Meet The Professor Immunotherapy and Novel Agents in Gynecologic Cancers

Richard T Penson, MD, MRCP

Associate Professor of Medicine
Harvard Medical School
Clinical Director, Medical Gynecologic Oncology
Massachusetts General Hospital
Boston, Massachusetts



Commercial Support

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Dr Love — **Disclosures**

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Research To Practice CME Planning Committee Members, Staff and Reviewers

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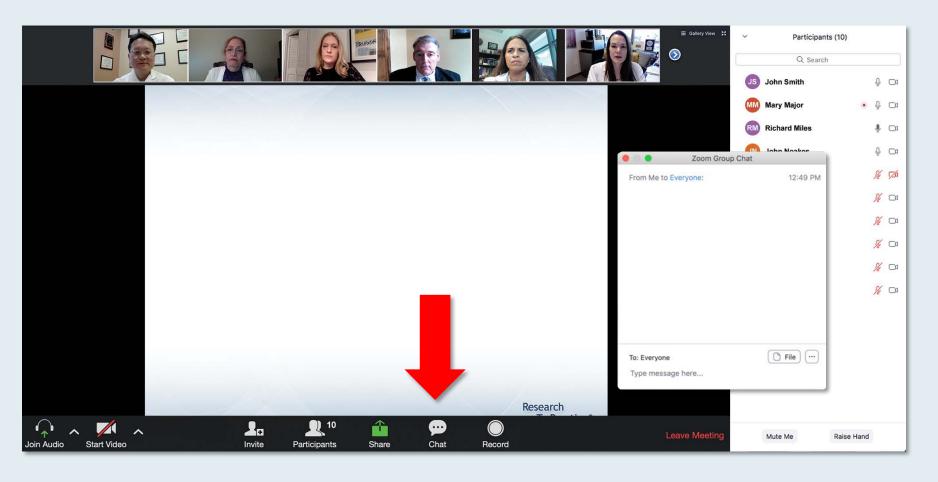


Dr Penson — **Disclosures**

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We Encourage Clinicians in Practice to Submit Questions



Feel free to submit questions now before the program begins and throughout the program.



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	6. Daratumumab	Submit	camethasone		JS Jeremy Smith	% □
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Upcoming Webinars

Wednesday, November 4, 2020 12:30 PM – 1:30 PM ET

Meet The Professor: Management of Multiple Myeloma

Faculty N. C.

Irene M Ghobrial, MD

Moderator

Neil Love, MD

Friday, November 6, 2020 12:00 PM – 1:00 PM ET

Meet The Professor: Management of Ovarian Cancer

Faculty

Mansoor Raza Mirza, MD

Moderator

Neil Love, MD

Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.



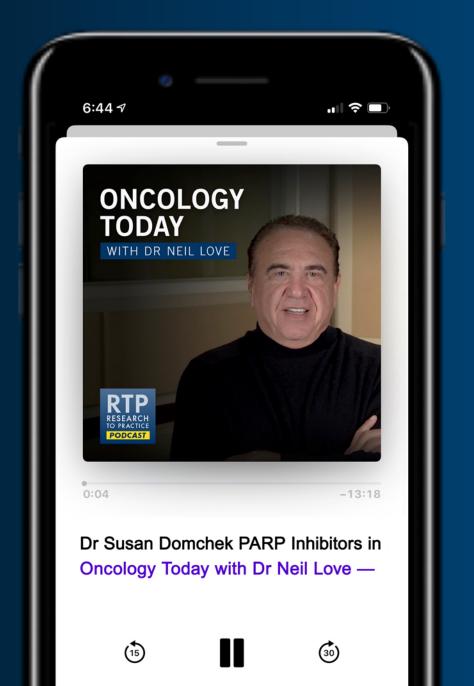
ONCOLOGY TODAY

WITH DR NEIL LOVE









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Meet The Professor Program Participating Faculty



Michael J Birrer, MD, PhD
Vice Chancellor, UAMS
Director, Winthrop P Rockefeller Cancer Institute
Director, Cancer Service Line
University of Arkansas for Medical Sciences
Little Rock, Arkansas



Ana Oaknin, MD, PhD
Head of Gynaecologic Cancer Programme
Vall d'Hebron Institute of Oncology
Hospital Universitari Vall d'Hebron
Vall d'Hebron Barcelona Hospital Campus
Barcelona, Spain



Robert L Coleman, MD
Chief Scientific Officer
US Oncology Research
Gynecologic Oncology
McKesson
The Woodlands, Texas



David M O'Malley, MD
Professor
Division Director, Gynecologic Oncology
Co-Director, Gyn Oncology Phase I Program
The Ohio State University and The James
Cancer Center
Columbus, Ohio



Meet The Professor Program Participating Faculty



Richard T Penson, MD, MRCP
Associate Professor of Medicine
Harvard Medical School
Clinical Director, Medical Gynecologic Oncology
Massachusetts General Hospital
Boston, Massachusetts



Krishnansu S Tewari, MD
Professor and Division Director
Division of Gynecologic Oncology
University of California, Irvine
Irvine, California



Matthew A Powell, MD
Professor and Chief
Division of Gynecologic Oncology
Washington University School of Medicine
St Louis, Missouri



Professor Ignace Vergote
Chairman, Department of Obstetrics and
Gynaecology
Gynaecological Oncologist
Leuven Cancer Institute
University Hospital Leuven
Leuven, Belgium



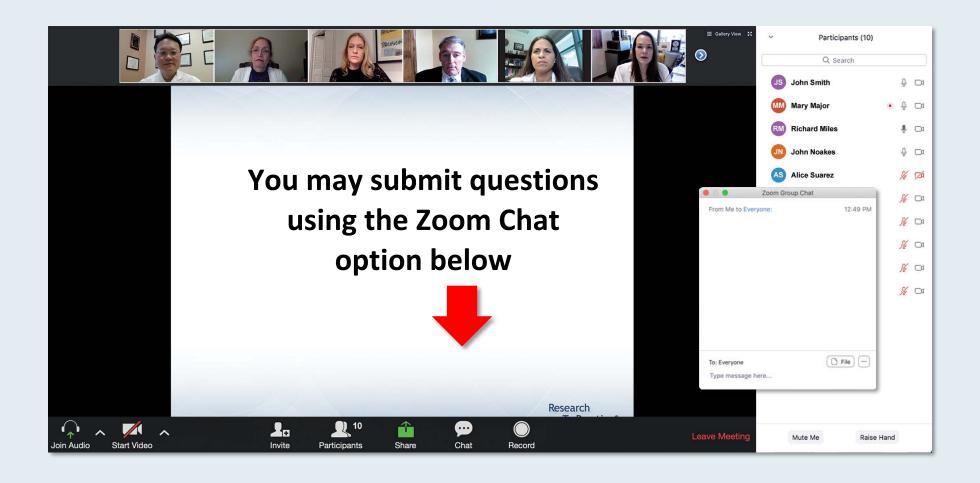
Brian M Slomovitz, MD
Professor, Department of Obstetrics
and Gynecology
Florida International University
Miami, Florida



Project Chair
Neil Love, MD
Research To Practice
Miami, Florida



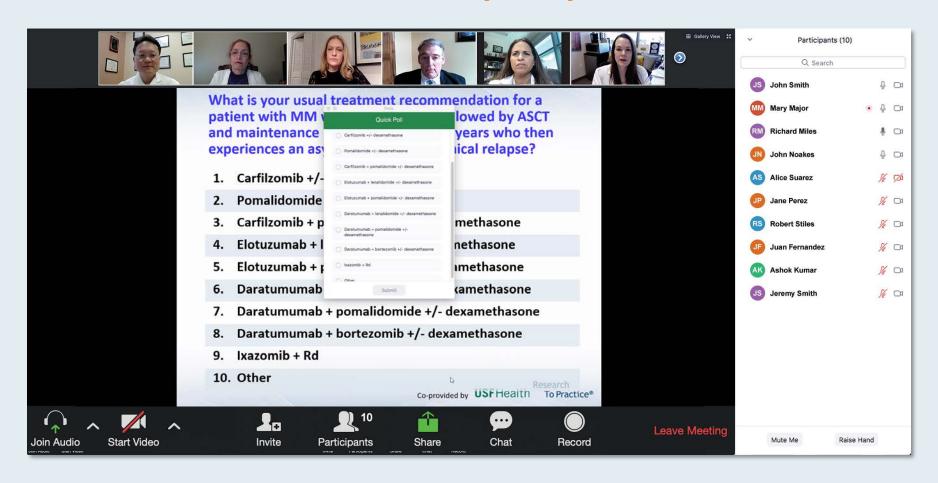
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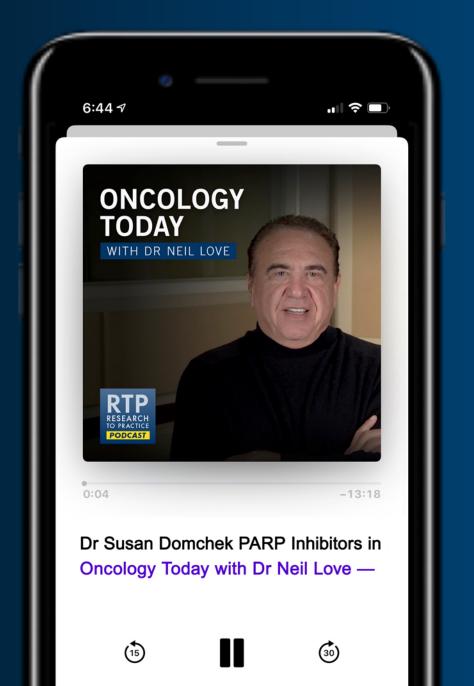
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Moderator Neil Love, MD



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Dana M Chase, MD

Gynecologic Oncologist, Arizona Oncology (US Oncology Network)
Associate Professor, Creighton University School of Medicine
Assistant Professor, University of Arizona College of Medicine
Phoenix, Arizona



Meet The Professor with Dr Penson

MODULE 1: Cases from Dr Chase

- A 53-year-old woman with recurrent endometrial cancer Mismatch repair proficient
- A 60-year-old morbidly obese woman with recurrent endometrial cancer MMR proficient
- A 70-year-old woman with recurrent endometrial cancer MMR proficient
- A 29-year-old woman with metastatic squamous cell carcinoma of the cervix
- A 39-year-old woman with Stage IV cervical cancer
- Questions and Comments: Checkpoint inhibitors in ovarian cancer
- A 35-year-old woman with recurrent cervical cancer at a single site

MODULE 2: Gynecologic Oncology Journal Club with Dr Penson

MODULE 3: Beyond the Guidelines – Clinical Investigator Approaches to Common Clinical Scenarios

MODULE 4: Key Recent Data Sets



Case Presentation – Dr Chase: A 53-year-old woman with recurrent endometrial cancer – Mismatch repair (MMR) proficient



Dr Dana Chase

- 11/2019: Stage IA Grade 2 endometrial cancer s/p TAH-BSO, pelvic and para-aortic LND
 - Node-negative, no LVI, <50% invasion, MMR intact
 - Positive pelvic washing
- 4/2020: Bilateral hydronephrosis, right intraabdominal mass

Question

• Do you do pelvic washing for endometrial cancer? If yes, and it comes back abnormal, how do you manage the patient?



Case Presentation – Dr Chase: A 53-year-old woman with recurrent endometrial cancer – MMR proficient (continued)



Dr Dana Chase

- 11/2019: Stage IA Grade 2 endometrial cancer s/p TAH-BSO, pelvic and para-aortic LND
 - Node-negative, no LVI, <50% invasion, MMR intact
 - Positive pelvic washing
- 4/2020: Bilateral hydronephrosis, right intraabdominal mass
- Enrolled on RUBY trial of carboplatin/paclitaxel +/- dostarlimab, with PD after cycle 6
- Pembrolizumab/lenvatinib

- What is your approach to dosing lenvatinib?
- How do you counsel patients about and manage toxicity from checkpoint inhibitors?
- Is there any reason to use every 6 weeks versus every 3 weeks for the checkpoint inhibitors?



Case Presentation – Dr Chase: A 60-year-old morbidly obese woman with recurrent endometrial cancer – MMR proficient



Dr Dana Chase

- 3/2016: Presents with postmenopausal bleeding and diagnosed with endometrial cancer
 - BMI > 70; Diagnostic laparoscopy unsuccessful, exploratory laparotomy avoided
 - Radiation therapy with EBRT
- 1/2019: Recurrence in endometrium/vagina \rightarrow Carboplatin/paclitaxel x 6, with residual disease
- 1/2020: BMI 45; TRH/BSO, with residual tumor
- Significant recurrence in the pelvis
- Pembrolizumab/lenvatinib, with CR

- What is your "real world" experience with patients who are MMR intact in terms of response rates? How do you counsel patients about what to expect in terms of pembrolizumab/lenvatinib efficacy?
- What do you recommend in terms of testing?



Case Presentation – Dr Chase: A 70-year-old woman with recurrent endometrial cancer – MMR proficient



Dr Dana Chase

- 3/2019: Stage IIIA, Grade 2 endometrial cancer s/p TRH-BSO, PSLND
- Carboplatin/paclitaxel x 6
- 3/2020: Abdominal wall mass and sclerotic bone lesion
- Pembrolizumab/lenvatinib, with CR
 - Progressive development of nephritis and colitis, both resolved with high-dose steroids

- How do you manage the toxicities associated with checkpoint inhibitor therapy?
- If we are able to control the nephritis and colitis, could we re-treat with pembrolizumab/lenvatinib?
 Have you ever re-treated after resolution of Grade III-IV toxicity from checkpoint inhibitors?



