

ESSA

EPI-7386 CLINICAL DEVELOPMENT UPDATE JUNE 27, 2022

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EPI-7386 Demonstrates a Clean Safety Profile and Anti-tumor Activity in Heavily Pretreated Patients

The drug exhibits favorable ADME properties with target drug plasma exposures achieved; BID dosing allows higher trough drug levels

EPI-7386 is safe and well-tolerated at all doses, schedules and combinations tested

The Phase 1a mCRPC monotherapy study reveals the biological complexity and heterogeneity of late-stage mCRPC patients

Despite this biological complexity, EPI-7386 shows clear signals of AR-biology inhibition and clinical effects

The upcoming Phase 1b study is expected to further narrow enrollment criteria and deeply characterize patient biology with the goal of identifying the most appropriate patients

The first combination cohort of EPI-7386 plus enzalutamide (Xtandi[®]) was safe and well-tolerated with drug exposures in the biologically active ranges

EPI-7386

EPI-7386 is Uniquely Designed to Prevent AR Transcription by Binding to the NTD

- All current antiandrogens function through the ligandbinding domain (LBD) of the androgen receptor (AR)
 - Known antiandrogen resistance mechanisms develop at the LBD
- EPI-7386 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, EPI-7386 is active against multiple AR forms, including those resistant to current antiandrogens
- EPI-7386'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. Andersen RJ, et al. Cancer Cell, 2010.
 De Mol E, et al. ACS Chem Bid, 2016.

5. Yang YC, et al. Clin Cancer Res, 2016.

EPI-7386	Target Criteria	Description
\checkmark	Potency	In vitro potency in the range of second-generation antiandrogens
\checkmark	Activity	In vivo xenograft anti-tumor activity in both antiandrogen-sensitive & resistant models
\checkmark	ADME/PK	Low <i>in vitro</i> metabolism, good animal ADME & human $t_{1/2} \sim 24$ hrs
\checkmark	Safety	Specific NTD on-target activity, minimal off-target binding, clean toxicology profile
\checkmark	DDI	Appropriate properties to combine with other drugs (e.g. drug-drug interactions (DDI), etc.)
\checkmark	СМС	Simple synthesis of drug substance and favorable pharmaceutical properties for the drug product

The Evolution of Prostate Cancer AR Dependency Under Antiandrogen Therapy







EPI-7386 Monotherapy

The EPI-7386 Phase 1a/1b Monotherapy Study (First-in-Human) is Designed to Answer Four Major Questions



Recommended Expansion Phase Dose(s)

EPI-7386 Phase 1a/1b 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 followed by Phase 1b dose expansion



- No limitations on the # prior lines of therapy
- Visceral metastases permitted
- Prior chemotherapy permitted



- Exclusion of visceral metastases
- One line of prior chemotherapy permitted

Patients Enrolled in the Phase 1a Under the QD Dosing Regimen were Heavily Pretreated

Parameter	QD n = 31
Median age (range), yrs	72 (50-85) yrs
ECOG performance status, n (%) • 0 • 1	7 (22.6%)24 (77.4%)
Median no. lines of prior therapy (range)	7 (4-13)
Median no. lines of prior therapy for mCRPC (range)	4 (2-10)
 Type of prior therapy, n (%) Abiraterone ("ABI") Enzalutamide ("ENZ") Both (ABI + ENZ) Darolutamide/Apalutamide Chemotherapy 	 27 (87.1%) 25 (80.6%) 22 (71%) 4 (12.9%) 18 (58.1%)

- Median # prior therapies = 7
- Median # prior therapies <u>for</u> <u>mCRPC</u> = 4
- Patients treated with <u>both</u> ABI and Lutamides = 83%
- Patients treated with prior chemotherapy = 58.1%

Existing AR-directed therapies expected to be ineffective

Clinically, the Patients Enrolled Under the QD Dosing Regimen had Rapidly Progressive Disease and High Tumor Burden

Parameter	QD n = 31
Median baseline PSA, (range), ng/ml	94.5 (5.4-1900)
Median baseline PSA doubling time (range), months	2.1 (0.85 -9.5)
Median baseline ctDNA* % (range)	29% (4-73%)
Visceral Disease, n (%)	9 (29%)
NSE** > 10 ng/ml, n (%)	9 (29%)

Rapidly progressive disease documented by short median baseline PSA doubling time (~ 2 months)

High tumor burden documented by:

- High baseline levels of PSA and % of ctDNA
- Presence of visceral disease and markers of neuro-endocrine differentiation in ~1/3 of patients

Molecularly, Patients Enrolled Under the QD Dosing Regimen had a High % of non-AR Molecular Alterations at Baseline

