Curriculum vitae

Prof. Majlinda Lako

Short Summary	
Full name and title	Prof. Majlinda Lako
School/Institute	Newcastle University, UK
Title of current appointment	Prof. of Stem Cell Sciences
Date of birth:	28.05.1970
Marital status:	Married - two children aged nine and four years old
EDUCATION/QUALIFICATION	
BSc(Hons)	August 1992: Graduated with First Class Honours, University of Tirana, Albania
MSc	December 1993: MSc in Environmental Sciences, University of Manchester, UK
PhD	April 1998: PhD in Human Genetics, University of Newcastle, UK
APPOITMENTS HELD	
03/1994 – 09/1998	Junior Research Associate, Department of Human Genetics, Newcastle University
09/1998 – 01/2003	Senior Research Associate, Department of Biological Sciences, Durham University
02/2003 – 10/2004	Lecturer in Stem Cell Biology, Newcastle University
11/2004 – 07/2008	Senior Lecturer in Stem Cell Biology, Newcastle University
08/2008 - 07/2009	Reader in Stem Cell Biology, Newcastle University
09/2009 - 09/2010	Sabbatical leave at Centro de Investigacion Principe Felipe, Valencia, Spain
MEMBERSHIPS	
2002 to date	Member of the Society for Developmental Biology
2003 to date	Member of the International Society for Stem Cell Research
PARTICULAR ACHIEVEMENTS	
Responsibilities in current employment	-Research – My group's research is focused on three key stem cell areas, namely: (*i*) understanding of self renewal in human pluripotent stem cells; (*ii*) generation of functional and transplantable blood cells from human pluripotent stem cells and (*iii*) clinical translations of our basic biology studies to treat corneal and retinal blindness. (*i*) Our studies in this area have largely concentrated on understanding of cell cycle regulation in human pluripotent stem cell as well as the role of pluripotency network and signalling pathways and how these underpin the maintenance of pluripotent phenotype and maintenance of genomic stability. These studies have resulted in several peer review manuscripts which have been published in *Hum. Mol. Genet. Oncogene, J. Cell Biology* and *Stem Cells.* In the last two years we have initiated a large number of miRNA and proteomic studies with the aim of understanding factors that regulate G1 to S transition in human pluripotent stem cells and their role in maintenance and induction of

pluripotency. One of the most fascinating aspects of stem cell development in the last four years has been induction of pluripotency in differentiated cells. My group in collaboration with Dr Lyle's Armstrong's group has now established more than 100 iPSC lines using various integrative and non integrative methods. These cell lines are being used in various comparative studies of pluripotency and differentiation. Most importantly we have combined this technology with our established haematopoietic differentiation methods to initiate disease modelling in patients diagnosed with *Ligase IV, XLF* deficiency and *Fanconi* anaemia. These disease models link directly to our studies of cell cycle regulation and DNA repair and are giving us some interesting insights on the role of DNA repair pathways during induction of pluripotency which we intend to pursue in the next thre years.

(*ii*) Over the last 5 years we have been to establish a very efficient model of human ESC differentiation to haematopoietic lineages which results in long term multi-lineage haematopoietic engraftment into immunocompromised recipients at levels higher (16.26%) than described previously (paper was published by *Cell Stem Cell and accompanied by two commentaries one in Cell Stem Cell and one in Nature Reports Stem Cells*). Using this differentiation model, we have established a transcriptional network which we are using to understand the role of key transcription factors that govern not just haematopoietic differentiation from human pluripotent stem cells, but also lineage specification to red and white blood cells.

(*iii*) A cornerstone of our work has been the clinical implementation of corneal stem cell therapy in patients with limbal stem cell deficiency. Work carried out in my group in collaboration with Mr Figueiredo, Dr Kolli and Dr Ahmad has resulted in definition of a GMP compatible culture system for expansion of limbal epithelial cells which can be transplanted into patients with unilateral limbal stem cell deficiency. In the last four years, eight patients have been transplanted successfully and now have a greatly improved vision and quality of life. This is the first example of corneal transplantations in the UK carried out in the absence of any animal derived ingredients. Funded by the MRC TSCRB, we will pursue these transplants in a larger number of patients. In parallel to this program, my group has been pursuing differentiation of human pluripotent stem cells to rod and cone photoreceptors using GMP acceptable protocols. We have established an efficient differentiation system that achieves higher efficiency in a shorter time window than published studies. Our current efforts are concentrated on testing whether the human pluripotent stem cell derived cone and rod photoreceptors do engraft and contribute to restoration of vision in animal models of retinal degeneration. Using our iPSC expertise, we have been able to establish hiPSC from retinitis pigmentosa patients which we intend to subject to gene correction using zinc finger nuclease technology. With the same technology we are also trying to target reporter genes to key retinal factors that control rod and cone commitment, thus enabling us to track their emergence during differentiation process and initiate studies of their transcriptome and proteome.

