

# Stem cell research products essay

[Business](#), [Accounting](#)



Stem Cell Research Products - Opportunities, Tools, and Technologies Stem cells are primitive cells found in all multi-cellular organisms that are characterized by self-renewal and the capacity to differentiate into any mature cell type. Stem cells are still a relatively new discovery, as the first mouse embryonic stem cells were derived from embryos in 1981, but it was not until 1995 that the first successful culturing of embryonic stem cells from non-human primates occurred and not until November 1998 that a technique was developed to isolate and grow embryonic stem cells from human blastocysts. In 2006, induced pluripotent stem cells were produced for the first time from mouse cells and in 2007 they were produced from human cells. Furthermore, it was not until 2008 that the first full transplant of a human organ grown from adult stem cells was performed when a section of trachea was successfully transplanted into an adult woman in Spain.

As of 2014, several broad categories of stem cells exist, including: Embryonic stem cells, derived from blastocysts Fetal stem cells, obtained from fetus Post-natal stem cells, derived from newborn tissues Adult stem cells, found in adult tissues - including Hematopoietic stem cells, Mesenchymal stem cells, and Neural stem cells Cord blood stem cells, isolated from umbilical tissue Dental stem cells, derived from deciduous teeth Induced pluripotent stem cells, reprogrammed from adult cells Cancer stem cells, which give rise to clonally populations of cells that form tumors or disperse in the body Animal stem cells, derived from non-human sources The past 10 years have also witnessed the production of novel stem cell types, including iPSCs, R-NCSC, and Vessels. Together, this evidence suggests that additional types of stem cells will likely be discovered, each representing new opportunities for

research product development. Clearly, laboratory research into stem cell derivation, manipulation, and application is rapidly expanding.

To facilitate research resulting from these advances, a large and diverse stem cells products market has emerged. Large companies selling stem cell research products include Thermo Fisher Scientific (now merged with Life Technologies), BAD Biosciences, MED Millipede, Sigma Aldrich, and STEELE Technologies, as well as over one hundred other suppliers. Currently, the following product categories compose the majority of global stem cell product sales: Primary antibodies to stem cell antigens Bead-based stem cell separation systems Fluorescent-based labeling and detection Stem cell protein purification and analysis tools Tools for DNA and RNA-based characterization of stem cells Isolation/characterization services Stem cell culture media and reagents Stem cell specific growth factors and cytokines Tools for stem cell gene regulation Stem cell services and mechanisms for in vivo and in vitro stem cell tracking Expansion/differentiation services for stem cell media and RNA Stem cell lines Furthermore, to sell products in the stem cell market, it is critical to understand the research applications for which stem cells are being studied. One area of study is the use of stem cells to understand and treat birth disorders. However, of greater interest to researchers is the potential for use of stem cells in regenerative medicine to treat conditions ranging from diabetes, to cardiovascular disease and neurological disorders. Pharmaceutical companies have intense interest in the ability to use stem cells to improve drug target validation and toxicology screening. Therefore, it is important for companies interested in stem cell therapy applications to understand underlying market forces, and in

particular, to consider progressive areas of stem cell research as Opportunistic areas for drug and therapy development. This report presents a range of topics of interest to these companies as well, including how advances in stem research can reveal potential new drug targets, improve methods of drug delivery, and provide personalized treatment strategies.

The key areas that account for the majority of applied stem cell research include: Regenerative Medicine - Reversal of injury or disease Drug Target Validation and Drug Delivery - Treatment Of disease Toxicology Screening - Drug safety and efficacy assessment Understanding and Treatment of Birth Disorders ; Natal repair This 2014 report provides detailed information on both basic and applied stem cell research and research applications and includes an updated list of global stem cell research centers by region. Furthermore, it is crucial for stem cell companies to understand the funding environment that supports stem cell research. Currently, the U.

S. Federal government is an important, although not dominant, source of funding for stem cell research. The reason is that U. S. States are spending almost as much as the federal government on stem cell research and are actually spending more than the federal government on human embryonic stem cell (Hess) research.

Private sources also contribute a huge amount of funding, with analysis of recent large gifts summing to over \$1.7 billion. Growth in Stem cell research has exploded in the past decade, and so the market to supply stem cell research products has grown to meet this huge demand. There are now over one million stem cell researchers worldwide. In addition, there were only 17

stem cell product companies as of 2006, and that has expanded to more than 100 today, a 6-fold increase. The two most active areas of stem cell research are mechanical stem cells, at 24.8% of all stem cell research, and homeopathic stem cells, at 24.

