PIERIS PHARMACEUTICALS

CORPORATE PRESENTATION
March 2023

Forward-Looking Statements

This presentation contains forward-looking statements as that term is defined in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements in this presentation that are not purely historical are forward-looking statements. Such forward-looking statements include, among other things, our expected cash runway, our product candidates' clinical and therapeutic potential in their intended indications; the receipt of royalty and/or milestone payments provided for in our collaboration agreements; references to novel technologies and methods and our business and product development plans, including the Company's cash resources, the advancement of our proprietary and co-development programs into and through the clinic and the expected timing for reporting data, making IND filings or achieving other milestones related to our programs, including elarekibep, PRS-220, PRS-400, PRS-344/S095012, PRS346/SGN-BB228 and PRS-342/BOS-342; our continued progress in the areas of co-stim bispecifics and inhaled therapeutics; the therapeutic potential of our Anticalin platform; the unmet need and potential addressable market for our product candidates, the potential advantages of our product candidates over those of existing therapeutics and/or those of our competitors, and the advancement of and funding for our developmental programs generally. 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, including in collaboration with other parties; 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 U.S. Food and Drug Administration; competition in the industry in which we operate; delays or disruptions due to COVID-19 or geo-political issues, including the conflict in Ukraine; and market conditions. These forward-looking statements are made as of the date of this presentation, 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 Securities and Exchange Commission (SEC) available at www.sec.gov, including without limitation the Company's most recent Annual Report on Form 10-K, the Company’s subsequent Quarterly Reports on Form 10-Q and the Company's other filings from time to time with the SEC.

Executive Summary

Proven Discovery Platform

- Protein therapeutics that exploit biology validated by mAbs
- Anticalin proteins engineered for focused activity at disease locus leading to superior product profile
- Increased clinical benefit, reduced side effects, improved convenience

Industry & Clinical Validation

- ~$200M since 2017 in upfronts, milestones and equity investments
- Several co-developed and out-licensed programs
- Demonstrated clinical activity of the Anticalin drug class

Programs of Focus (Inhaled Respiratory)

- Elarekibep (IL4Rα): Large market on highly validated target to improve patient QoL in asthma
- PRS-220 (CTGF): Best-in-class anti-CTGF with disease-modifying potential in IPF
- PRS-400 (Jagged-1): Novel MOA for muco-obstructive disease that cannot be targeted systemically

Value Proposition

- Elarekibep (lead asset) fully funded by AZ through Ph2a; co-development opt-in
- Grant-supported development of PRS-220 through Ph1
- Significant milestone and royalty potential in broadly partnered residual pipeline

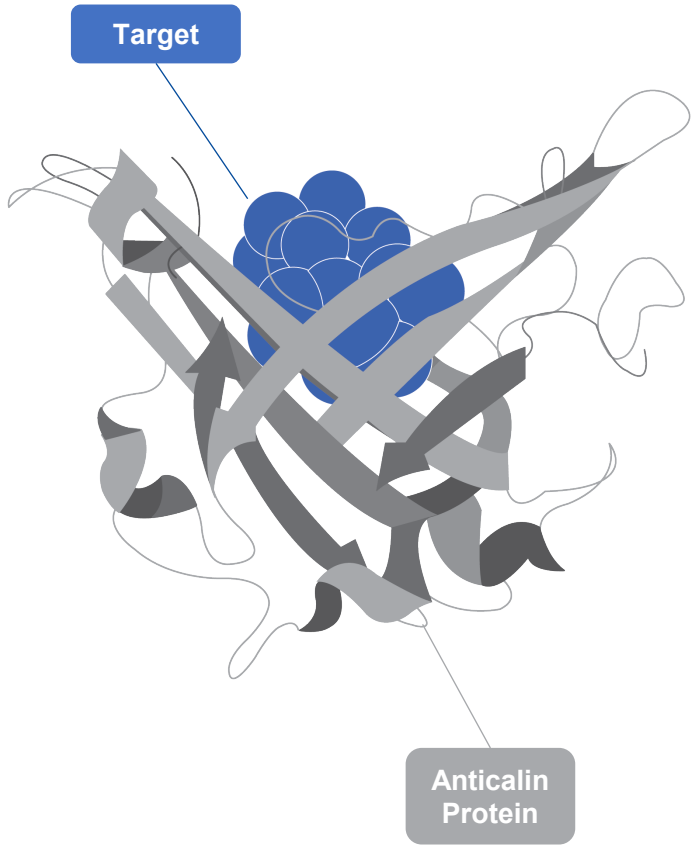
Anticalin® Proteins as Therapeutic Modalities

A Novel Therapeutic Class with Favorable Drug-Like Properties

- **Human –** Derived from lipocalins (human extracellular binding proteins)
- **Small** – Monomeric, monovalent, small size (~18 kDa vs. ~150kDa mAbs)
- **Stable** – Inhalable delivery
- **Simple** – Bi/multispecific constructs
- **Proprietary** – Strong IP position on platform and derived products

