

# Prostate Cancer Update

## August 27, 2022

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Norton Cancer Institute  
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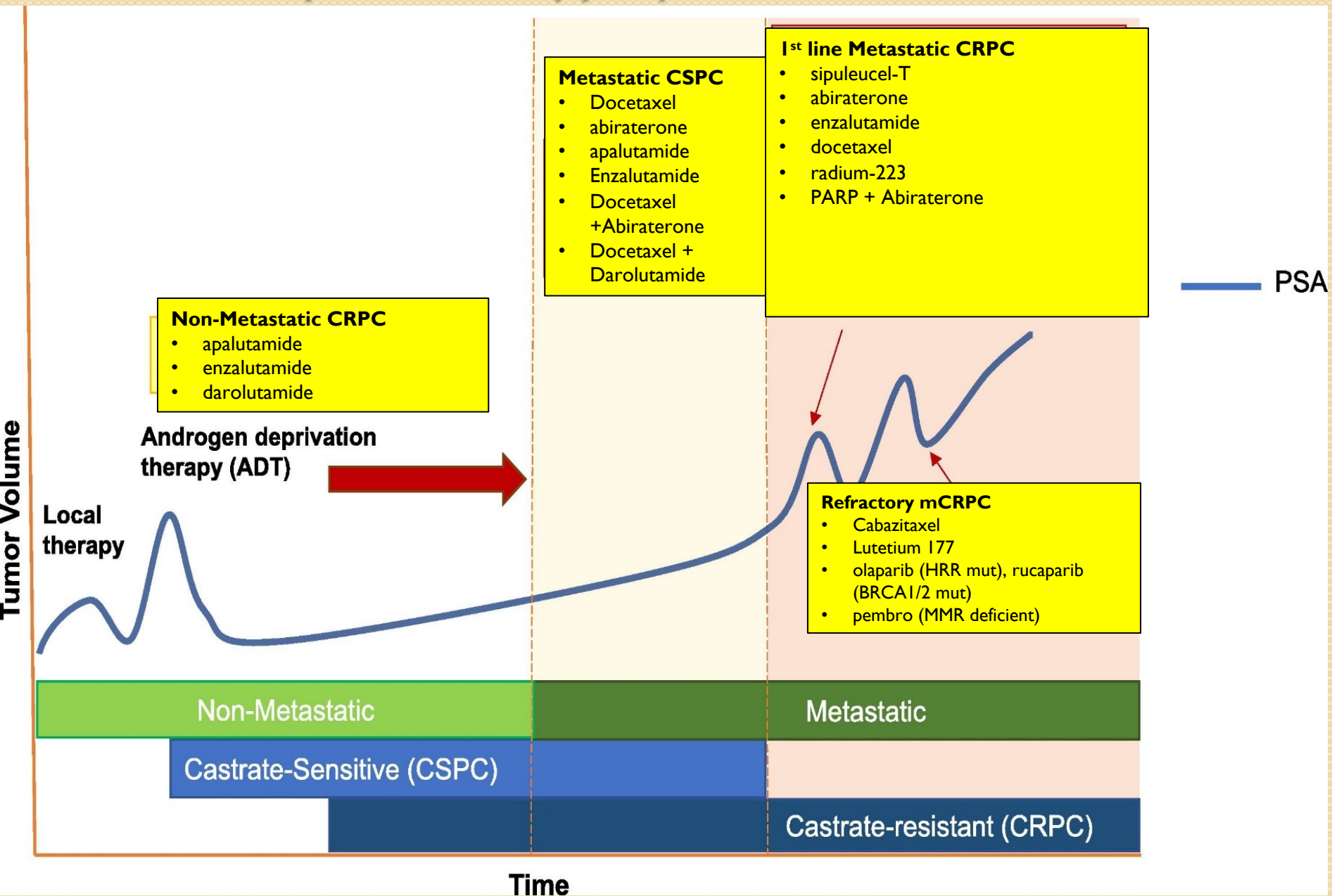


**NORTON**  
CANCER INSTITUTE

# Agenda

- Metastatic castrate sensitive Prostate CA
  - CHAARTED, LATITUDE, ENZAMET, TITAN, PEACE-I, ARASENS
- Metastatic castrate resistant Prostate CA
  - PROpel, Magnitude, VISION, TheraP,

# Systemic therapy of prostate cancer 2022

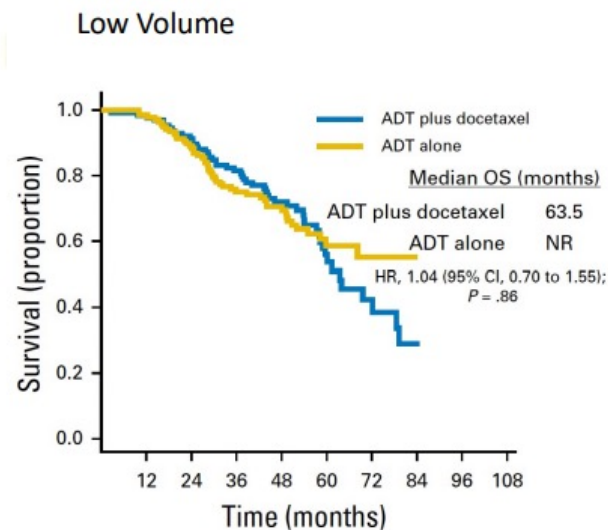
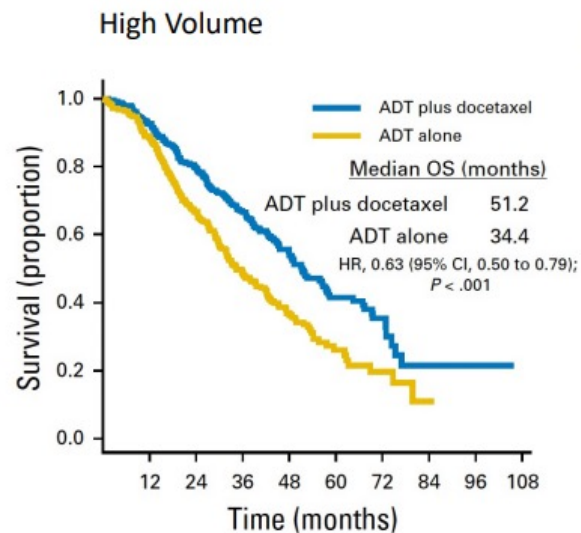
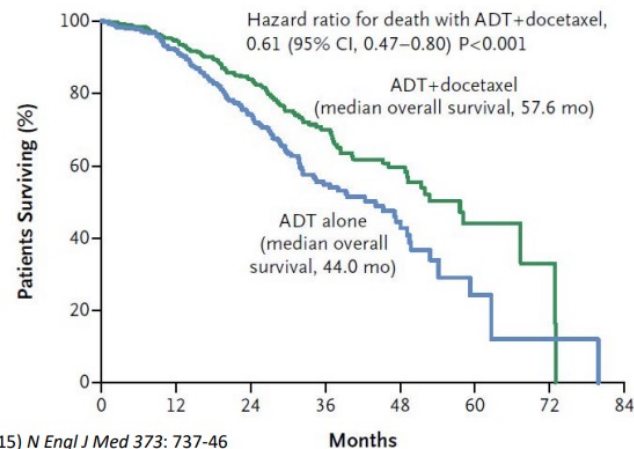




# Metastatic Hormone Sensitive Prostate Cancer

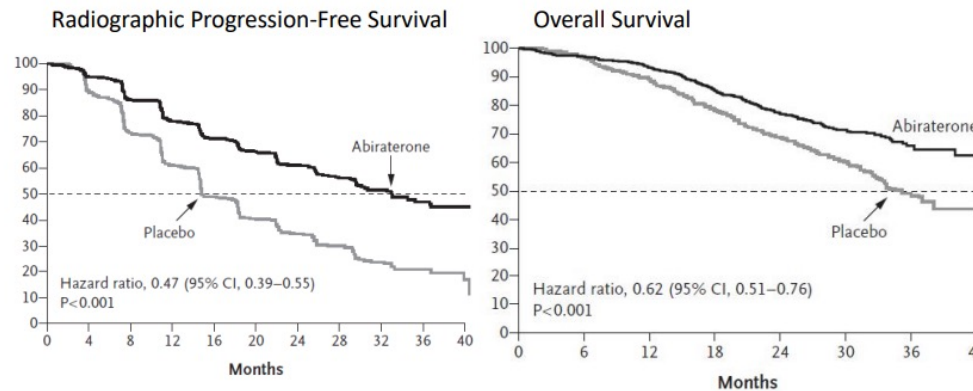


# Historical Data: CHAARTED Study



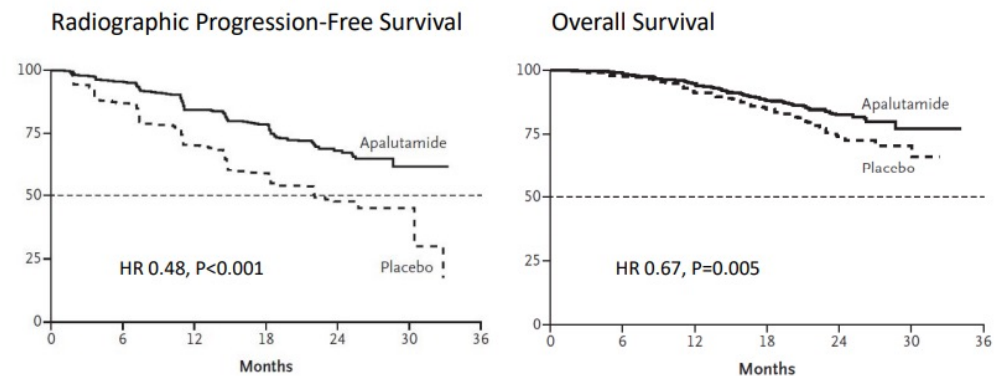
# Androgen Pathway Inhibitors

## LATITUDE: Abiraterone Acetate for mHSPC



Fizazi et al (2017) *N Engl J Med* 377: 352-60

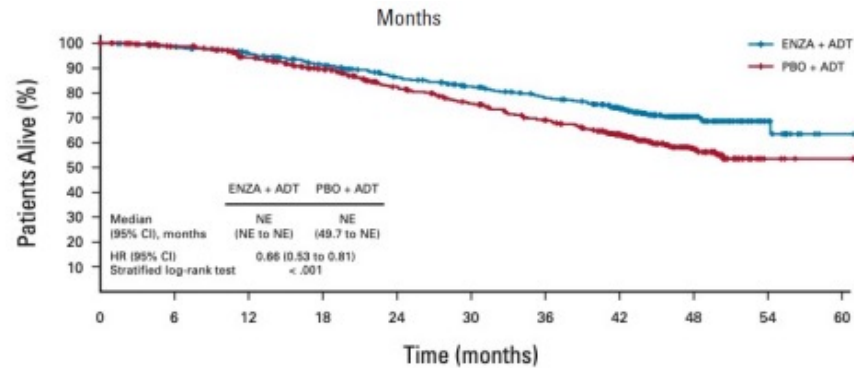
## TITAN: Apalutamide for mHSPC



Chi et al (2019) *N Engl J Med* 381: 13-24

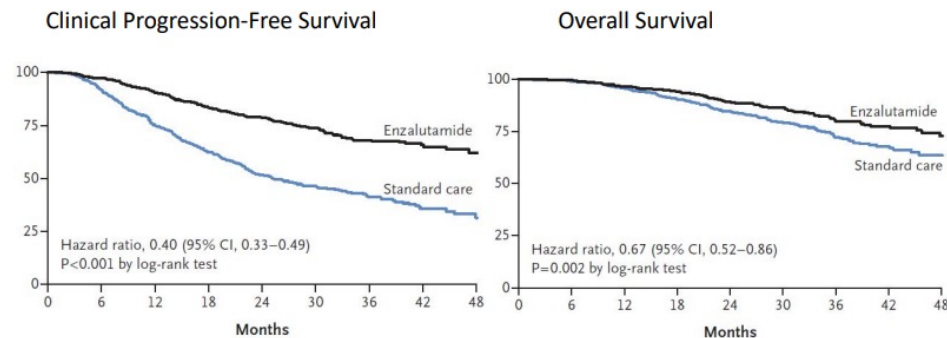
# ARCHES and ENZAMET

OS



Armstrong et al (2019) *J Clin Oncol* 37: 2974-2986; Armstrong et al (2022) *J Clin Oncol* DOI: 10.1200/JCO.22.00193

