

Ready to start planning your care? Call us at [800-525-2225](tel:800-525-2225) to make an appointment.

×



Memorial Sloan Kettering
Cancer Center

[About Us](#)
[Sloan Kettering Institute](#)

MOLECULAR BIOLOGY PROGRAM

[Research](#)

The Scott Keeney Lab

[Education & Training](#)

[Molecular Biology Program](#)
[News & Events](#)

Research
[Open Positions](#)



Scott Keeney, PhD

Member, Molecular Biology Program, SKI; Investigator, Howard Hughes Medical Institute; Frederick R. Adler Chair

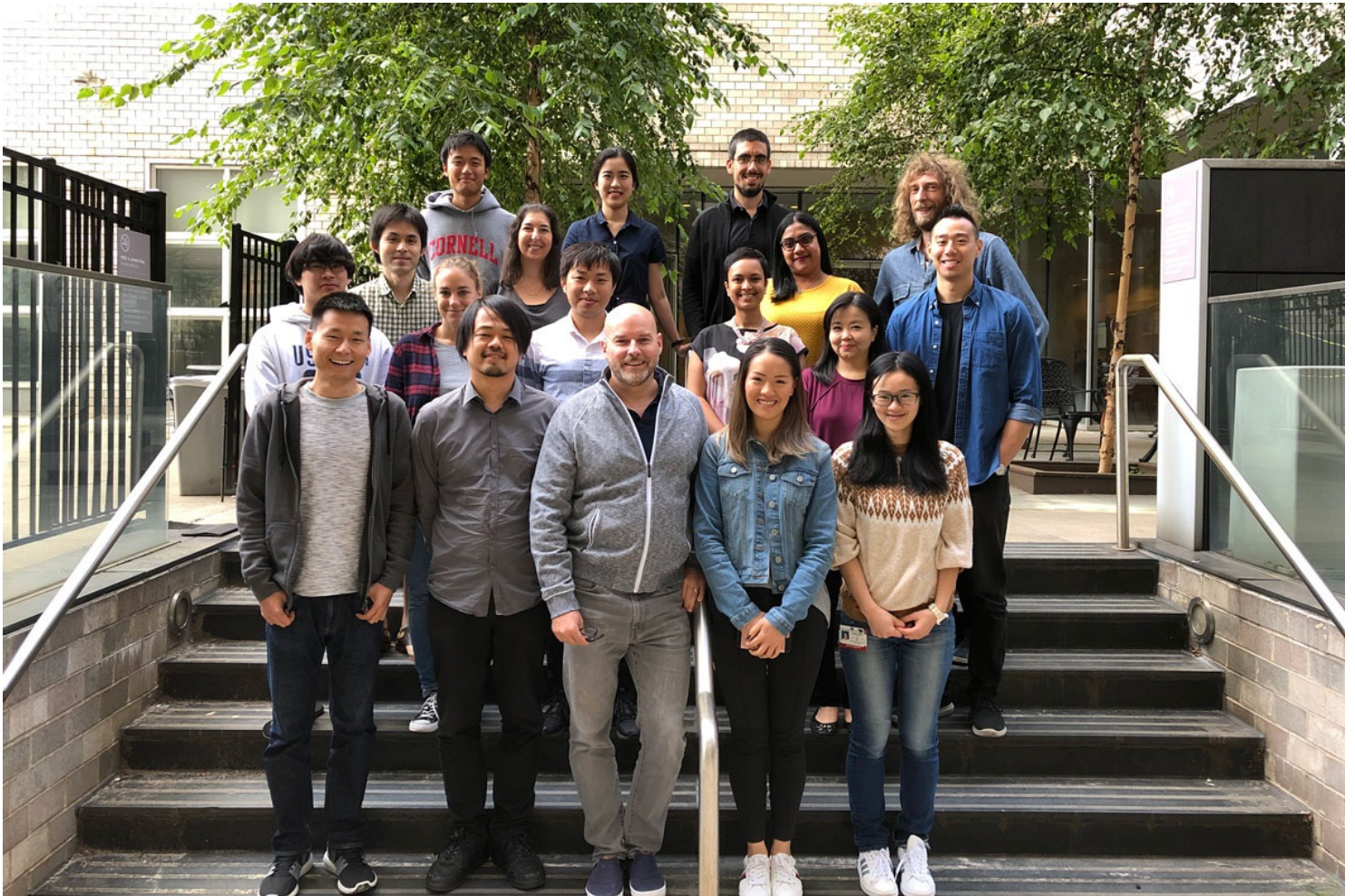
The long-range objectives of our research are to understand the mechanism of meiotic recombination and to determine how this process is coordinated with other events of meiotic prophase. Several projects in the lab focus on Spo11 (the protein that makes the DNA double-strand breaks (DSBs) that initiate recombination), the proteins that interact with Spo11, the interactions of these proteins with meiotic chromosomes, and the mechanisms that regulate the timing, number, and location of DSB formation. We also study how DSBs are processed and repaired and we are seeking to expand knowledge of meiotic processes more generally through discovery of new genes important for germ cell function. Most of the meiosis research in the lab uses the yeast *Saccharomyces cerevisiae* and the mouse. Finally, our studies of Spo11 have also provided an entry point to research on the DSBs made by the enzyme Topoisomerase II when it is inhibited by chemotherapeutic agents such as etoposide or doxorubicin.

