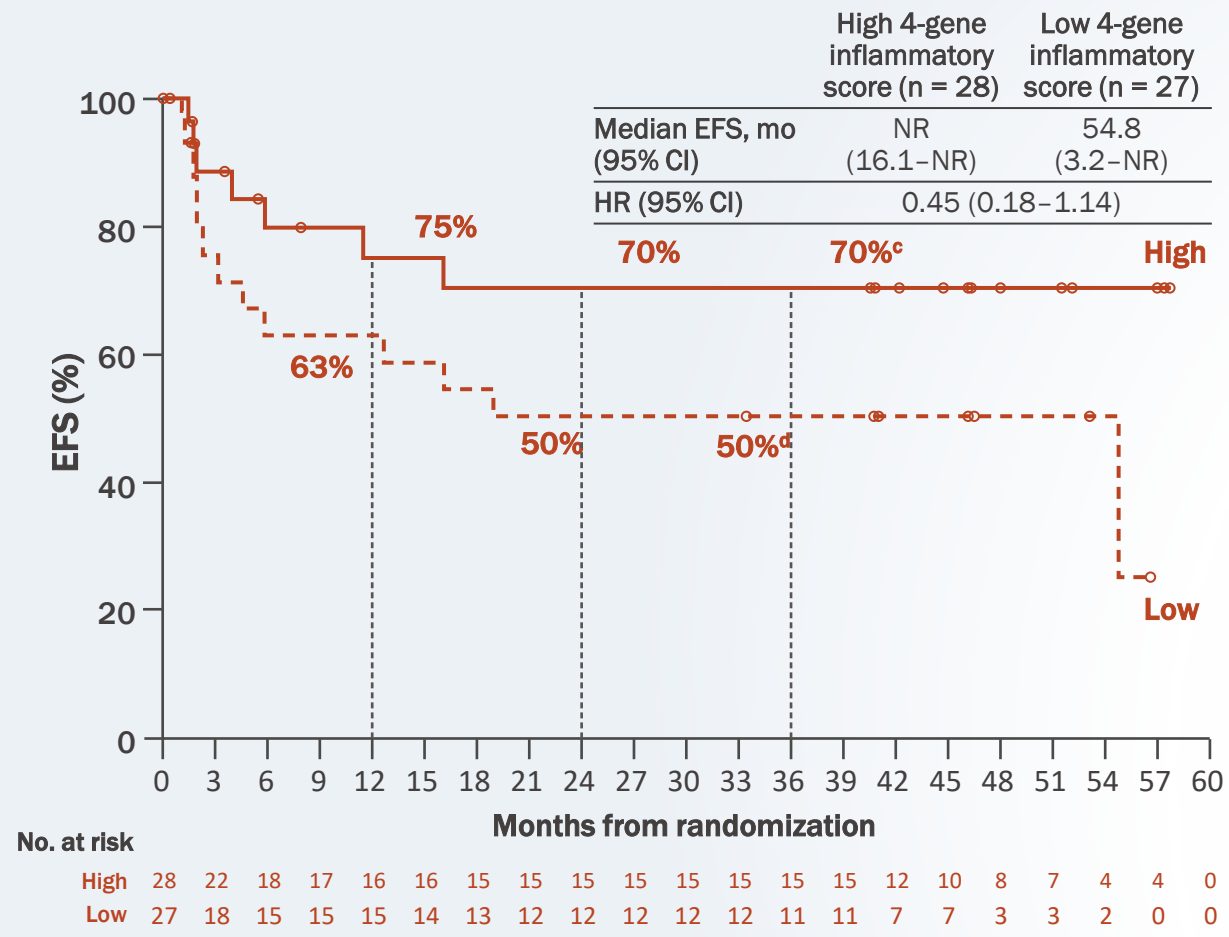


CM816:Baseline 4-gene inflammatory signature score^a and EFS^b

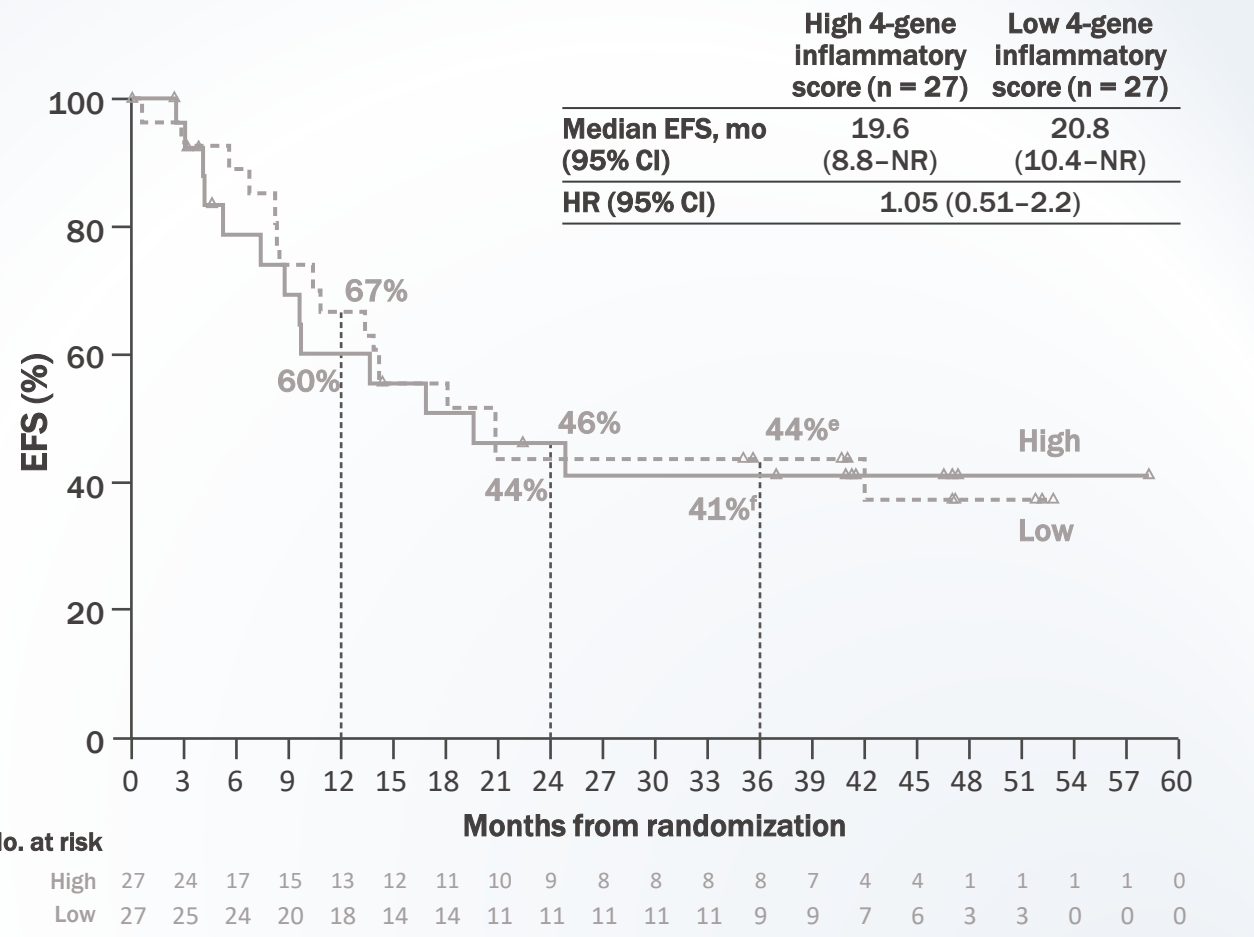
Maybe we can Choose who will benefit from the CTLA4 additional therapy?

^aThe 4-gene inflammatory signature comprised *CD8A*, *STAT1*, *LAG3*, and *CD274* (encoding PD-L1)¹

NIVO + IPI



Chemo



NEOCOAST-2: Study of Neoadjuvant and Adjuvant Treatment in Resectable NSCLC

MEDI5752 Volrustomig - PD-1/CTLA-4 Bispecific

Dato-DXd - Trop-2 ADC

AZD0171- MAb to Leukemia inhibitory factor (LIF)

A Phase 2, Open-label, Randomized, Multicenter, Multi-arm Platform Study of Neoadjuvant and Adjuvant Treatment in Patients With Resectable, Early-stage (II to IIIB) Non-small Cell Lung Cancer Versus Surgery Alone

