

II JORNADA TRASLACIONAL DE ONCOLOGÍA DE PRECISIÓN:

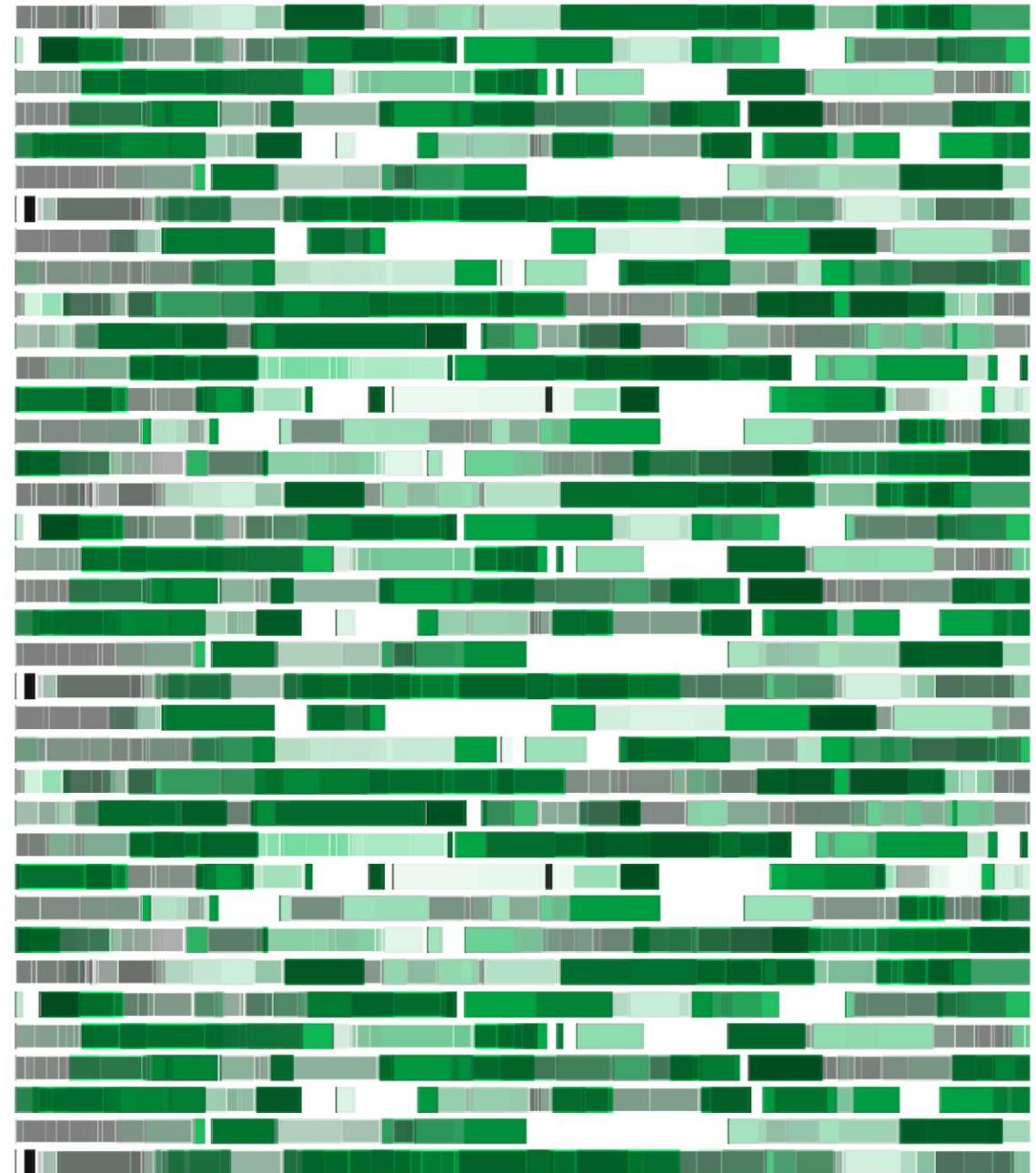
A TRAVÉS DE LAS VÍAS DE SEÑALIZACIÓN
SEVILLA, 6 Y 7 DE FEBRERO DE 2025

PAPEL DE LA INMUNOTERAPIA EN CÁNCER DE MAMA

Fernando Henao Carrasco

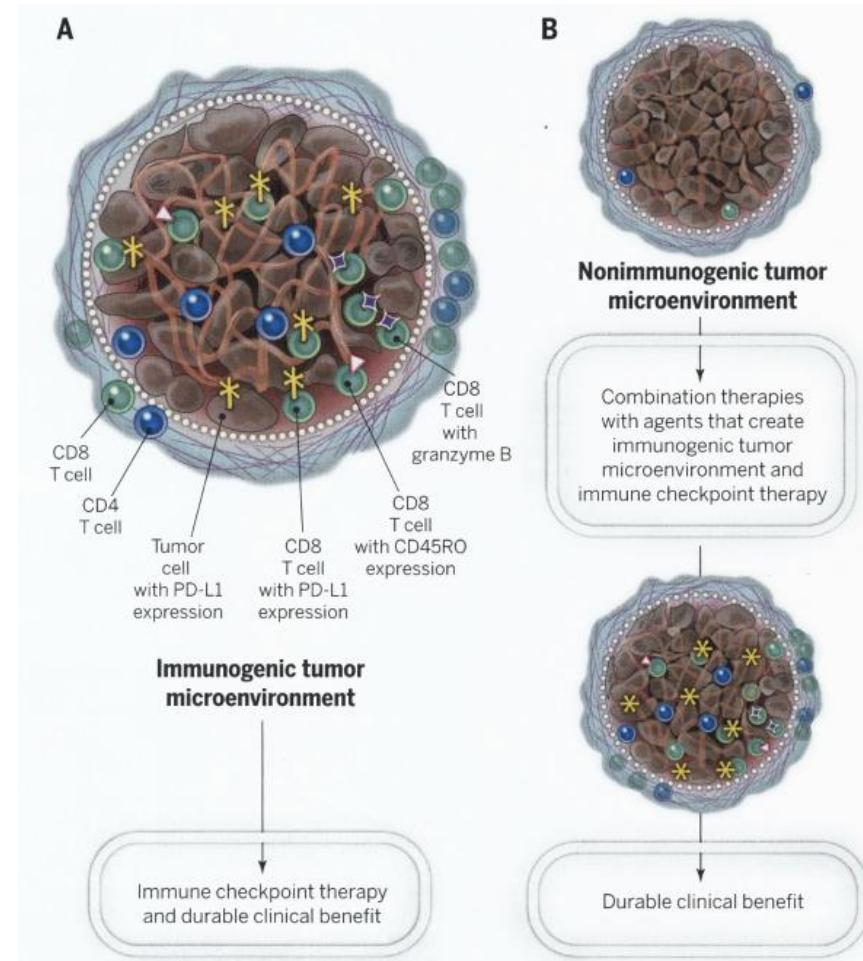
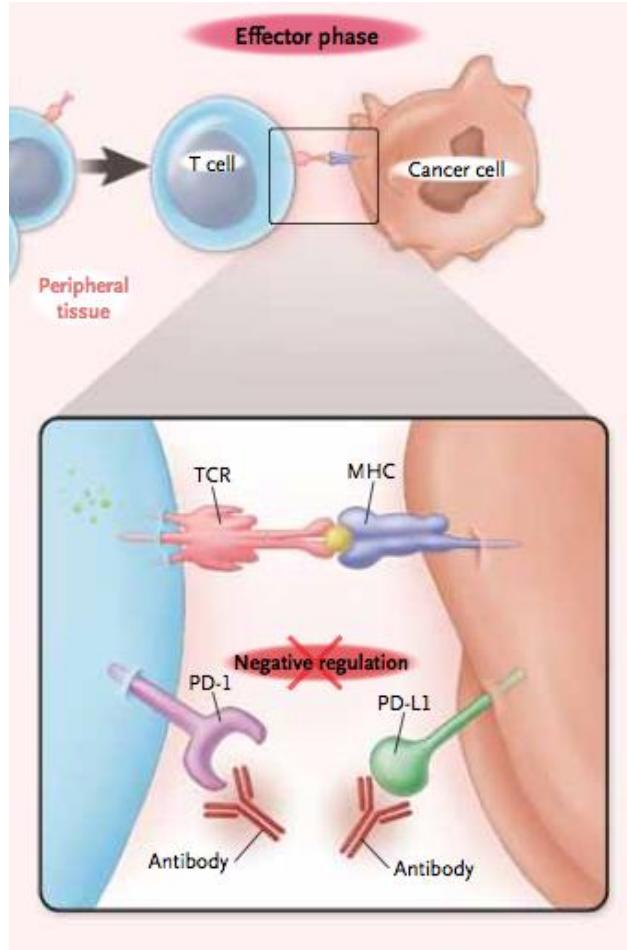
Hospital Universitario Virgen Macarena. Sevilla.

Servicio de Oncología Médica





LA ERA DE LA INMUNOTERAPIA EN ONCOLOGÍA





APROBACIONES ACTUALES DE INMUNOTERAPIA EN CÁNCER DE MAMA

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Pembrolizumab for Early Triple-Negative Breast Cancer

P. Schmid, J. Cortes, L. Pusztai, H. McArthur, S. Kümmel, J. Bergh, C. Denkert, Y.H. Park, R. Hui, N. Harbeck, M. Takahashi, T. Foukakis, P.A. Fasching, F. Cardoso, M. Untch, L. Jia, V. Karantza, J. Zhao, G. Aktan, R. Dent, and J. O'Shaughnessy, for the KEYNOTE-522 Investigators*

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Pembrolizumab plus Chemotherapy in Advanced Triple-Negative Breast Cancer

J. Cortes, H.S. Rugo, D.W. Cescon, S.-A. Im, M.M. Yusof, C. Gallardo, O. Lipatov, C.H. Barrios, J. Perez-Garcia, H. Iwata, N. Masuda, M. Torregroza Otero, E. Gokmen, S. Loi, Z. Guo, X. Zhou, V. Karantza, W. Pan, and P. Schmid, for the KEYNOTE-355 Investigators*

THE NEW ENGLAND JOURNAL OF MEDICINE

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. Ermens, for the IMpassion130 Trial Investigators*





