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Research area: Mitochondrial surveillance and the aging research

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Education

2005-2010	Ph.D. in Biochemistry and Molecular Biology Beijing Normal University, Beijing, China National Institute of Biological Sciences (NIBS), Beijing, China
2001-2005	B.S. in Biotechnology Beijing Normal University, Beijing, China

Research Experience

2016.10-Present	Professor The Institute of Genetics and Developmental Biology, CAS, Beijing, China
2012-2016	Postdoctoral Research University of California, Berkeley, CA, United States
2010-2012	Postdoctoral Research Salk Institute, La Jolla, CA, United States

Teaching experience

2018-Present	*Metabolic regulation: Cell, Physiology, and Evolution*
2020-Present	*Cell death and autophagy*
2023-Present	*Cell biology experiment*

Awards

2010	Ray Wu Prize
2012	Glenn Foundation for medical research fellowship
2016	The Beijing Science and Technology Award (The second Prize, Ranked 4th)
2019	Excellent Tutor Award of University of Chinese Academy of Sciences
2019	The National Natural Science Award (The Second Prize, Ranked 3rd)

2021 The “excellent” in the final review of the CAS Hundred Talents Program
2021 The VCANBIO Award for Bioscience and Medicine (Innovation and Breakthrough Award)
2022 Chinese Zoological Society Youth Science and Technology Award
2022 Excellent Tutor Award of University of Chinese Academy of Sciences
2022 Excellent Tutor Award of Yihai Kerry
2022 Chinese Academy of Sciences Young Scientist Award
2023 Gu Xiaocheng Lecture
2024 Tecent Science Xplorer Prize

Grant Support

2017.07-2022.06 National Key R&D Program of China (2017YFA0506400)
Coordination of cell non-autonomous proteostasis stress (Concluded)

2018.01-2021.12 National Natural Science Foundation of China (31771333)
The epigenetic regulation of mitochondrial stress-induced longevity (Concluded)

2020.01-2024.12 National Natural Science Foundation of China (31930023)
Wnt signaling mediates the mitochondrial stress signaling (Concluded)

2020.01-2024.12 Strategic Priority Research Program of CAS (XDB39020300)
Mitochondrial homeostasis regulation and aging (Concluded)

2022.07-2027.07 CAS Project for Young Scientists in Basic Research (YSBR-076)
Mechanism and intervention of aging

2022.12-2027.11 National Key R&D Program of China (2022YFA1303000)
Analysis of spatio-temporal regulation network of REDOX

2023.01-2025.12 National Natural Science Foundation of China (92254305)
Spatial and temporal signature analysis of endoplasmic reticulum interaction networks(Concluded)

2023.01-2027.12 National Natural Science Foundation of China (32225025)
Mitochondrial homeostasis regulation and aging

2024.01-2028.12 National Natural Science Foundation of China (32321004)
Membrane lipid regulation and disease

2025.01-2029.12 National Natural Science Foundation of China (32430025)
Research on the mechanism of TMBIM protein regulating intercellular mitochondrial stress signal communication

2025.12-2030.11 National Key R&D Program of China (2025YFA1308700)
New mechanism of translation and its dynamic regulation in physiological conditions

Publications

(# Co-first author; * Corresponding author)