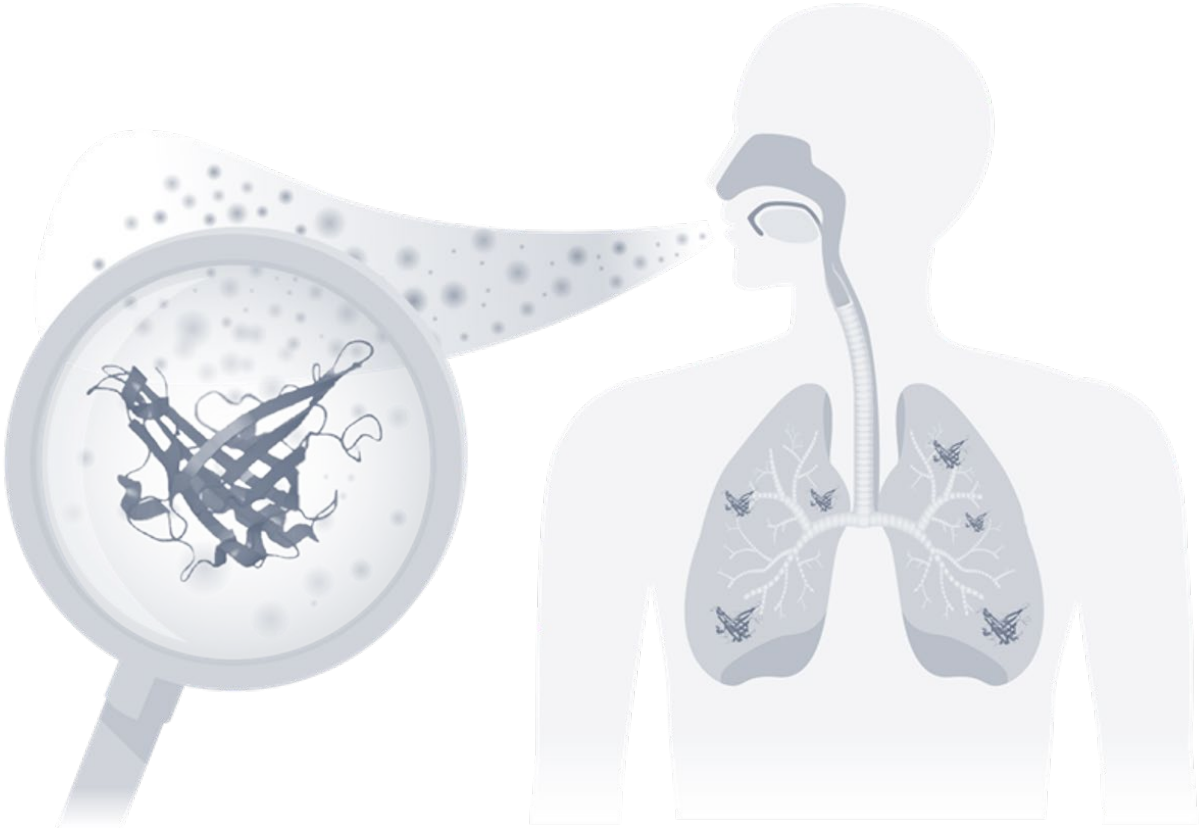
Translational Science Expertise to Deploy Platform in Meaningful Way

- Immunology expertise underpins IO and respiratory focus
- A leader in 4-1BB and costim biology
- Patient stratification efforts for improved stratification and novel targets in, e.g., asthma