- Postgraduate Supervision – Since 2003, I have been the Primary Research Supervisor to 7 PhD, one Mphil, sixteen postdoctoral fellows, four MRes students and three technicians. Members of my group (Dr Ahmad and Dr Choudhary) have been invited to present their work at the House of Commons, Westminster as part of National Science Week as well as been awarded travel scholarships (Dr Mellough, Dr Collin and Dr Tilgner) to present in international meetings. In addition, two former members of my group (Dr Hyslop and Dr Choudhary) have been awarded the "first and second poster

	award prize" at the annual School Research days. I have acted as secondary Research Supervisor for seven other PhD students with whom I have engaged on regular basis. -Lecturing & administration – Selected research lectures to MSc in Human Genetics, MRes in Stem Cell Sciences, MRes in Transplantation, BSc degree in Biomedical Sciences. During the past 4 years I have also supervised two BSc and four MRes project students. - Third Strand and Income Generation activities – Some of my group's work has been funded by commercial collaborations with BD Biosciences and Stem Cell Technologies. Two patents on our work on human embryonic stem cells have already been filed. - Infrastructure – I have been heavily involved in planning and establishing the new facility for human pluripotent stem cell research and somatic cell nuclear transfer at the Institute of Human Genetics. I have played a major role in recruitment of senior members of staff and setting up of the flow cytometry core facility. - Communication – Our contribution to the field has been reported in more than 250 articles in national and international newspapers, radio interviews and public lectures. My group engages in communication with schools as parts of the Science week, the wide public (Stem Cell Weekend) and PEALS to ensure best dissemination of our results.
Governmental work – UK	-Person responsible for the licence to HFEA to perform interspecies nuclear transfer , licence number R0179A.
Editorial Board	-Associate Editor for Regenerative Medicine (January 2005 to December 2007) -Associate Editor for Stem Cells (February 2008 to date)
Panel Member	- Member of Connecticut Stem Cell Review Scientific Panel (October 2007 to present) - Member of the CGD Scientific Panel (January 2005 to present) - Member of the French National Research Agency grant review panel (January 2010 to date)
Manuscript Peer Reviewer	-(i) Stem Cells; (ii) Oncogene; (iii) Mechanisms of Development; (iv) Genome Biology; (v) Regenerative Medicine; (vi) Human Reproduction; (vii) Biology of Reproduction; (viii) Cloning and Stem Cells; (ix) Stem Cells and Development; (x) Human Molecular Genetics, (xi) Nature Methods; (xii) Cancer Research; (xiii) Nat. Methods.
Grant Reviewer	-(i) Wellcome Trust UK, (ii) Leukaemia and Lymphoma Research Fund UK; (iii) BBSRC UK; (iv) MRC UK; (v) Singapore A Star; (vi) Cancer Research UK; (vii) Inserm France; (viii) Fight for Sight UK; Rhode Island National Agency, USA.
Examiner	- (i) External PhD examiner, Durham, UCL, Sheffield and Edinburgh University; (ii) Internal PhD examiner, Newcastle University
Awards and Selected invitations	

2011	Invited speaker Vascular Regenerative Medicine conference, Bristol, January 2011
2011	Selected International reviewer for the Academy of Czech sciences for the five year review of Institute of Regenerative Medicine, Prague
2010	Invited speaker at the Serbian Annual Regenerative Medicine Conference, Belgrade, October 2010
2010	Invited speaker at the Institute of Metabolic Sciences, Univ. Cambridge, May 2010
2010	Invited speaker at UK Fanconi Research conference, May 2010
2010	Invited speaker at CIEMAT research day, April 2010, Madrid, Spain
2010	Invited Speaker at CABIMER research day January 2010, Seville
2009	Invited speaker at the Molecular Haematology meeting, London 2009
2009	Invited speaker at the Spanish gene therapy congress, Granada, October 2009
2009	Invited speaker at the stem cell symposium, Kragujevac Serbia, September 2009
2009	Invited speaker and winner of the anniversary award at FEBS 2009 International Congress, Prague July 2009
2009	Invited speaker at the "Human Embryonic Stem Cells-progress towards Cell Therapy" 8th Annual Symposium, Sheffield July 2009
2009	Invited Speaker at the IOIS Congress, Prague May 2009
2009	Invited Speaker at the UKSCN annual meeting, Cambridge, April 2009
2009	Invited Speaker at the Spanish British Stem Cell Meeting, March 2009, London
2008	Invited speaker at MRC Molecular Haematology Unit, Weatherall Institute of Molecular Medicine John Radcliffe, 25th November
2008	Invited speaker at Andalucian Stem Cell Bank Research Day, 2nd December
2008	Invited Speaker at the International Symposium "The adult stem/progenitor cell niche" Brussels, 13-15th March
2007	Invited to act as Scientific Director for the UK-USA Stem Cell Workshop, 29-31st January
2007	Invited speaker, New Tufts Medical Centre Research Day, USA, 15th October
2002, 2006	Invited to present research at the House of Commons, Westminster as part of National Science Week.
2006	Invited Speaker NATO Stem Cell Meeting, Ukraine 26-31st August
2005	Invited Speaker at the Hannover and Bonn Medical School, Germany April
2004	Invited Speaker, Gordon Conference on the Biology of Ageing, France 1st September