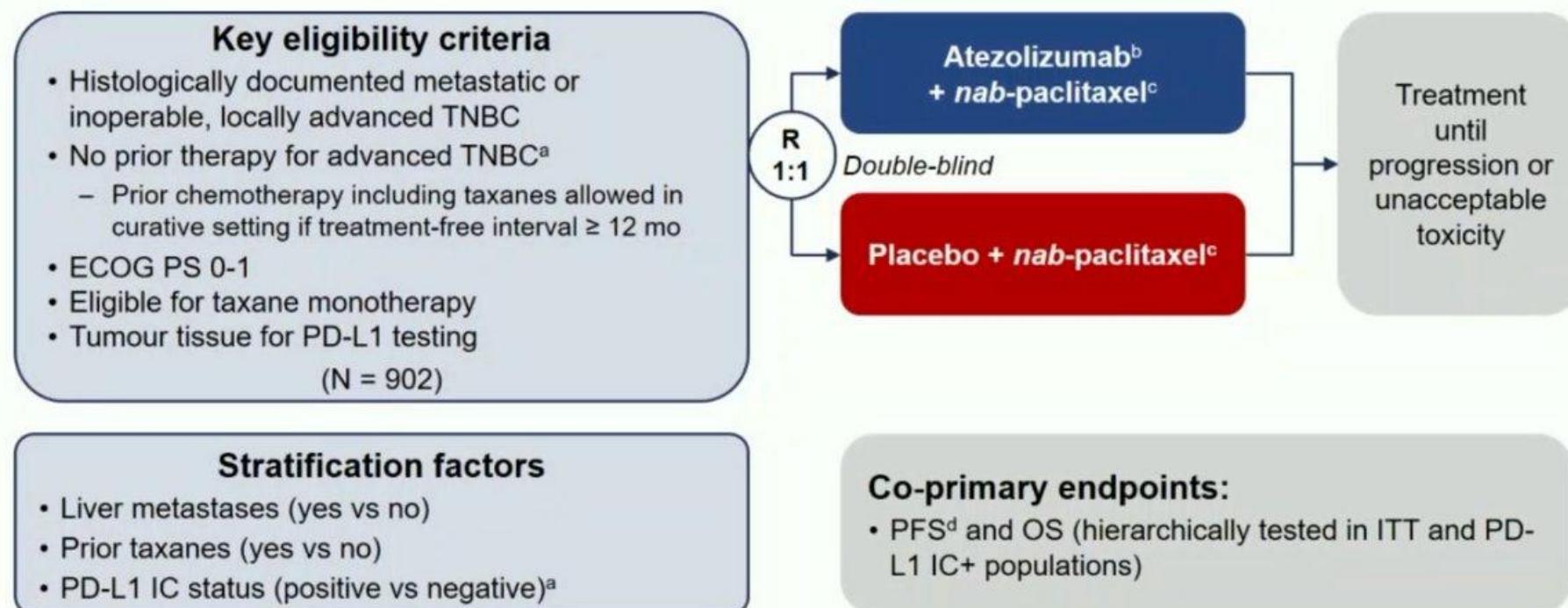
ENFERMEDAD METASTÁSICA



IMPASSION 130

VIRTUAL
2020 ESMO

IMpassion130 study design¹



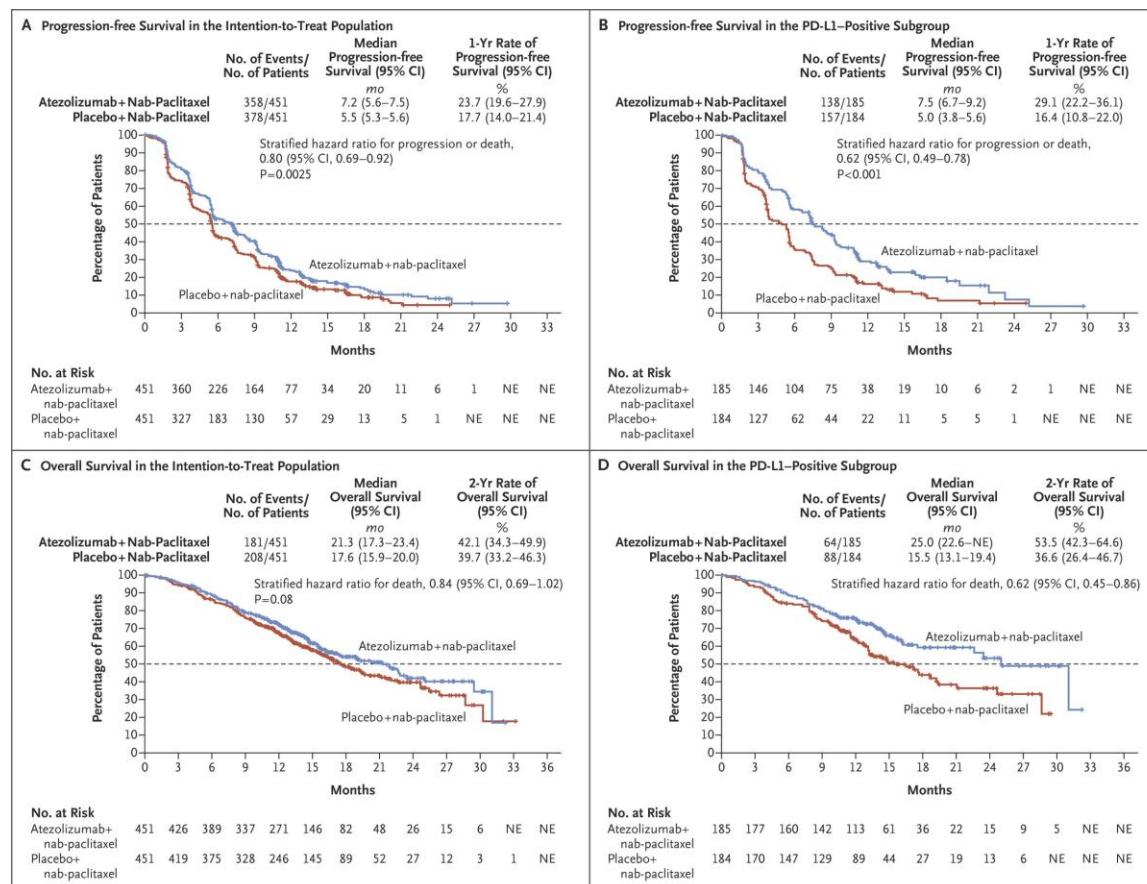
^a PD-L1 IC $\geq 1\%$ vs < 1% per VENTANA SP142 assay. ^b 840 mg IV on days 1 and 15 (28-day cycle).

^c 100 mg/m² IV on days 1, 8 and 15 (28-day cycle). ^d Per RECIST 1.1. Reference: 1. Schmid, *N Engl J Med* 2018.



RESULTADOS IMPASSION 130

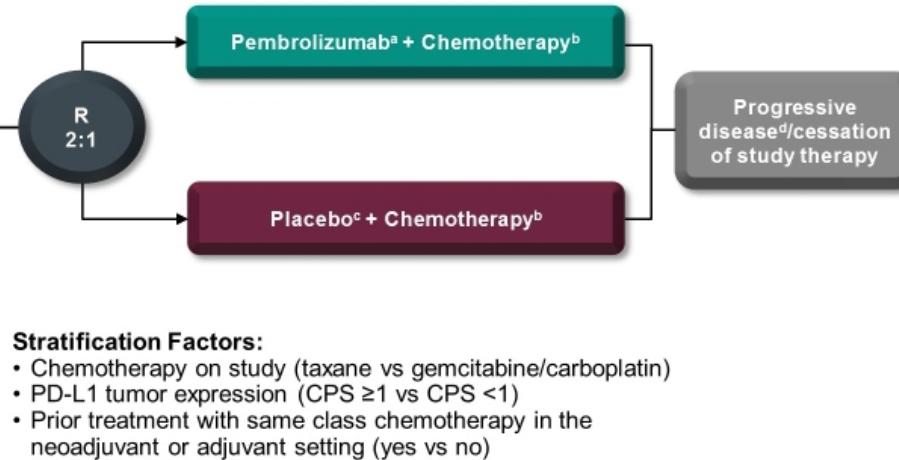
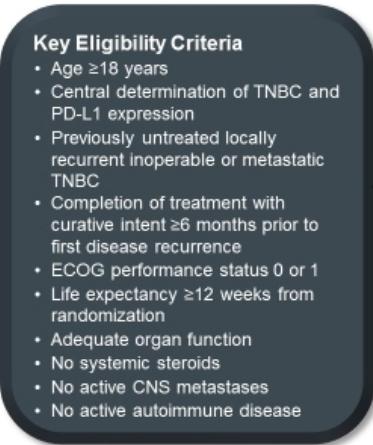
La adición de Atezolizumab a Nab-Paclitaxel en primera línea para pacientes con CMMTN incrementa la SLP y la SG especialmente en pacientes con tumores PDL1+



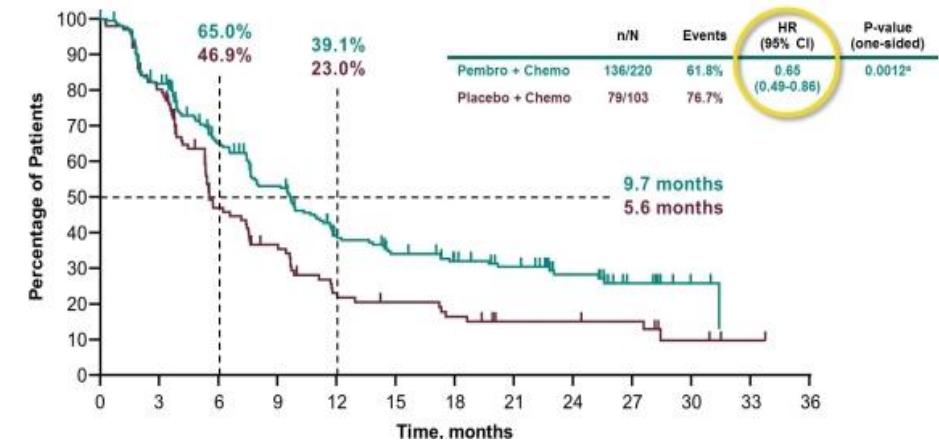
OS PDL-1:
25.0 vs 15.5



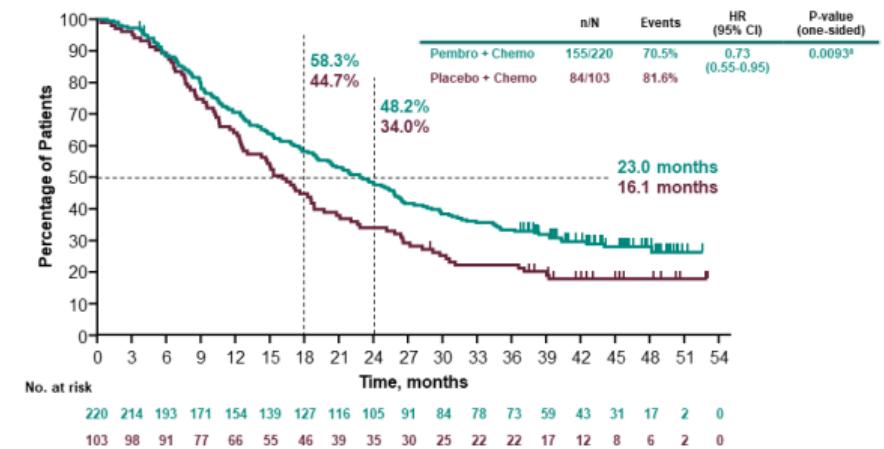
KEYNOTE 355



Progression-Free Survival: PD-L1 CPS ≥10



Overall Survival: PD-L1 CPS ≥10

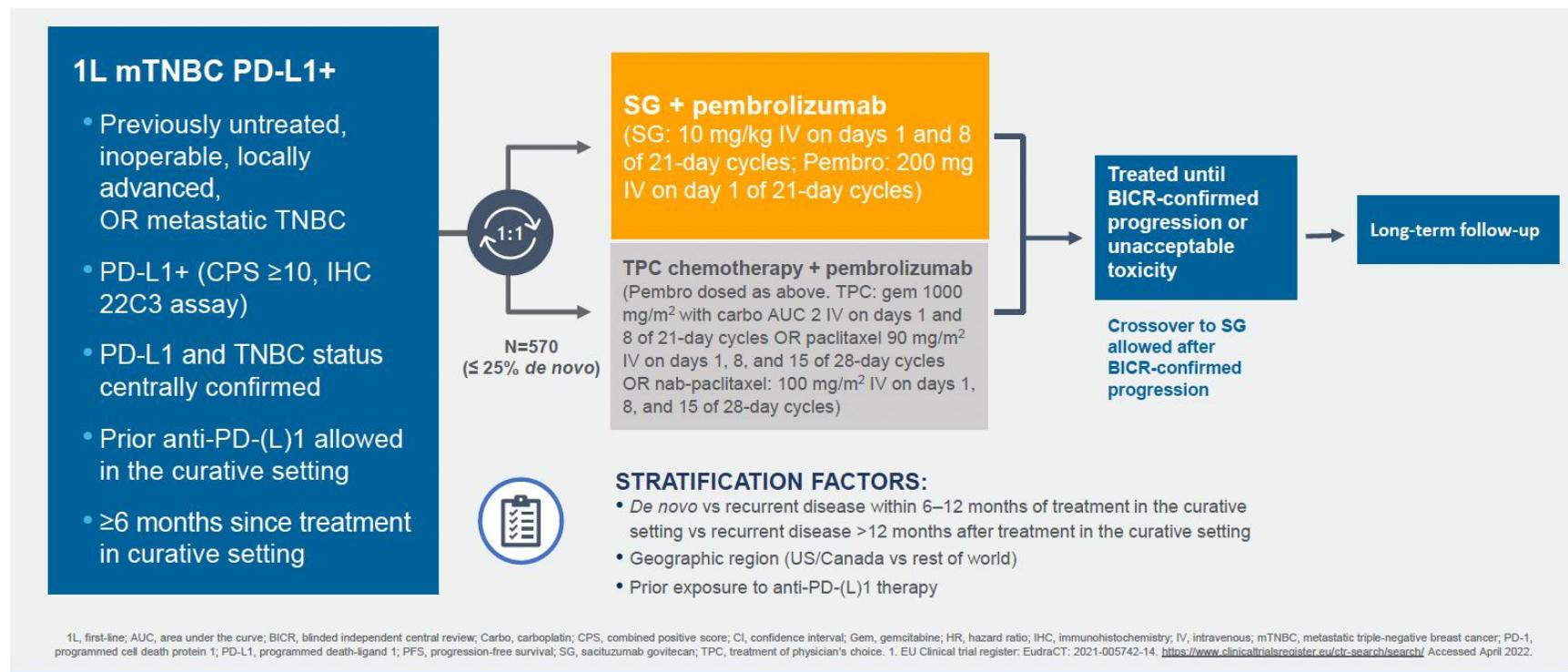


*Prespecified P value boundary of 0.0113 met.



FUTURO

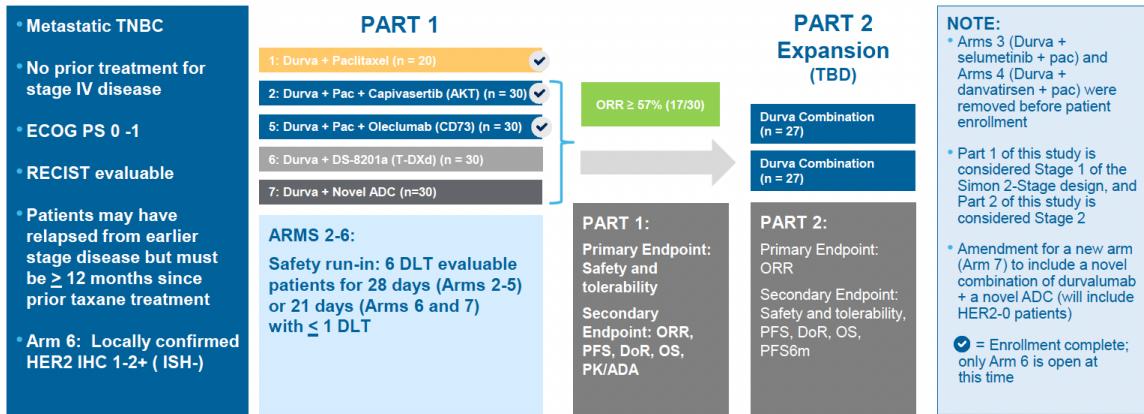
... ASCENT 04: Sacituzumab govitecan + pembrolizumab vs ... TPC + pembrolizumab in 1L PD-L1+ mTNBC, NCT05382286



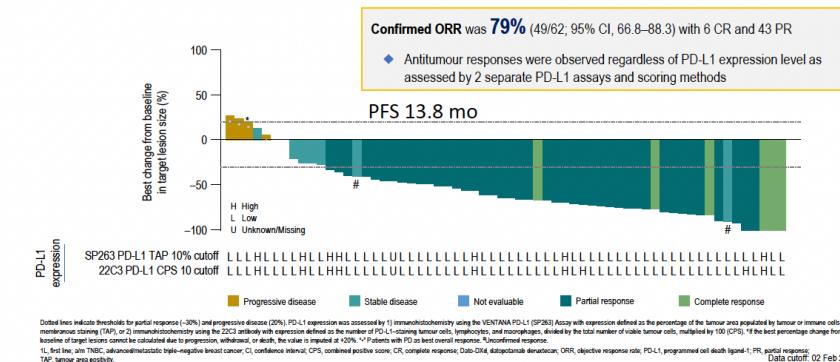


¿PUEDEN COMBINARSE ADC + INMUNOTERAPIA?

