

# Jinmu Kim

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## PROFESSIONAL EXPERIENCE

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- **2024.06 – Present**  
Postdoctoral Associate Univ. of Illinois Urbana-Champaign Advisor: Chris Cheng
- **2024.03 – 2024.05**  
Postdoctoral Associate Korea Univ. Advisor: Hyun Park

## EDUCATION

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- **2020 – 2024** Ph.D. Division of Biotechnology Korea University Advisor: Hyun Park  
**Ranked 1st among Ph.D. graduates and selected as the Ph.D. commencement representative**
- **2014 – 2020** B.S. Biochemistry Gyeongsang National University

## RESEARCH INTEREST

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### Environmental DNA and metagenomics for marine biodiversity

- Shotgun metagenomic and metabarcoding analysis of polar ecosystem, e.g., persistently ice-covered McMurdo Sound and Ross Sea eukaryotic diversity

### Polar genomics and evolutionary adaptation

- Chromosome-level genome assembly of Antarctic and sub-Antarctic fish
- Molecular basis of cold adaptation, immune-gene loss, AFGPs evolution

### Stress-response and toxicogenomic in marine invertebrates

- Chromosome-level genome assembly of *Tegillarca granosa* (Blood clam)
- Comparative and functional genomics of bivalve responses to heavy-metal exposure

## HONORS & AWARDS

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- **2024 Best paper award at Korea University**  
Chromosome-level genome assembly of Patagonian moray cod (*Muraenolepis orangiensis*) and immune deficiency of MHC class II
- **2024 Selected for Journal Cover**  
*Cell Stress and Chaperones*, Vol. 29, Issue 1 <https://doi.org/10.1016/j.cstres.2024.01.004>

•**2021 Best Oral Presentation Award**

Reconstruction of the full-length transcriptome analysis using PacBio Iso-Seq provides transcript variants in the immune system of blood clam, *Tegillarca granosa*, KMALIS

## FUNDING, FELLOWSHIPS & CERTIFICATIONS

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- 2026 Certification** –Professional Skills for Careers in Biosciences (PSCB) curriculum  
Carl R. Woese Institute for Genomic Biology (IGB)  
Univ. of Illinois Urbana-Champaign (UIUC)
- 2025 Workshop** –Microbial profiling workshop using DADA2  
HPCBio in Roy J. Carver Biotechnology Center, UIUC
- 2025 Workshop** –High Performance Computing (HPC) on Biocluster  
CNRG in Carl R. Woese Institute for Genomic Biology, UIUC
- 2022 Certification** –Environmental organic substances analysis (GC/MS)  
Korean Society for Environmental Analysis (KSFEA)
- 2022 Certification** –NGS data variant analysis basic course  
Korea Bioinformation Center
- 2021 Certification** –Specialist in Genome Informatics Basic Course II  
Seoul National Univ. Hospital (SNUH)

## PUBLICATIONS (Updated : April 2026)

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Total: 30 / 1<sup>st</sup> author: 9 / Under Review: 3 / In preparation: 1

\* Authors contributed equally

1. **Jinmu Kim & Hyun Park. 2026.** Transcriptome analysis of lead-induced endoplasmic reticulum stress responses in *Tegillarca granosa*. **In preparation.**
2. **Kim, J.<sup>+</sup>**, Kwon, S.<sup>+</sup>, Shin, D., Choi, S., Lee, S.J., Choi, E., Kim, J.H. and Park, H. (2026) A chromosome-level genome assembly of the Antarctic Eaton's skate, *Bathyraja eatonii* (Rajiformes, Arhynchobatidae). **Under Review**
3. Choi, S., Choi, E., Kim, I., Shin, D., **Kim, J.**, La, H.S., Kim, J.H. and Park, H. (2026) Unveiling Ross Sea Eukaryotic Diversity through Environmental DNA Metabarcoding. **Under Review**
4. York, J. M., Bhat, S., **Kim, J.**, Cárdenas, L., and Cheng, C. H. C. (2026) Chromosomal genome assemblies of Antarctic *Notothenia coriiceps* and temperate relative *Paranotothenia angustata*. <https://doi.org/10.1101/2025.10.11.681823> **Under Review**
5. Kim, J. <sup>+</sup>, **Kim, J.** <sup>+</sup>, Cho, M., Choi, S. and Park, H. (2025) In silico structural analysis and biochemical characterization of a novel PETase from Antarctic *Streptomyces* sp. *Computational and Structural Biotechnology Journal*, 27, pp. 4963-4975. <https://doi.org/10.1016/j.csbj.2025.11.017>
6. **Kim, J.** <sup>+</sup>, Kim, J. <sup>+</sup>, Choi, S., Cho, M., Choi, E., Lee, S.J., Kim, J.H. and Park, H. (2025) Genome survey and microsatellite marker development in the Antarctic Eaton's skate, *Bathyraja*

