Fanju Meng, Ph.D.
Assistant Professor
Department of Biological Sciences
University of North Texas
1155 Union Circle, #305220
Denton, TX 76203

Telephone: +1 (940) 369-8423
Email: Fanju.Meng@unt.edu
ORCID: https://orcid.org/0000-0002-0119-4543
Website: https://fanjumeng.github.io

RESEARCH INTERESTS

Our research is at the interface between genomics and developmental biology. My primary research interest lies in applying genomic profiling methods for understanding biological questions, especially those related to gene expression regulation and repetitive elements function during zebrafish embryonic development and differentiation.

PROFESSIONAL APPOINTMENTS

Assistant Professor, University of North Texas, TX 2024-present
Department of Biological Sciences
Member, Advanced Environmental Research Institute (AERI)
Member, Center for Computational Life Science (CCLS)

Staff Scientist, University of Rochester, NY 2023-2024
Department of Biomedical Genetics
Advisor: Dr. Patrick Murphy

Postdoctoral Associate, University of Rochester, NY 2019-2023
Department of Biomedical Genetics
Advisor: Dr. Patrick Murphy

EDUCATION

Ph.D. Genetics, University of Rochester, NY 2012-2018
Dissertation: Regulation of stem cell proliferation and differentiation by *Drosophila* Sox21a and Sox100B in the adult intestine

B.S. with honors, **Biological Science**, Shandong University, China 2008-2012

RESEARCH EXPERIENCE

- Established temporal and spatial dynamics of H2A.Z, and investigated its role during zebrafish developmental differentiation
- Uncovered a novel mechanism that repetitive elements regulate gene expression and embryogenesis by competing with gene promoters

- Revealed a hierarchy model that H2A.Z patterns regulate chromatin accessibility and gene expression in MEF
- Identified a Sox transcriptional cascade controlling adult intestinal stem cell proliferation and differentiation under normal and stress conditions

HONORS AND AWARDS

Steadman Family Award for Innovative Research	2023
Oral presentation award at Northeast SDB Regional meeting	2022
Goodman Dissertation Fellowship, University of Rochester	2018
New York State Stem Cell Science (NYSTEM) Training Grant Fellowship	2015
B.S. awarded with honor, Shandong University	2012
National Encouragement Scholarship, China	2011
Chinese Academy of Sciences Scholarship, China	2010
Scholarship for Excellent Student, Shandong University	2009-2011

TEACHING

Instructor, Undergraduate/Graduate course (24 students) — 2025, Fall
Contemporary Topics in Biology: Computational Genomics
(BIOL 4005/5005-002)
SPOT: 4.8, CEI: 5.6, Responses: 88%

Instructor, Undergraduate course (96 students) — 2025, Spring
Genetics (BIOL 3451-002)
SPOT: 4.6, CEI: 4.9, Responses: 92%

Guest lecturer, Graduate course (2 lectures, 8 students) — 2024, Fall
Advanced Molecular Biology (BIOC/BIOL 6600)

Guest lecturer, Graduate course (1 lecture, 10 students), Rochester — 2023, Fall
Current Topics in Bioinformatics Research (IND484)

Teaching Assistant, Graduate course of **Cell Biology**, Rochester — 2014, Fall

MENTORING

Postdoctoral Associates:

Xiaolu Wei, Ph.D. (Advisor) — 2024, Sept-present

Graduate students:

Vijaykumar Naidu (Thesis Advisor, BMB) — 2025, Jan-present

Undergraduate students:

Luisa Trujillo Soto (Advisor, Senior)	2025, July-present
Anicia Deleon (Advisor, Senior)	2025, July-present
Blain Daniel (Advisor, Freshman)	2025, Jan-present
Brandon Doh (Advisor, TAMS)	2024, Sept-present
Amir Omari (Advisor, Senior)	2025, Sept-2025, Dec
Madeleine Hudson (Advisor, Freshman)	2025, Feb-2025, May
Krithik Ramesh (Advisor, TAMS)	2024, Sept-2025, May
Veronica Pelis (Advisor, Senior)	2025, Jan-2025, June
Jacques Saseu (Advisor, Senior)	2025, Jan-2025, June
Christian Meshesha (Advisor, Senior)	2024, Sept-2024, Dec

Thesis Committee:

Swapna Bodampati, BMB	2025, Nov-present
Wille Barron, Biology	2025, Nov-present
Guillermo Contreras, Biology	2025, Mar-present
Sheikh Arafat Islam Nihad, Biology	2025, Feb-present
Shivani Dave, BMB	2024, Nov-present
Sakia Ferdousy, Biology	2024, Nov-present

