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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.

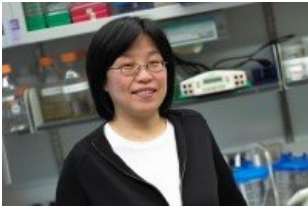
- DNA repair processes that restore genetic information perturbed by a variety of DNA lesions arising from genotoxic exposures.
- The DNA damage response systems that monitor genome lesion burdens and deploy signaling pathways to induce multi-faceted physiological changes, ranging from metabolic and 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 \(https://www.mskcc.org/research/ski/labs/xiaolan-zhao/overview\)](https://www.mskcc.org/research/ski/labs/xiaolan-zhao/overview)

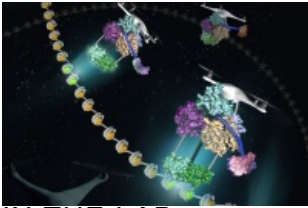


Featured News



[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

Tran T, Fan J, Zhao X , Green AM. [Disruption of the structural maintenance of chromosomes 5/6 complex enables tumor mutagenesis.](#) . NAR Cancer. 2026 May 21;8:zcag012.

Costa AB, Aid Saada A, Pham T, Fan J, Lever R, Zhao X, Lobachev KS. [Replication fork remodeling proteins, Smc5/6 and Rtt107, promote palindrome-mediated genome instability.](#) . bioRxiv [Preprint]. 2026 May 1:2026.04.29.721645.

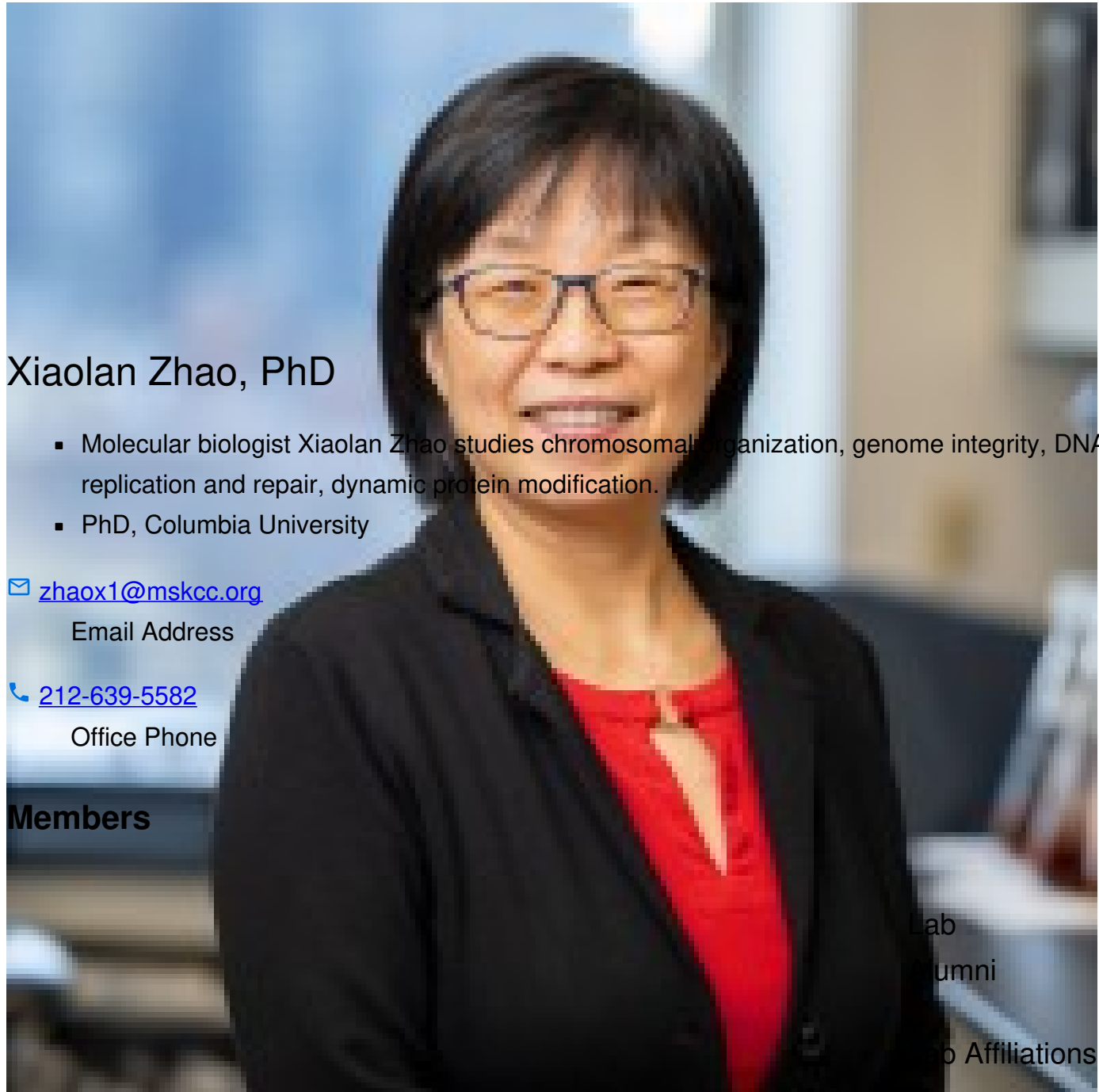
Xue X, Fan J, Li S, Ignatyeva S, Gallegos-Elias P, McEntire-Benitez H, Zhu X, Kar T, Epps J, Eliaz L, Holland K, Romero A, Zhao X. [Multi-subunit collaboration enables Smc5/6 to function as a composite SUMO E3 complex](#) . Res Sq [Preprint]. 2026 Apr 30:rs.3.rs-9557402.