Molecular Alteration	Subtype	Frequency (n=29)
AR-associated		86%
	 AR amplification 	48%
	 AR structural variants 	38%
	 AR mutations 	31%
Non-AR-associated		93%
	 PI3K pathway 	55%
	• DNA repair	55%
	• TP53	48%
	• Rb1	38%
	 WNT pathway 	24%

High % of non-AR molecular alterations is characteristic of advanced mCRPC patients unlikely to respond to AR-targeted therapies



Patients Enrolled Under the BID Dosing Regimen have Less Advanced Disease than Patients Enrolled under the QD Dosing Regimen Per Study Design

Parameter	BID	Parameter	n = 5
	11-5	Median Baseline PSA levels, (range), ng/ml	14 (4.4- 580)
Median age (range), yrs	70 (53-77)	Median baseline PSA doubling time (range), months	3.4 (1.0- 14.3)
ECOG performance status, n (%)	• 3 (60.0%)	NSE > 10 ng/ml, n (%)	0 (0)
• 1	• 2 (40.0%)	Molecular characterization	n = 4
Median no. lines of prior therapy for mCRPC	2 (2 2)	Median baseline ctDNA % (range)	7.5 (0-65)
(range)	2 (2-3)	 AR-associated alterations (n = 3) AR gain/amplification AR mutations AR structural alterations 	66% 33% 33%
 Type of prior therapy, n (%) ABI ENZ Both (ABI + ENZ) Chemotherapy 	 3 (60.0) 2 (40.0) 2 (40.0) 2 (40.0) 	 Non-AR-associated alterations (n = 3) PI3K pathway DNA repair WNT pathway TP53 Rb1 	33% 33% 33% 66% 33%

TRAE* Term	Grade 1 n (%)	Grade 2 n (%)	Grade 3 ^{**} n (%)	Total n (%)
Anemia	9 (25)	2 (5.6)	1 (2.8)	12 (33.3)
Diarrhea	5 (13.9)	5 (13.9)	0 (0)	10 (27.8)
Dyspepsia	0 (0)	1 (2.8)	0 (0)	1 (2.8)
Nausea	6 (16.7)	1 (2.8)	0 (0)	7 (19.4)
Fatigue	1 (2.8)	5 (13.9)	0 (0)	6 (16.7)
Hot Flush	0 (0)	5 (13.9)	0 (0)	5 (13.9)

- All TRAEs (exception of one occurrence of Grade 3 anemia the attribution of which was ultimately changed by PI to "unlikely related") were Grade 1 and 2
- No apparent dosedependency was observed
- All the Grade 2 TRAEs of diarrhea occurred at doses ≥ 600 mg QD
- Low dose-reduction rate (8.1%) due to related AEs (3 cases of Grade 2 diarrhea)

*Treatment Related Adverse Event ("TRAE")

**Initially, principal investigator considered Grade 3 aremia in a patient who received 400 mg BID EP-7386 as "possibly related" (due to antiandrogen safety profile) although confounded by concurrent rapid bone disease progression (ALP>1,000); later changed to "unlikely related"

SAEs were Uncommon and Attributed to Disease Progression or Underlying Co-morbidities

SAE* Term	Subject n (%)
Acute kidney injury	1 (2.8)
Anemia**	1 (2.8)
Back pain	1 (2.8)
Disease progression	1 (2.8)
Diverticulitis	1 (2.8)
General physical health deterioration	1 (2.8)
Malignant pleural effusion	2 (2.8)
Pathological fracture	0 (0)
Pulmonary embolism	2 (5.6)
Pulmonary oedema	1 (2.8)
Pyrexia	1 (2.8)
Spinal cord compression	1 (2.8)

Data as of June 1, 2022

*Serious Adverse Event ("SAE")

EPI-7386 Exposures Reached the Predicted Efficacious Thresholds Observed in Preclinical Enzalutamide-Resistant Models

- EPI-7386 has a long half life (>24hrs) which supports QD administration
- The steady state AUC EPI-7386 exposure increases with higher doses
- All doses reached exposures above the minimum target drug threshold
- Doses > 400mg per day of EPI-7386 exhibit AUC concentrations generally above the highest target drug threshold
- The 600 mg QD cohort exhibited the highest AUC
- BID dosing allows for higher C_{min} drug levels

EPI-7386 C1D28 AUC Across Doses



Longer Duration of Treatment is Associated with Less Prior Therapy for mCRPC

QD Dosing Regimen Patients

- ~ 30% of patients across all dose levels remained on therapy longer than 3 months
- The patients who progressed before or at 12 weeks had in general: >10 ng/mL NSE, prior chemotherapy, visceral metastases and received >3 lines of therapy for mCRPC
- One patients was treated for 18 months; one patient is currently on study at 1000 mg QD in cycle 13
- No obvious dose response observed

