

Keun Hong Son, Ph.D.

[✉ newhong@snu.ac.kr](mailto:newhong@snu.ac.kr)

[👤 keun-hong.github.io](https://keun-hong.github.io) [👤 keun-hong](https://www.semanticscholar.org/author/0000-0002-2583-6272) [@new_hong](https://www.semanticscholar.org/author/0000-0002-2583-6272) [👤 keun-hong](https://www.semanticscholar.org/author/0000-0002-2583-6272)

[👤 0000-0002-2583-6272](https://orcid.org/0000-0002-2583-6272) [🎓 Google Scholar](https://scholar.google.com/citations?user=0000000225836272&hl=en) [@keun-hong](https://twitter.com/keun-hong)

Updated: February 16, 2026

RESEARCH INTERESTS

I am an Evolutionary Biologist integrating comparative genomics and multi-omics approaches to investigate disease resistance and susceptibility across species.

Evolutionary Animal Genomics

cross-species and -breed, genomic innovation

Comparative Cancer & Aging Biology

disease resistance & susceptibility

Computational Multi-Omics

genome, transcriptome, epigenome, proteome, AI (ML & DL)

EDUCATION

Ph.D., Veterinary Biomedical Sciences

College of Veterinary Medicine, Seoul National University, Seoul, KR

03/2019 - 08/2025

M.S., Microbiology and Biotechnology

College of Natural Sciences, Dankook University, Cheonan, KR

03/2016 - 02/2018

B.S., Microbiology and Biotechnology

College of Natural Sciences, Dankook University, Cheonan, KR

03/2010 - 02/2016

Military Service (Sergeant, Medic)

1st Brigade, Aviation Operations Command, Republic of Korea Army

11/2011 - 09/2013

RESEARCH EXPERIENCE

Graduate Research Associate, Je-Yoel Cho

Comparative Medicine Disease Research Center (CDRC), Seoul National University, Seoul, KR

03/2019 - 08/2025

Research topics: cross-species and -breed, cancer genomics, dog epigenomics

Collaborative Research Fellow, Je-Yoel Cho

College of Veterinary Medicine, Seoul National University, Seoul, KR

06/2017 - 02/2019

Research topics: dog epigenomics, cancer biomarkers

Collaborative Research Fellow, Jueng Soo You

Research Institute of Medical Science, Konkuk University, Seoul, KR

03/2017 - 02/2019

Research topics: cancer mechanism, chromatin remodeler (SWI/SNF complexes)

Collaborative Research Fellow, Suk Woo Nam

College of Medicine, Catholic University, Seoul, KR

03/2017 - 02/2018

Research topics: cancer mechanism, histone modification, miRNA-editing

Graduate Research Associate, Keunsoo Kang

College of Natural Sciences, Dankook University, Cheonan, KR

03/2016 - 02/2018

Research topics: bioinformatics, epigenomics, regulatory elements

Undergraduate Researcher, Keunsoo Kang

College of Natural Sciences, Dankook University, Cheonan, KR

12/2014 - 02/2016

Research topics: bioinformatics, epigenomics, transcription factors

PUBLICATIONS

† indicates equal contribution

First-Authored Publications

1. **Son KH** and Cho J (2025). “Gencube: Centralized retrieval and integration of multi-omics resources from leading databases.”
Bioinformatics
2. **Son KH**†, Aldonza MBD†, Nam AR†, Lee K, Lee J, Shin K, Kang K, and Cho J (2023). “Integrative mapping of the dog epigenome: reference annotation for comparative intertissue and cross-species studies.”
Science Advances
3. Hong SH†, **Son KH**†, Ha SY, Wee TI, Choi SK, Won JE, Han HD, Ro Y, Park Y, Eun JW, Nam SW, Han J, Kang K, and You JS (2021). “Nucleoporin 210 Serves a Key Scaffold for SMARCB1 in Liver Cancer.”
Cancer Research
4. **Son K**†, Yu S†, Shin W, Han K, and Kang K (2018). “A Simple Guideline to Assess the Characteristics of RNA-Seq Data.”
BioMed Research International

