

Curriculum Vitae

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Education and Research Background:

Mar 1980-Feb1984	B.S., Department of Nutrition and Food Science, Pusan Women's University, Pusan, Korea
Mar 1984-Dec1987	Dietitian, Chunhae Hospital, Pusan, Korea
Mar 1988-Feb 1990	M.S., Department of Nutrition and Food Science, National Fisheries University of Pusan, Korea
Apr 1990-Mar 1994	Ph.D., Department of Nutrition, School of Medicine, University of Tokushima, Japan
Mar 1994-Dec1994	Lecturer, Department of Nutrition and Food Science, National Fisheries University of Pusan, Korea
Mar 1995-Feb 1998	Post-doctoral Fellow, Department of Oral Biology, University of Alabama at Birmingham, Alabama, U.S.A.
Mar 1998-Feb 2000	Senior Researcher, Department of Mucosal Immunology, Research institute for Microbial Diseases, Osaka University, Japan
Mar 2000-Feb 2003	Assistant Professor, Department of Mucosal Immunology, Research Institute for Microbial Diseases, Osaka University, Japan
Oct 2002-Nov 2002	Visiting Scientist, Department of Pathology, Standford University, U.S.A.
Mar 2003-Feb 2006	Visiting Scientist, Division of Mucosal Immunology, The Institute of Medical Science, The University of Tokyo, Japan
Mar 2006-Feb 2013	Adjunct Professor, Seoul National University, Seoul, Korea
Mar 2006-Feb 2010	Adjunct Faculty, The Biodesign Institute Arizona State University, U.S.A.
Mar 2003-Feb 2014	Chief, Mucosal Immunology Section, International Vaccine Institute, Korea
Mar 2014-present	Associate Professor and Professor, Mucosal Immunology Lab, Department of Convergence Medicine, Asan Medical Center/University of Ulsan College of Medicine, Korea

Award/Scholarships:

- 1990-1994 Japanese Government Scholarship (Mon-Bu-Shou)
1994. Mar. Award for excellent Ph.D. Student in Tokushima Univ.
2010. Sep. Award for Best Researcher in International Vaccine Institute
2016. Dec Award for Best Professor in Ulsan University School of Medicine

Memberships:

American Association of Immunologists
Society of Mucosal Immunologists
Korean Association of Immunologists
Japanese Association of Immunologists

Organizing Symposium:

- 2004 KOSEF-JSPS Asian Science Seminar “Development of mucosal vaccine: from basic research to clinical application” (Venue; IVI, Seoul, Korea)
2009 JST-KICOS Cooperative programme of IFReC and IVI “Regulation of innate immunity” (Venue; IVI, Seoul, Korea)
2017 Korea-Kapan Joint Meeting on Mucosal Immunology (Venue; Asan Medical Center)

Patents:

1. Name of patent : Screening method for vaccine targeting molecules
Inventor : Hiroshi Kiyono, Mi-Na Kweon, Myoung-Ho Jang
Role : Co-inventor
Filing date : 2004-03-25
Registration date : 2009-02-20
Registration number : 4264372
Name of country registered : Japan

2. Name of patent : Combination adjuvant formulation
Inventor : University of Saskatchewan, University of British Columbia, IVI
Role : Co-inventor
Filing date : 2009-09-15
Application number : PCT/CA2009/001463
Name of country registered : Canada, Australia, Brazil, New Zealand, USA

3. Name of patent : *Bacteroides Acidifaciens* as modulator of metabolic diseases
Role : Inventor
Filing date : 2015-12-08
Registration date : 2017-06-07
Registration number : 10-1746635
Name of country registered : Korea

4. Name of patent : *Bacteroides Acidifaciens* as modulator of metabolic diseases
Role : Inventor
Filing date : 2015-12-08
Registration date : 2018-08-31
Registration number : 6393425
Name of country registered: Japan

