PDS Biotechnology

A new generation of multi-functional cancer immunotherapies

Corporate Presentation

October 2019

Frank Bedu-Addo Ph.D.

President & CEO

Forward-Looking Statements

This presentation contains forward-looking statements about PDS Biotechnology Corporation (“PDSB”), and its businesses, business prospects, strategies and plans, including but not limited to statements regarding anticipated preclinical and clinical drug development activities and timelines and market opportunities. All statements other than statements of historical facts included in this presentation are forward-looking statements. The words “anticipates,” “may,” “can,” “plans,” “believes,” “estimates,” “expects,” “projects,” “intends,” “likely,” “will,” “should,” “to be,” and any similar expressions or other words of similar meaning are intended to identify those assertions as forward-looking statements. These forward-looking statements involve substantial risks and uncertainties that could cause actual results to differ materially from those anticipated.

Factors that may cause actual results to differ materially from such forward-looking statements include those identified under the caption “Risk Factors” in the documents filed with the Securities and Exchange Commission from time to time, including its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this presentation. Except to the extent required by applicable law or regulation, PDS undertakes no obligation to update the forward-looking statements included in this presentation to reflect subsequent events or circumstances.

Highlights

PDS Biotechnology

- Clinical stage biotechnology company developing pipeline of novel cancer immunotherapies based on proprietary Versamune® platform
- Publicly listed via reverse merger with Edge Therapeutics on March 15, 2019

Versamune® Platform

- Versatile and potent T-cell-activating platform
- Overcomes key limitations of current immuno-oncology
- Potential for superior potency and safety demonstrated in first clinical trial

Value Creation

- Immediate focus on three high value clinical trials of lead product PDS0101 in combination with checkpoint inhibitors and chemotherapy
- Pipeline includes melanoma, prostate, breast, colon, lung cancers

* Cervical cancer treatment market size, Share & Trends Analysis Report, Dec. 2018, Grand View Research
* Head and neck cancer market size, March 2018, Grand View Research

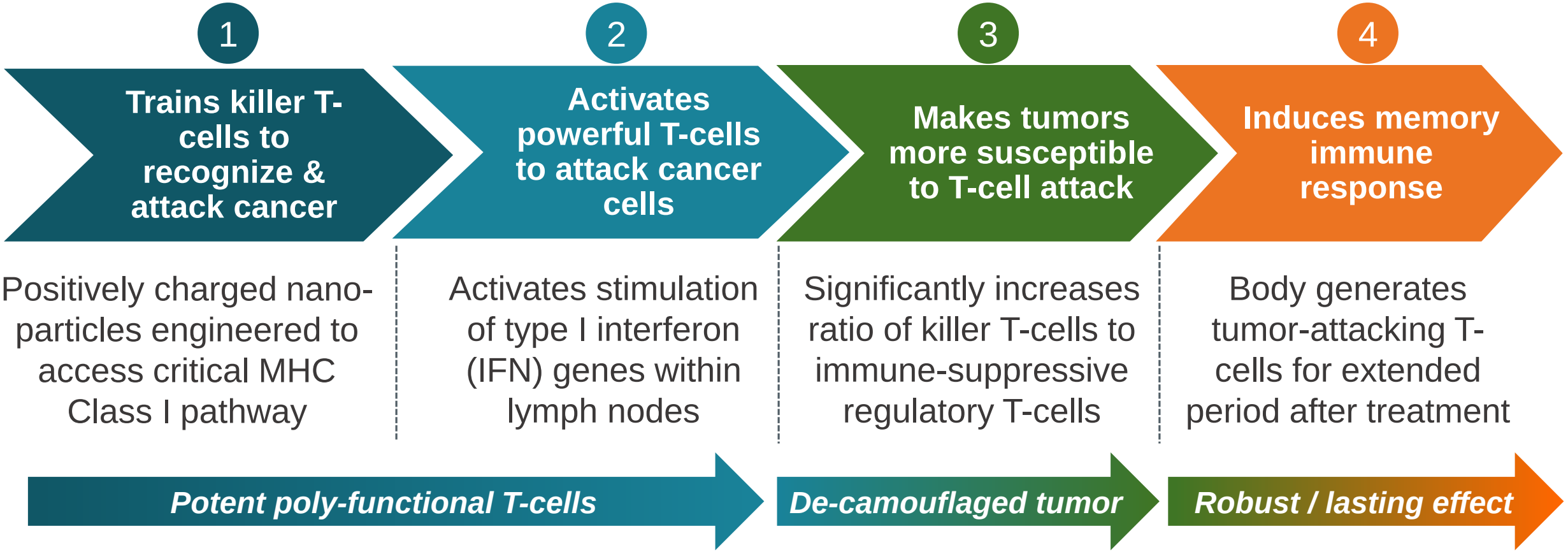
Introduction to PDS0101
Immunotherapy for HPV-Associated Cancers

