Seong-Jun Kang, Ph.D.

Computational immunologist integrating experimental immunology with single-cell and spatial data analysis
Postdoctoral applicant · Boston, MA

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Authorized to work in the U.S.
(No visa sponsorship required to start)
Available from Oct 2026

RESEARCH PROFILE

I am a computational and experimental immunologist combining single-cell and spatial multi-omics with primary-cell functional assays and preclinical disease models. I characterized shared and disease-specific gene expression programs across 251,055 memory CD4+ T cells from 64 donors and quantified alternative isoform usage directly from 5' scRNA-seq reads, validating recurrence across a 702-sample immune disease atlas (*Nature Immunology*, in revision). I generate and analyze multimodal datasets across 10x Genomics, GeoMx DSP, 24-marker flow cytometry, Olink proteomics, and Biacore SPR, and currently construct integrated human brain and skin transcriptomic atlases (~5,283,000 cells and nuclei). As Associate Director at PB Immune Therapeutics, I built in-house single-cell, spatial, and proteomic workflows and led preclinical anti-CD40 antibody evaluation through non-human primate studies. I am also the lead author of *AI Drug Discovery: A Practical Guide for Biomedical Researchers* (PanmunEducation, Korea, Sep 2026). At the 2026 NVIDIA Agentic AI Hackathon, I developed an agentic AI platform for drug discovery and safety assessment, and our team was selected as a top five finalist.

CORE COMPETENCIES

- **Single-cell, spatial, and multi-omic profiling.** 10x Genomics workflows (5′/3′ scRNA-seq, scTCR-seq, snRNA/snATAC-seq, Chromium Connect automation), GeoMx DSP, Visium, MACSima cyclic immunofluorescence, 24-marker flow cytometry, and Olink targeted proteomics.
- **Computational transcriptomics, machine learning, and AI agent development.** Python and R workflows for multi-cohort single-cell integration, gene-expression program analysis (including cNMF frameworks), and direct isoform quantification from 5' scRNA-seq reads across 251,055 cells (*Nature Immunology*, in revision); model development using PyTorch, RDKit, QSAR, ChemBERTa, GNN, AutoDock, and AlphaFold 3, and agentic AI development for drug discovery and safety using the NVIDIA BioNeMo platform (Top-5 at 2026 NVIDIA Agentic AI Hackathon).
- **Cellular, molecular, and biophysical assays.** Primary human and murine immune-cell isolation, culture, and functional assays (T-cell suppression, activation, and short-isoform overexpression); Biacore SPR and competition ELISA binding assays.
- **Animal models and *in vivo* immune monitoring.** 5xFAD Alzheimer's disease and EAE mouse models; skin- and islet-transplantation studies; non-human primate immune monitoring.
- **Research leadership, mentoring, and grant writing.** Multi-site sample QC, collaboration across academia and industry, mentoring of 17 trainees, and lead proposal writer on four funded R&D grants (~$1.2M USD total).

EDUCATION

Ph.D.
2014–2023

Seoul National University, Seoul, Republic of Korea
Department of Biomedical Sciences
Thesis: Exploration of the Role of Regulatory T cells in Various Pathogenic Contexts
Advisor: Chung-Gyu Park, M.D., Ph.D.

M.S.
2012–2014

Seoul National University, Seoul, Republic of Korea
Department of Biomedical Sciences
Thesis: Enhanced LPS-Induced Monocyte Activation by Recombinant Human Soluble CD14
Advisor: Chung-Gyu Park, M.D., Ph.D.

B.S.
2008–2012

Sungkyunkwan University, Suwon, Republic of Korea
Department of Genetic Engineering

RESEARCH & PROFESSIONAL EXPERIENCE

Researcher (postdoctoral)
2025–present

Yonsei University Wonju College of Medicine · Dept. of Physiology / Organelle Medicine Research Center, Wonju, Republic of Korea
Developing integrated human brain and skin transcriptomic atlases (~5,283,000 cells and nuclei) and multi-cohort meta-analysis workflows to characterize shared molecular signatures of aging, immune remodeling, and Alzheimer's pathology.

