CURRICULUM VITAE

MINGYI XIE

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EDUCATION

2010	Ph.D., **Arizona State University**, Tempe, Arizona Major: Biochemistry
2004	B.S., **Xiamen University**, Xiamen, China Major: Biology

RESEARCH EXPERIENCE

2022–present	Associate Professor (with tenure)
2016–2022	Assistant Professor Department of Biochemistry and Molecular Biology **University of Florida**, Gainesville, Florida
2010–2016	Postdoc Fellow with **Dr. Joan A. Steitz** Department of Molecular Biophysics and Biochemistry **Yale University**, New Haven, Connecticut
2005–2010	Graduate Research Assistant with **Dr. Julian J.L. Chen** Department of Chemistry and Biochemistry **Arizona State University**, Tempe, Arizona
2002 –2004	Undergrad Research Assistant Ministry of Education Key Laboratory for Costal and Wetland Ecosystems **Xiamen University**, China

RESEARCH GRANTS

Active

2024–2026	**National Cancer Institute**. R21 (PI) “The molecular basis of 7SK RNA methylation in non-small cell lung cancer.”
2023–2028	**National Cancer Institute**. R01 (Contact PI) “Exploring microRNA degradation in T-cell acute lymphoblastic leukemia.”
2023–2028	**NIGMS**. Maximizing Investigator’s Research Award R35 (PI) “Molecular Mechanisms for regulating microRNA levels in metazoans.”
2022–2026	**American Cancer Society**. Research Scholar Award (PI) “MicroRNA turnover induced by target RNAs in colorectal cancer."
2022–2023	**National Institute of Aging**. Alzheimer’s Disease Supplement (PI)
2021–2024	**Florida Department of Health**. Live like Bella Pediatric Cancer Initiative (PI) “Target RNAs induce microRNA degradation in apoptotic T-cell acute lymphoblastic leukemia cells."

Completed

2021–2023	**UF Health Cancer Center**. CTHR Pilot Grant (co-PI)
2018–2023	**NIGMS**. Maximizing Investigator’s Research Award R35 (PI)
2021–2022	**The Elsa U. Pardee Foundation**. Research Grant (PI)
2020–2021	**Brown Foundation**. Research Grant (PI)

2018–2020 **University of Florida**. Research Opportunity Seed Fund (Contact PI)
2018–2020 **Thomas H. Maren Foundation**. Junior Faculty Award (PI)
2014–2019 **National Cancer Institute**. Pathway to Independence Award, K99/R00 (PI)
2012–2015 **Leukemia and Lymphoma Society**. Postdoctoral Fellowship (PI)
2010–2011 **Leslie H. Warner Cancer Research Foundation**. Postdoctoral Fellowship

TEACHING EXPERIENCE

2019-present Lecturer, Advanced Gene Regulation (course number: BCH7410)
2018-present Lecturer, Graduate Program in Biomedical Sciences core course (GMS6001)
2017-present Lecturer, Advanced Molecular and Cellular Biology (BCH6415)
2017-present Lecturer, Eukaryotic Molecular Biology and Genetics (BCH5413)
2016-present Thesis committee member of 28 Ph.D graduate students (graduated 10) and 8 master's students (graduated 6)
2016-present Mentor of 5 postdoctoral fellows, 5 Ph.D graduate students (graduated 2), 2 master's students (graduated 2), 19 undergraduate students and 1 high school student
Department of Biochemistry and Molecular Biology
University of Florida, Gainesville, Florida
2011–2016 Mentor of two graduate students and three undergraduates
Joan Steitz Lab, Department of Molecular Biophysics and Biochemistry
Yale University, New Haven, Connecticut
2005–2010 Mentor of four undergraduates
Julian Chen Lab, Department of Chemistry and Biochemistry
2007–2010 Teaching assistant, Analytical Biochemistry Lab (BCH467)
2005–2006 Teaching assistant, Elementary Biochemistry Lab (BCH367)
Department of Chemistry and Biochemistry
Arizona State University, Tempe, Arizona