:::: BEGONIA Study Design



:::: BEGONIA: Dato-DXd + durvalumab in 1L m TNBC



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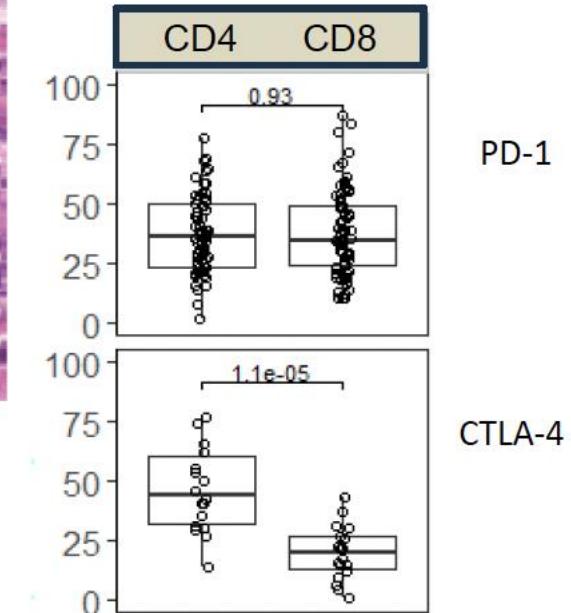
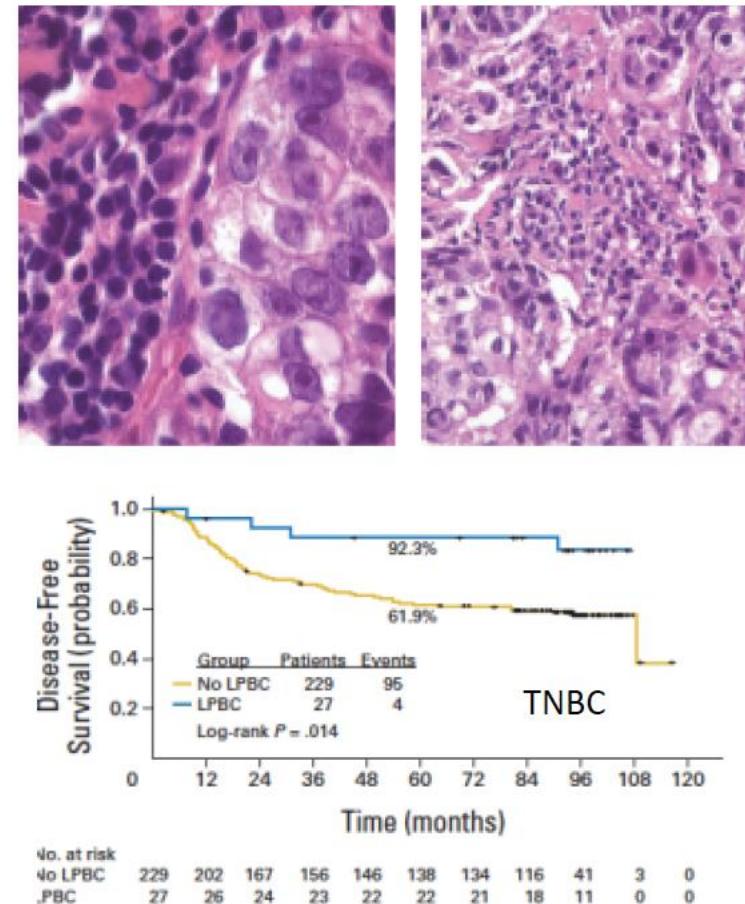


ENFERMEDAD PRECOZ TN



CÁNCER DE MAMA PRECOZ. ¿PORQUÉ USAR INMUNOTERPIA?

- El cáncer de mama triple negativo en enfermedad localizada normalmente tiene altos niveles de infiltrado inmune (>99%)
- El infiltrado inmunológico comprende células T con alta expresión de PDL-1/CTLA-4 (y baja expresión de otras moléculas de control inmunitario inhibitorias) en todos los subtipos de cáncer de mama.
- La cantidad de infiltrado inmunológico tiene **valor pronóstico**: a mayor cantidad, mejor pronóstico en TNBC tanto enfermedad precoz como avanzada, y en HER2+, pero no en HR+





Checkpoint Inhibitors in Early TNBC

Variable	I-SPY	KEYNOTE-522	IMPASSION 031	NeoTRIP	GeparNUEVO
Total patients	69/180	1174 (602)	333	280	174
Type of CPI	PD1 Pembro x 4	PD1 Pembro x 1 year	PD-L1 Atezo x 1 year	PD-L1 Atezo x 8	PD-L1 Durva x 8
Stage	Stage II/III	Stage II/III	Stage II/III	+ N3 disease	35% stage I
Anthracycline pre-op	yes	yes	yes	No*	yes
Included carboplatin	no	yes	No (nab-pac)	Yes (nab-pac) 2 wks on, 1 wk off x 8	no
Improved pCR	Yes	Yes 51.2 v 64.8% P=0.00055	Yes 41.1 v 57.6% P=0.0044	No	Numeric improvement (44 v 53%, p=0.18)
Improved EFS	NR: pCR>nonpCR	Yes	NR	NR	Yes EFS, DDFS and OS

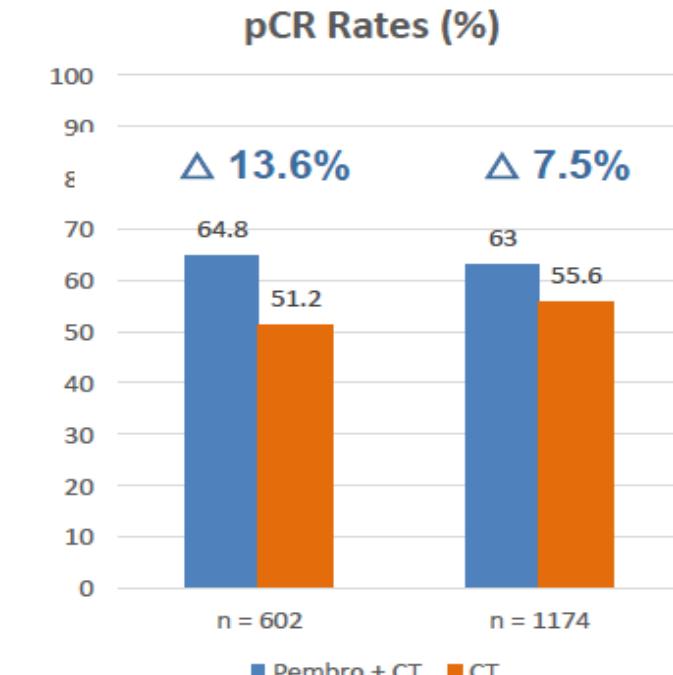
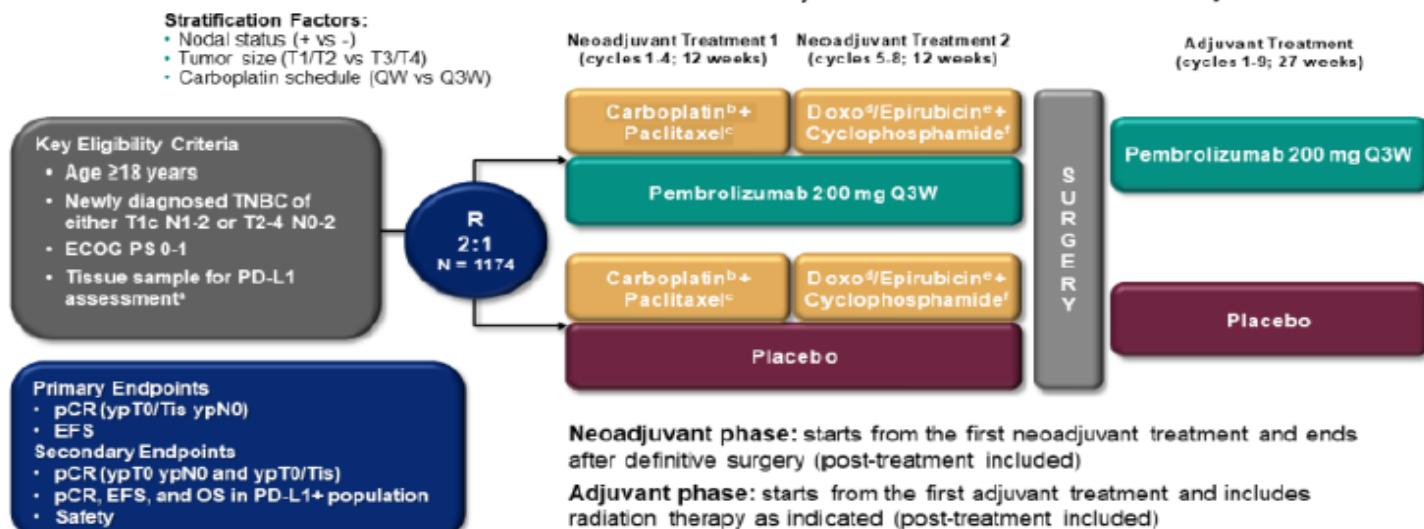
Nanda et al, JAMA Onc 2020; Schmid et al, NEJM 2020 & ESMO Plenary 2021; Mittendorf et al, Lancet 2020; Gianni et al, SABCS 2019; Loibl et al, Ann Oncol 2019 & ASCO 2021

*Callari et al, PD10-09; SABCS 2021: role of anthracyclines in the modulation of the immune microenvironment



KEYNOTE 522

Pembrolizumab added to neoadjuvant chemotherapy in early TNBC KEYNOTE-522



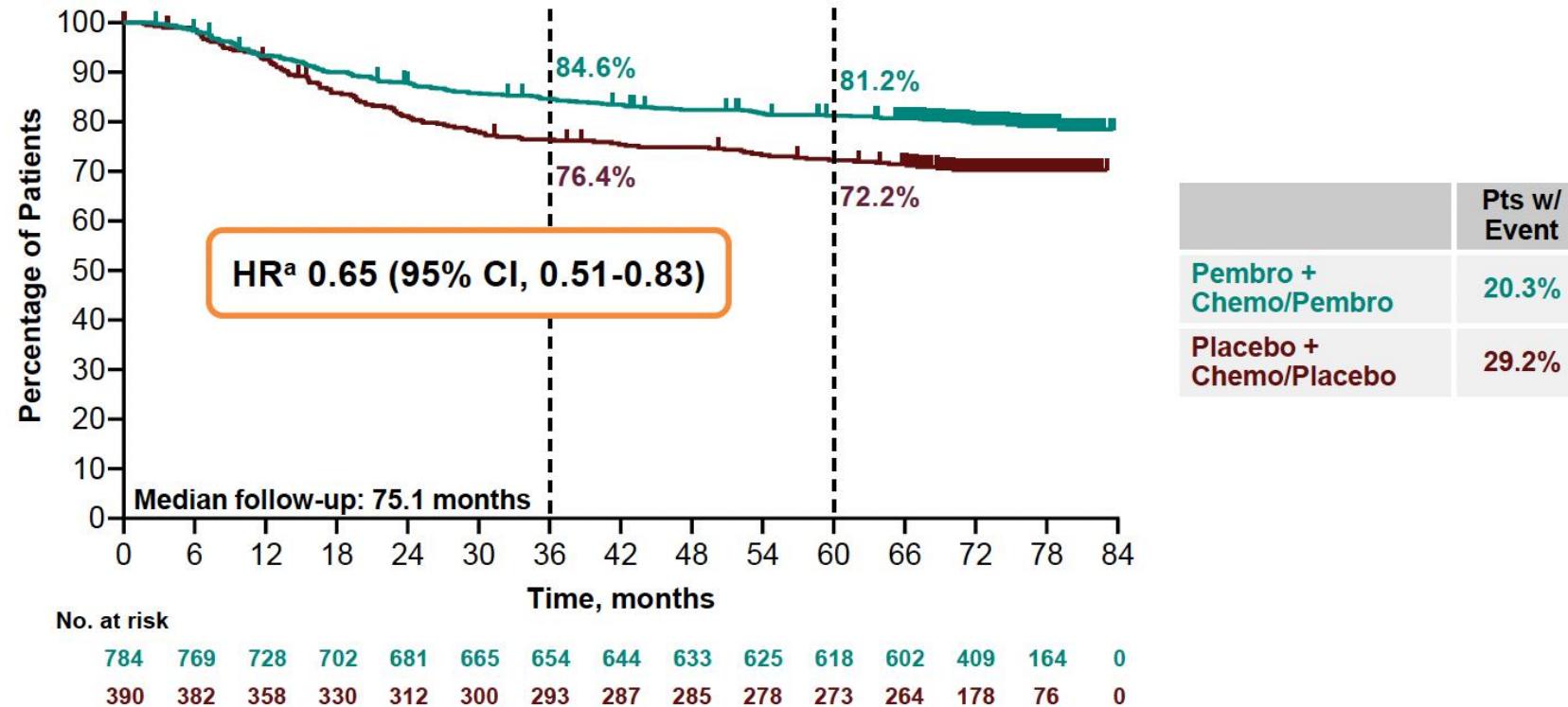
Schmid P, et al. N Engl J Med. 2020;382(9):810-821.

