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Memorial Sloan Kettering
Cancer Center

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MOLECULAR PHARMACOLOGY PROGRAM

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The Daniel Heller Lab

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[Molecular Pharmacology Program](#)

Research



Daniel A. Heller, PhD
Member, Molecular Pharmacology Program, SKI

Cancer Nanomedicine Laboratory

We are a biomedical engineering laboratory that develops nanotechnologies to advance breakthroughs in the research, diagnosis, and treatment of cancer and allied diseases. We develop drug delivery technologies to target therapies to disease sites, advanced diagnostics to detect disease at earlier stages, and nanosensors to accelerate the discovery of new therapies. Please check out our recent innovations

using the “View Lab Overview” button below...

[View Lab Overview](#) →

Research Projects

[Precision Nanomedicines for Targeted Drug Delivery](#)

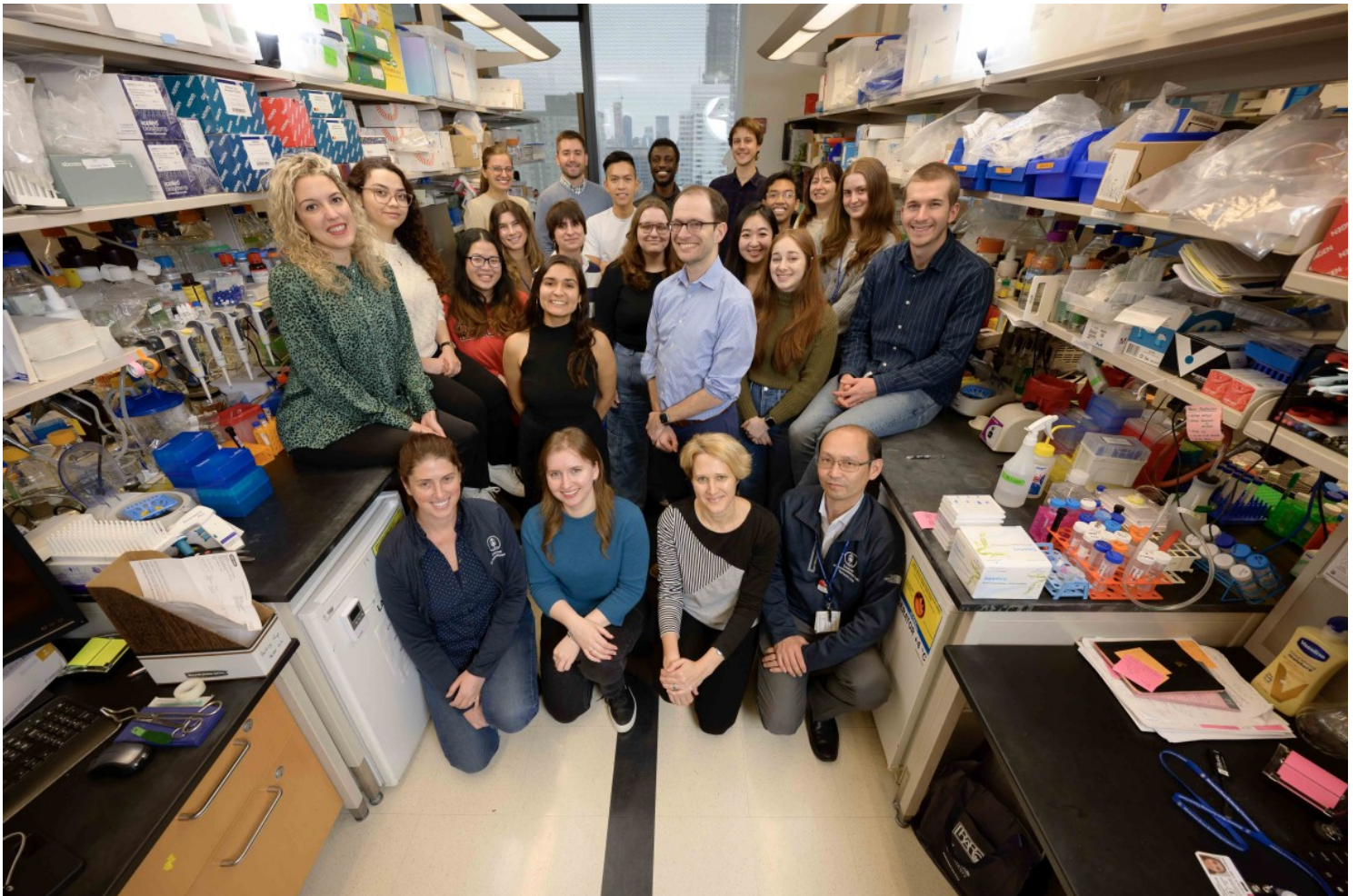
[Diagnostic Technologies for Early Cancer Detection](#)

