

# NYOH 6<sup>th</sup> Annual Meeting

## HR+/HER2- Early Stage Breast Cancer Updates in Neoadjuvant and Adjuvant Therapy

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Leader, Clinical Breast Cancer Program  
Georgetown University



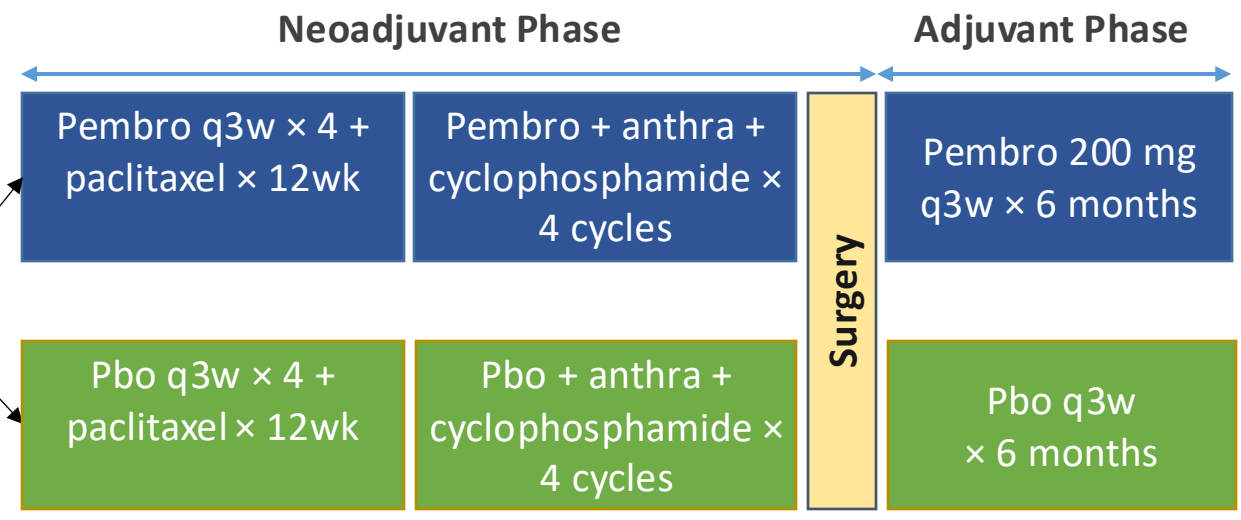
# **Updates in Neoadjuvant Therapy**

**Immunotherapy in HR+/HER2 high risk ESB**

# KEYNOTE-756: Pembro in High Risk HR+/HER2- BC

- Key Eligibility Criteria**
- Locally confirmed IDC
  - T1c-T2 (≥2 cm) cN1-2 or T3-4 cN0-2
  - Centrally confirmed ER+/HER2neg grade 3
  - Treatment-naive

R 1:1  
N=1278



**Dual primary endpoints:** pCR (ypT0/Tis ypN0) and EFS

**Stratification Factors:**

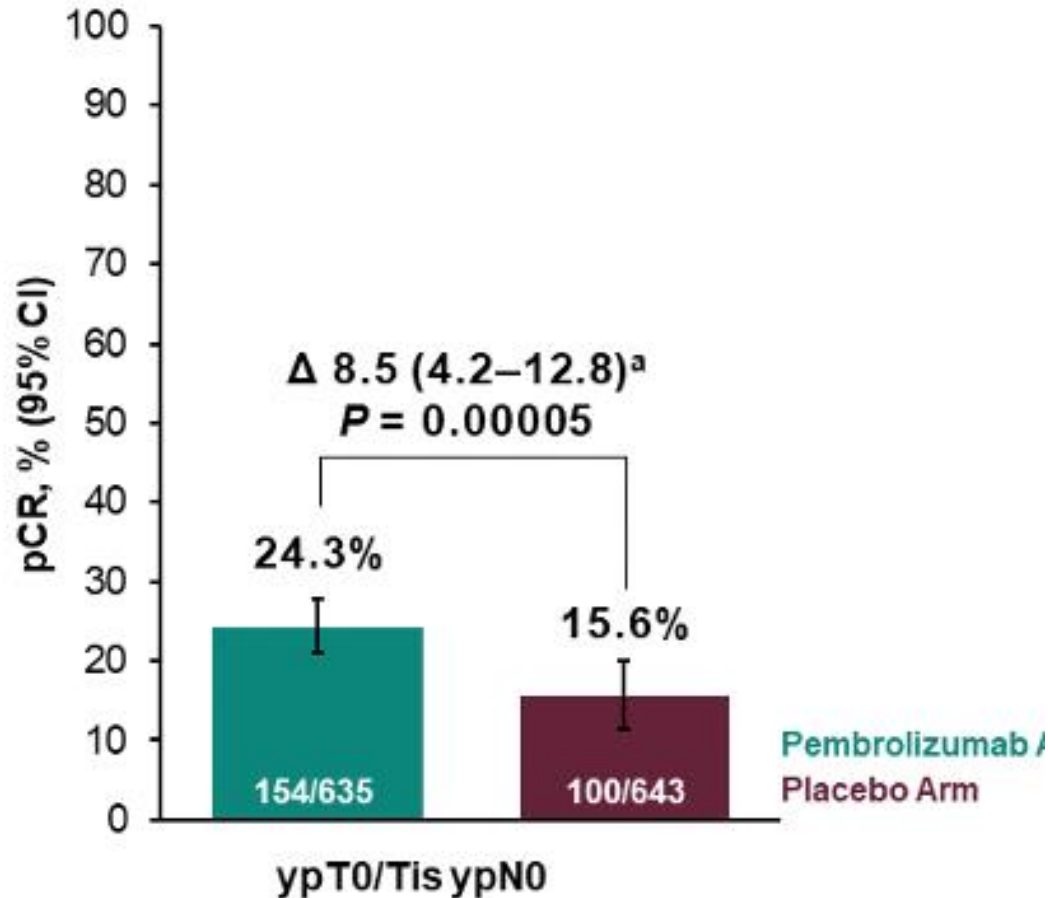
- Eastern Europe: PD-L1 status (CPS ≥1 or CPS < 1)
- China – No further stratification
- All other countries
  - PD-L1 (CPS ≥1 or CPS < 1)
  - Nodal status (LN+ vs LN-)
  - AC/EC (Q2W vs Q3W)
  - ER+ (1-9% vs ≥ 10%)

**Key Participants Characteristics:**

- PD-L1 CPS ≥1: 76%; PD-L1 CPS ≥ 10: 40%
- LN positive: 90%
- T3/T4: 36%
- ER positivity ≥10% 94%
- Anthracycline Q3W 66%

# KEYNOTE-756: Outcome First Interim Analysis ~ 10 mos after Last Participant Randomized

## Primary Endpoint: pCR

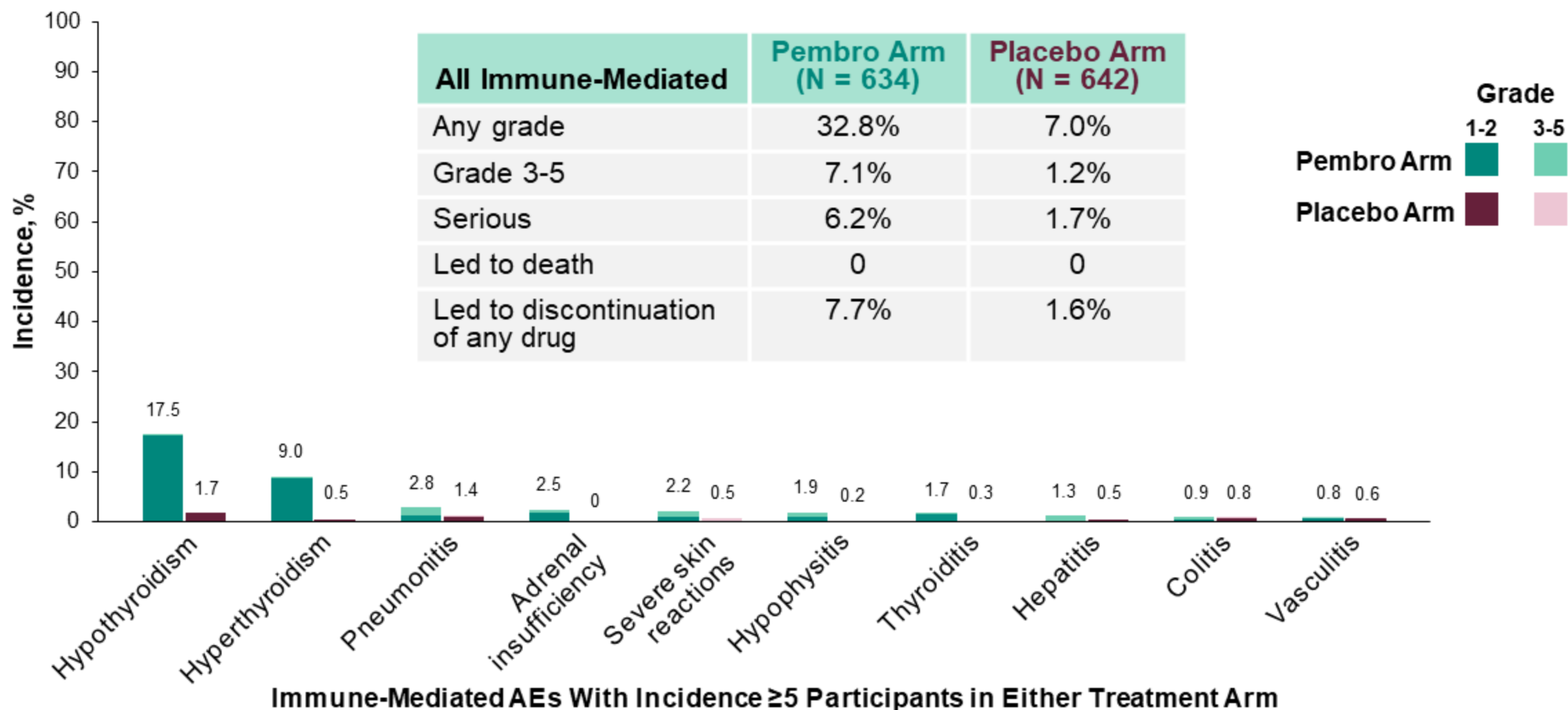


pCR by Subset

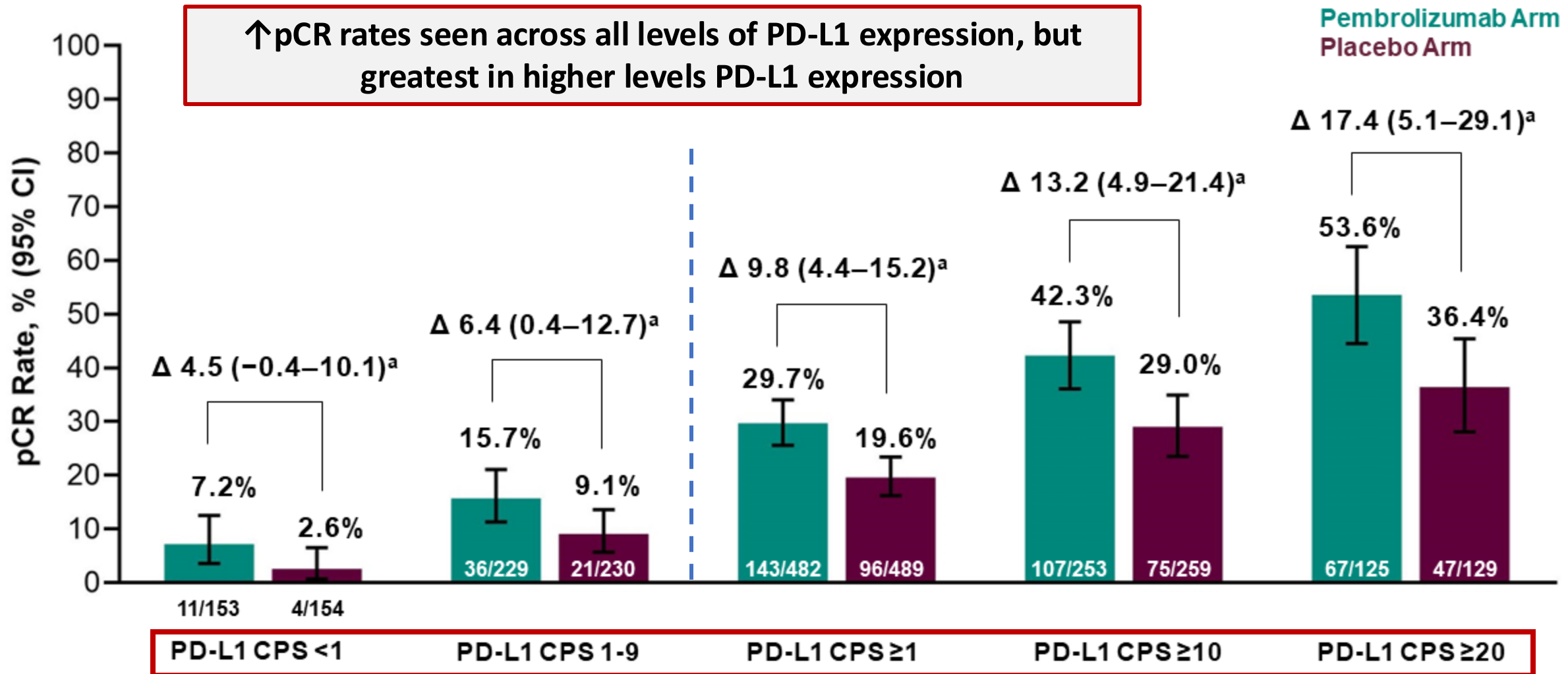
	Pembro	Placebo	Difference
Stage II	25.6%	16.7%	▲ 9.1
Stage III	21.6%	13.6%	▲ 8.0
LN pos	25.1%	15.8%	▲ 9.3
LN neg	16.9%	13.1%	▲ 3.8

