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MOLECULAR BIOLOGY PROGRAM

The Xiaolan Zhao Lab

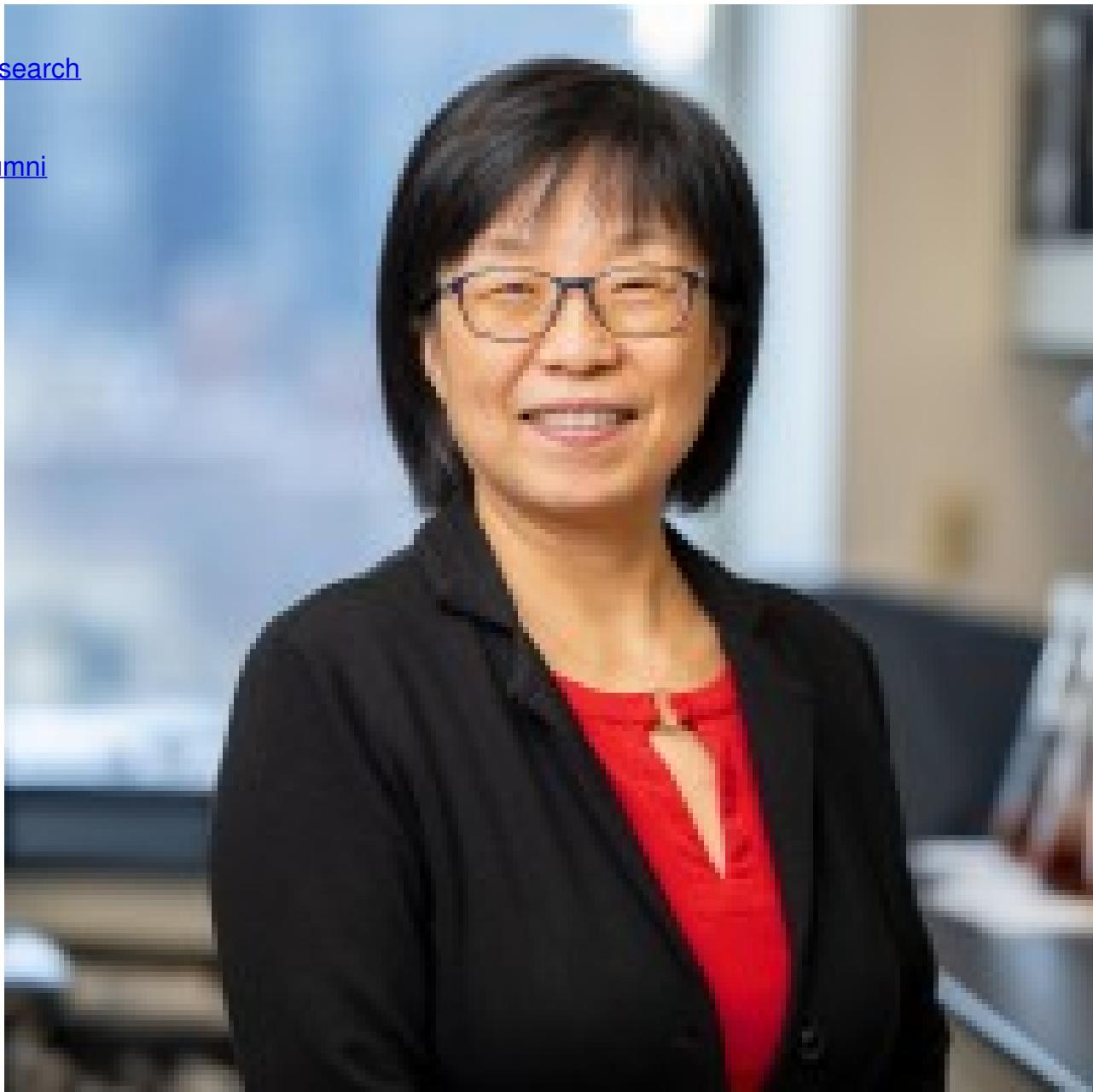
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Xiaolan Zhao, PhD

