

Revolutionising Pulmonary Medicine

May 2025

POLAREAN

Making Lung Function Visible

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Our Mission and Vision



Mission

Revolutionising pulmonary medicine
through direct visualisation of lung function

Vision

Optimise lung health and prevent avoidable loss
by illuminating hidden disease























Detect | Guide | Monitor



Polarean Senior Management Team



Successful, experienced healthcare professionals with proven track record

		Selected Prior Company Affiliations
 Christopher von Jako, PhD CEO & Executive Director	<ul style="list-style-type: none"> Joined in 2023 30+ years of global executive leadership experience in MedTech with a primary focus on capital image guidance equipment Led organisations in early-stage, expansion, and turnaround environments with five entities resulting in M&A 	 ST. JUDE MEDICAL  NeuroTherm®  Medtronic  INTEGRA  COVIDIEN  RADIONICS Trusted Accuracy
 Charles Osborne CFO & Executive Director	<ul style="list-style-type: none"> Joined in 2019 30+ years of global life sciences experience, 20+ years as CFO Extensive public company, corporate partnering, and M&A experience 	 innocrin precision therapeutics  SCYNExis
 Alex Dusek Chief Business Officer	<ul style="list-style-type: none"> Joined in 2019 25+ years of global executive commercial leadership in Pharma, Biotech, & MedTech Led global pulmonary pharma product launches 	 Boehringer Ingelheim  United Therapeutics CORPORATION  BAYER
 Alan Huang, PhD VP of Global Sales	<ul style="list-style-type: none"> Joined in 2024 15+ years of global business leadership experience in MedTech with a primary focus on capital image guidance equipment Experience in creating new markets and growing businesses with novel technologies. 	 PHILIPS  JOHNS HOPKINS MEDICINE
 Chase Hall, MD Chief Medical Advisor	<ul style="list-style-type: none"> Joined in 2024 Associate Professor of Medicine at the University of Kansas Medical Center in the Division of Pulmonary and Critical Care & also serves as Associate Director at the University of Kansas Interstitial Lung Disease and Rare Lung Disease Clinic 	 Washington University in St. Louis SCHOOL OF MEDICINE  BARNES JEWISH Hospital HealthCare
 Bastiaan Driehuys, PhD Chief Scientific Officer & Founder	<ul style="list-style-type: none"> Joined in 2012 A Polarean founder and technology founder with over 100 peer-reviewed articles on hyperpolarised gases and holds over 30 patents in this area Professor in the Department of Radiology at Duke University Health System 	 Amersham Health

At a Glance

➤ Commercial-stage functional lung imaging company with 20+ customers

➤ First and Only FDA-Approved Inhaled MRI Contrast Agent compatible with Philips, GE HealthCare, and Siemens MRIs

➤ Favorable reimbursement for the 10-second image strengthens hospital economics, fuelling adoption

➤ **20+**
Patents
Granted

Philips Partnership



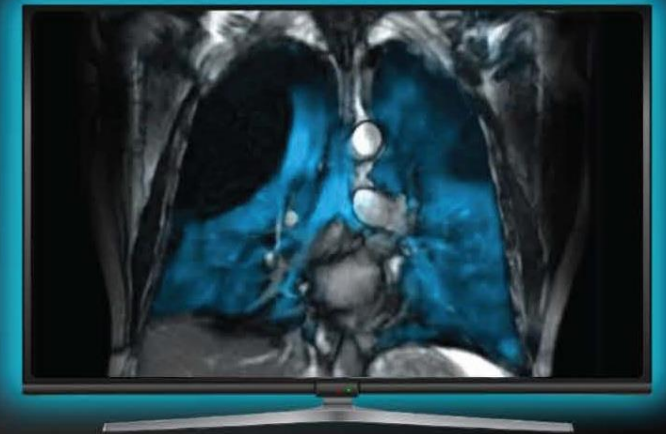
XENOVIEW®
(xenon Xe 129 hyperpolarized) for oral inhalation

Changing
How We View
Lung Function



Standard Proton MRI scan

Modern
Respiratory
Imaging



Xenon MRI

Indication

XENOVIEW, prepared from the Xenon Xe 129 Gas Blend, is a hyperpolarised contrast agent indicated for use with MRI for evaluation of lung ventilation in adults and pediatric patients aged 12 years and older.

Limitations of Use

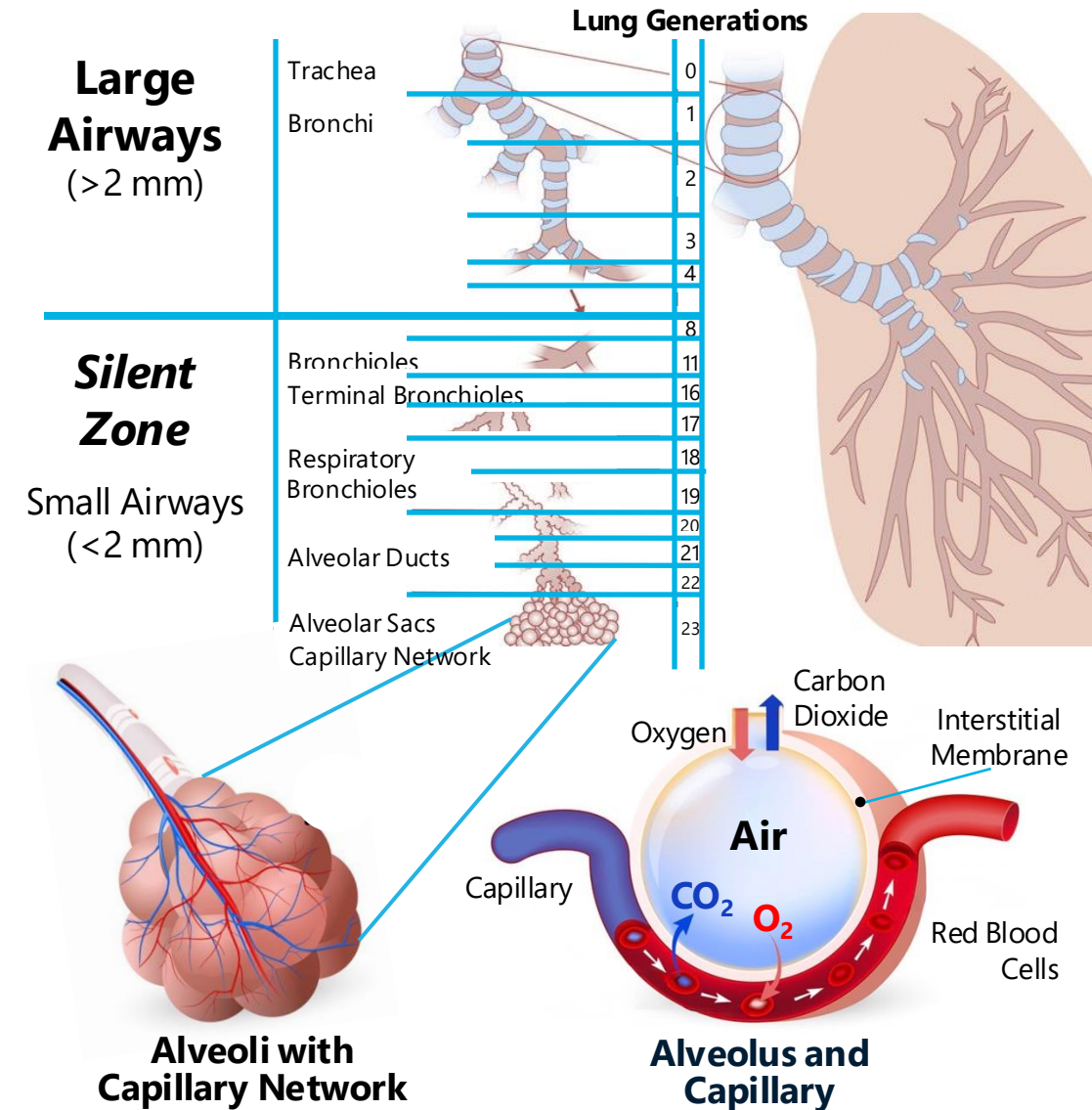
XENOVIEW has not been evaluated for use with lung perfusion imaging.

Significant global unmet clinical need to improve lung health

Functional Lung Imaging Platform	Proprietary Non-invasive Radiation-free Sensitive Fast FDA-approved U.S.-reimbursed Lucrative Per-patient Consumable Revenue Model			
Large Total Addressable Market	\$2B+ U.S.*	\$19B+ Global*	Lung Airway Disease	Lung Cancer
Massive Label Expansion Market	\$3B+ U.S.*	\$39B+ Global*	Lung Tissue Disease	Pulmonary Vascular Disease
Pharma / Research Markets	Drug Development	Comparative Effectiveness Trials	Sensitive, non-invasive biomarkers speed trials and market entry	

Optimise Lung Health

- The Challenge
 - Traditional tests miss early lung dysfunction in the *Silent Zone* — delaying diagnosis and risking irreversible damage.
- The Solution
 - Xenon MRI illuminates hidden losses — enabling earlier detection, better treatment decisions, and the potential to protect lung health.



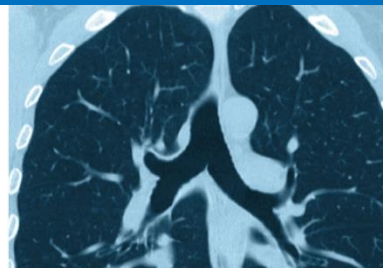
Decades Without Advancement

Traditional lung assessments rely on blunt tools that fall short



Chest X-Ray

Developed in 1896
70m Total US procedures/yr.



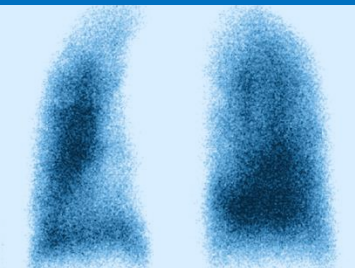
CT Scan

Developed in 1971
10m Total US procedures/yr.



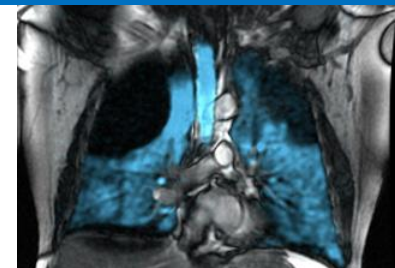
Spirometry

Developed in 1846
35m US procedures/yr.



Scintigraphy

Developed in 1964
500k Total US procedures/yr.



Xenon MRI

FDA Approval 2022
20+ sites and growing

**Sensitive to
Silent Zone?**

✗ NO

✗ NO

✗ NO

✗ NO

✓ YES

**Functional
Measure?**

✗ NO

✗ NO

✓ YES

⚠ PARTIAL

✓ YES

Visualisation?