1% - thus accounting for nearly half of all stem cell research over a trailing twelve-month period. When this analysis was last conducted using data from full-year 2012 (Jan 1, 2012 - Dec 31, 2012), homeopathic stem cell research led mechanical stem cell research, but that relationship has since switched, revealing an interesting preference toward mechanical stem cell research among the scientific community. Also of interest is that for the trailing-twelve months, induced pluripotent stem cell research activity represented 8.9% of global stem cell research activity.

When this analysis was last conducted using full-year 2012 data (Jan 1, 2012 - Dec 31, 2012), induced pluripotent stem cell research activity represented only 4.0% of global research activity, which means that a substantial year-over-year shift has occurred. This report explores why this trend has developed and how it will continue to evolve in the coming decade. Not surprisingly, trend analysis reveals rapid increases in stem cell research activity over the past five years, specifically a scientific publication rate increase of 9.9% per year. The stem cell types with the greatest year-to-year increases in publication rates over a trailing five-year period include: Mechanical stem cells Induced pluripotent stem cells Neural stem cells While homeopathic stem cells represent the second most active area of stem cell research, publication rates for these stem cell types have declined in recent

years. Because research activity by stem cell type has shown divergent trends over the past few years, for research product companies to be successful, they will need to understand underlying trends in stem cell references, by cell type.

This market intelligence report will advantageously position your company to offer competitive stem cell products to a rapidly growing, well-funded research community. End-User Survey of Stem Cell Scientists: A key element of this report is a survey of stem cell researchers, for the U. S. And worldwide. This 2014 survey reveals stem cell researcher needs, technical preferences, key factors influencing buying decisions, and more. It can be used to make effective product development decisions, create targeted marketing messages, and produce higher prospect-to-client conversion rates. To benefit from this lucrative product market, you need to anticipate and serve the needs of your clients, or your competitors will. This survey reveals critical findings that include: Prevalence of Stem Cell Research by Cell Type Stem Cell Product Preferences Most Commonly Utilized Stem Cell Markers, by Stem Cell Type Most Commonly Utilized Stem Cell Antibodies, by Stem Cell Type Preferred Providers of Stem Cell Antibodies And Much More Input Sources: In addition, the market intelligence contained in this report was compiled using a broad range of sources, allowing the analysis to be thorough, current, ND cutting-edge.

The findings presented here will improve your strategic decision-making and will empower you to make smarter decisions, faster. These input sources include: Stem Cell Grant Funding Databases (NIH database, DoD database)

Stem Cell patent Databases (SPOT) Stem Cell Publication Databases (Pumped, Higher Press) Stem Cell Product Launch Announcements (Trade Journals, Google News) International Surveys (Electronically distributed end-user surveys) And More Methodologies: Furthermore, as a technology company, Baltimorean employs advanced techniques for deriving market research and industry data. The following constitute the basis for our Research & Analysis: Preliminary Research: Extensive secondary research based on preliminary market evaluations. Fill- Gap Research: Selectively sampled and focused primary research as a fill-gap strategy. Historic Analysis - Primary Products: Comprehensive analysis of all data for each primary product market.

Historic Analysis - End-user Markets: Historic analysis of all end-user industries/markets, requiring technology and market evaluations, growth projections, and market size estimation of end- user markets. Historic Supply Chain/Raw Materials Analysis: Comprehensive analysis of data for each primary market segment. Data Consolidation: Merging historic end-user market data to yield consolidated primary market data. Cross Linking: Comparing primary market data (historic) with resulting end-user consolidated market data and calculating the variance in percentages between data sets by year. Variance Determination: Placing a median figure for each year with a tolerance range equal to twice the variance percentage and recording the resulting numbers.

Projections: Projecting forward end-user markets based upon historic metrics, technology and market trends, and primary research from the

marketplace. Variance Factorization: Consolidation of projected end-user market data to yield derived primary market data. The data is adjusted to the historic variance determinations, as above. The resulting data is verified by confirmatory primary research. Confirmatory Primary Research: Presenting resulting data from companies or individuals participating as research partners. Variations from derived data are adjusted to reflect primary research based consensus. Electronically Based End-User Surveys: Distribution of electronically based end-user surveys to a panel of industry representatives working within arrest segment(s) of interest.

Statistical filtering and analysis is performed on collected user-response data.