



Economic & Social Research Council Stem Cell Initiative (ESRC SCI)

Friday 14 September 2007

Room 6.13 James Clark Maxwell Building (Waterloo Campus), King's College London

Centre for Biomedicine & Society (CBAS) Workshop on:

Selling Science? Academy-Industry Interactions in Stem Cell Research

Introduction

This workshop is the result of an ESRC SCI International Visiting Stem Cell Fellowship awarded to Professors Clare Williams, Steven Wainwright and Christopher Scott. It is designed to encourage multidisciplinary dialogue between different groups of researchers interested in the university-industry interface and stem cell research. We are inviting around twenty participants from the academic fields of social science, biomedical science and medicine. The four papers are short overviews designed to stimulate discussion within a diverse audience. Lunch, tea, and a wine reception will also promote informal networking and dialogue amongst the workshop participants.

12.00 - 12.45 Lunch & Registration

12.45 - 13.00 Welcome & Introduction

Chair & Welcome: Professor Clare Williams, CBAS, King's College London

Introduction: Professor Graham Lord, Translational Medicine, King's College London

Prologue: Professor Steven Wainwright, CBAS, King's College London

13.00 - 13.30 **1. Basic stem cell research in the UK: the commercial-academic interface**
Dr Stephen Minger, Stem Cell Biology, King's College London

13.30 - 14.00 **2. The myth of the biotech revolution: implications for stem cell research**
Dr Paul Martin, Science Studies, University of Nottingham

14.00 - 14.45 Discussion

14.45 - 15.15 Tea

15.15 - 15.45 **3. Regenerative Medicine - Commercial cash cow or white elephant?**
Dr Chris Mason, Bioengineering, University College London

15.45 - 16.15 **4. Stem cells in California: ethics, policy, and the university-industry interface**
Professor Christopher Scott, Bioethics & Stem Cell Science, Stanford University, USA

16.15 - 16.30 **Discussant**
Professor Brian Salter, CBAS, King's College London

16.30 - 17.00 Discussion

17.00 - 18.00 **Wine Reception**



ESRC Stem Cell Initiative (ESRC SCI) & CBAS Workshop

Selling Science? Academy-Industry Interactions in Stem Cell Research

Workshop Participants

1. Professor Peter Braude, (Reproductive Medicine), King's College London
2. Professor Sarah Franklin, (Medical Sociology), LSE
3. Professor Peter Glasner, (Medical Sociology), Cardiff University
4. Dr Trisha Grocott, (Nursing), King's College London
5. Professor Neil Hanley, (Endocrinology/Stem Cell Biology), University of Southampton
6. Ms Kerry Holden, (Geography), King's College London
7. Professor Peter Jones, (Endocrine Biology), King's College London
8. Professor Julie Kent, (Medical Sociology), University of West England
9. Professor Graham Lord, (Transplant Immunology), King's College London
10. Dr Chris Mason, (Tissue Engineering), University College London
11. Dr Paul Martin, (Science Studies), University of Nottingham
12. Professor Mike Michael, (Sociology of Science), Goldsmiths College, University of London
13. Dr Stephen Minger, (Stem Cell Biology), King's College London
14. Dr Barbara Prainsack, (Political Science), CBAS, King's College London
15. Professor Genevra Richardson, (Bioethics & Law), King's College London
16. Dr Henry Rothstein, (Risk), King's College London
17. Professor Brian Salter, (Bio-Politics), CBAS, King's College London
18. Professor Christopher Scott, (Bioethics/Biomedical Science), Stanford University, USA
19. Ms Silje Sivertsen, (Social Science), University of Bergen, Norway
20. Mr Ben Sykes, (UK National Stem Cell Network), BBSRC
21. Professor Steven Wainwright, (Medical Sociology), CBAS, King's College London
22. Professor Clare Williams, (Medical Sociology), CBAS, King's College London

Biographies: CBAS Stem Cell Workshop, King's College London (14.9.2006)

Peter Braude is Head of the Department of Women's Health at King's College London. He directs the Centre for Preimplantation Genetic Diagnosis at Guy's and St Thomas Hospital, which is the most active and successful of the six licensed programmes in the UK. The PGD team at Guy's recently won the innovation category in the annual Hospital Doctor awards, for their contribution to PGD in the UK and their development of preimplantation Genetic Haplotyping, which increases reliability and repertoire of PGD. Whilst in Cambridge he led one of the first groups to be funded by the UK Medical Research Council to carry out research using human embryos fertilised in vitro, towards an understanding of the cellular and molecular mechanisms operating at these early stages of development. His group at King's is funded by the MRC, established the first human embryonic stem cell lines in the UK, and the first internationally to contain the common $\Delta F508$ deletion now lodged with the UK Stem Cell Bank. He has published widely on the science and ethics of these emerging techniques. He was a former member of the Human Fertilisation & Embryology Authority, and chair of the Scientific Advisory Committee for the Royal College of Obstetricians & Gynaecologists.

