

# Pearls from ESMO

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# Disclosure

- Honoraria, consulting and/or travel funds:
  - Roche, Novartis, Eli Lilly, Astrazeneca, Takeda, Ipsen, Eisai, Pfeizer, GE, MSD



## Back From Monaco

Impassion 130

Solar-1

Paloma-3

HOBOE-2

## Atezolizumab and Nab-Paclitaxel in Advanced Triple-Negative Breast Cancer

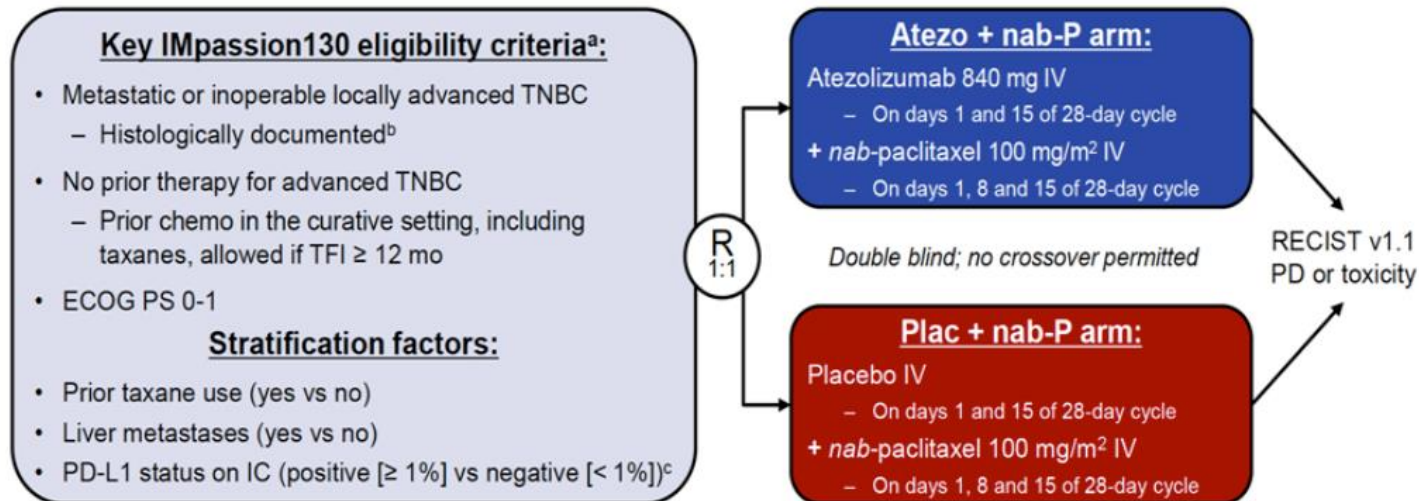
P. Schmid, S. Adams, H.S. Rugo, A. Schneeweiss, C.H. Barrios, H. Iwata, V. Diéras, R. Hegg, S.-A. Im, G. Shaw Wright, V. Henschel, L. Molinero, S.Y. Chui, R. Funke, A. Husain, E.P. Winer, S. Loi, and L.A. Emens, for the IMpassion130 Trial Investigators\*

N Engl J Med 2018;379:2108-21.



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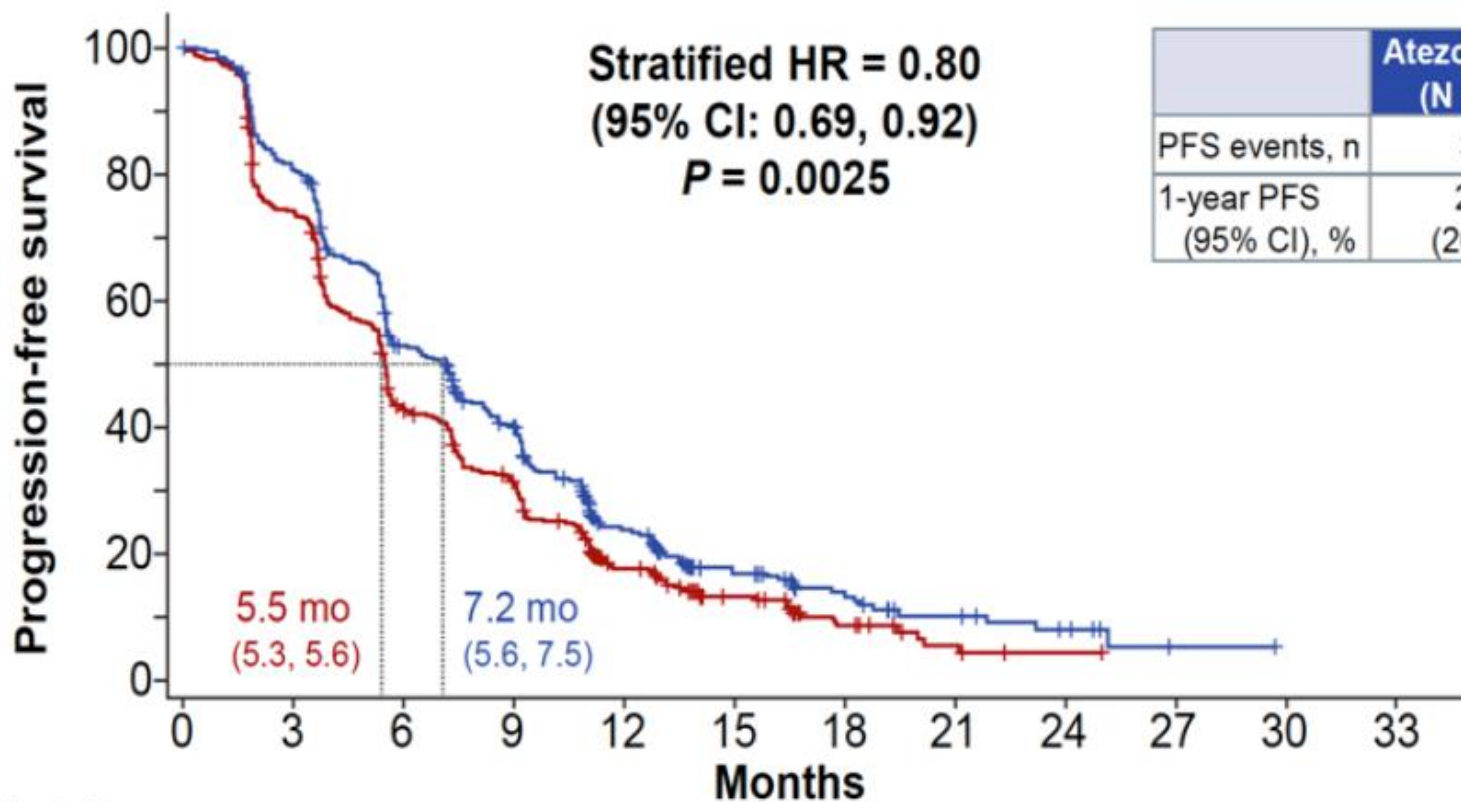
### IMpassion130 study design



- Co-primary endpoints were PFS and OS in the ITT and PD-L1+ populations<sup>d</sup>
  - Key secondary efficacy endpoints (ORR and DOR) and safety were also evaluated

IC, tumour-infiltrating immune cell; TFI, treatment-free interval. <sup>a</sup> ClinicalTrials.gov: NCT02425891. <sup>b</sup> Locally evaluated per ASCO–College of American Pathologists (CAP) guidelines. <sup>c</sup> Centrally evaluated per VENTANA SP142 IHC assay (double blinded for PD-L1 status). <sup>d</sup> Radiological endpoints were investigator assessed (per RECIST v1.1).

