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

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# FORM 8-K

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

**Date of Report (Date of earliest event reported): January 7, 2019**

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# PIERIS PHARMACEUTICALS, INC.
**(Exact Name of Registrant as Specified in its Charter)**

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| **Nevada** | **001-37471** | **EIN 30-0784346** |
|---|---|---|
| **(State of Incorporation)** | **(Commission File Number)** | **(IRS Employer Identification No.)** |

**255 State Street, 9th Floor**
**Boston, MA 02109**
**United States**
**(Address of principal executive offices, including zip code)**

**Registrant's telephone number, including area code: 857-246-8998**

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation 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))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (17 CFR §230.405) or Rule 12b-2 of the Securities Exchange Act of 1934 (17 CFR §240.12b-2).

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. ☐

**Item 7.01: Regulation FD Disclosure.**

Attached hereto as Exhibit 99.1 and incorporated by reference herein is the January 2019 Investor Presentation of Pieris Pharmaceuticals, Inc.

The information set forth under this “Item 7.01. Regulation FD Disclosure,” including the exhibit attached hereto, shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, except as shall be expressly set forth by specific reference in such filing.

**Item 9.01 Financial Statements and Exhibits**

(d) *Exhibits.*

99.1 Pieris Investor Presentation, dated January 2019.

**SIGNATURE**

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.

PIERIS PHARMACEUTICALS, INC.

Dated: January 7, 2019

/s/ Allan Reine

Allan Reine

Chief Financial Officer

# INVESTOR PRESENTATION

JANUARY 2019

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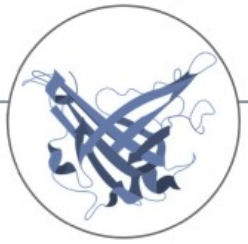
# Forward Looking Statements

This presentation contains forward-looking statements as that term is defined in Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Statements in this press release that are not purely historical are forward-looking statements. Such forward-looking statements include, among other things, references to novel technologies and methods and our business and product development plans, including the advancement of our proprietary and co-development programs into and through the clinic. Actual results could differ from those projected in any forward-looking statements due to numerous factors. Such factors include, among others, our ability to raise the additional funding we will need to continue to pursue our business and product development plans; the inherent uncertainties associated with developing new products or technologies and operating as a development stage company; our ability to develop, complete clinical trials for, obtain approvals for and commercialize any of our product candidates, including our ability to recruit and enroll patients in our studies; our ability to address the requests of the FDA; competition in the industry in which we operate and market conditions. These forward-looking statements are made as of the date of this press release, and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements, except as required by law. Investors should consult all of the information set forth herein and should also refer to the risk factor disclosure set forth in the reports and other documents we file with the SEC available at www.sec.gov, including without limitation the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and the Company's Quarterly Reports on Form 10-Q.

# Proprietary Anticalin® Protein Drug Class

## Pipeline Highlights

- **PRS-060:** Inhaled IL4-Rα antagonist for moderate-to-severe asthma (partnered with AstraZeneca)
- Next-generation respiratory: Includes 3 discovery-stage inhaled therapeutics programs (2 proprietary, 1 partnered with AstraZeneca)
- **PRS-343:** 4-1BB/HER2 bispecific for solid tumors
- **PRS-344:** 4-1BB/PD-L1 bispecific (partnered with Servier)



## Anchor Partnerships

- Validation through three anchor partnerships
- $120+M in upfront payments and milestones since January 2017
- Each partnership includes options for co-development & US-focused commercialization rights

## Projected Inflection Points

- Respiratory: Co-developed (AstraZeneca) inhaled IL4-Rα antagonist (PRS-060) MAD Phase I data, including FeNO reduction vs. placebo
- IO: Wholly-owned bispecific 4-1BB agonist (PRS-343) Phase I data in 2019
- Additional IO IND in 2019

# Pipeline

| RESPIRATORY | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CANDIDATE** | **TARGETS** | **PARTNER** | **COMMERCIAL RIGHTS** | **DISCOVERY** | **PRECLINICAL** | **PHASE I** | **PHASE II** |
| PRS-060 | IL4-Rα | AstraZeneca | Pieris Worldwide Profit-Share Option | | | | |
| Proprietary Programs | n.d. | n/a | Pieris Worldwide | | | | |
| AstraZeneca Program #2 | n.d. | AstraZeneca | AstraZeneca | | | | |
| *3 additional respiratory programs in collaboration with AstraZeneca | | | | | | | |