Sarah Franklin is Professor of Social Studies of Biomedicine and Acting Director of the BIOS Centre at the London School of Economics and Political Science. She is the author of numerous books and articles on IVF, cloning, stem cells, and embryo research, including an ethnographic study of PGD co-authored with Celia Roberts entitled *Born and Made* (2006). Her most recent book is entitled *Dolly Mixtures: the remaking of genealogy*. Her current research, funded by the ESRC, focuses on 'the IVF-stem cell interface' in the context of hES derivation -- a topic she is exploring in connection with the UK network of stem cell coordinators (hESCCO). She is also the Principal Investigator on a Wellcome-funded project investigating biomedical scientists' roles in, and perceptions of, public deliberation exercises related to innovative biomedicine in the UK.

Peter Glasner is Professorial Research Fellow at CESAGen in Cardiff University, undertaking research on current developments in post-genomics (particularly the rise of proteomics) and stem cell technologies in India and the UK. His longstanding interests are in the organisation and management of the new genetics, the development of innovative health technologies, and in public participation in techno-scientific decision-making. He has held grants from a number of research charities, the Home Office, the Medical Research Council, and Economic & Social Research Council. He has published 10 books and over 80 papers, articles, chapters and reports, and is a founding editor of *New Genetics & Society* and *21c Society, the Journal of the Academy of the Social Sciences*. His latest book, with Adi Bharadwaj, called *Local Cells, Global Science: Embryonic Stem Cell Research in India*, will be published in 2008. He is co-editor, with Paul Atkinson & Margaret Lock, of the *Handbook of Genetics & Society* also to be published by Routledge in 2008.

Patricia Grocott is Reader in Palliative Wound Care Technology Transfer at King's College London. The focus of her research is the development of methodologies that capture what end users (patients and clinicians) need from medical devices to support the management of chronic long standing wounds. To date this research has been funded by the EPSRC focusing on the development of in vitro and in vivo methodologies that capture the multifaceted nature of living with and managing wounds; 3D imaging to determine the effects of skin deformation on dressing fit and stability, fluid handling studies to determine optimum design of wound dressings for wet wounds, clinical data capture of dressing performance and individual patient experiences. The work includes collaborating with the medical devices sector, regulators, industry and health service suppliers through the WRAP (Woundcare Research for Appropriate Products) Partnership, of which Trisha is the leading clinical academic. She is co-founder (with Vicky Robinson Consultant Nurse at St Christopher's Hospice) of the South East England Palliative Wound Care Network and leading author of the chapter on nursing aspects of palliative wound care in the previous and forthcoming editions of the *Oxford Textbook of Palliative Medicine*.

Neil Hanley is Professor of Endocrinology at the University of Southampton and honorary consultant endocrinologist at Southampton University Hospitals NHS Trust. His laboratory research group is interested in human endocrine development and stem cell biology. The main focus of this work is trying to understand how insulin-secreting beta cells are generated during early development. The hope is that these lessons can be applied to producing functional healthy beta cells in the lab for transplantation or by regeneration in patients with diabetes. In addition to human fetal progenitor cells and human embryonic stem (ES) cells, his work also studies the human germ cell lineage in the hope of making human embryonic germ cells that match their ES cell counterparts. Neil is a member of the MRC Stem Cells Clinical Liaison Committee and the National Institute for Health Research Fellowships Panel. He sits on the editorial board of *Molecular & Cellular Endocrinology* where he is guest editor for a forthcoming edition on 'Hormones & Stem Cells'.

Kerry Holden is a PhD candidate in the Geography Department at King's College London, where her research is funded by an ESRC CASE studentship in collaboration with Johnson and Johnson. Her interests lie in contemporary debates about subjectivity and identity, and in social studies of science and technology. Her research question asks what it means to be a scientist. She uses biographical interviews with scientists in both academia and industry in order to understand how scientists come to understand themselves in the context of the knowledge-based economy. Through her research she draws attention to the increasingly commercialised environment of academic science and its effect on the culture of research and professional ethics.

