ENDOCYTE

The future of precision medicine

# Cowen Annual Healthcare Conference

March 2018

# Forward Looking Statements

ENDOCYTE

Certain of the statements made in this presentation are forward looking, such as those, among others, relating to future spending, future cash balances, future use of capital, the timing of initiation and completion of clinical trials, the enrollment period for, and availability and reporting, of data from ongoing and future clinical trials, the successful completion of clinical trials, estimates of the potential market opportunity for the company's product candidates, and the company's future development plans including those relating to the completion of pre-clinical development in preparation for possible future clinical trials and those relating to future IND filings. Actual results or developments may differ materially from those projected or implied in these forward-looking statements. Factors that may cause such a difference include risks that the company or independent investigators may experience delays in the initiation and completion of clinical trials (whether caused by competition, adverse events, patient enrollment rates, shortage of clinical trial materials, regulatory issues or other factors); risks that data from prior clinical trials may not be indicative of subsequent clinical trial results; risks related to the safety and efficacy of the company's product candidates; risks that early stage pre-clinical data may not be indicative of subsequent data when expanded to additional pre-clinical models or to subsequent clinical data; risks that evolving competitive activity and intellectual property landscape may impair the company's ability to capture value for the technology; risks that expectations and estimates turn out to be incorrect, including estimates of the potential markets for the company's product candidates, estimates of the capacity of manufacturing and other facilities required to support its product candidates, projected cash needs, and expected future revenues, operations, expenditures and cash position. More information about the risks and uncertainties faced by Endocyte, Inc. is contained in the company's periodic reports filed with the Securities and Exchange Commission. Endocyte, Inc. disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

# Two high value, next generation oncology platforms

ENDOCYTE

## Radio-ligand Therapies (RLT)

- $^{177}$LU-PSMA-617 is Ph 3 radiopharmaceutical with robust Ph 2 data for the treatment of mCRPC
- Differentiated MOA compared to current therapies for mCRPC
- Builds on expertise in PSMA–targeted conjugates and theranostics
- Portfolio of assets provides ability to pursue both ∝- and β-emitting therapeutics to multiple indications

## Autologous Adaptor-Controlled CAR T Therapies

- Compelling pre-clinical data, entering Ph 1 Q4 2018
- Leverage expertise in CAR T Adaptor Molecule (CAM) technology to potentially address biggest challenges to current CAR T therapies
  - Novel control strategies for increased safety (e.g. control of cytokine release syndrome)
  - CAM control to avoid T-cell exhaustion
  - Multiple target recognition to address disease heterogeneity

Experienced leadership team building key capabilities to support execution

# Re-focused, innovative pipeline in proven therapeutic classes

ENDOCYTE

| PROGRAM | TRIAL DESIGN | INDICATION | PRECLINICAL | SAFETY / PROOF OF CONCEPT | PHASE 2/3 | PARTNERS |
|---|---|---|---|---|---|---|
| **Radioligand Therapy (RLT)** | | | | | | |
| $^{177}$Lu-PSMA-617 | $^{177}$Lu-PSMA-617 + BSC/SC vs BSC/SC[1] | mCRPC | | | VISION Trial: Initiate Phase 3 Q2 2018 | |
| $^{177}$Lu-PSMA-617 | $^{177}$Lu-PSMA-617 vs. Cabazitaxel | mCRPC | | | Phase 2 Currently Enrolling | ANZUP Cancer Trials Group Limited |
| $^{225}$Ac-PSMA-617 | Single arm | mCRPC | | | | |
| **CAR-T (Autologous Fluorescein CAR T-Cell, Adaptor Controlled)** | | | | | | |
| FITC CAR-T + FITC-Folate CAM | Single arm | Osteosarcoma | | 4Q 2018 | | Seattle Children's HOSPITAL · RESEARCH · FOUNDATION |
| FITC CAR-T + FITC-CAMs (various targets) | | TBD | | | | PURDUE UNIVERSITY |

[1] BSC (best supportive care) = palliative care, SC (standard of care) = potential use of a Novel Androgen Axis Drug (NAAD), such as abiraterone or enzalutamide, to be administered at physician's choice stratified for balance.