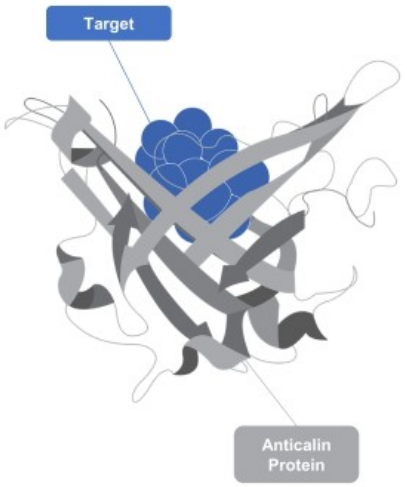
| IMMUNO-ONCOLOGY | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CANDIDATE** | **TARGETS** | **PARTNER** | **COMMERCIAL RIGHTS** | **DISCOVERY** | **PRECLINICAL** | **PHASE I** | **PHASE II** |
| PRS-343 | HER2/4-1BB | n/a | Pieris Worldwide | | | | |
| | + Anti-PD-L1 | n/a | Pieris Worldwide | | | | |
| PRS-344 | PD-L1/4-1BB | Servier | Pieris U.S. Option | | | | |
| PRS-300 Series | n.d. | n/a | Pieris Worldwide | | | | |
| *3 additional IO bispecific programs in collaboration with Servier, with Pieris retaining US rights for 2 of 5 programs | | | | | | | |
| *3 bispecific programs in collaboration with Seattle Genetics, with Pieris retaining US rights for 1 program | | | | | | | |

| OTHER DISEASE AREAS | | | | | | | |
|---|---|---|---|---|---|---|---|
| **CANDIDATE** | **TARGETS** | **PARTNER** | **COMMERCIAL RIGHTS** | **DISCOVERY** | **PRECLINICAL** | **PHASE I** | **PHASE II** |
| PRS-080 | Hepcidin | ASKA | Major Markets Ex-ASKA Territories | | | | |

# What are Anticalin proteins?

## A Novel Therapeutic Class with Favorable Drug-Like Properties

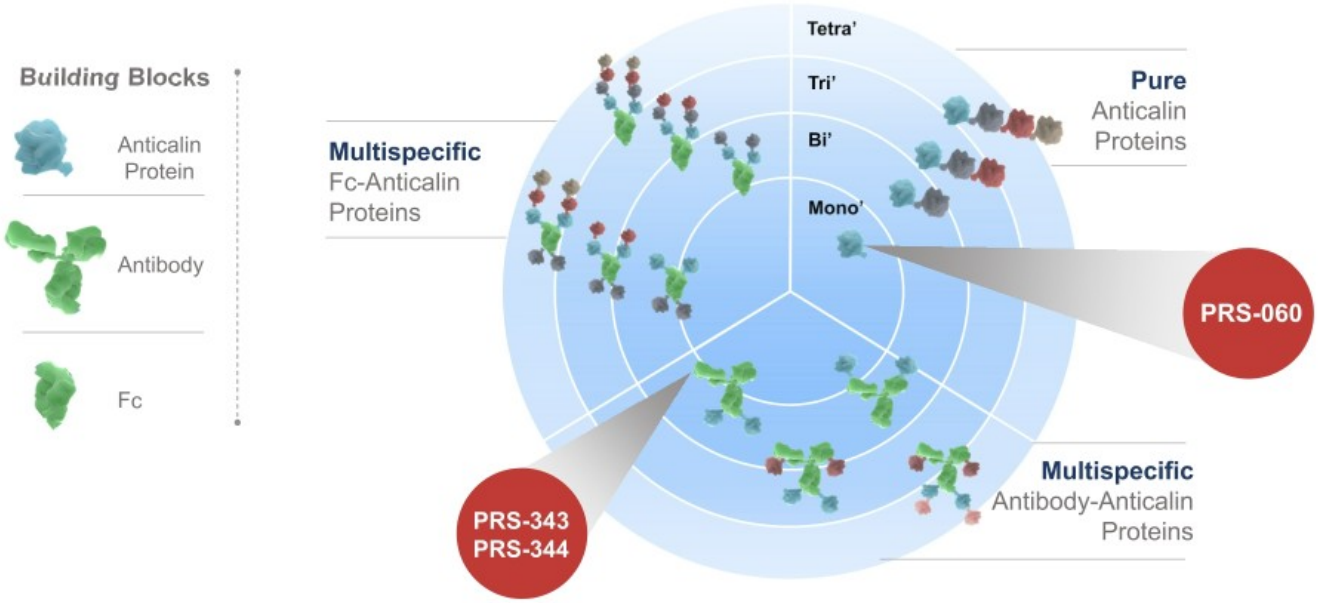
- Derived from lipocalins (human extracellular binding proteins)
  - TLC and NGAL lipocalins used as "templates" for drug development
- Engineerable binding pocket for robust target engagement
- Monomeric, monovalent, small size (~18 kDa vs 150kDa mAbs)
- Can be formulated for inhalable delivery
- Can be formatted into novel bi/multispecific constructs
- Broad IP position




## Underpinned by a Powerful Drug Discovery Platform

- Highly diverse libraries (>$10^{11}$) of potential drug candidates…
- Automated high-throughput drug screening technology (phage display)…
- Extensive protein engineering know-how…
- …resulting in high hit rates, quick-to-development candidates

# Anticalin Protein-Based Drug Candidates can be Tailored to Multiple Formats




**Potent Multi-Target Engagement • Novel Inhaled and Multispecific MoA • Favorable Drug-like Properties**

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# Partnerships

**AstraZeneca**

- PRS-060 + 4 additional novel inhaled Anticalin protein programs
- Retained co-development and co-commercialization (US) options on PRS-060 and up to 2 additional programs
- $57.5M upfront & 2017 milestone
- ~$2.1B in milestone potential, plus double-digit royalties
- AZ funds all PRS-060 development costs through post-Ph 2a co-development opt-in decision
- Access to complementary formulation and device know-how for inhaled delivery