# Primary PFS analysis: ITT population



	Atezo + nab-P (N = 451)	Plac + nab-P (N = 451)
PFS events, n	358	378
1-year PFS (95% CI), %	24% (20, 28)	18% (14, 21)

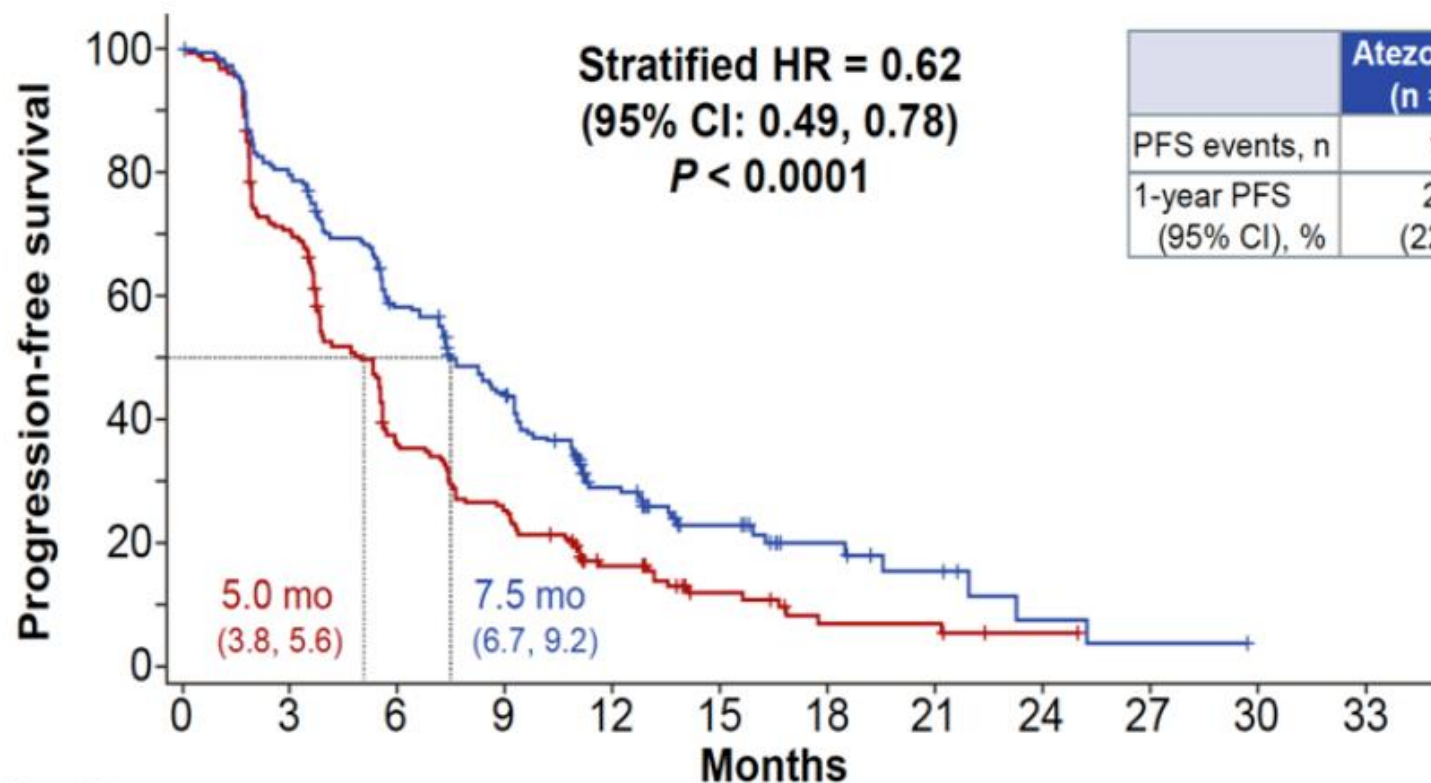
No. at risk:

	0	3	6	9	12	15	18	21	24	27	30	33
Atezo + nab-P	451	360	226	164	77	34	20	11	6	1	NE	NE
Plac + nab-P	451	327	183	130	57	29	13	5	1	NE	NE	NE

NE, not estimable. Data cutoff: 17 April 2018. Median PFS durations (and 95% CI) are indicated on the plot. Median follow-up (ITT): 12.9 months.

Schmid P, et al. IMpassion130  
 ESMO 2018 (LBA1\_PR)  
<http://bit.ly/2DMhayg>

# Primary PFS analysis: PD-L1+ population



	Atezo + nab-P (n = 185)	Plac + nab-P (n = 184)
PFS events, n	138	157
1-year PFS (95% CI), %	29% (22, 36)	16% (11, 22)

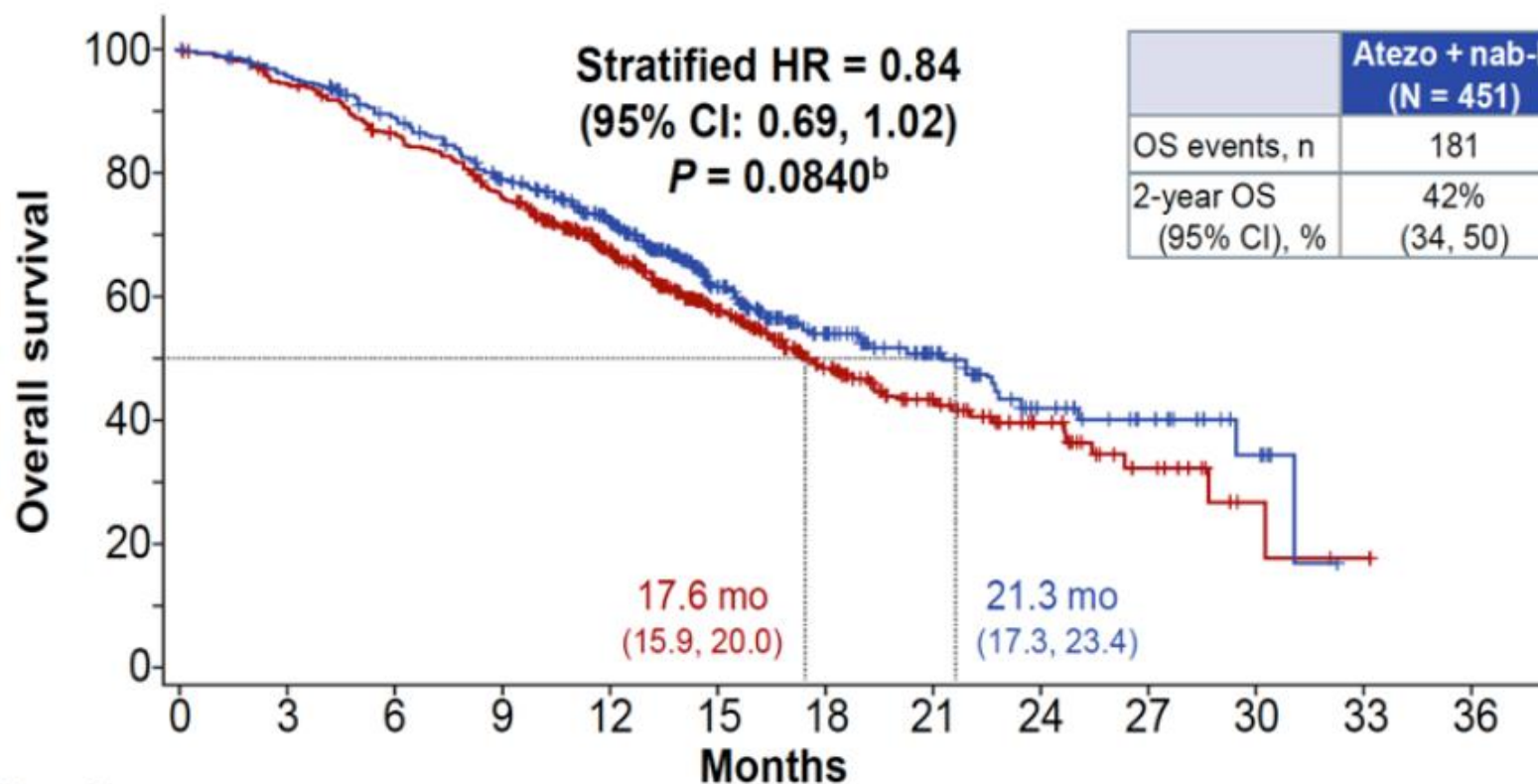
No. at risk:

	0	3	6	9	12	15	18	21	24	27	30	33
Atezo + nab-P	185	146	104	75	38	19	10	6	2	1	NE	NE
Plac + nab-P	184	127	62	44	22	11	5	5	1	NE	NE	NE

Data cutoff: 17 April 2018.

