

Issuer Free Writing Prospectus dated June 4, 2018  
Relating to Prospectus dated June 4, 2018  
Filed Pursuant to Rule 433  
Registration Statement No. 333-224808

# Transforming Patient Care with Targeted Cancer Therapeutics

trovagene

JUNE, 2018



# Forward-Looking Statements

Certain statements in this presentation are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. These statements may be identified by the use of words such as "anticipate," "believe," "forecast," "estimated" and "intend" or other similar terms or expressions that concern Trovogene's expectations, strategy, plans or intentions.

These forward-looking statements are based on Trovogene's current expectations and actual results could differ materially. There are a number of factors that could cause actual events to differ materially from those indicated by such forward-looking statements. While the list of factors presented in the 10-K is considered representative, no such list should be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles to the realization of forward-looking statements. Forward-looking statements included herein are made as of the date hereof, and Trovogene does not undertake any obligation to update publicly such statements to reflect subsequent events or circumstances.

# Free Writing Prospectus

This presentation highlights basic information about Trovogene, Inc. and the offering. Trovogene, Inc. has filed a registration statement on Form S-1 (Registration No. 333-224808) (including a prospectus) with the U.S. Securities and Exchange Commission (“SEC”) for the offering to which this presentation relates. The registration statement has not yet become effective. Before you invest, you should read the prospectus in the registration statement (including among other things, the risk factors described therein) and other documents the issuer has filed with the SEC for more complete information about Trovogene, Inc. and this offering. The preliminary prospectus dated June 4, 2018 and subsequent amendments are available at the SEC website. You may get these documents for free by visiting EDGAR on the SEC website at [www.sec.gov](http://www.sec.gov). Alternatively, Trovogene, Inc. or any underwriter or any dealer participating in the offering will arrange to send you the prospectus if you request it by contacting ThinkEquity, a division of Fordham Financial Management, Inc., 17 State Street, 22<sup>nd</sup> Floor, New York, New York 10004, via email at [prospectus@think-equity.com](mailto:prospectus@think-equity.com) or via telephone at (646) 968-9355. This presentation contains statistics and other data that has been obtained from or compiled from information made available by third parties service providers. Trovogene, Inc. has not independently verified such statistics or data. The information contained in this presentation is as of June 4, 2018, unless indicated otherwise.

# Public Offering Summary

Issuer	Trovagene, Inc.
Listing / Symbol	NASDAQ: TROV
Expected Offering Size	Approximately \$15,000,000 (100% Primary)
Over-Allotment Option	15% (100% Primary)
Securities Offered	Class A Unit of Common Stock and Warrants Class B Unit, for 4.99% or greater shareholders, of Preferred Stock and Warrants
Use of Proceeds	Fund research and development activities, working capital and general corporate purposes
Sole Book-Runner	ThinkEquity, a division of Fordham Financial Management, Inc.

# Trovogene Snapshot

- ▶ Clinical-stage therapeutics company developing therapies for hematologic and solid tumor cancers
- ▶ Lead drug candidate, PCM-075, a highly-selective Polo-like Kinase 1 (PLK1) inhibitor
  - Phase 1 safety trial in advanced/metastatic solid tumor cancers published in 2017
- ▶ Two Investigational New Drug (IND) applications in place to develop PCM-075 for hematologic and solid tumor cancers
  - Phase 1b/2 trial in Acute Myeloid Leukemia (AML) ongoing
    - Orphan Drug Status received from FDA September, 2017
  - Phase 2 trial in metastatic Castration-Resistant Prostate Cancer (mCRPC), goal to activate in 2Q 2018
- ▶ Preclinical data in other hematologic and solid tumor cancers, including:
  - Non-Hodgkin Lymphoma
  - Lung Cancer
  - Triple Negative Breast

# Key Advisors and Collaborators

- ▶ **Jorge Cortes, MD – MD Anderson Cancer Center**
  - Deputy Chair, Professor of Medicine, Department of Leukemia and Director of CML and AML programs
- ▶ **Glenn Bubley, MD – Beth Israel Deaconess Medical Center**
  - Director, Multidisciplinary Genitourinary Cancer Program
- ▶ **David Einstein, MD – Beth Israel Deaconess Medical Center**
  - Medical Oncologist, genitourinary cancers
- ▶ **Sandra Silberman, MD – Duke VA**
  - Hematologist, former VP and Global Head of Translational Medicine at Quintiles
- ▶ **Filip Janku, MD, PhD – MD Anderson Cancer Center**
  - Associate Professor, Investigational Cancer Therapeutics (Phase 1 Clinical Trials Program)
- ▶ **Michael Yaffe, MD, PhD – MIT**
  - Director, Clinical Research at Koch Institute for Integrative Cancer Research