2004	Invited Speaker, MRC User and Clinical Liaison Committee, London 18th May

Publications

A – Authored Books

1. Armstrong L and Lako M (2007) Extraembryonic cell differentiation. Embryonic stem cells (editor John Masters et al.) Chapter 10: 173-186.
2. Ahmad S, Lako M, Figueiredo FC and Kolli S (2007) Limbal stem cell deficiency and its management: from lab to limbus. Stem Cell Applications in Diseases (Editor Frank Columbus; publisher: Nova Science Publishers).
3. Kolli S, Lako M, Figueiredo FC and Ahmad S (2009) Corneal epithelial stem cells and their therapeutic application. Humana Press, Chapter 18. Book ID 157588.

B –MOST IMPORTANT PUBLICATIONS

1. Neganova I, Vilella F, Atkinson S, Lloret M, Passos J, von Zglincki T, O'Connor JE, Burks D, Jones R, Armstrong L and Lako M (2010) An important role for CDK2 in G1 to S checkpoint activation and DNA damage response in human embryonic stem cells. *Stem Cells* (under review).
2. Collin J and Lako M (2010) Putting a finger on stem cell biology: Zinc finger nuclease driven targeted genetic editing in human pluripotent stem cells. *Stem Cells* (under review).
3. Yang C, Atkinson SP, Vilella F, Lloret M, Armstrong L, Mann DA and Lako M (2010) Opposing putative roles for canonical and noncanonical NFKB signalling on the survival, proliferation and differentiation potential of human embryonic stem cells. *Stem Cells* (*in press*).
4. Moreno-Gimeno I, Ledran MH and Lako M (2010). Haematopoietic differentiation from human ESC as a model for developmental studies and future clinical translations. *FEBS J* (*in press*).
5. Stojkovic M, Pittenger MF, Nolta JA, Lako M, Lappin TR, Murphy MJ Jr (2010) Stem Cells' position statement on hESC research. *Stem Cells* 28:1A.
6. Lako M, Armstrong L and Stojkovic M (2010) Induced pluripotent stem cells: it looks simple but can looks deceive? *Stem Cells* 28: 845-50.
7. Armstrong L, Tilgner K, Saretzki G, Atkinson SP, Stojkovic M, Moreno R, Pryzborski S and Lako M (2010) Human induced pluripotent stem cell lines show similar stress defence mechanisms and mitochondrial regulation to human embryonic stem cells. *Stem Cells* 28:661-73.
8. Kolli S, Ahmad S, Lako M and Figueiredo FC (2010) Successful clinical implementation of corneal epithelial stem cell therapy for treatment of unilateral limbal stem cell deficiency. *Stem Cells* 28:597-610.
9. Tilgner K, Atkinson SA, Yung S, Golebiewska A, Stojkovic M, Moreno R, Lako M and Armstrong L.(2010) Expression of GFP under the control of the RNA helicase VASA permits FACS isolation of human primordial germ cells at different stages of development. *Stem Cells* 28: 84-92.