Co-Authored Publications

1. Lee J, Lee D, Shin K, **Son KH**, and Cho J (2025). “CEBPD Regulates CD47 and MAP4K4 via Chromatin Accessibility in Canine Mammary Tumor Monocytes.”
Scientific Reports
2. Kim C, Lee K, **Son KH**, Shin T, and Cho J (2024). “Extracellular vesicle-mediated transfer of miRNA-1 from primary tumor repress distant metastasis growth.”
Experimental & Molecular Medicine
3. Kim HS†, Na MJ†, **Son KH**, Yang HD, Kim SY, Shin E, Ha JW, Jeon S, Kang K, Moon K, Park WS, and Nam SW (2023). “ADAR1-dependent miR-3144-3p editing simultaneously induces MSI2 expression and suppresses SLC38A4 expression in liver cancer.”
Experimental & Molecular Medicine
4. Yoon Y†, You JS†, Kim T, Ahn WJ, Kim MJ, **Son KH**, Ricarte D, Ortiz D, Lee S*, and Lee H (2022). “Senescence and impaired DNA damage responses in alpha-synucleinopathy models.”
Experimental & Molecular Medicine
5. Kim SY, Shen Q, **Son K**, Kim HS, Yang HD, Na MJ, Shin E, Yu S, Kang K, You JS, Yu K, Jeong SM, Lee EK, Ahn YM, Park WS, and Nam SW (2021). “SMARCA4 oncogenic potential via IRAK1 enhancer to activate Gankyrin and AKR1B10 in liver cancer.”
Oncogene
6. Lee K†, Park H†, **Son KH**, Shin T, and Cho J (2018). “Transcriptome Signatures of Canine Mammary Gland Tumors and Its Comparison to Human Breast Cancers.”
Cancers

PRESENTATIONS

Oral Presentations

SNU College of Veterinary Medicine Education, Research & Development (ERD) Day. Gencube: Centralized retrieval and integration of omics data from leading databases.

15 November 2024, Seoul, KR

Federation of Asian Veterinary Associations Congress (FAVA). Gencube: Efficient Retrieval, Download, and Unification of Genomic Data from Leading Biodiversity Databases.

27 October 2024, Gangwon-do, KR

SNU College of Veterinary Medicine Education, Research & Development (ERD) Day. Integrative mapping of the dog epigenome: Reference annotation for comparative intertissue and cross-species studies.

16 December 2022, Seoul, KR

International Conference of the Korean Society for Molecular and Cellular Biology (KSMCB). Integrative mapping of the dog epigenome: Reference annotation for comparative intertissue and cross-species studies.

30 September 2022, Jeju, KR

Poster Presentations

Korean Society for Molecular and Cellular Biology (KSMCB) Epigenomics Division Symposium. Problemregion: Integrative pipeline and database for identifying anomalous regions in genome assemblies across diverse species.

11 December 2024, Gangwon-do, KR

Federation of Asian Veterinary Associations Congress (FAVA). Blackcube: Integrative blacklist and greenscreen database for genome assemblies of diverse model species.

27 October 2024, Daejeon, KR

International Conference of the Korean Society for Molecular and Cellular Biology (KSMCB). Integrative mapping of the dog epigenome: Reference annotation for comparative intertissue and cross-species studies.

30 September 2022, Jeju, KR

Korea Genome Organization (KOGO) Winter Symposium. Systematic analysis of genome-wide transcription factor binding sites in multiple cell lines.

05 February 2015, Gangwon-do, KR

Invited Talks

Center for Genome Engineering, Institute for Basic Science. Comparative Multi-omics Across Diverse Species: Paving the Way for Genomic Innovations.

05 August 2025, Daejeon, KR

Advanced Comparative Medicine (Graduate Course), College of Veterinary Medicine, Seoul National University. Comparative mammalian and dog genomics.

25 October 2023, Seoul, KR

Academic Webinar by the Biological Research Information Center (BRIC). Integrative mapping of the dog epigenome: Reference annotation for comparative intertissue and cross-species studies.

12 October 2023, Online

The 1st THE HOOK One-Day Camp (AI+BIO) for High School Students. Comparative genomics for genomic innovation.

