



Accelerate Your Respiratory Disease Research

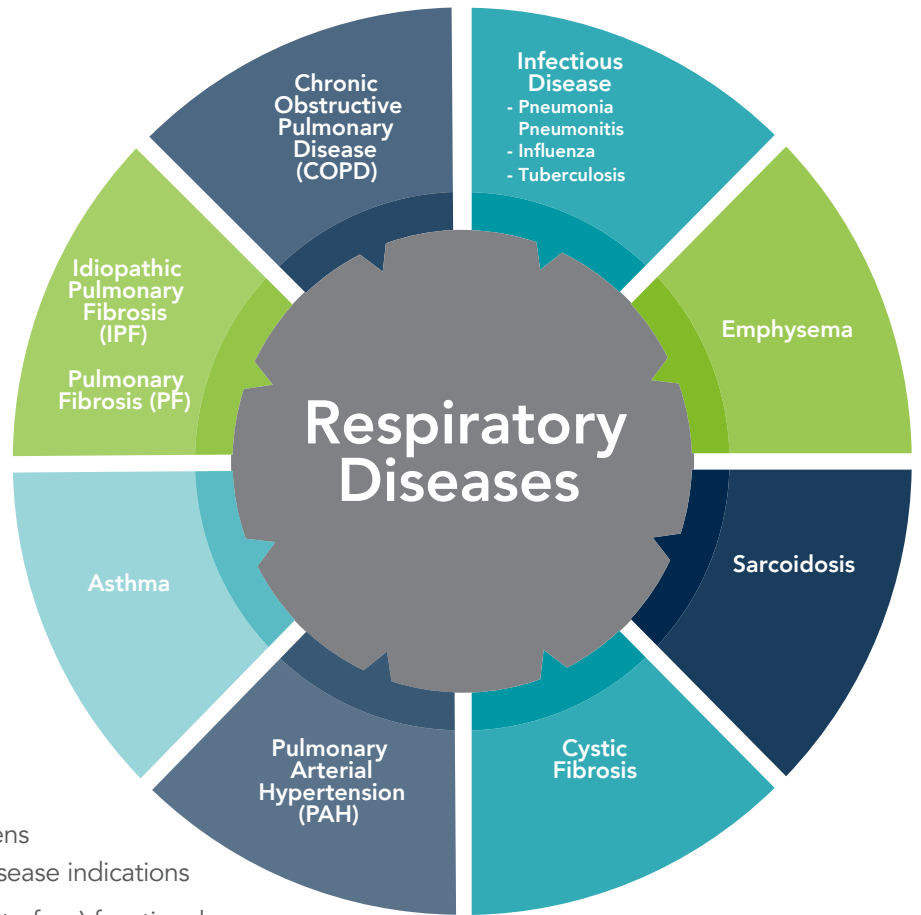
Your Partner in Respiratory Research

The surge in research and development activities focused on respiratory disease coincides with the rapidly increasing incidence of respiratory disease deaths. As a researcher it is crucial to have access to representative models for respiratory disease that utilize ethically collected, well-characterized human specimens and comprehensive tissue based research services.

Look to BioIVT for expertise in the processes required for the ethical acquisition of biospecimens that cover a wide range of respiratory disease states and the protocols and research services needed for the production of reliable data.

We offer:

- Unparalleled access to over 200 IRB-approved collection sites
- Access to a comprehensive array of biospecimens across multiple sample types and respiratory disease indications
- Expertise in developing 2D and 3D (air-liquid interface) functional assays, designed to your specifications and needs



Advancing breathing breakthroughs!



Quality

Standardized collection protocols

Rigorous quality control processes



Customization

Unique cohorts, format or data sets designed to meet fit-for-purpose solution

2D / 3D cell based assays designed for your specific needs



Expertise

Board-certified pathology reviewed

Regulatory traceability for each case

Over 20 years of experience with human-based models



Reliability

Existing bank of clinical samples

Experience in the collection of over 20 different tissue and biofluid formats

Have a custom project? Ask about our PHASEZERO[®] Research Services.

Unrivaled human tissue procurement matched with expertise in cell-based assays and tissue analysis



PHASEZERO Research Services

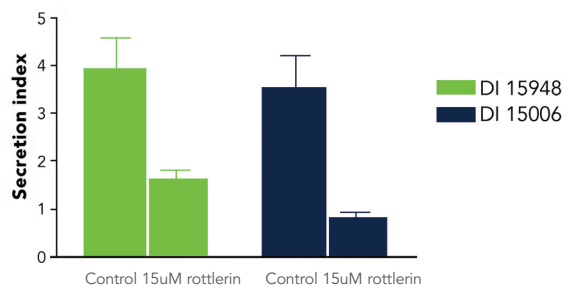
With access to rare tissues for research use, our scientists will work with you to develop tissue and cell based assays tailored to your needs. With existing human inventory of non-diseased COPD, IPF, CF and asthma primary cells, as well as the ability to perform custom isolations, we are able to analyze target expression using a range of molecular pathology and genomics approaches, together with developing 2D and 3D functional cell based models to measure proliferation, viability, apoptosis, cell migration, morphological changes, mediator release, enzyme activity and changes in gene expression (qRT-PCR).

