UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): October 29, 2020

Bellicum Pharmaceuticals, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**001-36783**	**20-1450200**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

2710 Reed Road, Ste. 160, Houston, TX 77051
(Address of principal executive offices, including zip code)

Registrant's telephone number, including area code: 832-384-1100

2130 W. Holcombe Blvd., Ste. 800, Houston, TX 77030
(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	**BLCM**	**The Nasdaq Capital Market**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§ 230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§ 240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

In this report, “we,” “us” and “our” refer to Bellicum Pharmaceuticals, Inc.

Item 2.02 Results of Operations and Financial Condition.

While we have not finalized our full financial results for the quarter ended September 30, 2020, we expect to report that we had approximately $54.6 million of cash, cash equivalents and restricted cash as of September 30, 2020. This amount is preliminary, has not been audited and is subject to change in connection with the completion of our unaudited financial statements for the quarter ended September 30, 2020. In addition, our independent registered public accounting firm does not express an opinion or any other form of assurance with respect thereto.

Item 8.01 Other Events.

On October 29, 2020, we issued a press release (the “Press Release”) providing program updates, including interim data from our BPX-601 dose-escalation clinical trial in patients with relapsed/refractory metastatic pancreatic cancer, and announcing the implementation of our restructuring plan, including a reduction in staff, to focus our efforts on our clinical GoCAR-T® product candidates. The Press Release is attached hereto as Exhibit 99.1

We are filing the updated company presentation (the “Presentation”), attached hereto as Exhibit 99.2, to provide updates regarding, among other things, interim data from our BPX-601 dose-escalation clinical trial and the implementation of our restructuring plan.

Reference is made to the information contained in Item 2.02 of this Current Report on Form 8-K, which is incorporated by reference herein.

Forward-Looking Statements

This Current Report on Form 8-K contains forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. Any statements in this report that are not historical facts may be considered “forward-looking statements,” including, but not limited to, statements regarding our preliminary unaudited cash, cash equivalents and restricted cash as of September 30, 2020. Forward-looking statements are typically, but not always, identified by the use of words such as “may,” “would,” “believe,” “intend,” “plan,” “anticipate,” “estimate,” “expect,” and other similar terminology. Forward-looking statements are based on current expectations of management and upon what management believes to be reasonable assumptions based on information currently available to it, and are subject to risks and uncertainties. Such risks and uncertainties may cause actual results to differ materially from the expectations set forth in the forward-looking statements. Such risks and uncertainties include, but are not limited to, risks related to preliminary financial results, including the risks that the preliminary financial results reported herein reflect information available to us only at this time and may differ from actual results, including in connection with our completion of financial closing procedures, risks associated with market conditions, risks and uncertainties associated with our business and finances in general, risks associated with the COVID-19 global pandemic, as well as other risks detailed in our recent filings on Forms 10-K and 10-Q with SEC. We undertakes no obligation to update any forward-looking statements to reflect new information, events or circumstances, or to reflect the occurrence of unanticipated events.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit Number	Description
99.1	Press Release issued by Bellicum Pharmaceuticals, Inc. on October 29, 2020
99.2	Slide Presentation of Bellicum Pharmaceuticals, Inc.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Bellicum Pharmaceuticals, Inc.

Dated: October 29, 2020

By: /s/ Richard A. Fair
Richard A. Fair
President and Chief Executive Officer
(Principal Executive Officer)

Bellicum Announces Interim BPX-601 Data and Corporate Restructuring

HOUSTON, October 29, 2020 — Bellicum Pharmaceuticals, Inc. (NASDAQ:BLCM), a leader in developing novel, controllable cellular immunotherapies for cancers, today announced interim data from its BPX-601 dose-escalation clinical trial in patients with relapsed/refractory metastatic pancreatic cancer. Findings from the first four patients treated with BPX-601 followed by repeat rimiducid dosing showed evidence of rimiducid-mediated CAR-T cell activation. Clinically meaningful efficacy as measured by RECIST criteria was not observed.

After an extensive review of its organization and programs, the company has implemented a restructuring plan, including a reduction in staff, to focus its efforts on its clinical GoCAR-T® product candidates. For BPX-601, the first candidate incorporating iMC, the company expects to begin enrolling patients with metastatic castration-resistant prostate cancer (mCRPC) in the ongoing Phase 1/2 clinical trial before the end of the year and intends to review its plans in pancreatic cancer upon completion of the current safety cohort. For BPX-603, the company's first dual-switch GoCAR-T candidate, Bellicum expects to initiate enrollment of patients with HER2+ solid tumors in a Phase 1/2 clinical trial also by the end of the year. In order to preserve operating capital for these clinical trials, the company plans to pause development of its BCMA GoCAR-NK program.

"The results we have observed in the BPX-601 study are encouraging in terms of safety and GoCAR-T cell activation, proliferation, and persistence. We are eager to investigate our technology further in new tumor types like mCRPC and against established target antigens like HER2," said Rick Fair, President and Chief Executive Officer of Bellicum. "We have concluded that Bellicum must reduce spending on preclinical programs and shift its resources to enable achievement of meaningful milestones in the clinic. We regret the impact this unavoidable decision will have on our departing employees and we sincerely thank them for their contributions and dedication."

