



Dear Executive Committee,

I am writing to express my sincere interest in serving as the Early-Career Scientist (ECS) representative for the International Society for Animal Genetics (ISAG). I am enthusiastic about the opportunity to contribute to the advancement of early-career researchers in the field of animal genetics and to fulfill the duties associated with this position.

As an early-career researcher myself, I understand the unique challenges and opportunities faced by individuals in this stage of their academic and professional journey. I recognize the importance of fostering a supportive and inclusive environment that promotes the professional development and recognition of early-career researchers within the field of animal genetics.

I have a specific interest in bridging the gap between statistical associations of big data from bioinformatic analyses to true insights into mechanisms of phenotype by utilizing genome editing tools. The workshop I would organize will focus on connecting the genome to the phenome and highlighting outstanding early researchers in the field.

In summary, I am deeply passionate about advancing the interests and goals of early-career researchers in the animal genetics field and am fully committed to fulfilling the duties of the ECS representative. I am eager to contribute my skills, experiences, and enthusiasm to this role and grateful for the opportunity to be considered for nomination.

Sincerely,

Tae Hyun Kim, Ph.D.

Assistant Professor of Avian Biology
Department of Animal Science
Dorothy Foehr Huck and J. Lloyd Huck Early Career Chair
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Curriculum Vitae

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Education and training

- 2019-2020 **Postdoctoral Fellow**, USDA-NIFA-AFRI-EWD fellow, Department of Animal Science, University of California, Davis
- 2019 **Ph.D. Genetics**, Genetics Graduate Group, Department of Animal Science, University of California, Davis
- 2007 **M.S. Animal Science**, Department of Animal Science, Seoul National University
- 2005 **B.S. Animal Science**, Department of Animal Science, Seoul National University

Research and professional experience

- 2020- Assistant Professor, Department of Animal Science, Dorothy Foehr Huck and J. Lloyd Huck Early Career Chair, The Huck Institutes of Life Sciences, The Pennsylvania State University
- 2019-2020 USDA-NIFA-AFRI-EWD postdoctoral fellow, Department of Animal Science, University of California, Davis
- 2017-2019 USDA-NIFA-AFRI-ELI predoctoral fellow, Department of Animal Science, University of California, Davis
- 2013-2017 Graduate Student Researcher, Genetics Graduate Group, University of California, Davis
- 2011-2012 Research Associate, WCU Biomodulation, Seoul National University
- 2007-2011 Research Associate, Avicore Biotechnology Institute

Grants and fellowships

- 2023- USDA NIFA AFRI Foundational Program (2023-67015-39264, \$650,000) “Developing CRISPR-based in vitro functional genomic screening resources in chickens”, PI: Kim, TH, Co-PI: Wang, Y
- 2023- Aviagen Limited (260492, \$389,407) “Evaluation of antiviral factors against avian influenza virus to enhance viral resistance in chickens” PI: Kim, TH
- 2023- USDA NIFA AFRI EWD Program (2023-67012-39848, \$225,000) “Functional identification of avian influenza resistance host factors through genome-wide CRISPR/Cas9 knockout screening in chickens”, PD: Evelyn Weaver, Mentor: Kim, TH
- 2022- USDA NIFA AFRI Foundational Program (2022-67015-37089, \$650,000) “Increasing milk fat yield by understanding the homeorhetic regulation of fatty acid metabolism in dairy cows”, PI: Harvatine, K, Co-PI: Kim, TH
- 2020- National Science Foundation (#1645331, \$3,658,694) “IOS EDGE: Accelerating arthropod genetic manipulation through ReMOT Control, Creativity Extension: Expansion of the technique into diverse vertebrate systems”, PI: Rasgon, J, Co-PI: Kim, TH
- 2019-2022 USDA NIFA AFRI EWD Program (2019-67012-29663, \$165,000) “Functional mapping of muscle and fat specific enhancers in the bovine genome by epigenome editing in embryonic stem cells”, PD: Kim, TH, Mentor: Ross, P

2017-2019 USDA NIFA AFRI ELI Program (2017-67011-26762, \$95,000) “Elucidating the functional role of Interferon Regulatory Factor 7 in the host antiviral pathway against avian influenza virus in chickens”, PD: Kim, TH, Mentor: Zhou, H

Awards and honors

2020 Dorothy Foehr Huck and J. Lloyd Huck Early Career Chair of Avian Transgenic Biology, The Huck Institutes of Life Sciences, Penn State University

2018 Ursula Knight Abbott Travel Award, University of California, Davis, (Gene expression & Signaling in the immune system conference)