Schmid P, et al. IMpassion130  
 ESMO 2018 (LBA1\_PR)  
<http://bit.ly/2DMhayg>

# Interim OS analysis: ITT population<sup>a</sup>

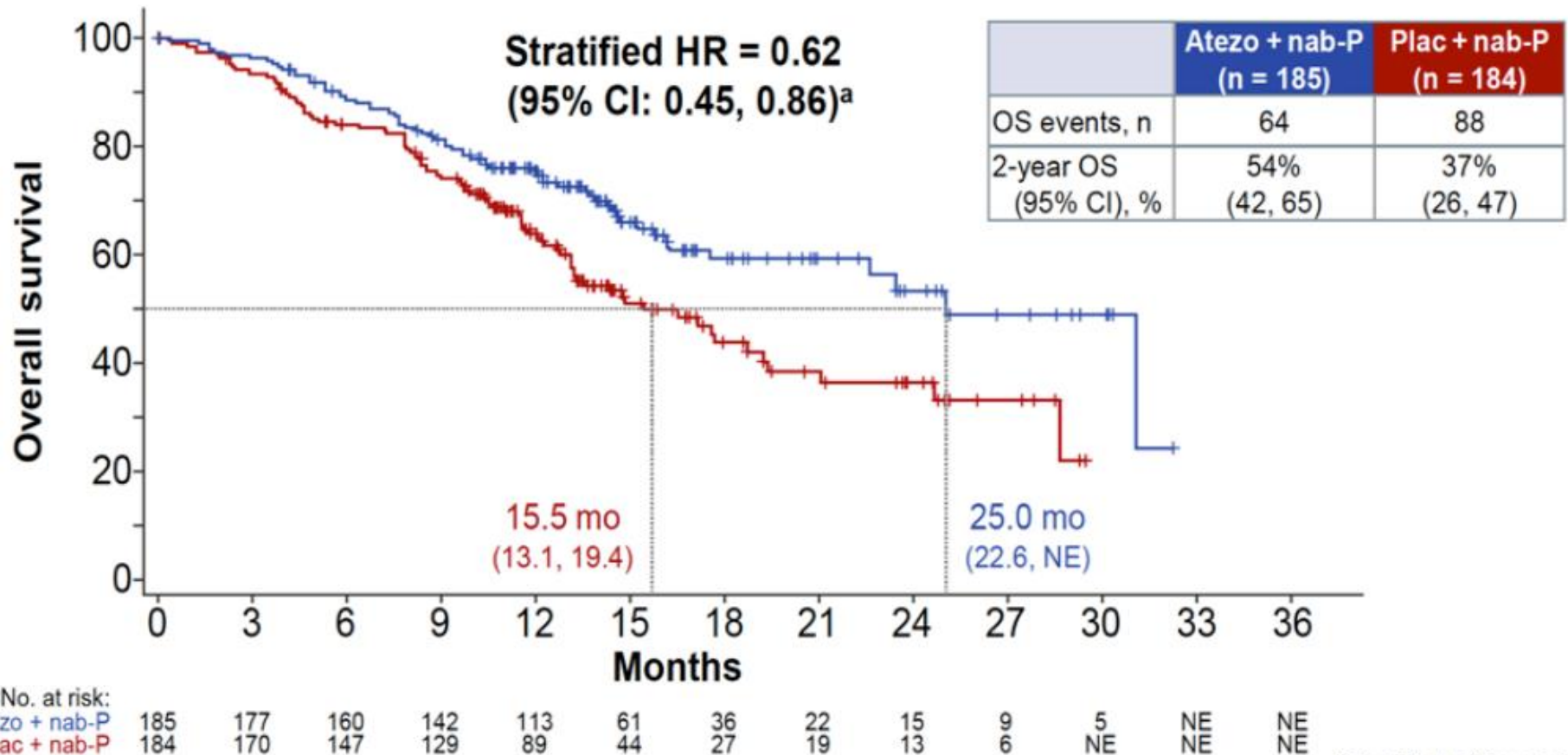


No. at risk:	0	3	6	9	12	15	18	21	24	27	30	33	36
Atezo + nab-P	451	426	389	337	271	146	82	48	26	15	6	NE	NE
Plac + nab-P	451	419	375	328	246	145	89	52	27	12	3	1	NE

Data cutoff: 17 April 2018. Median OS durations (and 95% CI) are indicated on the plot. Median follow-up (ITT): 12.9 months.

<sup>a</sup>For the interim OS analysis, 59% of death events had occurred. <sup>b</sup>Significance boundary was not crossed.

# Interim OS analysis: PD-L1+ population



Data cutoff: 17 April 2018. Median OS durations (and 95% CI) are indicated on the plot. <sup>a</sup> Not formally tested.

Schmid P, et al. IMpassion130  
 ESMO 2018 (LBA1\_PR)  
<http://bit.ly/2DMhayg>



# AESIs suggestive of potential immune-related aetiology

AESI, n (%) <sup>a</sup>	Atezo + nab-P (n = 452)		Plac + nab-P (n = 438)	
	Any Grade	Grade 3-4	Any Grade	Grade 3-4
All	259 (57%)	34 (8%)	183 (42%)	19 (4%)
<b>Important AESIs</b>				
Hepatitis (all)	69 (15%)	23 (5%)	62 (14%)	13 (3%)
Hepatitis (diagnosis)	10 (2%)	6 (1%)	7 (2%)	1 (< 1%)
Hepatitis (lab abnormalities)	62 (14%)	17 (4%)	58 (13%)	12 (3%)
Hypothyroidism	78 (17%)	0	19 (4%)	0
Hyperthyroidism	20 (4%)	1 (< 1%)	6 (1%)	0
Pneumonitis	14 (3%)	1 (< 1%)	1 (< 1%)	0
Meningoencephalitis <sup>b</sup>	5 (1%)	0	2 (< 1%)	0
Colitis	5 (1%)	1 (< 1%)	3 (1%)	1 (< 1%)
Adrenal insufficiency	4 (1%)	1 (< 1%)	0	0
Pancreatitis	2 (< 1%)	1 (< 1%)	0	0
Diabetes mellitus	1 (< 1%)	1 (< 1%)	2 (< 1%)	1 (< 1%)
Nephritis	1 (< 1%)	0	0	0
<b>Other AESIs<sup>c</sup></b>				
Rash	154 (34%)	4 (1%)	114 (26%)	2 (< 1%)
Infusion-related reactions	5 (1%)	0	5 (1%)	0

- 1 grade 5 AESI per arm (both treatment related):
  - Atezo + nab-P: autoimmune hepatitis
  - Plac + nab-P: hepatic failure
- All hypothyroidism AESIs were grade 1-2; none led to discontinuation
  - Atezo + nab-P: 17%
  - Plac + nab-P: 4%
- Pneumonitis was infrequent with only 1 grade 3-4 event in the Atezo + nab-P arm
  - Atezo + nab-P: 3%
  - Plac + nab-P: < 1%
- Hepatitis rates were balanced

AESI, adverse event of special interest. Data cutoff: 17 April 2018. <sup>a</sup> Baskets of preferred terms according to medical concepts. <sup>b</sup> All events of photophobia. <sup>c</sup> Includes all AESIs occurring in ≥ 1% of patients in either arm.



ORIGINAL ARTICLE

## Atezolizumab and Nab-Paclitaxel in Advanced Triple-Negative Breast Cancer

P. Schmid, S. Adams, H.S. Rugo, A. Schneeweiss, C.H. Barrios, H. Iwata, V. Diéras, R. Hegg, S.-A. Im, G. Shaw Wright, V. Henschel, L. Molinero, S.Y. Chui, R. Funke, A. Husain, E.P. Winer, S. Loi, and L.A. Emens, for the IMpassion130 Trial Investigators\*

### CONCLUSIONS

Atezolizumab plus nab-paclitaxel prolonged progression-free survival among patients with metastatic triple-negative breast cancer in both the intention-to-treat population and the PD-L1-positive subgroup. Adverse events were consistent with the known safety profiles of each agent. (Funded by F. Hoffmann–La Roche/Genentech; IMpassion130 ClinicalTrials.gov number, NCT02425891.)



