



Division of Hematology & Oncology

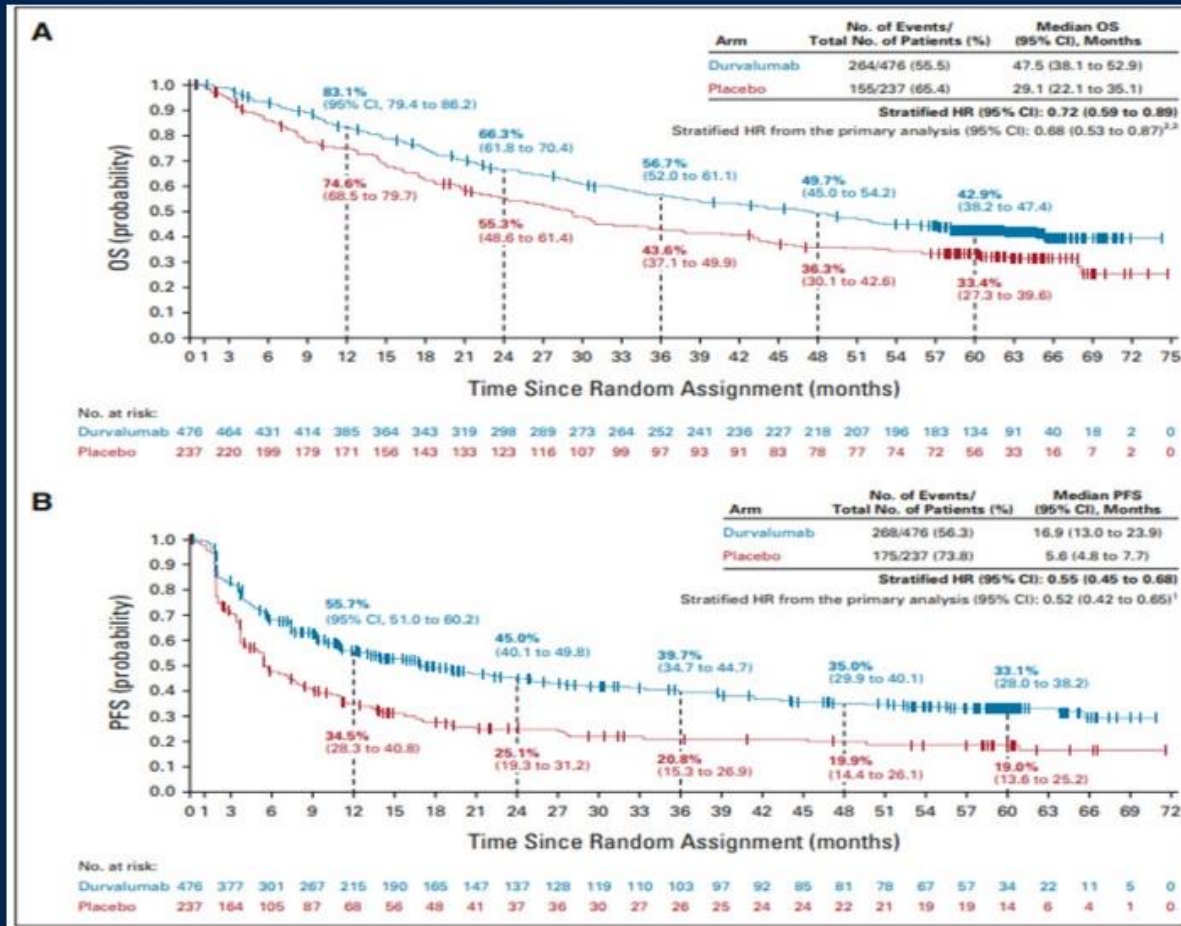
Management of LA-NSCLC in Pts with PD-L1 < 1% or Oncogenic Drivers

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October, 2022



PACIFIC TRIAL



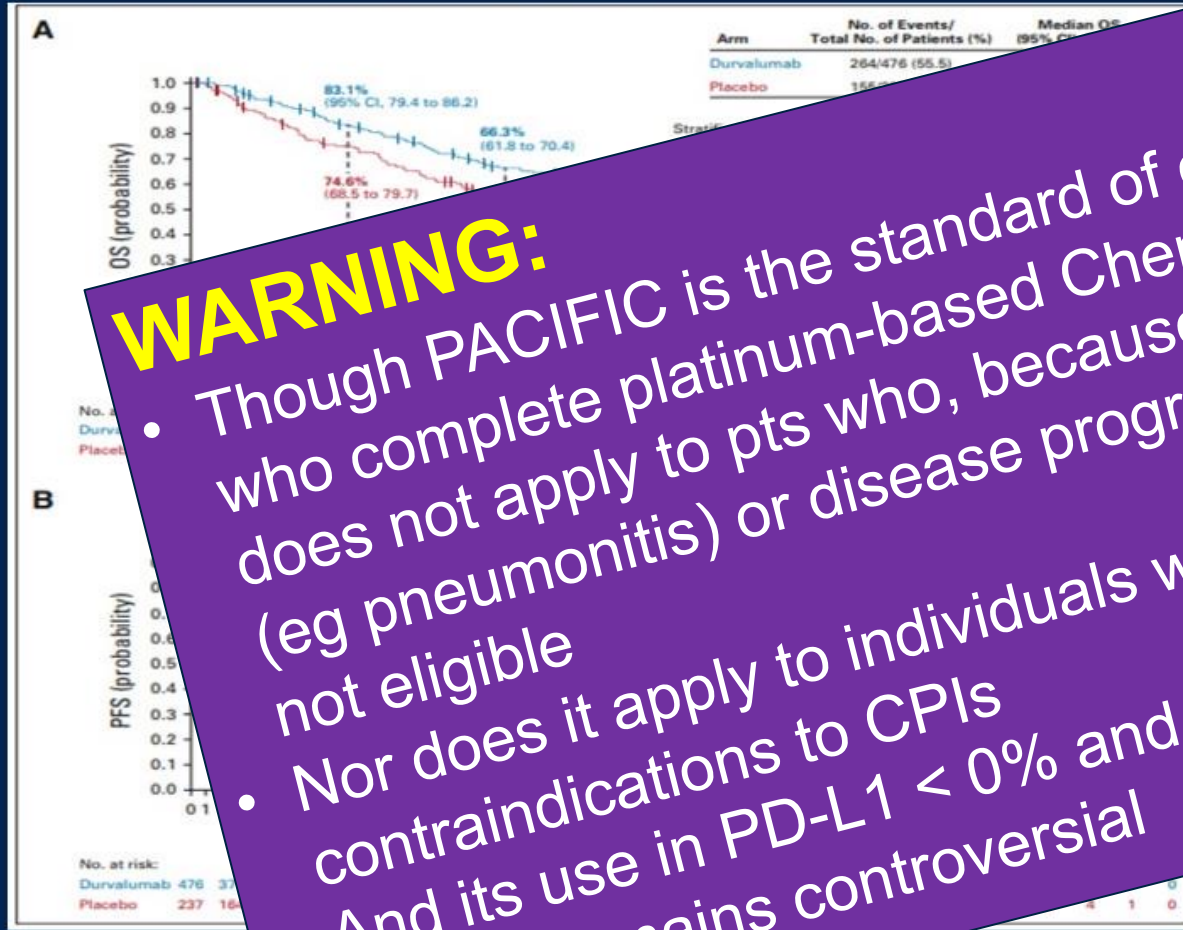
HR = 0.72 OS
Median **47.5** vs **29.1**mn

HR = 0.55 PFS
Median **16.9** vs **5.6** mn

Entry Criteria

- No progression during the course of CHEMO/RT
- No unresolved > Grade 2 toxicities
- No Grade \geq 2 Pneumonitis

PACIFIC TRIAL

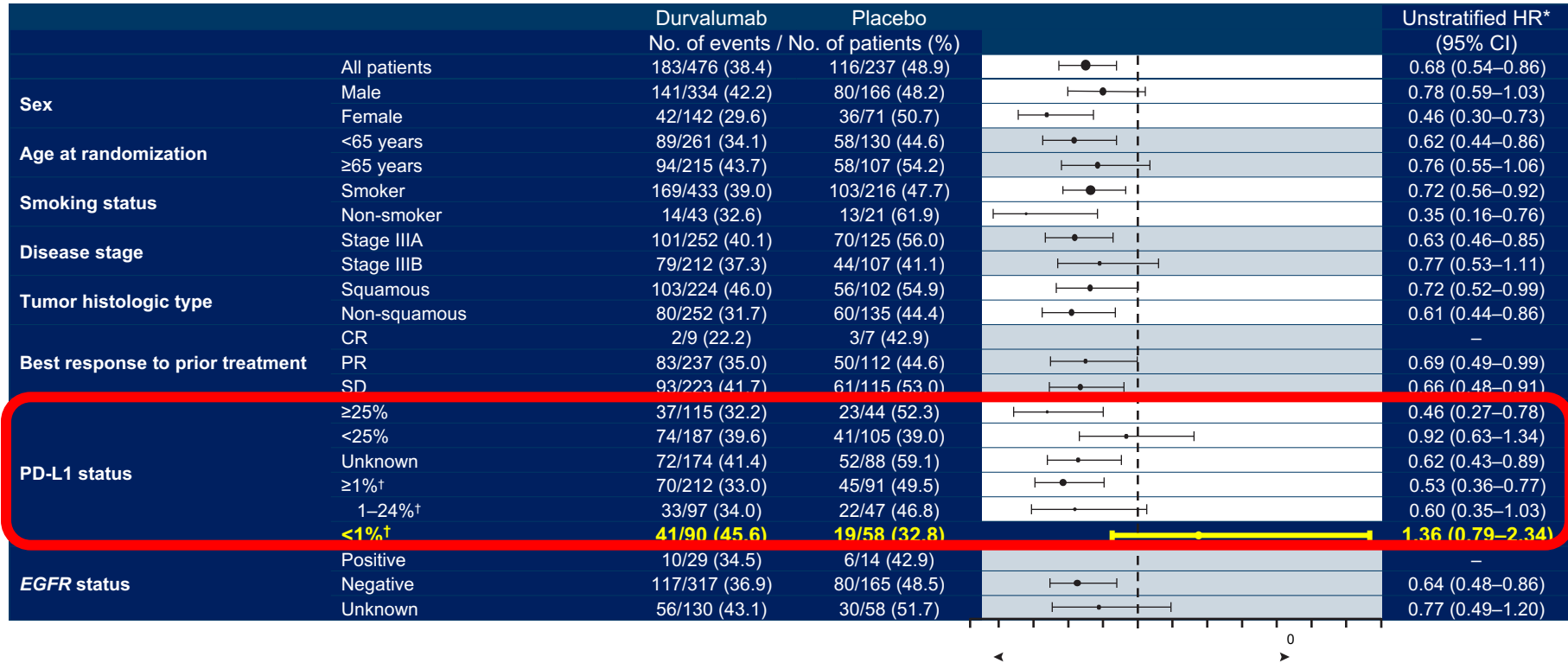


WARNING:

- Though PACIFIC is the standard of care in LA-NSCLC pts who complete platinum-based Chemo-XRT, this approach does not apply to pts who, because of complications of Tx (eg pneumonitis) or disease progression (~30% total) are not eligible
- Nor does it apply to individuals with AID or other contraindications to CPIs
- And its use in PD-L1 < 0% and those with oncogenic drivers remains controversial

Grade > 2 toxicities
Grade ≥ 2 Pneumonitis

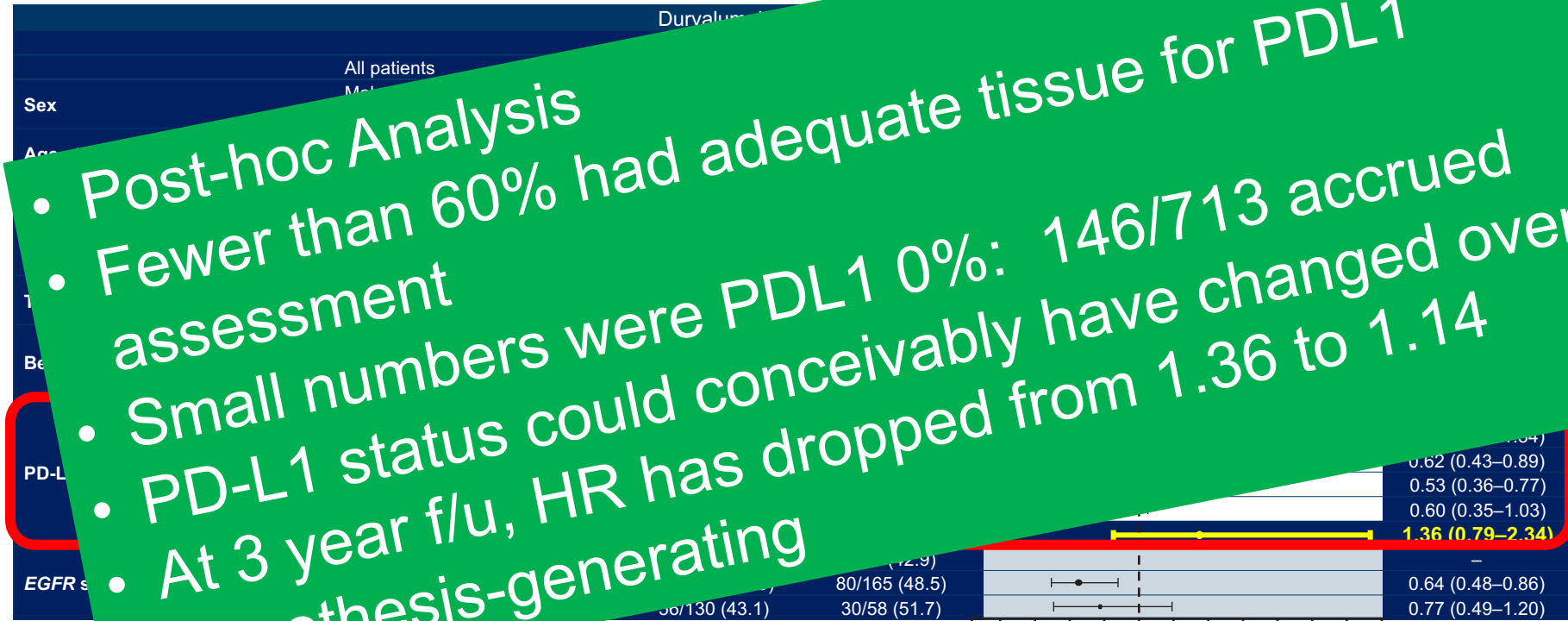
Overall Survival by Subgroup (ITT)



*Not calculated if the subgroup has less than 20 events
 †Assessed as part of exploratory post-hoc analyses

¹Antonia et al. NEJM. 2018

Overall Survival by Subgroup (ITT)



*Not calculated for subgroups with less than 20 events
 †Assessed as exploratory post-hoc analyses

¹Antonia et al. NEJM. 2018



ELSEVIER

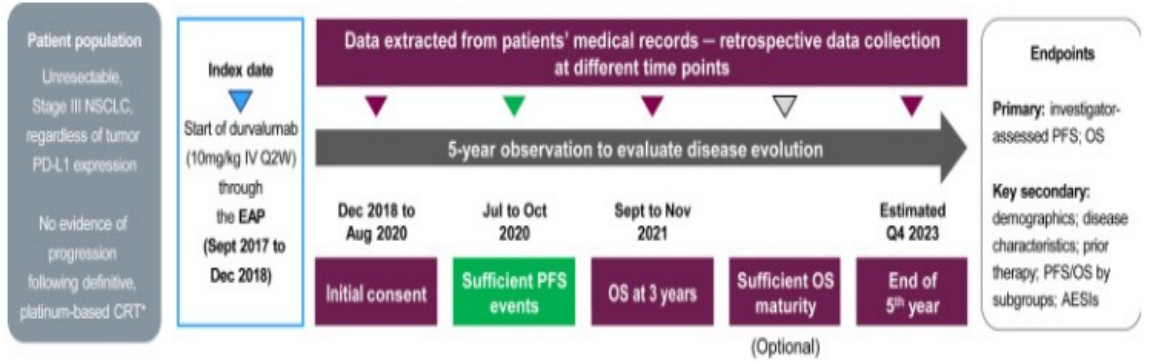


Original Article

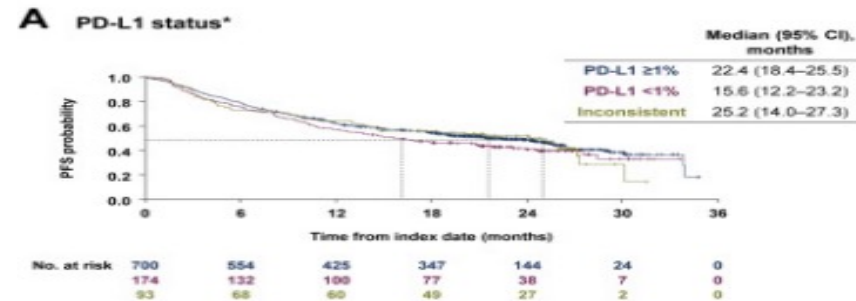
Non-Small Cell Lung Cancer

Treatment Characteristics and Real-World Progression-Free Survival in Patients With Unresectable Stage III NSCLC Who Received Durvalumab After Chemoradiotherapy: Findings From the PACIFIC-R Study

Nicolas Girard MD, PhD^a,  , Jair Bar MD, PhD^{b,c}, Pilar Garrido MD, PhD^d, Marina C. Garassino MD^e, Fiona McDonald MD, FRCR^f, Françoise Mornex MD, PhD^g, Andrea R. Filippi MD^h, Hans J.M. Smit MD, PhDⁱ, Solange Peters MD, PhD^j, John K. Field PhD, FRCPath^k, Daniel C. Christoph MD, PhD^l, Anne Sibille MD^m, Rainer Fietkau MD, PhDⁿ, Vilde D. Haakensen MD, PhD^o, Christos Chouaid MD, PhD^p, Ben Markman MBBS, FRACP^q, T. Jeroen N. Hiltermann MD, PhD^r, Alvaro Taus MD^s, William Sawyer PhD^t, Allison Allen PhD^u...Benjamin Solomon MBBS, PhD, FRACP^w



Full analysis set	N = 1399
PD-L1 status, n (%)	n = 967^d
≥1%	700 (72.4)
<1%	174 (18.0)



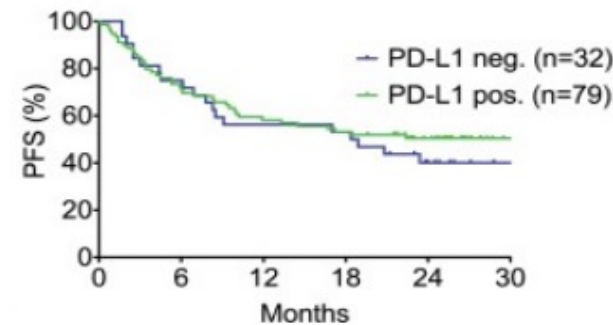
- No control arm
- Not tested statistically
- No OS data (yet)



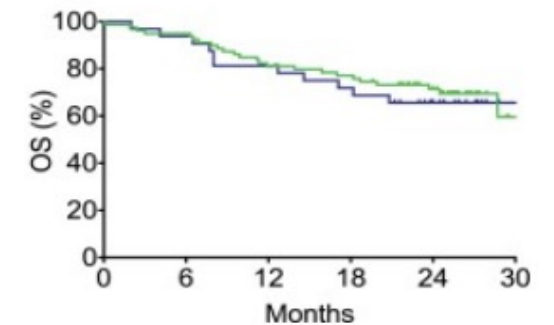
Durvalumab after definitive chemoradiotherapy in locally advanced unresectable non-small cell lung cancer (NSCLC): Real-world data on survival and safety from the German expanded-access program (EAP)

Martin Faehling^a, Christian Schumann^b, Petros Christopoulos^c, Petra Hoffknecht^d, Jürgen Alt^e, Marlitt Horn^f, Stephan Eisenmann^g, Anke Schlenska-Lange^h, Philipp Schüttⁱ, Felix Steger^j, Wolfgang M. Brückl^k, Daniel C. Christoph^l

- ▶ For 111 patients (88.1 %), the PD-L1 expression level on tumor cells was reported.
 - 71.2 % had a PD-L1-expression level $\geq 1\%$
 - 49.5 % had PD-L1-expression levels of $\geq 25\%$,
 - 28.8 % were PD-L1 negative.
- ▶ For comparison, in the PACIFIC trial, the PD-L1-expression level was known for 63.4 % of patients, of whom 67.2 % and 38.1 % had PD-L1-expression levels of $\geq 1\%$ and $\geq 25\%$, respectively.