Interim BPX-601 Data

As of July 9, 2020, four patients were treated with $5x10^6$ BPX-601 cells/kg followed by 2-11 doses of rimiducid in cohort 5C of the Phase 1 dose escalation clinical trial. Interim results include the following observations:

- Administration of BPX-601 and repeat doses of rimiducid was tolerated as follows:
    - No treatment-related adverse events ≥Grade 2 were observed in these four patients; one treatment-related SAE (Grade 4 cytokine release syndrome) was reported in a patient treated after data cutoff
    - One genitourinary adverse event was reported (Grade 1 intermittent hematuria)
    - Four events of Grade 1 neurotoxicity (neurotoxicity, dysgraphia, and confusion x2) were reported in two patients
    - The safety profile observed was otherwise consistent with previous reports

- Best Overall Response in these patients included 3 stable disease and 1 progressive disease
- Evidence of repeat rimiducid-mediated CAR-T cell activation was observed as follows:
    - Rimiducid administration was associated with increased serum cytokine levels, including IL-5, TNF-α, and IFN-g
    - Rimiducid treatment was also associated with increased expression of activation markers (e.g. CD25) on peripheral CD4+ and CD8+ T cells, indicative of systemic immune modulation via BPX-601 iMC activation
    - In two evaluable subjects receiving >2 doses of rimiducid, repeat rimiducid dosing was not shown to increase the peak or AUC of circulating BPX-601 cells relative to single-dose rimiducid
    - Consistent with previous cohorts, rimiducid administration was associated with a transient decline followed by partial recovery in circulating BPX-601 cells

Corporate Restructuring

Under the restructuring program, the company will focus on the clinical development of BPX-601 and BPX-603, pause the BCMA GoCAR-NK program, and discontinue discovery research and new product development. Staff will be reduced by 79%, from 68 to 14 full-time employees by the end of 2020, and Bellicum expects to incur severance expenses of approximately $2.5 million. The company also intends to pay down all of its Oxford Finance debt obligations using cash on hand with payment of $27.4 million in principal plus applicable fees and accrued interest on or before October 30, 2020. These actions are expected to reduce the company's expenses and extend its cash runway. The company now expects annual cash utilization of $25 to $30 million.

About Bellicum Pharmaceuticals

Bellicum is a clinical stage biopharmaceutical company striving to deliver cures through controllable cell therapies. The company's next-generation product candidates are differentiated by powerful cell signaling technologies designed to produce more effective CAR-T cell therapies. Bellicum's GoCAR-T® product candidates, BPX-601 and BPX-603, are designed to be more efficacious CAR-T cell products capable of overriding key immune inhibitory mechanisms. More information about Bellicum can be found at www.bellicum.com.

Forward-Looking Statements

This press release contains forward-looking statements for purposes of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Bellicum may, in some cases, use terms such as "predicts," "believes," "potential," "proposed," "continue," "designed," "estimates," "anticipates," "expects," "plans," "intends," "may," "could," "might," "will," "should" or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Forward-looking statements include statements regarding our intentions, beliefs, projections, outlook, analyses or current expectations concerning, among other things: our research and development activities and expectations regarding the initiation of clinical trials for BPX-601 and BPX-603, our ability to enroll patients and generate meaningful clinical data in our ongoing GoCAR clinical programs; our expected cash runway and the anticipated extension as a result of our restructuring program; our plans to pay down our outstanding obligations with Oxford and timing such payment; the anticipated restructuring expenses and the anticipated milestones identified above. Various factors may cause differences between Bellicum's expectations and actual results as discussed in greater detail under the heading "Risk Factors"

in Bellicum's filings with the Securities and Exchange Commission, including without limitation our quarterly report on Form 10-Q for the three months ended June 30, 2020 and our annual report on Form 10-K the year ended December 31, 2019. Any forward-looking statements that Bellicum makes in this press release speak only as of the date of this press release. Bellicum assumes no obligation to update our forward-looking statements whether as a result of new information, future events or otherwise, after the date of this press release.

Source: Bellicum Pharmaceuticals

Investors:

Robert H. Uhl
Managing Director
Westwicke ICR
858-356-5932
Robert.uhl@westwicke.com