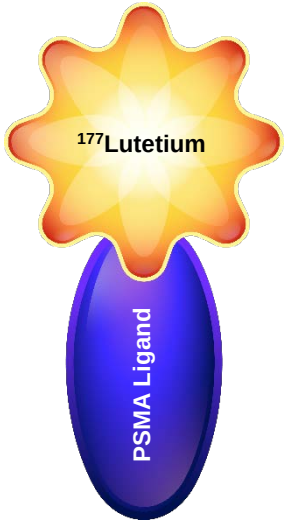
# $^{177}$Lu-PSMA-617

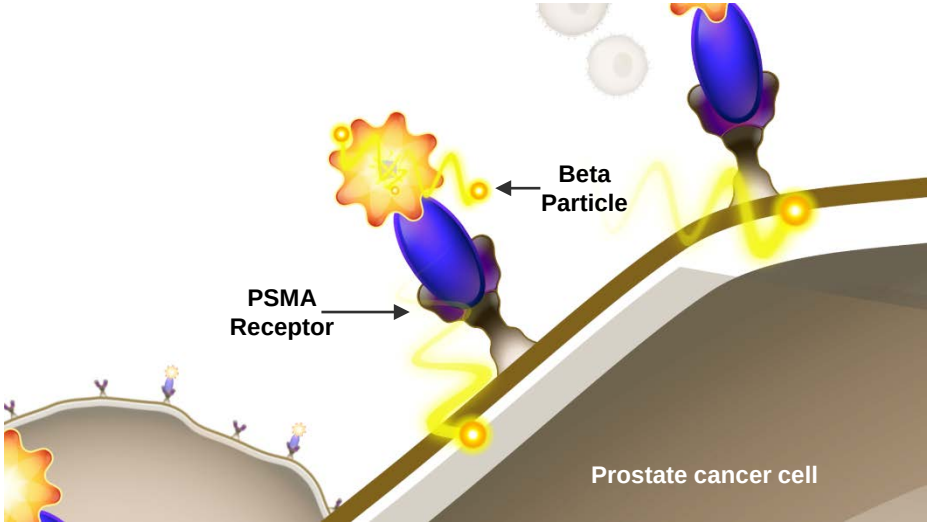
Radioligand therapy (RLT) targeting a radioactive warhead, $^{177}$Lutetium, to PSMA-expressing tumor cells in prostate cancer

# $^{177}$Lu-PSMA-617 uses a small molecule ligand to target a radioactive atom to PSMA expressing cancer cells

ENDOCYTE

$^{177}$Lu-PSMA-617 pairs a PSMA targeting ligand (PSMA-617) to a radioactive atom ($^{177}$Lutetium).




Drug conjugate binds to PSMA which is expressed in diseased cells at much higher levels than healthy tissue. Once bound, the $^{177}$lutetium atom releases an energetic beta particle that results in lethal radiation killing the cancer cell.

**Benefits of Lutetium for Therapeutic Use**

- 6.6 day half life
- <2 mm effective path length
- Commercially available supply

# $^{177}$Lu-PSMA-617: Retrospective data analysis

*German multi-center study in 145 mCRPC patients*

ENDOCYTE

- Study included all patients with PSMA positive disease without regard to potential presence of PSMA negative disease
- Serial PSA levels for analyzing responses were available in 99 of 145 patients
- After the first therapy cycle, a PSA decline of ≥ 50% occurred in 40 of 99 patients (40%)
- After the second therapy cycle, a PSA decline of ≥ 50% occurred in 35 of 61 patients (57%)

**German Multicenter Study Investigating $^{177}$Lu-PSMA-617 Radioligand Therapy in Advanced Prostate Cancer Patients**

Kambiz Rahbar, Hojjat Ahmadzadehfar, Clemens Kratochwil, Uwe Haberkorn, Michael Schäfers, Markus Essler, Richard P. Baum, Harshad R. Kulkarni, Matthias Schmidt, Alexander Drzezga, Peter Bartenstein, Andreas Pfestroff, Markus Luster, Ulf Lützen, Marlies Marx, Vikas Prasad, Winfried Brenner, Alexander Heinzel, Felix M. Mottaghy, Juri Ruf, Philipp Tobias Meyer, Martin Heuschkel, Maria Eveslage, Martin Bögemann, Wolfgang Peter Fendler and Bernd Joachim Krause

*J Nucl Med.* 2017;58:85-90.
Published online: October 20, 2016.
Doi: 10.2967/jnumed.116.183194