✓ YES
Structure only

✓ YES
Structure only

✗ NO

⚠ LOW-RES

✓ YES

**Radiation-
free?**

✗ NO

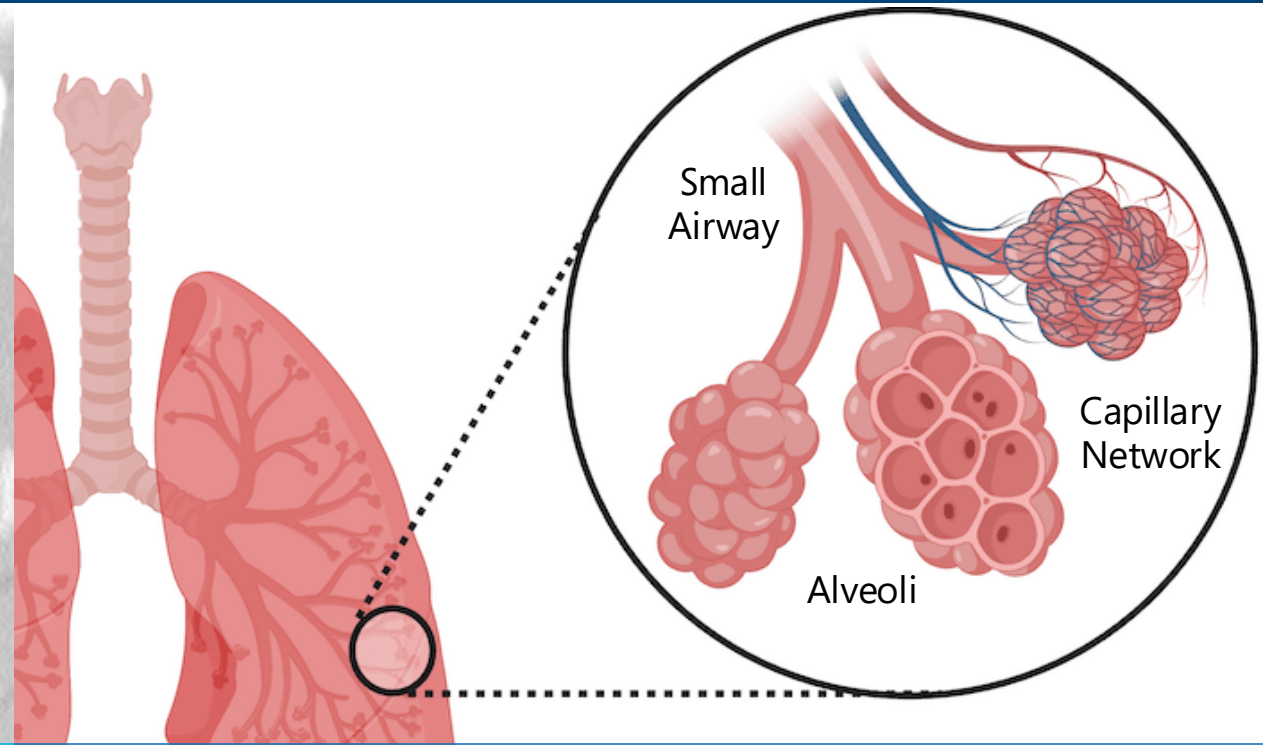
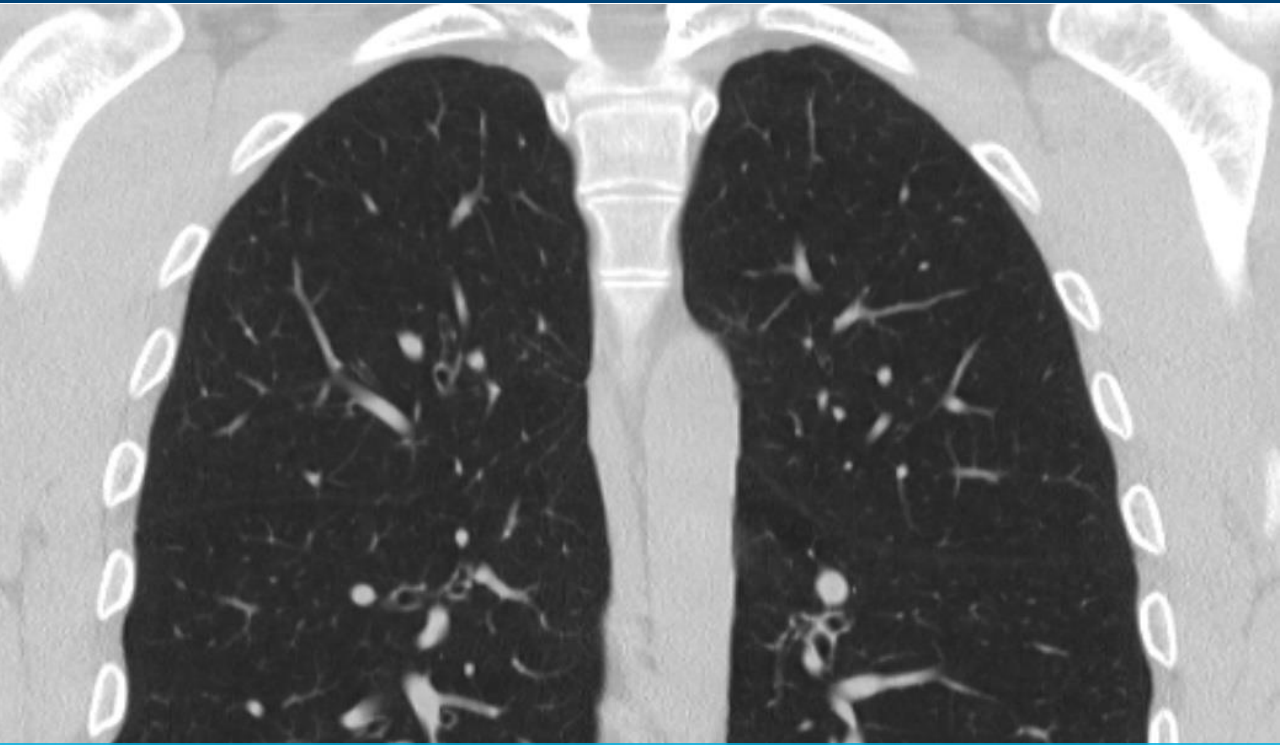
✗ NO

✓ YES

✗ NO

✓ YES

Structure vs. Function



WHAT CT CAN SEE

Upper branch lung STRUCTURE

WHAT CT CAN'T SEE

Silent Zone FUNCTION

Benefits Over Spirometry

- Less Effort Dependent
- Not everyone can do it
- Lower Test/Retest Variability
- More Sensitive Measure of Small Airway Disease ("Silent Zone")
- Direct, Quantitative, and Visual Imaging of Lung Function
- Personalised, Direct Measurement of Lung Function

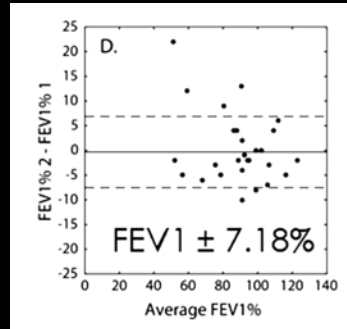
Spirometry



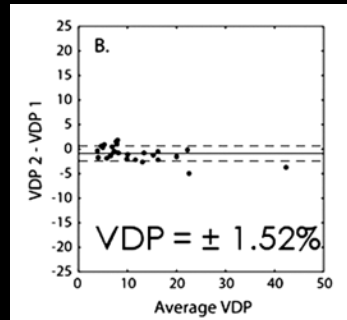
Xenon MRI



Repeatability in Spirometry

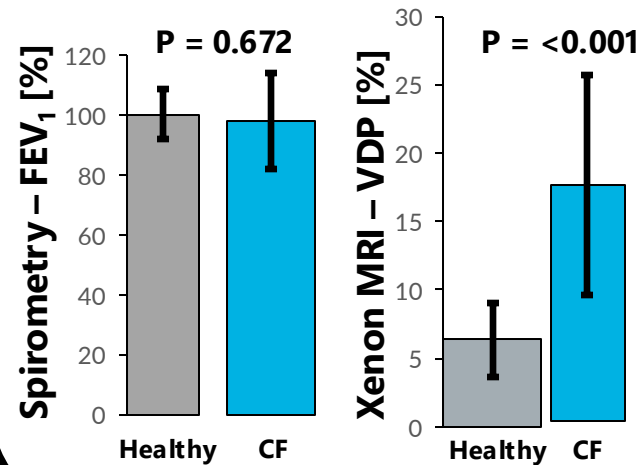


Repeatability in Xenon MRI



Invest Radiol. 2017 Feb;52(2):120-127.

Xenon MRI differentiates mild Cystic Fibrosis (CF) from Healthy Patients



Walkup L, et. al., J Magn Reson Imaging 2024

Healthy 21 yo Female
Spirometry = 101%

VDP = 1%

Cystic Fibrosis 13 yo Male
Spirometry = 106%

VDP = 26%

Courtesy of University of Missouri, unpublished

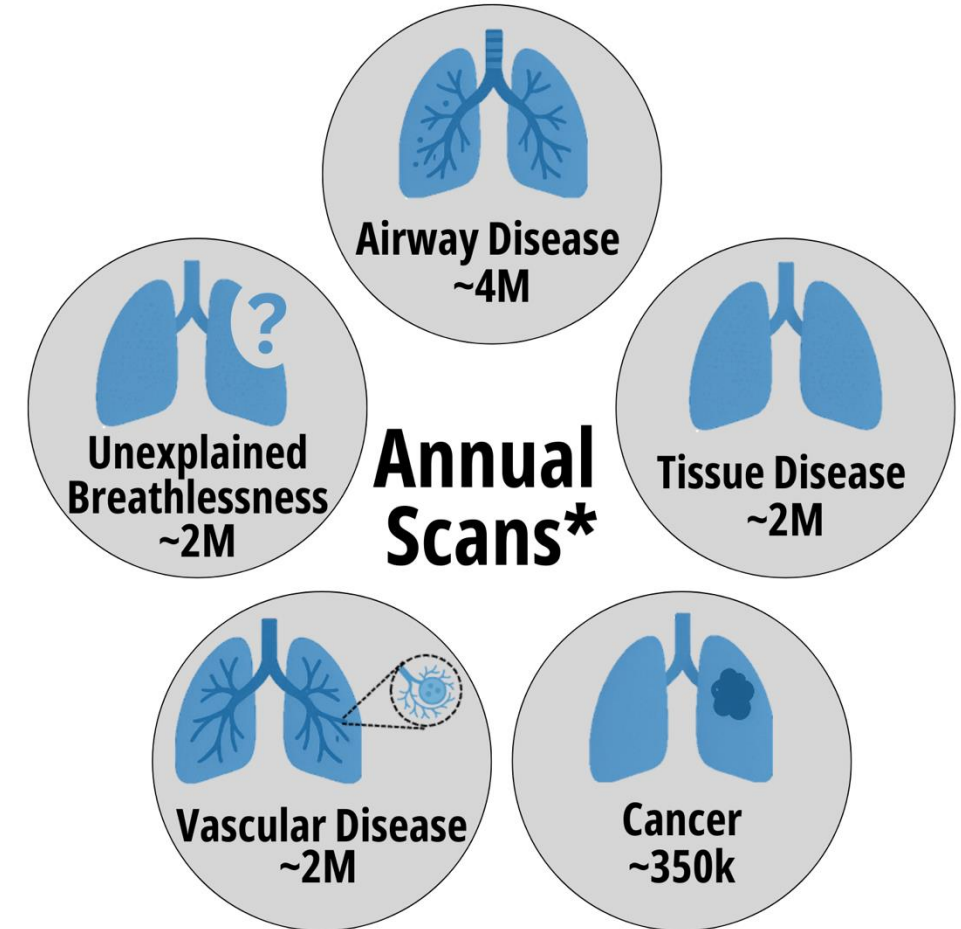
Targeting a Large, Unmet Need in Lung Disease **POLAREAN**

Serving critical needs across five major respiratory conditions

Across the US, over 5 million people are affected by lung diseases are suited for Xenon MRI

Multiple factors drive demand for advanced diagnostics

- Aging Population - US Census Bureau projects older adults will outnumber children by 2035
- Obesity – Center for Disease Control says 41.9% of US population is obese
- Pulmonary Long Covid - Growing population with persistent respiratory symptoms
- Lung Cancer - The second most common cancer and leading cause of cancer death
- Rising Respiratory Costs - Respiratory diseases are major drivers of healthcare spending
- Industry Tailwinds - Respiratory Diagnostics & Pharma Market are growing fast
- Rare & Orphan Lung Disease - Challenging for patients, physicians, and researchers