Associate Director
Sep 2023–Aug 2025

PB Immune Therapeutics Inc. · Dept. of Basic Research, Seoul, Republic of Korea
Led anti-CD40 candidate evaluation, including primate studies, external-study coordination, advancement decisions, and single-cell/spatial workflow development.

Manager
May 2021–Aug 2023

PB Immune Therapeutics Inc. · Dept. of Basic Research, Seoul, Republic of Korea
Led KDDF-funded anti-CD40 lead-selection work and wrote proposals for multiple sclerosis and pemphigus vulgaris programs.

Researcher
Sep 2019–Apr 2021

Xenotransplantation Research Center, Seoul National University, Seoul, Republic of Korea
Rhesus tissue processing and transplant immune monitoring.

Military Service
Sep 2016–Aug 2019

Research Personnel, Transplantation Research Institute, Seoul National University MRC, Seoul, Republic of Korea

Teaching Assistant
Sep 2014–Aug 2016

Seoul National University College of Medicine · Dept. of Microbiology and Immunology, Seoul, Republic of Korea

Research Student
Mar 2012–Aug 2014

BK21 Plus Biomedical Science Project, Seoul National University, Seoul, Republic of Korea

PUBLICATIONS

20 Total | 17 Published | 1 In revision | 2 In preparation | 6 First / Co-first Published & in revision

Google Scholar · Full Profile, Citations & h-index ↗

First / Co-first Author

2026 Woogil Song*, **Seong-Jun Kang***, Taehee Stella Kim*, Seyoung Jung, Sung Hee Kim, Su Chan Park, Sung Hae Chang, Eun Young Lee, Tae-Gyun Kim, Hyun Je Kim, Jeong Seok Lee. **"Conserved PDE4D short-isoform bias defines pathogenic Th1.17 state across human inflammatory diseases."** *Nature Immunology*. **in revision**
Isoform analysis of 251,055 memory CD4-positive T cells identified a PDE4D short-isoform bias in pathogenic Th1.17 cells. The study also tested selective inhibition.

2025 **Seong-Jun Kang***, Yong-Hee Kim*, Thuy Nguyen-Phuong*, Yijoon Kim, Jin-Mi Oh, Jae-chun Go, DaeSik Kim, Chung-Gyu Park, Hyunsu Lee, Hyun Je Kim. **"Immune cell-enriched single-cell RNA sequencing unveils the interplay between infiltrated CD8⁺ T resident memory cells and choroid plexus epithelial cells in Alzheimer's disease."** *Journal of Neuroimmunology*.
Immune-enriched single-cell analysis of 11,587 mouse brain cells examined CD8-positive resident memory T cells and their interactions with choroid plexus epithelium.

2025 **Seong-Jun Kang***, Jeong-Ryeol Gong*, Seon-Pil Jin, Jin-Mi Oh, Hyunjin Jin, Yuji Lee, Yewon Moon, Dongjun Kim, Hyo Jeong Nam, Hyun Seung Choi, Sanha Hwang, Yun Jung Huh, Kyung Yeon Han, Jihwan Moon, Jongsuk Chung, Woong-Yang Park, Chung-Gyu Park, Hyun Je Kim, Jeong Eun Kim. **"Deciphering Dysfunctional Regulatory T Cells in Atopic Dermatitis."** *Allergy*.
Single-cell profiling and functional assays examined skin-homing regulatory T cells in atopic dermatitis. OX40 was increased alongside impaired suppressive function.

2024 Jong-Min Kim*, **Seong-Jun Kang***, So-Hee Hong*, Hyunwoo Chung, Jun-Seop Shin, Byoung-Hoon Min, Hyun Je Kim, Jongwon Ha, Chung-Gyu Park. **"Long-term control of diabetes by tofacitinib-based immunosuppressive regimen after allo-islet transplantation in diabetic rhesus monkeys that rejected previously transplanted porcine islets."** *Xenotransplantation*.
A tofacitinib-based regimen supported long-term diabetes control after islet allotransplantation in rhesus macaques. The work included longitudinal immune monitoring.

