



Company Overview

December 2020

Forward Looking Statements

Certain statements in this presentation are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 and are provided under the protection of the safe harbor for forward-looking statements provided by that Act. Forward-looking statements are based on current expectations of future events and often can be identified by words such as “anticipates,” “believes,” “estimates,” “expects,” “future,” “intends,” “plans,” “project,” “target,” or other words of similar meaning or the use of future dates. Examples of forward-looking statements in this presentation include statements regarding the safety, effectiveness and benefits of SBP-101; the timing of enrollments, completion, and availability of results for our Phase 1 clinical trial for SBP-101; potential business opportunities; future fundraising or capital requirements; and expected financial or operating results, including the impacts of the Covid-19 pandemic. Uncertainties and risks may cause our actual results to be materially different than those expressed in or implied by our forward-looking statements. Such uncertainties and risks include, among others, risks associated with our Phase 1a clinical trial for SBP-101, including administration, enrollment, completion and results; safety and efficacy of our drug candidates; regulatory requirements and changes; the availability of and requirements for financial and other resources necessary to execute our business plans; difficulties maintaining and obtaining key personnel, competitive conditions in our primary market; and our ability to establish and protect our intellectual property rights. More detailed information on these and other factors that could affect our actual results are described in our SEC filings, including our Annual Report on Form 10-K for the year ended December 31, 2019. We encourage you to consider all of these risks, uncertainties and other factors carefully in evaluating the forward-looking statements contained in this presentation. The forward-looking statements provided in this presentation speak only as of the date of this presentation and, except to the extent required by law, we undertake no obligation to update any forward-looking statement because of new information, future events or other factors.

This presentation includes information about investigational agents. The efficacy and safety of such investigational agents have not yet been established. Drug development is uncertain and investigative agents may be terminated along the development process. All trademarks, company and product names or logos are the property of their respective owners.

Company Highlights



New Therapeutic Class For Solid Tumors

- Developing small molecule polyamine metabolic inhibitors with tumor and organ-specific preferential uptake
- Multiple cancer types with known elevated polyamine levels represent potential targets
- Novel Trojan Horse polyamine metabolic inhibitor (PMI) mechanism and tolerability profile seen in early studies may enable use in combination with other agents
- *Potential dual attack*: growth inhibition + relieve polyamine-mediated immune suppression

SBP-101 Combination Therapy for First Line Metastatic Pancreatic Cancer

- Pancreatic ductal adenocarcinoma (PDA) has the lowest survival rate among major cancers
- Fast track and orphan designation from FDA, SBP-101 is administered subcutaneously
- SBP-101 given first line with standard of care in Phase 1 study interim results:
 - 54% objective response rate; more than double historical standard of care
 - 69% of patients with CA 19-9 biomarker reductions of greater than 75%

Strong Foundation & Management Team

- Raised ~\$37M in capital since inception to fund SBP-101 development
- Exclusive global license to SBP-101 from University of Florida Research Foundation
- Randomized Phase 2 ready, with improved, exclusive synthetic process, IP pending
- High quality management with proven oncology drug discovery, development and commercialization expertise

Panbela Leadership Team and Board of Directors

- Collectively developed 10 FDA-approved therapies generating billions in sales

Leadership Team

Jennifer K. Simpson, PhD, MSN, CRNP
President & CEO

Michael T. Cullen, MD, MBA, ABIM
Founder, Executive Chairman

Susan Horvath, CPA (inactive), CMA
VP of Finance & CFO

Thomas X. Neenan, PhD
Co-Founder, Chief Scientific Officer

Suzanne Gagnon, MD, FACP
Chief Medical Officer

Board of Directors

Michael T. Cullen, MD, MBA, ABIM

Jennifer K. Simpson, PhD, MSN, CRNP

Art Fratamico, MBA

Suzanne Gagnon, MD, FACP

Jeff Mathiesen, CPA

Paul W. Schaffer, PharmD

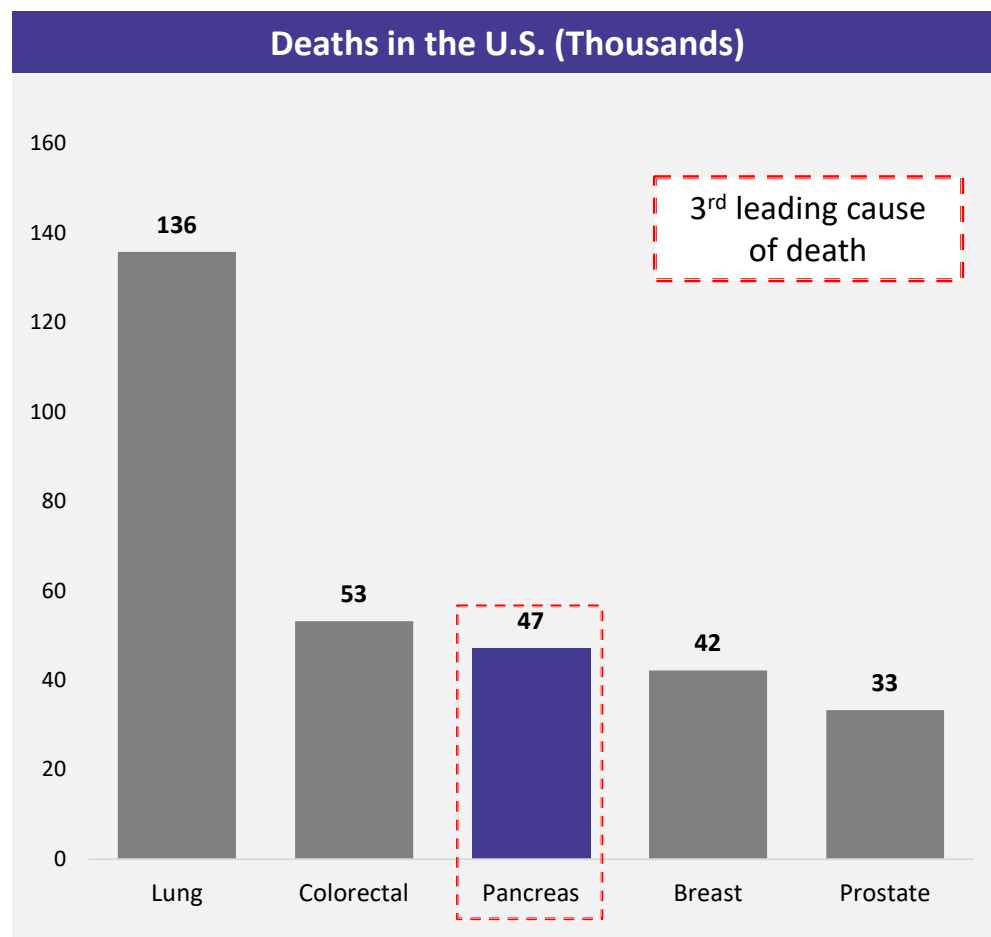
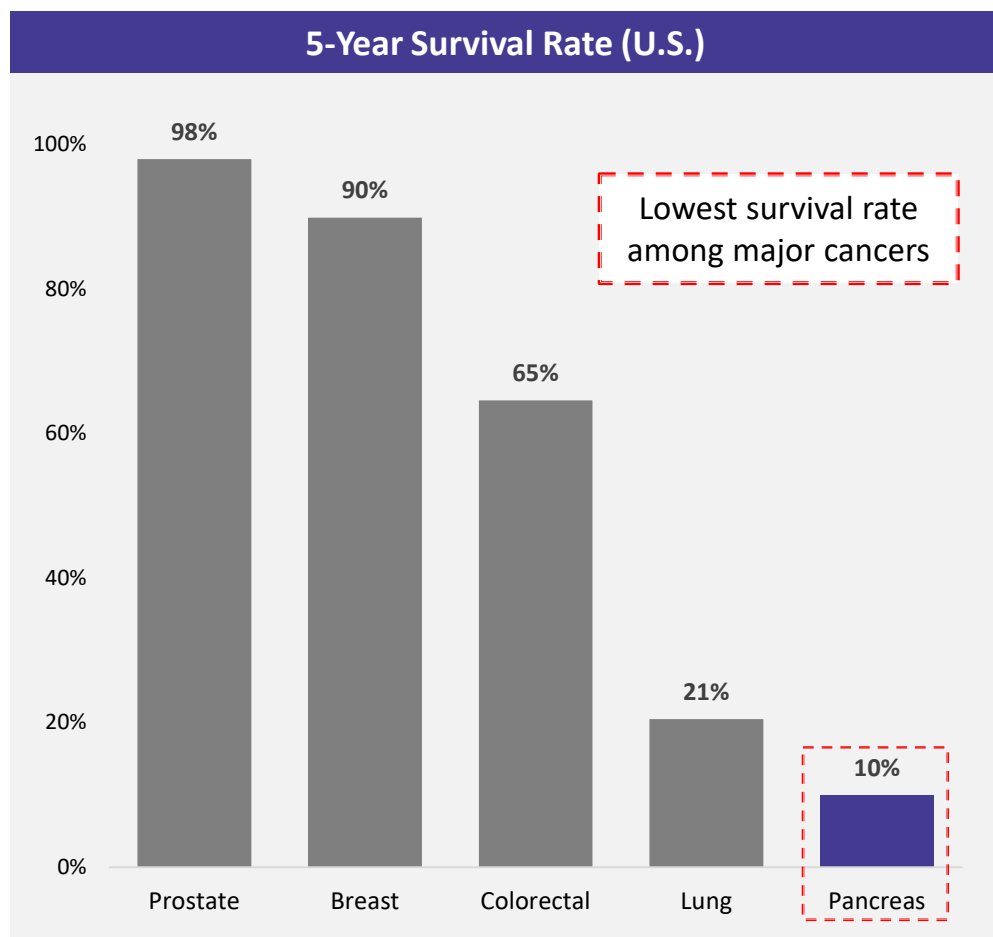
D. Robert Schemel