1. Zhang Q#, Dong HY#, Jiang YY#, Wang ZH, Li JS, **Tian Y*** (2026). FUBL-3/FUBP1 Mediates Mitochondrial Stress-induced Chromatin Remodeling and Longevity. ***Science Advances***, 12(26):eaec8143.
2. Hao XS, Yuan RW, Guo YF, Chen GY, Guo YQ, Liu LM, Lu F, Bai Y, **Tian Y*** (2026). Host Oxidative Response Capacity Determines Longevity Outcomes of Microbial Interventions. ***Aging Cell***, 25(2):e70418.
3. Chen P#, Zhang LY#, Wu XY, Liang ZQ, Hao XS, Zhu QY, Liu Y, Zheng JR, Zhang Q, Yang QM, Zhou F, Zhou CB, **Tian Y*** (2025). Mitochondrial Superoxide Regulates Nuclear Envelope Integrity and Aging via Redox-mediated Lipid Metabolism. ***Nature Metabolism***, 8(2):371-388.
4. Chen GY#, Dong HY#, **Tian Y*** (2026). Mito-nuclear Communication: From Cellular Responses to Organismal Health. ***Molecular Cell***, 86(3):522-532.
5. Thaiss CA*, **Tian Y***, Winer DA*, Linterman M*, Liston A*, Amor C*, Lowe SW*, Liu GH* (2025). Aging and Immunity. ***Immunity***, 58(11):2609-2612.
6. Zhu HD, Zhang Q, **Tian Y*** and Cohen E* (2025). TGF-β Signaling as an Organismal Proteostasis Regulator. ***Trends in Cell Biology***, 35(12):1016-1027.
7. Zhou J#, Zhu D#, Wang YB, Wang ZL, Zhang N, Huang XH, Zhang YQ, Wang YC, Wu XY* and **Tian Y*** (2025). Mitochondrial Stress Orchestrates Chromatin Remodeling and Longevity via Phosphoregulation of the NuRD Component LIN-40. ***SCIENCE CHINA Life Sciences***, 68(11):3340-3352.
8. 张宁, **田烨*** (2025). 基于荧光蛋白的生物探针设计策略及其应用[J]. ***遗传***, 47(7):711-728.
9. Li JS, Cui JM, Li XY, Zhu D, Chen ZH, Huang XH, Wang YC, Wu QF, **Tian Y***(2025). TMBIM-2 Orchestrates Systemic Mitochondrial Stress Response via Facilitating Ca^{2+} Oscillations. ***Journal of Cell Biology***, 224(5):e202408050.
10. Liu LM#*, Hao XS#, Bai Y*, **Tian Y***(2025). The soil *Mycobacterium sp.* Promotes Health and Longevity through Different Bacteria-derived Molecules in *Caenorhabditis elegans*. ***Aging Cell***, 24(3):e14416.
11. Wu JC#, Liu Y#, Ou LQ#, Gan TT#, Zhangding ZR, Yuan SP, Liu XY, Liu MZ, Li JS, Yin JH, Xin CC, **Tian Y** and Hu JZ* (2024). Transfer of Mitochondrial DNA into the Nuclear Genome during Induced DNA Breaks. ***Nature communications***, 15(1): 9438.
12. Wang ZH#, Zhang Q#, Jiang YY, Zhou J and **Tian Y*** (2024). ASI-RIM Neuronal Axis Regulates Systemic Mitochondrial Stress Response via TGF-β Signaling Cascade. ***Nature Communications***, 15(1): 8997.
13. Chen P, Zhang LY, Chen D*, **Tian Y*** (2023). Mitochondrial Stress and Aging: Lessons from *C. elegans*. ***Seminars in Cell and Developmental Biology***, 154(Pt A):69-76.
14. Ren J#, Song MS#, Zhang WQ#, Cai JP, Cao F, Cao ZW, Chan P, Chen C, Chen GB, Chen HZ, Chen J, Chen XC, Ci WM, Ding BS, Ding QR, Gao F, Gao SR, Han JJ, He QY, Huang K, Ju ZY, Kong QP, Li J, Li J, Li JY, Li X, Liu BH, Liu F, Liu JP, Liu L, Liu Q, Liu Q, Liu X, Liu Y, Luo XH, Ma S, Ma XR, Mao ZY, Nie J, Peng YJ, Qu J, Ren RB, Song WH, Songyang Z, Sun L, Sun YE, Sun Y, Tian M, Tian XL, **Tian Y**, Wang JW, Wang SS, Wang S, Wang WG, Wang X, Wang XN, Wang YJ, Wang YF, Wong CCL, Xiang AP, Xiao YC, Xiao ZX, Xie ZW, Xiong W, Xu DC, Yang Z, Ye J, Yu W, Yue R, Zhang CT, Zhang HB, Zhang L, Zhang XC, Zhang Y, Zhang YW, Zhang ZH, Zhao TB, Zhao YZ, Zhou ZJ, Zhu DH, Zou WG, Pei G and Liu GH* (2023). The Aging Biomarker Consortium Represents a New Era for Aging Research in China. ***Nature***

medicine, 29(9), 2162-2165.