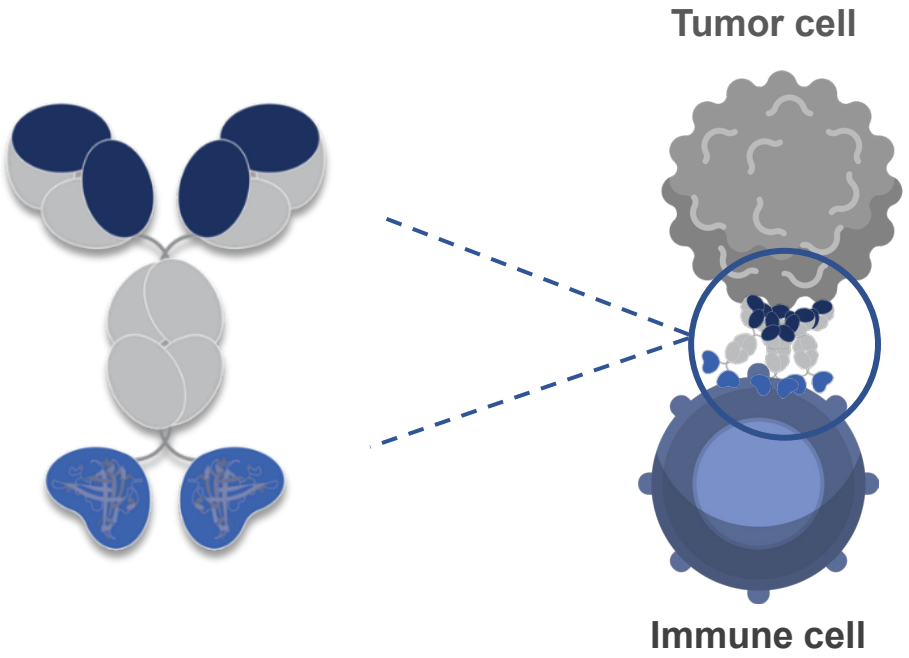


Two-fold Focus of Anticalin Platform Deployment

Inhalable formulations to treat respiratory diseases locally



Bispecifics for local immune agonism to treat cancer

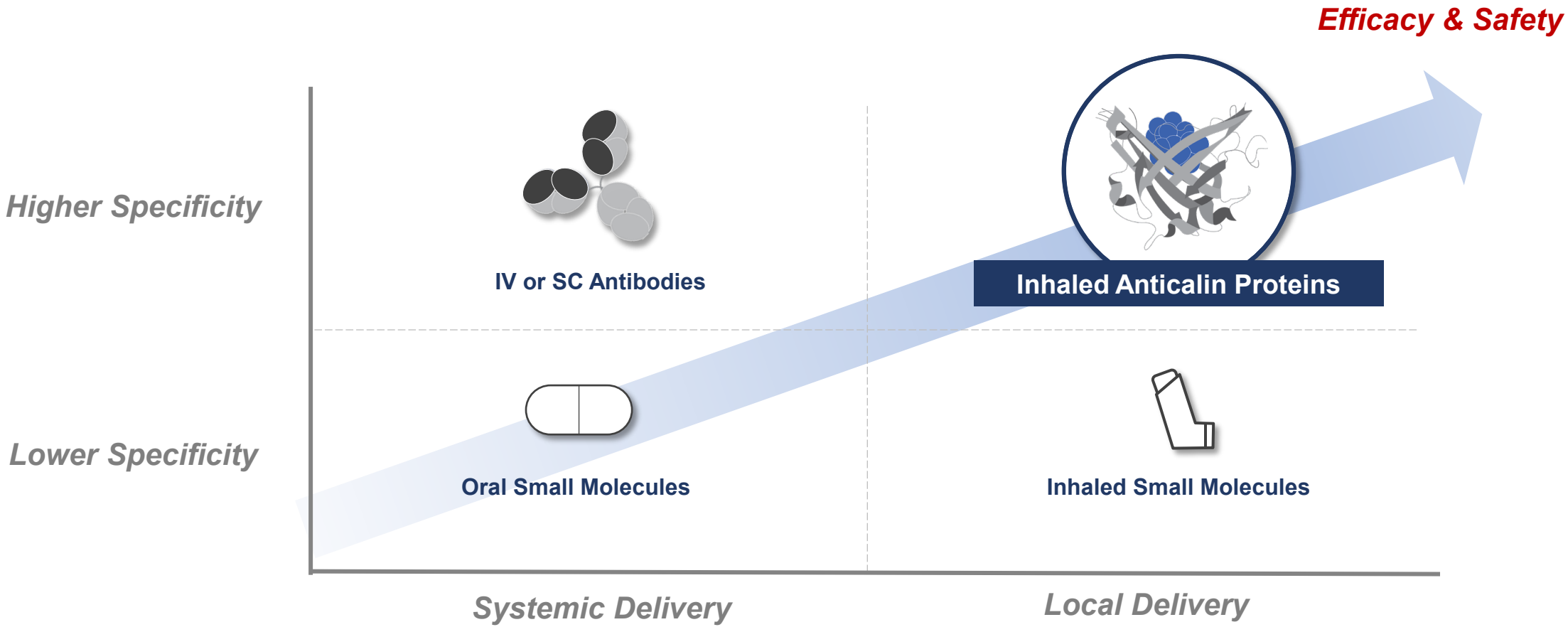


Validating Partnerships & Non-Dilutive Capital

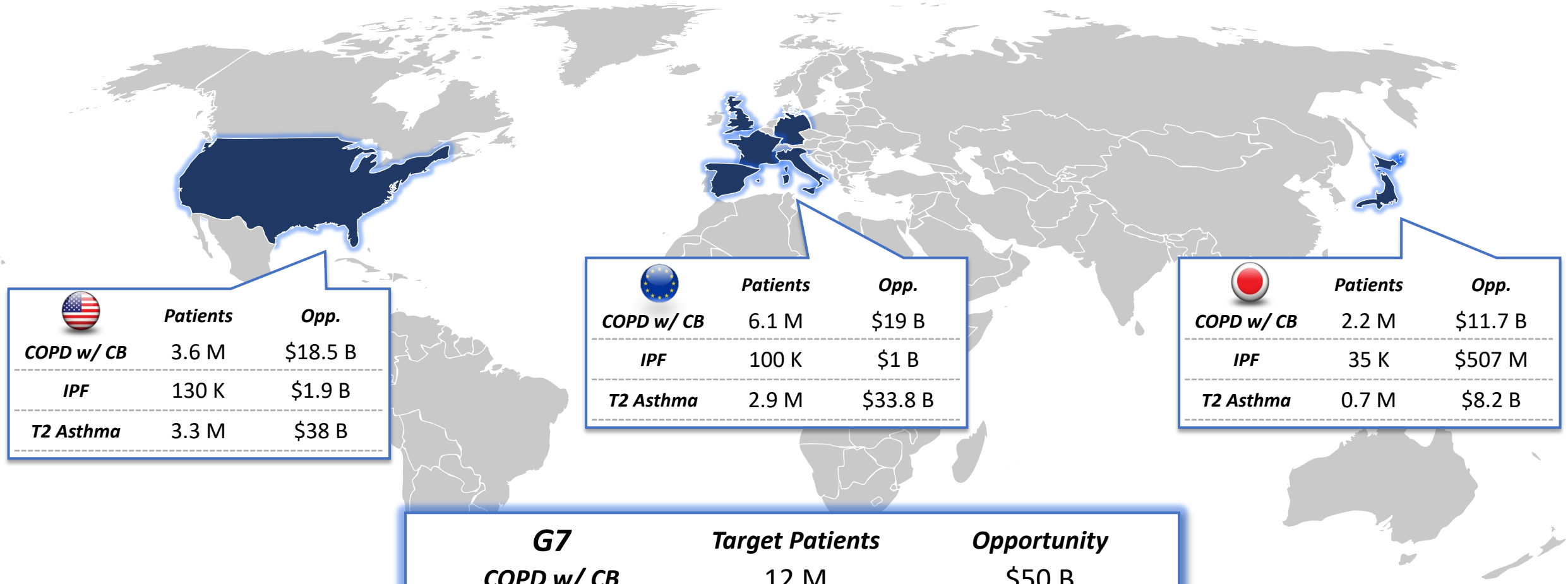
	Active Programs	Cash to Date	Cash Potential[+]
AstraZeneca	Three (all with co-dev)	$70.5M	>$4.6B plus royalties
Genentech, A Member of the Roche Group	Two	$20M	>$1.4B plus royalties
SERVIER moved by you	One co-dev program	~$41M	~$20M plus royalties
Seagen®	Three (one with U.S. copromotion option)	$40M	$1.2B plus royalties
BOSTON pharmaceuticals	One	$10M	~$350M

