ESSA

CORPORATE PRESENTATION

February 2024

NASDAQ: EPIX

Forward Looking Statements

Certain written statements in and/or oral statements made in connection with this presentation may be considered forward-looking statements within the meaning of applicable Canadian securities laws and the United States securities laws, that may not be based on historical fact, including, without limitation, statements containing the words “believe”, “may”, “plan”, “will”, “estimate”, “continue”, “anticipate”, “predict”, “project”, “intend”, “expect”, “potential”, the negatives thereof, variations thereon and similar expressions. Forward-looking statements in this presentation include, but are not limited to: the reporting of results from the Company’s studies; the advancement and evaluation of masofaniten (EPI-7386); enrollment in the Company’s studies; the nomination of a new IND candidate; the long-term survival of patients; the commencement of additional studies; and the Company’s cash runway.

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Forward-looking information is developed based on assumptions about such risks, uncertainties and other factors set out herein and in ESSA’s Annual Report on Form 10-K filed on December 12, 2023 under the heading “Risk Factors”, a copy of which is available on ESSA’s profile on the SEDAR+ website at www.sedarplus.com, ESSA’s profile on EDGAR at www.sec.gov, and as otherwise disclosed from time to time on ESSA’s SEDAR+ profile and EDGAR profile. Forward-looking statements are made based on management's beliefs, estimates and opinions on the date that statements are made and ESSA undertakes no obligation to update forward-looking statements if these beliefs, estimates and opinions or other circumstances should change, except as may be required by applicable Canadian and United States securities laws. Investors are cautioned that forward-looking statements are not guarantees of future performance and investors are cautioned not to put undue reliance on forward-looking statements due to their inherent uncertainty.

ESSA Highlights

Encouraging Phase 1 Results Achieved with First-in-Class Lead Candidate

Phase 1 masofaniten combination study demonstrated combinability of the two agents while achieving encouraging preliminary clinical results

Favorable tolerability

81%

of patients achieved PSA90

69%

of patients achieved PSA90 in less than 90 days

56%

of patients achieved PSA <0.2ng/mL

Large Addressable Market

2nd

most common cause of **male cancer deaths**

>250K cases

in the US in 2022; current treatments generating **~$9B** in annual global sales

Favorable Treatment Landscape

mCRPC patients become resistant to current treatments within **~1 year**

Novel mechanism of inhibiting the androgen receptor through N-terminal inhibition

2024 Key Objectives

- Reported updated Phase 1 masofaniten + enzalutamide results at ASCO-GU 2024
- Advance enrollment in Phase 2 masofaniten + enzalutamide study
- Advance enrollment in apalutamide and abiraterone acetate studies
- Nominate new IND candidate

Strong Fundamentals

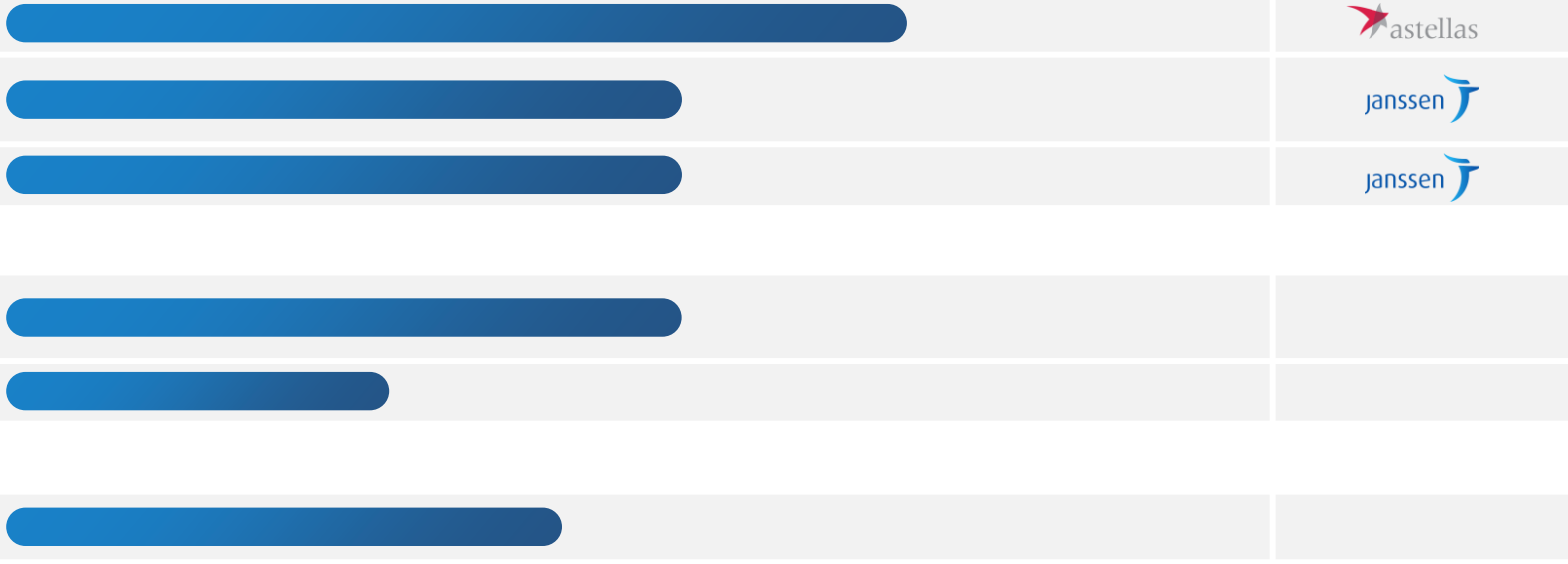
Strong executive leadership team

Cash runway beyond 2025

ESSA Research and Development Pipeline

Masofaniten (EPI-7386)

PROGRAM	INDICATION	RESEARCH	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	COLLABORATIONS
COMBO							
masofaniten + enzalutamide	mCRPC						astellas
masofaniten + abiraterone acetate + prednisone	mCRPC + mCSPC						janssen
masofaniten + apalutamide	nmCRPC						janssen
MONO							
masofaniten monotherapy	mCRPC – Resistant to standard of care treatments						
	Non-PC AR-driven Cancers						
IST							
masofaniten + darolutamide	mCRPC						



Discovery

PROGRAM	INDICATION	RESEARCH	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3	COLLABORATIONS
3rd-Generation AR N-Terminal Domain Inhibitor	Prostate Cancer and Other AR-Driven Cancers						
AR N-Terminal Domain Tau-1 Site Inhibitor	Prostate Cancer and Other AR-Driven Cancers						

Prostate Cancer Disease Landscape

PUBLIC HEALTH PROBLEM / LARGE MARKET

Prostate cancer is the

#2

most common cause of **male cancer deaths**

In 2023, the American Cancer Society estimated

288K **new cases**

34.7K **deaths**[1]

>$9B

in **global sales** generated in 2022 by leading antiandrogens[2]

Newest antiandrogens

Zytiga® abiraterone acetate

Erleada® (apalutamide) 60 mg tablets 240 mg tablet

Xtandi® (enzalutamide) 40 mg tablets | 80 mg tablets

NUBEQA® (darolutamide) 300 mg tablets

VALIDATED THERAPEUTIC TARGET

Androgen receptor (AR) signaling is critical for prostate cancer development and progression[3,4,5]

A deep PSA response to antiandrogens is associated with longer overall survival across mHSPC, nmCRPC and mCRPC studies[6,7,8]

NEED FOR NEW THERAPEUTIC STRATEGIES

Resistance to second-generation antiandrogens in mCRPC patients is common and on average occurs within a year of starting therapy[9]

Clinical results suggest that more potent AR inhibition used earlier in therapy may provide improved clinical outcomes for patients[10]