HR 1.21



HR 1.15

Efficacy of Consolidation Pembrolizumab vs Durvalumab

Endpoint	LUN 14-179 ² (Pembrolizumab)	PACIFIC ¹ (Durvalumab)	PACIFIC ¹ (Placebo)
Median Follow-up	23.9 months	14.5 months	14.5 months
Time to Metastatic Disease or Death			
Median	30.7 months	23.2 months	14.6 months
12-month	76.3%	-	-
18-month	60.0%	-	-
Progression Free Survival			
Median	15 months	16.8 months	5.6 months
12-month	60.8%	55.9%	35.3%
18-month	46.9%	44.2%	27.0%
Overall Survival			
Median	NR	NR	28.7
12-month	81.0%	83.1%	75.3%
24-month	61.9%	66.3%	55.6%
36-month	48.5%	57.0%	43.5%

Results in LUN 14-179 appear independent of PD-L1 status

¹Antonia et al. NEJM. 2017. Nov 16. 1919-1929
²Durm et al, ASCO, WCLC 2018.



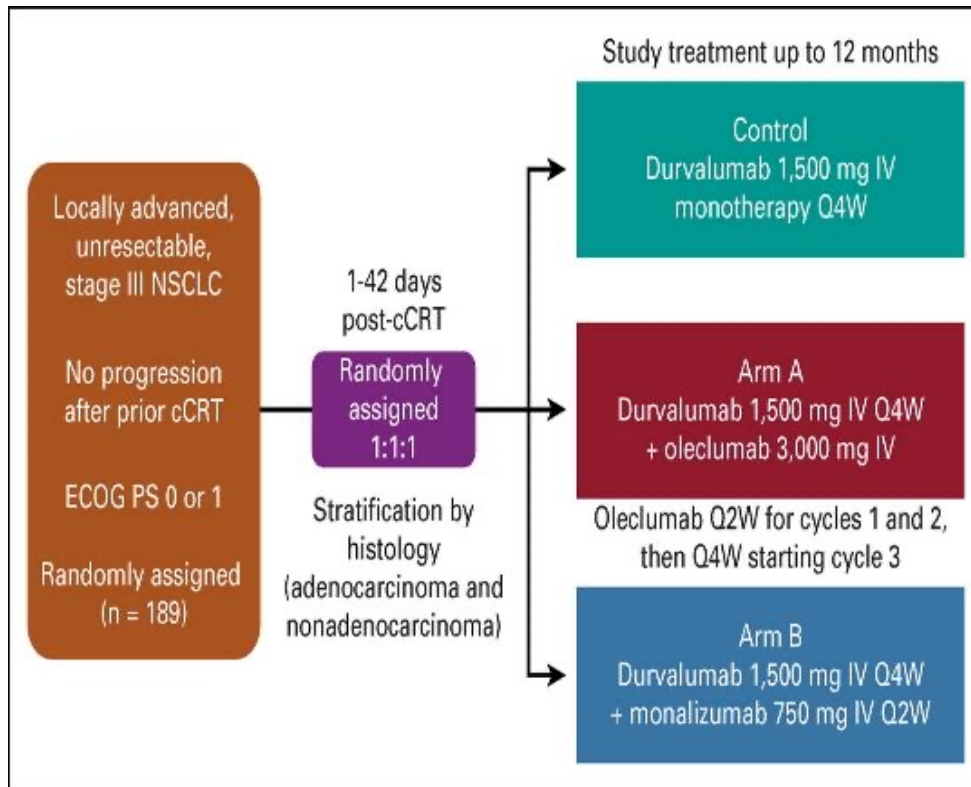
Implications of PACIFIC and HOG LUN 14-179

- HOG LUN 14-179
 - PD-L1 status (n=53), No (%)

Negative	11 (20.8)
1-49%	11 (20.8)
< 50%	31 (58.5)

- No difference in OS between patients with a PD-L1 MPS < 1% and patients with a PD-L1 MPS \geq 1% (hazard ratio, 0.79; 95% CI, 0.27-2.31; P = .66)
- To date, No trial in LA-NSCLC is currently focused on PD-L1 < 1%
- Most ongoing efforts are “agnostic” to PD-L1 status