SERVICES

External

2024 American Cancer Society, RNA mechanism in Cancer, ad hoc reviewer
2023 NIH Study section MRAF, ad hoc reviewer
2023 NIH Study section GRIC, ad hoc reviewer
2023-present Editorial board member of the Journal of Biological Chemistry
2022 NIH Study section ZAG1 ZIJ-G (J1), ad hoc reviewer
2022 NIH Study section ZAG1 ZIJ-G (J2), ad hoc reviewer
2020-present Annual meeting of the RNA Society, poster judge
2019 Worldwide Cancer Research Foundation, ad hoc reviewer
2016-present Reviewer for the journals: *Molecular Cell, the EMBO Journal, PNAS, Nature Communications, Science advances, Genome Research, Nucleic Acids Research, PLOS pathogens, Molecular Therapy Nucleic Acids, Journal of Molecular Cell Biology, Frontier in Genetics, Journal of Molecular Medicine, Cancer Biology & Therapy, and BioTechniques*

Internal

2023-present College of medicine, *R01 boot camp coach*
2023 College of medicine, *Faculty onboarding ambassador* for Dr. Zhipeng Li
2023-present Department of Biochemistry and Molecular Biology, *Faculty mentor* for Dr. Chen Zhao
2022-present Department of Molecular Genetics and Microbiology, *external Faculty mentor* for Dr. Zhe Ma
2022-present College of medicine, *Internal scientific review committee member*

2022-present	Department of Biochemistry, *Faculty search committee member*
2022-present	College of medicine Ph.D. *student admissions committee, Representative* for the Biochemistry concentration
2021	Department of Biochemistry, *Chair search committee member*
2020-2023	College of medicine, *Faculty council member*
2020-2022	Genetics & Genomics graduate admission, *committee member & interviewer*
2019	University Graduation Ceremony, *Marshal*
2018-present	BMB Department undergraduate research day, *co-organizer*
2018,2020	International Brainstorm symposium, *Session chair*
2018	Genetics & Genomics Graduate admission, *Faculty interviewer*
2018-2020	Center for NeuroGenetics, *Faculty search committee member*
2018	UF Graduate student research day, *Poster judge*
2017-present	College of medicine Ph.D. student admission, *Faculty interviewer*
2017-2018	UF Health Cancer Center faculty recruitment, *Presenter and Faculty sponsor*

HONORS

2023	UF International Educator of the Year, College of Medicine nominee.
2020, 2023	Exemplary Teacher Award. College of Medicine, University of Florida.
2009	Outstanding Graduate Research Assistant in Biochemistry Arizona State University, Tempe, Arizona
2003	Award for Advanced Individual in Extra-curricular Scientific and Technological Activity School of Life Sciences, Xiamen University, China