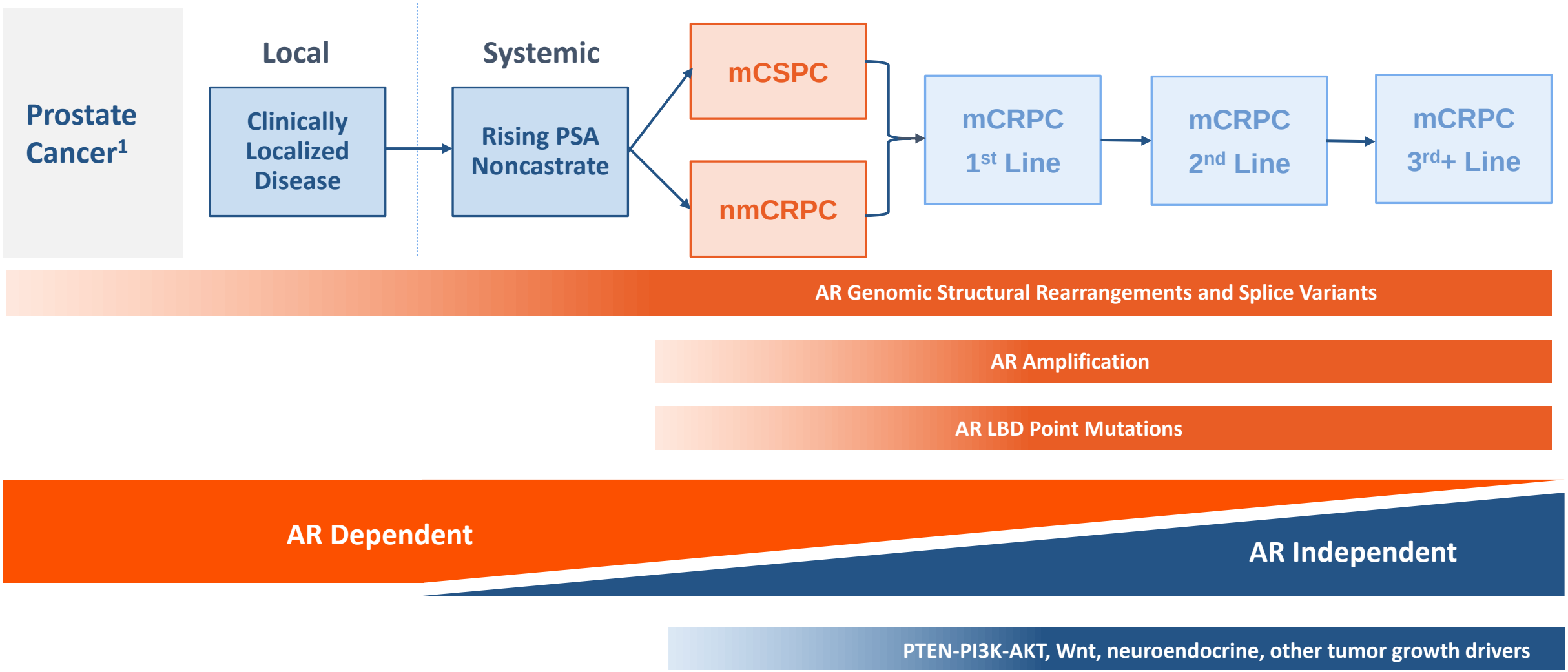
1. Siegel et al. CA Cancer J Clin, 2023.
2. 2022 financial reports from www.sec.gov.

3. Robinson D, et al. Cell, 2015.
4. Chen CD, et al. Nat Med, 2004.
5. Kumar A, et al. Nat Med, 2016.

6. Small, EJ. et al., European Urology Oncology, 2022.
7. Hussain, M. et al., The Journal of Urology, 2023.
8. Armstrong, AJ., et al., European Urology Oncology, 2019.

9. Sharp A, et al. JCI, 2019.
10. ESMO 2021.

Prostate Cancer Evolution and AR Dependency



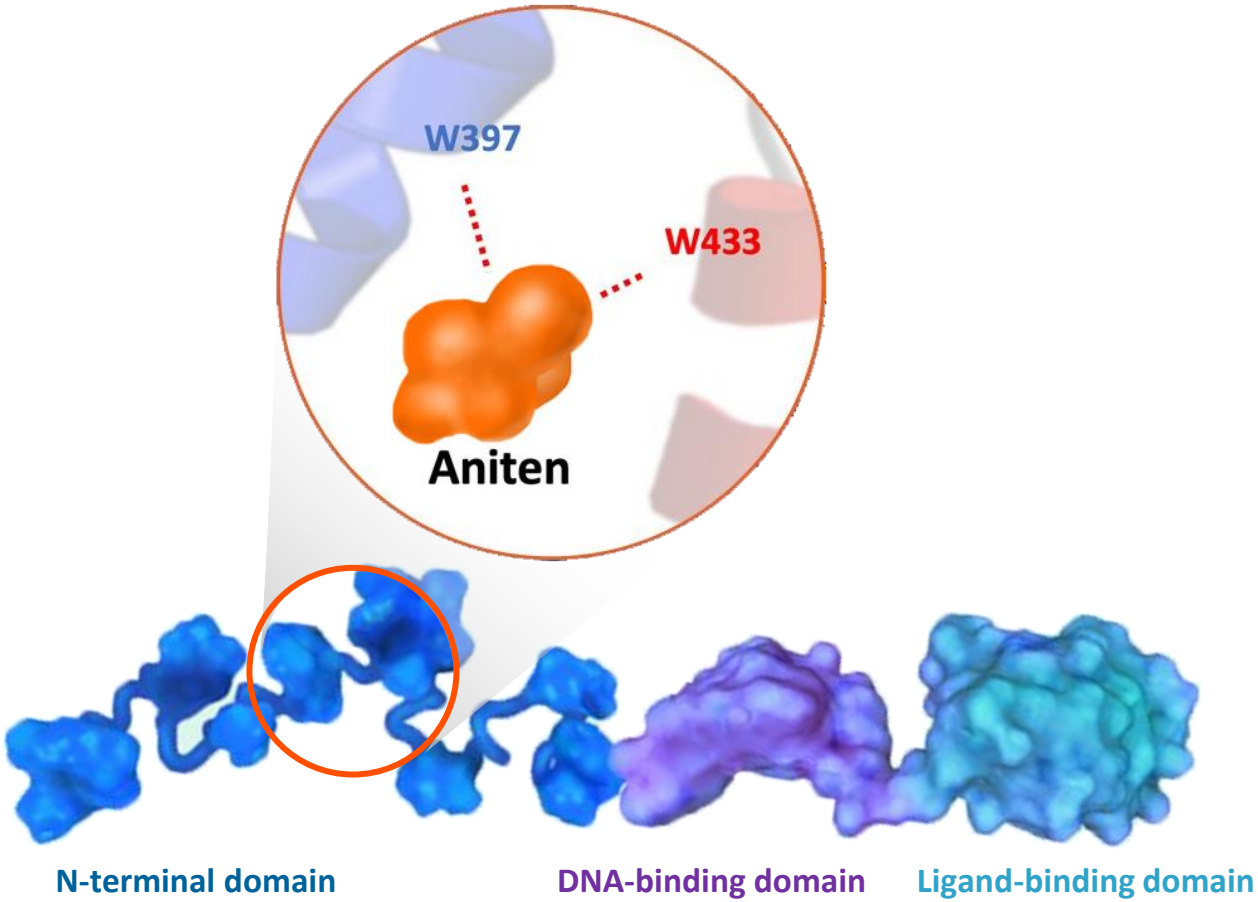
1. Adopted from Scher, HI, et al. J Clin Oncol, 2016.

Masofaniten (EPI-7386)

First-in-Class NTD AR Inhibitor

Masofaniten's Novel MoA Uniquely Inhibits the NTD of the Androgen Receptor, Potentially Overcoming Resistance to Standard-of-Care

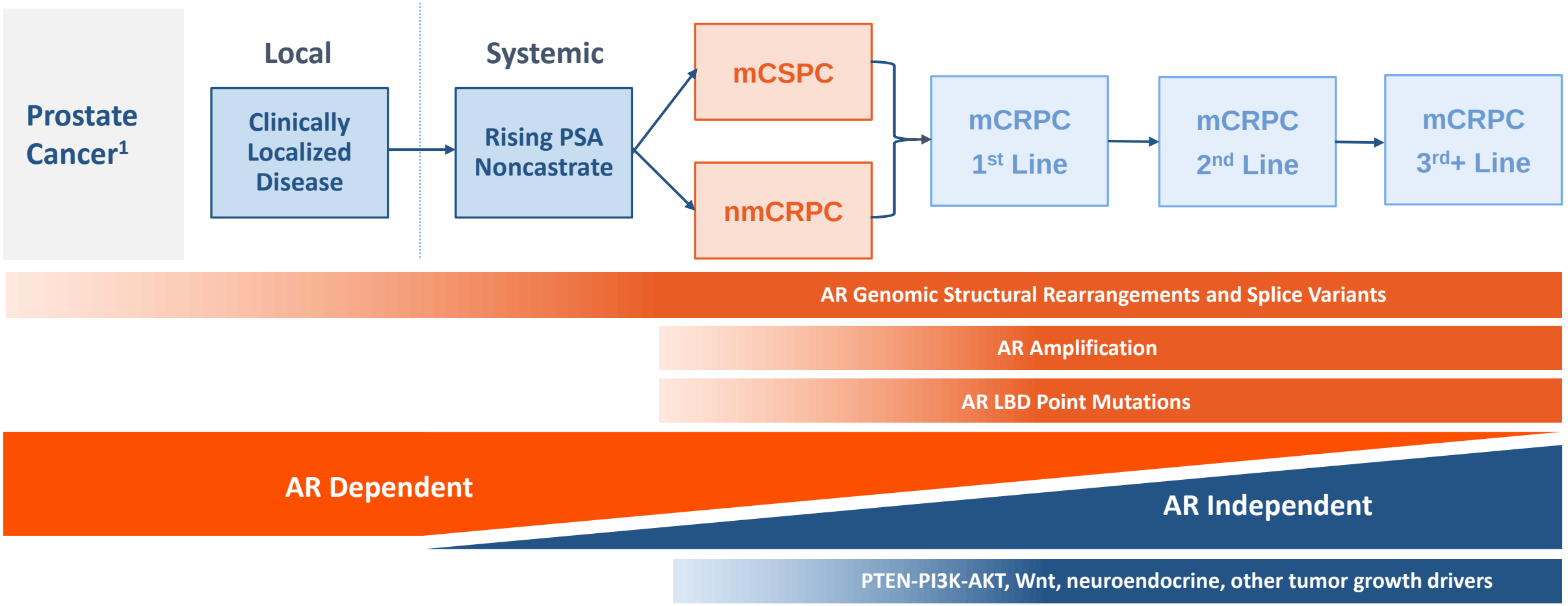
- All current antiandrogens function through the ligand-binding domain (LBD) of the androgen receptor (AR)
  - Known antiandrogen resistance mechanisms develop at the LBD
- Masofaniten specifically binds to the N-terminal domain (NTD) of the AR, a region of the androgen receptor required for AR activity
- As a result of this binding, masofaniten is active against multiple AR forms, including those resistant to current antiandrogens
- Masofaniten's novel method of inhibiting the AR may lead to greater AR suppression when used in combination with current antiandrogen therapies