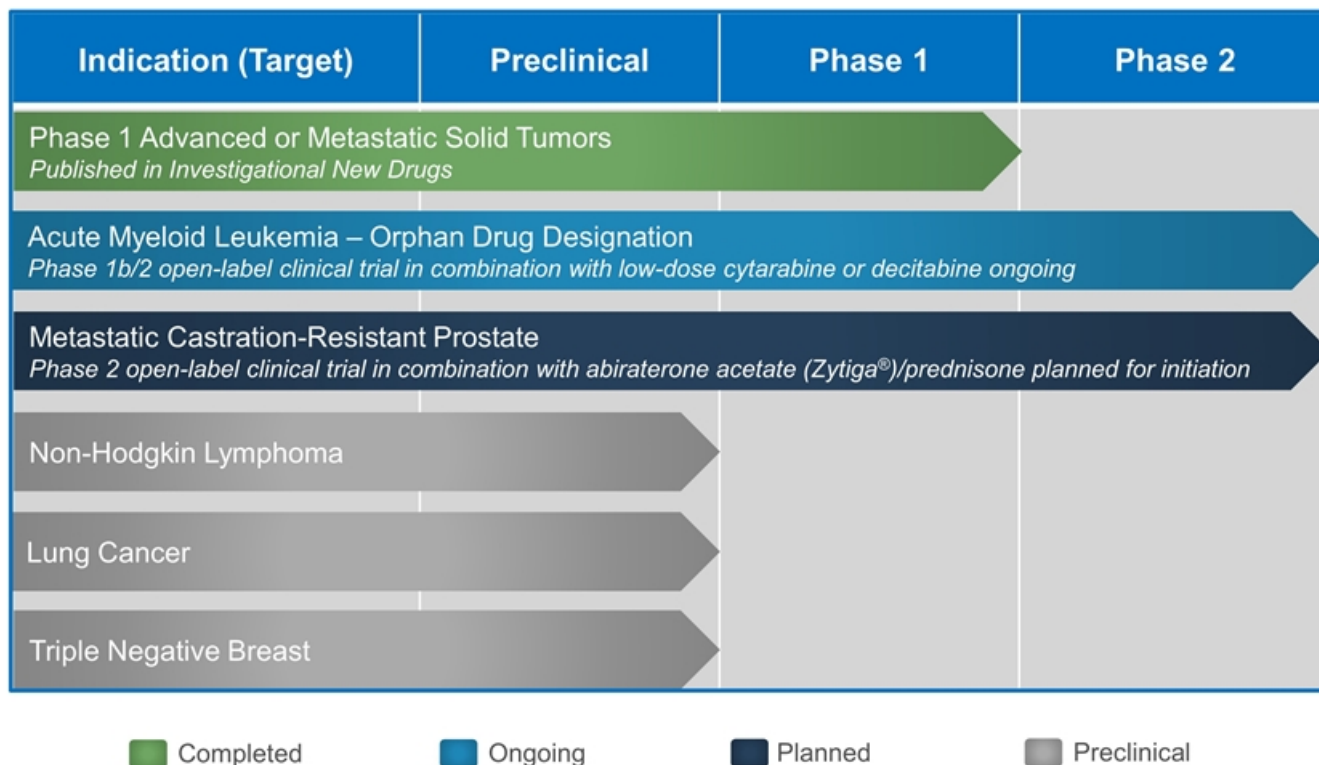
**HARVARD CANCER  
COLLABORATIVE**  
HARVARD MEDICAL SCHOOL



Jonsson  
Comprehensive  
Cancer Center



# PCM-075 Pipeline Assets



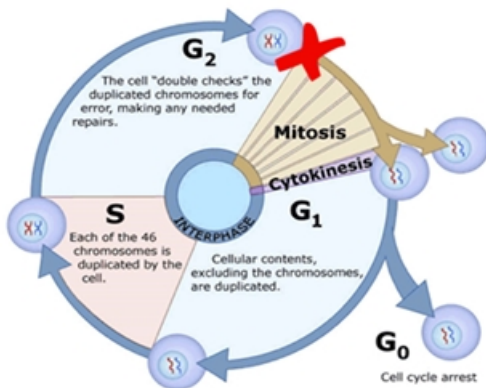
# PCM-075 – Polo-like Kinase 1 (PLK1) Inhibitor Lead Drug Candidate

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# PLK1 – Established Cancer Target

## PLK1 – Last Checkpoint of Cell Cycle



- ▶ PLK1 belongs to a family of kinases (PLK1,2,3,4 and 5)
- ▶ PLK1 is the master regulator of the cell-cycle and only with expression of PLK1 are cells able to pass through the last checkpoint (G<sub>2</sub>Mitosis) and divide<sup>1-6</sup>
- ▶ PLK2-PLK5 have properties more consistent with tumor suppressor genes and are not essential for cell division<sup>7</sup>
- ▶ Over-expression of PLK1 is observed in numerous cancer types and associated with poor patient prognosis<sup>8</sup>
- ▶ Depletion of PLK1 induces cell death in tumor cells<sup>9</sup>

<sup>1</sup>Takai N, et al. *Oncogene* 2005;24:287–91; <sup>2</sup>Rudolph D, et al. *Clin Cancer Res* 2009;15:3094–102; <sup>3</sup>Chopra P, et al. *Expert Opin Investig Drugs* 2010;10:27–43; <sup>4</sup>Strebhardt K. *Nat Rev Drug Discov* 2010;9:643–60; <sup>5</sup>Zitouni S, et al. *Nat Rev Mol Cell Biol* 2014;15:433–52; <sup>6</sup>Takaki T, et al. *Curr Opin Cell Bio* 2008;20:650–60; <sup>7</sup>Bahasa EM. Polo-like kinases and DNA damage checkpoint: beyond the traditional mitotic functions. *Exp Biol and Medicine* 2011; 236: 648-657; <sup>8</sup>Data derived from The Tumor Genome Atlas, <http://togadata.nci.nih.gov/docs/publications/tcga/>; <sup>9</sup>Liu et al., *Mol. Cell. Biol.* March 15, 2006; 26:6 2093-2108

# PLK1 – Overexpressed in Numerous Cancers



## PLK1 Inhibitors in Cancer Therapy: From Laboratory to Clinics

"In our view, combined therapies targeting other relevant pathways together with Plk1 may be vital to combat issues observed with monotherapy, especially resistance."  
*July 2016*



## Randomized, Phase 2 Trial of Low-Dose Cytarabine with or without Volasertib in AML patients not suitable for Induction Therapy

"By adding volasertib to LDAC, the overall response was more than doubled, with 31% vs 13% for LDAC alone."  
*August 2014*



## PLK1 Inhibition Enhances the Efficacy of Androgen Signaling Blockade in Castration-Resistant Prostate Cancer

"Our results offer a strong mechanistic rationale to evaluate PLK1 inhibitors in combination drug trials to enhance the efficacy of Androgen Signaling Inhibitors in mCRPC."  
*September 2014*

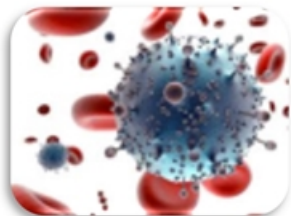
## Overexpression of PLK1 Observed in Numerous Cancers

Tumor Type	PLK1 Fold Over-Expression
AML	13.0
B-cell Lymphoma	56.3
Adrenocortical	4.5
Lung Adeno	10.5
Lung Squamous	20.9
Breast	14.4
Esophageal	7.8
Stomach	2.2
Colon	2.5
Head & Neck	3.1
Skin Melanoma	18.3
Ovarian	31.7

# Clinical Development Program

## Hematologic and Solid Tumor Cancers

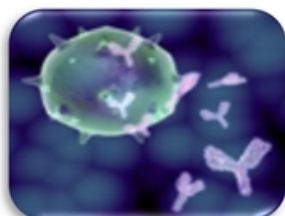
### Hematologic Cancers



#### Phase 1b/2 Open-Label Trial in Acute Myeloid Leukemia (AML) - Ongoing

- ▶ PCM-075 in combination with either low-dose cytarabine or decitabine
  - Lead Investigator: Dr. Jorge Cortes – MD Anderson
  - Study to include up to 10 clinical trial sites

