

Stage III NSCLC: Beyond the PACIFIC/Novel Approaches

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Lung Cancer Stage Grouping (AJCC 8th Edition)

5-Yr OS,* %	IA1	IA2	IA3	IB	IIA	IIB
Clinical	92	83	77	68	60	53
Pathologic	90	85	80	73	65	56

5-Yr OS,* %	IIIA	IIIB	IIIC	IVA	IVB
Clinical	36	26	13	10	0
Pathologic	41	24	12	-	-



**Locally Advanced
Stage III NSCLC**

*5-yr OS per IASLC global database for patients receiving NSCLC diagnoses from 1999-2010.

Detterbeck. Chest. 2017;151:193. Goldstraw. J Thorac Oncol. 2016;11:39.

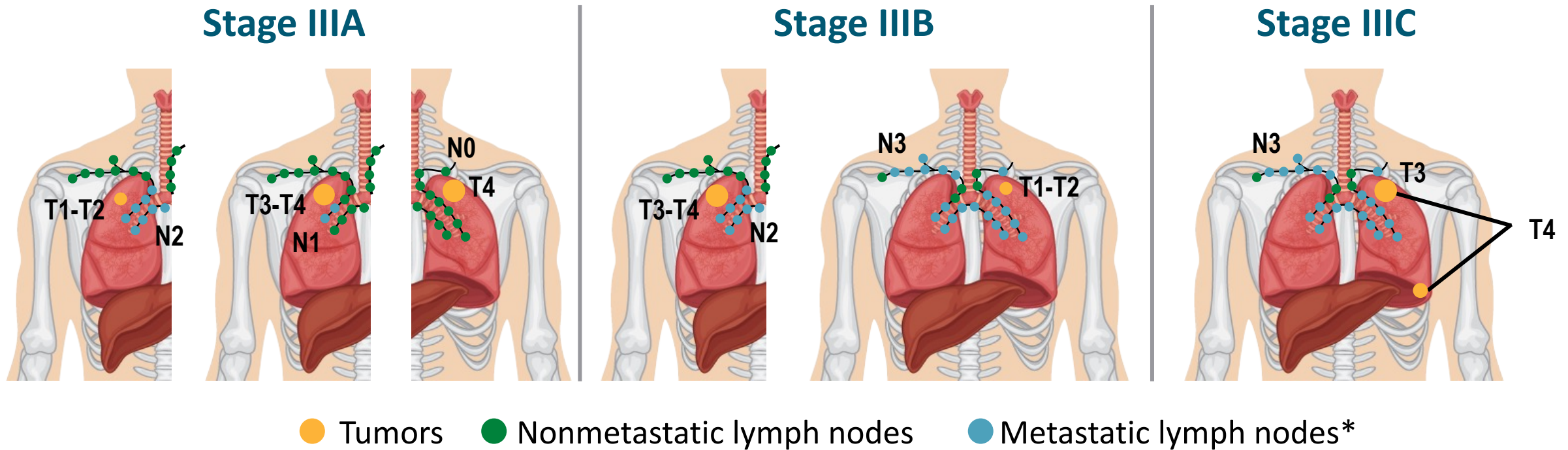
T/M	Subgroup [†]	N0	N1	N2	N3
T1	T1a ≤ 1 T1b > 1-2 T1c > 2-3	IA1 IA2 IA3	IIB IIB IIB	IIIA IIIA IIIA	IIIB IIIB IIIB
T2	T2a <i>Cent, Visc Pl</i> T2a > 3-4 T2b > 4-5	IB IB IIA	IIB IIB IIB	IIIA IIIA IIIA	IIIB IIIB IIIB
T3	T3 > 5-7 T3 <i>Inv</i> T3 <i>Satell</i>	IIB IIB IIB	IIIA IIIA IIIA	IIIB IIIB IIIB	IIIC IIIC IIIC
T4	T4 > 7 T4 <i>Inv</i> T4 <i>Ipsi Nod</i>	IIIA IIIA IIIA	IIIA IIIA IIIA	IIIB IIIB IIIB	IIIC IIIC IIIC
M1	M1a <i>Contra Nod</i> M1a <i>Pl Disem</i> M1b <i>Single</i> M1c <i>Multi</i>	IVA IVA IVA IVB	IVA IVA IVA IVB	IVA IVA IVA IVB	IVA IVA IVA IVB

[†]All numbers in cm; other abbreviations defined in slidenotes.



Slide credit: clinicaloptions.com

Stage III, Locally Advanced NSCLC is Heterogeneous With Majority Of Patients Having Unresectable Tumors



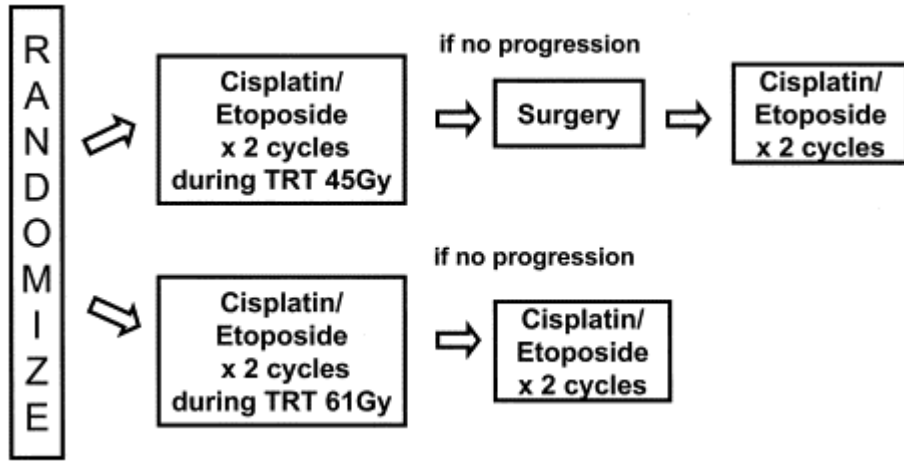
*Considered regional or local, not distant.

All numbers in cm; other abbreviations defined in slidenotes.

Combined Modality Therapy in Stage III NSCLC: Meta-Analyses of Chemoradiotherapy Strategies

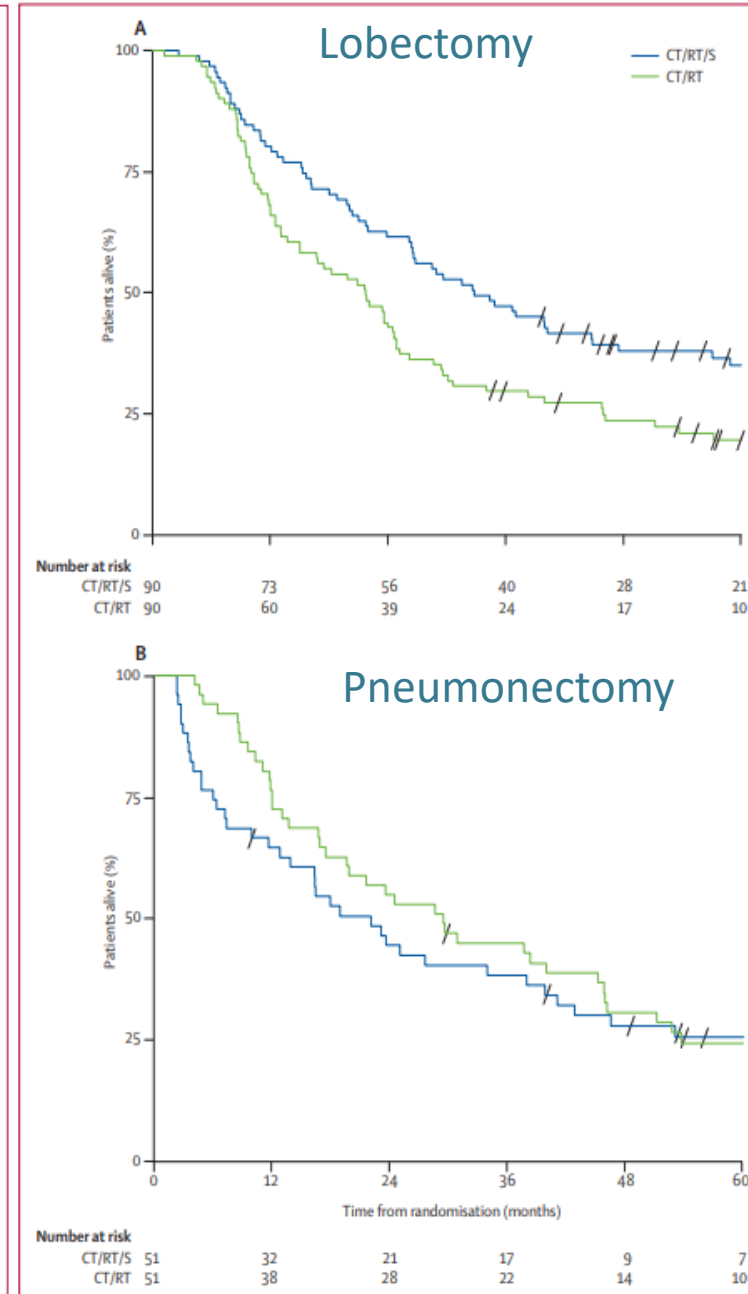
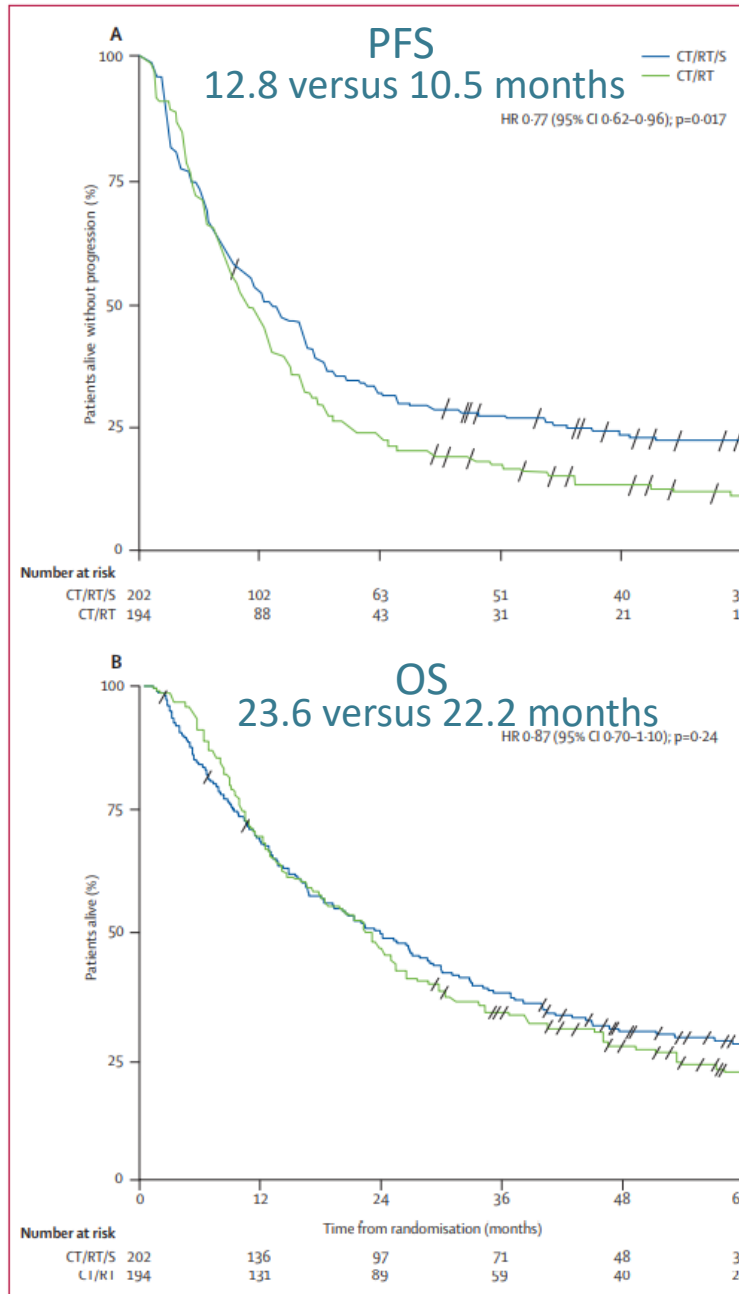
Strategy	No. of Trials	N	Absolute Benefit at Yr 3, %	HR for Survival (95% CI)	P Value
Sequential CRT vs RT alone ^[1]	22	3839	2.6	0.88 (0.82-0.94)	.0001
Concurrent CRT vs RT alone ^[1]	16	2910	3.2	0.88 (0.81-0.95)	.0008
Concurrent CRT vs Sequential CRT ^[2]	6	1205	5.7	0.84 (0.74-0.95)	.004