**SeattleGenetics**

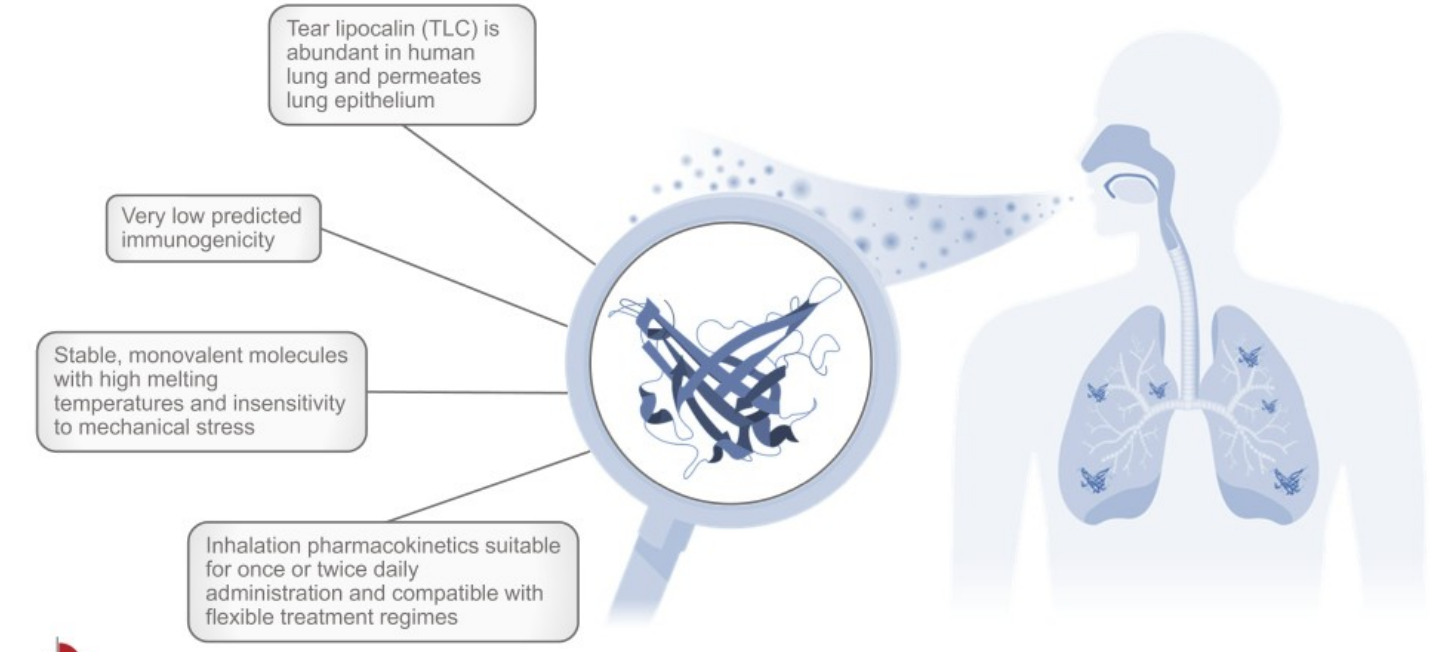
- 3-program partnership based on tumor-localized costimulatory bispecific fusion proteins
- Pieris retains opt-in rights for 50/50 global profit split and U.S. commercialization rights on one of the programs
- $30M upfront payment, $1.2B milestone potential
- Up to double-digit royalties on non-co-developed products

**SERVIER**

- PRS-344: PD-L1/4-1BB antibody/Anticalin bispecific
- 5-program deal (all bispecific fusion proteins)
- Pieris retains option for full U.S. rights for 3 out of 5 programs
- $31M upfront payment, $1.8B milestone potential
- Up to low double-digit royalties on non-co-developed products

**Strong Partners • Significant Cash Flow • Retained Commercial Rights**

# Anticalin Technology Advantages: Differentiated Respiratory Platform

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# PRS-060: IL-4Rα Antagonist

| | |
|---|---|
| Candidate | PRS-060 |
| Function/MoA | Inhibiting IL4-Rα (disrupts IL-4 & IL-13 signaling) |
| Indications | Moderate-to-severe asthma |
| Development | Phase I multiple-ascending dose trial |
| Commercial Rights | Co-development and U.S. co-commercialization rights, including gross margin share |

PRS-060

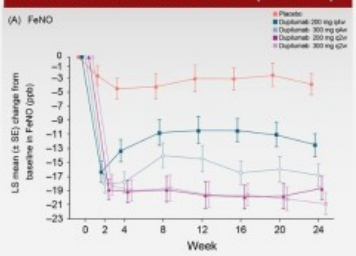
# PRS-060 is an Inhaled Drug Candidate for Uncontrolled Asthma