Study Design

Patients with resectable, early-stage NSCLC (N≈350)^a

- Stage IIA to IIIB NSCLC
- Squamous and non-squamous histology
- No actionable genomic alterations
- ECOG PS 0 or 1
- Mandatory tumor sample required

Stratification by PD-L1 expression (<1% vs ≥1%)²

Randomization

Neoadjuvant treatment

Arm 1: Durvalumab +
oleclumab +
platinum doublet CT^{b,c}

Arm 2: Durvalumab +
Monalizumab + platinum
doublet CT^{b,c}

Arm 3: Volrustomig
(MEDI5752) + platinum
doublet CT^b

Arm 4: Dato-DXd +
Durvalumab + single agent
platinum CT^b

Arm 5: AZD0171 +
Durvalumab + platinum
doublet CT^b

Surgery^l

Adjuvant treatment

Arm 1:
Durvalumab +
oleclumab^f

Arm 2:
Durvalumab +
monalizumab^f

Arm 3:
Volrustomig
(MEDI5752)

Arm 4:
Durvalumab

Arm 5:
AZD0171 +
Durvalumab

Safety
and
efficacy
follow-
up²

Primary endpoints

- pCR^g
- Safety and tolerability

Secondary endpoints

- EFS^h
- DFS^h
- Number of participants with surgical resection^{d,h}
- MPR^h
- ORR^h
- OS^h
- Baseline PD-L1 expressionⁱ
- Changes in ctDNA^k

Locations: North America, Europe, Asia
ClinicalTrials.gov Identifier: [NCT05061550](https://clinicaltrials.gov/ct2/show/NCT05061550)

^aEstimated enrollment, ^bBased on tumor histology and investigator discretion: paclitaxel/carboplatin, cisplatin/pemetrexed, or carboplatin/pemetrexed, ^cPatients received treatment (Q3W) x4 cycles, ^dPlanned surgery to be performed will be lobectomy, sleeve resection, or bilobectomy, ^eUnless progression of disease (PD) or any withdrawal criteria are met, ^fQ4wx12 cycles. Patients will receive adjuvant therapy starting within 10 weeks after surgery, for 12 cycles or until disease progression per RECIST v1.1 (except for patients receiving PORT, which must be started within 8 weeks after surgery, adjuvant therapy must be given within 3 weeks from the end of PORT), ^gAs determined by central BIPR and described by IASLC 2020, ^hAssessed by Investigator, ⁱFeasibility to surgery is defined as having the planned surgical resection within 40 days from the end of the last dose of neoadjuvant study drugs, ^jThe baseline PD-L1 expression in participants treated with neoadjuvant and adjuvant treatment, and associations with clinical endpoints will be investigated, ^kDuring neoadjuvant treatment in participants with evaluable ctDNA and associations with clinical endpoints will be evaluated.

1. ClinicalTrials.gov. NCT05061550. [http://clinicaltrials.gov/ct2/show/NCT05061550](https://clinicaltrials.gov/ct2/show/NCT05061550). Accessed April 20, 2023. 2. Cascone T et al. Poster presented at: AACR Meeting; April 8-13, 2022; New Orleans, LA. Poster CT124. 3. Guisier F et al. Poster presented at: ASCO; June 2-8, 2023; Chicago, IL. Poster TPS8604.

Conclusions

- 1) Neo-Adjuvant, Adjuvant or Peri-operative PD-(L)1 ICI – are all Standard of Care options for early NSCLC (w/o driver mutation or contraindication)
- 2) Accurately STAGE and discuss at Multidisciplinary Tumor Board
TEST for EGFR, ALK, PD-L1 (and others)
Adjuvant targeted therapy SOC for EGFR/ALK+ NSCLC
- 3) Stage III - Neo-Adjuvant/Peri-Operative ICI SOC for all operable stage III
- 4) Stage I/II - more controversial - surgery first/ adj approaches can be an option
- 5) More work needed on biomarkers of response and comparative trials!
- 6) The additional benefit of Adjuvant is possible after Neo-Adjuvant therapy
- 7) ctDNA will be critical for optimal management
- 7) Novel Agents Needed!
- 8) Many remaining questions including Who should go to surgery first?

EXCITING TIMES FOR EARLY STAGE NSCLC