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BIOS OF MENTORS

Steven Badylak

Dr. Badylak is a Professor in the McGowan Institute for Regenerative Medicine at the University of Pittsburgh. His primary research interest involves the use of naturally occurring materials as biologic scaffolds for tissue engineering and regenerative medicine applications. Dr. Badylak has authored over 175 articles on this subject and has helped to commercialize several different biologic scaffold materials that have been used in more than 1 million human clinical patients. The identification of new biologic scaffold materials, the identification of processing methods that optimize the host:scaffold interaction, the molecular basis of host scaffold interaction, and the human clinical translation of these scaffolds remain the primary areas of research in the Badylak Laboratory. Dr. Badylak is a member of the Tissue Engineering and Regenerative Medicine International Society and is currently the North American Member-At-Large representative to the Society.

Alicia El-Haj

Prof. Alicia El Haj, holds a personal chair in Cell Engineering and is currently Research Director at the Institute for Science and Technology in Medicine which underpins the development of a new Medical School between Manchester and Keele Universities. She is a co-founder + Director of the spin-off company in regenerative medicine, MagneCell Ltd. Her research has helped to define our understanding of how the physical environment interfaces with the biological environment and how we can use this knowledge in a clinical environment. The research programmes of the 5 rated institute, located on hospital sites, is at the clinical interface with extensive programmes in developing new tissue engineering strategies for regenerative medicine. Alicia is well recognised as an expert in the field of connective tissue engineering and regenerative medicine funded by the BBSRC, EPSRC, Wellcome and EU with extensive publications in the field. She is President of the UK Cell and Tissue Engineering Society.

Jons Hilborn

Current Chaired Professor at Uppsala University where research focuses on design and synthesis of new polymer materials for in-vivo applications and modification of natural polymers and on exact design of self assembly systems inspired from nature or biology. Gels, porous materials and knitted fabrics provide scaffolds with compliance for 3D cell cultures. Current interest is the mechanical interaction between implant and tissue and its implications for fibrotic reactions. Applications are mainly found in soft tissue repair and regeneration in areas such as urology and cardiovascular but also cartilage, bone and neural tissue.

Peter Lelkes

Peter I. Lelkes is the Calhoun Chair Professor of Cellular Tissue Engineering in the School of Biomedical Engineering, Science and Health Systems at Drexel University in Philadelphia. In this position he directs an interdisciplinary program in tissue engineering and regenerative medicine, focusing on nanotechnology-based biomaterials and soft tissue engineering. In addition, Dr. Lelkes has been the team leader for tissue engineering at the Nanotechnology Institute of Southeastern Pennsylvania (NTI). Dr. Lelkes has published more than 120 peer-reviewed papers and 45 book chapters, and several books. In his 'free-time' he is an active musician and likes to hike in the mountains. For details see http://www.biomed.drexel.edu/faculty_pages/lelkes/

Mark Lewis

- Undergraduate studies in Biochemistry and Physiology at the University of Reading (1987-1990)
- MRC PhD studentship position at the Institute of Obstetrics and Gynaecology, Royal Postgraduate Medical School (University of London now Imperial College School of Medicine) (1990-1993) with Dr. Mark Sullivan and Dr. John White. Development of primary cell culture models of human

placental trophoblast from both 1st and 3rd trimester placentae. Models interrogated as regards cytokine influences on their behaviour, cell-cell interactions in 2D models, mesenchymal cell interactions, matrix remodelling, particularly by the MMP system and effects on cellular differentiation.