BID Dosing Regimen Patients

• Short follow up but 3 of 5 patients ongoing with 2 patients on therapy longer than 3 months



Several Parameters were Used to Assess the Antiandrogen Effects of EPI-7386 in this Advanced mCRPC Patient Population

Metabolic effects as measured by:	Anti-tumor effects as measured by:
Changes in serum cholesterol levels	 Changes in circulating PSA levels Changes in ctDNA levels (Wyatt - CRPC2020 panel – 73 genes)¹⁻³
	 Radiographic changes in disease burden measured by both traditional RECIST criteria as well as by total lesions volumetric quantification using the AIQ Solutions platform
	Note: CTC counts and AR-V7 expression in CTCs were also measured but the assays used did not provide reproducible interpretable results for technical reasons

- Antiandrogen treatment has long been known to cause increases in lipids in patients who begin androgen deprivation therapy (ADT)^{1,2}
- Therefore, lipid increases during EPI-7386 administration can act as a surrogate marker of antiandrogen activity and target engagement
- A significant correlation between the plasma concentration of EPI-7386 at steady state and the LDL levels measured throughout the dosing cycles was observed

LDL / C_{last} (all cycle all patients)



PSA Reductions were Observed in a Clinically Defined Subset of Patients

PSA decreases or PSA stabilization was observed in patients with:

- No visceral disease
- Fewer DNA genomic aberrations in non-AR oncogenic pathways
- < 3 lines of therapy

The patients treated with the BID schedule are still ongoing and results are preliminary



Phase 1a QD Dosing Regimen: % ctDNA Correlated with Tumor Burden at Baseline



- Circulating tumor DNA (ctDNA) is tumor-derived fragmented DNA that is shed into a patient's bloodstream
- Generally, ctDNA fraction of cell free DNA indirectly reflects the overall tumor volume/growth in a patient but also varies by tumor type and disease stage
- For patients with measurable disease, baseline tumor burden correlated with % ctDNA
- PSA was not correlated with % ctDNA
- PSA is an imperfect biomarker of tumor responsiveness in mCRPC
- Radiographic imaging is the primary objective measure in mCRPC and not PSA levels (PCWG3)¹

Phase 1a QD Dosing Regimen: % ctDNA Decreases were Observed even in Patients whose PSA Levels were Increasing

- Measurable ctDNA levels were detected in 17 patients enrolled in the QD dosing regimen
- ctDNA declines were observed in patients harboring AR point mutations, AR gain/amplification and AR truncations
- No clear dose response observed for the %ctDNA decrease at week 12



Tumor Volume Decreased in EPI-7386 Treated Patients Who had Measurable Disease and were on Therapy for More than 12 weeks

- Ten patients remained in the study for > 12 weeks
- Five of these patients had measurable disease at baseline:
 - Changes in measurable disease were observed in all of these patients even in the absence of PSA decreases
- Four of these patients had bone disease only



Case 1 from QD Dosing Regimen: Progressive, Deep and Durable PSA Decrease and Mixed Radiographic Tumor Response

Baseline Parameter	
Age (years)	79
PC Dx date	08/2014
mCRPC Dx	06/2017
Prior Rx for mCRPC	Enzalutamide Provenge Abiraterone
Metastatic sites	Bone, nodal
dtPSA* (m)	4
СТС	0
ctDNA %	0
Tumor Burden (mm)	59
NSE (ng/ml)	< 5 ng/mL
AR-related alterations	None
Non-AR alterations	None



Radiographic 20% decrease in target lesions at week 36

- 200 mg/dose QD AUC_{C1D28} = 95,500 hr*ng/mL
- Patient received 18 cycles of single-agent EPI-7386 with progressively escalating dose levels from 200 mg to 1000 mg QD

Mixed response by AIQ platform





Case 2 from 400 BID Dose Cohort: Slow Decline in PSA Levels but Progressive Tumor Shrinkage

Baseline Parameter		09	9-014	
Age (years)	71			(]u 4
PC Dx date	07/2019	ີຍັ 10,000 ວິບ	- C1D1	A (ng/i
mCRPC Dx	07/2019	AUC~500k	→ C1D8 at → C1D15	S 2
rior Rx for mCRPC	Docetaxel (1 cycle), Abiraterone	100 - Steadystatt 100	e - C1D28 12 16 20 24 e (hours)	0- (
Aetastatic sites	Bone, nodal	Evaluation	Baseline CT	3-
°SA* (m)	3.3	Target Sum	4.0 cm	3.8
	0	Target Response		
A %	7	Non-target Response		Non-(
umor Burden (mm)	40	New Lesions		
SE (ng/ml)	8.4 ng/ml	Timepoint Response		