EFS data not mature (co-primary endpoint)

# Immune-Mediated AEs in Neoadjuvant Phase

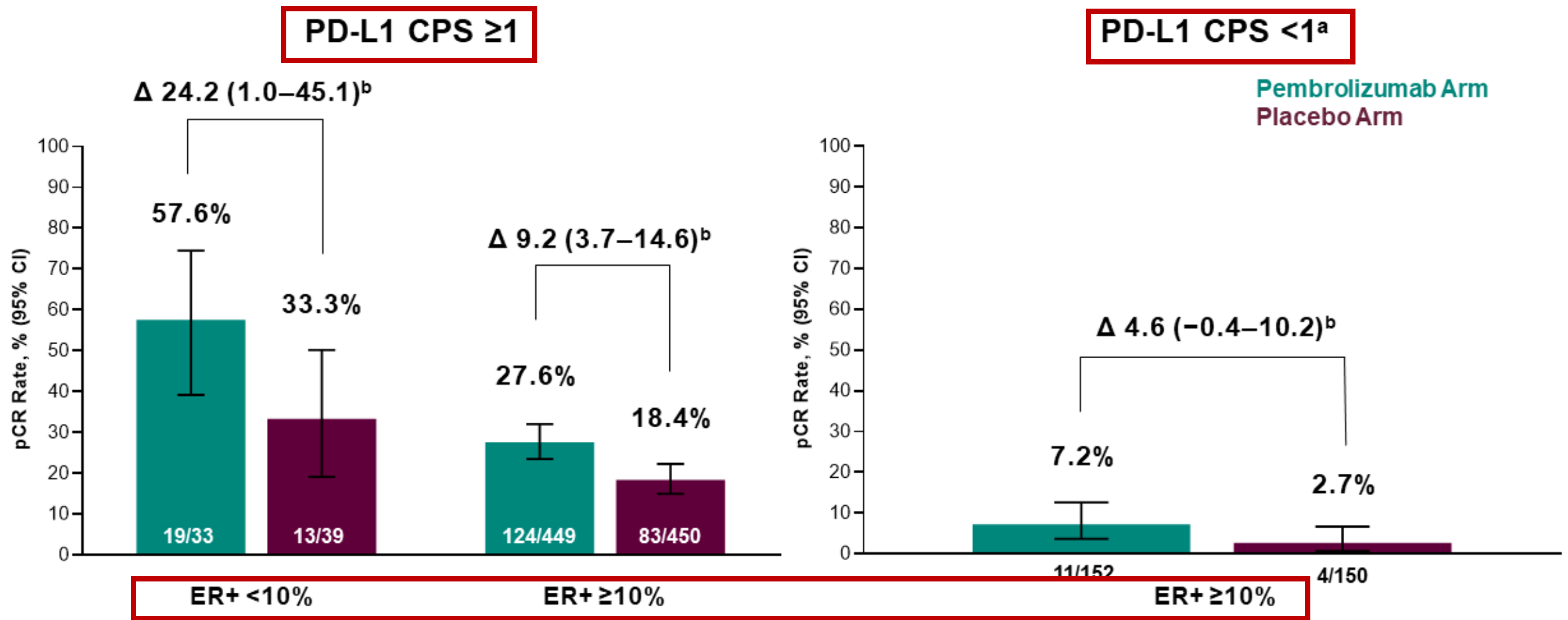


# Pathological Complete Response at IA1 by PD-L1 Expression Level



<sup>a</sup>Estimated treatment difference based on Miettinen & Nurminen method stratified by geographic region (China vs Eastern Europe vs all other countries). Data cutoff date: May 25, 2023. This presentation is the intellectual property of the author/presenter. Contact them at Joyce.OShaughnessy@USONCOLOGY.COM for permission to reprint and/or distribute.

# Pathologic Complete Response at IA1 by ER Status and PD-L1 Expression

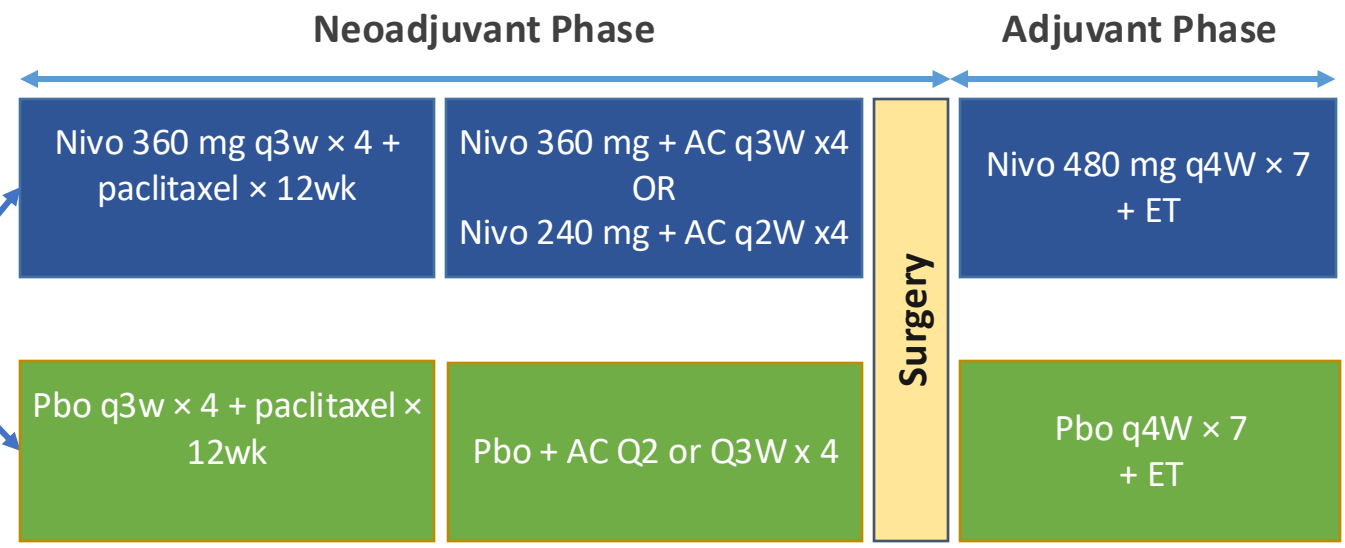


- Magnitude of pCR benefit greater in those with ER low, higher PDL1 CPS thresholds, and LN+
- Addition of pembro increased pCR rates across subgroups: geography, stage, LN status

# CheckMate 7FL: Nivolumab in High Risk HR+/HER2- BC

- Key Eligibility Criteria**
- Newly diagnosed ER+/HER2- breast CA
  - T1c-T2 cN1-cN2 or T3-T4 cN0-cN2
  - Grade 3 with ER ≥ 1% or Grade 3 with ER 1-10%
  - Tissue available for biomarker assessment

R 1:1  
N=510



- Stratification Factors:**
- PD-L1 IC (≥1% or < 1%) by SP142
  - Tumor grade (3 vs 2)
  - Nodal status (LN+ vs LN-)
  - AC frequency (Q2W vs Q3W)

**Accrual stopped 4/2022 when adjuvant Abema approved and endpoints modified**

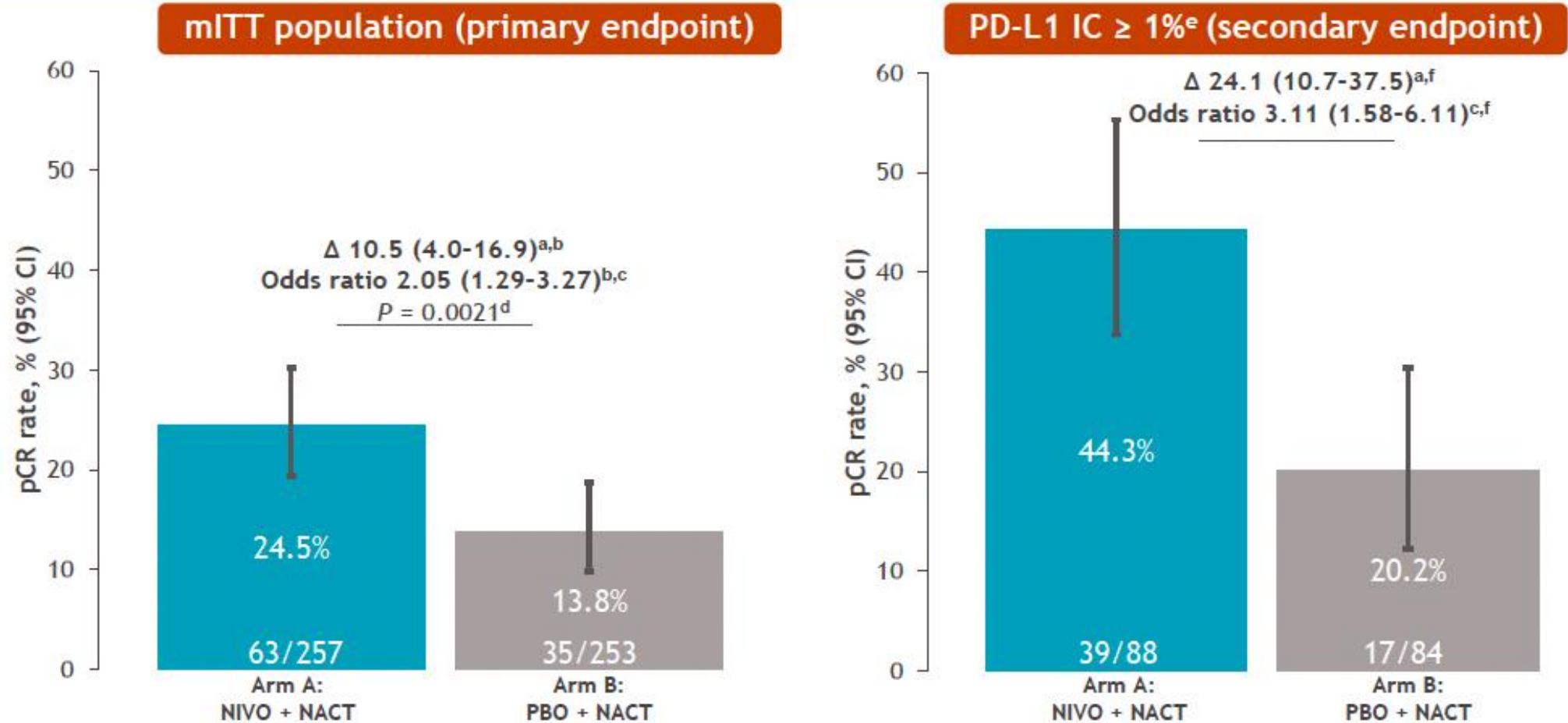
- **Primary endpoint:** pCR in modifiedITT (mITT) for 510 pts already enrolled
- **Secondary endpoints:** pCR in PD-L1+; safety
- **Exploratory endpoint:** EFS