DNA replication, repair, and damage response, collectively called the 3Rs, support genome stability and faithful genetic inheritance. Proteins involved in the 3Rs are genome guardians that prevent a broad spectrum of diseases, ranging from cancers, immunological and neurodegenerative diseases, to developmental disorders such as diabetes and premature aging. Our lab investigates 3R mechanisms, 3R protein functions and structures, and their links to human disease. Our main research interests include:

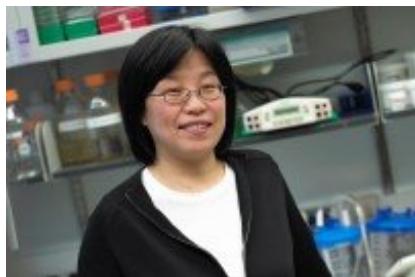
- Mechanisms of genome duplication during growth and under stress conditions that mimics carcinogenic exposure or chemotherapeutic treatment.
- DNA repair processes that restore genetic information perturbed by a variety of DNA lesions arising from genotoxic exposures.
- The DNA damage response systems that monitor genome lesion burdens and deploy signaling pathways to induce multi-faceted physiological changes, ranging from metabolic and epigenetic changes, cell cycle delays, to chromosomal organization and maintenance adjustments.

To illuminate 3R processes and genome guardian functions, we have implemented cutting-edge and multi-disciplinary approaches, including genetic, biochemical, cell biological, structural, and genomic strategies. Our broad research scope and approaches provide lab members ample opportunities to explore and discover new biological principles. Our lab also offers a nurturing and supportive environment with tailored mentoring and training to advance lab members' abilities in research, writing, presentation, and leadership.

[View Lab Overview \(<https://www.sloankettering.edu/research-areas/labs/xiaolan-zhao/overview>\)](https://www.sloankettering.edu/research-areas/labs/xiaolan-zhao/overview)



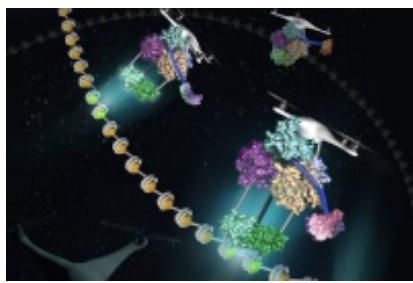
Featured News



[At Work: Molecular Biologist Xiaolan Zhao](#)

Molecular biologist Xiaolan Zhao explores molecular mechanisms that will help scientists better understand how human cells work.

IN THE LAB



"Molecular Origami" Enables Proteins to Serve as Specialized Delivery Vehicles, Study Finds

Scientists at the Sloan Kettering Institute have identified a fundamentally new type of protein-sorting system in cells.

IN THE NEWS



10 Remarkable Basic Science Breakthroughs from 2019

As 2019 comes to an end, take a moment to reflect on the science stories that made the year one to remember.