PUBLICATIONS

Research Articles *(first- or corresponding-author publications)*

1. C.M. Traugot, J. Effinger-Morris T. Li, N.M. Hiers, L. Li and **M. Xie**, Examine RNA abundance and molecular weight using high sensitivity northern blots. under review in ***Methods in Molecular Biology***
2. Y. Zhou*, P. Sheng*, **M. Xie**# and A.A. Green#. Conditional RNA interference in mammalian cells via RNA transactivation. in revision for ***Nature Communications***
3. Y. Wang, C.M. Traugot, J. Bubenik, T. Li, P. Sheng, N.M. Hiers, L. Li, J. Bian, M.S. Swanson and **M. Xie.** N^6-methyladenosine in 7SK small nuclear RNA underlies RNA Polymerase II transcription regulation. ***Molecular Cell***, *83* (21), 3818-3834 (2023).
4. T. Li, W. Zhang and **M. Xie**, Fluorescent in situ detection of RNA-Protein interactions in intact cells by RNA-PLA. ***Methods in Molecular Biology***, *2666,* 165-175 (2023).
5. P. Sheng*, L. Li*#, T. Li, Y. Wang, N.M. Hiers, J.S. Mejia, J.S. Sanchez, L. Zhou# and **M. Xie**#, Screening of *Drosophila* microRNA degradation sequences reveals Argonaute1 mRNA's role in miR-999 regulation. ***Nature Communications***. *14* (1), 2108 (2023).
6. C.J. Fields, L. Li, N.M. Hiers, T. Li, P. Sheng, T. Huda, J. Shan, L. Gay, T. Gu, J. Bian, M.S. Kilberg, R. Renne and **M. Xie**, Sequencing of Argonaute-bound microRNA/mRNA hybrids reveals regulation of the unfolded protein response by microRNA-320a. ***PLOS Genetics***, *17* (12), e1009934 (2021).
7. L. Li*, P. Sheng*, T. Li, C.J. Fields, N.M. Hiers, Y. Wang, J. Li, C.M. Guardia, J. D. Licht and **M. Xie**, Widespread microRNA degradation elements in target mRNAs can assist the encoded proteins. ***Genes & Development***, *35* (23-24), 1595-1609 (2021).
8. D. Stribling*, Y. Lei*, C.M. Guardia*, L. Li, C.J. Fields, P. Nowialis, R. Opavsky, R. Renne# and **M. Xie**#, A non-canonical microRNA derived from the snaR-A non-coding RNA targets a metastasis inhibitor. ***RNA***, *27* (6), 694-709 (2021).

9. P. Sheng, K.A. Flood and **M. Xie**, Short hairpin RNAs for strand-specific small interfering RNA production. ***Frontiers in Bioengineering & Biotechnology****, 8*, 940 (2020).
10. C.J. Fields, P. Sheng, B.R. Miller, T. Wei and **M. Xie**, Northern blot with IR-labeled probes using various labeling approaches. ***Bio-protocol***, *9* (8), e3219 (2019).
11. B.R. Miller*, T. Wei*, P. Sheng, C.J. Fields and **M. Xie**, Near-infrared fluorescent Northern blot. ***RNA***, *24* (12), 1871-1877 (2018).
12. P. Sheng, C.J. Fields, K. Aadland, T. Wei, O. Kolaczkowski, T. Gu, B. Kolaczkowski# and **M. Xie#**, Dicer cleaves 5′-extended microRNA precursors originating from RNA Polymerase II transcription start sites. ***Nucleic Acids Research***, *46* (11), 5737-5752 (2018).
13. W. Zhang*, **M. Xie***, M. Shu, J.A. Steitz and D. DiMaio, A proximity-dependent assay for specific RNA-protein interactions in intact cells. ***RNA***, *22* (11), 1785-1792 (2016).
14. **M. Xie**, W. Zhang, M. Shu, A. Xu, D. Lenis, D. DiMaio and J.A. Steitz, The host Integrator complex acts in transcription-independent maturation of herpesvirus microRNA 3′ ends. ***Genes & Development***, *29* (14), 1552-1564 (2015).
15. **M. Xie**, M. Li, A.Vilborg, N. Lee, M. Shu, V. Yartseva, N. Sestan and J.A. Steitz, Mammalian 5′-capped microRNA precursors that generate a single microRNA. ***Cell***, *155* (7), 1568-1580 (2013).
16. X. Qi*, **M. Xie***, A.F. Brown*, C.J. Bley, J.D. Podlevsky and J.J.-L. Chen, RNA/DNA hybrid binding affinity determines telomerase template translocation efficiency. ***EMBO Journal,*** *31* (1), 150-161 (2012).
17. **M. Xie**, J.D. Podlevsky, X. Qi, C.J. Bley and J.J.-L. Chen, A novel motif in telomerase reverse transcriptase regulates telomere repeat addition rate and processivity. ***Nucleic Acids Research***, *38* (6), 1982-1996 (2010).
18. **M. Xie**, A. Mosig, X. Qi, Y. Li, P.F. Stadler and J.J.-L. Chen, Structure and function of the smallest vertebrate telomerase RNA from teleost fish. ***Journal of Biological Chemistry****, 283* (4), 2049-2059 (2008).