## ENZAMET: Enzalutamide for mHSPC



Davis et al (2019) *N Engl J Med* 381: 121-131

# PEACE - I

## Key Eligibility Criteria

*De novo* mCSPC

Distant metastatic disease by  $\geq 1$  lesion on bone scan and/or CT scan

ECOG PS 0-2

## On-Study Requirement

Continuous ADT

## Permitted

ADT  $\leq 3$  months

## Stratification

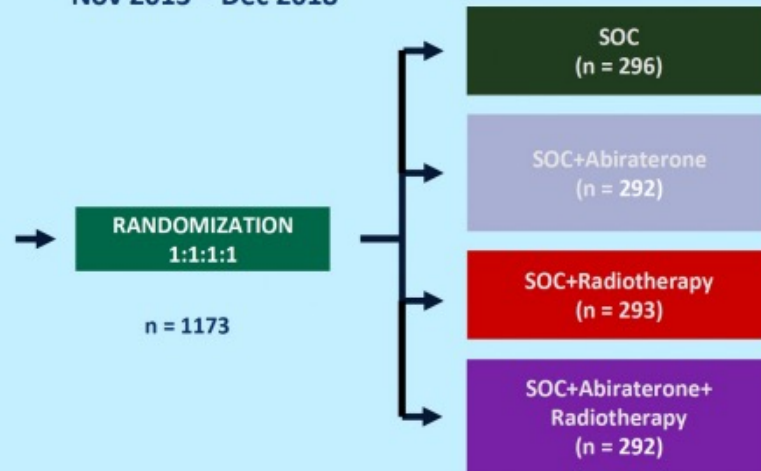
ECOG PS (0 vs 1-2)

Metastatic sites (LN vs bone vs visceral)

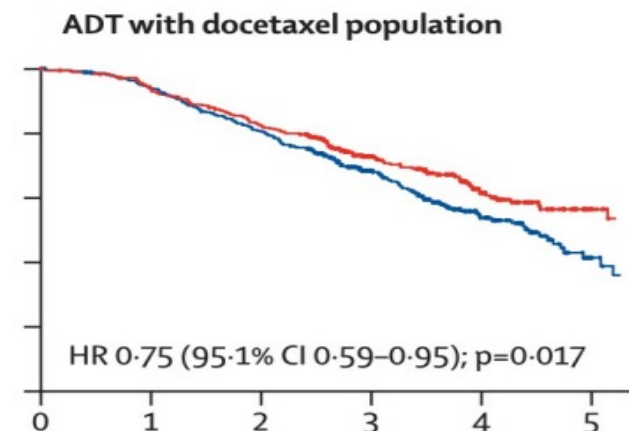
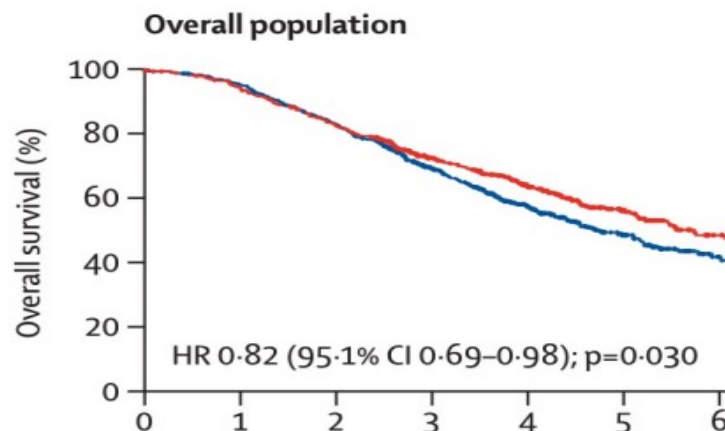
Type of castration (orchidectomy vs LHRH agonist vs LHRH antagonist)

Docetaxel (yes vs no)

Nov 2013 – Dec 2018



ECOG PS. Eastern Cooperative Oncology Group performance status.







# August 5, 2022

## **FDA approves darolutamide tablets for metastatic hormone-sensitive prostate cancer**

Efficacy was based on ARASENS (NCT02799602), a randomized, multicenter, double-blind, placebo-controlled clinical trial in 1306 patients with mHSPC. Patients were randomized to receive either darolutamide 600 mg orally twice daily plus docetaxel 75 mg/m<sup>2</sup> intravenously administered every 3 weeks for up to 6 cycles or docetaxel plus placebo. All patients received a gonadotropin-releasing hormone analog concurrently or had a bilateral orchiectomy.

# ARASENS Study

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Cancers Symposium

## Overall survival with darolutamide versus placebo in combination with androgen-deprivation therapy and docetaxel for metastatic hormone-sensitive prostate cancer in the phase 3 ARASENS trial

Matthew R. Smith, MD, PhD,<sup>1</sup> Maha Hussain, MD,<sup>2</sup> Fred Saad, MD,<sup>3</sup> Karim Fizazi, MD, PhD,<sup>4</sup> Cora N. Sternberg, MD,<sup>5</sup> E. David Crawford, MD,<sup>6</sup> Evgeny Kopyltsov, MD,<sup>7</sup> Chandler H. Park, MD,<sup>8</sup> Boris Alekseev, MD,<sup>9</sup> Álvaro Montesa Pino, MD,<sup>10</sup> Dingwei Ye, MD,<sup>11</sup> Francis Parnis, MB, BS,<sup>12</sup> Felipe Melo Cruz, MD,<sup>13</sup> Teuvo L.J. Tammela, MD, PhD,<sup>14</sup> Hiroyoshi Suzuki, MD, PhD,<sup>15</sup> Heikki Joensuu, MD,<sup>16</sup> Silke Thiele, MD,<sup>17</sup> Rui Li, MS,<sup>18</sup> Iris Kuss, MD,<sup>17</sup> Bertrand Tombal, MD, PhD<sup>19</sup>

<sup>1</sup>Massachusetts General Hospital Cancer Center, Boston, MA; <sup>2</sup>Northwestern University, Feinberg School of Medicine, Chicago, IL; <sup>3</sup>University of Montreal Hospital Center, Montreal, Quebec, Canada; <sup>4</sup>Institut Gustave Roussy, University of Paris-Saclay, Villejuif, France; <sup>5</sup>Englander Institute for Precision Medicine, Weill Cornell Department of Medicine, Meyer Cancer Center, New York-Presbyterian Hospital, New York, NY; <sup>6</sup>UC San Diego School of Medicine, San Diego, CA; <sup>7</sup>Clinical Oncological Dispensary of Omsk Region, Omsk, Russian Federation; <sup>8</sup>Norton Cancer Institute, Louisville, KY; <sup>9</sup>P. Hertsen Moscow Oncology Research Institute, Moscow, Russian Federation; <sup>10</sup>UGC Intercentros de Oncología Médica, Hospitales Universitarios Regional y Virgen Victoria, IBIMA, Málaga, Spain; <sup>11</sup>Fudan University Shanghai Cancer Center, Xuhui District, Shanghai, China; <sup>12</sup>Ashford Cancer Centre Research, Kurralta Park, SA, Australia; <sup>13</sup>Núcleo de Pesquisa e Ensino da Rede São Camilo, São Paulo, Brazil; <sup>14</sup>Tampere University Hospital, Tampere, Finland; <sup>15</sup>Toho University Sakura Medical Center, Chiba, Japan; <sup>16</sup>Orion Corporation Orion Pharma, Espoo, Finland; <sup>17</sup>Bayer AG, Berlin, Germany; <sup>18</sup>Bayer HealthCare Pharmaceuticals Inc., Whippany, NJ, USA; <sup>19</sup>Division of Urology, IREC, Cliniques Universitaires Saint Luc, UCLouvain, Brussels, Belgium

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#GU22

PRESENTED BY: Matthew R. Smith, MD, PhD

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ASCO<sup>®</sup> AMERICAN SOCIETY OF  
CLINICAL ONCOLOGY  
KNOWLEDGE CONQUERS CANCER



ORIGINAL ARTICLE

## Darolutamide and Survival in Metastatic, Hormone-Sensitive Prostate Cancer

Matthew R. Smith, M.D., Ph.D., Maha Hussain, M.D., Fred Saad, M.D., Karim Fizazi, M.D., Ph.D., Cora N. Sternberg, M.D., E. David Crawford, M.D., Evgeny Kopyltsov, M.D., Chandler H. Park, M.D., Boris Alekseev, M.D., Álvaro Montes-Pino, M.D., Dingwei Ye, M.D., Francis Parnis, M.B., B.S., Felipe Cruz, M.D., Teuvo L.J. Tammela, M.D., Ph.D., Hiroyoshi Suzuki, M.D., Ph.D., Tapio Utriainen, M.D., Cheng Fu, M.D., Motohide Uemura, M.D., Ph.D., María J. Méndez-Vidal, M.D., Benjamin L. Maughan, M.D., Pharm.D., Heikki Joensuu, M.D., Silke Thiele, M.D., Rui Li, M.S., Iris Kuss, M.D., and Bertrand Tombal, M.D., Ph.D., for the ARASENS Trial Investigators\*

March 24, 2022

N Engl J Med 2022; 386:1132-1142

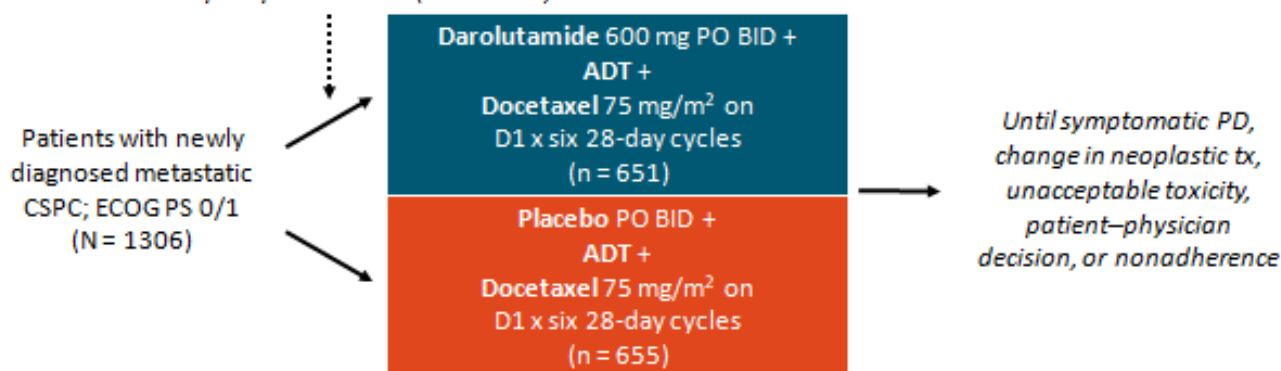
DOI: 10.1056/NEJMoa2119115

# ARASENS

## ARASENS: Darolutamide vs Placebo in Combination With ADT + Docetaxel in mCSPC

- International, randomized, double-blind phase III trial in 286 sites across 23 countries

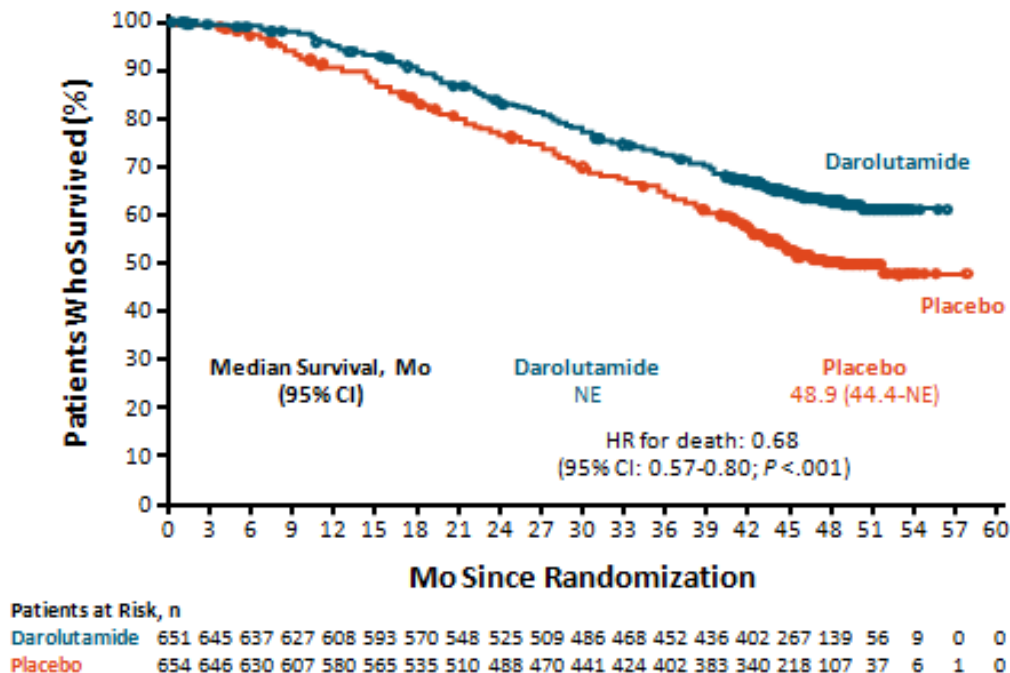
*Stratified by metastasis stage (M1a vs M1b vs M1c),  
alkaline phosphatase level (< vs  $\geq$  ULN)*