## **Back From Monaco**

Impassion 130

Solar-1

Paloma-3

HOB0E-2

# ALPELISIB + FULVESTRANT FOR HR+, HER2- ADVANCED BREAST CANCER: RESULTS OF THE PHASE III SOLAR-1 TRIAL

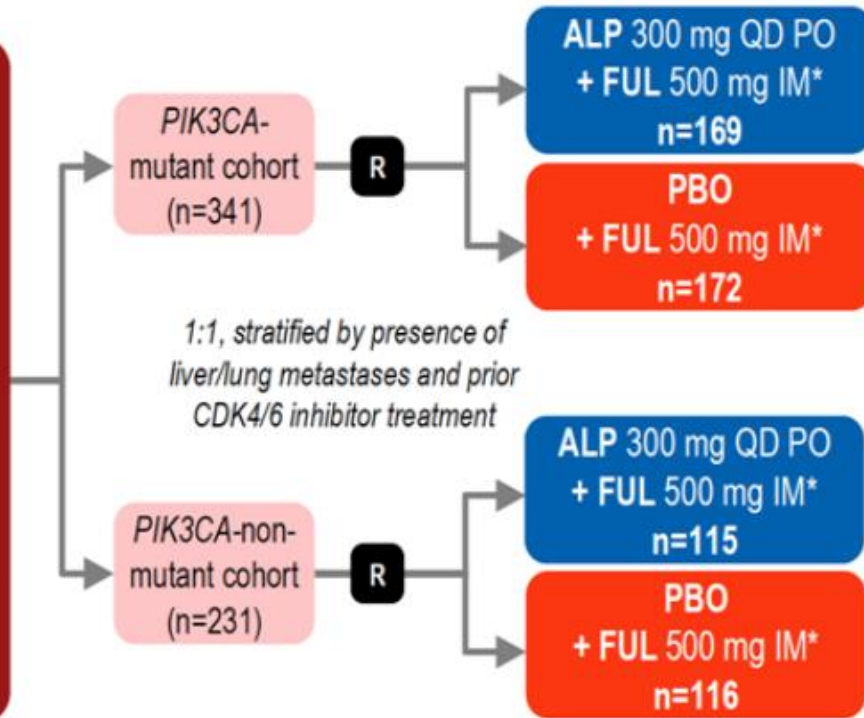
Fabrice André,<sup>1</sup> Eva Maria Ciruelos,<sup>2</sup> Gabor Rubovszky,<sup>3</sup> Mario Campone,<sup>4</sup> Sibylle Loibl,<sup>5</sup> Hope S Rugo,<sup>6</sup> Hiroji Iwata,<sup>7</sup> Pierfranco Conte,<sup>8</sup> Ingrid A Mayer,<sup>9</sup> Bella Kaufman,<sup>10</sup> Toshinari Yamashita,<sup>11</sup> Yen-Shen Lu,<sup>12</sup> Kenichi Inoue,<sup>13</sup> Masato Takahashi,<sup>14</sup> Zsuzsanna Pápai,<sup>15</sup> Anne-Sophie Longin,<sup>16</sup> David Mills,<sup>17</sup> Celine Wilke,<sup>17</sup> Samit Hirawat,<sup>18</sup> Dejan Juric<sup>19</sup>

<sup>1</sup>Gustave Roussy, INSERM U981, Université Paris-Sud, Villejuif, France; <sup>2</sup>Hospital Universitario 12 de Octubre, Madrid, Spain; <sup>3</sup>National Institute of Oncology, Budapest, Hungary; <sup>4</sup>Institut de Cancérologie de l'Ouest, St Herblain, France; <sup>5</sup>German Breast Group, Neu-Isenburg, Germany and Centre for Haematology and Oncology Bethanien, Frankfurt, Germany; <sup>6</sup>UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, CA, USA; <sup>7</sup>Aichi Cancer Center, Nagoya, Japan; <sup>8</sup>Istituto Oncologico Veneto, Padua, Italy and Department of Surgery, Oncology and Gastroenterology, University of Padova, Padua, Italy; <sup>9</sup>Vanderbilt University, Nashville, TN, USA; <sup>10</sup>Chaim Sheba Medical Center, Tel Hashomer, Israel; <sup>11</sup>Kanagawa Cancer Center, Yokohama, Japan; <sup>12</sup>National Taiwan University Hospital, Taipei, Taiwan; <sup>13</sup>Saitama Cancer Center, Saitama, Japan; <sup>14</sup>NHO Hokkaido Cancer Center, Sapporo, Japan; <sup>15</sup>Duna Medical Center, Budapest, Hungary; <sup>16</sup>Novartis Pharma S.A.S, Paris, France; <sup>17</sup>Novartis Pharma AG, Basel, Switzerland; <sup>18</sup>Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA; <sup>19</sup>Massachusetts General Hospital, Boston, MA, USA

# SOLAR-1: A Phase III randomized, controlled trial (NCT02437318)

**Men or postmenopausal women, with HR+, HER2– ABC**

- Recurrence/progression on/after prior AI
- Identified *PIK3CA* status (in archival or fresh tumor tissue)
- Measurable disease or  $\geq 1$  predominantly lytic bone lesion
- ECOG performance status  $\leq 1$  (N=572)



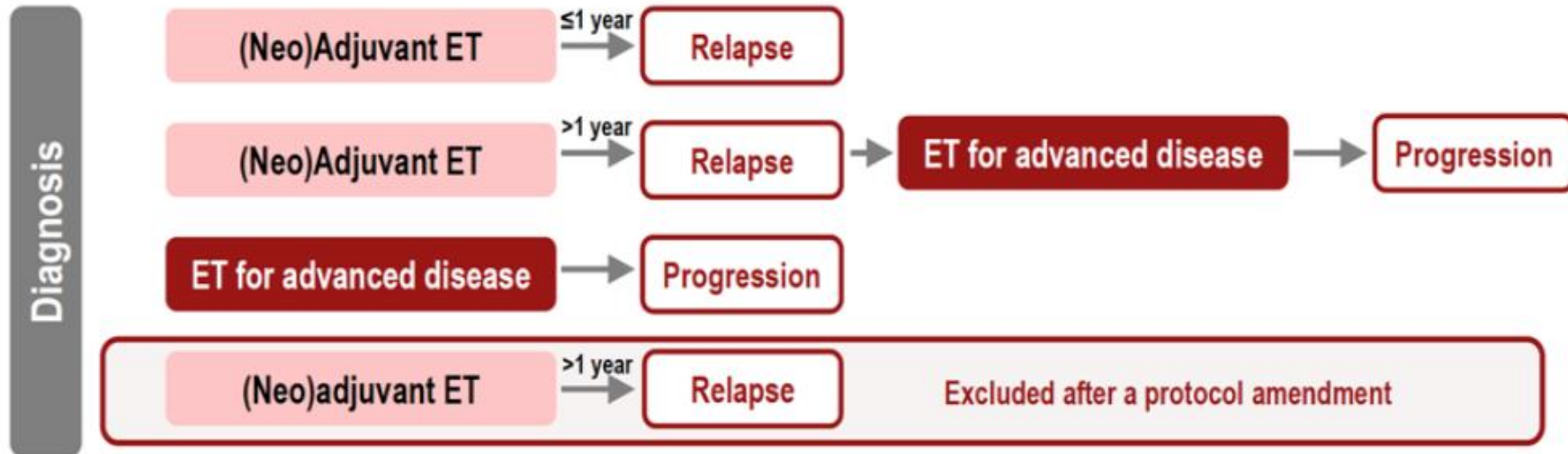
## Primary endpoint

- PFS in *PIK3CA*-mutant cohort (locally assessed)

## Secondary endpoints include:

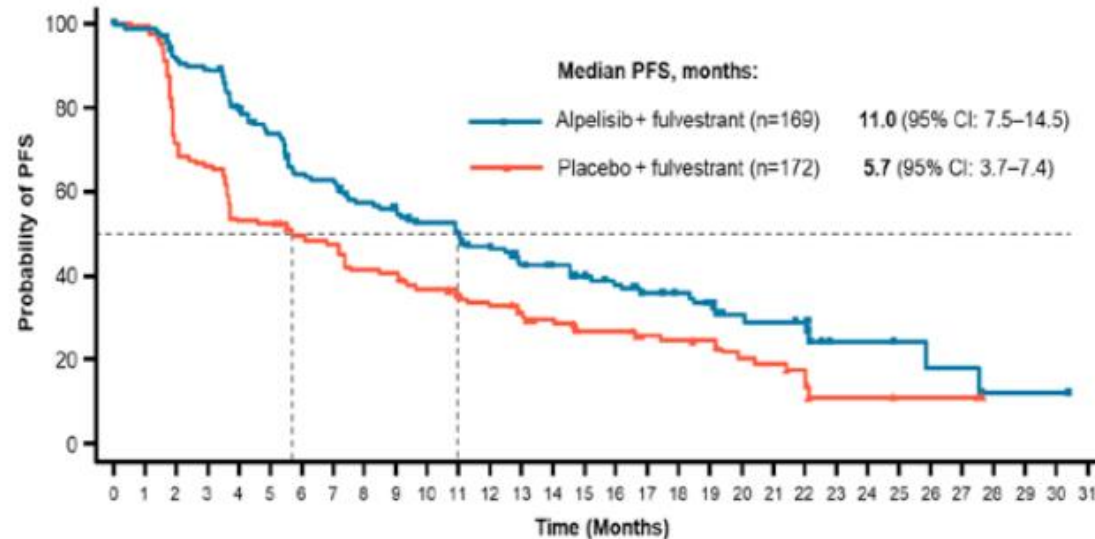
- OS (*PIK3CA*-mutant cohort)
- PFS (*PIK3CA*-non-mutant cohort)
- PFS (*PIK3CA* mutation in ctDNA)
- OS (*PIK3CA*-non-mutant cohort)
- ORR/CBR
- Safety

