

CURRICULUM VITAE

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EDUCATION

2010-2015	Ph.D. in Chemistry, Department of Chemistry, The University of Chicago – Chicago, USA
2006-2010	B.Sc. in Chemistry (Honored), Department of Polymer Science & Engineering, University of Science and Technology of China (USTC) – Hefei, China

ACADEMIC POSITIONS AND AFFILIATIONS

2022-present	Associate Professor, School of Life Sciences, Tsinghua University
2019-2022	Assistant Professor, School of Life Sciences, Tsinghua University
2015-2019	Postdoc Fellow, Department of Chemical and Systems Biology, Stanford University

RESEARCH EXPERIENCE

2022-present	Associate Professor, School of Life Sciences, Tsinghua University Topic: Regulation and function of human transposons
2019-2022	Assistant Professor, School of Life Sciences, Tsinghua University Topic: Regulation and function of LINE-1 retrotransposons
2015-2019	Postdoctoral Fellow with Joanna Wysocka, Stanford University Topic: Systematic survey of genes that regulate LINE-1 retrotransposons
2010-2015	Graduate student with Tao Pan & Chuan He, The University of Chicago Dissertation title: <i>N</i> ⁶ -methyladenosine-dependent RNA structural switches regulate RNA-protein interactions

AWARDS AND HONORS**A) International/National/Regional**

2026	Chinese Society for Cell Biology Young Scientist Award
2024	Benyuan Fund – Young Investigator Exploration Fellowship In Life Sciences
2024	Outstanding Youth in Beijing
2019	Youth One-Thousand Program by State Council of China
2016	Jane Coffin Childs Fund Fellowship
2016	RNA Society/Scaringe Graduate Student Award
2016	Award for Outstanding Self-financed Students Abroad
2016	Aldrich Alfred R. Bader Award for Student Innovation

B) University

2020	Bayer Investigator Award
2010	Guo Moruo Fellowship (Highest honor for undergraduates in USTC)

LECTURES, COURSES, WEB-BASED EDUCATION

A) Invited Talks at Meetings (Representatives)

RNA-dependent regulatory functions of bivalent transposons in development and disease
China Hematology Development Congress, Tianjin, China, January 11, 2026

RNA-dependent regulatory functions of bivalent transposons in development and disease
The 13th National RNA Conference, Chengdu, China, December 10-13, 2025

RNA-dependent regulatory functions of bivalent transposons in development and disease
National Symposium on Gene Function and Expression Regulation, Xiamen, China, December 3-5, 2025

Regulation and function of human retrotransposons
The 15th Annual Conference of the Chinese Society for Stem Cell Research, Chongqing, China, October 9-12, 2025

Regulation and function of human retrotransposons
The 7th ICAC conference, Haikou, China, November 21-23, 2025

Regulation and function of human retrotransposons
The 15th Annual Conference of the Chinese Society for Stem Cell Research, Chongqing, China, October 9-12, 2025

Regulation and function of human retrotransposons
The 6th National Conference on Computational Epigenetics, Baotou, China, August 15-17, 2025

RNA-dependent regulatory functions of retrotransposons.
CSH-Asia Conference: Nuclear architecture, Suzhou, China, September 1-5, 2025

Regulation and function of human retrotransposons.
CSH-Asia Conference: The Repetitive and Mobile Genome, Suzhou, China, April 7-11, 2025

Regulation and function of human retrotransposons.
Chromatin Biology and Epigenetics, Guangzhou, China, December 13-16, 2024

Regulation and function of human retrotransposons.
The 10th International 3d Genomics, Sanya, China, Nov 01-03, 2024

Regulation and Function of LINE-1 retrotransposons.
Cold Spring Harbor Asia: RNA Biology, Suzhou, China, Sep 02-06, 2024

LINE-1 chimeric transcription demarcates chromatin domains.
The 10th International 3d Genomics, Hangzhou, China, July 15-18, 2023

SAFB restricts chromatin domain bordered at L1 chimeric transcription.
CSH-Asia Conference: Systems Biology of Gene Regulation and Genome Editing, Suzhou, China 2023

SAFB restricts chromatin domain bordered at L1 chimeric transcription.
Gordon Conference, Ventura, CA, USA 2023

SAFB restricts chromatin domain bordered at L1 chimeric transcription.
The 28th Annual Meeting of The RNA Society, Singapore 2023

N6-methyl-adenosine-dependent subcellular protein location regulates gene expression.
The 20th Annual Meeting of The RNA Society, Madison, WI, USA 2015

N6-methyladenosine dependent RNA structural switches regulate RNA-protein interactions.
The 19th Annual Meeting of The RNA Society, Quebec, Canada, 2014

Determination of m6A at single nucleotide resolution and the application to a lncRNA-protein interaction.
The 18th Annual Meeting of The RNA Society, Davos, Switzerland, 2013

B) Invited Lectures at Institutions (Representatives)

RNA-dependent regulatory functions of bivalent transposons in development and disease

College of Biomedicine (CBM) Seminar, CityUHK, Hong Kong, March 30, 2026

RNA-dependent regulatory functions of bivalent transposons in development and disease

Annual Meeting of the School of Basic Medical Sciences, Zhejiang University, Hangzhou, China, January 17, 2026

Regulation and function of human transposons.

