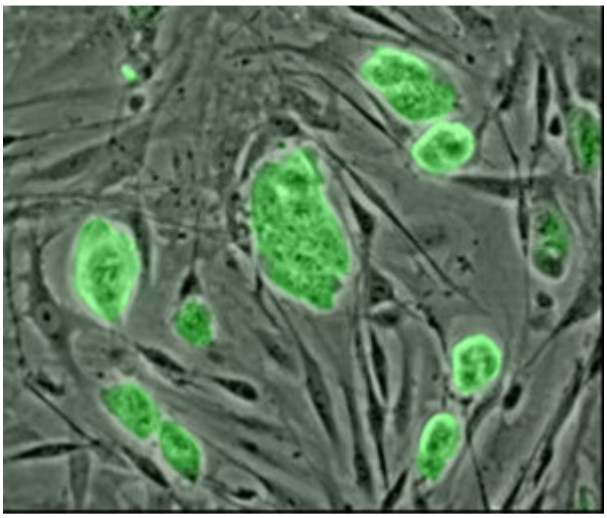
BOTM: February 2007

Stem Cells



Stem cells are primal cells common to all multi-cellular organisms that retain the ability to renew themselves through cell division and can differentiate into a wide range of specialized cell types. Research in the human stem cell field grew out of findings by Canadian scientists Ernest A. McCulloch and James E. Till in the 1960s.

The three broad categories of mammalian stem cells are: embryonic stem cells, derived fromblastocysts, adult stem cells, which are found in adult tissues, and cord blood stem cells, which are found in the umbilical cord. In a developing embryo, stem cells are able to differentiate into all of the specialized embryonic tissues. In adult organisms, stem cells and progenitor cells act as a repair system for the body, replenishing specialized cells.

As stem cells can be readily grown and transformed into specialised cells with characteristics consistent with cells of various tissues such as muscles or nerves through cell culture, their use inmedical therapies has been proposed. In particular, embryonic cell lines, autologous embryonic stem cells generated through therapeutic cloning, and highly plastic adult stem cells from theumbilical cord blood or bone marrow are touted as promising candidates.

More information at: http://en.wikipedia.org/wiki/Stem_cells