

RESEARCH & PROFESSIONAL EXPERIENCE

Researcher (postdoctoral) 2025–present	Yonsei University Wonju College of Medicine · Dept. of Physiology / Organelle Medicine Research Center, Wonju, Republic of Korea Deep-learning multimodal-integration models fusing imaging, transcriptomic, and clinical data into single predictive models.
Associate Director 2023–2025	PB Immune Therapeutics Inc. · Dept. of Basic Research, Seoul, Republic of Korea Led a humanized anti-CD40 antibody program: candidate ranking by surface plasmon resonance (Biacore) and ELISA, receptor-blocking confirmation, human and non-human-primate cross-reactivity, in vivo efficacy in primates, and the regulatory documentation. Placed and oversaw CRO and core-facility work, from study design and assay conditions through data delivery and go/no-go calls. Built the in-house single-cell and spatial analysis pipeline. Ran cynomolgus and marmoset EAE studies for multiple sclerosis programs.
Manager 2021–2023	PB Immune Therapeutics Inc. · Dept. of Basic Research, Seoul, Republic of Korea Wrote the two KDDF proposals that funded the anti-CD40 program and ran the lead-selection work under them.
Research Student 2020–2023	SCAID, Single Cell Atlas of Immune Diseases, Genomic Medicine Institute, Seoul National University, Seoul, Republic of Korea Contributed the founding proposal; executed within the funded program (700+ donors × 8 organs): milestone tracking, multi-site QC, multi-PI coordination.
Researcher 2019–2021	Xenotransplantation Research Center, Seoul National University, Seoul, Republic of Korea Rhesus macaque tissue processing and longitudinal immune monitoring across transplantation studies.
Teaching Assistant 2014–2016	Seoul National University College of Medicine · Dept. of Microbiology and Immunology, Seoul, Republic of Korea

SELECTED RESEARCH OUTPUTS

- 1 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* 2022. [Download PDF](#)
Multiplexed in situ measurement, run end to end. Assay setup and instrument operation, immunofluorescence staining (S100B, CD3ε, nuclei), fluorescence-guided ROI selection and imaging, barcode collection, then the image and spatial-transcriptomic analysis. One melanoma segmented into four regions by invasion depth, 300 to 4,200 μm Breslow, four whole-transcriptome ROIs per region, 16 ROIs, 18,677 genes. Graded loss of HLA class I and II with depth, and B2M loss confirmed by immunohistochemistry.
- 2 **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* 2025. [Download PDF](#)
Tissue to single-cell readout in a neurological model. Built the whole path: whole-brain harvest, enzymatic digestion, Percoll enrichment, FACS, 10x, analysis. 11,587 cells and ten immune populations; exhausted CD8⁺ tissue-resident memory T cells engaging choroid-plexus epithelium at the blood-CSF barrier, with MHC-I and interferon-stimulated genes raised.
- 3 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* 2026. in revision
A phenotype held to a batch-aware design, then tested. Four matched cohorts, 16 donors each, pooled four per lane and demultiplexed by SNP so donor and sequencing run were not confounded. 251,055 cells; custom UMI-aware, BAM-level code resolving PDE4D isoform identity from 5' reads; consensus NMF programs that repeated across the SCAID atlas of 702 samples; held-out AUC 0.780 for arthritis. Short-isoform overexpression raised the pathogenic fraction and a selective inhibitor lowered it.