Granted unique USAN drug stem of "Aniten" as a AR NTD inhibitor

1. Hong NH, et al. AACR-NCI-EORTC-Virtual Int Conf, 2021.
2. De Mol E, et al. ACS Chem Biol, 2016.
3. Andersen RJ, et al. Cancer Cell, 2010.
4. De Mol E, et al. ACS Chem Biol, 2016.
5. Yang YC, et al. Clin Cancer Res, 2016.

Masofaniten Monotherapy Clinical Development for AR-Driven CRPC



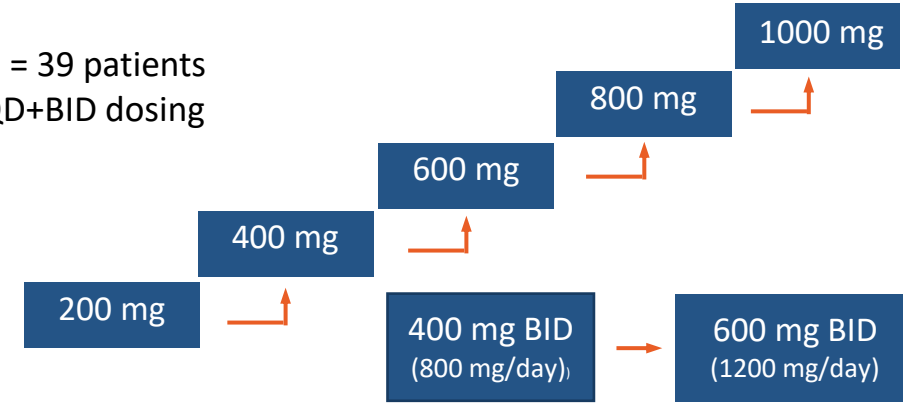
1. Adopted from Scher HI, et al. J Clin Oncol, 2016.

Masofaniten Phase 1 Monotherapy Study in mCRPC Patients: Study Design

- First-in-human Phase 1 multi-center open-label study enrolling mCRPC patients failing standard-of-care therapy
- Two-part study: Phase 1a dose-escalation (Completed) followed by Phase 1b dose expansion (Completing enrollment)

Phase 1a Clinical Study

N = 39 patients
QD+BID dosing



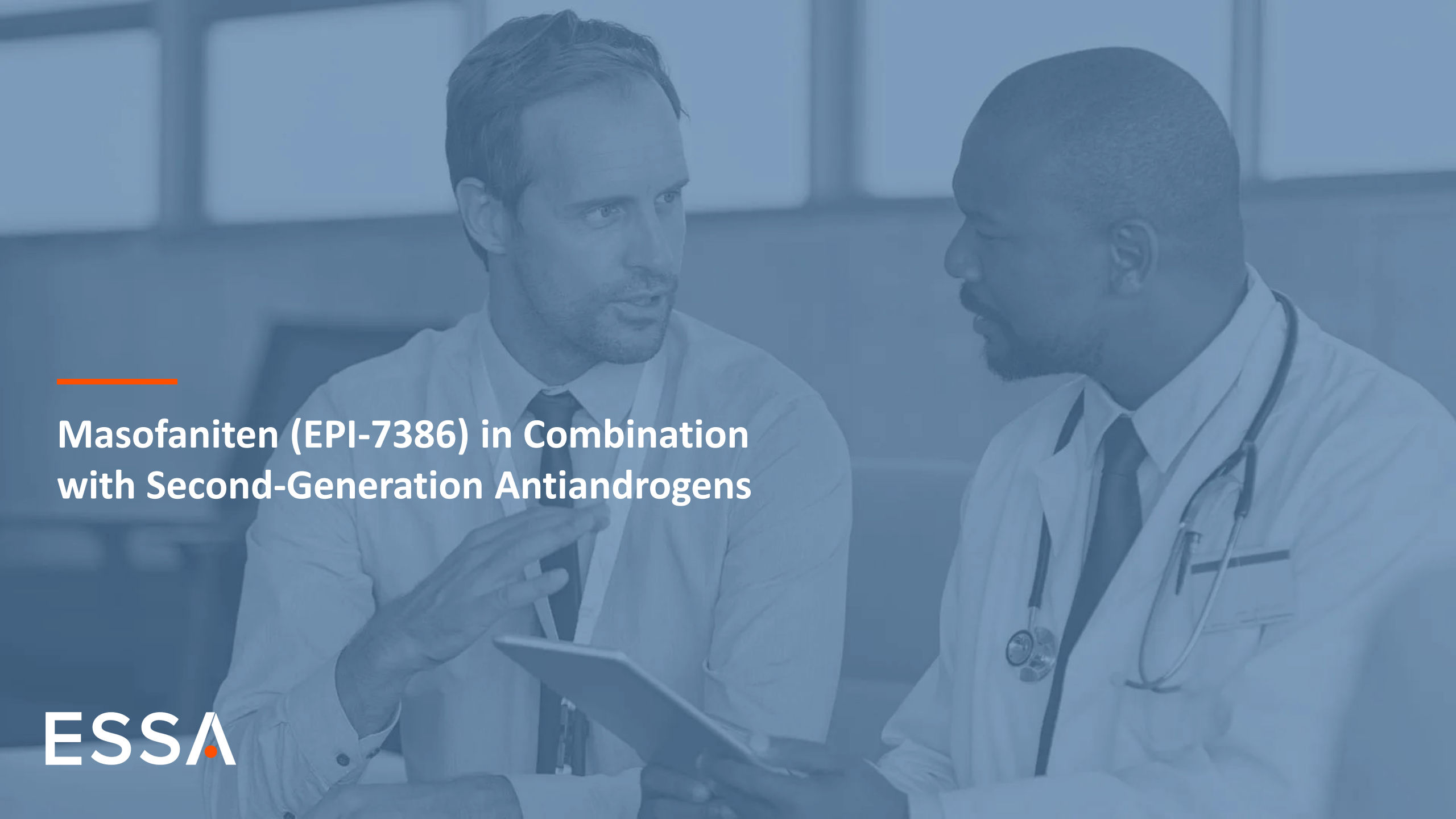
Results

- Masofaniten was safe and well-tolerated
- Masofaniten has a long half life (>24hrs) and all doses reached target drug exposures
- Some signals of clinical anti-tumor activity observed in less experienced patients (e.g. PSA, PSAdt, ctDNA, etc)