- eatonii (Rajiformes, Arhynchobatidae). *Regional Studies in Marine Science*, p.104432. <https://doi.org/10.1016/j.rsma.2025.104432>
7. **Kim, J.**<sup>†</sup>, Kim, H.J.<sup>†</sup>, Choi, E., Park, J.J., Cho, M., Choi, S., Kim, H., Lee, J.S. and Park, H. (2025) Genome-wide identification of Tegillarca granosa ATP-binding cassette (ABC) transporter family related to arsenic toxicity. *Genomics*, p.111024. <https://doi.org/10.1016/j.ygeno.2025.111024>
  8. Lee, S.J., Cho, M., **Kim, J.**, Choi, E., Choi, S., Chung, S., Lee, J., Kim, J.H. and Park, H. (2024) Chromosome-level genome assembly and annotation of the Patagonian toothfish Dissostichus eleginoides. *Scientific Data*, 11(1), p.1240. <https://doi.org/10.1038/s41597-024-04119-w>
  9. Jo, E., Cho, M., Choi, S., Lee, S.J., Choi, E., **Kim, J.**, Kim, J.Y., Kwon, S., Lee, J.H. and Park, H. (2024) High-quality chromosome-level genome assembly of female Artemia franciscana reveals sex chromosome and Hox gene organization. *Heliyon*.10(19): e38687. <https://doi.org/10.1016/j.heliyon.2024.e38687>
  10. **Kim, J.**<sup>†</sup>, Kim, H.J.<sup>†</sup>, Choi, E., Cho, M., Choi, S., Jeon, M.A., Lee, J.S. and Park, H. (2024) Expansion of the HSP70 gene family in Tegillarca granosa and expression profiles in response to zinc toxicity. *Cell Stress and Chaperones*, 29(1), pp.97-112. <https://doi.org/10.1016/j.cstres.2024.01.004>
  11. Cho, M., Lee, S.J., Choi, E., **Kim, J.**, Choi, S., Lee, J.H. and Park, H. (2024) An Antarctic lichen isolate (Cladonia borealis) genome reveals potential adaptation to extreme environments. *Scientific Reports*, 14(1), p.1342.v. <https://doi.org/10.1038/s41598-024-51895-x>
  12. Jo, E., Choi, S., Lee, S.J., **Kim, J.**, Choi, E.K., Cho, M., Kim, J., Chung, S., Lee, J., Kim, J.H. and Park, H. (2023) Chromosome-level genome assembly and annotation of the Antarctica whitefin plunderfish Pogonophryne albipinna. *Scientific data*, 10(1), p.891. <https://doi.org/10.1038/s41597-023-02811-x>
  13. Choi, S., Lee, S.J., Choi, E., Jo, E., **Kim, J.**, Cho, M., Kim, J., Kwon, S. and Park, H. (2023) Application of Environmental DNA (eDNA) for Marine Biodiversity Analysis. *Journal of Marine Life Science*, 8(2), pp.93-103. <https://doi.org/10.23005/ksmls.2023.8.2.93>
  14. **Kim, J.**<sup>†</sup>, Lee, S.J.<sup>†</sup>, Jo, E., Choi, E., Cho, M., Choi, S., Kim, J.H. and Park, H. (2023) Chromosome-level genome assembly of Patagonian moray cod (Muraenolepis orangiensis) and immune deficiency of major histocompatibility complex (MHC) class II. *Frontiers in Marine Science*, 10, p.1215125. <https://doi.org/10.3389/fmars.2023.1215125>
  15. Lee, S.J., **Kim, J.**, Choi, E.K., Jo, E., Cho, M., Kim, J.H. and Park, H. (2023) A chromosome-level reference genome of the Antarctic blackfin icefish Chaenocephalus aceratus. *Scientific Data*, 10(1), p.657. <https://doi.org/10.1038/s41597-023-02561-w>
  16. Choi, S., Lee, S.J., Cho, M., Choi, E., **Kim, J.**, Kim, J.H., Kim, H.W. and Park, H. (2023) Metagenomic Analysis of Antarctic Penguins Gut Microbial Dynamics by using Fecal DNA of Adélie (Pygoscelis adeliae) and Emperor (Aptenodytes forsteri) Penguins in Ross Sea, Antarctica. *Journal of Marine Life Science*, 8(1), pp.43-49. <https://doi.org/10.23005/ksmls.2023.8.1.43>
  17. **Kim, J.**, Lee, S.J., Jo, E., Choi, E., Cho, M., Choi, S., Kim, J.H. and Park, H. (2022) Whole-Genome Survey and Microsatellite Marker Detection of Antarctic Crocodile Icefish, Chionobathyscus dewitti. *Animals*, 12(19), p.2598. <https://doi.org/10.3390/ani12192598>

