



Gerstner Sloan Kettering
Graduate School of Biomedical Sciences

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HUMAN ONCOLOGY & PATHOGENESIS PROGRAM

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The Ross Levine Lab

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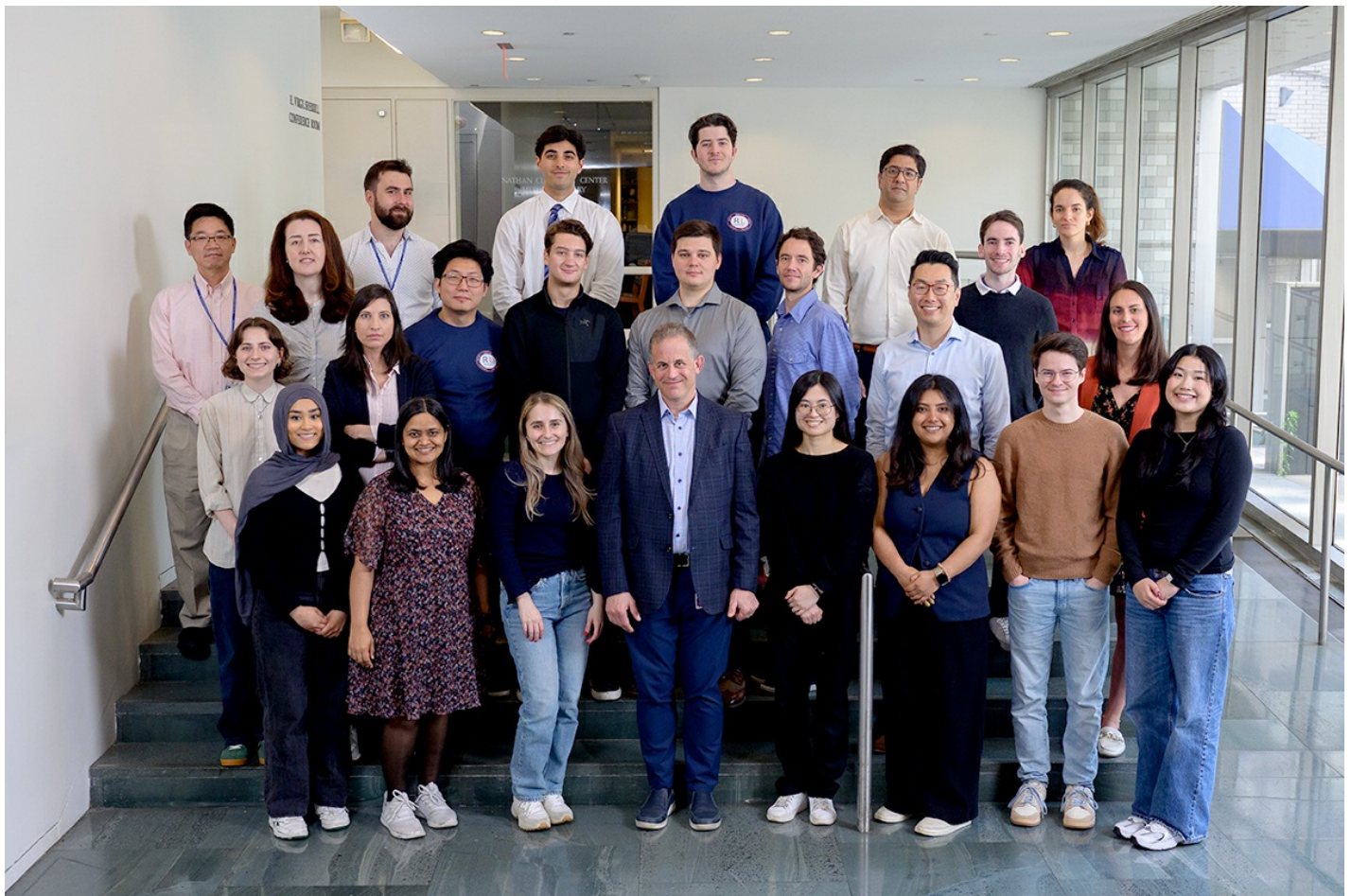
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Ross L. Levine, MD