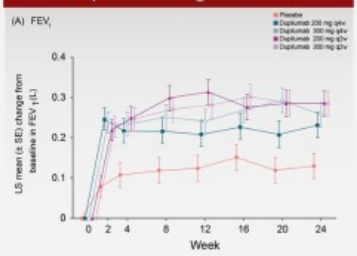
*Why did we design this?*

## What We Know

Regeneron/Sanofi's dupilumab (systemically administered anti-IL-4Ra antibody) has demonstrated the following:

**Reduction in biomarker (FeNO*)** → **Improved lung function** → **Exacerbation Reduction** & **Steroid Sparing**



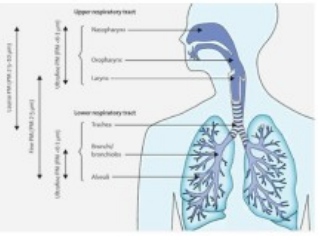

**67%** reduction in high-eosinophil patients

**80%** avg. reduction in corticosteroid use

*Fractional exhaled nitric oxide

## What We Are Testing

- Is this a local phenomenon?
- First-in-man study underway via inhaled delivery

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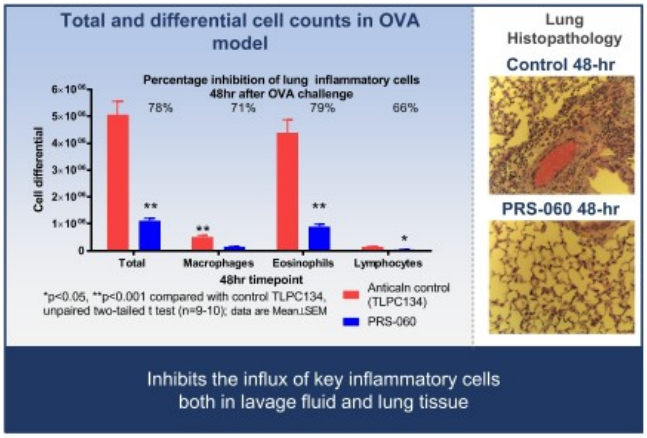
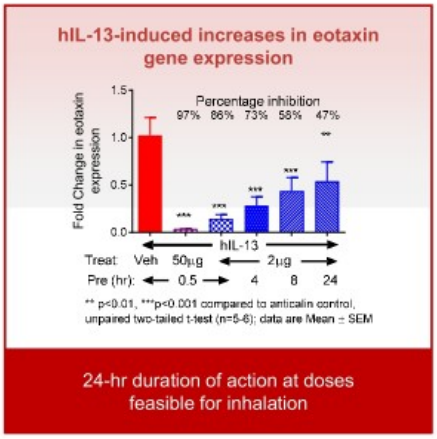
# Preclinical *In Vivo* PoC Supports Clinical Development

- First inhaled Anticalin protein to potently engage the highly-validated asthma target, IL-4Ra
- Localized target engagement in lung tissue supports a rationale for a potential convenient, low-dose, low-cost alternative to systemically-administered antibodies
- Preclinical *in vivo* PoC for pulmonary delivery at doses supportive of daily administration




Inhibits the influx of key inflammatory cells both in lavage fluid and lung tissue

