CV

Kejun "Albert" Ying

2025-08-12

Education

Harvard University — Cambridge, MA
Ph.D., Biological Sciences in Public Health — 2019 – 2025

Harvard University — Cambridge, MA
M.S., Computational Science and Engineering — 2023 – 2024

Sun Yat-Sen University — Guangzhou, China
B.S., Life Science — 2015 – 2019

Experience

Stanford University & University of Washington — Stanford, CA & Seattle, WA
Postdoctoral Researcher, Protein Design and Aging — Jun 2025 – Present

- Analyze protein folding patterns using computational modeling software
- Process experimental data from aging studies and maintain research files
- Perform statistical analysis on biological samples using Python and R
- Collaborate with laboratory members on protein structure research projects

Harvard Medical School, Brigham and Women's Hospital — Boston, MA
Graduate Researcher, Biological Aging — Mar 2020 – May 2025

- Analyzed DNA methylation patterns in aging populations using bioinformatics tools
- Processed genomic sequencing data and performed quality control checks
- Conducted statistical modeling of age-related biological changes
- Organized tissue samples and coordinated with clinical collaborators
- Prepared research figures and contributed to scientific manuscript writing

Harvard Medical School, Boston Children's Hospital Boston, MA
Graduate Researcher (Rotation), RNA Biology Jan 2020 – Mar 2020

- Extracted RNA from C. elegans samples and performed qPCR experiments
- Analyzed gene expression data using standard bioinformatics pipelines
- Maintained worm cultures and conducted lifespan measurement experiments

Harvard Medical School Boston, MA
Graduate Researcher (Rotation), Cell Biology Oct 2019 – Dec 2019

- Cultured mouse fibroblast cells and performed cellular reprogramming experiments
- Conducted immunofluorescence staining and microscopy imaging
- Analyzed cell morphology changes using image analysis software

Harvard T. H. Chan School of Public Health Boston, MA
Graduate Researcher (Rotation), Molecular Biology Jul 2019 – Oct 2019

- Performed Western blot experiments to measure protein expression levels
- Conducted cell viability assays under different treatment conditions
- Analyzed metabolic pathway data and prepared laboratory reports

Undergraduate Research (multiple laboratories) 2015 – 2019

- Conducted PCR amplification and gel electrophoresis experiments
- Measured telomere length in human blood samples using qPCR
- Performed population genetics analysis using standard statistical software
- Maintained laboratory equipment and prepared experimental reagents

Publications

† Corresponding author; * Co-first author; + Contributed as consortium author

Published Papers

Ying, K., Paulson, S., Eames, A., Tyshkovskiy, A., ..., Gladyshev, V. N. (2025). *A Unified Framework for Systematic Curation and Evaluation of Aging Biomarkers*. **Nature Aging (in press)**. https://doi.org/10.1101/2023.12.02.569722

Wu, X.*, Liu, H.*, Ying, K.*† (2025). Biological Age, Aging Clocks, and the Interplay with Lymphoid Neoplasms: Mechanisms and Clinical Frontiers. **Lymphatics**, *3*(3), 19. https://doi.org/10.3390/lymphatics3030019

Ying, K.† (2024). Causal inference for epigenetic ageing. **Nature Reviews Genetics**, 1–1. https://doi.org/10.1038/s41576-024-00799-7

Ying, K., Castro, J. P., Shindyapina, A. V., …, Gladyshev, V. N. (2024). Depletion of loss-of-function germline mutations in centenarians reveals longevity genes. **Nature Communications**, *15*(1), 5956. https://doi.org/10.1038/s41467-024-50098-2

Ying, K., Liu, H., Tarkhov, A. E., …, Gladyshev, V. N. (2024). Causality-enriched epigenetic age uncouples damage and adaptation. **Nature Aging (February Cover)**, 1–16. https://doi.org/10.1038/s43587-023-00557-0

Ying, K., Zhai, R., Pyrkov, T. V., …, Gladyshev, V. N. (2021). Genetic and phenotypic analysis of the causal relationship between aging and COVID-19. **Communications Medicine**, *1*(1), 35. https://doi.org/10.1038/s43856-021-00033-z

Farinas, A., Rutledge, J., Bot, V. A., Western, D., Ying, K., Lawrence, K. A., Oh, H. S. H., …, Wyss-Coray, T. (2025). Disruption of the cerebrospinal fluid–plasma protein balance in cognitive impairment and aging. **Nature Medicine**, 1–12. https://doi.org/10.1038/s41591-025-03831-3

Rothi, M.H., Sarkar, G.C., Haddad, J.A., Mitchell, W., Ying, K., et al. (2025). The 18S rRNA methyltransferase DIMT-1 regulates lifespan in the germline later in life. **Nature Communications**, 16, 6944. https://doi.org/10.1038/s41467-025-62323-7

Grzeczka, A., Iqbal, S., Ying, K., Kordowitzki, P. (2025). Circular RNAs as regulators and biomarkers of mammalian ovarian ageing. **GeroScience**, 1–19. https://doi.org/10.1007/s11357-025-01798-0

Jacques, E., Herzog, C., Ying, K., ... Gladyshev, V. N. (2025). Invigorating discovery and clinical translation of aging biomarkers. **Nature Aging**, 1–5.

