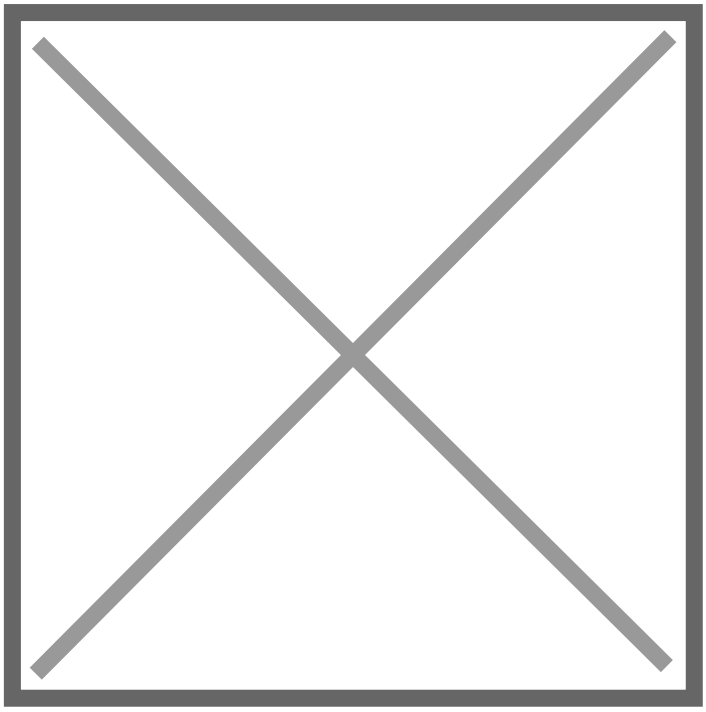
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The Promise and Hope of Stem Cells

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The Promise and Hope of Stem Cells

Stem cell research is a rapidly expanding area of investigation, with the ultimate goal to prevent, diagnose, and treat human diseases, including heart disease, diabetes, cancer, strokes, and neurological disorders, such as Parkinson's and Alzheimer's disease.



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Developmental biology, cancer biology: Molecular signatures that characterize various stages of embryogenesis, cell differentiation and proliferation remain to be fully elucidated. An insight into the mechanisms that govern these processes in health will help to better understand molecular pathophysiology of conditions such as cancers and birth defects. Stem cells can serve as good models for studying role of signal transduction and gene expression in the regulation of cell growth and differentiation.

Drug development: There is an increasing realization of the importance of identifying a disease-specific molecular target that if disrupted would halt the progression of the pathological process. Cell signaling pathways elucidated while studying stem cell proliferation and differentiation may further enable the identification of new drug targets for a variety of indications. Besides, stem cells, particularly embryonic stem cells, can be potentially grown to develop differentiated tissue models which can then be used to study kinetics, toxicity and efficacy of drugs under development.

Therapeutic use of stem cells: Stem cells have great promise for use in cell therapy and regenerative medicine. For example, stem cell transplantation into the heart may assist functional tissue regeneration in patients who have had a recent myocardial infarction or are suffering from perhipheral vascular disease.

Tools for stem cell research

Today cell analysis companies offer a broad and diverse set of tools to support investigative efforts in characterizing and isolating hematopoietic stem cells for research use--across stem cell isolation, culturing, and analysis. FACS flow cytometers and cell sorters are an integral part of the Cell Analysis heritage and a strong foundation of its platform for stem cell research. In addition to FACS instruments new instrument platforms including the Pathway high-content cell analyzers and CARV II confocal imager are further testament to biosciences' commitment to provide the most comprehensive portfolio of cell analysis tools. As a dependable innovator in cell culture technology, companies offer discovery labware, BioCoat tools for researchers investigating the mechanisms that dictate stem cell growth and differentiation, as well as stem cell use for tissue engineering applications. Complementing Biosciences instrumentation and culture ware are high quality monoclonal antibodies to intracellular proteins, and cell surface markers of self-renewal and differentiation in embryonic stem cells, and a variety of adult stem cells of hematopoietic, mesenchymal, endothelial, cardiac, neural, endodermal and other lineages.

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