[+]As of December 31, 2022 and based on applicable exchange rate on that date

Combined Potential Advantages of Higher Specificity with Local Delivery



Pieris' Respiratory Portfolio Targets High Opportunity Indications in Both Primary and Specialty Markets



	Patients	Opp.
COPD w/ CB	3.6 M	$18.5 B
IPF	130 K	$1.9 B
T2 Asthma	3.3 M	$38 B

	Patients	Opp.
COPD w/ CB	6.1 M	$19 B
IPF	100 K	$1 B
T2 Asthma	2.9 M	$33.8 B

	Patients	Opp.
COPD w/ CB	2.2 M	$11.7 B
IPF	35 K	$507 M
T2 Asthma	0.7 M	$8.2 B

G7	Target Patients	Opportunity
COPD w/ CB	12 M	$50 B
IPF	265 K	$3.5 B
T2 Asthma	6.9 M	$80 B

Commercial opportunity represents total patients and average biologic price. No market share assumptions are factored into opportunity calculations

Respiratory Pipeline

Program	Target	Indication	Discovery	Preclinical	Phase 1	Phase 2	Partner
Elarekibep* (PRS-060/AZD1402)	IL4Rα	Asthma	Phase 2a fully sponsored by AZ; co-dev option				AstraZeneca
PRS-220	CTGF	IPF#	>50% grant-funded‡				
PRS-400	Jagged-1	n.d.					
AstraZeneca Programs**	n.d.	n.d.					AstraZeneca
Genentech program	n.d.	n.d.					Genentech A Member of the Roche Group

#IPF - Idiopathic Pulmonary Fibrosis, PF-ILD - Progressive Fibrosing Interstitial Lung Diseases, PASC-PF - Post-Acute sequelae of SARS-CoV-2 infection (PASC) Pulmonary Fibrosis (PF)

‡~$17 million grant from the Bavarian government to evaluate PRS-220 in PASC-PF covers more than half of early-stage and phase 1 development costs of PRS-220

**Pieris has separate co-development and U.S. co-commercialization options on elarekibep*

***Pieris has separate co-development and U.S. co-commercialization options for the two additional programs partnered with AstraZeneca*

Immuno-Oncology Pipeline

BISPECIFICIS FOR LOCAL AGONISM TO TREAT CANCER

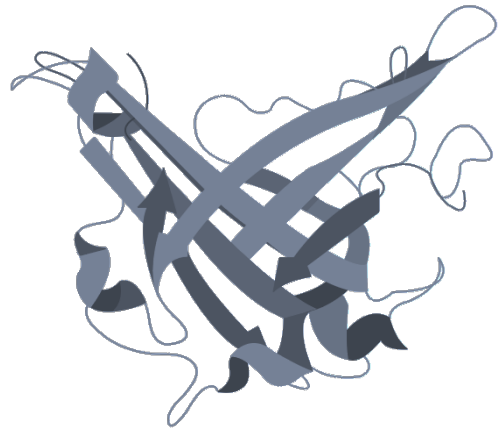
Program	Target	Indication	Discovery	Preclinical	Phase 1	Phase 2	Partner
PRS-344/ S095012	4-1BB/PD-L1	n.d.	~50% co-dev cost share				SERVIER moved by you
PRS-346/ SGN-BB228	4-1BB/CD228	n.d.					Seagen
PRS-342/ BOS-342	4-1BB/GPC3	n.d.					BOSTON pharmaceuticals
SGN programs‡	n.d.	n.d.					Seagen

‡ *Two additional active bispecific programs in collaboration with Seagen, with Pieris retaining a U.S. co-promotion option in one of the programs in the collaboration*

Successful track record of partnering 4-1BB assets for value

Elarekibep: Inhaled IL-4Rα Antagonist

Candidate	Elarekibep
Function/MoA	Inhibiting IL4-Rα (disrupts IL-4 & IL-13 signaling)
Indications	Moderate-to-severe asthma
Development	Phase 2a in moderate asthmatics
Commercial Rights	Co-development and U.S. co-commercialization options with gross margin share or royalties