### Solid Tumor Cancers



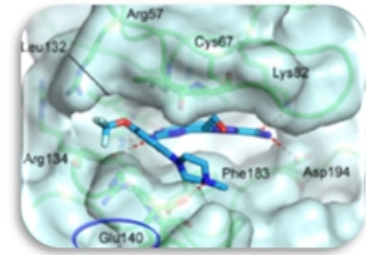
#### Phase 2 Open-Label Trial in Metastatic Castration- Resistant Prostate Cancer (mCRPC) - Planned

- ▶ PCM-075 in combination with Zytiga (abiraterone acetate) / prednisone
  - Lead Investigator: Dr. David Einstein – Beth Israel Deaconess Medical Center
  - Study to include 3 Harvard Medical Cancer Centers

# PCM-075 – Highly Selective PLK1 Inhibitor

## Selective PLK1 Inhibitor

- ▶ Tested against >260 kinases and PLK1 was the only active target (IC<sub>50</sub> of 2nM)
- ▶ Selectivity driven by polar interaction with the carboxyl side chain of Glutamate 140 position of PLK1<sup>1</sup>

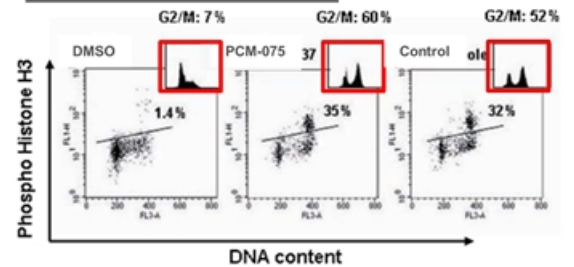


Molecular Weight : 648.60 Daltons

## Induces tumor cell death by G<sub>2</sub>M cell cycle arrest

- ▶ Treatment of cells with PCM-075 resulted in a clear mitotic block accompanied by an increase of the G<sub>2</sub>/M population (4N DNA content)

AML-NS8 Patient-Derived Cells Treated with 200 nM PCM-075 for 24 Hrs<sup>1</sup>



<sup>1</sup>Data on File, Trovogene, Inc.

# PCM-075 – Oral Administration and Half Life

- ▶ PCM-075 is a small molecule, selective PLK1 inhibitor (MW 650 Daltons)<sup>1</sup>
  - Half-life of ~24 hours
  - Formulated as 5 mg and 20 mg hard gelatin capsules
  - 4-year shelf-life when stored at 5°C ± 3°C (36°F to 46°F)
  - NerPharMa Inc. – contract manufacturer for GMP API and finished goods
  
- ▶ ADME Profile<sup>2</sup>
  - Highly stable in human hepatocytes
  - Plasma protein binding ranging from 83% to 93% in the different species
  - No Cytochrome P450 inhibition observed at therapeutic concentrations
  - Good oral bioavailability, low-medium clearance and high-volume of distribution in all tested species in single and repeated pharmacokinetic studies

<sup>1</sup>Data on File, Trovogene, Inc.; <sup>2</sup>ADME = Absorption, Distribution, Metabolism, Excretion

# PCM 075 – Synergistic in Combination

- ▶ High PLK1 expression is associated with the most aggressive forms of hematologic and solid tumor cancers
- ▶ PCM-075's synergistic activity may enhance the efficacy of numerous standard-of-care therapies

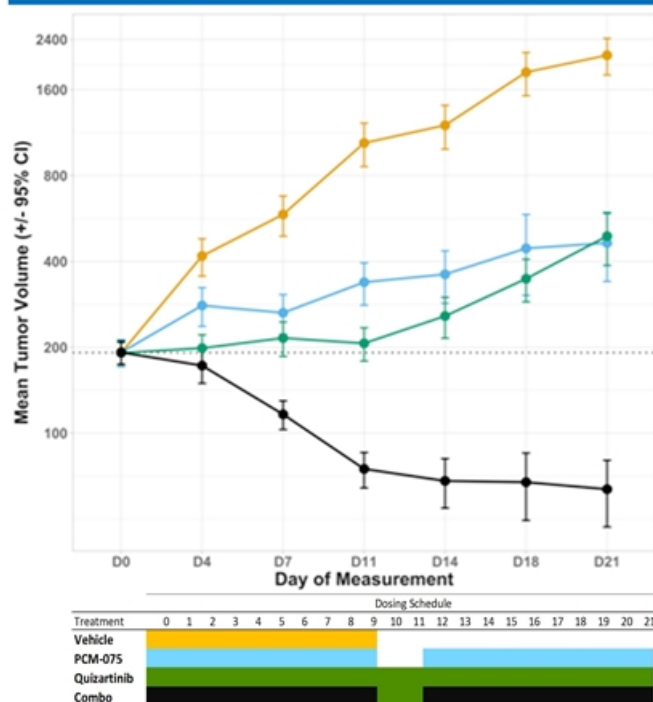
Potentially Synergistic Drugs <sup>1,2</sup>	Associated Cancers <sup>2</sup>
Abiraterone acetate	Hematologic Cancers:
Bortezomib	<ul style="list-style-type: none"><li>• Acute Myeloid Leukemia</li><li>• Acute Lymphocytic Leukemia</li><li>• Non-Hodgkin Leukemia</li><li>• Multiple Myeloma</li></ul>
Cisplatin	Solid Tumor Cancers
Cytarabine	<ul style="list-style-type: none"><li>• Castration-Resistant Prostate</li><li>• Adrenocortical Carcinoma</li><li>• Triple Negative Breast</li><li>• Sarcomas</li><li>• Small Cell Lung</li></ul>
Doxorubicin	
FLT3 Inhibitors (Quizartinib)	
Gemcitabine	
HDAC Inhibitors (Belinostat)	
Paclitaxel	

<sup>1</sup>Alphabetical order. <sup>2</sup>Preclinical data on file with PCM-075 and these combined therapeutics

# Synergy: PCM-075 + FLT3 Inhibitor Acute Myeloid Leukemia (AML)

- ▶ 30% of AML patients harbor a FLT3 mutation<sup>1</sup>
- ▶ Midostaurin (FDA approved); 3 additional FLT3 inhibitors, including quizartinib, are currently in Phase 3 clinical development<sup>2</sup>
- ▶ The combination of PCM-075 plus quizartinib demonstrated 97% tumor growth inhibition and regression in FLT3 AML xenograft model<sup>3</sup>

Evaluation of Efficacy of PCM-075 for MV-4-11 Human Acute Myeloid Leukemia (AML) Xenograft Model in NOD.SCID Mice