- Key Participants Characteristics:**
- Grade 3: 98%
  - LN positive: 80%
  - PD-L1 ≥ 1%: 34%
  - Stage III: 45%
  - Anthracycline Q3W 50%



# CheckMate 7FL: Nivolumab in High Risk HR+/HER2- BC

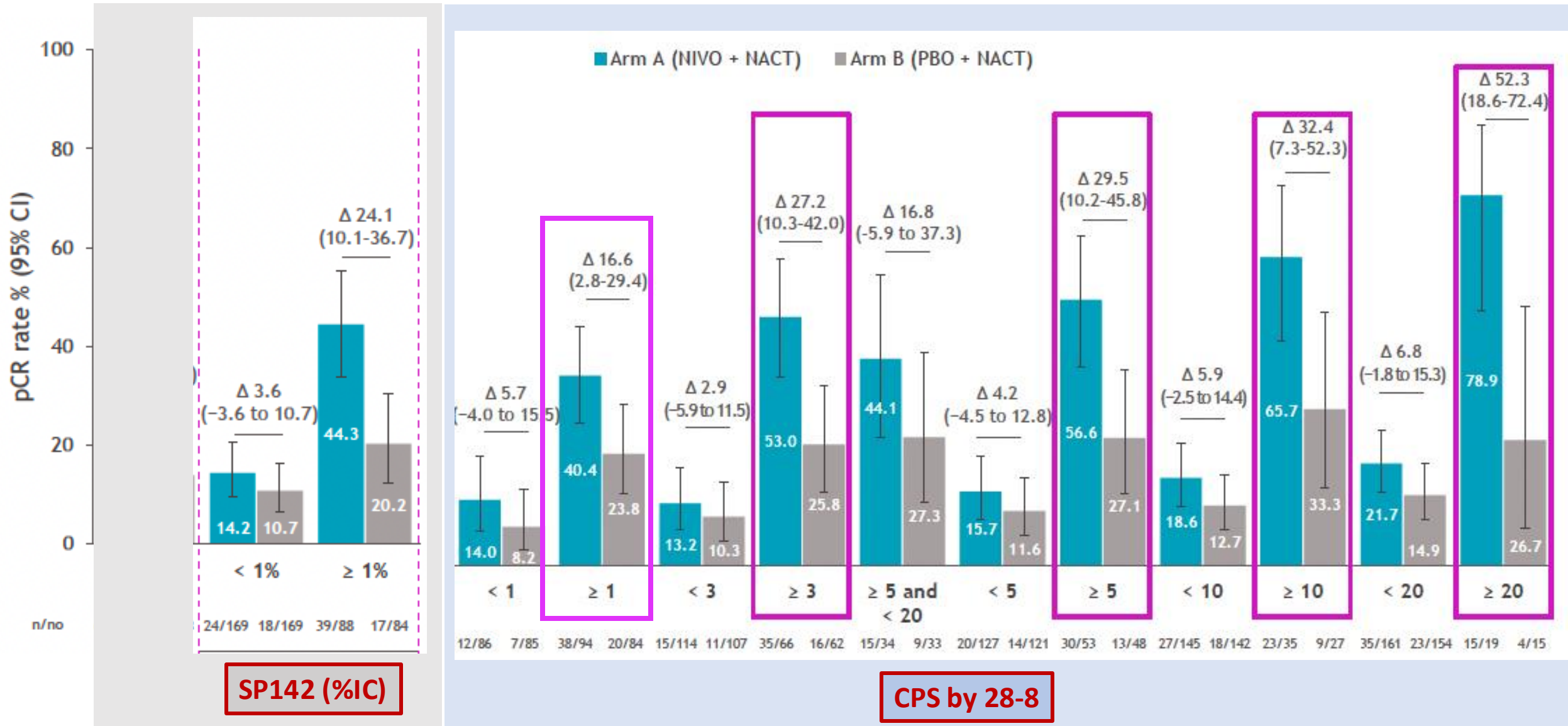
pCR rate in mITT population and by PD-L1 IC  $\geq 1\%$  (measured by SP142 assay)



<sup>a</sup>Strata-adjusted difference in pCR (arm A-arm B) based on Cochran-Mantel-Haenszel method of weighting. <sup>b</sup>Stratified by PD-L1 by SP142 (< 1% vs  $\geq 1\%$ ) and AC dose-frequency chemotherapy regimen (Q2W vs Q3W) per IRT. <sup>c</sup>Strata-adjusted odds ratio (arm A over arm B) using Mantel-Haenszel method. <sup>d</sup>Two-sided  $P$  value from stratified Cochran-Mantel-Haenszel test. <sup>e</sup>PD-L1 ICs and PD-L1-expressing tumor-infiltrating ICs as percentage of tumor area using the VENTANA SP142 assay. <sup>f</sup>Stratified by AC dose-frequency chemotherapy regimen. AC, anthracycline + cyclophosphamide; CI, confidence interval; IC, immune cell; IRT, interactive response technology; mITT, modified intent-to-treat; NACT, neoadjuvant chemotherapy; NIVO, nivolumab; PBO, placebo; pCR, pathological complete response; PD-L1, programmed death ligand 1; QXW, every X weeks.

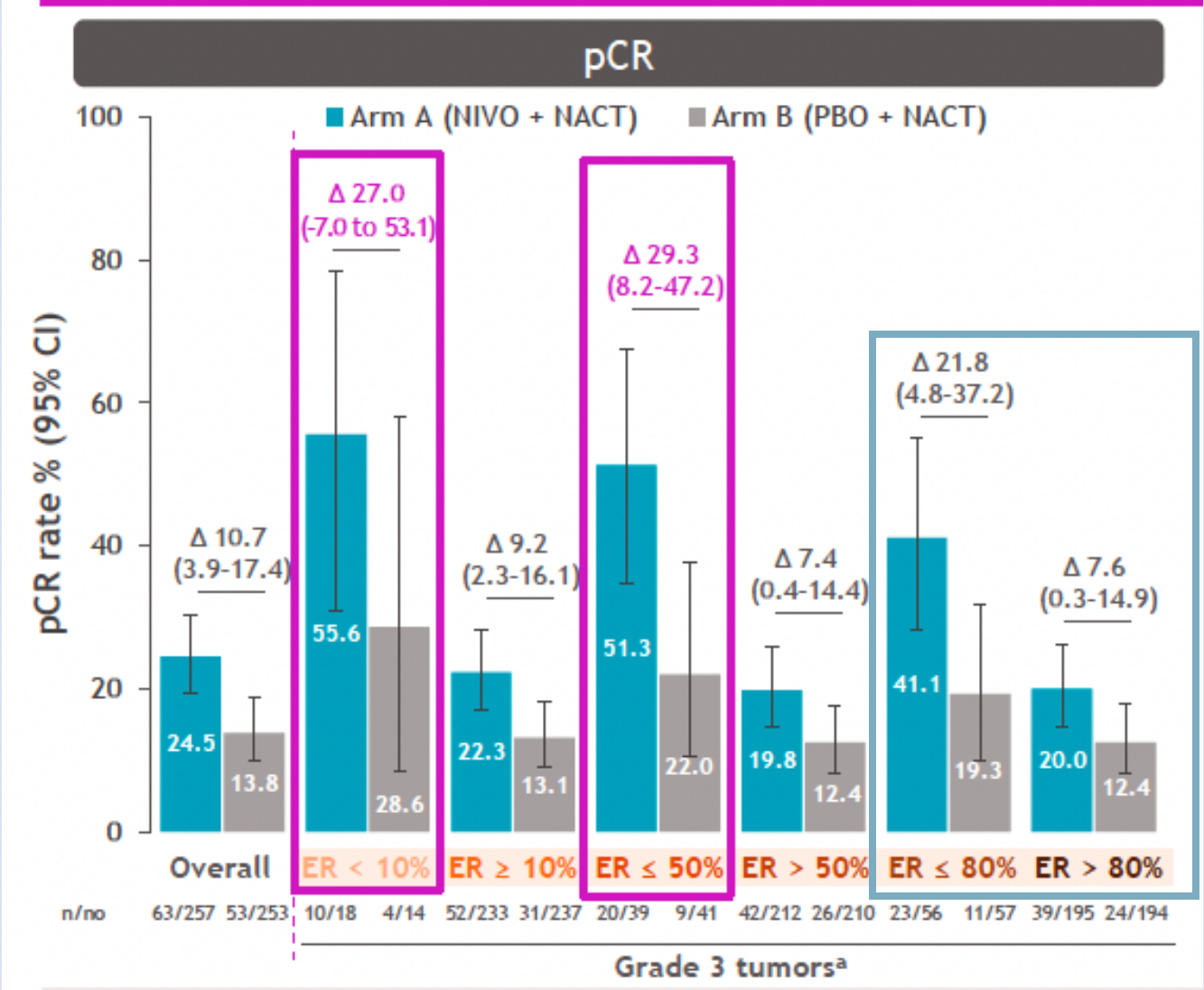
# CheckMate 7FL: Exploratory Biomarker of Response (SABCS 2023)

Central review of ER, Ki67, sTILs and CPS



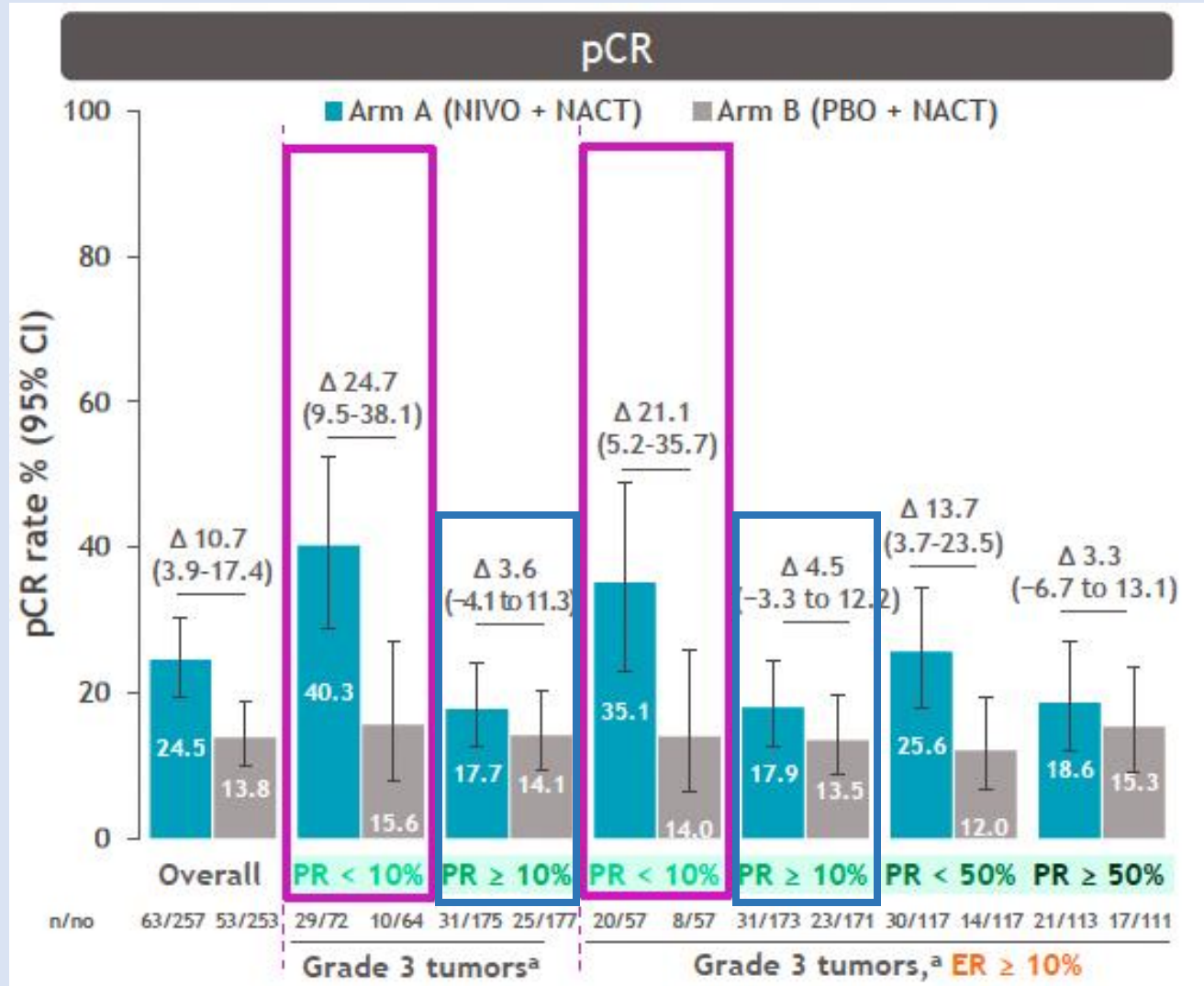
Moderate overlap (70-80%) between SP142 IC (≥1%) and CPS assay (cut-offs ≥1, ≥3, ≥10)

