



Dr. Stephen Minger
Director of the Stem Cell Biology Laboratory at the Wolfson Centre for Age Related Diseases at King's College London (UK)

Abstract

Therapeutic and Research Potential of Human Stem Cells

There has been significant interest in the therapeutic and scientific potential of stem cells since reconstitution of the haematopoietic system was first realized by bone marrow transplantation in the 1960s. The isolation of tissue-specific, multipotent stem cells from adult organs and the derivation of pluripotent human embryonic stem cells offer the potential for regeneration of a number of different tissues and organs susceptible to age-related degenerative conditions and traumatic injury. In the not-too-distant future, it will be possible to repair heart tissue damaged by myocardial infarction, to replace neuronal cells lost in Parkinson's and Alzheimer's diseases, to transplant new insulin producing cells for diabetics and myelinating cells for individuals afflicted with multiple sclerosis, and to replace bone and cartilage lost through aging and inflammatory disease. In addition, the generation of specific populations of defined subtypes of human cells has tremendous potential to revolutionize the fields of drug discovery and investigation into the cellular bases of human disease. The newly emerging field of Regenerative Medicine will fundamentally alter clinical medicine and significantly influence our perceptions of aging, health and disease, with a myriad of consequences for society at large.

Biography

Stephen Minger is the Director of the Stem Cell Biology Laboratory and a Senior Lecturer at the Wolfson Centre for Age Related Diseases at King's College London. In 2002, together with Dr Susan Pickering and Professor Peter Braude, Dr Minger was awarded one of the first two licenses granted by the UK Human Fertilisation and Embryology Authority for the derivation of human embryonic stem (ES) cells. His group subsequently generated the first human ES cell line in the UK and was one of the first groups to deposit this into the UK Stem Cell Bank. They have gone on to generate five new human ES cell lines, including one that encodes the most common genetic mutation resulting in Cystic Fibrosis and another one that contains the Huntington's disease mutation.