# A Conversation with the Investigators: Metastatic Castration-Resistant Prostate Cancer

Tuesday, July 20, 2021 5:00 PM – 6:00 PM ET

**Faculty** 

Emmanuel S Antonarakis, MD
Johann de Bono, MBChB, MSc, PhD
Julie N Graff, MD



#### **Faculty**



Emmanuel S Antonarakis, MD
Professor of Oncology and Urology
Johns Hopkins University
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Julie N Graff, MD
Associate Professor, Hematology and
Medical Oncology
OHSU Knight Cancer Institute
Portland, Oregon



Johann de Bono, MBChB, MSc, PhD
Regius Professor of Cancer Research
The Institute of Cancer Research
University of London
The Royal Marsden Hospital
London, United Kingdom



Moderator
Neil Love, MD
Research To Practice
Miami, Florida



#### **Commercial Support**

This activity is supported by educational grants from Astellas and Pfizer Inc, AstraZeneca Pharmaceuticals LP, Bayer HealthCare Pharmaceuticals, Exelixis Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Merck, and Sanofi Genzyme.



#### Dr Love — Disclosures

**Dr Love** is president and CEO of Research To Practice. Research To Practice receives funds in the form of educational grants to develop CME activities from the following companies: AbbVie Inc, Adaptive Biotechnologies Corporation, Agios Pharmaceuticals Inc, Alexion Pharmaceuticals, Amgen Inc, Array BioPharma Inc, a subsidiary of Pfizer Inc, Astellas, AstraZeneca Pharmaceuticals LP, Aveo Pharmaceuticals, Bayer HealthCare Pharmaceuticals, BeiGene Ltd, Blueprint Medicines, Boehringer Ingelheim Pharmaceuticals Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, Daiichi Sankyo Inc, Eisai Inc, Epizyme Inc, Exact Sciences Inc, Exelixis Inc, Five Prime Therapeutics Inc, Foundation Medicine, Genentech, a member of the Roche Group, Gilead Sciences Inc, GlaxoSmithKline, Grail Inc, Halozyme Inc, Helsinn Healthcare SA, ImmunoGen Inc, Incyte Corporation, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Karyopharm Therapeutics, Kite, A Gilead Company, Lilly, Loxo Oncology Inc, a wholly owned subsidiary of Eli Lilly & Company, Merck, Novartis, Novocure Inc, Oncopeptides, Pfizer Inc, Pharmacyclics LLC, an AbbVie Company, Puma Biotechnology Inc, Regeneron Pharmaceuticals Inc, Sanofi Genzyme, Seagen Inc, Sumitomo Dainippon Pharma Oncology Inc, Taiho Oncology Inc, Takeda Oncology, Tesaro, A GSK Company, TG Therapeutics Inc, Turning Point Therapeutics Inc and Verastem Inc.



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Planners, scientific staff and independent reviewers for Research To Practice have no relevant conflicts of interest to disclose.



### **Dr Antonarakis — Disclosures**

Consulting Agreements	Amgen Inc, Astellas, AstraZeneca Pharmaceuticals LP, Bayer HealthCare Pharmaceuticals, Clovis Oncology, Dendreon Pharmaceuticals Inc, ESSA Pharma Inc, GlaxoSmithKline, Janssen Biotech Inc, Lilly, Medivation Inc, a Pfizer Company, Merck, Sanofi Genzyme
Contracted Research	AstraZeneca Pharmaceuticals LP, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, Dendreon Pharmaceuticals Inc, Genentech, a member of the Roche Group, Janssen Biotech Inc, Johnson & Johnson Pharmaceuticals, Merck, Novartis, Sanofi Genzyme, Tokai Pharmaceuticals Inc
Ownership Interest (Licenser of Patent)	QIAGEN



#### Professor de Bono — Disclosures

Advisory Committee, Consulting Agreements and Data and Safety Monitoring Board/Committee	Astellas, AstraZeneca Pharmaceuticals LP, Bayer HealthCare Pharmaceuticals, BioXcel Therapeutics Inc, Boehringer Ingelheim Pharmaceuticals Inc, CellCentric, Daiichi Sankyo Inc, Eisai Inc, Genentech, a member of the Roche Group, Genmab, GlaxoSmithKline, Janssen Biotech Inc, Merck Serono, Merck Sharp & Dohme Corp, Menarini Silicon Biosystems, Orion Corporation (Finland), Pfizer Inc, QIAGEN, Sanofi Genzyme, Sierra Oncology, Taiho Oncology Inc, Terumo Medical Corporation, Vertex Pharmaceuticals
Contracted Research (Institution – no personal income)	Astellas, AstraZeneca Pharmaceuticals LP, Bayer HealthCare Pharmaceuticals, CellCentric, Daiichi Sankyo Inc, Genentech, a member of the Roche Group, Genmab, GlaxoSmithKline, Janssen Biotech Inc, Merck Serono, Merck Sharp & Dohme Corp, Menarini Silicon Biosystems, Orion Corporation, Pfizer Inc, Sanofi Genzyme, Sierra Oncology, Taiho Oncology Inc, Vertex Pharmaceuticals
Ownership Interest	Inventor, with no financial interest, for patent 8,822,438.



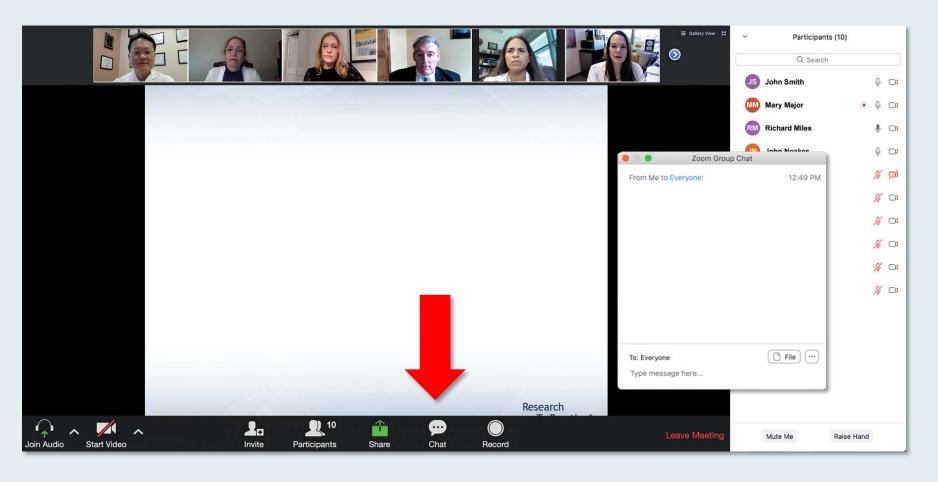
#### **Dr Graff** — **Disclosures**

Research Funding to Institution

Astellas, Janssen Biotech Inc, Merck, Sanofi Genzyme.



#### We Encourage Clinicians in Practice to Submit Questions



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



## Familiarizing Yourself with the Zoom Interface How to answer poll questions

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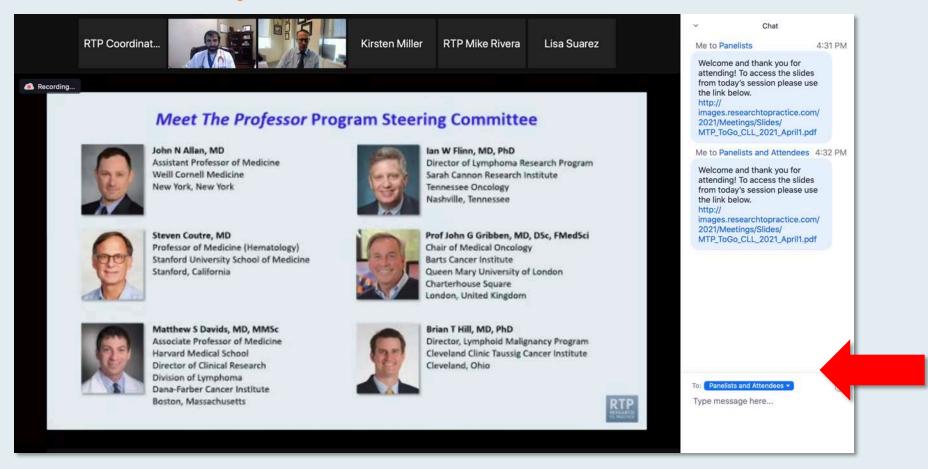
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#### Familiarizing Yourself with the Zoom Interface

#### **Expand chat submission box**

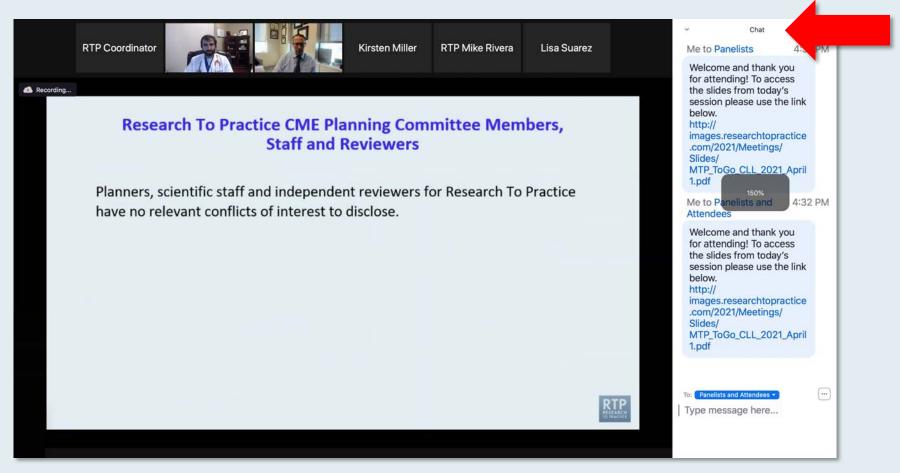


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#### Familiarizing Yourself with the Zoom Interface

Increase chat font size



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### ONCOLOGY TODAY

WITH DR NEIL LOVE

# The Role of PARP Inhibition in the Management of Prostate Cancer



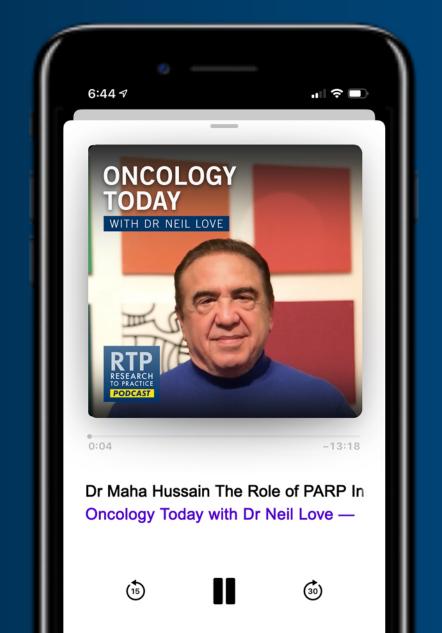
DR MAHA HUSSAIN

NORTHWESTERN UNIVERSITY FEINBERG SCHOOL OF MEDICINE









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**Faculty** 

Petros Grivas, MD, PhD
Daniel P Petrylak, MD
Arlene Siefker-Radtke, MD



# Meet The Professor Optimizing the Selection and Sequencing of Therapy for Patients with Renal Cell Carcinoma

Thursday, July 22, 2021 5:00 PM – 6:00 PM ET

Faculty
David F McDermott, MD



## A Conversation with the Investigators: Endometrial and Cervical Cancers

Monday, July 26, 2021 5:00 PM - 6:00 PM ET

#### **Faculty**

Mansoor Raza Mirza, MD
David M O'Malley, MD
Angeles Alvarez Secord, MD, MHSc



# What General Medical Oncologists Want to Know About Targeted Therapy for Non-Small Cell Lung Cancer

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Professor Solange Peters, MD, PhD Zofia Piotrowska, MD, MHS Gregory J Riely, MD, PhD



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**Faculty** 

Chloe E Atreya, MD, PhD
Dustin Deming, MD
Eric Van Cutsem, MD, PhD
Zev Wainberg, MD, MSc



### Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 2 to 3 business days.