## Inclusion criteria: Prior exposure to AI



- Patients who had received one prior line of endocrine therapy were enrolled
  - Endocrine resistance and endocrine sensitivity were defined according to the ESMO guidelines<sup>1</sup>
  - Patients who had not received ET for ABC were considered “first line”

# Primary endpoint: Locally assessed PFS in the *PIK3CA*-mutant cohort



Data cut-off: Jun 12, 2018	Alpelisib + fulvestrant (N=169)	Placebo + fulvestrant (N=172)
Number of PFS events, n (%)	103 (60.9)	129 (75.0)
Progression	99 (58.6)	120 (69.8)
Death	4 (2.4)	9 (5.2)
Censored	66 (39.1)	43 (25.0)
Median PFS (95% CI)	11.0 (7.5–14.5)	5.7 (3.7–7.4)
HR (95% CI)	0.65 (0.50–0.85)	
p-value	0.00065	

Number of subjects still at risk

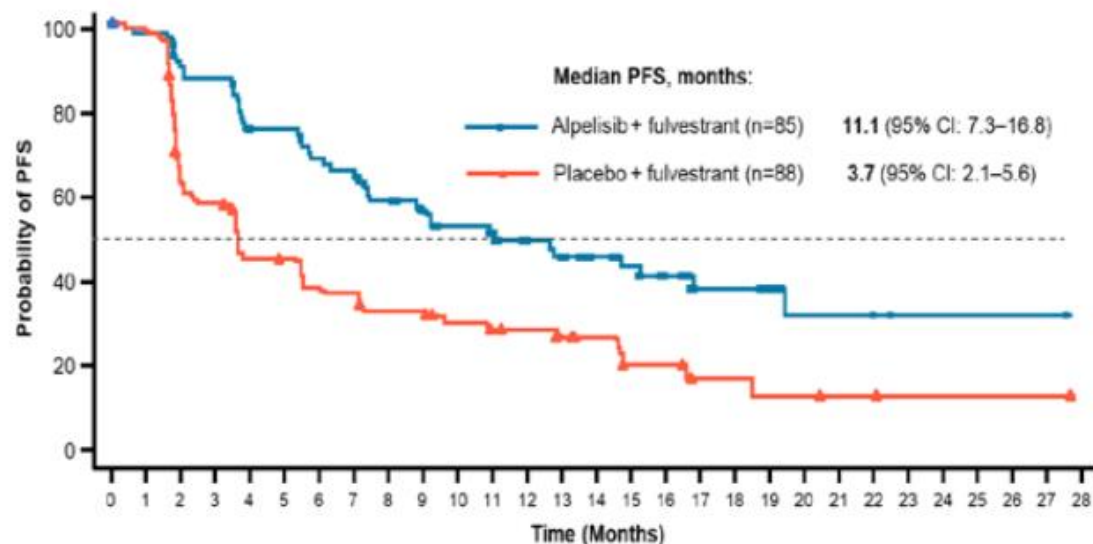
Alpelisib + Fulv 169 156 145 141 123 113 97 95 85 82 75 71 62 54 50 43 39 32 30 27 17 16 14 5 5 4 3 3 1 1 1 0

Placebo + Fulv 172 167 120 111 80 88 80 77 67 66 58 54 48 41 37 29 29 21 20 19 14 13 9 3 3 2 2 2 0 0 0 0

- The primary endpoint crossed the prespecified Haybittle–Peto boundary (one-sided  $p \leq 0.0199$ )



## BIRC audit: Centrally assessed PFS in the *PIK3CA*-mutant cohort



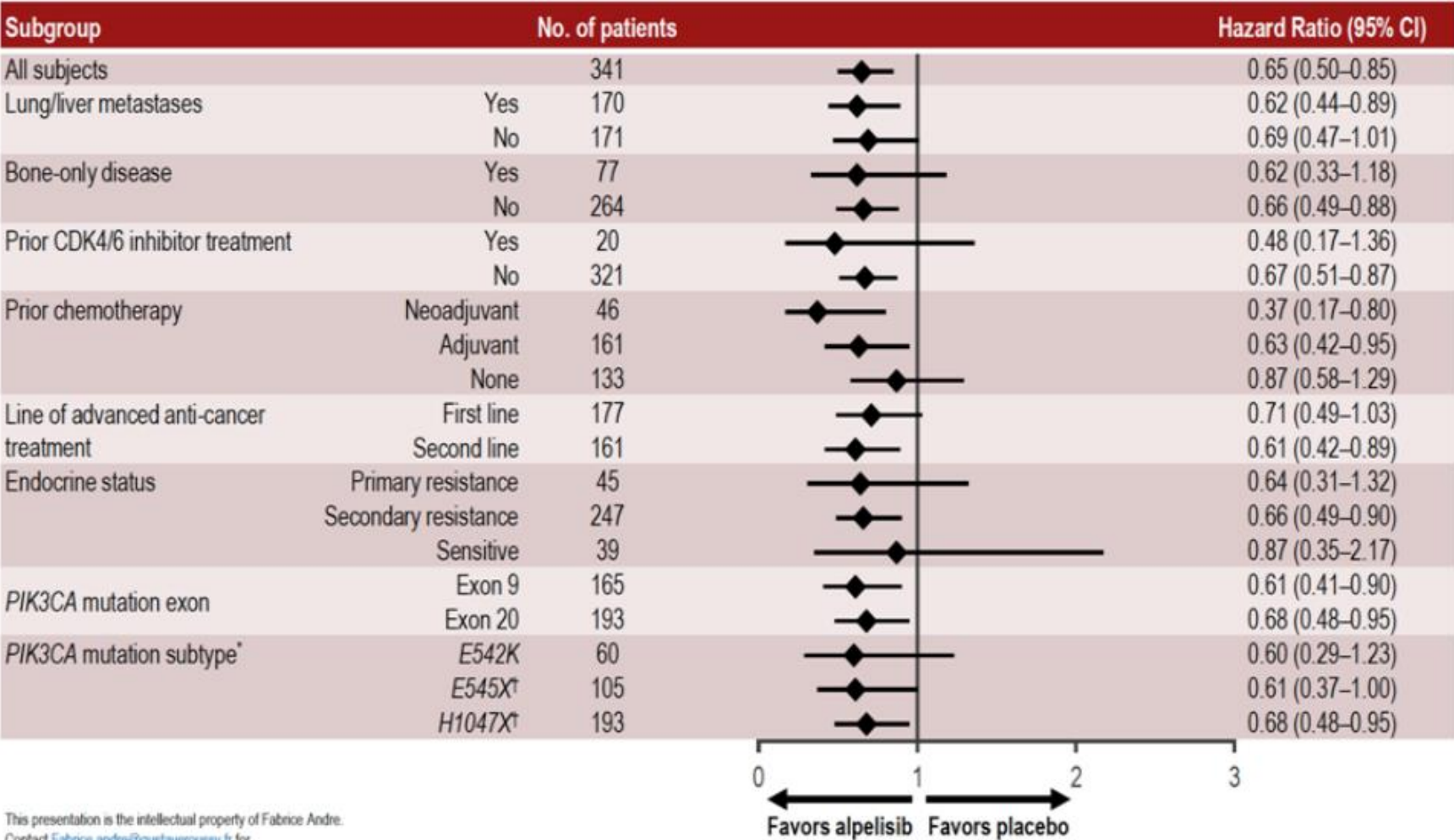
Data cut-off: Jun 12, 2018	Alpelisib + fulvestrant (N=85)	Placebo + fulvestrant (N=88)
Number of PFS events, n (%)	43 (50.6)	63 (71.6)
Median PFS (95% CI)	11.1 (7.3–16.8)	3.7 (2.1–5.6)
HR (95% CI)	0.48 (0.32–0.71)	

Number of subjects still at risk

Time (Months)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Alpelisib + Fulv	85	77	69	66	56	55	49	47	40	37	32	31	26	24	21	19	16	12	12	11	3	3	3	1	1	1	1	1	0
Placebo + Fulv	88	83	53	46	34	33	28	27	23	23	19	17	16	14	12	7	7	4	4	3	3	2	2	1	1	1	1	1	0

- Blinded independent review committee audit of 50% of randomized patients in the *PIK3CA*-mutant cohort (n=173)
- A full BIRC review of all patient data in the *PIK3CA*-mutant cohort was not required, based on prespecified thresholds

# PFS by subgroup (*PIK3CA*-mutant cohort)



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\*Mutations detected in tissue. Patients may have had more than one *PIK3CA* mutation; †Includes multiple subtypes of E545 and H1047.

