

1. Personal Information

Name	Seung-Woo Lee		
Institution / Department	POSTECH Integrative Biosciences & Biotechnology		
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2. Education / Professional Career

Year	University / Institution	Field of Study / Position	Degree / Remarks
1994	POSTECH	Life Science	B.S.
1996	POSTECH	Viral Immunology	M.S.
1999	POSTECH	Viral Immunology	Ph.D.
2003	La Jolla Institute for Allergy & Immunology	Immunology	Postdoctoral
2008	La Jolla Institute for Allergy & Immunology	Immunology	Research Scientist
2012	POSTECH	Immunology	Assistant professor
2016	POSTECH	Immunology	Associate professor

3. Publications

1. Viet-Hoan Le, Seunghun Lee, Seungwon Lee, Taejun Wang, Won Hyuk Jang, Yeoreum Yoon, Soonjae Kwon, Hyekang Kim, Seung-Woo Lee & Ki Hean Kim. 2017. In vivo longitudinal visualization of bone marrow engraftment process in mouse calvaria using two-photon microscopy. ***Sci Rep*** 7, 440971.

2. Sungjun Park, Seungwon Lee, Choong-Gu Lee, Guk Yeol Park, Hyebeen Hong, Jeon-Soo Lee, Young Min Kim, Sung Bae Lee, Daehee Hwang, Youn Soo Choi, John D. Fryer, Sin-Hyeog Im*, Seung-Woo Lee* & Yoontae Lee*. 2017. Capicua deficiency induces autoimmunity and promotes follicular helper T cell differentiation via derepression of ETV5. ***Nat Commun*** 8, 16037. (***co-correspondence**)

3. Young Woo Choi, Moon Cheol Kang, Yong Bok Seo, Hong Namkoong, Yunji Park, Dong-Hoon Choi, You Suk Suh, Seung-Woo Lee, Young Chul Sung and Hyun-Tak Jin. 2016. Intravaginal Administration of Fc-Fused IL7 Suppresses the Cervicovaginal Tumor by Recruiting HPV DNA Vaccine-Induced CD8 T Cells. ***Clin Cancer Res*** 22(23), 5898-5908.

4. Ki Su Kim, Hyemin Kim, Yunji Park, Won Hh Kong, Seung-Woo Lee, Sheldon J.J. Kwok, Sei Kwang Hahn, and Seok Hyun Yun. 2016. Noninvasive Transdermal Vaccination Using Hyaluronic Nanocarriers and Laser Adjuvant. ***Adv. Funct. Mater*** 26(15), 2512-2522.

5. Moon Cheol Kang, Dong-Hoon Choi, Young Woo Choi, Seong Jeong Park, Hong Namkoong, Ki Seok Park, So-Shin Ahn, Charles D. Surh, Sun-Woo Yoon, Doo-Jin Kim, Jung-ah Choi, Yunji Park, Young Chul Sung, Seung-Woo Lee. 2016. Intranasal introduction of Fc-fused interleukin-7 provides long-lasting prophylaxis from lethal influenza infection. *J Virol* 90(5), 2273-2284.
6. Yunji Park, Sook-Jin Moon, Seung-Woo Lee. 2016. Lineage re-commitment of CD4CD8 α intraepithelial lymphocytes in the gut. *BMB Rep* 49(1), 11-17.
7. Ohseop Kwon, Seungwon Lee, Ji-Hae Kim, Hyekang Kim and Seung-Woo Lee. 2015. Altered Gut Microbiota Composition in Rag1-deficient Mice Contributes to Modulating Homeostasis of Hematopoietic Stem and Progenitor Cells. *Immune Network* 15(5), 252-259.
8. Mi-Young Song, Chun-Pyo Hong, Seong Jeong Park, Jung-Hwan Kim, Bo-Gie Yang, Sae Won Kim, Kwang Soon Kim, Ji Yeung Lee, Seung-Woo Lee, Myoung Ho Jang, and Young-Chul Sung. 2015. Protective effects of Fc-fused PD-L1 on two different animal models of colitis. *Gut* 64(2), 260-271.
9. Oh Youn Kim, Seng Jin Choi, Su Chul Jang, Kyoung-Su Park, Sae Rom Kim, Jun Pyo Choi, Ji Hwan Lim, Seung-Woo Lee, Jaesung Park, Dolores Di Vizio, Jan Lötval, Yoon-Keun Kim, and Yong Song Gho. 2015. Bacterial Protoplast-Derived Nanovesicles as Vaccine Delivery System against Bacterial Infection. *Nano Lett* 15(1), 266-274.
10. So-Young Eun, Seung-Woo Lee, Yanfei Xu and Michael Croft. 2015. 4-1BB Ligand Signaling to T Cells Limits T Cell Activation. *J Immunol* 194(1), 134-141.
11. Shravan Madireddi, So-Young Eun, Seung-Woo Lee, Ivana Nemčovičová, Amit Kumar Mehta, Dirk M. Zajonc, Nozomu Nishi, Toshiro Niki, Mitsumi Hirashima, and Michael Croft. 2014. Galectin-9 controls the therapeutic activity of 4-1BB-targeting antibodies. *J Exp Med* 211, 1433-1448.
12. Yong Bok Seo, Se Jin Im, Hong Namkoong, Sae Won Kim, Young Woo Choi, Moon Cheol Kang, Hye Seong Lim, Hyun Tak Jin, Se Hwan Yang, Mi La Cho, You-Me Kim, Seung-Woo Lee, Young Ki Choi, Charles D Surh, Young Chul Sung. 2014. Crucial role of IL-7 in the development of T follicular helper cells as well as the induction of humoral immunity. *J Virol* 88, 8998-9009.
13. Sae Won Kim, Hyun Gul Yang, Moon Cheol Kang, Seungwon Lee, Hong Namkoong, Seung-Woo Lee, and Young Chul Sung (**co-correspondence**). 2014. KIAA1114, a full-length protein encoded by the trophinin gene, is a novel surface marker for isolating tumor-initiating cells of multiple hepatocellular carcinoma subtypes. *Oncotarget* 5(5), 1226-1240.
14. Seung-Woo Lee, Yunji Park, So-Young Eun, Shravan Madireddi, Hilde Cheroutre and Michael Croft. 2012. Cutting Edge: 4-1BB Controls Regulatory Activity in Dendritic Cells through Promoting Optimal Expression of Retinal Dehydrogenase. *J Immunol* 189, 2687-2701.

