JAE YOUNG CHOI

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APPOINTMENTS

Assistant Professor 2023
University of Kansas, Department of Ecology and Evolutionary Biology

Postdoctoral scholar 2016
New York University, Department of Biology
Adviser: Michael Purugganan

EDUCATION

Ph.D. in Genetics, Genomics, and Development 2015
Cornell University, Department of Molecular Biology and Genetics
Adviser: Charles "Chip" Aquadro

B.Sc in Human Biology and Cell Systems Biology 2010
University of Toronto, Department of Cell and Systems Biology

GRANTS & AWARDS

Kansas INBRE. *Genetics and developmental functions of natural telomere length variation*. **$229,500 (PI)** 2023–2024

KU Center for genomics. *Recombination rate variation and evolutionary mechanism of adaptive radiation.* **$13,909 (PI)** 2023

AGA EECG research award. *Recombination rate variation and evolutionary mechanism of adaptive radiation.* **$6,000 (PI)** 2023

NSF IOS-2204729. *The genetic basis of local adaptation across an island adaptive radiation*. $1,184,175 (Subaward: **$76,622 co-PI**) 2022–2025

PREPRINTS OR PUBLICATIONS UNDER REVIEW

Kumawat S, Martinez I, Logeswaran D, Chen H, Coughlan J, Chen J, Yuan YW, Sobel J, **Choi JY.** Transposition, duplication, and divergence of the telomerase RNA underlies the Mimulus telomere evolution**.** bioRxiv. 2023. Available from: https://doi.org/10.1101/2023.12.06.568249

Choi JY, Platts AE, Johary A, Purugganan MD, Joly-Lopez Z. Nascent transcription and the associated cis-regulatory landscape in rice. bioRxiv. 2022. Available from: https://doi.org/10.1101/2022.07.06.498888

PUBLICATIONS

23. Kumawat S and **Choi JY**. (2023). No end in sight: Mysteries of the telomeric variation in plants. American Journal of Botany. 110 (11): e16244

Prior to 2023 (Before Assistant Professorship)

22. Smith EG, Hazzouri KM, **Choi JY**, Delaney P, Al-Kharafi M, Howells EJ, Aranda M, Burt JA. (2022). Signatures of selection underpinning rapid coral adaptation to the world's warmest reefs. Science Advances. 8(2): eabl7287.
21. **Choi JY**, Dai X, Alam O, Peng JZ, Rughani P, Hickey S, Harrington E, Juul S, Ayroles J, Purugganan MD, Stacy E. (2021). Selection on ancient variations drives the adaptive radiation of Metrosideros across the Hawaiian archipelago. Proceedings of the National Academy of Sciences. 118 (37): e2023801118.

20. **Choi JY**, Abdulkina LR, Yin J, Chastukhina IB, Lovell JT, Agabekian IA, Young PG, Razzaque S, Shippen DE, Juenger TE, Shakirov EV, and Purugganan MD. (2021). Natural variation in plant telomere length is associated with flowering time. The Plant Cell. 33(4):1118-1134.
19. **Choi JY**, Lye ZN, Groen SC, Dai X, Rughani P, Zaaijer S, Harrington ED, Juul S, Purugganan MD. (2020). Nanopore-based genome assembly and the evolutionary genomics of basmati rice. Genome Biology. 21:21.
18. **Choi JY**, Purugganan MD, and Stacy EA. (2020). Divergent selection and primary gene flow shape incipient speciation of a riparian tree on Hawaii Island. Molecular Biology and Evolution. 37: 695–710.
17. **Choi JY**, Lee YCG. (2020). Double-edged sword: the evolutionary consequences of the epigenetic silencing of transposable elements. PLoS Genetics. 16 (7): e1008872. (*Review*)
    - Cover for PLoS Genetics July 2020 issue.
16. Groen SC, Ćalić I, Joly-Lopez Z, Platts AE, **Choi JY**, Natividad M, Dorph K, William MM, Bracken B, Cabral CLU, et al. (2020). The strength and pattern of natural selection on gene expression in rice. Nature. 578:572–576.
15. Gutaker RM, Groen SC, Bellis ES, **Choi JY**, Pires IS, Bocinsky RK, Slayton ER, Wilkins O, Castillo CC, Negrão S, et al. (2020). Genomic history and ecology of the geographic spread of rice. Nature Plants. 6:492–502.
14 Joly-Lopez Z, Platts AE, Gulko B, **Choi JY**, Groen SC, Zhong X, Siepel A, Purugganan MD. (2020). An inferred fitness consequence map of the rice genome. Nature Plants. 6:119–130.
13. Shin D, Lee S, Kim TH, Lee JH, Park J, Lee J, Lee JY, Cho LH, **Choi JY**, Lee W, et al. (2020). Natural variations at the Stay Green gene promoter control lifespan and yield in rice cultivars. Nature Communications. 11(1):1-11
12. **Choi JY**, Zaidem M, Gutaker R, Dorph K, Singh RK, and Purugganan MD. (2019). The complex geography of domestication of the African rice *Oryza glaberrima*. PLoS Genetics. 15(3): e1007414.
11. Raza Q, **Choi JY**, Li Y, O'Dowd RM, Watkins SC, Hong Y, Clark NL, and Kwiatkowski AV. (2019). Evolutionary rate covariation analysis of E-cadherin identifies Raskol as regulator of cell adhesion and actin dynamics in *Drosophila*. PLoS Genetics. 15(2): e1007720.
10. Chen L-Y, VanBuren R, Paris M, Zhou H, Zhang X, Wai CM, Yan H, Chen S, Alonge M, Ramakrishnan S, et al. (2019). The bracteatus pineapple genome and domestication of clonally propagated crops. Nature Genetics. 51: 1549–1558. [**Choi JY** is 22nd on author list]
9. **Choi JY** and Purugganan MD. (2018). Multiple origin but single domestication led to domesticated Asian rice. G3: Genes, Genomes, Genetics. 8(3) 797-803.
8. **Choi JY** and Purugganan MD. (2018). Evolutionary epigenomics of retrotransposon-mediated methylation spreading in rice. Molecular Biology and Evolution. 35(2): 365–382.
7. **Choi JY**, Platts AE, Fuller DQ, Hsing YI, Wing RA, and Purugganan MD. (2017). The rice paradox: Multiple origins but single domestication in Asian rice. Molecular Biology and Evolution. 34(4):969-979.
    - Listed as *Molecular Biology and Evolution* Emerging Classics