Introduce the Power and Safety of MRI to the Lung

POLAREAN

Underutilisation of MRI in lung imaging until **now**



No radiation exposure to patient



Spatially distributes to image the smallest airways



Evaluates Regional Lung Ventilation



Non-effort dependent procedure



Single 10-second breath hold generates a full 3D

Our Solution: Xenon MRI Platform

POLAREAN

Game-changing drug-device imaging product with per patient consumable

Hospital Hyperpolarisation Lab



Multi-dose
Xenon Cylinder



Dose
Production



Dose
Measurement

XENOVIEW®
Active Dose

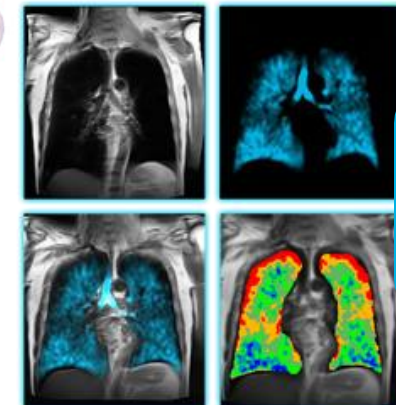
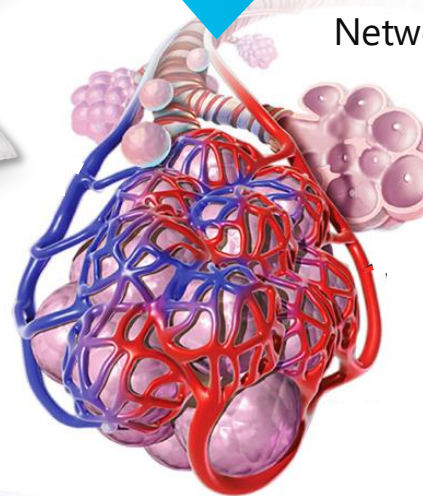


Hospital MRI Suite



Lung
Airway
Network

XENOVIEW®
(xenon Xe 129 hyperpolarized) for oral inhalation



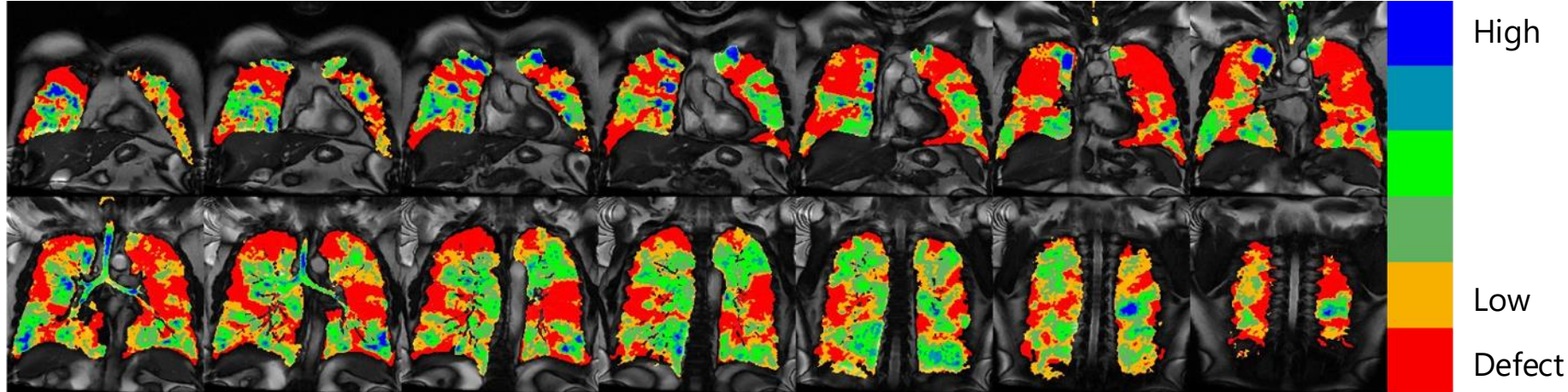
XENOVIEW
3T Chest Coil

XENOVIEW VDP software

Our Solution: Xenon MRI Platform

Only pulmonary function test that provides regional visual and quantitative data

Pre-treatment



High

**Ventilation Defect
Percentage (VDP):**

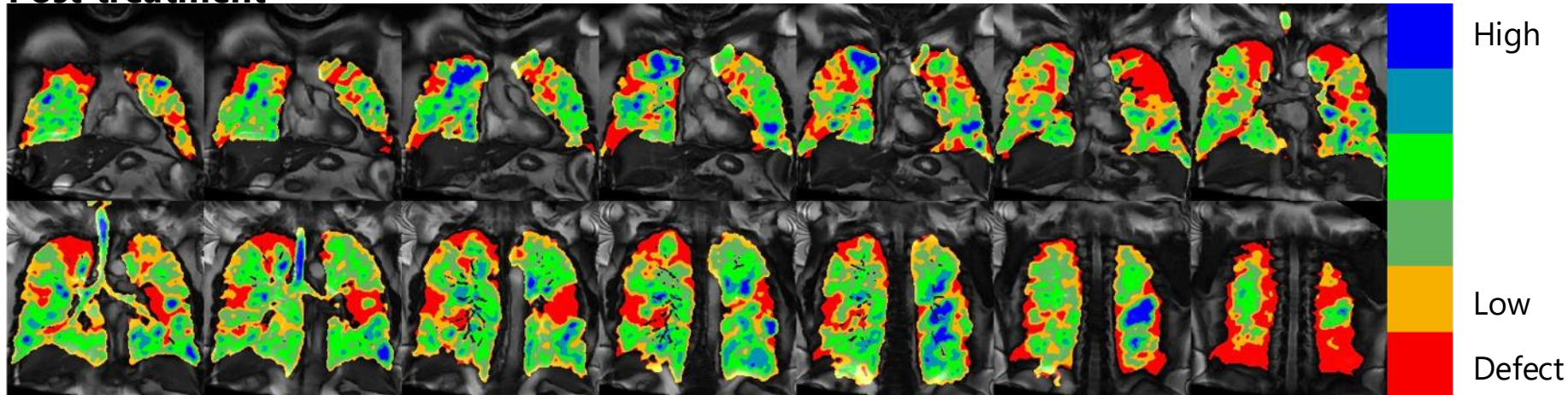
Pre

34%

Low

Defect

Post-treatment



High

**Ventilation Defect
Percentage (VDP):**

Post

19%

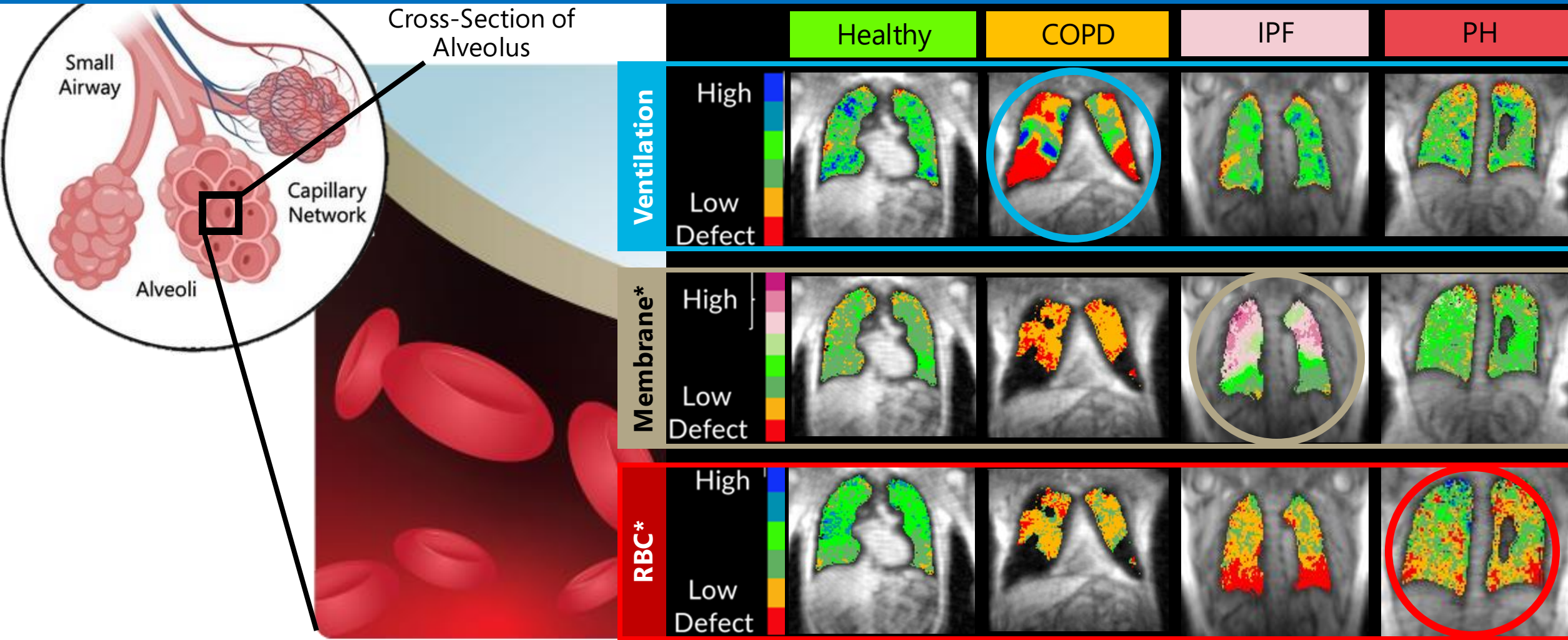
Low

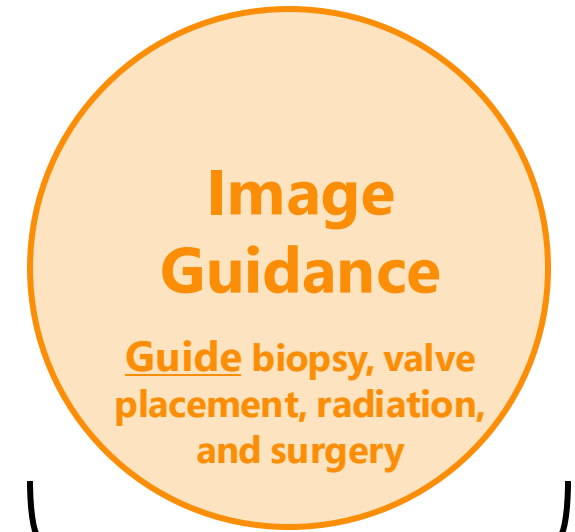
Defect

Xenon MRI Value – See The Whole Picture



Uniquely suited to more precisely characterise multiple diseases





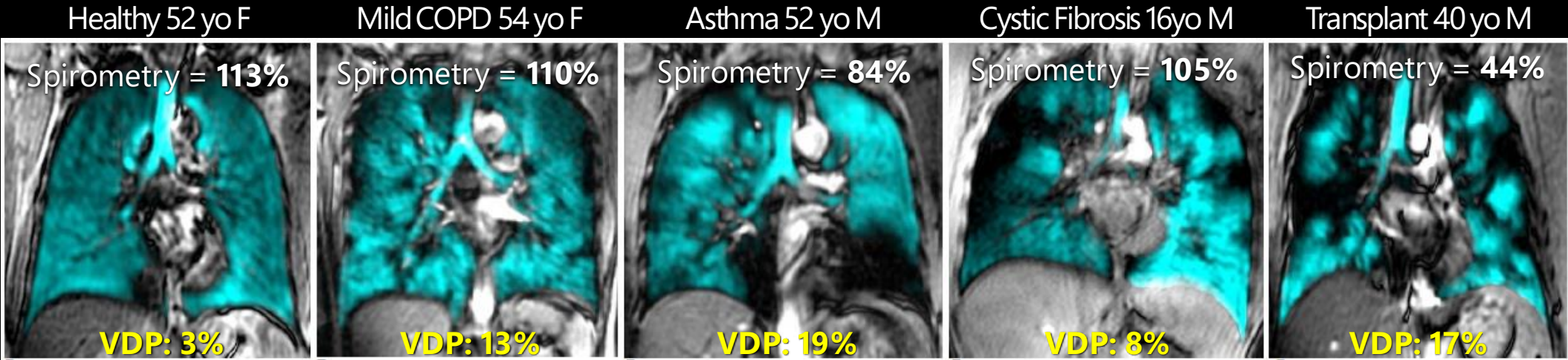
Examples

- **Airway**
 - ❖ Asthma
 - ❖ Bone Marrow Transplant
 - ❖ Bronchopulmonary Dysplasia
 - ❖ COPD
 - ❖ Cystic Fibrosis
 - ❖ Lung Transplant
- **Unexplained Breathlessness**