Exhibit 99.2

Investor Presentation

Building a powerful new future in cellular IO

October 2020

Bellicum

Bellicum

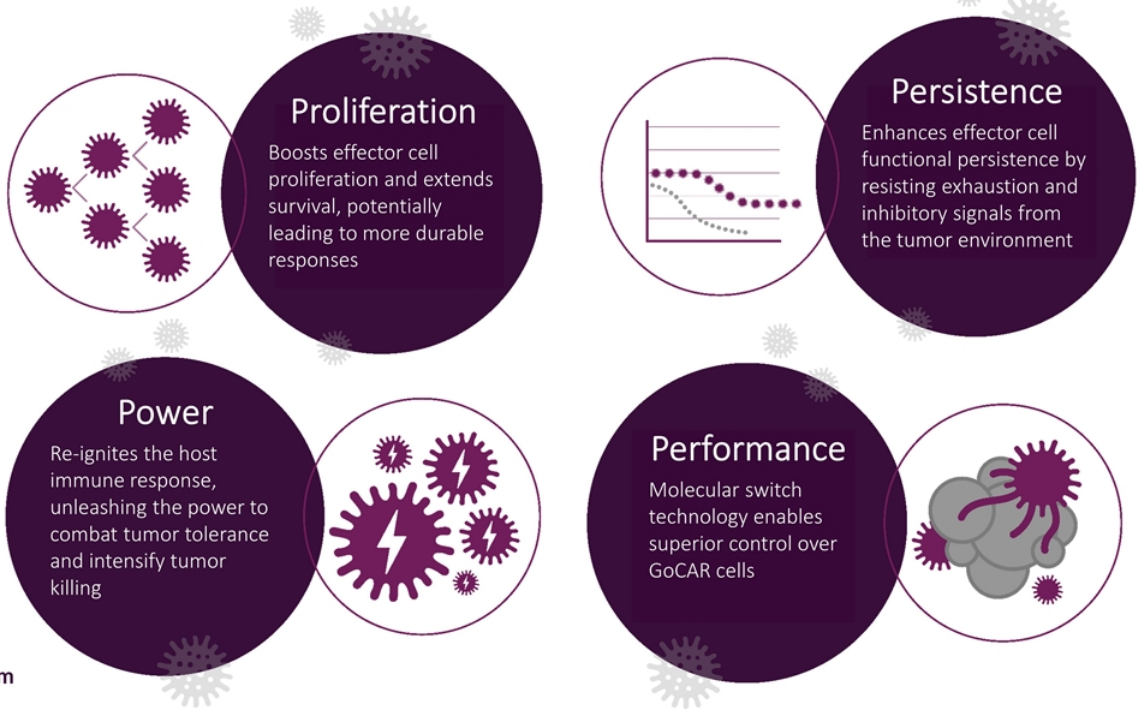
Forward Looking Statement

This presentation contains estimates, projections and other forward-looking statements, concerning, among other things: our research and development activities relating to our GoCAR™ platform, and related technologies; our product candidates including BPX-601, BPX-603, and rimiducid; the timing and success of our current and planned clinical trials, including the timing of receipt of data from such clinical trials and the timing of our reports of such data; the possible range of applications of our cell therapy programs and potential curative effects and safety in the treatment of diseases, including as compared to other treatment options and competitive therapies; and our near-term restructuring plan, including focus of our clinical and research and development activities, repayment of our outstanding obligations under our credit facility with Oxford Finance, reduction in employee headcount and reduction in cash utilization. Our estimates, projections and other forward-looking statements are based on management's current assumptions and expectations of future events and trends, which affect or may affect our business, strategy, operations or financial performance. Although we believe that these estimates, projections and other forward-looking statements are based upon reasonable assumptions, they are subject to numerous known and unknown risks and uncertainties and are made in light of information currently available to us. Many important factors, in addition to the factors described in this presentation, may adversely and materially affect our results as indicated in forward-looking statements. All statements other than statements of historical fact are forward-looking statements.

Estimates, projections and other forward-looking statements speak only as of the date they were made, and, except to the extent required by law, we undertake no obligation to update any forward-looking statement. These statements are also subject to a number of material risks and uncertainties that are described more fully in Bellicum's filings with the Securities and Exchange Commission, including without limitation our annual report on Form 10-K for the year ended December 31, 2019 and our quarterly report on Form 10-Q for the period ended June 30, 2020.

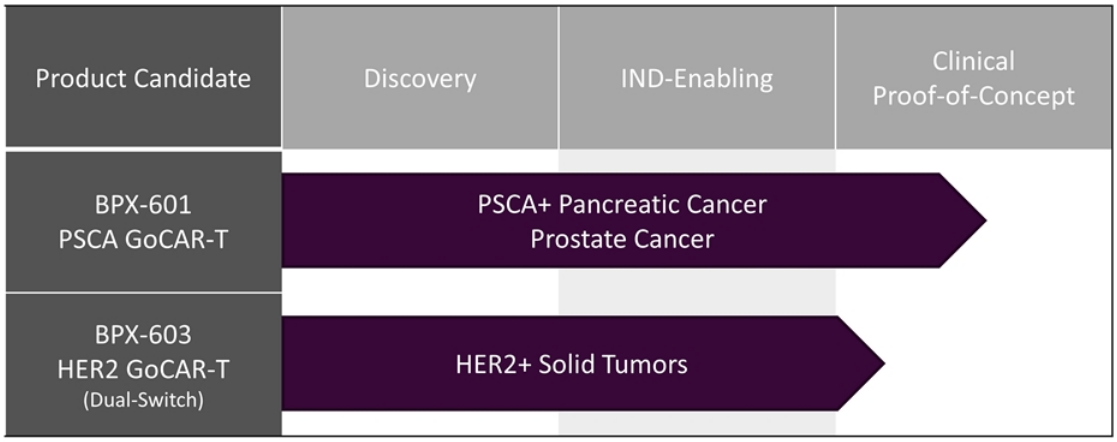
Building a Powerful New Future in Cellular IO

Our GoCAR platform is engineered to break through the limitations of current cell therapies



Product Pipeline

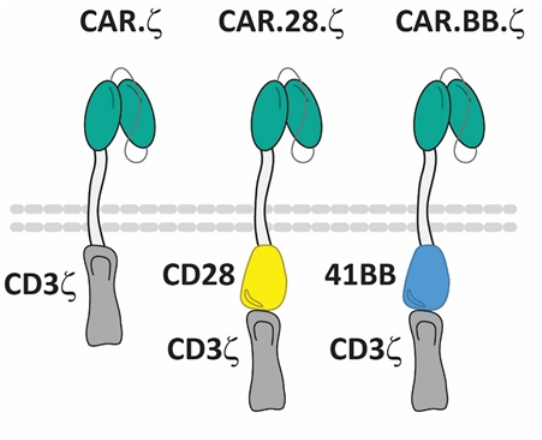
Establishing the clinical value of GoCAR-T in solid tumors to propel cellular IO forward