Proven oncology drug discovery, development and commercialization expertise

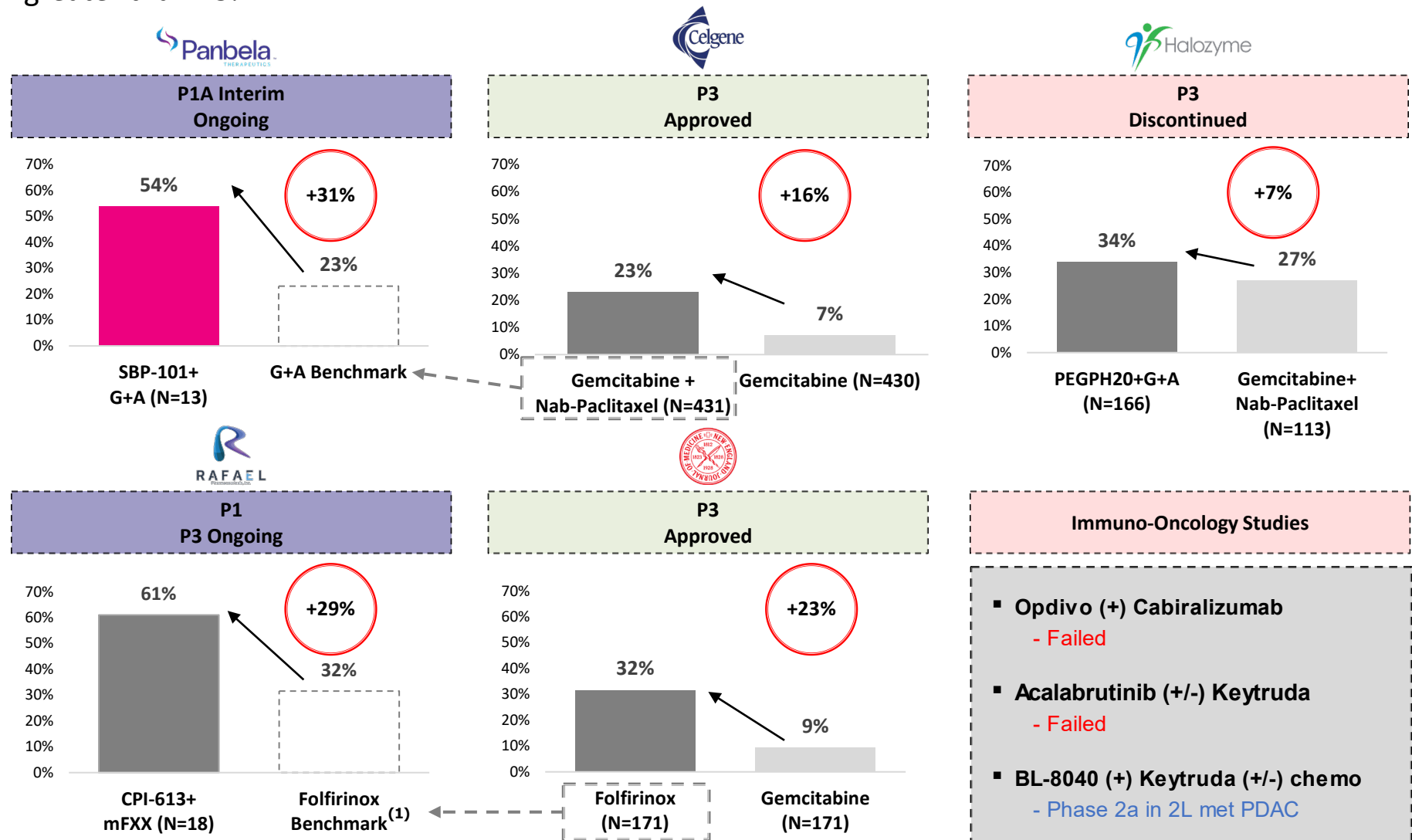
Pancreatic Cancer: a Major Unmet Medical Need

- Globally, the number of deaths caused by, and incidence of, pancreatic cancer has more than doubled from 1990 to 2017



Objective Response Rate Comparison Among Prior PDAC Trials

- In addition to strong ORR results, 69% of SBP-101 patients presented CA 19-9 biomarker reductions of greater than 75%

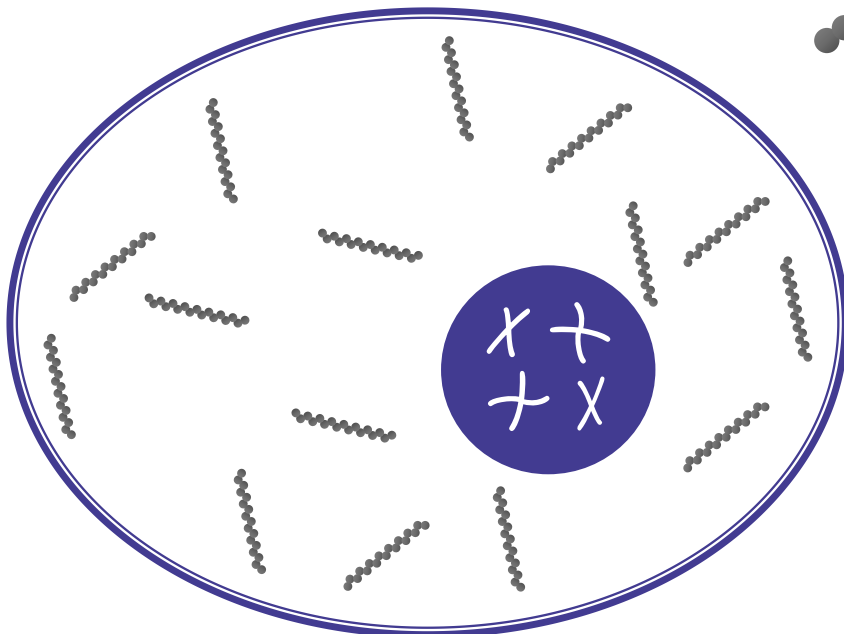


(1) Comparison not apples to apples - CPI-613 was used in combination with a modified Folfirinox, which excluded bolus fluorouracil