- **Tissue Disease**
 - ❖ Deployment-Related Resp Disease
 - ❖ Pulmonary Fibrosis
 - ❖ Long-COVID
- **Pulmonary Vascular**
 - ❖ Pulmonary Hypertension
- **Lung Cancer**
 - ❖ Surgical Oncology
 - ❖ Medical Oncology
 - ❖ Radiation Therapy

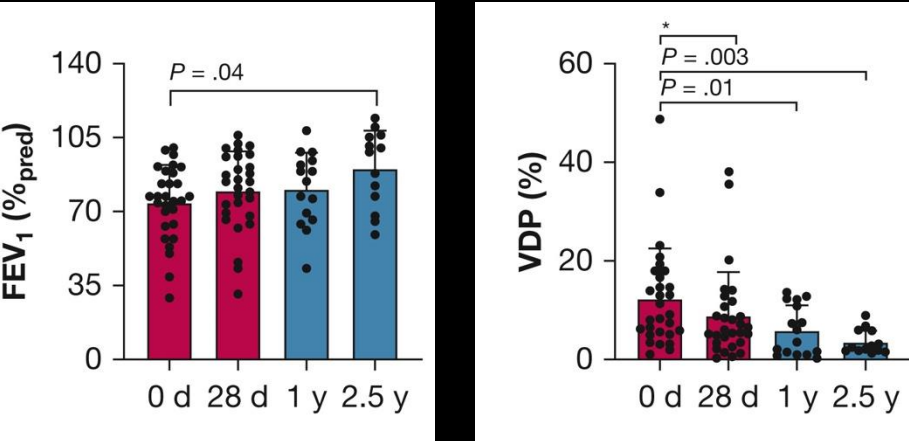
- **Airway**
 - ❖ COPD - Endobronchial valves
 - ❖ Biopsy Guidance
- **Cancer**
 - ❖ Radiation Planning
 - ❖ Surgical Resection Planning

Characterisation

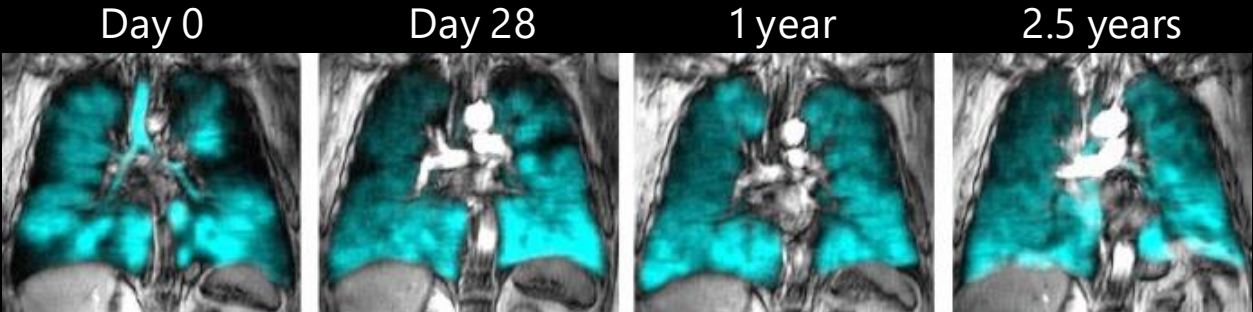


Svenningsen, McMaster University, unpublished data; used with permission

Treatment Response



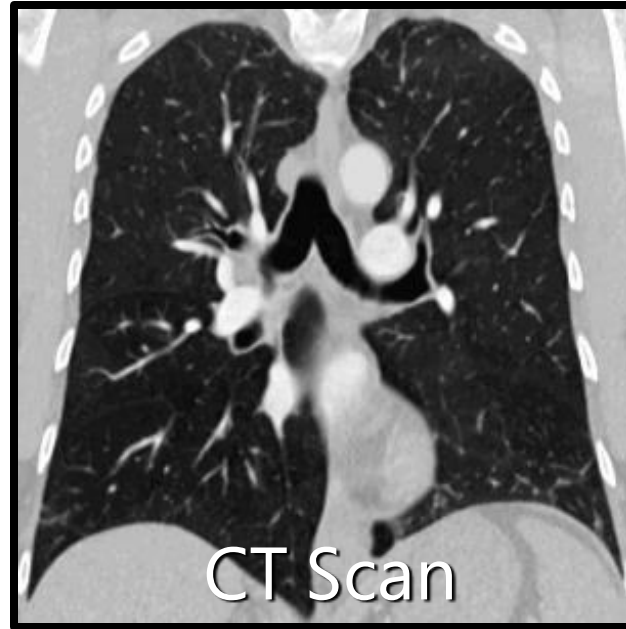
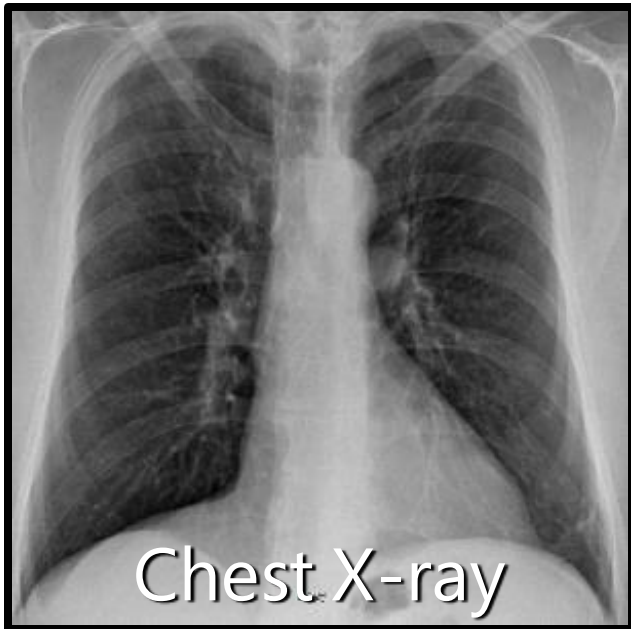
Predicted responders to Asthma Biologic, demonstrated response in as little as 28 days after initiation



McIntosh, et al. *Chest*. 2023

Unexplained Breathlessness

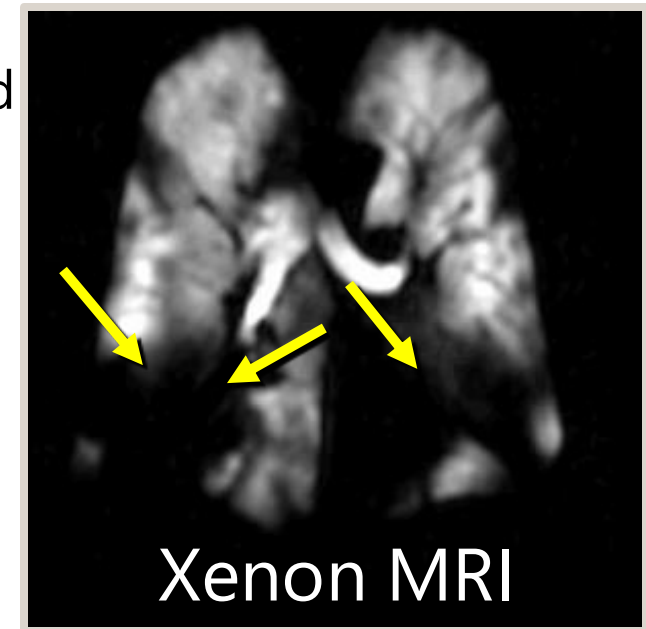
Xenon MRI provides additional information to guide treatment



Spirometry
78%
of Predicted

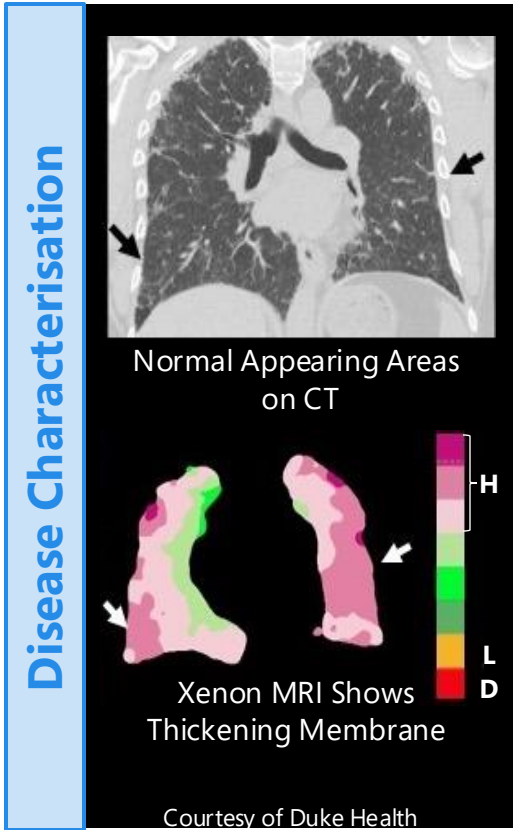
4 months
later

Spirometry
82%
of Predicted

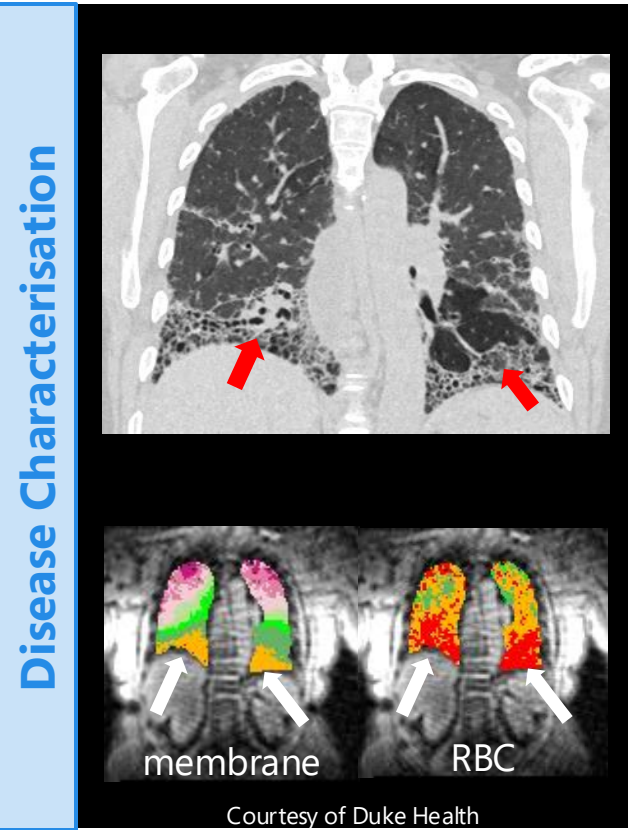


Lung Tissue Disease*

Allows disease characterisation and manage early active disease not explained by CT and/or Spirometry