Intergroup 0139



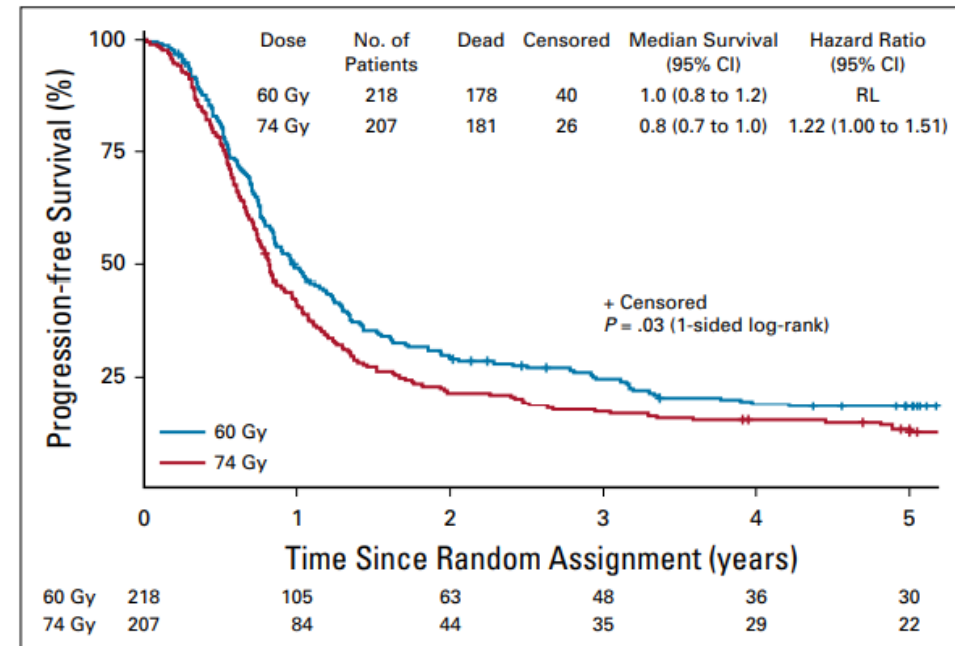
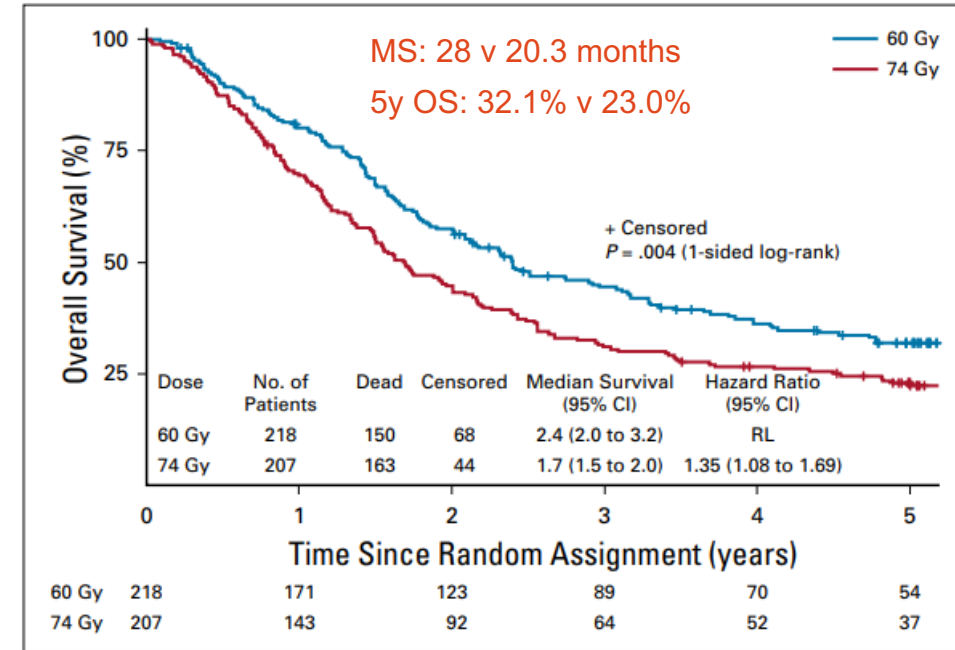
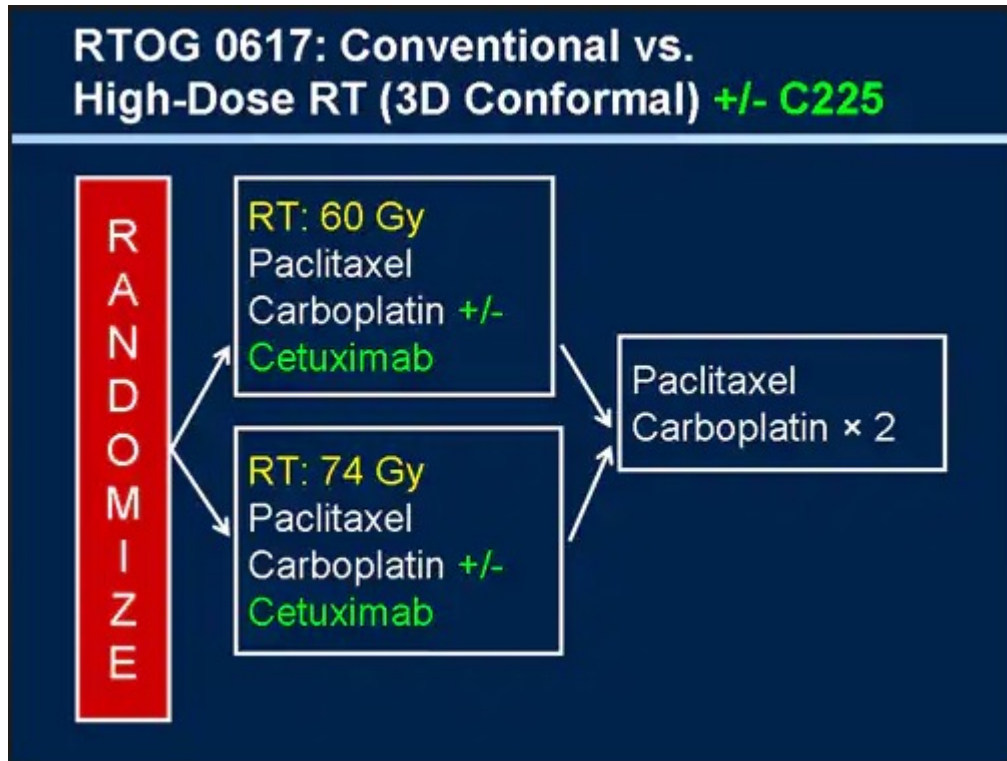
429 Stage IIIA patients randomized

396 patients eligible for analysis



RTOG 0617

- 544 patients accrued
- 496 patients eligible for analysis (66% IIIA)



RTOG 0617

	60 Gy	74 Gy
Grade 5 events	2	10
Esophagitis Grade 3	7%	20.9%
Median survival	28.7 mo	19.5 mo
3 year PFS	36.6%	26.3%
Local failure	25.1%	34.3%
	Cetuximab	No Cetuximab
MS	23.1 mo	23.5 mo
Grade ≥ 3 tox	70.5%	50.7%
Grade 4 or 5 tox	35.8%	28.2%