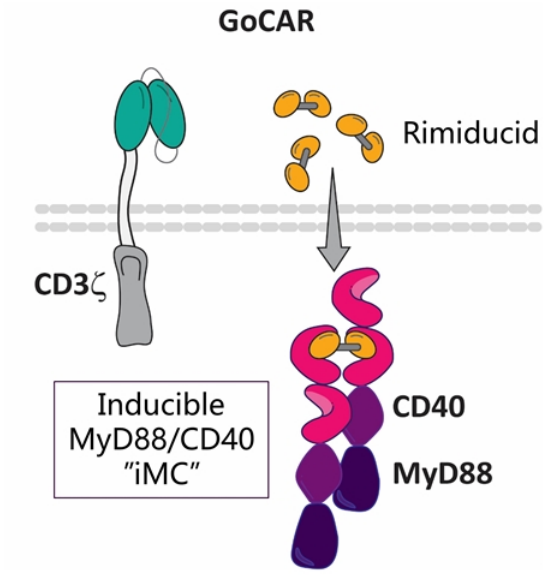

Technology Overview

GoCAR: Differentiated Technology Platform

Current Generation CAR Technology

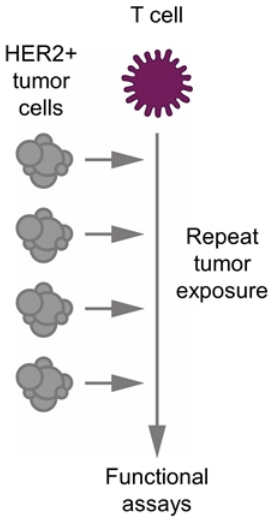


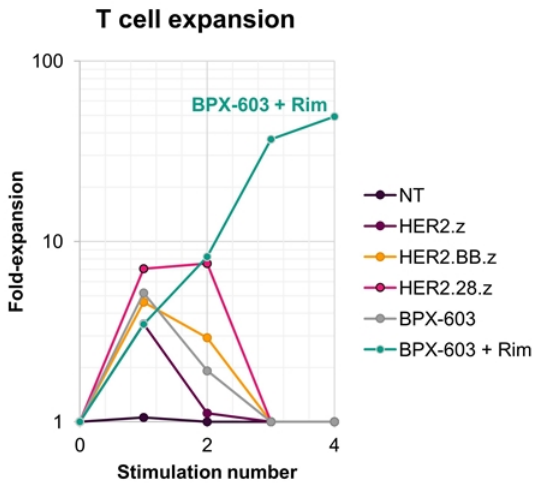
Next Generation GoCAR Technology

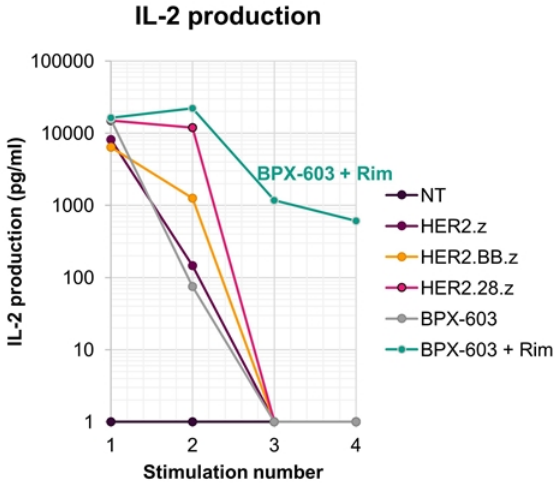


GoCAR Proliferation: Superior Expansion and Resistance to T Cell Exhaustion

iMC activation limits T cell dysfunction in repeat tumor stimulation exhaustion assay

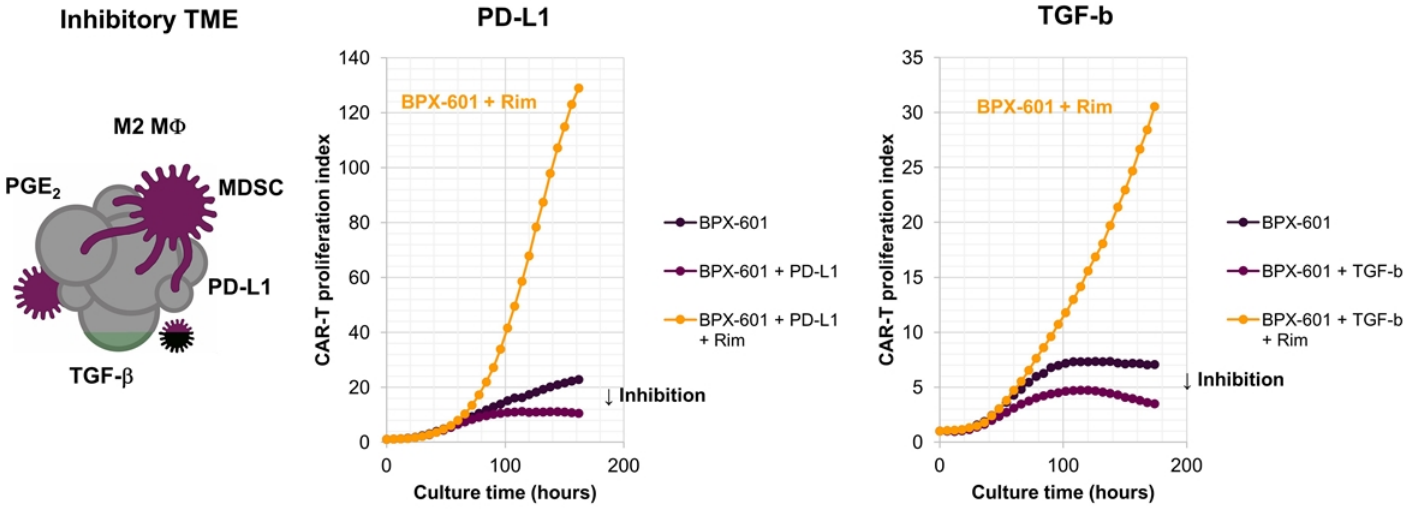






GoCAR Persistence: Resistance to Immune Suppressive TME

iMC overrides common inhibitory molecules in the tumor microenvironment



TME – tumor microenvironment


BPX-601
PSCA GoCAR-T

BPX-601 GoCAR-T Targets Solid Tumors Expressing PSCA

Product Profile Summary

- Attractive first-in-class solid tumor CAR-T opportunity
- First-in-human experience with iMC
- Phase 1 pancreatic results to date demonstrate manageable safety, iMC-driven T cell activation and persistence, modulation of the tumor micro-environment, and biologic activity

Status Update

- mCRPC dose escalation initiating in Q4 at $5x10^6$ cells/kg
- Pancreatic cancer review planned upon completion of current cohort

Unmet Need

High unmet need in solid tumors expressing prostate stem cell antigen (PSCA)