The immunotherapy is being developed as a combination therapy to exploit the demonstrated synergies between the* Versamune® *technology and checkpoint inhibitors

- Checkpoint inhibitors have shown confirmed clinical efficacy and have demonstrated durable clinical benefit in ~20% of treated patients.
  - Checkpoint inhibitors work by blocking one of the cancer's key immunological defense mechanisms, and are reported to **only work in patients whose immune systems are already generating tumor attacking killer T-cells pre-treatment**
- Using HPV antigens, R-DOTAP has demonstrated the ability **to generate large numbers of CD8 killer T-cells** that effectively recognize and kill the antigen-expressing cells in preclinical and human studies
- PDS Biotechnology has signed collaboration agreements with **Merck and Co.** and the **National Cancer Institute** to perform two separate clinical trials with two different types of checkpoint inhibitors in combination with PDS0101
- By combining PDS0101 with checkpoint inhibitors PDS hopes to generate **a new generation of effective treatments for HPV-associated cancers** many of which are rapidly increasing in incidence

Multi-Functional Versamune® Platform Overcomes Key I-O Limitations

Engineered to promote *in-vivo* induction of tumor-recognizing and attacking killer (CD8+) T-cells*



*Mechanism of Action: Journal of Immunology, Vol. 202, Issue 1215 June 2019

Current State of Immuno-Oncology (I-O)

Promise & Frustrations of I-O

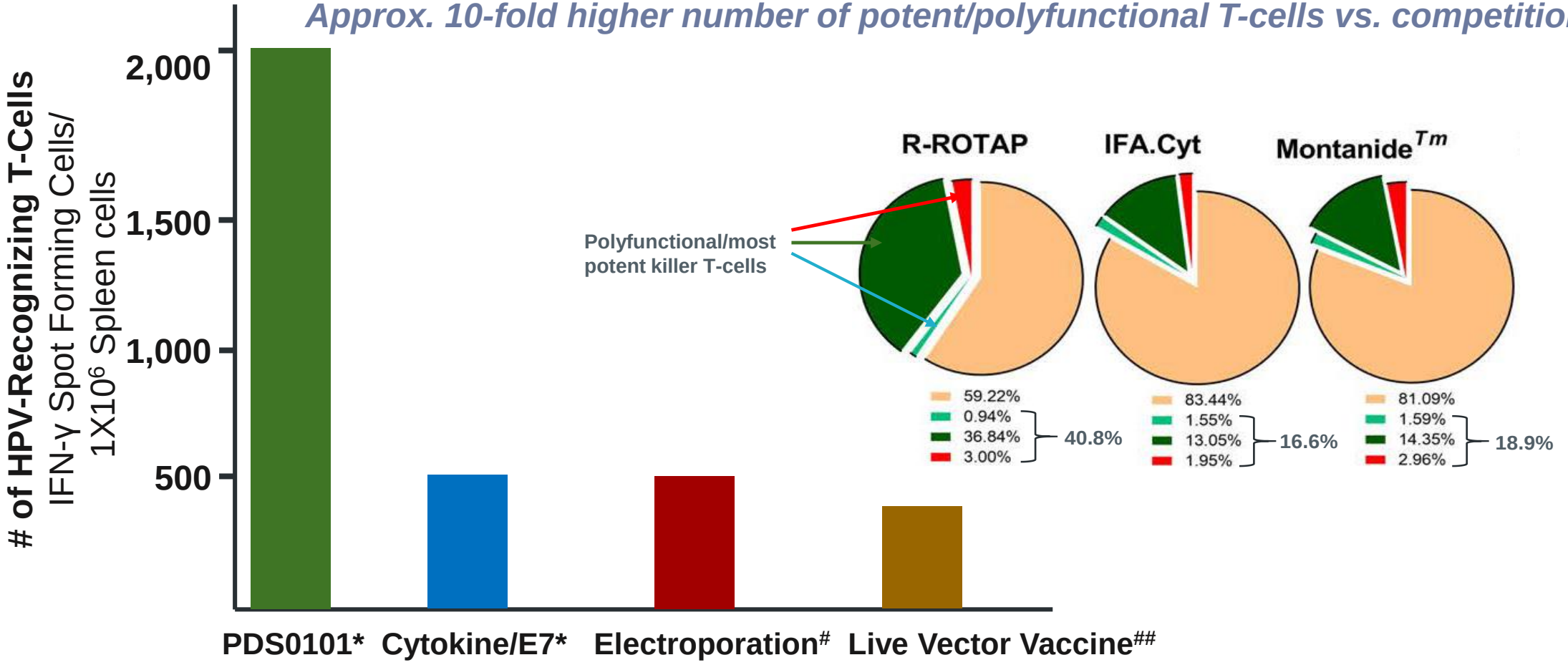
- Durability of anti-tumor responses in some patients
- Minority of patients respond (approx. 20%)
- Responders show disease control for many years, resulting in improvements in duration of overall survival
- Several approaches present toxicity, complexity and high cost