Schmid P, et al. N Engl J Med. 2022;386(6):556-567

Benefit seen regardless of
PD-L1 status

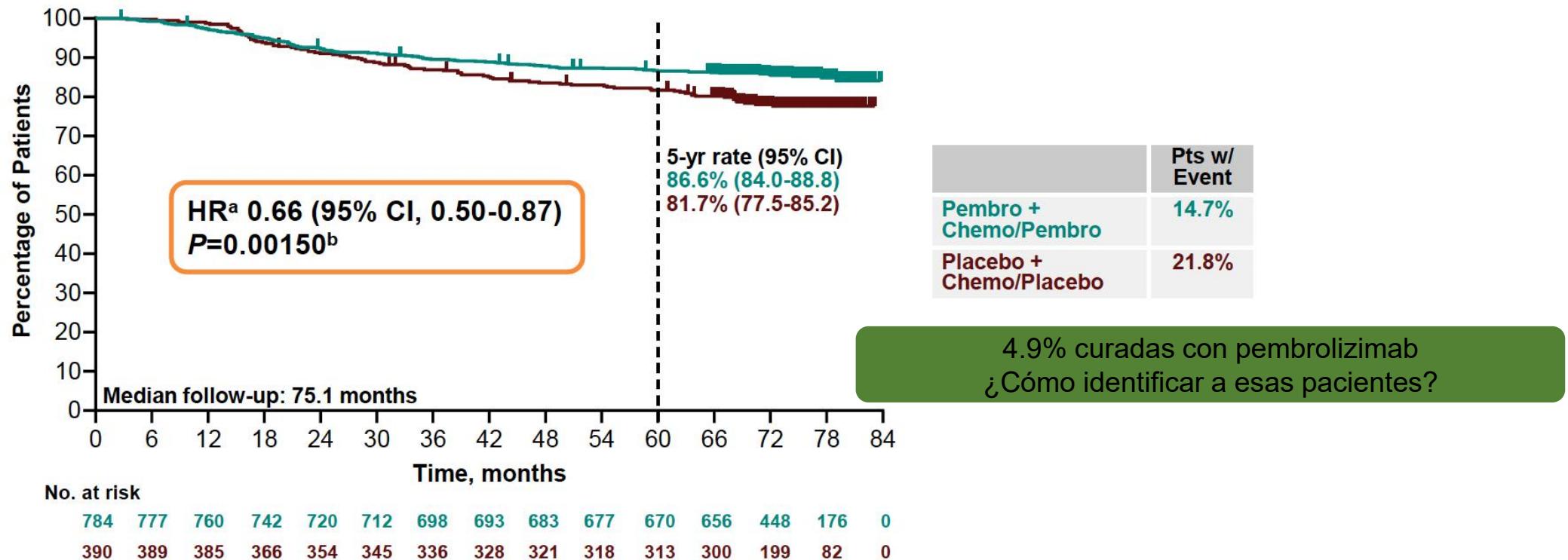


SLP



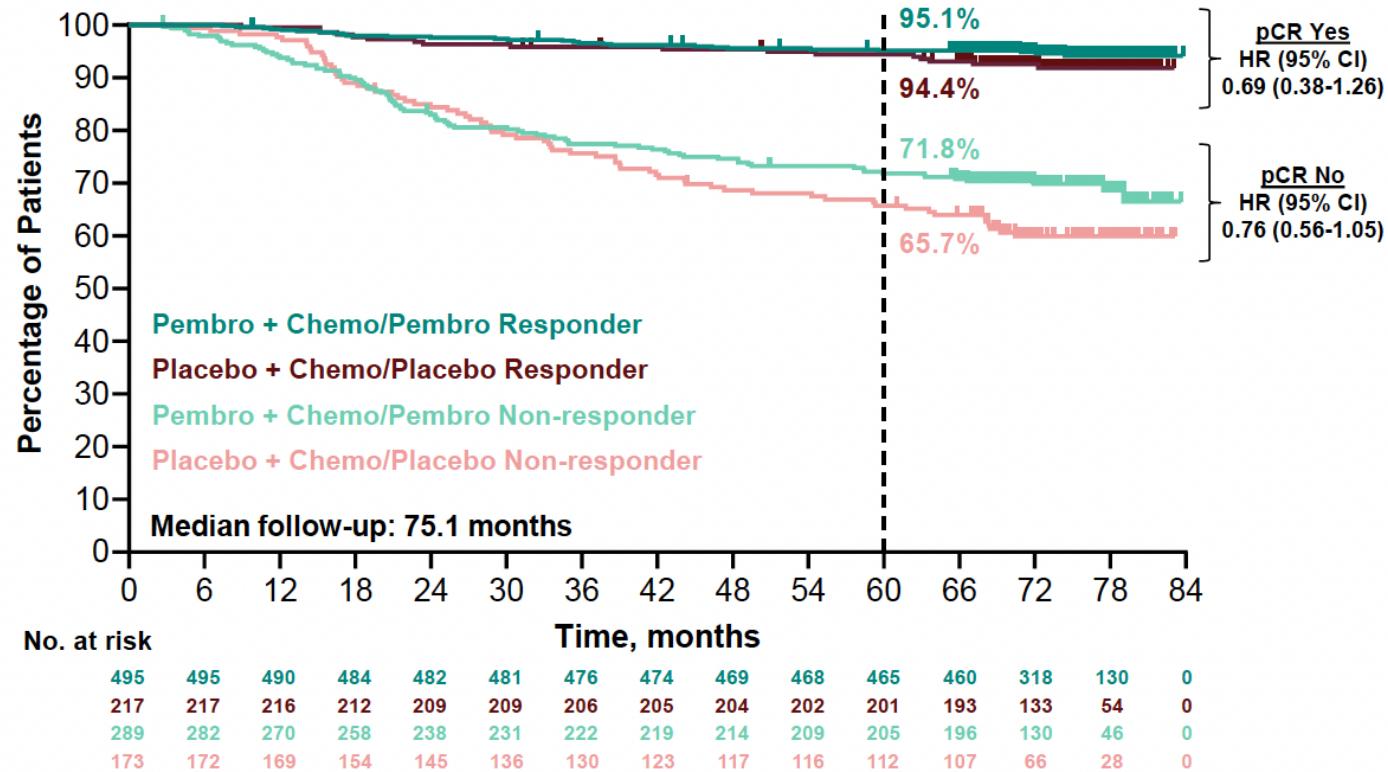


SG





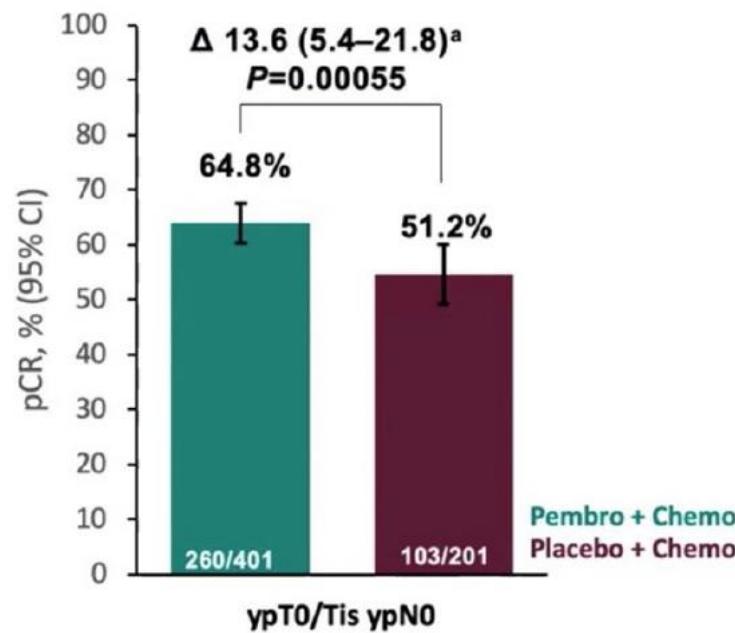
SG SEGÚN LA RESPUESTA



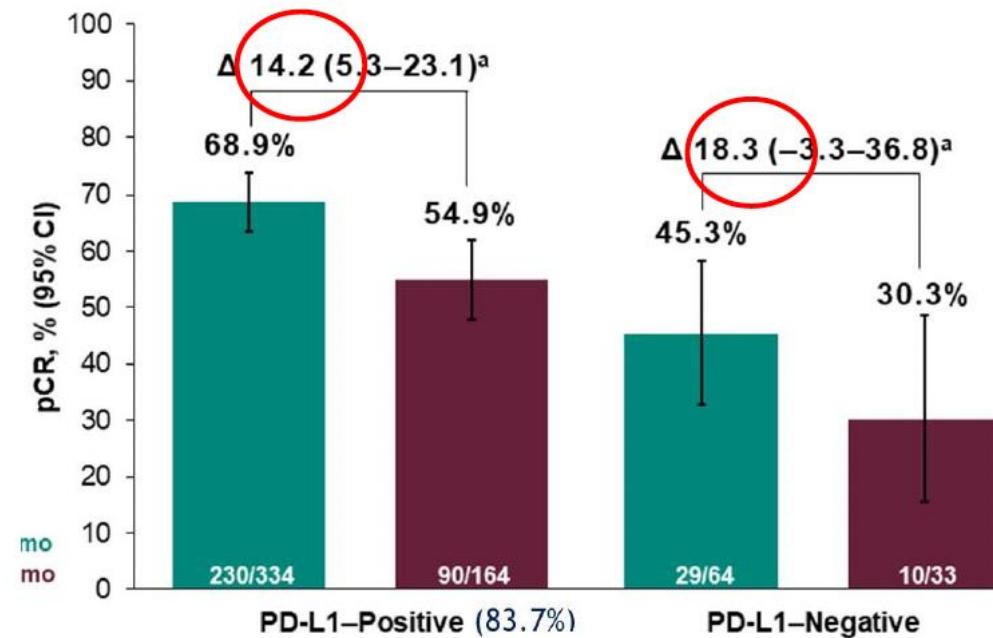


PCR: PDL1 NO PREDICE EL BENEFICIO A TRATAMIENTO

pCR in ITT Population (ypT0/Tis ypN0)

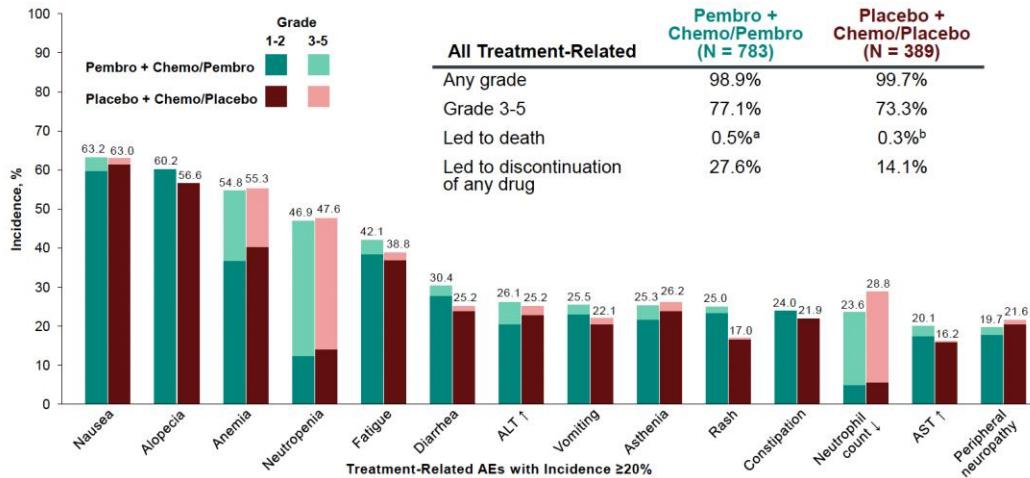


pCR by PD-L1 Status

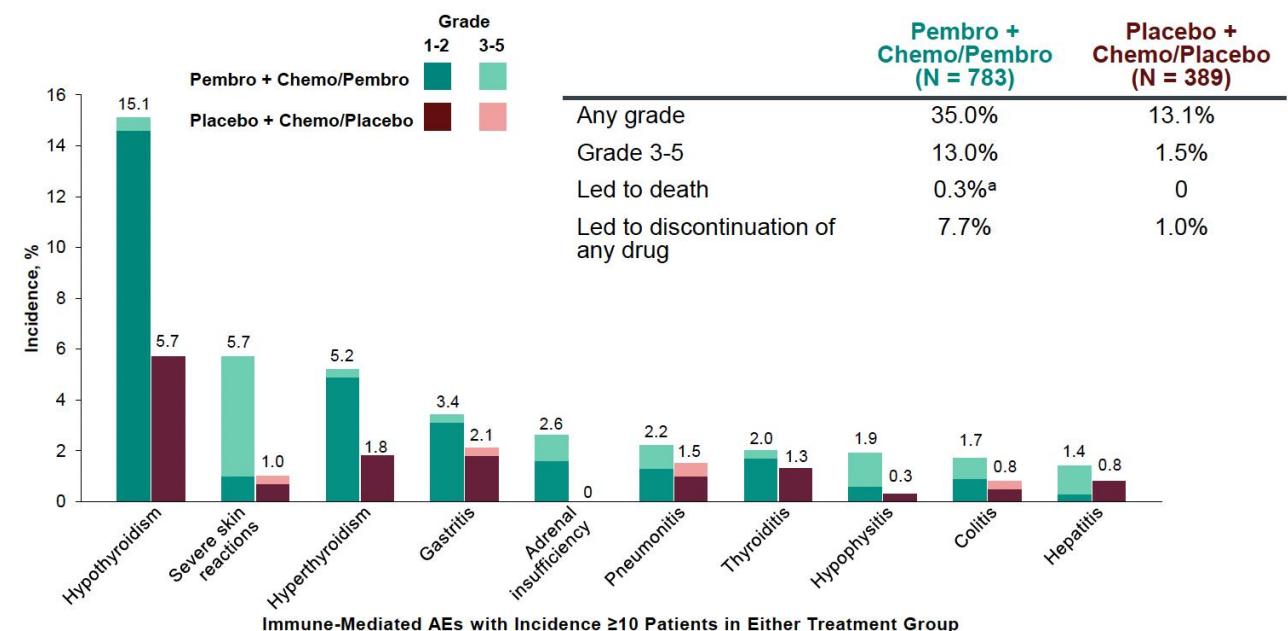




TOXICIDAD

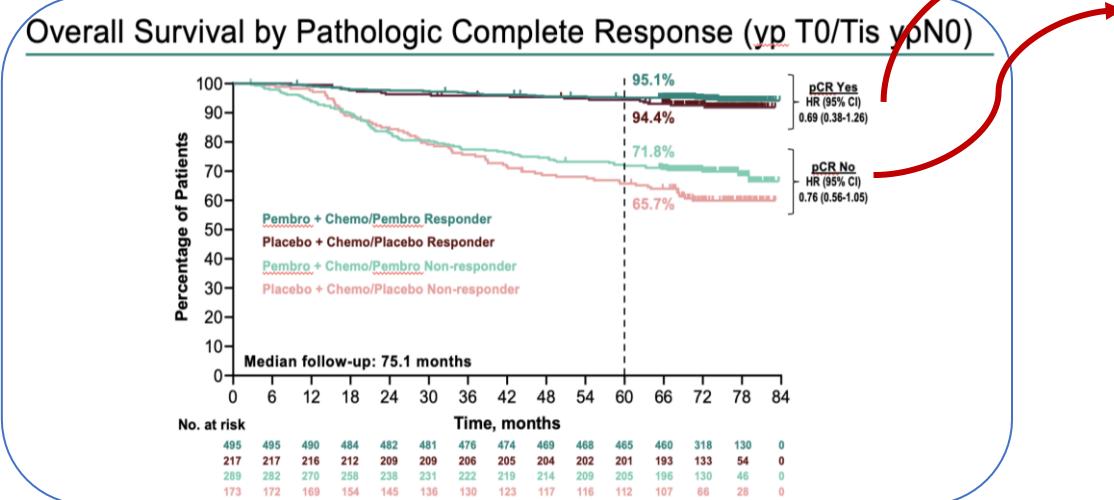
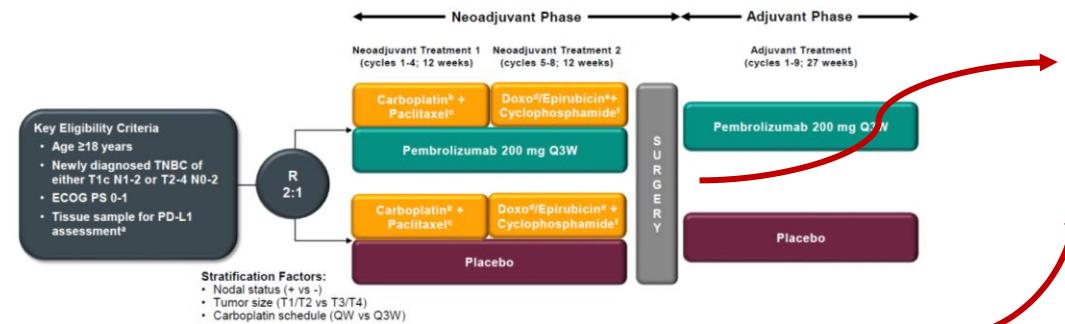


All Treatment-Related	Pembro + Chemo/Pembrolizumab (N = 783)	Placebo + Chemo/Placebo (N = 389)
Any grade	98.9%	99.7%
Grade 3-5	77.1%	73.3%
Led to death	0.5% ^a	0.3% ^b
Led to discontinuation of any drug	27.6%	14.1%





¿QUIÉN NECESITA PEMBROLIZUMAB ADYUVANTE?