10. Zhang X, Neganova I, Pryzborski S, Yang C, Cooke M, Atkinson SP, Anyfantis G, Fenyk S, Keith WN, Hoare SF, Hughes O, Strachan T, Stojkovic M, Hinds PW, Armstrong L and Lako M. (2009) A role for NANOG in G1 to S transition in human embryonic stem cell through direct binding of CDK6 and CDC25A. *J. Cell Biol*. 184:67-82.
11. Neganova I, Zhang C, Atkinson S and Lako M (2009) Expression and functional analysis of G1 to S regulatory components reveals an important role for CDK2 in cell cycle regulation in human embryonic stem cells. *Oncogene* 28:20-30.
12. Ledran MH, Krassowska A, Armstrong L, Dimmick I, Renstrom J, Lang R, Yung S, Santibanez-Coref M, Dzierzak E, Stojkovic M, Oosterndorp RAJ, Forrester L and Lako M (2008) Efficient haematopoietic differentiation of human embryonic stem cell on stromal cells derived from hematopoietic niches. *Cell Stem Cell* 3:85-98.
13. Maimets T, Neganova I, Armstrong L and Lako M (2008) Activation of p53 by nutlin leads to rapid differentiation of human embryonic stem cells. *Oncogene* 27:5277-87.
14. Yang CB, Pryzborski Sm Cooke MJ, Zhang X, Stewart R, Anyfantis G, Atkinson SP, Saretzki G, Armstrong L and Lako M (2008) A key role for telomerase reverse transcriptase unit (TERT) in modulating human ESC proliferation, cell cycle dynamics and in vitro differentiation. *Stem Cells* 26:850-863.
15. Saretzki G, Walter T, Atkinson SA, Passos JF, Bareth B, Keith WN, Stewart R, Hoare S, Stojkovic M, Armstrong L, von Zglinicki T and Lako M (2008) Down-regulation of multiple stress defence mechanisms during differentiation of human embryonic stem cells. *Stem Cells* 26: 455-464.
16. Ahmad S, Kolli S, Li DQ, de Paiva CS, Pryzborski S, Dimmick I, Armstrong L, Figueiredo FC and Lako M. (2008) A putative role for RHAMM/HMMR as a negative marker of stem cell containing population of human limbal epithelial cells. *Stem Cells* 26:1609-19.
17. Choudhary M, Zhang, X, Stojkovic P, Hyslop L, Anyfantis G, Herbert M, Murdoch AP, Stojkovic M and Lako M (2007) Putative role of hyaluronan and its related genes, HAS2 and RHAMM in human early preimplantation embryogenesis and embryonic stem cell characterisation. *Stem Cells* 25:3045-3057.
18. Ahmad S, Stewart R, Yung S, Kolli S, Armstrong L, Stojkovic M, Figueiredo F, Lako M. (2007) Differentiation of human embryonic stem cells into corneal epithelial like cells by in vitro replication of the corneal epithelial stem cell niche. *Stem Cells* 25:1145-1154 (*May issue, front cover*).
19. The International Stem Cell Initiative: Adewumi O, Aflatoonian B, Ahrlund-Richter L, Amit M, Andrews PW, Beighton G, Bello PA, Benvenisty N, Berry LS, Bevan S, Blum B, Brooking J, Chen KG, Choo AB, Churchill GA, Corbel M, Damjanov I, Draper JS, Dvorak P, Emanuelsson K, Fleck RA, Ford A, Gertow K, Gertsenstein M, Gokhale PJ, Hamilton RS, Hampl A, Healy LE, Hovatta O, Hyllner J, Imreh MP, Itskovitz-Eldor J, Jackson J, Johnson JL, Jones M, Kee K, King BL, Knowles BB, Lako M, Lebrin F, Mallon BS, Manning D, Mayshar Y, McKay RD, Michalska AE, Mikkola M, Mileikovsky M, Minger SL, Moore HD, Mummery CL, Nagy A, Nakatsuji N, O'brien CM, Oh SK, Olsson C, Otonkoski T, Park KY, Passier R, Patel H, Patel M, Pedersen R, Pera MF, Piekarczyk MS, Pera RA, Reubinoff BE, Robins AJ, Rossant J, Rugg-Gunn P, Schulz TC, Semb H, Sherrer ES, Siemen H, Stacey GN, Stojkovic M, Suemori H, Szatkiewicz J, Turetsky T, Tuuri T, van den Brink S, Vintersten K, Vuoristo S, Ward D, Weaver TA, Young LA, Zhang W. (2007) Characterization of human embryonic stem cell lines by the International Stem Cell Initiative. *Nat. Biotechnol.* 25: 803-816. IF 22.7; Input 5%.
20. Armstrong L, Hughes O, Young S, Hyslop L, Stewart B, Wappler I, Peters H, Walter T, Stojkovic P, Evans J, Stojkovic M and Lako M. (2006) The role of PI3K/AKT,

MAPK/ERK and NFkB signalling in the maintenance of human embryonic stem cell pluripotency and viability highlighted by transcriptional profiling and functional analysis. *Hum. Mol. Genet*. 15:1894-1913.

