

Luohao XU

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POSITION

Professor School of Life Science, Southwest University	2022. 02 - now
Postdoc researcher Dept. of Neurosciences and Developmental Biology, University of Vienna	2020.01 - 2022. 02

EDUCATION

PhD University of Vienna / Advisor: Qi Zhou / Thesis: evolutionary genomics of avian sex chromosomes	2020
M. Sc Uppsala University / Advisor: Hans Ellegren	2016
M. Sc Ludwig Maximilian University of Munich / Advisor: John Parsch	2016
B. Sc Wuhan University / Major in Biology / Advisor: Xin Lu	2013

RESEARCH EXPERIENCE

Harvard University (Visiting Student) Sex Chromosome Evolution in Ratite Birds / Supervisor: Scott Edwards	09. 2015 - 01. 2016
University of California, Berkeley (Visiting Scholar) Y Chromosome Evolution in Diptera / Supervisor: Doris Bachtrog	01. 2015 - 03. 2015
Beijing Genomic Institute (BGI) (Research Assistant) Avian Comparative Genomics / Supervisor: Guojie Zhang	02. 2012 - 08. 2014

PUBLICATION (co-first#, corresponding*)

Xu, L., Ren, Y., Wu, J., Cui, T., Dong, R., Huang, C., **Xu, L.***, Yu, X. & Li, G. (2024). Evolution and expression patterns of the neo-sex chromosomes of the crested ibis. *Nature Communications*, 15(1), 1670.

Huang, Z., Xu, Z., Bai, H., Huang, Y., Kang, N., Ding, X., ... & **Xu, L.*** (2023). Evolutionary analysis of a complete chicken genome. *Proceedings of the National Academy of Sciences*, 120(8), e2216641120.

Huang, Z., **Xu, L.***, Cai, C., Zhou, Y., Liu, J., Xu, Z., ... & Zhou, Q. (2023). Three amphioxus reference genomes reveal gene and chromosome evolution of chordates. *Proceedings of the National Academy of Sciences*, 120(10), e2201504120.

Luo, H., Jiang, X., Li, B., Wu, J., Shen, J., ... & **Xu, L.*** (2023). A high-quality genome assembly highlights the evolutionary history of the great bustard (*Otis tarda*, *Otidiformes*). *Communications Biology*, 6(1), 746.