2015 Neal A. Jorgenson Genome Travel Award, USDA NRSP8 Poultry, (PAG XXIII conference)

2014 Houghton Trust Travel Award, Houghton trust, UK (AIRG 2014 conference)

Publications

2023 Han JH, Lee HJ, **Kim TH**. Characterization of transcriptional enhancers in the chicken genome using CRISPR-mediated activation. *Front Genome Ed.* doi.org/10.3389/fgened.2023.1269115

2023 Chapman B, Han JH, Lee HJ, Ruud I, **Kim TH**. Targeted modulation of chicken genes in vitro using CRISPRa and CRISPRi toolkit. *Genes.* doi:10.3390/genes14040906

2022 Choi HJ, Jung KM, Rengaraj D, Lee KY, Yoo E, **Kim TH**, Han JY. Single-cell RNA sequencing of mitotic-arrested prospermatogonia with DAZL::GFP chickens and revealing unique epigenetic reprogramming of chickens. *J Anim Sci Biotechnol.* doi:10.1186/s40104-022-00712-4

2020 **Kim TH**, Kern C, Zhou H. Knockout of IRF7 highlights its modulator function of host response against avian influenza virus and the involvement of MAPK and TOR signaling pathways in chicken. *Genes.* doi:10.3390/genes11040385

2020 Choi S, **Kim TH**, Hong M, Park TS, Lee H, Lee S. Transcriptomic alterations induced by aflatoxin B1 and ochratoxin A in LMH cell line. *Poultry Science.* doi:10.1016/j.psj.2020.05.058

2018 **Kim TH**, Zhou H. Overexpression of chicken IRF7 increased viral replication and programmed cell death to the avian influenza virus infection through TGF-beta/FoxO signaling axis in DF-1. *Frontiers in Genetics.* 9(415). doi:10.3389/fgene.2018.00415.

2015 **Kim TH**, Zhou H. Functional analysis of chicken IRF7 in response to dsRNA analog poly(I:C) by integrating overexpression and knockdown. *PLoS One.* 10(7). doi:10.1371/journal.pone.0133450

2013 Jang HJ, Lee MO, Kim S, **Kim TH**, Kim SK, Song G, Womack JE, Han JY. Biallelic expression of the L-arginine:glycine amidinotransferase gene with different methylation status between male and female primordial germ cells in chickens. *Poult Sci.* 92(3):760-9

2012 **Kim TH**, Yun TW, Rengaraj D, Lee SI, Lim SM, Seo HW, Park TS, Han JY. Conserved functional characteristics of the PIWI family members in chicken germ cell lineage. *Theriogenology.* 78(9):1948-59

2012 Rengaraj D, Lee BR, Choi JW, Lee SI, Seo HW, **Kim TH**, Choi HJ, Song G, Han JY. Gene pathways and cell cycle-related genes in cultured avian primordial germ cells. *Poult Sci.* 91(12):3167-77

2012 Rengaraj D, Lee SI, Yoo M, **Kim TH**, Song G, Han JY. Expression and knockdown analysis of glucose phosphate isomerase in chicken primordial germ cells. *Biol Reprod.* 87(3):57

2010 Park SH, Kim JN, Park TS, Lee SD, **Kim TH**, Han BK, Han JY. CpG methylation modulates tissue-specific expression of a transgene in chickens. *Theriogenology.* 74(5):805-16

2010 Jung JG, Lee YM, Kim JN, Kim TM, Shin JH, **Kim TH**, Lim JM, Han JY. The reversible developmental unipotency of germ cells in chicken. *Reproduction.* 139(1):113-9

Book chapters

2018 Wang Y, Saelao P, Mon K, **Kim TH**, Kelly T, Zhou H. Using genetic approaches to improve host responses to environmental stressors. In *Advances in Poultry Welfare* (p. 323-338)

Teaching

2022- Co-instructor, Foundation Readings in Animal Science (Penn State University, ANSC 500)
2021- Instructor, Transcriptomic Analysis (Penn State University, ANSC 567)
2021- Instructor, Transgenic Biology (Penn State University, ANSC 413)
2014-2016 Teaching assistant, Introductory Animal Science (UC Davis, ANS 002)
2013 Teaching assistant, Molecular Biology Laboratory Techniques (UC Davis, ANG 111)
2006 Teaching assistant, Transgenic Animal Production & Lab. (Seoul National University, 5252.403)
2006 Teaching assistant, Animal genetics and Breeding & Lab. (Seoul National University, 508.212)