COAST Phase II Trial: 1^o Endpoint – ORR

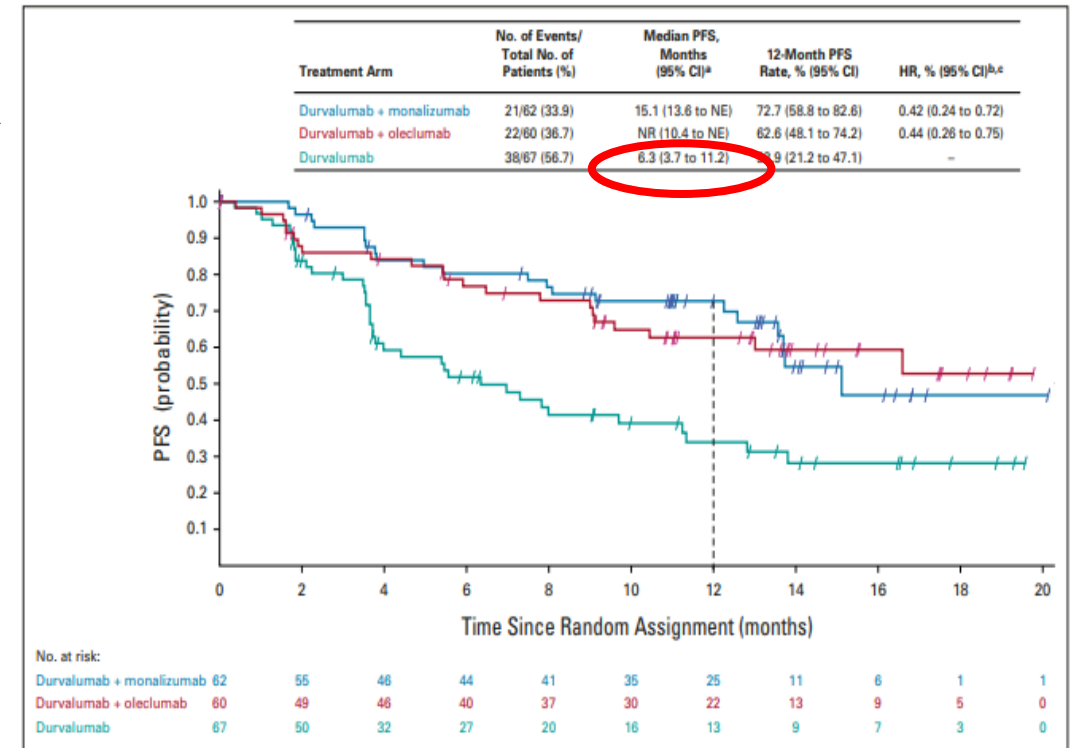


ORR

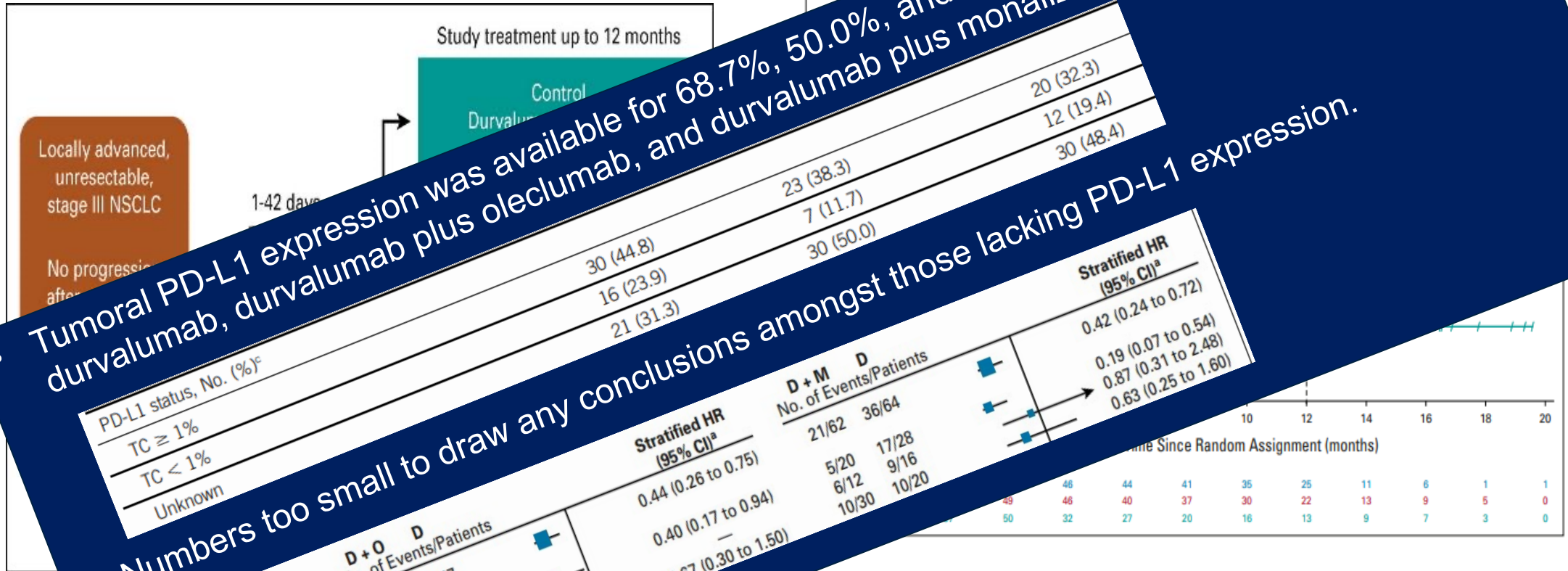
18%

36%

30%



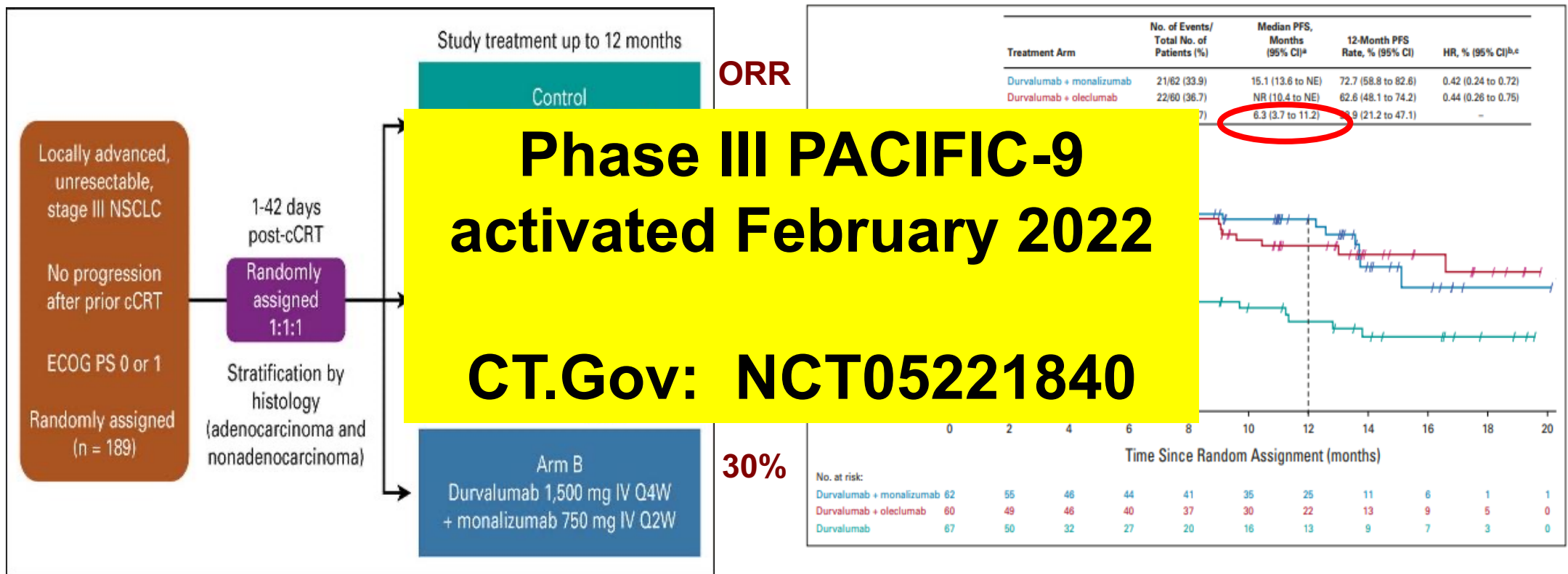
COAST Phase II Trial: 1^o Endpoints



• Tumoral PD-L1 expression was available for 68.7%, 50.0%, and 51.6% of patients in the durvalumab, durvalumab plus oleclumab, and durvalumab plus monalizumab arms, respectively

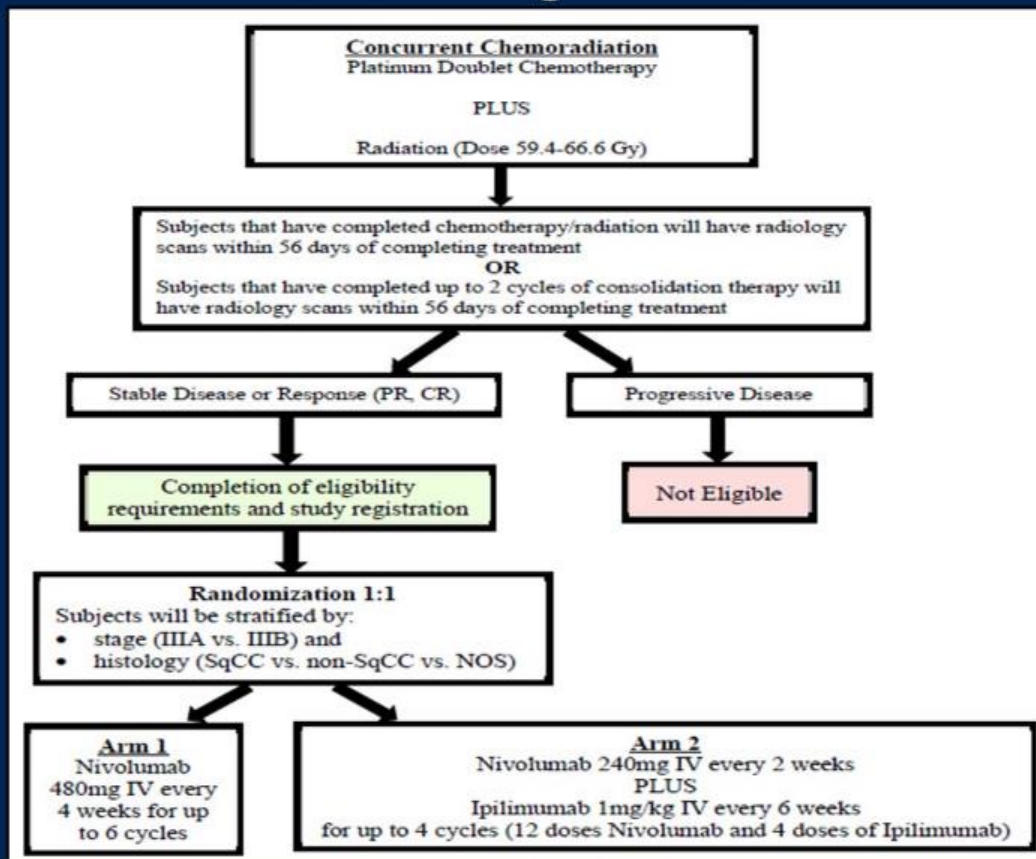
• Numbers too small to draw any conclusions amongst those lacking PD-L1 expression.

COAST Phase II Trial: 1^o Endpoint – ORR



Consolidation Nivolumab Plus Ipilimumab or Nivolumab Alone Following Concurrent Chemoradiation for Patients with Unresectable Stage III Non-Small Cell Lung Cancer. Durm et al

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**Primary Endpoint-
18- months PFS**

1. Nivo vs historic chemoRT

2. Nivo/Ipi vs historic Pacific data

Big question-

Is 6 months of consolidative immunotherapy enough?

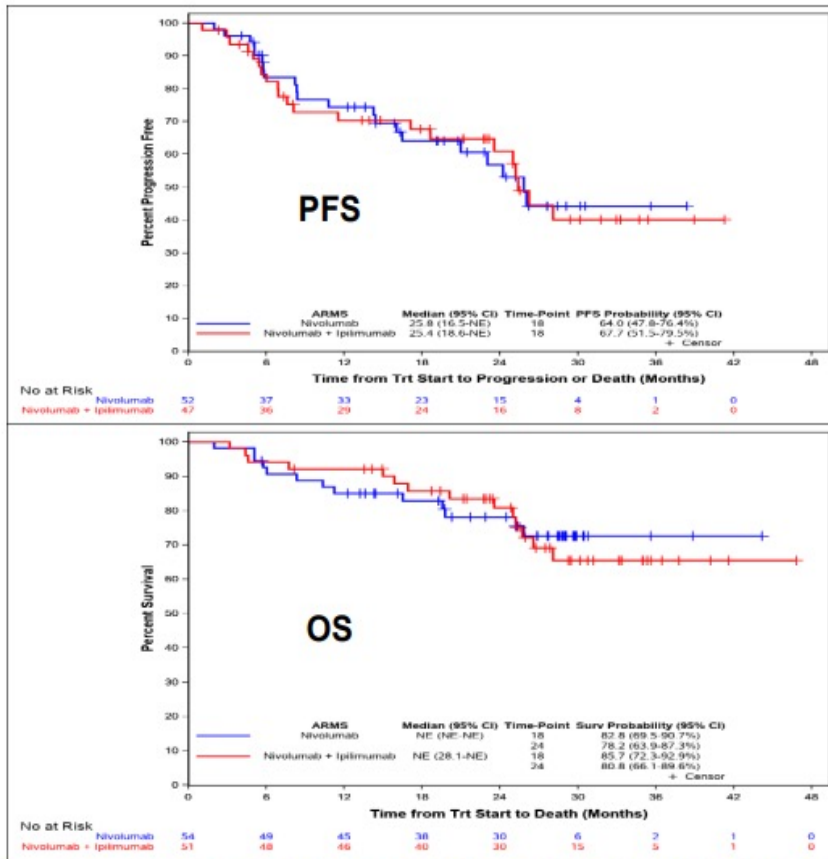
Abstract 8509



2022 World Conference on Lung Cancer

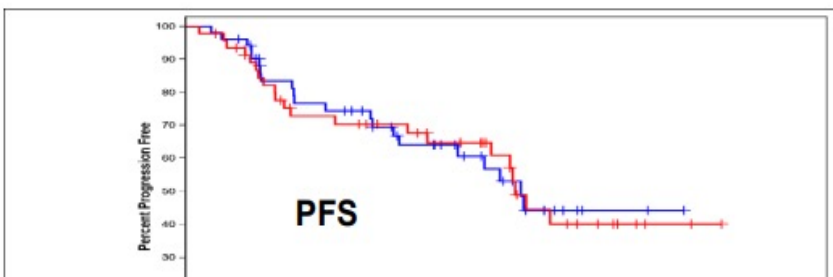
AUGUST 6-9, 2022 | VIENNA, AUSTRIA

Results



	Nivolumab Alone (N= 52)	Nivolumab/Ipilimumab (N= 47)
Median F/u, months (range)	28.5 (2-44.2)	29.4 (3.2-46.8)
Progression Free Survival*		
18- Month (95% CI)	64.0 (53.8-72.6)	67.7 (57.6-75.9)
P-value	<0.1	<0.1
Median, months (95% CI)	25.8 (23.0-NR)	25.4 (25.0-NR)
Overall Survival		
18- Month (95% CI)	82.8 (69.5-90.7)	85.7 (72.3-92.9)
24- Month (95% CI)	78.2 (63.9-87.3)	80.8 (66.1-89.6)
Median, months (95% CI)	NR (NR-NR)	NR (28.1-NR)

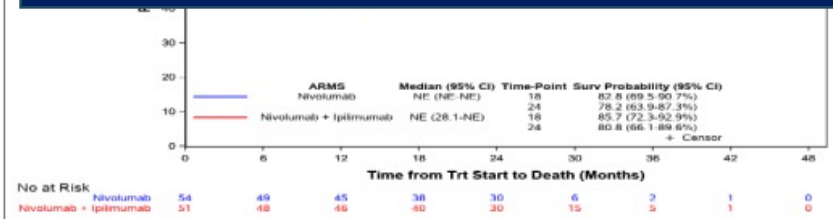
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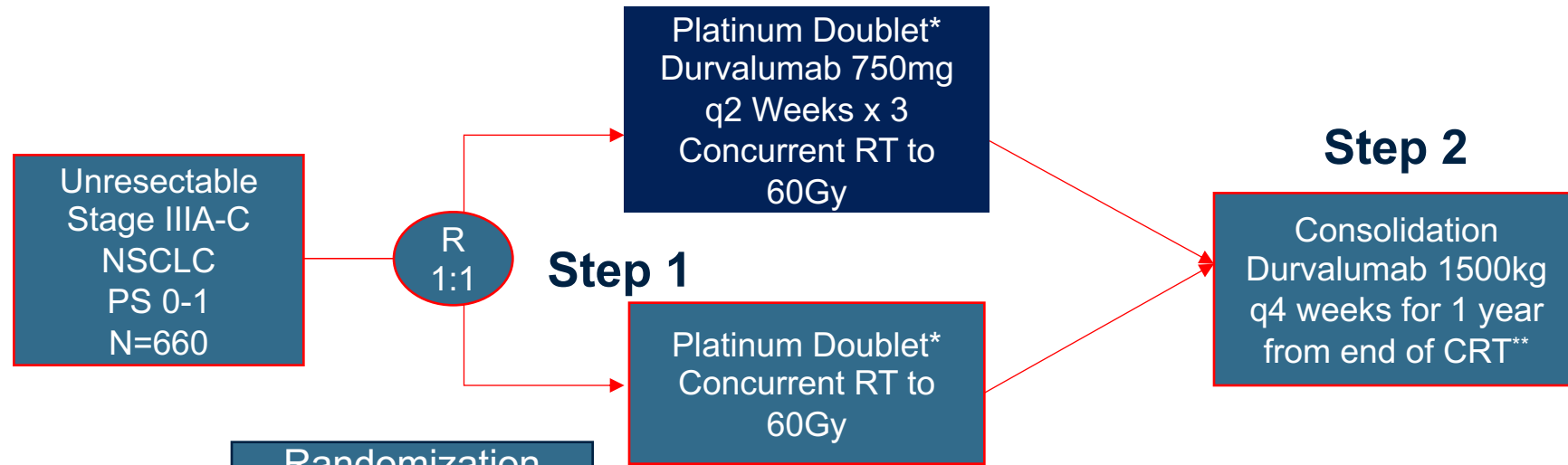
Author	N	Population	Regimen	ORR (%)	PFS, med (mo)	Pneumonitis G3+ (%)	trAEs Gr ≥3 (%)
Durm	54	NSCLC	Chemo-RT → Nivo	NR	25.8	9.3	38.5
	51	NSCLC	Chemo-RT → Nivo-Ipi	NR	25.4	15.7	52.9