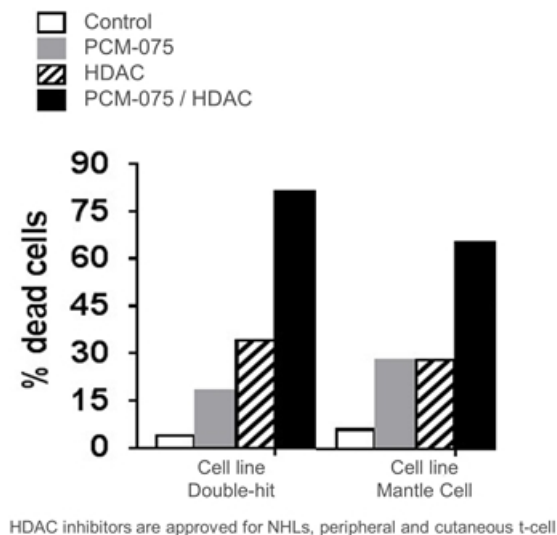


<sup>1</sup>Kindler et al, Blood 2010; 116:5089-10. <sup>2</sup>Stone et al, N Engl J Med 2017; 377:454-64. <sup>3</sup>Data on File at Trovogene, Inc.

# Synergy: PCM-075 + HDAC\* Inhibitor Non-Hodgkin Lymphoma (NHL)

- ▶ Aggressive NHL progresses rapidly; accounts for 60% of cases in the U.S.
- ▶ Subtypes:
  - Diffuse large B-cell lymphoma (DLBCL), including double-hit
  - Mantle cell lymphoma
  - Peripheral T-cell lymphoma (PTCL)
- ▶ Demonstrated synergy of PCM-075 in combination with a HDAC inhibitor in double-hit, mantle-cell<sup>2</sup> and T-cell lymphoma cell lines<sup>3</sup>
- ▶ Medical need for improved duration of HDAC inhibitor response

## PCM-075 Combined with HDAC Inhibitor Reduces Survival of Double-Hit (DLBCL) and Mantle Cell Lymphoma Cell Lines<sup>1</sup>



\*HDAC – Histone Deacetylases

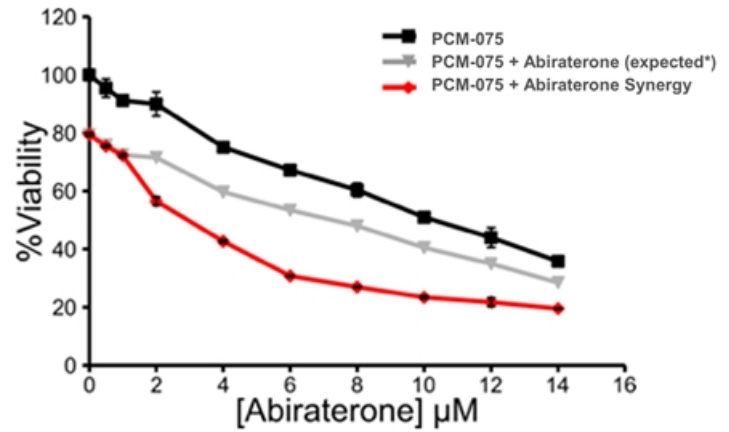
<sup>1</sup> Steven Grant, MD, Virginia Commonwealth University, Massey Cancer Center; <sup>2</sup>Unpublished Research Data; <sup>3</sup>Data on File



# Synergy: PCM-075 + Abiraterone (Zytiga®) Metastatic Castration-Resistant Prostate Cancer (mCRPC)

- ▶ PCM-075 in combination with abiraterone demonstrated synergy with decreased viability of mCRPC tumor cells<sup>1</sup>
- ▶ Combination appears to enhance the PCM-075 mechanism of action of arresting cells during mitosis<sup>1</sup>
- ▶ Medical need to extend the duration of response to anti-androgen therapeutics

C4-2 Castration-Resistant Prostate Cancer Cells  
Increased Sensitivity to Abiraterone in the  
Presence of PCM-075



\*Expected = the calculated value of the effect of the addition of each drug as calculated by Michael Yaffe, MD - MIT

<sup>1</sup>Yaffe, Michael, MD and Trovogene, 2017

# PCM-075 Summary

Characteristic	Benefit	PCM-075
Oral; 24-Hour Half-Life	<ul style="list-style-type: none"> <li>Enables sustaining drug levels without compromising safety</li> </ul>	✓
Selective for PLK1	<ul style="list-style-type: none"> <li>Provides highly-targeted therapy for G2/M cell-cycle division checkpoint</li> <li>Reversible, on-target side effects, consistent with the expected mechanism of action<sup>3</sup></li> </ul>	✓
Synergistic in Combination <sup>1</sup>	<ul style="list-style-type: none"> <li>Combination therapies potentially yielding “1+1=3” clinical activity</li> <li>Demonstrated synergy with (e.g., cytarabine, paclitaxel and abiraterone)</li> <li>Enhances mechanism of action without increasing on-target toxicities</li> </ul>	✓
Tumor Cell Sensitivity	<ul style="list-style-type: none"> <li>Normal cells are 10-fold less sensitive than tumor cells to induced cell death<sup>2</sup></li> <li>No GI disorders, mucositis, or alopecia observed in Phase 1 solid tumor study</li> </ul>	✓
Resistance Mechanism	<ul style="list-style-type: none"> <li>Ability to induce cell death in tumor cells that express transporters (e.g. MDR1)<sup>3</sup></li> </ul>	✓

<sup>1</sup>Preclinical data on file with PCM-075 in combination with chemo and targeted therapeutics; <sup>2</sup>Valsasina et al., Molecular Cancer Therapeutics; 11(4) April 2012; <sup>3</sup>Investigator Brochure for PCM-075, 22 June 2017 – Data on File

# PCM-075 Clinical Trials

Phase 1 Advanced/Metastatic Solid Tumors

Phase 1b/2 Acute Myeloid Leukemia (AML)

Phase 2 metastatic Castration-Resistant Prostate Cancer (mCRPC)

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# Phase 1 Safety Trial<sup>1</sup> Completed in Solid Tumors

Phase 1 dose escalation trial in patients with advanced or metastatic solid tumors

## Phase 1 Trial Design

Open-label dose escalation trial in patients with solid tumor malignancies

19 of 21 patients enrolled administered PCM-075 orally, once daily for 5 consecutive days, every 3 weeks

Included: colorectal, pancreatic, lung, sarcomas, hepatocellular, ampullary, prostate, ovarian, skin