Next Steps in the EPI-7386 Phase 1 Monotherapy Study

- Finalize the recommended Phase 2 dose
- Understand late stage mCRPC patient biology and identify patients with AR-driven tumors
- Gain further insight of the biological activity of EPI-7386 in less heavily pretreated patients







EPI-7386 Combination Studies

The Evolution of Prostate Cancer AR Dependency under Antiandrogen Therapy



EPI-7386 Combination Development Program with Second-Generation Antiandrogens

Astellas	ESSA collaboration with Astellas to evaluate EPI-7386 in combination with Xtandi (enzalutamide) in a Phase 1/2 clinical study in mCRPC patients naïve to second generation antiandrogens (study began 1Q2022)
Janssen	Janssen collaboration with ESSA to evaluate EPI-7386 in combination with Erleada ® (apalutamide) and Zytiga (abiraterone acetate) in a two arm Phase 1/2 clinical study in mCPRC patients naïve to second generation antiandrogens
BAYER	Bayer collaboration with ESSA to evaluate EPI-7386 in combination with Nubeqa $^{\$}$ (darolutamide) in a Phase 1/2 clinical study in mCRPC patients
Investigator- Sponsored Neoadjuvant Study	A 12-week two-arm randomized study of Nubeqa vs. EPI-7386 + Nubeqa in PC patients undergoing prostatectomy for high risk localized prostate cancer

Phase 1/2 EPI-7386 plus Enzalutamide 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 will focus on the PK and safety of EPI-7386 and enzalutamide when administered in combination along with establishing the RPD2 for both drugs to address any possible drug-drug interactions
- Phase 2 study will assess the anti-tumor activity of the combination versus single agent enzalutamide at the standard of care dose

EPI-7386 and Enzalutamide Combination Study Update: Phase 1a Cohort One Status

Safety	EPI-7386 and enzalutamide were well-tolerated with no DLTs, no Grade 3 drug-related AEs, and a safety profile consistent with second generation antiandrogens (e.g. grade 1 or 2 AEs of fatigue and hot-flashes)		
Pharmacokinetics (PK)	 Enzalutamide exposure minimally impacted by EPI-7386 administration EPI-7386 exposure impacted by enzalutamide with significantly lower exposure of EPI-7386 observed, as anticipated; 3-4 dose cohorts will be needed to determine the optimal dose of each drug when given in combination 		
Clinical Activity	 Two out of three patients achieved a PSA90 within three months One of these patients achieved PSA < 0.2 ng/mL within three months (no prior chemo) The third patient was discontinued from the study after the DLT period due to a concomitant medication (strong CYP3A inducer) interaction with enzalutamide and EPI-7386 which resulted in a significant decrease in exposure of these two drugs 		

Longitudinal PSA Changes Under Treatment for Cohort One Patients Receiving 600mg EPI-7386 and 120 mg Enzalutamide

• Radiographic assessments at 8 and 16 weeks showed stable disease (bone only)



*The clinically relevant active metabolite of ENZ is N-desmethyl erzalutamide, also known as the M2 metabolite.

** The patient discontinued from the study after the DLT period due to a concomitant medication (strong CYP3A inducer) interaction with enzalutamide and EPI-7386 which resulted in a significant decrease in exposure of these two drugs.

EPI-7386 is safe and well-tolerated at all doses and schedules studied

The drug has favorable pharmaceutical and ADME properties

The Phase 1a single agent dose escalation experience demonstrates:

- Evidence for target engagement
- Modest anti-tumor activity in unselected heavily pretreated mCRPC patients whose tumors are molecularly largely non-AR driven
- Clinically important signals of anti-tumor activity in a clinically selected patient subgroup
 - PSA is an imperfect marker of tumor responsiveness to treatment in this late-stage population of patients
- Need to identify patients with predominantly AR-driven tumors for effective treatment with EPI-7386 monotherapy

The initial combination experience with enzalutamide suggests no safety issues

EPI-7386 Monotherapy

- Proceed into dose expansion with two doses: potentially 600 QD and BID consistent with FDA Project Optimus recommendations
- Identify biologically relevant patient population in molecularly characterized patients :
 - Wyatt CRPC2020 panel, Guardant360 V3.0 (ctDNA)
 - Caris "Assure" liquid bx (whole exomic and transcriptomic sequencing, AI)
- Explore new patient populations who are earlier in their disease

EPI-7386 Combinations with Antiandrogens

- Execute trials with Astellas/Pfizer, Janssen, Bayer
- Explore new patient populations who are earlier in their disease