18. Choi, E., Lee, S.J., Jo, E., **Kim, J.**, Parker, S.J., Kim, J.H. and Park, H. (2022) Genomic Survey and Microsatellite Marker Investigation of Patagonian Moray Cod (*Muraenolepis orangiensis*). *Animals*, 12(13), p.1608. <https://doi.org/10.3390/ani12131608>
19. Jo, E., Lee, S.J., Kim, J.H., Parker, S.J., Choi, E., **Kim, J.**, Han, S.R., Oh, T.J. and Park, H. (2021) Chromosomal-level assembly of Antarctic scaly rockcod, *Trematomus loennbergii* genome using long-read sequencing and chromosome conformation capture (Hi-C) technologies. *Diversity*, 13(12), p.668. <https://doi.org/10.3390/d13120668>
20. **Kim, J.**, Lee, S.J., Jo, E., Choi, E., Cho, M., Shin, S.R., Lee, J.S. and Park, H. (2021) Chromosomal assembly of *Tegillarca granosa* genome using third-generation DNA sequencing and Hi-C technology. *Journal of Marine Life Science*, 6(2), pp.97-105. <https://doi.org/10.23005/ksmls.2021.6.2.97>
21. Lee, S.J., **Kim, J.**, Choi, E., Jo, E., Cho, M. and Park, H. (2021) The Application of Genome Research to Development of Aquaculture. *Journal of Marine Life Science*, 6(2), pp.47-57. <https://doi.org/10.23005/ksmls.2021.6.2.47>
22. Choi, E., Kim, S.H., Lee, S.J., Jo, E., **Kim, J.**, Kim, J.H., Parker, S.J., Chi, Y.M. and Park, H. (2021) A first genome survey and genomic SSR marker analysis of *Trematomus loennbergii* Regan, 1913. *Animals*, 11(11), p.3186. <https://doi.org/10.3390/ani11113186>
23. Jo, E., Lee, S.J., Choi, E., **Kim, J.**, Lee, J.H. and Park, H. (2021) Sex-biased gene expression and isoform profile of Brine Shrimp *Artemia franciscana* by transcriptome analysis. *Animals*, 11(9), p.2630. <https://doi.org/10.3390/ani11092630>
24. Jo, E., Cho, Y.H., Lee, S.J., Choi, E., **Kim, J.**, Kim, J.H., Chi, Y.M. and Park, H. (2021) Genome survey and microsatellite motif identification of *Pogonophryne albigipinna*. *Bioscience Reports*, 41(7), p. BSR20210824. <https://doi.org/10.1042/BSR20210824>
25. **Kim, J.**, Lee, S.J., Jo, E., Choi, E., Kim, H.J., Lee, J.S. and Park, H. (2021) Genome Survey and Microsatellite Marker Selection of *Tegillarca granosa*. *Journal of Marine Life Science*, 6(1), pp.38-46. <https://doi.org/10.23005/KSMLS.2021.6.1.38>
26. Choi, E., Im, T.E., Lee, S.J., Jo, E., **Kim, J.**, Kim, S.H., Chi, Y.M., Kim, J.H. and Park, H. (2021) The complete mitochondrial genome of *Trematomus loennbergii* (Perciformes, Nototheniidae). *Mitochondrial DNA Part B*, 6(3), pp.1032-1033. <https://doi.org/10.1080/23802359.2021.1899070>
27. Jo, E., Lee, S.J., Choi, E., **Kim, J.**, Lee, S.G., Lee, J.H., Kim, J.H. and Park, H. (2021) Whole genome survey and microsatellite motif identification of *Artemia franciscana*. *Bioscience Reports*, 41(3), p. BSR20203868. <https://doi.org/10.1042/BSR20203868>
28. **Kim, J.**, Jang, S.M., Choi, E., Jo, E., Lee, S.J., Kim, S.H., Chi, Y.M., Kim, J.H. and Park, H. (2021) The complete mitochondrial genome of Eaton's skate, *Bathyraja eatonii* (Rajiformes, Arhynchobatidae). *Mitochondrial DNA Part B*, 6(1), pp.91-92. <https://doi.org/10.1080/23802359.2020.1847608>
29. Lee, S.J., Kim, J.H., Jo, E., Choi, E., **Kim, J.**, Choi, S.G., Chung, S., Kim, H.W. and Park, H. (2021) Chromosomal assembly of the Antarctic toothfish (*Dissostichus mawsoni*) genome using third-generation DNA sequencing and Hi-C technology. *Zoological research*, 42(1), p.124. <https://doi.org/10.24272/j.issn.2095-8137.2020.264>
30. Choi, E., Park, S.H., Lee, S.J., Jo, E., **Kim, J.**, Kim, J.H., Kim, J.H., Lim, J.S. and Park, H. (2020) The complete mitochondrial genome of Patagonian moray cod, *Muraenolepis orangiensis*