Peter Jones is Professor of Endocrine Biology at King's College London, head of the Beta Cell Development and Function Group at the Guy's Campus, and Deputy Director of the Division of Reproduction and Endocrinology. He is interested in all aspects of the physiology and pathology of endocrine systems, with particular emphasis on the pancreatic islets of Langerhans. Peter chairs a Research Committee for the European Foundation for the Study of Diabetes; is a member of the Research Committee for Diabetes UK; is a member of the Islet and Transplantation Committee for the Juvenile Diabetes Research Foundation (JDRF) in the USA; and is a member of an EU Framework 6 Concerted Action Network.

Julie Kent is Professor of Sociology of Health & Technology at the University of the West of England, Bristol. Her current research examines key questions relating to the emergence of new health technologies, including the relationship between technology innovation, regulation and governance, health technologies and the body, regenerative medicine and the global tissue economy. Recent projects funded by the ESRC include *Regulation and governance of tissue engineering in the UK and Europe* (with Faulkner) and *A sociocultural analysis of the collection and use of fetal stem cells* (with Pfeffer). She is currently writing a book on *Regenerating Bodies: Tissue and cell technologies in the 21st Century*. Professor Kent is a member of the Committee on Safety of Devices which advises the UK Medicines & Healthcare products Regulatory Agency.

Graham Lord is Professor of Medicine and Honorary Consultant in Nephrology and Transplantation at Guy's and St. Thomas' Hospital and King's College London. He is Director of Translational Research Development and Deputy Director of the new NIHR Comprehensive Biomedical Research Centre (BRC) at King's with specific responsibility for industry – academic strategic relationships. Recently appointed to this position with a further remit to foster strategic collaboration between basic scientists at KCL and practising clinicians at the Trust, Professor Lord has an international track record in basic and applied T cell and dendritic cell immunobiology and Aristolochic Acid related renal disease. As Deputy Director he will have a specific role in delivering excellence in translational medicine through the Biomedical Centre and will facilitate the introduction of innovative approaches to partnership, translation and capacity building and will focus on the structure and programme for the NIHR BRC Biomedical Forum and Faculty, a critical component of delivering translational research.

Chris Mason is a recognised leader in the field of stem cells and regenerative medicine. His particular interest is facilitating the realistic translation of the fantastic discoveries made in the laboratory into effective and affordable therapies that will benefit patients, the NHS and in the process create a successful UK industry. Originally graduating from Imperial College with a degree in molecular biology

and St. Thomas's Hospital Medical School with a medical degree, Chris is a Fellow of the Royal College of Surgeons of England, Fellow of the Royal College of Surgeons in Ireland and a Fellow of the Royal Society of Medicine. In addition, he has a PhD in Biochemical Engineering under the supervision of Prof. Peter Dunnill (UCL). Today, Chris leads the Regenerative Medicine Bioprocess Group of 20 researchers in the Advanced Centre for Biochemical Engineering at UCL. The research group focuses on the translation of stem cell and regenerative medicine science into routine clinical practice. To achieve this goal, the group has multiple collaborations throughout the stem cell community including leading scientists, clinicians, companies and government organisations. To encourage active participation of all the future key players required to build a successful UK sector, Chris together with Dr. Stephen Minger (King's College London), founded the London Regenerative Medicine Network (LRMN). The LRMN is the world's largest network of its kind. Since its launch in early 2005, it has hosted over 60 international speakers, plus well in excess of 6,000 people have attended the regular monthly meetings including scientists, clinicians, reporters, politicians, industrialists and patient groups. In addition, Chris is a member of the Steering Committee of the UK National Stem Cell Network (UKNSCN), member of the MRC Stem Cell Clinical Liaison Committee, sits on the Editorial Boards of the journals, *Regenerative Medicine* and *Tissue Engineering* and was the Mission Leader of the DTI funded Global Watch Mission *Advanced Cell & Tissue Therapies* which visited the West Coast of North America in September 2006.

Paul Martin is Reader in Science and Technology Studies and Deputy Director of the Institute for Science and Society (ISS) at the University of Nottingham. He trained as a molecular biologist and subsequently worked as a health policy analyst before taking a PhD in science and technology studies at the University of Sussex. His research interests cover innovation in the biotechnology industry, the social and ethical issues raised by genetics and the regulation of new medical technologies. Recent grants include studies of the impact of genomics on innovation in the pharmaceutical industry (ESRC), expectations of haematopoietic stem cell technology (ESRC) and the clinical uptake of regenerative medicine products (EPSRC). Recent publications include a review of progress in genomic medicine for the Royal Pharmaceutical Society and a major report on the development of pharmacogenetics.