- Primary endpoint:** OS
- Secondary endpoints tested hierarchically in this order:** time to CRPC, time to pain progression, SSE-free survival, time to first SSE, time to initiation of subsequent anticancer therapy, time to worsening of physical symptoms, time to first opioid use, safety

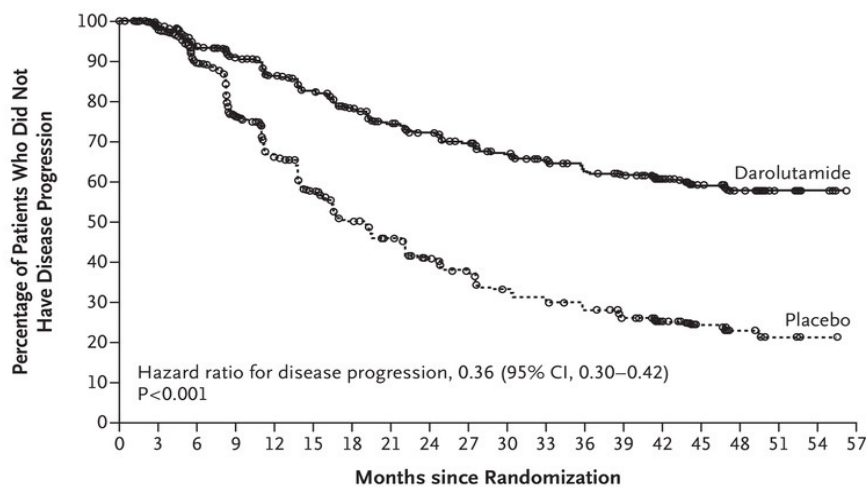
# Overall Survival

## ARASENS: OS (Primary Endpoint)



- Addition of darolutamide to ADT + docetaxel significantly reduced risk of death by 32.5% vs placebo ( $P < .001$ )
  - 75.6% of patients in placebo arm received subsequent life-prolonging systemic tx
- OS benefit observed across most subgroups
  - HR (95%) for those stratified by metastatic stage at initial dx: M1, 0.707 (0.590-0.848); M0, 0.605 (0.348-1.052)

### A Time to Castration-Resistant Prostate Cancer



#### No. at Risk

Darolutamide	651	616	567	537	496	465	433	401	380	358	340	325	308	292	211	132	54	18	5	0
Placebo	654	613	533	425	348	289	242	215	185	165	143	134	120	105	79	38	14	4	1	0

Median Time to  
Castration-Resistant  
Prostate Cancer  
(95% CI)

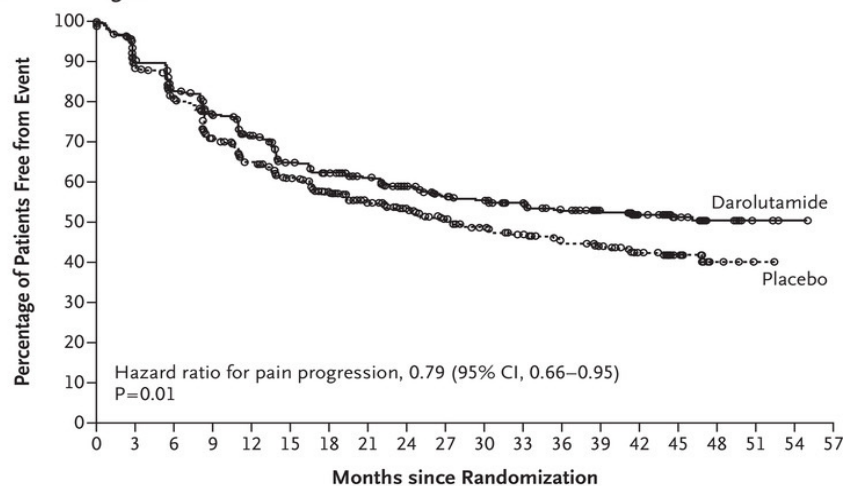
mo

NE

19.1 (16.5–21.8)

Darolutamide  
Placebo

### B Time to Pain Progression



#### No. at Risk

Darolutamide	651	447	401	363	327	284	265	249	228	211	202	189	175	159	106	67	31	6	1	0
Placebo	654	442	395	332	288	255	221	188	160	134	119	107	93	86	62	35	8	1	0	0

Median Time to  
Pain Progression  
(95% CI)

mo

NE (30.5–NE)

27.5 (22.0–36.1)

Darolutamide  
Placebo



# Adverse Events

Selected Grade 3/4 AE, n (%)	Darolutamide + ADT + Docetaxel (n = 652)	Placebo + ADT + Docetaxel (n = 650)
Neutropenia	220 (33.7)	222 (34.2)
Febrile neutropenia	51 (7.8)	48 (7.4)
Hypertension	42 (6.4)	21 (3.2)
Anemia	31 (4.8)	33 (5.1)
Pneumonia	21 (3.2)	20 (3.1)
Hyperglycemia	18 (2.8)	24 (3.7)
Increased ALT	18 (2.8)	11 (1.7)
Increased AST	17 (2.6)	7 (1.1)
Increased weight	14 (2.1)	8 (1.2)
UTI	13 (2.0)	12 (1.8)

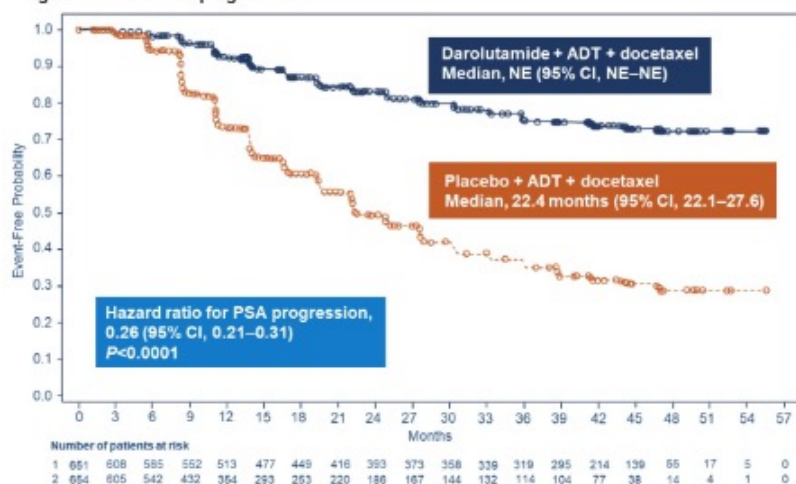
Safety Outcome, n (%)	Darolutamide + ADT + Docetaxel (n = 652)	Placebo + ADT + Docetaxel (n = 650)
Any AE	649 (99.5)	643 (98.9)
Serious AE	292 (44.8)	275 (42.3)
AE leading to permanent d/c of trial agent		
▪ Darolutamide or placebo	88 (13.5)	69 (10.6)
▪ Docetaxel	52 (8.0)	67 (10.3)

# ARASENS Update ASCO 2022

## RESULTS (cont'd)

- Darolutamide significantly prolonged time to PSA progression versus placebo (HR 0.26; 95% CI 0.21–0.31;  $P < 0.0001$ ) (Figure 1)

Figure 1. Time to PSA progression



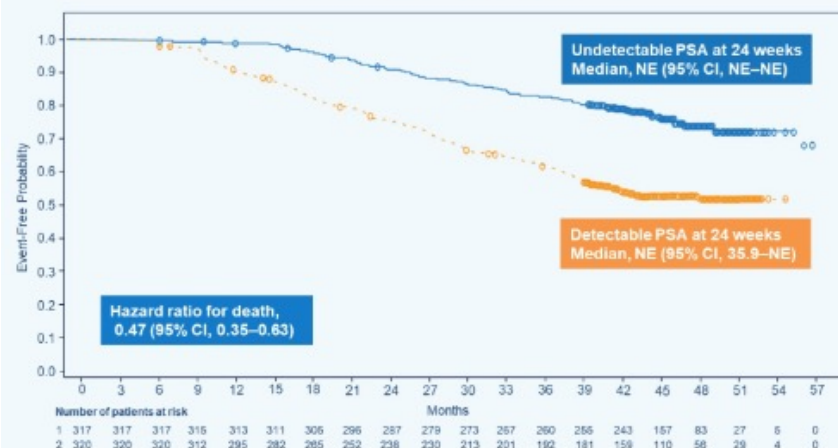
CI, confidence interval; NE, not estimable.

- Incidences of adverse events (AEs) were generally similar in patients achieving and not achieving undetectable PSA and by treatment groups, with a higher rate of drug discontinuations due to AEs among patients who did not achieve undetectable PSA at any time (Table 2)

## Overall survival was improved for patients who achieved undetectable PSA

- Among darolutamide-treated patients, achievement of undetectable PSA at 24 and 36 weeks was associated with improved OS; risk reductions of death were 53% and 63%, respectively, by stratified Cox regression

### Darolutamide + ADT + docetaxel





# ARASENS Conclusion

- Darolutamide, Docetaxel, and ADT significantly increased OS vs placebo + ADT + docetaxel in patients with metastatic castrate sensitive prostate cancer
- Median OS: NE vs 48.9 mo (HR: 0.68; 95% CI: 0.57-0.80;  $P < .001$ )
- Adverse events comparable between arms,
- Every patient with metastatic hormone sensitive prostate adenocarcinoma should receive androgen pathway inhibitor with ADT at a bare minimum.
- Consider Darolutamide, Docetaxel, and ADT as new standard of care for mHSPC



# Metastatic Castrate Resistant Prostate Cancer

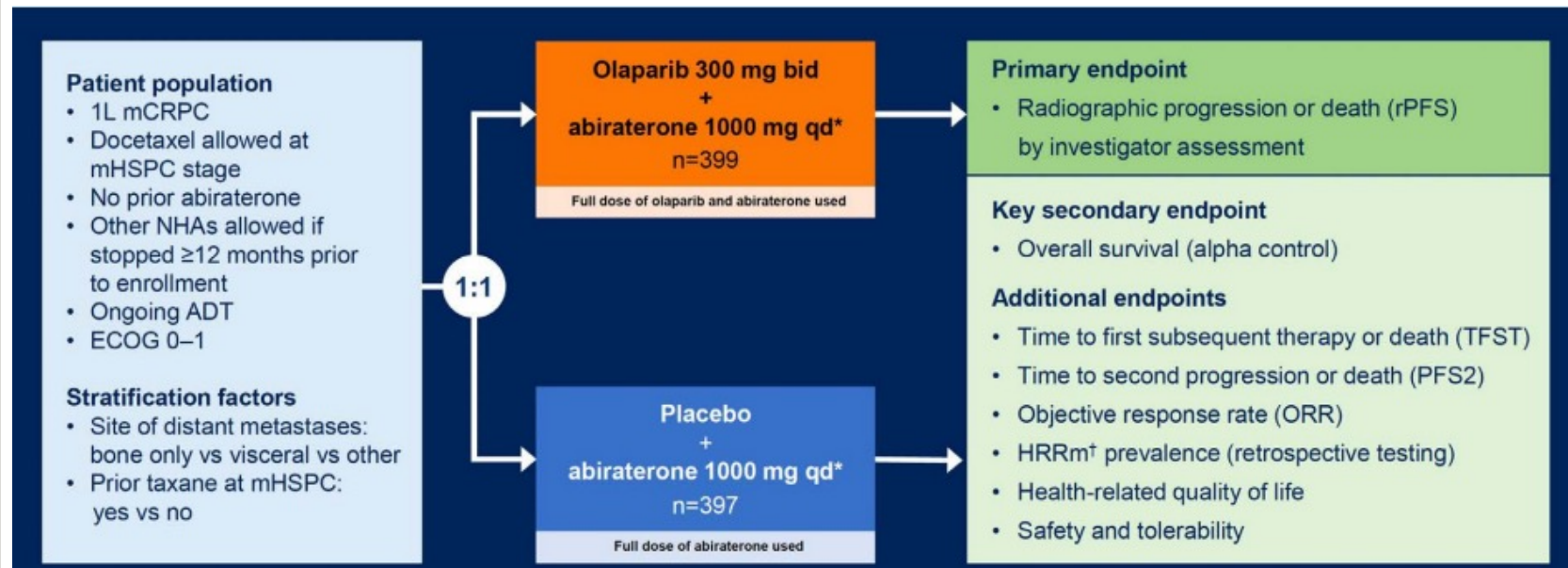
# PROpel Study

ASCO Genitourinary  
Cancers Symposium 2022;Abstract 11

## **PROpel: phase III trial of olaparib and abiraterone versus placebo and abiraterone as first-line therapy for patients with metastatic castration-resistant prostate cancer**

Fred Saad, Andrew J. Armstrong, Antoine Thiery-Vuillemin, Mototsugu Oya, Eugenia Loreda, Giuseppe Procopio, Juliana de Menezes, Gustavo Giroto, Cagatay Arslan, Niven Mehra, Francis Parnis, Emma Brown, Friederike Schlürmann, Jae Young Joung, Mikio Sugimoto, Christian Poehlein, Elizabeth A. Harrington, Chintu Desai, Jinyu Kang, and Noel Clarke

