



c/o Scientific Generics Limited

Harston Mill

Harston

Cambridge CB2 5GG

Telephone: +44 (0) 1223 875200

Facsimile: +44 (0) 1223 875201

(Organising Secretary's Home Number: 01799 525 948)

email: richard.freeman@genericsgroup.com

CAMBRIDGE SOCIETY FOR THE APPLICATION OF
RESEARCH

'Brave New World'

Stem Cell research

Professor Roger PEDERSEN

Professor of Regenerative Medicine, Department of Surgery, University of Cambridge
Director, Cambridge Centre for Stem Cell Biology and Medicine

Monday, 26th April 2004 **7.30 p.m. - 9.00 p.m.**

The Wolfson Lecture Theatre, Churchill College, Cambridge

Chair: to be advised

Vote of Thanks: to be advised

Professor Pedersen writes:

'The Brave New World of Stem Cells:'

The stem cells in our bodies are, as their name implies, the source of our specialised tissues, much like the stem of a plant grows into branches with leaves and flowers. Their defining quality is that when stem cells divide, they can generate not only a specialised descendant but also another stem cell, thereby replacing themselves. This gives stem cells their unique capacity for sustained self-renewal, which is the key to their story. Many, perhaps all, of our tissues and organs appear to have stem cells. Tissues that form our interface with the environment undergo considerable wear and tear and so have to be replaced frequently, with notable examples being our intestines, skin and blood. If not for this continuous regenerative process, our health would rapidly deteriorate. If we consider how our bodies emerge during prenatal development, we can also recognise the existence of a "stem cell of stem cells." Such a primordial type of cell appears at the earliest stage of human development, when the embryo is a hollow ball of ~100 cells that has not yet attached to the uterus. These "embryonic" stem cells can actually be grown in the petri dish, where they have the remarkable capacity to specialise into any type of cell in the body. The ability of embryonic stem cells to generate this wide diversity of specialised cells has excited both scientists and non-scientists alike. This is because stem cells offer the hope of improved treatments for

COUNCIL

Prof. Sir Sam Edwards FRS *President*
(Dept. of Physics, Cavendish Laboratory)

Prof. Haroon Ahmed FEng
(Dept. of Physics, Cavendish Laboratory)
Prof. . Derek Burke CBE, DL
(former VC of the University of East Anglia)
Mr. Brian Ford
(Author and Broadcaster; Fellow of the University of Cardiff)

Dr. Richard Jennings *Vice President*
(Central Research Services)
Mr. Robin Bligh FCA *Corporate Secretary*

Dr. David Fyfe
(Cambridge Display Technology)
Dr. Elisabeth Hall
(Institute of Biotechnology)
Prof. Laurie Hall FRS(Can), FRSC (Herchel Smith Laboratory for Medicinal Chemistry)

Dr. Richard Freeman FRSA FIFST
Organising Secretary
(Scientific Generics)

Prof. Anthony Kelly CBE FEng FRS
(Materials Science & Metallurgy Dept)
Mr. Ian Kent
(BioFocus; British Biotech; AdProtech);
Mr. Chris Smart
(IDG Ventures Europe)

Italics denote an affiliation other than the University of Cambridge.

The CSAR Council is chosen to represent leading scientists and technologies from academe and industry

incurable diseases. The lecture will provide an opportunity to explore the leading edge of this exciting area of biology research.

About the speaker:

Roger A. Pedersen received an A.B. (with distinction) in biology from Stanford University in 1965 and a Ph.D. in biology from Yale University in 1970. He did postdoctoral work in mammalian embryology at Johns Hopkins University. In 1971, he began a research program in mammalian reproductive and developmental genetics at the University of California, San Francisco, where he explored for three decades issues of developmental potency, fate and the influence of the environment on embryonic development. That work, together with clinical service directing the UCSF in vitro fertilisation laboratory during the 1990s, led him to studies of human embryos and stem cells. In early 2001, his laboratory generated two of the human embryonic stem cell lines named on the so-called President's list, which became eligible in late 2001 for U.S. Government funding. By then, Pedersen had relocated to the University of Cambridge in the UK, where he continues his research on human embryonic stem cells as Professor of Regenerative Medicine and Director of the Cambridge Centre for Stem Cell Biology and Medicine.

Organising Secretary's Notes:

Stem cell research is the Brave New World of biology; the potential is massive, and (unlike so much of the promise of modern biology and biotechnology), stem cells do actually seem to be able to provide a practical and usable solution to many of our degenerative or regenerative problems.

Professor Pedersen is a world expert in the subject, now fortunately ensconced here in Cambridge, in the rather beautifully described 'Chair of Regenerative Medicine'. I wonder if he has any magic potions going spare.....?

For those of you with access to the Web, try the sites below

<http://stemcells.nih.gov/infoCenter/stemCellBasics.asp>

<http://www.biomed>

singapore.com/bms/sg/en_uk/index/research_resources/research_highlights/year_2004/pushing_the_frontiers.html

<http://www.wired.com/wired/archive/11.12/start.html?pg=14>

CSAR Easter Term visit:

This is a 'straw poll'. As an **alternative** to Sutton Hoo, we are considering a visit to **Bletchley Park** instead.

We would use a coach; it would take all day; and the cost would be ~£29 (including lunch and refreshments). Who would be interested, and at this cost? Putative date, 2nd June. Please let me know yes/no at the meeting, by writing to me, or of course by email

Best

Richard Freeman
CSAR Organising Secretary