2022 Youngkyoung Lim*, **Seong-Jun Kang***, Beom Keun Cho, Hyun Je Kim, … Chong Hyun Won, Chung-Gyu Park. **"Intra-tumoral heterogeneity and immune escape of melanoma arising from congenital melanocytic nevus revealed by spatial gene expression profiling."** *JEADV*.
GeoMx profiling across 16 regions examined melanoma heterogeneity by invasion depth. HLA class I and II expression decreased with greater invasion.

2019 Jong-Min Kim*, Jun-Seop Shin*, Byoung-Hoon Min*, **Seong-Jun Kang***, Il-Hee Yoon, Hyunwoo Chung, Jiyeon Kim, Eung-Soo Hwang, Jongwon Ha, Chung-Gyu Park. **"JAK3 inhibitor-based immunosuppression in allogeneic islet transplantation in cynomolgus monkeys."** *Islets*.
The study tested JAK3 inhibitor-based immunosuppression in cynomolgus macaques receiving allogeneic islet transplants, as an approach to controlling transplant rejection.

Contributing Author

2026 Jung Ho Lee*, Sung Ha Lim*, Hyungdon Kook, **Seong-Jun Kang**, Geon Lee, Brian Hyohyoung Lee, Hyunsung Nam, YongJun Kim, Christine Suh-Yun Joh, Soyoung Jeong, Dongryeol Shin, Hyun Je Kim, Jiyoung Ahn. **"Mycosis Fungoides-like Atopic Dermatitis Represents a Th22-dominant Inflammatory Endotype."** *Allergy*.

2024 Brian Hyohyoung Lee*, Yoon Ji Bang*, Sung Ha Lim*, **Seong-Jun Kang**, Sung Hee Kim, Seunghee Kim-Schulze, Chung-Gyu Park, Hyun Je Kim, Tae-Gyun Kim. **"High-dimensional profiling of regulatory T cells in psoriasis reveals an impaired skin-trafficking property."** *eBioMedicine*.

2024 Youngkyoung Lim*, Beom Keun Cho*, **Seong-Jun Kang**, Soyoung Jeong, Hyun Je Kim, Jiyoon Baek, Ji Hwan Moon, Cheol Lee, Chan-Sik Park, Je-Ho Mun, Chong Hyun Won, Chung-Gyu Park. **"Spatial transcriptomic analysis of tumour–immune cell interactions in melanoma arising from congenital melanocytic nevus."** *JEADV*.

2023 Sunyoung Jung*, Sunho Lee, Hyun Je Kim, Sueon Kim, Ji Hwan Moon, Hyunwoo Chung, **Seong-Jun Kang**, Chung-Gyu Park. **"Mesenchymal stem cell-derived extracellular vesicles subvert Th17 cells by destabilizing RORγt through posttranslational modification."** *Experimental & Molecular Medicine*.

2022 Sangho Lee, Han-Teo Lee, Young Ah Kim, Il-Hwan Lee, **Seong-Jun Kang**, Kyeongpyo Sim, Chung-Gyu Park, Kyungho Choi, Hong-Duk Youn. **"The optimized core peptide derived from CABIN1 efficiently inhibits calcineurin-mediated T-cell activation."** *Experimental & Molecular Medicine*.

2021 So Hee Hong, Hyun Je Kim, **Seong-Jun Kang**, Chung-Gyu Park. **"Novel Immunomodulatory Approaches for Porcine Islet Xenotransplantation."** *Current Diabetes Reports*.

2020 Sunho Lee, Sueon Kim, Hyunwoo Chung, Ji Hwan Moon, **Seong-Jun Kang**, Chung-Gyu Park. **"Mesenchymal stem cell-derived exosomes suppress proliferation of T cells by inducing cell cycle arrest through p27kip1/Cdk2 signaling."** *Immunology Letters*.