Case Presentation – Dr Chase: A 29-year-old woman with metastatic squamous cell carcinoma of the cervix



Dr Dana Chase

- 7/2019: Stage IB1 squamous cell carcinoma of the cervix
 - Radical hysterectomy, with positive nodes
- Adjuvant cisplatin with concurrent RT and vaginal brachytherapy
- 1/2020: Abdominal mass → Radical resection with negative margins and RT → Incisional recurrence and PD in the lung
- Enrolled on a clinical trial of tisotumab vedotin (discontinued after 1 dose due to ocular toxicity)
- 6/2020: Carboplatin/paclitaxel/bevacizumab (GOG-240 regimen)

- What is your experience with the toxicities from tisotumab vedotin? How frequently do patients
 develop these ocular toxicities and how do you manage them?
- Where do you sequence tisotumab vedotin in terms of lines of therapy? Would you use it after the GOG-240 regimen? Would you put it in before GOG-240 in a patient who already received cisplatin with radiation therapy?



Case Presentation – Dr Chase: A 39-year-old woman with Stage IV cervical cancer



Dr Dana Chase

- 2017: Stage IV cervical cancer
- Platinum/paclitaxel/bevacizumab (GOG-240 regimen) x 1 year → Nab paclitaxel/bevacizumab → bevacizumab
- 8/2019 CT: Metastatic progression in the lungs

- What is your acceptable response rate in toxicity for GOG-240 failures?
- In a patient receiving the GOG-240 regimen and responding, do you "peel" anything off, or do you continue with all 3 drugs?



Questions and Comments: Checkpoint inhibitors in ovarian cancer

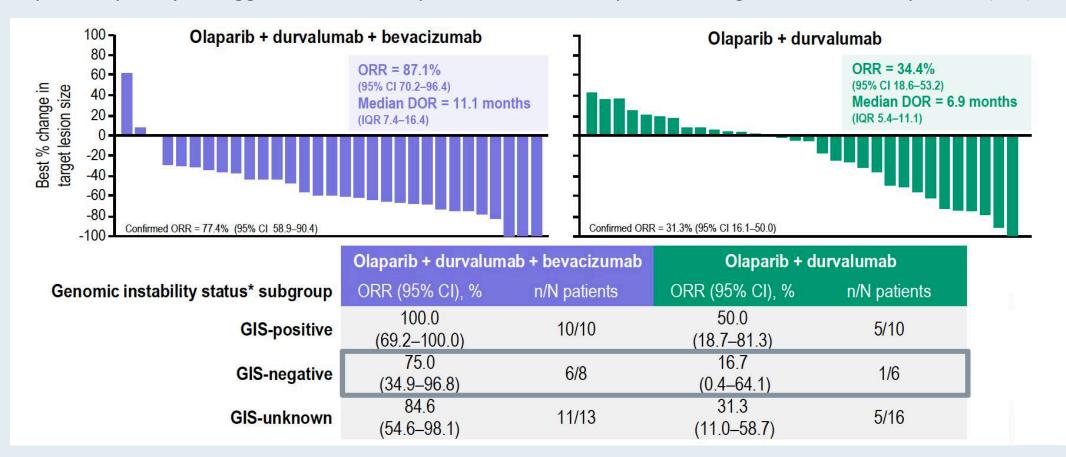


Dr Dana Chase



MEDIOLA: A Phase II Study of Olaparib and Durvalumab with or without Bevacizumab for Platinum-Sensitive Relapsed OC: No Germline BRCA Mutation Cohort

Exploratory analysis suggests ORR with triplet cohort is not dependent on genomic instability status (GIS)





Case Presentation – Dr Chase: A 35-year-old woman with recurrent cervical cancer at a single site



Dr Dana M Chase

- Stage IIB cervical cancer
- Cisplatin with concurrent RT, brachytherapy
- Three-month scan: Suspicious lymph node in the radiated field (unable to do needle biopsy)
 - → Observation
- Six weeks later: Increased size of para-aortic node -> Needle biopsy: Consistent with recurrent disease

- How do you decide to resect a lymph node in a patient with recurrent cervical cancer where it's a single site of recurrence?
- Do you only do it if it's outside of the radiated field? Do you do it even if it's in the radiated field?
- What role would a lymphadenectomy play in a patient like her?



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MODULE 3: Beyond the Guidelines – Clinical Investigator Approaches to Common Clinical Scenarios

MODULE 4: Key Recent Data Sets

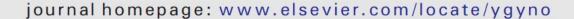


Gynecologic Oncology 156 (2020) 575–582



Contents lists available at ScienceDirect

Gynecologic Oncology





Second-line lenvatinib in patients with recurrent endometrial cancer*



Ignace Vergote ^{a,*}, Matthew A. Powell ^b, Michael G. Teneriello ^c, David S. Miller ^d, Agustin A. Garcia ^e, Olga N. Mikheeva ^f, Mariusz Bidzinski ^g, Cristina Ligia Cebotaru ^h, Corina E. Dutcus ⁱ, Min Ren ⁱ, Tadashi Kadowaki ^{j,1}, Yasuhiro Funahashi ^j, Richard T. Penson ^k

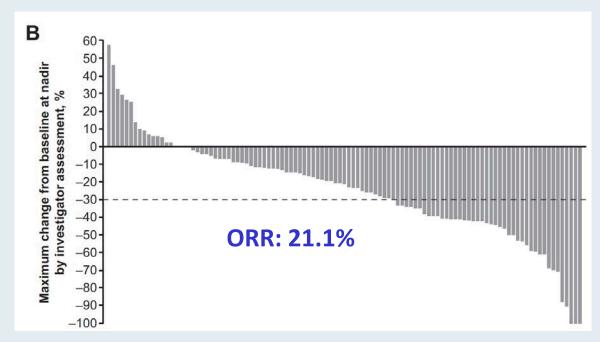


Second-Line Lenvatinib: Maximum Percentage Change from Baseline to Nadir in Sum Diameter of Target Lesions in the ITT Population

Independent Radiologic Review



Investigator Assessment





MOLECULAR CANCER THERAPEUTICS | CANCER BIOLOGY AND TRANSLATIONAL STUDIES

Circulating Tumor Cells In Advanced Cervical Cancer: NRG Oncology—Gynecologic Oncology Group Study 240 (NCT 00803062)



Krishnansu S. Tewari¹, Michael W. Sill^{2,3,4}, Bradley J. Monk⁵, Richard T. Penson⁶, David H. Moore⁷, Heather A. Lankes^{2,3,4}, Lois M. Ramondetta⁸, Lisa M. Landrum⁹, Leslie M. Randall¹, Ana Oaknin¹⁰, Mario M. Leitao¹¹, Eric L. Eisenhauer¹², Paul DiSilvestro¹³, Linda Van Le¹⁴, Michael L. Pearl¹⁵, James J. Burke^{16,17}, Ritu Salani¹⁸, Debra L. Richardson¹⁹, Helen E. Michael²⁰, David W. Kindelberger²¹, and Michael J. Birrer⁶

Mol Cancer Ther 2020; [Online ahead of print].



Original research

INTERNATIONAL JOURNAL OF GYNECOLOGICAL CANCER

Clinical trial participation and aggressive care at the end of life in patients with ovarian cancer

Roni Nitecki , ^{1,2} Alexandra S Bercow, ^{1,2} Allison A Gockley, Hang Lee, Richard T Penson, Whitfield B Growdon

Int J Gynecol Cancer 2020;30(2):201-6.



Gynecologic Oncology 157 (2020) 578-584



Contents lists available at ScienceDirect

Gynecologic Oncology





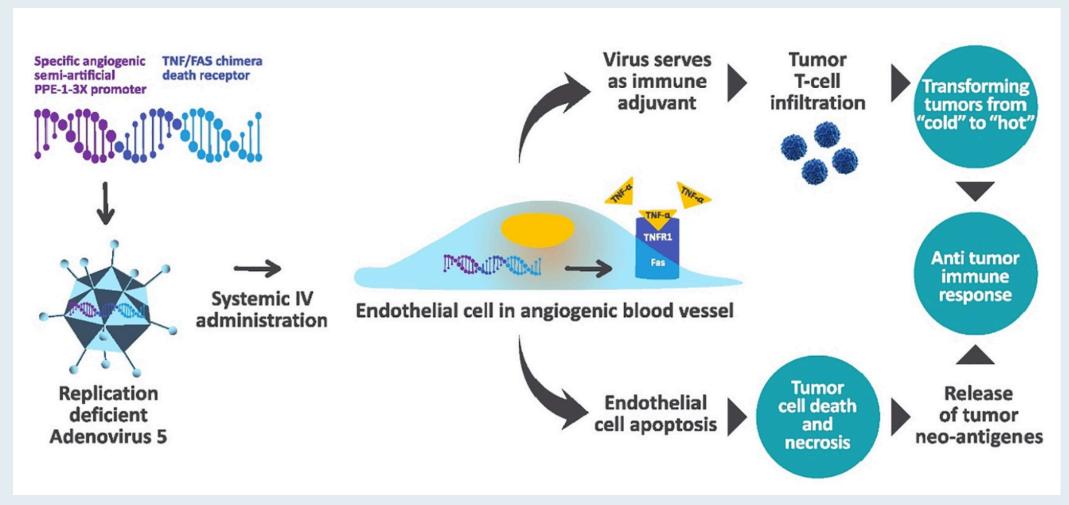
Ofranergene obadenovec (VB-111) in platinum-resistant ovarian cancer; favorable response rates in a phase I/II study are associated with an immunotherapeutic effect



Rebecca C. Arend ^a, Hannah M. Beer ^a, Yael C. Cohen ^d, Suzanne Berlin ^c, Michael J. Birrer ^e, Susana M. Campos ^c, Tamar Rachmilewitz Minei ^d, Dror Harats ^d, Jaclyn A. Wall ^a, McKenzie E. Foxall ^a, Richard T. Penson ^{b,*}



VB-111: Novel, Dual Mechanism for Targeting Solid Tumors



Three main components of VB-111: (i) a vector, (ii) a tissue- and condition-specific promoter (DNA regulatory sequence) and (iii) a functional transgene which encodes the therapeutic protein. The dual mechanism of action of VB-111 promotes anti-angiogenesis/vascular disruption and induces tumor directed intra-tumor immune response.



Clinical Trial in Progress: Pivotal Study of VB-111 Combined with Paclitaxel versus Paclitaxel for Treatment of Platinum-Resistant Ovarian Cancer (OVAL, VB-111-701/GOG-3018)

Arend RC et al.

ASCO 2019; Abstract TPS6097.



Gynecologic Oncology 159 (2020) 72–78



Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno



Combined pembrolizumab and pegylated liposomal doxorubicin in platinum resistant ovarian cancer: A phase 2 clinical trial



Elizabeth K. Lee ^a, Niya Xiong ^b, Su-Chun Cheng ^b, William T. Barry ^b, Richard T. Penson ^c, Panagiotis A. Konstantinopoulos ^{a,d}, Mark A. Hoffman ^e, Neil Horowitz ^{d,f}, Don S. Dizon ^g, Elizabeth H. Stover ^{a,d}, Alexi A. Wright ^{a,d}, Susana M. Campos ^{a,d}, Carolyn Krasner ^{c,1}, Stephanie Morrissey ^d, Christin Whalen ^d, Roxanne Quinn ^d, Ursula A. Matulonis ^{a,d,*,2}, Joyce F. Liu ^{a,d,*,2}



Lancet Oncol 2020;21(7):957-68.

Berzosertib plus gemcitabine versus gemcitabine alone in platinum-resistant high-grade serous ovarian cancer: a multicentre, open-label, randomised, phase 2 trial



Panagiotis A Konstantinopoulos, Su-Chun Cheng, Andrea E Wahner Hendrickson, Richard T Penson, Susan T Schumer, L Austin Doyle, Elizabeth K Lee, Elise C Kohn, Linda R Duska, Marta A Crispens, Alexander B Olawaiye, Ira S Winer, Lisa M Barroilhet, Siqing Fu, Michael T McHale, Russell J Schilder, Anniina Färkkilä, Dipanjan Chowdhury, Jennifer Curtis, Roxanne S Quinn, Brittany Bowes, Alan D D'Andrea, Geoffrey I Shapiro*, Ursula A Matulonis*



Check for updates

Phase II Study of Avelumab in Patients With Mismatch Repair Deficient and Mismatch Rep Proficient Recurrent/Persistent Endometrial Cancer Panagiotis A. Konstantinopoulos MD. Phole Medical Loss Files and Paragiotis A. Konstantinopoulos MD. Phole Medical Loss Files Mismatch Repair Deficient and Mismatch Repair

Panagiotis A. Konstantinopoulos, MD, PhD¹; Weixiu Luo, MS¹; Joyce F. Liu, MD¹; Doga C. Gulhan, PhD²; Carolyn Krasner, MD¹; Jeffrey J. Ishizuka, MD, DPhil¹; Allison A. Gockley, MD³; Mary Buss, MD, MPH⁴; Whitfield B. Growdon, MD⁵; Heather Crowe⁵; Susana Campos, MD, MPH¹; Neal I. Lindeman, MD³; Sarah Hill, MD, PhD³; Elizabeth Stover, MD, PhD¹; Susan Schumer, MD¹; Alexi A. Wright, MD, MPH¹; Jennifer Curtis, MS¹; Roxanne Quinn¹; Christin Whalen, RN¹; Kathryn P. Gray, PhD¹; Richard T. Penson, MD⁵; Stephen A. Cannistra, MD⁴; Gini F. Fleming, MD⁶; and Ursula A. Matulonis, MD¹

J Clin Oncol 2019;37(30):2786-94.



Research

JAMA Oncol 2019;5(12):1731-8.