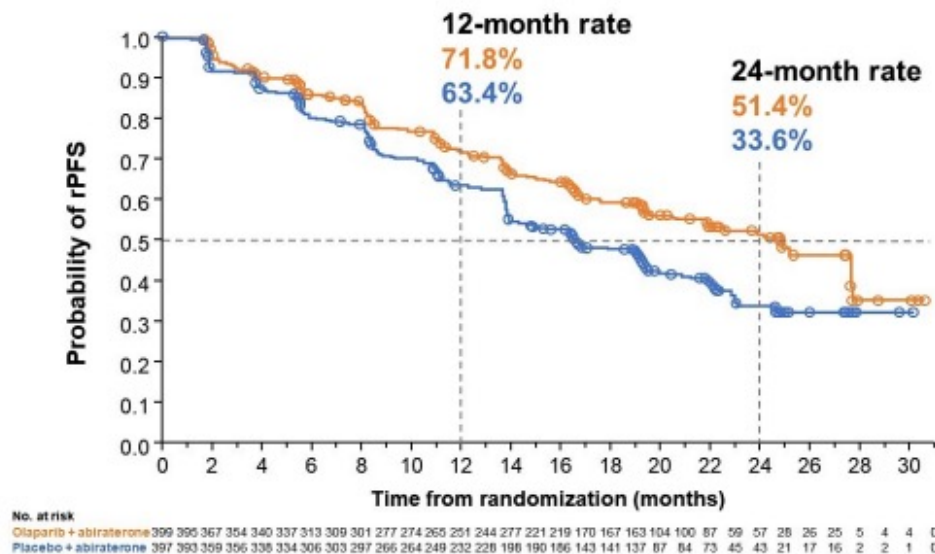
# PROpel Study





# PROpel study

34% risk reduction of progression or death with olaparib + abiraterone



	Olaparib + abiraterone (n=399)	Placebo + abiraterone (n=397)
Events, n (%)	168 (42.1)	226 (56.9)
Median rPFS (months)	24.8	16.6
HR (95% CI)	0.66 (0.54–0.81); P<0.0001	

Pre-specified 2-sided alpha: 0.0324

Median rPFS improvement of 8.2 months favors olaparib + abiraterone\*

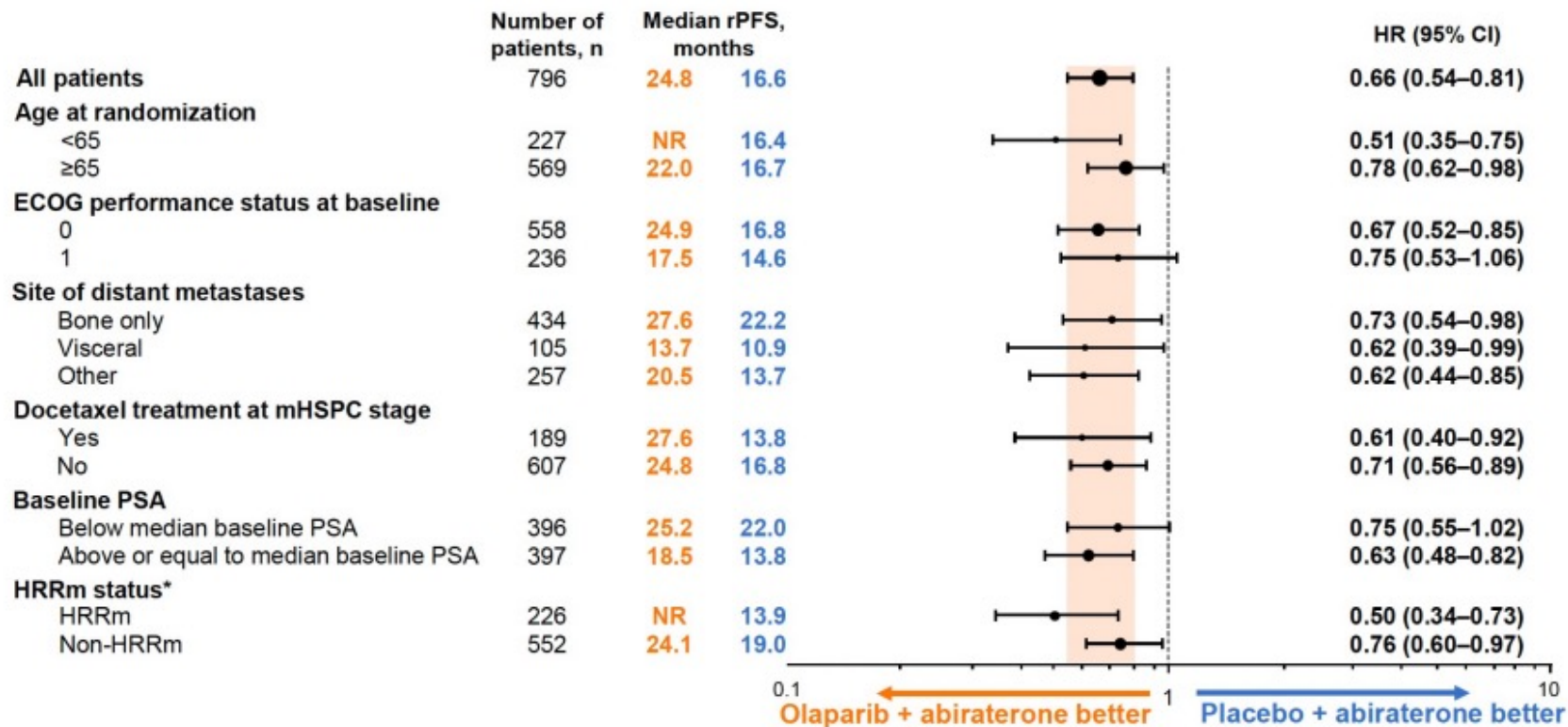
Events: 394; Maturity 49.5%

\*In combination with prednisone or prednisolone

CI, confidence interval; HR, hazard ratio.

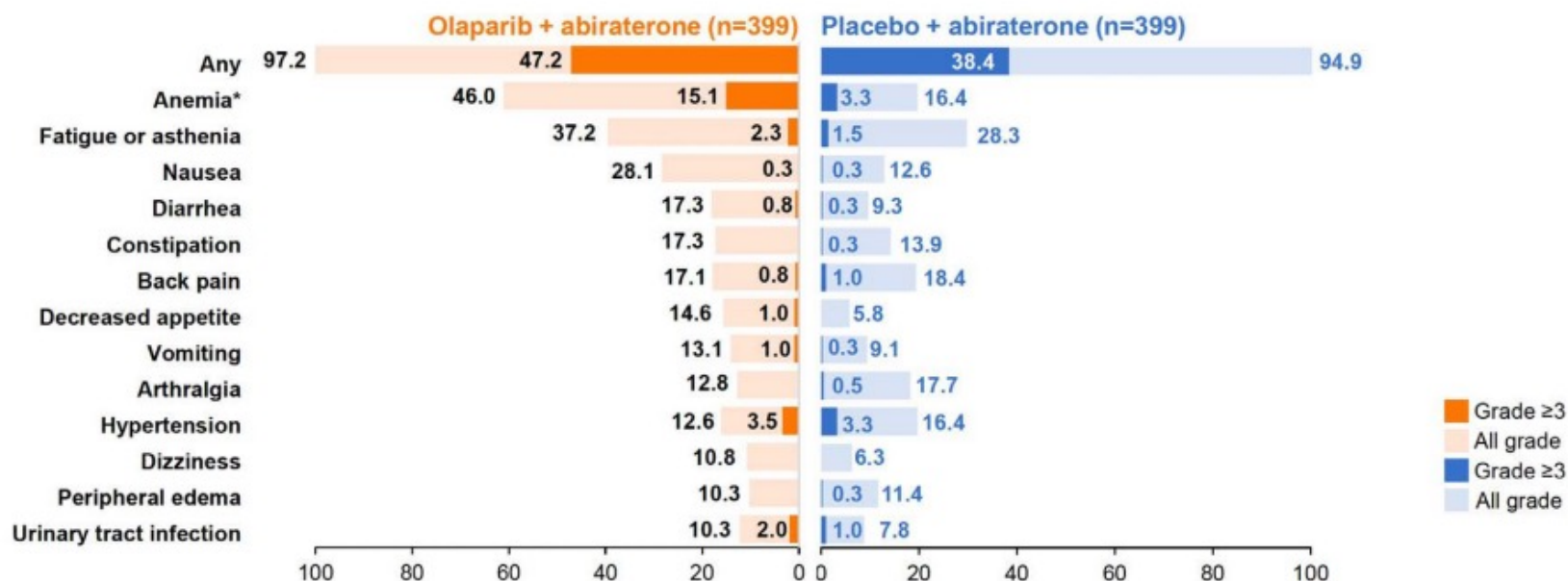
Saad F et al. Genitourinary Cancers Symposium 2022;Abstract 11.