	T-cell Activating Technologies	Delivery Technologies	Checkpoint Inhibitors	Ex-Vivo Cell Based	PDS Biotech Versamune®
	Adjuvants, cytokines	Live viruses, bacteria, electroporation	Anti PD-1, anti PD-L1, anti CTLA-4	CAR-T	
Train killer T-cells to recognize tumor antigen	X	✓	X	NA	✓✓
Activate and multiply trained killer T-cells	✓	✓	X	✓✓✓	✓✓
Unblock tumor's defenses	X	X	✓✓	X	✓
Induce memory T-cell response	✓	✓	X	X	✓✓

Versamune® Mechanisms of Action: Promote Superior Quantity & Quality of HPV-Specific Tumor-Attacking Killer T-Cells *In-Vivo*

Versamune® (R-DOTAP) induces superior levels and quality of CD8+ killer T-Cells versus competing approaches

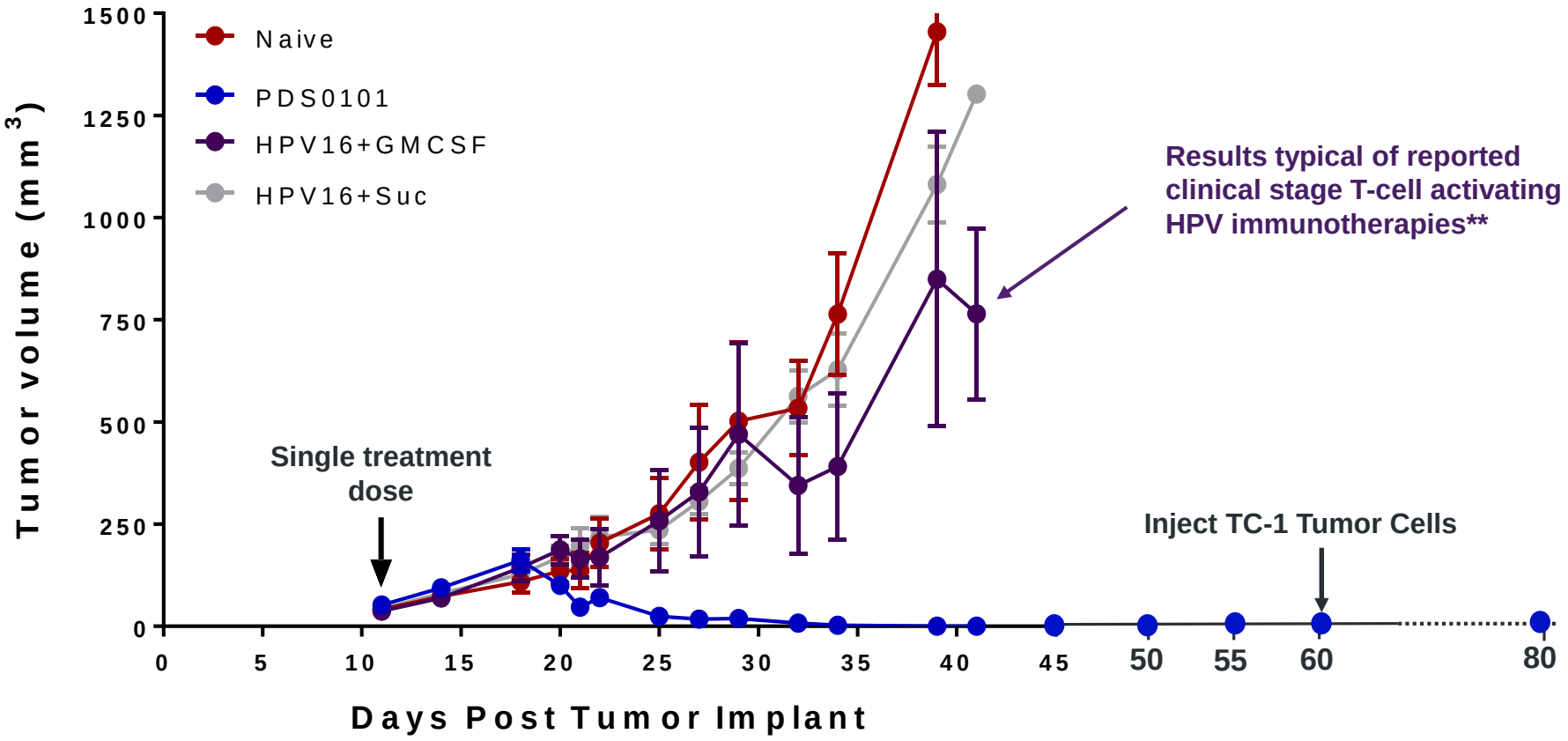
Approx. 10-fold higher number of potent/polyfunctional T-cells vs. competition