Phase 1b Clinical Study

Results

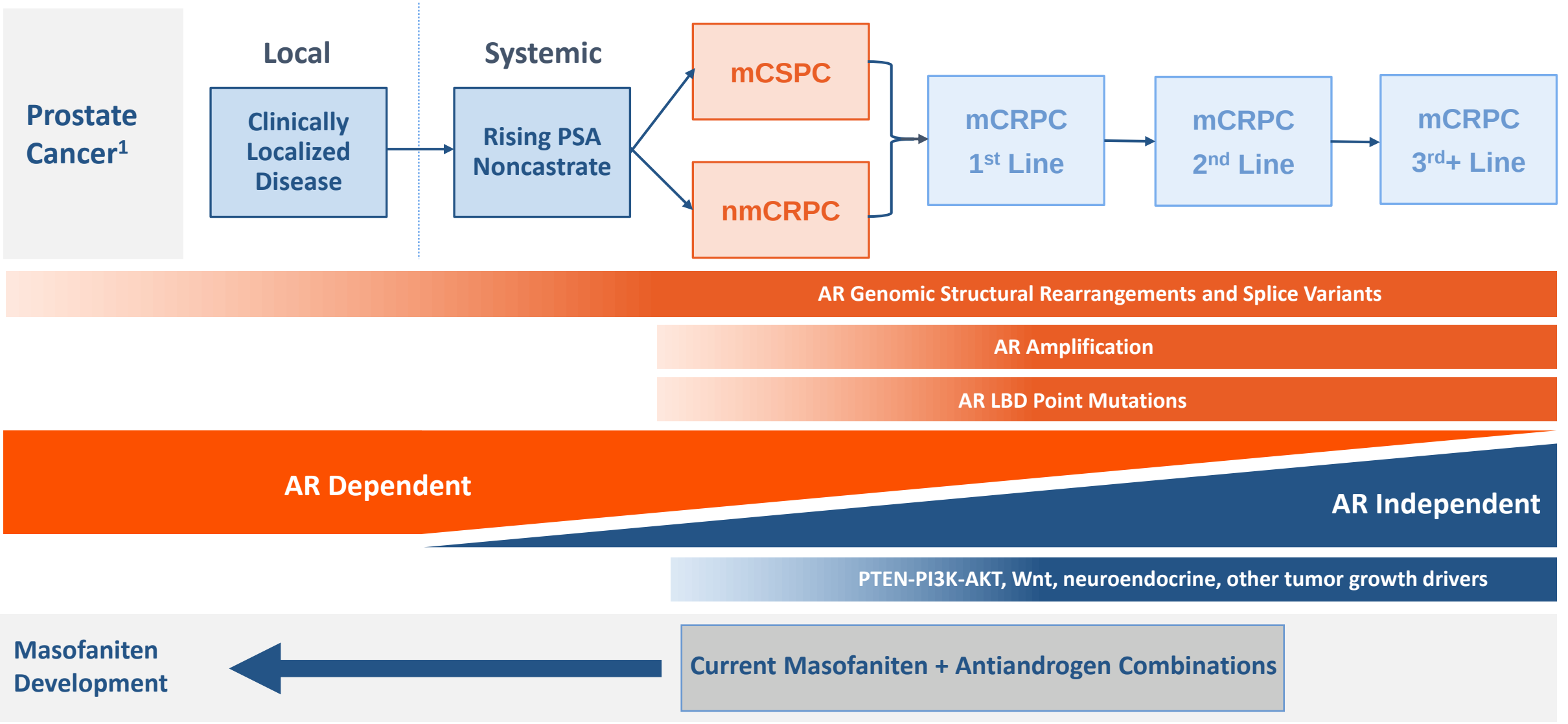
- Completing enrollment of patients



Masofaniten (EPI-7386) in Combination with Second-Generation Antiandrogens

ESSA

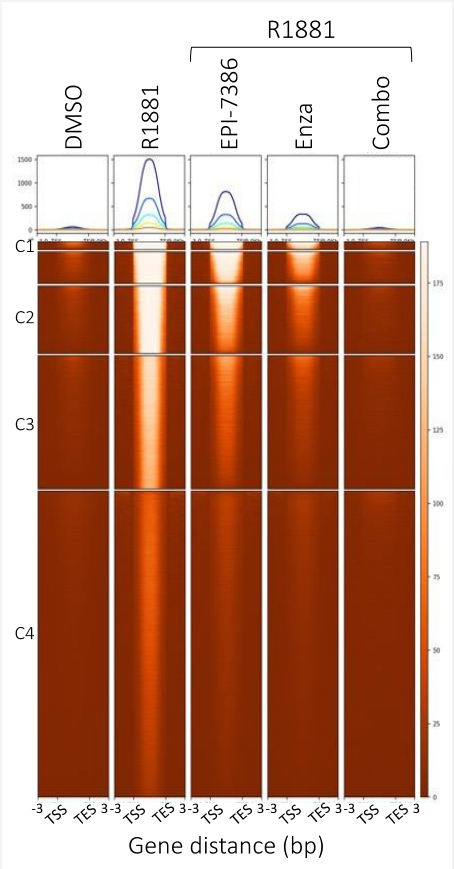
Masofaniten Combination Study Clinical Program for AR-Driven CRPC



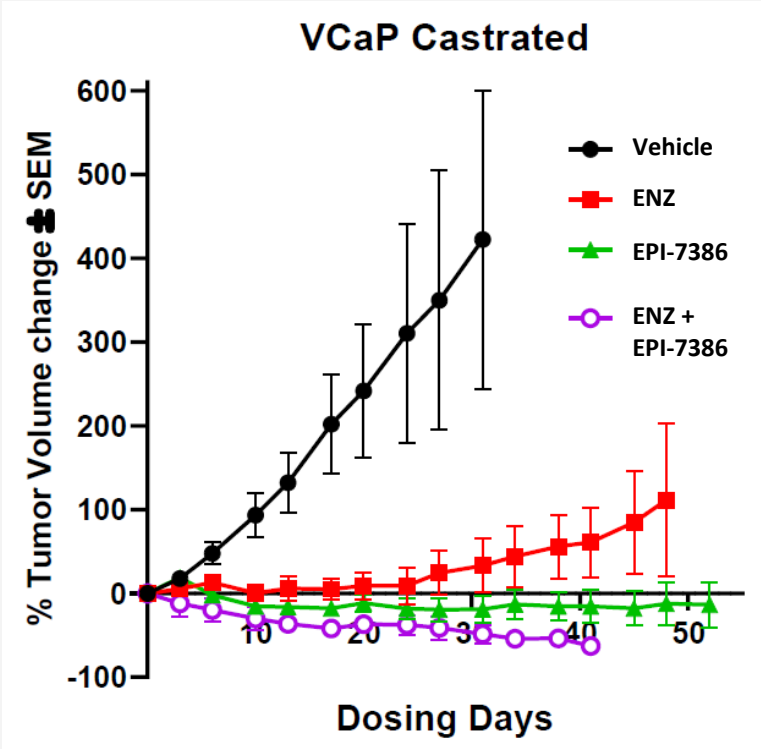
1. Adopted from Scher, HI, et al. J Clin Oncol, 2016.

Preclinical Rationale for the Combination of Masofaniten with Antiandrogens

AR Binding to Genomic DNA



Mouse VCaP Xenograft Efficacy



- Decades of clinical research link improved clinical results with deeper AR axis suppression
- Combining an AR NTD-inhibitor with an LBD-inhibitor provides two complementary ways of inhibiting AR biology
- Preclinical studies support deeper and broader suppression of AR-driven biology by combining masofaniten with antiandrogens

Masofaniten Combination Development Program with Second-Generation Antiandrogens

Phase 2 study evaluating masofaniten combined with Astellas' enzalutamide (**Xtandi®**) in patients with mCRPC naïve to second generation antiandrogens

Phase 1 study evaluating masofaniten combined with Janssen's apalutamide (**Erleada®**), abiraterone acetate (**Zytiga®**) and prednisone in patients with patients with either mCSPC or mCRPC. Phase 1 study evaluating masofaniten combined with apalutamide in patients with nmCRPC after 12 weeks of masofaniten single agent

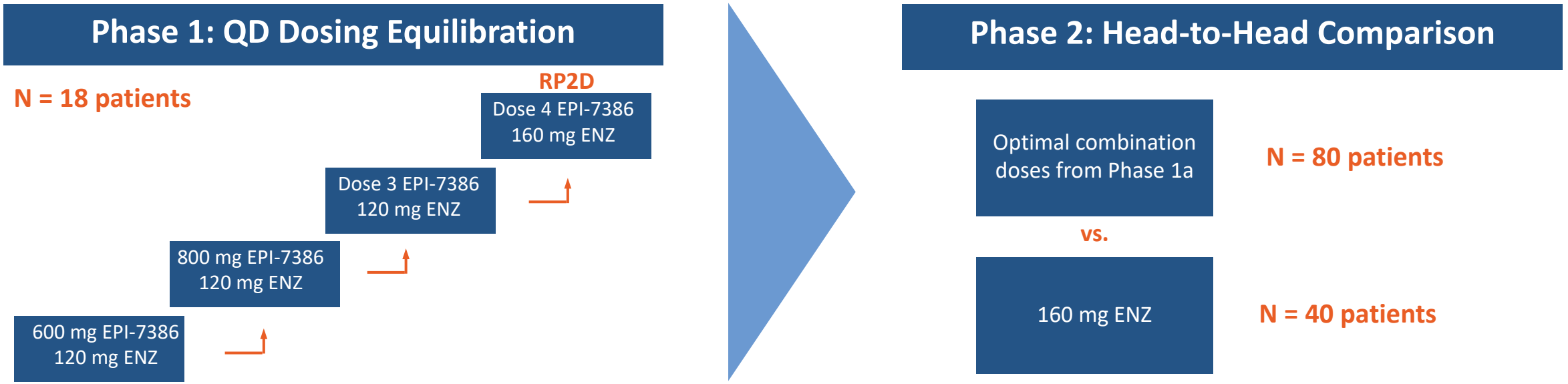
Phase 1/2 study evaluating masofaniten combined with Bayer's darolutamide (**Nubeqa®**) in patients with mCRPC