Croucher Advanced Study Institutes – Retrotransposons, Hong Kong, China, August 2025

RNA-dependent regulatory functions of bivalent transposons in development and disease

Academic Frontiers Lecture at Southwest United Graduate School, Kunming, China, December 18, 2025

Regulation and function of human retrotransposons.

Peking University Health Science Center, Beijing, China, July 2025

Regulation and function of human retrotransposons.

University of Science & Technology of China, Hefei, China, May 2024

LINE-1 chimeric transcription demarcates chromatin domains.

Shenzhen Technology University, Shenzhen, China, November, 2024

SAFB restricts chromatin domain bordered at L1 chimeric transcription.

Southern University of Science and Technology, Shenzhen, China, February 2023

LINE-1 chimeric transcription demarcates chromatin domains.

Huazhong University of Science and Technology, Wuhan, China, March 2021

LINE-1 transcription insulates chromatin domains.

Institute of Biophysics, CAS, Beijing, China, September 2021

C) Teaching

Tsinghua University Graduate Education:

Course Genomics and Functional Genomics; 32 class hours, 30 students	2022, 2023, 2024
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Course Scientific Writing; 16 class hours, 200 students	2023, 2024, 2025
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Course Advances in Genetics and Developmental Biology; 4 class hours, 25 students	2022, 2023, 2024
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Tsinghua University Undergraduate Education:

Course Scientific Research Training; 16 class hours, 50 students	2023, 2024, 2025
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PROFESSIONAL SERVICE

A) Peer Review Groups/Grant Study Sections

2022-present	Review grant application for the National Science Foundation of China
2023-present	Review grant application for the Beijing Natural Science Foundation
2024-present	Review grant application for Research Grants Council (RGC) of Hong Kong, China

B) Journal Service

2025-present	Editorial Board, Mobile DNA
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2024-present	Associate Editorial Board, Advanced Genetics
2019-present	Ad Hoc Reviewers for Cell, Molecular Cell, Nature communications, Cell reports, Genome Biology, Journal of Genetics and Genomics, and many other journals

C) Professional Organizations

2025-present	Member, Systems Biology Committee, Society for Bioinformatics (Provisional)
2020-present	Member of Chinese Society of Biochemistry and Molecular Biology
2021-present	Member of Chinese Society for Cell Biology
2022-present	Member of The Genetics Society of China

D) University Service

School of Life Sciences and Tsinghua-Peking Center for Life Sciences

Committee for Institutional Animal Care and Use Committee, IACUC	2024-present
Class Advisor, School of Life Sciences, Tsinghua University	2023-present
Faculty Recruitment Interview	2020-present
Postdoc Fellowship Interview	2020-present
Graduate Student Thesis Advisory Committee	2020-present
Graduate Student Qualify Exam Committee	2020-present
Graduate Student Thesis Outside Reader	2020-present
Graduate Recruitment Interview	2020-present
Undergraduate Thesis Examination	2020-present
Committee for the Gene Library Platform at the Biomedical Testing Center	2020-present

Tsinghua University

Oversea young talent grant application instruction	2021-present
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BIBLIOGRAPHY

Full list of publications (list all authors' names, title, journal or publisher, year, volume; use "*" to indicate corresponding or co-corresponding author and "#" to indicate co-first author)

A) Peer-Reviewed Research Articles (13 total)

1. Zhou Z*, Zhu S, Pan D, Lee HY, **Liu N***. Protocol to identify SINE-VNTR-Alu regulators using genome-wide screening in human K562 cells. **STAR protocols** 7 (2), 104468 (2026).
2. Zhou Z#, Zhu S#, Hong Y, Jin G, Ma R, Lin F, Zhang Y, Lee HY*, **Liu N***. Composite transposons with bivalent histone marks function as RNA-dependent enhancers in cell fate regulation. **Cell** 188 (21), 5878-5894 (2025).
Research Highlight by: Anania, C. A bivalent chromatin state regulates the function of composite transposons. **Nature Genetics** 57, 2083 (2025). <https://doi.org/10.1038/s41588-025-02337-5>
3. Li X#, Bie L#, Wang Y#, Hong Y#, Zhou Z, Fan Y, Yan X, Tao Y, Huang C, Zhang Y, Sun X, Li J, Zhang J, Chang Z, Xi Q, Meng A, Shen X, Xie W, **Liu N***. LINE-1 transcription activates long-range gene expression. **Nature Genetics** 56, 1494-1502 (2024).
News & Views by: Liang, Y., Wang, T. LINE1 mediates long-range DNA interactions. **Nature Genetics** 56, 1328–1330 (2024).
4. Hong Y#, Bie L#, Zhang T#, Yan X, Jin G, Chen Z, Wang Y, Li X, Pei G, Zhang Y, Hong Y, Gong L, Li P, Xie W, Zhu Y, Shen X, **Liu N***. SAFB restricts contact domain boundaries associated with L1 chimeric transcription. **Molecular Cell** 84, 598-615 (2024). [Featured Article]

