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” and similar expressions. Forward-looking statements in this presentation include, but are not limited to: the mortality rate of prostate cancer; ESSA’s upcoming milestones; potential treatments for EPI-7386; EPI-7386’s Phase 1 study and its success; clinical trials; and potential market opportunities for EPI-7386. Forward-looking statements and information are subject to various known and unknown risks and uncertainties, many of which are beyond the ability of ESSA to control or predict, and which may cause ESSA’s actual results, performance or achievements to be materially different from those expressed or implied thereby. Such statements reflect ESSA’s current views with respect to future events, are subject to risks and uncertainties and are necessarily based upon a number of estimates and assumptions that, while considered reasonable by ESSA as of the date of such statements, are inherently subject to significant medical, scientific, business, economic, competitive, political and social uncertainties and contingencies, many of which, with respect to future events, are subject to change. In making forward-looking statements, ESSA may make various material assumptions, including but not limited to the market and demand for the securities of ESSA, general business, market and economic conditions, obtaining positive results of clinical trials, and obtaining regulatory approvals.

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 15, 2020 under the heading “Risk Factors”, a copy of which is available on ESSA’s profile on the SEDAR website at www.sedar.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 Corporate Overview

Focused on the development of novel therapies for the treatment of prostate and other hormone-driven cancers

**Company**
- Founded with technology licensed from The University of British Columbia and the BC Cancer Agency
- Sites in Houston, South San Francisco and Vancouver

**Technology & Products**
- First-in-class N-terminal domain (NTD) inhibitors of the androgen receptor ("Anitens")
- EPI-7386 phase 1 study began 2Q2020
- Clinical development initially focused on resistant mCRPC as a single agent with future development in combination with anti-androgens in CRPC and CSPC
- Potential in triple-negative androgen receptor-positive breast cancer

**Financial Details**
- Listed on NASDAQ (EPIX)
- Completed raise of $130M in 2021
- Cash and short term deposits: $74.5M (at December 31, 2020)
Experienced Management Team

David R. Parkinson, MD  
President & Chief Executive Officer

Peter Virsik, MS, MBA  
EVP & Chief Operating Officer

David S. Wood, MBA, CPA, CMA  
Chief Financial Officer

Alessandra Cesano, MD  
Chief Medical Officer
Prostate Cancer Disease Landscape

**PUBLIC HEALTH PROBLEM**
- Prostate cancer is the 2nd most common cause of male cancer deaths
- American Cancer Society estimates 248,000 new cases and 34,000 deaths in 2021

**LARGE MARKET**
- Over $7.5B in global sales generated in 2019 by leading anti-androgens, Zytiga® (abiraterone acetate), Xtandi® (enzalutamide) and Erleada (apalutamide)

**VALIDATED THERAPEUTIC TARGET**
- Prostate cancer disease progression is associated with androgen receptor (AR) signaling. 3,4,5
- An estimated ~60% of mCRPC tumors post-Xtandi or Zytiga failure may still be AR-driven 6

**NEED FOR NEW THERAPEUTIC STRATEGIES**
- Despite new therapies, mCRPC anti-androgen resistance is inevitable 7,8

---

2. 2019 financial reports from www.sec.gov
Current Anti-Androgen Therapies Only Target the Androgen Receptor Ligand-Binding Domain

- **Zytiga®** (abiraterone acetate)
- **Eligard™, Lupron®** (leuprolide)
- **Zoladex®** (goserelin)
- **Firmagon®** (degarelix)

- **Nubeqa®** (darolutamide)
- **Erleada®** (apalutamide)
- **Xtandi®** (enzalutamide)
- **Nilandron®** (nilutamide)
- **Casodex®** (bicalutamide)
- **Eulexin®** (flutamide)

- Inhibit androgen synthesis
- Block androgen binding

**Anti-androgen Resistance Mechanisms**

- AR Amplification
- Gain-of-function mutations
- Splice variants
- Promiscuous activation (i.e., glucocorticoids, progesterone)