THE JOURNAL OF NUCLEAR MEDICINE • Vol. 58 • No. 1 • January 2017

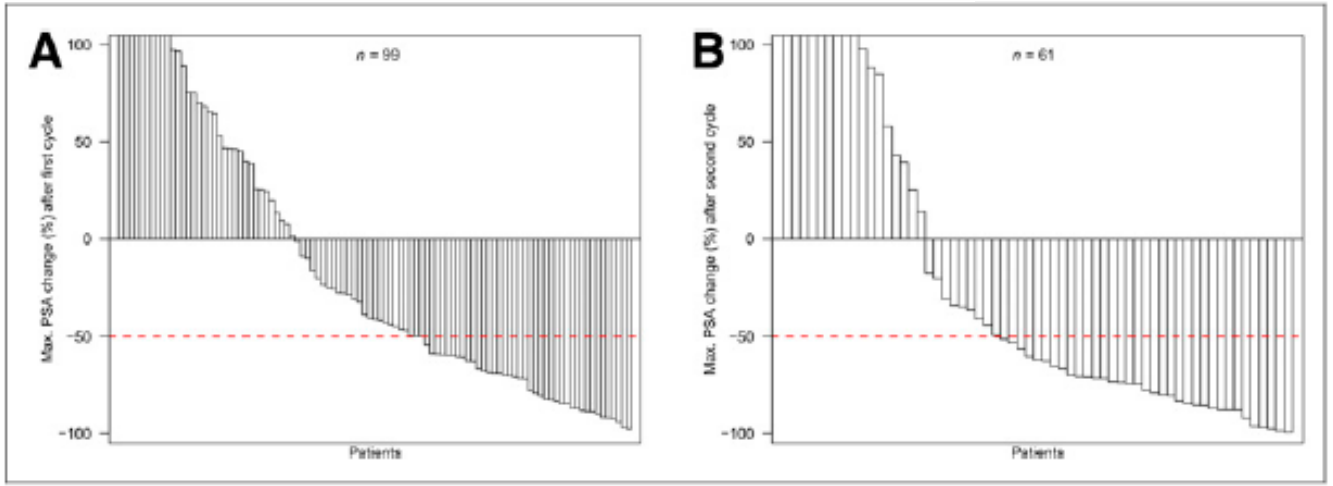


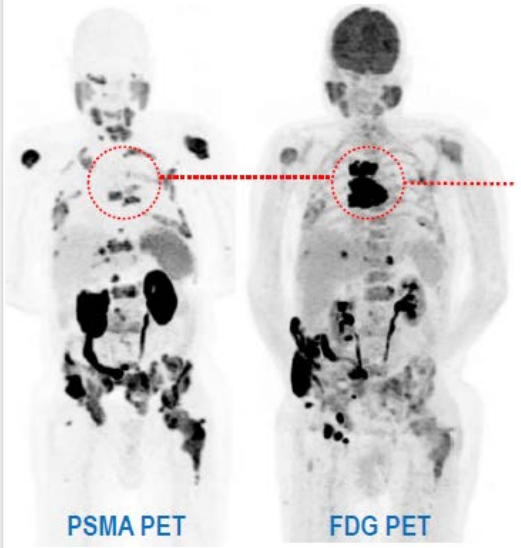

**FIGURE 3.** Waterfall plots of maximum PSA change (%) after first cycle (A) and after second cycle (B). PSA increase > 100% was cropped due to simplification.

# $^{177}$Lu-PSMA-617: Prospective clinical data

*Results presented at 2017 ESMO garner significant investigator attention*[1]

ENDOCYTE

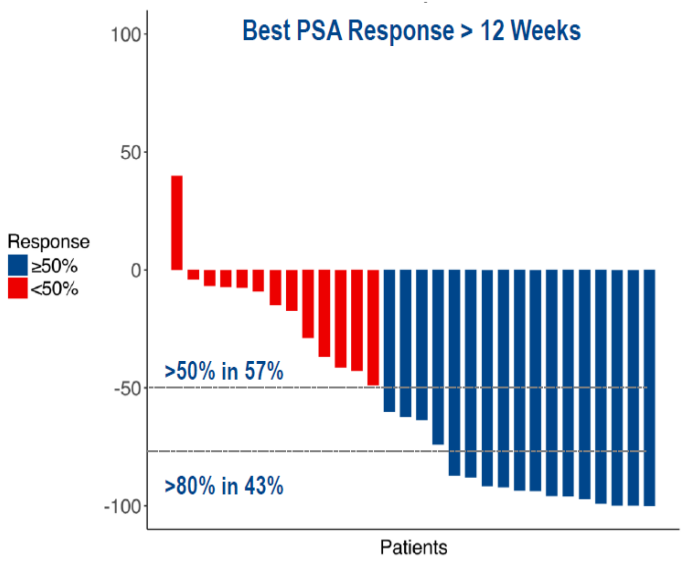
## Refined Patient Selection



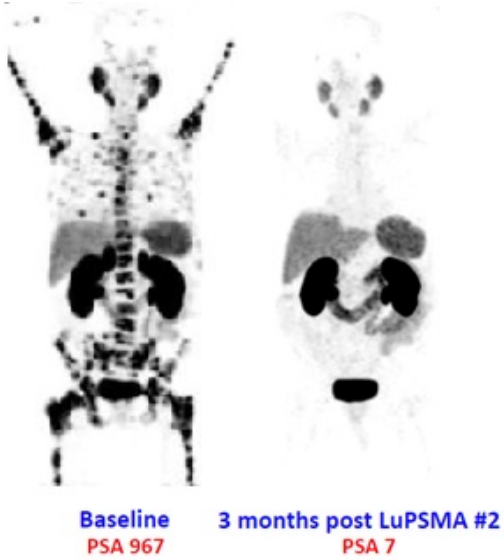

Patient excluded from trial. PSMA negative disease appears on FDG PET and not on PSMA PET.

## Driving Response

- 57% >50 PSA reduction
- 71% RECIST response




## Post Treatment Scan




PSMA positive disease not visibly detected from follow-up scan.