# CheckMate 7FL: Exploratory Biomarker of Response (SABCS 2023)



Nivo benefit highest in patients with tumors with lower ER (≤ 50%)

# CheckMate 7FL: Exploratory Biomarker of Response (SABCS 2023)



Nivo benefit highest in patients with tumors with low PR (< 10%) regardless of ER

- Greater Nivo benefit in pts with sTILs ≥ 1%
- No association between Nivo benefit and Ki67

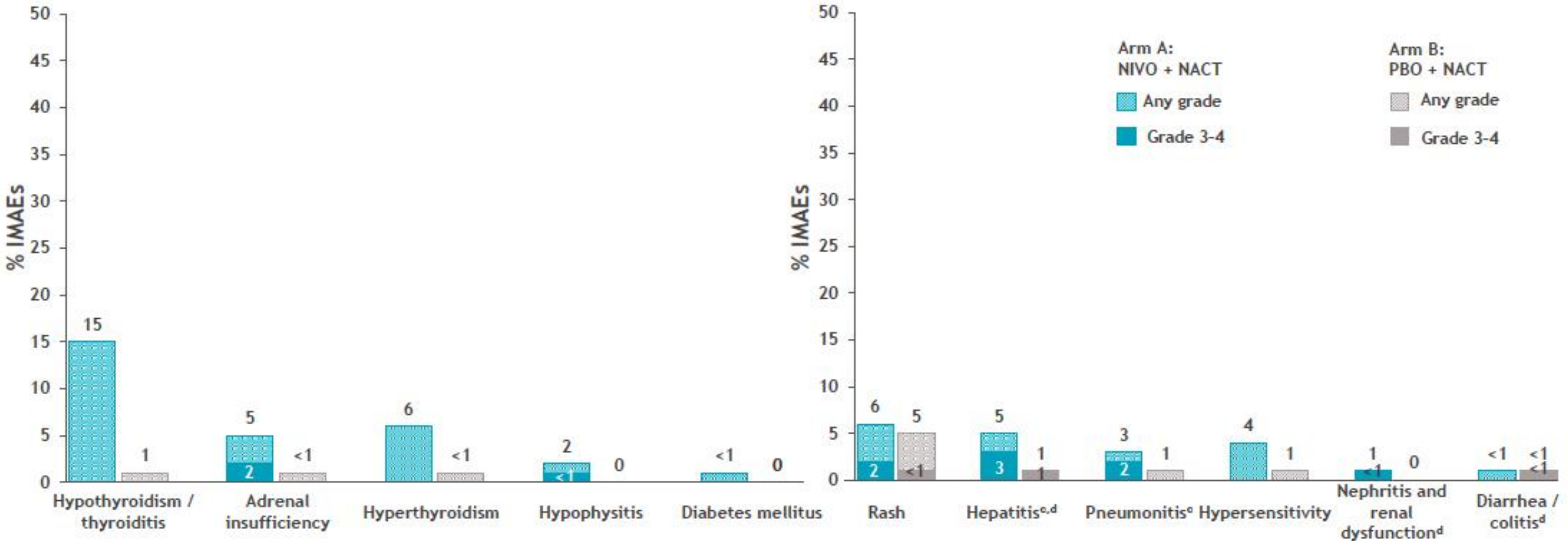


# CheckMate 7FL: Nivolumab in High Risk HR+/HER2- BC

IMAEs in neoadjuvant phase<sup>a</sup> in all treated patients (n = 517)

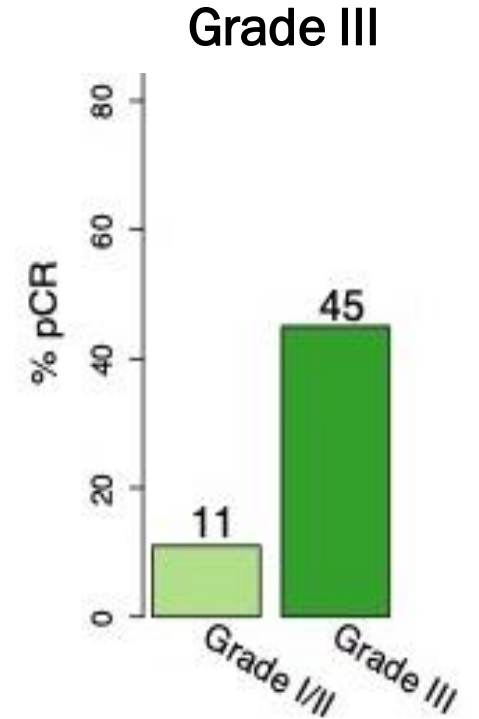
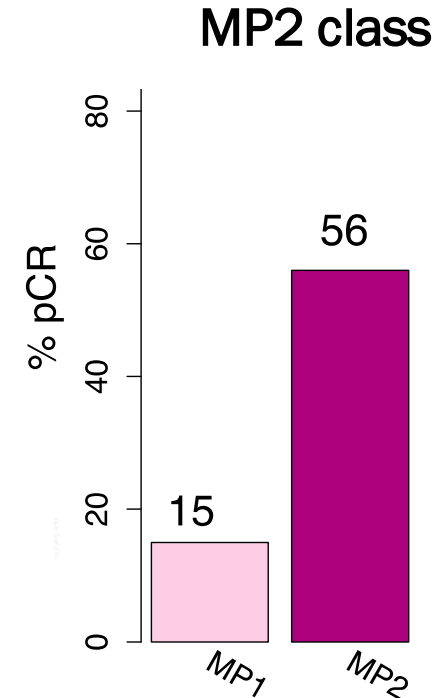
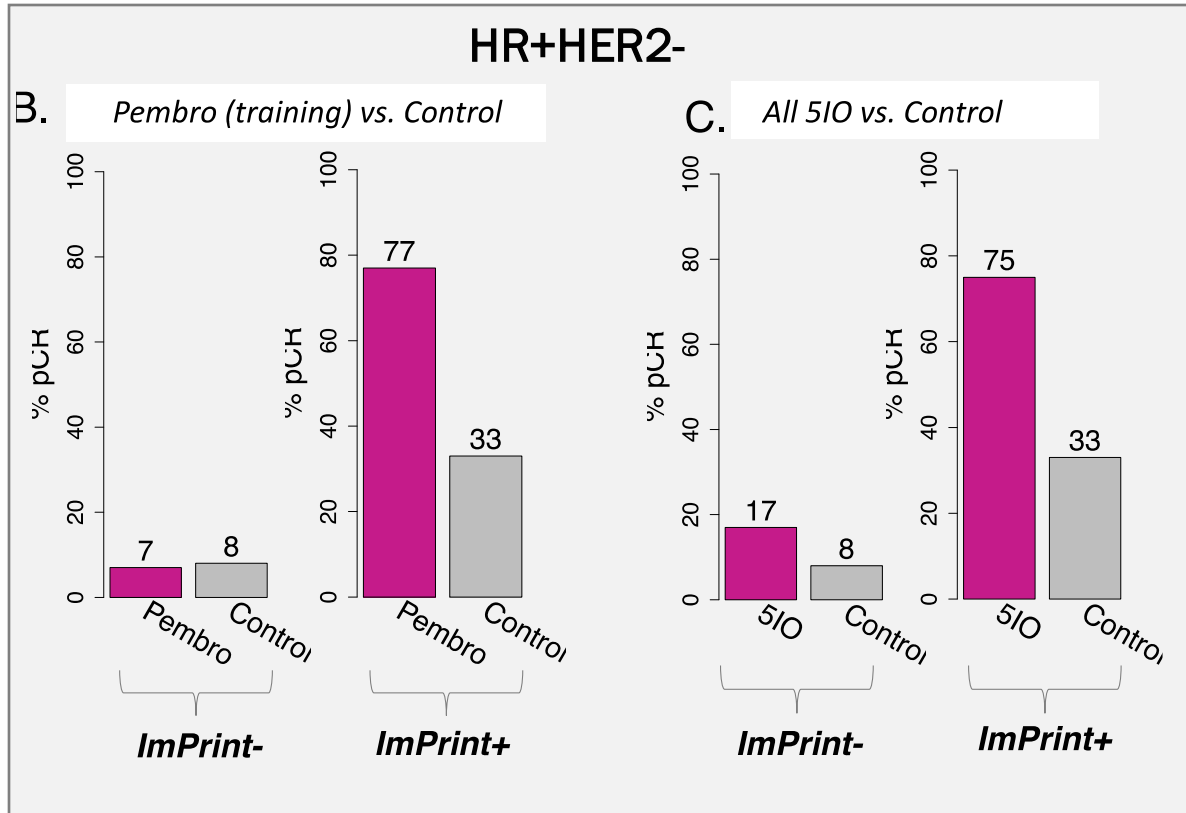
## Endocrine IMAEs<sup>b</sup>

## Non-endocrine IMAEs<sup>b</sup> where immunomodulation was initiated

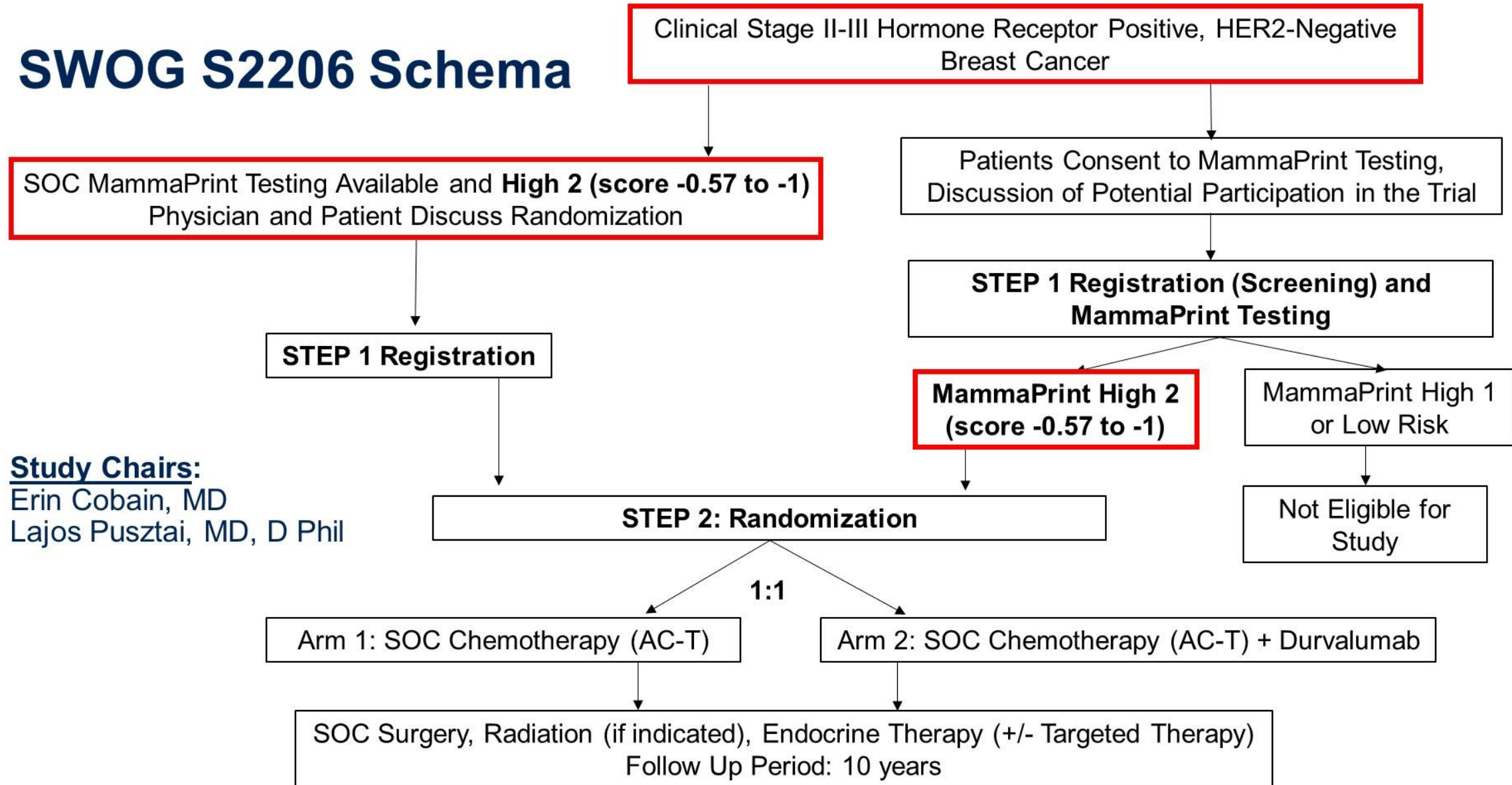


# ISPY2: Benefit of IO + Chemo in HR+/HER2-

- Developed immune-response predictive biomarker that classifies patients as ImPrint+ (likely sensitive) and ImPrint- (likely resistant)
- In pts with HR+/HER2- BC enrolled in IO arms of ISPY2 29% had ImPrint+
  - Significantly higher pCR with IO if ImPrint+ vs ImPrint-
  - ImPrint+ higher pCR with chemo alone vs ImPrint- (but greatest benefit from addition of IO in ImPrint+)



