



Achievements to Date

- Raised \$2.75M+
- Developed prototype and obtained first-time-ever PolyData™ from normal and cancerous live cells.
- Established operational lab and partnerships (National Lab, UC Berkeley, Stanford, & Industry).
- Established a strong patent portfolio with 4 issued IP and 2 Trademarks).
- Performed product-market fit through NSF I-Corps grant with 250+ customer interviews.
- Prepared SBIR government grants (NSF & NIH).
- Presented in academic & industrial forums.
- Abstract for TERMIS 2024 World Congress is accepted.

Next Steps

- Currently Raising \$3M
- Further develop and replicate prototype.
- Fulfill our collaborator/customer request and place the first prototype in their lab(s) for testing.
- Establish service model to test samples in-house.
- Acquire paid pharma customers and early adopters.
- Generate revenue and pharma data from service.
- Finalize product requirements per customer input.
- Prepare product requirement, architecture, gap analysis, risk reduction).
- Obtain customer & KOL endorsements for series A.

A Disruptive Live Cell Analysis Platform for Cellular Therapeutics Discovery and Development

Introduction

Using live cells to treat diseases such as cancer or in regenerative medicine is becoming the dominant treatment approach. Due to the complexity, heterogeneity, and dynamic nature of live cells, no single cell analysis test can define the total quality attributes and behavior of cells for informed decision-making. Therefore, optimized analytical tools are necessary for comprehensive cell analysis and obtaining actionable insights to enhance understanding of live cell behavior and function across various applications.

Problem

Currently, drug developers rely on correlating sparse data collected from testing various cell samples using multiple instruments at different time points to make decisions. However, this approach has limitations, reducing data quality and insights while increasing costs. There is an urgent unmet need to streamline live cell analysis by enabling simultaneous monitoring of distinct cellular properties and utilizing artificial intelligence (AI) to extract actionable insights, ultimately improving drug discovery and development processes.

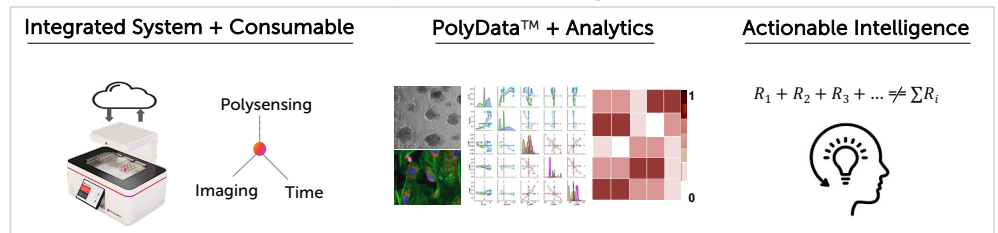
Solution

Polybiomics™ is developing a patent-protected technology platform for comprehensive and non-invasive monitoring of multiple properties of the same live cell sample and its environment over-time. Data analytics connect and interpret multi-modal and dynamic datasets (PolyData™), while AI generates previously-unattainable deep insights, thereby accelerating the discovery and development of better cellular therapeutics.

Our Technology and Product

Our product is comprised of an all-in-one multi-modal polysensing and imaging instrument, consumable, data analytics & AI. We have strong IP portfolio with 4 issued patents, over 40 inventions, 2 trademarks, and trade secrets.

Simultaneous Dynamic Measurements per Well & AI-powered Comprehensive Insights



Product Traction and Validation

- Performed product market with 250+ customer interviews via NSF I-Corps.
- Placed 1st prototype at Berkeley National Lab and validated its performance for live cell analysis.
- Received order for 2nd prototype placement and testing at a customer lab focusing on cell therapy research and biomanufacturing.



Management

- Mandana Veiseh, PhD, Founder, President & CSTO; Inventor, Scientist and Technologist in Life Sciences and Biotech.
- Bahram Bahrami, PhD, Co-founder, CEO; Serial entrepreneur in business and technology commercialization.