	Annual Incidence (U.S.)	Annual Deaths (U.S.)	% Expressing PSCA
Prostate	165k	29k	75-90%
Pancreatic	55k	44k	~50%

Incidence and annual deaths: Noone AM, Howlader N, Krapcho M, Miller D, Brest A, Yu M, Ruhl J, Tatalovich Z, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds). SEER Cancer Statistics Review, 1975-2015, National Cancer Institute. Bethesda, MD, https://seer.cancer.gov/csr/1975_2015/, based on November 2017 SEER data submission, posted to the SEER web site, April 2018.
PSCA expression: Argani et al, Cancer Res 2001; Reiter et al., PNAS 1998; Abate-Daga et al, HGT 2014; Data on file

BPX-601: Phase 1 Trial

Dose escalation in relapsed/refractory pancreatic cancer

	Lead-in (Cohort 0)	Dose Escalation (Cohorts 3, 4, 5A)	Standard Conditioning (Cohort 5B)	Repeat Rimiducid (Cohort 5C)
Pancreatic Patient Population	2L to 6L	2L to 6L	2L	2L
BPX-601 Dose *$x10^6$ cells/kg @ Day 0*	1.25	**1.25, 2.5, 5.0**	5.0	5.0
Conditioning	Cytoxan 1g/m^2 @ Day -3	Cytoxan 1g/m^2 @ Day -3	**Cytoxan 0.5g/m^2 Fludarabine 30mg/m^2 @ Days -5, -4, -3**	Cytoxan 0.5g/m^2 Fludarabine 30mg/m^2 @ Days -5, -4, -3
Rimiducid Dose	None	Single dose Day 7	Single dose Day 7	**Weekly dosing starting at Day 7**

Lead-In & Dose Escalation

Conservatively designed to evaluate safety

- Lead-in cohort with cells only
- Partial conditioning with Cytoxan monotherapy
- Single dose of rimiducid to activate iMC

Standard Conditioning Cohort (5B)

- Evaluated safety of standard Flu/Cy regimen with GoCAR-T
- Single dose of rimiducid to activate iMC

Repeat Rimiducid Cohort (5C)

- First data using iMC repeatedly as designed

ClinicalTrials.gov Identifier: NCT02744287

BPX-601: Safety Reported Through Cohort 5C

*Updated based on data cut July 9, 2020**

Patients, n (%)	Cohort 0 n = 3	Cohort 3 n = 3	Cohort 4 n = 3	Cohort 5A n = 4	Cohort 5B n = 5	Cohort 5C n=4	All Patients N = 22
Any AE	3 (100)	3 (100)	3 (100)	4 (100)	5 (100)	4 (100)	22 (100)
Any SAE	2 (67)	1 (33)	0	3 (75)	4 (80)	3 (75)	13 (59)
AEs in >15% of all patients, n (%)							
Neutropenia	0	1 (33)	0	2 (50)	4 (80)	1 (25)	8 (36)
Febrile neutropenia	0	0	0	2 (50)	4 (80)	1 (25)	7 (32)
Fatigue	2 (67)	1 (33)	0	2 (50)	0	1 (25)	6 (27)
Pyrexia	0	0	1 (33)	2 (50)	2 (40)	1 (25)	6 (27)
Anemia	0	0	0	1 (25)	2 (40)	2 (50)	5 (23)
Hematuria	0	0	0	0	4 (80)	1 (25)	5 (23)
Leukopenia	0	0	0	0	3 (60)	2 (50)	5 (23)
Nausea	2 (67)	0	0	0	3 (60)	0	5 (23)
Abdominal pain upper	0	1 (33)	0	1 (25)	1 (20)	1 (25)	4 (18)
Dysuria	0	0	0	0	4 (80)	0	4 (18)
Back pain	1 (33)	1 (33)	0	2 (50)	0	0	4 (18)
Blood bilirubin increased	0	0	0	1 (25)	2 (40)	1 (25)	4 (18)
Hypotension	0	0	2 (67)	1 (25)	0	1 (25)	4 (18)

- Adverse events (AEs) were generally consistent with cytotoxic chemotherapy or other cancer immunotherapies
- AEs related to BPX-601/rimiducid included:
  - One case of Grade 2 and one case of Grade 4 cytokine release syndrome (CRS)**
  - One case of Grade 2 encephalopathy
  - Four cases of Grade 1-3 urologic toxicity (dysuria, hematuria, cystitis)

*BPX-601 Investigator's Brochure v4, 4 September 2020; **Grade 4 CRS reported in a patient treated after data cutoff (SAE report CIOMS US-BLCM-202000058)

BPX-601: Updated Efficacy Through Cohort 5C

*Updated based on data cut July 9, 2020**

Anti-tumor Activity in ITT Population

Patients, n (%)	Cohort 0 n = 3	Cohort 3 n = 3	Cohort 4 n = 3	Cohort 5A n = 4	Cohort 5B n = 5	Cohort 5C n=4	Overall N = 22
Progressive Disease (PD), n	2	1	1	1	2	1	8
Stable Disease (SD), n	1	2	2	1	3	3	12
Partial Response (PR), n	0	0	0	0	0	0	0
Complete Response (CR), n	0	0	0	0	0	0	0
Disease Control Rate (CR+PR+SD), n(%)	1 (33)	2 (67)	2 (67)	1 (25)	3 (60)	3 (75)	12 (55)