# SWOG S2206 Schema



## Study Chairs:

Erin Cobain, MD  
Lajos Pusztai, MD, D Phil

# **Updates in Adjuvant Therapy**

## **Role of CDK4/6 inhibitors**



BARCELONA  
2024

ESMO

congress

# Adjuvant Ribociclib Plus Nonsteroidal Aromatase Inhibitor in Patients With HR+/HER2- Early Breast Cancer: 4-Year Outcomes From the NATALEE Trial

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Chiun-Sheng Huang,<sup>4</sup> John Crown,<sup>5</sup> Aditya Bardia,<sup>6</sup> Stephen Chia,<sup>7</sup>  
Seock-Ah Im,<sup>8</sup> Miguel Martin,<sup>9</sup> Binghe Xu,<sup>10</sup> Sherene Loi,<sup>11</sup> Carlos Barrios,<sup>12</sup>  
Michael Untch,<sup>13</sup> Rebecca Moroos,<sup>14</sup> Frances Visco,<sup>15</sup> Gabriel N. Hortobagyi,<sup>16</sup>  
Dennis J. Slamon,<sup>6</sup> Yanina Oviedo,<sup>17</sup> Sorcha Waters,<sup>18</sup> Sara A. Hurvitz<sup>19</sup>

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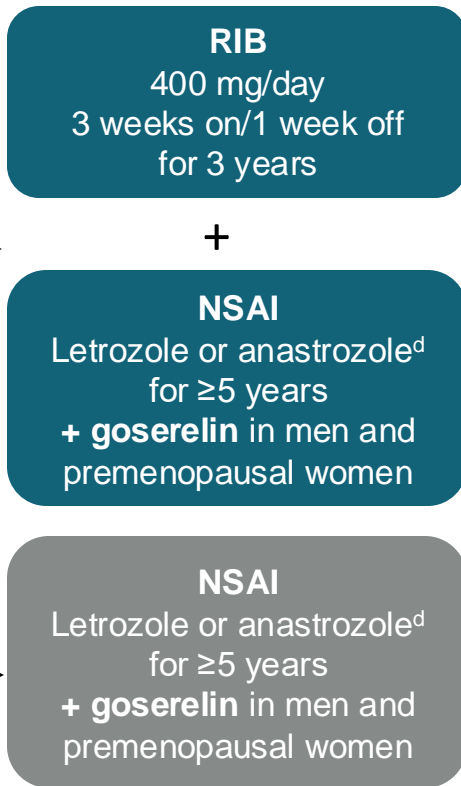
September 14, 2024



# NATALEE: Study Design and Methods

- Adult patients with HR+/**HER2**- EBC
  - Prior ET allowed ≤12 mo prior to randomization
  - **Anatomical stage IIA<sup>a</sup>**
    - **N0** with:
      - Grade 2 and evidence of high risk:
        - Ki-67 ≥20%
        - Oncotype DX Breast Recurrence Score ≥26 **or**
        - High risk via genomic risk profiling
      - Grade 3
    - **N1**
  - **Anatomical stage IIB<sup>a</sup>**
    - N0 or N1
  - **Anatomical stage III**
    - N0, N1, N2, or N3
- N = 5101<sup>b</sup>**

**R 1:1<sup>c</sup>**



- Primary End Point**
- iDFS using STEEP criteria
- Secondary End Points**
- Recurrence-free survival
  - Distant disease-free survival
  - OS
  - Safety and tolerability
  - PROs
  - PK
- Exploratory End Points**
- Locoregional recurrence-free survival
  - Gene expression and alterations in tumor ctDNA/ctRNA samples

**Endpoints included in this presentation**

Statistical comparisons were performed using a Cox proportional hazards model and the Kaplan-Meier method

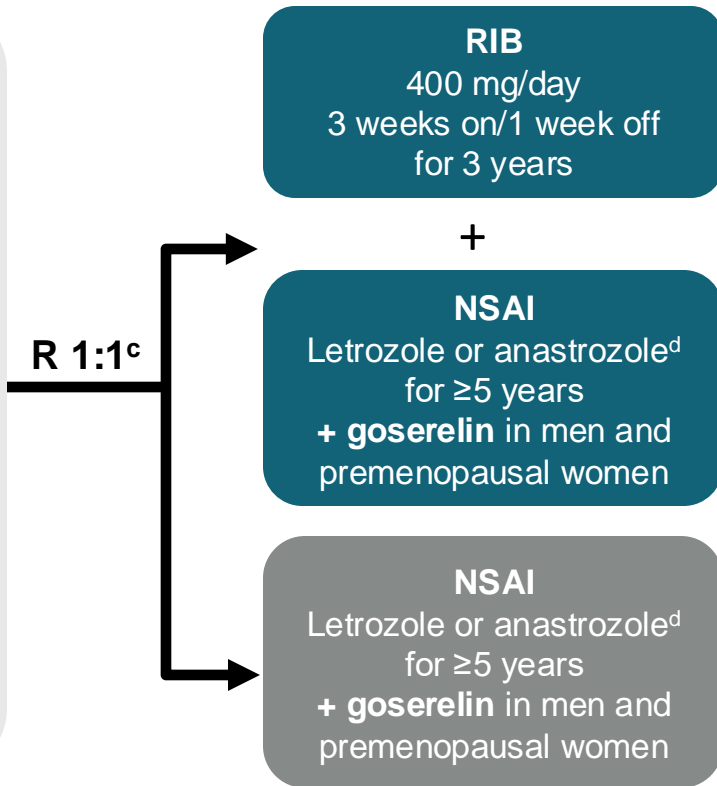
**Randomization stratification**  
**Anatomical stage:** II vs III  
**Menopausal status:** men and premenopausal women vs postmenopausal women  
**Receipt of prior (neo)adjuvant chemotherapy:** yes vs no  
**Geographic location:** North America/Western Europe/Oceania vs rest of world

**Data cutoff: 29 April 2024**

ctDNA/RNA, circulating tumor DNA/RNA; EBC, early breast cancer; ET, endocrine therapy; iDFS, invasive disease-free survival; N, node; NSAI, nonsteroidal aromatase inhibitor; OS, overall survival; PK, pharmacokinetics; PRO, patient-reported outcome; R, randomized; RIB, ribociclib; STEEP, Standardized Definitions for Efficacy End Points in Adjuvant Breast Cancer Trials.  
<sup>a</sup> Enrollment of patients with stage II disease was capped at 40%. <sup>b</sup> 5101 patients were randomized from 10 Jan 2019 to 20 April 2021. <sup>c</sup> Open-label design. <sup>d</sup> Per investigator choice.  
 1. ClinicalTrials.gov. Accessed March 15, 2024. <https://clinicaltrials.gov/ct2/show/NCT03701334>. 2. Slamon DJ, et al. Poster presented at: ASCO 2019. Poster TPS597. 3. Slamon DJ, et al. *Ther Adv Med Oncol.* 2023;15:1-16. 4. Hortobagyi, G, et al. Oral presentation at: SABCS 2023. Oral GS03-03.

# NATALEE: Study Design and Methods

- Adult patients with HR+/HER2- EBC
  - Prior ET allowed ≤12 mo prior to randomization
  - **T2N0:**
    - **G3 or**
    - **G2 with hi risk feature**
      - Ki67 ≥ 20% or
      - ODX RS ≥ 26 or high risk by other genomic profiling
  - **All pts with T3N0**
  - **All pts with LN+ disease** (T1N1mi not eligible)
- N = 5101<sup>b</sup>**



- Primary End Point**
- iDFS using STEEP criteria
- Secondary End Points**
- Recurrence-free survival
  - Distant disease-free survival
  - OS
  - Safety and tolerability
  - PROs
  - PK
- Exploratory End Points**
- Locoregional recurrence-free survival
  - Gene expression and alterations in tumor ctDNA/ctRNA samples

**Endpoints included in this presentation**

Statistical comparisons were performed using a Cox proportional hazards model and the Kaplan-Meier method

**Randomization stratification**  
**Anatomical stage:** II vs III  
**Menopausal status:** men and premenopausal women vs postmenopausal women  
**Receipt of prior (neo)adjuvant chemotherapy:** yes vs no  
**Geographic location:** North America/Western Europe/Oceania vs rest of world

- Key patient characteristics:**
- Median age 52; ~44% premenopausal
  - Stage IIA: 20%; IIB: 20%; III: 60%
  - N0: 28%; N1: 41%; N2/N3: 19%
  - Prior chemo: 88%

ctDNA/RNA, circulating tumor DNA/RNA; EBC, early breast cancer; ET, endocrine therapy; iDFS, invasive disease-free survival; N, node; NSAI, nonsteroidal aromatase inhibitor; R, randomized; RIB, ribociclib; STEEP, Standardized Definitions for Efficacy End Points in Adjuvant Breast Cancer Trials.  
<sup>a</sup> Enrollment of patients with stage II disease was capped at 40%. <sup>b</sup> 5101 patients were randomized from 10 Jan 2019 to 20 April 2021. <sup>c</sup> Open-label  
 1. ClinicalTrials.gov. Accessed March 15, 2024. <https://clinicaltrials.gov/ct2/show/NCT03701334>. 2. Slamon DJ, et al. Poster presented at: ASCO 2023. Oral GS03-03.