Research Projects

[Meiotic Recombination in the Yeast *S. cerevisiae*](#)

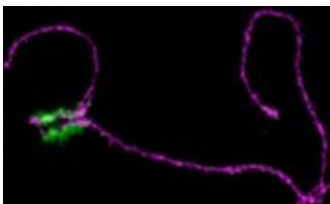
[Meiotic Recombination in the Mouse](#)

[Topoisomerase II in tumorigenesis and cytotoxic chemotherapy](#)



Featured News

IN THE LAB



[Breaking Up Is Hard to Do \(Especially for Sex Chromosomes\)](#)

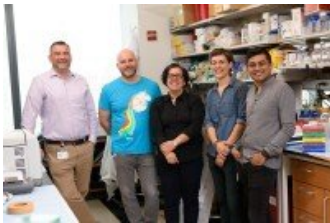
One's big, one's small. Somehow, they make it work.



[At Work: Molecular Biologist Scott Keeney](#)

Molecular biologist Scott Keeney studies the molecular mechanisms that make germ cell tumors responsive or resistant to chemotherapy.

FEATURE



[Out of the Closet, into the Lab: Five LGBTQ Scientists Share Their Stories](#)

What's it like being LGBTQ in the world of science? We asked some MSK scientists to find out.

[View All Featured News](#)

Publications Highlights

[*Claeys Bouuaert C, Pu S, Wang J, Oger C, Daccache D, Xie W, Patel DJ, and *Keeney S \(2021\) DNA-driven condensation assembles the meiotic DNA break machinery. *Nature* 592, 144-149. *Corresponding authors. PMC8016751](#)

[Lukaszewicz A, Lange J, *Keeney S, and *Jasin M \(2021\) *De novo* deletions and duplications at recombination hotspots in mouse germlines. *Cell* 184, 5970-5984 *Corresponding authors. PMC8616837.](#)

[Liu K, Grasso EM, Pu S, Zou M, Liu S, Eliezer D, and Keeney S \(2023\) Structure and DNA bridging activity of the essential Rec114–Mei4 trimer interface. *Genes Dev* 37, 518-534. PMC10393192.](#)

†Yu Y, †Wang J, †Liu K, †Zheng Z, Arter M, Claeys Bouuaert, Pu S, *Patel DJ and *Keeney S (2023) Cryo-EM structure of the Spo11 core complex bound to DNA. bioRxiv, doi: <https://doi.org/10.1101/2023.10.31.564985> *Corresponding authors; †equal contribution.

[View All Publications](#)

People



Scott Keeney, PhD

Member, Molecular Biology Program, SKI; Investigator, Howard Hughes Medical Institute; Frederick R. Adler Chair

Molecular biologist Scott Keeney investigates mechanisms of the initiation of meiotic recombination.

PhD, University of California, Berkeley

s.keeney@ski.mskcc.org

Email Address

[212-639-5182](tel:212-639-5182)

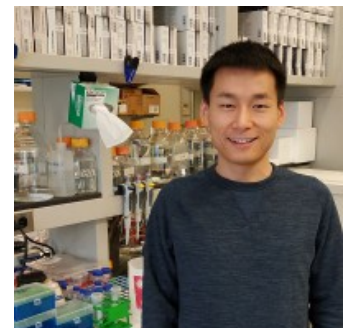
Office Phone

[Download CV](#)