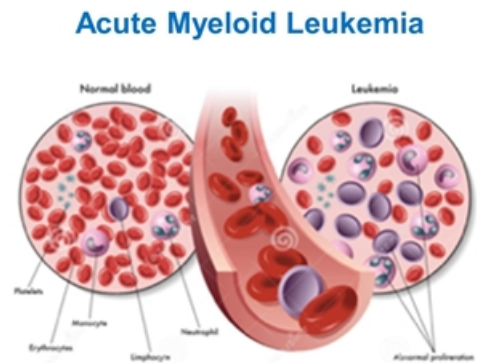
## PCM-075 Trial Results

1. Established safety of PCM-075 and identified a recommended Phase 2 dose of 24 mg/m<sup>2</sup>/day
2. 16 of the 19 patients (84.2%) treated with PCM-075, were evaluable for efficacy, with stable disease at any dose observed in 5 (31.2%) of the patients
3. Reversible, on-target thrombocytopenia and neutropenia, consistent with the expected mechanism of action, were the primary adverse events
4. No GI disorders, mucositis, or alopecia was observed, confirming that bone marrow cells are the most sensitive to PCM-075 inhibition with the applied dosing schedule

<sup>1</sup>Weiss G et al., Phase I dose escalation study of NMS-1286937, an orally available Polo-like Kinase 1 inhibitor, in patients with advanced or metastatic solid tumors – Invest. New Drugs DOI 10.1007/s10637-017-0491-7

# Acute Myeloid Leukemia<sup>1</sup>

- ▶ AML: aggressive hematologic malignancy of immature blood cells
- ▶ Incidence: 20,000\* new cases and 10,400 deaths annually in the U.S.
- ▶ Prognosis: 5 year survival rate is 25%
- ▶ Treatment options vary based on patient condition / age, but can include:
  - Chemotherapy
  - Radiation
  - Stem cell transplant
- ▶ Genetically diverse landscape:
  - PLK1 selectivity presents opportunity across patient sub-populations



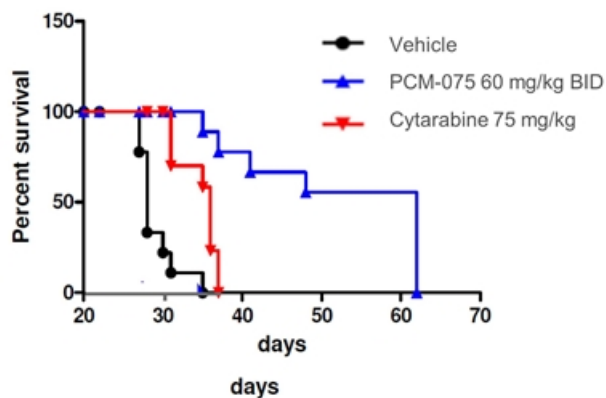
\*Orphan Drug Designation granted by the FDA September 28, 2017; <sup>1</sup>National Cancer Institute SEER 2016

# Pre-Clinical Data in AML

## In Vivo Disseminated Leukemia Model (AML-NS8 Cells)

Treatment Started 20 Days Post-Inoculation

PCM-075 60 mg/kg BID (Days 1-2 with 5-day rest) + cytarabine 75 mg/kg IP Injection (Days 1-5 with 5-day rest)



Compound	Median Survival Time (days)
Placebo	28
Cytarabine	36
PCM-075	62*

\*p = 0.001

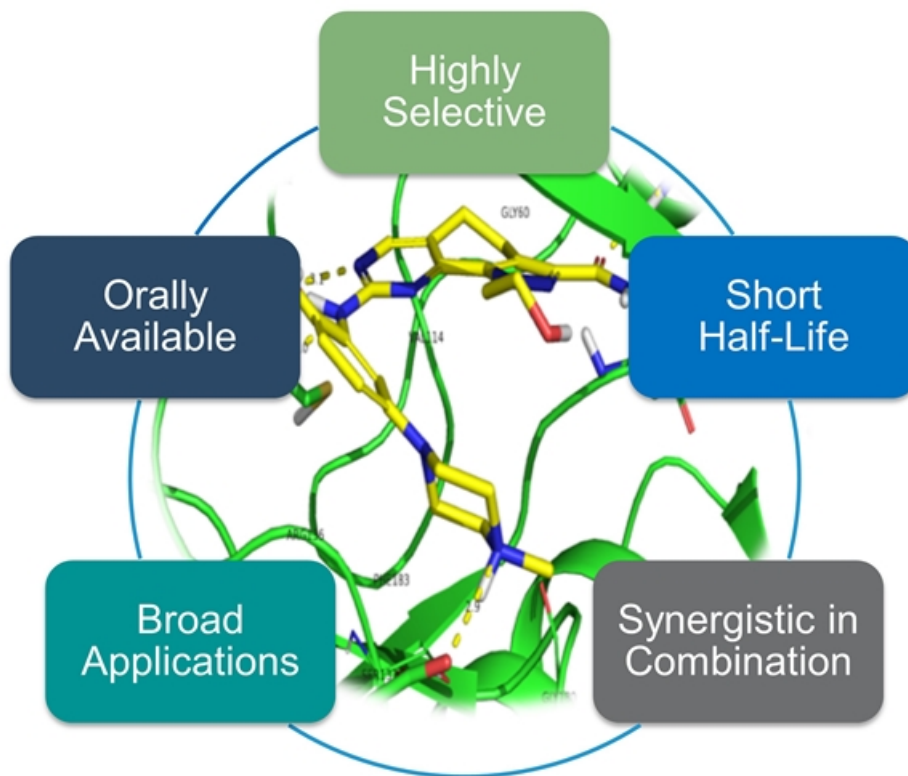
<sup>1</sup>Casolaro et al (2013) PLOS One