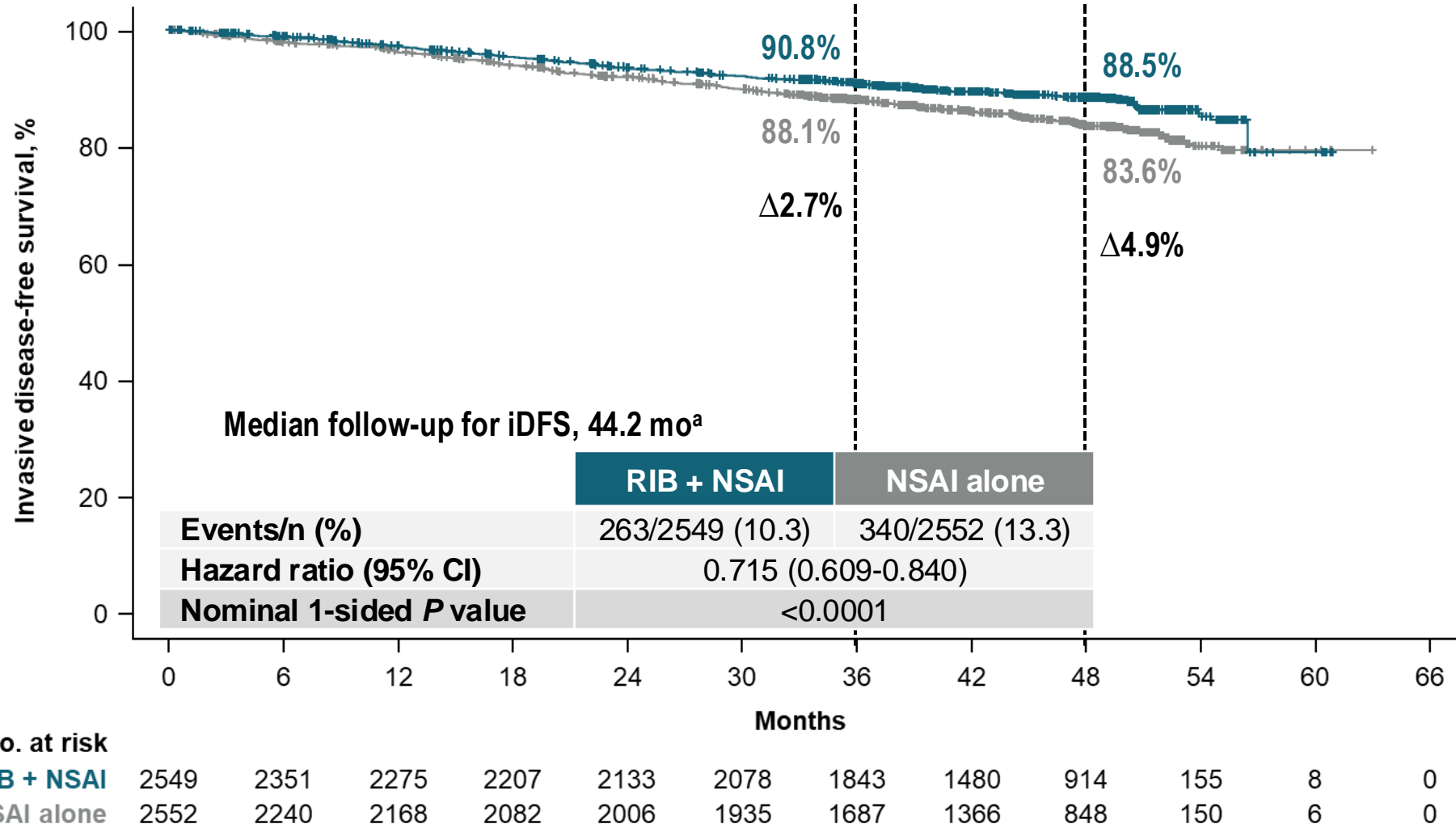
# NATALEE iDFS Analyses Over Time

Analysis time points	Second interim efficacy analysis <sup>1</sup>	Protocol-specified final iDFS analysis <sup>2</sup>	4-year landmark analysis
Data cutoff	11 January 2023	21 July 2023	29 April 2024
Median follow-up for iDFS, months	27.7	33.3	44.2
iDFS events, n	426	509	603
Off RIB treatment, %	54.0	78.3	100
Completed 3 years of RIB treatment, %	20.2	42.8	62.8
Presentation	ASCO 2023	SABCS 2023	ESMO 2024

At data cutoff, median duration of exposure to study treatment was 45.1 mos RIB + NSAI vs 45.0 mos NSAI alone arm

# iDFS in ITT Population

Significant iDFS benefit with RIB + NSAID after the planned 3-y treatment



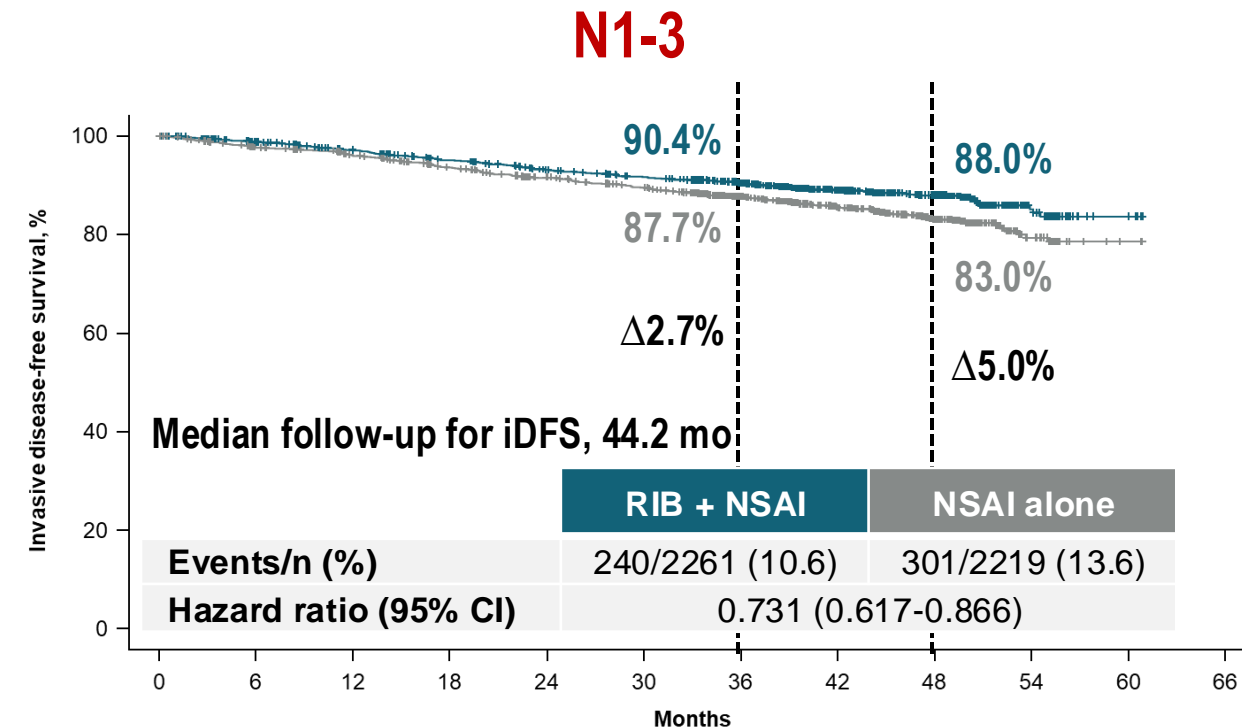
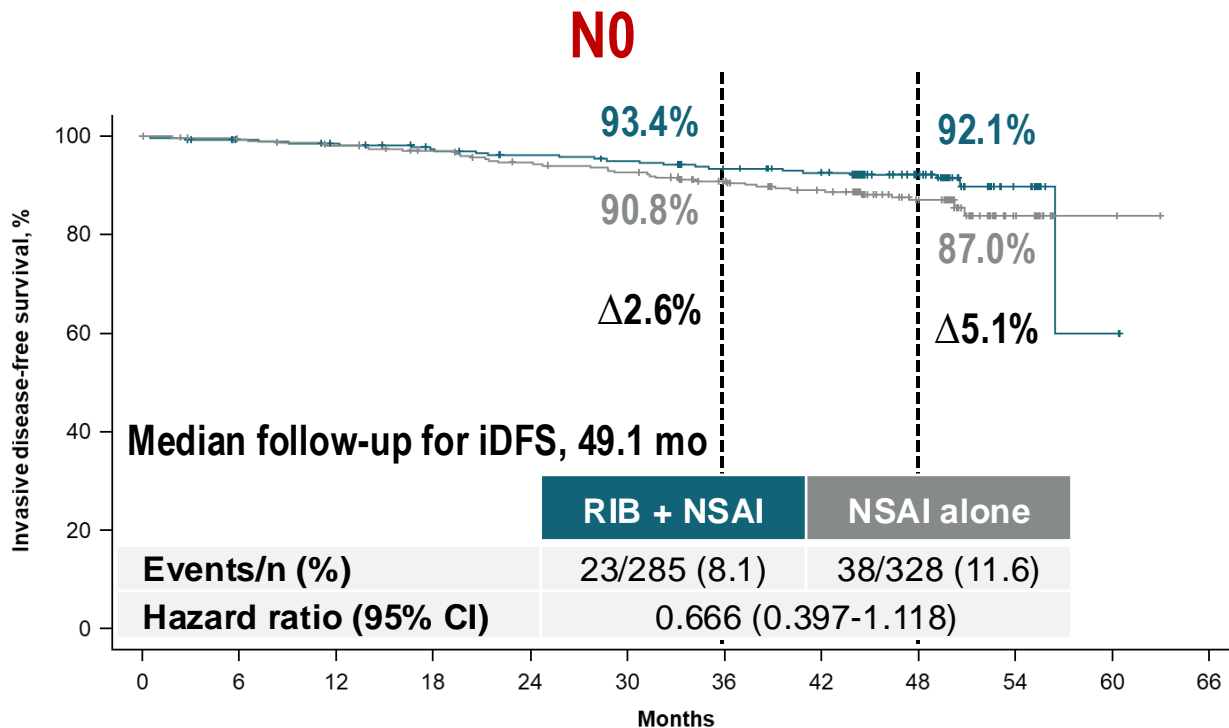
iDFS, invasive disease-free survival; ITT, intent to treat; NSAID, nonsteroidal aromatase inhibitor; RIB, ribociclib.

<sup>a</sup> An additional 10.9 months of follow-up compared with the protocol-specified final iDFS analysis.



# iDFS by Nodal Status

RIB + NSAI showed an increasing magnitude of iDFS benefit over time for N0 or N1-3 disease



	0	6	12	18	24	30	36	42	48	54	60	66
<b>No. at risk</b>												
<b>RIB + NSAI</b>	285	262	258	250	244	240	230	221	156	37	2	0
<b>NSAI alone</b>	328	300	294	287	277	270	252	234	156	33	2	0

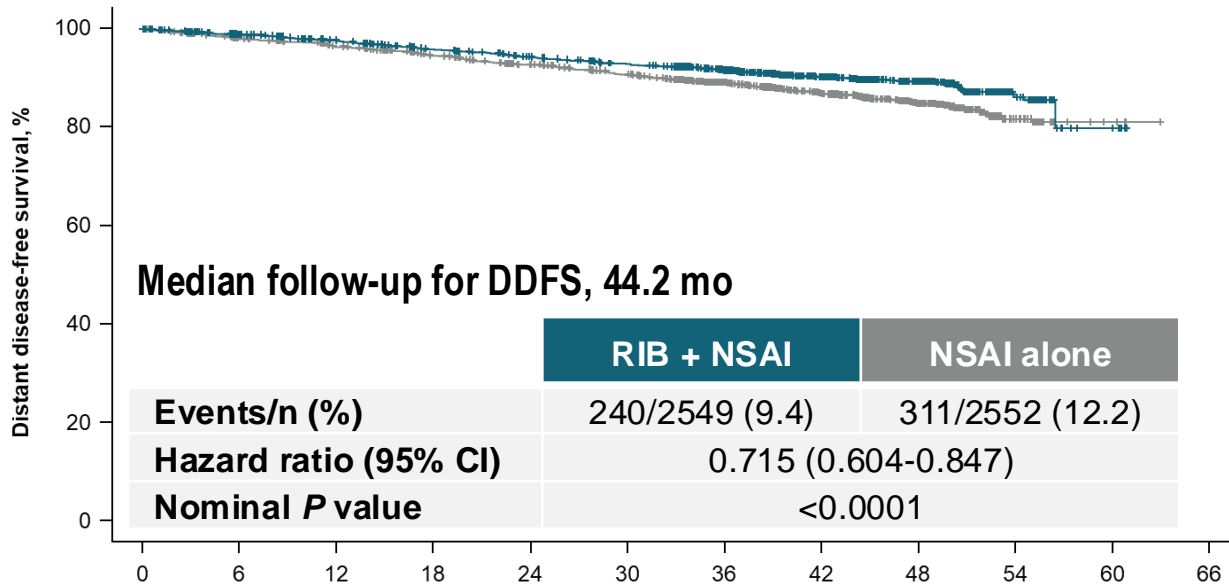
	0	6	12	18	24	30	36	42	48	54	60	66
<b>No. at risk</b>												
<b>RIB + NSAI</b>	2261	2086	2014	1954	1886	1835	1612	1258	758	118	6	0
<b>NSAI alone</b>	2219	1937	1872	1793	1727	1663	1433	1130	689	117	4	0

iDFS, invasive disease-free survival; N, node; NSAI, nonsteroidal aromatase inhibitor; RIB, ribociclib.