The goal of our research is to improve our understanding of the genetic basis of blood disorders known as myeloid malignancies, and to use this knowledge to improve therapies for patients with these disorders. Our efforts are focused on the identification and characterization of somatic mutations in hematologic malignancies using candidate gene, genome-wide, and functional approaches, with a specific interest in the role of aberrant signal transduction in malignant transformation and in the effects of mutations in epigenetic modifiers in myeloproliferative neoplasms (MPNs) and acute myeloid leukemia (AML). As a physician-scientist, we have a specific interest in translating this knowledge back to the clinic, in the preclinical and clinical evaluation of targeted therapies for leukemia patients, and in the development of clinically tractable genomic assays for patients with hematologic malignancies.



Featured News

IN THE LAB



[AACR 2021 Research Roundup: Chromosomal Instability, Early Changes in Blood Cancer, Revamping CAR T Cell Therapy](#)

MSK researchers shared their latest research developments at the 2021 meeting of the American Association for Cancer Research.

IN THE LAB



[Single-Cell Study Sheds Light on Leukemia's Family Tree](#)

New research looks at how a series of mutations in normal blood cells can lead to them becoming cancerous and how these mutations accumulate as cancer progresses.

FINDING

[Why Do Certain Chemotherapies Increase the Likelihood of Blood Cancer?](#)

New research focuses on clonal hematopoiesis, an age-related blood condition that increases the risk of blood cancer.

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Publications Highlights

[Dunbar A.J., Bowman R.L., Park Y.C., O'Connor K., Izzo F., Myers R.M., Karzai A.,](#)

[Zaroogian Z., Kim W.J., Fernandez-Maestre I., Waarts M.R., Nazir A., Xiao W., Codilupi T., Brodsky M., Farina M., Cai L., Cai S.F., Wang B., An W., Yang J.L., Mowla S., Eisman S.E., Hanasoge Somasundara A.V., Glass J.L., Mishra T., Houston R., Guzzardi E., Martinez Benitez A.R., Viny A.D., Koche R.P., Meyer S.C., Landau D.A., Levine R.L. Jak2V617F Reversible Activation Shows Its Essential Requirement in Myeloproliferative Neoplasms. *Cancer Discov.* 2024 Jan 12. doi: 10.1158/2159-8290.CD-22-0952. Epub ahead of print.](#)

[Stonestrom A.J., Menghrajani K.N., Devlin S.M., Franch-Expósito S., Ptashkin R.N., Patel S.Y., Spitzer B., Wu X., Jee J., Sánchez Vela P., Milbank J.H., Shah R.H., Mohanty A.S., Brannon A.R., Xiao W., Berger M.F., Mantha S., Levine R.L. High-risk and silent clonal hematopoietic genotypes in patients with nonhematologic cancer. *Blood Adv.* 2024 Feb 27;8\(4\):846-856. doi: 10.1182/bloodadvances.2023011262. PMCID: PMC10875331.](#)

[Perner F., Stein E.M., Wenge D.V., Singh S., Kim J., Apazidis A., Rahnamoun H., Anand D., Marinaccio C., Hatton C., Wen Y., Stone R.M., Schaller D., Mowla S., Xiao W., Gamlen H.A., Stonestrom A.J., Persaud S., Ener E., Cutler J.A., Doench J.G., McGeehan G.M., Volkamer A., Chodera J.D., Nowak R.P., Fischer E.S., Levine R.L., Armstrong S.A., Cai S.F. MEN1 mutations mediate clinical resistance tomenin inhibition. *Nature.* 2023 Mar;615\(7954\):913-919. doi: 10.1038/s41586-023-05755-9. Epub 2023 Mar 15. PMCID: PMC10157896.](#)