# Previous PLKi Clinical Experience in AML

## Volasertib (Boehringer Ingelheim)

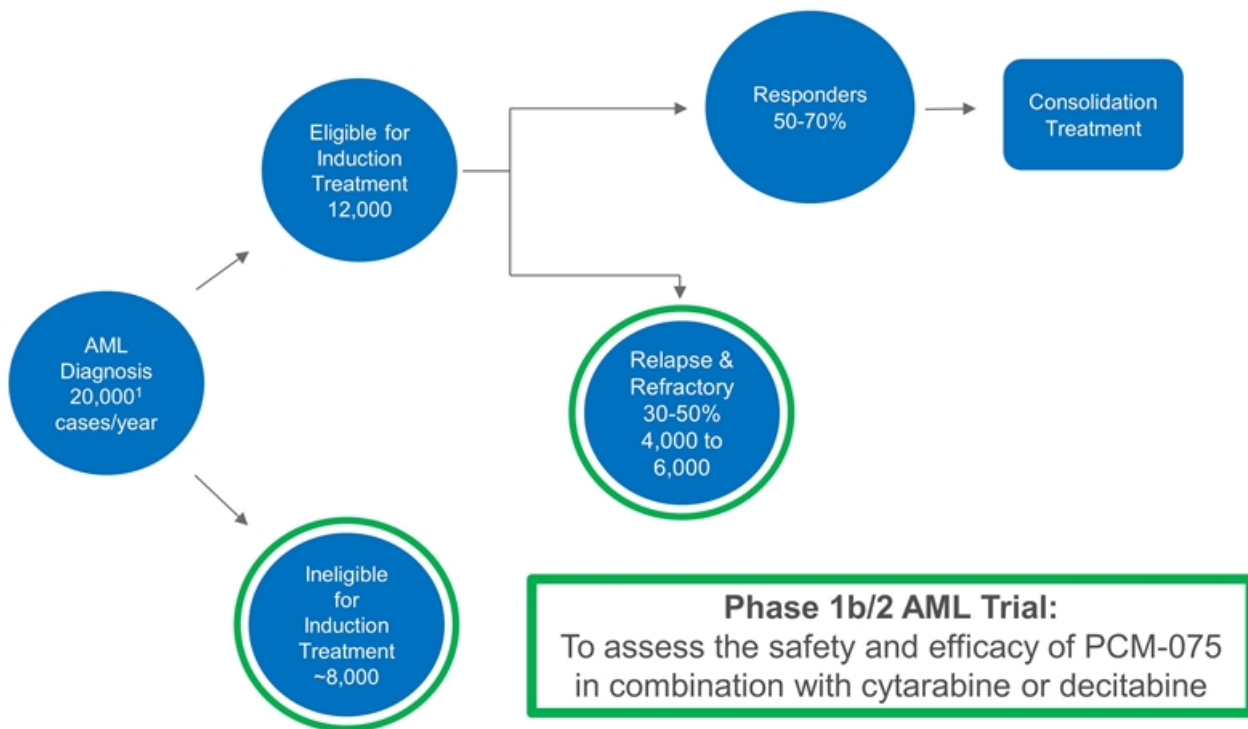
- ▶ Volasertib demonstrated clinical activity in AML Phase 2 and Phase 3 clinical trials
  - Phase 2 trial: Increased response rate (31.0%) vs control (13.3%) and significant survival benefit in elderly patients ineligible for intensive induction therapy. Volasertib demonstrated response across all AML genetic subgroups and had a clinically manageable safety profile
  - Phase 3 trial: Increased response rate (25.2%) vs control (16.8%) in elderly patients ineligible for intensive induction therapy. However, there was a negative OS trend due to higher incidence of severe adverse events (SAEs) with a fatal infection frequency (16.6% volasertib vs 5.1% control)
  - Median dose density was higher in the Phase 3 than the Phase 2 trial. The dosing regimen was considered the main reason for an imbalance in adverse events as well as insufficient anti-infective prophylaxis<sup>1</sup>
- ▶ PCM-075 anticipated advantages:
  - Highly-selective PLK1 inhibitor suggesting a more favorable safety profile
  - Five-fold shorter half-life that will allow greater dosing flexibility based on patient response
  - Proactive management of potential infections via prophylactic administration of antibiotics

<sup>1</sup>Dohner, H., Symeonidis, A. - Phase III Randomized Trial of Volasertib Plus Low-Dose Cytarabine (Idac) Versus Placebo Plus Idac in Patients Aged ≥65 Years with Previously Untreated AML, Ineligible for Intensive Therapy; 21st Congress of the European Hematology Association Copenhagen, Denmark, June 9 - 12, 2016





# Treatment Pathway in Acute Myeloid Leukemia



<sup>1</sup>National Cancer Institute SEER 2016

# Ongoing Phase 1b/2 Clinical Trial in AML

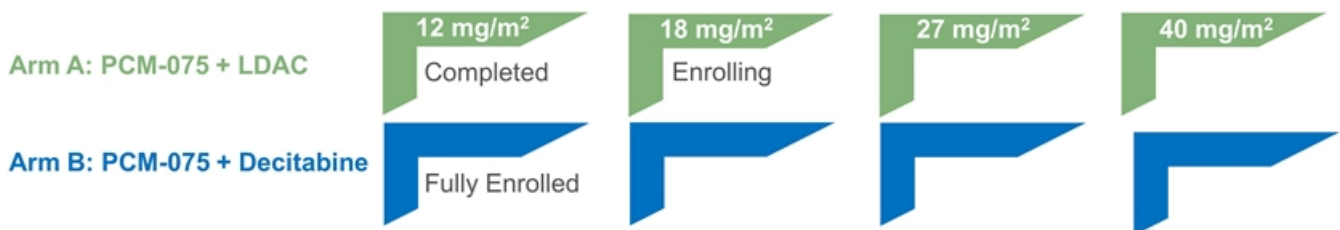
## PCM-075 in Combination with Either Low-Dose Cytarabine (LDAC) or Decitabine in Patients with Acute Myeloid Leukemia (AML)

### ► Current Clinical Trial Sites

- MD Anderson
- Yale Cancer Center
- University of California Los Angeles
- Kansas University Cancer Center
- Seattle Cancer Center
- Virginia Cancer Specialists
- University of Texas Southwestern
- Virginia Piper Cancer Institute

**Phase 1b:** Dose escalation to assess safety and identify recommended Phase 2 dose

**Exploratory Endpoints:** Evaluation of pharmacodynamic and correlative biomarkers



# Ongoing Phase 1b/2 Clinical Trial in AML

## PCM-075 in Combination with Either Low-Dose Cytarabine (LDAC) or Decitabine in Patients with Acute Myeloid Leukemia (AML)

**Phase 2:** Assess safety and preliminary antitumor activity

- ▶ **Efficacy Endpoints:** Rate of complete response (CR + CRi) defined as morphologic leukemia-free state (MLF)
- ▶ **Exploratory Endpoints:** Evaluation of pharmacodynamic and correlative biomarkers

### ▶ **Recommended Phase 2 dose (RP2D) identified in Phase 1b**

- Patients will be treatment naïve or have received no more than one prior regimen

