(Last updated: 2025-07-22)

CURRICULUM VITAE

Seong-Jun Kang, Ph.D.

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EDUCATION

09/2014 – 08/2023	**Ph.D. in Biomedical Sciences,** Department of Biomedical Science, Seoul National University Graduate School, Seoul, Republic of Korea Thesis: Exploration of the Regulatory T cells Role in Various Pathogenic Contexts Advisor: Professor. Chung-Gyu Park
02/2012 – 08/2014	**M.S. in Biomedical Sciences,** Department of Biomedical Science, Seoul National University Graduate School, Seoul, Republic of Korea Thesis: Enhanced Lipopolysaccharide Induced Monocyte Activation by Recombinant Human Soluble Cluster of Differentiation 14 Advisor: Professor. Chung-Gyu Park
03/2008 – 02/2012	**B.S. in Genetic Engineering,** Department of Genetic Engineering, Sungkyunkwan University, Suwon, Republic of Korea

PUBLICATIONS

1. **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. *J Neuroimmunol* (2025) IF: 2.9

2. **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* (2024) IF: 12.6

3. 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) IF: 11.1

4. 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* (2024) ***Co-first author** IF: 3.9

5. 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, *Journal of the European Academy of Dermatology and Venereology* (2024) IF: 9.2

6. 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* (2023) IF: 12.8

7. Youngkyoung Lim*, **Seong-Jun Kang***, Bum Keun Cho, Hyun Je Kim, Chung-Gyu Park "Intra-tumoral heterogeneity and immune escape of melanoma arising from congenital melanocytic nevus revealed by spatial gene expression profiling", *Journal of the European Academy of Dermatology and Venereology* (2022) ***Co-first author** IF: 9.2

8. So Hee Hong, Hyun Je Kim, **Seong-Jun Kang**, Chung-Gyu Park, "Novel Immunomodulatory Approaches for Porcine Islet Xenotransplantation", *Current Diabetes Report*, (2021) IF: 4.2

9. 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*, (2020) IF: 4.4

10. Hyun Je Kim, Ji Hwan Moon, Hyunwoo Chung, Jun-Seop Shin, Bongi Kim, Jong Min Kim, Jung-Sik Kim, Il-Hee Yoon, B. H. 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-nonhuman primate islet xenotransplantation", *Scientific Reports*, (2019) IF: 4.6

11. 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*, (2019) ***Co-first author** IF: 2.2

12. 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", *Xenotransplantaion*, (2018) IF: 3.9

13. 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 Communocations*, (2018) IF: 3.1

14. 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", *Xenotransplantaion*, (2018) IF: 3.9

15. 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 Widely Used Immunosuppressive Drug in Islet Transplantation in Cynomolgus Monkeys", *Transplantaion*, (2018) IF: 6.2

PATENTS

1. Date of patent registration: 2019. 08. 20

Patent No. 1020143490000

Title: IMMUNOSUPPRESSION COMPOSITION COMPRISING JAK INHIBITOR.

RESEARCH/WORK EXPERIENCES

09/2023 – current	Associate Director, Department of Basic Research, PB Immune Therapeutics Inc.
05/2021 – 08/2023	Manager, Department of Basic Research, PB Immune Therapeutics Inc.
09/2019 – 04/2021	Researcher, Xenotransplantation Research Center
09/2016 – 08/2019	Military Service, Research Personnel, Republic of Korea Army
09/2014 – 08/2016	Teaching Assistant, Department of Microbiology and Immunology, Seoul National University College of Medicine
03/2012 – 08/2014	BK21 Research student, BK21 Plus Biomedical Science Project, Seoul National University

AWARDS & SCHOLARSHIPS

[AWARDS]

06/2024	Grand Prize, 2024 GPTers AI Hackathon (Project GAIA Team)
12/2023	Grand Prize, SBA Smart Workathon (for Work Process Innovation)
12/2021	Excellence Award (Poster presentation), 2021 Research safety contest, Seoul National University College of Medicine
12/2020	Excellence Award (Poster presentation), 2020 Research safety contest, Seoul National University College of Medicine
12/2017	Best Research Award, 2017 Infection and Immunity Research Festival, Department of Microbiology and Immunology, Seoul National University College of Medicine
11/2017	Best Presentation Award (Poster presentation), 2017 the Korean Association of Immunologist
05/2017	Best Poster in Congress Award, 2017 American Transplant Congress in Chicago

[SCHOLARSHIPS]

09/2019 – 08/2020	Research scholarship for Ph.D. candidates funded by the National Research Foundation of Korea (NRF)
09/2014 – 08/2016	Lecture and Research Support Scholarship by the dean of Seoul National University College of Medicine
03/2012 – 08/2014	BK21 Research Scholarship by the BK21 Plus Biomedical Science Project, Seoul National University