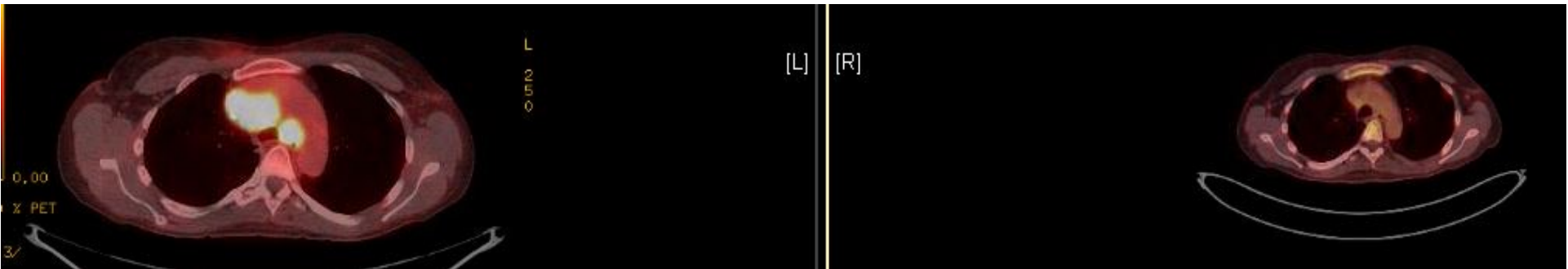
RTOG 1306

- Closed in 2017

R A N D O M I Z E	EGFR TK Mutation Cohort	
	Arm 1: Induction Therapy: Erlotinib, 150 mg/day for 12 weeks*	Concurrent †chemotherapy and IMRT or 3D-CRT 60 Gy in 30 fxs
	Arm 2: Concurrent †chemotherapy and radiation, 60 Gy	
	ALK Tran L Cohort	
R A N D O M I Z E	Arm 3: Induction Therapy: Crizotinib, 250 mg/bid for 12 weeks*	Concurrent †chemotherapy and IMRT or 3D-CRT 60 Gy in 30 fxs
	Arm 4: Concurrent †chemotherapy and radiation, 60 Gy	

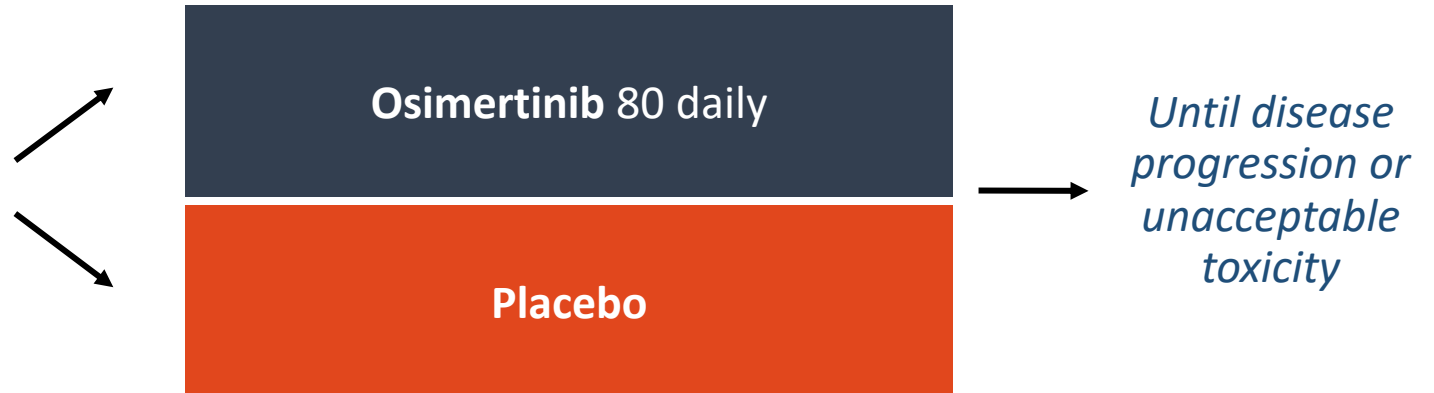
Pre-treatment

4 weeks



A Global Study to Assess the Effects of Osimertinib Following Chemoradiation in Patients With Stage III Unresectable Non-small Cell Lung Cancer (LAURA)

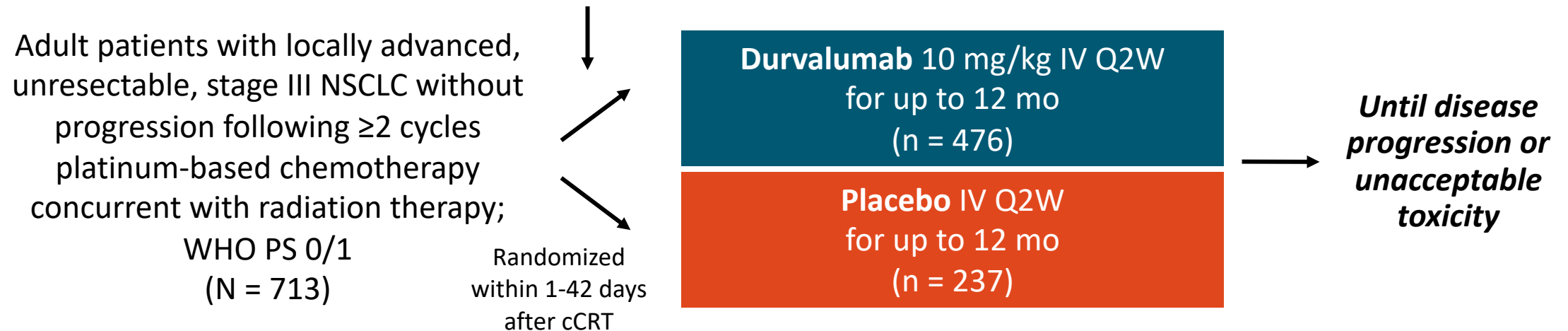
- Patients with locally advanced non-small cell lung cancer with EGFR (L858R, Ex19del) mutations receiving chemotherapy and radiation (concurrent or sequential)
- N=200



PACIFIC 5-Yr Update: Study Design

- Randomized, double-blind, placebo-controlled phase III trial

Stratified by age (<65 vs ≥65 yr), sex (male vs female), and smoking history (current/former vs never)



Patients enrolled regardless of PD-L1 status. If available, pre-cCRT tumor tissue archived for PD-L1 testing.

- Primary endpoints: PFS by BICR per RECIST v1.1, OS
- Secondary endpoints: ORR, DoR, TTDM, safety, PROs

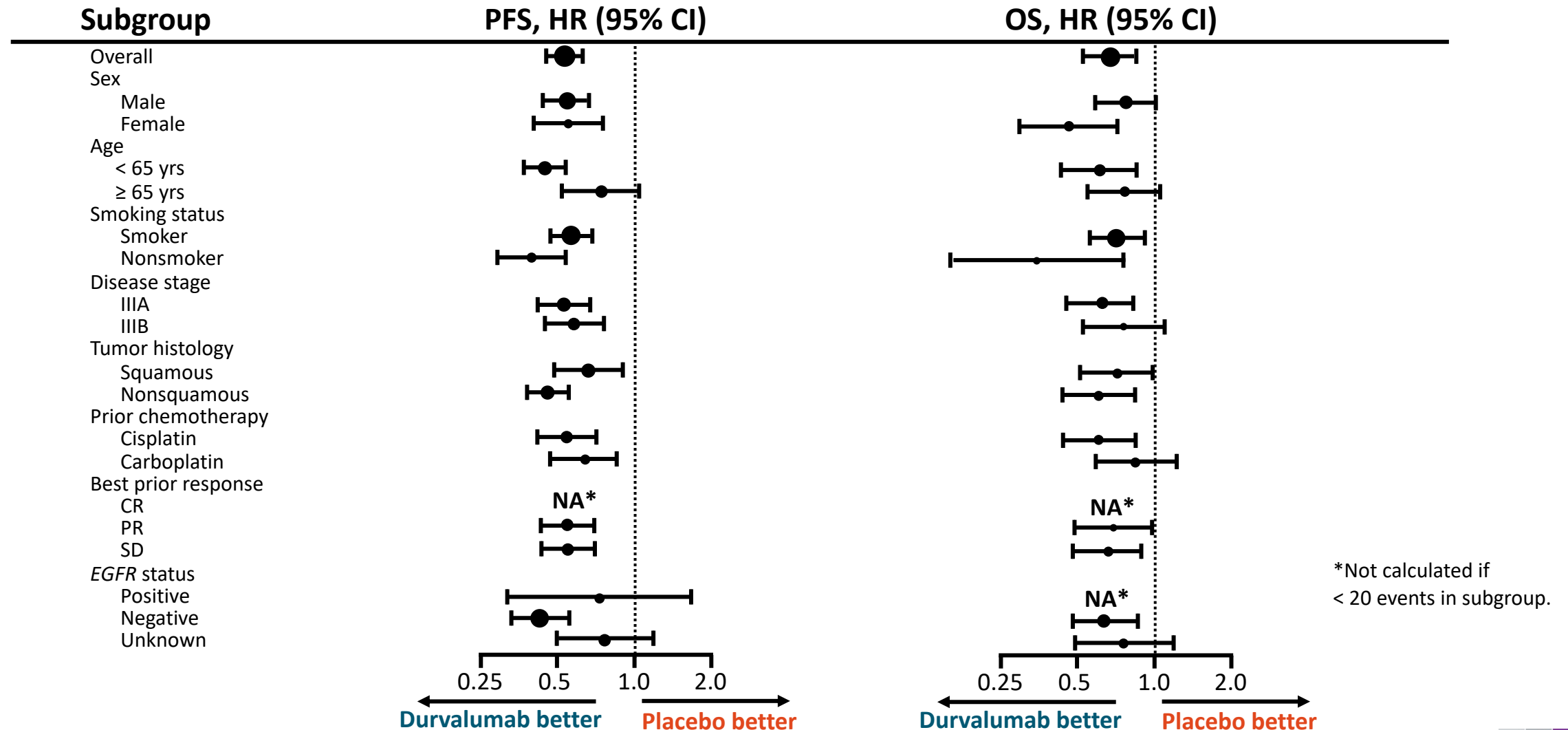
Table S2. Prior Definitive Chemotherapy Regimens (Intention-to-Treat population).