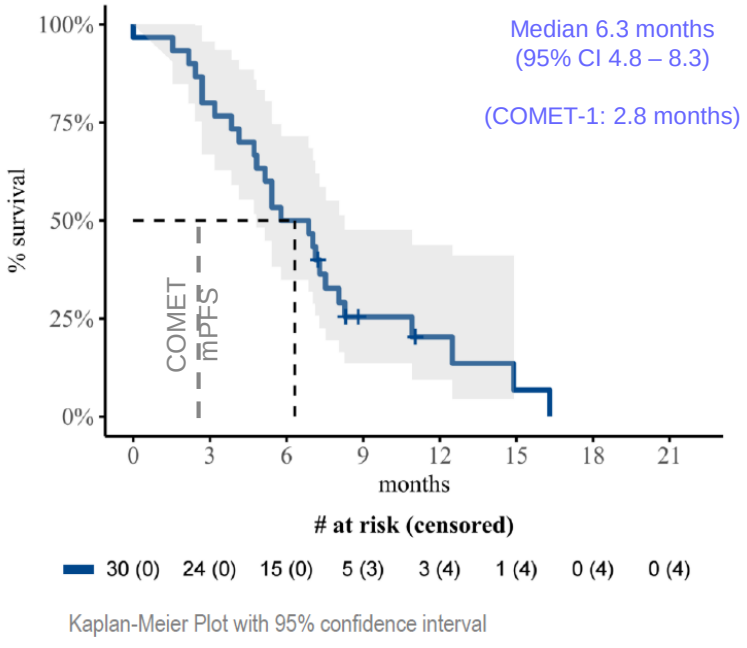
[1] Hofman, Michael (2017, Sept.). *Lutetium-177 PSMA (LuPSMA) theranostics phase II trial.* Presented at ESMO, Madrid, Spain.

# $^{177}$Lu-PSMA-617 showed improvement over historical control in patients post-ADT & taxane

ENDOCYTE

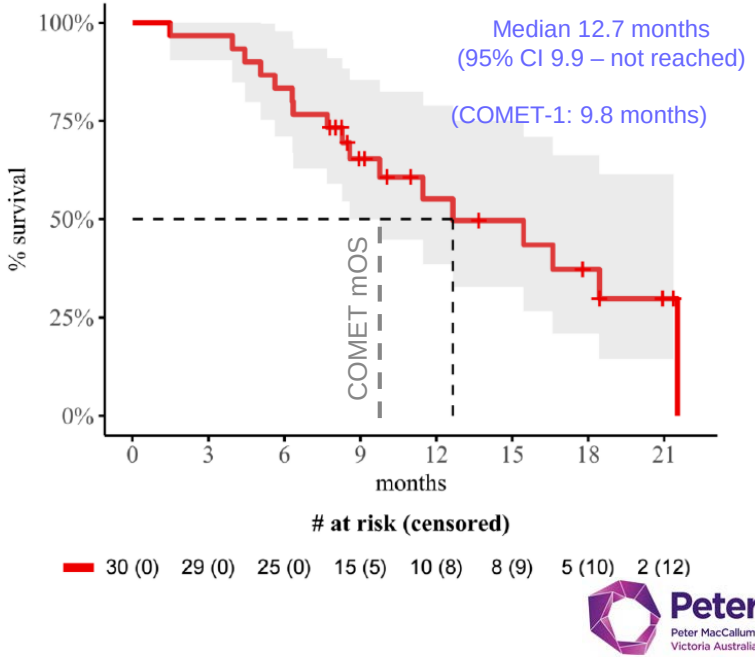
## Best comparator given LuPSMA patient population is COMET-1 trial[1] control arm