C- Full details of all other publications over the last six years

1. Mellough CB, Hughes O, Sernagor E, Steel D and Lako M (2010) Retinal stem cell therapy for the treatment of macular degeneration. *Annual Congress of Sircova Opthalmic Res*. 44:57-80.
2. Wanisch K, Boza-Moran MG, Tilgner K, Yang C, Neganova I, Armstrong L, Lako M, Tizzano E, Yanez-Munoz RJ. (2010) Human induced pluripotent stem cell derived models for the study of spinal muscular atrophy. *Human Gene Therapy* (*in press*).
3. Christie VB, Maltman DJ, Henderson AP, Whiting A, Marder TB, Lako M and Pryzborski S (2010) Retinoic Acid supplementation of differentiating human neural progenitors and embryonic stem cells leads to enhanced neurogenesis in vitro. *J. Neuroscience Methods* 193:239-45.
4. Chen A, Siow B, Blamire AM, Lako M and Clowry GJ (2010) Transplantation of magnetically labelled mesenchymal stem cells in a model of perinatal brain injury" *Stem Cell Res* 28:1915-7.
5. Mellough C, Steel D and Lako M (2009) Genetic basis of inherited macular dystrophies and implications for stem cell therapy. *Stem Cells* 27: 2833-45.
6. Golebiewska A, Atkinson S, Lako M and Armstrong L (2009) Epigenetic landscaping during differentiation of human ESC to neural lineages. *Stem Cells* 27:1298 –1308.
7. Tilgner K, Atkinson SP, Golebiewska A, Stojkovic M, Lako M, Armstrong L. (2009) Isolation of primordial germ cells from differentiating human embryonic stem cells. *Stem Cells* 26:3075-3-85.
8. Lako M and Daher S (2009) Balancing work and Life: finding our inspirations. *Stem Cells* 27:761.
9. Lako M, Neganova I and Armstrong L (2009) G1 to S transition and pluripotency: two sides of the same coin? *Cell Cycle* 8:1108-09
10. Neganova I and Lako M (2008) G1 to S phase cell cycle transition in somatic and embryonic stem cells. *Journal of Anatomy* 213: 30-44.
11. Gorelik J, Ali NN, Sheikh Abdul Kadir SH, Lab M, Stojkovic P, Armstrong L, Sviderskaya EV, Negulyaev YA, Klenerman D, Bennett DC, Lako M, Harding SE, Stojkovic M, Korchev YE. (2008) Non-invasive Imaging of Stem Cells by Scanning Ion Conductance Microscopy: Future Perspective. *Tissue Eng Part C Methods.* 14(4):311-318.
12. Stewart R, Yang C, Anyfantis G, Przyborski S, Hole N, Strachan T, Stojkovic M, Keith WN, Armstrong L and Lako M (2008). Silencing of the expression of pluripotent-driven reporter genes stably transfected into human pluripotent cells. *Regen. Med.* 3:505-522.
13. Atkinson S, Koch CM, Clelland GK, Wilcox S, Fowler JC, Stewart R, Lako M, Dunham I and Armstrong L (2008) Epigenetic marking prepares the human HOXA cluster for activation during differentiation of pluripotent cells. *Stem Cells* 26:1174-1185.
14. Gautrey H, McConnell J, Lako M, Hall J, Hesketh J. (2008) Staufen1 is expressed in preimplantation mouse embryos and is required for embryonic stem cell differentiation. *Biochim Biophys Acta* 1783: 1935-42.
15. Kolli S, Lako M, Figueiredo F, Mudhar H, Ahmad S. (2008) Loss of corneal epithelial stem cell properties in outgrowths from human limbal explants cultured on intact amniotic membrane. *Regen Med*. 3:329-42.
16. Zhang X, Stojkovic P, Przyborski S, Cooke M, Armstrong L, Lako M, Stojkovic M.

(2006) Derivation of human embryonic stem cells from developing and arrested embryos. *Stem Cells* 24:2669-2776.

17. Armstrong L and Lako M (2006) The future of human nuclear transfer. *Stem Cell Reviews* 2:351-358 (invited review).
18. Ahmad S, Figueiredo F, and Lako M. (2006) Corneal epithelial stem cells: characterisation, culture and transplantation. *Regenerative Medicine* 1:29-44 (invited review).
19. Stewart S, Stojkovic M and Lako M (2006) Mechanisms of self-renewal in human ES cells. *European Journal of Cancer;* 42:1257-72 (invited review).
20. Armstrong L, Lako M, Dean W, Stojkovic M. (2006) Epigenetic Modification is Central to Genome Reprogramming in Somatic Cell Nuclear Transfer. *Stem Cells* 24:805-14.
21. Hyslop LA, Stojkovic M, Armstrong L, Walter T, Stojkovic P, Pryzborski S, Herbert M, Murdoch A, Strachan T and Lako M. (2005) Donwregulation of NANOG results in differentiation of human ES cells to extraembryonic lineages. *Stem Cells* 23: 1035-1048.
22. Armstrong L, Saretzki G, Peters H, Wappler I, Evans J, Hole N, von Zglinicki T and Lako M (2005) Overexpression of *Tert* results in enhanced proliferation of murine ES cells, protection from oxidative stress and commitment to haematopoietic lineages. *Stem Cells* 23:516-29.
23. Stojkovic P, Lako M, Pryzborski S, Stewart R, Armstrong L, Evans J and Stojkovic M (2005) Human serum matrix supports undifferentiated growth of human ES cells. *Stem Cells* 23:895-902.
24. Stojkovic P, Lako M, Armstrong L, Murdoch A, Strachan T and Stojkovic M (2005) Autogeneic feeder system efficiently supports growth of undifferentiated human embryonic stem cells. *Stem Cells* 25:306-314.
25. Stojkovic M, Stojkovic P, Leary C, Hall VJ, Armstrong L, Herbert M, Nesbitt M, Lako M and Murdoch A (2005) Derivation of a human blastocyst after heterologous nuclear transfer to donated oocytes. *Reprod Biomed Online*. 11:226-31.
26. Emanueli C, Lako M, Stojkovic M, Madeddu P (2005) In search of the best candidate for regeneration of ischemic tissues: are embryonic/fetal stem cells more advantageous than adult counterparts? *Thromb Haemost.* 94:738-49.
27. Stewart R, Lako M, Horrocks GM, Przyborski SA (2005) Neural development by transplanted human embryonal carcinoma stem cells expressing green fluorescent protein. *Cell Transplant.* 14:339-51.
28. Hyslop LA, Stojkovic M and Lako M. (2005) Human embryonic stem cell biology and clinical implications. *Expert reviews in Molecular Medicine* 7:-21 (Invited review)
29. Armstrong L, Stojkovic M, Dimmick I, Ahmad S, Stojkovic P, Hole N and Lako M (2004) Phenotypic characterization of murine haematopoietic progenitors on the basis of aldehyde dehydrogenase activity. *Stem Cells*: 22:1142-1151.
30. Stojkovic M #, Lako M#, Stojkovic P, Stewart R, Przyborski S, Armstrong L, Evans J, Herbert M, Hyslop L, Ahmad S, Murdoch AP, Strachan T. (2004) Derivation of human embryonic stem cells from Day 8 blastocysts recovered after three-steps *in vitro* culture. *Stem Cells:* 22:790-7 (# Note: Drs Lako and Stojkovic made equal contribution to the conception of the study and writing up of the manuscript).
31. Armstrong L #, Lako M #, Von Herpe I, Saretzki G and Hole N (2004) A role for nucleoprotein Zap3 in reduction of telomerase activity during embryonic stem cell differentiation. *Mech. Dev 121:*1509-1522 (# Drs Lako and Armstrong made equal contribution to the conception of the study and writing up of the manuscript).
32. Saretzki G, Armstrong L, Leake A, Lako M and Zglinicki T (2004) Stress defence in