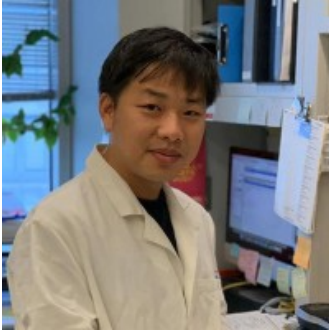
PDF File

Members

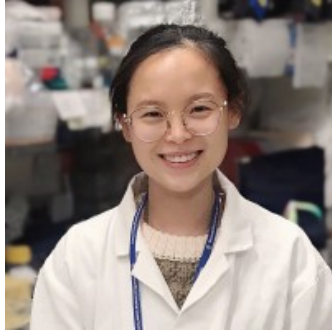
Research Technician



Tao Li
Senior Research Scientist



Kaixian Liu
Research Associate



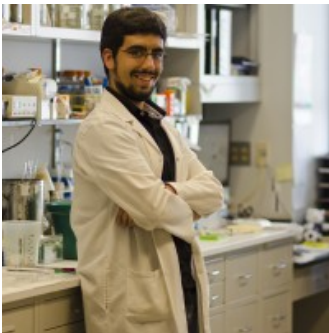
Min Lu
Research Associate



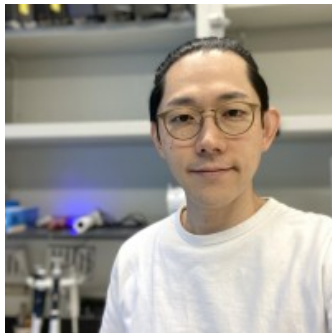
Marina
Marcet
Senior Research Scientist



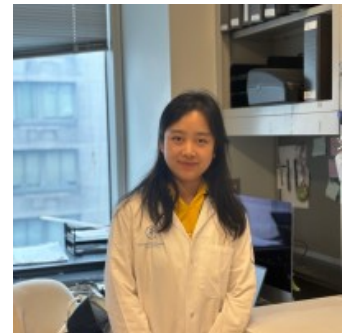
Thierry N'Tumba-
Byn
Research Specialist



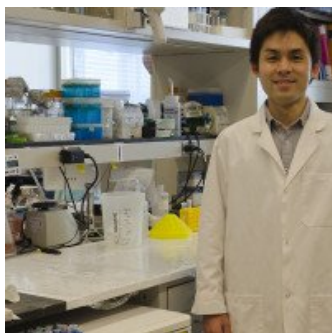
David
Ontoso
Research Specialist



Yuichiro Saito
Research Specialist

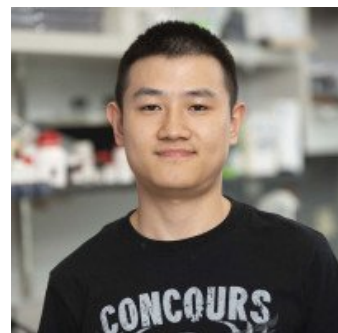


Yan Wang
Research Scholar



Shintaro Yamada
Visiting Investigator

Lyuqin
Zheng
Research Scholar



Zhi (Zack)
Zheng
Graduate Student

Lab Alumni
+

Lab Affiliations
+

Achievements

Investigator, Howard Hughes Medical Institute (2008)

American Academy of Microbiology (2014)

American Academy of Arts and Sciences (2017)

Frederick Adler Chair, MSKCC (2017)

US National Academy of Sciences (2020)

Get in Touch

 s-keeney@ski.mskcc.org


Lab Head Email

 [212-639-5182](tel:212-639-5182)

Office Phone

 [212-639-5180](tel:212-639-5180)

Lab Phone

 [212-717-3627](tel:212-717-3627)

Lab Fax

Disclosures

Doctors and faculty members 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.

MSK requires doctors and faculty members 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.

Scott Keeney discloses the following relationships and financial interests:

AbbVie

Equity

Abbott Laboratories

Equity

Fred Hutchinson Cancer Research Center

Professional Services and Activities

Max Planck Institute of Biochemistry

Professional Services and Activities (Uncompensated)

Pfizer, Inc.

Equity
Viatris Inc.
Equity

The information published here 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, 2022 through disclosure submission in spring 2023). 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](#) →

▾ About Us

[Overview](#)

[Leadership](#)

[Administration](#)

[History](#)

[Contact Us](#)

■

■

■

■

■

▾ Research

[Overview](#)

[Research programs](#)

[Research labs](#)

[Core facilities & resources](#)

▾ Education & Training

[Overview](#)

[Postdoctoral training](#)

[Gerstner Sloan Kettering Graduate School](#)

[Joint graduate programs](#)

[Programs for college & high school students](#)

▾ News & Events

[Overview](#)

[Seminars & events](#)

▾ Open Positions

[Overview](#)

[Faculty positions](#)

[Postdoctoral positions](#)

[Communication preferences](#)

[Cookie preferences](#)

[Legal disclaimer](#)

[Accessibility Statement](#)

[Privacy policy](#)

[Public notices](#)

© 2024 Memorial Sloan Kettering Cancer Center