Publications

Peer Reviewed Article

1. Lee Y.S., Kim T. Y., Kim Y. Kim S., Lee S.H., Seo S.U., Zhou B.O., O E., Kim K.S., and Kweon M.N. Microbiota-derived lactate controls hematopoiesis and erythropoiesis through regulation stem cell factor from leptin receptor+ niches in the bone marrow. **Cell Reports**. Under revision.
2. Kim S., Shin Y.C., Kim T.Y., Kim Y., Lee Y.S., Lee S.H., Kim M.N., O E., Kim K.S., and Kweon M.N. Mucin degrader *Akkermansia muciniphila* accelerates intestinal stem cell-mediated epithelial development. **Gut Microbes**. 13(1):1-20 (2021)
3. Pandit M., Acharya S., Gu Y., Seo S.U., Kweon M.N. Kang B. and Chang J.H. Geranylgeranyl pyrophosphate amplifies Treg differentiation via increased IL-2 expression to ameliorate DSS-induced colitis. **Eur J Immunol** (2021) Online ahead of print
4. Kim Y., Hwang S.W., Kim S., Lee Y.S., Kim T.Y., Lee S.H., Kim S.J., Yoo H.J., Kim E.N., and Kweon M.N. Dietary cellulose prevents gut inflammation by modulating lipid metabolism and gut microbiota. **Gut Microbes**. 11(4):944-961 (2020).
5. Hong E.H., Cho J., Ahn J.H., Kwon B.E., Kweon M.N., Seo S.U., Yoon B.I., Chang S.Y., and Ko H.J. Plasmacytoid dendritic cells regulate colitis-associated tumorigenesis by controlling myeloid-derived suppressor cell infiltration. **Cancer Letter**. 493:102-112 (2020).
6. Sim H., Lee J.E., Yoo H.M., Cho S., Lee H., Baek A., Kim J. Seo H., Kweon M.N., Kim H.G., Jeon Y.J., Son M.Y., and Kim J. Iroquois homeobox protein 2 identified as a potential biomarker for Parkinson's disease. **Int J Mol Sci**. 21(10):3455 (2020).
7. Kim J., Ahn H., Yu S., Ahn J.H., Ko H.J., Kweon M.N., Hong E.J., An B.S., Lee E., and Lee G.S. I κ B ζ controls NLRP3 inflammasome activation via upregulation of the Nlrp3 gene. **Cytokine**. 127:154983 (2020).
8. Seo B., Jeon K., Moon S., Lee K., Kim W.K., Jeong H., Cha K.H., Lim M.Y., Kang W., Kweon M.N., Sung J., Kim W., Park J.H., and Ko G. *Roseburia spp.* abundance associates with alcohol consumption in humans and its administration ameliorates alcoholic fatty liver in mice. **Cell Host & Microbe**. 27:25-40 (2020).
9. Lee B., Hong G.S., Lee S.H., Kim H., Kim A., Hwang E.M., Kim J., Lee M.G., Yang J.Y., Kweon M.N., Tse C.M., Mark D., and Oh U. Anoctamin 1/TMEM 16A controls intestinal Cl⁻ secretion induced by carbachol and cholera toxin. **Exp Mol Med**. 51:91 (2019).
10. Ahn J.H., Cho J., Kwon B.E., Lee G.S., Yoon S.I., Kang S.G., Kim P.H., Kweon M.N., Yang H., Vallance B.A., Kim Y.I., Chang S.Y., and Ko H.J. I κ B ζ facilitates protective immunity against Salmonella infection via Th1 differentiation and IgG production. **Scientific Reports**. 9:8397 (2019).
11. Kim Y., Lee Y.S., Kang S.W., Kim S., Kim T.Y., Lee S.H., Hwang S.W., Kim J., Kim E.N., Ju J.S., Park Y.Y., and Kweon M.N. Loss of PKM2 in Lgr5⁺ intestinal stem cells promotes colitis-associated colorectal cancer.