### PSA PROGRESSION FREE SURVIVAL




Kaplan-Meier Plot with 95% confidence interval

### OVERALL SURVIVAL

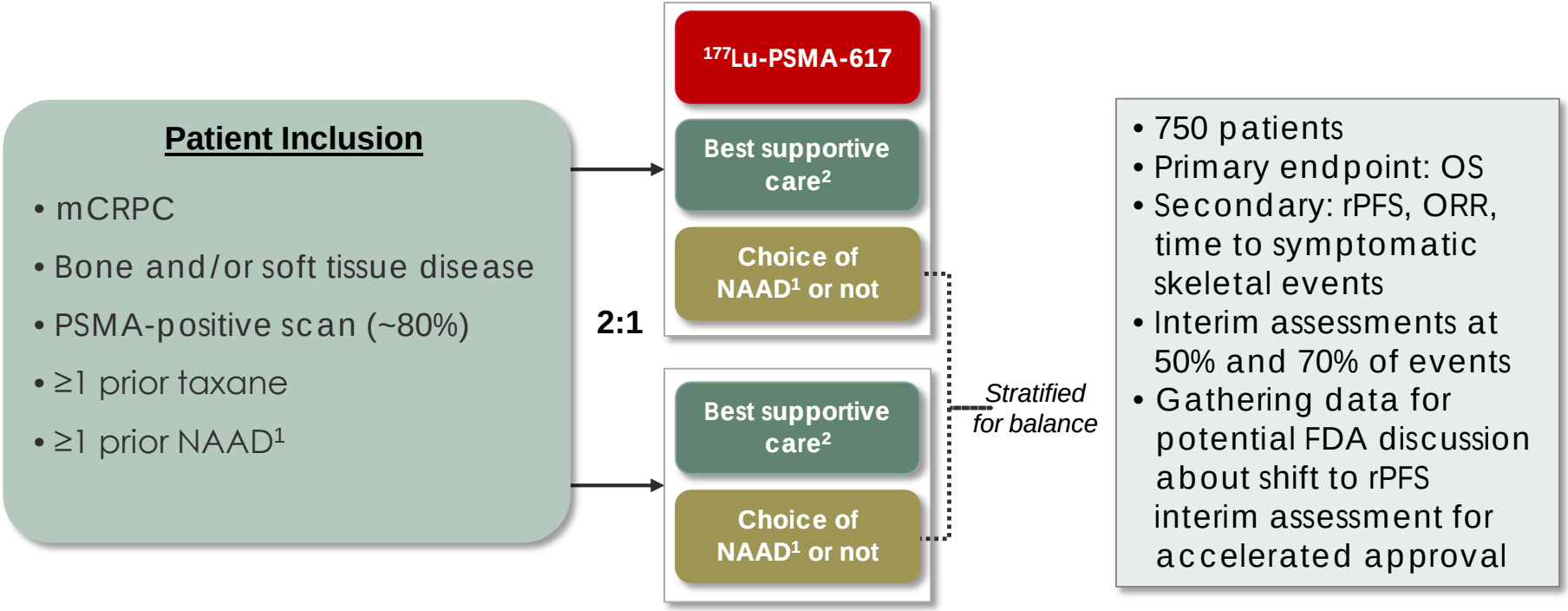



Peter Mac
Peter MacCallum Cancer Centre
Victoria Australia

# Pivotal phase 3 VISION trial design

ENDOCYTE

An international, prospective, open-label, multi-center, randomized Phase 3 Study of $^{177}$Lu-PSMA-617 in treatment of patients with progressi**V**e PSMA-posit**I**ve meta**S**tat**I**c castrati**ON** resistant prostate cancer




1) NAAD = novel androgen axis drug = abiraterone or enzalutamide; 2) Best supportive care = palliative.

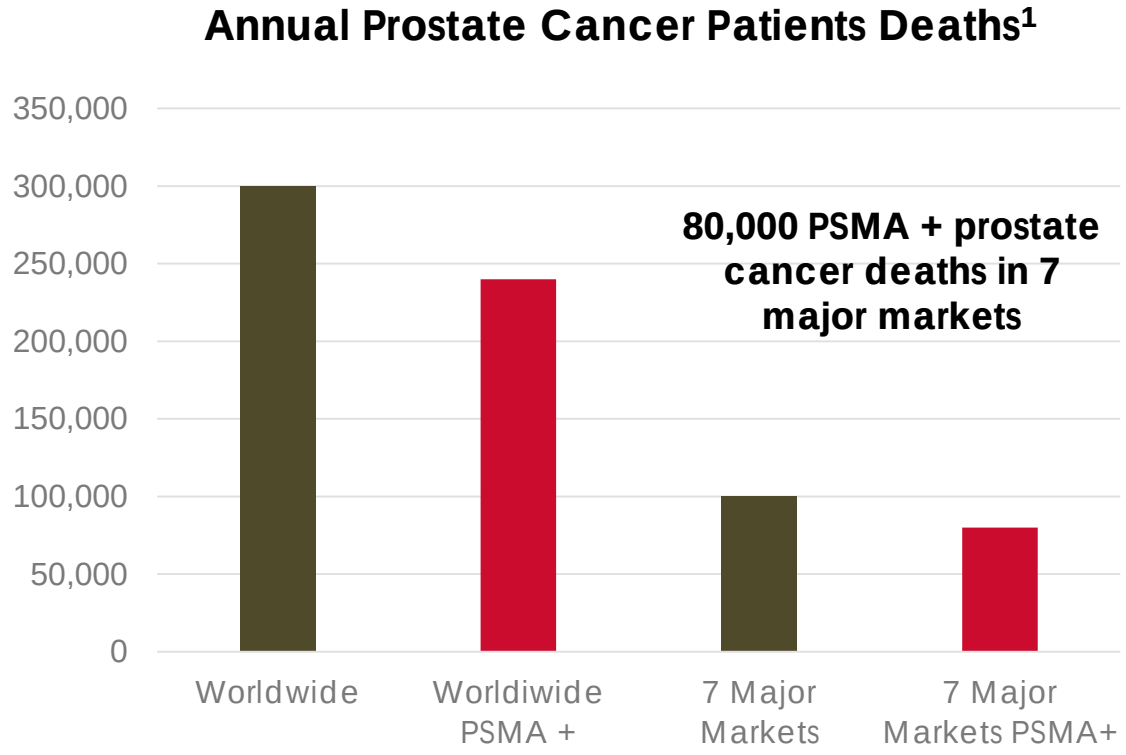
# Strong rationale for development of RLT in mCRPC

