

CURRICULUM VITAE

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Education:

1990. 3 – 1997. 2 **D.V.M.** Seoul National University College of Veterinary Medicine
1997. 3 – 1999. 2 **MS**, Seoul National University College of Veterinary Medicine
1999. 4 – 2003. 3 **Ph.D.** (in Biomedical Sciences), the University of Tokyo,
Graduate School of Agricultural and Life Sciences.

Career:

2003. 4 – 2004. 3 **Research Fellow**, Graduated school of Agricultural and Life Sciences,
The University of Tokyo, Japan.
2004. 1 – 2007. 12 **Postdoctoral Fellow**, The Lowance Center for Human Immunology,
Emory University School of Medicine, USA
(Advisor: Jorg Goronzy, M.D., Ph.D.)
2008. 1 – 2010. 2 **Associate Research Scientist**, Section of Rheumatology, Dept. of
Internal Medicine, Yale University School of Medicine, USA
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2010. 3 – 2013.12 **Assistant Professor**, Dept. of Microbiology and Immunology, Seoul
National University College of Medicine, Korea
2014. 1 – Present **Associate Professor**, Dept. of Biomedical Science and Dept. of
Microbiology and Immunology, Seoul National University College of
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Professional Memberships:

1997 Diplomate of Korean Board of Veterinary Medicine
2009 - Present Member, American Association of Immunologists (AAI)
2010 - Present Member, Korean Association of Immunologists
2010 - Present Member, Korean Association for Laboratory Animal Science
2011 - Present Member, The Korean Society for Microbiology
2011 - Present Member, The Korean Society for Virology
2012 - Present Member, Korean Society for Molecular and Cellular Biology

Publication (Selected):

1. Yu HT, Youn JC, Kim JH, Seong YJ, Park SH, Kim HC, **Lee WW**, Park S, Shin EC. Arterial Stiffness Is Associated With Cytomegalovirus-Specific Senescent CD8⁺ T Cells. *J Am Heart Assoc*. 2017 Aug 28;6(9)
2. Kim D, Lee H, Koh J, Ko JS, Yoon BR, Jeon YK, Cho YM, Kim TH, Suh YS, Lee HJ, Yang HK, Park KS, Kim HY, Lee CW, **Lee WW**, Chung DH. Cytosolic Pellino-1-Mediated K63-Linked Ubiquitination of IRF5 in M1 Macrophages Regulates Glucose Intolerance in Obesity. *Cell Rep*. 2017 Jul 25;20(4):832-845.
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4. Kim HY, Yoo TH, Hwang Y, Lee GH, Kim B, Jang JY, Yu HT, Kim MC, Cho JY, Lee CJ, Kim HC, Park P, **Lee WW**. Indoxyl sulfate (IS)-mediated immune dysfunction provokes endothelial damage in patients with end-stage renal disease (ESRD). *Sci Rep*. 2017, Jun 8;7(1):3057
5. Chung YH, Kim DH, **Lee WW**. Monosodium urate crystal-induced pro-interleukin-1 β production is post-transcriptionally regulated via the p38 signaling pathway in human monocytes. *Sci Rep*. 2016, 2016, Oct 3;6:34533
6. Kang JA, Park SH, Jeong SP, Han MH, Lee CR, Lee KM, Kim N, Song MR, Choi M, Ye M, Jung G, **Lee WW**, Eom SH, Park CS, Park SG. Epigenetic regulation of Kcna3-encoding Kv1.3 potassium channel by cereblon contributes to regulation of CD4⁺ T-cell activation. *Proc Natl Acad Sci U S A*. 2016 Aug 2;113(31):8771-6.
7. Yu HT, Park S, Shin EC, **Lee WW**. T cell senescence and cardiovascular diseases. *Clin Exp Med*. 2016 Aug;16(3):257-63.
8. Kim HJ, Yoon IH, Min BH, Kim YH, Shin JS, Kim JM, Kim JS, Nam HY, **Lee WW***, Park CG*. Porcine antigen-specific IFN- γ ELISpot as a potentially valuable tool for monitoring cellular immune responses in pig-to-non-human primate islet xenotransplantation. *Xenotransplantation*. 2016 Jul;23(4):310-9. * **contributed equally**
9. Hwang Y, Yu HT, Kim DH, Jang J, Kim HY, Kang I, Kim HC, Park S, **Lee WW**, Expansion of CD8⁺ T cells lacking the IL-6 receptor α chain in patients with coronary artery diseases (CAD), *Atherosclerosis*, 2016 Apr 1;249:44-51.
10. Kim BH, Yoon BR, Kim EK, Noh KH, Kwon SH, Yi EH, Lee HG, Choi JS, Kang SW, Park IC, **Lee WW***, Ye SK*. Alleviation of collagen-induced arthritis by the benzoxathiole derivative BOT-4-one in mice: implication of the Th1- and Th17-cell-mediated immune responses. *Biochem Pharmacol*. 2016 Jun 15;110-111:47-57. * **contributed equally**
11. Yoon BR, Chung YH, Yoo SJ, Kawara K, Kim J, Yoo IS, Park CG, Kang SW, **Lee WW**. Preferential Induction of the T Cell Auxiliary Signaling Molecule B7-H3 on Synovial Monocytes in Rheumatoid Arthritis. *J Biol Chem*. 2016 Feb 19;291(8):4048-57.
12. Lee H, Kim B, Choi YH, Hwang Y, Kim DH, Cho S, Hong SJ, **Lee WW**. Inhibition of interleukin-1 β -mediated interleukin-1 receptor-associated kinase 4 phosphorylation by zinc leads to repression of memory T helper type 17 response in humans. *Immunology*. 2015 Dec;146(4):645-56.