Conclusion: Ipi yields no further Tx benefit, just heightened toxicity



Median, months (95% CI)	NR (NR-NR)	NR (28.1-NR)
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EA 5181: Trial Schema



Randomization

Stratified by:

- 1) Planned chemotherapy
- 2) Age
- 3) Sex
- 4) Stage (IIIA vs IIIB vs IIIC)

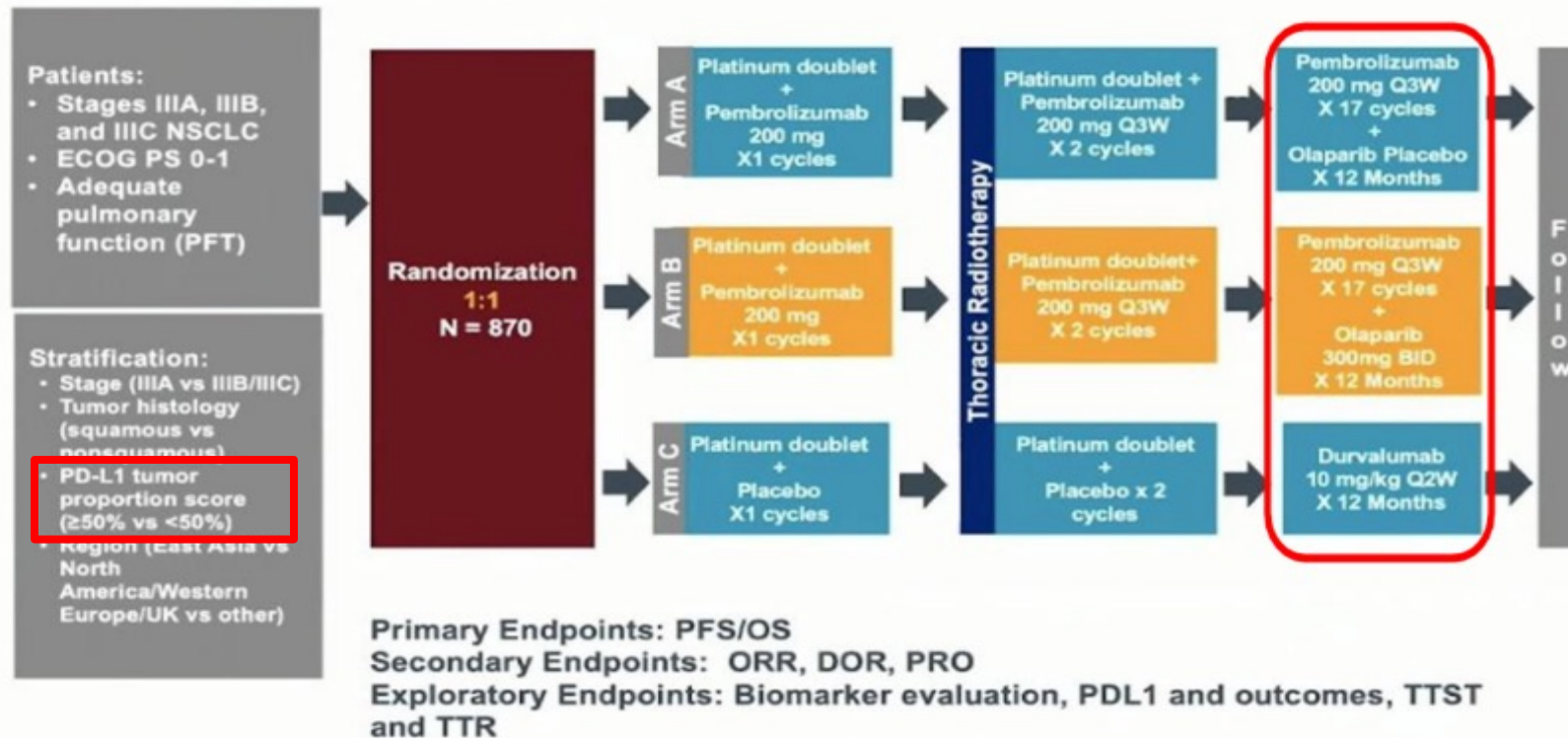
***Investigator choice**

- Cisplatin 50 mg/m² D1, 8, 29, 36; etoposide 50 mg/m² D1-5, 29-33
- Cisplatin 75 mg/m² D1, 22; pemetrexed 500 mg/m² D1, 22 (nonsquamous only)
- Carboplatin AUC 2 D1, 8, 15, 22, 29, 36; paclitaxel 45 mg/m² D1, 8, 15, 22, 29, 36

**Starting within 14 days of CRT unless toxicity has not resolved to ≤ grade 2, but not later than 45 days post-CRT

Ongoing Trials

- KEYLYNK-012 (NCT04380636)
 - ChemoRT +/- Pembro → Pembro +/- Olaparib vs. Durvalumab