- Research Fellow in the Department of Medicine at University College London Medical School with Dr. Jill Norman and Prof. Leon Fine (1993-1995). This position enabled me to pursue 2D primary cell interactions between mesenchymal and epithelial cells, mechanisms of ECM remodelling and to begin to develop 3D culture systems. The themes were continued with a burgeoning interest in a particular event associated with wound healing (both cutaneous/oral and internal scarring), that is the differentiation of fibroblasts to myofibroblasts.
- Research Lecturer at the Eastman Dental Institute, University of London in December 1995 to develop the themes of craniofacial regeneration and repair (see below)
- Promoted to Senior Lecturer at UCL Eastman Dental Institute in July 2002
- Promoted to Reader in Cell Biology at UCL Eastman Dental Institute in July 2007

Current research: The research of my group falls within the remit of the Biomaterials and Tissue Engineering Division and aims to both understand the underlying biology of regeneration and repair events and to generate approaches for potential clinical intervention. We are particularly interested in the regeneration and repair of soft tissues involving the cellular response of myoblasts and fibroblasts and their interactions with their environment. This includes other cells (e.g. osteoblasts, keratinocytes), extracellular matrix and, highly topically, bioactive, biodegradable and biocompatible scaffolds for tissue engineering applications. My research now therefore follows the two general themes of repair (fibroblasts) and regeneration (skeletal muscle).

Sheila MacNeil

Sheila MacNeil is Professor of Tissue Engineering in the University of Sheffield. She leads a large multidisciplinary group focused on soft tissue engineering and biomaterials. Her group has successfully developed tissue engineered skin products (two of which are being developed through the spin out company CellTran Limited for details see www.celltran.co.uk) to benefit patients with severe burns and chronic wounds and also for the surgical treatment of vitiligo. She works extensively with clinical colleagues in the NHS in Burns and Plastics and in Dermatology and with academic colleagues in Chemistry and Engineering Materials and Computational Biology.

Ivan Martin

Ivan Martin graduated in electrical engineering, took a PhD in biomedical engineering (both degrees in Genova, Italy) and made a postdoc in the group of R. Langer at MIT. His interests in tissue engineering are related to the areas of bone, cartilage and bioreactors. In particular, he is interested in study the differentiation capacity of various mesenchymal cell types, all of human origin, and their response to biochemical, structural and physical factors. Ivan Martin also works towards the generation of bioreactor systems for the standardized and reproducible manufacture of engineered grafts.

Stephen Minger

Dr Stephen Minger is the Director of the Stem Cell Biology Laboratory and a Senior Lecturer in the Wolfson Centre for Age Related Diseases at King's College London.

In 2002, 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. 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. 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, mesenchymal and neural stem/progenitor cell populations, as well pancreatic beta-cells and oligodendrocyte progenitors. Dr Minger is also one of the co-organisers, together with Dr Chris Mason of UCL, 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, which recently won the 2006 ALPSP/Charlesworth Award for Best New Journal. Stephen is also the Stem Cell Expert and Member of the UK Gene Therapy Advisory Committee (GTAC) at the Department of Health.

Teruo Okano

Teruo Okano is Professor and Director of the Institute of Advanced Biomedical Engineering and Science at Tokyo Women's Medical University. His research interests currently involve the use of intelligent biomaterials for research applications in various fields such as tissue engineering, drug/gene delivery, green chromatography, microfluidics, and cell-based on-chip assays.

Richard Oreffo

Prof Richard Oreffo holds the chair of Musculoskeletal Science and is Director of Enterprise for the Faculty of Medicine Health and Life Sciences. He is co-founder of the Centre for Human Development, Stem Cells and Regeneration (www.stemcells.org.uk). Richard graduated from Liverpool and Oxford with degrees in Biochemistry and a DPhil in Bone Biology. After three years in San Antonio Texas, with Professor Greg Mundy working on Bone Remodeling, Richard returned to England to take up a post at Zeneca Pharmaceuticals in the emerging Bone group followed by an MRC fellowship at Oxford. In 1999, Richard was appointed to a lectureship at the University of Southampton and a personal chair in musculoskeletal science in 2004.

Richard leads a group focused on developing strategies to regenerate bone and cartilage using stem cell technology, gene/growth factors and innovative biomimetic scaffolds and self-assembling scaffolds (see www.mesenchymalstemcells.org) and ii) on elucidating the role of fetal programming as a consequence of maternal nutritional challenge on bone stem cell activity and bone function with ageing. He has published over 85 refereed papers and 20 contributed reviews/book chapters.