Diseño KN522

Una segunda randomización podría haber dado información sobre la duración del tratamiento

Pacientes con pCR

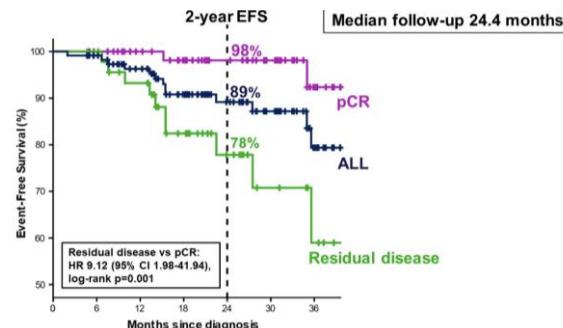
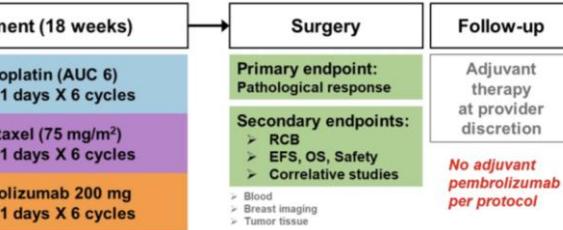
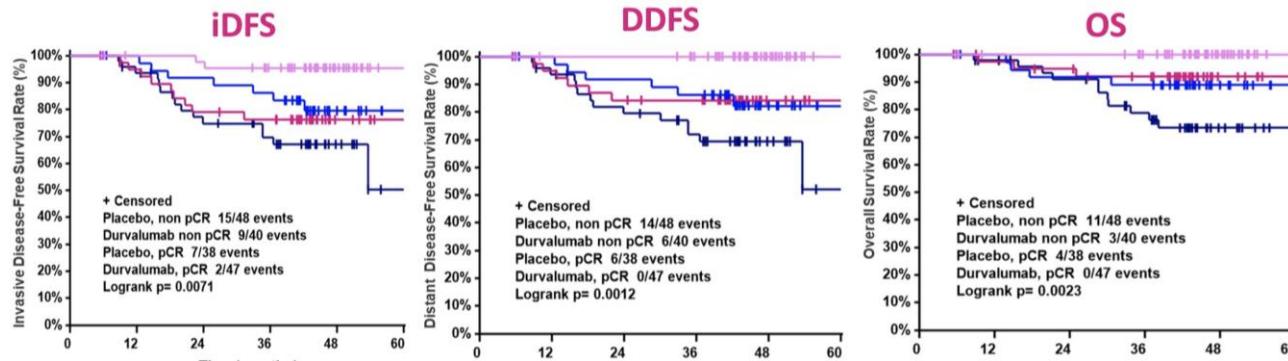
El beneficio de pembro es mínimo, si lo hay

Pacientes con no-pCR

La separación de las curvas podría deverse solamente por el tratamiento neoadyuvante



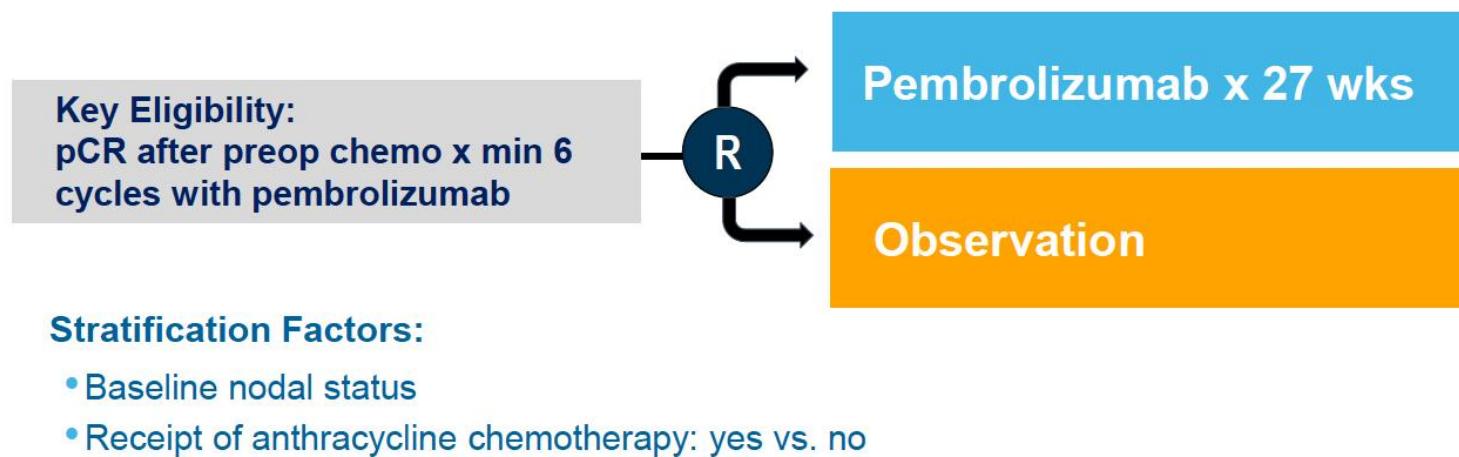
VALOR DE LA ADICIÓN DE INMUNOTERAPIA ADYUVANTE



GEPARNUEVO & NEOPACT
Excellent outcomes without
adjuvant aPDI

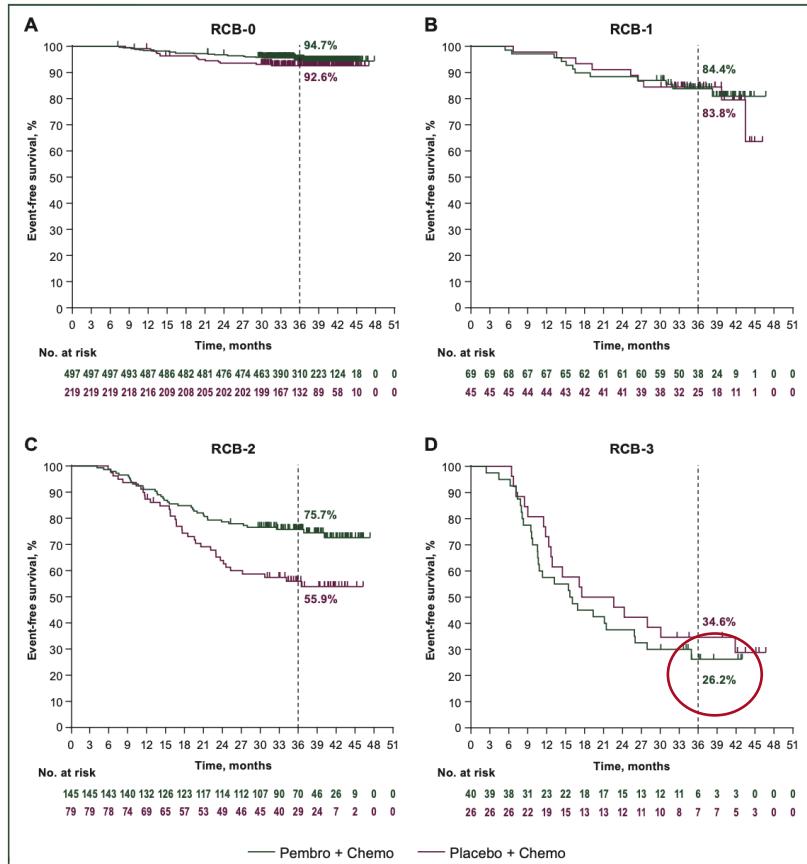


OptimICE-pCR



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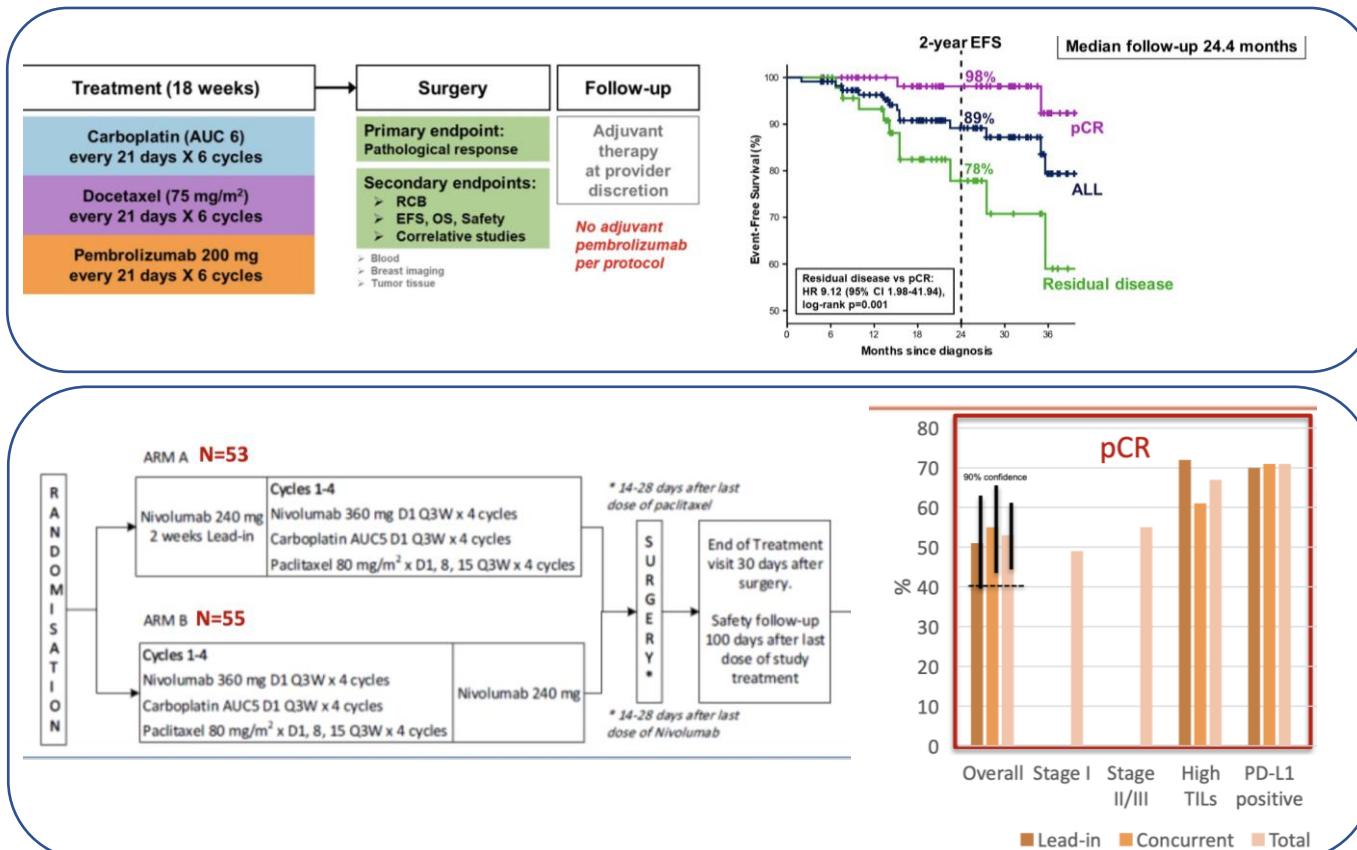
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- Debe añadirse pembrolizumab adyuvante a Capecitabina u olaparib? Ambos son tratamiento estandar
- Nuevas estrategias para pacientes con RCB 2 and 3 -> ADCs, nueva generación de inmunoterapia?