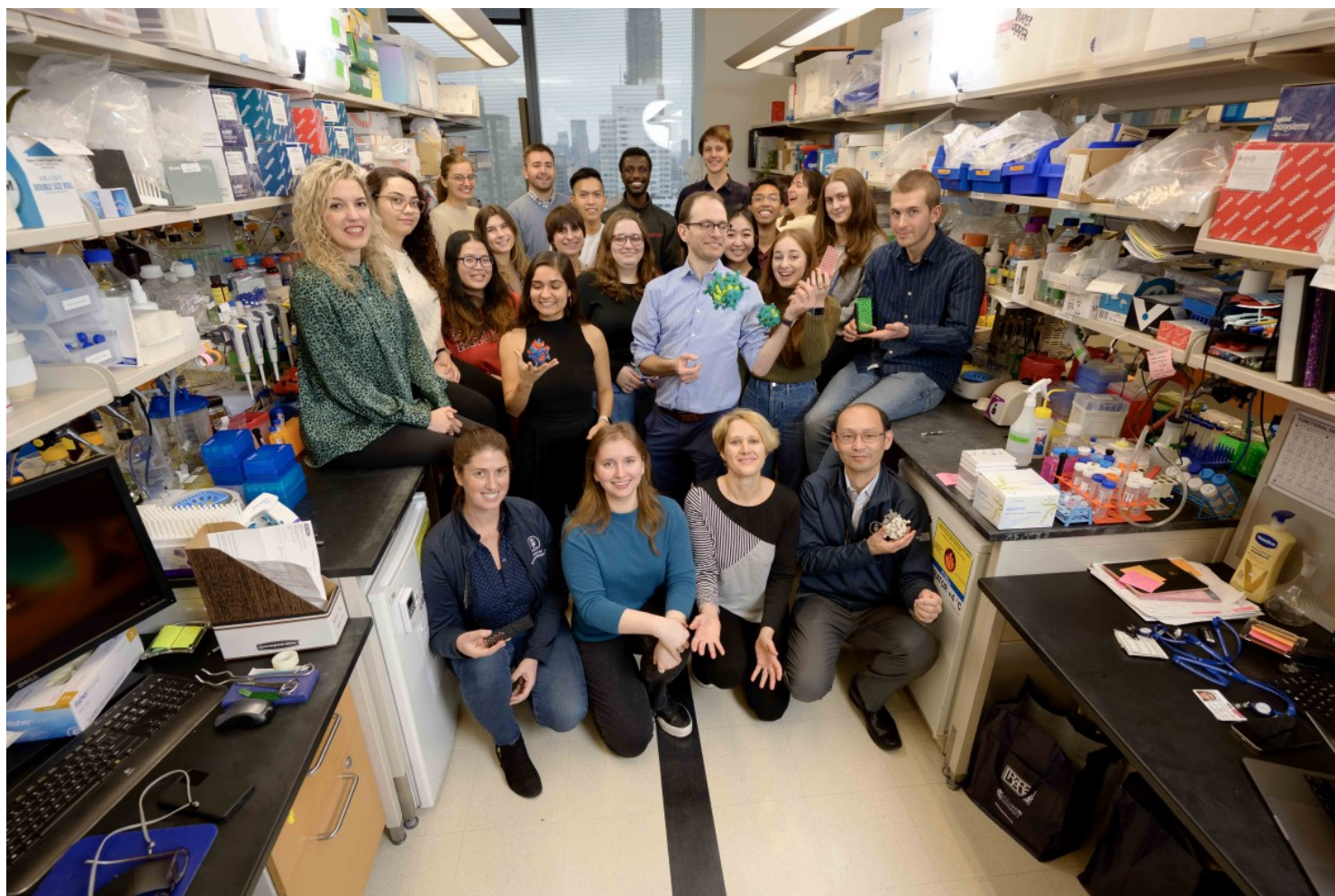
[Nanosensors to Accelerate Cancer Research and Drug Discovery](#)

VIDEO | 02:10

Go inside the lab of Daniel Heller from SKI's Molecular Pharmacology Program.