## Adverse events in the total population

AEs ≥20% in either arm, %	Alpelisib + fulvestrant N=284			Placebo + fulvestrant N=287		
	All	Grade 3	Grade 4	All	Grade 3	Grade 4
Any adverse event	282 (99.3)	183 (64.4)	33 (11.6)	264 (92.0)	87 (30.3)	15 (5.2)
Hyperglycemia	181 (63.7)	93 (32.7)	11 (3.9)	28 (9.8)	1 (0.3)	1 (0.3)
Diarrhea	164 (57.7)	19 (6.7)	0	45 (15.7)	1 (0.3)	0
Nausea	127 (44.7)	7 (2.5)	0	64 (22.3)	1 (0.3)	0
Decreased appetite	101 (35.6)	2 (0.7)	0	30 (10.5)	1 (0.3)	0
Rash*	101 (35.6)	28 (9.9)	0	17 (5.9)	1 (0.3)	0
Vomiting	77 (27.1)	2 (0.7)	0	28 (9.8)	1 (0.3)	0
Decreased weight	76 (26.8)	11 (3.9)	0	6 (2.1)	0	0
Stomatitis	70 (24.6)	7 (2.5)	0	18 (6.3)	0	0
Fatigue	69 (24.3)	10 (3.5)	0	49 (17.1)	3 (1.0)	0
Asthenia	58 (20.4)	5 (1.8)	0	37 (12.9)	0	0

- Eighteen patients (6.3%) discontinued alpelisib due to hyperglycemia and 9 patients (3.2%) due to rash; no patients discontinued placebo due to either hyperglycemia or rash
- Maculopapular rash was observed in 14.1% of patients (all-grade) and 8.8% (grade 3) in the alpelisib arm, vs 1.7% and 0.3%, respectively, in the placebo arm
- The safety profile of the alpelisib group and the placebo group was similar in *PIK3CA*-mutant and *PIK3CA*-non-mutant cohorts

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\*Single preferred term of "rash" does not include preferred term of "maculopapular rash".



## **Back From Monaco**

Impassion 130

Solar-1

Paloma-3

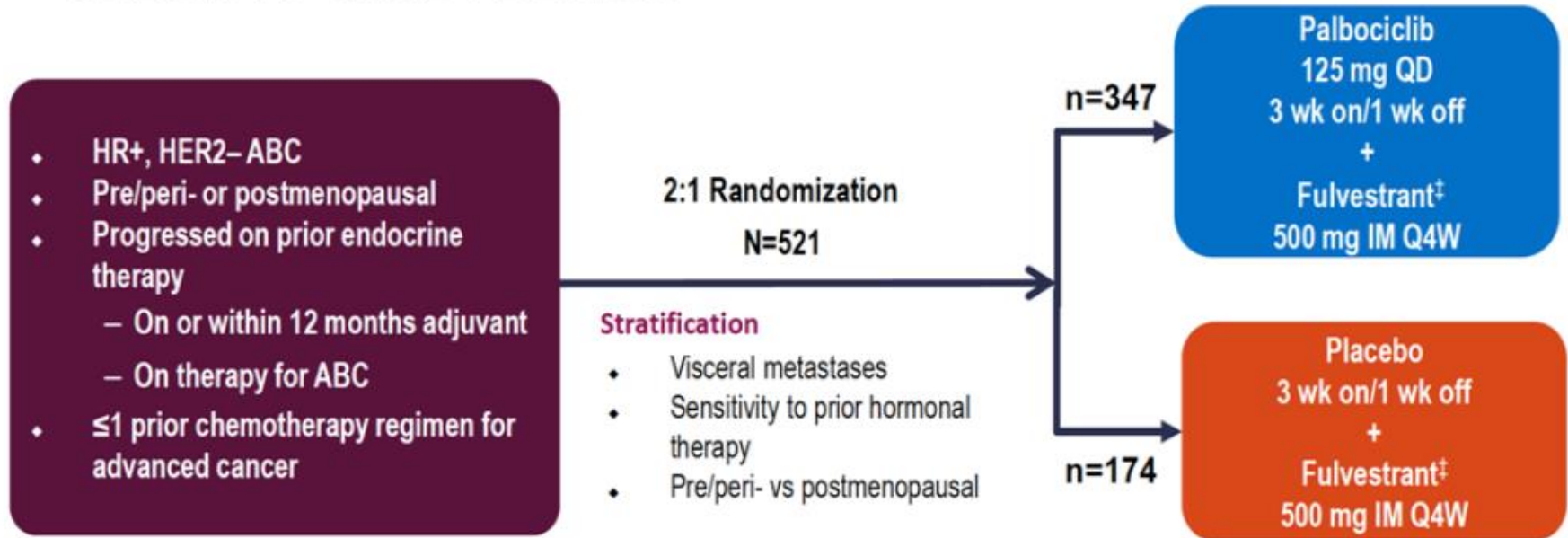
HOBEOE-2

# OVERALL SURVIVAL WITH PALBOCICLIB + FULVESTRANT IN WOMEN WITH HORMONE RECEPTOR-POSITIVE, HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR 2-NEGATIVE ADVANCED BREAST CANCER: ANALYSES FROM PALOMA-3

Massimo Cristofanilli,<sup>1</sup> Dennis J. Slamon,<sup>2</sup> Jungsil Ro,<sup>3</sup> Igor Bondarenko,<sup>4</sup> Seock-Ah Im,<sup>5</sup> Norikazu Masuda,<sup>6</sup> Marco Colleoni,<sup>7</sup> Angela DeMichele,<sup>8</sup> Sherene Loi,<sup>9</sup> Sunil Verma,<sup>10</sup> Hiroji Iwata,<sup>11</sup> Nadia Harbeck,<sup>12</sup> Sibylle Loibl,<sup>13</sup> Fabrice André,<sup>14</sup> Kathy Puyana Theall,<sup>15</sup> Xin Huang,<sup>16</sup> Carla Giorgetti,<sup>17</sup> Cynthia Huang Bartlett,<sup>18</sup> Nicholas C. Turner<sup>19</sup>

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# PALOMA-3\* STUDY DESIGN<sup>1</sup>



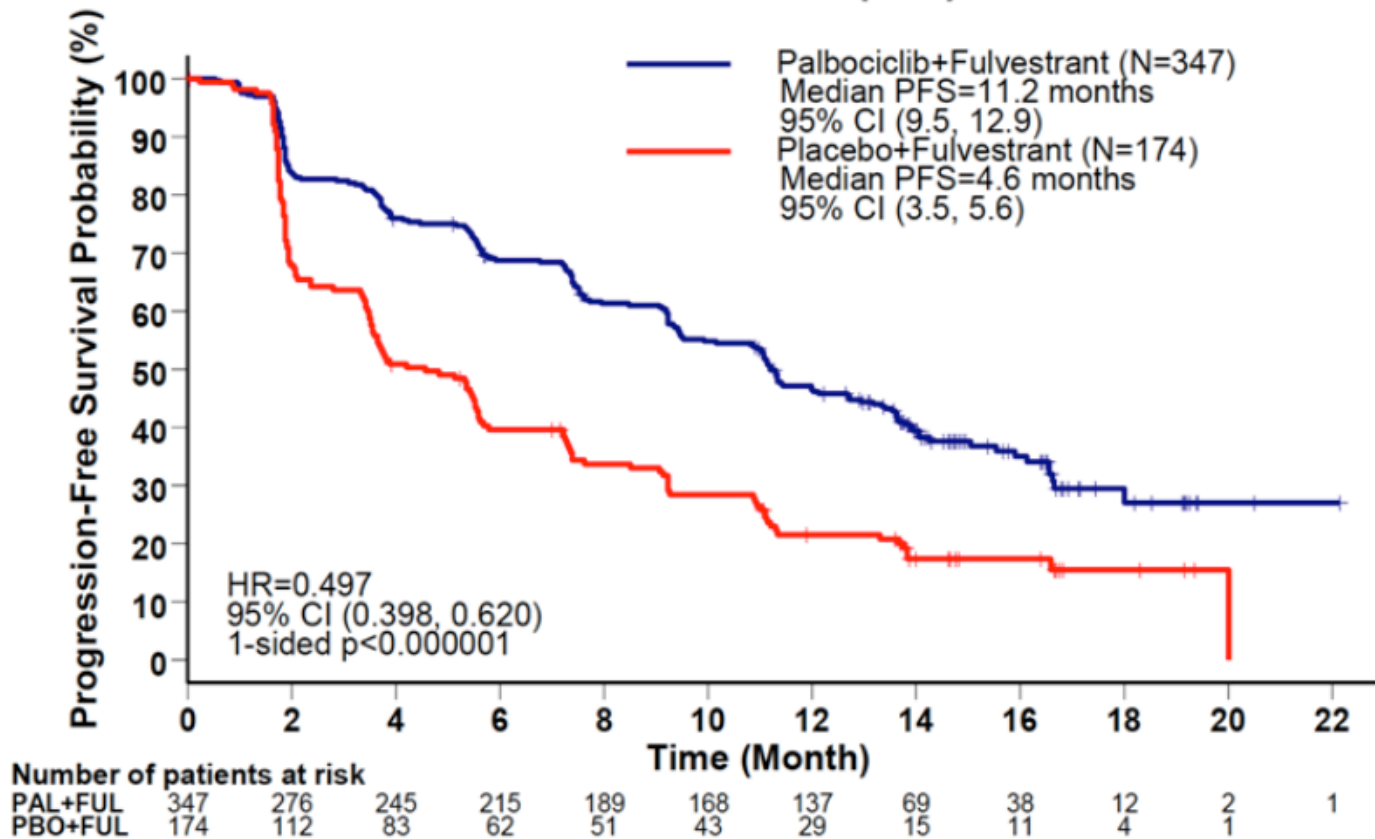
- Sensitivity to prior hormonal therapy was defined as documented clinical benefit (CR, PR, or SD ≥24 weeks) to ≥1 prior hormonal therapy regimen in the metastatic setting or ≥24 months of adjuvant hormonal therapy before recurrence.