2019 Hyun Je Kim, Ji Hwan Moon, Hyunwoo Chung, Jun-Seop Shin, Bongi Kim, Jong Min Kim, Jung-Sik Kim, Il-Hee Yoon, Byoung-Hoon Min, **Seong-Jun Kang**, Yong-Hee Kim, Kyuri Jo, Joungmin Choi, Heejoon Chae, Won Woo Lee, Sun Kim, Chung-Gyu Park. **"Bioinformatic analysis of peripheral blood RNA-sequencing sensitively detects the cause of late graft loss following overt hyperglycemia in pig-to-non-human primate islet xenotransplantation."** *Scientific Reports*.

2018 Byoung-Hoon Min, Jun-Seop Shin, Jong-Min Kim, **Seong-Jun Kang**, Hyun-Je Kim, Il-Hee Yoon, Su-Kyoung Park, Ji-won Choi, Min-Suk Lee, Chung-Gyu Park. **"Delayed revascularization of islets after transplantation by IL-6 blockade in pig-to-non-human primate islet xenotransplantation model."** *Xenotransplantation*.

2018 Jun-Seop Shin, Jong-Min Kim, Byoung-Hoon Min, Il Hee Yoon, Hyun Je Kim, Jung-Sik Kim, Yong-Hee Kim, **Seong-Jun Kang**, Jiyeon Kim, Hee-Jung Kang, Dong-Gyun Lim, Eung-Soo Hwang, Jongwon Ha, Sang-Joon Kim, Wan Beom Park, Chung-Gyu Park. **"Pre-clinical results in pig-to-non-human primate islet xenotransplantation using anti-CD40 antibody (2C10R4)-based immunosuppression."** *Xenotransplantation*.

2018 Jong-Min Kim, Jun-Seop Shin, Byoung-Hoon Min, Il Hee Yoon, **Seong-Jun Kang**, Won-Young Jeong, Sang-Joon Kim, Chung-Gyu Park. **"Pre-Clinical Results of Islet Allo-Transplantation Using JAK Inhibitor as Replacement for Tacrolimus in Cynomolgus Monkeys."** *Transplantation*.

2018 Jung-Sik Kim, Hyunwoo Chung, Nari Byun, **Seong-Jun Kang**, Sunho Lee, Jun-Seop Shin, Chung-Gyu Park. **"Construction of EMSC-islet co-localizing composites for xenogeneic porcine islet transplantation."** *Biochemical and Biophysical Research Communications*.

Manuscripts in Preparation

2026 Kangsan Roh*, Sabyasachi Das*, **Seong-Jun Kang**, Olga Barreiro, Rodrigo Javier Gonzalez, Timothy P. Padera, Shraddha Shirguppe, Ahlim Lee, Youngju Song, Pazhanichamy Kalailingam, Claire E. Fong, Aarushi Gandhi, Meehyun Kim, Diana Tambala, Adam Vernon Crain, Casey A. Maguire, Ulrich H. Von Andrian, Christian L. Lino Cardenas, Sekeun Kim, Benjamin P. Kleinstiver, Mark E. Lindsay, Patricia L. Musolino, Rajeev Malhotra. **"In-vivo base editing of ACTA2 R179H restores lymphatic function and immune cell homeostasis in a murine model of Multisystemic Smooth Muscle Dysfunction Syndrome (MSMDS)."** **in preparation**

Co-author (immunology). Ran the Olink plasma proteomics across 12 patients and 6 controls and the flow-cytometry immunophenotyping of lymph-node leukocytes.