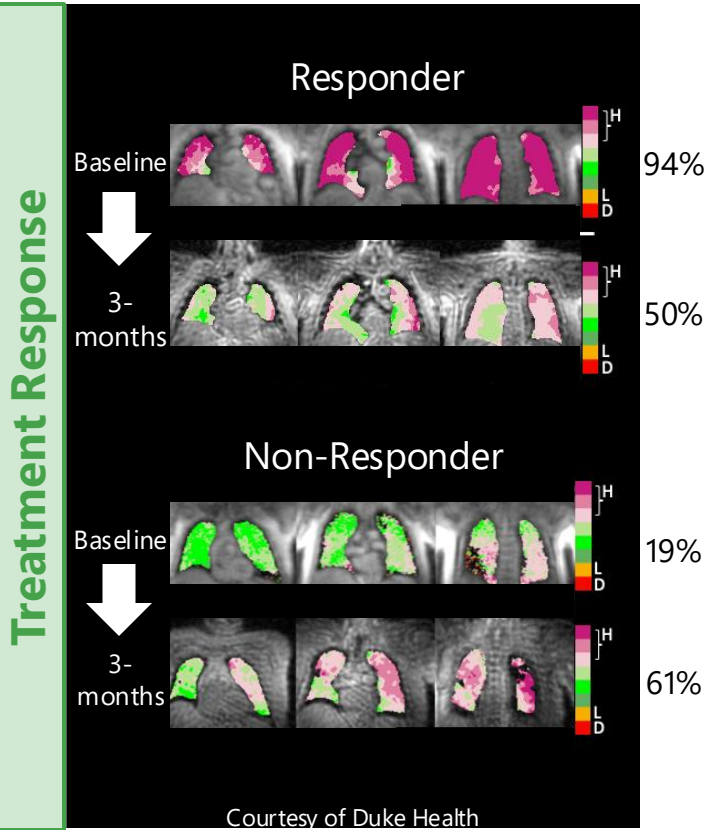
Allows visualization changes in Interstitial Lung Disease



Allows monitoring and optimisation of Idiopathic Pulmonary Fibrosis antifibrotics



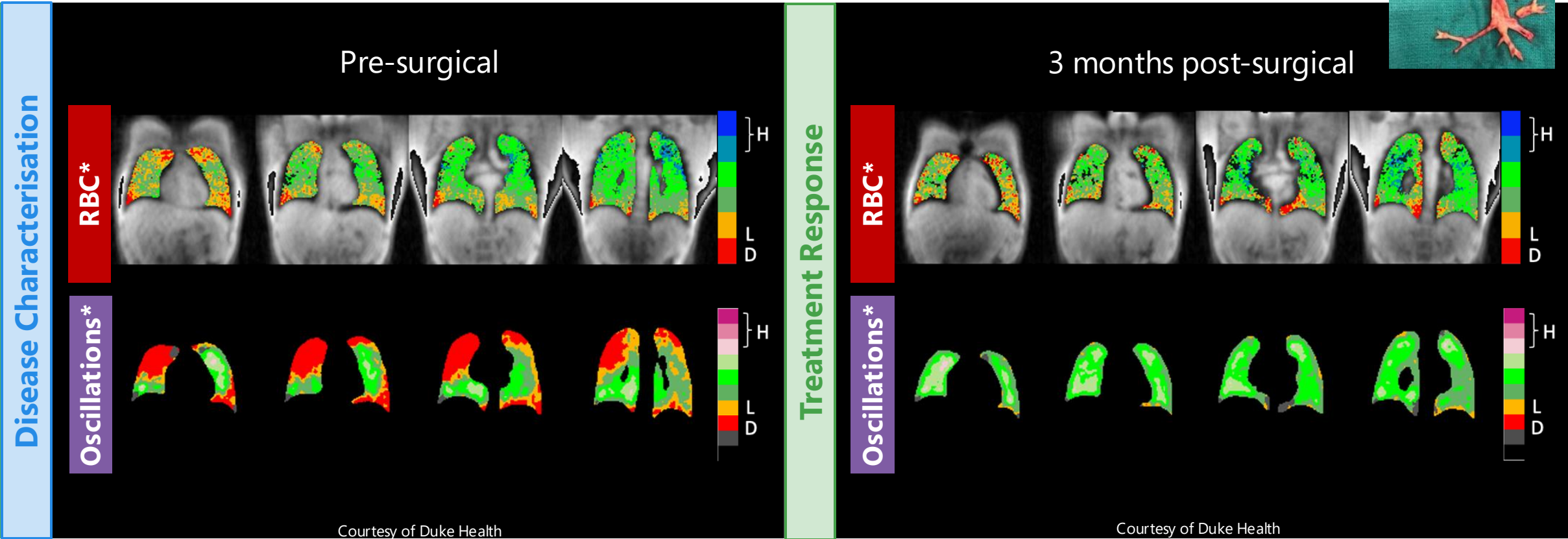
Potentially allows the prediction of disease response to antifibrotics



Pulmonary Vascular Disease*

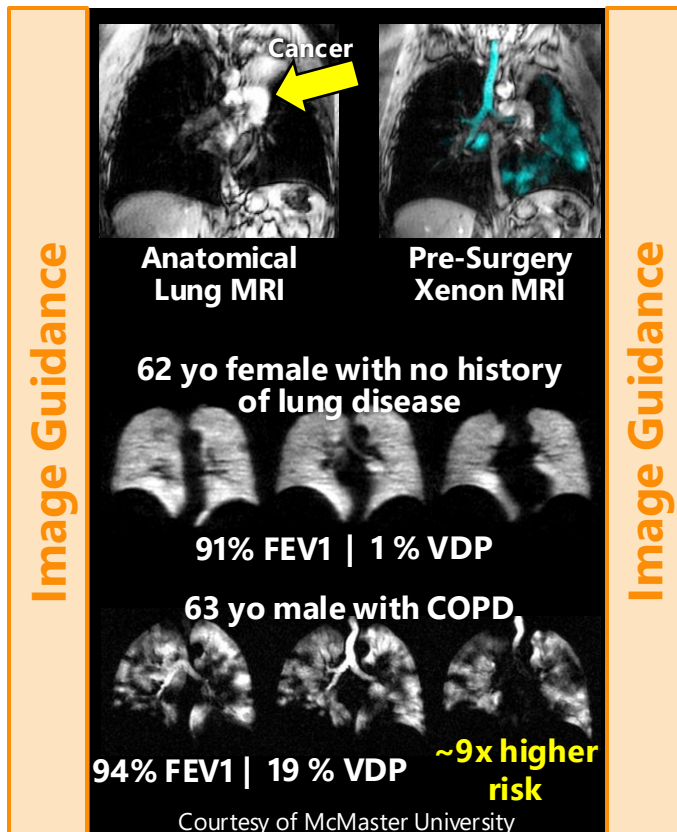
Chronic Thromboembolic
Pulmonary Hypertension

Patient underwent a Pulmonary
Endarterectomy to remove
organised blood clots



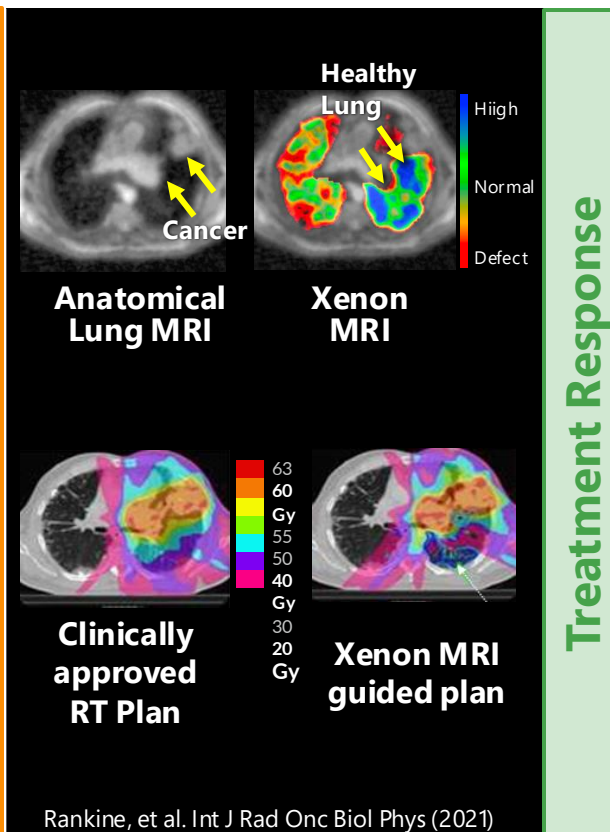
Surgical Oncology

- Predict post-surgical lung function and guide resection decisions
- Assess regional recovery patterns compensation



Radiation Oncology

- Functional lung avoidance Radiotherapy
- Earlier detection of radiation-induced lung injury

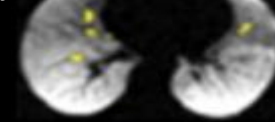


Medical Oncology

- Assess baseline function to predict treatment tolerance/optimize meds
- Detect drug-induced lung toxicity before changes in CT

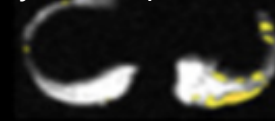
bleomycin-treated cancer survivors

41 yo female post-Chemo



3.4% VDP

30 yo male post-Chemo



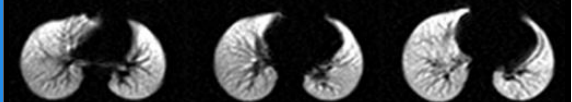
3.7% VDP

Bdaiwi, wt. al., JMIR 2025

Hematology Oncology

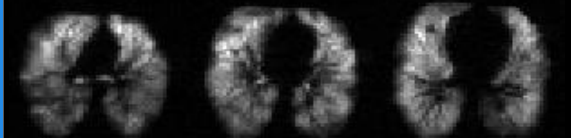
- Assess baseline function to diagnose bronchiolitis obliterans syndrome (BOS)
- Assess post-treatment function to determine evidence of BOS

12 yo male 141 days post-BMT



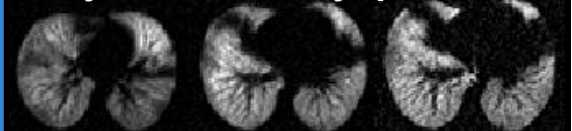
FEV1: 80%

13 yo female 331 days post-BMT



FEV1: 77%

12 y.o. male 141 days post-BMT



FEV1: 81%

Walkup, et al. ASTCT Journal (2019)

Delayed Diagnosis: Losses Extend Beyond Time, Cost, and Health

The ONLY comprehensive solution providing a full picture in one 10-second exam

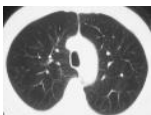
Structure
(Large Airways)