Gerjo van Osch

Gerjo van Osch studied Medical Biology and received a PhD in 1994 on mouse models for osteoarthritis. Thereafter she became involved in cartilage tissue engineering. Since 1995 she is working at Erasmus MC in Rotterdam. She is appointed as associated professor and co-heading a multidisciplinary research group that consists of approx. 20 researchers. The main focus of the research is pathogenesis and treatment of degenerative connective tissue disorders. Cell biology, mechanical engineering, molecular biology, histology and imaging are used in cell- and tissue culture as well as animal and clinical studies. The main focus of the research is controlling cellular phenotype and improving extracellular matrix tissue properties. She is a member of the TERMIS-EU council and actively involved in the International Cartilage Repair Society. She has organized the TERMIS-EU meeting in 2006.

Patrick Prendergast

Professor Prendergast obtained a BAI in 1987 and a PhD in 1991 both from the University of Dublin. Before joining the staff at Trinity College Dublin, he held post-doctoral positions at the Istituti Ortopedici Rizzoli, Bologna, Italy, and the University of Nijmegen, The Netherlands. On a sabbatical year in 2000, he was a Visiting Professor at the Institute of Fundamental Technological Research, Warsaw, Poland, and a Senior Research Fellow at the Technical University of Delft, The Netherlands. He is a Chartered Engineer and a Fellow of the Institution of Engineers of Ireland. He is member of the Editorial Boards of the *Journal of Biomechanics* (as Book Reviews Editor 2001-05, as Surveys Editor 2005), *Clinical Biomechanics*, *European Cells and Materials* (www.ecmjournals.org), *Journal of the Royal Society: Interface* (<http://www.pubs.royalsoc.ac.uk/interface>) and *Journal of Orthopaedics and Traumatology*. He was awarded the European Society of Biomechanics Research Award (now the Perren Award) in 1996 and Parsons Medal in Engineering Sciences from the Royal Irish Academy in 2003. He is past President (1998-2000) of the Section of Bioengineering of the Royal Academy of Medicine in Ireland and of the European Society of Biomechanics (2002-2004). He is currently President of the European Alliance of Medical and Biological Engineering Societies.

Heinz Redl

1974 – 1975	Research Assistant - Technical University Vienna, Institute for Technical Microscopy (Prof.Dr.Stachelberger)
1975 - 1983	Assistant Professor - Technical University Vienna, Institute for Technical Microscopy (Prof.Dr.Stachelberger)
1976 - to date	Consultant - Research Institute for Traumatology of AUVA (Austrian Workers Compensation Board) Vienna, Austria (Director: Prof.Dr.G.Schlag)
1978 - to date	Consultant Woundhealing/Fibrin Sealant, Baxter Bioscience/Biosurgery /Immuno AG
1980 - 1995	Research Scientist - Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna, Austria (Director: Prof.Dr.G.Schlag)
1982 - to date	Assoc. Prof. - Technical University Vienna, Institute for Technical Microscopy/Chemical Engineering (Prof.Dr.Stachelberger)
1995 - 1998	Deputy Director of the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna, Austria (Director: Prof.Dr.G.Schlag)
1998	Founder of Trauma Care Consult
1998 - to date	Director of the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology, Vienna, Austria

Rui L. Reis

Prof. Rui L. Reis is the Director of the 3B's Research Group – Biomaterials, Biodegradables and Biomimetics, a Research Unit of excellence based in U. Minho, Portugal. This is one of the most relevant groups in Europe on the field of Tissue Engineering and Regenerative Medicine. His group is one of the