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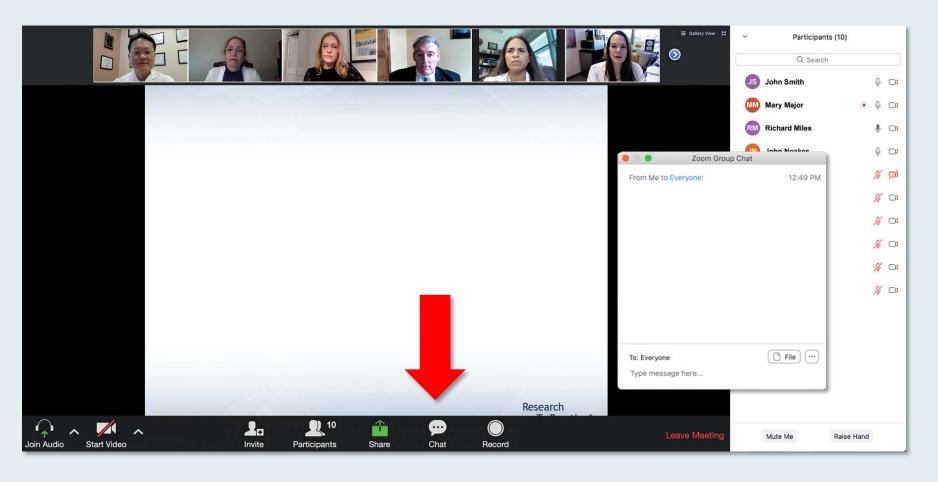
Johann de Bono, MBChB, MSc, PhD Regius Professor of Cancer Research The Institute of Cancer Research University of London The Royal Marsden Hospital London, United Kingdom



Moderator
Neil Love, MD
Research To Practice
Miami, Florida



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5. Elotuzui	mab + r o teazomib + Rd	ımethasone		AK Ashok Kumar	<b>¾</b> □1	
6. Daratur	numab	camethasone		JS Jeremy Smith	<b>¾</b> □1	
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8. Daratur	numab + bortezomib +/- de:	xamethasone				
9. Ixazomi	b + Rd					
10. Other		₽ Research				
	Co-prov	ided by USFHealth To Practice®				
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### ONCOLOGY TODAY

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# The Role of PARP Inhibition in the Management of Prostate Cancer



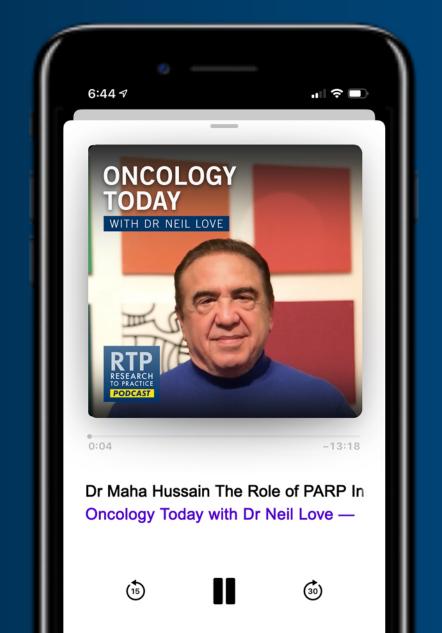
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### ASCO 2021 Metastatic Castration-Resistant Prostate Cancer Presentation Library



Selection and Sequencing of Therapy for Patients with mCRPC Emmanuel S Antonarakis, MD

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Integration of PARP Inhibitors into the Management of mCRPC

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Johann de Bono, MBChB, MSc, PhD



Novel and Investigational Strategies for Patients with mCRPC
Julie N Graff, MD

**Download Slides** 



### **Agenda**

## Module 1: Integration of PARP Inhibitors into the Management of Metastatic Castration-Resistant Prostate Cancer (mCRPC)

- Genomic biology of prostate cancer
- Faculty cases
- PROfound: Olaparib versus AR-targeted therapy in men with HRR mutation-selected mCRPC
- TRITON2: Rucaparib monotherapy for mCRPC previously treated with AR-targeted therapy and a taxane
- TALAPRO-1: Talazoparib in men with DNA damage repair mutations and mCRPC

#### **Module 2: Selection and Sequencing of Therapy in mCRPC**

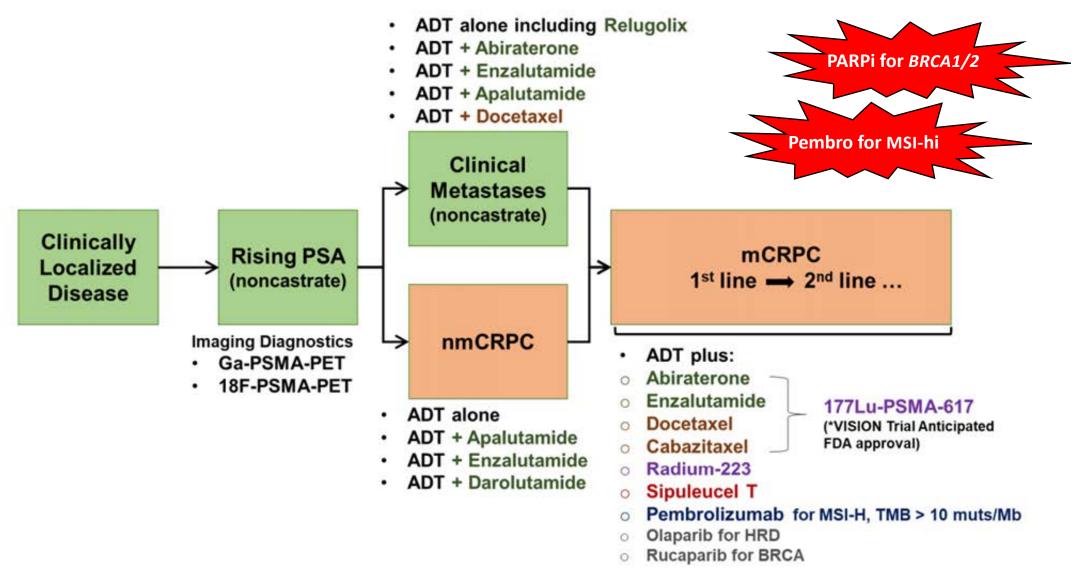
- CARD: Cabazitaxel versus an AR-targeted agent for mCRPC
- OSTRICh: Cabazitaxel versus an AR-targeted agent for patients with poor-prognosis mCRPC
- PEACE III: Addition of bone-protecting agents during treatment with radium-223/enzalutamide
- Faculty cases

#### **Module 3: Novel and Investigational Strategies for Patients with mCRPC**

- VISION: 177Lu-PSMA-617 for patients with progressive PSMA-positive mCRPC
- COSMIC-021: Cabozantinib with atezolizumab for mCRPC
- Faculty cases



# Treatment Landscape for mCRPC



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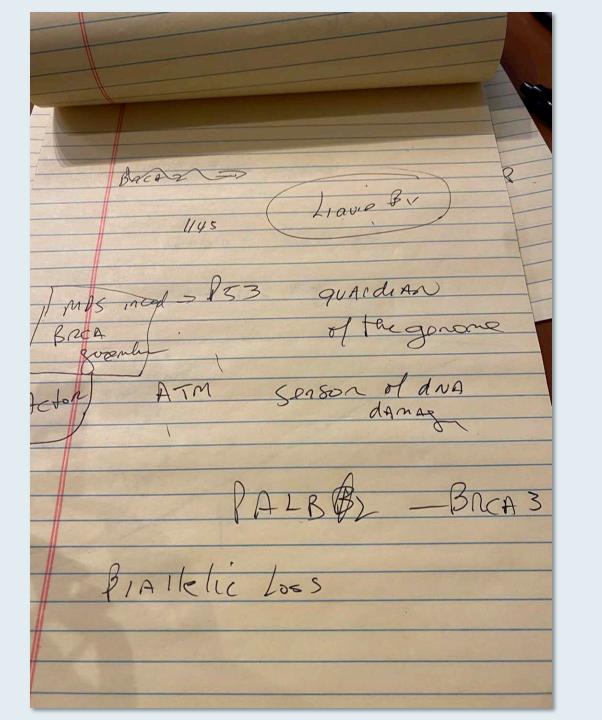
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"P53 is the guardian of the genome"
"ATM is the sensor of DNA damage"

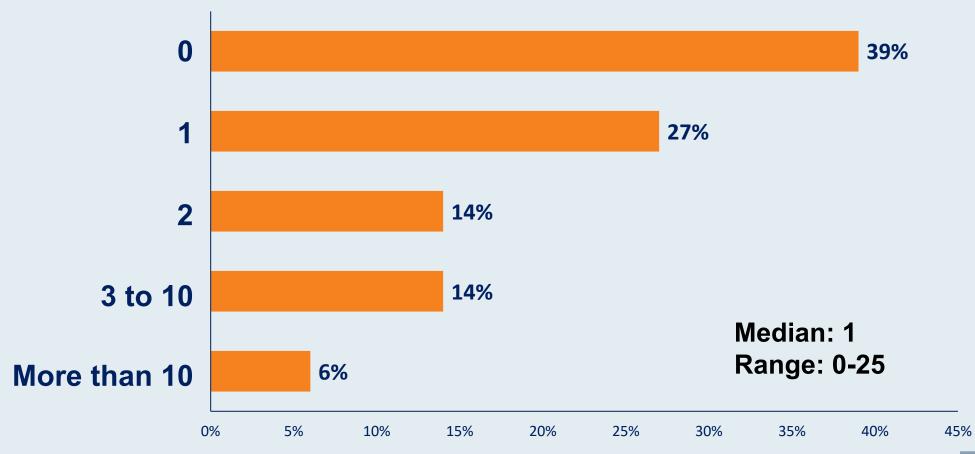
"PALB2 is BRCA3"



Interview with Prof Johann de Bono, July 8, 2021

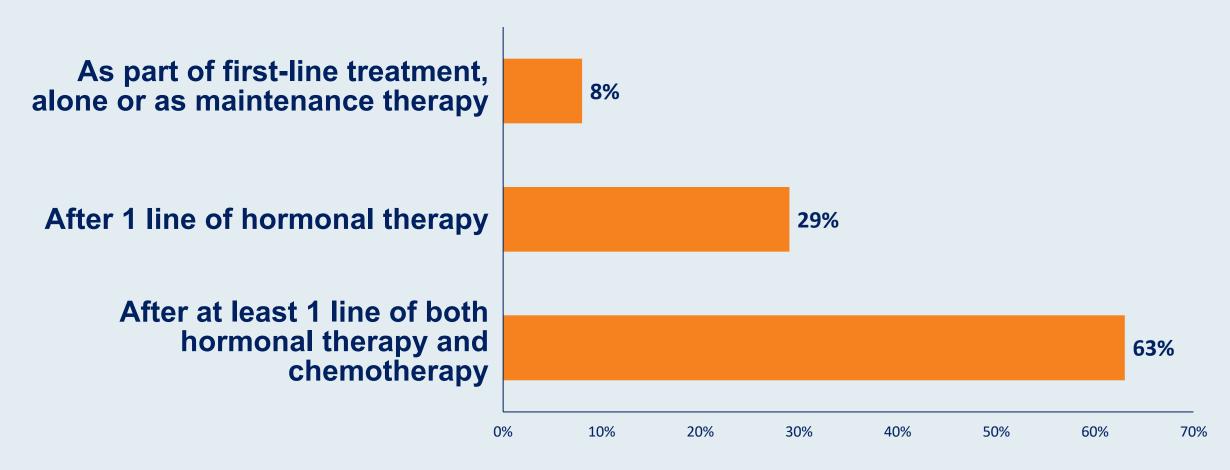


# Approximately how many times have you prescribed a PARP inhibitor to a patient with prostate cancer?





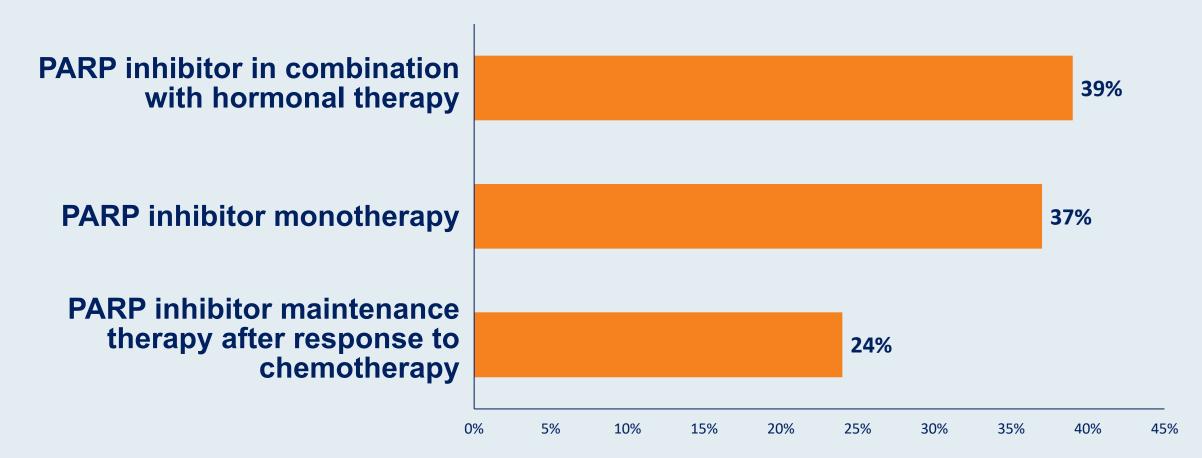
# At what point, if any, do you generally recommend a PARP inhibitor to a patient with mPC and a germline BRCA mutation?