DESESCALADA DE TRATAMIENTO. ANTIPD1 SIN ANTRACICLINAS



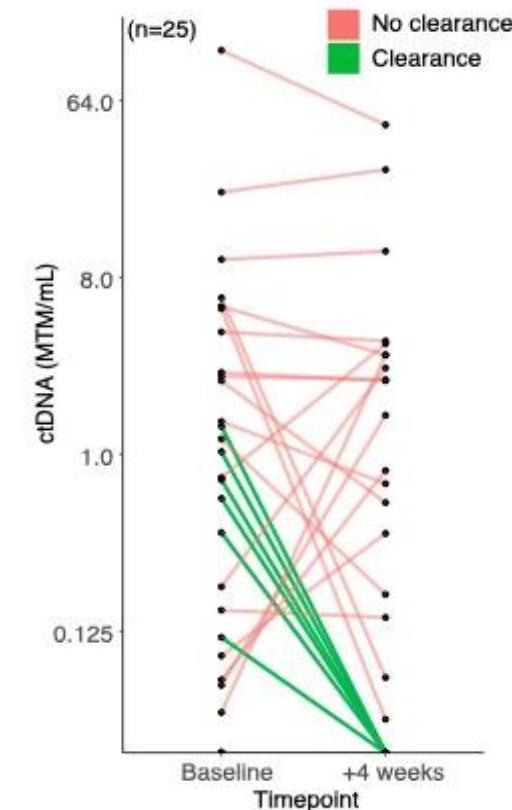
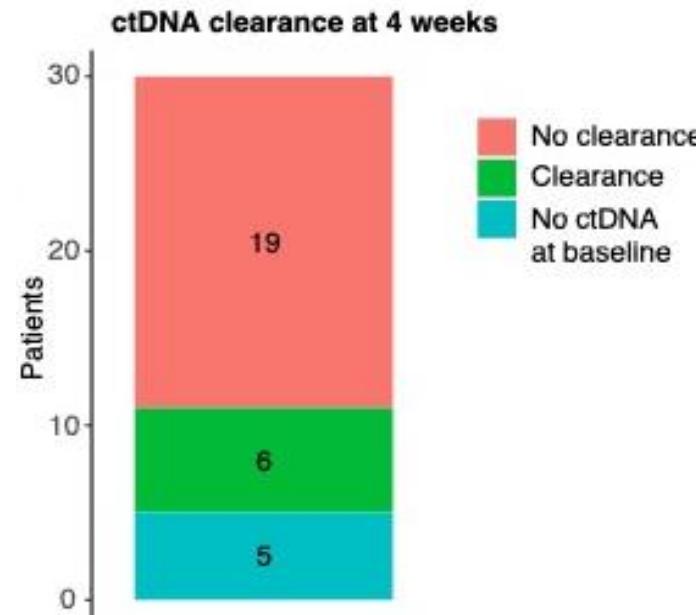
S2212: Shorter Anthracycline-free Chemoimmunotherapy Adapted to pathological Response in Early TNBC (SCARLET), n=2,400
PI: P. Sharma



POTENCIAL DEL CTDNA PARA GUIAR EN LA DESESCALADA

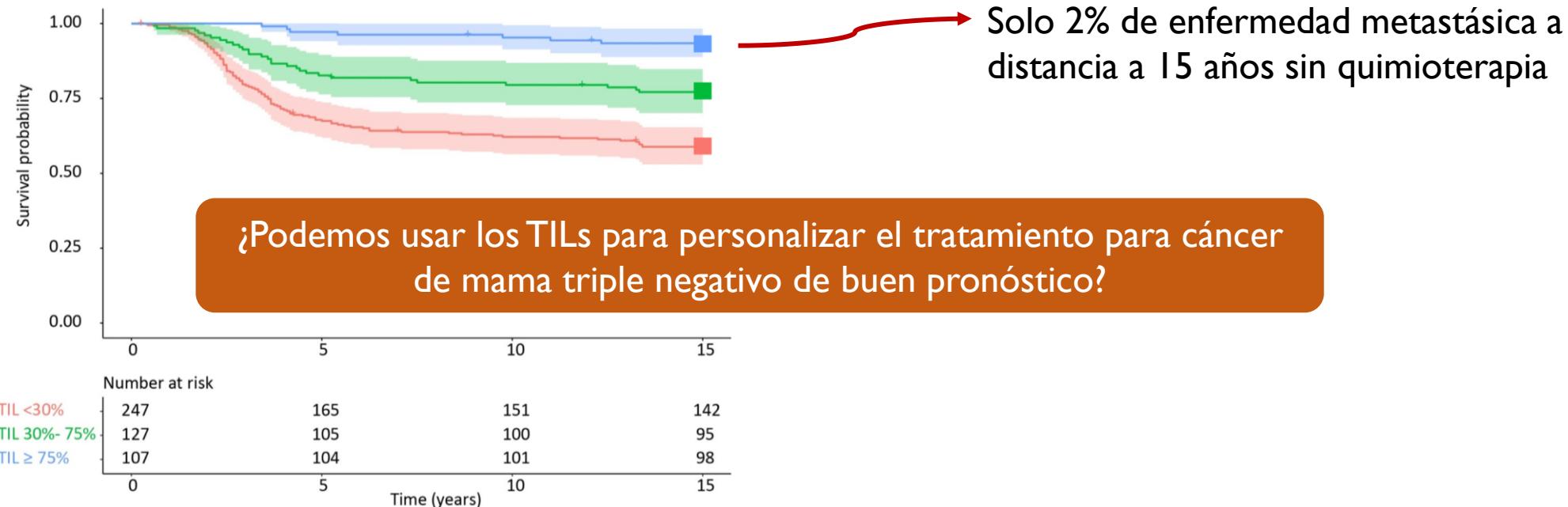
- tumor-informed circulating-tumor-DNA analyses, Signatera
- 25/30 (83%) patients with detectable ctDNA at baseline

Exploratory data from
BELLINI phase II trial



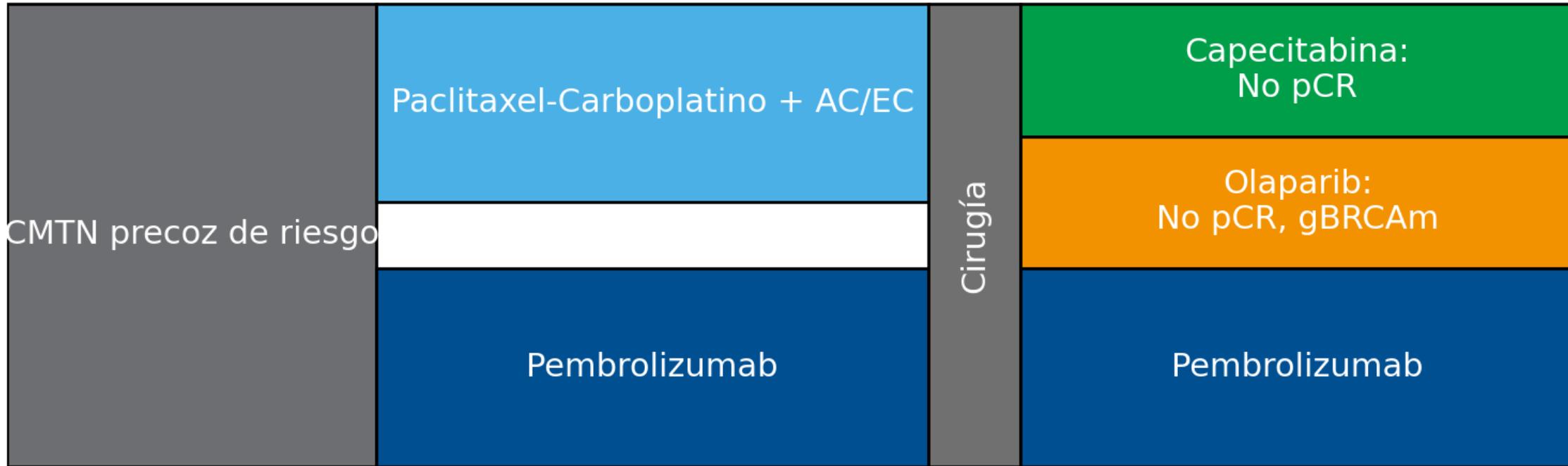


NO TRATAMIENTO SISTÉMICO PARA NO, ALTO TILS CMTN





TRATAMIENTO EN CÁNCER DE MAMA TRIPLE NEGATIVO LOCAL



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CÁNCER DE MAMA LUMINAL

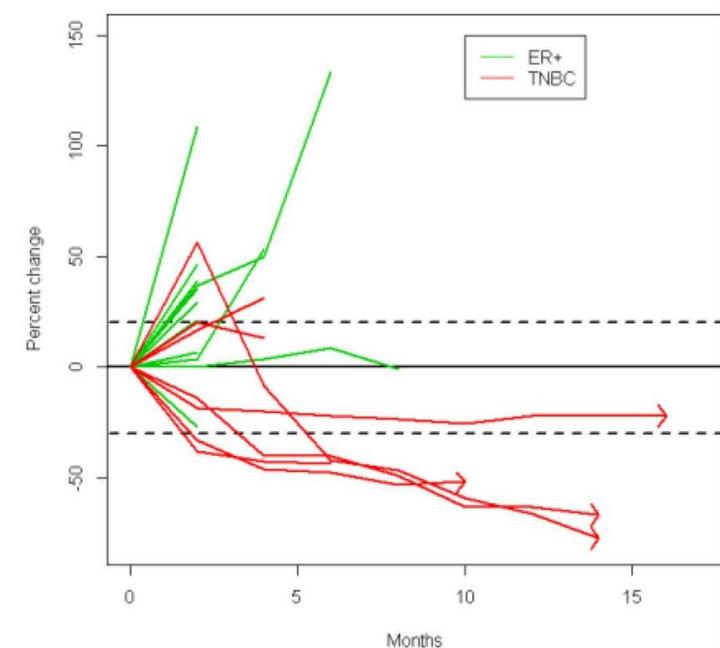


INMUNOTERAPIA EN RE+ METASTÁSICO TIENE TASAS DE RESPUESTAS BAJAS

KN-028: single agent pembrolizumab in later line metastatic ER+ disease PD-L1 CPS ≥ 1 (n=25) \rightarrow ORR 12%

Durvalumab+tremelimumab: later line metastatic HER2- MBC (11 evaluable ER+ and 7 TNBC) \rightarrow ORR 0% ER+ (43% TNBC)

Eribulin +/- pembrolizumab: randomized study (n=88) in heavily pretreated metastatic ER+ breast cancer \rightarrow no difference in PFS/OS in ITT or PDL1+ cohort



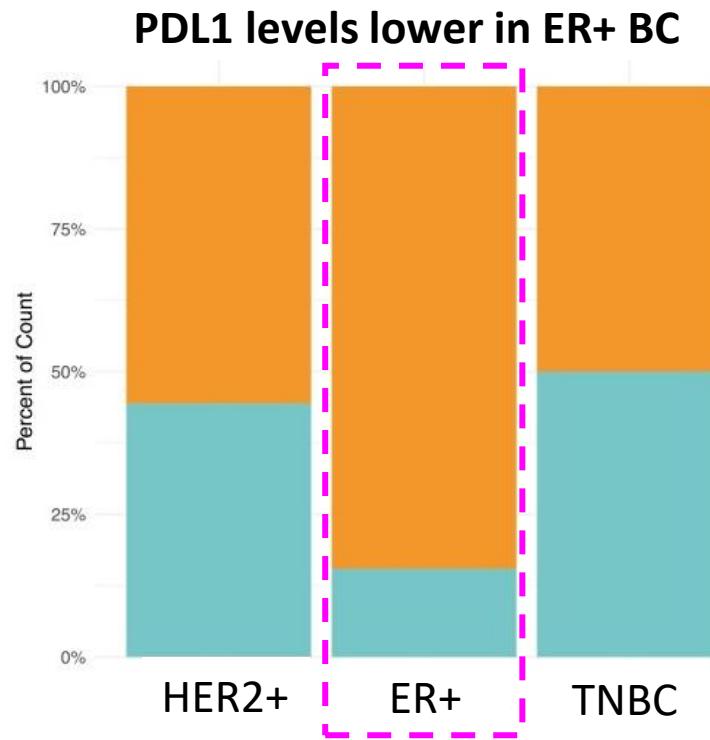
Frenel et al. JCO 2017

Santa-Maria et al. Oncotarget 2018

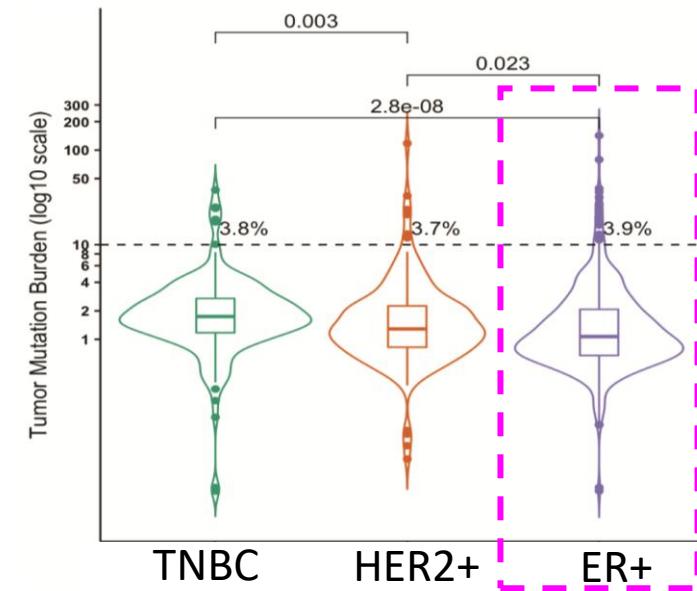
Tolaney et al. JAMA Oncol 2020



PDL1 Y TMB ESTATUS EN LOS DIFERENTES SUBTIPOS DE CÁNCER DE MAMA



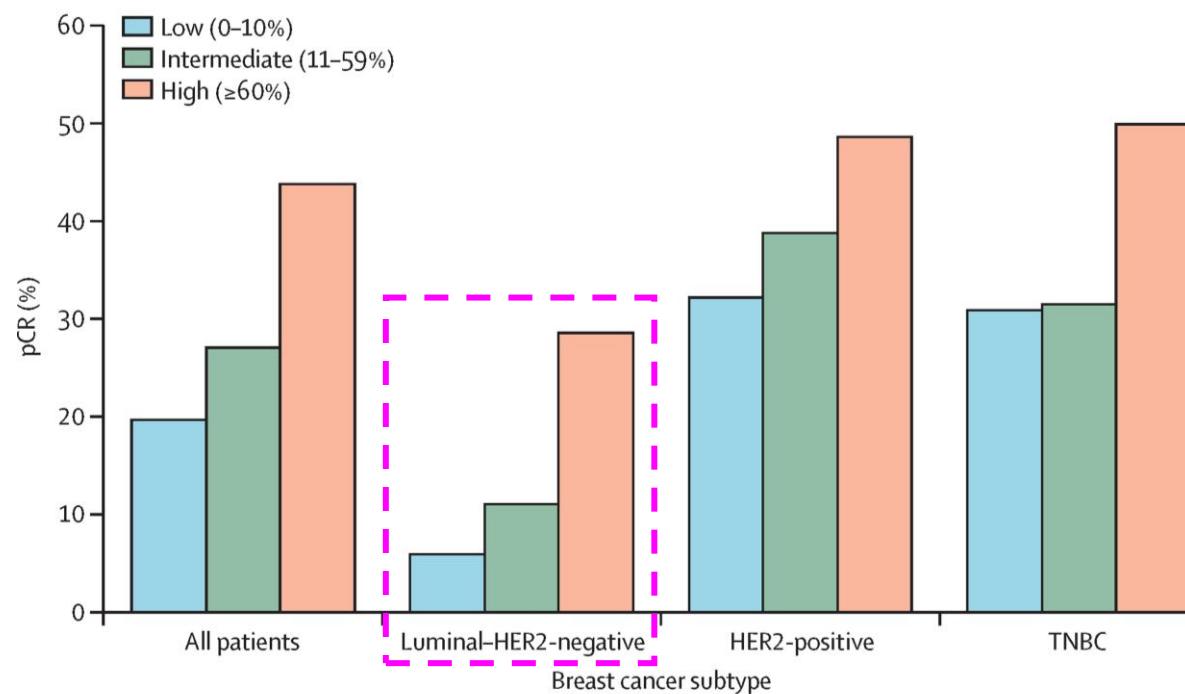
Average TMB lower in ER+ BC, but proportion of hypermutated (ie TMB ≥ 10) similar across subtypes





TILS EN CÁNCER DE MAMA LUMINAL ENFERMEDAD LOCALIZADA

Los TILs son más bajos en los cánceres de mama luminales, pero una mayor cantidad de TILs se asocia con mayores tasas de respuesta patológica completa (pCR) a la quimioterapia neoadyuvante.