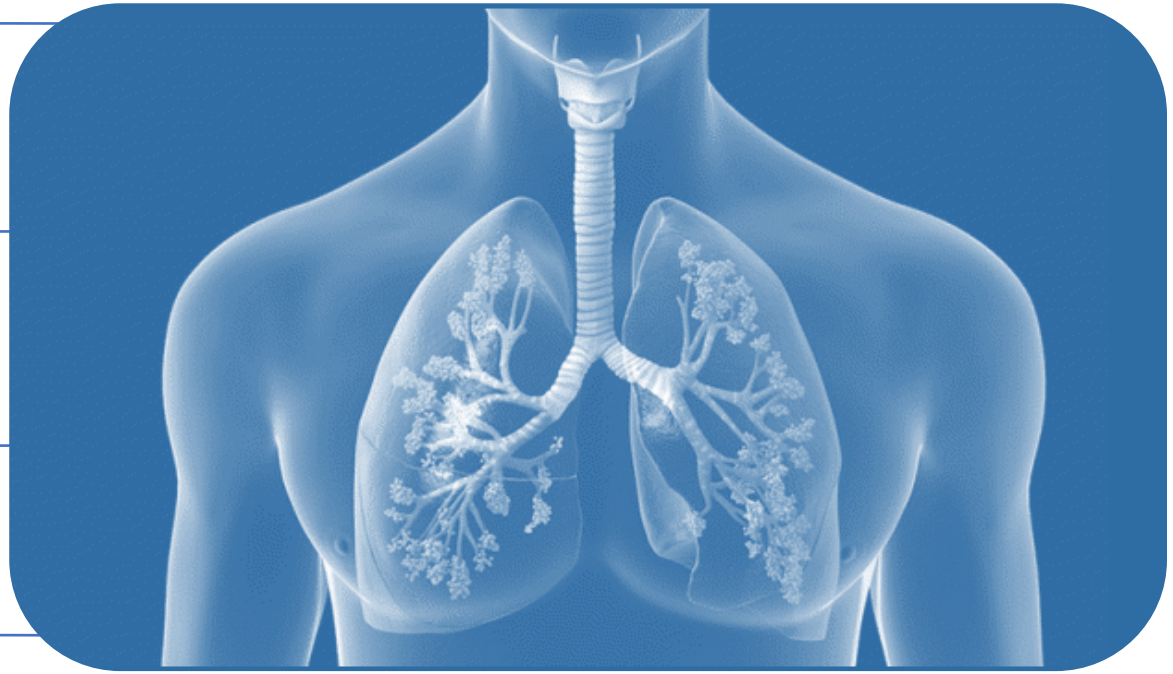
Elarekibep Phase 2a Study

Part 1 (Safety)	**Participant Population:** Moderate asthmatics controlled on ICS/LABA **Primary Endpoint:** Safety and tolerability compared to placebo from baseline until follow-up (approximately 56 days) **Doses:** 1 mg (completed), 3 mg (completed), 10 mg (completed)
Part 2 (Efficacy)	**Participant Population:** Asthmatics uncontrolled on moderate or high dose ICS/LABA with blood EO count of ≥ 150 cells/µL and FeNO ≥ 25 ppb at screening **Primary Endpoint:** Improvement of FEV1 at four weeks relative to placebo **Doses*:** 1 mg (enrolling), 3 mg (enrolling)

Safety initiated Q1 2021; efficacy initiated Q1 2022

Dry powder formulation, administered b.i.d. over four weeks on top of standard-of-care therapy (medium or high dose ICS with LABA)

Study is sponsored, conducted, and funded by AstraZeneca



*1 mg dose cohort will cease enrolling with approval by regulatory authorities of protocol amendments; 3 mg dose cohort will be the focus of the topline readout

DPI Formulation of Elarekibep Passed Safety Review

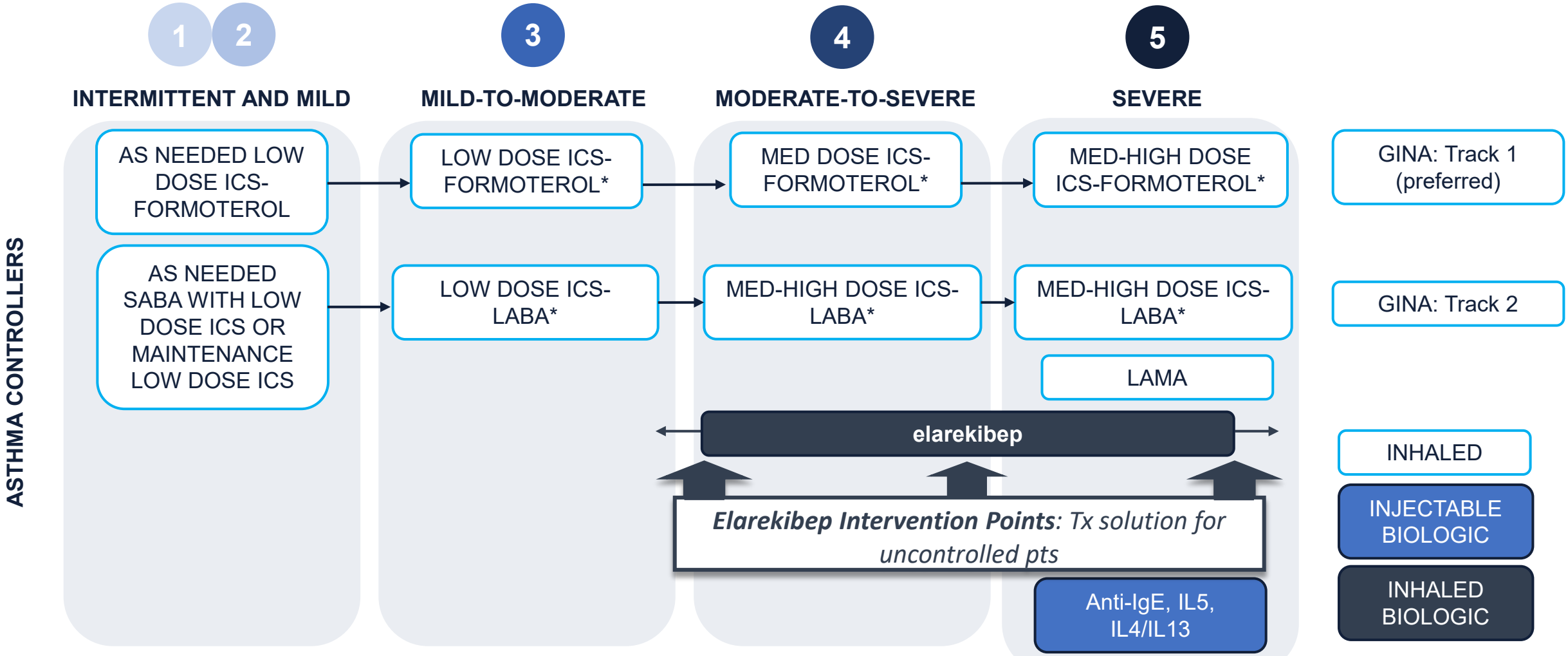
31 moderate asthmatics controlled on standard-of-care therapy (medium dose ICS with LABA) were dosed twice daily over four weeks randomized across two dose levels and placebo (1:1:1)