Vaillant, 1888 (Gadiformes, Muraenolepididae). *Mitochondrial DNA Part B*, 5(3), pp.2707-2708. <https://doi.org/10.1080/23802359.2020.1787275>

## SELECTED CONFERENCE PRESENTATIONS

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### •2025 Poster

Seeing beneath Antarctic Sea ice -Assessing faunal diversity of the persistently ice-covered McMurdo Sound by metagenomic sequencing of eDNA  
6<sup>th</sup> (Korean American Scientists and Engineers Association - Midwest Regional Conference) KSEA MRC, UIUC

### •2025 Oral

Seeing beneath Antarctic Sea ice -Assessing faunal diversity of the persistently ice-covered McMurdo Sound, Antarctica by metagenomic sequencing of eDNA  
Evolution, Ecology and Behavior (EEB) Colloquium, UIUC

### •2023 Poster

Genome-wide identification of *Tegillarca granosa* ATP-binding cassette (ABC) transporter family related to arsenic toxicity  
Korean Society of Marine Life Science (KMALIS)

### •2023 Poster

Chromosomal assembly of *Muraenolepis orangiensis* Genome using Hi-C Technology and immune deficiency of major histocompatibility complex (MHC) II, KMALIS

### •2023 Poster

Chromosome-level genome assembly of Patagonian Moray Cod (*Muraenolepis orangiensis*) and immune deficiency of MHC II  
19<sup>th</sup> Korea Genome Organization (KOGO) winter symposium

### •2021 Oral

Reconstruction of the full-length transcriptome analysis using PacBio Iso-Seq provides transcript variants in the immune system of blood clam, *Tegillarca granosa*, KMALIS

## TEACHING & MENTORING

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### Teaching

- 2025 Guest Lecturer -*Integrative Biology 271 Organismal Biology*; Phylogenetic Methods, UIUC
- 2024 Laboratory Teaching Assistant (TA) -Flavor biotechnology (Spring), Korea Univ.
- 2024 TA -Transcriptome analysis of *Sargassum horneri* using Trinity  
Supervised 2 graduate students from Sangji Univ. (Spring), Korea Univ.
- 2023 Head Lab TA & Lab Coordinator -Fundamentals of Biotechnology and Laboratory (Fall) Korea Univ.
- 2021–2022 Laboratory TA -Flavor biotechnology (Each fall), Korea Univ.