# Key Secondary Efficacy Endpoints

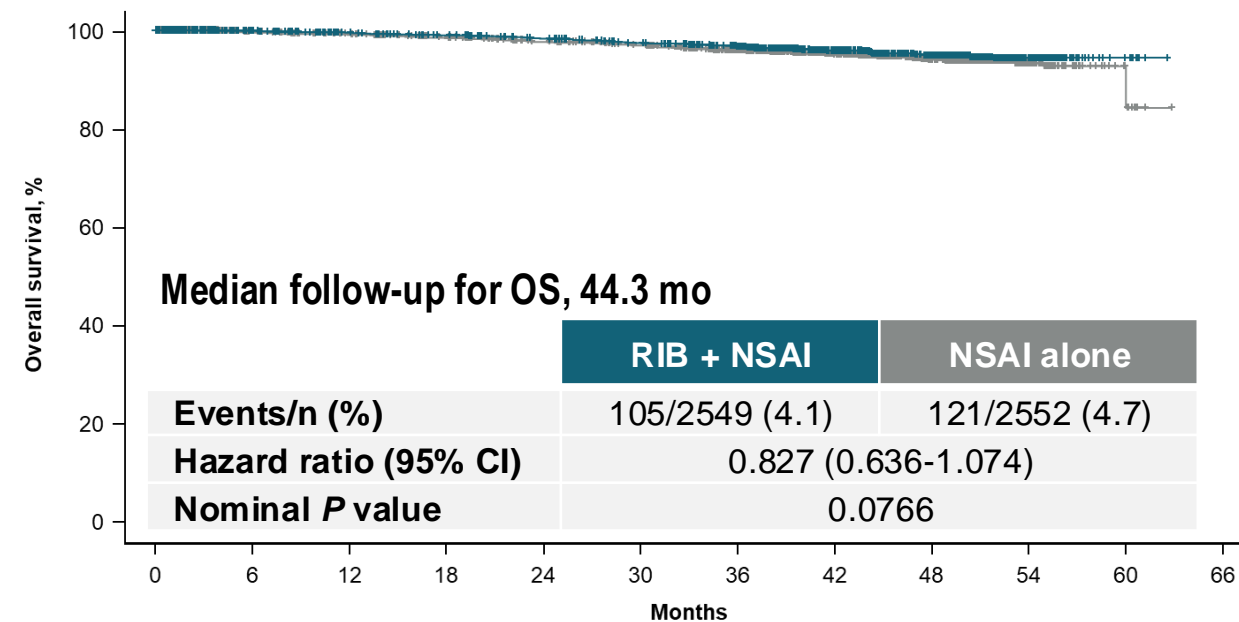
RIB + NSAI continued to improve DDFS and showed a positive trend for OS

## DDFS



No. at risk	Months											
	0	6	12	18	24	30	36	42	48	54	60	66
RIB + NSAI	2549	2353	2282	2215	2146	2089	1854	1487	918	155	8	0
NSAI alone	2552	2244	2171	2093	2021	1949	1701	1376	856	152	6	0

## OS



No. at risk	Months											
	0	6	12	18	24	30	36	42	48	54	60	66
RIB + NSAI	2549	2404	2336	2300	2260	2217	2080	1648	1032	195	11	0
NSAI alone	2552	2302	2256	2210	2164	2117	1945	1571	991	204	13	0

DDFS, distant disease-free survival; NSAI, nonsteroidal aromatase inhibitor; OS, overall survival; RIB, ribociclib.

## Incidence of AEs remained stable from prior analyses

AESIs, %	RIB + NSAI n=2526		NSAI alone n=2441	
	Any grade	Grade ≥3	Any grade	Grade ≥3
Neutropenia <sup>a</sup>	62.8	44.4	4.5	0.9
Febrile neutropenia	0.3	0.3	0	0
Liver-related AEs <sup>b</sup>	26.7	8.6	11.4	1.7
QT interval prolongation <sup>c</sup>	5.4	1.0	1.6	0.7
ECG QT prolonged	4.4	0.2	0.8	<0.1
Interstitial lung disease/pneumonitis <sup>d</sup>	1.6	0	0.9	0.1
<b>Clinically relevant AEs, %</b>				
Arthralgia	38.8	1.0	44.4	1.3
Nausea	23.5	0.2	7.9	<0.1
Headache	22.9	0.4	17.2	0.2
Fatigue	22.8	0.8	13.5	0.2
Diarrhea	14.6	0.6	5.5	0.1
VTE <sup>e</sup>	1.1	0.6	0.5	0.3

- Rates of discontinuation due to AEs (20.0%) remained stable through all of the data cuts, with a <1.0% increase from the previous cutoff<sup>1,2</sup>
- Liver-related AEs were predominately ALT/AST elevations without concomitant bilirubin increase

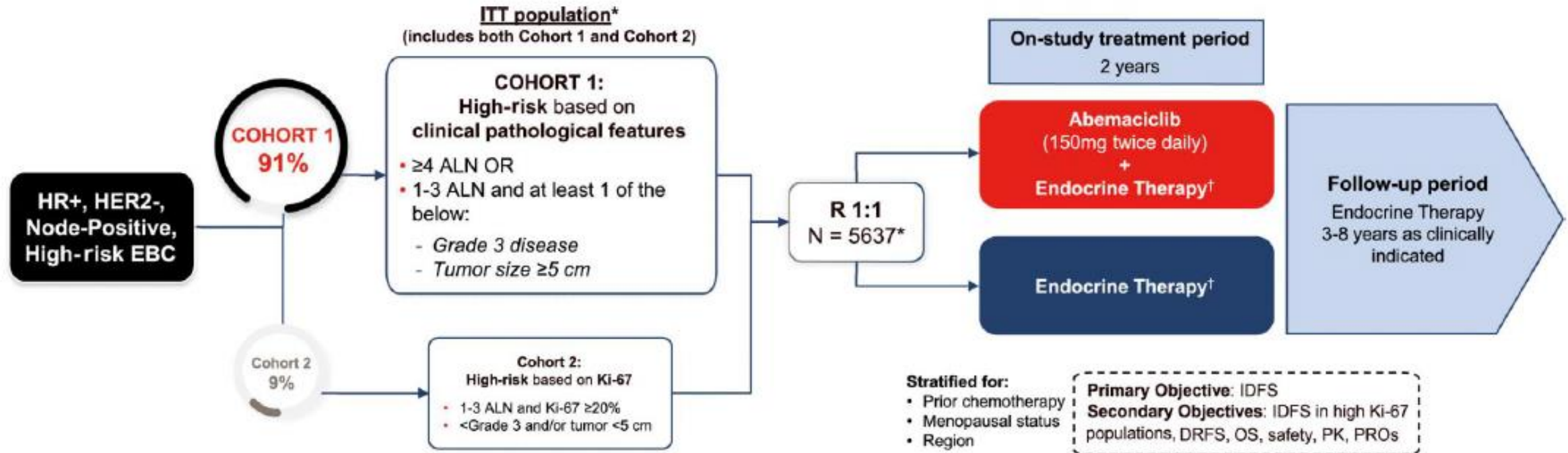
AE, adverse event; AESI, adverse event of special interest; ALT, alanine aminotransferase; AST, aspartate aminotransferase; ECG, electrocardiogram; MedDRA, Medical Dictionary for Regulatory Activities; VTE, venous thromboembolism.

<sup>a</sup> Grouped term that combines neutropenia and neutrophil count decreased. <sup>b</sup> Grouped term that includes all preferred terms identified by standardized MedDRA queries for drug-related hepatic disorders. <sup>c</sup> Grouped term. <sup>d</sup> Grouped term that includes all preferred terms identified by standardized MedDRA queries for interstitial lung disease. <sup>e</sup> Grouped term that includes all preferred terms identified by standardized MedDRA queries for venous thromboembolism.

1. Slamon D, et al. *N Eng J Med.* 2024;390(12):1080-1091. 2. Hortobagyi G, et al. Oral presentation at: SABCS 2023. Oral GS03-03.



# monarchE: Study Design



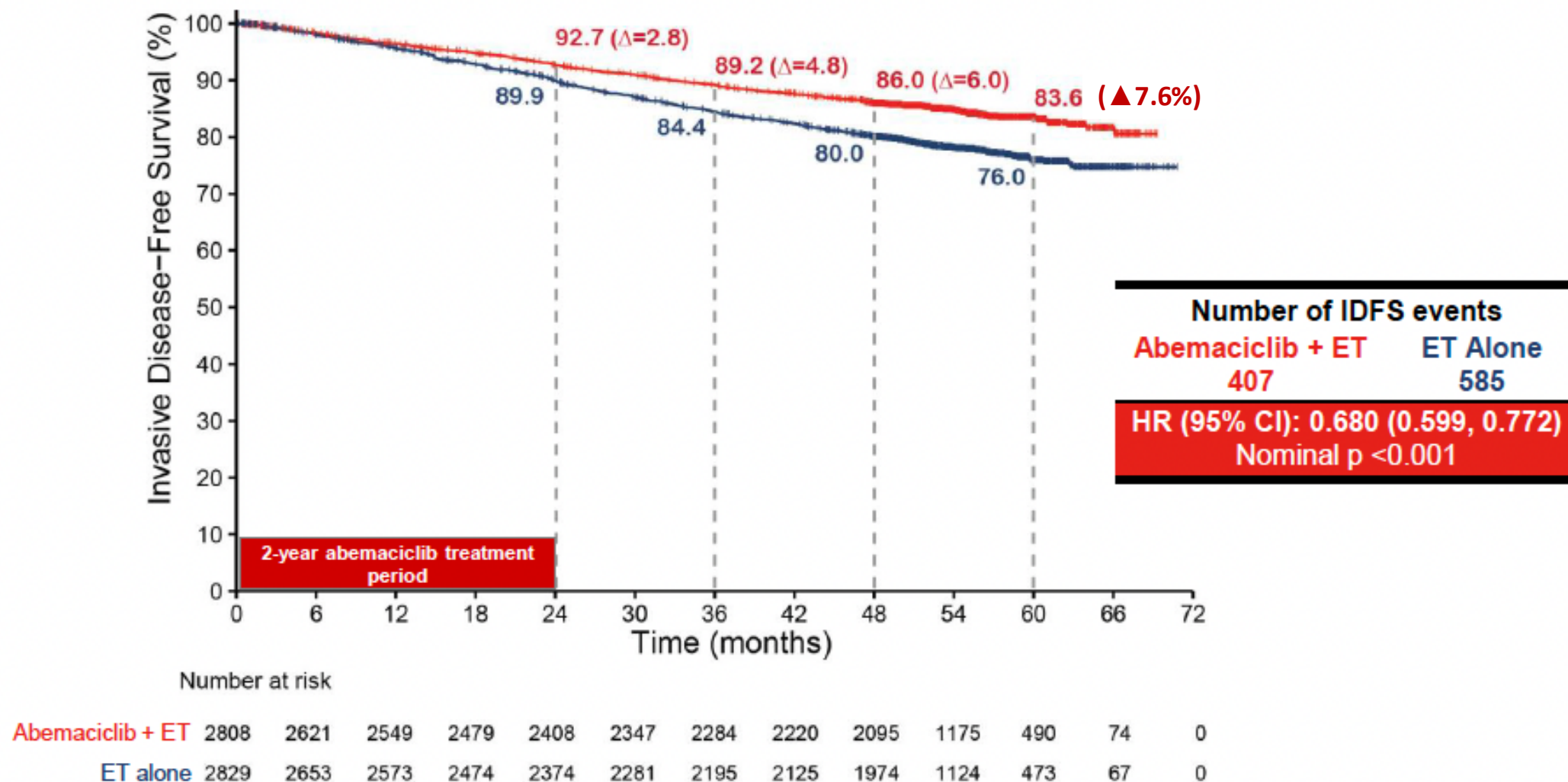
\*Recruitment from July 2017 to August 2019.

†Endocrine therapy of physician's choice [e.g., aromatase inhibitors, tamoxifen, GnRH agonist].

