

Curriculum Vitae

NAME		POSITION TITLE		
Gabsang Lee, D.V.M., Ph.D.		Postdoctoral Research Associate, Sloan Kettering Institute		
INSTITUTION AND LOCATION		DEGREE	YEAR(s)	FIELD OF STUDY
Seoul National University, Seoul, Korea		B.S. & D.V.M.	1993-2000	Veterinary Medicine
Seoul National University, Seoul, Korea		Ph.D.	2000-2004	Veterinary Medicine (Theriogenology)

Professional Positions and Activity

1995–1997 Military Service (Seoul, Korea)

2000–2004 Ph.D. Course (Dept. of Veterinary Medicine, Seoul National University, Seoul, Korea)

2004–2006 Post-doctoral Fellowship (Cell biology, Sloan Kettering Institute, USA)

2006–2007 Post-doctoral Fellowship (Developmental biology, Sloan Kettering Institute, USA)

2007–2008 Research Professor (Korea University Medical Center, Seoul, Korea)

2007–Curr. Editorial member (Korean Society of Embryo Transfer) and Ad hoc reviewer for Journal “Cloning and Stem Cells”

2008–Curr. Postdoctoral Research Associate (Developmental biology, Sloan Kettering Institute, USA)

2009–Curr. New York Stem Cell Foundation DruckenMiller fellowship (USA)

Research Support

2009-2011 “Disease modeling and discovering novel therapeutic agents using human iPS cell line of Familial Dysautonomia” by New York Stem Cell Foundation (\$53,000/year for 3 years) as Fellowship

2010-2012 “Disease modeling of Congenital Insensitivity to Pain and Anhidrosis (CIPA) disease using human iPSC and rescue of its phenotypes” by New York State Department of Health (NYSTEM) (\$251,232) as PI

Publications

32. Papapetrou E, **Lee GS**, Riviere I, Studer L, Bushman F, Malani N, Setty M, Leslie C, Sadlain M. Therapeutic globin expression in thalassemia patient iPS cells from genomic safe harbors. **Nature** *In revision*.

31. Fasano CA, Chambers SM, **Lee GS**, Tomishima MJ, Studer L. Shh dependent Dkk1 inhibition specifies floor plate formation from human embryonic stem cells. **Cell Stem Cell** *In press*.

30. **Lee GS**, Chambers SM, Tomishima MJ, Studer L. Derivation of Neural Crest Cells from Human Pluripotent Stem Cells. **Nature Protocols** 2010 5:688-701. (*Cover image*)

29. James D, Nam H, Seandel M, Nolan D, Janovitz T, Tomishima M, Studer L, **Lee GS**, Lyden D, Benezra R, Zaninovic N, Rosenwaks Z, Rabbany S, Raffi S. Expansion and maintenance of functional human ESC-derived endothelium requires stage-specific TGF β inhibition and Id1 upregulation. **Nature Biotechnology** 2010 28: 161-166.

28. **Lee GS**, Studer L. Induced pluripotent stem cell technology for the study of human disease. **Nature Methods** 2010 7:25-27.

27. **Lee GS**, Papapetrou EP, Kim HS, Chambers SM, Tomishima MJ, Fasano CA, Viale A, Tabar V, Sadlain M, Studer L. Modeling Pathogenesis and Treatment of Familial Dysautonomia using patient-specific iPSCs. **Nature** 2009 461: 402-406.

- Highlighted in **Nature Reports Stem Cells** 2009 Aug

- Highlighted in **Nature Review Drug Discovery** 2009 8(1):774

Gabsang Lee, Ph.D., D.V.M.