ENDOCYTE

- Significant unmet need in Zytiga/Xtandi refractory mCRPC
- Need for differentiated MOAs
- Growing patient population unfit or unwilling to receive chemotherapy
- Molecular genetics will continue to gain traction, however, limited application (e.g., ~15% eligible for PARP inhibitors)
- RLTs extend the use of radiopharmaceuticals in mCRPC beyond the treatment of bone disease
- Payors, physicians and patients desire targeted therapies and CDx for patient selection

# Large opportunity even in late-stage, metastatic setting

ENDOCYTE




1) 2016 Facts and Figures, American Cancer Society, and International Agency for Research on Cancer, World Health Organization

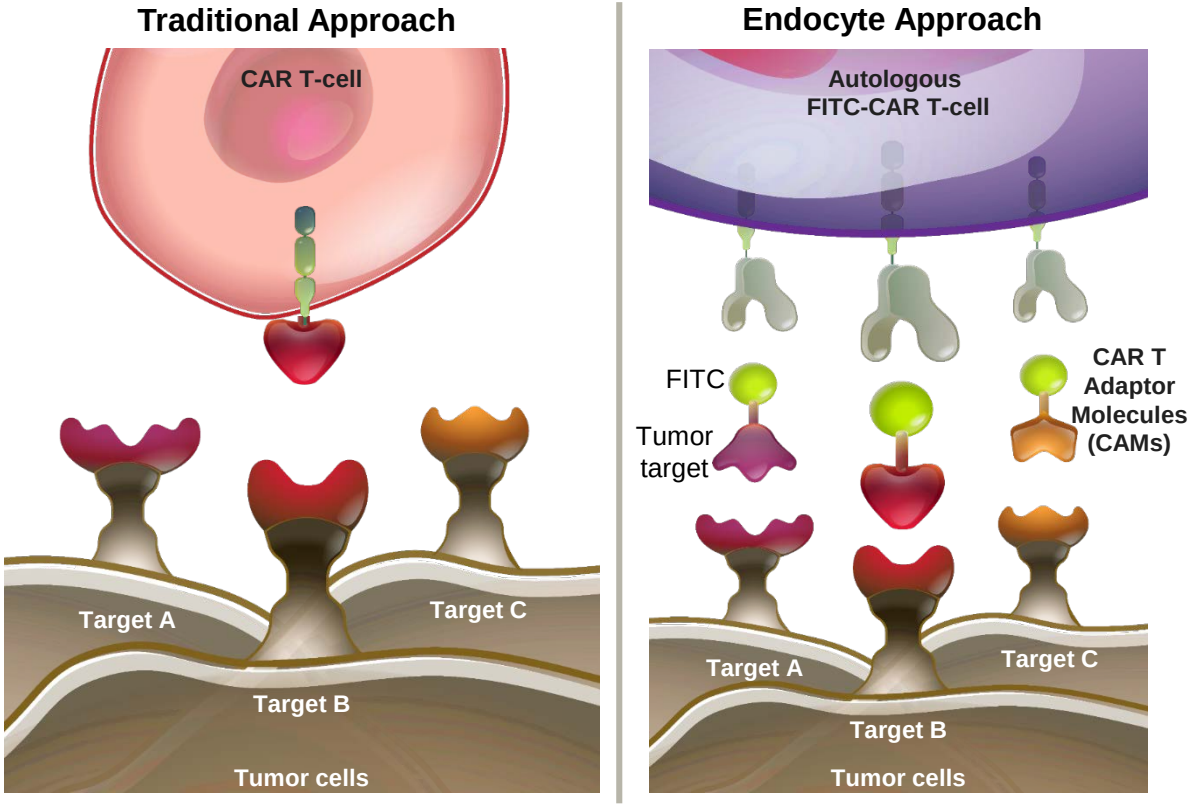
# Adaptor controlled CAR T-cell program

Universal[1], autologous CAR T-cells targeting FITC paired with various small molecule, FITC CAR T adaptor molecules (CAMs) to target multiple tumor antigens

Footnote: [1]Universality refers to the ability to use the same CAR construct to treat any number of indications through the use of CAMs

# Novel CAR T approach provides potential for greater control over immune response

ENDOCYTE




## Novel Approach

- Universal, autologous CAR T binds to FITC
- CAM provides bridge from CAR T to tumor
- CAM dosing enables antigen control

## Potential benefits

- Manage or avoid cytokine release syndrome (CRS)
- Manage T-cell exhaustion
- Address tumor heterogeneity

## Business strategy

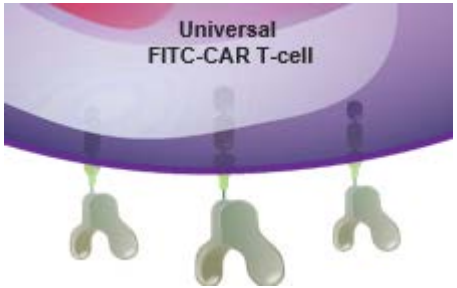
- POC with single CAM in osteosarcoma
- Development of multiple CAMs for variety of tumor targets
- Seek partnership(s)