Safety review successfully completed for two dose levels (1mg and 3mg), triggering efficacy portion of study for those same doses in participants with moderate asthma uncontrolled on medium dose ICS-LABA

Safety review performed of the following (compared to placebo):

- ☑ Incidence of adverse events
- ☑ Changes in laboratory markers (immune biomarkers, clinical chemistry, and hematology)
- ☑ Forced expiratory volume in 1 second (FEV1)
- ☑ Pharmacokinetics

Potential Large Market Opportunity in Moderate-to-Severe Asthma not Addressed by ICS/LABA before Injectable Biologics



ICS = Inhaled corticosteroids
SABA= Short-acting β2 adrenergic receptor agonists
LABA = Long-acting β2 adrenergic receptor agonists
LAMA = Long-acting muscarinic antagonists

Global Initiative for Asthma (GINA) Steps (2021)

Co-Development Options for Elarekibep

PIRS Opt-in Decision Point

Phase 2a Primary Endpoint:
Improvement of FEV1 at 4 weeks relative to placebo

Co-Dev Option Requirements:
30-day opt-in period triggered upon both completion of Phase 2a trial and notice by AZ (must include product development plan & budget)

Three Possible Options

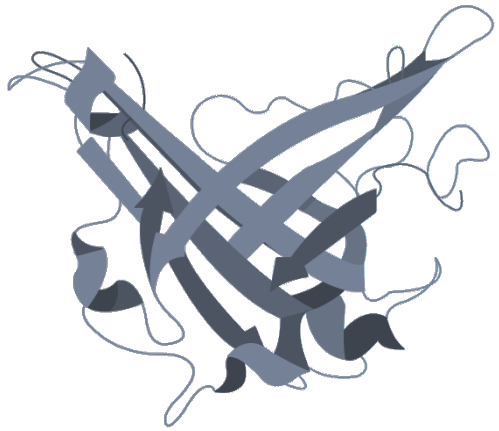
- **No opt-in & no cost sharing**
- Single digit up to mid-teen royalties for royalty term
- Same development milestones as 25% option; up to $1.9B in sales milestones

- **25% cost share with cost cap**
- Single digit up to high-teen royalties for product lifetime
- Development milestones approximating 50% of development costs
- Potential $3.5B+ in sales milestones

- **50% cost share without cost cap**
- Gross margin share percentage in mid-twenties for the product lifetime
- Development milestones approximating two-thirds of 25% option

PRS-220: Inhaled CTGF Antagonist

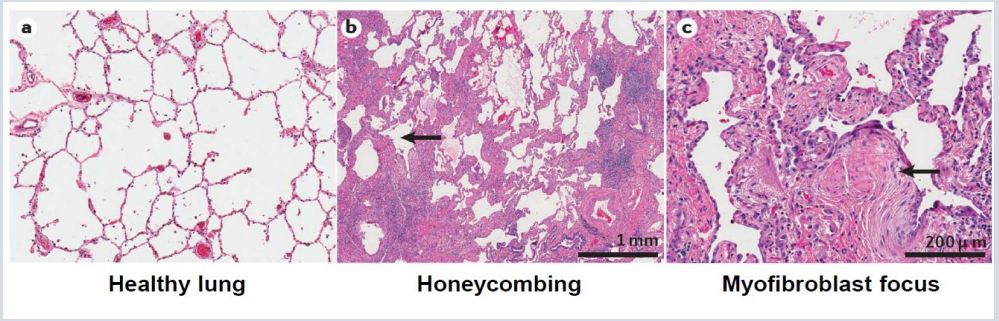
Candidate	PRS-220
Function/MoA	Inhibiting CTGF/CCN2
Indications	IPF* and other forms of fibrotic lung diseases
Development	Phase 1 in healthy volunteers
Commercial Rights	Fully proprietary



*IPF - Idiopathic Pulmonary Fibrosis

IPF: High Unmet Medical Need and Significant Commercial Opportunity

A chronic lung disease:
ultimately fatal lung disease of unknown cause characterized by progressive scarring of the interstitial lung tissue