SERVICE

Poster judge for CCLS Inaugural Research Symposium AI for Biology and Medicine (AI4BM), UNT	2025, Oct
Host for invited seminar speaker, Dr. Yuki Shindo (UT Dallas)	2025, April
Tenure-track Faculty Search Committee in Plant Biology/Science Department of Biological Sciences, UNT	2024-2025
Poster Judge for graduate/undergraduate students' posters Pathology Day, University of Rochester NY	2024, April
Volunteer for Rochester Youth Science Club (RYSC) program for 5-6th grade students	2022

PUBLICATIONS

Google scholar:
https://scholar.google.com/citations?hl=en&user=SCt51BIAAAAJ&view_op=list_works&authuser=1&sortby=pubdate

* Co-first authors $^{+}$ Co-corresponding authors $^{\#}$ Undergraduate researcher

Peer-reviewed publications & Pre-prints:

1. Wei X, Naidu V, Schneider P $^{\#}$, Murphy PJ, **Meng FW** $^{+}$. Protocol for mapping insertion sites of Tol2 transgenes in zebrafish using TransTag. (2025) **STAR Protocols**. DOI: 10.1016/j.xpro.2025.104259.

2. **Meng FW** [+], Schneider P [#], Wei X, Ariyasiri K, Halpern ME, Murphy PJ [+]. TransTag enables simple and efficient transgene mapping in zebrafish via tagmentation. (2025) ***Cell Reports Methods*****.** DOI: 10.1016/j.crmeth.2025.101090

3. Blanc RS, Shah N, Hachmer S, Salama NA, **Meng FW**, Mousaei A, Puri G, Hwang JH, Wacker EZ, Yang BA, Aguilar CA, Chakkalakal JV, Onukwufor JO, Murphy PJ, Calvi LM, Dilworth FJ, Dirksen R. Epigenetic erosion of H4K20me1 induced by inflammation drives aged stem cell ferroptosis. (2025) ***Nature Aging***. DOI: 10.1038/s43587-025-00902-5.

4. Das D, Khor ES, Jiang F, He J, Kawakami Y, Wainwright L, Hollinger J, Geiger J, Liu H, **Meng FW**, Porter Jr GA, Jin Z, Murphy PJ, Yao P. Loss-of-function of RNA-binding protein PRRC2B causes translational defects and congenital cardiovascular malformation. (2024) ***medRxiv***. DOI: https://doi.org/10.1101/2024.09.26.24313895.

5. Blanc RS, Shah N, Salama NA, **Meng FW**, Mousaei A, Yang BA, Aguilar CA, Chakkalakal JV, Onukwufor JO, Murphy PJ, Calvi L, Dirksen R. Epigenetic erosion of H4K20me1 induced by inflammation drives aged stem cell ferroptosis. (2024) ***Research Square****.* DOI: 10.21203/rs.3.rs-3937628/v2

6. Halblander F[#], **Meng FW**[+], Murphy PJ[+]. Anp32e protects against accumulation of H2A.Z at Sox motif containing promoters during zebrafish gastrulation (2023*)* ***Developmental Biology.*** DOI: 10.1016/j.ydbio.2023.12.010

7. **Meng FW**, Murphy KE, Makowski CE[#], Delatte B, Murphy PJ. Competition for H2A.Z underlies the developmental impacts of repetitive elements de-repression (2023) ***Development.*** DOI: https://doi.org/10.1242/dev.202338

8. Shi H, Chen S, Yan C, **Meng FW**, Ossip DJ, Li D. Epigenome-wide DNA methylation profiling in comparison between pathological and physiological hypertrophy of human cardiomyocytes. (*2023*) ***Frontiers in Genetics.*** *14.* DOI: 10.3389/fgene.2023.1264382

9. Akdogan-Ozdilek B, Duval KL, **Meng FW**, Murphy PJ, Goll MG. (2022) Identification of chromatin states during zebrafish gastrulation using CUT&RUN and CUT&Tag. ***Developmental Dynamics***. 251(4). DOI: 10.1002/dvdy.430

10. Murphy KE *, **Meng FW** *, Makowski CE[#], Murphy PJ. (2020) Genome-wide chromatin accessibility is restricted by ANP32E. ***Nature Communications***. 11(1):5063. DOI: 10.1038/s41467-020-18821-x (* *Co-first authors*)

11. **Meng FW**, Rojas Villa SE, Biteau B. (2020) Sox100B regulates progenitor cell-specific gene expression and differentiation in the adult *Drosophila* intestine. ***Stem Cell Reports***. 14(2):226-240. DOI: 10.1016/j.stemcr.2020.01.003