*J. Immunology, 2019 (202), 1215
Studies in TC-1 tumor model with other immunotherapies reported in: #Vaccine 2009, January 14, 27 (3): 431; ##Journal for Immunotherapy of Cancer, 2013 (1) 15

PDS0101: Multi-Functional Mechanism Promotes Superior Ability to Eliminate HPV-Positive TC-1 Tumors & Generates Sustained T-Cell Response

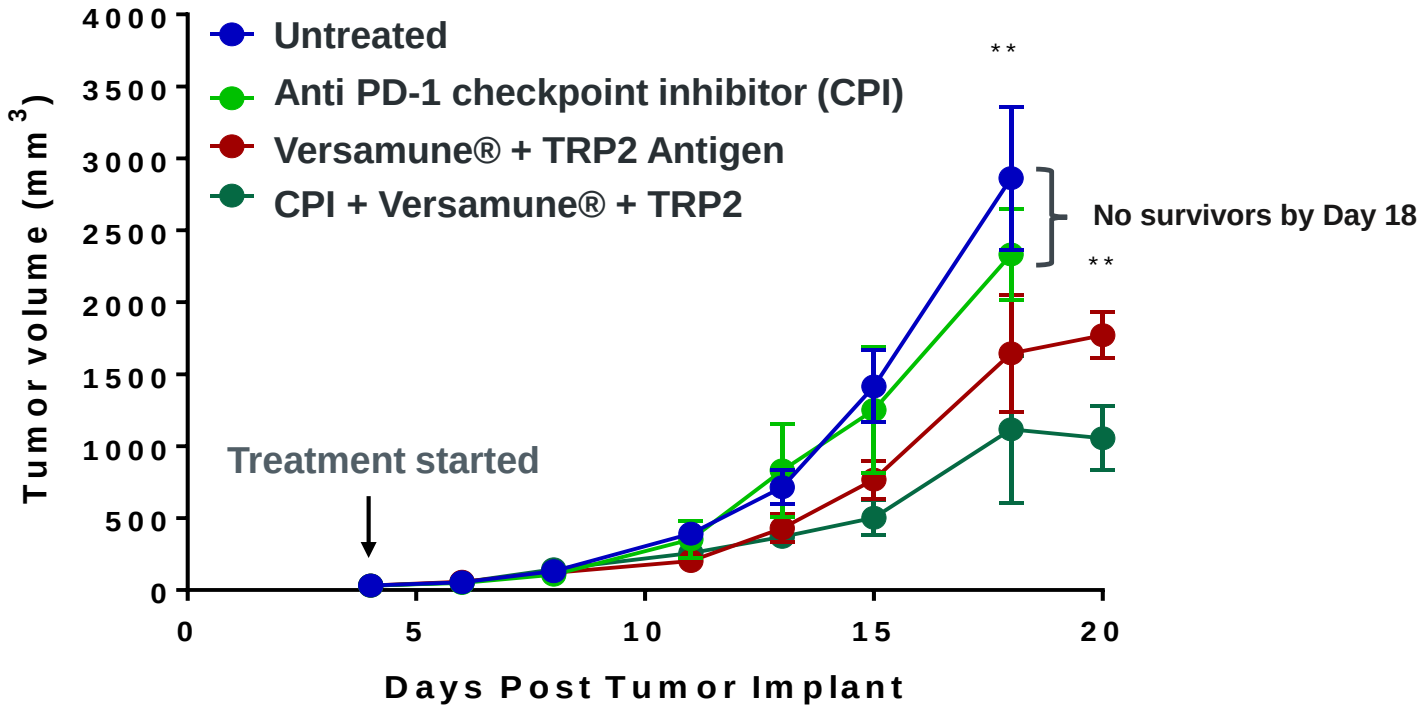
In vivo induction of superior quantity & quality of tumor-specific CD4+ and CD8+ T-cells result in complete regression & effective T-cell memory after a single dose*