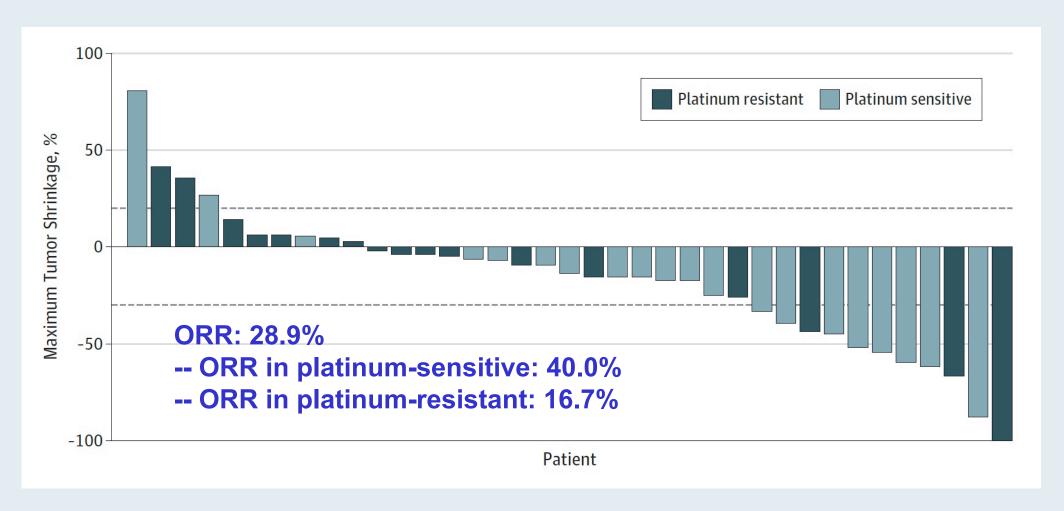
JAMA Oncology | Original Investigation

Assessment of Combined Nivolumab and Bevacizumab in Relapsed Ovarian Cancer A Phase 2 Clinical Trial

Joyce F. Liu, MD, MPH; Christina Herold, MD; Kathryn P. Gray, PhD; Richard T. Penson, MD; Neil Horowitz, MD; Panagiotis A. Konstantinopoulos, MD; Cesar M. Castro, MD; Sarah J. Hill, MD, PhD; Jennifer Curtis, MS; Weixiu Luo, MS; Ursula A. Matulonis, MD; Stephen A. Cannistra, MD; Don S. Dizon, MD

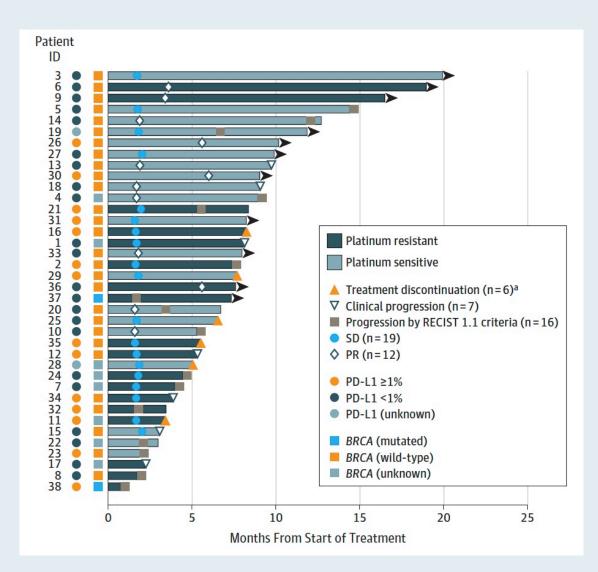


Nivolumab/Bevacizumab for Relapsed Ovarian Cancer: Best Responses in Evaluable Patients





Nivolumab/Bevacizumab in Relapsed Ovarian Cancer: Time Receiving Treatment



ID indicates identification; PD-L1, programmed death ligand 1; PR, partial response; SD, stable disease.

Six patients discontinued treatment for the following reasons: withdrawal of consent (n = 3); recurrent, grade 2 treatment-related pneumonitis (n = 1); grade 3 treatment-related transaminitis (n = 1); and increase in disease during treatment for treatment-related pneumonitis (n = 1).



Gynecologic Oncology 157 (2020) 379-385



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journal homepage: www.elsevier.com/locate/ygyno



Phase Ib study of mirvetuximab soravtansine, a folate receptor alpha $(FR\alpha)$ -targeting antibody-drug conjugate (ADC), in combination with bevacizumab in patients with platinum-resistant ovarian cancer



David M. O'Malley ^{a,*}, Ursula A. Matulonis ^b, Michael J. Birrer ^c, Cesar M. Castro ^d, Lucy Gilbert ^e, Ignace Vergote ^f, Lainie P. Martin ^g, Gina M. Mantia-Smaldone ^h, Antonio González Martin ⁱ, Raquel Bratos ^j, Richard T. Penson ^d, Karim Malek ^k, Kathleen N. Moore ^{l,m}



STRO-002-GM1, a First in Human, Phase 1 Study of STRO-002, an Anti-Folate Receptor Alpha (FRα) Antibody Drug Conjugate (ADC), in Patients with Advanced Platinum-Resistant/Refractory Epithelial Ovarian Cancer (OC), Including Fallopian Tube or Primary Peritoneal Cancers

Naumann RW et al.

AACR 2020; Abstract CT125.



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MODULE 3: Beyond the Guidelines – Clinical Investigator Approaches to Common Clinical Scenarios

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In general, what treatment would you recommend for a patient with microsatellite-stable metastatic endometrial cancer who experienced disease progression on carboplatin/paclitaxel?

- 1. Cisplatin/doxorubicin
- 2. Carboplatin/docetaxel
- 3. Lenvatinib/pembrolizumab
- 4. Test for PD-L1 combined positive score (CPS) and administer pembrolizumab if 1% or higher
- 5. Pembrolizumab
- 6. Other chemotherapy
- 7. Other



In general, what treatment would you recommend for a patient with MSI-high metastatic endometrial cancer who experienced disease progression on carboplatin/paclitaxel?

- 1. Cisplatin/doxorubicin
- 2. Carboplatin/docetaxel
- 3. Lenvatinib/pembrolizumab
- 4. Pembrolizumab
- 5. Other chemotherapy
- 6. Other



In general, what treatment would you recommend for a patient with metastatic endometrial cancer who experienced disease progression on carboplatin/paclitaxel if their disease was...

	Microsatellite stable (MSS)	MSI high (MSI-H)
MICHAEL J BIRRER, MD, PHD	Lenvatinib/pembrolizumab	Pembrolizumab
ROBERT L COLEMAN, MD	Lenvatinib/pembrolizumab	Pembrolizumab
ANA OAKNIN, MD, PHD	Lenvatinib/pembrolizumab	Dostarlimab
DAVID M O'MALLEY, MD	Lenvatinib/pembrolizumab	Pembrolizumab
RICHARD T PENSON, MD, MRCP	Lenvatinib/pembrolizumab	Pembrolizumab
MATTHEW A POWELL, MD	Lenvatinib/pembrolizumab	Pembrolizumab
BRIAN M SLOMOVITZ, MD	Lenvatinib/pembrolizumab	Pembrolizumab
KRISHNANSU S TEWARI, MD	Lenvatinib/pembrolizumab	Pembrolizumab
PROFESSOR IGNACE VERGOTE	Lenvatinib/pembrolizumab	Pembrolizumab

For a patient with MSI-high metastatic endometrial cancer, outside of a clinical trial setting and regulatory and reimbursement issues aside, what is the earliest point at which you would introduce an anti-PD-1/PD-L1 antibody? Which regimen would you generally use?

	Earliest timing	Regimen
MICHAEL J BIRRER, MD, PHD	Second line	Pembrolizumab
ROBERT L COLEMAN, MD	Second line	Pembrolizumab
ANA OAKNIN, MD, PHD	Second line	Dostarlimab
DAVID M O'MALLEY, MD	First line	Pembrolizumab
RICHARD T PENSON, MD, MRCP	First line	Pembrolizumab
MATTHEW A POWELL, MD	Second line	Pembrolizumab
BRIAN M SLOMOVITZ, MD	Second line	Pembrolizumab
KRISHNANSU S TEWARI, MD	Second line	Pembrolizumab
PROFESSOR IGNACE VERGOTE	First line	Pembrolizumab

In general, what would be your preferred first-line therapy for a patient with MSS metastatic cervical cancer who has received no prior systemic treatment?

MICHAEL J BIRRER, MD, PHD	Cisplatin/paclitaxel/bevacizumab
ROBERT L COLEMAN, MD	Cisplatin/paclitaxel/bevacizumab
ANA OAKNIN, MD, PHD	Carboplatin/paclitaxel
DAVID M O'MALLEY, MD	Cisplatin/paclitaxel/bevacizumab
RICHARD T PENSON, MD, MRCP	Cisplatin/paclitaxel/bevacizumab
MATTHEW A POWELL, MD	Cisplatin/paclitaxel/bevacizumab
BRIAN M SLOMOVITZ, MD	Cisplatin/paclitaxel/bevacizumab
KRISHNANSU S TEWARI, MD	Cisplatin/paclitaxel/bevacizumab
PROFESSOR IGNACE VERGOTE	Carboplatin/paclitaxel/bevacizumab

In general, what would be your preferred first-line therapy for a patient with MSS metastatic cervical cancer who experienced relapse 12 months after receiving cisplatin-based chemoradiation therapy for Stage IIIB disease?

MICHAEL J BIRRER, MD, PHD	Carboplatin/paclitaxel/bevacizumab	
ROBERT L COLEMAN, MD	Carboplatin/paclitaxel/bevacizumab	
ANA OAKNIN, MD, PHD	Cisplatin/paclitaxel/bevacizumab	
DAVID M O'MALLEY, MD	Carboplatin/paclitaxel/bevacizumab	
RICHARD T PENSON, MD, MRCP	Cisplatin/paclitaxel/bevacizumab	
MATTHEW A POWELL, MD	Carboplatin/paclitaxel/bevacizumab	
BRIAN M SLOMOVITZ, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
KRISHNANSU S TEWARI, MD	Carboplatin/paclitaxel/bevacizumab	
PROFESSOR IGNACE VERGOTE	Carboplatin/paclitaxel/bevacizumab	

CPS = combined positive score

In general, what would be your preferred second-line therapy for a patient with MSS metastatic cervical cancer who experiences disease progression on carboplatin/paclitaxel/bevacizumab?

- 1. Other chemotherapy
- 2. Test for PD-L1 CPS and administer pembrolizumab if 1% or higher
- 3. Pembrolizumab
- 4. Other



In general, what would be your preferred second-line therapy for a patient with MSS metastatic cervical cancer who experienced disease progression on carboplatin/paclitaxel/bevacizumab?

MICHAEL J BIRRER, MD, PHD	Pembrolizumab Pembrolizumab Pembrolizumab Pembrolizumab Pembrolizumab Pembrolizumab Pembrolizumab Pembrolizumab	
ROBERT L COLEMAN, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
ANA OAKNIN, MD, PHD	Anti-PD-1/PD-L1 antibody in general	
DAVID M O'MALLEY, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
RICHARD T PENSON, MD, MRCP	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
MATTHEW A POWELL, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
BRIAN M SLOMOVITZ, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
KRISHNANSU S TEWARI, MD	Test for PD-L1 CPS and administer pembrolizumab if 1% or higher	
PROFESSOR IGNACE VERGOTE	Tisotumab vedotin	

Based on your clinical experience and/or the published literature, how would you characterize the tolerability of tisotumab vedotin in the treatment of metastatic cervical cancer?

MICHAEL J BIRRER, MD, PHD	Well tolerated except for epistasis	
ROBERT L COLEMAN, MD	Similar to other single-agent chemotherapy	
ANA OAKNIN, MD, PHD	Moderate toxicity	
DAVID M O'MALLEY, MD	Reasonable toxicity	
RICHARD T PENSON, MD, MRCP	Excited by it	
MATTHEW A POWELL, MD	Reasonable toxicity	
BRIAN M SLOMOVITZ, MD	Well tolerated; ocular side effects	
KRISHNANSU S TEWARI, MD	Relatively well tolerated so far	
PROFESSOR IGNACE VERGOTE	Good tolerability	

A patient with PD-L1-positive metastatic cervical cancer experiences disease progression on platinum-based therapy and has significant symptoms from her disease. If tisotumab vedotin were approved, what would likely be your next line of treatment?

- 1. Pembrolizumab
- 2. Tisotumab vedotin
- 3. Other



Do you generally evaluate microsatellite instability status in your patients with advanced ovarian cancer?

1. Yes

2. No



Do you generally evaluate microsatellite instability status in your patients with advanced ovarian cancer?