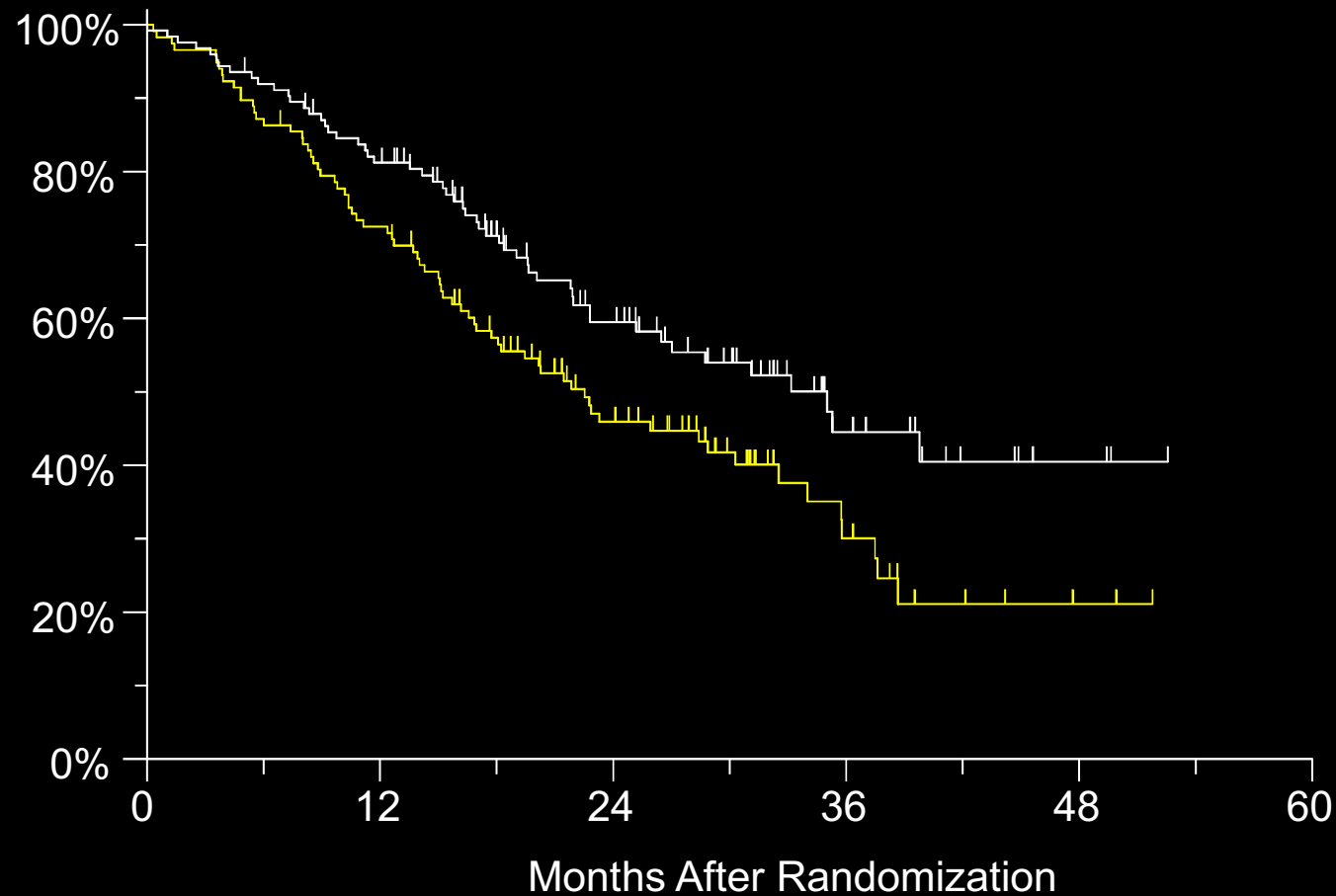
Start date- July 2020

Estimated End- July 2026

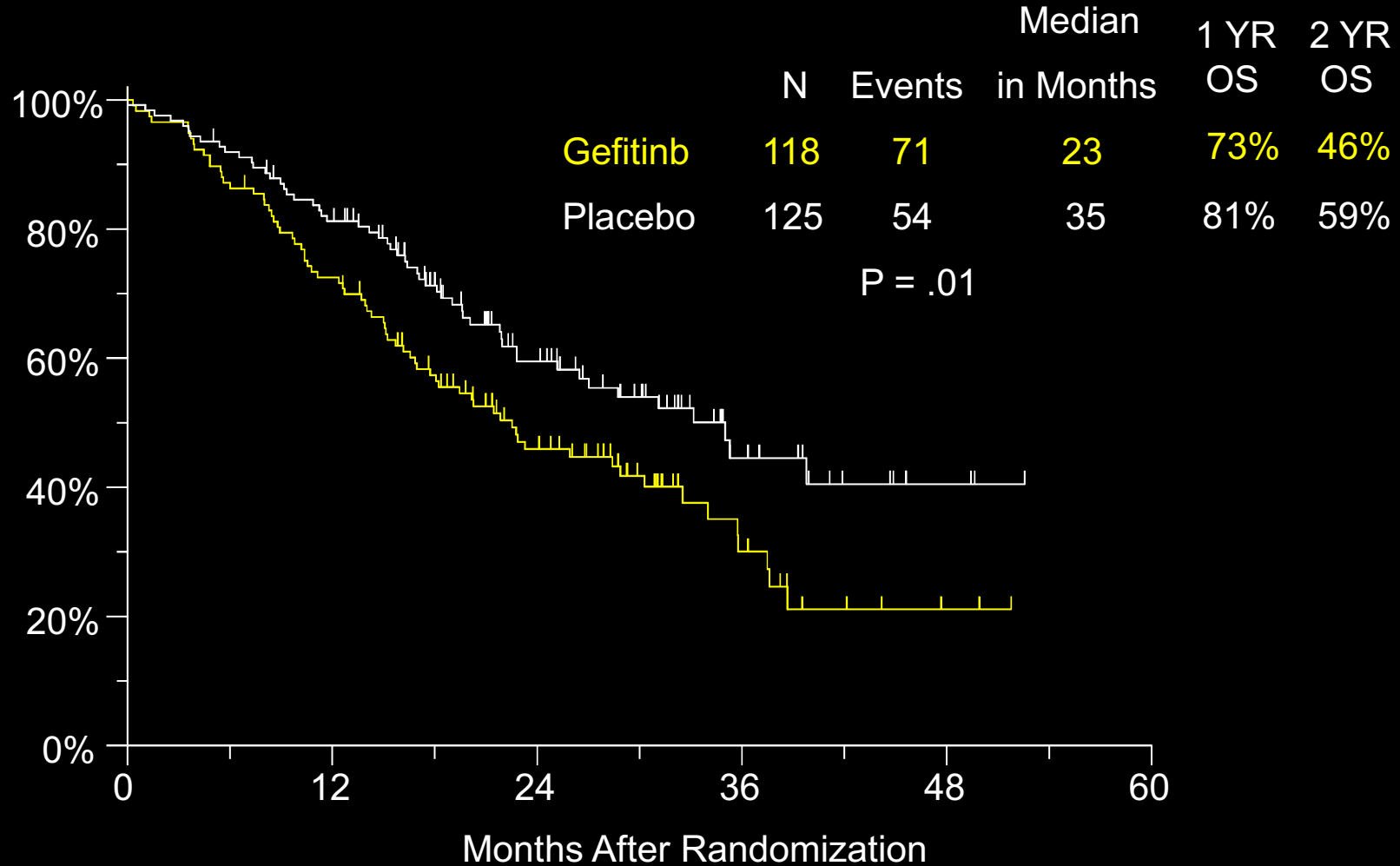
Rationale for Consolidation Tx with Targeted Tx in Oncogenic-Driven LA-NSCLC

- ▶ Their empiric use, either as consolidation or concurrently with chemoradiation, in absence of clear cut oncogenic drivers, has failed to yield an OS benefit
 - SWOG 0023 and RTOG 0617 are examples

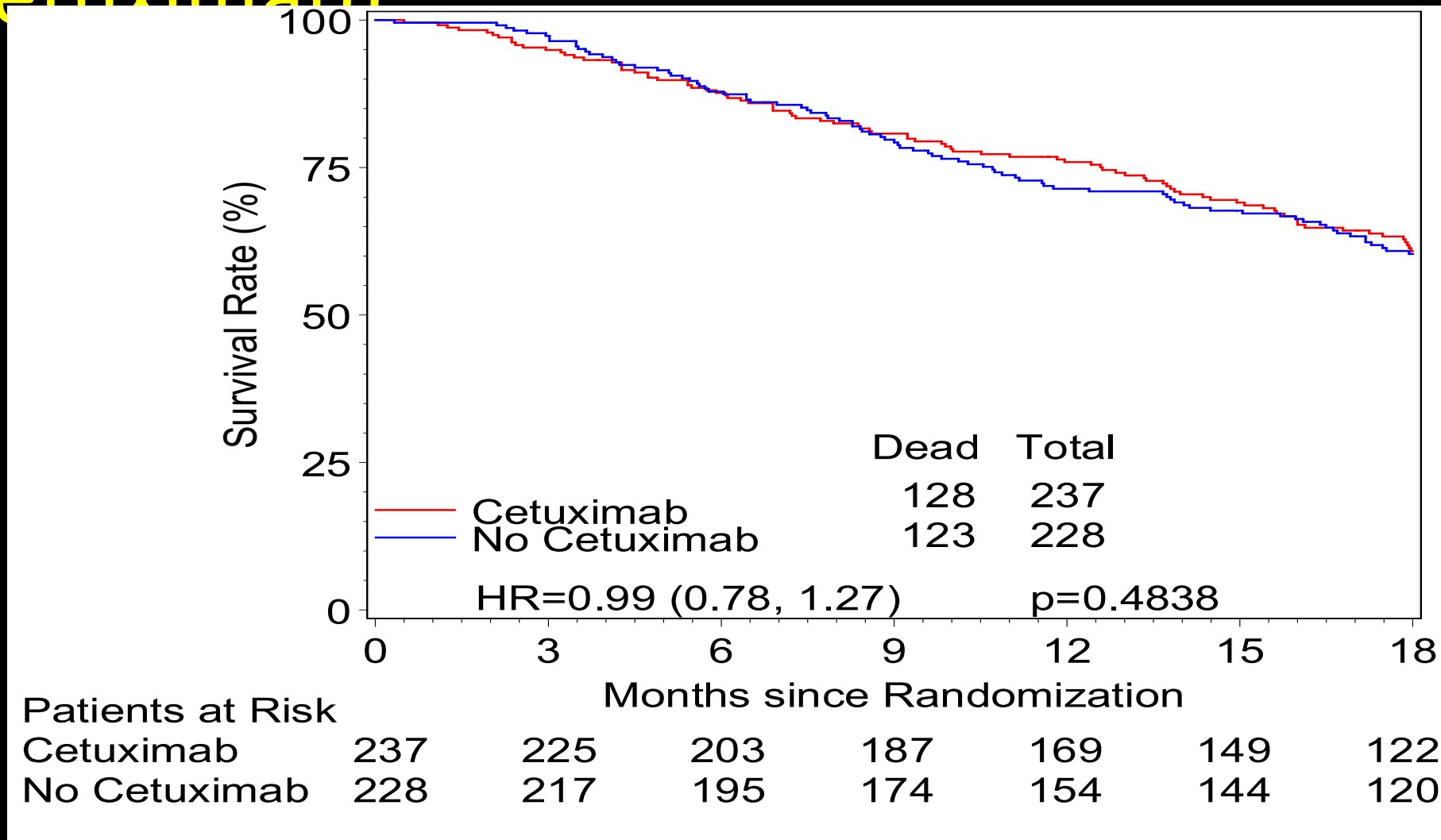
SWOG 0023: Overall Survival from Randomization: Gefitinib vs Placebo after CT-XRT



SWOG 0023: Overall Survival from Randomization: Gefitinib vs Placebo after CT-XRT



RTOG 0617: Overall Survival (+/- Cetuximab)



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 - SWOG 0023 and RTOG 0617 are examples
- ▶ Similarly, Durvalumab in the EGFR mt (+) population in PACIFIC has not resulted in any PFS or OS advantage

Abstract 8541 ASCO 2022: Durvalumab (durva) after chemoradiotherapy (CRT) in unresectable, stage III, EGFR mutation-positive (EGFRm) NSCLC: A post hoc subgroup analysis from PACIFIC.

PACIFIC

- ▶ 713 pts enrolled, 35 had EGFR mutations (2/3 exon 19/21, 1/3 “other”)
- ▶ For all pts – OS HR 0.68, PFS HR 0.52
- ▶ Of 35 EGFR mutation+ pts, 24 rec’d durva, 11 pbo

	Placebo	Durvalumab
Male, %	73	54
IIIA, %	64	46
PS 0, %	64	54
Ind Rx, %	36	8
Asian, %	55	63
PD-L1 <25%	36	67
Med PFS, mo	10.9	11.2*
Med OS, mo	43.0	46.8**
ORR, %	18.2	26.1

* HR 0.91 (0.39,2.13)

** HR 1.02 (0.39, 2.63)

Rationale for Consolidation Tx with Targeted Tx in Oncogenic-Driven LA-NSCLC

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 - SWOG 0023 and RTOG 0617 are examples
- ▶ Similarly, Durvalumab in the EGFR mt (+) population in PACIFIC has not resulted in any PFS or OS advantage
- ▶ In retrospective analysis, pts with EGFR mt (+) LA-NSCLC receiving an “appropriate” TKI fared better than those receiving CPI or undergoing observation

Consolidation EGFR-Tyrosine Kinase Inhibitor vs. Durvalumab vs. Observation in Unresectable *EGFR*-Mutant Stage III NSCLC

A.H. Nassar[#], E. Adib[#], D. Kaldas, J. Feng, T. AbuAli, J. Aredo, B. Fitzgerald, J. Bar, R. Thummalapalli, K. Parikh, R. Whitaker, L. Chen, J. Harris, A. Ayanambakkam, S. Farid, D. Owen, J. Sharp, A.I. Velazquez, M. Ragavan, A. D'aiello, H. Cheng, Z. Piotrowska, M. Wilgucki, J.E. Reuss, T. Patil, Y. Nie, J. Baena Espinar, H. Luders, C. Grohe, K. Sankar, M. Nagasaka, Y.P. Ashara, D.J. Kwiatkowski, R. Mak, A. Amini, A. Lobachov, J.J. Lin, T. Marron, H. Yu, J.W. Neal, H.A. Wakelee, F.A. Shepherd, T.J. Dilling, J.E. Gray, A.R. Naqash*, S.B. Goldberg*, S.Y. Kim*