(doi.org/10.1093/molbev/msz285)

6. Meyer RS, **Choi JY**, Sanches M, Plessis A, Flowers JM, Amas J, Dorph K, Barretto A, Gross B, Fuller DQ, et al. (2016). Domestication history and geographical adaptation inferred from a SNP map of African rice. Nature Genetics. 48:1083–1088.
5. **Choi JY** and Aquadro CF. (2016). Recent and long term selection across synonymous sites in *Drosophila ananassae*. Journal of Molecular Evolution. 83(1-2):50-60.
4. **Choi JY** and Aquadro CF. (2015). Molecular evolution of *Drosophila* germline stem cell and neural stem cell regulating genes. Genome Biology and Evolution. 7(11):3097-3114.
3. **Choi JY**, Bubnell J, and Aquadro, CF. (2015). Population genomic analysis of the infectious and integrated *Wolbachia pipientis* genomes in *Drosophila ananassae.* Genome Biology and Evolution. 7(8):2362-2382.
2. **Choi JY** and Aquadro CF. (2014). The coevolutionary period of *Wolbachia piepientis* infecting *Drosophila ananassae* and its impact on the evolution of the host germline stem cell regulating genes. Molecular Biology and Evolution. 31(9):2457-2471.
1. Cutter AD and **Choi JY**. (2010). Natural selection shapes nucleotide polymorphism across the genome of the nematode *Caenorhabditis briggsae*. Genome Research. 20:1103-1111.

MENTEES

Postdoctoral researcher
Surbhi Kumawat — 2023–present

Graduate student
Askhan Shametov — 2023–present

TEACHING

BIOL350: Principles of Genetics — Spring 2023, 2024

PRESENTATION AND INVITED LECTURE

Department of Biology, Washington University at St. Louis — 2023
Department of Biological Sciences, University of Missouri — 2023
Division of Biology, Kansas State University — 2023

PROFESSIONAL SERVICE

Symposium Co-Organizer
Society for Molecular Biology and Evolution, "Evolutionary Processes and Consequences of Animal and Plant Domestication" — 2019
Society for Molecular Biology and Evolution, "Evolutionary Genomics of Domestication" — 2017

Grant Reviewer for:

- Biotechnology and Biological Sciences Research Council (BBSRC), United Kingdom
- USDA National Institute of Food and Agriculture

Peer-Reviewed Articles for:

BMC Genomics, Genome Biology and Evolution, Genome Biology, Molecular Biology and Evolution, Molecular Ecology, Nature

Communications, Nature Genetics, PLoS Computational Biology, Science, Science Advances

COMMUNITY SERVICE

NYU Biology Summer Undergraduate Research Program (SURP) 2019
Research and academic mentor for historically underrepresented undergraduate students

Biobus 2016–2018
Teach, help, and explore biology to young students in New York City

Expend Your Horizons (EYH), Cornell University 2013–2014
Science outreach for 7-9th grade girls

Graduate Student School Outreach Program (GRASSHOPR) 2014
Developed and taught genetics outreach curriculum for 3rd grade students

Cornell University Field of Genes, Genetics, and Development Graduate Student Representative 2011
Representative for graduate students' interest