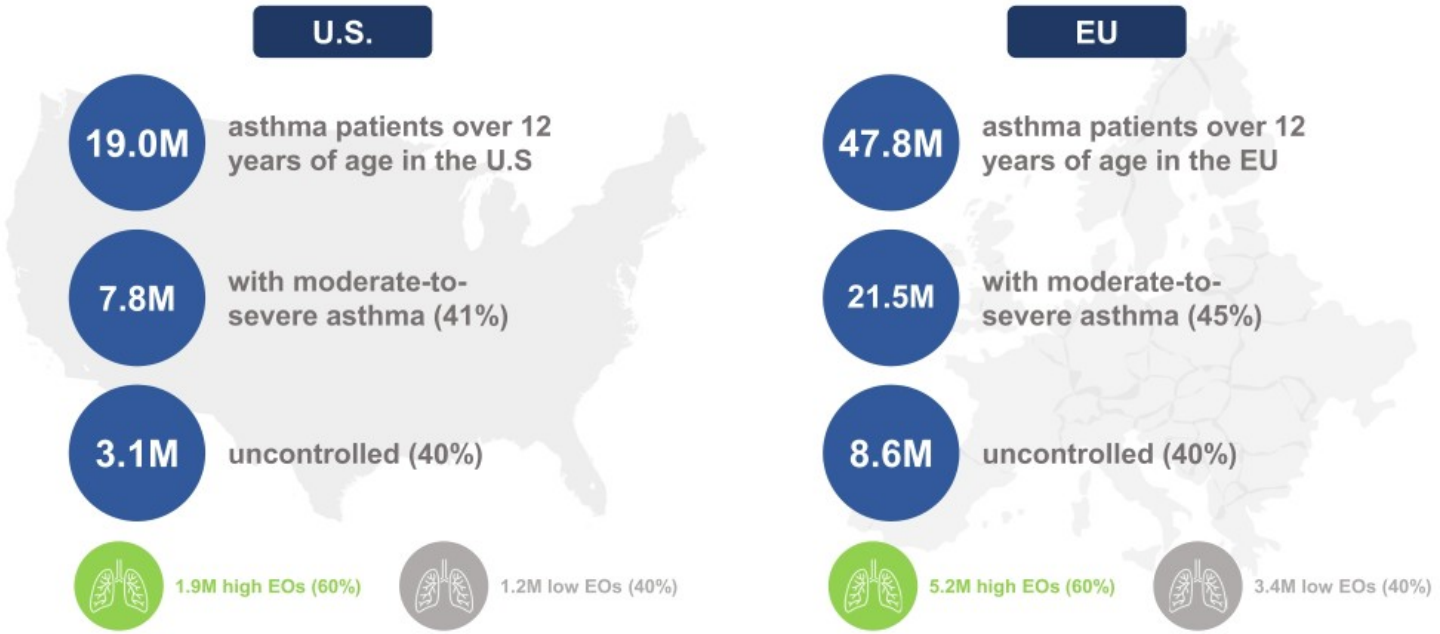



24-hr duration of action at doses feasible for inhalation

# PRS-060 Phase I Trial

| Single Ascending Dose | Multiple Ascending Dose |
| --- | --- |
| Healthy volunteers | Dosing patients with mild asthma, elevated FeNO at baseline |
| Initiated in December 2017 | Initiated in July 2018 |
| Study completed | Evaluating safety, tolerability, PK, PD and will also evaluate FeNO reduction vs. placebo |
| Safe and well tolerated in single dose administration ranging from 0.25-400mg | Pieris is sponsoring the trial, AstraZeneca is reimbursing Pieris for all associated costs |

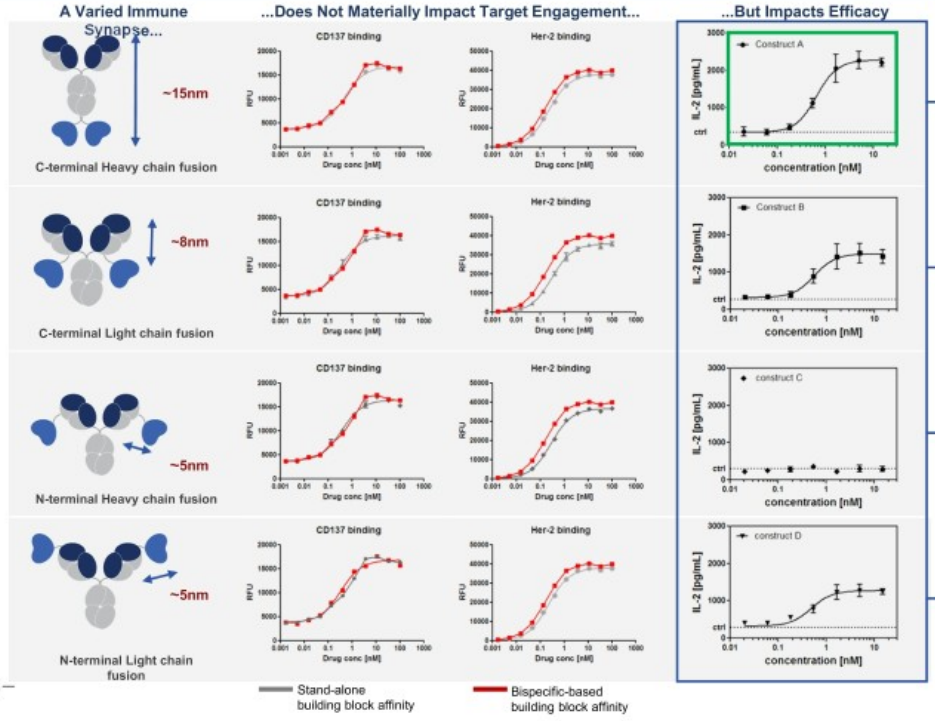
# Moderate-to-Severe Asthma Market Opportunity

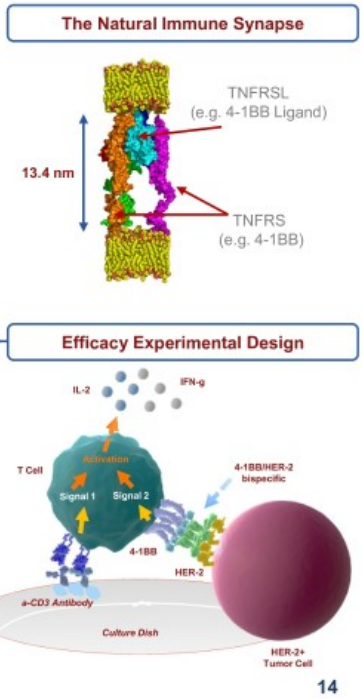



All numbers reflect 2016 estimates.

Source: Artisan Healthcare Consulting analysis, including the following: CDC, Eurostat, Rabe (2004), Cazzoletti (2007), Colice (2012), Hekking (2015).