- Scientific Reports.** 9: 6212 (2019).
12. Lee Y.S., Kim T.Y., Kim Y., Lee S.H., Kim S., Kang S.W., Yang J.Y., Baek I.J., Sung Y.H., Park Y.Y., Hwang S.W., O E., Kim K.S., Liu S., Kamada N., Gao N., and **Kweon M.N.** Microbiota-derived lactate accelerates intestinal stem cell-mediated epithelial development. ***Cell Host & Microbe.*** 24: 833-846 (2018).
 13. Lee C.H., Kim H.J., Lee Y.S., Kang G.M., Lim H.S., Lee S.H., Song D.K., Kwon O., Hwang I., Son M., Byun K., Sung Y.H., Kim S., Kim J.B., Choi E.Y., Kim Y.B., Kim K., **Kweon M.N.**, Sohn J.W., and Km M.S. Hypothalamic macrophage inducible nitric oxide synthase mediates obesity-associated hypothalamic inflammation. ***Cell Reports.*** 25: 934-946 (2018).
 14. Jang Y.J., Lim J.Y., Kim S., Lee Y.L., **Kweon M.N.**, and Kim J.H. Enhanced interferon- β response contributes to eosinophilic chronic rhinosinusitis. ***Frontiers in Immunology.*** 9: 2330 (2018).
 15. Kim Y.I., Song J.H., Ko H.J., **Kweon M.N.**, Kang C.Y., Reinecker H.C., and Chang S.Y. CX3CR1 macrophages and CD8⁺ T cells control intestinal IgA production. ***J Immunol.*** 201: 1287-1294 (2018).
 16. Kang M.H., Choi H., Oshima M., Cheong J.H., Kim S., Lee J.H., Park Y.S., Choi H.S., **Kweon M.N.**, Pack C.G., Lee J.S., Mills G.B., Myung S.J., and Park Y.Y. Estrogen-related receptor gamma functions as a tumor suppressor in gastric cancer. ***Nat Commun.*** 9: 3599 (2018).
 17. Yang J.Y., Lee Y.S., Kim Y., Lee S.H., Ryu S., Fukuda S., Hase K., Yang C. S., Kim H.M., Kwon B.E., Ko H.J., and **Kweon M.N.** Gut commensal *Bacteroides acidifaciens* prevents obesity and improves insulin sensitivity in mice. ***Mucosal Immunology.*** 10: 104-116 (2017).
 18. Kim Y., Lee Y.S., Yang J.Y., Lee S.H., Park Y.Y., and **Kweon M.N.** The resident pathobiont *Staphylococcus xylosus* in *NFkbiz*-deficient skin accelerates spontaneous skin inflammation. ***Scientific Reports.*** 7: 6348 (2017).
 19. Kim H.M., Lee R., Lee E.S., Kwon M.H., Huh J.H., Kwon B.E., Park E.K., Chang S.Y., **Kweon M.N.**, Kim P.H., Ko H.J., Chung C.H. iNKT cells prevent obesity-induced hepatic steatosis in mice in a C-C chemokine receptor 7-dependent manner. ***Int J Obes.*** 42: 270-279 (2017).
 20. Lee J.C., Lee H.Y., Kim T.K., Kim M.S., Park Y.M., Kim J., Park K. **Kweon M.N.**, Kim S.H., Bae J.W., Hur K.Y., and Lee M.S. Obesogenic diet-induced gut barrier dysfunction and pathobiont expansion aggravate experimental colitis. ***PLoS One.*** 12: e0187515 (2017).
 21. Yang J.Y., Kim M.S., Kim E., Cheon J.H., Lee Y.S., Seo S.U., Lee S.H., Kim Y., Shin S.H., Choi S.S., Kim B., Chang S.Y., Ko H.J., Bae J.W.*, and **Kweon M.N.*** Enteric viruses ameliorate gut inflammation via TLR3 and TLR7-mediated Interferon- β production. ***Immunity.*** 44: 889-900 (2016) (* co-corresponding authorship) (introduced as Preview by Stephanie M. Karst "Viral safeguard: The enteric virome protects against gut inflammation" ***Immunity*** 44: 715-717 (2016)).
 22. Shin H.J., Kim H., Oh S. Lee J.G., Kee M., Ko H.J. **Kweon M.N.**, Won K.J., and Baek S.H. AMPK-SKP2-CARM1 signalling cascade in transcriptional regulation of autophagy. ***Nature.*** 534: 553-557 (2016).