MICHAEL J BIRRER, MD, PHD	Yes	
ROBERT L COLEMAN, MD	Yes	
ANA OAKNIN, MD, PHD	No	
DAVID M O'MALLEY, MD	Yes	
RICHARD T PENSON, MD, MRCP	Yes	
MATTHEW A POWELL, MD	Yes	
BRIAN M SLOMOVITZ, MD	No	
KRISHNANSU S TEWARI, MD	No	
PROFESSOR IGNACE VERGOTE	No	

Meet The Professor with Dr Penson

MODULE 1: Cases from Dr Chase

MODULE 2: Gynecologic Oncology Journal Club with Dr Penson

- Second-line lenvatinib for recurrent endometrial cancer
- GOG-240: Circulating tumor cells in advanced cervical cancer
- Clinical trial participation and aggressive care at the end of life for patients with ovarian cancer (OC)
- Ofranergene obadenovec (VB-111) alone or combined with paclitaxel for platinum-resistant OC
- Pembrolizumab with pegylated liposomal doxorubicin for platinum-resistant OC
- Berzosertib with gemcitabine for platinum-resistant high-grade serous OC
- Avelumab in MMR-deficient and proficient recurrent or persistent endometrial cancer
- Nivolumab/bevacizumab for relapsed OC
- Mirvetuximab soravtansine with bevacizumab for platinum-resistant OC
- First-in-human study of STRO-002, an anti-folate receptor alpha antibody-drug conjugate, for platinum-resistant/refractory OC

MODULE 3: Beyond the Guidelines – Clinical Investigator Approaches to Common Clinical Scenarios

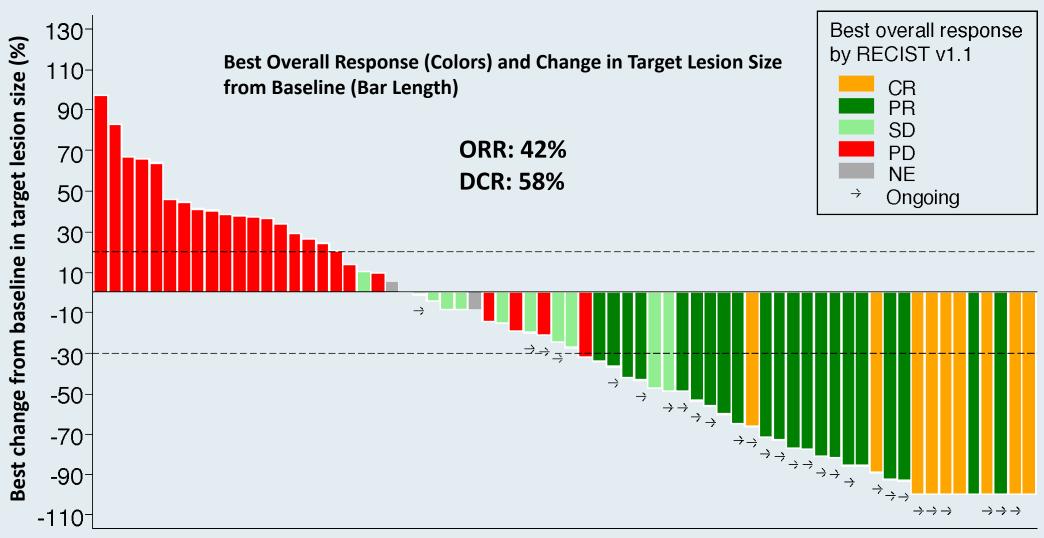


KEYNOTE-158: Best Percentage Change from Baseline in Target Lesion Size with Pembrolizumab Monotherapy in MSI-H Endometrial Cancer



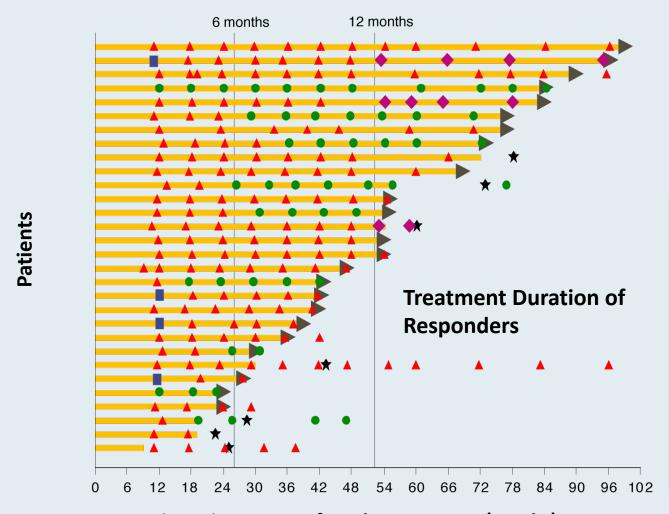


GARNET: Dostarlimab in Recurrent or Advanced dMMR Endometrial Cancer



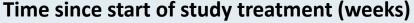


GARNET: Dostarlimab in Recurrent or Advanced dMMR Endometrial Cancer



Legend
■ On study, on treatment
▶ Still on treatment
★ End of treatment
● CR
▲ PR
■ SD
● PD

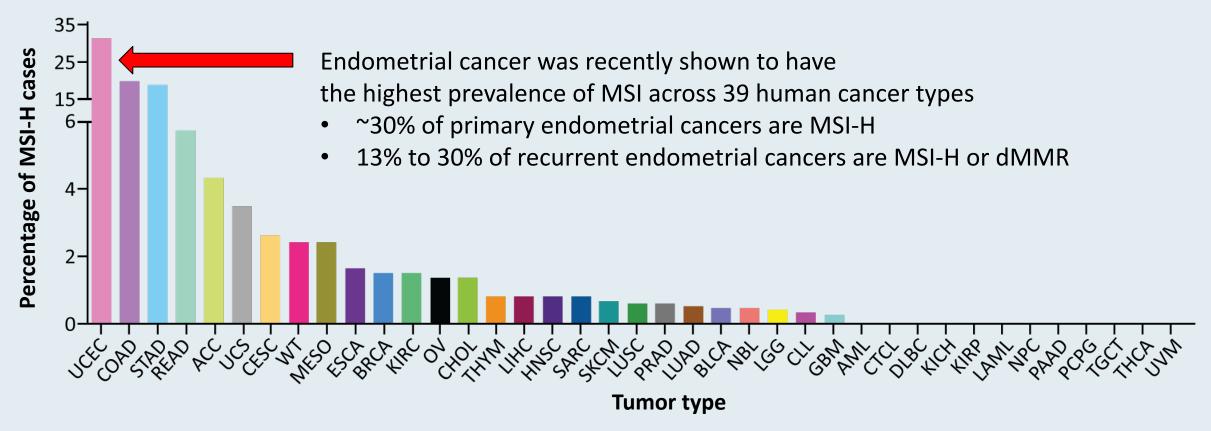
- Median follow-up is 11.2 mos
- Median DOR not reached (1.87+ to 19.61+ mos)
- 25 of 30 (83%) responders remain in response as of the data cutoff
- Deepening of responses:
- SD → PR: 4 patients
- PR → CR: 7 patients





MSI-High Across 39 Cancer Types

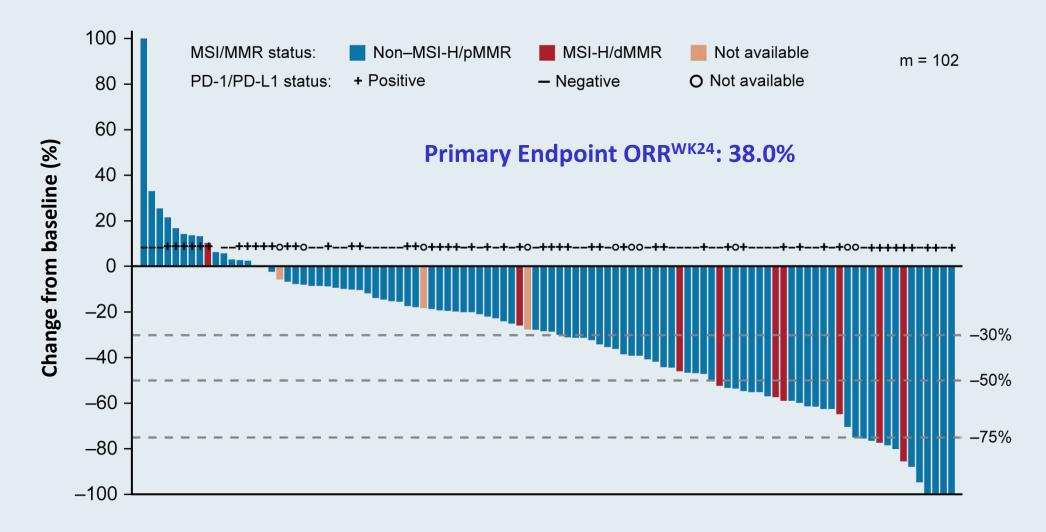
Whole-exome data from 11,139 tumor-normal pairs from The Cancer Genome Atlas and Therapeutically Applicable Research to Generate Effective Treatments projects



UCEC = uterine corpus endometrial carcinoma

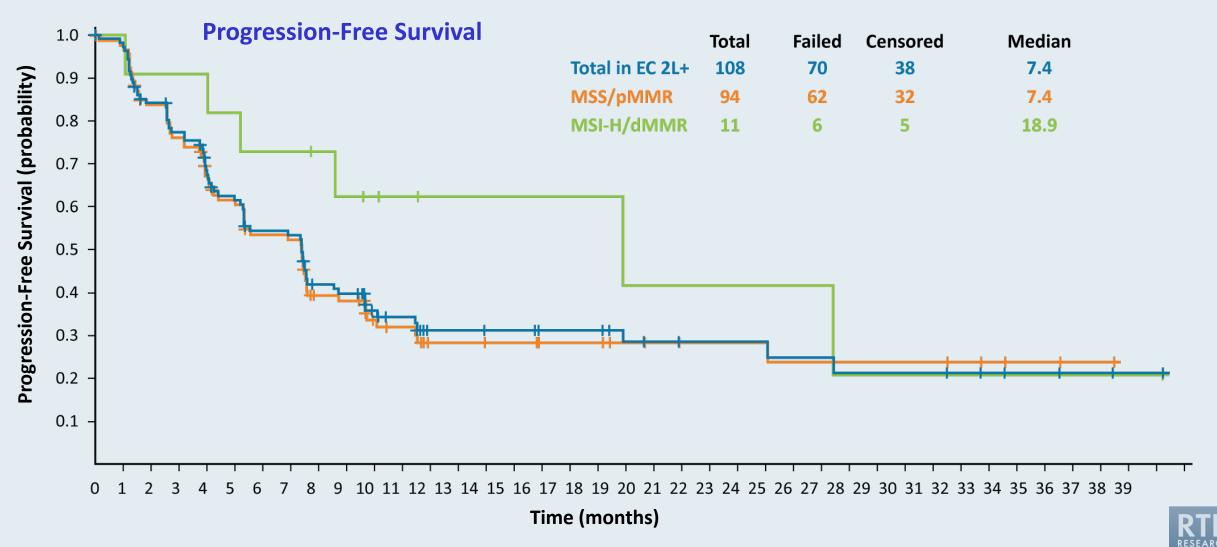


KEYNOTE-146: Pembrolizumab/Lenvatinib in Advanced Endometrial Cancer That Is <u>Not</u> MSI-H or dMMR After Disease Progression on Prior Systemic Therapy

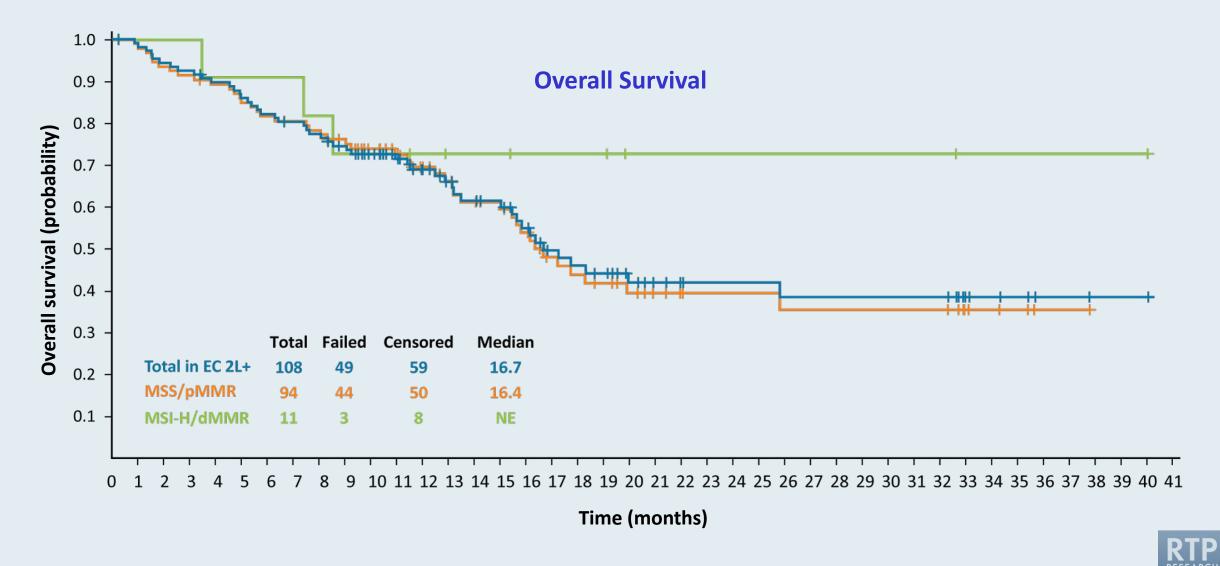




KEYNOTE-146: Pembrolizumab/Lenvatinib in Advanced Endometrial Cancer That Is *Not* MSI-H or dMMR After Progression on Prior Systemic Therapy



KEYNOTE-146: Pembrolizumab/Lenvatinib in Advanced Endometrial Cancer That Is <u>Not</u> MSI-H or dMMR After Progression on Prior Systemic Therapy



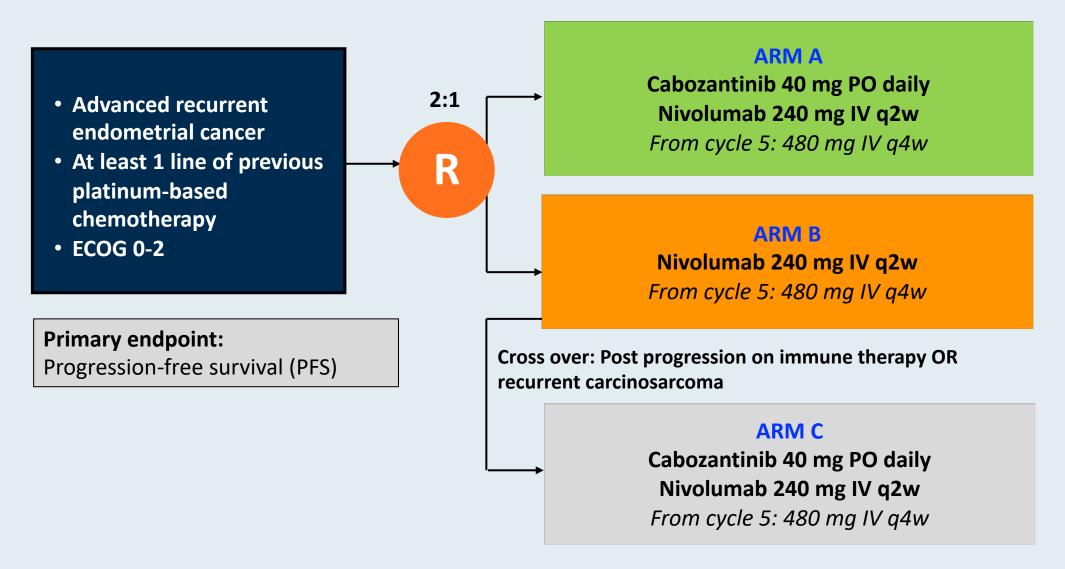
NCI 10104: A Randomized Phase 2 Study of Cabozantinib in Combination with Nivolumab in Advanced, Recurrent Metastatic Endometrial Cancer

Lheureux S et al.