AI=aromatase inhibitor; CR=complete response; IM=intramuscular; PR=partial response; Q4W=once every 4 wk; QD=once daily; SD=stable disease.

\*Clinicaltrials.gov, NCT01942135; <sup>‡</sup>Administered on days 1 and 15 of cycle 1, then on day 1 of every cycle thereafter.

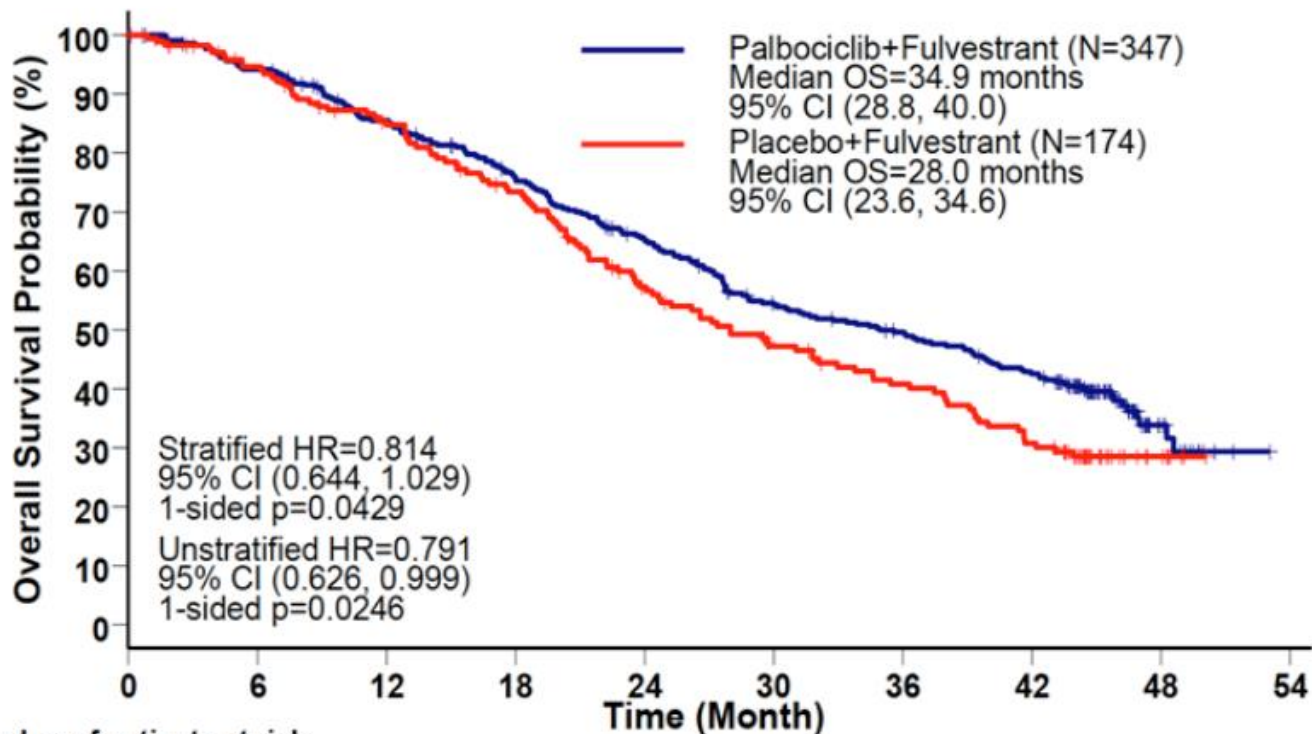
1. Turner et al. *New Engl J Med.* 2015.

# FINAL PROGRESSION-FREE SURVIVAL (ITT)<sup>1</sup>



- Absolute improvement in median PFS in the palbociclib arm vs the placebo arm was 6.6 months.

# OVERALL SURVIVAL (ITT)



Number of patients at risk

PAL+FUL	347	321	286	247	209	165	148	126	17
PBO+FUL	174	155	135	115	86	68	57	43	7

- Absolute improvement in median OS in the palbociclib arm vs the placebo arm was 6.9 months.





## **Back From Monaco**

Impassion 130

Solar-1

Paloma-3

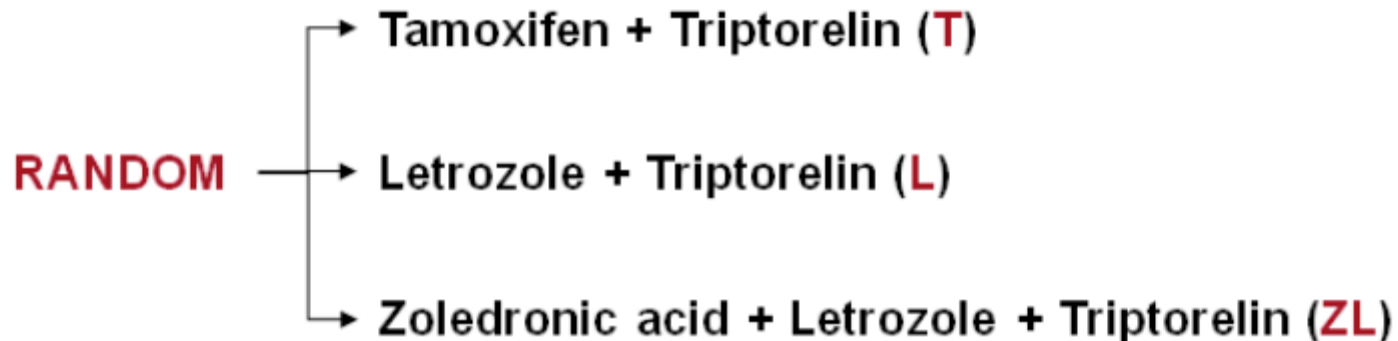
HOBOE-2

**The HOBQE-2 multicenter randomized phase 3 trial in premenopausal patients with hormone-receptor positive early breast cancer comparing Triptorelin plus either Tamoxifen or Letrozole or Letrozole + Zoledronic acid.**