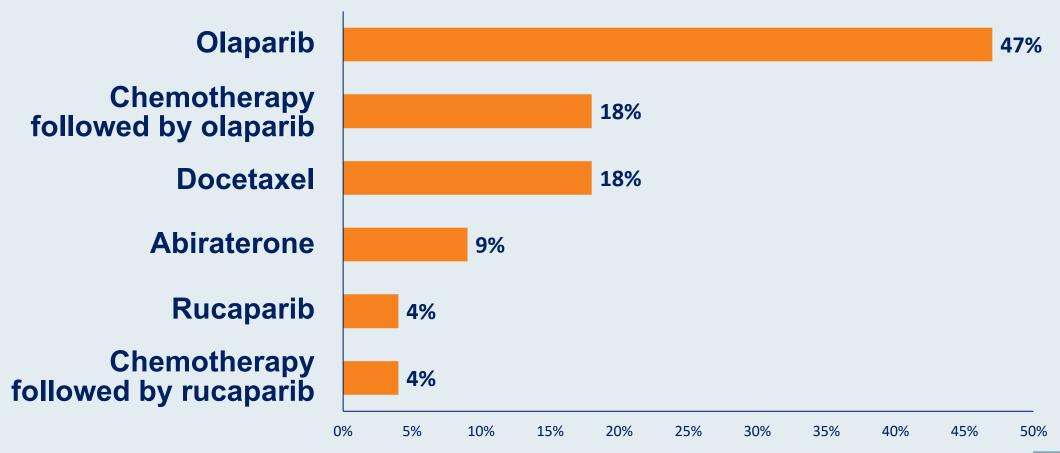
Premeeting survey: July 2021

For a patient with mPC and a germline BRCA mutation to whom you would administer a PARP inhibitor at some point, what treatment strategy would you likely use?



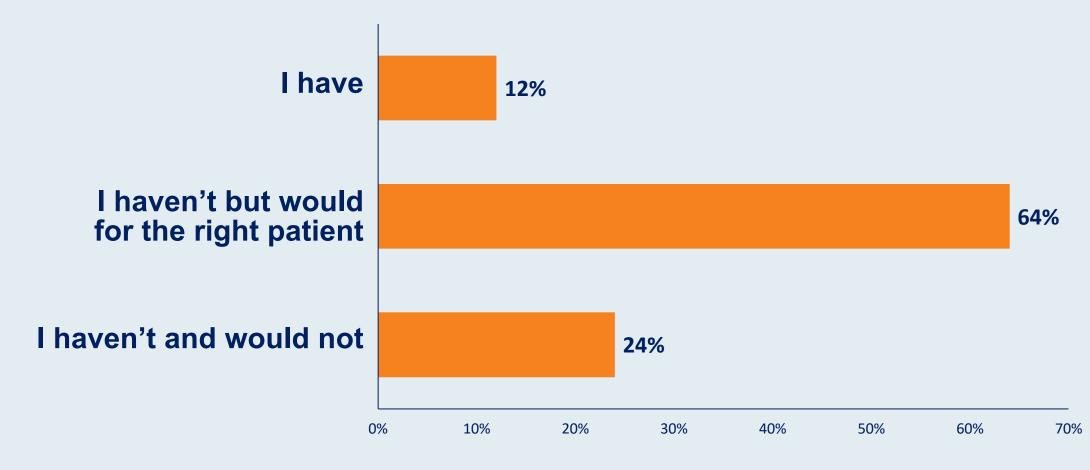


A 65-year-old man with a germline BRCA mutation presents with minimally symptomatic PC metastatic to the bone and receives enzalutamide and ADT with response followed by disease progression. What would you recommend?





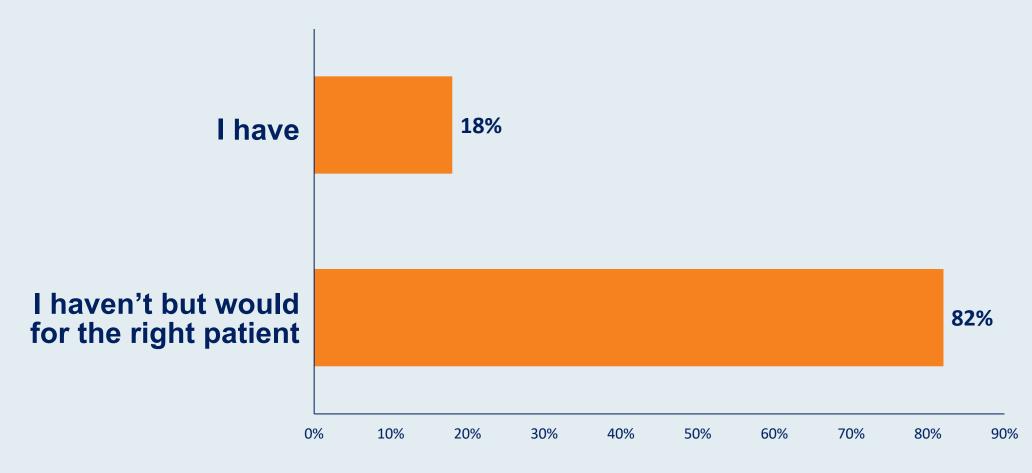
# Have you or would you prescribe a PARP inhibitor to a patient with mPC and a germline ATM mutation?





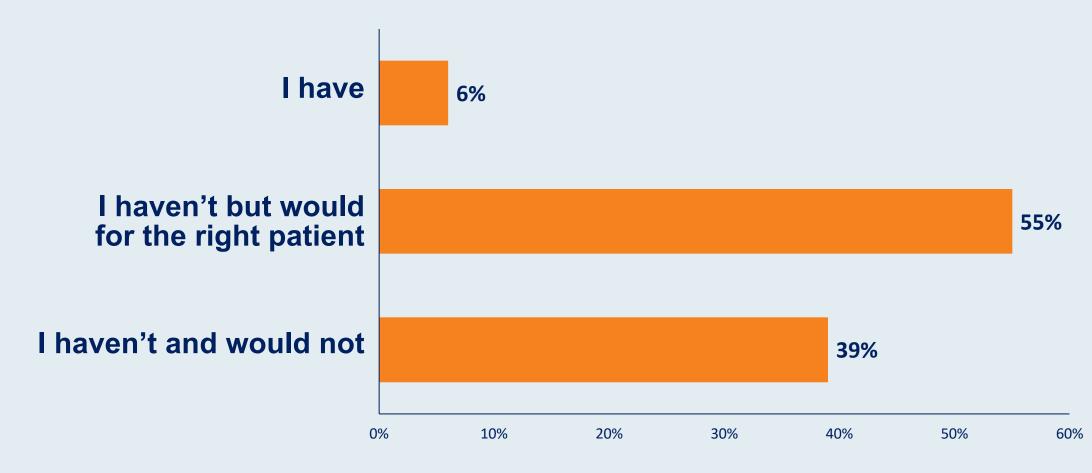
Premeeting survey: July 2021

# Have you or would you prescribe a PARP inhibitor to a patient with mPC and a somatic BRCA mutation?



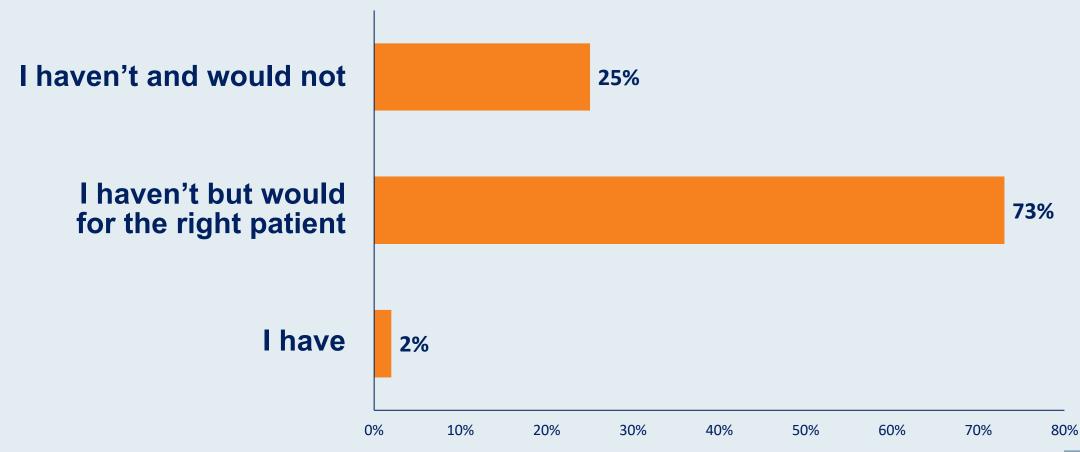


# Have you or would you prescribe a PARP inhibitor to a patient with mPC and a high LOH score?





# Have you or would you prescribe a PARP inhibitor to a patient with mPC and a germline PALB2 mutation?





### DNA repair defects in mCRPC

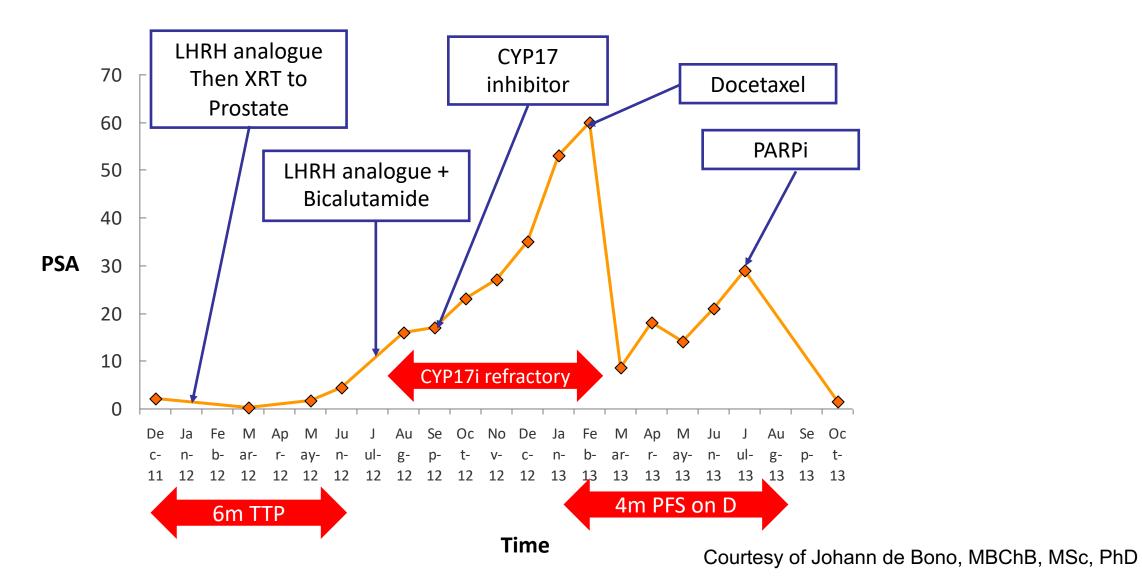
- Many mCRPCs have DNA repair defects
  - TP53 alterations
  - BRCA2 alterations and alterations in other homologous recombination genes including PALB2, RAD51, FANCA
  - ATM alterations
  - CDK12 and mismatch repair gene alterations