26. Lee JH, Lee ES, Biswas D, Jeung CS, **Lee GS**, Hyun SH, Jeung EB. Amphiregulin (AREG) promotes the proliferation of trophoblast cells during preimplantation development of porcine embryos. **Theriogenology** 2009 72:1023-1031.
25. Desbordes SC, Placantonakis DG, Ciro A, Socci ND, **Lee GS**, Djaballah H, Studer L. High-throughput screening assay for the identification of compounds regulating self-renewal and differentiation in human embryonic stem cells. **Cell Stem Cell** 2008 2:602-12.
24. **Lee GS**, Kim BS, Shieh JH, Moore M. Forced expression of HoxB4 enhances hematopoietic differentiation by human embryonic stem cells. **Mol Cells** 2008 25:487-493.
23. Kang HK, Roh SH, **Lee GS**, Hong SD, Kang H, Min BM. Osteogenic potential of embryonic stem cells in tooth sockets. **International Journal of Molecular Medicine** 2008 21:539-544.
22. **Lee GS**, Kim HS, Kim JH, Hwang WS, Hyun SH. Characterization of pig GDF-9 (Growth and Differentiation Factor-9) and its expression in oocyte maturation. **Molecular Reproductive Development** 2008 75:707-714.
21. **Lee GS**, Kim HS, Elkabetz Y, Al Shamy G, Panagiotakos G, Barberi T, Tabar V, Studer L. Isolation and directed differentiation of neural crest stem cells derived from human embryonic stem cells. **Nature Biotechnology** 2007 25:1468-1475.
 - Highlighted in **Nature Reports Stem Cells** 2007 126
 - Highlighted in **Nature Review Neuroscience** 2008 9(1):3
20. **Lee GS**, Kim BS, Shieh JH, Moore MAS. Forced expression of Bmi-1 in postnatal human CD34+ cells promotes erythroid differentiation. **Korean Journal of Hematology** 2007 42:241-249.
19. Kim HS, Son HY, Kim S, **Lee GS**, Park CH, Kang SK, Lee BC, Hwang WS, Lee CK. Isolation and initial culture of porcine inner cell masses derived from in vitro produced blastocysts. **Zygote** 2007 15:55-63.
18. Kim SJ, **Lee GS**, Kim BS. Hematopoietic differentiation from human embryonic stem cells. **Regeneration and tissue engineering** 2007 4:40-42.
17. Moore MAS, Shieh JH, **Lee GS**. Differentiation of embryonic stem cells into hematopoietic cells. In Stem Cell: Embryonic stem cell. **Methods in Enzymology** 2006 418: 208-242.
16. Kim HS, **Lee GS**, Kim JH, Kang SK, Lee BC, Hwang WS. Expression of leptin ligand and receptor and effect of exogenous leptin supplement on in vitro development of porcine embryos. **Theriogenology** 2006 65:831-844.
15. **Lee GS**, Kim HS, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Expression of epidermal growth factor and its receptor and role of epidermal growth factor in development of porcine cloned embryos. **Molecular Reproductive Development** 2005 71:45-51.
14. **Lee GS**, Kim HS, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Production of transgenic cloned piglets from genetically transformed fetal fibroblasts selected by green fluorescent protein. **Theriogenology** 2005 63:973-991.
13. **Lee GS**, Kim HS, Lee SH, Kang MS, Kim DY, Kang SK, Lee BC, Hwang WS. Characterization of pig vasa homolog gene and specific expression in germ cell lineage. **Molecular Reproductive Development** 2005 72:320-328.
12. **Lee GS**, Kim HS, Lee SH, Kang MS, Kim DY, Kang SK, Lee BC, Hwang WS. Successful surgical correction of anal atresia in a transgenic cloned piglet. **Journal of Veterinary Science** 2005 6:243-245.
11. Kim HS, **Lee GS**, Hyun SH, Nam DH, Lee SH, Jeong YW, Kim S, JH Kim, Kang SK, Lee BC, Hwang WS. Embryotrophic Effect of Glycosaminoglycans in Development of Porcine Preimplantation Embryos. **Theriogenology** 2005 63:1167-80.

Gabsang Lee, Ph.D., D.V.M.

10. Kim S, **Lee GS**, Lee SH, Kim HS, Jeong YW, Kim JH, Kang SK, Lee BC, Hwang WS. Embryotropic effect of insulin-like factor(IGF)-I and its receptor on development of preimplantation embryos produced by in vitro fertilization and somatic cell nuclear transfer. **Molecular Reproductive Development** 2005 72:88-97.
9. Jeon HY, Hyun SH, **Lee GS**, Kim HS, Kim S, Jeong YW, Kang SK, Lee BC, Han JY, Ahn C, Hwang WS. The analysis of telomere length and telomerase activity in cloned pigs and cows. **Molecular Reproductive Development** 2005 71:315-320.
8. Nam DH, Lee SH, Kim HS, **Lee GS**, Hyun SH, Jeong YW, Kim S, JH Kim, Kang SK, Lee BC, Hwang WS. The role of gonadotropin-releasing hormone (GnRH) and its receptor on development of porcine preimplantation embryos derived in vitro fertilization. **Theriogenology** 2005 63:190-201.
7. Kim HS, **Lee GS**, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Improved in vitro development of porcine embryos with different energy substrates and serum. **Theriogenology** 2004 61:1381-1393.
6. Lee SH, DY Kim, Nam DH, Hyun SH, **Lee GS**, Kim HS, Kang SK, Lee BC, Hwang WS. Role of Platelet Activating Factor and Its Receptor in Porcine In Vitro Fertilized and Cloned Embryo Development. **Biology of Reproduction** 2004 71:919-925.
5. **Lee GS**, Kim HS, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Improved developmental competence of cloned porcine embryos with different energy supplements and chemical activation. **Molecular Reproductive Development** 2003 66:17-23.
4. **Lee GS**, Hyun SH, Kim HS, Kim DY, Lee SH, Lim JM, Lee ES, Kang SK, Lee BC, Hwang WS. Improvement of a porcine somatic cell nuclear transfer technique by optimizing donor cell and recipient oocyte preparations. **Theriogenology** 2003 59:1949-1957.
3. Hyun SH, **Lee GS**, Kim DY, Kim HS, Lee SH, Nam DH, Jeong YW, Kim S, Yeom SC, Kang SK, Han JY, Lee BC, Hwang WS. Production of nuclear transfer-derived piglets using porcine fetal fibroblasts transfected with the enhanced green fluorescent protein. **Biology of Reproduction** 2003 69:1060-1068.
2. Hyun SH, **Lee GS**, Kim DY, Kim HS, Lee SH, Kim S, Lee ES, Lim JM, Kang SK, Lee BC, Hwang WS. Effect of maturation media and oocytes derived from sows or gilts on the development of cloned pig embryos. **Theriogenology** 2003 59:1641-1649.
1. Hyun SH Lee BC, **Lee GS**, Lee ES, Lim JM, Kang KS, Hwang WS. Recruit of porcine oocytes excluded from nuclear transfer program for the production of embryos following parthenogenetic activation. **Journal of Veterinary Medical Science** 2003 65:51-56.