embryonic stem cells is superior to that of differentiated cells. *Stem Cells* 22:962-971.

33. Stewart R, Coyne P, Lako M, Halliwell RF, Przyborski SA (2004). Human embryoncal carcinoma stem cells expressing green fluorescent protein form functioning neurons in vitro: a research tool for co-culture studies. *Stem Cells and Development* 13:646-657.
34. Stojkovic M, Lako M, Strachan T and Murdoch A. (2004) Derivation, growth and applications of human embryonic stem cells. Review article. *Human Reproduction* 128:259-67.

D – Publications arising during my work as Associate Editor for Stem Cells

1. Lako M, Trounson A and Daher S (2010 Law, ethics, religion and clinical translation in the 21st century – a conversation with Cinzia Rota. *Stem Cells* (*in press*).
2. Lako M, Trounson A and Daher S (2010 Law, ethics, religion and clinical translation in the 21st century – a conversation with Il-Hoan Oh. *Stem Cells* (*in press*).
3. Lako M, Trounson A and Daher S (2010 Law, ethics, religion and clinical translation in the 21st century – a discussion with Stephan Bellamy. *Stem Cells* (*in press*).
4. Lako M, Trounson A and Daher S (2010 Law, ethics, religion and clinical translation in the 21st century – a conversation with Andrew Webster. *Stem Cells* 28:1915-7.
5. Lako M, Trounson A and Daher S (2010 Law, ethics, religion and clinical translation in the 21st century – a discussion with John Sinden. *Stem Cells* 28: 3-4.
6. Lako M and Daher S (2009) Balancing work and Life: a conversation with Marella de Bruijn. *Stem Cells* 27:1471-1472.
7. Lako M and Daher S (2009) Balancing work and Life: a conversation with George Daley. *Stem Cells* 27:1469-1470.
8. Lako M and Daher S (2009) Balancing work and Life: a conversation with Konrad Hochedlinger. *Stem Cells* 27:991-992.
9. Lako M and Daher S (2009) Balancing work and Life: a conversation with Sean Morrison. *Stem Cells* 27:1229-1230.
10. Lako M and Daher S (2009) Balancing work and Life: a conversation with Margaret Goodell. *Stem Cells* 27:1227-1228.
11. Lako M and Daher S (2009) Balancing work and Life: a conversation with Barbara Knowles. *Stem Cells* 27:989-990.

E – Summary of all other publications

First author research papers	6
Last and corresponding author research paper	1
Second author research paper	2
Third author research paper	1
First author review	1

Research Income (2003 to date)

Full title	Name of organisation	P principal Investigator (PI) or co-applicant	Size and duration of funding
Generation of disease models for Fanconi Anaemia using pluripotent stem cells	Leukaemia and Lymphoma Research, UK	PI	1.01.2011-31.12.2011 £ 75,928
Establishment of induced pluripotent stem cell derived cardiomyocyte lines for the investigation of hypoplastic left heart syndrome	Newcastle Health Charity, UK	Co-applicant	1.01.2011-31.12.2011 £ 50,000
Transplantation of human embryonic stem cell and human induced pluripotent stem cell derived photoreceptors into *Crx*$^{-/-}$, *Prph2*$^{Rd2/Rd2}$ and *rd1 mice*	Fight for Sight Research, UK	PI	1.09.2010-31.08.2012 £136, 000
Enhancing and understanding of hESC/hiPSC differentiation to retinal and haematopoietic lineages	Conselleria de Sanidad (Generalitat Valenciana), and the Instituto de Salud Carlos III (Ministry of Science and Innovation), Spain	PI (sabbatical fellowship)	1.09.2009-31.12.2010 € 1,000,000
Investigating haematopoietic development in Ligase IV and XLF patients using induced pluripotent stem cells	LRF, UK	PI	£166,000 1.04.2009-31.03.2012
Mimicking CGD disease using iPSC technology	CGD Trust, UK	Co- applicant	£ 100,000 1.05.2010- 30.04.2012
To evaluate the effectiveness of cultured human limbal epithelium for the treatment of limbal stem	MRC, UK	Co-applicant	£ 1,206,606