# Case Presentation – Prof de Bono: A 70-year-old man with mCRPC and Somatic Cell Biallelic BRCA2 loss

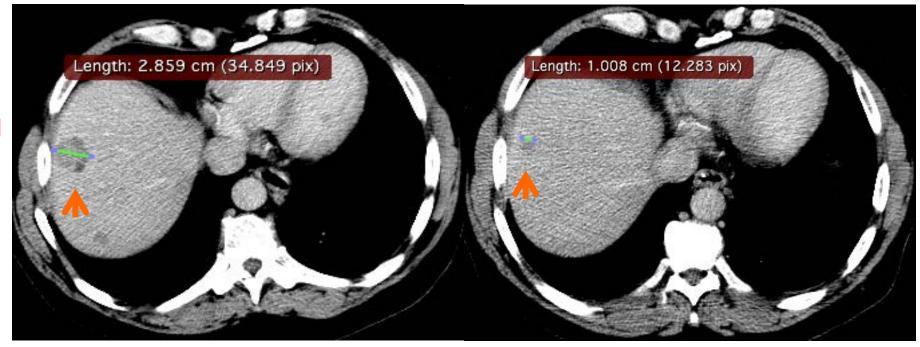
#### One of our first responders

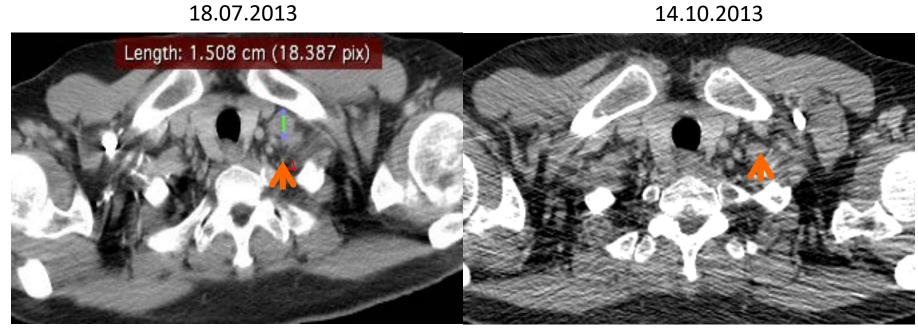
- 70 year old patient with no family history
  - Acute urinary retention in Dec 2011
- Staging: T4 tumor with extension into bladder base, pelvic nodes and metastatic bone disease
- Biopsy confirmed adenocarcinoma of prostate with Gleason score of 4 + 5 (9) in 10/10 cores, up to 80% core involvement

# Case Presentation – Prof de Bono: A 70-year-old man with mCRPC and Somatic Cell Biallelic BRCA2 loss (continued) Detailed case study: TOPARP responder



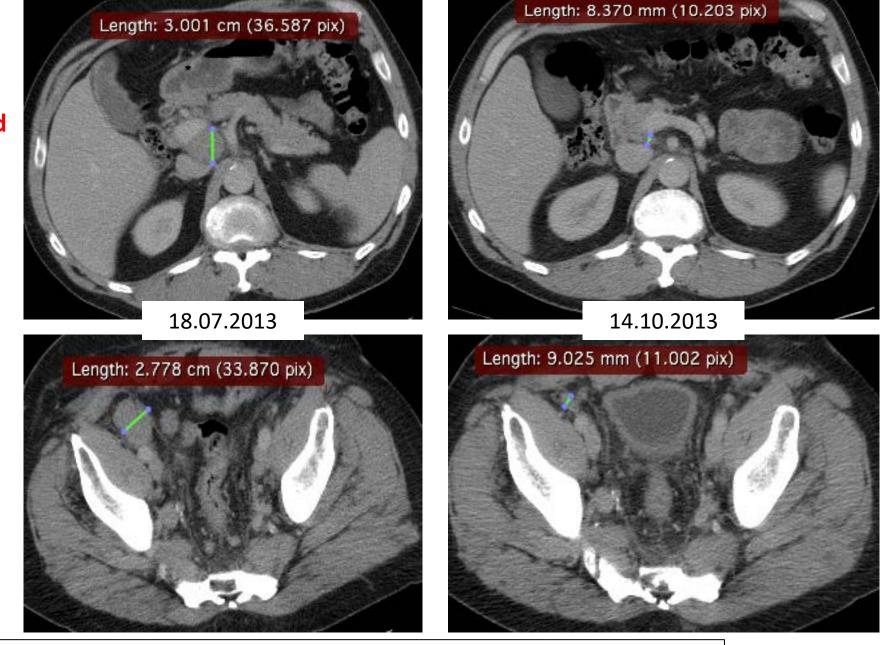
Case Presentation –
Prof de Bono: A 70-yearold man with mCRPC and
Somatic Cell Biallelic
BRCA2 loss (continued)





Courtesy of Johann de Bono, MBChB, MSc, PhD

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Prof de Bono: A 70-yearold man with mCRPC and
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BRCA2 loss (continued)



Response in portacaval (top row) and right external iliac nodes (bottom row)

A similar trend was seen at all nodal disease sites (supraclavicular, retroperitoneal, pelvic, sigmoid mesentery)

Courtesy of Johann de Bono, MBChB, MSc, PhD

#### **Fused MRI DWI - Anatomical**

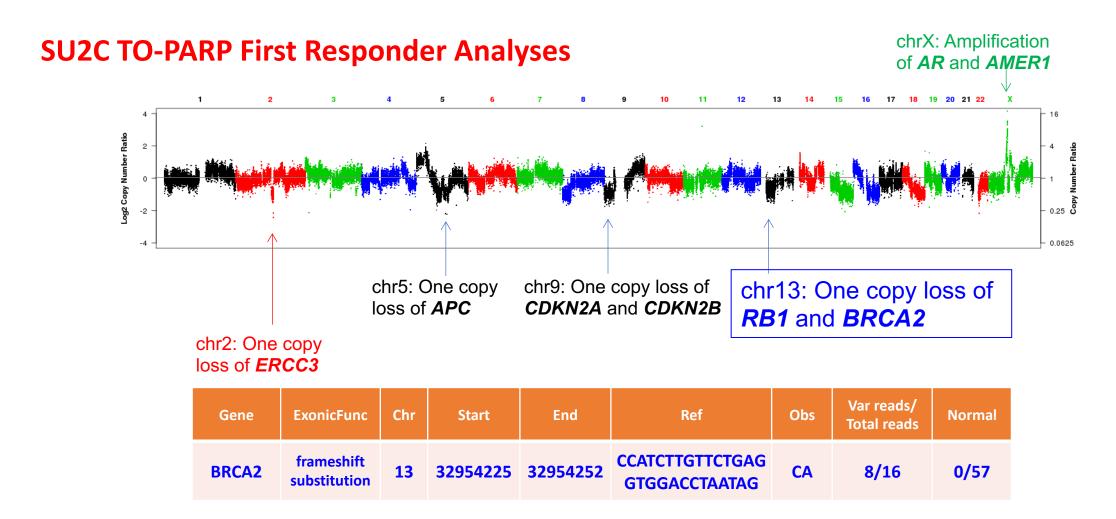
Whole Body MRI DWI – b 900

Case Presentation –
Prof de Bono: A 70year-old man with
mCRPC and Somatic
Cell Biallelic BRCA2
loss (continued)

**Pre-Treatment Post-Treatment Pre-Treatment Post-Treatment** Baseline Post Tx Baseline Post Tx

Whole Body MRI showing almost complete resolution of the liver metastases (red arrow), retroperitoneal and pelvic lymph nodes (yellow arrows) after 12 weeks. (The signal in the clavicles is artifactual; signal in the spleen is normal.)

# Case Presentation – Prof de Bono: A 70-year-old man with mCRPC and Somatic Cell Biallelic BRCA2 loss (continued)



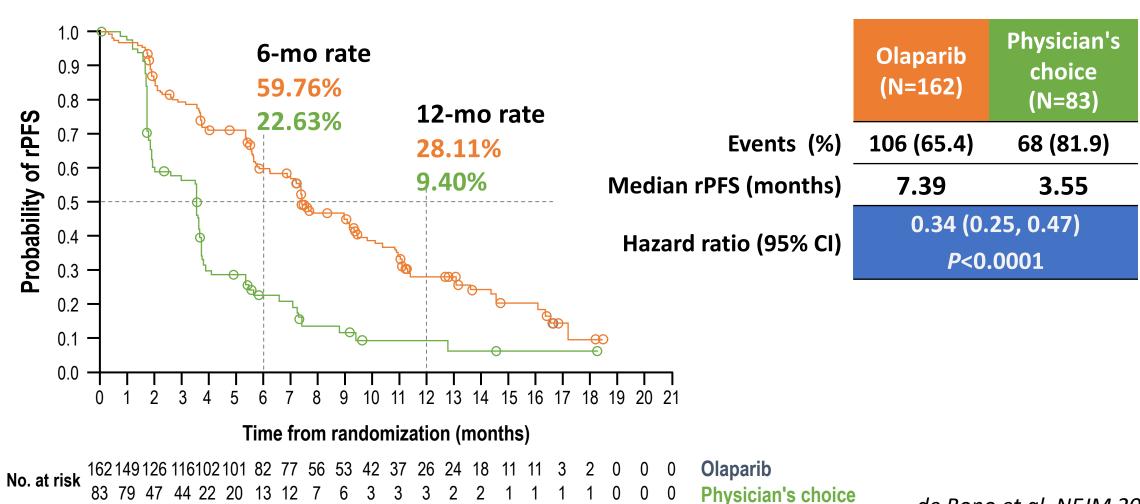
#### Case Presentation – Prof de Bono: A 65-year-old man with mCRPC and a germline BRCA2 mutation 90 We have Radiotherapy to prostate, **Diagnosed with** reported on metastatic CRPC pelvic nodes, and large left iliac bone met cross-sensitivity/ **Multiple bone mets** cross-resistance FH identified: of PARPi with Goserelin and bicalutamide BRCA2 germline mt 70 carboplatin (Fong **Identified: Olaparib** et al, JCO 2010) ----31 months----60 **CRPC** after 1 year New met in left iliac bone, **Multiple bone mets** enlarged retroperitoneal nodes 'Go home to die' 50 **PSA Abiraterone** 40 **Docetaxel** and figitumumab 30 Radium 223 **Good response to** <sub>o</sub> Eribulin 20 Abiraterone (36m) 10 20 Canadanananana

Feb 7, 2003 May 21, 2004 Sep 3, 2005 Dec 17, 2006 Mar 30, 2008 Jul 13, 2009 Oct 26, 2010 Feb 7, 2012 May 22, 2013 Sep 4, 2014 Time 🛨

### Primary endpoint

#### **PROfound Trial**

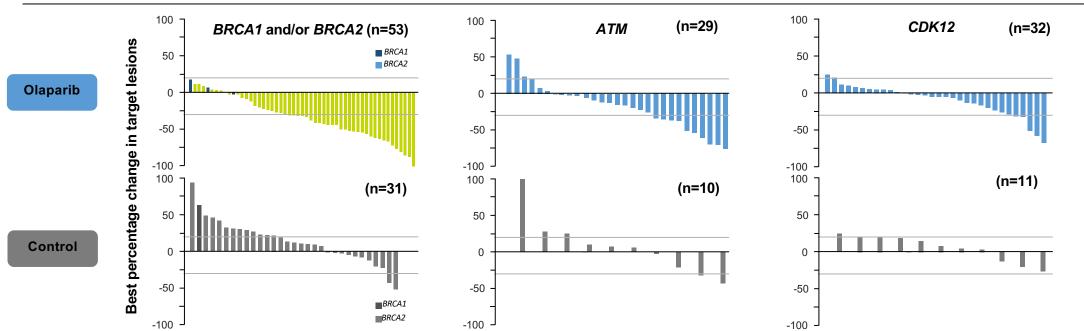
rPFS BY BICR IN PATIENTS WITH ALTERATIONS IN BRCA1, BRCA2, OR ATM (COHORT A)



de Bono et al, NEJM 2020

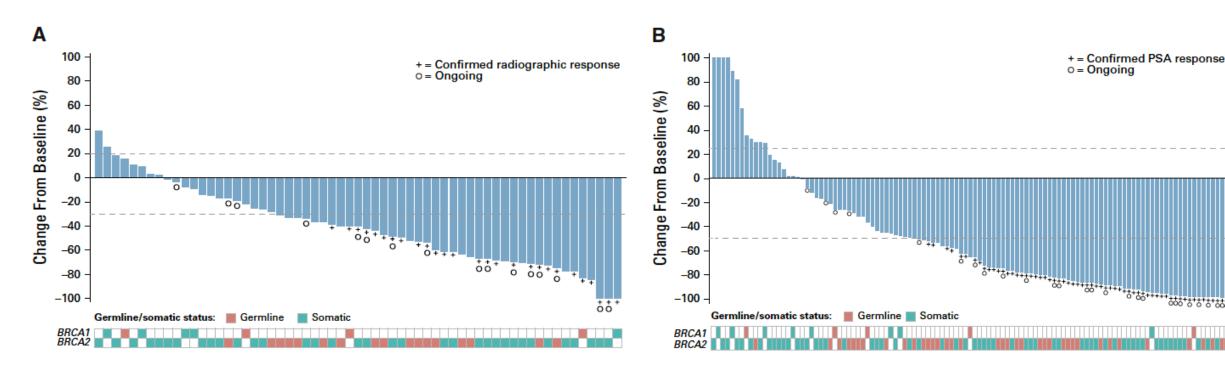
### Olaparib antitumor activity in PROfound

