

CURRICULUM VITAE

Jaeu Yi (이재우), Ph.D.

2024.9~Present: Assistant Professor, Department of Biological Science, Ajou University, Korea

2023.7~ 2024.8: Staff Scientist in the Hsieh lab

2019.3~ 2023.6: Postdoc research associate, Chyi-Song Hsieh lab, Department of Internal Medicine, Division of Rheumatology, School of medicine, Washington University in St. Louis, USA

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Education

2012.3 – 2019.2 Graduate student in Surh laboratory

Pohang University of Science and Technology (POSTECH), Pohang, Republic of Korea

Academic advisor: The late Charles D. Surh (POSTECH, La Jolla Institute for Immunology)

You Jeong Lee (Seoul National University)

Supervisor for paper: Jonathan Sprent (Garvan Institute of medical research, Australia)

2005.3 – 2012.2 (undergraduate course)

Kyungpook National University, Daegu, Republic of Korea

B.A., Life & Food Sciences / B.S., Life Sciences & Biotechnology

Research Interest

1. Diet/microbiome interaction in the intestine (intestinal TCR specificities)
2. The role of self-reactive TCRs during homeostasis and autoimmunity
3. T cell epitope discovery

Research Papers

1. Yi J, Jung J, Hsieh P, Horton D, Peng P, Newberry R, Ericsson A, Kim KS, Kau A, and Hsieh C-S. A hierarchy of intestinal antigens instructs the CD4+ T cell receptor repertoire. *Immunity*. 2025 May 2:S1074-7613(25)00174-8
2. Akihisa Kawajiri, Jing Li, Keita Koinuma, Ziyang Yang, Hye Jin Yoon, Jaeu Yi, Hiroyuki Nagashima, Minami Ishii, Feng Gao, Kosuke Sato, Shunichi Tayama, Hideo Harigae, Yoichiro Iwakura, Naoto Ishii, Alan Sher, Kazuyoshi Ishigaki, Jinfang Zhu, Kwang Soon Kim, Takeshi Kawabe. Naturally arising memory-phenotype CD4+ T lymphocytes contain an undifferentiated population that can generate TH1, TH17, and Treg cells. *Sci Adv*. 2024 Dec 6;10(49):eadq6618.
3. Yi J, Hsieh CS. How decreasing T cell signaling unexpectedly results in autoimmunity. *J Exp Med*. 2023 Feb 6;220(2):e20221886. doi: 10.1084/jem.20221886
4. Yi J, Miller AT, Archambault AS, Jones AJ, Bradstreet TR, Bandla S, Hsu YS, Edelson BT, Zhou YW, Fremont DH, Egawa T, Singh N, Wu GF, Hsieh CS. Antigen-specific depletion of CD4+ T cells by CAR T cells reveals distinct roles of higher- and lower-affinity TCRs during autoimmunity. *Sci Immunol*. 2022 Oct 14;7(76):eabo0777 (Cover article).
5. Russler-Germain EV, Jung J, Miller AT, Young S, Yi J, Wehmeier A, Fox LE, Monte KJ, Chai JN, Kulkarni DH, Funkhouser-Jones LJ, Wilke G, Durai V, Zinselmeyer BH, Czepielewski RS, Greco S, Murphy KM, Newberry RD, Sibley LD, Hsieh CS. Commensal *Cryptosporidium* colonization elicits a cDC1-dependent Th1 response that promotes intestinal homeostasis and limits other infections. *Immunity*. 2021 Nov 9;54(11):2547-2564.e7.
6. Kawabe T, Yi J, Sprent J. Homeostasis of Naïve and Memory T lymphocytes. *Cold Spring Harb Perspect Biol*. 2021 Mar 22:a037879.
7. Russler-Germain EV, Yi J, Young S, Nutsch K, Wong HS, Ai TL, Chai JN, Durai V, Kaplan