Publications Highlights

Selected Papers in the Past 5 years

2025

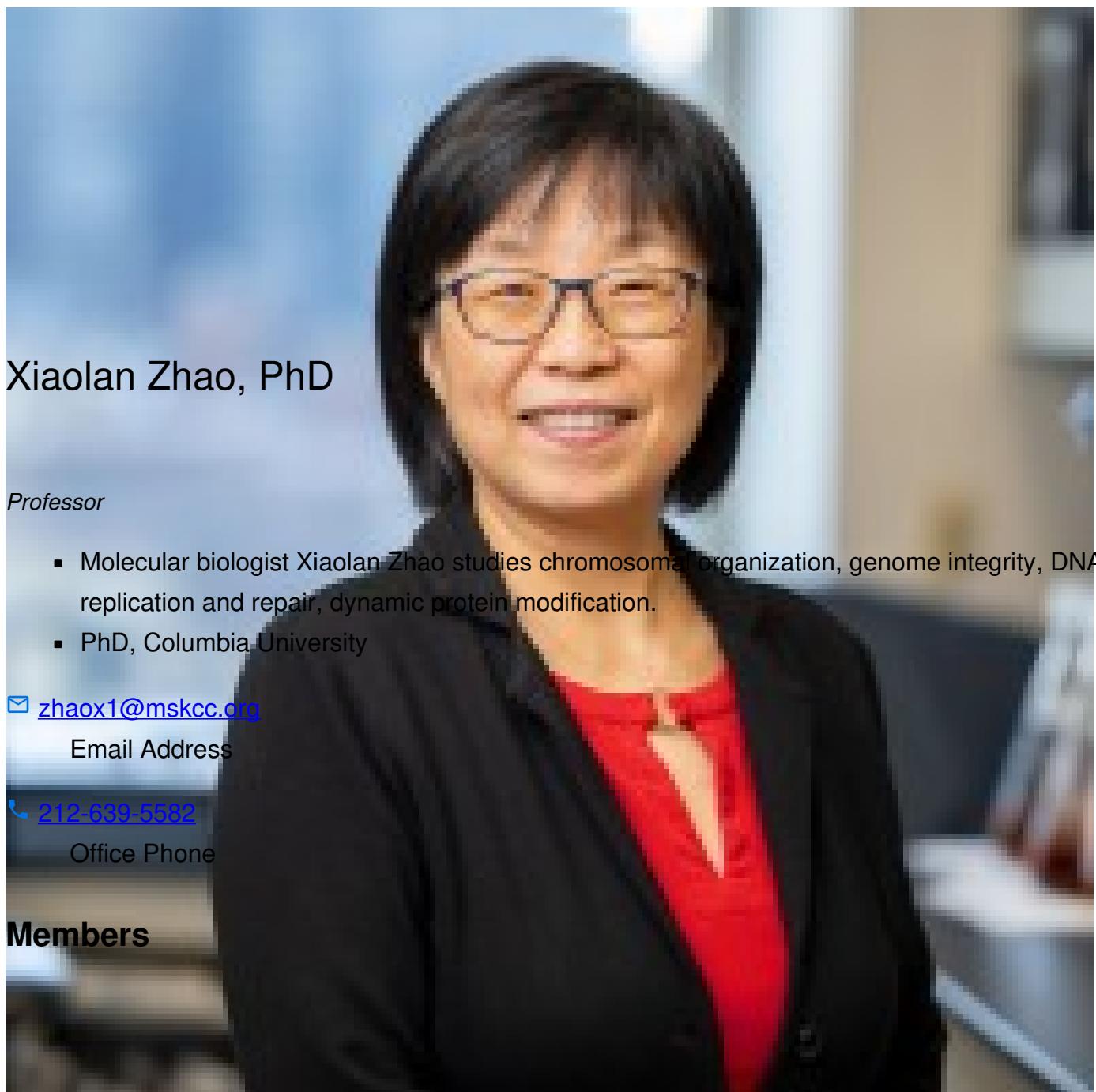
Tran T, Fan J, Zhao X, Green, AM. [Structural Maintenance of Chromosomes 5/6 complex dysfunction enables tumor mutagenesis](#) . *medRxiv*, 2025.2012.2004.25341651.

Zhao R, Yu X, Chigumira T, Xu M, Wivagg A, Lackner RM, Salsman J, Dellaire G, Matunis MJ, Chenoweth DM, Zhao X, Zhang H. [Telomeric SUMO level influences the choices of APB formation pathways and ALT efficiency](#) . *J Cell Biol*. 2025 Oct 6;224.