[Dunbar A.J., Kim D., Lu M., Farina M., Bowman R.L., Yang J.L., Park Y., Karzai A., Xiao W., Zaroogian Z., O'Connor K., Mowla S., Gobbo F., Verachi P., Martelli F., Sarli G., Xia L., Elmansy N., Kleppe M., Chen Z., Xiao Y., McGovern E., Snyder J., Krishnan A., Hill C., Cordner K., Zouak A., Salama M.E., Yohai J., Tucker E., Chen J., Zhou J., McConnell T., Migliaccio A.R., Koche R., Rampal R., Fan R., Levine R.L., Hoffman R. CXCL8/CXCR2 signaling mediates bone marrow fibrosis and is a therapeutic target in myelofibrosis. *Blood.* 2023 May 18;141\(20\):2508-2519. doi: 10.1182/blood.2022015418. PMCID: PMC10273167.](#)

[Miles L.A., Bowman R.L., Merlinsky T.R., Csete I.S., Ooi A.T., Durruthy-Durruthy R., Bowman M., Famulare C., Patel M.A., Mendez P., Ainali C., Demaree B., Delley C.L., Abate A.R., Manivannan M., Sahu S., Goldberg A.D., Bolton K.L., Zehir A., Rampal R., Carroll M.P., Meyer S.E., Viny A.D., Levine R.L. Single-cell mutation analysis of clonal evolution in myeloid malignancies. *Nature.* 2020 Nov;587\(7834\):477-482. doi: 10.1038/s41586-020-2864-x. Epub 2020 Oct 28. PMCID: PMC7677169.](#)

People



Ross L. Levine, MD

Senior Vice President, Memorial Hospital, Translational Research

Professor

- Mechanisms of genetic and epigenetic cooperativity which drive myeloid transformation; Elucidating and modeling evolution from hematopoietic stem/progenitor cells to clonal hematopoiesis and then to myeloid malignancies; Identification and credentialing novel therapeutic dependencies in myeloid malignancies
- MD, Johns Hopkins School of Medicine

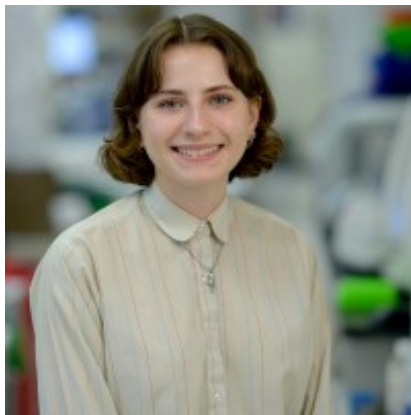
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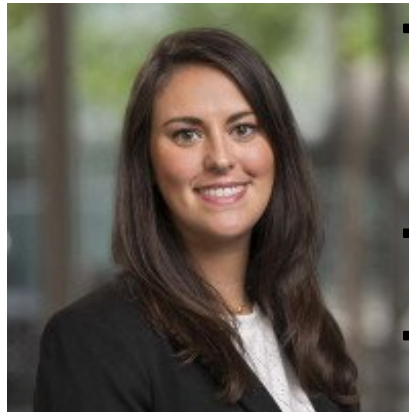
Maya Bagish
Research Technician



Maria Teresa Calvo-Fernandez
Researcher and Leader



Sheng Cai
Assistant Attending



Christine Caprioli
Project Coordinator



Subyeta Chowdhury
NE Student affiliated

Lab
Alumni

Lab Affiliations

Achievements

- Scholar, Leukemia and Lymphoma Society Scholar (2012)
- Louis and Allston Boyer Young Investigator Award for Basic Research, Memorial Sloan Kettering Cancer Center (2011)
- Member, American Society of Clinical Investigation (2011)
- Sir William Osler Young Investigator Award, Interurban Clinical Club (2011)

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](#)

Get in Touch

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Hannah Fay
Research Scholar



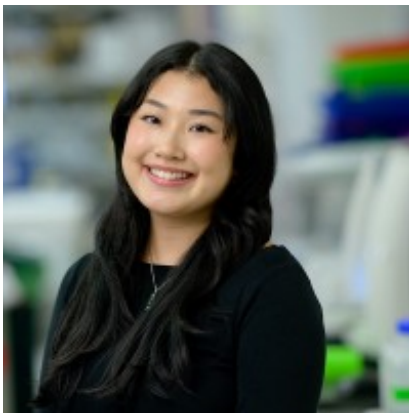
Rebecca Gelfer
GSK Graduate Student



Alexander G. Goglia
Holman Research Pathway
Resident



Amritha Varshini Hanasoge
Somasundara
Senior Research Assistant



Celina Huang
Senior Research Technician



Mahak Kathpalia
Research Technician

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.