ASCO 2020; Abstract 6010.

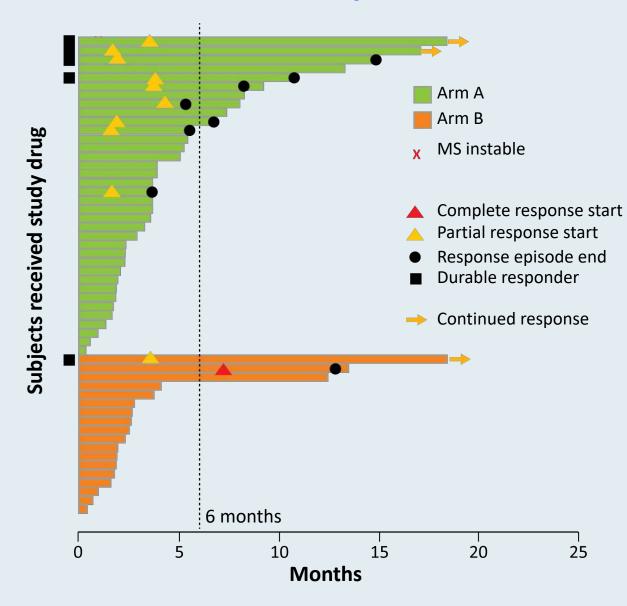


NCI 10104 Phase II Study Schema





NCI 10104: Response Rate and Duration and Survival Analyses



	Arm A Cabo/nivolumab (n = 36)	Arm B Nivolumab (n = 18)
ORR	25%	11%
SD as best response	44%	11%
CBR	69%	22%
Median PFS*	5.3 mo	1.9 mo
Median OS [†]	13.0 mo	7.9 mo

^{*} HR: 0.59, significant



[†]Immature, 55% events

Select Ongoing Phase III Immune Checkpoint Inhibitor Combination Studies

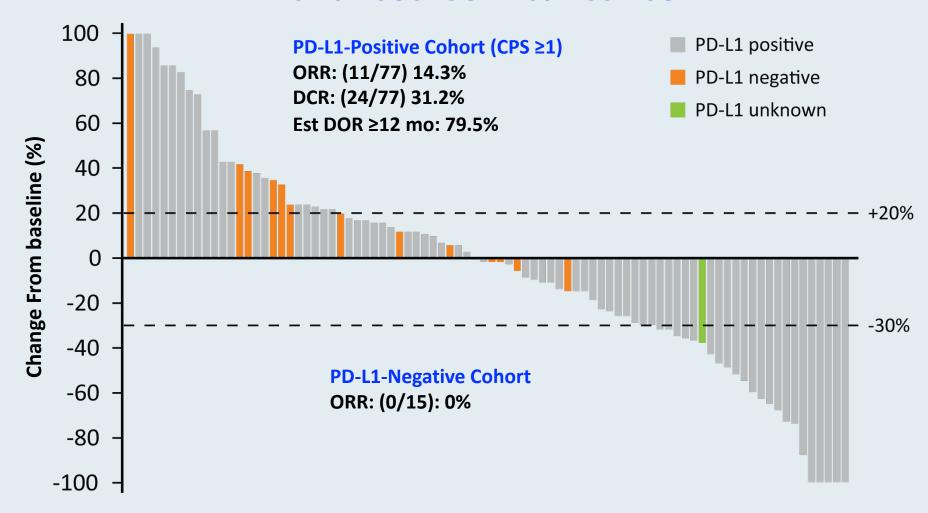
Trial	N	Eligibility	Randomization
KEYNOTE-775	780	 Advanced, recurrent or metastatic EC PD after 1 prior platinum-based chemo regimen 	 Pembro + lenvatinib Paclitaxel + carboplatin
LEAP-001	720	 Stage III, IV or recurrent EC May have received 1 prior line of platinum-based adjuvant or neoadjuvant chemo 	 Pembro + lenvatinib Paclitaxel + carboplatin
NRG-GY018	810	 Stage III, IVA or IVB or recurrent EC No prior chemo for EC, except adjuvant 	 Pembro + paclitaxel + carboplatin → Pembro Placebo + paclitaxel + carboplatin → Placebo
RUBY	470	Stage III, IV or first recurrent EC	 Dostarlimab + paclitaxel + carboplatin Placebo + paclitaxel + carboplatin
AtTEnd	550	 Newly dx with residual disease after surgery, OR inoperable Stage III-IV naïve to first-line systemic treatment 	 Atezolizumab + paclitaxel + carboplatin Placebo + paclitaxel + carboplatin



Anti-PD-1/PD-L1 Antibodies in Cervical Cancer



Phase II KEYNOTE-158: Pembrolizumab in Previously Treated Advanced Cervical Cancer



Combined Positive Score (CPS) = PD-L1+ cells (tumor cells, lymphocytes, macrophages) / Total number of tumor cells x 100



BEATcc Phase III Randomized Front-Line Trial of Atezolizumab

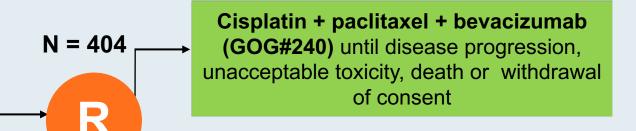
- Primary Stage IVB, persistent or recurrent carcinoma of the cervix
- Measurable disease by RECIST v1.1
- ECOG-PS: 0-1
- No previous systemic chemotherapy for advanced or recurrent disease

Primary Endpoints:

Overall survival (OS)

Secondary Endpoints:

- PFS
- ORR
- DOR
- Safety
- HR-QOL



Cisplatin + paclitaxel + bevacizumab + atezolizumab until disease progression, unacceptable toxicity, death or withdrawal of consent

Safety run-in cohort: 12 pts after 2 cycles of treatment

Stratification Factors:

1:1

- Prior concurrent Cisplatin-RDT
- Histology: SCC vs ADK (including AdenoSquamous)
- Chemotherapy Backbone: Cisplatin vs Carboplatin



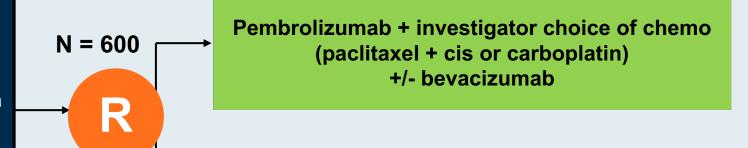
KEYNOTE-826 Phase III Schema

 Persistent, recurrent or metastatic squamous cell carcinoma, adenosquamous carcinoma or adenocarcinoma of the cervix

- Not previously treated with systemic chemo
- Not amenable to curative treatment

Primary Endpoints:

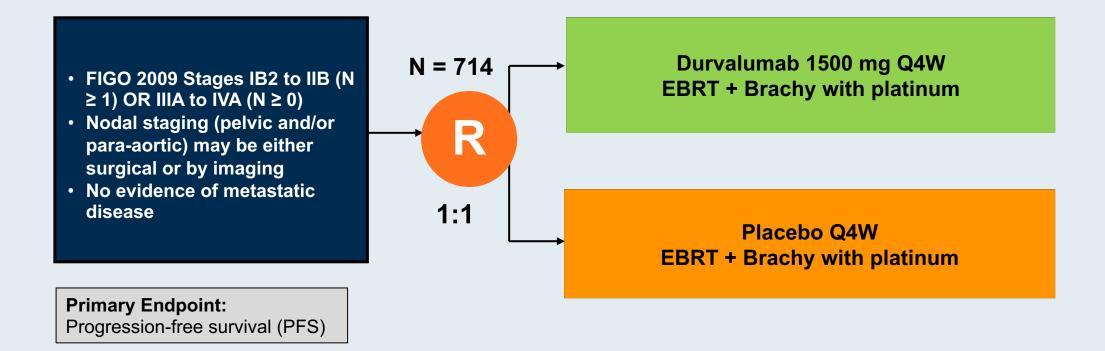
Progression-free survival (PFS)
Overall survival (OS)



Placebo + investigator choice of chemo (paclitaxel + cis or carboplatin) +/- bevacizumab



CALLA Phase III Schema





Anti-PD-1/PD-L1 Antibodies in Ovarian Cancer



FDA-Approved Indications for Immunotherapy in Ovarian Cancer

Pembrolizumab: 2017 FDA approval for MSI-high/MMR deficient cancers

- The incidence of germline MMR gene mutations in high grade serous cancers is 1-8%
- MMR deficiency is more common in non-serous ovarian cancer

2020 ASCO ovarian cancer genetics guidelines re MMR testing:

- Women diagnosed with clear cell, endometrioid, or mucinous ovarian cancer should be offered somatic tumor testing for mismatch repair deficiency
- Testing for MMR deficiency may be offered to women diagnosed with other histologic types of epithelial ovarian cancer



Final Results from the KEYNOTE-100 Trial of Pembrolizumab in Patients with Advanced Recurrent Ovarian Cancer

Matulonis UA et al.

ASCO 2020; Abstract 6005.



KEYNOTE-100 Phase II, 2-Cohort Study Schema

Patients (N = 376)

- Recurrent, advanced epithelial ovarian, fallopian tube, or primary peritoneal cancer
- ECOG PS 0 or 1
- Provision of a tumor sample for biomarker analysis

Key exclusion criteria

- Mucinous histology
- No bowel obstruction within 3 months
- No active autoimmune disease
- No active CNS metastases and/or carcinomatous meningitis

Cohort A

1-3 prior lines

PFI or TFI of 3-12 months

Total enrollment: n = 285



Pembrolizumab 200 mg IV q3wk until PD, prohibitive toxicity, death, or completion of 2 years



Cohort B
4-6 prior lines
PFI or TFI of ≥3 months

Total enrollment: n = 91

PFI = platinum-free interval; TFI = treatment-free interval



KEYNOTE-100: Summary of Efficacy, Including by PD-L1 Status

	Cohort A 1-3 prior lines PFI/TFI 3-12 months		Cohort B 4-6 prior lines PFI/TFI ≥3 months			Cohorts A + B All comers			
Endpoint	All n = 285	CPS ≥1 n = 101	CPS ≥10 n =43	All n = 91	CPS ≥1 n = 49	CPS ≥10 n = 22	All n = 376	CPS ≥1 n = 150	CPS ≥10 n = 65
ORR	8.1%	6.9%	11.6%	9.9%	10.2%	18.2%	8.5%	8.0%	13.8%
DoR	8.3 mo	Not reported	Not reported	23.6 mo	Not reported	Not reported	10.2 mo	Not reported	Not reported
OS	18.7 mo	20.6 mo	21.9 mo	17.6 mo	20.7 mo	24.0 mo	Not reported	Not reported	Not reported



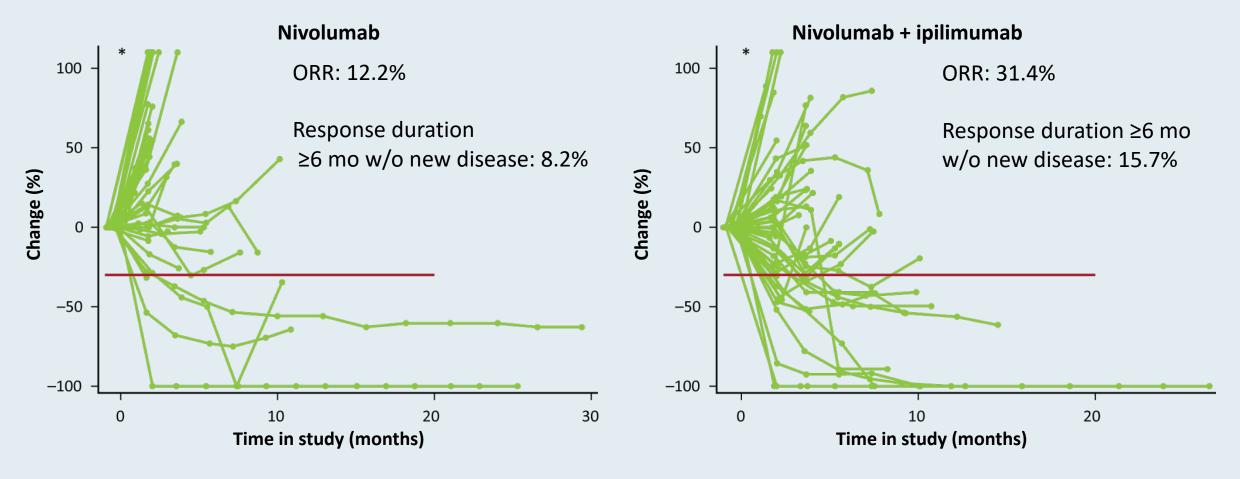
JAVELIN Ovarian 200: Avelumab Alone or in Combination with Pegylated Liposomal Doxorubicin (PLD) versus PLD Alone in Platinum-Resistant or Refractory OC