Collaborative Research Articles

1. C. Liang, M. Huang, M. Tanaka, S. Lightsey, M. Temples, S.E. Lepler, P. Sheng, W.P. Mann, A.E. Widener, D.W. Siemann, B. Sharma, **M. Xie**, Y. Dai, E. Phelps E, B. Zeng# and X. Tang#. Functional Interrogation of Ca2+ Signals in Human Cancer Cells In Vitro and Ex Vivo by Fluorescent Microscopy and Molecular Tools. ***Methods in Molecular Biology***, *2679*, 95-125 (2023).
2. C. Gobin, S. Inkabi, C.C. Lattimore, T. Gu, J.N. Menefee, M. Rodriguez, H. Kates, C.J. Fields, T. Bian, N. Silver, C. Xing, C. Yates, R. Renne, **M. Xie** and K.M. Fredenburg, Investigating miR-9 as a mediator in laryngeal cancer health disparities. ***Frontiers in Oncology***, *13*: 1096882, (2023).
3. T. Gu, **M. Xie**, W.B. Barbazuk and J.-H. Lee, Biological features between miRNAs and their targets are unveiled from deep learning models. ***Scientific Reports***, *11* (1), 23825 (2021).
4. A. Gurumurthy, D. Yu, J.R. Stees, P. Chamales, E. Gavrilova, P. Wassel, L. Li, D. Stribling, J. Chen, M. Brackett, A. Ishov, **M. Xie** and J. Bungert, Super-enhancer mediated regulation of adult β-globin gene expression: the role of eRNA and Integrator. ***Nucleic Acids Research***, *49* (3), 1383-1396 (2021).
5. P. Nowialis*, K. Lopusna*, J. Opavska, S. L. Haney, A. Abraham, P. Sheng, A. Riva, A. Natarajan, O. Guryanova, M.Simpson, R. Hlady, **M. Xie** and R. Opavsky, Catalytically inactive Dnmt3b rescues mouse embryonic development by accessory and repressive functions. ***Nature Communications*** 10 (1), 4374 (2019).
6. K.E. Hayes, J.A. Barr, **M. Xie**, J.A. Steitz and I. Martinez, Immunoprecipitation of Tri-methylated Capped RNA. ***Bio-protocol****, 8* (3), e2717 (2018).

7. I. Martinez, K. Hayes, J. Barr, A. Harold, **M. Xie**, S.I.A. Bukhari, S. Vasudevan, J. A. Steitz and D. DiMaio, A novel Exportin-1-dependent microRNA biogenesis pathway during human cell quiescence. ***Proc. Natl. Acad. Sci. U.S.A.,*** *114* (25), 4961-4970 (2017).
8. A.F. Brown, J.D. Podlevsky, X. Qi, Y. Chen, **M. Xie** and J.J.-L. Chen, A self-regulating template in human telomerase. ***Proc. Natl. Acad. Sci. U.S.A.,*** *111* (31), 11311-11316 (2014).
9. C. Qiao, J. Ma, J. Xu, **M. Xie**, W. Ma and Y. Huang, Drosha mediates destabilization of Lin28 mRNA targets. ***Cell Cycle***, *11* (19), 3590-3598 (2012).
10. D. Cazalla, **M. Xie** and J.A. Steitz, A primate Herpesvirus uses the Integrator complex to generate viral microRNAs. ***Molecular Cell***, *43* (6), 982-992 (2011).
11. J.K. Alder, J.J.-L. Chen, L. Lancaster, S. Danoff, S.C. Su, M. Prince, I. Vulto, **M. Xie**, X. Qi, R.M. Tuder, J.A. Phillips, P.M. Lansdorp, J.E. Loyd, and M.Y. Armanios, Short telomeres are a risk factor for idiopathic pulmonary fibrosis. ***Proc. Natl. Acad. Sci. U.S.A.*** *105* (35), 13051-13056 (2008).
12. Y. Xiang, **M. Xie**, R. Bash, J.J.-L. Chen, and J. Wang, Ultrasensitive label-free aptamer-based electronic detection. ***Angew. Chem. Int. Ed.***, *46* (47), 9054-9056 (2007).
13. M. Armanios, J.J.-L. Chen, W.E. Lawson, J.K. Alder, R.G. Ingersoll, C. Markin, **M. Xie**, J. Cogan, J.A. Philips III, P.M. Lansdorp, C.W. Greider and J.E. Loyd, Telomerase mutations in families with idiopathic pulmonary fibrosis. ***New England Journal of Medicine***, *356* (13), 1317-1326 (2007).
14. C. Lin, **M. Xie**, J.J.-L. Chen, Y. Liu, and H. Yan, Rolling-circle amplification of a DNA nanojunction. ***Angew. Chem. Int. Ed.***, *45* (45), 7537-7539 (2006).