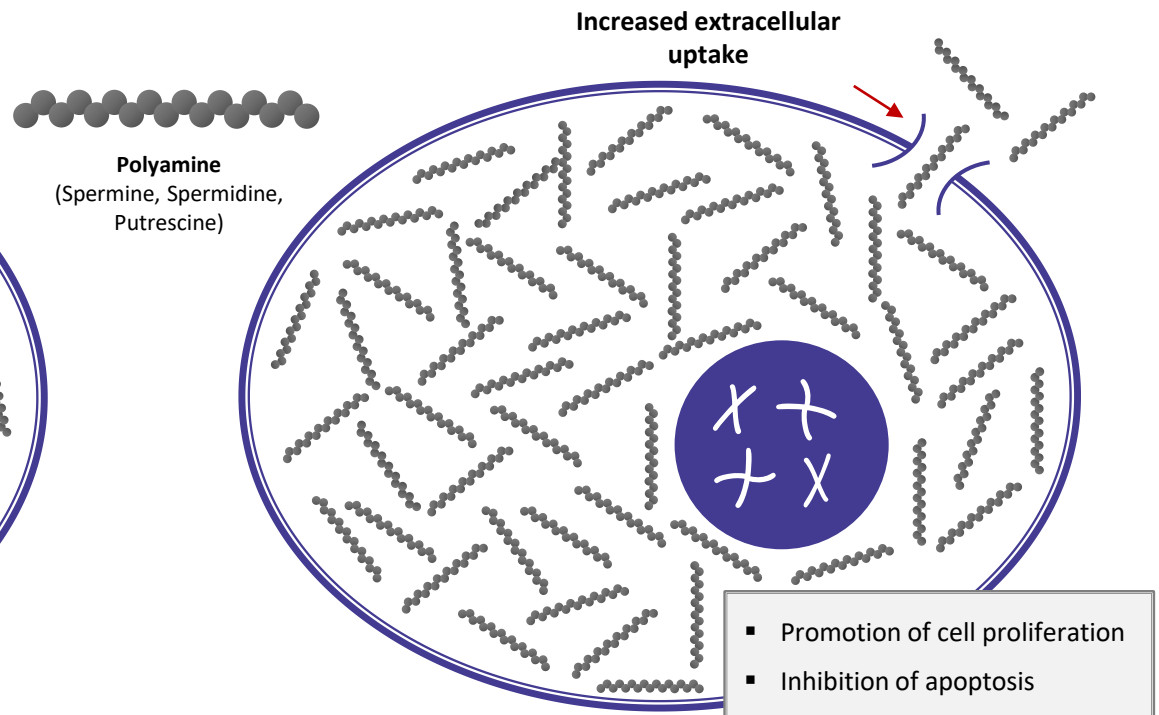
Increased Polyamine Levels Can Enhance the Malignant Potential of Cancer Cells and May Decrease Anti-Tumor Immunity

- Many tumors maintain greatly elevated levels of polyamines to support their rapid growth and survival
 - Of all human tissues, the pancreas has the highest level of native spermidine creating a polyamine rich environment for proliferation
 - Oncogenes such as MYC & RAS upregulate polyamine synthesis & increase cellular uptake by inducing the polyamine transport system
- Polyamines also act as immune suppressants inhibiting T-cells, monocytes, and macrophages

Healthy Cell
(Low Polyamine Levels)



Cancer Cell
(High Polyamine Levels)



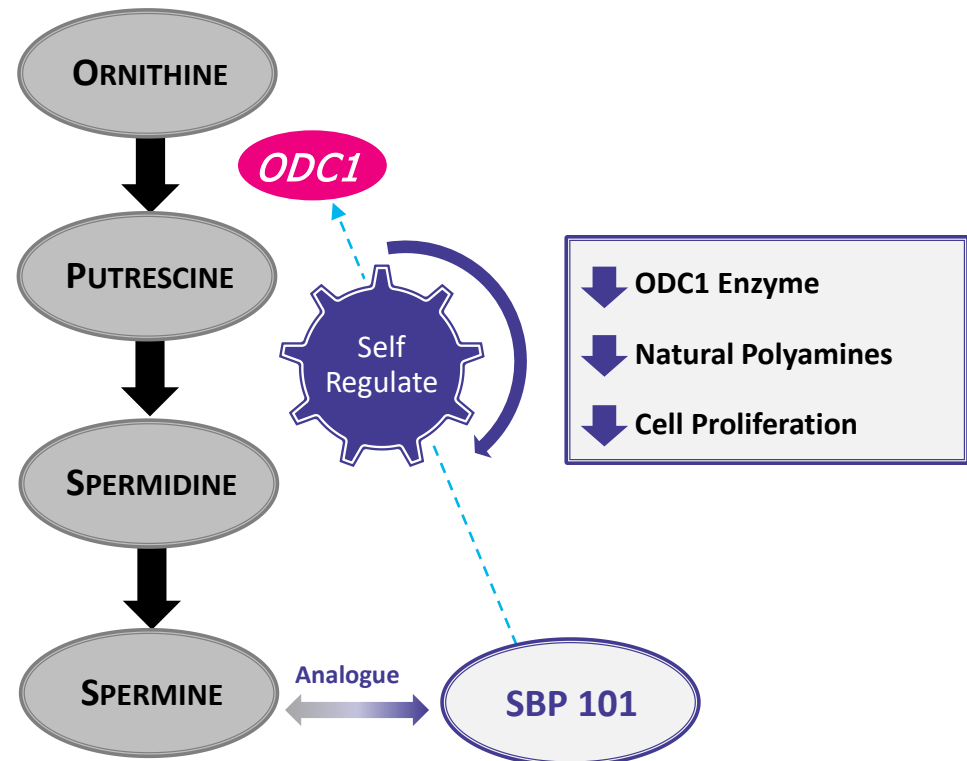
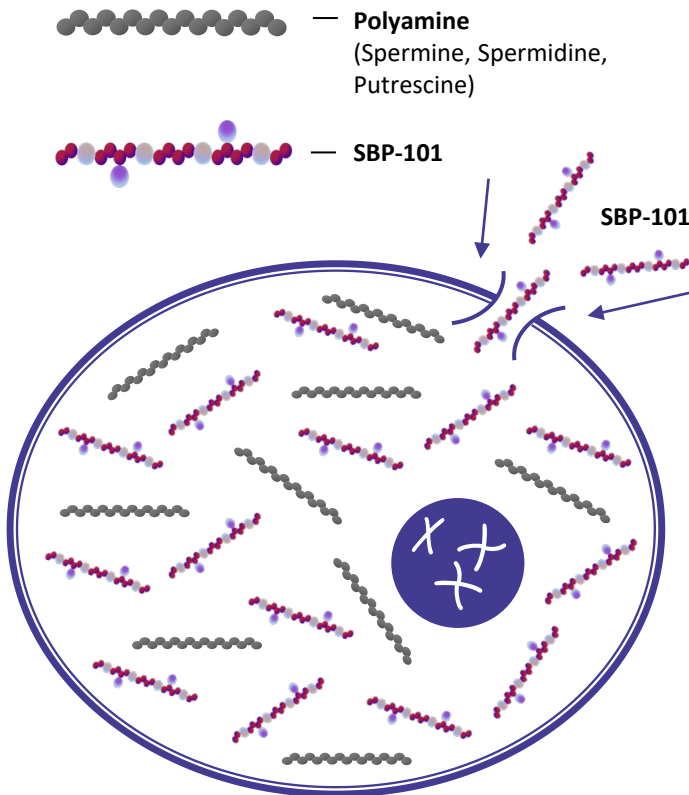
SBP-101 MOA (Trojan Horse): Synthetic Polyamine Analogue

- SBP-101 is a synthetic analogue of spermine being designed to exploit the self-regulating nature of polyamine metabolism
- SBP-101 preferentially accumulates in tumor cells and downregulates the polyamine metabolic pathway, lowering production of the natural polyamine pool and inhibiting cell proliferation
- In investigational studies, SBP-101 does not trigger a polyamine catabolic cascade and the creation of harmful reactive oxygen species

SBP-101 Taken Up Extracellularly

And....