Ross L. Levine discloses the following relationships and financial interests:

- Ajax Therapeutics, Inc.



Kaitlyn Ko
Research Technician

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



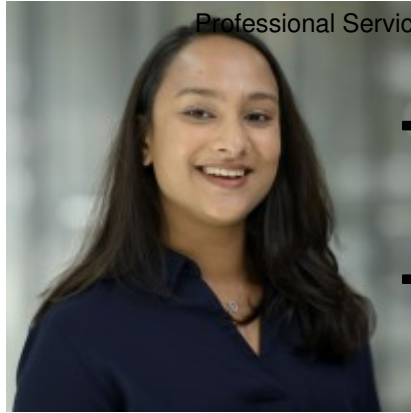
Tatiana Pavletich
GSK Graduate Student

- **Auron Therapeutics, Inc.**
Equity; Professional Services and Activities (Uncompensated)
- **C4 Therapeutics**
Professional Services and Activities
- **Cure Breast Cancer Foundation**
Intellectual Property Rights
- **ECOG-ACRIN Cancer Research Group**



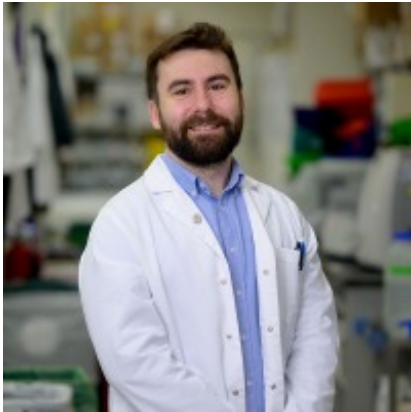
Raajit K. Rampal
Associate Attending

Merve Sahin
Data Scientist II



Aisha Saldanha
GSK Graduate Student

- Professional Services and Activities (Uncompensated)
- **Genome Quebec**
Professional Services and Activities
 - **Goldman Sachs**
Professional Services and Activities
 - **Jubilant Therapeutics Inc.**



Pablo Sánchez Vela
Senior Research Scientist

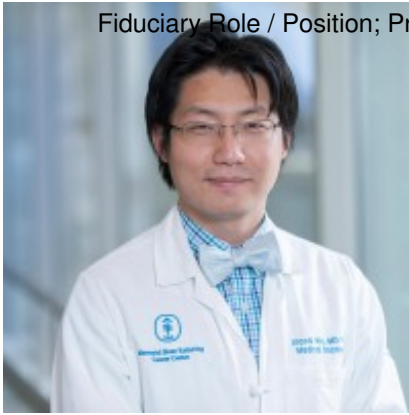


Matthew Wereski
Research Assistant

- Professional Services and Activities
- **Kurome Therapeutics, Inc.**
Equity; Professional Services and Activities
 - **Mission Bio**
Equity; Professional Services and Activities
 - **Prelude Therapeutics**
Equity; Professional Services and Activities (Uncompensated)
 - **Qiagen**
Equity; Fiduciary Role / Position

- **Scorpion Therapeutics, Inc.**
Equity; Professional Services and Activities
- **Stelaxis Therapeutics, LLC**
Equity; Professional Services and Activities (Uncompensated)
- **Syndax**
Equity
- **The Mark Foundation for Cancer Research**

Fiduciary Role / Position; Professional Services and Activities



Xiaodi Wu
Instructor

Vendor/Service

Associate Attending, Zentalis Pharmaceuticals

Equity; Professional Services and Activities (Uncompensated)

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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.

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