Wan B, Guan D, Li S, Chwat-Edelstein T, Zhao X. [Mms22-Rtt107 axis attenuates the DNA damage checkpoint and the stability of the Rad9 checkpoint mediator](#) . Nat Commun. 2025 Jan 2;16:311.

[View All Publications](#)

People



Xiaolan Zhao, PhD

Professor

- Molecular biologist Xiaolan Zhao studies chromosomal organization, genome integrity, DNA replication and repair, dynamic protein modification.
- PhD, Columbia University

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Email Address

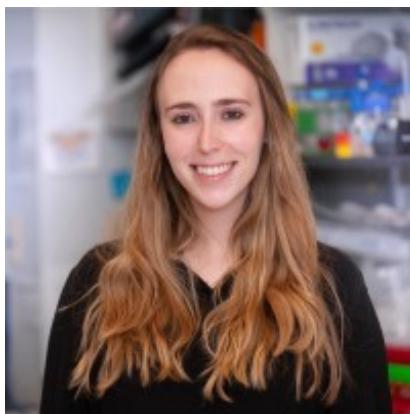
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Members



Victoria Miller-Browne
Graduate Student (BCMB)



Tzippora Chwat-Edelstein
Graduate Student (BCMB)



Jian Zheng
Graduate Student (BCMB)

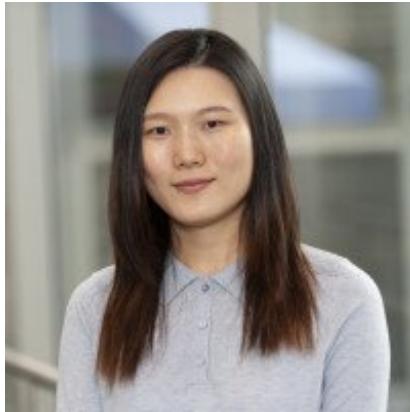


Cory Haluska
Research Fellow



Nicole Clerico-Benn
Assistant to Chair

[Lab fun and activities](#)



Jiayi Fan
Research Associate

Lab
Alumni

Lab Affiliations

Achievements

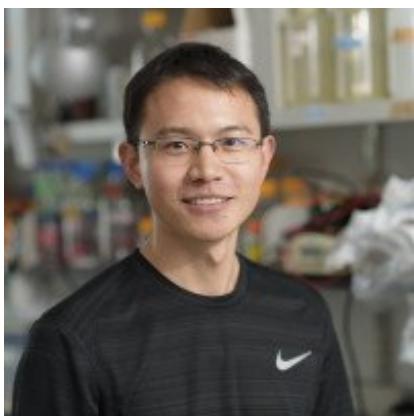
- Bressler Scholar, Alfred W. Bressler Scholar Endowment Fund
- Research Scholar, American Cancer Society
- Scholar, Leukemia & Lymphoma Society
- Discovery of the extensive SUMO-based DNA damage response
- Discovery of the connection between the nuclear pore complex and desumoylation

Lab News & Events

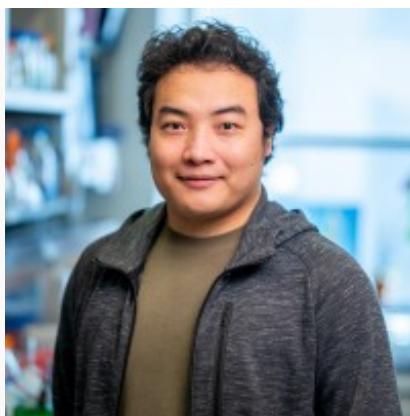
ACCOLADES

Team Recognitions

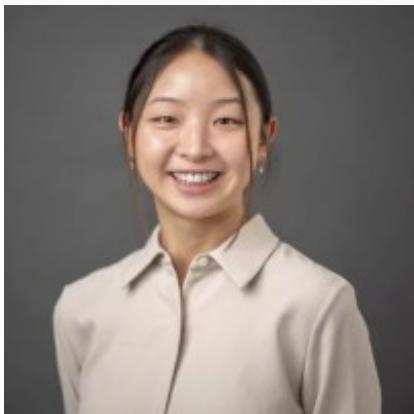
- Congratulations to Sophia for receiving the GSK Olayan Fellowship (2024)!



