



Cell Therapy is Alive and Well

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The development of commercial cell therapies is alive and well and presents a growing opportunity for many companies within biotechnology.

The current worldwide market is estimated to be \$3.4 billion¹. More than 250 companies are involved in some aspect of cell therapy - six of these with greater than \$50 million in sales or expenditures in 2008, while 39 companies reported between \$10 and 50 million in sales or expenditures in the same year². Commercial cell therapy products generated more than \$1.5 billion in sales in 2007 based on sales from the 68 companies with products on the market³.

This market is now growing to include the not only the companies developing the therapies but also companies that support the industry. Lonza, for example, is spending \$26 M to expand capacity at its US facility⁴ as the regulatory progress made with Osiris' Prochymal looks set to kick start the era of cell therapies. Innovation will be key to the success of broadening the range of commercial cell therapies. For example, Artelis is currently adapting the innovative cell factory, iCELLis™ to provide Cardio3 Biosciences with a complete production system. In another example, Selexis SA has developed technology that allows stable, prolonged expression of transgenes in adult stem cells.

While current efforts are most advanced in Australia, Europe and the US, Asia, Israel and South America have growing cell therapies sectors in their pharma /biotechnology industries. Regenerative medicine applications in central nervous system, bone and skin

continue to expand with bone and skin having a combined estimate of over \$800 million in sales in 2007⁵. Cardiovascular applications continue to grow as approximately 50% of ongoing studies are in this area. Cancer remains an active area for cell therapies but other areas are also present growing opportunities in cell therapy. It is anticipated that the coming year will shed light on techniques for enhancing cell function (allogeneic, currently 63% of market and autologous, currently 37% of market)⁶, improving tissue receptivity to cell delivery and facilitating the performance catheter-based procedures.

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There are increasing signs of partnering among large Pharma as well. AstraZeneca for instance, has joined EpiStem to study how a physiological link between hair follicles and intestinal stem cells can be used to assess the side effects of certain cancer drugs. Recently Roche's Global Alliance Director, Dr. Alain Vertes,

highlighted the Roche's growing interest cell therapy by acknowledging that cells are not just transplants, they can also be drugs. GlaxoSmithKline is actively pursuing opportunities to use cell therapy for the treatment of Parkinson disease and in late 2008 Osiris and Genzyme entered into \$1.38 billion stem cell collaboration.

¹ The Business of Cell Therapy, 2008. The Cell Therapy Group. www.celltherapygroup.com

² Lysaght, et al. Tissue Engineering: Part A, Vol. 14, Nbr. 2. 2008

³ Lysaght, et al. Tissue Engineering: Part A, Vol. 14, Nbr. 2. 2008

⁴ Vanck, P. *Regen. Med.* 3:237-241. 2008

⁵ Lysaght, et al. Tissue Engineering: Part A, Vol. 14, Nbr. 2. 2008

⁶ Analysis of 1000 ongoing clinical trials in cell therapy. www.clinicaltrials.gov; www.anzctr.org.au and <http://www.who.int/trialsearch/> April 2009. Dr. Cori Gorman, president, DNA Bridges, Inc.