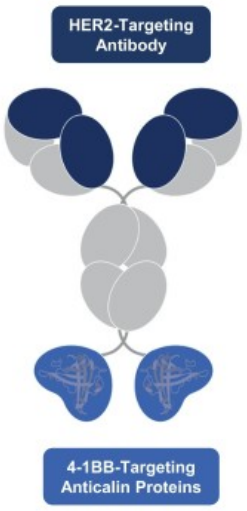
# Anticalin Technology Advantages: Well-Equipped for Targeted IO Agonism



# PRS-343: 4-1BB/HER2 Bispecific

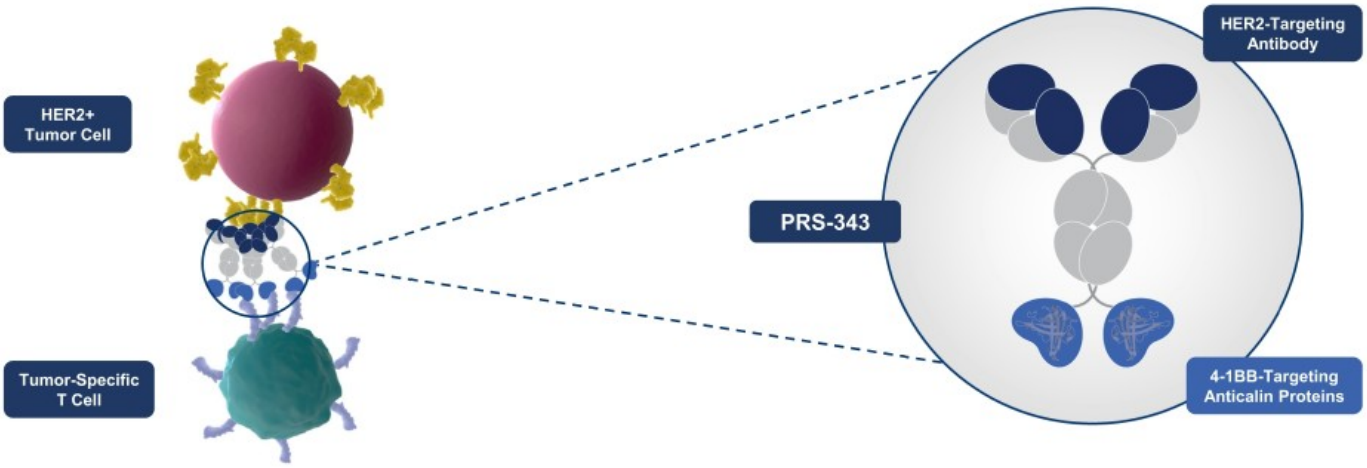
| | |
|---|---|
| Candidate | PRS-343 |
| Function/MoA | Tumor-targeted 4-1BB agonism, HER2 antagonism |
| Indications | HER2+ solid tumors |
| Development | Phase I |
| Commercial Rights | Fully proprietary |



# 4-1BB (CD137): Validated Target in Need of Appropriate Drug

- Marker for tumor-specific T cells in TME
- Ameliorates T-cell exhaustion & critical for T-cell expansion
- Drives anti-tumor cytolytic activity
- Drives central memory T-cell phenotype

*Systemically agonizing 4-1BB mAb (urelumab) has shown clinical activity yet caused significant toxicity*



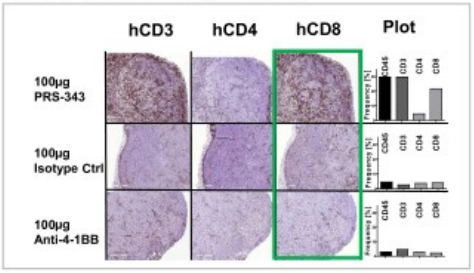

**PRS-343 was designed for TME-specific 4-1BB activation***

*4-1BB *trimerization* required for activation

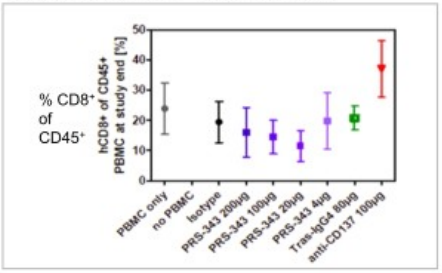
# PRS-343 Shows Localized Activity in Humanized Mouse Model

| | CD8⁺ Proliferation in TME | Peripheral CD8⁺ Proliferation | Systemic Toxicity |
|---|---|---|---|
| **PRS-343** | **Yes** | **No** | **No** |
| **4-1BB mAb** | **No** | **Yes** | **Yes** |
| **Isotype Control** | **No** | **No** | **No** |