- Rice, E. S., Alberdi, A., Alfieri, J., Athrey, G., Balacco, J. R., Bardou, P., ... **Xu, L.** & Warren, W. C. (2023). A pangenome graph reference of 30 chicken genomes allows genotyping of large and complex structural variants. *BMC biology*, 21(1), 267.
- Long, X., Charlesworth, D., Qi, J., Wu, R., Chen, M., Wang, Z., **X L.**, ... & Zhou, Q. (2023). Independent Evolution of Sex Chromosomes and Male Pregnancy-Related Genes in Two Seahorse Species. *Molecular Biology and Evolution*, 40(1), msac279.
- Huang, Z., Furo, D. O., Liu, J., Peona, V., Gomes, A. J., Cen, W., ... & **Xu, L.*** (2022). Recurrent chromosome reshuffling and the evolution of neo-sex chromosomes in parrots. *Nature Communications*, 13(1), 1-11.
- Huang, Z., & **Xu, L.*** (2022). The The monk parakeet (*Myiopsitta monachus*). *Trends in Genetics*, Jul 9.
- Ma, P., Liu, X., Xu, Z., Liu, H., Ding, X., Huang, Z., Shi, C., Liang, L., **Xu, L.**, ... & Chen, D. (2022). Joint profiling of gene expression and chromatin accessibility during amphioxus development at single-cell resolution. *Cell Reports*, 39(12), 110979.
- Wang, Z., Zhang, J., Xu, X., Witt, C., Deng, Y., Chen, G., Meng, G., Feng, S., **Xu, L.**, Szekely, T., Zhang, G., & Zhou, Q. (2022). Phylogeny and sex chromosome evolution of Palaeognathae. *Journal of Genetics and Genomics*, 49(2), 109-119.
- Xue, L., Gao, Y., Wu, M., Tian, T., Fan, H., Huang, Y.* , Li, D.* & **Xu, L.*** (2021). Telomere-to-telomere assembly of a fish Y chromosome reveals the origin of a young sex chromosome pair. *Genome biology*, 22(1), 1-20.
- Tao, W.#, **Xu, L.#***, Zhao, L., Zhu, Z., Wu, X., Min, Q., Wang, D.* , & Zhou, Q.* (2021). High-quality chromosome-level genomes of two tilapia species reveal their evolution of repeat sequences and sex chromosomes. *Molecular Ecology Resources*, 21 (2), 543-560.
- Liu, J., Wang, Z., Li, J., **Xu, L.**, Liu, J., Feng, S., ... & Zhou, Q. (2021). A new emu genome illuminates the evolution of genome configuration and nuclear architecture of avian chromosomes. *Genome Research*, gr-271569.
- Wang, Z., Zhang, J., Xu, X., Witt, C., Deng, Y., Chenc, G., Meng, G., Feng, S., **Xu, L.**, Szekely, T. and Zhang, G & Zhou, Q. (2021). Phylogeny and sex chromosome evolution of Palaeognathae. *Journal of Genetics and Genomics*.
- Peona, V., Blom, M. P., **Xu, L.**, Burri, R., Sullivan, S., Bunikis, I., ... & Suh, A. (2021). Identifying the causes and consequences of assembly gaps using a multiplatform genome assembly of a bird-of-paradise. *Molecular Ecology Resources* 21(1), 263-286.
- Xue, L., Jia, D., **Xu, L.**, Huang, Z., Fan, H., Chen, B., ... & Gao, Y. (2021). Bulk and single-cell RNA-seq reveal the sexually dimorphic expression pattern of *dmtb1* in zig-zag eel (*Mastacembelus armatus*). *Aquaculture*, 545, 737194.
- Li, J., Zhang, J., Liu, J., Zhou, Y., Cai, C., **Xu, L.**, ... & Zhou, Q. (2021). A new duck genome reveals conserved and convergently evolved chromosome architectures of birds and mammals. *GigaScience*, 10(1), giaa142.
- Xu, L.***, Irestedt, M., Zhou, Q. (2020). Sequence transpositions restore genes on the highly degenerated W chromosomes of songbirds. *Genes*, 11(11), 1267.
- Xu, L.**, & Zhou, Q. (2020). The female-specific W chromosomes of birds have conserved gene contents but are not feminized. *Genes*, 11(10), 1126.
- Conte, M. A., Clark, F. E., Roberts, R. B., **Xu, L.**, Tao, W., Zhou, Q., Wang, D., Kocher, T. D. (2020). Origin of a giant sex chromosome. *Molecular Biology and Evolution* msaa319.
- Xu, L.**, Auer, G., Peona, V., Suh, A., Deng, Y., Feng, S., Zhang, G., Blom, M.P., Christidis, L., Prost, S., Irestedt, M., Zhou, Q. (2019). Dynamic evolutionary history and gene content of sex chromosomes across diverse songbirds. *Nature ecology & evolution*, 3(5), 834.

Xu, L., Sin, S. Y. W., Grayson, P., Edwards, S. V., & Sackton, T. B. (2019). Evolutionary dynamics of sex chromosomes of palaeognathous birds. *Genome biology and evolution*, evz154.

Cheng, H., Liu, J., Wen, J., Nie, X., **Xu, L.**, ... Jiang, Y., (2019). Frequent intra-and inter-species introgression shapes the landscape of genetic variation in bread wheat. *Genome biology*, 20(1), 136.

R Seki, Li, C., Fang, Q., Hayashi, S., Egawa, S., Hu, J., **Xu, L.**, ..., Zhou, Q., Irie, N., Tamura, K., Zhang, G., (2017). Functional roles of Aves class-specific cis-regulatory elements on macroevolution of bird-specific features. *Nature Communications*, 8, p.14229.

Uebbing, S.#, Konzer, A.#, **Xu, L.#**, Backström, N., Brunström, B., Bergquist, J., & Ellegren, H. (2015). Quantitative mass spectrometry reveals partial translational regulation for dosage compensation in chicken. *Molecular biology and evolution*, 32:2716-2725

Zhang, G., Li, C., Li, Q., Li, B., Larkin, D. M., Lee, C., Storz, J., Antunes, A., Greenwold, M., Meredith, R., Ödeen, A., Cui, J., Zhou, Q., **Xu, L.**, ... Wang, J. & Avian Genome Consortium (2014). Comparative genomics reveals insights into avian genome evolution and adaptation. *Science*, 346(6215), 1311-1320.

Poulsen, M., Hu, H., Li, C., Chen, Z., **Xu, L.**, Otani, S., ... & Zhang, G. (2014). Complementary symbiont contributions to plant decomposition in a fungus-farming termite. *Proceedings of the National Academy of Sciences*, 111(40), 14500-14505.