	Durvalumab (N=476)	Placebo (N=237)	Total (N=713)
Total – no. (%)	473 (99.4)	236 (99.6)	709 (99.4)
Cisplatin*	266 (55.9)	129 (54.4)	395 (55.4)
Cisplatin + etoposide	106 (22.3)	49 (20.7)	155 (21.7)
Cisplatin + vinorelbine	77 (16.2)	34 (14.3)	111 (15.6)
Cisplatin + vinorelbine ditartrate	26 (5.5)	14 (5.9)	40 (5.6)
Cisplatin + docetaxel	26 (5.5)	8 (3.4)	34 (4.8)
Cisplatin + paclitaxel	13 (2.7)	15 (6.3)	28 (3.9)
Cisplatin + pemetrexed	11 (2.3)	5 (2.1)	16 (2.2)
Cisplatin + nab-paclitaxel	1 (0.2)	0	1 (0.1)
Cisplatin + vinblastine	1 (0.2)	0	1 (0.1)
Cisplatin + other	1 (0.2)	0	1 (0.1)
Carboplatin†	199 (41.8)	102 (43.0)	301 (42.2)
Carboplatin + paclitaxel	158 (33.2)	84 (35.4)	242 (33.9)
Carboplatin + vinorelbine	8 (1.7)	4 (1.7)	12 (1.7)
Carboplatin + etoposide	8 (1.7)	2 (0.8)	10 (1.4)
Carboplatin + vinorelbine ditartrate	7 (1.5)	5 (2.1)	12 (1.7)
Carboplatin + pemetrexed	7 (1.5)	4 (1.7)	11 (1.5)
Carboplatin + docetaxel	2 (0.4)	1 (0.4)	3 (0.4)
Carboplatin + nab-paclitaxel	2 (0.4)	0	2 (0.3)
Carboplatin + pemetrexed disodium	1 (0.2)	0	1 (0.1)
Carboplatin + other	2 (0.4)	1 (0.4)	3 (0.4)
Cisplatin / carboplatin	8 (1.7)	5 (2.1)	13 (1.8)
Cisplatin / carboplatin + vinorelbine	2 (0.4)	1 (0.4)	3 (0.4)
Cisplatin / carboplatin + etoposide	2 (0.4)	0	2 (0.3)
Cisplatin / carboplatin + pemetrexed	1 (0.2)	1 (0.4)	2 (0.3)
Cisplatin / carboplatin + docetaxel	1 (0.2)	0	1 (0.1)
Cisplatin / carboplatin + vinorelbine ditartrate	1 (0.2)	0	1 (0.1)
Cisplatin / carboplatin + other	1 (0.2)	3 (1.3)	4 (0.6)

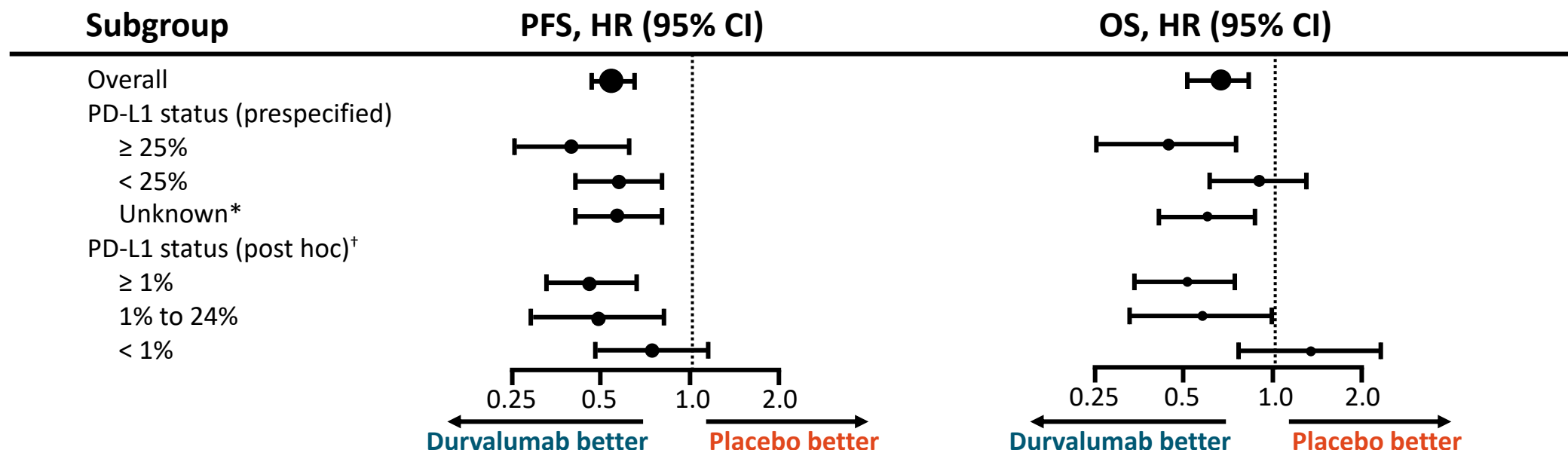
*Cisplatin alone was received by 4 patients in each group (0.8% and 1.7% in the durvalumab and placebo groups, respectively).

†Carboplatin alone was received by 4 patients (0.8%) in the durvalumab group and 1 patient (0.4%) in the placebo group.

PACIFIC: Prespecified Subgroup Analysis of Survival



PACIFIC: Subgroup Analysis of Survival by PD-L1 Status



*Unknown PD-L1 status in 37% of patients; testing not required, obtained pre-CRT.

[†]1% cutoff used in unplanned post hoc analysis requested by a health authority.

PACIFIC

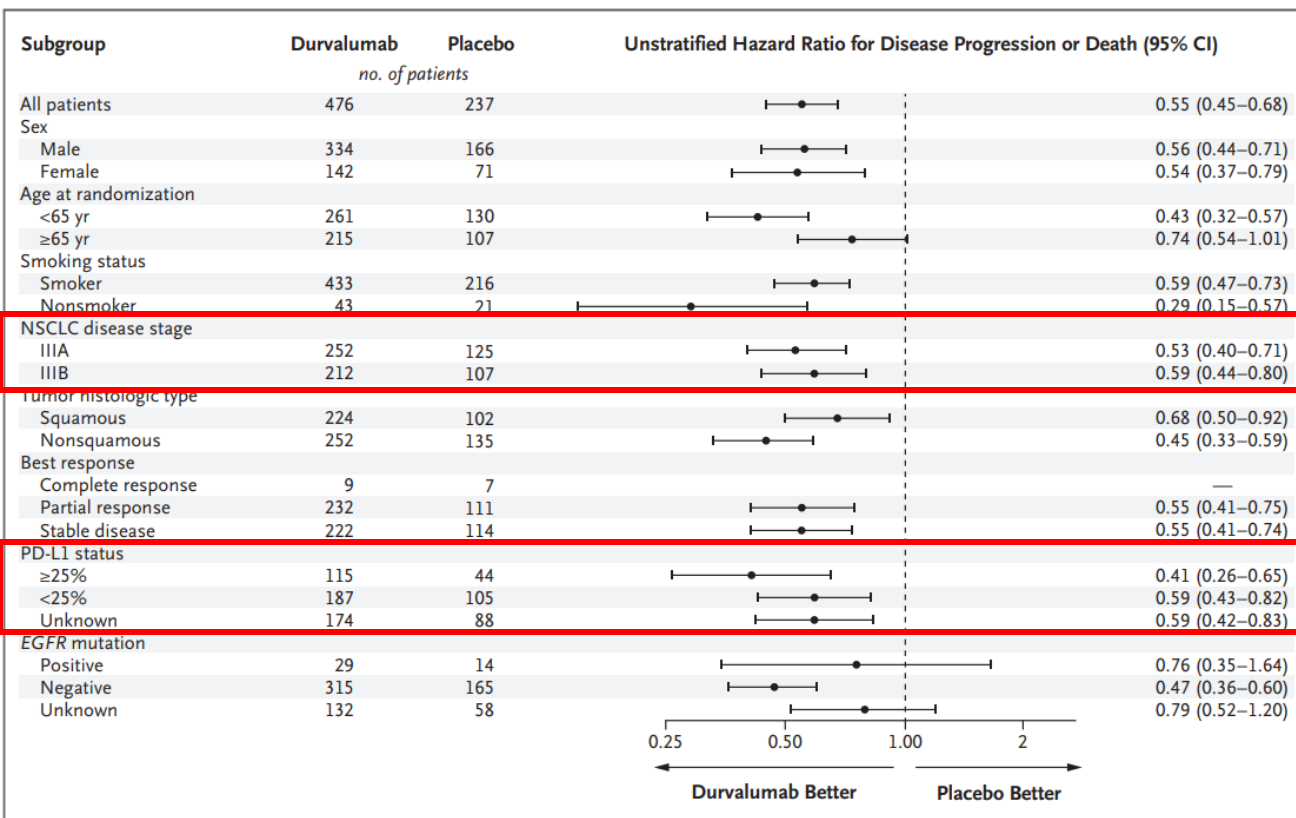


Figure 2. Subgroup Analysis of Prognostic Factors for Progression-free Survival in the Intention-to-Treat Population.

Progression-free survival was defined according to RECIST, version 1.1, and assessed by means of blinded independent central review. The hazard ratio and 95% confidence interval were not calculated for the complete response because this subgroup had less than 20 events. EGFR denotes epidermal growth factor receptor, and PD-L1 programmed death ligand 1.