15 August 2023, Seoul, KR

HONORS AND AWARDS

Best Scientific Presentation Award

2024

Federation of Asian Veterinary Associations Congress (FAVA)

Selected for "People Who Brightened Korea" (BRIC Honoree)

2023

Biological Research Information Center (BRIC)

Young Scientist Award

2022

International Conference of the Korean Society for Molecular and Cellular Biology (KSMCB)

SCHOLARSHIPS

Brain Korea 21 Plus

2019.1 – 2022.2

Seoul National University

KRW 51,200,000

Research Support

2016.1 & 2017.1

Dankook University

KRW 4,125,000

Fostering Excellence in Science and Engineering

2015.1

Dankook University

KRW 2,212,000

Chem-Bio Global Talent Development

2014.2 & 2015.2

Dankook University

KRW 2,000,000

Academic Excellence

2014.2 – 2015.2

Dankook University

KRW 3,984,000

MEDIA HIGHLIGHTS & PRESS COVERAGE

“Scientists unlock the dog epigenome”, highlight by AAAS EurekAlert	2023
“Researchers create EpiC Dog, a reference tool for canine epigenetics”, science communication article by Justin Jackson in Phys.org	2023
“Prof. Jueng Soo You’s team at Konkuk University College of Medicine identifies the genetic mechanism underlying liver cancer development”, science communication article by Seung-Hwan Lee in The University Journal	2021

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant; Biochemistry Seoul National University, Seoul, KR	03/2019 - 08/2022
Teaching Assistant; Environment-Bio Experiment Department of Microbiology, Dankook University, Cheonan, KR	09/2017 - 02/2018
Teaching Assistant; Biological Statistics using SPSS Department of Microbiology, Dankook University, Cheonan, KR	03/2017 - 08/2017
Graduate Assistant Department of Microbiology, Dankook University, Cheonan, KR	03/2016 - 02/2017

PROFESSIONAL ACTIVITIES

Editorial Roles

Topic Editor, Frontiers in Genome Editing “Epigenome Editing to Overcome Hormone Therapy Resistance in Breast Cancer”	2025 – Present
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Peer Review

- Nature Communications (Ad hoc, 1 manuscript)
- International Journal of Molecular Sciences (1)
- Gene (1)
- Genes & Genomics (2)

Technical & Administrative Appointments

Facility Manager Comparative Medicine Disease Research Center (CDRC), Seoul National University	2021 – 2023
Website Administrator CDRC, Seoul National University	2020 – 2025
NAS Server Administrator CDRC, Seoul National University	2020 – 2025

ADDITIONAL SKILLS

Programming	Python, R, Bash
Pipeline and Tool Management	Nextflow & nf-core, Git, Conda, Docker, Singularity
Multi-omics data processing	Genome (WGS & WES), Transcriptome (bulk & single-cell RNA-seq), Epigenome (TF & histone ChIP-seq, MBD-seq, ATAC-seq, CLIP-seq), 3D chromatin structure (ChIA-PET), Proteome (LC-MS/MS)
Field Work	>300 vaccine and therapeutic injections administered to human subjects; >50 intravenous (IV) lines placed in human patients (as a military medic)
Bench Work	>200 hours of organoid and cell culture; >50 isolations of PBMCs from blood samples; Hypoxia culture (H35 Hypoxystation); Microscopy (EVOS M7000); Automated liquid handling (epMotion 5075 VAC)
Molecular Biology	qPCR, cloning, transfection & transduction, Western blot

PROFESSIONAL MEMBERSHIPS

Federation of Asian Veterinary Associations (FAVA)	2024 - present
Student Member	
American Society for Cancer Research (AACR)	2024 - present
Associate Member	
Human Cell Atlas	2022 – present
Collaborating Member	
K-BIOX	2022 – present
Collaborating Member	
Korean Society for Molecular and Cellular Biology (KSMCB)	2022 – present
Student Member	
The Korean Human Proteome Organization (KHUPO)	2021 - present
Student Member	
Korean Society of Veterinary Science	2021 - present
Associate Member	
Korea Genome Organization (KOGO)	2016 - present
Student Member	
Korean Society for Biochemistry and Molecular Biology (KSBMB)	2015 - present
Student Member	

REFERENCES

1. **Je-Yoel Cho** (Ph.D advisor); jeycho@snu.ac.kr
Dean, College of Veterinary Medicine, Seoul National University
2. **Keunsoo Kang** (M.S. advisor; PhD thesis committee jury); kangk1204@dankook.ac.kr
Associate Professor, Department of Microbiology, College of Natural Sciences, Dankook University
3. **Jueng Soo You** (Collaborator; PhD thesis committee jury); jsyou@kku.ac.kr
Professor, Research Institute of Medical Science, Konkuk University
4. **Suk Woo Nam** (Collaborator); swnam@catholic.ac.kr
Professor, Department of Pathology, College of Medicine, Catholic University