



CDB SEMINAR

Stephen Minger

King's College London

Tuesday, September 12

16:00~17:00 A7F Conference Room

Therapeutic Applications of Human Embryonic Stem Cells

Summary

There has been significant interest in the therapeutic and scientific potential of human embryonic stem (ES) cells since they were first isolated in 1998. If human ES cells could be differentiated into suitable cell types, stem cells might be used in cell replacement therapies for degenerative diseases such as Type I diabetes and Parkinson's disease, or to repopulate the heart following myocardial damage. However, there is a significant shortage of high quality therapeutic-grade human ES cell lines and few research groups have experience in the propagation and manipulation of these cells. It is thus essential for the development of human stem cell technology, and the larger goal of cellular replacement therapy for human disease, that new clinical-grade human cell lines are generated.

We are addressing this important issue using the combined expertise of the Stem Cell Biology Laboratory and the Assisted Conception Unit at King's College London. With local ethical approval and under licence from the UK Human Fertilisation and Embryology Authority, we have been establishing high quality human ES cell lines from a novel source of human embryos. To date, we have derived four human ES cell lines, including one that encodes the most common genetic mutation resulting in Cystic Fibrosis. In addition, much of our work is focused on the generation of human ES cell-derived, therapeutically important cell populations including neural, retinal, pancreatic, cardiac and endothelial stem cells. The tightly regulated yet permissive environment in the UK for human stem cell research, coupled with the government's commitment to the establishment of a centralised stem cell bank offers the UK the opportunity to be a leading player in the field of human regenerative medicine.

Speaker profile

Dr Stephen Minger is the Director of the Stem Cell Biology Laboratory and a Senior Lecturer in the new Wolfson Centre for Age Related Diseases at King's College London. Dr Minger received his PhD in Pathology (Neurosciences) in 1992 from the Albert Einstein College of Medicine. From 1992-1994, he was a post-doctoral fellow at the University of California, San Diego, where he first began to pursue research in neural stem cell biology. In 1995, Dr Minger was appointed an Assistant Professor in Neurology at The University of Kentucky Medical School. He moved his stem cell research programme to Guy's Hospital in 1996 and was appointed a Lecturer in Biomolecular Sciences at King's College London in 1998. Over the last 15 years, his research group has worked with a wide range of somatic stem cell populations, as well as mouse and human embryonic stem (ES) cells. 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 ES cells. His group subsequently generated the first human embryonic stem 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 three new human ES cell lines, including one that encodes the most common genetic mutation resulting in Cystic Fibrosis.

In addition to the derivation of human ES cell lines, the Stem Cell Biology Laboratory is focused on the generation of a number of therapeutically relevant human somatic stem cell populations from embryonic stem cells. These include cardiac, vascular, retinal, and neural stem/progenitor cell populations, as well as pancreatic β -cells and oligodendrocyte progenitors. Dr Minger has established highly productive collaborations with a number of specialist groups in many areas of clinical interest throughout the UK, and is one of the co-organisers of the London Regenerative Medicine Network, a grass-roots, research-led organisation designed to stimulate clinical translation of cell- and gene-based therapies within London. He is also the Senior Editor of Regenerative Medicine, a new journal launched in Jan 2006 by Future Medicines.

Host:

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