5. Wang D, Yan K, Yu H, Li H, Zhou W, Hong Y, Guo S, Wang Y, Xu Chen, Pan C, Tang Y, **Liu N**, Wu W, Zhang L*, Xi Q*. (2024) Fimepinostat impairs NF- κ B and PI3K/AKT signaling and enhances gemcitabine efficacy in H3K27M-mutated diffuse intrinsic pontine glioma. **Cancer Research**. 84(4), p. 598-615.
6. Li Y, Yang J, Shen S, Wang W, **Liu N**, Guo H*, Wei W*. SARS-CoV-2-encoded inhibitors of human LINE-1 retrotransposition. **Journal of Medical Virology** (2022) DOI: 10.1002/jmv.28135.
7. Zuo F#, Jiang J#, Fu H#, Yan K, Liefke R, Zhang J, Hong Y, Chang Z, **Liu N**, Wang Z*, Xi Q*. A TRIM66/DAX1/Dux axis suppresses the totipotent 2-cell-like state in murine embryonic stem cells. **Cell Stem Cell**. 29(6), 948-961 (2022).
8. **Liu N**#, Lee C#, Swigut T, Grow E, Gu B, Bassik M, Wysocka J. Selective silencing of euchromatic L1s revealed by genome-wide screens for L1 regulators. **Nature** 553, 228-232 (2018).
9. **Liu N**#, Zhou K#, Parisien M, Dai Q, Diatchenko L, Pan T. *N*⁶-methyladenosine alters RNA structure to regulate binding of a low-complexity protein. **Nucleic Acids Research** 45 (10), 6051-6063 (2017).
10. Zhou K, Parisien M, Dai Q, **Liu N**, Diatchenko L, Sachleben J, Pan T. *N*⁶-Methyladenosine Modification in a Long Noncoding RNA Hairpin Predisposes Its Conformation to Protein Binding. **J. Mol. Biol.** 428, 822-33 (2016).
11. **Liu N**, Dai Q, Zheng G, He C, Parisien M, Pan T. *N*⁶-methyladenosine-dependent RNA structural switches regulate RNA–protein interactions. **Nature** 518, 560-564 (2015).
News & Views by: Theler D & Allain F. RNA modification does a regulatory two-step. **Nature** 56, 492–493 (2015).
12. Chen K, Lu Z, Wang X, Fu Y, Luo G, **Liu N**, Han D, Dominissini D, Dai Q, Pan T, He C. High-Resolution *N*⁶-Methyladenosine (m⁶A) Map Using Photo-Crosslinking-Assisted m⁶A Sequencing. **Angew. Chem. Int. Ed.** 53, 1-5 (2014).
13. **Liu N**, Parisien M, Dai Q, Zheng G, He C, Pan T. Probing *N*⁶-methyl-adenosine RNA modification status at single nucleotide resolution in mRNA and long noncoding RNA. **RNA** 19, 1848-1856 (2013).

B) Reviews and Commentaries (6 total)

1. Li X, **Liu N***. Advances in understanding LINE-1 regulation and function in the human genome. **Trends in Genetics** 41 (7), 577-589 (2025). ISSN 0168-9525. [\[Cover Article & Featured Article\]](#)
2. Hong Y, **Liu N***. Transposable elements in health and disease: molecular basis and clinical implications. **Chinese Medical Journal** 138 (18), 2220-2233 (2025).
3. Zhou K, **Liu N**, Pan T. Identification of *N*⁶-methyladenosine reader proteins. **Methods** 126, 105-111 (2017).
4. **Liu N***, Pan T.* *N*⁶-methyladenosine-coded RNA Epigenetics. **Nature Structural & Molecular Biology** 23, 98-102 (2016).
5. **Liu N**, Pan T. Probing RNA modification status at single nucleotide resolution in messenger and long non-coding RNA. **Methods in Enzymology** 560, 149-159 (2015).
6. **Liu N**, Pan T. RNA epigenetics. **Transl. Res.** 165, 28-35 (2015).

C) Books and Book Chapters (2 total)

1. **Liu N**, Pan T. RNA Epigenetics. In **Translating Epigenetics to the Clinic** 285-292 (2017).
2. **Liu N**, Pan T. Probing *N*⁶-methyl-adenosine (m⁶A) RNA modification in total RNA with SCARLET. In **Methods in Molecular Biology: Post-transcriptional Gene Regulation** 1358, 285-292 (2016).