2026 Sung Ha Lim*, Jiyeon Oh*, Kyu-Hee Hwang, Taesic Lee, **Seong-Jun Kang**, Eung Ho Choi, Seung-Kuy Cha. **"Skin-brain transcriptomic convergence: an integrative framework for predicting Alzheimer's disease from cutaneous aging signatures."** **in preparation**

Co-author (methodology, single-cell analysis). Built the method that turns a meta-analysis of 8 skin-aging transcriptome datasets into gene sets and uses them to classify Alzheimer's disease in human brain transcriptomes. Reanalyzed public skin and brain single-cell data (~5,283,000 cells and nuclei) to map the candidate genes to specific cell types.

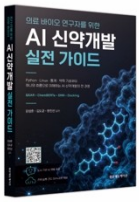
TECHNICAL EXPERTISE

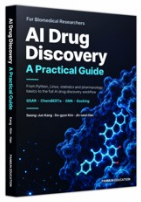
Single-cell / spatial / multi-omic	scRNA-seq, scTCR-seq, snRNA/snATAC; 10x 5′/3′ library generation and 10x Chromium Connect automated preparation. Single-cell sequencing data analysis and interpretation in Python and R. Spatial: GeoMx DSP run end to end, Visium, MACSima cyclic multiplexed immunofluorescence; and meta-analysis of public skin and brain transcriptome datasets.
Computational & AI	Python, R, Linux, and Git; scikit-learn, XGBoost/LightGBM/CatBoost, and PyTorch; Model development and data analysis using RDKit, QSAR, ChemBERTa, GNN, AutoDock, and AlphaFold 3; Agentic AI development, NVIDIA BioNeMo platform. Non-autoregressive models like Jev from TypeSafe AI, Laya, Kev, and TabPFN.
Cell, tissue & immunological assays	Primary human T-cell isolation, expansion and functional assays; monocyte and dendritic-cell differentiation; mesenchymal stem cell culture. Enzymatic tissue digestion, Percoll enrichment, cell and nucleus isolation. High-dimensional flow cytometry (panels up to 24 markers); multiplex panel design; 10-color 6-way FACS. Olink targeted plasma proteomics (immune & neurology panels).
Microscopy & animal models	Spinning-disk confocal (Nikon CSU-W1 SORA), point-scanning confocal (Leica SP8), two-photon; IHC/IF (frozen & FFPE) with quantitative image analysis. Non-human primate models including multiple sclerosis; 5xFAD Alzheimer’s disease mouse model, EAE mouse model immune profiling. TWIK-1 KO mouse breeding, islet xenotransplantation model.
Study execution & collaboration	Study design, external-study coordination, multi-site sample QC, milestone tracking, regulatory documentation, and data review.

BOOKS

Seong-Jun Kang, Do-gyun Kim, Jin-seon Han. **AI Drug Discovery: A Practical Guide for Biomedical Researchers** (title translated). PanmunEducation. September 21, 2026. 548 pages. ISBN 979-11-5943-583-6. YES24 Global

The book covers molecular and protein data preparation, QSAR, ChemBERTa, graph neural networks, docking, virtual screening, candidate optimization.





PATENTS

2024 **Antagonistic Anti-CD40 Humanized Antibody.**
Republic of Korea, Appl. No. 10-2024-0085972; registered 2024-07-01. Co-inventor.

2019 **Immunosuppression Composition Comprising JAK Inhibitor.**
Republic of Korea, Appl. No. 10-2017-0104345; registered 2019-08-20. Co-inventor.
Patent No. 10-2014349

AWARDS & SCHOLARSHIPS

Awards

2026 **Top 5 Finalist**, NVIDIA Korea Agentic AI Hackathon 2026 (Project FlyGate Team)

Jun 2024 **Grand Prize**, 2024 GPTers AI Hackathon (Project GAIA Team)

Dec 2023 **Grand Prize**, SBA Smart Workathon for Work Process Innovation

Dec 2021 **Excellence Award (Poster Presentation)**, 2021 Research Safety Contest, Seoul National University College of Medicine

Dec 2020 **Excellence Award (Poster Presentation)**, 2020 Research Safety Contest, Seoul National University College of Medicine