Downregulates Upstream Production of ODC1



Area of Future Exploration: SBP-101 Combined with IOs

- Historical clinical trials using IO agents have been unsuccessful
- A potential hypothesis is that excess polyamines, especially spermine, insulate the tumor microenvironment from immune cells
- SBP-101 is a *synthetic analogue* of spermine, which is believed to reduce endogenous polyamine production

4. Discussion

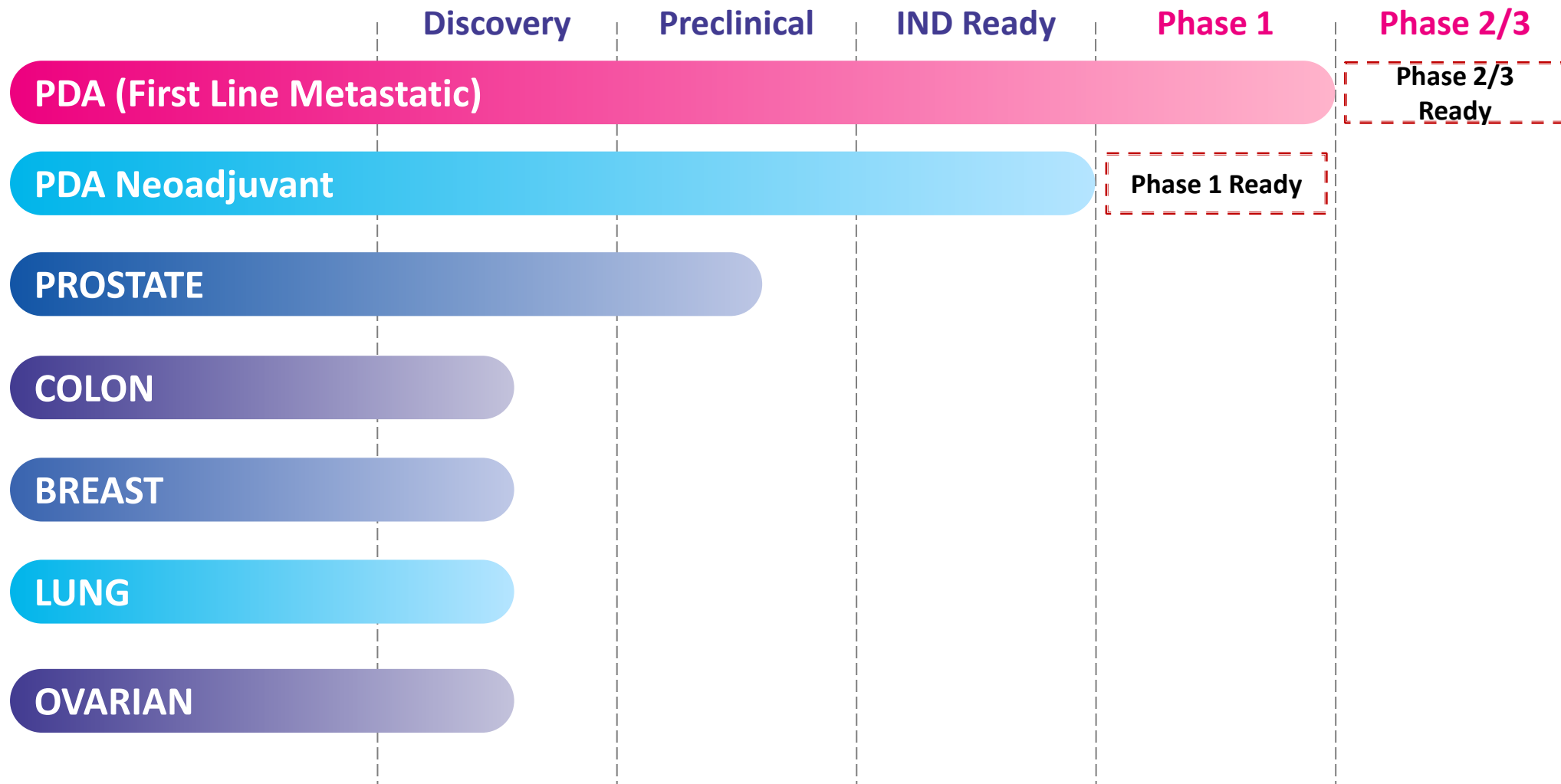
Of all three native polyamines, spermine has been shown to be the most effective immune suppressant, with inhibitory activity noted in T-cells, monocytes, and macrophages [14–19]. Compared to other human tissues, the human pancreas has the highest amount of spermidine. Armed with significant stores of spermidine, we hypothesized that PDAC tumors with upregulated SMS can convert spermidine to spermine (Figure 1) for immune suppression. Indeed, spermine is naturally present in amniotic fluid to suppress the maternal immune response and spermine has been shown to inhibit virtually all immune cells [14–19]. We speculated that PDAC uses this ‘fetal strategy’ to create a spermine-rich zone of immune privilege via spermine production and secretion. Rewardingly, a search of six existing pancreatic databases found that SMS mRNA is universally upregulated in PDAC, which is consistent with our hypothesis. This insight is potentially paradigm-shifting because it suggests that, unless spermine is downregulated in the PDAC tumor microenvironment, immunotherapies will continue to fail [20,21].

The results reported here suggest that even though PDAC cells can survive on either spermidine or spermine, they prefer spermine when given the choice (e.g., see DFMO results in Figure 5). This preference is consistent with the apparent high SMS expression in PDAC cells and may in part be critical for tumor survival by establishing immune privilege via the excretion of spermine or its metabolites.

Potential for SBP-101 to recondition tumor microenvironment and act as sensitizing agent for IOs

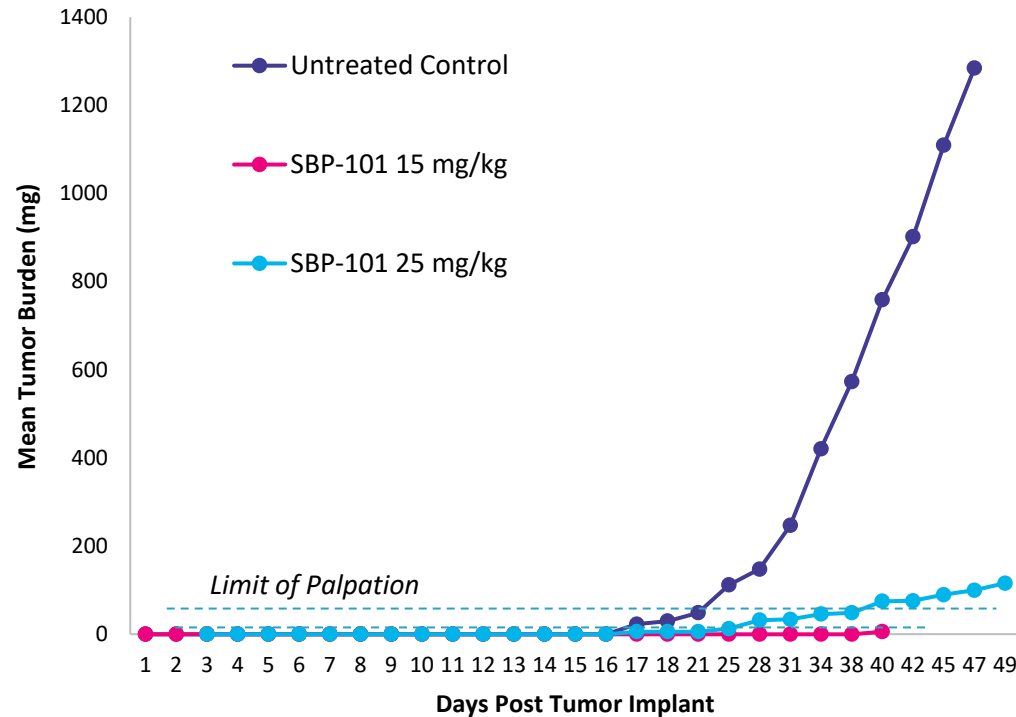
Significant SBP-101 Polyamine Metabolic Inhibitor Pipeline Expansion Opportunity

Upregulated polyamine metabolism is also a phenotypic change caused by certain oncogenic mutations, creating potential for future patient stratification strategies in other cancers

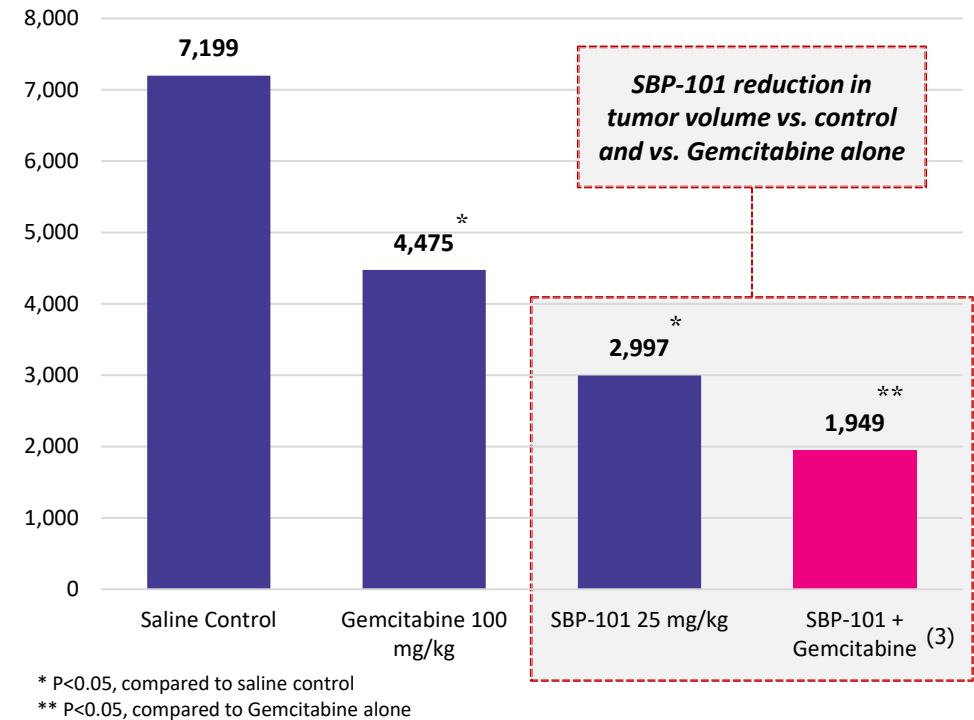


SBP-101: Human Tumor Inhibition in Pre-Clinical Studies

Near Complete Tumor Inhibition in Mice⁽¹⁾



Reduction of Tumor Volume in Mice⁽²⁾



Study in mice subcutaneously implanted with human pancreatic cell line PANC-1

- SBP-101 found effective in reducing pancreatic tumor growth

Study in mice orthotopically implanted with human pancreatic cancer cell line L3.6pl