Bronchoscopy



X-ray



CT

Whole Lung Function



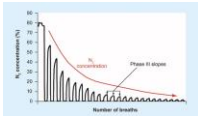
Stethoscope



Spirometry



FeNO



N₂ Washout

Regional Small
Airway Ventilation

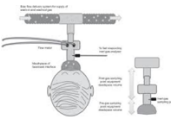


¹³³Xe Scintigraphy



CT Parametric Modeling

Gas Exchange*



MIGET



DLco

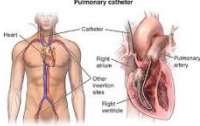


CPET

Pulmonary-Vascular
Hemodynamics*



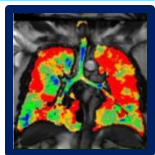
Echocardiogram



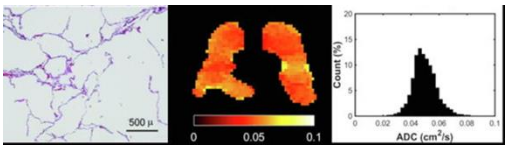
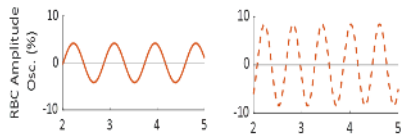
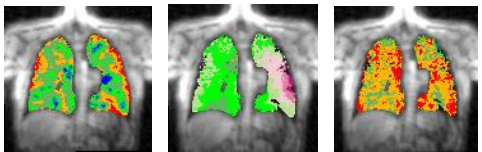
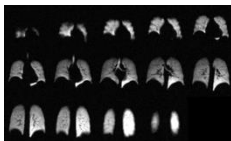
Right Heart Catheterisation

Alveolar Microstructure*

Xenon MRI

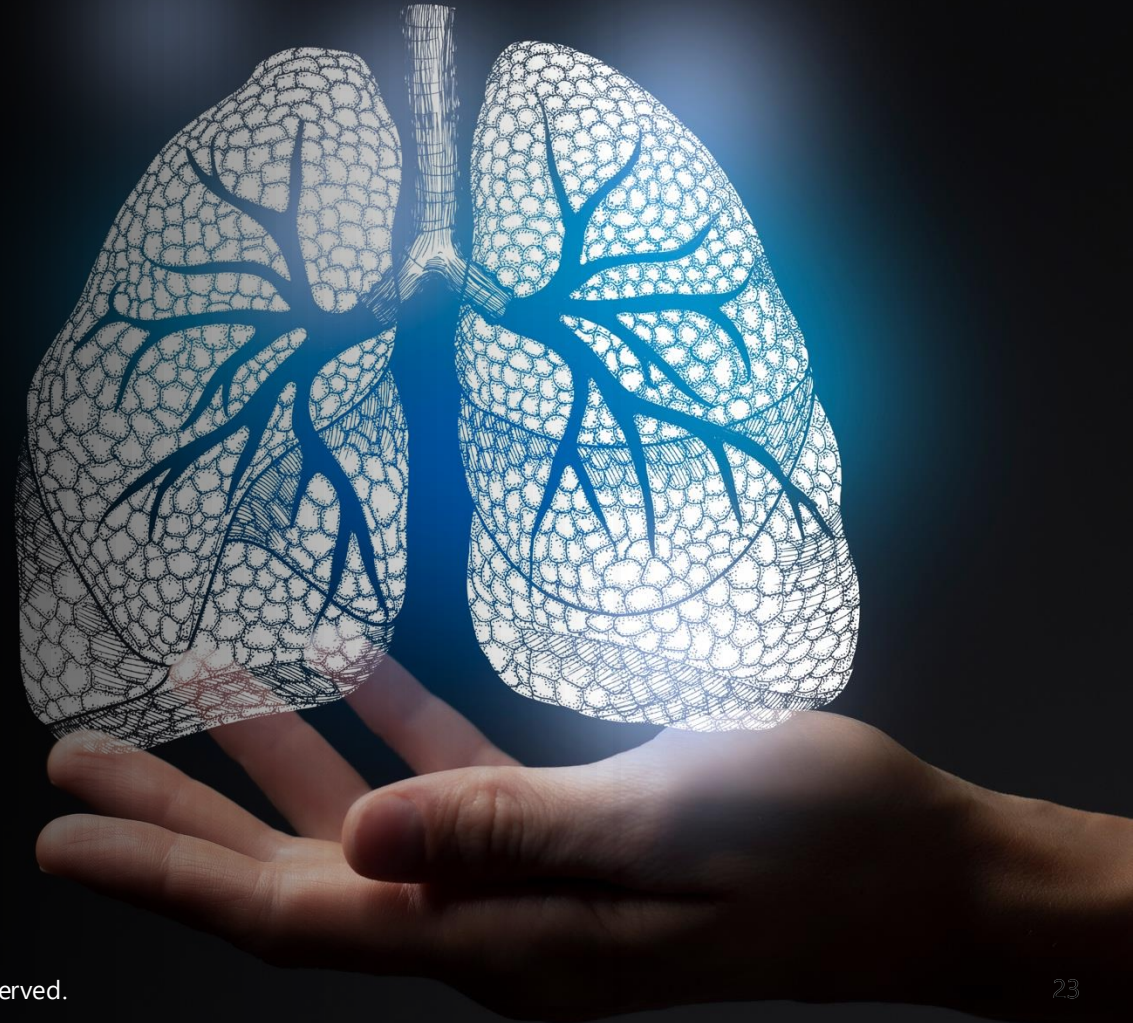


Defect	19%	2.6±1.8%
Low	25%	17.5±5.7%
High	10%	16.7±3.3%
CV	0.55	0.37±0.04



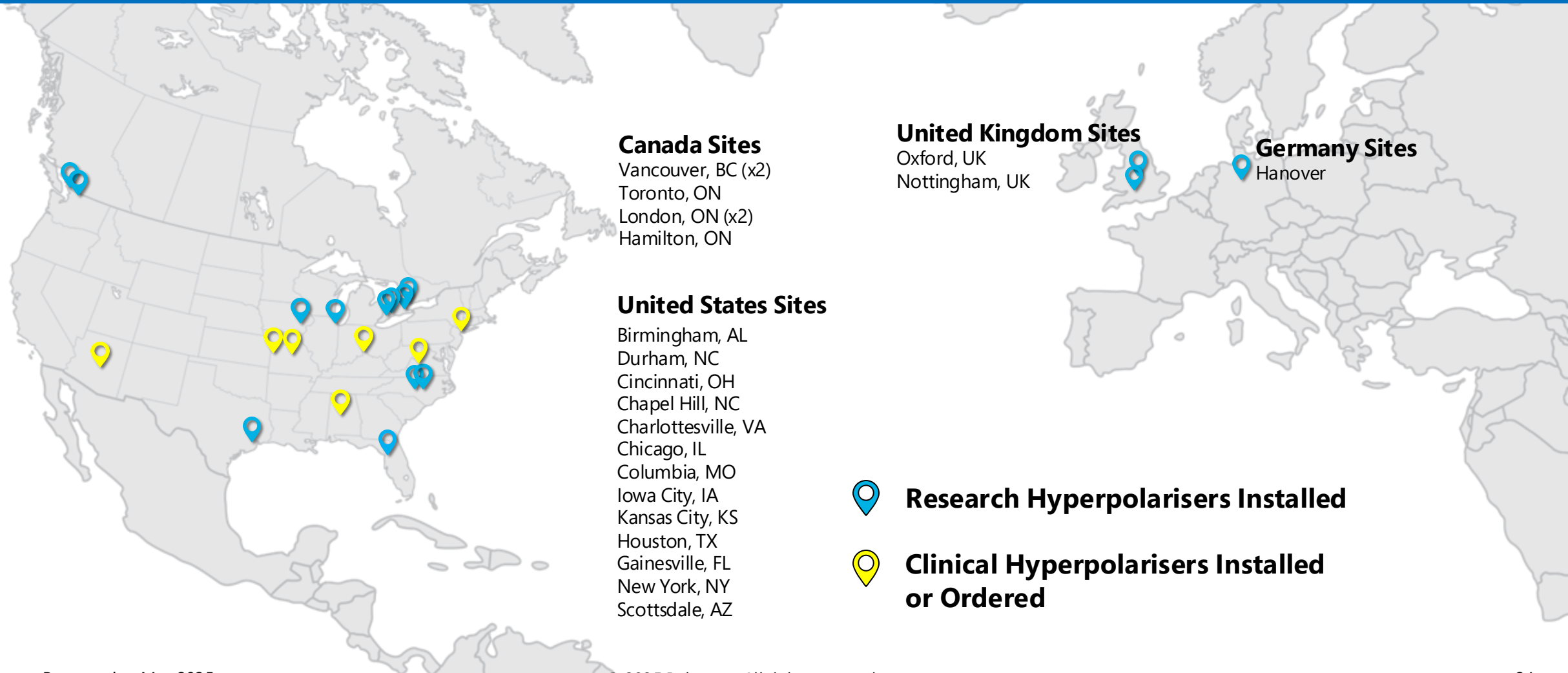
Multiple entry points

- Pulmonology
- Cardiology
- Hematology
- Immunology
- Interventional Pulmonology
- Lung Transplant Surgery
- Radiation Oncology
- Radiology