[#] Co-first authors

*Co-senior authors

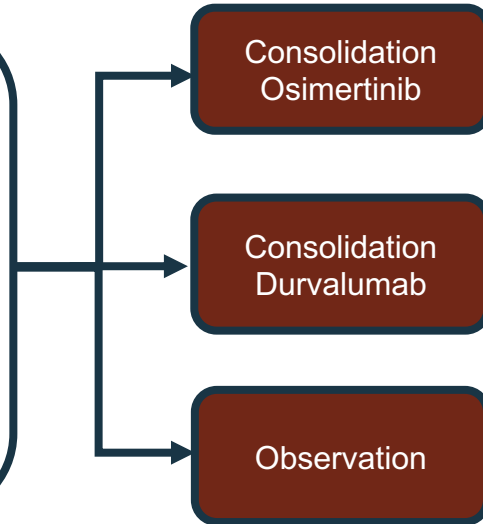
Amin Nassar
Yale University
United States

STUDY DESIGN & PATIENT DEMOGRAPHICS

Multi-institutional retrospective analysis including 24 institutions

Inclusion Criteria:

- (1) \geq age 18 treated years 2015 or later
- (2) Stage III, locally advanced, unresectable NSCLC with *EGFR*-sensitizing mutation
- (3) Received \geq 2 cycles of platinum-based concurrent chemoradiation
- (4) No disease progression at time of initiation of consolidation treatments



Co-primary endpoints: Disease-free survival (DFS) and overall survival (OS)[#]

Secondary endpoints: Consolidation treatment-related adverse events (trAE), central nervous system disease-free survival (CNS DFS)

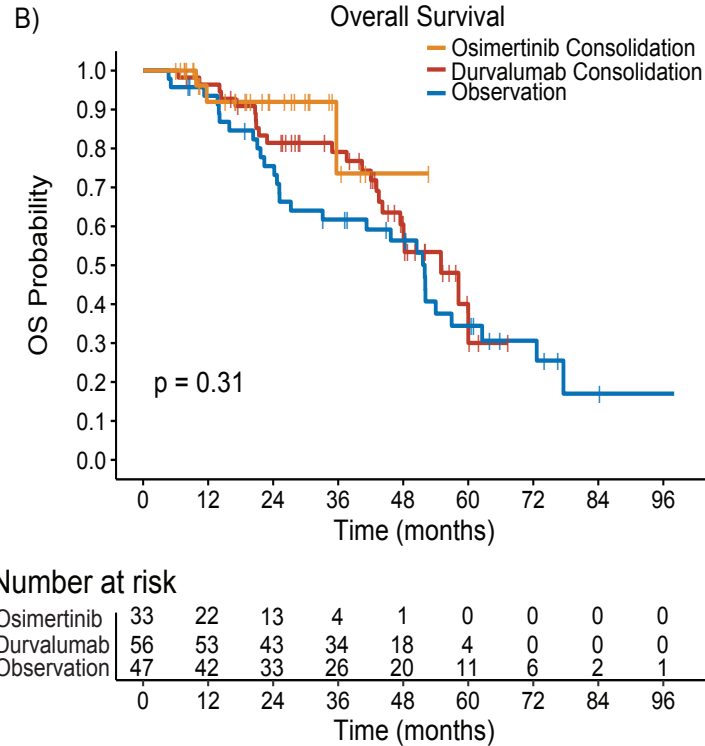
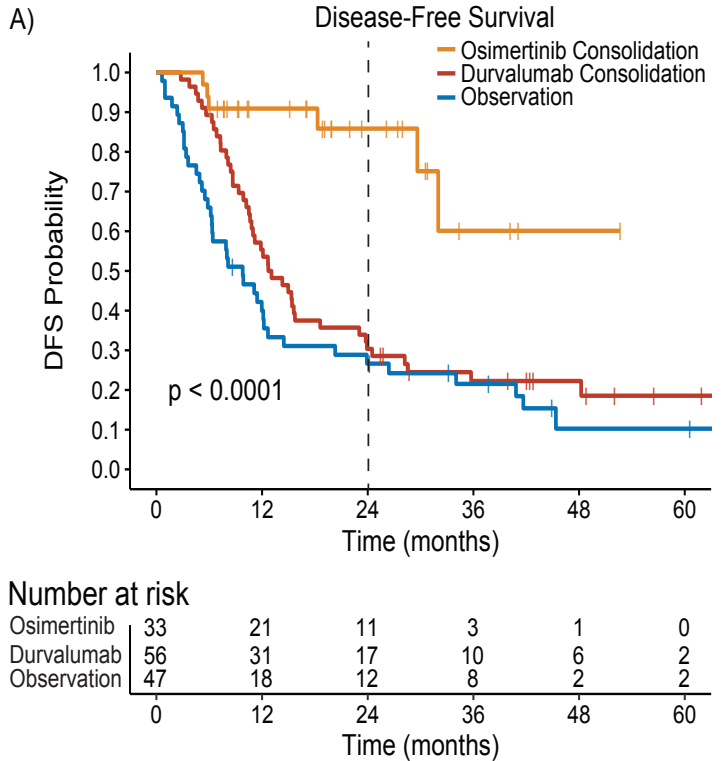
[#]multivariable including nodal status (N stage), stage III A/B/C AJCC 8th, and age

Baseline characteristics

	Total (N=136)	Osimertinib (N=33)	Durvalumab (N=56)	Observation (N=47)	P-value
Age – Median (IQR)	66 [57, 72]	65 [60, 72]	67 [56, 71]	64 [57, 72]	0.8
Sex – Female	88 (64.7%)	22 (66.7%)	34 (60.7%)	32 (68.1%)	0.7
Race					0.2
White	88 (64.7%)	22 (66.7%)	33 (58.9%)	33 (70.2%)	
Asian	36 (26.5%)	9 (27.3%)	20 (35.7%)	7 (14.9%)	
Black	6 (4.4%)	1 (3.0%)	2 (3.6%)	3 (6.4%)	
Smoking					0.06
Former/Current	55 (40.4%)	10 (30%)	32 (1.8%)	27 (57.4%)	
Never	81 (59.6%)	23 (69.7%)	38 (67.9%)	20 (42.6%)	
PD-L1 TPS*					0.4
<1%	35 (37.2%)	10 (40%)	15 (31.3%)	10 (47.6%)	
\geq 1%	59 (62.8%)	15 (60%)	33 (68.8%)	11 (52.4%)	
Stage					0.31
IIIA	52 (38.2%)	11 (33.3%)	20 (35.7%)	21 (44.7%)	
IIIB	68 (50.0%)	15 (45.5%)	30 (53.6%)	23 (48.9%)	
IIIC	16 (11.8%)	7 (21.2%)	6 (10.7%)	3 (6.4%)	

*Tumor proportion score

DISEASE-FREE AND OVERALL SURVIVAL



Subsequent systemic therapy after consolidation treatment or observation

Subsequent systemic therapy

Arm	EGFR TKI	IO	Other	Total
Osimertinib	1 (3%)	1 (3%)	1 (3%)	3 (3.7%)
Durvalumab	37 (66%)	1 (1.8%)	3 (5.4%)	41 (51%)
Observation	35 (74%)	1 (2.2%)	1 (2.2%)	37 (46%)
Total	73 (90%)	3 (3.7%)	5 (6.2%)	81

24-month CNS-Relapse: Osimertinib: 6.7% (95% CI, 1.7-32); Durvalumab: 17% (95% CI, 8.1-30); Observation: 11% (95% CI, 3.8-25)

Treatment-related Adverse Events

	Osimertinib (N=33)		Durvalumab (N=56)	
	Any grade	Grade ≥3	Any grade	Grade ≥3
Any trAE#	16 (48%)	2 (6.1%)	27 (48%)	10 (18%)
Rash	1 (3.0%)	0 (0%)	1 (1.8%)	0 (0%)
Pneumonitis^	5 (15%)	1 (3.0%)	14 (25%)	7 (13%)
Diarrhea	1 (3.0%)	0 (0%)	2 (3.6%)	1 (1.8%)
Endocrine	0 (0%)	0 (0%)	5 (8.9%)	0 (0%)
AST/ALT elevation	1 (3.0%)	0 (0%)	2 (3.6%)	1 (1.8%)
Other	11 (33%)	1 (3.0%)	3 (5.4%)	1 (1.8%)*
trAE leading to discontinuation	4 (12%)		15 (27%)	
Steroid use	7 (21%)		20 (36%)	

*grade 3 myocarditis

^ Does not include radiation pneumonitis

#Consolidation treatment-related adverse events

- 14 out of 37 (38%) patients who received EGFR tyrosine kinase inhibitors (TKIs) after durvalumab developed trAE on EGFR TKIs → 5 pneumonitis (including 2 ≥grade 3); 5 diarrhea/colitis (including 1 ≥grade 3)

CONCLUSIONS

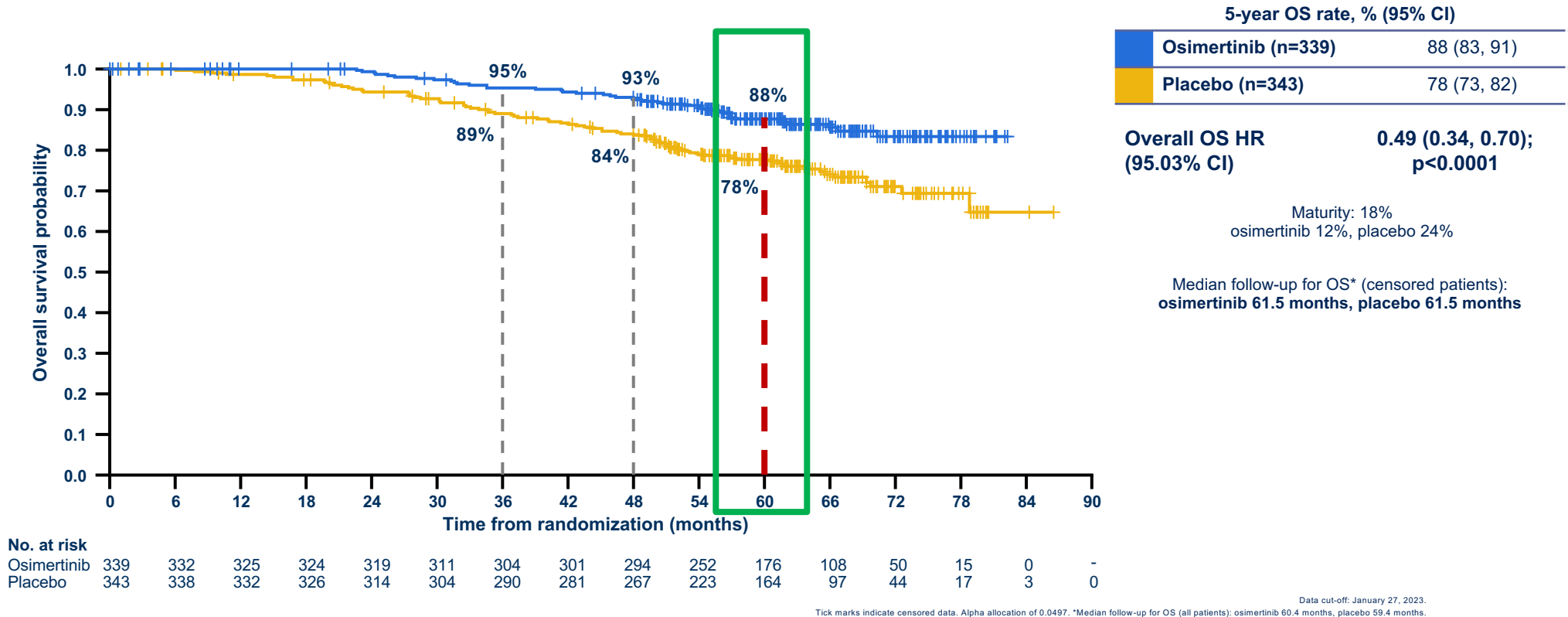
- ▶ This retrospective, multi-center analysis of 136 patients demonstrated superior DFS and CNS control with consolidation osimertinib compared to durvalumab or observation alone following chemoradiation for locally advanced *EGFR*-mutant NSCLC
- ▶ Absence of overall survival benefit for osimertinib likely explained by (1) limited numbers, (2) limited follow-up time; and (3) high rate of cross-over in Durva and Observation arms (66-74%)
- ▶ No unanticipated safety signals: pneumonitis and grade ≥ 3 trAE greater with durvalumab vs osimertinib
- ▶ Prospective studies needed to confirm these findings