- Treatment with SBP-101 and/or Gemcitabine significantly reduced tumor volume

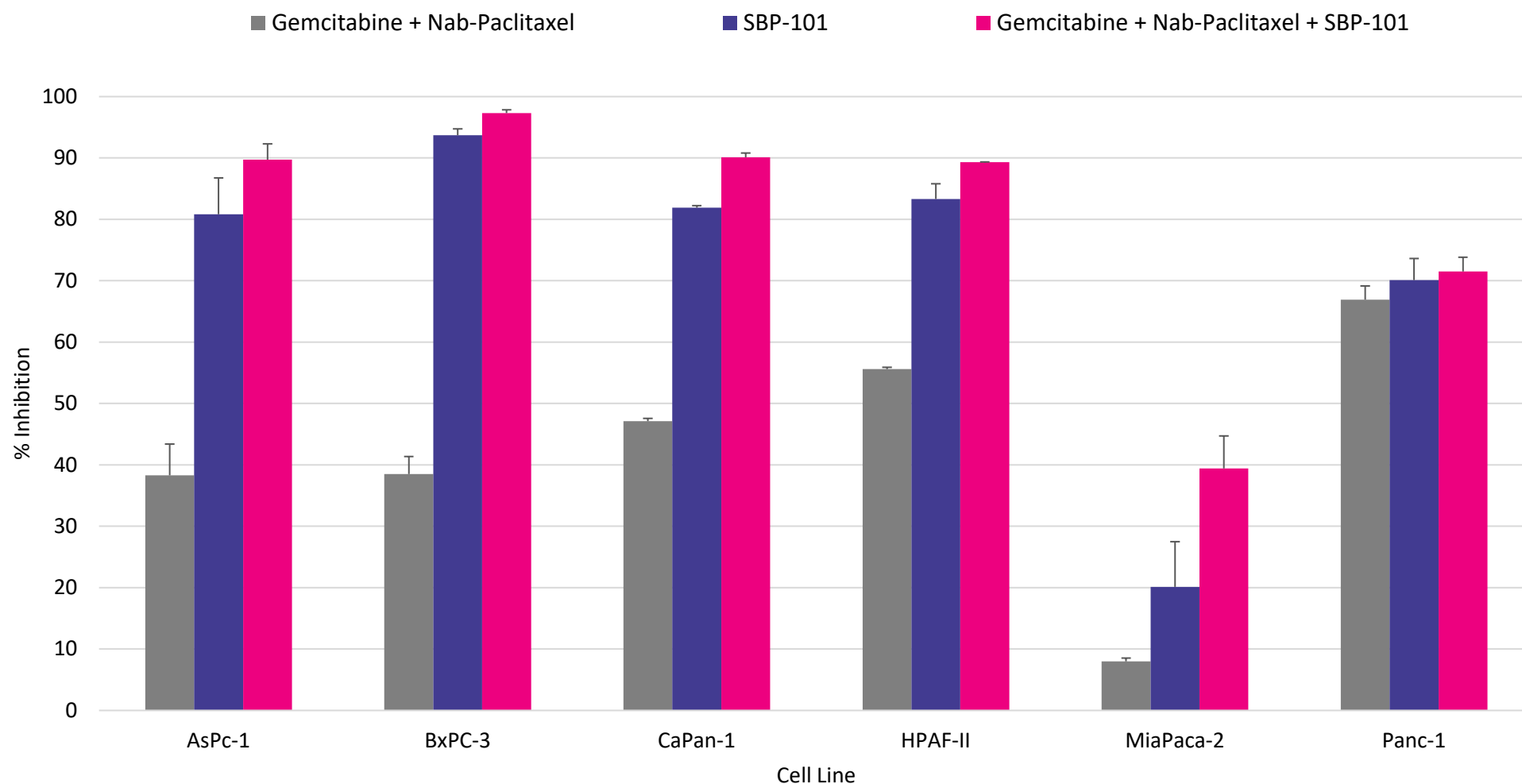
(1) Charles River, Ann Arbor

(2) Baker CB et al, AACR 2014

(3) SBP-101 dosing 25mg/kg and Gemcitabine dosing 100mg/kg

SBP-101 Shows Greater Inhibition of Human PDA Growth Than Current Standard of Care (Gem + Nab) in an *in vitro* Study

SBP-101 Demonstrates Superior and Additive Efficacy *in vitro*










SBP-101 Phase 1 PDA Study Design

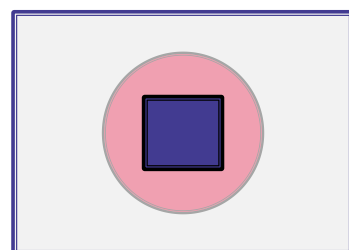
Overview

- Open-label P1A/1B study to assess safety, tolerability and PK when combined with Nab-Paclitaxel and Gemcitabine
- Identify P2 dose and schedule and assess preliminary efficacy of 3-drug treatment combination
- Primary Outcome Measure**
 - Safety, PK, Tolerability
- Areas of Exploration**
 - Overall Response Rate, CA 19-9 Levels, Progression-Free Survival

Design

	Dose	Enrolled	Dosing Schedule
Cohort 1 (n = 4)	0.2 mg/kg	✓	 only
Cohort 2 (n = 7)	0.4 mg/kg	✓	 only
Cohort 3 (n = 9)	0.6 mg/kg	✓	 only
Cohort 4 (n = 5)	0.4 mg/kg	✓	2  + 4 
Expansion Cohort (n = up to 36)	0.4 mg/kg	Ongoing	2  + 4 

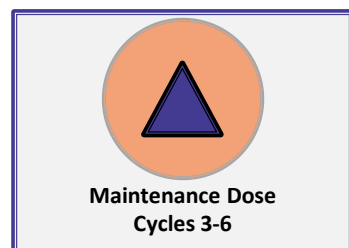
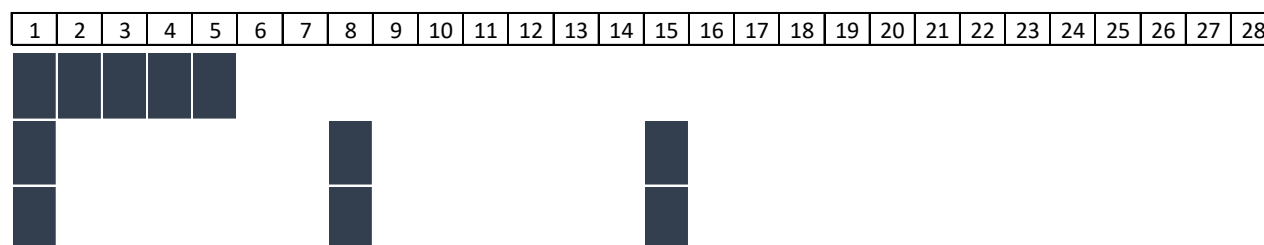
Treatment Spans Up to Six 28-Day Cycles



SC SBP-101 (0.2, 0.4 or 0.6 mg/kg)

IV Gemcitabine (1000mg/m2)