Dec 2017 **Best Research Award**, 2017 Infection and Immunity Research Festival, Department of Microbiology and Immunology, Seoul National University College of Medicine

Nov 2017 **Best Presentation Award (Poster Presentation)**, 2017 Annual Meeting of the Korean Association of Immunologists

May 2017 **Best Poster in Congress Award**, 2017 American Transplant Congress, Chicago

Scholarships

Sep 2019–Aug 2020 **Research Scholarship for Ph.D. Candidates**, National Research Foundation of Korea (NRF)

Sep 2014–Aug 2016 **Lecture and Research Support Scholarship**, Dean of Seoul National University College of Medicine

Mar 2012–Aug 2014 **BK21 Research Scholarship**, BK21 Plus Biomedical Science Project, Seoul National University

Selected Presentations

Poster KAI Annual Meeting, Incheon (2022) · Cytokine, Hawaii (2022) ·
American Transplant Congress, Chicago (2017) ·
The Transplantation Society, Hong Kong (2016) ·
IPITA/IXA/CTS, Melbourne (2015) · TREG, Shanghai (2012)

SELECTED GRANT WRITING & PROGRAM FUNDING

Industry · PB Immune Therapeutics (Manager → Associate Director)

Funding Agency / Sponsor	Project	Period	Budget (USD)	Role / Contribution
Korea Drug Development Fund (KDDF)	Anti-CD40 antibody lead selection and optimization (multiple sclerosis)	2021–2023	~$571,000	Lead proposal writer (>90% of proposal & execution)
Korea Drug Development Fund (KDDF)	Anti-CD40 lead compound (PB101): efficacy and pharmacodynamic biomarkers (pemphigus vulgaris)	2022–2024	~$321,000	Lead proposal writer (>90% of proposal & execution)
Ministry of SMEs and Startups (MSS)	Scale-up Funding for Tech Commercialization	2022–2023	~$222,000	Lead proposal writer; managed >90% of execution
Ministry of SMEs and Startups (MSS)	Early-stage startup R&D: anti-CD40 biologic (PB-40N) to prevent anti-drug antibodies	2021–2022	~$74,000	Lead proposal writer & core researcher
NAVER Corporation	Engineered regulatory T cells for immune-mediated diseases (PB20X_Treg)	2023–2026	~$128,000	Proposal & study design (~50%)

Doctoral training · Seoul National University

Funding Agency / Sponsor	Project	Period	Budget (USD)	Role / Contribution
Ministry of Science and ICT (MSIT)	Multi-layered immune-disease single-cell map for molecular target discovery (SCAID, A9-22-1-05)	2022–2028 (3+3)	~$1.6M	Participated in proposal writing (>30%)
Ministry of Education (MOE) & Ministry of Science and ICT (MSIT)	Laboratory-Specialized Tech-Transfer & R&BD Grant	2020–2021	~$40,000	Grant writing, experimental design & technical validation

Budgets are approximate conversions at KRW 1,400 per USD. Project periods are award periods.

MENTORING AND RESEARCH TRAINING

Year	Mentee / role at time	Current affiliation	Research training
2013	Sung Ha Lim, M.D., Ph.D.Student intern	Postdoctoral Fellow; Laboratory of Shadmehr Demehri, M.D., Ph.D.; Department of Dermatology, Massachusetts General Hospital; Harvard Medical School, Boston, MA, USA	Cell culture, Western blotting, flow cytometry, and C57BL/6 mouse breeding.
2014	Soyoung Jeong, Ph.D.Student intern	Postdoctoral Associate; Medical Research Center, Seoul National University, Seoul, Republic of Korea	Cell culture, flow cytometry, and in vivo mouse experiments.
2016	Sowon Choi, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	Mouse pancreatic islet isolation, pancreatic islet beta-cell functional assays, and ion channel assays.
2021	Hyo Jeong Nam, M.S.Incoming graduate student	Associate Researcher, Human Immune Monitoring Center, Icahn School of Medicine at Mount Sinai, New York, NY, USA	GeoMx DSP, T-cell functional assays, and single-cell RNA sequencing (scRNA-seq) data analysis using R.
2021	Beom Keun Cho, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	GeoMx DSP, mouse breeding, cell culture, T-cell functional assays, and scRNA-seq data analysis using R.
2021	Minji Kang, Ph.D.Incoming graduate student	Postdoctoral Associate; Transplantation Research Institute; Seoul National University Medical Research Center, Seoul, Republic of Korea	GeoMx DSP spatial transcriptomics data analysis and T-cell functional assays.

