

Kyung-Rok Yu, PhD

(Last updated: April 2019)

Address: 222 Banpodaro, Seocho-gu, Seoul, Korea 137-701

Email/Telephone: kryu@catholic.ac.kr/ +82-2-2258-7224

EDUCATION & RESEARCH

- 9/2018 – **Assistant Professor**, Department of Medical Lifescience, College of Medicine, The Catholic University of Korea
- 11/2014 – 9/2018 **Postdoctoral Fellow**, *Hematology Branch, National Heart Lung and Blood Institute (NHLBI), National Institutes of Health (NIH)*, Bethesda, MD
(PI: Cynthia E. Dunbar, M.D.)
- 3/2013 – 10/2014 **Research Assistant Professor**, Adult stem cell research center, College of Veterinary Medicine, *Seoul National University*, Seoul, Korea
(PI: Kyung-Sun Kang, Ph.D.)
- 10/2009 – 2/2010 **Visiting Scholar**, *Max Planck Institute*, Muenster, Germany
(PI: Hans Schöler, Ph.D.)
- 3/2008 – 2/2013 College of Veterinary Medicine, *Seoul National University*, Seoul, Korea
Ph.D.
- 3/2004 – 8/2007 College of Agriculture and Life Sciences, *Seoul National University*, Seoul, Korea
B.S.

HONORS AND AWARDS

- 03/2019 **Young Investigator Award**, 2019 annual meeting of JSRM (Japanese Society for Regenerative Medicine)
- 08/2018 **Young Investigator Award**, 2018 annual meeting of KSSCR (Korean Society For Stem Cell Research)
- 12/2017 **Oral Presentation**, 60th ASH Annual Meeting (American Society of Hematology)
- 12/2016 **2017 TRTH (Translational Research Training in Hematology) Award**, ASH (American Society of Hematology)-EHA(European Hematology Association) Joint program
<http://www.hematology.org/Newsroom/Press-Releases/2017/7171.aspx>
- 11/2016 **Best Presentation Award** (Johng S. Rhim Young Investigator Award), The 8th Annual Bioscience and Engineering Symposium (ABES)
- 12/2015 **Abstract Achievement Award**, 58th ASH Annual Meeting (American Society of Hematology)
- 2015 – 2016 **NIH Korean Visiting Scientist Training Award (KVSTA)** (USD 50,000/year)
- 8/2014 **Best Presentation Award**, the 9th annual meeting of KSSCR (Korean Society For Stem Cell Research)
- 2012 – 2013 **National Junior Research Fellowship** (USD 50,000/year)

- 11/2012 **Outstanding Oral Presentation**, International Conference on Nutrition and Physical Activity (NAPA) in Aging, Obesity, and Cancer.
- 6/2009 **Best Poster Award**, Millipore Asia Bioforum

PUBLICATIONS (*co-first authors, #co-corresponding authors)