**N-terminal domain**

**DNA-binding domain**

**Ligand-binding domain**

- **All current anti-androgens function through the ligand-binding domain of the androgen receptor**
- **Known anti-androgen resistance mechanisms develop at the ligand-binding domain**

---

Targeting the AR NTD: Novel Transcription Factor Inhibition of Androgen-Driven Prostate Cancer Biology

- Novel method of inhibiting the AR
- Binding formally demonstrated for EPI-001, the racemic form of EPI-002
  - Proposed binding of Antitens to the Tau-5 region of AF1
- Antitens showed activity against multiple forms of AR:
  - Wild-type AR, LBD mutant AR, and splice-variant AR

Granted unique USAN drug stem of “Antiten” as an N-terminal inhibitor of AR

Prostate Cancer Clinical Treatment Model

Prostate Cancer

Local

Systemic

Clinically Localized Disease

Rising PSA Noncastrate

mCSPC

nmCRPC

mCRPC 1st Line

mCRPC 2nd Line

mCRPC 3rd Line

AR-V7 Nuclear Positive

0% → 75%+

Currently Approved Treatments

Surgery

Radiation

ADT+/-
lutamides

Abiraterone

Enzalutamide

Apalutamide

Darolutamide

Abiraterone / -lutamides

Docetaxel/Cabazitaxel/Radium / Olaparib

Rucaparib / Experimental Agents

Potential EPI-7386 Treatments

EPI-7386 Combo

EPI-7386 Combo

EPI-7386 Combo

EPI-7386 Combo

EPI-7386 Monotherapy

The Development of N-Terminal Domain Inhibitors of the Androgen Receptor

Early 2000’s: Basic scientific work on AR NTD conducted; identified first Aniten POC molecules

2009: ESSA Pharma formed

2015-2017: Phase 1 clinical study conducted with the first-generation Aniten, EPI-506. Demonstrated signs of antitumor activity but also highlighted the need for improved potency and ADME properties.

2019: EPI-7386, selected as the next IND candidate

2017-2019: Preclinical development of a second-generation Aniten conducted

2020: EPI-7386 phase 1 mCRPC study begins
# EPI-7386 Next Generation NTD Inhibitor of the AR: Comparison to First Generation EPI-506

<table>
<thead>
<tr>
<th>EPI-7386</th>
<th>EPI-506 (EPI-002)</th>
<th>Target Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td>Potency</td>
<td><em>In vitro</em> potency similar to second generation 'lutamide anti-androgens*</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>Activity</td>
<td><em>In vivo</em> xenograft activity in both anti-androgen-sensitive &amp; resistant models</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>ADME</td>
<td>Preclinical studies showed low <em>in vitro</em> metabolism, good animal ADME &amp; long predicted human T1/2</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>Selectivity</td>
<td>Specific NTD on-target activity with minimal off-target binding</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>DDI</td>
<td>Appropriate properties to combine with other drugs (e.g. drug-drug interactions (DDI), etc.)</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>CMC</td>
<td>Simple synthesis of drug substance and favorable pharmaceutical properties for the drug product</td>
</tr>
</tbody>
</table>
The 200 mg EPI-7386 human starting dose is projected to deliver a similar drug exposure as biologically relevant exposures in the VCaP xenograft model.

Patient target EPI-7386 exposures are >300,000 AUC$_{0-24}$.
# EPI-7386: First Human Clinical Studies