		Cohort A		Cohorts A+B		BRCA1 and/or BRCA2		ATM		CDK12	
		Olaparib (N=162)	Control (N=83)	Olaparib (N=256)	Control (N=131)	Olaparib (N=102)	Control (N=58)	Olaparib (N=62)	Control (N=24)	Olaparib (N=61)	Control (N=28)
rPFS	Median, months	7.4	3.6	5.8	3.5	9.8	3.0	5.4	4.7	5.1	2.2
	HR (95% CI)	0.34 (0.25-0.47)		0.49 (0.38-0.63)		0.22 (0.15-0.32)		1.04 (0.61–1.87)		0.74 (0.44-1.31)	
OS	Median OS, months	19.1	14.7	17.3	14.0	20.1	14.4	18.0	15.6	14.1	11.5
	HR (95% CI)	0.69 (0.50-0.97)		0.79 (0.61–1.03)		0.63 (0.42-0.95)		0.93 (0.53–1.75)		0.97 (0.57–1.71)	
ORR	Evaluable patients, n	84	43	138	67	57	33	30	10	34	12
	ORR, %	33.3	2.3	21.7	4.5	43.9	0	10.0	10.0	5.9	0
PSA	Evaluable patients, n	153	77	243	123	94	54	61	22	58	27
	Confirmed response, %	43.1	7.8	30.0	9.8	61.7	0	13.1	22.7	5.2	3.7
СТС	Evaluable patients, n	52	22	78	32	29	17	25	3	14	5
	Conversion, %	55.8	22.7	52.6	21.9	69.0	23.5	40.0	33.3	50.0	40.0



Courtesy of Johann de Bono, MBChB, MSc, PhD

# TRITON2: Rucaparib confirmed PARPi antitumor activity in BRCA2 mCRPC



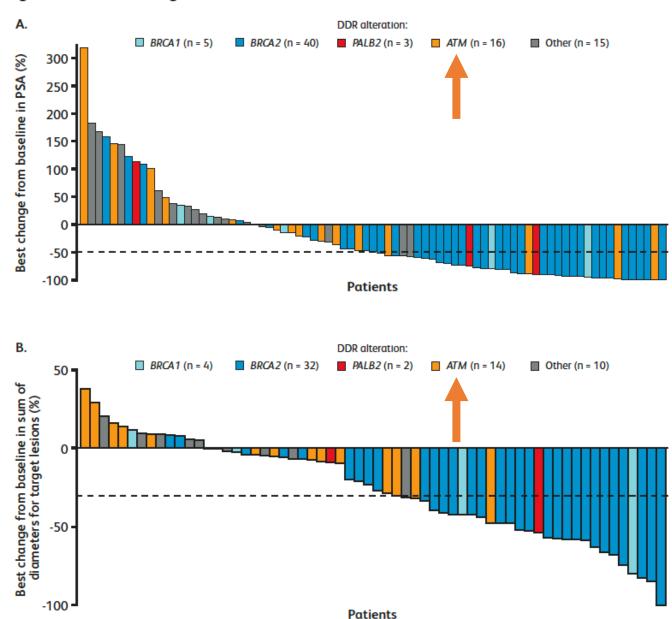
Abida W et al, JCO 2020

#### Talazoparib in mCRPC (TALAPRO-1)

BRCA in blue ATM loss in orange PALB2 in red

Courtesy of Johann de Bono, MBChB, MSc, PhD

Figure 4. Best Change From Baseline in A. PSA and B. RECISTa



°DDR deficient population includes DDR patients who received treatment for ≥16 weeks; for panel A (n = 79) and for panel B (n = 62).

Abbreviations: DDR, DNA damage repair; PSA, prostate-specific antigen; RECIST, Response Evaluation Criteria in Solid Tumors version 1.1.

### Multiple drug combinations under consideration

- AR signaling inhibitors
  - Abiraterone, apalutamide, enzalutamide
- PSMA targeting radioisotopes
  - PSMA Lutetium
- PD-1/PD-L1 immune checkpoint inhibitors
- Other combinations

### **Agenda**

## Module 1: Integration of PARP Inhibitors into the Management of Metastatic Castration-Resistant Prostate Cancer (mCRPC)

- Genomic biology of prostate cancer
- Faculty cases
- PROfound: Olaparib versus AR-targeted therapy in men with HRR mutation-selected mCRPC
- TRITON2: Rucaparib monotherapy for mCRPC previously treated with AR-targeted therapy and a taxane
- TALAPRO-1: Talazoparib in men with DNA damage repair mutations and mCRPC

#### **Module 2: Selection and Sequencing of Therapy in mCRPC**

- CARD: Cabazitaxel versus an AR-targeted agent for mCRPC
- OSTRICh: Cabazitaxel versus an AR-targeted agent for patients with poor-prognosis mCRPC
- PEACE III: Addition of bone-protecting agents during treatment with radium-223/enzalutamide
- Faculty cases

#### **Module 3: Novel and Investigational Strategies for Patients with mCRPC**

- VISION: 177Lu-PSMA-617 for patients with progressive PSMA-positive mCRPC
- COSMIC-021: Cabozantinib with atezolizumab for mCRPC
- Faculty cases



### About the AR-V7 Nucleus Detect test

Share

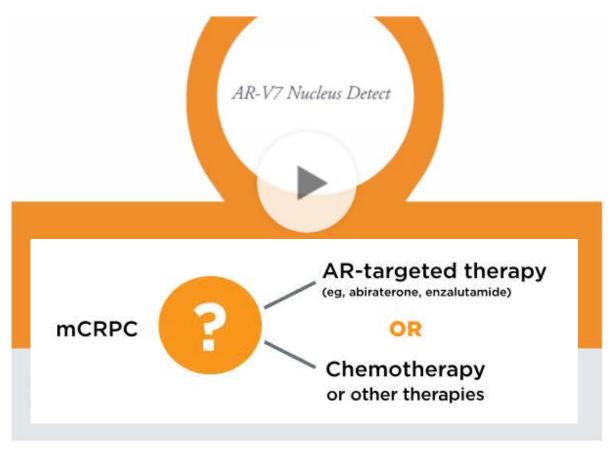




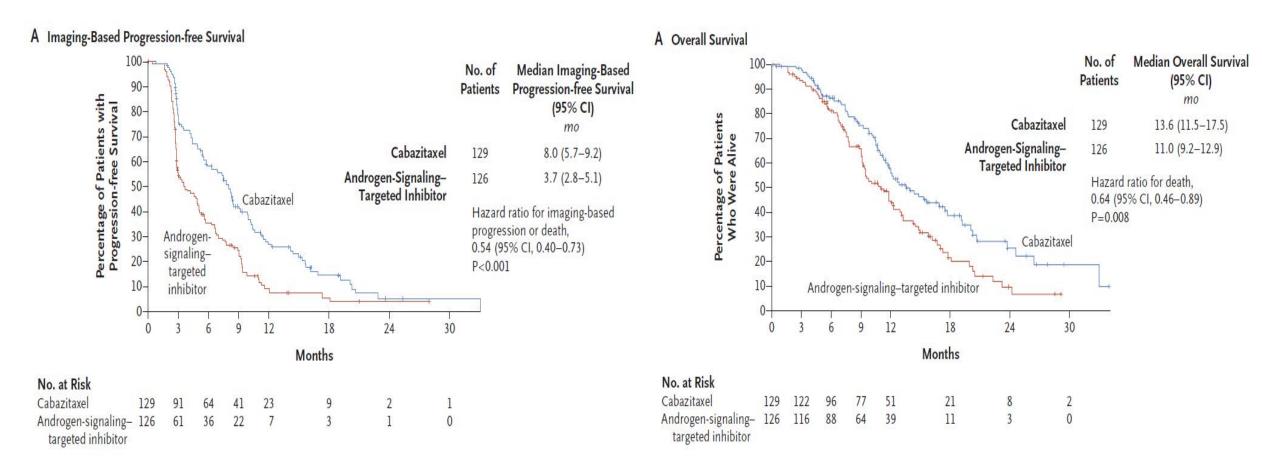




#### Why Order the AR-V7 Nucleus Detect Test?



### The CARD trial



de Wit R, et al. NEJM 2019; 381: 2506-2518.

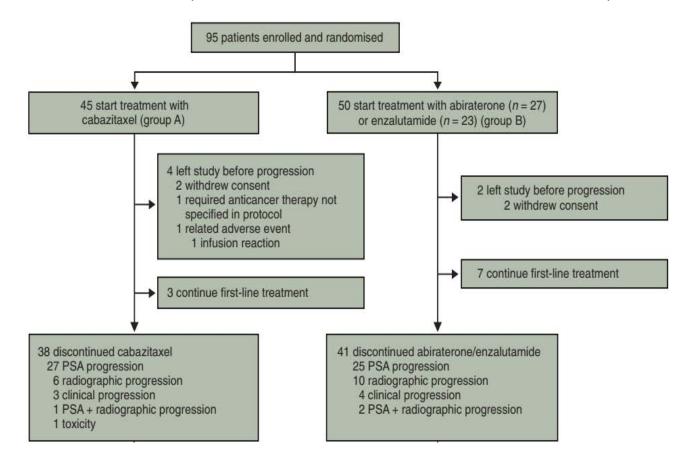
# The CARD trial

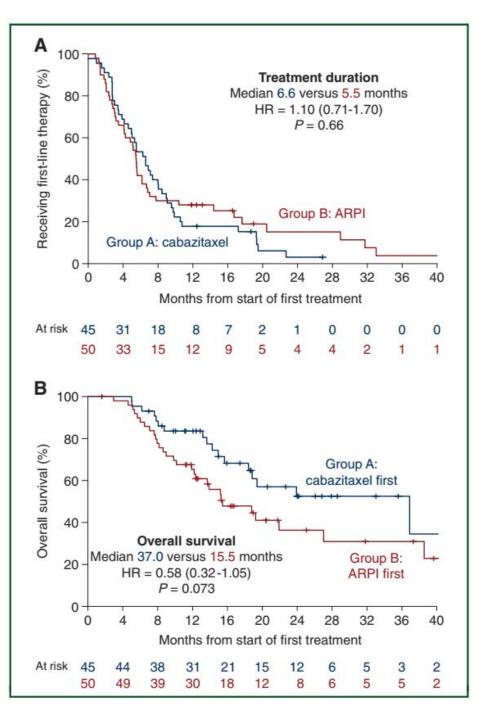
Event		zitaxel 126)	Androgen-Signaling-Targeted Inhibitor (N = 124)		
	Any Grade	Grade ≥3	Any Grade	Grade ≥3	
Any adverse event — no. (%)	124 (98.4)	8 <u>—</u> 8	117 (94.4)	6 <u></u> 3	
Any grade ≥3 adverse event — no. (%)	<del>27 -</del> 24	71 (56.3)	9 <del>7 -</del> 0	65 (52.4)	
Any serious adverse event — no. (%)	49 (38.9)	-	48 (38.7)	· —	
Any adverse event leading to permanent discontinuation of treatment — no. (%)	25 (19.8)	-	11 (8.9)	-	
Any adverse event leading to death — no. (%)*	7 (5.6)	-	14 (11.3)	: <del></del>	
Common adverse events — no. (%)†					
Asthenia or fatigue	67 (53.2)	5 (4.0)	45 (36.3)	3 (2.4)	
Diarrhea	50 (39.7)	4 (3.2)	8 (6.5)	0	
Infection	40 (31.7)	10 (7.9)	25 (20.2)	9 (7.3)	
Musculoskeletal pain or discomfort‡	34 (27.0)	2 (1.6)	49 (39.5)	7 (5.6)	
Nausea or vomiting	33 (26.2)	0	29 (23.4)	2 (1.6)	
Peripheral neuropathy	25 (19.8)	4 (3.2)	4 (3.2)	0	
Constipation	19 (15.1)	0	13 (10.5)	0	
Hematuria	19 (15.1)	1 (0.8)	7 (5.6)	2 (1.6)	
Laboratory abnormalities — no./total no. (%)††					
Anemia	124/125 (99.2)	10/125 (8.0)	118/124 (95.2)	6/124 (4.8)	
Leukopenia	93/125 (74.4)	40/125 (32.0)	39/124 (31.5)	2/124 (1.6)	
Neutropenia	81/123 (65.9)	55/123 (44.7)	8/124 (6.5)	4/124 (3.2)	
Thrombocytopenia	51/125 (40.8)	4/125 (3.2)	20/124 (16.1)	2/124 (1.6)	
Aspartate aminotransferase increased	27/124 (21.8)	4/124 (3.2)	35/124 (28.2)	0/124	
Alanine aminotransferase increased	24/124 (19.4)	1/124 (0.8)	11/124 (8.9)	0/124	
Hypokalemia	15/125 (12.0)	1/125 (0.8)	19/124 (15.3)	1/124 (0.8)	