15. Seung-Woo Lee, Heonsik Choi, So-Young Eun, Satoshi Fukuyama and Michael Croft. 2011. Nitric Oxide Modulates TGF- β -directive Signals to Suppress Foxp3+ Regulatory T cell Differentiation and Potentiate Th1 Development. *J Immunol* 186, 6972-6980. (**This paper was mentioned In This Issue of Journal of Immunology June15, 2011.** <http://www.jimmunol.org/content/186/12/6645.full>)
16. Ian R. Humphreys, Seung-Woo Lee, Morgan Jones, Andrea Loewendorf, Emma Gostick, David A. Price, Chris A. Benedict, Carl F. Ware and Michael Croft. 2010. Biphasic role of 4-1BB in the regulation of mouse cytomegalovirus-specific CD8 T cells.(equal contribution) *Eur J Immunol* 40, 2762-2768.
17. Seung-Woo Lee, Michael Croft. 2009. 4-1BB as a Therapeutic Target for Human Disease. *Adv Exp Med Biol* 64, 120-129.
18. Seung-Woo Lee, Shahram Salek-Ardakani, Robert S. Mittler and Michael Croft. 2009. Hyper-Costimulation through 4-1BB Distorts Homeostasis of Immune cells. *J Immunol*. 182, 6753-6762.
19. Seung-Woo Lee, Yunji Park, Takanori So, Byoung S Kwon, Hilde Cheroutre, Robert S Mittler and Michael Croft. 2008. Identification of regulatory functions for 4-1BB and 4-1BBL in myelopoiesis and the development of dendritic cells. *Nat Immunol* 9, 917-926.
20. Takanori So, Seung-Woo Lee, Michael Croft. 2008. Immune Regulation and Control of Regulatory T cells by OX40 and 4-1BB. *Cyto Grow Fact Rev* 19, 253-262.
21. Seung-Woo Lee, Yunji Park, Aihua Song, Hilde Cheroutre, Byoung S. Kwon and Michael Croft. 2006. Functional dichotomy between OX40 and 4-1BB in modulating effector CD8 T cell responses. *J Immunol* 177, 4464-4472.
22. Lara Myers, Seung-Woo Lee, Robert J. Rossi, Leo Lefrancois, Byoung S. Kwon, Robert S. Mittler, Michael Croft and Anthony T. Vella. 2006. Combined CD137(4-1BB) and adjuvant therapy generates a developing pool of peptide-specific CD8 memory T cells. *Int Immunol* 18, 325-333.
23. Takanori So, Seung-Woo Lee, Michael Croft. 2006. Tumor necrosis factor/tumor necrosis factor receptor family members that positively regulate immunity. *Int J Hematol* 83, 1-11.
24. Hajime Nishimoto, Seung-Woo Lee, Hong Hong, Karen G. Potter, Mari Maeda-Yamamoto, Tatsuya Kinoshita, Yuko Kawakami, Robert S. Mittler, Byoung S. Kwon, Carl F. Ware, Michael Croft, and Toshiaki Kawakami. 2005. Costimulation of mast cells by 4-1BB, a member of the tumor necrosis factor receptor superfamily, with the high-affinity IgE receptor. *Blood* 106, 4241-4248.
25. Seung-Woo Lee, Anthony T. Vella, Byoung S. Kwon and Michael Croft. 2005. Enhanced C

D4 T cell responsiveness in the absence of 4-1BB. *J Immunol* 174, 6803-6808.

