TargaCell Corporation, a Chicago biotech, celebrates the first anniversary of the founding of its Polish-American subsidiary, Target Cells Sp z o o

Stem cells to the heart's rescue. TargaCell USA and Target Cells Poland are pioneering a globally unique technology for targeted cell therapy for heart regeneration, advancing regenerative medicine to be more successful.

INTRODUCTION

TargaCell Corporation, a Chicago biotech, to be located at the Helix 51 Incubator at the Rosalind Franklin University of Medicine & Sciences, celebrates the first anniversary of the founding of its Polish-American joint venture, Target Cells Sp. z o.o.

TargaCell and Target Cells, in collaboration with Jagiellonian University in Krakow, have developed a commercial test to predict the capability of our protein biologics to target specific stem cells noninvasively and efficiently to the heart to repair damage caused by a heart attack or heart failure. This test development will allow developing more effective treatment of heart damage using stem cells.

Technology

In 2023, Target Cells Sp. z o.o. received nearly one million zlotys in funding for this Poland—USA joint venture. Together, we have developed a commercial test to evaluate the ability of human stem cells to bind to heart tissue in vitro. This test predicts whether TargaCell's proprietary proteins can target various types of stem cells, naturally occurring or engineered, to mediate the repair of damage caused by a heart attack or heart failure.

The product under development is a global innovation, and when successful, Target Cells sp. z o.o. will have no direct competition in the market. This unique position provides a significant advantage in the industry, positioning us for success in the rapidly growing field of regenerative medicine and stem cell therapy. The company's proposed tool is unique in its ability to rapidly evaluate and select populations of human stem cells, showing the most effective binding and potential retention in cardiac tissues. Its application could translate directly into a more dynamic development of targeted cell therapies in regenerative medicine, particularly in repairing damaged heart tissues, including in patients with myocardial infarction. This breakthrough has the potential to revolutionize the field of regenerative medicine and stem cell therapy, offering new hope for patients worldwide.

Advances in targeted cell therapies may also bring a revolution in the future in treating the effects of other tissue damage. These include the limb ischemia accompanying stroke or the dysfunction of other organs recently observed in COVID patients.

This developing technology is supported under the BrIdge Alpha program by the National Center for Research and Development (NCRD) and the MediVentures and Chicago Poland Ventures funds, which specialize in investing in medical startups.

Market

Given the immense regenerative potential of advanced therapy medicinal products (ATMPs) based on stem cells under development, the global stem cell therapy market is poised for exponential growth. It is projected to reach $27.65 billion in 2028, compared to $11 billion just eight years earlier. This growth, coupled with the increasing research expenditures and scientific publications, underscores the continued interest in developing these therapies, positioning Target Cells' technology for significant market impact.

The Poland project perfectly aligns with global market trends in this area by proposing a test that evaluates the binding of stem cells of various origins to heart tissue. This in vitro test reduces cost and animal usage, thus maintaining sensitivity to animal welfare concerns.

The predictive test being developed by us will enable immediate in vitro results without requiring additional specialized research infrastructure and it will be possible to perform it in any biochemical laboratory at nearly 20 times lower cost than classical methods. As previously stated, it does not require the participation of animals, which goes hand in hand with European and global trends of reducing this type of research. Target Cells' product development is ahead of other solutions. Our predictive solution is a simpler, broadly affordable, and a faster alternative to conventional testing methods using animal models. This test will make testing stem cell-targeting drugs without animal studies a reality.

Team

The US TargaCell Corporation research team Catherine Phillips, PhD and Robin McWherter, CMRT, pioneered the innovative technology for noninvasive stem cell delivery and binding to heart tissue in the United States. TargaCell Corporation is a parent company to the Polish startup; this project reflects their shared vision of making our stem cell delivery technologies the preferred method for stem cell-based therapies for heart repair.

Under the guidance of the US TargaCell leadership, Target Cells, in collaboration with Jagiellonian University, is spearheading the development of the technology and products in Poland. The research work is led by scientific director Professor Ewa Zuba-Surma, PhD, a renowned expert in the field of stem cells, and supported by a team of university researchers.

We are pursuing academic institutions, commercial entities, hospitals, and clinics long-term, facilitating targeted treatment of millions of heart disease patients with cellular drugs. We are expanding and forming new partnerships to further experiments which validate and further develop our technology to make these new therapeutics a reality.

Quotes from Founders:

Catherine Phillips, CEO/CSO of TargaCell USA, stated, "Stem cell therapy has yet to fully live up to its potential in repairing hearts to prevent heart failure, mainly due to the inefficiency of delivering and retaining too few stem cells in the heart. We have solved the issues hindering the progress of stem cell therapy."

"With Target Cells Poland, we have developed a screening test to evaluate our technology's ability to target existing and newly created stem cells to the heart, eliminating the need for animal testing."

Ewa Zuba-Surma, CSO and co-founder of Target Cells Poland, stated, “Targeted stem cell delivery into heart tissues may bring the field of cardiac regeneration into a different, more advanced level, which has been expected for the last decade or more. Having in hands both - stem cells with appropriate functional properties and the technology directing the cells into the heart, originally proposed by TargaCell USA and recently further optimized in vitro by Target Cells in Poland, may open a new era in developing stem cell-based therapies for cardiac tissue repair.”