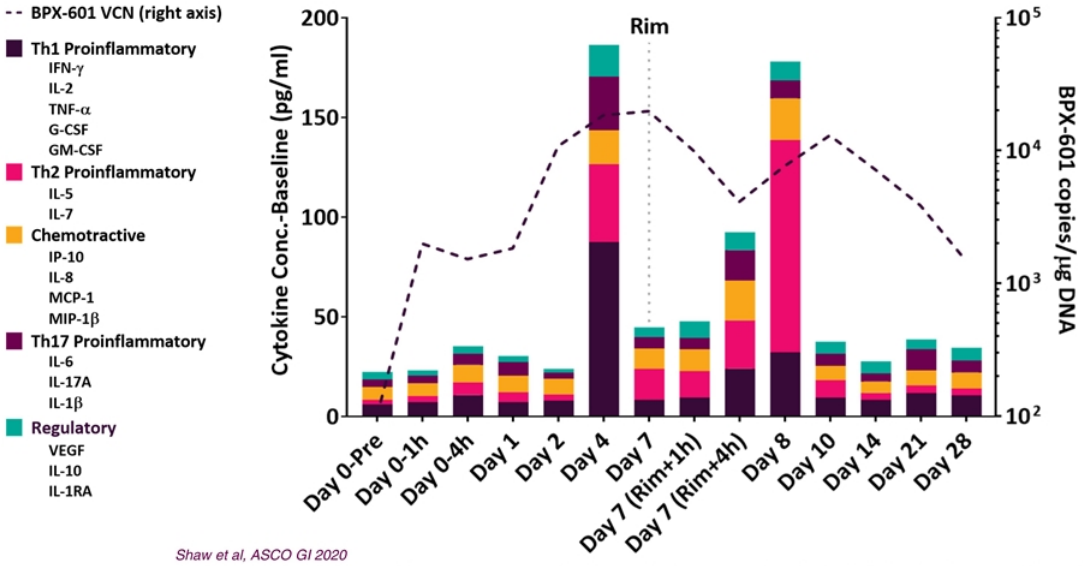
*BPX-601 Investigator's Brochure v4, 4 September 2020

Interim Update: BPX-601 Cohort 5C

- As of July 6, 2020, four patients treated with BPX-601 followed by 2-11 doses of rimiducid in cohort 5C
- Administration of BPX-601 and repeat doses of rimiducid was tolerated
  - No treatment related adverse events ≥Grade 2 observed in these four patients; one treatment-related SAE (Grade 4 cytokine release syndrome) was reported in a patient treated after data cutoff
  - One genitourinary toxicity event reported (Grade 1 intermittent hematuria)
  - Four events of Grade 1 neurotoxicity reported in two patients (neurotoxicity, dysgraphia, and confusion x2)
  - Safety profile otherwise consistent with previous reports
- Best Overall Response: 3 Stable Disease and 1 Progressive Disease
- Evidence of repeat rimiducid-mediated CAR-T cell activation was observed
  - Rimiducid administration was associated with increased serum cytokine levels, including IL-5, TNF-, and IFN-
  - Rimiducid treatment was also associated with increased expression of activation markers (e.g. CD25) on peripheral CD4+ and CD8+ T cells, indicative of systemic immune modulation via BPX-601 iMC activation
  - In two evaluable subjects receiving >2 doses of rimiducid, repeat dosing was not shown to increase peak or AUC circulating BPX-601 cells relative to single-dose rimiducid
  - Consistent with previous cohorts, rimiducid administration was associated with a transient decline followed by partial recovery in circulating BPX-601 cells

BPX-601: GoCAR-T Increased Immunomodulatory Cytokines

Infusion of BPX-601 and activation with rimiducid increased immunomodulatory cytokines



- Increases in Th1 and Th2 cytokines were observed with:
  - Administration of BPX-601 GoCAR-T cells
  - GoCAR-T activation with rimiducid

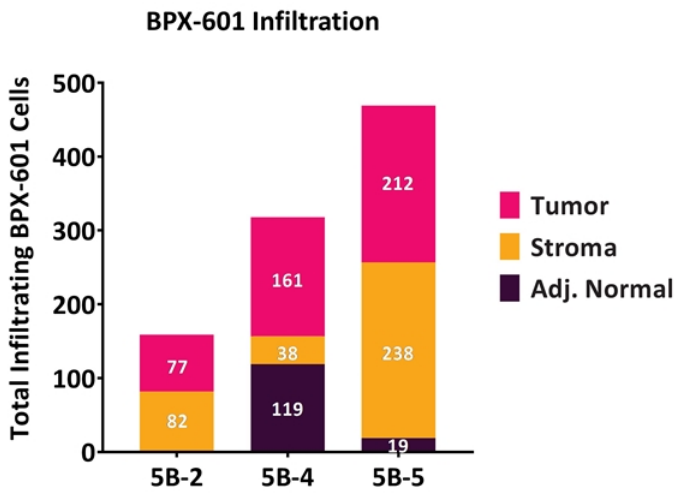
Shaw et al, ASCO GI 2020

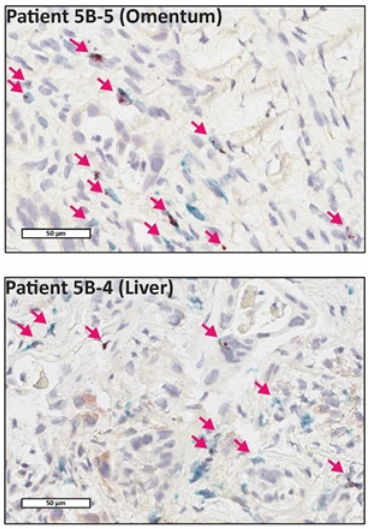
Stacked bars represent the summed mean fold-change in concentration of cytokines in each category in patients from Cohort 5B (n=5). Black dotted line represents the mean VCN for Cohort 5B. Gray dotted line represented rimiducid administration on Day 7.

Conc., concentration; Rim, rimiducid.