Review and Commentary Articles

1. N.M. Hiers, T. Li, C.M. Traugot and **M. Xie**. Target-directed microRNA degradation: Mechanisms, significance, and functional implications. ***WIREs RNA***, *in press*.
2. M. Huang, H. Wang, C. Mackey, M.C. Chung, J. Guan, G. Zheng, A. Roy, **M. Xie**, C. Vulpe and X. Tang, YAP at the Crossroads of Biomechanics and Drug Resistance in Human Cancer. ***International Journal of Molecular Sciences***, *24* (15), 12491 (2023).
3. M.D. Gibbons, Y. Fang, A.P. Spicola, N. Linzer, S.M. Jones, B.R. Johnson, L. Li, **M. Xie** and J. Bungert, Enhancer mediated formation of nuclear transcription initiation domains. ***International Journal of Molecular Sciences***, *23* (16), 9290 (2022).
4. Y. Qi*, L. Ding*, **M. Xie#** and P. Du#, RDR1-mediated broad antitumor response: a novel strategy manipulating miRNAs as a powerful weapon. ***Life Medicine***, lnac007 (2022).
5. C. Liang*, M. Huang*, T. Li*, L. Li*, H. Sussaman, Y. Dai, D. Siemann, **M. Xie#** and X. Tang#, Towards an Integrative Understanding of Cancer Mechanobiology: Calcium, YAP, and microRNA under Biophysical Forces. ***Soft Matter***, *18* (6), 1112-1148 (2022).
6. **M. Xie** and J. Bungert, When Pol II sees red. ***Blood***, *138* (18), 1648-1649 (2021).
7. **M. Xie** and M.S. Swanson, UTteR control through miRs: fine-tuning ATXN1 levels to prevent ataxia. ***Genes & Development***, *34* (17-18), 1107-1109 (2020).
8. K.T. Tycowski*, Y.E. Guo*, N. Lee*, W.N. Moss*, T.K. Vallery*, **M. Xie*** and J.A. Steitz, Viral noncoding RNAs: more surprises. ***Genes & Development***, *29* (6), 567-584 (2015).
9. **M. Xie#** and J.A. Steitz, Versatile microRNA biogenesis in animals and their viruses. ***RNA biology***, *11* (6), 673-681 (2014).

(* equal contribution; # co-corresponding authors)