# PROpel Study

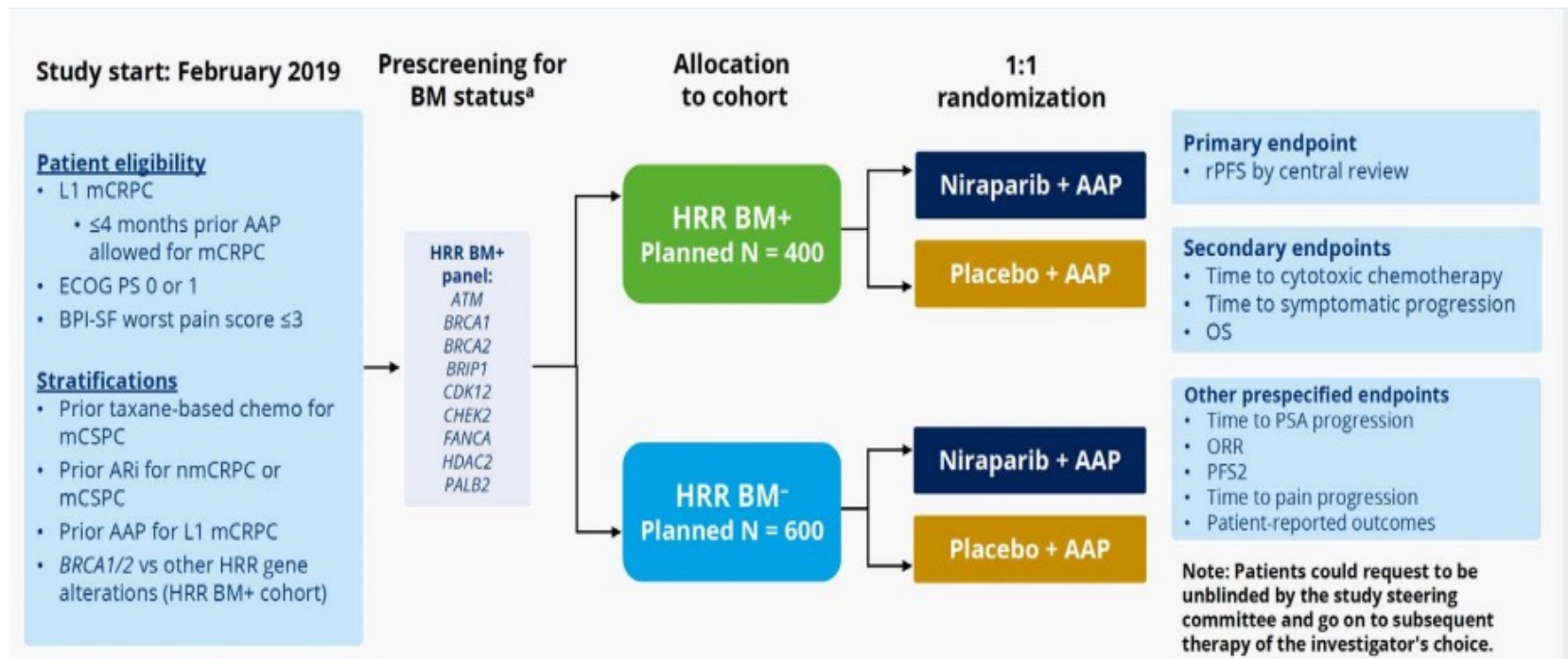




# PROpel Study

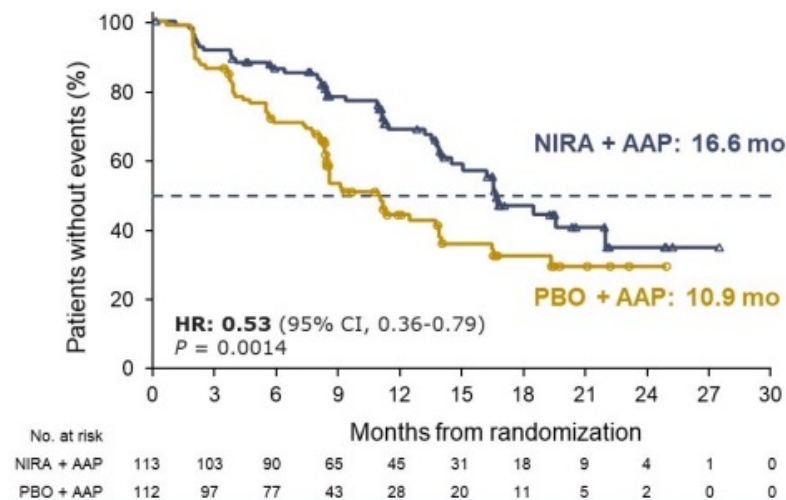


# Magnitude Study

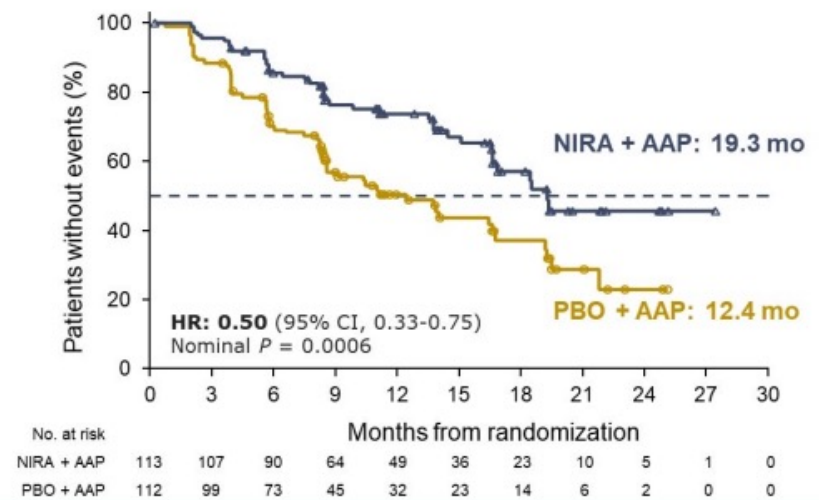


# Magnitude study

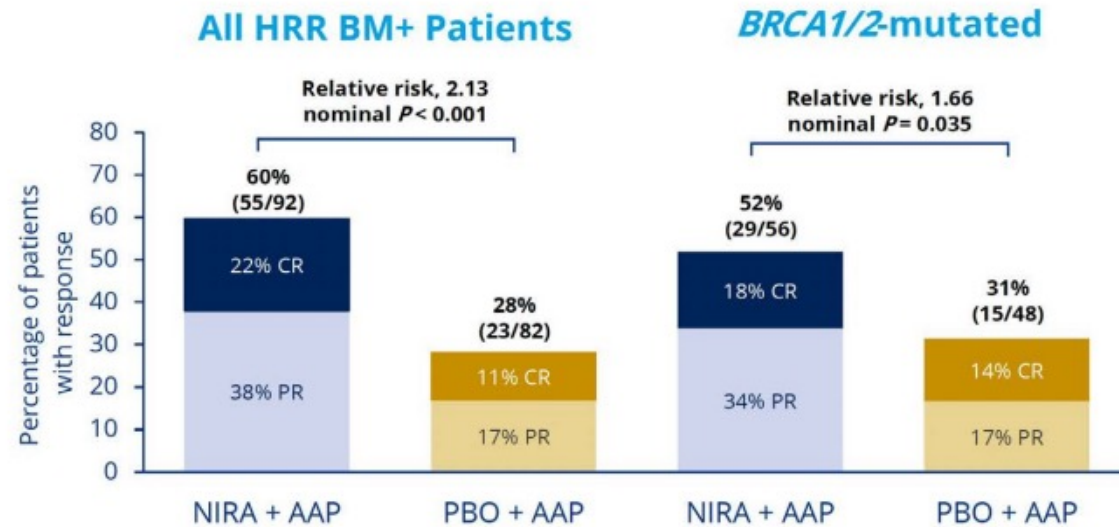
rPFS assessed by central review



rPFS assessed by investigator

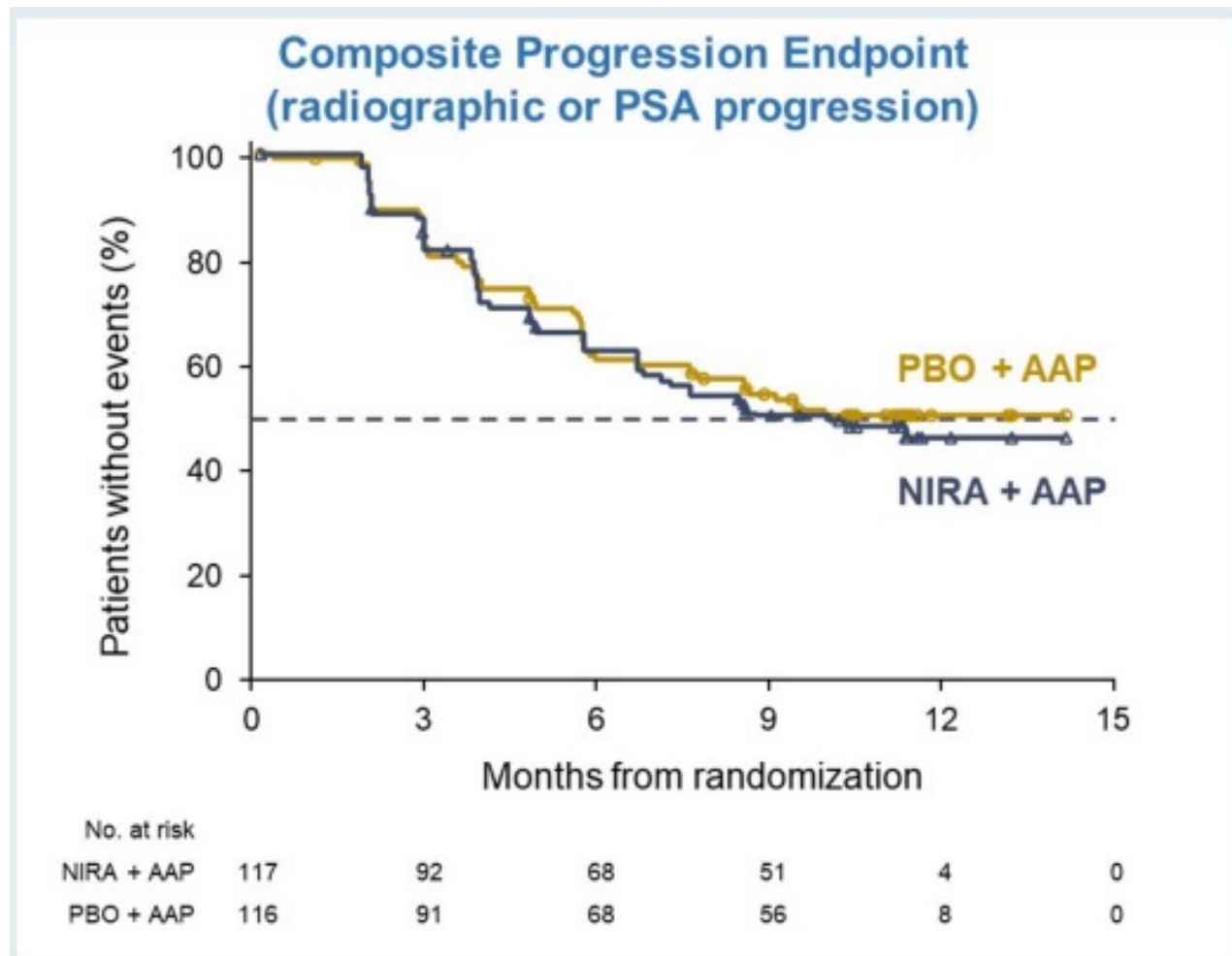


# Magnitude Study





# MAGNITUDE study (HRR-)



# PARP + Abiraterone Take Home

- **PROpel**

- rPFS benefit for olaparib + Abi/Pred vs placebo + Abi/Pred in overall population
- (24.8 vs 16.6 mo; HR: 0.66;  $P < .0001$ )
- Patients were not stratified by HRR status

- **MAGNITUDE Study**

- rPFS benefit for niraparib + Abi/Pred vs placebo + Abi/Pred
- Patients with HRR alterations (16.5 vs 13.7 mo; HR: 0.53;  $P = .0014$ )
- No benefit in HRRmut -ve cohort



# My practice

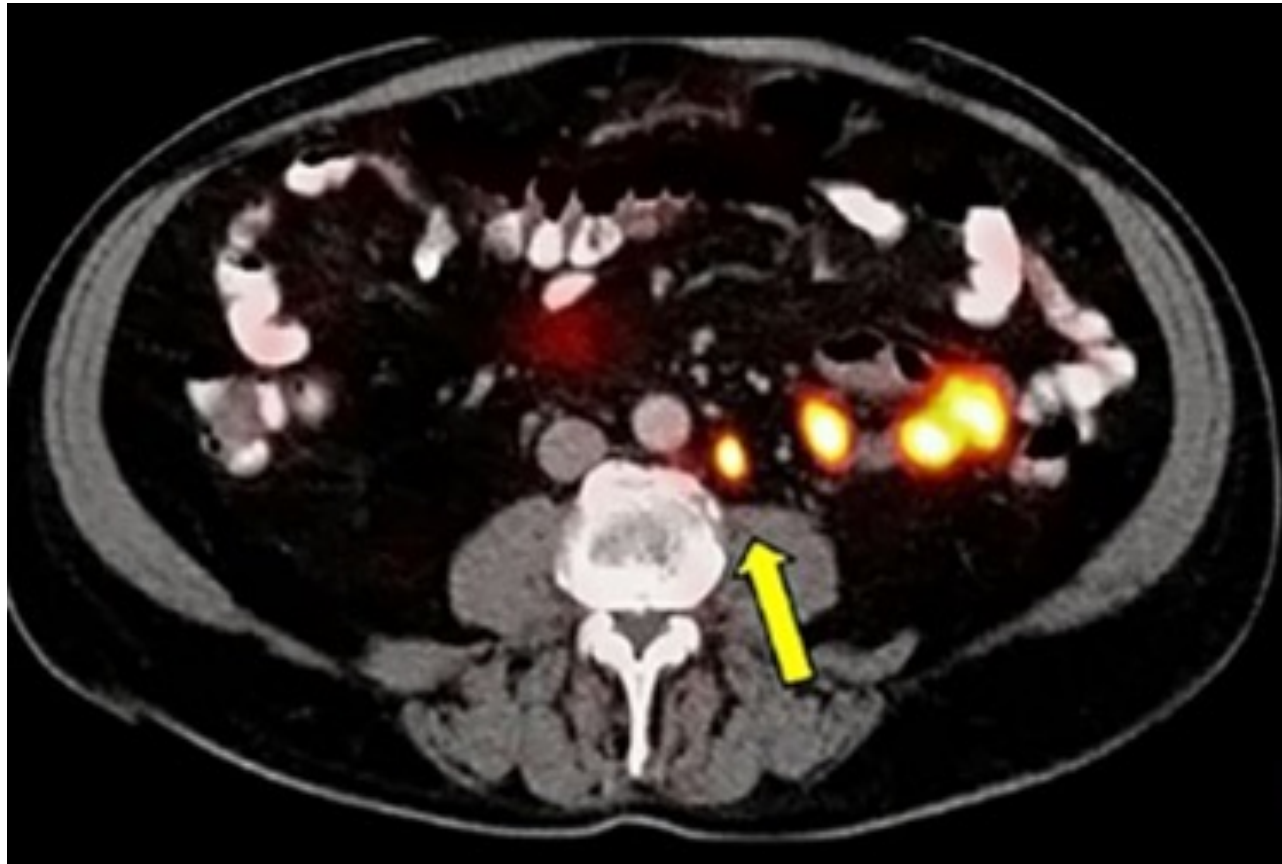
- I would consider PARP + Abiraterone + ADT for patients with metastatic castrate resistant prostate cancer with BRCA2 mutation
- Will await follow up studies with Enzalutamide + Rucaparib (CASPAR trial) since there appears to be discordance with MAGNITUDE and PROpel for unselected patients