26. Jun Chang, Jae-Ho Cho, Seung-Woo Lee, So Young Choi, Sang-Jun Ha and Young-Chul Sung. 2004. IL-12 priming during in vitro antigenic stimulation changes properties of CD8 T cells and increases generation of effector and memory cells. *J Immunol* 172, 2818-2826.

27. Seung-Woo Lee, Yunji Park, Jae Kwang Yoo, So Young Choi, and Young Chul Sung. 2003. Inhibition of TCR-induced CD8 T cell death by IL-12: regulation of Fas ligand and cellular FLIP expression and caspase activation by IL-12. *J Immunol* 170, 2456-2460.

28. Jae Kwang Yoo, Jae Ho Cho, Seung-Woo Lee and Young Chul Sung. 2002. IL-12 provides proliferation and survival signals to murine CD4⁺ T cells through phosphatidylinositol 3-kinase/Akt signaling pathway. *J Immunol* 169, 3637-3643.

29. Yunji Park, Seung-Woo Lee and Young Chul Sung. 2002. Cutting Edge: CpG DNA inhibits dendritic cell apoptosis by up-regulating cellular inhibitor of apoptosis proteins through the phosphatidylinositol-3-OH kinase pathway. *J Immunol* 168, 5-8.

30. Yunji Park, Yoon-Seok Chang, Seung-Woo Lee, Se Yong Cho, Yoon-Keun Kim, Kyung-Up Min, You-Young Kim, Sang-Heon Cho, Young Chul Sung. 2001. The enhanced effect of a hexameric deoxyriboguanosine run conjugation to CpG oligodeoxynucleotides on protection against allergic asthma. *J Allergy Clin Immunol* 108, 570-576.

31. Man Ki Song, Seung-Woo Lee, You Suk Suh, Ki Jeong Lee, and Young Chul Sung. 2000. Enhancement of immunoglobulin G2a and cytotoxic T-lymphocyte responses by a booster immunization with recombinant hepatitis C virus E2 protein in E2 DNA-primed mice. *J Virol* 74, 2920-2925.

32. Seung-Woo Lee, Man Ki Song, Kwan Hyuck Baek, Yunji Park, Jong Kyung Kim, Chu Hee Lee, Hae-Kap Cheong, Chaejoon Cheong and Young Chul Sung. 2000. Effects of a hexameric deoxyriboguanosine run conjugation into CpG oligodeoxynucleotides on their immunostimulatory potentials. *J Immunol* 165, 3631-3639.

33. Seung-Woo Lee, Jin Won Youn, Baik Lin Seong, Young Chul Sung. 1999. IL-6 induces long-term protective immunity against a lethal challenge of influenza virus. *Vaccine* 17, 490-496.

34. Jae Ho Cho, Seung-Woo Lee, Young Chul Sung. 1999. Enhanced cellular immunity to hepatitis C virus nonstructural proteins by codelivery of granulocyte macrophage-colony stimulating factor gene in intramuscular DNA immunization. *Vaccine* 17, 1136-1144.

35. Seung-Woo Lee, and Young Chul Sung. 1998. Immuno-stimulatory effects of bacterial-derived plasmids depend on the nature of the antigen in intramuscular DNA inoculations. *Immunology* 94, 285-289.

36. Seung-Woo Lee, Jae Ho Cho, and Young Chul Sung. 1998. Optimal induction of hepatitis C virus envelope-specific immunity by bicistronic plasmid DNA inoculation with the granulocyte macrophage colony-stimulating factor gene. *J Virol* 72, 8430-8436.

37. Seung-Woo Lee, Jae Ho Cho, Ki Jeong Lee, and Young Chul Sung. 1998. Hepatitis C Virus Envelope DNA-based Immunization Elicits Humoral and Cellular Immune Responses. *Mol. Cells* 8, 444-451.

38. Jun Chang, Do-Hyung Kim, Seung-Woo Lee, Kwan Yong Choi and Young Chul Sung. 1995. Transactivation Ability of p53 Transcriptional Activation Domain is Directly Related to the Binding Affinity to TATA-Binding Protein. *J. Biol. Chem* 270, 25014-25019.