Chua GNL, Beckwitt EC, Miller-Browne V, Yurieva O, Zhang, D, Katch BJ, Yao NY, Watters JW, Abrantes K, Funabiki R, Zhao X*, O'Donnell ME*, Liu S* (*co-corresponding authors). [A non-catalytic role for RFC in PCNA-mediated processive DNA synthesis](#) . Cell. 2026 Feb 19; 189:1124-1134.e14.

Chang JT, Miller-Browne V, Chua GNL, Zheng J, Beckwitt EC, Li S, Katch BJ, O'Donnell ME, Liu S, Zhao X. [Molecular determinants of Smc5/6 association with DNA junctions](#) . Nat Commun. 2026 Jan 17; 17:1239.

[View All Publications](#)

People



Xiaolan Zhao, PhD

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

✉ zhaox1@mskcc.org

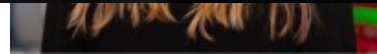
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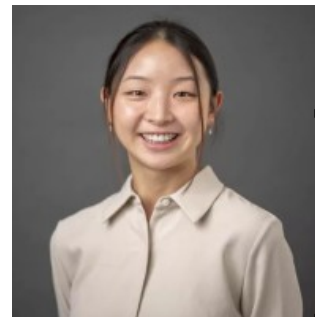
Office Phone

Members

Victoria Miller-Browne
Graduate Student (BCMB)


Tzipora Chwat-Edelstein
Graduate Student (BCMB)

Jian Zheng
Graduate Student (BCMB)



Sophia Park

Achievements

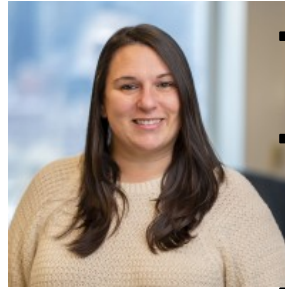
- Bressler Scholar, Alfred W. Bressler Scholar Endowment Fund
- Research Scholar, American Cancer



Shih-Chun Wang
Graduate Student (GSK)



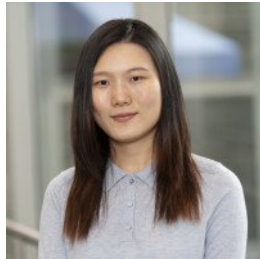
Cory Haluska
Research Associate



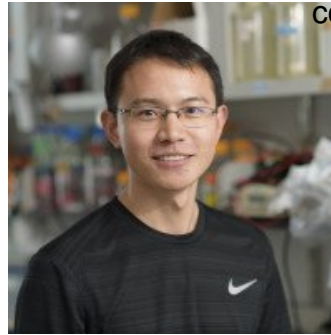
Nicole Clerico-Benn
Assistant to Chair

Graduate Student (GSK) 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

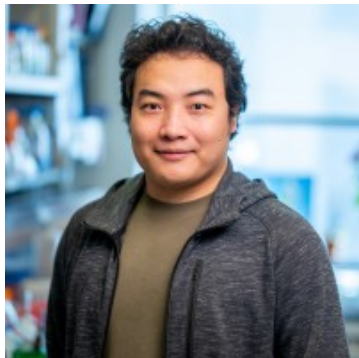


Jiayi Fan
Research Associate

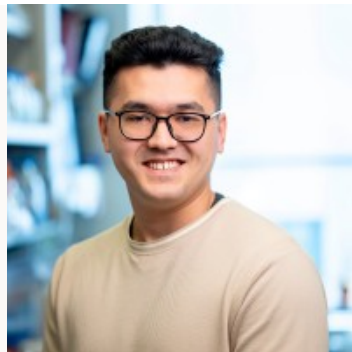


Shibai Li
Senior Research Scientist

Lab News & Events



Zhongqing (Warren) Ren
Research Scholar



Doston Karimov
Undergraduate Researcher
ACCOLADES

Team Recognitions

- Victoria received Dorris J. Hutchison Graduate Student Fellowship (2026)
- Zhongqing (Warren) won the top Life Science Postdoc Fellowship (2026)
- Jian received NIH F31 fellowship (2026)
- Rotation student, Nolan, received a NSF student fellowship (2026)
- Shih-Chun received Beatrice P. K. Palestin

Fellowship (2025)

- Congratulations to Sophia for receiving the GSK Olayan Fellowship (2024)!
- Cheers to Warren who received the SternBerg Thesis Award (2024)!
- Kudos to Tzipora who was awarded an NIH F31 Fellowship (2024)!
- Congratulations to Tzipora who was awarded the Kravis WiSE fellowship!
- Victoria won Faculty Choice for best poster award at the BCMB Retreat in 2023 and People's Choice in 2022! Great Job!

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.mskcc.org/research/ski/labs/xiaolan-zhao/career-opportunities) (<https://www.mskcc.org/research/ski/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 \(https://www.mskcc.org/disclosures\)](https://www.mskcc.org/disclosures)