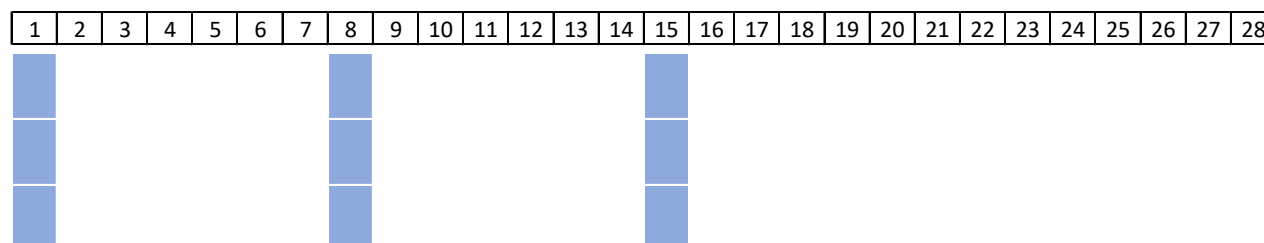
IV Nab-Paclitaxel (125mg/m2)



SC SBP-101 (0.4 mg/kg)

IV Gemcitabine (1000mg/m2)

IV Nab-Paclitaxel (125mg/m2)



Clinical Importance of CA 19-9 Biomarker

- Carbohydrate antigen (CA) 19-9 is a type of antigen found in the blood that is often elevated in pancreatic disease
- Studies have suggested that decreases in CA 19-9 levels are correlated with improved prognosis; $\geq 75\%$ declines in CA 19-9 levels correlated with the greatest survival benefit in pancreatic cancer

CA 19-9 Response

A Surrogate to Predict Survival in Patients With Metastatic Pancreatic Adenocarcinoma

Celso L. Diaz, MD,* Pelin Cinar, MD, MS,† Jimmy Hwang, PhD,‡
Andrew H. Ko, MD,† and Margaret A. Tempero, MD,‡

Objective: The objective of this study was to determine the features of carbohydrate antigen (CA) 19-9 decline that correlates best with survival benefit in patients with metastatic pancreatic cancer.

Methods: This is a retrospective study of 225 patients with metastatic pancreatic cancer receiving first-line therapy. Analysis was performed by the Kaplan-Meier method and Cox-proportional hazards ratios. CA 19-9 decline was grouped into quartiles within different CA 19-9 baseline groups. Time to nadir and CA 19-9 decline at month-2 (M2) of therapy were evaluated for patients with a baseline level ≥ 1000 U/mL.

Results: No significant trend in survival was observed across baseline CA 19-9 levels. The greatest survival benefit was seen with a $\geq 75\%$ decline to nadir. Among those with a $\geq 75\%$ decline and baseline ≥ 1000 U/mL, 43 of 57 patients had a $> 50\%$ decline at M2 of therapy and additional survival benefit was observed with a slower decline to nadir. Small sample sizes limited analysis of other baseline groups. CA 19-9 decline at M2 was not predictive.

Conclusions: In patients with a CA 19-9 ≥ 1000 U/mL, serial CA 19-9 levels may be considered as a surrogate for serial imaging to evaluate treatment response, with a $\geq 75\%$ decline indicating the greatest survival benefit. Survival was improved further in the setting of a slower decline to nadir with the highest benefit seen in patients with a nadir occurring at 4 months or longer.

From the *School of Medicine, University of California; †Department of Medicine, Division of Hematology/Oncology, University of California; and ‡UCSF Helen Diller Family Comprehensive Cancer Center, San Francisco, CA.

CA19-9 decrease at 8 weeks as a predictor of overall survival in a randomized phase III trial (MPACT) of weekly nab-paclitaxel plus gemcitabine versus gemcitabine alone in patients with metastatic pancreatic cancer

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Background: A phase I/II study and subsequent phase III study (MPACT) reported significant correlations between CA19-9 decreases and prolonged overall survival (OS) with nab-paclitaxel plus gemcitabine (nab-P + Gem) treatment for metastatic pancreatic cancer (MPC). CA19-9 changes at week 8 and potential associations with efficacy were investigated as part of an exploratory analysis in the MPACT trial.

Patients and methods: Untreated patients with MPC (N = 861) received nab-P + Gem or Gem alone. CA19-9 was evaluated at baseline and every 8 weeks.

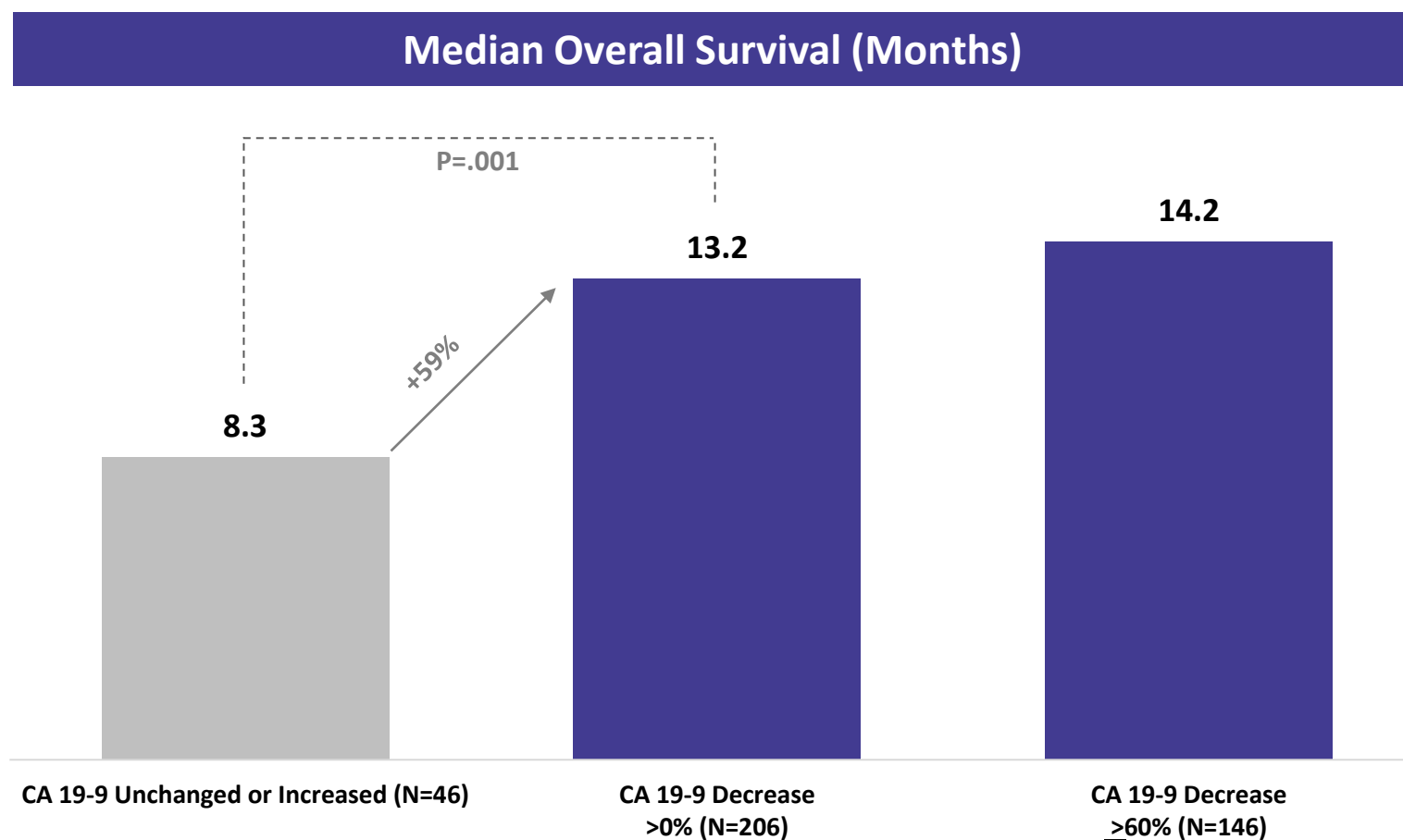
Results: Patients with baseline and week-8 CA19-9 measurements were analyzed (nab-P + Gem: 252; Gem: 202). In an analysis pooling the treatments, patients with any CA19-9 decline (80%) versus those without (20%) had improved OS (median 11.1 versus 8.0 months; $P = 0.005$). In the nab-P + Gem arm, patients with ($n = 206$) versus without ($n = 46$) any CA19-9 decrease at week 8 had a confirmed overall response rate (ORR) of 40% versus 13%, and a median OS of 13.2 versus 8.3 months ($P = 0.001$), respectively. In the Gem-alone arm, patients with ($n = 159$) versus without ($n = 43$) CA19-9 decrease at week 8 had a confirmed ORR of 15% versus 5%, and a median OS of 9.4 versus 7.1 months ($P = 0.404$), respectively. In the nab-P + Gem and Gem-alone arms, by week 8, 16% (40/252) and 6% (13/202) of patients, respectively, had an unconfirmed radiologic response (median OS 13.7 and 14.7 months, respectively), and 79% and 84% of patients, respectively, had stable disease (SD) (median OS 11.1 and 9 months, respectively). Patients with SD and any CA19-9 decrease (158/199 and 133/170) had a median OS of 13.2 and 9.4 months, respectively.