Investigator-Sponsored Neoadjuvant Study

A 12-week two-arm randomized study evaluating masofaniten combined with darolutamide (**Nubeqa®**) in patients undergoing prostatectomy for high risk localized PC

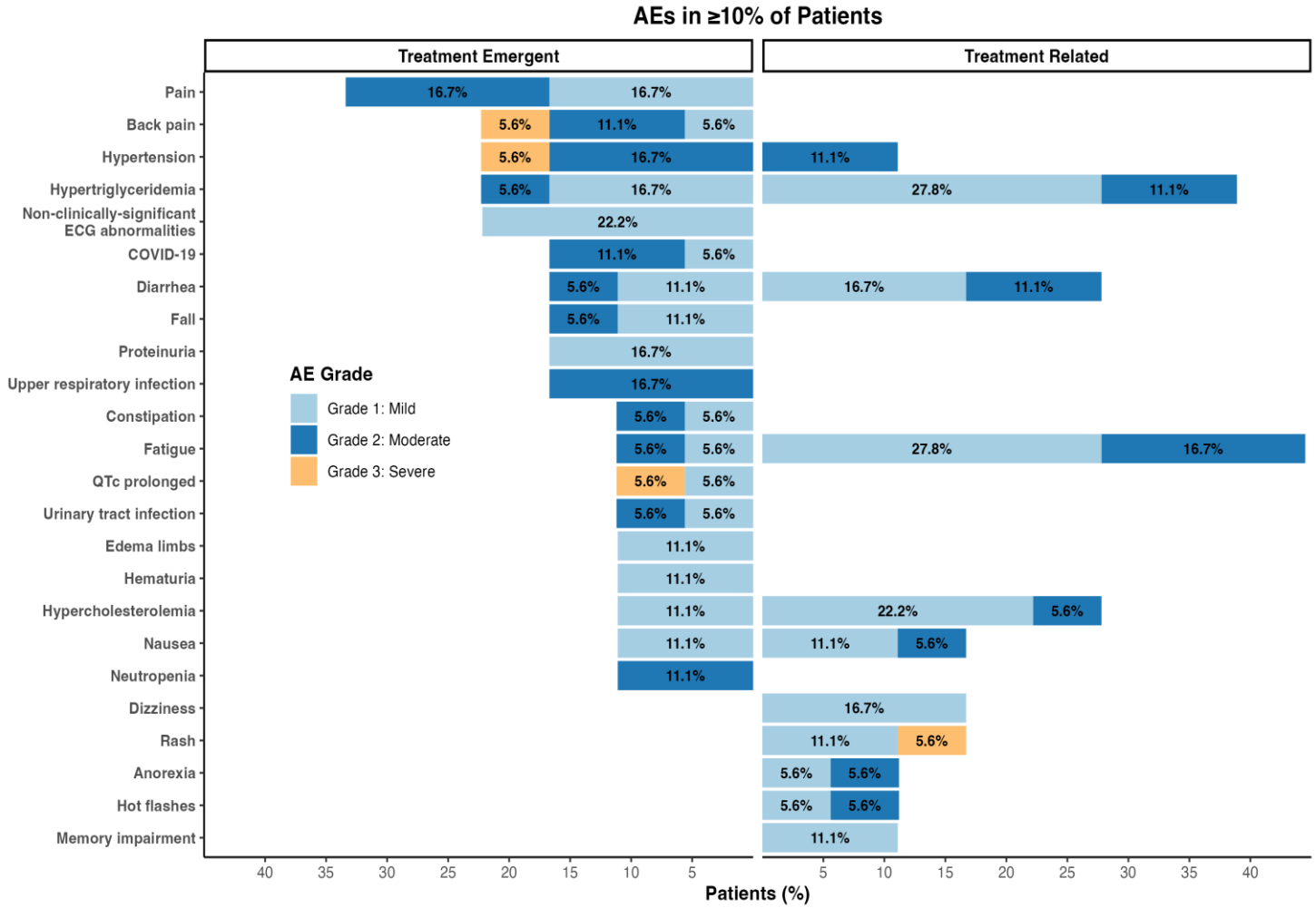
Phase 1/2 Masofaniten + Enzalutamide (ENZ) Combination Study Trial Design in mCRPC Patients Naïve to Second-Generation Antiandrogens

- Phase 1/2 multi-center open-label study enrolling mCRPC patients naïve to second-generation antiandrogens
- Two-part study: Phase 1 dose-equilibration followed by Phase 2 open-label randomized study



- Phase 1 study focused on the PK and safety of masofaniten and enzalutamide when administered in combination along with establishing the RP2D for both drugs to address any possible drug-drug interactions
- Phase 2 study will assess the anti-tumor activity of the combination of masofaniten and enzalutamide versus single agent enzalutamide at the standard of care dose

Phase 1/2 Masofaniten + ENZ Combination Study Results: Safety



Safety

- The combination of masofaniten and ENZ was well-tolerated
- Most adverse events (AE) reported were grade 1 and 2
  - One grade 3 drug-related AE (rash) occurred in cohort four & was observed after ENZ was added to masofaniten
- Otherwise, the combination safety profile was consistent with second-generation antiandrogens

*Treatment Related Adverse Event (TRAE)

Phase 1/2 Masofaniten + ENZ Combination Study Results: Pharmacokinetics

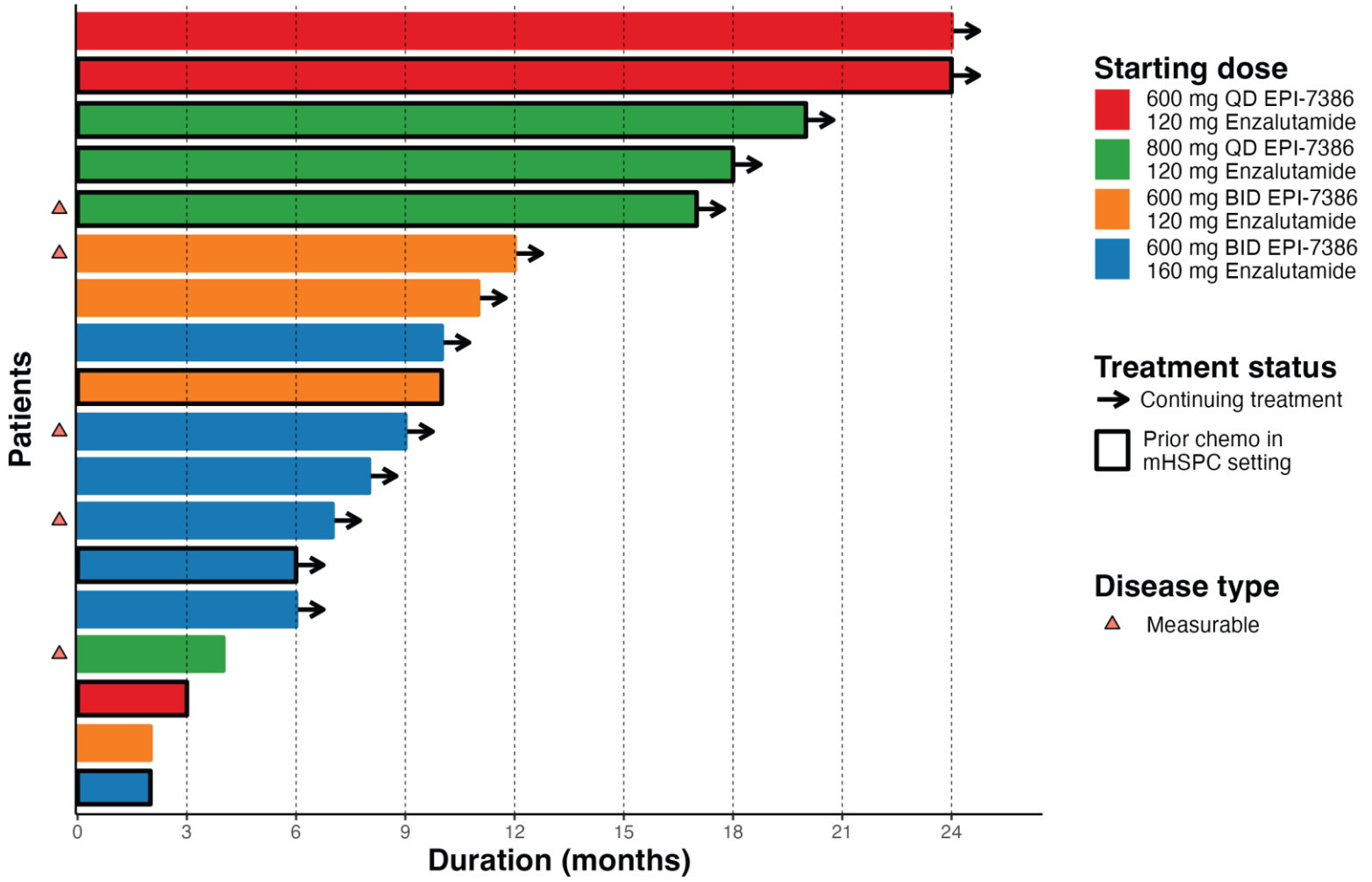
Masofaniten Dose	Timepoint	ENZ Dose	Masofaniten AUC	Masofaniten AUC Decline	ENZ AUC	ENZ M2 AUC
600mg BID	7-Day Run-in	- -	508,250	- -	- -	- -
600mg BID	28 Days	120 mg	233,000	-54%	304,750	208,725
600mg BID	7-Day Run-in	- -	435,833	- -	- -	- -
600mg BID	28 Days	160 mg	189,600	-56%	300,600	278,300