12. Rojas Villa SE, **Meng FW**, Biteau B. (2019) Zfh2 controls cell activation and differentiation in the adult *Drosophila* intestinal absorptive lineage. ***PLoS Genetics***. 15(12):e1008553. DOI: 10.1371/journal.pgen.1008553

13. **Meng FW** and Biteau B. (2015) A Sox transcription factor is a critical regulator of adult stem cell proliferation in the *Drosophila* intestine. ***Cell Reports***.13: 906-914. DOI: 10.1016/j.celrep.2015.09.061

Reviews, Editorial comments & Book chapters:

1. **Meng FW**, Murphy PJ. Canonical and Variant Nucleosome Reprogramming from Sperm to Blastula. (2025) ***Methods in Molecular Biology*** (book chapter) DOI: 10.1007/978-1-0716-4522-2_2

2. **Meng FW** [+], Murphy PJ [+]. (2021) Rolling uphill: in vivo reacquisition of pluripotency during cranial neural crest differentiation. ***Communications Biology***. 4(1):626. DOI: 10.1038/s42003-021-02154-6 ([+] *Co-corresponding authors*)

3. **Meng FW** and Biteau B. (2017) There and back again: amitosis to repopulate a stem cell pool. ***Stem Cell Investigation***. 4:82. DOI: 10.21037/sci.2017.10.02

INVITED TALKS

Invited Speaker - International Conference on Intelligent Biology and Medicine (ICIBM 2024), Houston, TX 2024

Invited Speaker - Department of Biological Sciences, University of North Texas 2024

Flash Talk Selection - Northeast SDB Regional Meeting, Woods Hole, MA 2024

Invited Speaker – 6th Central New York Zebrafish Meeting, Syracuse, NY 2024

Invited Speaker - Department of Molecular Genetics, Ohio State University 2023

Invited Speaker – 5th Central New York Zebrafish Meeting, Syracuse, NY 2023

Invited Speaker - 44th Annual International Asilomar Chromatin, Chromosomes and Epigenetics Conference 2022

Invited Speaker - Northeast SDB Regional Meeting, Woods Hole, MA 2022

Invited Speaker – 4th Central New York Zebrafish Meeting, Syracuse, NY 2022

Invited Speaker - Society for Developmental Biology Postdoctoral Speaker 2020

Invited Speaker - NYSTEM Trainee Talk, University of Rochester 2016

SELECTED POSTER PRESENTATIONS

Wei X, Naidu V, Doh B, Trujillo Soto L, **Meng FW.** Epigenetic activation of transposable elements and genes during zebrafish embryogenesis. University Research Day, UNT-Denton, TX 2025

Meng FW, Murphy PJ. Competition for H2A.Z sensitizes developing embryos to innate immune stimulation. **39th Summer Symposium in Molecular Biology**, Penn State University, PA 2023

Meng FW, Murphy KE, Makowski CE, Murphy PJ. Competition for H2A.Z sensitizes developing embryos to innate immune stimulation. **Tri-Institutional Symposium on Reproductive Sciences**, Ithaca, NY 2023

Meng FW, Murphy PJ. Competition between gene promoters and repetitive elements for H2A.Z establishes anti-viral immune response. **Annual Genetics Day**, University of Rochester, NY 2022

Meng FW, Murphy KE, Makowski CE, Murphy PJ. Primed repetitive elements sequester H2A.Z causing extensive transcriptional rewiring. **Mechanisms of Eukaryotic Transcription**, Cold Spring Harbor, NY (virtual) 2021

Meng FW, Murphy PJ. Srcap-mediated H2A.Z localization is required for zebrafish neural crest cell differentiation. **79th Society of Developmental Biology Annual Meeting**, (virtual) 2020

Meng FW, Biteau B. Coordinated regulation of adult stem cell proliferation and differentiation by Sox21a and Sox100B in the Drosophila intestine. **59th Annual Drosophila Research Conference**, Philadelphia, PA 2018

Meng FW, Biteau B. Sox21a is a critical regulator of adult stem cell proliferation in the Drosophila intestine. **Allied Genetics Conference (TAGC)**, Orlando, FL 2016

Meng FW, Biteau B. Sox21a is a stem cell-specific transcription factor controlling proliferation in the Drosophila intestine. **Annual Genetics Day**, University of Rochester, NY 2014

PROFESSIONAL AFFILIATIONS

Society of Developmental Biology 2019-present

PEER REVIEWING

Ad Hoc Reviewers for *Cells & Development, International Journal of Molecular Biology, Cells, Epigenomes*, *Genes, Communications Biology, Gene, Computational and Structural Biotechnology Journal, Differentiation*