*J. Immunology, 2019 (202), 1215
**Studies in TC-1 tumor model with other immunotherapies reported in: Vaccine 2009, January 14, 27 (3): 431; Science Translational Medicine 2016, 13 April, Vol 8 Issue 334; Vaccine 2009, August 3, 27 (33): 5706

Synergy of Versamune® + Antigen and Checkpoint Inhibitor: Demonstrated in Aggressive & Difficult-to Treat B16 Melanoma Model

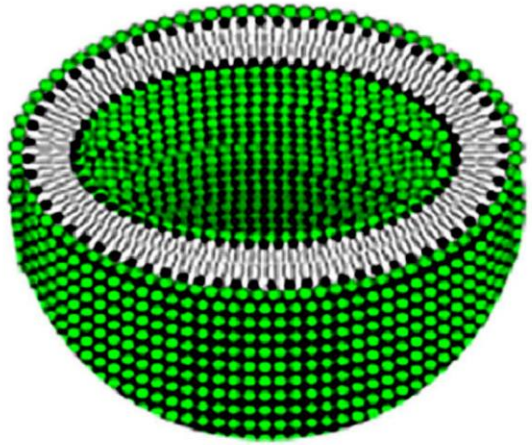
Versamune + TRP2 (PDS0104) injection demonstrates strong synergy in combination with a checkpoint inhibitor in B16 melanoma – Provides significantly prolonged survival over checkpoint inhibitor therapy*



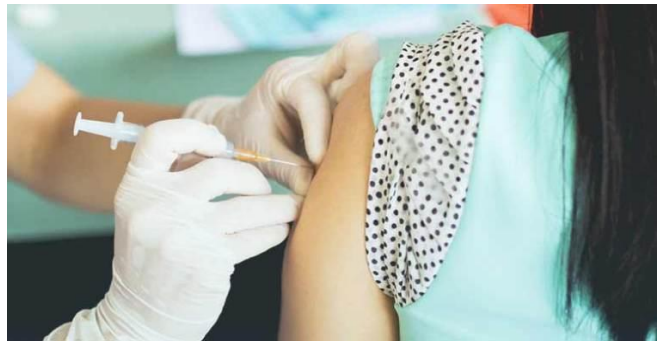
**S. Gandhapudi et al, Journal of Immunology, 2019 (202), 1215

Unique Formulations Present Advantages in Potency, Manufacturing, and Administration