15. 张茜[#], 王子豪[#], **田烨*** (2023). 跨组织线粒体应激信号交流调控机体衰老的研究进展[J]. ***遗传***, 45(3):187-197.
16. Zhang HL[#], Li XY[#], Fan WD, Pandovski S, **Tian Y*** and Dillin A* (2023). Inter-tissue Communication of Mitochondrial Stress and Metabolic Health. ***Life Metabolism***, 2(1):1-11.
17. Li JS[#], Cui JM[#] and **Tian Y*** (2022). Neuron-Periphery Mitochondrial Stress Communication in Aging and Diseases. ***Life Medicine***, 1(2):168-178.
18. Liu YL[#], Zhou J[#], Zhang N, Wu XY, Zhang Q, Zhang WF, Li XY and **Tian Y*** (2022). Two Sensory Neurons Coordinate the Systemic Mitochondrial Stress Response via GPCR Signaling in *C. elegans*. ***Developmental Cell***, 57(21):2469-2482.e5.
19. Cai YS[#], Song W[#], Li JM[#], Jing Y[#], Liang CQ[#], Zhang LY[#], Zhang X[#], Zhang WH[#], Liu BB[#], An YP[#], Li JY[#], Tang BX[#], SY[#], Wu XY[#], Liu YX[#], Zhuang CL[#], Ying YL[#], Dou XF[#], Chen Y[#], Xiao FH[#], Li DF[#], Yang RC[#], Zhao Y[#], Wang Y[#], Wang LH[#], Li YJ[#], Ma S*, Wang S*, Song XY*, Ren J*, Zhang L*, Wang J*, Zhang WQ*, Xie ZW*, Qu J*, Wang JW*, Xiao YC*, **Tian Y***, Wang GL*, Hu P*, Ye J*, Sun Y*, Mao ZY*, Kong QP*, Liu Q*, Zou QG*, Tian XL*, Xiao ZX*, Liu Y*, Liu JP*, Song MS*, Han JD* & Liu GH* (2022). The Landscape of Aging. ***SCIENCE CHINA Life Sciences***, 65(12):2354-2454.
20. Li XY, Li JS, Zhu D, Zhang N, Hao XS, Zhang WF, Zhang Q, Liu YL, Wu XY and **Tian Y*** (2022). Protein Disulfide Isomerase PDI-6 Assists Wnt Secretion to Coordinate Inter-tissue UPR^{mt} and Lifespan Extension in *C. elegans*. ***Cell Reports***, 39(10):110931.
21. Zhu D[#], Li XY[#], **Tian Y*** (2022). Mitochondrial-to-nuclear Communication in Aging: An Epigenetic Perspective. ***Trends in Biochemical Sciences***, 47(8):645-659.
22. Zhang Q, **Tian Y*** (2022). Molecular Insights into the Transgenerational Inheritance of Stress Memory. ***Journal of Genetics and Genomics***, 49(2):89-95.
23. Zhang Q, Wang ZH, Zhang WF, Wen QB, Li XY, Zhou J, Wu XY, Guo YQ, Liu YL, Wei CS, Qian WF, **Tian Y*** (2021). The Memory of Neuronal Mitochondrial Stress is Inherited Transgenerationally via Elevated mtDNA Levels. ***Nature Cell Biology***, 23(8):870-880.
24. Wang YL[#], He KX[#], Sheng BF[#], Lei XQ, Tao WY, Zhu XL, Wei Z, Fu RJ, Wang AL, Bai SD, Zhang Z, Hong N, Ye C, **Tian Y**, Wang J, Li MS, Zhang KG, Li L, Yang H*, Li HB*, Flavell RA*, Zhu S* (2021). The RNA Helicase Dhx15 Mediates Wnt-Induced Antimicrobial Protein Expression in Paneth Cells. ***PNAS***, 118(4):e2017432118.
25. Rong BW[#], Zhang Q[#], Wan JK, Xing SH, Dai RF, Li Y, Cai JB, Xie JY, Song Y, Chen JW, Zhang L, Yan GQ, Zhang W, Gao H, Han JD, Qu QH, Ma HH*, **Tian Y***, Lan F* (2020). Ribosome 18S m^{6}A Methyltransferase METTL5 Promotes Translation Initiation and Breast Cancer Cell Growth. ***Cell Reports***, 33(12):108544.
26. Zhu D[#], Wu, XY[#], Zhou J, Li XY, Huang XH, Li JS, Wu JB, Bian Q, Wang YC and **Tian Y*** (2020). NuRD Mediates Mitochondrial Stress-Induced Longevity via Chromatin Remodeling in Response to Acetyl-CoA Level. ***Science Advances***, 6(31):eabb2529.
27. Zhang Q[#], Wu XY[#], Chen P[#], Liu LM, Xin N, **Tian Y*** and Dillin A* (2018). The Mitochondrial Unfolded Protein Response is Mediated Cell-non-Autonomously by Retromer-Dependent Wnt Signaling. ***Cell***, 174(4):870-883.e17.

28. **Tian Y**, Garcia G, Bian Q, Steffen KK, Joe L, Wolff S, Meyer BJ and Dillin A* (2016). Mitochondrial Stress Induces Chromatin Reorganization to Promote Longevity and UPR^{mt}. ***Cell***, 165(5):1197-1208.
29. **Tian Y**$^{\#}$, Merkwirth C$^{\#}$ and Dillin A* (2016). Mitochondrial UPR: A Double-Edged Sword. ***Trends in Cell Biology***, 26(8):563-565.
30. Berendzen KM$^{\#}$, Durieux J$^{\#}$, Shao LW, **Tian Y**, Kim H, Wolff S, Liu Y and Dillin A* (2016). Neuroendocrine Coordination of Mitochondrial Stress Signaling and Proteostasis. ***Cell***, 166(6):1553-1563.e10.
31. Russell RC, **Tian Y**, Yuan H, Park HW, Chang YY, Kim J, Kim H, Neufeld TP, Dillin A and Guan KL* (2013). ULK1 Induces Autophagy by Phosphorylating Beclin-1 and Activating VPS34 Lipid Kinase. ***Nature Cell Biology***, 15(7):741-750.
32. **Tian Y**$^{\#}$, Li Z$^{\#}$, Hu W$^{\#}$, Ren H$^{\#}$, Tian E, Zhao Y, Lu Q, Huang X, Yang P, Li X, Wang X, Kovacs A, Yu L* and Zhang H* (2010a). *C. elegans* Screen Identifies Autophagy Genes Specific to Multicellular Organisms. ***Cell***, 141(6):1042-1055.
33. **Tian Y**, Ren HY, Zhao Y, Lu Q, Huang XX, Yang PG and Zhang H* (2010b). Four Metazoan Autophagy Genes Regulate Cargo Recognition, Autophagosome Formation and Autolysosomal Degradation. ***Autophagy***, 6(7):984-985.