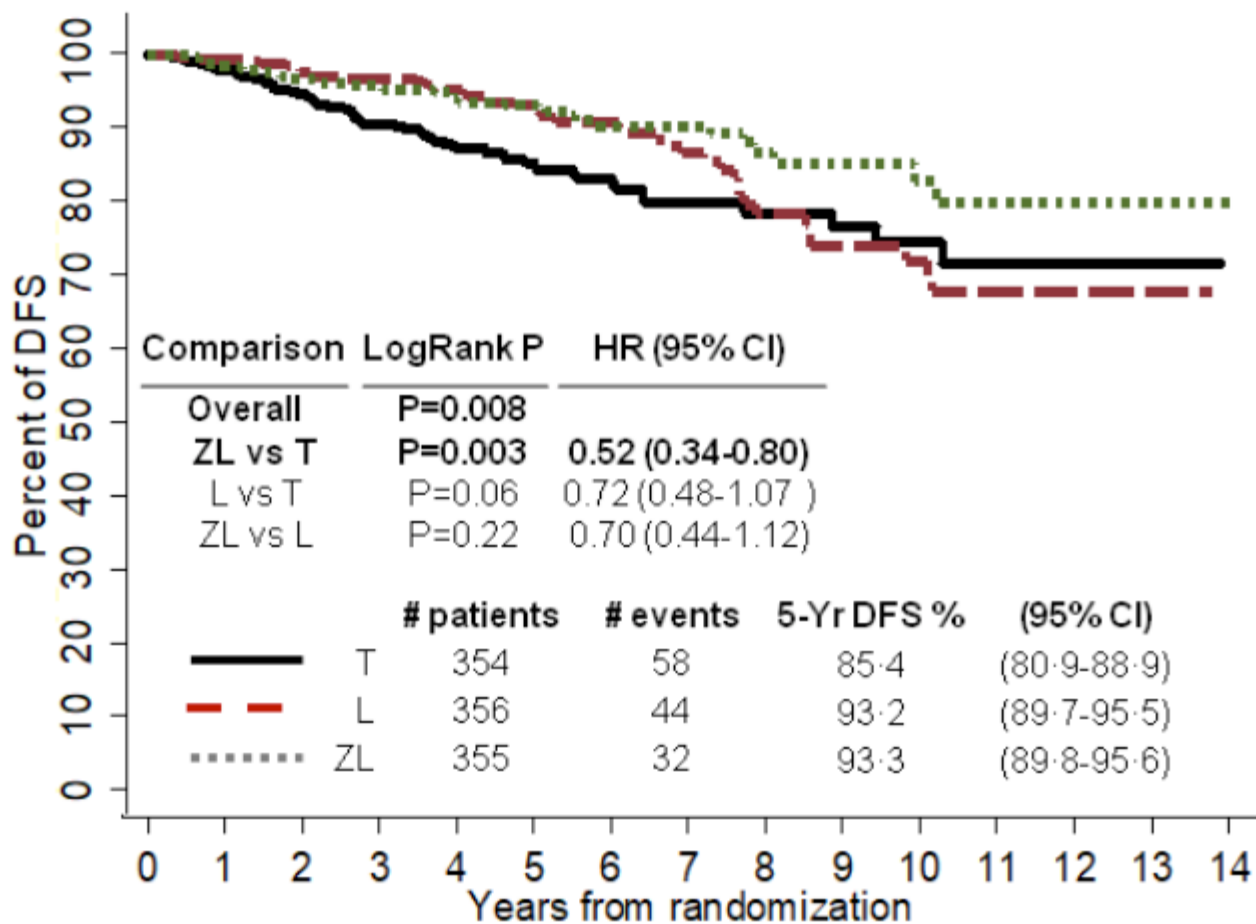
F. Perrone, M. De Laurentiis, S. De Placido, M. Orditura, S. Cinieri, F. Riccardi, A.S. Ribocco, C. Putzu, L. Del Mastro, E. Rossi, B. Daniele, A.M. Mosconi, F. Di Rella, G. Landi, F. Nuzzo, C. Pacilio, R. Lauria, L. Arenare, M.C. Piccirillo, C. Gallo

## Aim of the study

- To compare Letrozole and Zoledronic acid + Letrozole to Tamoxifen (always associated with Triptorelina) in terms of disease-free survival in premenopausal patients with early breast cancer

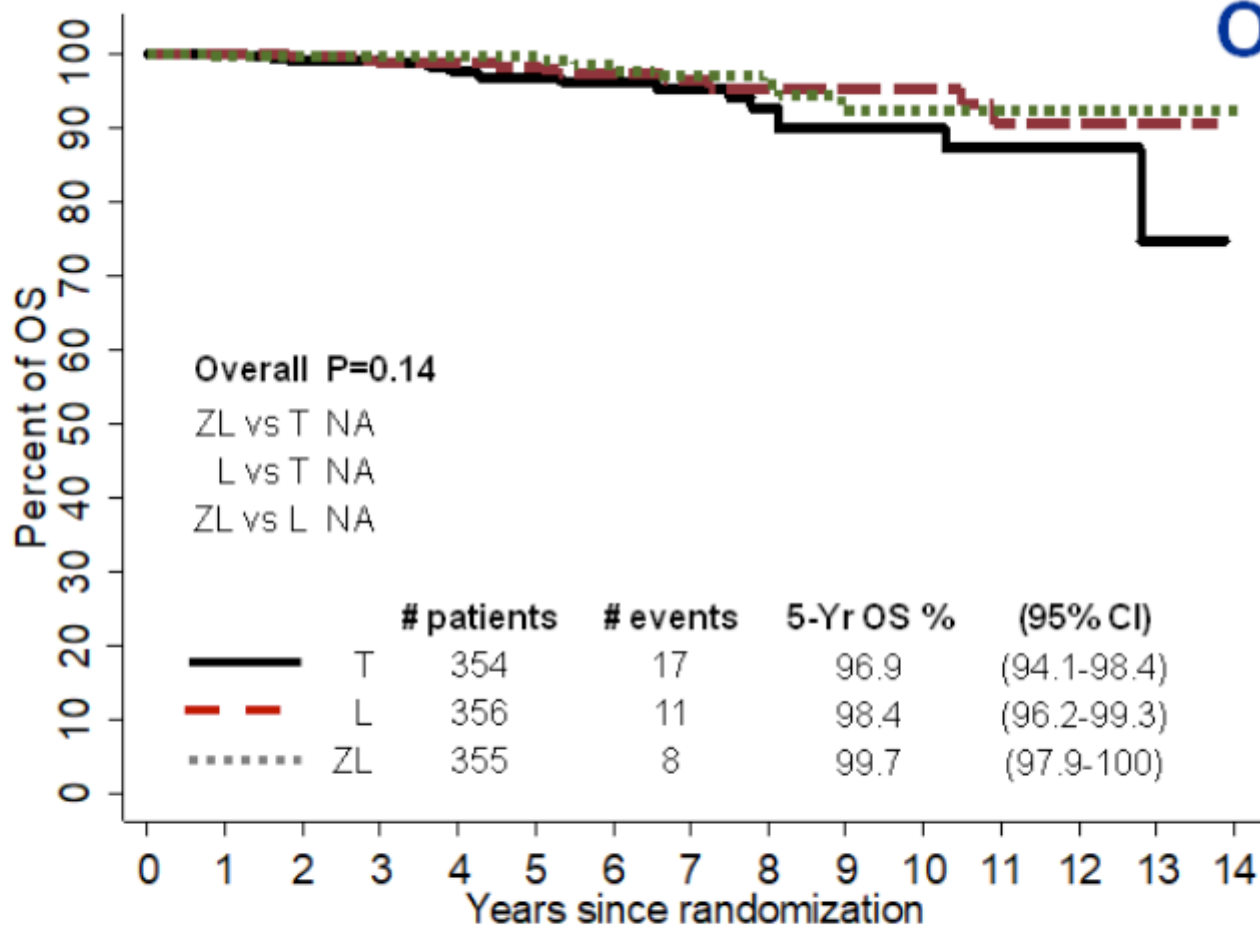


# DFS



## Number at risk

T	354	346	326	288	226	189	113	73	56	39	27	18	12	4	0
L	356	348	340	311	259	218	132	89	60	47	35	26	15	4	0
ZL	355	333	323	298	252	210	131	90	65	43	31	25	14	5	1



Number at risk

T	354	353	341	312	252	214	131	90	69	50	35	25	18	5	0
L	356	350	346	314	267	228	140	99	71	58	46	34	21	6	0
ZL	355	337	333	307	265	220	142	98	73	48	34	29	15	5	1

# Rate of selected adverse events

CTC term	T (N=351)		L (N=362)		ZL (N=328)		P*
	Any (≥1)	Severe (≥3)	Any (≥1)	Severe (≥3)	Any (≥1)	Severe (≥3)	
Fever	-	-	0.8	-	13.7	0.6	<0.0001
Hypercholesterolemia	20.2	-	30.4	-	25.6	0.3	0.006
Arthralgia	21.9	-	45.0	3.0	45.7	2.7	<0.0001
Bone pain	15.4	-	29.0	0.3	26.8	2.4	0.0001
Osteonecrosis	-	-	-	-	1.2	1.2	0.01
Neuropathy – sensory	7.7	-	13.0	0.3	14.3	0.3	0.02
Endometrial abnormalities	6.8	0.3	3.0	-	2.4	-	0.005
Vaginal dryness	11.7	-	20.7	-	19.8	-	0.002

\* exact Kruskal Wallis non-parametric analysis of variance of the worst reported grade



## Novità nel Carcinoma Mammario

- IMPASSION130: Atezolizumab+Nab-Pacitaxel ↑ la PFS e OS nei PDL1+
- SOLAR-1: Fulvestrant+Alpelisib ↑ la PFS nei PIK3CA-mut
- PALOMA-3: Palbo+Fulvestrant ↑ OS (non-statisticamente significativo)
- HOBOE-2: Zolendronato+Letrozolo vs Tam ↑ la DFS in premenop (vs letrozolo???)