cell deficiency			1.09.2009-31.08.2012
Using iPSC technology to understand early haematopoietic development in FA patients	Fanconi Anaemia Research Fund, USA	PI	£ 50,000 1.12.2009-31.08.2010
The use of induced pluripotent stem cell derived cardiac myocytes to study the cellular mechanisms of genetic arrhythmias in man	Manchester Biomedical Research Centre, UK	Co-applicant	£ 60,000 1.01.2010-31.12.2010
Development of a non-integrating lentiviral vector system for generation of induced pluripotent cell lines from adult and neonatal human fibroblasts	MRC/BBSRC, UK	PI	£62,500 1.07.2008-31.03.2009
Creation of iPSC from hair dermal cells	MRC/BBSRC, UK	Co-applicant	£62,500 1.06.2008-31.03.2009
Inducing pluripotency in skin cells	The Sir James Knott Trust, UK	Co-applicant	£60,000 1.01.2008-31.12.2008
X-ray research irradiation system	BBSRC, UK	Co-applicant	£141,849 1.01.2008-31.12.2008
State of the art multi color flow cytometry for stem cell biology	BBSRC, UK	PI	£ 250,000 1.04.2007-31.03.2008
Ex vivo expansion and differentiation of retinal and limbal progenitor cells for treatment of retinal disorders	Newcastle Health Charity, UK	PI	£ 49,000 1.01.2008-31.12.2008
Establishment of new stem cell laboratories at Newcastle University	OneNorth East Regional Developmental Agency	Co-applicant	£ 2,500,000 1.01.2005-31.12.2005
Impacts of TERT expression on the characteristics of human ES cells	BBSRC,UK	PI	£ 340,000 1.10.2004-30.09.2007

Towards establishing clinical grade human ES cell lines	MRC,UK	PI	£ 210,000 1.10.2005-30.09.2008
Investigation of the haematopoietic differentiation of human ES cells	LRF,UK	PI	£ 146,000 1.08.2005-31.07.2008
Investigation of the role of Zap3 in normal and neoplastic haematopoiesis	LRF,UK	Co-applicant	£ 127,000 1.01.2006-30.12.2008
Avoiding conflict of interest between IVF and research scientists in human Embryonic stem cell derivation	MRC,UK	Co-applicant	£ 250,000 1.06.2004-31.05.2007
Ex vivo expansion of corneal limbal stem cells for transplantation	Newcastle Health Charity, UK	PI	£ 50,000 1.01.2005-31.12.2005
The characterization and culture of limbal stem cells suitable for clinical transplantation	Newcastle Health Charity, UK	PI	£ 50,000 1.06.2003-31.12.2004

Postgraduate Supervision (2003 to date)

Name of postdoctoral fellows	Start Date – End Date	Project	Source of funding
Dr Louise Hyslop	1.6. 2003 - 31.12.2005	The role of NANOG in maintenance of pluripotency in human ESC	One North East Regional Developmental Agency, UK
Dr Maria Ledran	1.10.2006- 31.07.2008	*In vivo* investigation of haematopoietic differentiation of human embryonic stem cells	LRF, UK (04043)
Dr Rebecca Stewart	1.10.2004 - 31.09.2007	Applications of pluripotent gene promoter-reporter strategy for cell selection in human ESC	BBSRC, UK (BBS/B/14779)
Dr Nicholas Slater	1.06.2005- 31.12.2007	The role of *SCL* on the haematopoietic differentiation of human ESC	One North East Regional Developmental Agency, UK
Dr Chunbo Yang	1.04.2006- 31.10.2008	Impacts of TERT expression on the characteristics of human ESC	BBSRC, UK (BBS/B/14779)
Dr Katarzyna Tilgner	1.07.2008- 31.03.2009	Development of a non-integrating lentiviral vector system for generation of induced pluripotent cell lines from adult and neonatal human fibroblasts	MRC, UK
Dr Katarzyna Tilgner	1.04.2009- 31.03.2012	Investigating early haematopoietic development in Ligase IV	LRF, UK (09005)