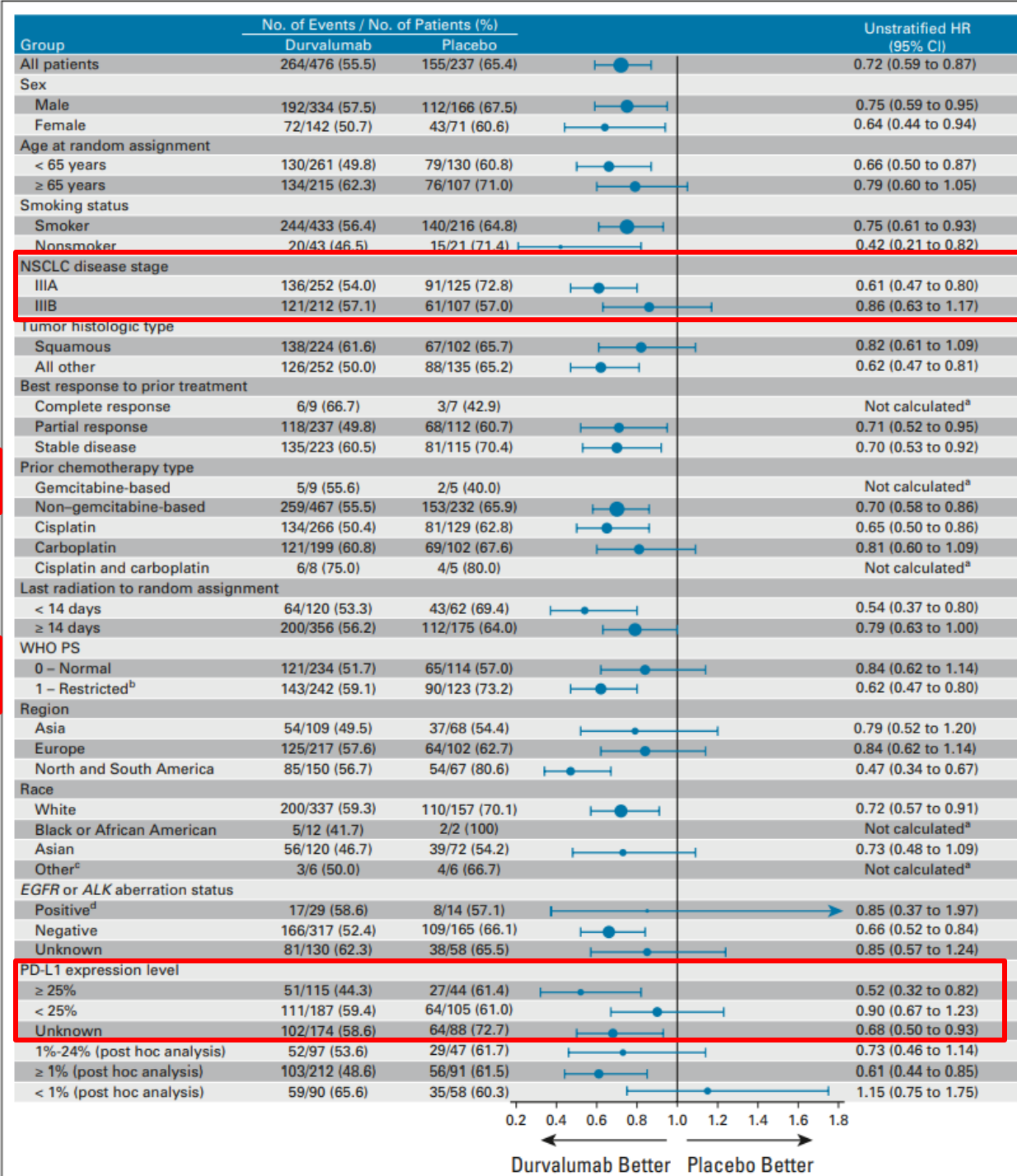


Table 1. Baseline Characteristics, Stratification Factors, and Prior Therapy in the Intention-to-Treat Population.*

Characteristic	Durvalumab (N = 476)	Placebo (N = 237)	Total (N = 713)
Age — yr			
Median	64	64	64
Range	31–84	23–90	23–90
Sex — no. (%)			
Male	334 (70.2)	166 (70.0)	500 (70.1)
Female	142 (29.8)	71 (30.0)	213 (29.9)
Race — no. (%)†			
White	337 (70.8)	157 (66.2)	494 (69.3)
Black	12 (2.5)	2 (0.8)	14 (2.0)
Asian	120 (25.2)	72 (30.4)	192 (26.9)
Disease stage — no. (%)			
IIIA	252 (52.9)	125 (52.7)	377 (52.9)
IIIB	212 (44.5)	107 (45.1)	319 (44.7)
Other‡	12 (2.5)	5 (2.1)	17 (2.4)
WHO performance status score — no. (%)§			
0	234 (49.2)	114 (48.1)	348 (48.8)
1	240 (50.4)	122 (51.5)	362 (50.8)
Tumor histologic type — no. (%)			
Squamous	224 (47.1)	102 (43.0)	326 (45.7)
Nonsquamous	252 (52.9)	135 (57.0)	387 (54.3)
Smoking status — no. (%)			
Current smoker	79 (16.6)	38 (16.0)	117 (16.4)
Former smoker	354 (74.4)	178 (75.1)	532 (74.6)
Never smoked	43 (9.0)	21 (8.9)	64 (9.0)
Previous radiotherapy — no. (%)¶			
<54 Gy	3 (0.6)	0	3 (0.4)
≥54 to ≤66 Gy	442 (92.9)	217 (91.6)	659 (92.4)
>66 to ≤74 Gy	30 (6.3)	19 (8.0)	49 (6.9)
Previous chemotherapy — no. (%)			
Induction	123 (25.8)	68 (28.7)	191 (26.8)
Concurrent with radiation therapy	475 (99.8)	236 (99.6)	711 (99.7)
Best response to previous chemoradiotherapy — no. (%)			
Complete response	9 (1.9)	7 (3.0)	16 (2.2)
Partial response	232 (48.7)	111 (46.8)	343 (48.1)
Stable disease	222 (46.6)	114 (48.1)	336 (47.1)

PACIFIC 5-Yr Update: Patient Disposition

Characteristic, %	Durvalumab (n = 476)	Placebo (n = 237)
On study at data cutoff*	37.4	28.7
Terminated study	62.6	71.3
▪ Patient decision [†]	6.3	6.8
▪ Death	54.6	62.9
▪ Lost to follow-up	1.7	1.3
▪ Unknown	0	0.4

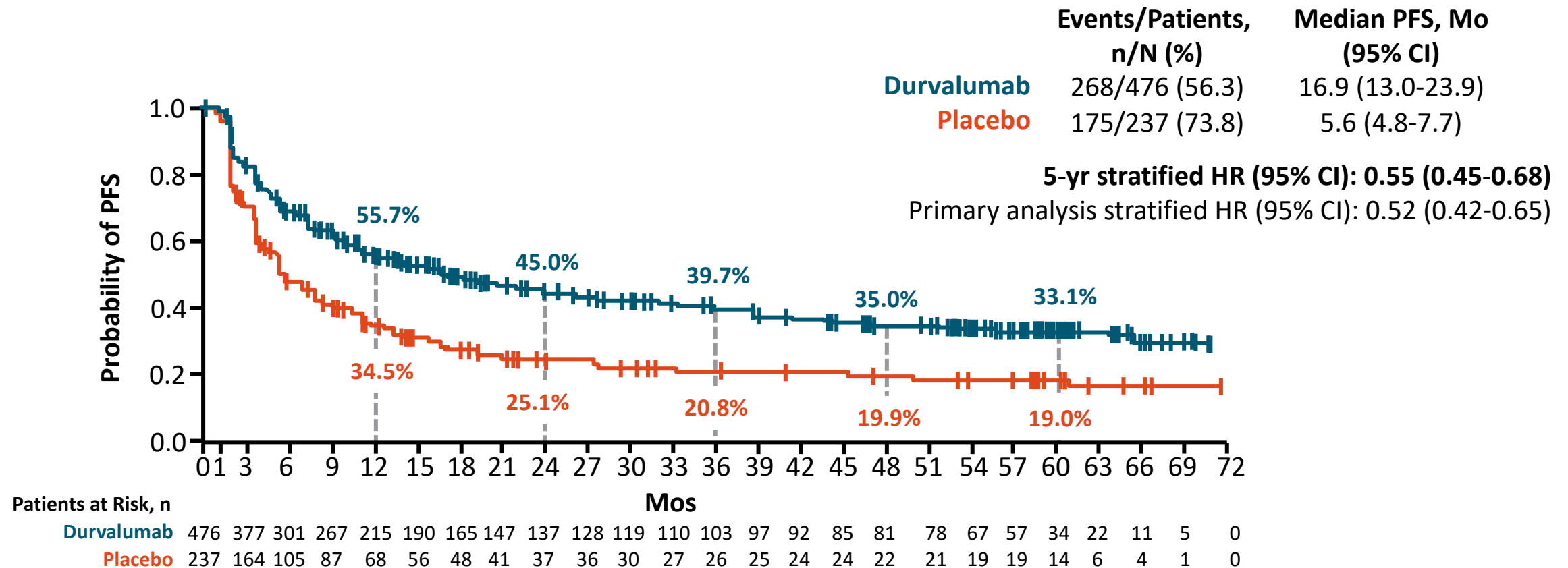
*Data cutoff: January 11, 2021.

[†]n = 9 have since died (n = 4: durvalumab; n = 5: placebo).

Characteristic, % [‡]	Durvalumab (n = 473)	Placebo (n = 236)
Completed 12 mo of study tx	49.0	34.7
Discontinued study tx	51.0	65.3
▪ Patient decision	3.0	5.1
▪ AE	15.4	9.7
▪ Severe protocol noncompliance	0.2	0.4
▪ Disease worsening	31.3	49.6
▪ Study-specific d/c criteria	0.2	0.4
▪ Other	0.8	0

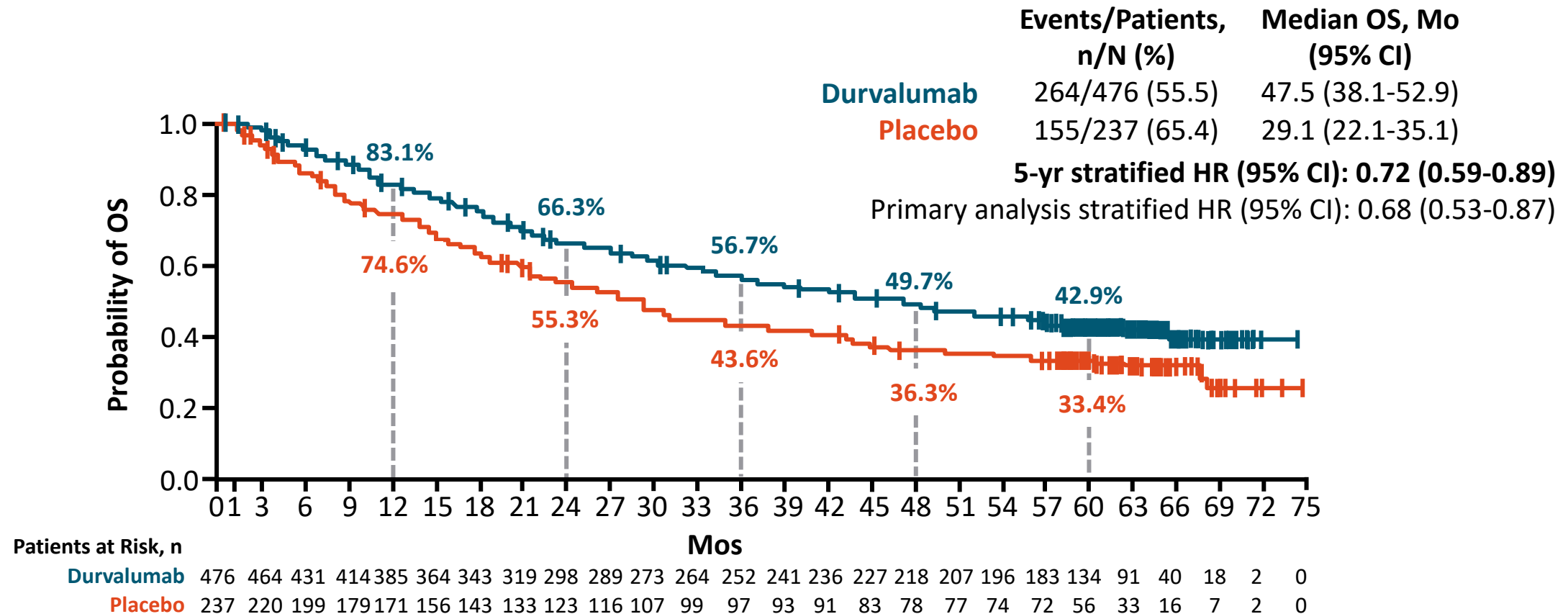
[‡]Percentages calculated based on number of treated patients.