Shibai Li
Senior Research Scientist



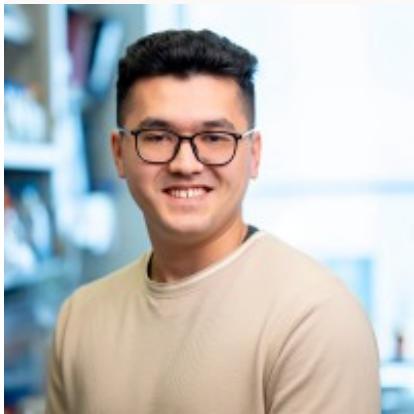
Zhongqing (Warren) Ren
Research Scholar



Sophia Park
Graduate Student (GSK)



Sofya Ignatyeva
MSK Engage Scholar



Doston Karimov
Undergraduate Researcher



Shih-Chun Wang
Graduate Student (GSK)

Cheers to Warren who received the SternBerg Thesis Award (2024)!

- Kudos to Tzippora who was awarded an NIH F31 Fellowship (2024)!
- Congratulations to Tzippora who was awarded the Kravis WiSE fellowship!
- Congrats to Cory who was awarded an NIH Postdoctoral Fellowship and Best Photo

Award from Postdoc Association in 2023 & 2024!

- Cheers to Tzippora! She received honorable mention for the NSF grant
- Victoria won Faculty Choice for best poster award at the BCMB Retreat in 2023 and People's Choice in 2022! Great Job!
- Congrats to our lab for being awarded the following grants: BRIA (2023), CER (2022), Geoffrey Beene (2021)

Open Positions

To learn more about available postdoctoral opportunities, please visit our [Career Center](#)

To learn more about compensation and benefits for postdoctoral researchers at MSK, please visit [Resources for Postdocs](#)

Postdoctoral, Graduate Student, & Technician Positions

Positions are available for postdoctoral fellows, graduate students, and technicians in the research group of Dr. Xiaolan Zhao.

[Apply now \(<https://www.sloankettering.edu/research-areas/labs/xiaolan-zhao/career-opportunities>\)](https://www.sloankettering.edu/research-areas/labs/xiaolan-zhao/career-opportunities)

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Disclosures

Members of the MSK Community often work with pharmaceutical, device, biotechnology, and life sciences companies, and other organizations outside of MSK, to find safe and effective cancer treatments, to improve patient care, and to educate the health care community. These activities outside of MSK further our mission, provide productive collaborations, and promote the practical application of scientific discoveries.

MSK requires doctors, faculty members, and leaders to report (“disclose”) the relationships and financial interests they have with external entities. As a commitment to transparency with our community, we make that information available to the public. Not all disclosed interests and relationships present conflicts of interest. MSK reviews all disclosed interests and relationships to assess whether a conflict of interest exists and whether formal COI management is needed.

Xiaolan Zhao discloses the following relationships and financial interests:

No disclosures meeting criteria for time period

The information published here is a complement to other publicly reported data and is for a specific annual disclosure period. There may be differences between information on this and other public sites as a result of different reporting periods and/or the various ways relationships and financial interests are categorized by organizations that publish such data.

This page and data include information for a specific MSK annual disclosure period (January 1, 2024 through disclosure submission in spring 2025). This data reflects interests that may or may not still exist. This data is updated annually.

Learn more about MSK's COI policies [here](#) . For questions regarding MSK's COI-related policies and procedures, email MSK's Compliance Office at ecoi@mskcc.org .

[View all disclosures \(<https://www.sloanettering.edu/disclosures>\)](https://www.sloanettering.edu/disclosures)

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