	Avelumab (n = 188)		Avelumab + PLD (n = 188)		PLD (n = 190)	
All patients						
Median OS	11.8 mo		15.7 mo		13.1 mo	
	HR: 1.14, <i>p</i> = 0.83		HR: 0.80, <i>p</i> = 0.21		Reference	
Median PFS	1.9 mo		3.7 mo		3.5 mo	
	HR: 1.68, <i>p</i> > 0.99		HR: 0.78, p = 0.03		Reference	
PD-L1 evaluable	PD-L1+ (n = 91)	PD-L1- (n = 62)	PD-L1+ (n = 92)	PD-L1- (n = 58)	PD-L1+ (n = 73)	PD-L1- (n = 66)
Median OS	13.7 mo	10.5 mo	18.4 mo	12.7 mo	13.8 mo	13.1 mo
	HR: 0.80	HR: 1.4	HR: 0.72	HR: 1.1	Ref	Ref
Median PFS	1.9 mo	1.8 mo	3.7 mo	3.9 mo	1.9 mo	3.7 mo
	HR: 1.3	HR: 1.8	HR: 0.59	HR: 0.92	Ref	Ref



NRG GY003 Phase II Study of Nivolumab with or without Ipilimumab in Recurrent or Persistent OC

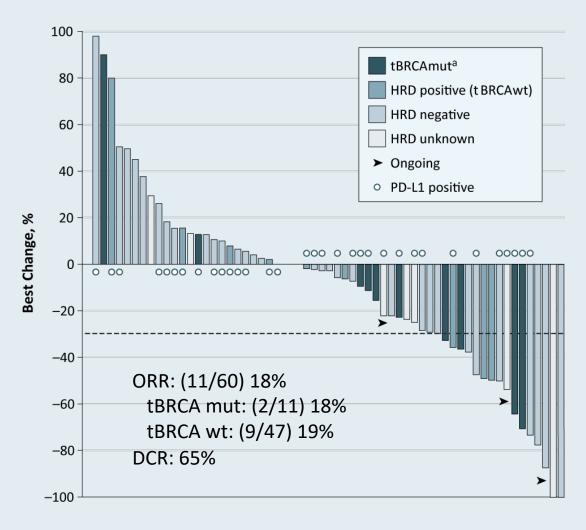
(PFI <6 months: 62%, ≥2 prior cytotoxic regimens: 70%+ of patients)

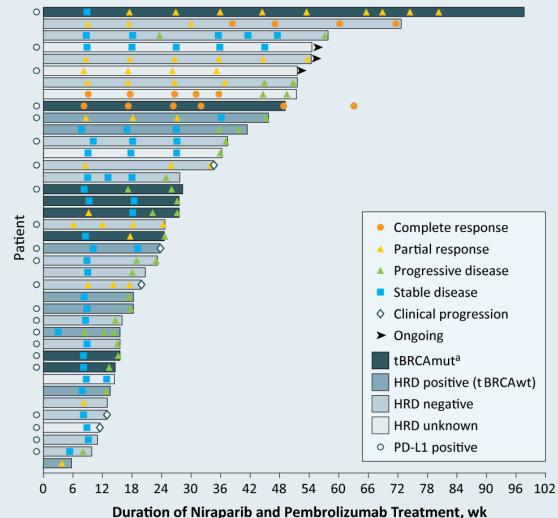


PD-L1 expression was not significantly associated with response in either treatment group



TOPACIO/KEYNOTE-162: Niraparib and Pembrolizumab in Recurrent Platinum-Resistant Ovarian Cancer

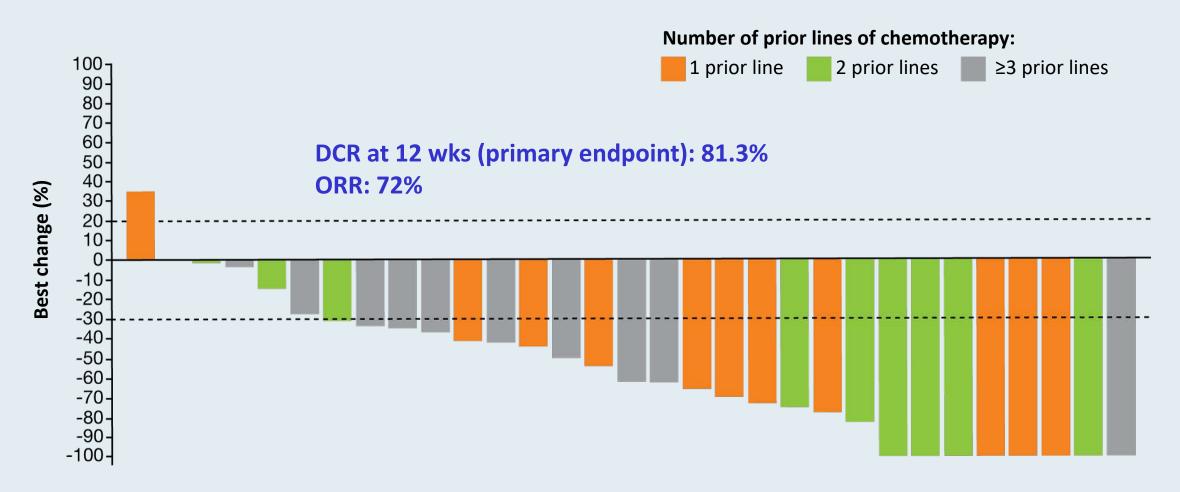






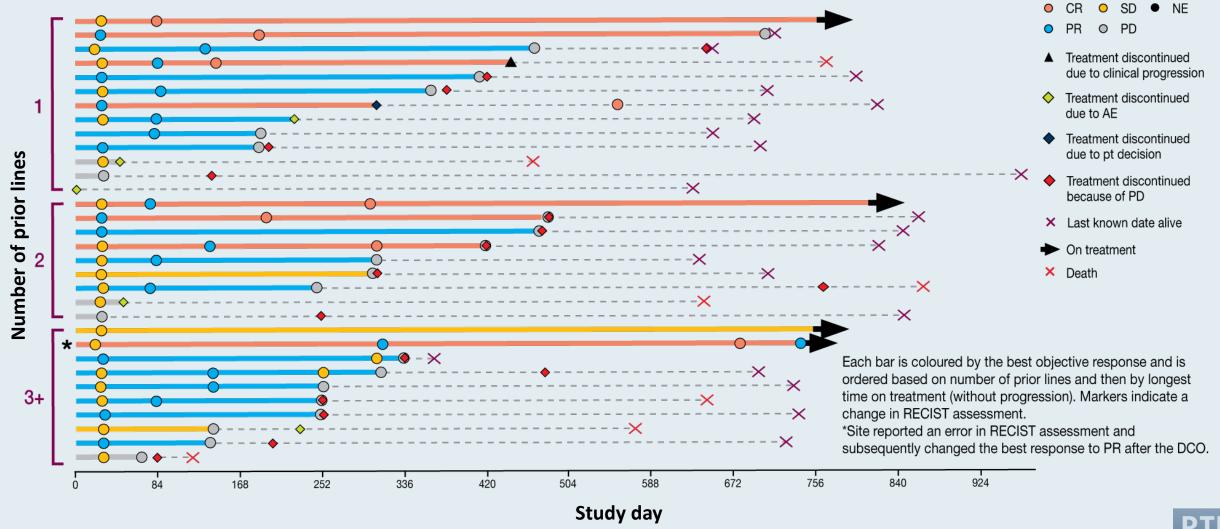


MEDIOLA: A Phase II Study of Olaparib and Durvalumab in gBRCA-Mutated Platinum-Sensitive Relapsed OC





MEDIOLA: Time to Disease Progression or Treatment Discontinuation, Based on Number of Prior Lines of Therapy





Phase II Study of Olaparib (O) plus Durvalumab (D) and Bevacizumab (B) (MEDIOLA): Initial Results in Patients (pts) with Non-Germline BRCA-Mutated (Non-gBRCAm) Platinum Sensitive Relapsed (PSR) Ovarian Cancer (OC)

Drew Y et al.

ESMO 2020; Abstract 814MO.



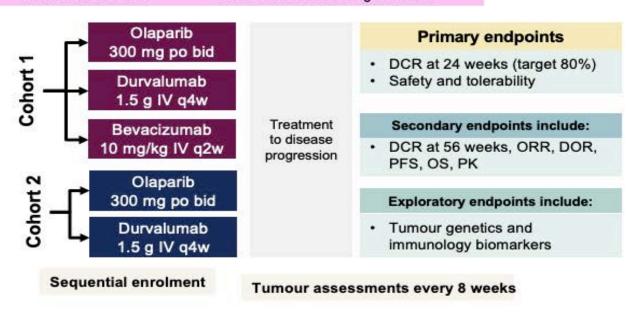
MEDIOLA: gBRCAwt Cohorts

Study Design

Patient population

gBRCAwt

- · ≤2 prior lines of chemotherapy
- · PSR ovarian cancer
- · PARP inhibitor and IO agent naïve

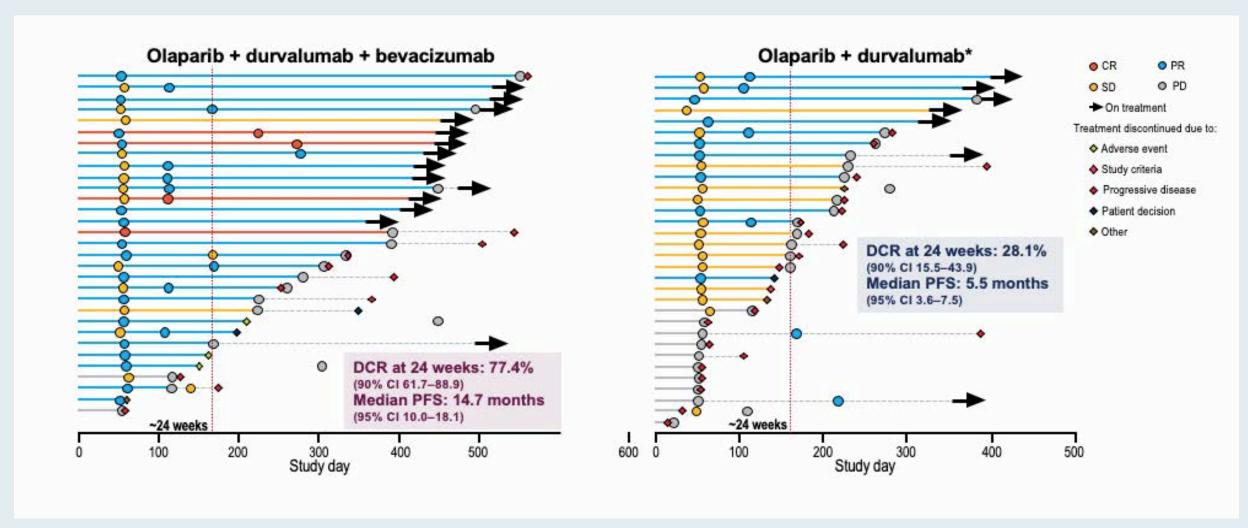


Patient Characteristics

	Olap + durva + bev (N=31)	Olap + durva (N=32)	
Median age, years	64.0	68.5	
Age group (years), n (%)		
<50	3 (9.7)	4 (12.5)	
≥50-<65	14 (45.2)	8 (25.0)	
≥65	14 (45.2)	20 (62.5)	
Race, n (%)			
White	20 (64.5)	24 (75.0)	
Asian	10 (32.3)	3 (9.4)	
Other	1 (3.2)	5 (15.6)	
Platinum sensitivity, n (
>6-12 months	18 (58.1)	14 (43.8)	
>12 months	13 (41.9)	18 (56.3)	
Number of prior lines of	f chemotherapy, n (%)		
1 prior line	20 (64.5)	23 (71.9)	
2 prior lines	11 (35.5)	9 (28.1)	
Enrolment		- 1	
completed	January 2019	February 2019	
THE STATE OF THE PROPERTY OF T	ment at DCO, n (%) (13 F	February 2020)	
Olap; durva; bev	13 (41.9); 13 (41.9); 12 (38.7)	7 (21.9); 6 (18.8); NA	