PACIFIC 5-Yr Update: PFS (ITT)



- 72 additional PFS events reported since time of primary analysis (data cutoff: February 13, 2017); updated results, including across patient subgroups, consistent with those from primary analysis

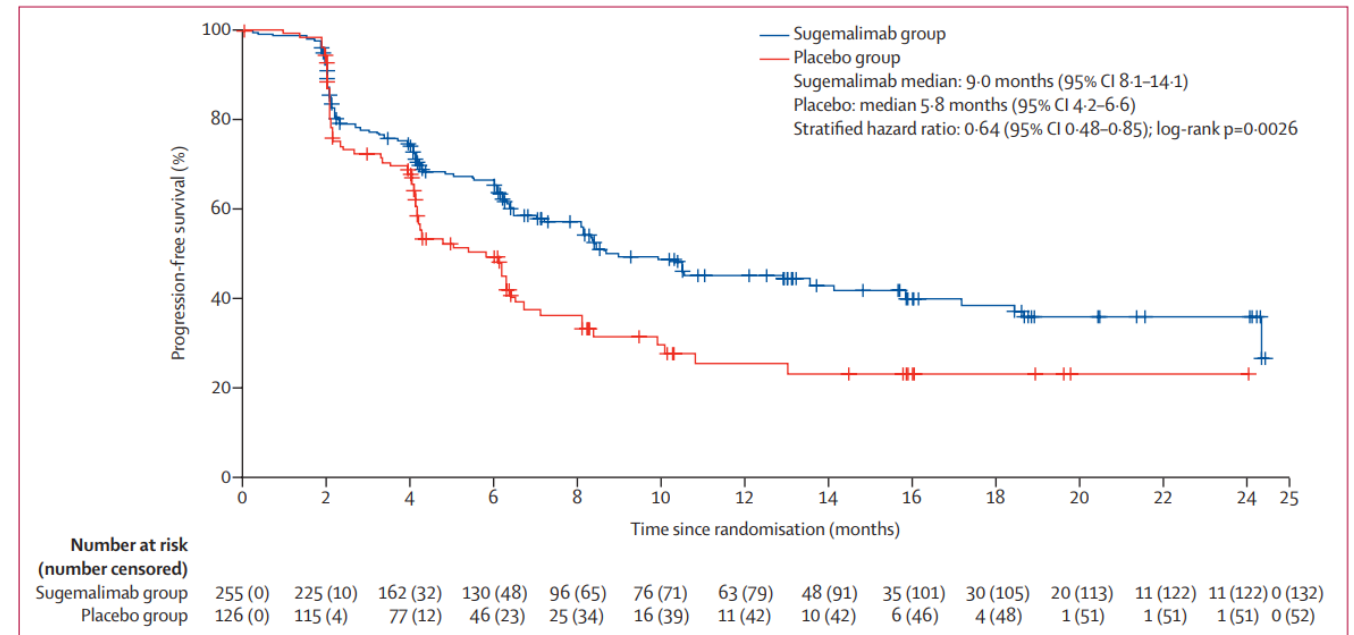
PACIFIC 5-Yr Update: OS (ITT)



- 120 additional OS events reported since time of primary analysis (data cutoff: March 22, 2018); updated results, including across patient subgroups, consistent with those from primary analysis

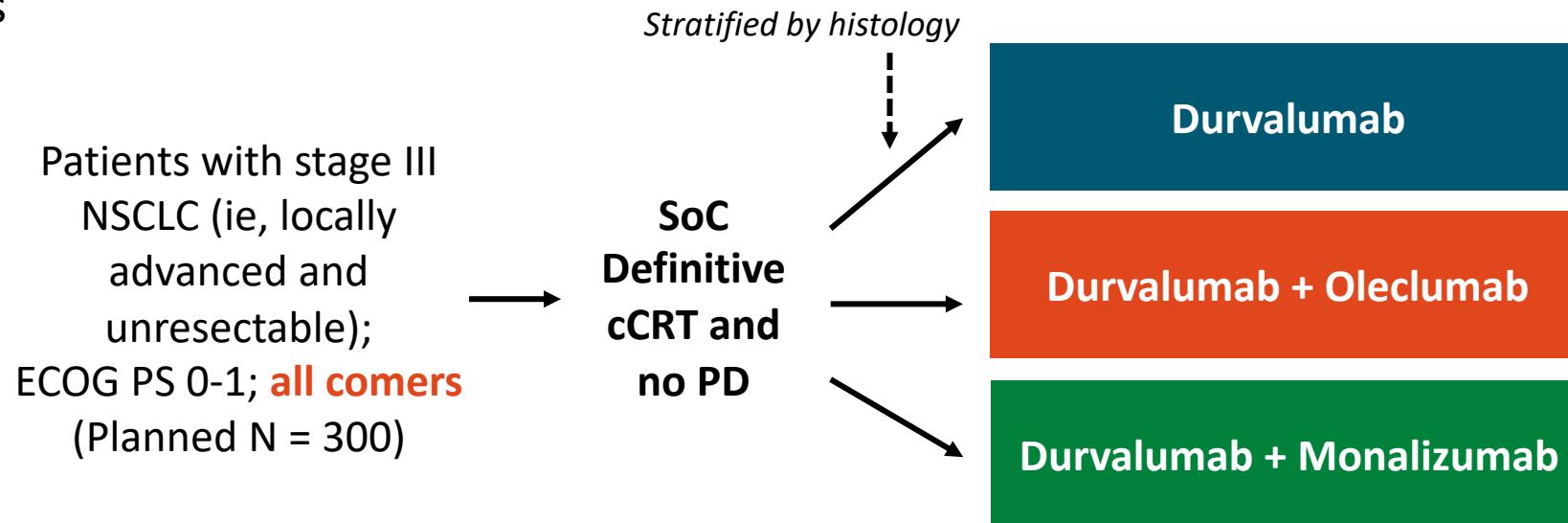
Sugemalimab versus placebo after concurrent or sequential chemoradiotherapy in patients with locally advanced, unresectable, stage III non-small-cell lung cancer in China (GEMSTONE-301): interim results of a randomised, double-blind, multicentre, phase 3 trial

- 381 patients with stage III NSCLC
- Consolidation Sugemalimab(PDL-1)
- Expected toxicity



COAST: Durvalumab + Oleclumab or Monalizumab vs Durvalumab Alone in Stage III NSCLC

- Randomized, open-label, multicenter phase II trial
 - Oleclumab: human IgG1 mAb to CD73, inhibits adenosine production
 - Monalizumab: human mAb to CD94/NKG2a, enhances antitumor effects of immune effector cells



- Primary endpoints: ORR
- Key secondary endpoints: safety, DoR, disease control, PFS, PFS12

COAST: Durvalumab + Oleclumab or Monalizumab vs Durvalumab Alone in Stage III NSCLC

ITT	D	D+O	D+M
N	67	60	62
ORR (95% CI), % ^{a,b}	25.4 (15.5, 37.5)	38.3 (26.1, 51.8)	37.1 (25.2, 50.3)
Objective responses, n ^a	17	23	23
CR, n (%)	2 (3.0)	1 (1.7)	3 (4.8)
PR, n (%)	15 (22.4)	22 (36.7)	20 (32.3)
Median PFS (95% CI), mo ^c	6.3 (3.7, 11.2)	NR (10.4, NE)	15.1 (13.6, NE)
PFS HR (95% CI) ^{d,e}	-	0.44 (0.26, 0.75)	0.65 (0.49, 0.85)
10-month PFS rate (95% CI), % ^c	39.2 (26.1, 52.0)	64.8 (50.4, 76.0)	72.7 (58.8, 82.6)

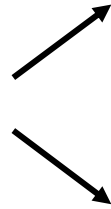
Chemoradiation strategies

- Concurrent checkpoint inhibitor and radiation
- Induction checkpoint inhibitor
- consolidation checkpoint inhibitor plus other immune mechanism

Concurrent RT + PD-1/PDL-1 Strategies

A Global Study to Assess the Effects of Durvalumab + Domvanalimab Following Concurrent Chemoradiation in Participants With Stage III Unresectable NSCLC (PACIFIC-8)

Adult patients with locally advanced, unresectable, stage III NSCLC without progression following ≥ 2 cycles platinum-based chemotherapy concurrent with radiation therapy; WHO PS 0/1 (N = 860)



Durvalumab + Domvanalimab
Q4W for up to 12 mo

Durvalumab + Placebo IV Q4W
for up to 12 mo

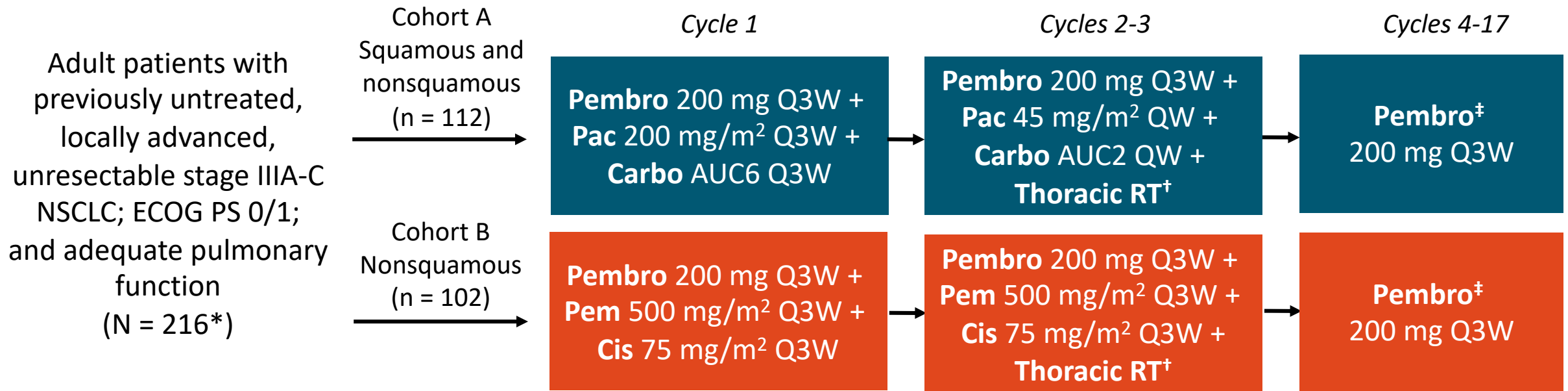
Until disease progression or unacceptable toxicity

Small trials of concurrent checkpoint inhibitor and radiation in non-small cell lung cancer

Trial	ICI	# of Patients	Unexpected AE
AFT-16	Atezolizumab	62	No
Tsao et al	Atezolizumab	30	No
Jabbour et al	Pembrolizumab	21	No
NICOLAS	Nivolumab	79	No
DETERRED	Atezolizumab	52	No

KEYNOTE-799: Study Design

- Nonrandomized, open-label phase II trial



*n = 2 did not receive treatment. [†]60 Gy in 30 daily 2-Gy fractions. [‡]Until completion of cycle 17, PD, unacceptable AEs, or study withdrawal.