		and XLF patients using iPSC technology	
Dr Irina Neganova	1.01.2006 – to date	Cell cycle regulation and maintenance of pluripotency in human ESC	Newcastle University
Dr Carla Mellough	1.01.2008 – 31.08.2010	Optimising photoreceptor differentiation from human ESC	Newcastle Health Charity (BH064124) and Newcastle University
Dr Carla Mellough	1.09.2010-31.08.2012	Testing of *in vivo* engraftment of hESC derived photoreceptor cells	Fight for Sight, UK
Dr Felipe Vilella	1.10.2009-31.12.2010	DNA damage response in hESC	Reg Medicine programme, CIPF, Spain
Dr Sun Yung	1.10.2009-31.12.2010	Haematopoietic differentiation of hiPSC	Reg Medicine programme, CIPF, Spain
Dr Owen Hughes	1.10.2009-31.12.2010	Differentiation of hESC/hiPSC to RPE	Reg Medicine programme, CIPF, Spain
Dr Inma Moreno	1.10.2009-31.12.2010	Investigation of TGF beta signalling in haematopoietic differentiation of hESC	Reg Medicine programme, CIPF, Spain
Dr Maria Ledran	1.12.2009-31.12.2010	Modelling FA deficiency using iPSC technology	FA Research Fund, USA
Dr Joseph Collin	1.10.2009-31.12.2010	The role of miRNAs in G1 to S transition in hESC and hiPSC	Reg Medicine programme, CIPF, Spain

Doctoral Supervision (2003 to date)

Name of student: Thesis title	Start Date	Year of award	Source of funding
Sajjad Ahmad: The culture of human limbal epithelium for transplantation	1.8. 2003	PhD awarded in August 2007	Newcastle Health Charity and One North East Regional Developmental Agency, UK
Maria Ledran: *In vitro* and *in vivo* investigation of haematopoietic differentiation of human embryonic stem cells	1.10.2003	PhD awarded in January 2008	Life Knowledge Park, UK
Xin Zhang: Derivation, characterization of human embryonic stem cells and their G1 to S transition mediated by NANOG	1.10.2004	PhD awarded in December 2008	Life Knowledge Park, UK
Owen Hughes: Expression and Functional Analyses of Human Pluripotent Cells with a Focus on Wnt Signalling	1.10.2004	PhD awarded in March 2009	MRC studentship, UK
Meena Chodhaury (part-time): Elucidating the role of Hyaluronan in early human embryogenesis and embryonic stem cell characterisation	1.10.2004	PhD awarded, July 2009	One North East Regional Developmental Agency, UK
Sai Kolli: Transplantation of limbal and oral mucosa epithelial cells in patients with uni and bilateral LSCD	1.04. 2006	PhD awarded, July 2009	One North East Regional Developmental Agency and BRC Vision and Ageing Research, UK
*Anna Golebiewska: Epigenetic changes in differentiation of human	1.10.2005	PhD awarded	One North East Regional

pluripotent stem cells		in December 2008	Developmental Agency, UK
Sun Yung: Identifying novel haematopoietic transcriptional regulators using hESC model	1.10.2006	Viva scheduled for 20th December 2010	Newcastle University, UK
*Katarzyna Tilgner: Derivation of oocytes from human ESC	1.10.2005	PhD awarded, July 2009	One North East Regional Developmental Agency, UK
*James Parris: Derivation of skeletal muscle cells from human ESC	1.10.2006	PhD awarded in November 2010	Marshall Foundation, USA
*Rachel Redgrave (part-time): The role of endothelial progenitor cells in cardiac regeneration	4.01.2006	ongoing	BHF (PG/07/019/22477), UK
*Aiging Chen: Intracerebral transplantation of magnetically labelled mesenchymal stem cells in rodent model of periventricular white matter injury	1.10.2005	PhD awarded, July 2009	Newcastle University, UK
*Michael White: Generation of β-cells from stem cells in human adult pancreas	1.10.2009		Diabetes, UK
Theresia Walter: Impacts of telomerase expression and regulation during hESC differentiation	1.10.2004	MPhil awarded in January 2007	BBSRC and MRC, UK
Iliana Paraskevopoulou: The role of CDK1 in human ESC cycle regulation, self-renewal and pluripotency	1.04.2008	MSc awarded October 2008	Self-funded
Ekaterini Aravantinou-Fatorou: Investigation of the expression of Cdk-activating kinase in human ESC`	1.04.2008	MSc awarded October 2008	Self-funded

* Secondary Supervisor

PhD Examiner

1. Adam Croft, University of Durham "The role of mesenchymal stem cells in neuronal repair and regeneration", May 2007
2. Paz Vinuela, Edinburgh University "Fibroblast growth factor signalling in regulation of embryonic stem cells", July 2008
3. Jill Shepherd, Sheffield University "Cell cycle regulation in human ESC", August 2009
4. Miriam Gubernator, UCL "Differentiation of hESC to dopaminergic neurones", June 2010
5. Subrot Sharma, Newcastle University " The role of WNT signalling on human forebrain development", August 2007