23. Arjun, S., Kong I.G., Lee S.H., Yang J.Y., Lee Y.S., Kim Y., Wibowo N., Middelberg A.P.J., Lua L.H.L. *, and **Kweon M.N.** * Modular virus-like particles for sublingual vaccination against *group A streptococcus*. ***Vaccine***. 34: 6472-6480 (2016). (* co-corresponding authorship)
24. Lee B. R., Kwon B. E., Hong E. H., Shim A., Song J. H., Kim H. M., Chang S. Y., Kim Y.J., **Kweon M. N.**, Youn J. I., and Ko H.J. Interleukin-10 attenuates tumour growth by inhibiting interleukin-6/signal transducer and activator of transcription 3 signalling in myeloid-derived suppressor cells. ***Cancer Letter***. 381(1):156-164 (2016).
25. Shim, A., Song J. H., Kwon B. E., Lee J. J. Ahn J. H., Kang J. W., Hwang S. N., Rhee K. J., Kim Y. J., Chang S. Y., Lee Y. S. **Kweon M. N.**, Cho H. J., and Ko H.J. Therapeutic and prophylactic activity of itraconazole against human rhinovirus infection in a murine model. ***Scientific Reports***. 6:23110 (2016).
26. Kim Y.I., Lee B.R., Cheon J.H., Kwon B.E., **Kweon M.N.**, Ko H.J., and Chang S.Y. Compensatory roles of CD8⁺ T cells and plasmacytoid dendritic cells in gut immune regulation for reduced function of CD4⁺ Tregs. ***Oncotarget***. 7: 10947-10961 (2016).
27. Kim Y.I., Song J. H., Kwon B.E., Kim H.N., Seo M.D., Park K.S., Lee S.W., Yeo S.G., **Kweon M.N.**, Ko H.J., and Chang S.Y. Pros and cons of VP1-specific maternal IgG for the protection of Enterovirus 71 infection. ***Vaccine***. 33: 6604-6610 (2015).
28. Lee Y. S., Yang H., **Yang J. Y.**, Kim Y., Lee S. H., Kim JH, Jang YJ, Vallance BA, and **Kweon M. N.** Interleukin-1 signaling in intestinal stromal cells prevents bacteremia upon *Citrobacter rodentium* infection via migration of IL-22 secreting neutrophils at early stages of infection. ***Infect Immun***. 83(8): 3257-3267 (2015). (Articles of significant interest selected from this issue by the editor)
29. Kim Y. I., **Yang J. Y.**, Ko H. J., **Kweon M. N.***, and Chang S. Y.* *Shigella flexneri* inhibits intestinal inflammation by modulation of host sphingosine-1-phosphate in mice. ***Immune Network***. 14(2):100-106 (2014). (* co-corresponding authorship)
30. Yang J.Y., Lee S.N., Chang S.Y. Ko H.J., Ryu S., and **Kweon M.N.** A mouse model of shigellosis by intraperitoneal infection. ***J Infect Dis***. 209: 203-215 (2014).
31. Adolph T.E., Tomczak M.F., Niederreiter L., Ko H.J., Böck J., Martinez-Naves E., Glickman J.N., Tschurtschenthaler M., Hartwig J., Hosomi S., Flak M.B., Cusick J.L., Kohno K., Iwawaki T., Billmann-Born S., Raine T., Bharti R., Lucius R., **Kweon M.N.**, Marciniak S.J., Choi A., Hagen S.J., Schreiber S., Rosenstiel P., Kaser A., Blumberg R.S. Paneth cells as a site of origin for intestinal inflammation. ***Nature***. 503 (7475):272-276 (2013).
32. Chang S.Y., Lee S.N., Yang J.Y., Kim D.W., Yoon J.H., Ko H.J., Ogawa M., Sasakawa C., and **Kweon M.N.** Acute non-inflammatory epithelial death plays a role in intrinsic defense against enteric bacteria. ***PLoS One***. 8(11): e81095 (2013).
33. Hong E.H., Chang S.Y., Lee B. R., Pyun A.R., Kim J.W., **Kweon M.N.**, and Ko H.J. Intratumoral injection of attenuated Salmonella vaccine can induce