2 ESTUDIOS PRESENTADOS EN ESMO 2023

KEYNOTE-756: Phase 3 Study of Neoadjuvant Pembrolizumab or Placebo + Chemotherapy Followed by Adjuvant Pembrolizumab or Placebo + Endocrine Therapy for Early-Stage High-Risk ER+/HER2- Breast Cancer

Fatima Cardoso¹, Heather McArthur², Peter Schmid³, Javier Cortes⁴, Nadia Harbeck⁵, Melinda L Telli⁶, David W. Cescon⁷, Joyce O' Shaughnessy⁸, Peter A. Fasching⁹, Zhimin Shao¹⁰, Delphine Loirat¹¹, Yeon Hee Park¹², Manuel Gonzalez Fernandez¹³, Zhenzhen Liu¹⁴, Hiroyuki Yasojima¹⁵, Yu Ding¹⁶, Liyi Jia¹⁶, Vassiliki Karantza¹⁶, Konstantinos Tryfonidis¹⁶, Aditya Bardia¹⁷

¹Champalimaud Clinical Centre/Champalimaud Foundation, Lisbon, Portugal; ²University of Texas Southwestern Medical Center, Dallas, TX, USA; ³Centre for Experimental Cancer Medicine, Barts Cancer Institute, Queen Mary University London, London, UK; ⁴International Breast Cancer Center, Quironsalud Group, Barcelona Spain and Universidad Europea de Madrid, Faculty of Biomedical and Health Sciences, Department of Medicine, Madrid, Spain; ⁵Breast Center, Dept. OB/GYN, LMU University Hospital, Munich, Germany; ⁶Stanford University School of Medicine, Stanford, CA, USA; ⁷Princess Margaret Cancer Centre, Toronto, Ontario, Canada; ⁸Baylor University Medical Center, Texas Oncology, US Oncology Network, Dallas, TX, USA; ⁹University Hospital Erlangen, Comprehensive Cancer Center Erlangen-EMN, Bavarian Cancer Research Center (BZKF), Erlangen, Germany; ¹⁰Department of Breast Surgery, Fudan University Shanghai Cancer Center, Department of Oncology, Shanghai Medical College, Fudan University, Shanghai, China; ¹¹Institut Curie, Paris, France; ¹²Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Republic of Korea; ¹³Hemato Oncologo, IMAT-Oncomedica, Monteria, Colombia; ¹⁴Department of Breast Disease, Henan Breast Cancer Center, Affiliated Cancer Hospital of Zhengzhou University & Henan Cancer Hospital, Zhengzhou, Henan, China; ¹⁵Department of Surgery Breast Oncology, NHO Osaka National Hospital, Osaka, Japan; ¹⁶Oncology, Merck & Co., Inc., Rahway, NJ, USA; ¹⁷Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

MADRID
2023 **ESMO** congress

A randomized, double-blind trial of nivolumab vs placebo with neoadjuvant chemotherapy followed by adjuvant endocrine therapy in patients with high-risk, ER+ HER2- primary breast cancer

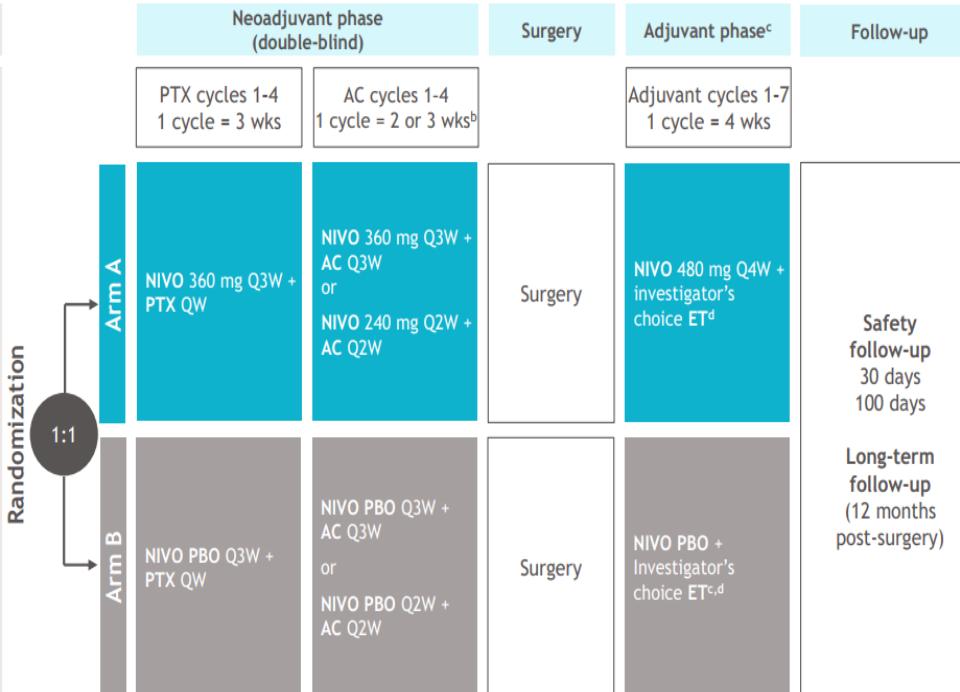
Sherene Loi,¹ Giuseppe Curigliano,^{2,3} Roberto Salgado,^{1,4} Roberto Iván Romero Díaz,⁵ Suzette Delalage,⁶ Carlos Ignacio Rojas García,⁷ Marleen Kok,⁸ Cristina Saura,⁹ Nadia Harbeck,¹⁰ Elizabeth A. Mittendorf,¹¹ Denise A. Yardley,¹² Lajos Pusztai,¹³ Alberto Suárez Zaizar,¹⁴ Andrei Ungureanu,¹⁵ Felipe Ades,¹⁶ Rajalakshmi Chandra,¹⁶ Raheel Nathani,¹⁶ Misena Pacius,¹⁶ Jenny Qun Wu,¹⁶ Heather McArthur¹⁷

¹Peter McCallum Cancer Center, Melbourne, Australia; ²European Institute of Oncology, IRCCS, Milan, Italy; ³University of Milan, Milan, Italy; ⁴GZA-ZNA Hospitals, Antwerp, Belgium; ⁵Consultorio de Oncólogo Médico, Oaxaca, Mexico; ⁶Institut Gustave Roussy, Villejuif, France; ⁷Bradford Hill Investigación Clínica, Región Metropolitana, Santiago, Chile; ⁸Netherlands Cancer Institute, Amsterdam, The Netherlands; ⁹Vall d'Hebron University Hospital, Vall d'Hebron Institute of Oncology (VHIO), Barcelona, Spain; ¹⁰Ludwig Maximilians University Hospital, Munich, Germany; ¹¹Dana Farber Cancer Institute, Boston, MA, USA; ¹²Sarah Cannon Research Institute and Tennessee Oncology PLLC, Nashville, TN, USA; ¹³Smilow Cancer Hospital at Yale, New Haven, CT, USA; ¹⁴CENEIT Oncológicos, Mexico City, Mexico; ¹⁵Radiotherapy Center CLUJ S.R.L., Floreşti, Romania; ¹⁶Bristol Myers Squibb, Princeton, NJ, USA; ¹⁷University of Texas Southwestern Medical Center, Dallas, TX, USA



CHECKMATE 7FL: AC/T +/- NIVOLUMAB EN RE+

Screening	
Key inclusion criteria	
<ul style="list-style-type: none"> Newly diagnosed ER+ HER2- breast cancer Confirmed ER+ breast cancer T1c (tumor size 2 cm only)-T2, cN1-cN2 or T3-T4, cN0-cN2 Grade 3 with ER \geq 1% or grade 2 with ER 1-10% Adequate organ function Tissue available for biomarker assessment ECOG PS 0-1 	
Stratification factors	
<ul style="list-style-type: none"> PD-L1 IC (\geq 1% or < 1%) by SP142 Tumor grade (3 or 2) Axillary nodal status (positive or negative) AC frequency (Q3W or Q2W) 	
IIT n=510	

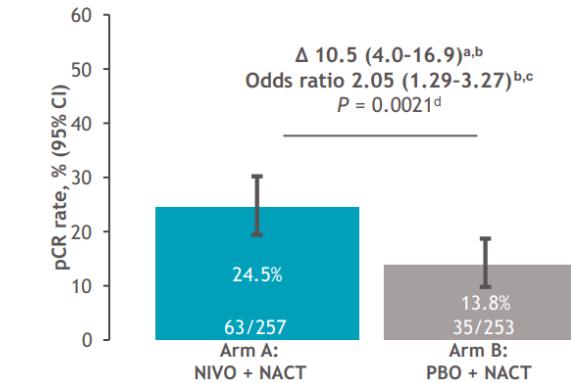


Primary endpoint: pCR

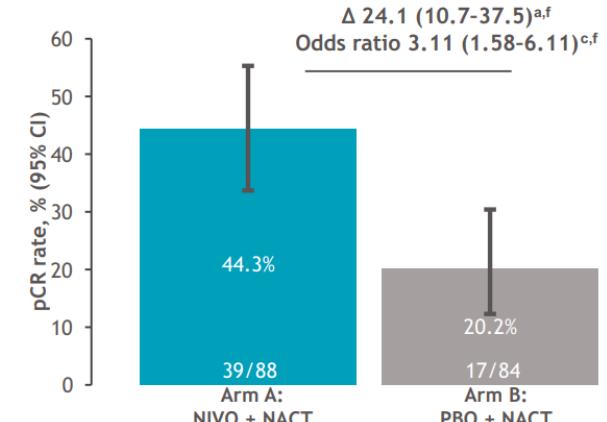
Secondary endpoints: pCR and RCB by PDL1 status, safety

Exploratory endpoints: other pCR, ORR, EFS, OS, DFS, DMFS, PDL1 analysis, PKs, PROs

mITT population (primary endpoint)

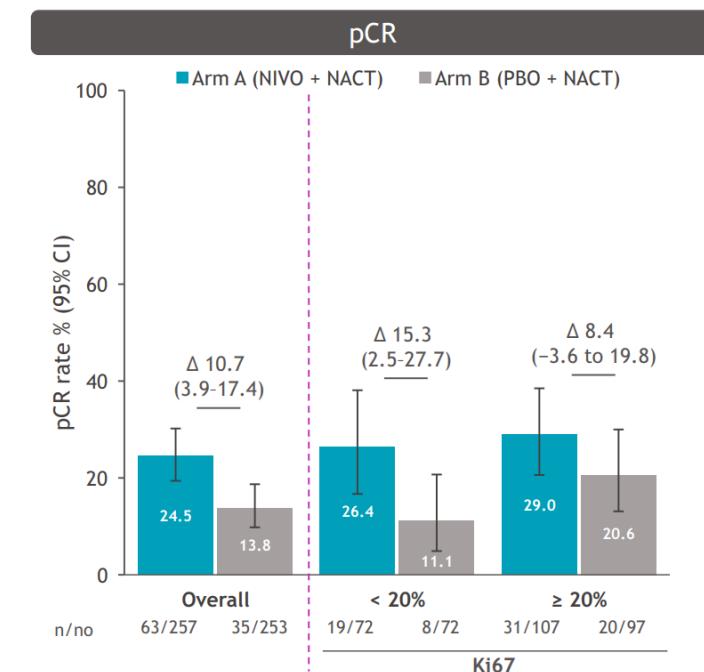
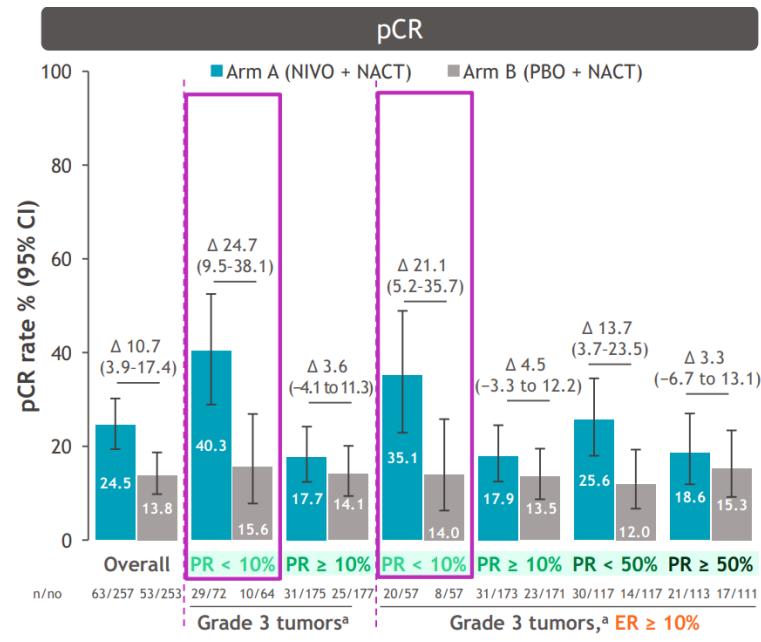
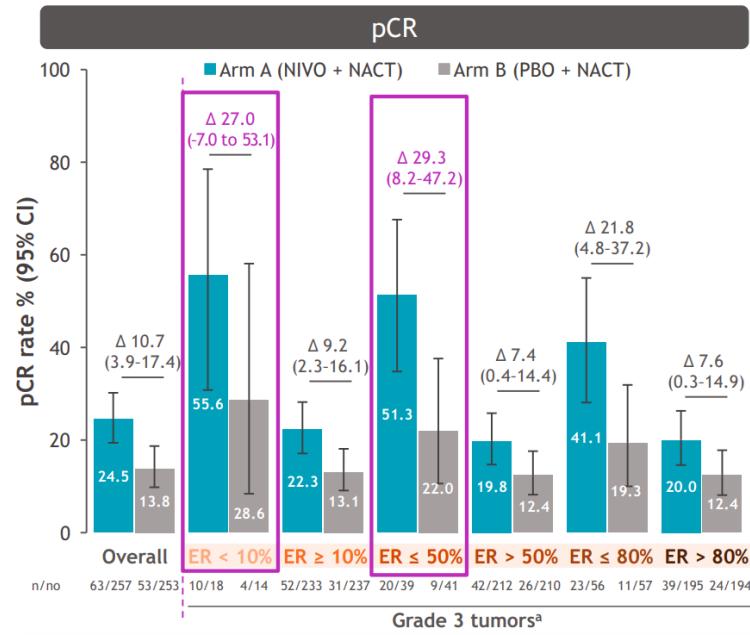