29. Shin TH*, Baek EJ*, Corat MAF, Chen S, Metais JY, Aljanahi AA, Zhou Y, Donahue RE, **Yu KR**[#], Dunbar CE[#]. "CRISPR/Cas9 PIG-A Gene Editing in Non-Human Primate Model Demonstrates No Intrinsic Clonal Expansion of PNH HSPCs" **BLOOD**. 2019 Apr 19. pii: blood.2019000800. Epub ahead of print
28. Yabe IM, Truitt LL, Espinoza DA, Wu C, Koelle S, Panch S, Corat MAF, Winkler T, **Yu KR**, Hong SG, Bonifacino A, Krouse A, Metzger M, Donahue RE, Dunbar CE. "Barcoding of Macaque Hematopoietic Stem and Progenitor Cells: A Robust Platform to Assess Vector Genotoxicity." **Mol Ther Methods Clin Dev**. 2018 Oct 25;11:143-154.
27. Kim MY*, **Yu KR***, Kenderian SS, Ruella M, Chen S, Shin TH, Aljanahi A, Schreeder D, Klichinsky M, Shestova O, Kozlowski MS, Cumins K, Shan X, Shestov M, Bagg A, Morrisette J, Sekhri P, Lazzarotto CR, Calvo KR, Kuhns DB, Donahue RE, Behbehani GK, Tsai SQ, Dunbar CE, Gill S. "Genetic Inactivation of CD33 in Hematopoietic Stem Cells to Enable CAR T Cell Immunotherapy for Acute Myeloid Leukemia." **CELL**. 2018 May 31;173(6):1439-1453.
26. Lee JY, **Yu KR**, Lee BC, Kang I, Kim JJ, Jung EJ, Kim HS, Seo Y, Choi SW, Kang KS. "GATA4-dependent regulation of the secretory phenotype via MCP-1 underlies lamin A-mediated human mesenchymal stem cell aging." **Exp Mol Med**. 2018 May 14;50(5):63.
25. **Yu KR**, Espinoza D, Wu C, Truitt L, Shin TH, Chen S, Fan X, Yabe I, Panch S, Hong SG, Koelle S, Lu R, Bonifacino A, Krouse A, Metzger M, Donahue R, Dunbar CE. "The Impact of Aging on Primate Hematopoiesis as Interrogated by Clonal Tracking." **BLOOD**. 2018 Mar 15;131(11):1195-1205.
24. Sung EA*, **Yu KR***, Shin JH, Seo Y, Kim HS, Koog MG, Kang I, Kim JJ, Lee BC, Choi SW, Shin TH, Lee JY, Lee S, Kang TW, Kang KS. "Generation of patient specific human neural stem cells from Niemann-Pick disease type C patient-derived fibroblasts." **Oncotarget**. 2017 Aug 7;8(49):85428-85441.
23. Kim JJ*, Shin JH*, **Yu KR***, Lee BC, Kang I, Lee JY, Kim DH, Seo Y, Kim HS, Choi SW, Kang KS. "Direct Conversion of Human Umbilical Cord Blood into Induced Neural Stem Cells with SOX2 and HMGA2." **Int J Stem Cells**. 2017 Nov 30;10(2):227-234. doi: 10.15283/ijsc17025.
22. **Yu KR**, Natanson H, Dunbar CE. "Gene Editing of Human Hematopoietic Stem and Progenitor Cells: Promise and Potential Hurdles." **Hum Gene Ther**. 2016 Oct; 27(10): 729-740.
21. Lee JY*, **Yu KR***, Kim HS, Kang I, Kim JJ, Lee BC, Choi SW, Shin JH, Seo Y, Kang KS. "BMI1 inhibits senescence and enhances the immunomodulatory properties of human mesenchymal stem cells via the direct suppression of MKP-1/DUSP1." **Aging (Albany NY)**. 2016 Aug;8(8):1670-89.
20. Lee BC, Kim HS, Shin TH, Kang I, Lee JY, Kim JJ, Kang HK, Seo Y, Lee S, **Yu KR**, Choi SW, Kang KS. "PGE2 maintains self-renewal of human adult stem cells via EP2-mediated autocrine

- signaling and its production is regulated by cell-to-cell contact." *Sci Rep*. 2016 May 27;6:26298. doi: 10.1038/srep26298.
19. Lee S, Kim HS, Roh KH, Lee BC, Shin TH, Yoo JM, Kim YL, **Yu KR**, Kang KS, Seo KW. "DNA methyltransferase inhibition accelerates the immunomodulation and migration of human mesenchymal stem cells." *Sci Rep*. 2015 Jan 26;5:8020. doi: 10.1038/srep08020.
 18. **Yu KR***, Shin JH*, Kim JJ*, Koog MG, Lee JY, Choi SW, Kim HS, Seo YJ, Lee SH, Shin TH, Jee MK, Kim DW, Jung SJ, Shin S, Han DW, Kang K. "Rapid and Efficient Direct Conversion of Human Adult Somatic Cells into Neural Stem Cells by HMGA2/let-7b." *Cell Rep*. 2015 Jan 15. pii: S2211-1247(14)01067-5.
 17. Kim H, Yun J, Shin T, Lee S, Lee B, **Yu KR**, Seo Y, Lee S, Kang T, Choi SW, Seo K, Kang K. "Human umbilical cord blood mesenchymal stem cell-derived PGE2 and TGF- β 1 alleviate atopic dermatitis by reducing mast cell degranulation." *Stem Cells*. 2015 Apr;33(4):1254-66.
 16. Lee S*, **Yu KR***, Ryu YS, Oh YS, Hong IS, Kim HS, Lee JY, Kim S, Seo KW, Kang KS. "miR-543 and miR-590-3p regulate human mesenchymal stem cell aging via direct targeting of AIMP3/p18." *Age (Dordr)*. 2014 Dec;36(6):9724.
 15. Choi SW, Kim JJ, Seo MS, Park SB, Kang TW, Lee JY, Lee BC, Kang I, Shin TH, Kim HS, **Yu KR**, Kang KS. "miR-410 Inhibition Induces RPE Differentiation of Amniotic Epithelial Stem Cells via Overexpression of OTX2 and RPE65." *Stem Cell Rev*. 2015 Jun;11(3):376-86. doi: 10.1007/s12015-014-9568-2.
 14. Seo Y, Kim HS, Shin Y, Kang I, Choi SW, **Yu KR**, Seo KW, Kang KS. "Excessive microglial activation aggravates olfactory dysfunction by impeding the survival of newborn neurons in the olfactory bulb of Niemann-Pick disease type C1 mice." *Biochim Biophys Acta*. 2014 Nov;1842(11):2193-203. doi: 10.1016/j.bbadis.2014.08.005.
 13. **Yu KR***, Lee JY*, Kim HS, Hong IS, Choi SW, Seo Y, Kang I, Kim JJ, Lee BC, Lee S, Kurtz A, Seo KW, Kang KS. "A p38 MAPK-mediated alteration of COX 2/PGE2 regulates immunomodulatory properties in human mesenchymal stem cell aging." *PLoS One*. 2014 Aug 4;9(8):e102426.
 12. Kang TW, Choi SW, Yang SR, Shin TH, Kim HS, **Yu KR**, Hong IS, Ro S, Cho JM, Kang KS. "Growth arrest and forced differentiation of human primary glioblastoma multiforme by a novel small molecule." *Sci Rep*. 2014 Jul 3;4:5546. doi: 10.1038/srep05546.
 11. Seo Y, Shin Y, Kim HS, Kang I, Hong IS, Choi SW, **Yu KR**, Kang KS. "Donepezil enhances Purkinje cell survival and alleviates motor dysfunction by inhibiting cholesterol synthesis in a murine model of Niemann Pick disease type C." *J Neuropathol Exp Neurol*. 2014 Mar;73(3):234-43. doi: 10.1097/NEN.0000000000000045.
 10. **Yu KR***, Lee SH*, Jung JW, Hong IS, Kim HS, Seo YJ, Shin TH, Kang KS. "MicroRNA-141-3p plays a role in human mesenchymal stem cell aging by directly targeting ZMPSTE24." *J Cell Sci*. 2013 Dec 1;126(Pt 23):5422-31. Selected for highlighting in the 'In This Issue' section
 9. Kim HS, Shin TH, Lee BC, **Yu KR**, Seo Y, Lee S, Seo MS, Hong IS, Choi SW, Seo KW, Núñez G, Park JH, Kang KS. "Human Umbilical Cord Blood Mesenchymal Stem Cells Reduce Colitis in Mice by Activating NOD2 Signaling to COX2." *Gastroenterology*. 2013 Dec;145(6):1392-403.
 8. **Yu KR**, Kang KS. "Aging-Related Genes in Mesenchymal Stem Cells: A Mini-Review." *Gerontology*. 2013;59(6):557-63.
 7. Hong IS, Lee HY, Choi SW, Kim HS, **Yu KR**, Seo Y, Jung JW, Kang KS. "The effects of hedgehog on RNA binding protein Msi1 during the osteogenic differentiation of human cord blood-