ORAL PRESENTATIONS

Conference talks

1. m^{6}A in 7SK snRNA underlies Pol II transcription regulation. Y. Wang, C.M. Traugot, J. Bubenik, T. Li, P. Sheng, N.M. Hiers, L. Li, J. Bian, M.S. Swanson and **M. Xie.** ***The 28th annual meeting of the RNA Society***, Singapore, May 30-June 3, 2023.
2. Small non-coding RNA regulation in cancer. ***Florida academic cancer center alliance meeting***, Miami, FL March 27-28, 2023.
3. When microRNAs CLASH with their targets. ***Florida genetics symposium*** at the University of Florida, Gainesville, FL, November 2-3, 2022.
4. The target-directed microRNA degradation interactome in cancer. L. Li, P. Sheng, T. Li, C.J. Fields, N.M. Hiers, Y. Wang, J. Li, C.M. Guardia, J. D. Licht and **M. Xie** (p.82) ***The 27th annual meeting of the RNA Society*** at the University of Colorado at Boulder, Boulder, CO, May 31-June 5, 2022.
5. Dicer cleaves 5′-extended microRNA precursors originating from RNA Polymerase II transcription start sites. P. Sheng, C. Fields, K. Aadland, T. Wei, O. Kolaczkowski, T. Gu, B. Kolaczkowski and **M. Xie** (p.29) ***The 23rd annual meeting of the RNA Society*** at University of California at Berkeley, Berkeley, CA, May 29-June 3, 2018.
6. The Integrator complex generates the 3′ end of viral microRNA precursors in a primate Herpesvirus. **M. Xie**, M. Shu, A. Xu, D. Lenis and J. Steitz. (p. 76, flash talk) ***RNA biology conference*** at Cold Spring Harbor Asia, Suzhou, China, November 10-14, 2014.
7. Mammalian 5′-capped microRNA precursors that generate a single microRNA. **M. Xie**, M. Li, A. Vilborg, N. Lee, M. Shu, V. Yartseva, N. Sestan and J. Steitz. (p. 55A) ***The 19th annual meeting of the RNA Society*** at Laval University, Quebec City, Canada, June 3-8, 2014.
8. Mammalian 5′-capped microRNA precursors that generate a single microRNA ***The 11th International Therapeutics Discovery Symposia*** at Hilton Garden Inn, Waltham, MA, May 5-6, 2014.
9. A Herpesvirus uses the Integrator complex to generate viral microRNAs. **M. Xie**, D. Cazalla and J. A. Steitz. (p. 136) ***Eukaryotic mRNA processing meeting*** at Cold Spring Harbor Laboratory, NY, August 23-27, 2011.

Invited external seminars

1. (TBD) Regulation of small non-coding RNAs. **Emory University**, Atlanta, GA, May 2, 2024.
2. (TBD) Regulation of small non-coding RNAs. **Ohio State University**, Columbus, OH, March 28, 2024.
3. Regulation of small non-coding RNAs. **UT Health-Houston**, Houston, TX, September 25, 2023.
4. Regulation of small non-coding RNAs. **Duke-National University of Singapore**, Singapore, June 1, 2023.
5. Small non-coding RNA regulation in cancer. **Moffitt Cancer Center**, Tampa, FL, (virtual) May 9, 2023.
6. When microRNAs CLASH with their targets. **University of Pittsburgh**, Pittsburgh, PA, December 14, 2022.
7. When microRNAs CLASH with their targets. **National Institute of Health**, Bethesda, MD, October 6, 2022.
8. The birth and death of microRNAs: from virus to host. **University of Utah**, Salt Lake City, UT, (virtual) April 21, 2021.
9. The birth and death of microRNAs: from virus to host. **University of Maryland**, College Park, MD, (virtual) April 9, 2021.
10. Transcription start site microRNAs & Near-infrared fluorescent northern blot. **University of Arkansas**, Fayetteville, AR, March 26, 2019.

11. Transcription start site microRNAs & Near-infrared fluorescent northern blot. **Yale University**, New Haven, CT, March 6, 2019.
12. Non-canonical microRNA biogenesis: from an oncogenic Herpesvirus to its mammalian host. ***Soochow University***, Suzhou, China, November 10, 2014.
13. Non-canonical microRNA biogenesis: from an oncogenic Herpesvirus to its mammalian host. ***Huazhong Agricultural University***, Wuhan, China, October 14, 2014.
14. Non-canonical microRNA biogenesis: from an oncogenic Herpesvirus to its mammalian host. ***Institute of Hydrobiology, Chinese Academy of Sciences***, Wuhan, China, October 13, 2014.