[Video Details](#) →





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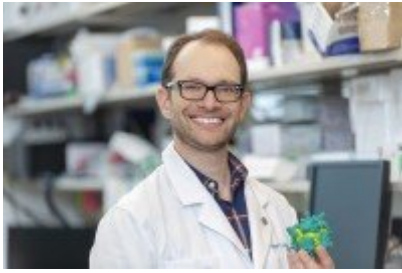
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Featured News



[Getting Drugs Across the Blood-Brain Barrier Using Nanoparticles](#)

Learn how MSK researchers are investigating the use of nanoparticles to carry drugs across the blood-brain barrier.



[A Sensor Sniffs for Cancer, Using Artificial Intelligence](#)

By detecting molecular signatures in the blood, the sensor may help improve cancer screenings.



[To Detect Ovarian Cancer Early, Researchers Look to Nanotechnology](#)

Could an implantable IUD help detect cancer early, when it is most curable? Scientists at the Sloan Kettering Institute are betting yes.

[View All Featured News](#)

Publications Highlights

[D Tylawsky, H Kiguchi, J Vaynshteyn, J Gerwin, J Shah, T. Islam, J Boyer, D Boué, M Snuderl, M Greenblatt, Y Shamay, P Raju, DA Heller*, "P-selectin-targeted nanocarriers induce active crossing of the blood–brain barrier via caveolin-1-dependent transcytosis. *Nature Materials*. 22,391-399 \(2023\).](#)

Highlighted in: [MSK News](#) and [Nature Materials News & Views](#)

[M Kim, C Chen, P Wang, JJ Mulvey, Y Yang, C Wun, M Antman-Passig, H-B Luo, S Cho, K Long-Roche, LV Ramanathan, A Jagota, M Zheng, Y Wang, DA Heller*. "Machine-Learning-Based Detection of an Ovarian Cancer Disease Fingerprint from Serum via Quantum Defect-Modified Carbon Nanotube Arrays." *Nature Biomedical Engineering* \(2022\).
<https://www.mskcc.org/news/sensor-sniffs-cancer-using-artificial-intelligence>](#)

[Z Yaari, Y Yang, E Apfelbaum, C Cupo, A Settle, Q Cullen, W Cai, K Long Roche, DA Levine, M Fleisher, L Ramanathan, M Zheng, A Jagota, DA Heller*. "A Perception-Based Machine-Perception Nanosensor Platform to Detect Cancer Biomarkers." *Science Advances* 7 \(2021\) eabj0852. MSK News: <https://www.mskcc.org/news/detect-ovarian-cancer-early-researchers-look-nanotechnology>](#)

[J Budhathoki-Uprety, J Shah, JA Korsen, AE Wayne, TV Galassi, JR Cohen, JD Harvey, PV Jena, LV Ramanathan, EA Jaimes, DA Heller*. "Synthetic Molecular Recognition Nanosensor Paint for Microalbuminuria." *Nature Communications* 10 \(2019\) 3605.](#)

[MSK News: <https://www.mskcc.org/news/science-meets-art-produce-diagnostic-test-us...>]

[View All Publications](#)

People



Daniel A. Heller, PhD

Member, Molecular Pharmacology Program, SKI

Biomedical engineer Daniel Heller is Head of the Cancer Nanotechnology Laboratory, which invents disruptive technologies to revolutionize the diagnosis and treatment of cancer and allied diseases.