- Clinically relevant concentrations of masofaniten seen across all dose cohorts and are well within the predicted efficacious range based upon preclinical studies
  - Masofaniten concentrations >15 uM in both dose arms
- The reduction in masofaniten AUC was similar in both the 120mg ENZ cohort and the 160mg ENZ cohort, indicating the 160mg ENZ dose can be used in the phase 2 clinical study

Pharmacokinetics (PK)

- ENZ exposure minimally impacted by masofaniten administration
- Masofaniten exposure reduced but BID dosing can partially compensate
  - Clinically relevant concentrations of masofaniten in all cohorts
- Cohort four dose selected for RP2D
  - 600mg BID masofaniten
  - 160mg ENZ

Phase 1 Masofaniten + ENZ Combination Study: Swimmer Lane Plot



Clinical Activity

13/18 ongoing, 5/18 discontinued

- Disease progression = 3
- Brain abscess = 1 (non-related)
- Non-cancer-related death = 1 (patient w/ PSA90 and <0.2 ng/mL)

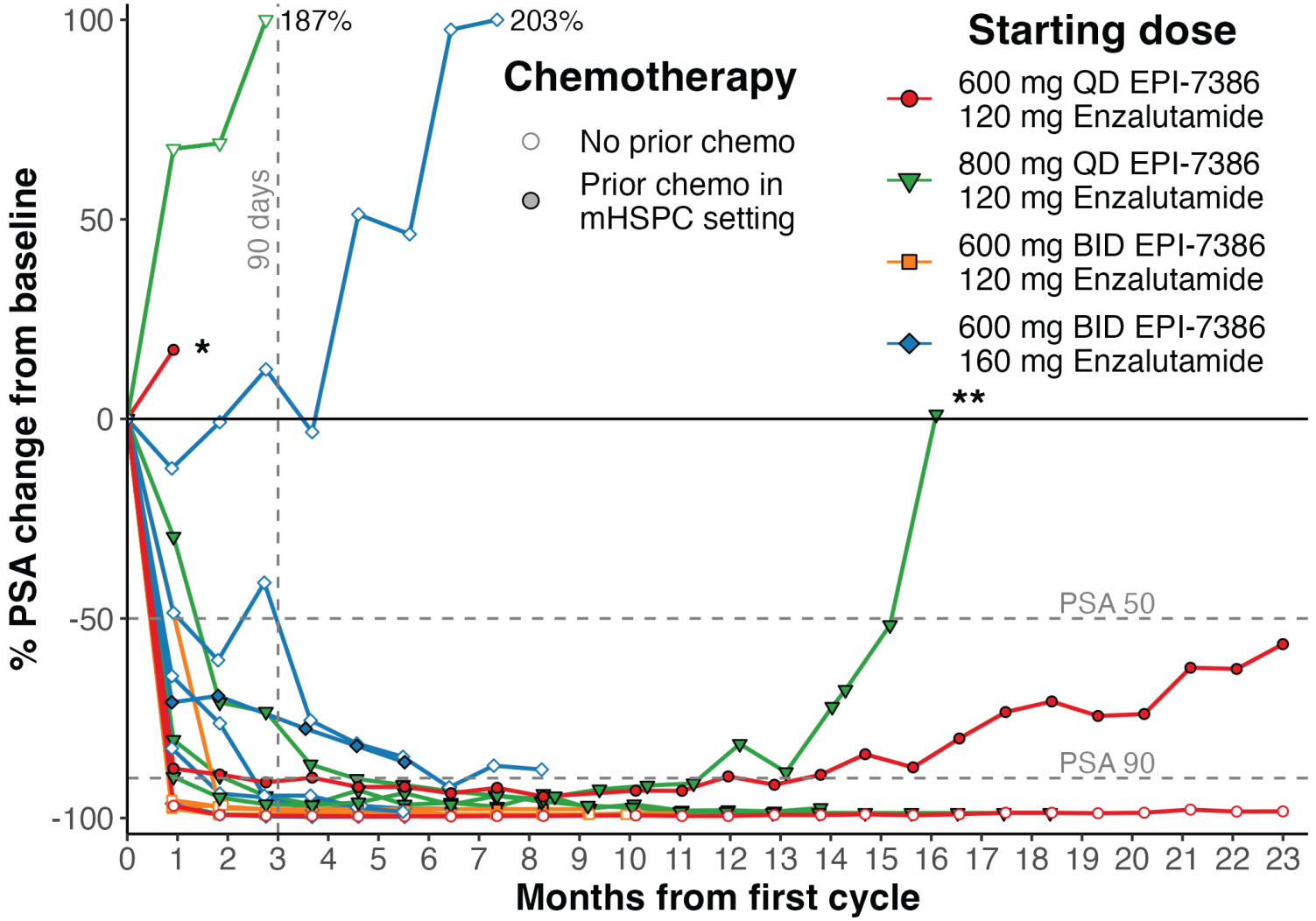
13/18 non-measurable disease:

- Bone only or bone + non-target lesions:
  - 11/13 SD ; 2/13 PD
- 2 non-evaluable for efficacy (per protocol, insufficient drug exposure)

5/18 measurable disease (RECIST v1.1):

- 2/5 PR ; 2/5 SD ; 1/5 PD

Phase 1 Masofaniten + ENZ Combination Study: Longitudinal PSA Changes



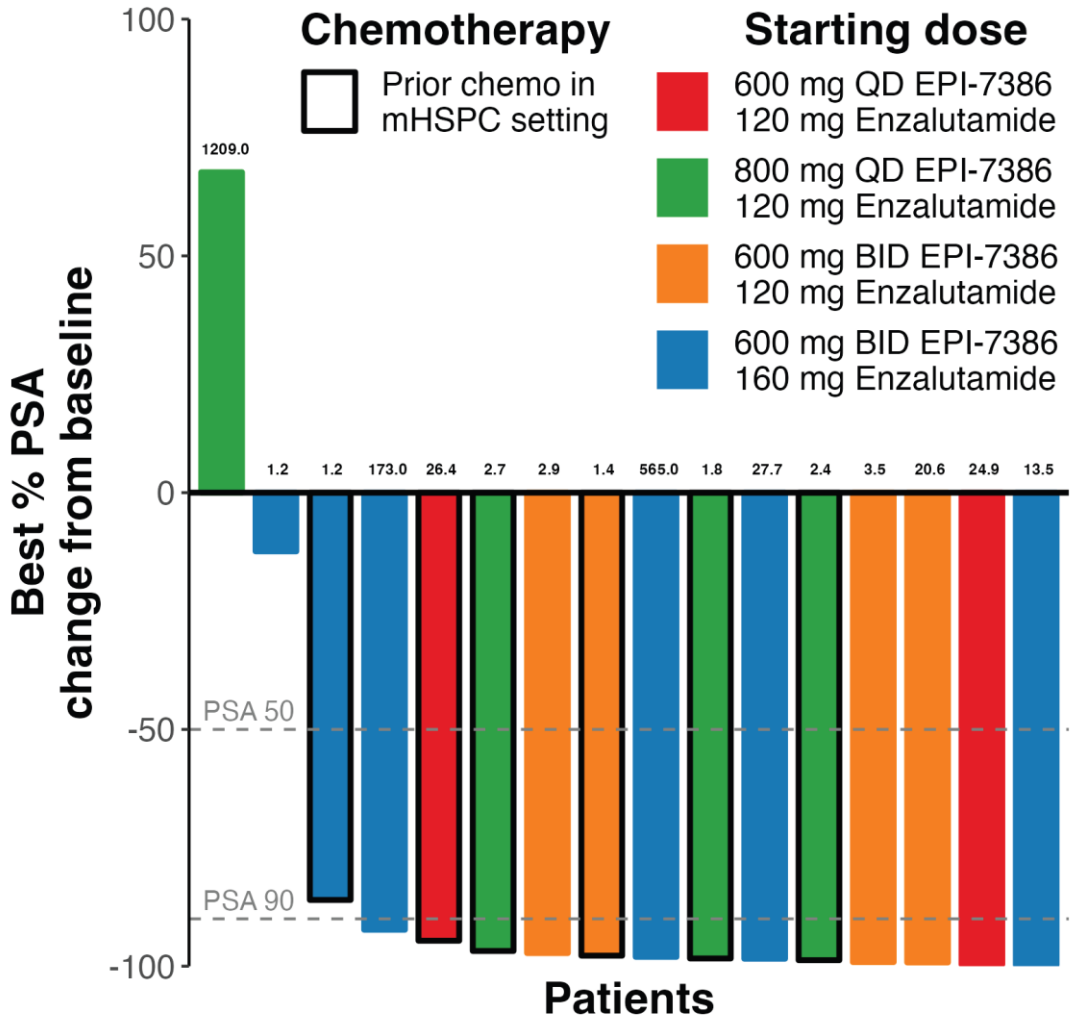
* Two patients were non-evaluable for efficacy due to DDI with a concomitant drug and a rash DLT