Goeminne, L. J. E., Vladimirova, A., Eames, A., Tyshkovskiy, A., Argentieri, M. A., Ying, K., Moqri, M., & Gladyshev, V. N. (2025). Plasma protein-based organ-specific aging and mortality models unveil diseases as accelerated aging of organismal systems. **Cell Metabolism**, https://doi.org/10.1016/j.cmet.2024.03.007

Gladyshev, V. N., Anderson, B., Barlit, H., …, Ying, K., Yunes, J., Zhang, B., & Zhavoronkov, A. (2024). Disagreement on foundational principles of biological aging. **PNAS Nexus**, *3*(12), pgae499. https://doi.org/10.1093/pnasnexus/pgae499

Lyu, YX.*, Fu, Q.*, Wilczok, D.*, Ying, K.*, King, A., ..., Bakula, D. (2024). Longevity biotechnology: Bridging AI, biomarkers, geroscience and clinical applications for healthy longevity. **Aging**, *16*(1), 1–25. https://doi.org/10.18632/aging.205397

Biomarkers of Aging Consortium+, Herzog, C. M. S., Goeminne, L. J. E., Poganik, J. R., …, Gladyshev, V. N. (2024). Challenges and recommendations for the translation of biomarkers of aging. **Nature Aging**, 1–12. https://doi.org/10.1038/s43587-024-00683-3

Castro, J. P., Shindyapina, A. V., Barbieri, A., Ying, K., …, Gladyshev, V. N. (2024). Age-associated clonal B cells drive B cell lymphoma in mice. **Nature Aging**, *4*(8), 1–15. https://doi.org/10.1038/s43587-024-00671-7

Moqri, M., …, de Sena Brandine, G., Ying, K., Tarkhov, A., …, Sebastiano, V. (2024). PRC2-AgeIndex as a universal biomarker of aging and rejuvenation. **Nature Communications**, *15*(1), 5956. https://doi.org/10.1038/s41467-024-50098-2

Tarkhov, A. E., Lindstrom-Vautrin, T., Zhang, S., Ying, K., Moqri, M., …, Gladyshev, V. N. (2024). Nature of epigenetic aging from a single-cell perspective. **Nature Aging**, 1–17. https://doi.org/10.1038/s43587-023-00555-2

Moqri, M., Herzog, C., Poganik, J. R., Ying, K., … Ferrucci, L. (2024). Validation of biomarkers of aging. **Nature Medicine**, 1–13. https://doi.org/10.1038/s41591-023-02784-9

Griffin, P. T., …, Kerepesi, C., Ying, K., …, Sinclair, D. A. (2024). TIME-seq reduces time and cost of DNA methylation measurement for epigenetic clock construction. **Nature Aging**, 1–14. https://doi.org/10.1038/s43587-023-00555-2

Moqri, M., Herzog, C., Poganik, J. R., Biomarkers of Aging Consortium^{+}, … Gladyshev, V. N. (2023). Biomarkers of aging for the identification and evaluation of longevity interventions. **Cell**, *186*(18), 3758–3775. https://doi.org/10.1016/j.cell.2023.08.003

Liberman, N., Rothi, M. H., Gerashchenko, M. V., Zorbas, C., Boulias, K., MacWhinnie, F. G., Ying, A. K., Flood Taylor, A., …, Greer, E. L. (2023). 18S rRNA methyltransferases DIMT1 and BUD23 drive intergenerational hormesis. **Molecular Cell**, *83*(18), 3268–3282.e7. https://doi.org/10.1016/j.molcel.2023.08.014

Bitto, A., Grillo, A. S., Ito, T. K., Stanaway, I. B., Nguyen, B. M. G., Ying, K., … Kaeberlein, M. (2023). Acarbose suppresses symptoms of mitochondrial disease in a mouse model of Leigh syndrome. **Nature Metabolism**, *5*(6), 955–967. https://doi.org/10.1038/s42255-023-00815-w