- Primary endpoints: ORR per RECIST 1.1 by BICR, grade ≥ 3 pneumonitis
- Secondary endpoints: PFS per RECIST 1.1 by BICR, OS, safety

KEYNOTE-799: Efficacy Outcomes

Efficacy Outcome	Cohort A: Squamous and Nonsquamous (n = 112)	Cohort B: Nonsquamous (n = 102)
Median follow-up, mo (range)	18.5 (13.6-23.8)	13.7 (2.9-23.5)
ORR, % (95% CI)	70.5 (61.2-78.8)	70.6 (60.7-79.2)
▪ CR, n (%)	4 (3.6)	5 (4.9)
▪ PR, n (%)	75 (67.0)	67 (65.7)
▪ SD, n (%)	20 (17.9)	23 (22.5)
▪ PD, n (%)	1 (0.9)	0
▪ Not evaluable, n (%)	2 (1.8)	0
▪ No assessment, n (%)	10 (8.9)	7 (6.9)
Median DoR, mo (range)	NR (1.7+ to 19.7+)	NR (1.8+ to 21.4+)
▪ DoR ≥12 mo, %	79.7	75.6
Median PFS, mo (95% CI)	NR (16.6 to NR)	NR (NR to NR)
▪ 12-mo PFS, %	67.1	71.6
Median OS, mo (95% CI)	NR (NR to NR)	NR (21.9 to NR)
▪ 12-mo OS, %	81.3	87.0

- ORR results consistent regardless of whether PD-L1 TPS <1% vs ≥1%
 - Cohort A: 66.7% vs 75.8%
 - Cohort B: 71.4% vs 72.5%
- ORR results also consistent regardless of nonsquamous vs squamous histology
 - Cohort A: 69.2% vs 71.2%
 - Cohort B: 70.6% vs NA

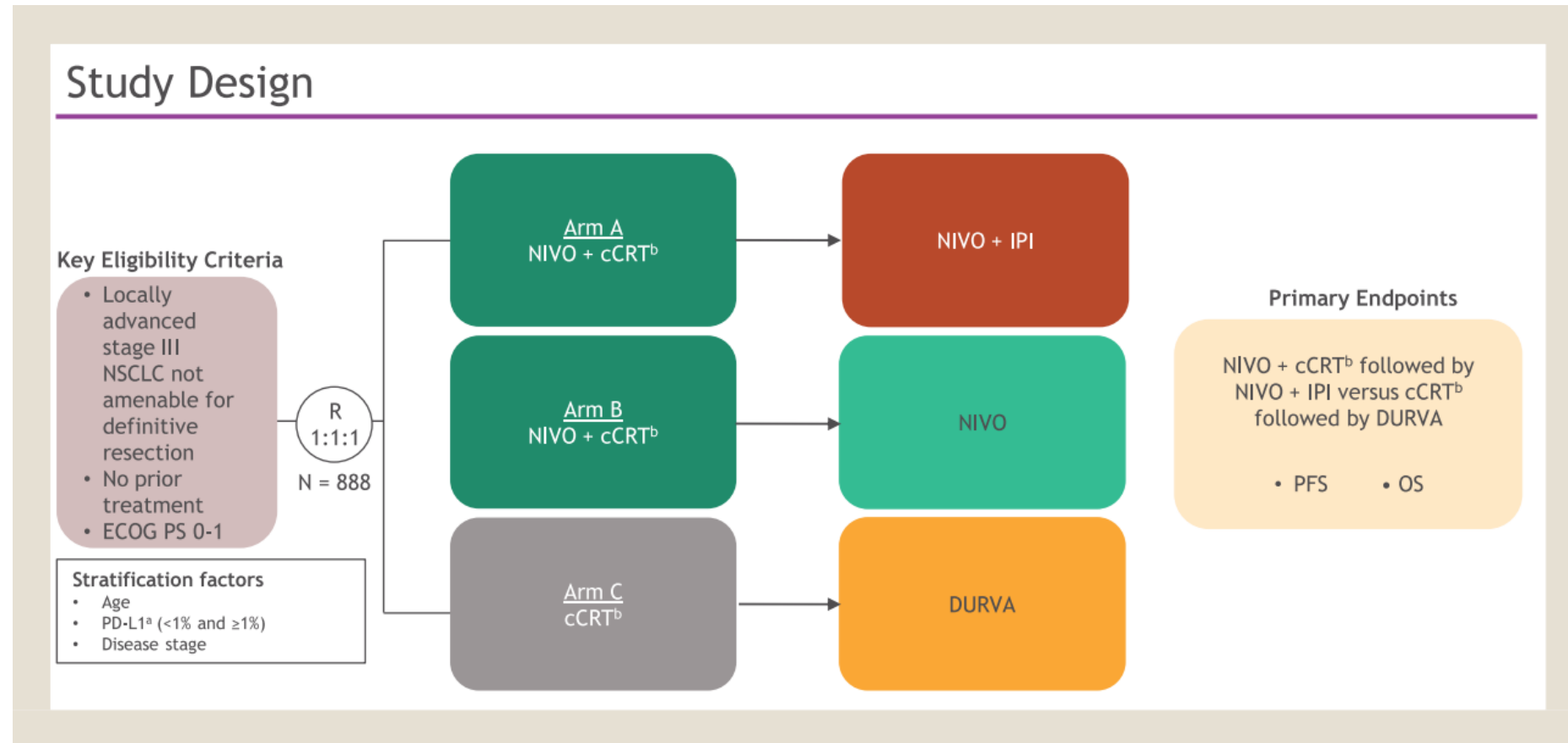
KEYNOTE-799: Safety Outcomes

Safety Outcome	Cohort A: Squamous and Nonsquamous (n = 112)	Cohort B: Nonsquamous (n = 102)
All-cause grade ≥3 pneumonitis, n (%) [95% CI]	9 (8.0) [3.7-14.7]	7 (6.9) [2.8-13.6]
Treatment-related AEs, n (%)	105 (93.8)	99 (97.1)
▪ Grades 3-5	72 (64.3)	51 (50.0)
▪ Leading to death*	4 (3.6)	1 (1.0)
▪ Leading to discontinuation of any treatment component	38 (33.9)	19 (18.6)
Immune-mediated AEs and infusion reactions, n (%)	58 (51.8)	42 (41.2)
▪ Grades 3-5	18 (16.1)	9 (8.8)
▪ Leading to death*	4 (3.6)	1 (1.0)
▪ Leading to discontinuation of any treatment component	21 (18.8)	11 (10.8)

*Includes 4 patients (3.6%) with grade 5 pneumonitis in cohort A and 1 patient (1.0%) with grade 5 interstitial lung disease in cohort B.

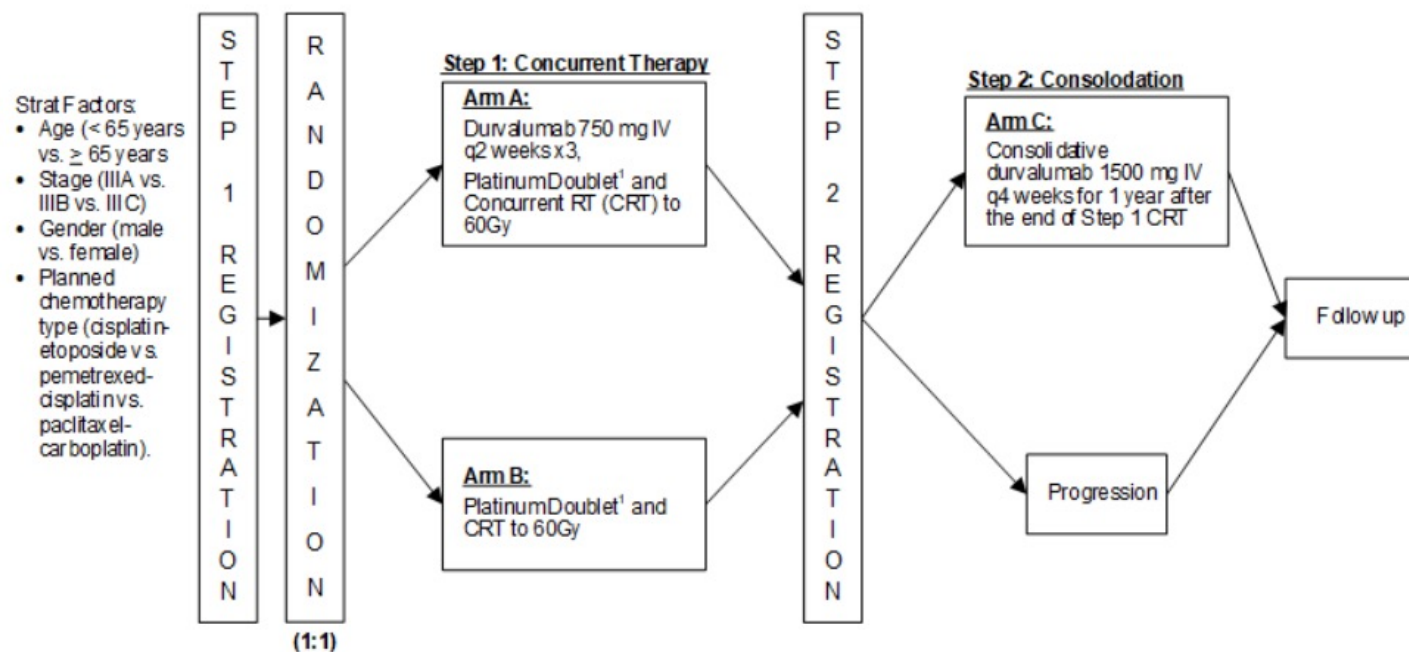
CheckMate 73L

- 888 patients stage III
- Stratified by age, PDL-1, and stage



EA 5181

Schema



N = 660

Cycle = Step 1 (Arms A & B): 28 days for patients receiving platinum doublet option #1 (see below)
21 days for patients receiving platinum doublet option #2 (see below)
7 days for patients receiving platinum doublet option #3 (see below)

Step 2 (Arm C): 28 days for patients on consolidative durvalumab (Arm C).