Footnote: [1]Folate receptor (FR) is the initial target for PoC, but the concept applies to any cell surface antigen with an associated small molecule ligand (e.g. cholecystokinin-2 receptor (CCK2R), neurokinin-1 receptor (NK1R))

# Endocyte's CAR T: Potentially for controlled, personalized immune response

1 → 2 → 3

**Autologous FITC CAR T-Cell Administration**

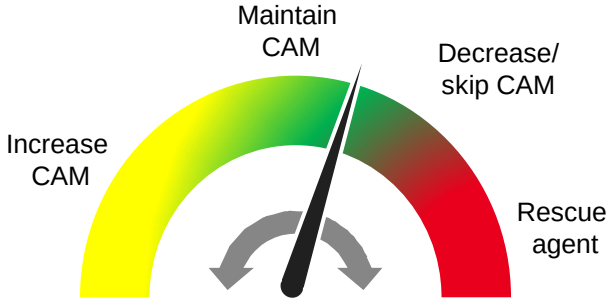



CAR T-cell distributes throughout the body (inactive)

**Initial CAM Dose**

CAM is the antigen to "bridge" T-cell to targeted disease

**Subsequent CAM Doses Tailored to Patient Immune Response**



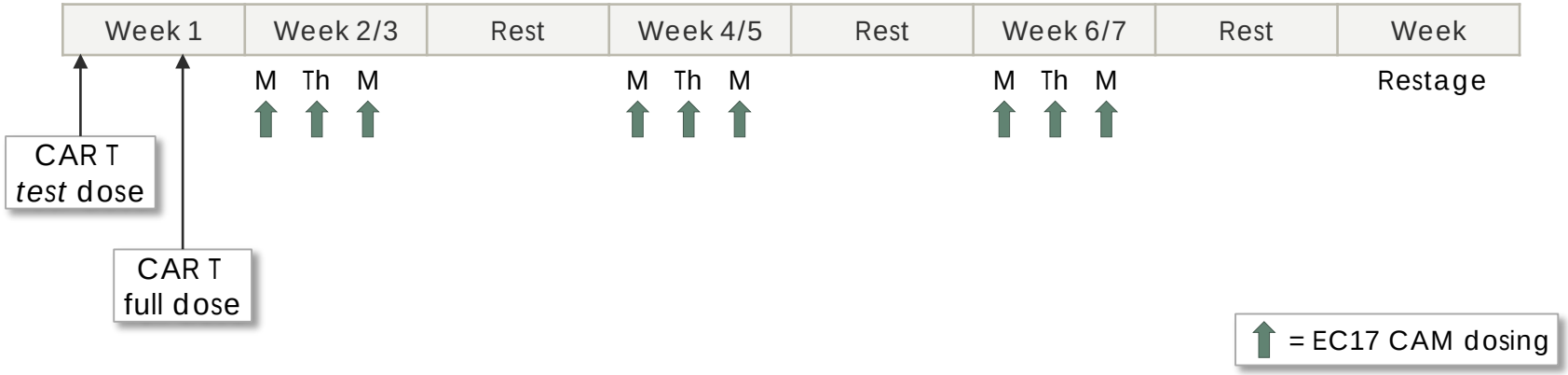

CAM's properties yielded control of immune response in preclinical models

# CAR T phase 1 trial design in osteosarcoma

ENDOCYTE

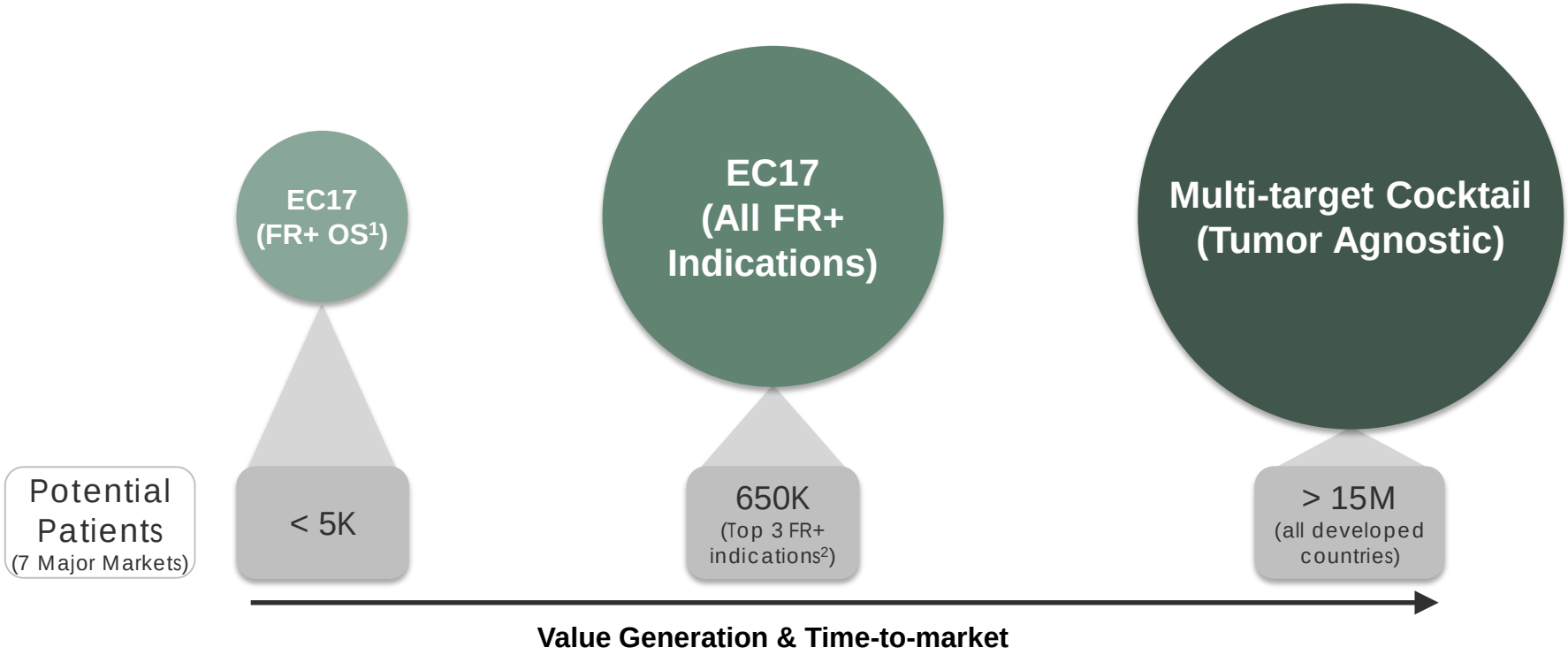
## CAR T trial design employs intra-patient dose escalation of CAM

- Pre-clinical evidence of CAM dose escalation prevents cytokine release syndrome and T-cell exhaustion
- Immune response assessed following each CAM dose allowing immediate feedback on activity



# Collaboration provides fast-to-market strategy with blockbuster market potential in next indications

ENDOCYTE




Footnote: [1]Pediatric osteosarcoma; [2]Non-small cell lung cancer, Ovarian cancer, Triple negative breast cancer

# Financial summary

ENDOCYTE

| Dollars (millions) | Full Year 2017 | Pro forma post equity offering |
|---|---|---|
| R&D | 25.9 | |
| G&A | 13.8 | |
| Acquired in-process R&D | 16.5 | |
| Total Operating Expenses | 56.2 | |
| Net Income (loss) | (55.1) | |
| Ending Cash Balance[1] | 97.5 | 178.1 |