- Expression and localization of target / biomarker in normal and diseased tissues
 - XPRESSWAY™ gene expression profiles including trachea, lung, primary and tertiary bronchi and parenchyma
- Isolation and culture of primary cells from normal and diseased tissues
- Development of 2D and 3D functional assays to study therapeutic effect, disposition and safety

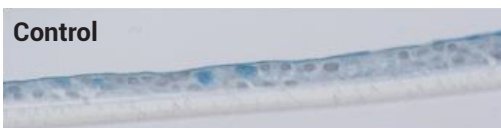
Respiratory 3D-Air Liquid Interface (ALI) Cultures

Our PHASEZERO® scientists have expertise in cell isolation and 2D / 3D culture models, offering specialty services using our respiratory 3D-air liquid interface (ALI) cultures.

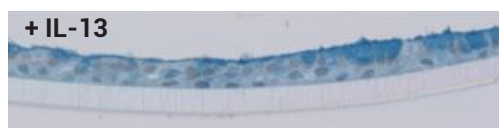
- 3D-ALI model yields differentiated cultures with similar morphology to the airway epithelium.
- Used to study specific epithelial function or dysfunction including:
 - Mucin secretion
 - Goblet cell hyperplasia
 - Barrier permeability / absorption
 - Development of squamous cell metaplasia



Inhibition of Mucin Secretion following treatment with rottlerin



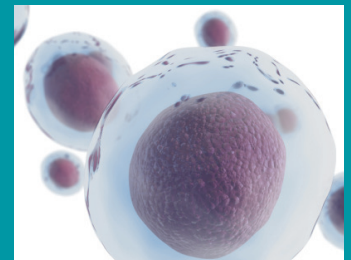
Goblet cell hyperplasia following treatment with IL-13



Primary Cells

We offer primary isolated cells from diseased populations, useful in assay development and the identification of diagnostic and prognostic markers.

- Complete clinical data included with all samples
- Lung function data available
- Cystic fibrosis genotype data available
- Customizable PBMC collections for specific inclusion criteria
- Additional characterization available, including HLA typing



Popular cell types include:

Normal
HuBECS

PBMC and Immune
Cell Subsets

Cystic Fibrosis
HuBECS

IPF Parenchymal
Fibroblasts



Biofluids & Tissues

Biofluids are available as both banked inventory or custom collection with associated clinical data such as medication or disease stage, clinical lab values such as lung function, genotype and comorbidities.

- Customized collections kits:
 - Donor specifications, protocols, collection containers and more
- Access to unique or rare patient populations, including COPD, IPF, and CF
- Access to infectious disease samples including tuberculosis, Haemophilus influenzae, Pertussis, Pneumonia
- IPF/PF/Normal Lung Parenchyma FFPE TMA (34x2mm cores)

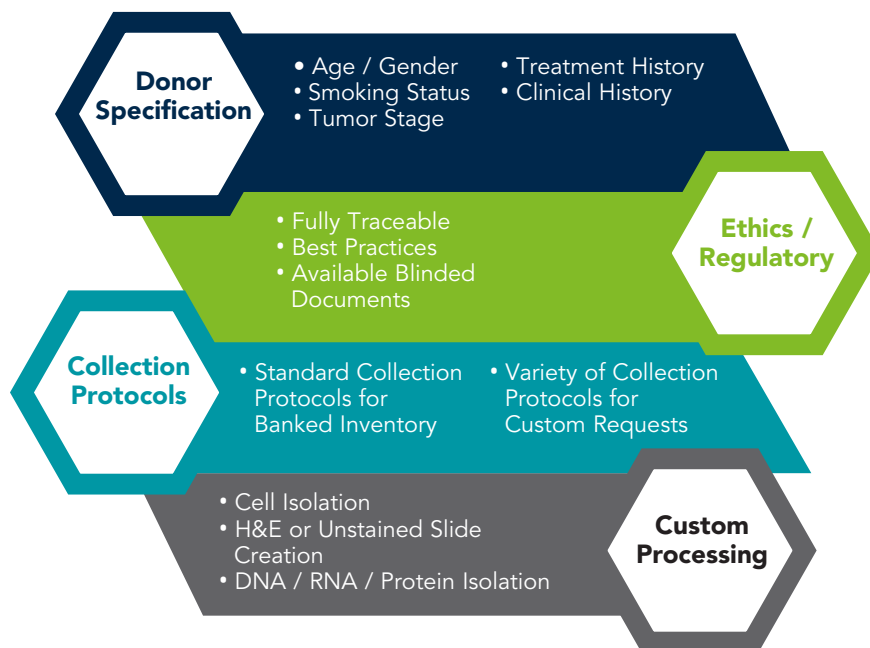
Bank of biospecimens samples, including:

- Bone Marrow
- Bronchial Lavage
- Cerebrospinal fluid (CSF)
- Cord Blood
- FFPE / FF Tissues
- Oral Swabs/ Saliva/Sputum
- Tears
- Tissue Microarray
- Urine / Feces
- Whole blood/ Serum / Plasma

Comprehensive Clinical Data

Critical to understanding and modeling novel personalize therapeutics and diagnostic tools is a comprehensive view of data to allow the identification of association networks across patient cohorts.

- Board Certified Clinical Pathologists independently review and confirm the data
- All samples are provided to researchers with extensive clinical data points and histologic information
- Clinical characterization information and quality analysis are available prior to purchase



Check out our additional brochures on BioIVT.com!

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