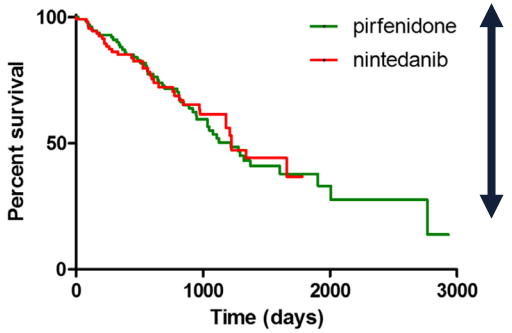
Martinez, Nature Rev Dis Primer, 2017

3 to 5 years

median survival from the time of diagnosis
Hopkins, European Respiratory Journal, 2016

2

approved therapies nintedanib & pirfenidone providing modest benefit with significant side effects



medical need

Adapted from Cameli, Frontiers in Molecular Biosciences, 2020

>$3B

current market in sales

Significant need for well-tolerated and effective therapies

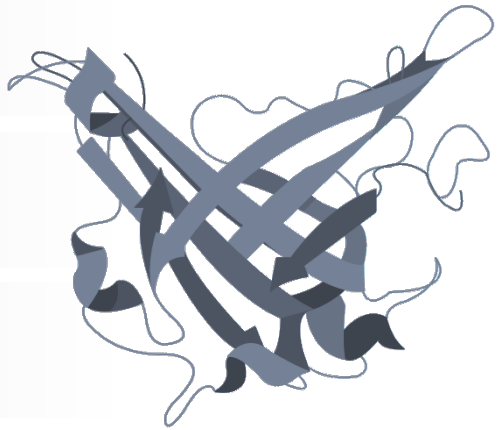
PRS-220: Rationale for Best-in-Class Potential

Potential key points of differentiation of inhaled PRS-220 compared to systemically delivered CTGF antagonists:

More Efficient Target Saturation	• Avoidance of systemic CTGF sink (in blood) • Significantly higher affinity with superior binding profile
Superior Lung Biodistribution	• Local delivery to the site of the disease in the lung via inhalation • Increased concentration
Increased Convenience	• Inhalation at home compared to regular visits to infusion centers for i.v. administrations • Administration on top of standard of care

PRS-400: An Inhaled JAG1 Antagonist

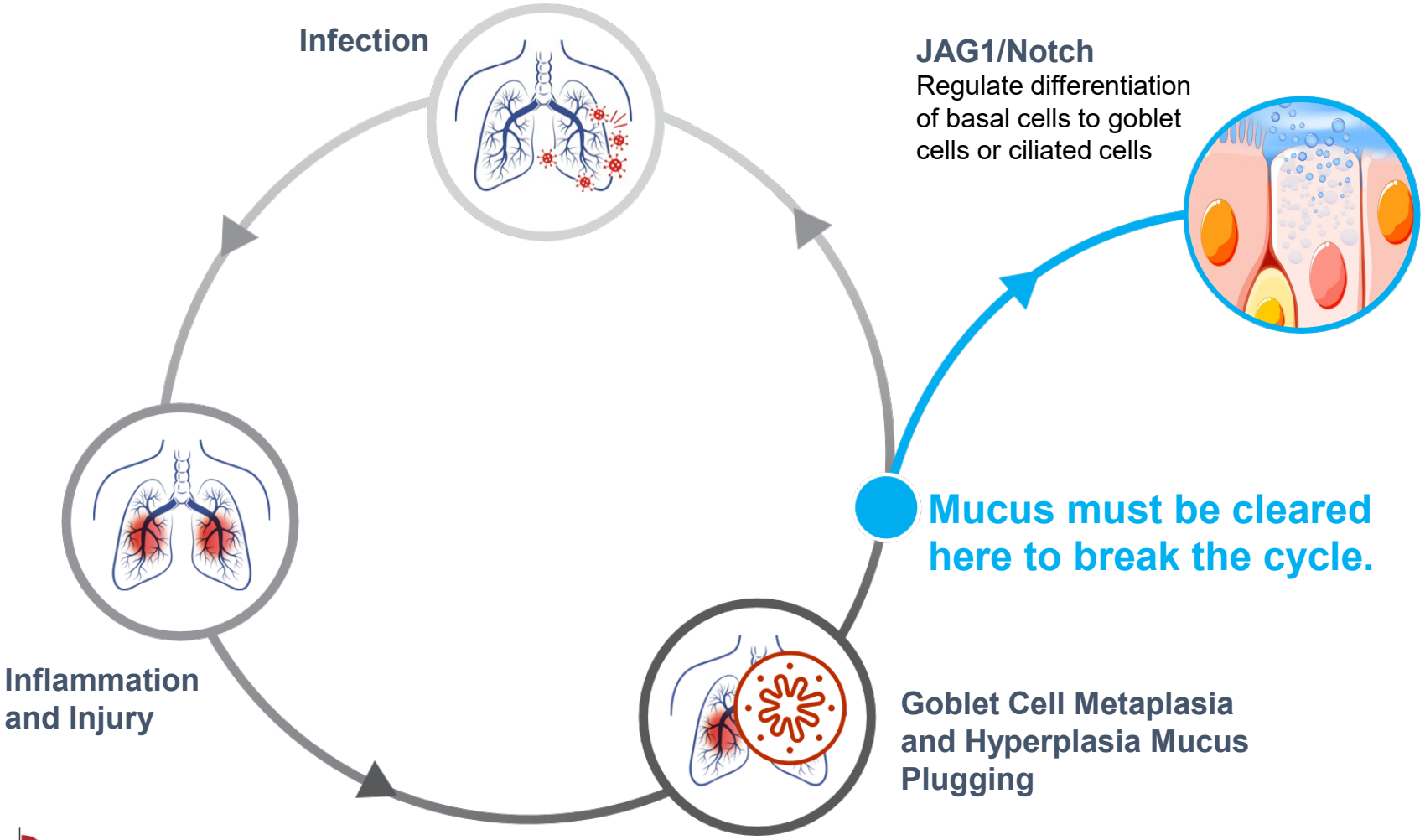
Candidate	PRS-400
Function/MoA	Inhibiting Jagged-1
Indications	Respiratory Diseases: COPD, CF, PCD, CRS, Bronchiectasis and Asthma*
Development	Preclinical
Commercial Rights	Fully proprietary