TECHNICAL EXPERTISE

Multiplexed in situ detection and imaging	GeoMx DSP run end to end — slide preparation, oligonucleotide–barcoded probe hybridisation, immunofluorescence staining, fluorescence–guided ROI selection, instrument operation, UV cleavage and barcode collection. MACSima cyclic multiplexed immunofluorescence, iterative stain–image–erase rounds on one section. Olink targeted plasma proteomics; Visium spatial transcriptomics. High–parameter fluorescence panel design up to 24 markers. Spinning–disk confocal (Nikon CSU–WI SORA) with quantitative image analysis.
High–content image and data analysis	Segmentation, feature extraction and model scoring on public iPSC–neuron imaging screens. Batch– and donor–aware modelling, held–out evaluation, calibrated confidence. Automated library preparation on 10x Chromium Connect .
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).
Single–cell / spatial / multi–omic	scRNA–seq, scTCR–seq, snRNA/snATAC; 10x 5'/3' library generation and 10x Chromium Connect automated preparation. Seurat , Scanpy , Squidpy , Monocle3 , CellChat/NicheNet ; scVI/scANVI, batch integration, consensus NMF ; Milo KNN–graph differential abundance, GLIPH, InferCNV. Custom UMI–aware, BAM–level isoform analysis code (Python). Spatial: GeoMx DSP run end to end, Visium , MACSima cyclic multiplexed immunofluorescence.
Computational	Python: scikit–learn, XGBoost/LightGBM/CatBoost, PyTorch ; AUC–validated classifiers held out on independent cohorts; multimodal deep–learning integration (imaging + transcriptomic + clinical). Linux servers · R/RStudio · Git–based reproducible analysis.
Vision–language and retrieval models	Finetuning . LoRA adaptation of an open vision–language model (Gemma 4 12B , mlx–vlm) so that an amyloid pathology tile returns a structured JSON reading, with the schema enforced during decoding and the split held out at the case level. Against the same model zero–shot on 800 held–out tiles, cored–plaque F1 went from 0.12 to 0.44 and cerebral amyloid angiopathy from 0.00 to 0.69. Retrieval . A retrieval–augmented question–answering service written end to end: corpus chunking, BM25 and dense–vector retrieval fused by reciprocal rank, query expansion, and streamed answers that carry their sources. FastAPI , containerized, on Google Cloud Run ; it answers questions about this CV at kangseongjun.com.
Microscopy & animal models	Spinning–disk confocal (Nikon CSU–WI SORA), point–scanning confocal (Leica SP8), two–photon; IHC/IF (frozen & FFPE) with quantitative image analysis. Non–human primates across three species (rhesus, cynomolgus, marmoset), including EAE and islet–transplantation studies; mouse immune profiling.
Program & external execution	CRO and core–facility work from study design and placement through data delivery and go/no–go calls; assay conditions specified to the vendor; regulatory documentation for a therapeutic antibody program; funder milestones and reporting; multi–site sample QC across a 700–donor collection.

PUBLICATIONS

18 TOTAL PAPERS	17 PEER–REVIEWED	1 IN REVISION	6 FIRST / CO–FIRST
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 [Google Scholar · Full Profile, Citations & h–index ↗](#)

- 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](#)
- 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*. [Download PDF](#)
- 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*. [Download PDF](#)
Co-first author. Single-cell and functional dissection of skin-homing regulatory T cells in atopic dermatitis, with OX40 up-regulated 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*. [Download PDF](#)
Co-first author. Long-term diabetes control with a tofacitinib-based regimen after allo-islet transplantation in rhesus macaques, with 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*. [Download PDF](#)
- 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*. [Download PDF](#)
Co-first author, one of four authors contributing equally. JAK3-inhibitor-based immunosuppression in allogeneic islet transplantation in cynomolgus macaques.

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*. [Download PDF](#)
- 2024 Youngkyoung Lim*, Beom Keun Cho*, **Seong-Jun Kang**, Soyoung Jeong, Hyun Je Kim, Jiyeon 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*. [Download PDF](#)
- 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 ROR γ t 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." <i>Current Diabetes Reports</i> . Download PDF
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." <i>Immunology Letters</i> .
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." <i>Scientific Reports</i> .
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." <i>Xenotransplantation</i> .
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." <i>Xenotransplantation</i> .
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." <i>Transplantation</i> .
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." <i>Biochemical and Biophysical Research Communications</i> .

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.

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)

FUNDING AGENCY / SPONSOR	PROJECT	PERIOD	BUDGET (USD)	ROLE / CONTRIBUTION
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

All grants were held by the institutional Principal Investigator (Ph.D. advisor at SNU; company CEO/CSO at PB Immune Therapeutics); the listed roles reflect the applicant's contribution to proposal writing and project execution, **not as PI**. Budgets converted at ≈ ₩1,400 / USD.

AWARDS, PATENTS & SCHOLARSHIPS

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. 10-2014-3490000; registered 2019-08-20.

AWARDS

- 2024** **Grand Prize**, 2024 GPTers AI Hackathon (Project GAIA Team)
- 2023** **Grand Prize**, SBA Smart Workathon (Work Process Innovation)
- 2017** **Best Poster Award**, American Transplant Congress, Chicago · **Best Presentation Award**, Korean Association of Immunologists

SCHOLARSHIPS

- 2014–2020** NRF Research Scholarship for Ph.D. Candidates · Dean's Lecture & Research Support Scholarship, SNU College of Medicine · BK21 Plus Research Scholarship

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)

■ 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.*

Seung-Kuy Cha, Ph.D.

Professor, Dept. of Physiology & Global Medical Science,
Yonsei University Wonju College of Medicine ·
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Most recent research supervisor (2025–2026).

Hyun Je Kim, M.D., Ph.D.

Assistant Professor, Microbiology & Immunology / Biomedical
Sciences; Interdisciplinary Program in Artificial Intelligence
(IPAI), SNU · tte9801@snu.ac.kr

*Co-corresponding on the single-cell studies; supervised the
computational work.*

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.

Seong-Jun Kang · Curriculum
Vitae · Bathe Lab

Available from August 2026 · based in Boston, MA · currently authorized to work in the United States
without employer sponsorship to begin employment

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August 2026