### SYSTEMIC THERAPY FOR M1 CRPC: ADENOCARCINOMA<sup>ddd,ggg,hhh</sup>

<p><b>No prior docetaxel/no prior novel hormone therapy<sup>iii</sup></b></p> <ul style="list-style-type: none"> <li>• Preferred regimens <ul style="list-style-type: none"> <li>▸ Abiraterone<sup>t,iii</sup> (category 1<sup>kkk</sup>)</li> <li>▸ Docetaxel<sup>yy,iii</sup> (category 1)</li> <li>▸ Enzalutamide<sup>t</sup> (category 1)</li> </ul> </li> <li>• Useful in certain circumstances <ul style="list-style-type: none"> <li>▸ Radium-223<sup>nnn</sup> for symptomatic bone metastases (category 1)</li> <li>▸ Sipuleucel-T<sup>yy,mmm</sup> (category 1)</li> </ul> </li> <li>• Other recommended regimens <ul style="list-style-type: none"> <li>▸ Other secondary hormone therapy<sup>t</sup></li> </ul> </li> </ul>	<p><b>Prior novel hormone therapy/No prior docetaxel<sup>iii,ooo</sup></b></p> <ul style="list-style-type: none"> <li>• Preferred regimens <ul style="list-style-type: none"> <li>▸ Docetaxel (category 1)<sup>yy</sup></li> <li>▸ Sipuleucel-T<sup>yy,mmm</sup></li> </ul> </li> <li>• Useful in certain circumstances <ul style="list-style-type: none"> <li>▸ Cabazitaxel/carboplatin<sup>yy,fff</sup></li> <li>▸ Olaparib for HRRm (category 1)<sup>ppp</sup></li> <li>▸ Pembrolizumab for MSI-H, dMMR, or TMB ≥10 mut/Mb<sup>yy</sup></li> <li>▸ Radium-223<sup>nnn</sup> for symptomatic bone metastases (category 1)</li> <li>▸ Rucaparib for BRCAm<sup>qqq</sup></li> </ul> </li> <li>• Other recommended regimens <ul style="list-style-type: none"> <li>▸ Abiraterone<sup>t,iii</sup></li> <li>▸ Abiraterone + dexamethasone<sup>iii,rrr</sup></li> <li>▸ Enzalutamide<sup>t</sup></li> <li>▸ Other secondary hormone therapy<sup>t</sup></li> </ul> </li> </ul>
<p><b>Prior docetaxel/no prior novel hormone therapy<sup>iii</sup></b></p> <ul style="list-style-type: none"> <li>• Preferred regimens <ul style="list-style-type: none"> <li>▸ Abiraterone<sup>t,iii</sup> (category 1)</li> <li>▸ Cabazitaxel<sup>yy</sup></li> <li>▸ Enzalutamide<sup>t</sup> (category 1)</li> </ul> </li> <li>• Useful in certain circumstances <ul style="list-style-type: none"> <li>▸ Cabazitaxel/carboplatin<sup>yy,fff</sup></li> <li>▸ Mitoxantrone for palliation in symptomatic patients who cannot tolerate other therapies<sup>yy</sup></li> <li>▸ Pembrolizumab for MSI-H, dMMR, or TMB ≥10 mut/Mb<sup>yy</sup></li> <li>▸ Radium-223<sup>nnn</sup> for symptomatic bone metastases (category 1)</li> </ul> </li> <li>• Other recommended regimens <ul style="list-style-type: none"> <li>▸ Sipuleucel-T<sup>yy,mmm</sup></li> <li>▸ Other secondary hormone therapy<sup>t</sup></li> </ul> </li> </ul>	<p><b>Prior docetaxel and prior novel hormone therapy<sup>iii,ooo</sup></b></p> <ul style="list-style-type: none"> <li>• Useful in certain circumstances <ul style="list-style-type: none"> <li>▸ Lutetium Lu 177 vipivotide tetraxetan (Lu-177-PSMA-617) for PSMA-positive metastases (category 1)<sup>sss</sup></li> </ul> </li> <li>(The following systemic therapies are category 2B if visceral metastases are present)</li> <li>• Preferred regimens <ul style="list-style-type: none"> <li>▸ Cabazitaxel<sup>yy</sup> (category 1<sup>kkk</sup>)</li> <li>▸ Docetaxel rechallenge<sup>yy</sup></li> </ul> </li> <li>• Useful in certain circumstances <ul style="list-style-type: none"> <li>▸ Cabazitaxel/carboplatin<sup>yy,fff</sup></li> <li>▸ Mitoxantrone for palliation in symptomatic patients who cannot tolerate other therapies<sup>yy</sup></li> <li>▸ Olaparib for HRRm (category 1<sup>kkk</sup>)<sup>ppp</sup></li> <li>▸ Pembrolizumab for MSI-H, dMMR, or TMB ≥10 mut/Mb<sup>yy</sup></li> <li>▸ Radium-223<sup>nnn</sup> for symptomatic bone metastases (category 1<sup>kkk</sup>)</li> <li>▸ Rucaparib for BRCAm<sup>qqq</sup></li> </ul> </li> <li>• Other recommended regimens <ul style="list-style-type: none"> <li>▸ Abiraterone<sup>t,iii</sup></li> <li>▸ Enzalutamide<sup>t</sup></li> <li>▸ Other secondary hormone therapy<sup>t</sup></li> </ul> </li> </ul>

[See Footnotes for Systemic Therapy M1 CRPC \(PROS-15A\).](#)

# PSMA PET







# March 23, 2022

## FDA Approves <sup>177</sup>Lu-PSMA-617 for Pretreated PSMA+ Metastatic Castration-Resistant Prostate Cancer

### Phase III study of lutetium-177-PSMA-617 in patients with metastatic castration-resistant prostate cancer (VISION).

[Michael J. Morris](#), [Johann S. De Bono](#), [Kim N. Chi](#), [Karim Fizazi](#), [Ken Herrmann](#), [Kambiz Rahbar](#), [Scott T. Tagawa](#), [Luke T. Nordquist](#), [Nitin Vaishampayan](#), [Ghassan El-Haddad](#), [Chandler H. Park](#), [Tomasz M. Beer](#), [Wendy J. Pérez-Contreras](#), [Michelle Desilvio](#), [Euloge E. Kpamegan](#), [Germo Gericke](#), [Richard Adam Messmann](#), [Bernd J. Krause](#), [A. Oliver Sartor](#), on behalf of the [VISION Trial Investigators](#)



# VISION Study

ORIGINAL ARTICLE

## Lutetium-177-PSMA-617 for Metastatic Castration-Resistant Prostate Cancer

Oliver Sartor, M.D., Johann de Bono, M.B., Ch.B., Ph.D., Kim N. Chi, M.D., Karim Fizazi, M.D., Ph.D., Ken Herrmann, M.D., Kambiz Rahbar, M.D., Scott T. Tagawa, M.D., Luke T. Nordquist, M.D., Nitin Vaishampayan, M.D., Ghassan El-Haddad, M.D., Chandler H. Park, M.D., Tomasz M. Beer, M.D., et al., for the VISION Investigators<sup>\*</sup>

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September 16, 2021

N Engl J Med 2021; 385:1091-1103

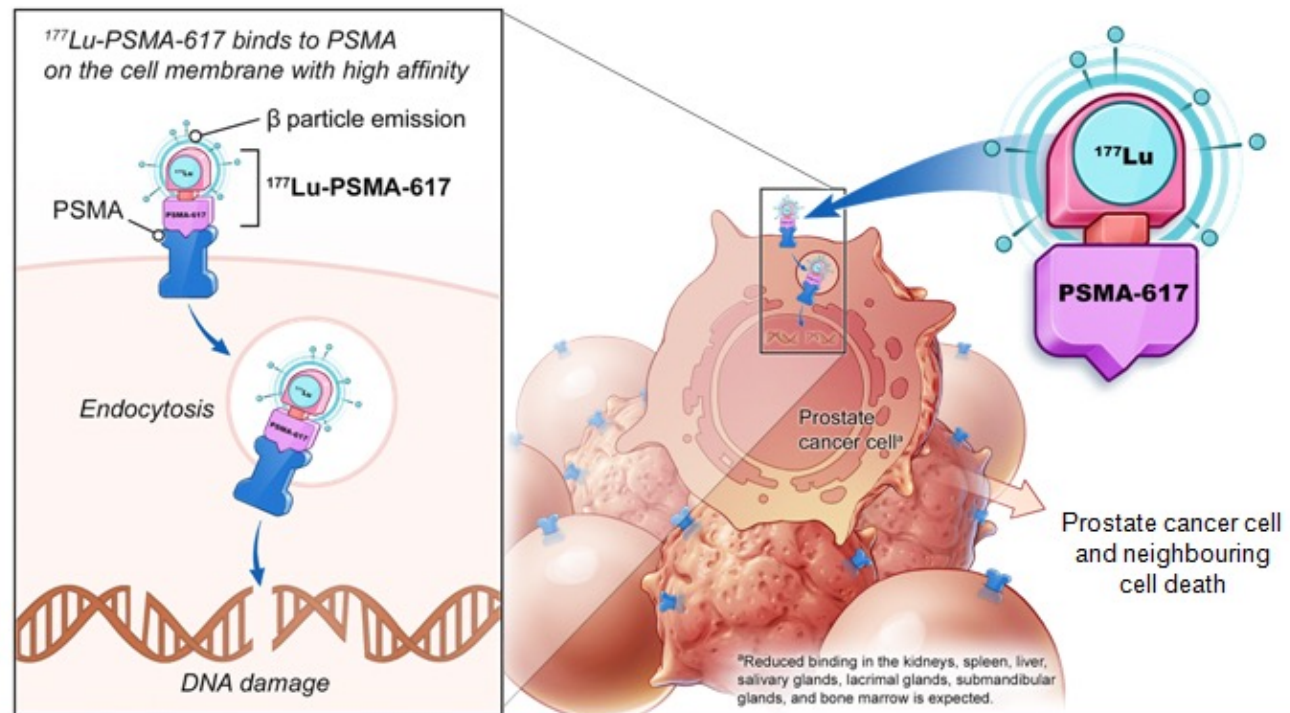
DOI: 10.1056/NEJMoa2107322

Chinese Translation 中文翻译

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# Mechanism of Action

## $^{177}\text{Lu}$ -PSMA-617 targeted radioligand therapy



Presented By: Michael J. Morris

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# VISION Study

## Open-label study of protocol-permitted standard of care ± $^{177}\text{Lu}$ -PSMA-617 in adults with PSMA-positive mCRPC

### Eligible patients

- Previous treatment with both
  - ≥ 1 androgen receptor pathway inhibitor
  - 1 or 2 taxane regimens
- Protocol-permitted standard of care (SOC) planned before randomization
  - Excluding chemotherapy immunotherapy, radium-223, investigational drugs
- ECOG performance status 0–2
- Life expectancy > 6 months
- PSMA-positive mCRPC on PET/CT with  $^{68}\text{Ga}$ -PSMA-11



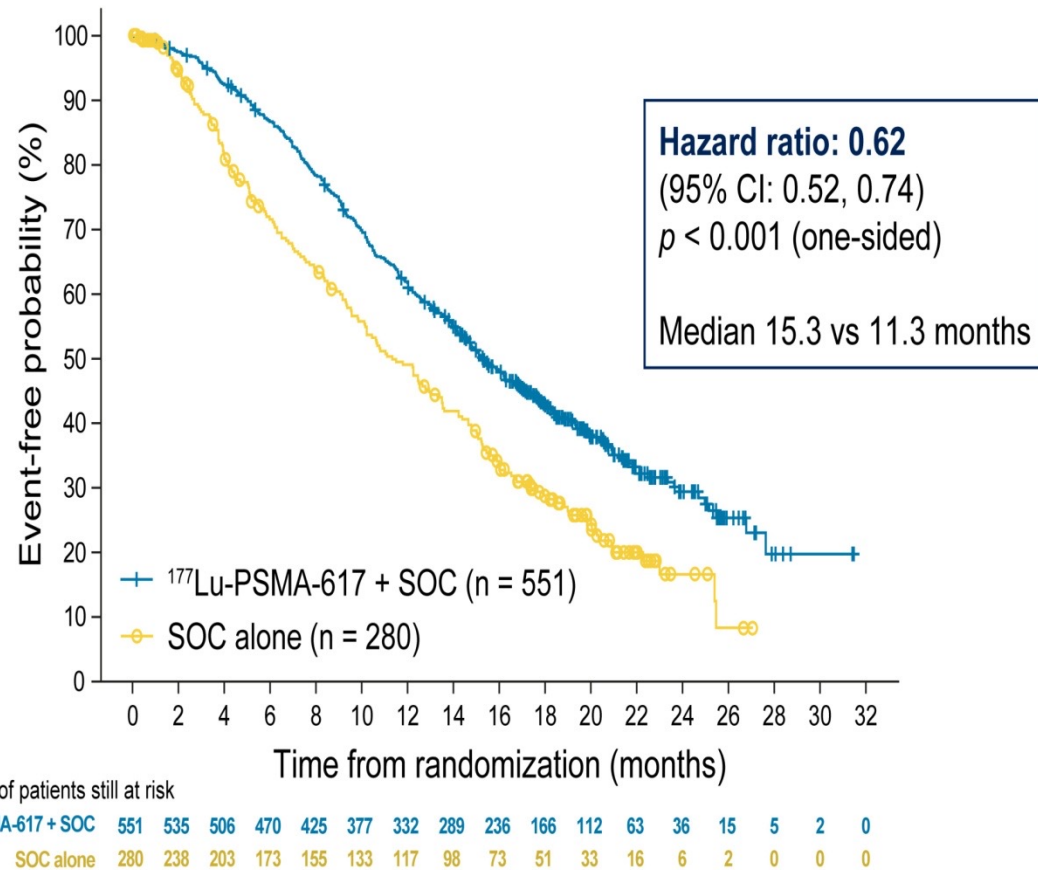
- Randomization stratified by
  - ECOG status (0–1 or 2)
  - LDH (high or low)
  - Liver metastases (yes or no)
  - Androgen receptor pathway inhibitors in SOC (yes or no)
- CT/MRI/bone scans
  - Every 8 weeks (treatment)
  - Every 12 weeks (follow-up)
  - Blinded independent central review