Proprietary Antigen Design



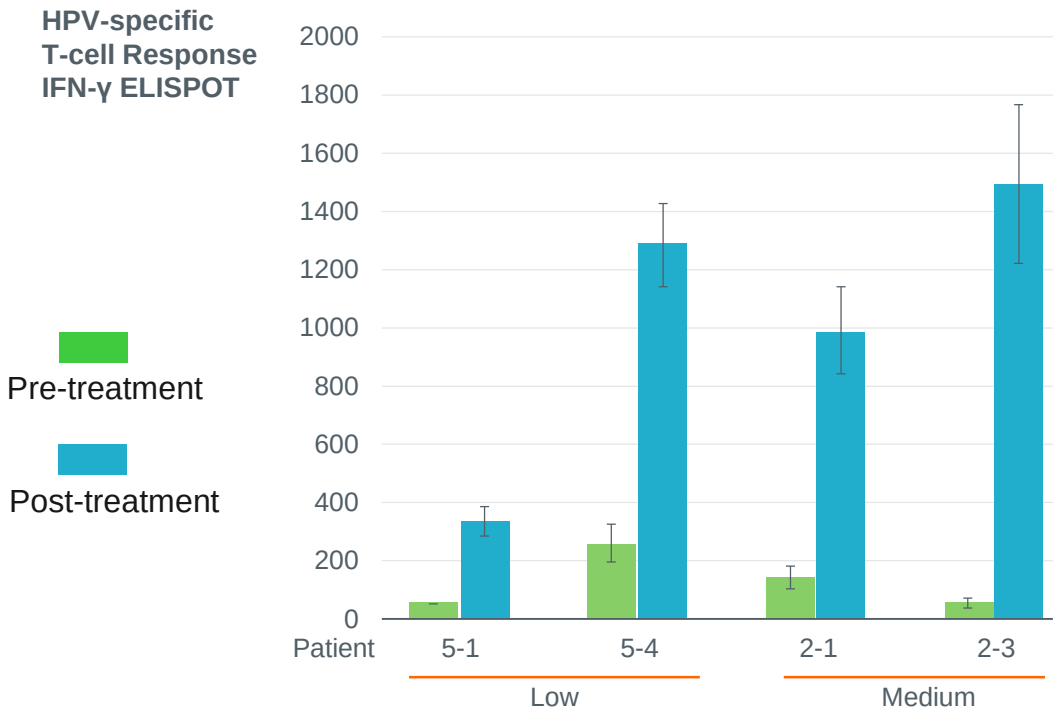
Versamune®

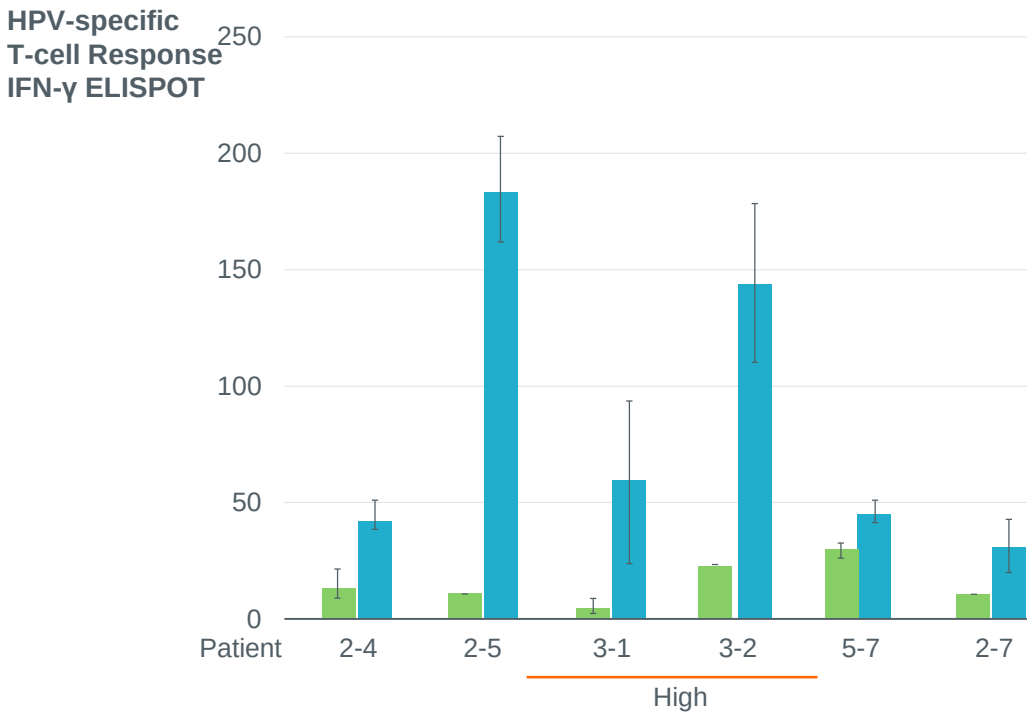


Potential best-in-class simplicity, ease of administration and cost of goods

PDS0101 (R-DOTAP + HPV Antigens) Induced Strong *In-Vivo* HPV16 Killer T-Cell Responses* in Patients