Lectures and presentation

Invited Lecturer "hESC-derived neural crest stem cells and its differentiation", Seoul National University, Seoul, Korea 2007

Lee GS, Kim HS, Studer L. Isolation, characterization and differentiation of neural crest stem cells derived from human embryonic stem cells. ISSCR 2007 Cairns Australia (Oral Presentation)

Kim HS, **Lee GS**, Studer L. Towards the identification of human embryonic stem cell lines suitable for cell therapy in Parkinson's disease. ISSCR 2007 Cairns Australia

Chen Y, **Lee GS**, Shieh JH, Moore MAS. Therapeutic approach of human embryonic stem cells derived from endothelial cells in mouse ischemia heart and hindlimb. Arteriosclerosis, Thrombosis and Vascular Biology Annual Conference 2007 Denver USA

Kim HS, **Lee GS**, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Effect of Glycosaminoglycans Supplement on Porcine Preimplantation Embryo Development and Expression of Receptors for Glycosaminoglycans in Porcine Embryos. IETS. 2003 Iguazu Brazil.

Lee GS, Kim HS, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Expression of epidermal growth factor receptor and role of epidermal growth factor in development of porcine cloned embryos. Society of Study of Reproduction 2003 Ohio USA

Lee GS, Kim HS, Hyun SH, Kim DY, Lee SH, Nam DH, Jeong YW, Kim S, Kang SK, Lee BC, Hwang WS. Production of transgenic cloned piglets from hEPO-GFP transfected fetal fibroblasts. International Transgenic Conference 2003 Nevada USA

Lee GS, Kim HS, Hyun SH, Kim DY, Lee SH, Lee ES, Lim JM, Kang SK, Lee BC, Hwang WS. Electrical activation

Gabsang Lee, Ph.D., D.V.M.

followed by chemical activation improves the rate of blastocyst of the porcine reconstructed embryos. Society of Study of Reproduction 2002 Maryland USA

Lee GS, Kim HS, Hyun SH, Park JI, Lee ES, Lim JM, Kang SK, Lee BC, Hwang

WS. In vitro development of porcine nuclear transplanted embryos from in vitro and in vivo matured cytoplasts.

International Transgenic Conference 2002 Nevada USA

Lee GS, Kim HS, Hyun SH, Park JI, Lee ES, Lim JM, Kang SK, Lee BC, Hwang

WS. In vitro development of porcine nuclear transplanted embryos using fetal and adult cells as karyoplasts. Society of Korean Veterinary Medicine 2002 Daejeon

Lee GS, Kim HS, Hyun SH, Kim DY, Lee SH, Lee ES, Lim JM, Kang SK, Lee BC, Hwang WS. Development of reconstructed porcine embryos derived from in vivo or in vitro-matured oocytes as a somatic cell recipient cytoplasm. Current status and perspectives in cloning and related studies. 2001. Ibaraki. Japan.

Lee GS, Hyun SH, Yeom SC, Park JI, Kang SK, Lee BC, Hwang WS. In vitro development of porcine nuclear

transplanted embryos after electrical activation. International Conference of Porcine Reproduction. 2001 Missouri USA

Patent

1. GFP-transfected clon pig, GT knock-out clon pig and methods for production thereof (WO 03/089632 A1, PCT/KR01/P2304)