Mike Michael is Professor of Sociology of Science and Technology, and Director of the Centre for the Study of Invention and Social Process, at the Sociology Department, Goldsmiths College, University of London. His main areas of research include public understanding of science, the relation between everyday life and science and technology, and biotechnological and biomedical innovation and culture. He is currently developing an interest in the potential interactions between design and social science disciplines. Recent publications include *Technoscience and Everyday Life* (Open University Press, 2006), and (with Lynda Birke and Arnie Arluke) *The Sacrifice: How Scientific Experiments Transform Animals and People* (Purdue University Press, 2007).

Stephen Minger is Director of the Stem Cell Biology Laboratory and a Senior Lecturer in the new Wolfson Centre for Age Related Diseases at KCL. 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 Pickering and Professor Braude, Dr Minger was awarded one of the first two licenses granted by the HFEA 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 four new human ES cell lines, including one that encodes the most common genetic mutation resulting in Cystic Fibrosis. His lab also focuses on the generation of a number of therapeutically relevant human somatic stem cell populations from embryonic stem cells. Dr Minger has established 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, and the Senior Editor of *Regenerative Medicine*. Dr Minger's research is supported by the MRC, the EU, GlaxoSmithKline, The Novartis Institute, The Oliver Bird Foundation, The Wellcome Trust, The UK DTI, The Huntington's Disease Association, The Alzheimer's Research Trust, The Charitable Foundation of Guy's and St Thomas' Hospitals, the BBSRC, and the EPSRC amongst others.

Barbara Prainsack is a Senior Lecturer at the Centre for Biomedicine & Society at King's College London. A trained political scientist, Barbara has published on the topics of genetic testing, stem cell research, human cloning, personalized medicine, and biotechnology regulation. With Tim Spector and Lynn Cherkas at the Twin Research Unit at St. Thomas' Hospital Campus (KCL) she recently published a survey of 4,600 twins' attitudes towards assisted reproduction, gene selection, and human reproductive cloning (*Human Reproduction*, August 2007). Together with Ingrid Geesink (CESAGen Cardiff) and Sarah Franklin (BIOS, LSE) she is guest-editing two Special Issues on stem cell technologies for *Science as Culture*, to be published 2008. Barbara directs an international collaborative project on the global governance of genomics, funded by the Austrian Federal Ministry of Science & Research. She held Research Fellowships at the Department of Social Behavioral Sciences at UCSF, USA (spring 2002); at the ESRC Centre for Economic and Social Aspects of Genomics at Cardiff University, Wales, UK (winter 2006/07); and she was a Visiting Professor at the International Studies at Ramkhamhaeng University, Bangkok, Thailand (fall 2005). She is a member of the European Consortium of Political Research (ECPR) Standing Group of Theoretical Perspectives in Policy Analysis; a collaborating partner at the Global Biopolitics Research Group; and an Associate Member at the Centre for Prospective Regulation at the University of York, UK. She is a member of the Editorial Advisory Board of *Personalized Medicine*.

Genevra Richardson is Professor of Law at King's College London. In 1998-9 she chaired the Expert Committee established to advise ministers on the reform of mental health legislation. She is a member of the Council of the Medical Research Council and chairs the Ethics Policy Advisory Committee. She is also a member of the Steering Committee for the UK Stem Cell Bank and the UK representative on the Ethics working Party of the International Stem Cell Forum. She is a trustee of the Nuffield Foundation and a member of the Medical Humanities Strategy Committee at the Wellcome Trust. Her main research interests lie currently in the field of law and psychiatry and she is involved in a number of projects jointly with a team at the Institute of Psychiatry

Henry Rothstein is Deputy Director of the King's Centre for Risk Management at King's College London. His main research interests concern the institutional factors that shape the way that risk governance develops, works and fails within the public and private sectors and across policy domains. His publications include *The Government of Risk* (with Christopher Hood and Robert Baldwin, OUP: 2001), and numerous articles on risk regulation and its reform in journals such as *Economy & Society* and *Public Administration*. He has recently been awarded a research grant by DEFRA to examine risk in policy making.

Brian Salter is Professor of Politics of Biomedicine and Co-Director of CBAS at King's College London. A political scientist specialising in the analysis of public policy, he has studied the political forces at work in the policy arenas of education, health and, most recently, the life sciences. Here his work focuses on the global politics of new health technologies and the international governance issues surrounding the bioethics and regulatory policies of stem cell research. He has published numerous books and articles including *The new politics of medicine* (2004) and *The politics of change in the Health Service* (1998). Closely associated with his academic work is his role as policy adviser to government, funding agencies, professional and international bodies and his contribution as ethical adviser to the European Framework Six Programme.

