

## Human Embryonic Stem Cells (hESC) Market Analysis By Application (Regenerative Medicines, Stem Cell Biology Research, Tissue Engineering, Toxicology Testing), By Country (U.S., UK, Germany, Japan, China), And Segment Forecasts, 2014 - 2025

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### **Abstracts**

The global human embryonic stem cells (hESCs) market is anticipated to reach USD 1.06 billion by 2025, according to a new report by Grand View Research, Inc. Application of hESCs as a promising donor source for cellular transplantation therapies is anticipated to bolster progress through to 2025. hESCs technology tends to be useful for tissue engineering in humans due to high histocompatibility between host and graft.

Maintenance of developmental potential for contribution of derivatives of all three germ layers is an important feature of these cells. This ability remains consistent even after clonal derivation or prolonged undifferentiated proliferation, thus pronouncing its accelerated uptake.

In addition, these are capable in expressing high level of alkaline phosphatase, key transcription factors, and telomerase. These factors are found to be of great importance in the maintenance of the inner cellular mass pluripotency.

Furthermore, hESCs can be easily differentiated into defined neurons, neural lineages, oligodendrocytes, and astrocytes. Aforementioned characteristic makes it useful in studying the sequence of events that take place during early neurodevelopment.

However, use of stem cells derived from viable embryos is fraught with ethical issues, prompting scientists to explore other methods to generate ESCs. The other methods include derivation of embryonic germ cells, stem cells from dead embryos, and other



techniques.

Further Key Findings from the Report Suggest:

hESC derivation provides a unique opportunity for early human development studies

It is believed to hold a substantial potential for regenerative medicine and biopharma

Differentiated derivatives of these cells are applicable for screening assays in development of novel pharmaceutical moieties

Screening for mutagenic as well as toxic compounds can also be carried out using such derivatives

Presence of lack of suitable donor organs and tissues for regenerative medicine is expected to increase the demand thus influencing growth

Stem cell research is anticipated to exhibit fastest growth amongst the other applications

However, presence of controversies pertaining to their use as a consequence of ethical considerations is responsible for steady growth

Europe accounts for considerable share of the market, following North America

As per a recent survey carried out by Swiss government, citizens there are more willing to accept embryonic stem cell research than politicians

Asia Pacific is anticipated to drive market with fastest YoY growth

Rising awareness amongst the population and physicians with respect to associated therapies is anticipated to propel progress

Key players contributing in this market are CellGenix GmbH, International Stem Cell Corporation, Thermo Fisher Scientific, Inc.; Kite Pharma, PromoCell GmbH, and Lonza

Presence of clinical trial pipeline for embryonic stem cell derived therapy for targeting different diseases is expected to fuel growth.



The diseases targeted include macular degeneration, Parkinson's disease, type I diabetes mellitus, and spinal cord injury.



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