2021	Jung Ho Lee, M.S.Incoming graduate student	Visiting Scholar; Laboratory of Ulrich von Andrian, M.D., Ph.D.; Department of Immunology, Harvard Medical School, Boston, MA, USA; Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	scRNA-seq data analysis using R.
2021	Hyun Seung Choi, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	scRNA-seq data analysis using R.
2022	Yuji Lee, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	Regulatory T-cell suppression assays and scRNA-seq data analysis using R and machine-learning models.
2022	Sanha Hwang, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	Regulatory T-cell suppression assays and scRNA-seq data analysis using R and machine-learning models.
2022	Dongjun Kim, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	Regulatory T-cell suppression assays and scRNA-seq data analysis using R and machine-learning models.
2022	Yewon Moon, M.S.Incoming graduate student	Ph.D. Candidate; Department of Biomedical Sciences; Seoul National University Graduate School, Seoul, Republic of Korea	Regulatory T-cell suppression assays and scRNA-seq data analysis using R and machine-learning models.
2022	Karoliina Eliisa Ruhno, M.S.Incoming graduate student	Senior Researcher; IMBiologics, Seoul, Republic of Korea	Regulatory T-cell suppression assays.
2023	Moonki Chae, M.S.Student intern	Ph.D. Student; Department of Pathology; Johns Hopkins University, Baltimore, MD, USA	Immune-cell culture, flow cytometry, and scRNA-seq data analysis using machine-learning models and AI tools.
2023	Sung Bin Bae, M.S.Incoming graduate student	Staff, Biologics CMC Team, Yuhan Corporation, Seoul, Republic of Korea	Cell culture, flow cytometry, and GeoMx DSP spatial transcriptomics data analysis.
2024	Mi Jeong Oh, M.S.Manager, PB Immune Therapeutics	Manager; PB Immune Therapeutics, Seoul, Republic of Korea	Experimental design for animal sample collection, ELISA and SPR assay design, and 10x Genomics scRNA-seq.
2024	Eun Sol Jo, B.S.Assistant Manager, PB Immune Therapeutics	Assistant Manager; PB Immune Therapeutics, Seoul, Republic of Korea	Animal experiment design and evaluation of a mouse model of experimental autoimmune encephalomyelitis (EAE).

REFERENCES

Chung-Gyu Park, M.D., Ph.D.
Professor, Microbiology & Immunology / Biomedical Sciences, SNU College of Medicine; CEO/CSO, PB Immune Therapeutics · chgpark@snu.ac.kr
Doctoral advisor and industry supervisor; directed the anti-CD40 antibody program.

Hyun Je Kim, M.D., Ph.D.
Assistant Professor, Microbiology & Immunology / Biomedical Sciences; Interdisciplinary Program in Artificial Intelligence (IPAI), SNU · tte9801@snu.ac.kr
Corresponding author on several single-cell studies; supervised the computational work.

Seung-Kuy Cha, Ph.D.
Professor, Dept. of Physiology & Global Medical Science, Yonsei University Wonju College of Medicine · skcha@yonsei.ac.kr
Current postdoctoral supervisor (2025–2026).

Jeong Seok Lee, M.D., Ph.D.
Associate Professor, Graduate School of Medical Science & Engineering, KAIST, Daejeon · chemami@kaist.ac.kr
Corresponding author, PDE4D / Nature Immunology study.