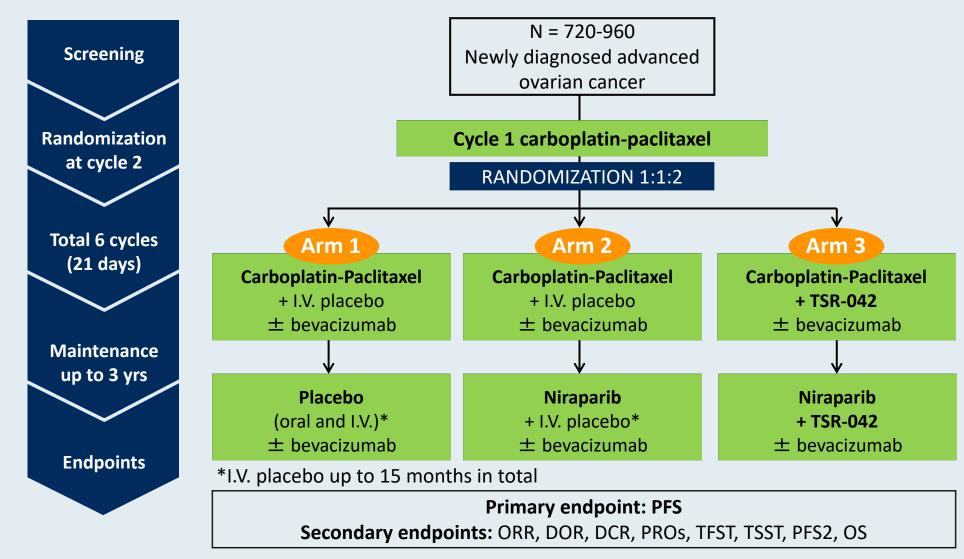
MEDIOLA: TTP or Treatment Discontinuation



Triplet cohort showed high DCT at 24 weeks and a long median PFS



FIRST Phase III Trial of Dostarlimab (TSR-042) in Newly Diagnosed Ovarian Cancer





Phase II MOONSTONE Study Design

Eligibility

- Completed 1-3 prior lines of therapy for advanced or metastatic ovarian cancer
- Previously treated with platinum-based chemo, taxane and bevacizumab
- Resistant to last administered platinum agent
- No known BRCA 1 or 2 mutation

Primary endpoint: ORR

Secondary endpoints: DOR, PFS, OS, DCR





Select Ongoing Phase III Trials of Immunotherapy in Combination with PARP Inhibitors

Trial name (Trial identifier)	N	Setting	Treatment arms
ATHENA (NCT03522246)	1,012	Maintenance therapy after 1L platinum-based chemo	 Rucaparib + nivolumab Rucaparib + placebo Nivolumab + placebo Placebo
DUO-O (NCT03737643)	1,056	Maintenance therapy after 1L platinum-based chemo/bev ± durvalumab	 Bevacizumab Bevacizumab + durvalumab Bevacizumab + durvalumab + olaparib



HER2-Positive Endometrial Cancer



HER2 Testing in Endometrial Serous Carcinoma

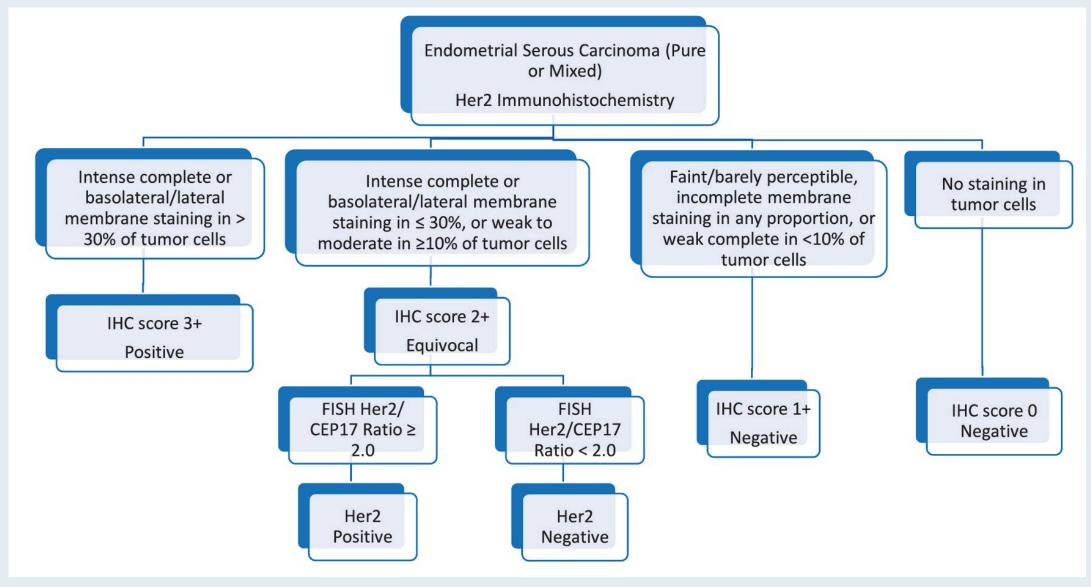
Current Criteria (Approved or Proposed) for HER2 Positivity by Immunohistochemistry (IHC) and Fluorescence In Situ Hybridization (FISH) in Different Tumor Types

	Breast (ASCO/CAP 2018) ²³	Gastric (ASCO/CAP 2016) ³⁶	Colorectal (HERACLES Trial) ³⁹	Endometrial Serous (Fader et al Clinical Trial) ²¹
HER2 IHC 3+	>10% circumferential, strong, complete	≥10%, strong complete, or basolateral/lateral	≥50% strong complete, or basolateral/lateral	>30% strong complete or basolateral/lateral
HER2 FISH amplification	HER2/CEP17 ratio ≥2.0 and HER2 signal ≥4.0 per nucleus OR ratio <2.0 and HER2 signal ≥6.0 per nucleus (if IHC score 2+ or 3+)	HER2/CEP17 ratio ≥2.0 OR ratio <2.0 and HER2 signal >6.0 per nucleus	HER2/CEP17 ratio ≥2.0 in ≥50% of cells	HER2/CEP17 ratio ≥2.0

Abbreviations: ASCO, American Society of Clinical Oncology; CAP, College of American Pathologists.



Proposed HER2 Testing Algorithm for Endometrial Serous Carcinoma

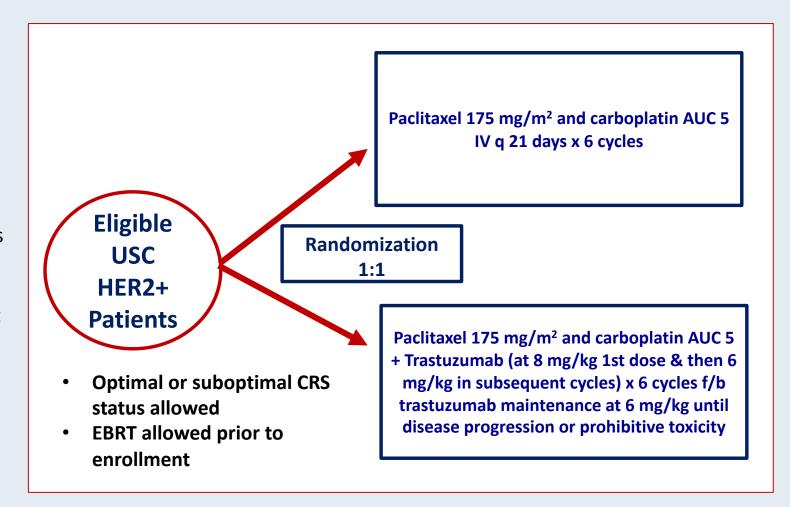




Randomized Phase II Trial of Carboplatin/Paclitaxel versus Carboplatin/Paclitaxel/Trastuzumab for Uterine Serous Carcinoma That Overexpresses HER2/Neu: Updated Survival Analysis

Eligibility

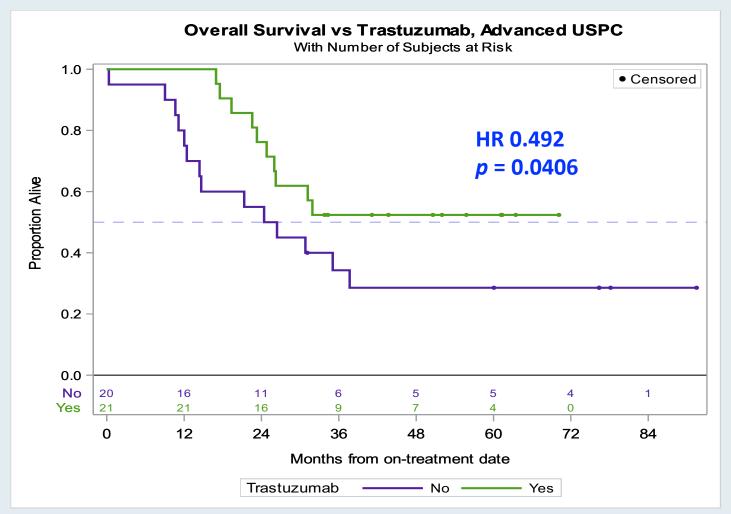
- FIGO Stage III-IV USC or recurrent USC
- HER2/neu+ USC as defined by IHC score of 3+ (ASCO/CAP 2007 criteria) or 2+ with gene amplification confirmed by FISH
- Patients diagnosed with recurrence were required to have measurable disease, defined as at least one target lesion per RECIST 1.1
- Patients with recurrent disease may not have received >3 prior chemotherapies for treatment of their EC, and a treatment-free interval of >6 months from last C/T was required for patients with recurrent disease





Overall Survival with the Addition of Trastuzumab to Carboplatin/ Paclitaxel for Advanced Uterine Serous Papillary Carcinoma (USPC)

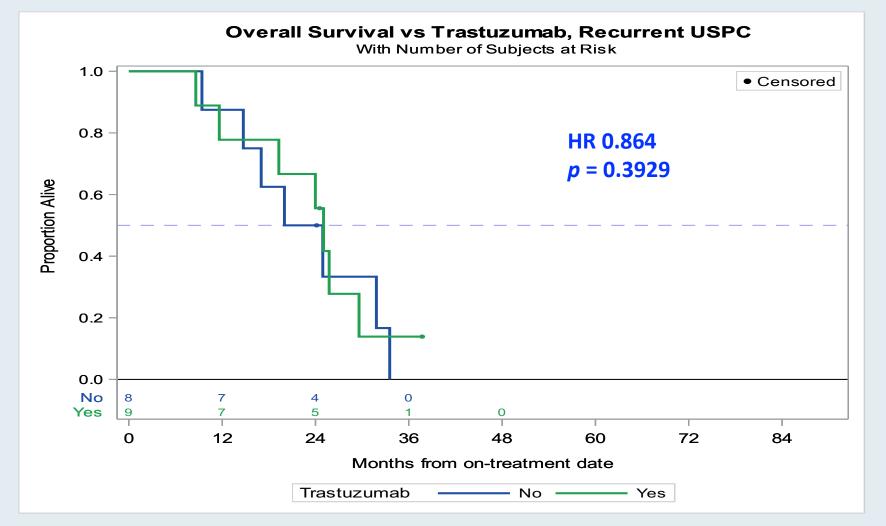
• Benefit was particularly striking in the Stage III-IV pts, with a median OS of 25.4 mo (control) compared with an unreached median OS (experimental; p = 0.0406, HR 0.492)





Overall Survival with the Addition of Trastuzumab to Carboplatin/Paclitaxel for Recurrent USPC

No significant OS benefit was observed in the recurrence cohort





Carboplatin/Paclitaxel/Trastuzumab: Summary

- First trial of targeted therapy in USC ONLY patients
- Demonstration that HER2 is an important prognostic and actionable target in USC
- NCCN designation of C/T/Trastuzumab as a preferred regimen in HER2+ USC (Level IIA)



Phase II DESTINY-PanTumor02 Study Design

Trial Identifier: NCT04482309 (Not yet recruiting)

Estimated Enrollment: 280

Eligibility

- Locally advanced, unresectable or metastatic disease
- Disease progression after prior treatment or no satisfactory alternative treatment option
- Prior HER2-targeted therapy allowed
- HER2 expression may be based on local or central assessment

Primary endpoint: ORR

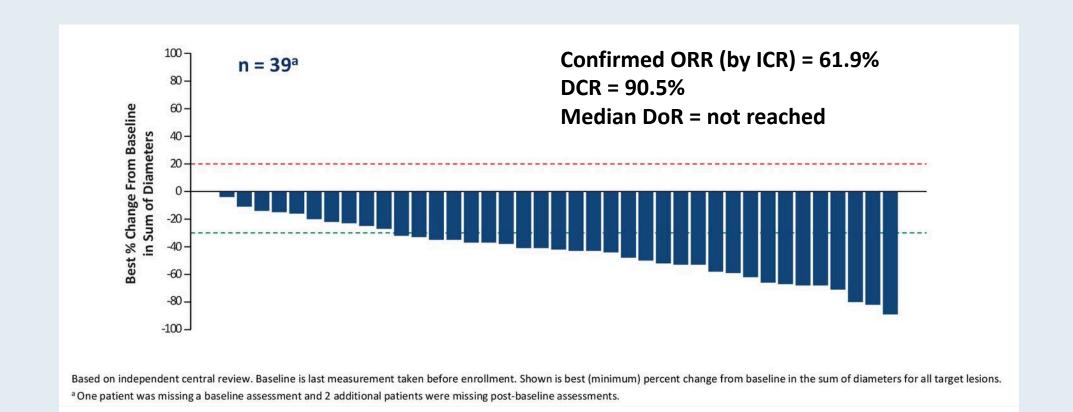
Secondary endpoints include DOR, PFS, OS, DCR

Trastuzumab deruxtecan

7 cohorts will be evaluated: Endometrial cancer, cervical cancer, ovarian cancer, bladder cancer, biliary tract cancer, pancreatic cancer and rare tumors