Conclusion: This analysis demonstrated that, in patients with MPC, any CA19-9 decrease at week 8 can be an early marker for chemotherapy efficacy, including in those patients with SD. CA19-9 decrease identified more patients with survival benefit than radiologic response by week 8.

¹Department of Medicine/Oncology, University of Washington, Fred Hutchinson Cancer Research Center, Seattle; ²HonorHealth and The Translational Genomics Research Institute (TGen), Scottsdale, USA; ³Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ⁴Department of Oncology, NYU Langone Cancer Center, New York, USA; ⁵Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ⁶Department of Oncology, NYU Langone Cancer Center, New York, USA; ⁷Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ⁸Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ⁹Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ¹⁰Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ¹¹Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ¹²Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ¹³Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy; ¹⁴Department of Radiation Oncology, San Raffaele Scientific Institute, Milan, Italy.

CA 19-9 Biomarker and Survival Benefit Correlation

- Patients in the MPACT study (Phase III Gem+Nab) whose CA 19-9 levels decreased saw an approximate 5-month incremental median survival benefit ($P=.001$) compared to patients with unchanged or increased CA 19-9 levels
- Greatest survival benefit observed in patients with CA 19-9 decreases $\geq 60\%$



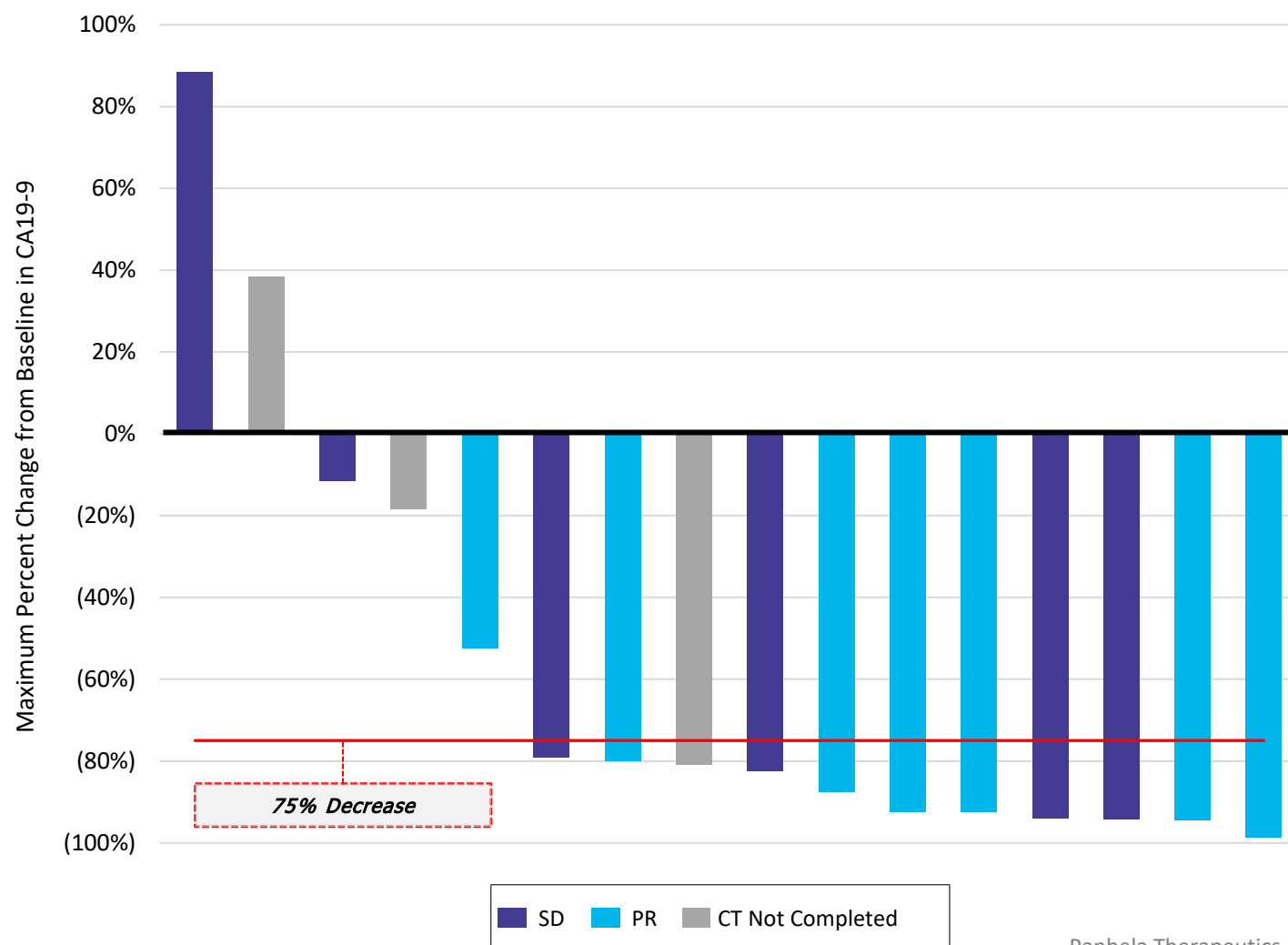
Interim P1A CA 19-9 Positive Biomarker Data

CA 19-9 tumor marker
often released by
pancreatic cancer cells

Patients with
CA 19-9 Decrease

88%

- 69% of subjects had a maximum CA 19-9 decrease greater than 75%
- 88% of subjects had a decrease in CA 19-9 levels