- DH, Germain RN, Murphy KM, Hsieh CS. Gut Helicobacter presentation by multiple dendritic cell subsets enables context-specific regulatory T cell generation. **Elife**. 2021 Feb 3;10:e54792.
8. Kawabe T, Yi J, Kawajiri A, Hilligan K, Fang D, Ishii N, Yamane H, Zhu J, Jankovic D, Kim KS, Trinchieri G, Sher A. Requirements for the differentiation of innate T-bet high memory-phenotype CD4⁺ T lymphocytes under steady state. **Nat Commun**. 2020 Jul 6;11(1):3366.
 9. Yi J, Kawabe T, Sprent J. New insights on T-cell self-tolerance. **Curr Opin Immunol**. 2020 Apr;63:14-20
 10. Hong SW, O E, Lee JY, Yi J, Cho K, Kim J, Kim D, Surh CD, Kim KS. Interleukin-2/antibody complex expanding Foxp3⁺ regulatory T cells exacerbates Th2-mediated allergic airway inflammation. **BMB Rep**. 2019 Apr;52(4):283-288
 11. Yi J, Jung J, Han D, Surh CD, Lee YJ. Segmented Filamentous Bacteria Induce Divergent Populations of Antigen-Specific CD4⁺ T Cells in the Small Intestine. **Mol Cells**. 2019 Mar 31;42(3):228-236.
 12. Yi J, Jung J, Hong S-W, Lee JY, Han D, Kim KS, Sprent J, Surh CD. Unregulated APC activation by T cells breaks self-tolerance. **Proc Natl Acad Sci U S A**. 2019 Jan 15;116(3):1007-1016
 13. Verma R, Lee CH, Jeun EJ, Yi J, Kim KS, Ghosh A, Byun SH, Lee CG, Kang HJ, Gi- Kim C, Jun CD, Jan G, Suh CH, Jung JY, Sprent J, Rudra D, Castro CD, Molinaro A, Surh CD, Im SH. Cell surface polysaccharides of *Bifidobacterium bifidum* induce the generation of Foxp3⁺ regulatory T Cells. **Sci Immunol**. 2018 Oct 19;3(28)
 14. Lee JY, Kim J, Yi J, Kim D, Kim HO, Han D, Sprent J, Lee YJ, Surh CD, Cho JH. Phenotypic and functional changes of peripheral Ly6C⁺ T regulatory cells driven by conventional effector T cells. **Front Immunol**. 2018 Mar 16;9:437.
 15. Han D, Walsh MC, Kim KS, Hong SW, Lee J, Yi J, Rivas G, Choi Y, Surh CD. Dendritic cell expression of the signaling molecule TRAF6 is required for immune tolerance in the lung. **Int Immunol**. 2017 Mar 11.
 16. Kim KS, Hong SW, Han D, Yi J, Jung J, Yang BG, Lee JY, Lee M, Surh CD. Dietary antigens limit mucosal immunity by inducing regulatory T cells in the small intestine. **Science**. 2016 Feb 19;351(6275):858-63.
 17. Han D, Walsh MC, Kim KS, Hong SW, Lee J, Yi J, Rivas G, Surh CD, Choi Y. Microbiota-Independent Ameliorative Effects of Antibiotics on Spontaneous Th2-Associated Pathology of the Small Intestine. **PLoS One**. 2015 Feb 17;10(2): e0118795.

Funding

Principle Investigator, Excellent Young Researcher Project (RS-2025-00515400)	2025.3-2030.2
Sub-project Investigator, Basic Science Research Program (RS-2021-NR060141)	2025.3-2026.2

Poster presentation

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1. Poster presentation, 2024, Cytokine & KAI joint meeting, Korea
 2. Poster presentation, 2023, KAI international meeting, Korea
 3. Poster presentation, 2023, The 61st Midwinter Conference of Immunologists at Asilomar, Pacific Grove, USA
 4. Poster presentation, 2022, International Congress of Mucosal Immunology, Seattle, USA
 5. Poster presentation, 2016, The 45th Annual Meeting of the Japanese Society for Immunology, Okinawa, Japan
 6. Poster presentation, 2016, The 16th International Congress of Immunology, Melbourne, Australia
 7. Poster presentation, 2015, Fall Conference of the Korean Association of Immunologists, Seoul, Republic of Korea
 8. Poster presentation, 2015, Keystone Symposia on T cells: Regulation and Effector function, Utah, USA

Talks

1. Gyeonggi Science High school for the Gifted, 2025, Suwon, Korea
2. Regular seminar, 2025, Pusan National University, Seoul, Korea
3. New faculty session, 2025, KAI spring meeting, Seoul, Korea
4. Regular Seminar, 2025, School of Life Sciences, GIST, Korea
5. Irregular Seminar, 2024, Department of Bio and Brain Engineering, KAIST, Korea
6. Oral abstract sessions, 2024, International Congress of Mucosal Immunology, Copenhagen, Denmark
7. Regular Seminar, 2023, Department of Biotechnology, Yonsei University, Korea
8. Young investigator session, 2023 KAI international meeting, Korea
9. Online Seminar, 2023, Korea University college of medicine, Korea
10. ESNI Journal club with authors, 2023, European School of Neuroimmunology.
11. Gnotobiotics Workshop, 2023, Washington University school of medicine, St. Louis, USA
12. Immunology program retreat, 2022, Washington University school of medicine, Potosi, USA
13. Oral abstract sessions, 2022, International Congress of Mucosal Immunology, Seattle, USA
14. Fall seminar series, 2020, Department of Pharmaceutical Sciences, Southern Illinois University-School of Pharmacy, USA