22 Xenon MRI Customers

Including leading academic medical centers



5-fold Strategy

Generating value and paving the path for success in 2025 and beyond



**Drive
Utilisation**

1



**Grow
User-Base**

2



**Broaden
Reimbursement**

3



Expand TAM

4

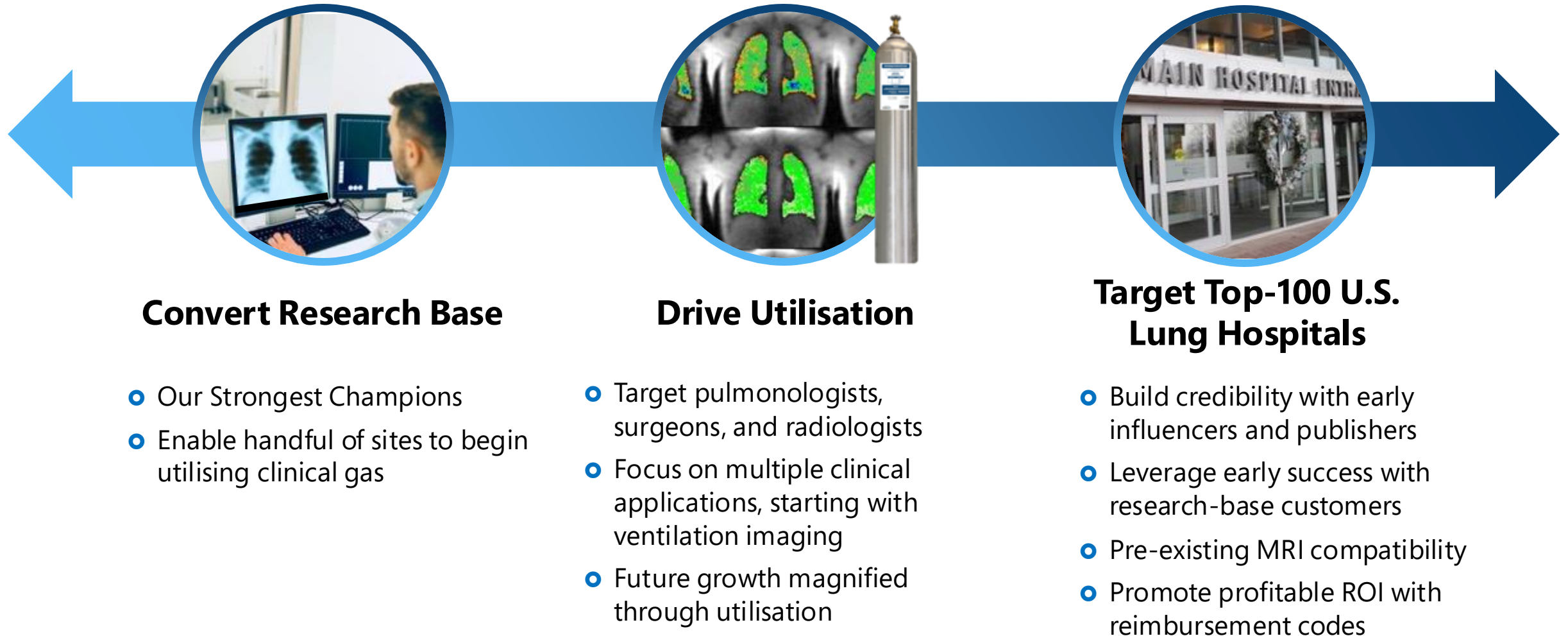


**Develop
Partnerships**

5

Commercialisation Strategy

A three-pronged approach in market development phase



Strong Economic and Clinical Incentive for Adopters **POLAREAN**

Attractive reimbursement - 3 scans/week yields positive cash

- **US Healthcare Dynamics:**

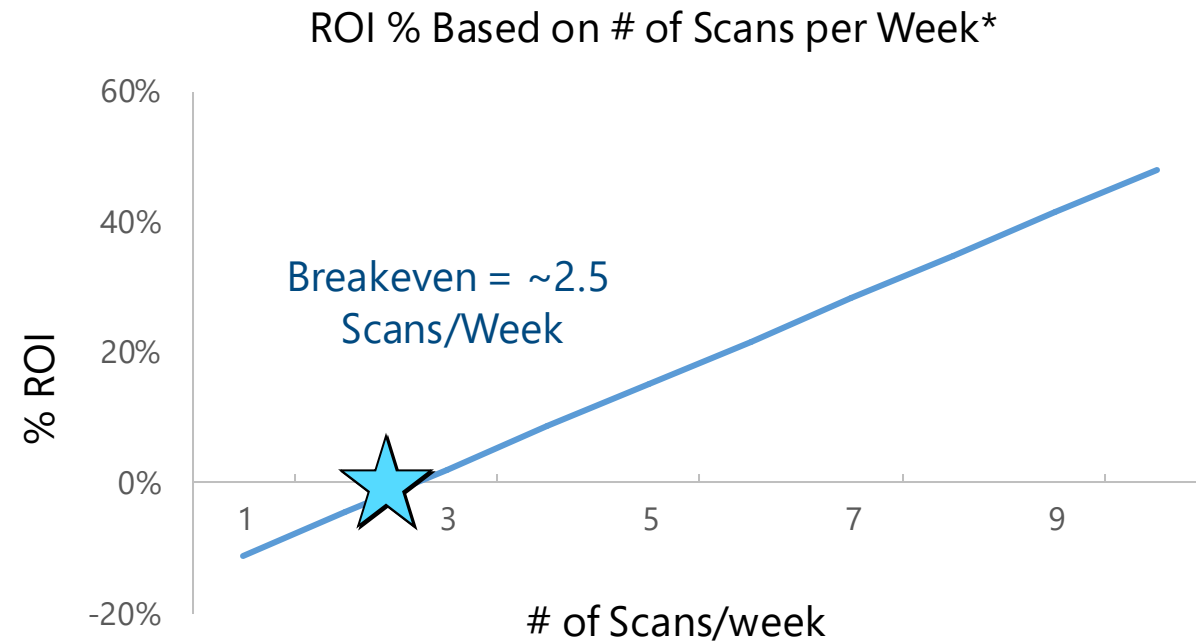
- Reimbursement drives technology adoption
- Payers include the US government (Medicare and Medicaid) and private insurers

- **Hospital Revenue Model:**

- Polarean reimbursement code offers incentive for additional hospital revenue while providing improved patient care
- Polarean reimbursement code enables return on investment (ROI) through covered scans and reduces financial risk

- **Polarean Opportunity:**

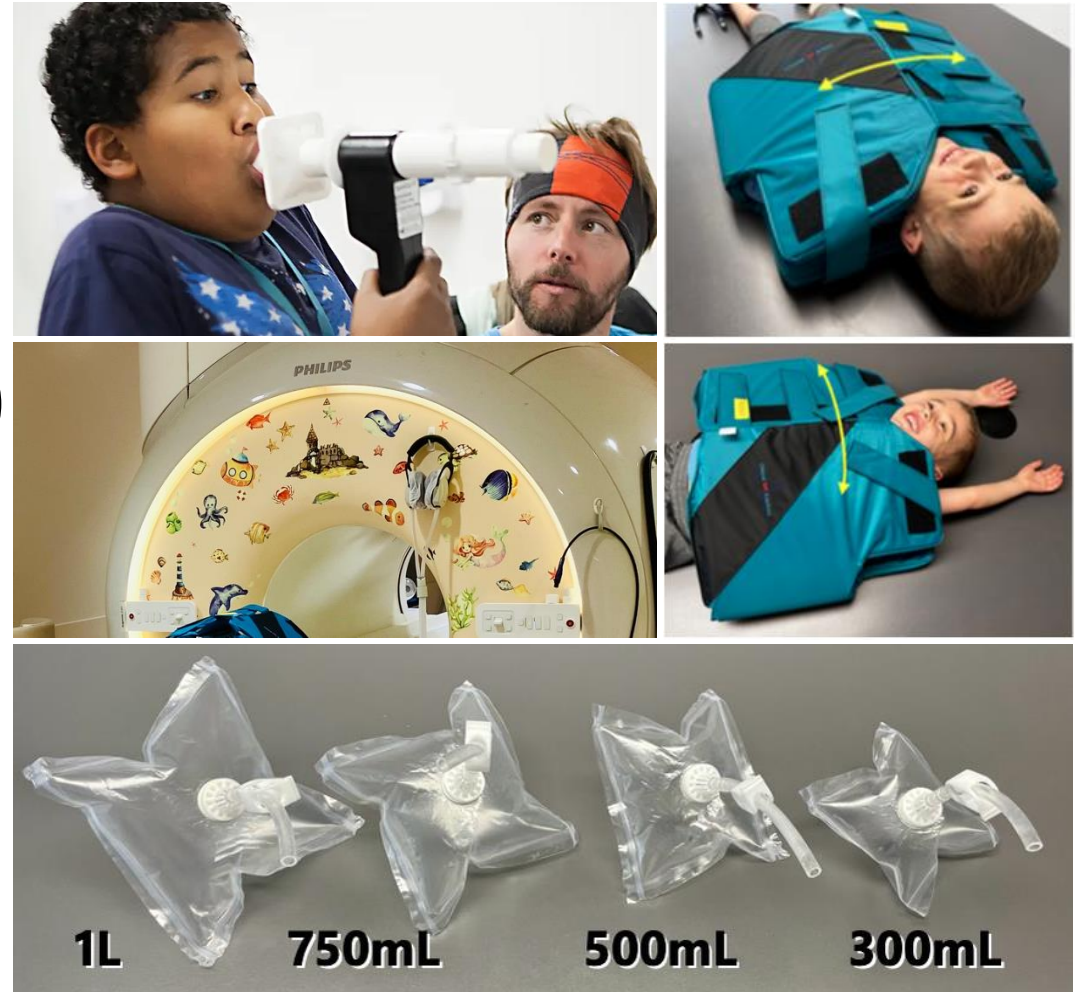
- Addresses a gap in functional lung imaging, enhancing diagnosis and care



Planned TAM Expansion*

Focused on high-value market expansion products

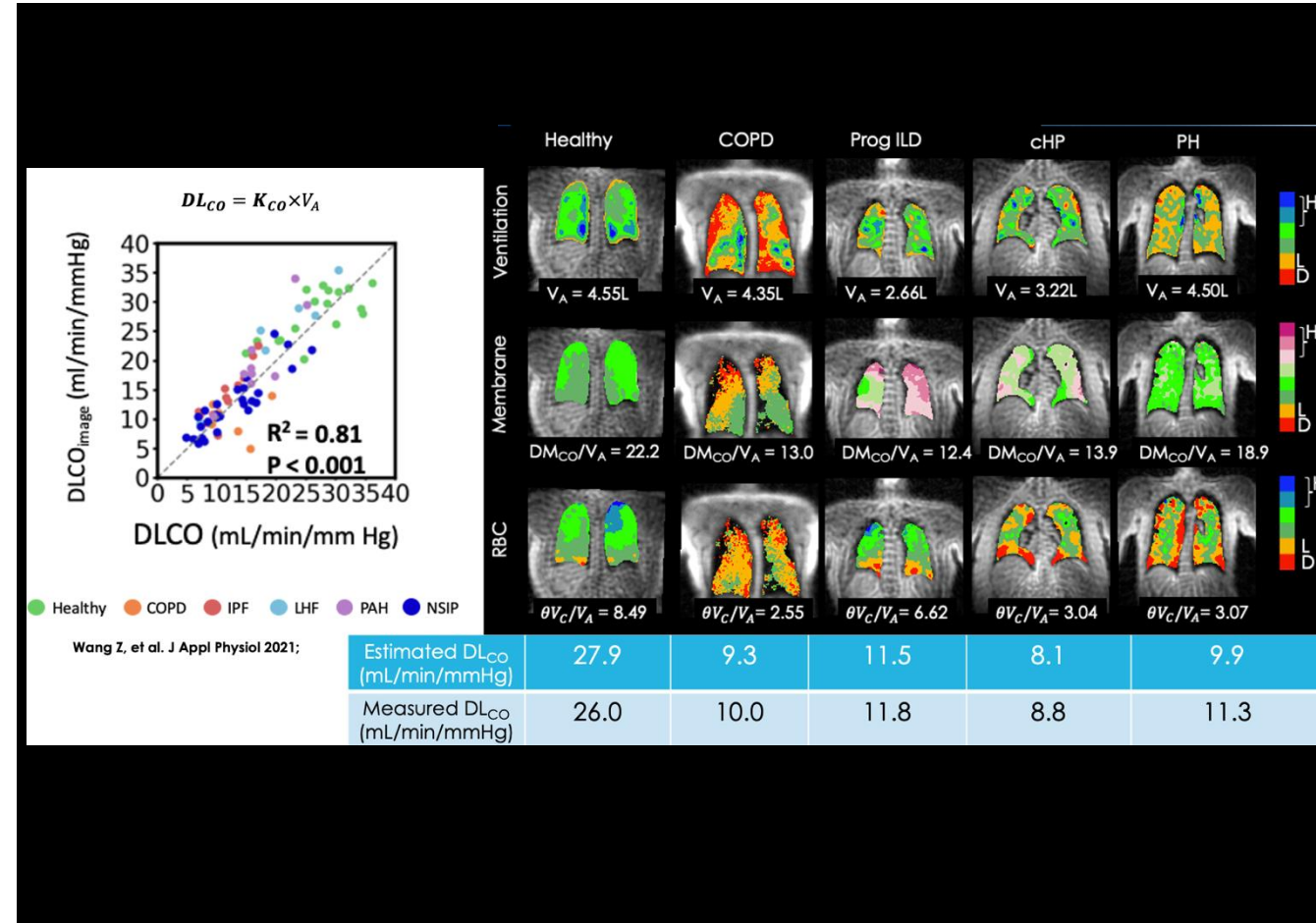
- Lowering On-Label Age (12 to 6 Years)
 - Submitted Supplement to FDA July 2024
 - Launch Controlled Market Release in H2 2025
 - Benefits both children and providers
 - ✓ No radiation, enabling safe longitudinal imaging
 - ✓ Simpler and less effort-dependent than spirometry
 - ✓ No reference equations required
 - ✓ Visualises lung function to monitor progress and support compliance
 - ✓ Quantifies alveolar simplification in early childhood through adolescence
 - ✓ Gas exchange offers functional measurement of membrane conductance and RBC transfer