DESTINY-Lung01: Best Change in Tumor SizeTrastuzumab Deruxtecan in Lung Cancer

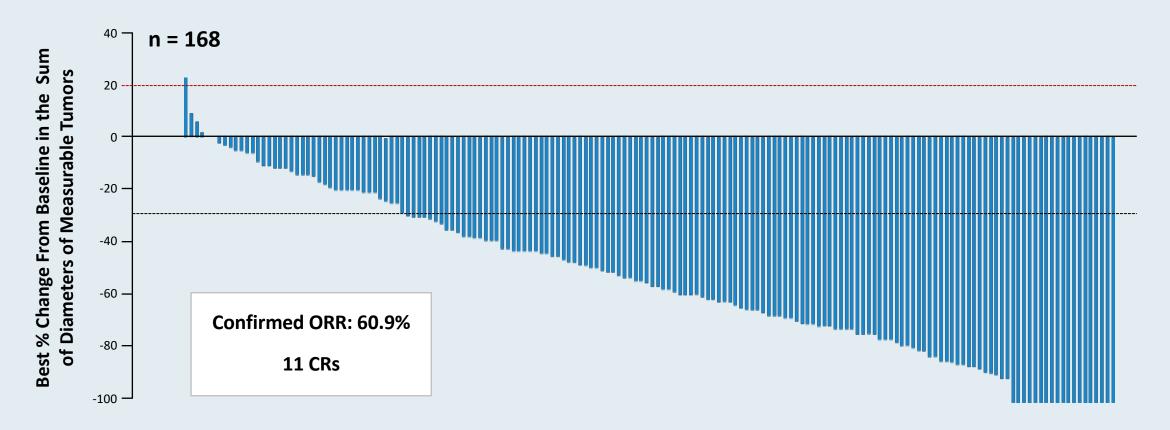


Median PFS = 14.0 months



DESTINY-Breast01: Best Change in Tumor Size

Trastuzumab Deruxtecan in Breast Cancer



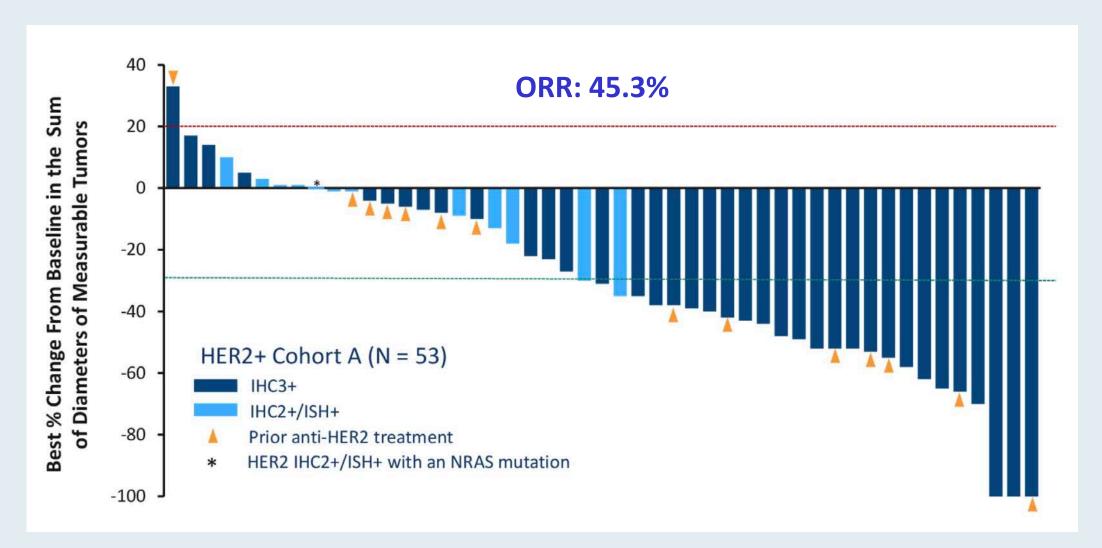
By independent central review.

The line at 20% indicates progressive disease; the line at −30% indicates partial response. Includes all patients who received T-DXd 5.4 mg/kg (intent-to-treat analysis; N=184).



DESTINY-CRC01: Best Change in Tumor Size

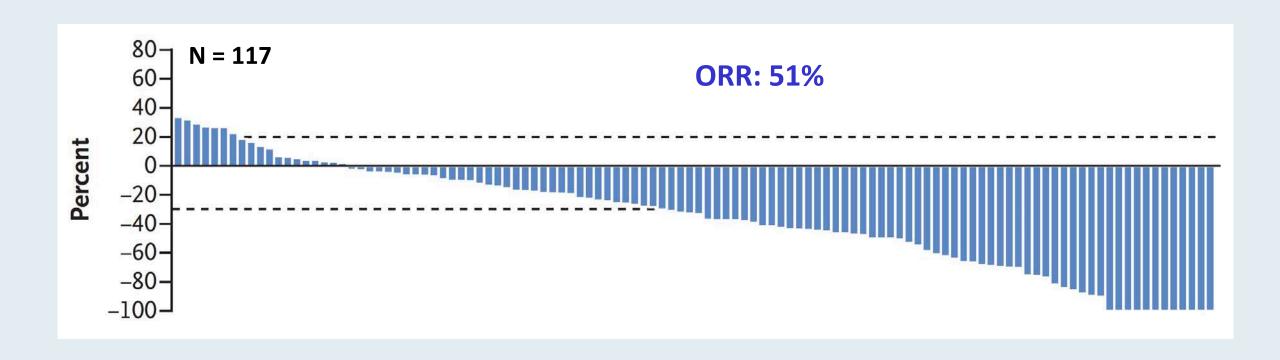
Trastuzumab Deruxtecan in Colorectal Cancer





DESTINY-Gastric01: Best Change in Tumor Size

Trastuzumab Deruxtecan in Gastric Cancer



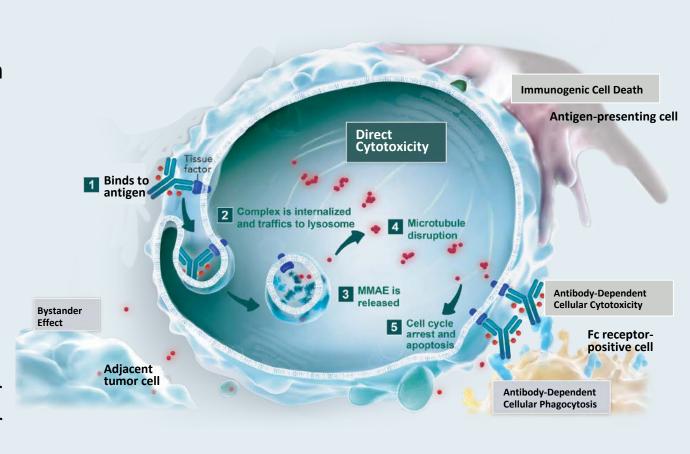


Tisotumab Vedotin and Other Novel Agents in Gynecologic Cancers



Mechanism of Action of Tisotumab Vedotin

- Tissue factor (TF) is aberrantly expressed in a broad range of solid tumours, including cervical cancer,^{1,2} and TF expression has been associated with higher tumour stage and grade, higher metastatic burden and poor prognosis²
- TF expression in cervical cancer makes TF a novel target for patients with cervical cancer
- ADC targets TF
 - Monoclonal Antibody targets TF
 - Payload: Microtubule disrupting MMAE
- Allowing for direct cytotoxicity and bystander killing, as well as antibody-dependent cellular cytotoxicity^{3,4}







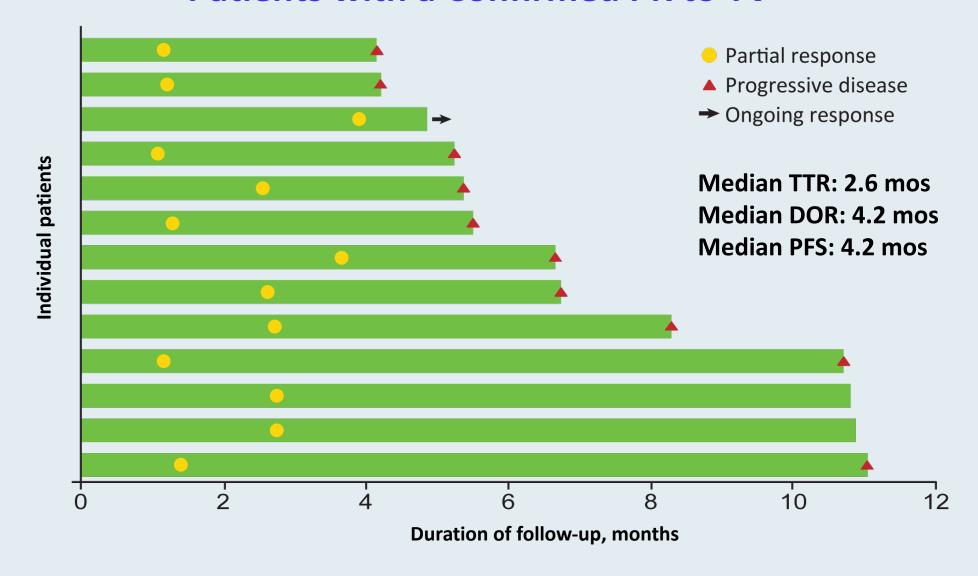


innovaTV 201: Best Overall Response to TV





innovaTV 201: Time to Response and Duration of Response in Patients with a Confirmed PR to TV

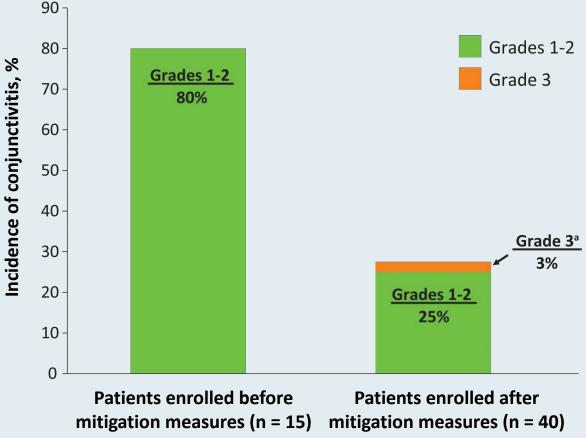




innovaTV 201: Treatment-Emergent Adverse Events

	N :	: 55	
Adverse events	All grade	Grade ≥3	
Fatigue	51%	9%	
Nausea	49%	5%	
Neuropathy	55%	11%	
Bleeding-related AEs	73%	5%	
Ocular AEs	65%	2%	
Conjunctivitis	42%	2%	
Dry eye	24%	0	
Ulcerative keratitis	7%	0	
Blepharitis	5%	0	
Keratitis	5%	0	

Conjunctivitis Before and After Mitigation Measures 90



^a One patient with grade 3 conjunctivitis after mitigation measures were implemented. No grade 3 events were observed before mitigation measures were implemented.



Positive Topline Results with Tisotumab Vedotin in the Phase II InnovaTV 204 Trial

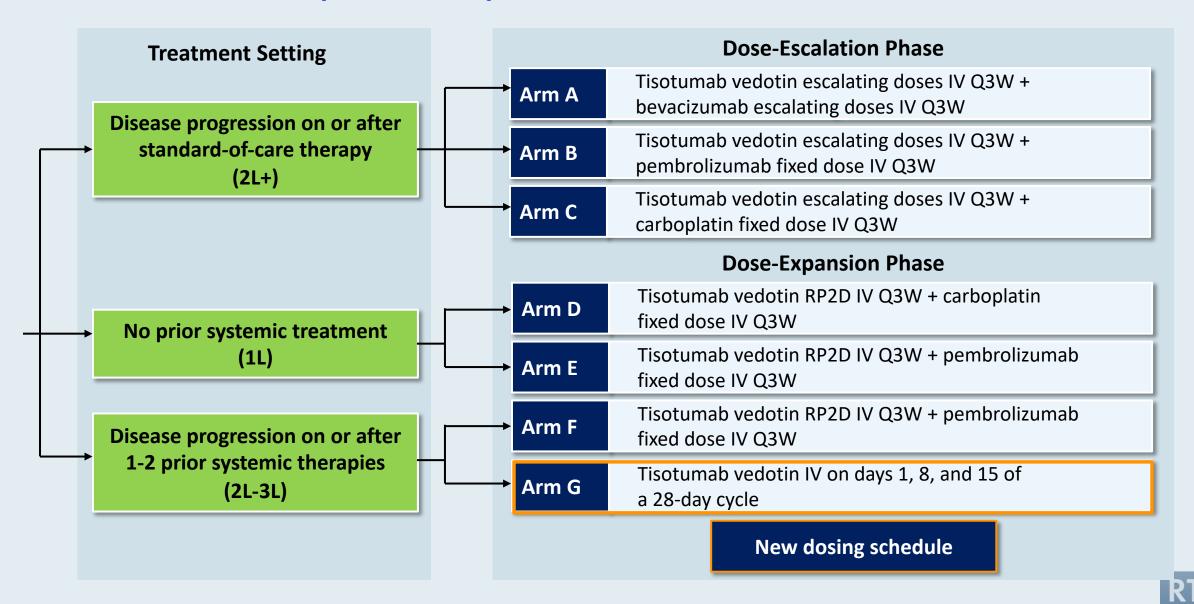
Press Release – June 30, 2020

"Positive topline results [were announced] from the single-arm, phase 2 innovaTV 204 trial evaluating tisotumab vedotin administered every 3 weeks for the treatment of patients who have relapsed or progressed on or after prior treatment for recurrent or metastatic cervical cancer.

Overall, 101 patients were treated with tisotumab vedotin at multiple centers across the US and Europe. Results from the trial demonstrated a 24% confirmed ORR by independent central review with a median DOR of 8.3 months. The most common treatment-related adverse events included alopecia, epistaxis, nausea, conjunctivitis, fatigue, and dry eye."



innovaTV 205 (GOG 3024): Recurrent or Metastatic Cervical Cancer



Meet The Professor Management of Multiple Myeloma

Wednesday, November 4, 2020 12:30 PM – 1:30 PM ET

Faculty
Irene M Ghobrial, MD

Moderator Neil Love, MD



Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.