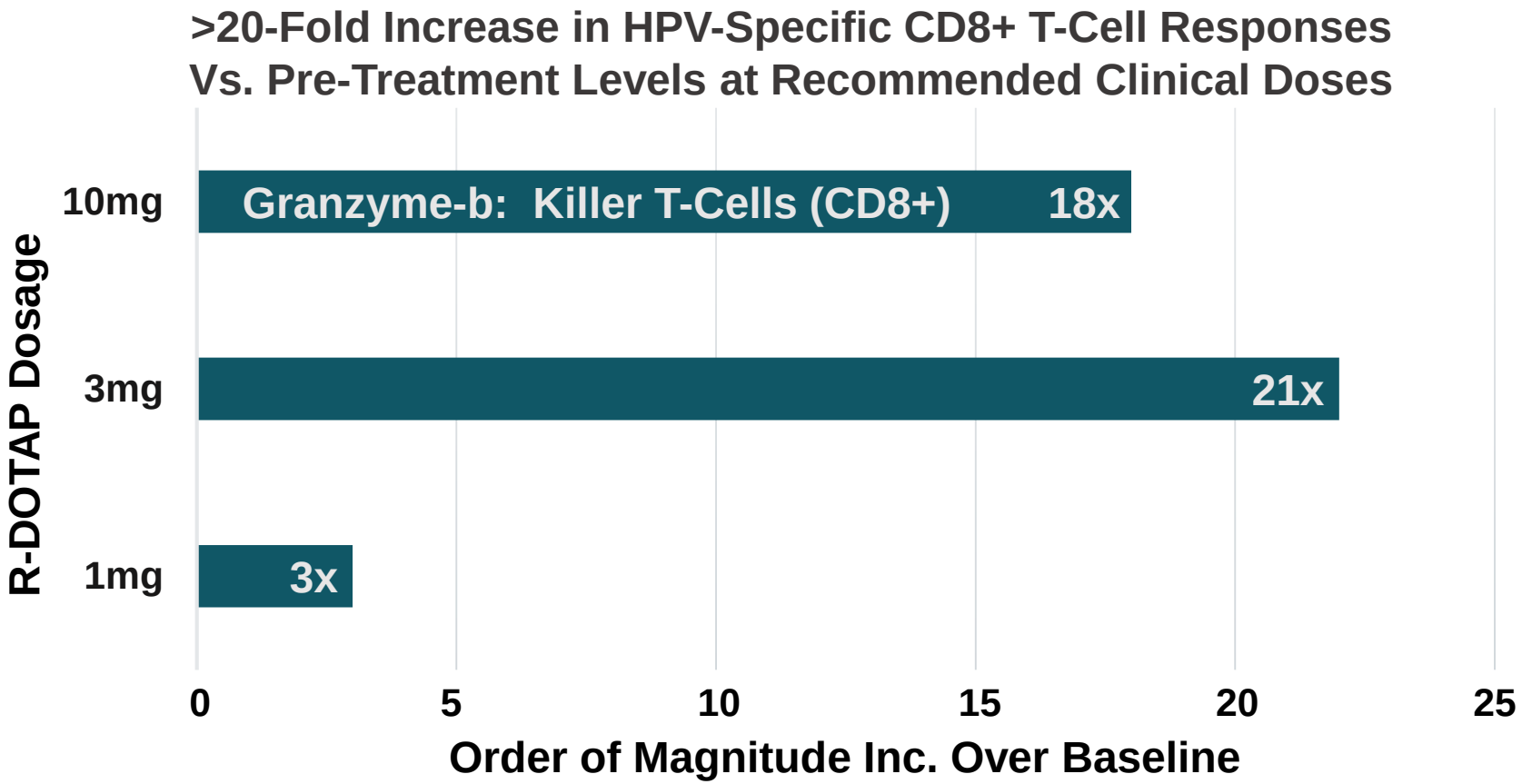
PDS0101 EXCELLENT PRECLINICAL T-CELL RESPONSES REPLICATED IN HUMAN PATIENTS IN PHASE 1CLINICAL TRIAL: BLOOD DRAW ON DAY 14





*Killer T-cell responses confirmed with Granzyme-B ELISPOT study on Day14. Average 20-fold increase in Granzyme-b secreting T-cells at low and medium doses

PDS0101: Unique Ability to generate Potent *in-vivo* Killer CD8+ T-cell Response in Humans - Phase 1 Dose Escalating Study



Clinical Study Design

- 12 patient open-label study (3 cohorts, each 3-6 subjects)
- Cervical Intraepithelial Neo-plasia (CIN) & high-risk HPV
- Evaluated safety, tolerability & pharmacodynamics

- Strong & Measurable *In-Vivo* Induction of HPV-Specific Killer T-cells by ELISPOT 14 Days Post Treatment
- Defined Dose for Phase 2 and Registration Studies

PDS0101 Phase 1 Follow-up Data Supports Observed Strong Killer T-Cell Induction: Demonstrated Clearance of CIN Lesions in 60% of Evaluable Patients

- PDS0101 was immunologically active at all three doses resulting in 5 to 73-fold increase in circulating HPV disease-attacking T-cells in 10/12 subjects
- Clearance of the CIN (lesion regression) was observed in 60% of evaluable patients across the three tested doses
- Regression of the lesions was seen as early as 1-3 months after treatment in some patients, suggests potential correlation of immunologic and clinical responses with the administration of PDS0101

Dose Cohort	Evaluable Patients*	Clearance of Lesions 12 Months Post Treatment**	
	N =	N =	% of Evaluable
1mg	3 of 3	2	67%
3mg	2 of 3	1	50%
10mg	5 of 6	3	60%
Total	10	6	60%

