

BIOGRAPHICAL SKETCH

NAME Park, Ki-Eun	POSITION TITLE		
eRA COMMONS USER NAME kepark	<i>Postdoctoral Fellow, Department of Animal and Avian Sciences, University of Maryland</i>		
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Kangwon National University, South Korea	M.Sc.	03/99-02/01	Reproductive Physiology
Okayama University, Japan	Ph.D.	04/01-03/05	Reproductive Physiology
University of Tsukuba, Japan	Postdoctoral Fellow	08/05-12/06	Molecular Reproduction & Biological Chemistry
Purdue University	Postdoctoral Fellow	07/07-07/12	Molecular & Reproductive Biology

A. Personal Statement

My primary research interest is to utilize the so called naïve stem cells for genetic engineering applications and as tools for investigating pathologies. In mouse (m), the precursor populations of trophoblast (TR) cells-the trophoblast stem cells (TSC) have been isolated from the outgrowths of trophectoderm of pre-implantation embryos, or from the intermediary zone between the inner cell mass and the ectoplacental cone. Alternatively, the mTSC have also been derived from the murine embryonic stem cells (ESC) by two mutually exclusive induction approaches, one involving the upregulation of CDX2, whereas the other of *LEF1* and culture in the presence of Wnt3a. The analogous cell types from humans have not been established so far. My idea is to establish the naïve human embryonic stem cells analogous to the mouse embryonic stem cells and use them for establishing TSC using inductive approaches that have proven to be successful in mouse. TSC when established will prove to be a valuable tool for investigating human placental pathologies such as preeclampsia and intra uterine growth retardation.

My second interest in the lab is establish mouse and porcine models of human diseases. Towards this end, I have successfully established the BAC recombineering approach to modify and prepare the gene targeting constructs. I have more than 5 years of experience manipulating the embryos, and I am utilizing the modified cells to make the genetically modified animals.

B. Positions and Honors

Positions and Employment

04/02-03/03	Graduate Teaching Assistant, Graduate School of Natural Science and Technology, Okayama University, Japan
04/03-03/04	Graduate Research Assistant, Graduate School of Natural Science and Technology, Okayama University, Japan
08/05-12/06	Postdoctoral Fellow, Department of Biological Chemistry, University of Tsukuba, Japan
07/07-12/10	Postdoctoral Fellow, Department of Animal Sciences, Purdue University
01/11-07/12	Research Associate, Department of Animal Sciences, Purdue University
09/12-	Faculty Research Assistant, Department of Animal and Avian Sciences, University of Maryland

Other Experience and Professional Memberships

- Japanese Society of Animal Reproduction 2002-2006
- Kansai Society of Animal Science 2004-2006

- Society for the Study of Reproduction 2008-current
- International Embryo Transfer Society 2008-current

Honors and Awards

- Ministry of Education, Science and Technology Scholarship, Japan, 2001 & 2003
- Graduate School Scholarship, Kangwon National University, South Korea, 2000

C. Peer-reviewed Publications and Abstracts

Peer-reviewed Publications

1. **Park KE**, Inerowicz HD, Wang X, Li Y, Koser S, Cabot RA. (2012). Identification of Karyopherin α 1 and α 7 Interacting proteins in porcine tissue. PLoS One. 7(6):e38990.
2. Foust KB, Li Y, **Park KE**, Liu S, Wang X, Cabot RA. (2012). The polycomb group protein EED varies in its ability to access the nucleus in porcine oocytes and cleavage stage embryos. Anim Reprod Sci. 133(3-4):198-204
3. **Park KE**, Johnson CM, Wang X, Cabot RA. (2012). BIX-01294, an inhibitor of the histone methyltransferase EHMT2, disrupts histone H3 lysine 9 (H3K9) dimethylation in the cleavage-stage porcine embryo. Reprod Fertil Dev. 24(6):813-821.
4. Wang X, **Park KE**, Koser S, Liu S, Magnani L, Cabot RA. (2012). KPNA7, an oocyte- and embryo-specific karyopherin α subtype, is required for porcine embryo development. Reprod Fertil Dev. 24(2):382-391.
5. **Park KE**, Johnson CM, Wang X, Cabot RA. (2011). Differential developmental requirements for individual histone H3K9 methyltransferases in cleavage stage porcine embryos. Reprod Fertil Dev. 23(4):551-560.
6. **Park KE**, Johnson CM, Magnani L, Wang X, Biancardi MN, Cabot RA. (2010). Global H3K9 dimethylation status is not affected by transcription, translation, or DNA replication in porcine zygotes. Mol Reprod Dev. 77(5):420-429.
7. **Park KE**, Magnani L, Cabot RA. (2009). Differential remodeling of monoand trimethylated H3K27 during porcine embryo development. Mol Reprod Dev 76(11):1033-1042.
8. Kim E*, **Park KE***, Kim JS, Baek DC, Lee JW, Lee SR, Kim MS, Kim SH, Kim CS, Koo DB, Kang HS, Ryoo ZY, Chang KT. (2009). Importance of the porcine ADAM3 disintegrin domain in sperm-egg interaction. J Reprod Dev. 55(2):156-162. (*equal contribution)
9. Bettgowda A, Patel OV, Lee KB, **Park KE**, Salem M, Yao J, Ireland JJ, Smith GW. (2008). Identification of novel bovine cumulus cell molecular markers predictive of oocyte competence: functional and diagnostic implications. Biol Reprod. 79(2):301-309.
10. Kim E, Yamashita M, Nakanishi T, **Park KE**, Kimura M, Kashiwabara S, Baba T. (2006). Mouse sperm lacking ADAM1b/ADAM2 Fertilin can fuse with the egg plasma membrane and effect fertilization. J Biol Chem. 281: 5634-5639.
11. **Park KE**, Kwon IK, Han MS, Niwa K. (2005). Effects of partial removal of cytoplasmic lipid on survival of vitrified germinal vesicle stage pig oocytes. J Reprod Dev. 51: 151-160.
12. Kwon IK, **Park KE**, Niwa K. (2004). Activation, Pronuclear Formation, and development *in vitro* of pig oocytes following intracytoplasmic injection of freeze-dried spermatozoa. Biol Reprod. 71: 1430-1436.
13. Jang HY, **Park KE**, Kim CI, Park CK, Cheong HT, Yang BK. (2002). Effect of aesculetin and O₂ concentrations on *in vitro* development of preimplantation embryo in Hanwoo (Korean Native Cattle). Korean J. Animal Reprod. 26: 61-68.
14. **Park KE**, Park CK, Kim CI, Cheong HT, Park DH and Yang BK. (2001). Effect of nitric oxide compounds on the development of porcine IVM/IVF embryos. Korean J. Animal Reprod. 25: 63-69.