Rationale for Consolidation Tx with Targeted Tx in Oncogenic-Driven LA-NSCLC

- ▶ Their empiric use, either as consolidation or concurrently with chemoradiation, in absence of clear cut oncogenic drivers, has failed to yield an OS benefit
 - SWOG 0023 and RTOG 0617 are examples
- ▶ Similarly, Durvalumab in the EGFR mt (+) population in PACIFIC has not resulted in any PFS or OS advantage
- ▶ In retrospective analysis, pts with EGFR mt (+) LA-NSCLC receiving an “appropriate” TKI fared better than those receiving CPI or undergoing observation
- ▶ Outcome data ADAURA in resectable EFR mt (+) NSCLC and ALINA in resectable ALK (+) NSCLC would suggest a similar approach in LA-NSCLC is worthwhile

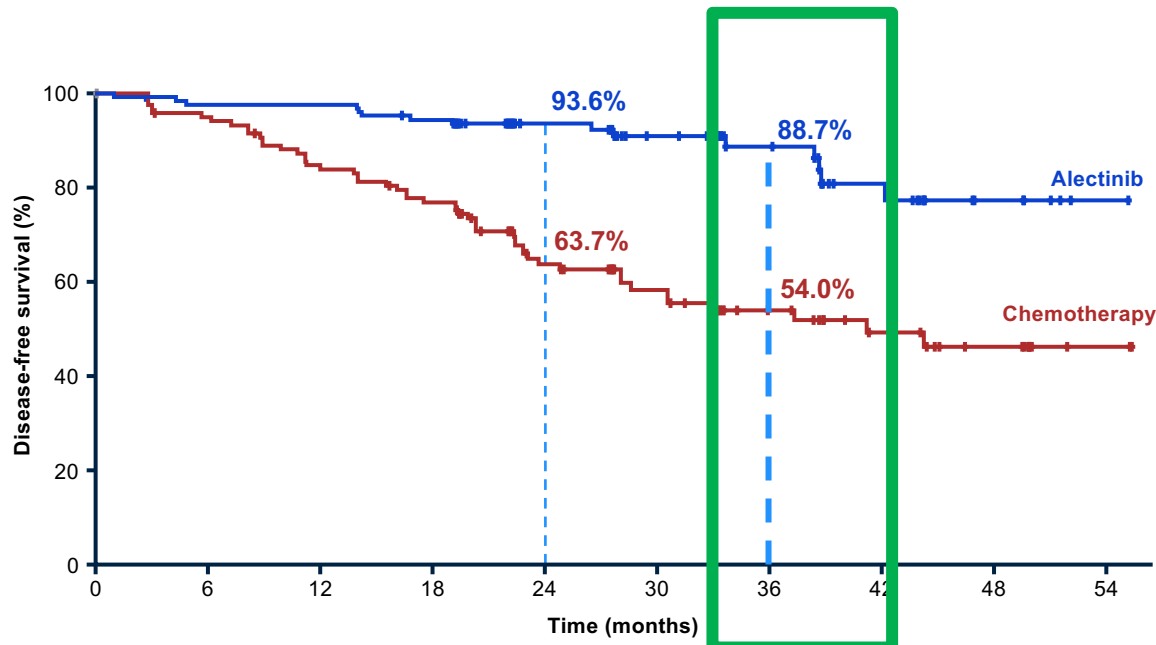
ADAURA Overall survival: patients with stage IB / II / IIIA disease

- Adjuvant osimertinib demonstrated a statistically and clinically significant improvement in OS vs placebo in the overall population of stage IB–IIIA disease



CI, confidence interval; HR, hazard ratio; OS, overall survival

ALINA: Disease-free survival: ITT (stage IB–IIIA)*



No. at risk	0	6	12	18	24	30	36	42	48	54
Alectinib	130	123	123	118	74	55	39	22	10	3
Chemo	127	112	98	89	55	41	27	18	11	2

	Alectinib (N=130)	Chemotherapy (N=127)
Patients with event	15 (12%)	50 (39%)
Death	0	1
Recurrence	15	49
Median DFS, months (95% CI)	Not reached	41.3 (28.5, NE)
DFS HR (95% CI)	0.24 (0.13, 0.43) p†<0.0001	

At the data cutoff date, **OS data were immature** with only 6 (2.3%) OS events reported[§]

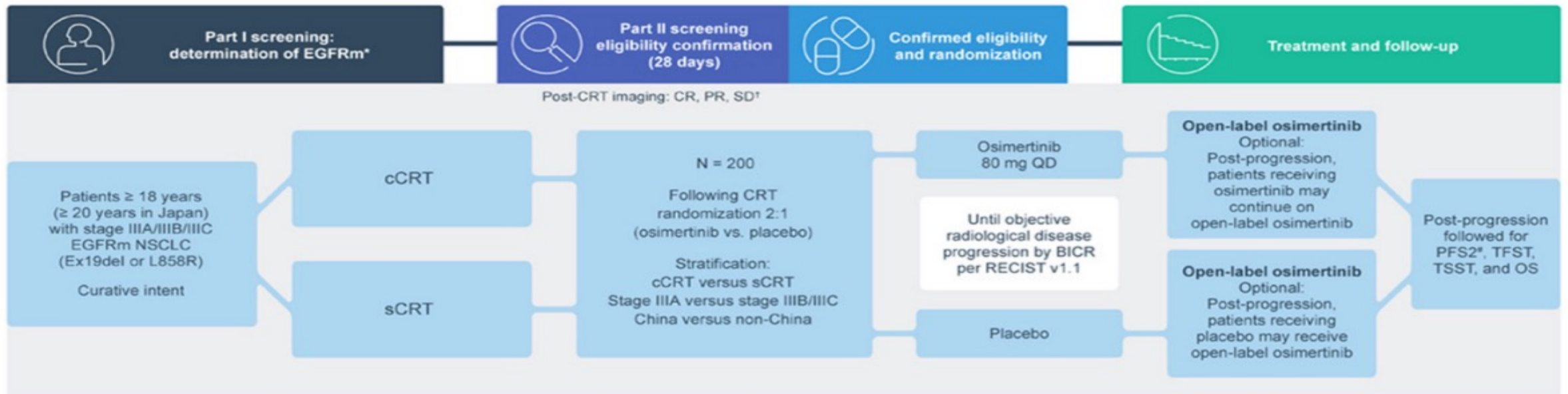
Median survival follow up: alectinib, 27.8 months; chemotherapy, 28.4 months

Data cut-off: 26 June 2023; *Per UICC/AJCC 7th edition; †Stratified log rank; ‡2 events in the alectinib arm, 4 events in the chemo arm; one patient in chemo died but was censored due to incomplete date of death recorded. DFS defined as the time from randomisation to the first documented recurrence of disease or new primary NSCLC as determined by the investigator, or death from any cause, whichever occurs first

Ongoing Trials

LAURA Trial (NCT03521154)

- Osimertinib Maintenance After Definitive Chemoradiation in Unresectable EGFR Mutation+ Stage III NSCLC
- Primary Endpoint- BICR- confirmed PFS
- Secondary Endpoints- CNS PFS, OS, PFS by mutation status, safety
- 1st pt- July 2018
- Expected results- late 2022



*Patients with a local cobas® EGFR Mutation Test v2 tissue positive result from a CLIA-certified or accredited laboratory do not require part I screening. [†]Post-CRT imaging performed to assess CR, PR and SD up to 28 days before randomization. *Assessment of PFS2 will not be collected after the primary PFS analysis.



HORIZON 1 STUDY DESIGN

• BO42777 Phase 1-3 Stage III Unresectable Biomarker-Driven NSCLC

Key eligibility criteria

- Locally Advanced Stage III NSCLC (UICC/AJCC v8)
- *ALK+*, *ROS1+*, or *RET+* fusion-positive
- ECOG PS 0–2
- ≥2 prior cycles of platinum-based cCRT or sCRT
- No PD following platinum-based cCRT or sCRT
- PD-L1 TC <1% or ≥1% (per central SP263 on confirmed FFPE tumor specimen; locally on SP263 or 22C3)

Primary Endpoint

- PFS by BICR

ALK+ cohort

Alectinib 600mg BID x 3 years vs Durvalumab 1500 mg IV q4 weeks x 1 year (N=120)

ROS1+ cohort

Entrectinib 600mg QD x 3 years vs Durvalumab 1500 mg IV q4 weeks x 1 year (N=100)

RET+ cohort

Pralsetinib 400mg QD x 3 years vs Durvalumab 1500 mg IV q4 weeks x 1 year (N=100)

Key Secondary Endpoints

- Safety
- QOL
- Time to CNS progression (BICR, Inv)
- ORR (BICR, Inv), DOR, PFS (Inv), OS

Conclusions: LA-NSCLC

- ▶ PACIFIC remains the SOC
- ▶ Optimal approach in PD-L1 0% is uncertain; “default” for now remains Durvalumab post CT-XRT
- ▶ Strongly suspect pts with oncogenic driven tumors will benefit from “appropriate” bio-marker specific TKIs

Conclusions: LA-NSCLC

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CHOMP!!!
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Thank you for your attention



Perelman Center for Advanced Medicine
University of Pennsylvania, Philadelphia, PA

Thank you!



Penn Medicine
Abramson Cancer Center