PD-L1 IC \geq 1%^e (secondary endpoint)





BIOMARCADORES RE, RP, KI67

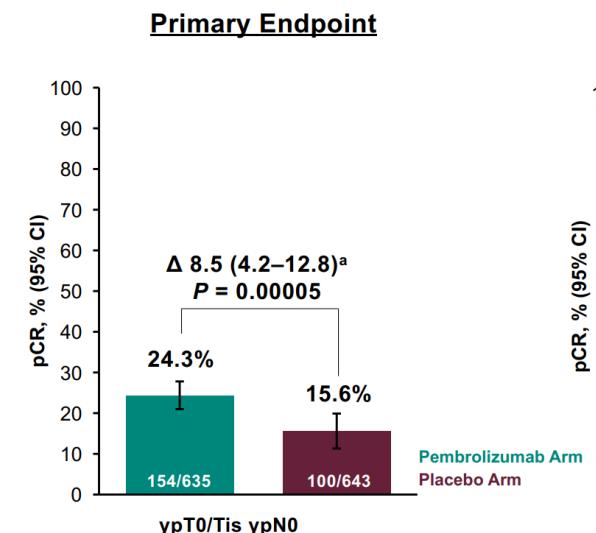
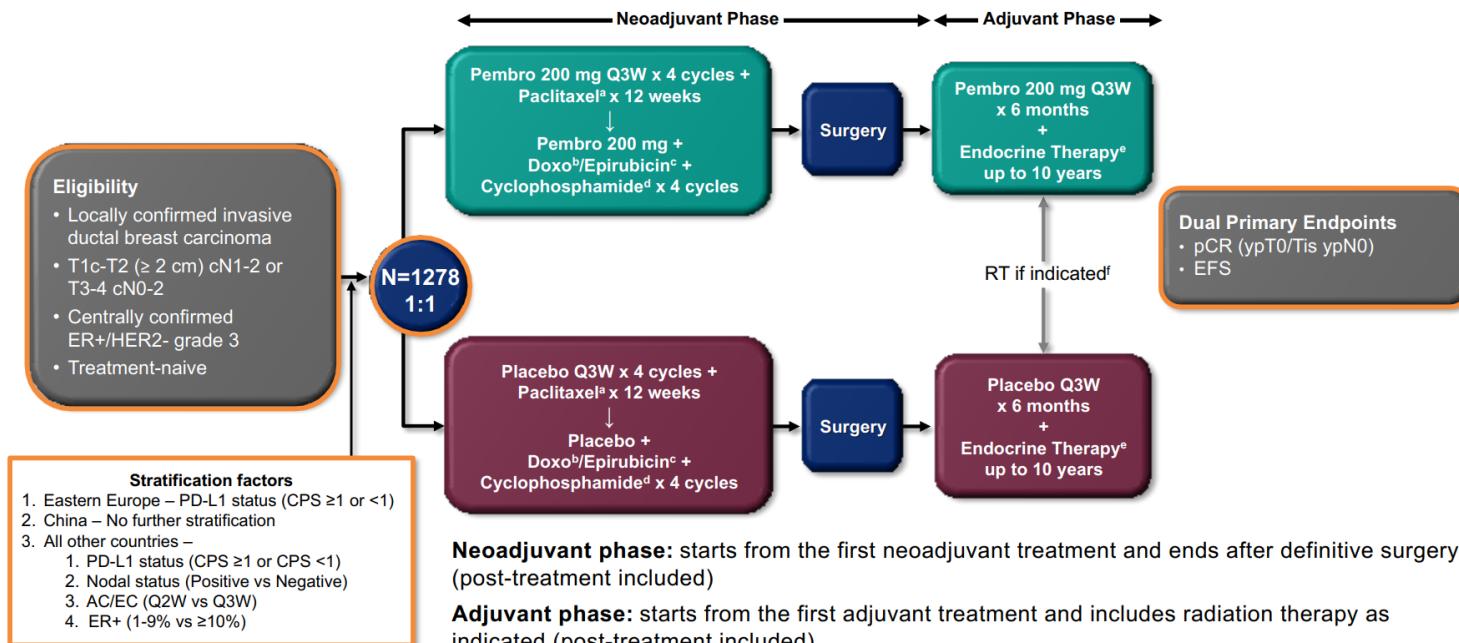


Beneficio con Nivolumab mayor con baja expresión de receptores hormonales

Ki67 no asociado con beneficio a Nivolumab



KEYNOTE-756: AC/T +/- PEMBROLIZUMAB EN RE+ PRECOZ



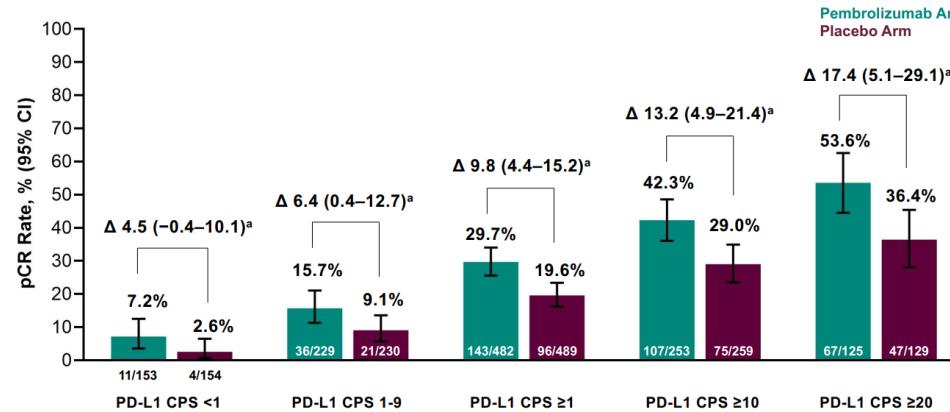
Primary endpoint: pCR + EFS

Secondary endpoints: other pCR, OS, PDL1 status, safety

Exploratory endpoints: RCB

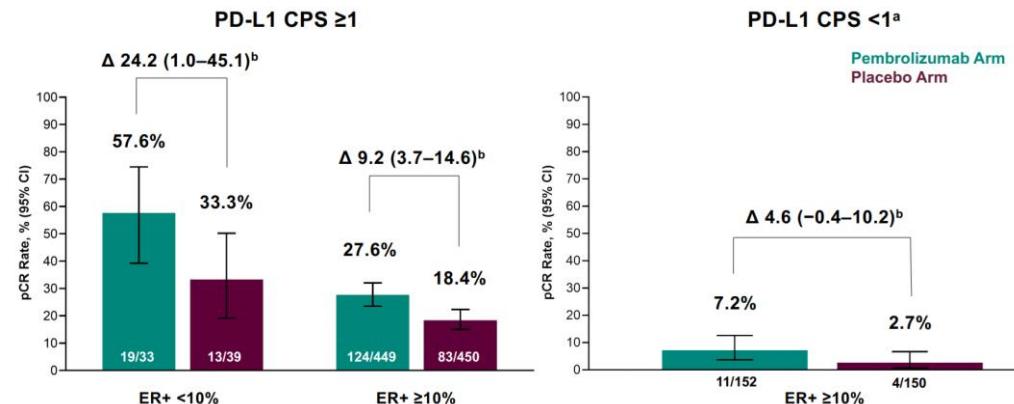


ANÁLISIS DE BIOMARCADORES: PDL1 Y ESTADO RE



Higher PDL1 status associated with higher pCR rates (to both arms), BUT also associated with greater pembrolizumab benefit

Benefit highest in ER-low, PDL1CSP ≥1



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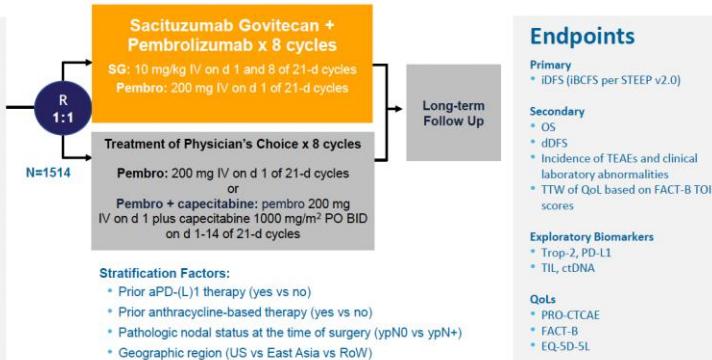


FUTURO

ASCENT-05 / OptimICE-RD: Phase III, Randomized, Open-label, Study of Adjuvant SG + Pembrolizumab vs TPC in TNBC Patients with Residual Disease After Neoadjuvant Therapy and Surgery

Residual invasive TNBC in Breast or Positive Node(s) After Neoadjuvant Therapy and Surgery

- History of cT1,cN1-2 or cT2-4, cN0-2 disease
- Received at least 6-cycles of neoadjuvant anthracycline- and/or taxane-based chemotherapy with or without an aPD-(L)1 agent
- TNBC diagnosis: ER and PR <10%, HER2 negative per ASCO/CAP
- gBRCA mutants excluded



TROPION-Breast03 Study Design

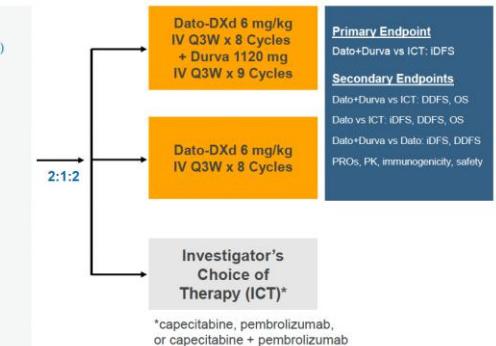
Phase 3 Dato-DXd +/- Durvalumab in Adjuvant Residual Disease TNBC

KEY ELIGIBILITY CRITERIA

- Histologically confirmed invasive TNBC (ER<1%, PR<1%, HER2-negative)
- Completed at least 6 cycles of neoadjuvant therapy containing an anthracycline and/or a taxane with or without carboplatin, with or without pembrolizumab.
- Residual invasive disease after neoadjuvant therapy
- No evidence of locoregional or distant relapse
- Radiotherapy delivered before the start of study treatment
- No adjuvant systemic therapy
- ECOG PS 0 or 1
- Adequate bone marrow reserve and organ function
- No known germline BRCA1 or BRCA2 mutation

STRATIFICATION FACTORS:

- Prior neoadjuvant pembrolizumab (Yes vs No); cap No at 40%
- Residual disease (< 1 cm vs ≥ 1 cm); cap < 1 cm (in the absence of lymph node involvement) at 20%
- Prior neoadjuvant platinum chemotherapy (Yes vs No)



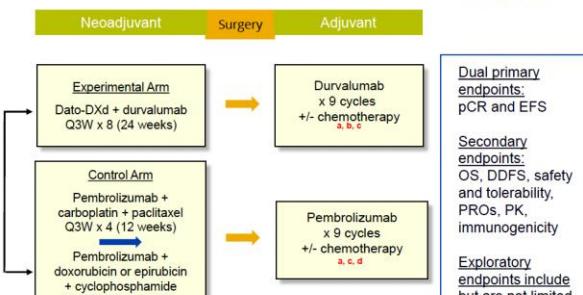
TB04 Study Design: Ph3 Dato-DXd + Durva in Neoadjuvant/Adjuvant TNBC

Key Eligibility Criteria

- Histologically confirmed Stage II or III unilateral or bilateral primary invasive breast cancer.
- TNBC (ER and PR < 1%) or hormone receptor-low breast cancer (ER and/or PR 1% to < 10%, neither hormone receptor may be ≥ 10%, and HER2-negative. ^{a,f})
- No evidence of distant disease.
- No prior surgery, radiation, or systemic anticancer therapy.
- ECOG PS 0 or 1.
- Adequate hematologic and organ function.

Stratification factors:

- Lymph node status (positive versus negative)
- Tumour stage (cT1 to cT2 versus cT3 to cT4)
- Hormone receptor status (hormone receptor-negative [ER and PR < 1%] versus hormone receptor-low [ER and/or PR 1% to < 10%, neither hormone receptor may be ≥ 10%])
- Geographic region (US/Canada/Europe/Australia versus Rest of World).



^a Endocrine therapy is permitted for participants with hormone receptor-low tumours. No adjuvant CDK4/6 inhibitor (e.g. palbociclib) is permitted.
^b Adjuvant chemotherapy may be given in combination with durvalumab for participants with residual disease. Chemotherapy options at discretion of investigator, either: docetaxel+cyclophosphamide + cyclophosphamide followed by paclitaxel + carboplatin; doxorubicin+cyclophosphamide followed by paclitaxel; carboplatin + paclitaxel; capecitabine.
^c Olaparib may be administered to participants who are gBRCA-positive with residual disease.
^d Adjuvant capecitabine may be given in combination with pembrolizumab for participants with residual disease, at the discretion of investigator.
^e Hormone receptor, HER2 local testing. BRCA: no mandatory testing, use local testing results. PD-L1 and TROP2.
^f BRCA mutation is allowed.





CONCLUSIONES

- 1.- Inmunoterapia en CMMTN Metastásico:** Estándar. Aumento en SLP y SG en PDL1+
- 2.- Enfermedad Precoz: Pembrolizumab + quimioterapia** muestra beneficio en **SLP y SG** en CMMTN
- 3.- Toxicidad y Selección de Pacientes**
- 4.- Desescalada de Tratamiento:** El uso de **ctDNA** para guiar la desescalada y el uso de inmunoterapia sin antraciclinas está mostrando prometedores resultados en pacientes de buen pronóstico. **TILS**
- 5.- Resultados prometedores en cáncer de mama luminal**
- 6.- Futuro:** Nuevas combinaciones de **inmunoterapia** con **ADC** podrían revolucionar el tratamiento del cáncer de mama.

GRACIAS!

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