Planned TAM Expansion*

Focused on high-value market expansion products

- Gas Exchange
 - De-risked product label expansion by leveraging current product/research
 - ✓ Addresses a significant unmet clinical need
 - ✓ Strong product safety profile
 - ✓ Positive FDA Feedback from Type B meeting
 - ✓ Extensive regulatory process experience
 - ✓ Secured hospital reimbursement
 - ✓ Over 10 years of research in gas exchange science with numerous publications
 - ✓ Proof-of-concept study conducted with 142 subjects † in addition to another ~100 subjects



Polarean expansion into pharma-sponsored trials

- Strategic Partnership with VIDA
- Advancing Drug Development
 - Sensitive, non-invasive biomarkers potentially reduce sample sizes and accelerate time-to-market for new therapies
- Major Global Pharma Partner Selection
- Strengthening Market Position & Growth Strategy

Xenon MRI

Key Revenue Verticals



Pharma Companies Involved in Studies Using Xenon MRI Through Our Customers



FY 2024 Financial Overview

Strong Finish to the Year

- Revenue
 - Achieved 2024 Revenue of US \$3.1 m
 - >50% growth in consumables, 2024 vs 2023
- Expenses
 - Investing in commercialisation efforts
 - Tight control of cash operating expenses
- Cash
 - \$12.1m* as of 31 December 2024, and no debt
 - Funds company through Q2 2026
- Strong Strategic Investment
 - Bracco Imaging
 - NUKEM Isotopes

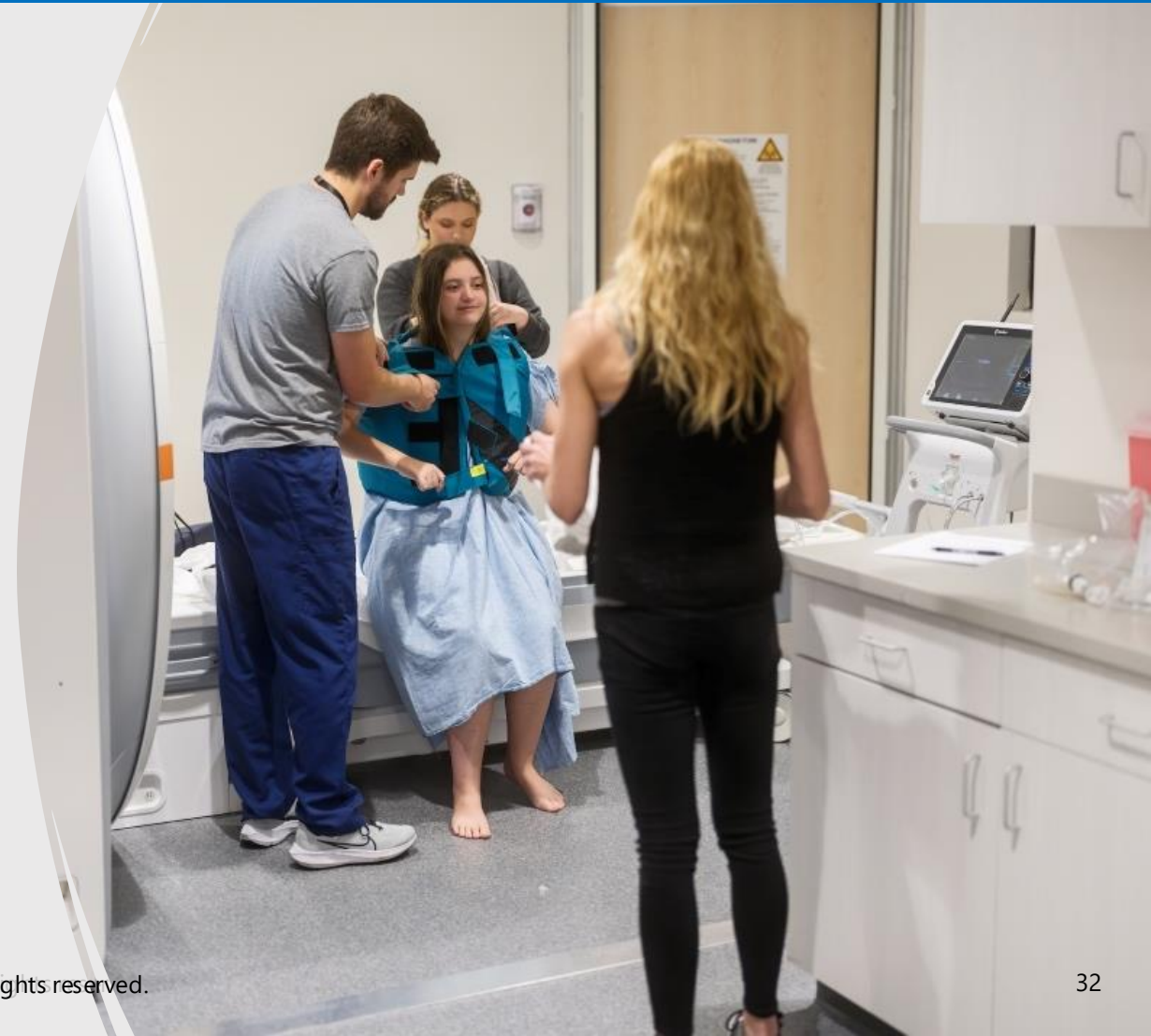
Revenue Growth



Why Invest in Polarean?

Revolutionising pulmonary medicine through direct visualisation of lung function

- ✓ Game changing drug device imaging product that addresses growing global health problem
- ✓ Pioneering functional lung imaging platform with large total addressable market
- ✓ Clear patient impact and attractive reimbursement programme
- ✓ Fostering additional partnerships with medical device and pharma companies with significant growth potential



Thank You!

POLAREAN

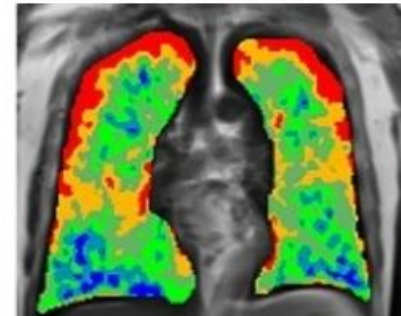
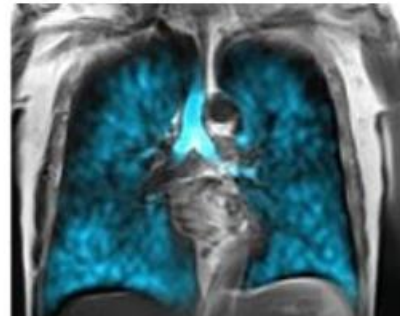
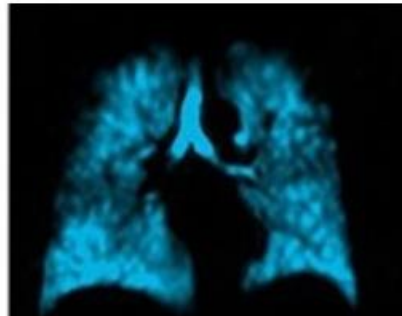
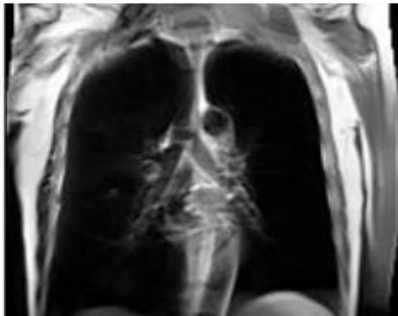
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Optimise lung health and prevent avoidable loss by illuminating hidden disease

Board of Directors

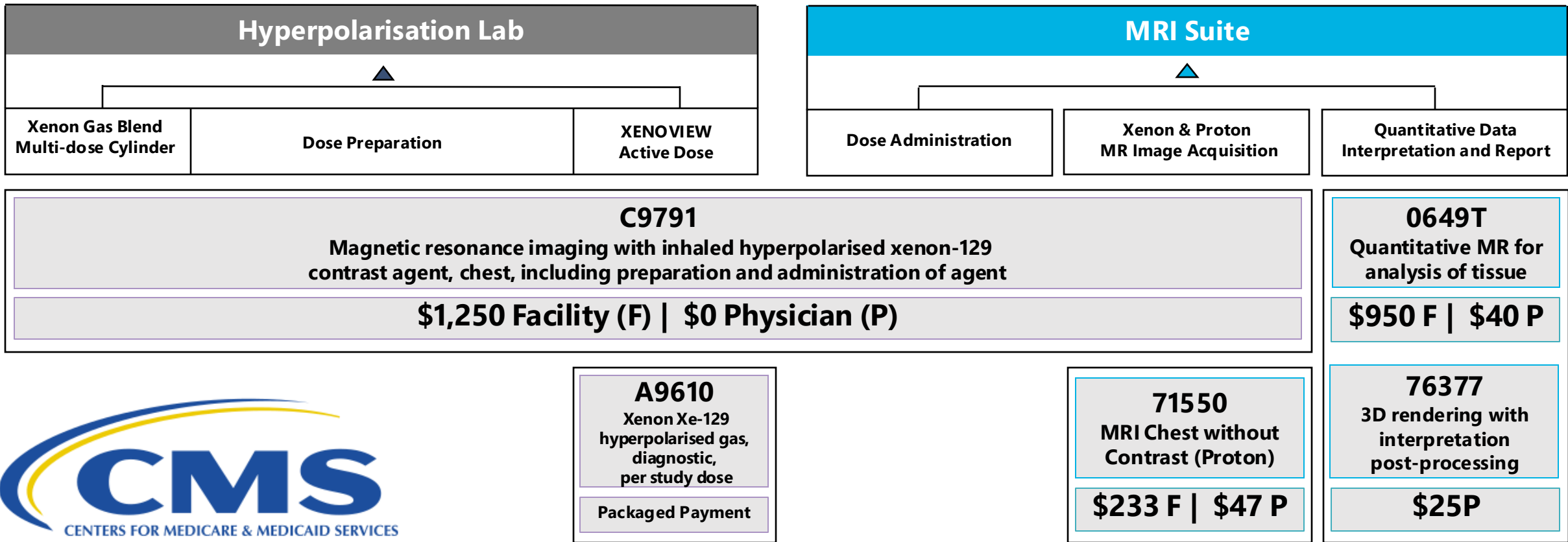
Industry leaders with extensive industry and leadership experience

			Selected Prior Affiliations
	Ken West	Non-Executive Chairman Former Polarean CEO, serial entrepreneur	POLAREAN EMBREX BIOLEX THERAPEUTICS
	Dan Bague	Non-Executive Director Former CEO of Curium North America	CURIUM LIFE FORWARD Mallinckrodt Pharmaceuticals
	Jürgen Laucht	Non-Executive Director Former Managing Director of NUKEM Isotopes	NUKEM Isotopes
	Charles Osborne	CFO & Director	innocrin precision therapeutics SCYNEXIS
	Cyrille Petit	Non-Executive Director Chief Corporate Development Officer and Head of Strategic Initiatives, Bracco Group	SmithNephew GE Goldman Sachs
	Frank Schulkes	Non-Executive Director Chief Financial Officer, Distalmotion	convatec — forever caring — GE Healthcare
	Christopher von Jako, PhD	CEO & Director	ST. JUDE MEDICAL NeuroTherm Medtronic INTEGRA COVIDIEN RADIONICS LIMIT UNCERTAINTY Trusted Accuracy

Established CMS Payment for Xenon MRI Workflow



Total Estimated Hospital Outpatient Facility Payment ≈\$2,500



The coding, coverage, and payment information contained herein is gathered from various resources and is subject to change without notice. Polarean cannot guarantee success in obtaining third-party insurance payments. Third-party payment for medical products and services is affected by numerous factors. It is always the provider's responsibility to determine and submit appropriate codes, charges, and modifiers for services that are rendered. Providers should contact their third-party payers for specific information on their coding, coverage, and payment policies.