### The Canadian trial (Phase II OZM-054 Trial)

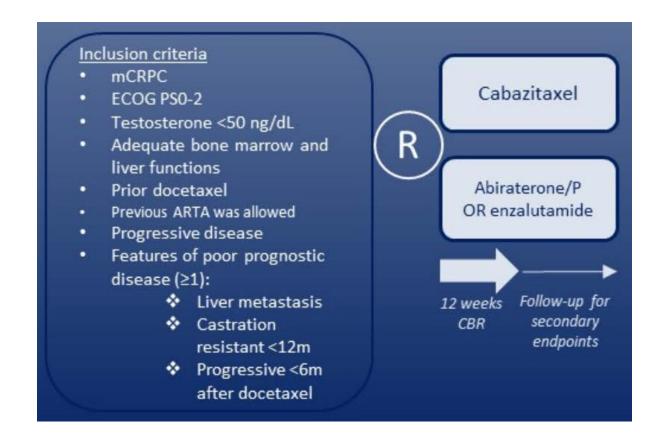
#### Poor prognosis:

liver mets, CRPC <12 months, or >3 of 6 (LDH, ECOG, visceral, albumin, ALP, <36 mo from Dx)

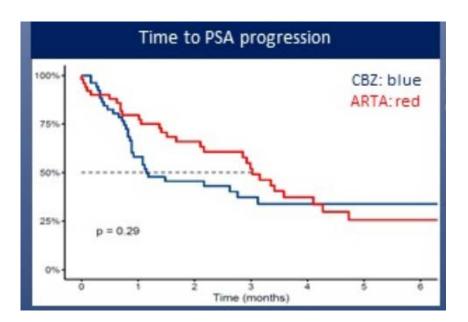


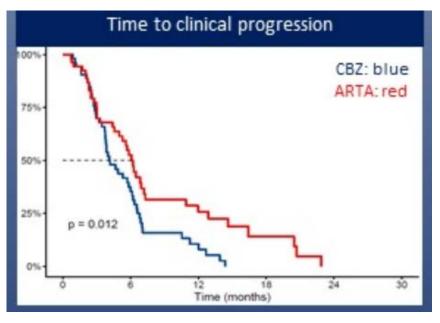


### The Dutch trial (Phase II OSTRICh Trial)



van der Zande K, et al. ASCO 2021; abstract 5059.



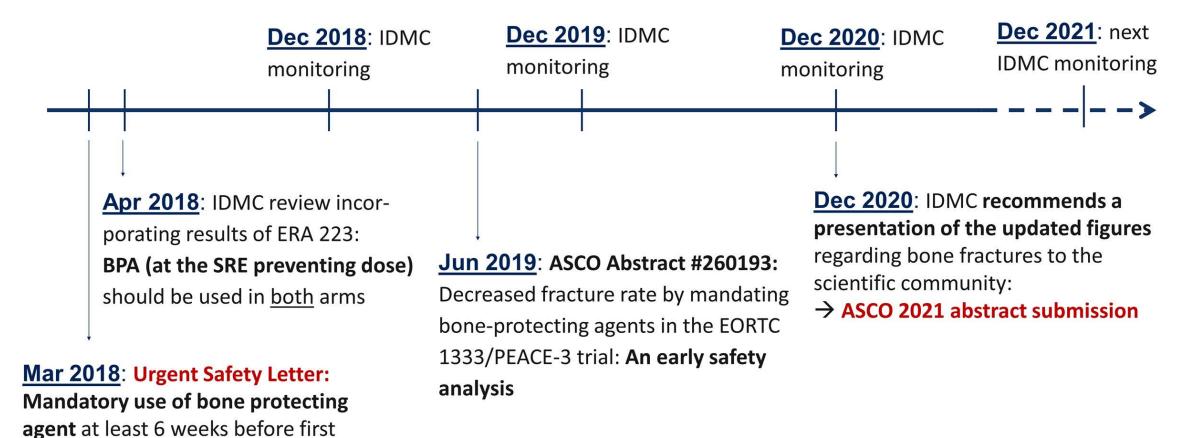


### Ideal patient for Radium-223 treatment

- mCRPC with symptomatic bone metastases
- Mild bone pain (1-4/10), but not severe bone pain (≥5/10)
- Few bone metastases (5-10), but not too many (≥20)
- No impending pathologic fracture or cord compression
- Adequate bone marrow function (Hgb ≥9, ANC ≥1000, Plt ≥100K)
- No visceral mets (≥10 mm) or bulky nodal mets (≥30 mm)
- No concurrent Abi; use Denosumab with concurrent Enza
- ECOG 0-1; avoid if ECOG 2-4

#### PEACE III: Timelines, impact of ERA 223 and role of IDMC

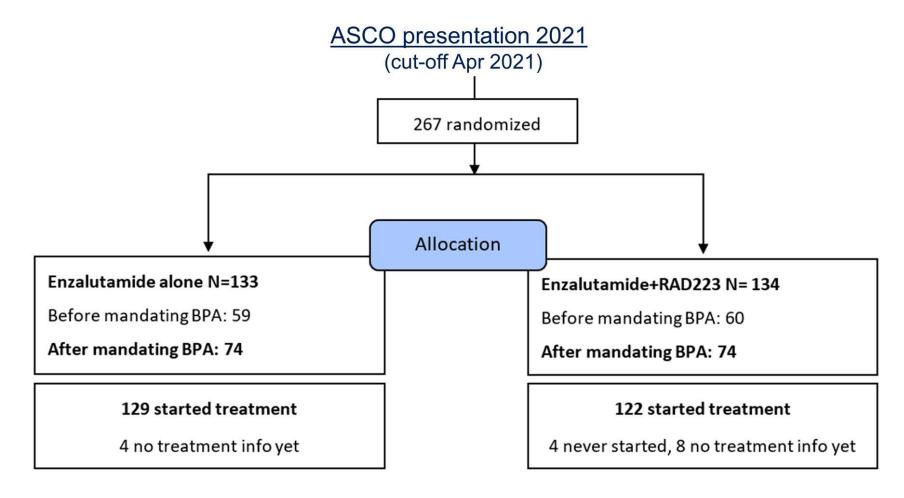




injection of Ra223

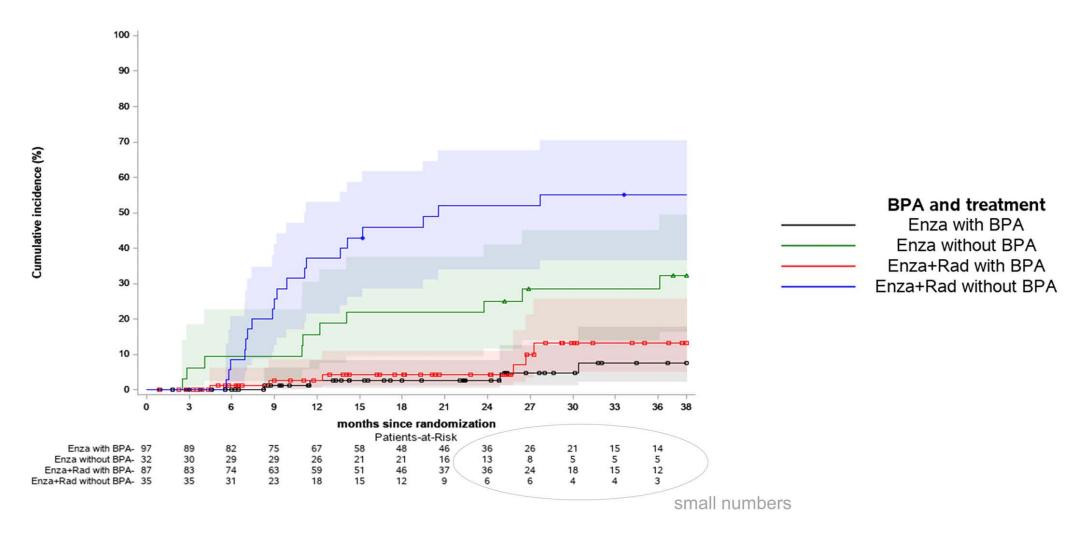
# Updated results of the safety analysis for the EORTC 1333 (PEACE III) trial: Impact of bone protecting agents (BPA) on fracture rates





### PEACE III: Cumulative incidence of fractures by treatment arm and use of bone protecting agents



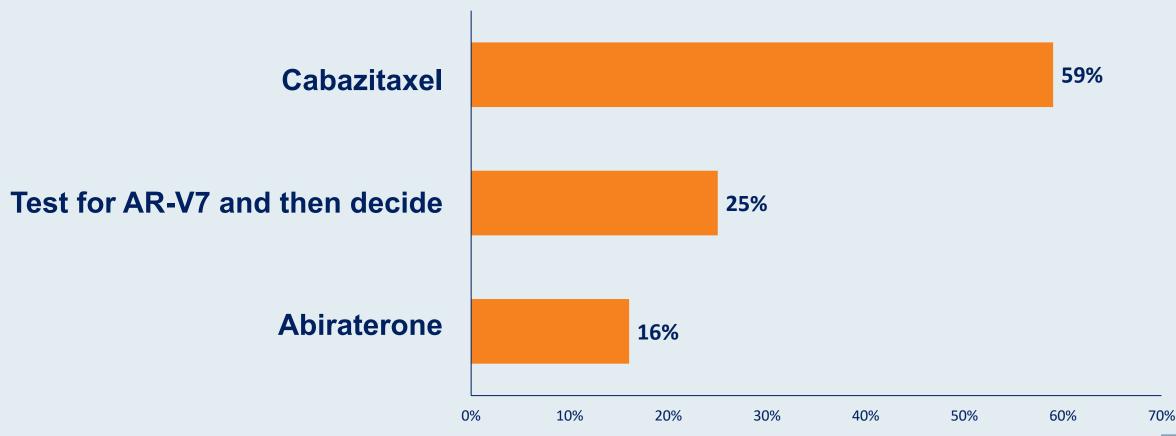


### PEACE III: Bone fractures and cumulative incidence – safety population



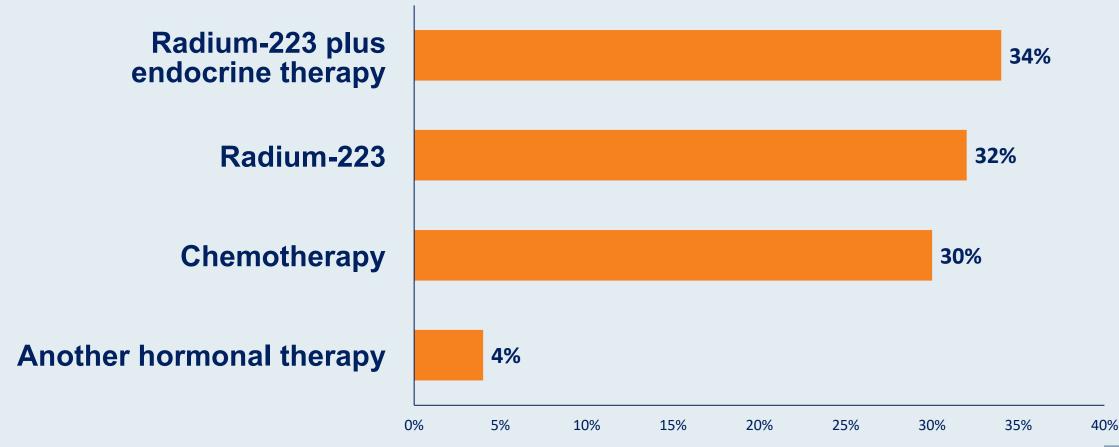
Time point	Without BPA		With BPA	
	Enza+Rad (N=35)	Enza (N=32)	Enza+Rad (N=87)	Enza (N=97)
	Cum Incidence (95% CI)	Cum Incidence (95% CI)	Cum Incidence (95% CI)	Cum Incidence (95% CI)
9 months	25.7 (12.6-41.0)	9.4 (2.3-22.5)	2.7 (0.5-8.5)	1.3 (0.1-6.1)
12 months	37.1 (21.3-53.0)	15.6 (5.6-30.3)	2.7 (0.5-8.5)	2.6 (0.5-8.3)
15 months	42.9 (26.1-58.6)	21.9 (9.5-37.5)	4.3 (1.1-10.9)	2.6 (0.5-8.3)
18 months	45.9 (28.6-61.6)	21.9 (9.5-37.5)	4.3 (1.1-10.9)	2.6 (0.5-8.3)
21 months	52.0 (33.8-67.5)	21.9 (9.5-37.5)	4.3 (1.1-10.9)	2.6 (0.5-8.3)

A 65-year-old man presents with minimally symptomatic mPC to the nodes and bone and receives docetaxel and ADT with response followed by disease progression. The patient is started on enzalutamide but experiences further progression after <u>9 months</u>. What would you recommend?