BPX-601: GoCAR-T Infiltrated Metastatic Pancreatic Tumors

On-treatment biopsies taken from metastatic lesions show BPX-601 tumor infiltration





CD3 = Blue; BPX-601 = Red, arrows

- Analysis of tumor metastases from patient showed:
  - Infiltration of BPX-601 GoCAR-T cells
  - BPX-601 effectively localized to tumor

Shaw et al, ASCO GI 2020

(Left) Stacked bars represent the total number of BPX-601 cells quantified in ISH stained tissue sections of available (n=3) biopsies from metastatic lesions of Cohort 5B patients. White numbers in bars indicate the number of BPX-601 cells measured within each ROI.
(Right) Representative images of CD3 (IHC) and BPX-601 (ISH) stained tissue sections of available (n=3) biopsies from metastatic lesions of Cohort 5B patients. Red arrows indicate BPX-601 GoCAR-T cells
Adj. normal, adjacent normal; ROI, region of interest.

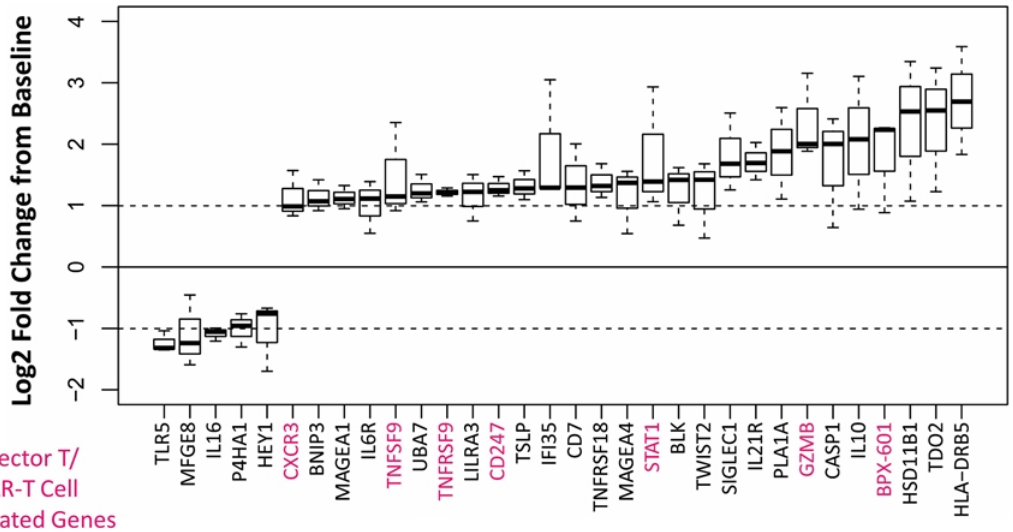
Bellicum

BPX-601: Modulation of Tumor Microenvironment

Changes in gene expression consistent with productive T cell immune responses

Differentially Expressed Genes in Tumor Metastases After BPX-601 + Rim

(Cohort 5B, n=3)



Effector T/ CAR-T Cell Associated Genes

- Upregulation of T/CAR-T cell associated genes including:
  - GZMB – Target cell killing by cytotoxic T cells
  - CXCR3 – Activated T cell trafficking
  - 41BB(TNFSF9) / 41BBL(TNFRSF9) – T cell costimulation
  - CD3Z (CD247) – TCR Signaling
  - STAT1 – Interferon signaling
  - BPX-601 – Infiltrating GoCAR-T cells

Shaw et al, ASCO GI 2020

Box and whisker plots indicate log2 fold change of genes with altered expression (upregulation or downregulation) while on-treatment (Day 14-21) from paired baseline sample (p-value < 10%). nCounter data using NanoString PanCan IO360 panel.

Bellicum


BPX-603
HER-2 GoCAR-T

BPX-603 Dual Switch GoCAR-T Targeting HER2

Product Profile Summary

- HER2 is a validated tumor antigen expressed on numerous solid tumors with high unmet need
- BPX-603 designed to potentially address limitations of previous CAR-T efforts targeting HER2
  - Moderate affinity scFv to enhance target engagement and activity
  - MC signaling to increase cell proliferation & persistence, modulate the TME, and enhance host immunity
  - Bellicum switch technology designed to time and manage CAR-T activation and enable mitigation of acute toxicities

Status Update

- Initial study sites activated; first patient expected in Q4

Unmet Need

Indication	Incidence[1]	HER2+	5-year OS (Stage IV)[1]
Gastric	28,000	10-30%[3]	<20%
Colorectal	145,000	10%[4]	<15%
Ovarian	22,000	20-30%[5]	<30%
Uterine/ Endometrial	61,000	50-80%[6]	14-69%
Glioblastoma	12,000	20-30%[2]	<20%
Breast	271,000	16%[7]	90%

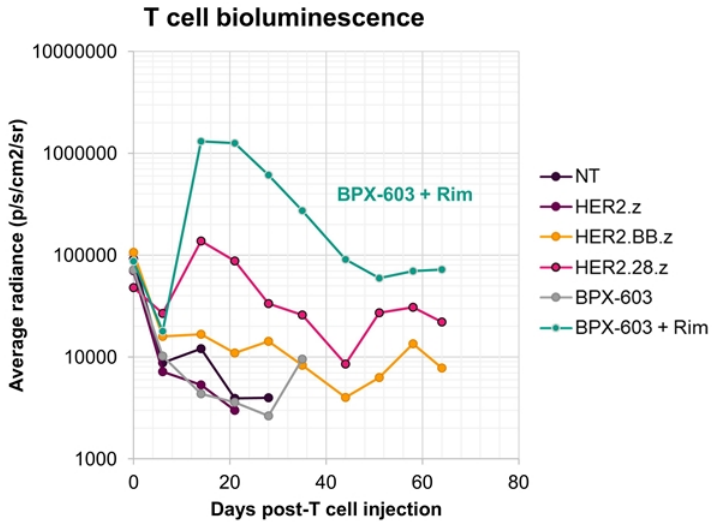
[1]National Cancer Database, American Cancer Society, https://www.cancer.org, accessed 21 December 2018; [2]Liu et al., Cancer Res 2004; [3]Gravalos et al., Annals Oncol 2008; [4]Tu et al., Exp Ther Med 2018; [5]Berchuck et al., Cancer Res 1990, Bartlett et al., Brit J Cancer 1996; [6]Grushko et al., Gynecologic Oncol 2008, (7) Cronin et al, Cancer Invest. 2010