PhD, University of Illinois at Urbana-Champaign

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PDF File

Members



Daniel A. Heller

Lab Head



Isabella Richter

Graduate Student

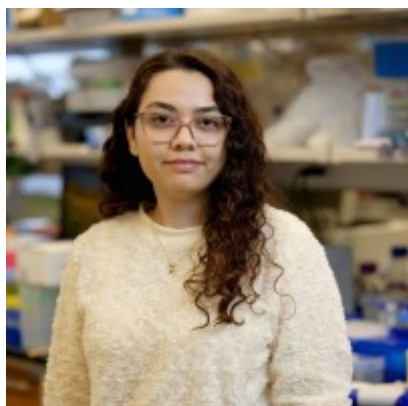


Philip
Asamani

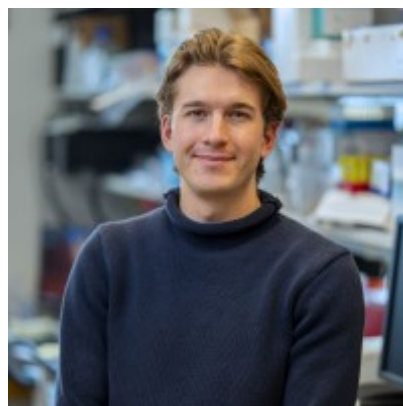
Graduate Student, CUNY
Chemistry PhD Program



Naxhije Berisha
CUNY
Chemistry/Nanotechnology
PhD Program Student



Atena Farahpour
CUNY
Chemistry/Nanotechnology
PhD Program Student



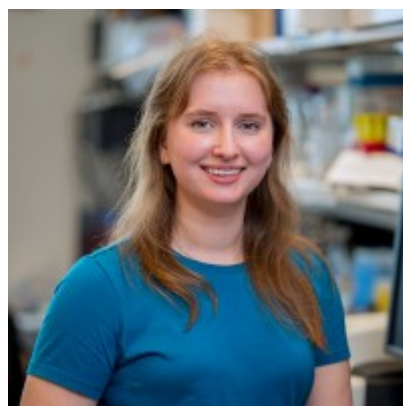
Dana
Goerzen
Graduate Student, Weill
Cornell PBSB PhD
Program



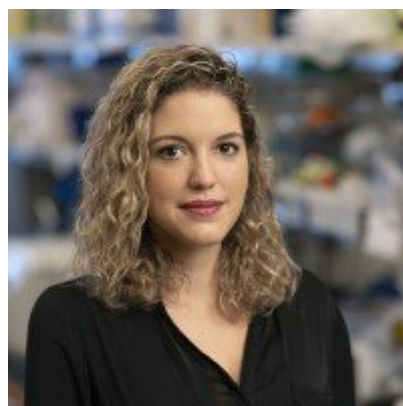
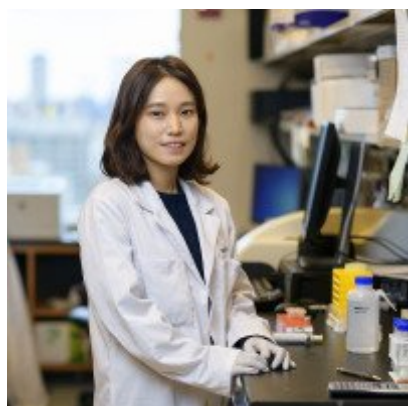
Takeshi Irie
Assistant Attending,
Anesthesiology and
Critical Care



Arianna Izawa-
Ishiguro
Pharmacology PhD
Graduate Student

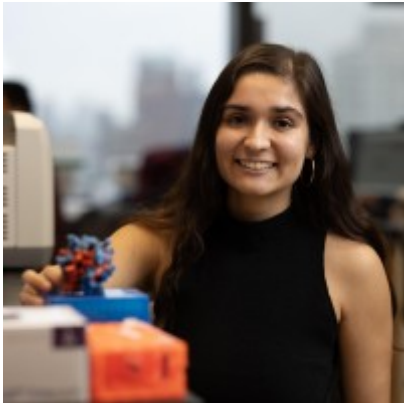


Erin
Keblish
Graduate Student, Weill
Cornell PBSB PhD
Program



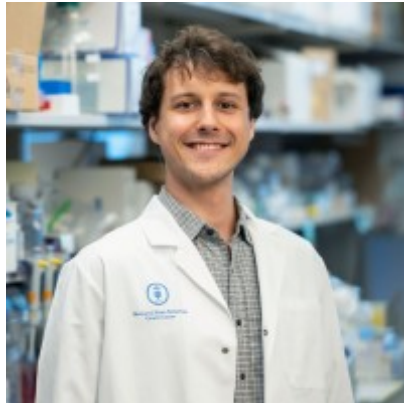
Mijin Kim

Postdoctoral Research
Associate



Quincey LaPlant

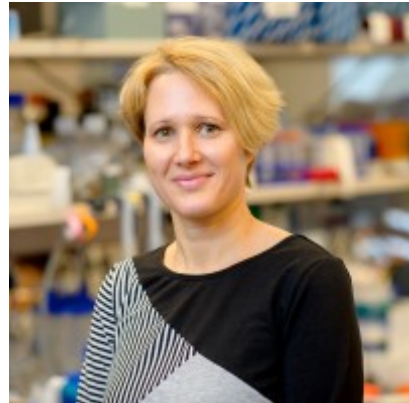
Assistant Attending L1,
Radiation Oncology