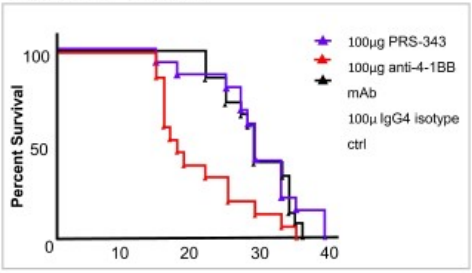
CD8⁺ Proliferation in TME




Peripheral CD8⁺ Proliferation



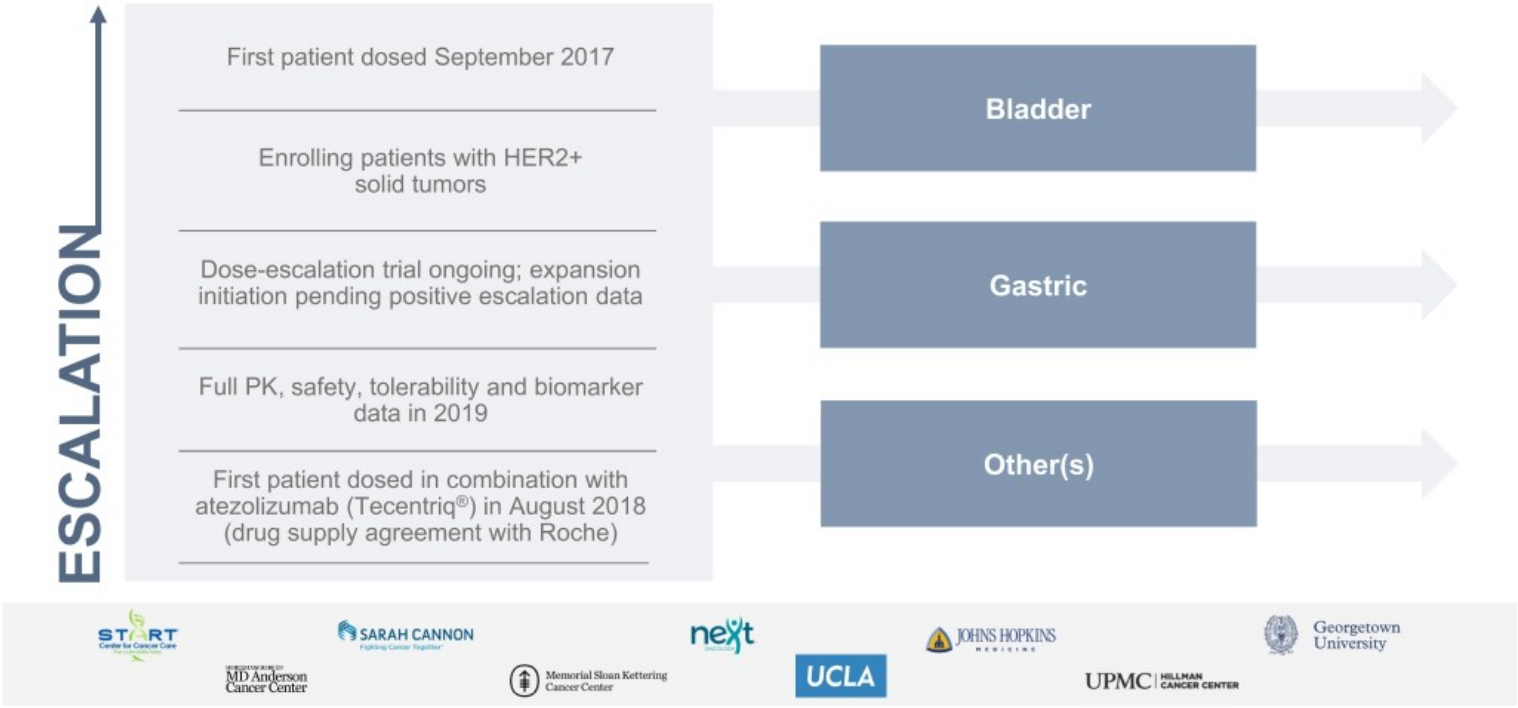

Systemic Toxicity




Experimental Design:

- SKOV-3 tumor cells grafted onto immune-deficient mice and grown to predetermined volume
- Human PBLs + control or PBLs + PRS-343 administered

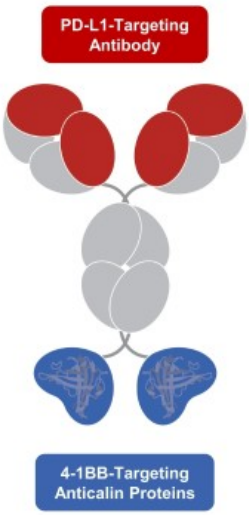
# PRS-343 Phase I Escalation and Expansion Trials




START Center for Cancer Care
SARAH CANNON Fighting Cancer Together
next ONCOLOGY
JOHNS HOPKINS MEDICINE
Georgetown University
MD Anderson Cancer Center
Memorial Sloan Kettering Cancer Center
UCLA
UPMC | HILLMAN CANCER CENTER

# PRS-344: 4-1BB/PD-L1 Bispecific

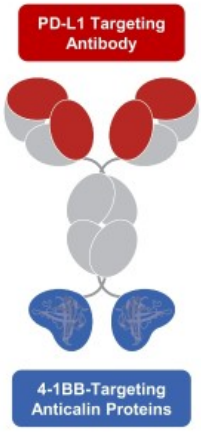
| | |
|---|---|
| Candidate | PRS-344 |
| Function/MoA | Localized 4-1BB agonism with PD-L1 antagonism |
| Indications | N.d. |
| Development | Preclinical |
| Commercial Rights | Opt-in for co-development with full U.S. commercial rights; royalty on ex-U.S. sales |