*Two of twelve patients were not evaluable: one patient, who demonstrated a strong immune response, was lost to follow up and another received LEEP excision therapy (standard of care)

**Two of ten evaluable patients who had clearance of CIN by cytology were not considered as clinical responders: one patient regressed from CIN to atypical squamous cells of undetermined significance (ASCUS) with detectable virus, and the other showed consistent disease elimination by cytology, but showed residual disease by colposcopy

PDS0101 Phase 2 Combination Trials with Leaders in Immuno-Oncology

All clinical trials to be initiated in Q1 2020
Interim data expected in Q2 2021

PDS Product	Indication	Partner	Added Combination Product	Study Size
PDS0101 (HPV-Cancer)	Head & neck cancer First line treatment Recurrent/metastatic	MERCK	KEYTRUDA® FDA-approved	96 subjects 20 US sites
	Advanced HPV cancers	NIH NATIONAL CANCER INSTITUTE Confidential Large Pharma	Two Novel Immunotherapies (Superior results in phase 1 studies)	30 subjects 1 US site (NCI)
	Cervical cancer Stage IIb-IVa	To be announced	Chemo-radiotherapy (Standard of care)	33 subjects 1 US site

* These clinical studies are expected to be initiated with current funding

Developing Broad Product Pipeline with Leaders in I-O

Product	Indication	Partner	Combination	Status
PDS0102 (TARP)	Prostate and breast cancers	NIH NATIONAL CANCER INSTITUTE	Checkpoint Inhibitor	Preclinical studies ongoing
PDS0103 (MUC-1)	Ovarian, colorectal, lung, breast cancers	TBD	Checkpoint Inhibitor	Preclinical studies ongoing
PDS0104 (Melanoma)	Melanoma	TBD	Checkpoint Inhibitor	Preclinical studies ongoing

* These clinical studies are expected to be initiated with current funding

Intellectual Property (Versamune® -Related Products)

IP strategy intended to provide multiple layers of technology & product protection

- Versamune® and associated patents **100% owned by PDS**
- **Five issued US patents** valid from 2025 – 2034
- **Five issued international patent families** (including Europe & Japan)
- **10 total patent families** – provides possible protection of products through 2038
- Patents cover compositions/formulations and methods of use

Projected Near-Term Milestones / Catalysts

- ☑ 3Q 2019: Release available patient outcome data from Phase 1 clinical study
- ❑ 1Q 2020: Initiation of PDS-Merck Phase 2 combination study in head and neck cancer
- ❑ 1Q 2020: Initiation of PDS-NCI Phase 2 combination study in advanced HPV-cancers
- ❑ 1Q 2020: Initiation of Partnered Phase 2 combination study in advanced cervical-cancer
- ❑ 2Q 2020: Publication of PDS0101 Phase 1 clinical study results in peer reviewed journal
- ❑ 2Q 2020: Complete formulation of PDS0102
- ❑ 4Q 2020: Initiate Phase clinical trial of PDS0102 in prostate cancer

Financial Information

Nasdaq:	PDSB
Shares Outstanding[1]	5.2M
Cash[1]	$21.7M
Share Price[2]	$4.45
Market Cap[2]	$23.1M
Debt[1]	---

[1] June 30, 2019
[2] September 25, 2019

Wrap-Up

1. **Powerful and safe** T-cell-activating immunotherapy platform
2. **Versatility:** Potential to **transform** treatment of early- & late-stage cancers
3. **Validation**: Superior preclinical and clinical data
   Clinical partnerships with both Big Pharma and NCI
4. Upcoming **Phase 2 clinical studies**

Management Team

Frank Bedu-Addo, PhD
Chief Executive Officer

- Strategy & managed execution at both large pharma & biotechs
- Notable drug development:

  Abelcet® (Liposome Company/ Elan)

  PEG-Intron® (Schering-Plough/ Merck)

Andrew Saik
Chief Financial Officer

- >20 years of experience in pharma & drug development
- In-depth experience with M&A transactions, capital markets, and investor relations

Lauren V. Wood, MD
Chief Medical Officer

- >30 years of translational clinical research experience
- Former Clinical Director of the Vaccine Branch within the Center for Cancer Research, National Cancer Institute

Gregory Conn, PhD
Chief Science Officer

- Co-founder
- >35 years of drug development experience
- In-depth experience with biotech drug discovery, product development and manufacturing

PDS Biotechnology

A new generation of multi-functional cancer immunotherapies

Corporate Presentation

October 2019

Frank Bedu-Addo Ph.D.

President & CEO