<table>
<thead>
<tr>
<th></th>
<th>Patient population:</th>
<th>Study design:</th>
<th>Study endpoints:</th>
<th>Correlative studies:</th>
<th>Timeline:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monotherapy Study</strong></td>
<td>- mCRPC patients progressing on standard of care (including the latest anti-androgens)</td>
<td>-3+3 design</td>
<td>-Recommended Phase 2 dose (RP2D)</td>
<td>- CTC conversion</td>
<td>- IND filed in 1Q 2020</td>
</tr>
<tr>
<td></td>
<td>- n= ~18 pts</td>
<td>-n= ~10 dose expansion pts</td>
<td>-Safety &amp; PK</td>
<td>- CTC-ARV7</td>
<td>- FPI July 14, 2020</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-PSA response</td>
<td>- ctDNA</td>
<td></td>
</tr>
<tr>
<td><strong>Combination Study</strong></td>
<td>- mCRPC patients</td>
<td>-PK design</td>
<td>-Recommended Phase 2 dose (RP2D)</td>
<td>- CTC conversion</td>
<td>- FPI targeted for early 2021</td>
</tr>
<tr>
<td></td>
<td>- n= ~10pts</td>
<td></td>
<td>-Safety &amp; PK</td>
<td>- CTC-ARV7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-PSA response</td>
<td>- ctDNA</td>
<td></td>
</tr>
</tbody>
</table>
EPI-7386-CS-001: A phase 1, open-label study to evaluate the safety, PK and anti-tumor activity of oral EPI-7386 in patients with mCRPC

All current anti-androgens function through the ligand-binding domain of the androgen receptor (AR)
• Anti-androgen resistance mechanisms generally develop at the ligand binding domain (LBD)

Anitens are small molecules designed to target the AR N-terminal domain
• Anitens have shown preclinical activity against multiple forms of AR: Wild-type AR, LBD-mutant AR, and splice-variant AR

EPI-7386 is an investigational novel aniten which exhibited high potency, low metabolism and on-target specificity in preclinical studies, and may offer ease of manufacturing and shelf-life stability
• EPI-7386 is currently being evaluated in a Phase 1 First in Human clinical trial

Phase 1, multi-center, open-label, ascending multiple-dose study
First in-human, 2-part study
Part 1a (dose escalation) and Part 1b (dose expansion)

Patients with metastatic castration-resistant prostate cancer (CRPC) resistant to standard of care treatment:
• Progression on at least 2 approved systemic therapies for mCRPC, including at least one second generation anti-androgen drug

Part 1a

Primary objective
• To evaluate the safety and tolerability of EPI-7386

Secondary objectives
• To determine the maximum tolerated dose of EPI-7386
• To define the recommended phase 2 dose of EPI-7386
• To evaluate the PK of EPI-7386 following single- and multiple-dose oral administration
• To assess EPI-7386’s potential for drug-drug interactions
  o By measuring 4β hydroxycholesterol and total cholesterol levels (by LCMS) as an endogenous marker for cytochrome P450 3A induction

Part 1a – Dose escalation
Planned dose levels
n = up to 30 patients

200 mg 400 mg 600 mg 800 mg 1000 mg

Now enrolling
> 3 months follow up
Preclinical data suggest that EPI-7386 may achieve high human exposures and a long half-life

### In Vitro Hepatocyte Stability

<table>
<thead>
<tr>
<th>Compound</th>
<th>Human T1/2 (min)</th>
<th>Mouse T1/2 (min)</th>
<th>Rat T1/2 (min)</th>
<th>Dog T1/2 (min)</th>
<th>Monkey T1/2 (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI-7386</td>
<td>&gt;480</td>
<td>&gt;480</td>
<td>&gt;360</td>
<td>&gt;360</td>
<td>&gt;360</td>
</tr>
</tbody>
</table>

### Animal PK parameter after a single IV dose

<table>
<thead>
<tr>
<th>Species</th>
<th>Sex</th>
<th>Dose (mg/kg)</th>
<th>CL (ml/min/kg)</th>
<th>Vss (L/kg)</th>
<th>t½ (h)</th>
<th>AUC0–24h (ng*h/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD-1 mouse</td>
<td>M</td>
<td>0.5</td>
<td>0.58</td>
<td>0.29</td>
<td>5.86</td>
<td>13,518</td>
</tr>
<tr>
<td>SD rat</td>
<td>M</td>
<td>0.5</td>
<td>1.1</td>
<td>0.446</td>
<td>4.85</td>
<td>7,421</td>
</tr>
<tr>
<td>Beagle dog</td>
<td>M</td>
<td>0.5</td>
<td>0.668</td>
<td>0.74</td>
<td>13.4</td>
<td>13,028</td>
</tr>
</tbody>
</table>