*__COPD__ - Chronic Obstructive Pulmonary Disease; __CF__ - Cystic Fibrosis; __PCD__ - Primary Ciliary Dyskinesia; __CRS__ - Chronic Rhinosinusitis

Breaking the Vicious Cycle

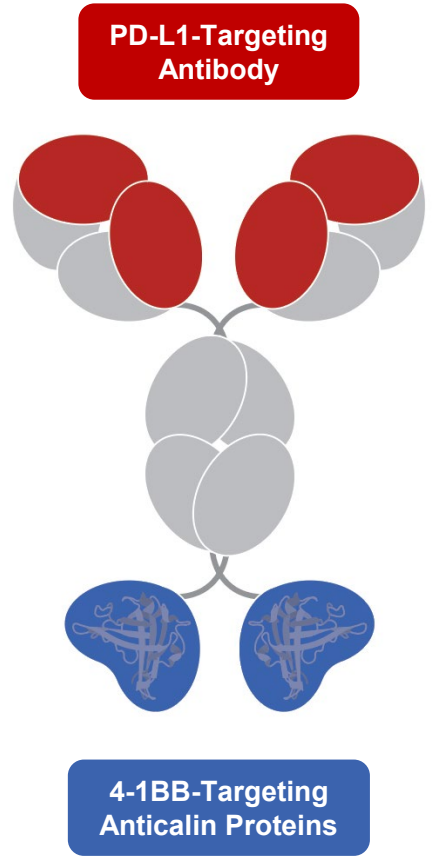
PRS-400 (ANTI-JAG1) DESIGNED TO DISRUPT MASTER REGULATOR OF MUCUS PRODUCTION



PRS-400 is designed to block JAG1/Notch signaling, reversing, INDEPENDENT of stimulus, GCM, GCH and mucus plugging, as well as increasing number of ciliated cells

PRS-344/S095012: Localized 4-1BB Agonism with PD-L1 Antagonism

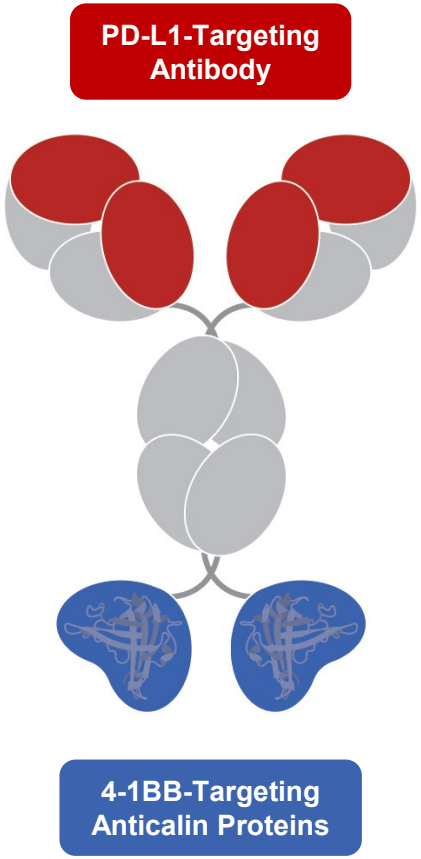
Candidate	PRS-344/S095012
Function/MoA	Localized 4-1BB agonism with PD-L1 antagonism
Indications	N.D.
Development	Phase 1 (in co-dev with Servier)
Commercial Rights	Full U.S. commercial rights; royalty on ex-U.S. sales



PRS-344/S095012: Why 4-1BB/PD-L1

PRS-344/S095012 is designed to activate 4-1BB on tumor-specific T cells when bridging to PD-L1-expressing tumors and dendritic cells

Molecule designed to drive potent 4-1BB agonism with an optimal therapeutic window



Affinity	Binds with 5nM affinity to 4-1BB (lower than competitors) with 7-fold higher affinity to PD-L1 (0.6nM)
Valency	Bivalent 4-1BB inactive peripherally but potent activation potential when clustered on PD-L1-positive cells
Geometry and flexibility	Empirically tested multiple bispecific prototypes for best effect with objective of recreating natural immune synapse
4-1BB epitope	Ligand independent to avoid disrupting peripheral immune surveillance (safety) while facilitating ligand engagement when drug-bound (efficacy)

Financial Overview (as of 12/31/22)

$59.2M[1]	$0.00	74.5M
Cash, Cash Equivalents & Investments	Debt	CSO

>$175M non-dilutive capital from partnerships since 2017

~$17M[2] grant announced in 2021

[1] *Excludes $5M milestone received from Seagen for first patient dosing in SGN-BB228*
[2] *Calculated based on the June 25, 2021, noon buying rate of €1.00 to U.S. $1.1938*

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SUPERIOR MEDICINES THROUGH EFFICIENT BIOLOGY