PCM-075 in combination with either LDAC or Decitabine

**RP2D**

**32 patients**

#### **CR:**

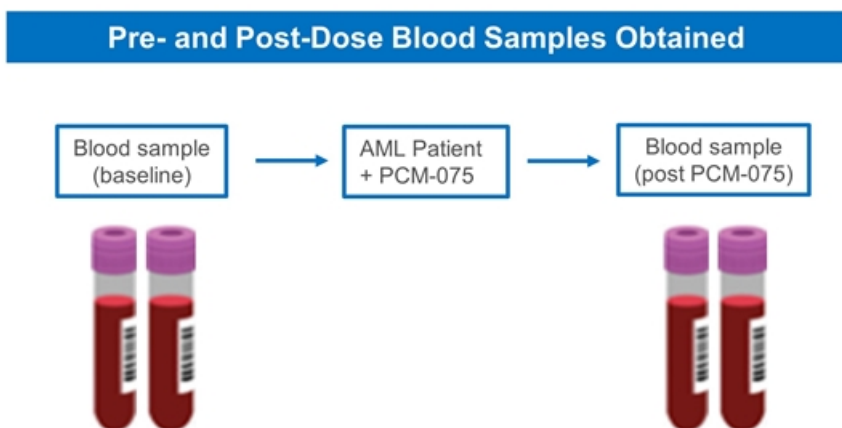
- ▶ Absolute neutrophil count (ANC) of  $>1000/\text{mm}^3$
- ▶ Platelets of  $\geq 100,000/\text{mm}^3$
- ▶ Patient is independent of transfusions

#### **CRi:**

- ▶ Meets all criteria for CR except for either neutropenia (ANC  $<1000/\text{mm}^3$ ) or thrombocytopenia ( $<100,000/\text{mm}^3$ )
- ▶ Patient is independent of transfusions

# Biomarker Assessment in AML

- ▶ Biomarkers will be measured and correlated with pharmacokinetic drug levels to assess:
  - Inhibition of PLK1
  - Changes in blast cells in blood and bone marrow
  - Underlying tumor genetics



# Molecular Profiling and Patient Response in AML<sup>1</sup>

AML Genomic Subgroup	Frequency of Patients	Most Frequently Mutated Genes (%)	DNA Panel	RNA Panel
NPM1 mutation	27%	NPM1(100), DNMT3A(54), FLT3(39), NRAS(19), TET2(16), PTPN11(15)	X	
Mutated chromatin, RNA-splicing genes, or both	18%	RUNX1(39), MLLPTD(25), SRSF2(22), DNMT3A(20), ASXL1(17), STAG2(16), NRAS(16), TET2(15), FLT3ITD(15)	X	
TP53 mutations, chromosomal aneuploidy, or both	13%	Complex karyotype(68), -5/5q(47), -7/7q(44), TP53(44), -17/17p(31), +8/8q(16)	X	X
inv(16)(p13.1q22) or t(16;16)(p13.1;q22);CBFB-MYH11	5%	inv(16) (100), NRAS(53), +8/8q(16), KIT(15), FLT3TKD(15)	X	X
biallelic CEBPA mutations	4%	CEBPAbiallelic(100), NRAS(30), WT1(21), GATA2(20)	X	
t(15;17)(q22;q12); PML-RARA	4%	t(15;17) (100), FLT3 ITD(35), WT1(17)	X	X
t(8;21)(q22;q22); RUNX1-RUNX1T1	4%	t(8;21) (100), KIT(38), -Y(33), -9q(18)	X	X
MLL fusion genes; t(x;11)(x;q23)	3%	t(x;11q23) (100), NRAS(23)	X	X
inv(3)(q21q26.2) or t(3;3)(q21;q26.2); GATA2,MECOM(EVI1)	1%	inv(3) (100), -7(85), KRAS(30), NRAS(30), PTPN11(30), ETV6(15), PHF6(15), SF3B1(15)	X	X
IDH2R172 mutations and no other class-defining lesions	1%	IDH2R172(100), DNMT3A(67), +8/8q(17)	X	
t(6;9)(p23;q34); DEK-NUP214	1%	t(6;9) (100), FLT3ITD(80), KRAS(20)	X	X

<sup>1</sup>Papaemmanuil et al. Genomic classification and prognosis in acute myeloid leukemia; NEJM 2016;374:2209-2221

# Metastatic Castration-Resistant Prostate Cancer

- ▶ 25,000 men progress to metastatic prostate cancer resistant to standard androgen-deprivation therapy, annually<sup>1</sup>
  - Five-year survival rate of 37%<sup>2</sup>
  - Risk of metastases increases as the disease progresses; most common metastases are adrenal gland, bone, and lung<sup>3</sup>
- ▶ Treatments
  - Abiraterone acetate (Zytiga® – Johnson & Johnson) and prednisone
  - Enzalutamide (Xtandi® – Astellas/Pfizer)
  - Docetaxel (Docefrez, Taxotere) and prednisone
- ▶ Ongoing need to increase duration of response for mCRPC patients
  - Patients develop resistance to abiraterone and enzalutamide (within 9-15 months)<sup>4</sup> and do not respond well to subsequent therapies



<sup>1</sup>2017 Annual Report on Prostate Disease – Harvard Health Publications; <sup>2</sup>GlobalData. Prostate Cancer—Global Drug Forecast and Market Analysis to 2023. Apr, 2015; <sup>3</sup>National Cancer Institute Metastatic cancer. Mar, 2013. Available at: <http://www.cancer.gov/about-cancer/what-is-cancer/metastatic-fact-sheet>; <sup>4</sup>Antonarakis, Emmannel – Current Understanding of Resistance to Abiraterone and Enzalutamide in Advanced Prostate Cancer; Clinical Advances in Hematology & Oncology – May 2016 – Volume 14, Issue 5

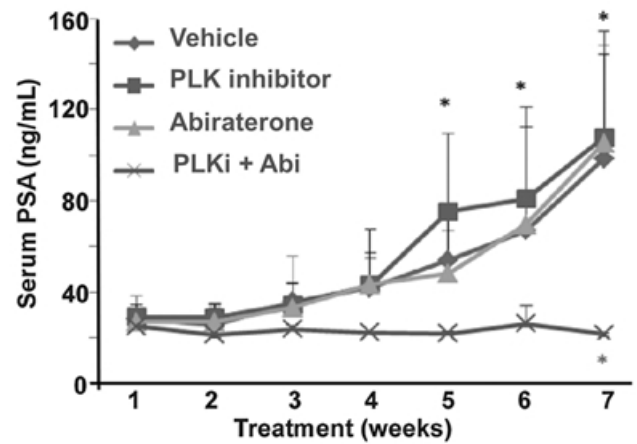
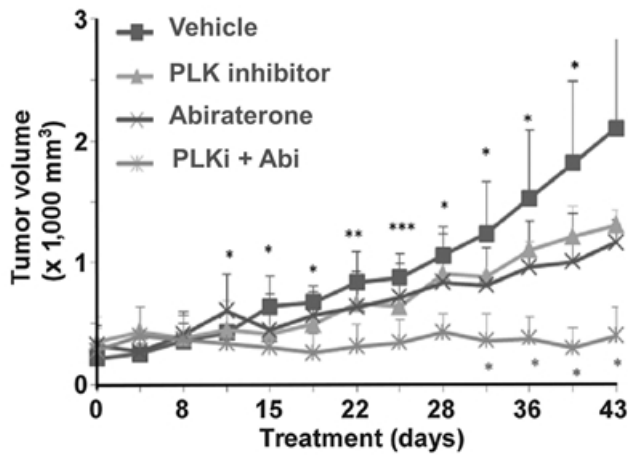
# PLK1 Sensitivity of AR-Driven Tumors