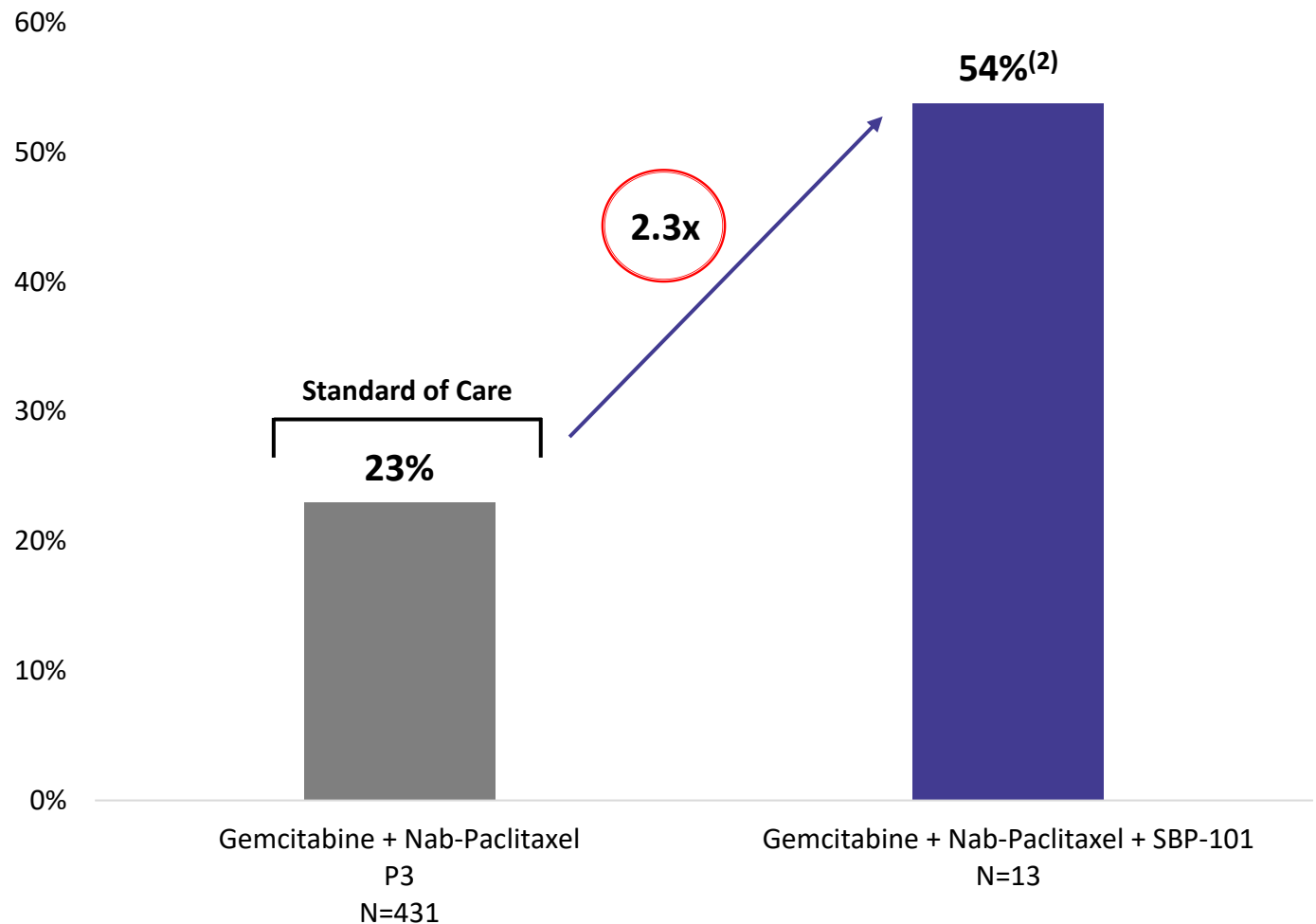
SBP-101 Interim P1A Positive ORR Data

SBP-101 Well Tolerated in Combination with Gemcitabine and Nab-Paclitaxel

Disease Control Rate⁽¹⁾

100%

- 2.3x the response rate of Gemcitabine & Nab-Paclitaxel
- 2.0x the disease control rate of Gemcitabine & Nab-Paclitaxel



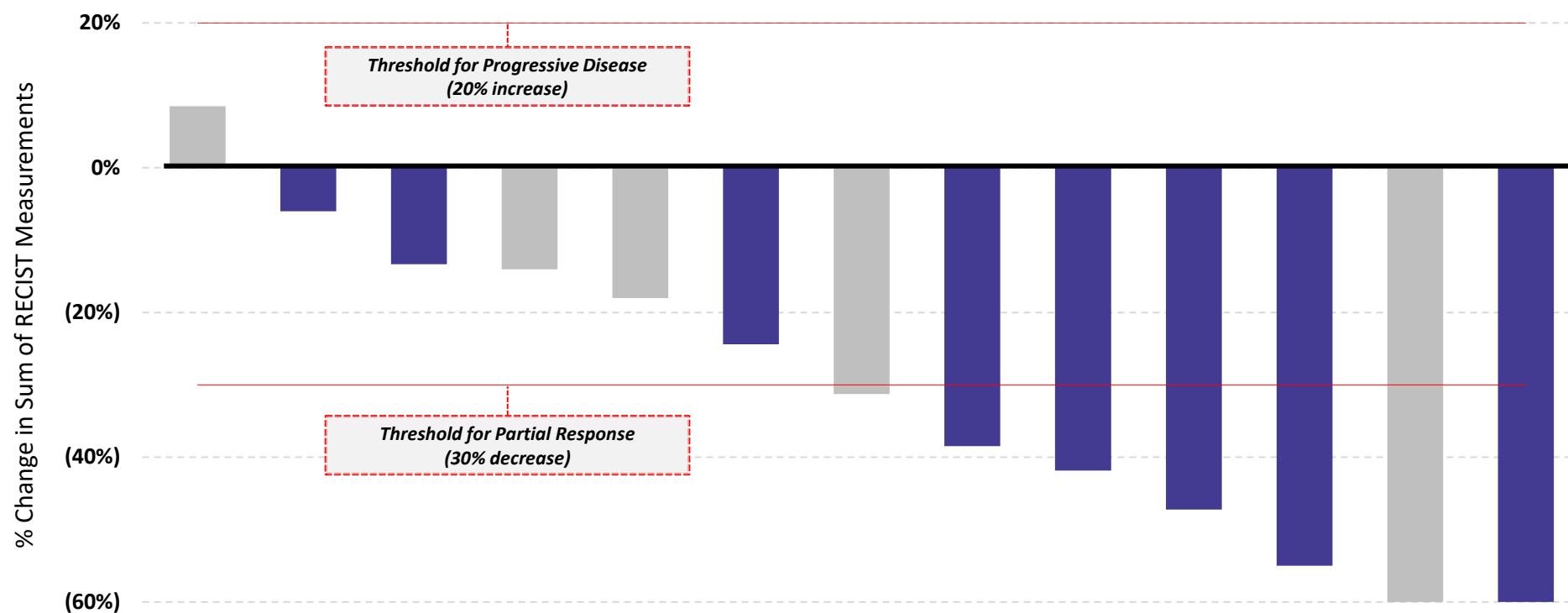
(1) As measured by RECIST criteria

(2) Cohorts 2 and 3 (interim results)

P1A Interim Response Rate by Patient

- N = 13 across Cohort 2 (0.4 mg/kg) and Cohort 3 (0.6 mg/kg)
- 54% partial response (7 of 13)
- 46% stable disease (6 of 13)

Cohorts 2 and 3 – 54% Objective Response Rate⁽¹⁾



(1) Total of 16 subjects; 3 subjects not evaluable (no post-treatment follow-up CT scan), RECIST criteria

Interim P1A Results

- Gemcitabine (G, Gemzar, Eli Lilly) & Nab-Paclitaxel (A, Abraxane, Celgene):
 - Standard pancreatic cancer Rx combination
 - Grade 3-4 neutropenia 38%
 - Grade 3-4 thrombocytopenia 13%
 - Grade 3-4 peripheral neuropathy 17%
- SBP-101
 - No added neutropenia, thrombocytopenia, or neuropathy
 - Grade 3-4 hepatic enzyme elevation 20%

Efficacy Variable	Phase 3 Study**		SBP-101 Combined Cohorts 2 and 3 N = 13*
	G N=430	G&A N=431	
PR	7%	23%	54%
SD	28%	27%	46%
PR + SD	35%	48%	100%
CA 19-9*** > 75 % ↓	26%	39%	69%
PFS	3.7 mo	5.5 mo	TBD
OS	6.7 mo	8.5 mo	TBD

*16 total subjects; 13 subjects were evaluable for RECIST response

**DVH NEJM 2013

*** >75% decrease in CA 19-9 associated with increased median survival

PR: CT Scan >30% tumor partial response

SD: CT Scan stable disease

PFS: progression-free survival

Capitalization

Capitalization Table	
Common Shares Outstanding	9,649,427
Stock Options @ \$6.71 WAEP	2,170,459
Warrants @ \$5.31 WAEP	6,571,468
Fully Diluted Shares Outstanding	18,391,354

Balance Sheet Summary and Use of Cash

Balance Sheet	
Cash at 9/30/2020	\$10,870,000
Term Loan ⁽¹⁾	\$39,000
Promissory Note ⁽²⁾	\$742,000
PPP Loan ⁽³⁾	\$103,000
Net Cash at 9/30/2020	\$9,986,000
Average Quarterly Cash Used in Operations⁽⁴⁾	\$1,000,000

(1) Annual interest 4.125%, matures 12/31/2020, recurring monthly payments of \$10,000

(2) Paid in full in October 2020

(3) Unsecured promissory note as part of the Payroll Protection Program; forgiveness application for full amount completed in November 2020

(4) Average cash used in operations per quarter through September 20, 2020

Milestones

2020

- ▶ **Uplisted to Nasdaq (Q3'20)**
- ▶ **Completed enrollment in the expansion cohort (Q4'20)**

2021

- ▶ **Data from phase 1 trial (1H'21)**
- ▶ **Conference presentation (1H'21 or 2H'21)**
- ▶ **Initiation of randomized phase 2 study (1H'21)**

SBP-101 Summary



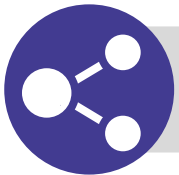
Unique dual-attack MOA is synergistic with other agents, potentially enhancing anti-tumor response



Favorable safety & tolerability profile and subcutaneous administration in clinical studies to date supports potential ease of use



Encouraging interim efficacy and tumor marker signals consistent with preferential uptake of SBP-101 in tumor cells



Potential to expand SBP-101 into other cancers with known elevated levels of polyamine metabolism



Report top-line data from Phase 1 clinical trial in 1H 2021

Rapidly advancing SBP-101 clinical development to create significant shareholder value