## Research Mentoring (15+ trainees)

- 2026 **Le Tien, Nikola Hoang (UIUC undergraduate)**  
Comparing the genome assemblies and antifreeze protein gene families in two high-Antarctic eelpouts, UIUC  
Student gave an oral presentation in 2026 UIUC Undergraduate Research Symposium
- 2025 **Wan, Yunji (Alex) (UIUC undergraduate)**  
RNA isolation for genome assembly in *Pachycara brachycephalum*, UIUC  
Student later transferred to Univ. of Chicago, Fall 2025
- 2023 **Supervised 4 Undergraduate (Korea Univ.)**  
Microbial genome assembly and annotation, Winter
- 2022 **Supervised 4 Undergraduate (Korea Univ.)**  
Novel microbial screening and *E. coli* transformation, Winter
- 2022 **Supervised 2 Undergraduate (Korea Univ.)**  
Antarctic fish species identification and lichen genome assembly & annotation, Summer
- 2021 **Supervised 3 Undergraduate (Korea Univ.)**  
Lichen field sampling (Suncheon, S. Korea) and DNA isolation, Summer
- 2020 **Supervised 1 Undergraduate (Korea Univ.)**  
Microbial screening from environmental samples, Winter

## **PROFESSIONAL SERVICE**

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### Editorial & Peer-review

- 2026 Reviewer *Wellcome Open Research*
- 2024 Reviewer *Wellcome Open Research, Journal of Marine Life Science*

### Judge & Evaluation

- 2026 Poster Judge, Undergraduate Research Symposium (Science and Technology), UIUC
- 2025 Poster Judge, Undergraduate Research Symposium (Cells and Molecules), UIUC
- 2025 Poster & Talk Judge, 27<sup>th</sup> Annual GEEB (Graduate Students in Ecology and Evolutionary Biology) Symposium, UIUC

## **TECHNICAL SKILLS**

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### Bioinformatic analysis

- Shotgun metagenomics & metabarcoding analysis
- Genome survey & microsatellite marker detections
- Chromosomal-level genome assembly, structural, functional annotation
- Complete mitochondrial genome analysis
- RNA-seq analysis
- Programming & Computing (Linux, BASH, R)

## Experimental technique

- Anti-inflammatory experiments using RawCell 264.7 (Mouse macrophage cell line)
- Skin barrier experiments using HaCaT cells (Human keratinocyte cellline)
- MTT assay using Neuro-2a cell (Mouse neuroblastoma cell line)
- Essential oil extraction using essential oil determination apparatus
- Quantitative and qualitative analysis of essential oil using GC/MS
- Quantitative analysis of microbiomes using qRT-PCR from soil
- Screening microbiomes from different environments
- Species identification using universal ITS primers in lichen samples
- Antibacterial and sterilization experiments using *E. coli*, *S. aureus*, and *C. albicans*
- Lab chemical safety & waste Management, Korea Univ. (2020-2024)

## REFERENCES

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### **C.-H. Christina Cheng, Ph.D. - Professor**

Department of Evolution, Ecology, and Behavior, School of Integrative Biology,  
University of Illinois at Urbana-Champaign  
Postdoctoral advisor (2024-present)  
Email: [c-cheng@illinois.edu](mailto:c-cheng@illinois.edu)

### **Hyun Park, Ph.D. - Professor**

Division of Biotechnology, Korea University  
Doctoral & Postdoctoral advisor (2020-2024)  
Email: [hpark@korea.ac.kr](mailto:hpark@korea.ac.kr)

### **Jun Hyuck Lee, Ph.D.**

Division of Life Sciences, Korea Polar Research Institute  
Dissertation Committee Member  
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