4. 학술대회발표 (구두발표)

1. Lee, S.W. 2017 Microbiota-induced inflammatory cytokines by dendritic cells control hematopoietic progenitors. *The Korean association of dendritic cells, Seoul, Korea.*
2. Lee, S.W. 2016 Microbiota-induced cytokines regulate basal expansion of hematopoietic multipotent progenitors. *2016 CAID Symposium Advances in preclinical research for arthritis and immune disease, Seoul, Korea.*
3. Lee, S.W. 2015 Commensal-induced inflammatory cytokines control the steady state expansion of hematopoietic multipotent progenitors. *The 3rd Annual Autumn AIM Workshop on Immune Homeostasis, Pohang, Korea.*
4. Lee, S.W. 2015 Commensal-induced inflammatory cytokines control the steady state expansion of multipotent progenitors. *The 40th Summer Society for Cell Biology, Busan, Korea.*
5. Lee, S.W. 2014 Gut microbiota controls the homeostasis of hematopoietic stem cells. *2014 KAIST-INSERM-IBS Joint Symposium on Cancer, Inflammation and Epigenetics, Daejeon, Korea.*
6. Lee, S.W. 2014 Gut microbiota controls homeostasis of hematopoietic stem cells through toll-like receptor signaling. *Academy of Immunology & Microbiology Workshop on Immunology 2014*
7. Lee, S.W. 2014 Chronic lung inflammation programs the lineage-biased fate of hematopoietic stem and progenitor cells. *The 34th Scientific Congress of the Korean Medical Association, Seoul, Korea.*
8. Lee, S.W. 2012. 4-1BB controls the regulatory activity of intestinal dendritic cells. *KSBMB Annual Meeting, Seoul, Korea.*
9. Lee, S.W. 2012. 4-1BB controls the regulatory activity of intestinal dendritic cells. *The Korean association of dendritic cells, Cheonan, Korea.*
10. Lee, S.W. 2011. 4-1BB controls differentiation of mucosal regulatory dendritic cells. *The Korean Association of Immunologists Annual Meeting, Seoul, Korea.*
11. Lee, S.W., H. Choi and M. Croft. 2009. Nitric Oxide Modulates TGF- β Signals to Suppress Foxp3+ Regulatory T cell Differentiation and Potentiate Th1 Development. *Retreat of La Jolla Institute for Allergy and Immunology, Lake Arrowhead, USA.*
12. Lee, S.W. and M. Croft. 2007. A novel regulatory role for 4-1BB/4-1BBL in myelopoiesis and the development of dendritic cells. *33th Annual La Jolla Immunology Conference. San Diego, USA.*
13. Lee, S.W., Y. Park, A. Song, H. Cheroutre, B. S. Kwon, and M. Croft. 2006. Functional dichotomy between OX40 and 4-1BB in modulating effector CD8 T cell responses. *The American Association of Immunologists Annual Meeting. Boston, USA.*
14. Lee, S.W., and M. Croft. 2006. Generation of spontaneous autoimmunity in the absence of 4-1BB. *Retreat of La Jolla Institute for Allergy and Immunology, Lake Arrowhead, USA.*
15. Lee, S.W., and Y. C. Sung. 1998. Optimal induction of hepatitis C virus envelope-specific immunity by bicistronic plasmid DNA inoculation with the granulocyte-macrophage colony-stimulating factor gene. *The 5th International Meeting on Hepatitis C Virus and related viruses: Molecular Virology and Pathogenesis, Venice, Italy.*
16. Lee, S.W., and Y. C. Sung. 1997. Hepatitis C Virus Envelope DNA-based Immunization Elicits Humoral and Cellular Immune Responses. *4th Asia-Pacific Congress of Medical Virology. Seoul, Korea.*

5. Symposium (chair/organizer)

1. Lee, S.W. 2017 The Korean Association of Immunologists. Seoul, Korea.
2. Lee, S.W. 2013 KOGO 22nd Annual Conference. Session organizer and chair for Host-Microbe Interactomics. Seoul, Korea.

6. Patents

1. Lee, S.W. et al., 면역조절능력 및 안전성이 증가되고 d G 연속 서열이 결합된 포스포다이에스터 C p G 올리고데옥시뉴클레오티드 변형체. Korea, 10-0359753-00-00 (2002).
2. Lee, S.W. et al., C형 간염 바이러스에 대한 DNA 면역백신. Korea, 10-0318250-00-00 (2001).
3. Lee, S.W. et al., 독감 바이러스에 대한 디엔에이백신. Korea, 1998-0040600 (1998).