### Estimated human PK parameters

<table>
<thead>
<tr>
<th>Method</th>
<th>IVIVC (hepatocytes)</th>
<th>Allometric scaling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human clearance (mL/min/kg)</td>
<td>0.28</td>
<td>0.30</td>
</tr>
<tr>
<td>Volume of distribution (L/kg)</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Half-life (hrs)</td>
<td>36.50</td>
<td>33.60</td>
</tr>
<tr>
<td>Bioavailability (%)</td>
<td>NA</td>
<td>79.4</td>
</tr>
</tbody>
</table>

### Projection of human PK parameters at steady state based on preclinical data

<table>
<thead>
<tr>
<th>Dose (mg)</th>
<th>Cmax (ng/mL)</th>
<th>AUC0–24 (ng*hr/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>6,915</td>
<td>137,278</td>
</tr>
<tr>
<td>400</td>
<td>13,830</td>
<td>274,556</td>
</tr>
<tr>
<td>600</td>
<td>20,748</td>
<td>411,834</td>
</tr>
<tr>
<td>800</td>
<td>27,659</td>
<td>549,113</td>
</tr>
<tr>
<td>1000</td>
<td>34,580</td>
<td>686,390</td>
</tr>
</tbody>
</table>

- **Projection of human PK parameters predicts low clearance and a long half-life**
- **Doses ≥ 600 mg are predicted to achieve an AUC that exceed the AUC that led to anti-tumor activity in mouse xenograft studies**
Human PK results observed in the 200 mg cohort correlated with preclinical projections

### PK results observed in 200 mg cohort

<table>
<thead>
<tr>
<th>Dose (mg/day)</th>
<th>Day</th>
<th>N</th>
<th>t1/2 (hr)*</th>
<th>T_max (hr)</th>
<th>C_max (ng/mL)</th>
<th>C_last (ng/mL)</th>
<th>AUC0-24 (ng*h/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>1</td>
<td>4</td>
<td>22.0</td>
<td>6.5</td>
<td>3,295</td>
<td>1,808</td>
<td>53,850</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>3</td>
<td>24.8</td>
<td>6.7</td>
<td>8,020</td>
<td>4,593</td>
<td>146,833</td>
</tr>
</tbody>
</table>

* In some of the patients, EPI-7386 was too stable and t1/2 couldn't be calculated. As a consequence, average t1/2 values presented in the table are under-estimated.

- Drug accumulation observed with repeat QD dosing; steady state reached after day 8
  - EPI-7386 half life (~24 hrs) observed in humans, supporting potential QD dosing
- Average Day 28 AUC ~ 147K was similar to preclinical projections for the AUC (137K) in patients at the 200mg dose
- Doses ≥ 600 mg of EPI-7386 are projected to achieve the AUC goal of >300K, corresponding to drug exposures in mouse xenograft studies that showed antitumor activity

- No signs of CYP3A induction observed at the 200 mg level, as measured by 4β-OH cholesterol / total cholesterol ratios

* Interim data as of January 21st, 2021
EPI-7386-CS-001: Patient treatment history, duration of therapy and safety results from the 200mg cohort*

- Four patients enrolled into cohort
- Three patients evaluable for DLT assessment
  - One patient discontinued before D28 due to disease progression
- Prior lines of treatment for mCRPC: 2 to 7
  - 2 patients received both abiraterone and enzalutamide
  - 3 patients received prior chemotherapy (taxanes)
- 2 patients showed high levels of neuroendocrine markers
  - Neuron-specific enolase (NSE) used as a marker

### Safety Assessment

- No DLTs observed
- Possible related adverse events (AEs):