1. Investigator's Choice for Step 1 (see Section 5.1):

- Option #1: Cisplatin 50 mg/m² IV on C1D1, C1D8, C2D1, C2D8; etoposide 50 mg/m² IV C1D1-D5; C2D1-D5 (Cycle = 28 days)
- Option #2: pemetrexed 500 mg/m² IV C1D1, C2D1; Cisplatin 75 mg/m² IV on C1D1, C2D1 (Cycle = 21 days) (nonsquamous only)
- Option #3: paclitaxel 45 mg/m² IV on D1 of each cycle for 6 cycles; Carboplatin AUC 2 IV on D1 of each cycle for 6 cycles (Cycle = 7 days)

**KEYLYNK-012: A Phase 3 Study of Pembrolizumab With Concurrent Chemoradiation Therapy (CCRT)
Followed by Pembrolizumab With or Without Olaparib vs. CCRT Followed by Durvalumab in
Unresectable, Locally Advanced, Stage III Non–Small-Cell Lung Cancer**

Adult patients with
previously untreated,
locally advanced,
unresectable stage
IIIA-C NSCLC; ECOG
PS 0/1;
and adequate
pulmonary function
(N = 870)

**Chemoradiation + Pembrolizumab
(60 Gy)**

Pembrolizumab + Olaparib BID
Q3W for up to 12 mo

Pembrolizumab + Placebo
Q3W for up to 12 mo

PACIFIC

PACIFIC-2: Phase 3 study of concurrent durvalumab and platinum-based chemoradiotherapy in patients with unresectable, stage III NSCLC. (ExUS)

Adult patients with locally advanced, unresectable, stage III NSCLC without progression following ≥ 2 cycles platinum-based chemotherapy concurrent with radiation therapy;
WHO PS 0/1
(N = 328)

Chemoradiation + Durvalumab Q4w
(60 Gy)



Durvalumab

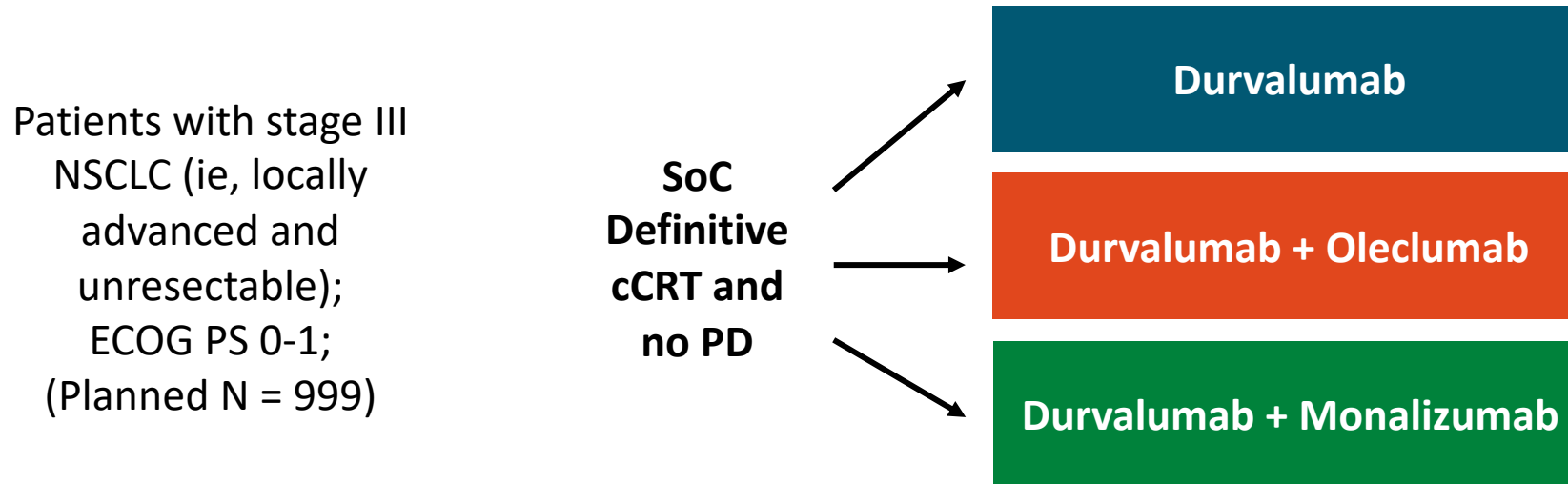
Chemoradiation + Placebo Q4w
(60 Gy)



Placebo

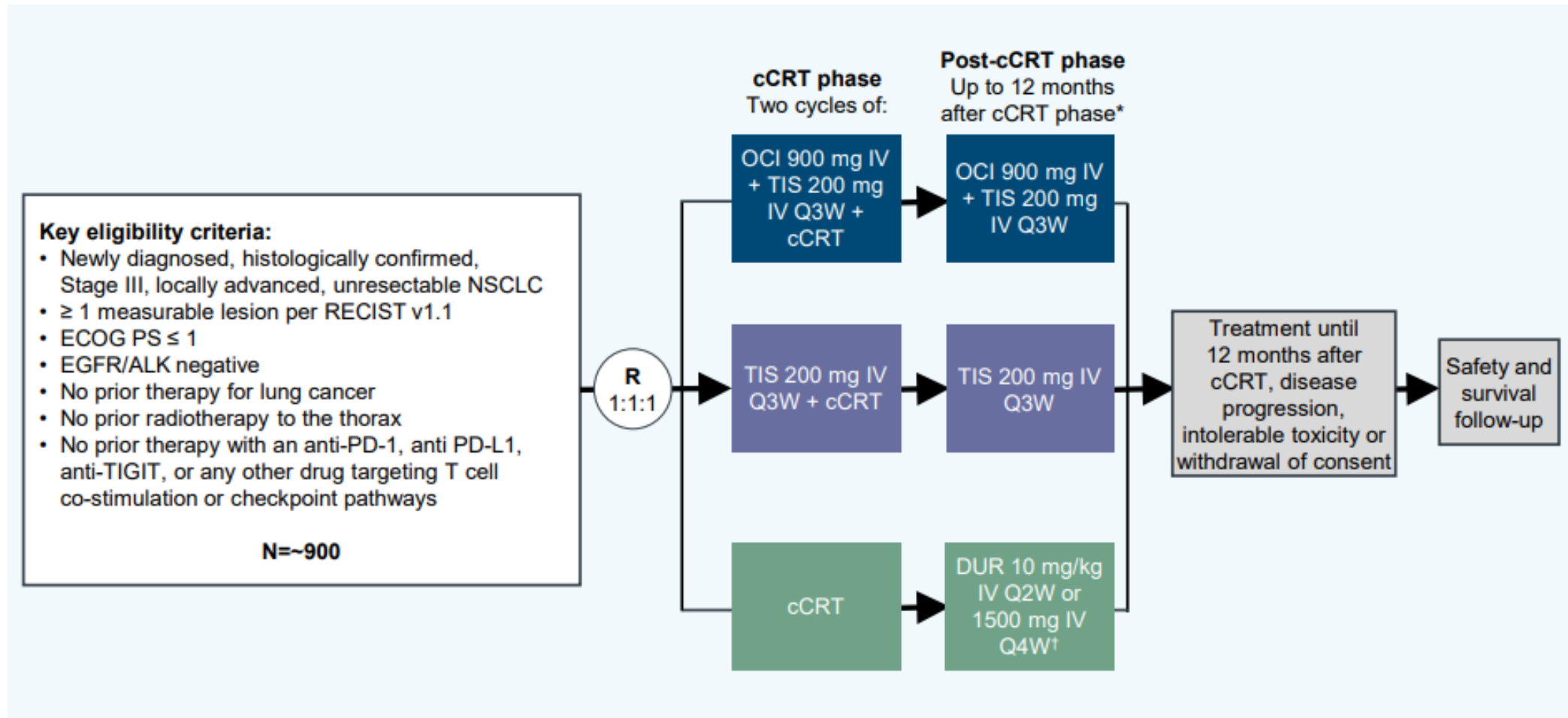
New PD-1/PDL-1 Inhibitors And Combinations

A Global Study to Assess the Effects of Durvalumab With Oleclumab or Durvalumab With Monalizumab Following Concurrent Chemoradiation in Patients With Stage III Unresectable Non-Small Cell Lung Cancer (PACIFIC-9)



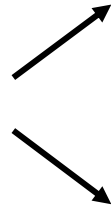
Tislelizumab Plus Ociperlimab Versus Tislelizumab Versus Durvalumab When Co-administered With Concurrent Chemoradiotherapy (cCRT) in Lung Cancer

AdvanTIG-301



SKYSCRAPER-03: Phase III, open-label randomised study of atezolizumab + tiragolumab vs durvalumab in patients with locally advanced, unresectable, stage III non-small cell lung cancer (NSCLC) who have not progressed after platinum-based concurrent chemoradiation (cCRT)

Adult patients with locally advanced, unresectable, stage III NSCLC without progression following ≥ 2 cycles platinum-based chemotherapy concurrent with radiation therapy; WHO PS 0/1 (N = 800)



Atezolizumab + Tiragolumab Q4W
Q4W x 13

Durvalumab Q2 or 4W
X 13 cycles

Summary

- Before era of immunotherapy, concurrent CRT \pm induction chemotherapy demonstrated 20% to 25% “cure” rate
- The addition of consolidation immunotherapy after concurrent chemoradiation has shown a 5 year overall survival of 42.9%
- Multiple strategies are being investigated to improve efficacy over the current standard of care.