Historical HER2 Studies: Modest Clinical Outcomes

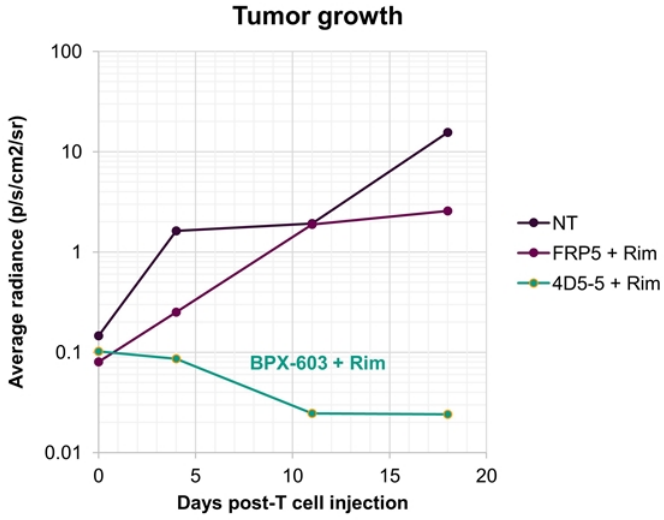
Study Properties	Morgan, 2010	Ahmed, 2015	Feng, 2017	Ahmed, 2017	Hegde, 2019
Construct	4D5-28-BB-z	FRP5-28-z	Her2-BB-z	FRP5-28-z	FRP5-28-z
Indication(s)	Metastatic colon	Sarcomas	CCA and PCa	GBM	Sarcomas
Patient number	1	19	11	17	10
HER2 expression	≥2+ (IHC)	≥1+ (IHC)	>50% positive	≥1+ (IHC)	≥1+ (IHC)
CAR-T dose	10^{10}	10^{4} - 10^{8}	10^{6}	10^{6} - 10^{8}	10^{8}
CAR-T expansion	NE	Negligible	>1,000 copies	Negligible	>10,000 copies
Toxicity	Lung reactivity	No DLTs	Mild AEs	Mild AEs	Mild AEs
Outcome	Grade 5 toxicity	1 PR	1 PR	1 PR	2 CR
Total Responses	2 CR, 3 PR, 5/58 (8.6% ORR)				

BPX-603: Compelling Preclinical Evidence

iMC co-activation enhances cell proliferation relative to current CAR-T standards



Moderate affinity scFv enhances anti-tumor effect relative to low affinity FRP5

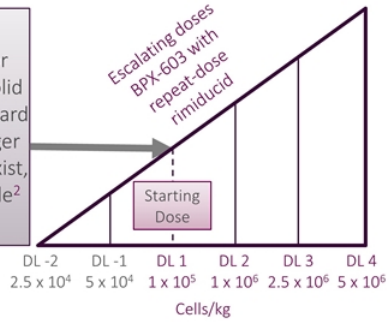


BPX-603 Phase 1/2 Trial Design

Two-Part Safety/Activity Study of HER2-Targeted Dual Switch GoCAR-T Cells in Previously Treated HER2+ Solid Tumors

Phase 1: 3+3 Dose Escalation

Locally advanced or metastatic HER2+ solid tumors[1] where standard treatment is no longer effective, does not exist, or subject is ineligible[2]



- Sequential patient enrollment
  - ≥28 days for cohort 1
  - ≥14 days for subsequent cohorts
- First subject in each dose level receives cells only without rimiducid

Phase 2: Multi-Arm Dose Expansion in Select Tumor Types

Cohort 1: Gastric

Cohort 2: Breast

- Expansion cohorts 10 patients each
- Ability to expand each cohort based on clinical response

If ≥1 response

- Cohort 3: Ovarian
- Cohort 4: Colorectal
- Cohort 5: GBM[3]
- Cohort 6: Uterine/Endometrial

[1] GBM excluded from Phase 1

[2] Must include approved HER2-targeted therapy for breast/gastric cancers

[3] Subjects with GBM will be dosed at recommended dose for expansion (RDE) -1

Bellicum


Summary

Near-Term Restructuring Plan

- Focus on clinical development of BPX-601 and BPX-603
- Pause BCMA GoCAR-NK program and discontinue discovery research and new product development
- Reduce headcount by 81%, from 68 to 13 full-time employees during Q4 2020, with estimated severance costs of ~$2 million
- Settle Oxford Finance debt obligations of ~$28 million in Q4 2020
- Reduce annual operating cash utilization to $25 to $30 million

Anticipated Key Program Goals & Milestones

	Goals & Milestones	Planned Timing
BPX-601	Phase 1 data update – mCRPC & Pancreatic Phase 1 data update - mCRPC	2H'21 2022
BPX-603	Initiate Phase 1/2 trial Initial Phase 1 data Phase 1 data update	Q4'20 2H'21 2022

Investment Summary

Building a next generation cell therapy pipeline around the GoCAR platform

GoCAR Platform

Differentiated co-activation domain (MyD88/CD40) and switch technology drive greater proliferation, persistence, power, and performance

BPX-601

- Autologous GoCAR-T targeting PSCA in mCRPC
- Phase 1/2 enrolling
- Data update planned 2H'2021

BPX-603

- Autologous Dual-Switch GoCAR-T targeting HER2 in HER2+ solid tumors
- Initiate Phase 1/2 trial 2H 2020
- First data update planned 2H'2021

Cash runway extends into 2H'21

- $54.6M total cash and $26.5M net cash as of September 30, 2020