# Primary endpoints: $^{177}\text{Lu}$ -PSMA-617 prolonged OS

## Primary analysis

All randomized patients  
(N = 831)

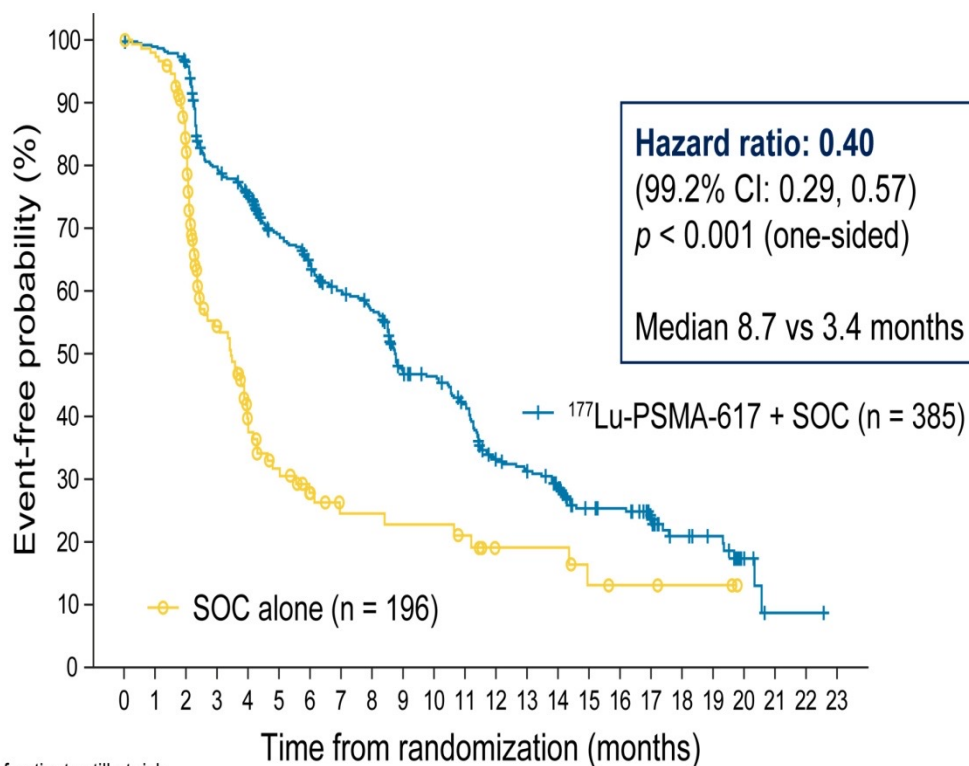




## Primary endpoints: $^{177}\text{Lu}$ -PSMA-617 improved rPFS

Primary  
analysis

rPFS  
analysis set  
(n = 581)



Number of patients still at risk

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
$^{177}\text{Lu}$ -PSMA-617 + SOC	385	373	362	292	272	235	215	194	182	146	137	121	88	83	71	51	49	37	21	18	6	1	1	0

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

Patients, n (%)	All grades		Grade 3–5	
	<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	66 (12.5)	4 (2.0)	13 (2.5)	1 (0.5)
Lymphopenia	75 (14.2)	8 (3.9)	41 (7.8)	1 (0.5)
Anemia	168 (31.8)	27 (13.2)	68 (12.9)	10 (4.9)
Thrombocytopenia	91 (17.2)	9 (4.4)	42 (7.9)	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)

# VISION study

- $^{177}\text{Lu}$ -PSMA-617 significantly prolonged vs standard care
- Imaging-based progression-free survival (median, 8.7 vs. 3.4 months; hazard ratio for progression or death, 0.40;)
- Overall survival (median, 15.3 vs. 11.3 months; hazard ratio for death, 0.62;)
- Next Question:  $^{177}\text{Lu}$ -PSMA-617 vs Cabazitaxel.



# ASCO 2022 TheraP

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Cancer Trials Group Limited

## **<sup>177</sup>Lu-PSMA-617 (LuPSMA) versus cabazitaxel in metastatic castration resistant prostate cancer (mCRPC) progressing after docetaxel: overall survival after median follow-up of 3 years**

(TheraP ANZUP 1603)

Michael Hofman, Louise Emmett, Shahneen Sandhu, Amir Iravani, Anthony Joshua, Jeffrey Goh, David Pattison, Hsiang Tan, Ian Kirkwood, Siobhan Ng, Roslyn Francis, Craig Gedye, Natalie Rutherford, Andrew Scott, Alison Zhang, Margaret McJannett, Martin Stockler, Scott Williams, Andrew Martin, Ian D. Davis, on behalf of the **TheraP Investigators**

TheraP is a partnership between ANZUP Cancer Trials Group and the Prostate Cancer Foundation of Australia (PCFA) in collaboration with the NHMRC Clinical Trials Centre (CTC) and the Australasian Radiopharmaceutical Trials Network (ARTnet) with support from the Australian Nuclear Science and Technology Organisation (ANSTO) and Endocyte Inc., a Novartis company

Clinicaltrials.gov NCT03392428

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PRESENTED BY:  
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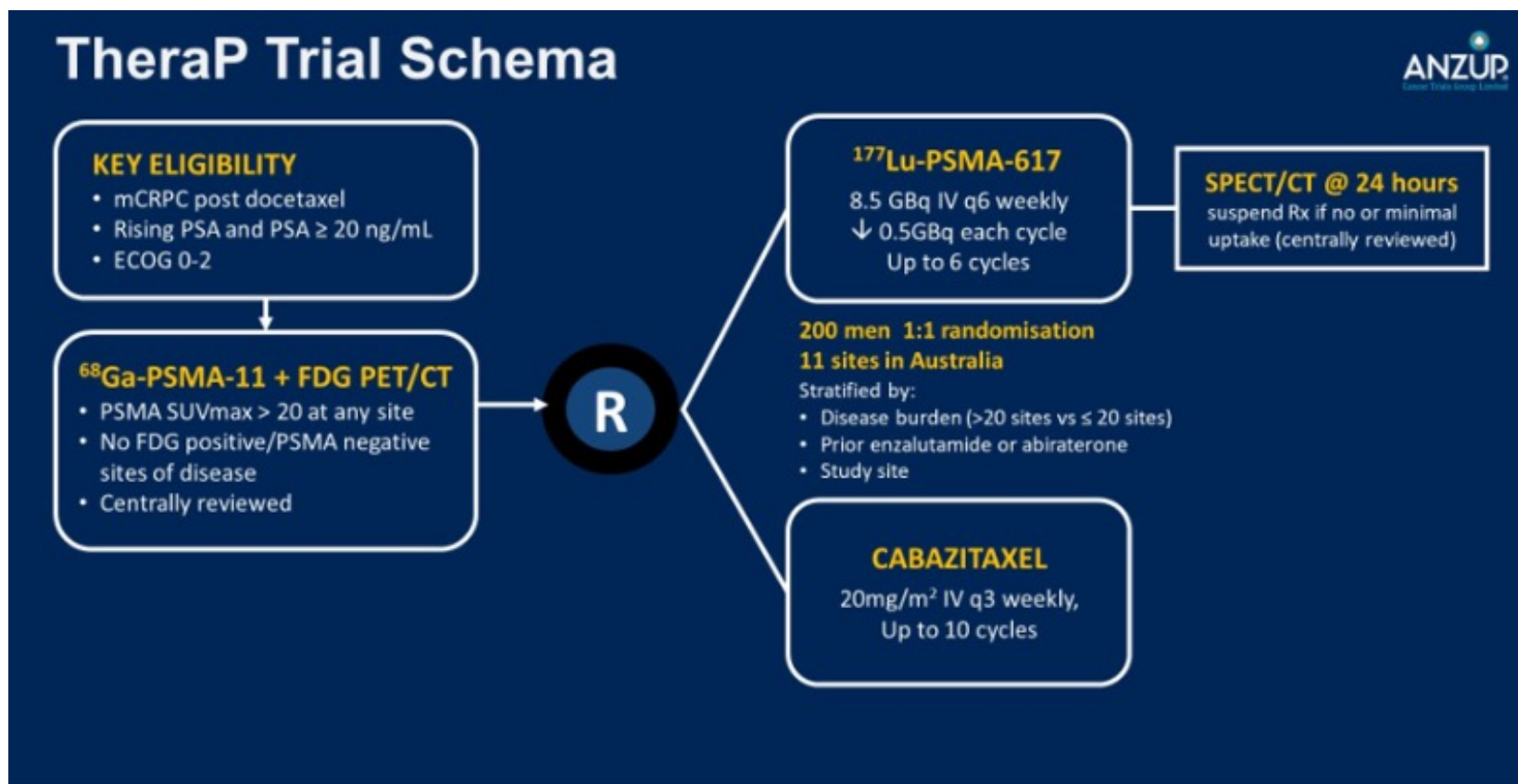
#TheraP

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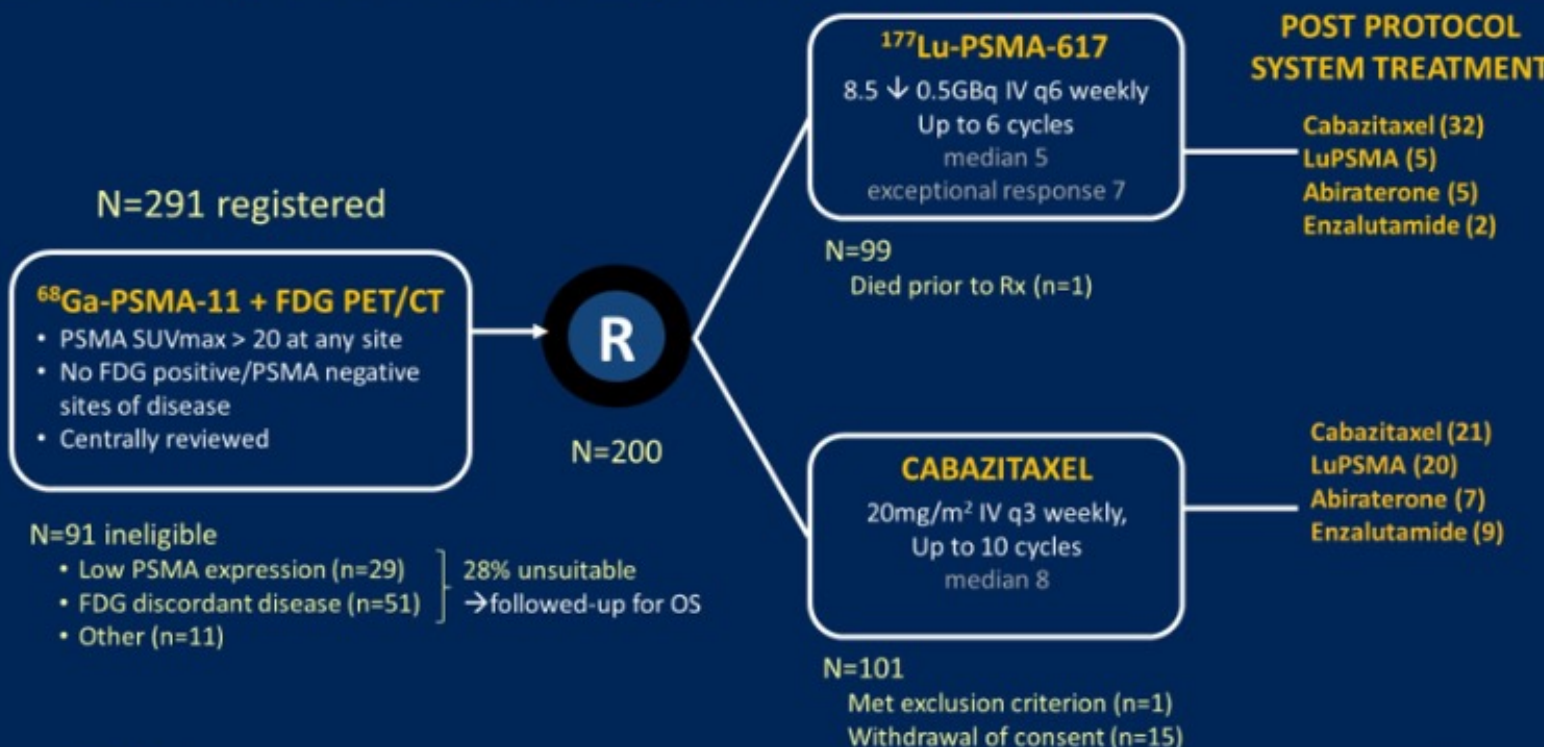
# TheraP Trial Study Design