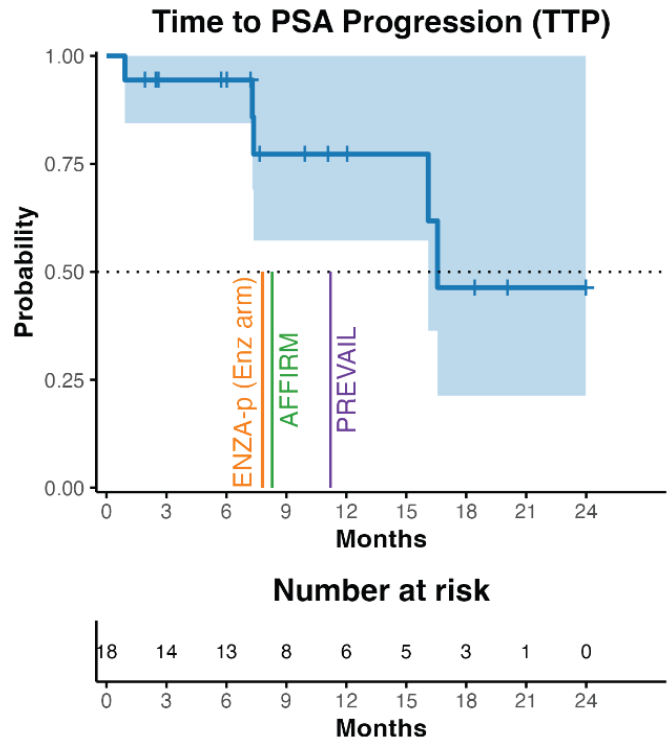
** Unconfirmed PSA progression

Clinical Activity

- Data not fully mature
- Rapid, deep and durable PSA reductions observed
- 13 of 16 (81%) patients achieved a PSA90 regardless of prior chemotherapy status
- 11 of 16 (69%) patients achieved a PSA90 in 90 days and 10 of 16 (63%) have achieved a PSA < 0.2ng/mL

Phase 1 Masofaniten + ENZ Combination Study: Depth and Duration of Activity





Clinical Activity

- Data not fully mature
- Deep and durable PSA reductions observed similarly in patients with or w/o prior chemotherapy
- Time to PSA progression currently at 16.6 months

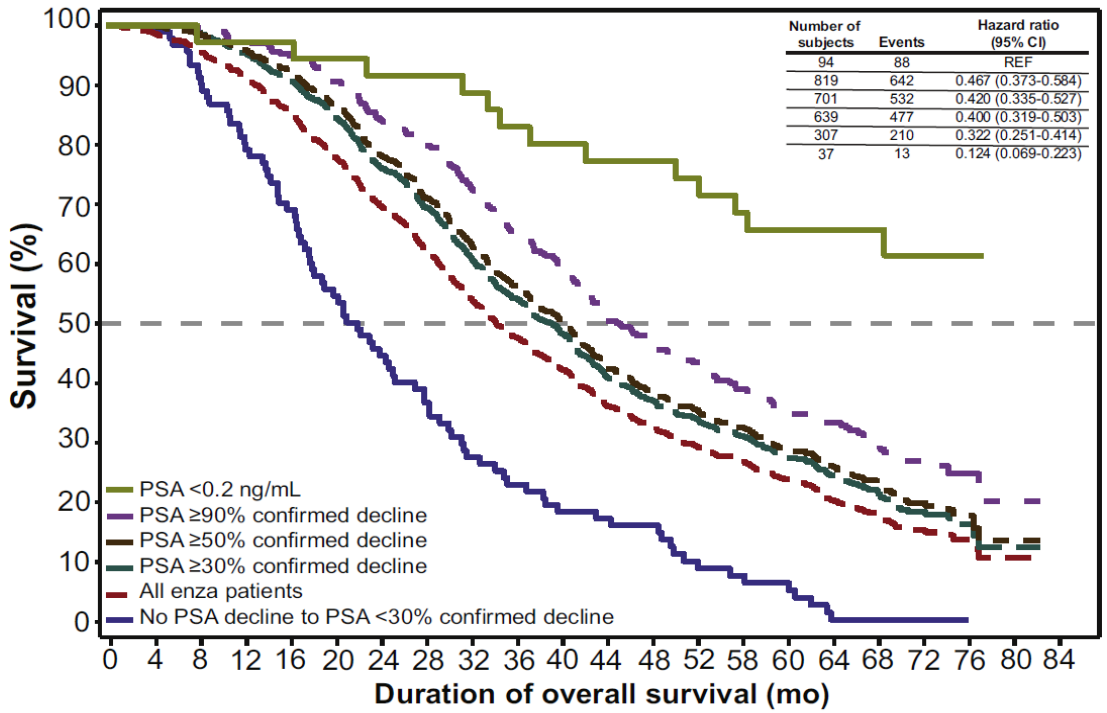
Phase 1 Masofaniten + ENZ Combination Study: PSA Data Compare Favorably to Pivotal ENZ and other mCRPC Antiandrogen Studies

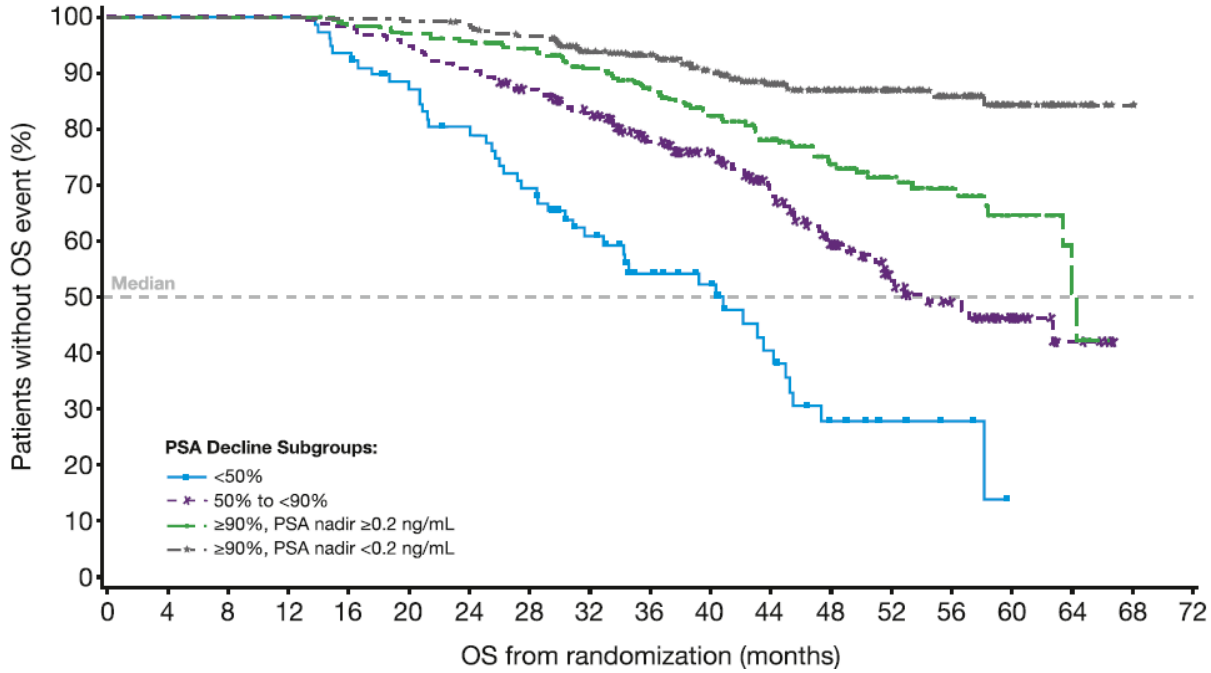
mCRPC Patient Population	Agent	PSA90 (Overall)	Study Type	PSA90 (90 Days)	PSA <0.2 ng/mL (Overall)	Time to PSA Progression (months)	Reference
Masofaniten P1		**81% (Immature)**		**69%**	**63% (Immature)**	**16.6 (Immature)**	Kyriakopoulos, et al., ASCO-GU, 2024.
POST-CHEMO SETTING							
AFFIRM Study	ENZ	25%	Pivotal	13%	- -	8.3	Scher et al., NEJM, 2012; Armstrong et al., Cancer 2017.
PREMISE Study	ENZ	31%	Observational	- -	- -	- -	Payne et al., Int J of Canc, 2021.
PRE-CHEMO SETTING							
PREVAIL Study	ENZ	47%	Pivotal	37%	12%+	11.2	Beers et al., NEJM, 2014; Armstrong et al., Eu Assoc of Uro, 2020; Armstong, et al. Eu Urol Onc_2019
PREMISE Study	ENZ	45%	Observational	- -	- -	- -	Payne et al., Int J of Canc, 2021.
ACIS Study	ABI	47%	Pivotal	- -	19%	12.0	Saad et al., Lancet Onc, 2021.
ACIS Study	ABI+APA	53%	Pivotal	- -	25%	13.8	Saad et al., Lancet Onc, 2021.
PRE+POST CHEMO SETTING							
ENZA-p	ENZ	37%	Phase 2	- -	- -	7.8	Emmett et al., ESMO, 2023.