- ▶ PLK1 dependent microtubule dynamics promotes androgen receptor (AR) signaling in prostate cancer<sup>1</sup>
- ▶ PLK1 is upregulated in androgen insensitive prostate cancer cells and its inhibition leads to necroptosis<sup>2</sup>
- ▶ PLK1 inhibition improves abiraterone acetate efficacy<sup>3</sup>
- ▶ Inhibition of PLK1 represses androgen signaling pathway in castration resistant prostate cancer<sup>4</sup>
- ▶ PLK1 inhibitors are anticipated to add important therapeutic benefit for the treatment of prostate cancer patients<sup>5</sup>

<sup>1</sup>Xianzeng, Hou, Zhiguo, Li – PLK1-Dependent Microtubule Dynamics Promotes Androgen Receptor Signaling in Prostate Cancer; *Prostate*. 2013 September; 73(12): 1352–1363. doi:10.1002/pros.22683; <sup>2</sup>Arpaporn, Deeraksa, Jing, Pan - Plk1 is upregulated in androgen-insensitive prostate cancer cells and its inhibition leads to necroptosis; *Oncogene*. 2013 June 13; 32(24): 2973–2983. doi:10.1038/onc.2012.309; <sup>3</sup>Clemens, Thoma – Prostate Cancer: PLK-1 Inhibition Improves Abiraterone Efficacy; *Nature Reviews Urology* volume11, page603 (2014); <sup>4</sup>Zhang Z1, Chen L – Inhibition of PLK1 Represses Androgen Signaling Pathway in Castration-Resistant Prostate Cancer; *Cell Cycle*. 2015;14(13):2142-8. doi: 10.1080/15384101.2015.1041689; <sup>5</sup>Klaus, Strebhardt - Drugging Plk1: An attractive approach to inhibit androgen receptor signaling; *Cell Cycle*. 2015 Jul 18; 14(14): 2193–2194

# PSA Tracks Tumor Response in mCRPC<sup>1</sup>

Patient-derived xenograft (PDX) model of CRPC<sup>1</sup> in abiraterone-resistant cell line



▶ Tumor volume was significantly reduced in mice treated with the combination of PLK inhibitor and abiraterone versus either drug alone

▶ Serum levels of PSA correlate with efficacy for the combination versus each drug alone

<sup>1</sup>Zhang et al, Cancer Res 2014; 74(22)



# Planned Phase 2 Clinical Trial in mCRPC

## PCM-075 in Combination with Zytiga® (abiraterone acetate) and Prednisone in Patients with Metastatic Castration-Resistant Prostate Cancer (mCRPC)

### Dosing Regimen

PCM-075 – 24 mg/m<sup>2</sup>  
Days 1-5 (21-Day Cycle) +  
Zytiga®/prednisone daily

### Duration

4 Cycles = 12 Weeks

### Evaluation

Disease Control  
based on PSA level

### Efficacy Endpoints

Effect of PCM-075 in combination with Zytiga®/prednisone on disease control assessed by prostate-specific antigen (PSA) decline or stabilization pre- and post-treatment

### Safety Endpoint

Safety of PCM-075 in combination with Zytiga®/prednisone

### Exploratory Endpoint

Target inhibition of PLK1, evaluation of relevant biomarkers and correlation with patient response and genomic profile

Looking Ahead

trovagene

# 2018 Goals

## Phase 1b/2 AML Trial

- ▶ Completion of dose escalation cohorts in Phase 1b trial<sup>1</sup>
- ▶ Safety and preliminary clinical activity (pharmacodynamic markers)
- ▶ Recommended Phase 2 dose<sup>1</sup>
- ▶ Initiation of Phase 2 continuation trial<sup>1</sup>; possible preliminary data

## Phase 2 mCRPC Trial

- ▶ Activation of Beth Israel, Dana Farber and Massachusetts General and first patient dosed at all centers
- ▶ Safety and clinical activity on “lead-in” patients (3-6 patients)
- ▶ 10 to 25 patients receive study drug

<sup>1</sup>Timing dependent on the number of cohorts required to reach maximum tolerated dose (MTD) / recommended Phase 2 dose

# Takeaways

- ▶ PLK1 is an established cancer target; the PLK inhibitor drug class has demonstrated clinical activity in AML
- ▶ PCM-075 is the only oral, highly-selective PLK1 inhibitor in clinical trials
- ▶ Synergy demonstrated with PCM-075 in combination with chemotherapies and targeted therapeutics
- ▶ 2 clinical trials: Phase 1b/2 in AML (ongoing) and Phase 2 in mCRPC (planned)
  - Significant collaborations with leading investigators and institutions, including MD Anderson (AML) and Beth Israel Deaconess (mCRPC)
- ▶ Patent and other marketing exclusivity worldwide through 2030 with opportunity for expansion

# Financial Summary and Capitalization

## 1Q 2018 Financial Summary

- Cash: \$6.7 M
- Repayment of Equipment Line of Credit on April 6, 2018 in the amount of ~\$1.1 M
- Net Cash used in Operating Activities in 1Q 2018: \$(2.9) M

## Capitalization Table as of April 30, 2018<sup>1</sup>

Common Shares <sup>2</sup>	4,953,442	70%
Warrants Outstanding	1,489,488	21%
Options Outstanding <sup>3</sup>	630,061	9%
Restricted stock units	30,919	0%
<b>Fully Diluted Shares<sup>4</sup></b>	<b>7,103,910</b>	<b>100%</b>

<sup>1</sup> April 30, 2018 capitalization numbers have been converted to reflect a 1 for 12 reverse stock split which was effected on June 1, 2018

<sup>2</sup> Includes 5,621 shares of Common Stock reflecting Series A Convertible Preferred Stock on an as-converted basis.

<sup>3</sup> Weighted average exercise price \$29.88

<sup>4</sup> Does not include 2014 Employee Incentive Plan pool available for grant

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