most active and interdisciplinary in the field, going from work with stem cells and its differentiation and expansion up to the in-vitro and in-vivo assessment of the functionality of the developed constructs. He has well established cooperation work with major research groups and companies all over the world. At the present moment he is the co-coordinator of 4 major EU research projects, including the only *European Network of Excellence (NoE)* on Tissue Engineering: EXPERTISSUES. At the present he is the principal investigator (PI) of grants totalising around 30 MEuros. As a result of these projects he is presently an advisor of around 70 postgraduation researchers coming from all over the world (18 different nationalities) and also directs the work of 3 other faculty members. Prof. Rui L. Reis will head, as CEO, the new European Institute of Excellence on Tissue Engineering and Regenerative Medicine Research, with headquarters in Minho and branches in other 19 locations throughout Europe. Rui L. Reis has also been awarded several prestigious scientific prizes. He has edited several books and journal special issues, organized different meetings and symposiums, and is the Editorial Board of many different journals. He is the Editor in Chief of the new journal Tissue Engineering and Regenerative Medicine, John Wiley & Sons, that will start its publication in early 2007. Rui L. Reis is an author of more than 160 papers on scientific journals, around 100 book chapters in books of international circulation and more than 520 communications in conferences, including around 80 plenary or invited talks delivered worldwide.

Kevin Shakesheff

Kevin Shakesheff is Professor of Drug Delivery and Tissue Engineering at the University of Nottingham. He is Director of the interdisciplinary Centre for Biomolecular Sciences. His research focuses on the design of materials for clinical applications in regenerative medicine and for in vitro stem cell differentiation. He has established 2 spin-out companies, RegenTec Ltd and Critical Pharmaceuticals Ltd. Previously Kevin held fellowships at MIT and an EPSRC Advanced Fellowship at Nottingham.

Eva Sykova

Professor Eva Syková, M.D., Ph.D, D.Sc., was born in Czechoslovakia, received her M.D. from Charles University in Prague in 1970 and her Ph.D. from the Institute of Physiology of the Czechoslovak Academy of Sciences. In 1983 she became the Head of the Laboratory of Neurohumoral Regulations; in 1990 she became the Head of the Department of Neuroscience at the Institute of Experimental Medicine, Academy of Sciences of the Czech Republic (IEM ASCR). In 1996 she was also appointed Chairman of the Institute of Neuroscience at Charles University as the founder of that Institute. Since 2000 she has been Professor of Physiology and Head of the National Center for Cell Therapy and Tissue Repair. In 2001, she was elected as the Director of the IEM ASCR. The Institute was selected as an EU Centre of Excellence with Prof. Syková serving as Principal Coordinator.

The scientific interests of Professor Syková include basic and clinical research, namely ionic and volume changes in the CNS studied using ion-selective microelectrodes and NMR, the extracellular space as the microenvironment of nerve cells and a communication channel, the role of glial cells, the diffusion properties and mechanisms of many pathological states including ischemia, Parkinson's disease, Alzheimer's disease and tumors, spinal cord physiology, the use of biomaterials as tissue bridges, nanoparticles and nanofibres for stem cell imaging and as stem cell 3D carriers, and the role of stem cells in the rescue and replacement of damaged tissue.

Jeff Teumer

Jeff Teumer has focussed on research in keratinocyte and skin biology for the past 20 years, both in academia and industry. Currently, he is Director of Research at Intercytex's US branch in Boston where he leads the company's research in hair regeneration and facial rejuvenation. Previously, he was a Senior Scientist at Organogenesis where he directed a research program focussed on genetic modification of a human skin equivalent. In addition to cell culture experience, he has broad experience in molecular biology and gene transfer technology.

Robert Tranquillo

Prof. Tranquillo received his Ph.D. in Chemical Engineering in 1986 from the University of Pennsylvania. He was a NATO Postdoctoral Fellow at the Center for Mathematical Biology at Oxford for one year before beginning his appointment in the Department of Chemical Engineering & Materials Science at the University of Minnesota in 1987. He has served as the head of the new Department of Biomedical Engineering since its inception in 2000. Prof. Tranquillo has used a combined modeling and experimental approach to understand cell behavior, in particular, directed cell migration and cell-matrix mechanical interactions. More recently, his research program has focused on the role of cell behavior in cardiovascular and neural tissue engineering applications. His research has resulted in 70 peer-reviewed publications. Prof. Tranquillo is a Fellow of the American Institute of Medical and Biological Engineering and the Biomedical Engineering Society, and a Distinguished McKnight University Professor.