



At SphereBio, we developed a new AI-driven nanoparticle platform for vaccine and therapy development, focused on intracellular delivery

**UNLOCKING THE FULL POTENTIAL OF THERAPEUTICS TO END DEVASTATING DISEASES LIKE CANCER**



## Summary

**Industry:** BioPlatforms, DeepTech, BioTech, HealthTech, BioPharma, Drug Delivery, Therapeutics, Oncology.

**Founded:** 2023

**Business Model:** B2B

**Location:** Argentina & USA

**Capital raised:** Pre-seed

**Problem:** 97% of cancer therapies fail in clinical trials

Cancer remains a leading cause of death globally, with low survival rates and limited therapeutic success. **97% of cancer therapies fail in clinical trials** due to inefficacy or toxicity (Wong et al., 2019). Particularly in glioblastoma, a lethal brain cancer, the **5-year survival rate is only 5.6%**.

**Technical Limitation -** The endosomal entrapment

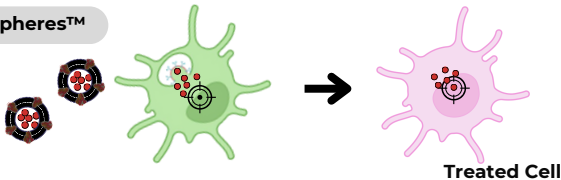
Modern cancer treatments, like biologics, immunotherapies, and vaccines, **depend on delivering therapies inside cells to work effectively**. However, over **99% of these therapies get trapped** and broken down in parts of the cell called endosomes (Klipp et al., 2023). This limits their ability to train immune cells to recognize and attack tumors. **Escaping from endosomes** is essential for these therapies to succeed, but current methods often fall short, requiring either high doses or causing significant side effects.

**Solution:** The XSpheres™ Platform for endosomal escape

SphereBio has developed **XSpheres™**, a technology that uses a kind of **nanoparticles called extracellular vesicles as a delivery platform** engineered to send messages inside the cells **overcoming the endosomal entrapment**. In this way, this technology will allow us to produce more effective and less toxic therapies.

At the core of this platform is **SphereEngine™**, our proprietary **AI-powered design tool**, which draws inspiration from viral proteins, known for their ability to escape endosomes.

XSpheres™



Treated Cell

The advantages:

- **Efficient endosomal escape** and delivery of cargo (e.g., tumor antigens) directly to the cytosol.
- **Adaptable for a range of therapeutic applications**, including cancer, autoimmune diseases, infectious diseases, and gene therapy.

**First Product:** OncoSpheres™

The first application of the XSpheres™ platform is **OncoSpheres™**, a personalized cancer vaccine tailored for brain cancer (Glioblastoma) and other aggressive tumors. Unlike conventional cancer vaccines, **OncoSpheres™**:

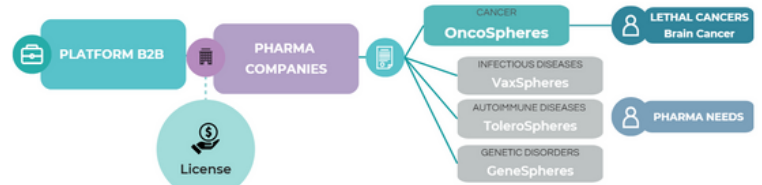
- Deliver a **broad range of tumor antigens**, far surpassing the narrow range offered by mRNA or peptide vaccines (Moderna - BioNTech).
- Overcome endosomal entrapment to **ensure intracellular antigen delivery**.
- Stimulate **robust activation of the immune** response.

**XSpheres™** act as **"trojan horses"**, effectively **delivering therapeutic agents past cellular and biological barriers**, making them uniquely suited for diseases like glioblastoma.

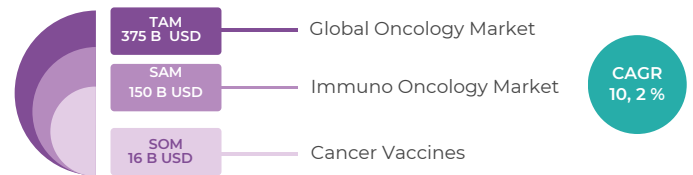
## Business Model

SphereBio operates on a B2B platform licensing and royalties model, collaborating with pharmaceutical companies to approve, commercialize and scale our technology. Most of the early licenses deals are in preclinical.

- **Initial Focus:** Glioblastoma, in partnership with Harvard Medical School.
- **Expansion Opportunities:** Licensing the XSpheres™ platform for other cancers, infectious diseases, and therapeutic areas.



## Market



Source: GlobalData, Pharma Intelligence Center – Consensus Analyst Forecasts [Accessed April 2023]  
Cancer Vaccines Market Size & Share Analysis - Growth Trends & Forecasts (2024 - 2029)

## Traction

- **Secured \$450K in funding** including angel investment from pharma founders.
- **Preliminary patent** under review and attracted **world-class scientific advisors** in Oncology and Neuroimmunology.
- **Engaged with Harvard-affiliated hospitals** Brigham and Women's and Dana-Farber on pre-clinical studies, with **plans for early human testing at Dana-Farber**.
- Selected for the **MIT IDEA2 Healthcare Innovation 2024** Investment Readiness Program, advancing our business and scientific strategy.
- Demonstrated **successful production of XSpheres™** in established cell lines and achieved proof-of-concept for immune activation at our lab facilities in Buenos Aires.
- Built on the **team's expertise in immunology and AI applied to tumor biology**, validated by recognized achievements, including a podium position in the Tumor Deconvolution Dream Challenge.
- SphereBio retains **100% ownership of its science, intellectual property, and platform technology**, ensuring long-term value creation.

## Founding Team (3)

Total Team - 11 people



**Eng. BA, Julieta Luz Porta** [in](#)

CEO | Strategy | Team | Leader Business



**PhD, Guido Nicolás Molina** [in](#)

CSO | Vaccines | Immunology | Virology



**MD PhD, Martín Guerrero Gimenez** [in](#)

CMO | AI | Cancer | Clinical Research

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## Advisors and Collaborators



**PhD. Francisco Quintana**  
Neuroimmunology



**Dr. David Reardon**  
Personalized Cancer Vaccines



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