Magdalini

Panagiotakopoulos

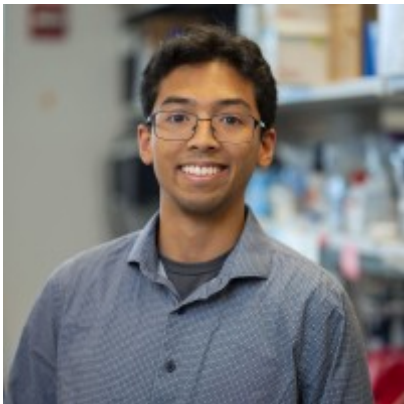
Postdoctoral Research
Associate



Ana Marie

Perea

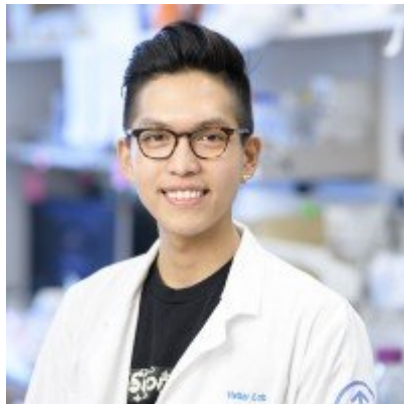
Research Technician



Stanislav

Piletsky

Postdoctoral Scholar



Boglarka

Racz

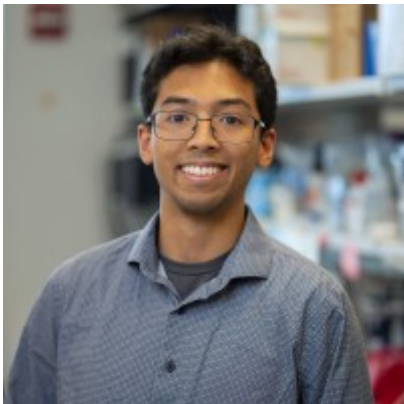
Laboratory Manager



Raashed

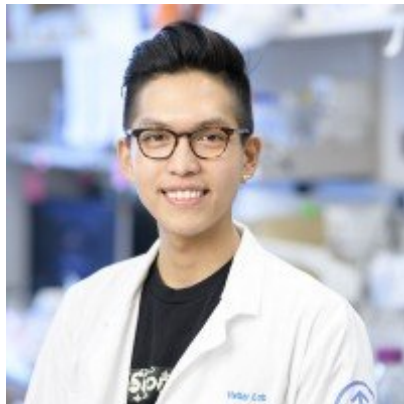
Raziuddin

Graduate Student, Weill
Cornell Pharmacology
PhD Program



Stephen Ruiz

BCMB PhD Program
Student

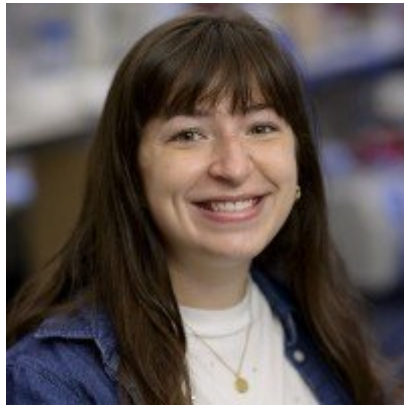


Ashley

Sullivan

MSK Bridge Program
Scholar

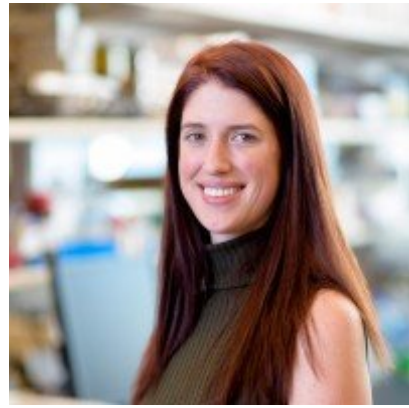




Kristen

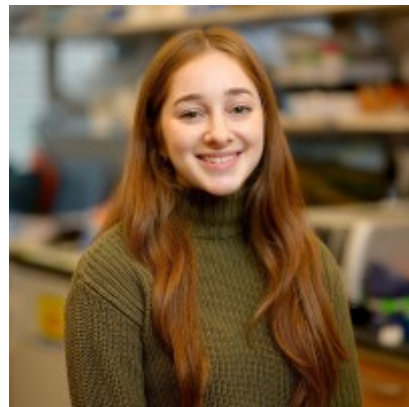
Vogt

Tri-institutional PhD
Program in Chemical
Biology



Laura Wilson

Senior SKI Administrative
Assistant



Jaina Wollowitz

Graduate student, Tri-
Institutional PhD Program
in Chemical Biology

Lab Alumni

+

Lab Affiliations

+

Achievements

American Institute for Medical and Biological Engineering (AIMBE) Fellow (2021)

Pharmacology Teaching and Mentoring Award, Weill Cornell Graduate School (2020)

American Cancer Society Research Scholar (2018)

NSF CAREER Award (2018)

Pershing Square Sohn Prize for Young Innovators in Cancer Research (2017)

Read more

+

Lab News & Events

UPCOMING EVENT

[**“IMAGE BASED” CANCER SYSTEMS BIOLOGY - The Next Frontier in Oncoengineering...**](#)

Tuesday, March 19, 2024 - 4:00 PM to 5:00 PM

Rockefeller Research Laboratories

430 E 67th St, New York, NY 10065

Room: RRL 116

[View all upcoming events](#)

ACCOLADES

Team Recognitions

Congratulations to Atena Farahpour - awarded the Fall 2023 NanoBioNYC student award in Biomedical Materials!

Congratulations to Dr. Mijin Kim for being selected as a 2023 STAT Wunderkind! The award recognizes the work of early-career scientists and clinicians.

Congratulations to Chen Chen on the Best Poster Award at the 19th Annual Tri-

institutional Chemical Biology Symposium!