Advisory Board

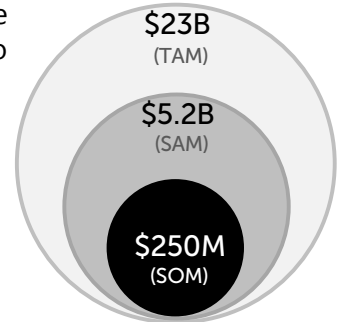
- Kurt Peterson, PhD (Ex-President of Cepheid) National Academy of Engineering member).
- Mina J Bissell, PhD (Distinguished Scientist at Berkeley National Lab, National Academy of Science member, Scientific Advisory Board).
- Ronald W Davis, PhD (Director of Stanford Genome Tech Center, National Academy of Science member).
- Rick Horwitz, PhD (Allen Cell Science Institute Ex-Dir).
- Bob Smith-McCollum, MBA (Marketing, Ex-Head of global marketing at MilliporeSigma; Ex-Dir of Cytek Biosciences).
- Darren Cooke, JD (Dir, UCB Life Sci Entrepreneurship).
- David Duhl, PhD (Pharma, Novartis Ex-Director).
- David Stumbo, PhD (Bio-instrumentation, Ionpath Ex-VP).

Exit Strategy

Liquidity options are IPO or M&A by Life Science Strategics in technology platform, bio-instrumentation, tools, and bio-manufacturing CDMO (comparable \$250M-\$1.1B)

Business & Growth Strategy

Polybiomics™ provides total solution including instrument, consumable and analytics. It will generate revenue from instrument sell (>70% margin) via direct channel and create recurring revenue from consumable and analytics (>85% margin). We also have a strategy to monetize the generated comprehensive datasets and insights to create a cellular databank and atlas.



Market

Live cell analysis is a multi-sector, multibillion dollar market with over 10% annual CAGR growth.

1st Market: Pharma & Research customers (\$5.2 Billion)

- Comprehensive analysis of cell behaviors for selecting efficacious and responsive cellular therapeutics.
- Preclinical cell-based efficacy & toxicity assays.
- Translational medicine pharmacodynamic and potency tests.
- Ex-Vivo drug screening.

2nd Market: Bio-manufacturing customers

- Cell therapy contract development manufacturing organization (CDMO).
- Pharmaceuticals biomanufacturing pipeline.

3rd Market: Clinical customers

- Patient-derived biopsy for diagnosis and prognosis.
- Personalized medicine, stem cell, and tissue repair.
- In vitro fertilization for increasing child conception.

Competitive Landscape

Existing single-modality technologies generate sparse datasets, compromising data quality and insights, and increasing timelines and costs. To our knowledge, Polybiomics™ is the only integrated imaging and polysensing system, along with consumables, that can monitor up to 16 readouts in real-time from a single living cell culture. Our analytics and AI provide a comprehensive view of cellular behaviors, functions, and phenotypes for precise cell-based decisions.

Company (Product)	Polybiomics (Genius Well™)	Sartorius (IncuCyte)	Agilent (Seahorse)	DeepCell (REM-I)	Molecular Dev. (Image Xpress)	Agilent (e-sight)	ThermoFisher & PHCbi	App. Biophys. (ECIS)
Imaging	●	●	○	●	●	●	○	○
O ₂ & pH	●	○	●	○	○	○	○	○
Glucose	●	○	○	○	○	○	○	○
Environment Factors	●	○	○	○	○	○	●	○
Electrical Impedance	●	○	○	○	○	●	○	●
Multi-Modal PolyData Enables Deep AI Insights	●	○	○	○	○	○	○	○

Value proposition

- Empowers cell-based decisions in therapy discovery & development.
- Enables comprehensive live cell analysis and creates actionable intelligence for precise decision-making and predicting outcomes.
- Improve time, cost, and sample usage and operational consistency.