13. Park MH, Jin HK, Min WK, **Lee WW**, Lee JE, Akiyama H, Herzog H, Enikolopov GN, Schuchman EH, Bae JS. Neuropeptide Y regulates the hematopoietic stem cell microenvironment and prevents nerve injury in the bone marrow. *EMBO J*. 2015 Jun12;34(12):1648-60.
14. Lee N, You S, Shin MS, **Lee WW**, Kang KS, Kim SH, Kim WU, Homer RJ, Kang MJ, Montgomery RR, Dela Cruz CS, Shaw AC, Lee PJ, Chupp GL, Hwang D, Kang I. IL-6 receptor α defines effector memory CD8⁺ T cells producing Th2 cytokines and expanding in asthma. *Am J Respir Crit Care Med*. 2014 Dec 15;190(12):1383-94.
15. Yoon BR, Yoo SJ, Choi Yh, Chung YH, Kim J, Yoo IS, Kang SW, **Lee WW**. Functional phenotype of synovial monocytes modulating inflammatory T-cell responses in rheumatoid arthritis (RA). *PLoS One*. 2014 Oct 17;9(10):e109775.
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17. Yu M, Li G, **Lee WW**, Yuan M, Cui D, Weyand CM, Goronzy JJ. Signal inhibition by the dual-specific phosphatase 4 impairs T cell-dependent B cell responses with age. *PNAS*. 2012 109(15):E879-88.
18. **Lee WW**, Shin MS, Kang Y, Lee N, Jeon S, Kang I. The relationship of cytomegalovirus (CMV) infection with circulatory IFN- α levels and IL-7 receptor α expression on CD8⁺ T cells in human aging. *Cytokine*. 2012 58(3):332-5.
19. Kang SW*, Kim SH*, Lee N*, **Lee WW***, Hwang KA, Shin MS, Lee SH, Kim WU, Kang I. 1,25-Dihydroxyvitamin D3 promotes FOXP3 expression via binding to vitamin D response elements in its conserved noncoding sequence region. *J Immunol*. 2012 188(11):5276-82. * **contributed equally**
20. **Lee WW**, Lee N, Fujii H, Kang I. Active Hexose Correlated Compound promotes T helper (Th) 17 and 1 cell responses via inducing IL-1 β production from monocytes in humans. *Cell Immunol*. 2012 275(1-2):19-23.
21. Yu M*, **Lee WW***, Tomar D*, Pryshchep S, Czesnikiewicz-Guzik M, Lamar DL, Li G, Singh K, Tian L, Weyand CM, Goronzy JJ. Regulation of T cell receptor signaling by activation-induced zinc influx. *J Exp Med*. 2011 208(4):775-85. * **contributed equally**
22. Lee JS*, **Lee WW***, Kim SH, Kang Y, Lee N, Shin MS, Kang SW, Kang I, Age-associated alteration in naive and memory Th17 cell response in humans. *Clin Immunol*. 2011 140(1):84-91. * **contributed equally**
23. **Lee WW**, Kang SW, Choi J, Lee SH, Shah K, Eynon EE, Flavell RA, Kang I. Regulating human Th17 cells via differential expression of IL-1 receptor. *Blood* 2010 115(3):530-40.
24. **Lee WW**, Cui D, Czesnikiewicz-Guzik M, Vencio RZN, Aderem A, Shmulevich I, Weyand CM, Goronzy JJ. Age-dependent signature of metallothionein expression in primary CD4 T-cell responses is due to sustained zinc signaling. *Rejuvenation Res*. 2008 11(6):1001-11.
25. **Lee WW**, Yang ZZ, Li G, Weyand CM, Goronzy JJ. Unchecked CD70 expression on T cells lowers threshold for T cell activation in Rheumatoid Arthritis. *J Immunol*. 2007 179:2609-15.
26. Henel G, Singh K, Cui D, Pryshchep S, **Lee WW**, Weyand CM, Goronzy JJ. Uncoupling of T cell effector functions by inhibitory killer immunoglobulin-like receptors. *Blood* 2006 107(11):4449-57.

27. Naylor K, Li G, Vallejo AN, **Lee WW**, Koetz K, Bryl E, Witkowski J, Fulbright J, Weyand CM, Goronzy JJ. The influence of age on T cell generation and TCR diversity. *J Immunol.* 2005 174(11):7446-52.

Current research topics:

- Pathogenic roles of monocytes/macrophages in acute and chronic inflammatory diseases.
- Shaping of adaptive immune responses by IL-1 β /IL-1 receptor axis
- Profiling immune cell-signaling network by a cell-based multiplexing technique in humans
- Age-related changes in immune system: Identify novel biomarkers and molecular pathways
- Immunomodulatory roles of zinc as ionic signaling molecule (zinc homeostasis)

Keywords: autoimmunity, immunosenescence, inflammatory monocytes/macrophage, zinc homeostasis, cell-signaling network, human immunology