RESEARCH INTERESTS

- Neuroinflammation and infiltrated immune cells profiling in Alzheimer's disease brain.
- Multi-omic (Single cell transcriptomics, Spatial transcriptomics and Proteomics like high-resolution flow cytometry) approaches for immunological/neurological diseases.
- Functionality of Immune cells such as regulatory T cells in various immunological diseases
- AI drug discovery innovations / Machine learning / Deep learning approaches to predict several disease states)

ACADEMIC PRESENTATIONS

- Poster presentation, 2022 KAI Incheon
- Poster presentation, 2022 CYTOKINE Hawaii
- Poster presentation, 2017 ATC Chicago
- Poster presentation, 2016 TTS Hong Kong
- Poster presentation, 2015 IPITA/IXA/CTS Melbourn
- Poster presentation, 2012 TREG Shanghai

EXPERIMENTAL TECHNIQUES

- **Molecular Biology Works**
  - DNA/RNA/microRNA preparation, cloning, qRT-PCR, Transfection, Electroporation
- **Protein Works**
  - Protein purification/quantification/concentration, SDS-PAGE, Immunoprecipitation, Western blot
- **Immunological Assays**
  - ELISA and ELISPOT
  - High resolution multi-color flow cytometry (up to 24 colors, FACSAria S6) (Intracellular cytokine staining, cell cycle, cytometric bead array, CFSE dilution, BrdU uptake, apoptosis assay etc.)
  - Immunohistochemistry and immunofluorescence staining of frozen or FFPE tissue section
- **Animal Works (Mouse)**
  - Intraperitoneal (i.p.) / intravenous (i.v.) / subcutaneous (s.c.) injections, Oral feeding
  - Eye bleeding for peripheral blood mononuclear cell (PBMC)
  - Spleen and Lymph node (LN) dissection & splenocyte, LN cells preparation
  - Pancreatic islet isolation & transplantation (renal subcapsular) & Live nephrectomy after islet transplantation
  - Tail skin isolation & transplantation (Back skin)
  - Experimental autoimmune encephalomyelitis (EAE) induction
  - DSS-induced autoimmune colitis induction
  - Bone marrow isolation from tibia and femur

- KO mice mating and genotyping
- Brain isolation after cardiac perfusion
- Animal Behavioral test (Y-maze)

- **Mammalian Cell Works**
  - Primary cells or immortalized cell lines culture
  - Mouse bone marrow-derived dendritic cell (BMDC) or macrophage/monocyte (BMM) differentiation
  - Mouse/human bone marrow-derived mesenchymal stem cell (MSC) differentiation and culture
  - Exosome purification from mouse MSC culture supernatant
  - Gamma irradiation of immune cells.
  - Cell proliferation assay using radioactive isotopes like 3H(Thymidine)
- **Microscopic Works**
  - Fluorescence microscopy (up to 4-color) & Two photon microscopy
- **Human sample Works**
  - Human PBMC isolation using ficoll density gradient
  - Human effector T cell and Regulatory T cell isolation
  - MACS sorting (enrichment of immune cells)
  - FACS sorting over 10-color, 6way (FACSymphony S6)
  - Human Regulatory T cell expansion
  - Human Treg functional assay
- **Single cell RNA sequencing & Spatial transcriptomics**
  - 10X 5’ single cell RNA-seq, single cell TCR-seq
  - 10X 3’ single cell RNA-seq with cell multiplexing oligo (over 8-plex)
  - Human cell nucleus isolation (for single Nuc-seq)
  - GeoMx DSP Nanostring analysis (Human melanoma tissue)
  - Linux server manipulation (Ubuntu 18.04)
  - R and R studio (Seurat pipeline setup, Monocle3 etc.)
  - Python (Scanpy, Squidpy etc.)
- **Machine learning / Deep learning / AI drug development techniques**
  - Basic BioPython
  - Python ML/DL packages from huggingface such as rdkit, sklearn, XGBoost, LightGBM, Catboost, GAN, GNN, VAE etc.
  - Alphafold2, Alphafold3 (Protein 3D-structure prediction), Protein MPNN (Generative model)
  - DiffDock, AutoDock, AutoDock Vina etc. (Protein-drug docking simulation)
  - Transformer based small molecule prediction models (MolFormer etc.)

REFERENCES

Chung-Gyu Park, MD, PhD (Advisor in Master & Doctoral Degree Course)

Professor, Department of Microbiology and Immunology, Department of Biomedical Sciences, Seoul National University College of Medicine

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