Congratulations to Mijin Kim on winning the
2023 MSK Postdoctoral Researcher
Award!
Congratulations to Dr. Mijin Kim - NIH
K99/R00 awardee!
Congratulations to Naxhije Berisha - Tow
Fellowship Awardee!
Congratulations to Dr. Mijin Kim - Kravis
WiSE Postdoctoral Fellowship Winner!
Congratulations to Stephen Ruiz - awarded
the MERIT Mandel Graduate Fellowship!
Congratulations to Magdalini
Panagiotakopoulos – Tow Postdoctoral
Fellowship Awardee!
Congratulations to Dr. Mijin Kim – MIT
Technology Review 35 Under 35 Innovator!
Congratulations to Magdalini
Panagiotakopoulos on winning the
Controlled Release Society Poster Prize
Congratulations to Erin Keblish on winning
the 2023 Electrochemical Society Best
Poster Award for Industrial/Applied
Science
Congratulations to Magdalini
Panagiotakopoulos for winning 2nd place
and the People's Choice Award in the 2023
MSK Postdoc Slam
Congratulations to Stephen Ruiz for
winning the 63rd International Conference
on the Bioscience of Lipids Oral
Communication Award!!
Congratulations to Mijin Kim for winning the
2023 STAT Wunderkind Award!!

Get in Touch

✉ hellerd@mskcc.org

Lab Head Email

☎ [646-888-3419](tel:646-888-3419)

Office Phone

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.

Daniel A. Heller discloses the following relationships and financial interests:

Concarlo Therapeutics, Inc.

Professional Services and Activities

Lime Therapeutics, Inc.

Equity; Fiduciary Role / Position; Professional Services and Activities (Uncompensated)

Mediphage Bioceuticals, Inc.

Equity; Professional Services and Activities (Uncompensated)

Nanorobotics, Inc.

Equity

Resident Diagnostics, Inc.

Equity; Professional Services and Activities (Uncompensated)

Selectin Therapeutics, Inc.

Equity; Professional Services and Activities (Uncompensated)

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.

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