

Lutian Yao

Curriculum Vitae



Professor
Department of Orthopedics, 1st Affiliated Hospital of China Medical University, China

Educational Background & Professional Experience

- 2026.1–Present Professor, Department of Orthopedics, 1st Affiliated Hospital of China Medical University
- 2022.1–2025.12 Associate Professor, Department of Orthopedics, 1st Affiliated Hospital of China Medical University
- 2018.3–2021.6 Visiting Scholar, Department of Orthopedics, University of Pennsylvania
- 2015.8–2021.12 Fellow, Department of Orthopedics, 1st Affiliated Hospital of China Medical University

Research Interests

My research interests focus on musculoskeletal injury repair and degenerative joint diseases, particularly the cellular and molecular mechanisms underlying fracture healing, osteoarthritis, and bone marrow microenvironment remodeling. I am especially interested in integrating single-cell and spatial transcriptomics with functional studies to identify key progenitor cell populations, microenvironmental regulatory networks, and potential therapeutic targets. I am also developing translational research in AI-assisted functional assessment, intelligent rehabilitation, and medical-engineering integration for shoulder disorders and sports medicine.

Publications

1. H. Wang, X. He, M. Ma, T. Dou, Y. Wei, D. Rux, L. Qin, Y. Yang, Y. Zhu, L. Yao, Integrating spatial and single-cell transcriptomics to characterize mouse long bone fracture healing process. Commun Biol 8, 887 (2025).
2. Miao J, Ma M, Guo Y, Qin L, Yao L. A practical protocol of processing mineralized tissue for Visium spatial transcriptomics. Mechanobiol Med. 2025 Nov 4;3(4):100163. doi: 10.1016/j.mbm.2025.100163.
3. S. a. Tang (co-first), L. Yao (co-first), J. Ruan, J. Kang, Y. Cao, X. Nie, W. Lan, Z. Zhu, W. Han, Y. Liu, J. Tian, P. Seale, L. Qin, C. Ding. Single-cell atlas of human infrapatellar fat pad and synovium implicates APOE signaling in osteoarthritis pathology. Science Translational Medicine 2024, 16 (731), eadf4590. IF:15.8.
4. L. Yao, J. Lu, L. Zhong, Y. Wei, T. Gui, L. Wang, J. Ahn, J. D. Boerckel, D. Rux, C. Mundy, L. Qin, M. Pacifici, Activin A marks a novel progenitor cell population during fracture healing and reveals a therapeutic strategy. Elife 12, (2023).
5. L. Yao, E. D. Tichy, L. Zhong, S. Mohanty, L. Wang, E. Ai, S. Yang, F. Mourkioti, L. Qin, Gli1 Defines a Subset of Fibro-adipogenic Progenitors that Promote Skeletal Muscle Regeneration With Less Fat Accumulation. J Bone Miner Res 36, 1159–1173 (2021).