Li, C., Zhang, Y., Li, J., Kong, L., Hu, H., Pan, H., **Xu, L.**, ... & Zhang, G. (2014). Two Antarctic penguin genomes reveal insights into their evolutionary history and molecular changes related to the Antarctic environment. *GigaScience*, 3(1), 27.

GRANT & FELLOWSHIP

- The General Program, NSFC, 2024-2027 (¥500,000)
- Distinguished Young Scholars (Overseas), NSFC, 2022-2025 (¥2,000,000)
- Erwin Schrödinger Postdoc Fellowship, FWF, 2020-2023 (€147,000)
- uni:docs PhD fellowship, University of Vienna, 2018-2021 (€90,000)
- Dissemination, University of Vienna, 2017, 2018 (€1,000)
- Relocation Grant, Austrian Research Promotion Agency, 2016 (€2,000)
- Research Training Sub-project, National Talent Grants in Basic Science, 2011 (¥20,000)

AWARD & HONOUR

- Overall Top Poster Award, The G10K-VGP/EBP Meeting, 2019
- Undergraduate Travel Award, Society for Molecular Biology and Evolution, 2016 (\$2,000)
- Gold Award, International Genetically Engineered Machine Regional Jamboree: Asia, 2012
- First Grade Scholarship, Wuhan University, 2010 (¥3,000)

CONFERENCE

Xu, L., Chinese Ornithology Conference, 2022, virtual, *oral presentation*

Xu, L., ESEB satellite symposium on sex chromosome evolution, 2021, virtual *oral presentation*

Xu, L., Xue, L., Li, D., The second AsiaEvo, 2021, virtual, *oral presentation*

Xu, L., Tao., W., Zhou, Q., 'Paradigm shift in sex chromosome evolution', 2019, Berlin, *poster presentation*

Xu, L., Huang, Z., Zhou, Q., The G10K-VGP/EBP Meeting, 2019, New York, *poster presentation*

Xu, L., Zhou, Q., 25th European Meeting of PhD Students in Evolutionary Biology, 2019, *oral presentation*

Xu, L., Sackton, T., The first AsiaEvo, 2018, Shenzhen, *oral presentation*

Xu, L., Zhou, Q., 23rd European Meeting of PhD Students in Evolutionary Biology, 2017, *oral presentation*

Xu, L., Uebbing, S., Ellegren, H., Society for Molecular Biology and Evolution, 2016, Golden Coast, *poster presentation*

Xu, L., Li, C., Zhang, G., Plant & Animal Genome XXII Conference, 2014, San Diego, *poster presentation*

INVITED TALK

2022, Loess Plateau Ecology and Biodiversity protection seminar, Longdong, *Webinar*

2022, College of Plant Protection, Southwest University, Chongqing, *Seminar*

2021, Fisheries College, Jimei University, Xiamen, *Seminar*

2021, Marine Fishery Institute of Zhejiang Province, Zhoushan, *Seminar*

2021, Chinese Genomics Meet-up Europe (CGM-EU), *Webinar*

2021, School of Life Science, Southwest University, Chongqing, *Seminar*

2021, College of animal science and technology, Yangzhou University, Yangzhou, *Seminar*

2020, Institute of Zoology (IOZ), Chinese Academy of Sciences (CAS), Beijing, *Seminar*

2020, School of Life Science, Lanzhou University, Lanzhou, *Seminar*

2020, Genome Biodiversity Group, BGI, Shenzhen, *Seminar*

PROFESSIONAL SERVICE

Editorial Board Member:

BMC Genomics, Journal of Genetics and Genomics

Peer review for journals:

Nature Ecology & Evolution, National Science Review, Genome Biology, Science Bulletin, Communications Biology (n=2), BMC Biology, Molecular Ecology Resources (n=2), Journal of Genetics and Genomics, Scientific Data (n=2), BMC Genomics, Zoological Research, GigaScience, Genome Biology and Evolution (n=2), Scientific Reports (n=2), Genes (n=2), Frontiers in Genetics, Mammalian Genome, Cells, Functional & Integrative Genomics, Viruses, Birds (n=2), Ageing, Animals (n=2)

Peer review for thesis:

Master thesis Xiamen University (2022)

Degree defence committee:

Phd Xiamen University (2023)

STUDENT SUPERVISION

Gabriel Auer, University of Vienna, Bachelor thesis: Genomic identification and evolutionary analysis of sex-

linked genes in birds of paradise, 2017