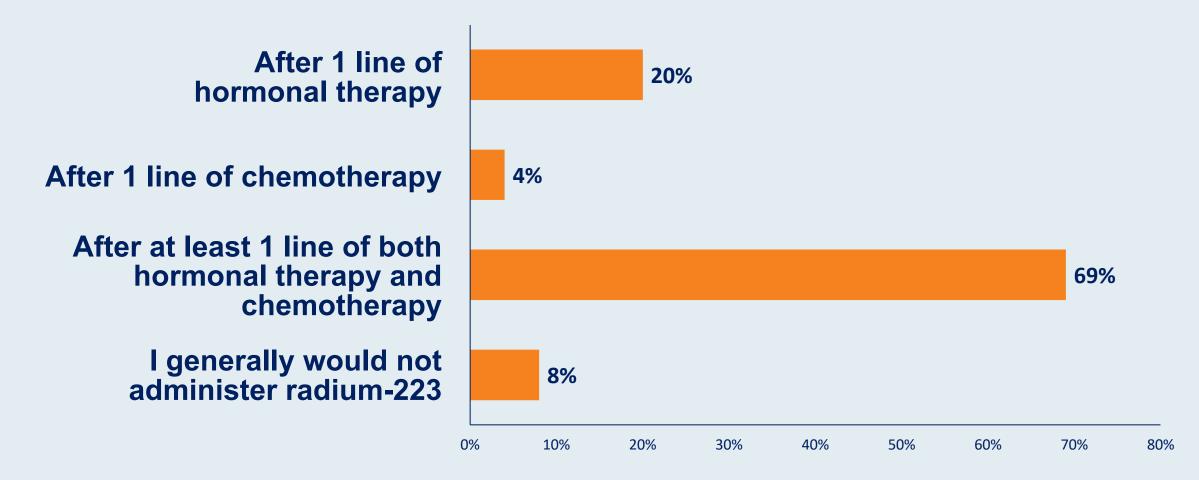


For a patient with mPC and bone-only metastases who has received prior docetaxel then responds to but develops disease progression on secondary hormonal therapy (eg, enzalutamide, apalutamide, abiraterone), what is your likely next systemic treatment?





# At what point, if any, do you generally recommend radium-223 to a patient with bone-only mCRPC?





### Case Presentation – Dr Antonarakis: A 62-year-old man with de novo mHSPC

- 62-year-old man, diagnosed with de novo mHSPC (bone + liver)
- Prostate biopsy: Gleason 5+4=9
- Liver biopsy: prostate adeno, no NEPC, NGS—somatic BRCA1
- No family history of cancer; germline testing negative
- Received ADT + 6x docetaxel; developed mCRPC in 9 mo
- Then received enzalutamide, no response after 3 mo
- Worsening bone mets; liver mets growing again
- Options: olaparib, cabazitaxel
- Started cabazitaxel—PR in liver, and PSA response (ongoing)

### Case Presentation – Dr Antonarakis: A 58-year-old man with mCRPC and a germline ATM mutation

- 58-year-old man; Gleason 4+3=7 localized prostate cancer
- Family history of male breast cancer in father
- Prostatectomy (pT3b N0 R0); Adjuvant XRT
- Biochemical recurrence, treated with intermittent ADT
- Developed nmCRPC after 2 years; PSADT = 5.8 months
- Received Darolutamide for 18 months
- Developed mets in bones (x3) and RP lymph nodes
- Lymph node biopsy: somatic NGS found ATM mutation
- Germline testing confirmed inherited ATM mutation

# Case Presentation – Dr Antonarakis: A 58-year-old man with mCRPC and a germline ATM mutation (continued)

- 58 y/o man; received Daro for nmCRPC; gATM mutation
- Then developed mCRPC (3 bone mets; RP nodes)
- Declined chemo; received Abiraterone (no response)
- Due to gATM mutation, then received Olaparib
- Minor response to Olaparib, with progression after 5 mo
- Now, mCRPC s/p Daro, Abi and Olaparib → symptomatic
- Options: Chemo? Rad-223?

# Case Presentation – Dr Antonarakis: A 58-year-old man with mCRPC and a germline ATM mutation (continued)

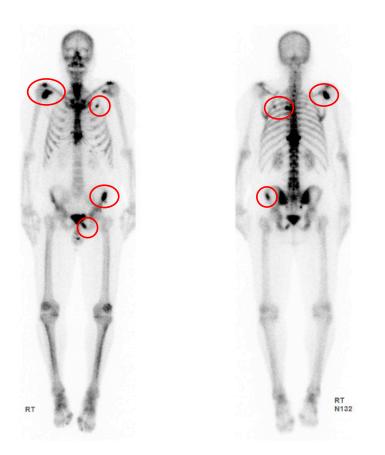
#### ATM-mutated Pt who received Radium-223

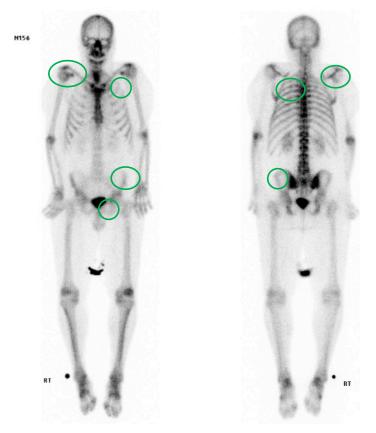
Bone scan (2/23/2019)

- Baseline

Bone scan (8/26/2019)

- After 6 months



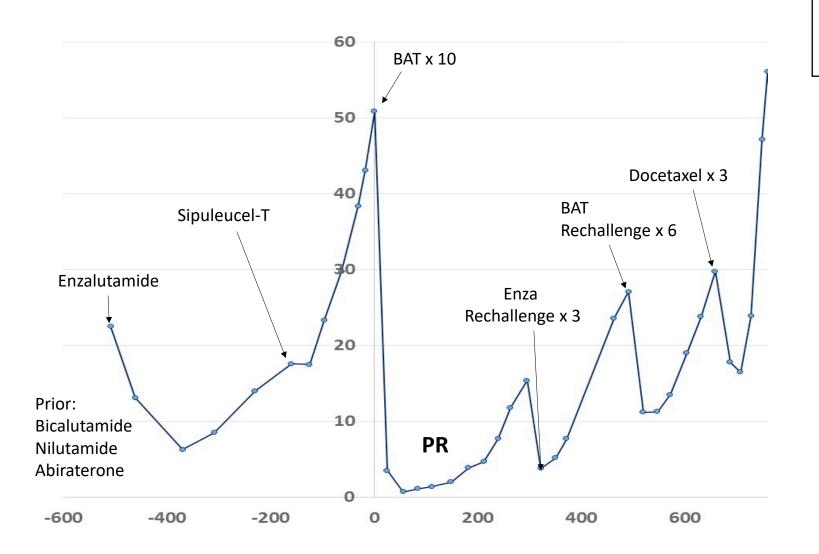


### Case Presentation – Dr Antonarakis: A 66-year-old man with mCRPC and a TP53 mutation

- 66-year-old man, diagnosed with de novo mHSPC (bone mets)
- Prostate biopsy: Gleason 4+4=8
- No family history of cancer
- Received ADT + bicalutamide; developed mCRPC in 2 years
- Then received nilutamide, abiraterone, enzalutamide
- Received sipuleucel-T
- Worsening bone mets; new pelvic adenopathy
- Participated in first clinical trial of BAT

Case Presentation - Dr Antonarakis: A 66-year-old man

with mCRPC and a TP53 mutation (continued)

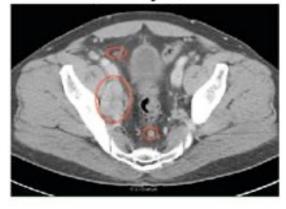


DNMT3A	R882H	Somatic
JAK2	V617F	Somatic
NTRK2	R598C	Somatic
TP53	Y205D	Somatic
TP53	H193L	Somatic
MS-S		





Post Cycle 3



Courtesy of Emmanuel S Antonarakis, MD

#### **Agenda**

### Module 1: Integration of PARP Inhibitors into the Management of Metastatic Castration-Resistant Prostate Cancer (mCRPC)

- Genomic biology of prostate cancer
- Faculty cases
- PROfound: Olaparib versus AR-targeted therapy in men with HRR mutation-selected mCRPC
- TRITON2: Rucaparib monotherapy for mCRPC previously treated with AR-targeted therapy and a taxane
- TALAPRO-1: Talazoparib in men with DNA damage repair mutations and mCRPC

#### **Module 2: Selection and Sequencing of Therapy in mCRPC**

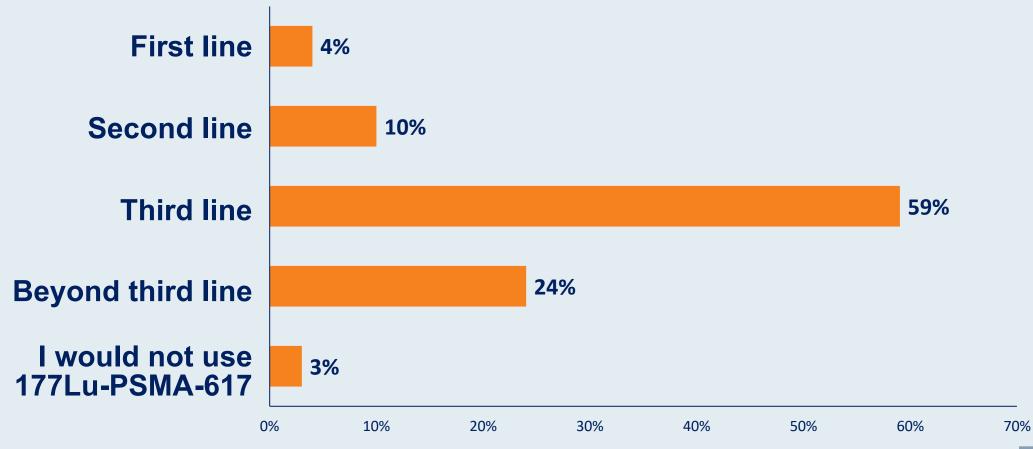
- CARD: Cabazitaxel versus an AR-targeted agent for mCRPC
- OSTRICh: Cabazitaxel versus an AR-targeted agent for patients with poor-prognosis mCRPC
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- Faculty cases

#### **Module 3: Novel and Investigational Strategies for Patients with mCRPC**

- VISION: 177Lu-PSMA-617 for patients with progressive PSMA-positive mCRPC
- COSMIC-021: Cabozantinib with atezolizumab for mCRPC
- Faculty cases

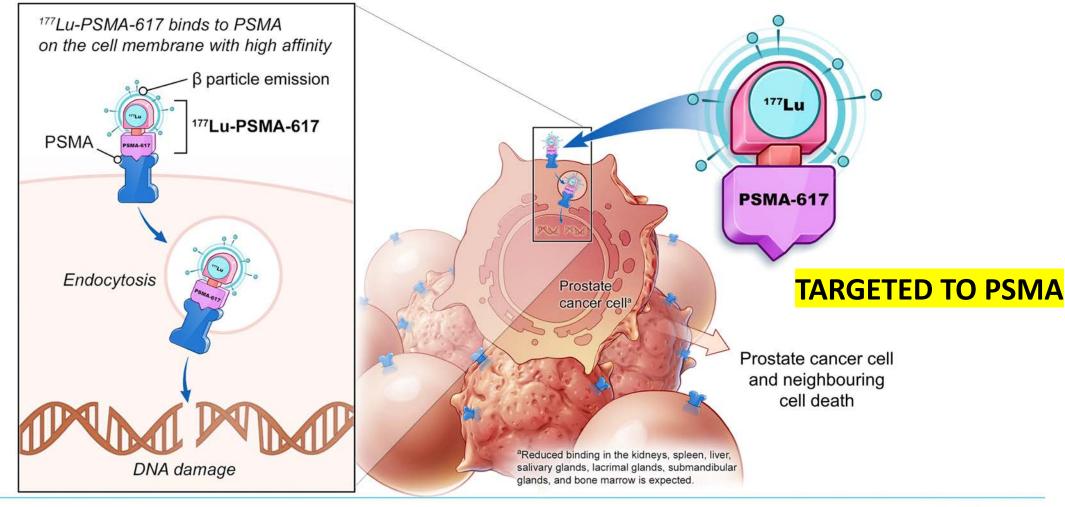


# Regulatory and reimbursement issues aside, in what line of therapy would you administer 177Lu-PSMA-617 for patients with mPC?