- tumor microenvironmental shift from immune suppressive to immunogenic. **Vaccine**. 31(10): 1377-1384 (2013).
34. Chang S.Y., Song J.H., Guleng B., Cotoner C.A., Arihiro S., Zhao Y., Chiang H.S., O'Keeffe M., Liao G., Karp C.L., **Kweon M.N.**, Sharpe A.H., Bhan A., Terhorst C., and Reinecker H.C. Circulatory antigen processing by mucosal dendritic cells controls CD8⁺ T cell activation. **Immunity**. 38(1): 153-165 (2013).
 35. Yang H., Ko H.J., Yang J. Y., Seo S.U., and **Kweon M.N.** Interleukin-1 promotes coagulation which is necessary for protective immunity in the lung against *Streptococcus pneumoniae* infection. **J Infect Dis**. 207(1): 50-60 (2013).
 36. Hong E.H., Chang S.Y., Lee B.R., Kim Y.S., Lee J.M., Kang C.Y., **Kweon M.N.**, and Ko H.J. Blockade of Myd88 signaling induces antitumor effects by skewing the immunosuppressive function of myeloid-derived suppressor cells. **Int J Cancer**. 132(12): 2839-2848 (2013).
 37. Ryu J.H., Yoo J.Y., Kim M.J., Hwang S.G., Ahn K.C., Ryu J.C., Choi M.K., Joo J.H., Kim C.H., Lee S.N., Lee W.J., Kim J., Shin D.M., **Kweon M.N.**, Bae Y.S., Yoon J.H. Distinct TLR-mediated pathways regulate house dust mite-induced allergic disease in the upper and lower airways. **J Allergy Clin Immunol**. 131(2): 549-561 (2013).
 38. Seo S.U., Kim J. J., Yang H., Kwon H.J. Yang J. Y. Curtiss III R., **Kweon M. N.** Effective protection against secondary pneumococcal pneumonia by oral vaccination with attenuated *Salmonella* delivering PspA antigen in mice. **Vaccine**. 30(48):6816-23 (2012).
 39. Ko H.J., Yang H., Yang J. Y., Seo S.U., Chang S.Y., Seong J.K., and **Kweon M.N.** Expansion of Tfh-like cells during chronic *Salmonella* exposure mediates the generation of autoimmune hyper-gammaglobulinemia in MyD88-deficient mice. **Eur J Immunol**. 42: 618-628 (2012).
 40. Park H.J., Ferko B., Byun Y.H., Song J.H., Han G.Y., Roethl E., Egorov A., Muster T., Seong B., **Kweon M.N.**, Song M., Czerkinsky C., Nguyen H.H. Sublingual immunization with a live attenuated influenza A virus lacking the nonstructural protein 1 induces broad protective immunity in mice. **PLoS One**. 7(6): e39921 (2012).
 41. Kim J.O., Cha H.R., Kim E. D., and **Kweon M.N.** Pathological effect of IL-17A-producing TCR $\gamma\delta$ ⁺ T cells in mouse genital mucosa against HSV-2 infection. **Immunol Lett**. 147: 34-40 (2012).
 42. Seo S. U., Kwon H. J., Ko H. J., Byun, Y. H., Seong B. L., Uematsu S., Akira S., and **Kweon M.N.** Type I interferon signaling regulate Ly6C monocytes and neutrophils during acute viral pneumonia in mice. **PLoS Pathog**. 7(2) e1001304 (2011).
 43. Chang J.H., Chang S.Y., Cha H.R., Ko H.J., Seo S.U., and **Kweon M.N.** IFN- γ secreted by CD103⁺ dendritic cells leads to IgG class switching in the mesenteric lymph node in the absence of vitamin A. **J Immunol**. 186: 6999-7005 (2011).
 44. Cha H. R., Ko H. J., Kim E. D., Chang S. Y., Seo, S. U., Cuburu N., Ryu S., Chang J. H., Kim S., and **Kweon M. N.** MEC/CCL28 expression in the

- uterus attracts CCR10⁺ IgA plasma cells following mucosal vaccination via estrogen control. *J Immunol.* 187: 3044-3052 (2011).
45. Terahara K., Nochi T., Yoshida M., Takahashi Y., Goto Y., Hatai H., Kurokawa S., Jang M.H., **Kweon M.N.**, Domino S.E., Hiroi T., Yuki Y., Tsunetsugu-Yokota Y., Kobayashi K., Kiyono H. Distinct fucosylation of M cells and epithelial cells by Fut1 and Fut2, respectively, in response to intestinal environmental stress. *Biochem Biophys Res Commun.* 404(3): 822-828 (2011).
 46. Kim S.W., Yang H., Yoon G., Lee Y.J., **Kweon M.N.**, Kim J., Seo K.Y. Higher-order aberration changes after implantable collamer lens implantation for myopia. *Am J Ophthalmol.* 151(4): 653-662 (2011).
 47. Seo S. U., Kwon H. J., Song J. H., Byun Y. H., Seong B. L., Kawai T., Akira S., and **Kweon M. N.** MyD88 signaling is indispensable for primary influenza A virus infection but dispensable for secondary infection. *J Virol.* 84(24): 12713-12722 (2010).
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 53. Chang J. H., Cha H. R., Seo K. Y. and **Kweon M. N.** 1,25-Dihydroxyvitamin D₃ inhibits the differentiation and migration of T_H17 cells to protect against experimental autoimmune encephalomyelitis. *PLoS ONE.* 5: e12925 (2010).
 54. Shim D. H., Ko H. J., Ryu S., and **Kweon M. N.** Defensins play a crucial role in protecting mice against oral *Shigella flexneri* infection. *Biochem Biophys Res Commun.* 401: 554-560 (2010).
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- protects against genital papillomavirus infection. *J Immunol.* 183: 7851-7859 (2009).
57. Song J. H., Kim J. I., Kwon H. J., Shim D.H., Parajuli N., Cuburu N., Czerkinsky C. and **Kweon M. N.** CCR7-CCL19/CCL21 regulated dendritic cells are responsible for effectiveness of sublingual vaccination. *J Immunol.* 182: 6851-6860 (2009).
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