# TheraP Study Design

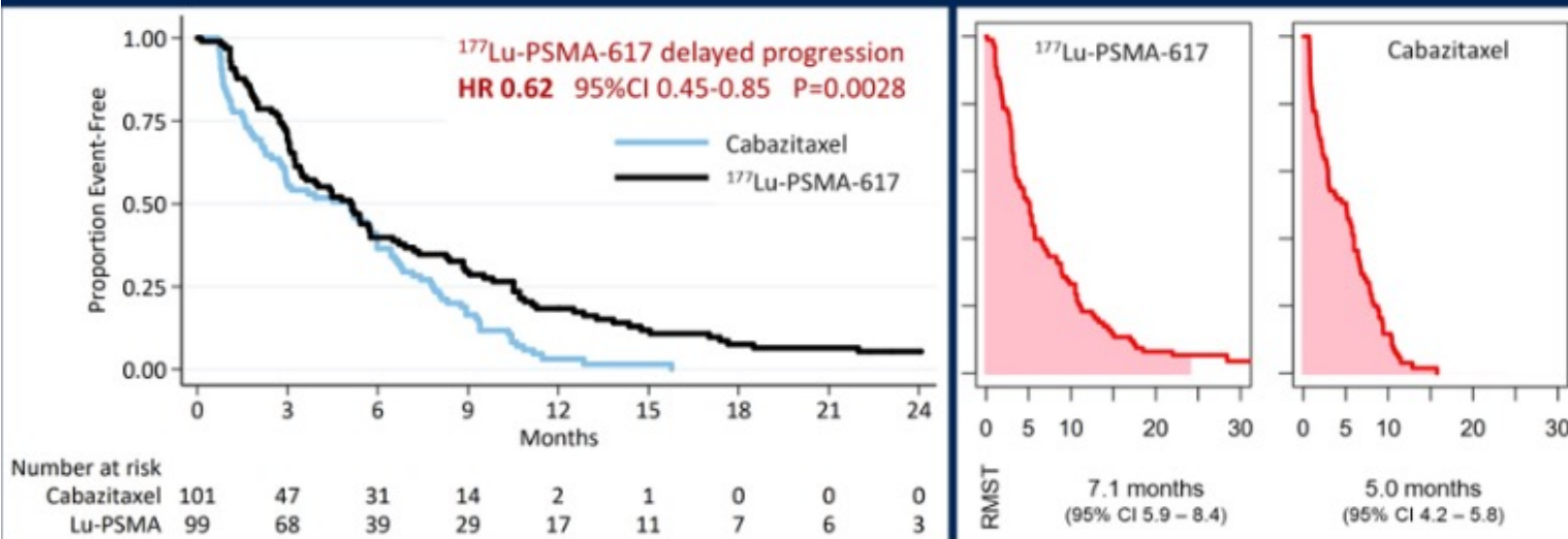
**Aim: report secondary endpoint of OS**

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# TheraP

## Progression Free Survival (PSA and radiographic)

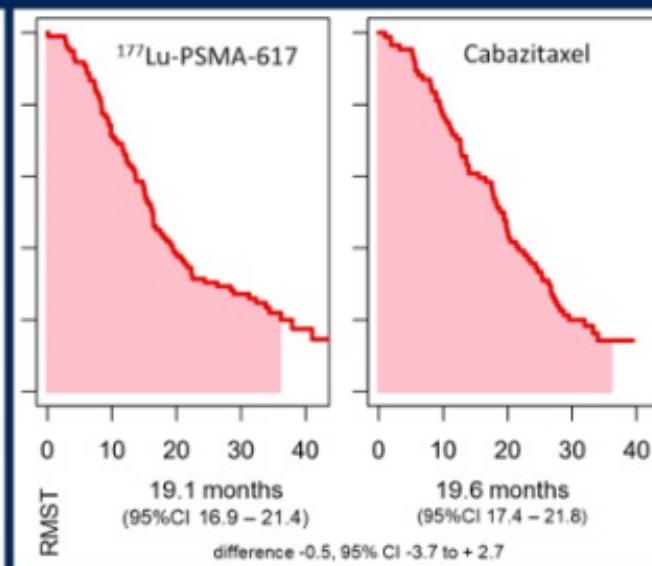
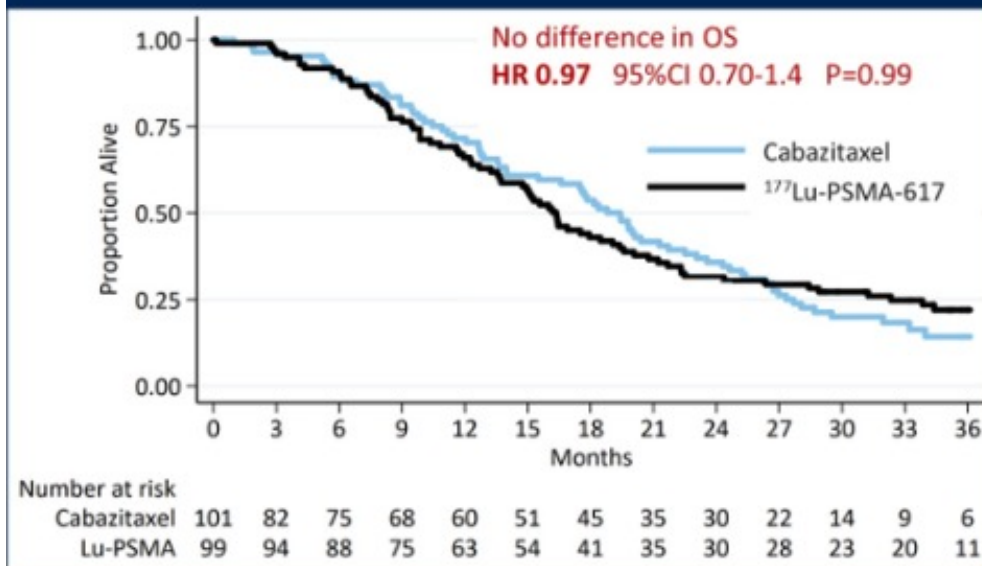


- Treatment effect not constant with respect to time → restricted mean survival time (RMST)
- 177 progression events. Cut-off 31 DEC 2020 for non-OS endpoints.
- Similar HR for rPFS (0.65) and PSA-PFS (0.60), and in per-protocol sensitivity analyses



# TheraP

## Overall survival (ITT)

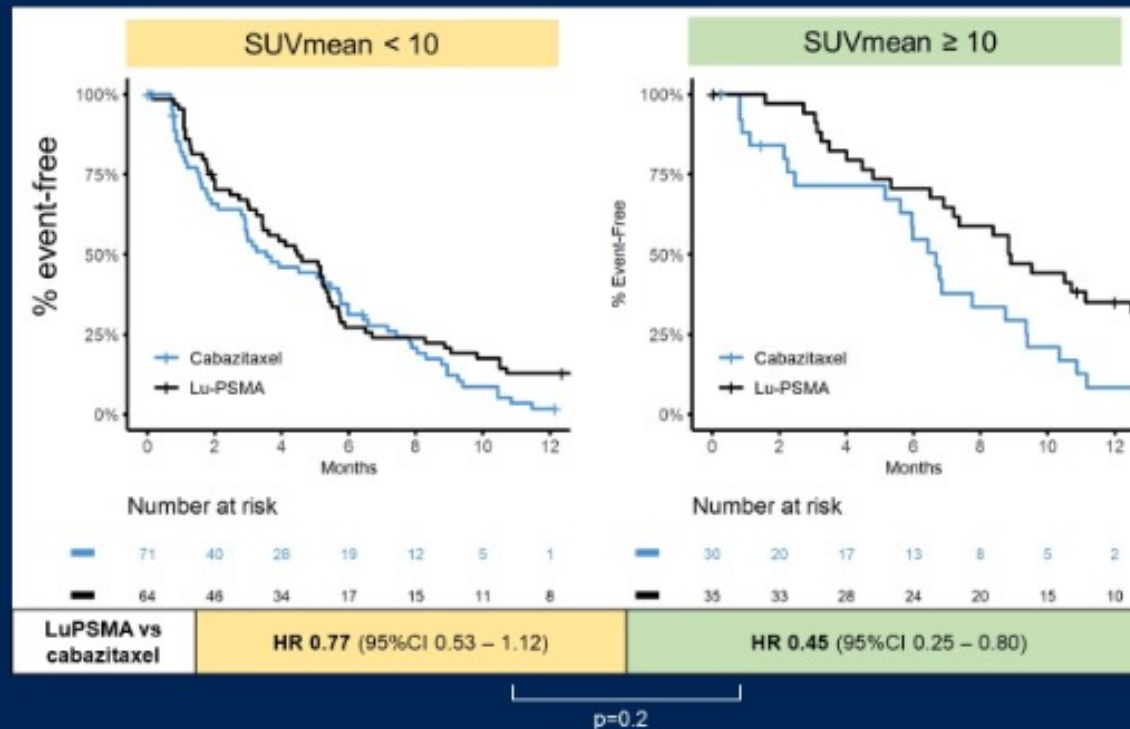


- Cut-off 31 DEC 2021 for OS
- At 36 months follow-up, death reported in 147/200; 70/101 assigned cabazitaxel vs. 77/99 assigned LuPSMA
- Per-protocol analysis: no difference in OS
- No additional safety signals with longer follow-up.



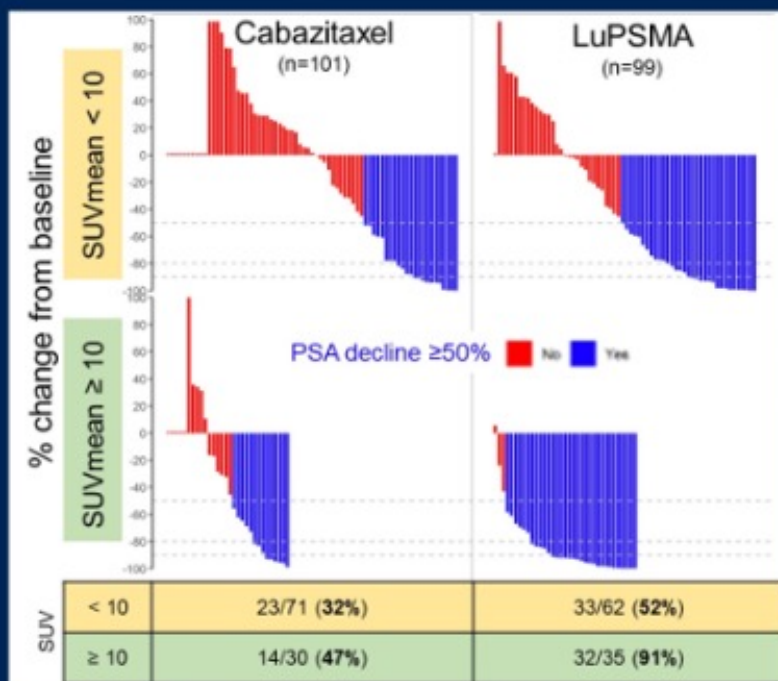
# ASCO 2022:TheraP Study

## PSMA intensity vs. PSA PFS

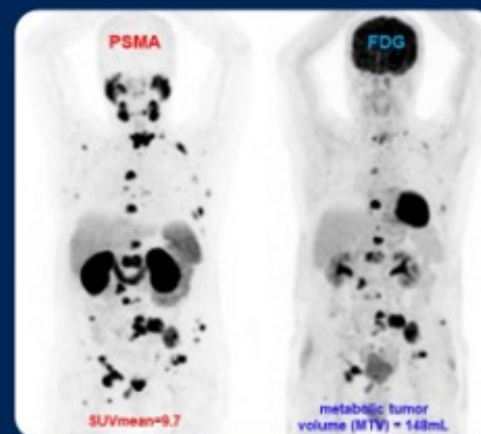


# ASCO 2022:TheraP Study

## Discussion: PSMA as predictive biomarker<sup>1</sup> (PSA50-RR)<sup>11</sup>



<sup>1</sup>Buteau J et al, ASCO GU 2022. doi:10.1200/JCO.2022.40.6\_suppl.010



### Odds of PSA50-RR to LuPSMA vs cabazitaxel

	OR (95% CI)
PSMA SUVmean < 10	2.2 (1.1 – 4.5)
PSMA SUVmean ≥ 10	12.2 (3.4 - 59)

P=0.03

Further analysis to be performed including OS

# My practice

- Third line after Docetaxel, novel pathway inhibitors
  - Every patient should have a somatic and germline mutational studies to look for HRR deficiencies
- Patients with BRCA2 mutations, I would favor Olaparib and Rucaparib
- Patients without mutations, I would consider Lutetium 177 vs Cabazitaxel based on PSMA PET avid disease ie SUV greater than 10
- Enrolling in our CAR-T cell and BiTE therapy for metastatic castrate resistant prostate cancer



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