Christopher Thomas Scott is Director of the Stanford University Program on Stem Cells in Society, a senior research scholar in the Center for Biomedical Ethics, and an Associate Fellow of CBAS, King's College London. He directs three courses on stem cell biology, teaching tracks on biology, policy and ethics. His research interests focus on the social, economic, political and ethical dimensions of regenerative medicine. His recent book, *Stem Cell Now: An Introduction to the Coming Medical Revolution* (2006 Penguin) clearly explains the science, ethics and politics of stem cell research to the lay reader. Scott was the former Assistant Vice Chancellor at the University of California, San Francisco (UCSF). At UCSF he led an array of units, including technology transfer, legal affairs, clinical research, and business development. Scott was a co-founder of Acumen Sciences, a research and consulting company based in San Francisco and the founding executive editor of the award-winning *Acumen Journal of Sciences*, a magazine focused on the business, economics and policy of life sciences. For nearly a decade Scott was a senior executive at Stanford University. As Associate Director of the Center

for Molecular Medicine, he worked with Nobel laureate Paul Berg to develop one of the nation's first translational medicine programs. He was the co-founder of ACCESS, a research unit devoted to clinical trials, directed corporate development, and directed the research grants portfolio for the medical center. He is one of only a handful of senior managers awarded for their contributions to Stanford's research enterprise. Scott is a committee member for the International Society of Stem Cell Research, and a member of the Center for Biomedical Ethics at Stanford. He is a past member of the Stanford Program in Genomics, Ethics & Society, the California Health Care Initiative, and the Bay Area Bioscience Center. He has been featured in national and local media coverage of these and other issues, including ABC, NBC, PBS, Time, US News and World Report, Boston Globe, The Atlantic Monthly, National Public Radio's Fresh Air, Talk of the Nation, TechNation, KQED's Perspectives & Forum, UPI and Fox News.

Silje Sivertsen is a PhD student at the Faculty of Social Science, University of Bergen, Norway and Research Fellow at The Rokkancentre for Social Studies. Her project 'National Moral Landscapes: The Politics of Stem Cells' is financed by The Research Council of Norway, and concentrates on cross national comparisons of political discourses about stem cell research. Her research tries to understand how although the scientific problems are mainly the same, the public and political debates have differed across national contexts. The project includes document analysis of parliamentary debates, ethics committee reports and regulatory frameworks in the US, UK, and Germany, and interviews with central actors in the political and scientific fields in these three nations.

Ben Sykes is currently the Coordinator for the newly-formed UK National Stem Cell Network (UKNSCN), a position he has held since October 2006. He was appointed to this position on the back of 13 years' experience in research programme management with the Biotechnology and Biological Sciences Research Council (BBSRC). This included (most recently) a three-year period as Senior Programme Manager to the Genes and Developmental Biology Committee during which time he held responsibility for the oversight of BBSRC's stem cell research portfolio alongside a number of policy roles in connection with this field. He holds an Honours degree in Applied Biology from Nottingham Trent University and is a member of the British Association for the Advancement of Science.

Steven Wainwright is Professor of Sociology of Medicine, Science & the Arts, and Co-Director of the Centre for Biomedicine & Society (CBAS), School of Social Science & Public Policy, King's College London. With Clare Williams, he has developed a new MSc in *Medicine, Science & Society*, which starts in 2007. His research focuses on two areas: the connections between Medical Sociology & Science Studies (especially new medical technologies); and the Sociology of the Arts (particularly the notion of embodied vulnerability in classical ballet, opera, and Romantic painting). He recently completed an ESRC study on stem cells and the bench-bedside interface (mapping stem cell innovation in action), and he is currently an ESRC Research Fellow, working on a qualitative research study of embryonic stem cell research (spaces of stem cell science). He is an Editor of the leading Sociology journal published in the UK: *Sociology of Health & Illness*.

Clare Williams is Professor of Social Science of Biomedicine and Co-Director of the Centre for Biomedicine & Society (CBAS), School of Social Science & Public Policy, King's College London. With Steven Wainwright, she has developed a new MSc in *Medicine, Science & Society*, which starts in 2007. Her research and writing focuses on the clinical, ethical and social implications of innovative health technologies, particularly from the perspective of health care practitioners and scientists. She currently holds two grants from the Wellcome Trust Biomedical Ethics Programme: on the experiences of staff working in PGD; and on ethical frameworks of embryo donation. She has recently completed an ESRC Stem Cell Initiative study on stem cells and translational research. Clare is on the Editorial Board of *Clinical Ethics* and is an Editor of *Sociology of Health & Illness*. She is the UK member of the European Science Foundation Committee which awards EU Framework networking grants, and panel member of the Department of Health National Institute for Health Research Personal Awards Scheme for Career Scientists and Postdoctoral Fellowships.