- Median Age: 51 (15% age 65+)
- 40% N1; 60% N2
- 95% prior (neo)adjuvant chemo

- Here, we report 5-year efficacy results from a prespecified monarchE analysis
  - Data cutoff July 3<sup>rd</sup>, 2023
- Extent of follow-up at OS IA3 allows for robust estimation of IDFS and DRFS at the critical 5-year landmark
- Median follow-up time is 4.5 years (54 months)
- All patients are off abemaciclib
  - More than 80% of patients have been followed for at least 2 years since completing abemaciclib

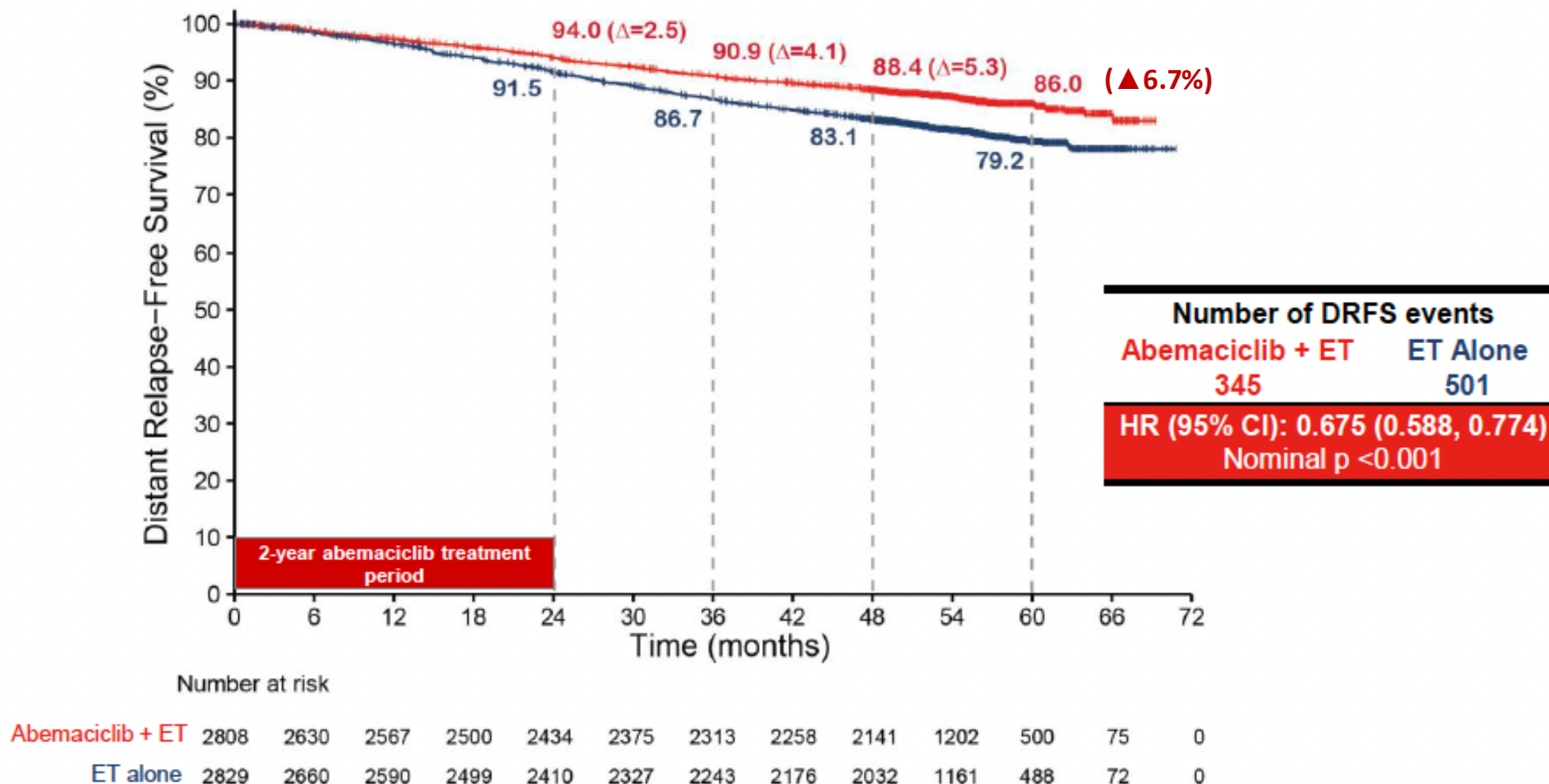
# Sustained IDFS Benefit in ITT – 5 year



**32% reduction in the risk of developing an IDFS event.**

**The KM curves continue to separate and the absolute difference in IDFS rates between arms was 7.6% at 5 years**

# Sustained DRFS Benefit in ITT - 5 year

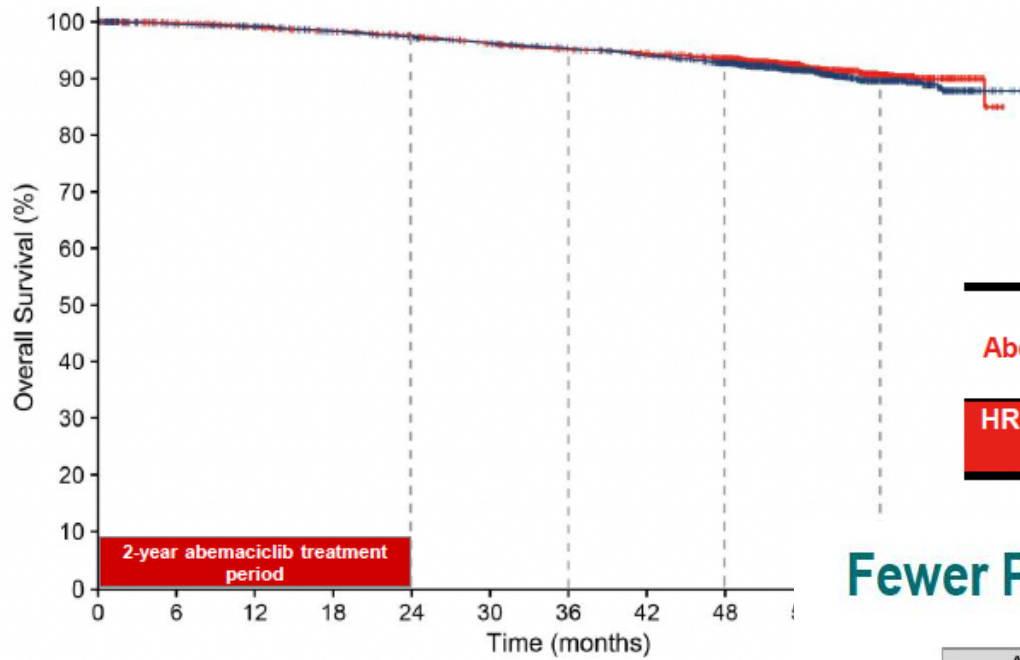


**32.5% reduction in the risk of developing a DRFS event.**

**The KM curves continue to separate and the absolute difference in DRFS rates between arms was 6.7% at 5 years**



# monarchE – 5 year OS



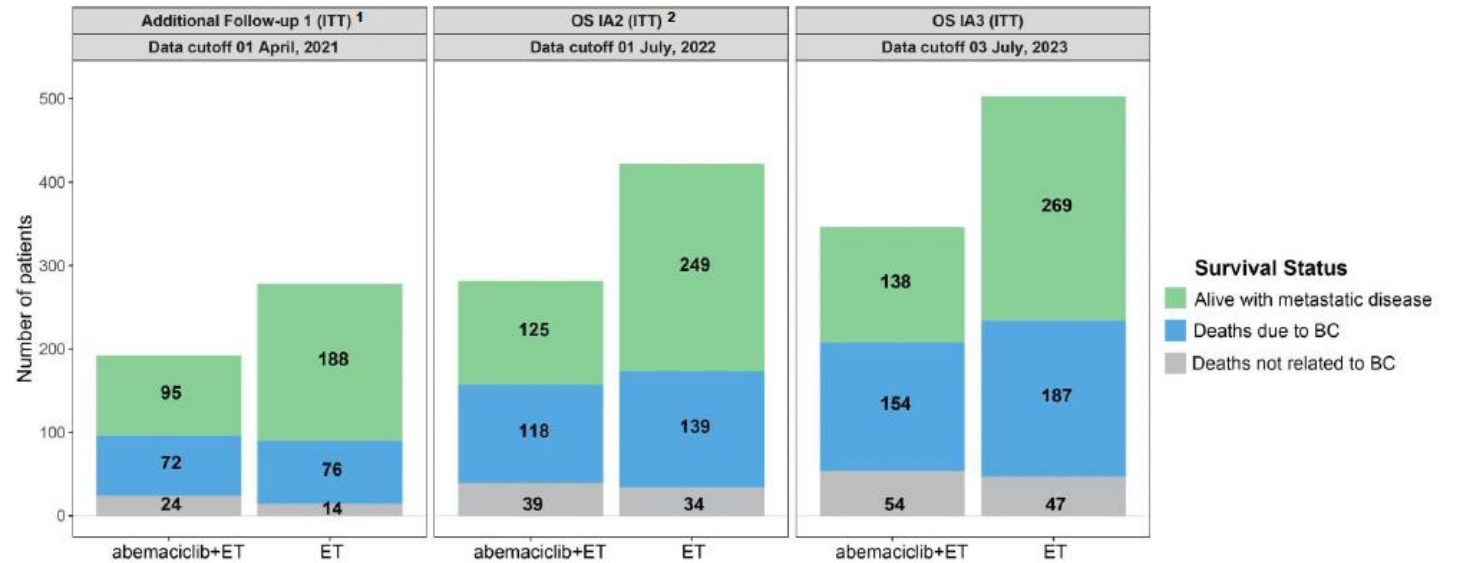
**Number of OS events**  
**Abemaciclib + ET** 208    **ET Alone** 234  
**HR (95% CI): 0.903 (0.749, 1.088)**  
**p=0.284**

Number at risk

	0	6	12	18	24	30	36	42	48	54
Abemaciclib + ET	2808	2666	2614	2566	2518	2455	2407	2373	2260	1
ET alone	2829	2705	2664	2599	2545	2496	2440	2382	2243	1

**FDA Label: Now approved regardless of Ki67 status**

## Fewer Patients with Metastatic Disease in the Abemaciclib Arm

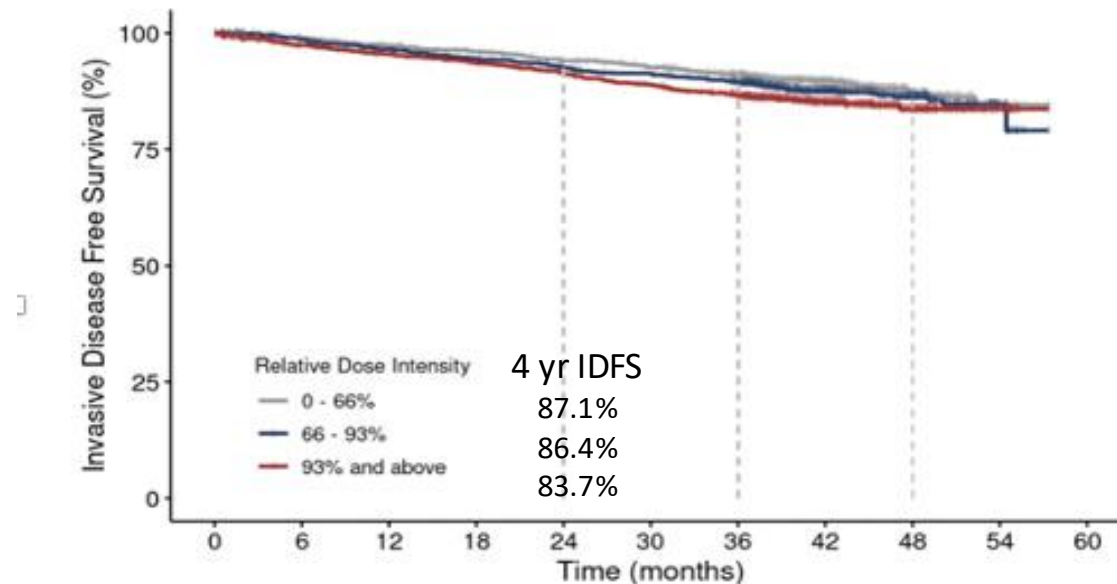


The imbalance of incurable metastatic recurrence continues to be substantial at OS IA3

# monarchE – Impact of Age on Efficacy and Safety

- Patients 65+
  - Similar efficacy benefits in 65+ vs < 65
  - Similar rates of A/Es; QoL same across age groups
  - More dose adjustments
    - Reductions: 55% vs 42%
    - Discontinuations: 38% vs 15% (D/C w/o prior dose reductions: 19% vs 8%)
- **Benefit abema maintained with dose reductions**

IDFS according to RDI in patients treated with abemaciclib



# OFSET Trial (BR009): Schema

- Premenopausal; HR+/HER2- BC
- pN0 with RS 16-20 (high clinical risk) or RS 21-25
  - pN1 with RS 0-25

## Stratification

- Nodal Status (pN0 vs. pN1)
- RS (0-15 vs. 16-25)

## Randomization

**N=3,960**

**Chemotherapy +  
Ovarian Function  
Suppression +  
Aromatase Inhibitor\*  
X 5 Years**

**Ovarian Function  
Suppression +  
Aromatase Inhibitor\*  
X 5 Years**

**\* Tamoxifen can be used if AI is not tolerated**

# Summary

- Emerging benefit of IO for high risk early stage HR+/HER2 negative
  - Need markers to identify which patients to treat
- Adjuvant CDK4/6i
  - Clear benefit of Abemaciclib for high-risk LN+
  - Mounting data on role of ribociclib including lower risk patients (higher risk LN-; all LN+)



Thank you.....