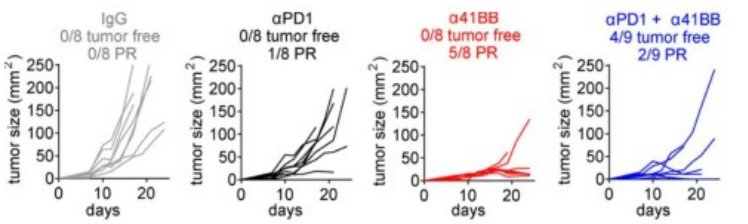


# PRS-344: Addressing Synergistic IO Biology

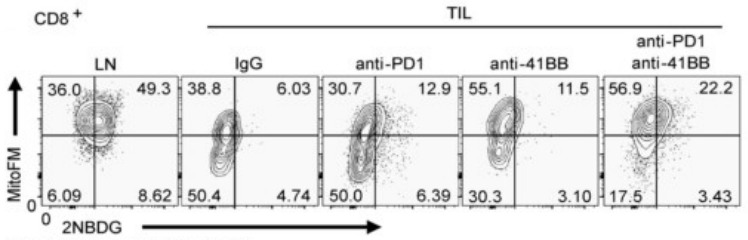
- Combining the benefits of tumor-localized 4-1BB agonism with PD-L1 blockade
- Pan-tumor opportunity
- Publications support preclinical rationale of the combination, as evidenced below:

***Synergistic Response of PD-1+4-1BB Combination Demonstrated In Preclinical Models***




**PD-1+4-1BB combo demonstrates robust preclinical anti-tumor activity**




**4-1BB agonism enhances mitochondrial function in T cells**

Adapted Menk *et al.* JEM (2018)

# Financial Overview (As of 9/30/18)

| $137.3 M | $0.0 | $35.7 M | 54.1 M |
|---|---|---|---|
| Cash & Cash Equivalents | Debt | YTD OPEX | CSO |

**$120+ M** non-dilutive capital since January 2017

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# Scientific and Clinical Advisory Boards

## SCIENTIFIC ADVISORY BOARD: ONCOLOGY

- E. John Werry, PhD
  *University of Pennsylvania*
- Vijay Kuchroo DVM, PhD
  *Harvard Medical School*
- Michael Curran, PhD
  *MD Anderson Cancer Center*
- Dario Vignali, PhD
  *University of Pittsburgh*
- Padmanee Sharma, PhD
  *MD Anderson Cancer Center*

## SCIENTIFIC ADVISORY BOARD: RESPIRATORY

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- Peter Barnes, FRS
  *Imperial College*
- Bruce Levy, MD
  *Harvard University, Brigham and Women's Hospital*
- Fan Chung, MD, DSc
  *Imperial College*
- Ian Adcock, PhD
  *Imperial College*
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  *University of Denver*
- Sally Wenzel, MD
  *University of Pittsburgh Medical Center*

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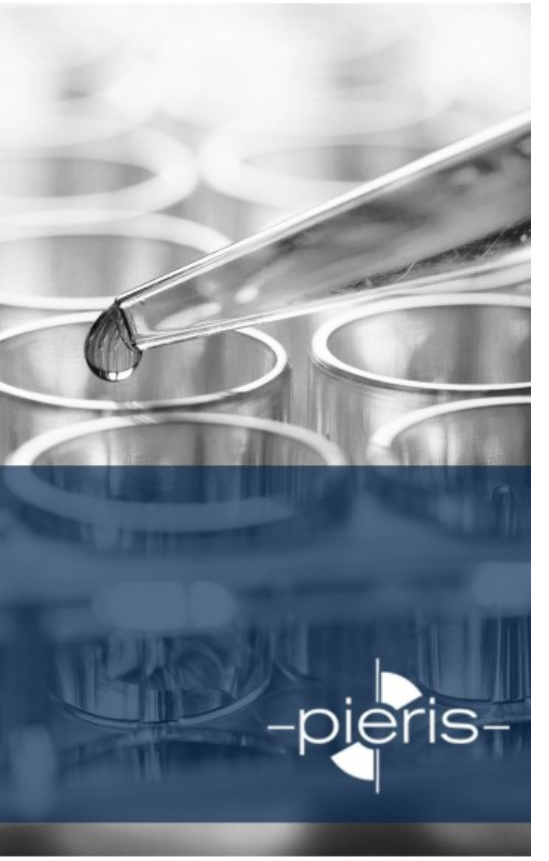
  *Georgetown University Cancer Center*
- Noah Hahnm, MD
  *Johns Hopkins University School of Medicine*
- David Ilson, MD, PhD
  *Memorial Sloan-Kettering Cancer Center, Weill Cornell Medical College*
- Funda Eric-Bernstam, MD, PhD
  *Institute for Personalized Cancer Therapy, MD Anderson Cancer Center*
- Mario Sznol, MD
  *Yale University*



## Pieris Pharmaceuticals

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BD: niemeier@pieris.com
www.pieris.com

NASDAQ: PIRS