<table>
<thead>
<tr>
<th>Patient</th>
<th>Grade</th>
<th>AE</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-001</td>
<td>1</td>
<td>Anemia</td>
<td>Ongoing at time of death</td>
</tr>
<tr>
<td>01-002</td>
<td>2</td>
<td>Hot flashes</td>
<td>Ongoing</td>
</tr>
<tr>
<td>02-001</td>
<td>2</td>
<td>Neutropenia*</td>
<td>Resolved</td>
</tr>
<tr>
<td>02-001</td>
<td>1</td>
<td>Hyperkalemia</td>
<td>Resolved</td>
</tr>
<tr>
<td>09-001</td>
<td>1</td>
<td>Weight loss</td>
<td>Ongoing at time of PD</td>
</tr>
</tbody>
</table>

* Patient had baseline Grade1 neutropenia secondary to chemotherapy

* Interim data as of January 21st, 2021
EPI-7386-CS-001: Patient PSA level changes observed in the 200 mg cohort*

- At 200 mg, EPI-7386 levels were still below the target exposures that led to antitumor activity in animal models.
- PSA response first observed at the end of Cycle 3. Radiologic assessment at 12 weeks showed SD (bone and pelvic lymph nodes).
- Patient 01-002 was dose escalated to 400 mg when starting cycle 7.

* Interim data as of January 21st, 2021
EPI-7386: US Prostate Cancer Market Opportunity is Large*

US Prostate Cancer Prevalence Estimated in 2020 by Stage of Disease* (in thousands)

- 3L mCRPC: 33
- 2L mCRPC: 28
- 1L mCRPC: 48
- mCSPC: 42
- nmCRPC: 112
- High Risk CSPC: 237
- Total: 500

Anti-androgens Approved or in a Pivotal Phase 3 Study

- Xtandi (approved)
- Zytiga (approved)
- Erleada (approved)
- NUBEQA (in Phase 3 Study)

* Sher, H. et al. PLOS One, 2015.; 3L mCRPC patients are estimated as the yearly mortality incidence due to prostate cancer.
## Financial Position & Capitalization

<table>
<thead>
<tr>
<th>Nasdaq: EPIX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash</strong></td>
</tr>
<tr>
<td><strong>Share Price (Feb/26/2021)</strong></td>
</tr>
<tr>
<td><strong>Shares</strong></td>
</tr>
<tr>
<td><strong>Stock Options</strong></td>
</tr>
<tr>
<td><strong>Top Shareholders</strong></td>
</tr>
<tr>
<td><strong>Covering Analysts</strong></td>
</tr>
</tbody>
</table>

Current cash funds completion of Phase 1 dose-escalation & expansion studies, Phase 1 combination studies with anti-androgens, Phase 2 pivotal study, and preparatory work for a Phase 3 confirmatory study. ESSA also is planning additional pipeline work including preclinical studies w/ Anitens in breast & other AR driven tumors.
# ESSA Upcoming Milestones

<table>
<thead>
<tr>
<th>STATUS</th>
<th>SPECIFICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>Complete all preclinical studies needed for IND filing</td>
</tr>
<tr>
<td>✗</td>
<td>IND filing of EPI-7386 by 1Q20</td>
</tr>
<tr>
<td>✗</td>
<td>First patient dosed July 2020 in EPI-7386 Phase 1 study in mCRPC patients failing second generation anti-androgens</td>
</tr>
<tr>
<td>□</td>
<td>Establish the recommended phase 2 dose (RP2D)</td>
</tr>
<tr>
<td>□</td>
<td>Expand phase 1 cohort to enroll more patients at the RP2D</td>
</tr>
<tr>
<td>□</td>
<td>Begin combination study w/ one or more anti-androgens in first-line mCRPC patients</td>
</tr>
</tbody>
</table>
Summary

• EPI-7386 is a unique investigational inhibitor of the N-terminal domain of the AR, with single agent activity observed in preclinical studies against both wild-type and mutated AR

• In preclinical studies, EPI-7386 has shown more potency, a longer half-life, and improved pharmaceutical properties over first-generation compound, EPI-506

• Combining EPI-7386 with anti-androgens suppresses AR-driven biology more broadly and deeply than with either approach alone in preclinical studies

• Initial proof-of-concept established for EPI-7386 in phase 1 study of mCRPC patients failing standard-of-care therapies

• Subsequent development will be in earlier lines of treatment in combination with anti-androgens