| Shares Outstanding[2] | 48.35 | 68.88 |

**Organization and financial resource focus:**

- $^{177}$Lu-PSMA-617 Ph 3 VISION trial in mCRPC to initiate in 2Q 2018
- No additional license-related payments until NDA filing
- Follow-on financing closed 3/2/18, net proceeds to Endocyte of $80.6M, approximately 20.5 million new common shares issued

**CAR T-cell program collaboration:**

- Program coordinated through Seattle Children's Research Institute
- GMP-grade clinical supply currently in production
- 1$^{st}$ osteosarcoma patient visit 4Q 2018

1) Pro forma cash: 12/31/17 balance plus net proceeds of Feb 28, 2018 offering.
2) Pro forma shares: 10-k reported shares plus shares issued as part of February 28, 2018 offering.

# Recent and upcoming milestones

ENDOCYTE

| | | |
|---|---|---|
| ✓ | Oct ‘17 | In-license of $^{177}$Lu-PSMA-617 |
| ✓ | Nov ‘17 | Acquired active IND for $^{177}$Lu-PSMA-617 |
| ✓ | Feb ‘18 | Successful end of Phase 2 meeting with the FDA |
| ✓ | Feb ’18 | 1$^{st}$ patient enrolled in TheraP Phase 2 trial |
| ✓ | Feb ’18 | Lutetium clinical supply agreement |
| ✓ | Feb ’18 | Appointment of Patrick Machado to Board |
| • | 2Q ‘18 | Expected initiation of phase 3 registration trial of $^{177}$Lu-PSMA-617 |
| • | June ‘18 | 50-patient data readout of investigator initiated Phase 2 trial of $^{177}$Lu-PSMA-617 in mCRPC at Peter MacCallum Cancer Centre (RECIST, PSA50) |
| • | 2018 | Publications on other ongoing investigator initiated clinical trials of $^{177}$Lu-PSMA-617 in prostate cancer patients (2018) |
| • | Q4 ’18 | CAR T 1$^{st}$ patient visit in osteosarcoma and potential POC |