- derived mesenchymal stem cells." *Bone*. 2013 Oct;56(2):416-25. doi: 10.1016/j.bone.2013.07.016.
6. **Yu KR***, Park SB*, Jung JW, Seo MS, Hong IS, Kim HS, Seo Y, Kang TW, Lee JY, Kurtz A, Kang KS. "HMGA2 regulates the in vitro aging and proliferation of human umbilical cord blood-derived stromal cells through the mTOR/p70S6K signaling pathway." *Stem Cell Res*. 2013 Mar;10(2):156-65.
 5. **Yu KR***, Yang SR*, Jung JW, Kim H, Ko K, Han DW, Park SB, Choi SW, Kang SK, Schöler H, Kang KS. "CD49f Enhances Multipotency and Maintains Stemness Through the Direct Regulation of OCT4 and SOX2." *Stem Cells*. 2012 May;30(5):876-87.
 4. Park SB, Seo KW, So AY, Seo MS, **Yu KR**, Kang SK, Kang KS. "SOX2 has a crucial role in the lineage determination and proliferation of mesenchymal stem cells through Dickkopf-1 and c-MYC." *Cell Death Differ*. 2012 Mar;19(3):534-45.
 3. Sun B, **Yu KR**, Bhandari DR, Jung JW, Kang SK, Kang KS. "Human umbilical cord blood mesenchymal stem cell-derived extracellular matrix prohibits metastatic cancer cell MDA-MB-231 proliferation." *Cancer Lett*. 2010 Oct 28;296(2):178-85. doi: 10.1016/j.canlet.2010.04.007.
 2. Park SB*, **Yu KR***, Jung JW, Lee SR, Roh KH, Seo MS, Park JR, Kang SK, Lee YS, Kang KS. "bFGF enhances the IGFs-mediated pluripotent and differentiation potentials in multipotent stem cells." *Growth Factors*. 2009 Dec;27(6):425-37.
 1. Seo MS, Jeong YH, Park JR, Park SB, Rho KH, Kim HS, **Yu KR**, Lee SH, Jung JW, Lee YS, Kang KS. "Isolation and characterization of canine umbilical cord blood-derived mesenchymal stem cells." *J Vet Sci*. 2009 Sep;10(3):181-7.

Complete List of Published Work in MyBibliography:

https://www.ncbi.nlm.nih.gov/sites/myncbi/1JycCw5Pdgv5_/bibliography/46015297/public/?sort=date&direction=ascending.