Emmrich, S., Trapp, A., Tolibzoda Zakusilo, F., Straight, M. E., Ying, A. K., Tyshkovskiy, A., …, Gorbunova, V. (2022). Characterization of naked mole-rat hematopoiesis reveals unique stem and progenitor cell patterns and neotenic traits. **The EMBO Journal**, *41*(15), e109694. https://doi.org/10.15252/embj.2021109694

Yang, Z., …, Guo, H., Ying, K., Gustafsson, S., …, Shen, X. (2022). Genetic Landscape of the ACE2 Coronavirus Receptor. **Circulation**, *145*(18), 1398–1411. https://doi.org/10.1161/CIRCULATIONAHA.121.057888

Li, T., Ning, Z., Yang, Z., Zhai, R., Zheng, C., Xu, W., Wang, Y., Ying, K., Chen, Y., & Shen, X. (2021). Total genetic contribution assessment across the human genome. **Nature Communications**, *12*(1), 2845. https://doi.org/10.1038/s41467-021-23124-w

Zhu, J., Xu, M., Liu, Y., Zhuang, L., Ying, K., Liu, F., …, Songyang, Z. (2019). Phosphorylation of PLIN3 by AMPK promotes dispersion of lipid droplets during starvation. **Protein & Cell**, *10*(5), 382–387. https://doi.org/10.1007/s13238-018-0593-9

Preprints

Ying, K.†, Song, J., Cui, H., …, Gladyshev, V. N†. (2024). MethylGPT: a foundation model for the DNA methylome. **bioRxiv** *(Nature Machine Intelligence submitted)*. https://doi.org/10.1101/2024.10.30.621013

Ying, K., Paulson, S., Reinhard, J., …, Gladyshev, V. N. (2024). An Open Competition for Biomarkers of Aging. **bioRxiv**. https://doi.org/10.1101/2024.10.29.620782

Ying, K., Tyshkovskiy, A., Chen, Q., …, Gladyshev, V. N. (2024). High-dimensional Ageome Representations of Biological Aging across Functional Modules. **bioRxiv** *(Nature Aging 2nd Revision)*. https://doi.org/10.1101/2024.09.21.570935

Ying, K., Tyshkovskiy, A., Trapp, A., …, Gladyshev, V. N. (2023). *ClockBase: A comprehensive platform for biological age profiling in human and mouse*. **bioRxiv**. *(Updated Version, Nature submitted)* https://doi.org/10.1101/2023.02.28.530532

Mavrommatis, C., Belsky, D., Ying, K., Moqri, M., Campbell, A., Richmond, A., …, Gladyshev, V. N. (2025). *An unbiased comparison of 14 epigenetic clocks in relation to 10-year onset of 174 disease outcomes in 18,859 individuals*. **medRxiv**. https://doi.org/10.1101/2025.07.14.25331494

Zhang, O., …, Wang, J., Ying, K., Kang, Y., Hsieh, C.-y., & Hou, T. (2025). *Graph Neural Networks in Modern AI-aided Drug Discovery*. **arXiv**. https://arxiv.org/abs/2506.06915

Galkin, F., …, Tyshkovskiy, A., Ying, K., Gladyshev, V. N., & Zhavoronkov, A. (2024). Precious3GPT: Multimodal Multi-Species Multi-Omics Multi-Tissue Transformer for Aging Research and Drug Discovery. **bioRxiv**. https://doi.org/10.1101/2024.07.25.605062

Tyshkovskiy, A., Kholdina, D., Ying, K., Davitadze, M., …, Gladyshev, V. N. (2024). Transcriptomic Hallmarks of Mortality Reveal Universal and Specific Mechanisms of Aging, Chronic Disease, and Rejuvenation. **bioRxiv**. https://doi.org/10.1101/2024.07.04.601982

Moqri, M., Poganik, J. R., Herzog, C., Ying, K., Chen, Q., …, Gladyshev, V. N. (2024). Integrative epigenetics and transcriptomics identify aging genes in human blood. **bioRxiv**. https://doi.org/10.1101/2024.05.30.596713

Rothi, M. H., Sarkar, G. C., Al Haddad, J., Mitchell, W., Ying, K., Pohl, N., …, Greer, E. L. (2024). The 18S rRNA Methyltransferase DIMT-1 Regulates Lifespan in the Germline Later in Life. **bioRxiv**. https://doi.org/10.1101/2024.05.15.570935

Zhang, B., Tarkhov, A. E., Ratzan, W., Ying, K., Moqri, M., …, Gladyshev, V. N. (2022). *Epigenetic profiling and incidence of disrupted development point to gastrulation as aging ground zero in Xenopus laevis*. **bioRxiv**. https://doi.org/10.1101/2022.08.02.502559