### <sup>177</sup>Lu-PSMA-617 targeted radioligand therapy



Presented By: Michael J. Morris

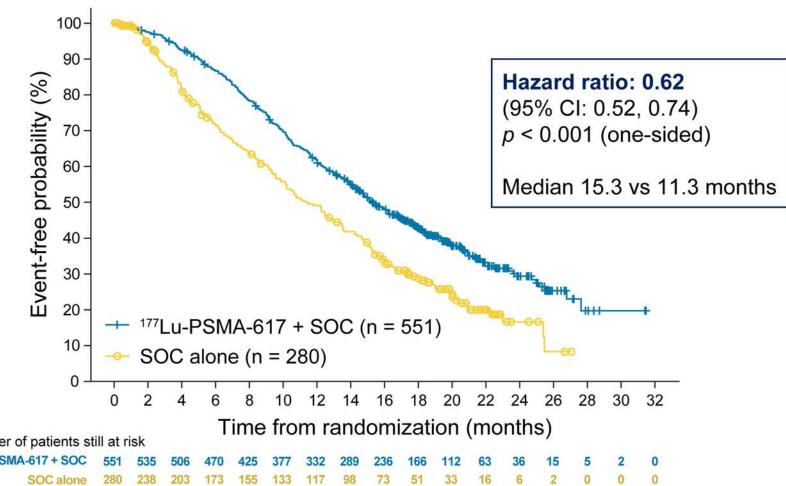
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### Primary endpoints: <sup>177</sup>Lu-PSMA-617 prolonged OS

#### **Primary** analysis

All randomized patients (N = 831)



Number of patients still at risk

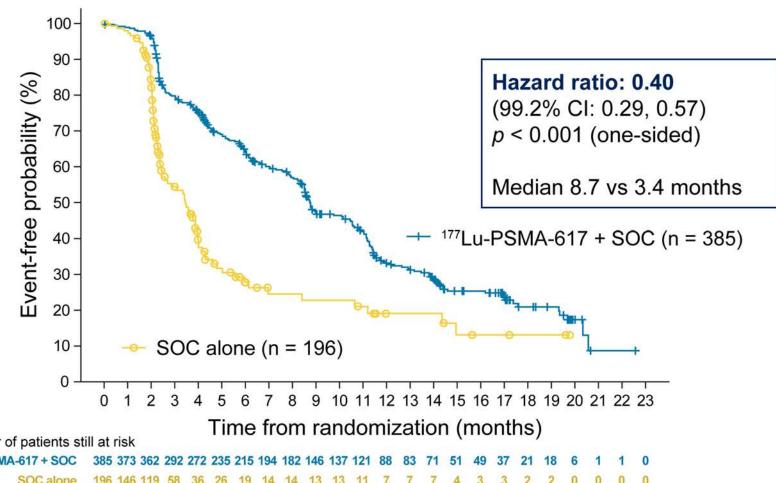
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### Primary endpoints: <sup>177</sup>Lu-PSMA-617 improved rPFS

**Primary** analysis

rPFS analysis set (n = 581)



Number of patients still at risk

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**Phase III VISION Trial** 

#### Higher rate of drug-related treatment-emergent adverse events with addition of <sup>177</sup>Lu-PSMA-617 to SOC

	All grades		Grade 3–5	
Patients, n (%)	<sup>177</sup> Lu-PSMA-617 + SOC (n = 529)	SOC alone (n = 205)	<sup>177</sup> Lu-PSMA-617 + SOC (n = 529)	SOC alone (n = 205)
Any TEAE	451 (85.3)	59 (28.8)	150 (28.4)	8 (3.9)
Serious	49 (9.3)	5 (2.4)	43 (8.1)	5 (2.4)
Grade 5	3 <del>5.</del>	-	5 (0.9)	0 (0.0)

ANNUAL MEETING

Phase III VISION Trial

# Treatment-emergent adverse events grouped as topics of interest: no unexpected or concerning safety signals

	All grades		Grade 3–5	
Patients, n (%)	<sup>177</sup> Lu-PSMA-617 + SOC (n = 529)	SOC alone (n = 205)	<sup>177</sup> Lu-PSMA-617 + SOC (n = 529)	SOC alone (n = 205)
Fatigue	260 (49.1)	60 (29.3)	37 (7.0)	5 (2.4)
Bone marrow suppression	251 (47.4)	36 (17.6)	124 (23.4)	14 (6.8)
Leukopenia Lymphopenia Anemia Thrombocytopenia	66 (12.5) 75 (14.2) 168 (31.8) 91 (17.2)	4 (2.0) 8 (3.9) 27 (13.2) 9 (4.4)	13 (2.5) 41 (7.8) 68 (12.9) 42 (7.9)	1 (0.5) 1 (0.5) 10 (4.9) 2 (1.0)
Dry mouth	208 (39.3)	2 (1.0)	0 (0.0)	0 (0.0)
Nausea and vomiting	208 (39.3)	35 (17.1)	8 (1.5)	1 (0.5)
Renal effects	46 (8.7)	12 (5.9)	18 (3.4)	6 (2.9)
Second primary malignancies	11 (2.1)	2 (1.0)	4 (0.8)	1 (0.5)
Intracranial hemorrhage	7 (1.3)	3 (1.5)	5 (0.9)	2 (1.0)

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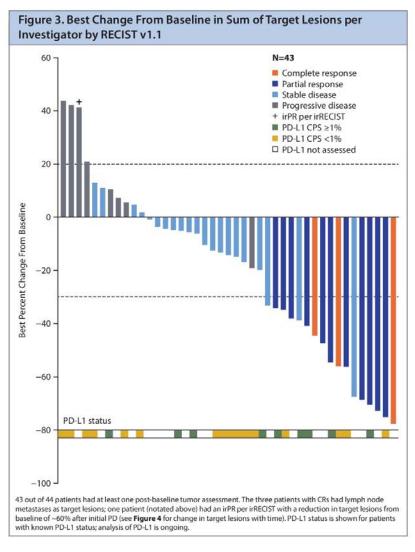


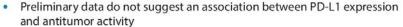
### Immune Checkpoint Inhibitors in mCRPC

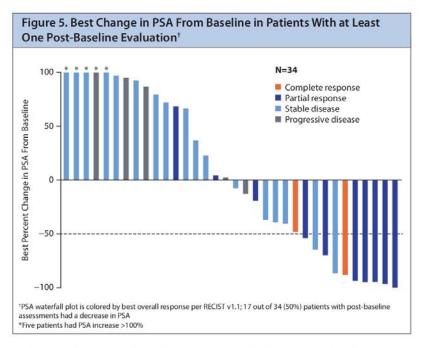
Therapy	Disease State	Disease Response
Pembrolizumab monotherapy <sup>a</sup>	Post-chemotherapy	ORR 9% PSA RR 14%
Pembrolizumab + enzalutamide <sup>b</sup>	Pre-chemotherapy progressing on enzalutamide	ORR 12% PSA RR 14%
Atezolizumab + enzalutamide <sup>c</sup>	Pre- and post-chemotherapy, s/p abiraterone	ORR 14% PSA RR 26%
Atezolizumab + cabozantinib <sup>d</sup>	Pre-chemotherapy s/p enzalutamide or abiraterone	ORR 34% PSA RR 29%

<sup>a</sup>JCO 2020: 38(5) 395-405. <sup>b</sup>Presented at the 2021 ASCO Annual Meeting – Virtual; June 4-8, 2021. <sup>c</sup>Sweeney C. AACR 2020. IMbassador250. <sup>d</sup>Agarwal ASCO 2020. COSMIC-021

### COSMIC-021: Cabozantinib plus Atezolizumab for mCRPC







 In 12 patients with objective responses per RECIST v1.1 with at least one post-baseline PSA evaluation, 8 (67%) had a PSA decrease ≥50%

	CRPC Cohort (N=44)
Patients on study treatment at data cut-off, n (%)	11 (25)
Median duration of exposure, months (range)	6.9 (1-18)
Treatment-related grade 3/4 AEs, n (%)	26 (59)
Immune-related grade 3/4 AEs, n (%)	4 (9.1)
Treatment-related grade 5 AEs,* n (%)	1 (2.3)
AEs leading to cabozantinib dose reductions, n (%)	19 (43)
AEs unrelated to disease progression leading to both cabozantinib and atezolizumab discontinuation,¹ n (%)	4 (9.1)

At each level of summarization, a patient was counted once for the most severe event if the patient reported one or more events. "One grade 5 AE of dehydration occurred in a 90-year-old patient with a 6-month history of failure to thrive before study entry. 'Not necessarily discontinued at the same time.

#### **CONTACT-02: Phase III Trial Schema**

# mCRPC (N ~580) • Prior treatment with one NHT

- Measurable visceral disease or measurable extrapelvic adenopathy
- PSA progression and/or soft-tissue disease progression
- ECOG PS 0 or 1

Cabozantinib + Atezolizumab Cabozantinib 40 mg PO QD Atezolizumab 1200 mg IV Q3W

Second NHT\*
Enzalutamide 160 mg PO QD

OR
Abiraterone 1000 mg PO QD +

Prednisone 5 mg PO BID

Tumor assessment every 9 weeks (RECIST v1.1)<sup>†</sup>

Treatment until loss of clinical benefit<sup>‡</sup> or intolerable toxicity

#### **Primary Endpoints:**

- PFS per RECIST v1.1 by BIRC
- OS

#### **Secondary Endpoint:**

• ORR per RECIST v1.1 by BIRC

#### Stratification

R<sub>1:1</sub>

- Liver metastasis (yes, no)
- Prior docetaxel treatment for mCSPC (yes, no)
- Disease stage for which the first NHT was given (mCSPC, M0 CRPC, mCRPC)



<sup>\*</sup>Second NHT must differ from previous NHT taken

Tumor assessment (RECIST v1.1) every 9 weeks for the first 28 weeks then every 12 weeks thereafter

<sup>&</sup>lt;sup>‡</sup>Patients may be treated beyond progression if there is a clinical benefit in the opinion of the investigator

### Case Presentation – Dr Graff: A 57-year-old man with mCRPC and no actionable mutations

A 57 yo man diagnosed with metastatic prostate cancer with 5 bone tumors and a liver tumor. He is in good health other than the cancer. His initial treatment included ADT + docetaxel x 10 cycles followed by abiraterone/prednisone. Sequencing of his tumor does not show any actionable mutations. After 18 months, his PSA begins to slowly climb. His imaging studies do not show any changes.

#### What is an appropriate next step?

- 1. Continue current therapy until there is clear radiographic progression
- 2. Add Radium-223 to the abiraterone/prednisone
- 3. Start PSMA-Lu-177

# Case Presentation – Dr Graff: An 82-year-old man with mCRPC and widespread bone metastases

An 82 yo man with metastatic castration-sensitive prostate cancer. He received androgen-deprivation therapy monotherapy, but then he developed a new liver metastatic tumor. He was switched to docetaxel chemotherapy x 10 cycles + ADT. He complains of new hip pain and is found to have widespread bone progression.

Which of the following is appropriate?

- 1. Radium-223
- 2. PSMA-Lu-177
- 3. Radium-223 + abiraterone-prednisone
- 4. Abiraterone-prednisone

# A Conversation with the Investigators: Bladder Cancer

Wednesday, July 21, 2021 5:00 PM - 6:00 PM ET

**Faculty** 

Petros Grivas, MD, PhD
Daniel P Petrylak, MD
Arlene Siefker-Radtke, MD

**Moderator Neil Love, MD** 



### Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 2 to 3 business days.