Phase 1 data are not yet mature, so the above estimates may not fully represent Phase 1 results

** Armstong, et al. Eu Urol Onc_2019.; + Estimate derived from Armstong, et al. Eu Urol Onc_2019*

In Prior Studies of ENZ in CRPC Patients, Deep PSA Declines were Associated with Better Long-Term Overall Survival*





From the PREVAIL study of mCRPC patients, the deeper the PSA decline during the initial 13-week period, the better the long-term overall survival

From the PROSPER study of nmCRPC patients, the deeper the 12-month PSA nadir, the better the long-term overall survival

** Armstong, et al. Eu Urol _2020; Hussain, et al. The J of Uro_2023.*

Additional Masofaniten Phase 1 Combination Studies

ESSA + Janssen Combinations

Phase 1 Masofaniten + Abiraterone Acetate

600mg QD | 800mg QD | 600mg BID

- **Metastatic castration-sensitive PC (mCSPC) and mCRPC**
  - Prior use of antiandrogens or chemotherapy allowed
- Cohorts: 600mg + 800mg QD & 600mg BID dosing

Phase 1 Masofaniten + Apalutamide

600mg QD | 800mg QD | 600mg BID

- **Non-metastatic CRPC (nmCRPC) patients**
  - 12 weeks of masofaniten monotherapy treatment before combining with apalutamide
- Cohorts: 600mg + 800mg QD & 600mg BID dosing

Investigator Sponsored Studies

Phase 1 Masofaniten + Darolutamide (DAR)

600mg BID

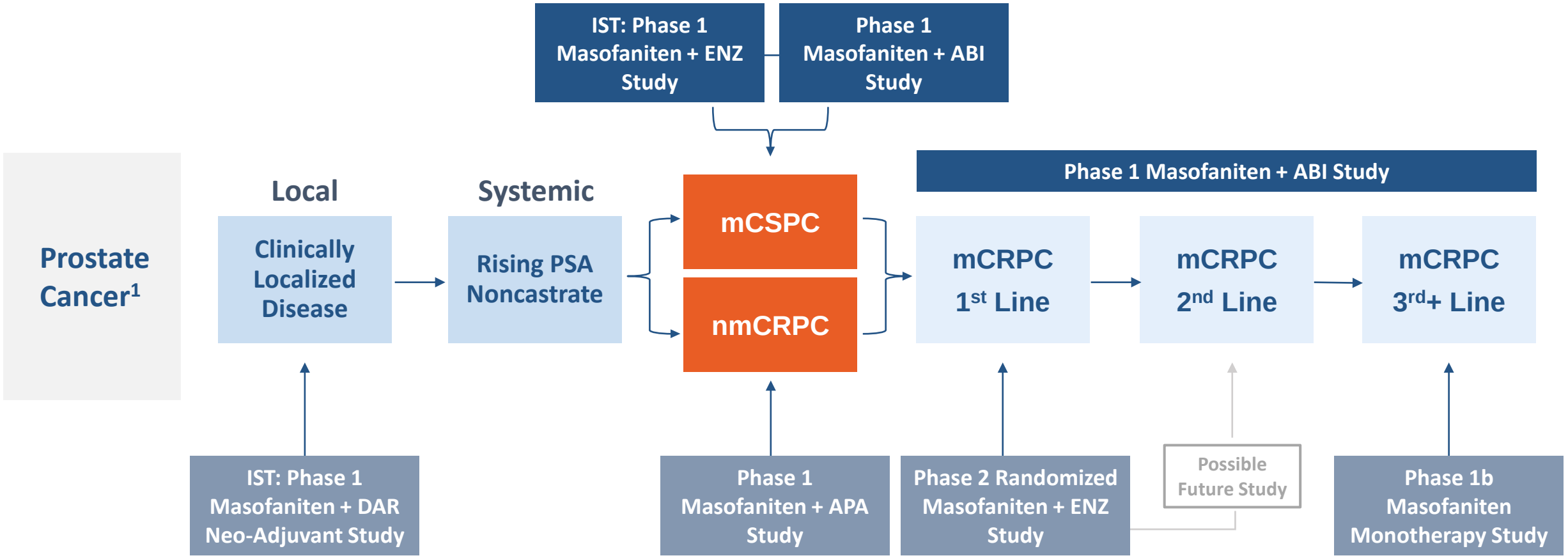
- **Neoadjuvant Therapy in High-Risk Patients Undergoing Prostatectomy**
  - 12-Weeks treatment of DAR vs. Masofaniten + DAR

Phase 1 Masofaniten + Enzalutamide

600mg BID

- **Metastatic castration-sensitive PC (mCSPC)**
  - ENZ combination study examining PSA <0.2 ng/mL
  - Starting Mid-Year

Masofaniten Clinical Program Will Generate Significant New Data in the Near-term



1. Adopted from Scher, HI, et al. J Clin Oncol, 2016.

Corporate & Financial

ESSA

Experienced Management Team

David R. Parkinson, MD

President & Chief Executive Officer

NOVARTIS · NIH NATIONAL CANCER INSTITUTE · AMGEN · biogen idec · nodality revealing biology

Peter Virsik, MS, MBA

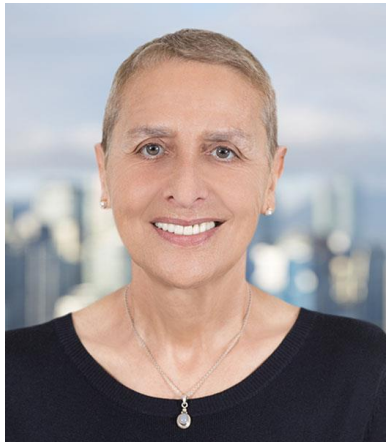
EVP & Chief Operating Officer

GILEAD · Genentech · XenoPort · J.P.Morgan · EY

David S. Wood, MBA, CPA, CMA

Chief Financial Officer

Celator Pharmaceuticals · CUBIST PHARMACEUTICALS



Alessandra Cesano, MD

EVP & Chief Medical Officer

nanoString · CLEAVE THERAPEUTICS · AMGEN · biogen idec · nodality revealing biology

ESSA 2024 Key Objectives

Masofaniten Programs
Combination
Reported updated Phase 1 masofaniten + enzalutamide results at ASCO-GU
Advance enrollment in Phase 2 masofaniten + enzalutamide study
Advance enrollment of apalutamide and abiraterone acetate studies
Begin additional IST studies in mCSPC
Monotherapy
Report Phase 1a/1b results

Discovery
Nominate new IND candidate

Financial Position & Capitalization

CURRENT CASH RUNWAY BEYOND 2025 FUNDS:

- Reported updated Phase 1 masofaniten + enzalutamide results at ASCO-GU 2024
- Complete enrollment in Phase 2 masofaniten + enzalutamide study and read-out results
- Complete enrollment in apalutamide and abiraterone acetate studies
- Begin additional IST in mCSPC
- Report Phase 1a/1b monotherapy results
- Nominate new IND candidate

Nasdaq: EPIX	
Cash	$142M at December 31, 2023 (no debt O/S)
Shares	~47M (44M I/O common shares and 3M prefunded warrants)


ESSA